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MICRO PHOTO INC
CLEVELAND. OHIO

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME IX.

JANUARY 4 TO JUNE 27, INCLUSIVE,

1876.

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ERRATA.

On page 19, second column, No. **171,694,** first claim, second line, for "on" read *or*.
On page 62, third column, No. **171,938.** *Wrong drawing.*
On page 91, third column, No. **172,191,** in heading, for "same place" read *New Britain, Conn.*
On page 135, third column, No. **172,435,** in heading, after "N. Y." read *assignor to Keran O'Brien, of same place.*
On page 137, third column, No. **172,453,** in heading, after "Thomas" read *Jr.*
On page 165, second column, No **172,603,** first claim, second line, for "flanges" read *plungers.*
On page 172, first column, No. **172,655,** for present claim read—

In combination with a piston or valve, K, intercepting a channel of communication between the working-chambers of a steam and vacuum pump, and with a pipe admitting steam thereto, steamways m m and recesses n n, formed opposite to the valve, in communication with said steam-pipe, to admit pressure therefrom against a portion of that end or face of the valve which may be operated to cut off communication between the steam-pipe and either chamber of the pump, substantially as and for the purpose herein set forth.

On page 188, third column, No. **172,795,** in heading, after "N. Y." read *assignor to George L. Squier, of same place.*
On page 206, second column, No. **3,399,** (trade-mark,) in heading, inventor's name, for "Duser" read *Duzer.*
On page 211, first column, No. **172,820,** in heading, after "Conn." read *assignor to himself and Wilber E. Goodwin.*
On page 219, third column, No. **172,894,** first claim, second line, for "ornamental" read *ornamenting.*
On page 222, second column, No. **172,916,** in heading, after "N. Y." read *assignor to Williams Brothers, of same place.*
On page 239, second column, No. **173,060,** in heading, assignee's name, for "Frendel" read *Freudel.*
On page 261, first column, No. **173,107,** in claim, for "D" read *A*; for "F" read *D*; and for "H" read *I.*
On page 288, second column, No. **173,323,** inventor's name, for "Meucher" read *Mencher.*
On page 333, second column, No. **173,606,** inventor's name, for "Fauckboner" read *Fankboner.*
On page 370, second column, No. **173,796,** add as additional claim:

5. *The yoke Y, when combined with the bed-piece and wooden stock of a hydrant, as shown, and for the purpose specified.*

On page 388, third column, No. **173,942,** in heading, for "Nathan" read *Mathan.*
On page 439, third column, No. **174,265,** add as second claim:

2. *The combination of the handle A, driving-wheel B, connecting-rod J, and slide I, embracing the said handle, as set forth.*

On page 448, first column, No. **174,340,** in heading, for "C. D. Bennett" read *C. E. Bennett.*
On page 450, third column, No. **6,965,** (reissue,) third claim, third line, for "on" read *and.*
On page 462, second column, No. **174,354,** in heading, for "Rockford" read *Rockport.*
On page 472, first column, No. **174,444,** first claim, second line, for "works" read *marks;* second claim, second line, for "*s*" read *p*; for "plate *l* and spring *f*" read *strip e and spring S.*
On page 519, third column, No. **174,756,** in heading, for "Graves" read *Groves.*
On page 549, first column, No. **174,890,** in heading, after "assignor" read *of one-half of his right.*
On page 561, third column, No. **174,995,** in heading, after "N. Y." read *assignor to Herring and Company, of same place.*
On page 562, first column, No. **174,996,** in heading, after "N. Y." read *assignor to Herring and Company, of same place.*
On page 575, second column, No. **175,109,** in heading, after "assignor to" read *himself and.*
On page 576, first column, No. **175,117,** in heading, for "Roman" read *Romain.*
On page 584, first column, No. **175,179,** inventor's name, for "Slawson" read *Slauson.*
On page 587, second column, No. **175,203,** assignee's name, for "Standley" read *Stundley.*
On page 590, third column, No. **175,231,** in heading, strike off assignment.
On page 607, second column, No. **175,290,** after first claim, read—

2. *The combination, in a stamp-canceling, postmarking, or other printing machine, of a type-cylinder, impression-cylinder, one or more tapes or endless belts, one or more of which passes around one of said cylinders, and adapted to feed the article to be printed to said cylinders, one or more intermittently-operated stops arranged by the side of or between said tapes, and an inclined chute placed above said tapes, with its lowest edge at right angles to the line of movement of said tapes, all arranged and adapted to operate as and for the purposes described.*
3. *The combination of one or more tapes or endless belts, P, passing over and around the cylinders C and E, and one or more tapes or endless belts, R, passing over and around the cylinders E and F, with their upper portions in the same plane with the tapes P, all arranged and operating substantially as described.*

4. *An impression-cylinder, made in one piece and adapted to receive the impression directly upon its surface near one end, having that portion of its periphery opposite where the impression is taken out away or made in the form of a segment of a cylinder, in combination with a type-cylinder arranged to revolve in unison therewith, and one or more feed-tapes passing around one of said cylinders, substantially as described.*

5. *In combination with a type-cylinder and*

On page 666, first column, No. **175,669**, in heading, for "D. Putnam" read *J. D. Putnam.*
On page 702, first column, No. **175,839**, in heading, for "New York" read *Brooklyn.*
On page 725, first column, No. **176,020**, in heading, inventor's name, for "Lyon" read *Lyons.*
On page 736, first column, No. **176,104**, in the title, for "for" read *or.*
On page 748, second column, No. **3,581**, (trade-mark,) in heading, for "Boston" read *Lawrence.*
On page 756, first column, No. **176,149**, assignee's name, for "Bonton" read *Bouton.*
On page 763, first column, No. **176,210**, assignee's name, for "Loecker" read *Loecher.*
On page 813, third column, No. **176,535**, in heading, after "to" insert *himself and.*
On page 839, second column, No. **9,270**, (design,) twenty-fifth line, after "to" insert *himself and.*
On page 851, second column, No. **176,795**, in title, for "pump" read *compressor.*
On page 881, third column, No. **7,089**, (reissue,) after claim, read—

2. *A rope trace for harness, having metallic clips attached to it through the media of leather and rivets, in the manner substantially as herein shown and described.*

3. *In combination with the rope trace A, the leather coverings, metallic clips B C E, and the chain D, all arranged as described, for the purpose specified.*

On page 882, first column, No. **7,094**, (reissue,) in heading, for "March 4" read *March* 14.
On page 945, first column, No. **177,457**, in heading, after "assignor to" read *himself and.*
On page 951, first column, No. **177,510**, in heading, assignee's name, for "Obeig" read *Obrig.*
On page 956, third column, No. **177,566**, in first and second claims, for "V V'" read *U U'.*
On page 959, first column, No. **177,589**, in heading, strike off assignee's names and residence.
On page 966, second column, No. **3,698**, (trade-mark,) inventor's name, for "Machin" read *Maclin.*
On page 974, third column, No. **177,643**, in heading, for "Kennett's" read *Kennett.*
On page 988, first column, No. **177,772**, second claim, third line, strike off "of;" ninth claim, sixth line, for "e^x" read V^x; and thirty-third claim, fourth line, for "opering" read *operating.*
On page 1032, third column, No. **177,988**, inventor's name, for "Bjorkman" read *Björkman.*
On page 1052, first column, No. **178,174**, in heading, for "John W. Wheelock, of same place," read *Henry Curtiss, of Brooklyn, N. Y.*
On page 1059, second column, No. **7,149**, (reissue,) first claim, second line, for "beads *b*" read *bead d*; and same claim, third line, for "beads" read *bead.*
On page 1102, second column, No. **178,894**, in heading, for "Forest, Illinois," read *Lincoln, Oregon.*
On page 1130, second column, No. **178,699**, after claim, read—

2. *The combination of the punch A, table B, rolls c c' e e', and appliances substantially as described, for elevating the upper rolls, leaving the sheet unconfined beneath the punch, for the purpose specified.*

3. *The combination of the punch A, table B, rolls c' e', turning in fixed bearings, levers F F carrying the rolls c e, and arms o' o'', for operating said levers, substantially as described.*

4. *The combination of the lower rolls c' e', upper rolls c e, carried by levers F F, and the appliances, substantially as described, for raising and retaining said levers independently, and releasing them by a single movement of the hand, as set forth.*

5. *The combination of the punch, table, feed-rolls, driving-shaft, connected to and operating the punch, stud u, carried by a disk on said shaft, and wheel E, gearing with the rolls, and carrying studs v, substantially as specified.*

On page 1165, first column, No. **3,799**, (trade-mark,) in heading, for "April 29" read *May* 1.
On page 1175, first column, No. **178,911**, in heading, for "same place" read *Cornwall on the Hudson, N. Y.*
On page 1180, third column, No. **178,971**, in title, for "Swinging Berths" read *Oscillating Furniture.*
On page 1186, second column, No. **179,018**, third claim, first line, for "vitalizing" read *utilizing.*
On page 1223, first column, No. **179,271**, third claim, fourth line, for "belt" read *bolt*; and same claim, sixth line, for "enable" read *enables.*

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NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

COMMISSIONER'S DECISIONS.

STEPHEN HULL.—*Motion to issue.*

[*In the matter of the application of Stephen Hull for Letters Patent for an* "IMPROVEMENT IN HARVESTER-CUTTERS," *filed March* 1, 1869.—*Decided December* 9, 1875.]

Abandonment of the *invention* has always been a question of *fact*, to be proven by indubitable evidence. The case of *McMillen* vs. *Barclay*, 5 Fish., 169, cited as analogous to the present one, both in fact and principle.

The powers and jurisdiction of the Board of Examiners-in-Chief reviewed.

The order of the Commissioner suspending action upon the case is not a final adjudication of the same, but, on the contrary, implies farther action.

STATEMENT OF CASE.

[Hull filed an application for a patent September 25, 1856, which was rejected the same year and withdrawn in 1858. June 24, and December 13, 1862, he filed new applications, claiming the same device, was rejected, the objectionable claims erased, and the patents granted. March, 1863, filed another application, in aid of the former, which was granted, some of the features of the objectionable device being shown, but not claimed March 1, 1869, filed present application as a continuation of his application of 1856. Rejected, not for lack of novelty, as before, but on the ground that the previous patents to Hull, and one to another person of subsequent date, showed the device, and was therefore evidence of more than two years public use before the present application.

Appeal taken to the Examiners-in-Chief, who reversed the decision of the Primary Examiner. Case passed to issue, numbered and signed by Acting Secretary of the Interior and the Commissioner.

April 14, 1870, further action suspended by order of the Commissioner. Various efforts made from that time to this to obtain revocation of said order. After a review of the entire case the order is now revoked: *Held*, that previous to the act of 1870 there was no limitation of time prescribed by law for the prosecution of an application within the Office, and since said act such delay may be excused by satisfactory proof.]

DUELL, *Commissioner:*

Applicant moves that the "suspended letters patent of Stephen Hull, for improvement in harvester-cutters, be issued."

I find that the following are the facts in the case:

Hull filed an application for a patent for this device September 25, 1856, which was the same year rejected by the Primary Examiner for want of novelty. September 25, 1858, he withdrew his application, and received back his fee of $20. He did nothing further until June 24, 1862, when he filed a new application, embracing and claiming this device among others. The claim for this device was rejected by the Examiner, for the same reason as before, and that claim was then erased and a patent issued for the remaining devices. December 13, 1862, he filed another application, again embracing and claiming the device in question, with other devices. The Examiner repeated his former action, the claim for the device was eliminated, and a patent issued for the remaining ones.

In March, 1863, he filed an application in aid of his prior one, upon which a patent was granted the same year, after rejections and amendments, leaving, however, some of the features of this device shown and described, but not claimed.

March 1, 1869, the application on which this motion is based was filed. The applicant therein alleges,—

This application is a renewal of my application filed September 25, 1856, and erroneously rejected December 20, 1856, the model of which I desire to be applied to this application.

The Primary Examiner did not renew the objection

that the device lacked novelty, but rejected the application on the ground of public use of the invention for more than two years prior to the filing of the present application. The language of the letter of rejection (March 17, 1869,) is as follows:

> The application above referred to has been examined. The fact that the devices and combinations claimed are found in such patents as that of L. G. Kniffen, (harvester-cutters) April 12, 1864, (to say nothing of applicant's own patents of December 2, 1862, and August 4, 1863, which exhibit some of the features claimed,) is evidence that they have been in public use, for more than two years, with his knowledge and consent. A patent is, therefore, necessarily refused.

This action having been subsequently repeated at greater length, the applicant appealed therefrom June 1, 1869, to the Board of Examiners-in-Chief.

August 27, 1869, the Examiners-in-Chief reversed the action of the Primary Examiner, holding substantially that under the law the fact of abandonment of an invention by public use, or otherwise, was a question of fact, and that, in view of the persistent efforts of Hull to obtain a patent from the time of the filing of his original application in 1856, and in the absence of any direct evidence of abandonment on his part, the fact was not proved.

The attention of the Commissioner having been called to the decision of the Examiners-in-Chief, he made the following reference to the Chairman of the Board, September 4, 1869:

> The opinion of the Board of Examiners-in-Chief is referred to S. H. Hodges, Esq., for report as to whether the same is in conformity with the decision of the Commissioner in the case of John W. Cochran, *ex parte*, dated June 9, 1869.

Mr. Hodges, who had dissented from the opinion delivered by a majority of the Board, reported that, with the exceptions of the length of time intervening between their respective applications, the number of patents that had been granted embodying Cochran's invention between his first and second application, and the fact that Cochran had taken no steps with his invention during the interval, while Hull had filed two other applications, the cases were closely parallel, and should have met with the same determination. Whereupon the Commissioner referred the case back to the Examiners-in-Chief for re-examination, "in the light of the decisions of the Commissioner in John W. Cochran, *ex parte*, and John W. Orr, *ex parte*." (See Commissioners decisions for June and July, 1869.)

The Board adhered to their former decision.

The application then went forward to issue, the title to letters patent were made out, giving the number of the patent, No. 94,826, containing the name of the grantee, the terms of the grant, the date of the same, (September 14, 1869,) and was signed by W. T. Otto, Acting Secretary of the Interior, and Samuel S. Fisher, Commissioner of Patents. All that remained to be done was to affix the seal of the Office thereto, annex the title to the specification and drawing, and formally deliver the same to the grantee.

In the meantime a motion had been made and argued before the Commissioner, to grant the patent on the first decision rendered by the Examiners-in-Chief. This was denied September 15, 1869, and the case suspended until the decision of the Board, on their re-examination, should be rendered.

The decision of Commissioner Fisher denying the motion is contained in Commissioner's Decisions for 1869, p. 68. This motion was afterward renewed September 20, 1869. April 14, 1870, the Commissioner placed the following written order on file:

> Further action in this case is suspended until the further order of the Commissioner.

The motion to issue was renewed September 2, 1870, December 14, 1870, and December 23, 1870. The prosecution of the application within the office then ceased, until February 11, 1874, when a reconsideration of it by Commissioner Leggett was asked for. He declined for two reasons, as follows:

> First, my predecessor had evidently deliberately decided that a patent could not be granted, and, under the practice in all the departments, which, if not statutory, has the force of law, I am not at liberty to review his decision; and, second, the delay of nearly four years between the last action of my predecessor and the filing of the present request for reconsideration works abandonment under existing statutes.
>
> Upon an examination of the merits of the case, I am inclined to the belief that there are no equities in the case that should lead to any forced construction of the statute in favor of the applicant, for I believe the decision of the Examiner was correct, and that the Board ought to have decided differently.

April, 2, 1874, applicant filed a petition for a writ of mandamus against the Commissioner, and an order was granted to show cause. The majority of the court held, upon the hearing, that a mandamus would not lie to compel the Commissioner of Patents, against his judgment, to issue a patent in a case where the Board of Examiners-in-Chief had rendered a decision in favor of the applicant. It was also stated that the proper remedy was by a bill in equity, as provided by the statute. At the succeeding term the case was reheard, and the former decision was affirmed. These decisions are recorded in 7 OFFICIAL GAZETTE, 559, and 8 OFFICIAL GAZETTE, 46.

The present motion was filed October 29, 1875, and referred to the Examiners-in-Chief for a report of the facts and their opinion. They have submitted their report, which concludes by saying, "we know of no good reason or excuse for not delivering the patent." This completes the history of the case up to the present time.

Recognizing the force of the decision of the court, as above referred to, I am still of the opinion that it is only with great caution that the Commissioner should exercise the authority, which the court decided he possesses, of withholding a patent after a decision of the Board of Examiners-in-Chief in favor of the applicant.

The Board is a tribunal composed of persons appointed by the President and confirmed by the Senate, whom the law requires to be of competent legal knowledge and scientific ability, whose duties the law also prescribes, the nature of which are chiefly, if not entirely, judicial.

It is well known that the purpose of the creation of such a tribunal was to relieve the Commissioner from the determination of a vast number of questions, which, although vital to the rights of the parties, it was impossible, by reason of their multiplicity, and his other numerous duties, for him to consider. To facilitate this purpose, a course of appeals was provided for, from the Primary Examiner to the Board, and then from the Board to the Commissioner. This revisory power, on the part of the Commissioner is limited to the adverse decisions of the other tribunals, except so far as it may be necessary to exercise it under that section of the law prescribing that "the Commissioner of Patents, under the direction of the Secretary of the Interior, shall superintend or perform all duties respecting the granting and issuing of patents directed by law."

The act of 1861, in operation at the date of the order of suspension of this application required, "that the said Examiners-in-Chief shall be governed in their action by the rules to be prescribed by the Commissioner of Patents." This, and the further requirement that they should perform "such other duties as may be assigned them by the Commissioner," were construed by Commissioner Fisher as giving to the Commissioner full power of revision over all actions and decisions of the Board—favorable and unfavorable.

These particular provisions were omitted from the act of July, 1870, and the Revised Statutes, and it is quite clear to me, by such omission, that it was the intention of Congress that the general ministerial power of the Commissioner should no longer be used to arbitrarily control the judicial actions of the Examiners-in-Chief. Independent of the Commissioner in their office, and constituting a separate judicial tribunal created by law, they appear to me to be vested with the right of exercise of an independent judgment.

The law prescribes that their duty "shall be, on the written petition of the appellant, to revise and determine upon the validity of the adverse decisions of Examiners upon applications for patents, and for reissues of patents, and in interference cases."

In these matters they are not simply to "hear and report," as the law requires them to do upon claims for extensions, but the language used is such as is usually employed in speaking of a final adjudication; and this view is strengthened by the fact that an express provision is made for an appeal from their adverse decisions to the Commissioner in person.

There may, at times, arise matters affecting the issue of a patent in a ministerial sense, such as a failure on the part of an applicant to perform some of the many prerequisites to the grant of a patent, which the law prescribes, or some act of fraud on the part of the applicant, or some official within the Office, which may come to the knowledge of the Commissioner, even after a favorable decision of the Board, or at any other time before delivery of the same to the grantee; or facts may arise essential to the validity of a patent that were not before the Board at the time of their consideration of the case, or which they inadvertently overlooked. In all such cases, it is clearly the duty of the Commissioner to withhold the patent altogether, or until the matter is satisfactorily determined.

But as to matters of fact constituting the subject of appeal to them, of which they have full knowledge, and concerning which there is no question as to their jurisdiction, it must be, as already intimated, a very grave mistake, in fact or law, that will justify the Commissioner in interposing his executive authority to impugn their action.

The relation which the Board bears to the Commissioner, and the extent of their duty in consideration of that relation, are well stated in the following paragraphs, in their review of the matter upon the reference of Commissioner Fisher:

> The Board fully recognize, as they ever designed to do, that the decision of the Commissioner on all points properly and legitimately before him, are controlling and binding in the individual cases wherein they are made, and are to be treated as deservedly high authority in all other cases where the facts are so nearly analogous as to make such decisions applicable and pertinent.
>
> But the law also contemplates that each member of the Board shall exercise private judgment within the scope of the jurisdiction conferred, not only in the light of the decisions of the Commissioner, but in the enjoyment of whatever other light they may be able to obtain from other sources, including the laws of the land and the decisions of the courts. * * * * Nevertheless, should the Board make any mistake of fact or law, which should lead to an erroneous decision, in a case not cognizable by the Commissioner on appeal, it should be their grateful duty to correct the same at any time before it has gone beyond their control, no matter from what source the suggestion of error may come.

My predecessor, Commissioner Leggett, declined to review the action of Commissioner Fisher in this matter, for the reason, first, that it was opposed to the established practice of all the departments for a succeeding officer to review the decisions of his predecessor. I acknowledge the force of the rule in those cases where a final adjudication upon all the facts has been had. An order, however, suspending a case until further orders, is not a final adjudication, but is directly the reverse, and necessarily implies that further action is to be had. This is the condition of this application. Nothing has been done by the Office since the order of suspension of April 14, 1870, but a refusal to disturb it.

The second reason assigned for refusal to take up the matter was, that nearly four years had passed from the date of the order of suspension until the request for reconsideration was filed.

This objection, no doubt, was based upon Sec. 32 of the act of 1870, which requires that all applications shall be prosecuted within two years after the last action thereon of which the applicant has been notified, or be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner that such delay was unavoidable.

Now, it has been shown, in this case, that applicant, from April to December, 1870, made repeated attempts to have his application again taken up by the Office, and that, failing therein, he immediately sought the aid of Congress and prosecuted the matter there, with partial success, for two succeeding sessions, before returning to the Office. This, in my opinion, amounted to a prosecution of the application within the two years prescribed by law; but, if not so, was satisfactory proof of non-abandonment of his application.

After the action of Commissioner Leggett, in the early part of 1874, applicant sought the aid of the courts, and, by his pertinacity, succeeded in obtaining two hearings, at successive terms, upon his suit. Whatever, then, may have been the delay prior to 1870, I think no lack of diligence can be imputed to him since that date.

In view of all the circumstances of the case, then, I feel myself at liberty to inquire into the justness of the order of April 14, 1870, by which this matter remains suspended.

Prior to the act of 1870 there was no law requiring that an application should be *prosecuted* within a certain time after an action thereon by the Office, or else be regarded as abandoned. The act of 1861 required that an application should be *completed and prepared for examination* within two years after the filing of the petition, &c.; but there was nothing to prevent the renewing of an old application, no matter how many years it had been filed, if, in the meantime, patents had not been granted for the same invention, or it had not been abandoned to the public by the inventor.

As has already been stated, the application of Hull, now under consideration, filed in March, 1869, was re-

jected by the Primary Examiner on the ground that the patents granted to Hull himself, December 2, 1862, and August 4, 1863, "exhibiting some of the features now claimed," and the patent of L. G. Kniffen, of April, 1864, were, in themselves, evidence that the invention had been in public use for more than two years prior to the filing of his present application, *with his knowledge and consent.*

Hull had been compelled to cancel and erase from his applications of 1862 and 1863 the precise subject-matter of his application of 1856 and of the present one, and Kniffen had been put in interference with Hull on other matter than this particular device; but so far as that matter was concerned, and so far as it related to the device in question, priority was declared for Hull. The matter of these references then, instead of showing abandonment on the part of Hull of his invention to the public was the very best evidence of his intention to protect himself in his rights. His application of 1869 was, at least, the fifth time he had come to the Office within thirteen years, and the time covered by the various actions of the Office upon each of those efforts to sue out his patent, the rejections, the renewals, the appeals, the withdrawals, and their continuous repetition left but comparatively short intervals of rest. Finally, the Office, by ceasing to urge the objection of want of novelty, tacitly acknowledged that all these delays had been its fault and not the fault of the applicant. To say that the applicant should have carried the matter to the courts does not excuse the fault of the Office; nor was it at that time any omission of a prescribed duty on the part of the applicant, as it has already been shown that no time in which to *prosecute* an application had been required by law.

This was the state of facts found by the Board in their first decision. In addition thereto they had the sworn statement of Hull setting forth his intention not to abandon his invention to the public, his struggles to obtain a patent against the obstacles of poverty, and the greater ones thrown in his path by the Office.

The decisions of the courts are too numerous and well known to require citation establishing the doctrine that in all cases abandonment of an invention is a question of fact, which can be established only by clear and unquestionable proof, and it is seen that the proof adduced against Hull was not of this character.

Commissioner Fisher referred the case back to the Board for review in the light of the Cochran and Orr cases (C. D., 1869, 30, 33.)

In his opinion in the former case he thus states the question to be decided:

> Can an inventor withdraw his application, make no effort to renew it for eight years, during which time the subject-matter of the invention has been incorporated into the substance of many subsequent inventions, and then file a new application and obtain a patent, which, to support the novelty of the invention, shall relate back to the first application?

In the Orr case it was stated as *conceded* "that all the devices specified as new, and as the applicant's inventions had been in public and notorious use for years before the filing of the petition."

I fail to see any mistake on the part of the Board in holding that these cases were not at all analogous to the one under consideration.

A truly analogous case arising under the same law is that of *M'Millen* et. al. vs. *Barclay* (5 Fisher, 189.) M'Millen applied for a patent July 23, 1855, and in August of the following year it was finally rejected on appeal to the Commissioner. In 1865 he filed another application in aid of the first, which was at first rejected, but upon amendment limiting it to narrower grounds a patent was granted in 1866. In 1867 he renewed his original application, upon which no action had been taken since 1856. The Office revoked its former action and a patent was granted him the same year. One of the pleas of the defense was that this lapse of time was evidence of the abandonment of the invention.

I cite the views of the court quite at length, as they correspond to those set forth by the Board, and are a justification of their action.

> Nor has the second branch of the defense, that the invention was actually abandoned, any better foothold. This must result from the intention of the patentee, expressly declared, or clearly indicated by his acts. There is certainly no evidence in the case of any express declaration of the patentee to that effect, and, if the lapse of years between the date of his application and of his patent, and his own conduct, can be fully explained upon any other hypothesis, they ought not to be imputed to an intention on his part to abandon his invention. The proof of actual abandonment, after application filed, ought to be indubitably clear. It ought not to rest upon doubtful or disputable inferences. During two years, before he applies for a patent, an inventor may publicly sell and use his invention without any presumption of abandonment. Upon what reason then should he be regarded as having given up his invention to the public merely because a public officer has repeatedly denied his application for a patent, and the recognition of his right has thus been delayed for years, when he was powerless to prevent it? By the application filed in the Patent Office, says Mr. Justice Grier in *Adams* vs. *Jones*, (1 Fisher, 527,) "the inventor makes a full disclosure of his invention, and gives public notice of his claim for a patent. It is conclusive evidence that the inventor does not intend to abandon it to the public. The delay afterward interposed, either by the mistakes of the public officers or the delay of courts, where gross laches cannot be imputed to the applicant, cannot affect his right."

If an inventor has furnished, by his application for a patent, conclusive evidence that he does not intend to abandon his invention to the public, the disproof of this intention ought to be, by evidence, of equal weight and significance. The proof in this case falls far short of that standard. Indeed, if the applicant was required to disprove an imputation of only sluggish diligence, the records of the Patent Office would more than meet such a demand. His application twice rejected and as often renewed; appeals taken to the Board of Examiners and to the Commissioner of Patents; a new application filed in aid of his first; this one twice rejected, and as often renewed; an appeal and final rejection; another application limited to the combination of mechanical devices described in his first application; its rejection and renewal under an amendment of his specification, and the grant of a patent upon it; then a revival of his old application, accompanied by satisfactory proof that he had not abandoned his invention; and some time after followed by a decision in his favor and the issue of a patent. So far, then, from showing gross laches, this is a record of unexampled tenativeness, in the face of repulses by which most men would have been thoroughly disheartened. Not so the applicant here, but each failure only brought into stronger light the fixed purpose and unrelaxing diligence with which he sought to secure the recognition of his rights. He was not only a persistent but an importunate solicitor, and to his importunity was largely due the ultimate result in his favor. Now, as the delay of the decision in his case is all that remains touching his alleged laches, it is hardly necessary to add that it is not to be imputed to him, because he did all he could to prevent it, but that the responsibility for it rests solely with the Patent Office.

After a careful consideration of all the facts and the law applicable to this case, I am convinced, as the court was in the case just cited, that the alleged laches of the applicant consist entirely in the delays imposed by the action of the Office, and for which the Office was solely responsible.

I cannot consent that the Office should labor any longer under such a load of questionable responsibility, and I therefore revoke the order withholding the issue of this patent, and direct that the same be issued and delivered without further delay.

GEORGE CROMPTON.—*Appeal.*

[*Appeal from the Examiner-in-Chief in the matter of the application of George Crompton, for letters patent for an* "IMPROVEMENT IN LOOMS."—*Decided January* 13, 1876.]

An applicant for patent is not barred from prosecuting his application by reason of a previous application made by him for the same invention, and abandoned under operation of the second proviso of the 35th section of the act of 1870.

The effect of that section was only to sever all connection between the original and new application, so that the original application could not be relied upon to sustain the patent in the event of two years' public use prior to the new application.

SPEAR, *Acting Commissioner:*

It appears from the record that the applicant in the present case filed an application in 1868 covering substantially the same invention as that which is now the subject of the present application. This application is rejected substantially upon the ground that an abandonment of the original application, by operation of the statute, was an abandonment of the invention.

The decision of the Board in this case was *pro forma*, and accompanied by an expression of their opinion that the section referred to by the Examiner would not bear the construction put upon it. But the decision was made in compliance with the opinion of the Commissioner, which had been previously expressed in this case, when it had been brought informally before him prior to the appeal to the Examiners-in-Chief. The opinion of the Commissioner, Mr. Thacher, was embodied formally in a subsequent decision in the case of Andrew Mills, (OFFICIAL GAZETTE, Vol. 7, p. 961.)

It is not without hesitation that I depart from the action of my predecessor in the Mills case, and I should avoid the duty and suffer the case to be taken on appeal to the Supreme Court of the District of Columbia were my convictions less strong than they now are, and were it not also that the decision in this case affects, or may affect, a comparatively large class of cases.

The action of the Office in the former case was based upon a construction of the 2d proviso of the 35th section of the act of July 8, 1870. The language of the second proviso of that section is to the effect that—

> When an application for a patent has been rejected or withdrawn, prior to the passage of this act, the applicant shall have six months from the date of such passage to renew his application or file a new one, and if he omit to do either his application shall be held to have been abandoned.

The language of the statute, it is to be observed, is that the *application* shall be held to have been abandoned. In order to cover the action of the Office, the construction put upon these words was more than that of the ordinary meaning of the terms, and it was held that the word "application" in this case included more than the papers filed in the case, and the proceeding based upon the petition, and covered that which these papers represented, namely, the invention for which the applicant petitioned, the issue of the patent.

The inference drawn from the language of the statute was this: Since it was provided that the applicant, in the class of cases specified, should have six months in which to renew his application or to file a new one, and that in the event of failure to do either the application should be held to have been abandoned, it was concluded by the Commissioner that no new application was contemplated by law as permissible, and that the section operated as a statute of limitation, certain time being allowed in which applicant could assert his rights to the invention, and beyond which he could not go in such assertion. The language of the statute is not, perhaps, in this respect as clear as might be, but in the interpretation of it regard must be had to the general spirit and tenor of the law. Now, if there be any one principle more prominent than all others in the American law relating to patents, it is that a patent shall be granted to the original and first inventor.

This may be said to be the fundamental principle on which the law is based. It is thus that encouragement was given as contemplated in the constitution to the useful arts and sciences, and it is by this strong and wholesome stimulus that great advances have been made in the mechanical arts since the inauguration of the present system.

But the construction put upon the statute by the action now under consideration is in plain and direct opposition to this spirit of the law. For, under the law as interpreted by the Supreme Court, in the case of *Brown* vs. *Guild* and *Selby*, (OFFICIAL GAZETTE, Vol. 6, p. 392,) a rejected and abandoned application is no bar to the issue of a patent. It follows, therefore, that the application of Crompton, for instance, rejected in 1868, and unquestionably abandoned by operation of the statute, would be no bar to the issue of the patent to any other party making subsequent application. But Crompton's new application is refused on the ground that he has abandoned the invention. So that in the present attitude of the Office its policy would be to issue a patent under the circumstances described to any other party who might make application, excepting the original and first inventor. This attitude is so inconsistent with the law, and the contradiction is so strong and striking that it seems eminently proper to inquire if some other interpretation may not be put upon the statute to make the whole more harmonious, without doing violence to the language of any section.

The second proviso of the 35th section, quoted above, requires an applicant, when his application happens to have been filed prior to the passage of the act of July 8, 1870, to renew the old application, or file a new one, within six months after the passage of the act; and, in the event of his omission to do either, it prescribes that his application "shall be held to have been abandoned." The simple question to be considered here is, whether this word "application" in this connection is synonymous with the word invention, or whether it has the entirely distinct and different meaning which it undoubtedly has in other connections in the same statute. The word is frequently used in other sections in the patent law, and in no one of them has it the

meaning which has been assigned to it in this place, and which would make it synonymous with the word invention.

Sec. 488 requires that before an inventor or discoverer shall receive a patent to his invention or discovery he shall make application therefor in writing to the Commissioner of Patents, the word in this section evidently referring simply to the petition and the papers that accompany it. The same word is used in precisely the same sense in sections 4893 and 4894, and in many places in the statute.

This application is simply a formal request to the Commissioner, and is accompanied by certain papers, description, and drawing, and in most cases by a model. It is not of the nature of property, but is simply a proceeding made in accordance with the requirements of law for the purpose of obtaining the protection of the Government for the exclusive use of the invention alleged to have been made by the applicant, which invention, if he be the original and first inventor, is his property.

Now, when an invention is abandoned, it becomes the property of the public. The abandonment of an application is simply a discontinuance of the proceeding. No two things can well be more distinct in their natures than an invention and an application, by which the party seeks the protection of the Government in the exclusive use of it.

It has always been held under the law that an abandonment of an invention divested the inventor of all right of property in it finally and forever. It has never been held, under the law as it existed prior to the act of 1870, that an abandonment of the application disqualified the applicant in any respect from making a new application for the same invention, any more than the dismissal of a suit prevented it from being renewed on leave, or commenced *de novo*.

If the word application, in the proviso under consideration is used in its ordinary sense, then the applicant does not lose his inchoate right, but must simply commence *de novo* in order to perfect that right. If it mean invention, then all his rights in the matter are lost. Such a construction of the statute, therefore, which would render the abandonment of the application equivalent to an abandonment of the invention, would have the effect to enlarge the scope of the statute so as to work a forfeiture of the rights of property in cases where it would work no such forfeiture when the word "application" is given its ordinary meaning and used in the same sense in which it is used repeatedly in other parts of the same statute. Such a construction is not in accordance with the ordinary rules of interpretation. "A power derogatory to private property must be construed strictly." (Dwarris on Statutes, 257.) "Penal statutes must be strictly construed." (Id., 245.)

Laws are construed strictly to avoid a penalty; they are construed liberally to give a remedy, or to carry into effect an object declared in the law. But if a court, by construction, add an object not so declared, apply the penal provision of the law to a case not within its definition, or exclude from the remedy provided a case defined, it is judicial legislation of the most odious kind, necessarily retrospective and practically *ex post facto*. (*Whitney* vs. *Emmert*, Baldwin, 316.)

To this may be added another rule of construction that the words of the statute must be presumed to mean something and must be given their proper effect as words. There is great danger in departing from the words. (*Dean* vs. *Reid*, 10 Peters, 527.) Courts must give effect to the words, if possible. (Dwarris on Statutes, 188, 193, 196, 200 and 203.) The best rule is to abide by the words which the law-maker has used. (*United States* vs. *Erwin*, 5 McLean, 178.) Such a construction, therefore, as would make the word "application" in section 35 of the Act of July, 1870, include the invention, would be to construe a penal statute liberally; "to add an object not so declared in the law;" to apply the penal provision of the statute to a case not within its definition; and all this, in my judgment, not only without any requirement of other sections of the law, but simply to the effect of rendering the section, so interpreted, inconsistent with the general spirit and tenor of the law. This inconsistency is manifest also in this respect, that, following, as the Office does, the decisions of the Supreme Court in the case of *Brown* vs. *Guild* and *Selby*, it is required, by this interpretation, to make an exception which the court did not make in that case, and to refuse a patent to the party who appears to be the first inventor, while standing ready to grant it, for the same invention, to any other party.

Further than this, it assumes that to be an invention for the purpose of defeating this first applicant which is not held to be an invention for any other purpose whatever. In the case last referred to, it was set up as a part of the defense that the invention covered by the patent of the complainant Brown had been publicly used by Remy & Kelly prior to the invention thereof by Brown. This use was held by the court to be merely experimental and the alleged invention—an abandoned experiment; and the court further held that the abandoned application could not take the case out of the category of abandoned experiments. If an abandoned application can add nothing to an abandoned experiment it is difficult to see how it could have any effect whatever, or could confer anything upon the public, or take away anything from the applicant.

An abandoned invention is a bar to the issue of a patent to any subsequent inventor, because by the act of the original inventor the public is already put in possession of the invention, and the subsequent inventor has no benefit to confer as an equivalent for the protection and exclusive use which a patent gives. An abandoned experiment gives nothing to the public, and is in consequence no such bar; still less does an abandoned application confer anything upon the public, and there seems to be no reason for making an abandoned application work a greater forfeiture of rights to an applicant than an abandoned experiment would. For it would not be for a moment supposed that any experiment which an inventor might have made and abandoned in any former time would be a bar to the grant of a patent, or in any respect tend to invalidate a patent which he might subsequently obtain for the invention previously experimented upon.

My view, therefore, of the 35th section is that the same interpretation is to be put upon the word "application," in the second proviso thereof, as the word bears in other parts of the statute. This interpretation does not by any means leave the proviso of the section meaningless, or without force; on the contrary, its plain and obvious meaning is important and wholly beneficial in effect. Prior to the passage of this act there was nothing in the law limiting the continuance of an application in any respect, and it was no uncommon practice in the Office to allow an application which had lain dormant for a series of years to be renewed. Patents were not infrequently issued upon such applications, and the effect was that inventions which might have been for years in public use by parties who had no notice of any application pending in the secret archives of the Office, could suddenly be monopolized under valid patents. For, although the public use might have been long continued before the issue of the patent, it might still be antedated by the filing of the application on which the patent was issued.

Thus, on the one hand, innocent parties using an invention deemed public property, and investing their capital therein, might be embarrassed by the tardy assertion of the rights of the inventor. On the other hand inventors practically had an unlimited time in which to bring their inventions into notice before the patent therefor took date; thus in effect adding to the life of a patent beyond the term provided for in the statute.

When the act of 1870 was passed there were in the archives of the Office a large number of such applications. The effect of the statute has been to sever all connection between such applications, not renewed as required by the law, and any subsequent application which might be made for the same invention; so that if two years public use had intervened, a patent issued on an application subsequently filed could not be sustained by any reference to the original application. In this light the intention and the beneficial effect of the proviso are plain. Not to cut off parties in too summary a manner, the law allowed six months in which applicants having these pending applications could renew them and ascertain their rights under them. Omitting to do this, then these applications were declared to be abandoned. They thus became absolutely extinct, of no force, and as if they had never been filed.

This I regard as the whole effect of the statute. It is reasonable, beneficial, and consistent with the law. The construction which would include the invention appears to me unnecessary, harsh, inconsistent with the spirit and tenor of the law, and detrimental to the rights of inventors.

I must, therefore, reverse the *pro forma* decision of the Board, and direct that the application, the proper fees having been paid and the law in other respects complied with, be examined upon its merits, without any regard to the abandoned application filed by Crompton in 1868.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 4, 1876.]

8,884.—Sewing-Machine Attachments.—HARRY C. GOODRICH, Chicago, Ill. Application filed December 10, 1875. Term of patent 7 years.

8,885.—Breastpin.—WILLIAM H. HALSEY, Newark, N. J. Application filed December 16, 1875. Term of patent 3½ years.

8,886.—Bonds.—MORRIS F. BELL, Fulton, Mo. Application filed December 11, 1875. Term of patent 3½ years.

8,887.—Coffin-Plates.—RUSSELL H. BURR, West Meriden, Conn., assignor to G. ROGERS & BRO., same place. Application filed November 30, 1875. Term of patent 7 years.

8,888.—Watch-Plates.—ALBERT H. POTTER, Chicago, Ill. Application filed October 11, 1875. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 4, 1876.]

3,288.—Blacking and Leather-Dressing.—B. F. BROWN & Co., Boston, Mass.—Case A. (Re-registration.) Application filed July 18, 1871.

"words 'Army and Navy Blacking,' arranged in a circle, with the words 'made by B. F. Brown and Co., of Boston,' in the space inclosed by said words 'Army and Navy Blacking.' B B, two stars, located as shown."

3,289.—Blacking and Leather-Dressing.—B. F. BROWN & Co., Boston, Mass.—Case B. (Re-registration.) Application filed July 18, 1871.

"words 'Chirage Francais, or French Dressing,' to which are added the words 'for Ladies' and Children's Boots and Shoes, Trunks, Harness, Carriage-tops, &c.'"

3,290.—Blacking and Leather-Dressing.—B. F. BROWN & Co., Boston, Mass. (Re-registration.) Application filed July 18, 1871.

"words 'Brown's Satin Polish,' inclosed within an ornamental circular border, B, to which are added below the words 'for Ladies' and Children's Boots and Shoes, Traveling-Bags, Trunks, &c.'"

3,291.—Umbrellas.—DAWES & FANNING, New York, N. Y. Application filed June 15, 1875.

"word 'ECLIPSE.'"

3,292.—Medical Preparations.—DUNDAS DICK & Co., New York, N. Y.—Case A. Application filed November 30, 1875.

"letters and character as follows, to wit: 'D. D. & Co.'"

3,293.—Capsules and Medical Preparations.—DUNDAS DICK & Co., New York, N. Y.—Case C. Application filed November 30, 1875.

"word 'Casulet.'"

3,294.—Shoe, Boot, and Corset Laces.—FLETCHER MANUFACTURING COMPANY, Providence, R. I. Application filed December 9, 1875.

"the trade-mark resides in the border, which is composed, as above described, of one or more tipped lacings arranged in any desired form."

3,295.—Watches and other Time-Pieces.—JOHN GORDON, San Francisco, Cal. Application filed October 23, 1875.

"word 'Hermetic.'"

3,296.—Medical Preparations.—WILLIAM J. GRIFFITH, Youngstown, Ohio. Application filed August 9, 1875.

"words 'J. W. Griffith, M. D., & Co.,' 'Tra Mor Tavason Remedies,' and 'Tra Brython Grangers' Greenback Oil.'"

3,297.—Starch.—R. JOHNSON & SON, Madison, Ind. Application filed October 25, 1875.

"an Indian head and shoulders (male or female) inclosed in a circle, with an open ear of Indian corn in the shank on the lower outer edge of the circle, and on each side thereof."

3,298.—Cigars.—WILLIAM A. ABBOTT, Westfield, Mass. Application filed December 27, 1875.

"words 'LA PICCADURA.'"

3,299.—Carpenters' Planes.—LEONARD BAILEY, Hartford, Conn. Application filed December 11, 1875.

"word 'VICTOR.'"

3,300.—Writing and Copying Ink.—AUGUSTE BOISSAC Paris, France, assignor to VICTOR E. MAUGER, New York, N. Y. Application filed December 20, 1875.

"words 'Encre Francaise,' in connection with a monogram formed of the letters 'A. B.'"

3,301.—Tobacco.—BROWN & BROTHERS, Mocksville, N. C. Application filed December 18, 1875.

"representation of a Spanish bull-fight, by a female figure mounted on horseback and attacking the bull."

3,302.—Silk and Mohair Braids and Bindings.—INDUS BRUN & Co., St. Chamond, France. Application filed December 18, 1875.

"representation of a leopard rampant regardant, that supports a shield with the initial letters 'I. B. & Cie' placed thereon."

3,303.—India-Rubber Boots and Shoes.—L. CANDEE & Co., New Haven, Conn. Application filed December 21, 1875.

"word 'KEYSTONE.'"

3,304.—Boots and Shoes.—COPELAND, RYDER & Co., Jefferson, Wis. Application filed December 29, 1875.

"words 'The Jefferson Boot' and the circle below, containing the shoemaker's hammer and awl."

3,305.—Acetic Acid.—FRANCIS COUTTS & SONS, Glasgow, Scotland, and London and Manchester, England. Application filed November 27, 1875.

"representation of a cloud emitting rays, the globe with the central band, and the words 'Auxilio Divino.'"

3,306.—Silk and Worsted Goods.—DALE MANUFACTURING COMPANY, Paterson, N. J. Application filed September 17, 1875.

"representation of a stag's head above a heraldic bar."

3,307.—Cognac, Wines, and Olive-Oil.—SEIGNOURET FRÈRES, Bourdeaux, France. Application filed December 27, 1875.

"a central diamond, within which the capital letters 'F. S.' are placed. Smaller diamonds are arranged at the corners of the central diamond, those at the sides containing, respectively, the words 'Trade' and 'Mark,' while the diamonds at the upper and lower corners are covered by a broad encircling band, with buckles and mounting at the end. On the upper part of the encircling band, above the diamonds, are the words 'SEIGNOURET FRÈRES,' and on the lower part the word 'Bourdeaux.' The space between the band and central diamonds is shaded off to form a background for the central diamond, and bring it, with the letters 'F. S.,' into strong relief."

3,308.—Woolen and Cotton Fabrics.—GLOBE WOOLEN COMPANY, Utica, N. Y.—Case A. Application filed December 27, 1875.

"word 'CENTENNIAL.'"

3,309.—Woolen and Cotton Fabrics.—GLOBE WOOLEN COMPANY, Utica, N. Y.—Case B. Application filed December 27, 1875.

"word 'INDEPENDENCE.'"

3,310.—Woolen and Cotton Fabrics.—GLOBE WOOLEN COMPANY, Utica, N. Y.—Case C. Application filed December 27, 1875.

"word 'UNION.'"

3,311.—Woolen and Cotton Fabrics.—GLOBE WOOLEN COMPANY, Utica, N. Y.—Case E. Application filed December 27, 1875.

"words 'Liberty, July 4th.'"

3,312.—Sparkling Native Wine.—CHRISTIAN P. F. HOLTZ, Hoboken, N. J. Application filed December 16, 1875.

"words 'RHINE SUN.'"

3,313.—Collars and Cuffs.—KEYSTONE COLLAR COMPANY, Philadelphia, Pa. Application filed December 23, 1875.

"words 'LOUIS D'OR.'"

3,314.—Soap.—LAUTZ BROTHERS & Co., Buffalo, N. Y. Application filed December 10, 1875.

"word 'MASTER.'"

3,315.—Writing and Copying Inks and Fluids.—LEVISON & BLYTHE, St. Louis, Mo. Application filed December 20, 1875.

"word 'Champion.'"

3,316.—Organs.—LORING AND BLAKE ORGAN COMPANY, Worcester, Mass. Application filed December 30, 1875.

"words 'LORING AND BLAKE ORGAN COMPANY.'"

3,317.—Tool for Stone-Masons', Blacksmiths', and other Uses.—METCALF, PAUL & Co., Pittsburg, Pa. Application filed December 18, 1875.

"letters 'P. T. W.'"

3,318.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed February 23, 1871.

"the name 'R. BOND' and the device of two arrow-heads."

3,319.—Whisky.—MILLS, JOHNSON & Co., Cincinnati Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed February 23, 1871.

"letters 'T. O. P.'"

3,320.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed February 27, 1871.

"the title 'J. SHAWHIGHT' and the device of an eight-pointed star."

3,321.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed March 3, 1871.

"words 'JOHN FRAZER, PARIS, KY., BOURBON.'"

3,322.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed March 8, 1871.

"words and figures 'S. N. PIKE'S XXX.'"

3,323.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed April 8, 1871.

"words 'S. N. Pike's Magnolia.'"

3,324.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed September 8, 1871.

"words 'DAVE JONES.'"

3,325.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed September 8, 1871.

"words 'P. D. KELLY, NELSON & Co., KY.,' and the device of four spear-heads."

3,326.—Whisky.—MILLS, JOHNSON & Co., Cincinnati, Ohio; assigned December 14, 1875, to WILLIAM W. JOHNSON, same place. (Re-registration.) Application filed September 8, 1871.

"the title 'A. WICKLIFFE.'"

3,327.—Rochelle Salts, Seidlitz Mixture, Pulverized Tartaric Acid, and Bicarbonate of Soda.—WILLIAM H. SCHIEFFELIN & Co., New York, N. Y. Application filed December 16, 1875.

"letters and characters 'S., K. & Co., which are placed on a band with pointed wings, passing centrally through a circle of nearly the same diameter as the band."

3,328.—Dentifrice.—QUINCY A. SCOTT, Pittsburg, Pa. Application filed December 17, 1875.

"word 'CENTENNIAL.'"

3,329.—Tooth-Brushes.—QUINCY A. SCOTT, Pittsburg, Pa. Application filed December 17, 1875.

"word 'CENTENNIAL.'"

3,330.—Toilet and other Soaps.—QUINCY A. SCOTT, Pittsburg, Pa. Application filed December 17, 1875.

"pictures or representations of the five centennial buildings."

3,331.—Flour.—F. E. SMITH & Co., Brooklyn, N. Y. Application filed December 27, 1875.

"words 'LA SUPERBE.'"

3,332.—Flour.—F. E. SMITH & Co., Brooklyn, N. Y. Application filed December 27, 1875.

"word 'ANTILLES.'"

3,333.—Writing-Paper, Envelopes, and Cards.—MILTON H. SNADER, Reading, Pa. Application filed December 22, 1875.

"pictorial representation of the old 'Liberty Bell' suspended from a roll of parchment."

3,334.—Medical Compound.—THOMAS R. STEEL, Philadelphia, Pa. Application filed December 18, 1875.

"monogram composed of the letters 'A. G.,' and the words 'Apple Ginger.'"

3,335.—Cigars and Tobacco.—JOHN L. STEVENSON & Co., Boston, Mass. Application filed December 16, 1875.

"word 'SMUGGLER.'"

3,336.—Cigars.—SUTRO & NEWMARK, New York, N. Y. Application filed December 18, 1875.

"representation of a 'sphinx" on a base or pedestal."

3,337.—Heating Stoves and Ranges.—SWEET, QUIMBY & PERRY, Troy, N. Y. Application filed December 27, 1875.

"word 'GRAPHIC.'"

3,338.—Lard.—JOSHUA A. VAN TASSELL, New York, N. Y. Application filed November 19, 1875.

"the symbol of a bucket made up of broken lines—four horizontal, two vertical—and a surmounting arc-line, arranged centrally beneath the words 'A. J. Van Tassel' and 'Perfectly,' and above the words 'Pure Leaf Lard, 28 lbs. nett, New York.'"

3,339.—Advertising-Cards.—FRANKLIN H. WEBB, Hudson, N. Y. Application filed December 27, 1875.

"words 'Centennial Postal-Card Advertizer,' together with the figures '1776' and '1876,' and the figure of the main Centennial Exhibition Building."

3,340.—Screw-Plates, Taps and Dies, and Bolt-Cutters.—WILEY & RUSSELL MANUFACTURING COMPANY, Greenfield, Mass. Application filed December 4, 1875.

"word 'Lightning.'"

3,341.—Saws.—JOSEPH WOODWELL & Co., Pittsburg Pa. Application filed December 20, 1875.

"pictorial representation of a bull-dog."

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[Each certificate bearing date January 4, 1876.]

465.—Title: **"Edmund's Cough Balsam."**—ALLEN SMITH & Co., Waltham, Mass. Application filed December 28, 1875.

466.—Title: **"Barbour's Russian Remedy."**—L. D. BARBOUR, Philadelphia, Pa. Application filed December 22, 1875.

467.—Title: **"Poor Richard Thompson's Magic Eye-Water."**—W. W. CLARK, Hot Springs, Ark. Application filed December 17, 1875.

468.—Title: **"Uncle Sam's Harness Oil."**—EMMERT PROPRIETARY COMPANY, Chicago, Ill. Application filed December 21, 1875.

469.—Title: **"Franco-American Blacking."**—LEVI & BERG, Philadelphia, Pa.—Case A. Application filed December 29, 1875.

470.—Title: **"Franco-American Blacking—Levi & Berg."**—LEVI & BERG, Philadelphia, Pa.—Case B. Application filed December 29, 1875.

471.—Title: **"Oriental Fumigating Paper."**—L. MUSSEHL, N. J. Application filed December 27, 1875.

472.—Title: **"Superior Bouquet Eau de Cologne."**—E. WALTON RUSSELL, Baltimore, Md. Application filed December 22, 1875.

473.—Title: **"James G. Steele & Co., Perfumer—Sachet."**—JAMES G. STEELE & Co., San Francisco, Cal. Application filed December 30, 1875.

474.—Title: **"James G. Steele & Co., Perfumers—Triple Extract."**—JAMES G. STEELE, San Francisco, Cal. Application filed December 30, 1875.

475.—Title: **"Turner's Flavoring Syrup Dessert Sauce."**—JAMES TURNER, New York, N. Y. Application filed December 27, 1875.

476.—Title: **"Mrs. F. Werle's Life-Preserver and Blood-Purifier."**—JACOB WERLE, Cincinnati, Ohio. Application filed December 27, 1875.

THE OFFICIAL GAZETTE.

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Gilman, S. H., Machine for untying bands on cotton bales	171,659
Gilman, S. H., Machine for punching and shearing cotton bale bands	171,660
Gingras, T., Halter	171,661
Glines, J., and N. W. Stiles, Sewing machine	171,792
Goodale, S. L., Food extract from the juice of fish	171,662
Goodwin, W. F., Towing canal boats	171,793
Gorham, Clarke, and Utter	171,777
Gorringe, H. H., Floating draw bridge	171,722
Goseon, S. M., Ice cream freezer	171,663
Graeff, H. A., Hat blocking machine	171,794
Grant, J. J., Tap for cutting screw threads	171,795
Green, J. A., Railroad switch	171,796
Gregory, G. W., assignee, (reissue)	6,839
Grems, G., and L. I. Fowle, Chair	171,664
Griswold, O. E., Wagon bolster	171,797
Groevenor and Sangster	171,869
Guerrant, J. C., Liquid meter	171,665
Haas, A., assignee	171,890
Hagerty, W., Fire proof safe	171,723
Hale, H. S., Spring attachment for cradles	171,798
Hall, C. S., Bean thrasher and separator	171,724
Hall, C. S., Beater reel for thrashing machines	171,725
Hall, J. T., Stove pipe thimble	171,800
Hall, L. C., Washing machine	171,799
Hamilton, W., Cradle finger for scythes	171,666
Hamilton, W., Track clearer	171,906
Hardick, S., assignee and executrix	171,678, 171,679
Harvey, C. W., Bag fastener	171,801
Hatch, G. W., Umbrella runner	171,802
Hathaway, C., Railroad transfer table	171,726
Havens, N., assignee	171,893
Henderson, J. G., Parallel ruler	171,803
Henry, G. W., Nut lock	171,804
Hill, A. W., assignee	171,827
Hill, E., Jr., Air compressor	171,805
Hirsch, J. L., Padlock	171,806
Hoffman, W. G., Door check	171,807
Hogan, P., assignee	171,690
Holmes, I. L., Cloth shearing machine	171,808
Horton, H. W., Milk and cheese pan	171,667
Hotbersall, J., Machine for cleaning carpets	171,727
Houriet, L., Compound for soldering blocks	171,668
House, J. A., Hose carriage and engine	171,809
Howard, H., Padding fabric	171,728
Humphreys, J. B., assignee	171,668
Hunt, F. S., Lasting machine	171,810
Hunt, R., Machine Company, assignee	171,856
Hunter, A. G., Apparatus for deoxiding iron ores	171,811
Hunter, A. G., Apparatus for deoxiding iron ores	171,812
Hunter, A. G., Retort for distilling phosphorus	171,813
Jackson, J., assignee	171,676
Jackson, W. M., Gas stove	171,814
Jelliffe, C. E. L., Chisel	171,815
Jenkins, J., and E. Funk, Machine for bonding metal beams	171,729
Johnson, W. H., Milk cooler	171,816
Kahl, F., Flexible valve	171,817
Kampman, J., Paddle wheel	171 818
Kearney, D., Automatic fire alarm	171,669
Kelly, J. R., and C. O. Gardiner, Slide valve for steam engines	171,819
Kelly, T. J., Burner for gas stoves, (reissue)	6,833
Kensler, J., Car coupling	171,730
Key, W. H., Gate latch	171,731
Kidder, J., Electro magnetic machine, (reissue)	6,840
Kilburn, A. and C., assignees	171,798
King, Briggs & Co., assignees	171,752
King, W. C., Weigh scales	171,670
Kintz, J., assignee	171,825
Kisner, W. W., Axle	171,732
Kittredge, A. O. and W. H., and W. J. Clark, Sheet metal molding clamp	171,671

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Knox and Morse	171,691
Koechling, C. E., Syringe	171,821
Krickl, M., Stair rod	171,733
Kuhns, E., Grain drill	171,907
Kurtzmann, C. T., assignee	171,890
Labrousse, J. P., Stock grinder for paper pulp	171,822
La Moree, J. L., assignee	171,666, 171,906
Lane, W. J., Horse rake	171,734
Large, W. J., Trunk	171,823
Larner, W. H., assignee	171,889
Lauer, J., Perambulator	171,824
Lawton, L. T., Spring balance for extension chandeliers	171,825
Lehmann, H., Barrel pitching machine	171,672
Lemeunier, L. J. F., and C. A. Martin, Car heater	171,826
Lepper, F. D., Combined kettle and vegetable cooker	171,827
Leversthorpe, C., assignee	171,665
Lichtenberger, J., Map exhibiter, (reissue)	6,841
Liesegaray, H. O. P., Apparatus for manufacturing fertilizers	171,828
Littlefield, E., Fly trap	171,673
Louisiana Cotton Tie Company, assignee	171,659, 171,660
Lowerre, A. H., assignee	171,718
Macomber, J. W., Cotton press	171,674
Marshall, J. C., Miner's lamp	171,675
Martin and Lemeunier	171,826
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McChesney, T. B., Corn coverer	171,829
McGann, O. J., Gas burner	171,831
McGann, T. F., Globe holder	171,735
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McIntyre, T. A., Mashing machine	171,832
McIver, T. J., assignee	171,674
McNair, W. L., Shafting	171,680
Metcalf, W. H., assignee, (reissue)	6,843
Meyer, G., Spectacle holder	171,681
Mihan, P., Ventilator for windows	171,682
Milbank, G., Middlings purifier	171,833
Miller, J., Folding or portable desk	171,683
Mills, W. P., F. Bell, and J. Carey, Locomotive head light	171,834
Millsmore, G. W., Car axle	171,835
Mooney, J. B., End extension for wagon beds	171,736
Morewood, E., Apparatus for coating metal plates	171,684
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Morewood, E., and J. H. Rogers, Apparatus for coating metal plates	171,686
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Morewood, E., and J. H. Rogers, Apparatus for coating metal plates	171,688
Morgan, C. M., Tuyere	171,836
Morgan and Taber	171,705
Morrell, J. H., Water trap supply and ventilations	171,689
Morris, G. M., Lubricator for car axle journals	171,690
Morris, W., assignee	171,674
Morse, W. M., and M. G. Knox, Heating stove	171,691
Mosebolder, C. S., Sole protector for boots and shoes	171,837
Moulton and Templeton	171,885
Muir, A., Colter	171,692
Munnich, J. T., Testing machine	171,838
Murphy, C. S., Calendar	171,839
Nan, J. H., assignee	171,820
Newman, G. A., Horse power or derrick for drilling wells	171,840
Newman, T., Street railroad switch	171,737
Niver, P. D., assignee	171,690
Noel, M. P., Hand corn planter	171 841
Novelty Manufacturing Company, assignee	171,645
Olsen, T., Cashier's indicator	171,842
Ostrander, J., Machine for rolling nut blanks	171,843
O'Sullivan, J. J., Felting machine	171,693
Page, L. H., Rope clamp	171,738
Page, L. H., and C. F. Schroeder, Awl handle	171,739
Parker, J. M., Gage lathe	171 696
Parker, S., Machine for shaving hoops, (reissue)	6,842
Parker, W. J., Dust pan	171,740
Payne, W. S., Boiler for steam heaters	171,844
Payson, J. R., Sash fastener	171,694
Payson, J. R., Sash holder	171,695
Peart, J., Liquid paint	171,845
Pease, J. F., Hot air furnace	171,846
Pennypacker, M., assignee	171,855
Perry, J. G., Sash fastener	171,847
Peyton, R. S., Disguising syrup for medicines	171,848
Pitcher, H. A., assignee	171,816
Pitt, W. A., Trap for sewer pipes	171,849
Pisco, J. H., Fishing hook	171,697
Platt and Porter	171,854
Port, H., Manufacture of boots and shoes, (reissue)	6,834
Porter, H. G., Slide for extension tables	171,859
Porter, S. M., and C. M. Platt, Die	171,853
Powell, J. G., Toy watch	171,850
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Pratt and Whitney Company, assignee	171,795
Pyott, L. T., Hoisting apparatus	171,855
Querner, A., and T. Burke, Skylight	171,856
Raettig, C., assignee	171,890

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Ravenel, St. J., Fertilizer	171,857
Ray, F. A., assignee	171,816
Read, D. M., Pocket book lock	171,858
Read, D. M., Pocket book fastening	171,859
Reckendorfer, J., Pencil box	171,860
Reed, C. W., Steam boiler	171,861
Reed, W. R., Washing machine	171,741
Reinhold, F. J., Velocipede	171,862
Reynolds, G. W., Corset	171,863
Rice, C. L., Spring brace for vehicles	171,864
Richardson, J. M., Life boat	171,698
Richardson, W. H., Spark arrester	171,865
Ritter, R., Paper box	171,866
Robertson, T., Lozenge machine	171,699
Rogers and Morewood	171,686, 181,687, 171,688
Rohrman, J. C., Water pipe, (reissue)	6,834
Rosenteel, W. H., Leather dressing machine	171,867
Rote, F., Expansion jack for staging ladders	171,742
Rounds, T. W., Clamp for holding and carrying bayonet scabbards, &c	171,868
Ryer, J., assignee and executor	171,676, 171,679
Sangster, J., and W. S. Grosvenor, Electric regulator for steam engines	171,869
Saur, A., Door sill	171,870
Schnoble, J., Preparing paper for postage and revenue stamps	171,871
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Schulenburg, C., assignee	171,824
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Setchell, G. C., Stand for plants	171,700
Seymour, H., Bolt for window fastenings, &c	171,701
Sharp, J. L., assignee, (reissue)	6,833
Shaw, E., Sewing machine, (reissue)	6,843
Sheldon, C. B., Anti friction bearing	171,874
Shepardson, H. S., Lock for doors, &c	171,873
Sievers, A., Cattle wash	171,875
Skelly, T., Whiffletree bolt	171,743
Smith, C. H., Lightning rod	171,744
Smith, J. A., Reed organ stop action	171,702
Smith, R. A., Toy gymnast	171,703
Snyder, N., Furnace for melting glass	171,876
Spang, H. W., Lightning rod, (reissue)	6,835
Spencer, R., Harness saddle	171,745
Springer, W. A., Guide for wax thread sewing machines	171,877
Starr, E. T., Adjustable bracket	171,746
Steel, R., Carousal or roundabout	171,878
Sternheimer and Bretsfield	171,764
Stiles and Glines	171,792
Stillman, H. B., Umbrella rib tip retainer	171,880
Stinson, J. C., Monument	171,881
St. John, R. H., Sewing machine shuttle	171,879
Stokes, R., Busk fastening	171,882
Swan, G. W., Box trimming machine	171,883
Swinburn, T., Rotary engine	171,704
Taber, S. and R., and C. M. Morgan, Wire stretcher	171,705
Taylor, D. C., Alphabet board and block	171,884
Templeton, J. G., and Z. S. Moulton, Washing machine	171,885
Thompson, F. R., assignee	171,728
Thompson, J. M., Ore concentrator	171,747
Thompson, M. Y., Hand plow	171,706
Thompson, Langdon & Co., assignees	171,882
Tinker, W., assignee	171,838
Tracy and Galt	171,790, 171,791
Tucker Manufacturing Company, assignee	171,653
Tucker, T. M., assignee	171,718
Turner, E., Abdominal corset	171,748
Ueter, Gorham, and Clarke	171,777
Vanduzen, B. C., Steam and vacuum pump	171,886
Van Hoesen, A. H., assignee and executor	171,678, 171,679
Van Orthwick, J. R., Harrow	171,887
Vose, S. D., Heating furnace	171,888
Vowles, D. W., Car coupling	171,889
Wagner, F., Line fastener	171,890
Wakeman, H., Hand crank for car brakes	171,749
Walker, A., Die box	171,707
Watkins, A. H., Vapor burner	171,891
Weant, W. A., Railroad switch	171,892
Weis and Bevins	171,715, 171,716
Welke, G. R., Istle machine	171,708
Wells, A. A., Machine for twisting hay or straw	171,709
Wentworth, W. P., Knee for child's sleigh	171,893
Wheeler, J. F., and H. A. De Haven, Baggage check	171,894
White, S. S., Dental engine	171,750
White, S. S., assignee	171,746
Whitney, D. D., Thill coupling	171,710
Whittemore and Adamy	171,754
Whittemore, J. R., Straw cutter	171,895
Wickoff, H. N., & Son, assignees	171,861
Wiggin, A., Carbureter	171,751
Wilber, J. G., Car mover	171,896
Wilcox, E. W., Show case for coffins	171,897
Wiles, J. F., Nut lock	171,898
Williams, R. A., Mitering machine	171,899
Wills, J. B., Machine for making horseshoe nails	171,711
Wilson, J. E., and R. McAdams, Cradle	171,900
Winton, A., Spark arrester and damper	171,901
Witherell, B. and E. B., Dress pillow	171,902
Witte, F. T., Corkscrew	171,752
Wood, C. B., Side bar wagon	171,903
Woodbridge, T. F., Sewing machine treadle	171,904
Wright, L. R., Cultivator and plow combined, (reissue)	6,836
Wyeth, H. M., Pump	171,905
Zimmerman, H. F., & Son, assignees	171,776

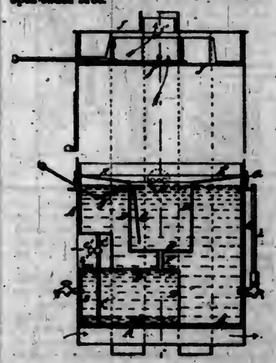
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 4, 1876.

171,641. OIL-BURNING STOVES. Edwin G. Adams, Cohoes, N. Y. [Filed Nov. 27, 1875.]

Brief.—Oil is forced upward through water to its surface in the upper or fire chamber by hydrostatic pressure operating through the open-ended tube.

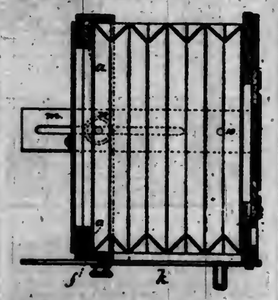


1. The combination, with case A, of bottom-perforated chamber D, suspended in water, and a contiguous oil-chamber, B, the two chambers connected by a pipe, F, shown and described, whereby the oil may be forced by any suitable pressure out of its chamber and up to the surface of water in burner-chamber.

2. The combination, with pipe connected chambers B D, of the tube C, open at both ends, one in the water-space of case, and the other below the oil, as and for the purpose set forth.

3. The perforated plate G, hinged to top of chamber D, and provided with a jointed handle, *g*, extending to the outside, as and for the purpose specified.

171,642. CAMERAS. Reuben B. Barker, New York, N. Y., assignor to E. and H. T. Anthony & Co., same place. [Filed Nov. 13, 1875.]



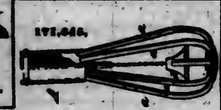
1. The camera-box *f*, for inclosing the bellows, made of two or more thicknesses of veneers, bent at the corners of the box, in combination with the frame *e* or *e*, to which each box *f* is attached, for the purposes and as specified.

2. The removable slotted plate *l* or *m*, attached at one end to the camera-box, and to the other part of said box by a clamping-screw, and provided with a screw attachment for the tripod, substantially as set forth.

171,643. STUDS AND BUTTONS. John B. Bennett and Walter Bennett, Halifax, Canada. [Filed Sept. 4, 1875.]

The combination of the head A, having a recess, *a*, stem B, and pin *b'*, with the back plate C, provided with a fastener shank, D, having a flange, *c*, and a right-angled slot, *d'*, at its upper end, all constructed and applied as herein set forth, for the purpose set forth.

171,644.



171,645. UMBRELLA-HANDLES. William H. Blake, Waterbury, Conn., assignor of one-half his right to Novelty Manufacturing Company, same place. [Filed Nov. 30, 1875.]

1. The herein-described umbrella-handle, consisting of the socket A and the several wires *a* radiating from a common center, and bent to give the shape of the handle, and united in the socket, substantially as described.

2. In combination with an umbrella-handle, consisting of the socket A and the several wires *a* radiating from a common center, bent to give the shape of the handle, and united in the socket, an ornament or charm suspended within the handle, substantially as described.

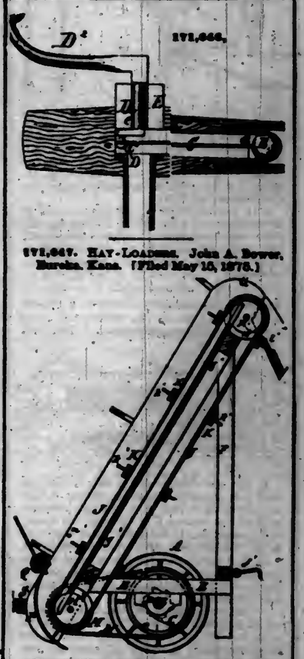
171,646. FASTENER. Ulrich Behren, New York, N. Y. [Filed Aug. 26, 1875.]

Brief.—A hole is bored into the body of the faucet to insert the crank, after which it is filled by two half-cylindrical check-pieces.

1. The removable checks B and sleeve *a*, in combination with the crank-shaft D, rod C, and a suitable valve and body, as herein specified.

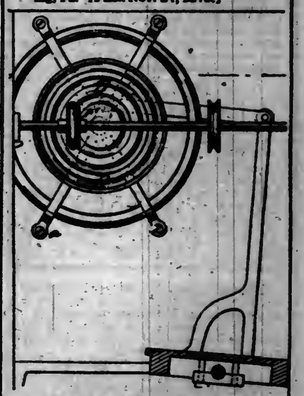
2. The within-described stop-cock, having the body A, adapted to receive and transmit blows, as described, and having the cock valve B, of a spherical form, the rod C, crank-shaft D D', sleeve *c*, and checks B, combined and operating together as herein specified.

171,647. HAY-LOADERS. John A. Bower, Eureka, Kans. [Filed May 10, 1875.]



The combination of gathering-teeth P, roller Q, lever V, locking-pin *v'*, bolt R, cross-bar S, and springs T, as and for the purpose specified.

171,648. TREADLES. Carl Brandauer, Reading, Pa. [Filed Nov. 27, 1875.]



The combination of a centrally-pivoted and laterally-swinging treadle, by a rigidly-attached connecting-rod, with a crank-rod, fly-wheel crank-shaft, and speed-regulating friction-wheels of driving-shaft, to impart greater or less speed to driving-shaft, substantially in the manner set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

171,649. COOK-STOVES. Ezra B. Brown and Geo. W. Aekin, Danville, Pa. [Filed Dec. 11, 1875.]



1. In a cooking-stove, the combination of the hollow back D, open at the lower end, the back hearth-plate E, having aperture *b* directly under the lower end of the fire-back, whereby the air is taken from the oven, heated, and returned to the oven, substantially as and for the purposes set forth.

2. In a cooking-stove, the combination of the oven-door G with register *d*, back hearth-plate with apertures *b*, hollow fire-back D, with apertures *c*, and flue H, with damper *h*, substantially as and for the purposes herein set forth.

171,650. STEAM-BALANCE. J. P. Chatillon, New York, N. Y., assignor to John Chatillon & Sons, same place. [Filed Nov. 10, 1875.]



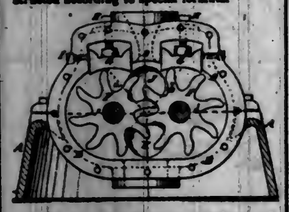
1. The combination of the case A with the spring E, upwardly-projecting runner H, slotted face-plate F, and pointer I, all arranged as that the runner H is between the spring and face-plate, and the pointer *b* on the outer face of the face-plate, substantially as specified.

2. The combination of the pointer *b* with the block and guide *d* and upwardly-projecting runner H, substantially as herein shown and described.

3. The combination of the face-plate F, which is cleared for the reception of the pointer *b*, and carries the index-plate *c*, with the projecting bridge *f*, which embraces the slot and index-plate, substantially as herein shown and described.

171,651. ROTARY PUMPS. Wm. O. Crocker, Turner's Falls, Mass. [Filed Sept. 25, 1875.]

Brief.—The blocks are placed on each side of the discharge and over the pistons, to reduce pressure on the pistons. Cavities are made in cylinder-heads, to facilitate supply and clearance of water. The cogs are constructed according to special formula.



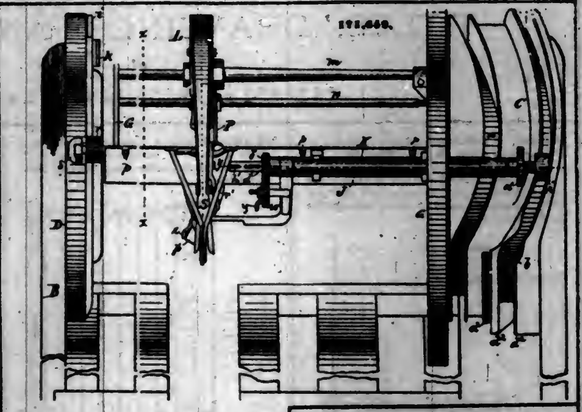
1. The abutments G G, arranged above and directly over shafts D D, one on each side of discharge, as and for the purpose described.

2. The combination, with pistons F, of the chambers J K, arranged in the heads L, as and for the purpose set forth.

3. The combination, with abutments G G, of holding-screws at top and side to set upon said abutments, in the manner described.

4. The pistons F, provided with teeth convex on one side and concave on the other, as and for the purpose specified.

171,652. GRAIN-SEPARATOR. Chas. G. Crouse, San Prairie, Wis. [Filed June 21, 1875.]



171,652.

1. The eccentric grooves *a a'*, with eccentric cross-grooves *f f*, and the self-adjusting bridges *h h*, all arranged in the inner face of the cam C, in combination with the rope-arm shaft *n*, cross-bar E, and friction-rollers *n' n'*, substantially as and for the purposes herein set forth.

2. The combination of the rake I *p*, pinion *r*, shoe *s*, idle-pinion *t*, and the stationary disk D, having cog-segments *i k* and recesses *n o*, substantially as and for the purposes herein set forth.

3. The slide J, provided with the friction-roller *u*, pinion *w*, finger *y*, and hook *z*, in combination with the hollow shaft K and pinion *b'*, substantially as described.

4. The hollow tier-shaft K, provided with the pinions *a' b'*, in combination with the cog-segment *d* on the cam C, and the pinion *w* on the slide J, substantially as and for the purposes herein set forth.

5. The combination of the slide J, hollow shaft K, slotted at its inner end, and the movable internal shaft *d'*, with *t'* a pivoted fingers *b' t'*, substantially as and for the purposes herein set forth.

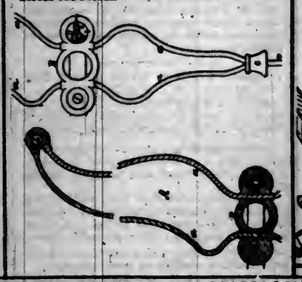
6. The combination of the shaft or rod *d'* with the pivoted fingers *b' t'*, the shoe *b'*, roller *w'*, and groove *b* and plates *d'* in the cam C, substantially as and for the purposes herein set forth.

7. The rope-carrying arm L, bent S, jaw *y'*, spring *r'*, and arm *r'*, with blade *s'*, all combined and arranged substantially as and for the purposes herein set forth.

8. The combination of the arms L and P, geared together at their inner ends, the drum S, with spring *r'*, and compressing-band *w'*, all substantially as and for the purposes herein set forth.

171,653. FOLDING BEDSTEADS. Andrew M. Eastman, Somerville, assignor to Tucker Manufacturing Company, Boston, Mass. [Filed Oct. 20, 1875.]

Brief.—The post turns on a pivot connecting it with the side rail, the notched end of which is held in position by a headed set-screw passing through the notch and a slot in the post, the head of the screw resting in a recess in the outer face of the post, in which it is held by a guard rod or wire extending across the recess.



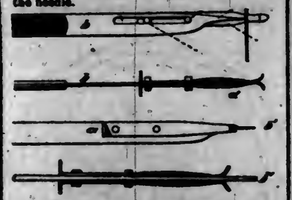
1. As a new or improved manufacture, the combined leg and post A, as composed of the wrought metal bars *a a*, and the cast-metal end and intermediate connections *b B a*, arranged and combined substantially as set forth.

2. The combined leg and post A, as provided with the slot *h*, the guard *m*, and the headed screw D, all arranged as specified.

3. The combined leg and post A, provided with the stop *i*, slot *h*, and headed screw D, to operate with the bed-rail bar C, notched at its outer end and pivoted to the part B, all as explained.

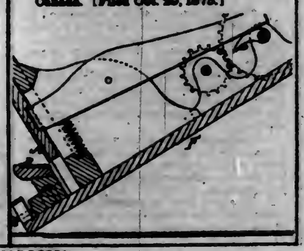
171,654. THREADERS FOR SEWING-MACHINE NEEDLES. H. A. Ellis, Springfield, Mass. [Filed July 2, 1875.]

Brief.—The threader consists of a flat piece of metal, reduced at each end sufficiently for entering the eye of the needle, and is provided at its centre only with a notch, which receives the thread. Two spring-plates for holding the needle and thread are clamped together by rivets passing through a longitudinal slot in the threader. The clamping-plates, being advanced beyond the extremity of the threader, receive between them the thread and the needle; then, by pushing forward the threader, a loop of thread is thrust through the eye of the needle.



A needle-threader, composed of the sliding spring-clamp *d* and notched bar *b'*, the several parts being constructed and operating together substantially as shown and described.

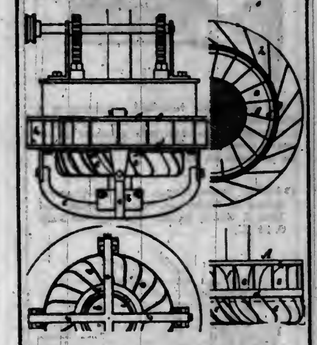
171,655. MACHINES FOR SHEARING BOILER-PLATES. Ebenezer Fisher, Kincardine, Canada. [Filed Oct. 20, 1875.]



The combination of movable cutter A, obliquely arranged stationary cutter B, and bed-plate F, the latter inclined sufficiently to cause the plate being cleared and the stationary cutter to lie horizontally, as shown, and for the purpose specified.

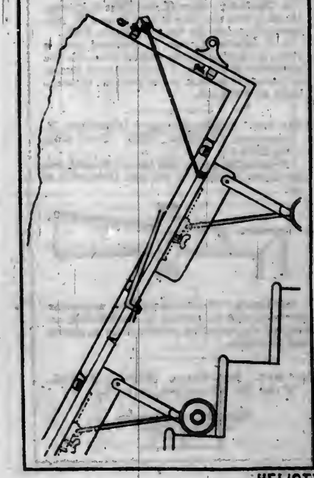
171,656. TURBINES. David B. Flint, Orange, Mass., assignor to Rodney Hunt Machine Company, same place. [Filed Oct. 6, 1875.]

Brief.—The wheel receives the water in directions centripetally, or from its periphery more or less toward its axis, and discharges it centrifugally both downward and horizontally outward, whereby it can move readily free itself, or the water can move easily escape. The curve or taper of the part of the director immediately encompassed by the receiving parts of the buckets operates to deflect the water downward upon the lower portions of the buckets.



The improved direct and reaction turbine-wheel A, constructed substantially as described—viz., with the hoop or ring *f* and central tapering diverter *f*, and with the series of buckets *e*, made and arranged therewith, essentially as set forth, viz., to project from the diverter radially, or about so, and extend both above and below the hoop, and where below such hoop to curve both transversely and longitudinally in order to receive the water from the guide in directions centripetally or inward and discharge it centrifugally both downward at inclinations to the horizon, and outward horizontally or thereabout, all essentially as specified.

171,657. PIANO-TRUCKS. Chas. A. French, Davenport, Iowa. [Filed Sept. 6, 1875.]



1. The combination, in a piano-truck, substantially as and for the purpose set forth, of the adjustable hinged truck, sliding braces, sliding heads, H H, and truck *a a*, for adjusting at any position, thus varying the distance between the axles, for the variation of different stairs.

2. The combination, in a piano-truck, substantially as and for the purpose set forth, of the rocker-shaft, in combination with the cams for elevating the truck on the wheels.

171,658. BITTERS. Johannes Gerlits, Philadelphia, Pa. [Filed Nov. 17, 1874.]

The composition—being a bitters—consisting of brandy, hinmel-seed, fennel-seed, wormwood, wild-cherry bark, convallaria-root, orange-peel, lavender and water, substantially in the proportions described.

171,659. MACHINES FOR UNTYING BANDS ON COTTON-BALES. Saml. H. Gilman, New Orleans, La., assignor to Louisiana Cotton-Tie Company. [Filed Nov. 11, 1875.]

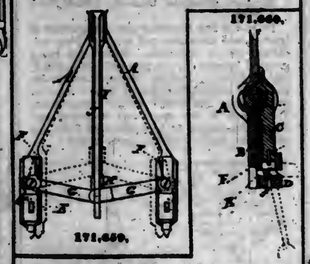
Brief.—The device is placed so that the jaws grasp the two ends of the band on either side of the tie, and then, by the backward movement of the lever operating the toggle-arms, the said ends are caused to approach each other.

1. A machine having two pairs of jaws to seize and operate upon the two tied ends of cotton-bands, substantially as described.

2. The upper jaws C C, with an incline, *c*, on the under sides of their rear ends, substantially as described.

3. The elbowed links G F G F, substantially as and for the purpose described.

4. The combination of the pairs of jaws with the elbowed links G F, connecting-rod I, and lever J, substantially as described.



171,659.

171,660. MACHINES FOR PUNCHING AND SEPARING COTTON-BALE BANDS. Samuel H. Gilman, New Orleans, La., assignor to Louisiana Cotton-Tie Company. [Filed Nov. 24, 1875.]

1. A hand-tool for cutting and punching cotton-bale bands and other analogous uses, comprising a punch and die, a pair of shear-blades, mechanism for actuating one of said shear-blades, and the punch or die, and a handle for conveniently applying and holding said tool to its work, substantially as described.

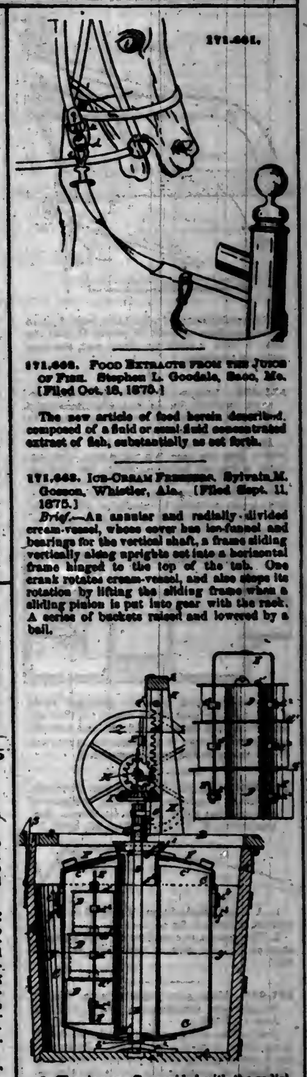
2. The combination of the shear-blade B, punch-stock C, and handles Q, with the movable frame A, bed D, shear-blade E, and punch-die *f*, substantially as and for the purposes described.

3. The combination, in a portable hand-tool, or a cutter consisting of a shear-blade and a punch and punch-stock, either integral or permanently united, with a device consisting of a shear-blade and punch-die, also integral or permanently united, mechanism for actuating one of said devices so as to cause it to cut and punch a piece of metal presented to it, and a handle for conveniently presenting and holding the combined device to the plate to be operated on, substantially as described.

4. The combination of the shearing and punching device, the handle, the eccentric, and the crank, substantially as and for the purposes described.

171,661. MALTING. Timothy Gingras, Buffalo, N. Y. [Filed Nov. 1, 1875.]

In combination with the headstall *a*, *m*, and *i*, the metal plate *c*, hinged plate *d*, and snap-hooks *h*, constructed and arranged to operate as described.



171,661.

171,662. FOOD EXTRACTS FROM THE JUICE OF FISH. Stephen L. Goodale, Saco, Me. [Filed Oct. 16, 1875.]

The new article of food herein described, composed of a fluid or semi-fluid concentrated extract of fish, substantially as set forth.

171,663. ICE-CREAM FREEZERS. Sylvain M. Gosson, Whistler, Ala. [Filed Sept. 11, 1875.]

Brief.—An annular and radially-divided cream-vessel, whose cover has ice-funnel and bearings for the vertical shaft, a frame sliding vertically along uprights set into a horizontal frame hinged to the top of the tub. One crank rotates cream-vessel, and also stops its rotation by lifting the sliding frame when a sliding pinion is put into gear with the rest. A series of buckets raised and lowered by a bail.

1. The ring-arm C, provided with the radial partition *c'*, and with the cross-bars or spider *c'*, for connecting it with its shaft B, substantially as herein shown and described.

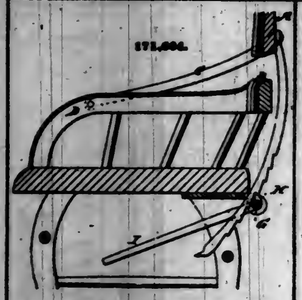
2. The cover F, provided with the funnel-tube *f'*, the cross-bar *f'*, and the legs *f'*, in combination with the ring-arm C, and with the bosses *d*, attached to said can, substantially as herein shown and described.

3. The combination of the sliding frame P, the sliding gear-wheel H, and the rack O with the shafts G K and the upright H of the frame-work E H *b'*, substantially as herein shown and described.

4. The combination of the buckets D with the compartments of the ring-arm C, substantially as herein shown and described.

171,664. CHAINS. Geo. Grame and Leonard I. Fowle, Fredericksburg, Iowa. [Filed Aug. 21, 1875.]

171,664.



The combination of adjustable beak A, bent G, rabbet-bars E, shaft C, pawls H, and the lever I with a chair or other seat, substantially as specified.

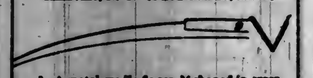
171,665. LASTING-MACHINE. John C. Overstreet, Danville, Va., assignor to himself and Gallant Lovenskiold, Rockbridge, N. C. [Filed Oct. 6, 1875.]

Brief.—The end of the radiant-pipe projecting into the case is a valve-seat, and supports a conical balanced valve, the disk extending outside of the case. To the disk and outside the case are attached radial and spiral wings, one or both, by means of which a rotary motion is given to the valve, proportionate to the flow of water.



The combination, with the balanced valve a and tubular case d, of wings f f, that extend from each valve outside of, and around, each tubular case, to regulate the revolution of the valve, in the manner specified.

171,666. CRADLE-FINGERS FOR SCYTHES. William Hamilton, Fallsburg, assignor of one-half his right to J. L. La Morse, Grahamsville, N. Y. [Filed Oct. 26, 1875.]

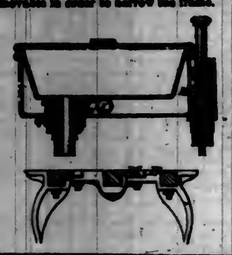


1. A metal cradle-finger, V-shaped in cross-section, substantially as shown.

2. The tenon *g*, in combination with a finger, open on its rear side, substantially as specified.

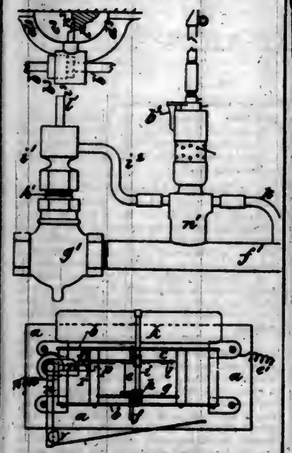
171,667. MILK AND CREAM PANS. Henry W. Horton, Binghamton, N. Y. [Filed Aug. 14, 1875.]

Brief.—The overflow-pipe is set detachably in an offset from the water-pan. By removing it and plugging one or more of its orifices, the height of water in the pan is established. The end of the supporting-frame has sections removable in order to narrow the frame.



171,668. AUTOMATIC FIRE-ALARMS. Danl. Kearney, Montreal, Canada. [Filed Nov. 4, 1875.]

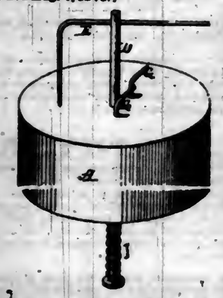
Brief.—A fire breaking out, the powder is ignited, and the alarm and extinguishing machinery put in operation. Each room has a grooved bracket for the powder and connecting machinery. Powder is placed under the piston, as described, lifting it upon explosion, and making the water-supply connections. The wedge at the upper end of piston-rod causes the socket to be withdrawn from the projection, and allows the alarm to act.



1. The combination of stem D, spiral spring I, through block A, and wires E, G, and H, substantially as set forth.

2. The combination of charcoal and plaster-of-paris in equal parts, for soldering or brazing blocks.

171,669. COMPOUNDS FOR SOLDERING BLOCKS. Lucien Hourlet, San Jose, Cal. [Filed Aug. 7, 1875.]



1. The combination of the projections I with arm *a*, having projections *r*, acting upon surface *s*, and with bell-crank *n*, substantially as and for the purposes described.

2. The combination of the equilibrium-valves in *p*' with the piston *b*', substantially as and for the purposes described.

3. The combination of the equilibrium-valves in *p*', piston *b*', and valve *o*', substantially as and for the purposes described.

4. The combination of the valve *o*', piston *o*', space *o*', substantially as and for the purposes set forth.

5. The combination of the equilibrium-valves in *p*', piston *b*', connection *t*', valve *o*', connection *b*', piston *a*', and space *c*', substantially as and for the purposes set forth.

6. The combination of the space *c*' with nipple *p*' and grooved bands P, substantially as and for the purposes set forth.

7. The band *f*, arranged completely around each room or each flat, substantially as and for the purposes herein specified.

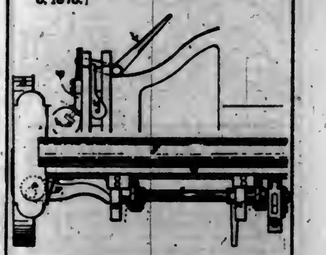
8. The combination of a train or trains of powder, substantially as described, with either or both of the machines B and C, constructed substantially as described.

171,670. WEIGH-SCALES. Wm. C. King, Pittsburg, Pa. [Filed June 8, 1875.]



The weigh-scale described, consisting of a glass tube or cistern, *a*, a graduated plunger, *b*, connected by a stem with a holder or receiver, *f*, constructed substantially as and for the purposes set forth.

171,671. SHEET-METAL MOLDING-CLAMPS. Abner O. Kitteridge, Wm. H. Clark, and Wm. J. Clark, Salem, Ohio. [Filed July 6, 1875.]



1. The combination of the cam-levers D and bands B with the jaw C, for operating said jaw, substantially in the manner as described, and for the purposes set forth.

2. The shaft I, slotted stay H, and adjustable check-pin *d*, in combination with the fall O, substantially as described and for the purpose set forth.

3. The jaw C, stays H, and bolts L, in combination with the slide G and former F, substantially as and for the purposes set forth.

4. A wooden former, F, provided with a plate, M, having therein slotted holes *e* for the admission of the pins *c*, whereby said former or formers is secured to the slide G, substantially as described.

171,672. BARREL-PUSHING MACHINES. H. Lehmann, Cleveland, Ohio. [Filed Aug. 10, 1875.]

Brief.—The cradle has the perforated cellar shown, to allow of the free circulation of air.



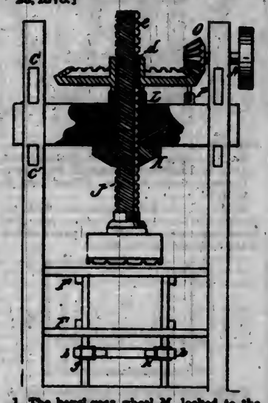
The cradle F of a barrel-shifting apparatus provided with an air-box, G, constructed, arranged, and operating substantially as shown and described.

171,673. FLY-TRAPS. Hiram Littlefield, Wells, Me. [Filed Oct. 30, 1875.]



In a fly-trap, the perforated disk A, provided with the inlet or aperture *a*, and the cup B arranged therewith, and provided with the series of ports *c* and guard *d*, all being constructed and operating substantially as specified.

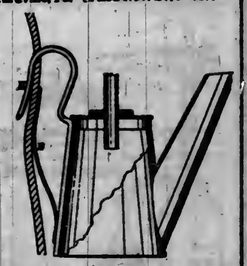
171,674. COTTON-PRESSES. John W. Macomber, Wilmington, N. C., assignor to himself, J. T. Malver, Wilkes Morris, and David Cashwell, same place. [Filed Dec. 23, 1875.]



1. The bevel-gear wheel M, locked to the screw J by means of feather and groove *d e*, in combination with the horizontal shaft N, bevel-gear wheel O, and anti-friction wheel P, the latter located immediately beneath the gear-wheel O, substantially as and for the purposes specified.

2. The bevel-gear wheel M and screw J, in combination with the bevel-gear wheel O, anti-friction wheel P, detachable bearing-plate L, and nut K, substantially as and for the purposes specified.

171,675. MINERS' LAMPS. Jas. C. Marshall, Girardville, Pa. [Filed Nov. 27, 1875.]



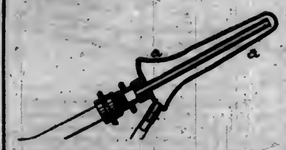
A miner's lamp provided with the spring D, arranged with respect to a hook, E, as and for the purpose specified.

171,676. BUTCHERS' STALLS. John Matheson, New York, N. Y., assignor to himself and James Jackson, same place. [Filed Jan. 20, 1875.]

An improved butcher's stall, consisting of refrigerator *d*, hook-rails *f* s attached thereto, rails *m n o*, braces *a a*, post *h*, partitions and rails *k l*, hooks *i i*, and yard *f*, the whole being constructed and arranged substantially in the manner and for the purposes specified.

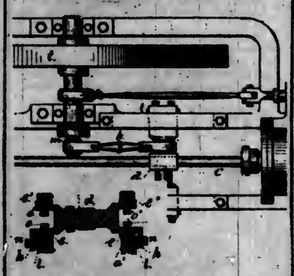
171,677. STRICTURE-TUBES FOR TREATMENT OF RECTAL DISEASES. Morris Matteson, New York, N. Y. [Filed Dec. 18, 1874.]

Brief.—A rectal-pile pipe has the interior fluid-inducing tube extended to its further end, to insure a perfect cooling of the extreme inner end of the pipe.



The metal cone *c*, when furnished with an inner inlet tube extending to its further end, and with a closed base and two openings for connecting the induction and eduction tubes, adapting it for use with any known syringe, all as and for the purpose described.

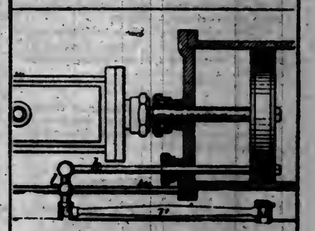
171,678. DIRECT-ACTING PUMPING-ENGINES. James W. Mathiesen, Brooklyn, N. Y., assignor to Sarah Hardick, executrix, and John Ryer and A. H. Van Hoesen, executors, of the estate of Chas. B. Hardick, deceased. [Filed Oct. 21, 1875.]



1. The cross-head *d*, made open at the ends, and provided with slide-blocks *e e* and adjusting-screws *s s*', in combination with the flanges *h*, slide-blocks *i*, and set-screws *n*, substantially as set forth.

2. The direct-acting pumping-engine having the piston-rods in line with each other at opposite sides of the cross-head, in combination with a connecting-rod and crank, swinging between the piston-rod and the slide for the cross-head, the shaft of the crank, the piston-rods, and the joint of the connecting-rod to the cross-head, all being in the same horizontal plane, as and for the purposes set forth.

171,679. DIRECT-ACTING ENGINES. James W. Mathiesen, Brooklyn, N. Y., assignor to Sarah Hardick, executrix, and John Ryer and A. H. Van Hoesen, executors, of the estate of Chas. B. Hardick, deceased. [Filed Dec. 3, 1875.]



The combination, with the direct-acting pumping-engine, of a rod attached at one end to the steam-piston, passing out through the cylinder-head, and sliding at the side of the water-cylinder, and a connecting-bar, *n*, to the lever of the rock-shaft or valve-actuating mechanism, substantially as set forth.

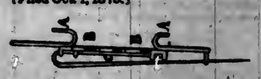
171,680. SHAFTING. William L. McNair, Allegheny, Pa. [Filed Nov. 6, 1875.]

Brief.—A screw-threaded sleeve works into corresponding screw-threaded ends of each section, to form and tighten the joints, the outside of the sleeve and shafting being flush. A strengthening solid double-cone plug is first fixed centrally to the joint inside.



The combination of the sections *a*, coupling *c*, plug *g*, and tubing *d*, substantially as set forth.

171,681. SPECTACLE-HOLDERS. Gustavus Meyer, Quincy, Ill., assignor of one-half his right to Julius Franke, same place. [Filed Oct. 1, 1875.]



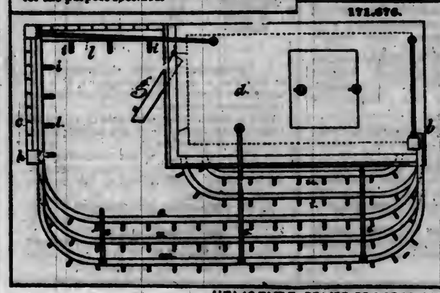
1. In a spectacle-holder, the two movable jaws or clamp-hooks A and A' and the connecting-spring B, substantially as and for the purpose described.

2. The combination of the clamp-hooks A and A', the spring B, and the brooch-pin C, substantially as and for the purpose described.

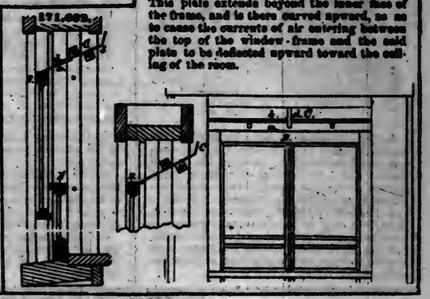
171,682. VENTILATORS FOR WINDOWS. P. Mihan, Cambridgeport, Mass. [Filed Oct. 14, 1875.]

Brief.—Within the upper part of the window-frame, and attached to opposite sides thereof, is an upwardly-inclined metallic plate. This plate extends beyond the inner face of the frame, and is there curved upward, so as to cause the currents of air entering between the top of the window-frame and the said plate to be deflected upward toward the ceiling of the room.

171,676.



171,682.

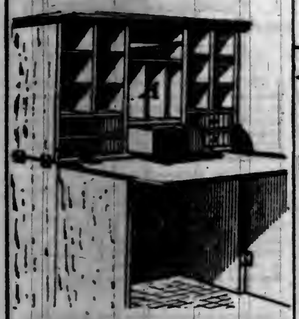


1. The ventilator consisting of the single curved plate C, arranged at or near the top of the window, as shown and described, to operate with the upper sash thereof, as and for the purpose set forth.

2. The ventilator composed of two sections, *a b*, hinged together, as stated, in combination with a window-frame and window, substantially as shown and described.

3. The combination, with the ventilator composed of two parts, *a b*, hinged together, as stated, of the spring *d*, as and for the purpose set forth.

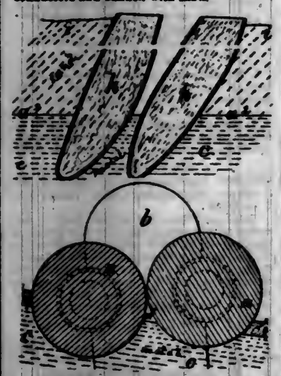
171,683. FOLDING OR PORTABLE DESKS. James Miller, Atlanta, Ga., assignor to himself and Luther E. Ames, same place. [Filed Oct. 29, 1875.]



The combination of the upper desk-section, provided with drawers, pigeon-holes, and hinged front, with hollow lower section, made of folding rear, side, and front walls, that are capable of being locked in position for supporting the upper section, or inclosing the same for transportation, substantially in the manner and for the purpose set forth.

171,684. APPARATUS FOR COATING METAL PLATES. Edmund Morewood, Llanelly, Great Britain. [Filed Dec. 6, 1875.]

Brief.—Flat kept outside of rollers by partitions set in grooves in the rollers. Rollers dip into and nip above the coating metal. Hollow guides (for the plates) filled with non-conductors and heated with sand.



1. The rollers *a c*, for withdrawing the excess of metal from a bath of melted coating metal, and rollers touching the molten coating metal, but having their nip or line of contact above it, in combination with the partitions *b*, as and for the purposes set forth.

2. The hollow metallic guards or vessels *h*, filled with sand or other slow conducting material, and passing down into the melted metal, and having a hot-air chamber between their upper portions, substantially as and for the purposes set forth.

171,685. APPARATUS FOR COATING METAL PLATES. Edmund Morewood, Llanelly, and John H. Rogers, Llangennech Park, near Llanelly, Great Britain. [Filed Jan. 15, 1875.]

Brief.—Scurf removed from bottom of earthenware pan holding non-conducting material by a curved scraper. The flux-pot has sides packed with sand or like material, to prevent the wet plates from chilling the coating metal.



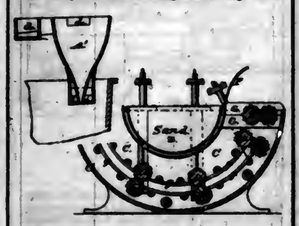
1. The entrance-rollers *c b*, in combination with two or more pairs of exit-rollers, *b a* and *d e*, the upper pair being over the lower pair, and placed horizontally so as to be adapted to receiving between them a supply of melted coating-metal, substantially as and for the purposes set forth.

2. The grease pot A, constructed with a tube or passage, *f*, communicating with a lower part, *x*, of said grease-pot, substantially as and for the purpose set forth.

3. The rack *h i*, with plate-rest and tilting appliance *k l m*, in combination with grease-pot and rollers, as set forth, and operating substantially as set forth.

171,686. APPARATUS FOR COATING METAL PLATES. Edmd. Morewood, Llanelly, and John H. Rogers, Llangennech Park, near Llanelly, Great Britain. [Filed Jan. 15, 1875.]

Brief.—Scurf removed from bottom of earthenware pan holding non-conducting material by a curved scraper. The flux-pot has sides packed with sand or like material, to prevent the wet plates from chilling the coating metal.

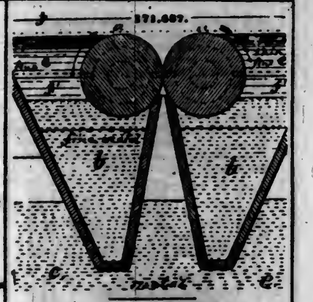


1. The pan *c*, containing sand or other similar material, placed within the bath, in combination with the sheet F, passing beneath the bottom, for the purposes specified.

2. The chambers [*l*, for containing sand or similar material, in combination with the flux-pot A, gutter *d*, and return-opening *e* to the pot A, substantially as and for the purposes set forth.

171,687. APPARATUS FOR COATING METAL PLATES. Edmd. Morewood, Llanelly, and John H. Rogers, Llangennech Park, near Llanelly, Great Britain. [Filed Dec. 6, 1875.]

Brief.—The plates are withdrawn from the coating metal through a heated chamber formed by finishing-rollers in a trough holding coating metal and flux. Jointed side boards confine the flux.



1. The hot-air or draining chamber *d*, formed by the troughs *b b* and rollers *a c* or *a* and *c'*, as set forth.

2. The finishing-rollers *c*, receiving in troughs *b*, and thereby supplied with metal or alloy or flux separate from the flux, metal, or alloy *e* in the coating or grease pot, substantially as set forth.

3. The partition-pieces *f f'*, fitting against the sides of the troughs *b*, and in grooves in the rollers *c*, and operating substantially as set forth.

171,688. APPARATUS FOR COATING METAL PLATES. Edmd. Morewood, Llanelly, and John H. Rogers, Llangennech Park, near Llanelly, Great Britain. [Filed Dec. 6, 1875.]

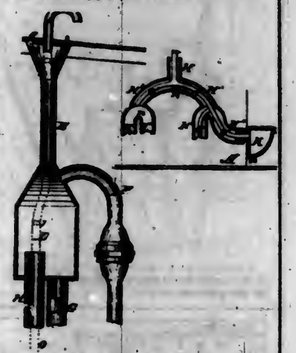
Brief.—A flux-box wherein the froth engendered by the heated plates may pass over into a descending passage, and return cooled to the main body of the flux.



The flux-pot *a*, overflow *h*, settling-vessel *i*, or equivalent device, and return-opening *d A*, so as to produce an automatic circulation of the flux, substantially as and for the purposes set forth.

171,689. WATER-TRAP SUPPLIES AND VENTILATORS. John H. Morrell, New York, N. Y. [Filed Nov. 6, 1875.]

Brief.—The object is to provide for ventilation during the downflow of water through the pipes, also to provide for the water-supply and ventilation of the traps and their adjuncts. The reservoir has an additional supply-pipe, as seen. The water-pipe has within it a ventilating-pipe, as described.



1. The combination, with the reservoir D, or with one or more of the pipes G, of a water-supply pipe, F, substantially as and for the purpose described.

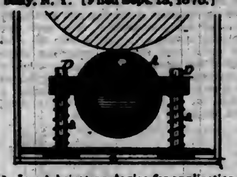
2. The combination, with pipe H, of a ventilating-pipe, O, arranged and operated substantially as described.

3. The combination of the ventilating and supply pipes H O with the traps, water-closets, or urinals, substantially in the manner herein described.

4. The combination, with the pipes H O, of branch distributing and ventilating pipes H' O' H'' O'', substantially as described.

5. The arrangement of the ventilating and water-supply pipes H H' H'' O O' O'' with the urinal I, substantially as described.

171,690. LUBRICATORS FOR CAR-AXLE JOURNALS. George M. Morris, Coboes, assignee of two-thirds his right to Peter D. Niver, same place, and Peter Hogan, Albany, N. Y. [Filed Sept. 13, 1875.]



1. In a lubricating device for application to a journal of a car-axle within the housing of the same, the combination, with the lubricating wheel-roller and its shaft, of the full bearing C and notched bearing C', both supported in an elastic manner, and the latter capable of being separately and previously depressed in relation to the former, and the former capable of rotating the wheel and its shaft in position, substantially as and for the purpose set forth.

2. The combination, with the full bearing C, supported in an elastic manner from base E F, and notched bearing C', also supported in an elastic manner from said base, and capable of being depressed previous to the bearing C, which may itself be subsequently depressed, of the shaft B, carrying the wheel-shaped roller A, having shoulders *a a* at a point about mid-way between said wheel-roller and bearings C C', and journals *a a'* extended from said shoulders outward past the outer sides of said bearing for operations, substantially as set forth.

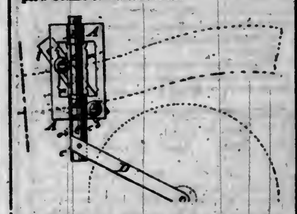
171,691. HEATING-STOVES. Wm. M. Morse and Morris G. Knox, Harmar, Ohio. [Filed Dec. 11, 1875.]



The shell or cylinder of the stove constructed in one or more sections, B, having radial air-inlets D and a vertical outlet, F, connecting with a passage through the top, substantially as specified.

171,692. COLLARS. Andrew Muir, Sparta, Ill. [Filed Oct. 6, 1875.]

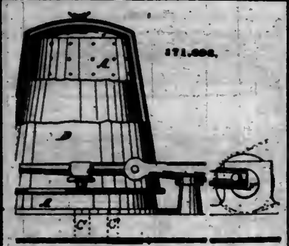
Brief.—Devices to adapt the collar-clamp to plow-beams of various sizes.



The plate A, provided with parallel vertical slots *a'*, having notches *f* located opposite or in pairs, and the collar-bearings B B, in combination with bolts E E, as shown and described, for the purpose specified.

171,693. FELTING-MACHINES. Jeremiah J. O'Sullivan, Brooklyn, N. Y. [Filed Oct. 2, 1875.]

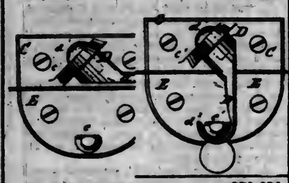
Brief.—The "body," as set up upon the "former," is placed upon a perforated cone, into which steam is admitted, then covered by an imperforate conical cap, which receives a rotary reciprocating motion through suitable mechanism, thus hardening the "body."



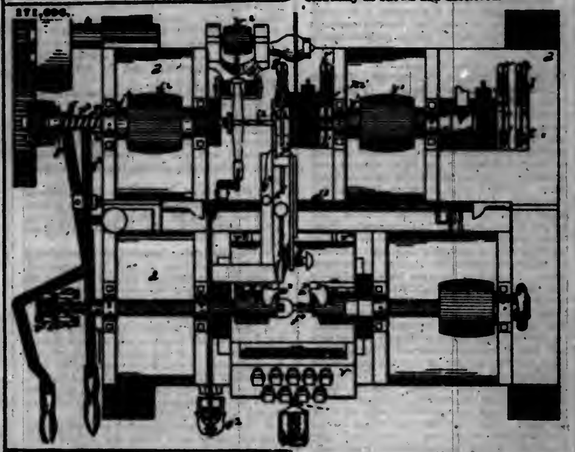
The combination, with hollow cone A, having steam-inlet and water-outlet, of the cone D, having a rotary reciprocating motion, as and for the purpose specified.

171,694. FASTENINGS FOR THE MEETING-RAILS OF SASHES. Joseph R. Payson, Chicago, Ill. [Filed Dec. 4, 1875.]

Brief.—A locking-arm of peculiar shape is pivoted diagonally, at an angle of about forty-five degrees, with the length of the meeting-rails, there being a suitable lug on one base-plate, and a pin on the other, around which the hooked end of the arm catches; the construction being such that the swinging of the arm tends to draw the lower sash up, or the upper sash down, when not fully closed, while the arm is readily turned back in line, entirely out of the way of raising or lowering the sashes.



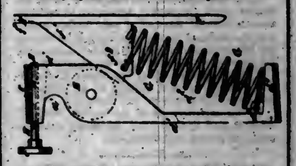
171,694.



171,695.

171,695. SASH-HOLDERS. Jos. R. Payson, Chicago, Ill. [Filed Dec. 4, 1875.]

Brief.—As an improvement on former Patent No. 70,604, November 5, 1867. A suitable inclined projection is formed on the back of the friction-plate, which enters an elongated slot in the box, where it bears upon and traverses a friction-roller pivoted within the box. There is also a seat for the spring, and a thumb-screw bolt arranged to bear on the inclined projection of the friction-plate.



1. The combination of the inclined projection *f'* and the roller E with the friction-plate F and the spring G, substantially as herein shown and described.

2. The combination of the box D, having its lower forward part cut away in such manner as to leave a seat, *d'*, for the spring G, with the said spring G, the roller E, and the inclined projection *f'* of the friction-plate F, substantially as herein shown and described.

3. The combination of the thumb-screw H and the screw-hole *b'* of box D with the inclined surface *f'* and the inclined projection *f'* of the friction-plate F, roller E, and spring G, substantially as herein shown and described.

171,696. GAGE-LATHES. John M. Parker, South Manchester, Conn. [Filed July 2, 1875.]

Brief.—The square rods from which the spools are to be made pass through a hollow revolving turning-tool, which reduces them to a cylindrical shape. They are then cut to the proper length by an automatically-operating circular saw, and are then bored and passed to the lathe-centers, in which the spool is completely finished by the application of suitable automatically-moving tools.

1. The combination of the jaw *f* with arm *m*, the pitman *n*, and jaw *o*, all operating substantially as shown and described.

2. The combination of the cam *p*, jaw *r*, pillar *s*, pitman *t*, jaw *u*, and the slide *y* with the rougher *v'*, all operating substantially as shown and described.

3. The combination of the slide *y*, cam *z*, pin *a'*, block *b'*, screw *c'*, bearing worm-gear, and worm-shaft *e*, all operating substantially as shown and described.

4. In combination, the rougher *v'*, with its hollow shaft, the saw *v'*, arranged to reciprocate at the end of said hollow shaft, and the

auger-bit f^2, arranged to bore the stock while proceeding from said hollow shaft, all substantially as described.

5. The combination of the auger-bit f^2, shaft f, spring f^3, adjusting-lever e^3, pitman e^2, crank-shaft e^1, and cam f^1, all arranged to operate substantially as shown and described.

6. The combination of the lever e^3, fulcrum-block e^4, screw e^5, and fulcrum-post e^6, all arranged to operate substantially as shown and described.

7. In combination, the rougher e^7, with its hollow shaft, the saw e^8, arranged to reciprocate in front of the end of said hollow shaft, and the inclined trough f^7, arranged to receive the blanks as sawed off and convey them away by gravity, all substantially as described.

8. The combination of the feeder e^9, feeder-top f^5, screw f^6, and springs h^2, all arranged substantially as shown and described.

9. The combination of the hooked lever e^{10}, lever h^1, and spring e^{11}, all operating substantially as shown and described.

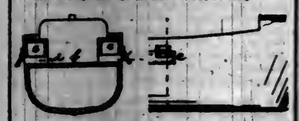
171,697. FRAMES-HOOKS. James H. Place, Gloucester, Mass. (Filed Nov. 20, 1875.)



1. As a new article of manufacture, a squid-jigger, the pins or pointed spurs of which are secured to the body by casting the metal around them, substantially as and for the purpose specified.

2. A squid-jigger, consisting of the body A, with base a, bolt a, pins or spurs b, and the cap B, constructed and arranged substantially as and for the purpose set forth.

171,698. LIFE-BOATS. John M. Richardson, Auburn, Me. (Filed Nov. 18, 1875.)

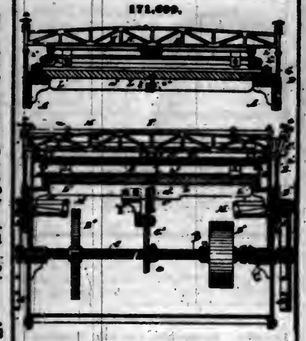


The combination, in an ordinary life-boat, of the water-tight deck b, air-spaces f, air-reservoir c, located as described, having openings d, and valves e, as and for the purpose herein set forth.

171,699. LOOMING-MACHINES. Thomas Bateman, Toronto, Canada. (Filed July 17, 1874.)

Brief.—Prints, cuts, molds, and starches lasenges. Dough sheet on board covered with knitting-cloth advanced and stopped automatically at even distances, is passed beneath yielding dies having the inked mottoes, and printed by pressing the dies by suitable hand-lever. Printed sheet is passed beneath bed-two cutters, which move down onto the sheet. Sheet is held when cutters rise out of it. Bar passes under cutters to hold lasenges in them, while pushers pass over cutters to forward lasenges onto a traveling carriage. Outside of cutters is meanwhile at each cut scraped clean. As soon as lasenges strike carriage a loop falls behind them, and carriage is drawn forward by a device hooked to it, until the hooks strike stops, which disengage the hooks from the carriage when it rests; but the heading device drags the loop (resting on carriage and behind lasenges) forward over the carriage, pulling lasenges off carriage onto boards in front of the cutting-machine. Conveying to cutters, cutting, holding, pushing, cleaning cutters, and forwarding lasenges accomplished through cam-grooves inside of, or by the same inside and outside projections on the outside of, two wheels placed outside of main frame of machine, and actuated by the main shaft. Molding device is set at right angles to main machine. Two upper and two under rollers, the latter having molds cut in them or in a bed between them. Bodies rubber belt over each set of rollers. Powdered starch fed from hopper onto bands. Upper set pressed down onto lasenges lying between the sets. Horizontal hinged hand-lever, with downward fingers placed behind every second lasenge of two rows, is pushed forward to place lasenges in position for molding. Molded lasenges fall into liquid-starch pan, and are finally dried.

171,699.



1. The driving-shaft B, driving-pulley B^1, fly-wheel B^2, toothed wheels B^3 and B^4, shaft C, and wheels D, with eccentric channels d sunk in their faces, in combination with the friction-rollers d^1, standards E, and cutter-head F, the said standards E working in guides F^1, fastened to the frame A, and having adjustable boxes E^1, to which the rollers d^1 are attached, the top of the said standards also being hinged and slotted to fit over the ends of the head F, and held in place by screws e^1, all arranged and operating substantially as described, and for the purpose specified.

2. The cutter-head F, with dies N attached, to which a reciprocating up-and-down motion is given in the manner described, but held stationary during the time that the pushers g are operating, substantially as described, and for the purpose specified.

3. The hollow cutters or dies N, constructed as shown, with the base a, side stems a', and open at the front and rear above the base, attached to the head F, to which a reciprocating up-and-down motion is given, arranged and operating substantially as described, and for the purpose specified.

4. The pivoted levers D^1, connected to and worked from the eccentric channels d in the wheels D by the friction-rollers d^1, the reciprocating sliding frame G, having attached the lifters E^1, with inclosed channels h^1, bar H, with end bearings h^2, having connected the rods and spiral springs h, in combination with the cutters F, arranged and operating substantially as described, and for the purpose specified.

5. The pivoted levers D^1, connected to and worked from the eccentric channels d in the wheels D by the friction-rollers d^1, the reciprocating sliding frame G, having attached the adjustable pushers g, in combination with the cutters F, arranged and operating substantially as described, and for the purpose specified.

6. The cams m', attached to the outside of the wheels D, in combination with the system of levers M and M^1, arranged and operating substantially as described, and for the purpose specified.

7. The eccentric c, fastened to the revolving shaft C, pivoted lever C', with spring-pawl c^2, in combination with the toothed rack k, sunk in the lower side of the cutting-boards L, arranged and operating substantially as described, and for the purpose specified.

8. The pivoted toothed quadrant D^2, with leg d^2, connected to and operated from the revolving wheel D by the connecting-rod d^3, the toothed wheel D^3 and D^4, in combination with the toothed rack D^5, having the cross-head I, and working on the curved guides J, arranged and operating substantially as described, and for the purpose specified.

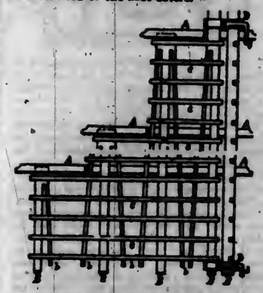
9. The reciprocating-shelf S^1, in combination with the cutter-head F and the pushers g, arranged and operating substantially as described, and for the purpose specified.

10. The independent carriage F^1, having the hinged guard f^1 attached, and operated by the horns f^2, in combination with the shelf S^1, arranged and operating substantially as described, and for the purpose specified.

11. The hinged latch f^3, attached to F^1, in combination with the shelf S^1, arranged and operating substantially as described, and for the purpose specified.

171,700. STANDS FOR PLANTS. George C. Setchell, Norwich, Conn. (Filed Aug. 20, 1875.)

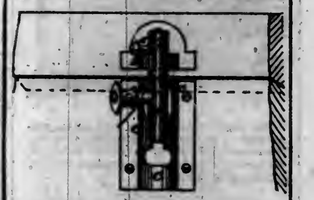
Brief.—The upright part of the frame consists of two or more pairs of posts, two of which are secured at the top and bottom by means of metallic brackets. The posts are formed by sawing a thin strip from the sides to a point near the top, spreading these pieces at the bottom, and cutting notches for the reception of transverse bars. The shelves rest upon the top of the posts by means of a mortice cut in the under side of the shelf, which the tou of the post enters.



The plant-stand herein described, consisting of shelves A A, resting upon two or more series of posts, and frame-work B b c, held together by the supports D D, combined substantially as and for the purpose herein set forth.

171,701. BOLTS FOR WINDOW-FASTENINGS. Jas. Herbert Seymour, Brooklyn, N. Y. (Filed Nov. 19, 1875.)

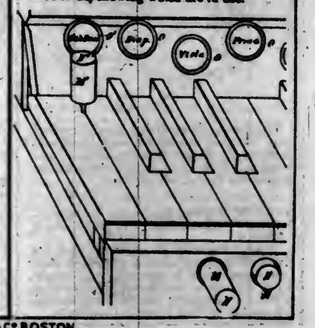
Brief.—The nose or projecting end of a sliding bolt being provided with a stem or guard-pin, which, passing through a slotted keeper, turns downward, and double locks the bolt in position.



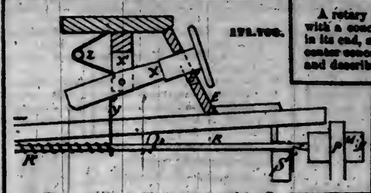
A guard-pin on the projecting end of a sliding bolt, in combination, and engaging, with a slotted keeper, as and for the purpose specified.

171,702. REED-ORGAN STOP-ACTIONS. J. A. Smith, North East, Pa. (Filed July 31, 1874.)

Brief.—Push-buttons for thumb or finger pressure operate indicators close to the name-board front, showing which are in use.



171,702.



1. The vertically-oscillating stop-register O O', arranged immediately in front of the name-board, substantially as described and shown, to thereby indicate the position of the stop corresponding therewith.

2. The combination of the stop-key M with the catch r and a spring, all arranged to operate substantially as and for the purposes set forth.

3. The combination of the key M and rod B with the register-lever X, or its equivalent, arranged substantially as shown, and for the purposes mentioned.

4. The construction of the knee-lever a with the bracing-plate b, as shown, and for the purposes mentioned.

5. The catch-lever f, in combination with the releasing-lever d, as shown, and for the purposes mentioned.

6. The register O and register-lever X, in combination with the slotted name-board E, constructed and arranged as shown, and for the purposes mentioned.

7. The quadrangular cut of levers n n n n, in conjunction with the knee-lever a, all arranged to operate as shown, and for the purposes mentioned.

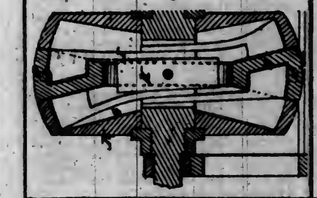
171,703. TOY GYMNASTS. Reuben A. Smith, East Weare, N. H. (Filed Mar. 6, 1875.)



The figures D, provided with the perforated arms f and notched arms e, in combination with the central washer g, cords c, side levers B, and platform A, all constructed and arranged to operate substantially as and for the purpose specified.

171,704. ROTARY ENGINES. Thomas Swinburn, Charleston, W. Va. (Filed June 12, 1875.)

Brief.—The stationary disk is provided with a steamway on each side, the bottoms of which are elliptical to the faces of the disk, so that at one point they vanish in the surface, to break the continuity for cutting off steam.



A rotary engine whose cylinder is provided with a concentric groove arranged obliquely in its end, and a piston, working from a fixed center concentric with said groove, as shown and described.



171,705. WIRE-STRETCHERS. Seaman Tober, Russel Tober, and Chas. M. Morgan, Hooper, Iowa, assignors to Seaman Tober, D. F. Morgan, and Chas. M. Morgan, same place. (Filed Aug. 26, 1875.)

Brief.—The drum is pivoted, and has a hollow head with grooves to receive the correspondingly-grooved head of a hand-lever or wrench. The wire is coiled around the drum and the drum held by a pawl, which engages with ratchets at the base of the drum. The opposite end of the implement is hooked upon the wire to prevent its accidental displacement.

1. The combination of the bar A, made with a head or offset, the pins or hooks B, the pivoted hollow drum C, slotted longitudinally, and having the alternate edges of its slots curved inward, the ratchet-wheel D, and the pawl E, with each other, substantially as herein shown and described.

2. The wrench FG, constructed as described, in combination with the drum C of the device A B C D E, substantially as herein shown and described.

171,706. HAND-PLOWS. M. Y. Thompson, Arkadelphia, Ark. (Filed Aug. 14, 1875.)

Brief.—The curved and twisted drag-bars affording handle and shovel seats, and made of one continuous bar of iron.

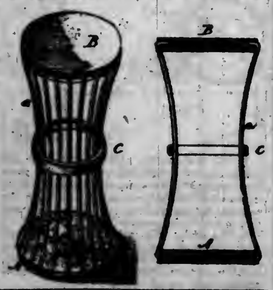
171,706.



The combination of the bars A A, having their ends twisted and bent backward, as described, with the wooden handles G, the wheel upon which the plow is mounted, and the plow-beam attached to said bars, substantially as herein described and shown.

171,707. DIES-BOXES. Alfred Walker, New Haven, Conn. (Filed Nov. 16, 1875.)

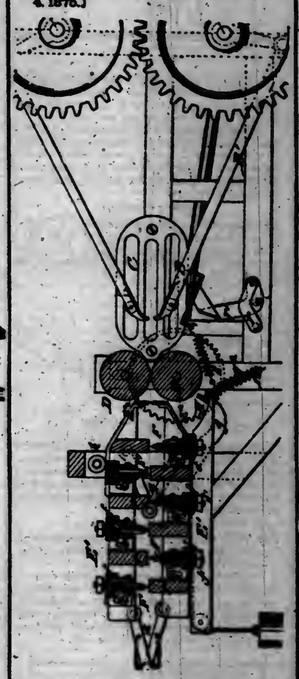
Brief.—Wires, the ends of which take into perforations in the edges of the disks, are sprung into place and held by the center ring.



1. A disc-box consisting of the two flat disks or heads A B, connected by an open-work case arranged to expose the disc on either head, according to the position in which the box is set, as set forth.

2. The two disks or heads A B, connected by a series of vertical wires or rods, a, the ends of which are turned into corresponding perforations in said heads, and combined with the securing or encircling ring C, substantially as described.

171,708. BITTLE-MACHINES. G. R. Wellin, Parras de la Fuente, Mexico. (Filed Sept. 4, 1875.)



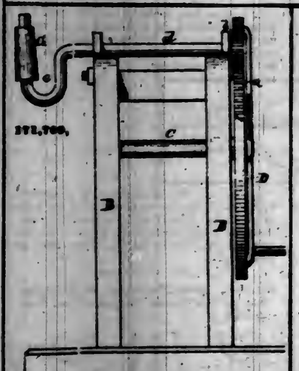
1. The sliding scraper-frame B, made of an upper and lower section, F, which are connected by toggle-levers a and springs b, and constructed of alternating scraper-knives F and blocks F^1 that sit jointly on the interposed leaves, substantially in the manner specified.

2. The scraping-knife F of the scraper-frame, made of a series of alternately overlapping blades, which are guided and yield to adjust themselves to the thickness of the leaves, substantially as described.

3. The scraper-frame herein described, provided with a swinging and spring gage-plate, E, to secure position of leaves and drop out of the way on forward motion of frame, as set forth.

4. The sliding scraper-frame B, having inclined end jaws in combination with the top rollers A, which compress the scraper sections F^1, and feed leaves to draw-rollers g, substantially as described.

171,709. MACHINES FOR TWISTING HAY OR STRAW. Addison A. Wells, Iowa Falls, Iowa. (Filed Aug. 12, 1875.)

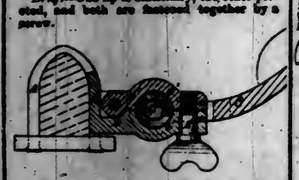


171,709.

1. The combination, with the rotating shaft d, of the U-shaped crank e and removable conical or tapering sleeve O, substantially as and for the purposes herein set forth.
2. The combination of the standards B B, shaft C, wheel D, having interior cogs a, shaft d, with piston b, and U-shaped crank e, and the conical or tapering sleeve O, all constructed substantially as and for the purposes herein set forth.

171,710. TELL-COUPLINGS. D. D. Whitney, Beverly, N. J. [Filed Dec. 4, 1875.]

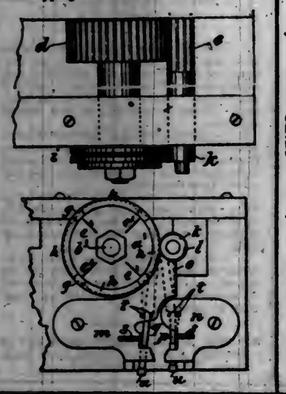
Brief.—One lip is stationary, the other pivoted, and both are fastened together by a screw.



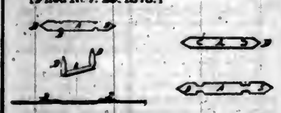
The combination of the hand-screw E with the forward end of the rigid arm B and the forward end of the hinged arm D, for securing the pin d of the thill-iron C in place in the notches of the said arms B D, substantially as herein shown and described.

171,711. MACHINES FOR MAKING HORSESHOE-NAILS. John S. Wilks, Keeseville, N. Y. [Filed Dec. 7, 1875.]

Brief.—The disk which confines the dies to the shaft is provided with radial cuts for imparting spring, to enable it to act in a manner separately on them in case of irregularities. The guides subserve the additional purpose of stripping the blank from the dies.



171,712. PAPER-FASTENERS. James Adair, Killbuck Township, (Pittsburg, P. O.,) Pa. [Filed Nov. 29, 1875.]



1. A paper-fastener consisting of a staple or body, A, and terminating prongs D, bent at right angles thereto, and having the prongs weakened externally or internally at the corners or angles, substantially as and for the purpose specified.
2. A paper-fastener having nicks, notches, or serrations on the edges of its penetrating prongs, for engaging with the paper where penetrated, substantially as described.

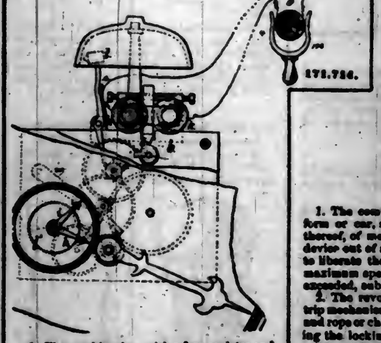
171,713. PISH-BARS FOR RAILROAD-RAIL JOINTS. Jas. M. Atkinson, Pittsburg, Pa. [Filed Dec. 11, 1875.]



The fish-bar B', provided with lug h, formed by bending one end of the bar and then twisting the same into the shape shown and described.

171,714. ELECTRICAL FARE-REGISTER. Gerhard Borgmeyer, New York, N. Y. [Filed May 17, 1875.]

Brief.—Register run by clock-work, released one step whenever circuit is closed. Circuit-rod extends length of car, consisting of insulating-base with metal strips, forming battery terminals on opposite sides. Circuit completed between them by conductor applying a metal fork.

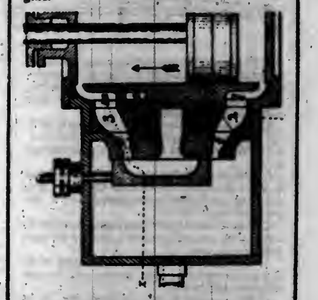


171,714.

1. The combination, with a fare-register and indicating hand and dial, of a train of gearing actuated by a spring, and an escapement operated by the conductor, so as to move the register by the gearing and spring as each fare is received, as set forth.
2. The bar c, with metallic strips on opposite sides and the circuit-closing fork m, in combination with the fare-register for a car, and the electro-magnet for actuating the same, substantially as set forth.

171,715. REVERSING-VALVES FOR STEAM-ENGINES. Seth H. Bevins, New York, N. Y., and Joseph Wein, Jersey City, N. J. [Filed Nov. 1., 1875.]

Brief.—By moving the transverse valves, the course of the steam from the slide-valve is changed, through additional ports, to opposite ends of the cylinder, to reverse the engine.



The secondary valves A B, constructed substantially as specified, and sliding transversely of the engine-cylinder in chambers between the main valve and the engine, in combination with the short ports l and m, and long ports n and o, substantially as set forth.

171,716. ELEVATORS FOR BUILDINGS. Seth H. Bevins, New York, N. Y., and Joseph Wein, Jersey City, N. J. [Filed Nov. 16, 1875.]

Brief.—The rapid revolution given to a governor-pulley, when the car is falling, operates by centrifugal force to outstretch a pivoted and weighted arm, and strike away the support of a weighted brake-lever, with the effect of releasing spring-bolt catches attached to the under side of the car.

171,716.

1. The combination, with an elevator platform or car, and the locking pawls or bolts thereof, of mechanism to hold such locking device out of action, and a revolving hammer to liberate the locking mechanism when the maximum speed of such revolving hammer is expended, substantially as set forth.
2. The revolving centrifugal hammer and trip mechanism, in combination with the brake and rope or chain, and the mechanism for holding the locking bolts or pawls out of action, substantially as set forth.
3. The automatic locking-bolts c, placed beneath the platform, in combination with the jaw p, shaft k, and lever l, for holding or liberating such bolts, substantially as specified.
4. The rope or chain m, attached to the lever l, and passing around the respective pulleys n n' r, in combination with the centrifugal hammer t, the brake 7, and the mechanism for liberating the automatic locking-bolts c, substantially as specified.

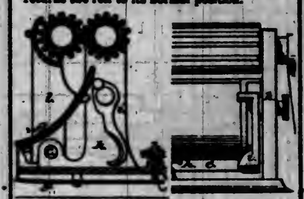
171,717. COMBS. Benjamin F. Britton, New York, N. Y. [Filed Dec. 13, 1875.]



The comb A, having teeth b, and constructed with one or more holes, eyes, sockets, or holders, a', for the reception of hair-pins, to assist the teeth of the comb in retaining the comb in place upon the head, substantially as herein set forth.

171,718. FLOATING-MACHINES. J. Broughton, Brooklyn, N. Y., assignor to A. H. Lowrere and T. M. Tasker, Newark, N. J. [Filed Apr. 27, 1875.]

Brief.—The press-roll swings on the pivoted arm, and is moved by the lever. The spring returns the roll to its normal position.



1. The side arm B, studs d, pivots e, and lever bar f, constructed and arranged substantially as described, and combined with the base-plate a of a fleting-machine, as and for the purposes specified and shown.
2. The stud f, spring g, thumb-screw h, lever i, in combination with a fleting-machine having the axes of the rolls horizontal and in a plane parallel with the base-plate of the machine, as and for the purposes set forth.
3. The deflecting-bar A, either detachable or forming part of the frame of the machine, in combination with a fleting-machine having the axes of its rolls horizontal and in a plane parallel with the base of the fleting-machine.

171,719. WATER-REPELLENT LEATHER-DUBBING. Emil F. Dieterichs, Philadelphia, Pa. [Filed May 11, 1875.]

As a new manufacture, oil preparation consisting of an alumina compound insoluble in water, dissolved in oil or fatty matter, substantially as set forth, for the purpose specified.

171,720. WATERPROOFING COMPOUNDS FOR BAGS, &c. Thomas H. Dunham, Boston, Mass. [Filed June 1, 1875.]

A compound for saturating cotton bagging and bags, consisting of tallow, tar, resin, ocher, sulphur, baryta, potash, lime, clay, chalk, and sulphate of ammonia, substantially as described.

171,721. RAILWAYS. Nehemiah Gibson, Boston, Mass. [Filed Nov. 13, 1875.]



In a system of railway transportation, the combination of the rope-engine L H H' F', the rope K, and short pivoted rails M M', attached to and forming part of the rolling stock, with the series of rollers B B B, all operating together substantially as described, and for the purpose set forth.

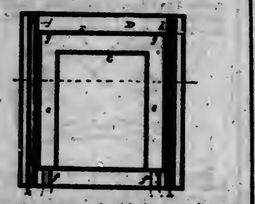
171,722. FLOATING DRAW-BRIDGE. Henry H. Gerringe, Washington, D. C., assignor of one-fourth his right to J. B. Gerringe, same place. [Filed Dec. 13, 1875.]



1. A number of floats of suitable dimensions and construction, secured in pairs or singly to pivots screwed or driven into the river-bed, and secured to anchors placed in suitable positions in the river-bed, so that they will form a continuous roadway across a river or other navigable water, and open at any or all points to permit the free passage of vessels without confining them to one draw-opening, or any particular channel or locality, substantially as described.
2. The floating approach or bail X', provided with an inclined or angular bottom, K, and an inclined or angular end, I, either or both, substantially as and for the purpose shown.
3. In combination with the crutch or bearing E G, the chain W, secured to the pivot P and eyebolt F, or roved through a sheave and secured on the deck of the float X, substantially as and for the purpose shown.
4. In combination with the floats X, pivots P, anchors A, chains C, the end floats X', and the bearing and chain E, G, and W, substantially as and for the purpose shown.

171,723. FIRE-PROOF SAFES. William Hegarty, Monongahela City, Pa., assignor to himself and John Corey, same place. [Filed Nov. 13, 1875.]

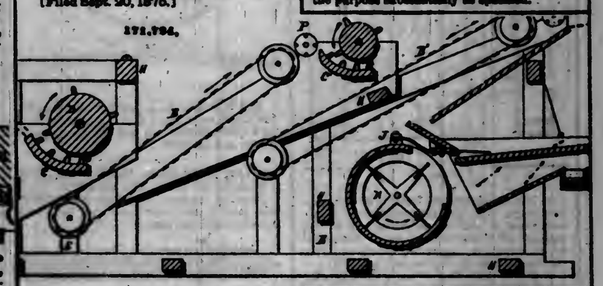
Brief.—A safe constructed with inner and outer communicating water-chambers, having inlet and outlet pipes, so arranged that the water flows first into the inner chamber, thence into the outer chamber, and out through the outlet-pipes.



A safe constructed with inner and outer water-chambers a D, respectively provided with inlet and outlet pipes f h, said chambers communicating with each other and with the doors I k, substantially as shown and described, and for the purpose specified.

171,724. BEAM TENDERERS AND SEPARATORS. Charles S. Hall, Rochester, N. Y. [Filed Sept. 20, 1875.]

171,724.



The combination, substantially as shown,

of the primary threshing-cylinder and concave D O and belt R, with or without the picker P, with the secondary or auxiliary belt B', and threshing-cylinder and concave D' O', all relatively arranged as described, whereby the threshed beans escape a rethreshing, while the imperfectly-threshed material is subjected to such rethreshing before passing out of the machine, as set forth.

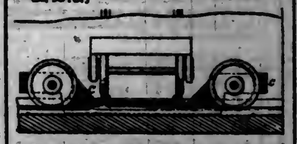
171,725. BEATER-RODS FOR THRASHING-MACHINES. Chas. S. Hall, Rochester, N. Y. [Filed July 31, 1875.]

Brief.—Beaters so attached to central support as to leave their surfaces smooth, to prevent clogging.



As an improvement in skeleton pickers or beaters for grain-thrashing separators, the central support C, provided with bat-blocks a to receive the clamping-screws b, substantially in the manner and for the purposes set forth.

171,726. RAILWAY TRANSFER-TABLES. C. Hathaway, Cleveland, Ohio. [Filed Sept. 21, 1875.]



In combination with two or more railroad-tracks and a depressed transverse track, a removable adapted to move on said transverse track, carrying a movable section of the main tracks, supported by the trusstrees C C, all constructed, combined, and arranged to operate substantially as described.

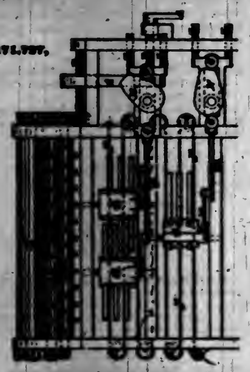
171,727. MACHINES FOR CLEANING CARPETS. James Hothersall, New York, N. Y. [Filed Nov. 4, 1875.]

Brief.—The beaters are double, and strike a blow at each throw of the actuating-crank. Ropes are attached to the inner side of the frame, to furnish a support for the carpet while being beaten.

1. The bars B B', carrying rollers C and D, brush-roller E, and cords F, in combination with double beaters G, arranged in relation with the cords F on both sides of the machine, and operating upon a carpet connected together at its ends, substantially as herein described.
2. The cords F stretched between the bars B and B', having one end fastened to the frame, and the other end to a spindle, a, provided with a ratchet-wheel and pawl, in combination with rollers a, in the manner and for the purpose substantially as specified.
3. The combination of cams K, attached to the end of shafts H, bars J, provided with friction-rollers a, rods E, arms a, and beaters G, substantially as described and set forth.

4. The position of the buckets G, alternately to each other in the upper and lower rows, to act upon different parts of the carpet, in the manner and for the purpose substantially as specified.

171,727,



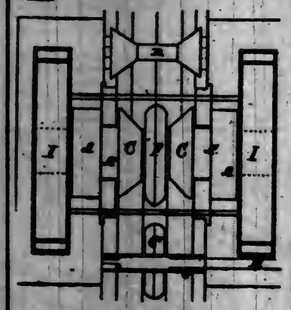
171,728. FASTENER FASTENER. Martin Howard, Cincinnati, Ohio, assignor of one-half his right to F. B. Thompson, same place. [Filed Nov. 11, 1875.]



As a new article of manufacture, the padding material composed of alternate layers of pyroxlined paper and cotton or other batting or wadding, substantially as set forth.

171,729. MACHINE FOR RIVETING METAL-BEARS. Jos. Jenkins and Nehemiah Frank, Buffalo, N. Y. [Filed May 14, 1875.]

Brief.—The beam is fed under the forming-roll, which progresses it for the stamping-roll. The spool-shaped roll prevents warping as the beam passes through and out of the machine.

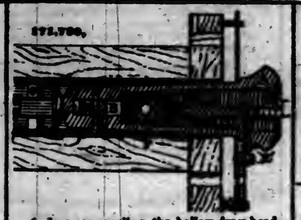


1. In a machine for the bending of wrought-iron beams width but, the combination of the rolls I and G with the guides M and F, the forming-roll C, and the spool-roll D, constructed, combined, and operating substantially in the manner and for the purpose specified.

2. The combination of the rolls I and G, substantially as described.

171,730. CAR-COUPLINGS. John Kessler, Buffalo, N. Y. [Filed Oct. 6, 1875.]

171,730,



1. In a car-coupling, the hollow draw-head and bumper A pivoted within the slot B'' of the depending bracket B, with capability of a combined lateral and vertical movement, in combination with the barbed coupling-bar E, pivoted within said draw-head (by the transverse bolt F) with capability of a horizontal motion, and projecting with its barbed head only out of said draw-head, substantially as described, for the purpose set forth.

2. The bolster draw-head and bolter A, in combination with the hook E, provided with the spring H, and pivoted within said draw-head by the transverse bolt F, said draw-head A being pivoted to the depending bracket B by the bolt G, and the hook operated by the connecting-rods E D', lever P, and hand-rod S, the whole when constructed and arranged, substantially as described, for the use and purpose set forth.

3. The combination, with the draw-head A, provided with the barbed coupling-bar E in its interior, of the steel D', passing through the wall opposite the barbed head, connecting-rod E, pivoted lever P, hand-rod S, and connecting with the said lever P at T, and the guide U, all being constructed as described.

171,731. GATE-LATCHES. William H. Kay, Philadelphia, Pa. [Filed Dec. 6, 1875.]

Brief.—The hanger of a pivoted gate-latch is cast with two flanges—one at the lower and one at the upper edge. The lever flange is provided with two feathers, and an angular recess for the latch. The upper flange has a central fixed stop or projection, which forces the latch into its locking-recess when the gate is shut in either direction.



The catch A, having the stationary lever flange a^{2}, provided with the fixed or immovable notch a^{3} and locking-planes d d, and the stationary upper flange a^{1}, provided with the fixed stop b, the said parts being constructed and arranged to operate upon the latch B in the manner described.

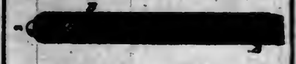
171,732. AXLES. Wm. W. Kinner, Goshen, Ind. [Filed Oct. 9, 1875.]



In a vehicle-axle, A, having the brass D, the blocks or pads d f, held in place by clips c c c, substantially as and for the purpose shown and specified.

171,733. STAIR-RODS. Martin Kridel, New York, N. Y. [Filed Dec. 17, 1875.]

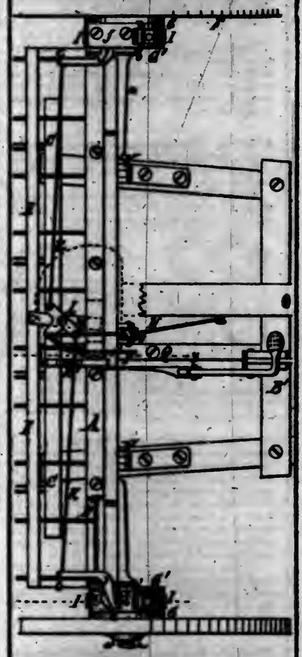
Brief.—A wooden core stair-rod covered with braided yarn, which may be of color and style to match the carpet.



The stair-rod A, as a new article of manufacture, covered with braided yarn or thread, substantially as specified.

171,734. HORSE-RAKES. William J. Lane, Millbrook, assignor to Richard Carpenter, Jr., and Wm. H. Field, Fort Chester, N. Y. [Filed Sept. 8, 1875.]

Brief.—The rake is raised by forward motion of shoulder through medium of bifurcated connecting-rods, and is held by a pawl and ratchet of wheels, and a self-acting stop regulates the extent of elevation of rake. The rake is kept in working position by a foot-lever arranged in front of a hand-lever, and is also adapted to be tipped by a hand-lever when necessary.



1. The combination of the levers G G', each provided with a ratchet and pawl, frictional compression-straps I I, elbow-levers J J, rods K K, vibrating lever L, and cord M, substantially as and for the purpose described.

2. The lever J, connected to the bracket of the frictional compression-strap I, by a trunnion-joint, c, and bearing, by a forward pull, against a pin, d, in the end of the said strap, substantially as and for the purpose herein described.

3. The equalizing or compensating device M, in combination with the rods K K, levers J J and L, substantially as and for the purpose set forth.

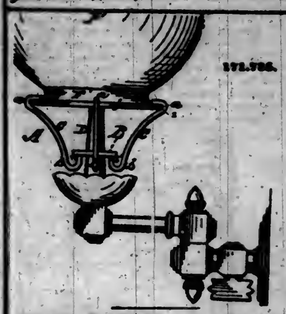
4. The rod P and pawl-stop Q, for controlling the extent of the elevation of the rake-head, and relieving the compression-straps and intermediate mechanism, substantially as described.

5. The hand-dumping lever S, operated in the rotation specified, to the foot-treadle or lever R, in combination with a rake-head provided with mechanism which will, when brought into use, enable the teeth of the head or rasps to raise the teeth and dump the load without moving said hand-lever along with the foot-lever or treadle, substantially as described.

171,735. GLOBE-HOLDERS. T. P. McGann, Boston, Mass. [Filed Oct. 20, 1875.]

As a new article of manufacture, the within-described globe-holder, consisting of the flat metallic plate B and arms C, each composed of a single elastic rod or wire riveted to the plate, curved gradually outward, and bent inward horizontally at the end to form a hook, a, as specified.

171,736.



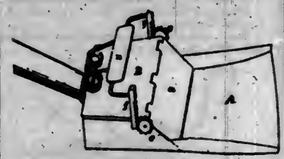
171,736. AWL-HANDLES. Levi H. Page and Christian F. Schroeder, Chicago, Ill.; said Page assignor to Bertha Campbell, same place. [Filed Nov. 10, 1875.]

Brief.—The leather disks are screwed separately upon a threaded tang, and then turned in a lathe.



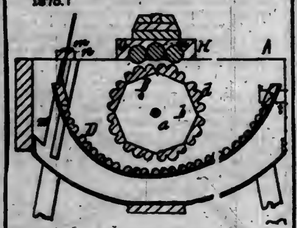
An awl-handle, composed of leather disks D, which are screwed upon the screw-threaded tang C of the clamp A, substantially in the manner and for the purpose specified.

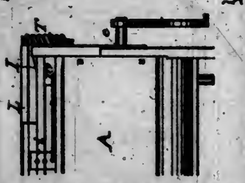
171,737. DUST-PANS. Walter J. Parker, San Jose, Cal. [Filed May 24, 1875.]



In a dust-pan, the combination, with the door a, of the bar D, having cog-wheels c, the axle D, horizontal cog-bars f, thumb-piece e, and spiral spring e, all constructed substantially as and for the purpose described.

171,738. WASHING-MACHINES. William R. Reed, Chillicothe, Mo. [Filed Nov. 13, 1875.]



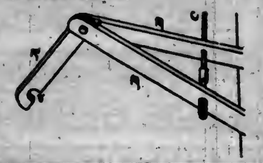


1. The combination of the drum B and adjustable apron D, having the hinged bar f and hook n, substantially as and for the purpose specified.

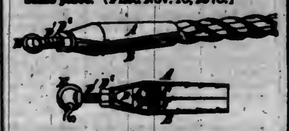
2. The combination of the cross-bar I, rolls s, and springs T, substantially as set forth.

3. The combination of the drum B, apron D, guides n', and cross-bar s, substantially for the purpose specified.

171,739. EXPANSION-JAWS FOR STAKING-LADDERS. Frederick Rote, Lancaster, Pa. [Filed Dec. 1, 1875.]



171,740. BOOT-CLAMPS. Levi H. Page, Chicago, Ill., assignor to Mark Campbell, same place. [Filed Nov. 10, 1875.]



1. In a rope-clamp, the hinged jaws A and B, in combination with the wedge D, acting against the opposed faces on one side of the hinge, to compress the rope between the jaws on the other side thereof, substantially as set forth.

2. The combination of the hinged jaws A and B, the wedge D, threaded stem D^{1}, nut D^{2}, and swivel-ring E, substantially as set forth.

171,741. WASHING-MACHINES. William R. Reed, Chillicothe, Mo. [Filed Nov. 13, 1875.]

1. The combination of the drum B and adjustable apron D, having the hinged bar f and hook n, substantially as and for the purpose specified.

2. The combination of the cross-bar I, rolls s, and springs T, substantially as set forth.

3. The combination of the drum B, apron D, guides n', and cross-bar s, substantially for the purpose specified.

171,742. WHIFFLETREE-JOINTS. Thomas Skelly, Philadelphia, Pa. [Filed [illegible] 24, 1875.]



As a new article of manufacture, a whiffletree-bolt consisting of the threaded stem A and a head, a, tapered at its opposite ends, and swaged to conform to the rounded head of the whiffletree, all as set forth.

171,744. LIGHTNING-RODS. C. H. Smith, Chicago, Ill. [Filed Dec. 8, 1875.]



A lightning-rod, consisting of two lateral wires, and a central fluted bar or strip arranged between said wires, and a copper sheathing closely following in contact the surface of the edges of said bar or strip, to form two of the ribs of the rod, and the outer surfaces of the wires to form the other two, thus enveloping the whole, substantially as specified.

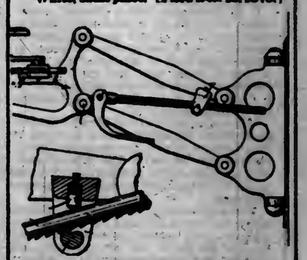
171,745. HARNESS-SADDLES. R. Spencer Brooklyn, N. Y. [Filed Apr. 17, 1875.]



1. The combination, with the bearings and trimmings of a harness-saddle, of a steel-plate spring, as and for the purpose described.

2. The crupper-loop C having a nut, a, formed out of one and the same piece, in combination with the main plate B and the water-hook D, having a screw-threaded stem, substantially as and for the purpose described.

171,746. ADJUSTABLE BRACKETS. Eli T. Starr, Philadelphia, Pa., assignor to S. S. White, same place. [Filed Dec. 13, 1875.]



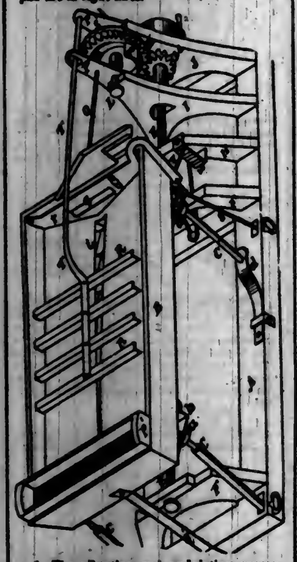
1. The combination of the crane-plate, the parallel bars pivoted thereto, the table-supporting frame, to which said bars are pivoted, the rabbet-bar and detent, and the adjustable table-supporting arm mounted on the supporting-frame in front of its pivots, these members being constructed and operating as set forth.

2. The combination of the table-supporting frame, the bar carrying the table-arm, and the clamp-lever, these members being constructed and operating as set forth.

3. The combination of the parallel arms, the rabbet-bar, the guide-frame, its stop, and spring-pieces, these members being constructed and operating as set forth.

171,747. ORE-CONCENTRATORS. James M. Thompson, San Francisco, Cal. (Filed Jan. 20, 1875.)

Brief.—The pan is mounted upon hinged standards, whose angle and length are adjustable. The forward standards are also mounted on springs. As the ore accumulates in the forward end of the pan, the springs are compressed, a gate opens, and a portion of the ores discharged. An automatic rake removes the lighter portion. The upper ends of the standards are made in the form of segments of spheres, so that the motions of the pan are in right lines.



1. The vibrating and undulating concentrating pan B supported upon hinged legs C C', the angle and length of which can be adjusted, substantially as and for the purpose above described.

2. The concentrator B mounted or suspended on the springs d d, which cause its elevation to vary in proportion to the accumulation of the heavier particles in it, in combination with the gate r, by which the elevation or depression of the pan regulates the size of the discharge-opening.

3. In combination with a vibrating concentrator, an automatic intermittent discharge, consisting of a pivoted gate, G, operated through a rod, Y, and nuts s, and caused by the back and forth movements of the pan to alternately open and close the discharge-opening, and in combination with the springs d d and plate r to regulate the discharge, substantially as described.

4. In combination with a vibrating concentrator, B, an automatic rake or scrapers, E E, operated by the movements of the concentrator by means of the pivoted lever Q, connecting-rod R', and eccentric S on the wheel K, substantially as and for the purpose described.

5. A concentrating pan or sluice-section, in which the flow of the water and the motion or concussion act together, to move all the contents of the pan in the same direction, and provided with discharge-openings at different heights for discharging all the contents at the same end of the pan.

6. A concentrating pan or sluice-section mounted or suspended on flexible bearings, which are provided with the plates a a, having spherical faces, in combination with the adjustable plates b b secured to the bottom of the pan, by which the pan is caused to move in planes either horizontal or inclined, substantially as and for the purpose described.

171,748. ABDOMINAL CORSETS. H. Turner Rochester, N. Y. (Filed Dec. 8, 1875.)



171,748.

1. In an abdominal corset, the duplex belt, constructed and arranged to be adjusted substantially in the manner shown, and for the purposes set forth.

2. In combination with the steel stays *s* and the abdominal extension-bones *b*, the long relay or auxiliary stay *d*, substantially as and for the purposes set forth.

171,749. HAND-CRANKS FOR CAR-BRAKES. Harwood Wakeman, New York, N. Y. (Filed Sept. 23, 1875.)

Brief.—Easily thrown into or out of engagement with the brake-rod.

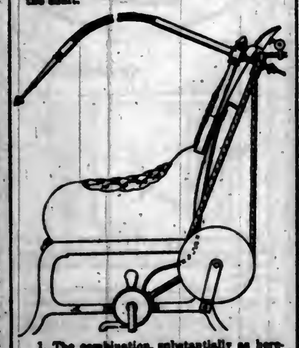


1. In disengageable crank-handles for brake-arbors, the pivoted crank-handle C, with the tooth L, and the loose collar G, to engage and disengage, as described, with the cavities F of the fixed collar E upon the arbor of the brake, substantially as herein set forth.

2. The combination and arrangement of the cap I with the pivoted loose collar G and tooth L, and cavities F, substantially as and for the purpose herein stated.

171,750. DENTAL ENGINES. S. S. White, Philadelphia, Pa. (Filed Sept. 25, 1874.)

Brief.—A water-motor is mounted upon a dental chair, and is connected by a band and pulley to a rotating shaft passing through a tubular sheath. A dental tool is rotated by the shaft.



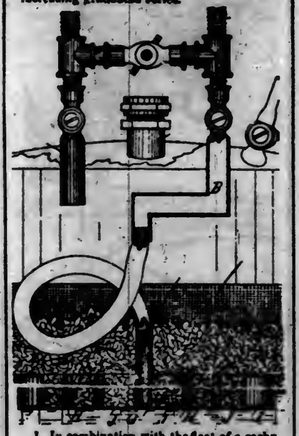
1. The combination, substantially as hereinbefore set forth, of a dental chair, a tubular sheath mounted thereon, and a dental tool, driven by a flexible shaft passing through the sheath.

2. The combination, substantially as hereinbefore set forth, of a dental chair, a water-motor mounted thereon, and belt connection driving a dental tool.

3. A dental engine, herein before described, consisting of the combination of a water-motor, valve-regulating mechanism, driving-gearing, and a dental tool, all mounted directly upon the operator's chair itself, and constructed to operate in combination, substantially as herein before set forth.

171,751. CARBURETERS. Andrew Wiggin, Boston, Mass. (Filed Nov. 15, 1875.)

Brief.—The float of the carburetor is provided with a spiral air-distributing chamber having perforated sides. Between the sides of the air-distributer is packed fibrous absorbent material. The perforations in the sides of the air-distributer are disposed in an increasing graduated series.



1. In combination with the float of a carbureter, a spiral or winding gas or air receiving and distributing chamber, having perforated vertical sides, substantially as shown and described.

2. In combination with the floating conveyor-pipe or chamber F, having its vertical sides perforated, a winding or spirally-arranged body of absorbent material placed between the coils of such distributer, carried by and rising and falling with the floating chamber, substantially as and for the purpose described.

3. In a carburetor, a winding or spiral conveyor and distributer for the air or gas, having side perforations disposed in an increasing or graduated series, substantially as and for the purpose set forth.

171,752. CORKSCREWS. Francis T. Witt, Brooklyn, assignor to King, Briggs & Co., New York, N. Y. (Filed Dec. 6, 1875.)

Brief.—The corkscrew is provided with a sheath, which may be fitted into a ring in the head, to serve as a handle.



1. The key-ring cork-screw herein described, having the two eyes B' B', adapted to receive the cam D in two positions, and the key-ring C, as herein specified.

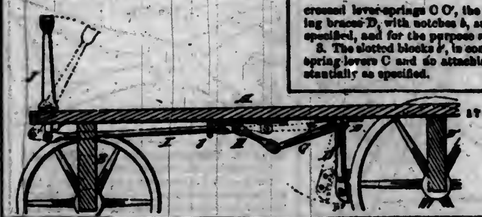
2. The combination of the cork-screw A a B' B' and the cam D, the latter constructed and adapted to operate in the aperture B', as specified.

171,753. TREATING LEATHER. H. W. Adams, Philadelphia, Pa. (Filed Sept. 27, 1875.)

The improved process of treating leather, consisting of saturating tanned skins and hides with a gelatinous solution, and then immersing them in a bath of tannic acid, all substantially as and for the purpose set forth.

171,754. VEHICLE-BRAKES. Solomon W. Adams and H. B. Whittemore, Union, N. Y. (Filed Dec. 8, 1875.)

The shaft D, having arm G, in combination with the rod I and link H, having upper rounded head and the roughened plate e on the under part of the body c, all arranged and constructed as and for the purpose specified.

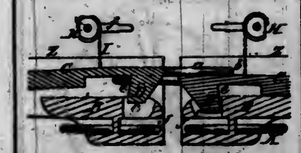


171,754.

crossed lever-springs C C', the frame B, bearing braces D, with notches b, substantially as specified, and for the purpose set forth.

3. The slotted blocks F, in combination with spring-levers C and the locking-rod, d, substantially as specified.

171,755. CAR-COUPLINGS. G. H. Amen, Adrian, Mich. (Filed Sept. 20, 1875.)



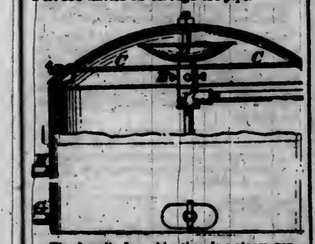
1. The long coupling-bars C, having a hook, B, and a slot, a, and contained at their inner ends to the draw-bars or the car, and their coupling ends free to be raised, whereby the coupling-bars may rise and fall to couple and uncouple, draw from their connected ends, and be held in horizontal positions.

2. The combination, with the long slotted and hooked coupling-bars C, of the jointed chocks or stops F, as described.

3. The combination, with the coupling-bars C, having each an under hook, D, and an end slot, a, and operating to couple one over and upon the other, of the open-top draw-head 2, whereby the coupled bars will drop out of the draw-heads and be separated in the event of the accidental overturning of the cars, as shown and described.

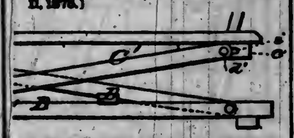
171,756. LARD-RENDERING TANKS. Peter Andover, Cincinnati, Ohio. (Filed Oct. 6, 1875.)

Brief.—The lard floating on the surface of the water contained in the tank is raised by the gradual reduction of water and strained by the strainer, thence skimmed by the skimmer, and carried off through the pipe.



The described combination, in a steam rendering-tank, of the perforated strainer C, skimmer D, hot-water pipe G, and cold-water pipe H, all substantially as and for the purposes described.

171,757. VEHICLE-SEAT SPRINGS. William F. Baird, Burlington, Iowa. (Filed Dec. 11, 1875.)

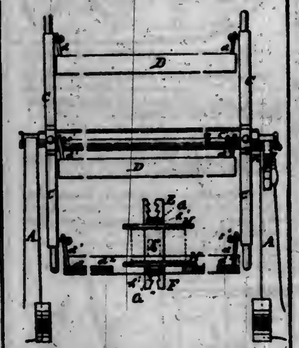


1. In a wagon-seat spring, the combination, with a seat, A, having perforated blocks e and slotted blocks e', of the crossed spring-levers C C', secured by rods d d' to the said blocks, and pivoted to the foundation-frame A, substantially as specified.

2. In combination with a seat, A, and the

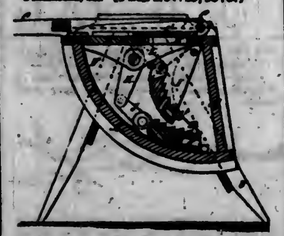
171,758. CURRYING-TURNERS. Chas. Barlow, Cookshire, Canada. (Filed June 20, 1875.)

Brief.—A reel carries, pivoted at the ends of its arms, a series of racks, which are near the axis above and far from it below. Transversely to each rack is arranged, pivoted in like relation to the rack, a frame, the sides of which are adjustably held at one end, and pivoted at the other, each carrying a flight. Between these disks the sheave is transferred from one to the other by a half-turn of the frame, as the operator may desire.



The combination of the disks H, the blocks b', the springs G, the perforated and the toothed pivoted bars F, and the studs E with the suspended shelves or frames D d' F, and the rod B C and posts A, substantially as herein shown and described.

171,759. WASHING-MACHINES. J. Burton, Pittsfield, Ill. (Filed Nov. 19, 1875.)



The combination of the two pounders G H, their arms F I, connecting-bars J, and lever K with the box A, the cover B, and the handles C, substantially as herein shown and described.

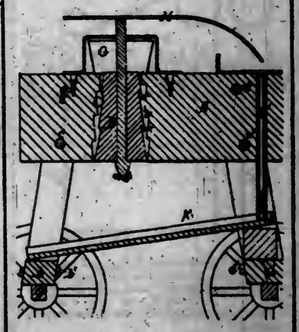
171,760. HYDROSTATIC SCALES. Friedrich Boschkoetter, Hochneuvorgen, Rhenish Prussia. (Filed Oct. 16, 1875.)



1. In a cider and wine mill, the combination, with the block A, of the uprights, cross-beams, bolts, axles, and wheels, forming a portable frame for the mill, substantially as described and shown.

2. In a portable cider and wine mill, substantially as described, the combination of the following elements: the block A, the receiver C, adjustable crusher D, hopper G, and inclined conveying-trough K, all the parts being mounted upon wheels and adapted to be drawn from place to place, substantially as described and shown.

171,761. WINE AND CIDER MILLS. C. Rose, Ogle Station, Ill. (Filed Dec. 3, 1875.)



1. In a cider and wine mill, the combination, with the block A, of the uprights, cross-beams, bolts, axles, and wheels, forming a portable frame for the mill, substantially as described and shown.

2. In a portable cider and wine mill, substantially as described, the combination of the following elements: the block A, the receiver C, adjustable crusher D, hopper G, and inclined conveying-trough K, all the parts being mounted upon wheels and adapted to be drawn from place to place, substantially as described and above.

171,762. ROAD-SCRAPERS. W. H. Bowman, London, Ohio. (Filed July 24, 1875.)

Brief.—The tail end is curved and provided with holes, into which sliding spring-rods project, which are operated by fulcrumed lever-rods with catches engaging with notched castings at the rear part of the scraper, to hold them in position or break contact of scraper and handles.



1. The combination of the curved tail end, sliding spring-rod, fulcrumed lever-rods, having projecting catches with notched castings at rear part of scraper to break contact of scraper and handles, substantially as set forth.

2. The combination of the locking-catches with the curved and recessed ends of the handle face-plates, to guide catches, substantially as described.

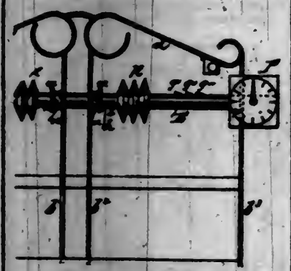
171,763. CAR-COUPLINGS. G. W. Brady, Athens, N. Y., assignor to himself and Ira Cooper, same place. (Filed Sept. 20, 1875.)



1. The combination of the link B with the chamber b of the block, said chamber being at its inside end as deep as, or slightly deeper than, the link is thick, and made deeper toward the flaring entrance a of the chamber, as and for the purpose specified.

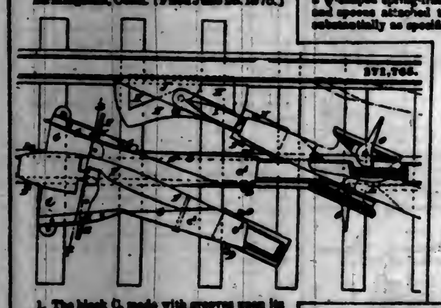
2. The spring c in the block, having flaring side and ends, as and for the purpose described.

171,765. GAME-COUNTERS. Emil Brotzfeld and Friedman Sternheimer, New York, N. Y. [Filed Nov. 30, 1875.]



The rod I, with steps g', g^2, g^3, and A, tube B, with slots f and i, sleeve n, spiral spring o, in combination with the bottom K, the standards D D' D², frame A, and disks F and E, substantially as described, and for the purpose set forth.

171,766. CAR-REPLACERS. James F. Bridge, Warwick, Mass., and Arthur B. Habenicht, Birmingham, Conn. [Filed June 29, 1875.]





1. The block C, made with grooves upon its lower side, and projections C' C² upon its upper side, and provided with the detachable bar F, the detachable flange G, the set-screws D, and the lever-cams E, to adapt it to be applied to either rail of a railroad-track, substantially as herein shown and described.

2. The supplemental block H, made with an angular rabbet or shoulder, and provided with the pivoted bar I and the reversible triangular notched block J, to adapt it to be applied to either rail of a railroad-track, in combination with the block C and its attachments, substantially as herein shown and described.

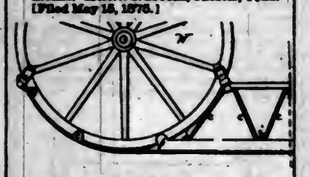
3. The bridge L, made with grooves, recesses, and flange upon its lower side, and provided with the set-screws N and the lever-cams O, in combination with the blocks H C and their attachments, substantially as herein shown and described.

171,767. SEPARATING-MACHINES. Peter Brandhuber, Batavia, N. Y. [Filed Apr. 29, 1875.]

1. One or more toothed bars, D, with or without spring d, in combination with levers A B C and bolt b^1, substantially as and for the purpose described.

2. The levers A B, provided with perforations to receive bolts $a\,b^1$, and adjusted to be used as double levers, and to be joined by the bolts and used as a simple lever, in combination with lever C, substantially as described.

171,768. SLEIGH-RUNNERS FOR WHEEL VEHICLES. Merritt S. Brooks, Chester, Conn. [Filed May 15, 1875.]



The combination of the frame a b e with the wheels W W', when arranged to lift the wheels slightly above the bottom of the frame, substantially as herein described.

171,769. DOUBLE-HOOK FISHING-TACKLE. Julio T. Rusi, Whitehall, N. Y. [Filed Nov. 27, 1875.]

A double-spoon fishing-tackle, composed of a V-shaped spring-frame with opposite hooks and spoons attached to the snap-hook ends, substantially as specified.

171,770. FISHING-TACKLE. Julio T. Rusi, Whitehall, N. Y. [Filed Nov. 27, 1875.]

Brief.—Is adapted for use with live bait of different sizes, and may also be used with spoon.



1. In spinning-tackle, the combination of an adjustable spring-hook applied to a sliding ferrule, with the shank of the gang-line and hook-connecting part, substantially in the manner and for the purposes set forth.

2. A gang of hooks, being adjustable to the size of the bait, and made of a central lower wire-extension with snap-hook end, in connection with an eye at shank end of adjoining hook, substantially as specified.

171,770. MACHINES FOR SEWING BUTTONS. Louis C. Boettner, Boston, Mass. [Filed Nov. 22, 1875.]

In an instrument for attaching fastenings to boots and shoes, the combination of the slotted and centrally-perforated lug C, with the punch D, arranged and operating with the lever A B, substantially as shown and described.

171,770.



171,771. CORN-PLANTERS. A. G. Bennett, Charleston, Ill. [Filed Oct. 9, 1875.]

Brief.—On the transverse bar, by which the graduated seed-slides are vibrated, are formed pinions for adjusting said slides to different-sized discharge-openings.



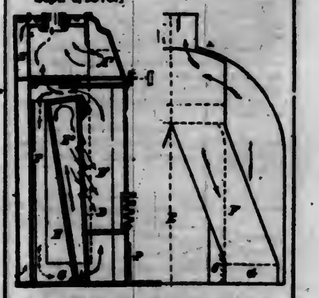
1. The combination, with hopper F, having striker-plate O and spout o, of the endwise-movable rod L, having open wheels $i\,i'$, drop-plate K, having notches j and spaced perforations l' of different sizes, substantially as specified.

2. The combination of the endwise-movable and rotating bars L, having open wheels $i\,i'$, with the dropper-plates K, having notches j and perforations $l'a'$ of different sizes, substantially as specified.

171,772. PROCESSES FOR LINING OR PUTTING PUDDLING-FURNACES. Jas. A. Burden, Troy, N. Y. [Filed Dec. 10, 1875.]

The method above described of lining or facing puddling-furnaces, by throwing in coarse and fine iron ore, mixed together as it comes from the mine, forming therewith a sloping bank or wall, and cutting and compositing it together by dashing over it melted cinder from the furnace.

171,773. PARLOR-STOVES. R. T. Russell, Indianapolis, Ind., assignor of one-half his right to Loomis Russell, same place. [Filed Sept. 4, 1875.]

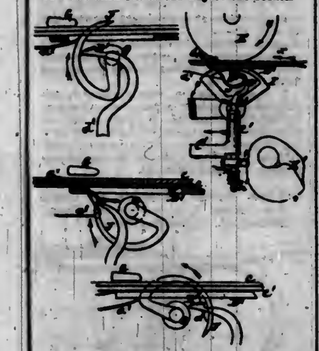


1. In combination with fire-pieces D and the intervening flues A' G F, the large fire-caution H, with inlet in one side, and outlet in the top, relatively arranged to the fire, as represented, so that it shall be exposed to the greatest possible heat, both from the fire and initial draft, as shown, and for the purposes described.

2. The tapering wedge-shaped chamber E', constructed with large closed end at the top, and contracted open end at the bottom, having thin and oblique perforations D', in combination with fire-plate and flues, substantially as shown, and for the purposes described.

171,774. MACHINES FOR SEWING STRAW BRAID. Mary P. Carpenter, New York, N. Y. [Filed Nov. 27, 1875.]

Brief.—The curved needle, which enters and leaves the goods on the same side, receives its reciprocation through a screw on its shaft, and a nut formed on a pivoted lever vibrated by a cam. The looper has a forward and sidewise motion and an oscillation on its axis. The presser has a groove in the bottom to accommodate the curve of the needle. The presser and guide-roller are hinged, and can be lifted back out of the way of the needle.



1. The combination, with the eye-pointed circular needle J and a work-feeder, of the loop catching and spreading hook D', and operating substantially as described, whereby three distinct motions are imparted to said hook—namely, an oscillating motion on its own axis, a vibratory motion in a transverse relation with the feed, and a reciprocating motion in direction of the feed, substantially as specified.

2. The oscillating feeder I, in combination with the oscillating needle J, having the shank or carrier O arranged to pass through the feeder, and to work or oscillate between the center of motion of the feeder and its feeding-surface, substantially as described.

3. The work-table and presser-foot supporter or carrier D, in combination with the main frame A, carrying the feeder and sewing mechanism, said supporter or carrier being hung at its rear end to the rear portion of the main frame A, whereby the work supporting and holding devices and the work itself may together be thrown up or back without interfering with or disturbing the sewing and feeding devices, substantially as specified.

4. The combination of the shank or carrier O, carrying the oscillating piercing-needle J, and constructed with a cover, i, with the cam P and shaft R, arranged parallel with said shank or carrier O, and the lever Q, working as a nut on said cover, whereby the proper oscillating motion is given to said needle, as set forth.

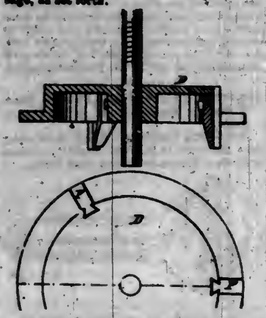
5. The combination of the presser-foot F, the lever K, carrying the presser-foot, and the roller-guide E, substantially as described.

171,775. WATER-WHEELS. Cloud Chalfant, Pennsylvania, Pa. [Filed Nov. 22, 1875.]

Brief.—A horizontal outward-flow water-wheel provided with vertically rising and falling buckets; also adapting the wheel to be raised, or wheel-case to be lowered, to vary the capacity of the flume.

1. The combination with the wheel, having the horizontal slotted rim or base flange, of the buckets F, and the circular way G, located beneath said wheel, and arranged to support the buckets, as shown and described.

2. The combination of the wheel D, wheel-case A, and adjusting devices, as shown and described, whereby the wheel or wheel-case may be adjusted vertically to increase or diminish the capacity of the circular water-passage, as set forth.



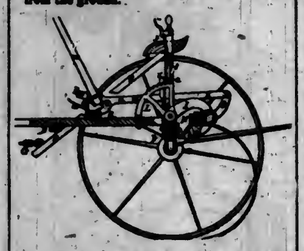
171,776. SPRING BED-BOTTOMS. Wesley Olmen, Buffalo, N. Y., assignor to H. F. Zimmerman & Son, Washington, D. C. [Filed Dec. 21, 1875.]
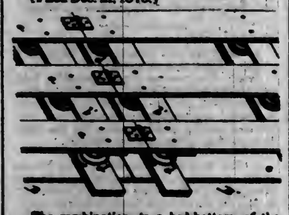


The combination, in a bed-bottom, of the lower independent frames B B', spiral springs d, and upper frame A, consisting of flexible parallel slats a and flexible transverse strips $b\,b'$, substantially as set forth.

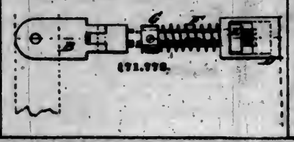
171,777. SCREW-RAKES. Orlando Clarke, Isaac Utter, and M. L. Goodson, Rockford, Ill. [Filed June 26, 1875.]

Brief.—A supplemental lever hinged to main axle, and by means of curved arm to rake-head, and provided with spring-bolt to engage ratchet-teeth in segmental bracket, for adjusting the teeth at different heights from the ground.



1. The lever J, hinged to the axle B and rake-head N, with rake-teeth thereto attached, for the purpose of changing the working depth of the teeth without materially changing their relative angle with the surface of the ground, substantially as described and shown.

2. The combination of the rake-head N, having teeth thereto attached, lever J, bolt a, and segment-toothed ratchet I, for the purpose of holding the rake in different positions, substantially as described.



171,778.

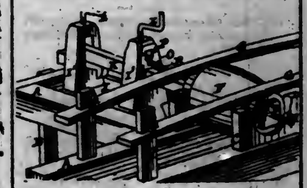
171,778. BRACE-RODS FOR VEHICLE-SPRINGS. Alfd. Chf. Lapeer, Mich. [Filed Nov. 27, 1875.]

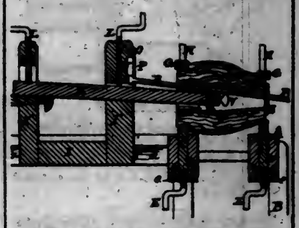
Brief.—A brace connecting front and rear springs, to prevent swaying, one end being attached to lower leaf and other end to upper leaf of springs.

A carriage-spring connecting-brace, consisting of rod A and attaching-plate B C, one of which is pivoted to the rod, and the other is coupled by the box D, nut E, and spring F, substantially in the manner described.

171,779. MACHINES FOR BORING HUBS. B. B. Decker, Rockbridge, Ill. [Filed Sept. 17, 1875.]

Brief.—Wagon or carriage hubs are supported, during the operation of boring or reaming, by means of two semi-cylindrical and vertically-adjustable collars, and two vertically-adjustable spring-bars extending across the frame immediately over said collars. Straight holes, or tapering ones of any desired taper, can be bored by an adjustable cutter-bar, provided with a suitable cutter, and supported in a sliding carrier upon the main frame, and a screw extending through the bore, and provided with a square head, fitting in a recess in a standard on the sliding carrier, and a screw-thread upon the lower end, upon which fits a screw-plate, for feeding the cutter to its work.





1. The combination, substantially as described, of a frame, A, the vertical standards H, arranged at the ends thereof, the parallel spring-bars G, arranged to bear on the hub, the vertically-adjustable collars C, and the horizontal boring mechanism for boring the opening through the hub, as set forth.

2. The combination of the frame A, the adjustable collars C C, the spring-bars G G, the sliding frame I and its adjustable cross-bar, and the square-headed screw E, and screw plate or nut S, constructed to operate as shown and described, and for the purpose specified.

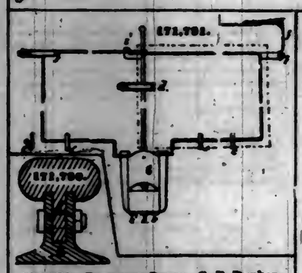
171,780. PROCESSES OF PRODUCING COPIES OF WRITINGS, &c. Eugenio de Rossetti, Padua, Italy. [Filed Nov. 2, 1875.]

The process for producing fac-simile copies of writings or drawings or delineations, consisting, essentially, of preparing a porous paper stencil by means of varnish and an alkaline solution or ink, and forcing through its permeable parts a solution of coloring matter, substantially in the manner and for the purposes set forth.

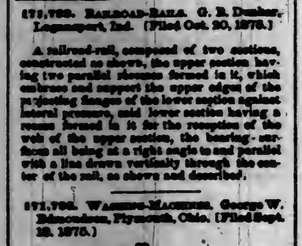
171,781. MUSIC-LEAF TURNERS. Thomas Donnellon, Syracuse, N. Y. [Filed Nov. 23, 1875.]

The combination of the frames a b, shaft b, pulleys i m, cords l n', and keys k k', substantially in the manner and for the purpose herein set forth.

171,781.



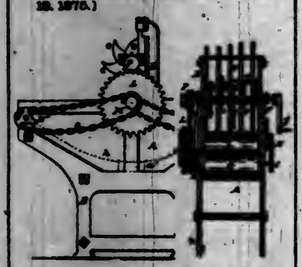
171,782.



171,783. RAILROAD-RAIL. G. B. Dunbar, Logansport, Ind. [Filed Oct. 20, 1875.]

A railroad-rail, composed of two sections, constructed as shown, the upper section having two parallel recesses formed in it, which embrace and support the upper edges of the projecting flanges of the lower section against lateral pressure, said lower section having a recess formed in it for the reception of the web of the upper section, the bearing-surfaces all being at a right angle to and parallel with a line drawn vertically through the center of the rail, as shown and described.

171,784. WARPING-MACHINES. George W. Edmondson, Plymouth, Ohio. [Filed Sept. 13, 1875.]



The combination of the friction-rollers c, stamps D, frame B', cams e, and trunk box or tub A, the endless band, and elastic cushion c', arranged and operating in the manner substantially as described, and for the purpose set forth.

171,785. BRAID-HOLDERS. J. Hills, Lynn, Mass. [Filed Sept. 10, 1875.]



The wire rods B B B, having hooks b at their upper ends, and their lower ends connected through the perforated plate A, as set forth.

171,786. PLOWS. William A. Rates, Chino, Me. [Filed Dec. 17, 1875.]

Brief.—Sectional rollers upon the same shaft inserted in the mold-board and land-side of a plow.



171,786.

The mold-board C, having slots of sufficient size to permit the series of anti-friction rollers d d, each series of rollers being upon the same shaft and of uniform size, and each roller revolving independently, in combination with the flanges a a and shafts b b, constructed substantially as and for the purpose specified.

171,788. BITS FOR METAL-DRILLS. Theo. F. Parmer, Boston, Mass. [Filed Dec. 9, 1875.]

Brief.—The outside of the drill is cut away from the point to the rear, to give clearance or prevent friction in drilling deep holes.



A drill provided with two symmetrical longitudinal grooves, a b, situated on opposite sides of, and extending beyond, its center, each of the opposite sides of the drill from b to d being cut away to form a relief, substantially as and for the purpose described.

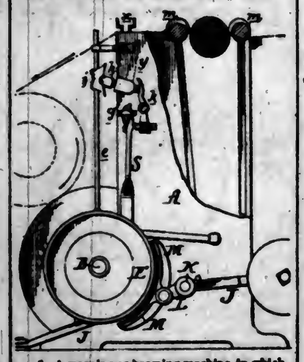
171,787. PROCESSES OF MANUFACTURING ANILINE BRONZE. Otto Fiorillo, Baltimore, Md. [Filed Dec. 6, 1875.]

Brief.—The process of manufacturing various aniline bronzes, especially golden bronze, by dissolving aniline-red and aniline-purple in alcohol, and adding benzoic acid, then boiling and adding gum-benzoin until the color changes from green to golden bronze.

1. The process of manufacturing bronze paint or color of various shades by mixing benzoic acid with aniline colors, substantially as and for the purpose herein before set forth.

2. The process of manufacturing aniline bronze herein described, consisting in, first, dissolving aniline red and aniline purple in alcohol; secondly, adding benzoic acid; thirdly, boiling the mixture; fourthly, adding gum benzoin; and, fifthly, boiling this mixture until the color changes from green to a golden bronze.

171,789. WARPING-MACHINES. George E. Follansbee and Thos. C. Entwistle, Lewiston, Me. [Filed May 31, 1875.]



1. A warping or beaming machine, in which the brake for stopping the motion of the machine, and mechanism for operating the clutch to throw the same in and out of gear, are attached to the braille-shaft, all as and for the purposes set forth.

2. The combination of the arm L and its brake-shoe M, hung to one end of the treadle-shaft K, and adapted to the pulley B, with the arm P and its inclined projection f, hung to the opposite end of said shaft, and arranged to operate the clutch-lever d, all as set forth.

171,790. PIPE-WRENCHES. T. P. Franks, Buffalo, N. Y. [Filed Mar. 26, 1875.]



1. The cutter F, consisting of a square disk of steel, having its four corners rounded and its sides beveled, and provided with angular projections G serving as pivots, substantially as described, and for the uses and purposes set forth.

2. The combination, with a cutter, F, constructed as described, of the movable block H, having side extensions I I', provided with angular conditions on the upper end thereof, serving as bearings for the angular pivots G, substantially in a manner and for the uses and purposes set forth and described.

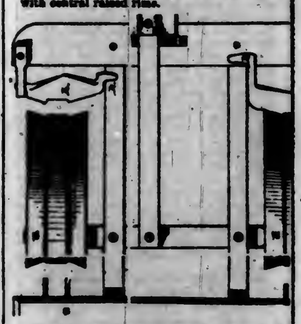
171,791. TOOTH-FASTENINGS FOR HORSE HAY-RAKES. T. A. Galt and G. B. Tracy, Sterling, Ill. [Filed May 26, 1875.]



The within-described grooved rake-tooth clamp A, formed with perforations f and B for receiving the rake-teeth, and lugs d, projections b b for receiving and steadying the head of said rake-teeth, substantially as and for the purpose set forth.

171,792. CORE-FLASKETS. T. A. Galt and G. B. Tracy, Sterling, Ill. [Filed May 26, 1875.]

Brief.—The securing-wheels are provided with central raised rims.

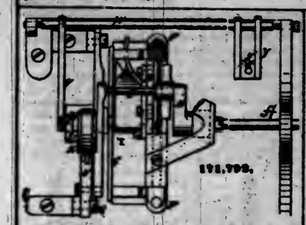


The wheels b b, provided with their raised rims from d to d, substantially as described, and for the purposes specified.

171,793. SEWING-MACHINES. Josiah Gilman and Neal W. Dillon, Pontville, Iowa. [Filed July 31, 1875.]

Brief.—The shuttle-race rises and falls in ways, to accommodate the shuttle to the movement of the crank by which it is driven, thus giving the shuttle a simple reciprocation in its race, which rises and falls with the motion of the crank. The shuttle-carrier has a finger-plate attached, that embraces the needle or thread-plate, and also has a guard to prevent the passage of the thread over the shuttle in its backward movement. The thread escapes from the heel of the shuttle.

171,792.



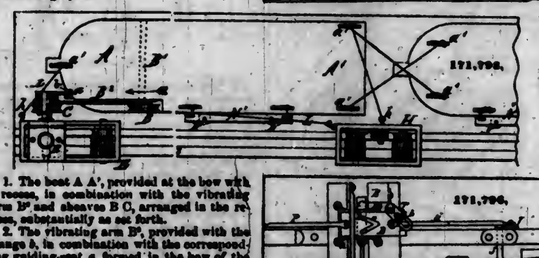
1. The combination of cam-shaft A, bar-ing crank and pin B C, the shuttle-carrier D, the race E, and the ways F, as and for the purpose described.

2. The combination of face-plate G, notched and attached to reciprocating race, with the needle-backing plate H, as and for the purpose specified.

3. A rotary shuttle, having thread-scarpe in the heel, in combination with carrier having guard J in front of the shuttle-point thereof, as and for the purpose described.

171,793. TOWING CANAL-BOATS. Wm. F. Goodwin, Stelton, N. J. [Filed Dec. 14, 1875.]

Brief.—Towing-truck on elevated track has climbing-wheels for traction, and a brake to operate on the track. The driving-power is on the boat, and the coupling is by means of a revolving shaft.



171,793.

1. The boat A A', provided at the bow with a recess, in combination with the vibrating arm B' and sheaves B C, arranged in the recess, substantially as set forth.

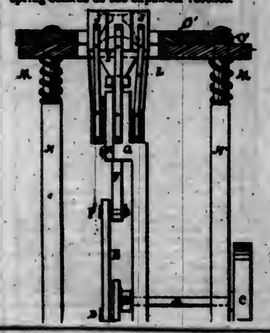
2. The vibrating arm B', provided with the flange b, in combination with the corresponding guiding-rest c, formed in the bow of the boat, substantially as set forth.

3. The combination of friction-wheel F, traction-wheel G', having the square socket d in its hub or sleeve, the sheave or grooved pulley C, provided with the squared shaft c, the vibrating arm B', pulley or sleeve B, and belt B', and rail d d', substantially as set forth.

4. The brake-lever E, and iles E', in combination with its supporting-truck and rail d d', substantially as and for the purpose set forth.

171,794. HAT-BLOCKING MACHINES. Henry A. Gross, Adamstown, Pa. [Filed Nov. 6, 1875.]

Brief.—The body is placed over the segmental block, and held in position upon it and the spring-seated table by the combined hinged band and brim clamp, when the expander is reciprocated to separate the segments of the block, and give "set" to the body. The segments are thrown together by their spring-chants as the expander recedes.



The bar F, provided with slotted end F' and threaded end and nut F'', expander I, table K, with supporting-springs M, rim-former O', and the segmental blocks J J, with their connecting and supporting springs L, combined and operating substantially as described.

171,795. TAPS FOR CUTTING SCREW-THREADS. John J. Grant, Hartford, Conn., assignor to the Pratt & Whitney Company, same place. [Filed Dec. 16, 1875.]

Brief.—An annular groove at the base of the cutter-carrying piece



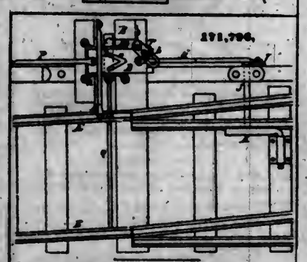
The stock A, with its dovetailed slots d, flange c, and groove b, in combination with the screw O for holding the cutters E, substantially as described.

171,796. RAILROAD-SWITCHES. J. A. Green, Hamilton, Canada. [Filed Feb. 2, 1874.]

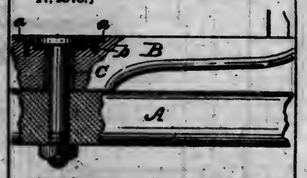
Brief.—A switch operated by the locomotive through the peculiar combination of mechanism claimed.

The combination of the bed-plate A, sliding plate B, having a V-shaped slot, the sliding plate C, having a pin, L, the connecting-rod C, rods H and J, the projection c, plate E, and crank I, all substantially as and for the object specified.

171,796.



171,797. WAGON-BOLSTERS. Otho B. Griswold, Dodge Centre, Minn. [Filed Sept. 17, 1875.]

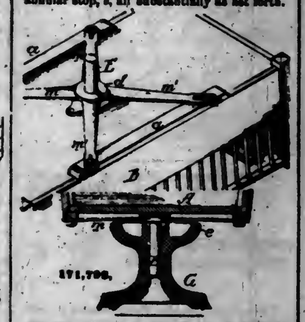


As an improvement in wagons, the bolster B, provided with the metal bushing C, having the recessed head b, with the ears a or ribs c, either or both, constructed and arranged to operate as and for the purpose set forth.

171,798. SPRING ATTACHMENTS FOR CRADLES. Henry S. Hale, Philadelphia, Pa., assignor to himself, Arbenus Kilburn, J. W. Hale, Chesney Kilburn, and Warren Hale, same place. [Filed Nov. 6, 1875.]

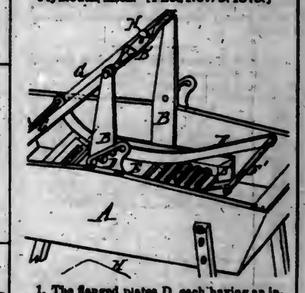
1. The combination of the pin B, adapted to a suitable stand, G, and the spring-arms a a' a'', attached to the body of a cradle or seat of a chair, all substantially as and for the purpose herein set forth.

2. The combination of the central pin E and its four spring-arms, attached to the body of a cradle or seat of a chair, with a stand, G, adapted to the said pin, and provided with an annular stop, c, all substantially as set forth.



171,799.

171,799. WASHING-MACHINES. L. C. Hall, Plymouth, Mich. [Filed Nov. 9, 1875.]



1. The flanged plates D, each having an inclined ratchet-slot, a, in combination with the studs b on the standards B, as and for the purpose set forth.

2. In a washing-machine, the slotted pendulum G, girt G', adjusting-screw H, rock-shaft B', and reciprocating rubbing-segments B, in combination with the standards B, adjustable vertically by means of the slotted plates D and studs b, substantially as described and shown.

3. In a washing-machine provided with the perforated reciprocating rubbing-segment B, the soap-receptacle I, adapted to reciprocate with said segments, substantially as described and shown.

171,800. STOVE-PIPE THIMBLES. John T. Hall, Lapeer, Mich., assignor to himself and William Fortune, same place. [Filed Feb. 20, 1875.]



The combination of the outer casing A, having annular flanges a, the sections d of the corrugated tube B, and the circular bands c, having lugs b, and inwardly-projecting annular flanges a, all relatively arranged as and for the purpose described.

171,801. BAG-FASTENERS. C. W. Harvey Waterloo, Iowa. [Filed Dec. 6, 1875.]

The combination, with bag A, having the string B tied thereto, of the bolt D, passing through bag and receiving a countersunk disk, C, on the inside and outside, the said disks being held with facing convexities to the bag by a nut, as shown and described.

171,893.

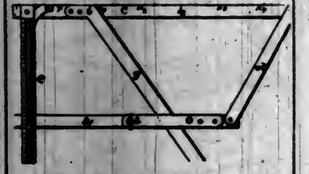


171,893. UMBRELLA-RUNNERS. George W. Hatch, Brooklyn, N. Y. [Filed July 9, 1875.]



The runner C, having the notch-ring D, and formed with one or more inwardly-projecting slots, E, and provided with the cross-pins G, which forms part of the ring that is fastened to the runner, substantially as shown and described.

171,894. PARALLEL RULERS. J. G. Henderson, Winchester, Ill. [Filed Dec. 6, 1875.]



1. The angle-rod *g*, having shoulder *i*, attached to one of the bars of a parallel rule, in combination with a clamping device, substantially as set forth.

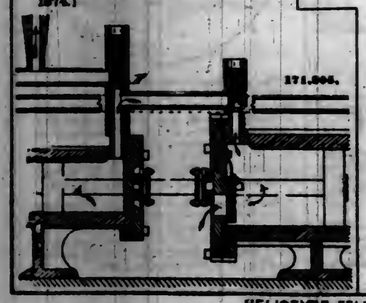
2. The combination of bars *a c*, rods *d*, angle-rod *g*, and transverse bar *e*, substantially as specified.

171,895. NUT-LOCKS. George W. Henry, Bloomington, Ill. [Filed May 10, 1875.]



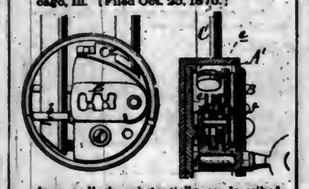
In combination with the bar B, having perforations *a* and one or more bolts and nuts, the bar U, having bent end *c* and pin *i*, and the wedge *h* inserted in the fold of the bar, substantially as and for the purposes herein set forth.

171,896. AIR-COMPRESSORS. Elmer Hill, Jr., South Norwalk, Conn. [Filed June 6, 1874.]



The combination of two communicating double-acting engines with cylinders of unequal diameters, their pistons mounted on the same rod and moving together, as described, to gradually compress the air, and equalize the resistance at the commencement and termination of the piston strokes, substantially as set forth.

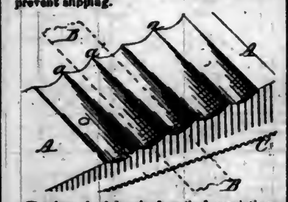
171,896. PADLOCKS. Jacob L. Hirsch, Chicago, Ill. [Filed Oct. 25, 1875.]



In a padlock, substantially as described, the combination of the rotary guard-plate, the spring terminating in a hook, and the slot in the short arm of the staple, for securing the latter while a key is in the lock, substantially as described.

171,897. DOOR-CHECKS. Wm. G. Hoffman, Baltimore, Md. [Filed Nov. 22, 1875.]

Brief.—A rubber wedge, the transverse ridges of the incline being utilized to hold the door more readily and firmly in desired position, while the outer surface is roughened to prevent slipping.



The door-check herein described, consisting of a rubber wedge the incline whereof is in transverse ridges or waves, and its base roughened or toothed, the same being for the purpose of holding the door at any point without attachments or any co-operative device upon the floor or wall.

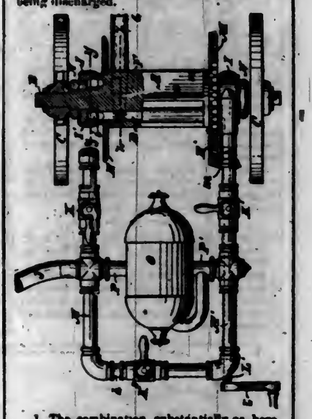
171,898. CLOTH-SHEARING MACHINES. I. L. Holmes, Saco, Me. [Filed July 31, 1875.]

1. The combination, with mechanism for driving a cloth-shearer, of the clutch-disk *m*, pulley *l*, and elastic disk *k*, applied as and for the purposes specified.

2. The combination of the swinging frames N P, rock-shaft Q, and connecting mechanism, as described, with lever *z* and shipper O, as and for the purposes specified.

171,899. HOSE-CARRIAGES AND REELERS. James A. House, Bridgeport, Conn. [Filed Dec. 13, 1875.]

Brief.—The reel has a longitudinal waterway. The tubular draft-handle is made of jointed sections, and is provided with suitable cocks, a tank for chemicals, and a discharge-pipe. Water may be admitted to either side of the handle. It may be mingled with the chemicals or not, as desired, before being discharged.



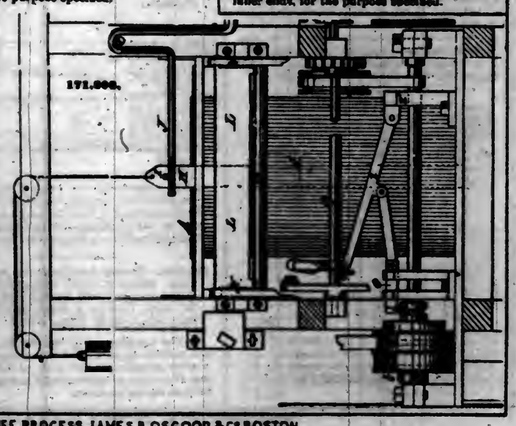
1. The combination, substantially as hereinbefore set forth, of the hose-reel, having a fluid-way or channel therein, the hose attachment, communicating with the fluid-way in the reel, and the tubular draft-frame or handle, having a fluid-way communicating with that in the reel, whereby the fluid passes from the hose through the reel and handle to the discharge-opening.

2. The combination of the hose-reel, its fluid-way, the pipe for connecting the hose and fluid-way in the reel, the tubular draft-handle, the discharge-tube attached to the handle, and a cock for opening and closing the way leading from the reel to the discharge-tube, these members being constructed and operating substantially as set forth.

3. The combination of the hose-reel, its fluid-way, the pipe for connecting the hose and fluid-way in the reel, the tubular handle having a fluid-way communicating with the opposite ends of the way in the reel, and cocks in the handle, these members being constructed and operating substantially as set forth, whereby the course of the fluid in passing through the handle may be changed.

4. The U-shaped tubular sectional shafts or draft-handle, constructed substantially as set forth, provided with a joint in the outer end, and perforated internally-grooved caps at the inner ends, for the purposes specified.

171,900.



4. The combination of the frame, the fluid-way therein, the axle, the supporting-wheels, the jointed hollow handle or draft-frame, and the locally-grooved perforated caps on the ends of the handle, these members being constructed and operating substantially as set forth.

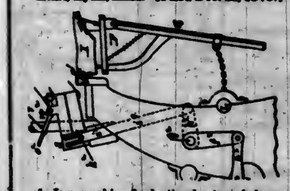
5. The combination, substantially as hereinbefore set forth, of the draft-handle, the crank, the gearing, the reel, its axle, and supporting-wheels, for the purpose specified.

7. The combination, substantially as hereinbefore set forth, of the hose-carriage, its tubular draft-frame or handle, the chemical-engine supported by the handle, and having a communication between it and the way in the handle, and the discharge-tube secured to the handle, whereby the contents of the engine may be discharged through the handle and discharge-tube.

8. The combination, substantially as hereinbefore set forth, of the hose-reel, the way thereof, the hose attachment, communicating with the way in the reel, the draft-frame or handle, having a way therein communicating with the way in the reel, the chemical-engine, communicating with the way in the draft-frame or handle, and a cock for opening and closing communication between the roadway and engine.

9. The combination of the hose-reel, the fluid-way thereof, the hose-connecting pipe, the tubular handle, the chemical-engine supported by the handle, the cocks in the handle, and the discharge-tube, these members being constructed and operating substantially as set forth.

171,910. LASTING-MACHINES. Frederic S. Hunt, Lynn, Mass. [Filed Dec. 21, 1875.]



1. In a machine for lasting boots and shoes, the combination, substantially as shown and described, with a jack movable in required directions, of a vibratory stroking-head, which moves to and from the work in the arc of a circle, at the times and in the manner stated.

2. The vibrating stroking-head, provided on its acting face with rubber or analogous material, in combination with the jack or work-support, said parts being for operation as shown and set forth.

3. The combination, with an adjustable last or work-support, of a stroking-head having an up-and-down and to-and-fro movement, substantially as shown and set forth.

4. The striking-head, vibrating upon an axis, so as to move to and from the work in the arc of a circle, as herein shown and described, in combination with the last or nail driving mechanism and jack or work-support, substantially as set forth.

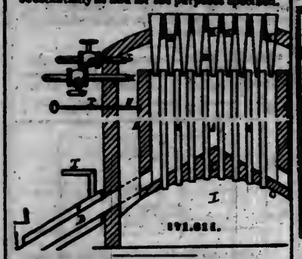
171,911. APPARATUS FOR DESULPHURING IRON ORES. Andrew George Hunter, Detroit, Mich. [Filed Aug. 26, 1874.]

Brief.—Ore and carbonaceous material are fed through the hoppers, and fill the spaces between the tubes in the refining-chamber. The hot products of combustion from the gas and air pipes at the top of the furnace pass down through the tubes and side flues to the dust-flue below the chamber, and thence to the chimney. The tubes and flues thus heated heat the ore and carbon sufficiently to cause them to react on each other. The iron sponge is drawn off below.

1. A chamber for desulphuring or deoxidizing and carburetting iron ores, having within it flues or pipes extending from a space above the mass of ore under treatment down through said mass, and opening into and communicating in a space beneath the floor of the reduction-chamber, substantially as and for the purposes described.

2. The chamber A, provided with roof B, door C, and flues G, outlet-pipes D, and hoppers K, the parts being constructed to operate in combination, substantially as and for the purposes set forth.

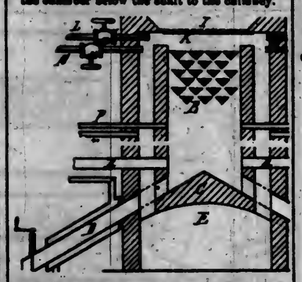
3. In combination, the roof B and the flues G F, the air and gas inlet-pipes L M, provided with suitable stop cocks, and the hopper K, substantially as and for the purposes specified.



171,911.

171,912. APPARATUS FOR DESULPHURING IRON ORES. Andrew George Hunter, Detroit, Mich. [Filed Aug. 26, 1874.]

Brief.—The ore falls continuously through the sleeve down the shaft, and is met by an ascending current of heated reducing-gases admitted at the bottom. These gases are ignited at suitable points by admitting air to them, and the descending ore is highly heated by their combustion. The products of combustion, together with gas admitted at top of shaft, pass down the side flues, where they are completely burned by air admitted through pipes in the outer walls, whereby the walls of the shaft are heated, and then pass off through the chamber below the shaft to the chimney.



1. In combination with the chamber, shaft, or tower, the flues H, provided with air-inlets L M, substantially as described, by means of which the gases resultant may be ignited and consumed at the point desired.

2. A shaft, tower, or chamber, for desulphuring iron ores, wherein the chamber A, floor C, outlets D, flue and ore-dust chamber E, flues H, hopper I, hopper-valve K, air-inlet pipes L M P, and gas-inlet pipes M R, are constructed and combined to operate substantially as and for the purposes set forth, whether combined with the shelves B or not.

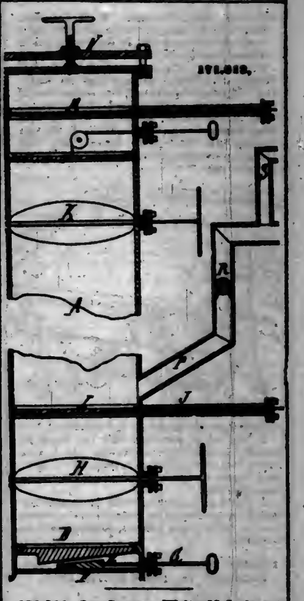
171,913. RETORTS FOR DISTILLING PHOSPHORUS. Andrew George Hunter, Detroit, Mich. [Filed Aug. 26, 1874.]

Brief.—The middle portion of the retort is filled with carbon and heated to a white heat. The mixture of phosphoric acid and carbon placed in the upper compartments of the retort is dropped upon the heated carbon on opening the valves, and the vapors are compelled to pass down through the mass to the exit-pipe. The operation is continuous, and the exhausted residue is drawn off at the bottom of the retort.

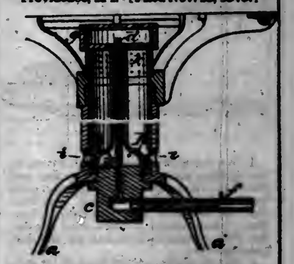
1. The vertical retort A, constructed substantially as described, for distilling phosphorus, and provided with pit B and wedge-valve E, and adapted for continuous charging with material and discharging by gravitation, substantially as described and shown.

2. The process, substantially as described, of distilling phosphorus by placing a quantity of carbon in a retort and raising the same to a white heat, and heating phosphoric-acid mixture in another portion of the retort, and causing the volatilized products from the acid mixture to traverse intimately through the heated carbon before reaching the outlet to the condensing apparatus, as described and set forth.

171,914.



171,914. GAS-STOVES. Walter M. Jackson, Providence, R. I. [Filed Nov. 13, 1875.]



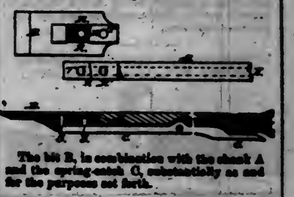
1. The gas-stove, consisting of the body A, the concentric tubes *d* and *c*, the latter provided with the openings A, the retort *f*, and the gauze K, combined and arranged as shown.

2. In combination with the tube *c*, arranged as shown, and provided with the cocks A for the heated gas, the body A, provided with the air-inlets *i*, located as shown, whereby a thorough and uniform mingling of the gas and air is insured.

3. In combination with the retort *f*, supported on the gauze K, seated on the body A, the tube *c*, arranged as shown, serving both to condense the gas from the retort and to ignite the retort in place, as shown.

171,915. CHUCKS. Charles H. L. Jeffrey, Bayonne, N. J. [Filed June 21, 1875.]

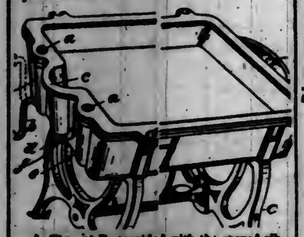
Brief.—The chisel blade or chuck is adapted to receive and hold in succession bits of different widths and shapes.



The bit B, in combination with the chuck A and the spring-catch C, substantially as and for the purposes set forth.

171,916. MILK-COOLERS. W. H. Johnson, Dubl, N. Y., assignor of one-half his right to H. A. Fischer and F. A. Ray, same place. [Filed Dec. 11, 1875.]

Brief.—Pans of cast-iron inserted enameled. Flanges of milk-pan overrest legs on water-vat. Through flanges and into projections of vat the water passes in and out. Flexible pipes connect these holes and orifices with other pans and vats. A projection of the pan holding the milk-cooler extends into and through a recess in the vat. Packing between pan and vat.

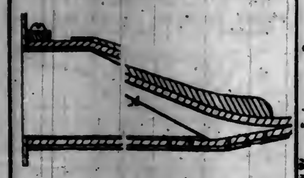


1. The vat B, provided with the curved rib O, substantially as shown and described.

2. The vat B, provided with the notch or recess *f*, in combination with the pan A, provided with the projection *e*, arranged to fit in said recess or notch, substantially as shown and described.

3. The vat B, provided with the recesses or curved projections *e*, in combination with the pan A, having the holes *c*, substantially as described.

171,917. FLEXIBLE VALVES. Frank Kahl, Richmond, Va. [Filed Nov. 13, 1875.]



1. In a valve, the flexible casing, having its roof inclined oblique to its base to close and guard the valve-port, and so arranged as to form flaps or lips of contracted superficial area, the coincident faces of which shall engage in close contact at their outer extremities only, substantially as and for the purposes specified.

2. In a valve, the combination with the casing, constructed substantially as described, of a flexible casing, forming flaps or lips, so arranged that the coincident faces thereof, shall engage in close contact at an angle oblique to the plane of the induction-port, whereby said contact is effected at the outer extremities only, of such flaps or lips, and over a mid-stream conical space, substantially as and for the purposes set forth.

3. A valve, consisting of a flexible metallic cast, forming a casing, and having its sides inclined for the purpose set forth, in combination with the flexible casing, when arranged to operate as and for the purposes described.

4. The combination of a weighted cover, constructed substantially as specified, with the flexible casing so arranged as to form valve flaps or lips of comparatively contracted superficial area, substantially as and for the purposes specified.

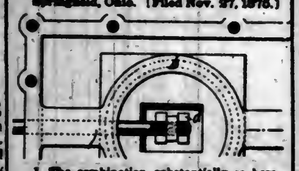
5. The combination of a double metallic cast, with a flexible casing and a weighted metallic cover, substantially as and for the purposes described.

171,918. PAPER-WHEELS. J. Kampman, New York, N. Y. [Filed Nov. 10, 1875.]



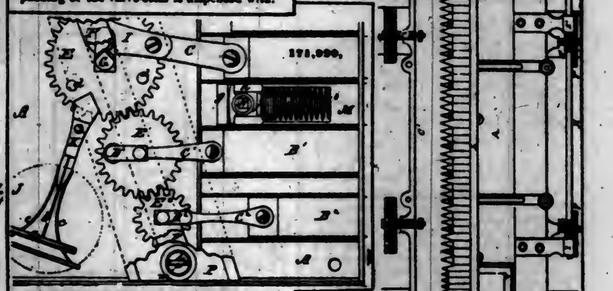
A paddle-wheel in which the blades, made concentrically of reverse obliquity, as described, have their oblique faces arranged to extend from the hub outward, and are of increasing thickness and made rigid or inflexible at or near their junction with the hub, substantially as shown and described.

171,919. SLIDE-VALVES FOR STEAM-ENGINES. John B. Kelly and C. O. Gardiner, Springfield, Ohio. [Filed Nov. 27, 1875.]



1. The combination, substantially as hereinbefore set forth, of the steam-chest, its extension, the pressure disk or plate fitting steam-tight therewith, and projecting into the steam-space, and the valve covered and overlapped by said pressure-disk, whereby steam-pressure upon the back of the valve is prevented, except through the medium of said disk.

2. The combination, substantially as hereinbefore set forth, of the steam-chest, its extension provided with a central opening, a pressure-plate, steam-tight with said extension, and the valve steam-tight with said pressure-plate, and having its ears or lugs protruding through a slot therein into said extension-space, whereby, as this space is steam-free, all packing of the valve-stem is dispensed with.



171,920. COMBINATION-LOCKS. George P. Knight, Carroll, Ohio, assignor to himself, J. H. Man, and Nathaniel Havens, same place. [Filed Nov. 20, 1875.]

1. The series of bolts B B¹ B², combined and operated together simultaneously through different-sized gear-wheel, B D² E², but in different positions, until a given combination is reached, substantially as and for the purpose described.

2. The combination, with the bolt B, connecting-rod C, crank D, and gear-wheel E, carrying studs *d*, of the pivoted lever K and bell J, as and for the purpose described.

3. The combination, with the crank-shafts of the gear-wheels, the bolts, and their connecting-rods, of a pivoted hook, L, substantially as and for the purpose described.

4. The key-shaft, having one side round and the other angular, in combination with a graduated dial-plate, substantially as and for the purpose described.

5. The combination, with the graduated dial-plate, of the key, having a pivoted index-hand, as and for the purpose described.

6. The combination, with the lock, having a screw-bolt, of the hinged leaf P, having a permanently-swiveled thumb-nut, for the purpose described.

7. The combination, with the stationary part of a keeper, Q, of a rod, R, and the hinged portion R, having perforated flanges *a a*, for the purpose described.

171,921. STRAINERS. Charles H. Koehling, New York, N. Y. [Filed Dec. 11, 1875.]

Brief.—A conical sleeve upon the syringe enables it to be inserted in a bottle for filling with medicaments, thus doing away with trouble of first pouring the liquid out into a receptacle of some sort.



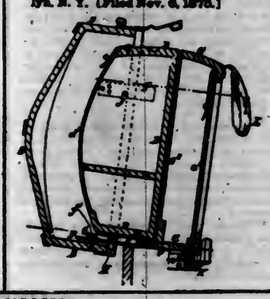
A syringe provided with a conical sleeve or stopper of elastic material back of the nozzle, adapted and fitted for insertion in a bottle, substantially as specified.

171,922. STOCK-GRINDERS FOR PAPER-PULP. J. P. Labrosse, 68, Junction, Haute Vienne, France. [Filed Nov. 30, 1875.]

Brief.—The material is fed through a hopper into a cylinder, the sides of which are provided with adjustable sliding combs or toothed bars. A central shaft revolving within the cylinder is armed with teeth, which pass between the teeth of the comb. Adjusting the teeth of the comb toward or from those on the shaft grinds the material finer or coarser.

The combination of the hollow cylinder A, adjustable, serrated, or dentated bars C C, and the shaft L mounted with screw-blades, the whole constructed to operate substantially as described.

171,923. TROUSER-WIRE. Wm. J. Large, Brooklyn, N. Y. [Filed Nov. 6, 1875.]



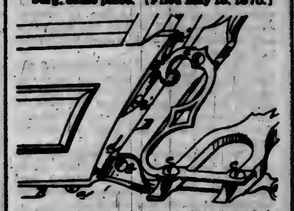
1. The two trays U D hinged to each other, in combination with the trunk A B, substantially as herein shown and described.

2. The combination of the extension or sliding hinges F and the keepers G with the tray U and the cover B, substantially as herein shown and described.

3. The combination of the pins *f'* with the keepers G and with the slots *f''*, formed in the upper straps of the extension or sliding hinges F, substantially as herein shown and described.

4. The combination of the knobs H with the upper tray D and with the body and cover A B of the trunk, substantially as herein shown and described.

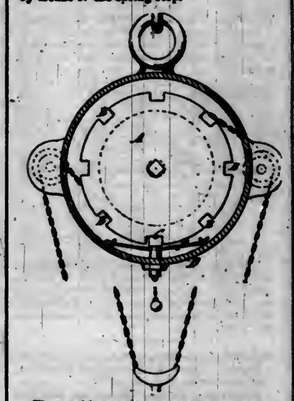
171,924. PERAMBULATORS. John Lauer, Detroit, Mich., assignor to Chas. Schlenburg, same place. [Filed May 18, 1875.]



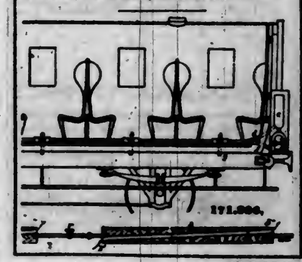
In a perambulator, the combination of the plate B, provided with the flange *d*, and the plate B', provided with the flange *d'* and cross-brace, each plate being cast in a single piece, and both plates secured together, substantially as described.

171,925. SPRING-BALANCES FOR EXTENSION-GEARS. Lyman T. Lawton, West Meriden, Conn., assignor to himself, P. J. Clark, and Joseph Klein, same place. [Filed July 24, 1875.]

Brief.—The spring-drum is held or released by means of the spring-stop.



The combination in a chandelier spring-balance of a notched spring and chain drum A, and a spring stop, C, having a pendent cord or chain, substantially as specified.



171,926. CAR-HEATERS. Louis Jean Francois Lemoenier and Chas. Alfred Martin, Paris, France. [Filed Nov. 20, 1874.]

Brief.—The pipes introduce air to the passages which extend through the water-chamber.

The combination, with the heaters *a*, provided with air-spaces *b*, communicating with the outer air at one end by means of tubes *f*, and with the interior of the car at the other by means of openings *h*, the tubes *d* and *f*, and the boiler *e*, constructed and arranged to operate substantially as described.

171,927. COMBINED KETTLES AND VEGETABLE-COOKERS. Franklin D. Lepper, Lake Mills, assignor of one-half his right to A. W. Hill, Benton Grove, Iowa. [Filed June 10, 1875.]

Brief.—The perforations in the bottom of the vessel allow steam to ascend, and its rim prevents the return of water of condensation. The perforated tube allows steam to ascend to the midst of the vegetables.

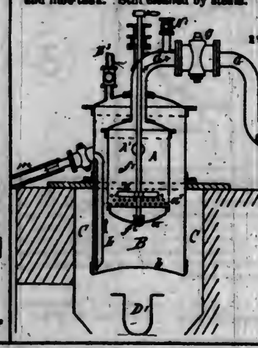


1. The combination of the perforated vessel B, rim C, perforated false bottom D, and perforated upright closed tube *d*, substantially as and for the purpose set forth.

2. The combination of the kettle or boiler A with the perforated cooking vessel B, having rim C, perforated false bottom D, and perforated upright closed tube *d*, substantially as and for the purpose specified.

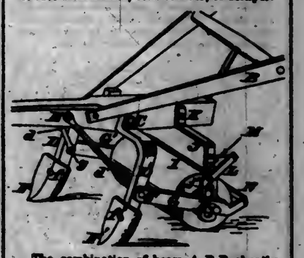
171,928. APPARATUS FOR MANUFACTURING FERTILIZERS. H. O. P. Lissagaray, Passin, near Paris, France. [Filed Aug. 10, 1875.]

Brief.—Heats and agitates until sulphurated or phosphoated gases are evolved. Ammonia is condensed in sulphuric acid, and returned to the organic product as sulphate of ammonia. The matter is dry-distilled in a receiver in a steam-jacket, the latter being also heated by hot air and products of combustion from the steam-boiler furnace. Cold air may be mingled with these products of combustion. All regulated by graduated cocks. Thermometers at many points. Matter cooling into steam-jacket is forced out of it by steam-pressure. To putrefy, add sulphate of lime, and lixiviate with alkaline solutions; precipitate by acids, not mineral. Mentions several compounds formed of his organic product. Steam-jacket on exit of still. Gases are exhausted by steam, and forced into acid-tank and lime-tank. Still cleaned by steam.



171,929. COKE-OVENS. Thomas B. McChesney, Hamersville, Ohio. [Filed Aug. 12, 1875.]

Brief.—A plow-beam having standards and attachments adjustable and detachable, to constitute a cultivator, corn-coverer, or scraper.



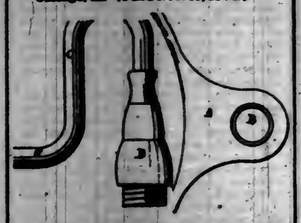
The combination of beam A B B, sheaths D F D F, pivoted frame G *g G' g'*, roller H I, slotted hangers J *f' f'*, and stop L, which latter is capable of being set so as to render said frame G *g G' g'* either a fixed or gravitating one, substantially as herein described, and for the purpose stated.

171,930. GLOBE-HOLDERS. T. F. McGann, Boston, Mass. [Filed Nov. 22, 1875.]

As a new article of manufacture, the herein-described reversible removable globe-holder for gas-burners, consisting of the plate A, having opening *a*, elastic arms B, firmly secured to said plate and extending downward directly therefrom, and then bent upward above said plate, and terminating on the inward curve *b*¹ and outward curve *b*², adapted to both the inside and outside of the globe, as set forth.



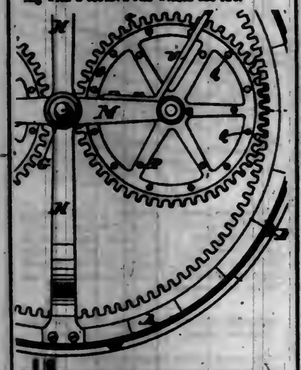
171,821. GAS-BURNERS. Owen J. McGann, Chicago, Ill. [Filed Nov. 10, 1874.]

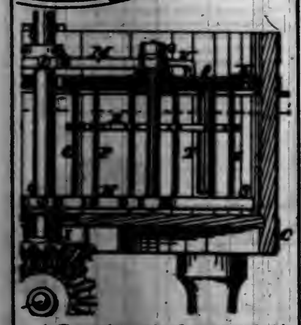


The combination, with the gas socket D, having burner-tube C and a screw-threaded end, of the base-holder, provided with a correspondingly-threaded hole, B, in flange A, whereby said parts are adapted to be connected and attached to a gas-bracket burner, as shown and described.

171,822. MACHINE-MACHINES. Thomas A. McIntyre, Waterloo, N. Y. [Filed May 6, 1876.]

Brief.—The machine consists, essentially, of a mold-tub, a vertical shaft, a horizontal frame driven by said shaft, and one or more revolving rakes. The latter receive planetary motion by cogs on the head of the rakes gearing with a toothed rim within the tub.





1. The revolving rakes C, constructed with vertical teeth F G, and carried by the revolving frame M N, in combination with the surrounding toothed rim B, for imparting rotation to the said rakes, as set forth.

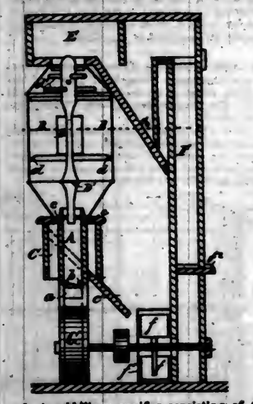
2. The combination of one or more planetary rakes or stirrers, and a horizontal scraper, S, for sweeping the bottom of the tub.

3. The combination of one or more planetary rakes or stirrers, and one or more teeth or scrapers, T, for sweeping the sides of the tub.

4. The combination of the hoop D and ragged rim B, bolted together through the sides of the tub, substantially as set forth.

171,823. MIDDLINGS-PURIFIERS. George Millbank, Chillicothe, Mo. [Filed June 2, 1875.]

Brief.—A middlings-purifier having vertical spout provided with opening near bottom, into which middlings are fed. Middlings pass upward through spout by force of suction or blast, or both combined. Vertical spout has expansion-chamber provided with devices for beating middlings, and deflecting currents of air to purify middlings.



1. A middlings-purifier consisting of the feed-spout A, having feed-opening at a, its bottom b, the surrounding discharge-hopper C, having inclined board c, the expansion-chamber E, having current-dividing shaft D, with the part D' and bottom d', the flange d, said parts being arranged with relation to discharge-chambers E E' at top, and blast G at bottom, to operate in the manner substantially as herein set forth.

2. The combination of the feed-spout A, the discharge-hopper C, expansion-chamber E, its bottom d', its flange d, the top chambers E E', and side spout F, and suction-fan, to operate in the manner substantially as herein set forth.

3. The combination of the feed-spout A, discharge-hopper C, expansion-chamber E, containing current-dividing parts and agitators, as shown and described, the top chamber E E', side spout F, said parts being constructed with relation to each other, and a blast, G, and suction f, to operate substantially as set forth.

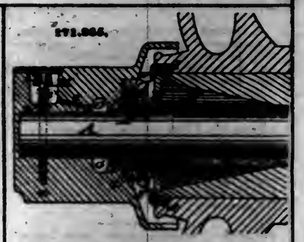
171,824. LOCOMOTIVE HEAD-LIGHTS. Wm. P. Mills, Frank Bell, and Jas. Carey, Jackson, Mich. [Filed Sept. 17, 1875.]



The combination of a reflector, B, having lateral signal-openings, a cam, D, provided with corresponding cams, a stop, E, and a stencil-plate, G, as shown and described, whereby is indicated the number of trains, while the signals are visible after, as well as before, a train has passed.

171,825. CAR-AXLES. Geo. W. Millmore, Jeanerille, Wis. [Filed June 19, 1876.]

171,826.



1. In car-axles, the combination of a revolving sleeve with a sheet-metal diaphragm, inclosing the journal-box, and forming a supplementary oil-reservoir around the stationary axle, substantially in the manner and for the purpose set forth.

2. The combination of the sheet-metal diaphragm, attached to the revolving outer axle or sleeve, with the double clamping-rings fitting on the stationary sleeve of the pedestal-box, to prevent escape of oil from diaphragm-reservoir and entering of dust, substantially as set forth.

3. The combination of revolving diaphragm clamping-rings, inner spring-seated sliding ring, stationary sleeve, and stationary steel ring with journal-box of stationary axle, substantially as shown and described.

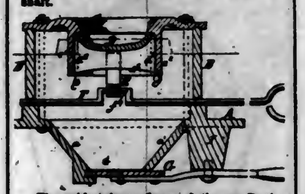
4. The combination of the oil-cup and oil-reservoir of the pedestal-box with the grooved stationary sleeve of the same, and the grooved steel ring for conveying the lubricant to the revolving parts, substantially as specified.

5. The oil-cup of pedestal-box, having top aperture, in combination with conical spring-acted interior ping, sliding on vertical axle-fastening pin, substantially as set forth.

6. The combination of the outer revolving sleeve and the journal-box of the stationary axle, both having face-flanges, with an intermediate wedge-shaped cushioning-sleeve, substantially as and for the purpose set forth.

171,827. TUYERES. Charles M. Morgan, Keeper, Iowa. [Filed Nov. 6, 1875.]

Brief.—The cup is elevated and depressed by means of the connection and crank on shaft.



The guide tube or flange e', the cup D, the sliding bar f', the connecting-rod E, and the crank-rod F f', in combination with each other and with the sides B and top C of the wind-chamber, substantially as herein shown and described.

171,828. SOLE-PROTECTORS FOR BOOTS AND SHOES. Calvin F. Monholder, Fullsburg, Ohio. [Filed Nov. 24, 1875.]

Brief.—The central plates are provided with tongues and grooves, to prevent lateral motion of the parts.



In a protector for the soles of boots and shoes, constructed substantially as herein described, the projecting tongues or tenons b and recesses c, arranged and operating as and for the purpose above set forth specified.

171,829. TUBULAR MACHINES. Johan T. Mannich, Haarlem, Holland, assignor of one-half his right to Wm. Tuther, same place. [Filed Nov. 16, 1876.

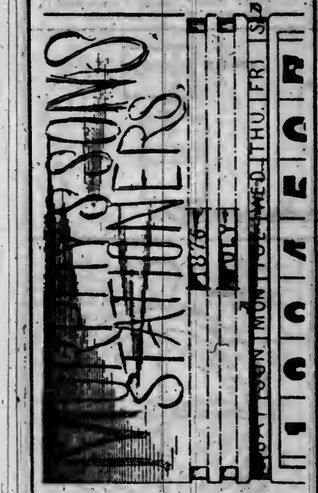
171,830.



1. The method or manner of testing the purity of milk or the amount of coloring matter in fluids by pouring a small quantity of such, previously diluted as described, between two transparent plates having plane surfaces, the lower one of which is graduated to a suitable scale, to be read in the manner substantially as set forth.

2. A fluid tester consisting, essentially, of two plates of transparent material, such as glass, the lower one of which is connected or otherwise made stationary in a suitable casing, and provided with a graduated scale, while the upper one is so arranged as to form a wedge-opening or space between the two when both plates are in position, substantially as and for the purposes set forth.

171,839. CALENDARS. Charles S. Murphy, Philadelphia, Pa. [Filed Aug. 21, 1876.]



A calendar consisting of a sheet of cardboard, having at its lower end a fixed table of numbers, and immediately above said table the movable endless band B, retained in position vertically by recesses in the edge of the card, all as set forth.

171,840. HORSE-POWERS OR DERRICKS FOR DRILLING WELLS. George A. Newman, Crowder, Nebr., assignor to himself and James L. Newman, Chicago, Ill. [Filed Nov. 13, 1875.]

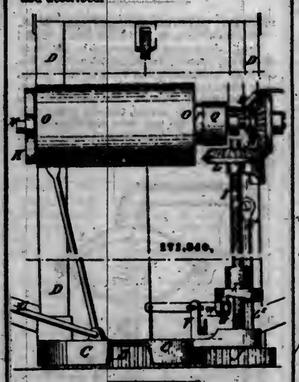
Brief.—Power applied to the sweep moves the small spur-wheel around in contact with the cogs of the stationary ring, and operates a drill by a cam.

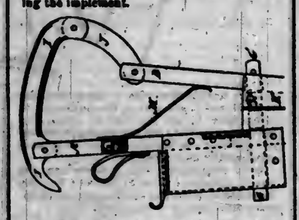
1. The combination of the stationary flanged ring B and the revolving grooved ring C with the base-frame A, the posts D, and the sweeps Y, substantially as herein shown and described.

2. The combination of the cross-bar U, to which the hoisting rope or chain is attached, and provided with rollers u' upon its ends, with the rabbeted or shouldered posts of the revolving hollow horse-power B C D, substantially as herein shown and described.

171,841. HAND CORN-PLANTERS. Milton Pollock Neal, St. Cloud, Minn. [Filed Oct. 16, 1876.]

Brief.—The two uprights are connected and operated by a pivoted handle made in two parts, in connection with a loop for the reception of the operator's finger to assist in grasping the implement.

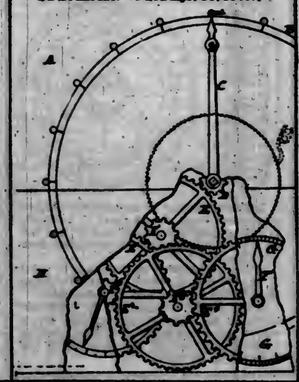




1. The combination, with pivoted handle or bar I, of the loop K, arranged as and for the purpose set forth.

2. The combination, with plates A B, of bars I J, loop K, handle I, and spring M, all arranged and operating as and for the purpose specified.

171,842. CARRIERS' INDICATORS. T. Olsen, St. Louis, Mo. [Filed Apr. 20, 1876.]

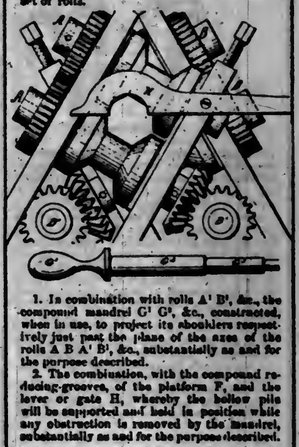


1. As an improvement in registers for indicating the receipt of money, the dial A, the sliding cover H, forming a part thereof, and provided with a suitable locking device, in combination with the supplemental dials G G, said supplemental dials being concealed, in the manner described, as and for the purpose set forth.

2. The transferable pins J J, for indicating the amount, and the finger U for registering the same, in combination with the dial A, provided with perforations I and graduations b, as and for the purpose set forth.

171,843. MACHINES FOR ROLLING NUT-BLANKS. Jonathan Ostrander, Cleveland, Ohio. [Filed Oct. 22, 1875.]

Brief.—A series of sets of rolls with similarly shaped grooves arranged at angles and a compound mandrel, the grooves and mandrel decreasing in size with each successive set of rolls.

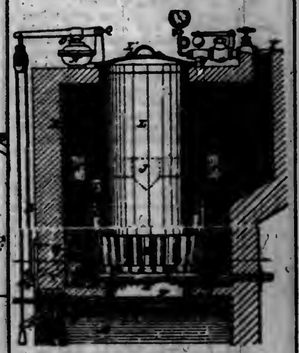


1. In combination with rolls A' B', &c., the compound mandrel C' C', &c., constructed, when in use, to project its shoulders respectively just past the plane of the axes of the rolls A B A' B', &c., substantially as and for the purpose described.

2. The combination, with the compound reducing-grooves, of the platform F, and the lever or gate H, whereby the hollow pile will be supported and held in position while any obstruction is removed by the mandrel, substantially as and for the purpose described.

171,844. BOILERS FOR STEAM-HEATERS. Walter S. Payne, St. Louis, Mo. [Filed Dec. 11, 1875.]

Brief.—By means of the cord, pulley, and dampers, as arranged, the upper damper is automatically closed before the lower one, which is also closed upon a sufficient increase of steam-pressure on the piston-lever.



1. The boiler composed of a lower and an upper annular tube, G and I, with connecting-pipes H, steam and water chamber K, and connecting-pipes J, substantially as set forth.

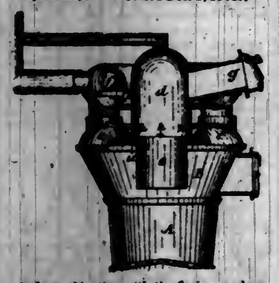
2. The combination of boiler G H I J K and fuel-cylinder L, substantially as set forth.

3. The combination of piston-rod O, rising with the steam-pressure, pulley M, cord or chain S, and dampers T and V, operating substantially as set forth.

171,845. LIQUID PAINTS. John Peart, Corning, N. Y., assignor of one-half his right to Adam Peart, same place. [Filed Oct. 27, 1875.]

A liquid paint for outside work, composed of zinc oxide, lead carbonate, linseed-oil, gutta-percha, lime-wat, turpentine, and pearlash and water, substantially as described.

171,846. HOT-AIR FURNACES. J. F. Peake, Syracuse, N. Y. [Filed Dec. 8, 1875.]



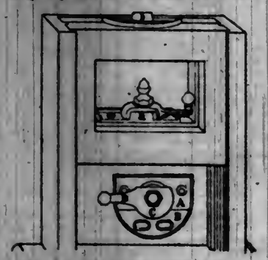
1. In combination with the flaring combustion chamber B the annular cup or ring *c*, of semicircular form in cross-section of its body, and provided with the cup-shaped flange *u* around the bottom edge of the small circumference of the ring, and the feed-pot *c*, having outward-turned hooks *h* on top, engaging the free top edge of the flange *u* aforesaid, constructed substantially as described and shown.

2. The lower *d*, having the lower portion of its body cylindric and the top semicircular in form, and divested of flanges or projections on its sides, in combination with the feed-pot *c*, having outward-turned hooks *h* on top, engaging the free top edge of the flange *u*, annular cup or ring *c*, of semicircular form in cross-section of its body, and provided with the cup-shaped flange *u*, around the bottom edge of the small circumference of the ring, and the flaring combustion-chamber B, all constructed and combined substantially in the manner shown and described, for the purposes set forth.

3. In combination with the dome *d*, having its top hemispherical in form, and extended above the annular smoke-flue *f* and feed-door *g*, in the manner described and shown, the pipe *a*, having, at a distance from its intersection with the dome, the valve *e*, substantially as and for the purposes specified.

171,847. FASTENERS FOR THE MEETING-RAILS OF SASHES. John G. Perry, Kingston, R. I. [Filed May 7, 1875.]

Brief.—A swinging lever, on suitable base-plate, is provided with a recessed or cup-shaped button, which is cut away at one side to admit of raising and lowering the sashes. This button is arranged eccentrically, and combines with a suitable projection on the opposite plate, in such manner as to draw and lock the meeting-rails together; the lever lying parallel, or nearly so, to the longitudinal direction, and the construction preventing tampering with the device from the outside.



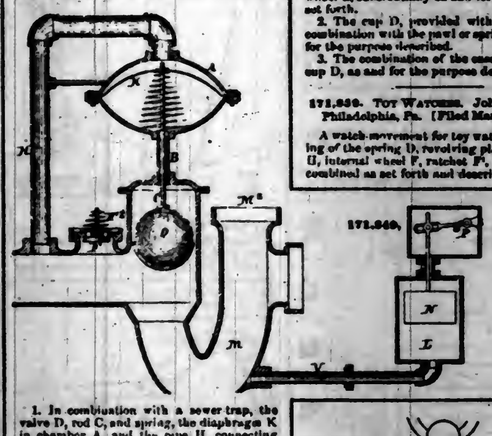
The lever D, having a recessed or cup-shaped button, C, cut away at one side, and pivoted to its base, in combination with the projection *b* of the opposite base, substantially as and for the purposes set forth.

171,848. DISGUISING SYRUPS FOR MEDICINES. Robert S. Peyton, Pinckneyville, Ill. [Filed Jan. 10, 1876.]

A vehicle for disguising nauseous medicines, composed of simple syrup, glycerine, and oil of winter-green, mixed together in about the proportions described.

171,849. TRAPS FOR SEWER-PIPES. W. A. Pitt, New York, N. Y. [Filed Dec. 1, 1875.]

Brief.—Siphoning is prevented by the small downward opening valve, the pressure of the outer air overcoming the force of the spring, thus admitting air to destroy the vacuum. When there is a pressure from the sewer, the large ball valve is seated, thereby preserving the contents of the trap from disturbance. If the water is drawn from the trap accidentally, the falling float causes a new supply to flow into the same.

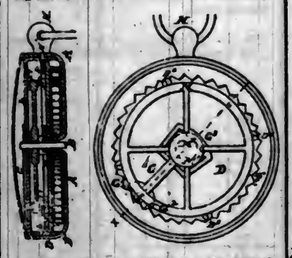


1. In combination with a sewer trap, the valve D, rod C, and spring, the diaphragm K in chamber A, and the pipe H, connecting the said chamber with the discharge-branch of the trap, the whole arranged to operate substantially as described.

2. In combination with a sewer-trap, the pipe V, chamber L, float N, and rock P of the water-supply pipe, the whole arranged to operate substantially as described.

171,850. TOY WATCHES. John G. Powell, Philadelphia, Pa. [Filed Feb. 6, 1875.]

Brief.—Can be wound up and then runs down with a vigorous ticking and with moving hands.



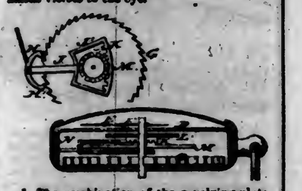
1. The combination of the escapement-wheel F with pawl K, ratchet I, revolving lever G, pallets G^1 and G^2, and balance-wheel M, as and for the purposes set forth and described.

2. The combination of the hands C, pillar B, cap H, pawl K, wheel F, wheel D, spring E, and case A, as set forth and described.

3. The wheel D, recessed on its upper side to receive the wheel F, and provided with a rim, or equivalent device or devices, upon its under side, to restrict the expansion of the spring E, as set forth.

171,851. TOY WATCHES. John G. Powell, Philadelphia, Pa. [Filed Jan. 9, 1875.]

Brief.—Exaggerates the sound of winding and of running, and makes the progress of the hands visible to the eye.



1. The combination of the revolving plate M, pallets H and H^1, lever J, provided with an internal geared segment, J', and the balance-wheel L, substantially as and for the purpose set forth.

2. The cap D, provided with notches, in combination with the pawl or spring N, as and for the purpose described.

3. The combination of the case A with the cap D, as and for the purpose described.

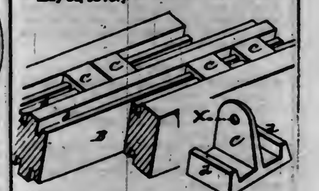
171,852. TOY WATCHES. John G. Powell, Philadelphia, Pa. [Filed Mar. 8, 1875.]

A watch-movement for toy watches, consisting of the spring D, revolving plate C, pinion H, internal wheel F, ratchet F^1, and pawl G, combined as set forth and described.

171,853.



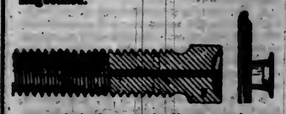
171,853. SLIDES FOR EXTENSION-TABLES. Henry G. Porter, Columbus, Ohio. [Filed May 31, 1875.]



The combination, in a table-slide, of the bars A A and B, having grooves on their upper and lower edges, as described, and the T-shape metallic castings C, having flanges *d d* and orifices *e*, and screwed to the bars as or near their ends on the bottom, and at points between their ends on the top, or vice versa, whereby four points of bearing are obtained, all substantially as set forth.

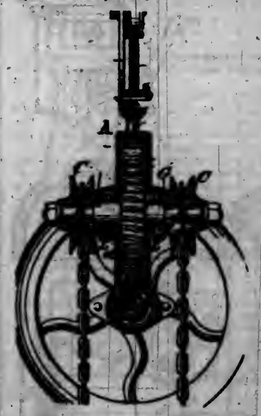
171,854. DYES. Samuel M. Porter, New York, N. Y., and Clark M. Pratt, Waterbury, Conn. [Filed Oct. 19, 1875.]

Brief.—The die-head and the lower part of the screw-shank are divided by a slot, in which is riveted a non-conducting plate, and then magnetized.



A polarized magnetic die or punch, constructed substantially in the manner and for the purpose described.

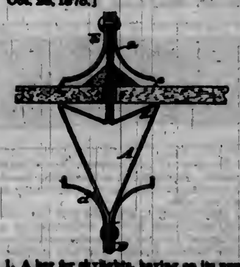
171,855. MORTISING APPARATUS. Louis T. Pyatt, Philadelphia, Pa., assignor to himself and Matthias Pennypacker, same place. [Filed Oct. 16, 1875.]



1. A boloting apparatus constructed, as described, with a central box for the main wheel, and with observers projecting on both sides of said central box, and receiving a double chain, for the purposes explained.

2. The double observers U, worm-wheel A, and clamp bolts H, geared together by the aid of clutch-connections, substantially as herein set forth.

171,856. SEPTIMETER. Augustus Courtney and Thos. Backs, Cincinnati, Ohio. [Filed Oct. 28, 1875.]



1. A bar for skylights, having on its upper side a doubled cap, E, riveted to the web *a*, and a lower gutter of the same form, described to connect by rivets with the opposite sheets of the bar at the lower side, substantially as set forth.

2. In combination with the bar A, the doubled single sheet D, forming both sides of the lower gutter, and carrying, by riveting, to connect the opposite sheets of the bar together, substantially as set forth.

171,857. FERTILIZERS. St. Julien Ravenel, Charleston, S. C. [Filed Oct. 26, 1875.]

1. The herein-described process of manufacturing phosphatic fertilizers, consisting in mixing pulverized iron pyrites with the ground phosphatic material, substantially as described.

2. The improved fertilizer herein described, consisting of a mixture of pulverized iron pyrites and ground phosphatic material, in substantially the proportions specified.

171,858. POCKET-BOOK LOCKS. Daniel M. Read, New York, N. Y. [Filed July 3, 1875.]

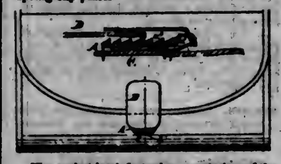
Brief.—Provides the upper surface of the flap clamping or fastening plate with a mirror.



As an article of manufacture, the pocket-book lock herein described, provided with a flap clamping or fastening plate, which consists of the frame A, mirror B, and the book plate C, as and for the purpose set forth.

171,859. POCKET-BOOK FASTENINGS. Daniel M. Read, New York, N. Y. [Filed July 24, 1875.]

Brief.—The knife-edge catch attached to the wallet-flap engages the serrations of the base-plate, and is confined by the overlapping spring cap-plate.



The pocket-book fastening consisting of the plate A, having the longitudinal rib provided with ratchet-teeth, the hook-shaped catch D, and spring cap-plate B, all constructed and arranged as shown and described.

171,860. PENCIL-BOXES. J. Rockenderfer, New York, N. Y. [Filed Dec. 7, 1875.]



The pencil-box consisting of an outer case, having an open top, with cross-strips to hold together the sides, as described, and an inner pencil-receptacle, with or without openings in one or both ends thereof, said parts being constructed and arranged together substantially as shown and described.

171,861. STEAM-BOILERS. Collin W. Read, Chagrin Falls, Ohio, assignor of one-half his right to E. N. Wickoff & Son, same place. [Filed Nov. 22, 1875.]

1. The combination in a steam boiler or generator of a water-chamber, the central space of which forms the fire-pot of the boiler, and a steam-chest, the central space of which forms a coking-chamber, the two being connected by a series of tubes, and the intervening space forming a combustion-chamber, in which the gaseous portions of the fuel are concentrated and consumed, substantially as described.

2. In a steam-boiler, the combination of the fire-pot and coking-chamber, constructed to have an upward and downward draft, respectively, with an intermediate combustion-chamber communicating with the same flues, in which chamber the flames of the burning fuel are concentrated for the purpose of intensifying the heat around the steam-chest or that portion of the boiler in which the steam is finally generated, in order to produce dry steam, substantially as and for the purposes set forth.

3. The combination of the annular chamber E, the combustion-chamber above the same, and tortuous flues leading from said combustion-chamber to the discharge-flue K, substantially as and for the purpose described.

4. The combination in a steam-boiler of the steam-chamber G and magazine G', provided with flues D, forming a coking-chamber above the combustion-chamber, and leading into the same, substantially as and for the purposes set forth.

5. The combination of the outer cylinder, the lower cylinder, the steam-chest or chamber, the connecting-flues, and the intervening combustion-chamber, substantially as herein set forth.

6. In combination with the magazine G', the flue U leading to the escape-flue of the furnace, for leading off the light gases that may collect between the removable covers T T, as and for the purpose herein set forth.



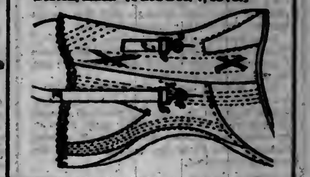
171,862. VELOCIPEDES. Frank J. Reinhold, Detroit, Mich. [Filed Nov. 20, 1875.]

Brief.—The chair, as it oscillates, operates the cords which drive the wheels.



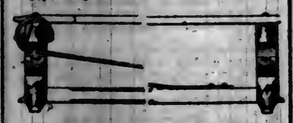
In a velocipede, substantially as described, the combination of the oscillating chair, the pulleys, cords, and paws, with the ratchets on the axle-arms, whereby the latter may be rotated by the rocking motion of a rider in the chair, substantially as set forth.

171,863. CORSETS. George W. Reynolds, Boston, Mass. [Filed Dec. 7, 1875.]



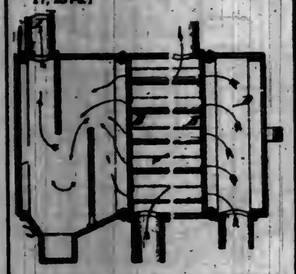
A cement provided with shoulder-straps D D, attached at one end to the back of the corset only, provided at their free ends with suitable devices for holding the skirts, and arranged to extend forward over the shoulders of the wearer, and downward in front to the waist, for sustaining the fronts of skirts, substantially as and for the purposes herein specified.

171,866. STIRRUP-BRACES FOR VEHICLES. Chas. L. Rice, Dunmore, Pa. [Filed Aug. 16, 1875.]



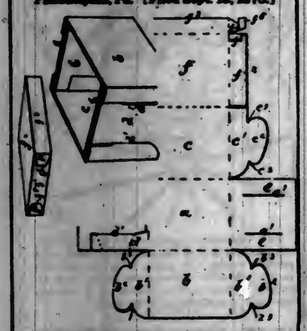
The spring F, constructed with a whole or partial circle at one end, and applied to the spring-bar or spring and to the rench, as and for the purpose described.

171,867. SPARK-ARRESTER. William H. Richardson, Cincinnati, Ohio. [Filed Oct. 17, 1874.]



The construction, substantially as specified, of the multi-flue smoke-consumer, the air-induction and air-ejection pipes, both communicating with the atmosphere, and arranged to admit of a natural circulation of air through the smoke-consumer, and deflecting-diaphragms at one or both ends of the latter.

171,868. PAPER BOXES. Reuben Miller, Philadelphia, Pa. [Filed Sept. 10, 1875.]

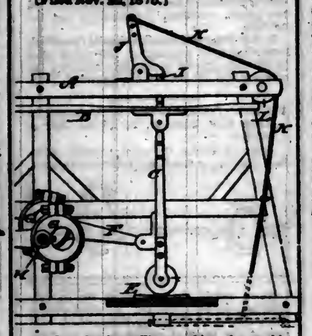


1. A paper box, consisting of the parts a b c d h, connected together by curved retaining-pieces F f, passed through slots f' e', in the manner and for the purpose described.

2. A box-top, consisting of the parts f^1 f^2 f^3, connected together by notched extensions f^4, passed through slots f^5, in the manner and for the purpose described.

3. A box and top, consisting of the parts a b c d e f^1 f^2 f^3 f^4, the parts a b c d e being connected together by retaining-pieces F f, passed through slots f' e', and the parts f^1 f^2 f^3 f^4 by means of notched extensions f^4, passed through slots f^5, in the manner and for the purpose described.

171,869. LEATHER-DRESSING MACHINES. William H. Rosenstiel, Johnstown, Pa. [Filed Nov. 22, 1875.]

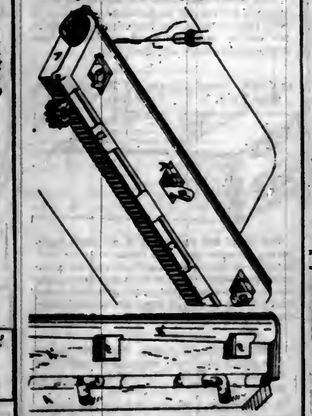


1. In a leather-rolling machine, the combination of the two pendulous rollers, driven from a common shaft, with separate foot-levers, by means of which they may be thrown into and out of contact with the leather independently of each other without stopping the machine, substantially as shown and described.

2. The combination of the two swinging roller-bars C, driven from the single shaft H, the spring suspending-bar B, and the independent levers J, cords K, and foot-levers M, substantially as shown.

3. The combination of the spring-bar B, roller pendulum C, pin l, elbow-lever J, cord K, and foot-lever M, all attached to and operating in the frame A, substantially as shown and described.

171,870. CLAMPS FOR HOLDING AND GARNETING BATCHES-SCALLOPING, &c. Thomas W. Rounds, Providence, R. I., assignor of one-half his right to John B. Humphreys, same place. [Filed Aug. 6, 1875.]



In a clamp for holding and carrying scabbards and similar articles for sewing, the hinged jaws A A', with the tapering recesses to receive and hold in form the leather or stock of which they are made, and thereby gage the edges for sewing, substantially as set forth.

171,871. ELECTRIC REGULATORS FOR STEAM-ENGINES. James Sangster and Wm. S. Grosvenor, Buffalo, N. Y. [Filed Nov. 27, 1875.]

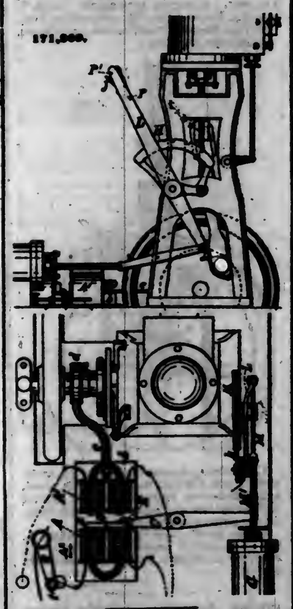
1. The combination, substantially as specified, of a main steam-engine, an auxiliary steam-engine for controlling the steam-supply valve thereof, an electro-magnet reciprocated by the main engine, the armature, the lever for shifting the valve of the auxiliary engine, and the valve thereof.

2. The combination of the movable electro-magnets A A' and their connections, for forming or breaking a circuit with a battery, with an armature, b, arranged between them upon a movable arm; C, for moving a valve in two directions, substantially as and for the purposes specified.

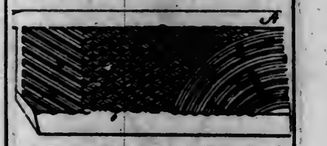
3. The electro-magnets A or A', in combination with the connecting-rod e and eccentric d, arranged and adjusted upon an engine-shaft with reference to the position of the crank thereon, so as to time the movements of said electro-magnets, for the purposes described.

4. The electro-magnets A A', armature B, arm C, auxiliary cylinder G and its connections, lever L, provided with studs F F', and unlocking device D, all combined and arranged for joint operation for reversing an engine, as set forth.

171,872.



171,872. DOOR-SILLS. Anton Sour, Franklin, Ind. [Filed Dec. 8, 1875.]



1. The door-sill A, provided with a series of concentric semicircles, B, connected by means of the short cross-grooves a, substantially as herein set forth.

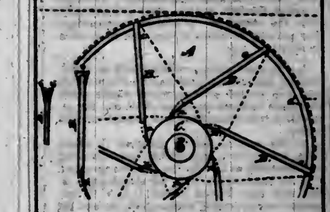
2. The door-sill A, provided with the concentric semicircles B, with cross-grooves a, the diagonal grooves C, crossing each other, and the locking grooves D at each end, substantially as and for the purposes herein set forth.

171,873. PROCESSES OF PREPARING PAPER FOR POSTAGE AND REVENUE STAMPS. Jos. Schneble, New York, N. Y. [Filed Dec. 7, 1875.]

The method of preparing paper for printing postage or revenue stamps upon, consisting essentially of applying thereto a sizing composed of glue, sugar, glycerine, muriatic acid, and water, and then a composition of alcohol, glycerine, and water, of about the proportions described, substantially as set forth.

171,874. PANS AND BLOWERS. Peter A. Schweitzer, Appleton, Wis. [Filed May 3, 1875.]

Brief.—The partition and blades have the packing shown. The flexible attachment near the shaft permits of a change in the position of the blades. The device shown as advantageous arrangement of parts; also a means of regulating the currents of air as desired.



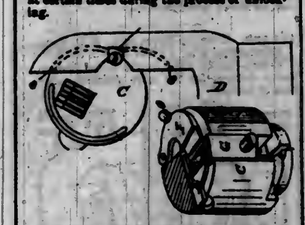
1. The partition A with its packing a', substantially as described, and for the purposes and ends as set forth.

2. The fanner or blade B with its packing a and flexible termination a, in combination with partition A, substantially as described, and for the purposes and ends as set forth.

3. The fan or blower wheel, composed of partition A with its attachments or packing a', fanners or blades B, with their attachments or packing a, with washer or washers U and shaft D, in combination substantially as described, and for the purposes and ends as set forth.

171,875. LOCKS FOR DOORS, &c. Henry S. Shepardson, Shelburne Falls, Mass. [Filed Oct. 12, 1875.]

Brief.—Two circular grooves are formed in a lock-bolt, which is operated by a revolving barrel, having a projecting rib for engaging in the grooves, so as to hold the bolt firmly in the locked or unlocked position. A pivoted plate, operated by a pin, serves to close the key-hole and prevent access to the tumblers at certain times during the process of unlocking.



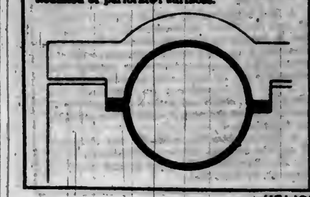
1. The combination of the sliding bolt D, provided with the notch a and groove c, and the rotary barrel C, provided with the stud b and rib d, substantially as shown.

2. In combination with the rotary barrel C, having the sliding box of tumblers mounted therein, the sliding tumbler-bar H, operated by the cams on the interior of the final shaft or sleeve E, as shown.

3. In combination with the rotary barrel C, and the tumblers mounted therein, the cut-off plate I, and the final shaft E, provided with cams or lockets for operating the same.

171,876. ANTI-FRICTION BEARINGS. C. B. Sheldon, New York, N. Y. [Filed Nov. 20, 1875.]

Brief.—Plumbago united by cement to reticulated or perforated surfaces.



Plastic plumbago compressed into the interstices of metal to form an anti-friction bearing.

171,877. GAUGE-WARMER. Alex. Shower, San Francisco, Cal. [Filed Aug. 11, 1875.]

A sheep and cattle wash composed of white vitriol and the extract of hellebore and water, and prepared substantially as above described.

171,878. FURNACES FOR MELTING GLASS. Nicholas Snyder, Pittsburg, Pa. [Filed Sept. 30, 1875.]



In combination with the oven of a glass-furnace, the horizontal radial flues E, leading from a point opposite the breast of each glass-pot, and the segmental flues F, leading to and connecting with the flues G, substantially as described.

171,879. GUIDES FOR WAX-THREAD SEWING-MACHINES. Wm. A. Springer, Marlborough, Mass. [Filed Nov. 6, 1875.]

Brief.—The needle-plate of a sewing-machine provided with two leather lap guides or shoulders and a webbing-guide, whereby a boot or shoe leg lap-seam can be stitched, and the webbing loop or strap sewed thereto at the same time.



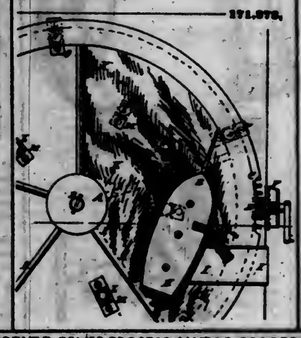
1. The combination, with the work or needle-plate of a sewing-machine, of two leather lap guides or shoulders, and a webbing guide or shoulder, whereby a boot or shoe leg lap-seam can be stitched, and the webbing loop or strap sewed thereto, at the same time, substantially as described.

2. The combination, with the work table or plate A, of a lap-seam guide device, consisting of the parts C, D, and E, substantially as and for the purposes set forth.

3. The combination, with the hinged guide-arm D and guide-piece E, of block C, having lip f, and shoulders g and h, substantially as and for the purposes set forth.

4. The combination, with the work or needle-plate of a sewing-machine, of two leather lap guides or shoulders, g and n, and a webbing guide or shoulder, h, and webbing loop-guide o, substantially as and for the purposes set forth.

171,880.



171,880. GUIDE-PULLEYS OR ROUNDABOUTS. Robert Steel, Philadelphia, Pa. [Filed Nov. 27, 1875.]

Brief.—To be used instead of the ordinary heavy go-rounds at places of public amusement, having imitation horses, &c.

1. A roundabout or universal compound, essentially, of a rigged vessel, H, with a revolving wheel, A, and its driving mechanism, all constructed and arranged substantially as herein shown and described.

2. The combination of the cloth K, painted to represent waves, and the balls or wheels L and their supports M, with the wheel A and the rigged vessel H, substantially as herein shown and described.

171,881. SEWING-MACHINE SHUTTLES. E. H. St. John, Bellefontaine, Ohio. [Filed June 21, 1875.]

Brief.—The hinged hook that carries the cap, fitting in the beveled end of the shuttle, has a series of holes, into which pins projecting from the side of the shuttle enter. The thread is wound around these pins to give the necessary tension.



1. The combination, with a shuttle-case, of a plate or arm permanently hinged thereto, and guided in a plane perpendicular to the surface to which it is attached, and carrying a beel-piece to close the rear end of the case.

2. In a sewing-machine shuttle-case, the series of tension-pins c, in combination with a hook, d, perforated to receive the ends of the said pins, substantially as set forth.

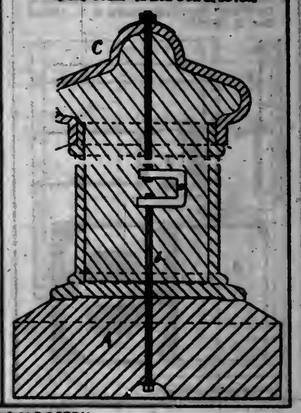
3. In a sewing-machine shuttle-case, the hook d, in combination with the beveled heel-piece e hinged thereto, substantially as and for the purposes set forth.

171,882. UMBRELLA RIB-TIP RETAINERS. H. B. Stillman, New York, N. Y. [Filed June 26, 1875.]



The umbrella tip-retainer composed of the cylinder A, with rib d, in combination with the sliding cap e, having the groove c, arranged to operate in the manner and for the purposes set forth.

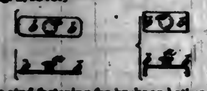
171,883. MOUTHPIECES. James C. Stinson, Memphis, Tenn. [Filed Oct. 2, 1875.]



1. In a hollow glass tombstone, the combination of the base A, column B, top C, and rod D, composed of the sections *a b*, and connected by the spring *c*, substantially as and for the purpose set forth.

2. A hollow glass tombstone filled with sand or similar material, and consisting of the base A, column B, top C, and rod D, composed of sections *a b*, connected together, and provided with means for allowing expansion, substantially as and for the purpose set forth.

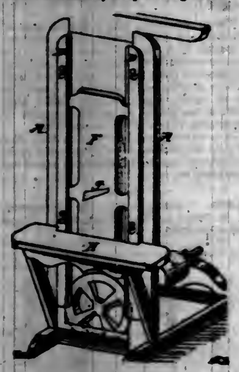
171,889. BOOK-FASTENINGS. Robert Skelton, Bow, England, assignor to Thomas, Langdon & Co., New York city. [Filed Aug. 2, 1875.]



The stud-fastening for books and other articles, consisting of a flanged head, *a*, and slip *b*, the said head and slip being composed of one piece of sheet metal, substantially in the manner and for the purpose specified.

171,890. BOX-TRIMMING MACHINES. Geo. W. Green, San Francisco, Cal. [Filed Nov. 25, 1874.]

Brief.—The box is placed upon a horizontal table, and the corners trimmed by a knife secured in a vertically-reciprocating frame.



A box-trimming machine, consisting of the vertically-reciprocating plane-frame F, with its angularly-placed plane-bit *g*, secured between the adjustable ways D, which are secured to upright guide-posts A, and the table or platform E, substantially as above described.

171,891. ALPHABET BOARDS AND BLOCKS. De Witt C. Taylor, Brooklyn, N. Y. [Filed Oct. 11, 1875.]



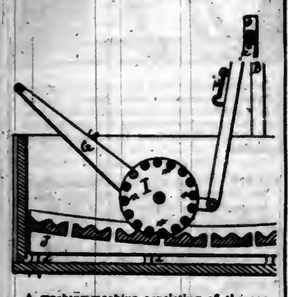
1. The blackboard or alphabet-board A, constructed with the projecting ribs *a a*, and with two or more parallel strings or wires *b b*, stretched across the face of the board and over the projecting rib, substantially as specified.

2. In a blackboard or other board, the combination of the rib *d* with the string *b*, said rib and string serving to hold one row of independently-removable alphabet-blocks, substantially as specified.

3. The blackboard or alphabet-board A, having the parallel strings or wires *b* and *b'* stretched across its face, the string or wire *b'* being arranged nearer to said face than the string or wire *b*, substantially as described.

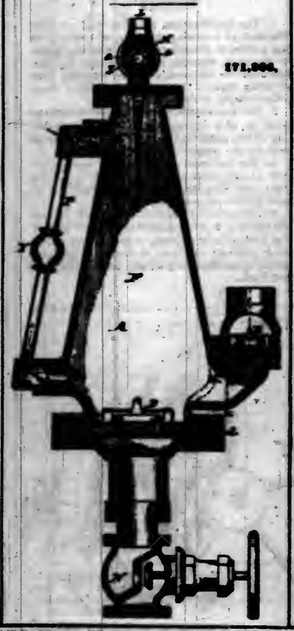
4. In combination, with the block-frame *g f* of an alphabet-block, the removable letter-block A, both constructed and arranged to operate substantially as described.

171,892. WASHING-MACHINES. James G. Templeton and Elnari S. Moulton, Huntley Grove, Ill. [Filed Nov. 20, 1875.]



A washing-machine consisting of the corrugated bed J, provided with springs L, interposed between its lower face and the bottom of the watch-box, dasher I, journaled in the handle G, and connected with the standards B by means of the bars E and C, rubber springs D, hook *i*, and staple *l*, substantially as described.

171,893.



171,894. STEAM AND VACUUM PUMPS. B. C. Vandusen, Cincinnati, Ohio. [Filed Oct. 13, 1875.]

Brief.—The currents check the upward throw of water, and the steam passing through them heats the water to such a degree that but little condensation takes place when the steam strikes the water. The valve in the steam-chest governs the admission of steam to the two water-chambers alternately. Water is injected through a side pipe automatically into the chambers, to assist condensation, the quantity of which is regulated by a valve in said side pipe.

1. The combination, substantially as specified, of the water-chambers, the steam-chest, and the conical screens, which wholly cover the ports between the steam-chest and the respective water-chambers, and depend into the latter.

2. The combination of chamber G, sleeve H *a*, and valve I, constructed and operating substantially as and for the purpose specified.

3. In combination with the chambers A A', the side pipe P and valves U U V V, connected and operating substantially as and for the purpose specified.

4. In combination with the chambers A A', side pipe P, and valves U V, the governing-valve Y, operating substantially as and for the purpose specified.

171,895. HARROWS. J. R. Van Orthwick, Hillsdale, Mich. [Filed Sept. 25, 1875.]

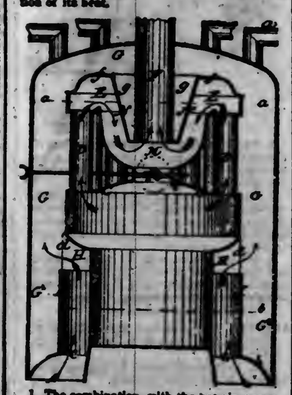
Brief.—The harrow-frame consists of two sections hinged together longitudinally. A pair of runners are fitted to the teeth of each section, with notches for receiving a bar transversely, to give rigidity to the harrow in transportation.



The detachable runners G G, having holes *a* to receive the harrow-teeth, and a central notch, *b*, and the hinting-bar H, in combination with the hinged sections A A of the harrow, as shown and described.

171,896. HEATING-FURNACES. S. D. Voss, Milwaukee, Wis. [Filed June 5, 1875.]

Brief.—Smoke given in the drop-chamber, and is delayed for the more complete radiation of its heat.



1. The combination, with the hot-air space O, and the closed top chamber K, of the chamber M depending into said chamber O, and the chamber *g*, opening upward therein, with the smoke-pipe F, passing therefrom through the chambers *g* O, as and for the purposes set forth.

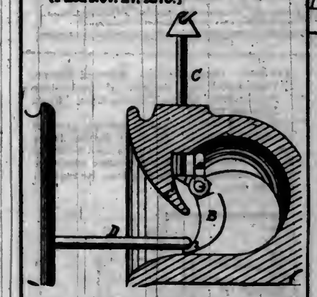
2. The air-chamber *g*, and the drop flue-chamber M, combined with the chambers E and O, the smoke-pipe F, and the flue-pipes D, as described.

3. The combination, with the top chamber E and the drop-chamber M of the arch C, of the fire-chamber, the damper R, and the flue-pipes D, as described.

4. The curb I, of less height than the blades H, and combined with them and the hot-air space G G' by the opening *d*, in the manner and for the purpose set forth.

5. The flue J, opening into the hot-air space G G' and combined with the drop-chamber M depending into said hot-air space above the arch O of the fire-pot, whereby the hot air, having the opening *d*, passes over and round the combustion chamber, and between the drop-chamber and the heat-receiving chamber E, as described.

171,898. CAR-COUPLINGS. D. W. Vowles, Washington, D. C., assignor of one-half his right to Wm. H. Larner, same place. [Filed Nov. 27, 1875.]



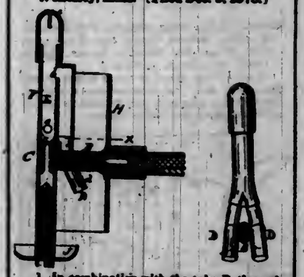
The crescent-shaped or curved and pivoted trip B, having the tapering end 2 and short arm 1, in combination with the draw-head A, slotted at *a*, pin C, and link D, all as and for the purposes set forth.

171,899. LIFE-PASTENERS. Franz Wagner, New York, N. Y., assignor to Edmund F. Bonaventure, Charles Rastig, Carl Theodore Kurtzmann, and Andreas Haas, same place. [Filed Dec. 7, 1875.]



The rope or line adjuster and clamp A, constructed with the tapering passage *a*, substantially as and for the purpose herein shown and described.

171,901. VAPOR-BURNERS. A. H. Watkins, Wellesley, Mass. [Filed Dec. 6, 1875.]

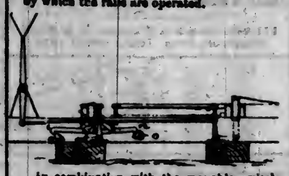


1. In combination with the tube B, through which the vapor passes to the burner-tube O, the straddling tubes D D, communicating, by means of a common aperture, with the mixing-chamber E, and providing double supplementary jets, constructed and arranged substantially as and for the purposes set forth.

2. The combination of the shield H, burner-tube O, and gas-chamber B, provided with the straddling tubes D D, substantially as and for the purposes hereinbefore specified.

171,902. RAILROAD-SWITCHES. William A. Wenst, Saltsbury, N. C. [Filed Sept. 20, 1875.]

Brief.—The movable rails are automatically secured in position against accidental displacement by two hooked arms catching over stops on the tie, said arms being connected by links to the wrist-pin of the crank-arm, by which the rails are operated.



In combination with the movable switch-rails and mechanism for operating the same, the locking device consisting of two hooks pivoted together at their ends, and attached to the wrist-pin of the crank K' on the rock-shaft K by the latter r r, so as to be lifted in advance of the shifting of the rails, said hooks being adapted to catch over suitable lugs on the sleeper of the track and secure the switch-rails against accidental shifting, substantially as described.

171,903. KNIVES FOR CHILDREN'S SLEDGES. Wm. P. Wentworth, Seneca Falls, N. Y. [Filed Nov. 8, 1875.]



171,903.



171,897.

The standard I, having the brace O at its lower end, the brace D at its upper end, and the plate H, the whole being cast in a single piece, substantially as shown and described.

171,904. BAGGAGE-CHECKS. J. F. Wheeler and H. A. De Haven, San Quentin, Cal. [Filed Dec. 4, 1875.]

Brief.—Detachable duplicate is retained on main slotted check by means of button *a*, pin *b*, and spring *d*, and may be removed by sliding the duplicate check until the button is out of the slot.



1. A baggage-check made of a slotted main check, strap, and seal-tag, said strap and tag being introduced into the slot and retained by a clamp-spring at the end or eye of the same, as described.

2. The combination of the slotted main check, having clamp-spring around terminal eye of slot, with a detachable duplicate check sliding thereon by front pin or rear knob, substantially as specified.

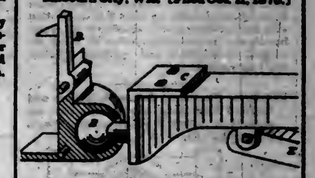
171,905. SCRAW-CUTTERS. John B. Whittemore, Chicopee Falls, Mass. [Filed Dec. 3, 1875.]



1. The combination of the mouth-piece C, having inclined opening *s* and projection C', the angular adjustable piece E, having inclined opening *g*, with the lever-handle D, having bolt A, arbor *d*, with bevels at its ends, and the set-screw *c*, all constructed and arranged substantially as set forth.

2. The set-screw *m*, passing through the ear *a* on the projection C', in combination with the adjustable piece E, for the purposes herein set forth.

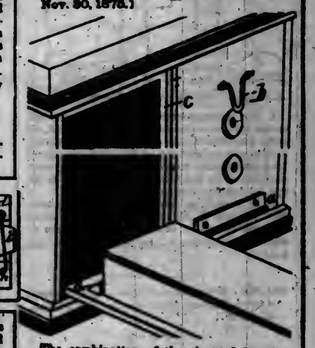
171,906. CAR-MOVERS. James G. Wilbur, Kilbourn City, Wis. [Filed Oct. 11, 1875.]



1. Knuckle-joint B, jaw A, and plate C, all in combination, for the purposes specified.

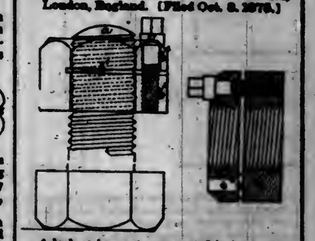
2. Jaw A, knuckle-joint B, plate C, in combination with hook D, substantially as specified.

171,907. SNOW-GUARDS FOR COPPERS. Elijah W. Wilcox, West Winfield, N. Y. [Filed Nov. 30, 1875.]



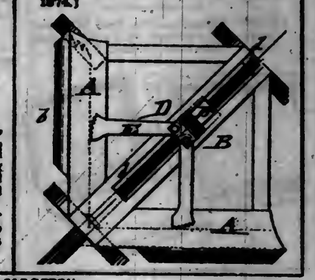
The combination of the sheet *d*, board *f*, and latch *e*, as a means of securing the cattle in position, substantially as set forth.

171,908. NUT-LOCKS. John Fletcher Wilson, London, England. [Filed Oct. 9, 1875.]



A lock or jam nut constructed in two parts or leaves, in combination with a screw for forcing the leaves together or apart, to lock the nut on its bolt, substantially as described.

171,909. MITERING-MACHINES. Robert A. Williams, Galion, Ohio. [Filed June 6, 1874.]



The combined mitering and frame-cutting machine herein described, consisting of supporting-frame A, with diagonal recessed plane B, and flanged adjusting slide b, in combination with the detachable and adjustable mitering-bar C, and frame-cutting device D, being arranged, constructed, and operated substantially as set forth.

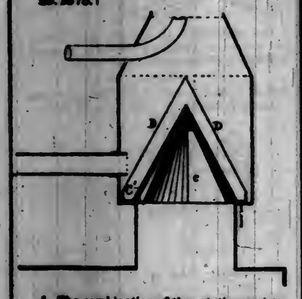
171,890. CHARLES. James R. Wilson and Reuben McAdams, Marshfield, Mo., assignors to James R. Wilson, same place. [Filed Sept. 21, 1875.]



1. The separate walking levers B B, pivoted to the rocker in the middle of their length, to bring their free ends in contact with the floor at or near the ends of the rocker, and combined with the double crank-shaft c and the motor mechanism by the separate crank-rods b b, as and for the purpose set forth.

2. In a rocking cradle provided with pivoted walkers B, the combination, with such walkers, of rubber or rubber-bound rollers c, whereby the cradle is kept in its place, as set forth.

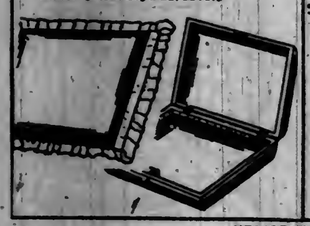
171,891. SPARK-ARRESTERS AND DAMPERS. Albert Winton, Reading, Pa. [Filed Oct. 29, 1875.]



1. The combination of the rotating register-valve, moving upon a stationary seat, a conical wire screen arranged to surround said valve, and the enlarged portion of a smoke-pipe, the parts being constructed and arranged to operate substantially as and for the purpose set forth.

2. The combination of the conical case C with the removable case C' and its wire cover D, substantially as and for the purpose set forth.

171,892. DESK-PILLOWS. Benj. Witherell, Medford, and Elisha B. Witherell, Everett, Mass. [Filed Sept. 28, 1875.]



As a new article of manufacture, a desk-pillow composed of paper stock or pasteboard, and made in two parts and hinged together, each part being provided at the edges with a wooden frame, whereby the hinges and spring-catch are applied, and so as to form, when closed, a receptacle in the shape of a pillow, all in the manner and for the purpose substantially as set forth.

171,893. SIDE-BAR WAGONS. O. B. Wood, Bridgeport, Conn. [Filed Oct. 21, 1875.]



171,894.



The combination of the spring-bar A, the depending clip d, the packing-ring E, flanged tube f, bifurcated spring B, and the bolt and nut a, all constructed substantially as and for the purposes set forth.

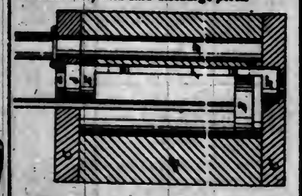
171,895. TREADLES FOR SEWING-MACHINES. Theo. F. Woodbridge, Mendota, Ill. [Filed Apr. 14, 1875.]



In treadles and power for sewing-machines, in which the main shaft is operated by means of friction-clutches and straps or rods, the shaft 1, constructed with sleeve 3, having a partition, s, and recess on each side thereof, in combination with the clutches d, recessed at i, and arranged to operate with the friction-rollers and with caps j, having arms l connected with straps n n', all substantially as and for the purpose set forth.

171,896. PUMPS. Henry M. Wyeth, Newark, Ohio. [Filed Nov. 30, 1875.]

Brief.—Valve-seats are in the cylinder-heads. The induct-valves are connected by a rod sliding in a groove in the wall of the cylinder. Discharge-ports are opened and closed by said rod, having ports through it to register, or otherwise, with said discharge-ports.



The improved pump, consisting of the cylinder A, having discharge-ports s s' and recesses d d' connected by a groove, in combination with the valves E E', provided with holes s s' and a connecting-slide, F, the cylinder-heads C C', having induction-ports o o', and recesses b b', and the piston, substantially as and for the purpose described.

171,897. TRACK-CLEARERS. Wm. Hamilton, Fallsburg, N. Y., assignor of one-half his right to J. L. La Morce. [Filed Nov. 20, 1875.]

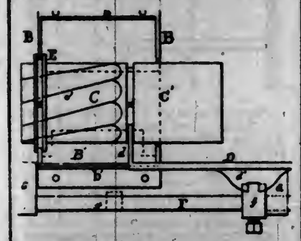
Brief.—Frame driven into the snow, drawn out, and tipped sideways to empty.

The plate c, hinged at one edge to the frame a, in combination with the cams or devices l, cranks, and a connecting-rod that extends back to the locomotive, substantially as shown.

171,898.

171,899. GRAIN-DRILLS. Edward Kuhns, Logansport, Ind., assignor of one-half his right to Benj. Kuhns, Dayton, Ohio. [Filed July 29, 1875.]

Brief.—The seed wheel is spirally grooved one-half its length, the upper portion being left smooth. Between the tire a nook is formed for the reception of an adjustable partition-plate attached to the sliding door, for regulating the feed.



1. A feed-wheel having one portion, C, grooved spirally, said grooves extending from about the middle of the wheel to one end thereof, and the other portion, C', being cylindrical, the two portions being separated by an annular groove, d', as and for the purpose set forth.

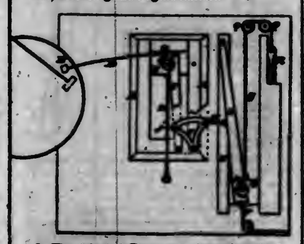
2. The combination of the spirally-grooved and smooth cylinder with the seat d' and the adjustable partition-plate d, substantially as and for the purpose described.

3. The combination of the collar E, cylinder C C', and sliding door D with the adjustable partition d, substantially as and for the purpose described.

REISSUES.

6,881. GONG ATTACHMENTS FOR ENGINE-HOUSES. Robert Bragg, San Francisco, Cal. Patent No. 103,436, dated July 12, 1870. [Filed Oct. 9, 1875.]

Brief.—When alarm of fire is struck on engine-house bell, first blow releases a trigger, letting fall a weight, which withdraws halter-bolts, releasing the engine-horses.



1. The trip-rod D, arranged as described, and the oscillating lever C, for the purpose of releasing a suspended weight by the movement of a gong-hammer, substantially as and for the purpose described.

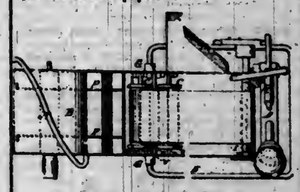
2. In combination with the rod D and the recessed oscillating lever C, pivoted as described, the weight B and its roller G, for the purpose of relieving friction, and removing the rod D from the action of the gong-hammer, substantially as herein described.

3. In combination with the weight B, caused to fall, as shown, the bell-crank lever I, cord K, and lever L, for releasing the slide O and weight B, and thus releasing the horses by means of the cord T, substantially as herein described.

4. The trip-rod D, oscillating lever C, and suspended weight B, in combination with the hammer of a gong, for the purpose of operating mechanism distant from the gong, substantially as above described.

6,882. ADDRESSING-MACHINES. Robt. Dick, Buffalo, N. Y. Patent No. 64,502, dated May 7, 1867. [Filed Nov. 11, 1875.]

Brief.—The strip of addresses receives paste from the belt, and is fed under the pivoted blade. When the machine is depressed, the wire frame, coming in contact with the pile, operates the knife to sever the address and press it onto the paper.



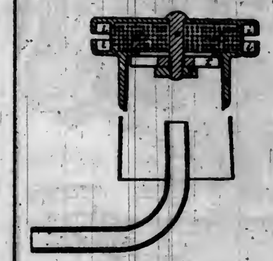
1. The combination, with the shell M, of the distributers Y Z, substantially as and for the purposes set forth.

2. The combination, with the shell M, of the roller-bearings U V W X, substantially as and for the purposes set forth.

3. The combination, with the distributers Y Z and with the rollers G U I L, of the belt A, substantially as and for the purposes set forth.

4. The combination, with the shell M and of the cutter-stamp D, of the frame E E E and connecting-rod F, substantially as and for the purposes set forth.

6,883. BURNERS FOR GAS-STOVES. Thomas J. Kelly, New York, N. Y., assignor, by mesne assignments, to J. L. Sharp, same place. Patent No. 50,062, dated Nov. 14, 1865. [Filed Aug. 18, 1875.]



1. The combination of the outlet or opening, through which the inflammable material passes, so as to be ignited into a horizontal sheet of flame, the perforated diaphragm, through which the gas and air pass and become thoroughly mixed, and the chamber intermediate between the diaphragm and the outlet, substantially as described.

2. The combination of the vertically-arranged diaphragm with the external annular opening, to burn the inflammable material against the head of the burner, substantially as described.

6,884. WATER-PIPES. John C. Bouvaux, Philadelphia, Pa. Patent No. 71,222, dated Nov. 19, 1867. [Filed Dec. 18, 1875.]

1. A waste-water pipe, having a longitudinal recess or re-entrant groove, a, extending in continuous form from end to end, capable of yielding to prevent rupture, substantially as specified.

2. A waste-water pipe, having a longitudinal recess or groove, a, made substantially as described, by bending, lapping, and soldering the edges, substantially as specified.

6,885.



6,886. LIGHTNING-RODS. Henry W. Spang, Reading, Pa. Patent No. 167,415, dated Sept. 7, 1875. [Filed Dec. 14, 1875.]

Brief.—For the purpose of making good earth-connection.

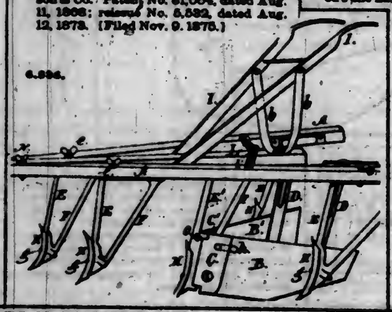


1. The combination of metallic rain-pipe A with perforated metallic pipe D, said pipes being electrically connected, as described, and forming a lightning-conductor, substantially as set forth.

2. Metallic pipe D, having perforations or openings E, as described, and for the purpose set forth.

6,886. CULTIVATORS AND PLOWS COMBINED. Lewis R. Wright, Hudson, N. Y., assignor, by mesne assignments, to Gifford, Johnson & Co. Patent No. 61,054, dated Aug. 14, 1866; reissued No. 5,532, dated Aug. 12, 1873. [Filed Nov. 9, 1875.]

6,886.



1. The double mold-board B and C, hinged and connected together, so that the main part of said mold-board B may be elevated or depressed at will, according to the height of furrow desired to be cut, substantially as herein before described and set forth.

2. The sections of the mold-board C and C', hinged to the center standard E', whereby a lateral motion may be given to the mold-boards B and B' to regulate the width of furrow to be cut, substantially in the manner and for the purposes more fully hereinbefore described and set forth.

3. The slotted arms or their equivalents D D, in combination with the mold-boards B and B', substantially in the manner as and for the purposes herein described and set forth.

4. The cultivator tooth made with nearly straight edges and V-shaped rod, sharpened upon the under side, curved in a vertical plane, and with the face flat, or nearly flat, transversely, substantially as and for the purposes specified.

6,887. FURNACES FOR HEATING BLANKS. Jas. W. Reese, New Brighton, Pa. Patent No. 166,236, dated Aug. 3, 1875. [Filed Dec. 27, 1875.]

Brief.—A self-feeding hand-burning furnace, in which the blanks are protected from contact with any but the burning coals; said blanks being introduced through the lateral opening in the front wall, designed for the escape of the products of combustion, the coal in the magazine above remaining unignited until it has passed below the upper boundary of the discharge-opening.



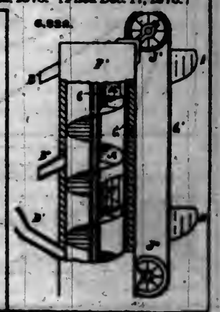
1. A combined fire-chamber and coal-magazine, provided with a sliding cover at the top, and with an opening in its side wall a short distance above the grate-surface, in combination with a closed ash-pit provided with an inlet-pipe for the supply of a blast of air, substantially as and for the purposes set forth.

2. In a furnace for heating blanks, substantially such as described, the chocks or beaks D and F, arranged in relation to the grate and feed-opening, substantially as herein shown and described.

3. A furnace for heating blanks, consisting of the chocks or beaks D F, of the form and arrangement shown, movable door H, blast-tube B' and mouth E, the whole being arranged to operate substantially as described, as and for the purposes specified.

6,888. GRAIN-CONVEYERS. H. W. Caldwell, Indianapolis, Ind. Patent No. 164,715, dated June 22, 1875. [Filed Dec. 17, 1875.]

6,888.



1. The hollow wrought iron shaft, adapted to the purposes of a conveyer, in the manner and for the uses and objects specified.

2. The hollow wrought iron shaft, adapted to the purposes of an elevator, in the manner as and for the uses and objects specified.

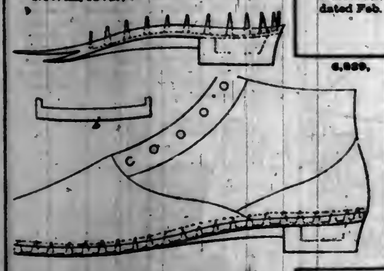
3. The continuous wrought iron spiral flight, constructed in the manner and form specified, and adapted to any cylindrical shaft used for the purposes of a conveyer, substantially as set forth and described.

4. The continuous wrought-iron flight A, constructed and applied to the hollow shaft C, substantially as described and set forth.

5. The conveyer-screw, arranged in an upright position in a tight box, in combination with the followers B' B', operated substantially as specified.

6. As an article of manufacture, the conveyer, Fig. 2, composed of a hollow wrought iron shaft, a continuous spiral flight fitting the shaft and attached thereto, as and for the purposes specified.

6,839. MANUFACTURE OF BOOTS AND SHOES. George W. Gregory, Boston, Mass., assignee, by mesne assignments, of Henry Fort. Patent No. 39,421, dated Aug. 4, 1863; antedated Oct. 10, 1862. [Filed Nov. 22, 1875.]



1. A piece of sole-leather, provided about its edge with a flange to protect the upper, substantially as described.

2. A leather sole, and a protecting flange forming an integral part of said sole, substantially as described.

3. A piece of leather cut away or recessed at its upper surface to form a flange and to receive the upper and insole, substantially as described.

4. A leather sole provided with an upwardly-extending flange to guard and protect the upper, in combination with an upper and insole fitted into the recess at the upper edge of the sole, and within the concave portion of the flange, substantially as described.

5. A projecting upper-protecting sole-leather flange, formed to present the edge of the leather as the protecting or wearing edge, substantially as described.

6,840. ELECTRO-MAGNETIC MACHINES. Jerome Kidder, New York, N. Y. Patent No. 93,625, dated Aug. 10, 1869. [Filed Nov. 1, 1873.]

1. An additional helix, introduced into the primary circuit of an electro-magnetic machine, operating substantially as and for the purpose herein set forth.

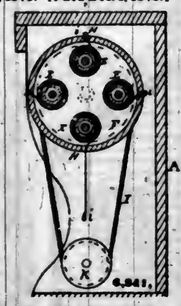
2. The arrangement of the hammer E, so that in its oscillations one end will pass by the end of the iron electro-magnet D or D', substantially as and for the purpose specified.

3. The additional point of fixture of the spring to be free or fixed, at option, as at H, constructed and operating substantially as and for the purpose herein set forth.

4. Three or more coils of wire of different length and thicknesses, in combination with the electro-magnet C, with the tube T or its equivalent, and with the metallic parts R R' R'', &c., substantially as and for the purpose set forth.

5. The clasp B, supporting the helix, in the manner described.

6,841. MAP-EXHIBITORS. J. Lichtenberger, Fort Wayne, Ind., assignor of one-half interest to R. J. Fisher. Patent No. 159,336, dated Feb. 2, 1875. [Filed Dec. 1, 1875.]

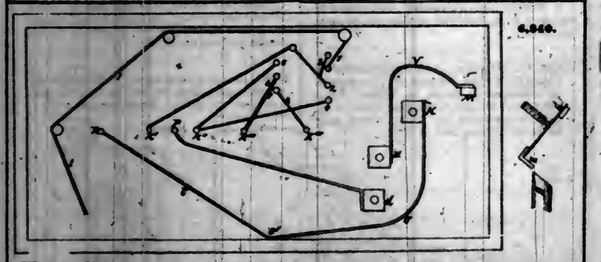


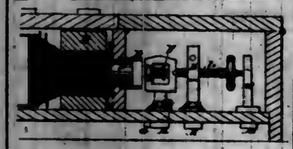
1. The combination of the bracket or frame A with the hollow slotted cylinder or box F, provided with a series of map-rollers E, arranged within it and about its shaft, substantially as set forth.

2. The combination of the bracket or frame A, the slotted cylinder or box F, carrying within it the map-rollers E, the drive-pulley J, belt I, and idler K, arranged to operate substantially as described.

6,842. MACHINES FOR SHAVING HOOPS. S. Parker, Altoona, Pa. Patent No. 107,622, dated Sept. 20, 1870. [Filed Oct. 11, 1875.]

Brief.—The hoop passes between stationary knives, which dress it upon both sides and edges at one operation.



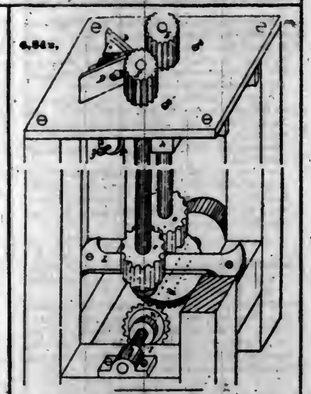


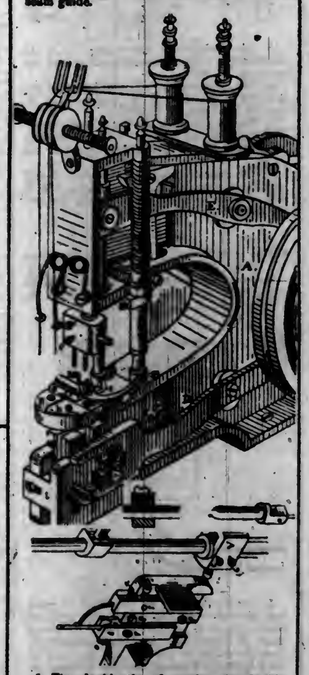
1. In a hoop shaving-machine, the combination of the pair of feed-rolls, the pair of converging side plates, and the pair of edging-tools, substantially as described.

2. In a machine for shaving hoops, the combination of the pair of feed-rolls provided with the pressure springs, the adjustable converging side plates, and the edging-tools, substantially as described.

6,843. SEWING-MACHINES. Elijah Shaw, Milwaukee, Wis., assignor of one-half interest to C. T. Bradley and W. H. Metcalf. Patent No. 132,326, dated Oct. 15, 1872. [Filed Oct. 28, 1875.]

Brief.—The needle-plate and presser-foot are adjustable to suit the different positions of the needles and awls, which are adjustable for sewing parallel seams at different distances apart, in combination with a cord and double-seam guide.





1. The double-thread carrier, the double presser-foot, the two awls, two needles, and two cast-offs, in combination with a lap-seam gage, all constructed and operating substantially as set forth.

2. The combination of collar W, awl-bar, and adjustable awl-holder V, substantially as set forth.

3. The combination of adjustable needle-board, adjustable presser-foot, adjustable awl-holder, and adjustable needle-carriage, substantially as described.

HELIOTYPE, RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

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NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

RUFUS K. SEWELL, ADMINISTRATOR OF HENRY CLARK, DECEASED, APPELLANT, *vs.* JOHN WINSLOW JONES *et al.*

[*Appeal from the Circuit Court of the United States for the District of Maine.—October, 1875.*]

To entitle a plaintiff to recover for the violation of a patent he must be the original inventor, not only in relation to the United States, but to other parts of the world. Even if the plaintiff did not know that the discovery had been made before, still he cannot recover if it has been in use or described in public prints, and if he be not, in truth, the original inventor.

To constitute an infringement, the thing used by the defendant must be such as to substantially embody the patentee's mode of operation, and thereby to obtain the same kind of result as was reached by his invention. It is not necessary that the defendant should employ the plaintiff's invention to as good advantage as he employed it, or that the result should be the same in degree, but it must be the same in kind.

To infringe a patent it is not necessary that the thing patented should be adopted in every particular. If the patent is adopted substantially by the defendants they are guilty of infringement.

In an action for infringement, the first question is whether the machine used by the defendant is substantially in its principle and mode of operation like the plaintiff's. If so, it is an infringement of it.

If he has taken the same plan and applied it to the same purpose, notwithstanding he may have varied the process of the application, his manufacture will be substantially identical with that of the patentee.

The question of infringement depends upon whether the plan which the defendant has employed is in substance the same as the plaintiff's, and whether all the differences which have been introduced are not differences in circumstances not material, and whether it is not in substance and effect a colorable evasion of the plaintiff's patent.

When a party has invented some mode of carrying into effect a law of natural science, or a rule of practice, it is the application of that law or rule which constitutes the peculiar feature of the invention. He is entitled to protect himself from all other modes of making the same application, and every question of infringement will present the question whether the different mode, be it better or worse, is, in substance, an application of the same principle.

When the inventor says: "I recommend the following method," he does not thereby constitute such method a portion of his patent.

Appert's process embodied in the Durand patent of 1810 contains everything of value that is contained in Winslow's patent, through whom the appellees claim.

Mr. Justice HUNT delivered the opinion of the court:

Jones, as assignee of four several patents for a new and useful improvement in preserving Indian corn, brought his action against Clark, the original defendant, alleging infringements of the same. These patents were issued to Isaac Winslow, and were as follows, viz: No. 34,928, dated April 8, 1862, for "a new and useful improvement in preserving Indian corn;" No. 35,274, dated May 13, 1862, "for a new and useful improvement in preserving green corn;" No. 35,346, dated May 20, 1862; and No. 36,326, dated August 26, 1862.

The two patents last-above mentioned were declared and adjudged by the court below to be void, and from this judgment no appeal has been taken. They are no longer elements in the case before us, and are dismissed from further consideration.

The patent first mentioned is for an article of manufacture—a result. The second one is for a process by which a result is obtained. The first is the more full, and embraces all that is contained in the second.

The first objection made to the patents is the want of novelty. It is contended that they were anticipated by the Appert process embodied in the Durand patent of 1810; also by the patent of Gunther, of 1841, and by

that of Wertheimer, of 1842. It is an elementary proposition in patent law that, to entitle a plaintiff to recover for the violation of a patent, he must be the original inventor, not only in relation to the United States, but to other parts of the world. Even if the plaintiff did not know that the discovery had been made before, still he cannot recover if it has been in use or described in public prints, and if he be not in truth the original inventor. (*Dawson* vs. *Follen*, 2 Wash., C. C., 311, *Bedford* vs. *Hunt*, 1 Mason, 302.)

Durand's patent is described in his specification, enrolled in the English Court of Chancery, as based "upon an invention communicated to him by a certain foreigner, residing abroad, of the manner of preserving animal food, vegetable food, and other perishable articles a long time from perishing or becoming useless."

In describing the nature of the invention, and the manner in which the same is to be performed, he says:

1. "I place the said food or articles in bottles of glass, pottery, tin, or other metals or fit materials, and I close the aperture so as completely to cut off or exclude all communication with the external air," and he describes the various means of effecting that purpose.

2. "When the vessels are thus charged and well closed I place them in a boiler, each separately surrounded with straw or wrapped in a coarse cloth, or otherwise defended from striking against each other. I fill the boiler so as to cover the vessels with cold water, which I gradually heat to boiling, and continue the ebullition for a certain time, which must depend upon the nature of the substances included in the vessels, and the size of the vessels, and other obvious circumstances, which will be readily apprehended by the operator. Vegetable substances are to be put into the vessel in a raw or crude state, and animal substances partly or half cooked, although these may also be put in raw."

The specification then declares that the inventor did avail himself of the application of heat by placing the vessel in an oven, stove, steam bath, or other fit situation for gradually and uniformly raising the temperature and suffering it to cool again, and that as the choice of the consumer, or nature of the said food or other articles, may render preferable, leave the aperture of the vessel, or a small portion thereof, open until the effect of the heat shall have taken place, at which period the same is to be closed.

The points following are embraced in this patent:

1. It is for the purpose of preserving for a long time animal or vegetable food.

2. The articles thus to be preserved are to be placed in tin or other vessels so arranged as to exclude communication with the external air.

3. An aperture may be left in the vessel, at the choice of the operator, until the effect of the heat shall have taken place, when it is to be closed.

4. The vessels thus prepared are placed in a boiler filled with cold water, which is heated to a boiling-point, which boiling shall be continued for such time as shall be required by the substances contained in the vessels.

5. Although a water-bath is preferred, the inventor declares that he avails himself of heat through an oven, stove, steam-bath, or any other situation fit for gradually raising the temperature and suffering it to cool again.

6. Vegetables are to be put into the vessels in a raw or crude state; animal substances raw or partly cooked.

7. The invention is general in its terms, embracing all vegetables and all animal substances capable of being thus dealt with.

Winslow's patent of April 8, 1862, No. 34,928, is declared to be for an improvement in preserving Indian corn in the green state.

The letters patent declare that the first success of the inventor was obtained by the following process:

The kernels being removed from the cob were immediately packed in cans hermetically sealed, so as to prevent the escape of the natural aroma of the corn or the evaporation of the milk or other juices of the same. I then submitted the sealed cans and their contents to boiling or steam heat for about four hours. * * * By this method of cooking green corn in the vapor of its juices the ends of the cans are bulged out. Strong cans are required, and dealers are likely to be prejudiced against corn thus put up. I recommend the following method: Select a superior quality of green corn in the natural state, remove the kernels from the cob by means of a curved and gaged knife, or other suitable means. Then pack in cans, hermetically seal the cans, expose them to steam or boiling heat for about an hour and a half, then puncture, seal while hot, and continue the heat for about two hours and a half.

At the close the inventor says that what he claims to secure by the patent is the new article of manufacture, namely, Indian corn preserved in the green state without drying, the kernels being removed from the cob, hermetically sealed, and heated, as described.

Let us now state the points embraced in this the plaintiff's patent, and compare them with the points heretofore stated as included in the Durand patent.

1. Winslow's declared object is the preservation of Indian corn in the green state.

Durand's is for preserving Indian corn not only, but all vegetable substances in their raw or crude state.

2. Winslow recommends removing the kernels from the cob before the process of preservation is commenced placing the kernels in cans, sealing them, and exposing them to heat.

Durand, not limiting himself to the article of corn, provides that the articles to be preserved shall be placed in cans, and subjected to heat in the same manner. He does not stipulate or recommend that the article shall be first removed from the cob, the vine, the twig, or whatever may be the natural support of the vegetable to be preserved, as the corn from the cob, the pea from its pod, the grape or the tomato from its vine, the peach from its stem, the berry from its stalk. Neither does he recommend that it shall not be so removed. His process embraces the article in whatever form it may be presented. It is for the preservation of raw or crude or uncooked vegetables in whatever form they may be presented, and necessarily includes a case where they have been previously removed from their natual support. A prior removal from the stalk would be the natural, and, in many cases, a necessary proceeding.

3. Winslow directs that the kernels shall be subjected to the heat for a period of about one and a half hours before puncturing, and for about two and a half hours after the puncturing. The double use of the word "about" indicates that the time is not to be considered as precisely specified.

Durand directs that the boiling shall continue for such length of time as shall be required by the particular substances contained in the vessel. Corn, peas, tomatoes, peaches, berries, asparagus, may very likely require great difference in the time in which the heat shall be applied to produce the required effect. In each case that is to be the measure of the time.

4. Winslow says other modes may be adopted so long as hermetical sealing and the use of heat are so managed as to secure the aroma and fresh flavor and prevent putrefaction.

Durand declares that he intends to include in his patent heat through an oven, stove, steam, or any other situation by which the temperature is gradually raised and suffered to cool again.

The same idea is put forth at the close of Winslow's specification, where he declares that what he claims by his patent is the manufacture of Indian corn in its green state, the kernels being removed from the cob, hermetically sealed, and heated.

We are of the opinion that the substance of all that is found in Winslow's patent had, nearly a half a century before he obtained his patent, been put forth in Durand's patent. If Durand's patent were now in force in this country, and a suit brought upon it against Jones, the claimant under Winslow, for an infringement, the right to recover could not be resisted. Durand would show a patent intended to effect the same purpose, to wit, the preservation of vegetables for a long time, employing the same process, to wit, the effect of heat upon vegetables placed in a metallic vessel, the gradual cooling of the same, hermetically sealed after puncture to allow the escape of gases. This is also Winslow's process.

To constitute an infringement, the thing used by the defendant must be such as substantially to embody the patentee's mode of operation, and thereby to attain the same kind of result as was reached by his invention. It is not necessary that the defendant should employ the plaintiff's invention to as good advantage as he employed it, or that the result should be the same in degree, but it must be the same in kind. (*Winans* vs. *Denmead*, 15 How., 330.)

To infringe a patent it is not necessary that the thing patented should be adopted in every particular. If the patent is adopted substantially by the defendants they are guilty of infringement. (*Root* vs. *Ball*, 4 McLean, 177; *Alden* vs. *Dewey*, 1 Story C. C. R., 336.)

In an action for infringement the first question is whether the machine used by the defendant is substantially in its principle and mode of operation like the plaintiff's. If so, it is an infringement to use it. (*Howe* vs. *Abbott*, 2 Story C. C.; 190, *Parker* vs. *Hawk's*, 4 McLean, 370.)

If he has taken the same plan and applied it to the same purpose, notwithstanding he may have varied the process of the application, his manufacture will be substantially identical with that of the patentee. (Curtis, § 312.)

Erskine, J., says, (in *Walter* vs. *Potter*, Webs. Pat. Cas., 585, 607,) the question of infringement depends upon whether the plan which the defendant has employed is in substance the same as the plaintiff's, and whether all the differences which have been introduced are not differences in circumstances not material, and whether it is not in substance and effect a colorable evasion of the plaintiff's patent.

When a party has invented some mode of carrying into effect a law of natural science or a rule of practice, it is the application of that law or rule which constitutes the peculiar feature of the invention. He is entitled to protect himself from all other modes of making the same application, and every question of infringement will present the question whether the different mode, be it better or worse, is in substance an application of the same principle. (Curtis, § 320.)

It is said, however, that a distinction exists in this; that Winslow's patent provides that the corn shall be removed from the cob before the process begins, and that Durand does not specify this idea. If this be conceded, it does not alter the case. Although he may preserve Indian corn by removing it from the cob more advantageously than by letting it remain on the cob, he does it by using the Durand process. He still applies Durand's process of heating, puncturing, and cooling, and no more takes the practice out of Durand's patent than if he should specify that pears or peaches would be the better preserved if their outer coating should be first removed, or that meat could the better be preserved if the bones were previously removed. Whether the improvement or combination could be the subject of a patent, it is not material to consider.

It is said again that, "instead of packing the kernels in the vessels selected for the purpose, in their crude state, as suggested in the English patent, the process patented by the assignor of the plaintiff directs that the kernels should be cut from the cob in a way which leaves a large part of the hull on the cob and breaks open the kernels, liberating the juices, to use the language of the patentee, and causing the milk and other juices of the corn to flow out and surround the kernels as they are packed in the cans, in such a mode that the juices form the liquid in which the whole is cooked, when the cans are subjected to the bath or boiling water."

This argument is based upon an error in fact. There is no such language in the patent. The sole expression of the patent is to provide, first, that the corn shall be removed from the cob, and, second, that it shall be subjected to heat in vessels hermetically sealed. Thus, Winslow recites that difficulty had been encountered by him in preserving the corn upon the cob. This produced an insipid article, and, accordingly, he says: My first success was obtained by the following process:

The kernels being removed from the cob were immediately packed in cans and hermetically sealed, so as to prevent the escape of the aroma, and submitted to heat, &c.

There is not a word in the patent to the effect that the kernels shall be cut off in a particular way, or that a large part of the hull shall be left on the cob, nor indeed, that the kernels shall be cut off at all. It is simply provided that the corn shall be removed from the cob. The means are not specified.

Further on, the patentee, Winslow, says: "I recommend the following method." This is not of the substance of the patent. A recommendation is quite different from a requirement. The latter is a demand, an essential, a necessity. The former is a choice or preference between different modes or subjects, and is left to the pleasure or the judgment of the operator. He may adopt it. He will do well if he does. But he may reject it and still accomplish his object by means of the patent.

The principle is this: The omission to mention in the specification something which contributes only to the degree of benefit, providing the apparatus would work beneficially and be worth adopting without it, is not fatal, while the omission of what is known to be necessary to the enjoyment of the invention is fatal. (Curtis, § 248.)

An excess of description does not injure the patent, unless the addition be fraudulent. (Ib., § 250.)

Accordingly, when the inventor says, "I recommend the following method," he does not thereby constitute such method a portion of his patent. His patent may be infringed, although the party does not follow his recommendation, but accomplishes the same end by another method.

But the patentee does not even recommend that the kernels shall be cut off in such manner that a large portion of the hull shall remain upon the cob, nor does he distinctly recommend the cutting off of the kernels in any manner. His recommendation is simply that the kernels be removed by any convenient and suitable method. His language is: "I recommend the following method: Select a superior quality of sweet corn, in the green state, and remove the kernels from the cob by means of a curved and gaged knife or other suitable means." Any means that are suitable for removing the kernels, whether by knife or any other method, are within this language.

That the simple removal of the corn from the cob, before it is subjected to heat, without reference to cutting it off in such manner as to leave a portion of the hull on the cob, or without reference to cutting at all, is the claim of Winslow's patent, is clearly shown by another consideration

The first patent of Winslow and his second patent, as stated in the opinion of the court below, are intended to effect the same purposes—the one being a patent for the article, the other for the process by which the article is produced. "Both patents (it is there said) may

be considered together, as all the proofs applicable to one apply equally to the other, and the positions taken in argument are the same in both, without an exception."

Now, it is quite significant of the intent of the claimant, and of the meaning of the first patent, that his second patent, which is for the process, and would properly be more specific as to every essential mode, makes no claim that the corn shall be removed from the cob by cutting, much less that it should be cut in any particular manner, or with a view to any particular effect. After describing his disappointment in the result when he merely cooked the corn, and in attempting to preserve it when packed, without removal from the cob, or where it was removed after having been boiled on the cob, he says: "Finally I adopted the process of removing the corn from the cob, packing the kernels in cans, hermetically sealing the same, then boiling the cans until the corn contained therein became completely cooked." The word cutting is not to be found in this patent. Removal from the cob before commencing the preservation, without reference to the manner or means, except only that they should be suitable, is the plain intent of both patents. In this respect they are identical with each other, and are not inconsistent with Durand's patent.

The discovery in question has been of immense benefit to mankind. By means of food preserved in a compact and nutritious form, protected from its natural tendency to decay, deserts are traversed, seas navigated, distant regions explored. It is less brilliant, but more useful than all the inventions for the destruction of the human race that have ever been known. It is to France that the honor of this discovery belongs, and to Appert, a French citizen. It does not belong to America or to Winslow. Appert's process presents all that we now know upon the subject. It contains absolutely everything of value that is contained in Winslow's patent.

Other grave questions are presented by the record before us. We are satisfied, however, to place our decision upon the ground that the want of novelty in the patents of Winslow is fatal to the plaintiff's right of recovery. We do not discuss the other questions.

The decree of the court below must be reversed, and judgment ordered in favor of the defendant below.

MR. JUSTICE CLIFFORD, dissenting:

Damages are claimed in this case by the complainants for an alleged infringement of two certain letters patent, which are fully described in the bill of complaint. Those letters patent are as follows: (1) No. 34,926, dated April 8, 1862, for a new article of manufacture, namely, Indian corn when preserved in the green state without drying the same, the kernels being removed from the cob, hermetically sealed and heated, substantially in the manner and for the purpose set forth in the specification. (2) No. 35,274, for a new and useful improvement in preserving green corn.

Two other patents were included in the bill of complaint, but they were held to be invalid in the court below, and are not in issue in this investigation.

Both the patents in issue were introduced in evidence at the hearing, and the repeated decisions of this court have established the rule that a patent duly issued, when introduced in evidence by the complainant in a suit for infringement, is *prima facie* evidence that the patentee is the original and first inventor of what is therein described as his invention.

Much consideration need not be given to the question of infringement, as the respondent admits that his foreman put up seven hundred cans of green corn, preserved by the same process substantially as that described in the letters patent of the complainants.

Viewed in the light of these suggestions it is clear that the decision of the case depends upon the defenses set up in the answer. Four separate defenses are pleaded, but it will be sufficient to examine the first, as the decision of the court is placed chiefly on the defense set up in that part of the answer, which is that the assignor of the patentee is not the original and first inventor of the improvements described in the respective letters patent.

1. Defenses involving the validity of a patent cannot be satisfactorily examined, or their sufficiency or insufficiency determined, without first ascertaining what the inventions are which are the subject-matter of the controversy. Beyond doubt the invention secured by the first patent is for a new and useful manufacture described as Indian corn preserved in the green state. What the inventor desired to accomplish was to preserve the unripe corn in the green state for table use, without drying the same; and he states that in his first attempt to accomplish the desired result he did not remove the kernels from the cob, but that the product manufactured in that mode was not satisfactory, as the article obtained was very bulky and failed to retain the peculiar sweetness of green corn cooked in the ordinary way, the same being absorbed, as the patentee supposes, by the cob.

Experiments of various kinds were made to overcome the difficulties attending the effort to preserve the corn without drying the same, which were also unsuccessful, as the kernels, when preserved, did not retain the milk and other juices of the corn, leaving the product hard, insipid, and unpalatable, and without the full flavor of fresh green corn. All such experiments were, therefore, abandoned, but he finally succeeded in producing an entirely satisfactory new article of manufacture, which is the one described in the specification and claim of the first patent.

His description of the method he adopted in manufacturing the product is substantially as follows: Select a superior quality of sweet corn when in the milk or green state, remove the kernels from the cob by means of a curved and gaged knife, or other suitable means, pack the kernels with the juices of the same in cans, and hermetically seal the cans, so as to prevent evaporation under heat, or the escape of the aroma of the corn. Other suitable means are such means, and such *only*, as will perform the same functions. When packed, the cans, with their contents, are to be exposed to steam or boiling heat for an hour and a half, then take the cans out of the steam or boiling heat, and puncture the cans, and immediately reseal the same, while hot, and continue the heat for two hours and a half longer.

Exposure to heat in the manner stated is for the purpose of cooking the contents of the cans, and when that is accomplished the cans may be taken out of the boiling heat and be slowly cooled in a room at a temperature of seventy to a hundred degrees Fahrenheit. Green corn thus packed and treated, the patentee states, may be warranted to keep for an indefinite period in any climate. Being preserved in its natural state as near as possible, it retains the peculiar sweetness and flavor of fresh green corn right from the growing field, and it is only necessary to heat the corn in order to prepare it for the table, as it is fully cooked in the process of preserving.

Argument to show that the Commissioner may grant a patent for a product or new manufacture and one for the process is quite unnecessary, as that question is now firmly settled in favor of the power by the unanimous decision of this court. (*Goodyear* vs. *Rubber Co.*, 9 Wall., 788. Same case, 2 Cliff, 371. *Seymour* vs. *Osborne*, 11 Wall., 559. *Goodyear* vs. *Railroad*, 2 Wall., C. C., 356. Curt. on P., 4th ed., sec. 269, p. 327.)

2. Pursuant to that rule the second patent of the complainants was issued, which embodies an invention for a new and useful improvement in preserving green corn, or, in other words, the patented invention is for the process of manufacturing the new product described and secured to the inventor in the other letters patent.

Applicants for a patent are required to describe their respective inventions, but an invention for a product and an invention for the process to produce the product, bear so close a relation to each other, that it is difficult even for an expert to describe the latter without more or less reference to the former. Defects of the kind, however, are of no importance if the patent for the product contains no claim to the invention for the process.

Separate applications may be made in such a case, or the inventor, if he sees fit, may describe both inventions in one application. Accordingly the patentee in this case presented only one application in the first place for both patents, but pending the hearing in the Patent Office he filed separate specifications, the second containing some of the same phrases as those employed in the specification describing the invention of the new manufacture. Among other things he admits that it has long been common to boil green or unripened corn and then to dry the same for winter use, but he adds that corn thus dried must be boiled again when prepared for the table, and that it is more or less hard and insipid, as it loses the fine flavor of fresh green corn. Ears of corn, also, he says, are sometimes boiled and hermetically sealed in cans, but the cob seems to absorb the sweetness of the kernels, or if the kernels are removed from the cob after boiling and then preserved, still the fine flavor of the natural corn is lost.

Many and varied attempts were made by the patentee to preserve green corn on the cob without drying the same, but all his efforts in that behalf were unsuccessful, as they left the article dry and unpalatable, as the sweetness of the green corn was absorbed by the cob. Experiments of the kind having all failed, he conceived the idea of first removing the corn from the cob and then boiling or cooking the kernels and preserving them as separated from the cob.

Some benefit, it seems, resulted from that new conception, but a new difficulty arose from the fact that the kernels of corn being more or less broken in being removed from the cob, the milk and other juices of the corn were dissolved and diluted by the water in the process of boiling, leaving the product insipid, unpalatable, and comparatively tasteless.

Unable to overcome the difficulty in that mode, he next attempted to cook the corn without allowing it to come in contact with the water, by exposing the cans containing the corn to boiling water, but he soon found that that mode of preserving the corn was unsatisfactory, as a long time was required to cook the corn sufficiently for preservation, and the corn became more or less dried and hard.

Sufficient has already been remarked to show that both patents may be considered together, for the reason that all the proofs applicable to the patent for the product are equally applicable to the patent for the process, and the positions taken in argument are the same in both without an exception.

Want of novelty is the principal defense set up in the answer, and the court decides that the respective patents are invalid chiefly upon the ground that the foreign invention secured to Peter Durand is prior in date. Before examining that defense it becomes necessary to refer somewhat more fully to the nature and peculiar characteristics of the respective improvements, in order that the evidence introduced may be correctly understood and properly applied.

Unripe ears of corn may be boiled and hermetically sealed in cans without infringing the inventions of the patentee, but the difficulty with that product is that the cob absorbs the sweetness of the kernels and the article becomes insipid and unpalatable, and consequently it is not salable to any considerable extent. Sales of such a product do not infringe the patents of the complainants, and it is clear that the kernels may be removed from the cob and then preserved in cans in the ordinary mode without any conflict with the improvements embodied in the complainants' patents, but the product which such a process produces is comparatively valueless, as the fine flavor of green corn cooked in the usual way for table use is lost in the process of manufacture.

Indian corn may also be preserved when in a green state by removing the kernels from the cob and boiling or cooking the same before the kernels are packed in cans hermetically sealed, without subjecting the manufacturer to the charge of infringing the patents described in the bill of complaint, but the decisive objection to that process is that the kernels, or many of them, in being removed from the cob, are broken, and consequently the milk and other juices of the corn in that state are dissolved out in the process of boiling or cooking, and the natural aroma of green corn cooked in the usual way is lost, and the product becomes of little or no value as an article of commerce.

Attempts were made by the patentee in this case to remedy that difficulty by packing the kernels in cans not sealed, and exposing the cans containing the kernels to boiling water; but the experiments were not satisfactory, as it required a long time to cook the corn, during which the milk and other juices of the corn evaporated, and left the kernels dry and hard. All such experiments having failed, the inventor adopted the process of removing the corn from the cob by means of a curved and gaged knife, and packing the kernels with the milk and other juices of the same in cans hermetically sealed, and then boiling the cans, with their contents, until the same became completely cooked, but he states that the cans containing the corn must be very strong or the internal pressure will cause them to burst, and to prevent that he practiced puncturing them after they became well heated, to allow the air to escape, immediately resealing the same to prevent the evaporation of the juices of the corn and the loss of its natural aroma.

Sealed cans, if sufficiently strong, it would seem, may be used to complete the process without the necessity of puncturing during the period they are exposed to the boiling bath, but, unless the cans are very strong, the recommendation is to puncture them in order to relieve the internal pressure and to prevent them from bursting. Other advantages result from puncturing the cans which deserve consideration. Even if the cans when not punctured do not burst, still the air contained in the same, and the vapor, become more or less expanded by the heat so as to press the heads of the can outward, giving the can the appearance of cans which contain gaseous products of decomposition, and the statement is that such appearances, even when the corn is perfectly preserved, diminish the value of the product as an article of commerce, and show that it is better to puncture and reseal the cans during the process of boiling.

Looked at in any light, it is clear that the purpose of the invention secured by the second patent, as evidenced by the language of the description, is to preserve not only the farinaceous elements of the kernels, but also the milk and juices of the same, which give the peculiar aroma or flavor to green corn when cooked for the table in the usual way, during the season when the kernel is full, but before the milk and juices of the kernel become concrete, as in ripe corn.

Beyond all doubt the patented process, if the directions are properly followed, will accomplish the purpose for which it was invented, and will enable the manufacturer to preserve the kernels of the green corn, with all the milk and juices which the kernels contain, without any chemical or other change, except what is produced by the cooking, which is effected by putting the sealed cans containing the kernels, with their milk and other juices, just as the same were removed from the cob by the curved and gaged knife, into the boiling water, for the periods specified in the description of the specification.

Proof to that effect, of the most satisfactory character, is exhibited in the record, and the fact that the product of the patented process, to the extent that it has become known, has driven the product of all other processes intended to effect a like result out of the market, attests its accuracy and truth. Suffice it to say that the remarks made are sufficient to explain and describe what the inventions are which give rise to the present controversy, and having accomplished that purpose, the next inquiry is, whether the assignor of the complainants was the original and first inventor of the respective improvements.

Examined merely in the light of the pleadings, the affirmative of the issue is upon the complainants, but the complainants having introduced the respective patents in question, the rule is well settled that the burden of proof is changed, and that it is incumbent

upon the respondent to show, by satisfactory proof, that the alleged inventor was not the original and first inventor of the respective improvements, as they have alleged in their answer.

Ample time was given to both parties in the circuit court to prepare for a hearing, and the respondents attempted to meet the issue in two ways.

3. Suppose it be true that the assignor of the complainants was the first person in the United States who practiced the patented process, and preserved green corn even in that mode of operation, still it is contended that the alleged inventor was not the original and first inventor of the improvement, because the process had been previously known and used in a foreign country; but the circuit court ruled and determined that the mere previous knowledge or use of the thing patented in a foreign country was not sufficient to defeat a patented invention granted under the patent act; that no evidence of the kind could have that effect unless it appeared that the same invention had been previously patented in some foreign country, or been described in some public work anterior to the supposed discovery thereof here by the alleged inventor; that it is well-settled law that the mere introduction of a foreign patent, or a foreign publication, though of a prior date, will not supersede a domestic patent, unless the description, or specifications, or drawings, contain or exhibit a substantial representation of the patented improvement in such full, clear, concise, and exact terms, as to enable any person skilled in the art or science to which the invention appertains, to make, construct, and practice the invention to the same practical extent as he would be enabled to do if the information was derived from a prior patent issued in pursuance of the patent act. (*Seymour* vs. *Osborne*, 11 Wall., 555.)

Unable to controvert those propositions, the respondent next refers to the English patent granted to Durand, and insists that it supersedes both of the patents of the assignor of the complainants. His patent bears date the 30th of August, 1810, and the specification states in substance that he incloses the food or articles to be preserved in bottles, or other vessels of glass, pottery, tin, or other metals or fit materials, and closes the apertures of the vessels so as completely to cut off and exclude all communication with the external air. When the vessels have been thus charged and well closed he places them in a boiler, each separately surrounded with straw or wrapped in coarse cloth, or otherwise defended from striking against each other. He then fills the boiler so as to cover the vessel with cold water, and gradually heats the water till it boils, and continues the ebullition for a certain time, which, as he says, must depend upon the nature of the substances and other obvious circumstances.

Vegetable substances, the specification states, are to be put into the vessels in the raw or crude state. Animal substances are to be partly or half cooked, although these may be put in raw; and he adds that articles thus prepared may be kept for a very long time and in a state fit for use, and no doubt is entertained that unripe corn prepared in that way may be kept for a long time, as it is evident that the kernels would be dried by the heat, but they would necessarily erase to have the flavor of fresh green corn when cooked in the usual way for table use. Confirmation of that is found in what immediately follows in the specification, which shows that the patentee also claims the application of heat in other modes, as by placing the vessels in an oven or a stove, the effect of which, beyond all doubt, would be to dry the kernels and make it necessary to reboil the contents of the vessel in order to fit the same for table use.

Certain vegetable substances may, perhaps, be preserved to advantage in that way, but it is clear that the application of high heat to the vessels containing green corn, unless the kernels were surrounded by water or some other suitable liquid, would necessarily dry the kernels and render them unfit for table use without soaking or reboiling. Doubtless the term vegetable substances is comprehensive enough to include green corn, but the patentee, in enumerating the articles to be preserved, does not mention green corn, and, of course, the specification contains nothing to indicate whether the kernels are or are not to be removed from the cob before they are placed in the bottles or other vessels; or, if to be removed, in what manner the removal is to be effected; nor whether the kernels are to be left whole or broken, as in the mode of operation described in the patents in question.

Corn at that period was unknown in England, and it is not probable that the patentee had ever heard of such an article, and it does not appear that a can of green corn has ever been preserved in that mode of operation to the present time. Patented inventions must be described so that those skilled in the art or science may be able to make, construct, and practice the same, and yet it is plain that no amount of study or examination of the foreign specification would ever enable any person to preserve green corn in the mode of operation employed by the assignor or the complainants.

Study it as you will, and the conclusion must be that the vegetable substance, whatever it may be, is to be placed in the bottles or other vessels in the raw or crude state, without any previous preparation, and without any liquid to prevent the substance from drying. Indian corn on the cob, or unbroken kernels of green corn, cannot be preserved in that way so as to possess any commercial value.

Instead of packing the kernels in the cans in their crude state, the process patented by the assignor of the complainants directs that the kernels should be cut from the cob in a way which leaves the coarser part of the hull on the cob and breaks open the kernels, liberating the juices, to use the language of the patentee, and causing the milk and other juices of the corn to flow out and surround the kernels as they are packed in the cans, in such a mode that the milk and juices of the kernels form the liquid in which the whole is cooked when the sealed cans are subjected to the bath of boiling water. Water is never added to the mixture to be preserved, nor is it necessary, as the liquid composed of the milk and juices of the kernels is sufficient to prevent the heat from drying the vegetable substance to be preserved, and if water should be added it would dilute the milk and other juices, and render the product insipid and valueless.

Evidently much is due to that feature in the patented mode of operation in preserving the product in its natural state, and causing it to retain the sweetness, peculiar flavor, and natural aroma of green corn fresh gathered from the field, and boiled in the usual way for table use. Nothing of the kind is suggested in the foreign patent, and it is clear that a careful comparison of the description of the complainants' patents, with that of the Durand patent, fully justifies the opinion of the learned expert examined by the complainants, that the two patented processes are essentially and substantially unlike, and confirms the conclusion already expressed, that persons having no other knowledge of the complainants' process than what they can derive from perusing the specification of the foreign patent, would never be able to preserve green corn by the complainants' mode of operation.

Palpable as those differences are, they ought not to be overlooked in determining the issues between these parties. Meritorious inventors are entitled to protection, and the proofs are full to the point that the product, manufactured by the process of the complainants, is far superior to that preserved in any other mode, which, beyond all question, is the cause that induced the respondent to abandon other methods, and to practice the patented process at the risk of a suit for infringement.

Other vegetables, such as beets and carrots, or peas and beans, may be packed in cans in a crude state under the foreign process, as they retain their juices, and may, perhaps, be tolerably well preserved in that mode of operation if entirely secluded from the atmosphere, as by packing the ripe vegetable in hermetically-sealed cans; but the chemical composition of such vegetables is very different from green sweet corn, which is much more difficult to preserve in its natural freshness, without loss of its peculiar flavor and aroma, as accomplished by the complainants' process. When the kernels are cut from the cob they are opened and the milk and other juices flow out, and become the liquid in which the kernels are to be cooked, and the milk and the other juices become a constituent part of the vegetable substance to be preserved.

Prompt action is required to accomplish the object, for, if the mixture is exposed to the air for any considerable time before the cans are filled, the chemical relations of the constituents will be changed, and the whole substance will become sour and unwholesome. Exposure to heat, if seasonable, will prevent that tendency, as the relations of the constituents of which the mixture is composed will become fixed, and the danger of putrefaction or souring will be greatly diminished, or be entirely averted.

Throughout the experiments the aim of the patentee was to perfect the process of preserving green corn without losing any of the flavor of the milk and natural juices of the cereal in its green state, and to discover the method or means of fixing the constituents or elements of the corn when in the milk, so that when packed in vessels to be preserved, the chemical relations of the constituents of the substance to each other would never change, unless the vessels containing the mixture were opened. Such a purpose, it is obvious, could not be accomplished by packing the corn in cans in the crude state or before the kernels were removed from the cob, as the juices of the kernels would be absorbed by the cob in the cooking; nor could he accomplish his object by cutting the kernels from the cob and boiling them in water before they were packed in the cans, or by cooking the kernels in open vessels without water, as in the one case the milk and other juices would be washed out of the kernels, and with that operation all the peculiar flavor of the cereal in the green state, and in the other case the aroma and juices of the kernels, would be lost by evaporation.

His process includes the mode of preparing the mixture for filling the cans as well as the mode of cooking and preserving the same, for if it did not the great aim he had in view would not be accomplished. Preserved green corn, unless it is packed and cooked in its own milk and juices, is of very little value, as it is only in that mode of operation that the preserved article will retain the peculiar flavor and sweetness which the cereal possesses when fresh gathered from the field and cooked in the usual way.

No doubt the kernels may be removed from the cob without cutting, and may be preserved in that form under the process described in the foreign patent, but the decisive answer to that concession is that that process is not the process of the complainants, and the product preserved in that mode of operation is of a very inferior quality, as appears by the concurrent testimony of all the witnesses. Sweet corn in the green state is a peculiar substance, differing in material respects from any other cereal or vegetable used for food. Its constituents are such that it is singularly susceptible to fermentation, decomposition, and change, more so than any other vegetable that has been successfully preserved in hermetically-closed vessels for any considerable length of time. Such liability to rapid change is not due to any one particular constituent, but to the presence of several, such as gluten, sugar, fat, and starch in such proportions as are calculated to promote fermentation and action upon each other. As compared with sweet peas, for instance, the kernels of sweet corn are much more delicate and liable to change, as they contain a much larger proportion of milk, juice, or sap, which itself contains more sugar, starch, and oil than the juice of sweet peas, and the glutinous constituents which act as the ferment or primary cause of change are much more active in the juice of sweet corn than in that of sweet peas.

Equally instructive support to the same view is derived by comparing sweet corn with such fruits as peaches, as the juice of the peach contains no oil, and more water than the corn, besides other differences of an equally important character, showing that such fruits as peaches are much less liable to ferment than sweet corn, and that they are much more easily preserved.

Examined in the light of these suggestions, as the case should be, it is clear that the mode of operation described in the complainants' specification differs widely from every process which preceded it, and that it effects a new and highly useful result. Wide differences in the mode of operation from anything which it is proved ever existed before is shown in every descriptive feature of the complainants' specification, and so palpable and marked are those differences that it would create astonishment and surprise if any competent expert can be found who would now venture to testify that the foreign process given in evidence is the same as that practiced by the complainants.

Great injustice, in my opinion, is done to the appellees in this case, but they may still enjoy the satisfaction to know that while courts of justice may alter the names of things, they cannot change the things themselves without exercising positive invention, nor can they obliterate the relation between cause and effect, for the reason that the law which regulates that relation is irrepealable.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 11, 1876.]

8,889.—Font of Printing-Types.—GEORGE G. BAILEY, Jr., and JAMES GILBERT, Boston, Mass. Application filed October 7, 1875. Term of patent 7 years.

8,890.—Stand-Lamps.—NATHANIEL L. BRADLEY, West Meriden, Conn., assignor to BRADLEY AND HUBBARD MANUFACTURING COMPANY, same place. Application filed December 9, 1875. Term of patent 3½ years.

8,891 and 8,892.—Lower-Case Letters of a Font of Printing-Types.—JAMES M. CONNER, Greenville, N. J.—Cases A and B. Applications filed November 18, 1875. Term of patents 7 years.

8,893.—Font of Printing-Types.—JAMES M. CONNER, Greenville, N. J.—Case C. Applications filed November 18, 1875. Term of patents 7 years.

8,894.—Font of Printing-Types.—HARRY H. DELACROIX, Philadelphia, Pa., assignor to MACKELLAR, SMITHS & JORDAN, same place. Application filed November 24, 1875. Term of patent 7 years.

8,895.—Necklace.—FRANCIS DIMIER, New York, N. Y. Application filed December 13, 1875. Term of patent 3½ years.

8,896.—Lower-Case Letters, Points, and Figures of a Font of Printing-Types.—HERMAN IHLENBURG, Philadelphia, Pa., assignor to DAVID WOLFE BRUCH, New York city. Application filed November 8, 1875. Term of patent 14 years.

8,897.—Font of Printing-Types.—HERMAN IHLENBURG, Philadelphia, Pa., assignor to MACKELLAR, SMITHS & JORDAN, same place. Applications filed November 18, 1875. Term of patent 14 years.

8,898.—Canister.—SAMUEL ROSENBLATT, New York, N. Y. Application filed November 24, 1875. Term of patent 3½ years.

8,899.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed December 31, 1875. Term of patent 3½ years.

8,900.—Hinges.—CHARLES B. CLARK, Buffalo, N. Y.—Case O. Application filed December 24, 1875. Term of patent 14 years.

8,901 and 8,902.—Embroidery-Patterns.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. M. M. and N. N. Applications filed January 5, 1876. Term of patents 3½ years.

8,903.—Buckles.—HENRY JOHNSON, Newark, N. J. Application filed December 31, 1875. Term of patent 7 years.

8,904.—Fire-Place Heaters.—JAMES A. LAWSON, Troy, N. Y. Application filed January 3, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 11, 1876.]

3,349.—Cassimeres.—BLISS & ALLEN, New York, N. Y. Application filed December 17, 1875.

"words 'PLOW, LOOM, AND ANVIL CASSIMERES.'"

3,243.—Axle-Grease.—SAMUEL CUFFLIN & Co., St. Louis, Mo. Application filed September 17, 1875.

"words 'Favorite Axle Grease.'"

3,244.—Rubber and Composition Buttons.—DICKINSON HARD-RUBBER COMPANY, Springfield, Mass. Application filed December 30, 1875.

"pictorial representation of two seated griffins facing each other, one foot resting on the ground, the other on the edge of an urn or vase, out of which is represented as growing a stalk of the rubber tree or plant. This urn is represented as being supported by scroll-work. Above the griffins, and each side of the plant, are the words 'Siphonia Elastica,' and between the legs of the griffins, and each side of the base of the urn, are the letters 'D. H. R. Co.'"

3,245.—Shoe, Boot, and Corset Laces.—FLETCHER MANUFACTURING COMPANY, Providence, R. I. Application filed December 9, 1875.

"parallelogram divided into two unequal spaces, having in the larger space the words 'FLETCHER'S METROPOLITAN GLACÉ BRAID LACES,' and in the smaller space a heavy transverse central line, as indicated, which serves to separate any two bold figures employed to express, in fractions of a yard, the lengths of the laces."

3,246.—Suspenders.—MERRIAM & FROST, Springfield, Mass. Application filed November 27, 1875.

"large letter 'S,' having the letters 'M & F' inserted in the spaces, and partly surrounded by the two bends of the letter, the 'M' in the top bend, and the 'F' in the lower bend."

3,247.—Syringes.—MORRIS MATTSON, New York, N. Y. Application filed November 29, 1875.

"words 'FAMILY SYRINGE.'"

3,248.—Manufactured Glass.—MAYET FATUELE & DE LA CHAPELLE, Brooklyn, N. Y. Application filed January 4, 1876.

"representation of the globe."

3,249.—Soap.—PROCTER & GAMBLE, Cincinnati, Ohio. Application filed December 17, 1875.

"a rectangular figure in white upon a colored or dark ground."

3,250.—Illuminating-Oils.—JOHN H. SCOTT, New Orleans, La. Application filed December 31, 1875.

"word 'SECURITY.'"

3,251.—Porcelain and Earthenware.—WILLIAM A. SHAW, New York, N. Y. Application filed January 3, 1876.

"a picture of George Washington inclosed by a laurel wreath, with American flags at both sides, and an eagle with spread wings at the top of the picture. The words 'George Washington' and the figures '1776' are placed below the picture."

3,252.—Wagons, Carriages, Sleighs, Buggies, and other Vehicles.—STUDEBAKER BROS. MANUFACTURING COMPANY, South Bend, Ind. Application filed December 7, 1875.

"words 'Gold Bond,' 'Bros.' and the letter 'S.'"

3,253.—Shirts.—H. WALLACH'S SONS, New York, N. Y. Application filed June 21, 1875.

"Two parallel lines, about one-half of an inch apart, form a panel about eight or nine inches in length, the ends thereof terminating in peculiarly-curved designs. Midway, at the bottom of this figure, the border, which is white, is broken by fancy curved lines. Springing from the top of this figure, centrally, is an arch, the curved parallel lines thereof (except where they are broken by ornamentations) being about one-half of an inch apart. The entire space within these figures is black, and in the arch appears, in white blank letters, the words 'THE BEST,' while within the space formed by the straight lines below are the white blank letters composing the words 'SHIRT IN THE UNITED STATES.' In the opening formed between the arch and the figure upon which it rests are the words, in suitable letters, 'TWO DOLLAR.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 11, 1876.]

477.—Title: **"Oscar Hecker's Ultramarine Laundry Blue."**—OSCAR HECKER, New York, N. Y. Application filed December 20, 1875.

478.—Title: **"Stillman's Elixir of Life."**—ANDREW L. STILLMAN, Petersburg, N. Y. Application filed February 5, 1875.

479.—Title: **"Doctor Parker's Whooping Cough Syrup."**—JOHN A. WEAVER, Easton, Pa. Application filed January 5, 1876.

480.—Title: **"Dr. Aug. Konig's Familiar Medicine."**—A. VOGELER & Co., Baltimore, Md. Application filed January 5, 1876.

481.—Title: **"The Standard German Household Remedies."**—A. VOGELER & Co., Baltimore, Md. Application filed January 5, 1876.

482.—Title: **"Pure Washing-Blue."**—MORRIS MCGRAW, New Orleans, La. Application filed January 4, 1876.

483.—Title: **"Rising Sun Baking Powder."**—WILLIAM F. HACKMAN, Pittsburg, Pa. Application filed January 3, 1876.

484.—Title: **"Potter's Excelsior Dentifrice."**—JOHN E. POTTER, Providence, R. I. Application filed January 5, 1876.

485.—Title: **"Hotspur Tobacco, Manufactured by the Merchants' Tobacco Co., Boston, Mass."**—MERCHANTS' TOBACCO COMPANY, Boston, Mass. Application filed January 5, 1876.

486.—Title: **"Michael Wartman & Sons' Navy Smoking Tobacco."**—MICHAEL WARTMAN & SONS, Philadelphia, Pa. Application filed December 27, 1875.

487.—Title: **"Michael Wartman & Sons' New Brand Fine Cut Shorts."**—MICHAEL WARTMAN & SONS, Philadelphia, Pa. Application filed December 27, 1875.

488.—Title: **"Crystalline Burning Oil."**—E. H. KELLOGG, New York, N. Y. Application filed December 20, 1875.

489.—Title: **"Miners' Friend Smoking Tobacco."**—MICHAEL WARTMAN & SONS, Philadelphia, Pa. Application filed December 27, 1875.

490.—Title: **"A. Melzer & Co. All Right Soap."**—A. MELZER, Evansville, Ind. Application filed December 28, 1875.

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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 11, 1876.

171,906. METHODS OF CONSTRUCTING LOOP-WHEELS FOR KNITTING-MACHINES. W. H. Abel, Bristol, N. H. [Filed June 7, 1875.]

Brief.—To ensure uniformity in the size of the filling-pieces between the wings, and thus prevent the needles being unequally pressed.



The improvement in the method of constructing the loop-wheels for circular-knitting machines herein described, consisting in first turning a peripheral ridge or projecting bead, *e*, thereon, and then cutting or filing away the same in the alternate spaces between the hook-plates, substantially as and for the purpose herein specified.

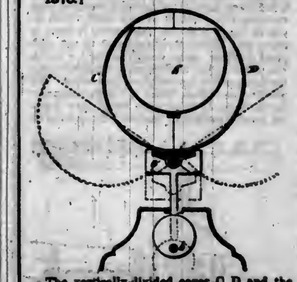
171,907. FOLDING TABLES. W. B. Allen, Rochester, N. Y. [Filed Oct. 20, 1874.]



1. In combination with the folding legs D and table E, the wooden spring locking-latch, composed of the tapering primary spring-bar G and tapering secondary or auxiliary spring-bar J, they being attached together with the thick end of the latter to the thin end of the former, and fixed to the table-bed, as shown, all for the purposes set forth.

2. The combination, in a folding table, of separate legs resting on pivots or dowels formed on the ends of the bolster, the cross-piece which frames the legs together in pairs, and the notched spring engaging with the said cross-piece to hold the legs upright, as shown and described.

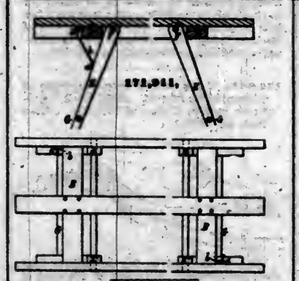
171,908. COVERED TABLE-WARE. Charles A. Bailey, Cobalt, Conn. [Filed Dec. 9, 1875.]



The vertically-divided cover C D and the dish E upon a common pedestal, the two parts of the cover hinged beneath, and so as to inclose or expose the dish, as the case may be, combined with the cross-head, operated vertically, substantially as described, to open and close said cover, substantially as specified.

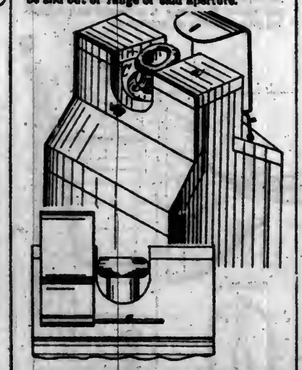
171,911. FOLDING WASH-BENCHES. Chas. H. Bangs, Farmington, Me. [Filed Oct. 20, 1875.]

In the described wash-tub supporter or folding stand, consisting of a frame and the two sets of legs, as set forth, the improved frame as composed of the three longitudinal bars A A D, the two cross-bars B B, and the supporters C C, all being applied and arranged together, and with the sets of legs E E, as specified.



171,910. PACKING-CASES FOR DEMIJOHNS. Geo. W. Banker, New York, N. Y. [Filed July 28, 1875.]

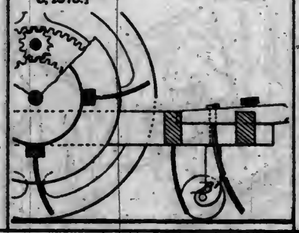
Brief.—Provides a case of the form shown with a shield having a sliding hinge, so that the shield may swing from the aperture through which the neck of the vessel protrudes, and be slid out of range of said aperture.



1. A packing-case, of the peculiar form shown and described, for demijohns and similar fluid-holding vessels, provided with a shield to fold down over the aperture O in the crown of the case, the shield being attached to the case by a sliding hinge, as and for the purpose specified.

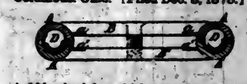
2. A packing-case, of the peculiar form shown and described, for demijohns and similar vessels, provided with an elastic shield made of sheet metal, hinged to the case, and held in place, when folded down over the top of the crown of the case, by the elastic resistance of the free end of the shield, as and for the purpose described.

171,912. POTATO-DIGGERS. P. M. Bowtinhimer, Woodstock, Canada. [Filed Nov. 8, 1875.]



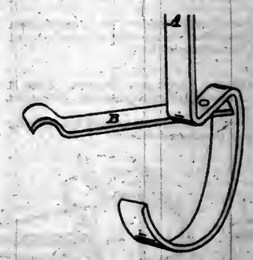
The combination of a convex grate, arranged as as to form a complete cylindrical grate, together with the long, narrow, and slightly-curved tines, as described in the foregoing specification.

171,914. FIFTH-WHEELS. Thos. F. Bryan, Columbus, Ohio. [Filed Dec. 3, 1875.]



A fifth-wheel for vehicles, consisting of an inclosing-trough composed of top and bottom channels A A' *a a'*, fitting snugly together, one over the other, by lap-joint, as shown, and anti-friction metallic balls D, constructed and arranged to operate as described.

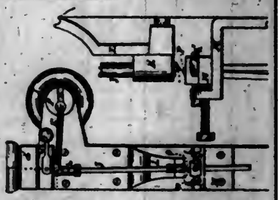
171,915. HAVEN-TROUGH HANGERS. F. M. Burdoin, Medina, Ohio. [Filed June 24, 1875.]



The hanger A, composed of a single piece of metal bent in the form shown, and having combined therewith the button B, all constructed and arranged substantially as and for the purpose set forth.

171,916. SHEET-METAL-SCROLL CUTTERS. Wm. H. Clark, Wm. J. Clark, and A. O. Kittredge, Salem, Ohio, assignors to the Kittredge Cornice and Ornament Company, same place. [Filed Oct. 4, 1875.]

Brief.—The stem of the movable cutter is carried in a cleft socket formed in the lower section of the vibrating head. The head consists of two sections, which are connected together by a hinge-joint, to the pivotal pin of which one end of the pitman from the slotted crank-wheel is attached. An eccentric shaft in the upper section is turned, and the head and movable cutter lifted, when the sheet upon which the design is traced is to be introduced between the cutters.



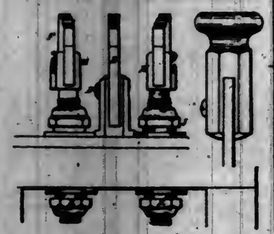
1. In sheet-metal-scroll cutters, the combination of the sections a b of the head, eccentric shaft c, rod E, cams J, and cutters, operating conjointly substantially as and for the purpose set forth.

2. The combination of the grooved crank-wheel F, adjustable wrist-pin G, connecting-rod E, and the vibratory head, consisting of sections a b, in the manner as described, and for the purpose set forth.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

171,917. MACHINERY FOR MAKING SHEET-METAL MOLDINGS. Wm. H. Clark, Wm. J. Clark, and A. O. Kitteridge, Salem, Ohio, assignors to the Kitteridge Cornice and Ornament Company, same place. [Filed Oct. 4, 1875.]

Brief.—The molding-dies are formed in the edges of thin plates, and a counterpart of the lower die is arranged upon each side thereof, to act as guides and supports to the sheet-metal plate, which is passed between the dies, and molded by their repeated strokes. The guides are capable of radial and vertical adjustment, and thus adapted to horizontally-curved or to crooked or curved blanks.



The adjustable guides F G, in combination with the die B, substantially as described, and for the purpose set forth.

171,918. DOOR AND ARMOUR. John B. Cleaveland, Indianapolis, Ind. [Filed Oct. 20, 1875.]

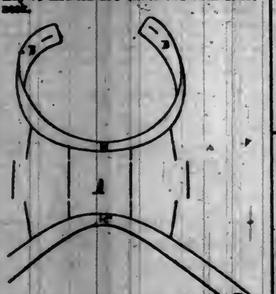
Brief.—The toy may be used as a spinning-top or as an arrow-shooter.



The combination of the perforated and top-shaped piece a, pointed arrow-stem A, and cord c, arranged to turn both a spinning-top and a toy shooter, substantially as set forth.

171,919. SHOE-BOTTOM. Mary A. Clifford, Boston, Mass. [Filed Oct. 25, 1875.]

Brief.—The bottom, having two seat-bands, may be inserted and either end worn at the seat.



The reversible bottom A with the seat-bands B C B' C' D', constructed substantially as described, and adapted to the same heels set forth.

171,920. HAT AND COAT HOOKS. Melville B. Osborn, Meadville, Pa. [Filed Feb. 6, 1875.]



171,921. CANE FOR LIFTING STAMPERS IN CONCENTRO-MACHINES. Michl. Cook, Sandhurst, British Colony of Victoria. [Filed Sept. 20, 1875.]



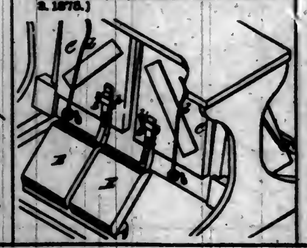
The cam described, having the parts of identical construction, consisting of the central portion a, projections a', and cam a², as and for the purpose set forth.

171,922. GLOB-POST. Charles S. Comins, New York, N. Y. [Filed Nov. 2, 1875.]

The combination of the heater C, constructed with the threaded orifice b, and the globe-post having the screw c, arranged and operating substantially as described.



171,923. ORGAN-BELLOWS AND TREADLE-CONNECTIONS. Samuel J. Crockett, Boston, Mass., assignor to the New England Organ Company, same place. [Filed Nov. 2, 1875.]



171,924.

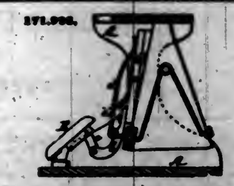


A bifurcated hook, one arm of the bifurcation provided with a hole which permits the binding-screw to be driven at, or nearly at, right angles to the hook proper, and the other arm terminating in a spur which permits of the hook being adjusted to surfaces of different convexities, substantially as specified.

171,925.



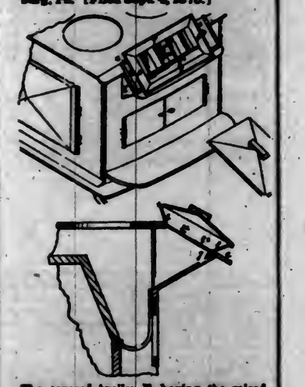
171,926.



1. In combination with the pedal B, bellows C, and the exhauster, hinged at its lower edge, the link c, and lever I secured to the front of the exhauster, substantially as described.

2. The exhauster of an organ-bellows provided with the lever A, made adjustable thereon, substantially as set forth.

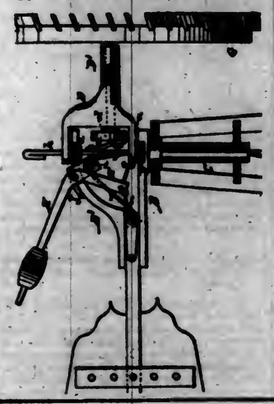
171,927. BICYCLES. James De Haven, Pittsburg, Pa. [Filed Sept. 4, 1875.]



The curved broiler F, having the raised sides and ends f f, a suitable drip-gutter, f', and a projection or flange, g, the whole adapted for use with the inclined feed-opening of a cook-stove, substantially as specified.

171,928. WINDMILLS. Willis R. Dorsey, Delaware, Wis. [Filed Sept. 16, 1875.]

Brief.—With the ordinary frame or tower is a bed-piece, having projecting downward from its lower side a hollow cam or curve, which revolves freely with the vane when it turns in the wind. From the back part of the bed-piece projects upward and forward a curve. The upper end of said curve is connected with the front end of the bed-piece by a brace. The vibrating bed-piece, which is the main support for the head, is hung upon two hollow supporting pivots inserted in the bed-piece and curve.



171,925.



1. The combination of the bracket J, weighted regulating-arm H, connecting-rod c, and whirling bed-piece D, with arm D', substantially as and for the purposes herein set forth.

2. The combination of the bed-piece D, with curve D' and brace D², the whirling bed-piece D, having tapering pivots a a', tube C, pitman b, weighted regulating-arm H, and rod c, connecting the arm H with the arm D', all combined substantially as and for the purposes herein set forth.

171,926. VENTILATING WATER-CLOSETS. R. Eastwood, American Fork, Utah, assignor of one-half his right to W. T. Cottier. [Filed Sept. 23, 1875.]

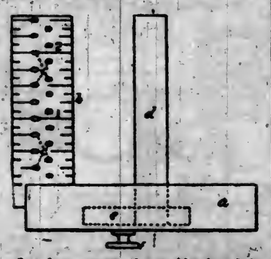
Brief.—The direction of the air-current is down through the opening in the seat, and up between the double walls.



1. The appliances of a draft of air through the vault A, between the interior and exterior coverings of a water-closet, (hence upward to the exterior of the seat-box,) for the purpose of heating the water-closet pan and whirlpool.

2. A double-wall privy, seated upon its vault, so that no air can enter the vault except through the holes in the seat of the privy, whereby the atmosphere of the closet is kept pure by means of a continuous downward draft through the holes, and an upward draft through the double wall of the privy, all constructed substantially as described.

171,927. BEAM-SQUARES. Charles Farnham and Joseph D. Leach, Penobscot, Me. [Filed Oct. 18, 1875.]

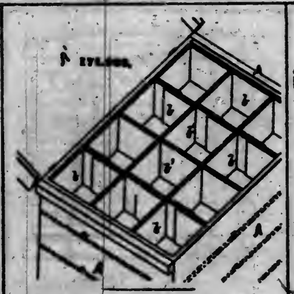


In a beam-square, the combination of the channeled beam A, perforated tongue B, adjustable tongue A, sliding block c, and locking-screw f, substantially as described, and shown.

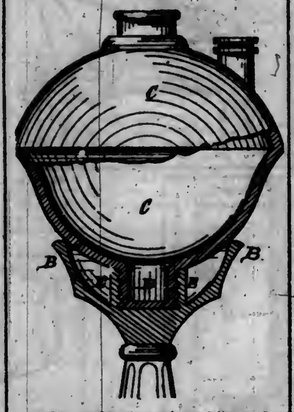
171,928. BOTTOM-PACKAGES. V. A. Penney, Sherman, N. Y. [Filed June 10, 1875.]

The combination, substantially as described, of the case A A', the removable shelves or trays a a, and the independently and separately removable boxes b b, having open tops and bottoms, as and for the purposes specified.

171,929.



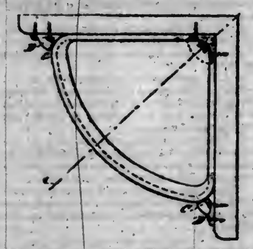
171,930. LAMPS. Alonzo Fronah, Philadelphia, Pa. [Filed May 28, 1875.]



1. The combination, substantially as described, of the drip-cup B, made with a socket, E, and the oil-burnt C, supported on said drip-cup by means of the stem D fitting into said socket.

171,931. MANGERS. Henry Friedrich, New York, N. Y. [Filed Apr. 17, 1875.]

Brief.—The manger is hung in the corner of the stall, by means of lugs formed r, so as to form journal-bearings for the journals in line.

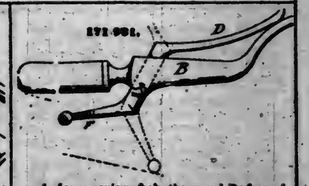


The triangular bearing-blocks D, with sockets at an angle of forty-five degrees, or nearly so, to their backs, in combination with the triangular corner manger, with the pivots e at the front ends thereof, as set forth.

171,932. CARVING-FORKS. John Gerard, New Britain, Conn. [Filed Dec. 13, 1875.]

Brief.—A rotating shaft, surrounded by a coil-spring, is inserted in the shank of the fork. One end of the rotating shaft carries a guard, and one end a rest, for supporting the fork upon the table. When rotated in one direction, the guard-arm rest lies close to the shank-arm. When rotated in the reverse direction, they both extend outward for use.

171,933.



1. In a carving-fork, the guard D, formed with a spindle, E, seated in the shank of the fork, and so as to be rotated, the said spindle forming the axis upon which the guard turns, substantially as described.

2. In a carving-fork, the guard D, formed with a spindle, E, seated in the shank of the fork, and so as to be rotated, the said spindle forming the axis upon which the guard turns, combined with a spring around the said spindle, substantially as described.

3. In a carving-fork, the guard D, formed with a spindle, E, seated in the shank of the fork, and so as to be rotated, the said spindle forming the axis upon which the guard turns, combined with a spring around the said spindle, with the notch and projection n o on the shank and head of the spindle, substantially as described.

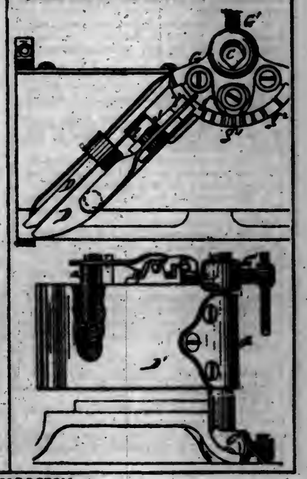
4. In a carving-fork, the rest F, attached to or made a part of the spindle seated in the shank of the fork, and so as to be rotated, the said spindle being the axis on which the guard turns, substantially as described.

5. In a carving-fork, the rest F, attached to or made a part of the spindle seated in the shank of the fork, and so as to be rotated, the said spindle being the axis on which the guard turns, combined with the spring around the spindle within the shank, substantially as described.

6. In a carving-fork, the rest F, attached to or made a part of the spindle seated in the shank of the fork, and so as to be rotated, the said spindle being the axis on which the guard turns, combined with the spring around the spindle within the shank, and the notch and projection n o on the shank of the fork and spindle, substantially as described.

171,934. MITRE-CUTTING MACHINES. O. H. Gove, Rockford, Ill. [Filed May 10, 1875.]

Brief.—The saw is held in reversing guides having a lateral and vertical adjustment by means of an upright post turning in a socket at the rear and bottom of the main frame, and an curved socket-piece fitting upon and swinging around the post, and adjusted to the saw-guides. Any inaccuracy of adjustment can be remedied by a quadrant or index-plate, vertically adjustable upon the post, and secured in position by a set-screw. The spring-clamp, which holds the saw against the guide, is provided with a mortise or opening for giving the operator a view of the work.



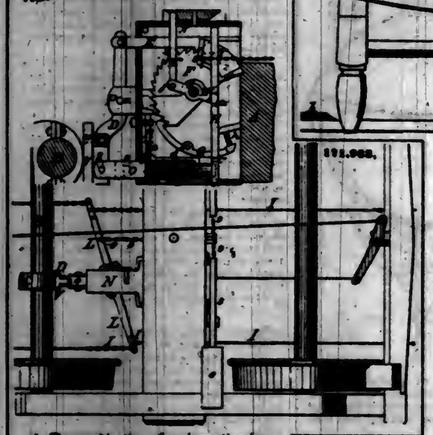
1. The receiving saw-guide D', provided with the clamp D and spring E E', in combination with the locking device, whereby any desired angle may be given to the saw for operating upon the molding, substantially as described.

2. The quadrant or plate G, plate or plates $f f' f''$, having a vertical adjustment upon the upright bar O, secured by the set-screw G', or its equivalent, in combination with the bed-frame A, substantially as described.

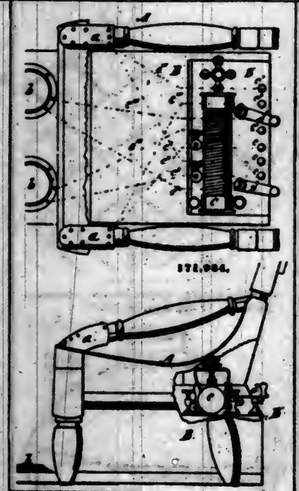
3. The saw-guide D', clamp D, provided with the mortise or opening F, for giving the operator a view of the work, as described, combined with the hinge d, pivoted to the upright O, all arranged and operating substantially as set forth.

171,923. CAR-BRAKE. Louis Grieser, Rockford, Ohio. [Filed June 18, 1875.]

Brief.—Brakes operated by chain attached to segmental ratchet operated through lever bearing pawl by eccentric on axle. Operation or non-operation of devices governed by rotation of disk of irregular outline surface bearing upon the ends of two sliding perpendicular rods.



171,924.



171,925.

1. The combination of reciprocating lever D, with hook or pawl E and sliding bar O, substantially as and for the purpose herein-before set forth.

2. The combination of reciprocating lever D, sliding bar O, having spring d and rod H, substantially as and for the purpose herein-before set forth.

3. The combination of hook or pawl E, segmental rack F, dog G, and rod H, substantially as and for the purpose herein-before set forth.

4. The combination of segmental rack F, having lip S, with bolt R and sliding bar O, substantially as and for the purpose herein-before set forth.

5. The combination of rod H'', double lever E', and rod H, substantially as and for the purpose herein-before set forth.

6. The combination of adjustable plate V, with reciprocating lever D, substantially as and for the purpose herein-before set forth.

7. The segmental rack F, having lip S and flange t T, substantially as and for the purpose herein-before set forth.

8. The combination of the rods H'' H, plate K, and double lever L, substantially as and for the purpose herein-before set forth.

9. The combination of the segmental rack F, bolt U, plate K, and lever L, substantially as and for the purpose herein-before set forth.

10. The combination of levers 5 5', carrying bars or blocks 6 6', with chain 9 and lever L, substantially as and for the purpose herein-before set forth.

171,926. ELECTRO-MEDICAL APPARATUS. Richd. W. Hathaway, Chicago, Ill. [Filed Nov. 20, 1875.]

Brief.—Electrode-plates for each hand and foot, with suitable connections to induction-coil and switches, so currents may be transmitted through any portion of the body, and reversed at will.

1. An apparatus, substantially as described, for applying electricity for medical purposes, whereby currents may be transmitted through the body either by short circuits through the upper or lower extremities alone, or through the whole body, and reversed at will by suitable mechanism, without disturbing the battery and wires.

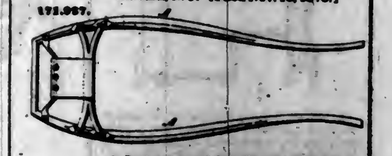
2. The combination, substantially as described, of the hand-plates a, foot-disks b, wires a' a'', and posts c c', as and for the purposes set forth.

3. The combination, substantially as described, of the posts c c', vibrating arms or plates d d', and posts D D', connected by wires with the poles of the battery, as and for the purposes set forth.

4. The combination, substantially as described, of the hand-plates a a, foot-disks b b, conducting-wires a' a'', and a switch attachment, as and for the purposes set forth.

5. The chair A, provided with the electrical attachment herein described, for use as an electro-medical apparatus, substantially as described.

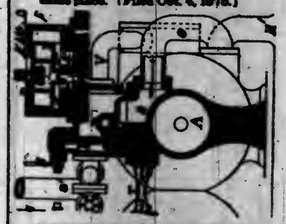
171,927. TROTTING-SULKIES. P. Jones, Newark, N. J. [Filed Nov. 16, 1875.]



1. In trotting-sulkies, the seat-supporting bar B, crowned to give the elevation to the seat, divided at the two ends for transverse support, and those ends rigidly attached to the shaft, substantially as described.

2. As an article of manufacture, the shaft for vehicles herein described, consisting of the upper and lower sections A' A'' of wrods of different grain, substantially as described.

171,928. TESTING FIRE-POTS. Amzen O. Kittredge, Wm. H. Clark, and Wm. J. Clark, Salem, Ohio, assignors to the Kittredge Cornice and Ornament Company, same place. [Filed Oct. 4, 1875.]



1. In testers' fire-pots, the sections A, consisting of a shell and core, in combination with section B, arch C, floor E F, plate M, and burner, substantially as and for the purpose set forth.

2. The section B, having a movable core D, in combination with the base E F, plate M, and section B, substantially as described, and for the purpose set forth.

171,929. GOVERNORS FOR STEAM-ENGINES. Aaron K. Kline, Somerville, N. J. [Filed May 5, 1875.]

Brief.—As the cones on the governor-stem are moved up or down, motion is communicated to the beveled gear in one direction or the other, by which the valve is operated.

The combination, in a monkey or screw wrench, of the stationary and adjustable jaws, the adjusting screw, the pinion I on the said screw, the revolving handle, and pinion H on the shank of the wrench, whereby the revolution of the handle causes a corresponding revolution of the adjusting-screw, substantially as described.

171,930. WEATHER-STRIPS. O. A. Herrick, Monticello, Wis. [Filed Aug. 13, 1875.]



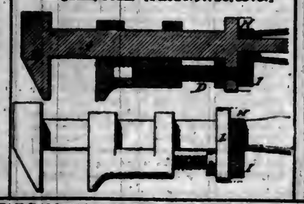
1. The strip or guard c, in combination with the door a and strip d, having a rabbet, v, substantially as specified.

2. The strip or guard c, in combination with the door a, the threshold A having a rabbet, e, and the plate b, all constructed and arranged substantially as and for the purpose specified.

3. The combination of the strip c, strip d, having a rabbet, v, door a, threshold A having a rabbet, e, and the plate b, substantially as and for the purposes specified.

4. The angle-iron i, in combination with the strip c, door a, and piece d, substantially as described.

171,931. WASHING-MACHINE. Wm. Hawkins, Birmingham, Conn. [Filed Nov. 20, 1875.]



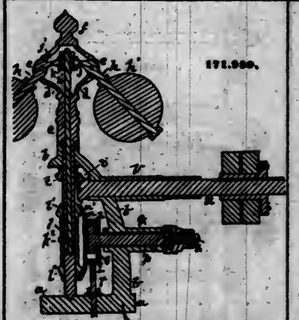
1. An apparatus, substantially as described, for supplying electricity for medical purposes, whereby currents may be transmitted through the body either by short circuits through the upper or lower extremities alone, or through the whole body, and reversed at will by suitable mechanism, without disturbing the battery and wires.

2. The combination, substantially as described, of the hand-plates a, foot-disks b, wires a' a'', and posts c c', as and for the purposes set forth.

3. The combination, substantially as described, of the posts c c', vibrating arms or plates d d', and posts D D', connected by wires with the poles of the battery, as and for the purposes set forth.

4. The combination, substantially as described, of the hand-plates a a, foot-disks b b, conducting-wires a' a'', and a switch attachment, as and for the purposes set forth.

5. The chair A, provided with the electrical attachment herein described, for use as an electro-medical apparatus, substantially as described.

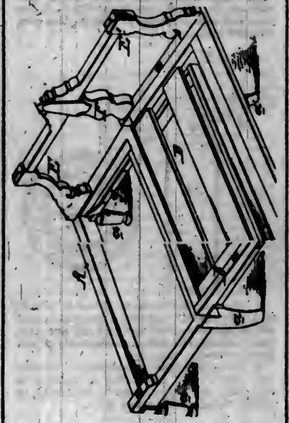


171,932.

1. Disk a with bevel a', gain or cut-away a^2, slots a^3, bolts c' and c^2, eccentric e, eccentric-shaft p, and yoke s, all combined to operate substantially in manner and for the purpose described and set forth.

2. Driving-shaft w, cogs t and r, vertical shaft x, weighted arms A, screw-head k, stem k', pin k^2, sleeve l, provided with bevels P and P', disk n, with bevel n', gain or cut-away n^2, slots n^3, bolts c' and c^2, eccentric e, eccentric-shaft p, yoke s, and valve-stem r, all combined to operate substantially in manner and for the purpose described and set forth.

171,933. SOFA-BEDSTEADS. F. D. Kramer, Philadelphia, Pa. [Filed May 21, 1875.]



1. The combination of the frame A, back B, and arms S S' with a center-piece, F, arranged substantially as described.

2. The center-piece F, in which are combined an opening for the reception of the ends of the arms E E', a flanged pin, j, extending across said opening, and the hinged and slotted strip i, carrying a sliding plate, m, all substantially as and for the purpose described.

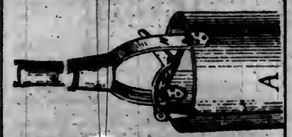
3. The combination of the movable tray D and its rollers f with the rails g, secured to the side strips of the frame A, and having their front ends raised, as and for the purpose herein set forth.

171,934. SOLDERING-TOOLS. Edward M. Lang, Portland, Me., assignor to himself and Geo. Burnham, Jr., same place. [Filed Jan. 21, 1875.]

A steel or cast-steel soldering tool or die, as and for the purpose set forth.

171,935. POST-HOLE DIGGERS. John Lee, Massillon, Ohio. [Filed May 17, 1875.]

Brief.—The digger part of the implement is cylindrical, with a longitudinal cleft upon one side. The bail is bifurcated at its ends, and embraces two of the upper edges of the cylinder, to which it is riveted. The middle of the bail has a conical socket, widest at the bottom, and provided with a wedge to spread the end of the wooden handle. The cylinder is opened sufficiently for the discharge of its contents by means of a pivoted wedge.

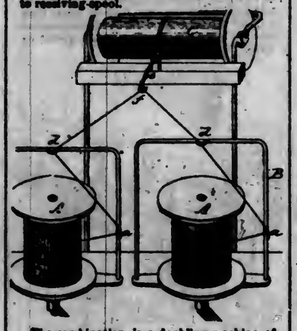


1. The cast-iron bail H, constructed with bifurcated ends a a, conical socket S, and pin 4, for the purpose set forth.

2. The wedge W, acting in combination with center A, substantially as set forth.

171,936. DOUBLING-MACHINES. Lewis H. Leigh, Portland, assignor of one-half his right to Richard S. Clark, Mount Carmel, Conn. [Filed Oct. 6, 1875.]

Brief.—Twisted pieces from stationary spools through eyes on the fliers, and then through an eye at the end of the tension-spring, and wound around the tension-spring to receiving-spool.



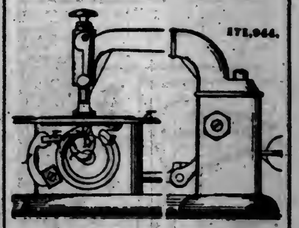
The combination, in a doubling machine, of the stationary spools A; the fliers B, constructed with a central eye, d, the tension-wire c, constructed with an eye, through which the several threads pass, and coiled around the said tension-wire, thence running to the roll, substantially as described.

171,937. SEWING-MACHINES. John McCloskey, New York, N. Y. [Filed Sept. 20, 1875.]

Brief.—The chain-stitch is made by a rotary hook provided with certain attachments. There are a curved guide on the back of the hook for carrying the loop to the front, and a supplemental hook attached to the center of the said rotary hook on its face, and adapted to open the loop and retain it until the needle has carried the succeeding loop therethrough, whereupon the supplemental hook casts off the thread, and the stitch is formed by the tightening of the latter. The brush is attached to an arm that holds it at or near the top of the retaining hook, to prevent premature slipping off of the thread from the hook. A guide-spring placed under the cloth-plate prevents the thread from being thrown outward from its proper position relative to the curved guide.



171,944.



1. The combination of the supplemental hook C with the rotary hook B, substantially as and for the purpose set forth.

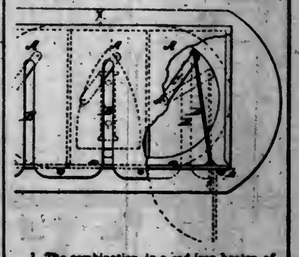
2. The rotary hook B, provided with the curved guide C, constructed to operate as shown and described.

3. In a sewing-machine, the combination of the rotary hook and the needle with the guide-spring D, constructed to operate substantially as and for the purpose set forth.

4. The brush or pad E, in combination with a rotary hook provided with a supplemental hook, C, substantially as and for the purpose set forth.

5. The brush E, provided with the stem I and the holder G, in combination with the rotary hook, whereby the brush is retained in the requisite position with reference to said hook, substantially as and for the purpose set forth.

171,945. FLAT-IRON HEATERS. Rufus M. Merrill, Englewood, Ill. [Filed Oct. 30, 1875.]

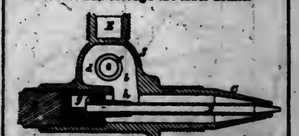


1. The combination, in a sad-iron heater, of the lever C, the connecting-rod D, and door a, arranged and operating substantially as specified.

2. The slotted case A and parts C and D, in combination with the door a and hinge b, all constructed and arranged as and for the purpose specified.

171,946. INJECTORS FOR STEAM-BOILERS. William T. Messinger, Somerville, Mass. [Filed Dec. 1, 1875.]

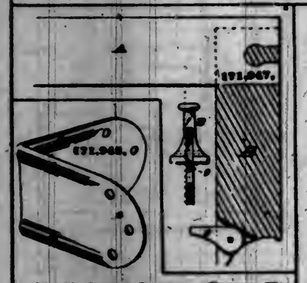
Brief.—While the valve is closed, steam can only flow from the lower chamber of the valve-case into that part of the bore of the outer nozzle which is in rear of the partition, and thence into and through the inner nozzle.



The combination of the partition B, the lifting-valve T, and the double-chambered valve-case S, and the passages g h leading therefrom, with the internal and external nozzle C D, all being constructed, arranged, and to operate substantially as specified.

171,947. SQUARES. Albert Moore, Northville, N. Y. [Filed June 30, 1875.]

The heel B, formed as shown and described, and provided with the step or rest g, in combination with the tongue A, as and for the purpose specified.



171,947.

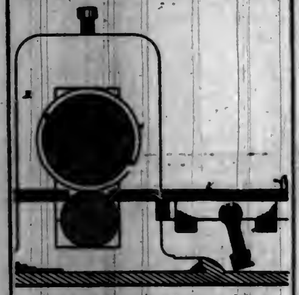
171,948.

171,948. CORNER-CLAMPS FOR TRUNKS. W. L. Mowry, Greenwich, N. Y. [Filed Dec. 27, 1875.]

A sheet-metal corner-piece for trunks, corrugated or bent along its longer edges, as described, whereby said edges are turned over at about right angles, and project rearwardly, substantially as and for the purposes set forth.

171,949. ROTARY METAL-SHEARING MACHINES. George How, George Hardley, and Wm. Talbot, Pittsburg, Pa. [Filed Nov. 22, 1875.]

Brief.—In addition to the longitudinal cutters, for dividing the sheet into the desired lengths, the roll is provided with a circular cutter at each end, for determining the width of the sheet. The sheet is placed upon a receiving feed-table, which presents it to the rolls,



The roll C, furnished with cutters *f* and *g*, in combination with the roll B and reciprocating table *t*, having detachable guide-pins *u*, all being constructed, arranged, and operating, with relation to each other, substantially as herein described and set forth.

171,950. BANDS FOR BINDING GRAIN. David Olmsted, Minneapolis, Minn., assignor of part of his right to Charles R. Chase, same place. [Filed Sept. 6, 1875.]

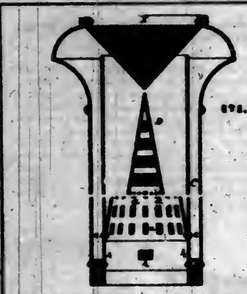


1. As a new article of manufacture, a water-proof paper band for binding bundles of grain, substantially as set forth.

2. A paper band provided with one or more T-shaped holes and corresponding T-shaped tongues, constructed to operate as described, for fastening said band around the bundle.

171,951. SPARK-ARRESTERS FOR LOCOMOTIVES. William W. Piper, Pittsburg, Pa. [Filed Oct. 13, 1875.]

Brief.—The larger sparks and cinders are arrested and repeatedly forced through a perforated cone in the uptake, by which means they are disintegrated, and thence carried off to the atmosphere.



171,951.

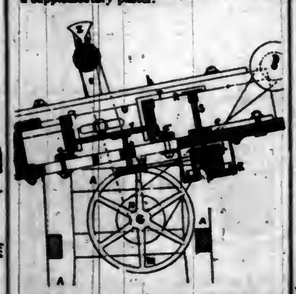
1. The upright perforated cone D and inverted wire-gauze cone E, in combination with the barrel of a locomotive smoke-stack.

2. The upright perforated cone D and inverted wire-gauze cone E, in combination with the inside cylinder B, as and for the purposes set forth.

3. The annular space C and holes *b* near its bottom, in combination with the upright perforated cone D, as and for the purposes set forth.

171,952. LABELING-MACHINES. Charles I. Pittman, Annapolis, Nova Scotia, assignor to Jonathan Bigelow, Boston, Mass., and W. L. Lowell, Halifax, Nova Scotia. [Filed Dec. 2, 1875.]

Brief.—A can which is to be labeled is rolled along a platform between brushes, which clean the ends of the can, and receives paste from a tablet. When the label more than reaches round the can, the lapping part is pasted by a supplementary paster.



1. In combination with frame A, pinion F, crank G, and shaft *D* of a labeling-machine, the adjustable bearings C C and adjustable brushes E E, as constructed to clean or polish the ends of cans as they are fed along to the paste apparatus, substantially in the manner described, as and for the purposes set forth.

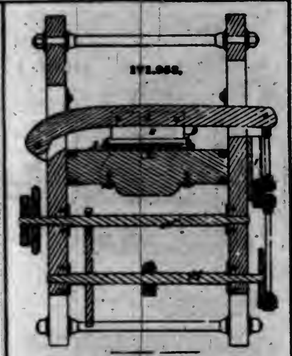
2. In a labeling-machine, substantially as described, the combination of the adjustable paste-plate B and standard S with arms T T, adjustable label-holder U, shaft H, pawl *j*, ratchet-wheel K, pulleys L and W, screw-shaft X, and bottom Y, all being constructed, combined, and arranged substantially in the manner described, as and for the purposes set forth.

3. In a labeling-machine, substantially as described, the combination of the adjustable tablet-paste plate B and standard S with the liquid-paste trough Z and adjustable rotary paste-brushes Q, arranged in such manner as to apply the tablet-paste to the can or package, and the liquid paste to the overlapping end of a long label, as and for the purposes set forth.

171,953. WOOD-SPLITTING MACHINES. F. Read, Medford, Mass. [Filed Dec. 9, 1875.]

Brief.—The wood is set upright in a square tray on a self-feeding carriage, and by the operation of the knife split in one direction, and then, by reversing the tray in the other direction, reducing it to a suitable size for kindling.

The reversible tray D, in combination with the carriage C and knife E, provided with mechanism for operating them, as specified.



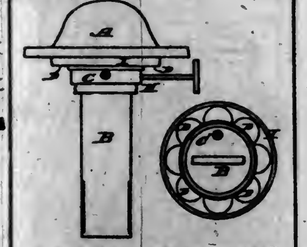
171,954.

171,954. TOOTH EXTRACTORS. Benj. F. Rucker, Navasota, Tex. [Filed Oct. 9, 1875.]

A medical compound consisting of sulphate quinine, dilute sulphuric acid, purified chinoline, sulphate iron, (s. p.,) sulphate magnesia, oil peppermint, and saturated quassia-water, (q. s.,) substantially as described.

171,955. LAMP-BURNERS. Jean Segundy, St. Louis, Mo. [Filed Nov. 15, 1875.]

Brief.—Vapor escapes from the oil-receptacle into a chamber, and thence into the outside air through the openings. The collar is provided with perforations at its highest part, to allow escape of vapor.

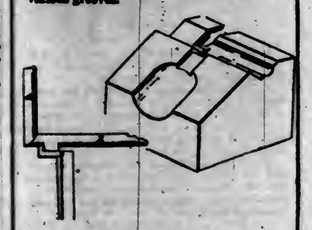


1. The combination of the burner A, tube B, and openings O O', said tube being constructed and arranged as described, and said openings being arranged as shown, substantially as and for the purposes shown.

2. The combination of the burner A, tube B, and collar F, said tube being constructed as described, and said collar being perforated, as shown, substantially as set forth.

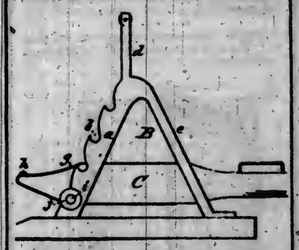
171,956. DIES FOR FORGING THE FEET OF GARMENT-DARE-FRAMES. Moses Seward, New Haven, Conn. [Filed Dec. 18, 1875.]

Brief.—A blank approximating the shape of the finished article is placed between the dies, the respective parts being shaped in the various grooves.



The dies for forging dark-frame feet, constructed substantially as shown and described.

171,957. TRACE-LIFTERS. Geo. W. Shaffer, Syracuse, Ind. [Filed Nov. 20, 1875.]



The frame B, consisting of the plates *a*, with steps *b*, and the brace-rods *c*, and handle *e*, in combination with the lever C, rod *i*, disks *j*, and projecting plate A, substantially as and for the purpose set forth.

171,958. PAPER BOXES. R. De F. Shelton, Birmingham, Conn. [Filed Sept. 9, 1875.]



In paper boxes, the combination of the flaps G G and F, respectively on the sides A, C, and D, the flap E, with the tuck I, on the other side, B, the said tuck I folded between the flaps G and F to form the bottom of the box, substantially as described.

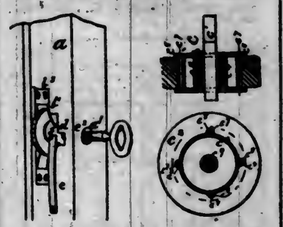
171,959. PROCESSES FOR IMPARTING RESONANCE TO METALLIC ALLOYS. Benjamin Silliman, New Haven, assignor to Meriden Britannia Company, West Meriden, Conn. [Filed Dec. 9, 1875.]

Brief.—The alloy is immersed for a short time in a bath which is heated to a temperature just short of the melting-point of the alloy.

The process of producing crystalline rearrangement and musical ring or resonance in metallic alloys, by submitting such alloys to a regulated temperature just short of the melting point, for the purpose of permitting and insuring the crystalline rearrangement of their molecules, and the production, in consequence, of a musical ring or metallic resonance, substantially as herein before described.

171,960. SAMP-BALLAGOMA. Alex. Smithers, Gallatin, Tenn. [Filed Apr. 13, 1870.]

Brief.—A drum inclosing a coil-spring, and encircled by a heavy elastic ring, constitutes a balance-wheel or power-mill, there being a suitable axle, tube, &c. Combined with this balance is a spring-pawl and ratchet-wheel, and a key is provided for winding up the spring; the combined device serving to balance the weight of the mash, and adjust or hold it in desired position.



In a mash-balance, the combination, with the frame *b*, projection or extension *f'*, spring-pawl *e*, and ratchet-wheel *d*, of the balance-wheel *a*, having axle *a'*, tube *a''*, plates or disks *a''' a'''*, drum *a'''*, spring *a''*, and retaining-screws *a'''*, together with an elastic ring, *a''''*, having recesses *a''''*, all constructed and operating substantially as described.

171,961. CLAMPS. Edward S. Smith, Waterbury, Conn., assignor to the Smith & Griggs Manufacturing Company, same place. [Filed Oct. 20, 1875.]



The clamp shown and described, consisting of the body *b b'*, of a single strip of metal, folded to form the loop *c*, and provided with ears *a a* and gripping jaws *e*, operated by, the pivotal cam-lever *d*, for the purposes set forth.

171,962. WIND WHEELS. Lawrence E. Stephens and Samuel F. Sharp, Terrell, Tex. [Filed Sept. 14, 1875.]

Brief.—The dome is made octagonal or round, and large enough to surround the wheel. At the bottom of the dome wheels or rollers are arranged, which rest upon a table or way, so that the dome will revolve or turn with ease. Doors are connected at top and bottom by straps or webbing, to prevent them from opening farther than is desirable. Opposite the doors, and on the other side of the dome, is a vane, and on each side of this vane are other doors, which should be closed by means of springs or weights, and regulated so that they will open outward when the pressure of the wind in the dome is too great.



The combination of the round or polygonal dome A mounted upon wheels D D, the hinged doors B B connected by the webbing C C, the vane F, and the doors G G, all substantially as and for the purposes herein set forth.

171,963. CENTRIFUGAL GAS-PURIFIERS. P. Sweeney, New York, N. Y., assignor to W. B. Bishop, same place. [Filed Dec. 24, 1875.]

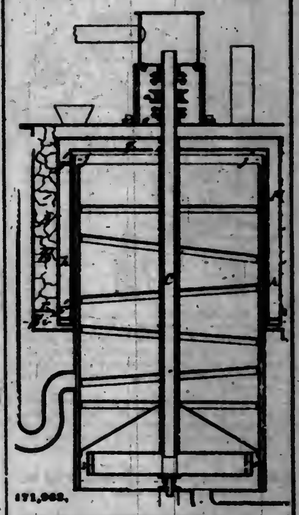
Brief.—A hollow shaft passes vertically through the center of the cylindrical chamber, and has secured to its lower end the hollow centrifugal wheel, from which the gas escapes, and above this are secured perforated diaphragms, placed at different angles. A secondary purifying-chamber has within it a revolving annular chamber, from which the gas escapes at the bottom, and it is supplied with sponge.

1. The combination, substantially as before set forth, of the purifying-chamber, the gas-impelling wheel, the revolving drum enclosing the gas impelled by said wheel, and the perforated diaphragms revolving with said drum.

2. The combination, substantially as before set forth, of the first purifying-chamber, the gas-impelling wheel, the tubular shaft thereof, the hollow retaining-head, the second purifying-chamber, and the second gas-impelling wheel, whereby the gas is impelled through two purifying-chambers in succession by the action of their respective gas-impelling wheels.

3. The combination, substantially as before set forth, of the purifying-chamber, the gas-impelling wheel, the revolving gas-containing drum, the perforated diaphragms revolving with said drum, the second purifying-chamber, and the second gas-impelling wheel which appertains thereto.

4. The combination, substantially as before set forth, of the gas-purifying chamber containing the porous cellular substance, and the gas-impelling wheel in said chamber for impelling the gas through the said substance therein.



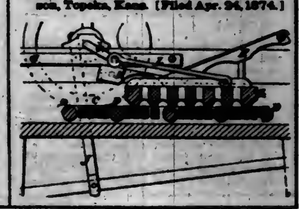
171,962.

171,964. STOVE-PIPE ELBOWS. Andrew Syverson, Chicago, Ill., assignor of one-half his right to Joseph S. Dennis, same place. [Filed Oct. 20, 1875.]



The curved stove-pipe elbow, consisting of two curved pieces of pipe, A B, connected together by the joint C, and adjustable upon each other, substantially as and for the purpose specified.

171,965. WASHING-MACHINES. J. Thompson, Topeka, Kans. [Filed Apr. 24, 1874.]



The combination of the corrugated and slotted rubber G, provided with the handles E, springs H, and slides a, with the vamp-board, consisting of the bars C C and D D, substantially as described.

171,966. BUCKLES. Edward Young, Brooklyn, Mass. [Filed Dec. 9, 1876.]



As a new article of manufacture, a buckle in which the center cross-bar contains the holes for the spindle or rivets, and is made of one piece with the body of the buckle.

171,967. UMBRELLA-SUPPORTERS. Eliza M. Arnold, Houston, Tex. [Filed Dec. 11, 1876.]

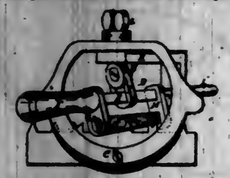


1. The curved rods A, having a socket formed upon or attached to their upper end, the open ring B, and the straps C, in combination with a belt, E, to adapt it, when attached to the person, to support a parcel or umbrella, substantially as herein shown and described.

2. The combination of the straps D and button d with the frame of the parcel or umbrella, and with the belt E, and the device A B C, substantially as herein shown and described.

171,968. SAW-FILING MACHINES. Fred. W. Benjamin, Sheffield, Ohio. [Filed Aug 4, 1876.]

Brief.—A frame or sling is constructed with a slot for receiving the saw. A horizontally-adjustable arm is clamped to the top of said frame, and supports the filing mechanism. The depth of the teeth is regulated by the vertical adjustment of the saw in the clamp.



The herein-described saw-filer, consisting of the slotted ring or clamp A, file-frame D, adjustable hanger I, pivoted to the leg J, arm K, having a leg, M, and thumb-screw L and set-screw O, substantially as and for the purpose set forth.

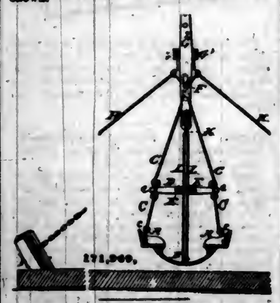
171,969. STOVES. H. J. Hahnlen, Concord Township, Erie County, Pa. [Filed Apr. 7, 1876.]

1. The frame, composed of the uprights G and downwardly-projecting pieces G', cloyed or otherwise secured, substantially as described and shown.

2. A sling, hung at its four corners, in combination with the propelling-ropes L, secured to the frame and pendent from a point over the center of said frame, in plane of rest, substantially as described and shown.

3. The combination, with the uprights G and downwardly-projecting pieces G', of a sling, hung at a point higher than the lower end of the pieces G', and the propelling-rope L secured to the lower end of said pieces G', substantially as described and shown.

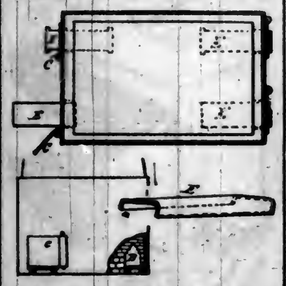
4. The combination, with the uprights G and downwardly-projecting pieces G', of a sling hung at a point higher than the lower end of the pieces G', the propelling-rope L secured to the lower end of said pieces G', and the rollers E, substantially as described and shown.



171,969.

171,970. BRICK-KILNS. Joseph Hess, Wilmette, Ill. [Filed Oct. 20, 1876.]

Brief.—By adjusting the flue-plates air can be admitted to different points in the bottom of the kiln.



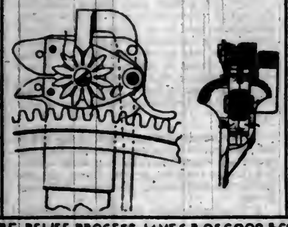
The adjustable plates E E, arranged to form the draft-flues within the fuel-supply flues B, in combination with doors C C, as and for the purposes specified.

171,971. MANUFACTURE OF ANTIQUE-COLORED GLASS. James Baker, New York, N. Y. [Filed Dec. 11, 1876.]

1. The mottled herein described of producing antique-colored glass for church and other windows, consisting in spinning the fused and colored glass into flat disk or oval shape by turning the rod simultaneously with blowing through the same, substantially in the manner and for the purpose set forth.

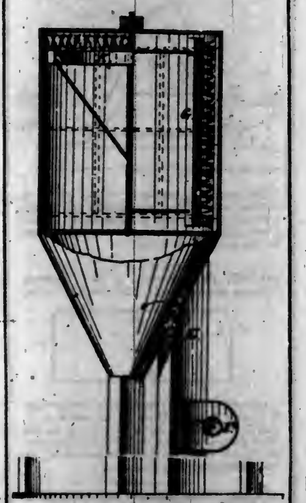
2. As a new article of manufacture, colored glass having concentric streaks, with a slight shading from the inner toward the outer streaks, substantially as set forth.

171,972. GRAIN-BINDERS. Wm. S. Baker, Chicago, Ill., assignor to C. H. and L. J. McCormick, same place. [Filed Nov. 13, 1876.]



The combination of the twister-pinions and their fixed supporting-plate inserted in an annular groove, therein, substantially as herein before set forth.

171,973. MILLSTONE-REHAUSTS. Samuel L. Bean, Washington, D. C. [Filed Sept. 27, 1876.]



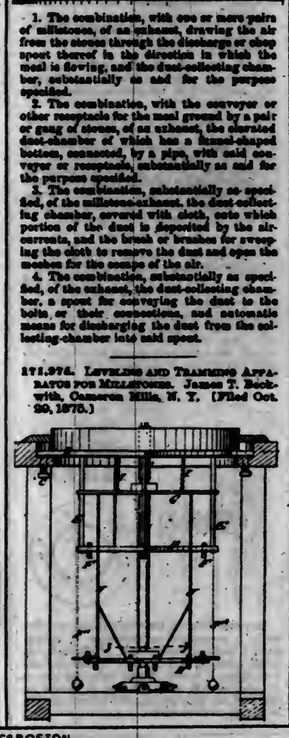
1. The combination, with one or more pairs of millstones, of an exhaust, drawing the air from the stones through the discharge or chop spout thereof in the direction in which the meal is flowing, and the dust-collecting chamber, substantially as and for the purpose specified.

2. The combination, with the exhaust or other receptacle for the meal ground by a pair or gang of stones, of an exhaust, the elevated dust-chamber of which has a funnel-shaped bottom, connected, by a pipe, with said conveyer or receptacle, substantially as and for the purpose specified.

3. The combination, substantially as specified, of the millstones, the dust-collecting chamber, covered with cloth, onto which portion of the dust is deposited by the air-currents, and the brush or brushes for sweeping the cloth to remove the dust and open the meshes for the escape of the air.

4. The combination, substantially as specified, of the exhaust, the dust-collecting chamber, a spout for conveying the dust to the bolts or their connections, and automatic means for discharging the dust from the collecting-chamber into said spout.

171,974. LEVELING AND TRAMMING APPARATUS FOR MILLSTONES. James T. Beckwith, Cameron Mills, N. Y. [Filed Oct. 20, 1876.]



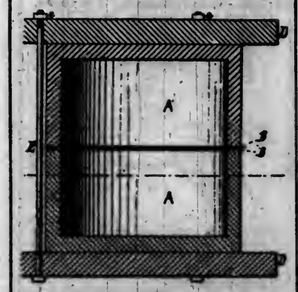
1. The combination of the frame D and adjusting-screws F with the leveling-frame B and adjusting-screws C, substantially as specified.

2. The combination of the suspending-frame G, gage-frame H, and the plumb-lines F' with the leveling-frame B and the spindle, substantially as specified.

3. The combination of suspending-frame G, gage-frame H, and the plumb-lines F' with the spindle, substantially as specified.

171,975. BUTTER-PACKAGES. A. John Bell, Ashland, Ky. [Filed Dec. 17, 1876.]

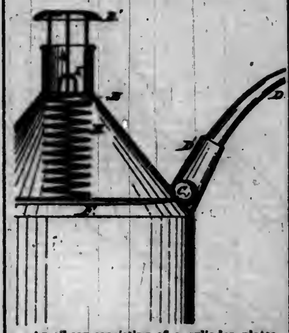
Brief.—A butter-package consisting of cups or tubs inverted upon each other, with washers intervening, so as to form an air-tight package, in combination with a pressing-frame of rods and nuts set in the end boards.



1. The cups or tubs A A', washers B B, and cloth C, the whole combined and arranged, in connection with a pressure-cage, to operate substantially as described.

2. In combination with the cups or tubs A A' and washers B B, the bands D D', rods E E, and nuts a a, the whole arranged to operate substantially as described.

171,976. OIL-CANS. A. John Bell, Ashland, Ky. [Filed Dec. 17, 1876.]

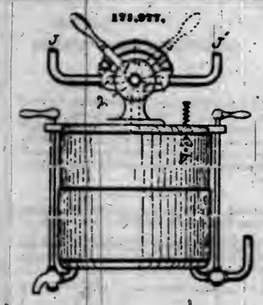


An oil-can consisting of a cylinder, plates B B', connected by guide-rods b b, spring B, bar F, spout D, having an enlarged section, D', and ball-valve C, the same constructed and arranged to operate substantially as described, as and for the purpose specified.

171,977. APPARATUS FOR CONTROLLING AIR FOR OPERATING VALVES. Henry P. M. Birkinbine, Philadelphia, Pa. [Filed Nov. 8, 1876.]

Brief.—Water under pressure from the main is admitted to an air-chamber provided with air-inlet and water-outlet, and valve and pipes communicating with the cylinder and piston mechanism, for controlling the large valves or gates in the mains.

The compressing-chamber H, in combination with the valve W and the pipes J and J', for producing the pressure to operate the valves in hydraulic mains, substantially as set forth.



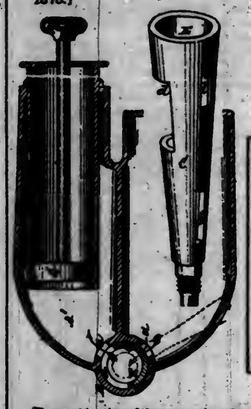
171,977.

171,978. PLAYING-CARDS. John H. Black, New York, N.Y., assignor to V. B. Munger, same place. [Filed Nov. 17, 1876.]



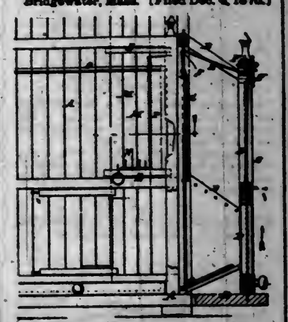
A playing-card containing in each of its four corners a numeral, word, or letter indicating its value, together with a miniature emblem or emblems indicative alike of its value, character, and suit, each emblems being also made to correspond in number with the spots on the face of the card, substantially as described and shown.

171,979. MEASURING-FAUCETS. Thos. W. Blackerby and Geo. K. Noland, Stanford, Ky.; said Blackerby assignor to Mary A. Blackerby, same place. [Filed Oct. 23, 1876.]



The combination of the measuring-chambers A A', one of which is provided with a graduating-plunger, G, the interposed valve-chamber E, having passages a a and b b, and the valve C, provided with an inlet-passage, d, and outlet-passage f, in communication, respectively, with a receiving-chamber, E, and outlet-compartment F' in said valve, substantially as described.

171,980. BIRD-CAGES. Robert C. Brush, Bridgewater, Mass. [Filed Dec. 4, 1876.]

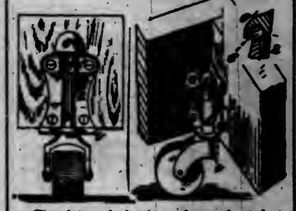


1. The combination of the compartment B, the two doors C D, and their flexible connection E, with the cage, substantially as herein shown and described.

2. The combination of the pivoted fruit-holding device L M N, with the cage A, substantially as herein shown and described.

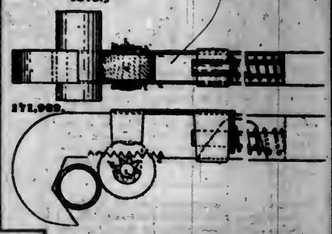
171,981. FURNITURE-CASTERS. C. Brinton, Chicago, Ill. [Filed June 7, 1876.]

Brief.—The construction being such that, by varying the shape of the attaching-plate, normally flat, for securing to the side of a piece of furniture, the caster may be readily adapted for attachment to the outside or inside corner of the same.



The plate or body-piece a b c, perforated at c, and having the cup-bearing e cast or otherwise formed thereon, in combination with the pintle or spindle d, having semi-elliptical head d', and the strap f, all constructed and arranged substantially as described and shown, for the purpose set forth.

171,982. PIPE-WRENCHES. Joseph Browning, Philadelphia, Pa., assignor, by mesne assignments, of one-half his right to Saml. Cromley, same place. [Filed Sept. 27, 1876.]



171,982.

1. The combination of the wheel A and pinions d d, arranged on a movable carriage, and the toothed bar, for the purpose set forth.

2. The hooked bar E, with recessed handle T, in combination with the movable carriage and spring C, substantially as described.

171,983. CLASPS. Norman H. Bruce, Clinton, assignor to J. A. B. Greves and W. H. Abercrombie, Boston, Mass. [Filed Dec. 9, 1876.]

171,903.



1. A clasp consisting of a metallic plate, provided with a loop, and having a slit bounded by lips *a*, raised or projecting from the face of the plate, as set forth.

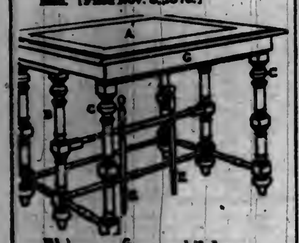
2. The metallic plate formed with a slit bounded by lips *a*, as described, in combination with re-enforcing strips *b*, substantially as set forth.

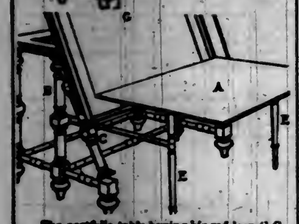
171,904. SNAP-HOOKS. R. B. Fullwinkle, Chicago, Ill. [Filed Nov. 12, 1875.]



A snap-hook composed of the shank A and hook B, in combination with the beveled slotted guard D and spring-tongue C, constructed and operating in the manner and for the purpose specified.

171,905. COMBINED TABLES AND FOOTSTOOL. John Heather Bunyard, London, England. [Filed Nov. 6, 1875.]





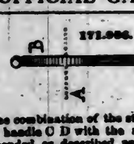
The portable table having hinged legs C C, adapted to be inclined backward, and a case or top, G, moving on hinges F, and adapted to be inclined forward, and folding legs E, for supporting the hinged lid or flap A of the case or top G, arranged and operating substantially as and for the purposes hereinbefore described, and represented in the aforesaid drawing.

171,906. TOY TRAPEZE-TOPPER. G. Burdett, Providence, R. I. [Filed June 10, 1875.]

Brief.—The improvement is mainly in the mounting, the disk being revolved by the bands.



171,906.



The combination of the stationary frame B and handle C D with the revolving disk A, suspended as described, and provided upon each face with a picture, or part of a picture, the whole forming an optical toy to illustrate the persistence of sight, substantially as specified.

171,907. BUCKLES FOR SHOES. A. Burke, New York, N. Y. [Filed Aug. 2, 1875.]

The inside for shoes B B, provided with the aperture C, substantially in the manner and for the purpose herein set forth.

171,907.



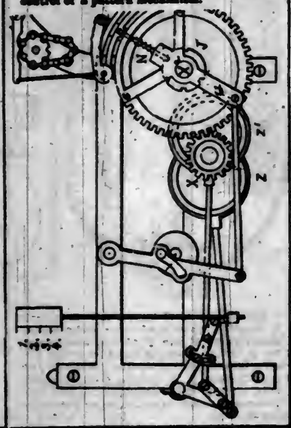
171,908. VEHICLE TOP-PROP BLOCKS. A. Butterfield, Huntsville, Ala., assignor to himself and I. I. McKibbin, same place. [Filed Oct. 29, 1875.]



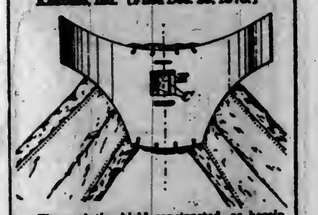
As a new article of manufacture, for the purpose specified, a flat and quite, or nearly, straight spring, A, made narrower in the middle than at either end, and adapted to be rigidly fastened by screws, as shown and described.

171,909. LOOM SHUTTLE-BOX MECHANISM. Ariel B. Capron, Worcester, Mass. [Filed Nov. 10, 1875.]

Brief.—The varying movement of the shuttle-box rod is produced by a bell-crank lever, in combination with eccentrics, which receive an oscillating motion from gearing under the control of a pattern mechanism.



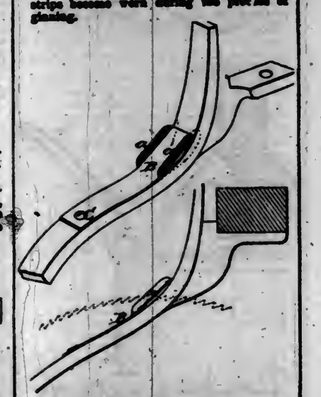
171,910. NECK-TIE SHIELDS. J. R. Carter, Kokomo, Ind. [Filed Dec. 20, 1875.]



The neck-tie shield constructed, as herein described, with a slot or opening, B, closed at its ends, crossed by cords C C, applied on the front or outer face of the shield, as and for the purpose set forth.

171,911. COTTON-GIN RIBS. Jos. H. Carver, Bridgewater, Mass., assignor to Richard M. H. Carver and Nathaniel P. Carver, same place. [Filed Apr. 20, 1875.]

Brief.—The re-entering strips are formed with squared ears, at right angles with the surface of the ribs, to prolong the durability of the ribs, and preserve uniform edges as the strips become worn during the process of ginning.



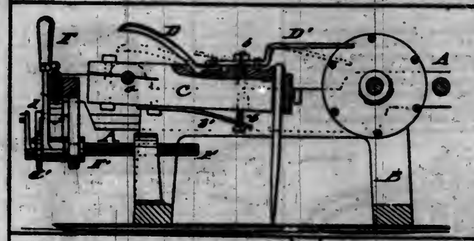
The combination of a re-enforcing strip, B, having quartered edges *a a*, with a cotton-gin rib, substantially as and for the purpose specified.

171,912. MILLSTONE-DRESSING MACHINES. William H. Chase, Fairhaven, Minn. [Filed Nov. 27, 1875.]

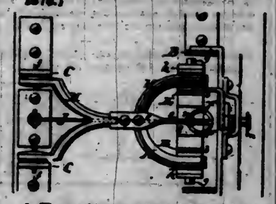
1. The combination, with the lever C, carrying the pick, and arranged to vibrate on the shaft *a*, of the pivoted arm or extension D', fulcrum-rod *b*, spring F, and lever D, all as shown and described, to operate as specified.

2. The combination, with the stationary frame B, the pick-lever frame A sliding thereon, and the screw F', arranged as shown, of the ratchet-wheel F, the lever D, carrying pawl *d*, and stop-plate for limiting the movement of said lever, as shown and described.

171,913.



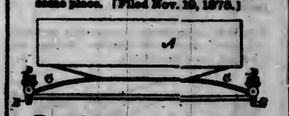
171,913. STONE-SCALER. G. H. Chamillon, New York, N. Y., assignor to John Chamillon & Sons, same place. [Filed Oct. 30, 1875.]



1. The combination of the bifurcated lever H, which has the projecting arm *e* within the fork, with the pivot *f* in the post C, and with the slotted frame E, spring F, and stationary frame E, to operate substantially as specified.

2. The screw *n*, combined with the cheek or frame E of the main-pin, and with the brace J, substantially in the manner described.

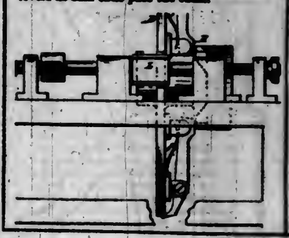
171,914. LIGHT ROAD-VEHICLES. William S. Clark, Newark, N. J., assignor to Jos. M. Quimby, I. S. Ayres, and J. H. Jephson, same place. [Filed Nov. 20, 1875.]



The combination, in a vehicle, of the body-plate B, half-elliptic cross-springs D, and the independent springs C, each bolted directly to the under side of the body, near one corner thereof, and connected to the adjacent end of one of the cross-springs, substantially as set forth.

171,915. MACHINES FOR SHAPING PIANO-KEYS. Saml. M. Comstock, Centre Brook, Conn., assignor to Comstock, Chenney & Co., same place. [Filed June 17, 1875.]

Brief.—The blank keys (or flats and sharps) of pianos and similar musical instruments can be "shaped" or cut back in a circular form on the upper surface in the rear, by means of a disk provided upon its periphery with one or more teeth to receive the blanks, and in which they are firmly held by radial clamping-levers attached to one side of the disk, while the rear end of each blank is being dressed by a revolving cutter. The lever are automatically opened for the reception and discharge of the blanks by two stationary cams formed upon a circular frame, one above and the other below the main shaft, said which engage with projections upon the inner ends of the radial levers as said ends pass the cams.



The combination of the disk D, constructed with one or more seats to receive the blanks, radial levers E on said disk, stationary cam or cams R, and the revolving cutter L, substantially as and for the purpose described

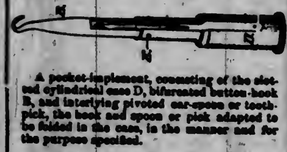
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171,916. HOOK-YOKES. Absalom G. Cook, Columbus, Ind., assignor of one-half his right to Mary C. Cook, same place. [Filed Feb. 6, 1876.]



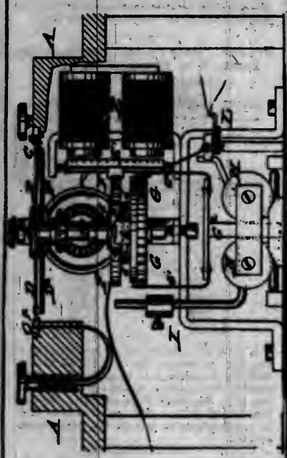
In combination with a neck-yoke, which is divided vertically at its center, the staple D, whereby it is prevented from tipping or turning, substantially as set forth.

171,917. POCKET IMPLEMENTS. Irving C. Cowles, Syracuse, N. Y. [Filed Mar. 13, 1875.]



A pocket-implement, consisting of the slotted cylindrical case D, bifurcated button-hook B, and interlying pivoted ear-spoon or tooth-pick, the hook and spoon or pick adapted to be folded in the case, in the manner and for the purpose specified.

171,918. AUTOMATIC TELEGRAPH KEYS AND REGISTERS. L. S. Crandall, New York, N. Y. [Filed Nov. 27, 1875.]



1. In an automatic telegraph key and register the combination of a fixed letter-ring, divided into insulated and non-insulated portions and thrown into the main circuit by spring-keys and radial needles, with a local or motor battery actuating the needles, and being thrown into circuit by the closing of main circuit and continued during and after the interruption of the latter, to transmit magnetic impulses, according to the divisions or signs of the letter-ring, and establish the spaces between the same, substantially in the manner and for the purposes set forth.

2. In an automatic telegraph key and register the combination of a fixed letter-ring, divided into insulated and non-insulated portions, with lettered spring-keys and a series of radial needle-arms or hangers, said lettering and needles being the poles of the main battery to establish main-line circuit, substantially in the manner and for the purpose set forth.

3. In an automatic telegraph key and register a fixed letter-ring, provided with the characters of the Morse alphabet, formed of insulated and non-insulated portions, the characters of each letter being separated from the adjoining letters by recesses or slots, substantially as set forth.

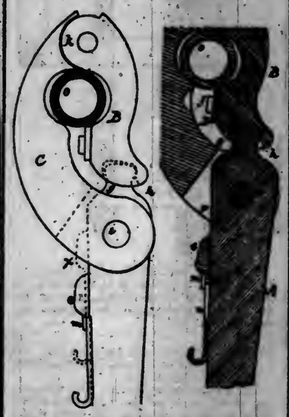
4. The fulcrumed armature-lever of main line or relay magnet, provided with register, stop-styles at one end and an escape-pawl at the other end, in combination with a spring-acted slip-wheel for releasing slip-wheel and establishing, by closing of main line, circuit of local battery, substantially as specified.

5. In a telegraph key and register a fulcrumed armature-lever of main-line or relay magnet, having registering-styles at one end and stop-pawl at the other, to serve the two-fold purpose of registering the messages transmitted and establishing or interrupting circuit of local or motor battery, substantially as described.

6. The combination of the spring-acted and recessed slip-wheel, having a spring-rider with a partially insulated and non-insulated strip of the motor-wheel, revolved intermittently by the magnets of the local battery, to establish circuit of the same on release of stop-pawl of main-line armature, substantially as specified.

7. The combination of the stop-pawl of armature of main-line magnet with slip-wheel and rider, and the motor-wheel, having partially insulated and non-insulated strip, to retain slip-wheel and allow motion of motor and needle-wheels for a limited distance after main-line circuit is broken, whereby the necessary spaces in letters and between letters and words are obtained, substantially as set forth.

171,919. PIPE-WRENCHES. Wm. Crumbie Rossville, Pa. [Filed June 17, 1874.]



The jaws B C, provided with semicircular recesses, whereby a pipe may be uniformly and entirely clasped, and a tooth, D, for catching against said pipe, in combination with the lever A, provided with a locking-catch, *a*, to keep said lever and the jaw B in position together, all constructed and arranged substantially as and for the purposes set forth.

172,000. GAS-REGULATORS FOR BURNERS. Charles G. Curtis and Geo. Curtis, Bridgeport, Conn. [Filed Nov. 12, 1875.]

Brief.—The pressure-cup fits its chamber, and packing is dispensed with.



1. In an improved gas-burner, the combination of the perforated or slotted tube *i*, the perforated guide-tube *m*, the valve *o'*, operating to open or close the passage *o*, and the pressure-cup *F*, all substantially as described.

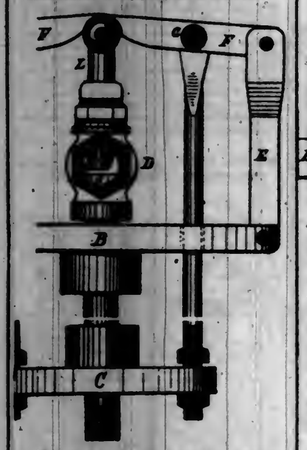
2. In a gas-burner, the combination of the tube *m*, the valve *o'*, the passage *o*, and drip-passage *f*, whereby the liquid condensed resulting from the combustion of the gas is collected from the enclosing apertures above the valve and conducted to a place of deposit in the reservoir *F* below the valve mechanism, substantially as described.

3. The combination of the tube *m*, provided with a central top, and the perforated drip-passage *f*, whereby any liquid resinous which is deposited upon said central part is conducted directly into the reservoir *F*, substantially as set forth.

4. In an improved gas-burner, the combination of the cup-chamber, having a vertical wall, A, the tube *i*, the packing pressure-cup *F*, the perforated drip-passage *f*, the perforated guide-tube *m*, valve *o'*, and passage *o*, all substantially as and for the purposes described.

172,001. SPEED-TRAPS. J. Deakin, Gloucester, N. J. [Filed Nov. 27, 1875.]

Brief.—The pipe is expanded or contracted by the pressure or absence of steam. The movement of said pipe operates the valve.



The arrangement of the pipe A, valve D, brackets B and C, rods H H, arms E E, levers F F, and valve-stem L, whereby the bending of the pipe is prevented, as described.

172,002. HYDRANTS AND HYDRANT-VALVES. Henry E. Horle, Danbury, Conn. [Filed Dec. 20, 1875.]

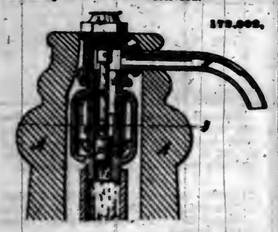
Brief.—The valve-chamber, with its tapering barrel, ports, and screw-threaded extensions, is cast in one piece. The shape of the valve and barrel obviates the disadvantages of sediment collecting on the ordinary valve-seat.

1. The combination, in hydrants, of the casting C, having a tapering barrel or cylinder, provided with outside water-ports F, and tapering valve D, substantially as described, and for the purpose set forth.

2. The combination, substantially as described, of the valve-chamber C, valve D, ports F, waste exit-port *a*, and extensions *i*, in the manner and for the purpose herein set forth.

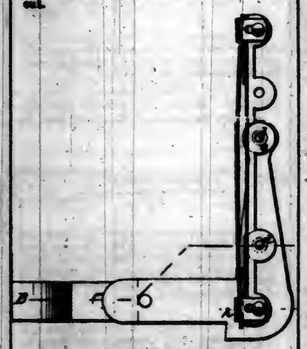
3. The combination, substantially as described, of the hollow tapering casting C, provided with extensions *i i*, pipe E, T-piece *f*, valve D, spindle E, having stuffing-box A, substantially as shown and described.

172,003.



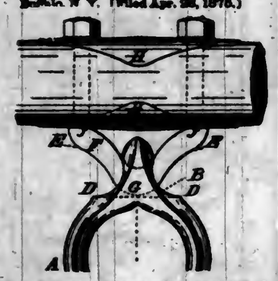
172,003. BAND-SAWS. Philip E. Edge, Grand Rapids, Mich., assignor of one-half his right to Charles V. Young, same place. [Filed Dec. 27, 1875.]

Brief.—A plate of glass is secured in an adjustable holder in front of the saw and above the table, serving to keep the saw in place upon the pulley while it is beating out of a cut.



As an attachment for band-saw scroll-machines, an adjustable front guide or stop, of glass or equivalent material, and set in an adjustable holder, for the purposes set forth.

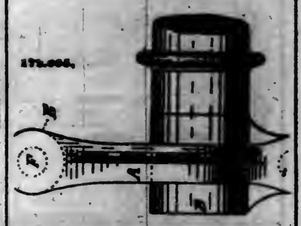
172,004. NECK-YOKES. Ellsworth Hty, Buffalo, N. Y. [Filed Apr. 28, 1875.]



A neck-yoke center-coupling, consisting of the ring A, having the opening B, formed with the shoulders D D at the bottom, and a smaller round portion at the top, in combination with the staple F, formed with the narrow curved part G, and the shoulders E E, all substantially as and for the purposes described.

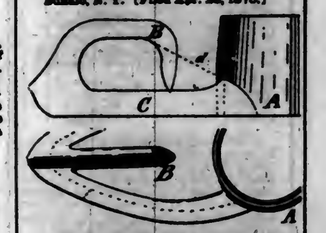
172,005. NECK-YOKES. Ellsworth Hty, Buffalo, N. Y. [Filed Apr. 28, 1875.]

172,006.



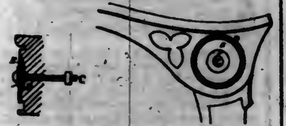
As a new article of manufacture, a neck-yoke end-coupling consisting of the frame A, having the plate F C formed in one piece with it, in combination with the jointed ferrule E, and friction roller E cast thereon, substantially in the manner and for the purposes set forth.

172,006. WRENCHES. Ellsworth Hty, Buffalo, N. Y. [Filed Apr. 28, 1875.]



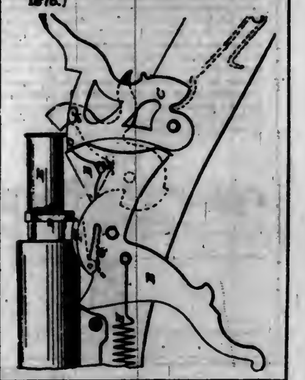
As an article of manufacture, a whiffletree-hook, B, ring C, and ferrule A, when combined in one piece, the hook extending down into the ring, and formed substantially as and for the purposes described.

172,007. FRICTION-JOINTS FOR SCHOOL-DESKS. Harry H. Everts, Chicago, Ill. [Filed June 26, 1875.]



The hinge or joint for school-seats, consisting of a seat arm and standard, one of which is provided with the concave depression D, the flat steel disk E, placed within the cavity, and the bolt which locks the parts together, substantially as and for the purposes set forth.

172,008. BREECH-LOADING FIRE-ARMS. A. C. Fulvre, Mendville, Pa. [Filed Oct. 28, 1875.]



1. In a breech-loading gun, the combination of the lever B and eccentric C, for holding a rigid fulcrum to the ends of the barrels, when made as described and shown.

2. The spring-pawl F, as constructed and combined with the breech-block and retractor that when the breech-block is fully opened the retractor is automatically disengaged from the spring-pawl and left free to move back into position upon the pressing in of new cartridges.

3. The combination of the bosses J and the eccentric C, for drawing back the hammers of the locks, substantially as described.

172,009. GLOVE-FASTENERS. Clarence B. Ferguson, Washington, D. C. [Filed Nov. 20, 1875.]

Brief.—The hooks on the ends of the levers are secured at each side of the wrist-opening of a glove, and by revolving the disk of the button said opening is closed.



A glove fastener or fastener, consisting of the button A, in combination with the pivoted levers *a a*, adapted to be applied to the wrist-opening of a glove, substantially as and for the purpose set forth.

172,010. CAN-NOZZLES. L. Bacon Fuss, Boston, Mass. [Filed Oct. 1, 1875.]



In combination with the flaring upper end *a* of the neck A, and with the cap B, the conical cork *d*, attached to said cap, and arranged to fit within said flaring end, substantially as and for the purpose shown.

172,011. FLOWER-POT BRACKETS. John G. Fuisom, Winchendon, Mass. [Filed Nov. 9, 1875.]

Brief.—Two fixed brackets bearing a bar, on which pot-stands are arranged to slide, while an additional stand may be pivoted in the arm of the bracket.



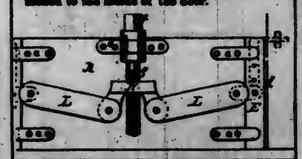
1. In a flower-stand, the pot-stand H, in combination with the bar D, constructed and arranged to operate substantially as specified.

2. In a flower-stand, substantially such as described, the brackets A A, pot-stand H, and bar D, constructed and arranged to operate substantially as set forth.

3. In a flower-stand, substantially such as described, the fixed bracket A, provided with the swinging side bracket B, carrying the pot-stand K, substantially as set forth and specified.

172,012. DOORS FOR GRAIN-CARS. L. F. Franco, Jersey City, N. J. [Filed Sept. 27, 1875.]

Brief.—Door held in place by beveled sliding extensions fitting into beveled pieces attached to the inside of the door.



The door A, provided with the bars E, having beveled outer edges, and arranged to be extended freely beyond the edges of the door, and to be pressed tightly against the bevels *d* on the door-jamb by the levers L L, as described, and for the purpose specified.

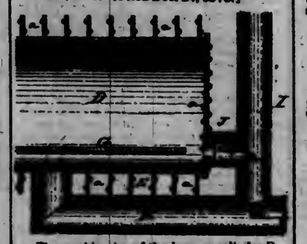
172,013. SEWING-MACHINE GAUGES. T. B. Garretson, Cedarloose, Iowa, assignor of one-half his right to G. B. Grovell, same place. [Filed Oct. 21, 1875.]

Brief.—As an improvement on former Patent No. 169,071, October 26, 1875, a triangular guide-block is introduced into the wall of the socket. Two pins instead of one project from the spindle, and irregular slots and channels vary the fastening groove, as improvements in details of construction.



The combination, as an adjustable center, of the post A, carrying the roller C, and provided with the pins *b* and *b'*, together with the socket B, having the channeled interior wall A, and guide-block *a*, and the irregular slot *c'*, and lock-notch *c'* in the opposite wall, all arranged to operate as described, and for the purpose specified.

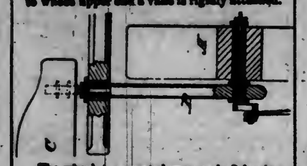
172,014. HEATERS. Edward R. Gold, New York, N. Y. [Filed Dec. 27, 1875.]



The combination of the drum or cylinder D, flue G, indirect-draft pipe H, smoke-pipe I, and direct-draft pipe J, substantially as and for the purposes herein set forth.

172,015. WIND-POWERS. T. G. Guthery, Freedom, Ind. [Filed July 17, 1875.]

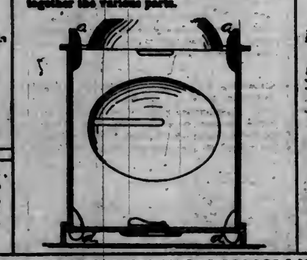
Brief.—The wheel is mounted upon a shaft having its bearings in a rotating bar or hanger, to whose upper end a vane is rigidly attached.



The wheel A, mounted upon a shaft having its bearings in the vertical rotating shaft or hanger B, and the vane C rigidly attached to the upper end of said shaft or hanger, above its point of support in the frame-work, all combined as shown and described, for the purposes specified.

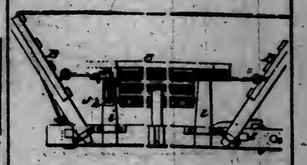
172,016. TOY MONEY-BOXES. John Hall, Watertown, Mass. [Filed Apr. 28, 1875.]

Brief.—Relates to the method of securing together the various parts.



A toy money-box consisting of the bottom, sides, and top, secured together by means of the legs or clasps *c c* and *d d*, the whole combined and arranged to operate substantially as shown and described.

172,017. HAT-RACKS. Joseph Hall, Riverside, Nebr. [Filed Nov. 6, 1875.]



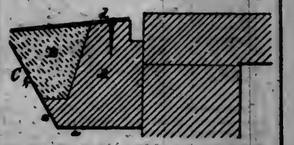
1. The hook-bolt *a*, combined with the side-ladder hook *b*, beam D, and the cap-plate *d*, substantially as specified.

2. The notch *f* in the standard *i*, in combination with side-ladder hook *b*, substantially as specified.

3. The beam-standard *i*, located outside of the bed-frame, substantially as specified.

4. The top bars of frames C and projections K over the cross-beams D, substantially as specified.

172,018. BILLIARD-TABLE CUSHIONS. A. Hand, Cleveland, Ohio. [Filed Oct. 21, 1875.]



A billiard-table cushion, constructed with the cloth facing C adhering continuously throughout to the under part *a a'* of the rail A, and to the inner face *b* of the elastic cushion B, and stretched across the upper face *s* of said cushion without adhering thereto, and secured to the upper part *i* of the rail A, as described, and for the purpose specified.

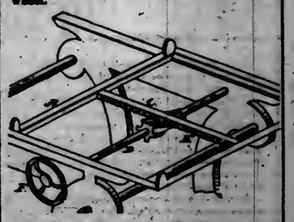
172,019. GRATED ENTRANCES TO MINE-HOLES. John S. Harbison, San Diego, Cal., assignor to himself and Andrew Harbison, Newcastle, Pa. [Filed Oct. 16, 1875.]



The box-passage herein set forth, consisting of the plate A, having passages or openings B, with rounded edges D, as and for the purpose specified.

172,020. PAPER-CUTTING MACHINES. A. Hardy, Auburndale, Mass. [Filed May 14, 1875.]

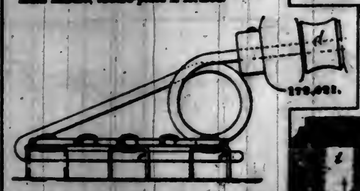
Brief.—The table is fed by a rack and worm-wheel.



The combination of the screw-shaft D, the bar C, and the worm-thread E on the frame or carriage A, and the table or bed B, so that when operated the said table or bed will move with ease and precision in a plane parallel to the cutting-edge, substantially as described.

172,021. CURRY-COMB. G. R. L. Holman, New York, N. Y., assignor to the Lawrence Curry-Comb Company, same place. [Filed Oct. 20, 1875.]

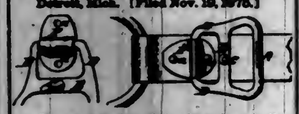
Brief.—The handle is secured to a tang, which passes over the back of the comb, and is attached at the front, forming a supplemental handle. On the tang, at or near the main handle, thumb-piece is formed.



1. A curry-comb having a handle with a raised tang passing over the back, and attached near the front of the comb, forming a supplemental handle, and provided with a thumb-piece at or near the main handle.

2. The wire connection between the handle and curry-comb, bent into a bow or loop for the thumb, and extending to the front part of the comb, and passing through the comb-plates, substantially as set forth.

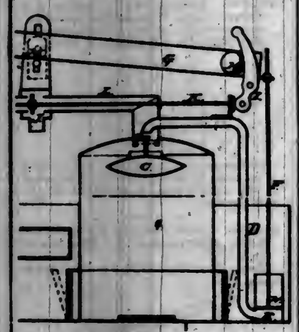
172,022. TRACE-CARRIERS. John Hudson, Detroit, Mich. [Filed Nov. 19, 1875.]



The combination of the front loop A, the center bar B, the stud C, the side bars D, and the end bar E, of the plate F, having groove *b* and holes *a*, as shown, all as and for the purpose set forth.

172,023. STEAM VACUUM-PUMPS. A. Hadley, Hagerstown, Md. [Filed July 14, 1875.]

Brief.—The valve-governing steam-passages to the cylinders is moved at intervals by means of a ball rolling on a pivoted beam, having tappets pivoted to its ends.



1. In a vacuum-pump the combination of the valve J, oscillating beam G, and traveler H, substantially as set forth.

2. The combination of the traveler H and levers I I with rods K and steam-valve, substantially as and for the purposes set forth.

3. The cylinders E E and pistons N N, with chambers A, operating-rods F F, and oscillating beam or valve G, forming an inclined plane for moving the traveler H, substantially as and for the purposes set forth.

4. The above-described arrangement and combination of the float-valves U U, the steam-pipe L, the valve J, the vacuum-pipes D D, and pistons N N for the purpose of preventing the water from rushing into pipes L and D, and thus moving the valve J and the pistons N N, substantially as set forth.

5. In a vacuum-pump the combination of the valve J, traveler H, beam G, and the adjusting device M for raising and lowering the center of said beam to regulate the speed of the pump, substantially as set forth.

6. The combination of the cylinders E, pipes D, and the perforated pistons N, the perforations in said pistons serving to admit sufficient water to begin the condensation in the chambers A, substantially as specified.

172,024. LAWN-SPRINKLERS. Rudolf Eng, Cincinnati, Ohio. [Filed Oct. 12, 1875.]

Brief.—The revolving arms have the deflectors shown, by which the former are rendered conveniently reversible. The joint between the arms and the fixed pipe is constructed with a view to lessen friction.

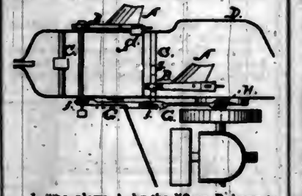


1. The combination of the collared screw-threaded rod *d d'*, washer G, and the reversible nozzles E F, constructed and operating substantially as and for the purpose specified.

2. The combination of fixed part *g*, having centrally-recessed bar A and revolving part *i*, with bar *j*, provided with central pivot point *k*, the parts being connected and operating substantially as and for the purpose specified.

172,025. SULKY-PLOWS. F. H. Isaacs, Newark, N. J. [Filed Oct. 14, 1875.]

Brief.—Devices for hanging the plows outside the wheels and upon cranks, and for lifting both by a lever and weight.



1. The plows A, by the lifters E, hung to the revolving shafts C, and the flange-stops *d*, in combination with the frame D, substantially as and for the purposes specified.

2. The plows standing at an oblique angle in the lifters, and provided with the scalegages S, to graduate the width and depth of cut, and hung, one on the outside and the other on the inside of the frame, substantially as set forth, and for the purposes specified.

3. The combination of the lever H, operating in the semicircle I, rods G, cranks *f f*, rock-shafts *e e*, arms B, and plows A, whereby both plows are operated by one lever, substantially as and for the purposes set forth.

4. The plows A, lifters E, shafts C, and weight M, in combination with the lever H and connecting-rods and cranks G *f*, arranged substantially as shown and described, and for the purposes set forth.

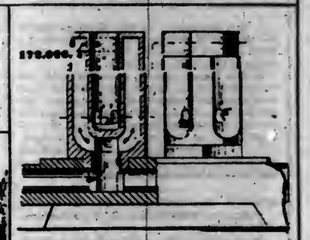
172,026. STEAM-RADIATORS. G. P. Jacobs, Brooklyn, N. Y. [Filed Nov. 19, 1875.]

Brief.—Steam ascends through two of the outer pipes, and descends through other two. Cold air enters at the foot, and is discharged at the top of the central radiating-passage.



172,027. SUBMARINE TUNNELS. John F. Jones, Marcellus Falls, N. Y. [Filed Mar. 1, 1875.]

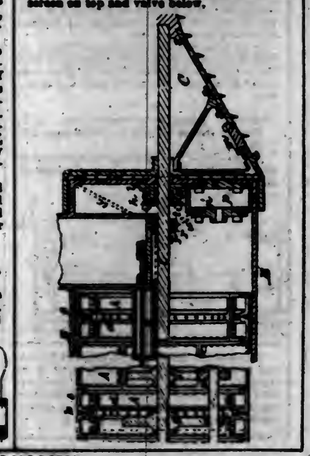
Brief.—A shield of hemispherical shape is combined with a metallic tunnel, and secured against leakage by packing-rings fitting into annular recesses in the tunnel.



The combination of the metallic shield or collar A, constructed with a hemispherical end, and the submarine tunnel B, provided with packing-rings around its exterior, to form a water-tight connection with said shield or collar, constructed to operate substantially as described and shown, for the purpose specified.

172,028. SUBMARINE TUNNELS. John F. Jones, Marcellus Falls, N. Y. [Filed Feb. 25, 1875.]

Brief.—A submarine tunnel constructed of sections, and provided with packing and expanding rings in recesses, to prevent leakage. The stuffing-box for the shaft is provided with an adjustable face-plate secured to the shield. The excavator is cone-shaped, and provided with cutting devices on its surface, and operated by gearing. The shield is provided with man-holes, and a cone-and air-chamber with another man-hole for access to the excavator. The shield is also provided with an inlet with screen on top and valve below.



172,029. SUBMARINE TUNNELS. John F. Jones, Marcellus Falls, N. Y. [Filed Mar. 1, 1875.]

Brief.—A one piece radiator-tube, having four steam-ducts surrounding the central air-tube, said ducts being in pairs, the two of a pair being connected, but each pair being independent of the other, as shown and described.

The combination of the metallic shield or collar A, constructed with a hemispherical end, and the submarine tunnel B, provided with packing-rings around its exterior, to form a water-tight connection with said shield or collar, constructed to operate substantially as described and shown, for the purpose specified.

1. A cast-iron submarine tunnel, constructed of sections A A, provided with packing *c* and expanding rings *a*, in recess *b*, substantially as described, for the purpose specified.

2. The stuffing-box *h*, provided with the adjustable face-plate *i*, constructed as shown, in combination with the shield B and excavator-shaft *f*, substantially as described, for the purpose set forth.

3. The cone-shaped excavator C, provided with cutting devices on its surface, and the shaft *f*, in combination with the shield B and iron tunnel, constructed and operating substantially as described.

4. The combination of the man-hole *m* in the excavator C, man-hole *n* in the shield B, and chamber *p* in said shield, provided with man-hole *n'*, the whole constructed and arranged substantially as described and shown, for the purpose specified.

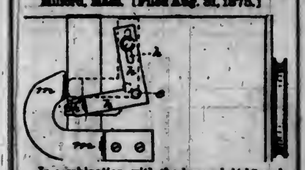
5. The inlet *o*, provided with a screen and filter on top, and a valve on the bottom, constructed as described, in combination with a submarine tunnel, substantially as and for the purpose set forth.

172,030. DENTAL FLASKS. Alfred James Jordan, Hamilton, Bermuda, assignor to Samuel Stockton White, Philadelphia, Pa. [Filed Dec. 17, 1875.]



The dentist's flask hereinbefore described, consisting of the combination of the lower section provided with lugs, the upper section, and the turning clamping-frame, resting upon the upper section and provided with hooks or sections which interlock with the lugs on the lower section, whereby the sections of the flask may be clamped together by turning the clamping-frame.

172,031. BOOT AND SHOE SEAM RUBBERS MACHINES. Thomas K. Keith, Haverhill, assignor of one-half his right to A. Seaver, Milford, Mass. [Filed Aug. 31, 1875.]



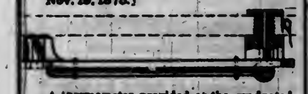
In combination with the levers *h h' h''* and rod *e*, the cam *c d*, spring *f*, and shaft *b*, for the purpose of rubbing down the seam placed against the edge of the plate *m*, substantially as herein set forth.

172,032. FIXTURES FOR STAMPING AND EMBOSSING SOAP. William H. King, Philadelphia, Pa. [Filed Nov. 2, 1875.]

1. The pendulum and center, in combination with the rack and gate, as and for the purpose set forth.

2. The bolt G, in combination with the lever E' and center E, and removable bolt F, for adjusting the height of the gate, as and set forth.

172,033. HEAT-INDICATORS FOR STOVES. Alfred J. Jourdo, St. Louis, Mo. [Filed Nov. 19, 1875.]



A thermometer provided at the graduated plate or scale with an open and threaded tube, extending backward from the mercury-bulb, to be screwed into the stove for indicating the temperature at the inside of the stove, substantially as specified.

172,034. LAMP-EXTINGUISHERS. Charles J. Knaur, New York, N. Y. [Filed Dec. 4, 1875.]



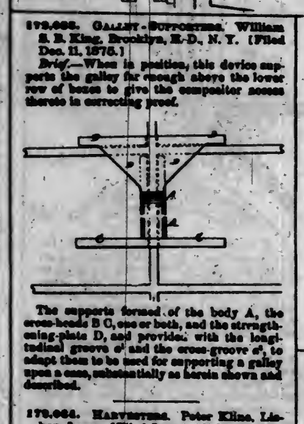
The cups D D, pivoted on each side at right-angles to the upper ends of posts C C, and connected by hinged links *a* with ends of an automatically-opening lever, as and for the purpose specified.

172,035. TOBACCO-SUCKER-WORM DESTROYERS. Joseph H. Knaus or J. John B. Harford, New Franklin, Mo. [Filed Oct. 2, 1875.]

The combination of the handle A, the side rods B, the swiveled rod C, having a spiral thread, D, formed upon its upper part, and a center, J, attached to its lower end, the sliding cross-bar *k* and its coiled springs F, and the forked sliding cross-bar G and its coiled springs E, with each other, substantially as herein shown and described.

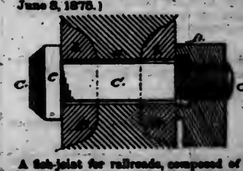
172,036. HARVESTERS. Peter Kline, Lisbon, Iowa. [Filed June 1, 1875.]

Brief.—An arrangement, in connection with the endless elevator, which receives the cut grain from the reel, of a roller in yielding bearings, for sustaining the grain by the stalks until it drops in an even body upon the rake, which conveys it to the binding-receptacle.



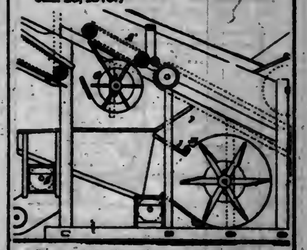
In a binding attachment for harvesters, the combination of the reel D, plate E, endless apron F, roller G in yielding bearings, slatted platform H, and traveling toothed bars *b c*, substantially as and for the purpose set forth.

172,037. RAILWAY-RAIL JOINTS. Obadiah B. Latham, Seneca Falls, N. Y. [Filed June 8, 1875.]



A fish-joint for railroads, composed of the following parts in combination: the square bolt C, having a square head, *c*, the square holes *b b* in the fish-plates, the rectangular holes *a a* in the rails, and the gravitating nut D, when constructed, arranged, and combined in the manner substantially as hereinbefore described and set forth.

172,038. GRAIN-SEPARATORS. Michael Laufenburg, San Francisco, Cal., assignor to Treadwell & Co., same place. [Filed Jan. 26, 1876.]



The combination of open endless belt A', fan C, and open endless belt A', the upper surface of the latter being made to move in an undulating course by suitable mechanism, all substantially as and for the purpose specified.

172,039. GRAIN-RAKE. C. Lazarovitch, Brooklyn, N. Y. [Filed Oct. 8, 1875.]



1. A grain-bag, provided with the funnel-shaped neck B, as and for the purpose described.

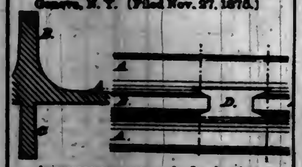
2. The bag-shoulders C on the side of a neck projecting thereabove, as and for the purpose specified.

172,640. TELEPHONE-CHAIRS. John Lemmon, Cincinnati, Ohio. [Filed Oct. 28, 1875.]



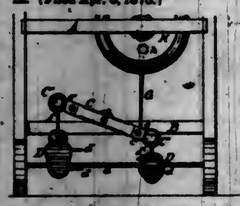
The combination of plate C, having slot *a* and projections *f*, with the plate E having central screw G H and recesses *g*, the two being connected and operating substantially as and for the purpose specified.

172,641. RAILROAD-TIES. Homer B. Lewis, Geneva, N. Y. [Filed Nov. 27, 1875.]



A tie-rest—as composed of a bearing-surface, A, the projection B, with seats D and D for the rail-road-rails, the projection C, and the wedge F, substantially as specified.

172,642. TREADLE MECHANISMS FOR SEWING-MACHINES. John C. Mastray, Chicago, Ill. [Filed Apr. 6, 1875.]

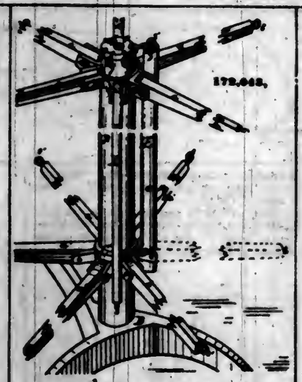


1. The combination of the sockets O' and B, bolts *f f*, and connecting-rods *f'*, with the oscillating lever C and treadles D and D', substantially as and for the purposes specified.

2. In a treadle mechanism of a sewing-machine, the combination of treadle D', having projecting pins *b'*, and treadle D, having holes *b'* to receive pins *b'*, with the necessary connecting parts, to operate substantially as and for the purposes described.

3. The combination, in a treadle mechanism of a sewing-machine, of the treadles D and D', ball-and-socket joints O' and B, and their connections, with the bar B and pitmen G, substantially as and for the purposes described.

172,643. CLOTHES-DRIERS. David Masterin, Penn Station, Pa., assignor of one-half his right to James Wagley, same place. [Filed Oct. 4, 1875.]

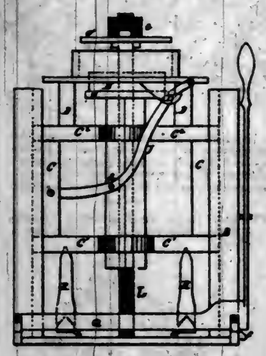


172,643.

1. The combination of the central post A, with its notches *d*, the collar-bracket C, having the hook-plate *f*, formed with the angle or point a projecting upward from their lower edge, the arms *a*, having the curved or beveled ends *b*, and provided with the pins *c*, constructed and arranged to operate as described, and for the purpose specified.

2. The combination, as a clothes-drier, with a central post, A, mounted in a standard, B, and having notches *d*, and a collar-bracket, C, fixed near the top thereof, and provided with hook-notches *f*, formed with angles or points *a*, and carrying arms *a* having pins *c*, of the collar-bracket, C, fixed near the base of said post, and carrying the arms *a'*, arranged to fold upward against said post intermediately between the arms *a*, and to be held in that position by the staples *r*, engaged with the links *g* attached to the cap *h*, as described.

172,644. MACHINES FOR CASTING METALS. Joseph B. McOrne, Hamilton, Canada, assignor of one-half his right to B. M. Wagner, same place. [Filed Apr. 2, 1875.]

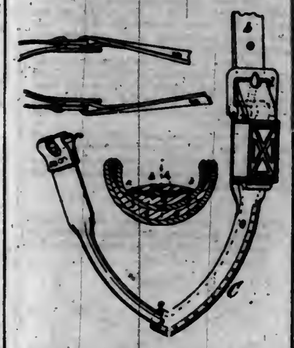


1. In a machine for molding metal castings, a vertically-sliding frame carrying a top plate, E, and a flask, I, and a vertically-movable plunger for carrying the pattern, and a rammer arranged above the flask, the whole constructed substantially as described, whereby the sliding frame and flask can be forced upward against the rammer for ramming the sand in the flask, and after the sand is rammed the plunger and pattern can be moved downward independent of the frame and flask, to remove the pattern, as set forth.

2. The combination, with a molding-flask constructed to have a vertical movement imparted to it, of a swinging rammer-bracket arranged upon a vertical standard, for ramming the sand when the flask is raised, substantially as described.

3. The combination of the upright rod I, having the collars *a a*, the swinging bracket or rammer O, arranged between said collars, and the sliding frame C C, substantially as and for the purpose described.

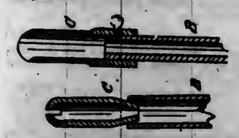
172,645. BREAST AND NECK STRAPS FOR HARNESS. Michl. D. Murray and Stephen G. Hutchinson, Johnstown, N. Y., assignors of one-third their right to J. C. Hutchinson, same place. [Filed Apr. 6, 1875.]



1. The neck-piece A formed of the soft piece of leather *d*, stiff and convex-shaped pieces *e f g i*, in combination with the suspending-straps *b b*, as set forth.

2. In combination with the neck-piece A, as described, the metallic bow C, provided with the suspending-straps *b b*, clasps *a a*, and buckles *l l*, for the purposes set forth.

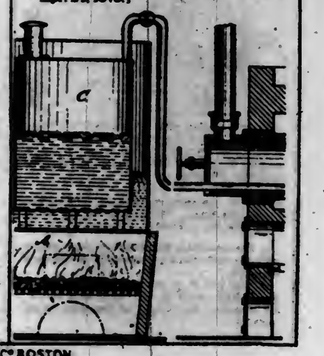
172,646. MANUFACTURE OF LAMP-BLACK. Peter Neff, Gambier, Ohio. [Filed Aug. 31, 1875.]



1. The process of manufacturing lamp-black of different grades by varying the extent of impact of the flame from a burner against a depositing-surface, substantially as described.

2. In an apparatus for the manufacture of lamp-black, the combination, with a deposit-ing-surface, A, and gas-pipe B, of burner C, adjustable upon the said pipe to or from the surface A, substantially as and for the purpose described.

172,647. MANUFACTURE OF ILLUMINATING-GAS. George Otney, Brooklyn, assignor to the Equitable Gas-Light and Construction Company, New York, N. Y. [Filed Apr. 24, 1875.]



1. The process of producing a fixed gas directly from hydrocarbon, by heating the hydrocarbon through a water, steam, or air jacket, and passing the resultant vapors into a heated retort, where they are converted into a fixed gas, substantially as described.

2. The closed vessel C, jacket B, pipe D, and retort E, substantially as and for the purpose set forth.

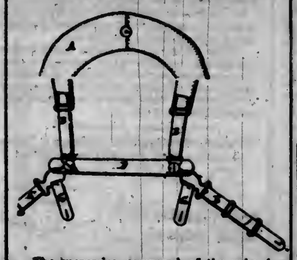
172,648. HOOF-PLATES. Willard Osborne, Lakeville, Mass. [Filed Dec. 16, 1875.]



1. In the sole-edge plate, the curved knife or cutter E, as provided with the dovetailed tongue *e*, in combination with the shoe A, provided with the jaws *d d* and clamp-screw *g*, to support and hold such tongue and cutter, as specified.

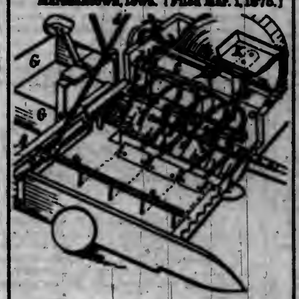
2. The standard C, as provided with the jaws *d d* and clamp-screw, and with the two lateral threads *h h* arranged thereon, and to meet at the front of the standard, all being substantially as specified.

172,649. SUSPENDERS. Edwin Parsons, Cleveland, Ohio. [Filed Nov. 20, 1875.]



The suspender composed of the yoke A, exterior-straps B, stretcher D, and extension-straps E, all combined and arranged substantially as and for the purposes set forth.

172,650. HARVESTERS. Milton L. Parrott, Marshalltown, Iowa. [Filed Mar. 1, 1875.]

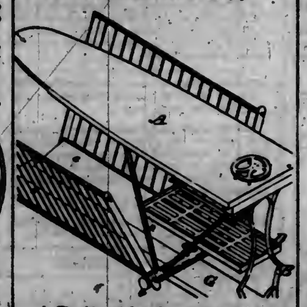


1. The gavel-holder composed of the rock-shaft *p*, bar *h*, and the double series of bent arms 1 2 3 4 5 6 7 8, in combination with the jointed pitmen *i i* and rock-shaft *m*, having cam *n*, substantially as and for the purposes shown and described.

2. The pivoted fork *o p*, having swivel *q*, in combination with the bent pitmen *i*, swivel *n*, crank *o*, and rock-shaft *m*, and gavel-holder *g h*, substantially as and for the purposes shown and set forth.

3. In a harvesting-machine, the rake *s*, the gavel holder and carrier *g h*, the pivoted fork *o p*, and the bundle-carrier G, when arranged and combined relatively to each other and the binder's seat K, substantially as described, to take the cut grain from the sickle and deposit it in bound sheaves.

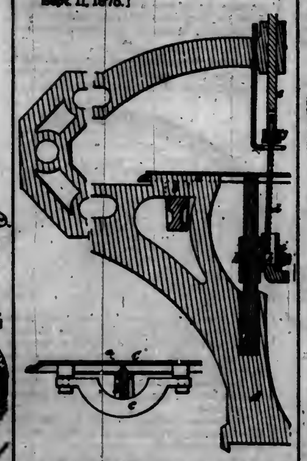
172,651. INCRUSTO-TABLES. Fredk. A. Paul, Syracuse, N. Y., assignor to Jas. Gordon, same place. [Filed Oct. 21, 1875.]



1. The hinged boards *a a* in combination with the racks F F and bed-piece G, substantially as and for the purpose herein specified.

2. An ironing-table constructed with an ironing-board, A, grate D, racks F F, and bed-piece G, supported and arranged substantially as herein specified.

172,652. SCROLL-SAWING MACHINES. H. M. Quackenbush, Herkimer, N. Y. [Filed Sept. 11, 1875.]



1. The combination of the standard I, carrier *h*, tubular stud *i*, and split rod *k*, said parts being arranged to support and clamp the lower end of the saw, substantially as set forth.

2. The combination, with the described devices for clamping the lower end of the saw, of the reciprocating rod *i*, split at its lower end, and the clamp *p* adjustable thereon, substantially as and for the purposes set forth.

3. The table O in combination with the central support *b n* and yoke *o*, united adjustably with the table by bolts, as shown and set forth.

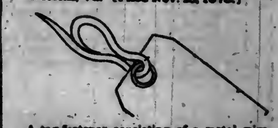
172,653. PLOW-POINTS. William B. Ready, Sacramento, Cal. [Filed Oct. 16, 1875.]

Brief.—Detachable cutters and legs for connecting the plow-point, held in place by a set-screw.



The plowshare having the dovetailed land-side bar C and the oblique extension or tenon D, in combination with the land-side F, having the dovetailed groove *f*, and the mold-board provided with the socket B, the set-screw A, and the projecting lug *c*, all arranged as and for the purposes set forth.

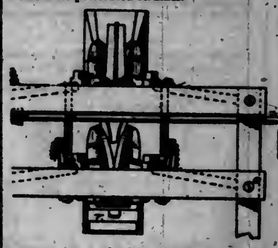
172,654. TAG-FASTENERS. W. R. Russell, Norfolk, Va. [Filed Nov. 15, 1875.]



A tag-fastener consisting of a metal wire, one end of which is bent around to form a loop, and the other end bent around to form a rest or bearing for the end of the loop, and extending beyond the same to form a needle, by which the fastener may be readily attached to the article, the end of the loop, together with the lower end of the needle, forming a hook, to prevent the withdrawal of the material, substantially as specified.

172,655. GRAIN MILLS AND PURIFIERS. Chas. W. Schwanemeyl and Philip Haberstich, Dayton, Ohio. [Filed June 26, 1875.]

Brief.—Two upper and two lower disks, each pair in forwardly-converging planes—the former with corrugated, the latter with flexible, faces—all run by tooth-gearing. The juice passes off along a trough containing a removable perforated strainer.

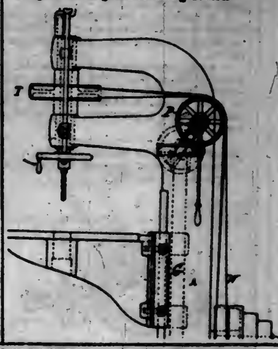


1. The spout containing the detachable perforated strainer, having the rear flexible scraper.

2. The upper grinding and lower expressing pair of disks, having the wedge-shape flexible scraper, in combination with the spout and its detachable perforated strainer.

172,656. METAL-DRILLING MACHINES. W. Sellers, Philadelphia, Pa. [Filed Nov. 24, 1875.]

Brief.—Improvement on patent to same party, No. 126,665, July 2, 1872; and consists in combining the wheels (which were used only as carriers for the belt) to the screw, for raising up the work-table, by suitable clutch and gear mechanism, thus making a more complete raising and lowering device.



1. In vertical drilling-machines, the combination of the carrying-pulleys P and P' with the elevating-screw G, substantially as and for the purposes set forth.

2. The combination of the elevating-screw G, the pulleys P and P', and the friction-clutches, substantially as and for the purposes set forth.

172,067. FOOT-VALVES FOR ENGINES. G. F. Sherman and C. H. Petesch, Chicago, Ill. [Filed July 26, 1875.]

Brief.—The guard and flexible valve are held in position by means of wedge-shaped pieces sliding in a groove, and operated by right-and-left-hand screws.

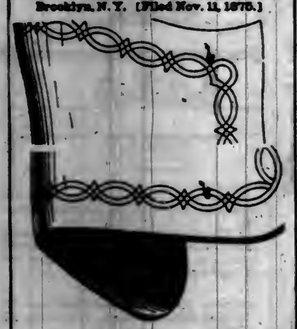


1. The grating or bed-plate A and ring or ledge B, cast in one solid piece, as and for the purposes specified.

2. The combination of the sliding wedges E E, lugs or ledge B, the bed-plate A, and screw G, for holding the valve-guard and clapper in place, as shown.

3. The inclined groove J and shoulder I, for making a pressure-tight and more securely holding the valve-clapper in place, as specified.

172,068. SADDLE-CLOTHS. Robt. Spencer, Brooklyn, N. Y. [Filed Nov. 13, 1875.]



1. A compound saddle-cloth, shaped to the horse's back, formed by uniting together two separate cloths, substantially thick to form a practical saddle-cloth, by means of an intervening and perforated material, so arranged as to allow the free passage of the perspiration of the horse through the cloth, substantially as described.

2. A compound graduated saddle-cloth, formed by uniting together a graduated and an ungraduated saddle-cloth, substantially as described.

3. A compound graduated saddle-cloth, composed of two cloths of even thickness, and an intervening graduated cloth, so arranged as to make a compound cloth thickest where most thickness is necessary, substantially as described.

172,069. WATER OR BEARING HOOKS FOR HARNESS. Robt. Spencer, Brooklyn, N. Y. [Filed Aug. 9, 1875.]



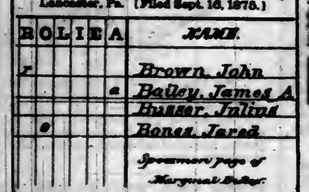
1. A water-hook, A, with the laterally-lapping ends *a a'*, substantially as described.

2. A slit water-hook, with laterally-overlapping ends, arranged with the square base *a'*, and screw and nut *c*, to prevent turning or other movement, substantially as and for the purposes described.

172,070. ANTI-SPASMODIC REMEDIES. W. Taylor and T. T. Boston, Cave Spring, Mo. [Filed Nov. 10, 1875.]

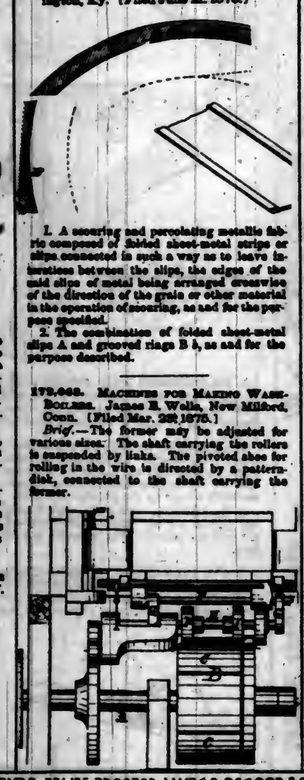
A medical compound as a remedy for spasms and epileptic fits, consisting of a fluid prepared of bromide of potassium, fluid extract of valerian, bromide ammonium, cohosh, and water, mixed in the proportions substantially as described.

172,071. INDEXES. Benjamin F. W. Urban, Lancaster, Pa. [Filed Sept. 16, 1875.]



The combination of the key, arranged with duplicated letters of different color and page numbers, with the initial and marginal index, substantially as and for the purpose specified.

172,072. SCOURING-CASES FOR SNUFF-MILLS, &c. Andrew J. Vandegrift, Covington, Ky. [Filed June 21, 1875.]



1. A scouring and percolating metallic fabric composed of folded sheet-metal strips or slips connected in such a way as to leave interstices between the slips, the edges of the said slips of metal being arranged crosswise of the direction of the grain or other material in the operation of scouring, as and for the purpose specified.

2. The combination of folded sheet-metal slips A and grooved rings B *b*, as and for the purpose described.

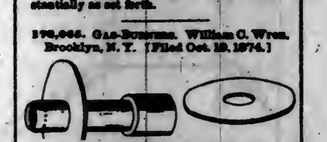
172,073. MACHINES FOR MAKING WASH-BOILERS. James R. Wells, New Milford, Conn. [Filed Mar. 22d, 1875.]

Brief.—The former may be adjusted for various sizes. The shaft carrying the rollers is suspended by links. The pivoted shoe for rolling in the wire is directed by a pattern-disk, connected to the shaft carrying the former.

1. The adjustable head B, in combination with the crotch-hangers G, shaft H, and rolls I, as described, and for the purpose set forth.

2. The combination of the adjustable shoe K, frame J, roll L, and cam M, substantially as described and shown, and for the purpose set forth.

172,074. GAS-BURNERS. William C. Wren, Brooklyn, N. Y. [Filed Oct. 19, 1874.]



1. A burner for fixed gases, having the usual threaded socket at the bottom, an enclosed chamber exceeding its whole length, closed at the top, and provided with a series of minute radial perforations, and, with a flange or collar below the perforations, as and for the purpose specified.

2. The mode described of burning a fixed gas—that is to say, passing the same through minute horizontal openings arranged above a horizontal flange, as set forth.

172,075. SHOE AND GLOVE BUTTONERS. J. F. Adams, Irvington, N. Y. [Filed Nov. 29, 1875.]



1. The adjustable head B, in combination with the crotch-hangers G, shaft H, and rolls I, as described, and for the purpose set forth.

2. The combination of the adjustable shoe K, frame J, roll L, and cam M, substantially as described and shown, and for the purpose set forth.

172,076. WHITEWASHING-MACHINES. Wm. H. Alexander, Shawsheen, Mass., assignor to Wm. H. Wilson, same place. [Filed Oct. 11, 1875.]

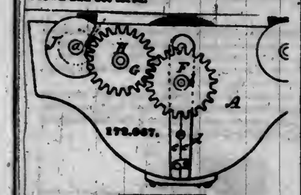
Brief.—A tray secured upon the extremity of the handle; a fixed spreading-brush across each end within; a feed-brush between them, revolved by gearing connected with friction-rollers, which move against the ceiling.

1. A machine for whitening or coloring ceilings, composed of the box or vessel A, brushes B B', and wheels *f f'* L L, the brush B being mounted within the box, and positively rotated, substantially as herein explained, and the whole being constructed as and for purposes stated.

2. The brush B, in combination with the trough A and expansible latch *d*, substantially as shown and set forth.

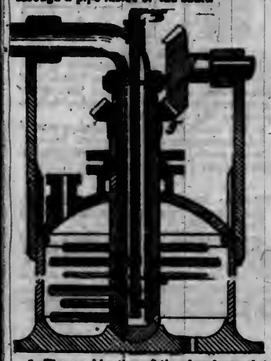
3. In a whitewashing-machine, the combination, with the trough and rotary delivering-brush, of the gears F H, pinion I, and wheel J.

4. In a whitewashing-machine, the combination of a liquid-receptacle, friction-wheels, and a delivery-brush, arranged in the said receptacle, and positively rotated by power derived from the moving friction-wheels, as herein shown and set forth.



172,077. APPARATUS FOR THE MANUFACTURE OF SOAP. Benjamin T. Babbitt, New York, N. Y. [Filed July 1, 1875.]

Brief.—Agitator has hollow steam-shafts with hollow spirally-arranged arms. Condensation is forced by the steam-pressure set through a pipe inside of the shaft.



1. The combination of the closed vessel A, the revolving hollow upright shaft B, and the series of spirally-arranged horizontal hollow arms *h*, each having its inner end attached to and in free communication with the interior of the upright shaft, substantially as and for the object specified.

2. The combination, with the hollow agitator-shaft B, constructed to receive steam from above, of the upwardly-discharging pipe D for the water of condensation collecting in said shaft, essentially as described.

172,078. SASH-HOLDERS. C. P. Babcock, Portland, Me. [Filed July 1, 1875.]

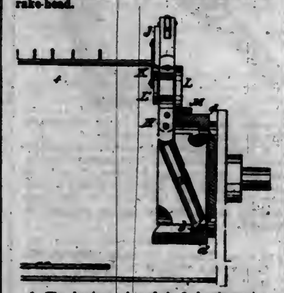
Brief.—A metal rod having a suitable foot or step, and a metal sleeve-piece provided with a similar foot, are connected together by a threaded shaft, the projecting end of which is fitted with a thumb-screw; the construction being such that, as the screw is turned in either direction, the step-pieces or feet are made to approach or recede from each other, holding one or both sash, as desired, firmly in position.



In combination with the frame of a window, the improved fastener herein described, consisting essentially of the metal rod *a*, having the foot *b* and the threaded shaft *d*, the sleeve *e*, provided with the foot *b'*, and the thumb-screw *c*, as and for the purposes herein set forth.

172,079. HARVESTING-RAKES. T. H. Brose, Hannibal, Mo. [Filed Oct. 4, 1875.]

Brief.—The heel rake-arm is carried by a rotating cam working within a fixed one, to give it a quadrantal sweep, on the outer surface of which fixed cam is a segmental rack, engaging with a friction or other gear-wheel on the rake-arm, operating through a crank and connecting-rod, to extend and retract the rake-head.



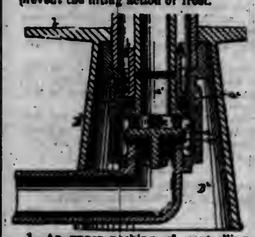
1. The horizontal reel-shaft, having a boss or hub provided with diagonal bearings for the rake-arm axis, in combination with the double-cranked rake-arm axis and the cylindrical casing, having cams *c* and *d*, as and for the purpose specified.

2. The combination, with the rake-arm H, of the rake I and arm J, pivoted to the said arm H at *a*, and provided with an adjusting-pitman, K, as and for the purpose described.

3. The combination, with the rake and rake-arm, of the pitman K, friction-wheels L L', spring *f*, and adjusting-lever M, substantially as described, and for the purpose set forth.

172,080. HYDRANTS. George C. Bailey, Pittsburg, Pa. [Filed Dec. 20, 1875.]

Brief.—The waste-box steadies the valve mechanism and hydrant. It also serves to prevent the lifting action of frost.



1. An upper packing, *e'*, controlling the waste, in combination with a lower packing, *e*, bearing on the supply-pipe below the valve-seat, for controlling the supply, substantially as and for the purposes set forth.

2. An upper packing, *e'*, to close the waste in advance of the opening of the valve, a lower packing, *e*, bearing on the supply-pipe below the valve-seat, and an intermediate packed valve, *a'*, combined substantially as set forth.

3. The flange *b* on the waste-box, as a device for steadying the waste-box, and with it the hydrant-valve and connections, by means of the superincumbent weight of the earth thereon, substantially as set forth.

4. The waste-box B', sliding freely on the outer hydrant-case, and in combination therewith, substantially as set forth.

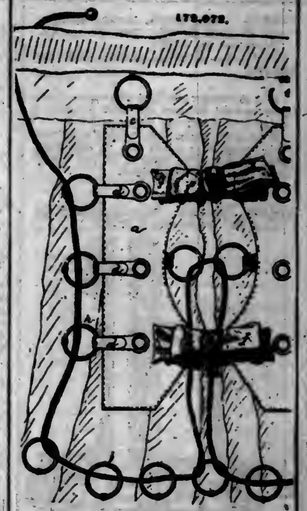
5. The lever-handle H, having a segmental gear, A, combination with fixed counter-gear *n* and a moving water-way, substantially as set forth.

172,081. SKIRT ELEVATORS AND ADJUSTERS. Phoebe G. Baker, South Yarmouth, Mass. [Filed Oct. 25, 1875.]

1. The skirt elevator and adjuster composed of pieces *a b*, connections *f*, rings and cord, combined and arranged to gather and elevate a skirt, substantially as described.

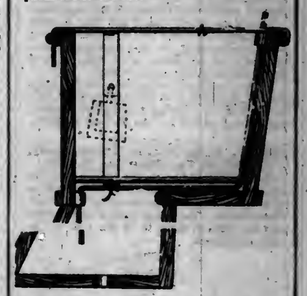
2. The pieces *a b*, in combination with hooks, rings, and connections *f*, arranged substantially as described.

172,082.

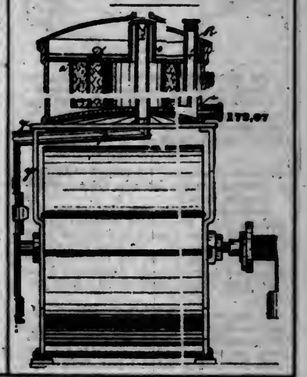


172,082. MUD-BATHS. Henry J. Bang, New York, N. Y. [Filed Oct. 4, 1875.]

Brief.—The device is to be used in mud-baths. The straps protect against the buoyancy of the mud, while the branches of the pipe shown introduce steam into each compartment of the tub.



The process of applying a mud-bath by injecting jets of moist steam into the body of the mud during the operation of bathing, substantially as described.



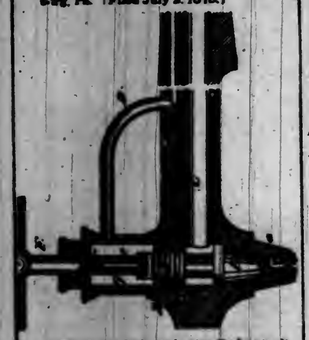
172,076. CARBURETTER. Arthur Barberin and Franklin Bourcie, New Orleans, La. [Filed Nov. 28, 1875.]

Brief.—The carburetting-cortesne and their supports.

1. A carburetter provided with auxiliary cortains mounted between the outer cortains, in the manner and for the purpose set forth.

2. In a carburetter, the cortains *d*, secured both to the strip *c* and disk D, and spiral guide E, and cortal strip *f*, in the manner and for the purpose described.

172,078. FAUCETS. Theo. Bingham, Pittsburg, Pa. [Filed July 2, 1875.]



1. The faucet-body A, having the longitudinal vent-channel D, in combination with the chambered plug-cone E, having the solid plug or valve E', plug barrel or bulb B, and vent-tube D', substantially as shown and described.

2. In a combined faucet and vent, a vertically-adjustable chambered plug-cone, having a solid valve-plug, E', for controlling simultaneously the admission of air and escape of liquid, substantially as described.

3. The vertically-adjustable faucet plug-cone E, provided with the tapering solid plug or valve E', and having a chamfered depending point, *f*, as and for the purpose set forth.

172,076. FARM GATLING. Edward Brady, Philadelphia, Pa. [Filed Mar. 14, 1872.]

Brief.—The folding flap is divided into two equal sections, and finished on both sides, so as to be used as either a "stand-up" or "turn-down" collar. The tassel portion of the flaps may be worn in front or at the rear of the neck, as desired.



The within-described collar, consisting of the band A, having the metal button-holes *a a*, and a flap divided at the center to form two sections, B B, each finished or dressed on both sides and at both ends *c c*, all as and for the purpose specified.

172,077. METALLIC CORNICE FOR OFFICES. Philippe Bailly, Bellaire, Ohio. [Filed May 25, 1875.]

Brief.—Iron corner-clamping brazes of a peculiar shape are secured to inside corner-blocks by screws passing through the sides and ends of the cubes. An upper brace connects these blocks closely over and upon the lower braces, and this combines the entire cover to the cubic body independently of the wooden portions.

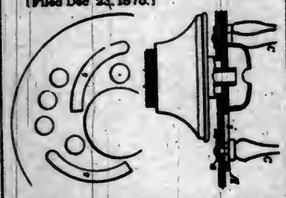
1. The outer metallic corner C, having the angular sides *a a*, and the inner wooden block B, having corresponding angular sides *b b*, with the beveled ends of the side and end slabs D E resting between them, and secured



together by the screws *s s*, in the manner and for the purpose herein set forth.

2. In combination with the separate metallic corner C, constructed and secured as described, the separate lid-cover C', with its molding or seal lip *f* arranged to form a bracing junction with the angles of the lower metallic corner, as and for the purpose described.

172,078. CHIMNEY-HOLDERS. Edward W. Briggs, New York, N. Y., assignor to himself and Walter D. Despard, same place. [Filed Dec 23, 1875.]



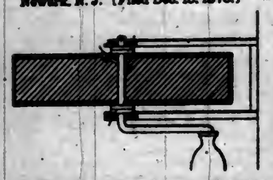
1. The globe and chimney attachment for burners, consisting of plates A D, having radial and spiral slots, to which are adapted slides or retainers, substantially as set forth.

2. The combination of the plate A, its slots *i*, the plate D, its spiral slots *s*, and retainers C, adapted to both slots, and provided with flexible fingers, as and for the purpose specified.

3. The combination of the plate A, its slots *i*, the retainers C, and the slotted plate D, supported in contact with the plate A by said retainers, as described.

4. The slotted plates A D, combined with the retainers C, and provided with openings *o o'*, relatively arranged, as and for the purpose set forth.

172,079. GRINDING-DISKS. Wm. R. Brock, Newark, N. J. [Filed Dec. 16, 1875.]



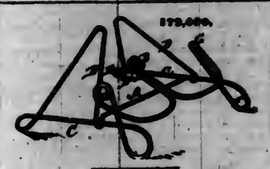
1. The within-described process of coating disks of wood with a grinding composition—that is to say, first dipping the disks into the liquid composition, and when dry smoothing the surface by rubbing or otherwise, and then recoating the smoothed disks by dipping into the composition, all substantially as set forth.

2. As a new manufacture a grinding-disk, composed of a central core of wood covered throughout with a coating composed of a granular grinding material combined with silicate of soda, all as set forth.

172,080. BOOK-HOLDER. Chas. H. Brown, Providence, R. I. [Filed Dec. 3, 1875.]

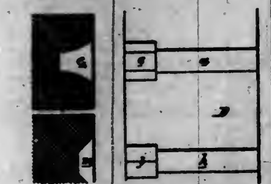
The within-described book-holder, made of a single piece of spring-wire, bent to form the center bar A, finger-holders B B, side bars C C, inclined angular sides D D, rear and front curves E E, and the thumb-holders G G, all constructed substantially as and for the purpose herein set forth.

172,080.



172,081. MANUFACTURE OF BOLT-BLANKS. Jos. Browning, Philadelphia, Pa., assignor of one-half his right to W. C. Allison, J. W. Allison, and T. H. Allison, same place. [Filed Dec. 20, 1875.]

Brief.—The preliminary head and neck are first formed—the latter first hexagonal and then square—and afterward the final shape is given to both neck and head.

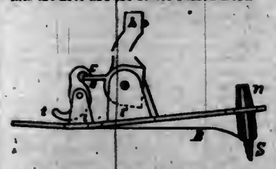


1. As a mode herein described of manufacturing carriage bolt-blanks—that is to say, first forming the blank with a preliminary head and neck, as shown in Fig. 3, then squaring the neck, and finally reducing the blank to the shape, Fig. 5, as described.

2. The combination of the heading-dies B and B', having the within-described recesses, with the griping-dies D and D', and their recesses *s s* and *i i*, as specified.

172,082. SUPERHEAT-ALARMS. Wm. Bruen and Thos. B. Price, Newark, N. J. [Filed Oct. 27, 1875.]

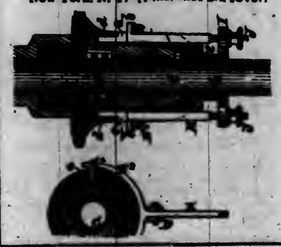
Brief.—The thin end of the base is placed under the door. In the act of opposing the latter it bears against the lower end of the trigger, and releases the hammer, which is then thrown down by the spring, and explodes the cap on the nipple. The sharp spur is pressed into the floor and the device rendered safe.



1. The base B, provided with the lugs *l l*, in combination with the recessed hammer A, having the spring B' and arm *a*, substantially as described, and for the purpose set forth.

2. The wedge-shaped base B, provided with the lugs *l l*, spurs *k*, and nipple *n*, in combination with the recessed hammer A, having the arm *a*, spring B', and trigger *t*, provided with the catch *c*, substantially as described, and for the purpose set forth.

172,083. FRICTION-CLUTCHES FOR EXTENSION-CHAIRS. Charles T. Brown, New York, N. Y. [Filed Dec. 9th, 1875.]



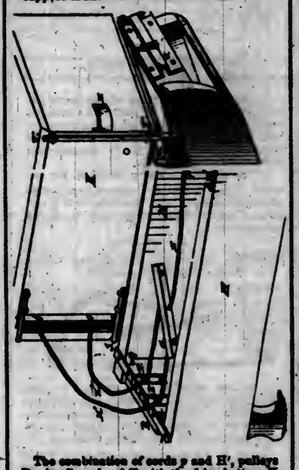
1. In a friction-clutch of the character specified, the lifting-lever E and tubular slide G, combined and adapted to operate substantially as described.

2. In combination with the lifting-lever E and tubular slide G, the connecting-arms H H, having screw-threads, and the adjusting-nuts J J, substantially as described.

3. The stops *f d*, in combination with the connecting-arms H H, lifting-lever E, and tubular slide G, substantially as described.

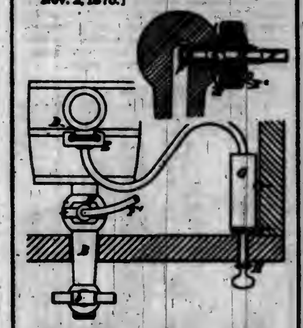
172,084. SOFA-BEDSTEADS. Wm. H. Bunn, Chillicothe, Ohio. [Filed Sept. 9, 1875.]

Brief.—The extension-frame and the bed-bottom and bolster-support are lifted by drawing upon a cord running over pulleys at the foot of the lounge. As it reaches the proper level, rods at both ends fall into notches to support them.



The combination of cords *p* and H', pulleys P, pins S, and rod T with the false bottom K and the bolster body H of the sofa, having notches *q* E', as shown and described.

172,085. DEVICES FOR DRAWING BEER. T. J. Byrne, Erie, Pa., assignor of one-half his right to C. M. Cole, same place. [Filed Nov. 2, 1875.]



1. The combination, with the valve D, having a hollow grooved stem, *d*, plate D', central opening *d'*, passages *p'*, and external cylindrical valve *p*, of the clamp E, tube F, and washer *s'*, substantially as shown and described.

2. The combination, with the air-pump G, pipe F, and plug, of the valve D, having a hollow grooved stem *d*, plate D', central opening *d'*, passages *p'*, and external cylindrical valve *p*, and the clamp E, tube F, and washer *s'*, substantially as and for the purpose described.

172,086. STOVE-JOINTING MACHINES. Jos. W. Bythell, Clarence, Mo. [Filed Sept. 17, 1875.]

1. In a stove-seaming machine, the combination of a series of pivoted and jointed rods, *d' d' d d*, rod *f*, and tables *g* and *i*, arranged upon a frame, *a*, and operating substantially as set forth.

2. The combination of the series of jointed rods *d d d d*, pivoted to a frame, *a*, as described, and rod *f*, located to said rods *d' d' d d* at the ends and center of the series, and serving as a track for the stove-table *i*, substantially as set forth.

3. In combination with the rod *f*, the table *i*, formed pins *n n*, and arms *j k*, pivoted to both tables I and substantially as and for the purposes set forth.

4. In combination with the rods *d' d' d d* and lever *p*, operating said rods, the lever *q*, spring *r*, and table *g*, arranged and operating substantially as and for the purposes specified.

172,087. CARPET-STRETCHERS. Orville D. Carlisle, Buchanan, Mich. [Filed Nov. 9, 1875.]

Brief.—A toothed bar arranged to slide upon a long strip, which may be secured to the floor, is attached to two flexible bands passing around a shaft, which is revolved by bevel-gearing.

1. In a carpet-stretcher, the combination of the bar A, the pivot *f*, the journal-box C, and roller D, substantially as set forth.

2. In a carpet-stretcher, the combination of the bar A, journal-box C, roller D, face-gear E, spur-gear F, and lever G, substantially as described.

3. The combination of the journal-box C, roller D, face-gear E, spur-gear F, lever G, straps H, and spike-bar I, substantially as described.

4. The combination of the bar A, journal-box C, roller D, face-gear E, spur-gear F, lever G, straps H, and bottom *k*, substantially as and for the purposes set forth.

172,088. STOVES. Henry C. Cassel, Philadelphia, Pa. [Filed Dec. 11, 1875.]

1. A stove the casing of which is composed of a series of clay blocks, *a*, having inclined flanges *b*, all substantially as and for the purposes set forth.

2. The combination of the fire-place H and exit-opening *i* of the stove with the flue *g*, formed between the inner and outer casings of the stove, and communicating with the fire-place through the opening *f*, all as specified.

3. The oven O, provided with a metal bottom plate, *o*, and interposed between the fire-place H and heating-chamber F, having walls of clay, all as set forth.

172,089. MACHINES FOR MAKING GRAIN-CONVEYER FLIGHTS. Henry L. Chase, P. F. Chase, and Edwin D. Chase, Peoria, Ill. [Filed May 22, 1875.]

Brief.—For shaping sections of sheet metal for grain-conveyer flights.



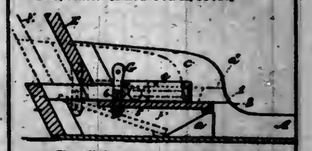
The mold or die, having stationary jaw B and movable jaw C, with the face of each shaped spirally in the arc of a circle, in combination with lever D, for operating jaw C, substantially as and for the purpose set forth.

172,090. PROCESSES OF DESICCATING MILK. James R. Cole, Hot Springs, Ark. [Filed Aug. 7, 1875.]

Brief.—After a portion of the water has been eliminated from the milk by evaporation in a partial vacuum, in presence of chloride of calcium or sulphuric acid, the milk may be removed from the vacuum-chamber, and, it is stated, will evaporate to dryness in the open air. To accelerate evaporation, a current of cool dried air may be passed over the milk.

The herein-described process of desiccating milk, consisting in first eliminating a portion of the water of the milk in a partial vacuum, in presence of a desiccating agent, and finally continuing the process, then commenced, to completion in the open air.

172,091. CHILDREN'S CARRIAGES. Henry L. Conant and Jos. P. Holman, Leominster, Mass. [Filed Oct. 11, 1875.]



1. The sliding seat, provided with a right and tilting or hinged bottom, in combination with the carriage-body and fixed supports thereon for upholding the said bottom, substantially as set forth.

2. The combination, with the front of the bottom or seat of a baby-carriage, of inclined or cam-like supports, whereby, when a part of the carriage in contact are moved forward or back, as the case may be, the front of the bottom B of the seat will be raised or lowered, for the purposes stated.

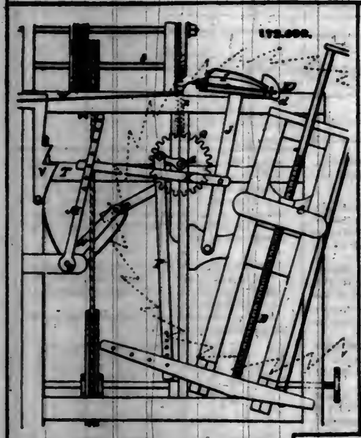
3. The combination, with the sides *a a* of the slotted seat-supports C, substantially as and for the purposes set forth.

4. The combination, with the body A and sliding seat B, having slotted side pieces *c*, of adjusting-bolts *f* and thumb-nuts *h*, substantially as and for the purposes set forth.

172,092. SAW-SHARPENING MACHINES. W. L. Covel, Beloit, Wis. [Filed Aug. 23, 1875.]

Brief.—The saw is attached to an adjustable block moving between guides in a frame, which is raised and lowered by levers successively, thus presenting the saw to an emery-wheel. As each tooth recedes from the wheel, the saw is moved forward the width of one tooth by means of a pawl-bar automatic catch-head coming against each tooth in succession.

172,093.



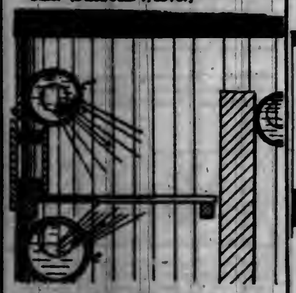
1. The combination of the latch-feed I, the screw-threaded pivot-bolt a, and a suitable guide, as and for the purposes described.

2. The combination of the sliding block, the screw-rod D, lever E, pitman F, and crank-shaft G, as and for the purposes described.

3. The combination, with the latch-feed, of the pivoted lever J, pitmen K, rock-shaft O, cranks M N, pitman P, and crank L, as and for the purposes described.

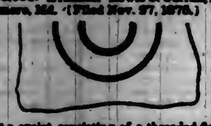
4. The combination, with the pinion Q and the worm-wheel, of the movable bar T, lever U, tripping device V, and rod W, substantially as and for the purposes described.

172,096. DEVICES FOR SUPPLYING AIR TO FURNACES. Alfred J. Craigh, Mansfield, Ohio. [Filed Jan. 7, 1876.]



In a furnace provided with air-distributing pipes, the naked tapering tubes C C' C², provided with orifices c b, for emitting the air-blast at different angles, substantially as described, and for the purposes set forth.

172,094. SUSPENDER. Lewis C. Curran, Baltimore, Md. [Filed Nov. 27, 1875.]

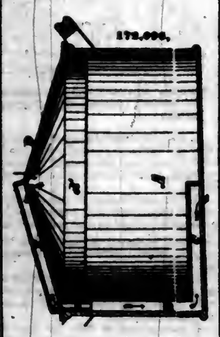


An eyelet consisting of a threaded flanged hollow cylinder, and a correspondingly-threaded annular nut, substantially as and for the purposes specified.

172,095. TOBACCO-STAMP. Hannah W. Dickerson, Philadelphia, Pa. [Filed Sept. 22, 1875.]

As a stamp or tag for trade-mirks, a compound compact of black liquorice, gum catechu, and logwood, substantially as set forth.

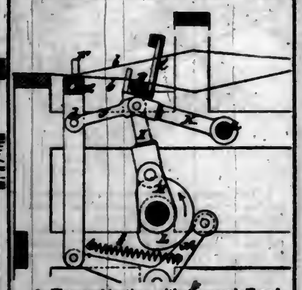
172,098.



172,098. CULINARY BOILERS. A. T. Dexter, Bethlehem, Pa. [Filed Nov. 17, 1875.]

In combination with the vessel A, having its lid and bottom centrally perforated at *d e*, respectively, the tube B, soldered to the inner surface of the vessel, and having the radial extension C, and the tube E, soldered to the outside of the lid, and communicating with tube B by steam-tight joint, as shown and described.

172,097. LOOMS. John C. Duckworth, New York, N. Y., assignor to H. S. Higgins & Co., same place. [Filed June 11, 1875.]

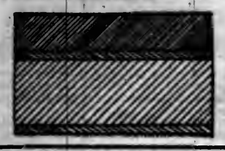


1. The combination, with the comb F and lay H, which are independent of the shuttle-boxes and raceway, of one or more cranks, H, as a revolving shaft, G, one or more rods, I, and the toggle bars or levers J K, essentially as and for the purpose herein set forth.

2. The combination, with the independent lay and comb, of the same L and levers M, substantially as and for the purpose specified.

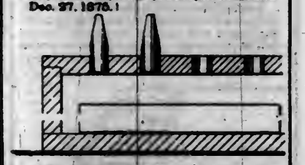
172,099. MANUFACTURE OF TUBES AND CYLINDERS. Zebeth S. Durfee, New York, N. Y. [Filed May 20, 1875.]

Brief.—Plies are so constructed as that when rolled out into sheets the latter shall be composed of layers of cast-steel and blister-steel, or of cast-steel, blister-steel, and iron; one or both surfaces of the sheet being of cast-steel, and united to blister-steel, or, if iron also be used, the blister-steel forming the bond between it and the cast-steel.



Making staples and sheets from piles compounded as described and shown in the accompanying drawings and specification, and bending the same, so as to bring the different metals compounded to lap or abut together, and then welding the joints by any of the usual modes and machinery employed in this manufacture, substantially as and for the purposes set out in the accompanying specification, and to overcome the difficulties hitherto met in making good steel or steel-surfaced tubes.

172,090. METHODS OF DRYING STARCH. Edgar E. Duryea, Glen Cove, N. Y. [Filed Dec. 27, 1875.]



1. The process of drying starch herein described, consisting in exposing the same in vessels of porous material to the action of heat within a kiln or drying-chamber, thus preventing sudden changes of temperature, substantially as set forth.

2. The starch-containing vessel A, for use within a drying-kiln, the same being formed of porous material, and provided with a perforated top having closing-plugs, as shown and described.

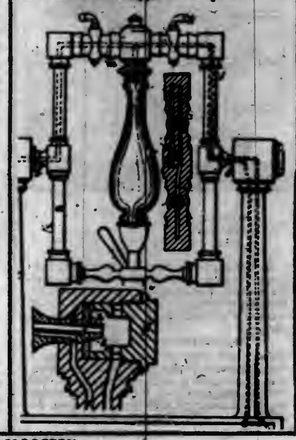
172,100. OVERALLS. Geo. E. Hager, Boston, Mass. [Filed May 19, 1875.]



A hollow waistband for pantaloons and other garments, when constructed and provided with a buckle and strap arranged to connect at the front side of the garment, in the manner and for the purpose set forth.

172,101. APPARATUS FOR FILLING BOTTLES, &c., WITH AERATED LIQUIDS. J. Edwards Hall, assignor to H. T. W. Monroe, Beverly, England. [Filed Apr. 10, 1875.]

Brief.—Three ways lead through the standards and frame-work,—one for liquid, one for syrup, one for air. The syrup passes from the pump through one way, and around the top post by the check-valve to the bottle. The aerated liquid passes through another way by turning a tap, air being let out as desired through the tap. By giving the frame a semi-revolution, the handle-bench points downward, and the internal stopper falls to place.



1. In combination with the standards *c c*, having suitable inlet and exit tubes, the bed-frame *e*, provided with corresponding inlet and exit tubes, and supported by journals near the middle thereof, substantially as and for the purpose specified.

2. The bearings *b*, constructed substantially as described and illustrated, for the purpose set forth.

172,102. PUMP-CYLINDERS. S. A. Hills, Ottawa, Ohio. [Filed June 28, 1875.]

Brief.—The stock has the outlet-orifices shown at the top, in order that the water out-lasting between the inner casing and the stock may be ejected on the downward stroke of the piston.

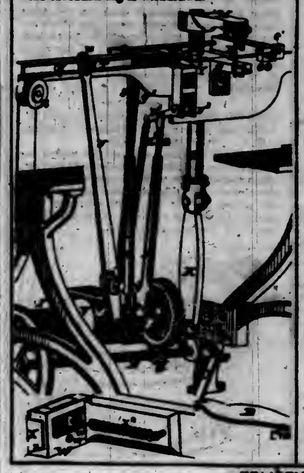


1. The split ring, adapted to fit in the metallic lining of a wooden pump-cylinder, and capable of being enlarged or expanded thereby by means of a wedge, in order to force the lining into intimate contact with the cylinder, and thus prevent the ingress of water between the two, substantially as described.

2. In combination with said wooden cylinder and metallic lining, the longitudinal grooves in the interior of the cylinder, leading into open channels at the top for the escape of any water that may incidentally find its way between the lining and cylinder, as and for the purpose set forth.

172,103. MACHINERY FOR STRETCHING TAGS. Jonathan Emery, St. Louis, Mo., assignor of one-half his right to D. P. Kane, same place. [Filed Aug. 23, 1875.]

Brief.—The tension-nipper carries the thread across the machine, and presents its projecting end to the holding-nipper jaws just as these latter are in the act of closing together, and is thereby firmly retained. In returning, the tensioning thread is severed from the spool by the closing action of the shear-jaws immediately after the passage of the nipper. The barbed needle then descends, bearing with it the loose end of the tie, which is looped through the punctured tag resting in the regan. Simultaneously with the needle ascent the nipper-jaws release the other tie end, and the threaded tag is withdrawn.



172,104.



1. The combination of the reciprocating sheath H with shaft a, holding-bracket O, having a recess, F, and perforated with punch-holes, substantially as set forth.

2. The tension-nipper W, having a bevel-edged, spring-piece, in combination with the holding-nippers *c c'*, substantially as set forth.

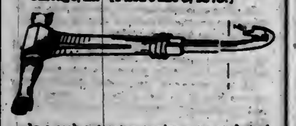
3. The combination of the holding-nippers *c c'*, moving simultaneously to and from a central point, and the reciprocating bar T, with suitable nipping device W, to carry the thread to nippers *c c'*, and allow the thread to slip in the nipping device W on its retreat from the nippers *c c'*, substantially as set forth.

4. In combination with the reciprocating tension-nipper W, the shears X Y, opening simultaneously in opposite directions from a central point, substantially as set forth.

5. The tension-nipper W, embracing the combination of recess containing a plate, K, hinged at *a'*, and beveled at the free edge *x*, threaded eye *w*, and spring *s'*, forming a gripping device in one direction, and a tension in the other direction, substantially as set forth.

6. The cam-rods Z or *g*, working in tubes *b* or A, having bearing at the lower end upon the shaft I, and combined with the cam *f* or *e*, substantially as set forth.

172,105. CORKSCREWS. Wm. Engelsdorf, Chicago, Ill. [Filed June 3, 1875.]



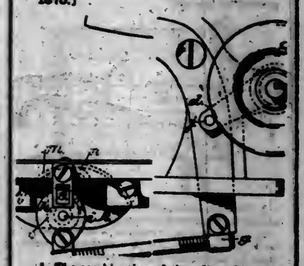
In a cork-extractor having a tapered stock and a segment-shaped lateral blade, the lateral blade *a*, having a convex lower edge bent outwardly, and the spur *b*, substantially as described, for the purpose set forth.

172,106. RECEPTACLES FOR STORING LIME. Edwd. B. Bastish, Philadelphia, Pa. [Filed Nov. 22, 1875.]



A lime-bin having a door or doors combined with a packing at the points where they fit the doorways, as specified.

172,107. SEWING-MACHINES. James S. Fletcher, Appleton, Wis. [Filed Jan. 20, 1876.]



1. The combination of the adjustable rod *f*, with the needle-arm *b* and the feed-disk A, for adjusting the throw of the shuttle, as and for the purposes set forth.

2. The combination of the feed-bar *p*, constructed as described, and provided with set-screw *q*, with the adjustable guide *o* and the feed disk A, all as and for the purposes herein set forth.

3. The shuttle-race *k*, provided with the carrier guard *m*, slot *t*, and tube *l*, in combination with the shaft *i*, with pin *n*, shuttle-carrier *o*, and thumb-screw *r*, all substantially as and for the purposes herein set forth.

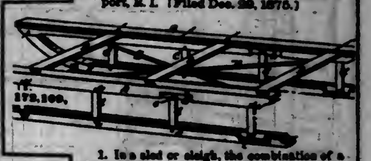
172,108. HOT-AIR DEFLECTORS. Manuel T. Forsyth, Sr., Baltimore, Md. [Filed Oct. 26, 1875.]

Brief.—Air from the register can be deflected to the floor in various directions.



A portable hot-air deflector formed of the box A, in combination with the plate B, and door *c*, substantially as and for the purpose set forth.

172,109. SLEDS. Saml. W. Francis, Newport, R. I. [Filed Dec. 29, 1875.]



1. In a sled or sleigh, the combination of a body divided and hinged longitudinally, so that the sections will fold together, with runners hinged to said sections, so as to fold against or upon the same, substantially as shown and set forth.

2. In a sled, the combination of a longitudinally-divided hinged and folding top with hinged folding runners and braces, for securing said parts in an unfolded position, substantially as set forth.

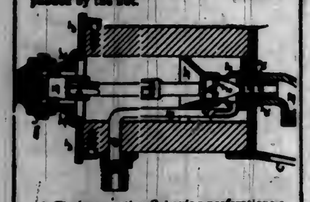
3. The grooved side rails and grooved runners, in combination with the hinged cross-pieces and the hinged standards, which connect the runners with the rails, for operation as set forth.

4. The grooved side rails, grooved runners, jointed cross-pieces, and standards, in combination with the diagonal ties or braces, substantially as set forth.

5. In combination with the sled body or top, the hinged connecting-standards and the runners, provided with hinged curved ends, which engage and are detachably connected to the sled body or top, substantially as set forth.

178,110. HYDRANTS. Joseph P. Gallagher, St. Louis, Mo. (Filed Nov. 20, 1875.)

Brief.—The wooden stock has a metal base-support. The valve-seat is securely fastened by the squared portion and lock-nut, but the above-pipe is adjustable. The valve is composed of a conical point and a cylindrical post, arranged on either side of a nut. The point can be removed independently of the other portions; also, the cylindrical post may be expanded by the nut.



1. The base-resting O, having perforations *e*, substantially as and for the purpose set forth.

2. The casing A, formed of a solid piece of round, in combination with a perforated metal base, C, substantially as set forth.

3. The adjustable valve-seat D, having squared part *d*, in combination with the lock-nut *d'* and metal base O, substantially as set forth.

4. The adjustable valve-seat D and lock-nut *d'*, in combination with the valve-chamber F, as set forth.

5. The combination of a guide cap or cap, H, filling the aperture of the casing, or nearly so, with the valve-chamber F, substantially as set forth.

6. The valve I, composed of leather disks *f'*, covered, by screw-cutter *f*, independently of the conical valve part *i*, as and for the purpose set forth.

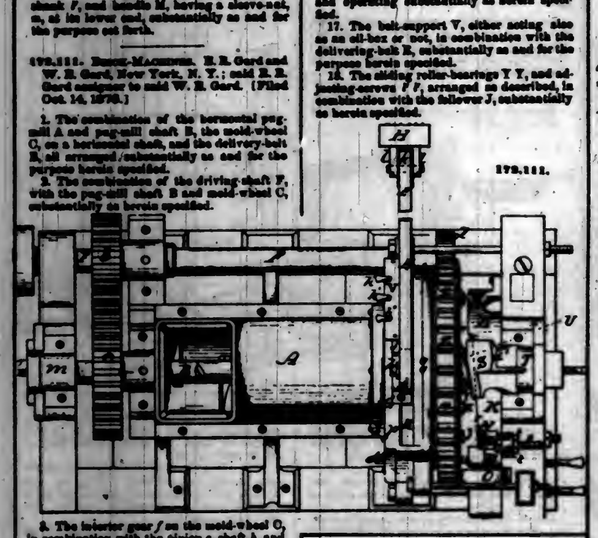
7. The cap J and bearing or stuffing-box K, having vertical guide-grooves for the wings *j*, in combination with the sliding head L, screw-shank *l'*, and handle M, having a sleeve-nut, *m*, at its lower end, substantially as and for the purpose set forth.

178,111. BRICK-MACHINES. R. B. Gard and W. B. Gard, New York, N. Y.; said R. B. Gard assignor to said W. B. Gard. (Filed Oct. 14, 1875.)

1. The combination of the horizontal pug-mill A and pug-mill shaft B, the mold-wheel C, on a horizontal shaft, and the delivery-belt E, all arranged substantially as and for the purpose herein specified.

2. The combination of the driving-shaft F, with the pug-mill shaft B and mold-wheel C, substantially as herein specified.

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3. The interior gear *f* on the mold-wheel C, in combination with the pinion *g*, shaft A, and driving-pulley *i* of the delivering-belt, substantially as herein specified.

4. The outer carrying-pulley *h* of the delivering-belt, provided with screw-shank bearings *h'*, tightened by adjusting-nuts, in combination with the mold-wheel-pocket H, substantially as herein specified.

5. The combination of the clay-forcing screw *l*, on the pug-mill shaft B, with the mold-wheel C, when the said screw is arranged to turn in immediate vicinity to the face of the mold-wheel, substantially as and for the purpose herein specified.

6. The combination of a block, *n*, provided with an oil-cavity and adjusting-screw, *o*, with the shafts B and D of the pug-mill and mold-wheel, arranged in the bearing, substantially as and for the purpose herein specified.

7. The cam-track K, constructed with a gradually-retreating surface, *r*, in combination with the followers J J, pug-mill A, and screw *l*, arranged so as to cause the followers to come flush or nearly so with the surface of the mold-wheel when they are first brought opposite to the pug-mill, and then to gradually recede into the molds only as fast as the clay fills the molds, substantially as and for the purpose herein specified.

8. The movable brick-pressing cam M, having adjusting-screws *s s* set therewith, and provided with double nuts *t t*, supporting and adjusting the cam, substantially as herein specified.

9. The adjustable pressure-piece N, attached to the upper end of the cam M, substantially as and for the purpose herein specified.

10. The friction rollers O P, provided with non-revolving pivots *u u*, adjustable laterally and endwise, substantially as and for the purpose herein specified.

11. The combination of the pressure-block Q and surplus-clay cut-off and final pressure-block R, arranged with an intermediate surplus-clay outlet, *s'*, substantially as and for the purpose herein specified.

12. The cam S, for expelling the bricks from the molds, constructed to form a part or projection of the bearing-cap T of the mold-wheel shaft, substantially as herein specified.

13. The molds *a a*, arranged obliquely to the radii of the vertical mold-wheel C, substantially as described, in combination with the horizontal delivering-belt E, for the purpose herein specified.

14. The movable piece U, on the cam S, for throwing out the followers J J to be oiled, substantially as herein specified.

15. The oil-box V and oiling-brush W, at the bottom thereof, in combination with the followers J J, for the purposes herein specified.

16. The series of perforated oil-delivering screws *V V V* in the oil-box V, constructed and operating substantially as herein specified.

17. The belt-support V, either acting also as an oil-box or not, in combination with the delivering-belt E, substantially as and for the purpose herein specified.

18. The sliding roller-bearings Y Y, and adjusting-screws *Y' Y'*, arranged as described, in combination with the follower J, substantially as herein specified.

178,112. SWAGES FOR SHAPING MATTOCKS. Louis Gerber, Pittsburg, Pa., assignor to Kline, Logan & Co., same place. (Filed June 12, 1875.)

Brief.—For forming the ridges on the inside of mattocks, grubbing-hoes, adzes, &c.

The swage herein described, consisting of the shank A, provided with eye B, and having the curved face C, beveled toward the sides, when constructed substantially as shown and described.

178,112.



178,113. CONSTRUCTION OF SHIPS, &c. Geo. B. Gordon, Dunkirk, N. Y., assignor of one-half his right to W. P. Slater, Washington, D. C. (Filed Dec. 18, 1875.)



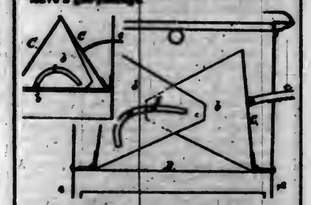
The inclosing hull D, keel E, and false keel F, combined with the bearers' floats A, provided with peripheral paddles B and driving-shafts C, substantially as herein specified.

178,114. ARTICLES OF FOOD FOR PASTRY, PUDDINGS, &c. Lorenzo D. Gorton, Philadelphia, Pa., assignor to Chas. N. Gorton, same place. (Filed July 17, 1875.)

A new and useful article of food composed of grated cocoa nut meat, pulverized white sugar, rice-flour, and corn-starch, in or about the proportions specified.

178,115. STOVE-DAMPERS. N. W. Grafham, Lynn, Mass. (Filed Dec. 18, 1875.)

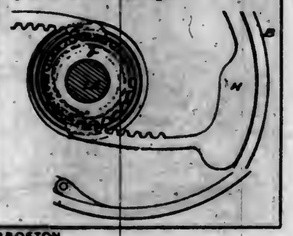
Brief.—By the plates and their wings the entire passage can be closed, except at the top, where a part of each plate is cut away to leave a gas-passage.



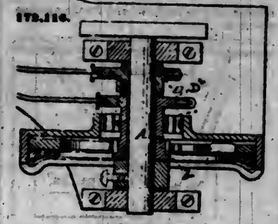
The improved damper, as described, the same consisting of the base A, plates C C hinged thereto, and having wings *a a a a* connected by a rod, *b'*, (extending through the outer wings and through slots *c* in the inner ones,) and an operating-rod, *e*, the whole being constructed and arranged as stated, and to be disposed within the body of the stove or furnace above the chamber of combustion, or in a section of stove-pipe, as shown and described.

178,116. BOILER-DEPOSITS. Gordon W. Hall and Albert O. Whittemore, Havana, N. Y. (Filed July 17, 1875.)

Brief.—When the speed of the engine increases beyond that to which the spring is set, the weighted arms are thrown out, and actuate the rocked bars thereof, which engage with the pinion on the elongated eccentric hub, change the position of the eccentric, and thereby cut off steam to the engine.



178,116.



1. The loosely-movable eccentric D, having the elongated hub *a* and cog-wheel *b*, in combination with the governor, substantially as described.

2. The swing S and weighted arms H, provided at their outer ends with rack-bars *d*, in combination with the pinion *b* of the eccentric, substantially as and for the purpose set forth.

178,117. T-COUPLINGS FOR PIPES. Thos. P. Hardy, Marion, N. J. (Filed Dec. 9, 1875.)

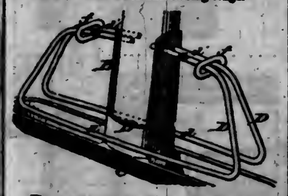
Brief.—The current of steam or other fluid is divided by the diaphragm, and a portion enters the middle socket and its connections. Condensed water is also advantageously conducted off; nor will the current react upon a current coming through another part of the coupling.



A diaphragm combined with a T-coupling for pipes, substantially as above described.

178,118. MOPS. O. E. Harris, Keene, N. H., assignor of one-half his right to S. D. Comstock, same place. (Filed Oct. 19, 1875.)

Brief.—The cross-head is V-shaped, and the cloth is clamped around its sides and ends by the side pivoted wires and sliding rings.



The cross-head C, angular or V-shaped in cross-section, and having the central socket B and perforated shanks B', combined with the pivoted spring-bails D D and sliding rings *f*, substantially as described.

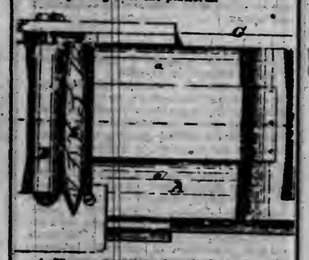
178,119. DEVICES FOR SUPPLYING AIR TO FURNACES. Henry Ecobal, Cincinnati, Ohio. (Filed Dec. 21, 1875.)



In the flue-box of a steam heater or analogous device, the combination of the suction-pipe E and steam-jet F with the tapering pipes D *d*, the several parts being arranged in relation to each other substantially as and for the purpose set forth.

178,120. CROSS-MACHINES. John T. Hostman, Baltimore, Md. (Filed July 22, 1875.)

Brief.—The wrappers are applied by means of an endless apron, thickened at its edges to form a taper, the slack edges sinking into rabbets in passing over the platform.

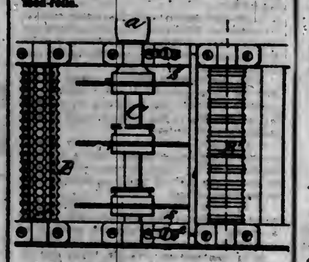


1. The combination of a platform or table of either straight or segmental form, constructed with grooves or rabbets *a*, in combination with the belt or apron C, having enlargements C' on its edges, substantially as set forth.

2. The combination of the elastic bed or cushion I, platform or table A, roller B, and belt or apron C, substantially as set forth.

178,121. GANG-EDGERS. Levi S. Hogeboom, Three Rivers, Mich., assignor to Three Rivers Manufacturing Company, same place. (Filed Oct. 23, 1875.)

Brief.—The intermediate gang-saw shaft and the feed rolls are actuated by a single endless belt. One end of the saw-shaft is provided with a cone-pulley tapering outwardly, and the adjacent ends of the arbors of the feed-rolls with cone-pulleys tapering inwardly. The speed of motion of the feed-rollers relative to that of the saws is varied as required by shifting the belt from one set of wheels to the other of the pulleys, for saving off the "runny" parts of lumber without stopping the saws. For preventing the ends of the lumber from being splintered or broken, a longitudinally-adjustable rest-bar is arranged upon the main frame between the saws and feed-rolls.



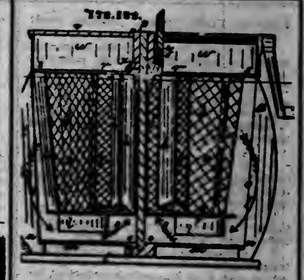
1. In a gang-edger, the combination of the intermediate gang-saw shaft C, having cone-pulley E, tapering outwardly, the rollers B B', having cone-pulleys F F', tapering inwardly, and the shifting-belt G, adapted to be changed from one of the sets of wheels of the said cone-pulleys to the other, substantially as and for the purposes set forth.

2. In combination with the rollers B B' and a gang of saws, the adjustable rest-bar J, substantially as specified.

178,122. WASHING-MACHINES. William W. Hubbell, Philadelphia, Pa. (Filed July 13, 1874.)

Brief.—Within a case is a revolving cage, having wings on the sides and bottom. Below the cage is a diaphragm resting on supports, leaving a space for the circulation of water.

178,122.



1. The case or cage *d*, constructed as described, and provided with the blades *e*, in combination with the case *a* and inclosing-rim S, substantially as described.

2. The wings *l*, attached to the bottom *g* of the revolving cage, in combination with the plate *m* and chamber S, substantially as described.

3. The directing-plates *n'*, plate *m*, and bottom *t*, with discharge-pipe U, all stationary, in combination with the revolving cage *d* and wings *l*, to direct the water and dirt for separation, substantially as described.

178,123. DISINFECTING APPARATUS FOR PRIVY-SEATS. William H. Hott, Philadelphia, Pa. (Filed Dec. 1, 1875.)

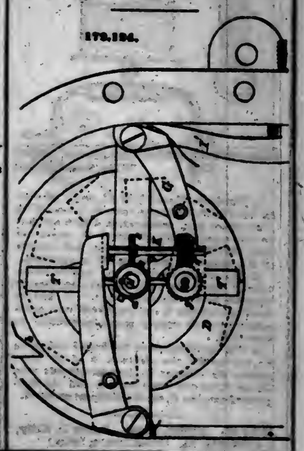
Brief.—When the closet is in use the disinfecting-boxes are separated by the mechanism above, so as to allow of the passage of fecal matter. When the said boxes are brought together, all of the ascending gases which pass through the seat become deodorized.



1. The apparatus herein described, consisting of a box or boxes, with perforated or foraminated top and bottom, arranged to seal or close the privy-seat opening, and susceptible of being spread apart or moved out of the way when occasion requires, substantially as described.

2. A chemical or disinfectant receptacle placed beneath a privy-seat, so as to compel ascending gases to pass through the same, for the purpose set forth.

178,124.



172,186. FLUID-METER. Jonathan Johnson, Lowell, Mass. [Filed Oct. 30, 1875.]

Brief.—Upon the shaft of the measuring-wheel are arranged adjustable retarding-blades, for controlling the action of the wheel. The water is admitted at the top of the case upon the wheel, and discharged at the bottom, sufficient air being retained in the case to surround at all times the measuring-wheel and registering apparatus.

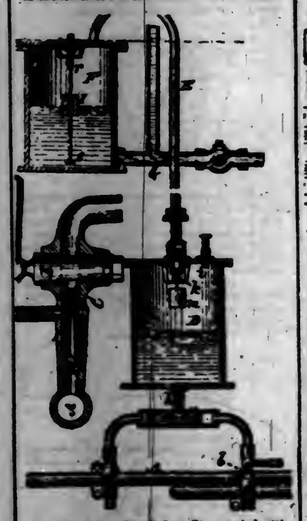
1. The measuring-wheel D and adjustable regulating-blades T, in combination with the registering device, substantially as and for the purpose specified.

2. The adjustable regulating-blades T, in combination with the measuring-wheel D, substantially as and for the purposes set forth.

3. The measuring-wheel D and its adjustable regulating-blades T, in combination with the correct pipe P, or its equivalent devices, for introducing the fluid into the chambers of the wheel, as herein shown and described

172,185. HYDRAULIC APPARATUS FOR COMPRESSING AIR FOR RAISING WATER, &c. Julius Jensen, New York, N. Y. [Filed Nov. 16, 1875.]

Brief.—In a faucet is arranged a jet-nozzle. While the faucet is closed the water from the carrier-pipe passes from the nozzle up a tube past a valve into a compression-chamber previously supplied with air by an air-inlet, and compresses the air, and discharges it through a tube connecting with another compression-chamber, placed at a higher level, and by appropriate valves supplied with water and discharging the compressed air. From the upper chamber the water is forced to a still higher level by force of the compressed air. Upon turning (open) the faucet, the jet from the service-pipe draws down and out the water in the lower chamber.



1. The draw-off neck C or C', provided with an inner draft or suction tube, *d*, in rear of its plug or key *b*, in combination with a hydraulic air-compressing chamber, D, connected with said neck back of the key, and outside of the draft-tube, substantially as specified.

2. The combination of the double-acting valve *f f* with the hydraulic air-compressing chamber D and the water-necks C C', having draft or suction *d*, and connected with separate service or supply pipes, substantially as described.

3. The combination of the faucet I and stops *r s*, controlling the air-valve *u* of the compressed-air receiver D, the water-supply pipe G, the water-discharge pipe H, and the compressed-air pipe K, substantially as specified.

172,186. HOOPING-PANEL. James D. Kelly, Pittsburg, Pa. [Filed Dec. 4, 1875.]

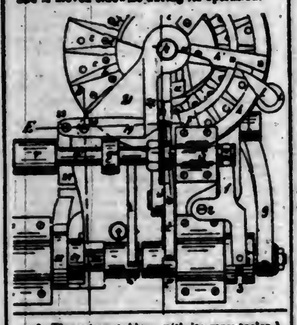


172,186.

The combination, with the correspondingly tongued and grooved strips *c* and core or interior shell A, fitting one into the other, of the panels or open frames, held in place by the strip flanges *b b*, substantially as described and shown.

172,187. MACHINES FOR PUDDING HORSE-SHOE-NAILS. Edward W Kelley, Lowell, Mass. [Filed Oct. 16, 1875.]

Brief.—The nail is entered into the space between two of the spring-jaws by hand, and carried by the intermittent revolution of the table, first under the straightening device, next under the milling pointing-wheel, being pressed in the meantime, by the spring-pusher, against a fixed stop outside the circumference of the table, and, after being pointed, is pushed inward, or as to fall through the hollow shaft of the revolving table, by a finger attached to the arm During the operation of pointing, the nails are held to the table by a peculiarly constructed presser-lever. The pointing mill is mounted in adjustable bearings, and is moved sideways during its operation.



1. The rotary table *a*, with its receptacles *b b*, adjustable pieces *c c c*, bolts *d a*, slot-holes *f*, and elastic springs *g*, as and for the purpose set forth.

2. In combination with the rotary table *a*, its stationary hollow standard *h i*, and stationary conveyer *r*, the rocking delivery-lever 19, link 24, and cams 28 29, as and for the purpose set forth.

3. In combination with the rotary table *a* and its receptacles *b b b*, the vertically-adjustable straightening bar *l* and its connecting mechanism to the driving-shaft *m*, substantially as described.

4. In combination with the rotary table *a* and the rotary reciprocating cutter *q*, the holding-down lever *t t'* and its connecting mechanism to the driving-shaft *m*, substantially as herein described.

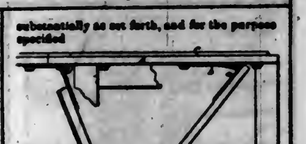
5. In combination with the rotary table *a* and its receptacles *b b b*, the automatic presser *n*, spring *o'*, and the stationary guide *o*, as and for the purpose set forth and described.

6. In combination with the rotary and reciprocating cutter *q*, and its shaft *q'*, the vertically and horizontally adjustable bearings *r* and *s*, substantially as described.

7. The combination of the rotary table *a r*, ratchet-hub 16, annular ring 14, pawl 17, the lever 11, and the connecting-link 9 to the adjustable crank-pin 7 on the shaft *m*, as and for the purpose herein described.

179,188. SCALLOPING-SCISSORS. Amzon O. Kittredge, W. H. Clark, and W. J. Clark, Salem, Ohio, assignors to Kittredge Carnice and Ornament Company, same place. [Filed July 6, 1876.]

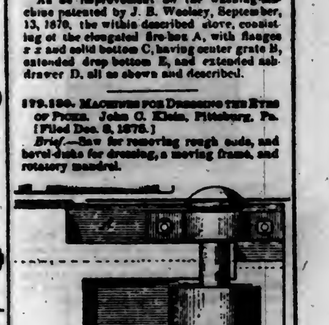
In combination with a bench or table A, an auxiliary bench or leaf, D, attached thereto at right angles to the edge of said bench, as described, and provided with a leg, F, for supporting the same when extended, and whereby it may be suspended under the table.



179,190.

subsantially as set forth, and for the purpose specified

179,190. FIRE-BOXES FOR A WASHING-MACHINE. William Klein, St. Peter's, Minn. [Filed Dec. 28, 1875.]



As an improvement on the washing-machine patented by J. B. Woolsey, September, 13, 1870, the within described stove, consisting of the elongated fire-box A, with flanges *x x* and solid bottom C, having center grate E, extended drop bottom E, and extended ash-drawer D, all as shown and described.

179,189. MACHINES FOR DRESSING THE EYES OF PICKS. John C. Klein, Pittsburg, Pa. [Filed Dec. 9, 1876.]

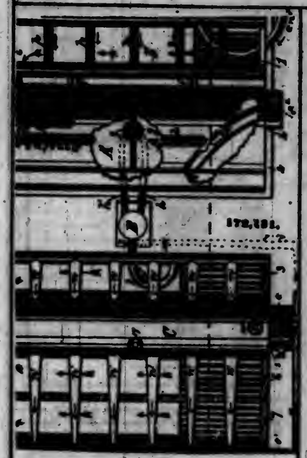
Brief.—Jaw for removing rough ends, and bevel-disks for dressing, a moving frame, and rotatory mandrel.

1. In a machine for trimming and dressing picks and mattocks, the combination of the rotary trimming-disks and rotatory mandrel, for holding the pick and presenting the same to the action of said cutting-disk, substantially as described.

2. The combination of the horizontal shaft, journaled in standards in the frame A, and carrying the cutting-saw and trimming-disks, with the sliding frame and the rest and rotatory mandrel, substantially as described.

179,191. OIL-DISTILLING PROCESSES AND APPARATUS. Edward Lane, Sharpsburg, Pa. [Filed Dec. 11, 1875.]

Brief.—Two furnaces under each still and each intermediate heater. Heating *a* in thence forwardly through retorts to stacks. Condensers at each still. Water-traps as preliminary heating pipes. Oil-heating-still, and between that still and the next still: longitudinal cast-chamber in each still feeding the heating-pipes leading to the next still, and having outlet leading to a common draw-off pipe.



172,191.

1. The continuous process for fractionally distilling or refining crude petroleum by direct heat, consisting in the following successive steps: First, heating the crude oil, and at once withdrawing the free water; second, distilling off the lighter oils, and at the same time withdrawing further water; and, third, subjecting the remaining oil to successive heatings, alternated with evaporations and condensations at successively higher temperatures, wherein the oil is prepared by heat for each evaporation.

2. The apparatus described, consisting substantially of a set of pipes, *b p b'*, two or more feeders, A A', acting alternately, trap B, pipes *m n*, and one or more stills, C, all combined and arranged substantially as set forth, and for the purposes described.

3. In combination with the feeders A A', a series of pipes, *b p b'*, acted on by direct or furnace heat, and having the extensions *c c'*, all for the purpose of obtaining the water and benzine from the crude oil, substantially as set forth.

4. In combination with the feeders A A', two or more, and the feed-pipe *l*, the water-trap H, substantially as specified.

5. In combination with an oil-still, a series of pipes, *m* and *n*, the latter inclined and acted on by furnace-heat, for the purpose of preparing the oil for ready volatilization in the still, arranged and operating substantially as set forth.

6. In combination with two stills, C C', the communicating-pipes *c c'*, inclined as shown, and tapered or not, feeding out of a pipe, 16, through a valve, 17, in still C, substantially as specified.

7. In combination with the pipe *r* and the stills C, C', and C'', having the pipes 16, 18, and 20, the drum-pipes *s*, *s'*, and *s''*, substantially as shown.

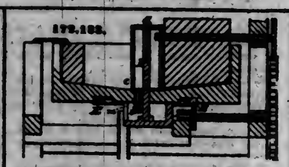
172,183. RAILING-FENCES. La F. W. Lilly, Roanoke, Ala. [Filed Mar. 18, 1876.]



The combination of the frame, the section K', hinged to the under side of the frame, and the section K, pivoted to the frame, as and for the purposes described.

172,182. BOTTLE-WORKERS. W. H. Lilly, Bethlehem, Pa. [Filed Nov. 20, 1875.]

Brief.—A revolving bowl, a worker fixed horizontally therein, the two connected with the same gearing, but having different speeds on their axes; a removable segmental abutment opposite the worker; drip arrangements in the center of the bowl around a cylinder passing therethrough, the worker-shaft bearing in said cylinder.



172,182.

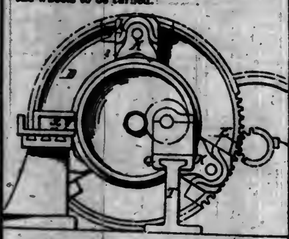
1. The combination of the concave-bottom rotating bowl A and rotating worker E, arranged radially thereto, and having a series of arms, each provided with a rounded edge or extremity, as shown and described, to operate as specified.

2. The combination of the removable segmental block C and detachable rods *e* with the circular rotating bowl A, as shown and described, for the purpose specified.

3. The cap or tube G, the tubes *f*, the block having an annular cavity, and the discharge-tube K, combined with the concave rotating bowl A, as shown and described, to operate as specified

172,184. LATHES FOR TURNING WHEELS AND AXLES. Geo. G. Lobdell, Wilmington, Del. [Filed Dec. 11, 1875.]

Brief.—The axle rests in the tubular spindle, while the wheels are chucked to the revolving face-plates upon such spindle by means of dogs upon slides, to accommodate themselves to the wheels to be turned.



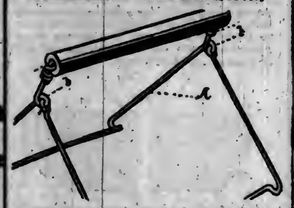
1. The combination of a lathe for turning wheels and axles with devices, substantially as described, whereby the wheels and axles may be chucked independently of the usual centers.

2. The combination, in a lathe for turning wheels and axles, of devices for chucking the wheels with mechanisms for grinding the journals of the axles.

3. The combination of each wheel or face-plate D, with dogs K, self-accommodating to the wheels I, and slides G carrying the dogs, all substantially as specified.

4. The combination of the bearing *e*, tubular spindle B, and wheels D and the slots therein, with the detachable plates E and their griping-dogs, all substantially as set forth.

172,185. PLATE-LIFTERS. Emil C. Lake, Shenandoah, Pa. [Filed Dec. 4, 1875.]



The plate-lifter consisting of the hooked rectangular fixed jaw A, provided with eyes *b*, and having its upper ends passed from opposite sides through the tubular handle, notched at its extremities, and the free ends of the double wire twisted around the sides of the stationary jaw, and hooked movable jaw B, substantially as described, and for the purpose set forth.

172,180. CHAIRS. John H. Mabbett, Philadelphia, Pa. [Filed Aug. 7, 1875.]

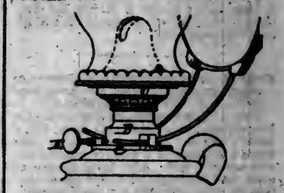
Brief.—The arms and back posts are passed through the seat and connected with transbraces

172,180.

In a rattan tilting or swivel-seat chair, the arm and back supports C E of the frame, extending beneath the seat, in combination with a horizontal and truss or arch base-bracing, F G, firmly bound to the frame-extensions, substantially as and for the purposes herein set forth.

172,187. ATTACHMENTS FOR LAMPS. Chas. F Martino, Boston, Mass. [Filed Sept. 11, 1875.]

Brief.—The lens is adjustable in the arc of a circle.



The lens F, provided with a rim and curved legs or supports, whereby the lens may be raised or lowered upon the periphery of a circle, when used in combination with a coal-oil lamp or gas-jet, the blaze of such lamp or jet being the center of the circle, substantially as set forth.

172,188. STREET-SWEEPING MACHINES. Anthony S. Martin, Washington, D. C., assignor of two-thirds his right to Joseph Williams and Annie S. Brewer, same place. [Filed Dec. 9, 1875.]

Brief.—A reciprocating scraper working upon an inclined apron delivers the material raised by the rotary rear brush upon an endless carrier, by which it is deposited in a wagon. A vertically-adjustable gutter-brush is also an element of the machine.

1. The reciprocating brush or scraper M, in combination with the main rotary brush D, apron K and endless carrying-belt X, and wagon A, substantially as shown and described, and for the purposes set forth.

2. The double crank M, formed in the axle O, connecting-bar P, pivoted vertical bars S S, connecting-bars T T, reciprocating or scraper bars M, in combination with the switch-springs V V and grooves and ways U U, whereby the scraper or brush M is moved forward in nearly a straight line, while in its rearward passage it is raised and carried over the dirt swept upon the apron, substantially as set forth, and for the purpose specified.

3. The combination of the axle O, bevel cog-wheels *d* and *e*, rigid post *g*, sliding post *h*, lever-bar *i*, with the rotary gutter-brush *f*, whereby said brush is rotated and adjusted, substantially as described.

4. The combination of the pivoted lever *k*, windlass *q*, wheel *r*, with the sweeping-cart B, whereby said cart is raised from the ground, and the operation of turning the machine facilitated, substantially as described.

5. The combination of the pivoted levers J J, short bars I I, bars H H, with the main brush D, substantially as described, and for the purpose set forth.

172,139. MANUFACTURE OF CIDER AND OTHER BEVERAGES. John Matthews, New York, N. Y. [Filed Dec. 14, 1875.]

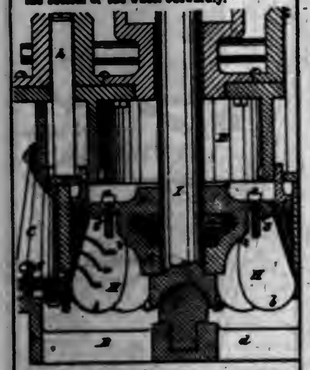
Brief.—The beverage is made by mixing the fruit extract, pointed out in the claim, with a suitable quantity of water and sugar. The mixture is placed in a receiver and charged with carbonic acid. After being allowed to stand for a time sufficient for the gas to combine the other materials, it is ready for use.

1. The improved combination herein described for producing cider and other beverages called "fruit extract," the same consisting of tartaric, or equivalent acid, gum-arabic, or equivalent mucilage, alcohol, sugar, and a fruity ether, the whole combined and put up for use substantially as set forth.

2. The improved beverage herein described, consisting of "fruit extract," water, and carbonic-acid gas, substantially as set forth.

172,140. TURBINE WATER-WHEELS. John B. McCormick, Armagh, and J. L. Brown, Brookville, Pa. [Filed Nov. 27, 1875.]

Brief.—This wheel receives the water from a vertical flume through lateral chutes, and discharges centrally through the bottom of the wheel. The top of the wheel has a smaller diameter than the lower portion. The buckets are each separate, and fastened below to a rim by screws, and provided with a tenon at the top. Said buckets have wings, and are so curved upon their inner surfaces as to cause them to receive the full impact of the water, and yet allow it a perfect clearance or discharge inwardly, downwardly, and beneath the bottom of the wheel outwardly.



1. The combination, with gate D, of the buckets, having wings *c*, as and for the purpose described.

2. The combination of the chutes C, gate D, and the guides O', substantially as and for the purpose described.

3. The combination, with the wheel A, of the base E, the chutes C, guides O', the gate D, and the casing E, substantially as described.

4. The combination, with the rim G and top plate F, of the detachable buckets H, having tenons *a*, and fastened by bolts or screws, substantially as described.

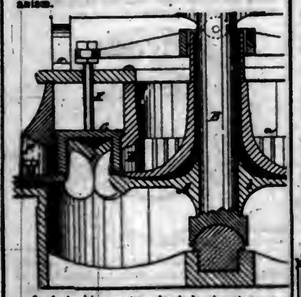
5. The combination of the base B, chutes C, and adjusting-screws *g*, as and for the purpose set forth.

6. The top plate or hub F, having an extra clearance-curve at *i*, as and for the purpose described.

7. The buckets H, bolted as *b* so as to discharge a part of the water outwardly beneath the wheel, substantially as and for the purpose described.

172,141. TURBINE WATER-WHEELS. John B. McCormick, Armagh, and J. L. Brown, Brookville, Pa. [Filed Nov. 27, 1875.]

Brief.—A wheel having a double series of buckets, one of which is arranged to receive its water laterally and interiorly, and the other arranged to receive its water laterally and exteriorly, from a common flume, the said two series being also arranged together so as to discharge their water with a confluence, which resets upon the wheel in the direction of its circumference, and utilizes a large per cent. of motive power. There is also with the double wheel and the two sets of chutes a double-gate arrangement, operated by suitable mechanism.



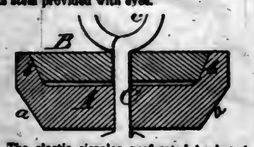
1. A turbine water-wheel, having two series of buckets in the same plane, one of which receives its water from the interior, and the other from the exterior, and both discharging with a confluence, substantially as described.

2. The combination, with the wheel A, of the inner set of chutes E and the outer set of chutes F, substantially as described.

3. The combination, with the double wheel A and the two sets of chutes E F, of the double gate G, operated by a suitable mechanism, substantially as described.

172,142. BUCKLESS-CHAIN PUMPS. Wesley McGrew, Xenia, Ill. [Filed Dec. 4, 1875.]

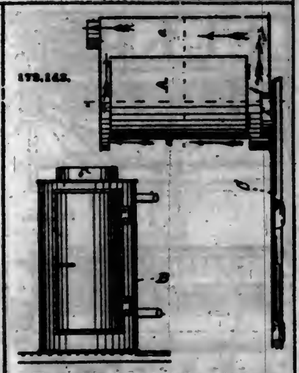
Brief.—An elastic circular perforated bucket, beveled and provided in its upper face with a recess bounded by upwardly and outwardly flaring walls, in combination with the circular perforated non-elastic disk, having its periphery upwardly and outwardly beveled, and its stem provided with eyes.



The elastic circular perforated bucket A, beveled at *a*, and provided in its upper face with a recess, bounded by upwardly and outwardly flaring walls *b*, in combination with the circular perforated non-elastic disk B, having its periphery upwardly and outwardly beveled, and stem C, provided with eyes *c c*, substantially as described, and for the purpose set forth.

172,143. BOILERS FOR STOVES. William McIlvain, Philadelphia, Pa. (Filed Dec. 21, 1875.)

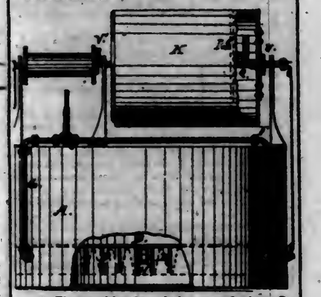
Brief.—A reservoir and case applicable to the top of a stove.



The combination of the boiler A, having an induction or feed pipe, D, and an exit-pipe, F, and the case B, having collars *b* and *b'*, with the top-plate C, of a stove or other heater, having a collar, *b'*, substantially in the manner and for the purpose set forth.

172,144. CARBURETERS. Thomas Meredith, Batavia, Ill., assignor of one-half his right to Edwin Meredith, same place. [Filed Feb. 20, 1876.]

Brief.—Curved pipes are secured to the end of the air-blowing cylinder, for admitting air to its several compartments. The pipes are open to the air at their inner ends, and are so curved that the water will not escape from the cylinder through them. Two odoriferous pipes extend from the carbureter, whereby air carbureted to different degrees may be drawn off and mixed together to form a gas of the desired richness.



1. The combination of the curved pipes O on the outside of the drum K, and in the atmosphere solely, and the spiral chambers in the drum K, substantially as and for the purpose set forth.

2. In combination with the drum K, mounted upon a shaft, S, one of whose bearings is in the stationary pipe E, inside of said drum, the elastic packing-disk U, to close the orifice through which said pipe E passes.

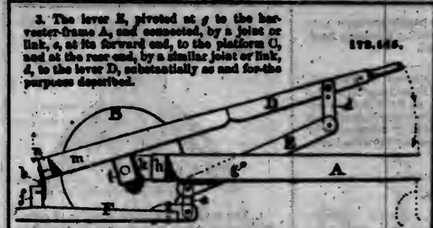
3. In combination with the carbureting-chamber O, divided by overlapping vertical partitions D D, the air-pipe B, and gas-pipes F G, all opening into said chamber on the same plane, above the surface of the hydrocarbon liquid.

172,145. HARVESTERS. James B. Mahler, Pekin, assignor of one-half his right to A. J. Hodges, Peoria, Ill. [Filed Oct. 4, 1875.]

1. The combination, with the platform C and the lever D of the frame, hinged together by the hinge or joint *b*, of the brace F, link *c*, lever B, and link or joint *d*, substantially as and for the purposes described.

2. The combination and arrangement of the platform C, (when provided with the brace F,) link *c*, lever B, with its pivot *g*, link *d*, lever D, with the attached axle *i*, and hinge *b*, constructed and operating substantially as and for the purposes described.

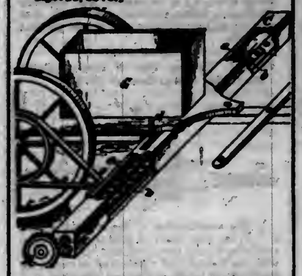
3. The lever E, pivoted at *g* to the harvester-frame A, and connected, by a joint or link, *e*, at its forward end, to the platform C, and at the rear end, by a similar joint or link, *d*, to the lever D, substantially as and for the purposes described.



172,146.



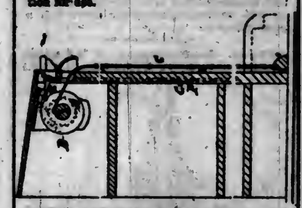
172,146. SEED-SOWING ATTACHMENTS FOR WAGONS. Nathaniel A. Monroe, Mitchellville, Iowa, assignor of one-half his right to Flavius J. Boyd, same place. [Filed Apr. 16, 1875.]



In a seed-sower, the right and left worms and conveyers *a b* in the distributing-tube C, arranged relatively to each other and the seed-box G on the carriage A B, to convey and distribute seed, and to prevent the seed from accumulating and clogging in the ends of the tube, as shown and described.

172,147. FIRE-ESCAPES. James C. Moore, Philadelphia, Pa. [Filed June 10, 1875.]

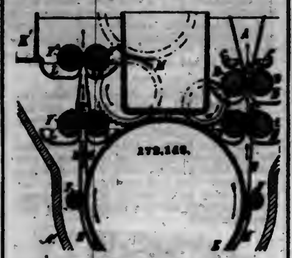
Brief.—A flexible rope ladder is secured to a drum, on which it is wound in the upper story of the building. The drum is provided with a ratchet-wheel. A pawl secured to the drum-frame engages with the ratchet-wheel, and a rod which is secured to the free end of the pawl passes down through the several floors, and is provided with hand-holes. By pulling on the rod the pawl is released, and a weight on the bottom of the ladder causes it to unwind from the drum and assume a position for use.



The rod F, extending through the various floors and ceilings, so as to be accessible from any of the stories, in combination with the drum B, for holding the ladder C, said drum having a spring-pawl, F, and ratchet or equivalent retaining device, substantially as shown and described.

172,148. APPARATUS FOR METAL-COATING METAL PLATES. Edmund Morewood, Llanelly, and John H. Rogers, Llangennoch Park, near Llanelly, Great Britain. [Filed Dec. 31, 1875.]

Brief.—Plate plates with "bight" and weak, but not stout, them in water. While damp, place them separately in grease-bath, heat at about the melting-point of the coating metal. Then pass plates into and through flax-box, and between one or more pairs of rollers coated with grease, heated above the melting-point of the coating metal, and supplied by a pump and troughs with the molten coating metal, and between drip-troughs, both rollers and troughs being in a bath of flax or grease heated above the melting-point of the coating metal. Plates strike pegs on revolving drum, and are borne through hot grease or flax bath between two or more pairs of calt-rollers, which are supplied from reservoir with fresh coating metal. A central box, lowered or raised, changes the level of flax or grease. Fluxes: Resin, chloride of zinc, muriate of ammonia. [English Patent No. 3,128. September 24, 1873.]



172,148.

1. The coating-rollers B' B' and F' F', in combination with the pot A' and drum E, substantially as and for the purposes set forth.

2. The rotary drum E in the coating-pot A', filling up the middle of said pot, and leaving a narrow channel or space for the passage of the plates, substantially as and for the purpose set forth.

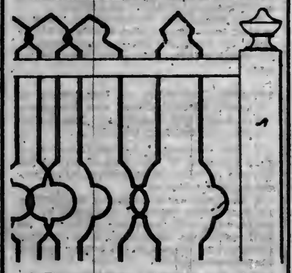
3. The coating-rollers F and rotary drum E, in combination with the pot A', substantially as and for the purposes set forth.

4. The troughs C C, with a narrow channel between them, through which a stream of coating metal is caused to flow, in combination with the coating-rollers B, substantially as and for the purposes set forth.

5. The coating-rollers B F' receiving the melted coating metal or flux, which is retained thereon by slip-pieces D', in combination with the troughs D' or I, substantially as set forth.

6. The hollow vessel M, placed within the coating-pot, in combination with the drum E and coating-rollers, substantially as set forth.

172,149. WIRE POCKET-FENCES. James A. Morris, Atlanta, Ga. [Filed July 24, 1875.]



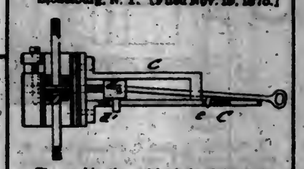
1. The combination of two or more pickets having bent or angular portions, as shown and described, interlocked as and for the purposes set forth.

2. The fence described, having the posts A, rail B, sectional rail C, and series of interlocking pickets, as described.

172,150. HORSE-HOOKS. T. W. Murphy, Washington, D. C. [Filed Nov. 20, 1875.]

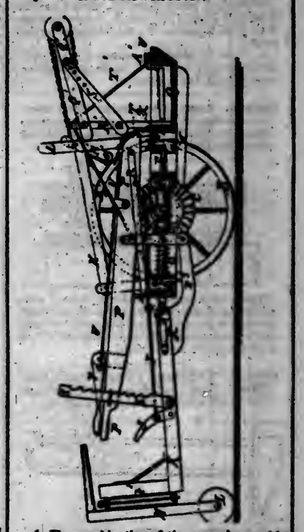
In combination with the plate A, curved as shown in cross-section, and provided with the dovetail grooves *c c'*, the bar-bolt D, having the corresponding tenons *d d*, and provided with an inner lip fitting into the curve of the plate, substantially as and for the purpose set forth.

172,151. CAR-COUPLINGS. F. C. Murray, Shoestburg, N. Y. [Filed Nov. 19, 1875.]



The combination, with pin-head *d* and slotted support C, of a rod, E, jointed to head, and having bottom stud *e*, whereby it may be both actuated and held in the manner specified.

172,152. GRAIN-HEADERS. Chas. K. Myers and John W. Irwin, Pekin, Ill., assignors to Peter Weyrich and C. K. Myers, same place. [Filed Sept. 11, 1875.]



1. The combination of the curved arm A' and the adjustable bracket S with the lever Y, that drives the cutter-bar, substantially as herein shown and described.

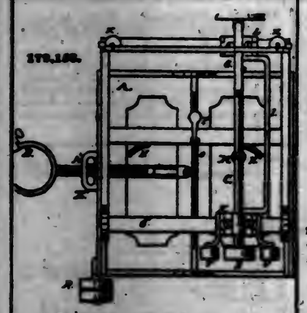
2. The combination of the lever Y, the sliding rod U, and the chain T, with the lever P and with the frame of the machine, substantially as herein shown and described.

3. The combination of the pivoted brace R with the lever P, the pivoted bars O, the arm P' of the tongue K, and the frame A, substantially as herein shown and described.

172,153. STONE-DRESSING MACHINES. D. Norrscong, Pardeeville, Wis., assignor to Norrscong Brothers, same place. [Filed June 10, 1875.]

Brief.—The diamond point being adjusted, the shaft is drawn across the carriage. The stop, striking one of the levers, throws its end against the pawl. The shaft carrying the diamond is thrown the proper distance for another spark in the stone, this being repeated until the entire face of the stone is cracked. When the furrows are to be cut out, the emery-wheel is placed in position and the belt put on, revolving the shaft carrying the emery-wheel.

172,163.



1. Carriage Q, shaft C, diamond-holder D, stop M, levers F F, and pawl O, all in combination substantially as described.

2. Shaft C, corundum-wheel S, pulleys R, S, T, U, and V, in combination with carriage Q, substantially as set forth.

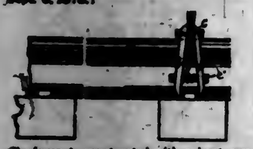
3. Frame A, hopper B, in combination with levers M M, pawl O, shaft C, and stop M, substantially as specified.

4. Carriage Q, and girt P, and screws X X, in combination with shaft C, substantially as set forth.

5. Shaft C, levers K and L, jointed handle I, pulleys R, S, T, U, and V, in combination with belt-tightener W, substantially as described.

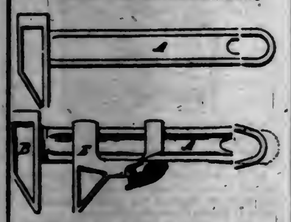
6. Shaft C, handle I, spring G, diamond-holder D, and hopper H, all in combination substantially as described.

172,164. STEAM-EXTRACTORS. Riel Newland, Attica, N. Y., assignor of one-half his right to A. R. Miller, same place. [Filed Sept. 6, 1875.]



The lever A, constructed with a bent arm, a, with beveled or wedge-shaped sides, in combination with the jaws b b pivoted thereto, and the connecting-rod c and interposed spring e, substantially as described.

172,165. WRENCHES. Oliver B. North, New Haven, Conn., assignor to O. B. North & Co., same place. [Filed Dec. 9, 1875.]



The herein-described wrench, consisting of the bar A, head B, and handle C, in one and the same piece, combined with the movable jaw E, passed onto the bar over the handle end, and the said handle end subsequently spread to give shape to the handle, substantially as described.

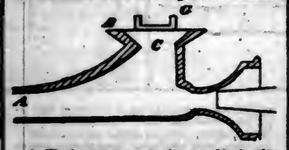
172,166. COMBS. J. T. O'Donoghue, New York, N. Y. [Filed Dec. 4, 1875.]



The combination of a handle having a bearing-iron with a comb having a tubular head, substantially as specified.

172,167. HYDRAULIC MINING. J. O'Farrell, San Francisco, Cal. [Filed June 29, 1875.]

Brief.—Places a tube in front of the pipe-nozzle which conducts the water in hydraulic mining, and feeds this tube by a hopper with stones, &c. to aid in breaking down the bank.



1. The improvement in the art of hydraulic mining, which consists in loading the stream of water, which issues from hydraulic nozzles, with stones, gravel, sand, or other missiles, substantially as and for the purposes described.

2. The pipe or tube A, having the hopper B connected with its interior by the throat C, in combination with a hydraulic nozzle, substantially as and for the purposes described.

3. In combination with the hopper B connected with the pipe or tube by the throat C, the grizzly G with its sliding bottom f, substantially as and for the purposes described.

172,168. HARROWS. Joseph B. Okey, Indianapolis, Ind., assignor of one-half his right to John M. Wheatley, same place. [Filed Nov. 4, 1875.]

Brief.—The frame of the harrow is triangular, the forward side of the cross-beams presenting a sharp angle, which is armed with a bar of iron. The teeth are flat and wide, the forward edge being pointed to cut and penetrate the earth, and the scrapers level and crush the clods.



1. Harrow teeth B, flat upon their sides, and having the front edge inclined to form acute points, substantially as set forth.

2. In combination with the teeth, inclined on their front edges to open and throw up the earth, the horizontal sharp-edged cutters C, for breaking up the clods, substantially as set forth.

172,169. PROCESSES OF ENGRAVING ON GLASS. Edward O'Neil, San Francisco, Cal., assignor to himself and Jesse T. Holloway. [Filed Sept. 20, 1875.]

1. The composition for engraving upon glass, composed of olive-oil, coal-oil, and fluoric acid, in about the proportions stated, substantially as described.

2. The process of ornamenting or engraving on glass herein described, consisting of the employment, with tools and paints, of the fluid composition compounded as hereinbefore set forth and claimed, in the manner and for the purpose described.

172,170. WOOL DOUPERS. J. H. Overacker, Redwood, N. Y. [Filed Dec. 22, 1875.]

Brief.—The steps upon the wrecker handle gradually decrease in length toward the top, and upon these steps strips of skin with wool in bound and overlapped.

172,171.



1. The handle A, having a series of cylindrical steps, a a a, each succeeding one being shorter than the one next below, in combination with the sections of wool-skin B B B, with wool on, substantially as and for the purpose set forth.

2. The handle A, having a series of cylindrical steps, a a a, in combination with the overlapping sections of wool-skin B B B, with wool on, substantially as and for the purpose set forth.

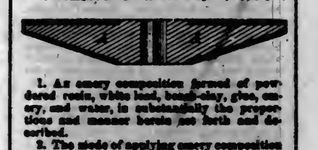
172,172. OILERS. Geo. W. Parsons, Salisbury, Md. [Filed Dec. 18, 1875.]



1. The combination of the rock-valve wire O d d, the gear-wheel or gear-segment E, the rock-wire F, the spring G, and the frame D with the body A and nozzle B of an oiler, substantially as herein shown and described.

2. The combination of the catch H with the rock-valve wire O, the frame D, and the spring G, substantially as herein shown and described.

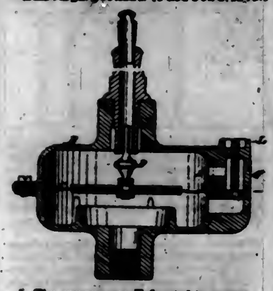
172,173. EMERY-WHEELS. G. H. Peabody, Brooklyn, N. Y. [Filed July 17, 1875.]



1. An emery composition formed of powdered resin, white lead, beach-clay, glue, emery, and water, in substantially the proportions and manner herein set forth and described.

2. The mode of applying emery composition to wood and metal cutters herein set forth and described—that is to say, by tamping it to said surfaces by numerous blows with a small hammer.

172,174. GAS-GOVERNORS. D. R. Tuthill, Edinburgh, Scotland. [Filed Oct. 6, 1875.]

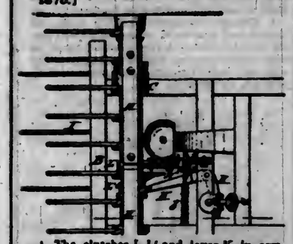


1. The gas-passage F, located in an extension, G, outside of the flexible diaphragm, and provided with a regulating-plug, substantially as specified.

2. The valve D, detachably supported on and in combination with the diaphragm, and having its upon extended into the exit-tube, substantially as specified.

3. The combination of the head or flange L with the adjusting-screw, to contain a seal, substantially as specified.

172,164. HORSE HAY-RAKES. Thos. Penrose, New Garden, Ohio. [Filed Nov. 20, 1875.]

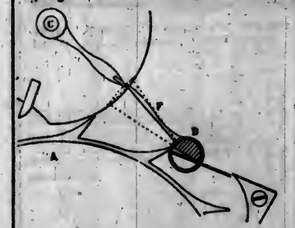


1. The clutches L L' and lever K, in combination with the foot-lever M, bars P R, and lock P', constructed and arranged substantially as and for the purpose specified.

2. The projection S on the lever K, in combination with the lock-bars P R, for the purpose herein set forth.

172,166. ORNITHOPTER-REGULATORS FOR WATCHES. Mathias Petersen, Altona, Prussia. [Filed Apr. 3, 1875.]

Brief.—A locking-cylinder used in a detached escapement in place of the detent-spring.



1. The combination of the detaching-lever G and projecting lever F with the cylinder D, by which the escape-wheel A is released, constructed and arranged substantially as and for the purposes specified.

2. The cylinder D, spring E, levers F and G, and escape-wheel A, combined and arranged substantially in the manner and for the purposes herein set forth and described.

172,175. SPINNING-TOPS. Francis A. Philippi, Reading, Pa., assignor of two-thirds his right to J. F. Seigel and Albt. Thalheimer, same place. [Filed Nov. 6, 1875.]

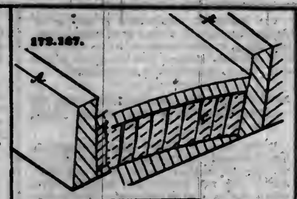


The combination of the wire handle B, constructed as shown, forming a coiled spring, f, and handle, spread outward in the center, and its ends soldered together, with the ball-shaped top A, having spindle d and neck c, all substantially as herein set forth.

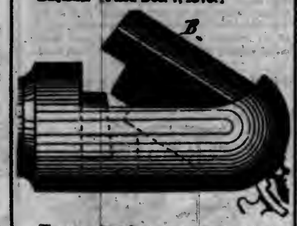
172,167. PAVEMENTS. Isaac B. Potts, Columbus, Ohio. [Filed Dec. 22, 1875.]

A roadway constructed with a bed of sand rounded from curb to curb to the desired profile, and a course of stone blocks set edgewise and parallel with the line of road, so as to form an arch between the curbs, in combination with a filling and leveling course of tar, asphalt, or other covering, and a curbing-course of concrete or other suitable composition, substantially as specified.

172,167.

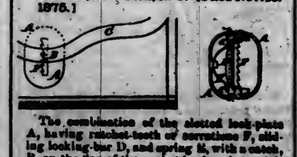


172,168. BREECH-LOADING ORDNANCE. R. Pumphon, Heathenfield, Amerley Park, England. [Filed Dec. 7, 1875.]



The outer breech A constructed with the concaves recessed having a horizontal elongated slot, in combination with the movable breech-end B, having the convex rear end and circle C projecting through the slot in the outer breech, and constructed to move horizontally from the outer breech, as and for the object specified.

172,169. POCKET-BOOK FASTENERS. Danl. M. Read, New York, N. Y. [Filed Nov. 13, 1875.]



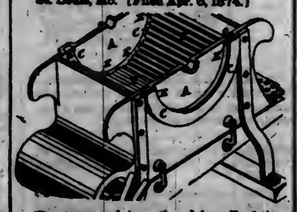
The combination of the slotted lock-plate A, having ratchet-teeth or serrations F, sliding locking-bar D, and spring E, with a catch, B, on the flap of the pocket-book, substantially as herein shown and described.

172,170. POCKET-BOOK FASTENERS. Danl. M. Read, New York, N. Y. [Filed Nov. 6, 1875.]



The pivoted cap-plate C, provided with a thumb-piece or extension-plate, in combination with the base-plate A, provided with a suitable catch or flap engaging device, the spring D, and a catch on the flap of the pocket-book, substantially as and for the purpose set forth.

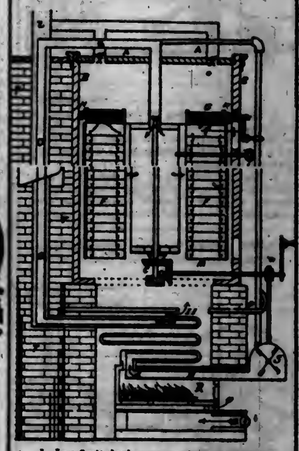
172,171. CORN-SHELLERS. Wm. S. Reeder, St. Louis, Mo. [Filed Apr. 6, 1874.]



The segmental bars E and bars F of the concaves, in combination with the plates A A, having open-topped grooves or channels O O, said grooves being of such a depth that the face of the bars B will be flush with the inner face of the plates, substantially as and for the purpose set forth.

172,176. FRUIT-DRIERS. Andrew J. Reynolds, Chicago, Ill. [Filed Oct. 19, 1875.]

Brief.—Air is drawn from the warm-air chamber by the revolution of the drum and trays. Heated air is forced into the upper end of the drum through the pipe connected with the fan.



1. In a fruit-drying apparatus, substantially as described, a drum rotating within a drying-chamber, and carrying with it, in its rotation, a series of fruit-shelves, vertically reciprocating by means of windlasses, substantially as and for the purposes set forth.

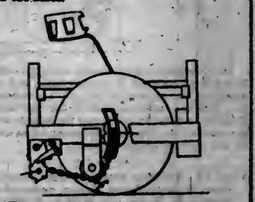
2. The drum B, extending centrally through the dry-house B B, supporting the fruit-trays F, windlass G, and ratchet H, constructed and combined to operate substantially as and for the purposes herein set forth.

3. The hot-air pipe O, in combination with the hollow shaft and furnace E, fan S, smoke-stack X, and drum E, for the use and purposes as described.

4. The hot-air drum Q, heated-air pipe O, warm-air chamber T, ports U, in combination with the rotating drum E and fruit-trays F, for the purposes as described.

172,178. HARVESTERS. Moses T. Stilwell, Rochester, Minn., assignor to Asa G. Clark and Thomas H. Titus, same place. [Filed Sept. 20, 1875.]

Brief.—Vertical adjustment of main frame upon the axles.

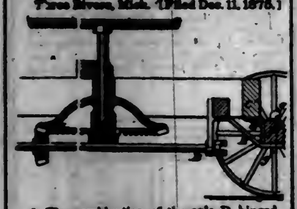


1. The combination, in a harvesting-machine, of a frame movable vertically on the axle of a supporting-wheel, and a chain or chains passing from the axle under a guide or guides on the frame to a take-up shaft or its equivalent, substantially as shown and described.

2. The combination of the main frame, provided with vertical guides, the supporting-wheel having its axle held by said guides, the pulley or pulleys and the take-up shaft secured to the frame, and the chain or chains extending from the axle under the pulleys to the shaft.

3. In combination with the main frame and its vertically movable axles, the pulleys, chains, take-up shafts, ratchet-wheels, and pawls, arranged as shown, for the purpose of permitting a vertical adjustment of the frame.

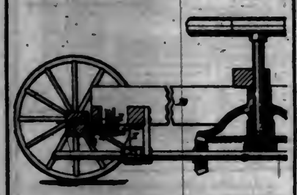
172,176. HORSE-POWERS. Cyrus Roberts, Three Rivers, Mich. [Filed Dec. 11, 1875.]



1. The combination of the axle D, hinged to the bolster C by hinge E, so that the frame of the horse-power will be raised or lowered by a quarter turn of the axle, as and for the purpose set forth.

2. The combination of the bolster C and bearing-block a, with the axle D and hinge E, having a boss, c', through which passes the king-bolt F, as and for the purpose set forth.

172,175. HORSE-POWERS. Cyrus Roberts, Three Rivers, Mich. [Filed Dec. 11, 1875.]



1. The axle of a horse-power hinged to the bolster, so as to turn on said hinge from a position beneath the bolster to a position beside the bolster, substantially as and for the purpose set forth.

2. The axle hinged to the bolster, in combination with the king-bolt F and horse-power frame B, substantially as and for the purposes set forth.

3. The combination of tumbling-shaft U with axles H and J, hinged so as to turn out of the line of said shaft, substantially as set forth.

172,178. LOCOMOTIVE-TRUCKS. Lewis A. Roberts, Hyde Park, Pa. [Filed Nov. 6, 1875.]

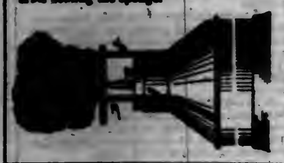
Brief.—Rubber dust from anti-friction wheels on which the body turns.



In a locomotive-truck frame, the segmental frame C, with rollers D placed within and inclosed by the segmental bar E, in combination with the covering-plate H, having block G on its under side, resting on the rollers, and the central pin H on its upper side, all as and for the purpose herein set forth.

172,177. DEVICES FOR ADJUSTING PULLEY-BELTS. Israel M. Rose, Brook Haven, assignor to Patrick H. Drake and William P. Ward, New York, N. Y. [Filed Oct. 16, 1875.]

Brief.—The sponge or brush is held by elastic fingers over the mouth of a bottle, through the cork of which flows the liquid onto the sponge. A sliding ring releases the arms holding the sponge.



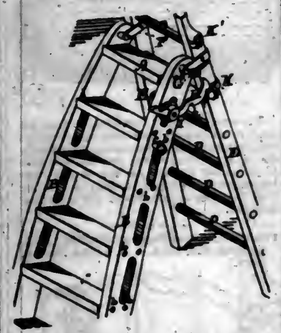
The holder D, constructed of springs or elastic wires *f* and a sliding or adjustable closing-ring, *g*, in combination with the sponge C and perforated stopper B in the mouth of the container A, substantially as described.

172,179. WATER-PROOF FABRICS, &c. H. M. Sawyer, West Medford, Mass. [Filed Nov. 11, 1875.]

1. The within-described compound, consisting of linseed-oil, manganese, red lead, amber, sugar of lead, and white vitriol, as a drier, mixed with raw linseed-oil, sulphur, Paris white, shellac, and any desired coloring matter, substantially as and for the purposes set forth.

2. A water-proof fabric, suitable for clothing, boots, wagon-covers, awnings, or similar goods, composed of cotton cloth and a dry non-adhesive compound or preparation made of oil, treated with oxides, earths, and salts, substantially as and for the purposes set forth.

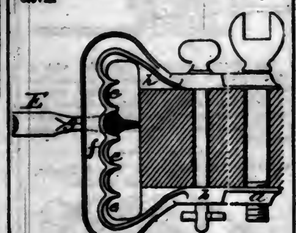
172,180. LANTERNS. Edward J. Schneider, Dayton, Ohio. [Filed Sept. 14, 1875.]



In combination with the side bars B and E, hinged together as shown, the locking-bar H, provided with the notches h, h, and *h'*, and pivoted upon said bar B and the legs K and K' secured upon said bar E, and engaging with said notches, substantially as and for the purpose set forth.

172,180. CLEVISES. John Schofield, Moline, Ill. [Filed Nov. 6, 1875.]

Brief.—A graduated link that may be changed to and secured in any notch of the clevis.



The oblong link E, having graduated seamer flanges *f* and a narrowed portion, *g*, in combination with a notched clevis and plow-beam, substantially as specified.

172,181. THERMOMETERS. Gustav W. Schumacher, Portland, Me. [Filed Dec. 2, 1875.]

1. The hard-rubber arm a, in combination with the lever *d*, arm *b*, lever *h*, and indicator *h*, the same operating to point out different degrees of temperature upon a registering plate or scale, as herein described.

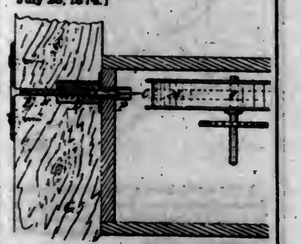
2. The arm a, with its adjusting set-screw *e*, and plate *f*, with the lever *d*, lever *h*, indicator and scale, as set forth, and with the arm *b*.

3. The combination of the rubber arms *a b*, levers *d h*, indicator *h*, and the registering devices moving on the curved rod *n*, substantially as and for the purposes herein set forth.

4. The two corrugated rubber arms, arranged and combined as described, to operate the indicator of a thermometer, so as to show, in connection with a spring pressing upon said indicator, different degrees of temperature, as set forth.



172,182. WATCHMEN'S DETECTORS. Gustav Adolph Schultz, Louisville, Ky. [Filed July 28, 1874.]



In a watchman's detector, applied to door G, with spring-pendent, arranged as shown, the dial-roller E, flanged and adapted to receive a strip in space M, and having one side marked to constitute a dial-plate, substantially as specified, and arranged upon shaft I of the lever-hand, as set forth.

172,183. DRIVING-TOOLS. A. Schwarter, New York, N. Y. [Filed Nov. 4, 1875.]



1. The combination, with the tapering spindle A, of the spring-clamp *d*, cutter-head B, and a cutter (one or more) connected with said cutter-head, and constructed to be detached therefrom, as and for the purpose specified.

2. The combination of the guide-groove *g* in the spindle A with the cutter-head B, cover *f*, and with the cutter secured in said cutter-head, substantially as and for the purpose set forth.

3. The combination, with the spindle A and cutter-head B, of a depthing-cutter, *i*, and a rim-cutter, *h*, with or without a gage, *k*, substantially as shown and described.

172,184. HYDRANTS. Geo. Shelley, Williamsport, Pa. [Filed Dec. 6, 1875.]

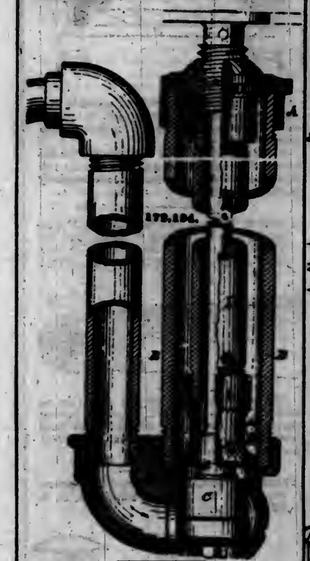
Brief.—By the arrangement shown the working parts are readily removed.

1. In a hydrant, the combination of the valve-rod I, having a screw-threaded extension, *c*, as set forth, with the internally screw-threaded coating *h* and the cap A, substantially as described, for the purpose specified.

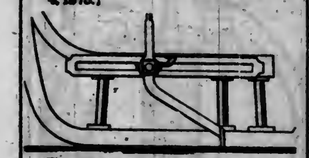
2. In combination with the valve C, valve-rod I, coatings *h* and *i*, and valve-coating I, the cap A and outer coating B, substantially as explained, for the purpose specified.

3. The combination, in a hydrant, of the valve C, valve-rod I, having a screw-threaded extension, *c*, coatings *h* I *i*, washer *e*, and valve-coating I, with the cap A, outer coating B, and shoulder *n*, all substantially as described, for the purpose specified.

4. In combination with the valve C and valve-rod I, the coatings *i* and *l* and washer *e*, substantially as and for the purpose specified.

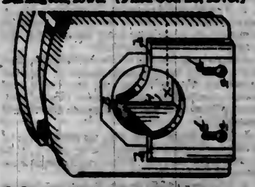


172,185. SLED-PROPELLING. William H. Shelton, Jr., New York, N. Y. [Filed Dec. 4, 1875.]



The combination of a sleigh or wheeled body having horizontal slotted guides or runners at the sides, with swinging lever-handles, which are pivoted to rods in pieces of the guides, and provided with feet or claws to take hold of the ice or ground, and produces the forward propulsion of the sleigh or wheeled body, as the lever slide-pieces, in conjunction with the weight of the person, substantially as specified.

172,186. CAR-AXLE BOXES. Edwin Shinn, Burlington, Iowa. [Filed Oct. 26, 1875.]

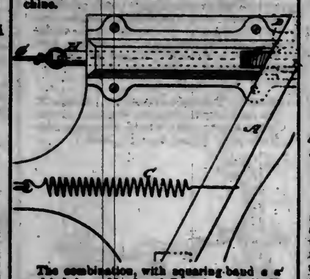


1. In an axle-box cast without a bottom plate, the combination of a sliding oil-drawer and a dust-preventing plate removably attached to the end of such drawer, substantially as described and shown.

2. In an axle-box cast without a bottom plate, the combination of the oil-drawer C, sliding horizontally in ways in the box, the dust-preventing plate D, sliding vertically in ways on the end of the box, the slots *d*, and set-screws *e*, the said dust-plate securing the said oil-drawer in place, substantially as described and shown.

172,187. STOPPING MECHANISM FOR STEAM-ENGINE-JACKS. Wm. W. Sinclair and Edward Galvin, Motsville, N. Y. [Filed Sept. 12, 1874.]

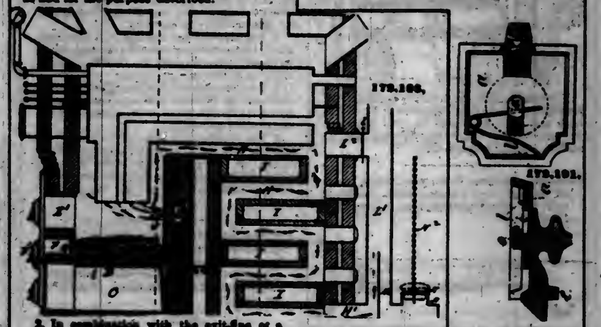
Brief.—When the squaring-head breaks or slackens, the spring-spindle slides, and, by means of the trip-cam on its end, raises the shifter-lever out of the notch, and a spring impels it against the belt-shipper of the main, shifting it and stopping the motion of the machine.



The combination, with squaring-head *a a'* and belt-lever M, of cord G, spring-spindle H, trip-cam E, notch D, shifter-lever A, and spring C, substantially as and for the purpose specified.

172,188. HEATING-FURNACES. S. Smith, Worcester, Mass. [Filed May 31, 1875.]

1. In combination with the principal door F' of the opening F, the auxiliary door G, constructed to leave a space beneath it, and substantially flush with the surface of the grate, as and for the purpose described.



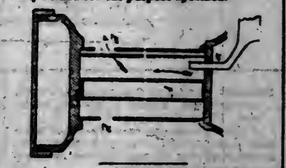
172,189. STEAM-RADIATORS. S. Smith, Worcester, Mass. [Filed June 11, 1875.]

Brief.—Air entering through the pipe creates a draft from the room through the space around the air-inlet pipe.

1. The herein-described radiator for steam-heating, consisting of a series of continuous or connected vertical corrugations, formed complete and together in one casting, and close except for the steam-inlet and exit, substantially as set forth.

2. The herein-described radiator for steam-heating, consisting of the vertically-corrugated steam-chamber, combined with a close heating-case, with openings into the corrugations through the base and at the top, substantially as described, whereby the said corrugations form heating-flues to force a circulation of the atmosphere, substantially as specified.

3. In combination with a steam-radiator, consisting of a series of flues, the air-supply flues *d*, of less diameter than, and extending into, the openings into the radiator, substantially as and for the purpose specified.



172,190. SHINGLES. George W. Steele, De Soto, Miss. [Filed July 1, 1875.]



A shingle, cut substantially as herein described, so that either of its sides shall consist of two plans, or approximately plane, surfaces, forming with each other an angle at the point *p*, whereby the shingle is rendered as thick at the point *p* as at any other portion, or as much thicker at the point *p* than at any other portion as may be desired.

172,191. CLOSET-CATCHES. W. B. Sparks, New Haven, Conn., assignor to P. & F. Corbin, same place. [Filed Dec 20, 1875.]

The latch *a*, provided with the stud *c*, that is undercut, in combination with the slotted plate *e*, bridge *e*, and spring *f*, that enters the notched or undercut portion of the stud, and retains the latch to the plate, as well as projecting said latch, as set forth.

172,192. APPARATUS FOR INSERTING AND EXTRACTING WELL-PIPING. F. Spees, Red Lake, Minn. [Filed Nov. 6, 1875.]

Brief.—Sections of pipe are placed over the frame, with the lower edge of the lower section of pipe resting on the outer ends of the trip-bars, which are released, when the guide-point reaches its destination, by the continued descent of the supporting-rod operating the toggles. Catches on the rod then engage beneath a cross-bar of the frame.

1. The combination of the frame A B and the trip-bars G G, pivoted independently to the said frame, and secured in their horizontal or projected position by means of the suspension-rod C, acting through the medium of the toggle D D E E, in the manner set forth.

2. The combination, with frame A B, and G, toggle D D E E, and trip-bars G G, of the drop catch or catches H, substantially as set forth.

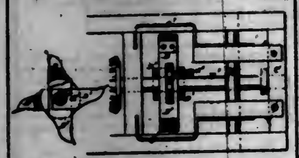
3. The combination of the frame A B, adjustable trip-rods G G, and removable guide-point F, substantially set forth.

172,192.
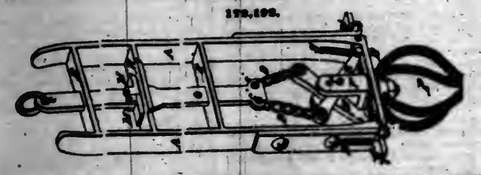


172,193. COMBINED SCRAPERS, CROPPERS, AND DIGGERS. Arthur L. Spence, Alma, Ark. [Filed July 24, 1875.]

Brief.—The cropper-bars are elected to receive a disk, to which they are secured by set-screws, that pass through the bars and press against the face of the disk.



The cropper-bars D and wheel C, connected together by one or more screws, *d*, that pass through the former and against the latter, as and for the purposes specified.

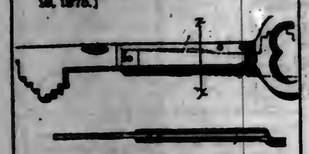
172,194. CHURNS. James L. Sprague, Herman, N. Y. [Filed Oct. 16, 1875.]

Brief.—A horizontal cylinder and dasher-shaft, the arms of which incline from each end toward the center, thus drawing air from the end parts, which escapes through an upper central exit.



The combination, with rotary paddles C, of crank-bar A, having air-tubes D D, one at each end, and an outlet, E, over the space between the reversely-spiraled paddles, as and for the purposes specified.

172,195. FOLDING KEYS FOR LOCKS. John M. Spring, New Britain, Conn., assignor to F. & P. Corbin, same place. [Filed Dec. 10, 1875.]



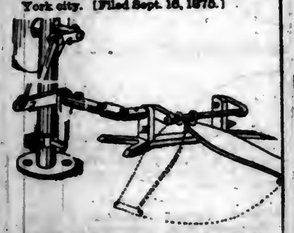
The key, made with a handle, into which the jointed key-shank folds, and the key-bits project beyond the end of the handle, in combination with a bow that is contiguous to the bits on their side, and in a prolongation of the handle, substantially as set forth.

170,196. PRESERVING OF PRESERVING MEATS. Hannah Stevens, Brunswick, Tex. [Filed Oct. 21, 1875.]

1. In the preservation of food, the process of eliminating free oxygen from the meats, and preventing putrefaction, by saturating with the food a portion of hyposulphite of lime, whereby the oxygen is absorbed, and the destructive agent itself becomes animal food, substantially as described.

2. The process of preserving meat by cooking the meat removed from the bones of an animal by subjecting it to the action of steam at 210° of heat, or a little below the boiling-point; then treating the cooked meat to a gelatinous broth extracted from the bones and sinews of the bones from which the meat was removed; then treating the meat with hypochlorite of lime immediately before placing it in cans; and, lastly, subjecting the sealed cans containing the meat thus treated to the action of steam at a temperature of not less than 260° of heat, all substantially as and for the purposes described.

172,197. TREADLE-POWERS. Alonzo H. Stevens, Clinton, Oneida county, assignor of one-half his right to Melville M. Johnston, New York city. [Filed Sept. 16, 1875.]



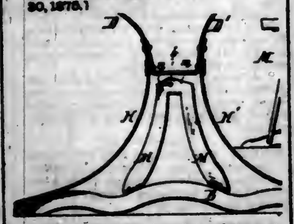
1. In a treadle mechanism, a rock-shaft supported at one end in a swiveled bearing attached to the engine or other machine operated by the treadle, and at the other end in a movable stand or support, and provided with cranks, to which the treadle proper or foot-piece and the pitman are respectively connected, substantially as set forth.

2. The cranked and flexible or jointed rock-shaft, in combination with the movable stand or treadle-support and the treadle, substantially as shown and described.

3. The cranked and flexible or jointed rock-shaft and its swiveled bearing, in combination with the movable stand or treadle-support and the treadle, as set forth.

4. The combination, with the rock-shaft and the movable stand or treadle-support, of the treadle or foot-piece, united with the outer crank on said shaft by a swiveled connecting-piece, substantially as and for the purposes set forth.

172,198. SPRING TILTING CHAIRS. Asher R. Stevens, Philadelphia, Pa., assignor of one-half his right to Henry S. Hale, Artemus Kilburn, J. W. Hale, Chaney Kilburn, and Warren Hale, same place. [Filed Nov. 30, 1875.]

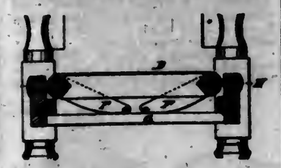


1. The combination, in a chair, of the seat A, the springs H H', and standards M, constructed and adapted to the frames D D', or to the seat, for the protection of the springs, all substantially as and for the purposes herein set forth.

2. The combination of the bars B B', the rod-supporting springs H H', the standards M, and the rod N, by which the said standards are connected together.

172,199. BED-BOTTOMS. R. Stillwell, Rockville, Md., assignor of one-half his right to Elias A. Rogers. [Filed Nov. 29, 1875.]

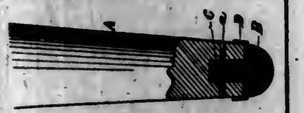
Brief.—Weight upon the canvas causes pressure upon the arms, which gives a slight turn to the rails, thereby stretching the canvas.



1. The combination, with a suitable support, of the rails C, having arms F, and the cover D, substantially as and for the purpose described.

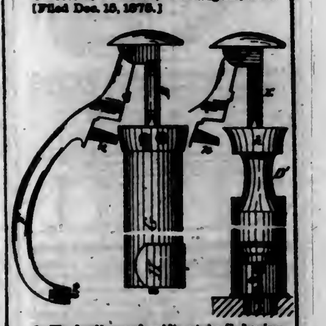
2. The combination of the belts H with the rails C, having arms F, and the outside rail B, having an elongated bolt-hole, substantially as described.

172,200. RUBBER TIPS OR FEET FOR FURNITURE-LEGS. Cornelius P. Stockdale, Hiram J. Beemer, and Madison M. Hurley, New Albany, Ind. [Filed Dec. 13, 1875.]



The combination of the leg A, having an orifice in its end, the rubber pad E, having tenon C, the cross-pin *c*, and the brunt-joint band D, all constructed substantially as and for the purposes set forth.

172,201. CARTRIDGE-LOADING IMPLEMENTS. Charles J. Stoddard, Washington, D. C. [Filed Dec. 15, 1875.]



1. The loading and guiding tube G, having a flaring mouth, provided with an inside angular shoulder, *g*, and perforations *i*, slots *m n*, and spring H, the latter centered by its middle eccentrics upon said tube, and having a knife-point, *p*, and head-pin *r* secured on opposite sides, substantially as and for the purposes shown and specified.

2. The reversible bottom C, having a pin, *c*, with a screw-threaded base, and opposite screw-tenon *c*, substantially as and for the purposes shown and specified.

3. The combination of the cylinder D, having a central longitudinal recess, *d*, with the reversible bottom C, having the pin *c* and screw *c* secured on opposite sides thereof, substantially as and for the purposes shown and specified.

4. The cylinder D, having an annular bevel or depression, *a*, and a mortise or recess, *f'*, at right angles thereto, substantially as and for the purposes shown and specified.

5. The ring or shell-cast E, in combination with the lever-arm F, having a projection, *e*, and guide I for carrying the projection *e* to the center of the cock B, substantially as and for the purposes shown and specified.

6. The combined handle and extractor A, consisting of a knob or button, affixed to the end of the cylinder D, having a crescent-shaped recess, substantially as and for the purposes shown and specified.

7. The combination of the beveled cylinder D, shell-cast E, button A, and lever-arm F, substantially in the manner and for the purposes herein shown and specified.

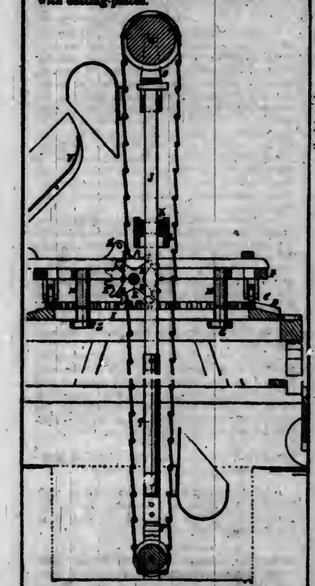
8. The combination of the hollow cylinder G, having guide-holes *i*, with the cylinder D and lever-arm F, the latter having the guide *h*, substantially as and for the purposes shown and specified.

9. The lever-arm F, having the eccentric shoulder or projection *e*, guide *h*, and eccentric wheel or bit *n*, substantially as and for the purposes shown and specified.

10. As a new article of manufacture, the implement for loading and manipulating cartridges herein described, consisting of the beveled and recessed cylinder D, having shank D' and stop I, eccentric ring or shell-cast E, button A, lever-arm F, tube G, and reversible bottom C, all constructed and arranged for operation substantially in the manner and for the purposes shown and specified.

172,202. MACHINES FOR HOEING AND WALKING WEEDS. Chas. B. Stough, Monticello, Ill. [Filed Apr. 3, 1875.]

Brief.—A frame supports a circular way, a stationary toothed rim, and a horizontally-revolving platform mounted upon rollers, carrying the caster and an endless basket-chain, by which the earth is conveyed onto a chute to be discharged. A tappet-wheel, which operates the basket-chain, is driven by gearing meshing into the toothed rim on the main frame as the platform is revolved. The caster has arms connected to a rim, and provided with cutting-plates.



1. The combination of the frame A, circular way C, stationary toothed rim D, horizontally-revolving frame F, beam L, and the rollers K with the caster-shaft J, substantially as specified.

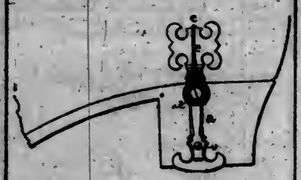
2. The combination of the shaft R, pinion R', and tappets S with the stationary toothed rim D, horizontally-revolving frame F, and the elevator, substantially as specified.

3. The arms A', shaft F', pinion H', and rim P', combined and arranged to form the caster-bottom, substantially as specified.

4. The combination of cone F, rim P, and arms K', substantially as specified.

5. The cone J', arms *n'*, coupling P', arms K', rim P, bottom H', arms A', and shaft F', combined substantially as specified.

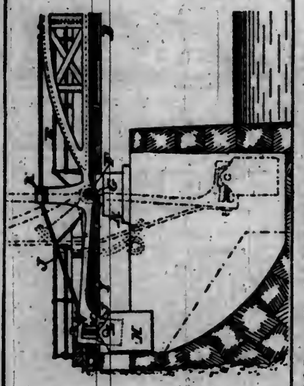
172,203. HAME-SUPPORTS FOR HOOPS AND SHOES. Marcus D. Strait, St. Louis, Mo. [Filed Dec. 15, 1875.]



The metallic plate *a*, having an irregular-shaped head, *c*, the rib *c*, and flanged end *f*, adapted to be bent to conform to the shape of the counter, substantially as shown and described.

172,204. LIFT-BRIDGES. Samuel Swarts, Buffalo, N. Y., assignor to Julia Swarts, same place. [Filed July 2, 1875.]

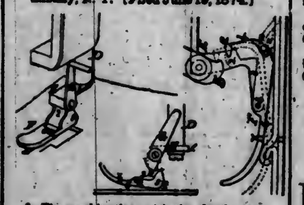
Brief.—A lift-bridge provided with counterbalance-weight, vertically adjustable by a screw, and operated by an arrangement of gearing acting on a segment on the pivot-shaft.



1. A lift-bridge constructed with a counterbalance weight or weights, adjustable vertically in the horizontal position of the bridge, to regulate the effect of said weight or weights on the bridge when in its vertical position, substantially as set forth.

2. The combination of the horizontal pivot-shaft F, counter-shaft R, vertical shaft U, lever V, and gearing P Q S T with the lift-bridge B C, extension-truss I J, and counterbalance-weights H, substantially as and for the purpose set forth.

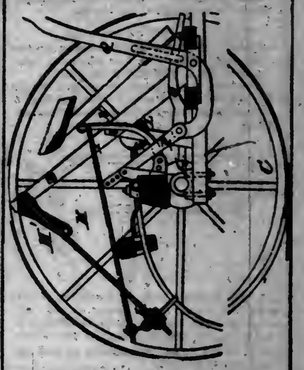
172,205. SEWING-MACHINES. A. Thayer, Albany, N. Y. [Filed June 19, 1874.]



1. The combination, with the elastic presser-bar D, provided with bracket E, and the cloth-plate and feed mechanism of a sewing-machine, the adjustable pad F, and mechanism for locking the same in different positions, when desired, for different operations, substantially as set forth.

2. The flange cam-lever G, bracket E, and elastic presser-bar D, in combination with the pivoted or vertical oscillating pad, provided with a holding-catch, *c*, for operation substantially as set forth.

172,206. HORSE-RAKES. John E. Thomas, Springfield, Ohio. [Filed June 2, 1875.]



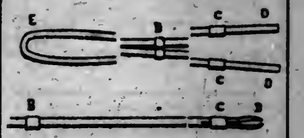
1. In combination with the rake A B and driver's seat, resting upon the front side of the rake-head, the adjustable counterpoise L, attached to the rake-head on the same side as the supports to the driver's seat, substantially as set forth.

2. In combination with the wheels and short stationary spindles, attached to the shaft-frame, the rake-head A and collars G, attached to the rake-head to the spindles, so that it shall revolve around them as a center, substantially as set forth.

3. In a rake, where a clearer is used across the rake and outside the teeth, the bars H', supporting such clearer independently of the rake, and the support K, which is arranged to engage the bars H', which support the clearer H and hold the latter clear of the rake-teeth when the latter are down, substantially as set forth.

172,207. ADJUSTABLE BODKINS. Libbie F. Thorne, New York, N. Y. [Filed Dec. 20, 1875.]

Brief.—The arms of the bodkin spring apart, and may be adjusted to ribbons or tapes of different widths by means of a slide embracing both arms. The ribbon is clamped in jaws on the ends of the arms, and set by slides. It may then be run through the task.

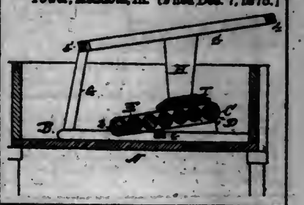


1. The duplex bodkin, with adjustable arms, substantially as described.

2. An expansible bodkin, provided with clamping-jaws D D, secured by means of slides C C, substantially as shown and described.

3. An expansible bodkin, consisting of the body A, slide B, clamping-jaws D D, and slides C C, substantially as shown and described.

172,208. WASHING-MACHINES. Justus D. Tower, Mendota, Ill. [Filed Dec. 7, 1875.]



1. The reciprocating rubber I, having a plane face and the flat strips of india-rubber secured thereon, in combination with a set of back-ed cloth-covered rollers, D E, substantially as described and shown.

2. The combination with the tank A, of the strips B B', connecting-rods G G', frame F, rubber I, rollers D, and cloth belt E, all substantially as described and shown.

172,909. DENTAL APPLICATOR FOR ANÆSTHETICS. Charles O. Von Bonhorst, Lancaster, Ohio. [Filed Dec. 14, 1875.]

Brief.—A spring-clamp serves as a handle for two opposing cups, for applying with a sponge some well-known anæsthetic to the gums.



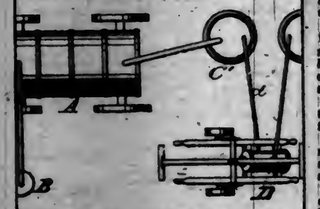
1. The double handle A, consisting of the arms *a a'*, united by the spring *a''*, and provided with the independent opposing cups B B, for holding and applying the anæsthetic agent to the gums, substantially as and for the purpose set forth.

2. The bow-handle A, provided with the cups B B, in combination with the sponges C C, or their equivalent, applied and operating as described.

3. The combination, with the cups or pads B B, of the elastic rings or bands D D, substantially as and for the purpose set forth.

172,910. APPARATUS FOR EMPTYING PRIVY-VAULTS. Charles H. Voute, Philadelphia, Pa. [Filed Dec. 17, 1875.]

Brief.—Fills one barrel by vacuum made in it, puts an empty barrel in its place, and connects the exhaust of the pump with the top of the full barrel; whereupon the pump, being set at *k*, causes a vacuum, which fills the empty barrel, and at the same time, by pressure of air withdrawn from the last-filled barrel, forces the contents of the first-filled barrel into the wagon-tank.



In combination with receiving and discharging tanks C C' and a transporting-tank, A, a double-acting engine, B, and the several removable pipe-connections, substantially as described.

172,911. CURTAIN-FIXTURE. S. Vreeland, Bahamas, N. Y. [Filed Oct. 4, 1875.]

Brief.—A rigid concave disk is held by screw and spring against the convex outer face of the cord-pulley.

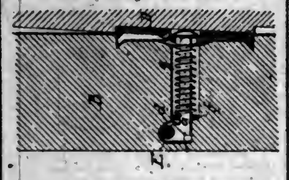


1. A curtain-fixture in which the roller A, provided with a flanged ring, *s*, is combined with a non-rotating spring-disk, *d*, all substantially as set forth.

2. The combination of the roller A and its flanged ring *s* with the disk *d*, its tubular projection *e*, screw *f*, and spring *g*, said projection *e* being so adapted to an opening in the bracket that the disk is prevented from turning, all as set forth.

172,912. SASH-FASTENER. S. Vreeland, Salamanca, N. Y. [Filed Oct. 22, 1875.]

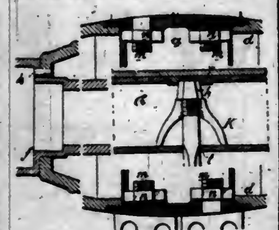
Brief.—A friction-pad is loosely hung upon a hooked shaft, around which a spring is coiled. A key operates to withdraw the hooked spring-shaft, and in that way relieve the frame of the pressure of the pad.



1. The combination, in a sash lock and retainer, of the plate D, hung to the end of the hooked shank *a*, the spring *e*, ring *f*, and key E, as set forth.

2. The plate D, its vertical opening *h*, and recesses *i i*, in combination with the T-headed shank *a*, to which said plate is hung, as and for the purpose described.

172,913. METALLIC WHEELS. S. Vreeland, Salamanca, N. Y. [Filed June 6, 1875.]



1. A metallic wheel having a hub in which are combined the central section or ring *a*, adapted for the reception of the inner ends of the spokes, and the outer or end sections *b b'*, screwed directly into the opposite ends of the section *a*, as and for the purpose set forth.

2. The combination of the hollow hub, made in three sections, with the axle-box B, threaded at one end for attachment to the end section *b'*, and provided at the opposite end with a collar, *f*, and pin *h*, for attachment to the end section *b*, as set forth.

3. The within-described fluted spoke, made tapering and of wrought-iron or steel, as set forth.

4. The combination of the spoke, the hollow rim C, the support K, and detachable plate *k*, adapted to an opening in the said rim, all substantially as described.

5. The combination of the nuts *a* with the annular rings *d d* of the sections *b b'* of the hub, as and for the purpose set forth.

172,914. CORSETS. Lucien C. Warner, New York, N. Y. [Filed Dec. 14, 1875.]

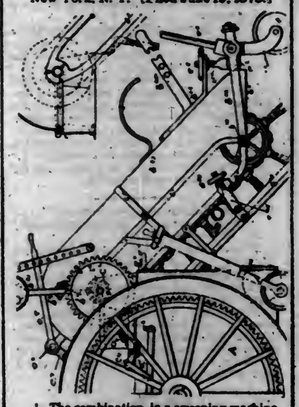


1. A corset in which the central bosom-piece and the lower gore are united and formed of a continuous strip, D', as and for the purpose set forth.

2. The combination, in a corset, of the continuous strip D', extending through and forming part of the bosom-pad and the inserted side pieces D D, arranged on opposite sides of said strip, as specified.

3. The combination, in a corset, of the breast-sections A A' and a continuous strip, D', inserted between and extending the length of the sections, forming a central piece of the bosom-pad and the lower gore, and having a continuous pocket for a central rib, all substantially as and for the purpose set forth.

172,915. STREET-SWEEPING MACHINE. William Warren, Cheltenham, England, assignor to himself and Zobeth S. Derbe, New York, N. Y. [Filed June 19, 1873.]



1. The combination, in a sweeping-machine, of the two independent sets of chain-brushes, working on the driven shafts *b* and *b'*, and corresponding leading-shafts *b''* and *b'''*, with the movable inclined table *b''''*, attached at its upper end by jointed connecting-bars to the frame-work *b** of the machine, and at its lower end by the screws *b'''''* on each side of the table, which run through brackets on the frame of the machine and into nuts in the hand-wheels *b''''''*, by turning which the position of the table with reference to the brushes is determined, as described and shown in the foregoing specification and accompanying drawings.

2. The combination, in a sweeping-machine, of the clutches *b''' b'''* on the shafts *b b'* with the pinions *b' b'*, the forked levers *b''''*, having swiveling nuts *b''''* on their upper ends, the shafts *b''''*, having screws on each end, working into said nuts, and hand-wheels for working the screws, the same being so combined for throwing the chains of brushes in the machine in and out of motion, as fully described and shown in the accompanying specification and drawings.

3. The jaw *c*, working on its joints *c'* on the shafts *b b'*, in combination with the chain *c''*, lever *c'''* on the shaft *c'*, and the lever *c''* and catch-lever *c''''*, all constructed and arranged to effect the connection of the machine with the cart A, as more fully set out in the accompanying specification and drawings.

172,916. SIZING. Jos. W. Watties, Canton, Mass. [Filed Apr. 14, 1875.]

A new manufacture for conversion with water into a sizing or a dressing for warps, consisting of acetic acid and dry starch, all being substantially as set forth.

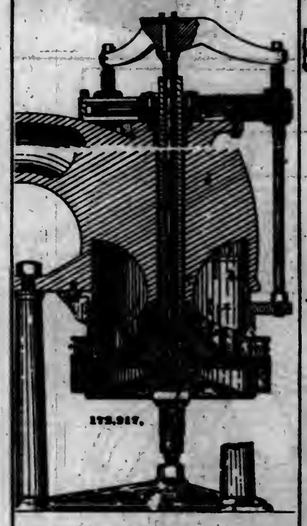
172,917. TURBINE WATER-WHEELS. Harvey Waters, Boston, Mass. [Filed Dec. 21, 1875.]

Brief.—The water is received internally from an elevated pen-stock, and discharges it through its outer periphery into a race. The cylindrical guide, bucket-wheel, and guide-pitch arc, in combination with the annular guide, adapted to receive the buckets, and all operate to vary the capacity of the wheel. There is an annular space to receive the bucket-plates and lower rim of the wheel, which counterbalances the upward pressure of the water.

1. The cylindrical guide, bucket-wheel, and guide-pitch, in combination with the annular guide adapted to receive the buckets, and to operate in connection with each other, to vary the capacity of the wheel, substantially as described.

2. The guide, having an annular space to receive the bucket-plates and lower rim of the wheel, combined with the wheel, and adapted to operate substantially as described, to counterbalance the upward pressure of the water.

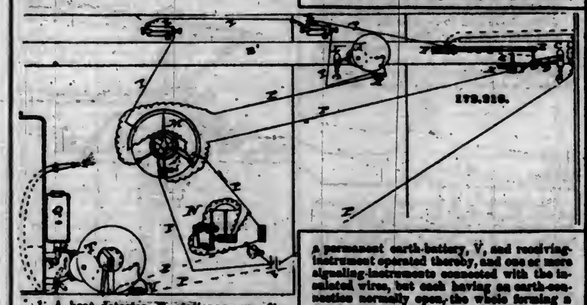
3. The cylindrical guide, bucket-wheel, and guide-pitch, in combination with an annular guide, slotted to receive and guide the bucket-plates, as specified.



172,917.

172,918. AUTOMATIC ELECTRIC FIRE ALARMS AND EXTINGUISHERS. William B. Watkins, Jersey City, N. J. [Filed Dec. 28, 1872.]

Brief.—Thermostat closes an electric circuit, which controls, through electro-magnetic apparatus, valve at eating-gas, valve at location of thermostat noting, and an alarm apparatus.



172,918.

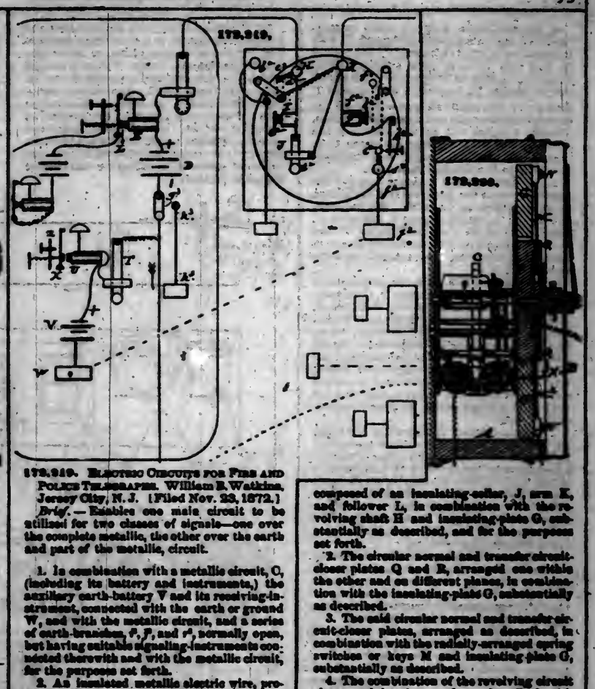
1. A heat-detector, E, stationary gas-discharging pipes B and B', and gas-generating reservoir A, in combination with the cock or valve I, train of wheels J, electro-magnet K, and galvanic circuit of wires P, all arranged and operating substantially as hereinbefore described.

2. A heat-detector, E, gas-discharging pipes B and B', and gas-generating reservoir A, in combination with a galvanic circuit of wires, P, an indicator instrument, M, and an alarm-bell apparatus, N, all arranged and operating substantially as hereinbefore described.

3. The stationary gas-generating reservoir A, in combination with the gas-discharging vessel Q, train of wheels T, magnet U, galvanic circuit of wires P, and heat-detector E, all arranged and operating substantially as hereinbefore described.

172,919. ELECTRIC CIRCUITS FOR FIRE AND POLICE TELEGRAPHS. William B. Watkins, Jersey City, N. J. [Filed Nov. 23, 1872.]

Brief.—Enables one main circuit to be utilized for two classes of signals—one over the complete metallic, the other over the earth and part of the metallic, circuit.



172,919.

172,920.

1. In combination with a metallic circuit, C, (including its battery and instruments,) the auxiliary earth-battery V and its receiving-instrument, connected with the earth or ground W, and with the metallic circuit, and a series of earth-branches, *s'*, F, and *s''*, normally open, but having suitable signaling-instruments connected therewith and with the metallic circuit, for the purposes set forth.

2. An insulated metallic electric wire, provided with a battery, and having two or more earth-connections normally open, and also a permanent earth, with a battery connected to the wire between said normally open earths, whereby signals can be sent along the insulated wire in either direction to and from said battery, substantially as described.

3. In combination with both arms of a broken metallic circuit, C, and suitable telegraph-instruments for closing and opening the same, a permanent earth-battery, V, and receiving-instrument operated thereby, and one or more signaling-instruments connected with the insulated wires, but each having an earth-connection normally open, the whole forming a double-acting telegraph, for the purposes set forth.

4. In combination with the metallic circuit C and earth-circuits, as set forth, one or more magnets, *g'* and *g''*, in the earth-branches.

5. In combination with the metallic circuit C and earth-circuits, as set forth, the switch *g''* and earth *h''*, for the purposes described.

6. In combination with the combined circuits, an alarm apparatus in connection with the armature L of the receiving-instrument E.

172,920. CIRCUIT CLOSERS AND BREAKERS FOR ALARM-TELEGRAPHS. William B. Watkins, Jersey City, N. J. [Filed Dec. 21, 1872.]

1. The revolving circuit-breaker and closer composed of an insulating-collar, J, arm K, and follower L, in combination with the revolving shaft H and insulating-plate G, substantially as described, and for the purposes set forth.

2. The circular normal and transfer circuit-closer plates Q and R, arranged one within the other and on different planes, in combination with the insulating-plate G, substantially as described.

3. The said circular normal and transfer-circuit-closer plates, arranged as described, in combination with the radially-arranged spring switches or keys M and insulating-plate G, substantially as described.

4. The combination of the revolving circuit closer and breaker, made as described, with the spring switches or keys M and circular normal and transfer circuit-plates Q and R, substantially as described.

5. The combination of the auxiliary circuit-closer arm U with the revolving circuit closer and breaker arm K, and follower L and transfer circuit-closer plate R, substantially as set forth.

6. The combination of the pointer I and dial-plate B with the revolving circuit closer and breaker K L, and radially-arranged spring switches or keys M, substantially as described.

7. The said apparatus, as described, in combination with the magnet D, armature E, and train of clock-wheels, substantially as set forth, and for the purposes specified.

172,921. DOUBLE-ACTING FIRE AND BURGLAR ALARM TELEGRAPH. William B. Watkins, Jersey City, N. J. [Filed Jan. 20, 1873.]

1. In combination with a main line, a branch, R, or series of branches, heat or burglar detectors *s* and *s'*, train of wheels, circuit-breaker *s''*, magnet *o*, armature *o'*, grounds T and Q, battery P, magnet O, forming a single circuit, by means whereof the number on the circuit-breaker *s''* will be signaled at the station O, substantially in the manner as hereinbefore described.

2. In combination with a main line, a branch, R, or series of branches, heat or burglar detectors *s* and *s'*, train of wheels, circuit-breaker *s''*, magnet *o*, armature *o'*, grounds T and Q, battery P, magnet O, and indicator instrument *h'*, either with or without an alarm instrument, *n'*, and resistance-coil *w'*, substantially as described, and for the purposes set forth.

3. In a fire-alarm telegraph, in combination with a main metallic circuit, G, having a receiving-magnet, E, a permanent auxiliary earth-branch, F, with its receiving-magnet O, battery P, and ground Q, one or more normally open auxiliary earth-branches, R, and suitable circuit-breakers *p'* and *p''*, in connection with the earth and metallic circuits, so that, when operated, a signal will be transmitted either over the earth or metallic circuit to the receiving-magnet O or E, or to both at the same time.

4. In combination with the main metallic circuit G, the permanent earth-branch K, with its receiving-magnet O, battery P, and ground Q, and one or more open auxiliary earth-branches, E, heat or burglar detectors e or e', circuit-breaker p^1, magnet S, and ground T, forming by this means an open and closed circuit through the main and auxiliary branches, whereby a signal will be transmitted to the receiving-station C, whether the circuit G is be broken or closed, all arranged to operate substantially as hereinbefore described.

5. For transmitting a signal through the closed circuit of the main line G to the station C, substantially as described, the combination of the actuating-magnet S, armature s^1, detent-lever s^2, $f g$ h^1, circuit-breaker h^2, and auxiliary branch K, with the circuit-closers in connection therewith, to operate substantially as set forth.

6. The combination, with the main metallic circuit G, and auxiliary branch K, the circuit-breaker p^1, actuating-magnet s, armature s^1, detent-lever s^2, $f g$ h^1, circuit-breaker h^2, and circuit-closers in connection therewith, whereby a double signal, each independent from the other, will be transmitted to the station C, and will be received by the magnets O and E, when the line G is clear, but will insure the receiving of the signal on the magnet O when the line G is either broken or short-circuited, as described.

7. For completing the circuit of the auxiliary branch K through the circuit-breaker p^1, the adjustable switch s^3 with either of the two circuit-breaker springs s^4 or s^5, buttons s^6 or s^7, and an auxiliary branch, K, of the main line G, substantially as described, whereby either of the different signals or calls, as represented by the long or short breaks f^1 and h^1 of the circuit-breaker p^1, may be transmitted to the station C, as set forth.

8. The combination of a motor or train of wheels, stop-lever s^2, catch or detent lever arm s^2, and a releasing lever or cam, s^3, operated by a shaft s^4 of the train, as described, for always stopping a shaft or circuit-breaker in the same position, at any designated point.

9. The combination of a motor or train of wheels, an actuating-magnet, s, armature, s^1, detent-lever arm s^2, stop-lever s^2, and releasing lever or cam s^3, for automatically starting a train and stopping a shaft or circuit-breaker at a designated point, by closing and opening the circuit.

10. The combination of a stop-lever, s^2, detent-lever s^2, releasing lever or cam, s^3, with a motor or train of wheels, actuating-magnet s, armature s^1, with either of the circuit-breakers p^1 or h^2, or both, with either of the electrical connections for operating the same, as and for the purposes described.

11. The combination of the lever s^2, detent-lever arm s^2, stop-lever s^2, releasing-lever cam s^3, with the motor or train of wheels, circuit-breaker h^2 of closed circuit G, and its connections, for transmitting a signal by the station C by their operating the magnet E, as and for the purposes described.

12. The combination of the revolving metallic hub s^9, circuit-breaker p^1, motor or train of wheels, armature s^1, actuating-magnet s, or their equivalent, with an electric circuit and line connections, for automatically transmitting a destructive signal whenever the train is not in motion, whether the line G be broken or short-circuited, as described.

13. For transmitting to a receiving-station a definite series of signals, the combination of a revolving circuit-breaker and closer hand, s^9, springs h^1 and f^1, wires f and h^1, and an auxiliary branch, K, of the main circuit G, or their equivalents, constructed to operate as set forth.

14. For indicating the working condition of the train of wheels, the combination of the spur s^5, testhead wheel s^6, dial s^7, and pointer s^8, arranged and operating as described.

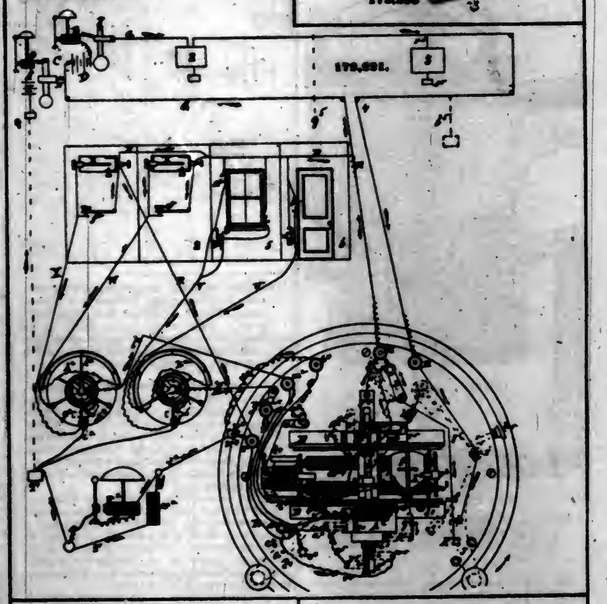
15. For transmitting to the receiving-station the same signal-number by two different notations or degrees of sound, the combination of a circuit-breaker, p^1, having an L-shaped or long and short break or branching-spoke f and h^1, current to flow with the spring circuit-breakers s^4 and s^5, and open auxiliary branches K, electrically connected with the main line and with s^4 and s^5, and with the receiving-apparatus at the station C, whereby a fire or burglar alarm will be distinguished by the long break f and circuit through s^4, while a destructive signal or other telegraphic call will be distinguished by the short break h^1, and circuit through s^5, or vice versa, all constructed to operate substantially as hereinbefore set forth.

16. For transmitting two simultaneous and independent signals to a receiving signal-station, for fire or burglar alarm, or other telegraphic purposes, a system of electric circuits composed of a main metallic circuit, G, auxiliary branch or branches K, arranged and operating as hereinbefore set forth, in combination with a transmitting apparatus composed of an actuating-magnet, s, train of wheels, and system of keys, switches, circuit-breakers, and wires, arranged as described, whereby a new and improved system of signaling fire and burglar alarms is effected.

connecting-wires f, cords h, springs p, pulleys d d', and sliding hub B, substantially as and for the purposes herein set forth.

4. The combination, with the sliding pulley B, of the weighted paddle H, cord a, arm K, paddle J, and winding-pin c, all substantially as and for the purposes herein set forth.

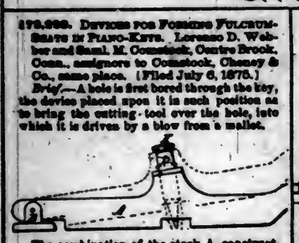
172,926.



172,931.

172,932. DEVICES FOR FORMING FULCRUM-SEATS IN PIANO-KEYS. Lorenzo D. Webber and Saml. M. Comstock, Centre Brook, Conn., assignors to Comstock, Cheney & Co., same place. [Filed July 6, 1875.]

Brief.—A hole is first bored through the key, the device placed upon it in such position as to bring the cutting-tool over the hole, into which it is driven by a blow from a mallet.



The combination of the stock A, constructed with the handle C, and hung upon a fulcrum-block, E, at the other end, with the engaging-tool D set through a mortise in the said stock, substantially as and for the purposes described.

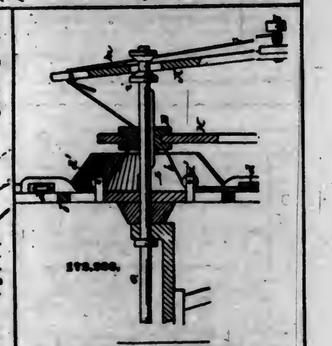
172,933. WIND-WHEELS. Jacob Weimer, Elmore, Mohr. [Filed July 22, 1875.]

Brief.—This wheel is secured on the shaft, and has a hub with radial arms connecting it with the rim. At a suitable distance from the hub the arms are connected by cross-bars, which form a regular polygonal-shaped figure. Between these cross-bars and the rim of the wheel are pivoted a series of wings, each wing consisting of a skeleton-frame with cross-bars, and covered with canvas.

1. In a wind-wheel having pivoted wings, as described, a bevoled hood, L, arranged in the center on the front of the wheel, for the purposes herein set forth.

2. The combination, in a wind-wheel, of the projecting rim F and bevoled center hood L, substantially as and for the purposes herein set forth.

3. The combination of the pivoted wings G, connecting-wires f, cords h, springs p, pulleys d d', and sliding hub B, substantially as and for the purposes herein set forth.



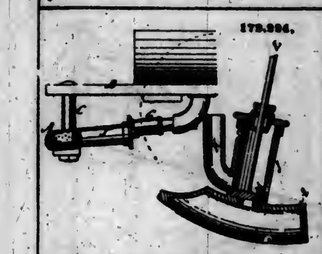
172,934. SPRINKLERS. William Westerfield, New York, N. Y. [Filed Dec. 21, 1875.]

Brief.—A suspended sprinkler-tube and hanger, in combination with a pipe having a flexible and detachable joint in each branch, as also valve-box and valve and trundle mechanism.

1. The suspended sprinkler-tube A and hanger C, in combination with a pipe, D, having a flexible and detachable joint, G, in each branch, as and for the purposes described.

2. The combination, with branched pipe D, of the valve-box J, valve M, and trundle mechanism L O P M, as and for the purposes specified.

172,924.



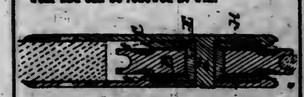
172,925. PIN-BOOKS. John G. Wetmore, Winsted, Conn. [Filed Dec. 21, 1875.]



The herein-described pin-book, consisting of the leaves formed in pairs by folding, as at e, and each leaf doubled, and the crimps e f, formed in the double paper below the doubled edge d of the leaf, and the pins passed through both thicknesses of the leaf, at the crimps e f, and inclosed with the cover i, substantially as specified.

172,926. SHEAVES FOR SLIDING DOORS. C. H. White, New York, N. Y. [Filed Dec. 7, 1875.]

Brief.—Cheek-plates and a removable pintle-sleeve are arranged inside of a door-sheave casing, so that said parts take the frictional wear and can be renewed at will.



1. The combination, with a sheave and removable cheek-plate, of the carrying-plate, provided with a boss, rib, or bead, forming a recess or seat for the cheek-plate, substantially as herein described.

2. The combination of the plates O O', constructed as described, with the sheave B, shield or sleeve E, and cheek-plates H H, arranged and operating substantially as and for the purposes specified.

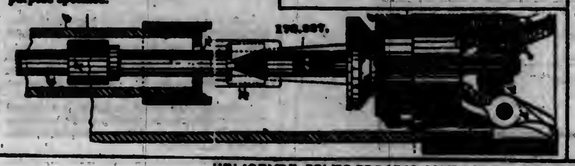
172,927. ADJUSTABLE VALVES FOR TUBULAR WELLS. Jas. T. Whipple, Oak Park, Ill. [Filed Nov. 20, 1875.]

Brief.—To the coupling, constructed as in former patent, are attached three radial pivoted binding-levers, the lower ends of which are forced outward upon the tubing by the lower end of the valve-seat, as it is screwed into the coupling, grasping in ward their upper ends. A lug on the lower end of the valve-stem, by engaging against cap of the radial bars, enables the holding of the coupling against the turning and screwing down of the valve-seat, the holding and turning of these parts being accomplished by a tube and a rod, provided with grappling-wrench and threaded socket.

1. In combination with coupling D and base e of the valve-seat, the levers d, e, and f, arranged for joint operation to hold the valve-seat at any desired point within the main tube, as and for the purpose specified.

2. In combination with the valve-seat, the adjusting-rods O O' and wrench H, rod G', adapted for joint operation with valve-stem e, provided with lug f, whereby the coupling D is held in a fixed position during a rotary movement of the valve-seat, as and for the purpose specified.

172,928.



172,929. GRAIN-CARS. John H. White, Cleveland, Ohio, assignor to H. A. Coit, Concord, N. H. [Filed Aug. 18, 1875.]

Brief.—Grain-car provided with detachable canvas lining, which, in unloading, is gathered by rotating a shaft, so as to expel the contents.



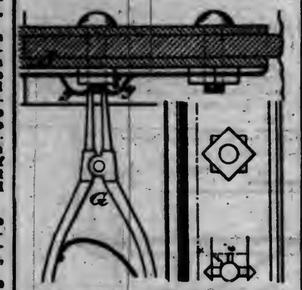
1. The car lining or casing a, of canvas or analogous material, detachably supported, substantially as and for the purpose set forth.

2. In combination with the casing a, the adjusting-cords d, for gathering the canvas, as and for the purpose specified.

3. The combination, with the grain-receptacle, of a shaft, f, and means by which the same is rotated for gathering the said grain-receptacle, substantially as set forth.

4. The deflector m, for directing the grain, in combination with a grain-car, substantially as set forth.

172,930. HUB-LOCKS. Frederick R. Wigle, Mansfield, Ohio, assignor of two-thirds his right to Marquette A. Wigle, same place. [Filed Nov. 27, 1875.]

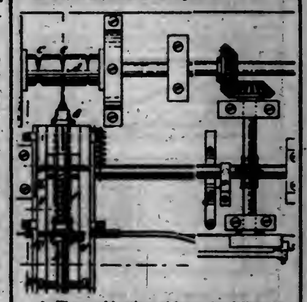


1. The notched spring-lips f g on spring-plate C, for the purpose described.

2. The slots i i on lips f g, for receiving the hooked ends of the detaining-tool G, substantially as described.

172,931. MACHINES FOR POINTING WIRE. Henry A. Williams, West Medway, Mass. [Filed Oct. 23, 1875.]

Brief.—A work-holding stock representing in bearings in a hinged frame, and a carriage, which is gradually moved toward the rolls by a cam, for supporting said frame and stock. Wire is introduced between the rolls when the larger portions of the grooves are passing, and, when acted upon by the tapered portions, is forced back, a spring serving to return the stock to its former position when the said tapered portions have passed.



1. The combination, with a pair of die-rolls, A B, of a work-holding stock, F, having a forward and backward movement at each operation of the rolls, and also having a progressive feed motion, substantially as specified.

2. The work-holding stock, arranged on the carriage H by a frame, V, pivoted to the carriage, for elevating the stock to receive and deliver the work, substantially as specified.

3. The combination, with the reciprocating work-holding stock and the die-rolls, of the reciprocating toothed bar S, wheel R, and ratchet U, substantially as specified.

4. The combination, with the reciprocating work-holding stock and the die-rolls, of the feeding-carriage H and the cam K, substantially as specified.

172,932. CAR-VENTILATORS. R. H. Winchell, Chicago, Ill. [Filed Jan. 4, 1876.]

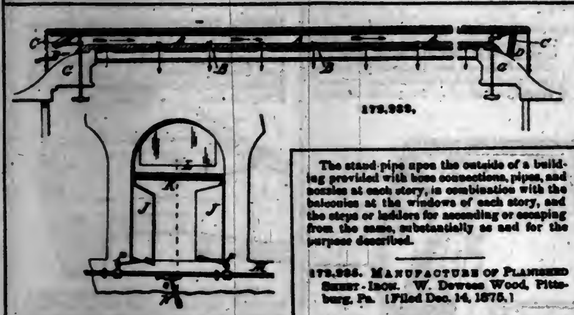
Brief.—The supply ends of the air-chamber are below the extreme top of the car, avoiding projections above the car, which might collide with bridges, tunnels, &c.

1. A ventilating air-chamber, A, constructed in or upon the raised deck or roof of a railway-car, as herein described, with bread flaring ends C, flush with or below the level of the top of the car, provided with adjustable gates D, and a series of holes, E, opening into the body of the car, as and for the purpose set forth.

2. In combination with the deflectors J, the devices for operating the same, consisting of the links P P, bar M, and lever N, as described.

3. In combination with the deflectors J and window-sash L, the drop-sash K, constructed and arranged substantially as and for the purpose set forth.

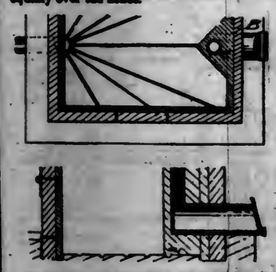
HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.



4. The combination of the ventilating air-shafter A, constructed and arranged to operate as described, with the drop-sash and deflectors at the windows, constructed and operating substantially as set forth.

172,962. LEACHES. Marion P. Wolfe and Edwin M. Hembel, Crawfordsville, Ind. [Filed Aug. 14, 1875.]

Brief.—The bottom of the ash-receptacle is inclined toward the side, and provided with channels that convey the lye to an exit-opening for being drawn off. The remaining ashes are shoveled out through hinged doors, and introduced to the inside of the receptacle through a hinged top door. A water-reservoir with perforated bottom forms the top of the leach, and serves to distribute the water equally over the ashes.



The ash-receptacle and leach having inclined and channeled bottom, and a top reservoir with perforated bottom to distribute the water and draw off the lye, substantially as set forth.

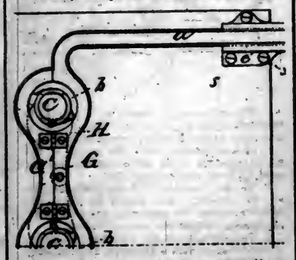
172,964. FIRE EXTINGUISHING AND ESCAPE APPARATUS. Wm. R. Weed and R. Leonard, Baltimore, Md. [Filed June 4, 1875.]

The stand-pipe upon the outside of a building provided with hose connections, pipes, and nozzles at each story, in combination with the balconies at the windows of each story, and the steps or ladders for ascending or escaping from the same, substantially as and for the purpose described.

172,966. MANUFACTURE OF PLANISHED SHEET-IRON. W. Dewees Wood, Pittsburg, Pa. [Filed Dec. 14, 1875.]

As a step in the manufacture of planished sheet-iron, baking a mixture of carbonaceous matter and oil or other hydrocarbon into or onto a previously-decarbonized or scaled surface of the sheet while inclosed or protected against injurious reoxidation, and preparatory to finishing in rolls, or hammers, or both, substantially as set forth.

172,966. SAFETY-GUARDS FOR WOOD-SHAPING MACHINES. Thomas H. Wood, York Township, Sandusky County, Ohio, assignor of one-half his right to James B. Wood, same place. [Filed Nov. 20, 1875.]

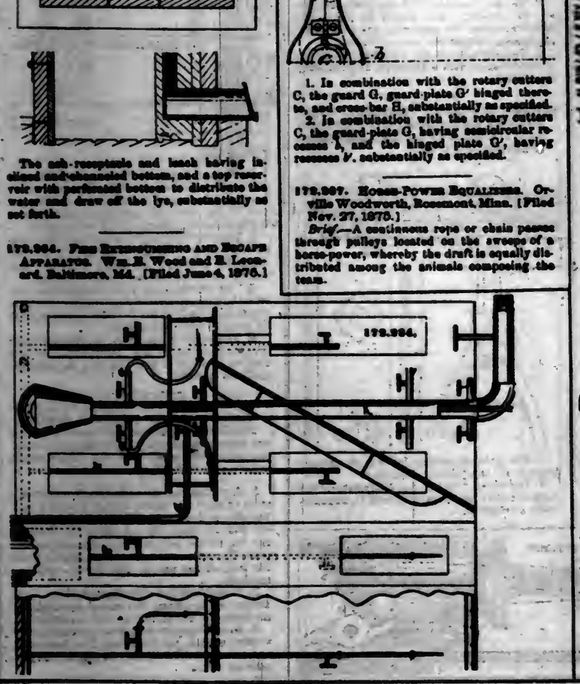


1. In combination with the rotary cutters C, the guard G, guard-plate G' hinged thereto, and cross-bar H, substantially as specified.

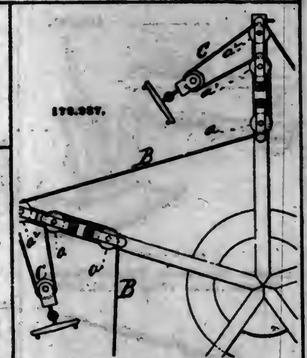
2. In combination with the rotary cutters C, the guard-plate G, having semicircular recesses b', substantially as specified.

172,967. HOSES-POWER EQUALIZERS. Orville Woodworth, Rossmont, Minn. [Filed Nov. 27, 1875.]

Brief.—A continuous rope or chain passes through pulleys located on the sweeps of a horse-power, whereby the draft is equally distributed among the animals composing the team.

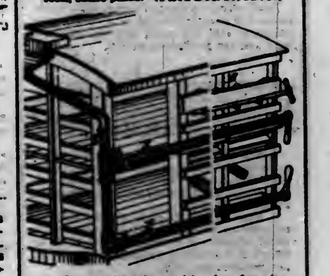


172,967.



The combination of the pulleys a a' a², arranged on the upper face of each sweep and in the same horizontal plane, pulleys C, and the endless chain or rope E, whereby the stock of one horse is taken up by the others, and, at the same time, all friction of the endless chain on the straps in which the pulleys are journaled is prevented, substantially as described.

172,968. STOCK-CARS. Joseph A. Wood, Jersey City, N. J., assignor to Chas. McIntosh, same place. [Filed Dec. 17, 1875.]

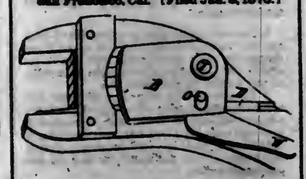


1. The combination, with the dumping-troughs D, of the independently-rocking water-pipes, arranged and operating substantially as described.

2. The rocking pipes B, mounted in suitable bearings above the feed-troughs and jointed to the supply-pipes, substantially as described, whereby said pipes can be made to discharge their contents into the troughs or allowed to empty themselves on the ground, as set forth.

3. The combination of the down-spouts b b', which supply the feed-troughs D', with the vertical frame posts or studs B of the car, substantially as described.

172,969. WRENCHES. Elisha T. Barlow, San Francisco, Cal. [Filed Jan. 6, 1876.]

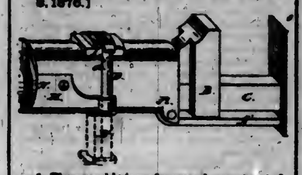


1. A wrench provided with a series of movable plates, to adapt the jaws to various-sized objects, substantially as set forth.

2. A pivoted shield or plate, B, constructed substantially as described, and provided with a lever or handle, W, for the purpose set forth.

3. The pivoted shield or plate B, provided with the slot, in combination with the sliding wedge D, having stud O, constructed and operating as described.

172,969. MONKEY-WRENCHES. Elisha T. Barlow, San Francisco, Cal. [Filed Jan. 6, 1876.]



1. The movable jaw of a wrench, constructed to hold and carry a number of thin plates, in combination with a key passing through the main bar, and between the plates in the movable jaw, for the purpose specified.

2. The movable jaw B, constructed with the arm B', having the recess for holding the plates E E' and block F, as set forth and shown.

3. The block F, provided with the rod shown, in combination with the spring arranged in the cavity a.

4. The key D, having arm D' and beveled point Z, as and for the purpose described.

5. The key D, having arm D' and projection a, in combination with the spring H, for the purpose specified.

6. The shield or cap A, provided with the boss I, substantially as shown and described.

7. The combination of the main bar C, the movable jaw B, plates E E', block F, wedge D, and shield A, constructed and arranged substantially as shown and described.

8. In a wrench, the combination of the steel plates and a wedge, for the purpose specified.

172,970. MONKEY-WRENCHES. Elisha T. Barlow, San Francisco, Cal. [Filed Jan. 6, 1876.]



1. In a wrench constructed as described, the movable jaw B B' B'', provided with the cog-teeth *a a a* and handle-lever I, in combination with the toothed segment F, having spline F', and the main bar C, provided with the groove *c*, the parts being arranged and operated substantially as shown and described.

2. The segment F, having spline F', tenon *x'*, and hook *y'*, in combination with the cam-disk D, for the purpose specified.

3. The combination of the main bar C, provided with the hammer-head O' and the bar A', constructed and arranged as shown and described.

4. The combination of the shield A, the arm H, carrying the spring H', and the main bar C, as shown and described.

REISSUES.

6,844. LAMPS. Joshua R. Ambrose, Plattsville, Ohio, assignor, by mesne assignments, to Edward Miller & Co., Meriden, Conn. Patent No. 30,361, dated Oct. 16, 1860; reissue No. 6,412, dated May 20, 1873. [Filed Dec. 9, 1875.]



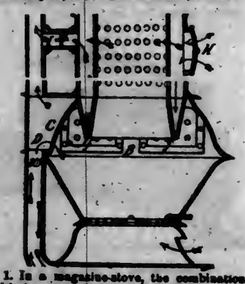
1. In combination with the wick-tube and a mechanism for adjusting the wick, an auxiliary tube or passage leading from the lamp upward, to conduct the gas from within the lamp to the flame without the mixture of air with the gas below the upper orifice of the tube, substantially as set forth.

2. The combination, in a lamp-burner, of the following elements: first, a deflector; second, a perforated air-distributer, which, with the deflector, forms the combustion-chamber; third, a wick-tube extending from the fount to the combustion-chamber; fourth, a tube or passage to conduct the gas from the fount to said combustion-chamber; fifth, an adjusting device to regulate the elevation of the wick, substantially as described.

4. The combination of the heaters G H, with a space between them, communicating directly with the external air, in connection with the collar *p* and plates *q q*, fitted on the top of the wick-tube K, and the perforated cap O, substantially as and for the purpose set forth.

5. The shaft *e*, provided with the rod *f* and spurs *g*, which are within the chamber *d* of the wick-tube, in connection with the plates *h j k* and spring *i* on the said shaft, all being arranged to operate as and for the purpose set forth.

6,845. MAGAZINE-STOVES. W. W. Baldwin, Cleveland, Ohio. Patent No. 103,442, dated May 18, 1870. [Filed Dec. 4, 1875.]



1. In a magazine-stove, the combination, with the converging walls of the air-space, the same forming at their lower extremity the annular space *f*, of the opening C, constructed to extend above and below the lower portion of said converging walls, substantially as and for the purpose set forth.

2. The combination, with the perforated reservoir E, the perforations of which communicate directly with the air-space, and the air-space F, of the flue I and damper *i*, substantially as and for the purpose described.

3. The combination, with the perforated reservoir E, the perforations of which connect directly with the air-space F, of air-space F, flue I, and air-register H, substantially as and for the purpose described.

4. The combination, with the combustion-chamber B, perforated reservoir E, the perforations of which communicate directly with the air-space F, of the exit-flue O and flue I, substantially as and for the purpose described.

5. The combination, with combustion-chamber B, air-space F, and flues O and I, of the air-register H, by which means the draft has direct transit through the reservoir E without passing down by an indirect course, substantially as and for the purpose described.

6. The combination, with the annular air-space and the fuel-reservoir, having perforated wall, of the flue I, leading to the smoke-flue D, substantially as and for the purpose set forth.

6,846. SOLDERING AND UNSOLDERING CAN-CAPS. Abel Barker, Wyoming, Pa., assignor of one-half interest to E. M. Lang, Portland, Me. Patent No. 103,126, dated May 17, 1870. [Filed Dec. 21, 1870.]



1. For the purpose of soldering and unsoldering can-caps, a disk, circular casting, or soldering-tool, having a recess in the under side, and outside the recess an edge or surface, by means of which edge or surface the solder is melted and applied.

2. The disk or soldering-tool A, with the recess B in the under side, as set forth, in combination with the movable rod or wire D.

3. For soldering can-caps, the combination of a soldering-tool, which conforms in shape to the cap to be treated, and the rod or wire D.

6,847. CORN-SHELLERS. August Borneman, Lancaster, Ohio, assignor to the Hocking Valley Manufacturing Company. Patent No. 135,020, dated Jan. 21, 1873. [Filed Dec. 13, 1875.]



1. A metallic end section or casing for the picker-wheel of a corn-sheller, combined with a cob-chute extension, substantially as and for the purpose specified.

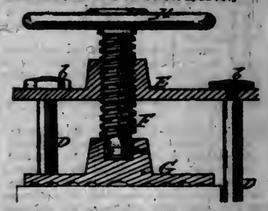
2. A detachable superimposed end section or bonnet for a corn-sheller, provided with an opening for the delivery of the cobs, substantially as specified.

3. A fixed corn-sheller casing, constructed substantially as set forth, combined with a detachable bonnet or rear sectional casing to afford access to the interior of the sheller.

4. The rear curved end of the side casing D', in combination with a rounded metallic bonnet, and a top casing, C, extending to about the center of the picker-wheel, substantially as described.

5. The combination, substantially as set forth, of the frame, the cob-chute secured thereto, and the separate case section or bonnet, with which the cob-chute is connected.

6,848. MACHINES FOR KYANIZING WOOD. David W. Hunt, San Francisco, Cal., assignor, by mesne assignments, to the National Timber-Preserving Company of Connecticut. Patent No. 61,843, dated June 29, 1869. [Filed Nov. 2, 1875.]



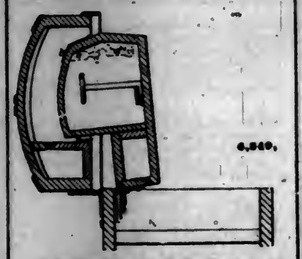
1. An end plate or cap having a sharp-edged flange for forming a tight joint, and a fluid-diffusing chamber between the plate and the wood, said plate being perforated and used in connection with wood-preserving fluids or agents, which are inducted to one end of the wood under hydraulic or other pressure applied by power-machines with such force that it is compelled to pass partly or wholly through the wood in a direction with the pores and fibers thereof, substantially as described.

2. An end plate at the receiving end of a piece of wood, and having an induction-passage in it for the preserving agent to flow through, in combination with an adjustable end plate at the opposite end of the wood, substantially as and for the purposes described.

3. The combination of an end plate, constructed with eduction passages or channels, with an end plate constructed with an induction-passage, substantially as and for the purpose described.

4. The sharp edge *a a* on the flange of the perforated plate A, substantially as and for the purpose described.

6,849. TROWEL. Hermann Vogler, Chicago, Ill. Patent No. 150,601, dated Oct. 6, 1874. [Filed Dec. 9, 1875.]



6,849.

1. In a trunk, and in combination therewith, a tray removably hinged in the body of the said trunk, substantially as and for the purpose set forth.

2. In a trunk, a compartment-tray provided with the strap-hinges, in combination with cockets attached to the back and inside of the trunk-body, substantially as described, for the purpose of removably hinging the tray.

6,850. DESIGN FOR A COMBINED INKSTAND AND PAPER-WEIGHT. Homer Lee, New York, N. Y. Design No. 2,462, dated July 13, 1876. [Filed Jan. 4, 1876.]



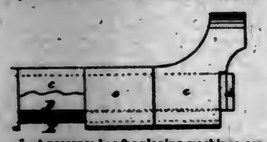
1. A design for a combined ink-bottle and paper-weight, consisting, essentially, of a representation of a ball, having a groove and ribs, substantially as shown and described.

2. A design for a combined ink-bottle and paper-weight, consisting of a representation of a ball, having a groove, D, ribs or beads E F G H I, and cars K, substantially as shown and described.

3. A design for a combined ink-bottle and paper-weight, consisting of a representation of a ball, having a groove, D, ribs or beads E F G H I, and ears F, the whole being surmounted with a pin-cushion spherical in form.

6,851. PLANING-MACHINES. W. C. Margedant, Hamilton, Ohio, assignor to Beutel, Margedant & Co. Patent No. 140,466, dated Apr. 7, 1874. [Filed Dec. 14, 1875.]

Brief.—Chip-breaker bar inclosed in hollow sections, having an india-rubber strip between the bar and interior surface of the sections, to yield to the uneven surface of the lumber.



1. A pressure-bar for planing-machines, consisting of adjustable bar D and hollow sections c, substantially as set forth.

2. The combination, in a pressure-bar for planing-machines, of the bar D, sections c, and spring S, substantially as set forth.

3. A sectional pressure-bar for planing-machines, composed of bar D and hollow sections c, in combination with spring-held levers F F, substantially as set forth.

6,852. HUSKY-BURRERS. Walter P. Nowhall, Peekskill, N. Y., assignor, by mesne assignments, to R. H. Pease and E. Middleton, New York city. Patent No. 45,613, dated Dec. 20, 1864. [Filed Jan. 6, 1876.]



6,852.

1. The combination of a lamp-burner, an adjustable hood for covering a portion of the wick, and appliances whereby the hood may be adjusted without removing the dome of the burner, substantially as described.

2. The combination of a burner and a hood connected to the burner, and capable of being adjusted either to a position at one side of the wick-tube, or to a position above, and covering a part of the wick, substantially as set forth.

3. A night-light attachment for coal-oil burners, consisting of a hood connected adjustably to a retainer, adapted to the wick-tube of a burner, as set forth.

6,853. FLY-TRAPS. David H. Roe, Ayer, Mass. Patent No. 161,364, dated Mar. 30, 1875. [Filed Dec. 29, 1875.]



1. The combination of the cone B, having enlargements F, and the receiver, substantially as described.

2. The combination of the base D, rim g, and the cone B, having spring legs C C, substantially as specified.

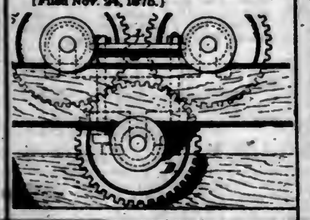
3. In combination with a trap for flies, the mat E, having a radially-extending edge, upon which part of the bait is placed as a decoy.

6,854. PROCESSES OF BLASTING WITH NITROLEUM. Taliaferro P. Shaffner, Louisville, Ky., assignor to the Atlantic Giant-Powder Company, San Francisco, Cal. Patent No. 60,573, dated Dec. 18, 1866; reissue No. 3,274, dated Apr. 13, 1869. [Filed Nov. 9, 1875.]



The process of blasting with nitroleum, or nitro-glycerine, consisting in distributing the charge of nitro-glycerine through the bore-hole, substantially in the manner and for the purpose set forth.

6,855. DREDGING-MACHINES. Geo. H. Starbuck, Troy, N. Y., assignee, by mesne assignments, of Jason C. Osgood, deceased. Patent No. 113,691, dated Apr. 11, 1871. [Filed Nov. 24, 1875.]



1. A dipper-handle, E, constructed in the usual manner, having a slotted space between the side bars for the passage of the hoisting chain, and on which the racks or chains are omitted, and motion of which is held, controlled, and operated by means of friction, in lieu of said racks and chains.

2. The dipper-handle of dredging-machines, as above described, having a central support or guide formed by the yoke H and yoke I, extending downward and upward into the slotted space, with adjustable bolts or clamps extending transversely through such passage, by which motion of said handle is controlled by friction.

3. The oscillating journal or trunnion of shaft A with the yokes H and I, rollers B, and bolts, forming a central partition or guide-support, and clamps for controlling the motion of said dipper-handle.

4. The trunnion or guide for a dipper-handle, having adjustable friction-rollers and a central partition or guide, as described.

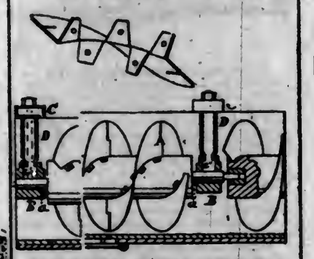
5. The friction-wheels E F F, arranged to act on the dipper-handle, and receiving motion through the cog-wheels, as set forth.

6. The combination, as before set forth, of a dredging-machine dipper-handle, which is slotted, as described, and a friction-clamp adapted to hold said handle by the application of friction directly thereto, substantially as set forth.

7. In combination with the crane-timbers of an excavator of the character described, a friction-clamp mounted thereon, and adapted to permit the longitudinal adjustment of the slotted dipper-handle, or to arrest its motion by the friction applied directly upon the handle, as described, and for the purpose set forth.

8. In an excavator of the character described, the combination, with the dipper-handle, of two friction-surfaces placed on opposite sides of said handle, and capable of adjustment to vary the distance between them and the amount of friction upon said handle.

6,856. GRAIN-CONVEYERS. Henry I. Chase, Philander F. Chase, and Edwin D. Chase, Chicago, Ill. Patent No. 123,904, dated May 20, 1873; reissue No. 6,228, dated Jan. 12, 1875. [Filed Dec. 31, 1875.]



1. The continuous spiral grain-conveyer, having the journals of its shaft arranged in journal-boxes suspended from the top of a conveyer-trough by means of brace-rods, so as to allow a free passage of the grain along the bottom of the trough, substantially as set forth.

2. The combination of the adjustable keys D D, journal-boxes B B, and spiral grain-conveyer shaft, substantially as and for the purpose set forth.

3. The combination of the cross-braces C C, adjustable suspension-rods b b, journal-boxes B B, screw-nuts a a, adjustable keys D D, journals a a of conveyer-shaft, and conveyer-trough, substantially as set forth.

4. The conveyer-trough having a polished sheet-metal lining, and provided with the door E, in combination with the continuous spiral grain-conveyer A, substantially as set forth.

5. A grain conveyer flight constructed in sections of sheet metal, each section being made to conform to a spiral shape, so attached as to form one continuous flight around the shaft, substantially as and for the purpose set forth.

6. The grain-conveyer flight constructed in sections of sheet metal, each section being cut in the arc of a circle having ears or lugs turned up alternately on opposite sides, and made to conform to a spiral shape, and attached around the shaft, substantially as set forth.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

OFFICIAL GAZETTE

OF THE

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ANNUAL REPORT
OF
THE COMMISSIONER OF PATENTS
FOR THE YEAR 1875

To the Senate and House of Representatives of the United States of America in Congress assembled:

In compliance with section 494 Revised Statutes, I submit the following report for the year ending December 31, 1875.

1. *Statement of moneys received.*

Amount received on applications for patents, reissues, designs, extensions, caveats, disclaimers, appeals, and trade-marks		$670,180 00
Amount received for copies of specifications, drawings, and other papers		45,380 85
Amount received for recording assignments		16,912 18
Amount received for subscriptions to the Official Gazette		6,646 33
Amount received for registration of labels		2,334 00
Total		743,453 36

2. *Statement of moneys expended.*

Amount paid for salaries		$430,218 00
Amount paid for photolithographing current issues		46,986 59
Amount paid for photolithographing back issues		67,322 91
Amount paid for illustrations for Gazette		49,428 34
Amount paid for tracings of drawings		34,972 90
Amount paid for contingent and miscellaneous expenses, viz:		
Stationery	$16,599 27	
Painting, glazing, varnishing, paper-hanging, &c	1,067 21	
Furniture, carpeting, &c	8,593 96	
Fitting up cases in model-rooms, carpenter's work, and repairing furniture	20,073 33	
Plumbing and gas-fitting	1,054 17	
English patents and foreign periodicals	1,793 44	
Hardware	2,269 61	
Pay of temporary clerks	29,512 52	
Miscellaneous items, viz: Books for library, ice, subscriptions to journals, freight, washing towels, withdrawals, money refunded, paid by mistake, repairing carriage and harness, keeping horse, advertising, &c	11,765 46	
		92,728 97
Total		721,657 71

3. *Statement of the balance in the Treasury of the United States on account of the patent fund.*

Amount to the credit of the patent fund January 1, 1875		$865,113 97
Amount of receipts during the year 1875		743,453 36
Total		1,608,567 33
From which deduct expenditures for the year 1875		721,657 71
Balance January 1, 1876		886,909 62

4. *Statement of the business of the Office for the year* 1875.

Number of applications for patents during the year 1875	24,636
Number of patents issued, including reissues and designs	14,837
Number of applications for extension of patents	9
Number of patents extended	39
Number of caveats filed during the year	3,094
Number of patents expired during the year	1,323
Number of patents allowed but not issued for want of final fee	3,518
Number of applications for registering of trade-marks	1,055
Number of trade-marks registered	1,138
Number of applications for registering of labels	566
Number of labels registered	313

Of the patents granted there were to—

Citizens of the United States	14,274
Subjects of Great Britain	358
Subjects of France	83
Subjects of other foreign governments	122

5. *Number of patents issued by the United States Patent Office to residents of the different States, Territories, and Foreign Countries, from January* 1, 1875, *to December* 31, 1875.

[The proportion of patents to population is shown in last column.]

States, &c.	No. of patents.	One to every—
Alabama	31	32,161
Arizona Territory	2	4,229
Arkansas	11	44,042
California	399	1,404
Colorado Territory	36	1,107
Connecticut	706	761
Dakota Territory	3	4,727
Delaware	44	2,841
District of Columbia	214	615
Florida	7	26,821
Georgia	63	18,735
Idaho Territory	1	14,999
Illinois	1,098	2,313
Indiana	378	4,469
Iowa	315	3,799
Kansas	66	5,521
Kentucky	142	9,303
Louisiana	103	7,057
Maine	158	3,964
Maryland	280	3,003
Massachusetts	1,846	787
Michigan	405	2,923
Minnesota	146	3,011
Mississippi	38	21,787
Missouri	362	4,754
Montana Territory	4	9,974
Nebraska	22	5,833
Nevada	16	3,649
New Hampshire	127	2,546
New Jersey	656	1,534
New Mexico Territory	3	37,101
New York	3,771	1,163
North Carolina	37	28,956
Ohio	1,091	2,443
Oregon	22	4,631
Pennsylvania	2,034	1,729
Rhode Island	229	943
South Carolina	46	17,513
Tennessee	117	10,765
Texas	118	6,939
Utah Territory	5	19,916
Vermont	122	2,709
Virginia	101	12,130
Washington Territory	3	13,710
West Virginia	48	9,289
Wisconsin	284	3,743
Wyoming Territory	2	5,759
Great Britain	371	.....
France	91	.....
Other foreign countries	128	.....
United States Army	5	.....
United States Navy	1	.....
United States in general		2,412

6. *Comparative statement of the business of the Office from 1837 to 1875, inclusive.*

Year.	Applications.	Caveats filed.	Patents issued.	Cash received.	Cash expended.
1837.....	.....	.....	435	$29,289 08	$33,506 98
1838.....	.....	.....	520	42,123 54	37,402 10
1839.....	.....	.....	425	37,260 00	34,543 51
1840.....	735	228	473	38,056 51	39,020 67
1841.....	847	312	495	40,413 01	52,666 87
1842.....	761	301	517	36,505 68	31,241 48
1843.....	819	315	531	35,315 81	30,776 96
1844.....	1,045	380	502	42,509 26	36,244 73
1845.....	1,246	452	502	51,076 14	39,395 65
1846.....	1,272	448	619	50,964 16	46,158 71
1847.....	1,531	553	572	63,111 19	41,878 35
1848.....	1,628	607	660	67,576 69	58,905 84
1849.....	1,955	595	1,070	80,752 98	77,716 44
1850.....	2,193	602	995	86,927 05	80,100 95
1851.....	2,258	760	869	95,738 61	86,916 93
1852.....	2,639	996	1,020	112,656 34	95,916 91
1853.....	2,673	901	958	121,527 45	132,869 83
1854.....	3,324	868	1,902	163,789 84	167,146 39
1855.....	4,435	906	2,034	216,459 35	179,540 33
1856.....	4,960	1,094	2,502	196,588 02	199,931 02
1857.....	4,771	1,010	2,910	196,132 01	211,582 09
1858.....	5,364	934	3,710	203,716 16	193,193 74
1859.....	6,225	1,007	4,538	245,942 15	210,278 41
1860.....	7,653	1,084	4,819	256,352 50	252,820 80
1861.....	4,643	700	3,340	137,354 44	221,491 91
1862.....	5,036	824	3,521	215,754 99	162,810 39
1863.....	6,014	787	4,170	195,593 29	189,414 14
1864.....	6,932	1,063	5,020	240,919 98	229,868 00
1865.....	10,664	1,937	6,616	348,791 84	274,199 34
1866.....	15,369	2,723	9,450	495,665 38	361,724 28
1867.....	21,276	3,597	13,015	646,581 92	639,263 32
1868.....	20,420	3,705	13,378	681,565 86	628,679 77
1869.....	19,271	3,624	13,986	693,145 81	486,430 78
1870.....	19,171	3,273	13,321	660,456 76	557,149 19
1871.....	19,472	3,366	13,033	678,716 46	560,595 08
1872.....	18,346	3,060	13,500	699,726 39	665,591 36
1873.....	20,414	3,248	12,864	703,191 77	691,178 98
1874.....	21,602	3,181	13,599	738,276 17	679,288 41
1875.....	21,638	3,064	16,288	743,453 36	721,657 71

EXAMINING CORPS.

The Examining Corps of the Patent Office consists of twenty-four Principal Examiners, each having a first, second, and third assistant examiner to aid him in the examination of applications for patents. Inventions of as nearly a homogeneous character as possible are grouped in classes and assigned to each Principal Examiner. The great increase in the number of applications for patents prevents as early action upon them as is desirable, and the delays occasion much annoyance, and frequently great loss to inventors. In order to enable the Office to carry this burden it will be necessary from time to time to subdivide the present classification, and to assign the examination of some well-defined groups of a less complicated character to the charge of a First Assistant Examiner. To do this it will be proper, and I would recommend, an addition to the examining corps of the Office of six First Assistant and six Second Assistant Examiners, to be detailed by the Commissioner of Patents to such work as the best interests of the Office and the public require.

I also recommend that the clause in the Act of March 3, 1875, United States Statutes at Large, Vol. 18, page 365, abolishing the grade of Third Assistant Examiner be repealed, and have inserted a clause to that effect in a draft of a bill which I shall have the honor to present for your consideration.

I suggest that the abolition of the grade of Third Assistant is at the least premature, as the duplication of the back drawings, which was expected to so much facilitate the work, has not been completed, the appropriation and the time having both proved inadequate. I am of opinion that even when the back drawings are thus reproduced, although their importance can hardly be overestimated, it will not be advisable to reduce the Examining Corps as proposed, for with each year another 20,000 new applications for patents are presented, and the region of search is proportionately increased, while the constant production of books disclosing new processes and machinery at home and abroad is another domain of accumulation, whose magnitude one must view with dismay unless the corps be maintained at an adequate strength.

The patent law has never defined the duties of Principal Examiners and their assistants, and as the duties assigned them are of a judicial character, involving great responsibility, and in most instances their action is, practically, final, and not subject to review by any higher authority, I beg leave to suggest an additional section to the patent law, which I have embodied in the draft of a bill referred to.

OFFICIAL GAZETTE OF THE PATENT OFFICE.

This publication is now in its fifth year, having been commenced in January, 1872. It was designed to take the place of the reports, which ceased with the year 1871; in fact no illustrated reports had been published since June, 1869.

The GAZETTE is issued weekly, and consists of a *letter-press* and a *heliographic* portion stitched together.

The *letter-press portion* contains the text of the decisions of the United States Courts in patent and trade-mark causes, and the decisions of the Commissioner of Patents; also alphabetical lists (patentee and subject-matter) of the issues of the week, and lists of designs, trade-marks, and labels.

The *heliographic* portion consists of the claims, brief description, and a portion of the drawing in each patent and reissue granted during the week.

The GAZETTE forms two volumes yearly of about one thousand pages each, and is accompanied by a yearly volume of four hundred pages, which contains inventor and subject-matter indexes of the patents and trade-marks of the year.

The GAZETTE is sold to subscribers at six dollars per annum unbound. One copy is furnished free to each member of Congress, and eight copies to as many public libraries designated by him.

I desire to draw attention to two facts in regard to the substitution of the GAZETTE for the former reports:

First. The reports issued from 1843 to 1869 were Congressional documents, of which the Senate and House bore the expense; none of it, except the preparation of copy for the yearly index, being chargeable upon the force of the Patent Office, or upon the yearly appropriations therefor; and, further, all sums received from sales ($6,646.33 in 1875) are covered into the Treasury of the United States, and do not swell the appropriation. These facts should be noticed in considering the official estimates of the coming year.

Secondly. The greater scope, fuller information, and the introduction of the new feature of reporting the decisions of the United States Courts and of the Commissioner of Patents, indexes to and digests of which reports are prepared for and bound up in each half-yearly volume.

For the purpose of securing early and complete reports of the decisions of the United States courts in patent and trade-mark causes, I have addressed letters to the clerks of these courts requesting them to furnish copies of these decisions and decrees. Prompt replies have been made by some, and from others no communications have been received.

I would respectfully suggest that the clerks of said courts be required, by law, to furnish certified copies of such decisions and decrees to be published by the Patent Office in the manner described, and that when so published they may have the same force and effect as the reports of cases published by authority of said courts; and, further, that authority be given to the Commissioner of Patents to appoint or detail a suitable person to supervise such publication, and prepare proper digests of the same.

Such a publication can be furnished to inventors and the legal profession at a very moderate price, and the whole subject of patents and patent-law decisions presented in a compact form for reference, and with a promptness never attempted in any country before the issue of the OFFICIAL GAZETTE.

PUBLICATION OF PATENTS.

All circumstances have combined to prove the wisdom of the change made some years since in the mode of issuing patents, namely, by printing the specifications and reproducing in fac-simile, by a heliographic method, the original drawings. The printing of the specifications was commenced November 20, 1866, and the reproduction of the drawings, at first by photography and then by photolithography, July 6, 1869.

Since July 1, 1869, one hundred and fifty copies of each specification and drawing of patents have been printed and stored for sale. Complete sets or single copies are now furnished at about one-twentieth of the former price, and at a profit to the Office. Complete copies of uniform size of the specifications and drawings since July 1, 1871, have been bound in issues of weeks and kept as records. These volumes, under regulations prescribed by Congress, were supplied to the United States courts and to other libraries, but the bulk soon became so onerous that a more compact form was devised.

MONTHLY VOLUMES OF PATENTS.

By omitting the displayed heads, running the specifications into ordinary book-form, and by reproducing the drawings on a scale of one-half linear, the work of a month is compacted into a volume the size of the weekly volumes previously issued. This has proved very satisfactory, and now complete copies within the period of four and a half years last past have been in the most important libraries of the country, where they can be consulted without expense to the searcher.

As stated in reference to the OFFICIAL GAZETTE, all sums received for copies of patents, drawings, and volumes of issues and indexes, are covered into the Treasury, ($45,380.85 in 1875, exclusive of sums received for OFFICIAL GAZETTE.)

REPRODUCTION OF BACK ISSUES.

The facility for examining patents granted between July 1, 1871, and the present time has proved so convenient to inventors and litigants, and has done so much to spread a knowledge of the scope and value of the Patent Office duties and work, that it was some time since determined by Congress that the issues for the period, 1836–1871, should be placed in like condition, including a period of two years, (July, 1869–June 1871,) when the work of production was in a transition state, and several modes and sizes were adopted, which were discontinued after running for a while.

The reproduction of the work back of July, 1871, so far as the drawings are concerned, has been in progress for several years under the specific yearly appropriations for that purpose.

Unusual progress under the impulse of a generous appropriation has been made in this matter during the latter half of the past year, during which period alone the increased appropriation has been available.

During the past year 19,743 original drawings have been photolithographed, 154 copies of each being made. The total number of sheets thus obtained is 3,040,422. There are 16,250 sheets already traced preparatory to lithographing, and there remain 30,370 to be traced and photolithographed. The number not yet commenced is but one-fourth part of the whole number of issues back of July 1, 1871. The amount estimated for in the coming fiscal year, will, it is believed, complete this work of reproducing the drawings.

I earnestly hope that Congress will see fit to authorize and provide for the reprinting of the back specifications to the year 1836, at which period the unfortunate fire destroyed the previous records beyond the possibility of reproduction. Until that is done the records of the patents of this country are only in manuscript, and of those manuscripts but two copies are in existence, while of the English patents all of the specifications are in print from the earliest period, (A. D. 1624,) and, by the liberality of the English government, we possess better records of the English patents than of our own. The proceeds of the sale of such printed specifications would be largely reimbursed to the Government. At present all specifications back of November, 1866, are furnished in manuscript. Anything short of the proposed mode of establishing and publishing the records of the Office must be considered but a temporary expedient, and really unworthy of the dignity of the Government, the importance of the subject, and the security of the interests involved.

GENERAL INDEXES OF PATENTS.

A general alphabetical index of patents from 1790 to 1873, embracing about 171,000 patents and trade-marks, arranged in separate sets under two heads (*subject-matter* and *inventors*) has been in preparation for some time past. The completed subject-matter index occupies 1,950 pages quarto, is electrotyped, and the bound volumes have been for sale at $20 per copy for some time past. The index of inventors is in a forward condition, and will be a work of similar size and price.

The work has been done out of the current appropriations. The sums received on sales are covered into the Treasury, as stated above.

LIBRARY.

For many years the library has been supplied by occasional drafts upon the "contingent fund." The amount received from this source has been quite insufficient to furnish it with the books actually necessary, and, relatively to the largely-increased volume, of technical literature, the library is constantly running behindhand.

The earliest legislation found on this subject is, I

think, contained in the Act of March 3, 1839, Chap. 88, Sec. 5, in which an appropriation of $1000 was made from the patent fund, to be expended under the direction of the Commissioner for the purchase of books for the library of the Patent Office, (5 Statutes at Large, 353.) This may be regarded, perhaps, as the organizing act for the library, although some books may have been procured earlier (under contingent expenses) in administration of the Act of 1836, Chap. 357, Sec. 7, requiring in each application for letters patent "an examination of the alleged new invention or discovery" as to its originality and novelty.

The consolidated Act of July 8, 1870, Chap. 230, Sec. 15, provides "that there shall be purchased, for the use of said office, a library of such scientific works and periodicals, both foreign and American, as may aid the officers in the discharge of their duties, not exceeding the amount *annually appropriated* by Congress for that purpose." (16 Stat. at Large, 200.) This assumes that annual estimates and appropriations will be made specifically for the library.

In view of the fact that the growth of the library, by the continual accession of new and needful works, is, by law, as much a standing necessity of the present organization of the Patent Office as the support of a corps of examiners required to investigate such works, it would seem inappropriate to class its interests with fluctuating contingencies not capable of special indication. A practical evil resulting from the failure of special recognition by Congress has been the lack of means to purchase many technical journals and representative works on the mechanic arts which should be found on the shelves of a library invested with such important functions.

The medical library of the Surgeon General's Office, which, as a special-reference library, most nearly resembles that of the Patent Office, although a younger library and much less consulted, now numbers upward of 37,000 volumes, while the Patent Office library does not exceed 23,000 volumes. The annual appropriation for the former library is $5,000 out of the revenue of the Government.

An appropriation of $5,000 from the fund collected by the Patent Office from the inventors of our country would be a moderate provision for supplying the deficiencies of the library, and maintaining its character as an exposition of the most recent state of the constantly growing arts and manufactures.

Works of the character indicated are required to be examined in nearly every application that may be filed for an American patent. Inventors and counsel in patent causes come to this library from every portion of the United States, and have a right to expect that it shall be the best technical library in the country, and fully abreast with the most advanced thought of the world within the limits of its special domain.

INCREASED ACCOMMODATION.

The increase in the business of this Bureau is so great that I am impelled to urge most earnestly, as have my predecessors, your aid in supplying more enlarged accommodations for the employés, and additional room for drawings, models, books, and papers that are required to be preserved for the use of the Office. From five to twelve persons are now obliged to occupy each of the twenty-four rooms assigned to the Principal Examiners, in size averaging twenty feet square. The necessary desks, tables, chairs, and cases for holding files and models so reduce the above area as to materially hinder and delay the work of the Office and impair the health of the employés.

The increasing demand for additional room for the arrangement and display of patented models, averaging over thirteen thousand yearly for the past eight years, has made it necessary to remove rejected models, to the number of about 10,000, to an open space under the roof of the west wing of the Patent Office building. The floor of this attic and the model-shelves are composed of rough boards, and the place itself is very difficult of access. The trouble increases yearly, and if no provision can be made for relief in this regard, it will be necessary to do away entirely with models. This would be very unfortunate, because they are in many cases absolutely necessary to the complete understanding of the inventions presented.

I am certain that an inspection by the Patent Committees of the Senate and House will assure them that the statements above made are not exaggerated.

The same remarks apply to the accommodations for drawings, printed records, books of reference, and patented files.

THE CENTENNIAL.

The Patent Office is to be represented at the Centennial celebration, and a space of 10,000 square feet has been assigned for the exhibition of models of American inventions, illustrating the more important and useful industries. Models to the number of about 5,000 are being selected for this purpose, being about three per cent. of the aggregate number in the possession of the Patent Office. These, while illustrating in part the progress of our country in "mechanical and manufacturing industries," and the development of American genius and skill, represent in one way only the results attained. Another mode of presentation of the facts and figures in the case is obtainable from the census report of 1870, and the general subject-matter index of patents granted since the year 1790.

In referring to the census, under the head of "manufactories in operation in 1870, exclusively for agricultural implements," it is found that the—

Number of establishments in operation was	2,076
Number of steam-engines at work	676
Horse-power	15,873
Number of water-wheels at work	426
Horse-power	10,209
Number of hands employed	25,249
Capital invested	$34,834,600
Wages paid	$12,151,504
Material used, value	$21,473,925

The census shows an increase of $34,578,825 in the value of agricultural implements manufactured over the amount reported in 1860, and of $45,224,174 over the amount reported in 1850, while the total value for the year 1870 of the "mechanical and manufacturing industries" aggregates the sum of $4,232,335,442.

The following are the products of agricultural implements of the manufactories first above referred to, being the articles manufactured and number made:

Cane-mills	102
Clover-hullers	5,206
Corn-planters	21,709
Corn-shellers	12,941
Cotton-planters	2,000
Cultivators	88,740
Fanning-mills	19,772
Grain-cradles	103,646
Grain-drills	32,033
Hand-rakes	207,310
Harrows	9,150
Harvesters	3,566
Hay and straw cutters	30,879
Hay-forks	1,293,260
Hoes	135,139
Horse-powers	4,541
Horse-rakes	80,919
Lawn-mowers	2,536
Mowers	39,466
Plows	864,947
Reapers	60,388
Reapers and mowers combined	59,645
Rollers and scrapers	4,903
Seed-sowers	6,900
Scythes	881,244
Sythe-snaths	17,690
Separators	1,131
Shovels	25,756
Sickles	300
Stump-pullers	124
Threshers	22,934
Other products	5,206,789

For the articles above enumerated, there have been granted between the years 1790 and 1873, inclusive—that is to say, since the organization of this Office, (1790)—the following patents:

Cane-mills	66
Clover-hullers	100
Corn-planters	647
Corn-shellers	378
Cotton-planters	173
Cultivators	1,617
Fanning-mills	127
Grain-cradles	18
Grain-drills	186
Hand-rakes	9
Harrows	329
Harvesters	2,244
Hay-forks	382
Hoes	201
Horse-powers	415
Horse-rakes	373
Lawn-mowers	38
Mowers	173
Plows	2,451
Reapers	69
Reapers and mowers combined	61
Rollers and scrapers	141
Seed-sowers	579
Scythes	50
Scythe-snaths	36
Separators	334
Shovels	58
Sickles	13
Stump-pullers	191
Threshers	732

I have further selected from the list of patents 1790–1873 the number of patents granted in some other classes or subjects of invention. These indicate the scope and versatility of the inventive genius of our country, and all enter more or less into the "mechanical and manufacturing industries" that have been referred to. They are as follows:

Bee-hives	645
Bending-machines for wood and metal	144
Boots and shoes, manufacture of, and articles used therein	817
Brick-kilns and brick-machines	808
Bridges	425
Brooms and brushes, and their attachments	750
Buckles	388
Burglar-alarms	165
Burners, gas, lamp, and vapor	793
Car-brakes	485
Car-coupling	961
Car-wheels	314
Carriages and their appendages	1,495
Churns and their appendages	1,391
Clothes driers and wringers	984
Curtain fixtures	364
Fire-arms	1,203
Gas and gas apparatus	1,399
Grain, cutting, binding, and drying	135
Grinding and grist mills	371
Lamps and appurtenances	1,483
Looms and appurtenances	1,210
Paper, manufacture of	269
Pavements	404
Photography	346
Planing-machines, wood and metal	384
Propellers, and apparatus for	570
Printing-presses, apparatus and material	756
Railways, apparatus and connections	1,558
Roofs and roofing	506
Rotary engines	170
Saw-mills and machines	1,981
Sewing-machines and their attachments	2,295
Steam-engines and apparatus	1,012
Stoves	2,400
Straw-cutters and machines	401
Sugar-mills and machinery	343
Telegraph and instruments	566
Toys	300
Tobacco-presses and manufactures	197
Valves	1,497
Total number of patents issued since 1836	171,640
Total number of reissues	6,830
Total number of designs	8,883
Total number of trade-marks	3,287
Total number of labels	464

Respectfully submitted:

R. H. DUELL,
Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE, *January* 19, 1876

COMMISSIONER'S DECISIONS.

E. KANE & CO.—*Trade-Mark.*

[*Appeal from the Examiner of Trade-Marks in the matter of the petition of E. Kane & Co. for registration of Trade-Mark for* WHISKY, &C.—*Decided December* 27, 1875.]

Galvanized-iron hoops placed on a liquor-barrel of dark color, to be used as a trade-mark, not an original appropriation, and not sufficiently distinctive.

DUELL, *Commissioner:*

The petitioners seek to register a trade-mark consisting of "galvanized hoops placed on a barrel of dark color" to be used on barrels containing spirituous liquors manufactured by them.

Galvanized-iron hoops for barrels have so long been used that their use on whisky-barrels can hardly be regarded at this time as an original appropriation by petitioners.

But, if now first adopted for liquor-barrels, it is not sufficiently distinguishable from the same mark on similar barrels to either protect the applicant in the sale of his goods, or to afford notice to the public of original ownership.

The decision of the Examiner is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT, FIFTH DISTRICT OF LOUISIANA.

C. K. CONVERSE AND OTHERS *vs.* JOHN W. CANNON AND OTHERS.—No. 6815.

The question to be determined, in a suit for infringement of letters patent, is, whether under a variation of form, or by the use of a thing which bears a different name, the defendant accomplishes, by his machine, the same purpose or effect as that accomplished by the patentee, or whether there is a real change of structure or purpose.

If the device or devices of defendant constitute mechanical equivalents of the means used by the patentee, and if, besides being an equivalent, they accomplish something useful beyond the effect or purpose accomplished by patentee, it will still be an infringement as respects what is covered by the patent, al-

though the further advantage of defendant's devices may be a patentable subject as an improvement on the invention infringed.

The question is not whether the same elements of motion or the same component parts are used, but whether the given effect is produced substantially by the same mode of operation and the same combination of powers in both machines.

The rule is, and so it has been settled, that if two machines be substantially the same, and operate in the same manner, though they may differ in form, proportions, and utility, they are the same in principle.

WOODS, *Cir. J.*

The complainants allege that they are the assignees of a patent issued to one A. John Bell, dated January 22, 1861, for an "improvement in steamboat-staging;" that they are also the assignees of two patents issued to one Hannibal S. Blood, the first dated June 7, 1870, being "a new and useful improvement in derrick or hoisting-crane, and relating particularly to a means for avoiding the labor and delay incident to handling and manipulating heavy landing-stages used on steamboats and water craft by manual labor," and the second being a patent dated March 26, 1872, for an "improvement in derricks;" that all of the inventions named in said three letters patent relate to the manner and mode of manipulating and handling stages used on steamboats and water-craft for landing freight and passengers, whereby manual labor is, in a great measure, dispensed with, and great economy in the navigation of such vessels effected, as well as a large decrease of expense in the navigation and use of such vessels and water-craft.

That the defendants, John W. Cannon and William Campbell, the first largely interested in the steamer Robert E. Lee as owner, and the latter being her master, are using upon said boat two several machines, which are substantially in their mode of construction the same as the machine described in said three letters patent.

The bill prays for a perpetual injunction against the defendants to restrain them from infringing upon the patents owned by the complainants by the use of said machine now employed by them upon the steamer Robert E. Lee.

The answer of defendants deny any infringement of the patents held by complainants, and claims that they use an apparatus invented by one John Perkins, and patented to him by letters patent dated May 7, 1872, which differs substantially and materially from the apparatus covered by the patents owned by complainants, and is not an infringement thereon.

The answer further alleges that the results attained by the contrivance patented to Blood were accomplished by cranes described upon pages 349, 350, volume 1 of Appleton's Dictionary of Mechanics published in 1865, one of which, it is therein stated, had been used at the United States dry dock at Brooklyn, New York, and one in the construction of the Erie canal, by which heavy weights were moved toward or from the mast, and hoisted or lowered to the required position by means of ropes and pulleys. That the results accomplished by the contrivance patented to Blood were accomplished during the late war by the Marine Brigade. By the application of steam-power heavy stages were raised, launched out, and lowered into position on the bank, and again raised, launched inward, and lowered into position on the boat, so that the results contemplated and claimed to be accomplished by the contrivance of Blood of raising and lowering stages by applying steam-power to a suitable apparatus, were well known, as well as the contrivance by which such results were accomplished, and were in public use long before Blood's patent.

The answer claimed that the apparatus covered by the Blood patents are not useful, and their use has been abandoned.

An amended answer has been filed, which, besides describing more particularly the contrivance used by the Marine Brigade, alleges that in December, 1868, one J. Frank Hicks used a derrick or crane provided with ropes and pulleys, and operated by steam-power, for the purposes of a freight-hoister on board the steamer Magenta, and for hoisting and managing the staging on said steamer.

The schedule attached to the letters patent of A. John Bell states that the object of his invention is "a more rapid, easy, and effective means of shipping and unshipping the stage-planks from steam water-craft, and consists in a mode of operating said planks by connection with one of the steam-engines employed to work on board the vessel."

His claim is thus stated—

I claim as new and of my invention, and desire to secure by letters patent, the arrangement of the staging C, power-windlass E F G H I, and supporting apparatus J K L, the whole being constructed and operating substantially as and for the object set forth.

The staging shown in the drawing, that in ordinary use on steamboats, upon the outer end of which is a bail, to which is attached a rope which leads to the upper end of a gaff, the foot of which rests on the deck, while the upper end is supported by a rope attached to an upright mast or spar. This gaff and mast and the rope connecting them, constitute, to all intents and purposes, a derrick, differing mainly from the derrick in common use by the fact that the foot of the gaff or boom rests on the deck instead of resting against the mast or spar, so that we have a staging suspended by the bail at one end to a derrick. The staging so attached to the derrick is connected with a power-windlass, by which the stage is shoved out or drawn in, and the end of the staging as it is pushed out may be adjusted to the height of the bank, upon which its outer end is to rest, by the slipping of the rope attached to the bail. On the edge of the gunwale of the boat is a roller, to enable the stage to move with greater facility.

The two patents issued to Hannibal S. Blood, which have been assigned to the complainants, and the patent to William J. Perkins, under which the defendants seek to protect themselves, are simply improvements upon the derrick in common use, and nothing more.

The most cursory reading of Bell's patent shows that it is not intended to cover a derrick, nor a steamboat-stage, nor a power-windlass operated by steam or other power. The invention claimed by Bell is for the combination of these three well-known contrivances to accomplish the handling of the stage with ease and rapidity. The roller on the gunwale of the boat is not an essential part of the combination, and is not mentioned in the patentee's claim.

It is no defense to a suit for the infringement of this patent to set up that the defendant has improved upon the derrick, or upon the windlass, or upon the stage.

If the combination is used, although some of its separate parts may be improved, it is an infringement.

The answer of the defendants does not deny that they handle and manipulate a steamboat-stage by attaching it to a derrick by a rope, and raise or lower it by means of a power-windlass. They set up merely that they use an improved derrick different from the derrick shown in the specification of A. John Bell's patent, and different from the derrick covered by the patents of Hannibal S. Blood.

In passing upon the issue of infringement, the question to be determined is whether under a variation of form or by the use of a thing which bears a different name the defendant accomplishes by his machine the same purpose or effect as that accomplished by the patentee, or whether there is a real change of structure or purpose.

If the drawing introduced by the defendant constitutes a mechanical equivalent, in reference to the means used by the patentee, and if, besides being an equivalent, it accomplishes something useful beyond the effect or purpose accomplished by the patentee, it will still be an infringement as respects what is covered by the patent, although the further advantage may be a patentable subject as an improvement on the former invention. (Drummond in *Foss* vs. *Hubert*, 2 Fisher 31.)

The material question is not whether the same elements of motion or the same component parts are used, but whether the given effect is produced substantially by the same mode of operation and the same combination of powers in both machines. (Story, J., in *Odiorne* vs. *Winkley*, 2 Gall., 54.)

In determining the question of infringement, we are not to determine about similarities or differences merely by the name of things, but are to look to the machines or their several devices or elements in the light of what they do, or what office or function they perform, and how they perform it, and to find that a thing is substantially the same as another if it performs substantially the same function in substantially the same way to obtain the same result. (Clifford, J., in *Vincent Refinery* vs. *Mathieson*, 2 Fisher, 602.)

The rule is, and so it has been settled, that if two machines be substantially the same and operate in the same manner, though they may differ in form, proportions, and utility, they are the same in principle. (Washington, J., in *Evans* vs. *Eaton*, 3 Wash., 449.)

As between a device conceded to be new and a device claimed to infringe, because an equivalent, the alleged infringer could not protect himself by showing that, although his device was the equivalent of the patentee's device in all its functions and in its construction and mode of operation, yet by other additional features it possessed other and further useful functions. Such a device, though an improvement upon the patented one, would be an appropriation of it. (Woodruff, J., in *Surrem* vs. *Hall*, Official Patent Reports, Vol. 1, 437.)

To constitute an infringement, the contrivances for the purposes in view must be substantially identical, and that is substantial identity, which comprehends the application of the principle of the invention. (*Page* vs. *Ferry*, 1 Fisher, 229.)

It makes no matter what additions to or modifications of a patentee's invention a defendant may have made, if he has taken what belonged to the patentee he has infringed, although with his improvement the original machine or device may be much more useful. (Sprague, J., *Howe* vs. *Morton*, 1 Fisher, 587.)

Applying these principles to this case in hand, there can be no doubt that the defendants have appropriated the invention covered by the patent of A John Bell. That they have improved upon parts of the combination may be true, but they are using the idea first suggested by Bell and covered by his patent, namely, the handling of a steamboat-stage by means of a rope attached to a derrick through force applied by a power-windlass.

The variations which have been made in the method of attaching the rope in the form of the derrick in the position in which the stage is placed on the deck are immaterial variations, which do not affect the question of infringement.

As the patent to Bell bears date prior to the use of stages by the Marine Brigade, or to the publication in Appleton's Dictionary of Mechanics, the defense of want of novelty cannot be maintained. The averment that the device of Bell is not useful cannot be sustained.

All the law requires as to utility is that the invention should not be frivolous or dangerous. It does not require any given degree of utility. If the invention is useful at all, that suffices. (*Cox* vs. *Gregge*, 2 Fisher, 174, *Hoffheim* vs. *Brandt*, 3 Fisher, 218.)

The result of this view is that there must be a decree for complainants directing a perpetual injunction to go against defendants as prayed in the bill, and a reference to a master for an account of profits.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date JANUARY 18, 1876.]

8,905.—Heating-Stove.—RODMAN RACKUS, Albany, assignor to J. L. MOTT IRON WORKS, New York, N. Y. Application filed January 4, 1876. Term of patent 7 years.

8,906.—Buttons.—ISAAC LEHMANN, New York, N. Y. Application filed December 22, 1875. Term of patent 3½ years.

8,907.—Kettle.—JOHN LUNDGREN, New York, N. Y. Application filed December 31, 1875. Term of patent 7 years.

8,908.—Kettles.—JAMES WILEY, Allegheny, Pa. Application filed November 22, 1875. Term of patent 14 years.

8,909 and **8,910.—Handles of Table-Cutlery.**—EDWIN L. BRITTIN, Derby, Conn., and EDWARD SCHOTT, Brooklyn, N. Y.—Cases A and B. Applications filed January 11, 1876. Term of patents 7 years.

8,911.—Table-Cutlery.—EDWIN L. BRITTIN, Derby, Conn., and EDWARD SCHOTT, Brooklyn, N. Y.—Case C. Application filed January 11, 1876. Term of patent 7 years.

8,912.—Handles of Tea and Toilet Sets.—JOHN HALL, Boston, Mass. Application filed December 30, 1875. Term of patent 3½ years.

8,913.—Buckles.—WALTER L. STARR, Newark, N. J. Application filed January 6, 1876. Term of patent 3½ years.

8,914 to **8,916**, inclusive.—**Carpets.**—JOHN HAMER, Dutchess county, assignor to THE SEAMLESS CLOTHING MANUFACTURING COMPANY, Matteawan, N. Y. Applications filed December 29, 1875. Term of patents 3½ years.

8,917 to **8,919**, inclusive.—**Carpets.**—ALFRED HEALD, Philadelphia, Pa., assignor to HUGH MCCALLUM, ORLANDO CREASE, ANDREW J. SLOAN, and WILLIAM MCCALLUM, same place. Applications filed January 7, 1876. Term of patents 3½ years.

8,920.—Portable Grate.—FRANK A. MAGEE, Chelsea, assignor to THE MAGEE FURNACE COMPANY, Boston, Mass. Application filed January 13, 1876. Term of patent 7 years.

8,921.—Harness-Trimmings.—SIMON WIENER, Newark, N. J., assignor to WIENER & Co. Application filed January 7, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 18, 1876.]

3,354.—Wine.—AMERICAN WINE COMPANY, St. Louis, Mo. Application filed December 11, 1875.
"words 'COOK'S IMPERIAL.'"

3,355.—Cast-Steel Hoes.—F. J. FISCHER, Hamilton, Ohio. Application filed September 23, 1875.
"words 'BLUE DIAMOND HOE,' and 'F. J. FISCHER.'"

3,356.—Cigars.—S. FUGUET & SONS, Philadelphia, Pa.—Case A. Application filed December 29, 1875.
"word 'West,' in connection with the representation of a key."

3,357.—Cigars.—S. FUGUET & SONS, Philadelphia, Pa.—Case B. Application filed December 29, 1875.
"word 'KATYDID.'"

3,358.—Plaster in Barrels.—GRANDVILLE PLASTER COMPANY, Grandville, Mich. Application filed October 23, 1874.
"device of the acorn and branch, and the words 'Acorn Mills.'"

3,359.—Whisky.—SELTZER & MILLER, Philadelphia, Pa. (Re-registration.) Application filed May 3, 1871.
"words 'Silver Brook Whiskey.'"

3,360.—Shirts, Shirt-Fronts, Drawers, and Overalls. L. & S. STERNBERGER, Philadelphia, Pa. Application filed December 29, 1875.
"word 'ECLIPSE.'"

3,361.—Candy.—BROOKS & NEEMES, Chicago, Ill. Application filed January 10, 1876.
"representation of an anchor."

3,362.—Oars, Handspikes, and Capstan-Bars.—DEGRAMO, AYMAR & CO., Brooklyn, N. Y. Application filed January 6, 1876.
"the device of a crown."

3,363.—Gas Burners and Shades.—GEORGE B. FOSTER, Boston, Mass. Application filed January 7, 1876.
"word 'CARCEL.'"

3,364.—Kid and Lamb-Skin Gloves.—HARRIS BROTHERS, New York, N. Y. Application filed January 8, 1876.
"words 'DONNA MARIA.'"

3,365.—Clasps and Catches for Pocket-Books, Satchels, &c.—HENRY SILBERMAN, Philadelphia, Pa. Application filed January 10, 1876.
"representation of the main building of the Centennial Exposition buildings at Philadelphia, Pennsylvania."

3,366.—Goods Made of the Hard Compound of India-Rubber.—THE INDIA RUBBER COMB COMPANY, New York and College Point, N. Y. Application filed June 2, 1875.
"words 'India Rubber Comb Co.—Goodyear.'"

3,367.—Imitation Bunker Hill Monuments.—LUTHER F. WHITNEY, Boston, Mass. Application filed January 7, 1876.
"figures '1775,' inclosed by four right or straight lines, forming a rectangle, having a star at each of its corners."

3,368.—Hop-Extract.—J. R. WHITING, New York, N. Y. Application filed January 7, 1876.
"a circular card or label, with a black or dark background, having upon it the representation of a small branch of a hop-vine having hops and leaves upon it, which are colored green in imitation of the vine, leaves, and hops in their natural state, the leaves being a darker green, and the vine and hops a lighter shade of green. Upon the dark background, on one side of the hop branch and fruit, is the word 'Trade' in white letters, and on the opposite side is the word 'Mark,' so as to read 'Trade Mark.' Underneath and on the lower portion of said circular card or label are the words 'Hop Extract, Pat'd May 17th, 1870,' also in white letters.

3,369.—Pickles and Condiments.—W. H. WISWELL & Co., Chicago, Ill. Application filed January 10, 1876.
"representation of the letter 'W.'"

3,370.—Tobacco.—JOHN J. BAGLEY & Co., Detroit, Mich. Application filed December 4, 1875.
"words and letters 'Fast Mail Chewing Tobacco, J. J. Bagley & Co., Detroit.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 18, 1876.]

491.—Title: "Benedict's Unrivaled Plasters."—S. G. BOYD & Co., Glenn's Falls, N. Y. Application filed January 12, 1876.

492.—Title: "Oleo Electrico, Rei Da Der, (King of Pain.")—CHARLES DE GRATH, New York, N. Y. Application filed January 11, 1876.

493.—Title: "A. Hale's Receipt for Cleaning and Bleaching Clothes."—ALONZA HALE, Eureka, Ill. Application filed January 8, 1876.

494.—Title: "Chicago Caramels."—DUDLEY S. MCDONALD, Pittsburg, Pa. Application filed January 6, 1876.

495.—Title: "Talcott's 'Cure' for Scratches."—JAMES C. TALCOTT, New York, N. Y. Application filed January 8, 1876.

496.—Title: "Palermo's Milk White."—HENRY TETLOW, Philadelphia, Pa. Application filed December 31, 1875.

497.—Title: "Mrs. E. L. Webster's Sylvan Balsam."—MRS. ELIZABETH L. WEBSTER, Boston, Mass. Application filed January 13, 1876.

NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

TO CORRESPONDENTS.

Persons ordering drawings of patents, or making inquiries in regard to patents, must always state the name of the inventor, subject-matter, and date. In making inquiries in regard to applications for patents letters must state the name of the applicant, subject-matter, and date of filing.

REMITTANCES.

All money sent by mail, either to or from the Patent Office, will be at the risk of the owner. In no case should money be sent inclosed with models. All payments to or by the Office must be paid in specie, Treasury notes, national bank-notes, certificates of deposit, or post-office money-orders.

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Sawyer, L., Saw bench gage	172,279
Sayre, L. E., assignee	172,408
Scharnweber and Frahm	172,412
Scofield, L., Corn planter	172,260
Scott, A. H., Jr., assignee	172,265
Seck, H., Machine for purifying semoline	172,506
Sedgwick, W., Device for filling and indicating the height of liquids in lamps	172,507
Sellers, G. H., Revolving puddler	172,508
Seng, W., Lounge	172,281
Sewall, E. Q., assignee	172,424
Shedlock, A., Lock up for printer's use	172,347
Shepard, F. M., Curry comb	172,509
Simmons, G. H., Spindle sheath and cop tube	172,510
Simpson, J. R., and G. W., Extensible frame for window screens, &c	172,511
Sitzler, C. A., Felted oil cloth	172,348
Skinner, H., Washing machine	172,512
Sloan, T. J., Machine for manufacturing wood screws	172,349
Sloan, T. J., Machine for manufacturing wood screws	172,350
Sloan, T. J., Wood screw	172,351
Smith, H., Folding wardrobe	172,513
Smith, S., Draft equalizer	172,514
Soule, E. C., Ventilating vessels	172,282
Sparks, W. E., Snap hook	172,352
Spear, W., Refrigerator	172,353
Spooner, J. C., Vehicle axle	172,515
Stall, C. H., Lock for trunks, &c	172,516
Stearns, C. G., Whiffletree	172,354
Steele, E. J., Snap hook	172,355
Steinbeck, S., Stone dressing and sawing machine	172,517
Steiner, J., assignee	172,380
Stevens, E., Shade supporter for lamps and gas fixtures	172,518
Stewart, J., Flax and hemp machine	172,519
Sullings, H., Car coupling tool	172,520
Sweet, S., Jr., Purifying and improving the quality of distilled spirits	172,283
Taft, J. W., assignee	172,398
Taylor, A., Fence post	172,521
Taylor and Hill	172,314
Taylor and Walsh	172,357
Tevis, E. L., Horseshoe	172,522
Tevis, E. L., Horseshoe	172,523
Theobold and Nittinger	172,472
Thomas, Z. H., Jr., assignee	172,453
Three Rivers Manufacturing Company, assignee	172,267
Tice, W. R., assignee	172,408
Tifft, A. H., Magic lantern slide	172,524
Tomlinson, E. R., Faucet	172,525
Trainor and Kimball	172,271
Travis, J. H., Extension foot rest for chairs, (reissue)	6,868
Trissler, W. H., Thill coupling	172,284
Turner, F., Shawl strap	172,526
Tuttle, Kline, and Upham	172,451
Upham, Tuttle, and Kline	172,451
Vance, J. D., assignee	172,318
Vrooman, W. P., Suspenders	172,356
Wait, J. B., assignee	172,399
Wales, S., Lever buckle	172,527
Walker, P., Boiler tube stopper	172,528
Walsh, P. J., and W. J. Taylor, Compound for the manufacture of bricks, tiles, &c	172,357
Waring, J. B., Bit for rock drilling	172,529
Warren, R. H., Dust brush	172,530
Warth, A., Instrument for notching patterns	172,531
Waters, C. H., assignee	172,245
Watson, J. F., Escapement for time pieces	172,285
Weed, L. S., Bed clothes holder	172,358
Weiss, E. U., Extracting malt	172,532
Welch, L. S., Machine for sawing follies	172,286
Wellington, H., Vapor burner	172,533
Western Union Telegraph Company, assignee, (reissue)	6,863
Wheeler, N., Filling wood	172,534
Whitcomb, G. D., Mining machine	172,287
Whitecar, T. J., Anchor	172,535
Wickham, H., assignee	172,330
Wight, G. R., Mucilage bottle	172,536
Wilbur, A. J., Burnishing machine for boots and shoes	172,539
Wilcox, D., Whiffletree	172,537
Wiley, J., Kettle	172,538
Wilkinson, W. J., assignee	172,399
Willard, M., Stop valve	172,359
Wing, E. N., Hog ring blank	172,360
Wires, E. L., Metallic fastening for leather, &c	172,361
Wolkenhauer, F. H., Cutting apparatus for harvesters	172,288
Wood, A. L., assignee	172,283
Woodruff, F. B., Conductor's punch	172,540
Woolson, A. N., assignee	172,416
Wooton, W. S., Office desk	172,362
Wright, E., Mechanism for operating doffer combs	172,541
Wright, L. P., assignee	172,464
Wythe, W. W., Speed indicator	172,363
Yates, S. G., Cheese cutter	172,542
Yates, H. M., assignee, (reissue)	6,858
Yates, Wharton & Co., assignees, (reissue)	6,858
Young, A., Button	172,543
Young, B. C., and L. L. Barber, Sewing machine	172,545
Young, J., Fruit jar	172,289
Young, J. L., Ironing table	172,544
Zahn and Reynold	172,497
Zimmerman, A. W., Refrigerator car	172,546

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 18, 1876.

172,845. POLISHING-WHEELS. C. N. BROOK, Winchester, Mass. [Filed Sept. 20, 1875.]



The herein-described process of manufacturing polishing-wheels, consisting in laying up a number of compressed sheets of felt one above the other, with crossing fibers, and cementing the whole in a closed vessel, after they have been reduced by pressing to about half their thickness, and afterward hardened, which steaming and hardening, after being repeated, is followed by dividing the circumference of the sheets together, and combing them in dilated cold, and finally the wheel is put through a felting-mill, after being taken from which it is pounded, shaped, pressed, and finished in a manner and for the purpose set forth.

172,846. REVOLVING FIRE-ARMS. Edward P. Scardmon and Andrew J. Peavey, Lawrence, Mass. [Filed June 24, 1875.]



1. In a pistol, substantially such as described, the sliding rod D and hammer m, combined to operate substantially as specified.

2. In a pistol, substantially such as described, the hammer m, provided with the spring-pin K, substantially as set forth.

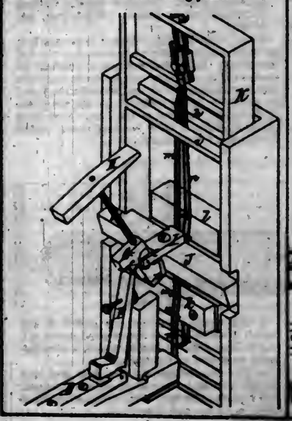
3. In a pistol, substantially such as described, the pull G, arranged to operate substantially as set forth.

4. In a pistol, substantially such as described, the cylinder C, barrel B, hammer m, pawl P, and rod D, combined to operate substantially as specified.

5. In a pistol, substantially such as described, the bow A, in combination with the spring-catch Y, substantially as set forth and specified.

172,847. PIANO-FORTES. S. P. Bruton, Boston, Mass. [Filed May 26, 1875.]

Brief.—Each hammer is arranged to strike two or more strings at one stroke, the said strings being in different planes, which planes cross each other at the striking-point.

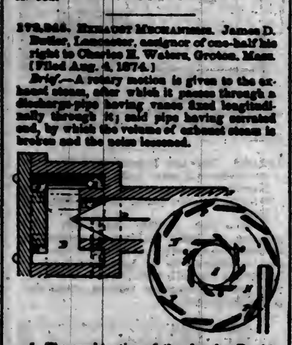


1. In combination with the two sets of strings a a, arranged in different planes, the bridges B f and B f, substantially as described, for the purpose set forth.

2. In combination with two sets of strings, a a, and the bridges B f and B f, the hammer H, arranged to operate substantially as described.

172,848. REMEDY MECHANISM. James D. Butler, Leominster, assignor of one-half his right to Charles H. Waters, Groton, Mass. [Filed Aug. 4, 1874.]

Brief.—A rotary motion is given to the exhaust steam, after which it passes through a discharge-pipe having vanes fixed longitudinally through it; said pipe having serrated end, by which the volume of exhaust steam is broken and the noise lessened.

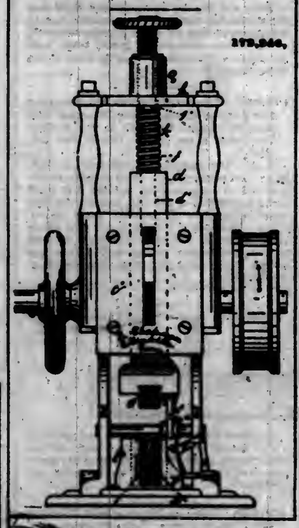


1. The combination of the chamber B with the entering tangent-pipe A, and with the discharging-pipe C, substantially as described.

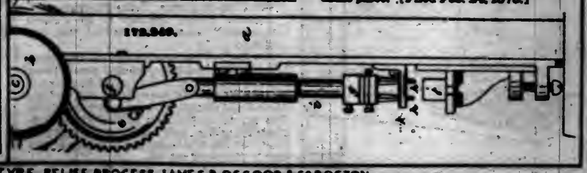
2. The vanes D and ribs E, in combination with the chamber B and the pipes A and C, substantially as described.

3. The discharge-pipe C, with the serrated end, substantially as described.

172,849.



172,850.

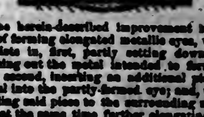


172,851. METAL-HAMMERING MACHINES. Lake Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

Brief.—The helve hammer-stock reciprocates upon the rod held stationary in the crowner, the spring on rounding the rod adding to the force of the blow due to gravity.

The combination of the hammer-stock *d*, the stationary rod *f*, the crown-piece *h*, and the spring *k*, all constructed, arranged, and designed to operate substantially as shown and described.

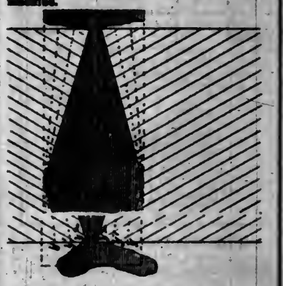
172,847. ART OF FORMING THE EYES OF PICKS. Lake Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1876.]



The herein-described improvement in the art of forming elongated metallic eyes, which consists in, first, partly cutting down and opening out the metal intended to form the eye; second, inserting an additional piece of metal into the partly-formed eye; and, third, welding said piece to the surrounding metal, and at the same time further elongating the eye, all substantially as shown and described.

172,848. MACHINES FOR MAKING SLIDERS. Lake Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Nov. 6, 1875.]

Brief.—Six sets of dies, the lower sets of which are duplicated, (one set on each side of the machine,) and capable of being reciprocated to bring either set under the upper set, to allow of manipulation on both sides of the machine.



1. In combination, the frame of the machine, the reciprocating die-bearing follower *a*, and die-blocks *c*, &c., by double cuts, having reciprocations permissible in bed *q*, substantially as and for the purpose set forth.

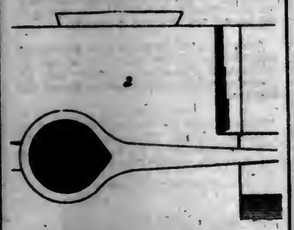
2. In combination, dies *b g*, *c f*, in *h*, *e p*, and *r s*, when all are constructed, shaped, and designed for use substantially as described.

172,849. MACHINES FOR OPENING THE EYES OF AXES. Lake Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1876.]

The combination of the reciprocating punch-stock, the adjustable plates, and the adjustable detaching-guard, substantially as described.

179,860. DIES FOR FORMING SPANISH AXES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Apr. 9, 1875.]

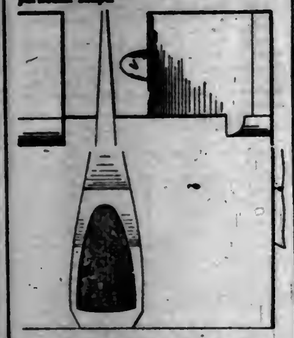
Brief.—Two different dies formed in the same die-blocks—one for swaging the ax fat-wise, and the other for swaging it edgewise—the dies being of forms to produce an ax of particular shape.



The dies *a* and *b*, herein described and shown, having faces for side-surfacing and edging axes, of substantially the shape shown and described.

179,861. DIES FOR FORMING SPANISH AXES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Apr. 9, 1875.]

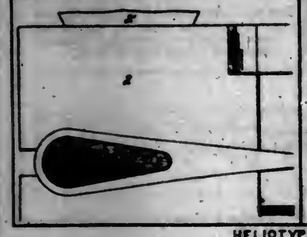
Brief.—Two different dies formed in the same die-blocks—one for swaging the ax fat-wise, and the other for swaging it edgewise—the dies being of forms to produce an ax of particular shape.



The dies *a* and *b*, herein described, having faces for side-surfacing and edging axes, of substantially the shape shown and described.

179,862. DIES FOR FORMING SPANISH AXES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Apr. 9, 1875.]

Brief.—Two different dies formed in the same die-blocks—one for swaging the ax fat-wise, and the other for swaging it edgewise—the dies being of forms to produce an ax of particular shape.



The dies *a* and *b*, herein described, having faces for side-surfacing and edging axes, of substantially the shape shown and described.

179,863. DIES AND PUNCHES FOR FORMING THE EYES OF PICKS. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

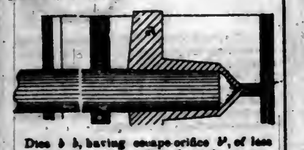
Brief.—A feature that contributes to the novelty of the combination is the concave shoulder on the punch.



The combination of the die *b*, bearing the stationary punch *c*, with the shouldered punch *d*, all substantially as and for the purpose set forth.

179,864. DIES AND PUNCHES FOR FORMING THE EYES OF AXES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

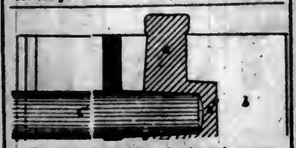
Brief.—Two partible dies with their punches—the latter oval in cross-section—to be used successively. A feature of the dies that contributes to the novelty of the combination is a small hole at the bottom of each, that permits escape of surplus metal displaced by the punch.



Dies *b b*, having escape-orifice *b'*, of less cross-area than the punch, and punche *c*, in combination with dies *d d*, having escape-orifice *d'*, of less cross-area than the punch, when both punches are designed to move the stock in the same direction.

179,865. DIES AND PUNCHES FOR FORMING THE EYES OF AXES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

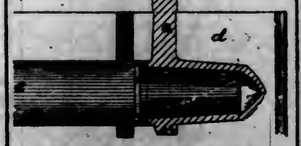
Brief.—Two partible dies and their punches, to be used successively. Both punches are cylindrical in cross-section, the one first used being nearly flat at the end, and driving the metal before it, while the other has a conical point. The part of the die (mold) into which the extremity of the bar is inserted is reduced in size, and made to correspond in shape square to the extremity of the bar designed for the poll.



The combination of the dies *b b* and punches *c* with the dies *d d* and punch *f*, when all are constructed, arranged, and designed for operation and use, substantially as shown and described.

179,866. DIES AND PUNCHES FOR FORMING THE EYES OF AXES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

Brief.—Two partible dies and punches, to be used successively, the first punch being double—that is, of two different diameters—cylindrical, and with a nearly flat end, and the other being square, with a pyramidal point. The second or finishing die and punch complete the poll as well as the eye, except that the latter remains closed at the end by a web, that is afterward cut off.



1. Dies *b b*, having the corner-stock recesses *b'*, in combination with the non-angular punch *c*, when constructed, arranged, and designed for operation and use substantially as shown and described.

2. The dies *d d*, having the corner-stock recesses *b'*, and otherwise shaped as shown, in combination with the non-angular and pointed punch *f*, when constructed, arranged, and designed for operation and use substantially as shown and described.

3. In combination with the dies *b b*, having the corner-stock recesses *b'* and the punch *c*, the squaring-dies *g g*, and the squaring-punch *h*, when the whole is constructed for use as described.

179,867. DIES AND PUNCHES FOR FORMING THE EYES OF HOES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

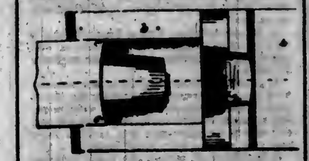
Brief.—Two partible dies and their punches, to be used successively to form an eye in a flat hoe-blank. Both punches are cylindrical in cross-section, and have rounded ends, and both dies have a recess in its wall opposite the point at which the bar is inserted, for the reception of a lug on the end of the bar, which thus prevents the bar from bending down under the action of the punch.

1. The combination of the dies *b b* and punch *c*, when all are constructed, arranged, and designed for operation and use substantially as shown and described.

2. The combination of the dies *d d* and punch *e*, when all are constructed, arranged, and designed for operation and use substantially as shown and described.

179,868. DIES AND PUNCHES FOR FORMING THE EYES OF PICKS. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

Brief.—The invention is fully explained by the claim, the peculiarity of the combination residing chiefly in the concave shoulder on the punch, used with a die open at bottom.



The dies *b b*, in combination with the punch *c* having the shoulder *c'*, substantially as and for the purpose set forth.

179,869. DIES AND PUNCHES FOR FORMING EYES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1875.]

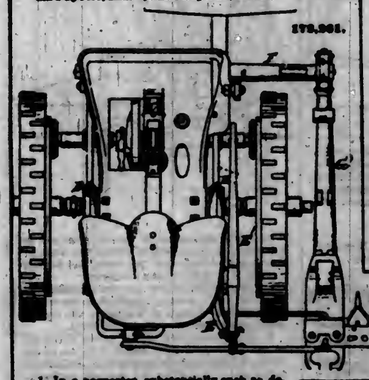
Brief.—The double punch is of a flat oval shape in cross-section, and the recesses in the die are designed to prevent the bar from bending downward under the centre of the punch, and also to furnish additional stock of which to finish the tool by subsequent operations.



1. The dies *a a*, having the recesses *a'*, substantially as and for the purposes set forth.

2. The combination of the dies *a*, having the recesses *a'*, with the double punch *b' b'*, all constructed, arranged, and designed for operation and use substantially as shown and described.

179,870. HARVESTERS. Wm. P. Cochrane, La Fayette, Ind. [Filed Sept. 15, 1875.]



1. In a harvester, substantially such as described, the side pieces of the main frame constructed of flat pieces of wrought-iron or steel, and combined with the segmental slotted brackets D D, and arm E, cast independently, and bolted thereto, substantially as set forth.

2. In combination with the side pieces of the frame A and drag-bar B, the tubular tapered girder F, strengthened by an internal wrought-iron rod, substantially as set forth.

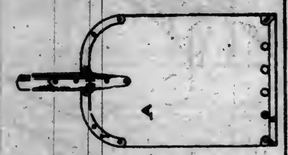
179,871. CLOTHES-PINS. Daniel M. Cummings, Bedford, N. H., and Albert G. Cummings, North Williston, Vt., assignees of one-half their right to B. F. Brown and W. A. Russell. [Filed June 21, 1875.]



The clothes-pin consisting of the central bar *d*, the spring clasping-pieces E E, cut away as shown and outwardly bent at the ends, and the outer spring re-enforcing pieces A A, bearing inwardly at their lower extremity to secure constant contact with the inner spring-pieces E E, as and for the purpose set forth.

179,872. WOODEN-BLADED SHOVELS. Daniel M. Cummings, Bedford, assignor of two-thirds his right to B. F. Brown, Tilton, N. H., and W. A. Russell, Lawrence, Mass. [Filed Sept. 4, 1875.]

Brief.—The shovel-blade is carved from wood, of the desired form, and the wooden handle is notched to fit the acute angle of the upper end of the shovel-blade. Metal straps re-enforce the parts, and the edge of the shovel is doubly flatlded with metal.



1. The re-enforcing pieces F I, in combination with the clasping-pieces E H, and handle B, cut away, as shown at *f*, to receive the upper end of the wooden blade A, as shown.

2. The metal re-enforcing and protecting strip G, cut away, as shown at *e e*, to form overlapping lips, in combination with the wooden blade A, as described.

179,873. LABELS FOR BOTTLES. John L. Dawes, Pittsburg, Pa. [Filed Sept. 20, 1875.]

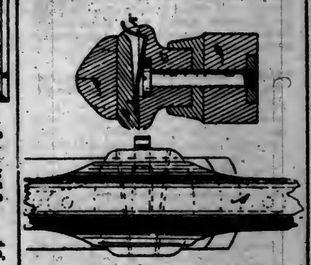
Brief.—A strip of paper bearing printed matter is pasted to the rear side of a glass plate, both so combined being then cemented to a bottle, jar, or other vessel.

179,874.



179,875. WHIFFLETREES. Reuben D. Hale, Translyvania, Ind. [Filed July 2, 1875.]

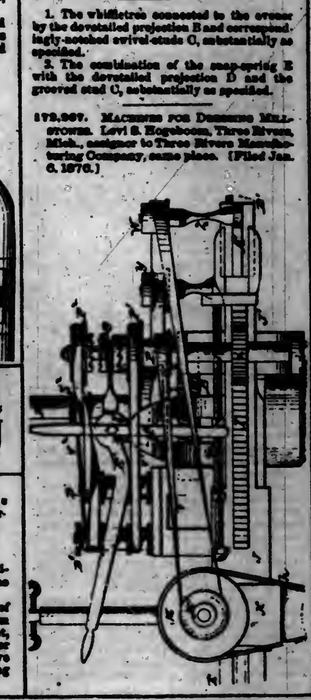
Brief.—The dovetailed projection of the whiffletree slides into the grooved swivel-stud, and is held by the snap-spring.



1. The whiffletree connected to the corner by the dovetailed projection E and correspondingly-notched swivel-studs C, substantially as specified.

2. The combination of the snap-spring E with the dovetailed projection D and the grooved stud C, substantially as specified.

179,876. MACHINES FOR DRESSING MILLSTONES. Levi S. Hogeboom, Three Rivers, Mich., assignor to Three Rivers Manufacturing Company, same place. [Filed Jan. 6, 1876.]



1. The valve L, with its ring fitting the head M water-tight, in combination with half-cone *b b* and removable dog *c*, as and for the purpose set forth.

2. The valve L provided with forked lifter *e*, in combination with the rod E, as specified.

3. The scraper N, surrounding the edges and bottom of the steam-valve, in combination with bolt F, extending through the head of cylinder, for operating the scraper to clean the valve, as specified.

4. The combination of the valve P, slotted leg *e f*, and rod D, and dog *c*, substantially as and for the purpose set forth.

179,877. MACHINES FOR DRESSING MILLSTONES. Reuben D. Hale, Translyvania, Ind. [Filed July 2, 1875.]

Brief.—The dovetailed projection of the whiffletree slides into the grooved swivel-stud, and is held by the snap-spring.

1. The whiffletree connected to the corner by the dovetailed projection E and correspondingly-notched swivel-studs C, substantially as specified.

2. The combination of the snap-spring E with the dovetailed projection D and the grooved stud C, substantially as specified.

179,878. BOTTLES. Francis T. Furber, Chicago, Ill., assignor to George Leader, same place. [Filed Nov. 11, 1875.]

Brief.—A scraper is fitted round the seat of the check-valve, and is operated by rods from the outside. Said valve is hinged water-tight, and provided with a slotted lug and rod for operating it from the outside. Plunger-valve is provided with similar hinge and clearing apparatus.

The label *a* in combination with the plate *a* and bottle *b*, substantially as and for the purpose specified.

1. In a millstone-dressing machine the bar B, supporting the entire operating mechanism and indirectly connected to a collar, which is attached to and capable of being rotated upon a base, A, carrying the adjusting mechanism, all substantially as and for the purposes herein set forth.

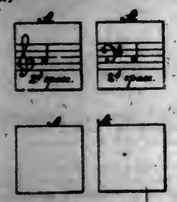
2. The combination, with the swinging or turning collar C, provided with the projecting arm D, of the link *d*, bar B, with the operating mechanism attached thereto, and the sliding gate G, pivoted to said bar, and adjusted in the guide H on the collar by the screw *p*, substantially as and for the purposes herein set forth.

3. The combination, with the base A and collar C having the operating mechanism connected thereto, of the stationary worm-wheel E, centered on the base, and the worm I, substantially as and for the purposes herein set forth.

4. The combination, with the adjustable bar B, of the slide J J' reciprocating thereon, and the vertically-adjustable frame K carrying the revolving corundum-wheel L, and adjusted on the slide, substantially as and for the purposes herein set forth.

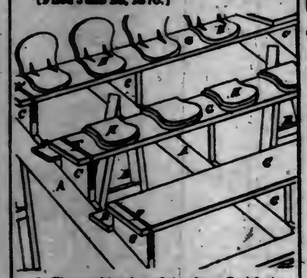
5. The combination, with the slide J J' having rack-bar I, and the pinion *i* on the shaft N, of the lever clutch-pulley P P' on said shaft, the movable clutch O, lever R, with pins *o o*, lever G', with weight *k'* at its upper end, and the adjustable stops *s s* for automatically reversing the motion of the slide, substantially as herein set forth.

172,969. MUSICAL SPELLING-TABLETS. Justin Pash, New York, N. Y. (Filed Nov. 27, 1875.)



The musical spelling-tablet A, containing on one face a musical character or characters, and on a different face the letter or mark explanatory of the character or characters on said face, substantially as specified.

172,970. PORTABLE SEATS FOR CHOIRS, &c. James B. Kelley, New York, N. Y. (Filed June 26, 1875.)



1. The combination of the risers C with the uprights A and seat-boards G, substantially as described, for the purpose specified.

2. The metal straps F, combined with the seat-risers, as described, whereby loops are formed on the tops of the risers, to prevent the seat-boards from slipping off to the front and rear thereof, substantially as described.

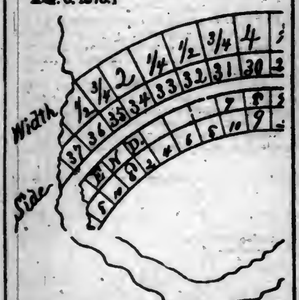
3. The foot-boards B, held in place upon the uprights A, between the backs of the risers C and the vertical faces of the notches in the uprights, substantially as described.

4. The portable seats for theaters, churches, &c., composed of the inclined uprights A A A, the foot-boards B, resting upon the uprights, the seat-boards G, resting within loops upon the end risers C of the uprights, and the hinged seats H H, adapted to fold down upon the seat-boards, substantially as described, for the purposes specified.

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5. In seats for circuses, &c., the seat-boards provided with a series of independent folding seats, each composed of two leaves, one of which is secured to the seat-board, and the other forming a closed back to fold down upon the seat-leaf, so as to protect the prominent faces of the two, and form a step to be used in passing up or down a tier of seats, substantially as described.

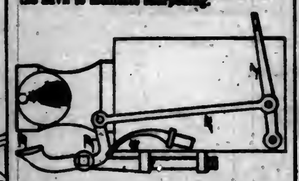
172,970. CALCULAGRAPH FOR MANUFACTURERS OF PICTURE-FRAMES. Boucher Kilbourn, Richfield Springs, N. Y. (Filed Apr. 6, 1876.)



The combination of a fixed and a movable chart, the one bearing scales of one of the necessary dimensions of a frame, and also the width of the molding, and the other chart bearing a scale of the other dimension of the frame, and one or more series of results, all connected by suitable indexial lines, substantially as and for the purpose set forth.

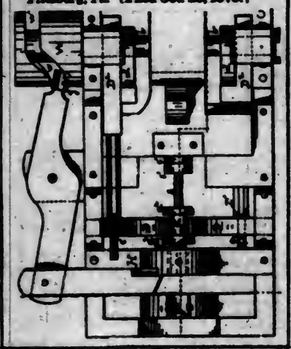
172,971. HORSESHOE-CALKING VISE. A. Kimball and John Treiver, Adrian, Mich. (Filed Dec. 21, 1875.)

Brief.—The shoe is held between the jaw and tit. anvil, the calk lying on the face of the anvil to facilitate sharpening.



In combination with any suitable anvil, a horseshoe-clamp consisting of a standard, C, rocker-lever D, screw F, connecting-rod H, and pedal I, all constructed and operating substantially in the manner hereinbefore described, for the purposes set forth.

172,972. NUT-MACHINES. Alfred Marland, Pittsburg, Pa. (Filed Oct. 20, 1875.)



1. In a nut-machine, the combination of a die-box, a punch working in the line of feed, and a knife working transversely to the line of feed, substantially as set forth.

2. In combination with a die-box which incloses the nut-blank circumferentially, a moving compressing-die, which closes one end, a transversely-operating knife which closes the other, and a longitudinally-moving punch, all operating simultaneously on the inclosed blank to punch and compress it, substantially as set forth.

3. In combination with a fixed die-box, a moving cross-head, D, moving die *c*, and punch *i*, substantially as and for the purposes set forth.

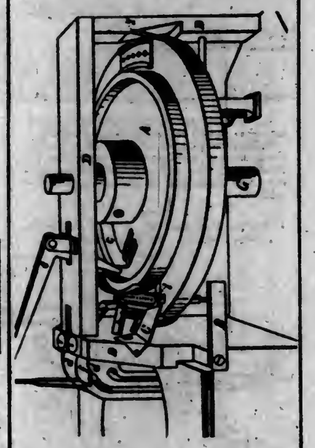
4. A moving cross-head, D, in combination with one or more cams, *d*, whereby the die is held forward while the punch is withdrawn, and is caused to advance to discharge the nut, and also is brought back into position for a new feed, substantially as set forth.

5. The knife *f'*, having the triple function of severing the blank by a stroke transverse to the line of feed, of closing one end of the die-box during the operation of punching, or compressing, or both, and of affording a passage for the escape of the punchings, substantially as set forth.

6. The knife *f'*, in combination with an unjointed die-box, substantially as set forth.

172,973. MACHINERY FOR CASTING BULLETS. Charles S. Mosher, New Haven, Conn. (Filed Mar. 10, 1870.)

Brief.—The molds are arranged upon a revolving table, and automatically opened and closed.



1. The construction of cam 4, attached to the wheel A, bent lever 5, guides *d d*, each of which is provided with two slots, and bushed *f*, as and for the purposes set forth.

2. The combination of the piece *m*, attached to the frame D, lever *p*, attached to the wheel A, and filling-trough *n*, hinged to the bullet-mold, as and for the purposes set forth.

3. The combination of the arm *p*, attached to the frame D, lever *n*, attached to the hinge of the filling-trough *n*, and spring *o*, attached to wheel A, as and for the purposes set forth.

4. The combination of the piece B, lever *b'*, and slide *c'*, as set forth.

5. The combination of the slide *c'*, piece *S'*, pin *s'*, and stud *f'*, as set forth.

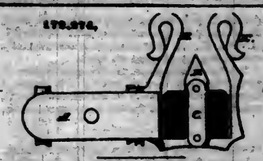
6. In a machine for casting bullets, the cam C, attached to the frame D, as set forth.

172,974. RUBY-HOLDERS. H. C. Miller and P. A. Norton, Shrewsbury, Pa. (Filed July 16, 1875.)

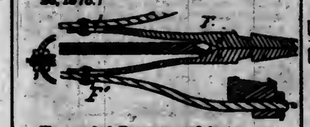
Brief.—The rubber binds the rule against the jaw.

The arms A and C and thumb-screw H, in connection with the center piece D, spring B, and plate C, substantially as shown.

172,975.



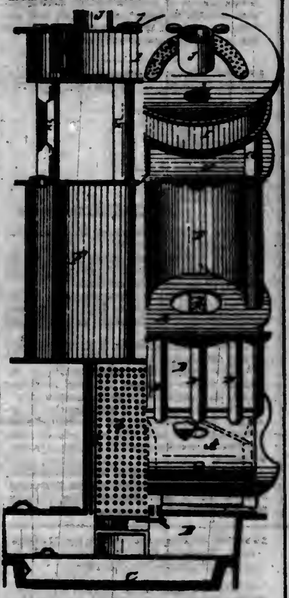
172,975. DEVICES FOR FORMING THE CHOKE IN BOTTLES. Henry Miller, Pittsburg, Pa., assignor to J. A. Chambers. (Filed July 26, 1875.)



The mandrel F, constructed in two parts, each pivoted directly to the center-piece at *h*, and connected with the spring-handle A by plate *f'*, said handle carrying the detachable forming-pieces, all constructed and combined substantially as shown and described.

172,976. STOVES. Geo. Howcomer, Battle Creek, Mich. (Filed July 10, 1875.)

Brief.—The perforated plates allow a draft from the body of the fuel into and through the vertical flues in the wall of the fire-pot. Smoke is compelled to pass around the flue or chamber, which may be used as a hot-air drum or a water-vessel.



1. The fire-chamber D, provided with the flues D', having interior perforated plates *b*, substantially as and for the purposes herein set forth.

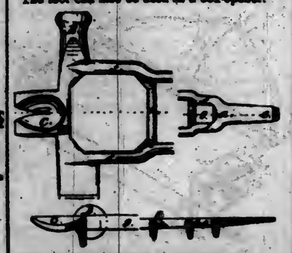
2. The combination of the fire-chamber D, having flues D', with interior perforated plates *b*, the top plate E, and crescent-shaped reducer F, substantially as and for the purposes herein set forth.

3. The horizontal deflecting and radiating top drum I, provided with the interior curved disk K, having projecting flange *x*, substantially as and for the purposes herein set forth.

4. The combination of the hearth A, fire-chamber D, reducer F, plates E H, flue or extension G, and top drum I, with disk K, all constructed substantially as and for the purposes herein set forth.

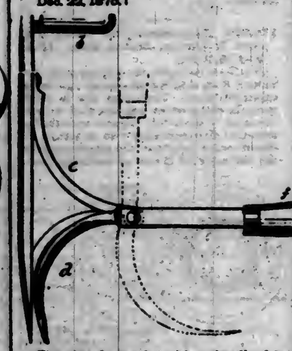
172,977. TOOLS. Daniel W. Norris, Elgin, Ill. (Filed Apr. 5, 1875.)

Brief.—A screw-driver, hammer, claw for drawing nails, and hatchet-blade or cold-chisel are arranged together as one implement, the handle of which is provided with openings and projecting cross-bars, which form a series of trenches of varying size. The cross-bar serves as a fulcrum in using the claw. The tool can also be used as a box-opener.



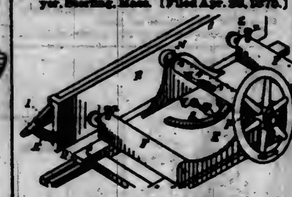
As a new article of manufacture, the tool, substantially as described, and for the purposes set forth.

172,978. DEVICES FOR UNFASTENING AND READJUSTING DRAWN PATTERN. Henry P. Peaton, Appleton, assignor of one-half his right to Albert S. Dean, Eau Claire, Wis. (Filed Dec. 22, 1875.)



The claw *d*, provided with a tenon, *f*, in combination with the bar or rod *a* and bench *c*, substantially as and for the purposes set forth.

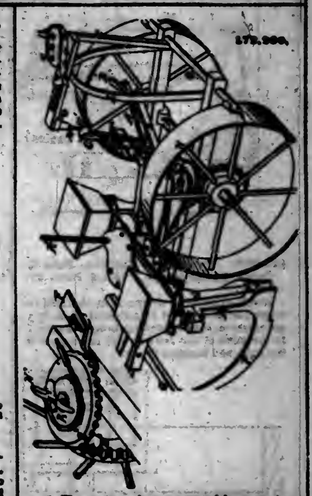
172,979. SAW-BENCH GAGES. Lake Sawyer, Sterling, Mass. (Filed Apr. 20, 1875.)



The combination of the carriage C C, body E, index T, bead-stock B, shaft W, slide M, plate L, and cranks G S, constructed and arranged to operate substantially as and for the purpose specified.

172,980. CORN-PLANTERS. Levi Scofield, Grand Haven, Mich., assignor of one-half his right to Austin B. Wolf, same place. (Filed Sept. 20, 1875.)

Brief.—Toothed seed-plates; endless chain; locking device for holding reciprocating bar out of contact with seed-disks; flexible bar with guide-pulleys for driving-chain, to permit movement of runners; dog for locking chain-wheel to driving-wheel, whereby corn-planter is converted into a corn-drill.



1. The seeding-plates, operated from gearing connected with one of the driving-wheels by means of a chain or belt arranged to pass around both plates and a toothed plate connected with the gearing for the purpose of operating the machine as a drill, substantially as described.

2. In a seeding-machine, the bar F', provided with guide-pulleys for the driving-chain, and made thin and flexible to adapt it to the movement of the runners, substantially as described.

3. In a seeding-machine, the thin bar F', having pulleys J', combined with the seeding devices and main frame, to guide the driving-chain, and permit the seeding devices to conform to the undulations of the ground without cramping or binding the joints or connections of the machine, substantially as described.

4. In a seeding-machine, the armed plate A', constructed as described, for supporting the miter-wheel C', the toothed driving-plate, and the rear end of the bar F', substantially as described.

5. In a seeding-machine, the perforated toothed driving-plate E', mounted upon the vertical stud of the miter-wheel C', as herein set forth, for the purpose specified.

6. In a seeding-machine, the pivoted dog, combined with the perforated miter-wheel and driving-plate for locking the two together, substantially as described, for the purpose specified.

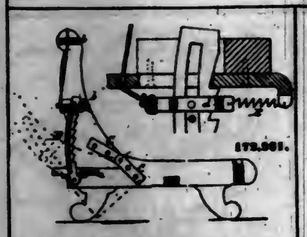
7. In a seeding-machine, the dog D', provided with the toe N', by which it is disengaged from the driving-plate and miter-wheel, and held in an upright position, substantially as described.

8. The combination of the miter-wheel, the adjustable driving-plate, the guide, pulley-plate, and the driving-chain, with the supporting-wheel and seeding-plates of a corn-planter, substantially as described, for the purpose of converting the machine into an automatic drill, as specified.

10. The seed-plates and driving-chain, in combination with a device, P', for locking the sliding bar L to the runner-beam, and holding the steps S' out of contact with the seed-plate, substantially as described.

172,981. LOOMS. Wendelin Senz, Chicago, Ill. (Filed Nov. 13, 1875.)

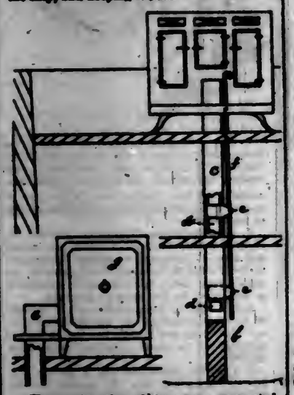
The combination, with the lever-frame and head-piece, hinged together, as specified, of the device described for locking the head-piece in position, consisting of the segmental ratchet-bar pivoted to the lever-frame, and provided with a longitudinal slot, as shown, the metal plate D', the strap *d*, guide-pin *s'*, and spring E, as and for the purpose specified.



172,861.

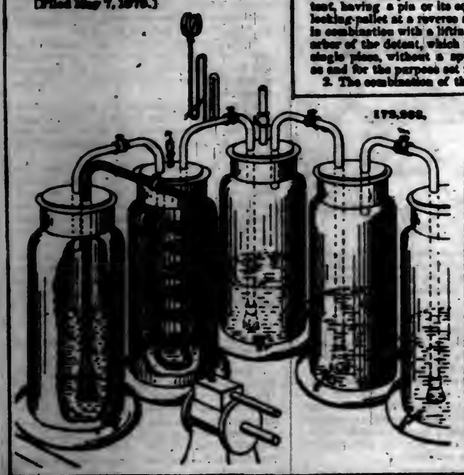
172,862. VENTILATING VESSELS. Ross C. Smith, Prospect, Me. [Filed Nov. 27, 1875.]

Brief.—The air is drawn from the hold or lower part of a vessel by means of pipes to a gang-cover, thus furnishing an equable draft to the stove of the engines and forces air in the ship, and heating it pure.



The combination of the pipe *c*, connected with cover *g*, and extending to the bottom *h*, and having suitable openings *d*, as described, with the valves *e* and *f*, substantially as and for the purposes herein set forth.

172,863. PROCESS OF PURIFYING AND IMPROVING THE QUALITY OF DISTILLED SPIRITS. Baldwin Sweet, Jr., Boston, assignor to A. L. Wood, trustee, Brookline, Mass. [Filed May 7, 1875.]

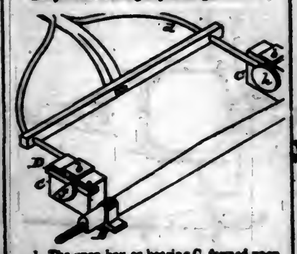


172,863.

The improvement in the art of purifying or aging liquors herein set forth—that is to say, washing and purifying air, and then warming it before it is forced into the spirits, in the manner or substantially as described.

172,864. TIRE-CONFINER. W. H. Trimber, Cleveland, Ohio. [Filed Oct. 26, 1875.]

Brief.—The sliding cap is hinged.

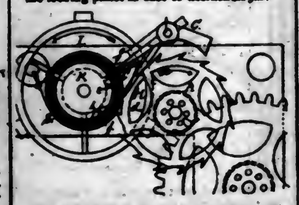


1. The open box or bearing C, formed upon the extended bottom plate of the clip B, and provided with the pivoted bar D, having nosk *c* and plate *b*, substantially as and for the purposes herein set forth.

2. The thill iron consisting of the disk A, stem *a*, and segmental disk *f*, in combination with the slot box or bearing C and pivoted bar D, substantially as and for the purposes herein set forth.

172,865. ESCAPEMENTS FOR TIME-PIECES. John F. Watson, Boston, Mass. [Filed May 26, 1875.]

Brief.—A pin upon the locking-pallet prevents it from entering too deeply into the escapement-wheel. The lifting-arm is placed upon the detent-arbor, and operated without the usual lifting-spring. A guard upon the balance-staff, in combination with an arm on the detent-arbor, prevents the displacement of the locking-pallet in case of accidental jar.



1. In an escapement for time-keepers, a detent, having a pin or its equivalent upon the locking-pallet at a reverse angle to the same, in combination with a lifting-arm upon the arbor of the detent, which is constructed in a single piece, without a spring, substantially as and for the purposes set forth.

2. The combination of the escape-wheel A, detent C, locking-pallet *c*, having the pin *b*, or its equivalent, the balance-staff O, the lifting-arm E, and unlocking-pin *e*, substantially as and for the purpose set forth.

3. The combination of the guard-piece K upon the balance-staff having the recess *k* therein, and the arm H on the detent-arbor D, substantially as and for the purpose set forth.

172,866. MACHINES FOR SAWING FELLOES. Lyman S. Welch, Canaan, N. H. [Filed Sept. 11, 1875.]

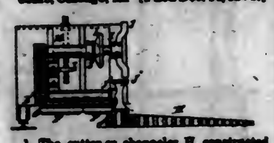
Brief.—Two laterally-adjustable band-saws are placed one within the other, in the same vertical and horizontal planes, for sawing simultaneously the outer and inner portion of a felly-rim, the blank being held during the operation in a pivoted holder.



1. In a felly-sawing machine, the combination of a table with two band-saws, *f e*, arranged in the same vertical and horizontal planes, and adjustable laterally to the same plane, and adapted to saw simultaneously the outer and inner portion of a felly-rim.

2. The combination, with the double band-saws, arranged in the same vertical and horizontal planes, of pivoted holding mechanism, substantially as described, to hold and present the material to be sawed into felloes to the band-saws, substantially as set forth.

172,867. MINING-MACHINES. Geo. D. Whitcomb, Chicago, Ill. [Filed Dec. 14, 1875.]



1. The cutter or chaunoler E, constructed substantially as described.

2. The combination, substantially as described, of the chaunoler F, and the plate G, as and for the purposes set forth.

3. The combination, substantially as described, of the chaunoler, driving-plate, and cutter attached to the latter, as and for the purposes set forth.

4. The trimming-cutters *J J*, substantially as and for the purposes described.

5. The combination, substantially as described, of the trimmers *J J'*, and a sliding frame, M, as and for the purposes set forth.

6. The cutting-teeth of the chaunoler H, arranged in vertical rows and subdivided horizontally, so that they will more readily clear themselves and increase the cutting capacity, as shown.

7. In a mining-machine the combination, substantially as described, of the trimming-cutters and a laterally-projecting chaunel-cutter, as and for the purposes set forth.

172,868.



172,868. CUTTING APPARATUS FOR HARVESTERS. Friedrich H. Wilhelmberger, Rensselaerville, Ill. [Filed Nov. 20, 1875.]

1. The ledger-blade bar D, provided with a stud, *d*, for the purpose of fastening the bar to the shoe, substantially as described.

2. The triangular strip *S*, fastened to the ledger-blade bar D, and operating as a guide to the cutter-bar E, substantially as described.

3. The combination of the triangular strip *S*, cutter-bar E, and knives *E'*, bent as described, substantially as and for the purposes set forth.

4. The combination, substantially as described, of the ledger-blade bar D, strip *S*, cutter-bar E, and knives *E'*, as and for the purposes set forth.

5. The combination, substantially as described, of the ledger-blade bar D, carrying the triangular strip *S*, cutter-bar E, knives *E'*, bent as described, and plate F, as and for the purposes set forth.

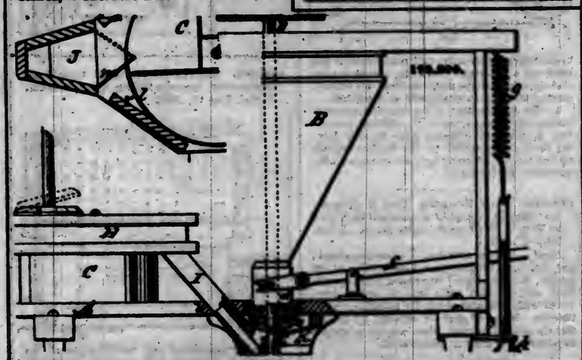
172,869. PRINT-JAMS. John Young, Amsterdam, N. Y. [Filed May 20, 1875.]



The metallic disk C, covering the jar-mouth and bearing centrally upon the glass cover, while it clamps the parts A and B to each other with an elastic gasket interposed between them, substantially as and for the purpose set forth.

172,870. GRAIN-CLEANING ATTACHMENTS FOR GRAIN-MILLS. John Allison, York, Pa. [Filed Nov. 15, 1875.]

Brief.—The movable section works in a circular groove in the bottom and top of the fan-case, and the shifting plate is changed from one side of the spout to the other, as may be desired, to direct the draft.



1. The horizontal narrow opening *i* at the back of the grain-chute K, in combination with the wide air-passage I and millstone-hopper B, substantially as and for the purpose herein specified.

2. The movable fan-case section *l* and shifting board or plate *m*, arranged and operating in combination with the fan-case and with its spout or nozzle J, substantially as and for the purpose herein specified.

172,871. CRUTCH-BOARDS. Wm. Austin, Appalachicola, Fla. [Filed May 26, 1875.]



In combination with a sail-boat or sailing-vessel, the crutch-boards B B, placed obliquely or at an angle with the keel, substantially as and for the purposes described.

172,872. SHADE-GAGES. William H. Babcock, East Pembroke, N. Y. [Filed June 6, 1875.]

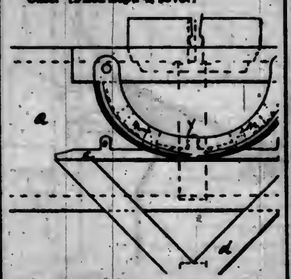
Brief.—The gage can be adjusted to boards of different thickness by means of a slide having upon its front part a double-plate with side projections, and an adjustable pivot-piece provided with a projection which fits in the slot of the bar.



172,873. GRAIN-BINS. George P. Bellamy, Newburg, N. Y. [Filed May 24, 1875.]

In a bin-bottom the center slat *a*, with its cushions *i*, in combination with the strips *s* and *s'*, constructed as and for the purposes set forth.

172,874. CRUTCHES. Eli F. Beard, Republic, Ohio. [Filed Sept. 4, 1875.]



The guard I I, pivoted to the journal-boxes D, and covering the pressure-roller B, substantially as and for the purpose specified.

172,875. PRESSURE-ROLL SHIELDS FOR PLAITING-MACHINES. Henry H. Baker, Plainfield, N. J. [Filed Nov. 10, 1875.]

Brief.—A shield, with leather edge attached, is put above the roll to guard the dressed stuff from shavings after passing the cutter.



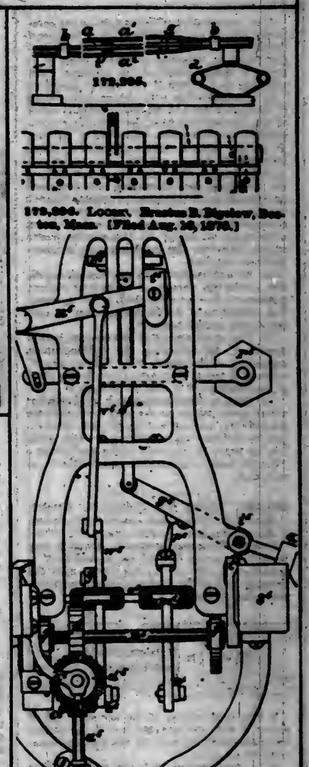
1. The combination of the vessel *a*, flanges *b b'* and *c*, rockers *e e'*, provided with notches *a* and tenoned bars *e f*, as and for the purposes described.

2. The reservoir *p*, provided with openings *m*, in combination with the vessel *a*, as and for the purposes described.

172,876. STEAM-BOTTOMS. George P. Bellamy, Newburg, N. Y. [Filed May 24, 1875.]

In a bed-bottom the center slat *a*, with its cushions *i*, in combination with the strips *s* and *s'*, constructed as and for the purposes set forth.

172,877. LOOMS. Reuben B. Bigelow, Boston, Mass. [Filed Aug. 16, 1876.]



1. In combination with a reversing mechanism, consisting of the roller *p*, axis *q*, gears *r* and *s*, stud *t*, and lever-arm *u*, as herein represented and described, a treadle-lever, whereby the weaver may put the reversing mechanism in action, substantially as and for the purpose specified.

2. In combination with a brake-wheel on the driving-shaft of a power-loom, a brake and toggle-joint mechanism, such as is herein represented and described, for arresting the movement of the loom, said toggle-joint mechanism being brought into action by the loom-shipper, and disconnected from it by means substantially as described, to set the loom free, substantially as herein set forth.

3. In combination with the reversing mechanism and the treadle-lever by which it is brought into action as aforesaid, a reversing-lever, whereby the brake for arresting the movement of the loom is disconnected from the loom-shipper and withdrawn from the brake-wheel, substantially as specified.

4. In combination with the brake adapted to stop the loom, and the shaft *g* of the wire-operating mechanism, the brake *f'*, as and for the purpose specified.

5. The combination of mechanism herein represented and described, for operating the lay of the loom with a "double-acting" movement, consisting of a single crank, *g*, bar *r'*, depending arm *s'*, oscillating shaft *s*, lever-arms *s'*, and connecting-bar *m'*, the said single crank *g'*, the bar *r'*, and the depending arm *s'* being located outside the loom-frame, as herein set forth.

6. The combination of mechanism, herein represented and described, for holding the swinging end of the shuttle-binder right when the shuttle is entering the box, through the shuttle-box, and liberating it before the shuttle is thrown, consisting of the axis *n'*, adjustable arm *p'*, arm *n'*, lever-arm *o'*, and connecting *k'*.

7. In combination with the mechanism herein represented and described, for elevating and depressing the jacquard-machine, the depending cloth s^7, whereby the hand-wheel s^7 is brought within reach of the operator when standing on the floor of the mill, as specified.

8. In combination with the oscillating shaft b^7, which elevates and depresses the trap-board of the jacquard-machine, the oscillating mechanism herein described, consisting of the cam f^7, upright lever f^7, horizontal rod e^7, elbow lever d^7, the bar p^7, and the lever-arm c^7.

9. In combination with the comber-board for elevating and depressing the jacquard-harness, as herein described, a counter-balance weight, arranged as described, whereby the comber-board is elevated, said weight being withdrawn or raised by the motive power which depresses the comber-board, substantially as specified.

10. In combination with the comber-board, the mechanism whereby it is put in an oblique position to form an even shed, as herein specified, consisting of the depending arms o^7, rollers o^7, and guide-stands o^7.

11. The combination of mechanism, herein described, for actuating the heddle-frames, consisting of the cam f^7, roller f^7, lever-arm n^7, adjustable rod g^7, lever-arm f^7, oscillating shaft f^7, connecting-rod i^7, and lever-arms f^7.

13. And, in combination with a tension-bar which gives tension to the warp and regulates its delivery, a brake and toggle-joint mechanism for holding said tension-bar rigid while the lay beats up the weft, and a lay having a "double-beat" movement, substantially as specified.

172,897. JOINTS FOR UMBRELLA-STICKS. George H. Briggs and Joseph T. Clairborne, Amesbury, Mass. (Filed Sept. 27, 1875.)

Brief.—The upper section of the stick may be inclined at any desired angle, and fixed in such position by turning the sleeve until the serrated end of the pinion engages with serrated end of the socket.



1. The combination of the serrated end of socket B with the serrated end of the pinion D, substantially as and for the purpose hereinbefore set forth.

2. In combination with the socket A and pinion D, the serrated ends B and a, substantially as described.

3. The sleeve or jacket F, in combination with the socket ends B and B and pinion D, substantially as and for the purpose hereinbefore set forth.

4. The slotted groove and pin, as described, and shown in Figs. 2 and 3, in combination with the ends B and a and sleeve F, substantially as specified.

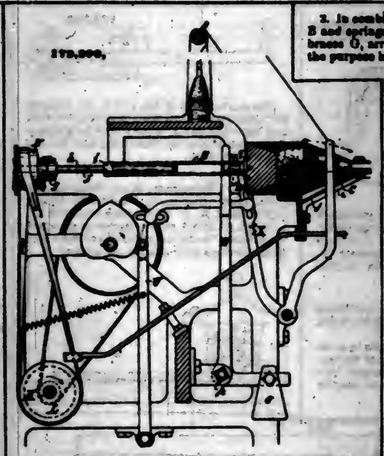
172,898. MACHINERY FOR WRINGING COTTON-BOXINGS. Geo. Campbell, Cohoes, N. Y., assignor to himself and John Clute, same place. (Filed Oct. 30, 1875.)

Brief.—The bobbin-spindle is supported in a sliding journal-box, so that the base of the bobbin is constantly adjacent to the point of support of the spindle, thereby preventing bobbins from shaking and bending upon the cap-flanges, as it is apt to do when these bearings of the spindle are fixed, and the bobbin is at the end of the spindle at the commencement of the winding. The driving-shaft is mounted to turn in a constant position in line with the bobbin-turning spindle, and connected to the latter by a telescopic coupling, that is constantly at a uniform distance from the sliding journal-bearing.

1. In combination with the prestamp end-wise-movable bobbin-revolving shaft B, the sliding journal-bearing E, arranged on the shaft adjacent to the part which engages with the base of the bobbin, and in or upon ways F, substantially as described.

2. In combination with the end-wise-movable bobbin-revolving spindle B, and sliding journal-box E on ways F, the weighted lever G, arranged to press against the combined bobbin-driving spindle and sliding journal-box, substantially as described.

3. In combination with the end-wise-movable bobbin-turning spindle B and its sliding journal-bearing E, the driving-shaft J, connected to turn in a constant position in line with the bobbin-turning spindle, and connected to the latter by a telescopic coupling, i, that is constantly at a uniform distance from the sliding journal-bearing, substantially as described.



172,899.

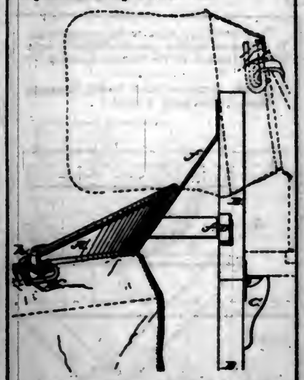


2. In combination with the middle cross-slat B and springs C C thereon, the wire brass or bronze G, arranged substantially as and for the purpose herein specified.

4. The combination of the end-wise-movable bobbin-revolving spindle B, sliding journal-box E, weighted pressing-lever G, and driving-shaft J, connected to the bobbin-spindle by the telescopic coupling i, all arranged substantially as described.

172,900. SACK-HOLDERS. Geo. H. Cornell, Sterling, Ill., assignor of one-half his right to Wm. J. Wilkinson, same place. (Filed May 4, 1875.)

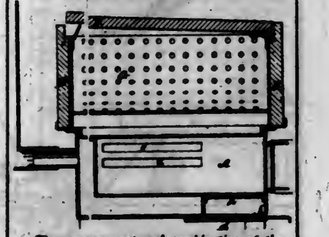
Brief.—Hopper attached to cross-like standard, having a hinged joint near middle of its length, is made flaring to expand and support sack, and conduct grain into it, and is provided with stop and staple for attaching bags thereto. Edge of sack is twisted by staple tightly around hopper, when one leg of staple is passed over stop to secure sack.



1. The hopper A, provided with the stop h, in combination with the staple X, substantially as and for the purpose described.

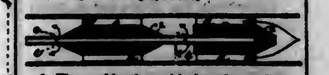
2. The standard B, hopper A, provided with stop h, and staple X, in combination, substantially as and for the purpose specified.

172,901. APPARATUS FOR STEAMING FOOD FOR STOCK. Romain Dalley, Quincy, Mich. (Filed Dec. 16, 1875.)



The arrangement and combination of the furnace A, provided with a sliding shutter, d, under the grate a and ash-pit b, the combustion-chamber B, surrounding the fire-box or furnace A and connecting with the same, as shown, the shallow pan or boiler D, steam-box E and cover F, and the removable semicircular perforated crate G, substantially in the manner herein shown and described, for the purpose specified.

172,902. TUBES AND FLUES FOR STEAM-BOILERS. Cyrus H. Dean, Crowland, Canada. (Filed July 1, 1875.)



1. The combination, with the tubes or flues a of a tubular boiler, of a series of fire-stops, c, of less diameter than the inside of the tubes, and interposed spaces thereby formed, whereby the flame and products of combustion are held or retarded in their passage through the flues within said spaces and between the stops, for the purpose of equalizing the heat throughout the flues, and constituting radiators within said flues.

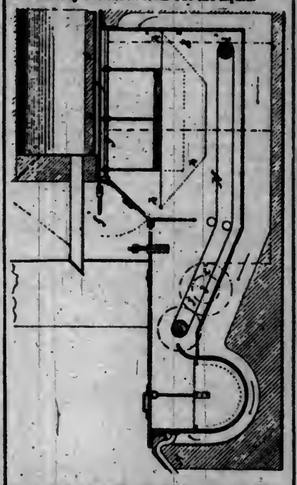
2. A series of fire-stops, c, strung upon a pipe or stem, h, centrally within the tubes or flues a of a tubular boiler, to receive and arrest by force the impingement of the body of the heat and flame while permitting of a continuous passage thereof through said flues.

3. The combination, with the fire-stops c and the intervening spaces, of the perforated boiler tubes a c, upon which the stops c are secured, for conducting air from the outer side directly within the flues, and within the spaces between the fire-stops for supplying oxygen to increase and continue the combustion within the flues.

4. The fire-stop c, provided with double conical ends to facilitate the cleaning of the tubes by steam-jets from either or both ends of the flues.

172,903. FURNACES FOR TEMPERING GLASS. Francois E. A. Royer de la Roche, Paris, France. (Filed Dec. 21, 1875.)

Brief.—The vat is covered by a table, adapted, when its contents are raised to the side, to be tilted off, to permit of the immersion of the articles on an endless belt. These are then conveyed to a wire-cloth basket, by which they are taken from out the liquid.



1. In an apparatus for tempering glass, the combination of a heating-chamber, a movable floor or table, forming the floor of the said heating-chamber, and an aperture opening from the outside into said chamber, a bath beneath the said floor, exposed by the movement of the floor from over the bath, whereby the articles heated upon the said floor may be plunged into the bath beneath, substantially as described.

2. In an apparatus for tempering glass, the combination of a heating-chamber, an aperture opening from the outside to the said chamber, a bath below the said chamber, an endless apron below the surface of the said bath, operating substantially as described, to transfer the articles dropped into the bath from the heating-chamber to a position for removal.

3. The combination, in a furnace for tempering glass, of a heating-chamber, an aperture opening to the said chamber for the introduction of articles, a bath beneath the said chamber, into which articles heated in the said chamber are plunged, an endless apron arranged beneath the surface of the bath to receive and transfer the articles received from the heating-chamber, and a removable receiver below the surface of the said bath, to which the said articles are delivered by the said apron, substantially as described.

4. In a furnace for tempering glass, the combination of a heating-chamber, an aperture through which articles are introduced to said chamber, a bath beneath the said chamber, into which the said articles are plunged after heating, and the basket or protector A, substantially as and for the purpose described.

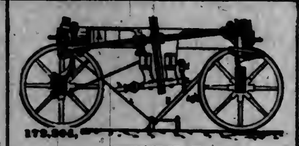
5. In a furnace for tempering glass, the combination of a heating-chamber, an aperture for the introduction of articles to said chamber, a removable table, forming the bottom of said chamber, a bath beneath the said table, and an auxiliary removable cover, f, on said bath, substantially as and for the purpose described.

6. In combination with a furnace for tempering glass, a mechanism, substantially such as described, for supporting and revolving the articles to be tempered.

172,904. HORSE-POWERS. W. W. Dingee, Oshkosh, Wis. (Filed Feb. 18, 1875.)

1. The mode of staking portable horse-powers by means of the rod i, ring i, and brace k, substantially as described.

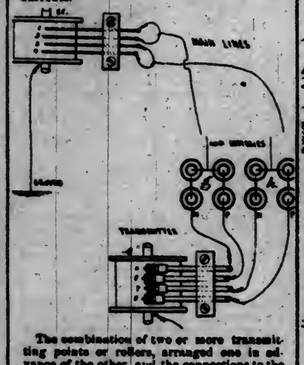
2. The combination of line-shaft A, the brake-wheel c, the brake-lever e, and brake d, arranged substantially as described.



172,905.

172,906. AUTOMATIC ROMAN-CHARACTER TELEGRAPH. Thos. A. Edison, Newark, N. J., assignor to himself and George Harrington, Washington, D. C. (Filed Jan. 15, 1875.)

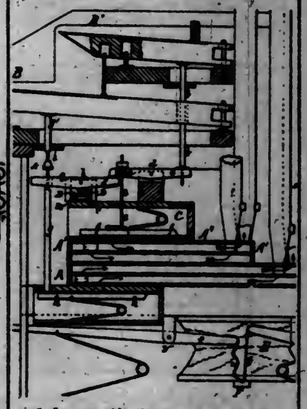
Brief.—Uses iron and tellurium pens—one marking by positive, the other by negative, currents.



The combination of two or more transmitting points or rollers, arranged one in advance of the other, and the connections to the batteries and line-wires, so as to transmit positive or negative currents by the perforated paper, with styles-points of different metals, arranged one in advance of the other, so that one marks with a negative, and the other with a positive, current, substantially as set forth.

172,907. PIPE-ORGANS. A. B. Feigenmeier, Erie, Pa. (Filed Sept. 6, 1875.)

Brief.—Novel details in complex mechanism. The bellows are blown either by foot or hand, and the construction of the two wind-chests with the two key-boards and couplers in connect, and arranged with a view to portability.



1. In a portable pipe-organ, the two wind-chests, A A', and their respective air-channels and connections, with the two manuals or banks of keys, B B', all combined substantially as and for the purpose specified.

2. The stickers or push-pins for the lower key-board B, constructed in two parts, g g', and having the interposed threaded wire i and nut k, as and for the purpose specified.

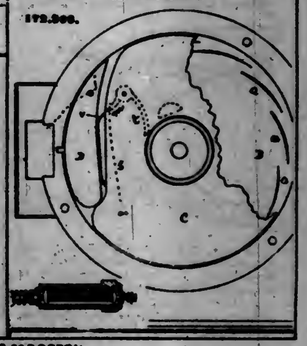
3. The combination of the push pins g g' i, nut k, slotted levers e e, and lever-bar D, for the purpose of throwing said levers in connection with levers c c to couple or uncouple the two manuals, as hereinbefore specified.

4. The key-leveling device, consisting of the upper part g', of the push-pin, and the interposed threaded wire i, substantially as specified.

5. The foot and hand levers r s and webbing w x, in connection with the feeder E and bar F, for the purpose of getting independent action from either lever, combined and arranged substantially as specified.

6. In a pipe-organ provided with two manuals, B B', the two wind-chests, A A', coupling devices D n, levers c c, push-pins g g', wire i, and nut k, all constructed and arranged substantially as and for the purpose described.

172,908.



1. In combination with the two parts of a planer-chuck adapted to be revolved one upon the other, the frusto-conical pivot or hub B', formed upon one of said parts, and fitted to a dovetailed groove having a semicircular end formed in the other part, and a gib, G, fitted to slide in said dovetailed groove, and having its inner end shaped to fit the periphery of the hub B', screw E passing through the center of the gib, and nut F located in the same horizontal plane as the gib G, all arranged and adapted to operate as and for the purposes described.

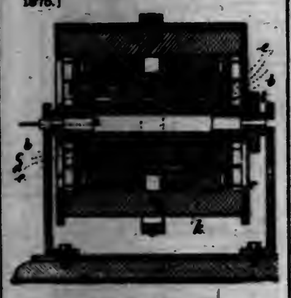
2. The gib G, having its inner end bifurcated, and its two parts shaped to fit the frusto-conical hub B', in combination with the clamping-screw E, bearing in the outer portion of the body of said gib, and the nut F located in the same plane as the gib G and between its forks, substantially as described.

178,206. SEWING-MACHINES. B. Frees, Chicago, Ill. [Filed Dec. 9, 1875.]

Brief.—The bobbin-holder has angular ribs or cogs in one end, that fit into projections on the shuttle-race, and retain the bobbin positively, to prevent the twisting of the thread. A cam on the ram, striking an arm on the carrier, causes it to enter a hole in the nose of the shuttle, and move it forward as the thread slips over the heel of the shuttle. The arm is retracted by a spring.

1. The circular shuttle-race B, provided with projections *c*, substantially as specified.
2. The bobbin-holder *h*, provided with cogs *i*, substantially as specified.
3. The driving-plate C and shuttle D, in combination with the hook *m*, arm *l*, projection *n*, and spring *o*, for lifting the shuttle as the thread passes in hoot, substantially as specified.

178,209. ELECTRO-MAGNETIC MOTORS. J. H. Guest, Brooklyn, N. Y. [Filed Aug. 10, 1875.]





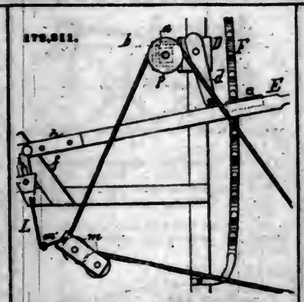
1. The poles *h h*, connected with the heads *f*, and extending toward each other, in combination with the core *c*, bobbins *l d*, and cylinders *e e* between these heads *f g*, substantially as set forth.
2. The combination of a magnet, having a cylindrical range of poles, with a cylinder or ring of armatures surrounding such magnet, and a circuit-breaker, substantially as set forth.
3. An electro-magnetic motor made by combining a circular range of V-shaped poles with a cylindrical ring of V-shaped armatures, substantially as specified.

178,210. CORRUGATED CHAINS. H. C. Goldsborough and M. P. Grimm, Newark, N. J., assignees of one-third their right to Theo. Gray, same place. [Filed Dec. 2, 1875.]



The spring E, secured at its ends to the base A, and having the top *c*, in combination with the adjustable bracket D, substantially as and for the purposes specified.

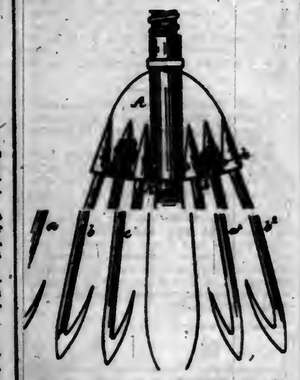
178,211. REAPER-RAKES. Saml. Hamilton, Mount Sterling, Ill. [Filed Oct. 16, 1875.]



1. The lever E, sustained by the bar *d*, and pivoted to the arm *f*, and having the angle-iron *i*, in combination with the spring L and pulley-wheels *m*, *n*, and *p*, substantially as set forth.
2. The bent lever, composed of the rod E and angle-iron *h*, having the slot *i*, in combination with the arched rack F and slide D, substantially as shown and described.
3. The bent lever, composed of the rod E and slotted angle-iron *i*, in combination with the head I and spring L, as shown, and for the uses specified.
4. In a device for regulating the tension of the belt of a reaping-machine, a bent lever, slotted and constructed as described, and pivoted at its angle, in combination with a pawl and rack, substantially as set forth.

178,212. BED-SPRINGS. Samuel P. Hodges, Southold, N. Y. [Filed Dec. 8, 1875.]

Brief.—The barbs and spear are removable, so that if any are broken the loss may be supplied without the expense either of repairing or a new socket-head.

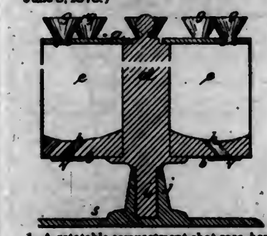


1. An eel spear or gig consisting of a multitubular socket in which are adjustably secured detachable spears or barbs, all substantially in the manner hereinbefore described, for the purposes set forth.
2. The removable barbs *a b c d e f*, adapted to be readily secured in the socket of the eel spear or gig, by means of a screw-thread or otherwise, substantially as hereinbefore described.

178,213. AXE-STRINGS. Elias Hershberger, Washington, D. C. [Filed Sept. 10, 1875.]

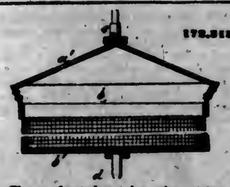


178,214. SHOT-CASES. Charles C. Hill and Adonizam J. Taylor, De Graff, Ohio. [Filed June 5, 1875.]



1. A rotating compartment shot-case, having a cast-iron bottom, *b*, mounted upon a base, *a*, each compartment *c* being provided with a top funnel, *g*, and bottom orifice *h*, closed by a spring valve, *v*, operated at the circumference of the case and above the base, substantially as herein set forth.
2. The bottom *b*, having the outlet-openings *i*, inclined toward the circumference of the case, in combination with spring-valves *v*, carried by the bottom plate and adapted to deliver the shot by its own weight obliquely from the case, and thereby relieve the valves from weight, as herein set forth.

178,215. SHOT-SIFTER.



The perforated metal or wire-netting sifter D, having a flaring or funnel-shaped flange, *b*, at its top, an inner frame, *a a*, or cross-pieces *a'* and *b'*, to which are attached the central pivots *d* and *e*, all arranged within the case A and cover B, said case A provided with the bearing-bar C, so that said sifter may be rotated within said case by a crank or handle outside of the case and cover, substantially as and for the purposes described and set forth.

178,216. RAIN-BALLS. Samuel Hopkins, Boston, Mass. [Filed Dec. 2, 1875.]

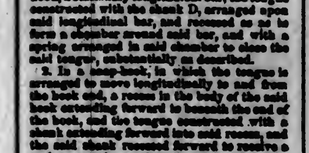
Brief.—The hollow center and its inclosed loose ball or balls serve as a signal to the catcher, by marking the flight of the ball.



As a new or improved manufacture, a base or cricket ball composed of a spherical ball, B, a round or encompassing yarn body, *c*, and a leather covering, *d*, surrounding such body, all being substantially as specified.

178,217. FAUCETS. R. A. Hornbostel and Edward Carroll, Guelph, Canada. [Filed Apr. 20, 1875.]

Brief.—The plug is secured within the body of the faucet by means of a guard. A key is inserted through an opening formed in the guard when it is desired to turn the plug.

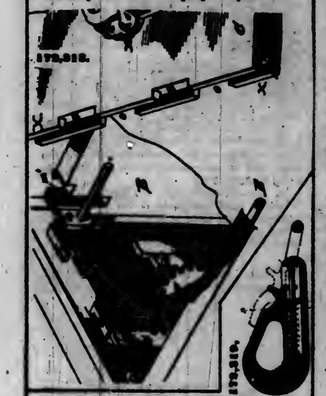


A non-corrosive plug, B, having a projection, *c*, in combination with the cap C, having a lip, *d*, and a slotted key, D, substantially as and for the purposes set forth.

178,218. MACHINES FOR FORMING MOLDS. Rufus J. Howden, Cincinnati, Ohio, assignor of one-eighth his right to J. D. Vance, same place. [Filed May 31, 1875.]

1. The combination of filler-board A, pattern or match plate C, and stop M, operating in slots *m m'* of the main frame, substantially as and for the purposes specified.
2. The combination, substantially as specified, of the two filler-boards, the corresponding two reciprocating pattern-frames or match-plates, and the racks and pinions gearing for simultaneously operating said match-plates.
3. In combination with carrying-projections F the reversible plate O O F, operating substantially as and for the purpose specified.

178,219. SNAP-HOOKS. Geo. M. Hubbard, New Haven, Conn., assignor to O. B. North & Co., same place. [Filed Nov. 2, 1875.]



1. The combination, in a snap-hook, of the body A, eye and terminating in the hook proper, the other in a means for attaching the hook, a stationary longitudinal bar, the tongue constructed with the shank D, arranged upon said longitudinal bar, and recessed so as to form a chamber around said bar, and with a spring arranged in said chamber to close the said tongue, substantially as described.
2. In a snap-hook, in which the tongue is arranged to move longitudinally to and from the hook end, a recess in the body of the said hook extending forward to beneath the end of the hook, and the tongue constructed with a shank extending forward into said recess, and the said shank recessed forward to receive a spring operating to close the said tongue, substantially as described.

1. A screw-clamp or locking device constructed with short hooks, adapted for securing it to the lid, and also with long hooks, adapted for securing the lid to the jar, substantially as shown and described.
2. The combination, substantially as shown and described, of the lid B and screw-clamp C, constructed with one or more crooks or hooks, F.

178,220. SNAP-HOOKS. Geo. M. Hubbard, New Haven, Conn., assignor to O. B. North & Co., same place. [Filed Nov. 2, 1875.]



In a snap hook, the body constructed with the longitudinal recess D and transverse groove *c*, the tongue constructed with the projection *e*, extending into said recess, and with the studs *f*, corresponding to the groove *d*, the said tongue extended to the rear, so as to cover said recess, and provided with a suitable guard, *h*, substantially as described.

178,221. ROOFING COMPOSITIONS. Carleton B. Hutchins, Ann Arbor, Mich. [Filed June 26, 1876.]

Brief.—Equal parts of metal, resin, and tar, or either of the oils, to the amount of ten gallons each, to which are added one pound cattle-hair or tow, four gallons wheat-bran, four gallons coarse middlings, five gallons fine middlings, and ground stone or mineral paint enough to make the compound of suitable thickness to spread well. To make the compound fire-proof, five pounds pulverized alum is added.

The composition fabric roofing and roofing-paint, of the ingredients and in the proportions substantially as set forth.

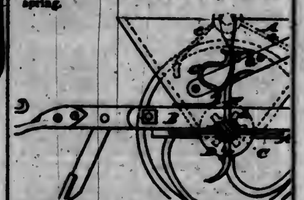
178,222. CARRIAGE-AXLES. J. C. Jenkins, Lebanon, Tenn. [Filed Dec. 11, 1875.]



1. The combination of the box-nut B, with transverse passages *b'* through it, the perforated sleeve C and its collar *c*, fastened in place by a removable pin, *f*, and the sheaf-shaped axle A, with case-hardened spindle *b*, substantially as and for the purposes described.
2. The bolt-box D, of taper form, and constructed with wings *a a a a* on its periphery, and screw-threads *f f* on its ends, and with a counterbore, *g*, at its inner end, in combination with a wooden hub, E, constructed with recesses *l m*, to admit fastening-nuts B and D, and with an axle, A, provided with a removable sleeve, C, and collar *c*, and a revolving box-nut, B, substantially as described.

178,223. CORNER-SAND PLASTERS. J. C. Jenkins, Lebanon, Tenn. [Filed Dec. 3, 1875.]

Brief.—Transversely across the hopper is journaled a shaft having two sets of agitating-fingers. One end of this shaft projects outward and downward beyond the hopper, in position to be struck by an arm on the axle, that imparts a vibratory movement to the stirrers. The shaft is retracted by a vertical spring.



1. In a corner-sand plaster, in combination with the downwardly-tapering hopper A and the sand-dropping cylinder D, the shaft B, provided with the bent arms *c c*, the arms *d d*, the lever E, and stop-lever E', substantially as described.
2. In combination with the vibrating shaft B, provided with the bent lever E' and the stop-lever E' of the shaft B, the spring G, and stop E, the stop-lever F on the axle C, which is provided with feet and loose wheels *e e*, substantially as and for the purposes described.

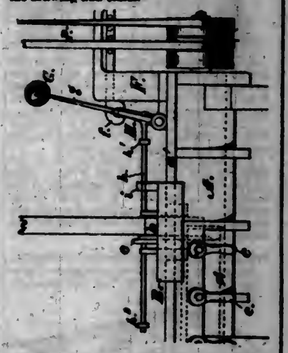
178,224. ROSETTES FOR HARNESS. Geo. A. Keene, Lynn, Mass. [Filed June 28, 1876.]



1. As a new article of manufacture, a rosette consisting of a core enveloped with a resilient covering rotundical thereon, and a molded rubber ribbon looped and fastened thereto, substantially as described.
2. In a rosette, the combination of a core provided with a shoulder with the resilient covering enveloping the same, or abutted against the shoulder, substantially as described.

178,225. MACHINES FOR PLANING STEREOTYPE-PLATES. John W. Kellberg, Philadelphia, Pa. [Filed Nov. 4, 1875.]

Brief.—The concave stereotype-plate is locked to its bed, which is stationary, by a number of eccentrics on the inner ends of cams that are turned by handles. The cutters are attached to the face of a pulley that is driven by a belt, and is located in a saddle, to which a sliding feed-movement is communicated by a screw, in the usual manner. The belt-shifting device will be understood from the drawing and claim.



1. The combination of the bed A, sliding frame B, provided with cutter-bearing *c* and with pulley *b* and cutters *e e*, and the cutter-shaft S, substantially as and for the purpose described and set forth.
2. The combination of the sliding frame B, the horizontal sliding rod A, provided with stops *k'* and *k''*, pin *p*, upright arm *n*, the rod *f*, provided with its horizontal bolt-plate, and having its bearings in standard F, rod *g*, and weight G, substantially as shown and described, for the purpose set forth.
3. The combination of recesses *r r r* in bed A, large enough and deep enough to receive eccentrics *c' c' c'* wholly within them while a stereotype-plate is being inserted from the side of the machine, and the eccentrics themselves adapted to receive the plate from the side and hold it in position, substantially as shown and described.

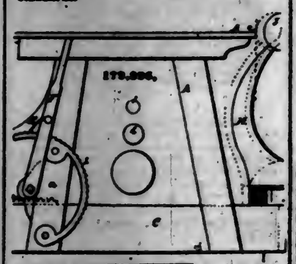
178,226. GUIDE-METAL-MOLDING MACHINES. Anson O. Eldredge, William H. Clark, Wm. J. Clark, and Arthur M. Eldredge, Salem, Ohio. [Filed June 7, 1875.]

Brief.—Under and between the legs of the table is arranged a carriage, carrying curved reversible standards, supporting the former, the axis of which is on a line with the plane of the table.

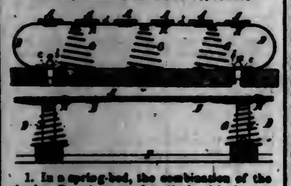
1. The carriage C, containing the standards H H, and former J, in combination with the edge *c* of table A, substantially as and for the purpose set forth.
2. The curved and reversible standards H H, in combination with the former J and table A, as and for the purpose set forth.

HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & Co BOSTON
HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

3. The former J, having its axis supported on the standards in a line at or near the plane of the upper surface of the table, whereby it is sustained at the relative distance from the edge of the table in either position of the standards.



172,897. SPRING-BED. Hermon W. Ladd, Chelsea, Mass. [Filed Dec. 16, 1875.]

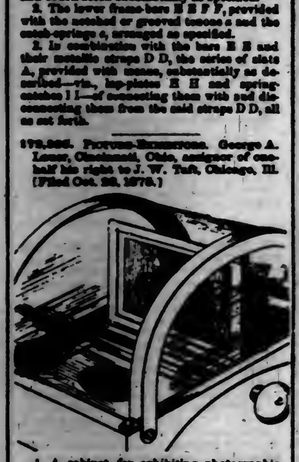


1. In a spring-bed, the combination of the duplex O-springs, as described, with the two series of helical springs G, their support-bars B, and the series of slats A, all being arranged and constructed substantially as specified.

2. The lower frame-bars E E F F, provided with the notched or grooved braces a and the catch-springs c, arranged as specified.

3. In combination with the bars E E and their movable straps D D, the series of slats A, provided with mortises, substantially as described—the hooks E E and spring-catches I I—for connecting them with and disconnecting them from the said straps D D, all as set forth.

172,898. PICTURE-EXHIBITOR. George A. Lesser, Cincinnati, Ohio, assignor of one-half his rights to J. W. Taft, Chicago, Ill. [Filed Oct. 28, 1875.]



1. A cabinet for exhibiting photographic pictures, substantially such as specified, when provided with a semi-cylindrical or dome-like glass top.

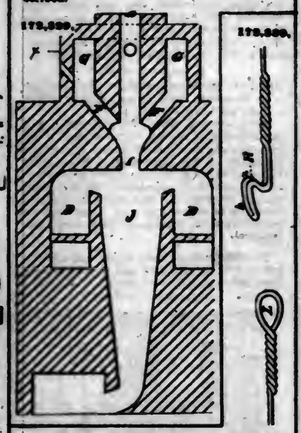
2. The combination of the photographic cabinet, having a semi-cylindrical or dome-like glass top and the endless belt to which the picture-frames are secured, and by which the pictures may be successively brought into view under the glass top, substantially as specified.

172,899. GUN-FURNACE. H. O. Livermore, San Francisco, Cal. [Filed Oct. 23, 1875.]

Brief.—The gun-chamber is constructed just above the exit-passage from the furnaces, so that full fire-exposure is secured without clogging the passages. The escape-flues discharge into a chamber encompassing the gun-chimney, which, by reason of its situation, heats the descending air.

1. The gun-chamber J, constructed as described, in combination with the fire-places D D, provided with the exit-passages e, orifice I, and vapor-chamber G, having the connecting-passages F F I', substantially as and for the purpose set forth.

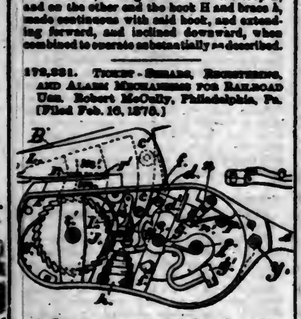
2. In combination with the orifice I, having the exit-passages F F near the bottom, the vapor-chamber G, and the exit-passages I', substantially as and for the purpose described.



172,900. RAIN-TIES. David H. Mathias, Albany, assignor to Edwin S. Lenox, New York, N. Y. [Filed Sept. 19, 1870.]

A rain-tie, having an eye and the loop I, and on the other end the hook H and brace h, made continuous with said hook, and extending forward, and inclined downward, when combined to operate substantially as described.

172,901. THREE-SHEAVE BLOCKS, AND ALARM MECHANISMS FOR RAILROAD USE. Robert McCully, Philadelphia, Pa. [Filed Feb. 10, 1876.]



1. The pawl n, constructed with a joint transversely to its main hinge, and applied in relation to a retaining-plate, substantially as and for the purpose described.

2. The retaining-plate d, having an arm, d', on it, applied in a conductor's alarm, or an alarm and register, in relation to a retaining-pawl which allows the arm d' to pass it in ascending, substantially as and for the purpose described.

3. A conductor's registering-implement, constructed with an end and side openings, as at C, for the insertion of tickets, in combination with a shearing-cutter below the plane of the openings, and a shearing-cutter above the plane of the same, adapted to cut progressively from the operator, both of said cutters being rigidly attached to the parts which open and close on a pivot or hinge-joint placed beyond both levers and sheers, substantially as and for the purpose described.

4. In a conductor's registering-implement, the combination of shearing-cutters, an alarm, a passenger-fare register, and operating mechanism, as described, substantially as and for the purpose set forth.

5. The combination of shearing-cutters, an alarm, a passenger-fare register, a receptacle for the shearings or cuttings, and operating mechanism, as described, substantially as and for the purposes set forth.

6. In a conductor's registering-implement, the combination of shearing-cutters and a passenger-fare register, and operating mechanism, as described, substantially as and for the purposes described.

7. In a conductor's registering-implement, the combination of the following parts: shearing-cutters, a stop for preventing an upward movement of the movable shearing-cutter after it has been pressed down a certain distance, a register and an alarm, and operating mechanism, as described, said parts being arranged in a suitable relation to a receptacle for the shearings, substantially as and for the purpose described.

8. In a conductor's registering, alarm, and shear-cutting apparatus, the case provided with the lateral receptacle B for the shearings, and having its shearing, registering, and alarm devices arranged within it, substantially as shown and described.

9. The combination of the handle or lever b, having a pivoted arm, c, sliding plate d, and volute spring h, in a registering and alarm implement, substantially as shown and described.

10. The combination of the pawl f, ball-hammer f', having a stop, g, on the rear end of its handle, trip f', and sliding plate d, adapted to cause an alarm, all substantially as described.

11. The combination of the sliding plate d, spring arm d', pawl n, notched wheels J J', check-pawls r and l, adapted to register the number of fares received, constructed and arranged substantially as described.

12. The combination of the jointed pawl n, its spring F, arm d' of the sliding plate d, and guideway c, adapted to prevent any reverse action after the movement is commenced and until the same is completed, substantially as shown and described.

13. The combination of the lever or handle b, provided with the pivoted arm c, the handle A', and the sliding plate d, pawl f, trips f' and g, constituting the mechanism by which the bell is struck, substantially as and for the purpose described.

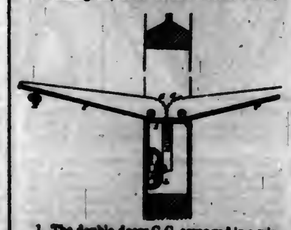
14. The combination of the lever or handle b, having a pivoted arm, c, sliding plate d, driving-pawl n, spring h, wheels J J, pawl f, trips f' and g, and hammer f', substantially as and for the purpose described.

15. The combination, with a stationary cutter, m, of the rigidly-attached movable cutter m', provided with the heel-point r', for the purpose described.

16. The combination of the lever or handle b, movable cutter m', and the stationary cutter m, adapted to cut progressively from the operator toward the pivoted end of the lever or handle, all as shown and described.

17. In a conductor's registering-implement, the combination of the following parts: shearing-cutters, a stop for preventing an upward movement of the movable shearing-cutter after it has been pressed down a certain distance, a register and an alarm, and operating mechanism, as described, said parts being arranged in a suitable relation to a receptacle for the shearings, substantially as and for the purpose described.

172,902. CRADLE-GATES. W. C. McGill, Washington, D.C. [Filed Dec. 2, 1875.]



1. The double doors C C, arranged in a window or passage-way through a door or partition, so that they will unfold and form a table or platform, and fold and close the window or passage, substantially as shown and described.

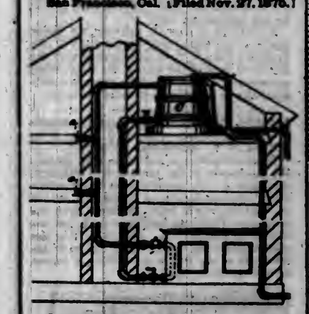
2. The combination, with the doors C C, of the segments G G, substantially as and for the purpose set forth.

172,903. MANUFACTURE OF CARTRIDGE-CASES. J. V. Maige, Lowell, Mass. [Filed Dec. 8, 1874.]



The improvement in the art of manufacturing cartridge-cases, herein before set forth, which consists in forcing the metal into the desired shape by compression between a punch and die.

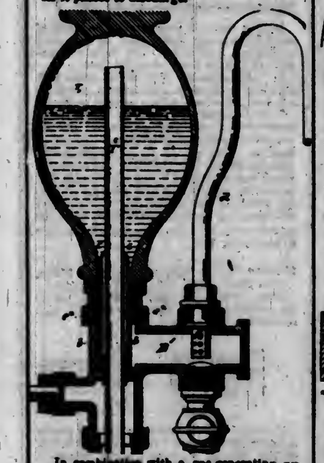
172,904. WATER-HEATING ATTACHMENTS FOR STOVES AND RANGES. J. H. Mitchell, San Francisco, Cal. [Filed Nov. 27, 1875.]



In combination with the hot-water tank G, located in the upper part of a building, the circulating-pipes f leading from said tank into the stove or range, and back again into the tank G, and provided with one or more branch pipes a, substantially as and for the purpose specified.

172,905. APPARATUS FOR THE MANUFACTURE OF GASEOUS LIQUIDS. Augusto A. Mondollot, Fils, Paris, France. [Filed July 12, 1875.]

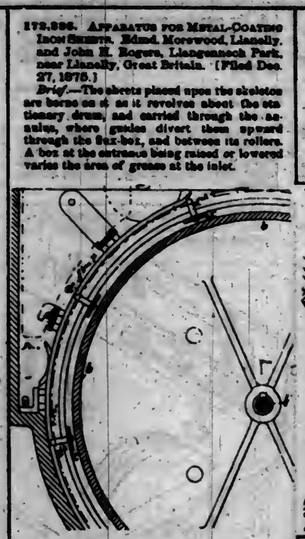
Brief.—From the receiving-chamber the gas passes through the perforations to the upper part of the washer, thence down the tube to the lower part. After rising through the water it passes to discharge.



In combination with a gas-generating apparatus, substantially such as described, the double washer L L, the perforated cylinder S, between the receiving-chamber B' and the upper washer, and the tube T, leading from above the water of the upper washer to below the surface of the water in the lower washer, all substantially as set forth.

172,906. APPARATUS FOR METAL-COATING IRON SHEETS. Edmd. Morewood, Llanelly, and John H. Rogers, Llangunnoch Park, near Llanelly, Great Britain. [Filed Dec. 27, 1875.]

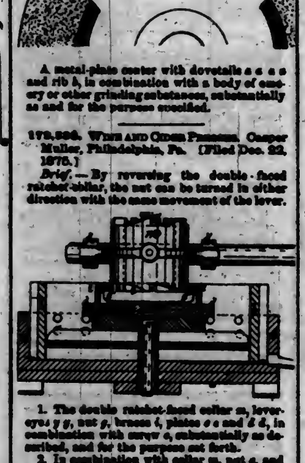
Brief.—The sheets placed upon the skeleton are borne on it as it revolves about the stationary drum, and carried through the annulus, where grates direct them upward through the flux-box, and between its rollers. A box at the entrance being raised or lowered varies the area of grease at the inlet.



The stationary drum b, in combination with the skeleton frame c, resting in the annular space around it, and operating substantially as and for the purpose set forth.

172,907. BRIDE GRINDING-WHEELS. S. G. Morrison, Williamsport, Pa. [Filed May 27, 1875.]

Brief.—The center disk, to which the grinding substance is attached, has a flaring rib upon its periphery, which is, at nearly points, cut away by inwardly-extending dovetails.



A metal-plate center with dovetails a a a a and rib b, in combination with a body of emery or other grinding substances, substantially as and for the purpose specified.

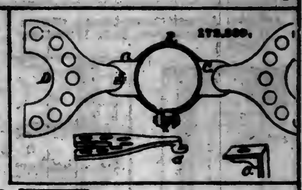
172,908. WIRE AND CORDS FASTENER. Casper Miller, Philadelphia, Pa. [Filed Dec. 22, 1875.]

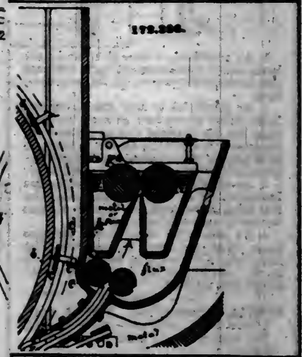
Brief.—By reversing the double-faced ratchet-collar, the nut can be turned in either direction with the same movement of the lever.

1. The double ratchet-faced collar a, levers y y, nut p, braces b, plates o o and d d, in combination with screw c, substantially as described, and for the purposes set forth.

2. In combination with collar a, nut p, and screw c, the tab o o o o and strainers f f f f, as described and above set forth.

172,909. STOVE-PIPE SHELVES. William Patterson, Oneonta, N. Y., assignor of one-half his right to Henry Wickham, same place. [Filed Nov. 26, 1875.]

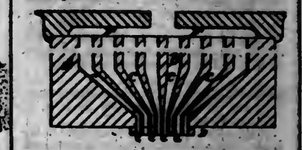




The ribbed brackets C C and the sheaves D D, with their hook-plates d d, in combination with the clasp-band B and stove-pipe A, substantially as and for the purposes herein shown and described.

172,910. COLOR-PRINTING BLOCKS. Joseph Perkins, San Francisco, Cal. [Filed July 23, 1875.]

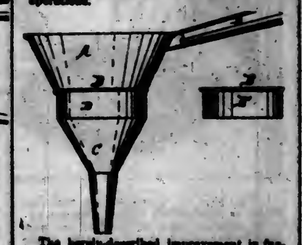
Brief.—Color-block perforated with converging tubes, through which different-colored inks are forced to the printing-face by pneumatic pressure.



In combination with the pattern-block D, perforated as described, the vessel A, reservoir B, with converging tubes, as shown, and the pressure-chamber F, all constructed to operate substantially as and for the purpose set forth.

172,911. HOUSEHOLD UTENSILS. J. Fleisher, Pittsburg, Pa. [Filed Nov. 2, 1875.]

Brief.—The device consists of three principal parts—a funnel, can-filler, and strainer. The parts may be combined as seen, so as to be capable of advantageous use in various operations.



The herein-described improvement in funnels and strainers, consisting of the removable section A D, and independent perforated disk B, with flange B', constructed to fit together, in combination with funnel C, and cap-pin of the several uses herein specified.

178,843. ARTISTS' COLOR-DISHES. Charles G. Poole, Washington, D. C. [Filed Dec. 6, 1875.]

178,843. 178,844.



1. An artist's ink or color dish having two bases, whose planes form an angle with each other, substantially as and for the purpose set forth.

2. An artist's ink or color dish having two bases, whose planes form an angle with each other, the one provided with an ink-well and the other with a grinding-surface, as arranged as to operate in the manner and for the purpose substantially as hereinbefore set forth.

3. An artist's ink or color dish having two bases, forming an angle with each other, one side being so weighted that the dish will rest habitually upon the base of that side.

4. An artist's ink or color dish with two bases, whose planes form an angle with each other, having the angle of said bases rounded, all in the manner and for the purpose described and set forth.

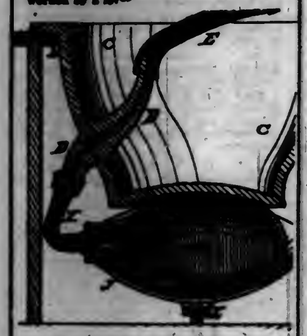
178,845. LUBRICATORS. David T. Fray, Boston, Mass., assignor to Mowry & Phillips, same place. [Filed Nov. 10, 1875.]



The combination, in a self-feeding oil-cup, of one or more spherical valves, *d d*, the lever or one of which is arranged to rest upon, and to be rotated by, the bearing-surface to be lubricated, a spiral spring, *e*, one end of which rests upon the upper of said valves, and a regulating-screw, F, as shown in either Fig. 1 or Fig. 2, adapted to adjust the tension of the spring *e*, all constructed, arranged, and operating as and for the purposes described.

178,846. STEERAGE ATTACHMENTS FOR CONDUITS. Monroe Rann, New York, N. Y. [Filed Dec. 24, 1875.]

Brief.—An ejection-pipe to attached to the keel, and an induction-pipe to the outer surface of the bowl of a commode, and water is supplied from a compressible rubber bulb worked by a lever—



1. The bowl C, in combination with the elastic or compressible bulb E, arranged upon the outside surface of the bowl, and with the operative mechanism, substantially for the purpose set forth.

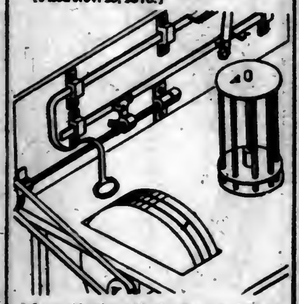
2. The combination of the lever I, pivoted dish-shaped plate J, bulb E, and bowl or basin C, substantially as and for the purposes herein set forth.

3. The combination of the case A, bowl C, with tubular projection D, syringe-tubes E G *I*, bulb H, dish-shaped plate J, and lever L, substantially as and for the purposes herein set forth.

178,847. GLOVES. Wm. H. Bowles, Johnstown, N. Y. [Filed Mar. 4, 1876.]

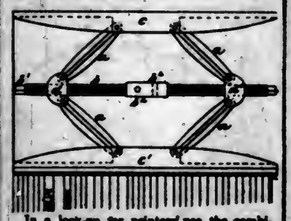
In combination with a glove-body, A, the independent lap or strap B, the same being formed with the extension or projection *c*, and bound round its entire edge, as shown and described.

178,848. MACHINES FOR TREATING RAW-HIDES. Herman Boyer, San Francisco, Cal. [Filed Nov. 10, 1875.]



In combination with the drum A of a raw-hide-fulling machine, operating to twist the leather alternately in one direction and the other, a shifting device for the purpose of making the operation automatic and continuous, substantially as described.

178,849. 'LOCK-UPS FOR PRINTERS' USE. Alfred Shedlock, New York, N. Y. [Filed May 19, 1876.]



In a lock-up for printers' use, the combination of the toggle-joints *a a* and double screw-shaft *b* with the bars *c* and *c'*, constructed and operating substantially as hereinbefore set forth.

178,850. FELTED OIL-CLOTHS. Gust Aug. Stenley, Kinkaven, Bavaria, assignor of one-half his right to Charles T. Meyer, Jersey City, N. J. [Filed Oct. 22, 1875.]

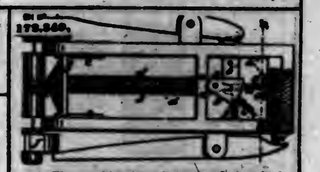
Brief.—Makes a felt of bunters, cotton, and calf's hair; water-proofs by means of gum-catechu and potassium bichromate; dries and paints with oil-paint on both sides.

The within-described process of manufacturing felted oil-cloths by forming a felted fabric, and waterproofing the same by a treatment with a solution of gum-catechu and bichromate of potassa, and drying and finally painting it on both sides, substantially as described.

178,851. MACHINES FOR MANUFACTURING WOOD-SCREWS. Thomas J. Sloan, New York, N. Y. [Filed May 20, 1876.]

Brief.—Punch-head survived to the end of the reciprocating stock, and carrying two punches—the one to form the head, and the other to form a central hole in the head—is continued to bring the two punches alternately in line with the head-forming die, by lever actuated by cam, and the movable gripping-jaw of the head-forming die is actuated by a similar lever and cam on the opposite side of the machine.

178,852.



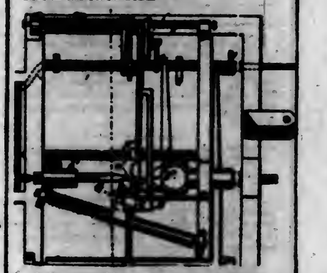
1. The combination of the die G, in which to upset the end of the blank or form the head of an ordinary screw, and the punch a, with a central conical rest, *r*, for producing a conical hole in the center of the screw-head, as described and shown.

2. The movable head constructed with the die a and punch, in combination with the die G, for holding the blank, substantially as and for the purposes set forth.

3. The sliding shaft A, carrying the die a, punch a, and rest *r*, and driving-shaft C, carrying the cams *e f*, in combination with the die G, for holding the blanks, the whole being constructed and arranged for operation substantially as and for the purpose set forth.

178,853. MACHINES FOR MANUFACTURING WOOD-SCREWS. Thomas J. Sloan, New York, N. Y. [Filed May 20, 1876.]

Brief.—Guideways and nippers for conveying the blanks to the jaws, and in line with the latter a drill, non-rotatable, but to which two successive rectilinear movements are imparted—the one to push the blank from the nippers into the jaws, and the other to feed the drill to its proper work. A head-shaving tool also is described; but the main feature of the invention is the device for drilling a central hole in the screw-head.



1. In a machine for recessing the heads of screw-blanks, the combination of a feeding mechanism, holding-jaws and drill, substantially as and for the purpose set forth.

2. The combination of a shaving-cutter with a feeding mechanism, holding-jaws, and drill, substantially as and for the purpose set forth.

3. In a machine for recessing the heads of screw-blanks, the drill constructed and arranged to have a longitudinal movement irrespective of its normal feed, in combination with the fingers E of the blank-feeding mechanism and the jaws B', whereby the said drill is made to serve the double purpose of forcing the blank through the fingers to the jaws and recessing the head of the blank when the said blank is held by the jaws, substantially as herein set forth.

178,854. WOOD-SCREWS. Thomas J. Sloan, New York, N. Y. [Filed July 10, 1875.]

Brief.—The screw can be driven either by the ordinary square driver, or by one constructed especially for it.



The wood-screw constructed with the groove *c*, having at its center *f* the depth of the nick of the common wood-screw, and deepened with sloping surfaces to and through the sides of the head, substantially as and for the purpose herein set forth.

178,855. SNAP-HOOKS. W. H. Sperin, New Haven, Conn., assignor to W. and H. T. Fitch, same place. [Filed Nov. 20, 1875.]

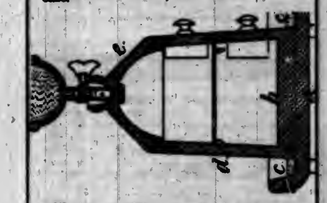
178,857.



In a snap-hook, the tongue D, constructed with the close concentric spring-chamber *d*, combined with the body of the hook constructed with the checks *c*, between which said spring-chamber is arranged, the pivot *e* and spring *f* inclosed in said chamber, and attached by one end to one of the checks of the hook, and by the other to the tongue within the said chamber, substantially as described.

178,856. REFRIGERATORS. William Spear, Lynn, Mass. [Filed June 28, 1875.]

Brief.—The parts may be of earthenware. The base has an internal elevation, to steady the removable cans, and divert the water of condensation outward through the porous cans.

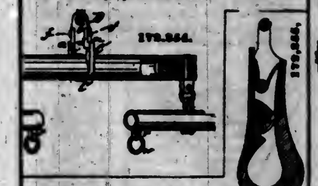


The base *c*, with a central raised platform, *b*, and surrounding trough *c*, in combination with the vessel *d*, removable cup *e*, and water-distributor at the apex of the cup, as set forth.

178,858. WRENCH-HEADS. Chas. G. Stearns, New York, N. Y. [Filed Sept. 3, 1875.]

The draw-clevis D, constructed with the shank *d* and shoulders *s'*, in combination with the shackle C, provided with the shoulders *s'*, the bolt *f*, and the whiffletree, substantially as and for the purpose set forth.

178,859. 178,860.

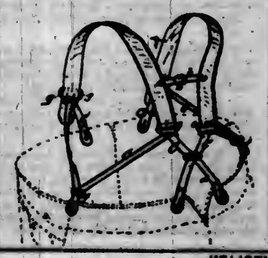


178,859. SNAP-HOOKS. Elbridge J. Steele, New Haven, Conn., assignor to Sargent & Co., same place. [Filed Nov. 20, 1875.]

1. The combination, in a snap-hook, of the hook A, tongue D, and lever E, the pivoting or bearing surfaces between the said lever and tongue being substantially concentric with the pivot of the tongue, as and for the purpose described.

2. In combination with the hook A, the tongue D, and lever E, each provided with independent springs, substantially as described.

178,861. SCREWDRIVERS. Wm. P. Vrooman, Johnstown, N. Y. [Filed July 9, 1875.]



The combination, in a suspender, substantially as described, of a continuous web or cord, C, with the parts *d e f g* arranged to operate as set forth.

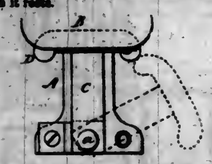
178,862. COMPOUNDS FOR THE MANUFACTURE OF BRICKS, TILES, &c. Patrick J. Walsh and Wm. J. Taylor, Oil City, Pa.; said Taylor assignor to said Walsh. [Filed Dec. 3, 1875.]

Brief.—The coal-tar is mixed with the clay, when tempered in the proportion of one barrel of the fluid tar or residue to a sufficient quantity of clay to make six thousand bricks.

The within-described compound or composition of matter, for the manufacture of bricks, tiles, or other articles of pottery-ware, consisting of a mixture of clay and oil-tar, said oil-tar being the liquid residuum or distillate of either coal, petroleum, rock, or seal oil, all in the manner and proportions substantially as set forth.

178,863. BED-CLOTHES HOLDERS. Levi S. Wood, New Haven, Conn. [Filed Sept. 15, 1875.]

Brief.—The clothes are clasped between the spring-pad and the overhanging jaw, and the pad is prevented from turning on its pivot, when clothes are drawn, by the stop, against which it rests.



The herein-described bed-clothes holder, consisting of the combination of the base A, the overhanging jaw B, and the pivoted spring-pad C D, and stop E, substantially as described.

178,864. STOP-VALVES. Morgan Willard, Cincinnati, Ohio. [Filed July 12, 1875.]

178,864. 178,865.

1. The hollow cylinder G, with its branches, in combination with the plug or solid cylinder A A, having an opening or passage-way through it corresponding in size and form to or with the openings through the walls of the hollow cylinder G and its branches, and so arranged that when open the passage through the valve shall be a continuation of the inlet and effluent pipes in which the valve or plug A A forms the step.

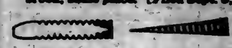
2. The solid plug or cylinder A A, of uniform diameter, and so fitted and arranged that it can be moved to and fro in the hollow cylinder G, so as to bring the solid portions of the plug A A over the openings in the external cylinder G, thus closing them effectually, and producing a complete and perfect stop-valve, said openings in A and G, respectively, being of such form and so arranged that when the valve is fully opened the port or passage-way through the valve shall be a section of the pipe in which it is placed as a step of the same size and form as the opening in the pipe, without pockets or recesses in which sediment or other foreign matter may lodge, substantially as set forth and described herein.

178,866. HOG-RING PLIERS. B. N. Wing, Green Bay, Va. [Filed Nov. 4, 1875.]



The improved hog-ring blank having central eye D, in combination with straight arm F and curved arm E, made and applied substantially in the manner described.

178,861. METALLIC FASTENINGS FOR LEGGINS, &c. Ephraim L. Wires, Milford, Mass., assignor of one-half his right to J. M. Rothbrook, same place. [Filed Sept. 9, 1875.]



A headless nail having a fine thin point, and a heavy cylindrical butt, tapering on two sides from butt to point, and parallel on its other two sides, all as set forth.

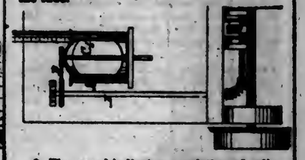
178,862. OPTICS-DESKS. Wm. S. Wooten, Indianapolis, Ind. [Filed June 26, 1875.]



The hinged or pivoted sheets or cases A and A', located in the wings or ends of the desk, and operating substantially in the manner described, for the purpose set forth.

178,863. SPEED-INDICATORS. William W. Wythe, Erie, Pa. [Filed Mar. 6, 1875.]

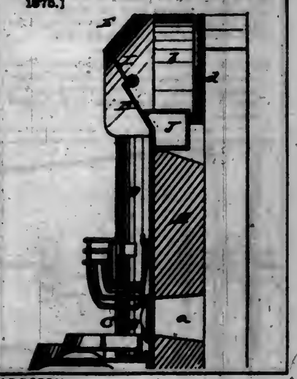
Brief.—A speed-indicator consisting of a cylinder filled with a liquid, and inclosing a flutter-wheel, and a portion of a glass tube open near the end. This tube extends beyond the cylinder, and is graduated to a scale relating to certain speeds. The flutter-wheel, when it revolves at a certain rate, forces, by centrifugal force, the liquid up the tube, and the rate of speed is read off from the scale on the tube.



1. The speed-indicator, consisting of cylinder or chamber A, graduated tube B, flutter-wheel C, and a liquid, the whole constructed and arranged to operate in the manner substantially as and for the purpose described.

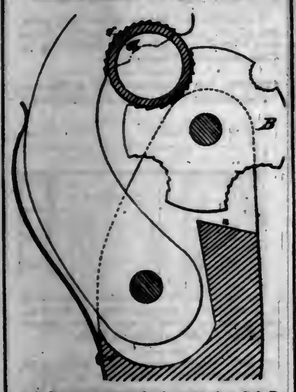
2. The combination, with the flutter-wheel C, of the graduated tube B, closed at the bottom, and provided with an orifice, b, substantially as and for the purpose described.

178,864. HEATING APPARATUS. Daniel W. Abbott, Leetonia, Ohio. [Filed Mar. 30, 1876.]



In a fire-place heater, the combination of the frame C, with side flanges D D and hood E, the deflector H, hot-air chamber J, arranged behind the deflector, which forms the front thereof, the inlet and outlet pipes *d d'*, and damper I, all constructed as and for the purposes described.

172,866. PIPE-WRENCHES. Ehphalet H. Adams, and Asher F. Gates, St. Joseph, Mich., assignors of one-third their right to Alex. T. Scott, Jr. [Filed Oct. 20, 1874.]

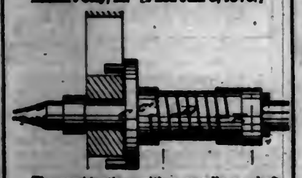


1. In a pipe-wrench, the revolving disk B, provided with semicircular seats of different sizes, armed with teeth, substantially as described and shown.

2. In a pipe-wrench, the combination of a revolving disk, having seats or notches of different sizes, with a pivoted jaw provided with a seat, substantially as described and shown.

3. In a pipe-wrench, the combination of a revolving disk, having seats or notches, with a pivoted jaw and a spring to throw each jaw forward, substantially as described and shown.

172,867. RACHET-AND-SPRINGS. Thos. Alsop, Elkhart City, Ill. [Filed Jan. 3, 1876.]



The combination, with a spindle or shaft and a power-transmitting pinion placed loosely thereon, of one or more backlash-springs applied to a terminal fixed cam-sleeve or clutch, and to a cam-sleeve pinned on the shaft and engaging by pins or studs the pinion at diametrically-opposite points, substantially in the manner and for the purpose set forth.

172,868. CONVEYING STEERING AND PROPELLING APPARATUS. J. H. Alley, Whitehorough, assignor of one-half his right to Benj. T. Babbitt, New York, N. Y. [Filed Nov. 12, 1875.]

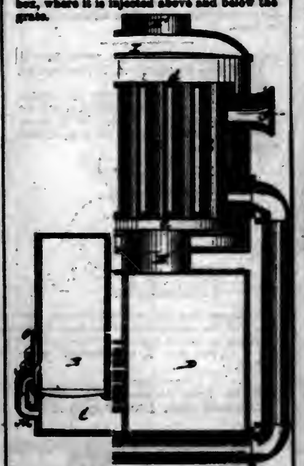
1. The combination, with the submerged tiller F, of the rudder E, pivoted or hinged at its inner end to the latter, to admit of the rudder rising and falling on the tiller as a base, as well as of being turned by the latter, essentially as described.

2. The combination of the propeller D with the rudder E and the tiller F, to which the rudder carrying the propeller is hinged, substantially as specified.

3. The hinged or rising and falling rudder E, constructed of a sled-runner or shoe shape on its lower edge, essentially as and for the purpose herein set forth.

172,869. AIR-HEATERS FOR LOCOMOTIVE-BOILERS. Benj. T. Babbitt, New York, N. Y. [Filed Oct. 6, 1875.]

Brief.—Air is heated in a tubular vessel located in the uptake, and conveyed to the fire-box, where it is injected above and below the grate.



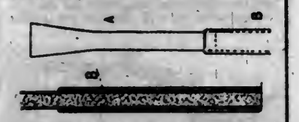
1. The combination of a tubular air-heater, G, with the outer case H, and smoke-stack or outlet E, essentially as described.

2. The combination of the outer case H, the air-heater G, the apart-arrester I, and the smoke-stack or outlet E, substantially as specified.

3. The hot-air ducts or branches M N, applied to the front of the ash-pit and door of the furnace, in combination with the hot-air pipe or duct K leading from the air-heater to the ash-pit, substantially as specified.

172,870. CHARGER-FORCERS. H. D. Bacot, Jersey City, N. J. [Filed Oct. 20, 1875.]

Brief.—The inner tamping device is tubular, and has a flaring mouth, into which the tobacco is fed. The tube runs the tobacco out to the wrapper, but leaves the core loose to smoke easily.

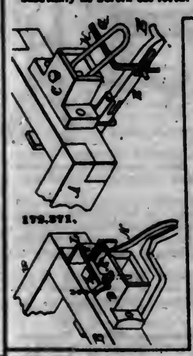


The combination of the outer tube B with the inner tube A, having the funnel-shaped mouth, and constructed to be raised up and forced down for the purpose of tamping the tobacco directly under the end of the sliding tube into a compact mass, leaving the loose central core, as and for the object specified.

172,871. CAR-COUPLINGS. John M. Bailey and Richd. H. Gorman, Sebalon, Ga. [Filed Nov. 24, 1875.]

1. The combination of the car A and its buffer C, with the hinged lever E, provided with bent end F adapted to work with the bent arm I, and raise the link H by means of the bent arm G, as and for the purpose specified.

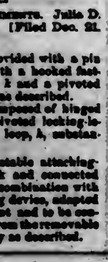
2. In combination with the car B and its buffer D, the lever K to carry the coupling-pin, lever N to operate lever K, and the hinged lever E on the opposite car for operating the said lever N for the purpose of automatically raising and dropping the coupling-pin, substantially as herein set forth.



172,872.



172,873.



172,872. CULTIVATOR-TEETH. J. C. Bannister, Duluth, Ill. [Filed Aug. 30, 1875.]

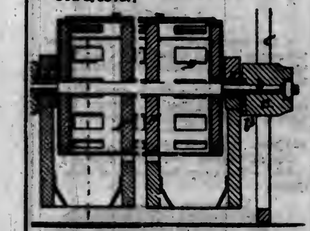
Brief.—Ball-and-socket fastening for cultivator-teeth.



The combination of the standard B and its ball C with the socket D, constructed in two parts, *d d*, clamped together and secured upon the ball of the standard, the lower part of the socket carrying the shovel or plow-share E, substantially as described

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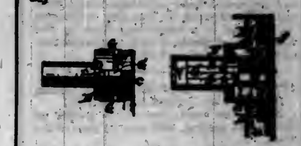
172,874. GUANO-DISTRIBUTERS. Richard A. Barrett, Newsome Depot, Va. [Filed Oct. 6, 1875.]



The combination of distributing-cylinder A, axle B, having long journals *b*, frame-bearings *b'*, and flanges *b''*, and the gate *b'''*, substantially as and for the purpose specified.

172,875. LOCKS. Geo. Bayer, New York, N. Y. [Filed Oct. 20, 1875.]

Brief.—Notched tumblers are arranged radially within a rotating cylinder, and are provided with elongated shanks, arranged in line with each other, so as to be operated by a flat key



In combination with the spring-tumblers G, the ends of which are arranged radially within the cylinder D, and provided with recesses *f*, as described, the elongated shanks A, arranged in line with each other, and the slot H in the cylinder D, substantially as described.

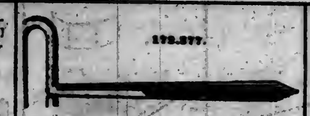
172,876. REVERSE AIR-PUMPS. A. Bedford, Boston, Mass. [Filed Dec. 9, 1875.]



1. The movable broom-closing device herein explained, consisting of the plate *i* and bottles *a*, the former being pivoted to the barrel and the latter to the gate, essentially as and for purposes stated.

2. The rod G, provided with the spring *o*, or its equivalent, in combination with the plunger P and cap *h*, under such an arrangement that the rod serves to cut or cock the plunger, and to prevent escape of air from the air-chamber on return of such plunger, substantially as and for purposes stated.

172,877. GIMLETS. Benjamin F. Bee, Norwich, Mass. [Filed Nov. 8, 1875.]



As a new article of manufacture, a gimlet constructed of a single piece of metal, the shank of which is a small tube having a cutting-screw, and the handle formed by bending the end of the shank, as shown and described.

172,878. STEAM-HEATERS. Geo. W. Blake, New York, N. Y. [Filed Nov. 10, 1875.]



The combination, with the divided base A, the inlets or outlets *h*, and the heating or radiating tubes D E, communicating, respectively, with the upper and lower base-chambers B C, of a siphon or water-trap, G G', applied to said chambers of the base independently of the heating or radiating tubes, substantially as shown and described.

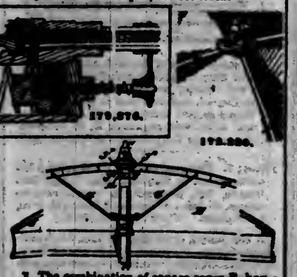
172,879. DRESS-PROTECTORS FOR SEWING-MACHINES. Robert Blake, Newark, N. J., and George Blake, New York, N. Y. [Filed Feb. 20, 1875.]



The herein-described metallic guard, made to partially inclose the rim of the wheel, projecting or extending over and covering the pathway of the revolving crank-pin, as and for the purposes set forth.

172,880. UMBRELLAS FOR WAGONS. Georg Bookstaller, St. Louis, Mo., assignor of one-half his right to Julius Steiner, same place. [Filed July 24, 1875.]

1. As a new article of manufacture, the four-sided or square umbrella for vehicles, provided with a four-ribbed frame, substantially as and for the purpose set forth.



2. The combination of square cover B, having square perforation, re-enforce-band E, and runner J, with the four ribs F and separate bearing-collar D, substantially as and for the purposes set forth.

3. The combination of staff B, provided with square top C, forming flat shoulder A, ribs F, having orifices F' and rounded ends F', adapted to turn on said shoulder A, and the ring M, holding the said ends to said top, as and for the purpose set forth.

172,881. CROSSCUT-SAW HANDLES. Saml. Boone, La Gro, Ind. [Filed Nov. 27, 1875.]

The combination of handle A and rubber cushion *a* with the ferrule C, having slotted clamp-flanges C' *a b*, and the binding-block D, having slotted clamp D', lip *d*, and threaded shank E, all constructed and arranged as and for the purpose specified.



172,881.



172,882.

172,882. GARTENDERS. L. W. Brandwell, Hietzing, near Vienna, Austria. [Filed Nov. 27, 1875.]

1. The combination of one or more tapering plates, A, and a re-enforcing-piece, B, constituting the tube of the cartridge-case, substantially as herein described.

2. The combination of the head-plate F, formed with the outside gun-chock *h*, the inner clamping ring or plate E, the tube C, having the flange-like projection *f* at its rear end, and the screw L, substantially as shown and described.

172,883. MACHINERY FOR MANUFACTURING HORSESHOES. George Bryden, Hartford, Conn. [Filed May 5, 1875.]

Brief.—Bar is first heat to the desired curvature around a former, is then placed between dies, which condense, crease, and harden it, and is finally brought to completion by a pair of shearing-dies, which shear off the pins formed upon it by the previous operations.



1. The combination, with former-block B, having bloat-bed H and guide-groove G, of the pivoted and slotted lever D and the grooved roller C, that changes in distance from the center of motion at the times and in the manner described.

2. The dies H G, constructed and applied to trim and finish the shoe, substantially in the manner specified.

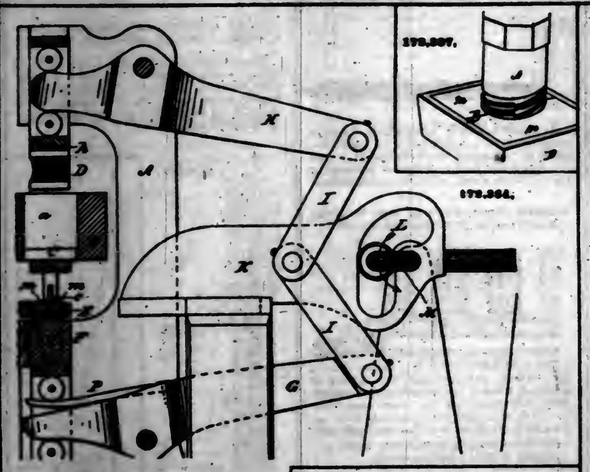
172,884. BRICK-MACHINES. J. K. Caldwell, Philadelphia, Pa. [Filed Dec. 30, 1875.]

1. In combination with the mold bottoms or plungers C, arranged and operating as shown, the track H, having movable sections supported upon separate springs, substantially as shown and described.

2. The track-sections K, provided with sockets seated upon springs *d*, secured in pockets in the block F, substantially as shown.

3. The combination of the levers G and H, operating the upper and lower plungers, with the links I and the horizontally-sliding bar K.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

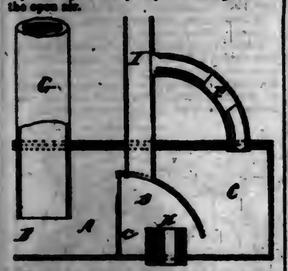


4. The combination of the levers G H, links I, sliding bar K, provided with the slot L, of the form shown, and the cam M, working in said slot, as shown and described.

5. In combination with the block F, having the plungers C supported thereon, the lever G, provided with the spring or springs F.

172,896. VENTILATING SEWER-TRAPS. Jas. T. Campbell, New York, N. Y. [Filed Dec. 17, 1875.]

Brief.—A trap-box placed either inside of, or directly outside of, the building, to which it is applied, and an air-pipe is arranged to pass up through the building to some place above the roof, whereon the foul gases that escape through the trap may be discharged into the open air.



Two ventilated sewer-traps A, having in interior compartments B C D, and the waste and sewer pipes G E, and the ventilating-pipe I, arranged as and for the purpose set forth and described.

172,897. PIPE-LOCKING. Francis M. F. Cooke, Denver, Colo. [Filed Sept. 1, 1875.]

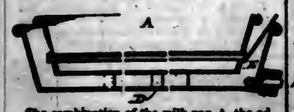
The combination, with a bell, A, constructed with a zigzag or ratchet-faced thread or threads, of a nut, B, formed in sections a a, provided with a correspondingly-formed zigzag thread or threads, and held together by a band, D, substantially as shown and described.

172,898. TRACE-BUCKLES. W. Challenger, Mitchell, Canada. [Filed July 30, 1875.]



The lower plate A, having the downward, slotted, and recessed side bars, and the pin B, as described, the wedge-plate A', provided with the projections b and pin b', and the swinging links A', all constructed, combined, and operating substantially as herein specified.

172,899. MILK-COOLERS. Langdon Clark, Cozzy's Mills, N. Y. [Filed Dec. 14, 1875.]



The combination of the milk-pan A, the adjustable pipe B, having couplings and packings, and passing longitudinally through the center thereof, and provided at one end with the funnel-shaped mouth C, the exterior vat D, and adjustable regulator E, all substantially as and for the purpose herein set forth.

172,900. COMPOUNDS FOR PREVENTING INCRUSTATION IN BOILERS. Jos. Clegg, Baltimore, Md., assignor, by mesne assignments, to John A. Ives and James H. Ives, same place. [Filed July 30, 1875.]

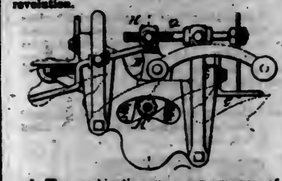
A compound, consisting of hone-black, sulphate of copper, soda-ash, and blast-oak bark, in combination, and in relative quantities, substantially as specified.

172,901. MANUFACTURE OF SHARPS-WAX. William B. Clough, Newark, N. J. [Filed June 14, 1876.]

The process of manufacturing sharps-wax, which consists in separately fusing the hard and the more adhesive portions of wax and mixing them without mingling them, substantially as and for the purpose described.

172,902. SAW-GUMMERS. John Conner, Philadelphia, Pa., assignor of one-half his right to Henry Disston, Hamilton Disston, and Albert H. Disston, same place. [Filed Dec. 20, 1875.]

Brief.—A pivoted frame carries the cutter-shaft and driving-shaft, and is moved (carrying with it the cutter to the work) by means of a cam-shaped screw, which is moved by a crank striking a star-wheel on said screw at each revolution.

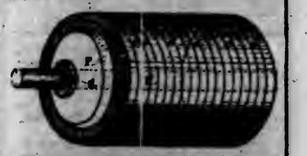


1. The combination, in a saw-gummer, of the carrier D, hung to the saddle, and carrying the cutter-shaft I and driving-shaft F, with the feed-screw G.

2. The combination of the carrier D, feed-screw G, and star-wheel E, arranged in respect to one of the handles as specified.

172,903. STRAW-CUTTERS. LEVI UNSETH, Guelph, Canada. [Filed Dec. 8, 1875.]

Brief.—The upper feed-roller is made of paper.



The upper feed and knife bed roller C, consisting of one or more centrally-perforated disks of paper, C', mounted on the shaft E, and compressed under pressure to form a close solid roller of paper, the said disk or disks being retained in a compressed state by the washers F and pins G, or their equivalent, substantially as shown and described.

172,904. PLOW-HANDLES. Wm. A. Crouch, Hannibal, Mo. [Filed Apr. 3, 1876.]

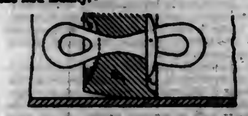
Brief.—The hand-piece of the handle an open scroll casting, with ears to receive the wood.



As a new article of manufacture, an open-work metallic plow-handle, formed of strip a^1, bars a^2, and flanges a^3 a^3, all substantially as shown and described.

172,905. BUCKETS FOR CHAIN-PUMPS. A. D. Crosby, Cuba, N. Y. [Filed Dec. 14, 1875.]

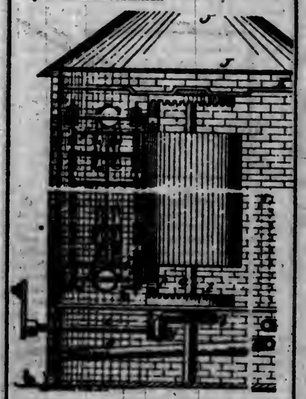
Brief.—The concave recess in the upper side of the bucket counteracts the pressure of the column of water, so that the strain comes upon the link mainly.



A basket for chain-pumps, composed of india-rubber or other elastic material, and provided in the upper side with a central concave recess, 4, for relieving the sides of the basket from excessive pressure, substantially as herein set forth.

172,906. FRUIT-DRIERS. William B. Davis, Augusta, Ga., assignor of one-half his right to Chas. W. Fleischer, Washington, D. C. [Filed Jan. 11, 1876.]

Brief.—The trays are revolved and raised by the same mechanism.

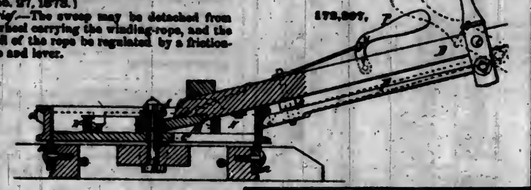


1. In a fruit-drier, the combination of a central rotating shaft, a, having two sets of radial arms, f f, the shafts h, pulleys i, endless chains k, with bars or rounds m, the pinions p, and cog-wheels l, all constructed and arranged as described, whereby the fruit-trays are revolved around a center axis, and raised and depressed alternately at the same time, substantially as herein set forth.

2. The combination of the dry-house A, hot-air furnace B, wall-pipe C, smoke-stack D, hot-air pipe c, and boiler cap J, all substantially as and for the purposes herein set forth.

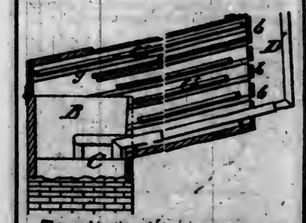
172,907. HORSE-POWERS FOR HOISTING. Peter K. Dederick, Albany, N. Y. [Filed Feb. 27, 1875.]

Brief.—The sweep may be detached from the wheel carrying the winding-rope, and the speed of the rope be regulated by a friction-strap and lever.



The combination of the horizontal grooved wheel B, having the center M, with the oblique sweep D secured to it, as described, and with the brake-strap N, connecting-rod O, and angular lever P, the latter being arranged at the outer end of the sweep, near the sketch-lever, as herein set forth, for the purpose specified.

172,908. FRUIT-DRIERS. George A. Dolan, Chico, Cal. [Filed July 10, 1876.]



The combination of the inclined triangular chest A, opening at one end in a furnace, B, the heat-radiating pipe D, imperforate partition G', and the transparent cover E, substantially as and for the purpose set forth.

172,909. BUTTER-PACKAGES. A. J. Dibble, Franklin, N. Y. [Filed Dec. 27, 1875.]

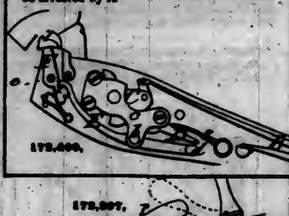


1. The combination, with each other, of the catch-block D, made flaring and recessed at its lower end, and provided with the notches or grooves d' d' at its upper end, and the latch-piece F, provided with the projections or shoulders f' f' to adapt them for connecting the body and cover of a tub or package, substantially as herein shown and described.

2. The combination, with each other, of the catch block E, provided with the grooves or notches e' e', the latch-piece G, provided with the projections or shoulders g' g', the pivoted lever-catch H, and its spring h', to adapt them for connecting and locking the body and cover of a tub or package, substantially as herein shown and described.

172,910. GUN-LOCKS. John S. Duffie, Little Rock, Ark. [Filed June 19, 1875.]

Brief.—The vertical guard is brought under the hammer by the action of a spring pivoted to the trigger-plate. The act of pulling the trigger operates a lever, by which the guard is thrown back, so that the hammer will not be arrested by it.



172,910.

172,911. HORSE-POWERS FOR HOISTING. Peter K. Dederick, Albany, N. Y. [Filed Feb. 27, 1875.]

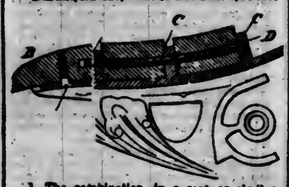
172,907.

172,912. GUN-LOCKS. Jno. S. Duffie, Little Rock, Ark. [Filed June 19, 1875.]

1. The combination, with a gun-lock mechanism and a trigger, of the vibrating and independently-pivoted lever E, substantially as specified.

2. The combination of a vertically-vibrating hammer-guard, F, its retaining-spring e', and the lever E, substantially as specified.

172,913. SCHOOL-FURNITURE. Edward G. Durant, Racine, Wis. [Filed Dec. 4, 1875.]



1. The combination, in a seat or similar article of furniture, of a containing arm or standard provided with legs, a series of parallel wooden slats applied to said arm, and a pin or pins passing through the slats and legs to hold the former in place, substantially as shown and described.

2. The combination of the metal arm A, provided with legs C, the slats B, and the fastening pin or wire D, substantially as shown.

3. A cast-metal arm or standard, A, for seats, or similar articles of furniture, provided with legs C, which are adapted to receive wooden slats and a fastening pin or wire, substantially as shown.

172,914. TRAVELERS FOR RING SPINNING-FRAMES. Frank J. Dutcher, Hopedale, Mass. [Filed Oct. 5, 1875.]

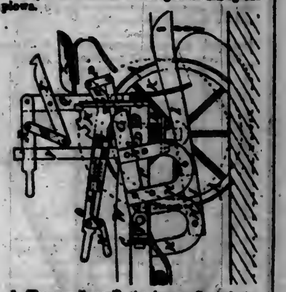
Brief.—The traveler is provided with a recess or eye and curved or angular feet, to secure the same to the ring.



The new or improved spinning-ring traveler, constructed or provided with the recess or eye a, arranged with the arch f and feet g g, substantially as shown and described.

172,915. GANG-PLOWS. Enoch G. Eaton, Pinckneyville, Ill. [Filed Oct. 2, 1875.]

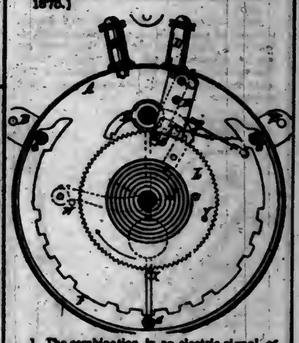
Brief.—Devices for holding and raising the plows.



1. The couplings F, the levers G, and the U-bars H, in combination with the frame C and the plow-beams I, substantially as herein shown and described.

2. The combination of the guides L, the ratchets M, the lever-pawls N, the bent levers O, and the links P, with the levers G, and the frame C, substantially as herein shown and described.

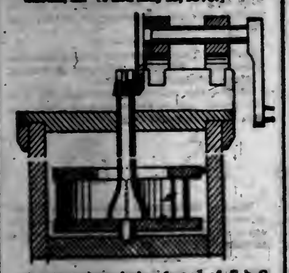
172,916. FIRE-ALARM SIGNAL-BOXES. J. B. Edson, Brooklyn, N. Y. [Filed Sept. 20, 1875.]



1. The combination, in an electric signal, of a casing, A, a reciprocal circuit-closing arm, a retarding-wheel, L, a spring for operating the same, and a stationary breaking-surface fixed within the case outside of the path of the circuit-closing arm, substantially as shown and described, for the object specified.

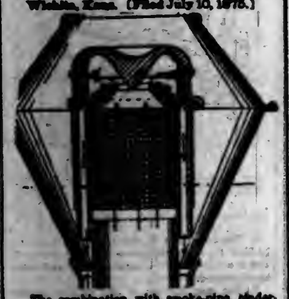
2. The combination, in an automatic signal instrument, of a case, A, a reciprocal circuit-closing arm, a stationary breaking-surface fixed within the case outside of the path of the circuit-closing arm, and an automatic switch, the whole constructed substantially as described, whereby the act of preparing to give a signal will close the switch, and the signal having been given the switch will be opened, as set forth.

178,606. OILCUPS. David L. Epperson, Mill Grove, Ill. [Filed May 15, 1875.]



A rotary choke-feeder, formed of disk C, curved buckets E, and top ring D, to induce the current centrally at top and force it through curved side apertures at the side, as and for the purpose specified.

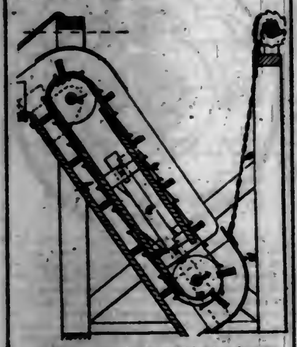
178,607. BRAKE-ADJUSTERS. R. P. Paries, Wichita, Kans. [Filed July 10, 1875.]



The combination, with smoke-pipe, chain-ring, and deflector or cover, of the wire section B, arranged directly under the converging top a of the smoke-pipe, as and for the purpose specified.

178,608. WATER-ELEVATORS. ANDREW B. FLOWERS, Thibodeaux, La. [Filed Apr. 17, 1875.]

Brief.—The cane is journaled with the upper pulp of pulleys upon a common shaft, so that by a chain and windlass the lower end can be adjusted to the height of the water. The spout is so attached to the cane and frame as to be adjusted with the cane by the same movement.



1. The improved adjustable water-elevator, consisting of the cane, endless chain, buckets, the chain O, wheelless H, and the self-adjusting spout, combined and arranged substantially as specified.

2. The buckets gabriel F and O, combined with the cane, chain, and buckets, substantially as specified.

3. The outside guard M, connected to the adjustable side bars Q, for shifting with the pulleys D, substantially as specified.

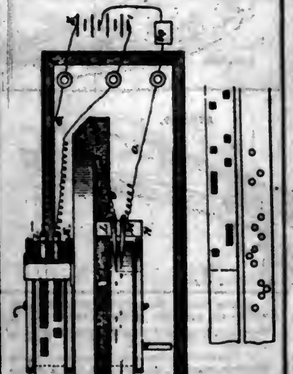
178,609. CAR-AXLE LUBRICATORS. Chester D. Flynt, Brooklyn, N. Y., assignor to himself, Israel R. Sayre, and William R. Tice, same place. [Filed Nov. 22, 1875.]



1. The combination, in a car-axle box and the journal, of an elliptical pad, A, of absorbent material, supported upon elliptical springs secured within the same, said pad having apron at its ends, for closing the same, the whole forming a chamber for the lubricating-roller, provided with openings at the bottom and top, for the admission of the lubricant and distribution of the same, substantially as described.

2. In a car-axle lubricator, the combination, with the elliptical pad, closed at its ends, of a wheel or roller, resting on spiral springs or gudgeons, supported thereby, the said springs being supported by the distending-springs, and located entirely within the chamber of the pad, substantially as described.

178,610. AUTOMATIC TELEGRAPHY. Theo. M. Foote and Chas. A. Randall, New York, N. Y. [Filed May 31, 1875.]



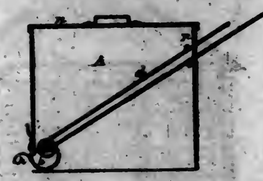
1. In automatic chemical telegraphs, a fillet of paper or other non-conducting material, perforated substantially as described, so that the consecutive perforations forming the characters or integral portions thereof are in separate lines or rows, substantially as described, for the purpose specified.

2. A fillet of paper or other non-conducting material for direct-recording chemical telegraphs, perforated in two or more lines or rows, when the consecutive perforations forming the characters or integral portions of the characters corresponding to the message serve to transmit alternately negative and positive currents, substantially as set forth.

3. In automatic chemical telegraphs, the combination of one or more batteries, perforated paper, transmitting and receiving apparatus, when each succeeding impulse is of an opposite polarity, and serves to record the whole or part of a character corresponding to the message upon chemically-prepared paper, substantially as described.

4. In automatic chemical telegraphs, in combination with perforated paper and transmitting apparatus, the receiving apparatus, provided with two pens or their equivalent, so arranged and connected that the integral portions of the symbols or characters are recorded in separate and distinct lines, substantially as shown and described.

178,611. BROILERS. Simon M. Furt, Syracuse, N. Y. [Filed Dec. 10, 1875.]



1. The combination of the bottomless culinary vessel A, provided with the orifice r at the top of one end, an opening extending across the bottom of the opposite end, and slots s in its sides, and the trough b, of greater depth on the outside than on the inside of the case, to cover the opening at the bottom of the end of the vessel, and provided with outward flanges on the ends, fitting slots s, constructed substantially as described and shown, for the purpose set forth.

2. The combination of an inclosing case for broiling meat, having a trough extending along the bottom of one of its sides, and attached thereto in the manner described, to admit of its ready removal, and a gridiron placed diagonally across the case so inclined toward the trough, and supported at its lower end above the trough by brackets affixed to the side of the case, substantially as and for the purpose specified.

3. The improved broiler herein described, consisting of the bottomless culinary vessel A, provided with the removable cover B on top, the orifice r at the top of one end, an opening extending across the bottom of the opposite end, and horizontal slots s near the bottom corner of its sides, and, in connection with the last-mentioned opening, the trough b, of greater depth on the outside than on the inside of the case, and provided with the handle h thereat, and outward flanges on the top of its end plates, fitted to slide in slots s, and the meat-holder d, placed diagonally in the vessel A, with its end resting on brackets above the trough, and the handle projecting through orifice r, all constructed and combined substantially as described and shown, for the purpose specified.

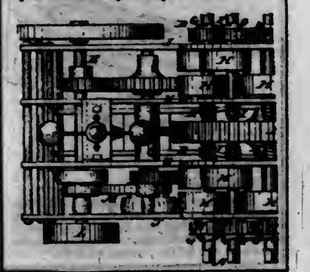
178,612. FUSES FOR FIRE-ALARMS. J. O. Fowler, Jr., Hudson, Wis. [Filed Oct. 20, 1875.]

Brief.—The fuse of an explosive fire-alarm is ignitible by hot air, and coated with a varnish impervious to air or moisture, but melting at a temperature as low as that at which the fuse ignites.

A fuse ignitible by hot air, coated and enveloped with a varnish impervious to air and water, which melts at a temperature as low or lower than that at which the fuse ignites, as and for the purpose herein described.

178,613. SPRING-POWERS. Chas. M. Prahm and William Scharrenber, Chicago, Ill. [Filed Dec. 18, 1875.]

Brief.—The shaft of a central spur-wheel has at each end a similar one, actuated by a series of coil-spring pinions placed in gear with and around it, adapted to be wound up without ungearing. A centrifugal governor operates a brake by a compound lever.



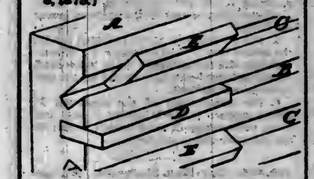
1. One or more series of coiled springs, H, spindles A, pinions D, clutches F G, and coiled springs I, combined and arranged with a transmitting-wheel, E, substantially as specified.

2. The combination of the brake Q, levers R S, and governor G, with a spring-power machine, substantially in the manner described.

3. The adjusting-screw V, rod v, stop-wheel T, and lever R, combined with a spring-power machine, substantially as specified.

4. The combination of spring W with the screw V, lever R, rod v, and stop-wheel T, substantially as specified.

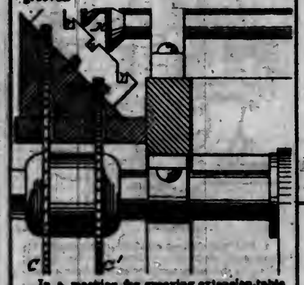
178,614. EXTENSION-TABLE SLIDES. H. B. French, West Randolph, Vt. [Filed Nov. 8, 1875.]



The saw-grooved bars A, having wooden tongues or slides E E inserted into inclined grooves G G, in combination with the long slides D and stops F, all arranged as shown and described.

178,615. MACHINES FOR MAKING SLIDES FOR EXTENSION-TABLES. H. B. French, West Randolph, Vt. [Filed July 24, 1875.]

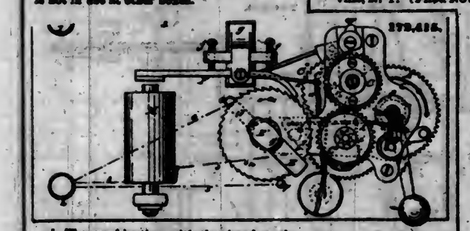
Brief.—The middle groove is cut on the lower table by the larger saw; the slide is then removed to the beveled bed, the rib fitting the groove as a guide for cutting the two oblique grooves.



In a machine for grooving extension-table slides, the saws O O' of unequal diameter placed upon the same arbor, in combination with the slotted inclined bed B and feed-rollers H, substantially as specified.

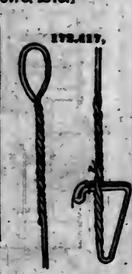
178,616. ELECTRIC SIGNAL-BOXES. Edwd. J. Frost, Philadelphia, Pa. [Filed Dec. 15, 1875.]

Brief.—A detent in the path of the winding-arm can only be withdrawn when the line is not in use at other boxes.



1. The combination, with the signal mechanism of a signal-box, of a detent, a locking mechanism, and one or more shunt-circuits, the locking mechanism being brought into action, when necessary, automatically, upon a shunt-circuit being broken by the attempted removal of the detent, substantially as and for the purpose set forth.

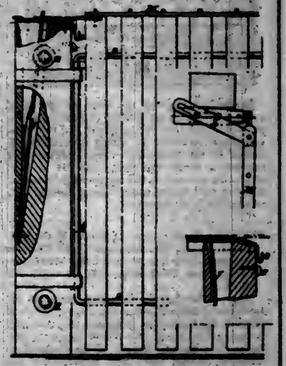
178,617. BALE-TIES. Gilbert Gale, Barnerville, N. Y. [Filed Nov. 6, 1875.]



The bale-tie, as described, consisting of the barb a, in the form of figure 4, on one end of the hoop and a loop on the other, adapted for application substantially as specified.

178,618. DOOR AND GATE SPRINGS. Levi Gallaher, Buchanan, Ohio. [Filed June 26, 1875.]

Brief.—The spring plays in a recess between the main post and an auxiliary fixing or hinge-post bolted thereto, the upper or free end of the spring passing through a slotted plate, sliding laterally, and jointed to a top plate on the plate, in such manner that the gate pushes the spring back when it opens, to enable the spring to close it again. There is also a dog swinging up in front of the end of slotted plate, to hold it back when desired, and for locking the spring.

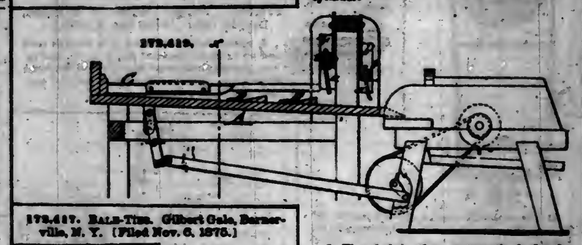


1. The spring J and slotted plate L, combined with the gate, substantially as specified.

2. The slide M and dog O, combined with the slotted plate L, spring J, and the gate, substantially as specified.

178,619. BAND-CUTTERS AND FEEDERS FOR THRASHING-MACHINES. Godfrey L. Gearhart and Nicholas W. Hoffman, Lebanon, N. J. [Filed Nov. 13, 1875.]

Brief.—The sheaf is laid upon a table reciprocating in the line of feed, and carrying fixed knives for severing the band. Two rakes reciprocating transversely in opposite directions loosen the bundle and even it for the cylinder.



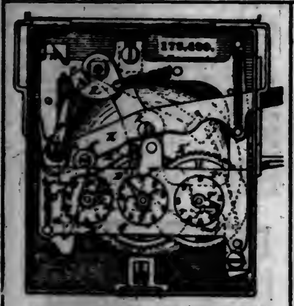
1. The shaker of an automatic feeder for thrashing-machines, being provided with a series of stationary fingers, arranged concavely or dishing, to throw sheaves toward the center, substantially as set forth.

2. The middle fingers of the shaker, made with upward-projecting knives, for cutting the bands of the sheaves resting on the fingers, substantially as set forth.

3. The feeding-shaker, having one or more lateral pushing-strips in front of the fingers to feed the stalks to the distributing-rakes, substantially as described.

4. The combination of a laterally vibrating rake, having inclined teeth at a distance from each other, with a vibrating rake, whose teeth are placed nearer together and lower than those of the first rake, to produce the even distributing of the stalks for being fed to the thrasher, substantially in the manner and for the purpose set forth.

178,620. PASSENGER-REGISTERS. Harry B. Gillingham, Baltimore, Md. [Filed Dec. 8, 1875.]

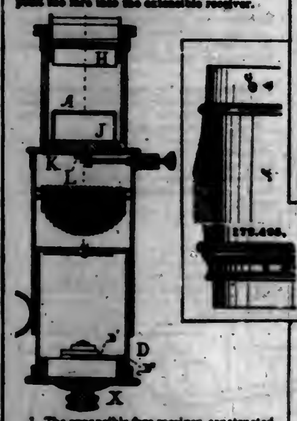


178,488.

In combination with the lever for operating a fire-registering apparatus, the spring-pawl, pivoted to the lower end thereof, and provided with a curved finger for lifting the tumbler attached to the rock-shaft which actuates the hammer to strike the gong, and the beveled projection or stud on the supporting-frame for tripping said finger, and releasing the tumbler, substantially as described.

178,489. FIRE-BOXES. Christn. H. Goebel, Philadelphia, Pa., assignor to the Chester Railway-Fire Receiver and Register Company, New York city. [Filed Apr. 26, 1875.]

Brief.—The fire is deposited into the inspection-chamber, when the thumb-piece is pressed, operating the gong and register, and swinging the cross-bar, which supports the leaves forming the bottom of the inspection-chamber, so that the leaves may fall and deposit the fire into the extensible receiver.



178,488.

1. The expansible fire-receiver, constructed of parts fitted to each other telescopically, as stated.

2. The combination, with the hopper, of the two suspended leaves H, having a common axis centrally in the hopper, and opening and closing in opposite directions, all as stated.

3. The upright A', fitted to the cross-bar J of the table-leaves K, arranged and operating as set forth.

4. The hinged leaves K, swinging cross-bar L, and lever M, combined and operating substantially as and for the purpose described.

5. The trap at the base of the inspection-box, the gong, and registering apparatus, operated simultaneously by the lever M, cross-bar L, and intermediate connections, consisting of arm N and lever P R, substantially as and for the purposes set forth.

6. The lever M, operating the bar L of the leaves K, and carrying the arm N, which operates the gong through the intermediate lever P, substantially as and for the purpose set forth.

178,490. SPOKE-SOCKETS. J. B. Goldsmith, Rockport, Mass. [Filed Dec. 27, 1875.]



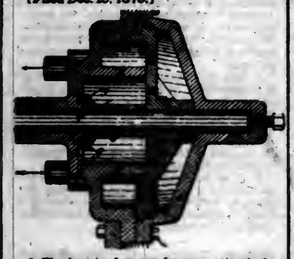
178,490.

In a carriage-wheel, the union A having the socket *b*, spear or wedge *i*, sockets *a a*, and clip B, in combination with the rubber lining *d* for the spokes and ends of the ordinary wooden fellies, all constructed and arranged as and for the purpose specified.

178,491. MINERS' CANDLES. Peter R. Gottstein, Houghton, Mich. [Filed Aug. 20, 1874.]

As a new article of manufacture, a candle composed of grease-stearine and tallow-stearine, substantially as and for the purpose specified.

178,492. ROTARY PUMPS. Lyman D. Green, Watertown, N. Y., assignor to George A. Bagley and Edmd. G. Sewall, same place. [Filed Dec. 15, 1875.]



178,492.

1. The described means for preventing leakage, consisting of an annular groove or channel interposed between the parts where the leakage is liable to occur, and in permanent communication, through a duct or intermediate passage, with an exhaust which tends to continuously draw from the same whatever of liquid or fluid may enter therein, substantially as set forth.

2. The combination, with the pump-case and rotary driving-shaft and hub, of the cylindrical bearing, provided on that face which is in contact with the hub with an annular channel or groove, connected by a duct or passage with the suction-port or other part acting as an exhaust, substantially as shown and described.

178,493. VEHICLE-HUBS. C. H. Guard, Dayton, Ohio. [Filed Dec. 2, 1875.]

A vehicle-hub, composed of a wooden core and an external sleeve of paper, or its equivalent, suitably connected thereto, and rendered impervious to moisture, as and for the purpose specified.

178,494. BREAKING-MACHINES. John G. Garrard, Danville, Va. [Filed Mar. 20, 1875.]

1. In an engraving or type-cutting machine, the laterally-moving carriage B, the longitudinally-moving carriage D thereon, carrying the head-block I, with cutting-tool *n*, and the disks G G', with wrist-pins *e f* and pitmen H H', all substantially as and for the purposes herein set forth.

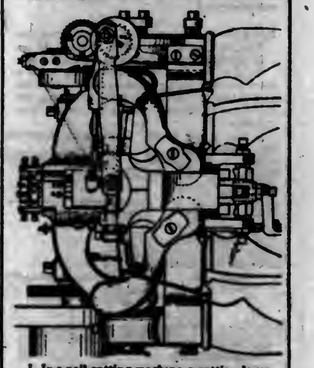
2. The combination, with the carriages B and D, of the screw-shaft C, with nut *a* and crank C', and the screw-shaft E, with nut *b* and crank E', substantially as and for the purposes herein set forth.

3. The combination, with the carriage D, having notched plate *c*, of the rod E, swivel *p*, spring *t*, and pivoted arm S, with tracer *s*, substantially as and for the purposes herein set forth.

4. The straight bar A', with pivoted bar B', the slotted arm D', and nut-screw *b'*, in combination with the carriages B D, screw-shaft E, and nut *b*, substantially as and for the purposes herein set forth.

5. The combination of the screw-rod F, spring-support *d'*, spiral spring J', and arm K' on the carriage D, substantially as and for the purposes herein set forth.

178,495. CUT-NAIL MACHINES. Worcester Haddock, Pittsburg, Pa., assignor, by mesne assignments, to Aurora Iron and Nail Company, Aurora, Ind. [Filed Sept. 13, 1875.]

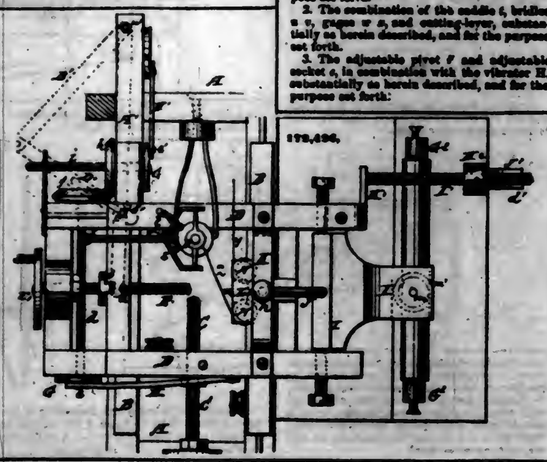


178,495.

1. In a nail-cutting machine, a cutting-lever, furnished with two bridles for the gages, whereby the latter are pivoted separately, substantially as herein described, and for the purpose set forth.

2. The combination of the saddle *i*, bridles *s s*, gages *w x*, and cutting-lever, substantially as herein described, and for the purpose set forth.

3. The adjustable pivot *f* and adjustable socket *e*, in combination with the vibrator H, substantially as herein described, and for the purpose set forth.



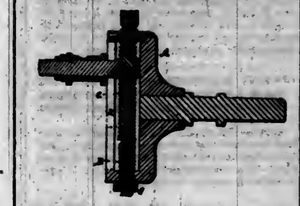
178,496.

4. The slide *c*, furnished with an adjustable socket, *e*, for the pivot *f'* of the vibrator H, substantially as herein described, and for the purpose set forth.

5. The combination of the levers *m' n'*, spring *r'*, and adjusting-screws *t' p'*, with the nail stripper *h'*, substantially as herein described, and for the purpose set forth.

178,496. CRANK-PINS FOR CUT-NAIL MACHINES. Worcester Haddock, Pittsburg, Pa., assignor, by mesne assignments, to Aurora Iron and Nail Company, Aurora, Ind. [Filed Sept. 13, 1875.]

Brief.—Wrist-pin adjustable with relation to the axis of the crank-disk.



The combination of the wrist-pin B, screws C D, jam-nut *c*, and disk A, constructed, arranged, and operating with relation to each other substantially as herein described, and for the purpose set forth.

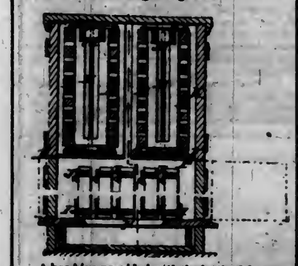
178,497. LAMPS. George W. Hadfield and Frank E. Clark, Brooklyn, N. Y. [Filed Dec. 29, 1875.]



The combination, with a lamp constructed with flanges, as described, of a lamp-holder provided with a socket for attaching it to a gas-burner arm or bracket, and having turned-in edges or lugs for embracing the flanges on the lamp, substantially as herein set forth.

178,498. BED-RIMS. Wm. L. Hamilton, Glasgow, Ky. [Filed Sept. 4, 1875.]

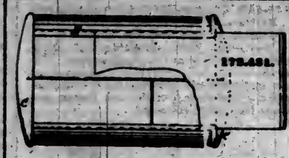
Brief.—The sides of the heavy box are made of slats, and are hinged together.



A box-bar provided with the latticed frames L M, working in and out of upper chamber on slides T, and held detachably together by wires N O, as and for the purpose specified.

178,499. SCHOLARS' COMPANIONS. Wm. A. Harwood, Brooklyn, N. Y. [Filed Dec. 20, 1875.]

As an article of manufacture, the oval pocket-case formed of the body B with rounded sides, the central longitudinal cap or seal pieces C C applied thereto, as described, and the sliding cover D, forming one of the flat or wider sides of the case, as shown and described.

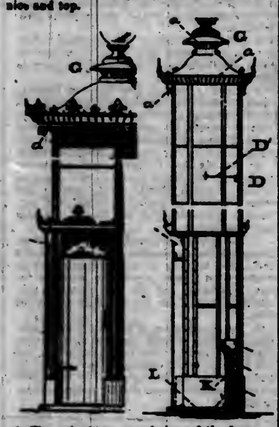


178,498.

The within described self-feeding broom, constructed with hollow handle E, reservoir A, filter D, and ferrule C, inclosing the filter, all substantially as and for the purposes herein set forth.

178,500. UMBRELLAS. William L. Espinasse, Philadelphia, Pa., assignor of two-thirds his right to Gregory Barnard De Bienassise and Joseph Holloran, same place. [Filed Dec. 22, 1875.]

Brief.—A central box or chamber whose upper portion is transparent, so as to permit the illumination of the place where the box is located, and admission of light therefrom. It further consists of means for ventilating the box, the air being heated and purified, and forcibly driven through apertures in the cornice and top.



1. The urinal-box, consisting of the lower portion A, and upper transparent portion D, substantially as and for the purpose set forth.

2. The dome E, having its cornice F and top G formed with exit-apertures *a*, in combination with the burner *D'*, and the air-entrance space H, substantially as and for the purpose set forth.

3. The combination, with a urinal-box, of the grated floor L, and the passage M below the floor, communicating with the waste-pipe, substantially as and for the purpose set forth.

178,502. BUCKLES FOR COTTON-BALING. G. R. Herron, Savannah, Ga. [Filed Dec. 20, 1875.]



A buckle formed of a single piece of metal, cut and bent substantially as shown and described.

178,503. PENS FOR BOOTS AND SHOES. C. M. Higgins, Brooklyn, N. Y. [Filed Nov. 29, 1875.]



Cut. *Compressed.*

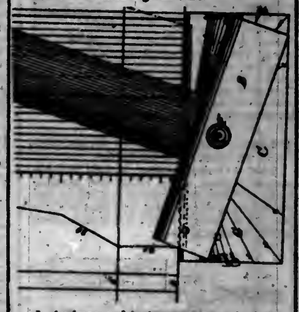
1. As an improved fastening for leather-work, a screw-peg cord, composed of leather sized and compressed, and provided with a continuous screw thread, substantially as herein set forth.

2. A process for the manufacture of screw-peg cord, combining the operations in the order stated of cutting leather or its equivalent into separate continuous cords of a rounded form, impregnating the same with a cementing size, and rounding and slightly compressing the same by passage between grooved rotating rollers, providing a continuous screw-thread adapted to unite leather-work, substantially as herein described.

3. As an improved fastening for leather-work, a cord of leather having a continuous screw-thread of fine pitch compressed thereupon, substantially as set forth.

178,504. SPEED-PROTRACTORS FOR RAILROAD TIME-TABLE CHARTS. Albert Hill, Brooklyn, N. Y. [Filed Dec. 4, 1875.]

Brief.—The stations being determined by means of the protractor-blade, the rate of speed is indicated on the scale; and the rate of speed being known, the blade indicates the station reached in a given time.

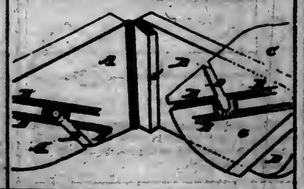


1. An improved instrument, formed of the blade A, the rigid head B, and the pivoted head C, having a speed-scale, G, marked upon its upper surface, in order to adapt it to be used in constructing railroad time-table charts, substantially as herein shown and described.

2. The pivoted head C, provided with a speed-scale, G, upon its surface, in combination with the blade A, whether the head B be used or not, substantially as herein shown and described.

178,507. IMPLEMENTS FOR FORMING BARBS OF WIRE FENCES. Jas. M. Hill and Wm. H. Jayne, Doons, Iowa. [Filed Aug. 30, 1875.]

Brief.—One of the grooved and slotted bending-jaws is hinged to a block having a recess, in which is pivoted the other bending-jaw, correspondingly grooved and slotted. The slotted jaws being aligned on the fence-wire, two barb-wires are inserted in the opposing grooves, and the pivoted jaw reversed, which bends the barb-wires together and around the fence-wire. The jaws are detached by opening the hinge.



The combination of the hinged blocks A B and the pivoted block C, provided with the handles a' a', the slots D, and the tapering grooves E with each other, substantially as herein shown and described.

172,432. FIFTH-WHEELS. Frank A. Hollenbeck, Homer, N. Y., assignor to himself and A. Abbott, same place. [Filed Nov. 10, 1875.]



1. In a fifth-wheel, the combination of the circle D with raised head c, the brackets D with hooks b and rollers R, substantially as shown and described.

2. In a fifth-wheel, the king-bolt-blocks G G', having their sides cut down, as shown and described, to allow the body of the vehicle to give to either side and relieve the strain from the bolt, for the purposes herein set forth.

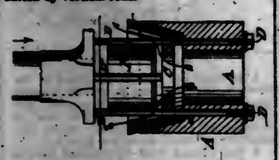
172,433. LOCK-PISTONS. C. R. L. Holman, New York, N. Y., assignor to himself and Henry McManus, same place. [Filed June 10, 1875.]



A lock-piston, provided with an elastic cushion arranged to receive the blow by which the piston is propelled, as set forth.

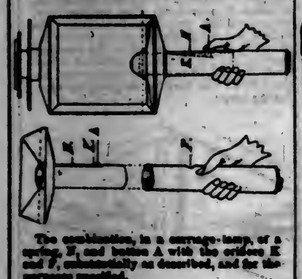
172,434. PUMP-PISTONS. L. D. Hovey, Clinton, Ill. [Filed July 24, 1875.]

Brief.—Conical packing is held between conical surfaces of the piston and binding-ring; said ring being held to position by lugs projecting downward from the socket to which the rod is secured, socket and piston being united by vertical rods.



The combination of the tapering base and wedge rings A C, the interposed conical packing, ball or globe-rods, lugs D', and socket B, as shown and described.

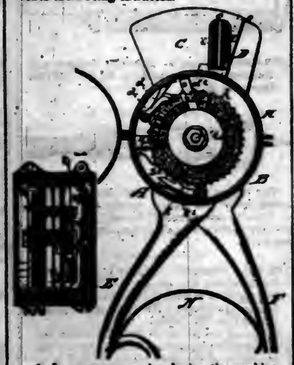
172,435. GARMENT-LASTER. John A. Rovell, Clinton Township, Bracon County, assignor of three-fourths his right to G. H. Leathwood & Co., Newark, N. J. [Filed Oct. 14, 1875.]



The combination, in a carriage-lamp, of a spring, E, and button A with the orifices E and F, substantially as described, and for the purpose specified.

172,436. COUPON-CUTTING APPARATUS FOR RAILROAD USE. Edwin L. Huddleston, Auburn, N. Y. [Filed Jan. 8, 1876.]

Brief.—The keys, registering and alarm mechanisms all retain on the same axis. The coupons, after being severed, are preserved entire in a receptacle provided for the purpose, and a spring-slide over the slot therein prevents their being extracted.



1. In a coupon-severing device, the combination of two cases connected by and rotated on an interior central pivot, one case containing a registering mechanism, and the other a bell and mechanism for sounding the same, all substantially as and for the purposes herein set forth.

2. The combination and arrangement, with the shears C D and opening *o*, of the spring-catch *p*, substantially as and for the purpose herein set forth.

3. The combination, with the two rotating cases, of the spring-dogs *l n*, which are connected to the backs of the cases, and pass through slots *o o* therein, for operating the registering and bell mechanisms respectively, all substantially as and for the purposes herein set forth.

4. The shears C D, box L, and registering mechanism combined with the two cases rotating around a central pivot, whereby the coupon is severed, preserved intact, and registered, substantially as and for the purposes herein set forth.

5. The shears C D, box L, registering mechanism and bell mechanism, combined with the two cases rotating around a central pivot, whereby the coupon is severed, preserved intact, registered, and the bell sounded, substantially as and for the purposes herein set forth.

6. The combination of the two horizontally-rotating cases pivoted together and containing the registering and bell mechanisms, the box L, shears C D, opening *o*, spring-catch *p*, and the actuating handles E E, all constructed substantially as and for the purposes herein set forth.

1. The method employed for closing and welding the ends of metal tubes, by pressing the same, properly heated, within a concave revolving die, substantially as is specified.

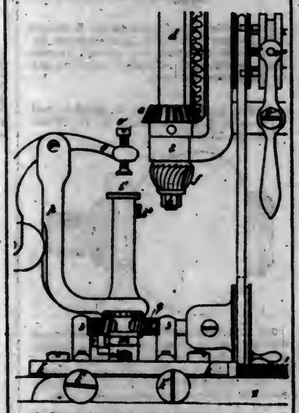
2. The die U, provided with a semi-cylindrical recess, U', spiral corrugations *n* and *n*, and axial opening *n'*, substantially as and for the purposes shown.

3. In combination with the ways *a'* and *a'* of the frame A, the tube-carriage composed of the blocks G and G', connected together by the bar H, and moved upon said ways by the shaft Q, hand-wheel K, crank-arm S, and connecting-bar T, substantially as and for the purposes set forth.

4. In combination with the carriage employed for supporting the tube I, the pivoted jaws K and K, cam-lever L, *l*, and *l*, lever M, weight *m*, and inclined leg N, all arranged to operate in the manner and for the purposes substantially as shown and described.

172,444. MACHINES FOR TURNING THE SOLES AND HEELS OF BOOTS AND SHOES. Wm. Jeakins, London, England. [Filed Oct. 6, 1875.]

Brief.—The cutter head, adapted to trim both heel and sole at one operation, is shaped to conform to the configuration of a finished heel. The work-supporting standard is provided with rotative mechanism.

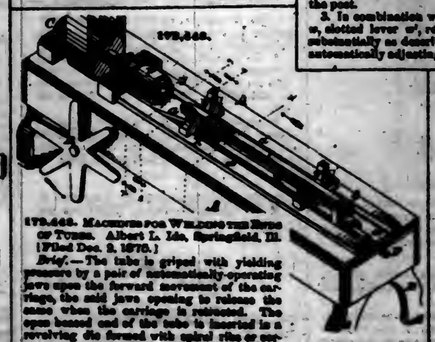


1. In combination, the pivoted arm *o*, the set-screw *o'*, and the locking-cam *o''*, for the purpose of clamping a shoe to the rotating post, substantially as described.

2. In combination with the post *i*, the worm *r*, worm-wheel *q*, the sliding plate *j*, the guides *k*, lever *m*, and spring *n*, substantially as described, for the purpose of rotating said post, and advancing or withdrawing the same from the cutter without stopping the rotation of the post.

3. In combination with the post *i*, the cam *m*, slotted lever *o'*, roller *o''*, and screw *o''*, substantially as described, for the purpose of automatically adjusting the post to the cutter.

172,445.

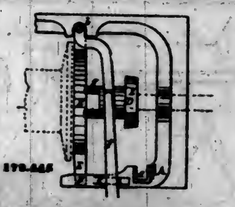


172,446.



172,445. MACHINES FOR WELDING THE RIMS OF TUBES. Albert L. Ide, Springfield, Ill. [Filed Dec. 2, 1875.]

Brief.—The tube is griped with yielding pressure by a pair of automatically-operating jaws upon the forward movement of the carriage, the said jaws opening to release the same when the carriage is retracted. The open bevel end of the tube is inserted in a revolving die formed with spiral ribs or serrations, which compress and draw it inward. The die is also formed with an axial opening, which furnishes a vent for all gases, vapor, and surplus metal.



172,446.

172,447. WATER-ELEVATORS. Jenkins Jones and Jason F. Holmes, Providence, R. I. [Filed Oct. 26, 1875.]

Brief.—The drum rotates loosely on the shaft without lengthwise movement. A clutch always in engagement by its toothed end with the drum, may be thrown into or out of engagement by its friction and with a friction-ring on the side of the ratchet. A friction-shoe lever, which governs the unwinding of the drum, is coupled with a clutch-lever in such manner that, by one movement, either the friction-brake may be released and the friction-clutch applied, or the reverse, or either one of these movements may be made without the other.

1. The combination, with a crank or driving-shaft, and a drum longitudinally fixed, but loosely mounted, on said shaft, and provided with a peripheral frictional surface, of a ratchet-wheel secured to the shaft, a sliding clutch between ratchet-wheel and drum, a friction-shoe lever, and a double-acting lever actuated by the friction-shoe lever and connected with the clutch, substantially as described.

2. The combination, with a crank-shaft or driving-shaft, and a drum longitudinally stationary, but loosely mounted, on said shaft, and provided with a peripheral frictional surface, of a friction-shoe lever, a friction-clutch, and a lever arranged to operate practically for controlling the shoe-lever, and internally for controlling the clutch, substantially as described.

3. The combination, with a crank or driving-shaft, a drum loosely mounted on said shaft, a clutch for connecting the drum and shaft, a friction-shoe for engaging with the drum, and a lever for alternately controlling the clutch and the shoe, of a supplemental provided with an additional friction-shoe, substantially as described, whereby the free end of the lever, when moved laterally in one direction, will be elevated and held on the bearing-surface, and when moved in the opposite direction will be allowed to fall, as set forth.

172,448. SHOT-CARTRIDGES. Allen B. Kay and Robert A. Kay, Newark, N. J. [Filed Jan. 3, 1876.]



In combination with a shot-cartridge, a wad composed of perforated, reticulated, or woven metal, substantially as and for the purpose specified.

172,447. MAGAZINE FIRE-ARMS. John W. Keene, Newark, N. J. [Filed Oct. 26, 1875.]



1. A sliding elastic bar or hook lever, with a hook or teeth on its front end, working parallel with the breech bolt or block for operating the carrier, substantially as shown and described.

2. The combination of the sliding elastic bar or rack and the carrier, for raising and lowering the carrier by the backward and forward motion of the bolt, substantially as shown and described.

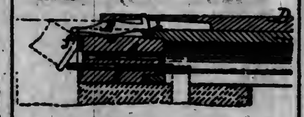
3. The combination, with the cartridge-carrier, of a leaf pivoted thereto and provided with a spring or catch for holding it down, said leaf serving to keep the bottom of the carrier-well closed, substantially as shown and described.

4. The combination of the sliding elastic bar or lever with the carrier and the leaf pivoted thereto, for permitting the carrier to be raised when the magazine is being charged through its bottom while the breech is closed, and for throwing the carrier down to close the gun, substantially as described.

5. The combination, with the receiver and carrier-well, made in one piece, of the carrier, trigger, and elastic bar or rack, all attached to or suspended from the receiver, substantially as shown and described.

6. The combination, with the rotating bolt, of the elastic lever G, provided with the projections *g' g' g'*, substantially as and for the purpose herein described.

172,448. CARTRIDGE-EXTRACTORS FOR BREECH-LOADING FIRE-ARMS. John W. Keene, Newark, N. J. [Filed June 15, 1874.]



1. A cartridge-extractor for breech-loading fire-arms, consisting of a rigid lever pivoted or balanced at a point between the ends, having its front end formed for engagement with the rim of the cartridge, and its rear end for engagement with the bolt or breech block to hold it to said rim, and with the cover of the receiver to release it from said rim, substantially as shown and described.

2. The combination of the extractor E and the front end of the breech bolt or block for hooking the extractor in contact with the rim of the cartridge, as shown and described.

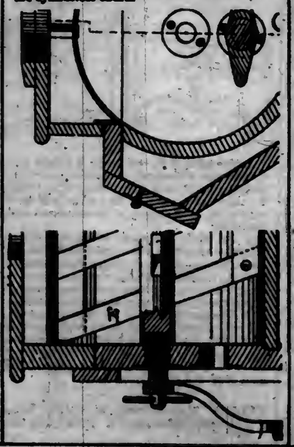
3. The combination of the extractor E and the cover of the receiver, or other fixed point, for subjecting the extractor on the backward motion of the bolt, substantially as described.

172,449. HAIR-RESTORATIVE COMPOUNDS. A. B. Kinyon, Downer's Grove, Ill. [Filed Sept. 20, 1875.]

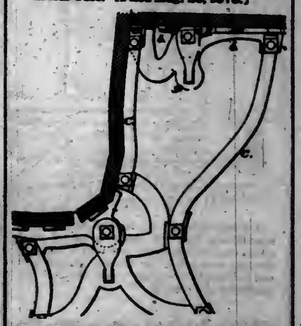
The hair-restoring compound herein described, consisting of extract of grape-vine, salt, muriate of ammonia, and alcohol, in about the proportions specified.

172,450. CHURNS AND BUTTER-WORKERS. Emanuel W. Kitchen, Penn's Park, Pa. [Filed Dec. 9, 1875.]

Brief.—The horizontal revolving arms of the churn-dasher strike and operate the superimposed worker, the base of which completes the cylindrical churn.



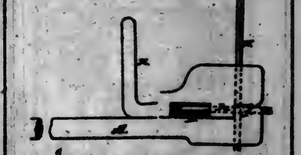
172,451. SCHOOL DESKS AND SEATS. Wm. H. Kline, John Upham, and S. D. Tuttle, Ravenna, Ohio. [Filed Aug. 30, 1875.]



1. The uprights I, constructed with body F, lateral braces F F, downwardly-diverging braces I F, and standards F, in combination with the book-hook legs O', front legs D, cant-supports K, and cant-board supports C, said body F forming a bearing for the cant-hinges, and the standards F lapping the cant-hook supports near their centers to the lateral braces F, near their junction with the book legs, substantially as set forth.

2. The clamp F, constructed with standards, cheek, and corrugations, and operated substantially as set forth, in combination with a desk or cant-hinge formed with a notched heel and pintle.

172,452. DEVICES FOR SECURING WIRE RAILS. M. Kleinhenbeher, New Lenox, Ill. [Filed Oct. 28, 1875.]



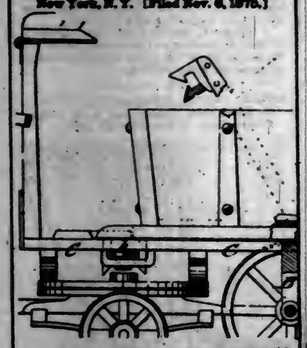
The combination of the bar or lever A, having a grooved side flange, F, with the bar or lever A', having its outer end rounded, and its lower end flanged and recessed, as shown, both bars having slots *i* in their lower ends to allow them to fit over the fence-rails on an axis which the bars is being wound thereon, substantially as described.

172,453. SEATS. John Knowlton, Boston, Mass., assignor to himself, S. G. Thomas, and E. H. Thomas, same place. [Filed Oct. 28, 1875.]



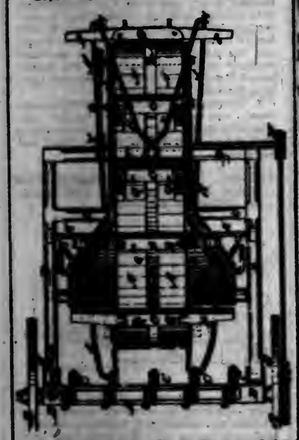
The new article of manufacture described, consisting of a slipper having the vamp and quarters composed of serpet, and provided with an external re-enforcing heel-piece and binding, to strengthen the heel, and prevent the breaking down and expansion of the raw edge of the instep, as set forth.

172,454. DUMPING-WAGGON. J. Kramer, New York, N. Y. [Filed Nov. 6, 1875.]



A dumping-wagon having the cant mounted upon front truck, and the body hinged at or above the middle thereof to rear axle, whereby the rear axle bears the greater part of load, and the body turns clear of the cant, all substantially as specified.

172,455. HAT BLOCKS AND LOADERS. Geo. Leonard, Mill Grove, Ohio. [Filed Sept. 28, 1875.]



1. In a hat-loader the combination of the hinged arms F, and means for raising the same from a horizontal to a vertical position with the undrawn apron F and cross-bars G, substantially as and for the purpose herein set forth.

2. The combination of the guides R and S and the bar T, with the frame J, and the hinged arms F of the undrawn carrier, substantially as herein shown and described.

172,456. STEAM-MOTORS. R. Lambkin, Schweidnitz, Silesia. [Filed Oct. 20, 1875.]

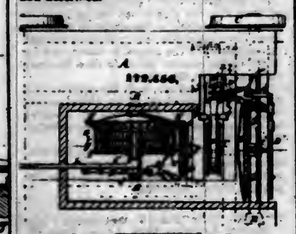
Brief.—The drum is provided with two springs wound by means of a central shaft. Upon reversing motion by change of gearing, the lever thus operating also operates a brake to arrest the movement of the train of wheels.

1. The combination, in a spring-motor, of the drum F, continued and cup and bevel-wheel F, spring G, rings H, and interposed disk or disks I with the shaft E to be driven, all constructed and operating as herein set forth.

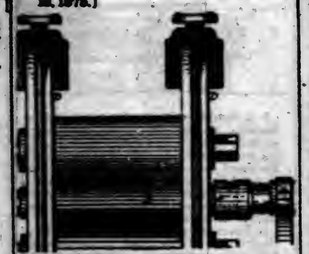
2. The combination of the pulley or drum T, the strap U, the pivoted bar W, and the hand-lever X with the shaft F and the gear-wheels F G Q R, that connect the spring-drum G H F with the axle or shaft D to be driven, substantially as herein shown and described.

3. The combination of the fork Z, the arms A' C', the sliding bar B', and the sliding sleeve S with the gear-wheels R of the axle or shaft D, and with the lever X, that operates the brake T U W, substantially as herein shown and described.

172,456.

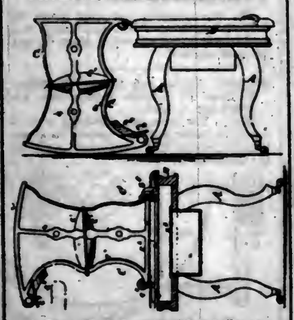


172,457. ROLLS FOR ROLLING HOOP-IRON. Bernard Leath, Howard, Pa. [Filed Dec. 10, 1875.]



In a three-high rolling-mill, the upper and lower rolls A C, in combination with an intermediate roll, B, of less diameter, through which intermediate roll the driving-power is communicated by a coupling-connection from the driving-shaft, substantially as set forth.

172,458. NURSERY-CHAIRS. L. P. Lawrence, Port Morris, N. J. [Filed Nov. 6, 1875.]



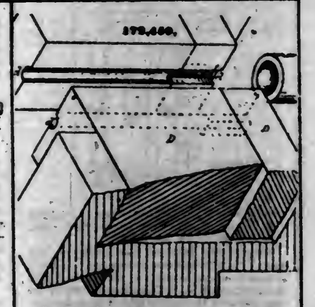
1. The table A B, made with a hollow top, B, provided with doors, *b'*, box and cover *b' b''*, catch-plates *b'*, and spring-catch *b''*, to adapt it to serve as a pedestal for a chair, and as a play-table, substantially as herein shown and described.

2. The chair C, formed of the seat *d*, upholstered upon both sides, the frame *d'*, with flat rail, and provided with hinged catch-bolts *d'*, and the frame *d*, provided with the curved or rocker rail, the foot-rests *d*, and the guard-bar *d'*, substantially as herein shown and described.

3. The combination of the table B, provided with sheared catch-plates *b'*, with the chair C, having pivoted catch-bolts *d'*, so as to enable the chair to be placed upon the table-top or down at the side of the same, substantially as and for the purpose set forth.

172,459. MANUFACTURE OF BOLTS. Wm. J. Lewis, Pittsburg, Pa. [Filed Oct. 20, 1875.]

172,460.

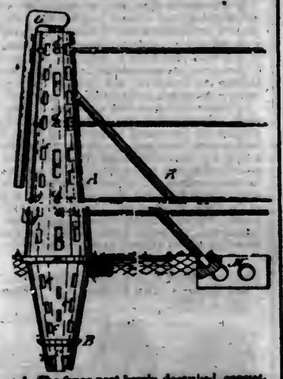


1. As an improvement in the art of making screw-bolts, severing the rectangular blank from the edge or end of a metallic plate, forming a head thereon, and shaping a rounded stem by lateral compression in dies or other wise, substantially as described.

2. A headed bolt-blank, B', made as described, and possessing substantially the characteristics specified, with reference to Fig. 4

172,460. FIRE-PLACE. Lake Lightfoot, Walnut, Iowa. [Filed Dec. 16, 1875.]

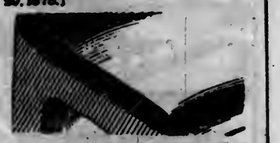
Brief.—A hollow post, provided with circumferential flanges at its base, incloses a pivoted rod, which is revolved by a hand-lever, for the purpose of tightening the fence-wires attached to it.



1. The three-post horse described, consisting of the hollow iron body A, having exterior flanges a B, slots c, perforations d, and interior annular flanges p, substantially as and for the purpose hereinbefore set forth.

2. In combination with the three-post horse described, the wire-tightening device, consisting of the rod I, having perforations i, and pivoted boot arm O, substantially as and for the purpose hereinbefore set forth.

172,461. CURLED CAB-WHEELS. William W. Lobdell, Wilmington, Del. [Filed Oct. 20, 1875.]



A cast-iron car-wheel having a chilled rim from which the latent defects beneath the skin have been removed, as set forth.

172,462. COFFEE-POTS. Louis C. Lesser, New York, N. Y. [Filed Dec. 20, 1875.]

Brief.—The hinged cover, when closed, extinguish the flame and prevent evaporation of alcohol.

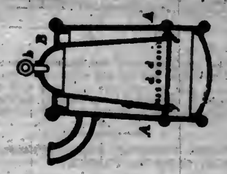
172,463.



The stand for coffee machines or pots, having the top concavity and the hinged annular collar covers F, as shown and described.

172,464. TOBACCO-PIPES. Elam Lortliard, Rhinebeck, N. Y. [Filed Aug. 30, 1875.]

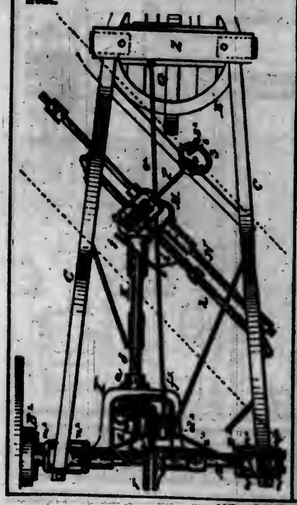
Brief.—Two bowls, the inner one having a grate at the bottom and a row of perforations. The tobacco is lighted through the grate under the bowl.



A smoking-pipe, in which are combined an outer shell, A, lower door *a*, inner bowl, having lower perforations *d*, and an upper perforation and plug, h, and the grate E, substantially as herein set forth.

172,465. STREET-SWEEPING MACHINES. Thos. Mac Nell, Brooklyn, N. Y., assignor to himself and Levi P. Wright, Washington, D. C. [Filed Jan. 4, 1876.]

Brief.—The diagonally-arranged revolving broom is suspended centrally, and driven centrally through a shaft and gears from the hind axle near its center. The connecting-shaft is arranged in a sleeve, and has a feathered connection with its pinion, so as to be connectible without disconnecting the gears, thus permitting play to the suspended broom, which likewise accommodates itself to the conformation of the street, by means of its suspension from the center. The broom can be raised and lowered, as desired, through an axle and worm-gear. Both hind wheels are drivers, and can thrown in and out of gear by simple mechanism. But one wheel is employed in front.



1. In a street-sweeping machine, the combination of the axle A with driving-wheels B B, the side beams C C, arched as described, the arched beam D, circle E, and single front wheel G, substantially as and for the purposes herein set forth.

2. In a street-sweeping machine, a rotating brush, supported at the center of its shaft, and suspended substantially in the manner and for the purposes herein set forth.

3. The combination of the saddle I and segment J on the axle A, the shaft S, with pinions *d e*, sleeve K, with frame M, and the brush shaft N, with pinion *n*, all substantially as and for the purposes herein set forth

4. The combination, with the shaft S and frame M, carrying the rotating brush, of the sleeve K, arm L, with arcate bar *f*, one or more chains, *i*, shaft A, and worm-gear O P, substantially as and for the purposes herein set forth.

5. The combination of the clamp *i* with angling plate *c*, staples *s s*, brush T, and forked wedge *c*, substantially as and for the purposes herein set forth.

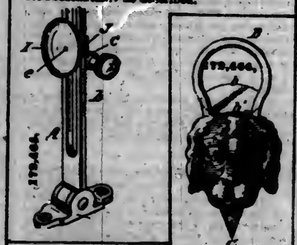
6. In a street-sweeping machine, the combination, with the driving-wheels B, of the ratchet-rim B', spring-pawls *b'*, having arms *p'*, and the tripping collars *m'*, for the purposes herein set forth.

7. The combination of the foot-lever O, rod *o*, sleeve *b'*, rod *f'*, spring *h'*, rods *t'*, levers D', rods *m'*, and tripping collars *m'*, all substantially as and for the purposes herein set forth.

8. The combination of the yoke-shaped frame I, axle A, gears J, pinions *d*, feathered shaft *h*, resilpressing within the pinion *d*, for giving elasticity to the suspended brush, substantially as and for the purposes specified

172,466. GUN-SIGHTS. Wm. P. McFarlane and George W. Hadley, Chicopee Falls, Mass. [Filed Dec. 9, 1875.]

A gun-sight consisting of the standard A, provided with the teeth or rack *h*, the clamping-slide J, provided with the pinion C, and the perforated disk I, provided with the screw-stem *c*, all constructed and arranged to operate substantially as described.



172,467. SUSPENSION-BRIDGE. O. W. McGill, New York, N. Y. [Filed Apr. 22, 1875.]

My within-described suspending device consisting of the body A, loop B, plate A, and eyes C, cut and swaged from a single piece of sheet metal, as herein shown, to operate in the manner and for the purposes herein specified.

172,468. SPRINKLERS. John C. Melcher, Black Jack Spring, Tex. [Filed Nov. 27, 1875.]

Brief.—The sprinkler consists of a short drum or hollow cylinder, with the opening or inlet for receiving the water on one side, and the orifices for discharging the water on the opposite side.



The sprinkler-head herein described, consisting of the ring or cylinder A, having end caps B, perforations D, and a pipe-connection, C, substantially as and for the purpose set forth.

172,469. MUSEUM. August Miller, Sapna, Kans. [Filed Dec. 4 1875.]



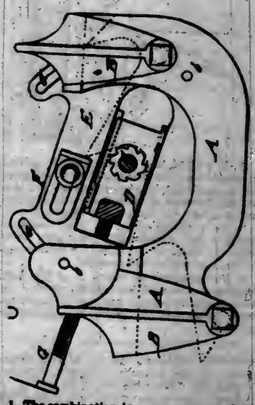
1. A muzzle for preventing calves and other animals from sucking, composed of a muzzle-frame, which is strapped to the head, and provided with a swinging front guard-plate, having hinged side plates with projecting top and rear spurs, substantially in the manner and for the purpose set forth.

2. A solid or fall-top muzzle-frame, adapted to fit the top of the nose of the animal to prevent chafing, substantially as set forth.

3. The combination of the swinging side guard plates, having inwardly projecting notches, with the side flanges of the muzzle-frame and the swinging front plate, for the purposes of locking the parts together sideways of the mouth, to prevent the animal from getting at the teat, substantially as described.

172,470. SAW-GUMMERS. James W. Mixer, Templeton, Mass. [Filed Oct. 28, 1875.]

Brief.—The feeding-carriage slides in a way which is formed with a quadrantal slot at each end, and swings upon the cut-curves which pass through and slots and enter the main frame, so as to present the cutter at any desired angle to the teeth. Two cut-curves upon the feed-curve determine the distance to which the feeding-carriage and cutter shall descend.



1. The combination, in a saw-gummer, of the swinging or adjustable carriage-way E, cutter C, and adjustable carriage D with the main frame A', all constructed and relatively arranged substantially as herein set forth.

2. The combination of the sliding gage-piece F, feed-curve G, and nuts *d f* with the carriage-way E and frame A of a saw-gummer, as and for the purpose set forth.

172,471. HOSE-COUPLINGS. A. J. Moore, Boston, Mass. [Filed Dec. 21, 1875.]

Brief.—The hose end is confined between the outer and inner faces of the two cylindrical rings. The screw-threaded portion of the coupling-section is connected with the upper screw-threaded portion of the binding-ring. The longitudinal movement of the binding-ring forces one end of the outer cylindrical ring in upon the hose. The coupling-section may be removed, and yet leave the hose capped.

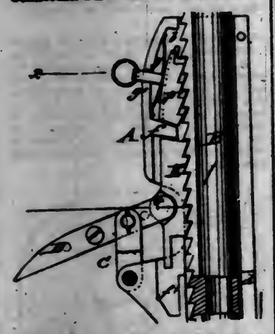
1. The outer and inner capping-rings, in combination with the coupling-section and its threaded projection *c*, and the screw-threaded internally-beveled or inclined binding-ring,

combined and adapted to compress the outer capping-ring by the movement of the binding-ring, substantially as described.

2. A piece of hose, and an inner and outer capping-ring connected resiliently thereto by compression or expansion of one of the rings, in combination with a removable coupling-section and a removable binding-ring attached only to the coupling-section, and adapted to surround the outer holding-ring, substantially as described.

178,472.

178,472. LIFTING-JACK. Saml. B. Mosher, Chillicothe, Ohio. [Filed Dec. 10, 1875.]



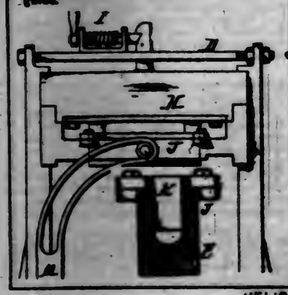
1. In a lifting-jack, the toothed lifting-block pivoted to sections of a double lever, swinging on an oscillating fulcrum to engage and clear readily the teeth of the lifting-bar as required, substantially for the purpose described.

2. In a lifting-jack, the combination of toothed and spring-acted differential pawls with the lifting-bar to retain the same at any point, substantially as specified.

3. The standard or casing A of the jack, being provided with an inclined plate, *f*, for the purpose of readily sliding the pawls toward the toothed lifting-bar, substantially as set forth.

178,473. CHAIR-MACHINE. August Wohlgemuth, Jr., and Adam H. Theobald, Philadelphia, Pa. [Filed July 27, 1875.]

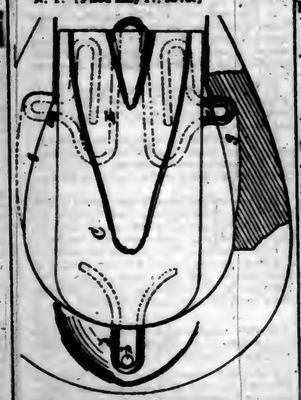
Brief.—The upper mold runs in guides, and is connected to a weighted drum, and is raised by a slotted bend-lever. This mold is guided into the lower mold by a laterally-adjustable guide.



1. The lever portion B of the mold, the drop-weight H, and the upper portion C of the mold attached to the said weight, and sliding socket K, adapted to both portions of the mold, in combination with mechanism for operating the said drop-weight and sliding socket, all substantially as set forth.

2. The combination of the guided drop-weight H, the slide J, and its pin M with the curved and slotted arm of the operating-lever.

178,474. REMOVABLE FROG-PADS FOR HORSES' FEET. Alonzo F. Olds, New York, N. Y. [Filed May 17, 1875.]



1. The spring-wire B bent midway of its length to form the eye *f*, and bent outward and inward to form the legs *e e*, said wire being molded within the elastic frog-pad C, and having its eye portion and entrance end bent upward and downward, as described, in combination with the loop *d* embedded in the said pad, and with the shoe B, having the recesses *g g*, all substantially as and for the purpose described.

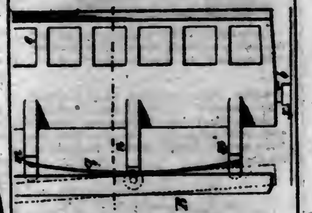
2. The elastic steel-wire B, constituting a spring, and also forming the legs *e e* and eye *f*, in combination with the pad C and shoe B, substantially as herein described.

178,475. MANUFACTURE OF GAS. G. Otney, Brooklyn, N. Y. [Filed Nov. 27, 1875.]

Brief.—Simultaneously mixes steam, liquid or liquefiable carbonaceous matter, and coal-gas, previous to the entrance of the mixture into a heated retort. Simultaneously injects into a heated retort, by a steam-jet, steam, liquid or liquefiable carbonaceous matter, and coal-gas.

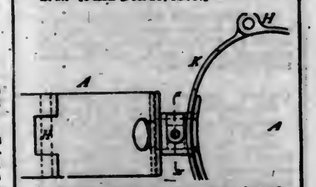
1. An improvement in the art of manufacturing illuminating-gas, consisting in introducing into a heated retort coal-gas and liquid or liquefied hydrocarbon by means of a steam-jet, substantially as described.

178,476. DASHERS FOR ICE-CREAM FREEZERS. Chas. W. Parker, Philadelphia, Pa. [Filed Dec. 13, 1875.]



The combination of the dasher of an ice-cream freezer and its arm *a*, having a longitudinal slot, *i*, with the spring *g* and the scraper B, connected to the dasher by a pin entering the slot in said arm, all as set forth.

178,476. BRACELET. James C. Palmer, U. S. N. [Filed Dec. 10, 1875.]

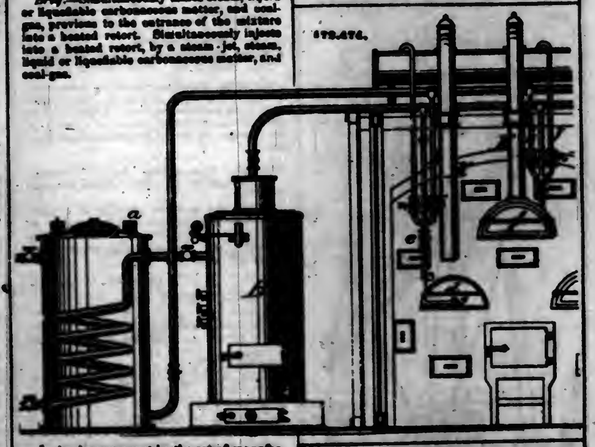


1. In mechanism for wrists or arms for exhibition, the hands B, provided with the hinged parts H and joints K, having two or more step-adjusting holes, substantially as and for the purposes herein set forth.

2. The combination of the cylindrical lock C, bolt B, with circumferential groove *c*, the spring *h*, and button *p*, attached to the spring and bolt B, all constructed substantially as and for the purposes herein set forth.

178,476.

178,476. MANUFACTURE OF ILLUMINATING-GAS. Chas. W. Parker, Philadelphia, Pa. [Filed Dec. 13, 1875.]



1. An improvement in the art of manufacturing illuminating-gas, consisting in introducing into a heated retort coal-gas and liquid or liquefied hydrocarbon by means of a steam-jet, substantially as described.

178,477. CAR-BRAKE. William W. Parker, Minneapolis, Minn., assignor to L. C. Parker, Boston, Mass. [Filed May 31, 1875.]

178,477.



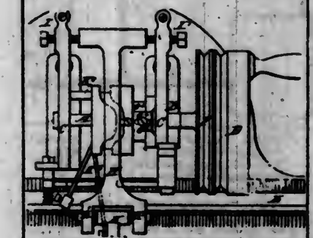
1. The combination of the studs *h* and legs *i* on the hook H, the arms B, provided with the recesses *g*, and the projections D, provided with the notches *a*, whereby the hook and arms are held in position when elevated, and the reversing of the hook is facilitated, substantially as herein described.

2. The combination of the perforated legs *i*, studs *d*, arms B, and hinges *f' f'*, whereby the hook is held in place on the seat, and the arms folded down thereon, substantially as herein described.

3. The combination of the hinged brace M and lip *m*, and the pivoted legs K and cocks *i*, whereby the legs are held in place when unfolded, substantially as herein described.

178,478. SEWING-MACHINES FOR UNITING THE HEELS OF KNITTED FABRICS. William Pearson, Philadelphia, Pa. [Filed Oct. 16, 1875.]

Brief.—The material is fastened on the teeth carried by the rock. The needle alternately, or not, at will, passes through the loop of the fabric and over its edge, and is confined by the looper. The throw of the needle is adjustable.



1. The cam G, having the grooves G^1 and G^2, combined with the looper and needle operating mechanism, substantially as set forth.

2. The rock-bar N, combined with the pointer N^1 and pieces N^2, constructed to clamp said points, as and for the purpose set forth.

3. The combination of the hooked looper P, having the hook P^1 and guide P^2 of the needle K, and actuating mechanism, substantially as described and shown.

4. The adjustable cam O^2, lever O^1, pawl O, and rock H, combined with the double cam G, provided with the projection G^3, and adjustable screw H^1, and cloth-actuating mechanism, as and for the purpose set forth and described.

178,479. ELASTIC TOP-LIFTER FOR HEELING. August J. Peters, Chicago, Ill. [Filed Dec. 14, 1875.]

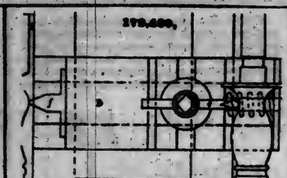


The lifting-bit described, and in combination the tubular shell A, having the heads *a b* and bit B, the hook C, having an elongated shank, provided with a screw-threaded end and nut, the metal washers *c d*, and rubber washers *e*, all constructed and arranged substantially as described and shown.

178,480. GLOVE-REFS FOR METAL-TURNING LATHES. Jos. Pick, Baltimore, Md. [Filed May 17, 1875.]

Brief.—A pattern and a lever mounted on the base of the rest govern the forward movements of the tool during its longitudinal reciprocations—the pattern ordinarily, and the lever when cutting heavy angles or cutting off.

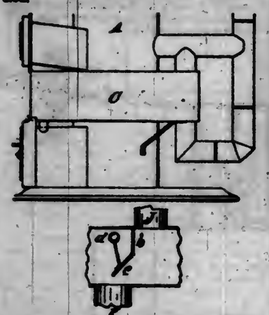
178,480.



In a slide-rest for lathes, the combination of the slide B, tool-support C D, spiral spring E, bolt *f*, pattern *g*, and lever A, constructed and operating substantially as and for the purposes set forth.

178,481. HOT-AIR FURNACES. J. B. Pierce, Buffalo, N. Y. [Filed Dec. 16, 1875.]

Brief.—In the indirect draft the smoke circulates through the annular drums in succession.

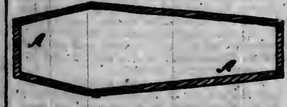


1. The combination, substantially as specified, of the hot-air furnace and two connected radiators, respectively arranged above and below the smoke-exit of the furnace, the goose emerging from each smoke-exit passing into the upper radiator, through which they circulate, and from which they are conducted into the lower radiator at one end, to escape into a branch smoke-exit at the other end.

2. The radiators B C, provided with the partitions *b* and valve *c*, combined with the pipes J and P, and made removable, substantially as and for the purposes described.

3. The radiator Q, provided with a partition, *b*, and a gravitating weighted valve, *c*, in combination with the hot-air furnace A, all arranged substantially as and for the purposes described.

178,482. BURIAL-CASKETS. Aaron Pitman, Matteawan, N. J. [Filed Oct. 20, 1875.]



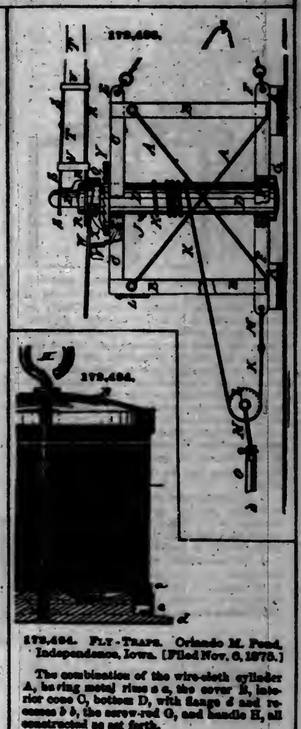
As a new article of manufacture, coffins and caskets made of celluloid, substantially as described, and for the purpose set forth.

178,483. STUMP-EXTRACTORS. J. Flatten, Port Howard, Wis. [Filed Oct. 6, 1875.]

1. The combination of frame A B C, cylinder D, provided with draft mechanism K L M N O P, vent and pawl X Y, ratchet-rings Q R, and the lever T, as and for the purpose specified.

2. The combination of the bar R, having a ring formed upon its inner end, and the bar F, having a ring formed upon its center, and provided with a cup-plate, G, with the cylinder D and the frame-work A B C, substantially as herein shown and described.

178,484.



178,484. FLY-TRAPS. Orlando M. Pond, Independence, Iowa. [Filed Nov. 6, 1875.]

The combination of the wire-cloth cylinder A, having metal rims *a a*, the cover E, interior cone C, bottom D, with flange *d* and recess *b b*, the screw-rod G, and handle H, all constructed as set forth.

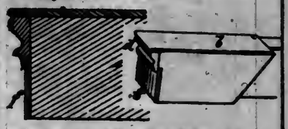
178,485. SNOW-WINDOWS. C. A. Potter, New York, N. Y. [Filed Jan. 3, 1876.]



The combination of the clamping-plate C with the rails A and exterior molding E, substantially as shown and described.

178,486. KEYS FOR PIANO-FORTES, &c. Ulysses Pond, Deep River, Conn. [Filed June 25, 1875.]

Brief.—Ornaments the key-front and utilizes the ivory closer.

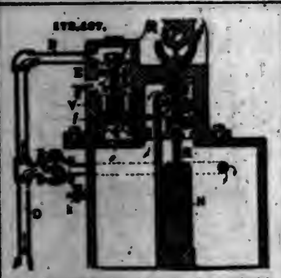


A separate molding, *d*, applied to the upper portion of the front end of the key, in combination with the overlapping top or face veneer *b* and a lower front-end veneer, *f*, over which the said molding *d* overlaps or projects, substantially as specified.

178,487. PNEUMATIC SIGNAL APPARATUS FOR RAILWAYS. Wm. H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed June 3, 1874.]

Brief.—Devices for controlling the admission of air from the line-pipe to the signal-operating apparatus.

172,487.



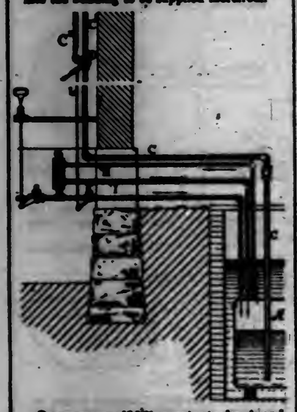
1. In combination with each other, and with a pipe conveying compressed air to one or more pneumatic signals, a valve, closing an exhaust-opening in or for said pipe, a pressure-chamber provided with a stuffle outward vent, and made to communicate with a diaphragm or piston, to operate the aforesaid valve, an air-supply pipe or reservoir, and a pressure-valve controlling the communication between said supply pipe or reservoir, and the pressure-chamber, substantially as and for the purpose herein set forth.

2. A weight, combined with a valve, G, valve-chamber W, outwardly-projecting rod H, supply-pipe A, and delivery-pipe D, substantially as and for the purpose herein set forth.

3. In combination with each other, a rotative signal-rod, c, vergtoon compressing rod a, diaphragm r, and pressure-supply pipe D, arranged to operate substantially as and for the purpose herein set forth.

172,488. PNEUMATIC WATER-SUPPLY SYSTEMS FOR BUILDINGS. William H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Nov. 21, 1874.]

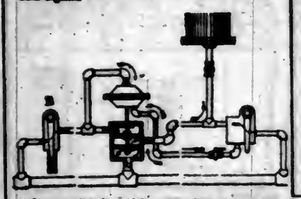
Brief.—One or more water-reservoirs, in combination with an air-supply pipe, an automatic pressure-regulator, and a system of distributing-pipes extending from the reservoirs into the building to be supplied therefrom.



One or more additional water-tanks, A, and a system of delivery-pipes, C C', constructed therewith, when combined with a high-pressure air-supply pipe, B, pressure-regulating device G, low-pressure air-supply pipe I, and high-pressure cut-off cock, K, substantially as and for the purposes herein set forth.

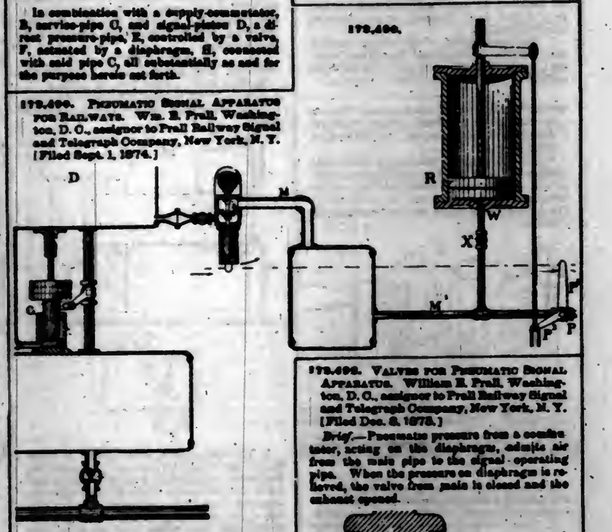
172,489. PNEUMATIC SIGNALING APPARATUS. William H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Nov. 23, 1874.]

Brief.—The object of the invention is to produce a rapid movement of the signal by utilizing the force of the compressed air passing through the long pipe from the supply-commutator, to open a short and direct channel of communication between the air-main and signal.



In combination with a supply-commutator, B, service-pipe C, and signal-piston D, a direct pressure-pipe, E, controlled by a valve, F, actuated by a diaphragm, H, connected with said pipe C, all substantially as and for the purpose herein set forth.

172,490. PNEUMATIC SIGNAL APPARATUS FOR RAILWAYS. Wm. H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Sept. 1, 1874.]



1. In combination with each other as air-tank, D, a pipe to supply the same, a cock or valve to govern said pipe, and a piston, G, actuating the cock and subjected to the pressure of air in the tank, substantially as and for the purpose herein set forth.

2. The combination, with an automatic air valve or commutator, K, and with its air-supply pipe, of a delivery-pipe, M, having larger capacity than said supply-pipe, substantially as and for the purpose herein set forth.

3. In combination with each other an air-signal pipe, M', a valve or cock controlling an exhaust-vent in said pipe, and a weighted piston, R, actuated and supported by the pressure of air admitted thereto from the pipe M', and operating automatically, when relieved from such air-pressure, to close said exhaust-valve, substantially in the manner and for the purpose herein set forth.

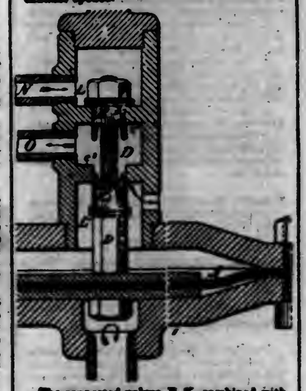
4. The combination, with an exhaust-vent and valve, P, in an air-pipe, M', and with a piston, R, actuated by compressed air from said pipe, and operating, when relieved from pressure, to close said valve, of a cock or valve, X, controlling the communication between the air-pipe and piston to insure a comparatively slow discharge of air from the piston-chamber, when the exhaust-vent in the air-pipe is opened, substantially as and for the purpose herein set forth.

172,491. PNEUMATIC SIGNALS FOR RAILWAY-CROSSINGS. Wm. H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Sept. 7, 1874.]

Brief.—Approaching train closes the gates at several street-crossings simultaneously, and opens each one after passing it.

172,492. VALVES FOR PNEUMATIC SIGNAL APPARATUS. William H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Dec. 8, 1875.]

Brief.—Pneumatic pressure from a combustor, acting on the diaphragm, admits air from the main pipe to the signal-operating pipe. When the pressure on diaphragm is relieved, the valve from main is closed and the exhaust opened.

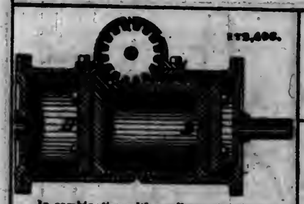


The connected valves E K, combined with a main pressure-pipe, F, a signal-pipe, O, an exhaust-vent, *f*, and a diaphragm, A, substantially as and for the purpose herein set forth.

172,493. APPARATUS FOR PNEUMATIC RAILWAY-SIGNALS. Wm. H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Dec. 8, 1875.]

Brief.—The movement of the piston revolves the shaft on which the signal is supported.

172,494.

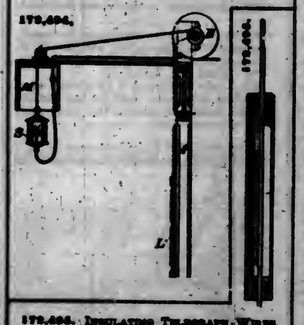


In combination with a railway-signal to actuate the same, a reciprocating valve or piston, moved in opposite directions by pneumatic pressure admitted alternately to its opposite ends, and automatically relieved from such pressure by means of exhaust-vents opened thereby at the completion of each stroke thereof, substantially as herein set forth.

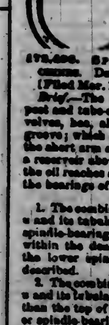
172,495. CONCEALED SIGNAL-LAMPS AND GATES. Wm. H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Dec. 8, 1875.]

A light, E, and screen M, combined with the shaft B and pneumatic piston O of a railway gate or guard, I, to be operated in unison with the gate, substantially as and for the purpose herein set forth.

172,496.



172,496.

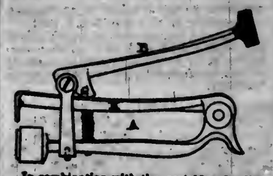


172,496. INSULATING TELEGRAPH-WIRE. William H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Dec. 20, 1875.]

The combination, substantially as herein set forth, of one or more telegraph wires or cables, with a continuous line of air-tight inclosing pipes charged with atmospheric air under compression.

172,496. GARTERING-LOADING IMPLEMENTS. William G. Bowlens, Toronto, Canada. [Filed Aug. 17, 1875.]

Brief.—The pressure-lever serves as a runner for loading the sheaths. The latter, after being loaded, are crimped by placing the ends of the sheaths over the end of the lower arm, and turning them while pressure is applied to the upper arm by means of the pressure-lever.

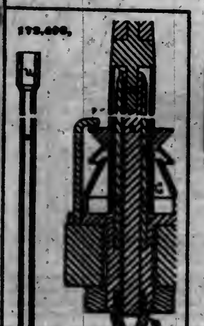


In combination with the cartridge loading and crimping implement A, the runner-head D, attached to the end of the hinged pressure-lever B, and fastened with a concave vertical face, arranged and operating substantially as described.

172,497. HARNESS-ROSETTE. Frederick Heyrand and George Bahn, Newark, N. J. [Filed Dec. 10, 1875.]

A harness-rosette, composed of the top plate A, back or bottom plate B, having its central portion removed, and provided with recesses a, adapted to secure the shank C, the intermediate flexible filling D, and wire-cloth E, combined and arranged substantially as shown and described.

172,498.



172,497.



172,498. SPINDLES FOR SPINNING-MACHINES. David Hall Rice, Lowell, Mass. [Filed Mar. 15, 1875.]

Brief.—The dead-spindle, consisting of a post and tube-cover, on which the live one revolves, has, along the post, a vertical oil-groove; which post being connected below to the short arm of a bent pipe descending from a reservoir above the top of the dead-spindle, the oil reaches an outlet at the top to lubricate the bearings of the live-spindle.

1. The combination of the fountain-reservoir u and its tubular extension v, with the upper spindle-bearing x, and the passage n formed within the dead-spindle from a point below the lower spindle-bearing, substantially as described.

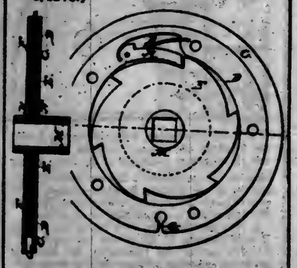
2. The combination of the fountain-reservoir u and its tubular extension v, extending higher than the top of the dead-spindle, with the lower spindle-bearing and the passage n, and below live-spindle E, substantially as described.

3. The combination of the fountain-reservoir u and its tubular extension v, with the passage n, the two having a detachable joint, substantially as described.

4. The combination of the fountain-reservoir u, placed behind out of the way of, and alongside the path of, the traverse or ring rail, and its tubular extension v, with the spindle, substantially as described.

5. The oil-passage n, formed within the dead-spindle from below the lower spindle-bearing to its upper end, substantially as described.

172,499. DEVICES FOR WINDING CLOCKS. James M. Rice, Pittston, Pa. [Filed Jan. 6, 1876.]



1. In a winding attachment for clocks and other machinery run by springs or weights, a winding drum or wheel provided with an interior ratchet-wheel, attached to a central spindle, and the drum or wheel having its bearing and turning upon the periphery of the ratchet-wheel, substantially as herein set forth.

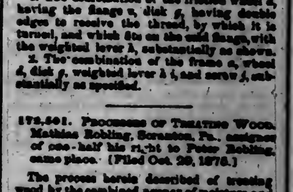
2. In a winding attachment for clocks and other machinery, the wheel or winding-drum, constructed of the annular ring D and exterior plates C F, whereby an interior recess is formed to receive the ratchet-wheel, and a circumferential groove to receive the winding-cord, substantially as herein set forth.

3. In combination with the wheel C D F, the interior ratchet-wheel E, pawl A, barrel M, recoil-spring H, and twisted-wire cable J, substantially as and for the purposes herein set forth.

4. As an article of manufacture, an apparatus consisting of a central barrel, a ratchet-wheel and pawl, a winding drum or wheel, a wire-cord, and a recoil-spring, the whole placed in a frame, and forming a complete and independent attachment for clocks and other machinery, for the purpose of winding the same.

172,500. TREBLES MECHANISMS FOR SEWING-MACHINES. C. F. Bichel, Cherry, Pa., assignor of one-half his right to A. Davis, same place. [Filed Dec. 27, 1875.]

Brief.—The friction-wheel is provided with flange and disk having double edges, to receive the thread by which it is turned, and friction is produced by means of a weighted lever, which bears upon said flange; the tension being regulated by means of a weight, which is made to slide forward or backward by means of a screw on said lever, which is graduated and numbered, so as to indicate the tension to be given to the different sizes or numbers of the thread used.



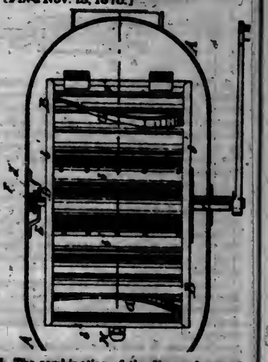
1. The combination of the friction wheel d, having the flange v, disk g, having double edges to receive the thread, by which it is turned, and which fits on the said flange, with the weighted lever h, substantially as shown.

2. The combination of the frame a, wheel d, disk g, weighted lever h i, and screw j, substantially as specified.

172,501. PROCESSES OF TREATING WOOD. Mathias Robling, Scranton, Pa., assignor of one-half his right to Peter Robling, same place. [Filed Oct. 20, 1875.]

The process herein described of treating wood by the combined agency of moisture and rolling, to increase its flexibility.

172,502. BOILER WASHING-MACHINES. W. B. Rodecker and F. G. Pifer, Bureau, Ill. [Filed Nov. 13, 1875.]



1. The combination of the diagonal curved bars G with the washing-cylinder B, substantially as herein shown and described.

2. The spring F, notched bracket or bearing E attached to the lower side of the boiler A, and the gudgeons or journal D of the cylinder, combined and arranged as shown and described, to operate as specified.

178,503. ELECTRO-MAGNETIC RAILROAD SIGNALS AND SWITCHES. David Rossman, New York, N. Y. (Filed Dec. 7, 1875.)

Brief.—Switch-lever locked by the armature-lever of an electro-magnet. Setting the distant signal to "danger" closes at that point a break in the circuit of this electro-magnet, thus withdrawing the locking-armature. Distant signal can only be reset to "safety" by relocking the switch-lever, which operation closes a break in the circuit controlling the resetting-magnet.



1. The switch-lever G, combined with the box F, and with the armature H therein, to be locked by said armature, substantially as specified.

2. The combination of the electro-magnet I within the switch-box F with the distant signal K, and the mating conductors, in such manner that the current through the magnet I is established when said signal is set to "danger," as specified.

3. The combination of the lever G, electro-magnet I, and the locking-armature H, with the box F, conductors *f f' e*, and signal K, substantially as herein shown and described.

4. The combination of the signal K with the relaying-conductor *e*, which has one or more breaks, *o p*, and with the switch-box F, within which said breaks are concealed, substantially as herein shown and described.

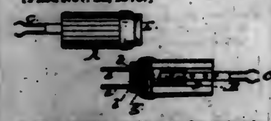
5. The combination of the armature H with the lever-arm *d*, and with the conductor *e* having the break O, said break to be closed when the armature locks the arm *d*, substantially as specified.

6. The combination of the lever-arm *d* with the relaying-box F, and with the conductor *e* having the break *p*, substantially as described, said break to be closed when the arm *d* is insured within the box, substantially as specified.

7. The combination of the balanced lever L with the armature H, and with the switch-lever, which is locked by said armature, substantially as specified.

8. The lever M, combined with the lever L, and with the arm *d* of the switch-lever, substantially as specified.

178,504. COUPLINGS FOR TRAIN-TELEGRAPHS. Andrew Ryder, Oakland, Cal. (Filed Nov. 22, 1875.)



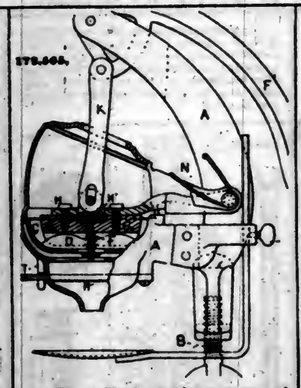
1. The electric coupling A, for train-telegraphs, with the fastenings C D arranged within the cylinder and connected at their inner ends with the wires *a a'* of the cable, in the manner described, as their, while they act to hold the parts of the coupling together, they also serve as conducting mediums for the currents of electricity.

2. In combination with the outer metallic cylinder A, the insulating plug or filling E, with the spring-arm C secured to it upon one side, and the sleeve D upon the opposite side, in the manner shown and described, by which the two parts of the fastenings are insulated from each other and from the outer metallic cylinder.

3. In combination with the spring-arms C and sleeve D, within the cylinders, the metallic tongues *c d* for insuring contact and connection of the electric wires with the metallic fastenings.

4. The cap E, with its divided button *g*, and pins *e e*, constructed as described, and combined with the cylinder, in the manner shown, for the purposes specified.

178,505. LIMING-SQUEEZERS. Edward M. Smith, New York, N. Y. (Filed June 10, 1876.)



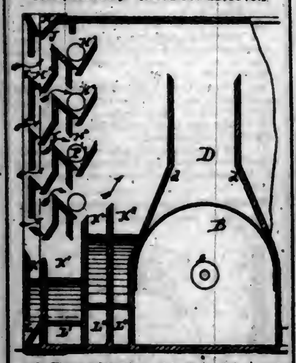
1. The combination, in a lemon-squeezer, of the frame A, having the cup C, the movable follower G, having the arm H pivoted at one end to the frame A, and the link K connected at one end to the follower and at the other end with the pivoted lever F, all substantially as and for the object specified.

2. The combination of the follower G, provided with the spring H' in its back, and the link K, pivoted to the follower at one end, resting on said spring, and connected at its other end with the lever F, substantially as shown and described.

3. The hood M, having an arm pivoted at its end to the frame A, and operated upon by a spring, N, for the purpose described, in combination with the cup C, follower G, link K, and operating lever F, substantially as described, the said hood being independent of the follower, as shown.

4. The combination, substantially as described, with a lemon-squeezer, of the shelf U, arranged beneath the cup of the squeezer and adjustably connected with the frame of the same, substantially as and for the object specified.

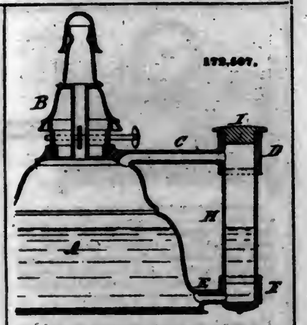
178,506. MACHINES FOR PUNCTURING SEMOLINO. Heinrich Seck, Frankfort-on-the-Main, Germany. (Filed Oct. 29, 1875.)



1. The combination, with the casing A and fan B, of the two series of troughs H' and H'', the air-induction apertures of the latter being located at a point above the air-induction apertures of the former, in such manner as to cause the air to take an upward course through the first series, substantially as described.

2. The combination, with the casing A, the B, and troughs H' H'', of the receptacles K, K', K'', and K''', for conveying the different grades of semolina, substantially as described.

178,507. DEVICES FOR FILLING AND DISCHARGING THE HEIGHT OF LIQUID IN LAMPS. William Sedgwick, Passchendaele, N. Y., assignor to John F. Collins, same place. (Filed Dec. 28, 1875.)



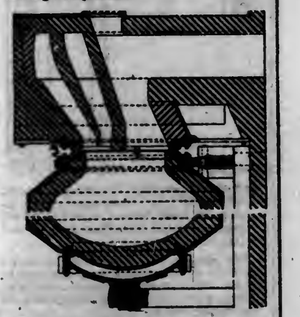
1. In combination with the well of a lamp, A, or other vessel for holding liquids, a transparent tube, E, for filling said lamp or vessel, and indicating the level of the liquid therein.

2. In combination with the well A, the tubes C, E, and H, for filling and indicating the height of the oil in said well, substantially as shown and described.

3. In combination with the tube C E H, the hollow open-ended cylinder D and thimble F, substantially as shown and described.

178,508. REVOLVING PUDDLERS. George H. Sellers, Wilmington, Del., assignee to W. Sellers and John Sellers, Jr., Philadelphia, Pa. (Filed Nov. 24, 1875.)

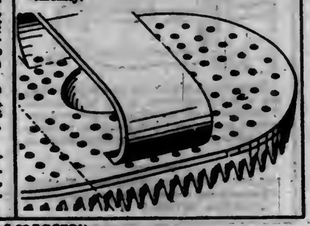
Brief.—The prevention of the accumulation of cinders in the joint between the puddler and the furnace by keeping the joint heated at a high temperature.



The method, substantially as described, of preventing the accumulation of cinder between the joint-surfaces of rotary puddling-vessels, which method consists in maintaining the joint-surfaces at so high a temperature as to keep the penetrating cinder in a friable condition during its passage between the said joint-surfaces, whereby this cinder is prevented from building up irregularly, and is ground between and discharged from the joint.

178,509. CURRY-COMBS. F. M. Shepard, New York, N. Y. (Filed Jan. 3, 1876.)

Brief.—An improvement in flexible-backed curry-combs and brushes, and consists in making the backs perforate, so as to more readily clean the implement, and also to increase its flexibility.



The implement, as specified, formed with a perforated flexible back, substantially as shown and set forth.

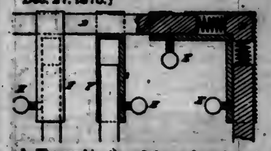
178,510. SPINDLE-SHEATHS AND COPTUBES. George H. Simpson, Bennington, Vt. (Filed Jan. 14, 1876.)

Brief.—The pressure of the yarn through the perforations of the cop-tube prevents the yarn from slipping off the tube, and binds both cop and tube firmly to the shower.



A cop-tube formed from metal or other suitable material, of a length equal to or greater than the cop, and provided with small or short apertures in its sides, whereby the cop is securely held to the spindle during the process of spinning, and to the shuttle-shower, and thereby prevented from sliding off from the tube during the process of weaving, as set forth.

178,511. EXTENSIBLE FRAMES FOR WINDOW-SCREENS, &c. John R. Simpson and Geo. W. Simpson, New York, N. Y. (Filed Dec. 27, 1875.)

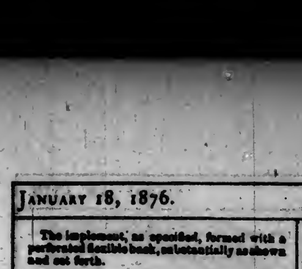


1. The combination of the angle-sockets A, the angle-blocks B, the spiral springs C, and the bars D, substantially as herein shown and described.

2. The combination of the set-screws E with the sockets A, the angle-blocks B, the spiral springs C, and the bars D, substantially as herein shown and described.

3. The combination of the sockets F, bars G, and set-screws H with the bars D of the extension-frame A B C D, substantially as herein shown and described.

178,512. WASHING-MACHINES. H. Skinner, Decatur, Mich. (Filed Dec. 10, 1875.)



1. The combination, in a washing-machine, of a lower series of yielding rollers, D, and an upper series of rollers, C, provided on opposite ends with alternate lever and fast pinions, and operated by the cog-wheels H I, on the roller G, substantially as and for the purposes herein set forth.

2. The combination of the box or frame A B, the two series of rollers C D, driving-roller G, and vertical side rollers I, all constructed substantially as and for the purposes herein set forth.

178,513. FOLDING WASHSTANDS. H. Smith, Jamestown, N. Y. (Filed May 14, 1875.)



The folding washstand consisting of the fastening *c*, standard *e*, and rim *h*, connected together by hinges *c*, all constructed substantially as and for the purposes set forth.

178,514. DRAFT-EQUALIZERS. S. Smith, Matoon, Ill. (Filed Nov. 8, 1875.)



1. The double-tree S, constructed of two pieces, connected together rigidly at their ends by open staples *b' b'*, substantially as and for the purposes set forth.

2. The combination of the divided double-tree S and the bent equalizing-beam A, substantially as and for the purposes set forth.

178,515. VEHICLE-AXLES. J. C. Spencer, Moulton, Mo. (Filed Dec. 3, 1875.)

Brief.—The inner end of the journal revolves on rollers within the box, which is snugly fitted within the end of the axle.



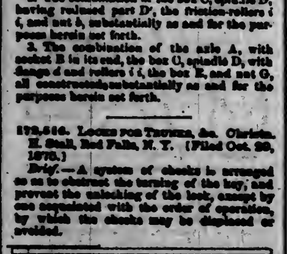
1. The combination of the axle A, formed with a screw-socket, B, at its end, and the box C, screwed into said socket, and forming a tight joint, *a*, therewith, substantially as herein set forth.

2. The combination of the box C, spindle D, having reduced part *D'*, the friction-rollers *i i*, and nut *b*, substantially as and for the purposes herein set forth.

3. The combination of the axle A, with socket B in its end, the box C, spindle D, with flanges *d* and rollers *i i*, the box E, and nut G, all constructed substantially as and for the purposes herein set forth.

178,516. LOCKS FOR TRUNKS, &c. Clarkin H. Stull, Red Falls, N. Y. (Filed Oct. 20, 1875.)

Brief.—A system of checks is arranged so as to obstruct the turning of the key, and prevent the unlocking of the lock, except by one acquainted with the order of operation, by which the checks may be displaced or avoided.



1. The combination of tumbler F, bar D, check-spring E, and check-nut B with the bolt A of a lock, substantially as specified.

2. The stud G, combined with the lock-bolt A, having the tumbler F, bar D, stud E, and check-spring B, substantially as specified.

178,517. STONE DRESSING AND SAWING MACHINES. Silas Stainbrook, Chicago, Ill. (Filed Dec. 27, 1875.)



1. Stone sawing and dressing mechanism having recesses G, for admitting the sand to the cutting surfaces, constructed and arranged on bars B I N, and either parallel or oblique to the axis of the drum or shaft, substantially as specified.

2. The combination of the screw-shaft K and V-sand-trough L, with the stone-cutters, substantially as specified.

3. The combination of conductors I, with the stone-cutters, and the sand-trough, and feed-screw, substantially as specified.

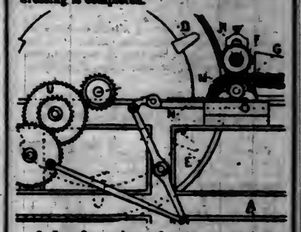
178,518. SHADE-SUPPORTERS FOR LAMPS AND GAS-FIXTURES. H. Stevens, Cromwell, Conn. (Filed Dec. 18, 1875.)



In combination with the support or post B, carrying the lamp or burner bracket C, and provided with the lugs *f f*, and stem D on top, the arm G, provided with an eye at its rear end, resting over the stem D and into the recess *a*, formed by the lugs *f f*, substantially as described.

178,519. FLAX AND HEMP MACHINES. John Stewart, Brooklyn, N. Y. (Filed June 18, 1875.)

Brief.—A reciprocating rack moving in a guide on the side of the frame is operated by the shaft of the beater-drums, and imparts an alternating rotary motion to the feed-rolls, these first carrying the material forward, and then withdrawing it, until the operation of dressing is completed.

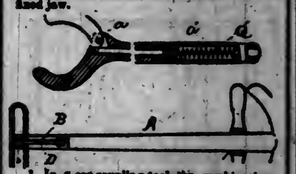


1. In a flax or hemp dressing machine, the combination of a pair of reciprocating feed-rolls with a continuously-revolving beating-cylinder, substantially as described, and for the purposes set forth.

2. The combination, with the upper feed-roll F and the lower feed-roll G, having the pinion M, of a rack and its lever, the beating-cylinder, and suitable intermediate gearing, substantially as described.

178,520. CAR-COUPLING TOOLS. Harvey Sullings, Kalamazoo, Mich. (Filed Dec. 10, 1875.)

Brief.—The spring-rod, which works the loose jaw, runs in the hollow handle of the fixed jaw.



1. In a car-coupling tool, the combination, with a metallic tube, A, having fixed finger B, pivoted finger D, and cross-handle *d*, of the operating-shaft, having handle F arranged within the said tube, substantially as specified.

2. In combination with the pivoted and fixed fingers B D, the operating-handle F and spring E, substantially as specified.

178,521. PENCIL-HOLDER. Archibald Taylor, Keezletown, Va. (Filed Sept. 20, 1875.)

Brief.—Two pointed sticks are driven into the ground. A tube near the top holds them in proper upright position. Cross-ties, horizontal and inclined, strengthen them, and support the ends of rails. The double post-like has its broad sides at right angles to the fence.

179,581.



The two pointed stakes A A', adapted to be driven into the ground and held at top by a yoke, B, horizontal and inclined cross-bar C-D, for strengthening and supporting the ends of the rails, and the duplex seat A A' thus formed having its head-rails at right angles to the line of the fence, substantially as described, and for the purpose set forth.

179,582. HORSE-RAKE. Edwin L. Terry, Philadelphia, Pa. (Filed Jan. 7, 1876.)



A horse-rake, A, having a colt or calks attached by means of spreading slots cut in the tenon of the colt or the face of the shoe, and a staple fastening or fastenings, F, substantially as described.

179,583. HORSE-RAKE. Edwin L. Terry, Philadelphia, Pa. (Filed Dec. 20, 1875.)



A horse-rake provided with suitable head-rails and a tee-mortise or opening, D, and a tee-colt, E, formed with a tenon, F, and projecting clasp-plate F', the tenon and plate being relatively so arranged as to provide a seat or bearing, F', for the outer wall D' of the mortise, and the screw S passing through an opening in the tenon and face-plate of the colt and an opening in the outer wall of the mortise, and entering and having its bearing in the inner wall of the same, substantially as described.

179,584. MAGIC-LANTERN SLIDES. A. H. Tift, Brooklyn, N. Y. (Filed Jan. 11, 1876.)



1. The wooden magic-lantern slide provided with a central or axial display-opening, and a jacket to receive and hold a rectangular picture or glass, substantially as set forth.

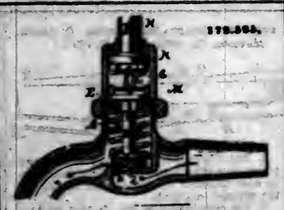
2. The combination, with the main frame of the slide formed with a display-opening and recess, of the auxiliary picture-holding jacket, substantially as herein described, and illustrated in Figs. 1 to 3, inclusive.

179,585. FASTENER. Edwin K. Tomlinson, Bridgeport, Conn., assignor to himself and the Union, Cole & Burnham Company, same place. (Filed Aug. 20, 1875.)

Brief.—Turning the spindle twists the bolt, and causes it to draw the valve from its seat.

In a self-closing faucet, the combination of a yoke, E, on the lower end of the spindle, J, a shorter yoke, M, on the upper end of the valve-stem D, and a ring or bolt, I, connecting said yokes, substantially as herein described.

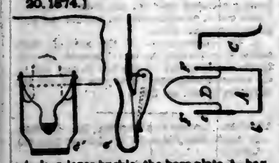
179,586.



1. In combination with the straps H H, the handle A, terminating at each end in a spring hook or loop, as and for the purposes specified.

2. The cross-bar C, provided with a spring hook or loop, in combination with handle A and straps H H, as and for the purpose specified.

179,587. LEVER-BUCKLES. S. Wales, New York, assignor of one-half his right to N. H. Pierson, Tarrytown, N. Y. (Filed Jan. 20, 1874.)



1. In a lever-buckle, the base-plate A, having slots or openings F F, substantially as and for the purpose herein set forth.

2. The combination of the lever C, with the base-plate of lever-buckles, having the ends or openings F F therein, substantially as and for the purpose herein set forth.

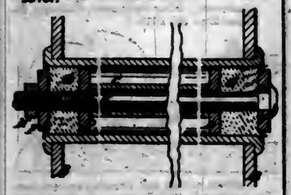
3. The combination of the lever C, with the base-plate of lever-buckles, having slots or openings F F therein, and the spring-tongue D, substantially as described.

4. The combination of the lever B, with the body-plate of lever-buckles, having the ends or openings F F therein, substantially as and for the purpose herein set forth.

5. The combination of the two levers B and C, with the body-plate of lever-buckles, having the ends or openings F F, therein, substantially as and for the purpose herein before set forth.

6. A lever-buckle, having at one end the lever C, slots F F, and spring-tongue D, and at the other a suitable fastening device, substantially as described.

179,588. BOBBIN-TUBE STOPPER. Peter Walker, Jersey City, N. J. (Filed Dec. 16, 1875.)



The combination, with bobbin-tube A, of the tube C, having collar D at each end, and the screw-bolt E, having collar F at each end, one of the latter being movable in front of a clamping-nut, the whole to act upon the springs G G, in the manner set forth.

179,589. STOP FOR HOOP-DRIVERS. John B. Waring, New York, N. Y. (Filed Jan. 20, 1876.)

179,590.



A rock-drilling bit, having on its inclined base a number of cutting-ribs terminating in corresponding ribs on the cutting-edge *b*, as set forth.

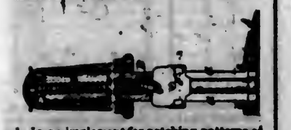
179,591. DUST-BRUSHES. Robt. H. Warren, Newark, N. J. (Filed Aug. 7, 1875.)

Brief.—The tip of the brush is of rubber, and is made tapering, and fitted to a handle by a tenon and mortise. The brush material is sheep-skin with wool on, and is wound upon the tip spirally, with the edges lapping.



The wool dust-brush, composed with the shank parts B and D, in combination with sheep-skin with the wool on, cut in strips, and wound, lapping, in a spiral form, from the tip to the handle, substantially as and for the purposes specified.

179,592. INSTRUMENTS FOR NOTCHING PATTERNS. Abbie Worth, Stapleton, N. Y. (Filed Dec. 28, 1875.)



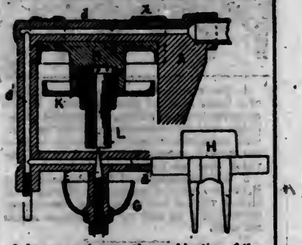
1. In an implement for notching patterns of garments, a knife with a V-shaped or a U-shaped cutting-edge, in combination with a foot-plate, a hollow slotted standard, and a reciprocating plunger, the standard being provided with a groove-guide for the free end of the knife, substantially as shown and described.

2. The combination, with a knife having a V-shaped or U-shaped cutting-edge, with the hollow slotted standard and with the foot-plate, of a receiver, *c*, corresponding in shape to the cutting edge of the knife, substantially as set forth.

179,593. PROCESSES FOR EXTRACTING MALT. Edward U. Weiss, New York, N. Y. (Filed Dec. 13, 1875.)

The within-described process for extracting malt by separating the bran from the malt, and mixing the latter with straw or its equivalent, and then making and filtering the same, substantially as herein set forth.

179,594. VAPOR-BURNERS. H. Wellington, New York, N. Y. (Filed Oct. 20, 1875.)



1. In a vapor-burner, the combination of the dish H with the frame A, by means of the legs *h h*, substantially as described.

2. The combination of the dish H, secured to the frame A by legs *h h*, with the plate *k*, and adjustable open tube I, leading from the vapor-exit to the burner, substantially as described.

179,595. PULLEY WOOD. N. Wheeler, Bridgeport, Conn. (Filed Dec. 24, 1875.)

In the art of filling wood the employment of finely-powdered dirt, quartz, or feldspar, mixed with oil or other fluent substance, substantially as described.

179,596. ANVILS. Thomas J. Whitney, Philadelphia, Pa. (Filed Nov. 27, 1875.)



1. The double-ended tripper E, engaging with the arm F and limiting the movement of the arms B D by impinging against the block F or head G, as shown.

2. The combination of the wedge-block F with the bifurcated shank A and tripper E, as shown.

3. The combination, with the notched fulcrum E, of the separately-formed notched plate D, inserted in the notches *b* and receiving the arms B in the notches *b'*, substantially as shown and described.

4. The combination of the bifurcated shank A, the inserted tripper E, and the controlling fulcrum, and arch, substantially as shown and described.

5. In combination with the shank A, fulcrum E B, arch D', and double-ended tripper E, the wedge-block or hand, substantially as shown and described.

179,597. MUCILAGE-BOTTLES. G. B. Wight, New York, N. Y. (Filed Dec. 27, 1875.)

Brief.—Combines reservoir and brush in such manner as to prevent too rapid flow of fluid, and its spilling out in case of overturning.

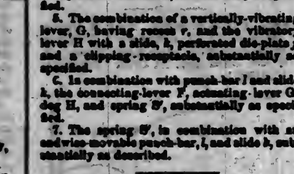
1. The combination of the metallic cap B, provided with the S-tube C and the sponge D, with the neck of a mucilage-bottle, A, substantially as herein shown and described.

2. The combination of the metallic cap B, provided with the S-tube C and the sponge D, and the cap E, with the neck of a mucilage-bottle, A, substantially as herein shown and described.

179,598.



179,597.



179,597. WRIST-STRAPS. Darius Wilcox, Birmingham, Conn., assignor of one-half his right to I. P. Howe, same place. (Filed Dec. 9, 1875.)

The top plate A and bolt B, made in one piece, and attached to the wristbrace by means of a clip, substantially as and for the purpose set forth.

179,598. KNIVES. Jos. Wiley, Allegheny, Pa. (Filed Nov. 22, 1875.)



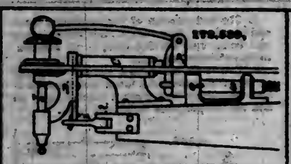
1. A bottle having a rim, *c*, projecting outwardly, and in or below a horizontal plane, and also extending around the mouth of the bottle, substantially as and for the uses set forth.

2. In a porcelain-lined or enameled metallic bottle a shoulder, *c*, overlapping the enamel or lining at its upper edge, substantially as set forth.

3. The bolster *c*, or equivalent recesses, forming an interposable lug, *d*, and a bank-rest for the bail, substantially as set forth.

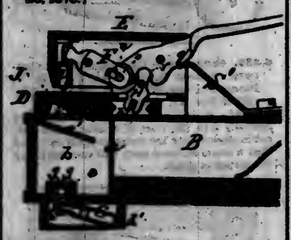
4. The elbow-curve or deflection *e* in the bail, for the purposes set forth.

179,599. SUBSOILING-MACHINES FOR BOOTS AND SHOES. Andw. J. Wilbur, Bayaham, Mass. (Filed Dec. 6, 1875.)



In a machine for burnishing the edges of boots and shoes, the combination, with a last or means of holding the boot or shoe, of an automatically rotary reciprocating vibratory burnishing-wheel, substantially as shown and described.

179,600. CORDUROYS' FORCEPS. Francis B. Woodruff, Sidora, Iowa. (Filed Nov. 30, 1875.)



1. In combination with a receptacle, *b*, having aperture *c*, the slide *b* and shaft *c'*, substantially as specified.

2. In combination with the case A and drawer B of the raised bridge-plate *e*, an end-wise-movable staple, *f*, substantially as specified.

3. In a conductor's punch, the combination, with a punch-case, A, of the detachable drawer B, having partition *c*, substantially as specified.

4. In combination with a punch-case A and drawer B, having box *b*, the slide *b*, adapted to open the aperture in the die-bed when the punch-bar descends, and to close it when the said punch-bar ascends, substantially as specified.

5. The combination of a vertically-vibrating lever, G, having recess *r*, and the vibratory lever H with a slide, *k*, perforated die-plate *j*, and a slipping-receptacle, substantially as specified.

6. In combination with punch-bar I and slide *k*, the connecting-lever F, actuating-lever G, dog H, and spring S', substantially as specified.

7. The spring S', in combination with an end-wise-movable punch-bar, I, and slide *k*, substantially as described.

179,601. MECHANISMS FOR OPERATING DOUBLE-CORDS. Edward Wright, Worcester, Mass. (Filed July 20, 1875.)

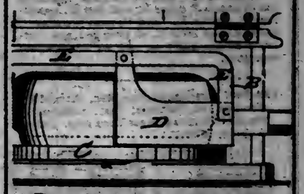
Brief.—The spring at the upper end of the crank-lever forces the lower end of the latter inward toward the frame, and keeps the central bearing parts in contact, so that wear is compensated for. Oil poured into a channel near the inner end of the stud-bearing keeps it and the loose pulley and crank lubricated.



1. The loose pulley B and crank-pin *a*, having conical or tapering bearings, in combination with the comb rock-shaft B' of a carding-machine, its crank lever or arm D, and spring *b*, the whole adapted to operate in the manner substantially as set forth.

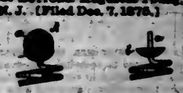
2. The stud-bearing C, provided with the oil channels *a*, *a'*, *a''*, and *a*, in combination with the pulley B, provided with the channel *c*, and the crank-pin *a*, having the channel *a*, all substantially as and for the purposes set forth.

179,602. GUMMED-COTTONS. B. G. Yates, Medelia, Minn. (Filed May 1, 1874.)



The combination, with rotary table C, of the knife D and frame B, the knife made fast to the frame, and the latter pivoted to a frame, A, as and for the purpose specified.

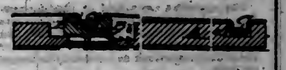
179,603. BUTTONS. Augustus Young, Newark, N. J. (Filed Dec. 7, 1875.)



1. The combination of the wire forming the stud-fastening *a*, dimetial base *b*, and a pin projecting above the base into the crown, as set forth.

2. The mode described of securing the crown to the manufacture of shirt-studs by applying the material forming the crown while plastic to a pin projecting above the base *b* into the crown, and then hardening the said material, as set forth.

179,604. IRONING-TABLES. J. L. Young, Fostburg, Pa. (Filed Nov. 6, 1875.)



An ironing-board provided with lateral collar-grooves and fastening-key at one end, and a larger recess with guide-slot and notch-or-teeth at the opposite end, in combination with a sliding bracket-block, having top groove and fastening-key, and projecting bottom edge or teeth for readily locking the shirt in a stretched position, substantially as specified.

179,605. SEWING-MACHINES. Barber G. Young and Lyman L. Barber, Boston, Mass. (Filed June 10, 1874.)

Brief.—In the head of the machine is arranged a rod having a projecting lug on its upper end and a hammer on its lower end, and operated by means of a collar on the needle-bar and a spring. A vibrating pawl or latch pivoted to the side of the head holds the said hammer in an elevated position, after having been raised by the needle-bar, until a lug on the vibrating needle-arm, on its downward stroke, strikes the lower end of such pawl or latch and releases the hammer, allowing it, by the action of a spring, to drop and strike a percussion blow upon the seam immediately behind the needle.



1. In a sewing-machine having a presser-foot or work-holding device, a seam-smoothing hammer, forced downward by a spring and raised by the motion of the sewing-machine in combination with a latch which holds said hammer until after the descent of the needle, and is then automatically tripped to allow the hammer to deliver a blow upon the seam immediately behind the needle.

2. In a sewing-machine, the pivoted pawl I having a hook, *c*, and spring *f*, in combination with the hammer *d*, having the rod or shank J, collar H, and dog H', all arranged and operating substantially as and for the purpose described.

3. In a sewing-machine an adjustable shank, L, having a dog, *f*, and thumb-screw *h*, in combination with lever K, pawl I, and ham-

ner d, substantially as and for the purpose specified.

4. The combination of hammer d, having rod or shank J, collar H, and dog H', needle-bar D, spring K, head G, pawl I, spring f, shank L, and lever B, all arranged and operating substantially as and for the purpose described.

179,649. REFRIGERATOR-CARS. Arnold W. Shoemaker, Denison, Tex., assignor to Samuel Pillsbury, New York city. [Filed Aug. 14, 1876.]



1. In refrigerator-cars, the ice-chamber C, having a curved or rounded bottom and a flat top, and the medium or central drip-trough G arranged thereunder, combined with the roof and body of the car, as set forth, forming an air-chamber, D, at the top and air-channels at the sides of the car, as and for the purpose described.

2. The ice-chamber C, having a flat top, perforated edge, flange e f, and curved bottom, in combination with the car-body and drip-trough G, as and for the purpose set forth.

179,647. EXPLOSIVE COMPOUNDS. Charles Pelham, New York, N. Y., assignor to himself and Alfred T. Lovard, same place. [Filed Oct. 17, 1874.]

The explosive compound or blasting-powder, consisting of nitrate of soda, carbonate of potash, nitrate of potash, sulphur, and charcoal, combined in a dry powder, in or about the proportions substantially as herein set forth.

REISSUES.

6,897. HOLLOW HAND-CUTTERS FOR LEATHER. Abednego Dewar, Hudson City, N. J., assignor to Blodgett and Mercur Hazard. Patent No. 147,047, dated Feb. 3, 1874. [Filed Oct. 28, 1875.]

Brief.—The handle is provided with removable adjustable holding devices, adapted to receive and hold cutters of varying sizes.



1. In combination, the cutter A, the detachable or removable handle B, provided with bearing-arms C C, and detachable or adjustable cutters D E, for securing the cutter to the handle, substantially in the manner described and specified.

2. The handle B, provided with the adjustable or removable devices, whereby it can be attached to cutters of various sizes, substantially as described and specified.

3. In combination with the cutter A, the detachable handle B, provided with arms C, secured by means of a screw-bolt, E, to the movable slotted springs D D, constructed and operating substantially in the manner described and specified.

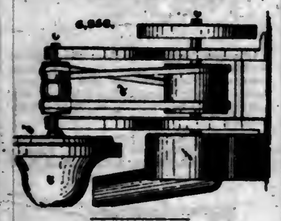
6,898. MACHINES FOR POINTING HATS. Mahlon S. Dickie, Newark, N. J., assignor, by mesne assignments, to Henry M. Yates and Yates, Wheaton & Co. Patent No. 6,856, dated Feb. 6, 1877. [Filed Dec. 24, 1875.]

Brief.—The fur and dust removed from the "body" in the act of pointing are carried off through the fan-tunnel. By the arrangement of the belts and pulleys, the blast may be retained to the right or left.

1. The hat-blast a, made to open form, and provided at its base with a circumferential projecting flange, c', forming the brim-board, substantially as herein set forth.

2. The combination of the contained blast and board a c', face-plate b, mandrel e, pulleys and belts, and driving-shaft e, all substantially as herein set forth.

3. The combination, in a hat-pointing machine, of the revolving block and board a c' and the rotary fan-blower f, substantially as and for the purposes herein set forth.



6,899. SCREWS FOR FASTENING STAIR-CARPETS. Moritz Erickl, New York, N. Y. Patent No. 152,277, dated June 23, 1874. [Filed Nov. 22, 1875.]

Brief.—A double-pointed screw is driven partially into the riser of a stair. The carpet is passed over the outer pointed end, and then a cap is screwed upon said end, confining the carpet in place.



1. A sectional stair-carpet fastener, composed of the threaded pin a and of the threaded head b, the head being made of metal, to remain on the pin when the fastener is driven into the stair-case, substantially as specified.

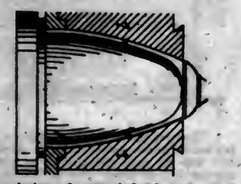
2. The combination of the screw-head b, which has the wrench-gripes on the outer face, and the threaded cavity on the inner side, with the threaded pin a of a carpet-fastener, substantially as specified.

6,900. GLASS GOBLETS. John H. Hobbs, Wheeling, W. Va., assignor to J. H. Hobbs, Brockunier & Co., same place. Design No. 6,804, dated Aug. 10, 1875. [Filed Jan. 10, 1876.]



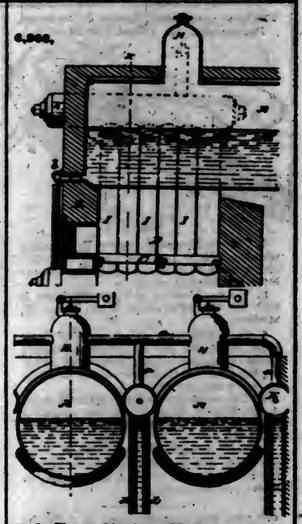
The design for pressed goblet-bowls of a super form through nearly the entire length of the bowl, substantially as described and shown.

6,901. GLASS-GOBLET MOLDS. John H. Hobbs, Wheeling, W. Va., assignor to J. H. Hobbs, Brockunier & Co., same place. Design No. 6,804, dated Aug. 10, 1875. [Filed Jan. 10, 1876.]



The design of tapered bowl-cavity and plunger in a glass-mold, substantially as shown and described.

6,902. STEAM-GENERATORS. Jos. A. Miller, Providence, R. I. Patent No. 92,404, dated Feb. 26, 1867. [Filed Nov. 19, 1875.]



1. The combination, with the cylindrical-shell boiler or boilers A A, arranged to extend over the fire, of the auxiliary pipes, tubes, or boxes, placed so as to intercept the radiated heat, and connected with the steam and water spaces of the boiler or boilers, substantially as and for the purpose specified.

2. The combination, with the boilers A A—one or more of them—of the tubes, pipes, or boxes I, with their diaphragms K, forming steam-generating spaces d and return water-passages e, arranged in relation to the fire-grate and the steam and water spaces of the boiler, substantially as and for the purpose described.

3. In combination with one or more boilers arranged to extend over the fire, the auxiliary steam-generators, arranged to form the sides of the fire-box or the partition between two furnaces, extending below the grate-line and above the water-line in the boiler, or thereabout, and connected with the steam and water space of the boiler or boilers, substantially as and for the purpose set forth.

4. The combination, with one or more cylindrical-shell boilers, of auxiliary steam-generating pipes, tubes, or boxes, surrounding the fire, and connected, with suitable pipes, with the steam and water spaces of the boiler, and provided with the blow-off pipe g, connected with the lower part of the same, substantially as and for the purpose specified.

5. The combination of the mud-drums placed below the grate and the steam-drum K placed above the water-line, with the tubes or pipes connecting the same when placed on the sides of a fire-grate, or between two grates, as described.

6,903. TELEGRAPHIC MACHINES. George M. Phelps, Brooklyn, N. Y., assignor, by mesne assignments, to the Western Union Telegraph Company. Patent No. 20,006, dated Nov. 1, 1859; extended seven years. [Filed Dec. 10, 1875.]

1. A movable magneto-inductor or armature, which is capable of being brought into momentary action through the depression of any one of a series of finger-keys, in combination with a mechanical device which moves in unison, or nearly so, with a continuously-revolving type-wheel or type-wheel shaft, and which device controls the action of the finger-keys upon the magneto-inductor.

2. The type-wheel of a printing-telegraph, operated or controlled by currents from a magneto-generator.

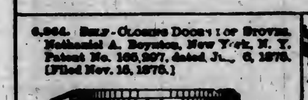
3. The combination of a type-wheel and printing mechanism, both operated or controlled by currents from a magneto-generator.

4. The rings of teeth R and T, or arranged upon the type-wheel and pinion, respectively, so as to cause the pinion to be moved with the type-wheel, and at the same surface speed, while the impression is being given.

5. An impression device having its speed of movement so arranged with reference to the transmitting mechanism, and of the continuously-revolving type-wheel upon which it acts, that two or more characters or divisions of the type-wheel shall pass the pinion each time that the printing mechanism acts.

6. The revolving wheel or shaft U or i, in combination with the notched-wheel V or h, catch W or f, guide X or k, and detent K or c, whereby the said wheel or shaft may be made to turn the corrector-H, armature C, or another wheel or shaft, a certain fixed distance, with the same speed as itself, at any time, and any required number of times, substantially as herein specified.

6,904. SELF-CLOSING DOORS FOR STOVES. Nathaniel A. Boynton, New York, N. Y. Patent No. 168,207, dated Jan. 6, 1876. [Filed Nov. 16, 1875.]



In combination with a stove or heater, having an aperture opposite or contiguous to the grate-surface, a self-closing door applied to said aperture in the manner described, so as to be opened by inserting a poker, and closed on withdrawal of same, substantially as and for the purposes set forth.

6,905. AIR AND GAS CARBURETORS. Alonzo W. Porter and Francis M. Grimes, New York, N. Y. Patent No. 168,048, dated Sept. 21, 1875. [Filed Dec. 14, 1875.]

Brief.—The inflow of oil is automatically by a valve and float. The carburetor is set in a water-tank, which is provided with an annular water-heater and connecting-pipes. A mercury-valve, actuated by the heat of the water, automatically shuts off the supply of gas to the burner under the water-heater, and regulates it at a temperature below the boiling-point of gasoline. A taper-burner, however, remains constant, and relights the main burner when the temperature falls, and permits a renewed flow of gas. The gasoline descends from the supply-chamber through brass' horizontal corrugated folds, while the gas or air flows in the opposite direction.

1. A vaporizing-conduit, G, formed of hollow corrugated folds, substantially as described.

2. A carbureting-chamber, having the passages J and partitions e, combined with the conduit G and the chamber B, containing a float, D', substantially as described.

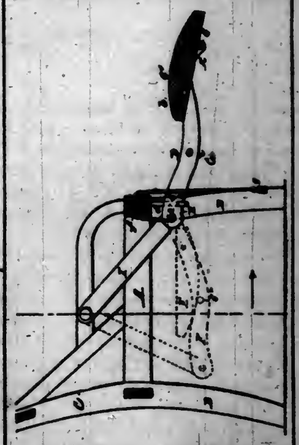
3. In a carbureting apparatus, the tank I, shaft f g, pipes f' f', heater F, burner S, and its tapper, in combination with the mercury-vessel M and pipes P P' K K', substantially as described.

6,906. MEDICATED PLASTERS. Albert D. Richards, Somerville, Mass., assignor, by mesne assignments, to Grosvenor & Richards. Patent No. 111,692, dated Feb. 7, 1871. [Filed Dec. 14, 1875.]

1. A medicated plaster, composed of bolidenes, pitch, and rubber, substantially as set forth.

2. A bolidenes plaster in which rubber is used as an ingredient in the base or vehicle, to give elasticity and pliability, substantially as set forth.

6,907. EXTENSION FOOT-RESTS FOR CHAIRS. Joseph H. Travis, Boston, Mass. Patent No. 122,503, dated Oct. 22, 1872; reissue No. 5,600, dated Dec. 16, 1873. [Filed Jan. 14, 1876.]



1. The combination, with a chair-seat, of the frame D, which is supported and arranged to slide under the seat, and to which is pivoted directly the leg-rest B, in the manner set forth, whereby said leg-rest is adapted, by an independent movement, to be folded in and out of said carrying-frame, and when opened or folded out to be rigidly and firmly supported and at rest, for the purpose specified.

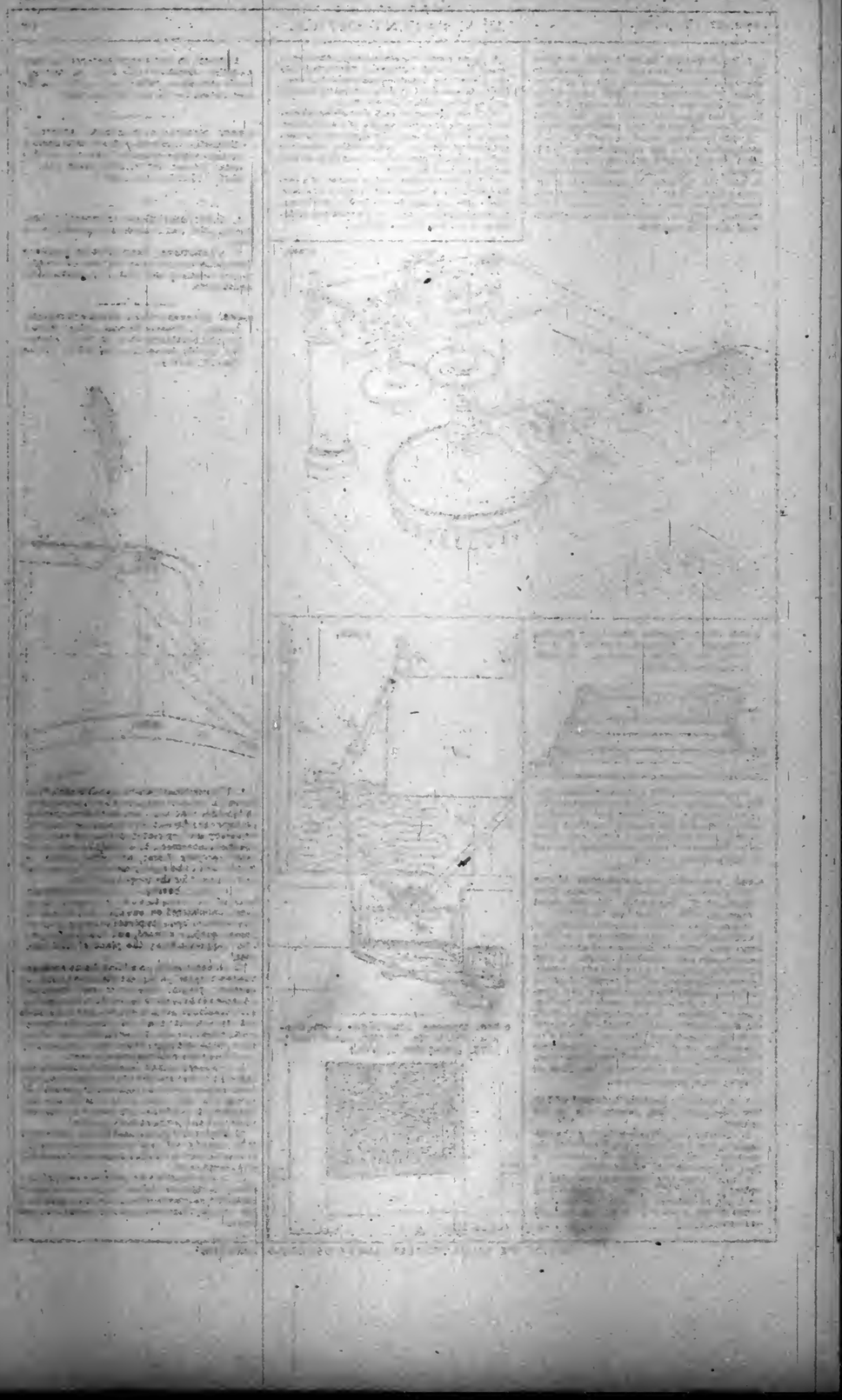
2. A chair having a sliding frame arranged beneath its seat, to which is pivoted a leg-rest, upholstered on one side, and adapted to be reversed upon its pivots to bring the said upholstered surface upward, and into a rigid position approximating the plane of the chair-seat.

3. A chair having a sliding frame arranged beneath its seat, leg-rest fastened upon one surface, pivoted directly to said frame, and adapted to be reversed upon its pivots to bring the cushioned surface upward, and to advance the said leg-rest upon its frame, or to retract it to about the central part thereof, and bring the upholstered face underneath, preparatory to sliding the whole beneath the seat.

4. The rest-frame D, suspended beneath the chair, by links attached to the chair-frame, in combination with the foot-rest B, pivoted between the side rails of the rest-frame, and adapted to be folded and unfolded between them, as and for the object specified.

5. The frame D, composed of the side rails F F, rounds G G', and reversible foot-rest B, in combination with the suspended levers I I, and cross-rod c.

6. In combination with the front rail of the chair, the staples d, depending therefrom, substantially as described, whereby a support for the sliding foot-rest frame is formed, as set forth.



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NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT, SOUTHERN DISTRICT OF NEW YORK.

HUGO CARSTAEDT *vs.* THE UNITED STATES CORSET COMPANY.

The defendant's mechanism does not infringe the first or third claims of the patent. The defendant's take-up is materially unlike the corresponding parts of the plaintiff's machine, and their needle-bar is not in combination with the sectional rollers, or wheels, which are described in the plaintiff's patent.

The take-up, which is mentioned in plaintiff's second claim, does not mean every kind of take-up, or the take-up in every kind of loom, but refers only to take-ups which are designed for or adapted to the weaving of irregular fabrics.

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The plaintiff's needle-bar is placed in such relation to the cloth and to the take-up, and by means of such position it is enabled to accomplish a result which had previously been unattained in corset-weaving.

[*J. Van Santvoord*, for complainant.
Geo. Gifford, for defendants.]

SHIPMAN, *J.*:

The patent which is alleged to have been infringed by the defendant was granted to the complainant on March 30, 1869, for an improvement in take-up mechanism for looms for weaving irregular fabrics, and was reissued on November 19, 1872. The patented machine was designed expressly for the weaving of corsets. In weaving articles of irregular size it is necessary to give greater fullness to one side or portion of the woven articles than is given to another portion. The cloth, notwithstanding this irregularity, is woven in one piece, so that sometimes the weaving proceeds regularly across the whole width of the fabric, and sometimes irregularly across an increasing part of the width. The mechanism which takes up or carries along the woven cloth must be so constructed that the irregularly-woven cloth shall be kept stationary, and the edge of the entire width be kept in a straight line. One practical difficulty in accomplishing this result by the mechanism, which was in use prior to the complainant's invention, arose from the fact that the cloth having been beaten up by the reed and taken up by the rollers, slipped out of them again when the lay was receding, because, in consequence of the fullness of one part of the cloth, the tension of the take-up upon the fabric was irregular, and the take-up mechanism "drew" unevenly. The complainant's improvement consisted, in the language of his specification, of a "sectional take-up, composed of two rolls continuously rotating at a suitable distance apart, and a series of sectional rollers mounted and operated so as to be pressed wedgewise between the two first-named rolls when the take-up is to act; also, in a series of needles or points arranged upon a stationary bar in such a relation to the take-up rollers that the fabric is continually carried across said needles to be received by their points, and to be arrested when a reverse motion of any part of the fabric is commenced; further, in the combination of a series of needles with a take-up composed of rollers or wheels D, arranged to take up at intervals on parts of the work, and to liberate other parts, so that as the fabric or any part thereof is carried in by the take-up it is withdrawn from the needles; but the needles prevent the fabric or any part thereof from moving back." The mechanism is clearly described in the specification as follows:

B and C are rollers, continuously but slowly rotated by gearing, as indicated. The woven fabric represented by *m* is led under each of these, and between them and short rollers or wheels which are peculiarly mounted below. The cloth is taken up or drawn forward by being pinched between the wheels D and the rollers B C, and the former are pressed up so as to take hold of the cloth firmly, or let down so as to liberate it, according as the work requires. When all the wheels D are pressed up, the woven fabric is taken up uniformly over its whole breadth. When the rollers D on one side of the cloth are pressed up and the rollers D on the other side are allowed to remain depressed, the cloth will be taken up only on the side where the cloth is pinched. * * * * K is a cross-bar, immediately behind the roller C, and provided with a series of needles, K, in its lower edge, which catch in the goods and prevent it being drawn back under any circumstances, when the take-up mechanism releases it.

The claims of the patent are as follows:

1. The two rollers B and C, continuously rotating at a suitable distance apart, and the series of sectional rollers or wheels D mounted and operated so as to be pressed wedgewise between them when the take-up is to act, all substantially as and for the purpose herein set forth.
2. The needles or points *k k*, fixed on a stationary bar, K, and arranged as specified, so that the fabric being drawn by the take-up proper is continuously carried across the needles to be received by their points and to be arrested when a reverse movement of any part of said fabric is commenced, substantially as herein set forth.
3. A series of needles, *k k*, in combination with a take-up, composed of rollers or wheels D, arranged to take up at intervals on parts of the work and to liberate other parts, substantially as and for the purpose herein specified.

The fourth claim has no relation to the present suit.

The defendant's mechanism is also a take-up mechanism, which is adapted to irregular fabrics, but is not "sectional" in its character. A sectional take up is one which takes up the cloth only on some parts of the fabric, while the rest remains unmoved—that is, the rolls which are used to take up the cloth are divided in sections, and can be used independently of each other. The defendant's take-up consists of an endless sheet or sheets of rubber, pressing the fabric against a roller.

The pressure is regulated by set-screws. All parts of the rollers at all times bear with equal pressure against the whole width of the fabric.

The effect of the take-up is sectional; but that effect is due not to the sectional action of the take-up, but to the action of the lay. The needle-bar of the defendant, in its construction, mode of operation, and in the effect which it produces, is substantially like the complainant's needle-bar. It has the same position in the loom with relation to the take-up, and is designed to accomplish and does accomplish the same result.

From this description of the two machines it is obvious that the defendant's mechanism does not infringe the first or third claims of the patent. The defendant's take-up is materially unlike the corresponding part of the plaintiff's machine, and their needle-bar is not in combination with the sectional rollers or wheels which are described in the plaintiff's patent.

The material question in the case is whether the defendant's needle-bar is an infringement of the second claim, and the answer to this question depends upon the construction which shall be given to that claim. If "the take-up proper" is the patented take-up, then the second claim is not infringed. On the other hand, if the claim is to be construed as a claim for a combination of the needle-bar with any mechanism for taking up woven fabric, whether regular or irregular, then, if the claim is not void for uncertainty and vagueness, it is void for want of novelty, for, as will be remarked more particularly hereafter, needle-bars in combination with take ups upon looms for weaving regular fabrics have long been known.

It will be observed that while the patentee describes his take-up as sectional in its character, and claims that the particular device which he has invented is a patentable improvement, yet it is manifest that he did not intend to limit his second claim to a combination of his needle-bar with his improved take-up, or with a sectional take-up. After describing the needle-bar he states "that the working-parts of the loom as well as the take-up may be of any improved character," and, also, "for the purpose of operating the take up, if a sectional take-up is used, I prefer the mechanism represented."

These portions of the specification forbid a construction which should confine the patentee to a combination of the needle-bar with his own take-up. Such a construction would make the second and third claims identical, and would prevent the patentee from reaping the benefit of a part of the invention which he actually made, for his invention originally consisted of a needle-bar in combination with the take-up which was in use at the time of his experiments.

The claim should also be considered in connection with the subject-matter of the invention. The improvement did not consist in a take-up upon every kind of looms, but in mechanism which was especially adapted to the weaving of irregular fabrics. To that kind of weaving, and to such improvements therein that irregular fabrics might be woven mechanically, it is evident that the attention of the inventor was exclusively directed. I am, therefore, of the opinion that the take-up which is mentioned in the second claim does not mean every kind of take-up, or the take-up in every kind of looms, but refers only to take ups which are designed or adapted to the weaving of irregular fabrics.

The remaining question is, whether or not the second claim of the patent, as thus construed, covers what was well known at the time of the invention by the patentee. A needle-bar is an old device, and has long been used on hand corset-looms. When so used the needles hold the woven cloth, which is lifted by the weaver as the cloth is woven, is straightened by hand, and replaced upon the needles. This simple device is merely to hold the cloth firmly in its place while the new cloth is being woven, and does not anticipate a needle-bar working automatically in connection with an automatic take-up.

The device which is described in the patent of August 2, 1853, to Joseph Schafield, and which is called a "spur jaw temple," is, in fact, a stationary needle-bar for holding the ends of regularly-woven cloth, so as to present an even width to the lay. The pins or needles were so inclined as to allow the cloth to be drawn over the tops of said pins as the lay beats up and from their inclination, preventing the cloth from receding during the backward movement of the lay.

The unpatented devices which are described by the witnesses, James Leggett, William H. Lord, and A. J. Crossby, were stationary needle-bars made of card clothing or of brass pins, and were designed to hold the edge of the cloth even throughout its whole width, and to prevent the cloth from receding toward the lay and from contracting in width. These devices were used in regular weaving only, no irregular weaving was attempted to be done by their aid, and it is not shown that if the attempt had been made it would probably have been successful.

A needle-bar, in combination with a take-up upon a loom for the weaving of irregular fabrics, performs the same general office which a needle bar performs in a loom for regular weaving—that is, the fabric is received and arrested by the needle-bar, where a reverse movement of the fabric has commenced—but in the weaving of irregular fabrics a difficulty is to be overcome in addition to the one which is experienced in regular weaving, and which additional difficulty requires that the needle-bar should be placed in a certain relation or position with reference to the take-up. If the take-up mechanism is not near to the place where the weaving is performed, "the cloth being more full in some parts of the fabric than in others, and the take-up not having a firm hold upon the cloth, the cloth wrinkles and doubles itself toward the center," and is taken up irregularly. This difficulty is not experienced to the same extent in the weaving of regular fabrics, which are of the same width throughout, and upon which there is an even tension of the take up throughout the entire width of the cloth. In order to obviate this fault the take-up must be placed as close as possible to the needle-bar, which must also be placed as near as may be to the felt of the cloth. The complainant's needle-bar is placed in this relation to the cloth and to the take-up, and by means of such position it is enabled to accomplish a result which had previously been *unattained* in corset-weaving, viz., the arresting of the fabric when it is released from the tension of the take-up, and so holding the cloth that it is prevented from doubling up in the center, and by this result the mechanical weaving of irregular fabrics is now successfully practiced. The combination which produces this new and useful result is not simply a combination of the old needle-bar and the take-up, but the position of the needle-bar and its relation to the take up and to the edge of the cloth has been so changed that a new combination of devices has been, in fact, created, and the new combination has accomplished a new and useful result which "was not attained by the action of the old devices," as they were arranged with relation to each other prior to the date of the plaintiff's invention. (*Hailes* vs. *Van Wormer*, 7 Blatchf., C. C. R., 452; *Marsh et al.* vs. *Dodge and Stevenson Manufacturing Company*, 5 OFFICIAL GAZETTE, 398.)

It is said that this change of position of the needle-bar required no inventive skill, but could have been made by any person conversant with loom mechanism. It is noticeable that while the complainant's patent, and the patents to James Lyall for the devices which the defendants are using, both attribute importance to the position of the take-up mechanism with reference to the place where the weaving is done, the latter patent stating that "it is important that the point of tension from the take-up device should be as near to the reeds at the extreme movement as possible," yet, prior to the plaintiff's invention, corset-weaving was not successfully practiced upon the looms which were then in use, and favorable results were only obtained after the complainant's needle-bar was applied to the existing looms. In view of the previous state of the art it can hardly be doubted that the retaining device has materially assisted in overcoming the obstacles which interfered with the success of regular weaving, and that the accomplishment of this result is due to the labor and skill of the complainant.

It is strongly contended by the defendant that the complainant's needle-bar is antedated by the needle-bar which is described in the French patent, dated October 2, 1846, to Messrs. Bender, Bandier, and Madame Gobert. The devices mentioned in the patent, and exhibited in the drawings, are somewhat complicated, but the needle-bar, which in one part of the specification is styled a rotary bar, seems to have been either a rotary bar or a fixed bar attached to a movable traction-box, or traction slide, and not in any proper sense of the word a stationary bar; it did not, therefore, anticipate the bar of the complainant's patent.

As the patent of William P. Brown, and his knowledge and use of the plaintiff's invention, were not set up or referred to in the answer, the testimony in regard to the Brown take-up was not considered.

Let there be a decree for an injunction against the use of the needle-bar, and for an account with costs.

U. S. CIRCUIT COURT, SOUTHERN DISTRICT OF NEW YORK.

THE GOODYEAR DENTAL VULCANITE COMPANY AND OTHERS vs. EBEN M. FLAGG.

The courts have determined that the construction to be given plaintiff's patent was india-rubber, "and the compounds commonly employed therewith reduced to a soft plastic state, capable of vulcanization, and subsequently vulcanized."

In the process described by defendant, he does not use india-rubber, or any substance capable of vulcanization. The substance used by him is rendered plastic, and not hardened by heat.

[*E. N. Dickerson* and *B. F. Lee* for the plaintiffs.
W. D. Shipman, *C. A. Seward*, and *E. Luther Hamilton* for the defendant.]

BLATCHFORD, *J.*:

I do not find that any decision has been made in regard to the plaintiff's patent, which gives to it such a construction as necessarily includes the process and substance used by the defendant.

In the Gardner case the defendant did not compound india-rubber with sulphur, but he compounded india-rubber with iodine, and he employed heat to harden the rubber. (*Goodyear Dental Vulcanite Company* vs. *Gardner*, 4 Fisher's Patent Cases, 224, 231.)

In the Smith case the view of the court was that the material to be used under the plaintiff's patent in carrying out the invention patented was to be india-rubber, "and the compounds commonly employed therewith reduced to a soft plastic condition, capable of vulcanization and subsequently vulcanized." (*Goodyear Dental Vulcanite Company* vs. *Smith*, 5 OFFICIAL GAZETTE OF PATENT OFFICE, 585.)

It appears from the description of the process used by the defendant in this suit that he does not use india-rubber or any substance capable of vulcanization; that the substance he uses is one which is rendered plastic by heat, and is not hardened by heat; that heat is used in the process to soften the substance and render it plastic, and not to harden it, and that the substance, after being molded, is hardened by being cooled. It is not sufficiently clear that this process is embraced in the claim of the plaintiff's patent to warrant the granting of an injunction until one is awarded as the result of a decree for the plaintiffs on final hearing.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date January 25, 1876.]

8,922.—Physician's Chair.—ANTHONY ABEL, New York, N. Y. Application filed October 23, 1875. Term of patent 3½ years.

8,923.—Coffin-Handles.—MARTIN H. CRANE, Cincinnati, Ohio, assignor to CRANE, BREED & Co., same place.—C. Application filed December 29, 1875. Term of patent 7 years.

8,924.—Boot and Shoe Tips.—JOHN E. CURTIS, Marlborough, Mass. Application filed January 6, 1876. Term of patent 7 years.

8,925 to 8,927, inclusive.—Floor Oil-Cloths.—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed January 11, 1876. Term of patents 3½ years.

8,928.—Carpets.—CHARLES A. RICHTER, Philadelphia, Pa., assignor to DORMAN BROS. & CO., same place. Application filed January 13, 1876. Term of patent 3½ years.

8,929.—Carpets.—ALPHONSE RAYE, London, England. Application filed January 17, 1876. Term of patent 3½ years.

8,930.—Top.—HORATIO N. BLACK, Philadelphia, Pa. Application filed December 20, 1875. Term of patent 3½ years.

8,931.—Woven Fabrics.—AUGUSTUS H. MILLER, Philadelphia, Pa., assignor to ANNIE E. TAYLOR, HENRY TAYLOR, and JAMES PEIFFS, same place. Application filed January 16, 1876. Term of patent 3½ years.

8,932.—Inkstands.—EDSON W. SMITH, Brooklyn, N. Y. Application filed December 20, 1875. Term of patent 3½ years.

8,933 to 8,935, inclusive.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Applications filed January 17, 1876. Term of patents 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 25, 1876.]

3,371.—Soap.—BENJAMIN T. BABBITT, New York, N. Y. Application filed January 17, 1876.
"words 'Wide Awake.'"

3,372.—Cooking-Stoves.—BRIDGE, BEACH & Co., St. Louis, Mo. Application filed January 18, 1876.
"word 'Superior.'"

3,373.—Lard.—RICHARD BULLYMORE, Buffalo, N. Y. (Re-registration.) Application filed June 5, 1872.
"representation of a hog having a cloth upon its back."

3,374.—Fruit-Jars.—J. W. CARTER, Zanesville, Ohio. Application filed September 2, 1875.
"two groups of words 'Haines' Improved Patent Fruit Jars' and 'J. W. Carter, Proprietor and Sole Manufacturer, Zanesville, Ohio,' between which groups are interposed a kitchen scene."

3,375.—Carpet-Linings.—GEORGE W. CHIPMAN, Boston, Mass. Application filed January 10, 1876.
"word 'CHIPMATED.'"

3,376.—Paper and Cloth Collars.—MARTIN I. COOLEY, Plainfield, N. J. Application filed January 3, 1876.
"words 'Mulligan Guard.'"

3,377.—Liqueur or Cordial.—FRÈRE MARCEL MARIE GRÉNER, Procureur of the Convent of the Grande Chartreuse, France. Application filed January 19, 1876.
"word 'Chartreuse,' accompanied by fac-simile of the signature of L. Garnier."

3,378.—Stick-Charcoal or Charred Kindling-Wood.—HARRISON BROTHERS & Co., Philadelphia, Pa. Application filed January 13, 1876.
"words 'Carbon Rouge,' arranged in connection with our name, 'Harrison's.'"

3,379.—Dressing-Blacking.—C. L. HAUTHAWAY & SONS, Boston, Mass. Application filed January 5, 1876.
"word 'Germania.'"

3,380.—Medical Compound.—RELIEF MANUFACTURING COMPANY, New York, N. Y. Application filed January, 15, 1876.
"word 'PYROLINE.'"

3,381.—Boots and Shoes.—THE AMERICAN CABLE SCREW WIRE COMPANY, Boston, Mass. Application filed December 20, 1875.
"a section of screw-threaded wire between the words 'Standard' and 'Fastened.'"

3,382.—Medical Preparation.—A. VOGELER & Co., Baltimore, Md. Application filed January 7, 1876.
"a cut or picture representing the bust of a man attired in a dressing-gown and smoking-cap, and having a pair of spectacles lying before him. The man is represented as pouring something from a bottle that he holds before him in his right hand into a wine-glass which he holds in his left hand."

3,383.—Medical Preparation.—A. VOGELER & Co., Baltimore, Md. Application filed January 7, 1876.
"a cut or picture representing the bust of an old woman, with cap and hood on her head, and wearing spectacles, and holding up a cup before her in her right hand."

3,384.—Cured Meats.—JAMES C. WETMORE, Elizabeth City, N. J. Application filed January 7, 1876.
"word 'Paragon' and the pictorial representations of the heads of the three beasts."

3,385.—Military and Regalia Goods.—J. H. WILSON, Philadelphia, Pa. Application filed January 15, 1876.
"a grouping of flags, accouterments, uniforms, and regalia."

3,386.—Wooden Bungs.—GEORGE R. WRIGHT & BRO., Benton Harbor, Mich. Application filed January 12, 1876.
"two (2) distinct rings or circles, having a common center, pressed into the head or top surface of the wooden bung."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date January 25, 1876.]

498.—Title: "**Dr. Frederick E. Melsheimer's Children's Drops.**"—EDMUND L. MELSHEIMER, Davidsburg, Pa. Application filed January 13, 1876.

499.—Title: "**Dr. Ricker's Gold Eagle Balsam.**"—HENRY E. PEARSON, Newburg, Mass. Application filed January 18, 1876.

500.—Title: "**Pyroline, an external remedy for the cure of Gout, Rheumatism, &c.**"—RELIEF MANUFACTURING COMPANY, New York, N. Y. Application filed January 15, 1876.

501.—Title: "**Dr. James' Orange Tonic, or the True Elixir of Life.**"—ROBT. I. TOFLIS, Yonkers, N. Y. Application filed January 14, 1876.

COPIES OF PATENTS ISSUED SINCE JULY 1, 1871.

For the convenience of manufacturers, the various subjects of invention have been classified, (Subject-Matter Index, 1871,) and a list is kept of all the patents issued since July 1, 1871, in the various classes, so that an order given for the patents of a class will be filled as to patents since the above date, and subsequent patents in the same class will be forwarded from week to week, (postage paid,) as they may issue.

Those desiring copies of patents under this arrangement should deposit a sum of money, not less than three dollars, with the Commissioner of Patents; when the deposit is exhausted they will be notified.

In ordering drawings by classes, under the subject-matter index of September, 1871, (furnished gratis on application,) it will be understood that the Office cannot take upon itself to make selections of certain lines of inventions, embracing portions only of the patents in the classes as specified. The number of classes has been made as ample as the conduct of the business in this Office will readily permit. An order should, therefore, embrace the entirety of a given class or classes. They cannot be subdivided unless ordered specifically by giving the number, name, and date of each patent.

The cheapness of the copies, (ten cents apiece when ordered in quantity or by the whole class,) and the comparatively small number of patents in each of the 176 classes, render an order by class a by no means onerous undertaking.

COPIES OF DRAWINGS OF BACK ISSUES.

Since July 1, 1869, the drawings filed with the applications for patents have been copied and multiplied by photographic processes, so that copies can be furnished at prices much less than those previously charged when all reproduction of patent drawings was by hand tracing. From July 1, 1869, to December 13, 1869, the copies were photographs; from January 1, 1870, to the present time, they have been photo-lithographs.

The sizes of the drawings have not been uniform throughout this period, as they have been governed, to some extent, by the size of the patents, which has also varied. The two sizes which exist are, respectively, 10 x 15 inches and 7½ x 10 inches. It is in contemplation to reduce those of the larger size to the smaller, so that sets of drawings of classes may be uniform in size, and that the volumes in which the patents are assembled in order of date may also correspond in size.

Congress having authorized the reproduction of the patented drawings issued previous to the date (July 1, 1869,) at which photographic copying was introduced, the reproduction proceeded in order of time, working backwardly through June, May, &c., 1869, till the issue of November 26, 1867, was reached. When that point had been reached it was determined to proceed in future by subject-matter instead of by date, and the following subjects have been completed, carrying the photo-lithographic reproduction of the drawings in the classes stated back to the year 1836; also including such drawings of patents as were restored and again placed on record in the Department after the fire which consumed the Office records in the year 1836.

In the statement of the subjects and numbers following it will be borne in mind that the official subject-matter classification, date of 1872, by which cases are assigned for examination, (not the subject-matter classification elsewhere referred to,) governs the disposition of the drawings in the folios of the Office, and each class embraces numerous details appertaining or allied to the main subject-matter of the class.

The statement gives the approximate number of drawings of these classes.

HARVESTERS; including all machines for gathering and securing crops, (excepting hand-rakes and hand-forks)	6,500
SEWING-MACHINES and attachments	2,000
FIRE-ARMS; including breech-loaders, revolvers, cartridges, ordnance, projectiles, fuses, blasting, and torpedoes	4,000
PRINTING; including presses, type, and printers' furniture	2,500
FELTING and HATS; including caps, bonnets, flock, &c.	1,500
WEARING APPAREL; including clothes-making, patterns, and work-table appliances, (excepting head and foot coverings, hoop-skirts, corsets, and paper garments)	1,600
STATIONERY; including desk and office supplies, stamps, tickets, advertising, and signs	1,400
CARRIAGES and WAGONS	6,000
BRIDGES; including ferry-guards, girders and columns, piers	408
CARDING, CLOTH, CORDAGE, KNITTING, SILK, SPINNING, WEAVING	4,800
RAILWAYS	3,500
ELECTRICITY	888
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TO CORRESPONDENTS.

Persons ordering drawings of patents, or making inquiries in regard to patents, must always state the name of the inventor, subject-matter, and date. In making inquiries in regard to applications for patents letters must state the name of the applicant, subject-matter, and date of filing.

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Boiler, wash, T. Shuman	91	172,802
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O'Neil, J. K., Straw cutter	172,646
Ostrum, H. P., Machine for nailing boxes	172,579
Overend, J. A. T., Feed water heater and pump	172,580
Packard, A. J., and C. P. Harris, Tire tightener	172,647
Pariah, R., Specific gravity scales	172,581
Parker, E. A., Water urn	172,766
Parsons and Twitchell	172,799
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Peebles, D. B., Gas regulator	172,768
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Poole, S., Can opener	172,653
Pope, A. A., Spring air pistol	172,582
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Powell and Newman	172,645
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Reed, E. A., Foot warming stove	172,773
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Rehn, I., and C. S. Ford, Gas regulator	172,774
Remy, R. W. and N. T., wheel cultivator	172,775
Reppenhagen and Harvey	172,626
Reynolds, W. L., assignee	172,805
Rhodes, L. M., Cotton planter	172,776
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Ryan, J., Steam trap	172,586
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Webster, J. H., Nut lock	172,805
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Weed, J. W., Back strap buckle and trace carrier	172,806
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Wright, J., Cotton gin feeder	172,680
Wright, J., Mote extractor, separator, and cleaner	172,681
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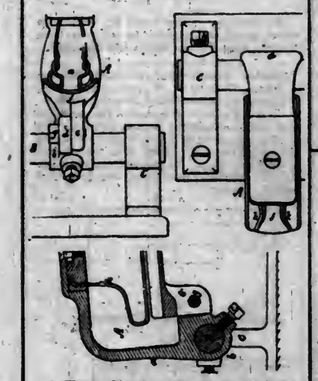
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JANUARY 25, 1876.

172,548. BOBBIN-SUPPORTING FOR YARN-SPOOLING MACHINES. Joseph B. Bancroft, Hopedale, Mass., assignor to Hopedale Machine Company, same place. [Filed Dec. 9, 1875.]

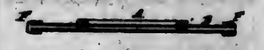
Brief.—Improvement upon the device patented to Asel M. Wade, January 24, 1871, No. 109,833. Each bobbin-supporter is adjustable on its rod independently of and at its proper distance from the other, and all can be moved at once by turning the rod in its supports. Moreover, the bobbin rest of each supporter is provided with means of attachment to the said supporter independent of the screw that secures the supporter to the sustaining-rod. The invention consists in the particular means of attachment.



1. The combination of the rotary cylindrical sustaining-rod B, its standards C C, and clamp screw or screws b, with a series of bobbin-supporters, A, applied to such rod in the manner herein described, and provided with clamp-screws c c to operate against it, all substantially as specified.

2. Each bobbin-supporter having its gooseneck or lips, carrying arm a, provided with a collar, b, clamp-screw c, and ear d, in combination with the bobbin-rest f, provided with an ear, e, and a clamp-screw, g, whereby the ear e is fastened to the ear d, all being essentially as set forth.

172,549. STOVE-PLATFORMS. L. F. Bette, Chicago, Ill., assignor of one-half his right to J. S. Dennis and H. N. Wheeler, same place. [Filed Dec. 21, 1875.]



1. The combination of the zinc-board A and oil-cloth B, joined together by the edge of the zinc-board clasping the oil-cloth, substantially as specified and shown.

2. The combination, in the stove-platform, of the zinc-board, the oil-cloth, and the bottom board, as specified and shown.

3. The combination of the zinc-board, the oil-cloth, the bottom board, and the binding-strip F, substantially as described.

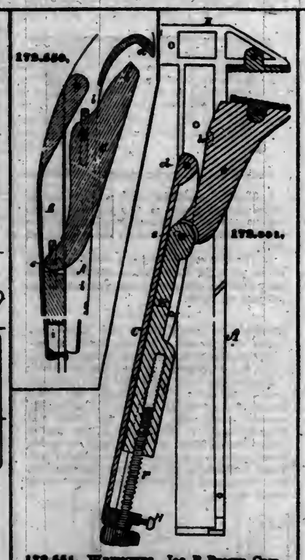
172,550. PIPE-TONGS. Jas. R. Brown, Cambridgeport, assignor to Miles A. Cloudman, Lynn, Mass. [Filed Nov. 9, 1875.]

Brief.—The adjustable jaw is pivoted to the handle of the hooked jaw and to a lever, also pivoted to the handle of the hooked jaw. A slide arranged within the handle adjusts the movable jaw.

The pipe tongs or wrench composed of the hooked and slotted lever A, the fulcrum-lever B, and the tooth-jaw lever C, arranged and applied substantially as described.

172,551. WRENCHES. Jas. R. Brown, Cambridgeport, assignor to Miles A. Cloudman, Lynn, Mass. [Filed Dec. 1, 1875.]

Brief.—The device may be used as a wrench to grasp square objects or cylindrical objects.



1. The combination of the stationary jaw or head B, the chambered handle A, the lever C, slide E, screw F, and the movable jaw D, provided with the cheeks c and stud b, all being arranged and applied substantially as, and to operate as, set forth.

2. The combination of the clamp-screw H with the lever C, screw F, slide E, movable jaw D, cheek c, studs b, handle A, and head B, all arranged and applied essentially as specified and represented.

172,552. NOZZLES FOR CANS. George H. Chinnock, Brooklyn, N. Y., assignor to Leonard Richardson, same place. [Filed Sept. 25, 1874.]

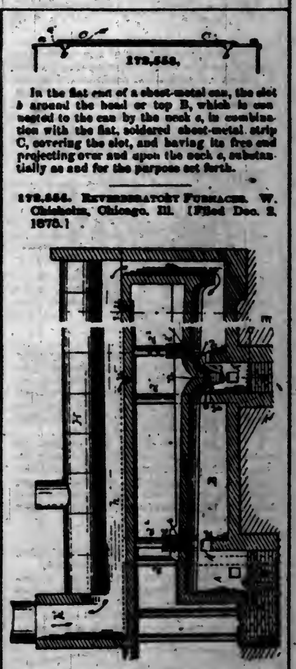


The combination of the cork B, the shell B, the cap or cover C, and the colored strip D, the whole arranged upon the top A of the can, substantially as and for the purpose specified.

172,553. SHEET-METAL CANS. George H. Chinnock, Brooklyn, N. Y. [Filed Oct. 26, 1874.]



172,554. REVERBERATORY FURNACES. W. Chisholm, Chicago, Ill. [Filed Dec. 2, 1875.]



1. A series of two or more fire-chambers, A A', in combination with a corresponding number of metallurgic working-chambers, one between each two fire-chambers, and one beyond the last fire-chamber, with a continuous draft through the series, substantially as and for the purposes set forth.

2. In combination with the series of alternately arranged fire-chambers and working-chambers, having a continuous draft through all, a series of air-blast pipes for supplying air to each fire-chamber and to each working-chamber, substantially as and for the purposes set forth.

3. The described system of fire-chambers, working-chambers, and air-supply pipes, series of alternately arranged fire-chambers and working-chambers, having a continuous draft through all, a flue, h, arranged to conduct the waste products of combustion from the last working-chamber along in contact with one or more steam-generators, and air-blast pipes to supply additional air in such flue h, substantially as and for the purposes set forth.

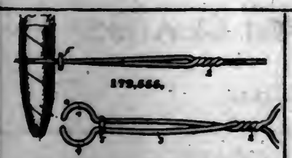
4. In combination with the second, or other subsequent fire-chamber, A', to a series of fire-chambers, an inverted bridge-wall or low arch, n, and side bridge-walls b' and c', relatively arranged and operating substantially in the manner and for the purposes set forth.

5. In combination, with the bridge-wall, of a metallurgic furnace, an air-chamber, c or c', arranged beside or directly over the same, and the perforated bricks, tiles, or layers t, the perforations inclining downward and forward to the line of draft, substantially as and for the purposes set forth.

172,555. CIGAR-HOLDERS. S. Clark, Worcester, Mass. [Filed June 4, 1875.]

Brief.—The holder is composed of a single wire, bent to form a ring for the finger, and a clamp for grasping a cigar. The clamping rods are forced together by a sliding ring.

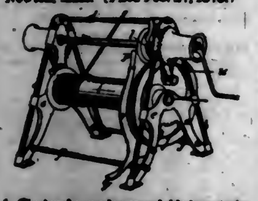
HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.



172,656.

A cigar-holder formed of one continuous piece of metallic wire, combining ring 1, twist 2, prongs 3 3, clasps 4 4, substantially as and for the purposes herein set forth, and shown in the drawings.

172,657. WINDLASSES. D. N. B. Collis, Jr., Newton, Mass. (Filed Feb. 27, 1875.)



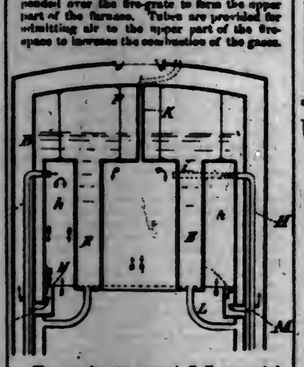
1. The band *e*, made expandable by exterior force, in combination with the internal friction-wheel *f*, and the barrel or shaft of the winch or windlass, substantially as described.

2. The lever *p q*, provided with the foot-treadle *q*, in combination with the friction-band and friction-wheel *ef* of a windlass.

3. The end sections of the windlass or winch frame, when constructed by casting the upper and lower connections with shaft-bearings and attachments for other appendages directly upon the two upwardly-converging rods of wrought-iron or steel, *a b*, substantially as described.

172,658. STEAM-BOILERS. F. Collignon, Buffalo, N. Y. (Filed Sept. 20, 1875.)

Brief.—The annular water-vessel is suspended over the fire-grate to form the upper part of the furnace. Tubes are provided for admitting air to the upper part of the fire-space to increase the combustion of the gases.



The annular water-vessel E E, suspended above the fire-grate, in combination with the tubes H H K and the openings M M, arranged below the annular water-space compartment, substantially as and for the purposes described.

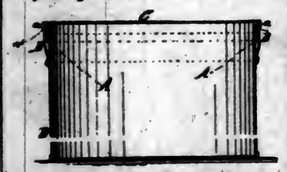
172,659. BUTTONS FOR BOOTS AND SHOES. Archelaus Crandall, Brooklyn, N. Y., assignor to himself and A. B. Savage, New York city. (Filed Feb. 20, 1875.)



The process of forming the improved, button by connecting the gutter D with the tapered shank B in casting, as set forth.

172,660. SHEET-METAL CANS. David W. De Forest, Brooklyn, N. Y., assignor to Leonard Richardson, same place. (Filed Sept. 2, 1875.)

Brief.—A thin frangible metallic strip is folded over the upper edge of the cover-flange, and projects below it, serving as a packing, and, when soldered at its lower edge, hermetically sealing the cover.

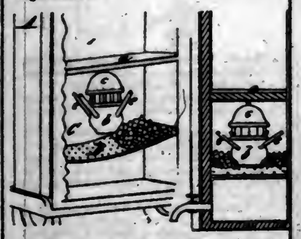


1. The thin easily-frangible metallic leaf B, folded upon the strip A, and soldered to the inwardly-turned edge *a* of the top C of the cover, substantially as and for the purpose set forth.

2. The thin easily-frangible metallic leaf B, folded upon the strip A, and soldered to the body D of the can, substantially as and for the purpose set forth.

172,660. WATER FILTERS AND PURIFIERS. Paul de la Norville, Enfield, Conn., assignor to himself, H. Hamelin, Moïse Lemire, and S. La Chapelle. (Filed Dec. 6, 1875.)

Brief.—The tank is divided into compartments, the bottom of the upper one being formed of a stone slab made porous by a treatment of acetic acid, so that the water will filter through it. The water in the middle compartment, after passing through the stone, is subjected to the action of the fumes of carbonic acid, and is again filtered through carbon to remove all further impurities which might remain.



1. In an improved water filter and purifier, the combination of the tank A, the stone filtering-slab *c*, and the plate D, provided with a carbon filtering material, all substantially as and for the purpose described.

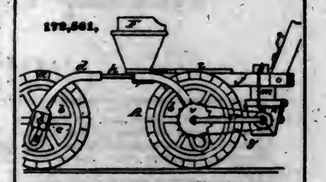
2. The combination of the tank A, the stone filtering-slab *c*, the vessel *b*, and the plate D, provided with a carbon filtering medium, all substantially as herein described.

172,661. CORRUGATED LAND-ROLLERS AND GRASS-SEEDERS. Frederick M. Dunning, Ida, Mich. (Filed Dec. 20, 1875.)

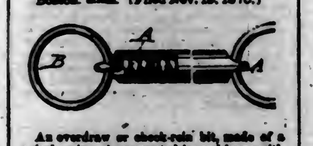
Brief.—The rollers are journaled in downwardly-curved arms depending from the frame, and are provided with elongated slots for the reception of adjustable sectional shouldered boxes, through which the ends of the axles pass, thus allowing the rollers to conform to the inequalities of the ground. Beneath the tongue is secured the seed-box, having a seed-roller, on one end of which is secured a spur-wheel, corresponding to a similar wheel on the axle of one of the rollers, communicating motion by an endless chain. The roller and seed-box are held at a proper distance by means of a brace.

1. In a combined roller and seeder, the combination of the rollers A A B, curved arms *d*, with elongated slots *e*, and the sectional boxes D, substantially as and for the purpose set forth.

2. The combination, with the rollers A and curved arms *d*, formed with elongated slots *e*, of the spur-wheels *s* and *u*, and brass *w* and endless chain *y*, with the seeding-box I, grooved roller I, and perforated plate *p*, substantially as and for the purpose set forth.



172,661.

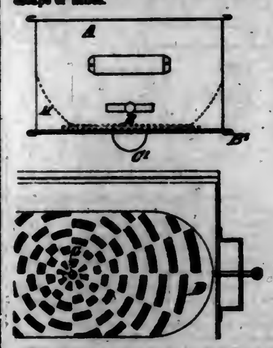


172,662. BRIDLE-BITS. John A. Fairbanks, Boston, Mass. (Filed Nov. 19, 1875.)

An overdraw or check-rein bit, made of a spiral spring, A, connected by end loops with the rein-rings B B, as shown and described.

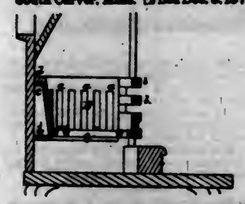
172,663. PORTABLE ASH-PANS. George Frank, Buffalo, N. Y., and Joseph Ash, Mansfield, Ohio. (Filed July 28, 1875.)

Brief.—The grate at bottom of the pan registers with perforations in said bottom. The sliding plate may be placed upon either top or bottom of the pan. When open the top (the grate being closed) the pan and contents may be removed from the stove without danger of escape of ashes.



The combination of the pan or box A, having the grooves B B' B'' B''', with the reversible cover C, substantially as and for the purposes described.

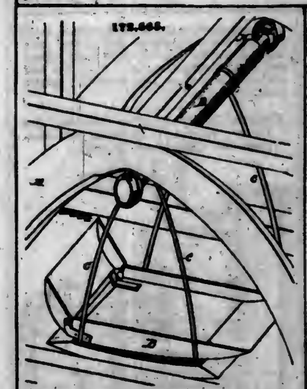
172,664. STOVE-GRATES. Thos. B. Griffith, South Carver, Mass. (Filed Dec. 8, 1875.)



In a stove or furnace, the grate or fuel-holder B, formed with open end tapering sides, and with a flange, *d*, extending outwardly and resting upon ledges *a* formed on the inner walls of the stove, in combination with the dedusting plate or plates *d'*, arranged on the said inner walls, as shown and described, and for the purposes set forth.

172,665. SWINGING CRADLES. George W. Goodhue, Bolivar, Ohio. (Filed Oct. 30, 1875.)

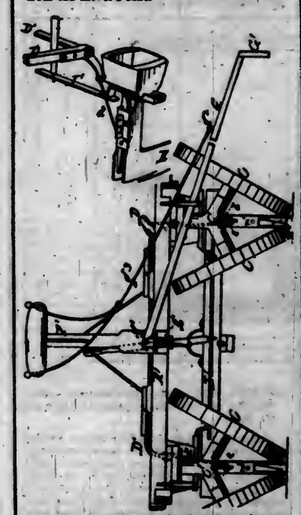
172,665.



In a swinging cot or cradle, the cradle B, provided with its supporting-rods C C, in combination with the shaft D, provided with knife-edge journals, the bearings M, provided with steel or glass linings, and the frame A, substantially as described, and for the purpose set forth.

172,666. CORN-PLANTERS. Solomon T. Kelly, Rockford, Ill. (Filed Aug. 7, 1875.)

Brief.—A furrow-opener is made adjustable by means of a perforated plate on the heel of the opener. The bottom of the seed-box is provided with pairs of seed-holes, also capable of adjustment. A land-marker is pivoted to the rear of the frame, and can be thrown upon either side by means of cords operated from the driver's seat.



1. In a machine for planting corn, having two diverging covering-wheels, C, the combination of the lever D, transverse rock-shaft D', crank *d*, link *d'*, flange *a*, having adjusting-holes, and opening-runner B, constructed and operating as and for the purposes substantially as described.

2. The disk I, provided with the different-sized openings, arranged in pairs diametrically opposite each other, and made adjustable in the runner-seed-slide, substantially in the manner and for the purpose described.

3. The marker G G', hinged as described, in combination with the cord and handles arranged as described, whereby the driver can control said marker in his seat on the machine, as set forth.

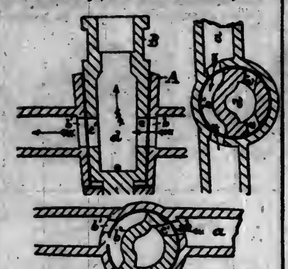
172,667. COMPOUNDS FOR THE MANUFACTURE OF ARTIFICIAL MARBLE AND STONE. Geo. W. Householder, Kansas City, Mo. (Filed Oct. 16, 1875.)

Brief.—The ingredients of the cement are mixed with sufficient water to saturate the mass. Then it is dried, calcined, reduced to powder, and mixed with the prepared solution to the proper consistency for molding, and pressed into the form of blocks, &c.

The composition, consisting of a cement prepared from pulverized gypsum and calcite, sulphuric acid, sulphate of alumina, and sulphate of iron combined with the oxides of zinc and lead, the acetates of zinc, lead, and alumina, the silicate of potash, borax, and the sesquisulphate of alumina in solution, and the mode of preparation and admixture, substantially as described.

172,668. STOP-COCKS. Vincent M. Hughes, Baltimore, Md. (Filed Dec. 17, 1875.)

Brief.—The hollow plug is provided with internal and external chambers, and is capable of such adjustment as to cause the fluid to flow two ways at the same time, either one of the two ways, or to cut it off entirely.



A stop-cock consisting of a shell, A, having openings *b b'*, in combination with the plug B, having an external channel, *b''*, openings *c c'*, and interior channel *d*, substantially as and for the purposes described.

172,669. DOUBLE HEATING-GRATES. Edwin A. Jackson, New York, N. Y. (Filed Nov. 11, 1875.)



1. In a fire-place grate, the combination of the air-heating chambers D, K, and O, the latter being provided with the series of tubular smoke-passages B, substantially as described, for the purpose specified.

2. In combination with the air-heating chamber O, having a series of tubular smoke-passages, the pivoted damper S, substantially as and for the purposes specified.

3. The combination of the air-heating chamber O, having the upwardly-contracted smoke-passages described, with the lower chambers D and K and the discharging-passages U, substantially as and for the purpose described.

172,670. WATER-CLOSETS. Edwin A. Leland, Pittsfield, Mass., assignor to Leonard Richardson, Brooklyn, N. Y. (Filed Aug. 11, 1875.)

Brief.—The rock-shaft has the bearings described, and is attached to the pan by suitable connection. By the lateral withdrawal of the rock-shaft the pan may be detached, and by a clamp construction shown the old pan may be replaced by a new one.



1. The rock-shaft G, constructed to fit through and within the socket *f*, attached to or formed on the pan A, in combination with the bearings D D' and tubular nut *g*, provided to the curb E, the whole arranged for use and operation substantially as and for the purpose set forth.

2. The clamp E, constructed with the socket *f*, outwardly-projecting ends or cars *a'*, and tightening-screw *c*, in combination with the pan A, substantially as and for the purpose set forth.

172,671. WATER-CLOSET PANS. Edwin A. Leland, New York, assignor to Leonard Richardson, Brooklyn, N. Y. (Filed Sept. 2, 1875.)

Brief.—An inwardly-turned lip is formed on the upper edge of the sheet-metal shell. This is combined with a circumferential rabbet on the top of the porcelain portion, making a flush surface, and insuring cleanliness.



In a water-closet pan, the combination of the inwardly-turned lip *b* with the circumferential rabbet *a*, formed in the upper edge of the inner porcelain portion A of the pan, substantially as and for the purpose set forth.

172,672. WATER-CLOSET PANS. Edwin A. Leland, New York, assignor to Leonard Richardson, Brooklyn, N. Y. (Filed Sept. 2, 1875.)

Brief.—To connect the porcelain and metallic parts, the circumferential rib and groove are formed as described.



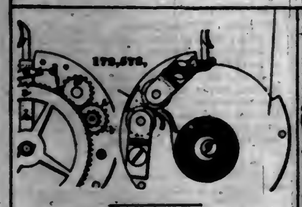
In a water-closet pan, the combination of the circumferential rib and groove, with the porcelain A, and the sheet-metal shell B, of a water-closet pan, whereby the said porcelain and metal shell are firmly secured together, substantially as herein set forth.

172,673. TICKET-REGISTER. Wm. H. Marston, Brooklyn, E. D., N. Y. (Filed Oct. 7, 1875.)

Brief.—At each full stroke of the lever a ticket's length is reeled off the web of tickets, supported upon an arbor within the case.

The combination of the loosely-journaled lever *h*, provided with the pawl *a*, and the reacting-spring *l*, with the gears *a*, *b*, *c*, and *i*, feed-rolls *d e*, and the casing provided with a slit, *k*, through which the tickets are fed; all arranged and operating substantially as and for the purpose set forth.

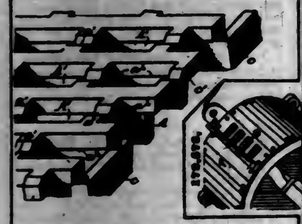
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO BOSTON.



172,572.

172,572. PAVEMENT. Fredk. W. Mathies, St. Louis, Mo. [Filed Sept. 27, 1875.]

Brief.—A pavement consisting of a series of iron cells filled with suitable material, the cavities of which are concave or contain projections alternating on upper and lower edge of plate, so that when two plates meet they interlock, and mutually support each other vertically.



172,572.

1. The joints *c c'*, made to form part of sectional grates A, in the manner herein shown and set forth, and by means whereof said sections can be interlocked, as and for the purpose set forth.

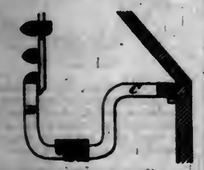
2. An improved street-pavement, consisting of sectional iron grates A, the cells A' of which have interior shoulders *d'*, and the opposite sides of which present the lugs *b b'* and joints *c c'*, all said parts being constructed in the manner herein shown and set forth.

172,573. COVERING BOTTLES. Jos. Mathie and Hiram Woodward, Rochester, N. Y. [Filed Dec. 20, 1875.]

Brief.—A covering for bottles, consisting of a pliable sectional compound of paper-pulp and animal glue, having cylindrical sections of wood projecting through the envelope, and provided with channels worked into its surface, portions of same attached to its outside, and a wood-veneer button.

An improved envelope for bottles, consisting of dough composed of paper-pulp and animal glue, and having cylindrical sections of wood projecting through the envelope, and provided with channels worked into its surface, portions of same attached to its outside, and a wood-veneer button, all arranged and applied for the purpose substantially as set forth.

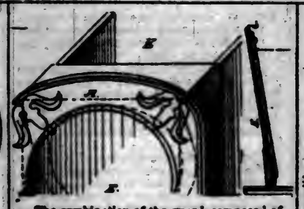
172,574. GRATES FOR FIRE-PLACES. Theo. M. Hoff, Louisville, Ky. [Filed Nov. 6, 1875.]



A grate provided with a hook, O, the upper portion of which extends back horizontally, or at right angles to the lower portion, and on a line with the lowest horizontal or cross bar of the front of the grate, substantially as and for the purpose described.

172,577. STOVE-PIPES AND GUARDS. Silas Mathewson, South Carver, Mass., assignor to Murdock Parlor-Grate Company, same place. [Filed Nov. 9, 1875.]

Brief.—When the stove-pipe is removed, the cap or cover falls and closes the opening.



The combination of the guard, composed of the plates A, B, C, and D, and the cover E, pivoted or hinged thereto, the whole being constructed and arranged substantially as for the purposes set forth.

172,578. KNIFE-POLISHERS. R. O. Morton, Chicago, Ill. [Filed Apr. 21, 1875.]

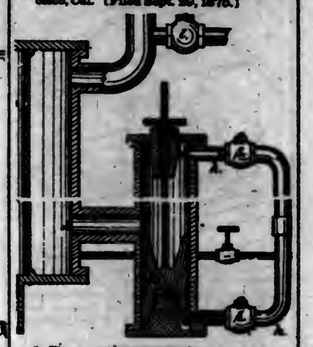
The cylinder A, provided with a series of slotted holes, B B, in combination with the perforated diaphragms d provided with an elastic substance, c, or spiral springs, as shown, and perforated cover m, all constructed to operate substantially as and for the purpose set forth.



172,578.

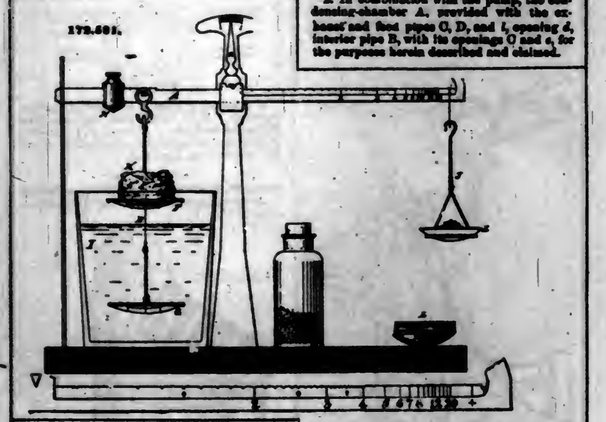
The combination of frame A, treadle D, rock-shaft G, band *e*, provided with one or more adjustable fasteners, *e e*, one or more adjustable disc, *m m*, and the rest B, all the said parts constructed and combined substantially as set forth.

172,580. FEED-WATER HEATERS AND PUMPS. John A. T. Overend, San Francisco, Cal. [Filed Sept. 20, 1875.]



1. The combination, in a pump, of the tub outlet-pipes A, provided with check-valves B, the single inlet *d* in the center of the cylinder, and the piston F, hollow at both ends, substantially as and for the purposes set forth.

2. In combination with the pump, the condensing-chamber A, provided with the exhaust and feed pipes C, D, and *l*, opening *d*, interior pipe B, with its openings O and *c*, for the purposes herein described and claimed.



172,581.

172,581. SPECIFIC-GRAVITY SCALES. Roswell Parish, Worcester, Mass. [Filed Apr. 10, 1875.]

1. The scale-beam provided with the graduations, determined as herein described, for indicating without calculation the specific gravity of the mineral, substantially as set forth.

2. A gravity-scale, in which the object to be weighed is suspended from a fixed point, and the counterpoise is moved upon the beam over graduations indicating the specific gravity, substantially as set forth.

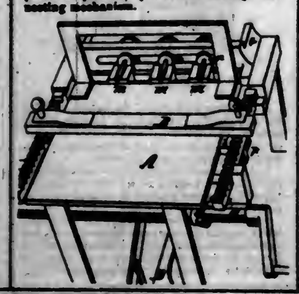
3. In combination, the beam A, fulcrumed and graduated as described, a pan-holding counterpoise, J L, double pan or baskets F G, water-vessel I, and adjusting-weight M, arranged for determining specific gravity, substantially as set forth.

172,582. STEAM-TRAPS. A. A. Pope, Boston, Mass. [Filed Nov. 22, 1875.]

The combination of the stationary barrel B, air-cylinder C, placed beneath, and parallel with, the barrel, spring-impelled plunger D' rod J, and movable breech H, arranged together substantially as shown and described.

172,579. MACHINES FOR NAILING BOXES. E. P. Cobrun, New Haven, Conn. [Filed Sept. 11, 1875.]

Brief.—Several nails are driven into the box at once through the agency of a series of punches operated by a treadle through connecting mechanism.



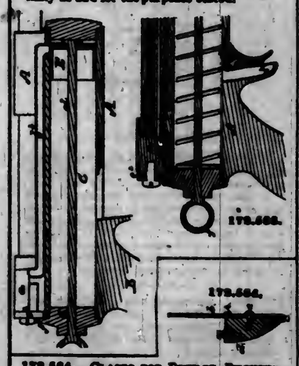


172,583.

172,583. STEAM AIR-PISTONS. A. A. Pope, Boston, Mass. [Filed Dec. 13, 1875.]

1. In combination with the barrel and the air reservoir or cylinder, containing a spring-impelled forwardly-moving piston, and arranged directly beneath and parallel with the barrel, as described, of the air-passage or duct extending from the front of the air-cylinder rearwardly to the breech end of the barrel, as shown and set forth.

2. The breech-closing device herein shown, consisting of the block *a* and latch *a'*, substantially as and for the purposes stated.



172,583. 172,584.

172,584. CLASPS FOR DREDGE-BUCKETS. William Rhoden, Baltimore, Md., assignor to John B. Curtis, Charles Foben, George O. Foben, and Lamartine J. Foben, Portland, Me. [Filed Sept. 23, 1875.]

1. In a dredge-bucket, the combination of a spring-bolt with a clasp consisting of the piece *c*, aperture *b*, and piece *d*.

2. In a dredge-bucket, the combination of the spring-bolt, piece *c*, aperture *b*, piece *d*, and roller *m*.

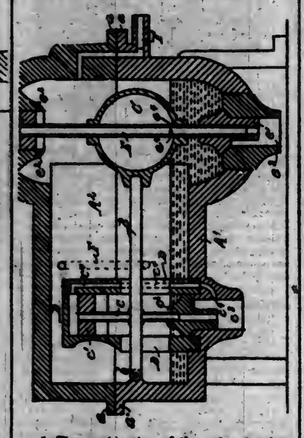
3. The combination, in a dredge-bucket, of a spring-bolt with the piece *c*, aperture *b*, and piece *d*, with its lips *e* and *b*.

172,585. CHAIR-BOTTOMS. E. P. Russell, Elbridge, N. Y. [Filed Oct. 28, 1875.]



A chair-seat constructed with the long straps B, transverse straps A, and short intermediate straps supported by the straps A, substantially as shown.

172,586. STEAM-TRAPS. Joseph Ryan, St. Louis, Mo. [Filed Nov. 10, 1875.]

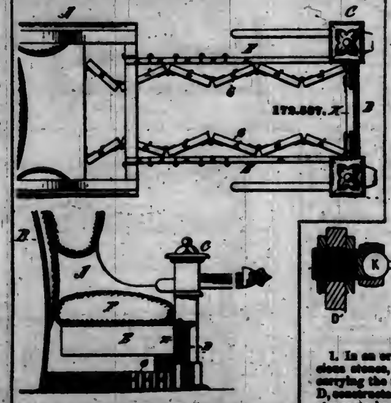


1. The combination of the valve-chamber D, having curved part *c'*, the valves *c' c'*, the lever B carrying a float, C, all said parts being arranged in the manner described, and illustrated in Fig. 1, to operate as and for the purpose set forth.

2. The balanced valves *c c'*, in combination with a stem, E, carrying a float, C, and arranged in the manner described and illustrated in Figs. 1 and 2.

3. The two sets of balanced valves *c' c' c'*, the lever B, float C, valve-chamber D, piston-chamber *c'*, hollow stems O E, or cave *c'*, said parts acting in combination, and arranged in the manner described, and shown in Fig. 1.

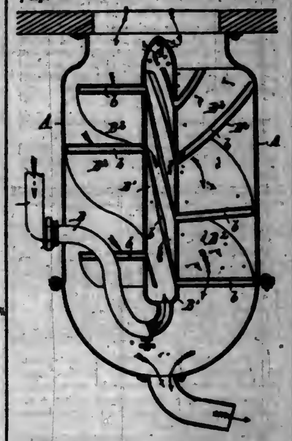
172,587. CONVERTIBLE CHAIRS. Georg H. Schmit, Arlington Heights, Ill. [Filed Nov. 10, 1875.]



The combined chair and bed, consisting of the sides A A, back B, posts O O, cross-rail D, foot-board K, rails E E and G G, cushion F, and sectional mattress J, all constructed and arranged substantially as specified.

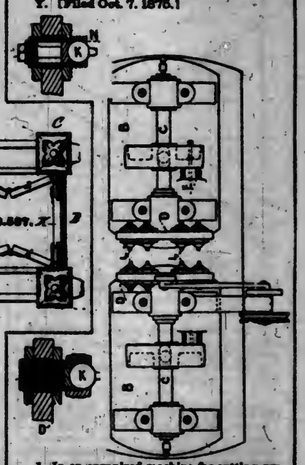
172,588. APPARATUS FOR FORMING MASH FOR BEER, &c. Conrad Seibel, St. Louis, Mo. [Filed Sept. 17, 1875.]

Brief.—The malt entering at the top of the device strikes the cone-shaped top of the central pipe, and then bounces upward out, the water-jets issuing from the water-spaces coming in contact with the grains, moistening them. By the time the malt passing through this process has traversed the surface of the lower blades it has been converted into a soft pulp.



A mash-machine consisting of the upright pipe B', communicating with spiral blades B', with intervening spaces *b* between, the upper surfaces of said pipe and blades being perforated, in combination with a vessel, A, having inlet-pipe B, to form an improved apparatus, as and for the purpose set forth.

172,589. MACHINES FOR CUTTING FREESTONE STONES. Henry D. Stever, New York, N. Y. [Filed Oct. 7, 1875.]



1. In an organized machine for cutting freestone stones, the adjustable head-stock H B, carrying the revolving or oscillating heads D D, constructed to receive one or more pairs of stones to be operated upon, substantially as set forth.

2. The ball K, to which the stones are secured, arranged, adjusted, and secured in the head or disk D or threaded tube E, as shown and described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

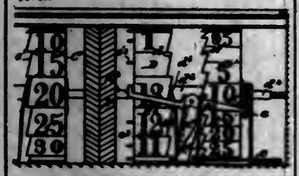
172,590. PROCESSES OF MANUFACTURING FERTILIZERS. Levi Stockbridge, Amherst, Mass. (Filed Nov. 27, 1875.)

Brief.—The elements of plant-nutrition, as determined by analysis of the various plants, are compounded in the proportions in which they are taken up by the plant, and in absolute amounts requisite to produce any given amount of crop, and added to the soil.

The process of manufacturing fertilizers, the same consisting in compounding salts containing nitrogen, potash, and phosphoric acid, and those elements, with lime and magnesia, for the cereal and tobacco plant, in the proportions in which they are taken up by the several crops, as shown by an analysis of the plants, and in amounts requisite to produce any desired amount of crops within the limit stated, all substantially as described.

172,591. INDICATORS. Friedrich Stumpf, St. Louis, Mo. (Filed June 22, 1875.)

Brief.—The indicating wheels can be turned by the key, or in the price-register by a hand-lever.

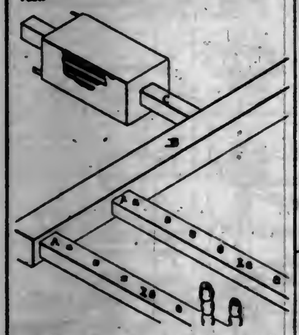


1. The wheels D D', numbered as shown and described, ratchets d^2 d^3, shaft d^4, spring-pawls d^5 d^6, in combination with stem E, pin d^7, pivoted lever d^8, studs d^9, and spring d^{10}, all said parts being arranged so as to operate substantially as specified.

2. The pivot-lever d^8, pin d^7, studs d^9, spring d^{10}, in combination with wheels D D', as herein shown and described, by means whereof the price to be charged higher in denomination in dollars is indicated, as set forth.

172,592. APPARATUS FOR DRYING HOPS. John Urmston, Rahway, N. J. (Filed Oct. 6, 1875.)

Brief.—Heated air is forced into the box, and thence into the pipes upon which the hops rest.



1. The series of pipes A and the air-box B, constructed and combined as and for the purpose specified and shown.

2. The heating-receiver C, in combination with the parts A and B.

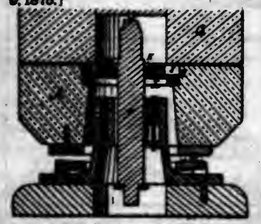
172,593. MUCILAGE-BOTTLES. W. C. White, Boston, Mass. (Filed Dec. 16, 1875.)

Brief.—The sponge is held between the conic stopper and tubular expander by the screw, through which mucilage issues



In the described mucilage-holder, the expansive stopper C, and the tubular expander D, and screw E, in combination with the sponge F and bottle A, substantially as specified.

172,594. CAPS FOR MILLSTONES. Ferrand G. Wallace, Waterloo, Iowa. (Filed Nov. 9, 1875.)



In combination with the rocking bed-stone A, runner C, spindle F, and bush E, and the spindle-packing device, consisting of an elastic or pliable disk encircling and hugging the spindle, to the bottom of which is secured an annular metallic plate, I, and an annular metallic plate, H, applied to the stone, the adjoining faces of the two plates being accurately planed and adjusted to slide upon each other, substantially as and for the purpose described.

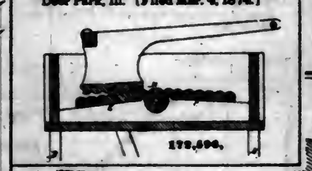
172,595. EXTENSION-LADDERS. Ernest S. Webster, Lake City, Minn. (Filed Dec. 21, 1875.)

Brief.—A device for readily attaching and detaching ladder-sections, to form an extended ladder when required for use. The sections can also be formed into a temporary step-ladder.

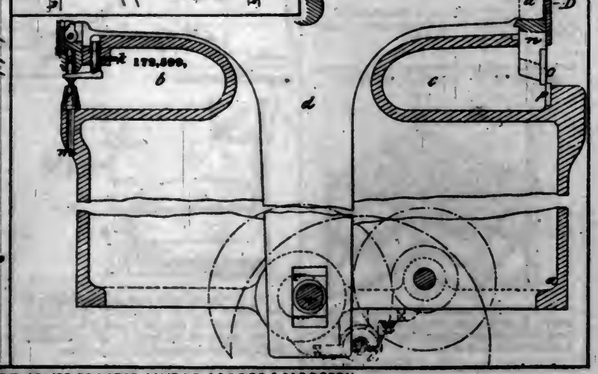


The lever-hooks *b b* and stationary hooks *c*, in combination with rod *d* and hooks *c c*, for joining the sections of extension-ladders, substantially as herein set forth.

172,596. WASHING-MACHINES. P. C. Addis, Deer Park, Ill. (Filed Mar. 4, 1874.)



172,596.



172,596.

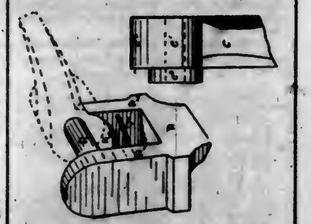
The cover bottom board G, provided with a roller, H, extending transversely across its middle and highest portion, as described, whereby the reciprocating movement of the rubber over the highest portion of the bottom board is facilitated, substantially as set forth.

172,597. KNITTING-RUBBS. Charles Allardice, Cohoes, N. Y. (Filed Aug. 21, 1875.)



The combination of the hub A, provided with oblique radial tangential slots and interior screw-thread *a*, with the screw-ring D, wicker-wings *b*, having dovetail projections *f*, and the clamp-bolt *e*, as and for the purpose described.

172,598. TELL-COUPLINGS. Geo. D. Selly, Spiceland, Ind. (Filed Dec. 20, 1875.)



1. The combination, with the coupling-iron *a* and the chill-iron *c*, of the groove *b* and lip or flange *d*, as and for the purpose specified.

2. The combination, with the coupling-iron *a*, having the short jaw a^2, formed with the inwardly-curved end a^3, and having the groove *b* on its inner face, of the chill-iron *c*, having the enlarged end c^2 made oval shape, and provided with the lip *d* and the lateral extension c^3, as and for the purposes specified.

172,599. MACHINES FOR PUNCHING AND SHEARING METAL. Lawrence Beesley, William Beesley, and Jas. Beesley, Barrow-in-Furness, Great Britain. (Filed Nov. 3, 1875.)

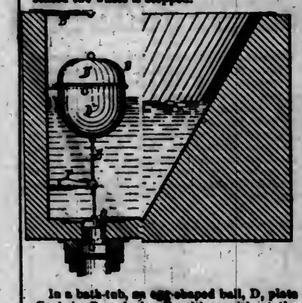
172,599.

1. The combination of the partially-rotating lever *d* d^2, the cutter *a*, and the punch *g*, with the cams *r* r^1, so constructed and arranged that the cams will serve to throw the cutter and punch, respectively, in and out of gear at will, as and for the purposes specified.

2. In combination with the horizontal arm d^2 of a lever, *d*, the slide *a*, arranged to be put in and out of gear by the cam *r* and carrying cutters *a*, the cam, *c*, operating in conformities with a fixed setter, *p*, and the other with a cutter, *t*, carried by a frame, *s*, bolted to the upper part of the main casting of the machine, all substantially as hereinbefore described, for the purpose specified.

172,600. BATH-TUBS. Charles A. Blessing, Philadelphia, Pa. (Filed May 6, 1876.)

Brief.—The egg-shaped float has the circular rest shown. When the water rises above a certain level the float is lifted, drawing up the plug and allowing waste. As soon as the water falls sufficiently to allow the float to be seated the waste is stopped.



In a bath-tub, an egg-shaped ball, D, plate C, chain E, and plug G, with or without the guide-rod F, the whole constructed and arranged to operate substantially as described.

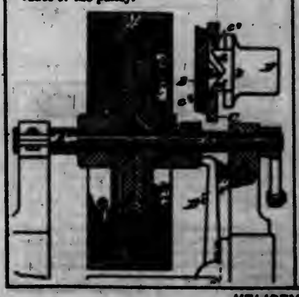
172,601. CORSET-STEELS. Morris P. Bray, Birmingham, Conn. (Filed Dec. 16, 1875.)
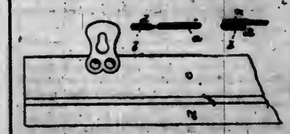


As a new article of manufacture, a corset-steel, consisting of the principal and auxiliary parts *a b* inclosed in parallel pockets, with a web connecting the two, and so as to allow the folding of the auxiliary part upon the principal for insertion into a single pocket in the edge of the corset, substantially as set forth.

172,602. GOVERNORS. Benjamin Brunelle, St. Louis, Mo. (Filed Sept. 6, 1875.)

Brief.—Power is transmitted from the engine-shaft to the pulley through spiral springs. The pulley is provided with a double cam, which engages with a cam-bar on the shaft, the motion of which opens or closes the valve, when the shaft runs behind or in advance of the pulley.



The combination of the parts—viz., the disk B, formed to have chambers b^1, abutments b^2, cams b^3, the disk C, having chambers *a*, abutments a^2, slots a^3, the spiral springs b^4, sliding collar D, having cam *r*, d^1, said parts being arranged with relation to each other and capable of reverse action on a shaft, A, and the whole constructed to operate in the manner and for the purpose set forth.

172,603. BALANCED SLIDE-VALVES. Benj. Brunelle, St. Louis, Mo. (Filed July 26, 1875.)

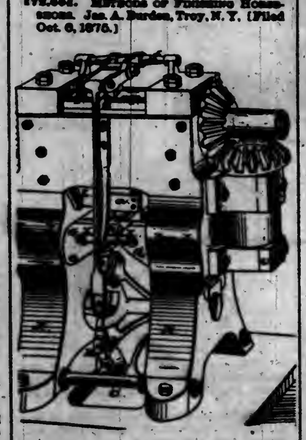
Brief.—The valve is balanced by admitting the required amount of live steam to the back. The amount is regulated by two pistons connected by a lever, the small piston acting as a valve.



1. A lever having a changeable fulcrum, and carrying flanges arranged in a steam-chest with relation to a slide-valve, in the manner herein shown and described, and by means whereof the lesser pressure top of valve is counterbalanced by the greater pressure below said valve, forming an improved balanced valve, as set forth.

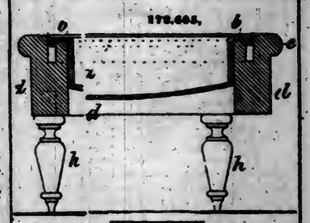
2. The combination of the plug-cam D D^1, lever E, movable fulcrum E^1, ports d^2 d^3 *d*, with relation to a steam-chest and cylinder A, to operate as and for the purpose set forth.

172,604. METHODS OF FURNISHING HOUSE-HORSES. Jas. A. Burden, Troy, N. Y. (Filed Oct. 6, 1875.)

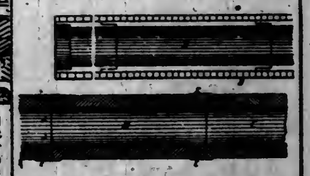


The method of first making the crosses and nail-holes of broader dimensions than is proper in the finished shoe, in order thereby to employ punches and crossers of large dimensions, and then partially closing said crosses and nail-holes, reducing them to their proper sizes, and at the same time imparting evenness of contour to the blank by dies acting to compress the blank edgewise, substantially as described.

172,605. [illegible]



172,606. MANUFACTURE OF TUBES FOR LINING ORDNANCE. J. G. Butler, New York, N. Y. (Filed Dec. 20, 1875.)



1. For the manufacture of ordnance, a lining or re-enforcing tube of wrought-iron, (or other welding material,) composed of several tubular sections, each formed of a single plate, so that the fiber of the material shall be disposed circumferentially, substantially as and for the purpose hereinbefore set forth.

2. A lining or re-enforcing tube, composed of sections formed of plates and united upon a mortise-and-tenon principle, the sections being shrunk one upon the other and welded together, substantially as and for the purpose hereinbefore set forth.

3. The combination of the sectional tube A B C with the coiled tube D, substantially as and for the purpose hereinbefore set forth.

172,607. STOVE-LID LIFTERS. Theodor B. Carpenter, New Haven, Conn. (Filed Oct. 8, 1875.)



The herein-described stove-cover lifter, consisting of the hook C, piece *a*, both arranged on the lower edge of the shank B, midway between the toe A and handle D, shank B, toe A, and round and hollow handle D, consisting of slightly-curved longitudinal bars terminating in a circular piece connecting the handle with the shank B, and forming one end of the same, and terminating, also, in a perforated disk or ring forming the other end, and of short curved bars running obliquely to the longitudinal bars, and uniting with the same, the said bars arranged to leave open spaces in the shell of the handle, all the said parts constructed in one piece, as shown and described.

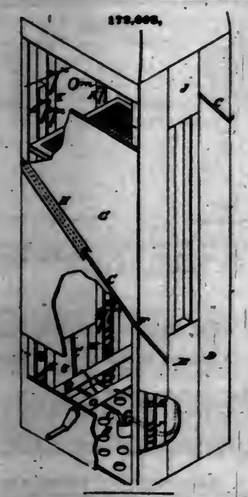
172,608. DRYING APPARATUS. J. W. Cassiday, Petaluma, Cal. (Filed Mar. 8, 1875.)

Brief.—The combination of stationary parts provided with spring-catches with vertically-movable posts carrying drying-frames, and provided with similar spring-catches, and with mechanism for operating the same.

1. In combination with a drying-chamber, the pipes or flues C passing diagonally along the slotted openings I, formed and outside of the drier, and provided with coverings E H J, substantially as and for the purpose set forth.

2. In combination with a drier, the stationary posts K, provided with spring-catches *a n*, and the vertically-moving posts L, provided with the spring-catches a^1 n^1, and suitable mechanism for operating the posts L, substantially as and for the purpose set forth.

172,608.



172,608. PORTABLE OIL-TANKS. Philo M. Clark, Kansas City, Mo. [Filed Jan. 4, 1876.]



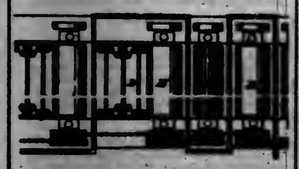
172,609.

1. An oil-tank, suspended upon trunnions on a wagon-frame, and leveled by means of an adjusting-screw, for the purposes herein set forth.

2. The pivoted tank D, provided with the spirit-level d and glass gage b, in combination with the wagon A B and adjusting-screw E, substantially as and for the purposes herein set forth.

3. The combination of the tank D, pipe f, with stop-cock i, pump G, and pipe I, with stop-cock n, substantially as and for the purposes herein set forth.

172,610. HAIRE-MACHINES. G. G. Coleman, San Francisco, Cal. [Filed Sept. 10, 1875.]



1. The continuous pressure of freshly tanned fiber from its gummy matter and stain, the same consisting in first distending the dry stalks by means of crushing-rollers, and then subjecting the mass alternately to hot water or steam, and the action of pressing-rollers, together with a final drying device, substantially as herein described.

2. The apparatus consisting of the fluted and plain rollers A B, endless belts D D, tanks E, pressing-rollers F, and final drying-vessel and cylinder H, when constructed to operate substantially as herein described.

172,611. PLATES FOR DESICCATING EGGS. Peter Cooper, New York, assignor to C. A. Le Mont, Turner's, N. Y. [Filed Feb. 18, 1876.]

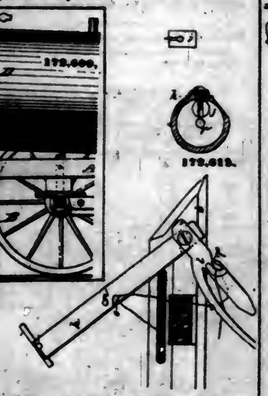


As an improvement in the art of desiccating eggs, &c., a revolving non-metallic mineral plate or disk, formed with unglazed tenacious surfaces, adapted to collect and retain in their revolution the liquid film for desiccation, substantially as herein set forth.

172,612. SEWING-MACHINE SHUTTLES. J. S. Copeland, Hartford, Conn., assignor to Wood Sewing-Machine Company, same place. [Filed Dec. 6, 1875.]

Brief.—The latch, that carries the shuttle-closing cap, the tension-spring, and regulating-screw, is pivoted on a sliding piece, which is pushed to the rear when it is desired to swing the cap aside, and to the front when the cap is to be replaced.

172,613.



1. The combination, with the shell of the shuttle, of a pivoted and sliding latch and connected bearing and cap, substantially as described.

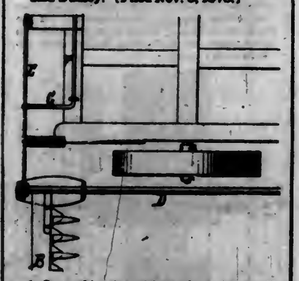
2. The combination, with the shell of the shuttle, of a pivoted and sliding latch, and bearing, and latch-carriage, and a screw to pivot the latch and enter the carriage, to operate as and for the purpose described.

3. In a shuttle, a pivoted and sliding latch and latch-carriage, in combination with a tension-spring and a screw to attach the spring and latch together, and to adjust the tension on the thread, substantially as described.

4. The latch h, provided with a slotted eye and an opening, o, in combination with a tension-spring, provided with a slotted eye, a hook to enter opening o, and with a screw to press the spring against the thread between it and the latch, substantially as described.

5. The pivoted and sliding latch, in combination with the tension-spring and shuttle-thread-check-controlling spring, substantially as described.

172,614. THROAT-SPRINGS FOR HARVESTERS. Richard Dudley, Erie, Pa., and Lee Beede, Albion, Ill.; said Beede assignor to said Dudley. [Filed Nov. 6, 1875.]

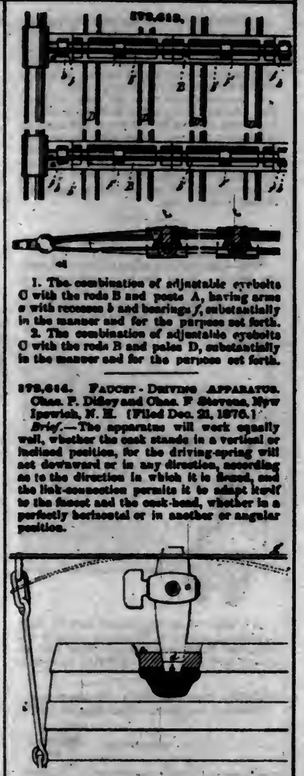


1. In combination with the lateral brace E of the cutter-bar B of a harvesting or mowing machine, a torsion-spring and its lateral arm, constructed and arranged substantially as described.

172,615. INDEX PENCIL. Sommers Crotzell, Philadelphia, Pa. [Filed Nov. 6, 1875.]

Brief.—The horizontal tie-rods rest in grooved arms formed on the poles and posts, and are secured by adjustable eyebolts passing through said arms and around said tie-rods.

172,616.



1. The combination of adjustable eyebolts C with the rods B and posts A, having arms a with recesses b and bearings f, substantially in the manner and for the purpose set forth.

2. The combination of adjustable eyebolts C with the rods B and poles D, substantially in the manner and for the purpose set forth.

172,617. STONE-POLISHING MACHINES. J. Finn, Cambridgeport, Mass. [Filed Nov. 16, 1875.]

1. The combination of the rocks G H and levers I K with the platform C and its supporting-carriage D, provided with sustaining-ways, arranged as specified.

2. The grinder-head shaft A, provided with the tenon f and the eduction-passage h, arranged with said shaft in manner and to operate with the stationary pipe i, as set forth.

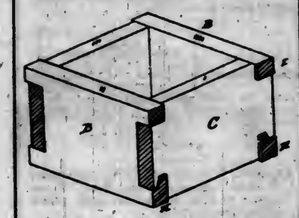
172,618. TOBACCO-SPRINGS FOR HARVESTERS. Richard Dudley, Erie, Pa., and Lee Beede, Albion, Ill.; said Beede assignor to said Dudley. (Filed Nov. 6, 1875.)

1. In combination with the lateral brace E of the cutter-bar B of a harvesting or mowing machine, a torsion-spring and its lateral arm, constructed and arranged substantially as described.

2. The lateral lever-arm G of a torsion-spring, connected with the lateral brace E by means of an adjustable support, so as to permit of its operation, substantially as described.

172,619. TRANSPLANTING-BOXES. P. Hoy, Salisbury Township, Lancaster County, Pa. [Filed July 29, 1875.]

Brief.—The box is nearly square, and slightly smaller at the bottom. The sides and ends are formed with wedge-shaped recess and openings, so arranged that when the parts are all in proper place they will so remain without further fixture.



The side pieces B B and C C, with their respective wedge tongues f, and ledge g, in combination with the bevel-groove d and straight edge d, as and for the purpose shown and specified.

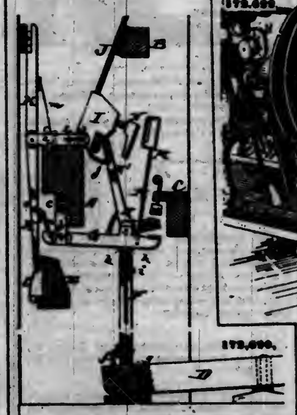
172,620. WATER-SPOUT CUT-OFFS. Geo. W. Folkerth, Dayton, Ohio. [Filed May 26, 1876.]

Brief.—By sliding the spring-handle over the projection, the shifting spout is swung from one outlet-orifice to the other.

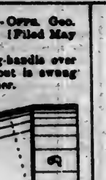


In a rain-water cut-off the spring handle B, and projection C, constructed and arranged substantially as and for the purpose specified.

172,621. UPRIGHT-PIANO ACTIONS. Friedk. Frischinger, West Nassau, N. Y. [Filed Nov. 18, 1876.]



172,621.



1. In an upright-piano action, the combination, with the lifter B and lever H, of the balance-spring I, substantially as herein shown and described.

2. In an upright-piano action, the combination of the ordinary jack or fly lever C and fly D with the strap d and hammer-butt E, all arranged to operate so that the fly in dropping will draw the hammer off the string, substantially as herein shown and described.

3. In an upright-piano-forte action, the combination of the spring e, which has a hook at its free end, with the loop p fastened to the hammer-butt, behind the pivot of said butt, substantially as specified.

1. The combination, with the shoulders a and the brace D, of the rubber bumpers c c between the parts, to prevent noise and to keep the rider's dress from being ground or torn, as described.

2. The removable side-arm B', having a sliding collar or slot-cover, b, socket for the removable hay-pin b, and recess for the pin g of the block H, as described.

3. The combination, with the removable side-arm B', its shoulder a, and pin b, and the pin g of the block H, of the dirt-excluding tube H, block H, and spring I, as described.

172,622.

1. The combination of the key D with the hook f and with the lifter F, substantially as herein shown and described.

2. The combination of the key D and supporting-screw g with the lifter F, substantially as herein shown and described.

3. The double leather joint h attached to the lever G, and inserted in the slit end of the lifter F, substantially in the manner and for the purpose herein shown and described.

4. In a piano-action having the hammer-butt I, key D, and connecting mechanism constructed substantially as described, the arrangement of the hook f and slot H' of the fly H relatively to each other, for effecting the return of the hammer, substantially as set forth.

172,623.



172,623. MACHINES FOR MAKING BOBBINS. Geo. W. Glazier, Salem, and O. B. Walt, Lynn, Mass., assignors to the Lawrence Spool Company. (Filed June 17, 1875.)

Brief.—Blanks of a proper size for bobbins and spools can be automatically bored, reamed, turned, and slotted by being fed from a vertical hopper by means of a reciprocating plunger into a hollow auger for turning off the head; thence into a revolving head having an intermittent motion, and provided with suitable sockets, in which the blanks are held until they are operated upon by suitable tools mounted upon either side of the revolving head. The blanks are next forced onto one of the spindles of a horizontally-rotating head, and there held until finished by suitable tools mounted adjacent to the spindle-head. The head is provided in its center with a cup for holding oil, with which the ends of the spindles are lubricated.

1. The intermittently-revolving head E, provided with sockets, as shown, in combination with an automatic clamping mechanism, i l, substantially as described, and for the purpose set forth.

2. The combination of the head E, clamping devices i l, and the cutter F, substantially as described, and for the purpose set forth.

3. The combination of the hollow auger D, slide p, and its operating mechanism with the roller k, all substantially as described, and for the purpose set forth.

4. The combination of the head E, automatic clamping mechanism i l, and the hollow auger D, substantially as described, and for the purpose set forth.

5. The combination of the head E, clamping mechanism i l, hollow auger D, and the two series of revolving spindles, substantially as described, and for the purpose set forth.

6. The combination of the head E, clamping devices i l, hollow auger D, series of work-carrying spindles, the saw H, and their operating mechanisms, all substantially as described, and for the purpose set forth.

7. The combination, with the head E, carrying sockets, and clamping devices, of the head I, carrying spindles n, and their operating mechanisms, substantially as described, and for the purpose set forth.

172,624. UPRIGHT-PIANO-FORTE ACTIONS. Friedrich Frischinger, West Nassau, N. Y. (Filed Nov. 18, 1876.)

5. The combination of the head I, provided with spindles a, with the lathe-heads H T, substantially as described, and for the purpose set forth.

6. The head I and its hollow spindles a, provided with wicking, leading to a central cup or reservoir within the head, all substantially as described, and for the purpose set forth.

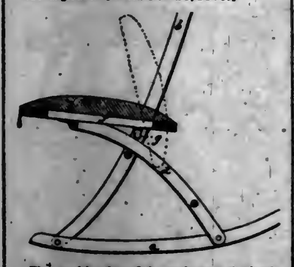
10. The combination of the lathe-head N, carriage Q, and adjustable way c, substantially as described, and for the purpose set forth.

11. The combination of the lathe-head N, tool-carriage Q, movable way c, lever s, and cam S, substantially as described, and for the purpose set forth.

12. The combination of the head I, provided with spindles a, carriage R, and catch V, substantially as described, and for the purpose set forth.

13. The combination of the rotating head I, carrying spindles a, tool-carriages Q R, and lifting-cam E, substantially as described, and for the purpose set forth.

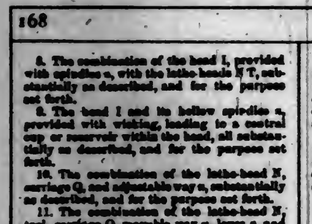
172,626. POLISHING CHAIRS. Henry S. Golightly, New Haven, Conn., assignor to New Haven Folding-Chair Company, same place. [Filed Oct. 26, 1875.]



The combination of the rockers a, the back b, extending down and hinged to the front end of the rocker to form the front legs, the rear legs d, hinged to the rear end of the rocker, extending up and crossing, but not connected with, the front legs, the rigid seat f, hinged to the rear part and locked over the other, substantially as described.

172,627. MACHINERY FOR REPAIRING GLOBE-VALVES. Chas. F. Hall, Shanendaian, N. Y. [Filed Feb. 12, 1875.]

Brief.—The disks are connected by bars, and are adjustable as to distance apart. Other bars, opening the space between the disks and adjustable in radial slots therein, support cutting-blades, which may thus be set to different angles to the line of the centers.



1. The combination of the spindle J, disk O, sliding blocks D', adjusting-screw T, links U, and jam-nuts V, substantially as specified.

2. The combination of disk P and slotted bars W, of the adjustable disk O, on card for the purpose specified.

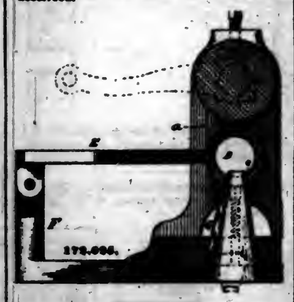
3. The combination, with the center C and screw G, of the outer supporting and adjusting disk P, substantially as specified.

172,628. PHOTOGRAPH-BURNISHERS. Geo. B. Hall and De Witt Lasher, Fort Plain, N. Y. [Filed Nov. 24, 1875.]

1. In a photograph-burnisher, the adjustable tubular burnisher D, in combination with the openings b in the standards A, the wheels forming a line, substantially as and for the purpose specified.

2. In a photograph-burnisher, the combination of the adjustable pivoted or hinged tubular burnisher D, concave burnishing-surface c, forming part thereof, and the chimney I, constructed and arranged substantially as shown and described.

3. The non-rotating tubular burnisher D, vertically adjustable within the frame of a photograph burnisher, and provided with a concave burnishing-surface, c, substantially as described.



172,629. VEHICLE-WHEELS. Perry J. Harvey and Fritz Rappenhagen, Chicago, Ill. [Filed Nov. 16, 1875.]

Brief.—The recesses in the plates receive the flanges on the wedge.

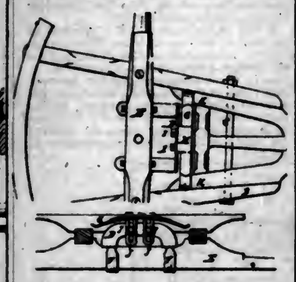


The combination of the hub A, having therein the staggered mortises, the removable wedge-shaped blocks C C, set to receive the rivets, and flanged, as shown at c c, the collars B B, set to receive the flanges c c, and the radially beveled spokes, substantially as and for the purposes specified.

172,630. HEADACHE REMEDIES. Henry W. Kellen, Shanendaian, N. Y. [Filed Oct. 19, 1875.]

A medical composition consisting of gentian and aromatic spirits of ammonia, bromide of sodium, and tincture of lupulin, as and for the purposes set forth.

172,631. TONGUE-SUPPORTS. Christoph Hotz, Chicago, Ill. [Filed Dec. 10, 1875.]



In combination with the lumber-pole or tongue A of a vagon, the adjustable spring G H and the stirrup D, secured to the axle B, substantially as and for the purposes set forth.

172,632. TIME-LOCKS. Leporte Hubbell, Forestville, Conn., assignor to L. Hubbell & Co., same place. [Filed Sept. 10, 1875.]

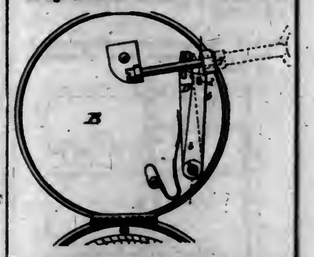
1. In combination, the two independent clock-movements, the two independent concentric shafts, each driven directly by its respective movement, and a cam upon each of said shafts, independent one of the other, substantially as described.

2. In combination, the two independent clock-movements, the two independent concentric shafts, each driven directly by its respective movement, and a cam upon each of said shafts independent one of the other, and a coupling device to engage the said two cams, substantially as specified.



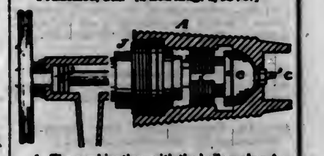
172,633. WATCHMEN'S TIME-DETECTORS. William Imbeaumer, Brooklyn, N. Y., assignor to Elias Imbeaumer, same place. [Filed Jan. 7, 1876.]

Brief.—A marking device attached to the lid of the case, and vibrated both horizontally and vertically by the action of the key passed through the lid.



In a watchman's time-detector, the combination of the lid or cover B with the vibrating lever D, and with the marking-spring or hammer b, said lever being pivoted to the lid B, substantially as herein shown and described.

172,634. FAUCETS. William P. Kelly, San Francisco, Cal. [Filed Aug. 4, 1875.]



1. The combination, with the hollow plug A, faucet G, and nut J, of the wrench F, formed with collar F', enlargement F', and groove or channels f f, and conical or semi-globular valve C, provided with flanges c, and operated by a screw-plug, E, provided with slots f, stem B', and spindle b', substantially as shown and described.

2. The combination, with a hollow plug, A, of a conical or semi-globular valve, C, provided with a valve, c, and supported on a spindle, B', carried by a screw-plug, E, having slots f in its periphery, the said plug being caused to revolve by means of a stem, B', held in the enlargement F' of a wrench, F, substantially as and for the purpose set forth.

172,635. HANDLES FOR SHOVELS. William J. A. Kennedy, Pittsburg, Pa. [Filed Sept. 20, 1875.]



A tubular metallic handle for shovels and other like implements.

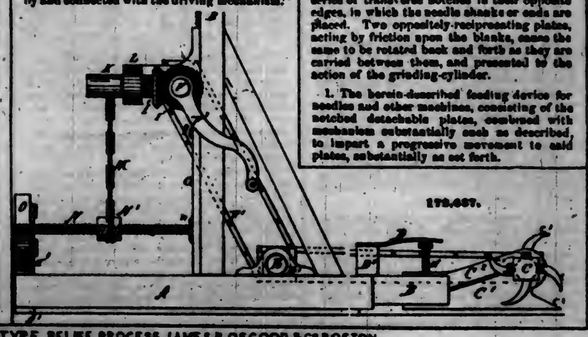
172,636. GLOVE-FASTENERS. John A. Kincaid, Boston, Mass., assignor to the Corsing Buckle Company. [Filed July 16, 1875.]



A glove-fastener, substantially as described, composed of hook and eye pieces, adapted to be connected with a glove by means of eyelets or prongs, and a lever pivoted to the eye piece, and adapted to engage the hook-piece and draw, fasten, and hold the glove-edges together, substantially as set forth.

172,637. MINING-MACHINES. Francis M. Lechner, Waynesburg, Ohio. [Filed Dec. 13, 1875.]

Brief.—The main frame carries a sliding frame and driving mechanism, which latter is connected with the cutter-shaft by means of an endless chain. The sliding frame is advanced by a nut upon the screw-rod, operated by and connected with the driving mechanism.



1. In a mining machine, the cutter-shaft C, in combination with the adjustable teeth c', substantially as set forth.

2. The combination, with the shaft C and teeth c', of the supporting-shoes C', provided with the projecting cutting-spurs c' and shoes C', substantially as and for the purpose set forth.

3. The combination, with the carriers B and cutter-shaft C, of the supporting-shoes C' C' and guiding plates D, substantially as set forth.

4. The combination, with the posts B' B', of the adjustable sliding frame O, shafts E and F, and chain F', substantially as set forth.

5. The combination of the cutter-shaft C, chain F', shafts E and F, and chain F', substantially as set forth.

6. The combination, with the stationary frame and sliding frame carrying the cutter-shaft and its driving mechanism, of the feeding screw-shaft N, substantially as set forth.

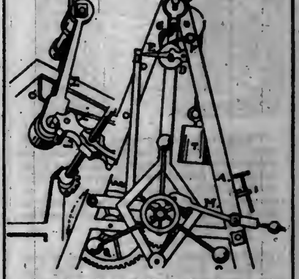
7. The combination, with the feeding screw-shaft N, having one end mounted in the adjustable frame O, of the slotted standard O and the adjustable screw-threaded plate o o', substantially as set forth.

8. The combination, with the feeding screw-shaft N, of the bearing having a throat, n', and the pivoted clamping-plate O', substantially as set forth.

9. In combination with the cutter-shaft C and driving-chain E, the narrow cutting-tooth c', substantially as set forth.

172,638. CLOCK-ESCAPEMENTS. John Leidgen, Milwaukee, Wis., assignor of one-half his right to Jas. Blake, same place. [Filed Apr. 26, 1875.]

Brief.—A lever attached to the clock-frame, being alternately held and released by a revolving stop mechanism operated by certain pawl-and-ratchet devices, in its fall operates a wire attached to the pendulum, sustaining its vibrations.



Pendulum B, pawl H, ratchet I, stop K, and shaft L, in combination with lever M and rod O, substantially as set forth.

172,639. MACHINERY FOR GRINDING NEEDLES. Francis W. Mallett, New Haven, Conn., assignor to Cook & Porter Needle Company, Boston, Mass. [Filed July 13, 1875.]

Brief.—Two plates, toothed on their rear edges and caused to move longitudinally on the bed by a worm, are each provided with a series of transverse notches in their opposite edges, in which the needle shanks or ends are placed. Two oppositely-reciprocating plates, acting by friction upon the blanks, cause the same to be rotated back and forth as they are carried between them, and presented to the action of the grinding-cylinder.

1. The herein-described feeding device for needles and other machines, consisting of the notched detachable plates, combined with mechanism substantially such as described, to impart a progressive movement to said plates, substantially as set forth.

172,640. BRIDLE-CHECK-REINS. Francis M. Lechner, Waynesburg, Ohio. [Filed Dec. 13, 1875.]

1. An open-back check-runner provided with two loops, a a, at its upper and lower ends, adapted to receive the billet of the throat-latch, for facilitating the attachment and removal of the runner, and for keeping the same in contact with the head of the horse, substantially as hereinbefore set forth.

2. A check-runner composed of the rigid curved body A, made open at the back, and provided with a buckle, a a', and loop a, for its connection with the throat-latch billet, substantially as and for the purpose hereinbefore set forth.

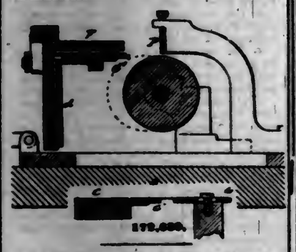
172,641. BRIDLE-BITS. Francis M. Lechner, Waynesburg, Ohio. [Filed Dec. 13, 1875.]

Brief.—The part of the handle upon which the bristles are secured is the large end of a cone or wedge. The bristles at this end abut against a cap run up from the small end, and held tight by a wedge through a transverse slot in said handle, the bristles being secured by a permanent coil. A further coil (to be removed in placing on the brush when worn away) is in the direction of the front end of the brush, and so adhering as to require force for its separation.

...d. In combination with the notched carrying-plates, and a grinding-cylinder, a pair of plates, F and O', one or both of which has a reciprocating movement, substantially as described.

3. The combination of the notched carrying-plates, a grinding-cylinder, a pair of plates, F and O', one or both of which has a reciprocating movement, and the adjustable guide G, substantially as described.

4. In combination with a pair of reciprocating plates, F and O', and a grinding-cylinder, the intervening notched carrying-plates, and the adjustable pressure-bar P, substantially as described.



178,640.

178,640. DIES FOR BOXES. Henry Martyn, Enos Mosteard, assignor to himself and B. F. Brown, Newton Centre, Mass. [Filed Dec. 29, 1875.]

Brief.—The cutters of the die are pushed outward at right angles to the plunger by inclines, and retracted by springs, to permit ready withdrawal of the die.



The pen or bar die, essentially an angle iron, composed of the chambered body A and the series of movable rectangular cutter-slides B, arranged and provided with means or mechanism for operating them, substantially as described, such mechanism, as shown, being the frame D, cams C, tapering plunger E, and the springs *g*, all as set forth.

178,641. MODES OF CONSTRUCTING FOUNDATIONS. Orville O. Matthews, Medfield, Pa. [Filed July 1, 1875.]



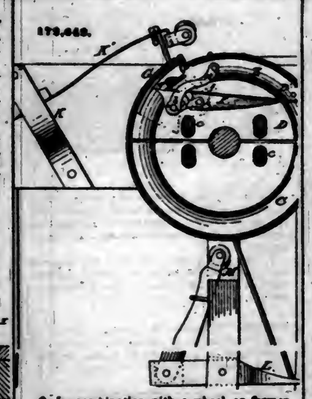
The herein-described process for constructing the foundations of buildings, by first inserting or compressing the earth by driving piles, withdrawing the piles, and then filling the holes with concrete, cement, or other material which will solidify and harden, substantially as set forth.

178,642. NAIL-KEGS. Samuel P. Maxwell, Clifton, W. Va. [Filed Aug. 10, 1875.]

Brief.—The former is made in sections, so that it may be enlarged or diminished to suit hoops of different diameters.

1. In a hoop-bending machine, in combination with a pressure-plate to secure the hoop around the former, a compound former-wheel consisting of the bearing-plate B and sections C D E F, dies *e e*, and bolts and nuts, the whole being constructed and arranged to operate substantially as described, and for the purpose specified.

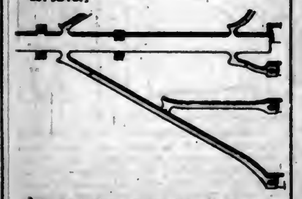
178,643.



2. In combination with a wheel or former having a pivoted segment, E, and clasp G, the tongue F, recessed so as to provide a tooth-bearing, *f*, the same being so combined and arranged that when the tongue is drawn through suitable mechanism it shall not only throw out the segment, but leave its tooth in position to bite the hoop under the catch, substantially as described.

3. The former or wheel B U D E F, catch G, spring-plate E', roller K', treadle L, and roller M, the whole being combined and arranged to operate substantially as described.

178,643. VEHICLE-PERCH PLATES. Joseph R. McGuire, Ansonia, Conn. [Filed Oct. 19, 1875.]



The perch-plate constructed with the stay-seats as a part of it, and with the clip-ears and side-supporting lugs, substantially as described, as an article of manufacture.

178,644. FURNACES FOR BURNING WET FUEL. John A. Meagley, Binghamton, N. Y. [Filed Dec. 8, 1875.]

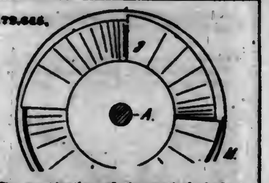


The combination of the sloping walls B in the furnace A, directly under the receiving-openings H and I, with the arched or curved grate C, all constructed substantially as herein described, for the purpose set forth.

178,645. WATER-WHEELS. Zachariah W. Newman and John A. Powell, Yalo, Miss. [Filed July 14, 1875.]

Brief.—The wheel is attached to an upright shaft, and rests upon a suitable bearing, and revolves immediately under the pen-stock. The water is conveyed to the wheel by the flumes, which are opened and closed by the gates. The said flumes are constructed so as to compress the water and discharge it at the top of the buckets. There are two discharges—one at the periphery of the wheel, and the other at the bottom—by which means the water gives greatly increased force to the wheel.

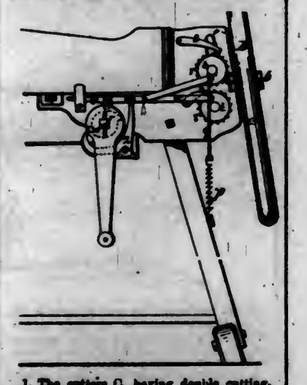
178,646.



The combination of the vertical shaft A pivoted at *a*, as described, conical shaft N, cistern E, hinged gates D D, fingers O O, and wheel M, the several parts being constructed, arranged, and combined to operate substantially as described, and for the purpose set forth.

178,646. STRAW-CUTTERS. John K. O'Neil, Canton, assignor to the Star Agricultural Works, Ravenna, Ohio. [Filed Nov. 7, 1874.]

Brief.—By an automatic movement an intermittent feeder and a circular cutter are operated, a feed-knife at the end of the trough and right-angled teeth on the radial arms of the cutter-wheel effecting the cut; said wheel inclining inwardly, its shaft being journaled at one side of the box.



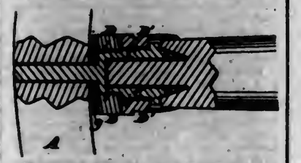
1. The cutters C, having double cutting-edges *f g*, for cutting in different directions, substantially as and for the purpose herein specified.

2. The combination of the recessed cutter-wheel arm *a*, having the supporting-lip *i*, the cutter-flange plate *k*, and the stationary knife K, substantially as and for the purpose herein specified.

3. The feed-roller bearing *h*, constructed to support the shaft of the cutter-wheel B, and one end of the stationary knife K, and provided with the offset *l*, substantially as and for the purpose herein specified.

4. The ratchet-wheels *r r*, in combination with the ratchet-disks *t t*, the reciprocating bar *v*, cam *w*, and vibratory cam-lever *x*, substantially as and for the purpose herein specified.

178,647. TIRE-TIGHTENERS. Adonibram J. Packard and Chas. P. Harris, Hill's Ferry, Col. [Filed Nov. 6, 1875.]



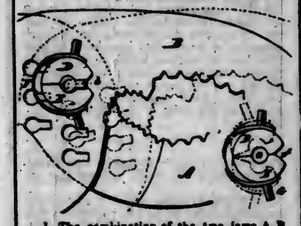
The combination, with the felly A and spoke B, of the socket-extension C of the spoke, having screw-threads *i i* and holding-points *o o*, and the nuts D D', all constructed and arranged to operate in the manner substantially as and for the purpose specified.

178,648. SHEET-METAL VESSELS. Joseph M. Patterson, Woodbury, N. J. [Filed Nov. 16, 1875.]



A sheet-metal can or vessel for potting up fresh fruits and vegetables, liquid paints, and other articles, in an air-tight manner, having the groove *b*, for receiving the flange of the cap or cover, formed of two or three thicknesses of the sheet metal of the upper end of the body of the said can or vessel, substantially as and for the purposes herein before set forth and described.

178,649. PIPE-TONGS. Albert A. Pease, New Haven, Conn. [Filed Nov. 16, 1875.]

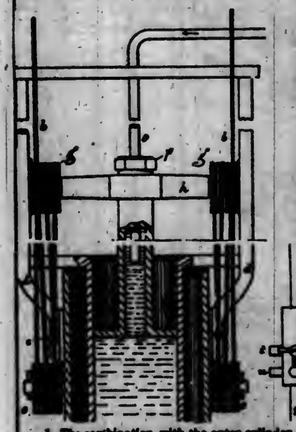


1. The combination of the two jaws A B, each formed upon, and so as to be operated by, its own independent handle, one constructed with two or more series of pivot-bearings, the said pivot forming the fulcrum upon which the two handles and their jaws work, substantially as described, and for the purpose of adjusting the jaws relatively to each other.

2. The collar consisting of the two parts D and E, united by the spring F, and with an opening, *f*, to the space in the center, substantially as and for the purpose described.

178,650. HYDRAULIC ELEVATORS. Francis H. Perkins, Boston, Mass., assignor to the Whittier Machine Company, same place. [Filed Oct. 20, 1875.]

Brief.—A series of solid pistons, each one operating in a cylindrical curve of the next, the largest operating in a cylinder with water-supply pipes, and openings allowing the operation of the elevator by any one of the pistons alone, or by a combination of them.



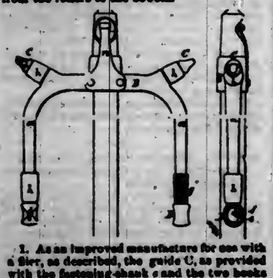
1. The combination, with the outer cylinder and inner pistons, connected with the crosshead, of an intermediate headed piston and water-supplying pipes, adapted to admit water into the main cylinder or under either piston, to raise a piston or pistons within it, and also the cross-head, either of the pistons being adapted to be brought into action when the car is starting, or after it is partially elevated, to regulate the lifting power of the piston or pistons, the outer piston in its movement moving the piston or pistons within it and the load, substantially as described.

2. The inner pistons, guided cross-head, sets of sheaves *e e f f*, and two compensaries, adapted to be connected with the car, in combination with an intermediate headed piston, in which the inner piston is carried and moved, and with water-supplying pipes, provided with independent openings, to discharge water through different openings under the heads of the different pistons, each piston having water-supplying openings, substantially as described.

3. In a hydraulic elevator, the combination of an outer cylinder with an intermediate headed piston, having a tubular sleeve, an interior piston, having its head fitted to an interior sleeve, and with water-controlling passages, whereby water may be admitted at will under either of the pistons separately, to lift either piston, substantially as described.

178,651. FLIERS FOR SPINNING MACHINERY. Chas. K. Percy, Worcester, Mass. [Filed Sept. 9, 1875.]

Brief.—Upon the upper end of the flier, and projecting through an aperture in its neck, is a spring-latch, which is adapted to engage with a depression or notch in the upper end of the spindle, in such a manner that the said flier may be removed from the spindle when desired, while at the upper and lower ends of the legs of the flier are detachably-arranged duplex hook-guides, for conducting the yarn from the rollers to the bobbin.



1. As an improved manufacture for use with a flier, as described, the guide C, as provided with the fastening-shank *e* and the two hooks *d g*, arranged as represented.

2. The flier provided with the latching-spring *n* and the notch *m*, in combination with the spindle provided with the stud *i* and the groove *k*, all being to operate substantially as set forth.

3. The flier provided with the two movable guides and their couplings, arranged with and applied to each leg of it, one of such guides being at the foot and the other at or near the head of each leg, all as set forth.

178,652. WRINGERS. Napoleon B. Phelps, New York, N. Y., assignor to the Metropolitan Washing-Machine Company, Middlefield, Conn. [Filed Dec. 22, 1875.]

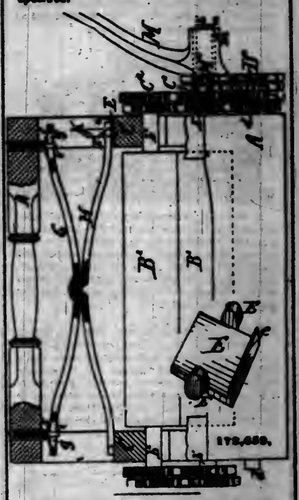
Brief.—The crank is cast with a stepped gear-wheel, and is connected with the shaft and gear-wheel by a sleeve. The springs are slotted near their ends, for the free operation of the adjusting-screws. The bearings for the springs are metal, and have lips and guide-wings, which move in grooves in the frame.

1. The sleeve m^2 on a loose wheel, M^2, in combination with the crank M and a suitable key, *n*, and adapted to serve as herein specified.

2. In combination with the elastic rolls of a clothes-wringing machine, the purchase-gear wheel M^2, firmly attached to the operating-crank, and revolving on the shaft b^2 of the lower roll, the gear-wheels D^2 and D, mounted on the shaft or stud *d*, and an upper roll capable of independently rising and sinking, and operating with the gear C^2 to turn the shaft b^2 of the lower roll, substantially as described.

3. The slotted spring G *g f*, in combination with the adjusting-screws I I, and with the wringer-rollers B^2 B^2, as and for the purposes specified.

4. The metal pieces E, having guide-wings E' and lip *a*, in combination with a spring, H, and with the boxes C C, grooves K K, and shafts b^2 b^2, and their connections, as herein specified.



178,653. CAN-OPENERS. Samuel Poole, Brooklyn, N. Y., assignor to himself and Henry P. Gardner, Boston, Mass. [Filed Nov. 9, 1875.]

Brief.—The essential novelty being the independently-rotating friction-roller, which, as well as the cutter, is set at an angle to the sides of the socket, but at less than right angles to the projecting point, the roller serving to prevent the cutter from penetrating too far, and also to facilitate its action.

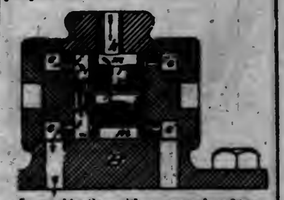


1. The combination, with the shank A, provided with the pivotal point T, of the adjustable socket B, the inclined cutter D, and friction-roller E, all constructed to operate substantially as and for the purpose set forth.

2. The combination, with the rotary cutter A, of the independently-rotating roller E, as and for the purpose specified.

178,654. STEAM VACUUM-PUMPS. William B. Prall and David A. Burr, Washington, D. C. [Filed Nov. 24, 1875.]

Brief.—Steam confined in the recess, when the valve has closed one port and opened the other, assists in moving said valve upon a reduction of pressure in the open port, caused by condensation or exhaustion of steam in the pump with which it connects.



In combination with a grooved and perforated piston or valve, K, controlling the admission of steam to a steam and vacuum pump, a recess or steam-space, S, formed within or opposite to the outer face of each end of said valve, to communicate through said valve with the steam-supply pipe of the pump, substantially as and for the purpose herein set forth.

172,645. STEAM VACUUM-PUMPS. William R. Prall and David A. Burr, Washington, D. C. [Filed Nov. 21, 1873.]

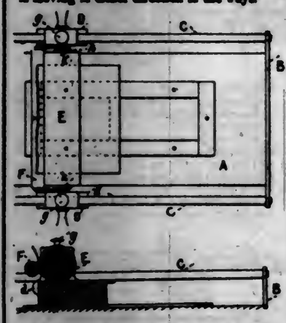
Brief.—Steam which had entered the receiver through ways, confined when the valve has closed one passage and opened the other, acts to throw the valve upon a reduction of pressure in the opposite passage.



A valve, B, interrupting a channel of communication between the working-chambers of a steam vacuum-pump, and combined with a contracted opening, C, interposed between the steam-port of each chamber and the steam-supply pipe, and with recesses a a, formed relatively thereto, substantially as and for the purpose herein set forth.

172,646. PROOF-PRESSES. William Quail, Brooklyn, N. Y. [Filed Nov. 16, 1875.]

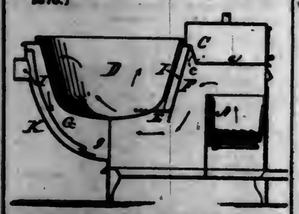
Brief.—The small supplemental roller holds the proof-paper close against the impression-cylinder, and then prevents doubling or creasing. It is also reversible in its bearings, to enable a proof to be taken while the cylinder is moving in either direction in the ways.



1. The combination, with the impression-cylinder E, free to revolve upon the spindle h, supporting it, of the bed A, brackets B, rods C, and beams D, provided with the rollers f and set-screws g, substantially as and for the purpose described.

2. The combination, with the impression-cylinder E, supported by, and moving with, the beams D, of the roller F, the whole constructed and operating substantially as and for the purposes specified.

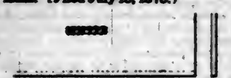
172,647. COOKING-STOVES. Geo. G. Richmond, Providence, R. I. [Filed Mar. 17, 1876.]



1. The defecting-plate F and the flue-plate B, in combination with the fire-chamber A and cauldron D, substantially as described.

2. The curved flue G, having its outlet H higher than the inlet g, and combined, in the manner described, with a cauldron, D, so that an air and heat circulating space, I, may exist between the flue G and the side of the cauldron D, substantially as described.

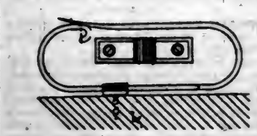
172,648. METALLIC SOLE-FASTENING STRIPS. Everett P. Richardson, Lawrence, assignor to Gordon McKay, Cambridge, Mass. [Filed July 15, 1876.]



As a new article of manufacture a sheet-metal nail-strip of many nails' length cut from rolled sheet metal, with the fiber of the metal running in the direction of the length of the strip, of a cross-section of substantially the section of the required nail, and corrugated, substantially as described.

172,649. PAPER-CLIPS. Pelanzi Roberts, Chicago, Ill. [Filed Nov. 9, 1875.]

Brief.—The back of the hook is fastened, so as to slide in and out of the slotted bracket. Thus, when the hook has become filled with papers, it may be detached from its bracket and filed away, the latter being again supplied with an empty hook.



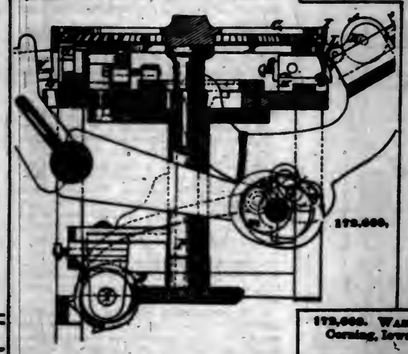
1. The file consisting of the bracket, adapted to be permanently attached to the wall, and a file-hook, so constructed, essentially as described, that it may be removed from the bracket without detaching the bracket from the wall, substantially as specified.

2. The combination of the bracket with the file-hook, having a guard-loop made in one piece and detachable from the bracket, substantially as specified.

3. The combination, with the slotted bracket, of the file-wire fastened at the back limb, substantially as specified.

172,650. MACHINES FOR FINISHING HORSE-SHOE-NAILS. Robt. Ross, Vergennes, Vt. [Filed Nov. 16, 1872.]

Brief.—On the upper end of a vertical shaft, that is intermittingly rotated by ratchet and pawl through the medium of worm-gearing, is a toothed wheel, between the teeth of which and the surfaces of two stationary concentric rings the nails hang suspended, and are carried first to a die, against which the nail is rolled flatwise by a small roll in the vibrating lever, and thence successively to the point-beveling die and punch and the trimming-punch.



1. The improved self-carrying device composed of the two eccentric guide-rings and the notched feed-wheel provided with teeth projecting downward and operating to carry the nails around between the rings.

2. The combination of the feed-wheel, the crank, the pawl and ratchet-wheel, and the endless screw and worm-wheel, or their equivalents, substantially as described.

3. The combination of the endless screw, mounted in adjustable bearings and having a spiral groove cut between the threads, with the worm-wheel provided with grooves between the teeth, substantially as and for the purpose set forth.

4. The combination of the roll-lever and the adjustable frame, or its equivalent, to which it is pivoted, as a means of regulating the degree of pressure on the nail.

5. The combination of the grooved cam, the connecting-lever, the sliding bar and the roll-die carriage, or their equivalents, in the manner substantially as described, as a means of carrying the roll-die to and from its work.

6. The roll-die constructed substantially as herein before described, so that the central part may have a different range of movement from the side pieces, for the purpose of more readily freeing the nail from the die.

7. The combination in a horse-nail machine of a feed-wheel, a roll-die, and a nail-roll, together with their respective connections with the main shaft, substantially as herein before described, so that the nail may be brought into position in front of the die, before the die is advanced, and the die be advanced before the roll begins its work.

8. The arrangement in a nail-machine of the feeding mechanism, the rolling devices, and the pointing and trimming devices, substantially as herein before described, so that when the nail-carriage is full, a nail shall be brought into position before the trimming-die and another before the beveling-die at the same moment that one is brought into position for the action of the rolling mechanism.

172,651. CIGARETTE-FILLERS. Max Rubin, Brooklyn, E. D., N. Y. [Filed Dec. 13, 1875.]

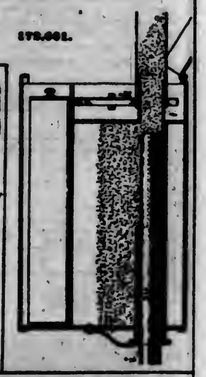
Brief.—In the lower part of a tobacco-box is a plunger, that drives out the tobacco into a cigarette-paper held upon the box by a removable sleeve and a clamp.

1. The cigarette-filler made of the movable slotted tube f and plunger m, combined with the tobacco-box and the spring-clamp h, for holding the case to the end of the tube.

2. The thin cylinder n, surrounding the cigarette-case, in combination with the tube f, plunger m, and the lever h, that passes upon this cylinder n, to hold the cases while the case is being filled, as set forth.

3. A tobacco-box provided with a sliding plunger in the bottom thereof, a tube projecting at one end of each box, and a clamp to hold the cigarette-case to each tube, substantially as set forth.

172,652.



172,653. WASH-BOILERS. Thos. Shuman, Corning, Iowa. [Filed Oct. 30, 1875.]

1. In a wash-boiler, a hot-air chamber in its bottom, of an oblong and conoidal form, and adapted to be used with a boiler attachment, substantially as shown and described, and for the purposes set forth.

2. The combination of the chamber in the bottom of a boiler or other heating-vessel with a movable attachment, perforated at its bottom, substantially as described, and for the purposes set forth.

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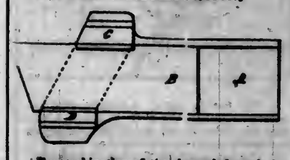


172,654. STOVE-PIPE THIMBLES. Thomas Shuman, Corning, Iowa. [Filed Nov. 10, 1875.]



The disk B, provided with the triangular lugs a a perforated at the apex, and constructed and arranged as shown, so that the rivet or bolt entering the said slotted lug and cylinder D may pass between the double legs on the inside of the disk C, in combination with the disk B fastened by flanges to the inside of the cylinder D, substantially as described, and for the purposes set forth.

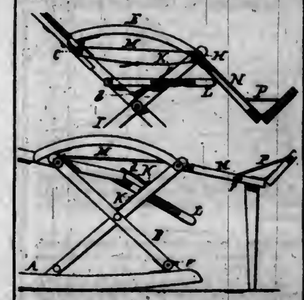
172,655. TOOL-HOLDERS FOR METAL-TURNING LATHES. Dwight Slate, Hartford, Conn. [Filed June 30, 1876.]



The combination of the channeled stock A, the blade B, of uniform section, and the clamping device C D, substantially as shown and described.

172,656. CORRUGATED ROOFINGS AND INVALID CHAIRS. Val De Mar Sleight, New York, N. Y., assignor of one-third his right to J. H. Gifford, same place. [Filed Oct. 22, 1875.]

Brief.—The several parts are combined and arranged so that the chair can be adjusted for use as a rocking or reclining chair, or as a cot.



1. The rockers A, inclined pieces B, hinged thereto and to the arms E, and bar C, in combination with the bar H and inclined plane I, attached to the rockers A, all substantially as shown and set forth.

2. The back-pieces D, provided with the pawls d, in combination with the ratchets K, levers L, frame N, and legs I and B, substantially as shown and described.

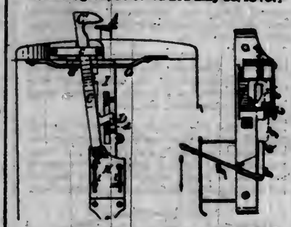
3. The piece M, provided with buckles and straps s, substantially as shown and described, and for the purposes set forth.

4. The combination of the frames N O, and hook P, and eyes p p', for the purposes specified.

5. The rockers A, pieces B and I, bars C and H, back-pieces D, levers L, and frame N, in combination, substantially as described, and for the purposes set forth.

6. The rockers A, pieces B and I, bars C and H, back-pieces D, levers L, frame N, piece M, and arms E, in combination, all operating substantially as shown and described, and for the purposes set forth.

172,657. CAR-COUPLINGS. Wm. G. Smoot, Washington, D. C. [Filed May 31, 1875.]



1. The combination of the coupling-stem C with the sliding plate H, having slots or guides i sliding upon bolts m, and lug a sliding upon bumper-block A', substantially as and for the purpose set forth.

2. The combination of the sliding plate H, having the lug a, with the bumper-stem A', having coiled upon it the spring B', substantially as and for the purpose set forth.

3. The combination of the coupling-stem C pivoted at s with the sliding arm G operated by lever F, and having projections or catches f f' arranged and operating substantially as and for the purpose set forth.

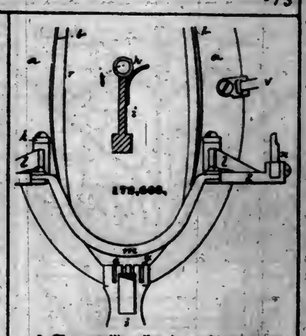
4. The combination of the sliding arm G having the laterally-projecting wedge G' with the look-plate E having the laterally-projecting wedge E', substantially as and for the purpose set forth.

5. The combination of the lever F, arm G, and look plate E having projecting wedge E', substantially as and for the purpose set forth.

6. The combination of the look-plate E with the spring or cushion d', substantially as and for the purpose set forth.

7. The combination of the look-plate E with the spring c, substantially as and for the purpose set forth.

172,658. HOSES-COLLARS. Hugh Smith, Gray, Me. [Filed Jan. 3, 1876.]



1. The metallic collar, in combination with the pivoted shaft-connecting levers and lever-connecting link m, adapted to operate substantially as described.

2. The collar and levers adapted to be connected directly with the shafts and the body-strap, in combination with the lifting-straps s, substantially as described.

3. The metallic collar, in combination with the perforated wooden lining, substantially as described.

4. The collar and its end pieces a, provided with pins in different lines, in combination with the fastening f, provided with openings or grooves g, and with a longitudinal groove, f', for the reception and operation of the pins f, substantially as described.

172,659. HOSE-CLAMPS. David A. Stevens, Toledo, Ohio. [Filed Dec. 21, 1875.]



1. The combination of the slotted flange F, its overhanging lip, and the thumb-nuts of the clamping-bolts, for the purposes set forth.

2. The improved hose-clamp herein before described, consisting of the combination of the flexible body, the slotted flanges thereon, the clamping bolts and nuts, the flap overlapping the line of junction of the flanges, and the overhanging lip on the flange opposite to that which carries the bolts, these members being constructed and operating substantially as set forth.

172,660. COFFEE-POTS. William W. Stevens, Portland, Me., assignor to Westbrook Britannia Company, same place. [Filed May 31, 1875.]



1. In a tea or coffee pot, the flanges h, struck up or from the metal forming the body, substantially as and for the purposes set forth.

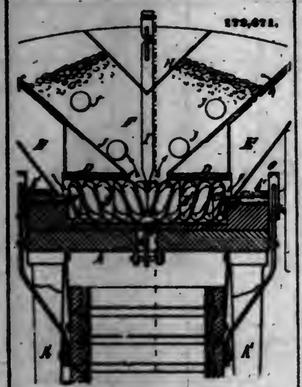
2. The combination of a body, c, having the struck-up flanges h, with the movable strainer e, substantially as described.

172,661. COFFEE-CLEANERS. Henry B. Stevens, Buffalo, N. Y., assignor to George L. Reister, same place. [Filed July 1, 1875.]

Brief.—Coffee is fed into and upon the top of a hopper, and is drawn in and forced along to middle of cylinder by screws. The corrugations of cylinder and alternating threads of the screws agitate the coffee, and force it under pressure and friction into central compartments of hopper, from which they pass to end compartments to undergo same process.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

178,671.



1. The combination, with a cylinder and feed-chambers E E and central discharge-opening h, of the right and left hand screws B B' mounted on the same shaft, substantially as and for the purpose herein before set forth.

2. The combination, with the feed-chambers E E and central pressure-chamber F, of the cylinder D and right and left hand screws B B' arranged upon one shaft, substantially as and for the purpose herein before set forth.

3. The screws B B', each formed of sections, having the threads of one section arranged intermediate of the threads of the other section, substantially as and for the purpose herein before set forth.

4. The combination, with the screws B B', of the inclosing cylinder D, corrugated, substantially as and for the purpose herein before described.

5. The combination, with a cylinder and boiling-screw, of the section C arranged at the feed end, and having threads of less pitch than the screw, substantially as and for the purpose herein before set forth.

6. The combination, with the feeding and pressure compartments E E F, of the adjustable gates or partitions p, substantially as and for the purpose herein before set forth.

7. The combination, with the pressure-chamber F, of weights or bolts J for increasing the pressure, substantially as herein before set forth.

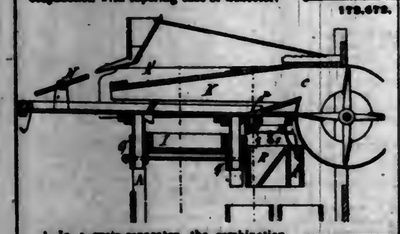
8. The combination, with the end feed-chambers E E and central pressure-chamber F, of the V-shaped deflector H, substantially as and for the purpose herein before set forth.

9. The combination of the adjustable agitator I, arranged within the central pressure-chamber F, and right and left hand screws B B', substantially as and for the purpose herein before set forth.

178,672. GRAIN-SEPARATOR. Henry B. Stevens, Buffalo, N. Y., assignor to Geo. L. Squier, same place. [Filed Dec. 12, 1876.]

Brief.—Conserve tapering screws used in conjunction with tapering case or deflector.

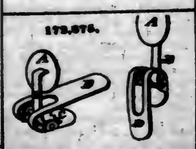
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1. In a grain-separator, the combination, with a fan or equivalent means for producing an air-current, of a vibrating screen, having meshes of two or more different sizes, and made inclined toward the fan so as to cause the unhulled and hulled grains to travel in opposite directions on the screen, and be discharged at opposite ends thereof, while the finer dust and chaff are sifted through one part of the screen, and the broken and dead grains through another part thereof, simultaneously with the separation of the hulled grains from the unhulled ones, substantially as hereinbefore set forth.

2. The combination, with the fan C, of the vibrating screen E, made concave longitudinally so as to cause the layer of grain to be deepest in the longitudinal central line of the screen, and in line with the air-current, substantially as hereinbefore set forth.

3. The combination, with the fan C, of the vibrating concave screen E, made tapering from the fan toward its upper end, substantially as and for the purpose hereinbefore set forth.

4. The combination with the tapering vibrating table E, of the tapering deflecting case or air-trunk E', substantially as and for the purpose hereinbefore set forth.

5. The combination, with the fan C, air-trunk E, and table E, of the adjustable deflecting board N, substantially as and for the purpose hereinbefore set forth.

6. The combination, with the fan C and vibrating table E, of the stop O, arranged at the upper end of the table for retarding the discharge of the unhulled grains, substantially as hereinbefore set forth.

7. The combination, with the fan C and vibrating table E, provided with discharge-opening p, of the screen Q, secured to the under side of the table so as to vibrate therewith, substantially as and for the purpose hereinbefore set forth.

8. The combination, with a vibrating screen, of one or more projections, r, and one or more balls, s, attached to the under side of the screen for jarring the same, substantially as hereinbefore set forth.

178,673. UMBRELLA TIP-CUPS. George W. Tucker, Waterbury, Conn., assignor to himself and the American Ring Company, same place. [Filed Oct. 27, 1875.]



The ring f inserted into the groove e at the base of the tip-cup, and secured, as specified, in combination with the spring g and runner-tube d, as set forth.

178,674. FOLDING FOOTSTOOLS. John B. Tyler, Brooklyn, N. Y., assignor of one-half his right to Francis Percival, same place. [Filed Nov. 27, 1875.]

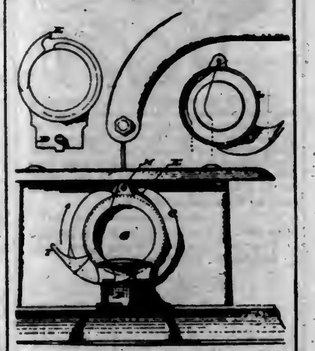
A portable footstool, consisting of the top plate A, with folding legs C C, in combination with bags or pockets D, made of soft and warm material, and attached by bands or straps a and a to the stool, arranged in the manner and for the purpose substantially as described.

178,675. SUSPENDER CLASPS AND BUTTONS. Alfred J. Vandrake, San Francisco, Cal. [Filed Aug. 19, 1875.]

A clasp, having shank B bent at both ends, one containing a button, A, and the other teeth C, in combination with the bent plate D, to which it is hinged, substantially as shown and described.

178,676. REVOLVING-HOOK SEWING MACHINES. Adam C. Van Sant, Peoria, Ill., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. [Filed Aug. 13, 1875.]

Brief.—The bobbin case is provided with a notch for the passage of the thread, and against whose edges the thread bears, causing friction. This is greatest when the bobbin is full, and least when the bobbin is nearly empty, owing to the difference in the angle at which the thread passes from the bobbin out through the notch, and thereby varying the friction against the sides of the notch. The case has also a projection provided with an eye, which is called a "leader." This keeps the under thread in proper position, and prevents its being twisted around the bobbin when the machine is reversed. A substitute for the hook, termed a "loop-controller," is also provided, which detains the loop and prevents it from being caught by the hook, and releases it at the right time for forming the stitch.



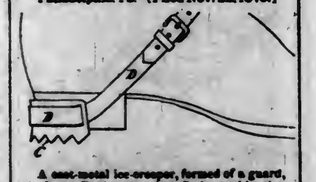
1. The bobbin-case G, provided with the tension-regulating notch K, in combination with the leader E, and stop E, all constructed to operate as shown and described.

2. The loop-controller I, in combination with the bobbin-case G, constructed to operate as shown and described.

178,677. COMPOSITIONS FOR PRESERVING EGGS. Abigail S. White, Clementsville, Ala. [Filed Dec. 30, 1875.]

The compound, herein described, for preserving eggs, consisting of gum-arabic, alum, and hot water, in about the proportions described.

178,678. ICE-CREEPERS. Edwin Wight, Philadelphia, Pa. [Filed Nov. 22, 1875.]



A cast-metal ice-creeper, formed of a guard, A, flange B, ring or points C, in combination with strap D, substantially as herein described.

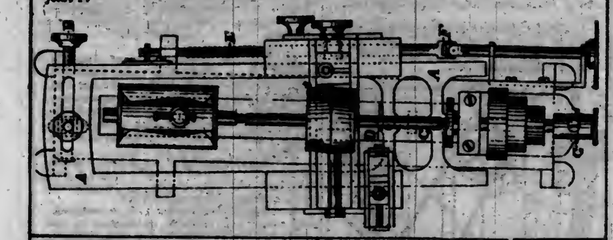
178,679. METAL-TURNING LATHES. Saml. Williamson, Cincinnati, Ohio. [Filed June 16, 1876.]

Brief.—The bed-piece or ways for the slide-rest is fastened to the body of the lathe by a fulcrum, and is adjustable by a screw to any angle. It carries one end of the feed-screw, and to preserve parallelism therewith the screw is provided with a universal joint.

1. The combination, substantially as herein shown and described, of the slide-rest, bed-piece A, and a turning-lathe.

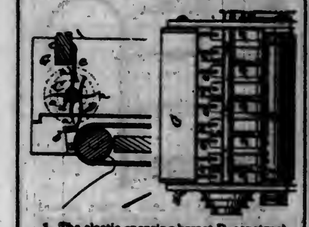
2. The combination, substantially as herein shown and described, of the bed-piece A, the slide-rest, and the feed-screw E, provided with the universal joint F.

178,679.



178,680. COTTON-GIN FEEDERS. James Wright, Burton, Ala., assignor of one-half his right to J. C. Smith, Jr., Jacksons, Tenn. [Filed Nov. 20, 1875.]

Brief.—The teeth of cylinder feeder pass between elastic or yielding fingers secured to the frame of the receiver, and also through another set of fingers, which are secured adjustably to said frame above said cylinder, which give a rotary motion to the cotton, and regulate the supply of feed.



1. The elastic or spring breast D, constructed, as described, with open top, in combination with the endless belt B and revolving cylinder C, with teeth a, substantially as and for the purposes herein set forth.

2. The toothed cylinder C, provided with the bar d, in combination with the spring-breast D, substantially as and for the purposes specified.

3. The combination, with the endless belt B and toothed revolving cylinder C, of the elastic or spring breast D, open at the top, as described, and the adjustable top breast G, with guides e, substantially as and for the purposes herein set forth.

178,681. MOTE-EXTRACTORS, SEPARATORS, AND CLEANERS. James Wright, Burton, Ala., assignor of one-half his right to J. C. Smith, Jr., Jacksons, Tenn. [Filed Nov. 23, 1875.]

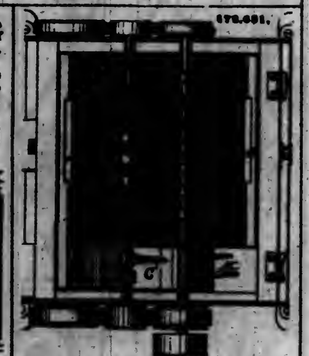
Brief.—The cotton-picker is provided with two shafts—one of which revolves faster than the other, whereby the slow shaft partially holds the cotton, while the fast one passes it on the screw, and produces a stripping motion, like the motion of a circular sheet. The beaters are arranged spirally around the shafts in opposite directions, for preventing the twisting of the cotton. On one of the shafts, outside the screws, are secured double beaters, for the purpose of driving the cotton down the chute, where it comes in contact with the delivery-beaters.

1. In a cotton-cleaning machine, the combination of the two shafts or cylinders B B, provided with curved teeth or beaters C C, set in screw form in opposite directions, with opposing movements, whereby said shafts or cylinders are capable of being rotated in opposite directions at unequal speed, substantially as and for the purpose specified.

2. In a cotton-cleaning machine, the double beaters C, in combination with the delivery-beaters E and operative mechanism, whereby the cotton is driven down and delivered, substantially as described.

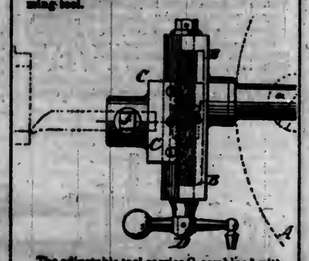
3. In a cotton-cleaning machine, the cylinders B B, having curved beaters C C, in combination with the double beaters C and delivery-beaters E, and operative mechanism, substantially as and for the purpose set forth.

178,681.



178,682. TOOL-CARRIER ATTACHMENTS TO SCREW-MACHINES. John Tyler, Paterson, N. J., assignor to Moffett & Hartin Manufacturing Company, New York, N. Y. [Filed Dec. 2, 1875.]

Brief.—An adjustable tool-carrier on the turret of a screw-machine, carrying a trimming-tool.



The adjustable tool-carrier C, combined with the feed-screw D, and with the transverse bar E, which has the shank a, all arranged for use on the turret of a screw-machine, substantially as herein shown and described.

178,683. BALE-TIES. V. F. P. Alexander, Greenville, Miss. [Filed Nov. 27, 1875.]

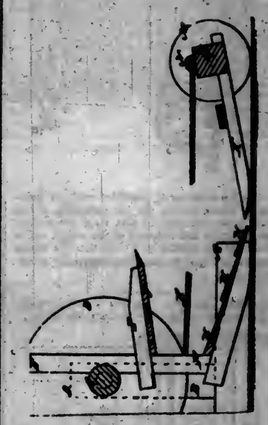
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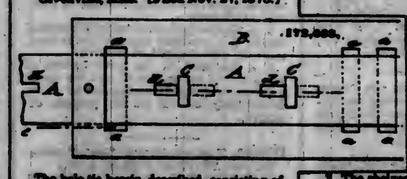


The bale-tie herein described, consisting of the plate or buckle B, having slots a b, combined with the T-buckles C and bale-band A, substantially as set forth.

178,684. HAT-STACKERS. Moses Amidon, Lathrop, Mo. [Filed Aug. 6, 1875.]

Brief.—By drawing upon the ropes the hopper carries the hay over the shaft, and discharges it upon the stack.



The combination of the hopper F G I H J, the wheels D, shaft C, and the ropes B with the frame-work A a' B, substantially as herein shown and described.

178,685. CROQUET APPARATUS. Albert Angell, Orange Junction, N. J. [Filed Aug. 30, 1875.]

1. The stakes C C, divided into sections b', and provided with sockets d', for the reception of the stalk of the flags E, substantially as described.

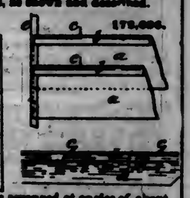
2. The combination of the arches A, provided with loops b, for the insertion of the flag-stalk a, with the stakes C, constructed for the reception of the flag-stalk a, the whole constructed and arranged substantially as described.

178,686. COUPON-TICKET CASES. Charles N. Ayres, Detroit, Mich. [Filed Dec. 11, 1875.]

Brief.—The inclined sheet-metal shelves are formed with "upset" fronts, which lock in the side grooves, to secure the shelves in place, and at the same time increase their rigidity.

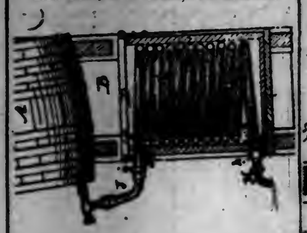
1. In a coupon-ticket case, the shelves provided with the upset longitudinal front bracing-stiffeners and bearing-surfaces b, of equal length with the shelves, provided with pins c for the tickets, and arranged at acute angles with the shelves, as shown and described.

178,686.



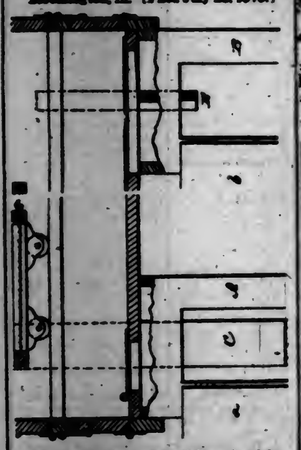
2. The shelves arranged at angles of about forty-five degrees, and secured in place by drop-bolts formed by the upset front bracing-surfaces and stiffeners, as shown and described.

172,687. Beer-Coolers. Louis Baeppler, New York, N. Y. [Filed Oct. 22, 1875.]



The ice-chamber C, provided with an opening, c, at the bottom for the insertion of the coil E, an open-topped disc, F, at the top for the insertion and removal of the coil G, and a cover, D, for closing said chamber, the whole constructed and arranged substantially as described.

172,688. Dryer. Edwin W. Bakewell, Bloomington, Ill. [Filed July 22, 1875.]



The combination, substantially as hereinbefore described, of the hot-air chamber A, provided with air-inlet shaft C, the foul-air chamber B, provided with exhaust-shaft E, and the horizontal shaft F, communicating with said chambers by means of apertures provided with regulating-dampers, the whole arranged to operate as herein set forth and shown.

172,689. Punch-Holders. John Barrett, Brooklyn, N. Y. [Filed May 17, 1875.]

Brief.—For holding punches having parallel sides.



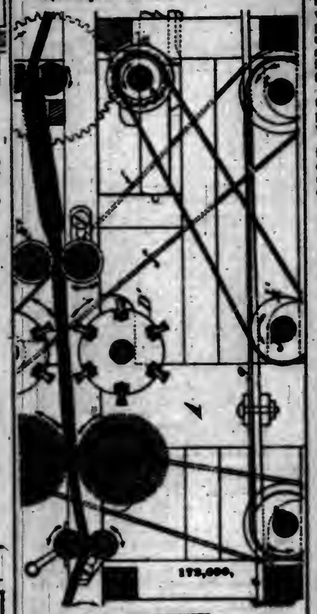
The combination of the nut G, the taper barrel E, and the wedge-shaped pieces F F, as and for the purposes set forth.

172,690. Rasping, Reducing, and Calendering Machines. M. J. Bonker, Amsterdam, N. Y., assignor of three-fourths his right to MacDonald, Kline & Co., same place. [Filed Oct. 20, 1875.]

1. In a napping-machine, the combination, with the adjustable friction-rollers, napping-cylinders, and brush-drums, arranged in the method, of the smoothing or evening rollers, between which the napped fabric passes after it is brushed by the drums.

2. In a napping-machine, the combination, with the adjustable friction-rollers, napping-machine cylinders, brush-drums, and smoothing-rollers, of the calendering-rollers, the lower one of which is covered with an elastic material.

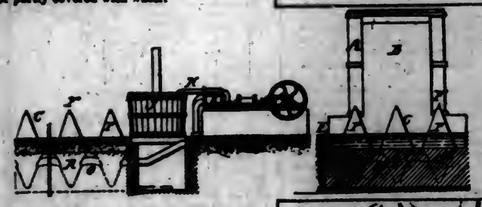
3. The stretcher for a napping-machine, composed of the curved sections K K and L L, in combination with the anti-friction rollers P, substantially as described.



172,690.

172,691. Apparatus for Extracting Mercury from its Ores. Ildefonso Herrera, Barcelona, Spain. [Filed Dec. 17, 1875.]

Brief.—The condensers are lined with charcoal to facilitate the condensation of the metallic vapor, and are made in the form of double cones, the lower half being embedded in the ground, the upper half being covered or partly covered with water.



172,691.

1. As an improvement in extracting mercury and similar volatile metals from their ores, the process of subjecting the gases of combustion to the condensing influence of charcoal, as set forth.

2. A condenser, C, composed of two conical vessels, F E, connected together base to base, and lined with charcoal, as set forth.

3. A condenser, C, the lower portion of which is built in the ground, and the upper portion arranged to be surrounded by water, substantially as and for the purpose described.

172,692. Tobacco-Boxes. Lewis F. Bein, Chicago, Ill. [Filed Sept. 20, 1875.]

Brief.—Two blanks compose the box, and are so cut that elasticity is given to the edge to which the lid is hinged, thereby providing for the ready clasping and unclasping of the lid.



172,692.

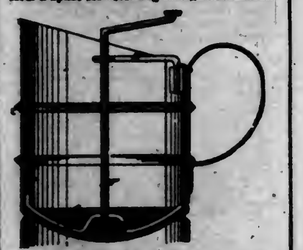
1. A tobacco-box the body of which is formed fro m a sheet-metal blank fashioned with the elliptical end pieces a a, the rear side piece b bent up between said pieces a a, but unattached thereto, for the purposes set forth, and the front side piece c bent up and covering the edges of said end pieces a a, as set forth.

2. The front side piece c, cut long enough to cover the edges of the end pieces a a, and provided with the notches d d, to interlock with said end pieces, as set forth.

3. A tobacco-box formed with an interlocking cover, and one side unattached to the sides, so as to be capable of yielding inward, and by its elasticity holding the interlocking cover in place.

172,693. Flour-Sifter. Ferdinand Bair, Pleasanton, Kans. [Filed Dec. 4, 1875.]

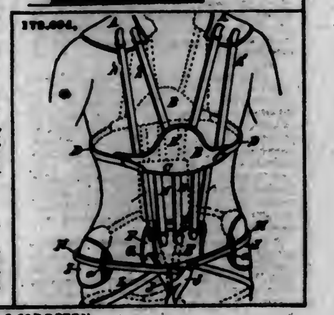
Brief.—The radial arms connected with the main shaft are so bent up at the center as to form a space for receiving foreign substances.



In a flour-sifter, the arms D, bent upward in the middle, in combination with the shaft F, supported thereon, and the concave screen, as shown and described, for the purpose specified.

172,694. Abdominal Supporters. Wm. C. Blakeslee, Union, N. Y. [Filed Feb. 26, 1875.]

Brief.—The supporter is made up of a band about the chest and one about the loins, connected together by straps and to suspenders, which are attached to pads resting upon the shoulders. Sliding pads rest upon the hips, and the main front pad is made up of a pad proper and a presser underneath it.



172,694.

1. The intermediate supporting-belt, composed of elastic bands D and front and back pads B, in combination with shoulder-pads A, all fitted to the upper part of the body, as herein shown, and for the purposes set forth.

2. The sliding hip-pads I, provided with loops a, and combined with straps H, as herein shown and described.

3. The ulcerine pad consisting of the parts B, F, and G, constructed and arranged as and for the purposes herein set forth.

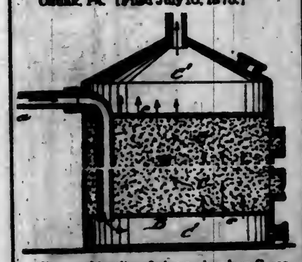
172,696. Water-Closets for Watering Stock from Ponds, &c. Wm. J. Booth, Centralia, Mo., assignee of one-half his right to C. B. King. [Filed Aug. 18, 1874.]

Brief.—The operating height of the float is regulated by means of the screw-thread on the valve-rod.



The rod F, having its lower portion threaded, in combination with the guide e, plate d, float D, and check-tank E, for the purpose of regulating the height of water in the trough C, substantially as specified.

172,696. Gas Regulators and Purifiers. Eli T. Booth and Daniel J. Esser, Manch Chunk, Pa. [Filed July 10, 1876.]



The combination of pipe e, chambers C, containing charcoal and gasoline, and the chambers C C', the inlets and outlets being arranged substantially as shown and described, for the purpose specified.

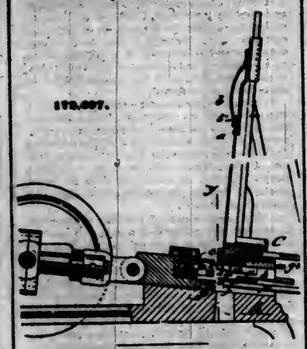
172,697. Presses for Forming Sheet-Shapes for Shoes. Emil Esser, New York, N. Y. [Filed Dec. 18, 1875.]

Brief.—Guiding-rippers connected to a slide free to move downward by gravity along a guide-rod present the shank to the machine, which latter consists of a reciprocating stock carrying projecting cutter and punches, and a moving containing an assemblage of dies, that co-operate therewith to cut off the blank, bend it to the proper form, and punch the necessary holes in it. After the shank so made has fallen from the dies into a receptacle, it is moved forward against the rank of previously-made shanks by a pusher.

1. In a press for forming spring-shanks, the combination of the punching-dies and steadying spring-bolt of the plunger, with the perforated plate-holders, die-holes, and drop-pan A of the stationary casing, to perforate the shank-blanks and carry off the punchings, substantially as set forth.

2. The combination of the cutting-dies p p' of plunger, and casing with the side guard-pieces m and guide-pin n, to convey the sheared-off blanks to the drop-plate ready for the action of the shaping-dies, substantially as described.

3. The combination of the shaping-dies l l', slotted drop-plate o, pan p, and recessed pusher p', for the purpose of shaping, dropping, and feeding forward the shanks, substantially in the manner specified.



172,697.

172,698. Metallic Seals. F. W. Brooks, New York, N. Y. [Filed Nov. 6, 1875.]

Brief.—Woven material of the seal-disk is formed over or opposite the apertures, to insure the closing of the latter, and to equalize the compression of the seal-disk in the press.



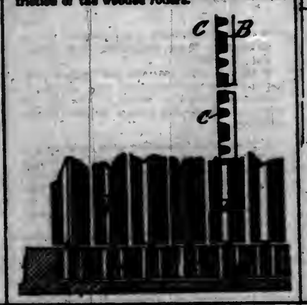
1. The shackle-wire, having ends formed with short coils, constructed as herein shown and described, for anchoring them in the compressed seal-disk, for the purposes set forth.

2. The combination of a shackle-wire, carrying its own anchoring-coils, and a seal-disk having tapering apertures to receive and locate said anchoring-coils, and one or more locking-wires within the disk transverse to the apertures at their upper ends, substantially as herein shown and described, for the purposes set forth.

3. The external lugs or projections on the seal-disk, arranged with reference to the apertures, so as to insure the closing of those first, when the seal is pressed, and to render the compression equal, or more nearly equal, as herein set forth.

172,699. Ware-Boards. L. Burrill, East Boston, Mass. [Filed Jan. 14, 1876.]

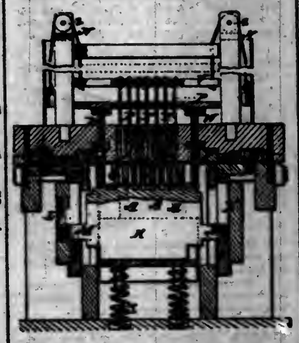
Brief.—The ends of the metal journals bear against a metallic strip, which prevents end friction of the wooden rollers.



In a wash-board, the above-described metallic bearing F for the ends of the metallic journals D, for the purpose of diminishing friction from the end play of the rollers E, substantially as set forth.

172,700. Nail-Machines. S. Butterfield, Boston, Mass. [Filed July 17, 1875.]

Brief.—Two sets of form dies for shaping nails hanging down from a feeder, so that they are caught between the fingers and shaped into nails by them. Below the fingers the projecting ends of the rods are upset to form heads by a header formed up by the slide which works the dies. The points of the nails are separated from the rods. The header is adapted to act laterally to present passages therein for the escape of the nails.



1. The combination of two sets of comb-shaped dies, A C, substantially as specified.

2. The combination, with two sets of sliding dies, A C, of a header, E, substantially as specified.

3. The header having notches E for discharge-passages, and also having motion laterally to the dies, in combination with said dies, to present the heading-surfaces and the discharge-passages, substantially as specified.

4. The combination of cutters c with dies A C, substantially as specified.

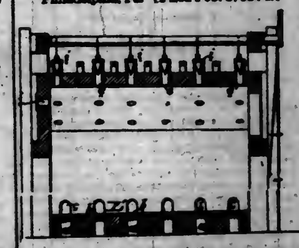
5. The combination of driving-slides I, having cams Q, with the die-slides B F and the header, substantially as specified.

6. The combination of cams L and L' with the driving-slides I, also having connection with the die-slides B F, substantially as specified.

7. The header K, having connection with the lifting-springs T by a box, S, allowing both vertical and lateral movement independent of said springs, substantially as specified.

8. The heading-holder U and counterbalance-weights, in combination with dies A C and header K, substantially as specified.

172,701. Brick-Kilns. John K. Caldwell, Philadelphia, Pa. [Filed Feb. 9, 1874.]



In a brick-kiln, a permanent ceiling, having two or more lines of draft-openings, each of said lines of openings having an independent shaft for working the valves of each said line, the various dampers being also individually operative, whereby the said openings may be uncovered singly, in lines, or altogether, to direct the heat to any particular spot, side, or line, or let it be diffused equally over the kiln, substantially as shown and described.

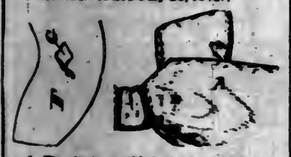
172,700. LUBRICATORS. F. W. Carpenter, Kerrigan, N. Y. [Filed Jan. 20, 1876.]



1. The piston C, with stem H, cap J, and point L, in combination with the tube A, having enlarged chamber b at its lower end, substantially as and for the purposes herein set forth.

2. The staged globe-shaped cover I, in combination with the tube A, flange C, and cap J, with thumb-piece J', substantially as and for the purposes herein set forth.

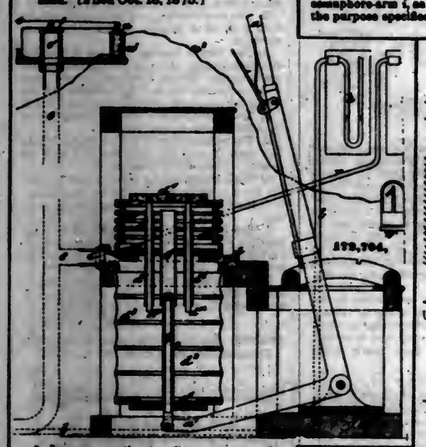
172,701. NECK-TIES. J. B. Carter, Hartsville, Ind. [Filed July 26, 1875.]



1. The tie A, provided with loops for hooking over the attachment F, substantially as set forth.

2. The removable neck-tie shield F, having button-hole G, of the form shown, substantially as and for the purposes set forth.

172,702. PNEUMATIC SIGNALS FOR RAILWAYS. Austin Chambers, London, England. [Filed Oct. 16, 1875.]



172,704.

1. In a pneumatic signaling apparatus for railways, the combination, with a hand-lever or handle, a pipe, tube, or passage charged with elastic fluid, and a collapsible vessel connected to the signaling object, of a compressor so constructed that, as one portion of the compressor is collapsed by moving the lever or handle to move the signal, another portion shall temporarily expand to receive the displaced fluid, and afterward complete the compression of fluid, and move the signal by automatically resuming its original position, or a position approximating thereto.

2. In a pneumatic signaling apparatus for railways, the combination, with a hand-lever or handle, a pipe, tube, or passage charged with elastic fluid, and a collapsible vessel connected to the signaling object, of a rarefier in communication and connected to the lever that, as one portion of the rarefier is expanded or drawn out by the movement of the lever or handle to move the signal, another portion shall temporarily collapse to partially occupy the space vacated by the displaced fluid, and afterward complete the rarefaction of fluid and move the signal, as required, by automatically resuming its original position, or a position approximating thereto.

3. In pneumatic signaling apparatus for railways, the combination, with a collapsible vessel or chamber connected to the signaling object, a pipe, tube, or passage charged with elastic fluid, and apparatus for changing the pressure or density of said fluid, of two gages or indicators in juxtaposition, one connected by a pipe, tube, or passage, *l*, with a chamber, *m*, communicating with the interior of the collapsible vessel or chamber by a hole or passage governed by a valve, *n*, operated by a rod or projection, *p*, and the other gage or indicator communicating, through a pipe, tube, or passage, *r*, with the compressor or rarefier, so as, by the relative indications of the two gages, to show the position of the collapsible vessel that operates the signal.

4. In pneumatic signaling apparatus for railways, as means for controlling from a distance the moving of the signaling object, the combination, with an opening in a fluid-containing portion of the apparatus, of a valve-lid or closure, in conjunction with a locking or holding device operated by electricity from the point or station whence the moving of the signaling object is governed.

5. The combination of the tube *c*, attached to one end of a collapsible vessel, and having a small perforation in its upper end, with the rod *b*, attached to the lever-arm *a'*, and forming an air-valve with said tube, as set forth.

6. The compressor, consisting of the collapsible parts S^1 and S^2, united by a central rigid flanged ring, *d*, and provided with guide-rods or their equivalents, *e* and d^3, working in tubes d^4 and d^5, carried by a plate or cross-piece, S^3, as hereinbefore described and illustrated, for the purpose specified.

7. In combination with a compressor constructed as shown, the pipe *c*, with its opening *c'*, valve *a*, lever *l*, weight S^4, armature *n*, and electro-magnet *o'*, said pipe communicating with the collapsible vessel *f*, connected to the manaphore-arm *i*, as described and shown, for the purpose specified.

172,705.

172,703.

1. In a pneumatic signaling apparatus for railways, the combination, with a hand-lever or handle, a pipe, tube, or passage charged with elastic fluid, and a collapsible vessel connected to the signaling object, of a rarefier in communication and connected to the lever that, as one portion of the rarefier is expanded or drawn out by the movement of the lever or handle to move the signal, another portion shall temporarily collapse to partially occupy the space vacated by the displaced fluid, and afterward complete the rarefaction of fluid and move the signal, as required, by automatically resuming its original position, or a position approximating thereto.

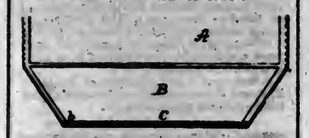
172,705. MACHINES FOR COATING PILLS. William N. Clark, New York, N. Y. [Filed Jan. 7, 1876.]

Brief.—Needles are arranged upon a rotating shaft, and are furnished with clearers to remove the pills after coating. The pills are fed up to the needles upon a grooved sliding platform.

1. A machine for coating pills, consisting of a revolving cylinder having radial needles in connection with a sliding pill-tray provided with indentations or cups corresponding with the needles for picking up the pills ready for dipping them in the coating-solution, substantially as specified.

2. The combination of the revolving cylinder having rows of radial needles and radially-sliding clearer-pieces or strippers for removing the pills after they are dried, substantially as specified.

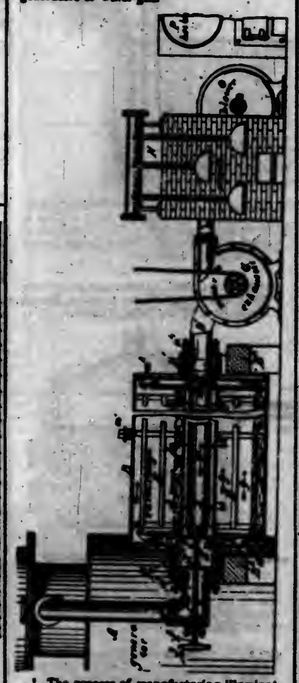
172,706. SHOE-BOXES. W. Scott Corning, Batavia, Ill. [Filed May 19 1875.]



A shoe-box constructed with a main compartment, A, and a small show-compartment, B, in front, the latter having inclined sides *c* and a transparent front, C, substantially as specified.

172,707. GENERATING ILLUMINATING-GAS. Edward S. Covel, New York, N. Y. [Filed Jan 7, 1876.]

Brief.—Generates gas by decomposing steam in contact with heated carbonaceous materials; condenses the gas and passes it, while regulating the flow, through a shower of liquid hydrocarbon; also regulates the degree of carburation by creating regulated current of pure water-gas into the carbureted water-gas; also mixes the gas and vapors, and tests and fixes the mixture; also tests in the mixing-chamber, and further mixes by the exhauster-blower, and, before fixing, alternately uses two generators of water-gas.



1. The process of manufacturing illuminating-gas, which consists in producing water-gas by passing alternate currents of air and steam through a body of incandescent carbon, cooling such gas, and then carbureting it by passing it at a regulated flow through a constant shower of liquid hydrocarbon, substantially as set forth.

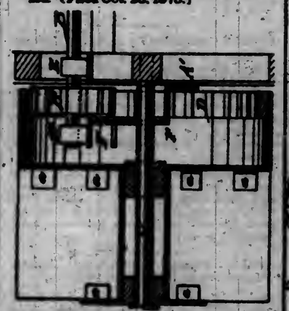
2. The process of manufacturing a permanent illuminating-gas of a definite photometric value, which consists in generating non-illuminating gas by decomposing steam by passing it through incandescent carbon, cooling such gas, enriching it with a definite and regulated percentage of hydrocarbon vapor, mixing the gases and vapor uniformly together, and then fixing the mixture in a heated retort, as set forth.

3. The primary generator A, cooler Y, and carburetor B, constructed as described, in combination with a test-chamber, F, exhauster and mixer G, substantially as and for the purpose described.

4. The primary generator A, cooler Y, carburetor B, test-chamber F, and exhauster and mixer G, in combination with one or more retorts, H, substantially as and for the purpose described.

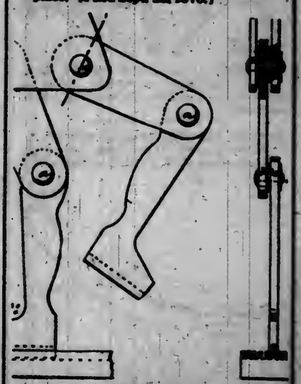
5. The combination of a rotary carburetor, an adjusting pressure-regulating chamber, provided with a test-burner or photometer, a rotary exhauster and mixer, and one or more heated retorts, as set forth.

172,708. APPARATUS FOR TRANSMITTING POWER. Joseph L. Crabtree, Pittsburgh, Pa. [Filed Oct. 28, 1875.]



The revolving sleeve A, having flange C and end plates with hoopers *a* to receive the buckets, in combination with the cog-wheel D, pinion D^1, and eccentric shaft E, journaled in bearings $E\ E^1$, substantially as and for the purpose described.

172,709. JOINTS FOR DOLLS AND OTHER FIGURES. Chas. M. Crandall, Montrose, Pa., assignor to C. M. Crandall & Co., same place. [Filed Sept. 22, 1875.]



As a new article of manufacture, a jointed toy figure, the joints of which are constructed with rivets and interposed friction-washers, substantially as shown and described, whereby the parts may be adjusted in various given positions, as specified.

172,710. LOOMS. George Crompton, Worcester, Mass. [Filed Feb. 10, 1876.]

Brief.—The invention relates to mechanism for operating the shuttle-boxes and shedding devices. The shedding mechanism consists in the arrangement of the heeled jacks, the cranes, depressor and lifting bars, sleeves, and needle-centers. The shuttle-box motion consists in the arrangement of main and auxiliary levers, main and auxiliary toppers, and a system of ratchets and pawls with links connecting said pawls to the pattern-cylinder, which is operated by the crank-shaft.

172,711.

1. The combination of the main and auxiliary levers *f* *v* with the reversible main tappet-wheel, the auxiliary tappet-wheel, the swinging lever *a*, its connected double pawl *f* *a'*, and pawl for operating the auxiliary tappet-wheel and pattern-cylinder, all arranged, constructed, and adapted to operate, substantially as described.

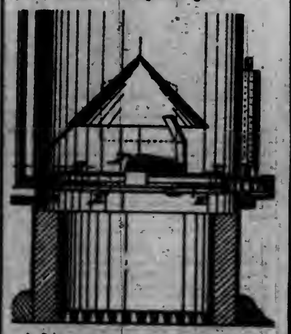
2. The cranes b^1, combined with the lifter, depressor, and crane bars, and with the heeled jacks and harness-connecting cords, and arranged as described to insure the release of the notched jacks from the lifter, as described.

3. The jacks, with upper hooks F^1 in combination with the crane-levers, they operating to throw the jacks toward the cylinder to bring the hooks into line, substantially as described.

4. The combination, with lifter, depressor, or crane-levers, of slide-rods and links *g'*, or equivalent device, substantially as described.

172,712. STOVES. William T. Cruikshank, Shamokin, Pa. [Filed Jan. 7, 1876.]

Brief.—The fine fuel is deflected by the cone onto the drying-plate, from which it is swept by the feeder or arm attached to revolving plate, whence it falls upon the grate.

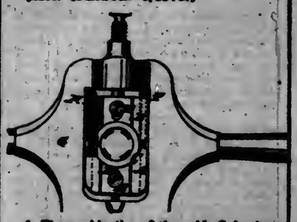


1. In a stove or furnace for burning coal-dust, the combination, with the apparatus supplied with coal-dust, of a distributing cone or diaphragm, a ring-shaped drying-plate, and a revolving feeder that throws the thin layer of coal-dust into the fire below, substantially in the manner and for the purpose set forth.

2. In a stove or furnace for burning coal-dust a distributing cone or diaphragm, whose diameter at the base is somewhat larger than the interior opening of the ring-shaped drying-plate to drop the coal-dust near the inner circumference of the same, substantially for the purpose described.

3. In a stove or furnace for burning coal-dust, a revolving ring-plate with radial feeder, to clear drying-plate continually from dust, substantially as set forth.

172,713. SCREW-CUTTING DIES. Shadrach M. Cudworth and George R. Stetson, New Bedford, Mass., assignors to the Morse Twist-Drill and Machine Company, same place. [Filed Jan. 3, 1876.]



1. The combination of the guide C, having slotted screw-holes D, with the die A B and the screws E, substantially as specified.

2. The combination of the fastening-screws F, die A B, set-screws E, and the guide C, having the slotted holes D, substantially as specified.

3. The combination of adjustable die A B, guide C, set-screw E, and the fastening-screw F with the screw-plate G, substantially as specified.

172,714. CRUTCHES. Henry T. Davis, Sherman, Tex. [Filed May 10, 1876.]

Brief.—The shaft is provided with lugs, which work in grooves in the sleeve, and are held in position by a rotating catch, which prevents uncoupling. The whole is supported on a bearing-nipple.



The combination of shaft G, with lug or lugs F, sleeve C, with notches and grooves *c* and *c'*, and the bearing-nipple M, all substantially as set forth.

172,714. CARTRIDGES. L. T. De Frotteville, Paris, France. (Filed Aug. 4, 1876.)



The metallic plate *d*, contained between wads *d f*, combined with the layer of grease *e*, and separating the same from the powder, substantially as and for the purpose described.

172,715. FEEDING DEVICES FOR TICKET-PRINTING PRESSES. Chas. W. Dickinson, Newark, N. J. (Filed Oct. 7, 1875.)

Brief.—The end of the strip to be printed is fed to a gage recessed in the table, and its edges gripped by nippers on the sides of a reciprocating frame, the nippers being opened and closed by a wedge-shaped bar sliding under the vertically-moving nipper-arms. The reciprocating frame and sliding bar are both operated by an oscillating lever, the former depressing the gage.



1. The platform A, slide B, springs X and *r*, the bar C, locking-bar D, and the clamps *s*, constructed, arranged, and combined as and for the purpose specified and shown.

2. Also, the lever E and the spring F, in combination with the slide and platform, substantially as hereinabove set forth.

172,716. ADJUSTABLE FIRING-PINS FOR BREECH-LOADING FIRE-ARMS. L. Dimock, Leeds, Mass. (Filed Dec. 28, 1875.)

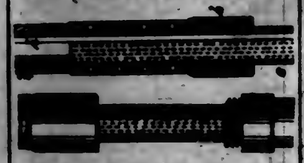
Brief.—By turning the plug which carries the firing-pin, the point of the latter may be adjusted for either rim-fire or center-fire cartridges.



In combination with the breech-block of a fire-arm, the firing-pin G, having a reciprocating longitudinal motion, and the plug D capable of a rotating motion in the breech-block, the whole so constructed and arranged that the firing-pin can be adjusted to strike either the center or edge of the cartridge, substantially as described.

172,717. DRIVE-WELL POINTS. Jas. Dellard, Islip, N. Y. (Filed Dec. 28, 1875.)

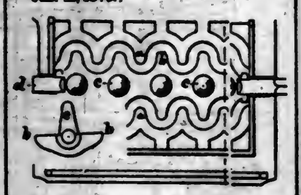
Brief.—A perforated tubular section provided with a surrounding perforated jacket or strainer, whereby a means is afforded for the inflow of water for testing purposes without disconnecting the point; also a double perforated tube or strainer extending above and below the point-coupling, whereby the said strainer, when exposed to the water, shall be practically free from corrosion.



1. The perforated tubular section A, provided with a jacket or strainer, *d*, whereby a means is provided for the inflow of water for testing purposes without disconnecting the point, substantially as shown and described.

2. The double perforated tube or strainer *c*, constructed substantially as described, and extending above and below the point-coupling, whereby it may be exposed to the water, in the manner hereinbefore described, and be practically free from corrosion, as set forth.

172,718. STOVE-GRATES. Wm. J. Earl, Albany, N. Y., assignor of one-half his right to Clarkson Tibbitts, same place. (Filed Jan. 12, 1876.)



The grate A, having the tongues *a*, and provided with the revolving plate B, having the tongues *b* and projections *c*, constructed as shown, for the purposes set forth.

172,719.



172,720.

172,719. COD-ELEVATORS FOR COMMUNICATING. Henry H. Hay, Mendota, Ill. (Filed Oct. 19, 1875.)

Brief.—Adjustable carrier with devices to prevent clogging.

1. The combination of the vertical driving-shaft C, and horizontal shaft B' of the carrying-spout with the adjustable arms E F and belt K, substantially as described and shown.

2. The combination of the carrier-spout H, belt I, and cross-piece F of the pivoted leg *m'*, when the several parts operate substantially as described and shown.

3. The combination, with the driving-shaft C, carrier-spout H, and belt K, of the arm E, pivoted at its inner end, plates *e e'*, nut and bolt *f'*, changeably-pivoted arm F, brace *f*, and sheaves G G', substantially as described and shown.

172,720. DIES FOR FORMING WATCH-CASE CENTERS. Frederic Rombert, New York, N. Y. (Filed Dec. 18, 1875.)

Brief.—The punch is inserted in the cup while it is on or in the die; the die is brought down, pressing the lips of the cup on the former; and, finally, the punch forced through the cup, and the die cutting out a disk, and leaving a hollow ring.



1. The combined core and punch D, in combination with the dies B *F*, essentially as and for the purposes herein set forth.

2. The combination of the series of dies B C F with the combined core and punch D, having an enlarged cutting end, *c*, and arranged to pass out through the opening punched after the metal has been shaped around it, substantially as described.

172,721. PROCESSES OF RETRACTING PRINTERS' INK FROM RAGS. L. E. G. Eberhardt, Philadelphia, Pa., assignor of one-half his right to J. B. Carpenter, same place. (Filed Dec. 22, 1875.)

The herein-described process of extracting printer's ink from rags, and cleansing them, the same consisting in softening the rags by linseed-oil, separating the ink, next treating them with turpentine and separating the ink, then subjecting them to an alkaline bath and to a wash of clean water, and afterward treating them with acid to remove the dust; as set forth.

172,722. HARNESS-TRIMMINGS. T. Hilson, Abingdon, Ill. (Filed June 20, 1876.)



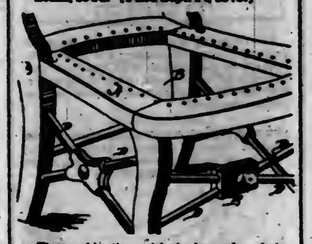
A turret, provided with the rectangular space B, and the circular space C, adapted for round and flat rolls, substantially as set forth.

172,723. TREATING BEER, &c. F. Rankin, Gempleton, N. Y. (Filed Oct. 20, 1875.)

Brief.—The object is to prevent or control the fermentation of the liquid. The mixture of benzoic acid and bisulphite of soda is as follows: benzoic acid, four parts; bisulphite of soda, one part. Any acid salt may take the place of the bisulphite of soda, and benzoic acid may be used alone under certain circumstances.

The within described process of treating beer or other fermentable liquids with benzoic acid, either alone or mixed with an acid salt, whereby the fermentation of the beer can be controlled and solidification prevented, substantially as set forth.

172,724. CHAIRS. Joseph A. Rice, Council Bluffs, Iowa. (Filed Sept. 14, 1876.)



The combination, with the legs of a chair, of the divided cross-braces D and clamps E, substantially as and for the purposes herein set forth.

172,725. PLATFORM WAGON-TRESTLES. L. M. Fitch, Leonardsville, assignor to G. P. White, Eaton, N. Y. (Filed Sept. 20, 1875.)



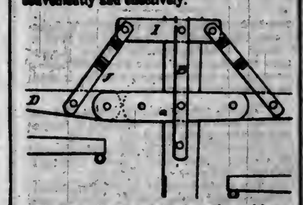
The combination of the strips A and B B, the irons D D, secured upon the strips B B, and extended beyond the same, as shown at *a*, and the irons D' D', secured to the strip A, and extended beyond the ends of the same, as shown at *a'*, to form clevises for connecting the trestle, all as set forth.

172,726. AMALGAM FOR FILLING TEETH. John Fry, Johnstown, Pa. (Filed May 17, 1875.)

An amalgam composed of silver, tin, zinc, platinum, and quicksilver, (mercury,) in or about the proportions specified.

172,727. DRAFT-EQUALIZERS. William H. H. Frye, Owatonna, Minn. (Filed July 10, 1875.)

Brief.—Leverage given by rear pivoted cross-piece. Other parts so arranged as to place the horses where they can pull most conveniently and effectively.



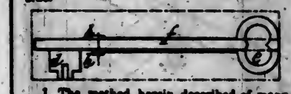
The lever C, pivoted to the pole, and having its inner end projecting beyond the pole, to which is pivoted the short lever D in line therewith, in combination with the lever I, pivoted to the pole, so that its arms shall be of unequal length, and the oblique bars J J pivoted to the levers I D C, as shown and described.

172,728. COMPOSITIONS FOR PRESERVING ANIMAL MATTER. Wilton G. Dunn, Washington, D. C., (administrator of Mearth Gahn, deceased,) assignor to Charles G. Am Ende, Hoboken, N. J. (Filed Oct. 20, 1875.)

The composition of boracic acid and saltpeter, as and for the purpose described.

172,729. MANUFACTURE OF KEYS. Wm. M. Grierson, Reading, Pa. (Filed Jan. 6, 1876.)

Brief.—The blank from which the key is cut is a flat bar with a central bead or rib on each side.



1. The method herein described of manufacturing keys—that is to say, first making a bar or plate composed of beads or ribs and webs, and then punching out the said bar, so as to produce a key composed partly of the webs and partly of the beads, as specified.

2. As a new article of manufacture, a key composed partly of the beads and partly of the webs *b b* of a rolled bar, A, as set forth.

172,730. CHANGE-GATE SIGNALS FOR STREET-CARS. Elias Hand, Rochester, N. Y., assignor to John R. Shawson, New York city. (Filed Dec. 18, 1875.)



1. The combination of the slide-bar D and spring *s* with a pivoted change-gate, substantially as set forth.

2. The combination of the slide-bar D and slide-tappet *s* with the hammer *h* and its tappet *f* and ball G, substantially as set forth.

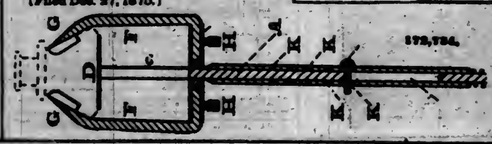
3. The combination of a pivoted change-gate, C, provided with a wearing-plate, *d*, with a slide-bar, D, provided with a corresponding wearing-plate, *c*, substantially as set forth.

172,731. BUTTON-FASTENINGS. George W. Hatch, Brooklyn, N. Y., assignor of one-half his right to Geo. W. Anderson, New York city. (Filed Oct. 20, 1875.)

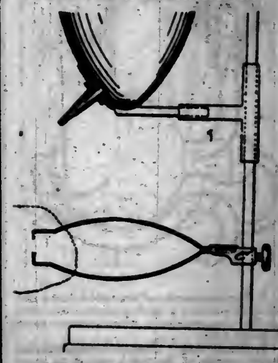


A button-fastener constructed as described, having the recess or loop *b*, flattened arms *c c*, and points *d d* at right angles to said arms, for the purpose set forth.

172,732. POSTURES FOR HOLDING BOTTLES WHILE BEING FINISHED. William Hanak, Glassborough, N. J., assignor of one-half his right to Whitney Brothers, same place. (Filed Dec. 27, 1875.)

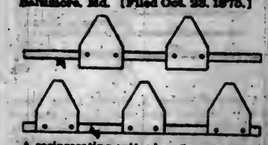


172,733. MOWING-MACHINE. Andrew A. Hamilton, New Bedford, Mass. (Filed Dec. 18, 1875.)



A device or apparatus for supplying moisture to grindstones of lathes, &c., composed of a solid standard, adjustable and spring-clamped sponge, and adjustable supply-fountain with leaning spout, and elastic cover, the whole being arranged and applied substantially in the manner and for the purpose set forth.

172,734. CUTTER-BARS FOR REAPERS AND MOWERS. Thos. Henderson, Black Horse, assignor to himself and T. and W. B. Hill, Baltimore, Md. (Filed Oct. 23, 1875.)



A reciprocating cutter-bar for mowers and reapers, consisting of two independent detachable bars, to which the alternating knives are respectively attached, as and for the purpose described.

172,735. PAINT COMPOSITIONS AND PROCESSES FOR MANUFACTURING THE SAME. George F. Heyl, Charlottenburg, Prussia. (Filed Sept. 20, 1875.)

1. The above-described paint composition, consisting of the following ingredients: oil, coloring matter, varnish, shellac, alcohol, gum-copherbium, chloride of mercury, and arsenic, in about the proportions set forth.

2. The process described of compounding the composition—that is, first dissolving the shellac and gum-copherbium in alcohol, and stirring in a heated mixture of oil and varnish, then adding coloring matter with chloride of mercury and arsenic, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

172,736. MOWING-MACHINE. Andrew A. Hamilton, New Bedford, Mass. (Filed Dec. 18, 1875.)

1. The stem A, with longitudinal slot J, and the sleeve C, with a series of transverse openings, K, in combination with the pin L, substantially as and for the purpose set forth.

2. The stem A, with laterally-projecting cam-ear E, the controlling sleeve C, carrying the plate D, the jaw-arms F, and set-screws H, combined and operating substantially as and for purposes set forth.

3. Laterally-adjustable bobbing-jaws, in combination with a vertically-adjustable supporting-plate, substantially as and for the purpose set forth.

172,737. MOISTENING DEVICES FOR GRINDING-WHEELS. Andrew A. Hamilton, New Bedford, Mass. (Filed Dec. 18, 1875.)

A device or apparatus for supplying moisture to grindstones of lathes, &c., composed of a solid standard, adjustable and spring-clamped sponge, and adjustable supply-fountain with leaning spout, and elastic cover, the whole being arranged and applied substantially in the manner and for the purpose set forth.

172,738. CUTTER-BARS FOR REAPERS AND MOWERS. Thos. Henderson, Black Horse, assignor to himself and T. and W. B. Hill, Baltimore, Md. (Filed Oct. 23, 1875.)

A reciprocating cutter-bar for mowers and reapers, consisting of two independent detachable bars, to which the alternating knives are respectively attached, as and for the purpose described.

172,739. PAINT COMPOSITIONS AND PROCESSES FOR MANUFACTURING THE SAME. George F. Heyl, Charlottenburg, Prussia. (Filed Sept. 20, 1875.)

1. The above-described paint composition, consisting of the following ingredients: oil, coloring matter, varnish, shellac, alcohol, gum-copherbium, chloride of mercury, and arsenic, in about the proportions set forth.

2. The process described of compounding the composition—that is, first dissolving the shellac and gum-copherbium in alcohol, and stirring in a heated mixture of oil and varnish, then adding coloring matter with chloride of mercury and arsenic, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

172,735. STEAM-TRAPS. Wm. Hilton and Francis B. Clarke, Heaton Norris, Great Britain. [Filed Oct. 4, 1875.]

Brief.—The shell of the float is perforated to allow water to gradually enter the same until it is filled. The weight of the water depresses the float and opens a screw-valve, through which steam enters to the float, and forces out the water contained therein, when it again rises to the surface of the water. Any air combined in the pipes will pass through an air-chamber on top of the float.

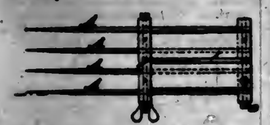


1. The combination of the hollow float *b* and its hollow stem *b' c*, having perforations within the valve-chamber *d*, with the screw-valve *f*, as set forth.

2. The air-vessel *l*, communicating with the upper portion of the ball *b*, and, at its opposite end, with the air, as set forth.

172,736. PEA-CUTTING KNIVES. William F. Hoffman, Brooklyn, N. Y. [Filed Dec. 11, 1875.]

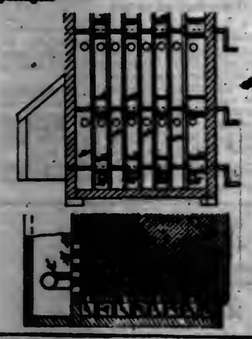
Brief.—The blades are pivoted at their shank end, so as to adjust and set their points in the same plane from time to time, as they wear away.

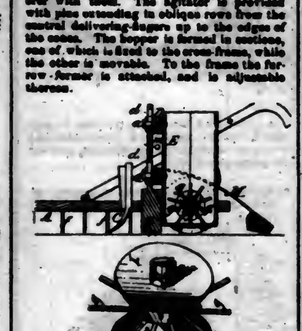


A gang of blades, A, pivoted to the frame at B, in a slotted cross-piece, E, and clamped in the slotted cross-piece F by a rod passing through slot-holes in the blades, substantially as specified.

172,737. FEED-DEVICE. Samuel W. Hoge, Dover, Del. [Filed Oct. 16, 1875.]

Brief.—A portion of the heated air passes upward through the feed, and is discharged between the rings. The air, when charged with moisture, is conveyed away through the passages.





The combination, with fan-shaped chamber A, having hinged bottom, of the trays D and the air-tubes E F, arranged to operate substantially in the manner described.

172,741. COTTON-SEED PLANTERS. Wm. Jarrell, Humboldt, Tenn., assignor of one-half his right to Watkins H. Dodson, same place. [Filed Oct. 15, 1875.]

Brief.—The coverer is attached to the hinged handles by the spring-arm, so that when the handles are elevated they will carry the coverer with them. The agitator is provided with pins extending in oblique rows from the central delivering-fingers up to the edges of the cones. The hopper is formed in sections, one of which is fixed to the cross-frame, while the other is movable. To the frame the furrow-former is attached, and is adjustable thereon.

1. The coverer I J, provided with the pins h, extending in oblique rows from the line of the fingers *g* up to the large ends of the cones, and combined for operation with the central fingers and the cones, to draw the seed down the inclined sides to the middle of the cones and the opening in the hopper, as shown and described.

2. The fixed hopper-section E and the post furrow-former G, combined with the cross-frame D, and secured thereto by the same bolts *a a* upon which said furrow-former is adjusted, all constructed and arranged as shown and described.

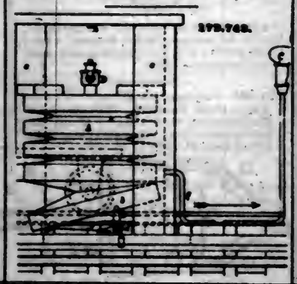
3. The handles L, cross-frame D, coverer spring-arms M, their adjusting-rods O, and the fixed steps n in the cross-frame, all combined as and for the purpose herein set forth.

172,742. TRAVELING-BAGS. G. B. Jenkinson, Newark, N. J. [Filed Dec. 16, 1875.]

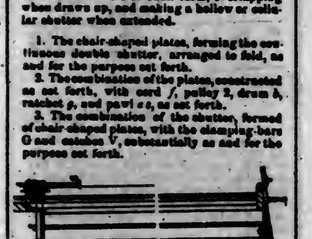


The combination of the frame or bar C, the handle having eyelets *i i*, and the U-shaped piece of malleable metal having a central opening, *a*, for the rivet by which it is secured to the frame or bar, and a cross-bar, *b*, passing through the eyelets *i i* and over the head of the rivet, all as and for the purpose set forth.

172,743.



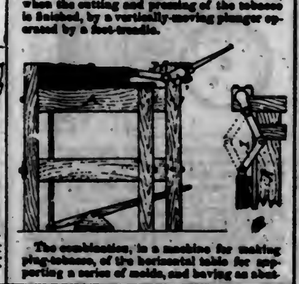
172,744. WASH-TUB STANDS. J. H. Johnson, Chicago, Ill. [Filed Dec. 16, 1875.]



In a folding wash-tub stand, constructed substantially as described, the central pivoting-pin B, placed in the upper cross-piece A, and having bottom *b*, substantially as and for the purpose herein shown and specified.

172,745. PLUG-TOBACCO MACHINES. John L. Jones, Greensborough, N. C. [Filed Nov. 18, 1875.]

Brief.—A series of molds are laid upon edge upon a horizontal table, where a pressure-bar forces them together against an abutment, which presses and cuts the tobacco in them all. A single mold is raised from the others, when the cutting and pressing of the tobacco is finished, by a vertically-moving plunger operated by a foot-treadle.

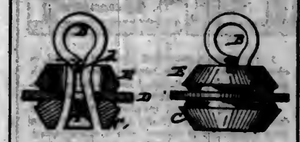


The combination, in a machine for making plug-tobacco, of the horizontal table for supporting a series of molds, and having an abut-

ment, against which they rest, a horizontally-moving pressure-bar, for pressing the molds, and a vertical plunger or lifter-bar, connected with a treadle, for expelling one of the molds from the table, substantially as described, for the object specified.

172,747. BUCKETS FOR CHAIN-PUMPS. Otto Junkerman, Centralia, Ill. [Filed Sept. 11, 1875.]

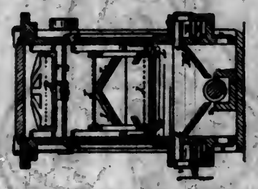
Brief.—The eyes of the central link are so formed, and the ends of the wire composing it so brought together, that a bearing is formed for a wedge-shaped key, which holds the parts together. A disk is cast upon the link, a slotted washer of leather and a slotted disk of metal are passed over the eye, and all secured by the key, which seats in a notch in the latter disk.



The combination of the chain-forming link A, eye B, and shoulder *a*, the disk C, with rivet *c*, washer D, slotted and grooved disk E, and key *d*, all substantially as and for the purposes herein set forth.

172,748. MIDDLINGS-SEPARATORS. C. F. Keller, Nevada, Ohio, assignor of two-thirds his right to G. W. and J. L. Ballou, same place. [Filed Oct. 5, 1875.]

Brief.—Improved dust-or bran-proof reel-bolt; dedusters arranged between the shaking-screens; separate and independently-adjustable air-passages from fan arranged at both sides of separator below the screens.



1. The spirally-arranged brushes *c c*, forming the brush-cylinder, provided with inclined inner faces *c'*, in combination with the adjusting double cone *f f*, arranged and operating in connection with the revolving bolt or screen C, substantially as described.

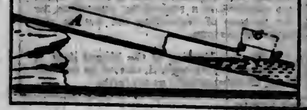
2. The revolving bolt C and brush-cylinder E, arranged at the head of the middlings-purifier, in combination with the perforated casing-floor, discharge-chutes A A', and spiral flights or starts on the revolving bolt, for removing the flour and conveying the middlings to the middlings-bolt, as described.

3. The combination, with the bolts I I', of the shutes or deductors L L', arranged as described, whereby the middlings from the upper bolt are passed down outside of and back underneath the lower bolt, as specified, and for the purpose set forth.

4. The wind-trunks P P, arranged at the sides of the bolting-chamber below the middlings bolt or screens, and provided with the several longitudinal compartments *p p'*, each communicating separately with the fan, and with the bolting-chambers, for directing the currents of air to the descending middlings, after the latter have been acted upon by the bolts, as described.

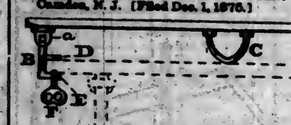
5. The divided wind-trunks P, in combination with the valves *r r' s s'*, &c., for controlling the admission of air to, and the current in of the same through, the bolting-chamber, substantially as described.

172,749. INSTEADS. Jerome Kidder, New York, N. Y. [Filed Sept. 17, 1875.]



The portable instead herein described and represented, composed of the tube or elongated sub-reservoir A, having a filling and delivery orifice, B, in its upper side at or near one end, as and for the purpose set forth.

172,750. BOWING-TABLES. E. B. Lamb, Camden, N. J. [Filed Dec. 1, 1875.]

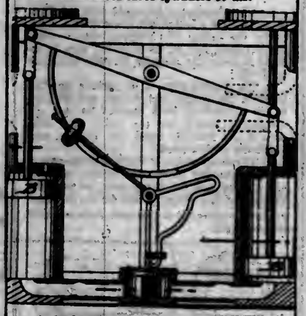


1. The combination, with the board A, of the supporting and clamping arm B, connected to the board by hinged joints *a a*, substantially as and for the purpose set forth.

2. The board A; and the supporting and clamping arm B connected thereto by hinged joints *a a*, in combination with the inverted bow-rests C, all constructed, arranged, and operating as set forth, and forming an improvement in fruing-boards, for the purpose specified.

172,751. HYDRAULIC AIR-COMPRESSORS. F. Lauraman, Washington, Kans. [Filed Oct. 20, 1875.]

Brief.—Two pistons are actuated by water on their under sides, and force air by their upper sides. Their rods actuate pistons in superposed cylinders, which pump and force air on both sides of them. A single cylinder of water thus forces three cylinders of air.



A hydraulic air-compressor, composed of alternately-working lower cylinders and pistons operated by hydraulic force and regulating mechanism of the supply-pipes, in connection with compressing-cylinders above the lower cylinders having air-valves and exit-pipes, and being worked by pistons at the upper ends of the piston-rods of the lower cylinders for compressing, with each stroke of the pistons, air in one lower and two upper cylinders and conveying the same to a receiving-reservoir, substantially in the manner and for the purpose set forth.

172,752. HYDRAULIC FIRE-PLUGS, &c. S. W. Lewis, Cincinnati, Ohio. [Filed Dec. 20, 1875.]

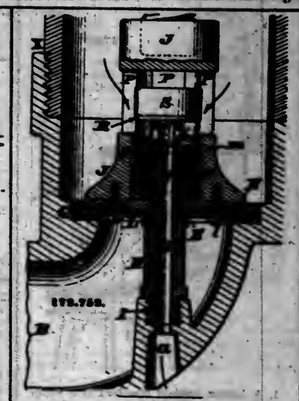
Brief.—The vertical tubular waterway serves as a guide and support to the valve. The waterway is closed at the top by the stop-valve shown, the water being admitted at the ports below.

1. The vertical waterway C D, either open or closed at top, and occupying an axial, or nearly axial, position within the hydrant or plug, said nozzle C D serving as a guide to the plunger, substantially as described.

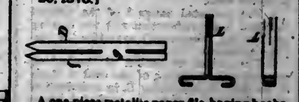
2. In combination with the vertically-projecting nozzle C *c* D and moving plunger J, I claim the collar E and seat F for the double support of inlet-valve K when the latter is closed, as herein explained.

3. I claim the combination of vertical nozzle C *c* D, slotted moving plunger J P, seat *e*, and gravitating stop-valve B S, as and for the purpose stated.

4. In combination with the vertical nozzle C *c* D and moving plunger J, I claim the chamber M, seated ring O *o*, and elastic packings N *n*, for the object stated.



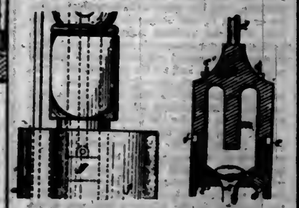
172,753. PAPER-FILE FASTENERS. Charles D. Lindsey, Cincinnati, Ohio. [Filed Feb. 20, 1876.]



A one-piece metallic paper-file, having hooks *d d*, sides *f f*, and shoulder L, as shown and described.

172,754. PUMPS. William Lott, Elmwood, Ill., assignor of two-thirds his right to M. Philbrook and Jno. Woodrow, same place. [Filed Nov. 1, 1875.]

Brief.—The reservoir and upper and of lower tubing are attached to a broad transverse bar, abutting against the sides of the well, by which means the tubes and stock are maintained in parallel vertical lines. The upper section of the bucket bears a central and downwardly-projecting boss to prevent displacement of the valve.



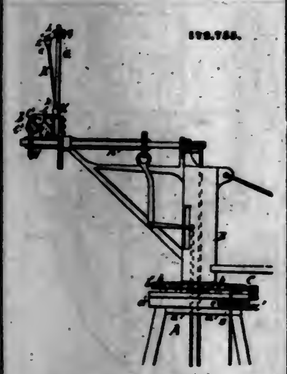
1. In a double-acting pump having a main stock provided with a spout and pivotal handle or lever carrying the piston-rods provided with bucket-valves, the reservoir or tank *f*, connected with the upper and lower tubing *h g* by means of plate A, the upper end of lower tubing being fastened thereto by a strap-plate, B, and screw-bolts, substantially as shown and set forth.

2. The bucket-valve made in two sections, B C, the upper section, B, being connected to the piston-rod *d*, and secured to the lower section C by means of the rods *c' b* and connections, and having a downwardly-projecting stop, *n*, to prevent the valve A' from coming out of the opening in which it works, in combination with adjustable ring *o'*, substantially as shown and set forth.

172,755. WINDMILLS. Giles Mabie, Moline, Ill. [Filed Nov. 20, 1875.]

Brief.—Relates to means for holding the mill to the wind; also, a peculiar construction of the hollow cylinder, in combination with a short cylinder connected to the lower platform, whereby the jumping of the hollow vertical standard when the wind is very high is prevented; also, devices for adjusting the fanners, and consequently setting the fans in their proper position to catch the wind or throw them out of the wind, as required.

178,755.



1. A hollow vertical standard of a windmill, having an enlarged flaring rim or flange, provided on its periphery with a series of ratchet-teeth, substantially as and for the purpose set forth.

2. The ratcheted flange *b* of the vertical standard B, in combination with the locking pawl or dog, substantially as and for the purpose specified.

3. The release mechanism of the locking dog or pawl, consisting of the cord or chain *d*, the lever D, and pulley E, in combination with said dog or pawl, the ratcheted flange *b*, and the vertical standard B, all constructed to operate substantially as specified.

4. The combination of the top plate or platform *a*², having a series of openings formed therein for the purpose described, and provided with a concentric groove, *a*², the depending frame *a*³, with the lower plate *a*⁴, and the short cylindrical hollow standard or stud F, substantially as and for the purposes specified.

5. The combination with the ratcheted flange *b*, having decentric groove *b*², and the cylinder B of the top plate *a*², constructed as described, the pulleys I, and bails *b*³, all arranged and constructed to operate substantially as shown and described.

6. The top and lower plates *a*² *a*⁴ of the platform, and the short hollow vertical cylinder or stud F, and anti-friction *f*, or its equivalent, with the vertical hollow standard B, having an inner concentric flange or shoulder, *b*², when constructed and combined to operate substantially as and for the purposes set forth.

7. A wind-wheel, having its fan-bars journaled concentrically to the radial arms, and moving independently of each other, substantially as and for the purposes set forth.

8. A wind-wheel having its fan-bars journaled to the radial arms independently of each other, in combination with said radial arms and the slotted bearings or supports O, whereby each fan-bar may be adjusted vertically at either end, or both, without affecting the position of the adjacent fan-bars, as described.

9. The combination, with the fan-bar G, provided with a groove concentric to the axis of said fan-bar, of the truss-rod or journal *g*, the end caps H H', the radial arms M, and the slotted supports O, constructed and arranged to operate substantially as shown and described.

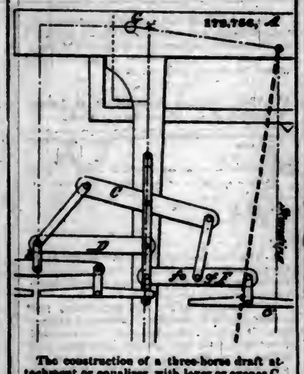
10. The sliding fork I, in combination with the connecting or tilting rod K, and the projecting lug or ear *h*² of the fan-bar cap H, constructed and arranged to operate substantially as specified.

11. The combination, with the sliding fork I, constructed as described, and the connecting or tilting rod K, having both of its extremities screw-threaded, and the fan-bar cap H, having projecting lug or ear *h*², of the forks *i*² *i*², provided with threaded sleeves k, whereby the relative position of the sliding-fork I and fan-bars G is adjusted, substantially as described.

12. The combination, with the arms I P of the fork I, of the bracket P, radial arms M, and the spider of a windmill, substantially as described, and for the purposes specified.

178,756. DRIVE-REGULATOR. Richard M. Marvin, Manchester, Iowa. [Filed Oct. 29, 1875.]

178,756.



The construction of a three-horse draft attachment or equalizer with lever or evener C, pivoted bar or spreader D, and lever F, all attached to the tongue B at three points of attachment, in the same line, and with the spreader D in intermediate position, for operation substantially as set forth.

178,757. BOTTLE-STOPPER. J. Matthews, New York, N. Y. [Filed Apr. 6, 1875.]

Brief.—By rotating the ball the stopper is forced in or out by the action of the inclines.

1. A bottle-stopper provided with a bridge, so as to leave a horizontal space or slot, *c*, between the bridge and stopper, within which the swinging bail of the fastener may be rotated to press the stopper into the bottle, as set forth.

2. The combination of a fastener passing between the stopper and bridge, and secured to the bottle-neck with incliues, so that the stopper is pressed into the bottle by a rotation of the fastener upon the incliues, substantially as described.

3. The combination of the bridge, the swinging bail passing under the bridge, inclines, the stopper, and the bottle-neck, so that the rotation of the swinging bail forces the stopper into or upon the bottle-neck, substantially as described.



178,757.

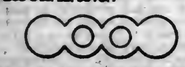


178,760.

178,758. TELL-COUPLINGS. Thomas McDonough, Ottawa, Ill., assignor of two-thirds his right to Jos. B. Porter and Thos. B. McDonough, same place. [Filed Sept. 13, 1875.]

The arm A, recessed or slotted at E, and arm B, provided with the cam-shaped end C, whereby a coupling is formed by passing the hook C sidewise over the eye D, substantially as shown and described.

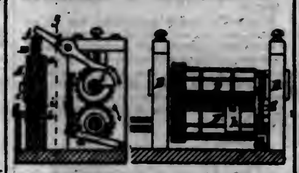
178,759. SUSPENSORY ATTACHMENTS FOR CAMES. Henry D. Mentzel, Baltimore, Md. [Filed Oct. 12, 1875.]



As a new article of manufacture, a suspensory attachment for show-cards, &c., consisting of a strip of flexible material perforated at each side of its longitudinal center at equal distances therefrom, and having an extension beyond each perforation, substantially as shown, said strip being adhesive on one side, whereby, in the duplication of the strip over the card, a single suspensory ring is formed of doubled thickness of the material, as specified.

178,760. MACHINES FOR FRINGING BARBS OF WIRE. Edward W. Mitchell, Chicago, Ill., assignor to William T. Calkins, same place. [Filed June 4, 1875.]

Brief.—The barbs are strung upon the wire, and are fed up to the rolls to be caught in the longitudinal grooves therein at proper intervals, to be fixed upon the wire as it passes between the rolls.

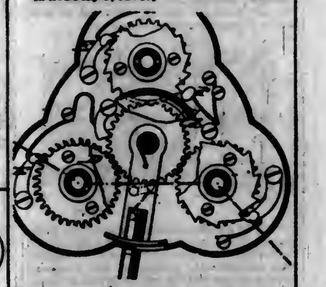


1. The head *a*, provided with cut-offs *d d*, in combination with the head *b*, provided with projections *v v*, constructed and operating substantially as and for the purposes specified.

2. The head *b*, with its projections *v v*, and the head *c* with its cut-offs *d d*, in combination with the rollers D D' and arm *k*, constructed and operating substantially as and for the purposes specified.

3. In a machine for pressing barbs on a wire, the rollers D D', each having one or more longitudinal grooves or recesses, in combination with the notched arm *k*, substantially as and for the purposes specified.

178,761. FARE-REGISTERS. Jas. G. Moody and E. B. Gladdin, New York, and Thos. Miner, Brooklyn, assignors of one-half their right to E. F. Daly, New York, N. Y. [Filed July 3, 1875.]



1. A fare-register constructed of one or more revolving registering devices, in combination with actuating cog-wheels mounted loose on a central bearing, and operated by swinging lever, and with a bell-alarm, substantially in the manner and for the purposes set forth.

2. The combination, with the revolving dial-plate and gear-wheels of a fare-registering device, of a sliding spring, notched bottom, and reversed pawl-detent, for holding the gear mechanism depressed, and admitting the turning of gear-wheels by the actuating mechanism, as described as specified.

3. The combination of the sliding and spring-acted gear-wheels, with a reversed spring-pawl that locks the gear-wheel into position when not depressed, and retains them in position when depressed until released at defined periods, substantially as shown and described.

4. The combination of the revolving registering device, having ring with projecting part beyond thereon, with a differential gearing for indicating number of revolutions of dial-plate and registering figure, substantially as and for the purposes specified.

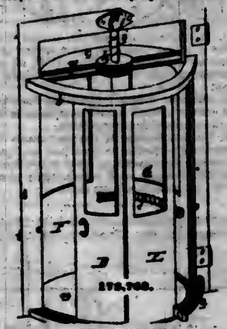
178,762. DOOR-REGISTERS. Felix Myers, Philadelphia, Pa. [Filed Dec. 28, 1875.]

Brief.—A registering-door for public buildings, cars, &c., consisting of a circular cage having four equilateral doors, two of which are attached to a registering apparatus, for the purpose of registering the ingress and egress of persons.

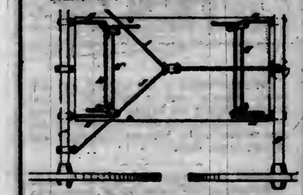
1. The combination of the hinged door A with a registering-cage, B, carried by the said door, all substantially as set forth.

2. The cage B, projecting on both sides of a door or partition, A, and provided on the outside with spring-doors D E, and on the inside with spring-doors F G, the latter being connected to the registering apparatus.

3. The combination of the cage B with the doors F and G, the former being provided with a lock which can only be opened from the inside of the apartment to which the door is applied, all as and for the purpose set forth.



178,763.



178,763. VEHICLE-SPRINGS. Silas Newcomb, Flint, N. Y. [Filed Nov. 6, 1875.]

The combination, with the vragee-body and axle, of the torsion-springs H, having rear-ward-extended parallel arms, and the hinged stay-bars J, as shown and described, to operate as specified.

178,764. MACHINES FOR PRESSING BOOTS AND SHOES. O. L. Noble and T. T. Prosser, Chicago, Ill. [Filed Oct. 30, 1875.]

Brief.—An anvil-plate is supported upon the end of an upright arm, connected therewith by a ball-and-socket joint, the opposite end of the arm resting on a spherical base fitted to a spherical concave, admitting of an inclination of the arm without changing the central position of the anvil.

1. In a boot and shoe pegging machine, an anvil provided with a double-jointed support, substantially as before set forth, such double joint permitting the inclination of the column to be varied without affecting the plane of the face of the anvil.

2. In a boot and shoe pegging machine, an anvil mounted upon a double-jointed support, substantially as before set forth, the adjustable column thereof having a spherical base fitted to a spherical concave, the center of which is coincident with the center of the rotation of the anvil at the top of the column.

3. The combination, substantially as before set forth, with an adjustable work-supporting arm of a boot and shoe pegging machine, of an anvil-plate connected to the localized top thereof by a ball-and-socket joint.

4. The combination, substantially as before set forth, with the hinged frame and its presser-foot, of the cam, the lever, the pawl, the fulcrum-pin and spring for controlling the action of the pawl, the ratchet-wheel, and the rack and pinion.

5. The combination, substantially as before set forth, with a work-supporting anvil, the hinged frame and its presser-foot, and the wheels for feeding the wire, of the ratchet-wheel and pawl for moving such feed-wheels, the lever pinion and inner ring controlling the ratchet-wheel, and the fixed rack on the stand of the machine.

6. The combination, substantially as before set forth, of the cleaner, and the bevel-ended yielding wire-tube.

7. The combination, substantially as before set forth, of the indenter and the slotted wire-tube.

8. The combination, substantially as before set forth, with the bevel-ended yielding and slotted wire tube, of the cleaner and the indenter.

9. The combination, substantially as before set forth, of the driver and the slotted wire-tube.

10. The combination, substantially as before set forth, with the lever for feeding the stock along, and the adjustable stop-bar for regulating the length of the feed-stretches, of the lever S, having a projection, *s*, and the spring *r*.

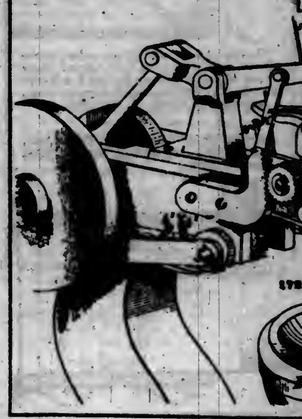
178,765. DIES FOR CUTTING AND EMBOSSING BUTTONS. John A. Olmstead, Graniteville, N. Y. [Filed Dec. 6, 1875.]

1. The combination, with a roller, of a detachable yielding or elastically-applied cutting-die, substantially as herein described.

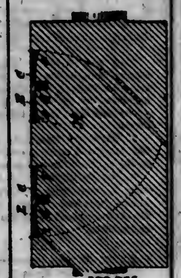
2. The combination, with a roller, of a detachable embossing-die, constructed and arranged to operate with the cutting-die, substantially as herein described.

3. The combination of the roller H, having the recess O and depression or gutter *f*, and the cutting-die C, having yielding cutting-edges *e*, connected to the central portion by elastic strips *d*, substantially as herein described.

4. The combination, with the roller H and cutting-die C, of the plate E, constituting the embossing-die, and also serving to secure the cutting-die in place, substantially as herein described.



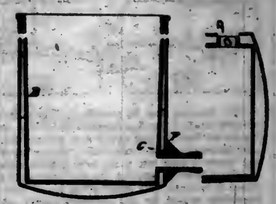
178,764.



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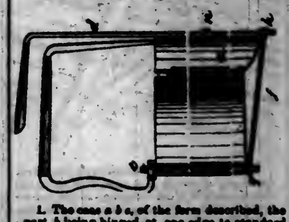
178,766. WATER-URNS. Edmund A. Porter, West Meriden, Conn. [Filed Sept. 18, 1875.]

Brief.—The inner shell by its flange rests upon the outer, and the burn, having been passed through the aperture in the outer shell, receives a faucet.



In a double walled urn, the outer shell A, constructed with the aperture D, combined with the inner shell B, constructed with an annular flange, *d*, at the top, and the burn C near the bottom, and the faucet E, substantially as set forth.

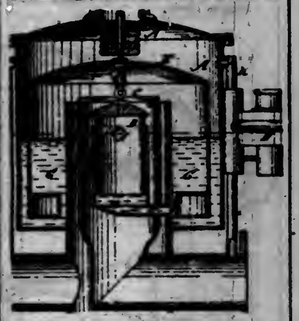
178,767. BUTTON-CUTTERS. Henry F. Fenton, Appleton, assignor of one-half his right to Albert S. Dean, Eau Claire, Wis. [Filed Dec. 13, 1875.]



1. The cams *a b c*, of the form described, the part *b* being hinged at one edge to standard *g*, adapted to be fastened at the other to the plate *c*, substantially as and for the purpose specified.

2. The receptacle *a b c*, having a hinged side, A, in combination with a cutter, *f*, and lever *d*, substantially as and for the purpose specified.

178,768. GAS-REGULATORS. D. B. Fenton, Edinburgh, Scotland. [Filed Oct. 6, 1875.]



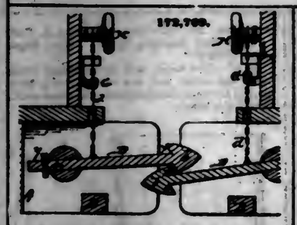
1. The combination of valve B, suspended from bell A, with tube E, connected by A pipe, F, with the water-space G, as and for the purpose specified.

2. The combination of a small governor, H, with the large governor, to control and regulate the pressure of the gas in the large governor, substantially as specified.

3. The tube L, with the perforated disk or burner-tip, connecting the chamber above the bell or diaphragm to the outlet-pipe, in combination with an auxiliary governor, substantially as specified.

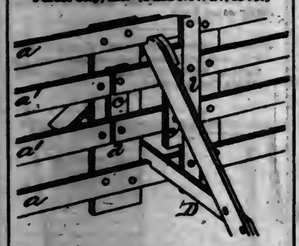
178,769. CAR-COUPLINGS. R. G. Phillips, Wellsville, Ohio. [Filed Nov. 4, 1875.]

179,769.



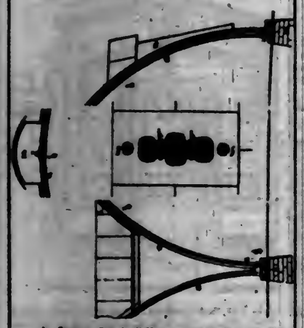
The coupling-bar D, provided with spear-shaped head b, having inclined shoulders or hooks *a a* back on the upper and lower sides, and fastened to the foot-shaft C by means of the tenon *c* and pin *p*, in combination with the draw-head A, open at top and bottom, the chain *d*, lever G, and hand-wheel H, all substantially as and for the purposes herein set forth.

179,770. PORTABLE FENCES. C. C. Flemmer, Forest City, Mo. [Filed Nov. 27, 1876.]



The straight portable fence herein described, consisting of panels A B, in each of which the interior rails *a' a'* are elongated at one end beyond the top and bottom rails *a a*, and connected by vertical locking-strips *a' a'* on opposite sides of said interior rails, the latter being made shorter at their opposite ends than the top and bottom rails *a a*, and attached to an upright, *d*, provided with a slot, *f*, and the rails *a a* being also connected by an upright, *i*, forming corners, *c*, substantially as described, and for the purposes set forth.

179,771. CONSTRUCTION OF BUILDINGS. N. Postnikoff, St. Petersburg, Russia. [Filed Aug. 14, 1874.]

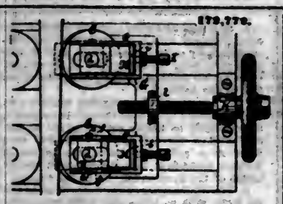


A frame for buildings, consisting of the arched rails *a*, link-plates *b*, screws *c*, plate *d*, iron sockets *e*, bolts *f*, and purlins *h*, all constructed and relatively arranged as described.

179,772. BREAKING-MACHINES. P. Pryfill, New York, N. Y. (Filed Dec. 8, 1876.)

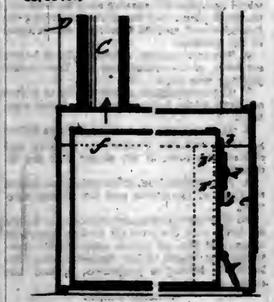
Brief.—A constant pressure of the feed-rollers across the whole face of the work, while passing through the machine, is preserved by providing one or more of the feed-rollers with corrugated sliding bearings and elastic cushions.

179,773.



The combination, with the sliding frame G, provided with the ways *g g*, the sliding and swiveled journal-boxes E E, elastic cushions H, and the feed-rollers C C, the whole constructed and arranged to allow each feed-roller to oscillate from a center located at or near one of its journals and beyond its bearing-surface, substantially as described.

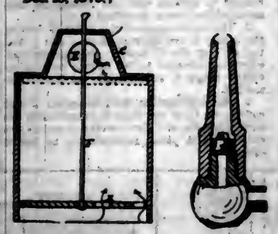
179,774. FOOT-WARMING STOVES. R. A. Reed, Oliver Springs, Tenn. [Filed Dec. 18, 1876.]



1. The cylindrical brazen D, and the connecting top bar, in combination with the case A and chimney C, as shown and described.

2. The outer casing, having top guards or fenders, substantially as specified.

179,775. GAS-REGULATORS. Isaac Rehn and C. S. Ford, Philadelphia, Pa. [Filed Dec. 16, 1876.]



1. A gas check or regulator, in which a flange or shoulder, X, is combined with a movable disk, O, having inclines or openings arranged to be closed by the said shoulder when the disk is raised, substantially as set forth.

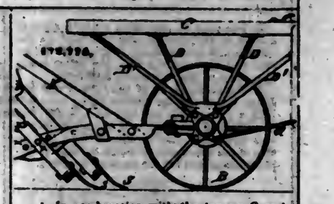
2. The combination, in a gas-regulator, of the flange X and movable disk, having an opening, H, arranged as set forth.

3. The combination of a gas-burner and a case, L, containing a valve, G, and arranged within the usual chamber in the burner above the threaded socket, of the lever and thread, as specified.

179,776. WHEEL-CULTIVATORS. Benjamin W. Remy and Noah T. Remy, Brookville, Ind.; said Noah T. Remy assignor to said B. W. Remy, and said B. W. Remy assignor to Rebecca A. Remy, Benjamin M. Remy, Noah T. Remy, and Catherine R. Stark. [Filed Aug. 26, 1876.]

Brief.—The double arches supporting the frame, and the construction of the curved draft-bars.

179,778.

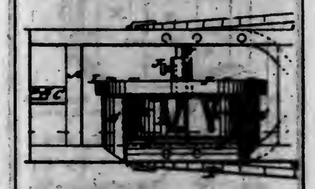


1. In combination with the tongue C and axles A A, the blocks E, outer arches D D, inner arches D' D', and loops G G, all substantially as and for the purposes herein set forth.

2. The plow-beams J, formed as described, and curved upward at their rear ends, as and for the purposes herein set forth.

3. The combination of the plow-beams J J, curved and perforated as described, the double adjustable standards F, pivoted to the beams, and the brake-pin *n*, all substantially as and for the purposes herein set forth.

179,779. COTTON-PLANTERS. L. M. Rhodes, Warrenton, Ga. [Filed Oct. 20, 1876.]



The combination of the wheel I, provided with a series of teeth or fingers, K, inclined as specified, and the hopper having a closed bottom, as shown and described, whereby the seed is discharged between the wheel and hopper, as set forth.

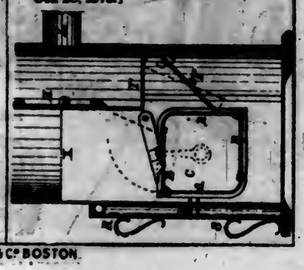
179,777. BAIT-CUTTING MACHINES. Nathan Richardson, Gloucester, Mass., assignor to A. Vom, same place. [Filed Dec. 23, 1876.]

Brief.—Slots are cut in the end of the frame, in which slots the journals of the roller rest. Tongues pass into the slots to prevent upward motion of the roller, and are held in place by straps which are hinged on the top of the frame, and are secured in place by buttons.



The combination of the frame *a*, having the vertical slots in its sides, the tongues 3, straps 5, and clasps or holding devices 6, whereby the roller *d* is made removable from the frame, substantially as shown and described.

179,780. COAL-GRATES AND FIRE-POTS. Aaron Rice, Maplewood, Mass. [Filed Oct. 20, 1876.]



1. The reversible fire pot or box A, in combination with the movable partition F, substantially as and for the purposes set forth.

2. The reversible fire pot or box A, in combination with blower E and sheet-draft S, substantially as and for the purposes set forth.

3. The reversible fire pot or box A and swing-grates B B, in combination with hasp or latch and spring upon pin, substantially as and for the purposes set forth.

4. The reversible fire pot or box A, swing-grates B B, movable partition F, blower E, and sheet-draft S, in combination with the hasp or latch, substantially as and for the purposes set forth.

179,778. BOOTS AND SHOES. Mathias Robling and Frederick Henke, Scranton, Pa.; said Robling assignor to James M. Everhart, same place. [Filed Feb. 4, 1876.]



1. The wooden sole and heel A B C, constructed, as herein described, with a deep parallel-sided groove, I, extending around its edge, and a dovetailed recess in its shank, in combination with the upper J and welt W, secured within the groove I by the same nails E, and with a cushion, H, filling the dovetailed recess in the shank, all as set forth.

2. The combination of the leather section H, applied and secured substantially as set forth, with the divided wooden sole A B.

3. The combination of the jointed sole A B, leather section H, cushion F, covering-plate G, washer M, rivets I, and nails E, applied substantially as herein set forth.

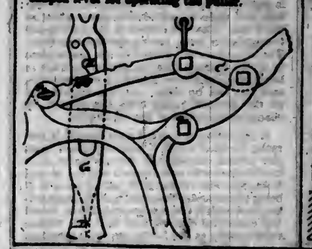
179,780. SEWERS. Clifford B. Russell, Trenton, N. J. [Filed Jan. 3, 1876.]



A sewer or drain whose section consists of a larger circle or a segment of a larger circle above, and of a smaller circle or a segment of a smaller circle below, with a connecting-throat, substantially as herein illustrated and described, for the purposes set forth.

179,781. SPEED-PULLEYS. Silas D. Rush, Frankfort, Ind. [Filed July 22, 1876.]

Brief.—The speed-pulley consists of an adjustable pulling-bar provided with a double head, a longitudinally-slotted semi-circular frame, having at each end of the slot projecting ears, and a link and a slotted arm, the inner ends of which are pivoted to said ears, and connected at their outer ends to an L-shaped lever for operating the puller.



The combination of the slotted semi-circular frame A, slotted arm B, L-shaped lever C, link E, and the pulling-bar G constructed with the double head D and hooks *b*, all substantially as and for the purposes herein set forth.

179,782. SEALING-TOPS. John F. Russell, Canton, Ohio. [Filed Dec. 28, 1875.]



1. The handle A, in combination with the cylinder B, provided with rib *b*, ring C, bevel rib *c*, and the circular plate D, substantially as set forth.

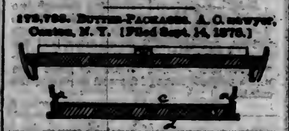
2. The cylinder B, having the groove *b'*, in combination with the plunger F, provided with lug or spline *f*, substantially as set forth.

3. The combination of lever K, cam-block I, plunger F, and centers D' with cylinder B and handle A, substantially as set forth.

4. The combination, with the ring C and rib *c*, of the bed-plate H, matrix D', and packing-piece *c'*, substantially as set forth.

5. The ring C, provided with rib *c*, having a throat, *c'*, adapted to permit the passage of the plunger F, having the lug or spline *f*, substantially as set forth.

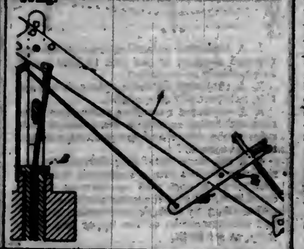
179,783. BOTTLE-PACKAGES. A. C. Sawyer, Canton, N. Y. [Filed Sept. 14, 1876.]



The can-body A, provided near its bottom with an annular bead, *a*, in combination with the metal bottom C, with downward-projecting flange, and the wooden bottom *d*, with projecting part *e*, constructed as and for the purpose set forth.

179,784. WIND-POWERS. C. Schneider, Charles City, Iowa. [Filed June 12, 1876.]

Brief.—A fan or blade arranged to be tilted by the wind, and so arranged that the wind blowing under the fan will swing it up till it strikes a horizontal position, when the greater area of the upper part will swing down and take the air, so as to be forced down until, by passing the horizontal plane, so that the air blows under it again, it will be forced upward as before, thus making continuous vibrating motion, until the bar, being pulled down by the rope, holds it so that it cannot swing.



In a wind-power apparatus, the combination, with the swinging lever and vibratory fan, of bar E and cord G, substantially as shown and described, to operate as and for the purpose specified.

179,785. FOLDING CHAIRS. D. N. Selleg and G. R. Whitmore, Newburg, N. Y. [Filed Dec. 4, 1876.]



The combination of the pieces *a b*, rocker *b*, arm *i*, rounds *j i*, links *n*, and cord *d*, the upper and lower ends of the legs *b* being left perfectly free, and the lower ends made to catch over the round *i*, to which the links are fastened, so as to give a double support to the rear of the chair, substantially as shown.

179,786. FARM-FENCES. Julius M. Shaver, Dryden, N. Y., assignor to J. W. Webster and A. C. Stone. [Filed Jan. 3, 1876.]



The combination, in a fence, of posts A, having transverse openings *a*, rails B, and wires passing through said openings, and formed into loops *b b'* for the reception of the ends of the rails, substantially as set forth.

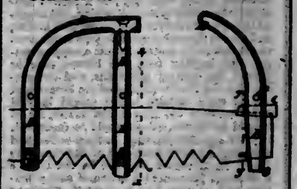
179,787. FENCE-POSTS. Gilman Shelton, Normal, Ill. [Filed Nov. 18, 1876.]



1. The cast-iron ground-post A, constructed as described, with the tapering spur or point C, and projecting top and bottom arms E E', substantially as and for the purposes herein set forth.

2. The combination of the perforated top post G with the ground-post A, having a spur or point, C, and arms E E', all substantially as and for the purposes herein set forth.

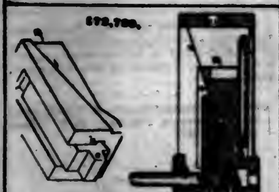
179,788. CROSSCUT-SAW HANDLES. Lewis Shepard, Mace, Ind., assignor to himself and D. W. Kennedy, same place. [Filed Dec. 4, 1876.]



The curved and straight handles B D, secured to each other at their upper ends, and provided with bolts E at their slotted lower ends, in combination with the saw-blade A, substantially as herein shown and described.

179,789. GAS-COUPLINGS. Jacob Singer, Harrisburg, Pa. [Filed Jan. 6, 1876.]

172,788.



1. A draw-head provided with an inclined bearing, and with a follower adapted to said bearing, and carrying a trigger arranged and operating to retain and release the coupling-pin, substantially as set forth.

2. The combination of the draw-head, its inclined bearing, a follower adapted to said bearing, and a trigger sliding upon an inclined bearing of the follower, as set forth.

3. A draw-head provided with an opening, *a*, in the bottom, arranged to facilitate the manipulation of the link within the draw-head, as specified.

4. The combination, with a draw-head, of a yielding block or follower, B, pressing forward under pressure, and a trigger, B', carried by the follower, for the purpose set forth.

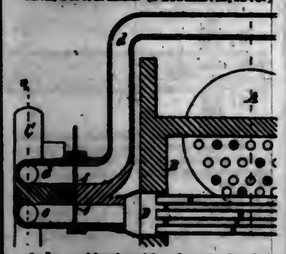
172,789. SIGNAL HEAD-LIGHTS FOR LOCOMOTIVES. John V. Glenner, Louisville, Ky. (Filed Sept. 27, 1875.)

Brief.—The tubes hold colored lenses, for the purpose of conveying signals when the caps are removed.



The locomotive head-light tubes B provided with movable caps C, as and for the purpose described.

172,790. AIR-HEATING APPARATUS. E. L. Snell, Boston, Mass. (Filed Mar. 10, 1876.)



1. In combination with a heater placed in the flue of a combustion-chamber, in a position to be acted upon by the products of combustion in their passage from the combustion-chamber to the open air, and a blower connected therewith by a suitable pipe, and adapted to force a current of air through said heater, and thence through a suitable pipe to the compartments to be heated, I claim a supplementary pipe leading from the blower over or around the heating apparatus, and connecting with the discharge-pipe of the heater, and one or more suitable valves placed in said pipes between the blower and heater, all arranged to operate substantially as described.

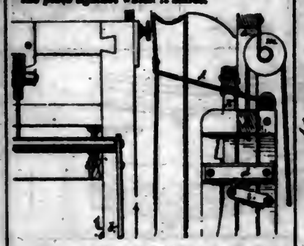
2. In combination with a steam-boiler and a blower, a heater composed of the chambers D and E, connected together by the tubes *c*, attached permanently to one of said chambers, and passing loosely through openings into the other chamber, substantially as described.

3. A heater composed of the chambers D and E, connected together by a series of small tubes, *c c*, attached permanently to one of said chambers, and passing loosely through openings into the other chamber, substantially as described.

4. In combination with two circular pipes or passages, *c* and *d*, a sliding disk or plate valve, *f*, having semicircular ends, and adapted to open one passage while it closes the other, and also adapted to vary the aggregate openings of the two pipes, substantially as described.

172,792. SAFETY-BRAKES ON ELEVATOR-PLATFORMS. Henry Snowden, Baltimore, Md. (Filed Dec. 1, 1875.)

Brief.—The guide-pieces attached to the platform, which slide along the elevator-posts, have between them a third piece, that, on the accidental fall of the platform, has a limited movement, which brings its inclined edge in wedged contact with a corresponding edge of the piece against which it slides.



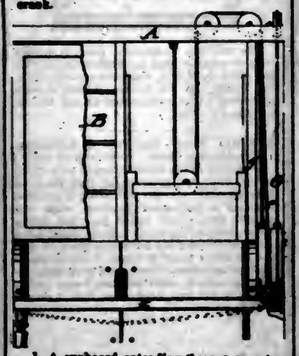
1. A movable rack, which, by a wedging operation of its inclines, shall be pressed against the elevator-guides, and, by its friction, and produce a safety-brake, as set forth.

2. I claim the links *f' f'' f'''* across the face of an elevator-guide, connecting a movable and a stationary clamping-piece, for the purpose of clamping between the said pieces the guide or guides of the elevator, for the purpose specified.

3. I claim the combination of a movable rack, a stationary rack, links *f*, lever *f*, and clamping-bar with an elevator-platform, to make a safety-brake.

172,793. CUPBOARDS. Lewis Spangler, Auburn, Ind. (Filed Dec. 27, 1875.)

Brief.—A cupboard extending through two stories, and fitted into the wall, is divided into three vertical compartments—one fitted with shelves, another with an elevator, and the third having therein the counterbalance-weights and winding-drum, the shaft from which projects through the wall to receive the crank.



1. A cupboard extending through two stories and abutting at one side to form a sink, substantially as described.

2. A cupboard extending through two stories, substantially as specified.

3. A cupboard extending through two stories, and being accessible from one or both sides at the upper and lower story, substantially as specified.

4. A cupboard extending through two stories, and divided into a stationary shelf part and an open part with an elevator that is equal in height with the lower story, and raised and lowered by suitable mechanism to establish communication of the upper and lower story, as set forth.

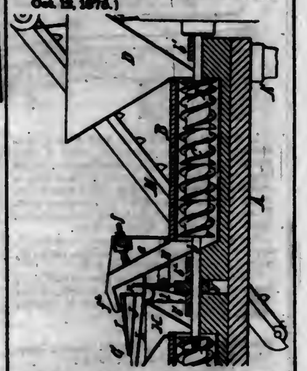
172,794. INSECT-TRAPS. Abner B. Sprout, Picture Rocks, Pa. (Filed Nov. 16, 1875.)

Brief.—A semicircular piece of vulcanized-rubber material, of sufficient length to encircle the trunk of the tree, is provided upon one side with studs or blocks, to prevent the piece coming in contact with the tree except at its shortest edge, and the line of contact can be rendered water-tight by wet clay or other adhesive matter.



The insect-trap herein described, composed of circular elastic band A, with ribs or studs B, applied and adapted to operate substantially as and for the purposes described.

172,795. COFFEE HULLERS AND CLEANERS. Henry B. Stevens, Buffalo, N. Y. (Filed Oct. 12, 1875.)



1. The combination, with the hulling-cylinder and screw B C and elevated discharge-hopper E, of one or more finishing-cylinders and screws, B' C', whereby the relative position of the grains is thoroughly changed in passing from one cylinder to the next one, and the discharge of hulled grain rendered continuous, substantially as hereinbefore set forth.

2. The combination, with the hulling-cylinder and screw B C and discharge-hopper E, of one or more finishing-cylinders, B' C, and one or more intermediate separators, G, substantially as and for the purpose herein before set forth.

3. The combination, with the hulling-cylinder and screw B C, of the discharge-hopper E', separator G, elevator M, and feed-hopper D, substantially as and for the purpose herein before set forth.

4. The combination, with the hulling-cylinder and screw B C, of the discharge-hopper E and adjustable mouth-piece *e*, arranged in the latter for regulating the pressure on the grain in the cylinder, substantially as hereinbefore set forth.

172,796. HARROWS. Reuben W. Taylor, Roseville, Cal. (Filed July 12, 1875.)

Brief.—The harrow-frames in in three sections. The middle section is rectangular, and is supported upon a crank axle-tree at the rear end, and upon an adjustable caster-wheel at the front. The side frames of the harrow are triangular in form, having the apex forward. The side pieces are hinged to the center-piece in such a manner that the hind wheels are in the triangular space formed by narrow sides, and they can be folded over the wheels, and all the sections raised from the ground, by change of positions of the crank axle.

1. The adjustable crank-axle or yoke B, carrying the hind wheels A, and supported upon the central rectangular harrow-frame A, in combination with said frame A and the hinged triangular side frames E E', said frames E E' being placed under the crank-axle B, surrounding the wheels A, and being adapted to be raised and supported clear of said axle and wheels, substantially as and for the purposes specified.

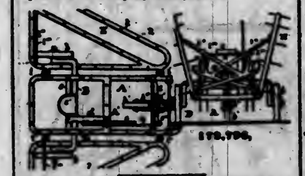
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2. The combination of the crank-axle or yoke B, lever *e*, rod *f*, front axle C, bearings *c' c''*, wheel-pin *b'' b'''*, and front wheel *b'*, substantially as and for the purposes herein set forth.

3. The brace *g*, extending back from the front of the central frame A, combined with the front axle C, bearing *c' c''*, and wheel-pin *b''*, having the head *b'''*, substantially as and for the purposes specified.

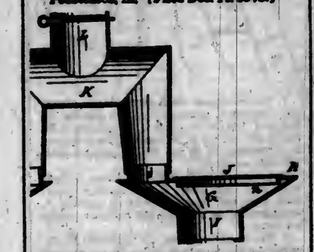
4. In combination with the side frames B B', the brace F, braces F', and hand-levers F'', all connected substantially as and for the purposes set forth.

5. The hooks *n*, extending up from the central frame A, and combined with the lever F at the opposite side of said frame, substantially as and for the purposes specified.



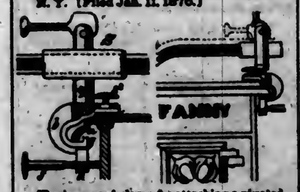
172,796.

172,797. PORTABLE STOVES. S. Thompson, Pecatonica, Ill. (Filed Dec. 14, 1875.)



The combination, with the pipe D in the stove A, of the funnel-shaped pans G, provided with the collars I and flat tops H, having stove-holes *h* and collars *i*, the double elbow K and pipe L, substantially as and for the purposes herein set forth.

172,798. ATTACHMENTS FOR COOKING-STOVES. Theodore R. Tinsley, Tarrytown, N. Y. (Filed Jan. 11, 1876.)



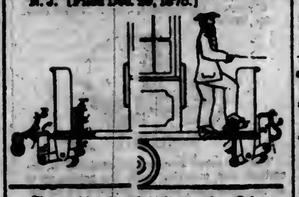
The improved clamp for attaching a pivoted or sliding griddle or other article to the top plate of a stove or range, the same having a vertical lip or flange, *p*, to engage within the marginal flange of the top plate, and three or more screws, *s s'*, or their mechanical equivalent, for tightening and adjusting or leveling the same, substantially as herein illustrated and described.

172,799. SNOW-PLOWS. Henry Twitchell and Geo. B. Parsons, Fulsaki, N. Y. (Filed Oct. 6, 1875.)



The sweep-plow having the inclined shovel-face A, widened under the side guides, the forwardly and laterally curved overhanging side guides *e*, meeting each other at a sharp angle centrally, and extending laterally beyond said face, the center cutter, side cutters E, brace D, and center brace E, constructed and arranged as shown and described.

172,800. HORSE-DETACHERS. Robt. S. Van Sandt, Brooklyn, E. D., N. Y., assignor of one-half his right to Geo. Boyd, Plainfield, N. J. (Filed Dec. 20, 1875.)



The combination of the lifting-plate C, lever D, and foot-rest E, with the hook B of a street-car, substantially as and for the purpose set forth.

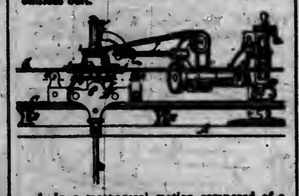
172,801. HANDLES FOR TRAVELING-BAGS. Charles F. Walker, Chicago, assignor of one-half his right to Frank E. Walker, Belvidere, Ill. (Filed Dec. 4, 1875.)



In combination with a handle for a traveling-bag, or other similar article, the plate *c*, adapted to be connected to the bag by means of the bolt or catch of a lock, substantially as and for the purpose set forth.

172,802. MECHANICAL MOVEMENTS. Alvin Warth, Stapleton, N. Y. (Filed Dec. 1, 1875.)

Brief.—A carriage travels by grooved wheels on a round rail-affixed to a table. At each end of the rail are guiding-pulleys for an endless belt, which rotates a vertical shaft on the carriage. To the shaft is swiveled an arm, at the extremity of which is a bent, to which motion is transmitted from the shaft by another endless belt.



1. In a mechanical motion composed of a carriage, a traveling belt, and a standard connecting the carriage to a working machine, I claim the combination of supports H, one or more, with the traveling belt and the carriage, and the swivel-arm and rollers on the carriage, for throwing the carriage in or out of gear with the traveling belt, substantially as and for the purposes set forth.

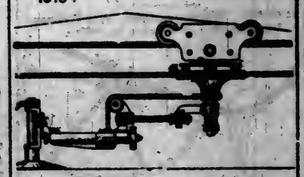
2. In a mechanical motion composed of a carriage, a traveling belt, and a standard connecting the carriage to a working machine, I claim the swivel-arm K, provided with a socket, *l*, which is open at both ends, and through which extends the rod connecting said carriage to the working machine, substantially as and for the purpose described.

3. In a mechanical motion composed of a carriage, a traveling belt, and a standard connecting the carriage to a working machine, I claim the combination of a balance-weight with the carriage, the rod connecting the working machine to said carriage, and the swivel-arm and rollers on the carriage, for throwing the carriage in or out of gear with the traveling belt, substantially as and for the purpose set forth.

4. In a mechanical motion constructed as above stated, I claim the combination of grooved rollers with the guide-rail C and with the carriage D, and the swivel-arm and rollers on the carriage, for throwing the carriage in or out of gear with the traveling belt, substantially as described.

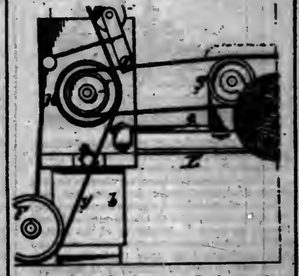
5. In a mechanical motion, as above described, I claim the combination of a hinge-joint with the rod or standard I and the carriage D, substantially as set forth.

172,803. MECHANICAL MOVEMENTS. Alvin Warth, Stapleton, N. Y. [Filed Dec. 28, 1875.]



In a mechanical movement composed of a traveling belt, a carriage which connects with the working machine, and a clamping device for throwing the traveling belt in gear with the carriage, I claim the combination, with the traveling belt and the carriage, of a rail supported by standards above the work table or bench, said carriage being provided with a clamp for throwing it in gear with the traveling belt, with a power-transmitting pulley, and with a depending swivel-standard, forming the bearing for a rod that connects with the working machine, substantially as and for the purpose set forth.

172,804. APPARATUS FOR CLEANING BRICK WALLS, &c. John Waterman, Philadelphia, Pa. (Filed June 9, 1876.)



1. A device for cleaning walls, &c., consisting of an adjustable frame adapted to guides at each end, and provided with a sliding carriage, carrying a revolving brush or scraper, all substantially as set forth.

2. The combination of the vertically-adjustable frame and its end pieces *d d'*, with the opposite end frames A A, and their guides *b* made in sections, all substantially as set forth.

3. The combination of the belt *g* and the pulleys F and G, the shafts of which turn in bearings secured to the upper and lower sections of one of the end frames, with the pulley E, carried by one of the adjustable end pieces *d d'*, all substantially as set forth.

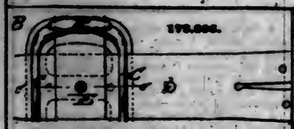
172,805. NUT-LOCKS. Jos. H. Webster, St. Louis, Mo., assignor of one-half his right to Wm. L. Reynolds, same place. (Filed Nov. 1, 1875.)



A nut, B, having its sides of equal length, and with its screw-hole *b* placed eccentrically, substantially as set forth.

172,806. RACE-STRAP BUCKLES AND TRACE-CARRIERS. Jos. W. Wood, Clarinda, Iowa. (Filed July 3, 1874.)

178,806.



The hook and hip strap fastening and trace-supporting device herein described, consisting of the hook plate or frame A, lateral bridge bars or loops C, side loops D, pin or fixed tongue E, and T-shaped hooks or trace-carriers D', as herein shown and described.

178,807. WHEELBARROWS. P. L. Weimer, Lebanon, Pa. [Filed Oct. 21, 1875.]



1. The barrow described herein, consisting of the metal body A, wheels B, axles C, and bearing-blocks D, constructed and arranged as shown and described.

2. The wheel consisting of the wrought-iron rim a, the cast hub, and the threaded spokes b, provided with the nuts and the enlarged or headed outer ends, as shown and described.

3. The parallel axles C, mounted in the bearings D, as shown, and secured by the coupling L, so that either axle may be readily removed without affecting the other or disturbing the bearings.

178,808. BALANCED VALVES. William J. Westwood, South Bend, Ind. [Filed Aug. 27, 1875.]

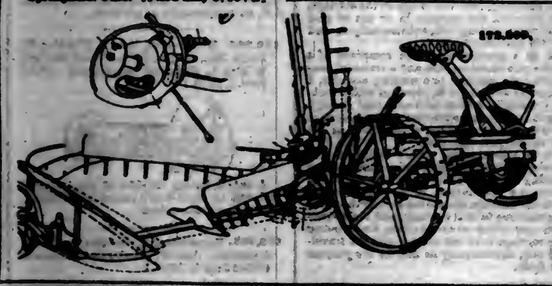


1. The spring-plate K, consisting of the central portion d and transverse end pieces d' d', substantially as described and shown.

2. In a balanced slide-valve, wherein the live steam is admitted under the valve, the combination of the valve I, having the arched top, the valve-chest cover G, the set-screws L, and the spring-plate K, consisting of the central portion d and transverse end pieces, when the said set-screws bear upon the said spring-plate near its ends, substantially as described and shown.

3. In a balanced slide-valve, wherein the live steam is admitted under the valve, the combination of the valve I, having an arched top, the valve-chest cover G, the rollers e', the spring-plate K, and the set-screws L, the said set-screws bearing upon the said spring-plate near its ends, when the several parts are constructed and arranged to operate substantially as described and shown.

178,809. HARVESTERS. Wm. M. Whiteley Springfield, Ohio. [Filed May 8, 1874.]



178,809.

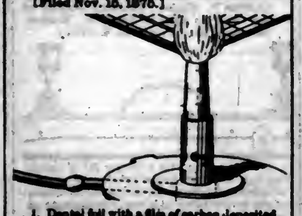
The double-tract "Johnston" cane-guide, mounted on a low support or bridge, and having a crotch to open or close the inner tract, combined with the revolving head and its wheel, short arms or knee-pieces hinged thereto, and provided with short pendent studs, which traverse said guide, and rake-teeth attached directly to said hinged arms, and substantially in line therewith, the whole being operated by mechanism above the plane of the platform, substantially as set forth.

178,810. HARVESTER-RAKES. William M. Whiteley, Springfield, Ohio. [Filed Nov. 10, 1875.]



The ball-crank latch m', constructed as described, and provided with the detent-pin n on its under side, and the groove l' on its upper side, combined with the switch f, trip-pin s, and cord or chain c'.

178,811. MANUFACTURE OF DENTAL FILLING. Richd. S. Williams, New York, N. Y. [Filed Nov. 16, 1875.]



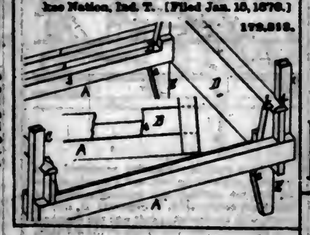
1. Dental foil with a film of carbon deposited thereon, as a new article of manufacture.

2. The apparatus hereinbefore described for preparing dental foil, consisting of a Bunsen gas-burner, wire-gauze, and sheet of mica, constructed and arranged as shown and described.

178,812. DENTAL FOIL. Richd. S. Williams, New York, N. Y. [Filed Nov. 16, 1875.]

As a new article of manufacture, dental foil alloyed with tin, substantially as described.

178,813. BRICKYARD. W. Wilson, Cherokee Nation, Ind. T. [Filed Jan. 15, 1876.]

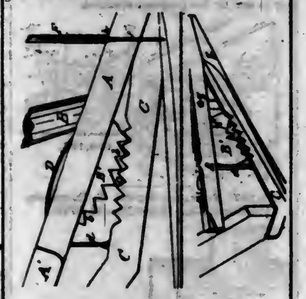


178,813.

A brickyard consisting of the rails A A, having sockets or mortises B B, posts C C, head and foot boards D D, having central or recesses d d, and the legs E E, having inclined or wedge-shaped faces e e, the whole constructed and arranged substantially as and for the purpose specified.

178,814. COMBINED STACK AND FEED CUTTER. Isaac S. Wilson, Waldo, Mo. [Filed Aug. 19, 1875.]

Brief.—The device can be used in the field to divide the stack, and then attached to an ordinary trough to form a straw-cutter, for commencing the hay or straw for feed.



1. The combined stack-cutter herein shown and described, consisting of the handle A', frame A, tongue E, knife C, bent lever B B', rod d, and spring D, all combined and operating substantially as and for the purpose herein before set forth.

2. In combination with the frame A, bent lever B B', and cutter C, the anchors F, pivoted to A, and having hooks or catches f, substantially as and for the purpose herein set forth.

3. The combination of my improved stack-cutter, herein described, with a feed or cutting bar, G, so as to be used as a feed-cutter, substantially as and for the purpose herein set forth and specified.

178,815. NUT-LOCKS. James R. Wilson, Louisville, Ky. [Filed June 24, 1875.]

Brief.—Lugs project from the face of the nut, being threaded with it, so that the thread of the bolt can be upset, and unscrewing by jarring, &c., be thus prevented.

The nut A, as above described, provided with lugs B on its face, substantially as and for the purpose set forth.



178,815.

178,816.



178,816. EXPANSION-BOLTS FOR CHAIN-PUMPS. Daniel W. Wilmer, Springfield, Ill. [Filed July 16, 1875.]

Brief.—The link-belt has about it a screw-threaded collar. The elastic ring is held to the nut above it by teeth which depend from the latter. By turning the rubber ring the nut is screwed down, and the former compressed, as desired, while the plate below the ring prevents the chain from turning. The links have the drip-cups, as shown.

1. In combination, the bolt A, provided with the eyes a, the packing D, the nut B, and the loose washer E, substantially as described and shown.

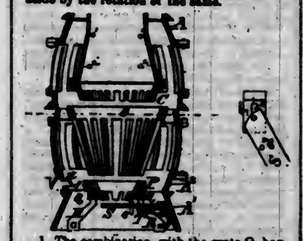
2. In combination, the bolt A, provided with the eyes a, the packing D, the nut B, washer E, and sleeve C, substantially as described and shown.

3. The combination, of the bolt A, having the eyes a and groove b, the sleeve C, and the packing, substantially as described and shown.

4. The expansion-bolster for chain-pumps described, consisting of the bolt A, having eyes a, shoulder a', and groove b, the rubber packing D, the screw-threaded sleeve C, secured to the bolt by the pin c, the loose washer B, and nut E, having the teeth d, when the several parts are constructed substantially as described and shown.

178,817. SELF-FEEDING STOVES. Lucien B. Woolfolk, Lexington, Ky. [Filed Feb. 15, 1876.]

Brief.—The ash-plate is vibrated horizontally by the agitation of the grate, or moved aside by the rotation of the same.



1. The combination, with the grate O, having grate-bars extending very high up, and gradually spreading outwardly from the bottom, where they are narrower than at top, of the grate-bottom F, pin c, ash-plate S, hole d, supporting-plate T, and slot e, substantially as set forth.

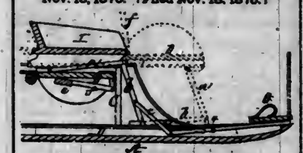
2. The combination, with the grate-bottom F, of the ash-plate S, pivoted in the slot e in the supporting-plate T, and worked by the pin c, in the manner set forth.

3. The burner C, contracted toward the bottom, and having fingers to promote combustion, in combination with the magazine-pipe B, expanding from the top down to point c', and having the flare c' at bottom, and the top section A', substantially as set forth.

4. The combination of the magazine-pipe B and section A', having air-inlet a and gas-outlet b, constructed and arranged substantially as set forth.

REISSUES.

6,869. CARRIAGES. Chas. N. Dennett, Salisbury, Mass. Patent No. 109,180, dated Nov. 15, 1870. [Filed Nov. 18, 1875.]



1. The pivoted shifting or turn-out front seat E, connected by jointed rods or arms a b with the sill D or body A of a carriage, substantially as and for the purpose described.

2. I also claim the rods a b c d, connected and combined with the front seat E and dasher E, for the purpose set forth.

3. I also claim a movable back seat, I, and a shifting or turn-out front seat, E, combined with a sliding dasher, E, to admit of the adjustment of each to correspond to the contraction or elongation of the body, substantially as described.

4. I also claim a shifting or turn-out front seat, E, combined with a rest or back, e f, jointed and folding as described, for the purpose set forth.

6,870. PRINTING-TELEGRAPH INSTRUMENTS. E. Gray, Chicago, Ill. Patent No. 122,907, dated Nov. 12, 1872. [Filed Dec. 2, 1875.]

1. A line of telegraph-printing instruments, charged alternately with positive and negative currents by one main battery and pole-changer placed at any point on the line, substantially as described.

2. A line of telegraph-printing instruments, charged alternately with positive and negative currents by one main battery and pole-changer, placed at any point in the line, and operated by means of circuits and electro-mechanical devices, substantially as described.

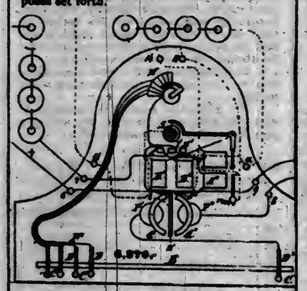
3. A line of telegraph-printing instruments, consisting of one primary and one or more secondary instruments, the former controlling the action of the latter, substantially as and for the purpose described.

4. The combination, substantially as described, of a pole-changer and a type-wheel, both controlled by the same armature.

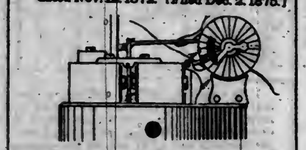
5. The combination, substantially as described, of a pole-changer, a type-wheel, and a polarized relay, for the purposes set forth.

6. An electro-mechanical pole-changer, consisting, of the blocks H' I' J' and insulated springs L' and M', arranged and operating substantially as described.

7. The combination, substantially as described, of a polarized relay and the pole-changing magnets B' B'', as and for the purpose set forth.



6,871. PRINTING-TELEGRAPH INSTRUMENTS. E. Gray, Chicago, Ill. Patent No. 132,907, dated Nov. 12, 1872. [Filed Dec. 2, 1875.]



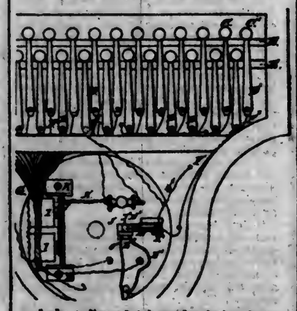
1. The combination, substantially as described, of a "sunflower" system and a pole-changer, for the purposes set forth.

2. The combination, substantially as described, of a sunflower system and an automatic pole-changer, for the purposes set forth.

3. The combination, substantially as described, of a sunflower system, a type-wheel, and a polarized armature, for the purposes set forth.

4. The combination, substantially as described, of a sunflower system, a type-wheel, a unison-stop, and a polarized armature, for the purposes set forth.

6,872. PRINTING-TELEGRAPH INSTRUMENTS. E. Gray, Chicago, Ill. Patent No. 132,907, dated Nov. 12, 1872. [Filed Dec. 2, 1875.]



1. In a line of telegraph-printing instruments, the combination of unison-stops in the primary and secondary instruments, the stops being constructed substantially as described, so that the type-wheel in the primary will be rotated longer than that in any secondary instrument, for the purposes set forth.

2. In a line of telegraph-printing instruments, the combination, substantially as described, of a unison-stop in the primary instrument, operating through a shunt, and a unison-stop in the secondary instruments, operating through a mechanical device, as and for the purposes set forth.

3. The combination, substantially as described, of a unison-stop or stops, a pole-changer, and a key or circuit-breaking device at one or more points in the line, for the purposes set forth.

4. In a line of telegraph-printing instruments, the combination, substantially as described, of the unison-stop lever, the forked arm O'', operated by the soft-iron armature, and a key or circuit-breaking device, as and for the purposes set forth.

5. The combination, substantially as described, of a unison-stop on the type-wheel shaft, a polarized armature to control the type-wheel, and a soft-iron armature to actuate the printing mechanism, as and for the purposes set forth.

6. An electro-mechanical unison-stop and shunting device, the points or pins T and A' of which are brought into electrical contact, substantially as and for the purposes set forth.

7. The combination, substantially as described, of the unison-stop lever, carrying a pin, V, and the press-lever, operated by the soft-iron armature M during a pause in the action of the pole-changer, for the purposes set forth.

8. The combination of the grooved disk B on the type-wheel shaft and the arm D, carrying the pin V, substantially as and for the purposes specified.

6,873. WATER-WHEELS. John Hazeltine, Melrose, Mass. Patent No. 14,625, dated Mar. 25, 1856; extended seven years. [Filed Dec. 23, 1875.]

Brief.—The water first acts upon the radial, then upon the tangential, and lastly upon the inclined, portions of the wheel, passing through the apertures at the bottom, downward and outward.



1. A water-wheel having floats with radial, tangential, and inclined portions, constructed and arranged substantially as described.

2. A water-wheel having floats with the tangential and downwardly-inclined portions so arranged that the discharging-orifices are concentrically opposite the inclined portions, in a case or guide and rim, all so constructed that the head of water always presses equally on all the floats at once, substantially as described.

3. A water-wheel surrounded by a rim above which the water enters the wheel, having floats the lower portions of which are so inclined downward toward the periphery of the wheel that the water shall tend to flow toward the periphery of the wheel, substantially as described.

4. A water-wheel, with its guide or case substantially as described, having floats inclined upward from its rim toward their interior extremities, so as to permit lengthening the discharging-apertures and forming a cavity within the wheel, substantially as described.

6,874. NAIL-PLATE FEEDERS. David W. Keith, West Wareham, Mass. Patent No. 150,932, dated Feb. 10, 1875. [Filed Nov. 18, 1875.]

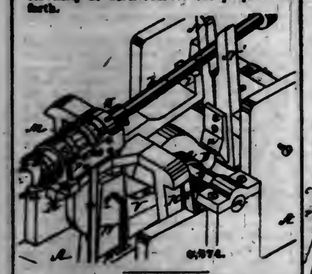
Brief.—A lever actuated by two cam-pins operates against one of the jaws, closing it on the rod, while the rod is fed forward at the proper time by the jaws operated by the cams upon the shaft. The nose-piece has interior inclined shoulders, to guide the plate should it enter in the wrong position.

1. The levers P R, having their fulcrums at their outer ends, and the cams O G between the fulcrums of the levers and the work to be done, in combination with the vibrating frame K and rotating barrel M, with its strap or cord n, for the purpose of turning the nail-plate f, and bringing it down to an even bearing on the stationary cutter, substantially as described.

2. I also claim the jaws H H', for seizing the rod A, or sleeve f, surrounding it, in combination with the lever e, cams H I, shaft B, and cams *D E*, substantially as and for the purposes set forth

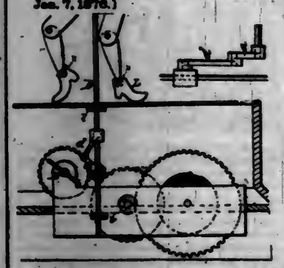
3. I also claim the cams D E, having their points diametrically opposite, and the portions between them concentric with each other, and with the outer peripheries of the cams acting upon the heel and 13 of the lever V, in combination with the springs *k*, and with the vibrating frame K, for raising and lowering the rotating barrel and its nail-plate, and maintaining the latter at rest while the nail is being cut off, all constructed, arranged, and operating substantially as and for the purpose described.

4. I also claim the nose-piece *s*, with its shoulder or shoulders 14, inclined at *w'*, in combination with the spring-guides *m*, substantially as described, for the purpose set forth.



6,876.

6,876. AUTOMATIC TOY DANCERS. William A. P. La Grove, Brooklyn, N. Y., assignor, by mesne assignments, to Ives, Blakeslee & Co., Bridgeport, Conn. Patent No. 142,082, dated Sept. 23, 1873. [Filed Jan. 7, 1876.]



1. A toy dancer, mounted upon a vertically reciprocating and guided rod or wire, and operated by gearing and spring inclosed within a box or case, substantially as set forth.

2. A toy dancer, having its legs hinged to its body, and mounted upon a vertically-reciprocating rod actuated by mechanism inclosed within a case or box, whereby the feet of the dancer intermittingly strike the top of the case, and make a noise in imitation of a jig-dancer, substantially as herein set forth.

3. A toy dancer, having its legs hinged to the body, and mounted upon a vertically-reciprocating rod actuated by a spring and gearing, substantially as set forth.

4. A toy dancing-figure, having its legs hinged to its body, and having its feet hinged to its legs, and mounted upon a vertically-reciprocating rod or wire, substantially as set forth.

5. The feet L of a toy dancing-figure, having *d* mortice or slot above its heel, and connected to the leg of the figure by a cross-pin passing through the feet and lower end of the leg, substantially as herein set forth.

6. The combination of a clock-gearing inclosed within a box or case, one or more vertical rods or wires connected to the gearing, and extended through the top of the case, and one or more removable and hinged toy dancing-figures mounted on said rods, all substantially as herein set forth.

7. In combination with the jointed dancing-figure, the vertical wire D, reciprocated in the guides f, by the connecting-rod *d*, crank *a*, shaft, and gearing, substantially as described.

6,876. DREDGING APPARATUS. W. H. Newton, Chicago, Ill. Patent No. 169,276, dated Sept. 28, 1875. [Filed Nov. 10, 1875.]

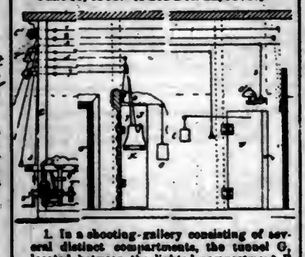


1. The combination of a suspended open-ended suction-pipe, D', operated wholly by a separate vacuum-pump, with ejection-pipe G G H, supported by the suction-pipe, and made to force a direct downward current of water from a separate force-pump onto the bed of a water-course, with such direction, with reference to the suction-pipe and the bed of the water-course, that the return currents will hold the disintegrated material suspended for the suction-pipe to elevate, as set forth.

2. The pivoted adjustable hood E, combined with the swinging pipe D', substantially as described.

3. The adjustable nozzles G G, combined with the adjustable hood E and swinging pipe D', substantially as described.

6,877. SHOOTING-GALLERIES. J. S. Conlin, New York, N. Y. Patent No. 76,929, dated June 16, 1868. [Filed Dec. 22, 1875.]



1. In a shooting-gallery consisting of several distinct compartments, the tunnel G, located between the lighted compartment E or front of the gallery, and the darkened compartments H and Q, as and for the purpose set forth.

2. The ball-proof door M, arranged substantially as shown and described, between the tunnel G and target J, for the purpose set forth.

3. The targets J and A', provided with holes through their centers for bull's-eyes, and with drop-plates K and B', connected with cords and bells, substantially as and for the purposes set forth.

4. The target J, hinged or pivoted to the partition I, so that it may be swung back out of the way, substantially as herein shown and described, for the purpose set forth.

5. The target J, when connected to the front of the gallery by means of a cord, 7, so that it may be swung to its place from the said front of the gallery, substantially as set forth.

6. The partition R, provided with an opening, S, when located at the farther end of the darkened compartment Q, and in front of the lighted compartment W, as and for the purpose set forth.

7. The arrangement, in front of the target A', of the partition R, formed with an opening, S, and provided with a sliding ball-proof plate, T, the latter being connected by means of a cord, V, to the door U, so that when said door is opened the opening S is covered by the plate T, substantially as described, and for the purpose set forth.

8. The combination of the weighted door U and sliding ball-proof plate T with each other, and with the partition R and target A', substantially as herein shown and described, and for the purpose set forth.

9. In a shooting-gallery divided into several compartments, the arrangement of the darkened compartment or compartments between the lighted compartment W and lighted compartment E or front of the gallery, substantially as and for the purposes herein specified.

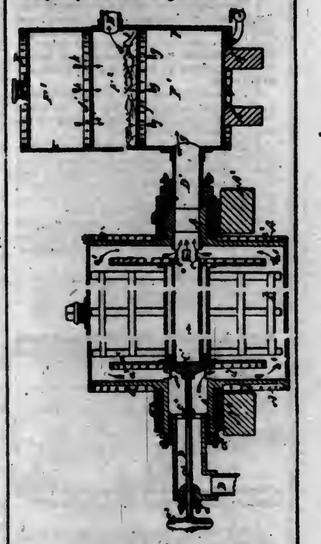
10. The combination of the plate or block B', having three or more arms projecting from it, shaft D', ratchet-wheel F', weight F, and stop-arm E', with each other, with the drop-plate or block B', and the target A', substantially as herein shown and described, and for the purpose set forth.

11. The combination of the adjustable rest Q', shaft T, ratchet-wheel W', pawl V', and rod X', with each other and with the forward part of the gallery, substantially as herein shown and described, and for the purpose set forth.

12. An improved shooting-gallery consisting of several separate compartments, arranged substantially as described, and provided with one or more swinging targets, J, arranged in the manner set forth, for the purpose specified.

6,878. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. Edward H. Corvi, New York, N. Y. Patent No. 169,422, dated Nov. 2, 1875. [Filed Jan. 20, 1876.]

Brief.—The air or gas to be carbated passes through the hollow journal of the carburetor, and thence under the perforated diaphragm through a shower of liquid hydrocarbon. A pipe on the line of the hollow journal extends centrally through the cylinder, and is provided with a valve, whereby a regulated per cent. of uncarbureted gas or air may be passed directly through the pipe and mixed with the carbureted gases, which are uniformly mixed together, their photometric value tested, and finally subjected to a fixing heat in retorts.



1. In the manufacture of illuminating-gas, the process of producing a mechanical mixture of water-gas and the vapor of a fluid hydrocarbon, which consists in passing the water-gas, in regulated quantities, through a constant shower of liquid hydrocarbon, maintained at about the same specific gravity, and then diluting it, or not, with regulated quantities of uncarbureted gas or air, and then thoroughly mixing the same and determining the photometric value of the mixture, substantially as described.

2. The process of manufacturing a permanent illuminating-gas from non-illuminating gases and the vapor of a fluid hydrocarbon, which consists in passing the non-illuminating gases, in a regulated flow, through a shower of fluid hydrocarbon, and then subjecting this mixture, under regulated pressure, to a fixing-heat, as set forth.

3. The method of preventing stratification in illuminating-gas, which consists in forming a mechanical mixture of non-illuminating gas or gases and the vapor of a fluid hydrocarbon, which mixture shall have a uniform specific gravity and a definite photometric value, by first passing a regulated flow of the non-illuminating gas or gases through a constant shower of liquid hydrocarbon, or, if desired, into a mixture of gases and vapors so formed, uniformly mixing the gases or vapors, and maintaining that uniformity, and, finally, subjecting the mixture to a fixing-heat, whereby a permanent gas of a uniform gravity and illuminosity is made, substantially as set forth.

4. A reversible carburetor, which maintains a constant flow and shower of the carbureting material, as and for the purpose described.

5. The reversible carburetor A, constructed with a diaphragm, A', passing through its diameter, and hung in hollow trunnions A', so that it may be reversed when the hydrocarbon fluid has passed from the upper to the lower section, bringing the fluid in position to again pass through the diaphragm, substantially as set forth.

6. The regulating gas-pipe C, arranged concentrically with the carburetor A, substantially as and for the purpose set forth.

7. The combination of the valve C' with the diluting air or gas pipe C, arranged substantially as described, and for the purpose set forth.

8. In a reversible carburetor, the combination of a perforated diaphragm, a diluting-pipe, and regulating-valve, as and for the purpose described.

9. A reversible carburetor, provided with a perforated diaphragm, a diluting-pipe, and regulating-valve, in combination with a mixer, as and for the purpose described.

10. The carbureting and arrangement of the carburetor A and the dripping and mixing chambers F' F'', substantially as and for the purposes set forth.

11. The auxiliary carbureting and mixing apparatus, consisting of the chambers F' F'', in combination with the rotary carburetor A, substantially as set forth.

maintaining that uniformity, and, finally, subjecting the mixture to a fixing-heat, whereby a permanent gas of a uniform gravity and illuminosity is made, substantially as set forth.

4. A reversible carburetor, which maintains a constant flow and shower of the carbureting material, as and for the purpose described.

5. The reversible carburetor A, constructed with a diaphragm, A', passing through its diameter, and hung in hollow trunnions A', so that it may be reversed when the hydrocarbon fluid has passed from the upper to the lower section, bringing the fluid in position to again pass through the diaphragm, substantially as set forth.

6. The regulating gas-pipe C, arranged concentrically with the carburetor A, substantially as and for the purpose set forth.

7. The combination of the valve C' with the diluting air or gas pipe C, arranged substantially as described, and for the purpose set forth.

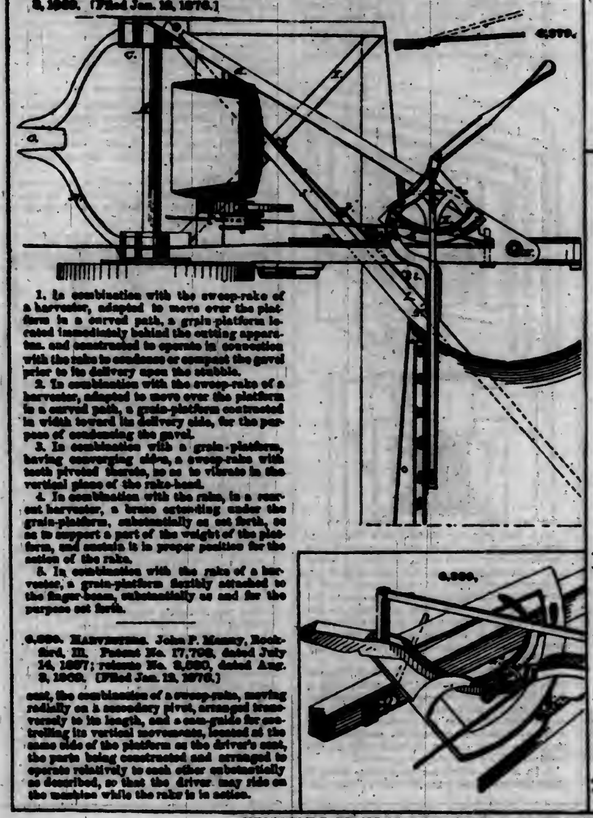
8. In a reversible carburetor, the combination of a perforated diaphragm, a diluting-pipe, and regulating-valve, as and for the purpose described.

9. A reversible carburetor, provided with a perforated diaphragm, a diluting-pipe, and regulating-valve, in combination with a mixer, as and for the purpose described.

10. The carbureting and arrangement of the carburetor A and the dripping and mixing chambers F' F'', substantially as and for the purposes set forth.

11. The auxiliary carbureting and mixing apparatus, consisting of the chambers F' F'', in combination with the rotary carburetor A, substantially as set forth.

6,879. HARVESTERS. John P. Manny, Rockford, Ill. Patent No. 17,702, dated July 14, 1857; reissue No. 3,050, dated Aug. 3, 1869. [Filed Jan. 12, 1876.]



6,879.

1. In combination with the sweep-rake of a harvester, adapted to move over the platform in a curved path, a grain-platform located immediately behind the cutting apparatus, and constructed to operate in connection with the rake to condense or compact the gavel prior to its delivery upon the stubble.

2. In combination with the sweep-rake of a harvester, adapted to move over the platform in a curved path, a grain-platform contracted in width toward its delivery side, for the purpose of condensing the gavel.

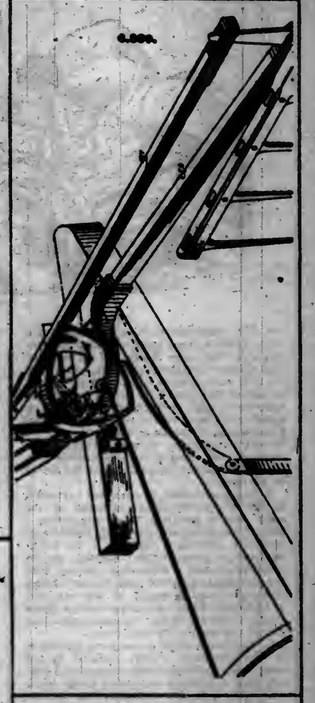
3. In combination with a grain-platform, having converging sides, a sweep-rake with teeth pivoted thereto, so as to vibrate in the vertical plane of the rake-head.

4. In combination with the rake, in a reaper harvester, a brace extending under the grain-platform, substantially as set forth, so as to support a part of the weight of the platform, and maintain it in proper position for the action of the rake.

5. In combination with the rake of a harvester, a grain-platform flexibly attached to the finger-beam, substantially as and for the purpose set forth.

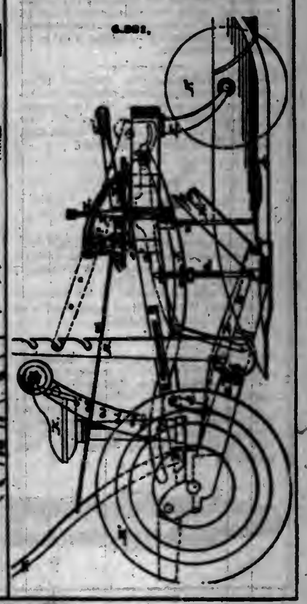
6,880. HARVESTERS. John P. Manny, Rockford, Ill. Patent No. 17,703, dated July 14, 1857; reissue No. 3,050, dated Aug. 3, 1869. [Filed Jan. 12, 1876.]

6,880.



6,880.

6,881. HARVESTERS. John P. Manny, Rockford, Ill. Patent No. 17,703, dated July 14, 1857; reissue No. 3,050, dated Aug. 3, 1869. [Filed Jan. 12, 1876.]



6,881.

rent, the combination of a sweep-rake, moving radially on a secondary pivot, arranged transversely to its length, and a cam-guide for controlling its vertical movements, located at the same side of the platform as the driver's seat, the parts being constructed and arranged to operate relatively to each other substantially as described, so that the driver may ride on the machine while the rake is in action.



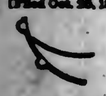
6,881.

1. The combination, in a harvester, of a driver's seat, a finger-beam, and platform, projecting laterally from the path of the team behind the line of the driving-wheels, a rake moving over such platform in a curved path, so as to deliver the gavels out of the way of the team on its next round, and a cam-guide located on the same side of the platform as the driver's seat, by means of which the rake, on its return movement, is caused to traverse an elevated path, clear of the grain on the platform, and without interfering with the driver on his seat.

2. The combination, in a rear-cut harvester, of two supporting-wheels mounted on the main axle, a carrying-frame supporting a driver's seat, a laterally-projecting finger-beam virtually adjustable relatively to the carrying-frame, a grain-platform attached to the finger-beam, and a sweep-rake moving over the platform in a curved path, the parts being constructed and arranged so that the rake will partake of the vertical movements of the platform and will deliver the gavels out of the way of the team on its next round.

3. The combination, in a rear-cut harvester, of two supporting-wheels mounted on the main axle, a carrying-frame supporting a driver's seat, a laterally-projecting finger-beam and platform flexibly connected with the carrying-frame, so as to be vertically adjustable relatively thereto, and a sweep-rake moving over such platform in a curved path, the parts being so combined and arranged that the gavels will be delivered out of the way of the team on its next round, while the driver, from his seat, can vary the elevation of the finger-beam, whether for regulating the height of cut or for passing obstructions.

6,882. SAND-SEPARATORS. Frank C. Miller, Blue Earth City, Minn., assignor of one-half interest to Reuben W. Chadbourn, Chas. H. Chadbourn, and George W. Van Dusen. Patent No. 148,170, dated Aug. 28, 1873. [Filed Oct. 28, 1873.]



1. The sand-separator made of a single thickness of sheet metal, with corrugations pressed by dames, forming longitudinal cavities, for the purposes and as set forth.

2. The tube a, sustained by the links b, in combination with the revolving cylinder c, as and for the purposes set forth.

6,883. PEN AND PENCIL CASES. Richard H. Ryan, New York, N. Y., assignor to Wm. S. Elkins, same place. Patent No. 69,327, dated Feb. 25, 1867. [Filed Dec. 7, 1876.]

Brief.—The pencil-tube and screw part are of the same diameter, and over them the extension-tube slides. The tip is held in the tube by friction, thereby doing away with soldering.

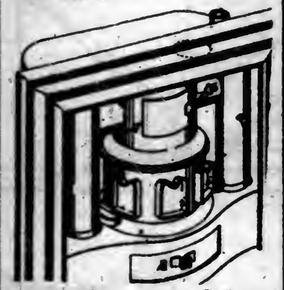


1. A combined pen and pencil case, having pen and pencil both located at one end, with an extension-handle, constructed and arranged to slide between the pen-slide and pencil-tube, substantially as and for the purpose set forth.

2. In combination with a pencil-tube and screw of uniform diameter, an extension-handle arranged to slide within the case and over said pencil-tube its entire length, or nearly so, substantially as shown and described.

3. The tip I, constructed and secured to the case A, substantially as described, whereby the necessity of soldering the same is avoided, as and for the purpose set forth.

6,884. HEATING-STOVES. Saml. B. Sexton, Baltimore, Md., assignor of part interest to A. B. Bloom. Patent No. 23,716, dated Apr. 19, 1859; reissue No. 1,942, dated Dec. 3, 1861; reissue No. 1,622, dated Feb. 6, 1864; reissue No. 1,774, dated Sept. 27, 1864; reissue No. 2,476, dated Feb. 12, 1867; extended seven years. [Filed Nov. 7, 1874.]





1. A base-burning stove with a fuel-magazine supported free from the fire-grate, and a free and unobstructed space between the lower end of the magazine and the inner side of the combustion-chamber, in combination with a series of illuminating-windows arranged in the outer casing, to give light and heat to the room from the burning coal that lies between the lower end of the magazine and the inner side of the combustion-chamber, substantially as described.

2. In a base-burning stove, the fuel-magazine, supported free from the grate, with a free and unobstructed space between the lower end of the magazine and the inner side of the combustion-chamber, in combination with a series of illuminating-windows projecting beyond the outer casing, substantially as described, and for the purpose specified.

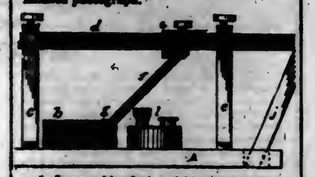
3. In a coal-supplying magazine-stove, I claim the extended grate-surface of the fire-bed outside of reservoir or magazine, in combination with the free space around the magazine of a base-burning stove, substantially as described.

4. In a base-burning magazine-stove, I claim a substantially flat or horizontal grate-surface of the fire-bed, of larger diameter than the lower end of the magazine, combined with an inclined, but unobstructed, space around the magazine, substantially as described.

5. In a stove, having a suspended magazine and a free space around and beneath the lower part of such magazine to contain the coal and gases while in process of combustion, I claim a horizontally-arranged series of openings, through the wall of the stove, opposite the lower end of the magazine, and on different sides of the stove, for the purposes described.

6,885. BURNISHING APPARATUS FOR PHOTOGRAPHS. Emile R. Wenker, Bangor, Me., assignor to Joseph P. Ham. Patent No. 121,320, dated Sept. 10, 1872; reissue No. 5,750, dated Mar. 9, 1874. [Filed Dec. 2, 1873.]

Brief.—The invention involves a process and devices, sufficiently indicated in the claim, for the production of a hot-burnished-finished photograph.



1. In a machine for burnishing photographs, the combination of the convex burnisher *f* and concave bed *b*, substantially as set forth.

2. In combination with the convex burnisher and concave bed, I claim the standards *a a*, the bar *d*, lever *h*, and pressure-screws *i i*, substantially as described.

3. In a machine for burnishing photographic cards by friction under pressure against a non-rotating burnishing-tool, I claim a heated metal plate, connected with the burnishing-tool, adapted and arranged to receive the flame of a lamp or gas-jet, and conduct the heat thereof to said burnishing-tool, substantially as and for the purpose specified.

4. In a machine for burnishing photographs by means of pressure and friction against a heated non-rotating burnishing-tool, I claim a burnishing-tool made of cast-iron.

5. I also claim the process of burnishing and finishing a photographic picture by subjecting it to friction under pressure against a heated non-rotating burnishing-tool, substantially as herein described.

6. In combination with the bed *b* and the plate *f* connected with the burnishing-tool *g*, I claim the lamp *l*, all being arranged to operate substantially as and for the purpose described.

7. I also claim, as a new article of manufacture, a hot-burnish-finished photograph, substantially as described.

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SPECIAL ORDERS.

U. S. PATENT OFFICE,
Washington, D. C., December 9, 1875.

The practice of furnishing copies of expired caveats to parties not authorized to order them by the caveator is discontinued from this date.

The law prescribes that a caveat shall be preserved in secrecy and shall be operative for the term of one year from the filing thereof. The limitation in the law appears to affect the operativeness of the caveat and limit it, but not the secrecy; and, while a failure to pay a new fee must deprive the caveator of the right to notice, it seems an unjust and unnecessary construction of the law to make it operate as a punishment by the publication of his caveat.

The custodian of these papers, and all officers and employés in the Department having temporary charge of them, will refuse all applications for inspection not made or permitted by the caveator.

R. H. DUELL, *Commissioner.*

U. S. PATENT OFFICE,
Washington, D. C., February 4, 1876.

In view of the more recent interpretations put upon the law, in relation to rejected and abandoned applications, they being no longer held as a bar to the issue of a patent, and no notice being taken of them in an examination of pending applications, it is ordered that the files, drawings, and models of such applications, and all records pertaining thereto be kept in the secret archives of the Office. No such model, drawing, or file will be exhibited to any person except the applicant or his properly authorized attorneys.

R. H. DUELL, *Commissioner.*

NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

COMMISSIONER'S DECISIONS.

LUTHER H. FARNSWORTH *vs.* E. O. P. ANDREWS.—*Interference.*

[*Appeal from the Board of Examiners-in-Chief in the matter of the interference between the application of Luther H. Farnsworth, filed November 4, 1873, and the application of E. O. P. Andrews, filed October 22, 1873, for Letters Patent for an* "IMPROVEMENT IN MACHINERY FOR CRIMPING LEATHER FOR BOOTS AND SHOES."—*Decided November 8, 1875.*]

The Examiner of Interferences is the tribunal before whom an interference is originally to be heard, whether the issue is defined by the Primary Examiner in charge of the class or by the Commissioner in person.

The declaration of a hypothetical issue in any case condemned.

The matter in dispute between the parties being determinable upon the issue as at first declared, and the testimony then taken, the hypothetical case and testimony taken thereon ignored.

Parties being the first to adopt the feature of yielding rollers between which the "former" is passed, and a special adaptation of some sort being necessary for their use, a claim simply covering the new feature in its new connection held not to be too broad.

Mechanism taken from a wringing machine and applied in a leather-crimping machine, with a change in adaptation or construction, fitting it for a new function, is patentable.

A feature essential to the operation of a device should be included in the claim therefor.

DUELL, *Commissioner:*

This interference was declared December 31, 1873. The subject-matter involved was defined as follows by the Principal Examiner. In a leather-crimping

machine, one or more pairs of rollers, between which the "former" passes, the roller acting with a yielding pressure upon the material, shaping and crimping it to the "form required." The issue, as thus defined, was in almost the exact language of Farnsworth's eighth and Andrews' fourth claim.

After the taking of the testimony, and upon the hearing before the Examiner of Interferences, the objection was made by counsel for Andrews that the phraseology of the claims in interference, made in deference to the suggestion of the Principal Examiner, was somewhat obscure and difficult of construction, for the reason that the words "rollers acting with a yielding pressure" were capable of being used in a double sense. It was said, for instance, that rollers act with a yielding pressure if made of rubber, or they act with a yielding pressure if a frame in which they are placed be drawn down over a form, &c. It is true that the claims, as finally worded, were suggested by the Primary Examiner, but before the eighth claim of Andrews was adopted by him the Examiner informed him by letter that any other form of claim might be submitted which should embody substantially the application of yielding rollers for the purposes described. So both parties had full opportunity to shape their claims or object to the issue as declared by the Examiner. No such objection was taken, however, and no motion was made for a dissolution of the interference on the ground of a defective declaration of the issue.

Before proceeding to determine the matter upon the testimony adduced, the Examiner of Interferences addressed an inquiry to the Primary Examiner in regard to the construction placed by him upon the term "yielding pressure" in the interfering claims, whether it was essential that the yielding pressure be produced by the interposition of springs bearing upon the rollers or if it was sufficient that the same be produced by the yielding surface of the rollers themselves.

To this inquiry the Examiner replied:

> It is not strictly essential that the yielding pressure be "produced by the interposition of springs upon the rollers." Where the form is made, in the now common manner, of metal with parallel sides and edges of little more than appreciable thickness, a yielding surface to the rollers will sufficiently compensate for the slight inequalities in the leather being crimped, for which this provision is necessary that the fibers may not be crushed and broken in maintaining a firm hold upon the stock. A form of varying thickness may necessitate provision for greater play, in the shape of springs upon the journals, but this is merely incidental; ordinarily the seat of the elasticity may be located at will. The character of the material to be operated upon was had in mind in declaring the preliminary interference and the issue involved, and justifies the sense in which the terms of the latter are used.

This interpretation rendered the issue clear, and the Examiner of Interferences found no trouble in determining the question of priority in view of the same upon the testimony adduced. He decided in favor of Farnsworth, and Andrews appealed to the Board.

The Board held that if the claims in interference were tenable Farnsworth was undoubtedly entitled to priority; but, in their opinion, the claims were entirely untenable, both in form and substance; that the devices, as shown and described by the parties, were clearly different in mode of operation and the results produced, and that if the parties had been restricted to what each had invented and embodied there would have been no interference. They accordingly referred the case to the Commissioner, with the recommendation that the interference be dissolved. Thereupon the Commissioner suspended the interference, and referred the case to the Primary Examiner for consideration and examination in view of the action of the Examiners-in-Chief.

The Examiner, in an able and exhaustive report, substantially reiterated his position in declaring the issue, amplifying his views as expressed in his answer to the inquiry of the Examiner of Interferences, adding, however, that the longitudinal convexity of the rollers should form an element of the claim before a patent was granted, and concluding his report as follows:

> It does not appear that the parties have been misled as to the real issue in interference. The testimony taken has covered the whole field, and had it not, after the question addressed by the Examiner of Interferences to the Primary Examiner and the reply of the latter, a motion for reopening the case for taking additional testimony would probably have been granted had this appeared necessary. It seems, therefore, that, without injustice to either party, the interference can proceed, the successful applicant being required to amend his claim to include the matter made essential by the testimony and to obviate objection to the form.

—the essential matter here referred to being, as already said, the longitudinal convexity of the rollers.

Upon this report the Commissioner held that, in view of the same, and the evidence in the case, it was clear that the claim in interference could not rightfully be allowed either party; and he then proposed a claim, which, he thought, both parties might have made, and which would have embodied the precise matter which should have constituted the interference. The claim, which he stated should have been set forth, is as follows:

> In a leather-crimping machine, the combination of one or more pairs of convex rollers, made of hard material and adapted to receive a yielding pressure with the form upon which the leather is crimped, substantially as and for the purposes set forth.

He refused to dissolve the interference, holding that sufficient evidence had already been taken to decide the rights of the parties involved, and returned the case to the Board of Examiners-in-Chief for their further consideration, first stating that before the application of the party to whom priority of invention should be awarded he should be required to amend his claim substantially in accordance with the suggestions he had therein made.

In their second consideration of the matter the Board regarded the claim prescribed by the Commissioner as a new issue, and expressed themselves as finding, without hesitancy, that Andrews was the first to combine and use the matter as therein set forth.

If it was the intention of the Commissioner to thus establish a new issue between the parties, and in that light the claim proposed was so regarded in all the subsequent proceedings in the case, his action in returning the case to the Examiners-in-Chief, instead of to the Examiner of Interferences, for redetermination was, in my opinion, clearly opposed to a plain requirement of the statute. Sec. 42 of the act of 1870, which is the same as sec. 4904 of the Revised Statutes, imperatively requires that when an application for a patent is found to interfere with any pending application, or with any unexpired patent, the Commissioner "shall direct the Primary Examiner to proceed to determine the question of priority of invention. And the Commissioner may issue a patent to the party who shall be adjudged the prior inventor, unless the adverse party shall appeal from the decision of the Primary Examiner, or of the Board of Examiners-in-Chief, as the case may be, within such time, not less than twenty days, as the Commissioner shall prescribe."

Clearly the Examiner of Interferences is thus made the tribunal before whom the interference in the first place *must* be heard. Whether the issue is made up by the Principal Examiner in charge of the class to which the applications appertain, or whether made by the Commissioner in person, there is no way of evading the requirement that the Examiner of Interferences must in the first place determine that issue. That duty cannot be delegated to any one else, as the Supreme Court of this District has already had reason to hold, nor can that tribunal be ignored in such a matter. But the result is an attempt to do these very things when after the question of priority is once determined by the Examiner of Interferences, and passed beyond his jurisdiction, to so amend the declaration that an entirely different question is presented for adjudication and to refer the new issue to another tribunal than the one mentioned for an original action. As well might the Examiner of Interferences been ignored from the beginning as to have sent this case back to the Board for their determination upon the new question of priority.

The action of the Board involved the absurdity of reversing the action of the Examiner upon an issue which he had never had before him. In fact, he decided one case and they another.

Even had the issue, as thus changed, been returned to the Examiner of Interferences, it would have left the proceeding in a very dubious condition, as the claim suggested by the Commissioner was one not adopted by the parties, but was simply one which the Commissioner, from a consideration of the respective applications, thought might have been made, and which he required the parties to make, *after* the question of priority should have been decided.

In their last decision the Board, in reviewing their former action, speak of the case as a "merely hypothetical one" Upon the Examiners-in-Chief awarding priority to Andrews and the "hypothetical" issue, Farnsworth appealed to the Commissioner, who adhered to the new issue, (made by his predecessor,) but being in doubt as to the identity in operation of the rollers described by the respective parties, and deeming the evidence not sufficient on that point, ordered the interference suspended for the taking of further testimony in respect thereto. After the taking of additional testimony by both parties the case was again taken up by the Examiner of Interferences and considered *de novo* on the issue as declared by Commissioner Leggett, and priority was again awarded Farnsworth. Andrews appealed to the Examiners in Chief, and the case was now before that tribunal for the third time for the adjudication of the question of priority. They held, in the opinion above quoted, that so far as they were concerned the "hypothetical" case was *res adjudicata*.

Regarding the declaration of a hypothetical issue in any case as a serious mistake, and especially so in a case like this, where the parties had made a certain issue between themselves, and that the returning of the case to the Examiners-in-Chief, instead of to the Examiner of Interferences, for an original decision of the question of priority upon a new issue, was entirely illegal, and finally being of opinion, after an inspection of the applications of the respective parties and the testimony originally taken, that no necessity whatever existed for the taking of further testimony, but that the matter in dispute between the parties can be determined upon the issue as at first declared and upon the testimony then taken, I shall, for these reasons ignore the "hypothetical case" and the testimony subsequently taken thereon, and proceed to determine the matter of priority upon the original issue.

The opinion of the Board of Examiners-in-Chief on that state of the case was clearly expressed in their first decision, as already mentioned, to the effect that if the claims in interference were tenable priority undoubtedly belonged to Farnsworth.

The objections of the Board to the claim in issue were that it was bad, both in form and substance. To the form, as being too broad and indefinite, and also functional; and to the substance, as being for that which neither party was entitled to, in view of the state of the art.

If the state of the art shows that these parties were the first to adopt the feature of yielding rollers between which the "former" is passed, and that a special adaptation of some sort was necessary for their use, I am unable to see how a claim simply covering that new feature in its new connection can be considered as too broad. Neither do I understand how the claim can be regarded functional when the devices themselves were distinctly specified.

In addition to what has already been quoted from the reports of the Primary Examiner upon the declaration of the issue, the following extracts show more fully the reasons of his action, which, I am convinced, after careful consideration, was sound and proper.

After describing the progress and state of the art up to the time of the filing of the applications of these parties, he says:

> Both proposed something radically new. Both dismissed the old jaws from use and substituted rollers, between which the leather is passed and crimped upon the form. One describes and exhibits a series of pairs of rollers; the other says, in his specification, that he may use a series. Both show convexed rollers that the swell may impinge against the concave portion of the form, and both show means for compensating for the inequalities of the leather. In their applications these means are the same, both making their journals elastic. Farnsworth making his rollers either rubber-surfaced or of hard material. Andrews making his of the hard material and covering the pattern to be crimped with a sheet of rubber when the surface is of such irregular form, as in pebbled leather, as to render portions liable to be crushed. In the state of the art as regards this compensating feature, and considering the very slight inequalities of the material to be operated upon, and that the form offers none, it seems immaterial whether the spring is located upon the surface of the rollers, as upon the cheeks of some of the crimping-jaws in vogue, or external to them and in a position analogous to that of the springs placed upon the exterior of jaws with metal or wooden cheeks. * * * * In Andrews' machine the rollers revolve continuously as the leather upon the form is forced between them, pressing out the water and smoothing out and properly distributing and incorporating the wrinkles and slack caused by the crimp, aided in the latter by their convexity. To carry this further, Andrews diminishes the convexity of each successive pair of rollers until the last are flat-surfaced. The revolution is with the motion of the form, but is positive, as its motion is also positive. As there is no interruption to the action of the rollers, Andrews is obliged to make use of a reverse form to clamp the leather down to the edge of the crimping-form lest the rollers bite before it has been drawn over this edge and assumed its shape. Farnsworth locks his rollers until the leather has been drawn over the edge of the form and taken its shape, when they are released and positively rotated in the direction of the movement of the form. Their action from this moment must be the same as the action of Andrews' rollers, squeezing out the water and sweeping out and distributing over and in the body of the leather the wrinkles and slack. The temporary locking performs the same service as the reverse form in Andrews' machine. In both machines, although the motion of the form is positively forward, or may be the action of the rollers, when they rotate, is also positive, for it seems that mere friction-rolls in this position

would be clogged by the slack and consequent wrinkles. The rolls are not inking-rolls, nor are they feed or simple wringing-rolls, but they are at once crimping, spreading-out, and wringing rolls in both machines.

He then makes extracts from Farnsworth's specification, showing that the rollers and their action therein described correspond with his description as above given. These extracts, together with his report to the Examiner of Interferences, when viewed in the light of the testimony taken, remove, I think, the objections of the Examiners-in-Chief to the claims in matter of substance, and justify the declaration of the issue in its original manner and form, with the exception of the single matter of the convexity of the rolls, which, the Examiner now states, should be included, not because it was a change adopted in view of the state of the art at the time the applications were filed, but because it is an essential element in the operation of the machine, and is so described by both parties in their specifications.

The fact that a pair of rubber rollers was taken from a wringing-machine and used in a leather-crimping machine, if no change in adaptation or construction had been made therein, and they had thus performed precisely the same function as in their ordinary situation, would, of course, remove all ground for a claim on that particular device as urged by the Board, but they overlooked the important point that a reconstruction of the form of those rollers was made for the new purpose for which they were to be used. The mere fact of rasping off their ends so as to make them convex, as was done by Farnsworth, and which change was necessary to their successful operation in their new position, may appear a very simple thing, but it is just such simple, but previously unthought of, changes that constitute some of the most important inventions. The validity of the original issue having been established, there is no trouble whatever, in determining the case upon the evidence adduced.

The testimony in behalf of Farnsworth, consisting of the depositions of highly respectable and unimpeached witnesses, establishes without doubt that he had adapted convex yielding rollers to a leather-crimping machine, in accordance with the precise requirements of the claims now in interference, in July, 1873, and that substantially the same machine has been employed in boot and shoe factories in successful operation ever since.

The testimony in behalf of Andrews is equally clear in demonstrating that the latter never thought of the subject until September, 1873, when the idea was first suggested to him by a description given to him of Farnsworth's machine, which was then in active and successful operation. Andrews then made what he regarded as an improvement upon Farnsworth's machine, and in some respects he may have accomplished that result. But there is not the slightest necessity of discussing in what his changes or improvements consisted and their alleged superior operation, or the expert testimony on that point, so long as the broad basis of those improvements forms the precise and only subject-matter in dispute.

What improvements Andrews may have made on the original invention, constituting separate patentable matter, it does not concern us now to inquire. The discussion of such improvements and the difference in structure and operation existing between the entire machine of the respective parties have caused the multiplicity of issues and consequent confusion and delay in this case.

In conclusion, the last decision of the Examiners-in-Chief upon the new issue is set aside, but their former opinion, that if the claims in dispute were tenable, priority undoubtedly belonged to Farnsworth, is approved. With this judgment the case is returned to the Primary Examiner, who, before issuing a patent to Farnsworth, will require him to make the essential quality of convexity in the rollers a part of his claim.

JOSEPH DANA *vs.* GREENLEAF AND ADAMS.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of Joseph Dana vs. Greenleaf and Adams, for* "IMPROVEMENT IN CAR-COUPLINGS."—*Decided November* 23, 1875.]

The general tenor of decisions in the Patent Office do not show one rule of practice for the Office and another rule for the courts in interference cases when founded upon the same law, and the same class of questions that may arise.

The issue in interference cases is, which party first made the invention. Such invention must be patentable, and something perfected and adapted to use.

Where the testimony shows that a model of the alleged invention was made in 1872, but not produced or preserved, it is held that a subsequent application for a patent made by parties in July, 1874, for a similar invention, and in a form capable of use, would defeat an application filed by the inventor in 1872 for a patent, two weeks after that filed by the contestants in 1874; and that the latter applicant was guilty of neglect in the prosecution of his case before the Office.

SPEAR, *Acting Commissioner:*

There is no controversy in respect to the facts brought out by the evidence in this case, the only questions which were raised relating to the law applicable to the state of the facts shown. Greenleaf and Adams joined their efforts in September of 1873, and in May of 1874 completed the invention in a form capable of actual use. It was put into use on the first day of June following. They filed their application on the 8th day of July, 1874.

On the other hand, Dana made a model in April, 1872, which, however, has not been produced, and I believe was not preserved. He made another about two years later, which is now on file in the Office with his application. This application was filed on the 21st day of July, 1874, about two weeks later than that of Greenleaf and Adams.

The Board held that Dana had not been using reasonable diligence in adapting and perfecting his invention, and, in fact, had never made the invention at all in any legal or patentable sense; that, were it not for what Greenleaf and Adams had done, the alleged invention of Dana would still be in the region of mere conception or untried experiment. The Board also held, that such an incomplete invention as would not be sufficient to defeat a patent, could not be sufficient to bar the grant of a patent. I do not find in this decision of the Board any such new doctrine as counsel for Dana represents, or that the general tenor of the decisions of the Office in interference cases in any respect shows that there is one rule of practice for the Office and another rule for the courts, founded upon the same law, and relating to the same class of questions. Interference proceedings in the Patent Office rest upon the special provision of the statute; but for that the Office would be

compelled to issue a patent to the first applicant making the prior date of application, so far as its own proceedings were concerned, conclusive evidence of priority of invention, and all contests for priority of invention would have been thrown into the courts, where the question would have been precisely the same as now when prior knowledge or use is set up to invalidate a patent in a suit for infringement. A special provision of the statute, however, transfers these proceedings of the Patent Office when the question of priority arises between two parties before the issue of a patent to the first inventor; but the law governing the proceedings is the same in both cases.

When a patent is attacked in the courts for lack of priority of invention, the effort is to show that it was obtained without a compliance with the statute which requires that the invention shall not have been known or used by others prior to the invention thereof by the applicant, as a condition necessary to the issue of a patent upon that application. This is precisely the same question raised by requirement of the same section of the law to be determined by the Office before the issue of the patent. Ordinarily, and in *ex parte* cases, these questions are determined by reference to printed publications and to patents; in interference proceedings by reference to testimony taken in accordance with the law applicable to such cases. The inquiry is, which party first made the invention? A patentable invention can have but one fixed and invariable meaning. It is a new and useful art, machine, manufacture, or composition of matter, or new and useful improvement thereof. And this must not be mere theory, but something perfected and adapted to use. Anything not so "perfected and adapted to use is not patentable." (*Read* vs. *Cutler*, 1 Story, p. 590.)

The application of the doctrine to the present case appears to me plain and easy. Beyond all question Greenleaf and Adams have made this invention. Of that they have given the best possible evidence by putting it into actual use. That completed invention is their property as much as the patent would be if issued therefor, unless some other party can show a better right.

The only question, therefore, necessary to consider is, whether there be anything in the prior efforts of Dana which ought to entitle him to a monopoly of the invention made by Greenleaf and Adams. Substantially all that he can rely upon as having done prior to the first of June, 1874, is the model now on file in the Office, and made, I believe, in April, 1874. I cannot place much reliance on the model said to have been made in 1872, no trace of which remains except in the memory of the witnesses. But this model, made in 1874 and filed in the Office, does not appear to me to be such an invention as would defeat a patent for that which was made and put into use by Greenleaf and Adams on the 1st day of June, and consequently it cannot now bar the issue of a patent to Greenleaf and Adams, simply because it is not an invention perfected and adapted to use. It is not a car-coupling, not simply from lack of proper connection and proper material, but from lack of proper proportions and size. It could not be made to couple vehicles of any sort in the way contemplated. It will not work, as I find from inspection, in the automatic way called for by the specification, nor do I think it can be called the invention in any patentable sense of the term. All this is not only clear from an inspection of the model, but from the testimony of the witnesses. The fact that it might, when represented by a drawing and described in a specification, have been made the basis of a patent to Dana, had Dana's right not been challenged by another party, is not inconsistent with this.

In the ordinary *ex parte* proceedings which accompany the issue of Letters Patent, the Commissioner does not go behind the applicant's oath that he has made the invention. That ordinarily raises a presumption sufficient to justify the Commissioner, other requirements of the law being complied with, in issuing a patent to the applicant.

It is not the duty of the Commissioner to subject alleged inventions to the tests of experiment, nor to search the country for evidence relating to applications for patents outside of the positive requirements of the statute. Applicants take out patents in this respect at their own risk, and if it should be found subsequently that the patent was insufficient to enable one skilled in the art to make a complete invention, it would simply be void. Nor would I be understood as maintaining that what is now a named model in the statute, and received as such in the Office, may not be a completed invention. In many instances the mere size of an implement or machine is of no consequence in the practical testing of its utility and operation. An improved inkstand, pencil, eraser, and a thousand things which could easily be named, might as certainly be represented in less than the usual size, and wholly or partially in other than the material commonly used for such purposes. There could be no prescribed size for an invention in a machine or manufacture, and it might be often as truly and manifestly adapted for use in miniature as in full proportions; but it is not necessarily so, and what may operate as a model or toy may fail utterly, both in possibility of construction and in certainty of operation, with the changed condition of great size and weight necessary for actual use, and the question must be settled, when it is raised as now, by an adverse interest in each case for itself.

If Dana had actually made the invention subsequently to Greenleaf and Adams, I should still be compelled to hold that he had not been exercising reasonable diligence after the conception of it, and that Greenleaf and Adams having first made it, while he was not exercising reasonable diligence were entitled to priority of invention; but for the still stronger reason that there is no satisfactory evidence that he has ever made the invention in any patentable sense at all, I must affirm the decision of the Board in favor of Greenleaf and Adams.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

R. C. ANTHONY *et al. vs.* JOHN CARROLL.

[*In equity.—Before* SHEPLEY, *J.—Decided October*, 1875.]

Although in ordinary actions at common law brought in United States courts, the statutes of limitation of the State where the suit is brought may be pleaded in bar under the provisions of the judiciary act, such pleadings will not apply to an action

for the infringement of a patent, where the right of action is exclusively under the Constitution and laws of the United States, and when the form of the remedy is prescribed by the acts of Congress, and when the circuit courts of the United States are clothed by statute with exclusive jurisdiction over the whole subject-matter.

Should the legislature of a State pass an act, in express terms, limiting the time for bringing an action in the federal courts for the infringement of patent rights, there can be no reasonable doubt that such a statute would be unconstitutional and void.

[*Francis C. Nye* and *L. C. Ashley* for complainants.
Browne & Holmes for defendant.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

This bill in equity filed July 27, 1874, alleges the grant of letters patent of the United States to Marie Amédée Charles Mellier for a new and useful improvement in making paper-pulp; the assignment, by Mellier, to one Buchanan, June 19, 1857, of all Mellier's right and title to the invention secured by the letters patent; the assignment by Buchanan to Buffam, trustee of the American Wood Paper Company, October 14, 1863; and the assignment by Buffam to that company June 16, 1865, of his legal estate in the patent. The infringement by the defendant, and consequent profit to defendant, and damage to the American Wood Paper Company, is alleged from October 14, 1863, to August 19, 1867.

The bill alleges an assignment August 19, 1867, from that company to Gardner Harland of "all their claims against the said defendant for the said damages and profits for the said infringement during the said period," and an assignment by Harland to R. C. Anthony, one of complainants, October 4, 1873, of all said claims. The bill is brought by R. C. Anthony, a citizen of New York, and the American Wood Paper Company, a corporation created by the legislature of the State of Rhode Island and located at Providence in said State, against the defendant, a citizen of Massachusetts, for a discovery and account of profits, and for damages and other relief.

The defendant has demurred generally to this bill, and in support of his demurrer relies upon the bar of the statute of limitations of the Commonwealth of Massachusetts, and also upon the character of the claim alleged in the bill. The limitation in cases of tort in this Commonwealth is six years. (Gen. Stat. of Mass., Ch. 155, § 1.)

As a general rule the laws of the State in which a national court sits must be the rules of decision in such court. The thirty-fourth section of the Judiciary Act provided that "the laws of the several States, except when the Constitution, treaties, or statutes of the United States shall otherwise require or provide, shall be regarded as the rules of decision *in trials at common law* in the courts of the United States in cases where they apply." It is too well settled to require the citation of authorities that in ordinary actions at common law, the statutes of limitation of the State where the suit is brought may be pleaded in bar under this provision of the Judiciary Act.

Whenever the cause of action is one cognizable by a court of common law, a court of equity in accordance with the general rules of equity jurisprudence, follows the law in relation to the limitation of actions. The question presented is whether this rule applies to actions, the subject-matter of which is under the exclusive control of the national legislature and judiciary.

Mr. Justice Swayne held in the case of *Collins* vs. *Peebles*, (2 Fisher, 541,) that the State statutes could not limit the time within which actions for the infringement of letters patent might be brought in the courts of the United States; that Congress having failed to legislate upon this subject there was no limit to the time for bringing such actions; and Mr. Justice Grier is reported, in a note to the above case, (2 Fisher, 543,) to have so decided in the case of *Parker* vs. *Halleck*. To the same effect is the decision in *Read* vs. *Miller*, (3 Fisher, 310.)

In the case of *Parker* vs. *Hawk*, (2 Fisher, 58,) the learned Judge of the Southern District of Ohio decided that the limitation act of Ohio applied to an action on the case in the Circuit Court of the United States for an infringement of a patent. It is stated, in a note to that, that the decision was affirmed by Mr. Justice McLean. *Parker* vs. *Hawk* was decided on the authority of *McCluny* vs. *Silliman*, (3 Peters, 270.) But *McCluny* vs. *Silliman* is by no means decisive of the question. That was an action on the case against the defendant as register of a land office in Ohio for non-feasance, in refusing at the request of the plaintiff to enter his application for the purchase of certain Government lands, as required by an act of Congress. Such an action against an officer for non-feasance could have been prosecuted in the State as well as in the federal courts. The cause of action was one over which the national and State courts had concurrent jurisdiction. Such a case clearly falls within the provisions of section thirty-four of the Judiciary Act. It is one of the cases where the laws of the State apply. But how it can be contended that the laws of the States apply to an action for the infringement of a patent, when the right of action is exclusively under the Constitution and laws of the United States, when the form of the remedy is prescribed by the acts of Congress, and when the Circuit Courts of the United States are clothed by statute with exclusive jurisdiction over the whole subject-matter.

Should the legislature of a State pass an act in express terms limiting the time for bringing an action in the federal courts for infringement of patent rights, there can be no reasonable doubt that such a statute would be unconstitutional and void. The policy of the Government to provide a uniform system of rights and remedies throughout the United States upon the whole subject-matter of patents for new and useful inventions and discoveries, by placing it under the control of Congress and the federal courts, would be frustrated if such State legislation could directly or indirectly limit, restrict, or take away the remedy. For these reasons, I think no State statute of limitation can be pleaded in bar of this action.

It is contended in support of the demurrer that a court of equity will not entertain a suit for the benefit of an assignee of a right of action for a tort. The question whether a court of equity would entertain this bill, if brought only in the name of an assignee, of a right of action for a tort, does not necessarily arise in this case, as this bill is brought by the assignor, who is also the owner of the patent, and who, under the rules of equity pleading, joins with him, the assignee, he being beneficially interested therein. The better opinion seems to

be that, if the claim be for an injury to one's estate or property, and not to a mere solatium for an injury done to the person or personal feelings of the assignor, the claim may be assigned. (*The People* vs. *Tioga*, Common Pleas, 19, Wendell, 73; *McKee* vs. *Judd*, 2 Kernan, 622; *Milnor* vs. *Metz*, 16 Pet., 221.)

The demurrer of defendants is not sustained.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

JOHN KENDRICK *vs.* THOMAS A. EMMONS.

[*In equity.—Before* SHEPLEY, *J.—Decided October*, 1875.]

An English patent, taken out surreptitiously by any person, who, without the knowledge of the American inventor, and without authority from him endeavored to appropriate the benefits of his invention, would not thereby deprive the real inventor of any of his rights.

[*Chauncey Smith*, *Benjn. F. Thurston*, and *Wm. W. Swan*, for complainant.
Benjn. F. Butler and *A. K. P. Joy* for defendant.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

The principal questions presented in this case were fully heard and argued upon the motion for an injunction *pendente lite*. Upon a careful revision of the case and of all the new evidence now before the court, no good reason appears for any modification of the views expressed upon the hearing of the motion. The reasons are fully stated in the opinion upon that motion, and it is not necessary to repeat them. The conclusion is that the bifurcated plate in the English machine, constructed substantially according to the patent to Ellis and Sladdin, sealed July 12, 1864, and sometimes described as the retainer or fork, as well as the contrivance substituted for it in the Sladdin machines in evidence, which perform the same office, are infringements of the third and fourth claims of the reissued patent No. 5,282 to Joseph Winsor, for an improvement in machines for making weaver's harness.

Additional evidence and elaborate opinions of experts have been introduced at the final hearing upon the disputed point, whether in the machines of the Sladdin type the size of the loop is gaged by the needle or by the retainer and its substitutes. Question is also made whether the fingers in the Winsor machine, in fact, gage and determine the size of the loops. The theories of the defendant's experts upon this subject are ingenious and elaborate; but, upon a close examination of the two machines, when operating to make heddles, one cannot fail to discover that, as a practical result, the length of the loop in the heddle is limited in the Winsor machine by the fingers W^1 and W^3, and in the Sladdin machine by the bifurcated plate or retainer. Each of these devices determines the size of the eye or loop by a gage outside of the eye itself, and this operation constituted one of the prominent features of Winsor's invention. This feature of his invention enables him to dispense with the use of the laying-bar, around which the eye of the heddle had before been formed, and thus to dispose of one of the great obstacles in the way of making a loom-harness automatically, which Winsor was first to accomplish. This office of determining the distance from each other of the two extremities of the eye by a limiting device outside of the eye itself, the retainer of the English machine performs for the same and in substantially the same manner as the fingers in the Winsor machine.

The mistake in copying the specifications in the reissued patent by which the hooks are supposed to be described as gaging the length of the eyes, is so obviously a mistake in description, and so easily corrected by reference to the other parts of the patent and the machine described that it does not impair the rights of the patentee. The word "they," when used in that clause of the specifications for the second time evidently refers to the fingers and not the hooks as determining or gaging the size of the eye.

It is contended that as letters patent had been granted on the invention in England in April, 1854, for the term of fourteen years from their date, prior to the application for letters patent of the United States, the letters patent of the United States expired with the English patent, and could not be legally extended after the expiration of that patent.

The English patent was not sealed previous to the 15th of June, 1854. It was taken out surreptitiously by some one who, without the knowledge of the American inventor and without authority from him, endeavored to appropriate the benefits of his invention. If a person had thus surreptitiously taken out letters patent in this country for the invention of another who was diligently perfecting his invention, he would not thereby have deprived the real inventor of any rights. It is not believed that by taking out in advance an English patent he could accomplish more than he could have done by taking out letters patent in this country. Moreover, as the English patent was not sealed prior to June 15, 1854, it was not more than six months prior to the application for letters patent in this country, and under the act of 1836, he had a right to take out his patent in this country for the full term, although he had taken out one in a foreign country, the same having been published at any time within six months next preceding the filing of his specifications and drawings. The act of 1839 was not intended to limit the inventor's rights under the act of 1836, but to enlarge them. He still had the right to take out his patent for the full term, notwithstanding that he had obtained and published a foreign patent within six months. But after the six months he had, for a further specified time, a right to take out his patent, subject to the conditions and limitations specified in the Act of 1839. But the provision in the act of 1839, with reference to the effect of his invention, having been patented in a foreign country more than six months prior to his application, evidently refers to the fact of its having been patented by *him*, the applicant for the American patent.

In the interlocutory decree made on the motion for a preliminary injunction, and in what has hereinbefore been stated upon the subject of infringement, reference has been had solely to the infringement of the third and fourth claims of the reissued patent. The question of infringement of the eighth claim remains to be considered.

The eighth claim is for—

8. The combination of the sliding bar, or its equivalent, and the rods acting together, substantially as described, whereby the loose is preserved after it is formed, and the heddles are drawn away from the locality where they are formed on the stationary slats, and the movement of the sliding bar, or its equivalent, and the band attached thereto, to which heddles are tied in the process of formation.

Winsor's rights under this claim also are to be considered in the light of the fact that prior to the date of his invention there had never been a machine constructed in which was organized any apparatus for making the difficult side of a weaver's harness, combined with a sliding bar, or its equivalent, for drawing away the heddles, nor had there, prior to the invention of Winsor, been any machine having any combination of the sliding bar, or any equivalents of any such rods as are described in the Winsor patent, for receiving and preserving the leese of the heddles. The evidence in the record proves that the Winsor invention antedates any devices which are relied upon as anticipating this portion of the Winsor invention.

In the Ellis and Sladdin machine we find the same sliding bar for removing the heddles from the locality where they are formed, combined with automatic arrangements for making the heddles. We find, also, slats securing and preserving the leese supported by one end only, as in the Winsor machine, so as to afford the facility of securing the twine at one of their sides or the other by passing them by the end, and by receiving them as they are formed upon the free end, in combination, as in the Winsor machine, with the screws and yoke for moving the heddles along. The Ellis and Sladdin devices appear to be equivalent devices acting in the same combinations to accomplish the same result of preserving the leese after it is formed, and although they, by assisting to form the leese, do more than similar devices do in the Winsor patent, that does not relieve them from liability to the charge of infringement.

The defendants must, therefore, be held to have infringed the third, fourth, and eighth claims of the reissued patent.

Decree for injunction and account as prayed for in the bill.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

THE U. S. AND FOREIGN SALAMANDER FELTING CO. *vs.* THE MERRIMACK MANUFACTURING CO. THE SAME *vs.* THE LAWRENCE MANUFACTURING CO.

[*In equity.—Before* SHEPLEY, *J.—Decided October*, 1875.]

The first claim of plaintiffs is for a composition for coating the exterior of steam-boilers, pipes, or other heated surfaces, composed of asbestus and lime-putty, charcoal, and pumice-stone, or their equivalents, and is infringed upon by the defendants in their use of an inner coating of a mixture of clay and asbestus crushed or ground, with the addition of a little hair and some other fibrous substance, with a coating composed of a mixture of clay and charred fiber, or cocoa-nut, or cane sawdust ground, wool, or shoddy.

The second claim is for a composition for the same purpose, of asbestus and lime-putty.

This claim is infringed by defendants in their use of asbestus and whitewash (which is the same as lime putty in this composition) and clay, which is also proved in this composition of matter to be a well-known equivalent for the lime-putty.

[*G. E. Betton* for complainant.
G. L. Roberts for defendant.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

These are actions at law against the defendants for alleged infringements of Letters Patent No. 4,134, dated September 27, 1870, reissued to the complainants as assignees of John Riley and Charles W. Bissell for an improvement in compositions for covering steam-boilers, steam-pipes, &c., and also for alleged infringement of Letters Patent No. 114,711, dated May 9, 1871, and Letters Patent No. 108,055, dated October 4, 1870, both to John Riley, of Troy, New York, assignor to the complainants, for an improvement in compositions for covering steam-boilers, &c.

The reissue No. 4,134 described the essential part of the invention as consisting in the employment of lime-putty, or lime mixed with water, so as to be of the consistence of glazier's putty, with some non-conducting fibrous material, such as paper-pulp, and with pulverized earthy materials, which are light, porous, and are non-conductors of heat, such as plaster-of paris, water-lime, cement, sand, soap-stone, or black lead.

The invention described in Letters Patent No. 114,711 consisted in the employment of a combination of asbestus and lime-putty, either with or without the other ingredients hereinafter named, as a coating for steam boilers and pipes. The other ingredients named were charcoal and pumice-stone, or their equivalents.

The invention described in Letters Patent No. 108,055 consisted, so far as the invention related to the covering of steam boilers, in the addition of ground gypsum, or plaster, or pumice stone to the composition described in the reissued patent No. 4,134.

The defendants coat their pipes with an inner coating of a mixture of clay and asbestus crushed or ground with the addition of a little hair and some other fibrous substance. The next coat is a mixture of clay and charred fiber of cocoa-nut or cane sawdust ground, wool, or shoddy. Outside of this is a thin wash of lime with a slight mixture of hair. Outside of the second coat, in some instances, is a mass of fiber wound around the second coating. This covering of cord or fiber is covered with lime.

This coating is an infringement of the first and second claims of Letters Patent No. 114,711, the first claim being for a composition for coating the exterior of steam-boilers, pipes, or other heated surfaces, composed of asbestus and lime-putty, charcoal, and pumice-stone, or their equivalents, and the second claim for a composition for the same purposes composed of asbestus and lime-putty.

Defendants use the asbestus and whitewash, which is the same as lime-putty in this composition, and clay, which is also proved in this composition of matter to be a well known equivalent for the lime-putty. They also use the combination of asbestus, lime-putty, and charcoal.

A large number of American and English patents are introduced in evidence as tending to show want of novelty. A careful examination of all these patents fails to afford any satisfactory proof that the Patent No. 114,711 is void for want of novelty. The nearest approach to the composition of matter patented to the plaintiffs is to be found in the feltings or sheets of asbestus and lime, which were not plastic like the compositions of matter in the Riley patents, but were wrapped or fastened around the pipes or boilers. These, although most nearly approximating the invention of Riley, do not anticipate it.

Judgment is to be rendered for the plaintiffs against the Merrimack Manufacturing Company, for infringement of the first and second claims of Patent No. 114,711, for three hundred and fifty dollars, and against the Lawrence Manufacturing Company for seventy and and forty one-hundredths dollars damages, with interest from the date of the respective writs.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

WILLIAM WEBSTER *et al.*, COMPLAINANTS, AND THE NEW BRUNSWICK CARPET COMPANY, DEFENDANTS.

EXCEPTIONS TO MASTER'S REPORT.

In this case the question of infringement had been settled in favor of plaintiffs, and reference to a master to report the amount of damages sustained by plaintiffs for the use, by defendants, of their invention. The master in his report bases his opinion upon the *productive capacity* of the machines employed: *Held*, that the calculation should have been made on the *actual production* of such machines of the article manufactured.

NIXON, *J.*:

On the final hearing of this case the decree of the court was that the Letters Patent No. 130,961, issued to the complainant Webster, August 27, 1872, for a new and useful improvement in looms for weaving pile fabrics were valid in law; that the corporation defendant had infringed the same by using the improvements described and recited in the fifth claim, and that a reference should be made to the master to take an account of the profits realized by the defendant, and of the damages sustained by the complainants, in consequence of the said infringement. The master has made his report, to which the counsel for the defendant have filed ten exceptions.

1. The first refers to the amount of the production of the looms, in the use of which the defendant infringed the complainant's patent, the master assuming from the evidence that the defendant manufactured four hundred and fifty thousand eight hundred and sixty-four yards of carpet during the period of the infringement, whereas it is claimed that the proof shows a manufacture of only one hundred and fifty-three thousand four hundred and seventy-two yards. It is to be regretted that a fact which was probably capable of positive demonstration has been left in such an uncertain and doubtful state. It was incumbent on the complainants to exhibit affirmatively the whole amount of the production, in order to measure the damages, and to approximate the extent of the profits. Under the decree and reference they had access by subpœna to the books of the company, and to its officers, consignees, and agents. They chose to rely alone upon the testimony of Mr. Short, the company's superintendent, and on the inferences which they thought could be legitimately drawn from his statements in regard to the number of looms purchased, and their capacity of production. He says that he was the superintendent of the company from the date of its organization to the adjudication in bankruptcy; that he was familiar with its operations, with the number of looms used, with the style and cost of the carpets made, and with the prices received; that the company had forty-three looms in all, but only used on the average thirty-one; that during the interval between October 1, 1872, when the company started business, to September 20, 1873, when it closed, it produced by the use of these looms one hundred and fifty-three thousand four hundred and seventy-two and three-fourths yards of carpeting of the kind known as tapestry Brussels; that they were consigned to S. B. Hunt & Co., and J. B. Archer & Co., the former firm receiving thirty-eight thousand two hundred and fifteen and one-eighth yards, and the latter one hundred and fifteen thousand two hundred and fifty-seven and five-eighths yards. That was the whole testimony on the question of production. No further inquiry was made, either in the direct or the cross examination, in regard to the subject, and it would seem that both parties, recognizing the honesty of the witness and his opportunities of knowledge, were satisfied to accept his statement as true. If they had not been it would have been easy for either side to have brought forward the books of the company, or the consignees, or other consignees and agents, if there were any, and from these sources to show its want of correctness; but because the witness did not say in precise terms that the one hundred and fifty-three thousand four hundred and seventy-two and three-fourths yards was the entire quantity produced, and because he gave other evidence in reference to the capacity of the looms with the complainant's wire-motion attached which tended to show that a much larger quantity might have been manufactured, the master has inferred that the witness did not mean to indicate the whole production, and for the want of more sufficient data he has reported in favor of the amount which an average of thirty-three looms, under favorable conditions of operation, was capable of producing within the specified time. I have carefully examined the evidence, and think the master has mistaken its clear import. In the inquiry concerning profits the question is not what *could* be, but what *was*, produced by the use of the complainant's invention, and the fair construction of the witness' testimony is that one hundred and fifty-three thousand four hundred and seventy-two and three-fourths yards was the actual amount. The first exception, therefore, is sustained.

2. Without considering the remaining exceptions in detail, it is sufficient to observe generally that the radical defect of the master's report seems to be that he has in fact made his estimate of the profits for which the defendant is chargeable upon the *capacity* of the instrumentalities employed, and not upon their *actual* production. The error is the more remarkable because he evidently and properly aims, in his report, to limit the profits to the increased product. The measure of the complainant's profits on this reference is to be ascertained from the consideration of the advantages which have resulted to the defendant by his unauthorized use of the complainant's invention. These advantages have arisen from the use of looms, the daily yield of which, with a good operator, and under favorable circumstances, was about forty-eight yards, instead of looms with a daily yield, under the same conditions, of about thirty yards. If I understand the evidence taken it is to the effect that the incorporation of the complainant's wire-motion with a Bigelow machine adds about eighteen yards per day to its productive capacity; and as both parties have taken that loom as the best now open to the public use, it would seem that no difficulty ought to exist about the correct method of arriving at the profits for which the defendants should account.

The first inquiry is, what is the *net* profit which the

defendant realized upon each yard of carpet manufactured? The master, after fully considering the cost of making, the expenses of consignees, and the average prices received on sales, finds this to be twenty and two-fifth cents per yard, and, under the evidence, I deem that to be a reasonable approximation.

The next inquiry is, what was the *increased* production in consequence of the use of the complainant's patent from October 1, 1872, to September 20, 1873? The Master reports this increase to be two hundred and one thousand nine hundred and forty-nine yards, which, as we have already seen, is deemed to be in excess of the whole *actual* production. The process of reasoning by which he reaches that result is as follows: The average capacity of the Bigelow loom is twenty-six and one-half yards per day. The average capacity of the same with the complainant's wire-motion attached is forty-eight yards, showing an increase of twenty-one and one-half yards per day in favor of Webster's invention. The aggregate production of thirty-one looms, the number in use by defendant, at forty-eight yards per day is four hundred and fifty thousand eight hundred and sixty-four yards for three hundred and three working days of ten hours each. The aggregate production of the same number of looms for the same length of time, at twenty-six and one-half yards per day, is two hundred and forty-eight thousand nine hundred and fourteen and one-half yards, exhibiting an increased production of two hundred and one thousand nine hundred and forty-nine and one-half yards by the use of complainant's patent. (See master's report, fol. 408.) But it is quite obvious that this calculation is based on the *capacity* of the looms. It assumes that during every minute of the ten hours of each working day every loom was in running order, in operation, and in the hands of a good operator, whereas the evidence is that the defendant corporation had inexperienced workmen; that the looms were new, badly made, and run at great disadvantage, and that the mill was frequently stopped for alterations or repairs of breakages. The calculation should have been made on the actual production, which we have hereinbefore held to have been one hundred and fifty-three thousand four hundred and seventy-two and three-fourths yards, and then the method of computation would have been as follows: If thirty-one looms, each with a productive capacity averaging forty-eight yards per day, yielded one hundred and fifty-three thousand four hundred and seventy-two yards in three hundred and three working days, how much would the same number of looms yield in the same time having a productive capacity of only thirty yards per day each? The number of yards would, of course, bear the same relative proportion to one hundred and fifty-three thousand four hundred and seventy-two as thirty bears to forty-eight, and would amount to ninety-five thousand nine hundred and twenty yards. The difference between these would be the increased production, to-wit, fifty-seven thousand five hundred and fifty-two yards. As it does not appear from the testimony that the material, labor, machinery, interest on capital, and all the elements which enter into the cost of production, would to any extent vary in the two cases, we are not called upon to perplex the subject, as the counsel for the defendant did on the argument, with their consideration. The measure of profits to the complainant is the net profit realized by the defendant on this increase, which was twenty and two-fifth cents per yard, amounting to $11,741.40, for which sum a final decree will be entered for the complainants, with costs. All costs that have accrued to the complainants since the assignee in bankruptcy became a party to these proceedings are to be paid in full from the bankrupt estate. With regard to the question of interest this does not seem to be a case where it should be allowed before the entry of the final decree. The profits are in the nature of damages which up to that date are unliquidated. I find nothing in the evidence that distinguishes the case in principle from *The American Nicholson Pavement Co.* vs. *The City of Elizabeth et al.*, (6 Off. Gaz. 764,) and *Mowrey* vs. *Whitney*, (14 Wall, 653,) and the master's report, giving interest from the date of the interlocutory decree, is overruled.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

LEWIS J. MULFORD *et al. vs.* THOMAS D. PEARCE *et al.*

[*In equity—Before* SHIPMAN, J.—*Decided November* 3, 1875.]

The first claim to "an ornamental chain for necklaces, &c., formed of alternate closed links A, and open spiral links B, substantially as shown and described," is not a claim for an ornamental chain, composed of alternate closed links, without reference to the material of which the spiral link is made; but it is a claim for a chain composed of alternate closed links and open spiral links, formed of one or more coils of gold tubing, as shown and described.

The manner in which gold tubing is manufactured is well known to all persons skilled in the art, and the process thoroughly understood by the manufacturing jeweler. It would have been a waste of words to explain the method of manufacturing to a class of persons who are sufficiently informed when they are told that the link is "formed of one or more coils of tubing of the proper length so as to form a double spring-link."

[*B. F. Lee* and *A. A. Alvord*, for complainants.
Jos. O. Fraley and *Henry Baldwin*, Jr., for defendants.]

SHIPMAN, *J.*:

This is a bill in equity, alleging an infringement by the defendants of reissued letters patent, which were issued to the complainants on February 24, 1874, for an "improvement in chains and chain-links for necklaces," &c., and praying for an injunction and an account. The defendants, admitting in their answer the manufacture and sale of the patented article, deny the novelty or patentability of the alleged invention, and further insist that the patent is invalid by reason of the vagueness of the specification. The specification states that—

> The invention has for its object to furnish an improved chain for necklaces, &c., having links of peculiar construction, which enable all the links to be finished separate and then put together to form the chain. The invention consists in an ornamental chain, whereof the links are connected together by open spiral links B, finished before being connected together, the connection being made by springing the finished links into each other in the manner described. A and B represent the links of the chain. The links A are round and closed, and are made and polished, or colored, separately from the other links. The links B, which constitute the peculiar feature of my invention, are formed of one or more coils of tubing of the proper length, so as to form a double spring-link. Into each end of the tube forming the link B is soldered a small shot, as shown in the drawing, which shot gives a finish to the link. The links B may then be colored or polished, and the chain is formed by springing the links into each other. * * * * * * * * By this construction the links may be made and finished in quantities, and the chain formed from the finished links, by springing them into each other to produce any desired combinations of the links of the same or different kinds. Finishing the separate links in this way enables them to be more perfectly polished or colored, and with a greatly diminished expenditure of labor and time, and enables the links to be put together without injuring them in the least, however highly they may be polished or colored.

The claims of the inventor are:

1. An ornamental chain for necklaces, &c., formed of alternate closed links A and open spiral links B, substantially as shown and described.
2. The open spiral links B, formed of coils of tubing, substantially as shown and described.

Ornamental gold chains, formed of alternate closed links and spiral links, or of spiral links alone, have long been known. Chains composed of split rings which are "sprung" into each other, or into a solid link, are familiar articles, and there can be no novelty in the mere shape or form of the chain, or of the link, which is shown in the drawings of the patent. The distinctive feature of the invention does not consist in the fact that the link is spiral, but does consist in the construction of the open spiral link from a specified material, viz, gold tubing. The article which is called tubing in the jeweler's art, is made by drawing a strip of gold through a draw-plate, the gold strip having been placed around a copper wire in such a manner as to incase the wire. The copper wire, with the strip of gold around it, is then wound upon a mandrel and cut into proper lengths. The copper is destroyed by acid, leaving a hollow spiral link which is bound with wire and annealed. The wire is then unfastened, and the link, which is thus made, possesses a peculiar elasticity not affected by the annealing, is easily separated and united to another link without any injury to itself or to the solid link into which it is sprung, and constantly preserves its elasticity and shape.

The discovery which led to the invention consisted in the discovery of the fact that links made of tubing possessed a peculiar elasticity which was unaffected by annealing. The invention was the application of this discovery to the production of a new and useful result, namely, the manufacture from tubing of ornamental chains, which possess the following elements of novelty and utility:

First, all the links can be completely finished and then put together without injury to the chain, and thereby the article can be produced at a much less expense than had previously been necessary. Gold chains which are constructed in any other manner must be finished or polished or colored after the chain is completely formed, which is a difficult and somewhat expensive part of the manufacture, while, inasmuch as these links are sufficiently elastic to be united together or sprung upon a solid link without injury to any part of the chain, the separate links can be made in quantities, and completely finished and polished before being united.

Second, the elasticity of the special links is such that the chain can easily be separated by the fingers of the owner, and united in different forms and for different purposes, and reunited in the original chain without detriment to the polish of the links, and with no loss of their elasticity. As has already been suggested, their features of novelty and utility do not result from the fact that the chain is made in part from a spiral link, but from the fact that the spiral link is manufactured from a material which possesses a peculiar quality of permanent elasticity. The invention consists in the fact, that whether the inventor was or was not the first person to discover the peculiarity, he first utilized the discovery, and applied the peculiar property of the material to a useful result in the manufacture of chains.

It being self-evident that chains composed of spiral links have been well known, it was insisted by the defendants that the chains heretofore in use possessed substantially the same qualities which are attributed to the patented article; and that the patented article had no advantage over the chains which were introduced as exhibits, and which were made of gold split rings, or split links in various forms. But it was satisfactorily proved that the split rings, which are manufactured from solid gold wire compressed in dies, and made elastic by hammering, are not sufficiently elastic to permit the chain to be joined without injury to the material into which the split link is sprung, and this injury renders necessary a repolishing or finishing of the completed article. Again, if the chain of split gold links is taken apart, this act of separation causes the coil to spring asunder, so that it loses its shape and its beauty, and if a necessity of annealing arises, the process of annealing destroys its elasticity. The difference between the patented article, and a chain made of split gold rings, is clearly marked. It is a difference in kind and not merely in degree.

Testimony was also offered by the defendants to prove that chains of spiral links made of tubing had been in use prior to the date of the invention, but the evidence failed to satisfy me that chains of open and unsoldered spiral links made of tubing had been manufactured prior to the date of the patent. Links have been made of tubing, which, after being united in a chain, were soldered together, and thus a chain was made which could not be taken apart, and which required finishing and polishing after it was soldered together. The testimony did not show that the plaintiff's invention of the open spiral link from tubing had been practically anticipated by others.

A large serpentine bracelet, made of a coil of gold tubing, to be worn upon the fore-arm, and to be kept in its place by pressure, was also introduced as an anticipating device. It manifestly is a very different article from a chain, and the fact that a gold tubing was known and used in the manufacture of jewelry was conceded by the plaintiffs.

It was also suggested by the defendants that the specification does not describe the process of manufacture of the spiral link with the exactness which is requisite. The manner in which gold tubing is manufactured is well known to all persons skilled in the art. After having been compressed around copper wire, it is wound upon a mandrel; the wire is then removed by acid, and the coil of tubing, having been secured with wire, is annealed into the proper shape. This process is thoroughly understood by the manufacturing jeweler. It would have been a waste of words to explain the method of manufacture to a class of persons who are sufficiently informed, when they are told that the link is "formed of one or more coils of tubing of the proper length, so as to form a double spring-link."

The first claim is not a claim for an ornamental chain composed of alternate closed links, and open spiral links, without reference to the material of which the spiral link is made, but it is a claim for a chain composed of alternate closed links, and open spiral links

formed of one or more coils of gold tubing, as shown and described. The finish, as given to the chain by the shot at the end of the open link, is not a material part of the invention.

There should be a decree for an injunction, and a reference to a master to take and state the account.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 1, 1876.]

8,936.—Fan.—SARAH M. DUDLEY, Detroit, Mich. Application filed January 7, 1876. Term of patent 3½ years.

8,937.—Locket.—GEORGE W. GILL, Philadelphia, Pa. Application filed December 30, 1875. Term of patent 3½ years.

8,938.—Badge.—JOHN F. NAULTY, Philadelphia, Pa. Application filed January 7, 1876. Term of patent 3½ years.

8,939 to 8,941, inclusive.—Tobacco-Pipes.—LEONHARD NAX, Philadelphia, Pa. Applications filed January 18, 1876. Term of patents 7 years.

8,942.—Glass Dishes.—JULIUS PRONGER, Pittsburg, Pa., assignor to ROBERT HEMINGRAY, Covington, Ky. Application filed January 14, 1876. Term of patent 7 years.

8,943.—Cigar-Stand.—WILLIAM E. RYDER, Sing Sing, N. Y. Application filed January 21, 1876. Term of patent 3½ years.

8,944.—Breastpins, &c.—CHARLES T. SLOAN, New York, N. Y. Application filed December 12, 1875. Term of patent 3½ years.

8,945.—Lower-Case Letters of a Font of Script Printing-Types.—DAVID WOLFE BRUCE, New York, N. Y. Application filed November 8, 1875. Term of patent 14 years.

8,946.—Card-Receivers.—GEORGE E. HATCH, East Cambridge, Mass. Application filed December 30, 1875. Term of patent 3½ years.

8,947.—Furnace-Brick.—GORDON H. NOTT, Hyde Park, Mass. Application filed January 7, 1876. Term of patent 7 years.

8,948.—Saddle-Clips.—MOSES SEWARD, New Haven, Conn. Application filed November 22, 1875. Term of patent 14 years.

8,949.—Arm-Chairs.—MIRUM SULZBACHER, New York, N. Y. Application filed January 14, 1876. Term of patent 14 years.

8,950.—Advertising-Card.—JERRY P. THOMAS, New York, N. Y. Application filed January 26, 1876. Term of patent 7 years.

8,951.—Tea-Set.—WILLIAM C. BEATTIE, Taunton, Mass., assignor to REED & BARTON, same place. Application filed January 15, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 1, 1876.]

3,387.—Liniment.—MATTHEW CHURCHILL, Boston, Mass., assignor of one-half his right to ANNA M. THORNDIKE, same place. Application filed January 21, 1876.

"The letters 'C. H. P.,' in the form of a monogram, and the words 'Churchill's Household Physician,' 'The Greatest Discovery of the Age.'"

3,388.—Cigars.—FREDERICK DE BARY & CO., New York, N. Y. Application filed January 24, 1876.

"word 'INDEPENDENCIA.'"

3,389.—Italian Cloth, Sleeve-Linings, Fancy Coatings, Farmers' Satin, Fancy Italian, and Serges.—DE WEERTH & CO., Elberfeld, Prussia, Germany. Application filed January 20, 1876.

"the representation of the Prussian medal known as the 'Iron Cross,' surrounded by a wreath, and surmounted by an eagle."

3,390.—Italian Cloth, Sleeve-Linings, Fancy Coatings, Farmers' Satin, Fancy Italian, and Serges.—DE WEERTH & CO., Elberfeld, Prussia, Germany. Application filed January 20, 1876.

"words 'Iron Cross Brand.'"

3,391.—Flour.—THOMAS DURHAM & SON, Philadelphia, Pa. Application filed October 27, 1875.

"words and figures '196 GIBSON'S PREMIUM.'"

3,392.—Oils.—HIRAM B. EVEREST, Rochester, N. Y. Application filed January 6, 1876.

"words 'VACUUM OIL.'"

3,393.—Silks, Satins, Vestings, Piece Velvets, Cap-Plush, and Velvet Ribbons.—HORNINGHAUS & DE GREIFF, Crefeld, Prussia. Application filed January 5, 1876.

"the picture of a bee-hive."

3,394.—Black-Lead or Plumbago.—MORSE BROTHERS, Canton, Mass. Application filed January 24, 1876.

"word 'RISING.'".

3,395.—Cigars.—H. K. and F. B. THURBER & CO., New York, N. Y. Application filed January 12, 1876.

"words 'Cheap Transportation,' in connection with a print or drawing showing four locomotives, three of which are to some extent submerged in water, while the fourth is represented as being on dry land."

3,396.—Candy.—UNITED STATES CONFECTION COMPANY, New York, N. Y. Application filed January 22, 1876.

"words 'OLD TIME.'"

3,397.—Candy.—UNITED STATES CONFECTION COMPANY, New York, N. Y. Application filed January 22, 1876.

"words 'BIG IKE.'"

3,398.—Hair-Restorative.—SELAH R. VAN DUZER, New York, N. Y. Application filed January 14, 1876.

"words 'MRS. S. A. ALLEN'S ZYLO BALSAMUM.'"

3,399.—Hair-Restorative.—SELAH R. VAN DUZER, New York, N. Y. Application filed January 14, 1876.

"words 'MRS. S. A. ALLEN'S WORLD'S HAIR RESTORER.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 1, 1876.]

502.—Title: "Liquor Boracis comp."—CHARLES G. AM ENDE, Hoboken, N. J. Application filed January 25, 1876.

503.—Title: "Boot and Shoe Water-Proof Sole Protector."—HARRY BITTER, Philadelphia, Pa. Application filed January 26, 1876.

504.—Title: "A. D. Coles' Fever and Ague Annihilator and Blood Purifier."—A. D. COLES, Brooklyn, N. Y. Application filed January 27, 1876.

505.—Title: "Condie's Aperient Elixir."—JAMES CONDIE, New York, N. Y. Application filed January 24, 1876.

506.—Title: "Davis' Charcoal and Orris Tooth-Soap." THOMAS M. DAVIS, Cambridge, Mass. Application filed January 21, 1876.

507.—Title: "Kitchen & Hand Mineral Soap."—CYRUS H. HARDY, Hingham, Mass. Application filed January 27, 1876.

508.—Title: "Moser's Improved French Water-Proof Glass-Polish."—JOHN H. MOSER, Norristown, Pa. Application filed January 21, 1876.

509.—Title: "C. T. Prescott & Co., American Laundry Soap."—CHARLES T. PRESCOTT & CO., Brooklyn, N. Y. Application filed January 27, 1876.

510.—Title: "Stock Label—Fine Cut Chewing."—RUSSELL, MORGAN & CO., Cincinnati, Ohio. Application filed January 26, 1876.

511.—Title: "Stock Label—Fine Cut."—RUSSELL, MORGAN & CO., Cincinnati, Ohio. Application filed January 26, 1876.

512.—Title: "Dr. Albert Conradi's Augsburger Tropfen."—LEOPOLD SALAMONSON, Cleveland, Ohio. Application filed January 26, 1876.

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INDEX OF INVENTIONS PATENTED FEBRUARY 1, 1876.

	Class No.	No. of Patent.
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Bale tie, T. Bailey	7	172,947
Bale tie, Burrow and Nichols	7	172,845
Bale tie, J. C. Riethmüller	7	172,936
Bale tie, R. S. Stenton	7	172,897
Bales, check for cotton, J. C. Riethmüller	146	172,937
Bathing apparatus, D. Jewett	8	173,015
Bed bottom, spring, J. C. Fish	62	172,987
Bed bottom, spring, W. R. Van Houghton	62	173,090
Bed, camp, F. A. Leavitt	62	172,983
Belt coupling, J. K. P. Shelton	81	173,070
Belt stretcher, F. L. and W. Spiess	81	173,077
Bird cages, awning for, A. H. Mood	170	173,040
Boat, submarine torpedo, J. Jopling	137	173,018
Boilers, apparatus for preventing explosions of steam, C. W. Sulzbach	148	172,898
Bolt thread cutting machine, R. W. Deely	14	172,851
Boot and shoe, Bennett and Barnard	16	172,957
Boot and shoe heel trimming machinery, A. McDowell	16	172,886
Boot and shoe nailing machinery, W. G. Budlong	16	172,911
Boot and shoe soles and uppers, machinery for screw threading wire for uniting, E. Fromentin	16	172,990
Bottle and jug lock, J. W. Robards	1	173,061
Bottle corking machine, M. S. Valentine	1	173,088
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Hoff, G. K., Folding table	173,007
Hoople and Sherwin	173,073
Hopkins, I. N., Watch case spring	172,827
Hopper, E. I., Hair curler	172,855
Houghton, S., assignee	172,875
Howard, F., assignee	172,943
Hubbard, E., Mold or press for making paper barrels	172,856
Hughson, J. D., Railway signal	173,008
Hull, D. H., Machine for stripping, booking, and registering tobacco	173,009
Humphries, T., Shears	173 010
Hunter, G., and C. S. Moseley, Cannon pinion for watches	173,011
Huntley, H. H., Culinary vessel	172,857
Huyett, A., assignee	172,985, 172 986
Ibbotson, A. B., Railroad rail joint	173,012
Ives Manufacturing Company, assignee	172,856
Jackson, W. M., Grit separator	173,013
Jay, J. M., Machine for cutting sheet metal	172,879
Jenks, E. T., and C. Pease, Lock for doors	172,858
Jennings, C. S., Reversible knob latch	172 880
Jennings, W. A., Plow	173 014
Jewett, D., Bathing apparatus	173,015
Johnson and Atkinson	172,945
Johnson, W. V., assignee	173,100
Johnson, W. W., assignee	172,826
Jones, C. W. and E. A., Evaporator for drying animal and vegetable substances	173 016
Jones, F. St. J., Gas tap	172,881
Jopling, J., Clock work torpedo	172 017
Jopling, J., Submarine torpedo boat	173,018
Josett, J. F., and J. Ross, Paper bag machine	173,019
Joyce, J. O., Lifting jack	172,924
Joyce, J. O., Lifting jack	172,925
Kennedy, T., assignee	172,880
Kent, A. C., Corn planter	173,020
Kidder, D. S., Fly trap	173,021
King and Campbell	172,965
Kirksey, W. H., Hame	173,022
Knight, J. A., and L. Abbott, Sham pillow	172 859
Knowlden, J., Oil can	173,023
Knowles, L. J., Mechanism for rewinding the warp in looms	172,926
Kraft and Schneider	173,068
Lafferty, J. V., assignee	172,994
Landfear, W. R., assignee	172,853

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Lane, T. W., Fluid meter	173,024
Lansing, G. R., assignee	173,040
Larson, F., Wagon tongue	173,025
Lawrence Curry Comb Company, assignee, (reissue)	6,900, 172,948
Leach, W. T., and C. H. Dearborn, Nail plate feeder	172,860
Leavitt, F. A., Tent	172,892
Leavitt, F. A., Camp bed	172,893
Leeds & Co., assignees	173,038, 173,039
Lefer, J. G., Bracket band for vehicle wheels	173,026
Leland, J. E. F., Centering device for gage lathes	173,027
Le Lubez, P. A. V., assignee	172,836
Lester, G., assignee	172,879
Levêque, A. J. J., Railway tie	172,861
Locke, E. A., Combined tag and seal	172,927
Lomas, J. R., Reed organ	172,884
Longland, J. C., Door frame and jamb plate for furnaces	173,028
Lord, F. A., Greenhouse rafter	173,029
Lucas, J., Rotary engine and water wheel	173,030
Lynch, W. J., Supporter for cotton pickers	173,100
Mann, W. F., Windmill	172,885
Mathieson, J. W., Steam pump	173,031
McAllister, H., Jr., administrator, (reissue)	6,894, 6,895
McColl, M. J., Ornamenting surfaces	172,818
McColl, M. J., Tool for veining wax leaves	172,819
McCoy, E., Steam cylinder lubricator	173,032
McDowell, A., Heel trimming machinery for boots and shoes	172,886
McIntire, J. S., Weather strip for windows	173,034
McIntosh, C., Trough for stock cars	173,033
McNeil, L. A., Machine for making flower pots	172,820
McPherson, J. R., Stock car	173,035
Metcalf, D. H., Tinner's square	172,821
Meyer, A., Watchman's time detector	173,036
Miller, C. E., Adjustable attachment for door springs	172,887
Miller, N. M., Wooden eaves trough	173,037
Mitchell, A., Movable sugar carrier	173,038
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Mood, A. H., Awning for bird cages	173,040
Moore, G. R., Stove grate	172,822
Morehead, J. A., assignee	173,101
Morgan, A. F., Milk pan cover	173,041
Morrison, S. W., Harvester rake	173,042
Mosely and Hunter	173,011
Mosher, A. J., Window washer	173,043
Myers, R. W., Stool seat	173,044
Neff, J., Jr., Side hill plow	172,928
Newton, S. S., Oil can nozzle	172,929
Nichols, G. W., Grain binder	173,045
Nichols Grain Binder Company, assignee	173,045
Nichols and Burrow	172,845
Nix, J. D., Pitman	173,046
Noble, H. S., Newspaper file	173,047
Nolan, D., Hod	172,888
Noonan, T., Cord guide for curtain rollers	172,889
Norman, C. B., assignee	173,099
Norton, I. W., Post driver	173,048
Oliver, J., Chill for casting mold boards, (reissue)	6,896
Oliver, J., Mold board, (reissue)	6,897
Otp, J. P., Poke	172,823
Oppenheim, E. C., Gate	172,930
Orton, L. C., Machine for setting saw teeth	172,931
Osterhout and Camp	172,964
Owen and Ball	172,949
Page, L. H., Planter and plant setter	173,049
Parker, C. C., Eye glass	172,932
Parker, C. C., Eye glass	173,050
Parker, C. E., Fracture apparatus	173,051
Parks, J. T., Nut lock	172,824
Pattyson, P., Sulky plow	172,825
Peabody, F. W., assignee	173,021
Pence, J. G., Machine for tenoning spokes	173,052
Pearce and Robertson	173,062
Pease, J. F., Hot air furnace	172,810
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Peebles, W., Potato digger	172,826
Pfeifer, J., Coal scuttle, (reissue)	6,898
Phifer and Beeman	172,954
Philippe, A., Stem winding watch	173,053
Phillips, W. G., Camp stool	173,054
Pincus, E., and C. A. Hart, Flag staff holder	173,055
Plant, I. C., Divided car axle	173,056
Player, J., Treating furnace slag, (reissue)	6,894
Player, J., Mineral wool, (reissue)	6,895
Poole, S., Clothes stick and tongs	172,891
Postley, C. A., Grain binder	172,933
Prall, W. E., Pneumatic signaling apparatus	172,934
Pratt and Whitney Company, assignee	172,854
Preston, H. W., assignee	172,827
Pullman, A. B., assignee	173,034
Putnam, A. M., Restaurant check box	172,892
Quimby, J. F., Stove and furnace	173,057
Ransom, S. H., assignee, (reissue)	6,899, 6,899
Reese, A. R., Harvester, (reissue)	6,899
Reese, H., Treadle	173,059
Reese, S. W., Stencil plate	173,058
Reynolds, C. H., Tire upsetter	173,060
Reynolds, J. G., Spring hinge	172,935
Reynolds, W. W., Platform scales, (reissue)	6,888
Riethmüller, J. C., Bale tie	173,936
Riethmüller, J. C., Check for cotton bales	172,937
Roberts, J. W., Bottle and jug lock	173,061
Robertson, W. C., and F. Pearce, Machine for forming perforated letters	173,062
Rogers, C., Valve for direct acting engines	173,063
Rogers, M. J., Medical composition	172,828
Rorbach, J., assignee	172,987
Rose, I. M., Combined fount and brush for liquids	173,064
Ross and Josett	173,019
Royer, L. S., assignee	172,905
Sabin, C. T., assignee	173,020
Safford, M., Pocket pencil	173,065
Saladee, C. W., Curry comb, (reissue)	6,900
Salmon, I. A., and T. Cogswell, Clasp or coupling for harness	173,066
Samson, A., assignee	172,850, 172,851
Sargent, A. V., Safety pin	173,067
Schneider, R., and F. W. Kraft, Surveying instrument	173,068
Scott, G. W., assignee	173,099
Setberling, J. F., Harvester rake	173,102
Shapley, M. W., Governor for steam engines	173,069
Sheehy, R. J., Electric clock	173,072
Sheldon, C. B., Invalid chair	173,071
Shelton, J. K. P., Belt coupling	173,070
Sherlock, R. E., assignee	172,877
Sherwin, G., and E. Hoople, Lamp	173,073
Shoninger, B, assignee	172,884
Short, D. T., assignee	173,046
Simonin, E., Carpenter's square and bevel	172,938
Slagle, E., and J. M. Graham, Flour and meal bolt	173,074
Sloan and Caner	172,966
Sloan, S., assignee	172,877
Smith, A. H., assignee, (reissue)	6,892
Smith, E., Base burning stove with central air passage, (reissue)	6,889
Smith, E., Base burning stove, (reissue)	6,890
Smith, E. S., Windmill	173,075
Smith, J. A., Shoe and glove buttoner	172,893
Smith, L. B., Ornamenting metal surfaces	172,894
Smith, L. C., Coal bunker	172,829
Somers, D. M., Pocket pencil	173,076
Spalding, C. W., assignee	172,846
Sparrow, G. F., Cuff button	172,895
Spiess, F. L. and W., Belt stretcher	173,077
Sprong, E. J., Metallic side bar for vehicles	172,939
Stacy, C. B., Grain drier	173,078
Stebine, T., Hydraulic elevator	172,896
Steinlein, J., Embossing machine for wearing apparel	173,831
Stenton, R. S., Bale tie	172,897
Stephenson, H. B., Tobacco pipe	173,079
Stevenson, G., assignee	172,843
Stewart, J. Y., and E. G. Conwell, Stairs	172,830
Stillman, H. B., Globe holder	172,832
Stimson, A. A., Door spring	173,080
Stone, M., Harvester guard finger	173,081
Suggett, J., Ventilating driven wells	173,103
Sulzbach, C. W., Apparatus for preventing explosions of steam boilers	172,898
Sutton, F. R., Fluting iron	173,082
Swartz, S., Steam drying press	173,083
Sweet, J. F., Rotary valve	173,084
Swett, Quimby, and Perry, assignee	173,057
Taft, G. E., Let off motion for looms	172,833
Talcott, W. A., assignee	172,959
Taylor, W. H., Lock for drawers, &c	172,899
Todd, A., Portable fence	172,834
Toole and Deede	172,870
Trisaler and Abbott	173,841
Tucker, G. P., assignee	172,955
Tucker, S. D., Inking apparatus for printing presses	173,085
Turn Bull, W. W., Bilge pump	172,900
Turner, E. J., Sewing machine treadle	172,835
Twombly, O., Rotary knitting machine	173,086
Underhill, P. S., Street lamp	173,087
Valentine, M. S., Machine for corking bottles	173,088
Valentine, M. S., Bottle neck	173,089
Van Houghton, W. R., Spring bed bottom	173,090
Vanorstrand, M. J. C., Corset	172,901
Vatter, H., Stove funnel attachment	173,091
Vinton, J. H., Knitting machine	172,940
Voisin, E., Cupola furnace	172,836,
Wachstetter, C., assignee	172,918
Wagner, H. G., assignee	172,945
Walker, J. R., assignee	173,046
Wallace, G. A., assignee	173,078
Ward, W. H., Car brake shoe	172,837
Ward, W. P., assignee	173,064
Wass and Burns	172,902
Weakes, A. R., Hame	173,092
Wells, R., Can sealing device	173,093
Western Electric Manufacturing Company, assignee	172,903
Wheeler, C., Jr., Cutting apparatus	173,094
White, J. M., Harrow	172,838
White, S. S., assignee	173,594
Whitin Machine Works, assignee	172,833
Whitling, J. H., Tinner's fire pot	173,095
Wilcox, W. C., Direct acting steam engine	172,839
Wiles, T. S., and A. P. Adams, Ironing apparatus	173,096
Williams Brothers, assignees	172,916
Wing, H. S., Carpet stretcher	173,097
Wisler, H., Punching, cutting, and shearing machine	172,840
Wittram, F., Dress shield	172,841
Woelfel and Gerber	172,991
Woodworth, J. S., Envelope	173,902
Woolfolk, L. B., Pitcher	173,098
Yuncker, J. J., Fruit drier	173,099

TITLES, DRAWINGS, AND CLAIMS

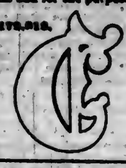
OF

PATENTS GRANTED FEBRUARY 1, 1876.

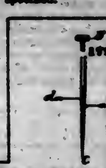
172,810. PROCESSES OF ORNAMENTING SURFACES. Mary Jane McColl, Allendale, N. J. [Filed Sept. 13, 1875.]

The process herein described of ornamenting surfaces of metal, wood, paper, and other surfaces, by attaching thereto letters and figures formed from sheets of wax, substantially as and for the purpose specified.

172,810.



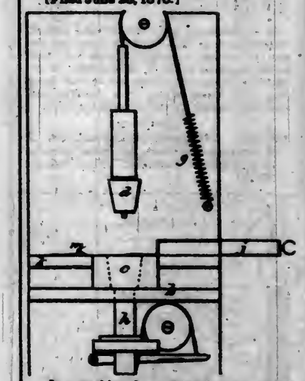
172,810.



172,819. TOOLS FOR VEINING WAX LEAVES. Mary Jane McColl, Allendale, N. J. [Filed Oct. 14, 1875.]

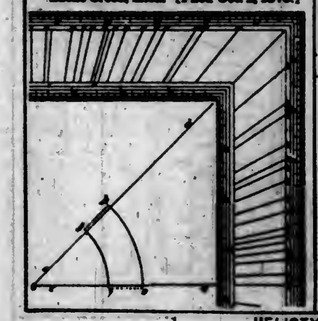
As a new article of manufacture, the herein-described tool for forming wax-leaves, consisting of the rod A, bent B, and pointed and c, provided with the sides d d, substantially as shown and set forth.

172,820. MACHINES FOR MAKING FLOWER-POTS. Leond. A. McNeil, Elmwood, Conn. [Filed June 26, 1875.]



In a machine for making flower-pots, substantially as herein described, the molds e, compressing-disk d, shaft A, carrier or spring h, rising-stop or spring m, and reciprocating shovel j, all constituted and operating substantially as set forth.

172,821. TINNER'S SQUARES. D. H. Metcalf, Battle Creek, Mich. [Filed Oct. 2, 1875.]



A square, having in addition to the usual graduations a series of graduations forming the outlines of a set of tinners' patterns, and a series showing the diameters, circumferences, and contents of the vessels, substantially as shown and described.

172,822. STOVE-GRATE. Geo. R. Moore, Philadelphia, Pa. [Filed Jan. 14, 1876.]

Brief.—By means of the manual hanger and the levers, the grate can be raised or lowered and its horizontal position maintained.



1. The levers E F G in combination, for carrying and operating the grate B, substantially as shown.

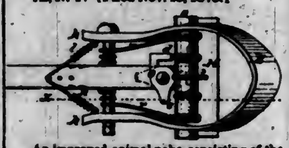
2. In combination with the grate B, hung upon the adjustable levers, as shown, the rod H, as and for the purpose herein set forth.

3. The manual hanger C, in combination with the levers E F G, substantially as shown.

4. The extensible lever D, in combination with the hanger C, substantially as shown.

5. In combination, the heater-base A, grate B, and levers E F G, substantially as shown.

172,823. POKER. Jos. P. Otp, Mount Morris, N. Y. [Filed Nov. 18, 1876.]



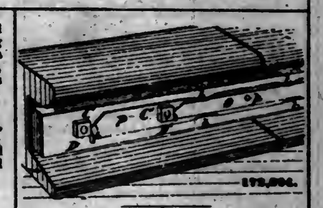
An improved animal-poke, consisting of the staple S, joined to the head H, the bow-pin P, connecting the bow B to the staple, the springs r, of a single piece of wire, whose ends form the prods p, the disk-lock d, secured by the screw c, and provided with the slot o, the staple t, partially encircling the bar b, and attached to the head H, and the loop l, connected to the bow by the hooks h, and acting in conjunction with the studs s and notches n, all arranged as and operating in the manner substantially as set forth.

172,824. NUT-LOCKS. John T. Parks, Bingham, Ill. [Filed Sept. 1, 1875.]

Brief.—A locking-plate is provided with end flanges and beveled end portions, for securing the intermediate nuts, and is pivoted to a fixed plate having similar ends to lock the outside nuts. The pivoted plate is held in place by bent edges of the fixed plate.

1. The plates P O, provided with beveled ends e e, combined with the bolts and nuts C C' D D', substantially as described.

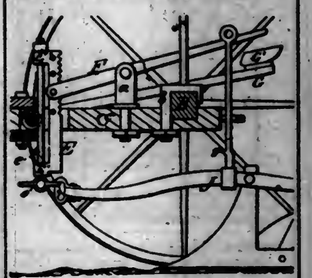
2. The spring-plate O, pivoted at the center, in combination with the thin metal plate P, adapted to have its edges turned over at f f to keep the spring-plate in position, and yet allow it to be sprung out by hand, so as to clear both the turned edges f f and the nuts C' C'.



172,825.

172,825. SULEY-PLOWS. Freeman Pettyson, Pleasant View, Kans. [Filed Oct. 26, 1875.]

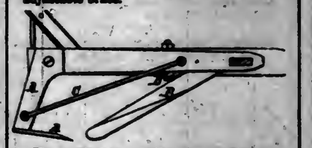
Brief.—Device for connecting the lifting-lever with the front end of plow-beam.



The bar E, having perforated ears F', the swiveled post e, with its clevis device e', and the friction-pulley e'', in combination with the angular lever F, or its equivalent, and with the plow-beam and frame, all constructed substantially as shown and described.

172,826. POTATO-DIGGERS. Wm. Peebles, Davidson County, assignee of one-half his right to W. W. Johnson, Nashville, Tenn. [Filed Apr. 28, 1875.]

Brief.—A beam with handles supports a rectangular frame. To the forward end of this frame are attached vine-cutters, extending obliquely backward, and nearly to the digging-blade. To the rear end of the frame is attached the digging-blade, which is strengthened by an adjustable brace.



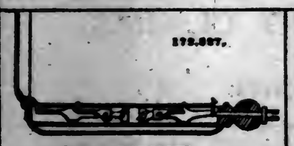
The combination of the shovel A A, side cutters B B, adjustable tension-rods C C, and adjustable bar, D, constructed and operating substantially as herein described, and for the purpose specified.

172,827. WATCH-CASE SPRINGS. Isaac H. Hopkins, Lockport, assignee of one-half his right to H. W. Preston, Albion, N. Y. [Filed Nov. 9, 1875.]

Brief.—An auxiliary spring adjustable on the catch and lifting-spring, and provided with a nib to be fitted in the hole in the case ordinarily occupied by the screw.

The combination of the auxiliary spring e, or its equivalent, with the catch and lifting spring B, substantially as shown and described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON

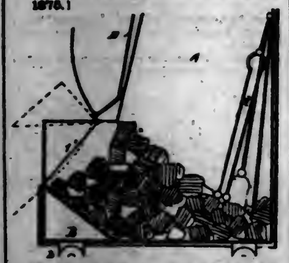


178,887.

178,888. CHEMICAL COMPOSITIONS. Miller J. Rogers, New Gloucester, Me. [Filed Sept. 4, 1874.]

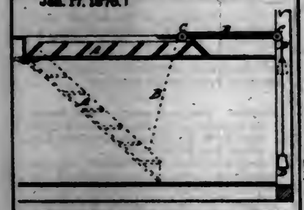
A lozenge composed of oil of fir, tincture of lobelia, cayenne pepper, white sugar, and the necessary gums to form the lozenge, in about the proportions and for the purposes herein before set forth and described.

178,889. COAL-BURNERS. L. O. Smith, St. Louis, Mo., assignor of one-half his right to O. Bradford, same place. [Filed Oct. 1, 1875.]



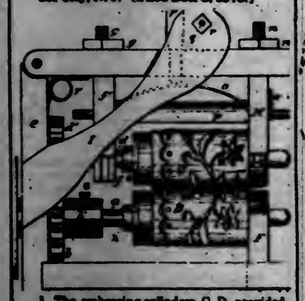
The hopper A, having slope a, in combination with the outer covering B, having door f^3, substantially as described.

178,890. WARPS. James T. Stewart and Edward G. Conwell, Dover, Del. [Filed Jan. 27, 1876.]



The combination of the stave A, cords B B, pulleys C C, and weights D D, or their equivalent, when constructed and arranged substantially as described.

178,891. BRIDGING-MACHINES FOR WHEAT-AFFAIRS. John Steinicke, Egg Harbor City, N. J. [Filed Dec. 6, 1875.]



1. The embracing-cylinders C D, provided upon their faces with desired patterns, the cylinder C, having its bearings in automatically-sliding boxes f G, in combination with the removable and longitudinally-adjustable frames f^1 E, substantially as and for the purpose set forth.

2. The cylinders C D, the former having its bearing in automatically-sliding boxes f G, said boxes working within adjustable and removable frames f^1 E, in combination with the brace-rod r^1, shaft y, spring o, and regulating-screw y^1, constructed to operate substantially as specified.

3. The combination, with the stationary frame A and arms I, of the hinged frame B, with eccentric J, substantially as and for the purpose described.

4. The stationary frame A, with arms I, said frame supporting and carrying the cylinder D, in combination with the hinged frame B carrying the cylinder C, and the shaft a with the eccentric J, the shaft and eccentric being capable of separation and withdrawal from the arms for the purpose of allowing the hinged frame B to be raised, substantially as and for the purpose set forth.

178,892. GLOBE-HOLDERS. E. B. Gillman, New York, N. Y. [Filed July 22, 1875.]

Brief.—The holder casts but little shade, and no outwardly-turned flange on the globe is needed.



The globe-holders for gas-fixtures or lamps, made with the clamping-screw and hooks standing outwardly, and with rests upon the surfaces of the arms for the flangeless globe outside such hooks and screw, as specified.

178,893. LAP-OFF MOTIONS FOR LOOMS. Gustavus B. Taft, Whittinsville, assignor to the Whitin Machine-Works, Northbridge, Mass. [Filed Dec. 6, 1875.]

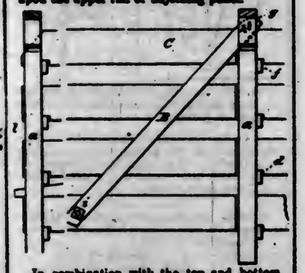
Brief.—Tension of the warp is prevented from turning the worm-wheel and worm by the journal of the worm-shaft, which is longitudinally slitted and made to bind upon the shaft by a clamp and set-screw. The whipper lever, through the intervention of a rod and spring, adjusts a pawl to a ratchet-wheel upon the worm-shaft, and as soon as the crank-shaft then actuates the lever, rod, ratchet, and worm, to let off the requisite amount of yarn.

1. The worm-shaft holder I, provided with a slit and groove, in combination with the arm J, provided with a set-screw, S, projection r, and guide-eye T, whereby the rod f is maintained in position, all being constructed to operate as shown and described.

2. The combination of the whip-bar arm D, rod f, arm I, rod-guide and friction-clamp J, slitted stand I, pawl-lever E, ratchet-wheel O, worm-wheel G, worm H, worm-shaft h, shaft F, with the pinion which gears into the spur-gear on the beam-head, essentially as described.

178,894. PORTABLE FENCE. A. Todd, Constantia, N. Y. [Filed Dec. 10, 1875.]

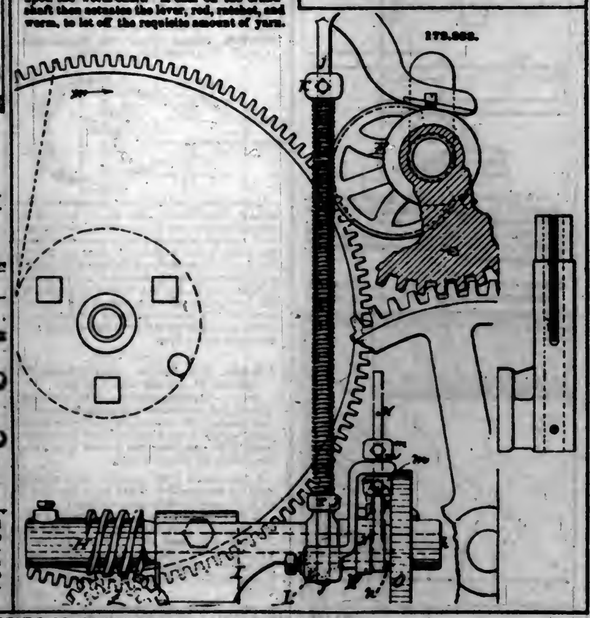
Brief.—A brace, which is pivoted at its lower end to lower rail of one panel, extends upwardly and through the vertical pieces in the frames which support the rails. The upper edges of said brace is eccentric, and is secured over the cap-piece of the frame or support by a pin, the lower edge of said brace binding upon the upper rail of adjoining panel.

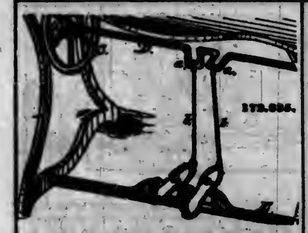


In combination with the top and bottom notched slats or rails C, of adjoining panels, and the frames A, constructed as described, of the diagonal brace B, formed with an eccentric end, g, and connected to the lower slat, which is secured in place, wedge f, substantially as and for the purpose set forth.

178,895. SEWING-MACHINE TREADLES. J. T. Graham, Baltimore, Md., administrator of R. J. Turner, deceased. [Filed Oct. 26, 1875.]

178,896.





178,895.

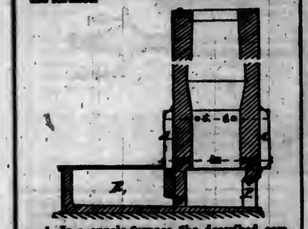
1. A treadle, G, provided with the curved side rests or braces h h, substantially as and for the purposes herein set forth.

2. The combination of a treadle, G, having curved side rests or braces h h, with recesses i on their under sides, and the horizontal tapering pivots m m, substantially as and for the purposes herein set forth.

3. The combination of the shaft D, having cranks a a, the pitmen b b, flanged treadles G G, provided with the side rests h h, and the tapering pivots m m, all constructed substantially as and for the purposes herein set forth.

178,896. CUPOLA-FURNACES. Eugene Valois, Bourges, France, assignor to Pierre Alexandre Victor le Lubez, London, England. [Filed Nov. 12, 1875.]

Brief.—Specific arrangement and relative size of tuyeres, whereby gases are all consumed inside of the furnace. No flame projects at the throat of the furnace. Molten metal cuts back into a rear receiver, and when drawn off flows out over the bottom of the furnace.



1. In a cupola-furnace, the described combination and specific arrangement of tuyeres in two rows of equal number, the sectional area of each of those of the upper row being exactly one-half that of each of those of the lower row, and serving to supply to the gases the requisite quantity of atmospheric air for effecting their thorough combustion within the furnace, as and for the purposes set forth.

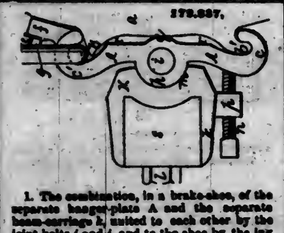
2. In a cupola-furnace, a second (or distinguished from a third, fourth, or other) set or row of tuyeres, having the same number of tuyeres as has the first set or row, and having tuyeres severally of one-half the area of the several tuyeres of the first row, and introducing streams of air in contact with the metal, and serving to create a second mass of flame by consuming and thoroughly burning in the interior of the furnace the gases which have hitherto been consumed at the throat, as herein before described.

3. The combination of the receiver R at the back of the cupola-furnace with the crucible or hearth, whereby the metal in the receiver is in constant communication with that in the crucible, and free, when the furnace is tapped, to pass back through the intensely-heated hearth of the furnace, as and for the purpose herein before described.

178,897. CAR-BRAKE SHOES. W. H. Ward, Alexandria, Va. [Filed June 9, 1876.]



1. The rotary or oscillating valves F, having the exterior slotted steam-passages s and the exhaust-passages r passing through them, in combination with the chambers having the connecting steam-channel h, for admitting steam to the surfaces of the valves and the steam-ports O, substantially as herein described.



178,897.

1. The combination, in a brake-shoe, of the separate hanger-plate A and the separate beam-carriage h, united to each other by the joint-bolts i and j, and to the shoe by the lug projections b b^1 o o' and the bolt c, passing through the shoe and the hanger projection f, all constructed substantially as herein set forth.

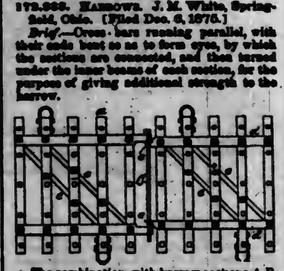
2. The hanger A, provided with the central bearing-lugs h h, in combination with the bolts i and j and the cross-beam carriage h, the carriage-bolt j being secured at right angles to the hanger-bolt, between the said bearing-lugs, substantially as and for the purpose herein set forth.

3. The combination, with the brake-shoe hanger A and the cross-beam carriage h, having a hinged or accommodating connection with each other, of the adjusting-screw n, carried by said carriage for adjustment in relation to the hanger, for the purpose stated.

4. The combination, with the lug projections b b^1 of the shoe, and the horns o o' of the hanger, of the interlocking lugs s s^1 and their recesses t t^1, whereby the shoe is secured against lateral displacement and without side strain on the bolt, as described.

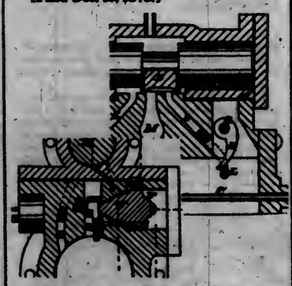
178,898. HARROWS. J. M. White, Springfield, Ohio. [Filed Dec. 6, 1875.]

Brief.—Cross-bars running parallel, with their ends bent so as to form eyes, by which the sections are connected, and then turned under the inner beams of each section, for the purpose of giving additional strength to the latter.



The combination, with harrow-sections A B, having diagonal braces c and braces d, the ends of the latter being bent around and turned under the inner beams of each section to form additional braces with eyes and loops e h, of the connecting-rod C and key f, substantially as and for the purpose set forth.

178,899. DIRECT-ACTING STEAM-ENGINES. William C. Wilson, San Francisco, Cal. [Filed Dec. 10, 1875.]



1. The rotary or oscillating valves F, having the exterior slotted steam-passages s and the exhaust-passages r passing through them, in combination with the chambers having the connecting steam-channel h, for admitting steam to the surfaces of the valves and the steam-ports O, substantially as herein described.

2. The oscillating valves F, having the arms or levers H extending into the cylinder, so as to be operated by the main pistons, and provided with the connecting-rod J, for insuring a simultaneous action, substantially as herein described.

3. In combination with the piston B, moving beyond the ports L in the main cylinder, I claim the valves F, having the steam-passages s opening into the main cylinder, for the purpose of starting the piston B in its stroke, substantially as herein described.

178,900. PUNCHING, CUTTING, AND SEWING MACHINES. Henry Wicker, Lima, Ind. [Filed Mar. 20, 1876.]

Brief.—A series of punches, a shear, and a rod-cutter, arranged on arms projecting horizontally from an upright carrier, through slots in the inclosing-frame, and all operated simultaneously downward by a single eccentric at the lower end of the carrier, the strain being is pull on the carrier instead of a thrust, as is usual.



The combination of the frame A A^1, constructed as described, the series of punches m m^1, &c., the shears s, and the cutters c, all operated simultaneously by power applied at e to a single plunger or sliding bar, E, so as to utilize the tensile strength thereof, for the purpose substantially as described.

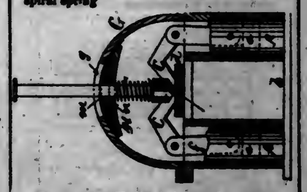
178,901. HAYS-TROUGH HANGERS. Jonathan P. Abbott and William H. Trimble, Cleveland, Ohio. [Filed July 6, 1875.]



The bar B, having the inner end bifurcated by attaching a curved finger, D, and the outer end curved to clasp the bend of a trough, in combination with said trough and the holding-strap F, all constructed substantially as and for the purpose described.

178,902. PUMPS. William D. Baxter, New York, assignor to C. H. Baxter, Williamsburg, N. Y. [Filed Sept. 13, 1875.]

Brief.—The slot in the arched cover, through which the lever works, is packed by a segmental plate fitted to cover it internally, the lever passing through the same, and itself packed by a rubber ring supported by a spiral spring.



The segment H with hole m and packing n, in combination with pump-handle F, double lever C, with socket r, cover G and cylinders A A, substantially as described, and for the purpose set forth.

178,903. WATER-CLOSET VALVES. James H. Boyle, Brooklyn, N. Y., assignor of one-half his right to George Stevenson, New York city. [Filed June 10, 1876.]

Brief.—The pressure on the lower side of the main valve-piston is relieved by a small valve, the stem of which passes through the hollow stem of the large. The pressure on the upper side of the piston upon the main valve.

The combination of the hollow stem F, valve E, piston G, provided with aperture m, and the trip-valve H, substantially as and for the purpose specified.

172,642.



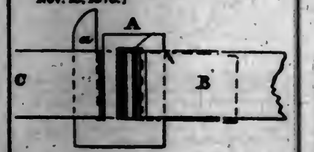
172,642. STOVE-PIPE JOINTS. D. R. Brownlow, Middletown, Conn. [Filed Oct. 11, 1875.]

Brief.—Adapted to prevent leakage of condensed moisture.



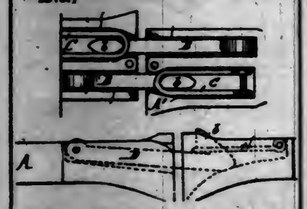
The combination, as a coupling-joint for stove-pipe sections, of the sections A and A', having the circumferential outward curves *a* and inward curves *a*, in the exterior surface thereof, extending, respectively, above and below the line of the surface A, and the circumferential right-angled flanges *d* and *d'*, respectively, with the band B, having the central deep, narrow curve *c*, the short projecting curves *b'*, and wide curves *c'*, extending circumferentially on the interior surface thereof, and the binding-cover C, all constructed and arranged to operate as described.

172,643. SALT-TRAY. Walter F. Burrow and Henry B. Hobson, Norfolk, Va. [Filed Nov. 15, 1875.]



The cotton-bale tie A, provided with an arm, *a*, elongated beyond the main portion of the tie in combination with the band having its ends B and C bent and fastened, as shown and described.

172,644. CAR-COUPLINGS. William Camp, Kirkwood, Mo., assignor of one-half his right to C. W. Spalding. [Filed Mar. 11, 1875.]



The combination of the links C, bolts *b'*, draw-heads B, with rabbion to draw-heads A A, having interior shoulders *a* and lever attachment D, all constructed to operate as herein shown and described, and for the purpose set forth

172,645. REVERSIBLE MILLSTONES AND SPINDLES. Hamilton D. Coleman, New Orleans, La. [Filed Jan. 5, 1876.]

1. A millstone dressed upon both sides, substantially as and for the purpose specified.

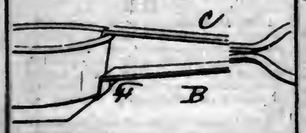
2. A reversible spindle for millstones, substantially as and for the purpose set forth.

3. The combination, with a reversible millstone dressed upon both sides, of a reversible spindle, substantially as and for the purpose described.

172,647.



172,648. PAN-LIFTERS. Geo. W. Conrade, Nicholville, Ohio. [Filed Sept. 9, 1875.]



The within-described pan-lifter, consisting of the spring-handle made in one piece to form the circular head A, arms B C, and lips E and F, the lip E being given such an inclination as will cause it to impinge against the lip F in its downward movement, and thereby to hold a pan rigidly between said lips, substantially as shown and described.

172,649. CONSTRUCTION OF FILTERS. John Frederick Cresse, Ramsey, Great Britain. [Filed Sept. 10, 1875.]

Brief.—The compressing device and air-inlet to the filtered water-chamber are constructed and arranged as shown.

172,649.



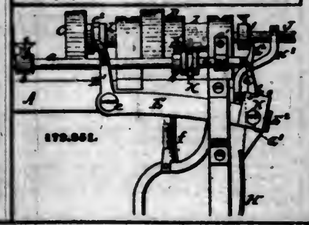
1. The compressing means *e f*, connecting the bottom of the vessel with the top plate A, in combination with the bottom plate *c*, supporting-ledge *b*, and packing *u*, and arranged to serve relatively to the filtering material *g*, vessel *a*, and discharge-passage *n*, as herein specified.

2. The rod *q*, with means for inducing tension thereon, in combination with the two packings *r u*, and with the plates *h c*, filtering material *g*, and vessel *a*, as herein specified.

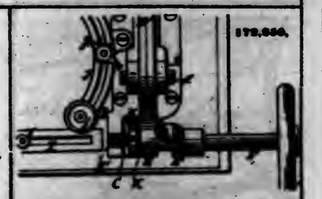
3. The air-passage *o'*, communicating with the chamber for filtered water from a point above the level of the unfiltered water, when formed in one with the body *a* of the filter, as herein specified.

172,650. CONSTRUCTION OF REVOLVING SHEARS. Richard W. Dealy, Richmond, Ind., assignor to himself and A. Simmons, same place. [Filed May 26, 1875.]

Brief.—The knife, fixed upon the end of a shaft, is adjusted laterally by means of a collar on the shaft in the divided head of the knife-bearing lever, which is pivoted, so as to lower the knife upon or raise it from the material. For a straight cut a removable guide is employed.



172,650.



1. The revolving knife K secured to the end of a shaft, F, mounted or journaled in the end of a pivoted lever, D', whereby the knife is adapted to be both laterally adjusted and raised or lowered at will, substantially as and for the purposes described.

2. In combination with the shaft F, carrying the knife K and collar G, the pivoted lever D' and band B B', whereby the knife may be raised and lowered at will, as and for the purposes described.

3. In combination with the band B B', the revolving knife K, shaft F, and collar G, whereby the knife K may be laterally adjusted to any desired degree, as and for the purposes described.

4. In combination with the band B B', carrying the adjustable revolving knife K, the bearing-roller H, constructed around its periphery with different sized and shaped grooves *h h'* and shoulder *h'*, as and for the purposes described.

5. In combination with the curved arm or guide J *j*, the removable adjustable guide I*s*, substantially as and for the purposes described.

6. The improved machine for cutting sheet metal, composed of frame B B', pivoted lever D', revolving knife K, adapted to be laterally adjusted and raised and lowered by means of the lever D', shaft F, and collar G, grooved roller H A, and guides and rests I I' J J' L, all constructed, arranged, and adapted to operate as and for the purposes described.

172,651. DOLT-THREAD-CUTTING MACHINES. Richard W. Dealy, Richmond, Ind., assignor to himself and A. Simmons, same place. [Filed May 26, 1875.]

Brief.—A bent lever is pivoted so as to reach the die-chuck on the one hand, and on the other a trip, on which its weighted end is supported. The trip extends to a spiral rod in the hollow spindle, on which the die-chuck is mounted. The spiral rod removes chips, and, through the trip and weighted lever, releases the die when the screw-cutting shall have reached the desired point. The weighted lever is replaced upon the trip by means of a foot-lever. Two modifications are described.

1. The spirally-formed rod J, mounted in the hollow axle I, as and for the purposes described.

2. In combination with the rod J, the trip or catch G, constructed at the top with lateral arms, and at the bottom with a hook or catch G', substantially as and for the purposes described.

3. In combination with the rod J and catch G, the lever E, constructed at its front end with a curved arm, F, which engages with the disc C, and at the rear with a projecting portion, F', which engages with catch G', substantially as and for the purposes described.

4. In combination with lever E, the foot-lever F and adjustable weight X, for operating the lever E, as and for the purposes described.

5. The combination and arrangement, in a bolt-thread-cutting machine, of rod J, trip G, weighted bent lever E, and treadle F, all constructed, arranged, and adapted to operate as and for the purposes set forth.

172,651.

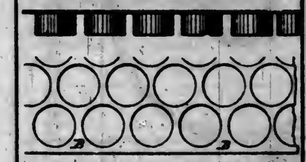
172,652. GATES. Lawrence P. Fraser, Jersey City, N. J. [Filed Oct. 4, 1875.]



1. A gate composed of the lazy-tongs A and the hinged or pivoted post B, whereby, when the lazy-tongs is folded back upon the post, the gate may be swung or turned to form the least obstruction to the passage-way, as described.

2. In a gate, the post B and lazy-tongs A, the latter located between the ends of the former, the said tongs having at its ends the post C, and being pivoted to each by two pins, one working in a slot in the post, whereby the said lazy-tongs may be operated to open and close two passage-ways simultaneously, and whereby the opening or closing of the section of the lazy-tongs on either side of the post B will operate to open or close the other section of the tongs on the other side of said post, as described.

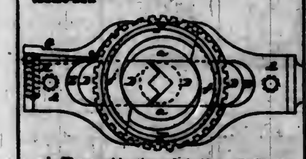
172,653. MANUFACTURE OF METALLIC GARMENT-SHIELDS. William B. Frasier and James Buckland, Hartford, Conn., assignors to themselves and Wm. B. Landsher, Brooklyn, N. Y. [Filed Nov. 4, 1875.]



The improvement herein described in the art of making centrifugal shells, consisting in first striking up in a plate a series of cups, leaving the plate between the caps of its original thickness, then cutting out said cups, and finally drawing them to the form of the finished shell, as and for the purposes set forth.

172,654. WRENCHES. John J. Grout, Hartford, Conn., assignor to the Frost & Whitney Company, same place. [Filed Dec. 16, 1875.]

Brief.—The gripping-jaws slide to and from each other, between guide-plates secured by cams on the face of a wheel, which serves the double purpose of a ratchet-wheel and thumb-nut.



1. The combination of the jaws D D', the ratchet-wheel F, with its cams *f f'*, and the pawl G, when arranged within a box, A, substantially as herein described.

2. The combination of the ratchet-wheel F, having a flange, *b'*, and the plate B, having a groove, *b*, substantially as described.

3. The combination, in a tap-wrench, of the central supports *a a* for the sliding jaws, with a socket or rest, *a'*, in the cover B, for giving them greater strength, substantially as herein described.

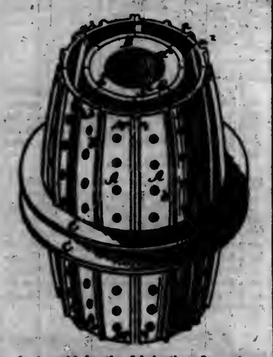
172,655. HAIR-CURLERS. Robt. I. Hoover, Paterson, N. J. [Filed Nov. 11, 1875.]



The combination of the hollow tube A, provided with the T-shaped slot or slot *a b* and the slot *c*, with the elastic band B, constructed to operate substantially in the manner described and specified.

172,656. MOLDS OR FRAMES FOR MAKING PAPER BARRELS. Elbert Hubbard, Medina, N. Y., assignee of one-half his right to Ives Manufacturing Company, same place. [Filed Nov. 23, 1875.]

Brief.—An outer and an inner mold made with removable staves or sections. The pulp placed between the two molds is compressed by movable rings attached to the outer mold, so that when the pulp is sufficiently pressed the rings and molds, by means of the movable staves, may be taken away, leaving the barrel or other vessels.



1. A mold for the fabrication, from straw pulp, of barrels and other similar articles, said mold being composed of an outer and inner set of perforated staves or sections, in the annular space between which sets of staves the barrel is formed under pressure from without exerted in vessels upon the outer staves or sections, in the manner substantially as herein before described, for the purposes set forth.

2. The combination of the perforated inner staves B B, provided with lugs *d*, in the manner substantially as herein before described, for the purposes set forth.

3. The detachable perforated outer staves A A, provided with rabbets *a'* and exterior longitudinal ribs, in the manner substantially as herein before described, for the purposes set forth.

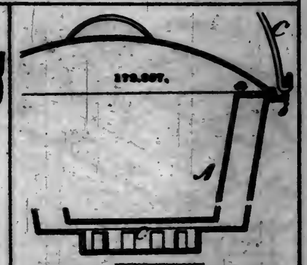
4. The combination, with the outer and inner sets of staves A A B B, constructed substantially in the manner herein before described, of the external rings C C, whereby suitable pressure is applied to said outer staves, and surfaces of the abutment between and around said sets of staves, all for the purposes herein before set forth.

172,657. CULTIVATORS. H. H. Hunsley, Quincy, Ill. [Filed July 31, 1875.]

Brief.—Teeth rising from the contents of the inner vessel pass through the small perforations, and escape through the passages formed by the corrugations.

The corrugated exterior vessel B, provided with the open rabbeted bars C and perforated ledges A, in combination with the interior vessel A, having a flange, *a*, the perforations in which register with those in the flange of the exterior vessel, substantially as described, and for the purposes set forth.

172,657.



172,658. LOCKS FOR DOORS. Elisha T. Jenks and Charles Peace, Middleborough, Mass. [Filed Dec. 16, 1875.]



1. In combination with the bolts D' D' for drawing the doors to their places, and with a center-piece, P, and efficient turning means M, the links I, formed with projections *i*, engaging in the center-piece, and arranged to be parallel and in contact with each other when drawn back, as herein specified.

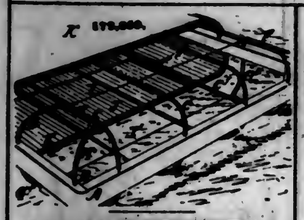
2. The lateral bolt or third bolt D' with its groove *j*, in combination with the projection P, on one of the links I *i*, and with the bolts D' D' and their connections, as herein specified.

3. In combination with a suitable shank and connection, which operates bolts and strikers, having beveled surfaces, adapted to draw the door tightly closed, the ratchet P' and catch *b* for moving the bolts step by step, as herein specified.

4. The securing-lock K *k* operated by a key, in combination with the center-piece P, ratchet P', links I *i*, and bolts D' D', as herein specified.

172,659. SEAM PILLOWS. John A. Knight, Auburn, and Levi Abbott, Lewiston, Me. [Filed Mar. 26, 1875.]

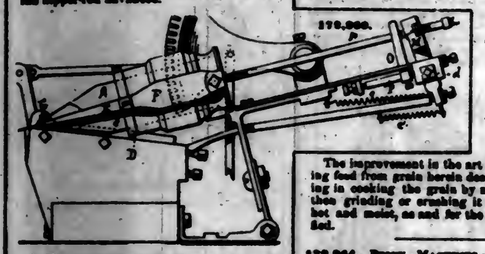
As a new article of manufacture, a seam pillow, consisting of a shell composed of a rectangular frame, of wood or other material, provided with a series of spring or other wires, some of which traverse it wholly from side to side, and end to end, and others partially from the sides toward the longitudinal center, and from the corners diagonally toward the center, said wires being curved at their ends to cause the pillow, when completed to assume the form of an ordinary pillow, the entire frame being covered, substantially as herein before described.



172,860.

172,860.—NAIL-PLATE FEEDER. William T. Leach and Charles E. Dearborn, Providence, R. I. [Filed Sept. 28, 1875.]

Brief.—The movable griping-dog turns upon a pivot placed in the rear of its central line, and is formed with a tenon-like projection, which enters a slot in an L-shaped plate connected with the buffer rod. As the feeder oscillates forward, the buffer-rod, striking the lug-piece, causes the movable dog to swing upon its pivot and press the nipper-rod firmly against the stationary dog, after which, the pressure of the buffer-rod continuing, the pieces holding the dogs are tilted forward and the nipper-rod advanced.



172,860.

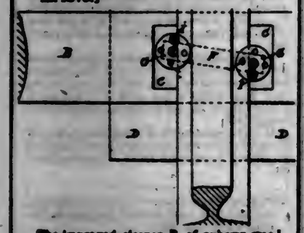
1. The presser-finger E, with its spring F and knob *a*, affixed to a nail-cutting machine, and acting in combination with the grooves *b b*, cut in the collar D or barrel A, to force the nail-plate snugly against the guard G, substantially as and for the purpose specified.

2. The automatic feeding device, herein particularly described, and arranged as shown in Fig. 4, actuated by the rod I and springs *c c'*, substantially as and for the purpose specified.

3. In the feeding mechanism of a nail-cutting machine, a movable dog, *f*, turning on a pivot, *g*, both of its central line, and acting in combination with a stationary dog, *f*, to advance the finger-rod H, substantially as specified.

4. The holding device, substantially as described, in combination with the said feeding mechanism, as and for the purpose specified.

172,861.—RAILWAY-TIES. A. J. J. Lefebvre, Hangest sur Bresle, France. [Filed Aug. 20, 1875.]



The improved sleeper B, of suborn wood, with lugs-plates D, through which pass the bolts E, connected by the tread F, on which rests the rail fixed by the screw-nuts G, substantially as hereinbefore described, and represented in the drawing.

172,862.—CEREALS RENDERED EDIBLE. Isaac Adams, Jr., Boston, Mass. [Filed Jan. 17, 1876.]

Brief.—For preparing the substance for the teeth, pure cakes of cobalt are obtained by first making ammonia cobalt salts, and then precipitating with chlorhydric acid.

1. In the electro-deposition of cobalt, the use of a solution of a simple salt of cobalt, combined with another electrolyte, consisting of a salt of the alkaline or alkaline earths, substantially as described.

2. The use, in the electro-deposition of cobalt, of a solution of a chloride of cobalt and ammonium, or chloride of cobalt and magnesium, or sulphate of cobalt and ammonia, or the sulphate of cobalt and magnesia, substantially as described.

3. The use, in the electro-deposition of cobalt, of a neutral solution, neither acid nor alkaline, substantially as described.

4. The use, in the electro-deposition of cobalt, of solutions of cobalt, in the manner described, so as to be at all times during the operation free from the presence of soda, potash, or nitric acid, or either of them.

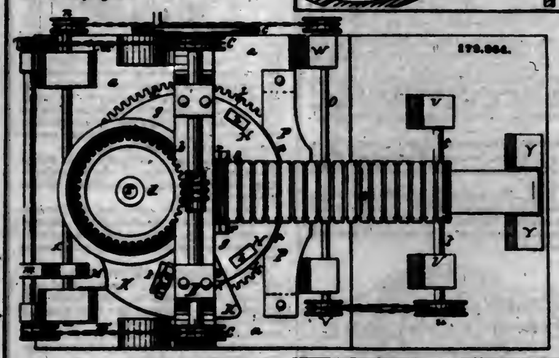
5. The process of making an anode of an salt, which consists in converting the chloride or other salt of cobalt into the tartrate, mixing this with carbon, heating to reduction, and finally casting, substantially as described.

172,863.—PROCESSES FOR MANUFACTURING HORSE-FEED. Henry H. Beach, Rome, N. Y. [Filed July 9, 1875.]

The improvement in the art of manufacturing feed from grain herein described, consisting in cooking the grain by moist heat, and then grinding or crushing it while it is still hot and moist, as and for the purpose specified.

172,864.—BRICK-MACHINES. C. S. Bigler, Harrisburg, Pa. [Filed Jan. 6, 1876.]

Brief.—Clay is forced from the hopper and centrifugally into the recesses within the mold-table, by the revolution of which the brick is compressed, and the surplus clay pinched off by a knife connected to the frame. By means of the ascending ways the brick gradually emerges from the mold-table, and is swept off by the sweep onto the rest-table, and thence on the carrying-belt.



172,864.

1. The presser-posts K, provided with the pinching-knife h, which is made adjustable vertically, laterally, and in respect to its degree of inclination to the face of the mold-table, substantially as specified.

2. An adjustable presser-plate, provided with a pinching-knife.

3. The combination of an endless sweeping-belt with an adjustable roller, serving to tighten the belt and adjust its relation to the mold-table, substantially as set forth.

4. The combination of an endless sweeping-belt, mold-table, and rest-table, as set forth.

5. The rest-table, for the purpose specified.

6. The combination of a movable mold-table with a stationary rest-table.

7. The mold-table provided with the annular recess L, in combination with the rest-table P, provided with the concave recess *p*, substantially as specified.

8. The combination of a sweeping-belt, mold-table, rest-table, and conveying-belt, substantially as described.

9. The combination of the recessed mold-table *p*, worm *l*, shaft X', friction-wheels M *m*, chain-belt *n'*, gears J O, shaft *h*, worm D, and wheel *d*, substantially as expressed.

10. The auxiliary shaft N, provided with the friction-wheels *m*, in combination with worm-shaft X', friction-wheel M, and mold-table *p*, for the purpose specified.

11. An endless sweeping-belt, provided with one or more sweeps, for the purpose of removing the brick from the horizontal mold-table, substantially as set forth.

12. The combination of a mold-table, operating horizontally, with an endless belt provided with sweeps, for the purpose specified.

13. The combination of an endless sweeping-belt, provided with one or more sweeps, with an endless conveying-belt, substantially as set forth.

14. An endless sweeping-belt, provided with one or more sweeps, in combination with an endless conveying belt, the latter moving more rapidly than the former, substantially as described.

172,865.—STENCIL-PLATE. Ludwig Brandon, Brooklyn, N. Y., assignor to himself and Gustie Brandon, same place. [Filed Nov. 24, 1875.]

Brief.—The inlet and outlet orifices have less diameter than the body of the trap, because of the tapering construction given to the legs. This is supposed to prevent the siphoning of the trap under ordinary circumstances.



1. An S-trap, the bend of which is of a uniform diameter, exceeding that of the inlet and outlet, as specified.

2. A trap in which the bend is of uniform diameter, and the branches taper from their junctions with the bend to their ends, as and for the purpose set forth

172,866.—RAKE-RELEASE. Edmund Brown, Burlington, Vt. [Filed Dec. 31, 1875.]

Brief.—The rake is provided with a self-dumper, which is attached to the rake-handle by a bifurcated pivoted shank, and made to clean the teeth of the rake by pressing down on the handle.



172,866.

1. The rake-head A, secured to the bifurcated pivoted shank B, in combination with the stationary cleaner D and spring E, substantially as described, for the purpose specified.

2. In combination with the rake-head A and cleaner D, the pivoted catch F, substantially as described, for the purpose specified.

172,867.—LUMBER-PENCIL HOLDERS. Orestus Cleveland, Jersey City, N. J. [Filed Nov. 24, 1875.]

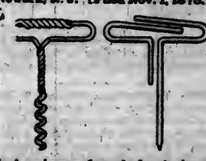
Brief.—The crayon is inserted within an open-ended metal tube, slotted longitudinally on opposite sides. Through these slots passes a screw-bolt. By this device the walls of the tube are clamped upon the end of the crayon, adjustably securing it in any desired position.



1. A holder consisting of a tube slotted longitudinally, and provided with a screw for clamping its opposite walls or sides upon a marking-core, substantially as shown and described.

2. An adjustable holder for securing a marking-core, consisting of a tube slotted longitudinally of opposite points and a clamping bolt and nut, substantially as shown and described.

172,868.—CORN-SHELLERS. William R. Clough, Newark, N. J. [Filed Nov. 1, 1875.]



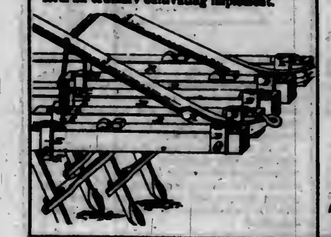
1. A corkscrew formed of a single piece of wire, a portion of the wire being formed into a screw, its upper part formed into a handle, and its free end utilized to strengthen the shank between the handle and screw, substantially as shown and set forth.

2. A corkscrew, formed of two or more pieces of wire, connected to form a screw, A, handle B, and shank C, substantially as described.

3. A corkscrew, formed of two or more pieces of wire twisted together throughout a portion of their length to form the shank of the screw, substantially as described.

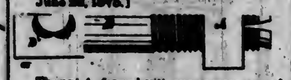
172,869.—CULTIVATORS. Nelson G. Cole, Beaver Dam, Wis. [Filed Aug. 4, 1875.]

Brief.—Devices for coupling together the drag-bars of coulters or wheel-cultivators, to form an ordinary cultivating implement.



In an implement, the loops or clasps B E, the rods D and F, wedges G G, and draft-hooks H H, in combination with the tooth-bars A A, as and for the purposes described and set forth.

172,870.—NUT-LOCKS AND BOLTS. John B. Deeds and Jos. Tools, Urbana, Ill. [Filed June 29, 1875.]



The nut A, formed with one or more curved notches, D, which remove a portion of the thread and face of the nut, so as to receive the split portions of the bolt B when swaged or spread thereon, substantially as described.

172,871.—APPARATUS FOR APPLYING CROTON-OIL. John W. Elliot, Toronto, Canada. [Filed Aug. 17, 1875.]

Brief.—Croton-oil is fed slowly upon needles projecting slightly from the surface of a roller, which is passed over the part of the body to be treated.



In an instrument for the application of croton-oil or other similar counter-irritant, the combination of the case A, with perforated diaphragms *a* and *a'*, of the compound tapering stopper B, collar *a'*, thimble D, circular brush E, and pivoted roller F studded with needle-points G, all arranged and operating substantially as described, and for the purpose specified.

172,872.—COLLARS. Samuel T. Ferguson, Minneapolis, Minn. [Filed Oct. 6, 1875.]

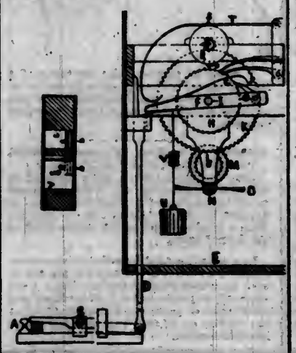
Brief.—Socket for colter-standard with a horizontal slotted arm, capable of both adjustments.



In a custer-colter, the sleeve A, provided with the thumb-screw *l*, and having the slotted horizontal arm B, in combination with the yoke *a*, provided with the screws and nuts *c c'*, substantially as and for the purpose set forth.

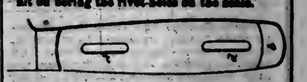
172,873.—TIRE-SHOULS FOR RAILWAYS. Hiram H. Ford, Stanford, Me., assignor of one-half his right to Horace M. Ford, Boston, Mass., and Ivory H. Ford, Great Falls, N. H. [Filed Mar. 10, 1876.]

Brief.—The passing train operates mechanism to turn a signal-wheel, which has sand running from one compartment to another, to indicate approximately the time since the wheel was turned.



172,874.—TABLE-CUTLERY. Jas. D. Percy, New Britain, Conn. [Filed Jan. 17, 1876.]

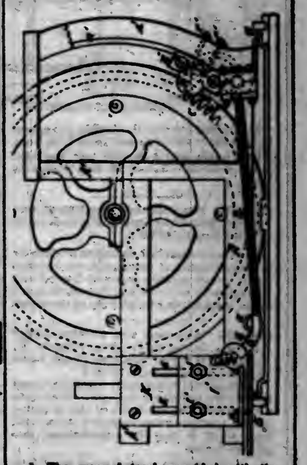
Brief.—The tang, bolster, and tip are all cast in one piece, and the tang has longitudinal slots. The bolster and tip prevent longitudinal play of the scales, and the slot prevents all lateral play as effectually as would a drilled hole, and is easily cast and readily bit on boring the rivet-holes on the scale.



In the manufacture of table cutlery, the cast-metal tang, tip, and bolster, with the longitudinal rivet-slots *d* through the said tang, substantially as described.

172,875.—MACHINES FOR MINING COAL, &c. Jas. Gallicher, Canton, Ohio. [Filed Nov. 19, 1875.]

Brief.—A tooth-wheel on a horizontal hair-gears with a pinion, the shaft of which, by a crank, reciprocates horizontally a saw, the whole in a frame on ways. The feed movement is given by a screw-threaded drum (forming part of the main tooth wheel) gearing with a line of teeth on the floor, and parallel with the ways.



1. The grooved track provided with the worm-threaded rack B', in combination with the worm-wheel C' for feeding the mining-machine forward upon said track, substantially as set forth.

2. In a mining-machine, the combination of the spur-wheel C, the crank-shaft E, pinion F', and adjustable beam B', substantially as set forth.

3. In a mining-machine, the box F', provided with a series of bearings, *c*, for adjusting the height of the shaft M, substantially as set forth.

4. In a mixing-machine, the combination of the grooved cutter-bar carrier I, the slotted cutter-bar H, and pins c c, substantially as set forth.

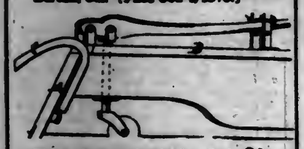
5. In a mixing-machine, the flanged carrier-plate F, cutter-bar carrier I, slotted plate K, and bolts f f, substantially as set forth.

6. In combination with the vertically-adjustable cutter-bar H the adjustable pitman O, substantially as set forth.

7. In combination with the frame, having a plate, K, upon each side, the reversible cutter-bar H, crank P, and pitman O, substantially as set forth.

8. The combined master and worm wheel C C', made in separate parts and united by means of screws s, or their equivalents, in such manner as to be carried by the same shaft, substantially as set forth.

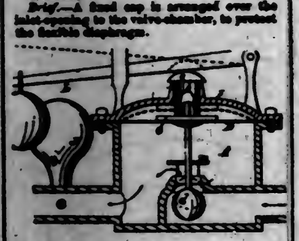
172,876. HEAD-SCRAPER. Rabt. A. Hew, Berwin, Cal. [Filed Oct. 4, 1875.]



The rear-scraper herein described, consisting of the straight transverse face-board A, having its lower edge curved and shod with metal, the platform and drag-frame, and the center wheels and adjusting and locking levers, combined and operating substantially as and for the purposes set forth.

172,877. WATER-PRESSURE REGULATOR. Edward Hayes, Rochester, N. Y., assignor of two-thirds his right to B. H. Shattuck and Samuel Sloan, same place. [Filed May 3, 1875.]

Brief.—A final cap is arranged over the inlet-opening to the valve-chamber, to protect the flexible diaphragm.



In combination with the flexible diaphragm D, follower c, and weighted lever L, the cap a fixed to the case A directly over the inlet-port, substantially as and for the purposes set forth.

172,878. COMPOSITIONS FOR PRESERVING MEAT. Alexander Barzan, Florence, Italy. [Filed Jan. 16, 1876.]

The herein-described antiseptic mixture for the preservation of uncooked meat, consisting of crude borates and borax, with common salt and saltpeter, in solution, and in the proportions substantially as described.

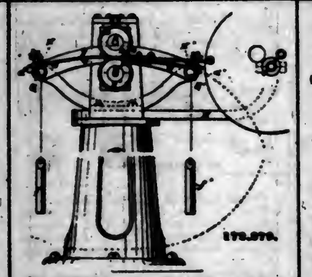
172,879. MACHINES FOR CUTTING SHEET METAL. James M. Jay, New York, N. Y., assignor to himself and Chas. Lemby, same place. [Filed Dec. 8th, 1875.]

Brief.—Metal cylinders or pipes are placed over hollow horizontal supports, and cut into a continuous strip or ribbon by two revolving cutters, and then wound or rested onto spools, from which it may be manufactured into *finished* pieces.

1. A machine for cutting sheet metal into strips, wherein are combined the cutters E E', the rods G G', and the pressure-guides H H', one or more, constructed to operate as and for the purpose described.

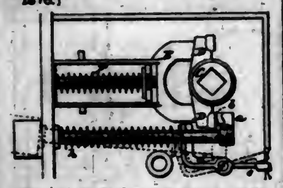
2. The combination, in a machine for cutting sheet metal into strips, of the spool D and the hinged guides *j*, as and for the purpose specified.

3. The combination, in a machine for cutting sheet metal into strips, of the pressure-guides H H' and the spool D, as and for the purpose specified.



172,879.

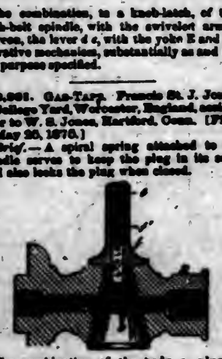
172,880. REVERSIBLE KNOB-LATCHES. C. S. Jennings, New Haven, assignor to Thos. Kennedy, Branford, Conn. [Filed Jan. 4, 1876.]



The combination, in a knob-latch, of the latch-bolt spindle, with the swivelled arm a thereon, the lever d e, with the yoke E and its operative mechanism, substantially as and for the purpose specified.

172,881. GAS-TAPS. Francis St. J. Jones, College Yard, Worcester, England, assignor to W. S. Jones, Hartford, Conn. [Filed May 25, 1875.]

Brief.—A spiral spring attached to the handle serves to keep the plug in its seat, and also locks the plug when closed.



The combination of the body a, plug b, spring c, and handle f, bearing lugs i, fitting in corresponding recesses in the body a, all acting substantially as shown and described.

172,882. TENTS. Francis A. Leavitt, Portland, Me. [Filed May 17, 1875.]

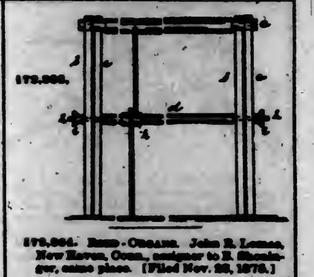


A frame or supporter for the eaves of a tent composed of two pieces adapted to receive slide motions, and combined with a pole and tent, substantially as and for the purpose specified.

172,883. GAME-REELS. Francis A. Leavitt, Portland, Me. [Filed July 10, 1875.]

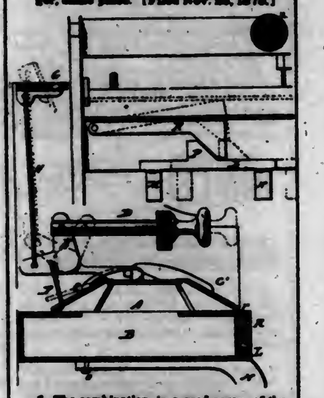
Brief.—A central brass, screw-threaded at each end and provided with a nut, is secured to the legs at the point where they cross. A support for the centering-bars is mounted upon a thimble placed at the middle point of the central brass.

In a bed of the kind described, the combination of the bottom a, the legs b c, the rod d, with its screws l and nuts (, the rods e f, the support *j*, and the support i, all arranged and constructed to operate in the setting up and the folding up of said bed, substantially as herein described.



172,884.

172,884. REED-ORGANS. John R. Lorman, New Haven, Conn., assignor to R. Shoninger, same place. [Filed Nov. 22, 1875.]

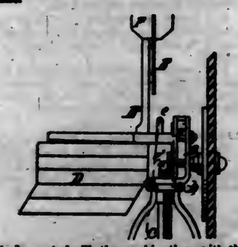


1. The combination, in a reed-organ, of the door of the swell-box, the hand-stop D, lever B, and the hinged or pivoted panel or part of the case G, substantially as and for the purpose described.

2. The combination, in a reed-organ, of the knee-stops M N, cam P connecting said stops with the lever B, and door of the swell-box, substantially as and for the purpose described.

172,885. WINDMILLS. William F. Mann, Columbus, Ohio. [Filed Dec. 21, 1875.]

Brief.—One of the bearings is sliced, and the support of the wheel is also made the support of the vane, making an equipoise of the parts, which allows of the easiest and necessary weight of both the wheel and tail, without the strain and friction incident upon their being placed at opposite extremities of different cranks in a continuous horizontal plane.



1. In a windmill, the combination, with the supporting-frame B, secured to a loose sleeve, of the independently-journaled axles B and D' of the wheel and vane, and the crank c, located over the bearing, and immediately beneath the arm of vane D, substantially as and for the purpose specified.

2. In combination with the tail-vane D of a windmill, the regulator or governor E and regulator or resistance F, the regulator F secured at the top of regulator E, and at right angles thereto, and the two upon the tail-vane above the wind-wheel, as and for the purposes described.

172,886. HEEL-TRIMMING MACHINERY FOR BOOTS AND SHOES. Alexander McDowell, Lawrence, Mass. [Filed Dec. 27, 1875.]



1. In heel-trimming machinery, the combination, with the trimming-knife, of a gage or guard, which supports the upper end of the knife, and is arranged to automatically adapt itself to the varying width of the heel, substantially as and for the purposes set forth.

2. In heel-trimming machinery, the combination, with a pivoted trimming-knife, of a gage or guard, which supports the free end of the knife, and is arranged to automatically adapt itself to the varying width of the heel, and to adapt the knife to the varying slope thereof, substantially as set forth.

3. The pivoted knife I and stock or support E, in combination with the adjustable carrier K, movable on said stock, and embracing the upper end of the knife, substantially as and for the purposes set forth.

4. In combination with the carriage B and the pivoted shocks F, the stock E, pivoted to said shocks, and the spring H between the stock and the carriage, for operation substantially as set forth.

5. The combination, with the base-plate A, of the knife-carriage B, spring b, and adjusting-screw D, substantially as set forth.

6. The combination of the stock E, carrier K, and set-screw *f*, whereby interchangeable knives of various forms may be employed, substantially as and for purposes stated.

7. The combination, with the stock E and carrier K, of a series of interchangeable gauges, substantially as and for purposes stated.

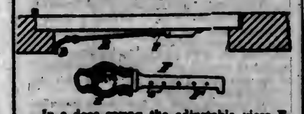
8. In heel-trimming machinery, a guard or depth-gage, adapted to serve as a guard or gage, and as a clamp-plate to hold the trimming-knife, in combination with a support for the lower end of the knife, substantially as and for purposes stated.

9. In combination with the guard O, carrier K, and stock E, the bar F, attached to the carrier by a pin and-slot connection, *d'*, and having its head survived to said carrier by the forked stud *n*, substantially as and for the purposes set forth.

10. The combination of the stock E, carriage B, and base-plate A, substantially as herein described, whereby a vertical and horizontal play or adjustability of the knife with respect to the heel-plate is obtained, essentially as and for purposes stated.

172,887. ADJUSTABLE ATTACHMENTS FOR DOOR-SPRINGS. Charles H. Miller, Indianapolis, Ind. [Filed Jan. 3, 1876.]

Brief.—The novelty consisting in a ready means of adjusting the tension of the ordinary rubber-tube door-spring.

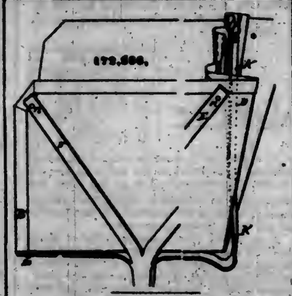


In a door-spring, the adjustable piece F, constructed with the extension F' at one end, which extension is perforated with a series of holes, H', and also provided with a bolt or conical plug, E, at the other end, in combination with the case G, arranged with open-legs P at the ends, to receive the extension F', and provided with a pin-hole, H, to receive the pin H' and hold the adjustable piece F, in the manner and for the purposes specified and set forth.

172,888. ROOF. David Nolan, Chicago, Ill. [Filed July 20, 1875.]

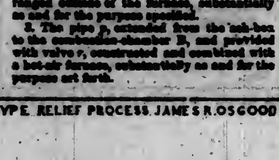
1. A bed formed by crimping the metal at its rear or closed end, as and for the purpose set forth.

2. A bed made of a single sheet of metal, combined with a rear brace and shoulder-support, J K, as and for the purposes specified.



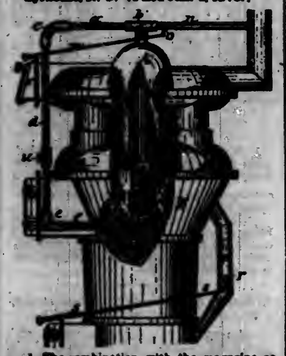
172,889.

172,889. CORD-GUIDES FOR CURTAIN-ROLLERS. T. Noonan, Boston, Mass. [Filed Feb. 3, 1876.]



The threaded rod E, adjustable longitudinally of the curtain-roller, and having the open loop B', adapted to receive and guide the cord of a curtain, in combination with the bracket D, having the extension D', in which is a threaded orifice adapted to receive the threaded end of the rod E, substantially as and for the purposes specified.

172,890. HOT-AIR FURNACES. J. F. Penn, Syracuse, N. Y. [Filed Jan. 4, 1876.]



1. The combination, with the magazine or coal-reservoir A and combustion-chamber B, the herein-described apparatus combining of the elbow or T joint b of a pipe attached with or without a vertical extension to the top of the magazine A, the horizontal pipe c, elbow-joint e, vertical pipe *d*, elbow-joint e, and horizontal pipe *f*, intervening the combustion-chamber B at or near the bottom thereof, constructed and arranged substantially in the manner described and shown, for the purpose specified.

2. The combination of the gas-escape pipe a, having valve c, operated by rod m, which has at its outer end a notched bottom edge engaging the top of the feed-door frame o, the joint b, horizontal pipe c, elbow-joint e, vertical pipe *d*, provided with valve n, elbow-joint e, and horizontal pipe *f*, in combination with the combustion-chamber B, magazine A, and the exit smoke-flue, constructed and arranged outside of the furnace, substantially as and for the purpose specified.

3. The pipe *p*, extended from the ash-box to the combustion-chamber B, and provided with valve r, constructed and combined with a hot-air furnace, substantially as and for the purpose set forth.

172,891. CLOTHES STICKS AND TONGS. S. Poole, Brooklyn, N. Y., assignor to E. F. Gardiner, Boston, Mass., and R. W. Poole, Brooklyn, N. Y. [Filed Jan. 5, 1876.]

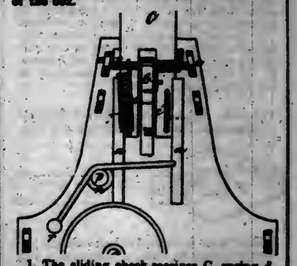
Brief.—The instrument is for turning and lifting clothes from a boiler to a tub.



As an article of manufacture, a laundry-hook consisting of the arms C, attached to the shank B, and the handle A, all constructed and arranged substantially as and for the purpose set forth.

172,892. RESTAURANT CHECK-BOXES. A. M. Putnam, Peterborough, N. H. [Filed July 16, 1875.]

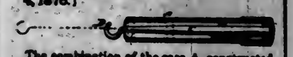
Brief.—The slotted check is inserted in the sliding receiver, which is then depressed its full length. A retraction-spring returns it to its original position, while a spring-pawl engages the slot of the check, and retains it in position to be inspected. The insertion of the subsequent check forces it into the locked till of the box.



1. The sliding check-receiver C, spring *d*, pawl G, and alarm mechanism, in combination with the box A, having a drawer or receptacle, D, and opening k, substantially as and for the purpose described.

2. I also claim the sliding check-receiver C, for the reception of the notched or slotted checks B, in combination with the pawl G and flat spring k, for holding them in a position exposed to view, substantially as described, for the purpose set forth.

172,893. SOCK AND GLOVE BOTTOMERS. J. A. Smith, Deep River, Conn. [Filed Jan. 4, 1876.]



The combination of the cone A, constructed with a longitudinal guide, the hook-spindle C, provided with the head to work within the cylinder and in the said guide, and a spring-latch to hold the said hook when drawn out, substantially as described.

172,894. ORNAMENTING METAL SURFACES. Legrand B. Smith, New York, N. Y. [Filed Oct. 16, 1875.]

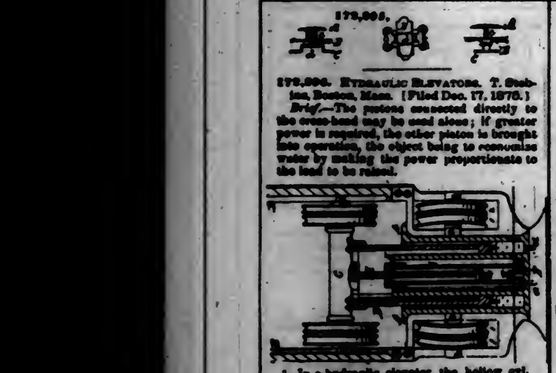
1. The method or process herein described of ornamental sheet-metal plates, consisting in first roughening the face of the plate, and then printing directly upon it in the usual manner of printing upon paper, as and for the purposes described.

2. As a new article of manufacture, a sheet-metal plate with roughened surface, having any suitable design of one or more colors imprinted directly upon its roughened surface, substantially as shown and described.

172,895. CUFF-BUTTON. G. F. Sparrow, Worcester, Mass., assignor to himself and S. Houghton, same place. [Filed Nov. 8, 1875.]

The improved cuff fastening, consisting in the combination of the staple-shaped catch C, perforated for attachment, as set forth, with the stud A, having the rear-end spring-catch B, substantially as and for the purpose specified.

172,895.



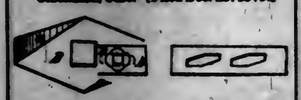
172,896. HYDRAULIC ELEVATORS. T. Stebbins, Boston, Mass. [Filed Dec. 17, 1875.]

Brief.—The pistons connected directly to the cross-head may be used alone; if greater power is required, the other piston is brought into operation, the object being to economize water by making the power proportionate to the load to be raised.

1. In a hydraulic elevator, the hollow cylinders A and E, in combination with the hollow pistons D and cross-head C, substantially as and for the purposes described.

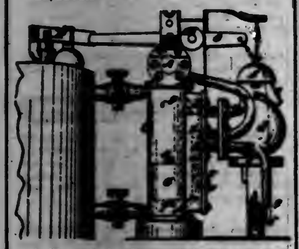
2. In a hydraulic elevator, the hollow cylinders A and E and hollow piston D, in combination with the piston F, hollow rod f, pistons G, rod I, and cross-head C, substantially as and for the purposes set forth.

172,897. BALE-TIES. Robert S. Stanton, Cincinnati, Ohio. [Filed Dec. 29, 1875.]



The buttes B, tapered at both ends and undercut at opposite sides, in combination with the band, having corresponding slots with the buttes, substantially as and for the purposes described.

172,898. APPARATUS FOR PREVENTING EXPLOSIONS OF STEAM-BOILERS. Carl W. Reichardt, Virginia City, Nev. [Filed Feb. 28, 1876.]



1. The cylinder C, provided with the float G, the adjustable pieces H and I, and the pipes E and F, in combination with the cylinders A and B, and pipes a, c, and e, all arranged and operating in the manner and for the purposes set forth.

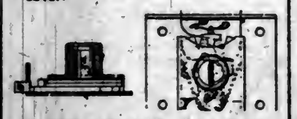
2. I claim the cylinder A, having the piston f and pipes a and e, in combination with the valves g and h, the whole being arranged and operating substantially as described.

3. The pipe c, having the opening i, to operate the alarm or bell r by means of the alarm-wheel p, the crank r, and the connecting-wire t, in combination with the valve s, plate J, and float G, when constructed and operated substantially as and for the purposes set forth.

4. The cylinder B, piston N, jointed leg A, and sliding table c, when combined and operated substantially as and for the purposes set forth.

5. A counter-weight, d, in combination with the lifting table c, when operated by the means substantially as and for the purposes set forth.

172,899. LOCKS FOR DRAWERS, &c. W. H. Taylor, Stamford, Conn. [Filed Dec. 9, 1875.]



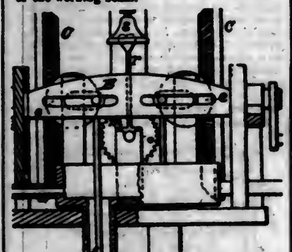
1. A lock constructed for a flat or plate key, the said lock having at one end of its key-way a rotary guiding-disk, and at the other end thereof a fixed bearing or center, both on the same axial line, when constructed substantially as and for the purposes specified.

2. In a lock constructed for a flat or plate key, the combination of a rotary guiding-disk at one end of the key-way of the said lock, a stationary bearing at the other end, and interposed between the said guiding-disk and said bearing a fixed longitudinal key-guide, when constructed as and for the purposes specified.

3. In a lock constructed for a flat or plate key, a vibrating talon, its inner curved edge being the talon for the key-bits, and its outer or free end fitted into and occupying the bolt-notches, when constructed substantially as and for the purposes specified.

172,900. BILGE-PUMPS. W. W. Turn Bull, Edgecomb, Me. [Filed Dec. 8, 1875.]

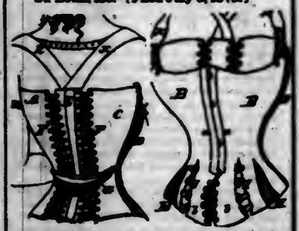
Brief.—The working-beam, to which the plungers are directly attached, is slotted at each end, and in each slot works a crank, receiving motion from one of the bevel cog-wheels, and causing the vertical reciprocation of the working-beam.



1. In a bilge-pump, the slotted working-beam B, operated by means of the balance-wheels C C, and the bevoled cog-wheels c c, constructed and arranged substantially as herein shown and described.

2. The combination and arrangement of the balance-wheels C C, the bevoled cog-wheels c c, with the working-beam B, all constructed, arranged, and operated substantially as herein shown and described.

172,901. CORSETS. M. J. C. Vanorsdrand, St. Louis, Mo. [Filed July 6, 1875.]

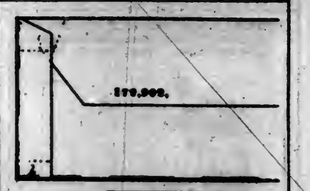


In a corset, the combination of the front B B, extensions b b, busk C, elastic connections D D, elastic lacings F F, and steel E, substantially as and for the purposes specified.

172,902. REVOLVERS. J. S. Wentworth, Brooklyn, N. Y. [Filed Sept. 28, 1875.]

As a new article of manufacture, an envelope, as described, with strengthening-pieces f, substantially as and for the purpose set forth.

172,903.



172,903. ELASTIC PUTTIAN OR CONNECTING ROD. Robert Adams, East Enterprise, Ind. [Filed Mar. 13, 1875.]

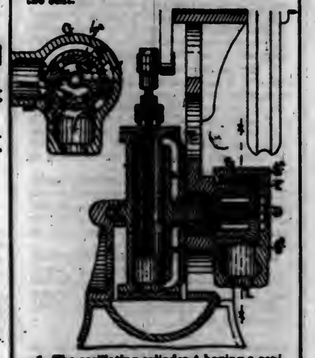
Brief.—An air-chamber is provided, in which the air is compressed by the action of the rod, and aids the rubber in sustaining the concussion.



The cylindrical shell or case A, having, in addition to the usual chamber, a smaller chamber, G, in combination with the rods C and F, disk D, rubber springs E E', and cap B, when arranged in such a manner that the end of the rod C enters the chamber G in the manner and for the purpose specified.

172,904. MOTORS. Edmund Anthony, Albany, N. Y. [Filed Nov. 6, 1875.]

Brief.—Trunnions and valves constructed to compensate for wear. To ensure free discharge, the edmotion-openings in the valve partially uncover both edmotion-openings in the cast.



1. The oscillating cylinder A having a conical trunnion, B, in combination with a conical valve, C, when constructed and arranged to operate in conical bearings in the master and for the purpose herein specified.

2. The combination of the conical trunnion B with a conical valve, C, having a greater diameter than the trunnion, as and for the purpose herein set forth.

3. The valve C, having its opening d' arranged in relation to the edmotion-openings f of the valve-seat F in the manner and for the purpose herein described.

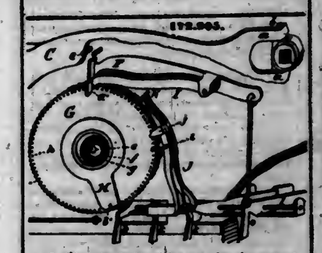
4. The combination of the conical trunnion B, having a division-piece, b, with the conical valve C having a division-piece, d', when arranged, as herein shown and described, for forming the continuous passages communicating with the ports a a' of the cylinder A, for the purposes herein specified.

5. The combination of the oscillating cylinder A, having a conical trunnion, B, and conical valve C, with the stationary valve-seat F and valve-chest G, when constructed and arranged to operate as and for the purposes specified.

172,905. COMBINATION-LOCKS. William H. Rockhill, Canton, Ohio. [Filed Jan. 10, 1876.]

Brief.—A series of notched wheels or tumblers are retained for adjustment by means of pawls and rachets connected to levers which are operated by hand.

172,905.



1. The wheels G, with teeth d and notch d', in combination with the dog F, pawls I, and ratchets J, substantially as and for the purpose set forth.

2. In combination with the wheels G, formed with holes h, the cams H, with pins b' and springs g, and the stops or plates i, substantially as and for the purpose specified.

3. The ratchet J, with cam j, and the pin b', in combination with the wheel G and the cam H, substantially as and for the purpose specified.

4. In combination with a bolt, C, formed with pins c, and the spring-rod E, the dog F, pawls I, and ratchet-wheels G, constructed to operate substantially as and for the purpose set forth.

5. In combination with wheels G, cams H, and the springs g, the dog F, having pivoted thereto pawls I, and the ratchets J, the dog and ratchets being pivoted to levers c b upon the rod i, and operating substantially in the manner specified.

172,906. TONGS FOR COAL, &c. L. J. Baldwin, Weston, Ohio. [Filed Aug. 4, 1876.]



The combination of the hooks C and the holes D, uniting the handles A and B, substantially as and for the purposes hereinbefore set forth.

172,907. BALLASTING VESSELS. J. A. Maxwell, Toledo, Ohio. [Filed Nov. 11, 1875.]



A ballast composed of mercury, and placed in compartments, as described, for the uses and purposes set forth.

172,908. PREPARING FOR WATERPROOFING LEATHER. Matthew Bird, London, Great Britain. [Filed Dec. 9, 1874.]

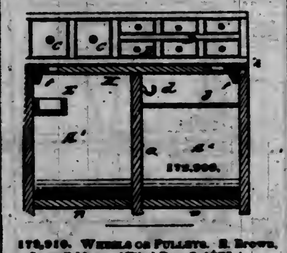
The treatment of leather, as described, by first immersing it in a solution of chloride of calcium and bicarbonate of soda or potash, then an application of paraffine, or paraffine and coal-tar, all substantially as and for the purpose stated.

172,909. KITCHEN-SAFES. Geo. W. Ballenbacher, Bloomington, Ind. [Filed July 17, 1875.]

The improved kitchen-safe A, having a central partition, a, dividing it into bins A' and A², sliding shelf H, and hinged top B, said shelf H being provided with bolts h, and adapted to be drawn forward and locked in place to form a continuous surface with the unfolded top E, or pendent leaf to cover the bins in connection with said top when folded, substantially as set forth.

172,910. WHEELS OR PULLEYS. S. Brown, Lowell, Mass. [Filed Dec. 9, 1875.]

Brief.—Process, mold, and a wheel made of molded plastic material, with periphery of three different diameters, fluted with iron bands. One portion of the periphery has material added or abstracted.



1. The rim-forming mold constructed, as described, with a bottom plate, A, having a centering-stop, B, a segmental rim, I, a clamping-hoop, d, having cams c, and a clamping-screw f, and the flanges H of the center plate F, all arranged as described, for molding the wheel-rim S of plastic cement material.

2. A weighted or rim-loaded wheel constructed, as described, with a central shaft-supporting hub, D, with arms I, or a plate or web, K, an outer flange, H, a rim, S, of cement made of plastic material, hardened or dried, with handle or hoops h h' connected to the peripheries of the cement rims, and an additionally-weighted side or counter-balance, f, molded into the cement rim, all substantially as described.

3. A weighted or rim-loaded wheel constructed as described, the rim of plastic material hardened or dried, and with its counter-balance formed by a cavity, N, in the rim; substantially as described.

4. A weighted or rim-loaded wheel constructed, as described, with a central shaft-supporting hub, D, a plate with a flange periphery, H, a rim, S, composed of cement made of plastic material, hardened or dried, and with an additionally-weighted side or counter-balance molded into the cement rim, all substantially as described.

5. A weighted or rim-loaded wheel constructed, as described, with a central shaft-supporting hub, D, a connected plate, K, or arms I, with a flange, H, and a rim, S, composed of cement made of plastic material, hardened or dried, all substantially as and for the purpose described.

6. A weighted or rim-loaded wheel constructed, as described, with a central shaft-supporting hub, D, and a connected plate, K, with a flanged periphery, H, and a rim, S, composed of cement made of plastic material, hardened or dried, and with hoops e h h' on the peripheries of the cement rim, all substantially as and for the purpose described.

7. The process herein specified of constructing a rim-loaded wheel made as hereinbefore described, by molding said rim S of cement, in a plastic state, in a mold upon a bed-plate, and between the inner periphery of the exterior mold, or hoops thereto, and the outer periphery of a flange on a central supporting-plate, and uniting or connecting the plastic rim with the flange of the plate, or with this and hoops at the periphery of the cement rim, all substantially as and for the purpose described.

172,911. BOOT AND SHOE NAILING MACHINERY. Wm. G. Burdett, Providence, R. I., assignor of one-half his right to G. S. Dow, same place. [Filed Nov. 13, 1875.]

1. The combination, with the eccentric C, duplex slotted cam-circle b, and carrier h, of the arm d, carrying an actuating-pawl, and the locking-arm g, substantially as and for the purpose described.

2. The combination, with a carrier, of an actuating-arm, d e, and a locking-arm, g, substantially as and for the purpose specified.

3. The combination, with the driver, of a crescent-shaped cam, V, the latter being secured or formed on the disk F, secured to the end of the driving-shaft, for raising the driver, and the atmospheric retarder, the piston of which is secured to the end of the driver, and serves to control the descent of the same, substantially as and for the purpose set forth.

4. In combination with the rod p', the segmental gear q and gear r, for operating the feed-rolls, substantially as described.

5. The combination, with a rotary carrier, of a reciprocating cutter, m, constructed to point one end square the other end of the nail, substantially as and for the purpose specified.

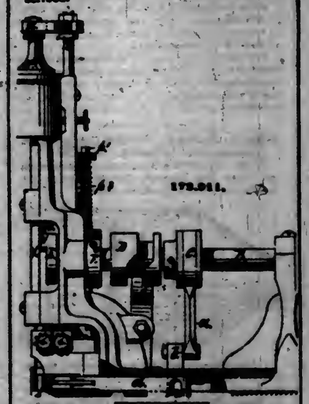
6. The combination, with the driver, of an atmospheric retarder, the piston of which is secured directly to the driver, to regulate its descent, and the adjustable bracket, against which the driver-spring is formed, substantially as and for the purpose set forth.

7. The combination of the guard b' with the carrier and driver, substantially as and for the purpose set forth.

8. The combination, with a rotary carrier, of corrugating-rolls for corrugating and feeding the wire, and the means, substantially as set forth, whereby an intermittent movement is imparted to the rolls, substantially as and for the purpose specified.

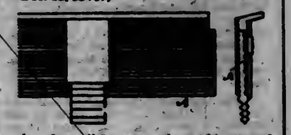
9. In a pegging-machine, the combination of the following elements: corrugating-rolls, for feeding and corrugating the wire; a cutter for giving the desired shape to the fastening device; a rotary carrier, to transport the fastenings to the desired point; a locking device, to secure the carrier while the nail is formed home, and a driver, regulated by an atmospheric retarder, for forcing the nail into the sole of the boot or shoe, substantially as and for the purpose specified.

10. The combination, with the driver and a cutting device, substantially as described, of the carrier, arranged to form part of the die for cutting the peg, nail, or fastening, and also carry the same to the proper place to be driven by the driver, substantially as described.



172,911.

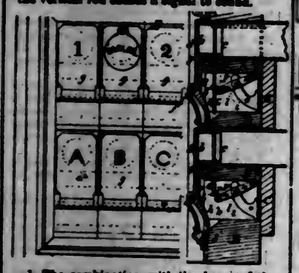
172,912. PERI-BASIC WALLS FOR STOVES. James C. Burdin, Waveland, Ind. [Filed Dec. 13, 1875.]



In a fire-wall for stoves, the combination of the side pieces, A A and center piece C, the latter having vertical grooves to receive the inner edges of the former, constructed to be united together substantially as described, and each piece provided with breaking grooves, arranged as described, to admit of the breaking-off of any part that may be required in order to make the several pieces, when united, fit into stoves of various depths, substantially as set forth.

179,913. SPEAKING-TUBE ANNUNCIATORS. Jas. R. Creighton, Boston, Mass. [Filed Dec. 17, 1875.]

Brief.—The operator, by blowing into the tube, throws the plate of that tube out, and as it turns on its pivot its lower extension bears against the under side of one of the rocking frames, and causes it to oscillate and move the vertical rod, with which all the rocking frames are combined. The movement of the vertical rod causes a signal to sound.



1. The combination, with the drops, of the rocking frame, actuated by the fall of any one of the drops to put in operation the signal, substantially as set forth.

2. The drops and the rocking frame, in combination with a signal-operating mechanism actuated by the movement of said frame, substantially as set forth.

3. The rails B, in combination with the tablet-plates *a* and the speaking-tubes, substantially as set forth.

4. The combination of the rails, the speaking-tubes, the series of plates forming the front or tablets, and the drops, substantially as set forth.

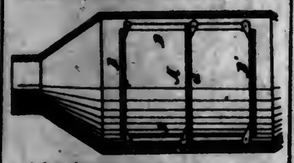
5. The combination of the rails, the tablet-plates, the rocking signal-operating frame, and the drops, substantially as set forth.

6. In combination with the rails B, the bars U, to stiffen such rails, and constitute a bank to support the rocking frame F, substantially as and for purposes stated.

7. The rocking frame F, as composed of the parallel rods *b f* a and bars *c*, each frame being supported by the brackets *e*, and operating in connection with the drops *g* and rod G, essentially as and for purposes stated.

179,914. DAMPERS. William Ostwyn Brown, Lafayette, Ind. [Filed Jan. 14, 1876.]

Brief.—Products of combustion pass around the lower disk through the opening in the central one, and around the upper.



A heat-damper consisting of central large disk or plate A, with opening *a*, and upper and lower smaller unbroken disks or plates B B', the whole series united by flexible joints, and arranged substantially as described, to bring all the disks into nearly the same plane by turning either disk, substantially as set forth, and for the purposes described.

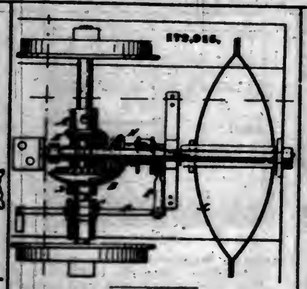
179,915. GAS-STARTERS. A. M. Crosier, Corfyis, Ill. [Filed Nov. 10, 1875.]

Brief.—Sliding-clutches and gears so arranged as to keep the apparatus always in gear.

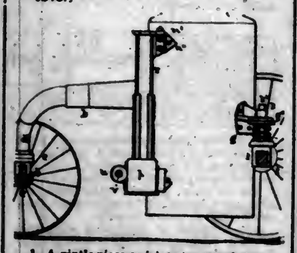
1. The combination, with spring L and axle-pinion A, of shaft G, having drum K and wheels E I, and sliding clutch-sleeve D having wheel B, the sleeve and shaft being connected together so as to be simultaneously moved by the same rock-shaft in the manner described.

2. The combination, with wheels A B E I, of sleeves U D, moving together in the same direction, for the purposes set forth.

3. The lever O, attached to sleeve C and connected by parts J P with the sliding shaft G, as and for the purposes specified.



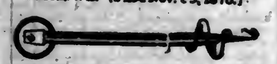
179,916. PORTABLE STEAM-ENGINES. H. M. Durphy, Ithaca, N. Y. [Filed Oct. 21, 1875.]



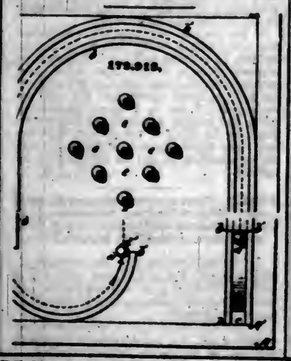
1. A pintle-piece or joint structure between the frame *b* and the axle *c* of a portable steam-engine, consisting of the pintle *d*, chambered in the lower end of the frame *b*, and held in place by a bolt or key through the top of the said pintle, which key turns on a shoulder in the said chamber, and of a slot in the lower end of the said pintle-piece, which slotted part embraces the front and rear sides of the axle *c*, and is held to the axle by a bolt through the axle and the slotted ends of the pintle-piece, as set forth.

2. I claim the lifting-screw 3, made as part of the bracket *g*, in combination with the spring *h* and spring-pintle I, whereby the weight of the boiler and engine is lifted off of the transporting-springs h when the engine is at work, as set forth.

179,917. PICKET-STAKES. W. A. Dorris, Wilson, Wis. [Filed Nov. 13, 1875.]



A stake-rod for picketing horses or other animals, pointed at its lower end, and provided with a screw-flange commencing near the pointed end, increasing in width to the middle of its length, then decreasing in width until lost in the rod, substantially as described.



179,918. GAME-BOARDS. John Bloemhorter, Indianapolis, Ind., assignor of one-half his right to Chas. Washstetter, same place. [Filed Dec. 2, 1875.]

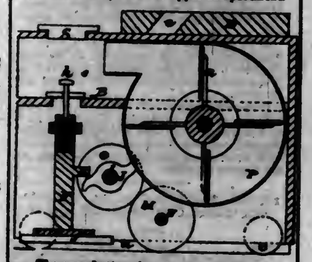
1. A table constructed with the frame-work A A A' A', and the curved passage-way *b b b' b'*, arranged as and for the purpose specified, so as to permit the passage of the ball.

2. The frame-work A A A' A', in combination with the platform or floor F F, and the curved passage-way *b b b' b'*, constructed and arranged substantially as and for the purpose specified.

3. The frame-work A A A' A', in combination with the platform F F, the curved passage-way *b b b' b'*, and balls or pins *c c c c*, as and for the purpose specified.

179,919. CARPET-CLEANERS. C. Hinsner, San Francisco, Cal. [Filed Dec. 18, 1875.]

Brief.—The box is divided horizontally into two compartments. The bottom of the lower one is open, and a spring-beater is placed therein, operated by a friction-wheel, which is rotated by pressure against the floor. As the dust is beaten out of the carpet, a suction-fan draws it up into the upper compartment.



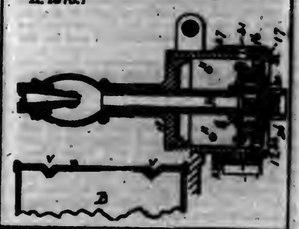
The open-bottom box A, separated into two compartments by the partition B, and having spring-beater *f f f*, in the lower compartment, which is operated by a cam, J, and tappet E, the cam-shaft being driven by frictional connections with the frictional driving-wheel M, said box having also a fan, Q, rotated in a case, P, which withdraws the dust from the lower compartment and forces it into the upper one, substantially as and for the purpose described.

179,920. REVERSIBLE KNOB-LATCHES. S. Brie, Pittsburg, Pa. [Filed Jan. 3, 1876.]

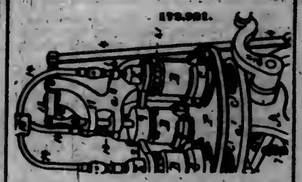


The combination of the pivoted lever and yoke-arm, relatively arranged as that by changing the position of the yoke-arm upon the lever sufficient play is obtained to free the square portion of the bolt, and to allow of its reversal, substantially as described.

179,921. GAS-SOLDERING MACHINES. Wm. J. Gordon, Philadelphia, Pa. [Filed Oct. 11, 1875.]



179,921.



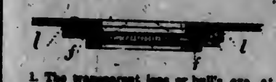
1. The series of rotary gas-carriers C, each constructed in two horizontally-divided parts, with an elastic cushion or spiral springs, t, between, and arranged to be revolved around a common center, substantially as and for the purposes herein before set forth.

2. The gas-carrier C, having the recesses 2 2 2 in each, as described, for the purpose of allowing the stopped projections 35 of the tray P to pass downward through the same, as described.

3. The hollow cylindrical soldering-iron E, consisting of the copper sides *c'* and the steel head 16, extending a little below the lower end of the copper sides, and forming the bevelled soldering-edge 17, and having the flame-jet holes 21, the sliding gas-pipe H, the perforated hollow cylinder (), and the perforated steam-ventilating hollow cylinder 23, all substantially as and for the purposes herein before described and shown.

4. The loose heavy ring 27, provided with the thin plate 28, in combination with the soldering-iron E, substantially as and for the purpose herein before described and shown.

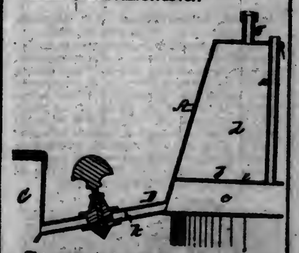
179,922. METALLIC SHUTTERS. William H. Havens, Paterson, N. J. [Filed Jan. 10, 1876.]



1. The transparent lens or bull's eye, attached to the iron door or shutter by the metal rim *l* and elastic ring *f*, and protected from injury by the elastic ring interposed between the glass and the metal, as set forth.

2. The metal rim *l* attached to the iron door or shutter, in combination with the elastic ring *f*, and transparent material inserted within such ring, substantially as set forth.

179,923. LAMPS. James K. Hicks, Boston, Mass. [Filed Jan. 17, 1876.]



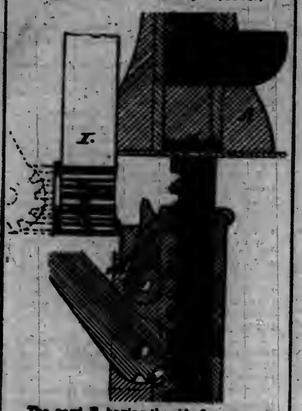
The reservoir A, with its tube *a*, partition A, having one or more apertures, *c*, and vent *f*, controlled by a stop-cock or other device, in combination with the supply-pipe B and oil-cup C, all constructed and operating substantially as and for the purposes described.

179,924. LIFTING-JACKS. Joseph O. Joyce, Dayton, Ohio. [Filed July 20, 1875.]

1. The Rising-lever E, with the circular cast-forward of an arc greater than half of a circle, with the cylindrical bearing of pawl G working thereon, combined in the frame of a lifting-jack, in such a manner that the pawl can only be removed endwise, and when the lever is out of the frame, substantially as herein set forth.

2. The combination, in a lifting-jack, of the lever E, having the rounded surface *a*, the pawls G I, rock-bar C, cams A, and elastic pendants K, all constructed and arranged as herein shown and described, for the purpose specified.

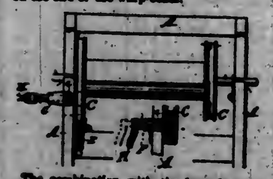
179,925. LIFTING-JACKS. Joseph O. Joyce, Dayton, Ohio. [Filed July 20, 1875.]



The pawl E, having the side flanges *e e*, in combination with the frame A, rock-bar D, and lever I, all arranged to operate substantially as described.

179,926. MECHANISM FOR REVERSING THE WARPS IN LOOMS. L. J. Knowles, Worcester, Mass. [Filed Nov. 27, 1875.]

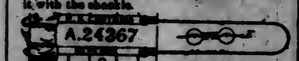
Brief.—The invention relates to a device whereby the beam may be reversed when the filling has run out, without compelling the operator to remove the tension-strap, or to take hold of the warp-beam. The mechanism consists of a small auxiliary shaft provided at one end with a crank, and at the other with a pinion. The shaft is capable of being moved lengthwise in its bearings, whereby it can be thrown into or out of gear with the gearing on the end of the warp-beam.



The combination, with the loom-frame A, and gear *f* on beam-head C, of sliding shaft F, gear *e*, and crank-arm H, substantially as and for the purposes set forth.

179,927. COMBINED TAGS AND SEALS. E. A. Locke, Boston, Mass. [Filed Dec 28, 1875.]

Brief.—The soft-metal seal is cast to the shank end of the identifying tag, which is provided with apertures at its upper end to receive the shackle-wire. The end portions of the wire shackle are passed through orifices in the seal, and the latter compressed to secure it with the shackle.

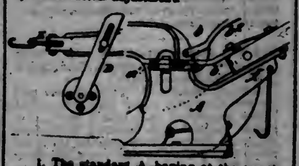


1. The combination of the perforated collar-seal F with the tag E, constructed and permanently affixed to each other, substantially in the manner and for the purpose herein shown and described.

2. The combination, with the wire G, of the combined tag and seal, constructed and arranged substantially as and for the purpose described.

179,928. GANG-HILL PLOWS. John Noll, Jr., Palmyra, N. Y. [Filed July 10, 1876.]

Brief.—Devices upon the standard for pivoting the beam, standard, and handles to each other, and secured by a locking device at any point of lateral adjustment.



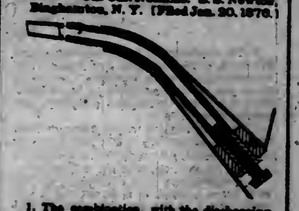
1. The standard A, having at the top the horizontal beam-plate *c'*, provided with stops or projections *a a*, and having the oblique rear extension A', as described and shown.

2. The plow-beam B, pivoted horizontally upon the standard-plate, and having the rear extension *b'* and the lever-catch *b''*, substantially as and for the purpose set forth.

3. The handles C, pivoted obliquely upon the rear extension A' of the standard, and pivoted lower down to the rear extension *b'* of the beam, whereby the direction of the plow-beam may be changed by the handles and locked in position by the lever-catch, as shown and described.

4. The combination of the standard A, beam B, handles C, and lever-catch *b''*, all constructed and arranged substantially as shown and described.

179,929. OIL-CAN NOZZLES. S. S. Newton, Binghamton, N. Y. [Filed Jan. 20, 1876.]



1. The combination, with the discharging-outlet of an oil-can, of a flexible delivery-nozzle, adapted to be bent at any desired angle, substantially as set forth.

2. An oil-can nozzle, made in two parts, connected with each other by means of a flexible tube, substantially as set forth.

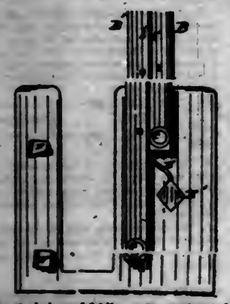
3. An oil-can nozzle, provided with a valve which is operated by means of a flexible shaft arranged within said nozzle, substantially as set forth.

4. An oil-can nozzle, provided with a valve which is operated by means of a flexible shaft, through which the oil is discharged, substantially as set forth.

5. An oil-can nozzle made in two parts, connected with each other by means of a flexible shaft, which also serves to operate a valve through which the oil is discharged, substantially as set forth.

6. An oil-can nozzle made in two parts, connected with each other by means of a hollow shaft, which also serves to open a valve, through which the oil is discharged, the oil being delivered through the hollow shaft, substantially as set forth.

172,000. GATES. Edward C. Oppenheim, New York, N. Y. [Filed Dec. 10, 1875.]



A counterbalanced folding gate, constructed with horizontal bars B B', provided with grooves or channels B² and ribs b b', and a series of vertical bars, D, the bars D being pivoted alternately to the ribs b b', and adapted to fold within the grooves or channels B², substantially as described.

172,001. MACHINES FOR SETTING THE TEETH OF SAWS. Lyman O. Orton, Philadelphia, Pa. [Filed June 7, 1875.]

Brief.—Two pulleys hold the saw taut, and the two limbs of a forked frame suspended from a short shaft, carry each a punch, that opposite to the frame is confined by the handle, to cut the teeth from opposite sides, the saw being fed along by a pawl on a bell-crank lever, that is actuated by a cam fixed upon the frame.



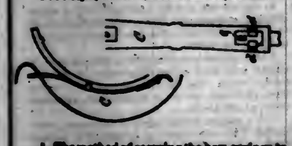
1. The combination, in a device for setting saw-teeth, of the stationary dies or anvils and the vertical oscillating hammer, which bend or set the teeth successively by blows delivered in alternately-reversed directions, substantially as set forth.

2. The combination of the frame and pulleys for holding the saw taut, and free to be moved forward, with a device for setting the teeth of the saw, substantially as described.

3. The combination of the oscillating hammer-frame C, hammers m m, anvils n n, bell-crank lever i, pawl q, and a cam moving with the hammer-frame, to actuate the lever, substantially as described.

4. The combination of the oscillating hammer-frame C, the adjustable cam-plate o, bell-crank lever i, and the pawl q, substantially as described.

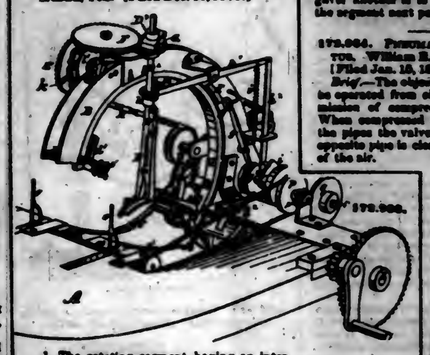
172,002. STRAIGHTENER. Chauncey C. Parker, Brooklyn, N. Y. [Filed Jan. 12, 1876.]



1. The method of securing the bow-springs to the frames of spring-beams by attaching the spring to an auxiliary plate by means of suitable slots, tongues, lips, or loops formed thereon, substantially as and for the purpose set forth.

2. The combination of the bow-spring B, formed with round turn at the bottom or lower end of the plate C, formed with slot c, flanges d, and tongue e, substantially as and for the purpose specified.

172,003. GRAIN-BINDERS. Chas. A. Pontier, Austin, Tex. [Filed Dec. 16, 1875.]



1. The rotating segment, having an intermittent rotary motion, substantially as shown and described.

2. A rotating segment having a projection or an attachment affixed, by which a binder is carried around the gavel, substantially as and for the purposes described.

3. The combination, with an intermittently-rotating segment, C, of the endless driving-chain H, having pins m and m', and the clutch mechanism and the connected gearing, whereby the segment is started in its rotation.

4. The two pairs of grasping-jaws c and c', with spring f and cutting knife-edge, in combination with worm c², shaft c³, and pinion c⁴, substantially as and for the purposes described.

5. The combination of two pairs of grasping-jaws, c and c', attached to a rotating segment, and operated by means of stationary racks c², arranged and located upon frame B, so that the jaws c and c' are opened and closed alternately when in proper position to grasp or release the binding-wire, substantially as and for the purposes described.

6. The combination with the cutter f, presenting two wires to the grasping-jaws, each one alternately, substantially as shown, and for the purpose described.

7. The wire-twisting mechanism D, rotated periodically by means of gearing, in combination with the chain H, having projecting pin j, that rotates said twisting mechanism, substantially as and for the purpose described.

8. The combination, with an intermittently-rotating segment, C, and its open-side frame B, of a lever or series of levers, E, and a compression-screw, a, to hold and compress the gavel while being encircled with the binder.

9. The intermittently-revolving lever or O on shaft O', in combination with gavel mechanism that operates them, substantially as and for the purpose described.

10. An intermittently-rotating segment, C, having a motion round the gavel, in combination with a fixed vertical segmental frame B, into and through the open side of which the grain is received, and over which open side the segment C travels to encircle the grain with the binder.

11. The combination, with a fixed vertical segmental frame, B, and the intermittently-rotating segment C, traveling therein, of the wire-grasping jaws c and c', which travel over the open side of the frame, and carry the binder around a gavel received into the circle from its broken side.

12. The combination, with an intermittently-rotating segment, C, and a fixed segmental frame, within which it travels, of an endless driving-chain, H, for said segment C, having a length greater than the circle traveled by the segment, whereby time is given to twist the wire, discharge the gavel, and receive the next bundle.

13. The combination, with an intermittently-rotating segment, C, having cogs on its periphery, of the pinions s and k, within the fixed segmental frame B, and with which the cogged segment C meshes and leaves alternately, and so stops the rotation of the segment at the point of making the twist.

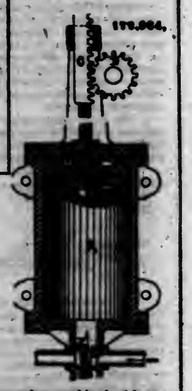
14. In a grain-binder in which the wire is carried by a segment, C, having two grasping-jaws, c and c', as described, the combination therewith of mechanism for alternately presenting separate and distinct wires, so that while one wire is being carried around the gavel another is in position to be seized as the segment next passes in its orbit.

172,004. PNEUMATIC SIGNALING APPARATUS. William B. Prall, Washington, D. C. [Filed Jan. 15, 1876.]

Brief.—The object is to allow the signal to be operated from either direction by the action of compressed air into the pipes. When compressed air is admitted to one of the pipes the valve is thrown over, and the opposite pipe is closed to prevent the escape of the air.

172,005.

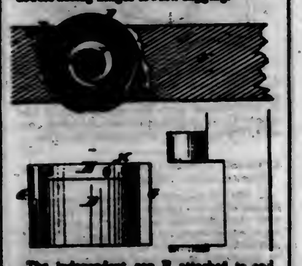
172,004.



A double-acting valve, combined with two independent air-supply pipes and the piston-chamber of a pneumatic signal, substantially as and for the purpose herein set forth.

172,006. SPOKE-MACHINE. J. G. Reynolds, Elizabeth, N. J. [Filed Oct. 12, 1875.]

Brief.—A double-acting spring-hinge, having a suitable flanged cylinder and an independent adjusting-cap, turning with the sleeve, around which the spring is coiled, is so constructed as to attach the opposite ends of the coiled spring to the opposite leaves of the hinge. The swinging of one leaf will then wind the spring from the inner end, while the swinging of the other leaf will wind the spring from the outer end, the combination being such as to lessen the tendency of this description of double-acting hinges toward sagging.



The independent cap B, attached to and turning with the sleeve F, and provided with the holes H and pin I, in combination with the cylinder D, having one or more projections or lugs, G, substantially as and for the purpose set forth.

172,007. BALE-TIES. John C. Blethenthier, Allegheny, Pa. [Filed Nov. 20, 1875.]

172,006.



In combination with the slotted bale-band and detachable locking device, an open ring or detachable washer, for retaining the locking device, substantially as specified.

172,007. CHECKS FOR COTTON-BALES. J. C. Blethenthier, Allegheny, Pa. [Filed Nov. 20, 1875.]

Brief.—One end of check fastens in a slot in the bale-band. The other end is held by the button, which fastens the band and passes through a slot in check.



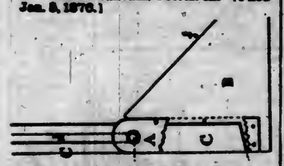
1. In combination with a slotted bale-band and its locking device, a check, having a slot which crosses that of the bale-band when the parts are in position to lock a bale.

2. A check for bale-bands, having a constricted portion or neck and button to engage with a slot in the bale-band.

3. In combination with a slotted bale-band, a check provided with a neck or constricted portion to engage with the slot of the bale-band.

4. In combination with the locking device of a bale-band, a check secured or held by the locking device, substantially as and for the purpose specified.

172,008. CARPENTERS' SQUARES AND RULERS. Emile Simonin, Peoria, Ill. [Filed Jan. 8, 1876.]



1. The rectangular triangle B, having a recessed back piece, A, recess e, and a sliding bar, C, provided with slot d and set-screw a, substantially as and for the purposes described.

2. The combination with the square B, provided with the recess e and set-screw a, of the slotted bar C, having a slot, d, extending for one half its length, substantially as and for the purposes described.

172,009. METALLIC SIDE RAILS FOR VEHICLES. Edmond J. Sprong, Troy, N. Y. [Filed May 20, 1876.]



The steel side bar B, constructed from sheet-steel, with a gradual taper from its center of length toward the extreme ends, and with a gradual contraction of the spread of its several sides from the center of its length toward the said ends, substantially as described.

172,010. RENDERING-MACHINES. John H. Vinton, Bridgeport, Conn., assignor to F. Armstrong, same place. [Filed July 20, 1875.]

Brief.—An improvement on the machine patented by H. A. Hence, No. 161,570, April 13, 1870, consisting of a cam-plate air-pump known, founded to be inserted into the straight part of the elliptical or extension frame of the said Hence machine, whereby the vertical grooved of the latter are disposed with, and the slide of it movable thereon carrier is automatically moved back and forth by the toes or bents of the needles.

1. The cam-plate A, having grooves g g', and guide ff', provided with the needle-lifters c c', which are at opposite ends of the cam-groove g', substantially as and for the purpose described.

2. The combination of a reciprocating yarn-guide slide, E, and a reciprocating reversing-slide, D', moved by the toes of the needles, said slides being constructed to move one in advance of the other, and then together, substantially as and for the purposes described.

3. The needle-lifters c c', connected together by a pitman, C, and operated together, in combination with the locking-extensions of the yarn-guide slides, whereby the lifters are locked in position, and held so until required to be reversed, substantially as and for the purpose described.

4. The adjustable reversing-flaps F F', in combination with the yarn-guide slide, substantially as and for the purpose described.

5. A knitting-machine, provided with tarn-set recesses h h', substantially as and for the purpose described.

6. The levers G G', for opening the gates f f', in combination with the slide D', substantially as and for the purpose described.

7. The combination of the yarn-guide slide E', having stop-sockets s in its face, spring-pins m, and the reversing-slide D', substantially as and for the purpose described.

172,011. DRESS-SHIELDS. Fredk. Wiseman, New York, N. Y. [Filed Nov. 22, 1875.]



A dress-shield, formed of a common bias piece of rubber cloth, substantially as herein described and shown.

172,012. RENDERING AND CLARIFYING FATS. Wm. B. Andrew, New York, N. Y. [Filed Dec. 10, 1875.]

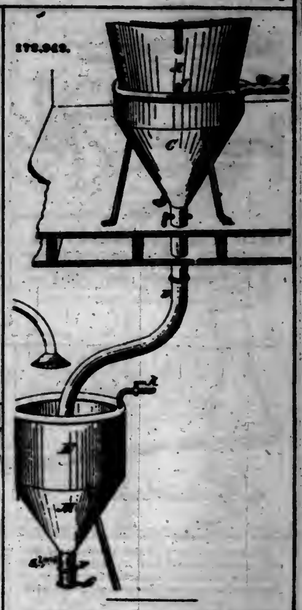
Brief.—Renders animal fat by steam heat, and withdraws immediately into steam-heated clarifier, where solution of salt or saltpeter is forcibly injected into the oil, kept at a lower temperature (120° Fahrenheit) than the clarifying solution, (160° Fahrenheit.) When beaver fat is to be treated for use in making artificial beaver, hot air supplants steam to heat the rendering-bottle.

1. The combination of the rendering-vessel A, having the induction-apertures J J, and the perforated bottom, with the belt B and its branches, and with the receiver C, carrier D, and clarifying-jacketed vessel E, as and for the purposes specified.

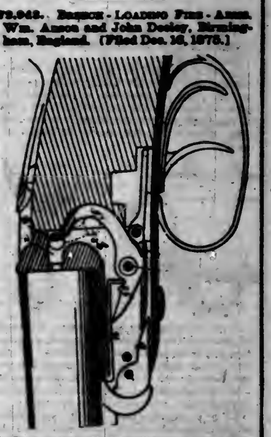
2. The combination of the clarifying jacketed vessel E and central portion H with the glass tube I and cock G, substantially as specified.

3. The process of clarifying liquid tallow or oil, by injecting into the oil, under force, in the form of mist or fine spray, water prepared with chloride of sodium or nitrate of potash, and heated to a higher degree of temperature than the oil, substantially as and for the purposes specified.

172,013.



172,042. BREECH-LOADING FIRE-ARMS. Wm. Anson and John Deeley, Birmingham, England. [Filed Dec. 16, 1875.]



1. In breech-loading small-arms, the combination, with the hammer or striker, of the fore end, formed with a prolonged part that constitutes the short arm of a lever, which, on the tilting of the barrels, acts upon and cocks the hammer, substantially as set forth.

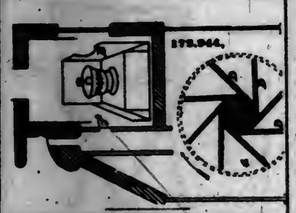
2. In combination with the hammer or striker, the safety-bolt, arranged to be upheld by the hammer and to automatically drop to close the striker-hole when the hammer or striker is withdrawn, substantially as described.

3. In combination with the tang of the breek-off, the described lever and locking mechanism, consisting of the sliding bolt, the pivoted lever, movable to either side to operate the bolt, and the coiled spring, connected together and arranged on the tang, as shown and set forth.

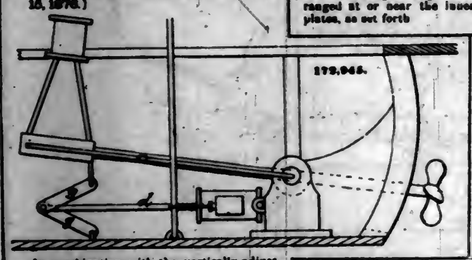
172,044. FARE-BOXES. C. T. Armstrong, New Albany, Ind. [Filed July 24, 1875.]

The herein-described fare-rest composed of the short c, grooved heads a b, and tangential transparent plates D, in combination with the recessed sides of the box, substantially as specified.

172,944.



172,945. RAIMBO AND LOWRENCE PROPELLER-SHAFTS. M. B. Atkinson and Thomas Johnson, Georgetown, D. C., assignors to E. G. Wagner, same place. (Filed Jan. 15, 1876.)



In combination with the vertically-adjustable propeller-shaft and its engine-frame, a hydrostatic engine, applied substantially as described, for adjusting said shaft, as set forth.

172,946. MANUFACTURE OF GLASSWARE. Thomas B. Atterbury, Pittsburg, Pa., assignor to T. B. and J. S. Atterbury. (Filed Jan. 10, 1876.)

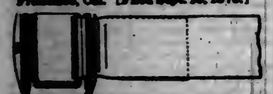
Brief.—A shell of any desired color is formed, and given the configuration required at the point of junction. A portion of different-colored glass is then gathered and stuck to the shell, which is then heated in the glory-hole, after which the article is blown in a mold.



1. A hollow article of glassware, composed of glass of two or more colors, the surface of the article at and near the junction of any two colors being uniform, or nearly so, and the glass on one side of the line of demarcation approximating in thickness that upon the opposite side, substantially as specified.

2. As an improvement in the manufacture of parti-colored hollow glassware, combining a previously formed shell of one color with a gathering of another color, and then forming in and completing the article in the usual manner of forming blown glassware.

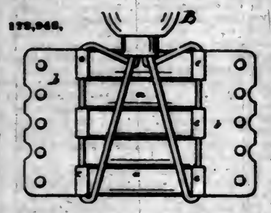
172,947. BALE-TIES. Thomas Bibby, San Francisco, Cal. (Filed Sept. 16, 1875.)



A closed bale-tie link, composed of malleable cast-iron, and provided with a rectangular opening, and with rounded ribs and convex webs at its sides, substantially as described.

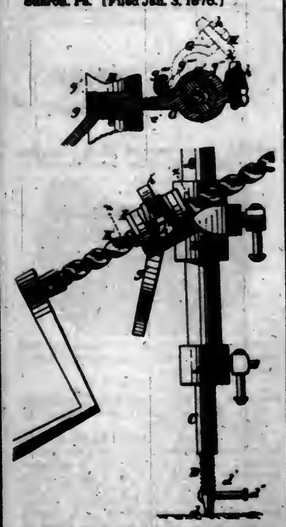
172,948. CURRY-COMBS. Fredk. D. Baker, New York, N. Y., assignor to the Lawrence Curry-Comb Company, same place. (Filed Nov. 6, 1875.)

172,948.



The combination of the toothed bars c, plates b b secured to the backs of said bars, handle B, and rods connected to said handle and extending through a series of lugs arranged at or near the inner edges of said plates, as set forth

172,949. ROCK AND COAL DRILLING MACHINES. Nathan Ball and William Owen, Sharon, Pa. (Filed Jan. 3, 1876.)



1. The drill-standard composed of the pipe A, provided with the chisel-shaped rod a and the collar A', the pipe C, fitted into the former and having its interior threaded, the bar D, threaded exteriorly, fitted into said pipe C, and provided with the pointed rod d and rod d', and the set-screw E, passing through said collar A' and bearing upon said pipe C, said parts being combined to operate in the manner and for the purpose specified.

2. The bent E, provided with the bent a, the set-screw F, and the bearing-bar G, having the rear end g revolved within said bent, all combined to operate in the manner and for the purposes substantially as shown.

3. In combination with the twisted drill K or threaded bar I, the sleeve I and compressible bearing G and G', substantially as and for the purpose set forth.

172,950. MORTAR AND BRICK ELEVATORS. Fielding Barnett, Jacksonville, Ill. (Filed Jan. 3, 1876.)

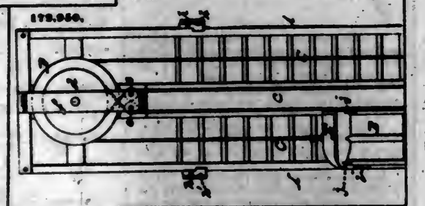
Brief.—A frame formed of two ladders, each having traveling on ways thereon a platform counterbalanced by the other, both operated by a rope passed over a winding-drum at top, which latter has another rope around a disk on its face, and friction-rollers at top and bottom, for regulating the speed by hand.

1. The double track or ladder A A, having the elevating or hoisting mechanism C D and catches b b, in combination with the cars B B, having the projections i i, substantially as and for the purpose set forth.

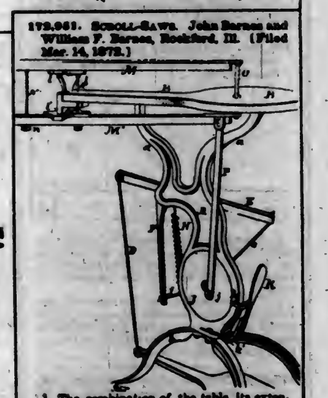
2. The track or ladder A A, having the catches b b and stops b' b', in combination with the cars B B, having the projections i i, substantially as and for the purpose set forth.

3. The cars B B, having the extensions or platforms b b and bed supporting projections j j, substantially as and for the purpose set forth.

172,950.



172,951. SCROLL-SAWS. John Barnes and William F. Barnes, Rockford, Ill. (Filed Mar. 14, 1872.)



1. The combination of the table, its extension, the bracket mounted thereon, and the saw-frame vibrating on the bracket, substantially as set forth.

2. The combination of the frame of the machine, the treadle for driving the machine, pivoted to the branching legs of the frame, the connecting-rod, the vibrating lever, provided with an arm and driving-belts for encircling and rotating the driving-pulley, and the retracting-spring, attached at one end to the frame of the machine, and at the other to the vibrating lever, all these parts being constructed and operating as set forth.

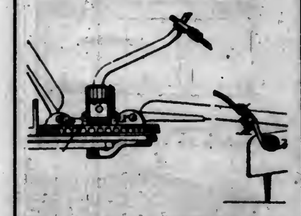
3. The combination of the frame, the branching legs, the treadle for driving the machine, pivoted to the legs, a balance-wheel on the frame, and a brake-lever attached to the frame between the legs and above the treadle, substantially as set forth, so that the operator can vert the treadle with his foot, and the brake-lever with his knee.

4. The combination of the frame, the table mounted thereon, its extension, the bracket mounted on the table-extension, the saw-arms fulcrumed independently on the bracket, and the rods on opposite sides of the bracket, these parts being constructed and operating substantially as set forth, to retain the saw-arms upon their fulcrums.

5. The combination of the frame, the bracket, the saw-arms, fulcrumed independently on the bracket, the pitman-rod, and a washer provided with a V edge or rib between the end of the rod and the saw-arm, substantially as described.

4. The combination of the frame, the treadle, mechanism for connecting the treadle and driving-pulley arranged on one side of the frame, the driving-pulley, the balance-wheel arranged within the frame, and the pitman connecting the balance-wheel and vibrating saw-frame, arranged on the opposite side of the frame from the treadle-connecting mechanism, all these parts being constructed, arranged, and operating substantially as set forth

172,952. HARVESTER-RAKES. John Barnes, Rockford, Ill., assignor of one-half his right to Ralph Emerson and William A. Talcott, same place. (Filed Oct. 21, 1874.)



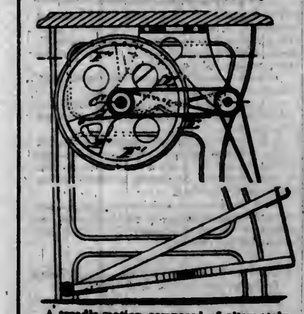
1. The combination, substantially as hereinbefore set forth, of the following instrumentalities: a revolving hub, a rising and falling rake-arm hinged thereto and projecting therefrom obliquely to a radial line drawn through the hub, a guide-post, a bracket projecting laterally from the rake-arm, and a link connecting the guide-post and bracket, for the purposes specified.

2. The combination of a guide-post, the revolving hub, the reel-arms pivoted thereon, the rake pivoted obliquely on the hub, the bracket on the rake-arm, and the links connecting the guide-post with the rake and reel arms, these members being constructed and operating substantially as herein before set forth.

3. The combination of the guide-post and reel-arms, by means of the adjustable bracket and swivel-link, constructed as described, to adjust the reel-arms.

4. The combined brace and bracket connecting the rake-arm and rake-head, and constructed as described, for the attachment of the bar which connects the guide-post and rake-arm.

172,953. TRAMLES. Geo. T. D. Berrium, Boston, Mass., and Wilbur F. Dial, Montreal, Canada. (Filed Jan. 8, 1876.)

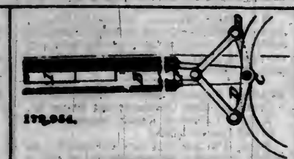


A treadle motion composed of alternately-swinging treadles, connected by an intermediate reciprocating shaft and belts, wound in opposite direction with simultaneously reciprocating sleeve-eccentrics and clutches of the fly-wheel shaft to actuate a flanged fly-wheel, and impart continuous rotary motion to the same, substantially in the manner and for the purpose set forth.

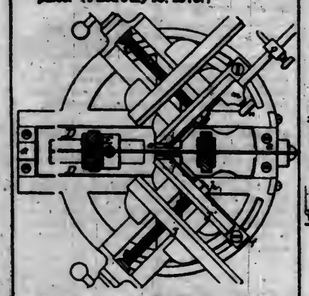
172,954. GRAPPLING-HOOKS. Gain Bowman and Geo. A. Fuller, Ironton, Ohio. (Filed Dec. 11, 1875.)

The spring-pawl I, attached to the tube B, having hooks A pivoted to it, in combination with notched rod F, having the hooks connected to it, all substantially as specified.

172,954.



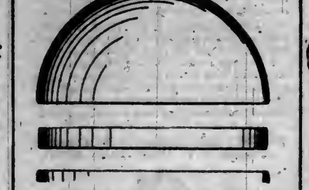
172,955. MITERING-MACHINES. Christopher S. Bemis, Lincoln, Nebr., assignor of one-half his right to Geo. P. Tucker, same place. (Filed July 10, 1875.)



1. The combination, with the adjustable clamp of the mitering-machine herein described, of the socket m, rod L, set-screw n, and collar P, provided with a pin, s, and set-screw, t, substantially as and for the purpose set forth.

2. The combination, with the circular slotted bed-plate and saw-frame of the work-clamps having the adjustable jaws J J', screw I, wrench-nut A, and a gage, L P, attached to one of said clamps, substantially as described, and for the purpose set forth.

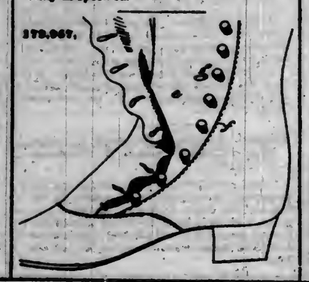
172,956. MANUFACTURE OF FLOATS. Linn B. Benton, Milwaukee, Wis. (Filed Nov. 27, 1875.)



1. A float made of spun hemispheres forced on a beveled connecting band or ring, and soldered at the joint, substantially in the manner and for the purpose set forth.

2. The method herein described of connecting the copper spun hemispheres of a float without taking the temper out of the metal, consisting in forcing them on a beveled connecting band or ring, soldering the joint in a galvanic copper solution, and removing the solution from the interior of the float, substantially as specified.

172,957.



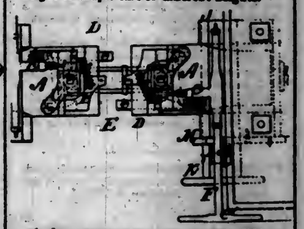
172,957. BOOTS AND SHOES. Josiah C. Bennett and George B. Barnard, Lynn, Mass. (Filed Sept. 23, 1875.)

Brief.—An independent button plate, of stronger material than that from which the shoe is made, is attached to the quarter, to prevent the buttons from tearing out.

As a new article of manufacture, a lady's button kid boot, consisting of vamp, heel-quarters, and independent button-hole piece, and an independent button-holding piece, c, of substantially the form of the button-hole piece, stitched to the quarter and vamp, overlapping the vamp from its edge beyond the buttons, and stitched at f, all as and for the purpose described.

172,958. CAR-COUPLINGS. William Bishop, Marshalltown, Iowa. (Filed June 5, 1876.)

Brief.—The draw bar can be adjusted in height to couple cars of different heights.

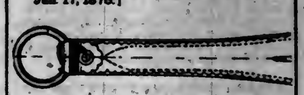


1. In a car-coupling, an eccentric lifting-roller, I, in combination with a vertically-vibrating draw-bar, substantially as specified.

2. In combination with a vertically-vibrating draw bar, A, and an eccentric roller, I, for adjusting the same, a ratchet-wheel, M, and a pawl, L, for maintaining this adjustment, substantially as specified.

3. The coupling-pin B, having prismatic extension e, in combination with the angular guiding-arm C, supporting-arm D, spring s, and lifting rod F, having fingers O', substantially as specified

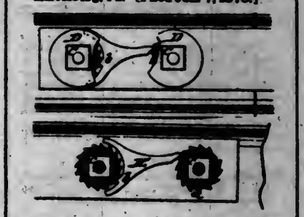
172,959. SUSPENDER AND OTHER LOOPS. Jos. W. Bradley, New York, N. Y. (Filed Jan. 17, 1876.)



1. The combination of a re-enforcing loop, of metal or equivalent material, with the loop of a suspender or other strap, connecting it with a ring, buckle, or other device, constructed and arranged substantially as and for the purpose set forth.

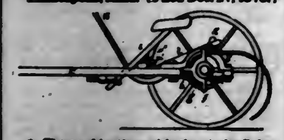
2. The combination, with the loop of a suspender-strap, of a re-enforce loop, of metal or other material, made narrower than the suspender-loop, substantially as and for the purpose specified.

172,960. NUT-LOCKS. S. A. Brumbaugh, Harrisburg, Pa. (Filed Jan. 7, 1876.)



A nut-lock for fish-plates of rail-joints, &c., composed of a connecting-key, locking with an arc-shaped and toothed end into the toothed and recessed washer of one screw-nut, and by its pointed opposite end diagonally to said projection or tooth into the toothed and recessed washer of the counter-nut screw-nut of the adjoining bolt, substantially in the manner and for the purpose set forth.

172,961. HORSE HAY-RAKES. M. C. Bury, Minneapolis, Minn. [Filed Dec. 27, 1875.]



1. The combination, with the shafts C, bar D, and axle or rake-head A, of the bars a and B, substantially as and for the purpose specified.

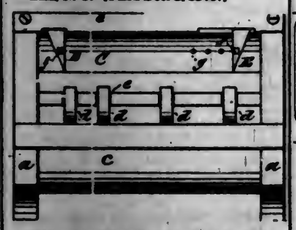
2. The combination, with the axle or rake-head A, of the slotted and curved bars B, provided with friction-rollers *f*, as and for the purpose specified.

3. The combination, with the lever G and axle or rake-head A, of the elongated bar or rod *i*, constructed as described, so as to form a stop and lock when the rake-head is lowered to working position.

4. The curved tooth-holder F, constructed as described, in combination with the teeth having a spiral spring, *g*, and adjustable collar A, as and for the purpose described.

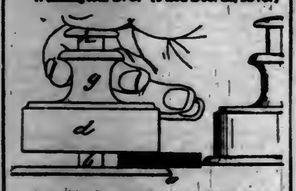
5. The combination, with the vertical adjustable seat-standard E, of the adjustable rest or chair *e*, substantially as and for the purpose specified.

172,962. MACHINES FOR CUTTING STAVES. Andrew Burns and James F. Wass, Westfield, N. Y. [Filed Dec. 3, 1875.]



The guide-fingers *i* and table B, in combination with the longitudinal knife C, equalizing-knife D E having the perpendicular edge *l* and inclined edge *j*, substantially as and for the purpose set forth.

172,963. COMBINED PAPER CLIP AND WEIGHT. Joseph Cain, Altoona, Pa., assignor of one-half his right to F. Howard, Washington, D. C. [Filed Dec. 21, 1875.]



A combined paper clip and weight, for the purposes described, consisting of the holder *d*, with its flanged neck *g* and central hollow sleeve *e*, provided with cast *c*, in combination with the bottom disk *a*, provided with rising stem *b*, threaded at its termination to receive the screw-cap A, which confines the spring, exerting its force to keep the holder and disk in approach.

172,964. WASHING-MACHINES. Charles B. Camp and Christian Osterhout, White Pigeon, Mich. [Filed Dec. 21, 1875.]



In a washing-machine, the combination of the large yielding washing-roller D, the smaller rollers H H, hung in the balanced bars *b b*, the slotted posts I I, and springs *i i*, substantially as herein set forth.

172,965. BALING-PRESSES. Christopher C Campbell, East Chatham, and Henry W. King and Allen C. Smith, Omeaa, N. Y. [Filed Jan. 12, 1876.]

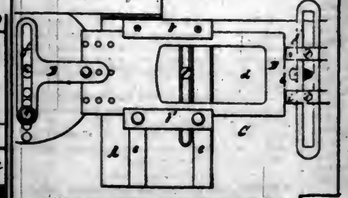
Brief.—The followers are successively, as desired, inserted in the packing-box by means of the tamper carrying the same, and releasing them upon their striking the bottom of the box.



The combination, with the tramper C and the follower, having undercut grooves, of the hooks D, springs G, shaft E, and rod F, substantially as and for the purpose described.

172,966. PLAITING ATTACHMENTS TO SEWING-MACHINES. Alfred G. Caner, Tottenville, and Elizabeth Sloan, New York, N. Y. [Filed Dec. 22, 1875.]

Brief.—The strip to be plaited is passed through a slot in the plaiting knife. The guides for the knife are adjustable for knives of different widths, and the throw of the knives is also adjustable for plaits of different depths.

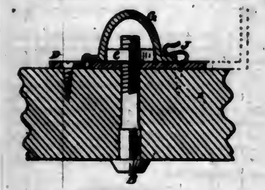


1. The combination of a reciprocating plaiting-knife, having a slot for the passage of the material to the plaiting-edge, with stops *f f* secured to the pressure-foot of a sewing mechanism, substantially as shown and described.

2. The combination of adjustable guides *b b'* with the plaiting-knife B and the ways *e e*, substantially as and for the purpose set forth.

3. The combination of the T-shaped connecting-rod D with the plaiting-knife A and with a wheel, E, receiving a revolving motion from any part of the driving-gear of a sewing-machine, substantially as shown and described

172,967. NUT-LOCKS. F. W. Carpenter, Harrison, N. Y. [Filed Jan. 22, 1876.]



1. In combination with a bolt and nut, I claim a removable cap, arranged to close over, but disconnected from, the nut and end of the bolt, for the purposes herein set forth.

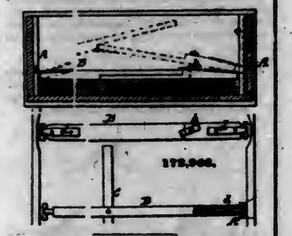
2. The combination, with a bolt, B, and nut C, of the washer D, tapering cap O, and holding device J, substantially for the purposes herein set forth.

172,968. TEMPORARY BINDERS FOR PAPERS. Wesley Chase, Buffalo, N. Y. [Filed Jan. 6, 1876.]

1. The bar B, with its lips or catches *d d* projecting beyond the extreme ends of the bar, and the racks A A', each having a single row of teeth parallel to the ends of the bar, all constructed and adapted to each other and to be applied to a drawer or box, as set forth.

2. The combination of the racks A A', having ribs *b b*, and bars having lips or catches *d*, and hooks *a a*, substantially as and for the purpose described.

3. The combination of the adjustable bar B and a cross-bar, C, pivoted thereto, substantially as and for the purpose set forth.



172,969. CORSETS. Harriet M. Chapman, Philadelphia, Pa. [Filed Dec. 24, 1875.]



1. As a new article of manufacture, the corset having the quilted puffs A A, with corded gussets B B, the dust stiffening D D, laced hip-gores C, and the adjustable back-strap E, secured to the front edges of said hip-gores, substantially as described.

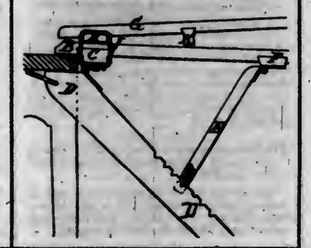
2. A corset-puff having cordial gussets B B, substantially as shown and set forth.

3. A corset-puff having a central quilted portion and cordial gussets, substantially as shown and set forth.

4. The dust stiffening-pieces D D, applied to the inside of the corset-back on either side of the lacing-cords, as a substitute for the bones heretofore employed, substantially as shown and described.

5. In combination with the abdominal corset having laced hip-gores C, the strap E, secured to the front edges of the latter, substantially as described.

172,970. BROOMS-TABLES. Jacob Olson, Decatur, Ind. [Filed Jan. 7, 1876.]



1. The combination of the dovetailed cross-pieces C and F, the hinged leg D, and the hinged brace E with the framing-board B, to adapt it to be clamped to the edge of a table-top, substantially as herein shown and described.

2. The combination of the dovetailed cross-pieces H and K, the pivoting-bolt I, and the locking-loop J with the smaller board G, the larger board B, and the cross-piece C, substantially as herein shown and described.

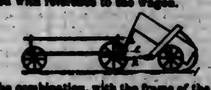
172,971. COPIES FOR TEACHERS' PENMANSHIP. Anthony A. Connolly, Washington, D. C. [Filed Jan. 8, 1876.]



A copy book, leaf, or chart for instruction in penmanship, having a head line or lines of the chirographic models to be copied, and having below the head-line a series of lines of incomplete engraved or printed characters, representing actual disconnected fractional portions of the characters in the head-line, with intervening blank spaces, to be filled in by the pupil, substantially as described and shown.

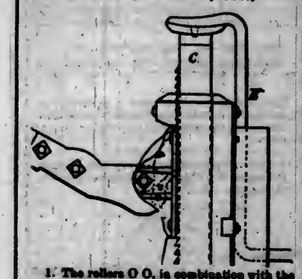
172,972. HAY-LOADERS. William Cook, Warren, Ind. [Filed Mar. 8, 1875.]

Brief.—By shortening or lengthening the draft-chains the rear end of the loader is adjusted with reference to the wagon.



The combination, with the frame of the hay-loader, of the pivoted hanger L I and draft-chains K, substantially as and for the purpose specified.

172,973. LIFTING-JACKS. H. W. Cornell, Owego, N. Y. [Filed Jan. 6, 1876.]



1. The rollers O O, in combination with the body B and the standard C of a lifting-jack, as and for the purpose set forth.

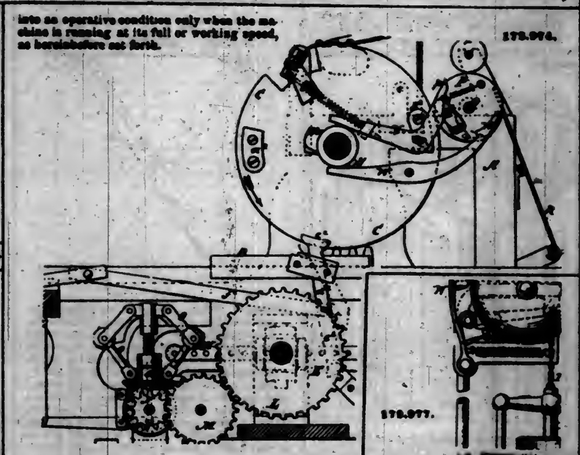
2. The bar R, as constructed, in combination with the standard C of a jack, as and for the purpose set forth.

172,974. PRINTING-PRESSES. C. B. Cottrell, Westerly, R. I. [Filed Nov. 27, 1875.]

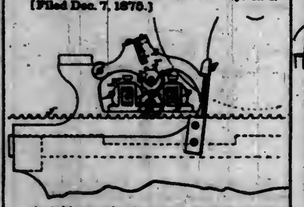
Brief.—A brake is intermittingly applied to the counterweighted revolving impression-cylinder, so as to check its motion, and make it have about the same variable velocity as the reciprocating bed.

1. In combination with the drum or impression-cylinder, means for intermittently checking the speed of said cylinder or retarding its velocity, substantially as and for the purposes described.

2. The construction of a brake drawn or other suitable means for intermittently checking or retarding the velocity of the rotatory drum with the governor, or some other movement of the machine, in such manner that the said drum-checking device will be brought into an operative condition only when the machine is running at its full or working speed, as hereinbefore set forth.



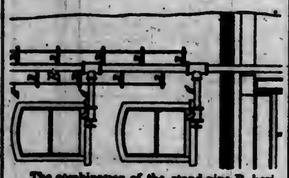
172,975. INKING APPARATUS FOR PRINTING-PRESSES. C. B. Cottrell, Westerly, R. I. [Filed Dec. 7, 1875.]



An inking mechanism or apparatus in which the vibrating distributer and each other rolls as may be located over the inking-rolls are mounted in a movable frame, substantially as described, so that it may be displaced to permit the ready removal from the machine of the inking-rolls, as set forth.

172,976. FIRE-ESCAPES. John T. Cowles, Chicago, Ill. [Filed June 30, 1875.]

Brief.—A hollow stand-pipe and horizontal staggered bars are provided with wire-rope side guards as a fire-escape ladder, and attached to the wall.



The combinations of the stand-pipe B, horizontal bars D D, and side guards E E, all constructed and arranged substantially as and for the purpose specified.

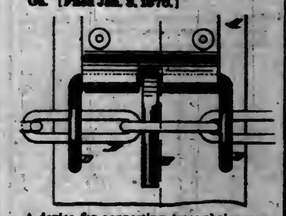
172,977. PRESSURE-VALVES. F. A. Cramer, Rock Island, Ill. [Filed Dec. 22, 1875.]

Brief.—The pressure in the water-main operates the piston. The resistance is regulated by adjustable weights.

1. In combination with the cylinder communicating with the water-main, the piston-rod, cross-bar, depending arms, and detachable weights, and the gong or alarm-bell for automatically signaling the variations of pressure in the main, substantially as described.

2. The combination of the cylinder, the connecting-pipes communicating with the main, the piston and piston-rod, cross-bar and depending arms, and the annular plate attached to said arms, forming a seat for the detachable weights, substantially as described.

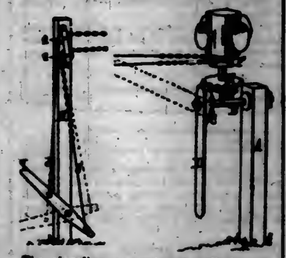
172,978. HARVESTERS. Benj. H. Cross, Byron, Ga. [Filed Jan. 3, 1876.]



A device for supporting trace-chains, consisting of the rings D D, united by a bar, and having the buckle-tongue E pivoted thereto, and adapted for use with the hook-strap A, substantially as specified.

172,979. RAILROAD-SIGNALS. Francis Oulham, Widder Station, Canada. [Filed Dec. 6, 1875.]

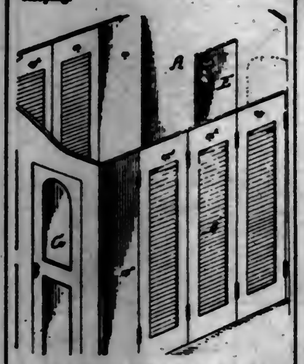
Brief.—The semaphore-arm and signal-lantern are not simultaneously, and the device then serves either as a day or night signal.



The signaling apparatus described, consisting of a post, A, situated at the side of the track at a distance from the station, and supporting a board, D, and lantern G, permanently geared together, a post, H, situated at the station, and supporting the lever I, and the chain or wires J, substantially as and for the purpose set forth.

172,900. PORTABLE CHAMBERS. R. Deeds, Philadelphia, Pa. [Filed Oct. 6, 1875.]

Brief.—A surrounding screen for isolating beds in rooms occupied for other purposes than sleeping.

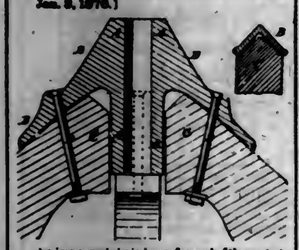


1. The within-described compartment, consisting of a front, B, and folding or sliding sides D and D', connected to the front and to a back, A, or to the wall of the building, all substantially as herein set forth.

2. The combination of the side strips F F' made in sections hinged together, with the front B, the sections e of one side, and the partition E, to which they are also hinged, all as and for the purpose set forth.

3. The strip d, hinged to the front B, and connected to the sections e' of the sides, and serving to connect the front and sides together, as and for the purpose described.

172,901. BASES FOR CHAIRS AND STOOLS. Wm. T. Dorrance, New York, N. Y. [Filed Jan. 8, 1876.]



An improved chair-base, formed of the socket A, the inclined flange B, made with angular recesses, the legs C, and the bolts D, substantially as herein shown and described.

172,902. CLAMPS FOR HOSE-COUPLINGS. Oscar T. Earle, Norwalk, Conn. [Filed Sept. 21, 1875.]

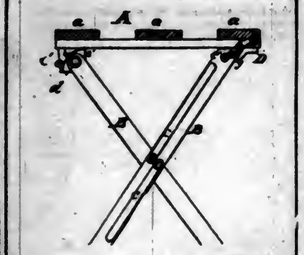
Brief.—A band stamped out of sheet metal, having perforations in one end and tongues or projections on the other end, for fastening hose to couplings



A strip or band forming a clamp or fastening for hose, stamped or punched out of sheet metal in one piece, having perforations and corresponding tongues or projections, substantially as set forth and described.

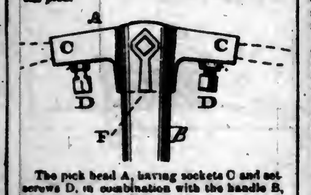
172,903. WASH-BENCHES. J. B. Pollard, Boston, Mass. [Filed Jan. 24, 1876.]

The wash-bench herein described, consisting of the top A, having the concave half-flanges meeting C, provided with flanges c, legs D, having footboard legs d, pivoted cross-legs B, rod F, and hook E, the whole arranged, constructed, and operating in the manner and for the purpose set forth.



172,904. PICKS. Joseph T. Fewtrell, Philadelphia, Pa., assignor to Jas. V. Lafferty, and said Lafferty assignor of one-third his right to Wm. L. Cousland, and one-third to Wm. Cousland, agent for E. A. Leadbeater, same place. [Filed Dec. 16, 1875.]

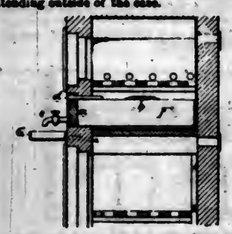
Brief.—The head of the pick is provided with sockets to receive the points, which are held in place by a set-screw. Upon one side of the handle, surrounded by the eye of the pick, is embedded a wrench of correct size to fit the head of the set-screw. A sharp blow upon the small end of the handle will release it from the eye, by which means the wrench may be brought into requisition, and after use as a wrench can be returned to the eye of the pick.



The pick head A, having sockets C and set-screws D, in combination with the handle B, having a wrench, F, fitted thereto in the eye of the head, substantially as and for the purpose set forth.

172,905. REFRIGERATORS. Jno. Fink, Reading, Pa., assignor to himself, M. M. Bissenhower, and A. Huyett, same place. [Filed Nov. 20, 1875.]

Brief.—A detachable and closed cooler affixed to a front piece, and having an air-vent extending outside of the case.

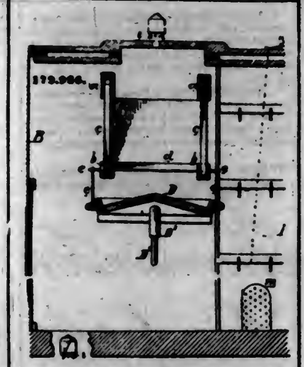


1. The water-cooler F, closed by the cap b and attached to the removable section a of the refrigerator, as and for the purpose described.

2. The combination of the air-tight water-cooler F, closed by the cap b and having a spigot, c, with the air-duct d passing to the front of the removable section a, to which the cooler is attached, as set forth.

172,906. REFRIGERATORS. Jno. Fink, Reading, Pa., assignor to himself, M. M. Bissenhower, and A. Huyett, same place. [Filed Nov. 20, 1875.]

Brief.—Upper part of door hinged, lower part set in and bottomed. An inner sliding and glazed door. An automatic loose ventilating-cap over a perforated tube. A tapering flue with another automatic ventilating-valve. Slats in bottom and side of ice-box removable, and also destined in place by each other. Drip-tray has an incline to a single outlet.



1. An ice box for refrigerators, in which side slats c and bottom slats d are combined with each other and with slotted top and bottom bars a a and b b, substantially as and for the purpose herein set forth.

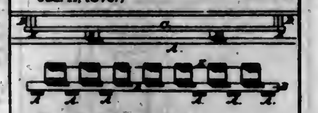
2. The drip pan D, consisting of a V-shaped tray having at one end an inclined surface, D', and central opening and discharge-pipe D'', as set forth.

3. A door for refrigerators, consisting of an upper hinged portion, G, and a lower portion, G', fitted to the opening and secured by suitable catches at the edges, so as to be readily removable, as and for the purpose set forth.

4. The perforated tube J, located in the top of the refrigerator, immediately over the ice-box, and provided with a loose sliding cap, j, as arranged as to be operated by the pressure of the air within the refrigerator, as set forth.

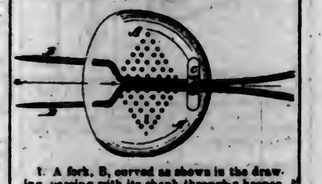
5. The combination of the provision-chamber of a refrigerator with the tapering flue I, its opening m at the bottom, and automatic valve s at the top, as set forth.

172,907. SPRING BED-BOTTOMS. J. C. Fish, Geneseo, N. Y., assignor of one-half his right to J. Sorbach, same place. [Filed Jan. 11, 1876.]



The combination of the slats A, cross-pieces B, springs C, standards or blocks D, and slats F, substantially as and for the purpose herein described.

172,908. COMBINED SPRINGING AND FORGE. Emerson R. Flagg, Brattleborough, Vt. [Filed Dec. 27, 1875.]

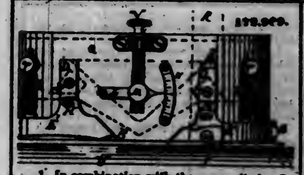


1. A fork, B, curved as shown in the drawing, passing with its shank through a keeper, C, and with its prongs through the edge of skimmer A, to admit of its adjustment, in the manner described.

2. The projection c', arranged upon the keeper C of skimmer, to be used in the manner specified.

172,909. CIRCULAR-KNITTING MACHINES. William Franz, Bucyrus, Ohio. [Filed Sept. 20, 1875.]

Brief.—The free ends of the weighted or spring-depressed dogs or levers enter notches or recesses in the cogged ring, and thus impart motion to the cam-cylinder, which latter is the same shown in United States Patent No. 98,436, granted to Franz and Pope, February 1, 1870.



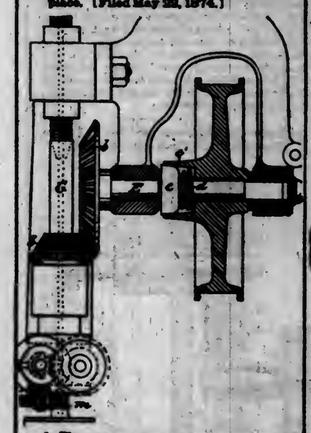
172,909.

1. In combination with the cam-cylinder Q and cogged ring P I, the dogs or levers E F and springs R R, substantially as and for the purpose specified.

2. In combination with the cam-cylinder Q, the dogs or levers E F, slides or bars D D', and cams O O', substantially as and for the purpose set forth.

3. In combination with the cam-cylinder Q, having the cams A and B, the spring or weighted dogs or levers E F, notched or recessed cogged ring P, slides D D', and cams O O, substantially as and for the purpose specified.

172,910. MACHINERY FOR SEWING-THREADING WIRE FOR UNITING THE SOLES AND UPPERS OF BOOTS AND SHOES. Richard Fromentin, Paris, France, assignor to Joseph M. V. Durand and Joseph Desbergst, same place. [Filed May 22, 1874.]



1. The combination, with the frame A, of the lever K, having cam l, as and for the purpose described.

2. The combination, with the hollow vertical shaft and the shaft H, having friction-cone e, of the spiral spring d, the pulley having conical hollow hub c', and the lever F, substantially as and for the purpose described.

3. The combination, with the hollow revolving shaft G, of the shafts I I', carrying feed-rolls, and the wheel f', adapted to rotate the rolls through gear-wheels by revolution around a fixed stationary pinion, as and for the purpose described.

172,911. RUNNING-GEARS. George W. Gilmore, Weatherford, Tex., assignor to himself and F. M. Davis, same place. [Filed Oct. 8, 1875.]



1. A rear axle, consisting of two opposite arms bent downward at each end by angular pieces a, as and for the purpose described.

2. The combination, with rear axle and reaches, of a middle post, B, that braces axle and secures the reaches to it, as shown and described.

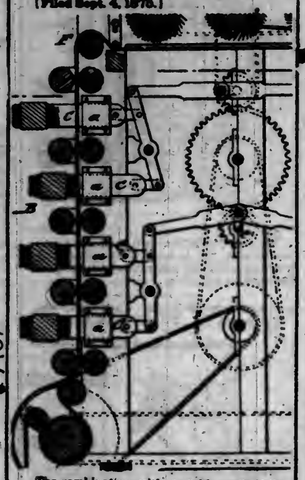
3. A rear axle, provided with eyelets, clips, and middle post, to secure the spring, as specified.

4. A front axle, provided with a fifth-wheel, in one piece therewith, and projecting in front, as and for the purpose described.

5. A reach consisting of two bars, provided with intermediate post and with shaped coupling from rear axle to said post, as set forth; so that the strain on each reach-bar may be equalized.

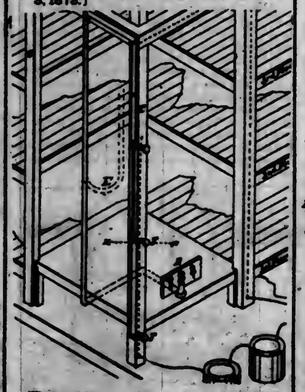
6. A reach provided with upper part of fifth-wheel, in one piece therewith, fastened at top of front axle, and connected by king-bolt and brace with front spring, as described.

172,912. GINNING-MACHINES. Carl Gerber, Sr., and Christn. Wenkel, Webster, Mass. [Filed Sept. 4, 1875.]



The combination, with stretching-rolls D D' and guide-rolls E F, of capping-cards B, arranged between each pair of guide-rolls, and adapted to reciprocate in planes at right angles to the cloth, as and for the purpose specified.

172,913. ELECTRIC ANNUNCIATORS FOR HOTELS. Elisha Gray, Chicago, Ill., assignor to the Western Electric Manufacturing Company, same place. [Filed Feb. 3, 1873.]



The combination of a movable elevator-car, an annunciator attached thereto and moving therewith, circuit-closing or breaking signal-keys on different floors, respectively, of a building and mechanism, whereby an electric circuit is maintained between the signal-keys and the annunciator, without interruption by the movement of the car.

172,914. COUPLINGS FOR TELEGRAPH-INSTRUMENTS. George F. Green, Kalamazoo, Mich., assignor to Samuel S. White, Philadelphia, Pa. [Filed Aug. 5, 1875.]



1. The coupling-block a, provided with the metallic side plates, substantially as described.

2. Also, the combination, with the block a and its metallic side plates, of the binding-posts, substantially as described.

3. Also, the combination of the studded springs with the compound cord, substantially as described.

4. Also, the combination of the studded springs, compound cord, and metallic plated block B.

5. Also, the combination of the compound cord and the plated block B with the plated block a.

172,915. MANUFACTURE OF SOLUBLE GUN-COTTON AND PRODUCTS THEREFROM. Frederick Groening, Bromley Road, Plaistow, England. [Filed Dec. 23, 1875.]

Brief.—The ligneous fiber is treated with a mixture of sulphuric, hydrochloric, and nitric acids, the gun-cotton dissolved by means of any of the well-known solvents, and mixed with powdered glass, &c., to form a semi-transparent substance. Gun-cotton is submitted with paraffine, shellac, or resin to the action of creasote, to produce a substance suitable for the insulation of telegraphic wire, &c.

1. The method of converting cotton or other ligneous fibrous materials into what is known as soluble gun-cotton by the employment of mixtures of sulphuric acid, of hydrochloric acid, and of nitric acid, in the manner and for the purposes hereinbefore mentioned.

2. The mode of obtaining semi-transparent products from soluble gun-cotton by the employment, in conjunction with soluble gun-cotton, either prepared as before mentioned or otherwise, of materials such, for example, as finely divided and levigated silica, obtained either by the calcination of flints, or of silica in other forms, or of powdered glass, or of sulphate of lime, or mixtures of the same.

3. The process of obtaining products for insulating and other purposes by the employment, substantially as set forth, of creasote obtained from the distillation of wood-tar with soluble gun-cotton and the several gums and substances hereinbefore mentioned.

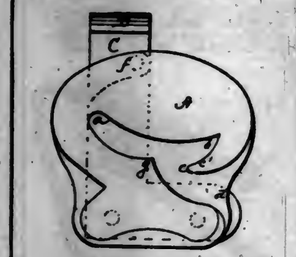
172,916. GUN-WIPERS. B. McI. Gregg, Mare Bluff, S. C. [Filed Jan. 11, 1876.]



The combination, with a bolt, B, of rod A, having threaded end socket c and circular flange c', the independent flexible disks C, and the smaller spacing-rings D, all constructed and arranged substantially as and for the purpose specified.

172,917. RING-HOLDERS. Edwd. E. Gaff, Topeka, Kans. [Filed Sept. 2, 1875.]

Brief.—The curved Rods prevent the ring from being caught.

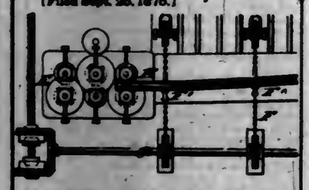




1. The rein-holder A, having openings *a b* and *c d*, projection *f*, and depressed part *e*, all substantially as and for the purposes set forth.

2. The plate B and fastener C, in combination with the rein-holder A, having openings *a b* and *c d*, projection *f*, and depressed part *e*, substantially as and for the purposes herein set forth.

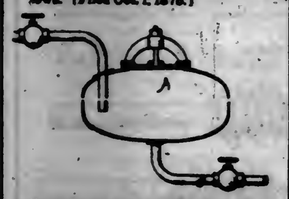
172,999. METHODS OF TREATING RAILROAD-RAILS. Andrew J. Gustin, St. Albans, Vt. [Filed Sept. 20, 1875.]



Brief.—To change the gage.

For the purpose of imparting the proper camber to a heated railroad-rail to compensate for unequal shrinkage of the metal while becoming cold, I claim the combination of three pairs of plain rolls, the middle one being adjustable and placed slightly out of line with the others, substantially as described.

172,000. PROCESSES FOR MANUFACTURING CREAM-TARTAR. J. W. Mann, Dubuque, Iowa. [Filed Oct. 1, 1875.]



The process, herein before described, of manufacturing cream of tartar, the same consisting in treating the argols, after being ground and placed in a steam-tight vessel, with pure hydrochloric acid, chloride of potassa, and water, and subjecting the whole to the action of superheated or superheated steam for about three hours, and then allowing the solution to stand till the crystallization of the bitartrate of potassa is complete, all substantially in the manner described.

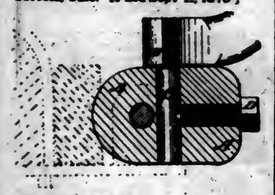
172,001. CAR-AXLES. S. Hall and S. L. Hall, Akron, Wis. [Filed June 10, 1875.]

Brief.—To change the gage.



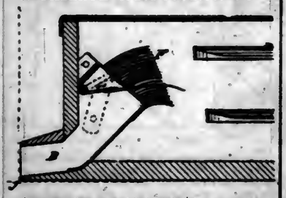
The combination, with wheel C C, of fixed collar E, movable collar D, and intermediate washers F, as and for the purpose specified.

172,001. TELL-COUPLINGS. W. O. Hanby, Osceola, Ohio. [Filed Sept. 11, 1875.]



The thill-iron B, having a pin, C, in combination with the pivoted block A and the clamping-screw D, substantially as and for the purpose described.

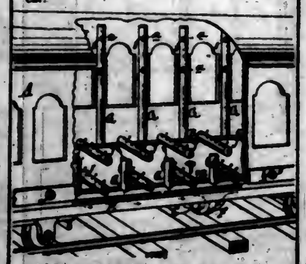
172,002. SWARM-BOXES. Andw. Harbison, Newcastle, Pa. [Filed Oct. 20, 1875.]



A swarm-box provided with wire-gauze top A, upwardly-inclined tube B, having hinged door C and pickets F, and the shelves D, all substantially as shown and described.

172,002. VENTILATING RAILWAY PASSENGER-CARS. Edwd. E. Hargreaves, Sarnia, Canada. [Filed Jan. 7, 1876.]

Brief.—Each coil under a seat is inclosed in a cylindrical case, closed at the inner but open at the outer end, where it communicates with the outer air through an opening made in the side of the car, fitted with a screen of very fine mesh to exclude the dust. The top part of the case is perforated with numerous small apertures, through which fresh air is drawn into the car to replace that withdrawn by the fan. The purpose of the case is to obtain the indirect air-currents in contact with the hot pipes long enough to insure their being warmed before entering the body of the car.

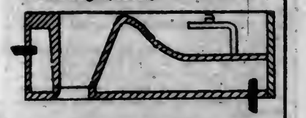


1. The perforated cases *f* inclosing the heating-pipes B of a passenger-car, and communicating with the external atmosphere through openings in the side of the car, in combination with a means for withdrawing or exhausting air from said car, substantially as described.

2. The vertical odorless pipes O at the sides of a sleeping-car, each provided with one or more openings, *a*, and by means of air-trunks connected with an exhaust-fan located and operated under the car, substantially as described.

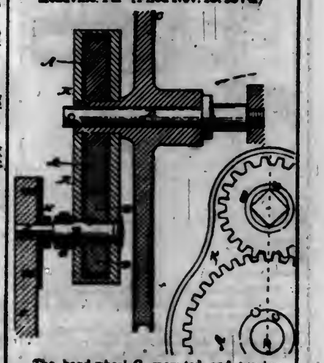
3. The valve E in the main air-trunk F, arranged to be operated by the spindle I, substantially in the manner and for the purpose set forth.

172,004. GRATES AND HOT-WATER HEATERS. Charles D. Harvey, Springfield, Ill. [Filed Aug. 7, 1875.]



In combination with an open fire-place grate, the following elements, viz: the side, back, and top walls, composed of inner and outer iron plates, joined together; a single water-space, G, inclosed by the said inner and outer plates, and extending around the back, sides, and top of the combustion-chamber; an exit-pipe leading from near the top of the water-space; and a return-pipe leading from near the bottom of the said water-space, both of said pipes being adapted for connection with suitable radiators in other parts of the building, whereby the said radiators are heated by water circulated through the said water-space, substantially as described.

172,005. CRANK-SPINDLES. Jno. D. Hazlet, Meadville, Pa. [Filed Nov. 18, 1874.]



The band-wheel C, mounted and turning loosely on the stud-shaft D, in combination with the spur-wheel A keyed to its hub or sleeve, inclining plates E, mounted and turning loosely on said hub, and affording bearings for the crank-pin F, to which the pitmen I and the spur-wheel B, meshing with the wheel A, are connected, all arranged and operating as described.

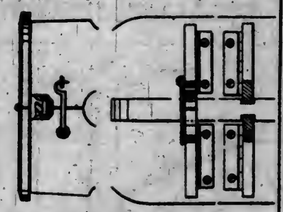
172,006. WRITING-TABLETS. J. H. Hodder, Aurora, Ill. [Filed Dec. 2, 1875.]



As a new article of manufacture, a writing-tablet or memorandum-block provided with a cover composed of absorbent or blotting paper, substantially as and for the purpose specified.

172,007. FOLDING TABLES. Geo. K. Hoff, Philadelphia, Pa. [Filed Jan. 3, 1876.]

Brief.—Two hinged bench-sections provided with hinged folding legs, fitted with suitable recesses, and locked to a central stiffening-piece, which is hinged to one of the bench-sections.

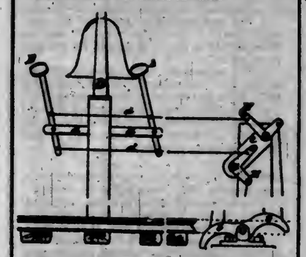


1. In a folding table, stool, or bench, the combination of the hinged and folding main or seat sections, with a central supporting-piece hinged to one of the sections, and extending throughout the entire length of the same, substantially in the manner and for the purpose set forth.

2. The combination of the seat-sections and the hinged leg-sections, having recesses, with the correspondingly recessed bottom brace piece, whereby the parts are locked securely together, substantially in the manner described.

172,008. RAILWAY-SIGNALS. J. D. Hughson, Prairie City, Ill. [Filed Jan. 3, 1876.]

Brief.—The rock-shaft, arranged beside the rail of the track, is oscillated by the wheels of the train pressing first upon one arm, then upon the other, whereby, through the medium of connecting-wires and crank-levers, the hammers are caused to strike the bell.



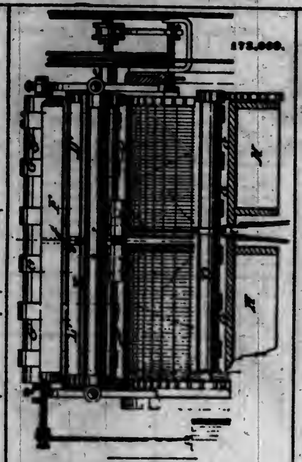
The combination of the oppositely-pivoted parallel vibrating lever-hammers D D, their connecting-wires *d d'*, elbow-levers E, wires *g g*, and rock-shaft H, provided with radial and curved arms *h h'* and *i i'* on its respective ends, all constructed and arranged as shown and described, to operate as specified.

172,009. MACHINES FOR STRIPPING, BOOKING, AND REGISTERING TOBACCO. David E. Hall, Syracuse, N. Y. [Filed Oct. 9, 1874.]

Brief.—The leaves are stripped of the midrib between suitable casting-rolls, and the two sections of the leaf fall upon the vibrating frame, where they are piled or booked and spread.

1. In a machine for stripping, booking, and registering tobacco-leaves, the combination of the vibrating center-shaped frame B, central cutting-knives I, adjustable leaf-supporting sections E, feed-rollers D *f* D', bands G, and registering-arms A, all constructed and arranged as herein described, to operate in the manner set forth.

2. The upper or front feed-roller D', having central cross-passing grooves *h*, in combination with the stationary spreading-shaft E, provided with central and inclined side grooves *i i'*, for producing regular and smooth feeding of leaves, all constructed as shown and specified.



172,010. SHEARS. Thos. Humphries, Boston, Pa. [Filed Oct. 2, 1874.]

Brief.—A peculiar link-motion operates one blade, and the chamber containing the operating parts is closed to serve as an oil-chamber.

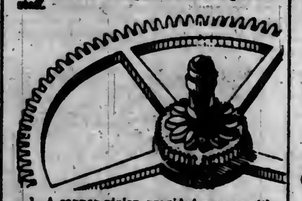


1. In a tailor's shears, the link, in combination with the movable blade B and the handle-lever B', and to which they are jointed, as and for the purpose herein set forth.

2. The combination, with a tailor's shears, constructed substantially as herein set forth, of a close oil-chamber cavity, *a*, formed in the fixed blade, to receive and confine the lubricating material for the joints of the shears.

172,011. CANNON-PINIONS FOR WATCHES. George Hunter and Charles S. Moseley, Elgin, Ill., assignors of one-tenth their right to the Elgin National Watch Company, same place. [Filed Jan. 12, 1876.]

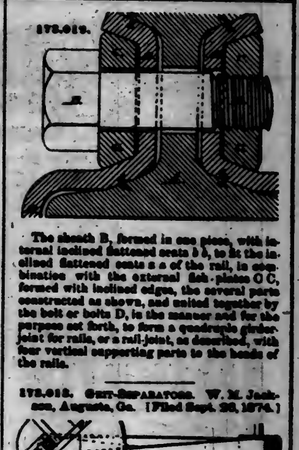
Brief.—A tongue cut in the side of the pinion-barrel is bent inwardly against a tapering staff, to prevent the pinion from rising on the staff.



1. A cannon-pinion provided upon or within one side of its barrel with a tongue, which is cut therefrom, has an inward spring at its free end, and at each point exerts a yielding pressure upon the staff or arbor upon which said pinion is pivoted, substantially as and for the purpose specified.

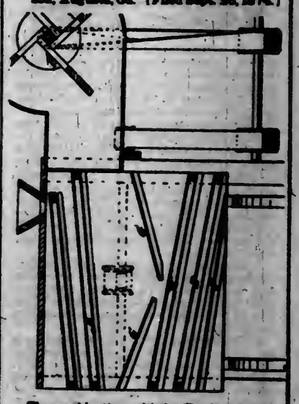
2. In combination with the pinion described, a staff or arbor which is provided with a "bank taper" at the point of contact between its periphery and the free end of the spring-tongue of said pinion, substantially as and for the purpose shown.

172,012. RAILROAD-RAIL JOINTS. Alfred Beckingham Ibbetson, Sheffield, England. [Filed Nov. 27, 1860.]



The sheath B, formed in one piece, with internal inclined flattened seats *b b*, to fit the inclined flattened seats *a a* of the rail, in combination with the external fish-plates O O, formed with inclined edges, the several parts constructed as shown, and united together by the bolt or bolts D, in the manner and for the purpose set forth, to form a quadruple girder-joint for rails, or a rail-joint, as described, with four vertical supporting parts to the heads of the rails.

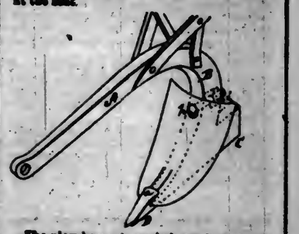
172,013. GRIT-SEPARATORS. W. M. Jamison, Augusta, Ga. [Filed Sept. 28, 1874.]



The combination, with the F, of screens A B, chutes G G, and screens H I, all arranged in the same shaking-frame, substantially as and for the purpose specified.

172,014. PLOWS. William A. Jennings, Nevada, Ky. [Filed Nov. 6, 1875.]

Brief.—The plow-standard forms the cutting-point, above which is a lip to receive the shovel, the latter having a groove or swell to fit the same.



The plow-beam A, curved standard B, and the bar C, connected to the rear of the curved standard, and provided with the point D, projecting lip *c*, and rib *b*, all formed of one piece of metal, in combination with the plow-share, having the swell *d* and connected to the standard at its top by a bolt and nut, A *i*, as set forth.

172,015. RAISING APPARATUS. D. Jewett, Lynn, Mass. [Filed Apr. 14, 1876.]

Brief.—A car operated by a windlass on a suitable track, and provided with compartments, side pinnaderas, railings, and steps.



178,016.

The improved apparatus for bathing purposes, consisting of the car A, operated by a windlass on a suitable track, and provided with compartments c, side platforms I, railings H, and steps K, substantially as described.

178,016. EVAPORATORS FOR DRYING ANIMAL AND VEGETABLE SUBSTANCES. Chas. W. Jones, Centreville, and E. A. Jones, Sturgis, Mich. [Filed Nov 10, 1875.]



1. An evaporator for drying vegetable and animal substances, combining one or more flues, horizontal, or nearly so, with a set of trays or screens movable edgewise within the flue, for holding the articles to be dried, together with an air-forcing appliance for producing a continuous current of air otherwise of the screens, substantially as described.

2. An evaporator for drying vegetable or animal substances, constructed with one or more flues or compartments, a series of trays movable edgewise along the said flue or flues, and a heating-furnace and a blower and connections, operating, substantially as set forth, to produce a forced current of air through the apparatus longitudinally of the flues and edgewise of the trays.

3. The combination, with one or more drying-flues, of the adjustable gates, at or near each end of said flues, operated simultaneously by a connection for controlling or shutting off the forcible air-currents, substantially as described.

4. The combination of a heating-furnace, a hot-air chamber, one or more evaporating-flues or compartments, an air-forcing appliance for producing a circulation through said heating and evaporating chambers, and an aperture or pipe, controlled by a valve, to admit a forcible current of air to the fire from the chamber or passage through which air is forced, substantially as described.

5. The combination, in an evaporator for drying vegetable or animal substances, of two flues, one for causing a continuous forced circulation of air through the evaporator, and the other for introducing fresh air into the said circulation, as set forth.

6. The combination of two flues on one shaft, with a division between them, one being arranged to cause a forcible current of air through the drying flues, and the other for introducing fresh air into the evaporator, substantially as described.

7. The combination, with a drying-flue, of the door E, constructed to open bodily for the passage of a rack or stack of trays, and with spring-chains c c to permit the passage of single trays, as explained.

8. The combination, with a two-story evaporator, of the double-decked car, constructed, substantially as set forth, with a hinged section, to adapt it to supply trays to either evaporating-chamber at will, or take them therefrom.

178,017. CLOCK-WORK TORPEDOES. James Jopling, Longwood, Mo. [Filed Dec 9, 1875.]

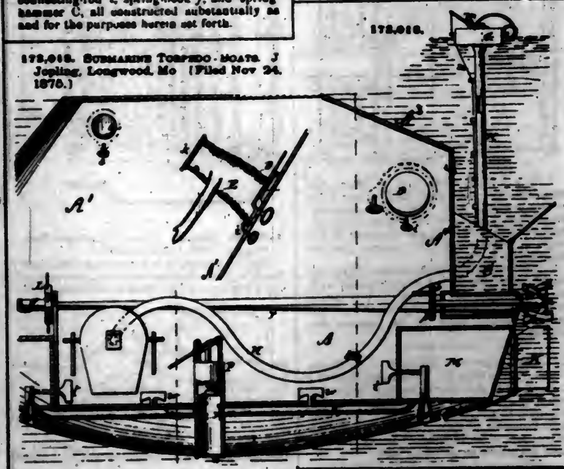




178,017.

The combination, with a torpedo-case, A, having interior partition B, of a clock work, E, with exterior stopping and starting device *g s*, dish I, with notch *g*, lever D, with leg *s*, connecting-rod *c*, spring-hook *f*, and spring hammer C, all constructed substantially as and for the purposes herein set forth.

178,018. SUBMARINE TORPEDO-BOATS. J. Jopling, Longwood, Mo. [Filed Nov 24, 1875.]



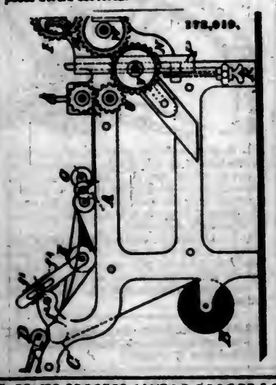
178,018.

1. The torpedo-boat, formed with yacht-shaped hull A and roof B, with the two sides A' A' thereof inclined from the sides of the hull to a point at the top, the front A' inclined rearward to the sides A', and the rear inclined downward a short distance, as shown at A', and the stern plate vertical, as shown at A', all substantially as and for the purposes herein set forth.

2. In a torpedo-boat, the combination of the hinged ring A, arranged around a port-hole in the roof thereof, the wrecker's dress E, circular plate B, and shield D, as and for the purposes herein set forth.

3. The combination, in a torpedo-boat, of the water-chambers M N, pipes *v v*, with stop-cocks *w w* and valves *x x*, and the pump P, with piston P' and valve *y*, all substantially as and for the purposes herein set forth.

4. The combination, with a torpedo-boat, of the air-pump J, air-pipe H, float G, valve *m*, and cord *n*, all substantially as and for the purposes herein set forth.



178,019.

178,019. PAPER-BAG MACHINES. Joseph F. Jossett and Jonah Ross, Buffalo, N. Y., assignors to said Jos F. Jossett. [Filed Mar 31, 1875.]

Brief.—The web of paper passes over the guide-roll, where it is creased by the adjustable wheels, thence under the adjustable forming roller to the friction rolls. The tube is then fed between the severing-rolls, the lower one of which is placed back of the upper one, both being supported in the adjustable frame.

1. The combination of the rollers I J, arm L, set-screw M, and wheel X, arranged substantially as and for the purpose described.

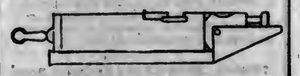
2. The combination of the frame N, severing rollers I J, adjustable wheel V, and the frame-adjusting device R, as and for the purposes described.

3. The adjustable creasing-wheels D, set-screw *d e*, in combination with the creasing roller C, as and for the purposes specified.

4. The forming-roller E, consisting of three parts—a cylinder, sleeve, and set-screw, *f*—all combined and arranged substantially as and for the purposes described.

178,020. CORN-PLANTERS. Arthur C. Kent, Janesville, Wis. [Filed Oct. 18, 1875.]

Brief.—Through the cylindrical hopper extends a rod, the lower end of which is wedge-shaped to force out the seed previously dropped, while the central part is formed spirally, for imparting an oscillatory movement to the seed-disk. The hopper has an opening in one side, to allow the seed-disk to be removed, and to permit shaft to escape.

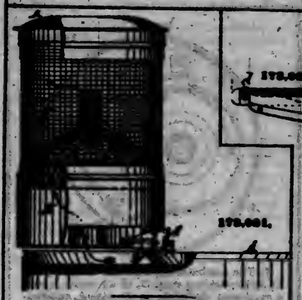


1. As an improvement upon the hand corn-planter for which Letters Patent have heretofore been granted to me, the combination of the cylindrical hopper provided with an elongated aperture, the detachable handle, the reciprocating plunger, and the removable oscillating dropper, all relatively arranged as described.

2. I also claim the detachable handle, the reciprocating plunger, the cylindrical hopper provided with an elongated aperture, the removable oscillating disk, the plate A, and the rod B, which holds said plate, all combined and relatively arranged, as described.

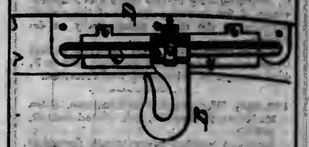
178,021. FLY-TRAPS. David S. Kidder, Turner's Falls, Mass., assignor to himself and F. W. Peabody, same place. [Filed Aug. 23, 1875.]

The guide E, constructed in sections and provided with plates F, in combination with the revolving partitioned pan A, substantially as specified.



178,022.

178,022. HARNS. Wellington H. Kintner, Mount, Minn. [Filed Jan. 6, 1876.]



A draft-hook, B, constructed with an elongated eye-piece, *b*, having a flange, *c*, in combination with the staple C and the notched plate D, substantially as described.

178,023. OIL-CANS. Jos. Knowlden, Baltimore, Md. [Filed Jan. 6, 1876.]



The detachable chambered cover C, having sliding cover D, flange or rim C', and diaphragm E, provided with center-sleeve *d*, ribs A, and door *m*, and pump E, substantially as described.

178,024. FLUID-METERS. Thos. W. Lane, Boston, Mass. [Filed Oct. 20, 1875.]

Brief.—The piston is hollow with ports. Within it is a cylindrical valve, which, in turn, is controlled by a valve-piston within it, the cylinder, piston, cylindrical valve, and valve-piston being seated in the above order, one within the other.



178,024

1. The cylinder *a*, in combination with a reciprocating piston, *f*, a valve-cylinder, and a valve-piston, *h*, constructed and arranged one within the other, and adapted to operate, with relation to each other, substantially as described.

2. The piston, provided with ports, the valve-cylinder, provided with ports and center bearing, and fitted within the piston, in combination with a valve-piston provided with ports, and adapted to be held, through contact with a stop on the cylinder, while the piston moves, substantially as described.

178,025. WAGON-TONGUES. Frank Lorenz, Rochester, Minn. [Filed Nov. 8, 1875.]



178,025.

1. The hollow tapering metallic tongue or pole for vehicles, made of sheet metal, with the flange running longitudinally beneath said tongue, and with the straps *b b*, for connecting the same to the axle, as set forth.

2. The hollow metallic tongue or pole for vehicles, made with a longitudinal flange to reach the same, and notched at *f* for the bolt-hook or yoke connection, as set forth.

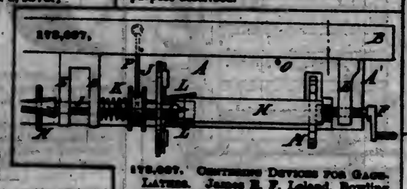
178,026. BRACKET-RAISER FOR VEHICLE-WHEELS. John G. Leiby, Philadelphia, Pa. [Filed Dec. 20, 1875.]

Brief.—The hind has brackets extending along the spokes, and fastened thereon by bolts.



The combination, with the hub and spokes of a vehicle-wheel, of a detachable band, C, having a single set of bracket-extensions, *a*, provided with bolt-holes or screw-eyes for fastening the same to the spokes, as and for the purpose described.

178,027. CHECKING DEVICES FOR GAME-LATCHES. James R. F. Leland, Bowling Green, Ky. [Filed Jan. 6, 1876.]



178,027.

The combination of the disk J, the adjustable angular guides L, and the spring K with the mandrel I of a latch, substantially as herein shown and described.

178,028. DOOR-FRAMES AND JAMB-PLATES FOR FURNACES. Jos. G. Longhead, Rome, N. Y. [Filed June 26, 1875.]

Brief.—Parts are all constructed of wrought-iron, and are mortised, tongued, and packed, and clamped together by screw-bolts. Water is made to circulate through the whole.

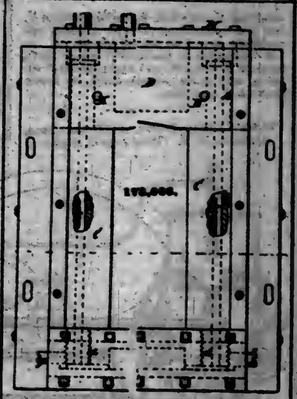
178,028

1. The combination of hollow plate A, flange-plate B, screw and tenon posts C C, having hole C', and the covered plate D, having the passage F, as and for the purposes specified.

2. The top and bottom plates having water-chambers G A, inclosed water-tight by copings, tongued, grooved, and packed and bolted on, substantially as specified.

178,029. GRAIN-HOUSE RAFTERS. F. A. Lord, Irvington-on-Hudson, N. Y. [Filed Jan. 22, 1876.]

A grain-house rafter consisting of the sections A A' A'', rising upward vertically from the sill, and extending to the ridge in a continuous curve of two circles, having different radii, and secured together with bevel-joints and bolts, and provided with mortise-and-tapon joints at the sill and ridge, and with exterior and interior binding-strips A A, substantially as described, and for the purpose set forth.



178,029.



178,030.

178,030. ROTARY BRICKMEN AND WATER-WHEELS. John Lance, Hastings, Minn. [Filed Oct. 20, 1875.]

Brief.—The piston-wheel consists of two disks, having diametrical registering slots made therein, and formed solid, each upon the end of a shaft. Transversely to the slots there is formed, at the center of the flat side of each disk, semi-cylindrical journal-bearings, that, when the two disks are botted together by their flat sides, there may be bearings for the pivots of the pistons. The piston-wheel and pistons are inclosed in a case which stands obliquely to the line of the shaft, that the inner walls of the case may just bear on opposite sides upon the beveled sides of the piston-wheel.

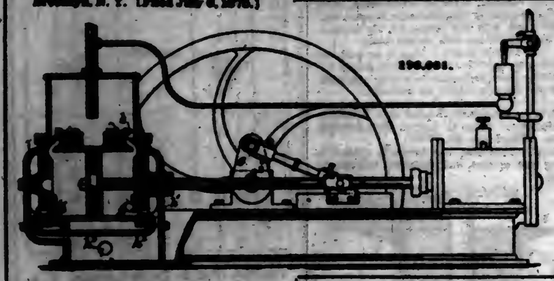
1. The piston-wheel B, composed of two parts, formed with the shaft A, and having beveled outer sides and flat adjacent surfaces, with recesses F therein, and the resting or contacting piston-plate, provided with journals *b*, in combination with the casing E, having an oblique central shaft-opening, F', and inlet and exhaust ports F G, all constructed and relatively arranged as herein set forth and shown.

2. The resting piston-plate D, provided with journals C C, in combination with the

revolving piston-wheel B, having recesses F, and a slot extending through its sides and periphery, as and for the purpose shown.

3. The piston D, made in two or more parts, to adapt it to receive and hold packing F between said parts, substantially as herein shown and described.

178,681. STEAM-PUMP. J. W. Matthews, Brooklyn, N. Y. [Filed July 6, 1875.]

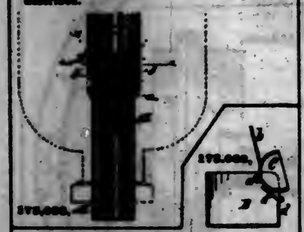


178,681.

The induction-valve f upon the lower surfaces of the cylinder-heads, near the lower portions thereof, covering the inlet-openings and formed of India-rubber, and protected by the perforated guards h at the backs of such valves, in combination with eduction-valves similarly constructed, and applied at the exit-openings above the cylinder, in the manner and for the purposes set forth.

178,682. STEAM-CYLINDER LUBRICATOR. Elijah McCoy, Leslie, Mich., assignor of one-half his right to William J. Gold, same place. [Filed Dec. 20, 1875.]

The combination of the chamber B, the regulating-tube C, open from top to bottom, and having perforations a, and the valve d, with stem e and valve-seats c b, all constructed substantially as and for the purposes herein described.



178,682.

178,682.

178,683. TRUCKS FOR STOCK-CARS. Chas. Mallonah, Jersey City, N. J. [Filed Jan. 17, 1876.]

1. The stationary feed-troughs, provided with covers, in combination with the integral covered dumping water-troughs, substantially as described, whereby the filling of the water-troughs for dumping the contents is made to empty the feed-boxes, as set forth.

2. The combination of the feed-boxes B, feed-troughs C, and resting water-supply pipe a, arranged and operating substantially as described.

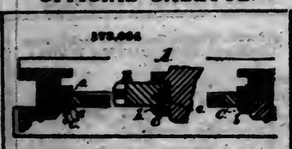
3. The stationary feed-boxes B, provided with the lids or covers b and valves b', arranged substantially as and for the purpose described.

4. The combination, with the feed-boxes B, of the sloping water-troughs C and their supply-pipes a, lids or covers b, and side valves b', all arranged and operating as described.

178,684. WHEELS-GUARD FOR WINDOWS. John S. McIlvaine, Chicago, Ill., assignor of one-half his right to Albert B. Pullman, same place. [Filed Oct. 16, 1875.]

Brief.—The sash is provided with a rubber strip, arranged parallel to its edge, and projecting from the inner face, so as to be pressed upward by the hand which confines the sash in place, and be pressed against it in the manner of a valve by the action of the wind.

178,685.



178,685.

1. The combination of the window-sash and the rubber strips, arranged as described.

2. The combination, substantially as described, of the sash B, rubber strips b, casing A, and molding C, all arranged and operating as set forth.

178,686. STOCK-CARS. J. R. McPherson, Jersey City, N. J. [Filed Jan. 8, 1876.]



178,686.

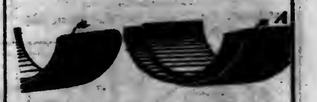
1. For the purpose of utilizing the ordinary cattle-cars for feeding and watering, the combination of such a car, having side openings A, for the heads of the cattle, with fixed troughs C, substantially as shown on the trucks or at depots, upon such side, from which the stock feeds and waters, when the train is stopped for that purpose.

2. The combination, in a stock-car, of the sectional doors D E F, in which the intermediate sections E are combined with the long shutters B of the side openings, to furnish continuous side openings from end to end of the car, through which the cattle feed from the fixed troughs.

3. For the purpose of utilizing the ordinary cattle-cars for feeding and watering, the combination of such a car, having side openings A for the heads of the cattle, with fixed troughs C, as described, said troughs provided with divisions C' C', and water-supply pipes E, as herein set forth.

178,687. WOODEN EAVES-TROUGH. Niles M. Miller, Evansville, Ind. [Filed Jan. 10, 1876.]

Brief.—A wooden eaves-trough formed of squares, the adjoining ends of which are grooved to receive strips of sheet metal, which form connecting-screens. Rubber is used in addition, if needed, to make a tight joint.



178,687.

1. The combination of the metallic strip B and eaves-trough A, having the scarf or slot a, substantially as and for the purpose shown and specified.

2. The combination of the metallic strip B, rubber collar C, and eaves-trough A, having the scarf or slot a, substantially as and for the purpose shown and specified.

178,688. MOVABLE SUGAR-GARDENS. A. Mitchell, New Orleans, La., assignor to Lords & Co., same place. [Filed Aug. 20, 1875.]

Brief.—The canes are cleed above the movable carrier and fall onto it. The carrier delivers the cleed canes to diffusion-vessels mounted on the carrier b. The bulk may be received either way, as one or the other gear-wheel at one end of the shaft is clid into gear; also, by a sliding coupling, the carrier-frame is made to ride the rails either way. The main frame carries supports for the shaft, which supports alternately support the shaft on each side of the rotating-stand when moved by lever. Power applied by hand

1. The frame A, provided with an endless carrier, B, and wheels a a', &c., as and for the purposes herein stated.

2. The horizontal shaft D, provided with bevel-gears b, pinions c c', sleeves f f, bushings f' f', nuts f'' f'', and collars f''' f''', combined with the bevel-wheels d d', carrier B, and frame A, the whole being arranged to operate as and for the purposes herein set forth.

178,689. WATCHMAN'S TIME-DETECTOR. Anton Meyer, Stuttgart, Germany. [Filed Jan. 4, 1876.]

Brief.—A continuous strip of paper is supplied from a reel to the drum operated by the clock-movement. On its way to the drum the strip passes over a support pierced opposite a series of marking devices operated by suitable keys. An index on the drum marks the time on a stationary dial on the case.

178,689.

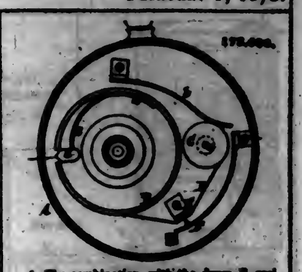


178,689.

3. In combination with the horizontal shaft D, the keyed cog-wheel c, driving-pulley f, and intermittent pinions g and r, all arranged to operate the carrier B, as herein stated.

4. In combination with the frame A and rest S, the gearing-stand B, lever a, spring b, bevel-pinions e i f g h, vertical shaft V, and horizontal shaft s and cog-wheel 1, all arranged to operate as herein described.

178,690.



178,690.

1. The combination, with the drum B, reel C, and recording-strip D, of an index, c, and a stationary dial-plate on the case A, substantially as set forth.

2. The combination, with the drum B, reel C, recording-strip D, and index c, of a spring-shutter, d, for covering the end of the recording-strip to the drum, substantially as described.

3. The combination, with the drum B, reel C, recording-strip D, and marking device F, of a crescent E, substantially as described.

178,691. WOODEN EAVES-TROUGH. Niles M. Miller, Evansville, Ind. [Filed Jan. 10, 1876.]

Brief.—A wooden eaves-trough formed of squares, the adjoining ends of which are grooved to receive strips of sheet metal, which form connecting-screens. Rubber is used in addition, if needed, to make a tight joint.

178,691.

1. The combination of the metallic strip B and eaves-trough A, having the scarf or slot a, substantially as and for the purpose shown and specified.

2. The combination of the metallic strip B, rubber collar C, and eaves-trough A, having the scarf or slot a, substantially as and for the purpose shown and specified.

178,692. MOVABLE SUGAR-GARDENS. A. Mitchell, New Orleans, La., assignor to Lords & Co., same place. [Filed Aug. 20, 1875.]

Brief.—The canes are cleed above the movable carrier and fall onto it. The carrier delivers the cleed canes to diffusion-vessels mounted on the carrier b. The bulk may be received either way, as one or the other gear-wheel at one end of the shaft is clid into gear; also, by a sliding coupling, the carrier-frame is made to ride the rails either way. The main frame carries supports for the shaft, which supports alternately support the shaft on each side of the rotating-stand when moved by lever. Power applied by hand

1. The frame A, provided with an endless carrier, B, and wheels a a', &c., as and for the purposes herein stated.

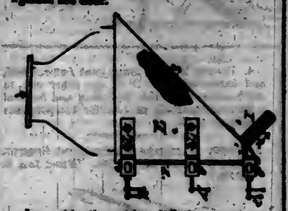
2. The horizontal shaft D, provided with bevel-gears b, pinions c c', sleeves f f, bushings f' f', nuts f'' f'', and collars f''' f''', combined with the bevel-wheels d d', carrier B, and frame A, the whole being arranged to operate as and for the purposes herein set forth.

4. The turntable supports 10 11, constructed and applied to the frame A, so as to operate in the manner herein described.

5. In combination with the frame A, the head-wheel 7, pinion 6, cog-wheel 4, and rack 5, all arranged to operate as and for the purposes herein specified.

178,693. DIFFUSION-VESSELS FOR EXTRACTING CANE-JUICE. Archibald Mitchell, New Orleans, La., assignor to Lords & Co., same place. [Filed Aug. 20, 1875.]

Brief.—Sliced cane delivered from carrier into top of vessel. Juice passes through strainer and out at pipe. Steam leaks against the door.



In combination with a diffusion-vessel, the chamber B, provided with a door, F, at the bottom of, or constituting one side thereof, a strainer, E, extending diagonally from the opposite side to the door, and parallel therein, and having an outlet, I, as and for the purposes described.

178,694. APPARATUS FOR BED-CLOSETS. Alex. H. Mead, New York, N. Y., assignor to C. B. Lansing, same place. [Filed Aug. 21, 1875.]



The curving C for bird-cages, constructed substantially in the manner and for the purposes specified.

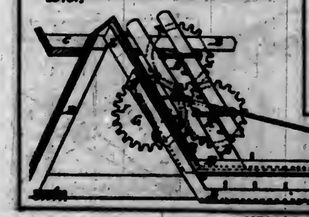
178,695. MILK-PAN COVERS. A. F. Morgan, Mason City, Iowa. [Filed Nov. 27, 1875.]

Brief.—The wire-gauze is clamped between two metal rings. The outer one has an outwardly-turned flange at its top, the inner one having an outwardly-turned flange at bottom, and an inwardly-turned flange at top.



A milk-pan attachment consisting of wire-gauze A, outer top flanged ring B, and inner ring D', having an outwardly-turned flange, b, at bottom, and an inwardly-turned flange, b', at the top, the said rings clamping the edge of wire-gauze and being detachable, as set forth.

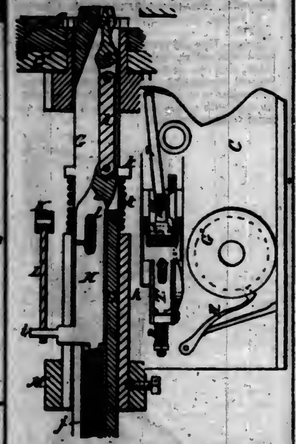
178,696. HARVESTER-RAKES. Samuel M. Morrison, Fairfield, Iowa. [Filed Apr. 24, 1876.]



178,696.

1. The combination, in a grain-binding attachment for harvesters, of an intermittently-rotating disk, F, carrying a horizontally-pivoted finger, c, with a vertically-intermittent moving spindle, G, carrying a vertically-pivoted hook, f, having a radially-opening and closing movement therewith, substantially as herein set forth.

178,697. GRAIN-BINDERS. Geo. W. Nichols, Coldwater, Mich., assignor of one-half his right to Nichols Grain-Binder Company, same place. [Filed July 15, 1875.]



178,697.

178,698. WHEELS. John D. Nix, Ashley, assignor to James R. Walker, Cutler Station, and Dan. P. Short, Ashley, Ill. [Filed Dec. 9, 1875.]

2. The combination, with intermittently-rotating cord-holding finger c and pivoted hook f, constructed to operate jointly, as described, of the cord-carrier D D', having the cord-guide b', and the head cord-holder b'', and the cord-holding jaws S S', the whole being arranged and adapted to operate in the manner substantially as herein set forth.

3. The combination, with the intermittent horizontal rotating pivoted finger c, the knot-forming and tying device G f, constructed to operate as described, of the cord-holding jaws S S' and the teeth U, arranged and adapted to operate in the manner substantially as herein set forth.

4. The combination, with the arm D D' and the opening a in the platform, of the guide-retainer B, the cord b, and the cord-holding and tying devices, consisting of the jaws S S', spindle G, the pivoted hook f, and the finger c, constructed and adapted to operate substantially as herein set forth.

5. The combination, with the spindle G, of the cam I and the lever-connection K, whereby the spindle is caused to descend at the proper point in the operation of forming the tie, and to cause the tie and to be slipped over the end of the spindle, substantially as herein set forth.

6. The combination, with the spindle G and the tie-forming hook f pivoted thereon, of the jointed connection H A, the spring j, and the lever K, whereby the hook is operated in the manner and for the purpose herein set forth.

7. The combination of the pivoted tie-forming hook f with the recess or depression f in the surface of the intermittent rotating disk F, whereby the hook f is turned down in position to pass beneath the ends of the cord held by the finger c in making the tie, substantially as herein set forth.

8. The stop l in the spindle G, in combination with the slot m in the jointed connection H of the pivoted tie-forming hook and the spring j, whereby the descent of the latter is limited, substantially as herein set forth.

9. The combination, with the intermittent-rotating disk-sleeve pinion E, for intermittently operating the disk-finger c, provided with the cam projection V and the depressed cam q p, in combination with the cord-carrying blade U D' and the cord-holding jaws S S', whereby the pivoted cord-raising finger c, the teeth, and the jaws are made to co-operate in their functions by the continuous rotation of the wheel O, substantially as herein set forth.

12. The combination, with the pivoted jaw S', and the bar T which carries it, of the spring p, whereby a variable grasp is given to the jaws to compensate for different thicknesses of cord, substantially as herein set forth.

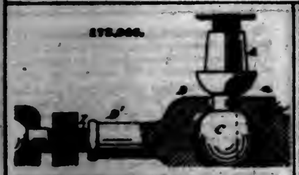
13. In an automatic binding attachment for harvesters, the combination, with the intermittently-rotating disk F, its horizontally-pivoted finger c, and operating gear I O, of the spring-detent R, arranged to arrest and hold the disk with its finger in proper relation to the block of the spindle, and to insure the proper meshing of the pinion E with the segmental-toothed wheel O, substantially as herein set forth.

14. The combination, with the cord-carrying arm D and its rock-shaft B, of the cradle-arms W and the bags w and w', whereby the cradle-arms are opened downward, and again closed with the grain-space by the same mechanism which operates the cord-carrier, substantially as herein set forth.

15. The combination, with the rock-shaft B and the cradle-arms W, of the spring-catches 1 1 and the device X, operated by the rock-shaft, whereby the cradle-arms are released from their catches to open the cradle and deliver the tied bundle, substantially as herein set forth.

178,699. PUMPS. John D. Nix, Ashley, assignor to James R. Walker, Cutler Station, and Dan. P. Short, Ashley, Ill. [Filed Dec. 9, 1875.]

178,646.

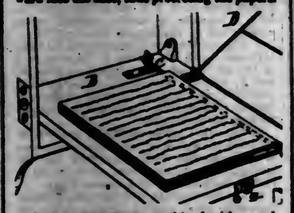


1. The combination of the wrist A, with ball C, the chamber or socket D, concave box E, with guide *a*, the disks *d a*, and ratchet curved plate G, with spring *b'*, substantially as and for the purposes herein set forth.

2. The combination of the chamber or socket D, with arm D', the pitman I, with ball J, socket K, and ratchet curved plate L, with spring *b'*, substantially as and for the purposes herein set forth.

178,647. NEWSPAPER-FILES. H. S. Noble, Monroe, Mich. [Filed Nov. 22, 1875.]

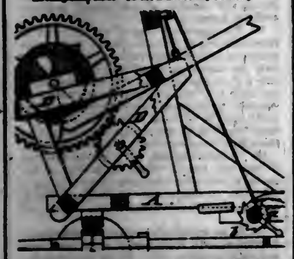
Brief.—The papers are held in position upon the sectional hinged support and door by the file-rod. A wire frame hinged to the door supports the sheets when the papers are opened for inspection, and holds them together when closed. The support is adapted to fold upward into the case, thus preserving the papers.



1. A newspaper-file combined with a reading-desk that is adapted to fold into and close a wall-case, substantially as described.

2. The frame D, in combination with the sliding file-desk E, substantially as and for the purpose set forth.

178,648. FOOD-DRIVERS. Isaiah W. Norton, Memphis, Mo. [Filed Dec. 11, 1875.]

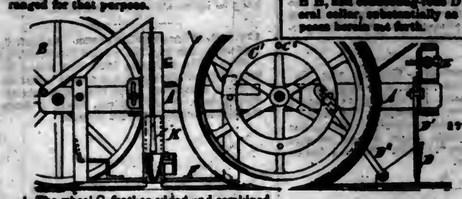


1. The combination, with the bed-frame, having upright supporting posts or frame, of a pivoted hammer-supporting frame, set to greater or lesser height, according to the height of the posts to be driven, by suspending-cords and mechanism, substantially as set forth.

2. The combination of pivoted supporting-frame D, downward hammer-lever F, and actuating-wheel G, having cams or eccentrics G, with a suitable band or power driving mechanism, to produce rapid blows of hammer, substantially as described.

178,649. PLANTERS AND PLANT-SETTERS. Lovel H. Pease, Chicago, Ill., assignor to Mark Campbell, same place. [Filed Jan. 24, 1876.]

Brief.—The frame of the machine is mounted upon two bearing-wheels at the rear, with an opening-wheel at the center. An adjustable scraper is placed in front of the opening-wheel to remove all obstructions. Immediately behind the opening-wheel is placed a cup to receive the plants, and this cup is opened at the bottom automatically to drop the plant into the furrow made by the wheel. At the same time two plungers, one upon each side, press the soil around the roots of the plant. The plants are seen by one dropped into the cup by an attendant, who rides upon a platform arranged for that purpose.



178,650.

1. The wheel C, flanged-edged and combined with the hinged planting-cup L, for opening the furrow and depositing the plants, substantially as set forth.

2. The combination of the hinged planting-cup L, the wheel C, and the trash-clearer D, substantially as set forth.

3. The combination of the wheel C, hinged cup L, and plunger H, substantially as set forth.

4. In combination with the hinged sectional cup L, the reciprocating plungers and arms K, for opening the cup, substantially as set forth.

5. In combination, the cup L, the plungers H, rods H', arms K, and reciprocating levers I, substantially as set forth.

6. In combination with the adjustably-suspended sectional cup L, the adjustably-suspended trash-clearer, and intermediate wheel, whereby the parts may be conformed to the requirements of the depth of the furrow, substantially as set forth.

178,650. EYE-LASSES. Chauncey J. Parker, Brooklyn, N. Y. [Filed Jan. 26, 1876.]



The method, herein described, of connecting together the frames of eyeglasses, consisting of the plate B, with flanges *c*, and the tongue D, with shoulders *b*, substantially as and for the purpose set forth.

178,651. FRACTURE APPARATUS. Charles R. Parke, Bloomington, Ill. [Filed Nov. 6, 1876.]

Brief.—Upward pressure is made against an adjustable collar, which is fitted around the thigh, and the pressure then taken off the femoral vessels and external lateral curvature. This collar is connected by vertically-adjustable rods with a foot-plate, which is rigidly secured to some support.



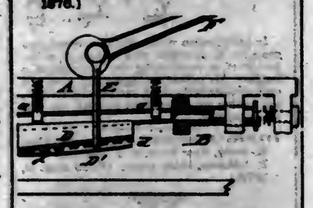
1. The combination, in a splint, of an adjustable femoral collar and a foot-plate, with two connecting-rods between them, one of which is hinged to the bow of the collar, and both adjustable vertically and laterally, substantially as set forth.

2. The combination of the plate A, bow B, slides C C, and set-screws *b b*, substantially as and for the purposes herein set forth.

3. The combination of the foot-plate G, slides H H, and connecting-rods D D' with the femoral collar, substantially as and for the purposes herein set forth.

4. The rod D', with hinge-joint *f* at one end, and set-screw D' at the other end, in combination with the foot-plate and femoral collar, substantially as and for the purposes herein set forth.

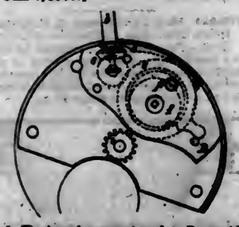
178,652. MACHINES FOR TRIMMING SPOKES. John O Peace, Salem, Mo. [Filed Jan. 3, 1876.]



1. A spoke-tenoning machine, composed of a supporting-piece, A, and adjusting-screws *a* and bearings *b*, spring-caliper B, and clamping-device D, D', E, and F, applied and operated substantially as specified.

2. The combination of adjustable screw-clamps *a*, loose spring-block D, having lateral bottom grooves and retaining-spring, with stationary ball E and recessed lever F, for clamping the machine rigidly to the spoke end, as set forth.

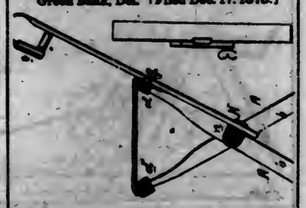
178,653. SPIRE-WINDING WATCHES. A. Philippe, Geneva, Switzerland. [Filed Jan. 7, 1876.]



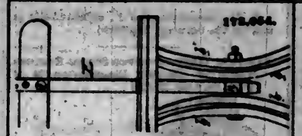
1. The barrel or covering-plate B, provided with a click, as described, in combination with the winding and setting mechanism, substantially as set forth.

2. The lever K, operated by the knob A, as described, in combination with the pinion *g*, substantially as and for the purposes set forth.

178,654. CAMP-STOOLS. Wm. G. Philips, Green Bank, Del. [Filed Dec. 17, 1875.]



178,654.

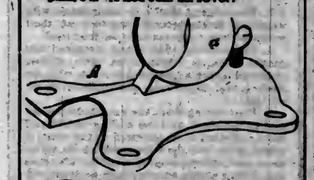


1. A camp-stool in which the legs of the two frames are bent inward in the middle, so as to be near each other at the point where they are hinged together, as set forth.

2. The combination, in a camp-stool, of the adjustable back E with a guide on the cross-bar *d* of one of the frames, and a guide on the block *b*, all substantially as specified.

3. The combination, in a camp-stool, of the adjustable back E, its bent upper end *g*, and cross-piece *i*, as and for the purposes herein set forth.

178,655. FLAG-STAFF HOLDERS. Edward Pierce and Clarence A. Hart, Philadelphia, Pa. [Filed Jan. 21, 1876.]



1. The within-described flag-pole holder, consisting of the portion A and its ring or socket *a*, constructed for attachment to the window-sill, as set forth, and the part B, having its outer end constructed for the reception of the pole, and its inner end for attachment to and detachment from the portion A, all substantially as specified.

2. The portion B of the holder, in combination with a socket or bearing for the pole, and a device for permitting the direct vertical insertion or withdrawal of the pole from the said bearing or socket, all substantially as described.

178,656. DIVIDED CAR-AXLES. I. C. Plant, Macon, Ga. [Filed July 31, 1875.]

Brief.—Clutch locked together by projections and grooves, and by cap conforming to its external shape. Allows independent rotation in turning curves.



1. In combination with a divided axle for cars, a clutch consisting of the jaws C C', provided with the projection *n*, groove *g*, flanges *f f'*, and bands *b b'*, all constructed and operating substantially as described.

2. In combination with the clutch consisting of the jaws C C', having on their external surface the bands *b b'* and flanges *f f'*, the cap D, provided with the undercut groove for the reception of the flanges *f f'*, and with grooves for the reception of the bands *b b'*, and otherwise conformed to the external configuration of the clutch, as described.

178,657. STOVES AND FURNACES. Julius F. Quimby, Troy, N. Y., assignor to Gurdon Quimby & Perry, same place. [Filed Aug. 24, 1874.]

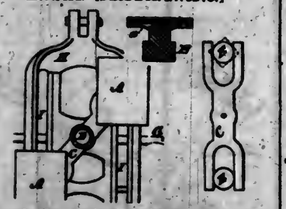


178,658. STENCIL-PLATES. S. W. Reese, Chicago, Ill. [Filed Dec. 24, 1875.]



The stencil-plate A, having the bead-shaped groove *a* at one end, and the bead-shaped flange *b* at the other, substantially as and for the purpose set forth.

178,659. TRAMMEL. Henry Reese, Baltimore, Md. [Filed Dec. 27, 1875.]

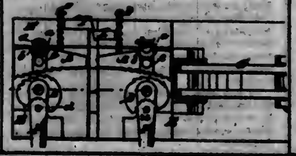


1. The combination, with the main trundle, having guides, of the independent adjustable trundles A, and pivoted guide-blocks, or their equivalents, as and for the purpose described.

2. The combination, with the sliding block B and the pivoted trundle A, of the spring *a*, as and for the purpose described.

3. The main trundle, having guideways I, in combination with the bar C, having bifurcated ends, the set-screw D, sliding blocks E, and the pivoted independent trundles A, substantially as and for the purpose set forth.

178,660. TIRE-UPSETTERS. Chas. H. Reynolds, Brooklyn, N. Y., assignor to himself and Wm. Frundel, same place. [Filed Nov. 13, 1875.]



1. The jaws A, mounted on pivots C, having an adjusting-screw, D, substantially as specified.

2. The combination, in a tire-upsetter, of the supporting-blocks E, having a rib, *a*, and the jaws A B, provided with a groove, substantially as and for the purpose set forth.

178,661. BOTTLE AND JUG LOCKS. Joseph W. Roberts, Richmond, Va. [Filed July 26, 1875.]

Brief.—The lower end of the cap forms a rim, made in three sections—one being fast, while the other two are fastened to it by hinges. These sections have inward-projecting flanges to fit the bottle-neck. When the curved lugs are brought together, the double catch of the one locks in the spring-jaws of the other, causing the cap to fit closely about the neck and neck of the bottle. The device may be so arranged by an external slide that the key will not release the catch and springs.



1. The cap A, provided with a sectional flanged rim, having two sections, B' B', hinged to the ends of the third stationary section B', and, when closed, locked by a suitable locking mechanism, substantially as and for the purposes herein set forth.

2. The plate C and spring *d*, in combination with the cap A and sectional flanged rim B' B', for the purposes herein set forth.

3. The auxiliary flanges *b'*, with springs *d'*, attached to the sectional rim B' B', for the purposes herein set forth.

4. The combination, with the sectional rim of the cap A, of the double catch *a* and spring-jaws *f f*, for the purposes herein set forth.

5. The slide *h* and arms *i i*, in combination with the jaws *f f*, sectional rim B' B', and cap A, substantially as and for the purposes herein set forth.

178,662. MACHINES FOR FORMING PERFORATED LETTERS. Wm. C. Robertson and Frederick Pearce, New York, N. Y. [Filed Dec. 11, 1875.]

Brief.—The movable pins are placed in the holes in the perforated plate, so as to form any desired letter.



The combination of the detachable top plate H, the perforated holding-plate G, the movable perforated guide-plate F, the stationary perforated guide-plate D, the perforated bed-plate C, and the detachable pins J with each other, substantially as herein shown and described, and for the purpose set forth.

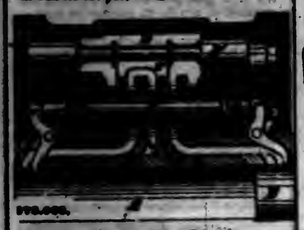
178,663. VALVES FOR DIRECT-ACTING ENGINES. Charles Rogers, Allegheny, Pa. [Filed Nov. 16, 1875.]

Brief.—The main piston strikes the tappet at one end of the cylinder and moves the auxiliary valve, which admits steam to one end of the valve-piston, and exhausts it from the other, to operate said valve.

1. The combination, with the chamber D and the double-headed piston C, annularly grooved or diametrically perforated and working in the chamber C, of the steam and exhaust ports *b b' d d'*, registering alternately at opposite ends, and piston C' having a continual by steam entering chamber C from chamber A, substantially as specified.

2. In combination with the double-headed auxiliary piston C, operating substantially as described, and the main piston B, the le-

ture or hinges *F F*, constructed and located with reference to the plates *C* and the ends of chamber *C*, as specified, whereby their heads will alternately strike the said ends at each full stroke of the piston *G*, substantially as and for the purposes specified.



178,665.

178,666. CHARGING VESSELS FOR EXPLOSIVE LIQUIDS. Israel M. Bean, Brook Haven, assignor to Prof. H. Drake and Wm. P. Wood, New York, N. Y. (Filed Dec. 30, 1875.)

Brief.—Reservoir and brush or pad so combined as to regulate flow of fluid, and to prevent spilling of contents in case of upsetting.



178,666.

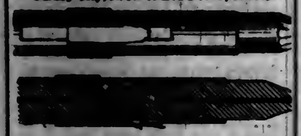
1. The combination, with the sponge, brush, or pad C, of the hollow conical distributer B, constructed to receive said sponge, brush, or pad within it, and so that the perforated apex of the cone projects away from the sponge, brush, or pads, substantially as specified.

2. The combination with the front or container A, of the hollow conical distributer B, constructed to receive the sponge, brush, or pad C within it, and with the apex of the cone arranged to project toward or within the container, substantially as described.

3. The adjustable sponge, brush, or pad holder D, in combination with the hollow conical distributer B, substantially as and for the purposes herein set forth.

4. The combination, with the screw-neck *e* of the front, of the conical distributer B, constructed to screw within said neck, and the sponge, brush, or pad holder D, constructed to screw within the conical distributer, essentially as described.

178,667. POCKET-PENCILS. Mark Safford, Melrose, Mass., assignor to O. Cleveland, Jersey City, N. J. (Filed Dec. 8, 1875.)



1. A pencil-holder consisting of a tubular case, adapted to receive a pencil within it, provided with an exterior carrier, from which a spur or flange projects to engage with the pencil and propel it longitudinally in the case, substantially as shown and described.

2. A pencil-holder consisting of a tubular case, adapted to receive a pencil within it, provided with a sliding sleeve carrying an elastic finger, from which projects a spur or flange, to adjustably engage with the pencil and propel it therein, substantially as described and shown.

3. The combination of the sliding sleeve *g* with the elastic finger of the sliding sleeve or carrier, substantially as shown and described.

178,668. CLASPS OR COUPLINGS FOR HARNESS. Ira A. Shimmin and Thos. Cogswell, Boston, Mass. (Filed Oct. 27, 1875.)



1. The plate B, having the fixed stud *c'* in combination with the plate D, having the studs *d* and *e*, substantially as set forth.

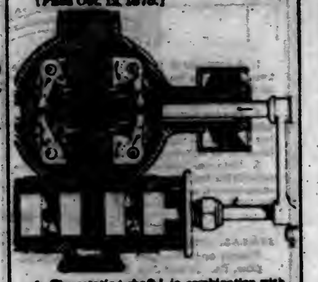
2. The loop, either united to and forming an extension of plate B, or separate from it, in combination with the coupler, consisting of plate B, with its studs, and plate or latch C, swinging upon the former stud and engaging with the one over which the loop is taken, substantially as and for the purpose set forth.

3. The plate D, constructed with the tongue *f* for the purpose of securing it to the stud *c'*, substantially as described.

4. In combination with the coupling herein described, the loop, attached to the rein in such manner that its finished side shall continue from the unfinished side of the latter, so as to present a continuous finished surface with it when looped, substantially as described.

5. In combination with the coupling, the sliding loop, contoured so as to form depressions in its inner surface for receiving the heads of the studs *c c'*, as set forth.

178,669. GOVERNORS FOR STEAM-ENGINES. Martin W. Stanley, Manchester, N. Y. (Filed Oct. 12, 1875.)



1. The rotating shaft *I*, in combination with weighted levers geared together at their weighted ends, substantially as described.

2. The rotating shaft *I* and weighted and geared arms, in combination with sliding sleeve and a spring adapted to rotate with the shaft *I*, and to operate substantially as described.

3. The rotating shaft, the weighted arms carried by the shaft, and the sliding sleeve and spring adapted to be operated by the arms, in combination with the valves, valve-rods, valve-chest, and connections between the valve-rods and sliding sleeve, substantially as described.

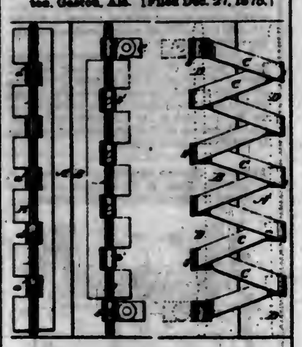
4. The combination of the sliding and rotating sleeve *q* with the connected valves, valve-rods, and adjusting devices, to confine the valve-rods in adjusted position with relation to the shafts *q*, substantially as described.

5. The compression-rod *F*, substantially as and for the purposes described.

178,670.

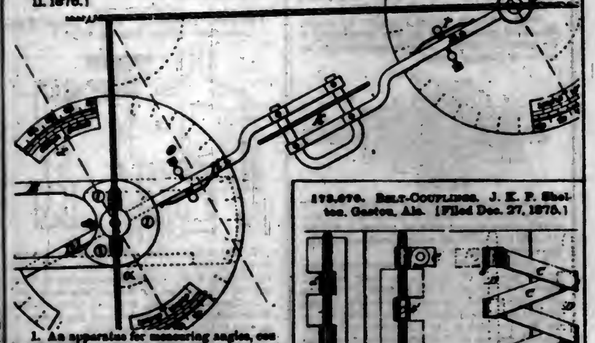


178,670. BELT-COUPLINGS. J. K. P. Shelton, Gaston, Ala. (Filed Dec. 27, 1875.)



1. The combination of the bow C and the wires D with the ends A B of a belt, provided with the square holes *a' b'*, in substantially the manner herein shown and described.

178,671. SURVEYING-INSTRUMENTS. Rudolf Schneider, Sagan Gotten, near Rosnitz, and F. W. Kraft, Vienna, Austria. (Filed Jan. 11, 1876.)



1. An apparatus for measuring angles, consisting of two twin instruments, suspended separately, and having their vernier plates connected together by projecting arms, substantially as and for the purposes set forth.

2. The combination of the carrier B, graduated plate *a*, pivoted vernier-plate and forming connecting-arm *a' a''*, substantially as and for the purposes set forth.

3. The connecting-arms, with horizontal magnet *c*, and magnetized plate *b*, substantially as and for the purposes set forth.

4. The swinging suspension arrangement, consisting of the fork *h*, pin *i*, cross-bar D, hooks *d' d''*, or their equivalents, in combination with the suspension-rod *F*, or its equivalent, substantially as and for the purposes described.

5. The arrangement for adjusting the level of each instrument, and consisting of the rack E, pinion *e*, and fixing screw *f*, or their equivalents, substantially as and for the purposes described.

178,672. LAMPS. George Shurvin and Richmond Semple, New York, N. Y. (Filed Jan. 3, 1876.)

The combination, with globe, of supports at top and bottom, having arms F, with rolls at end, the rings B, and the top extension working in holes of cross-bar, as shown and described, to prevent the globe from toppling when laid aside.

178,673. INVALID-CHAIRS. C. B. Sheldon, New York, N. Y. (Filed Jan. 6, 1876.)



1. The arms B, pivoted to the front standard C, and having pawls a upon their inner sides, in combination with the ratchet-bars F, placed below the upper edge of the seat-bars, and the connecting-rod S beneath the seat, slightly attached to the pawl-operating extension of the arms, substantially as and for the purposes described.

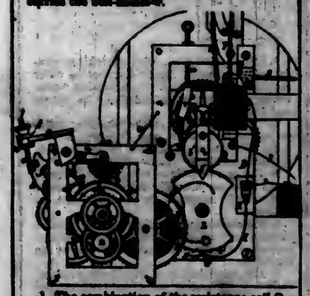
2. The pawl-plate E on the front seat-bar I, in combination with ratchet-bars L, attached to the chair-legs, substantially as stated.

3. The foot-rest bracers J, connected to the foot-rest G by the links M, arranged to swing past under the end bar of the foot-rest frame, and hook under the pivot-rod Q, substantially as specified.

4. The reversible foot-rest R, having recesses b upon its undressed side, in combination with the frame G, having a single set of bars, g, located in the central line of the bar, to and for the purposes described.

178,674. BLASTING GLOBES. R. J. Shanley, Boston, Mass. (Filed Nov. 16, 1875.)

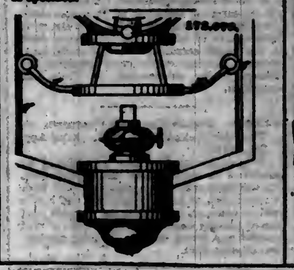
Brief.—To annul the bolt, connect the current around a resistance, through which it normally passes, thereby lessening the obstructive load of an electro-magnet sufficiently to operate an auxiliary armature, whose lever opens the ball-hammer.



1. The combination of the resistance coil G, the spring I, the duplex center L, and its operating gear *f*, viz., the primary and secondary circuits A B, their electro-magnet C, and its armature R, and the auxiliary armature V, attached to the ball-hammer, all being applied substantially as and to operate as specified.

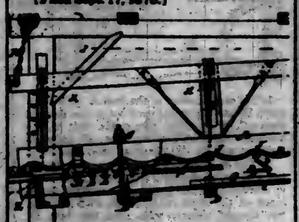
2. I claim, in combination with the electro-magnet C, and its primary armature R, a secondary armature, *r*, to operate with such magnet and primary armature, substantially as specified.

178,675.



178,675. LAMPS. George Shurvin and Richmond Semple, New York, N. Y. (Filed Jan. 3, 1876.)

178,676. FLOUR AND MEAL BOLTS. Edwin Slaight and John M. Graham, Albany, Mo. (Filed Sept. 17, 1875.)



1. A floor or meal bolt, consisting of a suspended movable frame and a flexible cloth, arranged in wave-like form between the boards A A of frame, as and for the purposes described.

2. The combination, with cloth B, of the cross-pieces J and longitudinal wires K, arranged to support it in the manner specified.

3. The combination of the knockers P and elastic straps Q R with the cloth B, substantially as specified.

4. The combination, with bolting-cloth B, partitions I, cross-pieces J, and longitudinal wires K, of tacks L and cords M, as and for the purposes specified.

5. The combination of the adjusting cord X with the elastic hangers Y and the swinging sleeve, substantially as specified.

6. The nut *c* of S, provided with notched handle T, in combination with spring W and cross-piece X, as and for the purpose described.

178,677. WHEELBARROWS. R. S. Smith, Good Hope, Ill. (Filed Jan. 10, 1876.)

Brief.—The arrangement and combination with a wind-wheel, of a conical pin provided with a socket, fitted on the top of the post with bosses, which are attached at their lower ends to a thimble, forming a durable and useful turn-table.



In combination with a wind-wheel, a turntable composed of the vane a, cross-head C, provided with the socket *f*, bosses *f f*, and thimble S, all constructed substantially as shown, and for the purpose set forth.

178,678. POCKET-PENCILS. D. M. Sessum, New York, N. Y., assignor to O. Cleveland, Jersey City, N. J. (Filed Dec. 8, 1875.)



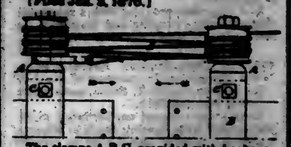
1. A pencil-holder, consisting of a slotted tubular case, adapted to receive a pencil within it, combined with a sliding carrier, by which the pencil may be propelled in and out of its case, the said carrier being provided with a projection having a curved slotted path to engage with and adjust the pencil, substantially as shown and described.

2. A pencil-holder, consisting of a slotted tubular case provided with a sliding pencil-carrier, and carrier being constructed with a bearing-notch, for engaging with the pencil, and adapted by its frictional bearings upon the exterior of the case to retain the pencil at any point of its longitudinal adjustment, substantially as shown and described.

3. In combination, with a longitudinally-slotted case, a sliding pencil-carrier, provided with a bent bearing-notch, so constructed as to permit a flat-sided pencil to pass freely underneath it, and engage its projecting corners or surfaces thereon when the pencil is slightly rotated, substantially as shown and described.

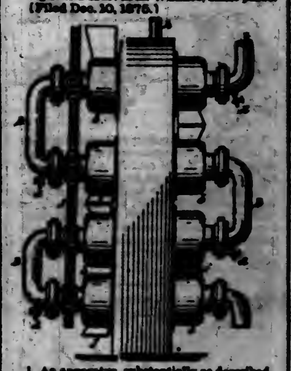
4. A sliding pencil-carrier, provided with a projecting tooth, having flange which bear on opposite sides of a corner or rib of a polygonal pencil, whereby said pencil may be readily inverted to a proper point in its case, substantially constructed to said carrier, and propelled longitudinally therein, substantially as shown and described.

178,679. BELT-GUARDS. Frederick L. Spinney and Wm. Spinney, New York, N. Y. (Filed Jan. 3, 1876.)



The clamps A B C, provided with hooks, as shown, in combination with end pulleys, adapted to be operated by cords, substantially as and for the purposes specified.

178,680. GRAIN-DRYERS. Charles B. Storey, Richmond, Va., assignee of one-half his right to Gustavus A. Wallace, same place. (Filed Dec. 10, 1875.)



1. An apparatus, substantially as described, consisting of two or more cylinders and provided with means for carrying material to be dried through a connecting cylinder at a higher rate of speed than it was carried through a preceding cylinder, substantially as and for the purpose set forth.

2. The combination of steam-chest A and two or more cylinders, B, with two or more hollow shafts, C, connected by a neck, D, and provided with flights *e* and with gear-wheels F of varying size, substantially as described.

3. The combination of steam-chest A and two or more cylinders, B, with two or more hollow shafts, C, connected by a neck, D, and provided with flights *e e'* varying in pitch, and with suitable gearing, substantially as described.

4. The cylinder B, provided at one or both ends with a detachable cap or caps, b, having an opening, *f*, for charging or discharging the cylinder of the material to be dried, and another opening to form a bearing for the shaft C, substantially as and for the purpose set forth.

5. The combination of steam-chest A, two or more cylinders, E, provided with detachable caps b and rest-tubes f, two or more hollow shafts, C, connected by a neck, D, and provided with fingers e and gear-wheels I, substantially as and for the purpose described.

178,079. TOBACCO-PIPE. H. B. Stephenson, Troy, N. Y., assignor of one-half his right to Wm. H. Bennett, New York city. [Filed Jan. 19, 1876.]



1. A tobacco-pipe the stem whereof is provided with a vitreous lining, extending from the bowl to the mouth-piece, substantially as described.

2. The combination of the stem A, glass lining-tube B, and packing-ring, substantially as described.

3. A pipe-stem provided with a removable vitreous lining, extending from the bowl to the mouth-piece, substantially as described.

178,080. DOOR-SPRINGS. Ashbel A. Stillman, Martinsburg, W. Va., assignor of one-half his right to Charles T. Stubbs, same place. [Filed Nov. 29, 1875.]

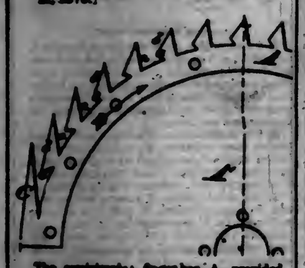
Brief.—The essential novelty being an adjusting-disk with tapering teeth, in which a wedge-shaped lever actuated by an inclosed spring engages, together with certain details of construction.



1. The disk A, tapering projections or teeth *a' a'*, lever C, in cross-section, of a wedge-shape, spring D, and cams E, substantially as and for the purposes set forth.

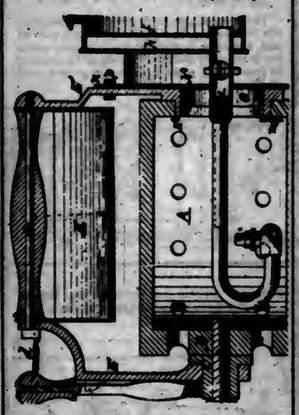
2. The cams E, made in two parts, *b b'*, fitting one within the other, and each being so mounted as, jointly, to form eyes for the reception of the ends *a* of the disk or wheel A, and combining the retaining-spring D of the lever C, substantially as and for the purpose set forth.

178,081. HARVESTER GUARD-FINGERS. M. Stone, Battle Heights, Ohio. [Filed Aug. 21, 1875.]



The combination, finger-bar A, provided with fingers, the edges *a b* of which are oblique to the line of back, and make an acute angle with each other, and having angular recesses at their bases to hold the grass or grain, and provided with plate *d*, substantially as described.

178,082. FLUTING-IRONS. Fredk. R. Sutton, Kankakee, Ill. [Filed Jan. 21, 1876.]

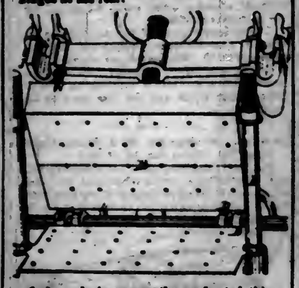


1. The combination of the iron A, with nose-piece B, having radial grooves *c*, the flanged sleeve C, with radial ribs *p*, the bolt D, the handle-frame, and locking-lever, all substantially as and for the purposes herein set forth.

2. The combination of the iron A, with the top and bottom smooth surfaces, the stationary corrugated fluting-plates J, attached to the sides of the same, the nose B, with grooves, the flanged sleeve, with ribs, the bolt D, levers F E, handle G, and annular flange F, all constructed substantially as and for the purposes set forth.

178,083. STEAM-DRYING PRESSES. Samuel Sowden, Buffalo, N. Y. [Filed Aug. 2, 1875.]

Brief.—For drying paper, lumber, cloth, &c., while under pressure. The perforations through its press-plates permit the moisture of the material to pass off. The split screw-threaded nuts allow the upper plate to be readily disconnected from the standards, and to be thrown open, swinging upon the hollow hinges at the rear.



1. In a drying-press, the perforated thimbles located within the steam-chamber, as and for the purpose described.

2. In a drying-press, the hinge-joint, in combination with the steam-chamber, for the purpose set forth.

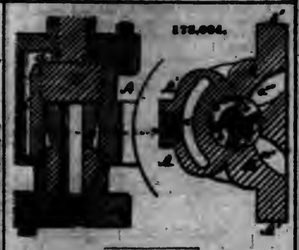
3. In a drying-press, screw-nuts, in combination with the standards, for the purpose set forth.

4. In combination with the standards of a press, divided screw-threaded nuts, substantially as described.

178,084. ROTARY VALVES. John P. Sweet, Cedar Rapids, Iowa. [Filed Aug. 14, 1875.]

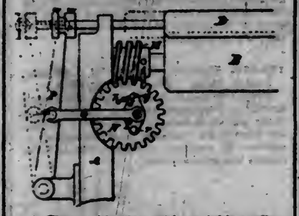
Brief.—Exhaust steam passes to the rear end of the valve, and from thence to the exhaust-port.

The relative arrangement within the casing A and plug or valve B of the ports or openings *a, a', a'', a''', a'''', b, b', b'', b'''*, respectively, substantially as and for the purpose shown.



178,085. INKING APPARATUS FOR PRINTING-PRESSES. Gershom D. Tucker, New York, N. Y. [Filed Oct. 11, 1875.]

Brief.—Applied to presses in which the bed is represented by a sample-rack and a traveling platen on a jointed shaft. A supplemental shaft geared to the driving-shaft actuates, through bevel-gears, the cam-shaft operating the oscillating supply-rollers, and, through belts and pulleys, the rotating distributing-drum. On the shaft of the latter is a worm, driving a wheel connected by an adjustable crank-rod to an oscillating lever, giving longitudinal vibration to the distributing-rollers resting on the drum. The table-distributors are supported in bearings swiveled in horizontally-adjustable boxes, by which the degree of their obliquity on the table is regulated.



1. The combination, with an inking-cylinder, of a traversing top or distributing roller or rollers, a vibrating lever, a rotating worm-wheel, and a worm, substantially as shown and described.

2. The combination of the vibrating roller or rollers D, lever P, rod O, wheel R, and worm M with an adjustable crank-pin, substantially as shown and described.

3. The combination of rollers D D, lever P, worm M, worm-wheel N, and adjustable plate *s* and rod O, substantially as shown and described.

4. Distributing-rollers provided with means, substantially as described, for their adjustment horizontally in oblique positions over the ink-table.

5. The combination of distributing-rollers, their carrying bearing-posts, and horizontally-adjustable stocks, substantially as shown and described.

6. The combination of the transverse shaft *o*, longitudinal shaft K, bevel-gears L V, and spur-wheels 29 30, for actuating the ink-conveying rollers C or F, substantially as shown and described.

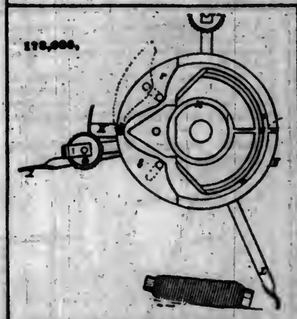
7. The combination of the transverse shaft *o*, spur-wheels 29 30, bevel-gears, longitudinal cam-shaft K, and pulleys *i* and *h*, substantially as shown and described.

8. In an inking apparatus, the combination of ink-carrying rollers C or F, a cam-shaft for vibrating them, an inking-cylinder, with spur-wheels 29 and 30, and transverse shaft *o*, the latter actuating the cam-shaft, and through inking, continuously rotating the inking-cylinder, substantially as shown and described.

178,086. ROTARY KNITTING-MACHINES. O. Terrombly, Lake Village, N. H. [Filed Apr. 22, 1876.]

Brief.—The machine can be adjusted by means of an abutment on the needle-wheel, an auxiliary arm, and a movable stud with clamp-screw, so as to readvance and halt a web or band, or, by turning the movable stud out of the way and adjusting the cams, it will operate as a rotary machine, knitting continuous tubular work.

178,086.



1. In combination with the horizontal needle-wheel or dial C, with the needles arranged therein to move radially, I claim the cam-wheel or cap B, provided with the groove *a* and pivoted adjustable cams *e*, arranged as described, for operating the needles as set forth.

2. In a knitting-machine, having its needle-wheel C and its cam-wheel D constructed and arranged as herein described, the combination of the auxiliary arm F with the abutment *h* and movable stud *i*, provided with clamp-screw *k*, as and for the purpose set forth.

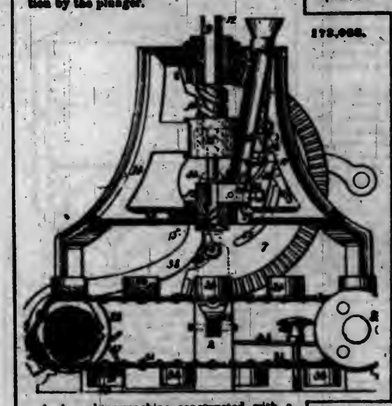
178,087. STREET-LAMPS. P. S. Underhill, Fort Wayne, Ind. [Filed Dec. 30, 1875.]



The globe-cone E, having the springs F F, in combination with the globe *a* and tumbler or cap G, substantially as and for the purpose set forth.

178,088. MACHINES FOR CORKING BOTTLES. Mann S. Valentine, Richmond, Va. [Filed Aug. 4, 1875.]

Brief.—The bottles are brought, lifted up to the cork-guide, and held fixed by an endless apron having sockets, and operated upon by the devices shown. The corks pass through the magazine and guide, and are forced into the bottle-neck with a downward rotary motion by the plunger.



1. A corking-machine constructed with a plunger, receiving a combined vertical and rotary motion, substantially as and for the purpose set forth.

2. The combination of the vertically moving and rotating plunger 9 and the spirally-grooved corking-guide 13, substantially as described.

3. The combination of the cork-magazine 16 and spring-catch 17, 18 with the follower 24, for delivering the corks successively, as described.

4. The combination of the intermittently-moving apron 31 and the elevating-lever 41 with the corking-guide 13, for carrying the bottles successively beneath the said corking-guide, and elevating them in fixed position to receive the corks.

5. The spring 43, to afford a yielding bearing to the elevating-lever 41, by which the bottles are supported in position for corking.

6. The combination of the cam 47, pin 48, connecting-rod 46, and horizontal shaft 4, operating substantially as and for the purposes set forth, in connection with the elevating lever 41.

7. The combination of the ratchet wheel 35, pawl 36, apron 37, connecting-rod 38, and crank 39, for imparting intermittent motion to the shaft 32* of the driving-roller of the apron, as explained.

8. The combination of the notched disk 55 and spring-catch 57, to determine the intermittent motion of the apron 31, and retain it against accidental movement, as explained.

178,089. BOTTLE-NECKS. Mann S. Valentine, Richmond, Va. [Filed Oct. 2, 1875.]

Brief.—An internally threaded neck of a bottle, the threads or grooves being deepest in the center, and gradually dying out before reaching the upper and lower extremities of the neck, takes a full and effective hold on the central part of the cork without imparting the air-tight fit of its ends.

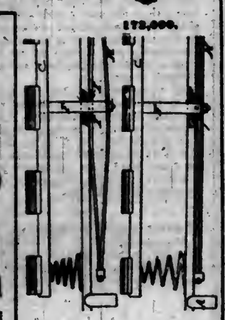


A bottle-neck constructed, as herein described, with an internal screw, the threads of which are of greatest depth at about the mid-height, and with grooveless surfaces expanding upward and downward from the upper and lower terminations of the screw, as herein shown and described.

178,090. SPRING BED-BOTTOMS. William R. Van Houghton, Chicago, Ill. [Filed Dec. 27, 1875.]

The elliptic spring H, in combination with the bar F, the cross-piece B', and the cross-piece C, operating substantially as herein specified.

178,090.



178,091. STOVE-FUNNEL ATTACHMENTS. Henry Vatter, Haverhill, Mass. [Filed Dec. 20, 1875.]

Brief.—The adjustment-plates and the eduction-slide can be transposed.

The combination of the flanged eduction-slide B, and the series of flanged adjustment-plates *c c*, with the pipe A, provided with the opening *a*, and the flanges *b b* thereto, all being arranged substantially as specified.

178,092. HAMES. A. R. Weakes, Madison County, Tenn. [Filed Aug. 26, 1875.]



1. The sliding connection D, having slot S, and hinged to the rod A, in combination with the plate B, having bars C, which pass through the slot in the connection for holding the same in position, and forming a draft-connection, all substantially as set forth.

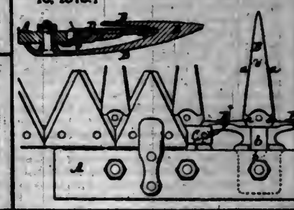
2. The spring-rod E and staple A, connected to the hame, in combination with the plate B and its bars, and the slotted and adjustable trace-connection D, all substantially as set forth.

178,093. CAN-SEALING DEVICES. R. Wells, Baltimore, Md. [Filed Dec. 27, 1875.]



The combination of the outer screw-threaded plug A with the inner screw-threaded plug B, having an elastic stopper, C, chamfer *d*, and means for turning the same into place, substantially as described.

178,094. HARVESTER CUTTING APPARATUS. C. Wheeler, Jr., Auburn, N. Y. [Filed Dec. 16, 1875.]



1. In combination with a knife-bar, having its rivet-holes punched or drilled at equal distances apart, the sections or cutters punched or drilled with two rivet-holes each, spaced to match said holes in the knife-bar, substantially as and for the purpose described.

2. I also claim a ligger-plate, composed of the steel plate a, and malleable cast-iron shank b riveted thereon, and extending under the finger-bar, as and for the purpose described and represented.

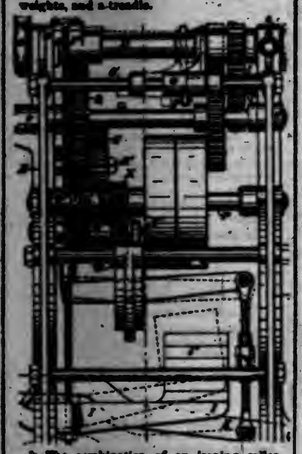
172,086. TINNERS' FIRE-POTS. J. H. Whitting, Salem, Ohio. [Filed Dec. 16, 1875.]



The furnace A B, having draft-openings b and slide c' at the lower part of the base, and door d opposite the burner, in combination with shells C C', forming air-chamber C', disk D, having slot e and flanges b b, and pipe E, having burner H, substantially as and for the purpose described.

172,087. INCRUSTO APPARATUS. Thomas S. Wiles and Alonzo P. Adams, Albany, N. Y. [Filed Nov. 19, 1875.]

Brief.—An ironing-roller adapted to be heated internally has a crossing-rib on its surface, and operates in conjunction with a tapering roller, the surface of which is covered with cloth. The rollers project outside of the frame of the machine, and the shaft of the upper roll is pivoted at the farther end to the frame, and all are operated by shifting-gearing, so that the rollers may be driven at different rates of speed, and adjusted by levers, weights, and a treadle.



1. The combination of an ironing-roller adapted to be heated internally, and a tapering roller having an elastic covering with a surface of cloth or equivalent fabric, whereby articles of cloth may be passed between and ironed by these rollers in an arc of a circle or curved course, substantially as described.

2. The combination of a roller having an elastic covering with a surface of cloth or equivalent fabric, and an ironing-roller constructed to be heated internally, and with a crossing-rib, e, on and around the ironing-roller, whereby articles of cloth will be ironed on one side only, and will at the same time have a groove-like crease made in the same side, substantially as set forth.

3. The combination of an ironing-roller, constructed and mounted so that it can be heated internally, and a roller covered with cloth or equivalent fabric, and constructed and mounted on a supporting and driving shaft, so as to rest thereon, substantially as described.

4. The combination of a roller, B, covered with cloth or equivalent fabric, and a hollow ironing-roller, A, open to and detachably secured upon the overhanging end part of a rotary tubular shaft, D, by means of male and female screws, and end bearings in and upon the said tubular shaft and hollow ironing-roller, substantially as described.

5. The combination of a hollow ironing-roller, A, open to and detachably secured upon the overhanging end part of a rotary tubular shaft, D, supported by journal-bearings at one end only of the ironing-roller, and a roller, B, having a surface of cloth or equivalent fabric, and detachably secured upon the overhanging part of a rotary shaft, C, supported by journal-bearings at one end only of the said clothed roller, substantially as described.

6. In combination with a roller, B, having an outer covering of cloth or equivalent fabric, a hollow ironing-roller, A, open and open to the interior of a tubular shaft, D, having a lateral aperture, k, surrounded by a flue, G, between the ironing-roller and the adjacent journal-bearing of its tubular shaft, substantially as set forth.

7. The combination of a roller, B, having a covering of cloth or equivalent fabric, and mounted on a shaft turning in stationary bearings, and a hollow ironing-roller, A, on and open to a tubular shaft, D, mounted to turn in a pivoted journal-box, F, at the end farthest from the ironing-roller, and in a sliding journal-box, F', adjacent to that roller, substantially as shown and described.

8. The combination of the clothed roller B on a shaft, C, mounted to turn in a constant position, the ironing-roller A on a shaft, D, mounted to turn in the pivoted journal-box F and sliding journal-box F', and the weighted lever I, connected with the said sliding journal-box by rods H H', arranged to operate substantially as described.

9. The combination of the clothed roller B on the shaft C, the ironing-roller A on the shaft D, mounted in the pivoted box F, and the sliding box F', the weighted lever I, connecting-rods H H', lever M, rod L, and treadle-lever K, substantially as described.

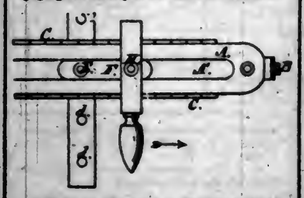
10. The combination of a hollow ironing-roller capable of being heated internally, a roller having a surface covering of cloth, and adjustable gearing, by which the ironing-roller can be made to turn either at a faster surface-speed than the clothed roller, so as to produce a polished ironed surface, or at substantially the same surface-speed as the clothed roller, so as to produce a lusterless ironed surface, substantially as described.

11. In combination with an ironing-roller adapted to be heated internally, and a roller covered with cloth or equivalent fabric, and geared to turn in surface-contact with the ironing-roller, the rotary driving-shaft P connected with the said geared rollers by adjustable gearing, substantially as described, whereby the said driving-shaft can be made to turn the ironing and clothed rollers at different rates of speed suitable for ironing articles of different thicknesses.

12. In combination with an ironing-roller, A, on the shaft D, and a clothed roller, B, on the shaft C, the driving-shaft P, having the adjustable pinion X thereon, the sets of wheels and pinions W V, U T, S R, the wheels Q and E on the shafts C, the wheels and pinions f h l, and the sliding adjustable pinion m on the shaft D of the ironing-roller, substantially as shown and described.

172,097. CARPET-STRETCHERS. H. S. Wing, Schenectady, N. Y. [Filed Dec. 16, 1876.]

Brief.—A slotted body with ratchet-teeth on each side, and a double operating-lever engaging alternately in the teeth of the rack.

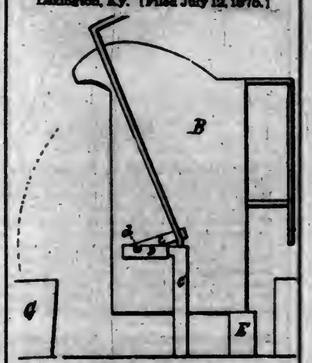


1. In a carpet-stretcher, the single body-piece A, with central longitudinal slot A' and exterior lateral racks C C, its front end being provided with the spike B, substantially as and for the purpose described.

2. In a carpet-stretcher, the combination, with the double rack-bar and holder, of a double-acting ratchet-faced lever, substantially as and for the purpose set forth.

3. In combination with the slotted bar A A', with racks C C, the piece or tongue F, sliding in slot A, and hand-lever G, with engaging faces g g, as and for the purposes described.

172,098. PITCHERS. Lucien B. Woolfolk, Lexington, Ky. [Filed July 12, 1876.]



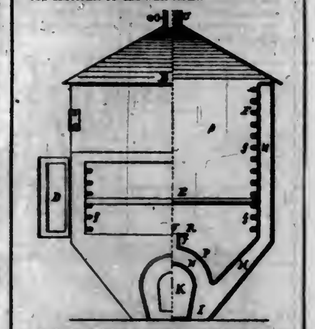
1. The combination of the base A, upright support C, pitcher B, having spout c, side arms, pivots d, upright rod E, thimble-cloth D, and handle F, substantially as described.

2. The combination, with the thimble-cloth D, upright C, and arms c, of the pivots d, constructed and arranged substantially as set forth.

3. The combination, with the support C and pivots d, of the thimble-cloth D, substantially as described.

172,099. FRUIT-DRIERS. John J. Tuscher, Mansfield, Ohio, assignor to himself, Geo. W. Scott, and Charles B. Norman, same place. [Filed Mar. 22, 1876.]

Brief.—The inner wall unites at its top with the outer one, forming a hot-air chamber. There are perforations through the inner wall between the ledges, which are formed out of the material of the wall itself.



1. A fruit-drier consisting of the body A, with furnace K and ventilator C, and provided with the inner walls F F, forming air-passages H H N at the sides of the body and over the furnace, said side passages being closed at the top, and having side openings h h, and said central passages terminating in the ridge E having openings J J, the several parts being arranged and combined substantially as and for the purpose specified.

2. The inner wall F of a fruit-drier made of sheet metal, and having the ledges or corrugations f formed therein, substantially as and for the purpose specified.

172,100. SUPPORTERS FOR COTTON-PICKERS. William J. Lynch, Old Town, Ark., assignor of two-thirds his right to Willis V. Johnson, same place. [Filed Dec. 27, 1876.]

172,100.

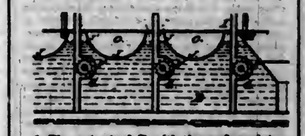


1. The herein-before-described support for cotton-pickers, consisting of the staffs B, having pivoted foot-rests C, sliding cylinders D, rings H, passing through eyes J, and provided with projecting arms or shoulders G, and wedge-shaped lug c, in combination with the spring F and bolt A, the several parts being constructed, arranged, and combined to operate substantially as and for the purpose described.

2. The staffs B, provided with the pivoted movable foot rest C, sliding cylinders D, and rings H, substantially as shown and described.

3. The bolt A, provided with the shoulder-stops E, in combination with the springs F and staffs B, substantially as described.

172,101. OIL-STOVES. Erastus B. Hood, Erie, Pa., assignor to James A. Morehead. [Filed Jan. 7, 1876.]

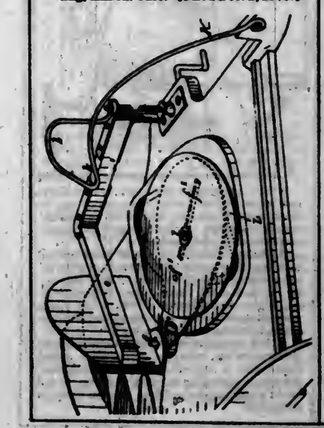


1. The water-tank B, with the surface-plates J made concave, as shown, forming the air-flues O, and the thin column of water near the top of the tubes, as shown, and for the purposes mentioned.

2. The concave plates J, with their upper edges J' blackened, for the purpose of absorbing heat, and their center polished, for the purpose of reflecting heat, as shown, and for the purposes mentioned.

3. The reflecting-disk C, in combination with the oil-tank A, as shown, and for the purposes mentioned.

172,102. HARVESTER-RAKES. J. F. Sutherling, Akron, Ohio. [Filed Dec. 2, 1875.]



1. The combination, with the platform, of the endless chain moving in an irregular path near the inner end on the platform, the chain-lever pivoted to the chain, the outer end of which carries a rake, and the other end of which is supported by a bearing located centrally of the chain-track, and around which the lever is revolved by the chain, substantially as described.

2. The combination, with the endless chain traveling the irregular track on the platform, of a chain-lever that will permit a variation of its length between the central bearing and the chain-pivot, for the purpose set forth.

3. An arm or lever, for carrying a rake around a center on the platform, made of thin sheet-metal, and the inner end made in a circular form to prevent the grain from catching thereon, to obviate the necessity of a shield to protect the same, substantially as described.

4. The shield sagging loosely on the platform and arm that carries the rake, and centrally pivoted, so that it can either revolve or remain stationary, as described.

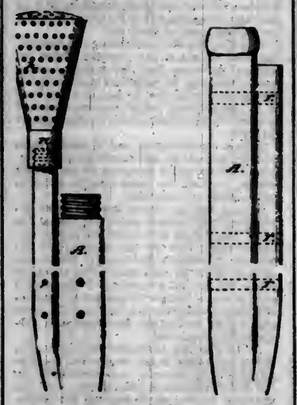
5. The combination, with the platform, of the chain, traveling an irregular path on the platform, the chain-lever, operating as described, and the jointed rake-stale, when operating together, as set forth.

6. The spur or projection on the under side of the end of the arm that carries the rake, to sweep the space between the arm and the platform, as described.

7. The rake-guard or feeder-rod K, one end of which is supported on the inner dividing-board, and the other end by the stand that supports the rake-stale, as shown and described.

172,103. VENTILATING DRIVEN WELLS. J. Suggett, Cortland, N. Y. [Filed Nov. 8, 1875.]

Brief.—A constant supply of air is furnished, ventilating the well, and preventing the formation of a vacuum, and consequent hard working of the valves.



1. The union of a second ventilating-pipe, B, Fig. 1, either separated from, or connected with, or inside or outside of, the suction-pipe of a driven well, for the purpose of ventilating the same, all substantially as set forth.

2. The combination of two rods, A and B, Fig. 2, for the purpose of making a suitable hole for the insertion of said suction and second or ventilating pipes, as substantially described and shown.

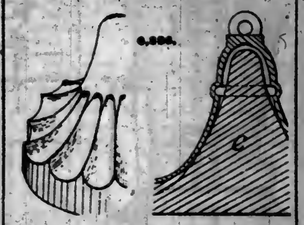
REISSUES.

6,806. METHODS OF MAKING SMOKE-BELLS. Jas. S. Atterbury and Thos. B. Atterbury, Pittsburg, Pa., assignees to Ditheridge & Co., same place. Patent No. 57,068, dated Aug. 14, 1866. [Filed Dec. 22, 1876.]

1. The method herein described of forming the eye or loop of the smoke-bell by projections on the inside of the mold, which, when the latter is closed, extends across the forming-cavity.

2. The method of crimping or fluting glass smoke-bells and other articles by means of a former, having radially-projecting edges, herein described.

3. The former, for crimping or fluting glass smoke-bells and other articles, having radially-projecting edges, as described.



6,806.

6,807. SWEEPS FOR CULTIVATORS AND PLOWS. Elias Halman, Columbus, Ga. Patent No. 147,633, dated Feb. 17, 1874. [Filed Dec. 18, 1875.]

Brief.—Ridges and flanges formed upon the sweep to stiffen and strengthen it.

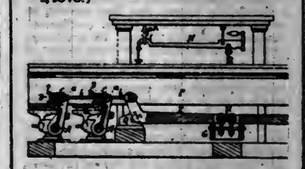


1. The ridge or bead a^2, formed upon the middle part of the sweep, between the bolt-hole and the point, substantially as herein shown and described.

2. The flanges a^3, formed upon the upper edge of the wings a^1, substantially as herein shown and described.

3. As a new article of manufacture, a sweep, A, having the bead a^2 and the flanges a^3, arranged as described.

6,808. PLATFORM-SCALES. Wm. W. Reynolds, Brandon, Vt., assignor to the Brandon Manufacturing Company. Patent No. 122,321, dated Oct. 10, 1872. [Filed Dec. 1, 1875.]



1. The knife-edge supporter C, provided with the knife-edge a, and pivoted to the arm B of the platform-bearing levers, each application being for use as set forth.

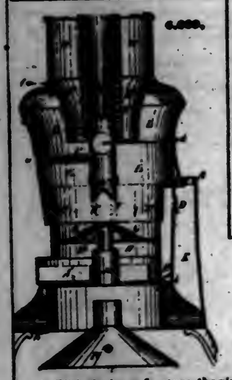
2. The combination of the bent lever B, one or more shafts, A, and the end arms a a and intermediate arm B, extended from each of said shafts, as set forth, each lever E and the said arm or arms B having connections, and all being applied to a scale-platform, P, substantially as represented.

3. The combination of the levers G E, one or more shafts, A, and end and intermediate arms a a B, extended from each of such shafts, as represented, the said levers, shaft or shafts A, and the arm or arms B thereof having connections, and being arranged with a platform, P, all substantially as explained.

4. The overbalance-ball K and its arm d, arranged outside of the beam-rest I, in combination with the step J, arranged within such rest and connected with such arm, all being as shown and described.

6,809. BASE-BURNING STOVES WITH CENTRAL AIR-PASSAGES. Hiles Smith, Albany, N. Y., assignor, by mesne assignments, to Saml. H. Ransom, trustee. Patent No. 126,840, dated May 14, 1872. [Filed Oct. 27, 1875.]

6,889.



1. With the base of a stove, the pipe M, provided with removable cap, extending up through the ash-pit to the fire-bed, substantially as and for the purpose specified.

2. A funnel-shaped deflector, E, pipe M, and recessed base, combined substantially as and for the purposes set forth.

3. In a heating-stove provided with a recessed base and annular flue, I, the deflector E, to deflect the heat radiated from the interior and lower surfaces of said flue into the room, substantially as described.

4. The centrally-perforated fire-bed G and horizontal tube V in combination with the open-ended pipes or flues M and O, substantially as and for the purposes specified.

5. The combination of the suspended air-pipes O and Q, substantially as and for the purposes set forth.

6. The perforated jacket or tube T, in combination with the air-pipe O, substantially as and for the purpose described.

7. The damper O, in combination with a vertical flue or flues, and a base-flue, substantially as and for the purposes specified.

8. In a heating-stove, the combination of the contiguous ascending and descending rear flues, connecting base-flues entirely below the ash-pit chamber, a concave or disk-shaped grate, as illustrated flue, J, the dampers O and D, and the cam A, combined to operate substantially as and for the purposes set forth.

9. In a heating-stove, the combination of a descending instead rear flue, opening directly into the bottom of the combustion-chamber, adapted to prevent the products of combustion from rising above the bottom of the magazine, and an inclined ascending flue in rear of the first-named flue, and of equal length therewith, and separated in its whole length from it by a partition only, substantially as and for the purposes described.

10. In a heating-stove, the combination of contiguous ascending and descending flues in the rear, inclosed within the shell of the stove, and connecting flues in the base of the stove, entirely below the ash-pit chamber, substantially as described.

11. In a heating-stove, the combination of the dampers O and D and the ash-pipe, for the purpose of providing a direct passage for the escape of dust from the ash-pit chamber to the ash, substantially as described.

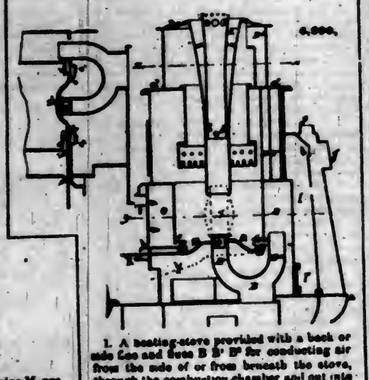
12. A conical or disk-shaped grate, G, provided, with orifice G' in the center thereof, adapted to admit a flow of air to the center of the incandescent fuel, in combination with pipe M, provided with removable cap E.

13. In a heating-stove, and in combination with rear inclined reverberate flues, the illustrated gas-flue, placed between the base of the combustion-chamber proper and the lower end of the fire-pot.

6,890. RAIN-DEFLECTING STOVES. Miles Smith, Albany, N. Y., assignor, by mesne assignments, to S. H. Hammer, trustee. Patent No. 127,060, dated June 4, 1872. [Filed Nov. 6, 1875.]

Brief.—The grate is supported directly or indirectly upon the dust-ring, and is detached from the walls of the stove. The descending and ascending flues are formed at the rear of the stove, and communicate with a flue beneath the ash-pan chamber.

6,890.



1. A heating-stove provided with a back or side flue and flues B B' B² for conducting air from the side of or from beneath the stove, through the combustion chamber and out into the room, substantially as and for the purpose set forth.

2. In a heating stove, provided and in combination with back or side flues, flues B B' B², for conducting air from the side, or from the floor below the stove, through the combustion chamber, and out into the room, and the flue F, substantially as described.

3. The combination of the curved tube B B' B² and central and side flues C and D, substantially as described.

4. The curved branch B² of the flue B, to permit the damping of the grate or fire-bed.

5. The combination of the deflector A, tube B B' B², and flues C and D, substantially as described.

6. The flue B, with its branches B' B², in combination with the combustion-chamber and an opening through the side or bottom of the stove for the admission of fresh air.

7. In a heating-stove, ascending and descending flues inclosed at the rear and within the walls of the stove, flues below the ash-pit, a grate or fire-bed the periphery of which is below the bottom of the fire-pot, and the front of the fire-pot cut away at its base, combined to operate substantially as and for the purposes set forth.

8. In a heating-stove, and in combination with the grate or fire-bed placed below the bottom of the fire-pot, a dust-ring in the ash-pit section, to guide the ashes into the ash-pan, substantially as described.

9. In a heating-stove, ascending and descending flues inclosed within the rear of the stove, flues in the base below the ash-pit section, a space between the periphery of the grate or fire-bed and the bottom of the fire-pot, an opening in the outer shell of the stove, opposite the fire-pot, a dust-ring in the ash-pit section, and a damper in said ash-pit section, affording communication between the same and one of the vertical flues, combined substantially as specified.

10. In a heating-stove, and in combination therewith, a dust or ash ring within the ash-pit, projecting inwardly and downwardly, for the double purpose of guiding the ashes and débris of the fuel above into the ash-pan below and of forming a support to the grate or fire-bed, substantially as set forth.

11. In a heating-stove, a grate or fire-bed below the bottom of the fire-pot, and supported upon lugs or studs on the dust-ring, substantially as described.

12. In a heating-stove, a fire-pot shortened in front, a grate or fire-bed below the bottom of the fire-pot, a dust-ring in the ash-pit, and an opening or openings in the shell or wall of the stove, opposite the lower portion of the fire-pot, and combined to operate substantially as and for the purposes set forth.

13. In a heating-stove, and in combination therewith, an independent illustrated section around the fire-pot, and with no communication between it and the combustion-chamber, in combination with an open space between the wall or shell of said section and the fire-pot, substantially as specified.

14. In a heating-stove, the rear projections, whereby the flues inclosed therein rise above the top of the fire-pot and take the products of combustion from the combustion-chamber at a point above the top of said fire-pot, in combination with a base-flue below the bottom of the ash-chamber, substantially as set forth.

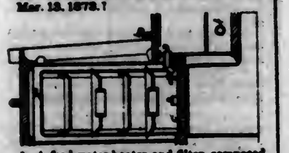
15. In a heating-stove, and in combination therewith, a grate supported, as whole or in part, upon the dust ring, and entirely detached from the inner walls of the stove, and with its periphery below the bottom of the fire-pot, substantially as and for the purposes set forth.

16. In a heating-stove, and in combination, a grate or fire bed entirely detached from the walls of the stove, a fire-pot, a combustion chamber, and a rear and base system of flues, whereby air taken from the front through the usual draft-openings and in the draft-chamber, highly heated, passes around the periphery of said grate and is conducted down the descending flue, around the base, and up the ascending flue, for the purpose of heating the rear of the stove, substantially as shown and described.

17. In combination with a fire-pot, the flange *c*, for the purpose of deflecting the coal onto the grate and preventing it from wedging between the grate or fire-bed and fire-pot, substantially as described and shown.

18. In a heating stove, the grate or fire-bed entirely detached from the walls of the stove and capable of being rotated, substantially as described and shown.

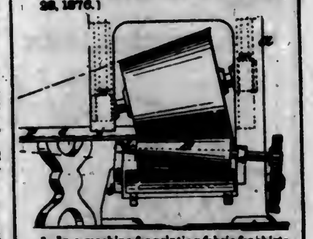
6,891. FEED-WATER HEATERS AND FILTERS. James Armstrong, Toledo, Ohio. Patent No. 81,971, dated Sept. 8, 1868; reissue No. 3,694, dated Feb. 16, 1870. [Filed Mar. 13, 1875.]



1. A feed-water heater and filter, composed substantially of a series of heating and depositing pans, a sediment collecting chamber and a filter-chamber, arranged in such relation to each other that the water is first passed successively over the pans for heating by steam for the deposit of crystallizable salts, thence into a sediment-chamber, where the heavier elementa settle, and from which it passes through filtering material in a filter-chamber of large area, where the remaining separable impurities are removed, substantially as here in before set forth.

2. The combination, in a feed-water heater and filter, of a series of pans over which the water flows, a steam-pipe, and a valve to regulate the admission of steam to the pans, substantially as set forth.

6,892. MACHINES FOR PRINTING AND EMBOSSING SHIRTS. Henry J. Devlin, Brooklyn, N. Y., assignor to Jas. G. Bennett and Andrew H. Smith, same place. Patent No. 127,194, dated May 28, 1872. [Filed Jan. 28, 1876.]



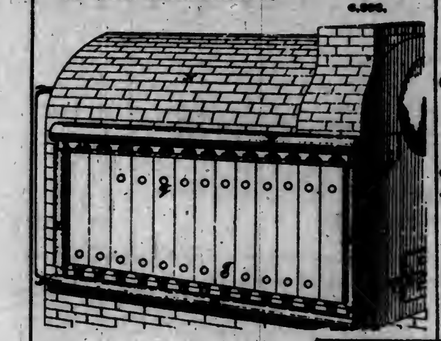
1. In a machine for printing fabric for shirts and other articles, the combination of one or more conical printing-rollers and a conical impression-roller, arranged to operate together substantially as specified.

2. The combination of one or more conical printing-rollers, a conical impression roller, arranged for operation in connect with the latter, an open-sided frame supporting said rollers, and a feed table, over which the goods are fed to the rollers, essentially as herein described, for the purpose set forth.

3. The combination of one or more conical printing-rollers, mounted in an open-sided frame, and a supporting impression-surface, the two co-operating to print a design in the arc of a circle upon a fabric, substantially as described.

6,893. SECTIONAL STEAM-GENERATORS. E. Densmore, Brooklyn, N. Y. Patent No. 108,288, dated Oct. 18, 1870; antedated Oct. 4, 1870. [Filed Dec. 15, 1875.]

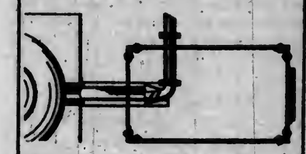
6,893.



The combination, with the hollow walls or exterior and upright steam-generating chambers a c, of the reversely-inclined tubes b b, arranged to independently and directly connect at their opposite ends with the same walls or upright chambers, substantially as specified.

6,894. PROCESSES FOR TREATING FURNACE-SLAG. Augusta A. Gleitsmann, Asheville, N. C., administratrix of John Player, deceased, for herself and as assignee of H. McAllister, Jr., administrator of said John Player. Patent No. 108,680, dated May 31, 1870. [Filed Dec. 28, 1875.]

Brief.—A blast or jet of air or steam is allowed to impinge upon the molten slag, which is thereby blown into filaments. A substance is produced for covering boilers, steam-connections, cabs, &c.



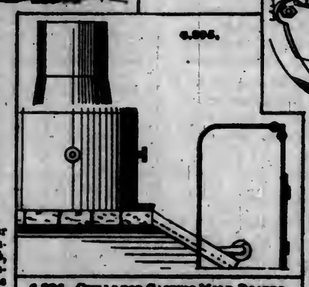
The method hereinbefore set forth, of producing mineral wool or vitreous fiber by subjecting a stream of melted slag, scoria, or analogous substance to a blast or jet, substantially in the manner herein described.

6,895. MINERAL WOOL. Augusta A. Gleitsmann, Asheville, N. C., administratrix of John Player, deceased, for herself and as assignee of H. McAllister, Jr., administrator of said John Player. Patent No. 108,680, dated May 31, 1870. [Filed Dec. 28, 1875.]

Brief.—A blast or jet of steam or air is allowed to impinge upon the surface of molten slag, which is thereby blown into filaments, producing the article claimed.

As a new article of manufacture, the improved mineral wool herein described.

6,895.



6,896.



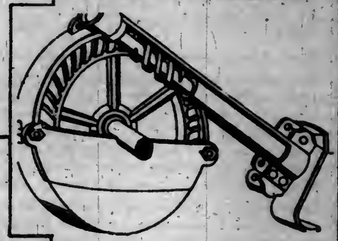
As a new article of manufacture, an annealed mold-board having a chilled outer or wearing surface, substantially as set forth.

6,896. COAL-SCUTTLES. John Pfeifer, Philadelphia, Pa. Patent No. 61,260, dated Jan. 22, 1867. [Filed Dec. 24, 1875.]

Brief.—The base and body are united by the head formed in the two parts at one operation.

The concave-convex head *c* constructed and applied substantially as and for the purpose hereinbefore set forth and described.

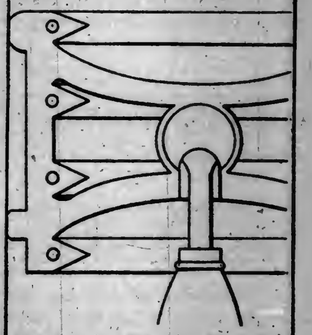
6,897. HARVESTERS. Adam B. Reese, Philipsburg, N. J. Patent No. 154,223, dated Aug. 18, 1874. [Filed Mar. 18, 1875.]



The combination, with the worm-wheel and sweep crank-shaft, connecting the cutters of a harvesting-machine, of an inclosing metal frame or casing vibrating around the main axis, and cored out at its bottom to form a closed reservoir, substantially as and for the purpose described.

6,898. CURRY-COMBS. Cyrus W. Balsdon, Washington, D. C., assignor to the Lawrence Curry-Comb Company, New York, N. Y. Patent No. 46,710, dated Mar. 7, 1865. [Filed Jan. 20, 1876.]

Brief.—The ordinary side handle is attached to the comb through the medium of an ovaloid frame, which serves the purpose of a supplemental grasping device. The frame consists of bars passing to the comb-back from the handle.



2. A curry-comb in which the projecting side handle is supplemented by a grasping device extending over the back of the comb, and affording an additional grasp and support for the hand, substantially as set forth.

2. A curry-comb provided with the usual handle and with a supplementary grasping device above the back of the comb, whereby the latter may be held in different positions.

3. A curry-comb having a handle attached to it through the medium of a raised frame consisting of bars or braces extending from the handle over the back, and terminating in separate points of contact with the comb.

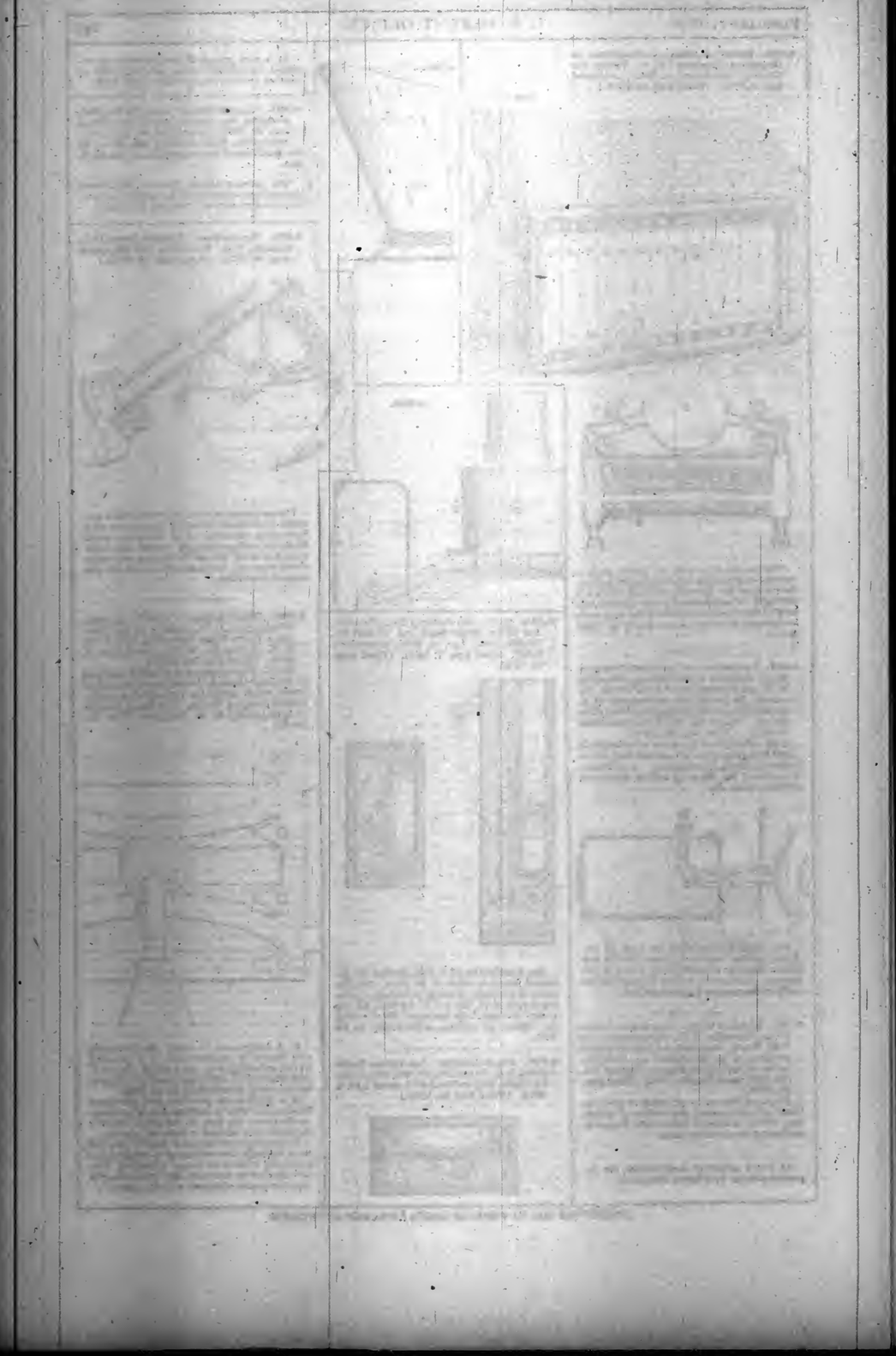
6,897. MOLD-BOARDS. Jas. Oliver, South Bend, Ind. Patent No. 70,068, dated Apr. 14, 1868; reissue No. 6,320, dated Apr. 7, 1874. [Filed Aug. 14, 1875.]



The combination of a shell, having an upturned flange on either of its sides, with the cervor of the land, whereby a large free opening is formed in the cervor of the land for the escape of steam from contained water during the process of coating, substantially as set forth.

6,899. CHILLS FOR CASTING MOLD-BOARDS. Jas. Oliver, South Bend, Ind. Patent No. 70,068, dated Apr. 14, 1868; reissue No. 6,320, dated Apr. 7, 1874. [Filed Aug. 14, 1875.]





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NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

LABELS.

The fee of six dollars accompanying an application for "Registering Labels" will not be refunded by the Patent Office. If it is determined that such an application is properly a "Trade-Mark," the six dollars, so paid as aforesaid, will be transferred to the "Trade-Mark" application upon payment of an additional sum of nineteen dollars.

R. H. DUELL, *Commissioner.*

COMMISSIONER'S DECISIONS.

CLINTON AND KNOWLTON.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of Edward H. Clinton and William A. Knowlton, assignors to William A. Knowlton, for letters patent for an* "IMPROVEMENT IN HARVESTERS," *filed June* 23, 1875.—*Decided January* 8, 1876.]

The rule laid down in the case of Jesse Jopling, (8 OFFICIAL GAZETTE, p. 1032,) will be considered of general application upon the subject of "combinations," and is as follows: "When the devices are used in connection to subserve a common end, or adapted to each other, all co-operating to produce a given result, and the use of each device, or its equivalent, is necessary to that result, although each device, when considered by itself, may amount to a new invention, yet, when so combined, they constitute an exception to the general rule that separate inventions should form the subjects of separate applications."

If the devices embraced in the claims relate to the improvement of the whole machine in which they are used, enhancing its value and increasing the demand for it, all being confined to one machine, they should be allowed in one application.

DUELL, *Commissioner:*

This appeal again brings up the question of the division of applications.

Office Rule 15, although its language appears very clear in regard to this matter, yet, like all other rules, however clearly stated, it is sometimes difficult of application to the particular circumstances of each case.

It was conceded by Commissioner Fisher, the author of this rule, to be especially difficult to establish any general rule for the division of inventions into separate patents, which should not be subject to many exceptions. (Linus Yale, Jr., C. D., 1869, p. 110.) The perplexity of this question has also been recognized by the United States Supreme Court, (*Bennett vs. Fowler*, 8 Wall, 445.)

The rule is as follows:

Two or more separate and independent inventions cannot be claimed in one application; but where several inventions relating to the same subject are *necessarily* connected each with the other they may be so claimed.

This should be read in connection with the Rule following:

If more than one invention is claimed in a single application, and they are found to be of such a nature that a single patent may not be issued to cover the whole, the Office will require the inventor to confine the description and claim of the pending application to whichever invention he may elect. The other inventions may be the subject of separate applications.

The practice under the rules was expounded as follows, in the late case of Jesse Jopling, (8 OFFICIAL GAZETTE, 1032,) wherein other cases were referred to:

* * * * When the devices are used in connection to subserve a common end, or adapted to each other, all co-operating to produce a given result, and the use of each device, or its equivalent, is necessary to that result, although each device, when considered by itself, may amount to a new invention, yet when so combined they constitute an exception to the general rule that separate inventions should form the subjects of separate applications.

The general rule was stated by Commissioner Fisher, in the case of Yale, Jr., *ante*, to be, "that when two or more distinct inventions are united in one application, that are capable of division, and which belong to different classes, or involve a double labor of examination, or have no community of operation, it is not only the

right, but it becomes the duty of the Commissioner to require the application to be divided."

In that case, which was an application for an "Improvement in Post Office Boxes," two of the claims were founded upon alleged improvements in the structure of the box, and a third upon the lock. There, clearly, no "community of operation" existed between the structure and the lock. The lock would have performed the same functions on any other box, and any other lock on that box would not have affected its general structure. But the case of *Morris* vs. *Barrett*, 1 Fisher, 461, affords an example of an opposite kind. There the claim was as follows:

I claim the clamps 6 6, to prevent end expansion, and the levers 7 7 working on fixed fulcrums when in operation, all substantially as and for the purposes set forth in the foregoing specifications.

Here, the court said, was not a combination, but two distinct improvements in the art of bending wood. The *practical* purposes to be accomplished by these improvements were claimed to be: First, the clamps to prevent end expansion; and second, the levers working upon fixed fulcrums to prevent the wood from twisting.

It was in view of the co-operation of these distinct parts in producing a common result that the court said, that "it is, no doubt, competent for a patentee to embrace two improvements on the same machine in the same patent; and if, in the present case, the defendants have used both or either of the improvements of the plaintiff, they have infringed his patent."

So, in the recent case of E. W. Shippen, (8 OFFICIAL GAZETTE, 727,) decided by the Acting Commissioner, where the application set forth a series of instruments for cutting, shaping, and boring the blanks of wooden shoes, and where the different parts, taken separately, had a certain fixed invariable operation, but where, too, each step performed by the separate parts fitted the block to receive the operation to be performed upon it by the others at the next step, it being objected by the Examiner that the separate applications should be made for each part, the Commissioner held: "It would be a hard and unnecessary proceeding to require the applicant to make separate applications for each part of this series of machines. Plainly, each part alone without the others, or some equivalent of the others, would be absolutely useless; and since, so far as appears, the invention lies in the series mainly, as a series or complete set, and not in an improvement upon separate parts of an old set, they ought to be allowed in one application, and not be allowed in more."

Judge Story, in *Moody* vs. *Fisk*, 2 Mason, 112, expressed an opinion that has been substantially reiterated in the few decisions of the courts that have since been rendered upon this point. He there said: "I wish it to be understood in this opinion, that though several distinct improvements in one machine may be united in one patent, it does not follow that several improvements in two different machines, having distinct and independent operations, can be so included. Much less that the same patent may be for a *combination* of different machines, and for distinct improvements in each."

It is unnecessary at present to repeat the considerations in respect to Office fees, and the convenience of examination, which together form the basis of the general rule.

To apply the above principles to the present case: Applicants allege in their specification that they have invented "certain new and useful improvements in harvesters," and that the same have reference to the cutting apparatus, the connecting rod or pitman for driving the same, crank-shaft box, the reel, and the rake.

The claims to which the Examiner objects relate to the pitman and journal-box, and are as follows:

2. Also, the combination, substantially as before set forth, of the conical eye of the pitman, the conical crank-pin, and the spring thereof.
3. Also, the combination, substantially as before set forth, of the conical cutter-eye, the duplex cone-pin, and the spring thereof.
4. Also, the journal-box, constructed with a lateral lubricating-reservoir, substantially as before set forth.

In his letters of rejection the Examiner refers to these claims as "wanting in necessary connection with harvesters," and his answer to the reasons of appeal is but an elaboration of this idea.

Now, the "necessary connection" to which the rule and the decisions of the court and the Office have reference is not the relation which each part bears to another denominationally, as whether each belongs to the same class of machinery, (the classification in these cases being an arbitrary one, established by the Office for its convenience,) but what relation or connection each part bears to the other in producing the complete invention, the entire operation, machine, article, or improvement thereon.

Inventors have the whole field of mechanics from which to select their materials, and it makes no difference how essentially different in nature each element may be if the chosen assemblage is novel, and produces a useful result.

At first glance it would appear that the devices set forth in the claims in question related alone to the construction and improvement of the pitman and journal-box, and had but a remote connection, if any, to the other parts of the machine, and but indirectly affected their operation.

But when the difficulties which applicant proposes to overcome are considered, it will be seen, I think, that the co-operation of these parts is necessary to that end. At least, if there is any doubt on that point, the applicant should have the benefit of it.

The wear and tear of the various parts of the harvester, owing to its constant jar and jolt when in motion, are very great, and any device which tends to lessen the same certainly improves the machine, enhances its value, and increases its demand.

Now, the combination of the cutter-eye with the connecting-rod, by means of the compound duplex cone-pin, the parts of which are drawn toward each other by a spring, that of the crank-eye of the pitman with a conical crank-pin and spring, and that of the pitman, eye, and cone pin with the journal-box and its lubricating-reservoir all co operate in saving wear and strain caused by the motion of the cutter-bar, facilitate the lubrication of the parts, and add ease and effectiveness to the working of the machine.

These are the advantages set forth in the specification. Whether they are novel, in view of the state of the art, is not a question to be now considered. That question goes to the merits of the case, and if the various tribunals of the Office are adverse to the applicant on that point he has a right to appeal to the courts

This is simply the preliminary question, Do the parts embraced by the claims objected to relate to improvements in harvesters? If they do they belong to that class, and if confined to a single machine they should be allowed in one application.

Having answered this question in the affirmative, the action of the Examiner must be and is hereby reversed.

The great inconvenience and confusion which the Examiner apprehends will arise from this decision may be obviated, in cases like the present one, by the Examiners furnishing to other classes duplicate drawings of those parts, which, if made the subjects of separate applications, would properly belong to such other classes.

S. B. SEXTON.—*Appeal.*

[*Appeal from the Examiner-in-Chief in the matter of the application of Samuel B. Sexton for letters patent for* "IMPROVEMENT IN HEATING-STOVES."—*Decided January* 7, 1876.]

S. filed his original application March 26, 1856. It was rejected and withdrawn April 30, 1856. No further action was taken by S. upon this application. In January, 1859, S. filed a new application containing *much that was shown* in that filed and withdrawn in 1856. A patent was issued on the application of 1859, and did not contain any *claim* for the *matter shown* in the application of 1856. This patent was reissued in December, 1861, having broad claims for the matter shown in the application of 1859, and also shown in the application of 1856. Another reissue was had in 1864, in two divisions, No. 1,621 containing broad claims for the invention described in 1856, and No. 1,622 containing the matter shown in the application of 1859 which had not been shown in that of 1856. Reissue 1,621 was again surrendered and reissued September 27, 1864, and again in 1867, No. 2,476, with broad claims, including matter shown in application of 1856. The patent for 1859 expired in 1873, and was extended by the Acting Commissioner upon condition that all claims for the invention shown in the 1856 application should be disclaimed, which was done by the patentee under protest. This extended patent is now sought to be reissued.

The application of 1859, under the law as it existed prior to 1870, could be held to be a continuation of the application of 1856. A prior rejected or withdrawn application cannot be held as a bar to the issue of a patent under a subsequent application.

A patent granted between 1856 and the continuation of such application in 1859 cannot be cited as a reference in rejection of such latter case, nor in the reissue thereof. Nor could such intervening patent be put in interference with the present application for reissue, even if the same invention were shown, as such intervening patent had expired by limitation.

SPEAR, *Acting Commissioner:*

The decision of the Examiners-in-Chief affirming the decision of the Primary Examiner was *pro forma*, and, as appears from their written opinion, not in accordance with their own views, but with the opinion and preliminary requirements of the Acting Commissioner in 1873, when the patent now sought to be reissued was before him on an application for extension.

The claims submitted in this application are, in part, the same as those which the Acting Commissioner required to be disclaimed as a condition necessary to the granting of the extension. The matter covered by those claims was accordingly disclaimed by the applicant at that time under protest.

I should hesitate to review the decision of my predecessor, though made in another and distinct proceeding, had not the Office taken in this matter at different times quite opposite and conflicting views, and did not my own judgment strongly and clearly agree with that of the Board of Examiners-in-Chief and the former action of the Office.

The history of the case is as follows: The original application of Sexton was filed on the 26th day of March, 1856. It was for an outstanding stove, and was rejected and withdrawn on the 30th day of April of the same year. No further action appears to have been taken by Sexton in respect to this application; but in January, 1859, he filed a new application containing much that was shown in the 1856 application, but modified to represent the general form of base-burning stoves adapted to a fire-place. The patent, however, which was issued on the application of 1859 was limited in its claims to the modifications shown in that application, and did not contain any claim for the matter shown in the application of 1856. This patent was reissued in December, 1861, No. 1,2424, and in it were broad claims for that matter which had been shown originally in the application of 1859, and also shown in the previous application of 1856. This reissue was also surrendered and reissued in 1864 in two divisions, No. 1,621 containing broad claims for the invention described in the 1856 application, and division No. 1,622 containing the matter shown in the 1859 application which had not been shown in that of 1856. Reissue 1,621 was again surrendered and reissued September 27, 1864, and this reissue surrendered and reissued in 1867, No. 2,476, with broad claims including the matter of the 1856 application. The original term of this 1859 patent expired in 1873, and the patent was extended by the Acting Commissioner, who, however, as a condition of the extension, required that all claims for the invention shown in the 1856 application should be disclaimed. This disclaimer was filed by the patentee under protest, and the object of the present application is to restore, in a somewhat modified form, however, the claims then stricken out. The law under which this patent was extended provided that, upon certain prescribed proceedings, and the certificate of the Commissioner, a patent, when extended, should have the same effect in law as though it had been originally granted for twenty-one years. The patentee, therefore, has precisely the same rights under the patent in the extended term as he would have been entitled to during any part of the original term, and can surrender and reissue under precisely the same conditions.

The opinion of the Commissioner in extending the patent upon the question of diligence, sufficiency of remuneration, and the like, was final, and cannot be reconsidered in any respect. As to how much the patent could legally be held to cover when once extended is a question which might at any time come before the Commissioner, or be brought before the court, and in it is a question which I cannot now refuse to consider, especially seeing, as I have said, that the action of the Office in requiring an erasure of the claims upon extension, was a reversal of its former repeated action in granting the claims. But the decision of the Acting Commissioner was favorable to the applicant as to the other requirements mentioned above, and unfavorable only or mainly upon the point of alleged abandonment or forfeiture by the applicant of the matter shown in the application of 1856. The question before me then is not the granting of new claims not before asserted, and for matters left for many years in abeyance, but the restoration of claims for an invention held for many years in undisturbed, and, so far as appears, undisputed

possession. The simple question is whether the patent of 1859, as finally reissued, was a valid patent. As to the improvements contained in the 1859 application, and not in that of 1856, no question has ever been raised. It is only as to the matter in the 1856 application that the doubt has anywhere ever existed. If the application of 1859 were not a continuation of that of 1856, and in it the applicant was not manifestly pursuing the same invention, and if that matter shown in the 1856 application were abandoned to the public, then the reissued patent which was extended by the Acting Commissioner was invalid as to the claims for that matter shown in the application of 1856. But so far as I can see there is nothing to show that the application on which this patent was based was not filed as a continuation of the application of three years before. The case is plainly this: This applicant had undoubtedly made an invention; he petitioned to the Commissioner of Patents to allow him a patent for that invention; that petition was refused at that time; he thereupon withdrew the fee, continued his efforts to improve upon the stove before invented, and within three years thereafter filed his second application. The withdrawal of the fee was not an abandonment of the invention. Nor is there any authority for holding that the delay of three years before the second application was filed worked any such abandonment, or is any evidence of abandonment on the part of applicant. (*Adams* vs. *Edwards*, 1 Fish.; *Rich* vs. *Lippincott*, 2 Fish.; *Blandy* vs. *Griffith*; *Dental Vulcanite Co.* vs. *Wetherby*, 3 Fish.; *Jones* vs. *Sewall*, 6 Fish.) In *Blandy* vs. *Griffith* the new application, filed one year after the original application, was held to be a renewal of the former proceedings, and to action of this revisory character Judge Swayne held that the statute imposed no limitation. This was upon the statute as it existed prior to 1870. In *Jones* vs. *Sewall* there was a delay of nine years. In fact, prior to the passage of the act of 1870, this reviving of an old application was not uncommon, and there was no limitation to it provided for by the statute, and it was undoubtedly for the purpose of providing such limitation that the proviso was introduced into the 35th section in the act of 1870.

The application of 1859 contained, as before stated, the matter of the original application with some modification and improvements. The fact that there were modifications of the original invention, not amounting to a distinct and different invention, can make no difference in this matter. It was not necessary that there should be absolutely identity in every respect. (*Godfrey* vs. *Eames*, 1 Wall., 317.)

The Office therefore rightly and in accordance with its usual practice considered the second application of Sexton in 1859 as a continuance of the first, and allowed the claims in it for matter which had been shown in the prior application. This was all under and in accordance with the law as it existed prior to 1870. Further than this it is now well settled by the decision of the Supreme Court in *Brown* vs. *Guild* (rendered since the extension of the patent) that a rejected and withdrawn application is no bar to the issue of a patent; and as the act of 1870 had not been passed when the patent of Sexton was granted, there was nothing in the law to bar the issue of a patent for anything shown in the prior application. The original action of the Office on the claim was, therefore, in every view lawful, and, so far as this question is concerned, Sexton had a valid patent when the act of 1870 became a law covering the invention, as shown in his papers filed in the Patent Office in 1856 and 1859. The invention was as much his property as the stock upon his farm or the furniture in his house. (*Pitts* vs. *Hall*, 2 Blatch.)

Such private property is entirely beyond the purview of legislative authority, and it is not to be for a moment supposed that any act of Congress should be construed as interfering with it. If, therefore, Sexton had a valid patent prior to the passage of the act of 1870, there can be nothing in that act tending in any way to impair his right to reissue and cover anything which it might lawfully have covered prior to the passage of the act without regard to the old rejected application. That this case does not come within the terms of the act of 1870 is further evident from this that if, under the provisions of that act, Sexton had filed a renewal of his application within six months from the 8th of July, 1870, for the subject-matter shown in the application of 1856, the Office would have been compelled to reject him upon his own patent, and would not have issued to him a second patent for the same invention. It would not have availed him in urging this renewed application that the original was filed prior to the application on which the patent was issued. (*Suffolk Co.*, vs. *Hayden*, 3 Wall.) The effect of such an action on the part of the Office, if it had complied with the request to renew the 1856 application and had issued a patent thereon, would have been to add the term of seventeen years to a patent which had already been in existence since 1859. Taking this view of the case I do not deem it necessary to enter at this time into any discussion of the meaning and force of the 35th section and its proviso in the act of 1870. It seems enough that the application of 1859, under the law as it existed prior to 1870, could be held to be a continuation of the application of 1856, and that the Office had so held and issued a patent, which, so far as this question is concerned, was perfectly valid. As there are some other questions relating to the claims and to references on the prior application of Sexton, I proceed to consider the claims objected to by the Examiner more in detail.

There were originally six claims. The fourth was stricken out, and of the five which remain the second is allowed, and the first and fifth are rejected on Sexton's prior application alone. After what I have said I need not further consider these. The third and fourth have been rejected on the prior application of Sexton, on the withdrawn application of Liddle, filed June 30, 1852, and on the patent of Raub, granted October 20, 1857. The application of Liddle cannot be held to bar the issue of the patent, coming as it does within the decision of the Office, which follow that of the Supreme Court in *Brown* vs. *Guild*.

With the exception of a reference, to which I shall hereafter advert, all that remains to be considered then is the Raub patent.

The third and fourth claims are as follows:

3d claim. In a coal-supplying magazine-stove, I claim the extended grate-surface of the fire-bed outside of the reservoir, the magazine in combination with the free space around the magazine of a base-burning stove, substantially as described.

4th. In a base-burning magazine-stove, I claim a substantially flat grate-surface of the fire-bed of larger diameter than the lower end of the magazine, combined with an inclosed or unobstructed space around the magazine, substantially as described.

With the view that I have taken that the second application of Sexton was filed as a continuation of the first, the patent of Raub cannot be cited as a reference nor regarded at all in considering this application for reissue, for the first application of Sexton was filed on the 26th day of March, 1856, while the application on which Raub's patent was granted was filed in December of the same year, so that admitting that the Raub patent showed the same invention there could be no interference, because the patent of Raub is an expired patent.

It is not necessary to call upon Sexton for any *ex parte* evidence of priority of invention over Raub, because his own affidavit and date of filing already antedate those of Raub. Further than this, although there is in Raub's patent a magazine and a grate which extends outside the magazine, the other parts are so different in construction as manifestly to defeat the object which Sexton had in view, and to render the stove useless for the purpose for which Sexton designed it. There is not, in fact, an extended grate of the fire-bed outside the reservoir or magazine and in such combination with the free space around the magazine, or in any such relation to the magazine as in the Sexton stove. The greater distance between the parts and the interposed tower, which pushes the coal on all sides toward the walls of the stove, serve to render the whole structure different from that of Sexton.

With the assent of applicant I have considered also the new reference to which my attention has been called since this appeal was taken. The patent is that of Walker, English Patent No. 9,440, 1842. In this there is a central magazine with a free space around it, and the grate separated from the lower end of the magazine—but the grate does not extend outside the magazine, it is at the bottom of a flaring fire-pot, on which and on the grate the coal rests. One essential element, therefore, of the third and fourth claims is entirely wanting in this. In such a structure the air necessary to the support of the combustion must pass through the central part of the mass of coal before reaching that part of the coal lying outward toward the wall of the stove, so that the operation would be different. In any event the claim of Sexton is limited, so as to distinguish the Sexton stove from that represented in the Walker patent.

I must, therefore, reverse the decision of the Examiners-in-Chief, and reissue the patent as prayed for.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT, EASTERN DISTRICT OF MISSOURI.

UNITED STATES AND FOREIGN SALAMANDER FELTING COMPANY *vs.* NATHANIEL A. HAVEN.

[*In Equity.—Before* TREAT, *J.:—Decided October* 27, 1875.]

A composition having been described in a prior patent, one who applies it to a new use cannot claim the composition as his invention.

The court cannot take notice of what was not set up in answer against plaintiff's patent.

The legal rule is, that *prima facie* a reissue is for the same invention as that originally patented.

Section 4916 of the Revised Statutes of the United States prohibits in a reissue not only the introduction of new matter, but also the enlargement of the original claim growing out of the subsequent advancement of the art. This rule controls both the Patent Office and the courts.

Every patent, as to novelty or utility, depends on the state of the art at the time of the claim made or patent issued.

By new matter is not meant merely the introduction of a new ingredient in a patented composition, but any change in the original specification and claim, whereby a new and substantially different composition and results are secured.

[*Samuel S. Boyd* for complainants.
Kellogg and *Fenton* for respondent.]

TREAT, *J.*:

This is a case in equity for an alleged infringement of several patents, of which the Salamander Company is assignee.

The reissued patent, No. 4,134, dated September 27, 1870, is in reissue of October 5, 1869, for a composition or cement composed of lime-putty, as described, with paper-pulp or other suitable fibrous non-conducting material, and with the other ingredients named, or their equivalents, &c.; and claims the employment of lime-putty, when combined with paper-pulp or any other suitable fibrous non-conducting substance, as a material for preventing radiation from heated surfaces, or as an ingredient in any composition used for such purposes.

It is alleged that this patent was anticipated by French's patents, September 14, 1869, which were for the same purposes as the foregoing. Patent A (94,882) was for a composition of crushed asbestus mixed with an alkaline silicate, and B (94,883) as improvement on A, by adding to the mixture a vegetable substance, as sawdust and other woody matter, to make a lighter and cheaper coating.

The reissue to Johns, No. 5,951, dated June 30, 1874, of original patent dated April 14, 1868, is of crushed asbestus and lime mixed with water to be applied.

The defense is mainly for want of novelty—that the inventions claimed by plaintiffs were anticipated, &c. Whatever there is in plaintiffs' patents for which defendant is to be held as an infringer consists of lime-putty mixed with non-conducting fibrous material. The subsequent patents on which they rest are for lime putty and crushed asbestus.

It seems, from the evidence, that plaintiffs are assignees of the French patent also, but it is not set up in the bill, though mentioned in the amended answer as anticipating the Bissell and Riley, and also the Riley patents. While some of the Johns patents are set out, the reissue above is not mentioned in the answer.

It seems, from a cursory examination of the case, that if the Johns reissue, (not mentioned in the answer,) No. 5,951, of June 30, 1874, relates back to April 14, 1868, the plaintiffs' patents as to abestus and lime-putty were anticipated. So, if plaintiffs claim all non-conducting fibrous substances mixed with lime-putty, the claim is too broad.

If each reissue relates to the date of the original patents, then the Johns patent anticipated those held by plaintiffs; and, although Johns did not specifically state the use for non-radiation, &c., the plaintiffs can not, because of the new use to which they apply the composition, claim that they were the first and original inventors of the composition.

The court, however, cannot take notice of what was not set up against plaintiffs' patent.

* * * * * *

When this case was before the court previously, it was suggested, that if the reissued Johns patent was valid, plaintiffs' patent was anticipated, and the attention of counsel was also called to the fact that the reissues to Johns had not been set up.

By agreement of counsel, those reissues are now before the court, as if made before this suit was brought, and as if fully set up in defence.

The only additional point, therefore, is as to the validity of the Johns reissue in question, which is for precisely the same compound as that claimed and used by plaintiffs. The legal rule is, that *prima facie*, a reissue is for the same invention as that originally patented.

Section 4916, of U. S. Revised Statutes, copied from the act of 1870, prescribed for what, and under what, circumstances a reissue may be had.

The repeated decisions by the courts, and especially by the United States Supreme Court, in the 1st, 17th, and 19th Wallace, indicate with sufficient distinctness, that not only no new matter shall be introduced, but that an enlargement of the original claim growing out of the subsequent advance of the art is not to be tolerated. The reason of the rule is obvious. Every patent as to novelty or utility depends on the state of the art at the time of claim made or patent issued; and therefore, if a party, after learning from a subsequent advance of the art, the worthlessness of his original invention, is to be permitted to claim a reissue incorporating what was not originally in his mind, and what had been afterward suggested to him only by advances in the art made by others, then he could, it may be, even without any new invention, override all the elements which would serve to test the validity of the new application. In other words, having procured a worthless patent, and having subsequently learned from the advancing art, how, by changing the terms of his patent, it could be made of value, he would, if a reisane, including the new matter, were permitted, have the reissue not only relate back to the date of the original patent, but absorb within its privileges all subsequent matters wholly unknown to and unthought of by him originally.

This rule controls both the Patent Office and the courts. New matter must not be introduced. By new matter is not meant merely the introduction of a new ingredient in a patented composition, but any change in the original specification and claim, whereby a new and substantially different composition and results are secured.

Such is the reissne in question. It is not only for a composition essentially different, but for one not within the purpose for which the original invention was designed.

The plaintiff is entitled to a decree.

Subsequently the following decree was entered of record:

This cause coming on to be heard upon the pleadings, exhibits, and proofs herein, was argued by counsel, and thereupon, upon consideration thereof, the court doth order, adjudge, and decree that the said several letters patent mentioned and described in the bill of complaint herein are good and valid in law; that the plaintiffs are entitled to the exclusive use and rights under the same; that the said defendant, by the use, manufacture, and sale of the patented improvement described in said letters patent, has infringed upon the exclusive rights of the plaintiffs under the same.

It is further ordered, adjudged, and decreed that the said defendant, his agents, clerks, servants, and workmen, and all and every of them, be, and they are hereby, enjoined and restrained from making, selling, using, or in any manner whatsoever disposing of any composition for covering steam-boilers, and for other purposes, embracing the patents or improvements of plaintiffs in their said bill of complaint set forth. It is further ordered, adjudged, and decreed that the defendant pay the costs herein to be taxed, and that execution issue therefor.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

SAMUEL E. LAWRENCE *vs.* JOSEPH E. CUPPLES *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided October*, 1875.]

In an action for infringement of a copyright, the question to be decided is whether the defendants have used the plan, arrangements, and illustrations of the complainant as the model of their own book, with colorable alterations and variations only to disguise the use thereof, or whether the work is the result of their own labor, skill, and use of common materials and common sources of knowledge, and the resemblances are either accidental or arising from the nature of the subject.

[*O. D. Moore*, for complainant.
O. S. Knapp and *C. J. Brooks*, for defendant.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

Complainant is the publisher of a book called "The Advertiser and Collector's Chart," which he has duly copyrighted in accordance with the provisions of the act of Congress, and which he has the exclusive right of publishing.

The publication is a monthly chart, published each month for the purpose of advertising generally, and also containe, in a tabular form, a list of debtors whose bills cannot be collected after due effort, alphabetically arranged, giving the names and address of the debtor and creditor, the amount of the claim, and in some instances the discount at which the claim will be sold for cash.

The bill of complaint alleges that the defendants have published a book entitled "The New England Mercantile Guide," which is a copy of and from the tabular list above described, and prepared by Samuel E. Lawrence the complainant, and that it adopts the plan of Lawrence's work in arranging the names and residences of debtors and creditors, and in stating the amounts, and in the objects and purposes of said arrangement.

The answer denies that the book published by the defendants is a copy, in whole or in part, of "The Advertiser and Collector's Chart," and denies that the complainant can have any valid copyright for any arrangement of the names of debtors and creditors, or any other classes of persons, or for stating amounts, or any other purposes of arrangement.

The publication of the complainant is clearly one of that claes embracing dictionaries, directories, catalogues, maps, and similar publications where the same sources of information being open to all, the author, by his copyright only, protects himself from a piracy of his own labors by a copy from his publication, but cannot exclude others from publishing similar maps or charts from their own surveys, or similar directories or catalogues, the result of their own labors and compilations, without copying the copyrighted publication or availing themselves of the labors of the author or compiler.

Although the plan or arrangement of a book may be secured to the author if it be the product of his own genius, there does not seem in this case to be anything in a mere list of debtors and creditors, with their residences, and amounts and value of debts, which possesses any such novelty of plan or arrangement as would preclude any other person from making and publishing from his own independent sources of information similar lists.

The question is correctly stated by the learned counsel for the complainant to be whether the defendants have used the plan, arrangements, and illustrations of the complainant as the model of their own book with colorable alterations and variations only to disguise the use thereof, or whether the work is the result of their own labor, skill, and use of common materials and common sources of knowledge, and the resemblances are either accidental or arising from the nature of the subject. (Curtis on Copyrights, 258, 260.)

Although many of the same names, residences, and amounts appear in the defendants' as in the complainant's tables, the answer positively denies that they were copied, and the uncontradicted proof is that they were derived from independent sources of information. One of the defendants testifies that the names of debtors are bills placed in defendants' hands for collection, and that a great many of the subscribers (creditors) are persons they were doing business with previously to complainant's publication, and that they were obtained through their canvassing clerk. The list of names marked as identical in the two publications are testified to have been in possession of defendants previous to the publication of complainant's "guide" or of defendant's "chart."

There is no evidence, therefore, of any infringement of any rights secured by his copyright to the complainant.

Bill dismissed with costs.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

EBEN J. BEANE *vs.* THOMAS M. ORR *et al.*

[*In equity.—Before* LOWELL, *J.—Decided October*, 1875.]

In an application for preliminary injunction, where issues of fact are presented, supported on one side by affidavits, and contradicted by affidavits upon the other side, which thus neutralize each other, a motion for the allowance of such an injunction will be denied.

[*Geo. L. Roberts & Bros.* for complainant.
R. M. Morse, Jr., and *C. W. Sumner* for defendants.]

OPINION OF THE COURT.

LOWELL, *J.*:

The issues of fact upon which the motion for a preliminary injunction were argued are difficult, and I do not find that the plaintiff is so clearly right that the use of the machine should be prohibited before the hearing.

There is no question of the validity of the patent, or of its infringement, but whether a license was granted to the defendants, and, if granted, whether the plaintiff was induced to give it by fraud.

It seems that the defendants had a license which required them to pay a fee or royalty of $100 each year in advance, and in default of such payment the license might be revoked. That on the 15th October, 1874, the parties came to a settlement and agreed to give and take a single sum of $318 in full satisfaction for past and future fees to the end of the life of the patent. The plaintiff took the defendant's note for that sum payable on four months, and soon afterward the defendants filed a petition in bankruptcy and made a composition with their creditors.

The plaintiff has refused to receive his dividend, and insists that by the oral bargain the terms of the original license were only suspended for four months, and that upon the failure of the defendants to pay the note in full at maturity his right of revocation has revived. He gave notice accordingly and brought this bill.

The defendants deny the plaintiff's version of the bargain, and produce his receipt for the note, expressed to be "in payment for machines." Putting this receipt into the scale of contradictory evidence I must hold the case not to be made out. If the practice were to examine and cross-examine witnesses on these occasions, instead of filing affidavits, no doubt a more conclusive judgment might be arrived at. Then the question is whether the note was given fraudulently. The law of Massachusetts is that if goods are bought with a distinct purpose not to pay for them the purchase is fraudulent. The close proximity of the bankruptcy has a suspicious look, but here again the evidence is one affidavit against another, and the defendant's counsel did not fail to observe that the plaintiff's two statements are not quite consistent with each other. If it was a mere conditional grant to take effect when the note was paid, then it is not probable that any misstatements would be made concerning the standing, &c., of the defendants, since they would be utterly immaterial. I do not mean to say that the stories are irreconcilable. No doubt the plaintiff might inquire into these things with a view to obtain a discount of the note, but it is much less probable that any great reliance would be given or expected to the mere solvency of the parties if the grant were conditional, and on the other hand, its being conditional would seem to show some doubts of the solidity of the security.

Motion denied.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 8, 1876.]

8,952.—Match-Boxes.—CHARLES N. CADWALLADER, Philadelphia, Pa., assignor of one-half his right to DAVID H. LEVETT, same place. Application filed January 22, 1876. Term of patent 7 years.

8,953 to 8,971, inclusive.—Carpets.—ROBERT R. CAMPBELL, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Applications filed January 24, 1876. Term of patents 3½ years.

8,972.—Hollow Glass Reflecting-Star.—JOSEPH S. FORD, Philadelphia, Pa. Application filed December 29, 1875. Term of patent 7 years.

8,973.—Gimp and Fringe Heads.—JOHN R. DAVIS, New York, assignor to GIBBONS L. KELTY, Brooklyn, N. Y. Application filed January 11, 1876. Term of patent 14 years.

8,974.—Carpets.—DAVID MCNAIR, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Application filed January 24, 1876. Term of patent 3½ years.

8,975 to 8,983, inclusive.—Carpets.—CHARLES W. SWAPP, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Application filed January 24, 1876. Term of patents 3½ years.

8,984.—Carpets.—ROBERT ALLAN, Yonkers, N. Y., assignor to ALEXANDER SMITH & SONS' CARPET COMPANY, same place. Application filed January 28, 1876. Term of patent 3½ years.

8,985 to 8,987, inclusive.—Carpets.—JOSEPH M. CHRISTIE, Kidderminster, England, assignor to LOWELL MANUFACTURING COMPANY, Lowell, Mass. Application filed January 24, 1876. Term of patents 3½ years.

8,988.—Writing-Pens.—WILLIAM C. MARION, Brooklyn, N. Y., assignor to EDWARD TODD & Co., New York city. Application filed January 26, 1876. Term of patent 3½ years.

8,989.—Oil-Cloths.—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Application filed January 26, 1876. Term of patent 3½ years.

8,990 and 8,991.—Oil-Cloths.—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Application filed January 27, 1876. Term of patents 3½ years.

8,992.—Toy Balloon.—HUGH S. KERR, Philadelphia, Pa. Application filed December 29, 1875. Term of patent 7 years.

8,993.—Fans.—JOHN A. LYNCH, Washington, D. C. Application filed January 29, 1876. Term of patent 3½ years.

8,994.—Cassimeres.—WALTER D. MIDDLETON and JOSEPH HEEP, Utica, N. Y., assignors to GLOBE WOOLEN COMPANY, same place. Application filed December 27, 1875. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 8, 1876.]

3,400.—Lubricating Compound.—BLIVEN & GERRINGTON, New York, N. Y. Application filed January 11, 1876.

"words 'LUBRICATING CREAM.'"

3,401.—Cooking-Stoves.—BRIDGE, BEACH & Co., St. Louis, Mo. Application filed January 24, 1876.

"a grape-leaf and the word 'SUPERIOR.'"

3,402.—Woolen Fabrics.—GLOBE WOOLEN COMPANY, Utica, N. Y. Application filed December 27, 1875.

"mythological representation of 'Atlas carrying the earth on his back.'"

3,403.—Tools for Manufacturing Leather and Leather Goods.—W. H. HORN & BROTHER, Philadelphia, Pa. Application filed January 3, 1876.

"representation of the horns of a deer or other animal."

3,404.—Surgical Appliances for the Body.—W. H. HORN & BROTHER, Philadelphia, Pa. Application filed January 15, 1876.

"the representation of the horns of a deer or other animal."

3,405.—Stomach-Bitters.—JOSHUA C. MICHEL, St. Louis, Mo. Application filed January 3, 1876.

"words 'West India Stomach Bitters' and the design shown in the fac-simile hereto annexed, and arranged as shown. The design represents a tropical scene, wherein the natives are gathering plants and loading them (in the form of bales) upon a ship in the distance.

3,406.—Axes, Adzes, Augers, Hatchets, Swords, Knives, Chisels, Bits, Bush-Hooks, and Pickaxes. THE COLLINS COMPANY, Collinsville, Conn. Application filed December 29, 1875.

"pictured representation of a crown, from which rises an arm holding a hammer."

3,407.—Sledges, Hammers, and Wrenches.—THE COLLINS COMPANY, Collinsville, Conn. Application filed December 29, 1875.

"pictured representation of a crown, from which rises an arm holding a hammer."

3,408.—Flour.—THE EMPIRE MILL COMPANY, St. Louis, Mo. Application filed January 24, 1876.

"word 'WOODBINE.'"

3,409.—Pens and Pencil-Cases.—EDWARD TODD & Co., New York, N. Y. Application filed January 24, 1876.

"word 'CENTENNIAL.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 8, 1876.]

513.—Title: **"Mrs. E. B. Clark's New Method for Cutting Every Style of Ladies', Gents', Girls', and Boys' Clothing."**—Mrs. E. B. CLARK, La Crosse, Wis. Application filed November 30, 1875.

514.—Title: **"Pride of West."**—S. FUGUET & SONS, Philadelphia, Pa. Case A. Application filed December 29, 1875.

515.—Title: **"Katydid."**—S. SARGENT & SONS, Philadelphia, Pa. Case B. Application filed December 29, 1875.

516.—Title: **"The Moose Cigar Manufactured from Selected Vuelta Abajo Tobacco."**—CHARLES M. GATER, Brooklyn, N. Y. Application filed January 7, 1876.

517.—Title: **"Jos. Garneau & Co's. Crackers."**—JOSEPH GARNEAU & Co., St. Louis, Mo. Application filed January 17, 1876.

518.—Title: **"Jos. Garneau & Co's. 4X Crackers."**—JOSEPH GARNEAU & Co., St. Louis, Mo. Application filed January 27, 1876.

519.—Title: **"Jos. Garneau & Co's. 4X Crackers."**—JOSEPH GARNEAU & Co., St. Louis, Mo. Application filed January 27, 1876.

520.—Title: **"C. Bright's 3X Crackers."**—JOSEPH GARNEAU & Co., St. Louis, Mo. Application filed January 27, 1876.

521.—Title: **"Standard Brand Cigars."**—CHARLES HANKE, Wheeling, W. Va. Application filed January 21, 1876.

522.—Title: **"Johnson's Emollient."**—JOHNSON & WIGHTMAN, Brooklyn, N. Y. Application filed January 25, 1876.

523.—Title: **"Neat Spindle and Engine Oil."**—EDWARD H. KELLOGG, New York, N. Y. Application filed January 28, 1876.

524.—Title: **"Excelsior Engine and Cylinder Oil."**—EDWARD H. KELLOGG, New York, N. Y. Application filed January 28, 1876.

525.—Title: **"Centennial. Manufactured from the Finest Havana Tobacco."**—WILLIAM H. KLEINE, St. Louis, Mo. Application filed January 29, 1876.

526.—Title: **"Anti-Corrosive Engine and Spindle Oil."** EDWARD H. KELLOGG, New York, N. Y. Application filed January 28, 1876.

527.—Title: **"Lindsay Whooping-Cough Compound."** JOHN B. LINDSAY, Pittsburg, Pa. Application filed January 31, 1876.

528.—Title: **"The Centennial Whip. Warranted Whale-Bone."**—GEORGE S. BECH & Co., Westfield, Mass. Application filed January 21, 1876.

529.—Title: **"Old Lexington Club Hand-Made Sour-Mash Whiskey."**—J. H. REED, Lexington, Ky. Application filed January 21, 1876.

530.—Title: **"Steel Gray Fast Black."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed January 27, 1876.

531.—Title: **"American Chow-Chow."**—GEORGE M. WARD, Salem, N. J. Application filed January 19, 1876.

532.—Title: **"Quirk's Irish Tea."**—WELLS & ELLIOTT, New York, N. Y. Application filed February 1, 1876.

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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED FEBRUARY 8, 1876

173,104. SHEET-METAL GAGES. J. Atkins, Brooklyn, N. Y. [Filed June 2, 1875.]

Brief.—The slide having an inclined slot, which moves the pin at right angles, according to the inclination of the slot in the slide. The thickness of the material to be measured is shown by the graduations on the sides of the instrument.
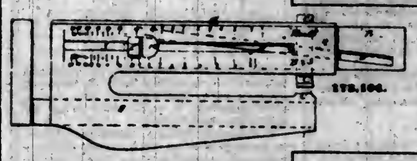


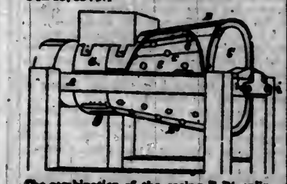
1. The combination of the frame A, pin C, slide B, the graduated scales on A and B, and the pointers P and p, or their equivalents, substantially as and for the purposes described.

2. The combination of the frame A, slide B, and pin C, and the caliper-square F, substantially as and for the purposes set forth.

173,105. COMPOSITIONS FOR PRESERVING MILK. W. Scott Barney, Baltimore, Md. [Filed Aug. 30, 1875.]

The within-described composition for the preservation of sweet of milk, the compound ingredients consisting of salt, sugar, saleratus, and anise, substantially in the proportions specified.

173,106. CORN-SHELLERS. John Beall and Caleb C. Barrough, Decatur, Ill. [Filed Oct. 18, 1875.]



The combination of the casing B B', cylinder C, shaft D, plate I, and set-screws G, when constructed and arranged as shown and described.

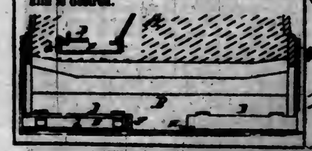
173,107. FLAT-IRON HEATERS. C. G. Bemis, Wilton, Me. [Filed Dec. 23, 1875.]



The heater D, provided with the opening E, grate F, and cover H, as set forth.

173,108. BRICK-KILNS. Joseph Blum, Wilmette, Ill. [Filed Jan. 20, 1876.]

Brief.—The air-supplying flue under the grate has at its inner end a damper, which is opened when a draft through the center of the kiln is desired.



1. The hinged grate D, arranged to form the draft-flue E, in combination with the fuel supply flue B and flue C, substantially as and for the purpose specified.

2. In combination with the grate D, the damper F, located at the inner end of the grate, and arranged to close the draft-flue E, substantially as specified.

173,109.



173,110. IRON BEDSTEADS. D. H. Brown and A. D. C. Wood, Chicago, Ill. [Filed June 26, 1875.]

Brief.—The double T's connect the side and end rails and the posts, and the single T's connect the upper and lower side rails.

1. The double T U, substantially as constructed, and for the purpose herein described.

2. The single T's D D and short pipe, substantially as and for the purpose specified.

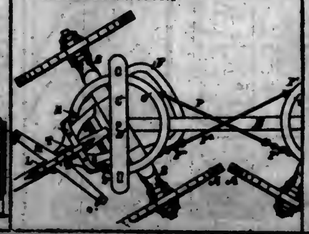
173,111. CANE-CUTTERS. R. M. Barnhart, Washington, D. C. [Filed Jan. 17, 1876.]

Brief.—The handle is arranged upon the pivot of the blade, and has a rectangular cutting-edge, against which the metal is cut.



The handle D, formed with the cutting-edge b', in combination with the handle a, terminating in the knife B, formed substantially as shown, the said handle a turning upon the pivot C, projecting from the side of the handle D, and operating in a plane at right angles to the axis of said handle, substantially as herein described and shown.

173,112. BUNDLING-CRADLE. J. F. Coppock, West Newton, assignor of one-half his right to W. C. Swindler, Belleville, Ind. [Filed Nov. 24, 1875.]



1. The segmental sheaves O O', constructed as described, and attached to the axle, end-boards, or bounds of a vehicle, substantially as set forth and described, for the purpose specified.

2. The chains P' P', in combination with the adjusting screws and nuts R R', and segmental sheave O', substantially as and for the purpose set forth and described.

3. The chains P'' P'', in combination with the hooks N N' on the ends of the sheave O, bounds, or axle, and segmental sheave O, substantially as set forth and described.

4. The combination of the chains P'' P'', rods P, screws and nuts R, and segmental sheaves O O', substantially as and for the purpose set forth and described.

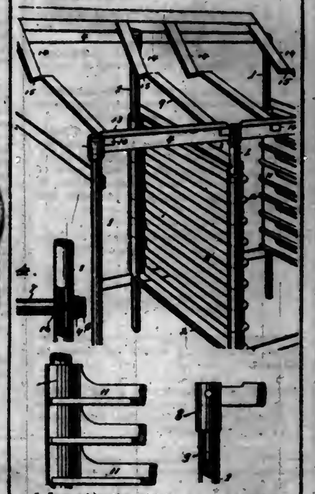
173,113. COMBINED STEAMERS AND SOUP-STRAINERS. John Cox, Boston, and Chas. H. McCarthy, Somerville, Mass. [Filed Dec. 13, 1875.]



In a steamer, the combination of the imperforate ring C with the receptacle A, having bottom E, provided with large perforations, as a raised horizontal ledge bordering the same, which serves to support the detachable false bottom H, finely perforated, as shown, substantially as and for the purpose set forth.

173,114. TYPE-CASE STANDS. Alex. T. De Puy, New York, N. Y., assignor to R. Hoe & Co., same place. [Filed Nov. 9, 1875.]

Brief.—The stand is constructed so as to be readily taken apart and compactly packed for transportation.



1. In combination with the posts or uprights, the ribs constituting the rest of a type-case stand, constructed so as to be held in position by embracing the said posts or uprights, substantially as shown and described.

2. The case-supporting ribs, cast with right-angular projections 12, and provided with eyes or mortises in their ends, by which they may be strung, and supported upon the posts or uprights, substantially as shown and described.

3. The upper longitudinal rails 4 and steamed bends 5, in combination with the hollow posts 1, substantially as shown and described.

4. The supplemental case-supporting frame, constructed of longitudinal bars 13 of angle-iron and transverse bars 14, substantially as shown and described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

5. The combination of the removable longitudinal bars 4, posts 1, transverse bars 3, and screw-rods 2, substantially as shown and described.

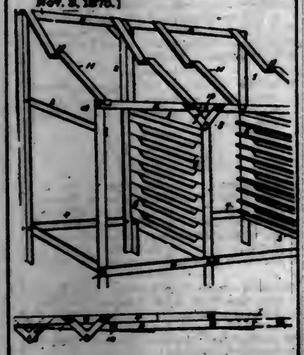
6. The case-supports 26, constructed of angle-iron, and provided with eyes for receiving the supporting-rods 28, substantially as shown and described.

7. The case-supports 26, constructed of angle-iron, and provided with the case-rests 30, substantially as shown and described.

8. In combination with the longitudinal supporting-bars, the sliding case-support 27, substantially as shown and described.

9. In combination with the angle-iron posts 24, the sectional rods or pipes, substantially as shown and described.

178,116. FOLDING TYPE-CASE STAND. Alex. T. De Puy, New York, N. Y., assignor to R. Hoe & Co., same place. [Filed Nov. 3, 1875.]



1. A type-case stand, constructed substantially as described, so as to be capable of folding flat or into compact form.

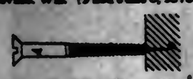
2. In combination with a folding type-case stand, the braces 7, substantially as shown and described.

3. In combination with a type-case stand, the freely detachable case supports or bars, substantially as shown and described.

4. A type-case stand constructed of posts of angle-iron, tied together by flat cross-bars 3 and 4, substantially as shown and described.

5. The case-supports 11, constructed of metal bars bent to form shelving hooks 12 and cases 13 14, substantially as shown and described.

178,118. WOOD-SCREWS. Henry A. Doty, Janesville, Wis. [Filed June 6, 1873.]



A wood-screw provided with a pointed projection, D, extending beyond the thread, as set forth.

178,119. RIVETING-GAGE. David Gibbons, Belleville, Ind., assignor of one-half his right to Wm. C. Swindler, same place. [Filed Nov. 24, 1875.]

1. The double-bar I, provided with the rods F, in combination with the plates T, segmental plates U, springs R R, stops S, and screws V, substantially as set forth and described.

2. The vibrating comb W, in combination with the shafts *a a'* and jointed rod V, constructed to operate the weighted lever V', as set forth.

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withdraw the pin V' from pin-rack J, substantially as and for the purpose specified.

3. The weighted lever V', pivoted to the coupling-pole P or strap J', and provided with a pin, V', and hook V', constructed to operate substantially as specified.

4. The hinged strap J', in combination with the weighted lever V', substantially as specified.

5. The segmental pin-rack J, in combination with the bosses B' B' and weighted-lever V', and hinged strap J', substantially as set forth and described.

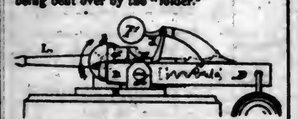
6. The automatic brake and G, provided with the crank-arms F F, in combination with the bosses B' B' and ends B' B' of the tongue-bosses E, whereby the brake is operated by the elevation of the forward end of the tongue, substantially as set forth and described.

7. The jointed coupling-pole L L', provided with L-shaped projections L' L', and secured to the front and rear axles B E, substantially as set forth and described.

8. The S-shaped or straight straps M, in combination with the projections L' L' of the jointed coupling L L', substantially as set forth and described.

178,117. MACHINES FOR DOUBLING OVER THE ENDS OF METAL BANDS. Samuel H. Gilman, New Orleans, La., assignor to Louisiana Cotton-Tie Company. [Filed Nov. 27, 1875.]

Brief.—The weighted pawl prevents the band from slipping backward while its end is being bent over by the "folder."



1. The combination of the folder C, attached to shaft A, and lever-bar D, and stop E, between which bar and stop the band to be doubled passes, whereby the folder C, lever-bar D, and stop E, respectively, present one corner or angle thereof in a line with the longitudinal axis of the shaft A, preliminary to the act of bending the band, substantially as described.

2. I claim the sliding stop E, arranged in relation to the shaft A, so that the angle formed by its bottom and front surfaces shall be in line with the longitudinal axis of the shaft A, substantially as described.

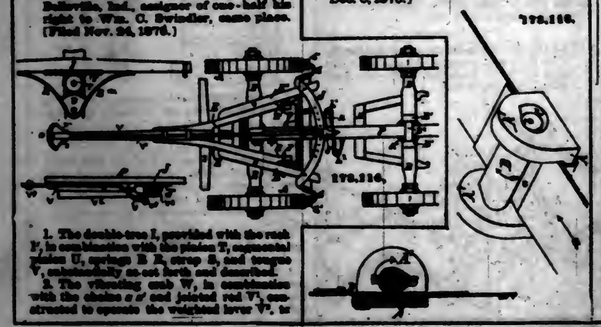
3. I claim the sliding stop E, in combination with the lever-bar D and folder C, whereby the metal band, in the act of being bent, is held firmly upon the lever-bar D, substantially as described.

4. I claim the combination of the lever-bar D, spring S, and stop E, whereby the metal band, after having its end once folded down, is thrust forward by the movement of the stop E to a suitable position over the folder C to be refolded, substantially as described.

5. In a machine for bending the ends of cotton-bands, I claim a slide-stop, E, which automatically feeds the band forward after the first fold is made, substantially as described.

178,120. COTTON-BALE TIES. Samuel H. Gilman, New Orleans, La., assignor to Louisiana Cotton-Tie Company. [Filed Dec. 6, 1875.]

178,120.

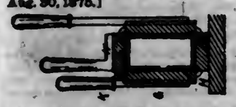


1. The combination of the buckle-frame A, having cylindrical bearings B B', in combination with the cam C, having a transverse semi-cylindrical groove, *c*, and a cartoon, D, substantially as and for the purpose described.

2. The buckle-frame A, having the cylindrical bearings B B', in which are depressions *b b'*, in combination with a cam, C, having a leg, *d*, formed on it, substantially as and for the purpose set forth.

3. The cam C, having a semicircular bearing, *c*, and leg *d*, and the cam-cartoon D, substantially as and for the purposes set forth.

178,190. SHEET-METAL-CAN-FORMING MACHINE. Wm. Green, Chicago, Ill. [Filed Aug. 30, 1875.]

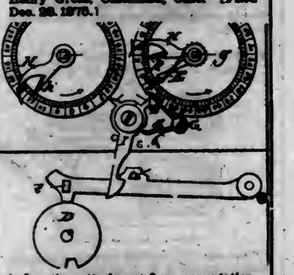


1. In combination with the forming-block E, the hinged die-blocks G G' and H H', die-block G provided with fixed lip *d*, adapted to bend the edge of the blank over the corner of the forming-block, whereby the seam is formed at the corner of the can-body, as specified.

2. In combination with the hinged die-blocks, the gage-blocks J J, rabbeted to receive the edges of the blank, and adapted to bend the same against the end of the forming-block, forming the flanges at the top and bottom of the can-body, as specified.

3. The forming-block E, hinged die-blocks G G' and H H', and lip *d*, in combination with the gage-blocks J J, beveled at the ends, all constructed as and for the purpose set forth.

178,121. TIRE ATTACHMENTS FOR LOCKS. Henry Gross, Cincinnati, Ohio. [Filed Dec. 28, 1875.]

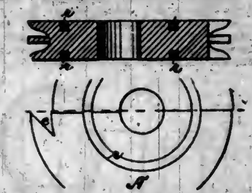


1. In a time attachment for a percussion-lock, a mechanism constructed to operate substantially as described, whereby the lock may be left free to be operated for a prearranged period, and thereafter be rendered inoperative by the attachment until the arrival of the time for which it is set.

2. In combination with the lever I, arranged to engage with the operating part of a percussion-lock, the secondary hand E and the rocking dog G, constructed to operate substantially as and for the purpose set forth.

3. The combination, in a time attachment for locks, of an arbor provided with a fixed hand for discommoning the attachment, and a loose hand connected to the arbor by a ratchet and pawl for operating the dog G, substantially as shown and described.

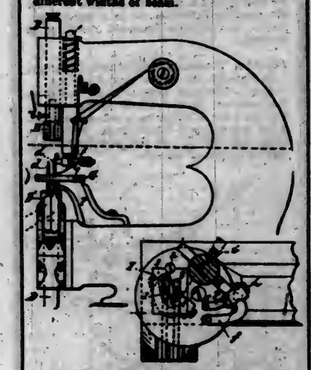
178,196. ROTARY CUTTER-HEADS. Samuel C. Houghton, Little Falls, N. Y. [Filed June 26, 1875.]



The cutter-head constructed of two semicircular segments, A A', locked together by rings *r r*, embedded in their faces, said segments having notches *s* undercut to form projecting cutting-edges at the opposite corners, substantially as described.

178,192. SEWING-MACHINES FOR BOOTS AND SHOES. Clifton D. Hunter, Marlborough, Mass. [Filed Dec. 15, 1875.]

Brief.—The needle and awl carriers are made detachable from their bars, to supply others adapted for seams at different widths apart. The thread-carriers and needle-threats are adjustable to accommodate them to the different widths of seam.



1. The combination of detachable heads H and D', provided with two or more holes, *a a*, with the awl and needle bars B D, substantially as and for the purposes set forth.

2. The combination, with the shank or stem *s* of finger *f*, of the independently-adjustable thread-guide finger or carrier *g*, substantially as and for the purposes set forth.

3. The independently-adjustable guide-finger or carrier *g*, having a thin downwardly-projecting lip, *b*, or its equivalent, in combination with the thread-carrier or guide-finger *f*, substantially as set forth.

4. The combination, with the thread-carrier or guide-finger *f*, of the downwardly-projecting thread-tube *t*, or equivalent device, substantially as and for the purposes set forth.

178,194. CORSET-STAYING. Catharine Judson, Boston, Mass. [Filed Dec. 20, 1875.]
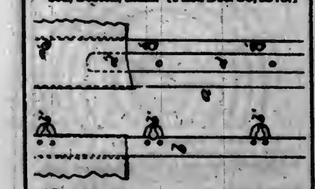


In a corset clasp or spring, the combination, with the bent *a*, of the short strengthening steel *d*, said steel *d* being fastened or fixed to the said bent upon each side of that portion next the natural waist, or each side the center of the bent, and having its ends free, as and for the purpose herein specified.

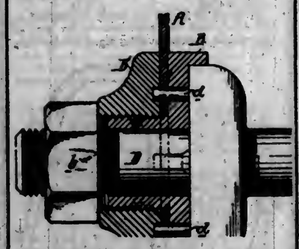
178,195. PUTTING UP SEWING-SILK FOR SALE AND USE. Charles C. Eldredge, Brooklyn, N. Y. [Filed Dec. 27, 1875.]

Brief.—Sewing silk or thread of indefinite length is first plaited or braided, and then reeled into skeins or hanks. The skeins so formed may be cut open at one end, thus furnishing convenient lengths for sale. The object of the invention is to prevent the snarling of the strands of silk, and thereby securing a great saving of material.

1. The method of putting up sewing-silk, substantially as herein described, which consists in braiding the threads and then reeling said braids into a skein or hank, essentially as set forth.

2. A skein or hank of sewing-silk or thread, formed of a number of plies of a braid or braids of threads, whether cut into lengths or continuous, substantially as hereinbefore set forth.

178,126. SECURING SAWS TO SPINDLES. S. W. Little, Evansville, Ind. [Filed Dec. 17, 1875.]

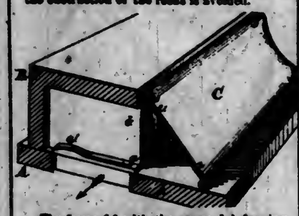


1. The combination of the circular saw A with the clamping-ring B, having a tubular threaded projection, *a*, adapted to a threaded opening in the ring B', and with standing-screws *c c*, as set forth.

2. The combination of the collar F on the spindle D, having pins *d d*, adapted to screw-opening openings in the clamping-rings B B' and the saw, with the nut *b*, as and for the purpose set forth.

178,197. REED-GUARDS. W. A. Loveland, Plymouth, Mass. [Filed Nov. 1, 1875.]

Brief.—To prevent dust, chips, &c., being drawn in through the instrument, whereby the obstruction of the reeds is avoided.



The frame *f f*, with the gauze *d d*, forming an air filter or escape, C, in combination with the reed-boards A and B, all said parts being arranged relatively to each other substantially as described, and for the purposes set forth.

178,198. EBULLIOSCOPES. P. M. E. Malligand, Paris, France. [Filed July 6, 1875.]

Brief.—Determines alcoholic strength of liquid. The cooler condenses the vapors of the liquid, and returns the condensed liquid to the boiler.

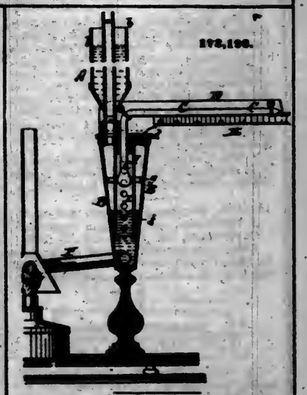
1. The combination of the boiler B with the open-ended condenser A, to prevent escape of a liquid in an ebulliscope, substantially as specified.

2. The combination of the boiler B of an ebulliscope with the circulating-tube F, and with the heater H, substantially as specified.

3. The combination of the boiler B with the thermometer C and sliding scale D, all arranged to constitute an ebulliscope, substantially as specified.

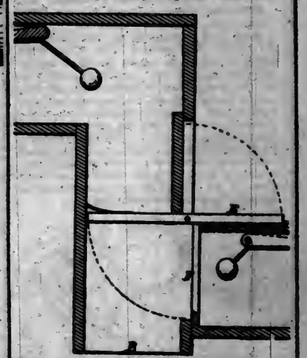
4. The reflector I, combined with the thermometer C and with the boiler B of an ebulliscope, substantially as specified.

178,199.



178,199. COLD-AIR DUCTS FOR HOT-AIR FURNACES. Newton M. Mann, Rochester, N. Y. [Filed Nov. 20, 1875.]

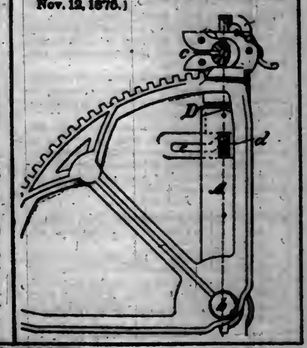
Brief.—Under a backward draft the damper assumes a horizontal position, and the air then enters through the opening beneath it.



1. The self-acting valve E, substantially as described, in combination with the duct E, to prevent an outward and provide for an inward current of air when the draft of the wind is outward.

2. The combination of the self-acting valve E with the self-acting valve C and the duct A B, for the purpose of regulating the supply of air to the heating-chamber of furnaces, steam or other heaters, as above set forth.

178,200. GRAIN-BINDERS. Robert H. McCormick, Chicago, Ill., assignor to C. H. and L. J. McCormick, same place. [Filed Nov. 12, 1875.]

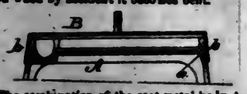


1. The combination, substantially as hereinbefore set forth, of a reciprocating blading-frame, a vibrating corner-rack actuating the twister-pinions mounted on a sliding bar, D, and automatically thrown into and out of gear with the rack, and a fixed stop secured to the frame A, against which the twister-pinions abut when thrown out of gear with the rack, and by which they are positively locked, and prevented from turning until they are again thrown into gear with the rack.

2. The fixed stop, rigidly attached to frame A, in combination with the slide-bar D and twister-pinions, substantially as set forth.

178,181. GRIDIRON. Marvin McKaig, W. J. Minnemyer, and Jonathan Newcomer, Cumberland, Md. [Filed Aug. 21, 1875.]

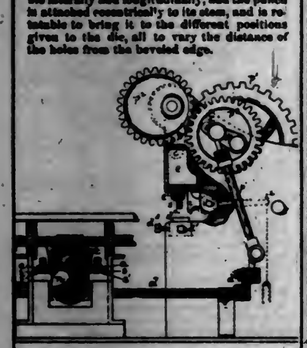
Brief.—The inclined sides of the gridiron facilitate the adjustment of the cover in position when by accident it becomes bent.



The combination of the cast-metal body A, having the wide, flat inclined faces a, and the cover B, having the flat inclined flange b, fitting over and around the body, as shown, whereby a wide bearing is obtained, and a cloth union of the parts insured upon forcing down the cover.

178,182. MACHINES FOR PUNCHING AND BEVELING METAL. James Morgan, Pittsburg, Pa. [Filed Jan. 6, 1876.]

Brief.—Improvements on Letters Patent No. 167,461, September 7, 1875. Every revolution of the crank causes the shaft and its pinion to make a part revolution each way, imparting at one-half of its motion an advance motion to the rack, and at the other half a reverse motion, during the former of which the extensible rack engages the pawl on the carriage, feeding it forward. The die is adjustable laterally and longitudinally, and the punch is attached eccentrically to its stem, and is rotatable to bring it to the different positions given to the die, all to vary the distance of the holes from the beveled edge.



1. The connecting-stem *p'*, having an adjustable crank-connection at each end, in combination with a rack and pinion, an extensible or adjustable rack, a feed-carriage, and pivoted table, substantially as set forth.

2. An extensible rack, *a*, in combination with a rack and pinion arranged to operate with alternate forward and reverse motions, substantially as set forth.

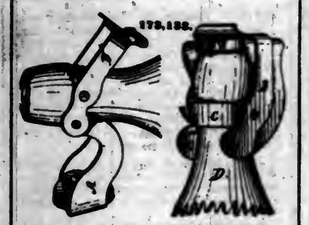
3. The combination of a punch, die, and beveling-shear, whereby the plate is prepared for cutting at the same time that it is punched, substantially as set forth.

4. In combination with an adjustable die, *d*, a punch, *d'*, connected with its die-head by an eccentric stem, substantially as set forth.

5. The combination of eccentric gear-wheels F^1 F^2, slotted cranks *p d'*, and stem *p'*, arranged substantially as set forth.

178,183. BOTTLE-STOPPERS. Jos. Morschhauser, Hyde Park, N. Y. [Filed Sept. 20, 1875.]

Brief.—The action of the yoke is such that it first draws the stopper down with force, and then locks past the center, so that there will be no tendency of the parts to unlock when the cork is subjected to a pressure from within the bottle.

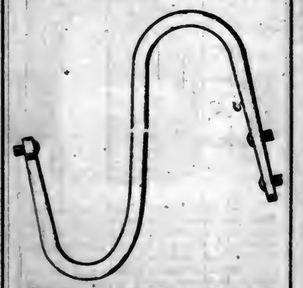


178,183.

The combination of the yoke A, provided with the stopper, and the yoke B, pivoted to the band C and yoke A, and arranged to close over and around the latter, substantially as shown.

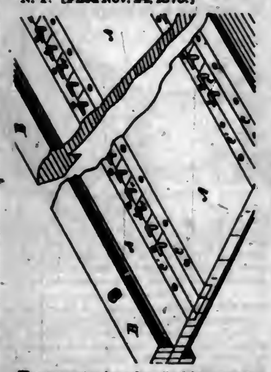
178,184. CARRIAGE-SPRING BRACES. N. A. Newton, Kalamazoo, Mich. [Filed Oct. 23, 1875.]

Brief.—One end of the brace is attached to the perch, and the other end to the body of the vehicle, to prevent swaying of the springs.



The device as described, consisting of the steel bar B, crooked at each end *a* and *c*, constructed substantially as described, for the purpose set forth.

178,185. REGISTERING-BOARDS. Daniel O'Neill and Patrick Murphy, New York, N. Y. [Filed Nov. 24, 1875.]



The apparatus here described for arranging several sheets of paper preparatory to printing on all the sheets at a single operation, consisting of the board A, the guide B, and the guide pins or hooks C, combined and operating as specified.

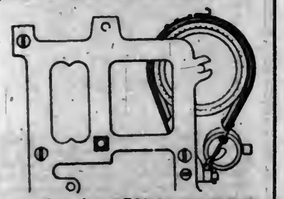
178,186. SAWDUST-SOAP. Herbert Porter and Frederick A. Robinson, Malden, Mass. [Filed Aug. 23, 1875.]

Brief.—Sawdust is mixed with ordinary soap.

A soap composed partially of sawdust, as a new article of manufacture.

178,187. LET-OFF STRAPS OR BRAKES FOR LOOMS. George P. Rose and Abel Cartwright, Slocumville, and Benoni S. Rose, La Fayette, R. I. [Filed May 14, 1875.]

Brief.—A band brake of three layers, the outer of iron, the inner of wood, and rubber between them. On the top are a covered orifice and chamber for powdered soapstone.

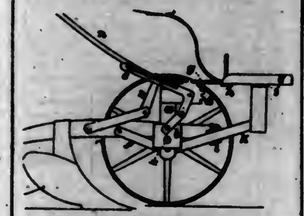


1. A three-ply let-off friction-strap or brake consisting of an inside flexible layer of wood, or any kindred non-conducting material, and an outer flexible layer of iron, or any material of suitable strength, and an interposed rubber or elastic layer, substantially as and for the purposes set forth.

2. A let-off friction-strap provided with an orifice and chamber for the introduction of and carrying the powdered soap-stone, &c., for feeding and keeping the surfaces between the strap and friction-roll in a continuous, proper, and uniform frictional condition, as set forth.

178,188. WHEEL-PLOWS. Marshall Sattley, Taylorville, Ill. [Filed Nov. 8, 1875.]

Brief.—The plow-beam is suspended from the frame by pivoted bracket on either side. The front end of the beam is yoked to a slide, which travels upon oblique bars. Bell-crank levers are used to raise the plow, and to adjust the height of the axle.



1. In a riding-plow, the combination of the main frame A *g h i*, with the vertical bars *s c*, rectangular frame *j*, and diagonal braces *k k*, substantially as described.

2. The diagonal braces *k k*, slides *l l*, pivoted bar *m*, and pivoted draft-bars *f f*, in combination with the plow-beam B, and perpendicular bars *s c*, substantially as described.

3. The combination of the bell-crank lever *n*, pivoted draft-bars *f f*, plow-beam B, pivoted bar *m*, slides *l l*, and diagonal braces *k k*, substantially as described.

178,189. CLOCK-BELLS. H. A. Seymour, Bristol, Conn. [Filed Jan. 3, 1876.]

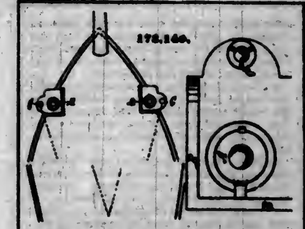


A cloth-bell wherein the wire is secured within a slot formed in the top of the stand, substantially as and for the purpose set forth.

178,190. HEAD-LIGHTS FOR VESSELS. Wm. Sherman, Washington, Ill. [Filed Mar. 16, 1876.]

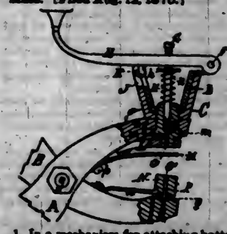
Brief.—The device is for the purpose of reflecting the light to the other part of the vessel, by which it can be seen whether the lamp is lighted or not.

178,140.



In combination with the burner A of a marine signal-light, the reflector C, located forward of the screen, and at the proper distance outward therefrom, to cause the reflection of the light to radiate aft, as specified.

178,141. MACHINES FOR ATTACHING BUTTONS, &c. Samuel W. Sherry, Boston, Mass. [Filed Aug. 12, 1875.]



1. In a mechanism for attaching buttons to clothing, boots and shoes, &c., the combination of the plunger H, twister S, and bed N, substantially as set forth.

2. In a mechanism for attaching buttons to clothing, boots and shoes, &c., the combination of the plunger H, twister S, handle R, socket-piece C, bed N, and rod P, substantially as specified.

3. The stock D, provided with the notch J, having curved or inclined sides I, substantially as and for the purpose set forth and specified.

4. In a mechanism for attaching buttons to clothing, boots and shoes, &c., substantially such as described, the combination of the body A, lever B, socket-piece C, stock D, twister S, plunger H, spring *a*, lever R, plate M, bed N, and rod P, all constructed and arranged to operate substantially as set forth and specified.

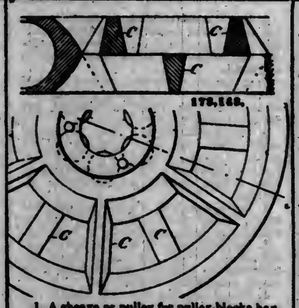
178,142. METAL-THERMOMETER. J. W. Smith, Keokuk, Iowa. [Filed Dec. 21, 1875.]



The combination, in a tenderer, of the rollers A and B, ribbed longitudinally and annularly respectively, the sliding table C, having raised edge F, and the stationary table K, having steps M and E adapted to engage with recesses in sliding table C, substantially as set forth.

178,143. SHEAVES FOR PULLEY-BLOCKS. Myron H. Tarbox, Lockport, N. Y. [Filed Jan. 22, 1876.]

Brief.—A sheave for pulley-blocks, having its rim constructed so as to be thicker and stronger at its center, and having the spokes arranged alternately on opposite sides of the center, and being made widest on their inner faces.



178,143.

1. A sheave or pulley for pulley-blocks having its rim made thicker at its center than at its sides or edges, substantially as set forth.

2. The spokes C, arranged alternately on opposite sides, substantially as shown and described.

3. The spokes C, made V-shaped in cross-section, and arranged with their widest face at the center, substantially as and for the purpose set forth.

178,144. INGE FENCES. Jas. H. Van Dorn and Dwight Van Dorn, Akron, Ohio; said Dwight Van Dorn assignee, by mesne assignments, to James H. Van Dorn. [Filed Jan. 22, 1876.]

Brief.—The picket-fastenings have sockets to receive the ends of the straight pickets and prevent their removal, and loops to hold the "stringers." The upper fastenings are connected by overlapping wings and a loop-bolt. Adjustability is secured by means of braces, whose lower ends are movable in a slotted base-plate, and right-angular plate, through which the ends of the stringers project.



1. The malleable-iron fastenings B C, constructed as described, in combination with the straight wrought-iron pickets A and stringers F, substantially as described, for the purpose specified.

2. The picket-fastenings C B, constructed with the steps or sockets *c* to receive and inclose the ends of the straight pickets, to prevent the latter from dropping down or being pulled out, in combination with the stringers, substantially as herein shown and described.

3. The top picket-fastenings C, constructed with the step or socket *c*, the depressions *d*, and loops *e*, substantially as described, for the purpose specified.

4. The upper picket-fastenings, connected together and to a post or brace by means of the overlapping wings *g* and loop-bolt h, substantially as described, for the purpose specified.

5. The adjustable braces J N, in combination with the adjustable base-plate C, substantially as described, for the purpose specified.

6. In combination with the pickets, stringers, and picket-fastenings, we claim the adjustable right-angular plates O, adjustable loop-bolt h, and the upright braces J, for the purpose of adjusting the fence vertically, substantially as described.

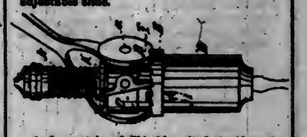
7. The base-strap M, constructed with the central and end slots, and adapted for adjustment upon the base blocks or sills of the frame by means of the upright screw-bolt *g* passing through the central slot to receive the nut *r*, substantially as described, for the purpose specified.

8. The adjustable right-angular plates O, in combination with the braces J and the lower stringers and picket-fastenings, substantially as described, for the purpose specified.

9. The pickets, stringers, and picket-fastenings, in combination with the adjustable braces J N and the adjustable base-plate M, substantially as described, for the purpose specified.

178,145. RATCHET-DRILLS. Henry R. Way, Halifax, Nova Scotia. [Filed Sept. 27 1875.]

Brief.—The teeth of the ratchet-segments in the forms are inclined in opposite directions, in virtue of which one of said segments will engage with the toothed collar upon every movement of the operating-lever, thereby causing the drill-holder to receive a continuous rotary motion. The feed is adjusted by a pivoted dog, which is operated to turn the rag-wheel (clamped to its feed-screw) once during every revolution of the holder by the adjustable slide.

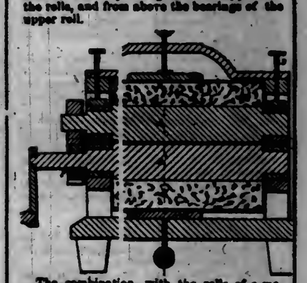


1. In a ratchet-drill holder, the forked handle A, terminating in forms B B, secured to a band, C, the spring ratchet-segments F F, attached to said forms, in combination with ratchet-collar E and drill-holder D, revolving in band C, substantially in the manner described, as and for the purposes hereinbefore set forth.

2. The grooved feed-screw N and clamp L, in combination with the rag-wheel K, dog H, attached to band C, and slide I, substantially as herein shown and described.

178,146. LEAF-TOBACCO-STEM ROLLS. J. L. Weatherhead, Philadelphia, Pa. [Filed Oct. 25, 1875.]

Brief.—Two horizontal rolls with connecting-gear. Above the upper and below the lower are full-length cushions, saturated, incased in troughs—the upper inverted and receiving a drip, the lower partially filled with water; "doctors" or scrapers applied to each roll; set-screws and pressing-surfaces applied to the rolls, and from above the bearings of the upper roll.



The combination, with the rolls of a machine for rolling cut leaf-tobacco stems, of two saturated cushions, the upper one of which is arranged above the upper roll, and the lower one in a trough beneath the lower roll, each being adjusted by a thumb-screw, all constructed and arranged with respect to each other, substantially as and for the purpose described.

178,147. FLY-FRAMES FOR PRINTING-PRESSES. Dominick Weckerlin, Brooklyn, assignor to R. Hoe & Co., New York, N. Y. [Filed Sept. 28, 1875.]



1. Fly-frame fingers shaped so as to form a projecting rib or angular sheet-supporting edge, substantially as shown and described.

2. A fly-frame for printing-presses, the fingers whereof are independently removable from their supporting-base, substantially as shown and described.

3. A fly-frame for printing-presses, the fingers whereof are independently detachable and adjustable laterally, substantially as described.

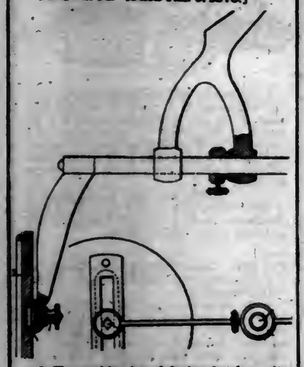
4. The combination of fingers, each having a base-rib, with a transversely-moved or grooved clamp-bar, and a base or supporting bar, substantially as shown and described.

5. The combination of bars or plates A and B, adjustable fingers D, and means for retaining the fingers rigidly between the bars, substantially as described and shown.

6. The combination of base-bar A, ribbed fingers, and screwed or grooved clamping-bar, substantially as described and shown.

7. In combination with the independently-detachable fingers, I claim metallic shoes provided with devices, substantially as described, whereby they are adjustably attached to their supporting-bars.

172,146. BRACKET-STANDS FOR DENTAL INSTRUMENTS. Otis C. White, Hopkinton, Mass., assignor to Samuel S. White, Philadelphia, Pa. [Filed Jan. 5, 1876.]



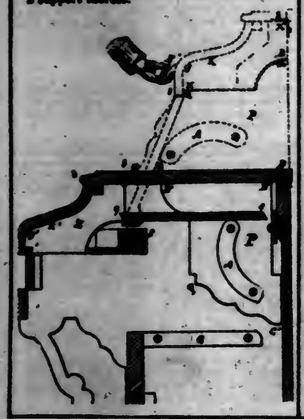
Brief.—1. The combination of the bracket-frame, its bearings, the rod movable freely endwise and turning in the bearings, and the conical friction-clamp, these members being constructed and acting in combination, substantially as hereinbefore set forth.

2. The combination of the turning rod, its arm, and the table, laterally adjustable and swinging thereon, these members being constructed and operating substantially as hereinbefore set forth.

3. The instrument-stand hereinbefore described, consisting of the combination of the rod turning freely and movable endwise in its bearings, the friction-clamp, and the laterally-adjustable table mounted on the rod, these members being constructed and operating in combination, substantially as herein before set forth.

172,147. BRAKE-CRANK CASES. Frank L. Wing and Oliver C. Isbell, New York, N. Y. [Filed July 10, 1875.]

Brief.—When closed the case is of usual shape, but when open a close round-chamber is formed. Raising the lid automatically elevates the waste-disk, which then operates as a support thereto.



1. In a musical instrument case, the revolving wings or end pieces F, attached to the top, substantially as described, and combined with the ends of the lock-board, substantially as described.

2. An arc, A, of any material, and attached to the wings F, in combination with the desk or show-rest, substantially as described, and for the purposes set forth.

3. The combination of a lid or top, hinged as described, a lock-board, as Z, and the end pieces or wings, in connection with a front fret or desk, forming, when the instrument is open, a close chamber, substantially as described.

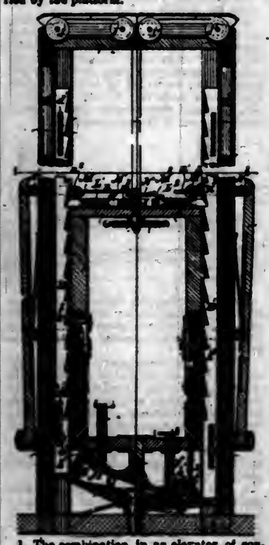
4. The combination of a top, end pieces or wings, having cleats A, a lock-board, and a front fret or desk, substantially as described.

5. The combination of a front desk, a top, end pieces, as P, and a curved lock-board, the latter forming a reflector and condenser of the sound, substantially as described.

6. The combination of a front desk or surface, a top, end pieces, as P, and a lock-board, the form of which presents an interior concavity, to act as a reflector and condenser of tone-waves, substantially as described.

172,150. ELEVATOR. Hezekiah White, Bridgeport, Conn., assignor to himself and Antoni Wlodek, same place. [Filed Jan. 20, 1876.]

Brief.—In place of step-ladders, to be used by plasterers, painters, &c., in elevating themselves gradually, as desired, by stepping alternately upon the reciprocating stands carried by the platform.



1. The combination, in an elevator, of controlling-ways, a platform moving between said ways, reciprocating stands or treadles carried by the platform, and mechanism, substantially such as described, operated by the alternate action of the stands, whereby the platform is elevated step by step, as set forth.

2. The combination, substantially as hereinbefore set forth, of upright ways, a counterbalanced platform moving up and down said ways, reciprocating stands carried by the platform, and mechanism, substantially such as described, for elevating the platform, actuated by the reciprocating stands.

3. The combination, substantially as hereinbefore set forth, of controlling-ways, a platform moving between said ways, reciprocating rack-bars for elevating the platform, carried by the ways, and a rocking lever, upon the opposite ends of which the rack-bars are supported.

4. The combination, substantially as hereinbefore set forth, of the uprights, the platform, the reciprocating rack-bars, and clutches carried by the platform, and automatically and alternately engaging with the rack-bars to connect the platform first with one rack-bar and then with the other, whereby the platform is elevated by the ascending rack-bar, while the other bar is left free to descend.

5. The combination, substantially as hereinbefore set forth, of the ways, the platform, the reciprocating stands, the reciprocating rack-bars, and spring-dogs, carried by the stands, for alternately drawing down the rack-bars.

6. The reciprocating stands, provided with foot-rests above the platform, and with bearers and rollers below the platform, substantially as and for the purposes set forth.

7. The combination of upright ways, a platform moving up and down between said ways, ropes connected with the platform, and provided with weights moving in the ways, rack-bars reciprocating in the ways, a rocking lever, upon which the racks rest, clutches carried by the platform, and engaging with the racks, reciprocating stands carried by the platform, a rocking lever, upon the opposite ends of which the stands bear, and dogs carried by the stands, and engaging with the racks, these members being constructed and operating substantially as set forth.

8. The combination, substantially as hereinbefore set forth, of the reciprocating racks moving in the platform-supporting uprights, spring-clutches carried by the platform, and a turning-shaft for simultaneously disengaging the clutches from the racks.

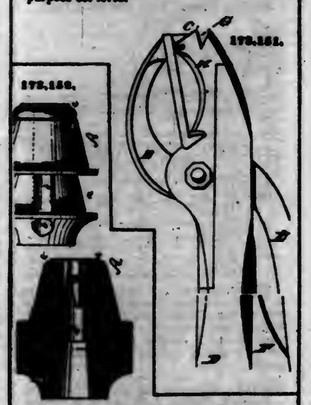
9. The combination, substantially as hereinbefore set forth, of the platform-supporting uprights, pivoted brakes mounted on the platform, and the turning-shaft.

10. The combination of the platform-supporting uprights, the reciprocating rack-bars, the reciprocating dogs, the pivoted brakes, and the turning-shaft, these members being constructed and operating substantially as set forth.

11. The combination, substantially as hereinbefore set forth, of the platform, its upright ways, the rack-bars, the spring-clutches carried by the platform, and engaging with the rack-bars, the reciprocating stands carried by the platform, the dogs mounted upon the stands, and engaging with the rack-bars, the brake mechanism, the turning-shaft, and its lever.

172,151. DEVICES FOR SHARPENING HORSESHOE-CALKS. John Allen, Lansdowne, Mass., assignor of one-half his right to Walter Corcoran, same place. [Filed Jan. 3, 1876.]

In combination with the standard D, having the spring F and clamp B, with its lever and E, the beveled surface C and die G, with intermediate edge c, in the manner and for the purpose set forth.



172,150.

172,151.

172,152. DRILL-CHUCKS. Thos. R. Almond, Fitchburg, Mass. [Filed Aug. 12, 1875.]

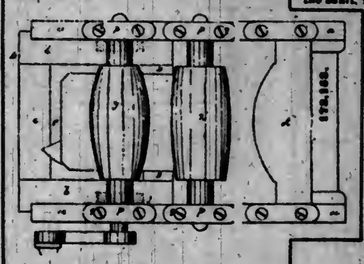
Brief.—A solid shell or body, perforated centrally for the stock, and having bored therein convergent ways to receive the jaws, which are formed toward ends other by a conical nut, working in threads on the jaws.

1. The shell or body of a drill-chuck, provided with three or more oblique perforations, *b b*, which constitute guideways for the jaws, and which converge and extend to the central bore at the solid annular front end *c* of the shell or body, substantially as described.

2. The chuck-jaw B, made cylindrical, and provided with a series of teeth or threads, *f f*, which are cut on a larger circle than the diameter of the jaw to prevent the latter from turning, substantially as specified.

3. The improved chuck herein described, consisting of the drilled and recessed shell or body A, the jaws B B, and the conical nut C, all combined and arranged substantially as shown.

172,153. MACHINERY FOR CRIMPING THE UPPERS OF BOOTS AND SHOES. Ezekiel O. P. Andrews, Everett, Mass. [Filed Oct. 29, 1875.]



172,153.

1. The guide D and the shaper C, arranged and combined with the carrying-frame, as set forth.

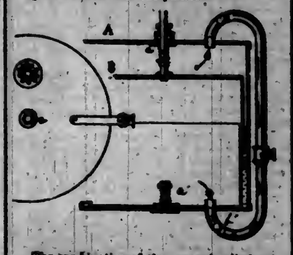
2. The combination of one or more pairs of cylindrical rollers, *i i*, the jaw-bars *k k'*, guide D, shaper C, and carrying-frame B, all being arranged in a supporting-frame in manner and provided with operative spring, as specified.

3. A series of pairs of gradually-tapering rollers, *g g' h h'*, and a set of cylindrical rollers, *i i*, arranged and combined with the shaper C, the guide D, and the carrying-frame B, and in a supporting-frame, A, provided with operative springs, as described.

4. A set of jaws or jaw-bars, *k k'*, one or more pairs of tapering rollers, *g g' h h'*, the longitudinal convexity of which diminishes from the front to the rear of the machine, arranged and combined with a shaper, C, guide D, and their carrying-frame, and in a supporting-frame in manner and provided with operative springs, as specified.

172,154. AIR-PUMPS. David H. Bangs, Medford, Mass. [Filed Dec. 15, 1875.]

Brief.—An upright cylinder having an annular space at the outer edge of the lower half, containing glycerine or other liquid, to serve as packing for the ball-shaped piston-head, the sides of which fit into the annular space. The liquid prevents any communication between the upper and lower sides of the piston-head while it does but a slight resistance to its motion. The piston-rod works through a stuffing-box, and may be driven by any suitable machinery. The upper and lower ends of the cylinder have valves, by which air is allowed to pass inward and outward, according to the motion of the piston.



The combination of the covered cylinder A with piston B, with rod working through stuffing-box *a*, and operating to produce a constant current of air, substantially as described.

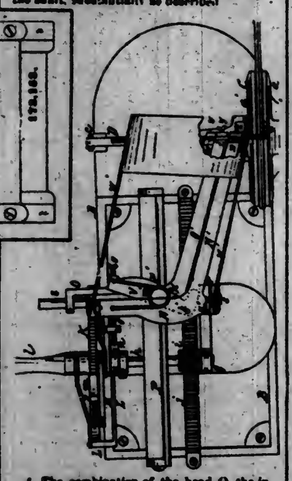
172,155. HARNESS-MACHINES. W. Batty, Rochester, N. Y. [Filed Apr. 6, 1875.]

Brief.—The leather is held in a clamp, the awl fed along intermittingly the length of a stitch, then made to perforate the leather, when the threads are passed through by hand.

1. In a machine for punching and stitching leather, the combination of the fixed clamp C, the carriage I, and jointed arms N' and O', carrying the gage and awl, the whole operating substantially as described.

2. The combination, with the ratchet wheel K, of the shield *m*, swinging frame L, and pawl *p*, with rock arm M, all arranged to operate substantially as described.

3. The combination of the gage arm and bands and arms N' O' O', arranged upon the same shaft *s*, and having a vertical movement to raise and lower the gage and awl, produced by the horizontal sliding of the head O upon the shaft, substantially as described.



172,155.

4. The combination of the head O, the incline *h'*, and adjustable cam-bar T, arranged and operated substantially as described.

5. The combination of the head O, which receives an end movement on the shaft *s*, the pivoted rock-frame P, having a flange which fits the fork *x*, and an arm, Q, connected with a rod reaching to the treadle, by which the motion is given, substantially as described.

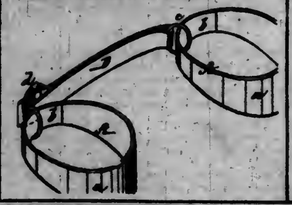
6. The combination of the two arms N' O' and the gage *t*, connecting the two arms, and so arranged that the two arms carrying the gage and awl rise and fall simultaneously, substantially as described.

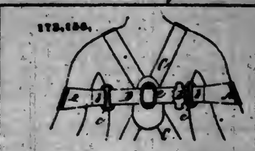
7. The combination of the awl *v* and the gage *t*, when arranged to rest upon the opposite ends of the leather from the entrance of the awl, and resist its pressure, substantially as described.

8. The combination of the heads N O and the plate V, arranged to produce a reaction upon the gage to draw it to place on the leather, substantially as described.

9. In combination with the stationary jaw *a*, the movable jaw *a'*, extension D, bearing *b*, and swivel-bearing *a''*, all constructed and arranged substantially as described, for the purposes specified.

172,156. CORRUGATED SHOULDER-BRACES AND SUSPENDERS. John W. Frederick, Boston, Mass. [Filed Dec. 30, 1875.]





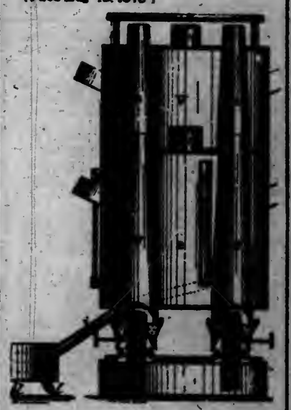
172,156.

1. A shoulder-brace consisting of the arm-bands A A and connecting strap B, constructed and adapted for use substantially as described.

2. I also claim the arm-bands A A and connecting strap B, constructed as described, in combination with a pair of suspenders, C, substantially as described.

3. I also claim the loop or guide *c*, in combination with the suspenders C C and shoulder-brace, constructed as above described, for the purposes set forth.

172,157. STEAM-GENERATORS AND WATER-HEATERS. Geo. W. Brown, Rockford, Ill. [Filed Aug. 18, 1875.]



1. The combination of a steam-generator, *a*, a water-heater, *v*, conducting-pipes *i*, and a steam-distributer, *j*, substantially as shown.

2. The combination of the steam-generator *a* and boiler *r*, the two being made in separate parts, fitted together, and adapted to be heated, as specified.

3. The combination of the steam-generator *a*, boiler *r*, and heating device 1 2, as shown and described.

4. The steam-distributer *j*, substantially as set forth.

172,158. MILK-COOLERS. ABA F. Burgess, Brieville, N. Y. [Filed Dec. 13, 1875.]

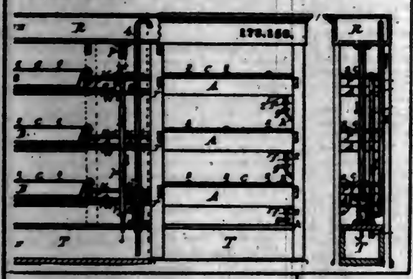
Brief.—A metal strip bolted to rims of pan and vat to strengthen them. A water-distributing trough near to the bottom of pan, having an upper shoulder, which supports the pan. Water supplied from an upper reservoir through a main and branch supply-pipes to each vat, and delivered from each vat to a main delivery-pipe, and finally into an under water-reservoir, whence it is pumped up to the upper reservoir, to again complete the circuit.

1. The combination, with the cooler A, having ledge *a* and supported by rail *r*, and the pan B, having ledge *b*, of the bands *c* and screws *s*, substantially as and for the purpose specified.

2. The combination, with a milk-pan, of an open water-trough, having its open top in close proximity to the bottom of the pan, to discharge the water through the opening between the top of the trough and bottom of the pan, substantially as described, and for the purpose set forth.

3. In combination with the cooler A and pan B, the water-supply trough *w*, supported at the end on the bottom of the cooler, and having at or near midway of its length the shoulder *s* on top and connected with the supply-pipe *o*, constructed substantially as described and shown, for the purpose set forth.

4. The combination, with a rack having arranged therein one or more orifices, provided with the discharge-pipes *u*, *v*, and *w*, and the supply-pipes *o* and *p*, and the reservoir R on top of the rack, of the reservoir T at or near the bottom of the rack, and pump 3, all constructed and arranged to operate substantially as specified and shown.

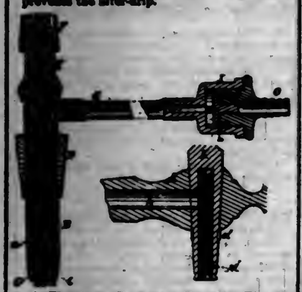


172,160. PROCESSES OF PREPARING METAL FOR CASTINGS. Saml. M. Carpenter, Cleveland, Ohio. (Filed July 15, 1875.)

The process of preparing metal designed for chilled or other castings, substantially as hereinbefore set forth, the same consisting in mixing scraps or pieces of steel, which may or may not have been previously heated, with molten cast or pig iron, in the manner described, and immediately before pouring the metal, substantially as and for the purpose set forth.

172,161. VENT-FAUCETS. Wm. F. Glass, Cleveland, Ohio, assignor of one-half his right to C. Lentze, same place. (Filed Dec. 27, 1875.)

Brief.—An equivalent amount of air is admitted to the cask simultaneously with the drawing of liquid. The upper end of the sleeve is made air-tight in its connection with the tube by an elastic collar, one end of which incloses the end of the sleeve, and the other embraces the tube, and is made to clasp about it by a thimble. The tube inserted in the bore of the faucet-key admits air thereto, and prevents the after-drip.



1. The sleeve B, stopper D, collar E, and thimble F, in combination with the tube A, substantially as described, and for the purpose set forth.

2. In combination with the sleeve B, the valve-chamber I, attached thereto by a flexible tube, G, valve *e*, provided with a rubber packing, *d*, in the manner as described, and for the purpose set forth.

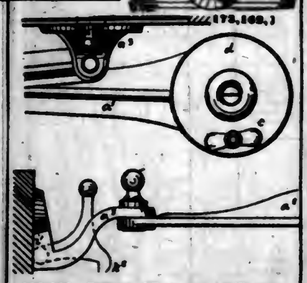
3. The tube M, arranged within the chamber I of the key, in combination with the key K and faucet A', substantially as and for the purpose set forth.

172,161. PITMAN-CONNECTIONS FOR HARVESTERS. Orville Cooley, Brockport, N. Y., assignor to Johnston Harvester Company, same place. (Filed Dec. 12, 1876.)

In a pitman-joint connection, the combination of the rigid plate A or B with the hinged plate *a'* *a''* or *b'* *b''*, the parts of which are permanently connected together, and with the bolt *c*, and ball or swivel block, substantially as described, for the purpose set forth.



172,161.



172,162.

172,162. SHUTTER WORKERS AND FASTENERS. John W. Cooper, Philadelphia, Pa., assignor of one-half his right to Conrad B. Waldie, same place. (Filed Dec. 27, 1875.)

Brief.—A curved arm hinged or pivoted to a shorter straight arm, attached one to the window-sill, the other to the shutter, constitutes an elbow-jointed device, reversible for the right or left hand. The curved arm terminates in a rotating plate, flanged, and having circular slots and central projections. In this cup-shaped rotating plate is closely fitted another recessed plate having a threaded hole, through which works an upwardly-extending thumb-screw, clamping the two plates together, and there may also be rack-teeth and spring between the plates. There is additionally a combined clip and weighted latch, so arranged that it will slip over and lock into the ordinary catch on the window-sill.

1. The window-shutter worker, consisting of the plate *a*, supporting and carrying the arms *a'* *a''*, and having the projections *f* and slot *a'*, in combination with the plate *b* having the recess *b'*, and a suitable holding device, all constructed, arranged, and operating substantially as and for the purpose specified.

2. The combination, with the plates *a* and *b*, of the racks *c* and *b'*, substantially as and for the purpose described.

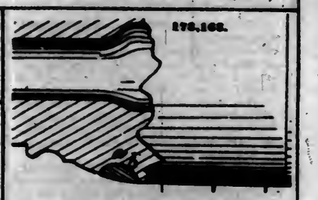
3. The combination, with the plates *a* and *b*, provided with racks *c* and *b'*, of the springs *b''*, substantially as set forth.

4. The combination, with a window shutter-worker, of a combined clip and latch, consisting of the clip *d* slotted at *i*, and provided with bearings *f'*, and a weighted latch, *h*, working in the slot, the whole being constructed, combined, and operating substantially as shown and described, for the purpose set forth.

172,163. RAILROAD WHEEL-HUBS. W. Corrie, Rochester, N. Y. (Filed Sept. 6, 1875.)

Brief.—The surface of the hub is steamed in order to soften it, and permit the band to be slipped into the groove formed therein.

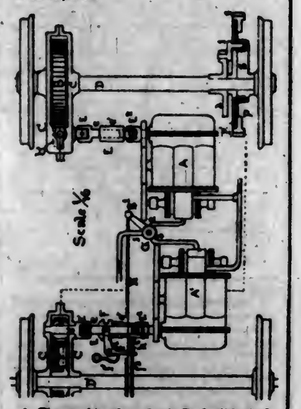
The process or method herein described of securing bands on hubs, consisting in subjecting the band to steam heat at boiler temperature, and applying the same over the hub steamed sufficiently to soften the surface without expanding it, as herein specified.



172,164.

172,164. TRACTION-ENGINES. R. Crenshaw, Williamsburg, Brooklyn, N. Y. (Filed July 17, 1874.)

Brief.—Flexible shafts connect the engines with the wheels. Auxiliary wheel upon an eccentric on the axle may be thrown into action when required.



1. The combination of axle D, flexible shaft E, intermediate gearing, and driving-engine A, connected with the flexible shaft, the wheels being constructed substantially as described, whereby the engine transmits the driving-power to the axle through the medium of the flexible shaft, as and for the object specified.

2. The spur-wheel B, mounted on the axle D, in combination with the pinion *b'*, its shaft *b''*, the flexible shaft E, and the engine A, the whole being constructed to operate substantially as and for the purpose described.

3. The combination, with a tram-way-car, of an auxiliary driving-wheel and a mechanism, substantially as described, for elevating and depressing the axis of the driving-wheel, as set forth, whereby the said wheel can be brought in contact with the ground to aid in propelling the car.

4. The combination, with a car-axle, D, and an auxiliary driving-wheel, P, of an eccentric, S, forming the axis of the wheel, and constructed to be elevated and depressed, as and for the purpose described.

5. The combination of the car-axle D, driving-wheel P, the eccentric S, forming a movable axis for the wheel, the eccentric rod S', and the steam-cylinder U, having its piston connected with said eccentric rod, the whole being constructed substantially as described, whereby the steam-piston operates to elevate and depress the auxiliary driving-wheel, as set forth.

6. The combination, with the power-receiving wheel E and power-transmitting wheel B, mounted upon a car-axle, of the interposed elastic medium Y, as and for the purpose described.

7. The combination, with a tram-way-car, of the gear-wheels B E, pinions *b'*, shafts *b''*, swinging frame C C, power-transmission shafts B E, and engines A A, for operating the latter, substantially as and for the purpose described.

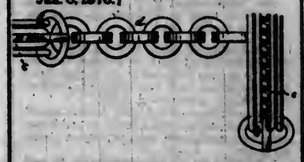
8. The combination, with the axle D, auxiliary driving-wheel P, and steam-cylinder U, having the port or valve Q, of the four-motion 1, 2, 3, and 4, connected with the valve of the steam-cylinder, and constructed substantially as described, for throwing the auxiliary driving-wheel into action when the tram-wheels slip, as set forth.

172,165. SCREENS FOR GARDING-MACHINES. William J. English, Providence, R. I., assignor to M. R. Capron, same place. (Filed July 30, 1875.)



The improved card-screen, substantially as described, consisting of a series of hollow bars, A, of sheet metal, bent angularly, and fitted at variable distances apart within the ridges *a b* of the rims C by means of interposed blocks B and stays *c*, the whole structure being held together by the bolts and nuts D E F, as and for the purpose specified

172,166. CHAIN-LINK CLAMPS. Augustus J. Gourdier, Attleborough, Mass., assignor to Saml. B. Grinnell, same place. (Filed Jan. 6, 1876.)

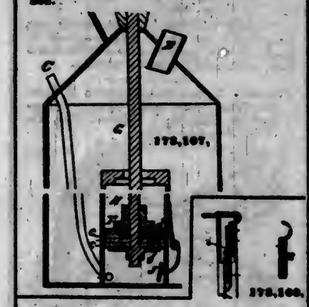


The combination, with the links A, having the interior supporting-piece *a*, of the clamp A, as described, and for the purpose specified.

172,167. LAMP-FILLERS. J. A. Griswold, Chicago, Ill. (Filed Dec. 28, 1875.)

1. The combination of the can A, interior cylinder E, valve J, edaction I, stem G, support *b*, packing *c*, adjustable nut H, and the corresponding socket or opening in the top of the cylinder, substantially as and for the purposes specified.

2. The combination of the can A, cylinder E, valve J, edaction I, flexible tube K, and a piston arranged within the said cylinder, and having a stem extending through the can, substantially as and for the purpose specified.



172,167.

172,168.

172,168. WEIGH-SCALES. Jas. T. Guthrie, Leesburg, Ohio. (Filed Jan. 12, 1876.)

Brief.—Removable plates attached to scale-beam give at once the quantity and value of the commodity.

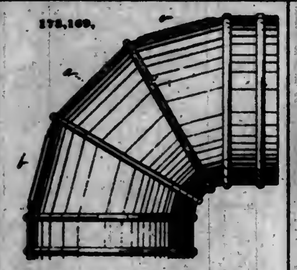
1. In combination with a platform or counter scales, a receiver and removable calculating-plates, substantially as shown.

2. The combination of the beam, receiver, removable calculating-plates, and index-finger *i*, substantially as described.

3. The combination of the receiver, removable calculating-plates, and a spring-catch, to hold the plates in position, substantially as specified.

172,169. ELBOWS FOR SHEET-METAL PIPES. Charles F. Henis, Philadelphia, Pa. (Filed Jan. 8, 1876.)

Brief.—The clasps on the open sections tighten them upon the solid section, and hold the parts in the desired position.

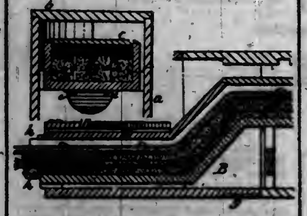


172,169.

The combination of the solid sections *a* and the open sections *b*, provided with clasps or their equivalent, constructed and operated substantially as shown and described

172,170. UNDERGROUND TELEGRAPH-LINES. Joshua Horner, Jr., Baltimore, Md. (Filed Apr. 19, 1875.)

Brief.—In a hollow street-curb a box containing the wires is arranged. At crossings the curb is bent downwardly under the surface.



1. A hollow curb *a*, having a cover, in combination with an inner receptacle or box, *b*, also having a cover, *c*, as and for the purpose set forth.

2. The curb *a*, constructed with a removable top, and having a depressed portion, A, crossing a street, as described.

3. A hollow curb, *a*, having a removable cover, *f*, and made in sections, in combination with a box or trough, *b*, also in sections, as set forth.

4. The combination of the curb *a* and box *b* therein, with the wires *i* insulated and held, as set forth.

5. The box *b* situated in the curb of a street and insulated, as set forth.

172,171. CANDLE-HOLDERS. R. H. Kellogg, Manchester, Conn. (Filed Jan. 10, 1876.)



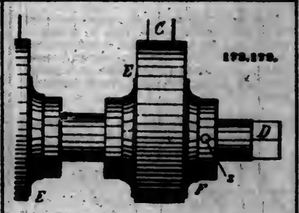
The wire W, bent to the form described, with its clip *a*, spring *b*, loops *c*, and vertical stem *d*, substantially as and for the purpose herein described.

172,172. BEATERS FOR COTTON OPENERS AND PICKERS. Richard Kitson, Lowell, Mass. (Filed Nov. 20, 1875.)

Brief.—A cotton-beater with tightly-closed boxes covering and protecting elastic springs, which unite the arms to the shaft, and at the same time allows a yielding motion to the beater-arms, and the closed boxes formed of the disks being provided on the interior surfaces with ridges, to facilitate the compression and expansion of the elastic springs.



172,173.



1. The combination, with the beater-arms and shaft, of a tightly-closed box, covering and protecting the elastic springs which unite the arms to the shaft, substantially as described.

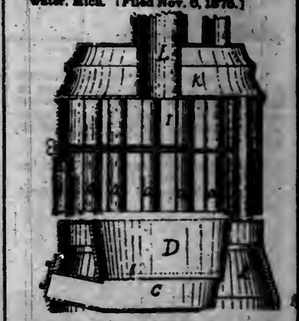
2. The combination of the abutments B, attached to the beater-arms, with the yielding springs S, and the abutments A attached to the beater shaft, substantially as described.

3. The combination of the cup-shaped disk E, carrying the beater-arms, with the beater shaft D, the disk F attached to the shaft, and interposed bearings to prevent the disk E from complete revolution on the shaft, substantially as described.

4. The combination of the cup or box-shaped disk E with the beater-arms C, substantially as described.

5. In combination with the elastic springs S, the closed box formed of the disks E and F, provided on its interior surfaces with corrugations or ridges to facilitate the compression and expansion of the elastic springs, allowing the beater to yield, substantially as described.

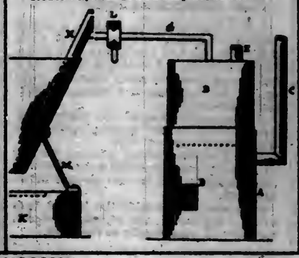
172,173. HEATERS. A. T. Lansburg, Coldwater, Mich. (Filed Nov. 6, 1875.)



1. The cold-air chamber E, surrounding the fire-pot and ash-pit, in combination with the hot-air pipes *d* *e*, the cast-iron lining F in front of said pipes, and extending from the bottom of the combustion-chamber upward rather more than half its height, the curtain M, the hot-air chamber K, the discharge-pipes *b* *c*, and the smoke-pipe L, substantially as described, and for the purposes set forth.

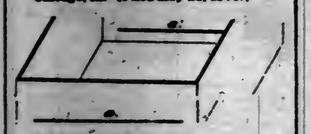
2. The discharge-pipes *b* *c*, the hot-air chamber K, the smoke-pipe L, in combination with the smoke-chamber I, provided with the damper H, the hot-air tubes *a* *e*, the lining F, curtain M, fire-pot D, and cold-air chamber E, all relatively arranged to each other as described, and for the purposes set forth.

172,174. STEAM-BOILERS AND FLOURING-MILLS COMBINED. Lewis H. Mann, Mt. Joy, Pa. (Filed July 15, 1876.)



The inclined pipe H, connected with the boiler D by the horizontal pipe G, in combination with the hopper J, and attached to the inside thereof, and extending through it to the bottom, so as to steam the grain as it passes from the hopper, for the purposes herein set forth.

178,176. FRUIT-BOXES. W. W. Neighbour, Chicago, Ill. [Filed May 28, 1875.]



A fruit-box made of water-proof pasteboard or paper, having in two of its opposite sides slots *a a'*, adapted to receive and firmly hold the bottom piece, which is provided with projections *a a'* to enter said slots, substantially as described.

178,176. SHAFT-BELLS. William H. Nichols, East Hampton, Conn., assignor to the Bevin Brothers Manufacturing Company, same place. [Filed Nov. 8, 1875.]



In combination, the bell *c*, having the socket *f*, the tongue *d*, and screw-eye *e*, adapted to hold the tongue in place, and a convenient and re...ly means of attachment to the shaft, all s... substantially as and for the purpose set forth.

178,177. RIPPER-PLANES. Josef Niebt, Auburn, N. Y. [Filed July 29, 1875.]

Brief.—Bit is adjusted laterally and longitudinally.



In combination with the plane-stock A, the longitudinally-slotted plane-iron F and the combination escapement of the screw *i* and cap G, carrying, secured to it, the wedge H, for clamping said plane-iron to the plane, the lever *b'*, pivoted to the stock of the plane, and engaging with the slot of the plane-iron to adjust it laterally, all arranged substantially as shown and described.

178,178. LEATHER-DRESSING MACHINE. Wm. A. Perkins, Salem, assignor of one-third his right to Chester Guild, Boston, Mass. [Filed June 14, 1875.]

1. In a leather-dressing machine, a jointed head or tool holder, the inner half of which is firmly attached to a carrying arm or wheel, while the outer half is hinged to the inner half in such a manner as to allow it to yield against the resistance of a spring, substantially as described.

2. The combination of the jointed tool-holder, with a tool for dressing leather, substantially as herein set forth.

3. In a leather-dressing machine, the tool or scraper G, when provided with projections, substantially as and for the purpose herein described.

4. In combination with the jointed tool-holder C and tool G, the adjusting-wedge L and screw M, substantially as described.

178,179.



178,179. HAND-CULTIVATORS. Joshua Pierpont and Sidney S. Tuttle, Rushnell, and C. B. Tompkins, Lewiston, Ill., assignors to Pierpont and Tuttle. [Filed Nov. 4, 1875.]

Brief.—Combination of the pivoted and fixed handles and cross-bar.

1. In a hand-cultivator, the combination of the pivoted and adjustable handle G with the tongue A and fixed handle F, substantially as and for the purpose specified.

2. In a hand-cultivator, the combination of the pivoted and adjustable handle G, fixed handle F, and draft-bar B, substantially as and for the purpose specified.

178,180. RAILROAD-RAIL CHAIRS. Edward Busse, Rutland, Vt., assignor of one-half his right to John N. Baxter, same place. [Filed Jan. 17, 1876.]



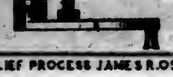
1. The jaws B B, hinged together beneath the rail at one of their ends, so as to open and close horizontally, substantially as and for the purposes described.

2. The combination of the jaws, hinged together beneath the rail at one end, and tied together by a bolt at the other end passed under the rail, with the base-plate and vertical spikes, substantially as described.

178,181. SLIDING SOLES FOR WINDOW-SASHES, &c. Cyrus W. Baldwin, Washington, D. C. [Filed Dec. 13, 1875.]

Brief.—A swinging crank-lever, with pivoted base-bearing, being so attached to a sliding bolt as easily and freely to operate the same by means of the depending knob-handle.

The swinging lever or crank D, having the pivoted base-bearing E, and suitably connected to the sliding bolt B, at a point between the fulcrum and the crank-handle, together with the guide-loops C C', all arranged upon the outer surface of the base-plate A, in the manner and for the purpose substantially as shown and described.



178,182. CURRY-COMBS. Cyrus W. Baldwin, Washington, D. C., assignor of one-half his right to L. Dobbins, Erie, Pa. [Filed Dec. 16, 1875.]

1. The extended shank B of the handle and the handle cross-head C C, secured, respectively, to the rear comb-bar D and the side bars K, as described, and these parts constructed substantially as herein set forth.

2. The thumb-standard I and the fastening H for securing the extended shank B to the rear comb-bar, constructed substantially as herein set forth.

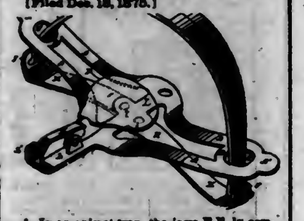
3. The handle A, extended shank B, and cross-head C C, constructed and adapted for use substantially as and for the purpose set forth.

178,183. ANIMAL-TRAPS. Cyrus W. Baldwin, Washington, D. C., assignor of one-half his right to L. Dobbins, Erie, Pa. [Filed Dec. 18, 1875.]



A spring consisting of two flexible side prongs, A A, and the torsional cross-head B, combined with the bed-plate and jaws of a trap, substantially as herein set forth.

178,184. ANIMAL-TRAPS. Cyrus W. Baldwin, Washington, D. C., assignor of one-half his right to L. Dobbins, Erie, Pa. [Filed Dec. 18, 1875.]



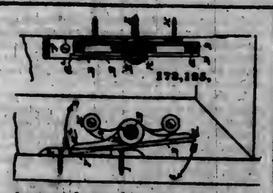
1. In an animal-trap, the jaws F F, in combination with the springs A A A A, secured at their central portion to the bed-plate H, substantially as and for the purpose set forth.

2. The spring A A A A, having the central cross-bar I, in combination with the trigger K and foot-plate P, substantially as and for the purpose set forth.

178,185. SAFE-FASTENERS. Cyrus W. Baldwin, Washington, D. C., assignor of one-half his right to L. Dobbins, Erie, Pa. [Filed Nov. 8, 1875.]

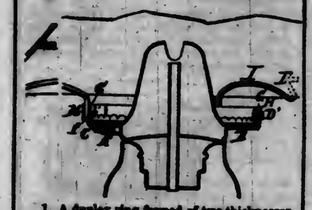
Brief.—The essential novelty consisting in connecting a pivoted double-end catch to a fixed plate, the catch having a hub, which, with the catch, fastens the catch, and forms a cylindrical bearing, thus adding strength and durability to the device.

178,185.



In a rein-fastener, the fixed plate A, provided with the bearing-stud K, and combined with the hub C of the pivoted double-end catch B, and the fastening screw or rivet H, as described, whereby the stud and the hub co-operate to both fasten the catch and form a cylindrical bearing therefor, substantially as shown and described.

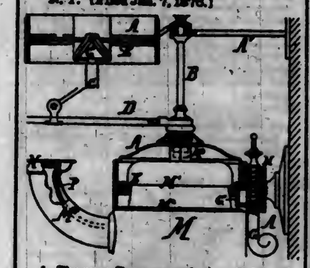
178,186. SHADE-HOLDERS FOR LAMPS. William Scarlett, Aurora, Ill. [Filed July 20, 1876.]



1. A duplex ring formed of two thicknesses of sheet metal, G H, with pockets K between, and provided with engaging hooks *g h*, in combination with arms I I', the whole being adapted to support a shade, and be supported upon a lamp-burner, as herein specified.

2. The combination of the shade-supporting arms, adapted to engage with the lower edge of the shade, a sheet-metal ring with hooks *g h*, for engaging and disengaging, a hole adapted to receive the burner nut of the chimney-screw, and one or more holes on the opposite side, adapted to receive a turned-out catch, *b*, on a lamp-burner, as herein specified.

178,187. LAMPS. Henry Seidler, New York, N. Y. [Filed Jan. 7, 1876.]



1. The arms B, V-grooved plates G G', and spring H, in combination with the lamp-body M, having a supporting-shoulder, M', as herein specified.

2. The lamp-body M, having an inclined side neck, M', in combination with the supporting-framing A and provisions, M' E, for supporting and allowing it to turn, as specified.

3. The shade-support D D' and spindle R, in combination with the lamp M, having a socket, M', engaging and turning therewith, and with the supports A A', as herein specified.

4. The supports A A', shaft B, shade-support D D', arms G, locking-plates G G', and spring H, combined as shown, and adapted to serve relatively to a lamp, M, having shoulders M' M', socket M', and neck M', as and for the purposes herein specified.

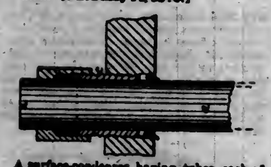
5. In combination with the lamp-body M and suitable means for holding and releasing the same, as specified, the cap F and drum-tube P, carried on the side neck M', as and for the purposes specified.

178,188. CHECK-REINS FOR HARNESS. W. Updyke Scrover, Rahway, N. J. [Filed June 13, 1874.]



The check-rein connected at its ends with the head-strap of the head-stall, in combination with the adjustable loops extending from the bit to the check-rein, as set forth.

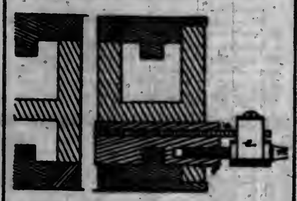
178,189. DEVICES FOR PACKING COUPLING-TUBES. Francis B. Stevens, Hoboken, N. J. [Filed May 14, 1875.]



A surface-condenser having tubes, each of which is packed by a gland, recessed so as to hold the packing, and screwed by an internal screw over the hollow standing bolts *e e*, to tighten this packing.

178,190. MACHINES FOR TURNING AND CUTTING OFF GAS-PIPES. Levi W. Stockwell, Bavenna, Ohio. [Filed July 21, 1875.]

Brief.—A cutting-tool within one of the guides adjustable up to its work by a thumb-screw, and a clamp bearing against the carriage, to fix the dies and the guides while the work is done.



1. The guide *c'*, grooved lengthwise in combination with the tool *c*, substantially as and for the purpose herein set forth.

2. The combination of the guide *c'*, tool *c*, holder *i*, and screw *w*, substantially as and for the purpose herein set forth.

3. The bar *x*, in combination with the carriage *e* and *i*, substantially as and for the purpose herein set forth.

178,191. MACHINES FOR TAPPING GAS AND WATER FITTINGS. Levi W. Stockwell, Bavenna, Ohio. [Filed July 21, 1875.]

Brief.—The chuck-carrier is fed forward, presenting fittings to be acted upon in turn, and thrown back to its normal position when all the work has been done, and the taps fed up and withdrawn, all automatically. Right and left hand screw-threads may be cut at the same time.

1. The chuck-carrier *e'*, in combination with the rack *m'*, pawl *m'*, arms *h'* and *h'*, rock *c'*, ar...l wheel *f'*, substantially as and for the purpose herein set forth.

2. The spindle *t*, in combination with the lever *y'*, sliding-rod *y'*, with its notched plate *c'*, spring *c'*, spiral springs *o' o'*, stops *c' c'*, and the lever *y*, substantially as and for the purpose herein set forth.

3. The combination of the chuck-carrier *e'* with the rack *m'* and pawl *f'*, substantially as and for the purpose herein set forth.

4. The combination of the chuck-carrier *e'*, pawl *m'*, bar *d'*, and arm *h'*, substantially as and for the purpose herein set forth.

5. The rack *e'*, having the slip-cogs *f' g'*, in combination with wheel *c'*, substantially as and for the purpose herein set forth.

6. The combination of the spring *o'*, rack *e'*, wheel *c'*, substantially as and for the purpose herein set forth.

7. The arm *h'*, in combination with the plate *c'*, wheel *c'*, and rock-shaft *h'*, substantially as and for the purpose herein set forth.

8. The combination of the strut *o'*, plate *o'*, and stop *F*, substantially as and for the purpose herein set forth.

9. The sliding bar *F*, in combination with the slide *v'*, chuck-carrier *e'*, stop *F*, and plate *o'*, substantially as and for the purpose herein set forth.

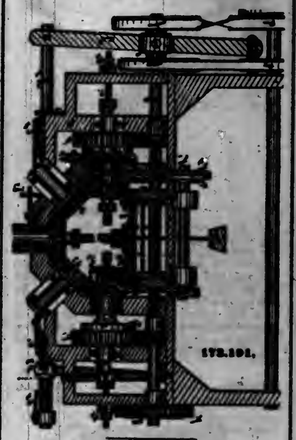
10. The combination of the chuck-carrier *e'*, sliding bar *F*, arms *m' m'*, pawl *f'*, and rack *m'*, substantially as and for the purpose herein set forth.

11. The combination of the pawl *m'*, pawl *f'*, rack *m'*, carrier *e'*, pawl *m'*, bar *d'*, arm *h'*, arm *m'*, and bar *F*, substantially as and for the purpose herein set forth.

12. The combination of the chuck-carrier *e'* and sliding bar *F*, having respectively the pins *r* and *r'*, with stop *F* and sliding bar *y'*, substantially as and for the purpose herein set forth.

13. The combination of the spindle *t*, wheel *c'*, rack *e'*, and rock-shaft *h'*, pawl *m'*, rack *m'*, and chuck-carrier *e'*, substantially as and for the purpose herein set forth.

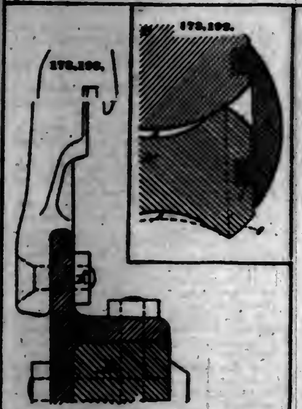
14. The combination of the spindle *t'*, screw *s'*, nut *n'*, lever *y'*, rock-shaft *w*, arm *p'*, springs *o' o'*, stops *c' c'*, sliding rod *y'*, lever *y*, clutch *c*, and pulleys *f f'*, substantially as and for the purpose herein set forth.



178,192. MANDRELS FOR ROLLING METAL TUBES. Stephen P. M. Tucker, Philadelphia, Pa. [Filed Jan. 20, 1876.]

Brief.—Improvement in invention described in Letters Patent No. 151,353. One of the rolls is made concave in the greater portion of its length, and is also so formed as to have a bearing near each end of a counter circular form to the swelled surface of the other roll; the surfaces of the two rolls, in virtue of this construction, not being as liable to become impaired by wear at their places of contact as when they only touch tangentially.

The roll B', having surfaces *s s* at its end circumscribed by the same circle that takes in the periphery of the roll B, and curved inward in the direction of its length between said end surfaces, as described, in combination with the roll B and stock or case A, substantially as set forth.



178,192. Cutter-Bars for Harvesters. Geo. F. Underhill, Brockport, N. Y. [Filed Dec. 10, 1875.]

The combination of the series of projecting fingers C with the support B, and with the inverted T-bar A, embracing said support, substantially as and for the purposes set forth.

178,193. Atomizer. William V. Wallace, Boston, Mass., assignor to Alvah Little-field and F. M. Keeler, same place. [Filed Jan. 4, 1876.]

Brief.—One end of the rubber bulb is supported by a spring-arm, which is connected to the liquid-pipe just above the cork.



1. In an atomizer, in which the air-chamber is supported over the liquid-receptacle, the spring G, adapted to constitute an elastic support for one end of the air-chamber, the opposite end of said chamber being supported by the tube a, substantially as described, for the purpose specified.

2. The spring G, supported by the tube a, in combination with the elastic air-chamber c, having the elastic projection E, all arranged and operating substantially as described.

178,194. Match-Safes. Jos. G. Weiter, Providence, R. I. [Filed Jan. 7, 1876.]



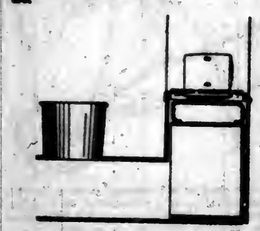
1. The combination of the segmental cover d, provided with the segmental gears e e, with the drawer c, provided with the rack-gear, substantially as and for the purpose described.

178,195. Cuffs. Geo. F. Underhill, Brockport, N. Y. [Filed Dec. 10, 1875.]

The combination of the cuff a, provided with segmental ends, the fixed receptacle b, and the sliding receptacle c, connected with the cover d by means of the segmental gears e e and rack-gear, arranged and operating substantially as and for the purpose set forth.

178,196. Safety Attachments for Stove-Pipes. Jos. H. Wilbur, Willoughby, Ohio. [Filed Nov. 4, 1875.]

Brief.—The case lines the chimney-flue, and protects adjacent parts from escape of fire. The drawer provides for the removal of soot, &c.



The combination of the case, drawer, and thimble with the chimney-flue, substantially as described.

178,197. Ink-Stands. Greenleaf A. Wilbur, Shawhagan, Me. [Filed Oct. 7, 1875.]

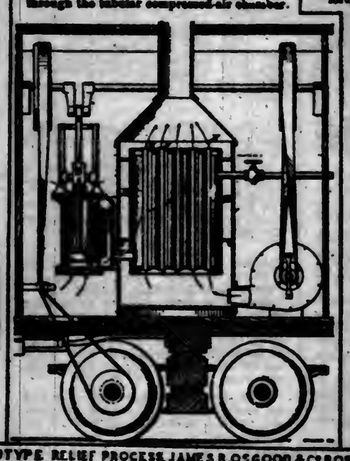
Brief.—Pressing upon a treadle or lever causes the twisted post to rotate, and the top to move to one side, allowing the pen to be dipped into the ink. When the pressure on the lever is relaxed, the spring draws down the end of the treadle, causing the post to rotate and the cover to close the mouth of the bottle.



The combination of a treadle or lever, T, a spring, s, a twisted post, p, and a cover, c, substantially as and for the purpose set forth and described.

178,198. Ink-Reservoirs-Cans. Josiah H. Wilcocks, Wilmington, N. C. [Filed Jan. 12, 1876.]

Brief.—A pump worked by connections with the car-wheels condenses air and forces it into a chamber, whence it may be admitted into the feed-chamber, which it expels by its expansion. Heat developed from the compressed air is removed by a blast of air sent around and through the interior compressed-air chamber.



The combination of a receptacle provided with a chamber for compressed air, of a condensing mechanism, an air-forcing mechanism, and an expansion-chamber, the several parts being constructed and arranged substantially as described, whereby the compression-chamber is filled with compressed air, and the heat evolved by condensation is carried away, and the air afterward expanded, as and for the purposes set forth.

178,199. Tobacco-Box Clamps. Warwick W. Wood, Jonesville, N. C. [Filed Sept. 3, 1875.]

Brief.—The tobacco-box, after being packed, is released by slackening the wedge at the end of the coupled rod, and, then uncoupling it, when the hinged block is swung around to permit the removal of the box.



1. The clamp-block M, in combination with the hinged clamp-blocks N O, as and for the purposes set forth.

2. The rods F F', the former provided with coupling devices, and both having sections E and wedges D, in combination with the clamp-blocks M N O, substantially as and for the purposes described.

178,200. Manufacture of Varnishes. Maximilian Ziegler, Middlesex County, England. [Filed Sept. 20, 1875.]

1. The improved process of manufacturing varnish, herein before described, which consists in dissolving gum-copal or other hard gum in a liquid composed of bisulphide of carbon, camphene, benzole, and methylated spirit, as specified, and afterward allowing the liquid to evaporate until a thick paste is obtained, and then dissolving the paste in copios.

2. A varnish consisting of hard gum, bisulphide of carbon, camphene, benzole, methylated spirit, and copios, in the proportions specified.

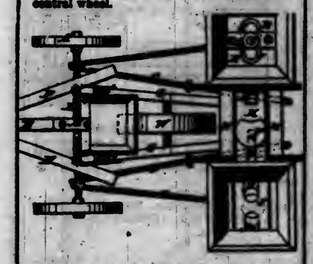
178,201. Meat-Cutters. John Ash, New Haven, assignor to Benj. B. Fowler, Hartford, Conn. [Filed Oct. 20, 1875.]



The combination of a hopper to receive the meat, a reciprocating knife to work across the mouth of the hopper, a suitable feed to move the meat in the hopper, and the rods L, more or less in number, substantially as and for the purpose specified.

178,202. Combined Corn-Planters and Cultivators. Henry H. Balding, Terre Haute, Ind. [Filed Dec. 20, 1875.]

Brief.—The frame of the machine consists of a raised or arched axle-tree, the tongue, and a pair of bolsters. The cultivator-beams are four in number—two upon each side, and bisected by the horizontal arm of the axle-tree. The seeding device is mounted upon the rear portion over the cultivator-beams, and upon independent beams attached by hinge-joint to the axle-tree, and rearwardly supported by a central wheel.



1. The combination of the frame G H and wheel W of the planter with the axle B and beams C of the cultivator, substantially as herein shown and described.

2. The combination of the devices g' and the bent bolts or staples X with the planter-frame G H and the axle B and beams C of the cultivator, substantially as herein shown and described.

178,203. Cane-Tearers. Joseph Barton, Hartford, Conn. [Filed Jan. 3, 1876.]

Brief.—The barrel-stand is provided at the rear part with a spring-bearer, working in a socket hung to the stand, and tilting the barrel when released from the socket by lever device. The lifting is so gradual that the contents of the barrel are not injuriously disturbed.



1. The tube C, journaled in bearings b b, and guiding the bearer D, as well as the spring, in the manner described.

2. The combination, with a sliding spring-bearer, of a locking-pin and operating lever-rod, for releasing the bearer to rest on the barrel, substantially as specified.

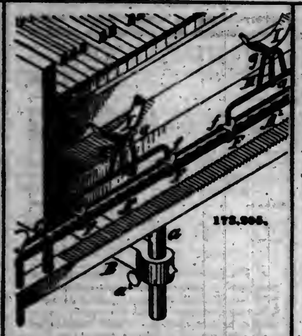
178,204. Hog-Supporters for Butcher Shops. Martin Book, Conynghem, Pa. [Filed Jan. 22, 1876.]



A rubber-shoe-heel supporter, consisting of a wire or wires, A, having the point or points B for sticking in the heel of the boot, and a stud or projection, D, for holding the heel of the shoe, substantially as specified.

178,205. Hand-Guards for Planes. W. Bulmer, Montreal, Canada. [Filed Jan. 6, 1876.]

Brief.—The hand-rail itself yields to pressure, being mounted on spring-bearings.



178,206.

1. In a hand-rest for planes, the combination of a bar, A, arranged parallel to the front of the plane and supported therefrom, and a round bar arranged above said bar A, and offering a yielding resistance to downward pressure by means of a spring bearing, as herein set forth.

2. In combination with the bar C, the stands G connected therewith by means of the rings F, substantially as described, so as to allow a right and left and also a forward and backward movement, as set forth.

3. The combination, with the stand G, of the rests I, mounted upon spindles H, as specified, so as to be capable of horizontal rotary motion, substantially as herein set forth.

4. In combination with the bar A, having notched upper surface A', the stands G, carrying rests I, and having rings F running upon the bar C, substantially as and for the purposes herein set forth.

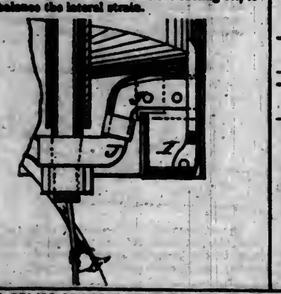
178,207. Attaching Hubs to Axles. A. B. Brown, Comstock, Mich. [Filed July 3, 1875.]



The combination of the threaded band E with the axle-box B, having corresponding and interlocking ring-flanges b' c', and the axle having enlarged threaded collar D, as shown and described, for the purpose specified.

178,208. Rabbit-Augers. W. McK. Burns, Concordia, Kansas. [Filed Dec. 4, 1875.]

Brief.—The square auger-shaft is rounded below the guide-tube, to prevent twisting in the square post, and consequent jamming. The bit is formed on an acute pitch in the body portion, with a less acute point. A detachable T-plate is secured to the bottom of the auger, against which the pivoted reamer works. The center-bit, reamer-bit, and blade-bit are all connected to an arm on the shaft, and a straight blade projects down on one side of the bucket as far as the cutting-bit, to balance the lateral strain.



1. An auger-bucket, having shaft and guide-tube squared at the upper portion D E, but round from thence to the bit, as shown and described, so that when the shaft becomes twisted by torsional strain near the bit, the shaft shall not become locked in the tube.

2. The bit F, constructed on an acute pitch in the body portion, with a less acute point, G, substantially as specified.

3. The combination with bucket of a blade, H, bit F, and reamer I, made independent of bucket but connected together, as shown and described, for the purpose of allowing the bucket to be hauled up by itself.

4. A reamer, I, pivoted and provided with spring M, as and for the purpose set forth.

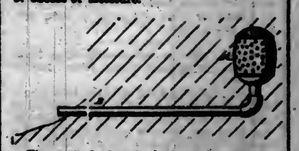
5. The combination of arm J and T-plate K, to support operative parts, in the manner specified.

6. The combination of detachable T-plate K with the pivoted reamer and the auger-bucket, substantially as specified.

7. The circular plate O, in combination with an earth-auger, substantially as specified.

178,209. Methods of Obtaining Water. Augustus Byram, Atchison, Kans. [Filed Feb. 20, 1875.]

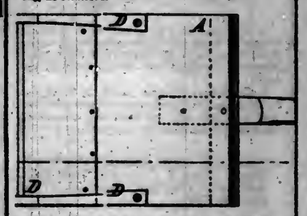
Brief.—By the method claimed, water is obtained from porous soil resting on a foundation of clay, &c., where there is no appearance of excess of moisture.



The method of gathering and drawing water from the earth by burying therein the perforated vessel A, and connecting the bottom thereof with the surface of ground by a pipe on a lower level than the vessel, as shown and described.

178,209. Snow-Shovels. Eugene Campbell, South Westerlo, N. Y. [Filed Jan. 7, 1876.]

Brief.—Snow-shovel furnished with iron straps, running from each of the corners around the under sides of the blade, and acting as runners.



The combination of the runners D with the blade A of a shovel, substantially as herein shown and described.

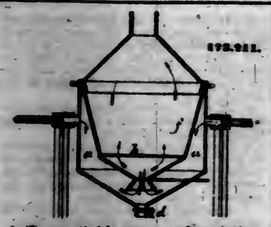
178,210. Corset-Fastenings. W. B. Cargill, Waterbury, Conn., assignor to himself and Waterman & Mayer, New York, N. Y. [Filed Dec. 8, 1875.]



The combination, with the corset-fastening, having the eye 2, of the two lips 3 3, clasping the edges of the corset-spring and the tongue 4, passing through such spring and riveted up, as set forth.

178,211. Preparing Cereals for Food. Lewis S. Chichester, New York, assignor to John J. Tyler, Brooklyn, N. Y. [Filed Nov. 12, 1875.]

178,911.



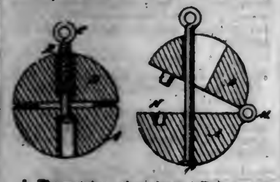
1. The vessel *f*, having a perforated platform, *h*, and steam-inlet valve *l*, in combination with the surrounding vessel *e*, forming a steam-jacket, and the supporting-trunnions *b b'*, as and for the purposes set forth.

2. The drying-vessel composed of the cylinder *m*, sustained upon hollow trunnions, and provided with a flap, in combination with the interior drum *o* and perforated heads *t t'*, as and for the purposes set forth.

3. The method herein described of preparing cereals by first passing steam through the mass while in a quiescent condition; second, cooking the same by a continuance of the steam heat after the steam has been cut off from the mass itself; third, removing the mass from the cooking-vessel, and drying the same by heated air while the mass is being agitated, as set forth.

178,912. TOY CAP-EXPLODERS. Chas. Coster, Jr., Bridgeport, Conn. (Filed Jan 7 1876.)

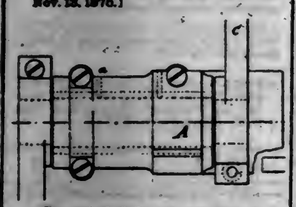
Brief.—A solid metal ball is divided in half. The halves are connected by a rod secured to one, and fitting loosely a center perforation in the other, and are held gently together by a spring. Any fulminate placed between the halves to hold in place by the spring, and upon the ball being thrown is exploded at striking.



1. The metal or other pieces A B, in combination with the rod C and spring D, arranged at right angles to the plane of division, substantially as described, for the purpose set forth.

2. The metal or other pieces A B, hinged at M, connected by the rod C, and provided with a nipple and corresponding groove or depression, substantially as described.

178,913. LOCOMOTIVE ROCKER SHAFTS AND BOXES. John T. Crowther, Carbondale, and Wm. J. Crowther, Urbana, Ill. (Filed Nov. 13, 1875.)



1. The rock-shaft B, made with three key-seats, *b'*, in each end, the key seats in the one end being opposite the centers of the spaces between the key-seats in the other end, to enable the shaft to be adjusted in six different positions, substantially as herein shown and described.

2. The combination, with a locomotive rocker-box, having three sets of oil-holes, *c'*, of a two-part bushing, D, having three corresponding sets of oil-holes, as shown and described, to enable the bushing to be adjusted in different positions, and thus equalize wear, in the manner set forth.

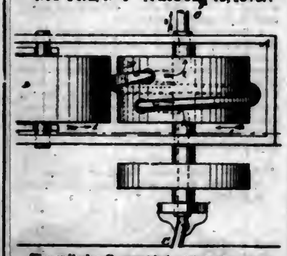
178,914. PAPER BOXES. Terence Devine, Jr., Newark, N. J. (Filed Dec 18, 1875.)



1. The improved paper box herein described, composed of the central section *a*, provided with longitudinal tongues *a'*, the side sections *b*, having end flaps *d*, and the double top sections *c*, having recesses *c'*, and bridge pieces *f*, all constructed substantially as herein set forth, from a blank of one continuous piece of paper to avoid pasting or gluing.

2. The combination of the central tongues with the recessed top sections, of which the lower one has retaining bridge-pieces to lock the parts securely together, substantially as specified.

178,915. ROTARY PUMPS. W. T. Doremus, New York, N. Y. (Filed Jan 16, 1876.)



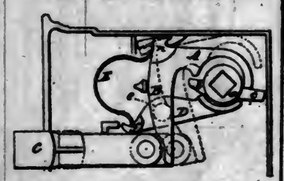
The cylinder B, provided with hollow journals, and having a flexible tube, C, coiled around it, with its ends passed through or connected with the said hollow journals, and through which tube and hollow journals a fluid is forced by the pressure upon said tube of a second cylinder, D, substantially as herein shown and described.

178,916. FLAILS. Theodore F. Drake, Great Valley, N. Y. (Filed Jan. 3, 1876.)



The combination of wires B with the beater of a flail, substantially as specified.

178,917. KNOB-LATCHES. Henry H. Ewell and Thomas Taylor, Norwalk, Conn., assignors to the Norwalk Lock Company, same place. (Filed Jan. 17, 1876.)



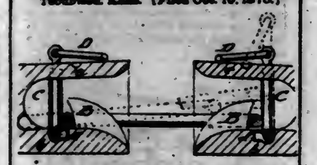
The combination in a knob-latch, of the bolt, the principal lever A B, the bolt hung to one arm of the lever, the auxiliary lever D, and the spring E, substantially as described.

178,918. GLOVE-FASTENINGS. F. G. Farnham, Hawley, Pa. (Filed Oct. 23, 1875.)



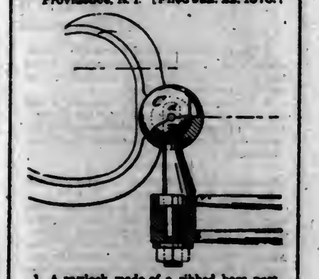
The combination of the eye-plate A, having ratchet I, the plate B, having lugs B' B', connected by a pin, F, and the lever C, folded at G to form a loop or slot, and having the spur H, as and for the purposes specified.

178,919. CAR-COUPLINGS. E. A. Goodell, Tecumseh, Kans. (Filed Oct. 19, 1875.)



The combination, with a draw-head, having a groove, *c*, across the top, of a vertically-reciprocating stirrup, C, having ring D, pivoted to the upper end thereof, as and for the purpose specified.

178,920. MOWLOCKS. Frederic A. Gower, Providence, R. I. (Filed Jan. 22, 1876.)



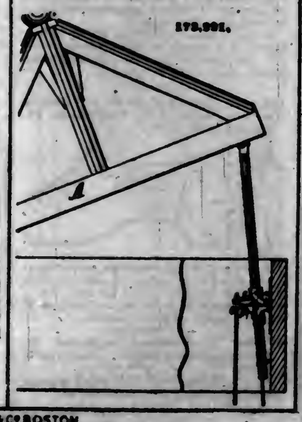
1. A rowlock made of a ribbed base part, back and top, with space for introducing oar and retaining the same, substantially in the manner and for the purpose set forth.

2. The combination of a rowlock, by ball-and-socket joint, with the supporting standard or chock, substantially as set forth.

3. The ball-and-socket joint, having small holes for admitting, oiling, and screwing to shaft, substantially as described.

4. The combination of the rowlock-carrying shaft, having strengthening base or shoulder, with the outrigger-rods and fastening bottom screw, to secure the entire rowlock at one single point, substantially as specified.

178,921.



178,921. SKYLIGHT-LIFTERS. William P. Hagedorn, Sing Sing, N. Y. (Filed July 30, 1875.)

1. A skylight-lifter, consisting of the lifting-rod S, pivoted to the sash at its upper end, and capable of free motion below, so as to follow the same in its ascent, combined with the sheave-wheels S and S, and an operating cord, substantially as specified.

2. The bolt I and trigger S, in combination with the notched lifting-rod S, barrel A, and sheave-wheels S and S, substantially as specified.

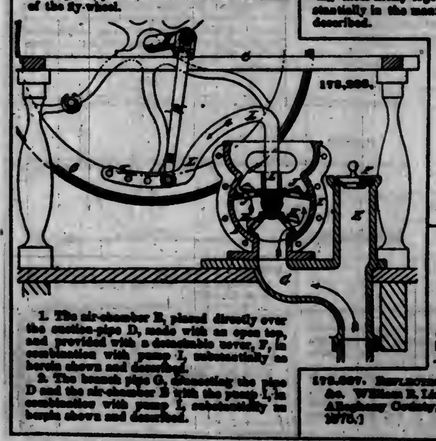
178,922. WOOL-WASHING MACHINES. Benjamin Hall, Preston, Conn. (Filed Jan. 20, 1876.)



As an inner perforated tank combined with an outer tank or box, upon which it is fulcrumed at one end or side, and a curved rack with pinion-wheel and crank, for elevating the inner tank to dump the wool or other article being cleansed, all arranged substantially as described.

178,923. PUMPS. George W. Johnson, Yarmouth, Canada. (Filed Dec. 16, 1875.)

Brief.—The air-chamber is placed directly over the suction-pipe and made with an open top, and provided with a detachable cover, so that by removing the cover the pipe may be reamed, and obstructions removed from it. The pump is semi-cylindrical in form, and in the lower part are the two valves, opening upward. There is a curved lever, in combination with the buckets, the pump, and the connecting-rod, pivoted to the crank of the shaft of the fly-wheel.



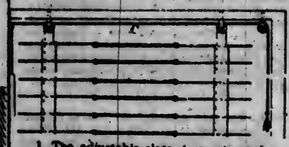
1. The air-chamber B, placed directly over the suction-pipe D, made with an open top, and provided with a detachable cover, F, in combination with pump J, substantially as herein shown and described.

2. The branch pipe G, connecting the pipe D and the air-chamber B with the pump I, in combination with pump I, substantially as herein shown and described.

3. The curved or bent lever *i*, in combination with the buckets J, the pump I, and the connecting-rod M, pivoted to the crank of the shaft N of the fly-wheel O, substantially as herein shown and described.

178,924. INSIDE WINDOW-BLINDS. Damon Y. Kilgore, Philadelphia, Pa. (Filed May 16, 1874.)

Brief.—The slats are made adjustable lengthwise, and the inclination of the slats is regulated by four cords arranged to pass down together on one side of the window-frame.



1. The adjustable slats A, constructed as described, and which may be extended or contracted to fit a wide or narrow window, as and for the purpose set forth.

2. The cords 1, 2, 3, and 4, and rings or pulleys *a*, *a'*, and *b*, in combination with a window-blind, the said cords being connected and arranged as described, to suspend the blind and operate the slats, as and for the purpose set forth.

178,925. RAILROAD-RAIL JOINTS. Henry D. Leishman, Yates City, Ill. (Filed Jan. 15, 1876.)



The improved rail-joint clasp, consisting of the two separate plates A B, fitted to the base and sides of the rail, and one of which extends over the top and along an outer projection of the other, and is bolted thereto, while both plates are bolted through the web of the rails, substantially as specified.

178,926. PROCESSES OF CAPSULING MEDICAMENTS. S. A. A. Limousin, Paris, France. (Filed Sept. 17, 1875.)

1. A capsule for containing medicaments in compound of two concaved wafers or disks joined at their edges, substantially as and for the purposes set forth.

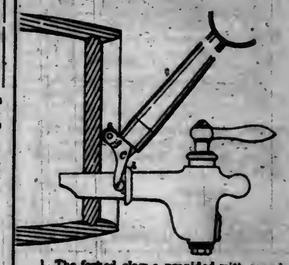
2. The process herein described of capsuling medicaments consisting in placing the exact quantity into a disked or concave wafer, moistening the edges of the closing wafer, and pressing them firmly together at the edges, substantially in the manner and for the purpose described.

178,927. REFLECTING CHIMNEYS, GLOBES, &c. William B. Lindsay, Scott Township, Allegheny County, Pa. (Filed Dec. 27, 1875.)

The chimney or globe having an annular fold which projects beyond the line of draft, and is coated on its inner surface to produce a combined shade and reflector, substantially as specified.

178,928. INSTRUMENTS FOR DRIVING AND EXTRACTING PAGGETS, BUNGS, &c. Alex. McKenna and Thos. McKenna, Pittsburg, Pa. (Filed Sept. 20, 1875.)

Brief.—A mallet having a forked metallic claw, the extremities of which are each formed with rounding projections. Back of the claw is a heel supporting a roller, so arranged and pivoted thereto in proper bearings as to act as a movable anti-friction fulcrum.



1. The forked claw *c*, provided with rounding projections or knobs *d d*, in combination with the heel *f* and roller *e*, as and for the purposes set forth.

2. The forked claw *c*, in combination with the heel *f* and roller *e*, as and for the purposes set forth.

3. As a means of extracting faucets from casks or barrels, the herein-described forked tool or implement, in combination with the ring around the tail of the faucet, substantially in the manner shown and set forth.

178,929. CAR-COUPLINGS. Alex. L. Miller, New York, N. Y. (Filed Oct. 19, 1875.)



1. The draw-bar constructed with the ribs or ridges, whereby friction of the pawl upon the draw-bar is diminished, substantially as and for the purpose set forth.

2. The lever constructed with the cam-like or eccentric lower end, and the lifting-chain, in combination with the rearwardly-extending pawl provided within the flaring draw-head, substantially as and for the purpose set forth.

178,930. AIR-HEATING FURNACES. George R. Moore, Philadelphia, Pa. (Filed Dec. 22, 1875.)

Brief.—The products of combustion pass through the fires in the arch into the annular fire, and thence down the vertical flue at one side into the cross-flue under the ash-pit, and then ascend the other vertical flue to the exit.

1. The ash-pit A, provided internally with two vertical smoke-flues, in communication with the fire-chamber above by suitable pipes, and connected with each other at the bottom by the horizontal flue T, substantially as and for the purpose herein set forth.

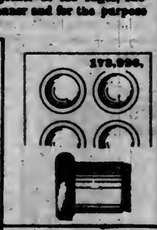
2. In combination, the two inclined passages E and O, running from their respective feed-doors in the casing of the heater to the fire-chamber B, and discharging together into the side of the same, substantially as shown.

3. The fire-brick, or partially non-conducting arch S over the fire-chamber, and provided with smoke-flues *d*, in combination with the smoke-flue between the plates D and E, substantially as shown.

4. In combination, the annular smoke-flue between the plates D and E, and the horizontal and vertical smoke-flues C C and the cross-flue T, substantially as shown.

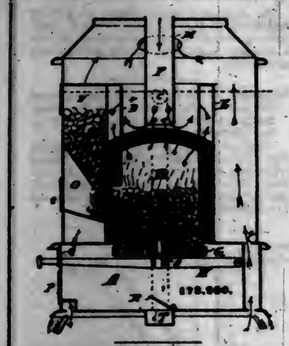
178,931.

178,932.



178,927.





172,880.

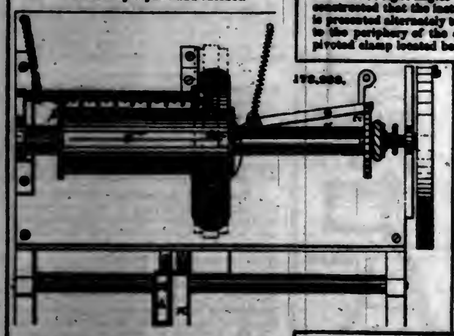
172,881. MACHINERY FOR FORMING TOE-PROTECTORS FOR BOOTS AND SHOES. S. Moore, Sudbury, Mass. [Filed Dec. 9, 1875.]



The machine, substantially as described, consisting of the base-plate A, two levers, E G, the roller F, the clamp-former D, and the screw C, all combined and arranged essentially in manner and to operate as and for the purpose specified.

172,882. TYPE-WRITING MACHINES. Chas. T. Moore, White Sulphur Springs, W. Va., assignor of one-fourth his right to James O. Stephenson, Washington, D. C. [Filed May 31, 1875.]

Brief.—A series of keys, a grooved cylinder, and a rotating type-wheel, with independently-moving type pivoted radially thereto, are arranged so that when a key is struck or set in motion it will cause a type to strike the cylinder, and by the revolution of the cylinder this end of the key turns a rod by means of an arm thereon, and another arm on said rod moves the type outward to print. Both the type and key are automatically brought back to their former positions. The cylinder containing the paper is moved for each line by means of a rod having two rows of teeth for holding the cylinder, and at the proper time to rotate a certain distance to allow a spring to push the cylinder endwise. The paper-cylinder is rotated by a pawl and ratchet.



172,882.

1. In a type-writer, having a revolving type-wheel, with movable type thereon, I claim, the combination of a grooved cylinder with letter and centre, a series of shafts provided with arms, and the connecting-keys, whereby when the key is set the type is automatically moved outward to print the letter, and then automatically brought back again, as set forth.

2. In combination with the grooved cylinder C and type-wheel D, with radial type, the rods r, provided with arms r' and r'', arranged substantially as and for the purposes herein set forth.

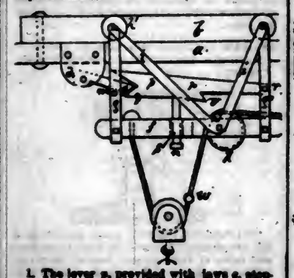
3. The rings E, provided with grooves 1 and 2, as described, in combination with the revolving type-wheel D and the cross-shaped type t, arranged radially in the wheel, substantially as and for the purposes herein set forth.

4. The combination, with the type-wheel D, type t, and grooved ring E, of the pivoted pawl S^p and ratchet-wheel G on the shaft of the paper-cylinder, all constructed substantially as and for the purposes herein set forth.

5. The rod E, provided with a double row of teeth, in combination with the sliding paper-cylinder C, having flange p and spring P^s, substantially as and for the purposes herein set forth.

172,883. HAY-ELEVATORS. Jos. K. Mount, Hightstown, N. J. [Filed Apr. 30, 1875.]

Brief.—A carriage suspended from and running on an overhead track is held in place during the ascent of the load by a catch on the track. This is struck up to release it by a pivoted lever on the carriage, which is itself struck up by the load on reaching it. The lever, when free, falls with its butt against the rope to bind it.



1. The lever F, provided with jaws g, stop-catch r, in combination with driving-pin q, arranged to operate in manner and for the purpose described and set forth.

2. The combination of lever F, provided with jaws g, stop-catch r, and driving-pin r with pins r' and n, frame-pieces f f', catch-lever c, chains d, track-timber a, idler pulley l and retaining-bars l^p, substantially as and for the purpose set forth.

172,884. MACHINES FOR GRINDING SAW-TEETH. Wm. H. Ogilvie, Brooklyn, N. Y. [Filed Jan. 11, 1876.]

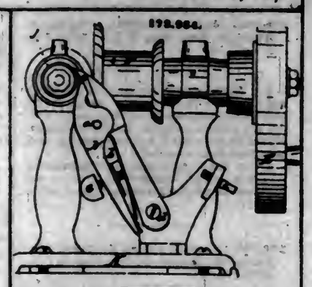
Brief.—Two grinding-wheels, mounted on axles set at right angles to each other, are so constructed that the instrument to be ground is presented alternately to the side of one and to the periphery of the other by means of a pivoted clamp located between them.

172,884.

1. In the combination of the grinding-wheels E and J, the clamp for holding the saw-teeth while being ground, and the slide-rest K, substantially as herein before set forth.

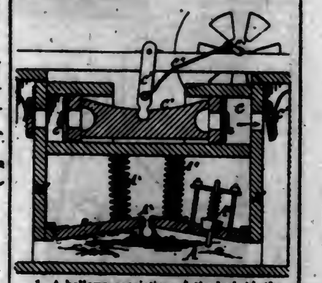
2. The combination of the grinding-wheels E and J, the clamp for holding the saw-teeth, and the parts or supports for the chucks, made adjustable, substantially as and for the purpose hereinbefore set forth.

172,885.



172,885. SHUTES' BELLOWS, &c. James T. Olinger, Auburn, Va. [Filed Aug. 9, 1875.]

Brief.—The diaphragm is provided with springs and the safety-valve. To the upper part of the frame is the piston, operating and driven as shown.



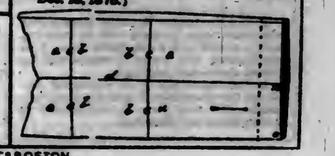
1. A bellows consisting of the bed A^1, the double-hinged diaphragm A^2, composed of the leaves a a, the safety-valve A^3, the springs A^4, the air-passages b b, the cylinders C C, supplied with the valves C' C', the double-headed reciprocating piston C^p, supplied with the valves c c, and driven by the attachments C^r C^r to the crank-shaft C^s, when the same are constructed and combined to operate substantially as and for the purposes set forth.

2. The combination, with a bellows for smiths' forges and similar uses, of the safety-valve A^3 and the springs A^4, when constructed and arranged to operate substantially as set forth.

172,886. POST-BLADE BARS. John Pedder and Geo. Abel, Beaver Falls, Pa. [Filed Dec. 13, 1875.]

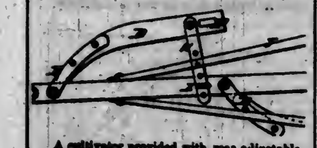
The bar or double series of fort-blades herein described, the same consisting of a double line of blades, joined longitudinally, and end to end, each blade having a long longitudinal incline for the tine portion, and a short longitudinal incline for the tang, substantially as specified.

172,887. KNIFE-BLADE BARS. John Pedder and Geo. Abel, Beaver Falls, Pa. [Filed Dec. 13, 1875.]



The bar or continuous double series of blades herein described, the same consisting of two lines of blades joined together longitudinally, each blade having a long longitudinal incline for the blade portion, a short longitudinal incline for the tang, and a transverse bevel to thin it toward the edge, substantially as and for the purpose specified.

172,888. CULTIVATORS. James A. Price, Houston, Tex. [Filed Oct. 8, 1875.]



A cultivator provided with rear adjustable side beams D E, one placed in advance of the other, on opposite sides of the main beam, pivoted in front and curved backwardly therefrom, as and for the purpose specified.

172,889. PIPE-COUPLINGS. Thos. J. Rice, Bethlehem, Pa. [Filed Jan. 15, 1876.]

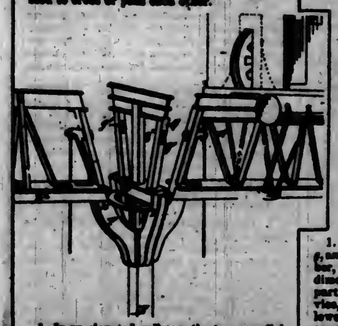
Brief.—The pipe-sections are designed to engage with a sleeve-nut, as usual. The sleeve-nut has finer threads at one end than at the other. The fine threads are longer than the others, and the nut is screwed along them a little further than is designed when the joint is completed; then it is screwed back on the coarser threads until the two sections come together by the differential movement of the threads.



The sleeve-nut E, combined with the socket-couplings U D by means of differential threads F G, substantially as specified.

172,890. ELEVATED RAILWAYS. W. Wilshire Riley, New York, N. Y. [Filed July 13, 1875.]

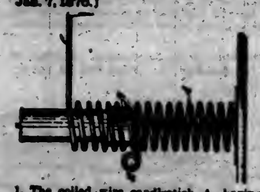
Brief.—An elevated railroad formed of two parallel rails, one above the other, supported on columns, the top rail forming the supporting-rail, and the under one having broad guide-flanges, co-operating with guide-rollers on the cars, to retain them upon the track. The two rails are connected together and braced by angle-irons arranged in truss form. A swiveled turning section of the way is mounted upon a pillar, and travels upon a circular track resting upon suitable supports attached to said pillar, whereby cars of different lines are enabled to cross or pass each other.



1. In an elevated railway, the two parallel rails, supported one above the other upon suitable standards, the upper one forming a continuous rail for the car to travel upon, and the lower one being provided with a broad guide-flange, to retain the car upon the track, the two rails strengthened and braced together by angle-irons, substantially as described.

2. In combination with the upper and lower rails, the swivel-section G, swiveled upon the upper end of the standard E, the curved standards F, and the annular way attached thereto, the crown-wheel attached to the shaft g^s of said section, and worm-screw to operate the same, substantially as described.

172,891. CANDLESTICKS. Philip Schneible and L. Dohm, Elizabethport, N. J. [Filed Jan. 7, 1876.]



1. The coiled-wire candlestick A, having the upper end terminating in a hook, C, substantially as specified.

2. The combination of the cup D and a handle, E, with the coiled-wire candlestick A, substantially as specified.

172,892. FAUCETS. Lemuel W. Serrell, Plainfield, N. J. [Filed July 19, 1875.]

Brief.—The flow of water is regulated by a conical valve adapted to be self-adjusting within its seat.



1. The screw-nozzle d and delivery-tube f, in combination with a separate cement valve, that is supported and moved by the screw-sleeve, substantially as set forth.

2. The valve f, made with a tubular stem, containing openings r, in combination with the screw-nozzle, having a circular bearing for the tubular stem around the delivery-tube f, substantially as specified.

172,893. REFRIGERATORS. De W. C. Smiley, Brooklyn, N. Y. [Filed Sept. 20, 1875.]

Brief.—A superior air-chamber of substantially the area of the food-chamber, and separated from it by a perforated partition.



1. The combination of a cooling-chamber, p, and an air distributing and circulating-chamber, r, above it, and of nearly equal horizontal dimensions, and separated by a perforated partition, o, an air entering and flowing device, an ice-chamber, an upper air-inlet, and a lower air-outlet extending the width, or nearly so, of the ice-chamber, substantially as and for the purposes set forth.

2. The cooling-chamber p and the circulating-chamber r in the upper part thereof, separated by the partition o, that is perforated throughout, in combination with an ice-chamber and a blower to exhaust the cold air from the chamber r, and force the same into the ice-chamber, substantially as set forth.

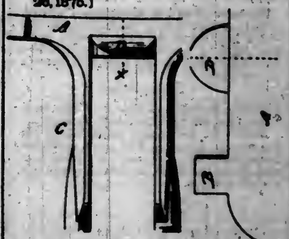
172,894. POCKET CIGARETTE-MAKERS. H. B. Sprecher and O. L. Wellington, Boston, Mass., assignors of one-third their right to Wm. F. Halsall, same place. [Filed Nov. 20, 1875.]

Brief.—The frames carrying the rolls are pivoted at the bottom to permit them to open, and when open the endless band is supported by a short apron. At the ends there are U-shaped openings, which serve to turn and twist the cigarette-paper.



The herein-before-described pocket cigarette-maker, consisting of the cases A A, having end pieces E D, provided with peculiar openings S, curved joint B, driving-roll G, friction-apron I, and endless apron M, the several parts being constructed, arranged, and combined to operate substantially as described.

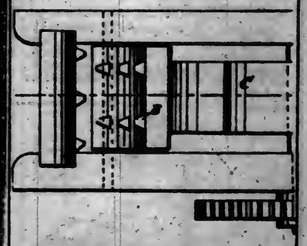
172,895. SPRING SADDLE-CLIPS. Wm. S. Ward, Plainville, Conn., assignor to H. D. Smith & Co., same place. [Filed Oct. 26, 1875.]



As an article of manufacture, the herein-described saddle-clip, consisting of the body A, constructed with the clip-ears B, the clip-arms C, and the bearing-lips D, all substantially as shown and described.

172,896. ORE-CRUSHERS. W. L. Weston, Watertown, Tenn. [Filed Dec. 4, 1875.]

Brief.—Two movable jaws are actuated by a cam-wheel placed between them. By this construction the shaft is relieved of lateral strain, all of which is sustained by the ore being crushed.



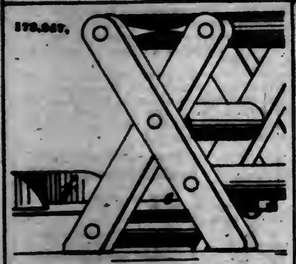
In a stone or ore crusher, having two sets of jaws and two crushing-chambers, the combination, with the interior movable jaws B, of the wheel C, located between the same, and having diametrical vanes, substantially as and for the purpose described.

172,897. MILKING-STOOLS. R. Webber, Gardiner, Me., assignor to E. A. Stearns Lincoln, R. I. [Filed Nov. 8, 1875.]

Brief.—An ordinary camp-stool is provided with an arm, upon which to rest the pail. This arm is laterally adjustable.

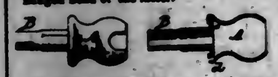
The combination, with the folding camp-stool a, of the laterally-adjustable arm c, adapted to support the milking-pail, and provided with the guard f, substantially as described.

178,867.



178,868. DRAWER-PULLS. W. N. Weeden, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. [Filed Jan. 24, 1870.]

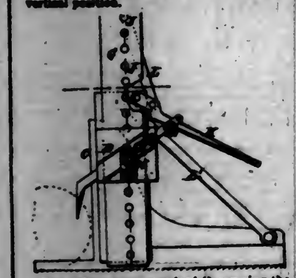
Brief.—The metal thread-up ball-socket is secured to the sheath by clinching it over the flanged head of the latter.



The herein-described improvement in drawer-pulls, consisting of the sheath B, constructed with a head, *c*, and the socket A united to the said sheath by turning the edge of the base inward and upon the said head, substantially as described.

178,869. SAW-MILL DOGS. H. Williamson, Bay City, Mich. [Filed Aug. 21, 1875.]

Brief.—The sliding bar which carries the dog is attached to the frame, and supported by its operating-lever, which is arranged to support the bar when the lever is raised to a vertical position.



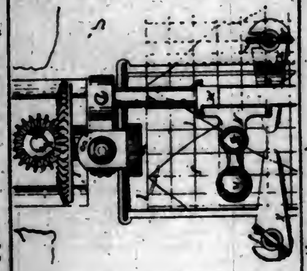
The sliding bar or standard G, carrying the adjustable dog D, the frame C, having a dovetailed groove in its vertical face, the lever E, pivoted as shown, and the connecting-bar L, all combined, constructed, and arranged as and for the purposes set forth.

178,870. PUMPS. John Woodville, Washington, Ind. [Filed Aug. 6, 1875.]

Brief.—The middle chamber is alternately compressed and expanded by a follower or presser, which is operated by a lever-handle attached to a connecting-stirrup by a sliding lock mechanism.

The combination, with the stirrup of the presser, of the forked detachable lever-handle, attached by a forked sliding lock-piece and a fulcrum and stirrup connecting pivot-link, substantially as and for the purpose described.

178,871. SPEED-REGULATOR. William W. Wythe, Erie, Pa. [Filed Feb. 24, 1875.]



1. The combination, with the drum I and roller S, of mechanism, substantially as herein set forth, whereby the roller may be shifted off and turned aside from the drum, substantially as and for the purpose described.

2. The combination, with the drum I, of the roller S, block S', stem T, and spiral springs T', substantially as and for the purpose described.

3. The combination, with the pencil-lever N, of a weight, *n*, substantially as and for the purpose described.

4. The combination, with the yoke M and the pencil-lever N, of the open or slotted bearing *l*, whereby the pencil-lever may be easily removed, substantially as and for the purpose described.

5. In combination with the drum I and its chart, the side-clamps K, substantially as and for the purposes described.

6. The combination, with the side clamps K, of the set-screw K', substantially as and for the purposes described.

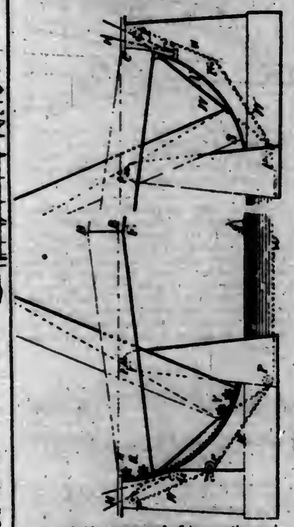
178,872. TIGHTENERS FOR ELEVATOR-BELTS. Peter H. Zacharias and John M. Swift, Ann Arbor, Mich. [Filed Dec. 27, 1875.]

Brief.—A clevis is on the extremity of a lever, which latter has an arm hinged near its end, terminating also in a clevis. The belt is passed through the former clevis, then through a buckle at the other end of the belt, and finally through the latter clevis; it is then clamped at two points, and tightened by leverage.

The belt-tightener consisting of a lever, D, having an end clevis, E, and a swinging bar, F, having clevis G, to enable it to tighten a belt provided with a buckle at one end and a series of holes at the other, in the manner specified.

178,873. BRIDGES. M. B. Adams and F. L. Krauss, Cleveland, Ohio. [Filed Aug. 14, 1875.]

Brief.—A bascule bridge having its two sections operated simultaneously by a rope or chain connection passing beneath the waterway, and around a system of pulleys at the abutments. The power is applied by a winch and pinion and a curved rack. A catch moved by a hand-lever sustains the abutment end of each bascule portion when closed. The roadway pierces the truss-frames diagonally.



1. A bridge composed of two sections, pivoted or trunnioned at or near their centers of gravity, and adapted to be raised or lowered simultaneously by an application of power at a single point.

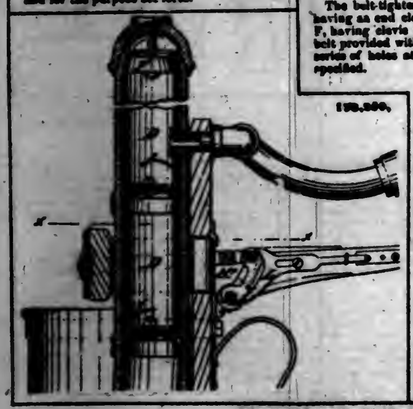
2. In combination with a bridge consisting of two tilting sections moving midway over the channel, the pulleys P and rope or cable W, attached to the lowering or sinking ends of both the trusses or sections, for operating or raising them together or simultaneously by the application of power at a single point.

3. In combination with a tilting bridge, the abutment or supports O, placed in the pier or abutment, substantially as and for the purpose shown.

4. The combination, with a vertically-swinging bridge, composed of two pivoted sections meeting midway over the channel, of rounded-end plates arranged and circular arc-guides E Y S T, rope or cable W, and pulleys P, substantially as and for the purpose described.

5. The roadway R, passing diagonally through the sections of a double-truss bridge, whereby is provided substantially a level passage, notwithstanding the inclined or inclining position of said trusses when closed and untied over the channel, substantially as shown.

178,874. SUBSOIL HARROWS. O. Allen, Penitencia, Cal. [Filed Oct. 4, 1875.]





1. The bed-bottom A, constructed with its metal-lined hole F and extension *f*, said lining projecting above the surface of the bed-bottom, so as to form an upward-projecting flange surrounding said hole, in combination with the mortise E, constructed with its corresponding metal-lined hole, the lining of which projects downward, so as to provide a downward-projecting flange, which passes inside of the hole in the bed-bottom, substantially as and for the purpose described.

2. In combination with the bed-bottom A, with its supporting-legs B B, I claim the beam L L L L and B E, arranged as described, and having the sliding legs or end cutters *a*, said sliding legs having one or more steps, *g g'*, and attached bottom P, all combined and arranged to operate substantially as above specified.

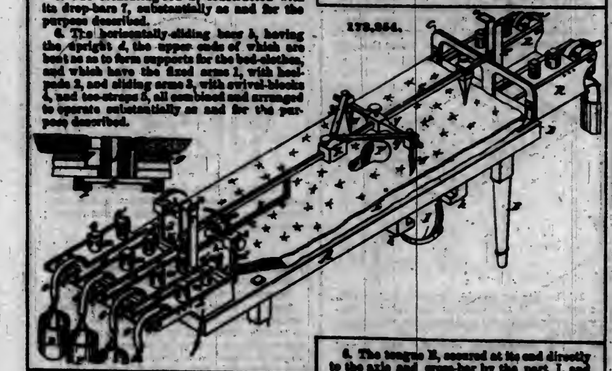
3. The sliding tongue, provided with a weight-abutment, F, and having two studs, *g g'*, the rear one of which is larger than the one in front, substantially as and for the purpose described.

4. The measuring-rod S, supported longitudinally over the middle of the bed, and having the sliding finger Z, and transverse sliding bar V, with its sliding fingers W, which are connected by links T with the sliding block X, substantially as and for the purpose specified.

5. The measuring-rod S, constructed with its drop-bars *f*, substantially as and for the purpose described.

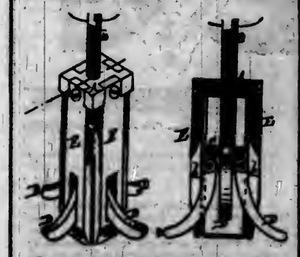
6. The horizontally-sliding bars A, having the uprights *d*, the upper ends of which are bent as to form supports for the bed-clothes, and which have the fixed arms 1, with head-pads 2, and sliding arms 3, with swivel-blocks 4, and toe-straps 5, all combined and arranged to operate substantially as and for the purpose described.

178,875.



178,876. AXLE-NUT WRENCHES. A. Bagley, Parkland, Mich. [Filed Jan. 7, 1876.]

Brief.—The nut-socket is placed upon the nut, and the movable arms pressed against the inner side of the hub-band by means of the thumb-screw. When the whole is turned and the nut removed.



The combination of the nut A, screw B, fulcrum C, with the arms D pivoted thereto, and the slotted plates E secured to the sides of the nut A, substantially as and for the purpose set forth.

178,877. RUNNING-GEARS. W. Baird, West Carlisle, Ohio. [Filed June 12, 1875.]

Brief.—The tongue fastened to the axle is supported by a spring and bounds made in one united piece, and supported by cer-tinuous truss.

1. In combination with the bounds D, made in a single piece of wood, curved around at the rear and called and meeting in a point at the front, the top brace D^1, extending entirely around the bounds, and constructed with a projecting flat front V portion for uniting the front portion of the bounds together, as described and shown.

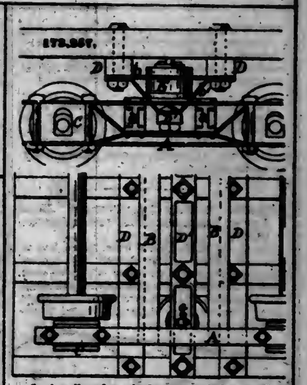
2. In combination with the bounds D and brace D^1, constructed and arranged as described, the bottom brace D^2, constructed with a similarly-formed flat projecting front V portion as the brace D^1, and extending partially around the bounds, over the axle, and secured thereto, as described.

3. The combination and arrangement of axle B, bounds D, cross-bar C, top brace D^1, and lower brace D^2, all united or secured together by bolts *d d*, which make the braces to the bounds and the bounds together, and bolt *e*, passing through the brace D^2, bounds, cross-bar, and axle, and securing them together, as and for the purposes described.

4. In combination with the bounds D and axle B the brace G, secured at its middle portion to the front of the bounds, and at each extremity to the ends of the axle, and brace G' secured on the inside of the bounds by bolts *g*, which secure the braces G G' together and to the bounds, as described.

5. The iron or part I, constructed, as shown in Fig. 3, with front and rear mortise *i i'*, downwardly and inward projecting pieces *i' i'*, and central portion *i''*, for securing the axle, cross-bar, tongue, and reach together, as described.

178,878.



1. A railroad-car body, suspended centrally to the truck by hangers or links, which in turn are suspended from springs, in order to permit a free movement of the trucks independently of the car-body, and dispense with a king-bolt, substantially as described.

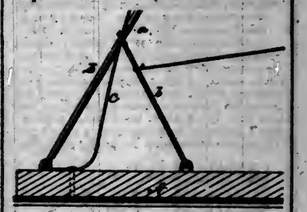
2. The side frames A A, connected by the transverse trussed girts B B and ribbed posts *a*, constructed and combined to form a rigid truck-frame, substantially as described.

3. The trussed transom D D D^1 D^1, secured to the car-bed, substantially as described, and suspended by the hangers H H from springs mounted upon the truck-frame, substantially as shown and set forth.

4. The herein-described car-spring, consisting of the shoe E inclosing a row of spiral springs, F, surmounted by the flanged trunk G G', substantially as described.

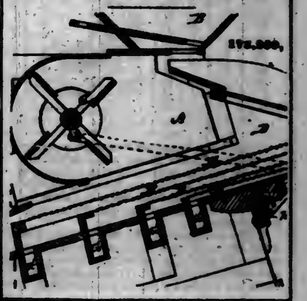
178,879. FLY-TRAPS. John A. Hanvalt, Park Ridge, N. J., assignor to Allen Hanvalt, same place. [Filed Dec. 27, 1870.]

Brief.—A wire-gauze or perforated flap which will allow air to pass through when said flap is forced by a spring against the base, the supporting-prop being released from the flap.

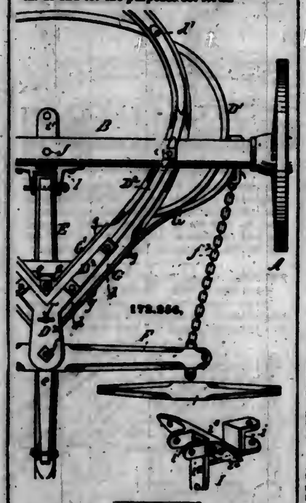


The herein-before-described fly-trap, composed of a base, A, to which is hinged a wire-gauze or other perforated flap, B, combined with a flat spring, C, and prop D, the spring C secured to the base at one end, and having a long free end projecting through the flap, in constant contact with a cross-bar, *a*, and operating substantially in the manner specified.

178,880.



178,881. RAILWAY-CAR TRUCKS. Verlet D. Beach, Battle Creek, Mich., assignor of two-thirds his right to T. Hart and C. C. Beach, same place. [Filed Jan. 31, 1870.]



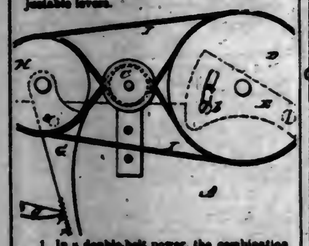
178,859. GRAIN-SEPARATORS. James Brown, Lancaster, Ohio. (Filed July 19, 1875.)

Brief.—The shoe is agitated through a yoke and cam, the latter being bound with rubber or other suitable material to prevent noise.

The combination, with the suspended shoe D, of the block I, having slot *n*, and the rocking-arm E having binding *t*, and projecting into the slot, the parts being arranged to give the shoe a knocking motion, substantially as herein set forth.

178,860. DOUBLE-BELT POWERS. James Brown, Lancaster, Ohio. (Filed July 19, 1875.)

Brief.—A shaft, lateral on a frame, has at one end a double pulley formed by a central flange; belts over and under which, on each side of the flange, pass from around a driving-pulley on one side to a loose one on the other side. The outside pulleys are pivoted on adjustable levers.

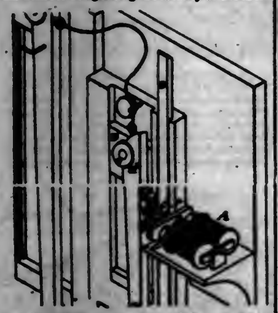


1. In a double-belt power, the combination of, the lever G, pivoted to the frame A, and having the wheel H journaled to its top, and provided with the teeth *x* on its lower end, and the pawl J, pivoted to the frame, all substantially as and for the purposes herein set forth.

2. In combination with the adjustable wheel H, double spool C, and double belt I, the wheel D and the casting E, pivoted to the frame, provided with the curved slot *a*, and adjusted by means of the set-screw *b*, substantially as and for the purposes herein set forth.

178,861. ELECTRO-MAGNETIC TRIPPING AND RECORDING MECHANISMS. Robert Bragg, San Francisco, Cal. (Filed Nov. 6, 1875.)

Brief.—The shank of an electro-magnet armature is connected with an upright tripping-lever, which, on the transmission of a fire-alarm signal, releases a weight for the purpose (through suitable mechanism) of releasing the horses in fire-engine houses, turning on the gas, &c. The shank of the armature also carries a pencil for recording upon a sliding bar the number designating the locality of the fire.



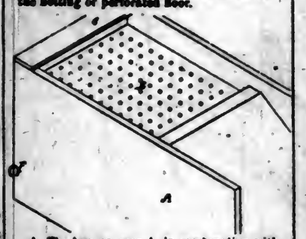
1. The electro-magnet A and its armature B, with its bended shank *f*, in combination with the trip bar or lever C, with its notch *d*, slotted loop *g*, and spring K, and the weight D, with its roller *e*, all constructed and arranged to operate substantially as and for the purposes described.

2. The combination, with the armature B of an electro-magnet, of the trip-lever C and suspended weight D, the several parts constructed and arranged to operate in the manner substantially as and for the purpose specified.

3. In combination with the armature B, with its shank *f* and pencil *p*, I claim the sliding bar O, operated by clock work, substantially as and for the purpose described.

178,862. FIRE-HATCHING APPARATUS. E. A. Brackett, Winchester, assignor of one-third his right to Frederick Curtis, Boston, Mass. (Filed Apr. 17, 1875.)

Brief.—An oblong rectangular box has one of its ends pear-shaped or cut under, except the side-boards, which continue rectangular. The other end of the box has a shelf reaching below the bottom, both contributing to cause a circulating current of water through the netting or perforated floor.



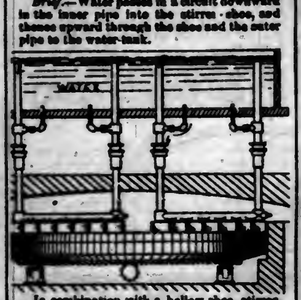
1. The box or case A, in combination with a deflector, B, and shelf or stop-water C, substantially as and for the purpose shown and set forth.

2. The combination, with the case A and the sloping deflector B, of a perforated or foraminous floor or plate, substantially as and for purposes stated.

3. In combination with the case A the deflector B, shelf C, and perforated floor or plate E, all substantially as and for the purpose stated.

178,863. STEERING FOR ONE-BOASTING FURNACES. James Brodie, San Francisco, Cal. (Filed Nov. 22, 1875.)

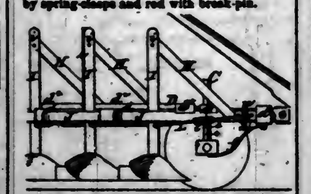
Brief.—Water passes in a circuit downward in the inner pipe into the stirrup-shoe, and thence upward through the shoe and the outer pipe to the water-tank.



In combination with a hollow shoe, stirrup, or agitator, a double pipe, or a pipe within a pipe, connected therewith or leading into and from, so that water may be caused to pass into and circulate in the shoe, in the manner and for the purpose set forth and specified.

178,864. GANG-PLOWS. Samuel Bryan, Twin Grove, Wis. (Filed July 12, 1875.)

Brief.—Long standards are pivoted upon beams above the frame, and held at the beam by spring-clasps and rod with break-pin.



1. The plow-standards I, extending up through the plow-frame, and pivoted to the top of the standards G H above said frame, substantially as and for the purpose described.

2. The spring-clasps J, combined with the beams A, long spring-metal plow-standards I, and standards G H, substantially as and for the purpose described.

178,865. STRAINERS FOR COFFEE. Gustav Burkhardt and August Hermann, Homer, Ill. (Filed Jan. 14, 1876.)

Brief.—Boiling water flows over the top of the device, and down the tube and through the coffee, tea, &c.



A floating strainer for making tea, coffee, and other beverages of a similar nature, constructed of a float, A, strainer B, and tube C, substantially as described.

178,866. MECHANISMS FOR OPERATING WATER-CLOSET VALVES. Edwd. A. Calahan, Brooklyn, N. Y. (Filed Apr. 26, 1875.)

Brief.—The quantity of water permitted to escape is automatically regulated by a train of wheels controlled by an escapement, and actuated by a spring, by means of which the valve is closed in a given time after it has been opened by force applied to the push.



1. The combination, with a water-valve and its port or ports, of a wheel or train of wheels, under the control of an escapement, and actuated by a spring arranged to be operated by a push or pull bar or rod, substantially as and for the purposes herein specified.

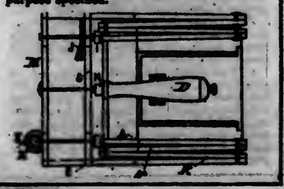
2. The combination of the vibratory valve B, valve-box B, induction and eduction pipes or ports C and D, shaft G, toothed sector E, sliding bar L, spring M or its equivalent, a wheel or train of wheels, and an escapement or its equivalent for regulating the operation of the same, substantially as set forth.

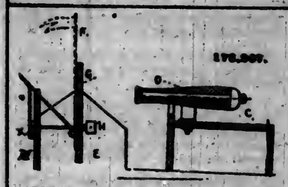
178,867. TOY TARGETS AND BATTERIES. W. W. Campbell, Brooklyn, N. Y. (Filed Nov. 3, 1875.)

Brief.—Folds or slides together in order to fire at different ranges.

1. An extensible toy target and battery, adapted to fold over or slide upon itself, for the purpose of increasing or decreasing the range, substantially as described.

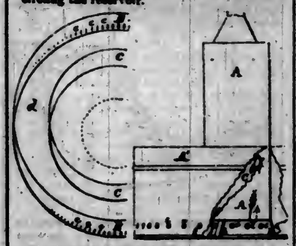
2. In a toy target and battery constructed to be extensible, the distance guides or markers B B, arranged substantially as and for the purpose specified.





178,868. CISTERN WATER-FILTERS. Hugh Carter and John A. Humphreys, Springfield, Ohio. (Filed Oct. 23, 1875.)

Brief.—A submerged filter in which the reservoir for filtered water is centrally located, as cone. The water passes through the perforations of the first partition, and over the top of the second, the intermediate spaces being packed with suitable filtering substance. A cover tightly closes the top of the filter encircling the reservoir.

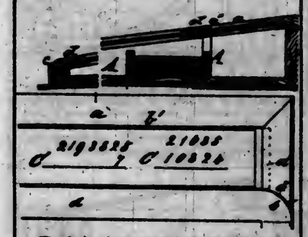


1. A water-filter in which the reservoir is placed in the middle of the filtering-case, is supported above the bottom of the same by legs or their equivalents, and, extending above it, supports a stand-pipe for a pump for operating said filter, substantially as and for the purpose set forth.

2. We claim case B, with its partitions C and compartments *d* and *e*, and cap A', for the purpose set forth.

3. In combination with a central and upward-extending reservoir, A, with its stand-pipe *a*, we claim the filter-case B, with its partitions C, compartments *d* and *e*, and cap A', substantially as hereinbefore set forth, for the purpose specified.

178,869. COMBINED SLATES AND DESKS. G. H. Chiswick, Brooklyn, N. Y. (Filed Jan. 14, 1876.)

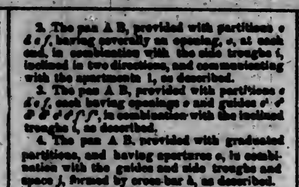


The desk A, constructed with the ledges or shoulders *c c'*, and the rim *a*, provided with the grooves *a'*, in combination with the slate B and tablet C, the whole combined for conjoint use and operation substantially as set forth.

178,870. PROCESSES AND MEANS FOR EVAPORATION OF SUGUS. Jas. Clegg, Almond, Alb. (Filed Dec. 16, 1875.)

Brief.—The side troughs at one end of the pan tip downward and outward, and receive the cane, and direct it to the entrance-apartment of the pan, when, the bottoms of the troughs there dipping downward and inward, the cane is delivered. The ends below deliver the contents of the cane brought into the pan.

1. The process herein described, in the manufacture of syrup, consisting in automatically feeding the cane, and removing the same through the channel for and together with the cane-juice.



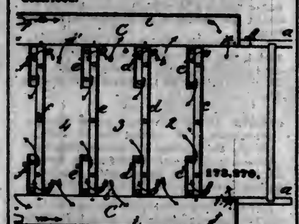
178,870.

2. The pan A B, provided with partitions *c d e f*, leaving intervals on opposite sides, as and in combination with the side troughs *i*, inclined in two directions, and communicating with the apartments 1, as described.

3. The pan A B, provided with partitions *c d e f*, said having openings *o* and guides *c' d' e' f'*, in combination with the inclined troughs *i*, as described.

4. The pan A B, provided with graduated partitions, and having apertures *o*, in combination with the guides and side troughs and spaces *j*, formed by cross-bar *k*, as described.

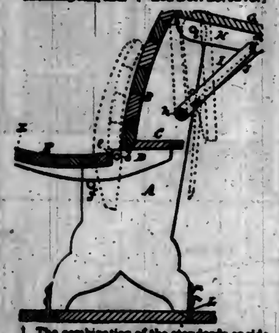
5. The combination of the supply-tubes D E F, having the cut-offs, and a pan, A B, provided with partitions having openings and side troughs connecting with the apartments 1, as described.



178,870.

1. A barbed wire for fences, having the barbs made thereon by cutting and bending them from one or more ribs on the side or sides of the wire integral therewith, substantially as described.

178,872. SCHOOL-DESKS. Saml. Cranston, Indianapolis, Ind. (Filed Dec. 20, 1875.)



1. The combination of the standards or side pieces A A, the shelf C, inserted in horizontal grooves therein, and the book slats B B, dovetailed to the standards and holding the shelf, all substantially as and for the purposes herein set forth.

2. The combination, with the standards A, shelf C, and book slats B, of the extended arms D D, formed with the shoulders *a a*, and pivoted to the standards by wooden pins b, the cant-slats E, dovetailed to the arms D, and the stops *f*, all substantially as and for the purposes herein set forth.

3. The combination, with the standards A A, of the arms H H, top G, stretcher A, cross I I, and pins *n n*, substantially as and for the purposes herein set forth.

4. In combination with a school-desk, I claim the L-shaped irons L L, passed through holes in the floor and secured to the standards of the school-desk, substantially as and for the purposes herein set forth.

178,873. TRACE-BUCKLES. John Donermandie and Eugene Mitchell, Bentleysville, Pa. (Filed June 26, 1875.)



The combination of the frame A, with rear cross-bar E, the grooved plate C, loop B, with inclined top *y*, and the straight tongue D, hinged to the rear cross-bar, which forms part of the frame, and having an angular end, *x*, all substantially as set forth.

178,874. FODDER-CUTTERS. George Dann, Utica, N. Y. (Filed Jan. 4, 1876.)



The combination of a series of parallel knives, *a*, projecting inwardly from one side of the frame supporting the hopper, a series of cleaners, *c*, projecting inwardly from the opposite side of said frame, and the cylinder C, having the series of bent teeth *d*, all constructed and operating substantially as shown and described.

178,875. SEWERS. Geo. D. Hickenlo, Poughkeepsie, N. Y. (Filed Jan. 18, 1876.)



A shirt consisting of the combination, with the body B and the collar-band E, of the bosom A, attached to the body by a line of stitches, *a*, a short distance from the edge, which is left free all around, as at C, and stitched at the top to the neck-band at points below the yoke-band, substantially as and for the purposes described.

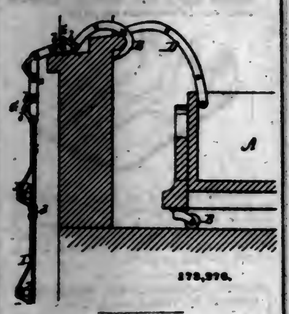
178,876. FIRE-ESCAPES. Louis Fehr, New York, N. Y. (Filed Jan. 8, 1876.)

Brief.—The flexible ladder is stored in a box on gutters, the upper portion of which is made in two parts, so constructed as to open and fold out when the ladder is required for use. The ladder is formed of metallic bars, not easily entangled, and strong hooks are provided near the upper end, which engage with the window-sill when the ladder is thrown out.

1. The box A, mounted upon gutters B, and provided with the bisected top C C, closing over the box and opening outward, the curved halves of the top being pivoted to the front and back of the box, in combination with a fire-escape, substantially as set forth.

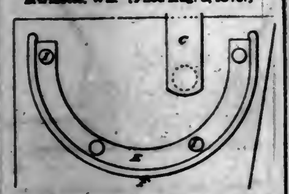
2. In a bro-compe, the combination of the holder, the hooks B E, the arms D D, and the bar A, as and for the purpose set forth.

3. The combination, in a bro-compe holder, of the hooks a, bent bars O, with two prongs, b, at each end, and the motions formed by the straps I and brace H, and hinged by the twisted wire d, all as and for the purpose set forth.



178,876.

178,877. GANG-SAW GAGE. J. M. Farrell, Marinette, Wis. [Filed Aug. 2, 1875.]

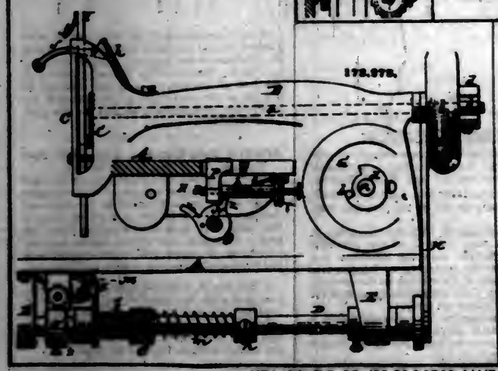


1. The saw-gages E and G, attached to the saw in the manner and for the purpose set forth.

2. The gages E and G, attached to the saw, as described, in combination with the spring-gages F and H, as and for the purpose specified.

178,878. SHUTTLE-MACHINE. J. S. Fletcher, Appleton, Wis. [Filed July 28, 1875.]

Brief.—The movement of the shuttle and feed is in relation to that of the spindle in an organized that the machine may be run backward or forward with equal facility. This is secured by placing the fly-wheel loosely on the shaft, and connecting it thereto by means of a clutch provided with a recess on its periphery, in which a pin secured to the fly-wheel engages. The take-up consists of an arm pivoted to the head, actuated by the needle-bar, through which it passes, and further acted upon by a spring at its back, and a vertical spring upon the needle-bar. A peculiar steady-carrier and feed device are described in the claims.



178,879.

1. The combination, with the arm B, of the shaft a, passing through the same, the fly-wheel G placed loosely on the end of the shaft, and provided with the pin b, the clutch d secured on the shaft B, and the connecting rod or pit man H, and the shaft D, whereby the shuttle and needle are brought into relative position, all substantially as and for the purposes herein set forth.

2. The combination of the needle bar I, provided with vertical spring f, the take up J, having a cam on its inner end, the head C, and the spring k, secured to the standard, and bearing on the cam of the take-up, all substantially as and for the purposes herein set forth.

3. The combination of the shuttle-carrier L, with elongated hub k, having one end split, and provided with exterior screw threads, the nut O, and spring m, all substantially as set forth.

4. The combination of the feed P, take p, with spring s, regulating-screw R, with shoulder p, and the cam F, with projections x, substantially as and for the purposes herein set forth.

178,879. DUMB-WAITERS. Andw. Gordon, New York, N. Y. [Filed Dec. 18, 1875.]

Brief.—The carriage is counterbalanced and operated by ropes and pulleys above and below it, to effect the raising and lowering by pulling down on one or the other of two ropes.

The combination, with the carriage B, having the upper and lower set of pulleys D' D' of a pair of cords arranged and passing over pulleys, as herein shown and described, whereby the carriage can be raised and lowered by pulling downward on first one and then the other cord, as set forth.

178,880.

178,880. REFRIGERATORS. Fletcher Hackett, Hale's Corners, Wis. [Filed Dec 20, 1875.]

Brief.—Shelves, frames, or ice-pan revolve on a central drip and air pipe journaled in the ends of the casing.

1. The combination of pipe E, journaled in top A and bottom A', with hollow shaft C, carrying frames or shelves F and ice-pan D, whereby both the ice-pan and the milk or food supports may be revolved, substantially as set forth.

2. The combination of the frame A A' B, having lid a, door H, and perforated covering G, with shaft C, pipe E, shelves F F', and pan D, substantially as described.

178,881. GAGE-HOLDERS. Edwd. H. Hanna and Charles W Hanna, Dover, Ky. [Filed Dec. 4, 1875.]

Brief.—The claim clearly points out the character of the invention, the construction and position being such that either or both each are held by one or other of the dogs in desired position

in combination with the angular metallic plate A, having recessed springs b, the dogs C C', having eccentric ends g, provided with a transverse groove, h, adapted to receive a rubber strip, I, substantially as described, and for the purpose set forth.

178,882. TRANSFER-SHEETS FOR COPYING. Thos. F. Harrison, New York, N. Y. [Filed Dec. 14, 1875.]

As a new article of manufacture, a plate or sheet, A, of gelatine or similar transparent flexible material, provided with lines B and C, crossing or intersecting each other and forming spaces, substantially as shown and described, and for the purpose set forth.

178,878.

178,883.

178,883. STONE-SAWING MACHINES. John Hermann and Hermon S. Reed, Corning, N. Y. [Filed Jan. 6, 1876.]

Brief.—The lever is grooved to fit the way-arm, and has a weighted end, thus forming an automatic stop, to prevent the reaction or bounding of the corner-irons.

The combination, with the way-iron a and corner-iron B, of the arm I, grooved lever I, and weight H, substantially as and for the purposes herein set forth.

178,884. SOLE-EDGE-SURFACING MACHINES. Charles H. Holmes, Poughkeepsie, N. Y. [Filed Dec. 7, 1875.]



1. In combination with the burnishing-tool and the rest for the face of the sole, the finger-rest D, substantially as described.

2. The combination of the finger-rest D, the burnishing-tool, and the elastic tool-holder B, as set forth.

3. The burnishing-tool, its holder B, slide F, rods e and d, shaft G, and pin c, all combined together as specified.

178,885. PENDULUM-BALLS. Harry F. Hamden, Bristol, Conn., assignor to himself and Geo. Lewis, same place. [Filed Jan. 24, 1876.]



1. The sections A A', in combination with the ring B, substantially as and for the purpose set forth.

2. The sections A A', ring B, and tips D D', in combination with the tube C, washer c', and nut E, substantially as shown and described.

178,886. LAMP-SCREENS. Wm. L. Hopkinson, Philadelphia, Pa. [Filed Dec. 16, 1875.]



1. The transparent tube A and label D, combined and operating substantially as and for the purpose set forth.

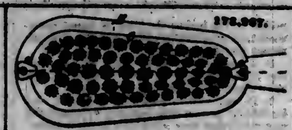
2. The transparent tube A, with attaching-neck and label D, in combination with the expansible attaching-cord C, substantially as and for the purpose set forth.

3. The two transparent tubes, formed with attaching-necks, and fitting one within the other at their open ends, in combination with the fastened label, substantially as and for the purpose set forth.

178,887. SPINNING. George P. Herndon, Tupelo, Miss. [Filed Dec. 28, 1875.]

Brief.—The handle and hook are in one piece, and the latter has a concavity, in which the plate that carries the bracket is held by fastenings, and can be removed to insert new bristles.

178,887.



The within-described brush, consisting of the handle A, body B, with recess in its under side, and the frame C, having bristles and held in the recess in the body by the bottoms a a, or their equivalents, as set forth.

178,888. COMBINED WORK-TABLES AND WRITING-DESKS. Geo. Hess, New York, N. Y. [Filed Jan. 4, 1876.]



1. The combination of the inclosing-case A and lid C with the movable desk E and hinged and sliding leaf D D', adapted to be drawn out over the top of the desk, and inclined in proper position before the occupant, or to be folded within the casing A, substantially as herein set forth.

2. In combination with the inclosing-case A and movable desk E, I claim the spring-bolt G, having a beveled shank, and the pin f, affixed to the leaf of the desk, substantially as described.

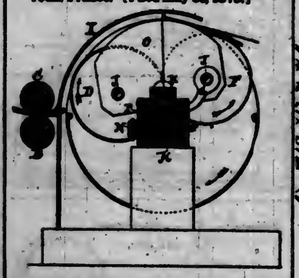
3. The combination of one or more hooks and staples, H I, and the lock J with the movable desk E, its hinged and sliding leaf D D', and the lid C of the inclosing-case, substantially as described.

178,889. CAR-COUPLINGS. Thos. Hibbert, Goshen, Ind. [Filed Dec. 9, 1875.]



The slandered draw-head A H, for receiving the spring-bolt O P, that operates upon the latch B in the manner set forth.

178,890. MECHANISMS FOR CARDING AND SEPARATING WOOL, &c. Jos. Hiley, Chateauroux, France. [Filed May 31, 1875.]



1. The combination, with the feed-roll B, pressure-roll C, and the casing I, provided with an opening for the passage of the sliver, of the rotating plate H, the separating-rod F, and reciprocating D, carried by said plate, whereby the textile material is successively taken by the rod F, examined by the rod D, and twisted into a thread by the rotation of the plate H, substantially as herein described.

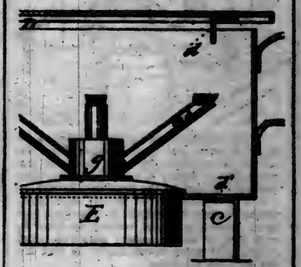
178,891. DETONATING RAILWAY-SIGNALS. Francis Hickman, Reading, Pa. [Filed Jan. 22, 1876.]

Brief.—The recesses in the cover receive the metal strap, by which the torpedo is secured to the rail of the track, and are for the purpose of preventing the edge of the cover from cutting the strap, which is formed of soft ductile metal, when the cover is pressed down.



In a railroad torpedo, composed of the case or pellet A, cap B, and ductile metal strip C, I claim the recesses a, with inward extensions b formed in the cap B, substantially as and for the purposes herein set forth.

178,892. GAS-IRON HEATERS. Adrian Hitt, Robt. R. Logan, and John Eggleston, Flora, Ill. [Filed Oct. 9, 1875.]



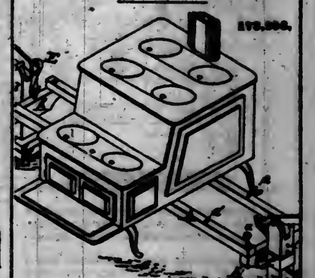
1. In a sad-iron heater, the heating-plate A, pivoted to heater B, and raised above the same at one end by means of metal post b, and at the other end provided with a transverse flange, d, having shoulders f f, adapted to be read between the walls of the heater, substantially as specified.

2. The combination, with the lamp E, of the heater B, having an orifice, G, in its bottom, provided with teeth or indentations f on its edges, substantially as and for the purpose specified.

3. The combination, with the sad-iron-shaped heater B, of the horizontally-vibrating supporting-plate A, raised above the level of the heater, and forming a space around its edges, substantially as specified.

178,893. DEVICES FOR LOOSING STOVES. H. M. Hockman, Berwick, Pa. [Filed Jan. 28, 1876.]

Brief.—The frame is adapted to slide on the standards, and to be adjusted at various heights.



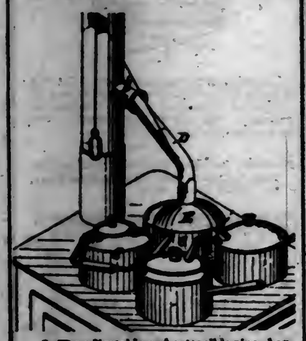
178,893.

1. The adjustable frame or platform A, combined with standards B and lever D, substantially in the manner and for the purposes set forth.

2. The combination of frame or platform A A', pins a, standards B, loops C, levers D, link E, and pipe F, substantially as and for the purposes set forth.

178,895. VENTILATING DEVICE FOR COOK-STOVES. E. M. Eccleston, Berwick, Pa., assignor to himself, W. J. Knorr, and J. B. Wilson, same place. [Filed Jan. 26, 1876.]

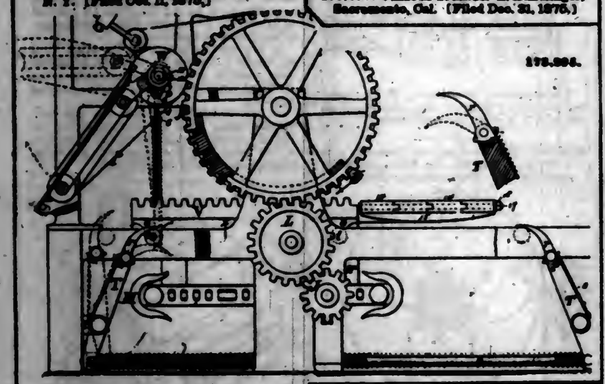
Brief.—The dome has a flexible joint-connection with the extensible pipe, and that is similarly joined to the exit-pipe.



1. The adjustable and extensible pipe, having at its outer end the ventilating-dome, attached as described, and combined with the stove-pipe by means of a flexible joint, substantially as and for the purposes set forth.

2. The combination of pipe D, adjustable, extensible, and detachable, as described, collar *D'*, stove-pipe B, and ventilating-dome E, with pole or vessels having pendent or upset ends in body or cover, substantially as and for the purposes set forth.

178,896. TELEPHONE-PERFORATOR. Richard M. Hoe and Stephen D. Tucker, New York, N. Y. [Filed Oct. 11, 1875.]



178,896.

1. The combination of the roller or rollers *i* with the type-bed for operating the spring-brake lever, substantially as shown and described.

2. A spring-brake lever constructed with a curved head or cam, which forms an inclined bearing-surface upon which travels an engaging part of the type-bed, substantially as shown and described.

3. The combination of the bed roller or rollers, and the curved brake-lever, substantially as shown and described.

4. In combination with a reciprocating type-bed, an inclined brake-lever, having a curved head or cam, substantially as described, whereby the power of the lever is gradually transmitted to the bed as the lever is forced backward into a vertical position, substantially as shown and described.

5. A brake-lever, constructed with a folding upper or bearing end, substantially as shown and described.

6. In combination with brake-lever T, and its folding arm, a stop limiting the rearward motion of said arm upon the lever, substantially as shown and described.

7. The combination of the lever T, folding arm *r*, and means, substantially as described, for holding said arm in its upright or extended position.

8. The combination of the cylinder-wheel, having a portion of its periphery inoperative, driving-gear wheel J, main and bed driving-shafts, and their connecting universal joint, substantially as shown and described.

9. The combination of the inside rack, segment, cylinder-wheel, having a portion of its periphery inoperative, driving-gear J, main and bed driving-shafts and their connecting universal joints, substantially as shown and described.

10. In combination with the swinging fly cord-frame, the spring-supporting device, substantially as described.

11. The combination with the swinging fly cord-frame of an arm *h*, and spring supporting-rod, so constructed that the said spring-rod shall support the cord-frame in its raised position, and form a cushion when the frame is lowered, substantially as shown and described.

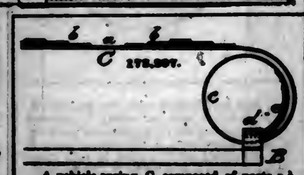
12. An inking-table, constructed of tongued and grooved wooden strips, held adjustably together by means of stay-rods 17, substantially as shown and described.

178,897. PERFORATING-STAMPS. John Houston, Jersey City, N. J. [Filed Dec. 11, 1875.]



The stamp-cancelling device, consisting of the handle A, socket B, and detachable concave-faced canceler C, having arranged therein a series of removable cutting or puncturing needles, *d*, as and for the purposes set forth.

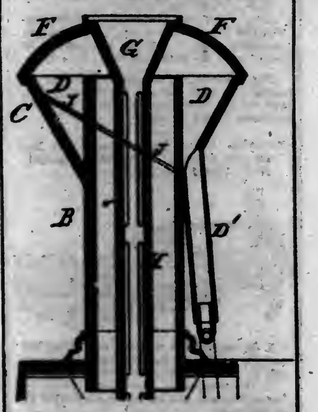
178,897. VEHICLE-SPRINGS. E. Huntsinger, Sacramento, Cal. [Filed Dec. 31, 1875.]



178,897.

A vehicle-spring, C, composed of parts *a b c d*, formed as described, and applied to the axles of a vehicle by means of staples *f f*, substantially as specified.

178,898. SPARK-ARRESTERS. W. Jackson, Altoona, Pa. [Filed Dec. 10, 1875.]



The smoke-stack B, provided with the lower D, having inclined perforated bottom *f*, centrally-perforated cover F, and discharge-pipe *D'*, in combination with the slotted tube H, having funnel-shaped mouth G, substantially as described, and for the purposes set forth.

178,899. OIL-CANS. Wm. Jotter, Jr., and Franklin Peall, Philadelphia, Pa. [Filed Jan. 15, 1876.]



1. The tube E or F, having an annular flange, *e* or *f*, in combination with the screw D and disk G or H, having a central opening, *g* or *h*, and an edge, *b'*, lapping over the flange and screw, substantially as shown and described.

2. The stopple H, having its top perforated and dished, in combination with the ball-valve I, centered by the form of said dish, substantially as shown.

178,900. BOILERS FOR WATER AND STEAM HEATING. John M. Jordan, St. Louis, Mo. [Filed Dec. 13, 1875.]

Brief.—The "propeller" or loop of pipe extends forward in the midst of the fire, and in a direction contrary to the draft. The arched top, sides, and back of the fire-box are composed of water-pipes.



1. The U-formed steam-propeller F, in combination with the arched boiler, consisting of pipes, said propeller depending from or near the center of said arch, and inclined forward, as and for the purposes set forth.

2. The arched boiler, consisting of pipes having overlapping pipe-bends A' at its rear end, as and for the purposes set forth.

178,901. MECHANICAL MOVEMENTS. Geo. Jumpst, New York, N. Y. [Filed Jan. 4, 1876.]

Brief.—A cam-slot on the slide engages with a stud secured to an arm, which arm is oscillated on a fixed pivot by means of a link connecting the stud with an eccentric wrist-pin on the disk, and thus converts a rotary motion into an intermittent reciprocating motion.

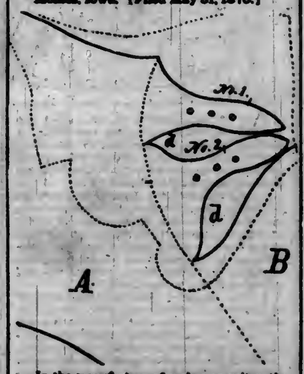


The combination, substantially as set forth, of the slotted cam-toe B, attached to the slide A, with the arm C, oscillating on a fixed pivot, and provided with a stud, *b*, on which the cam-toe bears, and the link D, connected with a wrist-pin on the rotating disk E and to the arm C, substantially as described.

178,902. PROCESSES OF IMITATING FRENCH WALNUT VENEERING. Joseph Kahn and Alfred Frey, Grand Rapids, Mich. [Filed Nov. 24, 1875.]

The process for imitating French walnut veneering, consisting, essentially, first, of preparing the wood with a filling composed of corn-starch or silver-white mixed with linseed-oil and japan, turpentine, or naphtha; then rubbing the same with a cloth; then coating it with a paint composed of white lead, English orange mineral, French ocher, and American vermilion or Tuscan red, mixed with boiled oil, japan, and varnish; then applying a graining of ashen, consisting of French ocher, English orange mineral, burnt umber, American vermilion, and ivory-black, mixed with boiled oil, japan, and turpentine; then using a rag or sponge to remove portions of the color; then using a blender, and, finally, overgraining the surface, all substantially as herein set forth.

178,903. SHOES. William H. Ladd, Des Moines, Iowa. [Filed May 31, 1875.]

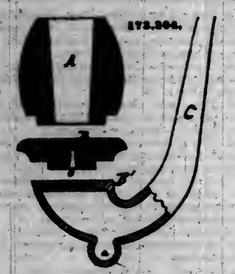


In the manufacture of a shoe or gaiter, the upper composed of the pattern A B, having the straps 1 and 2 cut of one and the same piece of material, in combination with the pattern C, having the flaps *a b* integral therewith, substantially as and for the purposes specified.

178,904. TOBACCO-PIPES. Joseph J. Long, New York, N. Y. [Filed Dec. 9, 1875.]

Brief.—The stem and bowl are made in one piece, and the bowl and its support are removable.

In a tobacco-pipe, the combination of the bowl A, open at both ends, with the intermediate section B, base B', and stem C, said bowl and stem being formed in one piece, and all constructed and arranged substantially as described.



178,904.

1. A garment provided with a hollow waistband having an opening, *c*, and cord *b*, constructed and arranged as described, by means of which the garment can be adjusted and held adjusted to the person of the wearer by simply making a turn or knot on the cord, substantially as set forth.

2. The combination of a pocket, *d*, with the hollow waistband of a garment, for the purpose set forth.

178,905. FUEDING-PANS. Edwin Lauby, Bethlehem, Pa. [Filed Jan. 15, 1876.]



The improved frying-pan herein described consisting of the tapering body A, of cast metal, having the annular bottom flange *a*, elevated bottom B, internal descending draft-tube C, of cylindrical form, and laterally-projecting handle, and the conical sheet-metal lid E, having the external soldered and inclined draft-tube F, and depending cylindrical branch G, said branch fitting the passage C and serving as a pivot upon which the lid is turned, substantially as shown.

178,906. OVERALLS. Stephen Lanbey, Boston, Mass. [Filed Dec. 18, 1875.]



1. The internal bracing-thimble B, in combination with the "coupling," so formed, comprising the nuts D E and tapering washer C, substantially as and for the purpose herein set forth.

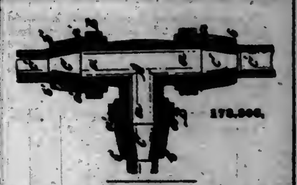
178,907. PIPE AND HOSE COUPLINGS. Edwin A. Leland, New York, assignor of one-half his right to Leonard Richardson, Brooklyn, N. Y. [Filed Jan. 10, 1876.]



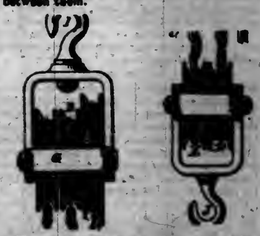
The thin, detachable, internal bracing-thimble C, in combination with the portion or body A, and the nuts B, of a T-coupling, the nuts B being made tapering at their outer portions *b' c'*, substantially as described, for the purpose set forth.

178,908. HOISTING APPARATUS. Andrew B. Lipsey, West Hoboken, N. J., assignor of one-half his right to H. A. Sherrill, New York, N. Y. [Filed Oct. 26, 1875.]

Brief.—An endless chain passing through an upper and a lower block. In the former are two pulleys attached to and revolving with the same sleeve, one larger in circumference than the other by the diameter of one link. In order to reduce the effect of this difference, one or more loose pulleys are placed between them.



178,908.



The employment or use of one or more loose pulleys, in connection with two chain-wheels of different diameters, rigidly connected together on a hoisting apparatus, substantially in the manner and for the purpose specified.

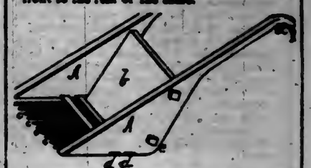
178,910. FOLDING CHAIRS. Benj. F. Little, Norwich, N. Y. [Filed Jan. 8, 1876.]



The herein-before-described chair consisting of the stretcher-frame A, A, B, and B', the front legs C and C', the back frame E, E, F, G, and H, the rear legs I and I, provided with the slots *i* and *i*, the studs or pins K and K, and the seat L, said parts being combined to operate in the manner and for the purpose substantially as specified.

178,911. STONE-GRAINERS. L. D. Lopez, Concord, N. Y. [Filed Dec. 27, 1875.]

Brief.—A stone-grainer constructed like an ordinary engraving-scraper with an open bottom, consisting of teeth extending from the front to the rear of the same.



In a stone-planer, in combination with the plate A, provided with handles a and the bent bar B, the teeth c c, extending from the front to the rear of the apparatus at the bottom, and the stone-planers d d, the whole constructed and arranged substantially as described.

178,812. WEATHER-STRIPS. C. W. Mace, Floris, Iowa. (Filed Nov. 6, 1876.)

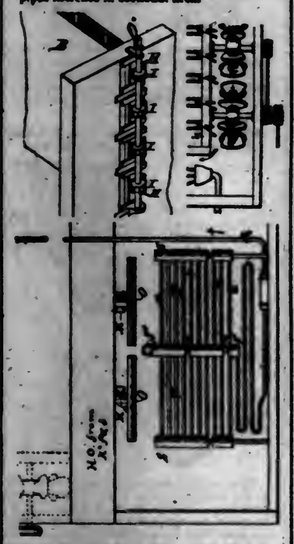


1. The combination of the molding B, the hinged weather-strip C, having the flexible extension c, and the stop c', with the door-casing, the spring being adapted to lift the weather-strip out of effective position, and the stop and door-casing to move it into effective position when the door is closed, as described.

2. The combination of the metal clamp C and flexible extension c with the overhanging molding B, as described.

178,813. ICE-MACHINES. Saml. B. Martin, San Francisco, Cal. (Filed Jan. 28, 1876.)

Brief.—A current of uncongealable liquid about an evaporating-coil, and through hollow freezing-partitions, may be diverted from any selected partition. An independent pipe in each partition receives the thawing agent. Condenser-pipes decrease and evaporator-pipes increase in sectional area.



1. The described method of freezing ice from the congealing-plates by causing a current of water, or other liquid of moderate temperature, to flow through pipes immersed in the congealing-fluid which fills said plates, substantially as shown and described.

2. The combination of the hollow freezing-plates, having gates adapted to close its openings and retain the incased liquid, with an independent pipe adapted to permit the flow of the fluid for raising the temperature of the incased liquid, substantially as described.

3. The combination of the series of independent hollow freezing-plates, a single circulating apparatus adapted to cause the continuous flow of the incongealable liquid through all the freezing-plates, independent gates for interrupting the flow through each freezing-plate, and independent pipes adapted to raise the temperature of the incased liquid in any one of the freezing-plates, substantially as described.

4. The condenser described, formed of a system of pipes arranged in independent series, decreasing in number as described, for the purpose set forth.

5. The freezing-plate, provided with the horizontal partitions and vertical ribs, substantially as described.

6. The combination of the gates H, and racks and pinion I, with the partitions s, and the freezing-plate B, as described.

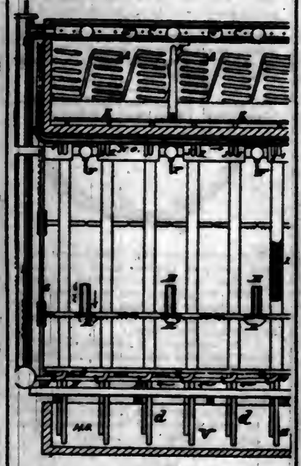
7. The combination of the paddle-wheels C C, the tank containing the incongealable liquid, and the freezing-plates B, as described.

8. In an ice-machine, the combination of the stacks of pipes of gradually-increasing area, with the condenser of gradually-decreasing area, substantially as described.

9. The combination of the cylinders S S S, and the intermediate condensing-pipes T T T, as described.

178,814. ICE-MACHINES. Saml. B. Martin, San Francisco, Cal. (Filed May 21, 1874.)

Brief.—Refrigerant through coils in upper tank. Brine in bottom of tank, by slide-valve, is admitted to annulus of vertical congealers, thence to horizontal main, whence is pumped up and sprayed onto refrigerant-coil. Water to be frozen in horizontal pipe under tank. Two reciprocating series of ring-sprayers, hanging by chains over pulleys on parallel rows of congealers, balance each other. When one series rises it strikes gravity-cocks, raises and opens them, receives water to feed the ring-sprayers, descends by its weight, while the opposite series rises to be fed with water, and by its weight lifts the first fed series. Thus the spraying is said to be automatic. To detach ice the incongealable fluid may be retained in its annulus, and water passed into or through central tube of congealer, or the water may fill the annulus. Detaching-water is passed either from center tube or from annulus into lower tank.



1. As an improvement in the process of making ice which involves the employment of an incongealable fluid cooled by a volatile fluid or liquid applied within cylindrical freezing-pipes, I claim supplying said incongealable liquid to the freezing-plates in a thin cylindrical sheet, substantially as described.

2. A vertical freezing-cylinder, having an internal core for distributing the incongealable liquid within the cylinder in a thin cylindrical sheet, as described.

3. The combination of a vertical freezing-cylinder, an internal pipe to convey water, and means for controlling the supply of water, as described, the cylinder and pipe holding the contained liquid in a thin cylindrical sheet, for the purpose of rapidly communicating to the incongealable liquid the heat from the water, as described.

4. The combination of the freezing-cylinder, the internal pipe, the supply-pipe L, and the double system of cocks, to supply water either to the lower pipe or to the space intervening between the two, substantially as described.

5. The combination of a central core with a surrounding spraying apparatus moving vertically, substantially as described.

6. The combination of a vertically moving spraying apparatus, a supply-pipe, and a trip-valve, substantially as described.

7. The combination of the independent series of spraying cups and rings, the connecting-chains, and supporting-pulley, substantially as described.

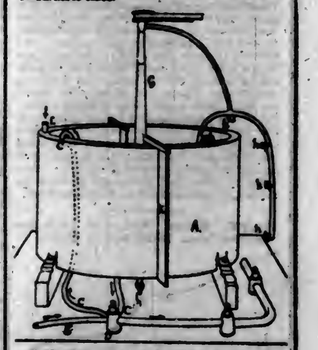
8. In an ice-machine, the combination of the vertical freezing-cylinder G, the connecting-pipes o T, pump P, and perforated spraying-pipes C C.

9. The combination of the vertical freezing-cylinder pipes o T, pump P, perforated spraying-pipes C C, and valves P with a vertically-moving spraying apparatus.

10. The combination of the chute K and lever K' with the tank B, as and for the purpose described.

178,815. ICE-MACHINES. Saml. B. Martin, San Francisco, Cal. (Filed Apr. 20, 1874.)

Brief.—The volatile freezing agent enters the coil at the top, and passes out at the bottom to the next of a series of congealers through pipes gradually increasing in diameter. By a two-way cock any congealer may be cut off from the current of the refrigerant. Water to loosen the ice, admitted at top of vertical congealer, passes diagonally downward in the spaces between the refrigerant-coils, and out at the bottom. Revolving sprayer distributes water at any desired elevation against the congealer. Cups hung on congealer, and filled with heated water, separate the ice into cakes of suitable sizes.



1. In the manufacture of ice, I claim the method described, consisting essentially in causing the freezing agent and the defrosting agent to flow alternately through independent passages or channel-ways in a hollow freezing-plate, substantially as described.

2. In an ice-machine, the combination of the following elements: first, a hollow plate to permit the formation of ice upon its sides; second, an internal pipe or system of pipes, to contain the freezing agent; third, an independent channel-way within the freezing-plate, to permit the flow of water to detach the ice, all substantially as described.

3. The congealer described, consisting of cylinder A, the internal pipe B, and the independent spaces or channels D' within the cylinder, having detachable inlet and outlet openings, the apparatus on a wheeled base adapted to permit the freezing agent and defrosting agent to be used alternately, but independently of each other, substantially as described.

4. The combination of the two-way cock described with the permanent pipes g f C C, the cock having the permanent passage e and the receiving passages a b, as described.

5. A series of congealers, substantially as described, and a distributing-pipe uniting the congealers, the diameter of which increases with each successive congealer, substantially as described.

178,816. ICE-MACHINES. Samuel B. Martin, San Francisco, Cal. (Filed Nov. 4, 1875.)

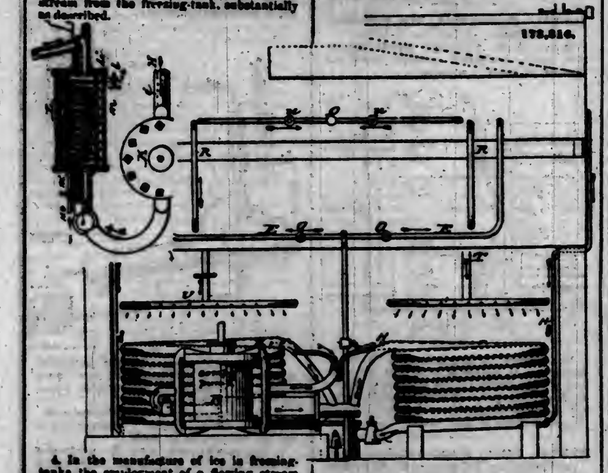
Brief.—The freezing agent is admitted into a receiver at the lower part of the apparatus, and is forced, by the condensing-pump, through coils in incongealable liquid in the cool compartments of the upper tank; passes down into and upward through the tall condensers

1. The described process of forming ice, consisting essentially in causing the cooling agent to flow continuously through a hollow freezing-plate in a stream formed upon itself, so that that which passes out of the plate moves in close proximity with that passing into the plate, by which means the particles having the highest and lowest temperatures are brought together, and the temperature of the entire plate thus equalized, for the purpose of forming ice of uniform thickness, substantially as described.

2. The described process of forming ice, consisting essentially in causing an incongealable liquid, cooled by contact with pipes containing a volatile fluid, to flow from the main body of liquid held in a cooling tank, through hollow freezing-plates, in independent streams, the same being returned to the main body of liquid after abstracting heat from the plates, for purpose of being cooled again, the circulation being continuous, substantially as described.

3. In connection with the manufacture of ice in freezing tanks or plates, I claim the described process of freezing the water to be frozen from air, consisting essentially in providing a supply of water in excess of the amount made into ice, and causing a portion of the same to rise through or near the center of the water-space, and flow in a constant stream from the freezing-tank, substantially as described.

178,816.



4. In the manufacture of ice in freezing-tanks, the employment of a flowing stream from the freezing-tank for the triple purpose of freezing the tank from an excess of air, cooling the incoming stream of water for supplying the freezing-tank, and for observing the condensing-coils, substantially as described.

5. In combination, in an ice-machine, of the following elements: apparatus for circulating a volatile liquid, substantially as described; apparatus for continuously circulating an incongealable liquid, substantially as described; a series of independent hollow congealing-plates, and a duplex system of gates for controlling the flow of the freezing and defrosting agents, substantially as described.

7. The pipe F, having the main connection e and branches f f, communicating with the independent sections of the congealing-plate, in combination with the gates g F, as described.

8. A hollow congealing-plate, constructed in independent and separate sections, each of which has a continuous channel-way, returning upon itself, for causing the stream of cooling liquid to enter and discharge in close proximity, substantially as described.

9. The combination of a hollow congealing-plate with a double set of gates, one to control the inflow of the liquid and the other its outflow, for the purpose of regulating its speed, substantially as described.

10. The combination of the induction pipe, having perforated branches, with the freezing-plates, whereby the pipes deliver a flowing stream in the central water-space between the plates, substantially as described.

11. The tanks C C, provided with divisions to form the extended channel-way, and with vertical ribbs x, to divert the flow of incongealable liquid through the stacks of pipes, substantially as described.

12. The combination of the congealer-plates, the chamber B, and the pipe E, the congealing-plates discharging their contents upon pipe K in tank B, as and for the purpose described.

13. The combination of tanks A' and C and intermediate chamber B, the latter furnishing space for the location of the mechanism for controlling the flow of liquid from tank C to A', substantially as described.

14. The chamber B', in combination with the tank C, for receiving the incongealable liquid after it has been discharged from the congealing-plates.

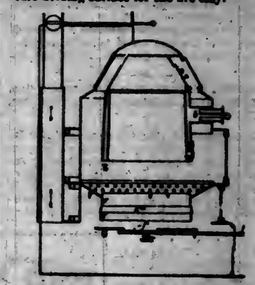
15. The combination of the cylinder L with the spiral water-space, the double coil, the inlet and outlet pipes, and the central space for the passage of the gas, as described.

16. The combination of the freezing-tank A, cooling-tank P, and condensing-coils I I, as and for the purpose described.

17. The combination of the pipe N, to convey away the water used for detaching the ice, with the gates h, to close the usual openings, and prevent the water from falling into tank B', and mixing with the incongealable liquid.

178,817. FIRE-POTS AND GRATES FOR FIRE-PLACE STOVES. Hugh L. McAvoy, Baltimore, Md., assignor to David L. Bartlett and H. W. Robbins, same place. (Filed Jan. 22, 1876.)

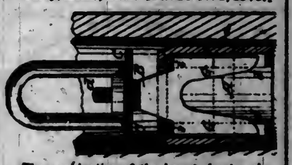
Brief.—The projections on the upper plate of the fire-pot are designed to furnish a secure holding-surface for the fire-clay.



1. The inclined annular plate or fire-pot F, provided with spines or projections s, in combination with the rings r and their connecting-pieces, the rings having spaces r'' between them, the whole being arranged over the movable grate, as specified.

2. The fire-plate G, having the toothed or fringed circumference, and provided with the sliding door f' and its bar f, the said plate being adapted to be revolved, or partially revolved, in or upon a suitable support, in combination with a fire-pot, having the horizontal separated rings r, the whole forming a combined stationary and movable grate, and operating substantially as set forth.

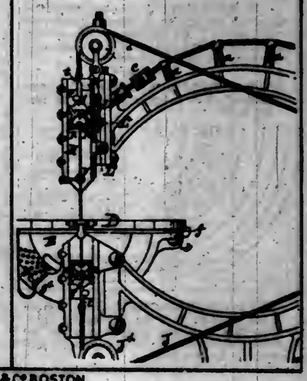
178,818. DROP-BOXES FOR PUMPS. A. McCarty, Xenia, Ohio. (Filed Nov. 3, 1875.)



The combination of the box A, having the grooved guides b b, with stops x x, and the valve B C, with ball D, and wings G G, having shoulders i i at the top, substantially as and for the purposes herein set forth.

178,819. SCROLL-SAWING MACHINES. B. McChesney, Newark, N. J., assignor of one-third his right to Thos. B. Davis, New York, N. Y. (Filed Aug. 20, 1875.)

Brief.—The saw is retained in position by self-acting clamps; the frame being rendered rigid by means of a wire-rope provided at one end with a straining-screw, and passing over studs projecting from the frame.



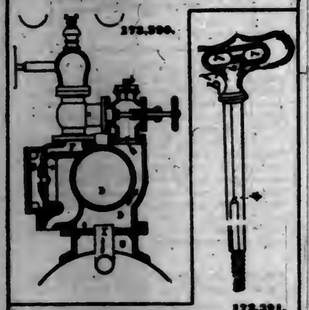
1. The saw clamp, consisting of the pivoted levers or jaws E E, having the hooks r r, and the sliding cross-bar S, provided with the projection s' and lugs or lips s' s', in combination with the saw-plate, and the cord or band I or J, substantially as herein described.

2. The sliding pin L' and spring bolt or catch L', in combination with the arm B and sliding frame K, substantially as and for the purpose herein described.

3. The elastic pads or cushions f, in combination with the legs e and table D, substantially as and for the purpose shown and described.

172,880. PORTABLE STEAM-ENGINES. Geo. L. McCollum, Baltimore, Md. [Filed Dec. 17, 1875.]

In a portable engine, the steam-cylinder B, provided with the steam chamber, box, or dome D and channel F, communicating, respectively, with the throttle-valve and governor-valve, combined with the dry pipe I, the plate or attachment a, and stand C, substantially as and for the purposes specified.



172,881.



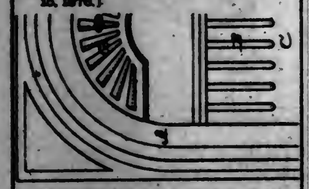
172,881. DAMPERS. William L. McDowell, Philadelphia, Pa. [Filed Jan. 22, 1876.]

Brief.—The flattened portions insure the proper relative position of the damper and its spindle where the latter is inserted. The holes and the raised and depressed portions of the handle are to hold a wooden handle.

1. The combination, in a stove-pipe damper, substantially as described, of the flat portion 3 in the groove c' with the shank B, provided with the flat portions 5 5 at two of its opposite sides, for the purposes set forth and specified.

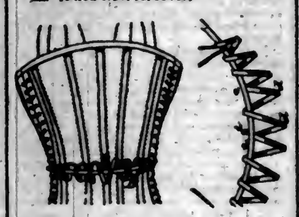
2. In combination with the outer end of the shank B, the handle D', provided with the round holes 7 7, the depressed middle portion 6, and raised end portions 8 8, substantially as and for the purposes described.

172,882. FIRE-PLACE FRONTS. Edward D. Merriot, New Brighton, Pa. [Filed Jan. 10, 1876.]



The combination, with a grate-front, A, grate B, and fire-plate C, of the semicircular open-work plate G, having projections a and inclined flanges d, and the register-plate G', substantially as described.

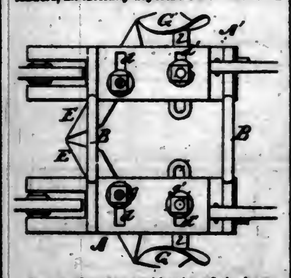
172,883. CORSETS AND SKIRT-SUPPORTERS. Sarah E. Meacher, Normal, Ill. [Filed Nov. 12, 1875.]



The combination, with a pair of corsets having one or more eyelets or loops, x, at the central part of the back, of the bustle formed of a curved elastic strip, C, with a coil, d, around the same, and having a hook, a, to engage with the eyelet or loop x on the corset back, and additionally connected at the ends of the strip to the corset, all constructed and arranged substantially as set forth.

172,884. CULTIVATORS. Wm. H. Mosher, Owosso, Mich. [Filed Nov. 6, 1875.]

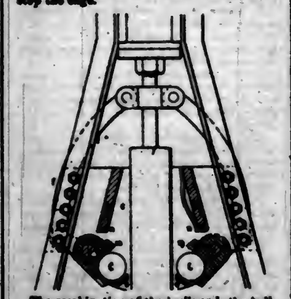
Brief.—Frame with rigid arched connection, having horizontal scrapers, plows, and fenders, all laterally adjustable



In a weeder, the combination of the beam sections A A', connected by arched braces B, and provided with spaced transverse slots d d', the horizontally-vibratory and laterally-adjustable rear-cutting blades E, and the plow G, substantially as specified.

172,885. SAFETY HOISTING-GEARS. Maximilian Mühlig, Falkenau on the Eger, Austria. [Filed Jan. 22, 1876.]

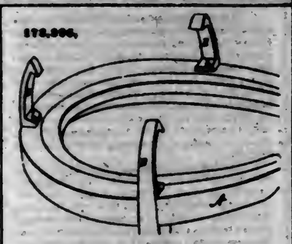
Brief.—Upon the breaking of the hoisting-rope the spring causes the lever-arms to press the balls against the guide-post, between which and the inclined ribs they become jammed, and stop the cage.



The combination of the inclines b, the balls and rollers C, and the pieces B or their equivalent, in a safety apparatus, acted upon through suitable intermediate mechanism, as described, by a spring, d, as and for the purposes specified.

172,886. HORSESHOES. T. W. Murphy, Washington, D. C. [Filed Jan. 21, 1876.]

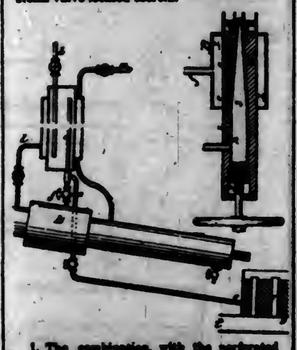
172,886.



The plate A, provided with the countersunk dovetail vertical grooves a a a, in combination with the slips B B B, provided with corresponding tenons, substantially as and for the purpose set forth.

172,887. HYDROCARBON-FURNACES. Henry Napier, New York, N. Y. [Filed Sept. 28, 1875.]

Brief.—Oil is fed from a steam-jacketed cylinder to an injector, consisting of a perforated conical cylinder having an adjustable steam-valve located therein.



1. The combination, with the perforated cylinder 2, of the jacketed vessel A, oil-pipe b and c, and steam-pipe e, substantially as and for the purpose set forth.

2. The combination of the perforated cylinder 2, with the oil-chamber 1, substantially as and for the purpose set forth.

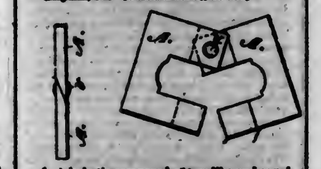
3. The combination, with the perforated cylinder 2, of the oil-chamber 1 and hollow conical valve 3, substantially as and for the purpose set forth.

4. The combination, with the perforated cylinder 2, of the hollow conical valve 3, its regulating-screw and steam-pipe h, substantially as and for the purpose set forth.

5. The combination of the perforated cylinder 2, with the hollow conical valve 3, steam-pipe f, oil-pipe f, and jacketed tube 4, substantially as and for the purposes set forth.

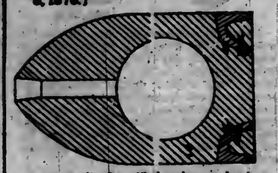
6. The combination, with the perforated cylinder 7, of the vessel A and the tee C, substantially as and for the purpose set forth.

172,888. BALL-TIES. John Hoblitt, Philadelphia, Pa. [Filed Dec. 11, 1875.]



1. A knit-tie composed of two like and equal parts, A and A, having their corresponding joining edges bevelled, so that, when united by the loose rivet r at one end, it may be closed at the other, and become practically a closed buckle, of four sides of equal strength and thickness, without waste of material in its construction, substantially as shown and described.

172,889. SADDLE-POST FROMETTES. Robert P. Parrott, Cold Spring, N. Y. [Filed Jan. 6, 1876.]



A projectile for rifled ordnance having a packing-ring at its base end, in which the body of the projectile has segmental cavities or passages cored or otherwise formed in it, and the packing-ring made to form fastening prongs or projections, which extend into said passages, substantially as specified.

172,890. REFLECTING-HEAT CHAMBERS. Joseph Parr, New York, N. Y., assignee to Lydia Ann McCollum, sole executrix and trustee of the estate of John McCollum, deceased. [Filed Jan. 3, 1876.]



1. In combination with the driving-roller R, the pressure roller R', sliding rod r, sleeves s, and inclosed spring, substantially as and for the purposes set forth.

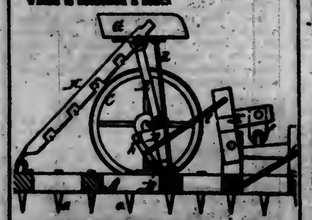
2. In combination with the rollers R and R', the sliding rod r, and spring and sleeve, the adjusting-screw a, substantially as described.

172,891. STEERING ATTACHMENTS FOR WOVEN-WIRE MATTRESSES. J. William C. Peters, Chicago, Ill., assignee to Whittlesey & Peters, same place. [Filed Oct. 6, 1875.]

The horizontally-sliding or adjustable plates B B, connected freely on the side rails, and carrying the end rails, and consisting of the curved parts a and a', united by means of the cross-bar a'', having a female screw therein, in combination with the end plate E, and the screw pin or bolt F, substantially as and for the purposes specified.

172,892. HAMMOCKS. James Phillips and Thos. J. Griffin, Jr., Jeffersonville, Ind. [Filed Jan. 6, 1876.]

Brief.—A bracket supported at each side by a tripod, and raised or lowered by a lever, to which is attached a cord.



1. The combination, with the bracket-frame A, crank-axle B, and wheels C C, of the lever E, connected to the axle by the double sheaves D D, the cord G, and notched brace H, all constructed and arranged to operate substantially as and for the purposes herein set forth.

2. A knit-tie composed of two like and equal parts, A and A, having their corresponding joining edges bevelled, so that, when united by the loose rivet r at one end, it may be closed at the other, and become practically a closed buckle, of four sides of equal strength and thickness, without waste of material in its construction, substantially as shown and described.

172,893. DEVICES FOR CONNECTING GEARS WITH MOVING BODIES. William H. Palmer, Brooklyn, E. D., N. Y. [Filed Dec. 1, 1875.]



1. One or more sets of sheaves or rollers so arranged as to embrace a moving rope, band, or chain, and at the same time be acted upon by brakes to retard or stop their rotations, and thus impart motion to the car, vessel, or boat, to which they are attached, substantially as herein described.

2. In a device for gripping a moving rope, band, or chain, one or more brakes applied through the medium of sheaves or rollers, substantially as herein illustrated and described, for the purpose set forth.

3. The combination of two or more sheaves or rollers, and brakes applied therein, when the pressure of the brakes is so applied as to increase the preliminary frictional contact of the sheaves or rollers and them loosen the attachment at all times of a superior pressure between the latter and the rope, band, or chain, over that between them and the brakes, as herein specified.

4. The combination with a set of three sheaves or rollers of the brakes B' B' with their connecting-rods c' and controlling-screw A', arranged and operating substantially as herein described, for the purposes set forth.

5. The combination of the double slide D D', with its movable foot L', carrying the bottom sheaves or rollers F' F', and the vertical screw B and coupling-cams d', substantially as shown and described, for taking up a moving rope or chain in the manner specified.

172,894. CORNERED CASES AND FLASKS. W. B. Pratt, Philadelphia, Pa., assignee of one-half his right to R. W. Pratt, same place. [Filed Jan. 7, 1876.]



1. The flag-staff B, provided with a supporting plug or wedge, F, for fastening said staff in the cone when the flag is exposed to view, substantially as shown and described.

2. The cone head or handle C, when formed with an opening, c, for the passage of the staff.

3. The combination of the cone A, having a fixed handle, C, formed with an opening for the passage of the flag, with the staff B, having a fastening device, d', substantially as shown and described.

4. The handle C, having an opening, c, and cavity d, in combination with the staff B, provided with a ball, d', substantially as shown and described.

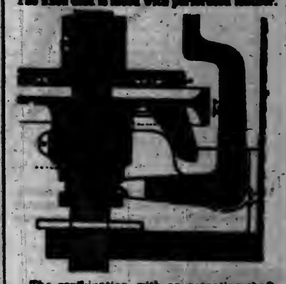
5. A combined cone and flag, in which when the latter is exposed it is held in position by having the end of its staff fastened in the head or top of the former.

6. The cone A, having the fixed handle C, with opening c and cavity d, and the flag-staff B, having the plug or wedge F and ball d', substantially as shown and described.

7. A combined cone and flag, in which the latter may be concealed within the former, and which permits the flag-staff to be drawn out without removing the cone-head or top.

172,895. SHAFT-COUPLINGS. J. E. P. Flint, Troy, N. Y. [Filed Dec. 13, 1875.]

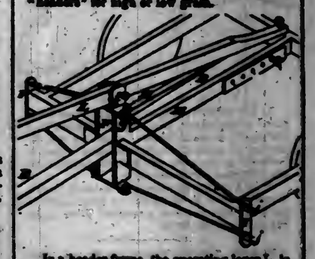
Brief.—Presses on the pendle embraces the loose pulley, and forces it against a brake. The fixed disk is faced with perforated leather.



The combination, with an actuating-shaft, of a loose pulley, a frictional brake, and an actuating-treadle for thrusting the pulley against the brake and stopping the machine, substantially as described.

172,896. HARVESTERS. Jas. P. Flinn, San Francisco, Cal. [Filed June 9, 1876.]

Brief.—Means for adjustment of cutters of "headers" for high or low grain.



In a header-frame, the operating-lever L, in combination with the pole B, segmental or pivoted to the frame at a point, G, near the front, substantially as and for the purposes herein described.

172,897. PORTABLE FENCES. W. W. Pratt, Brookland, Pa. [Filed Jan. 13, 1876.]

Brief.—The locked ends of the adjacent panels rest on top of flanges on the drive-posts.
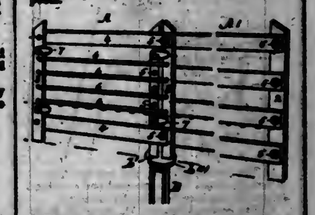


The combination, with the panels A A', constructed substantially as described, of the iron post B, consisting of the wrought-iron bar F and the cast-iron ground-plate F' F'', secured permanently together, as and for the purpose set forth.

172,898. LIFTING-JACKS. Adam H. Price, Jamestown, N. Y. [Filed Jan. 8, 1876.]

In lifting-jacks, the pawl-rod A, when made at its lower end to embrace the ratchet-bar a, in combination with lever A', standards B B, bed-piece C, and ratchet-bar a, all constructed and used in the manner and for the purpose set forth.

178,838.



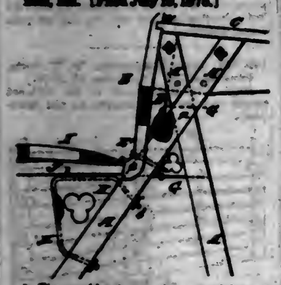
VISE-STOPPERS FOR CORNICES. Rabbi L. Freyer, Baden Baden, La., assignor of one-half his right to H. M. Hoch, same place. [Filed Jan. 6, 1876.]



1. The combination, with a cornice or other piece of ordinance, of a cam or frame, B, a spring, C, fastened thereto, a pivoted arm, D, having an eccentric lower end, and a pad, *f*, fastened to the arm, substantially as and for the purposes herein set forth.

2. In a device for closing gun-ports, the removable slide E, of leather or other suitable material, and the pad *y* secured thereto, for the purposes set forth.

178,839. SEWING DRESS AND SKIRT. Geo. W. Fitzpatrick and Alfred H. Teel, Greenfield, Ind. [Filed July 29, 1875.]



1. The combination of the crossed legs A A and the brace D, constructed and arranged as and for the purposes herein set forth.

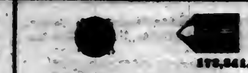
2. The grooved bracket H, attached to the flexed leg A by means of bevel bolt *b* and nuts *d d*, as shown and described.

3. The bottom plate B of the bed, constructed, as described, with the curve *e* and guide *f f*, substantially as and for the purposes herein set forth.

4. The combination of the hinged seat I with bracket J J, having tenons *k k*, the bracket H H, and the lower bent plate E, provided with mortises *r r*, substantially as and for the purposes herein set forth.

178,840. FIRE-ARMS FOR AIR-GUNS. H. M. Goodwin, Rochester, N. Y. [Filed Dec. 31, 1875.]

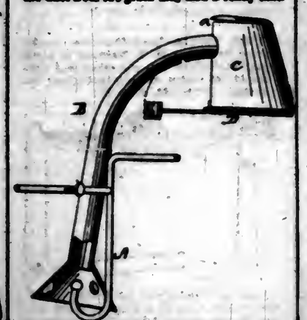
178,841.



A sling for air pistols or guns, composed of a suitable body, upon the periphery of which a series of thin ribs or bars are created, the metal composing the bars, or the entire sling, being of such a soft or ductile nature that the said bars are susceptible of being readily compressed or flattened, to a greater or less degree, upon being inserted within the bore of the barrel, and adapt themselves to the latter, substantially as and for the purposes stated.

178,842. ELEVATING GRAIN, &c. Alonzo C. Reed, Minneapolis, Minn. [Filed Sept. 15, 1875.]

Brief.—The roof of receiver is open, so that the dust from the grain may find a ready exit.



The receiver C, having its top open at *c*, and provided with self-adjusting bottom D, in combination with the grain-pipe B and air-blast pipe A, substantially as and for the purposes herein set forth.

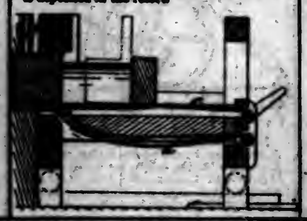
178,843. CAR-COUPLERS. Horace Lamey, Cumberland, Md. [Filed Sept. 17, 1875.]



The automatic coupling, consisting of the draw-bar having slot B, hole E, and guide-ways *f f*, in combination with the gravity-catch C, having hole D, shoulders *g g*, and guide-legs *d d*, substantially as and for the purposes described.

178,844. APPARATUS FOR CHARGING RETORTS. Joel P. Rice, Louisiana, Mo. [Filed Nov. 26, 1875.]

Brief.—The tubular charger, open at top, is mounted in a frame on wheels. A removable ring closely fits in the charger, and, by an extension, is locked in the frame when the charger is being withdrawn, thereby the coal is deposited in the retort.



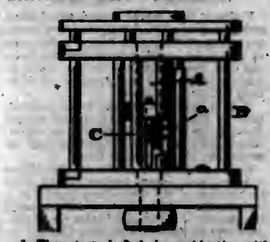
The combination, with the charger arranged in a supporting-frame, of the removable ring B, having the vertical extension *d*, and the lever C, pivoted to said frame, and thereby adapted to hold the ring stationary therein, as shown and described.

178,845. STONE. Joseph S. C. Breitzel, Philadelphia, Pa. [Filed Dec. 29, 1875.]

The composition, consisting of Chinaba, bark of ash-root, angle-worm root, willow bark, oil of neroli, chloroform, alcohol, and glycerine mixed, substantially as set forth.

178,846. APPARATUS FOR TREATING HIDES. Chas. L. Boyer, San Francisco, Cal. [Filed Jan. 13, 1876.]

Brief.—A rotary slotted shaft, inclosed in a slotted cage constructed in sections, which, opening, make the shaft accessible. The hide to be treated is placed in the slotted shaft, and held firmly by a clamp regulated by a set-screw. Motion being imparted to the shaft, the hide is rolled around said shaft, by the purpose of being treated and converted into leather.



1. The rotary shaft A, in combination with the cage B, formed of opening and closing sections B' B', substantially as and for the purpose set forth.

2. The clamp C, consisting of a disk with a studded face, combined and operating with the slotted shaft and set-screw *c*, substantially as and for the purpose set forth.

178,847. ANIMAL-TRAPS. Cyrus W. Baldwin, Washington, D. C., assignor of one-half his right to L. Dobbins, Erie, Pa. [Filed Dec. 18, 1875.]

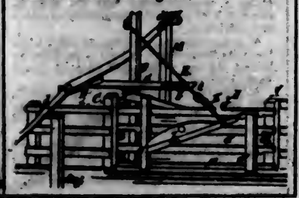


1. The bed-plate H, provided with the pivoted lever B, in combination with the independent springs A A, riveted separately thereto, in the manner shown and described.

2. The separate spring-head F, in combination with the springs A A and the jaws of the trap, substantially as and for the purpose set forth.

178,848. GAMES. Jeremiah G. Sherman, McHenry, Ill. [Filed Dec. 14, 1875.]

Brief.—A gate opened upon a single pivot in the rear, an inclined flexible rod connected to the top of an intermediate post, and passing through a slotted bar rigidly connected to the rear of the gate, and taking hold of the front thereof, and a diagonal horizontal movement to the rear of the gate.



1. A gate supported at its inner end by a pivot, and at its outer end by a flexible rod, E F, attached to the auxiliary post D, and to the gate near its outer end, substantially as and for the purpose set forth.

2. The combination of the gate A, pivoted at its rear end, as described, the notched brace A, and a flexible connection, E F, attached at its upper end to a suitable post, D, for the purpose of supporting and adjusting the height of the gate, substantially as described.

3. The combination, substantially as described, of the slotted curve G, rigidly attached to the gate, flexible rod E F, post D, and gate A, arranged and operating as set forth.

4. The combination, substantially as described, of the crank-shaft, of the reels I K, rigidly connected to the gate, sliding rods I E, and supporting-posts L M, provided with staples *d*.

5. The combination, substantially as described, of the reels I K, short arm H, slotted strip G, and flexible rod E F, for the purpose set forth.

6. The combination, substantially as described, of the wind-board F I, short arm H, sliding rods I K, and gate A.

178,849. PORTABLE FORGE. Frederick S. Sibley, New Bedford, Mass., assignor to J. A. Whitman, Cranston, R. I. [Filed July 24, 1875.]

Brief.—Handle, bellow plunger, and discharge-pipe (the latter extending near to the bottom of the plunger, that the latter may form an air-chamber) are in one piece. Barrel and stuffing-box are also in one piece. The bottom of the stuffing-box, in connection with the packing and valve-cage, prevents the two main parts from being disengaged.

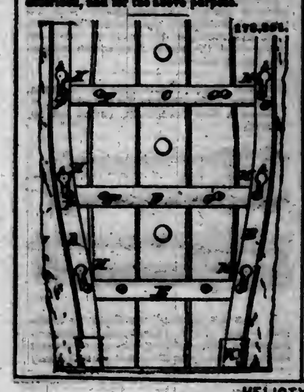


A portable hand-pump, in which the bellow-handle A, bellow-plunger B, and conical ejection-pipe C, forming the chamber *c*, are cast in one piece, and the pump-barrel G has also cast to one piece with it, and on the upper end thereof, the stuffing-box D, together with the gland E, as described, and for the purpose specified.

178,850. RAILROAD-BAR JOINTS. John Shaw, Philadelphia, Pa., assignor of one-half his right to James P. Dickinson, same place. [Filed Nov. 19, 1875.]



To A and taper keys B B, provided with a bolt, C, in combination with the brace D, as described, and for the above purpose.

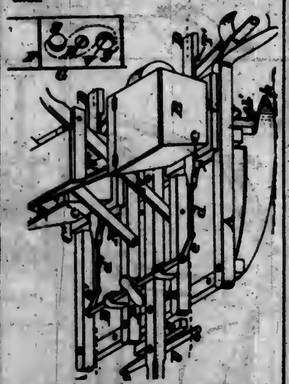


178,851. SHEET-METAL SUPPORTERS. Eben J. Shuler, Mount Union, Pa. [Filed July 26, 1875.]

The combination of the longitudinal bars A B and transverse bars O D E, fastened together by the cords F O and clasp H, substantially as described, so as to constitute an adjustable shirt-bosom protector, adapted to be folded in compact form when not in use, substantially as set forth.

178,852. CORN-PLANTERS. Geo. A. Sidern, Middlecreek, Ind., assignor of one-half his right to Oliver P. Hamilton and W. G. Downey, same place. [Filed Oct. 8, 1875.]

Brief.—The crank-shaft for imparting motion to the seed-slides is operated by the foot. The discharge of seed is graduated by an S shaped plate pivoted to the under side of the slide.



1. In combination with the two hoppers B C B' C', mounted upon the frame A, I claim the double-acting seed-slides *b f f' D f f'*, crank-shaft E, cams *e*, slide-seed receptacles I, cut-offs *i i'*, chambers J J, and treadle F, for imparting motion to the seed-shaft, which actuates the slides, and leaves the driver's hands free, substantially as set forth.

2. The adjustable S-shaped plate V, located beneath the cup G, and adapted to regulate the capacity of the seed-cells, as herein explained.

178,853. HARD-SHAKER. John Skywalt, Jr., Chicago, Ill. [Filed Aug. 23, 1875.]

Brief.—Invention consists of two rotary disks provided with flexible peripheries with cutting recesses, which constitute type, and a longitudinally-reciprocating bar for rotating said disks, and for raising said type to position for printing, as they are successively brought over said bar by the movement of said disks.



1. In a hand-stamp, a type-wheel arranged to rotate in a horizontal plane, and provided within its periphery with vertical recess for the reception of type, in combination with mechanism for intermittently rotating the same, substantially as and for the purpose shown.

2. In combination with the type-wheel B, provided with the recesses *b' b'*, and provided upon the base A, the longitudinally-reciprocating bar F, provided with the pins *f' f'*, and the pivoted lever G, having studs for contact with the springs *g'*, substantially as and for the purpose set forth.

3. In combination with the lever G, provided with the spring-latch *g'*, and pivoted upon the base A, the cam E, recessed within and extending upward from said base, and arranged to engage with said latch when said lever is moved to the rear limit of its stroke, substantially as and for the purpose shown and described.

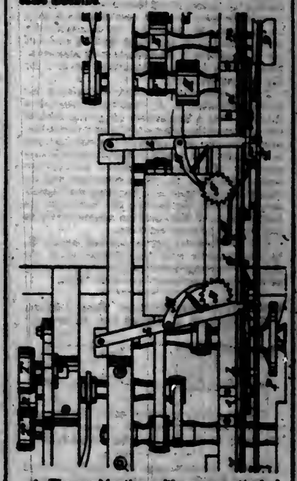
4. In combination with the type E, one formed within the vertical recess *b'* of the wheel or disk B, the longitudinally-reciprocating bar F, provided with the flanged base *f*, which passes beneath recess and beneath said type as said bar is moved, substantially as and for the purpose specified.

5. In combination with the rotating disk B, provided with the recesses *b'* and *b''*, and with the longitudinally-reciprocating bar F and base *f*, the spring-pawl *g'*, the stop *g''*, secured to or upon said bar, and arranged to engage with said disk at the instant the same reaches the front of each intermittent movement, substantially as and for the purposes shown.

6. In combination with the ribbon-saddle H, moving within the depressed recess *a'* of the casing M, the spring-slide O, arranged to move longitudinally within a groove in said casing, and engaging with the edge of said saddle, substantially as and for the purpose set forth.

178,854. MACHINES FOR CUTTING AND CUTTING GROOVE. George C. Skidmore, Grand Rapids, Mich., assignor to A. F. Skidmore, same place. [Filed Dec. 1, 1875.]

Brief.—The boxes are cut from the blank and called ready for transportation by the same machine.



1. The combination, with an arm attached to the shank, and the feed-wheel mounted in the upper arm, of the lever D, pawl H, ratchet F, and sliding rod O, substantially as and for the purposes described.

2. The combination, with the shank, of the bolt G, having one side combined in an adjustable plate, *c*, substantially as and for the purpose described.

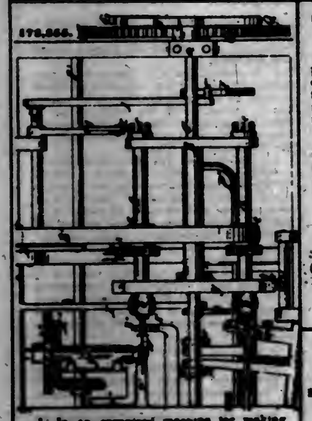
3. The combination, with the joint-screws P and the gage *p*, of a hinge, *f*, as and for the purpose described.

4. The combination of the heavily-adjustable pulley B, the plate U, the automatically-adjustable pulleys T T' T'', and the belt S, substantially as and for the purpose described.

178,855. MACHINES FOR MAKING SLATING-WOOD SCREWS. Thos. J. Sloan, New York, N. Y. [Filed Jan. 17, 1876.]

Brief.—Each of the spindles for rotating the screw-blanks is provided with a pinion at its end, and to add motion to the screw-rotating spindles of the two gangs, one of each gang, to the shaft of a cam-revolution operated by the worm, in which of which, when one side of the blank has been shaved, the spindle holding it is turned over and the other side of the said blank brought into line with the cutter. The cutter for turning the screw-blanks is hinged to a rocking lever, and is backed up by a pulley, so as to yield when passing the gear with the pinion, and spaced thereby the distance of blanking the teeth.

178,866.



1. In an organized measure for making shaped conical covers, a blank-holding spindle having an intermittent revolving movement around its own axis, in combination with a striking-cover, W, arranged to automatically move to and from the blank-holding end *b* of the said spindle A alternately with semi-revolutions of the latter, substantially as and for the purposes set forth.

2. The improved machine, comprising the double spindles A A, revolvable around a common axis, a mechanism for giving each of the said spindles alternately a half-revolution around its own axis, and a striking-cover adapted to approach and recede from each spindle successively after each successive semi-revolution of the same, the whole combined and arranged for operation in succession with a suitable apparatus for feeding the blanks to the holding-jaws of the spindles, substantially as and for the purposes set forth.

3. The vibratory spring-toothed center K, in combination with the pinions C of the double revolving spindles A A, substantially as and for the purposes herein set forth.

178,867. Screw-Drivers. Thos. J. Sloan, New York, N. Y. [Filed Jan. 20, 1876.]



The angularly-notched screw-driver, constructed with the beveled corners *c' c*, substantially as and for the purposes set forth.

178,868. Ice-Machines. David Smith, San Francisco, Cal., assignor of one-fourth his right to C. W. M. Smith, same place. [Filed Nov. 4, 1875.]

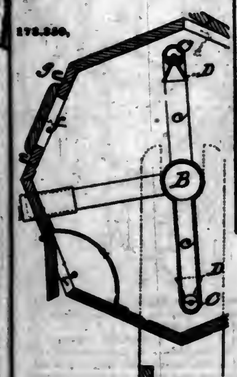
Brief.—Spaces between and nearly the length of the brine-boxes facilitate the cleaning of the spaces between the boxes, and also the bottom of the tank. The temperature of the brine is rendered uniform throughout by having the coils of the refrigerant-pipe widely apart where the refrigerant enters, and gradually nearer to each other toward the exit of the refrigerant. Brine-boxes have floating-plates for cakes, and wooden bottoms and ends.



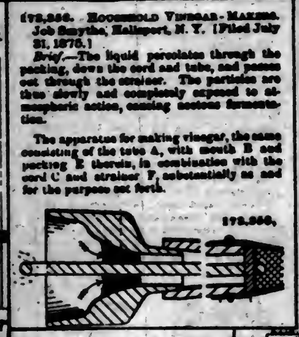
1. In combination with a proper tank, a congealer having metallic sides and wooden ends and bottom, and inclined on the bottom thereof, cement at the ends, from the bottom of the tank, substantially as and for the purposes set forth.

2. The evaporating-coil C, with an intervening space downward between the pipes, substantially as and for the purposes described.

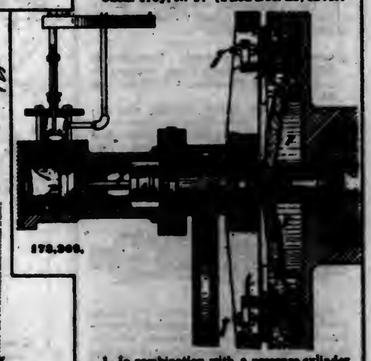
178,869.



178,870.



178,871.



178,869. Feather-Renovators. Charles D. Hadley, Madison, Wis. [Filed Jan. 10, 1876.]

Brief.—The discharge of steam through the cylinder is always toward the center of the chamber.

1. In a hair and feather renovator, the rotating cage A, having a central tube, B, internal tubes C, and communicating plates *c*, in combination with the funnel-shaped cylinder D, slide-valves *d*, and the operating-rod E, provided with disks *e e*, substantially as specified.

2. The steam-pipes C, having funnel-shaped cylinder D, in combination with the operating-rod E, provided with valves *d* and disks *e e*, substantially as described, and for the purpose set forth.

178,870. Garments. Thos. A. Badger and Fred E. Brown, Cincinnati, Ohio. [Filed Dec. 3, 1875.]

Brief.—A box adapted for transportation and exhibition of the goods. For the former purpose a wooden slide is placed in grooves at the end of the box, where it is held by the cover. To exhibit the contents the cover is removed, reversed and the end, where it is held by cleats on its under face, in such position as to allow the removal of the wooden slide, and the substitution of a glass slide, the box being tipped upon the opposite end to allow this change.



As a new article of manufacture the open-fronted box, having a cross-brace at the top, and grooves in the sides in front of said brace, substantially as specified.

178,871. Means of Protecting the Ground or Track-Bridges. A. Spaulding, Cedar Falls, Iowa. [Filed Dec. 6, 1875.]



A flexible impervious cover, formed substantially as described, in combination with angle-block end covers B, and collared tubes T V, for covering and protecting the chords of truss-bridges, in the manner specified.

178,872. Friction-Clutches. G. H. Sterbeck, Troy, N. Y. [Filed Dec. 29, 1875.]

1. In combination with a pressure-cylinder and the frame of a clutch, a collar and removable cap-screw, connecting the two, substantially as described.

2. In combination with the operating-arms F, provided with the balls *c*, the upper and lower plates *d* and *b* and a movable wedge, *f*, operated by the screw *p*, for adjusting the arms, substantially as described.

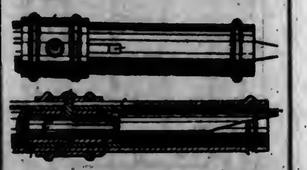
178,873. Sewer-Spuds and Sleeve-Boxes. George D. Stevens, East Orange, N. J. [Filed Oct. 4, 1875.]

Brief.—A disk or annular plate of stone, ivory, or analogous material is secured to the back part of the button-hand, to prevent the metal from coming in contact with the article on which it is worn.



The protector *d*, provided with the circumferential groove *a*, in combination with the button A, having the shank *b*, and head disk *a*, the said groove of the protector being set in the rim of the button A, as and for the purpose herein described.

178,874. Tooth-Pick Cases or Holders. Howard B. Stephenson, Troy, and Wm. H. Bennett, New York, N. Y. [Filed Jan. 10, 1876.]



1. As a new article of manufacture, a tooth-pick formed by the combination of a protecting-tubular case, a sliding holder, a removable tooth-pick, and a propelling-slide, substantially as described.

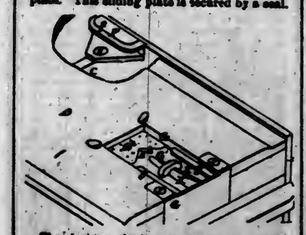
2. The combination of a protecting-case, a sliding carrier, and a removable tooth-pick, substantially as described.

3. In combination with the tube 3, I claim the split tube 5, the two united together and constituting a carrier for holding a pick, B, substantially as described.

4. The combination of the split tube 5, having fingers *e*, with inwardly-bent ends *n*, and tube 3, united together and constituting a tooth-pick holder, substantially as described.

178,875. Box-Fastenings. O. A. Stempel, Morrison, Mo. [Filed Dec. 1, 1875.]

Brief.—A pin passes through a metallic plate in a recess in front of the sliding lid. This pin engages with the front end of the box, and is itself held in place of a sliding plate. This sliding plate is secured by a seal.



The locking device composed of end B, sliding lid D, pin-hole E, pin I, sliding plate K, and seal O, substantially as set forth.

178,876. Tape-Locks. Emory Stockwell, Stamford, Conn., assignor to the Yale Lock-Manufacturing Company, same place. [Filed Dec. 9, 1875.]



1. In combination with the case of a chronometric lock, having a lid or door for covering the devices which control the hours of locking and unlocking, one or more winding devices, whereby, the lock being attached to the safe-door, the time mechanism can be wound from the exterior of the case while the safe-door is open, but is inaccessible when said door is closed.

2. In a chronometric lock, the combination of the lock-case with a movable lid or door, A', the apertures J J, and the covered bushes L L, as and for the purposes specified.

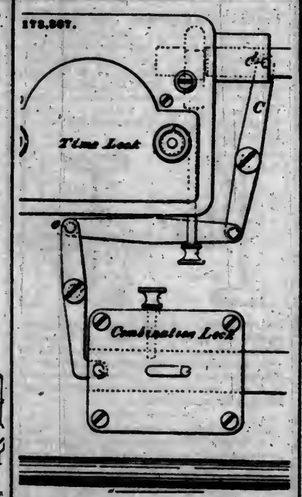
3. In a chronometric lock, the combination of the lock-case with a movable lid or door, A', the apertures J J, the covered bushes L L, and the elastic cushions or washers *n'*, as and for the purposes specified.

178,877. Locking Mechanism for Safe-Doors, &c. Emory Stockwell, Stamford, Conn., assignor to the Yale Lock-Manufacturing Company, same place. [Filed Jan. 22, 1876.]

1. The combination of a chronometric guarding-lock and a lock guarded thereby with the bolt-work of a safe or vault door, when the locks are so arranged that the normal or ordinary function of the chronometric guarding-lock is merely to guard the other lock, and its reserved or secondary function to bear directly upon the bolt-work, substantially as and for the purposes described.

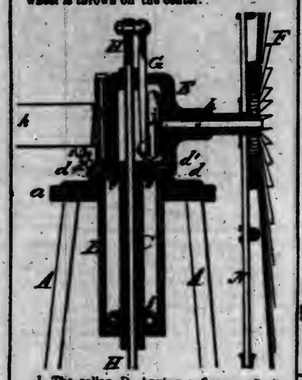
2. A series of levers or equivalent mechanism, connecting the bolt of the chronometric lock and the bolt of the guarded lock, for securing simultaneous and corresponding locking and unlocking motions in both bolts, as and for the purposes specified.

178,878.



178,878. Wind-Motors. Geo. S. Strong, Springfield, Ohio, assignor of one-half his right to Jas. Clark. [Filed Oct. 2, 1875.]

Brief.—Below the anti-friction collar there is an anti-friction turn-table, which turns on the bottom of a suspended cup or cap, for the purpose of giving steadiness to the mill. There is also a means provided for holding the wheel to the wind by means of a spiral spring arranged inside of the tubes, which telescope, the power of resistance of which spring will increase as the vane is moved around toward the wheel, thereby compensating for the increase of leverage which takes place as the wheel is thrown off the center.



1. The collar D, having a flange, *d'*, in combination with cup B, provided with flange *d*, turn-table *f*, balls *s s*, substantially as described, and for the purpose set forth.

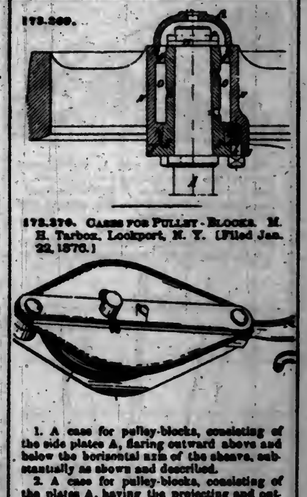
2. The spring *p*, incased substantially as described, in combination with the pivoted rudder-vane and the cup D, as set forth.

178,879. Car-Wheels. Sebastian Stutz, Pittsburg, Pa. [Filed Sept. 11, 1875.]

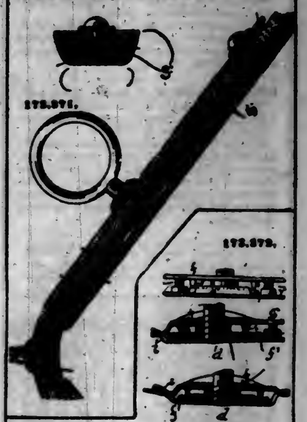
1. The combination, with the hub H, having chamber O and oil-passages *p* in its front inner bearing A, and the oil-holding cap A', of the box S, having the perforations *n*, all as shown and described, whereby the lubricant has free circulation around said box and access to the journal, as specified.

2. The combination, with the hub H, of the journal-box S, having radial flanges *f*, and the screw-bolts b, as shown and described, for the purpose specified.

178,880.



178,879.



178,880. Cases for Pulley-Blocks. M. H. Tarbox, Lockport, N. Y. [Filed Jan. 22, 1876.]

1. A case for pulley-blocks, consisting of the side plates A, flaring outward above and below the horizontal axis of the sheave, substantially as shown and described.

2. A case for pulley-blocks, consisting of the plates A, having the projecting and outwardly-flaring edges *a* and the side bars B, with a swivel at one end and a hook at the other end, substantially as shown and described.

178,881. Coach-Pads. Andw. Tess, Newark, N. J. [Filed Oct. 19, 1875.]

The sockets *a a*, in combination with the inner leather *g* and nuts *e e*, substantially as and for the purposes set forth.

178,881.

178,882.

178,882. Harness. Noble Tess, Newark, N. J. [Filed Nov. 16, 1875.]

1. A nut-box for harness-pads, composed of two adjustable plates, *f f*, constructed and operating substantially as and for the purposes set forth.

2. In a nut-box, plate *f* or *f'*, with hook *h* and loop *i*, substantially as set forth.

3. In a nut-box, separable plate *f* or *f'*, with ribs *o* or *o'*, substantially as set forth.

4. In a nut-box, plate *f*, with teeth *s s*, substantially as set forth.

5. In a nut-box, plate *f'*, with an opening in the center, substantially as set forth.

6. In a nut-box, plate *f'*, with knob *v*, substantially as set forth.

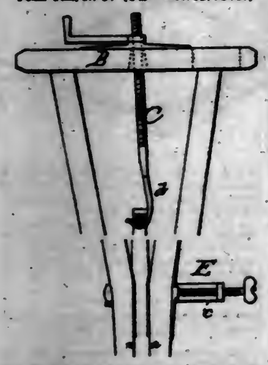
178,883. Composing-Sticks. William H. Thomas, Cincinnati, Ohio. [Filed Jan. 10, 1876.]

178,273.



The combination of cone A, clamp C, and tube B, the latter having two type-faces, b, and two locknut faces, b^1 b^2, for the fastening-clamp, substantially in the manner and for the purpose specified.

178,274. TIRE-TIGHTENERS. J. W. Thayer, Penn Yan, N. Y. (Filed Dec. 18, 1875.)

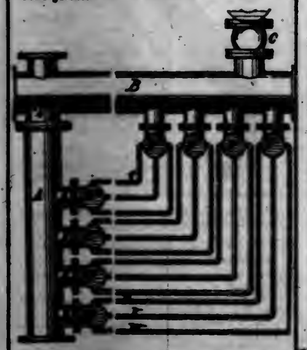


1. In combination with the clamp E, the fixed standard A, and the detachable standard A^1, substantially as specified.

2. The standards A A^1, clamp E, bar B, tightening-hook C, and crank-rod, combined and arranged substantially as and for the purposes set forth.

178,275. SECTIONAL BOILERS. Erastus M. Tucker, Fletcher C. H., Va., assignor of one-half his right to Geo. Tucker, Washington, D. C. (Filed Nov. 9, 1875.)

Brief.—Water-circulating tubes communicate with a series of T-pipes secured to the steam and water drums. This construction allows of the complete circulation of water and ready detachment of parts; also, the tubes can expand and contract without injury to their joints.

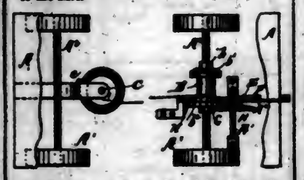


1. The combination of the vertical boiler-pipe A, horizontal steam-chest B, and series of cross-pipes E E' F F', &c., connected by the bending pipes a a a, arranged substantially as and for the purposes set forth.

2. A steam-generator made up of different sections, each composed of the parts A B C E F a a a, said sections being connected by a common steam-pipe, D, substantially as described, for the purposes specified.

178,276. CAR-STARTERS. John James Van Horn, Allendale, N. J., assignor of one-half his right to John B. Lydecker, same place; and said Van Horn and Lydecker assignors of one-third their right to W. R. Ramsey, Ramsey's, N. J. (Filed Oct. 26, 1875.)

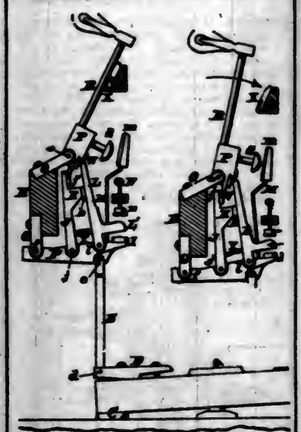
Brief.—The power is communicated through the drums to the spring, whence, in starting, it passes through the drums and gear-wheels to the axle.



1. The axle A^1, drums B and C, spring C, cord D, and pawl b^1, combined and arranged substantially as and for the purpose set forth.

2. The operating mechanism consisting of the wheels G H H^1 I K, ratchet b^1, and levers E, J, and M, arranged and operated as and for the purpose set forth.

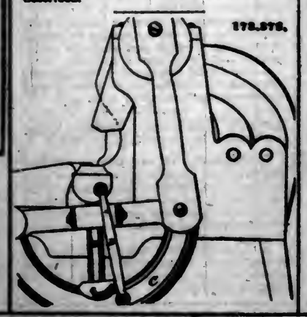
178,277. UPRIGHT-PIANO ACTIONS. Wm. T. Waite, Kansas City, Mo., assignor of two-thirds his right to G. H. Conover and Jos. F. Conover, same place. (Filed Nov. 11, 1875.)



1. In combination with the vertically-vibrating arm F J I, actuated by the key E, substantially as described, the repeating-lever J j^1, jack L, knuckle P W V, and the spring Y, as and for the purpose specified.

2. In combination with the butt-block O e and knuckle P p^1, I claim the heel spring U, all constructed and arranged for restoring the action to its normal position, substantially as described.

178,278.

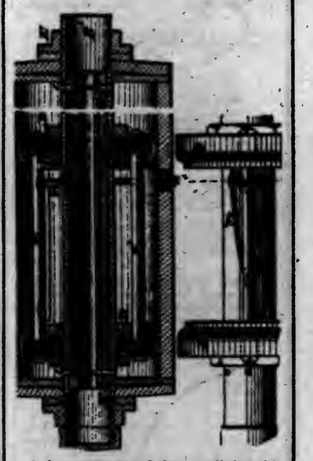


178,279. MACHINES FOR MAKING TACKS. Chas. P. Weaver, Morristown, Pa. (Filed Oct. 27, 1875.)

The combination, with a bender-lever pivoted in front, of pivoted strap E, arc-bar C, having slotted chord C', and the pin D, fitting loosely in sockets a a, and passing through middle of arc-bar, all constructed and arranged substantially as and for the purpose specified.

178,279. WATER-METERS. Porter Wells, Lynn, Mass. (Filed Jan. 31, 1870.)

Brief.—At each end of the stroke of the double pistons, an arm on the valve is forced by one of the diagonal springs through a notch in the connecting-rod, reversing the valve.



1. In a water-meter I claim a cylinder with central pipe, in which the water stands under pressure, a rotating balanced valve inside of said pipe, and two connected pistons sliding back and forth on the pipe, all substantially as and for the purposes herein set forth.

2. The combination of the central water-pipe B with ports a a, and the tubular balanced valve G, provided with arm h and rod collars or sleeves H H, having ports b and d, all substantially as and for the purposes herein set forth.

3. The combination, with the central water-pipe B and valve G, with arm A, of the pistons D D, connecting-rod c, with notches e e, and the springs m m, substantially as and for the purposes herein set forth.

178,280. GRAIN-DRILLS. Lyman Wright and O. G. Bwings, Whitewater, Wis. (Filed June 26, 1875.)

Brief.—To the bottom of the hopper is secured an auxiliary bowl, having a curved bottom, onto which the seed falls, and over which an arm bifurcated at its ends oscillates, to sweep off the seed into a receiver.



1. In a seeding-machine, having a seed-box and an auxiliary seed-receptacle, we claim the oscillating seed-discharging instrument, substantially as and for the purposes set forth.

2. In a seeding-machine, we claim the auxiliary bowl B, having the seed-passages under the plates m, and up over the edges e e, with the surrounding receiver r, adapted to receive the seed and guide it to the end of the drill-tubes, substantially as and for the purposes set forth.

178,281. PHOTO-CHEMICAL PRINTING. W. Wilde, Jr., Birmingham, England. (Filed Nov. 20, 1875.)

In the process of producing on suitable surfaces photographic pictures in platinum, iridium, and other metals, the application of solutions of ammonia, caustic, or other suitable oxalate to such surfaces after they have been exposed to light under a negative or other suitable object, and which surfaces have been coated, previous to their exposure to light, with ferric and other salt or salts, one of which must be the salt of the metal in which the picture is to be produced, substantially as described.

178,282. HARVESTERS. Henry D. Willard, Vacaville, Cal. (Filed Oct. 20, 1875.)

The supplemental cutter-bar supporter B, hinged to the frame A, in combination with the crank-shaft H, links G and J, and the tongue C, substantially as and for the purpose herein described.

178,283. FAN ATTACHMENTS TO CARS. J. S. Williams, Riverton, N. J. (Filed Dec. 1, 1875.)

1. The car-fans B, supporting and alternately rising and falling, substantially as and for the purpose set forth.

2. The supporting fans B, in combination with the connecting-rod D, cranks c, and pitman or operating shaft O, substantially as and for the purpose set forth.

178,284.

178,284. FRICTION-CLUTCHES. Ralph R. Osgood, Troy, N. Y. (Filed Dec. 3, 1875.)

Brief.—The steam operates by direct pressure contact on the clutching-plate. Loose plates are interposed between the friction pulley or drum and the driving gear-wheel, to prevent undue binding and heating of the parts.

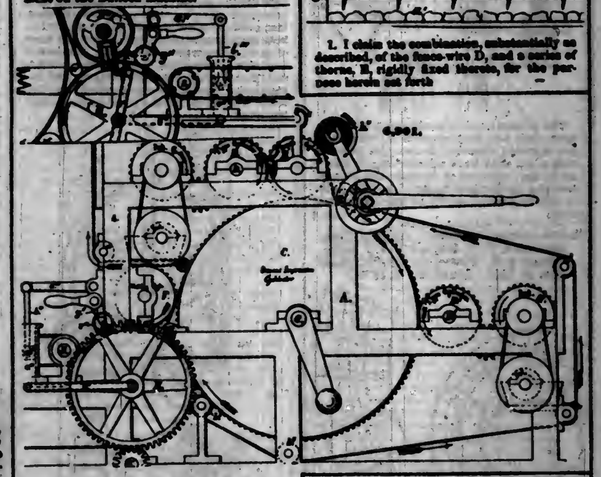
1. A friction-clutch, having a clutching plate or disk arranged in a steam, air, gas, or fluid chamber, moved and made to produce the clutching operation by the direct contact with it of the motive agent employed within the chamber, substantially as described.

2. Loose plates a, interposed between the wearing-surfaces of friction-clutches, for the purpose of overcoming the effect of heat induced by friction during the operation of the drum in its backward movement, substantially as described.

REISSUES.

4,991. PRINTING-PRESSES. John W. Kellberg, Philadelphia, Pa., assignor, by mesne assignments, of one-half interest to the Bullock Printing-Press Company, same place. Patent No. 110,244, dated Dec. 20, 1870. (Filed July 10, 1873.)

Brief.—A web-perfecting press; an improvement on the Bullock machine.



4,991.

1. The combination of the first impression-cylinder B, the first type-cylinder D, the second type-cylinder D', the second impression-cylinder C, and the female cutting-cylinder E, by which the paper is guided and conveyed, by the rolling contact of their convex surfaces, without the aid of tapes, belts, grippers, or bridges, from the supply-roll to the cutting-cylinders, substantially as described and set forth.

2. The combination of the two sets of pulleys a^1 a^2 a^3 a^4 and b^1 b^2 b^3 b^4, provided with their respective tapes, and the cylinders B, D, D', C, and E, adapted to guide and convey the web from the supply-roll to the cutting-cylinders, substantially as described.

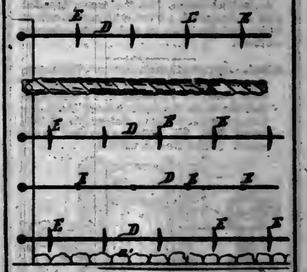
3. The first impression-cylinder B, in combination with spool b^4, mounted in its pivoted frame, and bearing the roll of paper in contact with the first impression-cylinder B, substantially as and for the purpose described.

4. The slit-blast, in combination with the female cutting-cylinder E, provided with its interior pipes and their two series of openings or nozzles, by which the rear end of the sheet is blown out of the way of the grippers, substantially as shown and described.

5. The combination, with the female cutting-cylinder E, of the two delivery apparatuses F E and F^1 D^1, one moving with greater speed than the other, and so arranged, with respect to each other, as to deliver alternate sheets, substantially as described, for the purpose set forth.

6. The combination of the circular serrated knife c^{10}, mounted as shown and described, and the grooved female cutting-cylinder E, together adapted to split the sheets as fast as they are severed from the roll, the paper itself imparting motion to the knife, substantially as shown and described.

4,992. WIRE FENCES. Michael Kelly, New York, N. Y., assignor, by mesne assignments, to William T. Calkins. Patent No. 74,279, dated Feb. 11, 1868. (Filed Apr. 2, 1875.)



1. I claim the combination, substantially as described, of the fence-wire D, and a series of thorns, E, rigidly fixed thereon, for the purpose herein set forth

2. I claim a wire, D, and a series of fixed thorns thereon, in combination with supporting-posts C, substantially as and for the purpose set forth.

3. I claim the within-described fence, formed by the combination of the theory parts D and E with suitable posts C, and with the addition of the large rope G, adapted for joint operation, as and for the purpose herein specified.

4. I claim the combination, substantially as described, of two wires, D D', twisted together, and a series of thorns, E, strung upon one of said wires, and held in position by them, as and for the purpose set forth.

4,993. MOLDS FOR MAKING BOTTLES. John L. Mason, New York, N. Y., assignor, by mesne assignments, to the Consolidated Fruit-Jar Company, same place. Patent No. 22,130, dated Nov. 23, 1858; extended seven years. (Filed Dec. 6, 1875.)



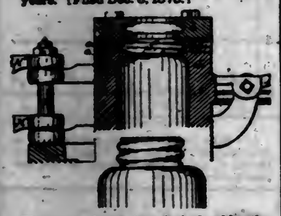
1. The combination of the groove of the mold with vents or air-passages to permit the air to escape, substantially as and for the purpose set forth.

2. A blow-over constructed in sections, and arranged to operate in connection with the body of the mold, substantially as described.

3. In combination with the screw-threaded neck of the mold, a rim or flange arranged above the upper end of the thread, between it and the chamber or swell which forms the blow-over, and operating substantially as and for the purpose set forth.

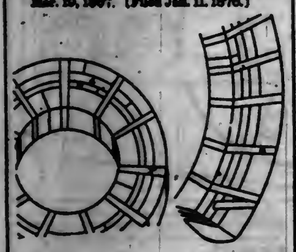
4. In combination with the screw-threaded neck of the mold, a blow-over contracted at its top, substantially as and for the purpose set forth.

6,904. ART OF MAKING SCREW-THREADED GLASS JARS, BOTTLES, &c. John L. Mason, New York, N. Y., assignor, by mesne assignments, to the Consolidated Fruit-Jar Company, same place. Patent No. 22,120, dated Nov. 23, 1858; extended seven years. [Filed Dec. 8, 1875.]



The process herein described of making the screw-neck jars, which consists in forming the jars in molds, reserving the surplus glass on such a line as to leave a narrow rim or space above the upper end of the screw-thread, and finishing up the lip or upper edge of the neck by grinding, substantially as hereinbefore set forth.

6,905. PISTON-PACKINGS. Jas. F. McLean, New York, N. Y., assignor to A. O. Bourn, Bristol, R. I. Patent No. 62,071, dated Mar. 19, 1867. [Filed Jan. 11, 1876.]



1. The combination, in a packing for pistons, rods, &c., of two elastic bodies or substances, one of which is an absorbent, and is arranged to engage in packing-contact with a cylinder or rod, and the other is arranged to operate as a follower for forcing the absorbent body against a cylinder or rod, substantially as described.

2. The combination, with two or more layers of a compressible and absorbent material, of an elastic rubber follower, substantially as described.

3. Packing composed of a body of cork for contact with a cylinder or rod, and of a body of rubber arranged to operate as an elastic follower for the cork, and of metallic strips for uniting the two bodies, substantially as described.

6,906. CORN-PLANTERS. Wm. F. Osgood, Lowell, Mass., assignor, by mesne assignments, to F. B. Hunt & Co., Richmond, Ind. Patent No. 41,963, dated Jan. 12, 1864. [Filed Oct. 12, 1875.]

1. The bar F, in combination with the spring f, slide E, and wheel C, provided with rollers d, substantially as set forth.

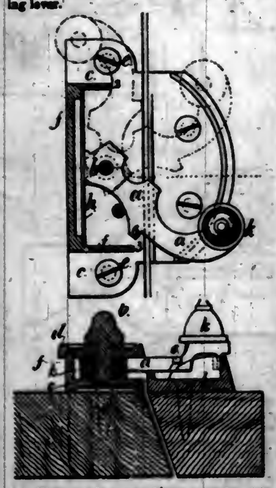
2. I claim a colter or finder, in combination with a grain-tube and pilot-wheel, substantially as set forth.

3. I claim the combination, in a seed-drill, of a seed-tube, a colter, and the pilot-wheel having its axis on a line, or nearly on a line, with the point where the colter is connected to the frame, substantially as described, for the purpose specified.

4. In a single-tooth corn-planter, I claim the above-described colter, for the threefold purpose of cutting through obstructions carrying the furrow-opener and protecting the grain-tube, substantially as described.

6,907. FASTENING FOR THE MEETING-RAILS OF SASHES. Morton Judd, Wallingford, Conn. Patent No. 139,500, dated June 17, 1873. [Filed Jan. 24, 1876.]

Brief.—A swinging lever is made with suitable projection and notch, to guard against being moved by a knife or thin instrument inserted between the meshes. The lever curves backwardly, its curved end terminating in a hook, and swinging back within the recessed box, containing the pivot of the lever, and is held against an edge of the box, entirely clear of the meeting-rails of the sashes. The box is cast upon a base-plate, in combination with a suitable cap-plate, the whole being secured together and attached by a single rivet or screw, which likewise serves as a pivot for the swinging lever.

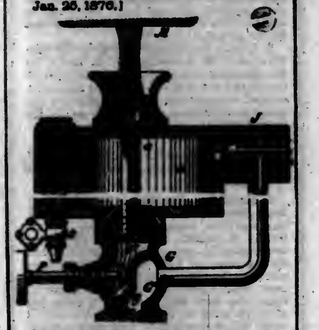


1. The sash-fastening lever *a*, made with the projection *b* at one side, substantially as and for the purposes set forth.

2. The lever *a*, with the end thereof curved backwardly, and having the hook *b*, in combination with the box containing the pivot of the lever, and against the edge *i* of which box the lever *a* swings when turned back, as and for the purposes set forth.

3. The box *f*, cast upon the plate *e*, in combination with the cap-plate *f* and rivet or screw *b* that secures said cap-plate, and forms a pivot for the lever *a*, as set forth.

6,908. LUBRICATORS. Charles H. Fernhall, Detroit, Mich., assignor, by mesne assignments, to himself and John R. Grout, same place. Patent No. 170,296, dated Nov. 23, 1875. [Filed Jan. 26, 1876.]

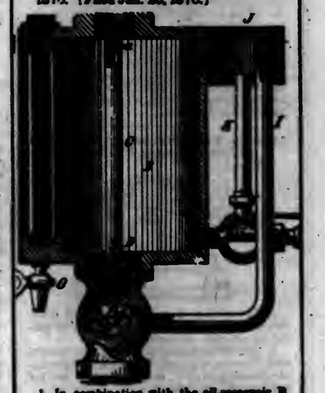


1. In combination with the stem A, constructed with partitioned bulb G G' G² and hand-valve *o* P, the steam-pipe I, open at top, and provided with opening *b*, connecting, through pipe I, the steam-inlet A with the inside of condensing-chamber J, situated at the top and outside of oil-reservoir B, as and for the purposes described.

2. In combination with the stem A G, reservoir B, and steam-pipe I, communicating from stem A G to top of condenser J, the condensing-chamber J, provided with hand-valve L, placed at the outside top portion of reservoir B, and communicating therewith at the top edge through opening *d*, as and for the purposes described.

3. The improved lubricator, consisting of reservoir B, oil-pipe O *o*, stem A, constructed with partitioned chambers G G' G², steam-pipe I *b*, communicating from stem A G to top inside of condensing-chamber J, which is placed at top outside of reservoir, communicating therewith by opening *d*, and provided with valve L, all constructed and arranged as and for the purposes described.

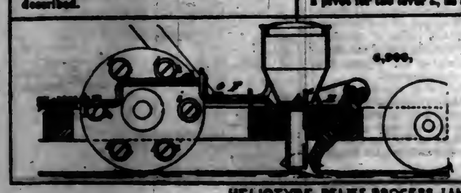
6,909. LUBRICATORS. Charles H. Fernhall, Detroit, Mich., assignor, by mesne assignments, to himself and John R. Grout, same place. Patent No. 170,297, dated Nov. 23, 1875. [Filed Jan. 26, 1876.]



1. In combination with the oil-reservoir B and stem A, the separate condensing-chamber J, placed upon the outside of the reservoir, at the top edge thereof, and communicating with stem A through steam-pipe I, and with the bottom of reservoir B through steam-pipe K, as and for the purposes described.

2. In combination with the condenser J and stem A, the steam-pipe I, open at both ends, provided with discharge-opening *b* below the upper end thereof, and connecting from chamber H in stem A to condenser J, as and for the purposes described.

3. In combination with the reservoir B and



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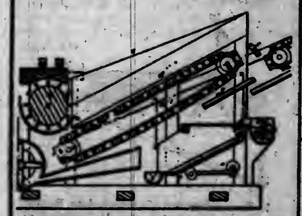
separate condensing-chamber J, placed at the outside top portion thereof, the water-pipe K, with hand-valve L, communicating from bottom of condenser to bottom of reservoir, as and for the purposes described.

4. In combination with the reservoir B and pipe O, closed at top, and provided with opening *a* and stem A, with an enlarged or bulbed upper portion, constructed with chambers F E, partition G, and automatic valve E, as and for the purposes described.

5. In combination with the stem A, constructed with chambers F E, partition G, and automatic valve E, the guide-block D, screwed down into the stem A, and tube C secured thereto, as and for the purposes described.

6. The improved lubricator, consisting of reservoir B, stem A, oil-tube C, closed at top and provided with opening *a*, condensing-chamber J, placed at the outside top portion of reservoir, steam-pipe I, open at top and communicating from stem A to top of condenser, and water-pipe K, with hand-valve L, communicating from bottom of condenser to bottom of reservoir, as and for the purposes described.

6,910. TELEGRAPH-MACHINES. W. P. Penn, Belleville, Ill. Patent No. 32,562, dated June 18, 1861. [Filed June 20, 1874.]



1. The tailings thrasher and riddle-shoe in combination, when all are arranged as shown and described.

2. The combination of the blast-fan, the longitudinally-vibrating riddle-shoe, the stationary trough, and the tailings-thrashing cylinder, for the purpose stated.

3. The combination of the concave *b* with the screw-bolts and springs *c*, for the purpose described.

6,911. OVERT-COUPS. Cyrus W. Shinden, Putnam, Ohio, assignor to Hotchkiss Bros., Bridgeport, Conn. Patent No. 46,940, dated Dec. 27, 1864; reissue No. 1,854, dated Jan. 24, 1865; reissue No. 6,702, dated Dec. 7, 1875. [Filed Jan. 22, 1876.]

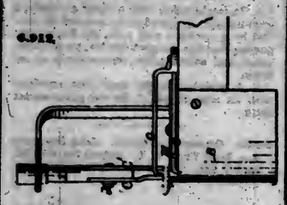
Brief.—The handle is formed of two bars raised above the back of the comb, parallel to and at the side of the extreme tooth-bars, and secured to the end pieces, to which the tooth-bars are fastened.



1. A carry-comb, provided with a grasping device or handle above its back, consisting of raised indentible bars, rigidly secured to the comb, and terminating in separate points of contact therewith, which said bars also serve as braces for strengthening the comb, substantially as specified.

2. The channeled plates C, provided with carrying-teeth on their edges, and connected by said cross-bars, in combination with the braiding-bars A A, substantially as described.

6,912. MECHANISM FOR ROOF AND SIDE RIPPING MACHINES. Francis D. Sullivan, Abington, Mass., assignor, by mesne assignments, to F. F. Raymond, 2d, trustee. Patent No. 94,000, dated Aug. 24, 1869; reissue No. 3,002, dated Mar. 21, 1868. [Filed Aug. 30, 1875.]



1. The combination of a guide or guard, substantially as described, with an opener for opening the channel for the action of the needle, substantially as set forth.

2. The projecting perpendicular plate B, with exterior work-support *a*, substantially as and for the purpose described.

3. In a wax-thread sewing-machine, the combination, with the presser-bar D, of the guarding and gaging presser-foot C, arranged with relation to the needle-thread, as described, whereby said presser-foot performs the triple function of holding the work firmly to the bed while the stitch is formed, of guiding the work to the action of the stitch mechanism, and of protecting the upper from perforation by the stitching mechanism, substantially as set forth.

4. In a sewing-machine for sewing the margin of shoe-soles outside the upper, the combination, with the supporting-plate A, of the exterior work-support *a* and plate B, whereby a narrow throat is formed near the edge of the machine for the operation of the stitching mechanism, substantially as set forth.

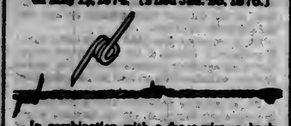
5. In a sewing-machine for stitching shoe-soles outside the uppers, the supporting-plate A, shaped and formed as described, whereby a short and narrow support for the work is formed in close proximity to the needle-thread, for the purpose set forth.

6. In a wax-thread sewing-machine, containing a sewing and feeding mechanism, working in a throat in the table-plate, the combination of a short and narrow exterior work-support *a*, located close to the needle-thread, with the table-plate A formed and shaped in the neighborhood of the needle-thread, as described, for the purposes set forth.

7. The combination of the exterior work-support *a*, with the foot-piece C, arranged essentially as described, and for the purpose set forth.

8. In a wax-thread sewing-machine, the combination of the narrow and short exterior work-support, with an upright guarding and guiding surface adjacent thereto, and with a channel-spacer, all arranged in relation to each other, substantially as described.

6,913. RAISED FENCE-WIRE. Jos. F. Glidden, De Kalb, Ill. Patent No. 150,083, dated May 19, 1874. [Filed Jan. 26, 1876.]



In combination with a fence-wire, a barb formed of a short piece of pointed wire, secured in place upon the fence-wire by coiling between its ends, forming two projecting points, substantially as specified.

6,914. RAISED FENCE-WIRE. Jos. F. Glidden, De Kalb, Ill. Patent No. 150,082, dated May 12, 1874. [Filed Jan. 26, 1876.]



In combination with a fence-wire, a barb formed of two short pieces of pointed wire, secured in place upon the fence-wire by coiling between their ends, which are extended in reverse line points in different directions, substantially as specified.

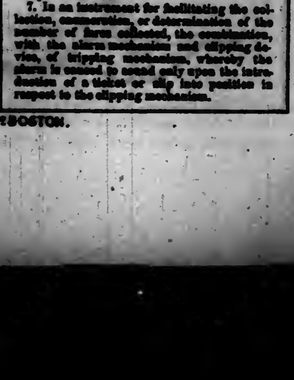
6,915. CAR-VENTILATORS. Archd Hance, New York, N. Y. Patent No. 168,697, dated Oct. 19, 1875. [Filed Jan. 11, 1876.]

Brief.—The valves are simultaneously operated by a segmental-rack attached to the bar connecting them.

1. The combination of the strip or bar E with a series of valves, C, swinging on pivots between posts D, and with the roof of a car, substantially as set forth.

2. In a car ventilator, the valves C, swinging on pivots between posts D, and the strip or bar E, attached to said valves, in combination with the screwed bars F, and with the car roof A, all constructed and operating substantially as shown and described.

6,916. ALARM AND FARE-REGISTERING MECHANISMS. Isaac Hyde, Oakland, Cal., assignor to W. F. Browne, New York city. Patent No. 108,459, dated July 19, 1870. [Filed Feb. 3, 1876.]



1. In an alarm-instrument for facilitating the collection of fares, the combination, with the body or barrel of the instrument, of a shell, shield, guard, or protecting-cover to the alarm-bell fastened within such cover or shell, and separated from the body or barrel by a division-plate or diaphragm, substantially as described and set forth.

2. In an alarm-instrument for the above purposes, the combination, with the body or barrel of the instrument, and separated from the same by a division-plate or diaphragm, of a ball-guard or shield, having a general exterior surface of a conoidal, convex, or bulging form, as shown, all substantially as set forth.

3. In an alarm-instrument for the above purposes, the combination, with an alarm-ball, of a suitable shield, guard, cap, or cover, corresponding in form to the exterior shape of the ball, with a division-plate between the ball and the interior of the body or barrel of the instrument, substantially as set forth.

4. In an instrument for facilitating the collection of fares, the combination, with the hollow body or barrel, of a separate other chamber, the former being used for clippings or tickets, and the latter for containing alarm mechanism, substantially as set forth.

5. In an instrument for the above-named purposes, the combination, with an alarm-ball, of a shield, guard, cap, or protecting-cover, arranged over said alarm-ball, and fixed at the outer end of the instrument, as shown, all substantially as set forth.

6. In an instrument for facilitating the collection, enumeration, or determination of the number of fares collected, the combination of a perforated guard, shield, or cover, an alarm-ball or gong, to which the perforated cover is adapted in form, and the body or barrel of the instrument, from which it is separated by a diaphragm or partition-plate, substantially as set forth.

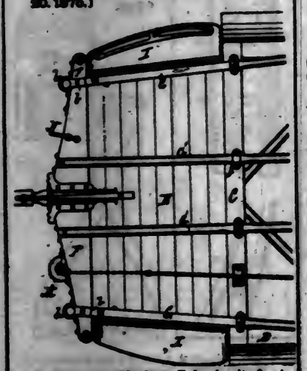
7. In an instrument for facilitating the collection, enumeration, or determination of the number of fares collected, the combination, with the alarm mechanism and clipping device, of stripping mechanism, whereby the alarm is caused to sound only upon the introduction of a ticket or slip into position in respect to the clipping mechanism.

8. The combination of the alternating figure e and f and the rocking shaft d with the arm F, substantially as and for the purpose herein described.

9. In an instrument for registering fares and tickets, the combination, with the registering mechanism and the alarm mechanism, of means for controlling the alarm mechanism, so that the alarm can be sounded only when a fare or ticket is registered.

10. In an instrument designed to be carried in the hand, for railroad or conductor's use in collecting fares or tickets, in combination with the alarm and registering mechanism, a shield, with or without perforations, substantially as and for the purposes described.

6,917. STREET-CAR PLATFORMS. John Stephenson, New York, N. Y. Patent No. 97,120, dated Feb. 23, 1869. [Filed Aug. 20, 1876.]



1. A street-car platform, B, having its front and rear edges parallel, or nearly so, while its sides diverge from front to rear, as and for the purposes set forth.

2. In combination with the platform and body of a street-car, bumpers or supports G G, arranged to converge from rear to front, substantially as and for the purposes set forth.

3. The combination of a step, I, with the inner piece F and platform of a street-car, in which the outer bumpers G G of the latter run obliquely to the line of the length of the car, substantially as and for the purposes set forth.

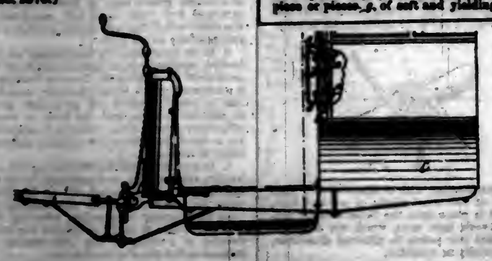
4. A street-car platform in which the ends of its inner pieces are made to project sufficiently far beyond its edge to prevent the front end of the steps from contact by passing vehicles, in combination with steps I, having a rearwardly sliding outer edge, substantially as set forth.

5. Steps e, in combination with inner piece F and platform B, substantially as and for the purposes set forth.

6. Knee braces or steps c, in combination with a inner piece and platform, constructed substantially as and for the purposes set forth.

7. A fender or guard, K, construction, arrangement, and general substantially as described, in combination with the dash-board K and brake-rod M, for the purposes set forth.

6,918. STREET-CAR GRAB-HANDLES. John Stephenson, New York, N. Y. Patent No. 97,120, dated Feb. 23, 1869. [Filed Aug. 20, 1876.]



1. In combination with a street-car body, a grab-handle and panel-plate, secured in position by screw-bolts and nuts, the screw-bolts passing through the grab-handle, panel-plate, panel, and corner pillar, substantially as set forth.

2. A grab-handle for street-cars, provided with an arm or rail, f, for the purposes set forth.

6,919. STREET-CAR STEPS. John Stephenson, New York, N. Y. Patent No. 97,120, dated Feb. 23, 1869. [Filed Aug. 20, 1876.]



1. A car-step having a raised flange, c, at its rear, substantially as and for the purposes set forth.

2. A car-step having a downwardly-projecting flange, d, at its front, substantially as and for the purposes set forth.

3. A car-step having a raised flange, c, at its rear edge, and with a downwardly-projecting flange, d, at its front, substantially as and for the purposes set forth.

4. A sheet-metal car-step provided with upwardly-projecting spurs, struck up or otherwise formed so that the lower and upper surfaces of the step correspond, substantially as set forth.

5. A car-step provided with upwardly-projecting strips of soft material, but without raised mortises or flanges for inclosing the same, substantially as set forth.

6. A car-step having its upper surface or tread roughened by spurs or short projections e, combined with an independent projecting piece or pieces, g, of soft and yielding material, in the manner and for the purposes set forth.

7. A car-step having its upper surface provided with projecting strips or pieces g, of soft and yielding material, said strips or pieces g being secured to the steps by means of openings f, and a metal plate or plates, n, provided with projections n, in the manner and for the purposes substantially as described.

8. A car-step provided with a raised flange, c, on its rear edge, and with spurs or projections e on its upper surface, substantially as and for the purposes described.

9. A car-step provided with a raised flange, c, on its rear edge, and with a projecting piece or pieces, g, of soft and yielding material on its upper surface, in the manner substantially as and for the purposes set forth.

10. A car-step provided with a raised flange, c, on its rear edge, and with spurs or projections e, and a projecting piece or pieces, g, of soft and yielding material on its upper surface, in the manner substantially as and for the purposes set forth.

11. A car-step provided with a downwardly-projecting flange, d, on its forward edge, and with spurs or projections e on its upper surface, substantially as and for the purposes set forth.

12. A car-step provided with a downwardly-projecting flange, d, on its forward edge, and with a projecting piece or pieces, g, of soft and yielding material on its upper surface, in the manner and for the purposes set forth.

13. A car-step having its upper surface provided with projecting strips or pieces g, of soft and yielding material, said strips or pieces g being secured to the steps by means of openings f, and a metal plate or plates, n, provided with projections n, in the manner and for the purposes substantially as described.

14. A car-step provided with a raised flange, c, in rear, and a downwardly-projecting flange, d, in front, and with spurs or projections e on its upper surface, in the manner and for the purposes set forth.

15. A car-step provided with a raised flange, c, in rear, and a downwardly-projecting flange, d, in front, and with a piece or pieces, g, of soft and yielding material on its upper surface, in the manner and for the purposes set forth.

16. A car-step provided with a raised flange, c, in rear, and a downwardly-projecting flange, d, in front, and with spurs or projections e, and a piece or pieces, g, of soft and yielding material, in the manner and for the purposes set forth.

17. A car-step having or widening outwardly from front to rear, in the manner and for the purposes substantially as set forth.

18. A car-step in which the tread a and arms b, by which it is suspended from, and secured to, the car, are formed in one piece, substantially as set forth.

6,920. STREET-CAR DRAW-BARS. John Stephenson, New York, N. Y. Patent No. 97,120, dated Feb. 23, 1869. [Filed Aug. 20, 1876.]



1. The combination of a shield-plate, B, with the draw-head socket A and dash-apron C of a street car, substantially as and for the purpose set forth.

2. A draw-head socket, A, and shield-plate B, formed in one piece, substantially as set forth.

3. In a street-car, a sliding draw-bar, constructed at its forward end with a forked coupling-piece, c, in combination with a socket, A, and spring b, whereby the draw-bar is allowed to yield to the sudden strain of the bevil on starting, substantially as and for the purpose set forth.

4. In a street-car, the combination of a sliding draw-bar, D, and its socket A, with a system of springs, b b, and washers or stops f, substantially as set forth.

5. A draw-bar, provided at its front end with a flexible pendent limb or post, b, for the purpose set forth.

6. The combination of a sliding draw-bar, provided at its front end with a pendent limb or post, b, with a draw-head pocket, substantially as set forth.

7. The combination of a sliding draw-bar, provided at its front end with a pendent limb or post, with a brace, m, or stay, as arranged as to connect at one end with the lower end of the latter, and at the other with the lower end of the draw-bar, substantially as and for the purposes set forth.

8. The combination of a stay or brace, m, provided with a slide-eye, n, with a sliding draw-bar, in the manner and for the purposes substantially as set forth.

9. A draw-head for a street-car, composed of the following instrumentalities, to wit: a stationary casket, A, slide draw-bar D, spring b, washers f f, and brace-rod m, substantially as and for the purposes set forth.

10. A draw-head for a street-car, composed of the following instrumentalities, to wit: a stationary casket, A, a slide draw-bar, D, provided with a pendent post, b, springs b b, and washers f f, and brace-rod m, provided with a foot, n, the whole operating in the manner substantially as and for the purposes set forth.

11. The combination of a street-car pole, provided with a coupling, r, and supporting-bracket p, with a sliding draw-bar, D, supporting-stay m, having a foot, n, substantially as set forth.

12. The combination of a street-car pole, provided with a coupling, r, and supporting-bracket p, with a sliding draw-bar, D, provided at its forward end with a pendent limb or post, b, and at its rear with a stay, m, substantially as set forth.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

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OF THE

United States Patent Office.

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NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

COMMISSIONER'S DECISIONS.

J. MCCLOSKEY.—*Appeal.*

[*Appeal from the Board of Examiners-in-Chief in the matter of the application of John McCloskey for a patent for* "BELT-GEARING." *Decided December* 31, 1875.]

An English patent held to be a sufficient anticipation of an application where the description of the invention was sufficiently full, in view of the state of the art, to enable a skilled mechanic to construct the same.

DUELL, *Commissioner:*

Applicant's claim is as follows:

The endless flexible metallic belt A formed with the system of holes *a*, in combination with the pulley constructed with a series of radial spurs arranged to play into the holes *a* of the aforesaid metallic belt, substantially as herein described, for the purpose specified.

The reference relied upon both by the Examiner and the Examiners-in-Chief as a full anticipation of the matter of this claim is English Patent No. 2,568 of 1869, granted to William Winter, for "Improved Metallic Driving-Belts."

I agree with both tribunals as to the sufficiency of this reference.

Winter's description of his invention (so far as the metallic belt is concerned, for he also claims the means of making it) is as follows:

This improved metallic driving-belt consists of a wire or rod of iron, copper, or other suitable metal flattened at intervals of equal distances apart sufficiently to be elastic when annealed, portions of the said wire being left prominent, forming teeth or projections thereon to fit into teeth or notches formed in the surfaces of the pulleys to be used in connection therewith for driving or communicating motion to different kinds of machinery; or, instead of projections being formed thereon, perforations may be made in flattened wire to fit projections formed on the pulleys to be used therewith. In the manufacture of such belts or bands I use a pair of hardened steel rollers, the surface of one or both being formed suitably to leave the projections, or to produce the perforations, as may be required. * * * * *

To state the resemblances between the two devices, and the points of law as to the fullness of description necessary in a printed publication to meet and defeat a subsequent application or patent, is simply to summarize the views expressed by the Examiner and the Board.

Both Winter and the applicant allege that the principal use to be made of the metallic flexible band is to drive sewing-machines; but neither confine themselves to such use. The applicant limits himself to one form of the device, while Winter not only embraces that form by his patent, but goes on to describe an alternate form which he prefers. Thus applicant claims the projections on the periphery of the wheel alone, while Winter mentions that mode, but appears to prefer the projections on the belt.

Applicant in his argument sets forth many disadvantages of Winter's form last mentioned. Admitting the fact of such disadvantages, still Winter has the right to use the other form of the device. Neither confines himself to any particular metal, and both claim advantages for a metallic driving-belt constructed in the manner proposed, in connection with the pulley, not possessed by leather or other flexible belts.

Applicant alleges that Winter's mention of this device is a mere "speculation," but it is quite apparent that Winter's patent covers the matter as fully as this application. Winter claims the "application of such belts or other metallic belts or chains for driving sewing-machines," and describes his means of making them, while applicant describes or claims no means of making the same, but only states at length, and more minutely than Winter, their functions and mode of operation.

Patents and printed publications, whether of this or of a foreign country, are put on the same footing by the statute, so far as the matter of anticipation of an invention is concerned. In order then to defeat a subsequent

application or patent it is only necessary that the prior publication should so describe the invention as to convince those skilled in the art that the same invention is meant, and that its terms are sufficiently clear to enable them to construct and practice it. (*Seymour* vs. *Osborne*, 11 Wall., 516.)

In view of the state of the art, as shown by the well-known sprocket-wheels and chains, no further description than is contained in the English patent is necessary to enable any mechanic acquainted with the art to which these devices appertain to construct and operate them.

No new invention has therefore been made by applicant.

The decision of the Examiners-in-Chief is affirmed.

J. S. MCINTIRE.—*Interlocutory Appeal.*

[*Appeal from the Principal Examiner in the matter of the application of John S. McIntire for letters patent for* "IMPROVED WEATHER-STRIP FOR WINDOWS."—*Decided January* 11, 1876.]

The claim of "the combination of the window-sash and the rubber strip arranged as described" is a proper one, and the decision of the Commissioner in case of Rubens & Co., C. D., 1869, p. 107, does not apply in this case. The only question involved is one of novelty.

DUELL, *Commissioner:*

The wording of the claim objected to is as follows:

1. The combination of the window sash and the rubber strips arranged as described.

The Examiner bases his objection on the case of *Rubens & Co.*, C. D. 1869., p. 107. There, certain parts of a watch were referred to in the claim as affecting the winding mechanism, and applicant urged that another part, a spring, which was essential to the combination he claimed, was embraced by the term "substantially as described." The Commissioner held that the words of the claim "had no application to the stop or spring, and gave no indication that those parts of the watch are to be included in the combination, still less that they were elements whose presence was absolutely necessary to constitute a patentable combination."

That was a very different matter from the claim under consideration. Here, two elements are mentioned as combined, the window sash and the rubber strips. No other features are sought to be covered thereby. As to the manner of their combination we are refered to the specification.

Nothing is ambiguous so far. But the Examiner adds, that "the record already contains a few references, out of many, showing these two elements in combination," and also that there are two forms of the combination set forth in the specification, one of which is well known. All this, then, is a matter of novelty, should be met with proper references, and is a case for appeal to the Board, as in the case of Rubens, relied upon by the Examiner.

It was for the reason, probably, that, because he had two methods in mind, applicant did not wish to extend his claim to undue length by mentioning them both therein.

The claim is all right. The trouble appears to be in the novelty of the combination and the means set forth. One of the two methods of combining the sash and strip to which the Examiner objected was made the subject of a claim which was stricken out by applicant upon the citation of the references.

If applicant has thus agreed to the pertinence of the references, he should also strike out the objectionable matter from the body of the specification, or else disclaim it. This, then, will still farther relieve the first claim from the charge of ambiguity.

The decision of the Examiner is reversed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

ESEK BUSSEY AND CHARLES A. MCLEOD *vs.* JAMES WAGER; ESEK BUSSEY AND CHARLES A. MCLEOD *vs.* HICKS AND WOLFE.

[*In equity.—Before* WALLACE, *J.*]

A new combination, producing new and useful results, and not merely an aggregation of the results, due to the independent action of the several parts, is a patentable invention.

Bussey combined a reservoir in such relation to a top plate and partial back plate that the reservoir performed both the functions of a reservoir and of a partial back plate of a stove—a new result.

Liberal construction should be accorded patents, so as, if possible, to secure to an inventor what is really his invention.

The description and drawings in an original patent may be looked to, to disclose the real invention of a patentee, when the original claims are defective or the reisnu claims obscure.

This was bill in equity filed against the defendants for infringement o reissued Letters Patent, No. 5,435, dated June 3, 1873, granted to complainants for "improvements in reservoir cooking stoves."

[*Esek Cowen* and *George Harding* for complainants.
Samuel A. Duncan and *George Gifford* for defendants.

WALLACE, *J.:*

The pressure of other duties requires me, in the disposition of these causes, to confine myself to such a brief statement of my views on the several questions involved as will suffice to apprise the parties of my conclusions, and enable an appellate court perhaps more readily to detect any error into which I may have fallen.

I. In view of the state of the art prior to Bussey's patent, none of the parts claimed in the patent are new, but Bussey effected a new combination which produced new and useful results, and not merely an aggregation of the results due to the independent action of the several parts. He combined a reservoir in such relation to a top plate, and partial back plate, that the reservoir performed both the functions of a reservoir and of a partial back plate of a stove; and this is the new result and the only one due to the combination.

By the combination the top plate supported a reservoir in place of the portion of the back plate omitted, but in this it performed no other function. In a large number of stoves, and from the earliest constructions, one of the functions of a top plate has been to support water-reservoirs exposed to the heat-passage of the stove. In the Stewart stove it supported a reservoir in the rear of the body of the stove. Neither did the exit-passage by the combination perform any new function. Numerous instances of its use to heat reservoirs have been adduced. In the Stevens construction its relation to the reservoir was precisely the same as in Bussey's.

II. The combination involved invention and produced a beneficial result; that it involves invention follows from what has been above stated. That it produced beneficial results is evidenced by the practical success of the improvement. While obviously, by changing

the form and proportions of a reservoir cooking-stove, thereby making a more attractive article, Bussey made an improvement, in a general sense these changes were not patentable. But the removal or omission of a portion of the back plate, and supplying its place with a reservoir, though it now seems to have been a very simple invention, substantially effected a new organization of the stove, which at once commanded the favor of dealers and manufacturers, has since been very generally adopted, and was, I think, the fundamental idea of the defendants' constructions.

III. The patent is not invalidated by any of the publications, patents, or constructions which preceded it. The stoves of Stephens & Gessenhainer approach more nearly to Bussey's than any other to which reference is made in the proofs. In these stoves the reservoir is constructed in part by the rear plate of the stove. In Bussey's stove, on the contrary, the reservoir is made to supply a part of the back plate which has been omitted. The difference between making a back plate form part of a reservoir, and making a reservoir to form part of a back plate, is not one of words merely, but is such a radical difference, that Stephens found his contrivance repudiated by manufacturers and discarded. Gessenhainer seems to have no existence except in the Patent Office, while Bussey has met the demands of the trade and has evidently been *fully appreciated by the defendants in these actions.*

IV. Several of the claims in the patent cannot be sustained. The first claim is an illustration. Of the top plate of a cooking-stove extended beyond the rear flues thereof, and provided with a boiler, as and for the purpose described, is a claim for that of which Bussey was not the inventor. It is specifically anticipated by the top plate of Stewart. I do not deem it necessary to discuss the other untenable claims.

V. The invention is sufficiently described in the fourth clause of the patent. Fairly interpreted and giving force to the words "as and for the purposes described," it covers the combination due to the location of a reservoir in relation to a partial back plate, so that the front plate of the reservoir will form a portion of the casing of the vertical flues and be directly heated by the products of combustion as they pass up and down the rear flue or flues, thus substituting the front of the reservoir for the portion of the back plate omitted in the construction. This substitution is effected, in part, by inserting the reservoir in an extended top plate. In this connection I am constrained to say that it is only by giving force to the doctrine that a liberal construction should be accorded to patents, so, if possible, to secure to an inventor what is really his invention, that I am able to adjudge any of the claims good. Were it not that the description and drawings in the original patent quite satisfactorily disclose the real invention of Bussey, while the claim therein is defective in statement, I should be strongly inclined to believe that the reissue was framed with such multitudinous and obscurely-worded claims, rather for the purpose of deceiving the public, than for that of securing what was fairly his. I am the more convinced these claims were not framed with a dishonest intent, because they are so inaccurately expressed, that the real invention which it seems might have been stated in very simple terms, can only with difficulty be protected by them.

VI. The Wager construction is an infringement of the fourth claim; the appropriation of the invention is none the less apparent because the reservoir is almost entirely incased in another reservoir connected with the top plate by a mechanical equivalent by the projected top plate of the complainants.

VII. With considerable doubt I have arrived at the conclusion that the Hicks & Wolfe construction is an infringement of the fourth clause of the patent. By the reservoir in their stove the flues are not rendered as near as possible air-tight. There is plausibility in the theory that the flues open into a chamber surrounding the reservoir, and that the reservoir is thereby, to some extent, heated by indirect circulation. Evidently the flues are inclosed sufficiently so that the draft of the stove is not disturbed. And clearly the reservoir is heated by the products of combustion as they pass up and down the rear flues, and in view of the evidence that it has been found expedient to partially incase the flues of the Bussey stove, because the reservoirs are overheated, it is difficult to believe that any purpose is subserved by obtaining an indirect circulation around the boiler, except that of a colorable departure from complainants combination.

VIII. Inasmuch as complainants have filed no disclaimer, and many of the claims in their patents are void, they are not to recover costs.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 15, 1876.]

8,995.—Coffin-Plates.—WILLIAM C. BEATTIE, Taunton, Mass., assignor to REED & BARTON, same place. Application filed January 17, 1876. Term of patent 14 years.

8,996.—Cassimeres.—EDWARD C. CLARK, Rockville, Conn. Application filed January 3, 1876. Term of patent 3½ years.

8,997.—Back Comb.—JULIUS W. FLEISCHMANN, Williamsburg, N. Y. Application filed January 27, 1876. Term of patent 3½ years.

8,998.—Side Windows of Coaches, &c.—JOHN C. GOOLD, Albany, N. Y. Application filed November 19, 1875. Term of patent 7 years.

8,999.—Annunciator-Dials.—CHARLES W. LEWIS, Chicago, Ill. Application filed January 3, 1876. Term of patent 14 years.

9,000.—Centennial Chart-Frame.—MATTHIAS R. LONGACRE, Camden, N. J. Application filed September 17, 1875. Term of patent 7 years.

9,001 and 9,002.—Fan.—JOHN A. LYNCH, Washington, D. C. Applications filed February 1, 1876. Term of patents 3½ years.

9,003.—Curry-Comb Frames.—FRANK B. BRADLEY, Southington, Conn., assignor to THE SOUTHINGTON ETCHET COMPANY, same place. Application filed January 24, 1876. Term of patents 14 years.

9,004.—Badge.—SELAH H. CLARK, Philadelphia, Pa., assignor to ROBBINS, BIDDLE & CO., same place. Application filed January 31, 1876. Term of patent 3½ years.

9,005.—Watch-Charm.—ROBERT B. ESLER, Philadelphia, Pa. Application filed September 29, 1875. Term of patent 7 years.

9,006.—Vase.—MELVILLE D. JONES, Boston, Mass. Application filed January 31, 1876. Term of patent 7 years.

9,007.—Flower-Stands.—RUSSELL R. LEWIS, De Ruyter, N. Y. Application filed February 9, 1876. Term of patent 7 years.

9,008.—Clock-Cases.—HERMANN J. MÜLLER, New York, N. Y. Application filed February 5, 1876. Term of patent 3½ years.

9,009.—Summer-Chariot.—CHAUNCEY M. MURCH, Cincinnati, Ohio. Application filed August 13, 1875. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 15, 1876.]

3,410.—Mineral Oils.—JOHN F. BENTEL, Freedom, Pa. Application filed November 27, 1875.
"word 'OLIVENE.'"

3,411.—Boots and Shoes.—BUCK, HAFLEBOWER & NEER, Baltimore, Md. Application filed January 3, 1876.
"letters and character 'B. H. & N.,' arranged in the form of a monogram, in connection with the word 'MONOGRAM.'"

3,412.—Brown Sheetings.—DALE BROTHERS & CO., New York, N. Y., and Boston, Mass. Application filed November 11, 1875.
"word 'OCCIDENTAL.'"

3,413.—Aerated and Fermented Beverages.—JOHN W. DAY, New York, NAY. Application filed January 3, 1876.
"a bottle with an oval or elliptical neck or filling and discharging orifice."

3,414.—Cigars.—GUSTAV FUCHS, New York, N. Y. Application filed January 12, 1876.
"the representation of three human images, whose faces differ in complection, and represent three different races."

3,415.—Shirts.—JAMES H. PARNTICE, Brooklyn, N. Y. Application filed June 22, 1875.
"words 'Custom made' and the letter 'P,' inclosed by a diamond-shaped border."

3,416.—Cigars.—SIMON SALOMON, New York, N. Y. Application filed December 31, 1875.
"word 'HUNKIDORI.'"

3,417.—Cigars.—SIMON SALOMON, New York, N. Y. Application filed January 11, 1876.
"words 'LIMITED MAIL.'"

3,418.—Sugar and Syrups.—H. K. & F. B. THURBER & CO., New York, N. Y. Application filed November 20, 1875.
"words 'Riverside Refinery,' in connection with a design which may be designated as a hollow square with the corners clipped off."

3,419.—White Wool and Spindle Oils.—WALLOVER OIL COMPANY, Smith's Ferry, Pa. Application filed December 31, 1875.
"the figure of a sheep, a fleece of wool, and a spindle, and the words 'White Oil.'"

3,420.—Medical Compound.—ERNEST WEBER, Brooklyn, N. Y. Application filed January 24, 1876.
"word 'KAISER.'"

3,421.—Cooking-Stoves.—BRIDGE, BEACH & CO., St. Louis, Mo. Application filed January 19, 1876.
"word 'SUPERIOR.'"

3,422.—Steel and Iron.—BURGESS STEEL AND IRON WORKS, Portsmouth, Ohio. Application filed January 28, 1876.
"word 'PALMETTO.'"

3,423.—Alpaca Lustres.—CHASE & CABOT, St. Louis, Mo. Application filed January 24, 1876.
"two figures representing both sides of the American trade-dollar, with the words 'Silver Trade Dollar Brand,' 'Double Warp, Double Face, Alpaca Lustre, Fast Black.'"

3,424.—Mohair.—CHASE & CABOT, St. Louis, Mo. Application filed January 24, 1876.
"the representations of the Goddess of Liberty and American eagle, and the words 'Golden Eagle Brand, Double Warp, Double Face, Pure Mohair, Fast Black.'"

3,425.—Cigars and Tobacco.—JOHN GOEBERT, Philadelphia, Pa. Application filed January 27, 1876.
"words 'BUFFALO BILL,' and the figure of a man designed to represent Buffalo Bill."

3,426.—Cigars and Tobacco.—LICHTENSTEIN BROTHERS & CO., New York, N. Y. Application filed January 28, 1876.
"words 'TEN CENT-IAL.'"

3,427.—Annatto.—LEWIS E. RANSOM, New York, N. Y. (Re-registration.) Application filed November 5, 1872.
"a large letter, R, with the word 'Trade' preceding it, and the word 'Mark' following it."

3,428.—Fertilizer.—ROBERT J. RUTH, Baltimore, Md. Application filed January 25, 1876.
"words 'EMPIRE GUANO.'"

3,429.—Soap.—SCHULTZ & CO., Zanesville, Ohio. Application filed January 31, 1876.
"word 'GOLD.'"

3,430.—Sewing-Machines.—WHITE MANUFACTURING COMPANY, Cleveland, Ohio. Application filed January 25, 1876.
"word 'CENTENNIAL.'"

3,431.—Lard-Oil.—WHITTIER, FULLER & CO., San Francisco Cal. Application filed January 31, 1876.
"words 'STANDARD LARD-OIL.'"

3,432.—Boot and Shoe Tips or Toe-Protectors.—THE NATIONAL BOOT AND SHOE TIP COMPANY, Boston, Mass. Application filed January 21, 1876.
"the words 'RAW HIDE,' in connection with an elongated inclosing panel with angular ends, forming a border about such words."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 15, 1876.]

533.—Title: **"Parker's Hair Balsam."**—HISCOX & Co. New York, N. Y. Case A. Application filed January 29, 1876.

534.—Title: **"Parker's Ginger Tonic."**—HISCOX & Co., New York, N. Y. Case B. Application filed January 29, 1876.

535.—Title: **"The Great East India Remedy."**—F. C. KLAISS, Progress, Pa. Application filed February 10, 1876.

536.—Title: **"Lydia E. Pinkham's Vegetable Compound."**—LYDIA E. PINKHAM, Lynn, Mass. Application filed February 9, 1876.

537.—Title: **"D. & H. Scovil's Improved Planter's Hoe."**—D. & H. SCOVIL, Higganum, Conn. Application filed February 5, 1876.

538.—Title: **"Cosmetique Grande a la Turc."**—SMITH BROTHERS, Boston, Mass. Application filed May 3, 1875.

539.—Title: **"Dr. Albert Conradi's Augsburger Brust-Thee."**—LEOPOLD SOLOMONSON, Cleveland, Ohio. Application filed February 9, 1876.

540.—Title: **"Wilkins' Compound Extract of Eucalyptus."**—JASON WILKINS, Clinton, Iowa. Application filed February 5, 1876.

541.—Title: **"Blue Cross Wigan."**—ADOLPH BERNHEIMER, New York, N. Y. Application filed February 16, 1876.

542.—Title: **"Fleming's Hair-Tonic."**—MARY C. FLEMING, Cambridge, Mass. Application filed February 11, 1876.

543.—Title: **"Harrison Bros. & Co.'s, Town and Country."**—HARRISON BROTHERS & CO., Philadelphia, Pa. Application filed February 12, 1876.

544.—Title: **"Hooper's Headache Lozenge."**—HOWARTH & BALLARD, Utica, N. Y. Application filed February 9, 1876.

545.—Title: **"Dr. Russell's Golden Bitters."**—WM. B. RUSSELL, St. Louis, Mo. Application filed February 10, 1876.

546.—Title: **"Tetlow's Yasmyn Bouquet Soap."**—HENRY TETLOW & BRO., Philadelphia, Pa. Application filed December 31, 1875.

547.—Title: **"Directions for Inhaling Dr. Townsend's Oxygenated Air."**—E. F. TOWNSEND, Providence, R. I. Application filed February 12, 1876.

548.—Title: **"Belt's Stomach and Cocktail Bitters."**—TRUEMAN BELT & SONS, Baltimore, Md. Application filed February 11, 1876.

549.—Title: **"Turner's Dessert Sauce."**—JAMES TURNER, New York, N. Y. Application filed February 14, 1876.

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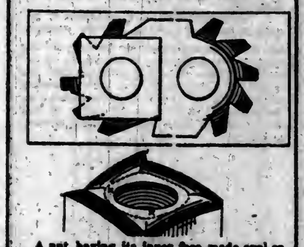
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Woods, A. R., assignee	173,586
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Wootten, J. E., Steam boiler furnace	173,432
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Wuensch, A., Illuminating lamp	173,708
Young, J. L., H., and H. G., Hubert, Reciprocating diamond saw machine	173 709
Young, P., Shafting and hanger	173,524
Young, W. A., and G. E. S. Phillips, Cheese cutting gage	173,710
Ziegler, A., Tongue for vehicles	173,525

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED FEBRUARY 15, 1876.

172,386. NUT-LOCKS. Joseph J. Adgate, New York, N. Y., assignor of three-fourths his right to Mark H. Richards, Nathaniel P. Hobart, Jr., and Hiram C. Fuger, Pottstown, Pa. [Filed Jan. 27, 1876.]



A nut, having its inner face made oval or rounding, and provided with shoulders equidistant or at its corners, combined with a metallic plate, having two or more radially-curved spring tongues, substantially as and for the purpose herein set forth.

172,387. OZONE-MACHINES. F. W. Bartlett, Buffalo, N. Y. [Filed July 20, 1875.]

Brief.—The base of the generator is glass, and is provided on its inner circumference with concentric cavities, which, with similar cavities in a close-fitting plunger, form complete tubes, in which are placed smaller sticks of phosphorus. The plunger regulates the height of the water around the phosphorus. The upper walls of the generator are composed of two sheets of wire-cloth, between which is placed a packing of strewn material saturated with an alkaline solution.



1. In an ozone-machine, the combination of the hollow vessel or base A of glass, having a series of concentric cavities, *a c*, on the inside and sockets *b* in the bottom, with the plunger B, having a similar series of cavities, *c*, on the outside, and an adjusting mechanism for the purpose of adjusting the height of the water around the phosphorus and regulating its combustion, substantially as described.

2. In an ozone-generator, the walls *f* and *g* of wire-gauze, with an interposed layer of strewn material saturated with alkaline solution, in combination with the vessel A and reservoir D, substantially as described.

172,388. CHAIN-PUMPS. Marvin T. Brown, Keokuk, Iowa. [Filed Jan. 17, 1876.]

1. The chain-pump, having the supporting-bars B and blocks C, combined with its tube A, and arranged to support the tube from the top, so that it may be freely withdrawn, substantially as set forth.

2. The chain-pump, having the tubular plugs D and the pivoted lever E, with its pads, combined with the tube, so as to form a water-escape for winter use, substantially as set forth.

3. The chain-pump bucket, having the swivel-link E L, combined with the rubber K and drip-groove I, substantially as set forth.

172,389.



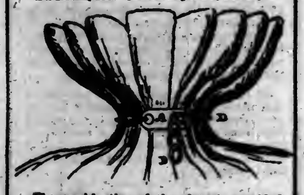
172,390. HOSE-PIPE NOZZLES. James D. Carmody and Alex. Crawford, Evansville, Ind.; said Carmody assignor to said Crawford. [Filed June 18, 1875.]



1. The nozzle A, Fig. 1, made with the two ends of ports *b* and *b'*, and the barrel of the nozzle permanently closed between said ports and made in one piece.

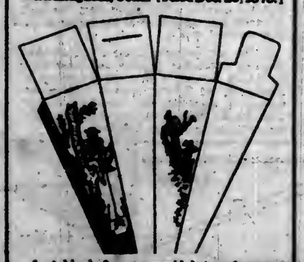
2. The combination of the nozzle A and the revolving conductor E, Fig. 3, adapted thereto, as and for the purposes described.

172,391. BAG-FASTENERS. Jas. Clayton, St. Louis, Mo. [Filed Sept. 23, 1875.]



The combination of the plate A, provided with the upturned flange B and the slot C, and the chain D, attached, as shown, to the rear end of the plate, operating substantially as and for the purpose set forth.

172,392. CORNUCOPIAS. Thos. L. Cornell, Birmingham, Conn. [Filed Dec. 29, 1875.]



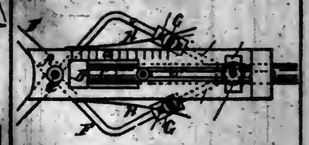
1. A blank for a pyramidal-shaped cornucopia, having top flaps integral therewith, substantially as shown and described.

2. A blank for a pyramidal-shaped cornucopia, prepared with lines scored, embossed, or otherwise defined thereon, to indicate the proper lines for bending, said lines terminating or converging to a point.

3. As an article of manufacture, a pyramidal or multifaced cornucopia, substantially as shown and described.

172,393. HATTERS' BRIM-CUTTERS. George W. Cooke, Orange, N. J. [Filed June 8, 1875.]

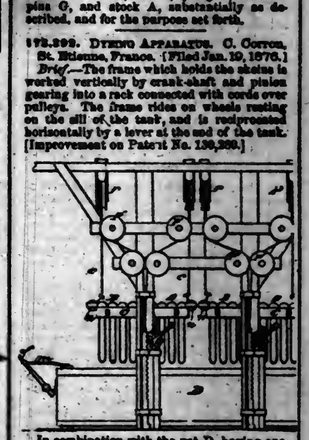
Brief.—The rotary cutter upon the spindle is adjusted in its graduated block with respect to the inner end of the same by a nut and screw, so that it will operate upon brims of various diameters. Legs form guides or bearings to steady the device while moving around a block.



The spindle C, with slot *c'*, in combination with the levers F, links I, spring H, set-screw pins G, and stock A, substantially as described, and for the purpose set forth.

172,394. DYEING APPARATUS. C. Cotton, St. Etienne, France. [Filed Jan. 19, 1876.]

Brief.—The frame which holds the skeins is worked vertically by crank-shaft and pinion gearing into a rack connected with cords over pulleys. The frame rides on wheels resting on the sill of the tank, and is reciprocated horizontally by a lever at the end of the tank. [Improvement on Patent No. 130,260.]



In combination with the vat D, having one or more compartments, the frame C, with their rolls B and wheels *n*, pulleys *p p'*, with their cords, and the reciprocating lever *f*, in the manner and for the purposes set forth.

172,395. DENTAL PLUGGERS. J. W. Dennis, Pekin, Ill. [Filed Dec. 29, 1875.]

Brief.—A shoe connected by an adjustable brace to the case varies the angle of the plugger-point. The spring hammer-shaft is pivoted to a triangular tumbler, which operates the plugger-point.

1. In combination with the case A, the tumbler B, pivoted at *b* to case A, and provided with coupling-connection *c*, with the socket-piece *i*, (which receives the plugger *d*,) and a coupling, *a*, with the sliding bar D, substantially as and for the purposes set forth.

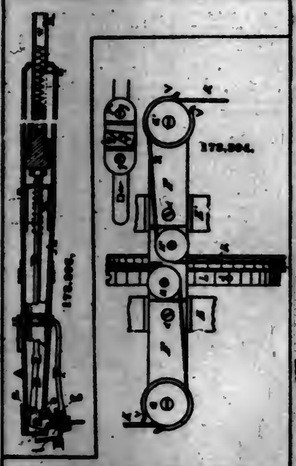
2. The shoe E, hinged or pivoted to the case A, and connected by the pivot *g* to the brace F, and, in combination with the latter, provided with its detent G on plugger-case A, substantially as described.

3. In combination with the case A, and sliding bar D, the crank B, with its plugger-socket *i*, and adjustable shoe E.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

4. The head I, of the bolt K, socketed in said bolt, and provided with set-screw *a*, and forming an abutment for the spring *v*.

5. The hollow *w* of the bolt K, (and its slot *y*,) to contain the spring *v*, abutting on the head I at one end, and on the detent pin or screw *x* at the other, substantially as and for purposes set forth.



178,896.

178,896. CORN-PLANTER. S. De Vaney, La Fayette, Ind. [Filed Sept. 20, 1875.]

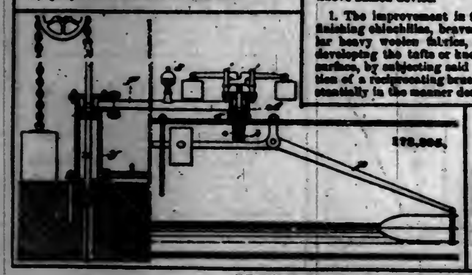
Brief.—Upon uprights is secured a transverse bar, inclined centrally in opposite directions. Upon this bar are central pulleys for the reception of the operating rope from the reaming-pulleys at opposite ends of the bar, and to guide it onto the grooved operating-wheels. This wheel is also provided with peripheral pins, that strike a V-shaped vibrating cam on the seed-slide, for imparting a vibratory movement to the slide.

1. The feed-wheel L, constructed with a groove, *l'*, to carry the rope K, and a series of pin-holes, *j*, to receive the pins *j'* on its periphery, and arranged, as described, to operate in the frame D of a corn-plow, and produce a feed-motion to the slide E by means of the cam T, substantially as set forth and described.

2. The frame D, provided with uprights E E', on which is secured the bar F, arranged with its upper face near the center, inclined in opposite directions to receive the inclined pulleys or sheaves H H', so as to allow the rope K to be carried from either one of them, either onto or off of the feed-wheel L, all arranged to operate in connection with the sheaves G G' at the ends of the bar F, substantially as set forth and described.

3. The V-shaped vibrating cam T, arranged as described, and operated in combination with the pins *j'* of the feed-wheel L, to move the slide E, substantially as set forth and for the purpose described.

4. The combination of sheaves G G' H H', bar F, uprights E E', feed-wheel L, pins *j'*, cam T, and slide E, all arranged to be operated by the rope K in the manner specified, and for the purposes set forth and described.



178,896.

178,896. SAFETY ATTACHMENTS FOR BOILERS. Casimer Deschamp, Lyons, France. [Filed Jan. 22, 1876.]

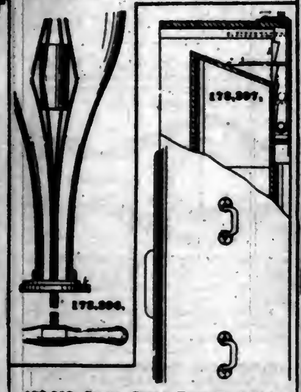
Brief.—When the float falls it opens a valve, which allows steam to sound the whistle and operate the damper-piston.

1. In combination with valve A and piston *a*, the pipe F, having orifice S therein at a point between the valve A and the cylinder *f*, having the piston *a*, in the manner and for the purpose set forth.

2. In combination with valve A, pipe F, piston *a*, and damper D, the float E with its lever F, the parts being all constructed and arranged substantially in the manner and for the purpose above and described.

178,898. CORK-EXTRACTORS. Brandt V. B. Dixon, St. Louis, Mo. [Filed July 14, 1875.]

A cork-extractor formed of wires separated and bent at their lower ends, and bound together at their upper ends by a handle and a fulcrum-disk, through which disk the wires are passed, and by which they are compressed upon the cork to be extracted, substantially as and for the purposes described.



178,896.

178,897.

178,897. COFFIN-CASES. Henry Hoot, Rochester, N. Y. [Filed Dec. 30, 1875.]

Brief.—An elegant and expensive outside is used, and serves to contain a cheap coffin, which is lowered out of it into the grave, the exterior coffin serving for many burials.

An exterior horizontal coffin, provided at each end with adjustable devices for holding the ends of an interior coffin, and releasing them when the interior coffin is lowered out from under the ones and into the grave, all as and for the purposes substantially as shown and described.

178,899. MACHINES FOR SURFACE-FINISHING WOOLEN FABRICS. Albert J. Hewitt, Woonsocket, assignor to Lapoint Woolen Company, Providence, R. I. [Filed Nov. 4, 1875.]

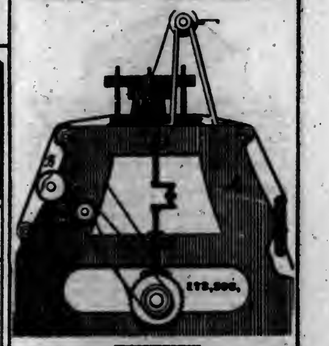
Brief.—Instead of the common "rubber," a brush is employed, to which a small rapid rotary motion is given. A revolving cylindrical brush is employed to remove from the back the rolls, &c., occasioned by the action of the above-named device.

1. The improvement in the art of surface-finishing chinchillas, beavers, and other similar heavy woolen fabrics, which consists in developing the tufts or knots of fiber on the surface, by subjecting said surface to the action of a reciprocating brush, operating substantially in the manner described.

2. In a machine for finishing the front surface of heavy woolen goods, the combination, with a platform for sustaining the fabrics, of a brush and mechanism for imparting thereto a vibratory longitudinal and lateral motion in a plane parallel with the platform, substantially as described.

3. In a machine for finishing the front surface of heavy woolen fabrics, the combination, with a platform for sustaining the fabrics, and finishing and conducting rolls for passing the fabric along the platform, of a reciprocating brush arranged to operate on the front surface of the fabric, substantially as described.

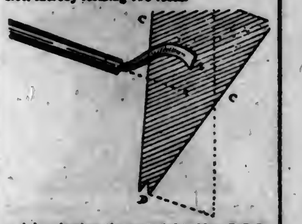
4. The combination, in a chinchilla or petersham finishing machine, with the platform and the reciprocating surface-finishing device, of a rear surface-brush, substantially as described, for the purpose of removing the rolls or tufts of fiber developed on the rear surface of the fabric by reason of its movement on the platform, incident to the action of the rubber or other reciprocating finishing device, as set forth.



178,899.

178,899. HOES. Henry M. Eagle, Marietta, Pa. [Filed Jan. 6, 1876.]

Brief.—A hoe constructed in the shape of an acute triangle, in the apex of which is a slot, thereby forming two teeth.



A hoe having three straight sides, B C C, forming an acute triangle, with its apex D two-toothed, the whole constructed substantially as and for the purpose specified.

178,900. HARROWS. Amos Fiscott and George Newton, Sterling, Ill. [Filed Dec. 6, 1875.]

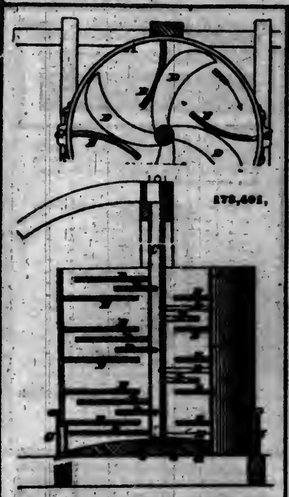
Brief.—A harrow consisting of two vibrating sections connected by a draft-bar, the teeth of which are triangular-shaped, and set obliquely to the line of draft.

1. In combination with the grooved beams of the harrow, the angular teeth A, rigidly fastened thereto, to operate obliquely to the line of draft, substantially as and for the purpose described.

2. The bands *a*, bolt *b*, and bolt-bands *c*, constructed and operating substantially as and for the purpose mentioned.

178,901. MACHINES FOR MIXING PLASTER. Archibald Ford, St. Louis, Mo., assignee of one-half his right to Wm. L. Reynolds, same place. [Filed July 10, 1876.]

Brief.—Fixed and movable arms curve in opposite directions, and are vertically adjusted, so as to leave a thin layer of plaster between them.



178,901.

The casing A, spindle C, arms D D D, &c., and arms E E E, &c., all of said arms being curved, as shown, bottom *a*, the lower movable arm conforming in shape thereto, and dovetailed G G, combined and operating substantially as described.

178,902. MACHINES FOR FOUNDING HATS. Francis B. Going, Boston, Mass. [Filed Jan. 22, 1876.]

Brief.—The bat-block has a combined rotary reciprocating and a progressive or rotary motion. Rotary motion is imparted to the spindle and its block by a worm and screw, and the rotary reciprocating or vibratory motion is produced by a shaft passing up through the block-spindle, and terminating in an eccentric, the latter operating in a bearing centrally located within the vibrating ring, which is pivoted at a point on its periphery to the rotating platform. Separate belts from a common driving-shaft operate each of the independent motions, so that the latter can be employed jointly or otherwise. The eccentric bearing of the vibrating ring is centrally located within the latter, and attached thereto by flexible connections.

1. The combination of a rotating platform and a hat-block, with mechanism connecting the hat-block and rotating platform, and adapted to impart to the hat-block a rotary and a vibrating motion, substantially as described.

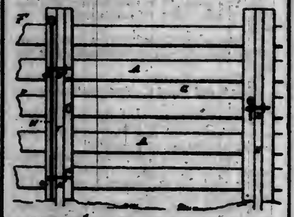
2. The combination, with an oval or elongated hat-block and block-carrier, of motion-bar, adapted to impart to such block a combined rotary and rotary reciprocating or vibrating motion, substantially as described.

3. In combination, the rotating platform, the link pivoted thereon, and the spindle and eccentric for imparting movement to the link, substantially as and for the purpose set forth.

4. In combination, the rotating platform, the link, its flexible arms A, the collar *i*, the eccentric, and the block-carrier, connected with the spindle, and with means for rotating the platform, substantially as and for the purpose set forth.

178,903. FOUNDERS' FRAMES. Medad Hubbell, Olmsted, Ohio. [Filed Jan. 12, 1876.]

Brief.—Pivoted links attached to the end pieces of the panel embrace the ground-stakes, and are locked to the adjoining panels by long bolts passing through eyes on their loose ends, and through registering-eyes on the adjoining panels.

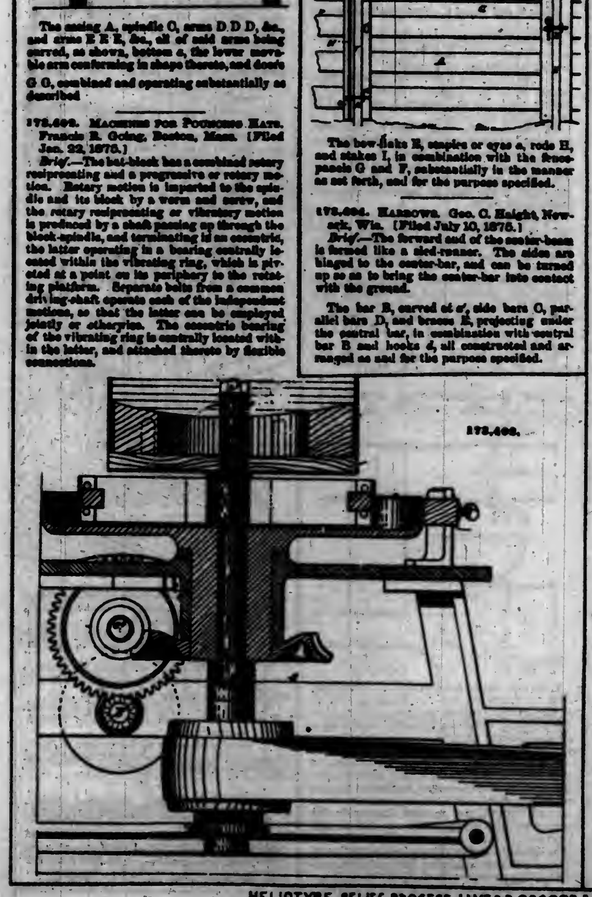


The bow-links E, staples or eyes *a*, rods H, and stakes I, in combination with the frame-panels G and F, substantially in the manner as set forth, and for the purpose specified.

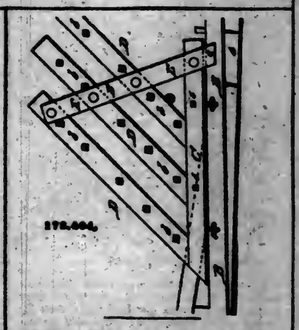
178,904. HARROWS. Geo. C. Haight, Newark, Wis. [Filed July 10, 1876.]

Brief.—The forward end of the center-beam is formed like a sled-runner. The sides are hinged to the center-bar, and can be turned up so as to bring the center-bar into contact with the ground.

The bar B, curved at *a'*, side bars C, parallel bars D, and braces E, projecting under the central bar, in combination with central bar B and hooks *d*, all constructed and arranged as and for the purpose specified.



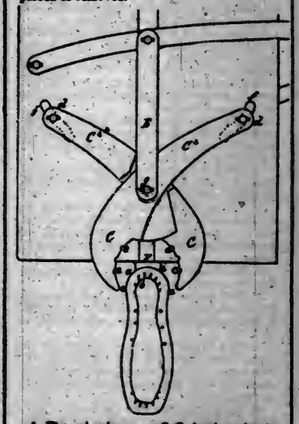
178,402.



178,904.

178,904. MACHINERY FOR LASTING THE UPPERS OF BOOTS AND SHOES. J. W. Hatch, Rochester, N. Y. [Filed Mar. 10, 1876.]

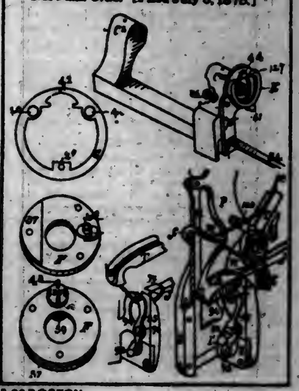
Brief.—The crimping-jaws are pivoted to slide back out of the way when not in actual use, that the boot or shoe may be readily placed or removed.



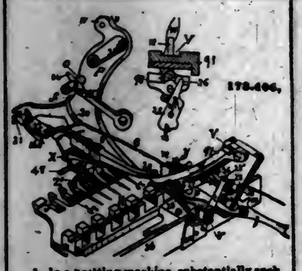
1. The crimping-jaws C C, having shanks C' C', with pivots *d*, in combination with the pitman E, lever G, and table D, having slots *f f*, substantially as described, for the purpose specified.

2. I claim the combination, with the crimping-jaws C C and the standard H, of the toe-rest K, operating as and for the purpose specified.

178,905. KNITTING-MACHINES. J. Hinkley, Norwalk, Ohio. [Filed July 6, 1876.]



178,406.



1. In a knitting-machine, substantially such as described, the following instrumentalities, to wit: the serrated bar l, thread-carrier T, looper c, and connecting mechanism, as described, combined and arranged to operate as and for the purpose specified.

2. The thread-carrier T, in combination with the looper c, and with devices for producing a proper tension on the thread before it reaches the looper, as described.

3. The thread-carrier T, with the throat 19, in combination with the spring-cap T', substantially as set forth and specified.

4. The looper c and lever P, in combination with the projection Q, provided with the cam-slot 79, constructed and arranged to operate substantially as and for the purpose specified.

5. The looper c, provided with the elongated stud 45, substantially as and for the purpose set forth and specified.

6. The fingers 94 and 95 and operating mechanism, substantially as described, in combination with the looper c, teeth J, and thread-carrier T, as set forth and specified.

7. The bracket-arm extension Z' and the plate Z, provided with the cam-slot F, substantially as set forth.

8. The bracket-arm extension Z', having the rib 82, and the plate Z, provided with the cam-slot l', in combination with the finger 95 and its operating mechanism, substantially as set forth.

9. The bracket Q, provided with the cam-slot 79', substantially as set forth.

10. The pitman R, provided with the finger 94, in combination with the lever P, bracket Q, and operating mechanism, substantially as set forth.

11. The finger 95, pivoted directly to the finger 94, and provided with the stud 93, and with a spring at its pivotal support 90, combined and arranged substantially as set forth and specified.

12. In combination with the bracket Q, the tri-armed lever P, the thread-carrier T, looper c, pitman R, stripper 22, and operating mechanism, substantially as set forth and specified.

13. The stripper 22, in combination with the looper c, carrier T, bar l, provided with teeth J, the fingers 94 and 95, and connecting mechanism, substantially as specified.

14. In combination with the lever P, the stripper 22, and spring 21, arranged between said lever and stripper, to permit the latter to yield in passing under the teeth of the bar l, substantially as set forth and specified.

15. The stripper 22, provided with the flanges 120, substantially as set forth.

16. The adjustable thread-guide f, in combination with the bracket Q and carrier T, substantially as specified.

17. The pitman N, provided with the latch 84, in combination with the stud O and disk F', substantially as set forth and specified.

18. The pin G, having two free ends, 42, in combination with the disks F F' and cam 39, substantially as set forth.

19. The disks F and F', and the plate 38, provided with the studs 43, in combination with the stud 44, cam E, cam 38, and fin G, substantially as specified.

20. The sliding plate 75, provided with the stud 44 and cam E, constructed and arranged to operate substantially as and for the purpose set forth and specified.

21. The spring-pin 36, in combination with the plate 75 and bracket C^2, substantially as specified.

22. The plate 75, provided with the stud 44 and cam E, in combination with the disk F, plate 36, and stud 43, substantially as set forth.

23. The plate 75, provided with the dog 51, the cam E, and the stud 44, in combination with the gage L, provided with the projection 33, as described.

24. In combination with the plate 75, the rod 34 and lever w, substantially as set forth.

25. The bar 91, provided with the groove V and feather W, in combination with the carrier T, substantially as specified.

26. The feather W, provided with the screw-bar 93, having the ridge 27, in combination with the lever 25, provided with the studs 28 and 29', and connecting mechanism, substantially as set forth.

27. The sliding bar 24, provided with the bracket r and rod t, in combination with the lever 25, cross-bar 93, feather W, and their operating mechanism, substantially as set forth.

28. The bar l, gages L L', arm 33, sliding bar 24, and feather W, combined to operate with connecting mechanism substantially as specified.

29. The bar l and gage L, provided with projection 33, in combination with the plate 75, having the dog 51, substantially as specified.

30. The bar l and gage L', provided with the projection 33, in combination with the lever w, bar 34, and plate 75, substantially as set forth.

31. The index-wheel A, provided with the screw S, in combination with the spring 4 and counterbored hub 9, substantially as set forth and specified.

32. The pointer t, in combination with the wheel A and screw S, substantially as set forth.

33. The wheel K and pointer t, combined and arranged to operate substantially as set forth.

34. The combination of the wheel A, pointer t, screw S, and wheel k, substantially as specified.

35. The disk F, provided with the stud 102, in combination with disk F', lever l, and connecting mechanism, as described.

36. The stop-lever l, provided with the projection w, in combination with the disk F', having stud 102, the pointer t, and wheel k, substantially as set forth.

37. The stop-lever l, provided with the arm w, in combination with the bracket Q, and spring y, substantially as specified.

38. The stop-lever p, provided with the bent arm 113, in combination with the disk F', and operative mechanism, as described, substantially as set forth.

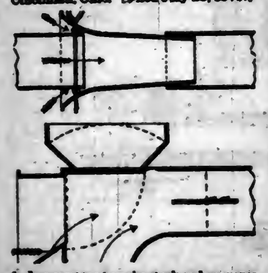
39. The lever p, pivoted directly to the lever l, and provided with the spring 88, in combination with the bracket Q and disk F', provided with the stud 102, substantially as specified.

40. In combination with the lever p, provided with the arm 113, the hook y, and bracket Q, substantially as set forth.

41. The combination of the tension-plate s, guide f, bracket Q, and arm 113, substantially as specified.

42. The route 37, in combination with the disks F F', substantially as set forth.

178,407. SPARK-CONVEYERS. L. M. Hosea, Cincinnati, Ohio. [Filed July 26, 1875.]

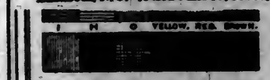


1. In a combined smoke stack and conveyer, such as described, the combination, with its funnel for the admission of air, and its smoke-exit, located in the rear of such funnel, of a single damper, adapted to control either of those openings, substantially as set forth.

2. The combination, with a combined smoke stack and conveyer, such as described, of a damper adapted to control its funnel for the admission of air, and its smoke-exit in the rear of such funnel, and another damper in the conveyer-tube, substantially as and for the purpose specified.

3. The reversible and tapering tubular couplings, having an expanded flaring mouth, substantially as and for the purpose specified.

178,408. SAMPLE-CARDS. C. H. Leggett, Elizabeth, N. J. [Filed June 10, 1876.]



DIRECTIONS.

The Small Packages contain BLACK, BROWN, YELLOW and RED. By adding them to the Mixed White as here directed any of the above tints can be produced.

Tints.	Size.	Add No.	Pkg.	RED to 1 Gal. White.
. .	. .	B	145	BROWN . .
. .	. .	C	146	YELLOW . .
. .	. .	D	146	BLACK . .
. .	. .	E	146	RED . .
. .	. .	F	146	BROWN . .
. .	. .	G	146	YELLOW . .
. .	. .	H	146	BLACK . .
. .	. .	I	14	RED . .
. .	. .	J	14	BROWN . .
. .	. .	K	14	YELLOW . .
. .	. .	L	14	BLACK . .
. .	. .	M	14	BROWN . .
. .	. .	N	14	YELLOW . .
. .	. .	O	14	BROWN . .

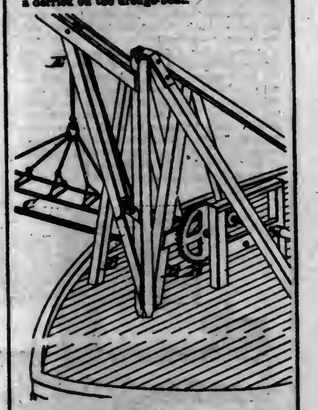
THE NECESSARY COLORS TO MAKE THESE SHADES ARE PUT UP IN

½, ¼, ⅛, ⅛ and 1 Pint Packages.

The color-plate and literal directions for producing any shade or hue of any color thereon; when both are arranged relatively to each other on the same card, substantially as described and specified.

178,409. DISTRIBUTERS FOR SAND-ELEVATORS. William P. Lolor, St. Louis, Mo. [Filed Dec. 27, 1875.]

Brief.—A trough with openings and slides in its bottom, provided with an endless screw, for conveying the sand from the dredger, and distributing it along different points in the receiving-screw. The chute is manipulated by a derrick on the dredge-boat.



1. The combination of the boat A, trough C, openings $c\ c\ c\ c\ c$, screw F, and shaft G, substantially as described.

2. The combination of the boat A, trough C, opening c', screw F, and shaft G, substantially as described.

3. The combination of the boat A, trough C, openings $c\ c\ c$, &c., opening c', screw F, and shaft G, substantially as described.

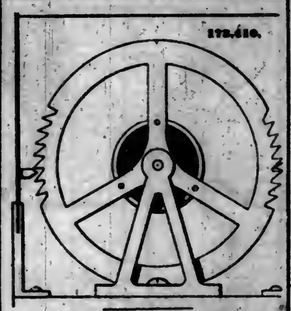
4. The combination of the boat A, derrick B, trough C, screw F, and shaft G, substantially as described.

5. The combination of the trough C, openings $c\ c\ c\ c\ c$, and slides $d\ d\ d\ d\ d$, screw F, and shaft G, substantially as described.

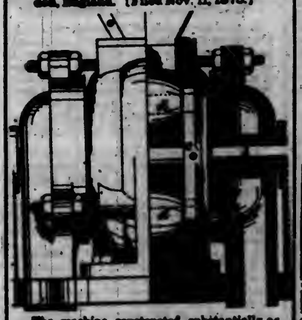
178,410. PENDULUMS. Raymond Longin, Bordeaux, France. [Filed Jan. 10, 1876.]

To form an escapement, the escapement weight F, in combination with one or more springs, D, arranged to operate in the manner and for the purpose shown and described.

178,410.

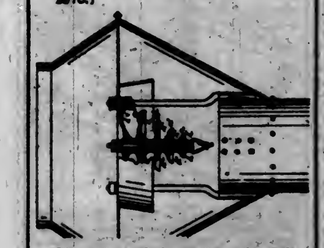


178,411. MACHINERY FOR GRINDING AND PULVERIZING GRAIN, CORN, &c. Charles Lacey, Southwark, assignee of one-half his right to Nathan Gold Kimberley, London, England. [Filed Nov. 11, 1875.]



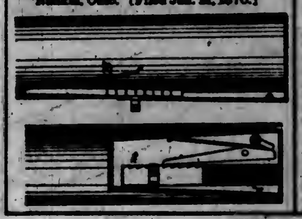
The machine constructed substantially as described, with a central shaft, b, arms c c, and balls or roller d, carried by slots $c'\ c'$ in the said arms to permit of free centrifugal action of the balls or rollers, substantially as set forth.

178,412. LOCOMOTIVE SMOKE-STACKS. J. Mackenzie, Hannibal, Mo. [Filed July 23, 1875.]



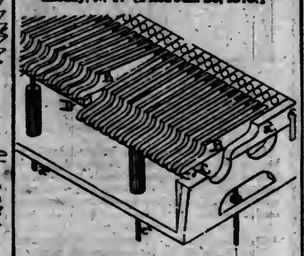
The spark-arms for locomotive smoke-stacks, made up of parallel disks, with their under surfaces recessed out near their outer edges to return the sparks, as set forth.

178,413. WIRE-SOCKETS. Jacob J. Marisel, Mankin, Ohio. [Filed Jan. 22, 1876.]



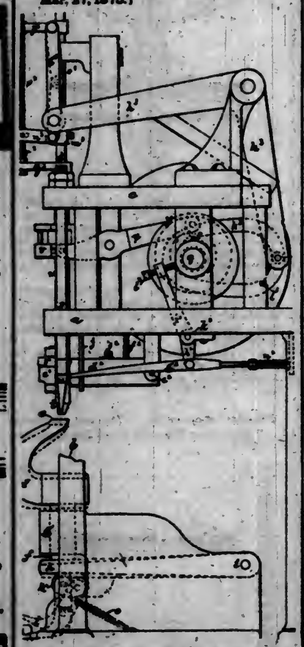
The socket A, provided with the slotted locking-chamber C, in combination with the spring-catch E, located entirely within the socket, the serrated bolt E, passing up into the socket, and provided with the knob b and spring-pawl F, all constructed to operate substantially as and for the purpose set forth.

178,414. PIANO-FORTES. W. McCammon, Albany, N. Y. [Filed Jan. 20, 1876.]



The improvement in piano-fortes herein shown and described, and consisting of the over-dampers B, arranged in sections and operated by the lifters C D, in the manner and for the purpose herein specified.

178,415. BOOT AND SHOE NAILING MACHINES. Gordon McKay, Cambridge, and Hadley P. Fairfield, Boston, Mass. [Filed Mar. 27, 1876.]



1. In combination with a nail-tube and a nail-driving mechanism, a rotative work-supporting horn, adapted to be locked in a predetermined and fixed position for the action of the driving mechanism, and to be released from such position for its descent, substantially as shown and described.

2. The rotary horn d, horn-supporting arm h, foot-lever n, spring o, and spring-latch p, combined and arranged substantially as shown and described.

3. In combination with a work-supporting horn or arm, and suitable work-feeding and nail presenting and driving mechanism, a nail-plate holding, feeding, and presenting mechanism, and a nail-covering mechanism, which cuts nails in succession from the end of the nail-plate, and transfers each nail in succession to the nail-tube to be driven, substantially as shown and described.

4. In combination with the nail-box and nail-tube, cutters which automatically cut from the plate nails of varying lengths, substantially as described.

5. In combination with the nail-plate box, a feed-spring thrown backward by the cam e^3 and lever F^2, substantially as shown and described.

6. A nail-tube slide or carrier, r, provided with a slot or chamber, r^2, for the entrance of the nail-strip or strip-bar, and adapted to receive and carry the cutters, substantially as described.

7. The combination, with a nail-strip-presenting mechanism, of nail-covering mechanism, adapted to cut the edge of the strip for a nail of the proper length, and then cut the nail from the strip, substantially as described.

8. The stationary cutter i^2 and movable cutters $i^3\ i^4$, operating to cut each nail to proper length, substantially as described.

9. In combination with the movable cutters, the ejector-thrust i^5, substantially as described.

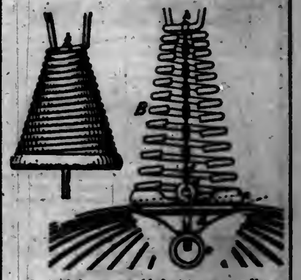
10. The cutter-arms $l^3\ l^4$, arranged and operated substantially as shown and described.

11. The combination, in a nailing-machine, of a driver and a nail-receptacle having an enlarged chamber, whereby the driver forms a head upon the nail and drives it out of the chamber.

12. In a nailing-machine, the combination of mechanism for automatically governing the length of the nail with mechanism for forming a head on a nail after being severed from the strip, substantially as described.

13. The combination, with the cutters of a nailing machine, adapted to cut metallic fastenings from a continuous ribbon of stock, of, mechanism substantially to make a head upon the severed nail in opposition to the clinching-point.

178,416. BIRD-CAGES. George R. Osborn, East Orange, N. J., and Reed A. Dreyfus, New York, N. Y. [Filed Oct. 6, 1875.]



1. A bird-cage provided with a suspending-spring attached to the body of the cage in a fixed vertical position, as shown.

2. The combination of the top plate or cap and a spring rigidly attached thereto, for the purpose specified.

3. The top plate having the turned flange a, for securing the spring B, substantially as shown and described.

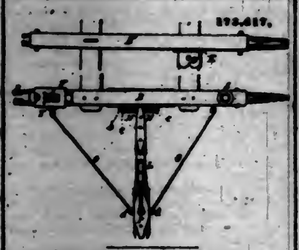
178,417. WAGONS. Solomon H. Oviatt, Richfield, Ohio. [Filed Mar. 4, 1876.]

1. The combination of the extension-rails A, fixed in the front bolster B, and sliding in the bolster B' and axle-tree C', with devices for securing said rails to the bolster and axle-tree at various points of extension along said rails, substantially as described, and for the purpose set forth.

2. The collar D, provided with a flange, E, in combination with an adjustable or extension rails, A, bolster B', and axletree C', as and for the purpose set forth.

3. The eye-piece or eare e e, bolt h, and springs H H, in combination with the pole L and axle-tree C, substantially in the manner as described, and for the purpose specified.

4. The combination of the pole L, plate P, draw-rods O O, and axle-tree C, in the manner as described, and for the purpose specified.



178,419. CAR-LAMPS. Philip S. Page, Boston, Mass. (Filed Dec. 16, 1870.)



1. In railway-car lamps, the combination, with the main smoke-discharge flue, of two or more branch pipes or flues, connecting at one end with the burner, and terminating at the other over a lamp or burner, substantially as and for purposes stated.

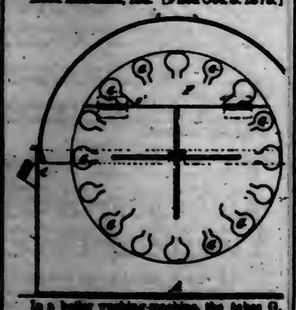
2. The combination of the main flue B C, branch pipes D D, &c., and reflectors E E, &c., said pipes communicating at one end with the interior of the flue B C, and provided at the other with the said reflectors, substantially as and for purposes stated.

178,420. WARP-BEAM. Jos. Potter, Newburyport, Mass. (Filed Dec. 6, 1875.)



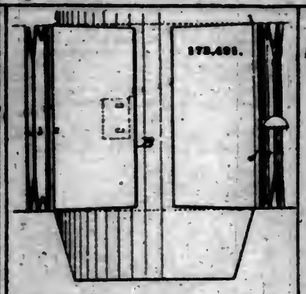
In combination with a warp-beam provided with a slot, E, the standing-beam C and D, constructed and operating together substantially as and for the purpose set forth.

178,422. BOILER WASHING-MACHINES. S. Reed, Eastland, Ind. (Filed Oct. 8, 1875.)



In a boiler washing-machine, the tubes G, forming the periphery of cylinder F, having the form shown, and arranged with their orifices and extended necks opening toward the axis of the cylinder, as and for the purpose specified.

178,424. POCKET-BOOKS. William Roth, New York, N. Y. (Filed Dec. 27, 1875.)



178,425.

In a pocket-book, the flat bill-receptacle B, having side and end flaps, as described, and formed by the contiguous sides of two adjoining pockets, *b c*, and provided with a locking mechanism, C, substantially as herein shown and described.

178,426. BARREL-WASHERS. G. Schoch, New York, N. Y. (Filed Jan. 22, 1876.)

Brief.—The weight of the barrel forces down the inner tube, and admits water for cleansing purposes. When the barrel is removed, the spring pushes the valve up to its seat, thus shutting off the water-supply. The inner tube and its jacket form a valve and seat, as shown.



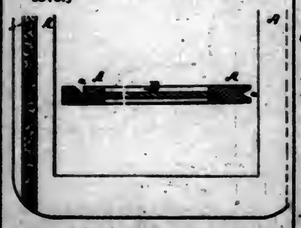
1. The barrel-washer composed of the sliding perforated pipe B, which carries the barrel-supports D D, substantially as described.

2. The combination, in a barrel-washer, of the sliding perforated pipe B with the valve *h*, and with the valve-seat *e* above said valve, substantially as specified.

3. The combination of the sliding perforated pipe B with the shoulder *f*, and with contracting-tube *d* or *a*, to constitute a valve when the pipe B is slid down, substantially as specified.

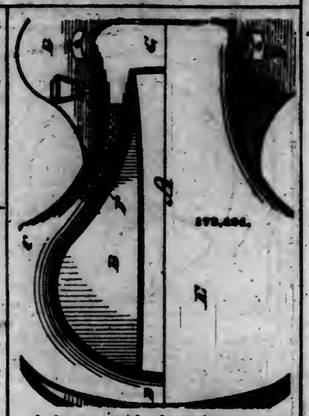
4. In combination with the sliding pipe B of a barrel-washer, the chamber *g* and pipe *h*, substantially as and for the purposes specified.

178,428. SCHOOL-SLATE FRAMES. William Sellers, New York, N. Y. (Filed Sept. 20, 1875.)



A school-slate frame grooved and roughened at one edge or one side, as described, to constitute a pencil-sharpener, when said groove extends along the entire edge A from end to end thereof, and into the recess *a* and *d*, that enter at said edge, substantially as and for the purposes specified.

178,429. SADDLE-TREES. John Shelly, St. Louis, Mo., assignor of one-half his right to Martin J. Slevin, same place. (Filed Aug. 11, 1875.)



1. As a new article of manufacture, a saddle-tree in which the cantle, bolly-pieces, and pommel (made in one or more parts) form a continuous narrow bearing, whose outer edge is elevated above the side bars from the cantle to the pommel, and which bearing is shaped and extended similarly on both sides of the tree, to be adapted to either a man's or a side saddle, substantially as and for the purpose shown.

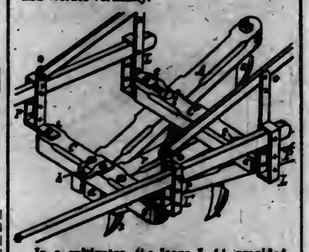
2. The combination of the side bars B B, cantle D, pommel C, and single bolly-piece F F, substantially as and for the purpose shown and specified.

3. The combination of the seat E, side bars B B, cantle D, pommel C, and single bolly-pieces F F, substantially as and for the purposes shown and specified.

4. The combination of the seat E, side bars B B, and the narrow bearing C C, whose outer edge is elevated above the side bars from the cantle to the pommel, and which bearing is shaped and extended similarly on both sides of the tree, substantially as described.

178,430. CULTIVATORS. William A. Snyder, Gerbers, N. Y. (Filed Nov. 4, 1875.)

Brief.—Devices for connecting the parts, whereby the shifts are pivoted at their centers and vibrate vertically.



In a cultivator, the loops *L L'*, provided with the perforations *p*, the shoes *s*, and extensions *a*, in combination with the vibrating shifts T, bracket E, and cross-bars O O', arranged for the purposes substantially as set forth.

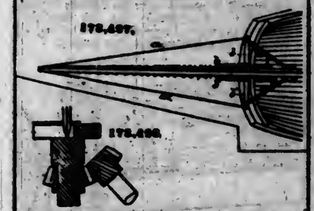
178,432. LAMPS. Warren I. Stetson, Spencer C. Chamberlin, and John C. Stickford, Berlin, assignors of one-fourth their right to Charles A. Shaw, Boston, Mass. (Filed May 28, 1875.)



A last having its upper part, for receiving and holding the block, formed by a continuous saw-cut, curved from a point, *c d*, in the rear of the toe to a point, *f*, in the ankle portion of the last, substantially as shown and described.

178,427. FOOT-REST SUPPORTS FOR VESSELS' YARDS. Charles Sellman, Chelsea, Mass. (Filed Jan. 17, 1876.)

The combination of the foot-rests *a a'*, the hinged and folding arms *b b'*, the locked brackets *c c*, and the eyes *e e* and *f f*, the whole being arranged and applied to a beam or yard, as and for the purposes set forth.



178,433. PEGGING-MACHINES FOR BOOTS AND SHOES. Benj. F. Sturtevant and J. R. Blaisdell, Boston, Mass., assignors to said Sturtevant. (Filed Jan. 31, 1876.)

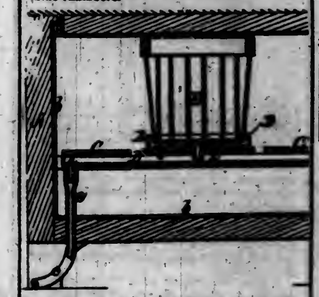
1. The combination, with the horn of a pegging-machine, of the slotted or grooved cap, held against the rotation of the horn by means substantially as described.

2. The combination, with the feeding device for moving the shoe, of a stationary cutter, attached to the horn, and against which the ends of the pegs are borne and cut as the shoe is being pegged, substantially as described.

3. A pegging-machine horn having at top a slotted passage for the reception of the awl and peg, and out of which the pegs pass by the feed movement of the shoe, substantially as described.

178,439. REFRIGERATORS. Joel Tiffany, Chicago, Ill. (Filed Dec. 13, 1875.)

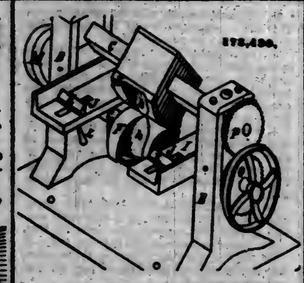
Brief.—An open ice-basket rests detachably in a shallow metal drip-pan having a drip-spout, and set on a board. The whole slides lengthwise of the refrigerator, over the food-chamber. The drip passes into a side trough, over which the drip-spout hangs. Removable boards cover the food-chamber alongside the drip-pan, and make the floor of one or more side chambers.



1. In combination with the open basket B, the shallow pan D, forming the top of a portable shelf in a refrigerator, as described.

2. The closed outer refrigerator-case A, divided by the removable boards C C C into ice and provision compartments, and provided with the sliderays E E, having a gutter, G, and discharge-pipe *e*, in combination with a movable insulated open ice-box, B, situated in the upper compartment and provided with a pan, D, having a central opening in its bottom, whereby connection from the articles to be cooled will be condensed on all sides of the ice in the open ice-box, substantially as described.

178,440. MACHINES FOR WELDING THE STRAPS UPON SHOVEL-BLADE BLANKS. Jacob Trout and John Malloy, Boston, Mass. (Filed Jan. 10, 1876.)

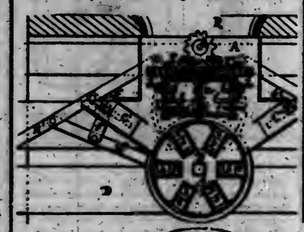


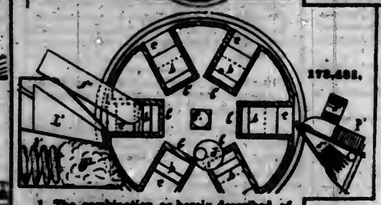
1. In a welding-machine, substantially such as described, the bed A, uprights B B, shafts O G, gears O F, and dies E F, provided with the indentations *h h*, constructed and arranged to operate substantially as and for the purpose set forth and specified.

2. In a welding-machine, substantially such as described, the cams I I and adjustable gages K K, arranged to operate in combination with the dies E F, substantially as and for the purposes set forth and specified.

178,431. BRICK-MACHINES. E. M. Turner, Greencastle, Ind. (Filed June 10, 1875.)

Brief.—The mold, after being filled by the plunger on one side, is afterward presented to the plunger upon the opposite side of the mill, which forces in additional clay, and subjects the brick to a re-press at the same time the former plunger is filling another mold.





1. The combination, as herein described, of the rotating cylinder B, cavities C, molds *d*, plungers A, and follow-bar *b'*, substantially as described, and for the purposes specified.

2. The double right-angle crank-shafts A', jointed levers E and E', links F', plungers C', links *f'*, and levers E', all in combination, substantially as and for the purposes specified.

3. The combination, in a brick-machine, of the plungers D', spur-wheels F', pinions M', internal and external gear-wheels F', pinions *i* and K and *n*, eccentric wheels J, bevel-gears *o* and *o'*, pinion M', and the barrel-gears G and H, pinions O' and P', and their respective shafts, substantially as and for the purposes specified.

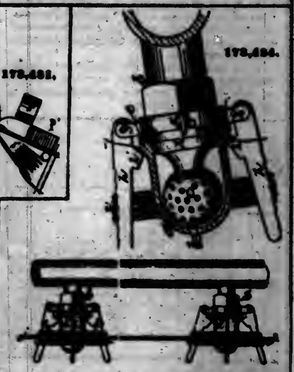
4. The horizontal rotating off-bearer L, mounted upon grooved or flanged wheels, and running upon a single track, for the purpose of receiving the brick from the molds and presenting them at the front of machine, all constructed and arranged to operate substantially as and for the purpose specified and described.

5. The idler J', provided with two apartments, one above the other, the upper one containing oil, and the lower one containing a sponge and spring, substantially as and for the purpose specified and described.

6. The sweeper P', constructed and arranged as specified, and for the purpose described.

178,434. AUTOMATIC FIRE-EXTINGUISHERS. Nicholas S. Booth, Boston, Mass. (Filed Jan. 17, 1876.)

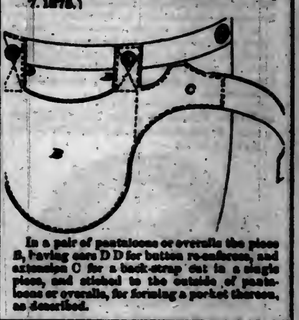
Brief.—When the strings are released by the action of the fire, the pivoted arms are free to rot on the falling off of the counter-arm, thus allowing the room to be flooded with water.



1. The combination of the brackets *h*, having the recess *e* and pivoted arms F, the eyes *d*, having the heads or flanges *f*, and the combustible fastenings *i*, all arranged and operating substantially as described.

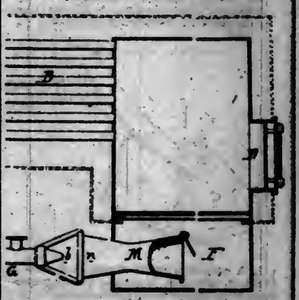
2. The combustible cord *j*, combined with the combustible fastenings *i*, substantially as described, for the purpose specified.

178,435. PANTALOONS AND OVERALLS. R. Adams, San Francisco, Cal. (Filed July 7, 1875.)



In a pair of pantaloons or overalls the piece S, having eyes D D for button re-enforces, and extension C for a back-strap cut in a single piece, and stitched to the outside of pantaloons or overalls, for forming a pocket thereon, as described.

178,436. STEAM-BOILER FURNACES. John B. Wootten, Reading, Pa. (Filed Jan. 6, 1876.)



The combination, in a steam-boiler furnace, of a perforated fuel-bed, B, the ash-pan F, pipe or pipes M, each having a valve, *g*, and steam nozzle or nozzles G, all as set forth.

178,435. IMPLEMENTS FOR HARVESTING CORN. Henry Ball, Simeon Ball, and Geo. Foxwarden, Shiloton, assignors of one-half their right to Orsino A. Murray, New London, Wis. [Filed Oct. 20, 1875.]



1. A corn-stalk cutter constructed with a blade, A, sole-piece B, toe-cap C, and projections D D, substantially as described.

2. The combination, with a corn-stalk cutter constructed with a blade, A, sole-piece B, toe-cap C, and projections D D, of the side straps F, central strap G, and ankle-strap H, substantially as shown and described.

3. A corn-stalk cutter adapted to be worn upon the foot, constructed with a sole-piece, B, and toe-cap C, and a cutter, A, formed on or affixed to and in front of the sole-piece B and toe-cap C, substantially as described.

4. A corn-stalk cutter constructed with a sole-piece, B, toe-cap C, projections D D, and a cutter, A, provided with a horn-shaped extension, A', and formed on or affixed in front of the sole-piece B and toe-cap C, substantially as described.

178,436. STEAM PIPE AND BOILER COVERINGS. Frank Ballou, Allegheny, Pa. [Filed Nov. 18, 1875.]



1. A paper wrapping, *c*, applied directly onto the heated conductor receptacle, in combination therewith, and with the cement covering applied directly on the paper, substantially as set forth.

2. In combination with the interior paper wrapping *c* and the cement covering, applied as described, the exterior paper wrapping *e*, substantially as set forth.

3. The combination, with the crossing-rolls O O', of the adjustable jaws F F, substantially as and for the purpose specified.

4. The combination, with the folder, of the spring-plate H, constructed to exert a pressure upon the seam after the edges are brought together, and before entering the pressure-rolls, substantially as and for the purpose described.

5. The combination, with the folders F F, of the edge-pressure rolls J, constructed to exert a downward pressure upon the edges of the belt before entering the pressure-rolls proper, substantially as and for the purpose described.

6. The combination, with the folding mechanism of a belt-machine, of a covered surface on the side opposite the seam, so that when the edges are brought together there is more stock in the seam side than in the other side of the belt, substantially as and for the purpose described.

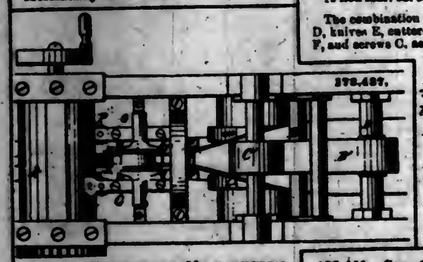
7. The combination, with the guides G G, of the pricking-rolls for pricking the edges of the belt, substantially as and for the purpose described.

8. The pricking-roller F' for the purpose of pricking the flat surface of the belt-covering, substantially as and for the purpose described.

9. The combination, with the pressure-rolls, of adjustable guides G G for guiding the belt properly between the pressure-rolls, substantially as and for the purpose described.

10. The jaws F F made adjustable at *f f*, whereby their angle to the horizontal may be varied, substantially as and for the purpose described.

178,437. MACHINERY FOR MANUFACTURING RUBBER BELTING. Jos. B. Baxter, Jacob D. Jones, Nathaniel B. Worren, Franklin L. Chamberlin, and Louis K. McClymonds, Cleveland, Ohio, assignors to Cleveland Rubber Company, same place. [Filed Jan. 27, 1876.]



178,437.

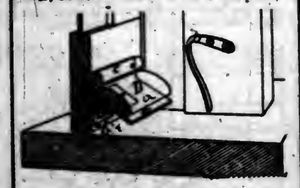


178,437.

1. The crossing-rolls O O', made adjustable, substantially as described, to suit belts of different widths, substantially as and for the purpose described.

2. The combination, with the crossing-rolls O O', of the folding jaws F and shoe-tongue, the latter being placed at a distance from the crossing-rolls sufficiently to permit the edges of the belt-covering to not together before reaching the shoe-tongue, substantially as and for the purpose described.

178,438. WEATHER-STRIPS. Leander Rockwell, York, Pa. [Filed Dec. 11, 1875.]



The weather-strip D, hinged to the lower part of the door, and having a rubber strip, *c*, secured to its lower face, extending above the weather-strip, and clasped to the door by a strip, *e*, in combination with the hinges I, provided with studs *d*, coiled springs G, surrounding said studs, and spring-stop *b*, substantially as described, and for the purpose set forth.

178,439. CUTTER-HEADS FOR PLANING-MACHINES. Edwin Benjamin, Chicago, Ill. [Filed Mar. 18, 1875.]

The combination of the concave cap-plates D, knives E, cutter-head A, dovetails B, nuts F, and screws C, as set forth.

178,439.

178,440. COIL-SPRING GARTERS. George C. Bishop, Bridgeport, Conn. [Filed Jan. 22, 1876.]



1. An elastic garter, composed of a single flattened paracentrical coil-spring, with an external stay, connected at one or more points to the spring between the fastening-ends, substantially as described.

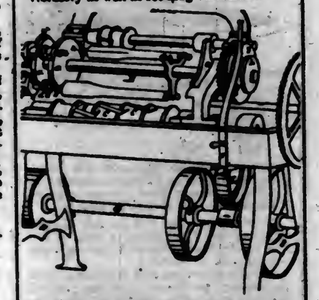
2. An elastic garter, composed of two or more springs joined laterally at their ends and twisted in opposite directions toward their ends, for the purpose herein set forth, substantially as described.

3. An uncovered single coil elastic garter, in two or more sections, twisted in opposite directions from the center toward the ends, paracentrical in form, with an external stay, having intermediate connections with the coil, substantially as and for the purposes described.

4. A garter, provided with end clasp-plates, constructed substantially as described, and either of which may be used as a hook or an eye, as specified.

178,441. MACHINERY FOR DRESSING SPOKES. Ralph H. Boynton, Oshkosh, Wis. [Filed Feb. 7, 1876.]

Brief.—The material from which the spokes are formed is placed between centers in the periphery of a revolving rod, and then reduced to the desired form by cutters having a vibratory as well as rotating movement.

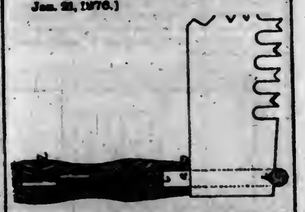


1. The clutch formed by curved tongues and grooves, substantially as described, for the purposes set forth.

2. The revolving rod, constructed and operating as described, in combination with a vibrating revolving cutter, substantially as specified.

3. The revolving rod for holding spokes, in combination with two sets of cutters for dressing spokes, substantially as and for the purposes set forth.

178,442. CROSSCUT-SAW HANDLES. Elias M. Boynton, West Newbury, Mass. [Filed Jan. 22, 1876.]



1. A saw-handle for fastening to saws by an extension-rod expanding or contracting by screwing together end-wise, substantially as shown and described.

2. The clasped retaining-bar C, provided with the projection *b* and screw-sleeve *c*, in combination with the rod B, handle A, and notched bearing-plate D, as and for the purpose specified.

3. The combination of a pin, *f*, with the handle A, eyebolt B, and retaining-bar C, substantially as shown and described.

178,443. MECHANISMS FOR CHANGING POSITION OF PROPELLERS. George H. Brooks, Hancock, Md. [Filed Dec. 30, 1875.]

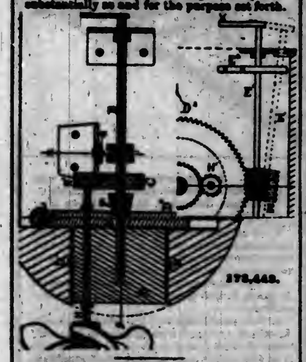
1. A rotating cylinder or drum arranged in the frame-work of a vessel, and having bearings in or upon it for supporting the shaft of a propeller, substantially as and for the purpose set forth.

2. The combination and arrangement of the engine-shaft B, with its gear-wheel C, the propeller-shaft H, with its pinion H', and a revolving cylinder, D, the parts being arranged substantially as set forth, whereby the propeller-shaft and its pinion are allowed to rotate around the engine-shaft, for the purpose of adjusting the position of the propeller, as described.

2. The combination of the revolving cylinder with its seated projection and worm E, they being arranged to operate substantially as and for the purposes set forth.

3. The combination of the revolving cylinder, the sliding friction-sleeve, and the lever for moving said sleeve, substantially as and for the purpose set forth.

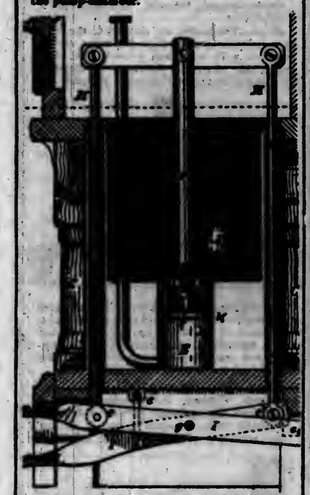
4. The combination of the engine-shaft B, gear-wheel C, pinion H', shaft H, and the propeller, the parts being arranged to operate substantially as and for the purpose set forth.



178,443.

178,444. SODA-FOUNTAINS. J. B. Chapman, Madison, Ind. [Filed Jan. 12, 1876.]

Brief.—The trundles are secured by loose joints and connected centrally by a pin. The pressure on the upper one acts equally on both parallel rods. Thus the plunger receives a direct vertical stroke, free from side draths. A pressure on the lower trundle serves to free the pump-chamber.



1. In a soda-fountain, the combination of the trundles I I', parallel rods H H, and plunger-rod F, constructed and arranged to operate substantially as herein shown and specified.

2. In a soda-fountain, the plunger J, having a rigid rod, F, passage *h*, valve *i*, annular washer *j*, and packing-ring *k*, all constructed, combined, and arranged substantially as set forth.

178,445. FURNACES FOR BRICK-KILNS. W. S. Colwell, Pittsburg, Pa. [Filed Jan. 24, 1876.]

Brief.—Air is supplied to the compartments or grates on all sides. The several compartments or grates communicate, and their combined products can be sent into any arch.



178,445.

1. A furnace having a series of fire-grates and subdivided into compartments communicating with each other, said compartments communicating with air-chambers and the fire-arches of the kiln, substantially as herein described, and for the purpose set forth.

2. A furnace having a series of fire-grates, B, subdivided into compartments by means of partitions D *e f*, in combination with air-chambers *f h i m*, which communicate with the interior of the furnace by means of small apertures for the inlet of air, said furnace communicating with the fire-arches of a kiln, substantially as herein described, and for the purpose set forth.

3. A furnace having a series of fire-grates subdivided into a series of compartments communicating with each other, in combination with a series of air-chambers and gates or dampers, *e*, arranged and operating with relation to each other, substantially as herein before described, and for the purpose set forth.

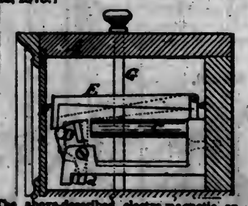
178,446. TREE-GUARDS. Thos. D. Cottman, New York, N. Y. [Filed Dec. 11, 1874.]

Brief.—A guard or grating placed around shade-trees upon paved walks, to protect the trees from injury from packing the soil by footsteps, and to allow a free admission of air and water to the roots.



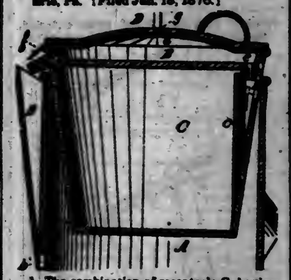
The reticulated sectional covers B and B set flush with the pavement, in combination with the curb or wall D, for protecting the roots of trees and keeping the earth loose, as specified.

178,447. ELECTRO-MAGNETIC ANNUNCIATORS. William H. Crowell, Maple City, Mich., assignor of one-half his right to E. A. Crossley, Cleveland, Ohio. [Filed Oct. 18, 1875.]



The above-described electro-magnetic annunciator, consisting of the frame B, magnet C, armature D, having a stop, *d*, the rod G and plate-bearing lever E, which is pivoted at its rear end to a post, *c*, and arranged above and to rest upon the armature, and to be operated thereby, and by the rod G, substantially as shown.

178,448. STEAM-COOKERS. Henry Davis, Erie, Pa. [Filed Jan. 18, 1876.]



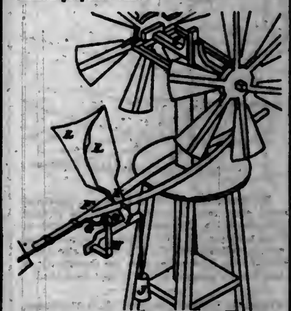
1. The combination of receptacle C, having a tube, *e*, and opening *f*, with the cover D, provided with tube *c* and spout F, substantially as and for the purpose set forth.

2. The combination, with receptacle A having steam B and opening b', vessel or receptacle C provided with tube *e* and opening *f*, of the cover D formed with a tube, *c*, and spout F, substantially as and for the purpose set forth.

3. The combination of the non-conductor G with cover D, the same provided with a steam-space, E, substantially as and for the purpose specified.

178,449. WINDMILLS. Owen T. Davies, Brighton, Col. [Filed Nov. 22, 1875.]

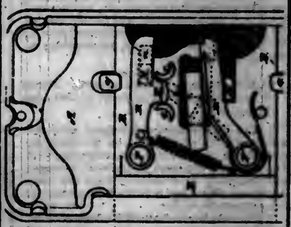
Brief.—Two wind-wheels are mounted upon opposite ends of the same shaft, and are governed by means of a rotating vane with a crank, connected with a lever, a weight, and a smaller propeller-vane.



The device consisting of the retaining tail E, with its crank G, connected with the lever I, the weight J, and the propeller-winged tail I, in combination with the double windmill D D, the whole constructed to operate substantially as and for the purpose described.

178,450. DOOR-LOCKS. C. B. Dickerman, Boston, Mass. [Filed Dec. 13, 1875.]

Brief.—A lock capable of being operated from the inside by means of a knob, and from the outside by a key, but cannot be unlocked by the knob when locked by the key.

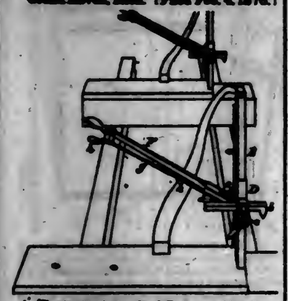


1. The combination of the safety-dog D' with the bolt B and projection K, or its equivalent.

2. The combination of the dogs D and D', the bolt B, shell A, and springs with the rear-

stem T and f, or their equivalent, substantially as and for the purpose described.

178,452. SAW-SET.L.DOGS. Elmer C. Dicey, Grand Haven, Mich. [Filed Feb. 4, 1876.]

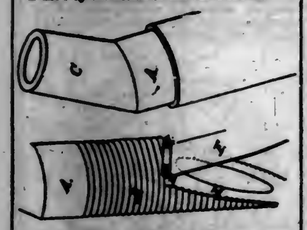


1. The toothed standard B, in combination with the sleeve D, adjustable dog b, pinion E, and lever F, with its sliding pawl d, substantially as and for the purpose described.

2. The lever F, handle h, rod g, pawl d, and spring b, in combination with the pinion E, and vertically-adjustable sleeve, as set forth.

178,453. SPRING-TRAP. Wm. Donovan, New York, N. Y. [Filed Jan. 11, 1876.]

Brief.—The object is to prevent the escape of gas from the soil-pipe into dwellings. This is done by the action of the valve shown.



In combination with the tube A, provided with stand and B, elbow C, thimble D, and flat-ring E, the automatic valve F, united to hinge-rear leg of stand and E, and applied to said combined with the rim E, and the spherical tube I, provided with the thimble D, as and for the purpose set forth and described.

178,454. LAMP-HOLDER. R. G. Dorrance, Coldwater, Mich. [Filed Oct. 28, 1876.]

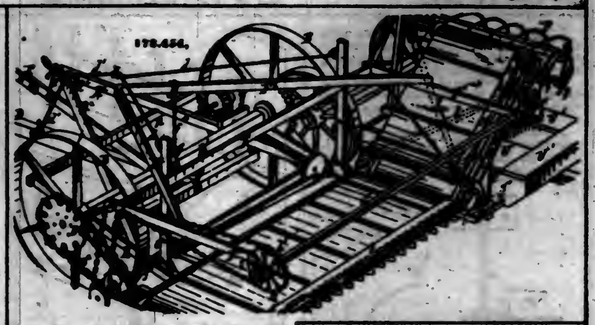


The label-holder, consisting of the notched and flanged bent having one side and one end open, and the notched follower pressed inward by the spiral spring on the guide-rod passing through one side of the box, substantially as shown and described.

178,455. HARVESTING-MACHINES. James F. Rud, Sidemadon City, Mebr. [Filed Aug. 28, 1876.]

1. The platform-frame provided with the openings O O', and hinged to the vibrating main frame, as described, in combination with the links d d, and rod or chain d', arranged and operating in connection with the main frame and thresh-box, substantially as and for the purpose set forth.

2. The rod-bearer frame F F', hinged to the openings O O on the hinged platform frame, and provided with the oblique bracer F', in combination with the adjustable link or rod f, connecting it with the main-bar or vibrating main frame, as described.



178,456.



178,455.



3. The reel provided with the adjustable bobs or collars g g, grooved disks g' g', rods or arms G', and slotted bosters G², constructed, arranged, and operating substantially as described.

4. The combination, with the sickle-bar B, of the sickle-sections r, and plate r', overlapping the joint between the sickle-bar and the stationary steady plate or bar C', in the manner and for the purpose set forth.

5. The chain k, which drives the elevator, extended across the platform-frame in rear of the cutters, as described, whereby it is made also to assist in removing the grain from the platform, as explained.

6. The clamping-bars s s', applied to the end of the carrying apron or canvas, for uniting said ends and for giving the desired tension to the canvas, as described.

7. The arms n, n', and p, applied to the elevator roller-shaft, in combination with the toothed wheel N, and wedge or spur n², all arranged and operating as described, for actuating the dropper and cut-off.

8. The combination, with the hinged elevator, of the supporting-caster, and the upright t, and parallel links t', arranged and operating substantially as described.

9. The combination of the independent bind-ing carriage with the hinged elevators by means of the table or platform V, and the supporting-standard W, arranged and operating as described.

178,456. HARNESS. James Fisk, Brattleborough, Vt. [Filed Jan. 31, 1876.]

1. The springs e, arms D, and adjustable links C, in combination with the thills A and axle G, as and for the purposes set forth.

2. The bolt-hook-strap F, secured by the metal arms f' to the links G, in combination with the adjustable blocks c' and thills A, as set forth.

3. The metallic saddle a, pad-plates T, and straps E for the thills, substantially as specified.

4. The combination, with the collar-strap E and girth I, of the cast-off plate J, eyes and studs E' and I', substantially as set forth.

178,457. FORCE-PUMP. Elijah Gleadhill, Owen Sound, Canada. [Filed Aug. 7, 1876.]

Brief.—The chains are secured to the lever by a bolt passing through the same, and so provided with nuts and a hook that both chains may be equally tightened or slackened by turning the nut on the end of the said bolt.



The combination of the lever M, perforated so as to admit of an upward or downward sliding motion of the bolt K, having hook K' and nut k, segment L, and chains E F, all combined and operating substantially as and for the purpose hereinbefore set forth.

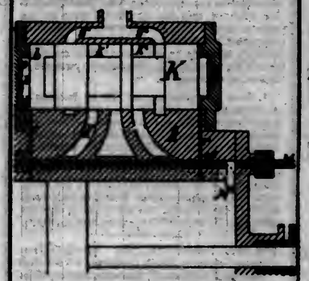
178,458. PUMPS. John Gorman, Mount Vernon, Ill., assignor of two-thirds his right to Thos. Ainsworth and E. C. Taylor, same place. [Filed Nov. 9, 1876.]



The double joint B B', having enlarged ends forming cup-shaped recesses b b', lighting-bolts B E, and set-screws F G, in combination with the plungers A and crank G, having the bolt G', all constructed and arranged for operation substantially as and for the purpose hereinbefore set forth.

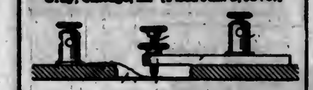
178,459. STEAM-VALVES FOR PUMPING-ENGINES. E. J. Gould, Newark, N. J. [Filed Nov. 10, 1876.]

Brief.—As the main piston reaches the end of its stroke it moves the small valve, which opens a passageway from the main cylinder to the valve-cylinder, to admit steam to operate the main valve.



The passages c' c', leading from the main cylinder c to the respective ends of the cylindrical valve-chest, the rod M moved by the piston upon the end of each stroke of the latter, having the holes or recesses m' o', adapted to match alternately with the passages c' c', and the cylindrical valve K h' O', and the several passages controlled thereby, combined and adapted for joint operation, as and for the purposes specified.

178,460. AUTOMATIC CIRCUIT-BREAKER FOR ELECTRO-HARMONIC TELEGRAPHS. E. Gray, Chicago, Ill. [Filed Jan. 8, 1876.]



The combination, substantially as hereinbefore set forth, of an electro-relay, a membrane diaphragm vibrated by sounding said pipe, and an electric circuit opened and closed by said vibrations.

178,461. ROCKERS FOR GRAIN-PURIFS. Jos. Gwynn, Tiffin, Ohio. [Filed Jan. 3, 1876.]

Brief.—The main object is to exclude water from the tightening-screw. Compression may be made without friction on the plate, or without d' touching the chain.



1. The plate E, cone J, screw K, with the ball F attached, in combination with the disk G, constructed as described, and for the purpose set forth.

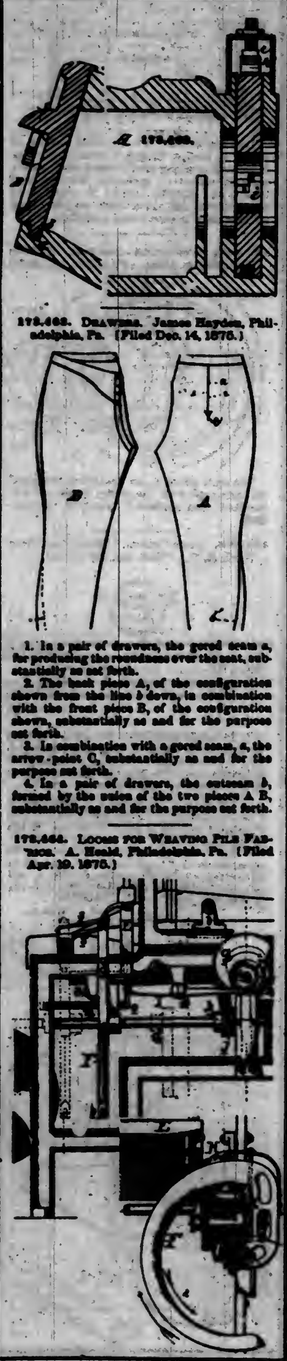
2. The thread nut B, working through the plate C with the projecting ends, for the purpose of pressing on the disk D, and in combination therewith, constructed as described, and for the purpose set forth.

178,462. CAR-AXLE BOXES. John C. Hammond, E. F. Kriegshaber, and W. R. Hills, Chicago, Ill. [Filed Sept. 20, 1876.]

1. The combination of the body A, having a groove, c, with the cover B hinged at one side and provided with the flanges c b, cross d, and fastening-spring e, all constructed and arranged substantially as and for the purpose specified.

2. The bush-board consisting of two parts, C C', with lap-joint g h, rod f, and spring k, in combination with the cap D and box A, substantially as and for the purposes specified.

178,463. DRAWERS. James Hayden, Philadelphia, Pa. [Filed Dec. 14, 1876.]



1. In a pair of drawers, the gored seam a, for producing the roundness over the seat, substantially as set forth.

2. The back plate A, of the configuration shown from the line b down, in combination with the front plate B, of the configuration shown, substantially as and for the purpose set forth.

3. In combination with a gored seam, a, the screw-point C, substantially as and for the purpose set forth.

4. In a pair of drawers, the outseam b, formed by the union of the two pieces A B, substantially as and for the purpose set forth.

178,464. LOOMS FOR WEAVING PILE FABRICS. A. Hield, Philadelphia, Pa. [Filed Apr. 10, 1875.]

1. In a loom for weaving pile fabrics, the curved arm or segment F, adapted, in connection with gripping, retaining, and releasing devices, to withdraw elastic wires from the fabric and insert them between the warp-threads, substantially in the manner described.

2. The combination of the segment-arm F with spring-jaws H and mechanism, substantially as described, for operating the jaws at intervals.

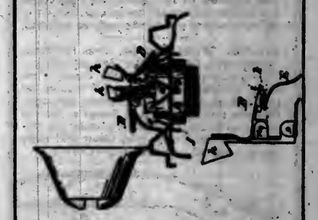
3. The combination of the gripping-jaws H on the segment-arm F with the guiding and retaining bars s s'.

4. The combination of the gripping-jaws H and operating mechanism, substantially as described, with the spring-pinch t and t'.

5. The combination of the pile-wire inserting and withdrawing arm with the square rock-shaft d, cog-wheel e, rack f, and cam g, the shaft d being adapted to slide in the wheel e, as set forth.

6. The combination of the pile-wire inserting and withdrawing arm with the sliding shaft d, cam h, arm C, sleigh j, and sleeve k, all substantially as set forth.

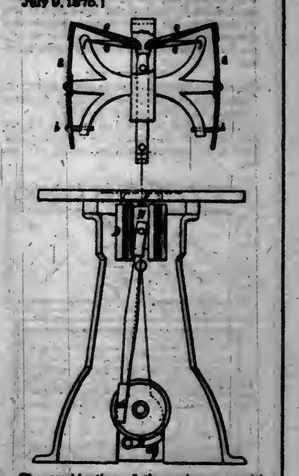
178,465. LAMP-EXTINGUISHERS. John G. Hahr and John G. Billing, South Bend, Ind. [Filed Jan. 26, 1876.]



1. In a lamp-extinguisher, the pivoted hooks A, in combination with the weighted levers D and levers E, substantially as and for the purpose set forth.

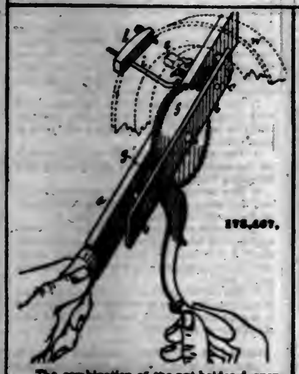
2. The combination, with pivoted hooks A of the weighted levers D, consisting of the plates C, with flanges j and weights k, said plates & levers being connected to the hooks A, by tongues l, passing through slots therein, substantially as and for the purpose specified.

178,466. SCROLL-SAWING MACHINES. W. D. Herrebed, Philadelphia, Pa., assignor to Lyman Gould, Norwich, Conn. [Filed July 9, 1875.]



The combination of the springs a a with the radial levers s s, having their adjacent ends connected with the free ends of the springs a a by straps or links s s, to form a straining device, substantially as herein described.

178,467. WRENCHES. Walter Hill, South Boston, Mass. [Filed Nov. 18, 1876.]

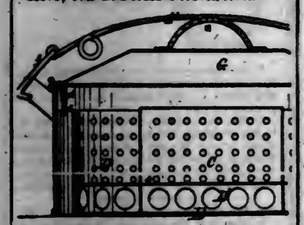


178,467.

The combination of the net-holder *d*, operated by means of the gearing *f g g* and crank A, with the adjustable brace and bolt *i l n*, substantially as and for the purpose set forth.

178,468. WARE-BOILERS. Geo. Hoffman, Cleveland, Ohio. [Filed Nov. 24, 1875.]

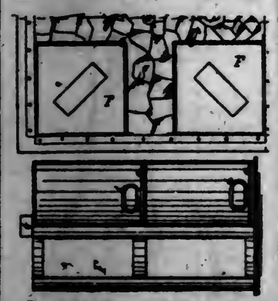
Brief.—A perforated interior vessel of reduced dimensions; a perforated bottom, beneath which the side perforations are larger than the rest; an outward flange at the top preserves an equal space on all sides; a central perforated recess, open below and close above; over all a concave-convex cover.



A WARE-steamer having the interior perforated wall *c*, and the perforated supplementary bottom *b*, forming the chambers D and D', together with the flattened, hollow, and perforated cone C, the cover G, and spring-bar F, as described, and for the purpose specified.

178,469. BUTTER-PACKAGES. Edgar B. Hollister and Charles W. King, Factory Point, Vt. [Filed Feb. 9, 1876.]

Brief.—Recess is plated on the lids; lids are then slid into the cases, and the cases into their compartments, against which the ice lies.



The combination, as a butter-package, of the refrigerator-case A, the chamber C, the frame F, having the sliding shelves a, together with the spaces S, as described.

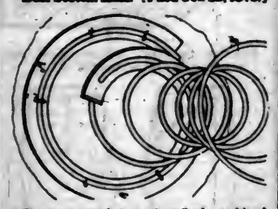
178,470. FIRE-PROOF FLOORS. J. W. Hoyt, Springfield, Mass. [Filed Feb. 1, 1876.]



178,470.

The combination, in a fire-proof flooring, of beams A, having flanges *a*, metallic furrings B, extending transversely from beam to beam, metallic arches C, springing between said beams, and metallic lathing D, attached to the furrings, all constructed and arranged substantially as shown and described.

178,471. FURNITURE-SPRINGS. Livorus Hall, Boston, Mass. [Filed Oct. 28, 1876.]



The open guard A, as described, combined and arranged with the spring B and cover or canvas C, and connected therewith, as specified.

178,472. DECK-LIGHTS. Henry Ides, New York, N. Y. [Filed Jan. 22, 1876.]



178,472.

1. In combination with the stationary tube A and smaller movable tube D, the centering-ring D', corrugated or notched, so as to allow a free passage of the gas, and adapted to serve as and for the purposes specified.

2. The annular oil-recess I, in combination with the packing and with the tubes A D and adjustable casting or piece G, as and for the purposes specified.

3. The double stuffing-box H J and double adjustments G I, combined and arranged to serve relatively to the stationary tube A and movable tube D of a drop-light, as and for the purposes specified.

178,473. SEED-PLANTERS. Joseph C. Jenkins, Lebanon, Tenn., assignor of one-half his right to Wm. H. Bennett, same place. [Filed Dec. 27, 1875.]

Brief.—The hopper is centrally divided to hold different kinds of seed, and each side is provided with a dropping-slide. Pivoted to the frame are levers, one end of each being attached to the slides, the other ends projecting outward, and are struck by cams on the axle to carry the slides back ward, when they are returned by springs. One of the cams is double, so as to operate one slide once between the regular hills, for planting pumpkins, beans, or other seeds.

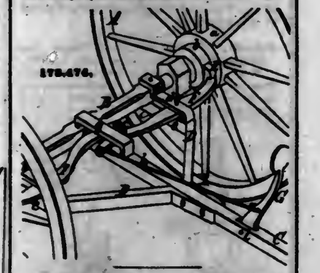
1. In a seed-planter, the sliding bottoms a a', arranged to operate separately and together alternately, so that two hills of corn are planted for every hill of pumpkin-seed, substantially as and for the purposes described.

2. The sliding bottoms a a', with openings a' a', levers E E, and springs F F, in combination with the revolving axle C, provided with the single cam-lever G and double cam-lever G', constructed and arranged to operate substantially as and for the purposes set forth.

178,474. VEHICLE-BRAKES. Joseph C. Jenkins, Lebanon, Tenn., assignor of one-half his right to Wm. H. Bennett, same place. [Filed Dec. 16, 1875.]

Brief.—The brake-shoes operate on the inside of the hubs of the fore wheels.

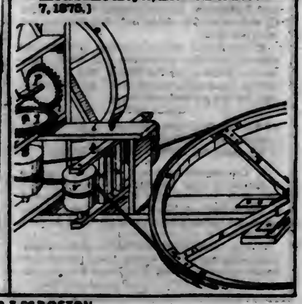
In a carriage or wagon brake, the combination of the carriage or wagon wheel hubs, constructed with cylindrical extensions on their inner ends for brake-shoes to bear upon the bounds, with extensions and centering-straps, and attached to the axle, the brake-shoe levers pivoted between the shoe-extensions and straps of the bounds, and extended in opposite directions over the tongue and under a strap, and linked together, and the foot-lever pivoted to the tongue, and connected by a rod to one end of one of the brake-shoe levers, all arranged in the manner and for the purposes herein described.



178,474.

178,475. WHEEL-SPOKES. Joseph C. Jenkins, Lebanon, Tenn., assignor of one-half his right to Wm. H. Bennett, same place. [Filed Dec. 27, 1875.]

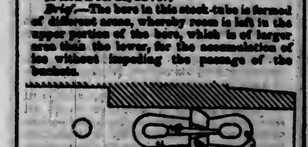
Brief.—The spoke is made with a tenon at each end, and a mortise in the middle, and is then split in two, and the parts reversed and driven into the hub and felly.



178,475.

The combination, with the hub A, of the spokes B, having tenons at each end, and a mortise in the middle, and split in two, and the parts reversed and driven into the hub and felly, substantially as and for the purpose set forth.

178,476. MEANS FOR CONVERTING BREECH-LOADING RIFLES INTO MUZZLE-LOADERS. C. D. Ladd, San Francisco, Cal. [Filed Jan. 4, 1876.]



The tube A, with its nipple, provided with its retracting-ring A and latch *i*, in combination with the chamber of a breech-loading rifle and the retractor F, or equivalent device, substantially as and for the purpose described.

178,477. RAZOR-STROPS. James Lamont, Rochester, N. Y. [Filed July 9, 1875.]



The block, A, constructed with the beveled (*i*, opening *f*, and channels *g g*, in combination with the oscillous strop B, cover C, and handle *d*, as and for the purpose specified.

178,478. BITTERS. Friedrich Langenast, San Francisco, Cal. [Filed Dec. 14, 1875.]

Brief.—To adapt the ordinary table zithers or zithern to be played with a fretted finger-board, and while held in the hands like a guitar.

A musical instrument consisting of the body A and the two standards C D, with the bridge B and tuning-head E, and having the groups of strings *g* and A, when constructed and arranged to operate substantially as herein described.

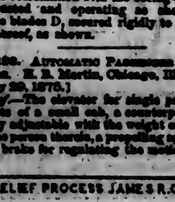
178,479. BROOM-TUBES FOR CHAIN-PUMPS. Former A. Lamson, Belle Plaine, Iowa. [Filed Dec. 22, 1875.]

Brief.—The bore in this stock-tube is formed of different sizes, whereby room is left in the upper portion of the bore, which is of larger area than the lower, for the accumulation of ice without impeding the passage of the broom.

A stock-tube for chain-pump, having its bore of different areas, as hereinbefore described, whereby room is left in the upper and larger portion for the accumulation of ice, substantially as shown and set forth.

178,480. FLOWER-POTS AND VASES. Alfred D. Lee, Gato, Ohio. [Filed Jan. 3, 1876.]

Brief.—A flower-pot or vase constructed of sod and held together by cords.



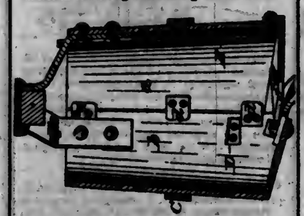
As a new article of manufacture, a flower-pot, vase, or ornamental form made from turf or grass-sod, in the manner as set forth.

178,481. STAY-LOOPS FOR HARNESS. Alfred J. Leach, Fort Atkinson, Wis. [Filed May 21, 1875.]

The stay-loop C, with its shouldered shank, in combination with rivet E, fold A, and layer B, substantially as described, for the purpose specified.

178,482. RAKES-AUTOMA. Henry C. Lyon, Wooster, Mich. [Filed Aug. 19, 1875.]

Brief.—The auger-body consists of two tapering sections, hinged together above, and secured by a band. The lower edge of the body is provided with angular cutting-lips, secured to the bottom and side. On the inner sides of the cylinder, a short distance above the bottom, are secured two oblique blades, to assist in loosening and raising the earth.



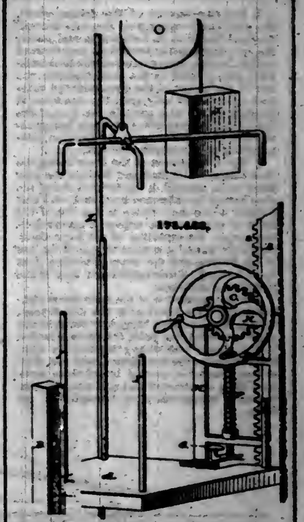
1. The combination of the hinged body A, consisting of the parts *a* and *b*, hinged together, and the band C, applied as shown.

2. In combination with the body A, the cutting-lips constructed in the form shown and described, and applied in the manner set forth.

3. In combination with the boring-cylinder, constructed and operating as shown, the oblique blades D, secured rigidly to the interior thereof, as shown.

178,483. AUTOMATIC PASSENGER-ELEVATORS. H. B. Martin, Chicago, Ill. [Filed July 29, 1875.]

Brief.—The elevator for single passengers consists of a small cab, a counterpoise, concentrically adjustable with the weight of the cab and the person therein, a propelling apparatus, and a brake for regulating the motion of the cab.



178,483.

In an automatic passenger-elevator, in combination with counter-balance J, adjusted as described, brake or lock E and pedal G, with the propelling apparatus attached to the cab, as illustrated, by pinion C and crank D, acting with and upon rack S on guide-posts B, constructed and operated substantially as and for the purposes set forth.

178,484. POLISHING-MACHINES. Josiah R. Mayhew, Cambridgeport, Mass. [Filed Jan. 13, 1876.]



1. As a new or improved manufacture, the knife-scourer composed of the combined head C and block A, and their connection-spring D, combined, constructed, and arranged as set forth.

2. Also, the combination of the combined head A and block C, the connection-spring D, and the guide E, all arranged, constructed, and applied substantially as specified and represented.

178,485. HARVESTERS. L. J. McCormick, W. R. Baker, and L. Spratling, Chicago, Ill., assignors to C. H. and L. J. McCormick, same place. [Filed July 17, 1875.]

1. The combination, substantially as hereinbefore set forth, of the main frame, the shoe hinged thereto, the finger-bar secured to the shoe, and the extension of the finger-beam bent backward and pivoted to the main frame in the line of the hinge of the shoe, for the purposes specified.

2. The combination of the main frame, the shoe hinged at its heel and thereto, the long finger-beam secured to the forward end of the shoe, having its extension bent backward and pivoted to the main frame in the line of the hinge of the shoe, and the center-wheel having its axis substantially in the axial line of the hinge; these members being constructed and operating in combination, substantially as hereinbefore set forth, whereby a wide range of adjustment is imparted to the cutting apparatus and its parallelism with the ground maintained.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

6. The combination, of the driving-wheel, the main frame resting on the axle thereof, the shoe hinged at its back end to said frame, the long finger-beam secured to the forward end of the shoe having its extension bent backward and pivoted to the main frame in the line of the hinge of the shoe, and the rake-post mounted slidingly upon the extension of the finger-beam inside the frame, substantially as hereinbefore set forth.

7. The combination of the main frame, the shoe hinged at its back end thereto, the long finger-beam secured to the forward end of the shoe having its extension bent backward and pivoted to the main frame in the line of the hinge of the shoe, the rake-post mounted slidingly upon the extension of the finger-beam inside the frame, at a point in rear of the line of the axletree, and the brace extending from the rake-post to the finger-beam outside the main frame and shoe.

8. The combination of the main frame resting on the drive-wheel axle, the detent-yoke, the adjustable tongue hinged to the axle and passing through the yoke, the brace attached to the tongue and abutting against the outer front corner of the main frame, and the driver's seat, mounted on said brace, these members being constructed and operating in combination, substantially as hereinbefore set forth.

172,497. 

172,496. 

172,496. RAILROAD-SIGNAL. William S. McLaren, New York, N. Y. [Filed Sept. 9, 1875.]

Brief.—A cash or frame, combining bulls-eye glass lens varying in color, in general within an illuminated box, the face of which having letters, characters, &c., cut out therefrom, thus producing an ornamental sign.

1. The case A and plate C, in combination with the frame G, provided with a series of differently-colored metal glass lens, D, placed at an angle in the frame G, and the holder a, all constructed and arranged substantially as and for the purposes set forth.

2. The plate C, provided with letters or figures, in combination with the frame G and a series of metal lens, D D, of different colors, the box A, and bottom B, substantially as and for the purposes described.

172,497. LASTING-MACHINE-FRAME. Lyman Lyon, Jr., and John G. McVean, Oshkosh, Wis. [Filed Sept. 20, 1875.]

1. The combination, in a leather-staking machine, substantially as described, of grooved stapling-rollers, with rollers for feeding the leather.

2. In combination with feed-rollers in a leather-staking machine, stapling-rollers set to form an angle relative to said feed-rollers, substantially as described.

3. In a leather-staking machine, in combination with stapling-rollers, finishing-rollers to lay and finish the top formed upon the surface of the leather, substantially as described.

4. Spring-hangers *o o*, in combination with bar B, and guide-roller *r*, in a leather-staking machine, substantially as described.

5. In a leather-staking machine, guiding-rollers *r* and *s*, in combination with feed-rollers, substantially as described.

172,498. INJECTORS FOR STEAM-BOILERS. William T. Messenger, Somerville, Mass. [Filed Jan. 26, 1876.]

Brief.—A lifting-valve having a combination gate, which regulates the flowage of steam into the internal nozzle.

The injector, substantially as described, provided not only with the internal and external nozzles O D, the lifting-valve T, the double-chambered valve-case, and passages *g h*, leading from the chambers of such case to, or connecting with, the said nozzles, as set forth, but with the gate X and its seat Y, arranged with the valve T and the passage *g*, all substantially as described.

172,499. CURTAIN-FIXTURES. Charles H. Miller, Buffalo, N. Y., assignor, by mesne assignments, to the Buffalo Curtain-Fixture Company, same place. [Filed Dec. 9, 1875.]

172,500. MACHINES FOR GROOVING CURTAIN-ROLLERS. Charles H. Miller, Buffalo, N. Y., assignor, by mesne assignments, to the Buffalo Curtain-Fixture Company, same place. [Filed Dec. 9, 1875.]

Brief.—The material removed in making the groove in a curtain-roller forms the retaining-bar.

1. The cutter D, composed of the knife *i* and the tubular cutter *j*, the knife *i* arranged centrally, and in advance of the tubular cutter, substantially as and for the purpose hereinbefore set forth.

2. In combination with the slide-block B, cut away to receive one-half of the roller, and the bed A cut away to receive the other half of the roller, and provided with groove *c*, the cutter D, and guide-banks *h*, substantially as and for the purposes set forth.

3. The process herein described of forming the groove and securing-bars of curtain-rollers at one and the same operation, and so that the material removed to produce the groove will form the securing-bar, substantially as set forth.

172,501. MACHINES FOR TWISTING WIRE. Edward W. Mitchell, Chicago, Ill., assignor to Wm. T. Collins, same place. [Filed June 4, 1875.]

Brief.—The wires to be twisted, which may be supplied with barbs, pass through the hollow axis of the revolving-frame to a winding-roller supported therein. A winding-guide is intermediately inserted in the frame upon a screw-rod, having upon one end a circular plate provided with outwardly-extending pins, which alternately, as the twisting-frame revolves, strike an arm of an upright bar, thus intermittently revolving the screw-rod. The bar is adjustable, so that the screw may be reversed in either direction.

The rotating frame A, hollow journal *k*, and roller B, in combination with sliding devices E *i l*, head *n*, and pins *o*, and bar *p*, substantially as specified.

172,502. TRAPS FOR AMALGAMATING-PANS AND SEPTUMS. Albert R. Ford, San Francisco, Cal. [Filed Dec. 22, 1875.]

Brief.—A trap or reservoir having a pipe projecting from its bottom, for the discharge of sand-pipe, in communication therewith, by a pipe. A tube, long enough to carry the charge of pipe forward to any desired point, is connected to the upper portion of the trap. A stationary dial is adjusted to the end of this pipe, as also an elbow, so arranged as to allow of being turned to any desired position around the pipe. To the upturned end of this elbow is screwed another pipe, which also terminates in an elbow.

water-bath, an elevating tank, and a containing tank for holding the substances to be colored, and evaporating-pipes, substantially as and for the purposes described.

172,503. 

172,504. 

1. In combination with a trap or reservoir, my collecting envelopes from pans, and suction, I claim the pipe G, swiveling elbow *h*, and tube *i*, for the purposes specified.

2. The fixed dial or indicator E, in combination with the swiveling-tube *i*, tubes G and *c*, and trap D, substantially as and for the purpose above described.

172,505. PRINTERS' QUOINS. Geo. B. Price, Philadelphia, Pa. [Filed Nov. 16, 1875.]

1. A printer's quoin of two adjustable pieces, A B, having tapering female screws *b*, in combination with a tapering screw, C, substantially as and for the purposes described.

2. A printer's quoin of two adjust. ble pieces, A B, connected by bolts *h i*, and having tapering female screws *b* and recesses *c*, in combination with tapering screw C and spiral springs *d*, substantially as and for the purposes described.

172,506. HOOP-SECURER. Peter F. Randolph, Liberty Corner, N. J., assignor to Jos. D. Van Dovere, same place. [Filed Sept. 25, 1875.]

Brief.—The lower end of the hopper is formed into an opener for making furrows. Passing through the hopper, and extending back to the handle for operation with the finger, is a rod, to which the agitator, is attached for stirring the seed.

1. The combination of a hopper having a discharge-opening, substantially as described, an agitator, *c*, and a finger-lever, substantially as and for the purpose described.

2. The implement described, having the hopper A, earth-opener B, agitator *c*, and finger-lever D, as described.

172,507. IMPLEMENTS FOR CLEANING GARMENTS. Joseph L. Rauh, West Meriden, Conn. [Filed Aug. 12, 1875.]

The recessed plate P, in combination with the lever X and cam-lever L, constructed and operating as described.

172,508. ART OF OCCLUDING FUME-STOPS. Hiram Purdy, Burlington, Iowa. [Filed Apr. 16, 1875.]

Brief.—The air is first heated to increase its capacity ... absorbing moisture; then it is passed through water that it may the better retain the odorizing particles.

1. The process described for odorizing liquors and other substances, consisting in subjecting heated air with aqueous vapor, and passing such air through an odorizing substance, and then or through a liquid, or other substance to be odorized, substantially as described.

2. I claim the combination of a heater, a water-bath, an odorizing tank, and a containing tank for holding the substances to be odorized, and evaporating-pipes, substantially as and for the purposes described.

172,509. COMPOSITIONS FOR PAVEMENTS. Daniel Sinclair, Napa City, Cal. [Filed Jan. 6, 1876.]

Brief.—Tracky-ite earth (a decomposed volcanic rock) is calcined, so as to be easily pulverized, and is then laid in layers from six to eight inches in thickness, over which is sprinkled asphaltum, coal-tar, and boiled linseed oil. Any number of layers may be put down, as required. Sand and shell may be added for some localities. The composition may be used for walls, fences, levees, &c., as well as pavements and roadways.

The composition as described, consisting of trachytic earth and asphaltum, coal-tar, or coal-oil, for the construction of fences, walls, levees, road-beds, and other analogous uses, substantially as set forth.

172,510. TRACTION-WHEELS. Geo. Rogers, Mount Vernon, Ohio. [Filed Oct. 6, 1875.]

In a traction-engine, the combination with the driving-shaft B and the rear axle D, said axle adapted to be loosely or rigidly secured to the wheels F F', of the shaft C, bevel-gear wheels B' C' & D', and supplemental shaft, provided with gear-wheels F F', substantially as and for the purpose specified.

172,511. LIFTING-JACKS. Jos. S. Rowland, Somerville, Ohio. [Filed Feb. 12, 1876.]

The combination with the base A; vertical standard D, inclined standard E, pivoted and notched bar I, pivoted connecting-bars J, of the pivoted lever F, having a series of notches, M, and the holding-bar K, pivoted to the head-block and provided with the transverse pin L engaging with the notches on the upper face of lever F, substantially as specified.

172,512. ANIMAL-TRAPS. C. W. Schantz, Washington, D. C. [Filed Jan. 10, 1876.]

1. A steel trap, having its bed-plate extended at one or both ends to form the spring or springs of the trap, and bent into position so as to overlie the bed-plate and embrace the bearings of the lever, substantially as and for the purpose set forth.

2. A steel trap when provided with a spring, overlying the entire length of its bed-plate, and having the latter extended at one or both ends beyond the bearings of the lever, and combined with a correspondingly extended spring or springs, and the lever of the trap.

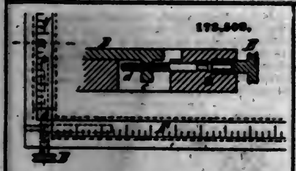
172,513. DEVICES FOR SUPPLYING SUBSOIL-PLOUGHS. Christn. G. Schlichtenbrede and Christian F. Kinsley, Dayton, Ohio. [Filed Aug. 12, 1875.]

Vertical pipes arranged in the cavities of a furnace, and having diagonal discharge-orifices, two of which are vertical and two horizontal, in combination with supply-pipes, arranged under the grate-bars of a furnace, substantially as and for the purposes set forth.

172,514. DRAWING-BOARDS. J. H. Gottschalk, Buffalo, N. Y. [Filed Dec. 22, 1875.]

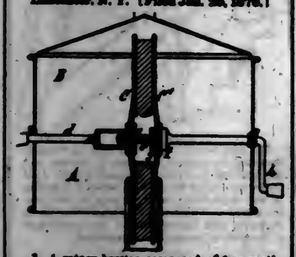
178,505.



1. The combination, with a drawing-board, of one or more scales or rules arranged in grooves in the drawing-board and made longitudinally adjustable therein, substantially as and for the purpose hereinbefore set forth.

2. In a drafting apparatus, the combination, with a drawing-board provided with one or more adjustable scales or measures, of a T-square, provided on its upper surface with one or more rules or scales arranged parallel with its edges, substantially as and for the purpose hereinbefore set forth.

178,506. ROTARY BEATERS. J. Schraubel, Lancaster, N. Y. [Filed Jan. 28, 1876.]



1. A rotary beater composed of two vertical clamping disks or frames mounted on a horizontal shaft, and adapted to approach each other as described, so that the articles to be beaten are presented edgewise to the fire and cooked on both sides simultaneously, substantially as and for the purpose hereinbefore set forth.

2. The combination of the disk C, provided with shaft J and threaded socket c, with the disk C' mounted on the shaft a, provided with screw f, for adjusting the disks towards and from each other in clamping and releasing the articles to be broiled, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the cans A B, of the rotary clamping disks C C, shaft J a, handle K, crank L, and shield b, substantially as and for the purpose hereinbefore set forth.

178,507. TILE MACHINERY. L. T. Gardside, Cleveland, Ohio. [Filed Jan. 28, 1876.]



1. In a tile or brick machine, the combination, with a screw-threaded plunger-shaft, and a revolving nut engaging therewith, of a power-shaft, that is thrust endwise in the same direction, and intermittent mechanism whereby the plunger-shaft is reciprocated within the nut, substantially as and for the purpose set forth.

2. The combination in a tile or brick machine, with the screw-plunger G, of the revolving nut F, bevel-gears E, stationary gear D, and power-shaft A, substantially as and for the purpose described.

3. The combination, with the receiver I, provided with the flange b, of the plunger H, provided with the flange b, which latter device serves in unison with the plunger, substantially as and for the purpose specified.

4. The combination, with the opening K, of the lower cams K' and cheek-plates K'', substantially as and for the purpose described.

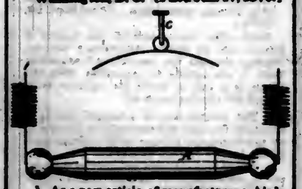
178,508. CARRIAGE-SEATS. J. Sebastian, New York, N. Y. [Filed Oct. 26, 1875.]



1. The combination, with the posts or uprights A and seat C, of the springs B and elastic brackets D, pivoted to the said uprights at the forward ends, and pivoted together at the rear ends, said brackets resting against a bearing, a, on the back of said uprights A when the seat is in position for use, substantially as herein set forth.

2. The combination of the supports A, seat C, springs B, pins a, spring brackets or props D, pins c c, bearing a, plates b b, and links d d, connecting the brackets and springs, substantially as and for the purpose set forth.

178,509. BIRD-CAGE SWINGS. Joel B. Sheldall, Trenton, N. J., assignor to C. C. Gill, Washington, D. C. [Filed Jan. 17, 1876.]

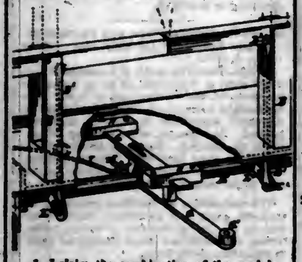


1. As a new article of manufacture, a bird-swing consisting of the transverse bar A and an elastic suspending wire or bail, constructed to be suspended from a single point.

2. The swing-bar A, connected to the top of the cage by an elastic support, as specified.

178,510. FENCE-GUARDS. Louis Simons, Chicago, Ill. [Filed Dec. 11, 1875.]

Brief.—The gate-arms are operated by a push-lever, through a rock-shaft and connecting-rods, when the boat or draw approaches. The guards are returned to their normal position by their own weight.



1. I claim the combination of the push-lever G, rock-shaft E, rods F F', and gate-arms or guards C C, substantially as and for the purposes set forth.

2. I claim, in a self-closing gate, the standards B B, the bars C C, the rods F F', and the rock-shaft E, supplied with the arms F' F and F, in combination with the lever G, when the same are constructed and arranged to operate substantially as and for the purposes set forth.

178,511. DRAW-BRIDGE GATES. Louis Simons, Chicago, Ill. [Filed Oct. 6, 1875.]

Brief.—The gates of a draw or swing bridge are operated by a central and two land side levers, provided with friction-wheels, and connected by a pivoted spring locking device arranged on a central plate. The standards of the gates project below the floor, and are connected to the levers by links. A spring throws the central lever out when the gates are open.



1. In a draw or swing bridge or ferry-guard, the combination, with the gates B B and the standards F F', of the levers D, C, and F, the links F', and the locking attachment H, when constructed and adapted to operate substantially as and for the purposes set forth.

2. The combination, with the gates B B, of the standards F F', the levers D O F, and the links F' F, the spring M, when constructed and arranged to operate substantially as and for the purposes described.

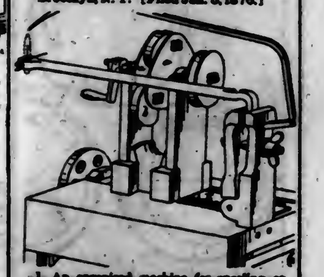
178,512. PAINTING BROOM-HANDLES. H. C. F. Sohn, Cleveland, Ohio. [Filed Jan. 12, 1876.]

Brief.—Both broom-handles over plates having elastic projections covered with paint, put on them by hand or machine-moved rollers. Vertical guides to prevent undevice motion of the broom-handles.



The device for painting broom-handles, &c., consisting of one or more impression-plates, A B, formed with raised surfaces or projecting portions of elastic material to receive the paint, and over which surfaces the handle is rolled to receive the desired imprint, substantially as and for the purpose set forth.

178,513. MACHINERY FOR BENDING AND CRIMPING METAL. Eugene Jules Schlipf, Brooklyn, N. Y. [Filed Jan. 6, 1876.]



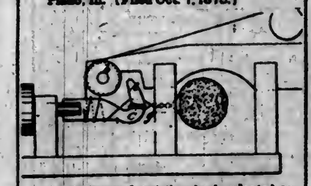
1. An organized machine for moulding or embossing, or for shaping metal, comprising the combination of a vibratory tool-carrying spring-bar and a hammer, which delivers on said bar a succession of blows, for the purpose of pressing and shaping said bar in regular vibrations, substantially as shown and set forth.

2. The vibratory tool-carrying spring-bar, in combination with the rotary hammer-head and series of hammers hung thereon, for the joint operation as set forth.

3. In combination with the vibratory tool-carrying bar, the hammer and hammer-supporting carriage, movable in a plane parallel with the said bar, and adjustable nearer to, or further from, the axis of vibration of the same, substantially as and for the purposes set forth.

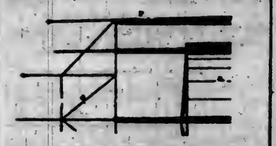
4. In combination with the tool-carrying bar, the pointer or indicator, under the arrangement and for operation substantially as set forth.

178,514. GRAIN-BINDERS. J. F. Steward, Plano, Ill. [Filed Oct. 7, 1875.]



A rotating and twisting hook, adapted to rotate and twist the proximate wires and wind the cone from the carrier into a coil around its shank, in combination with the said carrier, operating to draw the coil from the shank upon the hook proper, substantially as described.

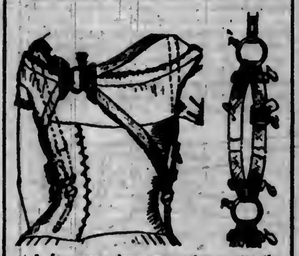
178,515. LIGHTNING-GUARDS FOR OIL-TANKS. Andrew M. Steele, Oil City, Pa., assignor, by mesne assignments, of one-fourth his right to R. H. Mitchell. [Filed Sept. 14, 1874.]



1. The combination, with an oil-tank, of a covering and surrounding system of electrical conductors connected to each other, but placed at a distance from the tank, substantially as described.

2. A system of guards of oil-tanks against lightning consisting of metal points suspended in the air far above the tank by a net-work of metal wires, each net-work being connected with, and supported by, rods leading to the earth, the whole furnishing a conductor for electricity in all its parts beyond the line of ignition of the gases from the tank, substantially as described.

178,516. SUSPENDERS. John H. Sterling, Brooklyn, N. Y. [Filed Jan. 20, 1876.]

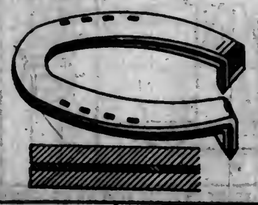


1. In a suspender or garment-supporter, the combination of the shoulder-straps A, elastic rings or bands B B' B', and suspending straps D, constructed and arranged substantially as described and shown.

2. In a suspender or garment-supporter, the combination of the shoulder-straps A, elastic rings or bands B B' B', ribbon C, and suspending straps D, constructed and arranged substantially as described and shown.

3. In a suspender or garment-supporter, the strap D for attaching to the garment, having a hook at its front end, and eyelets in its lower end, substantially as described and shown.

178,517. BASE FOR MAKING HORSESHOES. Thomas Thickerwood, Sparta, Wis. [Filed Feb. 7, 1874.]

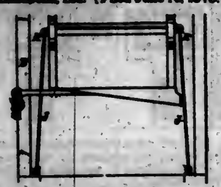


178,518. CALL-BELLS. H. Stratton, West Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company, same place. [Filed Dec. 21, 1875.]



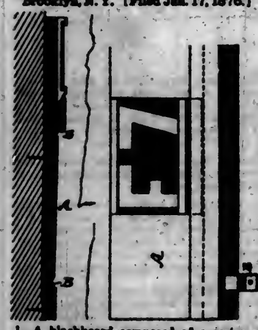
The combination of a bell arranged upon a central support, a hammer rigidly attached to the said central support by an elastic arm, the center of motion of which is below the plane of the bell, and a stop to arrest the said arm, substantially as described, before the hammer reaches the bell.

178,519. GRAIN-SEPARATORS. J. S. Butt, Indianapolis, Ind. [Filed June 14, 1875.]



In combination with the shoe or shaking-riddle of a separator, a pair of frames, J J', arranged and pivoted to the sides of the shoe above the line of the screen, and also pivoted to the sill or sides of the separator-frame near the sill, to operate substantially as and for the purpose set forth and described.

178,520. BLACKBOARDS. DeW. C. Taylor, Brooklyn, N. Y. [Filed Jan. 17, 1876.]



1. A blackboard composed of a series of horizontal sections, A A, placed vertically one above the other, and combined with a series of tiers of brackets, B B, in such manner that the several sections of the same board are separately supported by separate brackets, substantially as set forth.

2. The section A of a blackboard, beveled at the lower and also at the upper edge, substantially as specified, for the purpose set forth.

178,521. FEATHER-DUSTER SUPPORTERS. Joseph Unna, San Francisco, Cal. [Filed Jan. 8, 1876.]

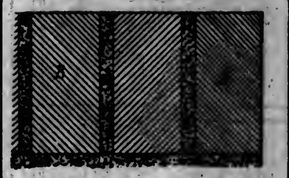
Brief.—Two bands pass around the duster—one near the top of the feathers, and the other midway—and are held in position by side connecting-stays. The upper band is elastic to clamp the handle.



A feather-duster projecting, consisting of the band A, elastic band B, and stays or braces c c, substantially as and for the purpose described.

178,522. PAVEMENTS. Aaron Van Camp, Washington, D. C. [Filed July 26, 1875.]

Brief.—Bricks or stone blocks are impregnated with asphaltum and dead-oil, then placed in a mold and cemented together by any suitable cement. The blocks thus formed are laid on a concrete sub-bed, and the interstices filled with cement. Instead of forming them in blocks, the bricks may be laid directly on the concrete sub-bed.

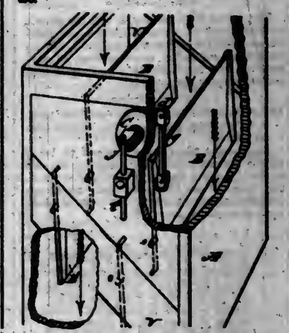


A concrete pavement or concrete blocks, consisting of a base, A, bricks or granite blocks B B, bonded as stated, and the binder C, the whole being constructed, combined, and arranged substantially as described.

A bar of horseshoe-iron, having a steel center between two iron surfaces, substantially as set forth.

178,523. REGULATORS FOR AIR-PASSAGES. Alba H. Tingley, Providence, R. I. [Filed Feb. 3, 1875.]

Brief.—Intended to automatically regulate the supply of air to the air-chambers of hot air furnaces, to regulate draft of ventilators, &c.



1. The combination of the balanced wings B B with the arm d, shaft e, and arm f, with its weight f and case A, substantially as and for the purpose set forth.

2. The wings B' B', constructed and operating substantially as described, in combination with the frame and case d, for the purpose herein set forth.

3. The combination of the frames V V, wings B B', constructed and operating, substantially as described, with the case A, for the purpose specified.

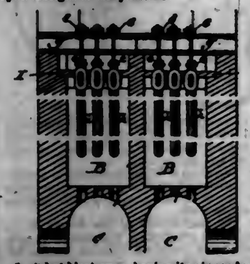
178,592. GAS-REGULATORS. J. P. Werner, Baltimore, Md., assignor to John R. Hall, Philadelphia, Pa. [Filed Oct. 28, 1875.]



The valves B C and cast a, with the stem b, provided with the collar, as shown, in combination with the casing or chamber A, having the conical or' fitting inner surface, all constructed and combined substantially as and for the purpose set forth.

178,593. HOT-BLAST OVENS FOR FURNACES. P. L. Wehner, Lebanon, Pa. [Filed Dec. 28, 1875.]

Brief.—The blast-pipes, instead of being rigidly connected with the masonry, are suspended from the top of the oven, thus avoiding injury to the bricks or pipes by the expansion and contraction of the pipes incident upon changes of temperature.



1. A hot-blast oven, having its air-conducting pipes suspended therein, substantially as shown and described.

2. In a hot-blast oven, a pendent air-conducting pipe, substantially as herein shown and described.

3. In a hot-blast oven, the combination of a heating-chamber, a combustion-chamber communicating therewith, and an air-conducting pipe or pipes, hung by their upper ends within the heating-chamber, substantially as shown and described.

4. In a hot-blast oven, the combination of the pipes G, provided with the lugs e, and suspended by the rods d from the beams g, substantially as shown.

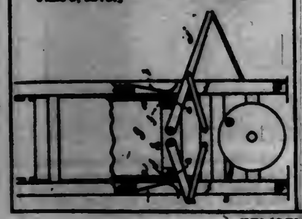
5. In combination with the pipes suspended in the heating-chamber, the roof I, formed of brick, clamped to and sustained by the pipes, as and for the purpose described.

6. In a hot-blast oven, the combination of the heating-chamber B containing the series of air-pipes G, and the combustion-chamber C, provided with the series of flues and corresponding series of gas-inlets, for the purpose of equalizing the temperature, as set forth.

7. In a hot-blast oven, the combination of two or more communicating series of air-pipes mounted in separate heating-chambers, substantially as shown.

8. The combination of the two pipe or heating-chambers B C, combustion-chamber, two series of pipes, and the mains D, E, and F.

178,594. HAY-PRESSES. Michael L. Whitney, North Yarmouth, assignor of two-thirds his right to George Noyes, Fernal, and A. Leighton, Yarmouth, Me. [Filed June 9, 1875.]



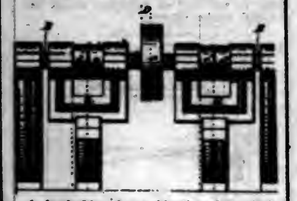
1. In a hay-press, substantially as shown, the doors a, provided with hooks c, together with the follower b, provided with catches f, to operate as shown and described.

2. In a hay-press, as shown, the curved spring-lever b, in combination with doors a and arms f, as set forth.

3. In a hay-press, as above, the spring-lever b, with the hook c, made in one piece, in combination with the catch f, door a, and arm f, as set forth.

178,595. SHAFTINGS AND HANGERS. Phillip Young, Louisville, Ky. [Filed July 23, 1875.]

Brief.—The divided sections of the shaft, having fixed pulleys on each end, are hung on double and single hangers. The center sections of the shaft and the pulleys are for reversing the revolutions of the machine.



1. In shafting the combination of the shaft B divided in three sections, the hangers a a', b b', driving-pulleys C, and belts D, substantially as shown.

2. The combination of the divided shaft B and the single and double hangers, substantially as set forth.

178,596. TONGUES FOR VEHICLES. Amos Hegler, Andersonburg, Pa. [Filed June 2, 1875.]

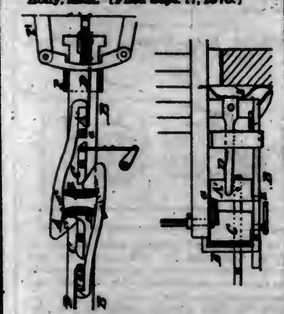


The tongue for sleighs or other vehicles, consisting of the hinged draft-tongue C and stationary part B, the same having the projecting bar D and bridge E, substantially as and for the purpose specified.

178,597. BALE-TIES. Jno. M. Brandenburg, Fort Motte, S. C. [Filed Dec. 27, 1875.]

The bale-tie A, provided with the three slots a' a' a', and with the lugs a' upon the ends of its side edges, next the slot a', substantially as herein shown and described.

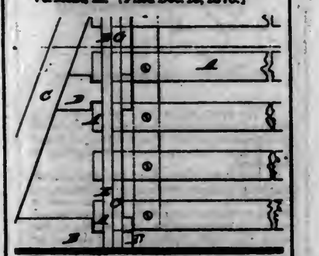
178,598. CAR-COUPLINGS. D. M. Campbell, Holly, Mich. [Filed Sept. 17, 1875.]



1. A check attached to truck, to prevent turning of truck beyond a certain distance, consisting of supports F, brace F', and arc-piece F'', as set forth.

2. The vertical spring D', arranged at the rear of buffer-frame, against beams of truck and car, to equalize back pressure and save king-bolt, as described.

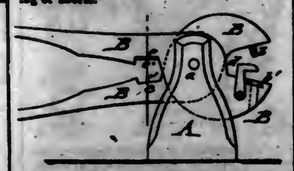
178,599. PORTABLE FENCES. L. Chipman, Vermont, Ill. [Filed Dec. 18, 1875.]



The post formed of the inclined bars C, the notched sill B and cross-bar D, made in two parts, and the upright bar E, in combination with the projecting ends of the horizontal bars of two adjacent panels, A, placed at an angle with each other, substantially as herein shown and described.

178,600. PUNCHING AND SHEARING MACHINES. A. W. Comstock, Mount Pleasant, Iowa. [Filed Dec. 18, 1875.]

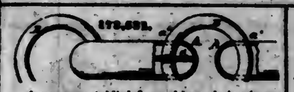
Brief.—The recesses in which the cutters are placed are for the purpose of allowing of the cutting off of bars, as well as the shearing of sheets.



The improved compound cutting and punching machine, consisting of frame A, having its standards connected by rod c, and the lower B, provided at the ends with punch and die b b', the said levers having the corresponding recesses e, and cutting edges f near their middles, all as shown and described.

178,601. ORNAMENTAL LOOPS FOR HEDGE-LACED CHAINS. Rimbeal Cottle, New York, N. Y. [Filed Dec. 27, 1875.]

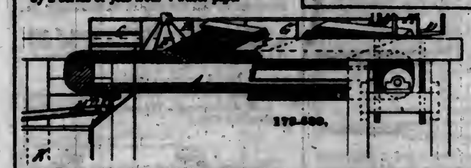
178,602.



An ornamental link for necklace-chains, having holes d' at the ends of its slot c', of a larger diameter than the end parts of said slot c', and having a small plate, C, inserted in one end to receive the ends of the open ring B, substantially as herein shown and described.

178,603. GAS-CONSERVATORS. Charles Crane and David F. McKim, Farley's Fork, Utah. [Filed Sept. 4, 1875.]

Brief.—Ore is fed, with a stream of water, from a series of fan-shaped spouts upon a laterally-inclined endless carrier. The lighter parts are washed across the belt into a collecting trough, the heavier being carried along upon the belt, and deposited in suitable receptacles. The belt is washed clean of ore by a series of jets from a water-pipe.



178,602.

1. The combination, with laterally-inclined endless carrier A, of ore-spouts E, having fan-shaped corrugations F, the riffling water-spouts G, and brushes H I, as and for the purpose described.

2. The combination, with endless carrier A, of supporting-rolls B, journaled at one end in adjustable bearings, as shown and described, to adapt the machine to different kinds of ores.

178,604. BOTTLE-STOPPERS. Charles De Guillebon, New York, N. Y. [Filed Jan. 7, 1876.]

Brief.—An elastic stopper applied to a solid cup-piece, and hung by a curved slot to a yoke pivoted at the neck-band.



1. In bottle-stoppers, the combination of a swinging yoke, a loose cup-piece having corrugations and curved slot, and a swinging lever-ball, pivoted to the cup-piece below the upper end of the slot, to be operated substantially as specified.

2. In bottle-stoppers, a lever-ball pivoted to cup-piece, and swinging with yoke into open position, to bear jointly on the neck-yoke as well as stopper, and thus retain the stopper at one side of the neck, as and for the purpose specified.

3. In bottle-stoppers, a swinging lever-ball, pivoted to the cup-piece below, and somewhat in front of, the uppermost corner of the curved slot of the cup-piece, substantially as specified.

178,605. GUIDE AND RING RAISES FOR FURNACE-DOORS. Francis Hardcastle, New York, N. Y., assignor to Thomas Cassidy and H. F. Crosby, same place. [Filed Jan. 3, 1876.]

Brief.—The hooks are made adjustable, so as to fit joints or ends of various sizes, and also to carry carrying rods of great weight or length long distances, the hooks being adapted to fit temporary rods.



The spur (expanding and contracting) guide and rod hooks B C for fishing-rods, arranged to overlap, and having a loop and binding-screw, substantially as specified.

178,606. SKATE-SHARPENERS. William H. Fisher, Rollin's Grove, Pa., assignor of one-half his right to O. K. Fisher, same place. [Filed Dec. 27, 1875.]

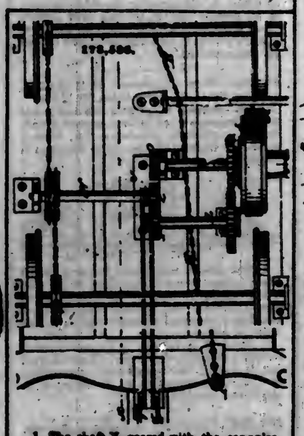


A pocket skate sharpener, consisting of body A, provided with curved handles B, file-recess b, guide-flange C, and adjustable gage E, constructed as shown and described.

178,606. CAR-STARTERS. L. Franks, Champion Mills, N. Mex. [Filed Dec. 4, 1875.]

Brief.—Braking car wheels coil-spring. By reversing gear, force so accumulated is used to start car.

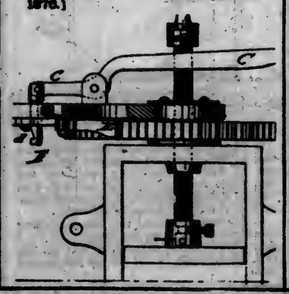
178,606.



1. The shaft N, geared with the car-axles, the reversing shafts L R, and the coiled spring and brake, combined and arranged substantially as specified.

2. The spring connected to the winding-shaft R by a ratchet and pawl, when combined with a shaft, L, gearing with the car-axles, for applying the power of the spring to start the car, substantially as specified.

178,607. AUTOMATIC STOP-MOTIONS. A. A. Hayes, New York, N. Y. [Filed Jan. 27, 1870.]



1. The combination, with a fixed flange or contact-stop of the feed screw, of a fulcrumed lever of the oscillating arm, said lever producing the disengaging of the ratchet operating pawl, to interrupt the feed motion of the screw, substantially as specified.

2. The combination of the fulcrumed lever C and the transversely-sliding link F, having inclined recess d, with the perforated and spring-acted slide-piece F' and the spring-pawl E of the oscillating arm, to raise or drop the pawl by motion of lever, substantially as described.

178,608. CARTRIDGES. Albert Hall, New York, N. Y. [Filed Jan. 22, 1876.]



The combination, with paper shell A and cap B, of a diametrical nevil, C, secured by side spurs a, that pierce the shell, by top studs b, that fit recesses of shell, and by central projection d, that passes through perforated head of cap, as and for the purpose specified.

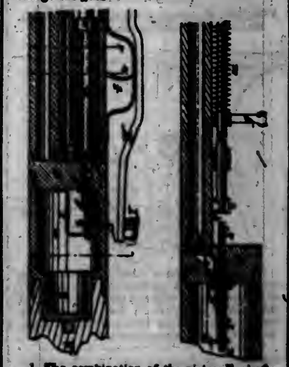
178,609. HARNESS-HAMES. R. F. Rowland, Danville, Vt. [Filed Jan. 22, 1876.]



A hame provided with one or more upper and lower and outwardly-projecting rein-guides, B C D, additional to the ordinary guide E, substantially as specified.

178,610. AIR-GUNS. Wilhelm Hübler, New York, N. Y. [Filed Aug. 11, 1875.]

Brief.—The reservoir for compressed air is behind the barrel and compressing-cylinder, and is separated from them by a partition, through which a channel controlled by a conical valve leads to each. In the reservoir is a standard, which supports the stems of these two valves. The valve controlling the channel leading to the barrel has a prolonged stem, which is struck by the lock-bolt to discharge the gun.



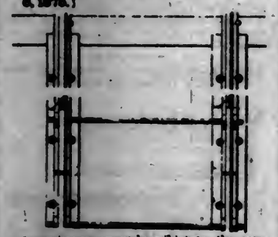
1. The combination of the piston F, shafts A F, valves f f', and springs i i', with air-chamber B, as shown and described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

2. The air-chamber B, having support L for valve-shafts *h h'* and socket *d*, with channels *e e*, for the purposes set forth.

3. In combination with air-chamber B, the valves *f f*, having collars *g g* and springs *i i*, as described.

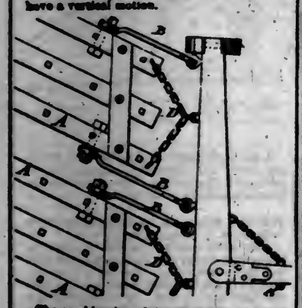
178,561. RAILROAD-RAIL JOINTS. George W. Hodgdon, Enfield, N. H. (Filed Nov. 6, 1875.)



As an improvement in rail-joints, the combination of the rails, which are laterally braced at their meeting ends, with longitudinal sleepers, that extend on both sides of the joint, and are bound by the connections at both ends, to provide a steady, continuous bearing for the rails, substantially as specified.

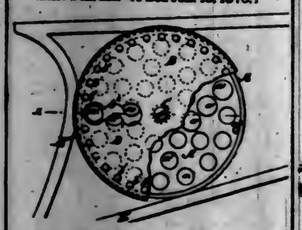
178,562. HARROWS. William Horne and William C. Budrow, Ogden, Iowa. (Filed July 24, 1875.)

Brief.—The harrows are made in sections, and joined to a common draw beam, having runners at each end, by three points of attachment to the draw beam for each section, two of which are by jointed rods, and one by chains and staple, leaving each section free to have a vertical motion.



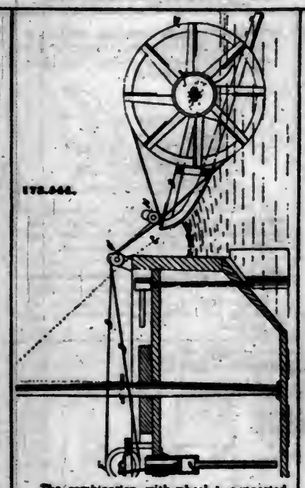
The combination of the pivoted bars B and the chains D with the sections A of the harrow, and with the evener C, substantially as herein shown and described.

178,563. CARTRIDGE-BOXES. C. K. Howe, Bellevue, Mo. (Filed Jan. 10, 1876.)



The combination, in a cartridge-box, of the ring-flanged block A, having holes in different radial planes, with the slotted and therein centrally-pivoted disk B, resting upon and having a flange that overlaps that of block A, and for the purpose specified.

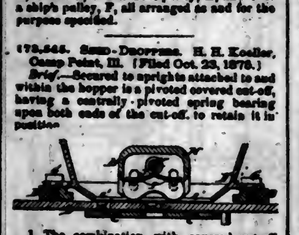
178,564. APPARATUS FOR PURIFYING SEWER-GAS. Charles Hurford, Edgartown, Mass. (Filed Dec. 4, 1875.)



The combination, with wheel A, supported on a float, B, and towed by the ship's cable C, of an endless rope, D, working in a groove, E, of wheel, over a float-pulley, H, and over a ship's pulley, F, all arranged as and for the purpose specified.

178,565. SEED-DROPPERS. H. H. Koeller, Camp Point, Ill. (Filed Oct. 23, 1875.)

Brief.—Secured to uprights attached to and within the hopper is a pivoted covered cut-off, having a centrally-pivoted spring bearing upon both ends of the cut-off, to retain it in position.



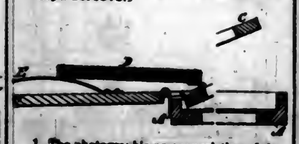
1. The combination, with covered cut-off block I, constructed as described, of the two-armed spring J, centrally pivoted at K, as shown and described, whereby the pressure on one side is increased whenever the other side is forced upward.

2. A cut-off to be used in connection with hopper and slides, consisting of a side-slotted box, H, block I, having side pins, a spring, J, a bolt, K, and angle-plates L, all arranged as shown and described.

178,566. PROCESSES OF GLOSSING COFFEE. Herman A. Kroberger, Philadelphia, Pa., assignor to H. A. Kroberger & Co., same place. (Filed Dec. 18, 1875.)

The process of glossing coffee by first priming it with starch and gelatine, and then covering this with a mucilage of dextrine, the latter uniting with the priming to form a tenacious coat, as set forth.

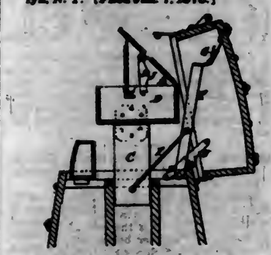
178,567. PHOTOGRAPHIC-PRINTING FRAMES. Claude L. Lambert, Paris, France. (Filed Sept. 28, 1875.)



1. The photographic press consisting of the case A, with apertured glass side, the hinged leaf C, with corresponding apertures and hinged felt-lined doors D, and the lid F, with springs H H, all combined substantially as described, and for the purpose set forth.

2. The combination of the case A, having apertured glass sides, the hinged felt-lined doors D, and the lid F, provided with springs H H, substantially as and for the purpose set forth.

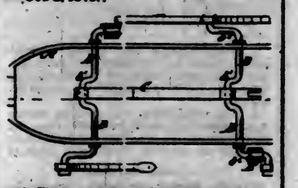
178,568. TRUNKS. Wm. J. Large, Brooklyn, N. Y. (Filed Jan. 7, 1876.)



1. The combination of the pivoted bail B and the pivoted rods F with the trunk-body A, the slides C, and the tray D, substantially as herein shown and described.

2. The combination of the tongues *d* and the hangers *f* with the slides C and the tray D, substantially as herein shown and described.

178,569. PROPELLING CANAL-BOATS, &c. L. F. A. Lagrange, Wheatland, Cal. (Filed Oct. 2, 1875.)

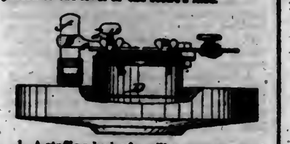


1. The two middle cranked shafts B B, connected by rod C, in combination with four poles, D, the two of a pair arranged on the reversed cranks of their shaft, and causing the diagonally-opposite poles of different shafts to operate together, as and for the purpose specified.

2. The combination, with trunk-shafts B and poles D of the weights E, arranged on different shafts and on opposite sides of boat, as and for the purpose set forth.

178,570. STAFFING DEVICES FOR MILLSTONES. D. Loth, Rich Hill, Ohio. (Filed July 17, 1875.)

Brief.—A centrally-perforated horizontal plate, attached to the top of a cylinder open at bottom, is taped onto the spindle. Attached to and extending from one side of each plate are two forwardly-extending parallel arms, on whose extremities the rod-staff is adjusted to the level of the stone's face.



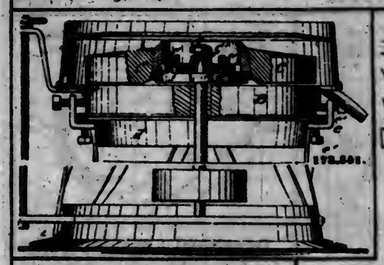
1. A staffing device for millstones, composed of supporting-plate, with parallel adjustable spring standards, carrying lateral marking-staff attached thereto, substantially in the manner and for the purpose set forth.

2. The combination of the supporting-plate, having guide holes equidistant from the center, with the threaded guide-pins of the runner or bed-stone attachment, and with binding thumb-screws, to attach device for staffing either runner or bed-stone, substantially as described.

178,571. FLOUR-MILLS. D. Loth, Rich Hill, Ohio. (Filed July 17, 1875.)

Brief.—The bed-stone is surrounded by an adjustable flanged ring, provided with delivery-spout for flour at any point around the stone.

The combination of bed-stone with adjustable flanged ring, having delivery-spout and top casing to discharge at any desired point, substantially as set forth.



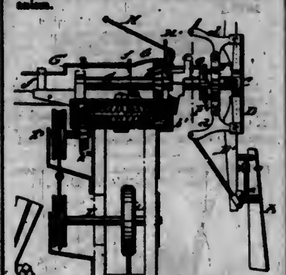
178,560.



178,564.

178,560. WHEELBARROWS. Albert Lowry, Marcellus, Ill. (Filed June 12, 1876.)

Brief.—A self-acting spring-brake mechanism connected with the slide-head, and swivelled wheel-sections, one of a fulcrumed lever, in connection with the brake and wheel-crank axiom.



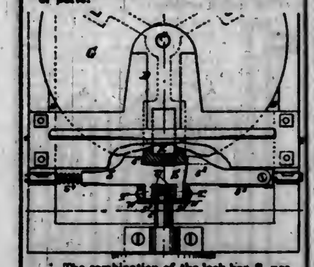
1. The combination of the wheel-sections E, swivel-arms a, rods b, ball-cranks d, slide-head F, having annular groove, brake-collar F', stirrup G, guides e f, support H', lever H, spring g, and stop g', substantially as described, and for the purpose specified.

2. The combination of the wheel-shaft, carrying bevel-wheel A, with the double bevel-wheel A', contained in the beamed turn-table, the wheel F, and the chain-gear, as and for the purpose described.

3. The combination of the radial wheel-arms, having swivel-sockets D', with the cranks a, having pivots fitting therein, and the wheel-sections E, having adjustable weights e', substantially as and for the purpose described.

178,561. BRICK-MACHINES. David Manley, Franklin, Pa. (Filed Nov. 13, 1875.)

Brief.—The lock-bar across the molds for adjusting the plunger to operate therein. The spiral spring prevents injurious jarring of parts.



1. The combination of the lock-bar S, provided with the shoulder *s'*, the spring-latch *s*, *s'*, and the spiral spring *s'*, with the molds *g'* of the revolving platform G, substantially as herein shown and described.

2. The combination of the connecting-rod U and the eccentric W with the lock-bar S and the driving-shaft P, substantially as herein shown and described.

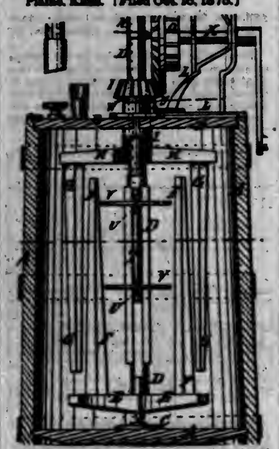
3. The combination of the pin T and the cylindrical block W with the slotted and perforated upper end of the connecting-rod U, and with the lugs *s'* formed upon the lock-bar S, substantially as herein shown and described.

178,564. CULTIVATORS. Thomas J. Montgomery and Geo. W. Montgomery, Winchester, Tenn. (Filed Sept. 17, 1875.)

Brief.—An extensible rear support or runner for a shovel-plow.

The combination of the outwardly, downwardly, and forwardly curved standard B, the extension-braces D *d'*, and the flanged bar E *e'*, all constructed and arranged as and for the purpose specified.

178,565. ORCHARD. Robert M. Neal, Belle Plaine, Kans. (Filed Oct. 16, 1875.)



The combination, in a churning apparatus, of the hollow slotted shaft D, the two sets of revolving beaters B B and H G, the dashers V, and the reciprocating rod or shaft T, all constructed and relatively arranged substantially as herein set forth.

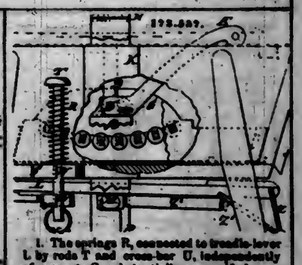
178,566. GAS-REGULATORS. J. D. Patton, Trevorton, Pa. (Filed Jan. 10, 1876.)



The gate D, hinged to the partition E within the chamber A, and covering the induction-passage *a'*, as shown and described, whereby the gate or valve is opened more or less widely as the flow of gas is more or less rapid.

178,567. WASHING-MACHINES. Thomas H. Peavey, Epworth, Iowa. (Filed Dec. 27, 1875.)

Brief.—The operating devices are all detachable, and capable of being placed within the tub and a cover put on the same, forming a table.



178,567.

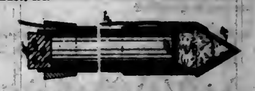
178,568. GRINDING AND HULLING MILLS. Blue Mountain Quarry, Harrisburg, N. C. (Filed Oct. 2, 1875.)



A grinding and hulling machine having the cylinder and concave teeth reversible, as and for the purpose specified.

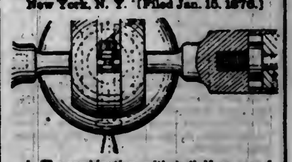
178,569. VARNISH-FILTERS. Jerome Bird, Jackson, Mich. (Filed Jan. 17, 1876.)

Brief.—The lower cap may be closed to prevent rust, &c., from entering the filter as it passes down to the bottom of the varnish-can; also, said cap may be used to open the filter and let in varnish from the bottom of the can. Varnish is drawn from the filter by suitable means, the filter being designed to remain in the can; also being corked for protection from dust, &c.



The improved varnish-filter, consisting of tube A, with contracted end C and cross-bars D, filtering material B, cap-valve E, and sliding rod F, substantially as specified.

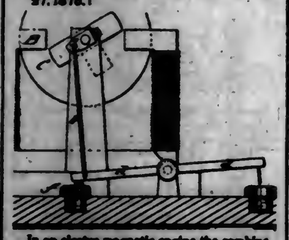
178,570. BOWLOCKS. Francesco Rossi, New York, N. Y. (Filed Jan. 10, 1876.)



1. The combination, with bail H, arranged in a swiveled socket, D, of a handle-socket, J, on one side, and a blade-socket, K, on the other, as and for the purpose specified.

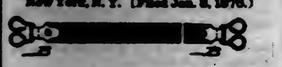
2. The combination of spring clamping-straps M with the socket D, constructed in two parts, substantially as herein shown and described.

178,561. ELECTRO-MAGNETIC ENGINE. W. R. Sawyer, New York, N. Y. (Filed Dec. 27, 1875.)



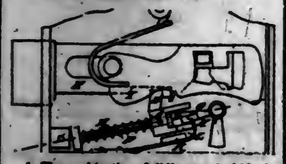
In an electro-magnetic engine the combination, with a fixed electro-magnet presenting bent concave edges at the poles, of an armature revolving between the same, and presenting long convex edges to the poles of the magnet, the axis of the armature being parallel both to the elongated edges of the poles of the magnet, and the edges of the armature presented to the poles of the magnet, substantially as shown and described.

178,562. COAT-HANGER. Simon Schreier, New York, N. Y. (Filed Jan. 8, 1876.)



As a new article of manufacture, a coat-hanger made of a strip, A, of leather or other material, and edge B, and wire eyes C, substantially in the manner described and set forth.

178,563. COMBINED SOLE AND KEY FASTENING. Edward H. Colwell, South Norwalk, Conn. (Filed Jan. 20, 1876.)



1. The combination of sliding catched block A and spring-catch K, with the key of a look, substantially as specified.

2. The key locking-block A, arranged to slide obliquely to the bolt B, and having stud D, in combination with shoulder I of the bolt and the stud J, substantially as specified.

3. The end K of the spring-catch, bent around the catched end of the locking-block A, and arranged in relation thereto and with the key, as described.

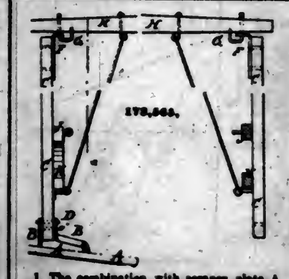
178,564. HEMP-THRESHER. R. F. Shaw, Chatham Centre, Ohio. (Filed Dec. 16, 1875.)



The combination of handles C C, shouldered on their forward parts, one pivoted to a tooth of plate A, and the other to a tooth of plate B, with short pivoted overlapping arms a', having lips upon side edges, the pawls d, and the U-shaped D, to allow the said plates A B to be operated, in the manner and for the purpose specified.

178,565. SPRING ATTACHMENT FOR PLOWS. H. Shuman, Marsh, Ill. (Filed Oct. 23, 1875.)

Brief.—A heavily-sheathed mould-board device for attachment to the rear part of a wheel-coulter, whose drag-bar is shown in section.



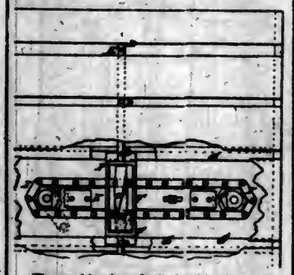
1. The combination, with scraper plate A and standard C, of the connecting-plates E F, rigidly fastened to the former, and pivoted to the latter, as and for the purpose described.

2. The combination of plates A B and standard C, the former pivoted to and projecting behind the latter, with a cross-pin, D, and wedge E, to adjust pitch of scrapers, as set forth.

3. The combination, with scrapers A, attached to pivoted plates E, of standards C C, cross-bar H, and braces I, all loosely connected, as and for the purposes specified.

178,566. SHAP-RAKE FOR REAPERS. Abner H. Smith, Hannibal, Mo. (Filed Nov. 12, 1875.)

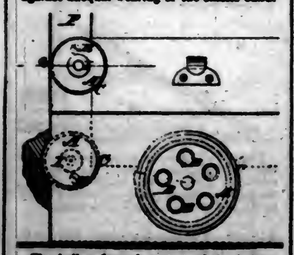
Brief.—The blade is carried by the endless chain, and is caused to move to and fro in a fixed guide upon the spindle which is fixed to the rake-head. Thus the rake is revolved from a horizontal to a perpendicular position and back during every revolution of the endless chain.



The combination of rake-head having spiral s', the block H, embracing said head and attached to an endless chain, the frame F, and bar G, said frame being provided with projecting flanges that work in grooves of bar, as and for the purpose specified.

178,567. SASH-HOLDER. Chas. B. Stoller, Milwaukee, Wis. (Filed Aug. 21, 1876.)

Brief.—The sole novelty is a concentric row of holes, whereby the pivoted point of an ordinary eccentric is readily changed to guard against unequal wearing of the elastic band.



The hollow flanged part A of the holder, centered by elastic band C, and provided with the concentric row of holes B, to permit shifting of the pivoted point, and a covering-plate, E, combined as set forth.

178,568. HARROW-TOOTH. C. F. Towsley, Brimfield, Ark. (Filed Jan. 7, 1876.)



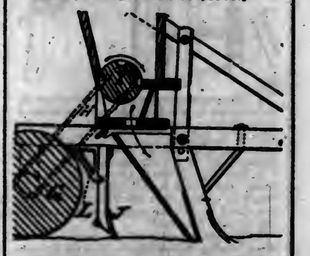
The combination of the hinged bent-plate B, having the pin G, clasp H, and girth-loop F, with the metal thill-loop A, provided with the fixing E, eye C, and girth attachment D, all constructed as herein above and described.

178,569. NUT-LOCK WASHER. Isaac Van Kuren, Omaha, Nebr. (Filed Jan. 18, 1876.)



An elastic washer for locking nuts, made of a bent-plate with projecting side lips or ledges and a large aperture, in connection with a top plate with a smaller aperture retained centrally thereon, substantially as specified.

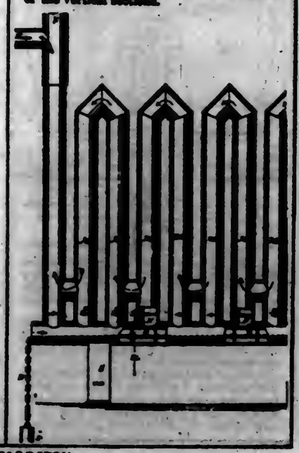
178,570. GRAIN-PLANTER. I. H. Albertson, Bedias, Tex. (Filed Dec. 16, 1875.)



In combination with the standard d of the covering-shovel J, the angular braces I, attached to the frame of the covering and dropping mechanism, substantially as specified.

178,571. HEAT-RADIATOR. H. C. Angell, New York, N. Y. (Filed Jan. 20, 1876.)

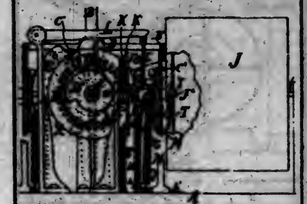
Brief.—The products of combustion may be carried through one or more, or through all, of the vertical sections.



The combination, with tubes A J, of tubes M, rising from a continuously-open draft-flue, B F, that has a valve near each end, provided with valves N just above said flue, and above these valves connected by cross-pipes, all as shown and described, so that all the flues M will empty into a continuous tube, being thus easily cleaned, and a direct or indirect draft being had, as wanted.

178,572. CALENDAR-CLOCKS. Randal T. Andrews, Thomaston, Conn., assignor to the Seth Thomas Clock Company, same place. (Filed Jan. 22, 1876.)

Brief.—The calendar movements are operated by spring-levers of peculiar construction, which are engaged with the different wheels, and released therefrom by the action of pins placed upon vibrating levers moved by the clock-work.



1. The connection B', adapted to allow a greater motion than usual of the lever C, pawl C', in combination with such lever and with the day-of-the-month wheel X, arranged to reserve power for the jump-over motion, as specified.

2. The side head G', connected with the holding and releasing pawl F, in combination with the vibrating lever C, pawl C', pin C', and wheel X, as specified.

3. The spring G, carrying the side head G', and fastened, as shown, within the hook or stop F, in combination with the wheel X, lever C, pawl C', and pin C', as specified.

4. The face I, cam-wheel J', and pawl F, with the bearing-ridge H', in combination with the wheel X, as set forth.

5. The lever H, carrying the bearing-ridge H', and capable of moving transversely on the pawl F, in combination with the cam-wheel J', and day-of-the-month wheel X, as and for the purposes specified.

6. The pawl N, with its side head N', in combination with the reciprocating pin P' and cam-wheel M, as specified.

7. The pinned wheel K and cam K', revolved around the wheel a, in combination with the cam-wheel J', and with the piece H and its connections for changing the jump-over motion every fourth year, as herein specified.

8. In combination with the indicating means J and the actuating mechanism L and its connection, the connecting spring-piece T T' engaging in recess N', adapted to allow the setting forward and back by step-by-step motion, as and for the purposes herein set forth.

178,573. PAPER-FEEDING MACHINES. John T. Ashley, Brooklyn, E. D., N. Y. (Filed Oct. 20, 1870.)

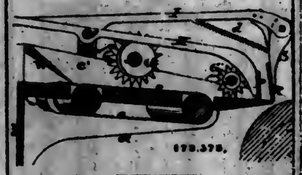
Brief.—A side register is given to the sheet by the diagonal teeth and rolls, and a front register by means of the friction-wheel and front stop. The stop proceeds and holds the sheet until taken by the grippers of the press, when it acts as a smoother to the sheet.

1. The diagonal feeding-bed, as described, in combination with a side stop, substantially as and for the purpose set forth.

2. The front stop E being upon the feed-board C, so as to descend below the surface and in front of the board, and to rise above the same, in combination with the pressing and smoothing device F, substantially as and for the purposes set forth.

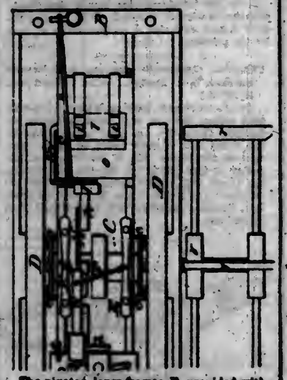
3. The adjusting device G' in combination with the adjustable stop E hung on feed board C, substantially as and for the purpose described.

4. The adjustable pressing and smoothing device F in combination with the feed-board C, substantially as and for the purpose described.



178,574. OCEAN-PLANTING. Jacob Ashcroft, Frazeysburg, Ohio. (Filed Sept. 4, 1875.)

Brief.—Centrally located in a lever-frame, from which cords pass to vertical frames carrying sleeches, for engagement with the bearing-wheels, to cause the axle to revolve with it, thereby rotating the marking-wheels secured on extensions of the axle.



The pivoted lever-frame E, provided with the hooks c, rope or chain F, and the mounted shaft G, in combination with the clutch-boxes a and master-wheels D, all operating in the manner as described

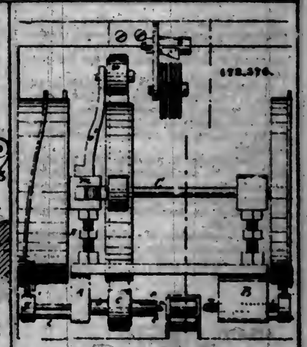
178,575. SCREW-PROPELLERS. Friedrich H. R. Bobbe, Antioch, Cal. (Filed Mar. 1, 1875.)

1. The blades of a screw-propeller, constructed of half-disks, connected to the nave by short, stout arms, and bent substantially as described and shown.

2. The combination, with the shaft A and blades D, of the nave and the bosses C C', when the said nave and bosses are constructed so as to present rounding surfaces from end to end, substantially as described and shown.

178,576. LANTERN. John Batchelder, Gardiner, Me., assignor of one-half his right to J. Jenkins, New York, N. Y. (Filed Sept. 22, 1875.)

Brief.—The spool or bobbin can be turned to the required size and shape, and perforated during said operation, by means of revolving head and tail stocks adjustable on their ways, an independently-rotated bobbin-holder, a revolving and automatically-adjusting perforator, in connection with suitable operating mechanism.

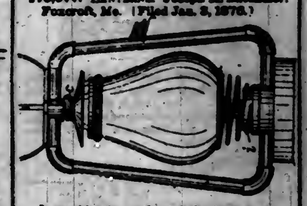


1. In a machine for turning bobbins, spools, &c., the revolving head and tail stocks, in combination with devices a j for holding or centering the bobbin, &c., independently-operated bobbin revolving devices b c e, and an automatically actuated perforator, c, arranged substantially as described.

2. In a machine for turning bobbins, spools, &c., head and tail stocks provided with devices h i, whereby their relative distance to the central axis around which they revolve may be increased or diminished, as and for the purpose described.

3. In a machine for turning bobbins, spools, &c., the rotating head and tail stocks, and independently rotating bobbin-holder a j, in combination with the automatically-operating perforator c, constructed and arranged substantially as described.

178,577. LANTERNS. Joseph M. Batchelor, Foxcroft, Me. (Filed Jan. 3, 1876.)



In combination with a tubular lantern, constructed substantially as shown and described, the spring i, arranged and operating substantially as set forth and shown.

178,578. CROQUET-MALLETS. S. H. Bender, Birmingham, Ohio. (Filed Sept. 11, 1875.)



The croquet-mallet, having its head constructed with a butt-end, C, and a long, slender, tapering end, D, balancing said butt-end, and connected thereto by concave offset or shoulder E, substantially as specified.

178,579. PISTON WATER-METERS. Andrew Bergstrom, Minneapolis, Minn. (Filed Jan. 13, 1876.)

Brief.—Water passes from the stuffing-box through the upper piston-rod into one of the compartments of the bellow-pistons. The lower moving upward, the water above the pistons is forced through a valve into the interior of the pistons, and thence out through the lower piston-rod.

1. The bellow pistons D, having the diaphragms g, and valves m, n, p, and q on the valve-stems d d, connected by the yokes e e, substantially as described, and for the purpose set forth.

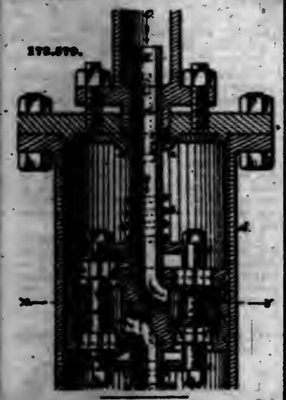
2. The hollow piston D, provided with the diaphragm *g* and valves *m*, *n*, *p*, and *q*, in combination with the hollow piston-rods B E, substantially as described, and for the purpose set forth.

3. The hollow piston D, constructed as set forth, in combination with the elastic cushions or springs *b b*, bearing on the yokes *c*, and counterbalancing the pressure of the water by reversing the valves, substantially as described.

4. The cylinder A, provided with the stuffing-box C, in combination with the hollow piston D, having the diaphragm *g* and puppet-valves, connected by yokes, and springs *b b*, substantially as described, and for the purpose set forth.

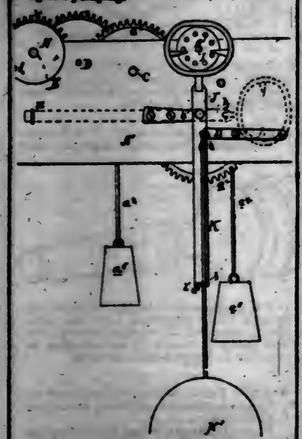
5. The combination of a spring and puppet-valves, in a water-motor, whereby the spring cushions against said valves, substantially as described.

178,579.



178,580. HEATING AND PUMPING MACHINE. Philip Stanley and John R. Weber, Mount Gilead, Ind. (Filed Dec. 3, 1875.)

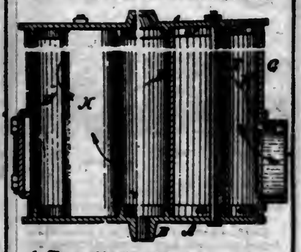
Brief.—Weights operate drums and gearing, combined by a pendulum or a fan, for hoisting and pumping.



1. In a machine adapted for hoisting and pumping, the combination, with the weights and a train of gearing for operating the same, of the shaft K, carrying the crank-wheel N, the shaft F, provided with the drum O, the fan or fans H, and the pendulum, all constructed and arranged substantially as described and shown.

2. In a machine, substantially as described, the combination of the regulating-arm *f*, pivoted to the side of the machine, and having a slotted lower end, the pendulum K passing through the said slotted end, and hung at its upper end independently of the said arm, the ball K' and hook *n*, all constructed and arranged substantially as described and shown.

178,581. HEATING-DRUMS. M. A. Boynton, New York, N. Y. (Filed Nov. 8, 1875.)

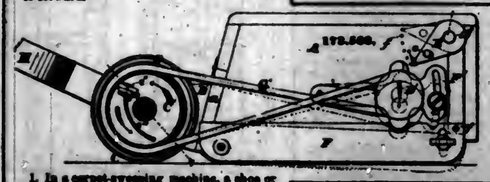


1. The combination of the interior cylinder D, the semi-toroidal annular chamber D', extended throat H, and door I, substantially as and for the purposes set forth.

2. In the heating drum, herein described, the combination of chamber D D', throat H, door I, and exit-pipe J, substantially as and for the purposes set forth.

178,582. CARPET-SWEEPERS. A. C. Brockeridge, West Meriden, Conn. (Filed Jan. 3, 1876.)

Brief.—A shoe or bearing is placed beneath each side of the box, and made vertically adjustable therewith. A pawl is arranged on the outer end of each roller, so as to bear against the under side of the flange of the pulley, so that whichever way the rollers turn, the brush will always rotate in the same direction, so as to throw the dirt into the dust-box, whether the sweeper is drawn backward or forward.



1. In a carpet-sweeping machine, a shoe or bearing, F, placed beneath each side of the box or frame A, and combined with and made vertically adjustable with relation to said frame, substantially as and for the purpose specified.

2. In combination with the shoes F and F, pivoted at their rear ends to or upon the box A, the shaft E, the levers D' and D', and the bars F' and F', pivoted eccentrically upon said levers and connected with the forward ends of said shoes, substantially as and for the purpose shown.

3. In combination with the pulleys D' and D' of the brush D, the shaft B, rollers C and C, pulleys C' and C', provided each with an annular recess, *c*, and journaled upon said shaft, the pawls *c'* *c''*, attached to the end of said roller C, and the open and crossed belts G and G', respectively, substantially as and for the purpose shown and described.

178,583. CRANBERRY-SEPARATORS. John Busby, Moorestown, N. J. (Filed Dec. 10, 1875.)

Brief.—Arrangement in combination of vibrating feed, blast-fan, dividers, inclined glass shelves, and condensers, for separating cranberries according to soundness by means of their different degrees of elasticity.

1. In a cranberry-cleaner the combination of the hopper, the fan, the shaker, the vertical rods *f* protecting the mouth of the fan-chamber, the blast-regulator K, and the vertical passage into which the winnowed cranberries are delivered, all constructed and arranged substantially as shown and described.

2. The combination of the feed-roller D and the pivoted adjustable regulators *d d*, as and for the purpose specified.

3. In combination with the trough Q receiving the berries from the rear series of leaflets, as specified, the side or lateral conduit Q', the elevator G, and bumper, as set forth.

4. The lower portion, T, of the casing of the machine carrying the separating shelves constructed in sections X Y Z, of which the outer sections X and Z are detachable, as and for the purpose specified.

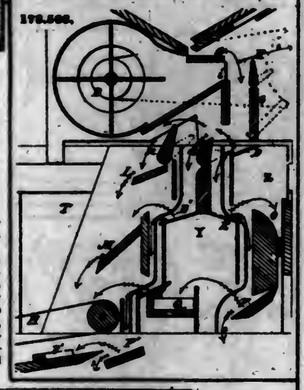
5. The combination of the side passage P with the open-ended trough or receptacle O for the second berries delivered from the second inclines, and the traveling apron H, whereby said berries are conveyed to the sorting attachment, as herein before set forth.

6. The sorting-rollers I rotating in opposite directions upward and outward from each other, and set out at opposite points, as shown and described, to operate as specified.

7. The hopper attachment having a vertical slide *o* at one end, as shown and described, to operate as specified.

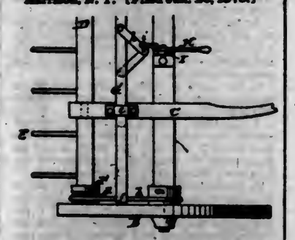
8. The inclines, made of glass as set forth.

178,584.



178,585.

178,584. HORSE-RAKES. F. W. Carpenter, Harrison, N. Y. (Filed Jan. 26, 1876.)



1. In a horse hay-rake, the combination of the pulleys *c c*, revolving with the driving-wheels, the fast pulleys *d d* and the loose pulleys *d' d'* on the ends of the rake-head, the endless belts *b b*, and a shifting device, substantially as and for the purposes herein set forth.

2. The combination, with the endless belts *b b* and the pulleys around which they pass, of the bars G G, with loops *f f* at their outer ends, the links *h h*, and lever H, all substantially as and for the purposes herein set forth.

178,585. SPRINKLER-HEADS. W. T. Correll, Worcester, Mass. (Filed Aug. 5, 1876.)

Brief.—A sprinkling-ring having its interior communicating at or near the under side of the rose, and extending to the base of the ring-shank, tapered, making a circular opening, which decreases gradually in size from at or near the under side of the rose to the bottom of the shank.

178,588.

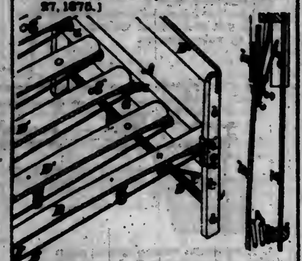


A spinning-ring having its inner wall tapered, as described, the inner circular opening of the ring decreasing gradually in size from below the race to the bottom of the shank, all as and for the purposes set forth.

178,589. FENCING FOR TERRACING MACHINES. Ebenezer Church, Fulton, Ind., assignor of one-half his right to Albert R. Woods, same place. (Filed Feb. 24, 1875.)

The vertically adjustable inclined foot-table, made in sections, and pivoted together to allow lateral adjustment, in combination with the hinged frame D, having cutting and distributing knives, all substantially as and for the purposes herein set forth.

178,590. FOLDING SPRING-BED. Charles A. Combs, Philadelphia, Pa. (Filed Nov. 27, 1875.)



1. In a folding spring-bed, the posts B B formed in two sections, hinged at *b'*, and pivoted at *a*, so as to fold upon and under the slats, substantially as shown and described.

178,591. PROCESSES FOR MAKING ARTIFICIAL BUTTER. Garret Cozine, New York, N. Y. (Filed Dec. 21, 1875.)

1. The process of making artificial butter by mixing together oleine and margarine from animal fats, and from fruit and vegetable oils, and lactic acid, and loppered cream or milk, substantially as described.

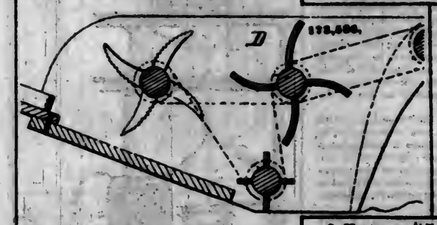
2. The process of making artificial butter by mixing together oleine and margarine from animal fats, and lactic acid, and loppered cream or milk, substantially as described.

3. The process of preventing artificial butter from becoming deteriorated before use, and giving it a butyraceous consistence, by mixing with it lactic acid, substantially as described.

178,592. PORTABLE FENCES. Urias Grayton, Davidson College, N. C. (Filed Dec. 22, 1875.)

A portable fence formed of panels, having at one end the tapered edge *b*, and at the other the correspondingly-tapered groove *b'*, connected by keys or locking devices, as and for the purpose specified.

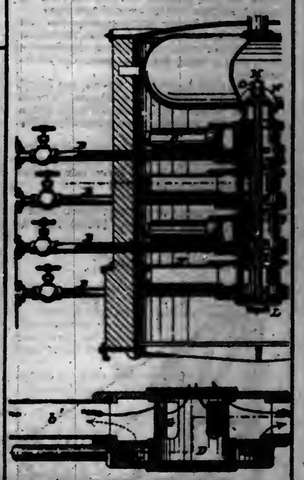
178,593.



178,592.



178,593. SECTIONAL STEAM-GENERATORS. Martin H. Orane, Cincinnati, Ohio, assignor to Orane, Bread & Co., same place. (Filed Dec. 23, 1875.)



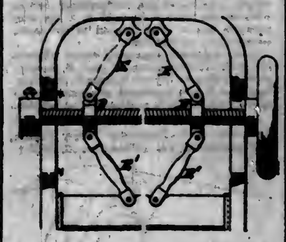
1. The generator, composed of central head A, annular receiving-coil C, and delivering coil D, said receiving-coil having ducts, K communicating with contiguous halves, *a a'*, of each alternate pair of tubes F, and said delivering-coil having ducts, G', communicating with the other contiguous halves, *b b'*, of the tubes, F the whole adapted to form a complete generator, as and for the purpose set forth.

2. A series of generators, consisting of central heads, A, having annular receiving-coils, C, and delivering-coils, D, connected by ducts, H G, the partitioned and contiguously-connected tubes F and coat I, in combination with the annulated K, having pipes E, as and for the purpose set forth.

178,594. DEVICES FOR FEEDING THE TUBE-SHEET IN LOCOMOTIVE CHANGE-WHEELS. George Owen, Worcester, Mass. (Filed Oct. 28, 1875.)

Brief.—The tube-sheet, when a web-sheet is broken, may be found either by running the beam forward or backward. A fork connected with the shipping devices is adapted to be inserted between the last-woven pick or web

178,597. PAPER-CUTTERS. Geo. W. Clarke, Appleton, Wis. (Filed Sept. 18, 1875.)



A paper-cutter having a vertically-acting knife, C, in combination with and operated by the links E' E', rods D D, right and left screw *b*, the links E E, and the slotted frame A, having projections *c c*, all substantially as and for the purposes set forth.

178,598. CLAMPS FOR SOLDERING HAVEN-TROUGHS. Chas. A. Codding, Dowagiac, Mich. (Filed Jan. 3, 1876.)

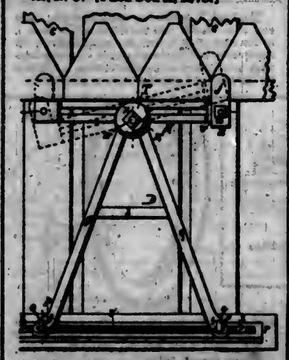
Brief.—A platform with a half-cylindrical upper surface is provided with longitudinally-adjustable U-shaped holding-arms, which are pressed against the trough-blanks by hinged cam-levers during the operation of soldering.



1. The price attachments G, having concaves H, in combination with the former-levers, having beveled ends, as and for the purposes described.

2. The combination, with the platform and half cylinders, of the standards D D', supporting-rods E F, laterally-adjustable former-levers E, and laterally-adjustable grips attachments G, having concaves H, as and for the purposes specified.

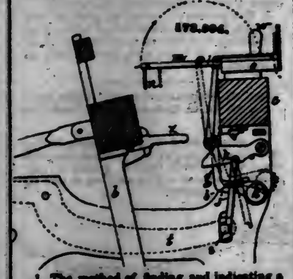
178,599. HOLDERS FOR GRINDING HARVESTER-CUTTERS. Monroe M. Copp, Rochester, N. Y. (Filed Oct. 11, 1875.)



An improved grinding-machine, consisting of the slotted bar *c*, having the studs *a*, the A-shaped frame D, having its upper *c* formed into the cap-stay *e*, and provided with the perforations *g h*, the feed-bar E, the clamp-bar H, having the jaws *i* and *j*, and provided with the bolts I and nuts *n*, the spherical L, attached to the bar H, provided with the screw-bolt W and nut *n'*, and the cap-shaped cap T, all arranged for the purposes substantially as set forth.

extending across the warps and an adjacent weft, constituting a part of the properly-woven fabric. The fork rests against the weft in front of it so long as that weft is held by crossed warps; but when the true shed, or one corresponding with the shed in which the weft in front of the fork was laid, is reached, the weft no longer being held by crossed warps, the fork is pressed forward, and the weft is thereby thrown into the open shed, and the connected shipping devices instantly stop the loom.

178,606.



1. The method of finding and indicating a true shed in a warp being woven, substantially as described, which consists in holding the weft last laid or previously opposed forward in opposition to the force of the reed, by means of a fork that presses against the weft, on the warps so opposed, until the true shed is reached, when the fork projects the weft out from its locked position into the opposed true shed.

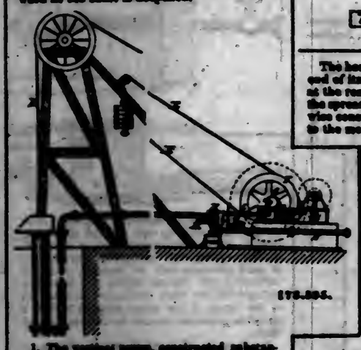
2. The shed-finding fork, in combination with its stem, and mechanism to retain the fork in its backward position, except at the time the true shed is being found, substantially as described.

3. The shed-finding fork, lever 4 and link f, in combination with a lever adapted to press the fork forward or toward the reed, and a belt-shipping mechanism, substantially as described.

4. The lever 4, controlled by the shed-finding fork, bar f, arm k, and lever i, in combination with the dagger, retaining-lever and shipper n, substantially as described.

178,605. WATER-PRESSURE PUMPS. Henry Davey, Leeds, England. [Filed Dec. 2, 1875.]

Brief.—The pump may be extended downward as the shaft is deepened.



178,606.

1. The vertical pump, constructed substantially as hereinbefore described, consisting of the barrel A, fitted with the bucket B and discharge-valves thereon, the cylindrical extension C, fitted with its piston D, connected to the bucket B, and the suction-valves b, all arranged in relation to the discharge-pipe a in such manner that the working parts can be easily raised by a rope or chain, R, for the purpose of hauling up liquid.

2. The combination of the pump C, piston D, pump-bucket B, rope or chain R, frame F, and connecting-rod f with the slide S, valve-box E, and pipe δ leading from the valve-box E to the pump C, substantially as and for the object specified.

178,607. RAILWAYS. Waters S. Davis, Galveston, Tex. [Filed Dec. 27, 1875.]



The hook B, hooked or rounded at the front end of its rest A, and provided with a nose, i, at the rear of said rest, in combination with the upward and flattened shank C, and otherwise constructed and proportioned, in relation to the mortise b, substantially as described.

178,608. HORIZONTAL WATER-PRESSURE PUMPS. Henry Davey, Leeds, England. [Filed Dec. 2, 1875.]

Brief.—Two horizontal pumps arranged one on each side of a central valve-box, and operated by water-pressure.



178,606.

1. A horizontal water-pressure pump consisting of two barrels, F F', having hollow plungers P P' tied together, and fitted to work in the barrels F F' over tubular rams E E', communicating, respectively, with a central valve-box, C, substantially as herein described.

2. The valve-box C, having chambers communicating, respectively, with a supply-inlet, I, and a discharge-outlet, O, and with the two hollow rams E E', and containing four valves, V¹ V² V³ V⁴, arranged to operate in diagonal pairs, so as alternately to put each of the rams E E' into communication with the inlet and with the outlet, substantially as herein described.

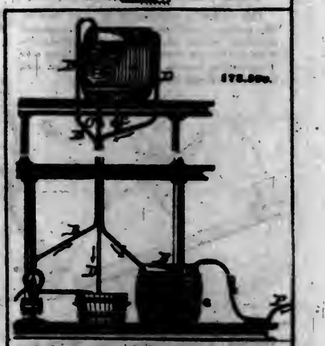
3. The combination of the valve-box C with the slide s, and its parts and communicating pipes s' s'', arranged to operate in such manner that according as the slide s is moved to the right or to the left the one pair of the valves V¹ V² V³ V⁴ is subjected to pressure while the other pair is relieved from pressure, substantially as herein described.

4. The combination of the barrels F F' with their supply and discharge valves G G' H H', the plungers P P' with their tie-rods S, the hollow rams E E', the central valve-box C with its valves V¹ V² V³ V⁴, the slide s, and its pipes s' s'', and the tappet-rod I, and lever U, forming a horizontal water-pressure pump, constructed and operating substantially as herein described.

178,609. MEAT-CURING APPARATUS. Wm. K. Dietrich, San Francisco, Cal. [Filed Jan. 6, 1876.]

Brief.—Pumps brine it to an elevated tank, and suffers it to fall through a cooling coil, and by its pressure to be forced into the meat. Overflow is pumped back.

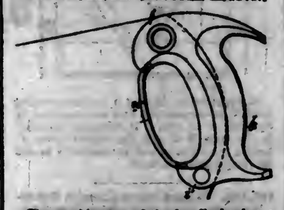
178,606.



1. In an apparatus for curing meats by hydrostatic pressure, the combination, with the supply-pipe C, of the refrigerating-coil E, whereby the brine is brought to a low temperature before being applied to the meat, substantially as described.

2. An apparatus for curing meats, wherein the tank A, force-pump A, pipe B, supply-pipe C, refrigerating-coil E, hose F, and overflow-pipe D are combined and arranged to operate substantially as described and shown.

178,610. SAW-HANDLES. Henry Disston, Philadelphia, Pa. [Filed Jan. 22, 1876.]



The combination of the handle, having a grips, A, and two projections, arranged as described, and a slotted wire, c, adapted to the edge of the opening in the blade and to recesses in the handle, all as set forth.

178,611. VEHICLE-WHEELS. J.W. Douglas, Middletown, Conn. [Filed May 27, 1875.]

Brief.—Socket in shield is expanded by conical end of sleeve, making tight-fitting joint between various parts.



The combination of the spoke-sleeve a and the projecting cup-shield c, substantially as specified.

178,612. RANGE-BOILER STANDS. John Dunscomb, Mott Haven, N. Y., assignor to J. L. Mott Iron-Works, New York city. [Filed Jan. 11, 1875.]

Brief.—The ring is attached to the stand by means of lugs and screw.

1. The removable top for range-boiler stands, provided with a flat surface, A, and upwardly and downwardly projecting flanges, B and C, for the purposes set forth.

2. The removable top for range-boiler stands, provided with devices for attaching said top to the pedestal, substantially as shown and described.

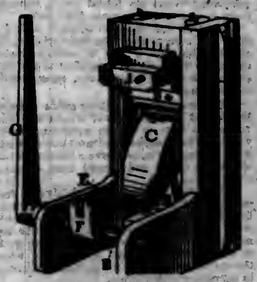
178,613. BLOTTING-PADS. F. L. J. Degent-Paris, France, assignor to Leon Bledsoe, New York, N. Y. [Filed Aug. 30, 1875.]

Brief.—The compound is cast in blocks, which may be used as paper-weights.

The improved substitute for blotting-paper and other ink-absorbers, composed of plaster-of-paris, chalk, and a solution of dextrine or gum, substantially as above set forth.

178,614. PRESSES. George Eastman, Newton, Mass. [Filed Dec. 13, 1875.]

Brief.—An upright frame in which is vertical a compound toggle-joint, adjustable by cranks, and operated by a lever, crank, and pitman.

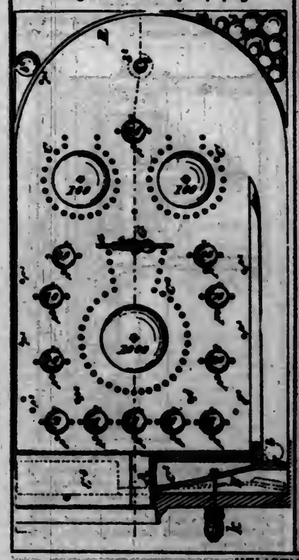


1. In a press, the combination of the bed-plate I and housing K, having opposite inclines on their contacting surfaces by means of the rods and nuts e e' e'', substantially as and for the purpose described.

2. The combination of the upright housing A, plate and dating bed B, the lifting-toggle C D, link E, and lever G, when constructed to concentrate a crushing strain upon the crank or link, all arranged and operating together, substantially as and for the purpose described.

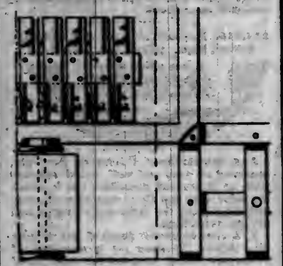
178,615. GAME-BOARDS, (TIVOLI.) John Bliss, Jersey City Heights, N. J. [Filed Nov. 27, 1875.]

Brief.—A vertically-pivoted figure guards the entrance of the principal hole, and is adjustable to close the same to different degrees, and thus grade the difficulty of playing.



178,616. DRYING APPARATUS. Curtiss T. Fairchild, Salisbury, N. Y. [Filed Jan. 24, 1876.]

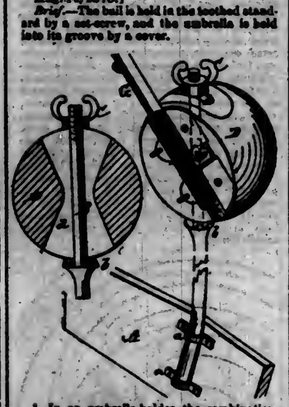
Brief.—The articles to be dried are each held between cleats. A spring is formed on the edge of each cleat by the saw-kerf.



Racks for drying cheese-box hoops, consisting of a series of cleats, with saw-kerfs formed therein, and combined with wedges, substantially as and for the purpose described.

178,617. UMBRELLA-SUPPORTS. William Fauchboner, Jr., Schoolcraft, Mich. [Filed Aug. 14, 1875.]

Brief.—The ball is held in the toothed standard by a set-screw, and the umbrella is held into its groove by a cover.

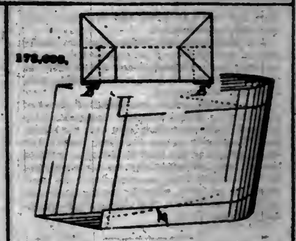


1. In an umbrella-holder, the combination of the standard B, having toothed collar b, the ball D, having angular slot d, and the set-screw C, substantially as and for the purposes set forth.

2. The combination of the adjustable ball D, with semi-tubular catch or recess e, hinged clasp E, and set-screw b, for the purposes set forth.

3. The combination, with a vehicle-seat A, of the staples c a, standard B, adjustable ball D, and holder E c, substantially as and for the purposes set forth.

178,618.



A bag made of a single piece of material doubled or folded over upon itself in the direction of its length, and having folded-in or bellows-like sides, with side overlapping seams only, said overlapping seams located outside of or away from the folded-in or bellows-like portions, all substantially as set forth.

178,619. FLUE CLAMPS AND EXPANDERS. Eli W. Flagg, Battle Creek, Mich., assignor of one-half his right to G. D. Edmonds and Wm. H. Flagg, same place. [Filed Sept. 16, 1875.]



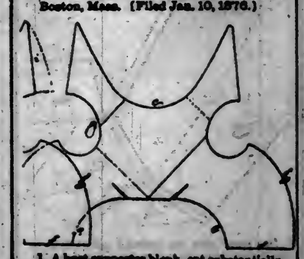
The case D, with its forming legs or ears c, in combination with the spring H, a sectional collar, and the shaft A, as constructed, for the purpose set forth.

178,620. TUBE-EXPANDERS. Eli W. Flagg, Battle Creek, Mich., assignor of one-half his right to G. D. Edmonds and Wm. H. Flagg, same place. [Filed July 26, 1875.]



The combination of the conical plug, with the female screw-threads in its center bore, the mandrel, with screw-threads, the sleeve C, conical rollers D, and the plate or cap E, all constructed substantially as and for the purpose herein set forth.

178,621. BOOT-SUPPORTERS. C. P. Flynt, Boston, Mass. [Filed Jan. 10, 1876.]



1. A boot-supporter blank, cut substantially as described, and shown in Fig. 2 of the drawings.

2. A boot-supporter composed of two pieces of cloth, cut substantially as described, and arranged with relation to each other to present the warps in one piece at substantially right angles to the warps in the other piece, substantially as described.

3. A boot-supporter blank, cut from a piece of cloth, and with relation to its warp and weft, to retain the warp of the fashioned blank in a line extending diagonally through the

back and into a shoulder and bent piece, substantially as described.

4. A bent-supporter, composed of two blanks shaped and cut from cloth substantially as described, and with bent-pieces left separate at their edges *f*, to form pockets for padding, substantially as described.

5. A bent-supporter, composed of pieces of cloth having warps arranged to extend from the end of the shoulder-piece over the shoulder, diagonally across the back, under the arms, and over the bust to the open front of the garment, substantially as described, the shoulder-pieces being connected with the bent-pieces, as set forth, whereby the garment supports the bust from the shoulders, substantially as described.

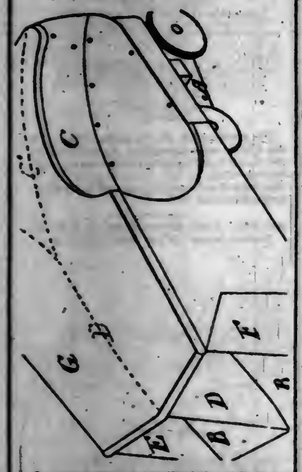
172,612. PUMPS. Moses B. Franklin, Boerneborough, Iowa. [Filed July 20, 1875.]

Brief.—The head is placed within the cylinder, and held in position by a superimposed plate, through which plate the gland projects to entap the stuffing-box, being held in position by nuts upon the ends of the long bolts, which hold all the parts together.



The combination of the pump cylinder B, head H having recesses in top and bottom, plate I, cross-bar J, with hub *k*, packing *l*, and seated rods *i i*, with nuts *y z*, and the removable bottom D', provided with valve *d*, flange *e*, and recess *f'*, all substantially as and for the purposes herein set forth.

172,613. SNOW-PLOWS. Alex. Gamble and David K. Sperry, Sackett's Harbor, N. Y. [Filed June 12, 1875.]



In a snow-plow, the inclined shovel B, having the mold-boards C C' at its rear end, which diverge in rear, with their connections outward, in combination with the vertical cutter D, extending from the junction of the mold-boards to the front end of the inclined shovel, lateral cutters E F, extending upward at obtuse angles with the cutting edge of the shovel, and provided with openings at their rear ends opposite the mold-boards, and roof G, whereby the snow raised by the inclined shovel is divided and pushed in equal portions and discharged from the openings in each side of the snow-plow, substantially as described.

172,614. CHANNELING-MACHINE FOR BOOTS AND SHOES. Soldee T. Oates, Philadelphia, Pa., assignor to George O. Leidy, same place. [Filed July 30, 1875.]

Brief.—The guide and knife may each be laterally adjusted while the machine is in action, so that the distance of the channel from the edge of the sole may be varied at the will of the operator.



The combination, in a channeling-machine, of the movable guide *g* or movable knife-carrying arm E, with the set-screw *j*, bell-crank lever H, shaft *k*, collar *l*, and spring *i*, all substantially as set forth.

172,615. HYDRAULIC HOSE. J. E. Gillespie, Boston, Mass. [Filed Nov. 4, 1875.]

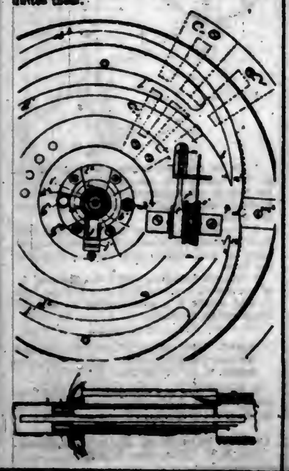


1. A tubular hose of three or more ply, composed of warp and weft, united substantially as shown and described, and in which the outer warp and filling may be worn away and not disturb the inner sets of warps and fillings, as set forth.

2. A hose or tubular fabric of two or more ply, wherein the outer ply is composed of warps and weft of wire, and the inner ply of fibrous warps and weft, the wire of the outer ply not extending to the inner face of the hose, as and for the purpose set forth.

172,616. MACHINES FOR MAKING HYDRAULIC AND OTHER HOSE PIPES. J. E. Gillespie, Boston, Mass. [Filed Oct. 26, 1875.]

Brief.—Improvement upon the machine patented June 1, 1875, No. 163,925. The side walls of the grooves are undercut, and the warp-carrier plate is provided with projections at the points where the cam-grooves cross, which facilitate the shifting of the pivotal feet of the warp-carriers. A self-adjusting tension is provided for the warp-threads. The tension cams, which regulate the delivery of the weft, is surrounded by a friction strap, which, in combination with a spiral spring, produces yielding pressure upon the cams, whereby the weft-thread is prevented from breaking should the strap become gummed or coated and adhere to the cams. The mandrel is capable of being steam-heated, and is provided with a cap for the delivery of a water-proof coating. A guide partially inclosing the mandrel folds the rubber tube, and laps its edges, and a presser roller firmly unites them.



1. The warp carrier-actuating plate, its projections *n*, pieces *m m'* and rods *l P d* different sizes, in combination with the warp carriers and the inclined pivoted feet to operate the carriers quickly, substantially as described.

2. The combination, with the warp carrier, of an adjustable thread-holding or nipping device, and a weight to operate the thread-holder, substantially as described.

3. A guide and mandrel to form and fold a lining of india-rubber, and warp and weft carriers adapted to weave a tubular covering about the lining, in combination with a cap to deliver a rubber or other cement on the outside of the folded lining.

4. The cap and steam-heated mandrel, supported therefrom, but within the cap, in combination with a pipe for discharging chalk or equivalent within the folded lining, substantially as and for the purposes described.

5. A guide and mandrel adapted to fold a strip of india-rubber into tubular form, in combination with a cap to contain liquid rubber to be expressed or applied to the outside of the folded rubber tube, substantially as described.

6. The mandrel and folding guide adapted to fold and lap the edges of a strip of india-rubber, to form a tube in combination with warp and weft carriers and mechanism adapted to operate them, to weave a tubular covering on the folded and lapped tube, substantially as described.

7. The carriers and inclined pivoted feet connected at one end with the carriers, in combination with a grooved plate having the side walls of the grooves cut away below the top surface of the plate, to receive the free ends of feet thrown into such open spaces, when the curvature of the grooves does not accord in curvature with the feet.

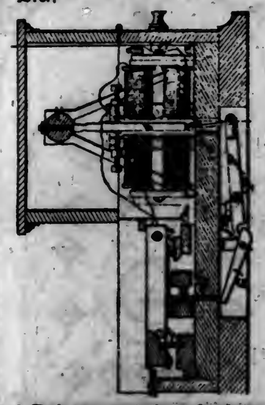
172,617. FABRICS. J. E. Gillespie, Boston, Mass. [Filed Jan. 3, 1876.]

Brief.—Omits the intermediate non-locking wefts and the surfacing-warp of Gajer's patent, making a fabric that does not relax when partially worn away.



A fabric composed of two or more pairs of warps, wefts between the warps of each pair, and weft adapted to tie alternately the one and then the other of the warps of each pair with one and then the other warp of the adjacent pair, all united, substantially as described.

172,618. ELECTRO-HARMONIC TELEGRAPH. Elisha Gray, Chicago, Ill. [Filed Jan. 27, 1876.]



1. The improvement in the art of producing musical impressions or sounds telegraphically, hereinbefore set forth, which consists in controlling a series of automatically and electrically vibrated reeds, producing tones of different pitch, by a series of keys arranged organ-fashion and adapted for manipulation by a single operator.

2. The improvement in the art of producing and transmitting tones telegraphically, which consists in controlling a series of automatically and electrically vibrated reeds, producing tones of different pitch, by a series of keys arranged organ-fashion and adapted for manipulation by a single operator, transmitting the tone thus produced through an electric circuit and reproducing it at the receiving end of the line, substantially in the manner described.

3. The combination, substantially as hereinbefore set forth, of a series of electrically-vibrated reeds and a corresponding series of keys for controlling them, arranged organ-fashion and adapted for manipulation by a single operator.

4. The combination, substantially as hereinbefore set forth, of the vibrating reeds, the keys, and the stops actuated by the keys to control the reeds.

5. The combination, substantially as hereinbefore set forth, of an electrical organ, an electric circuit, and a receiver in said circuit which reproduces the tone played by the organ.

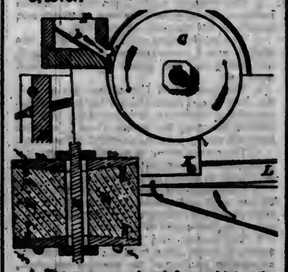
172,619. ELECTRO-MAGNETIC DENTAL PLUGGERS. George F. Green, Kalamazoo, Mich., assignor to Samuel S. White, Philadelphia, Pa. [Filed Aug. 6, 1875.]



1. The combination of the frame, the plugger-tube, the double-coil electro-magnet, the oscillating mallet, the brake-piece and its actuating circuit-breaker, mounted directly on the axis of the mallet, these members being constructed, arranged, and operating substantially as hereinbefore set forth, whereby the circuit-breaking mechanism is actuated directly from the mallet.

2. The combination, with the electric mallet-plugger, of the spring and set-screw, whereby the blow of the mallet is adjusted, as hereinbefore set forth.

172,620. GEARING-MILLS. Reuben P. Gillett, Beaver, Wis., assignor to himself and Herman Grove, same place. [Filed Jan. 3, 1876.]



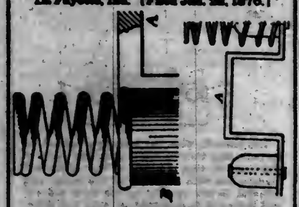
1. The means employed for combining the stone F with the shaft E, and for securing the relative radial and peripheral positions of said parts, consisting of the disks G and G, which are secured upon said shaft, made convex upon their inner faces, provided with studs *g* and *g*, and fit into the concave ends of said stone, provided with the recesses *f'* and *f'*, substantially as specified.

2. In combination with the concave E, the frame or bridle I, pivoted near its center to said concave and at its rear end to the main frame, and moved vertically at its front end by means of the rod M, provided with the nut *n*, and the set-screw O, passing through the rear end of said main frame, and impinging upon the lower upper portion of said concave, substantially as and for the purpose set forth.

172,621. FIREARMS. Albert G. Griffith, Baltimore, Md. [Filed May 20, 1876.]

The fulminating compound, formed of borax-manure, carbonic acid, bone-dust, and Mexican guano, combined in specific proportions set forth.

172,622. VEHICLE-SPRINGS. R. H. Guyer, La Fayette, Ind. [Filed Jan. 22, 1876.]



1. A saddle-bow loosely upon a vehicle-body, and supporting at its ends coiled springs for the vehicle-bed to rest on, as herein set forth.

2. The saddle-bow A, provided at its ends with the pockets B B, or their equivalents, for holding the coil-springs C C, substantially as herein set forth.

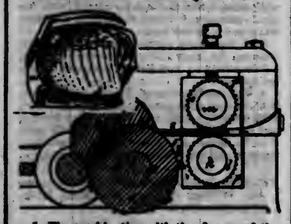
172,623. ADJUSTABLE DENTAL BRACKETS. Horace A. Hall, Troy, N. Y. [Filed June 1, 1875.]



The combination of the double parallel friction bearing-arms A, clamp-socket arms F, and telescopic extension-table-supporting rod H, constructed substantially as and for the purpose set forth.

172,624. MACHINES FOR MANUFACTURING HEMS-STRENGTHENING WEBS AND SKIRTS. James L. Hoish, Rochester, N. Y. [Filed Jan. 20, 1876.]

Brief.—The blank for the stiffener is curved and flanged between a former and a yielding cap, provided with a curved lip and a guide, and the flange is completed by the action of flanging-roller, having its flange-face working in the line of the guide. The former is adapted to yield to the thickness of the flange, and the edge of the blank is corrugated before it is bent to form the flange.



1. The combination with the former of the adjustable cap provided with curved lip and guide.

2. The cap curved at its front end, as shown, in combination with the former, and arranged with relation to each other to form a curved mouth, I, to receive the blank and operate as set forth.

3. The adjustable cap, its curved lip and guide, in combination with the former and a spring adapted to permit the former to move longitudinally on its shaft, substantially as described.

4. The combination of the former *c* and flanging-roller J I with the cap, all constructed and adapted to form a hem-stiffener substantially as described.

5. The combination of the former and cap with a discharging device, substantially as described.

6. The former and cap, in combination with the gage and feeding-rollers, substantially as described.

7. The former, in combination with the cap and yielding bar and its fulcrum.

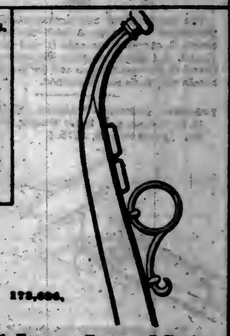
8. The former and cap, in combination with the rollers I *c*, to corrugate the edge of the stiffener preparatory to turning the flange of the stiffener, substantially as described.

172,625. GUN-COVERS. George W. Havens, Tuttleset, Mich., assignor to himself and Alva Worden, same place. [Filed Nov. 23, 1875.]



A gun case or cover made of sheep-skin tanned with the wool on, and made up with the wool on the inside, substantially as described.

172,626.

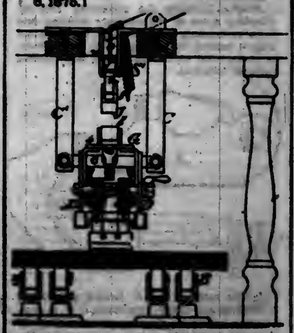


172,626. HAMES FOR HARNESS. P. Hayden, New York, N. Y. [Filed Dec. 11, 1875.]

1. The outer and inner rib and eye of a hame made in a continuous piece, substantially as described.

2. The method of forming the eye of a hame, substantially as described.

172,627. LEATHER-DRESSING MACHINES. Joseph Hood, Andover, N. Y. [Filed Nov. 6, 1875.]



1. In a leather-dressing machine the slicker H H, applied in a vertically-movable frame G, in combination with the treadle-rod K, connecting-bar L, and spring S, substantially as described.

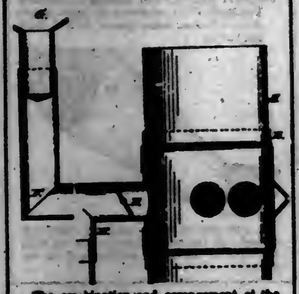
2. The pressure-bars J, its levers J' and

lever L, combined with the vertically-movable frame G, carrying shakers, and operating as described.

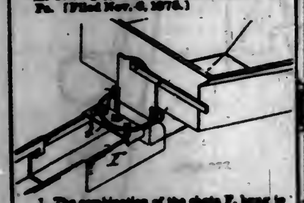
2. In combination with the frames D G, operating as described, the swivel arm H, spring-catches *g g*, and the lever *r*, substantially as described.

172,680. CROSS-COMPOUNDING FOR COGGING-STOVES. Everett H. Hendrick, Chicago, Ill. [Filed Nov. 27, 1875.]

Brief.—The cribstave can be adjusted both vertically and horizontally.



172,681. DRESSING-WAGONS. H. D. High, H. U. Geiger, and Isaac Geiger, Reading, Pa. [Filed Nov. 6, 1875.]

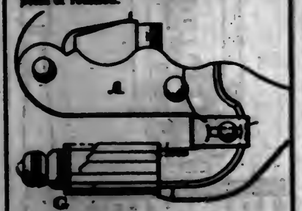


1. The combination of the chute F, hung to a segmental bar, L, with a dumping-wagon having inclined bottom and sides, substantially as and for the purpose described.

2. The chute F hung to a segmental bar, L, pivoted to the rear end of the wagon, substantially as and for the purposes described.

172,682. SPITTOON-HEAD CUSPIDOR. Joseph P. Hill, Philadelphia, Pa. [Filed Dec. 27, 1875.]

Brief.—Between the annealing and depositing steps of the ordinary existing bed for a hollow-fiber cuttor a single intermediate step is inserted, for cutting slowly an eye-hole. A cutting-steel holds the bed at any desired point of rotation.



1. The rotating bed C, having a series of annealing and depositing discs, D D, in combination with a single step, a, intermediate of the said steps *d d*, substantially as and for the purpose set forth.

2. The combination, with the shaft A and rotating bed C, formed with openings *f* in the inner face, of the spring-pressed steel *f*, substantially as and for the purpose set forth.

172,683. HEDDER. William W. Hinman, Hilbert, Ill. [Filed Aug. 14, 1875.]

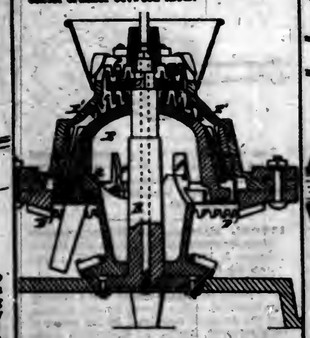
Brief.—The knuckle-plate is secured to the gate-frame by a short bar passing behind and coupled to it by screws. The plate-open are secured backward from the plate, so that the post and fingers are quite near together when the gate is closed.



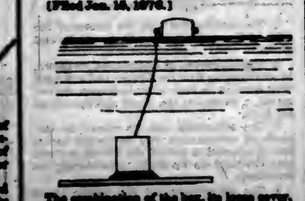
The plate E, with the hooks *y y* formed on its ends and thrown back from the body of the plate, so that the ends of the hooks will be on a line with the front of the plate, and secured to the upright by the hook plate F and bolts *x x*, in combination with the angular plate D, having upset-projecting pins *o o*, all substantially as herein set forth.

172,684. FEED-MILLS. Alfred V. Hancock, Otter Point, Fla., and Ransom S. Sumner, Athens, Tenn. [Filed May 31, 1875.]

Brief.—Cones revolving in opposite directions by means of pinions on opposite sides of machine, and on line with each other. The lower cone is provided with scrapers, and rests on revolving cup having supporting arms. Cones are provided with crushing-teeth and corrugated grinding-plates, and a stationary center crusher between them.



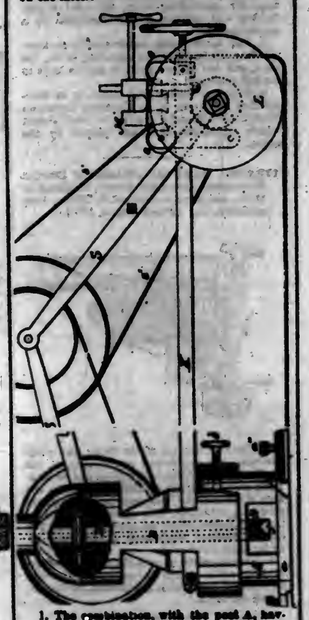
172,685. ROOTS FOR IRRIGATING WHEELS. Jas. William B. Kerr, Houghton, Mich. [Filed Jan. 10, 1876.]



The combination of the bar, its boss cover, the shortened loop, and the ties connecting the box and loop, substantially as set forth.

172,686. MILLSTONE-DRESSING MACHINE. Albert Hoppin, La Crosse, Wis., assignor to himself and Andrew K. Chittenden, same place. [Filed Jan. 22, 1876.]

Brief.—Adapted to swing round a post adjusted over the center of the millstone in a frame, consisting of a carriage-beam with a head-pulley shaft over it. On this beam, traversing by a rack and pinion, is another at right angles thereto, at the end of which is an emery-wheel, receiving motion from bevel-gearing on the post and shaft, through a pulley on the latter.



1. The combination, with the post A, having the horizontal flanges *a a* of the plates *d d*, pivoted at the inner end by means of hooks, and the set-screws bearing on said plates, as shown and described.

2. The upright shaft D, having a conical recess or cavity in its lower end, as shown and described, for the purposes specified.

3. The combination of the head-block I, the sliding bars K, emery-wheel, jointed frame H, and pulley and belt *g w g' b'*, as shown and described.

4. The head-block I, rack and pinion *e k*, the shaft R, and hand-wheel R, having a spline-connection therewith, in combination with the bars K, carrying the emery-wheel L, and the belt and pulley-gear, as shown and described.

5. The emery-wheel mounted on a vertically-adjustable spring-supported bearing, substantially as shown and described.

6. The emery-wheel mounted on a rock-shaft, M, the rack and pinion for adjusting it and controlling the pressure of the wheel upon the stone, as shown and described.

7. The spring, and its tension-regulating screw, in combination with the rock-shaft and adjustable bearing of the emery-wheel shaft, as shown and described.

8. The emery-wheel carriage, arranged to slide on the bars K, substantially as shown and described.

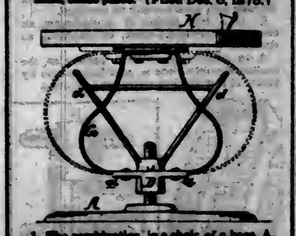
172,687. STOVES. Job B. Hoyt and Hiram B. Pingree, Williamsport, Pa. [Filed July 14, 1875.]

1. A spring composed of the following elements, viz., a rod supported on side rods, a pair of right-angled vertical rods, pivoted on each side to the side rods, forming the connecting-rods, one vibrating in front, and one vibrating in the rear of the rod, and top plates *b b*, to which the upper extremities of the right rods are pivoted, substantially as and for the purposes set forth.

2. A portable support for a swing adapted for hanging for temporary use, composed of the bottom frame *a a'*, the vertically-fitted cross-pieces B, the side bars *b b*, and the transverse bars *b' b'*, the several parts constructed, arranged, and secured together, substantially as described and shown.



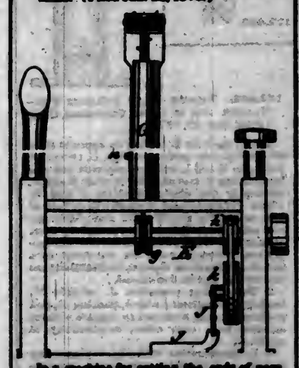
172,688. OSCILLATING CHAIRS. H. Haynes, Philadelphia, Pa., assignor to H. S. Hale, A. Kilburn, J. W. Hale, C. Kilburn, and W. Hale, same place. [Filed Dec. 6, 1875.]



1. The combination, in a chair, of a base, A, and arms or H, secured to the same, the bar D, secured to the said arms or frame, and springs G G', serving as medium for connecting the bar to the seat H, all substantially as set forth.

2. The combination, with the bar D, adapted to the arms' spindle, the springs and seat, carried by the said bar, and the arresting-arms *d d*, all substantially as specified.

172,689. PIG-FLOATS FOR BOOTS AND SHOES. Ernest C. Rosbel, Cambridgeport, Mass. [Filed Jan. 22, 1876.]



In a machine for cutting the ends of pegs from boots and shoes, the combination of the depth-cutter-head *b b*, provided with an inner series of pegs, the driving-shaft B, and bars *h h* and *i i*, both bearing on said shaft, substantially as and for the purposes set forth.

172,690. FLOATING-BRIDGE. Samuel Hopkins, Charleston, S. C. [Filed Jan. 14, 1876.]

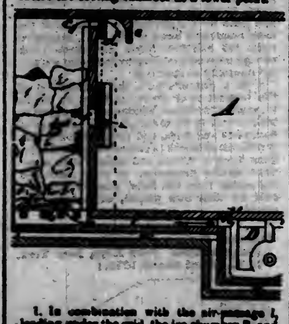
Brief.—The vessels may proceed the ordinary, and may be readily and cheaply replaced.



The combination, with a cap-packing, of an independent wearing-ring, substantially as and for the purpose described.

172,691. REFRIGERATORS. H. Hungerford, Norwalk, Conn. [Filed Feb. 2, 1876.]

Brief.—Air drawn from the top of the cooling-chamber into a converging channel, and forced through a diverging channel, to and under the ice-rack, upward through ice, and out at top against a deflector. When desired, the valves entirely from top to bottom of ice-chamber are raised, disclosing the lower air-outlet, and at once pushing up the upper valve, and closing the upper air-outlet. Then air enters the cooling chamber at a lower point.



1. In combination with the air-passage 1, leading under the grid, the ice-chamber B, and cooling-room A, I claim the air-deflector *s*, substantially as and for the purposes specified.

2. The air-passages *h f i* (, air-engine E, ice-chamber B, and air-passage *e*, combined with a cooling-room, A, substantially as described.

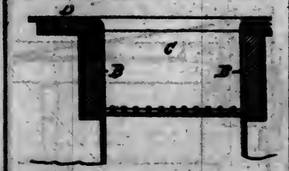
3. The passage *f* through division *d*, provided with slide *g*, in combination with the valve *d* and induction-passage *e*, substantially as described.

4. The upwardly-flaring air-space *f*, provided with a passage, *h*, from the cooling-room, in combination with the narrow passages (*h f* and flaring air-space *i*, substantially as described and for the purpose set forth.

5. The combination of the ice-chamber B, provided with horse valved air-passages, *f*, in its division and C, and cooling chamber A, substantially as described and for the purpose set forth.

172,692. STOVE-LIFTERS. J. L. Hutchinson, Baltimore, Md. [Filed Jan. 24, 1876.]

Brief.—The stove-plate horizontal plates rest in depressions in the top plates of the oven.



The upright bar-bridle B, B, and C, and overlapping horizontal bridle D, combined with diagonal stove-plates, adapted to receive said bridle, substantially as and for the purpose specified.

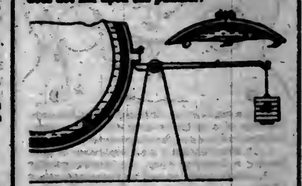
172,693. FURNACE-KETTLES AND BRACKETS. Jas. Hyde, Wilmington, Del. [Filed Dec. 27, 1875.]



1. The combination of the chambers A B, connected to the pipes or hollow columns D D by the annular rings *a a*, and provided with inlet and outlet pipes E G, also connected by the annular rings *c*, and the chamber A provided with an opening for the insertion of a cooking utensil, as set forth.

172,694. APPARATUS FOR SUPPLYING WATER TO BOILERS FOR FEEDING PURPOSES. R. A. Jones and J. A. Jones, Middlewich, England. [Filed Jan. 10, 1876.]

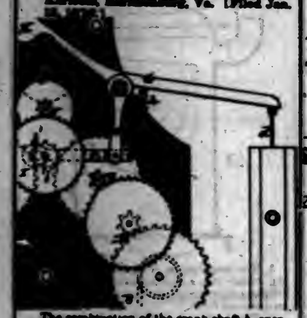
Brief.—The stationary ring bottom on another water-space, from which water is supplied to the pedder-casing, the ring being supported or suspended, so that its weight does not fall upon the pedder.



1. The improvement in double-casted rotary pudding-furnaces, which consists in the combination therewith of revolving and stationary rings, fitted or placed around the external periphery of said furnace, and connected respectively and combined with the inlet heads in such a manner that a revolving ring or rings and a stationary ring or rings together form an annular water-passage, which is maintained tight by means of a flexible head acted upon by the pressure of the water, substantially as and for the purposes hereinbefore described, and as illustrated by accompanying drawings.

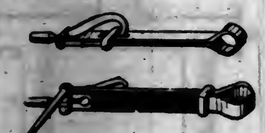
2. The combination, with revolving and stationary rings applied to a double-casted rotary pudding-furnace for the purpose herein set forth, of means of balancing or suspending the stationary rings, substantially as hereinbefore described.

178,646. MECHANICAL POWERS. Wm. H. Kerlaugh, Harrisonburg, Va. [Filed Jan. 31, 1876.]



The combination of the crank shaft b, operated by two separate and independent trains of gearing, the pitman C, rocking shaft E, arm D, lever G, with weight H, and spring I, substantially as and for the purposes set forth.

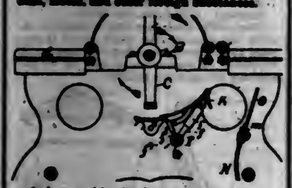
178,646. COMBINED HAT-HOOKS, NAIL-FILES, WATCH-KEYS, AND TOOTH-PICKS. Jos. Kaufmann, Chicago, Ill. [Filed July 22, 1875.]



In combination with the tweezers having one of its sides file-cut, the hook and watch-key, tooth-pick, and sliding clasp, substantially as described.

178,647. COTTON OPENERS AND CLEANERS. S. Davis, Keene, Providence, R. I. [Filed July 22, 1875.]

Brief.—The separator or grill is provided with operating arms and shafts, by means of which its outer end is elevated or depressed, and a shaded draft-space is raised or lowered, according to the state of the atmosphere. The separator is further provided with a hinged deflector, for deflecting the currents of air, and carrying away from the cotton dust, seeds, and other foreign substances.



1. In a machine for cleaning cotton, the combination of a deflector-wing with a separator, substantially as and for the purposes set forth.

2. In combination with a separator or grill having a deflector-wing, the draft-regulator F G, substantially as and for the purposes set forth.

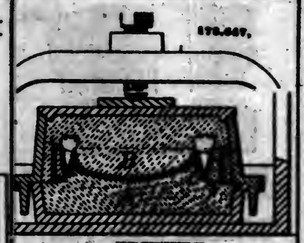
3. In combination with the separator or grill, the shafts F and G, with their arms *f*, *f'*, *f''*, *f'''*, for the purpose of adjusting the separator or grill, substantially as described.

4. In combination with a separator or grill and its operating arms and shafts, the indicator arms H and I, with their cut-sectors for the purpose of adjusting the said separator or grill, substantially as described.

178,647. SURGICAL SPLINT. A. T. Kolshlorn, Greencastle, Ind. [Filed Dec. 23, 1875.]

A metal band or ring embedded in the plaster around the limb, to prevent expansion of the same when pressure is applied in stamping or rolling the limb in cardboard plates, substantially in the manner and for the purpose specified.

178,647.



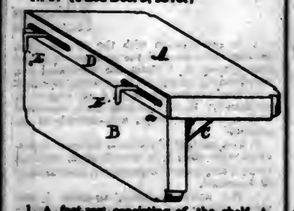
178,648. STEREOTYPE-PLATE HOLDER. A. V. Kellogg, Chicago, Ill. [Filed Nov. 16, 1875.]



1. The combination, in a printer's form, of an abutment block or blocks C', of sufficient depth to afford proper bearing at both ends and sides for the contiguous matter, and the loose removable block or blocks C, supported upon the abutment-block and made thick enough to be held in place by their own weight, substantially as specified.

2. In a printer's form, the combination of the foundation or abutment block or blocks C', made of sufficient horizontal dimensions to bind or lock in the form, affording bearings at both ends and sides, and the loose removable type block or blocks C, supported by said abutment block or blocks, and made of such somewhat smaller dimensions as to be loose and removable from the form, wherein they are held by their own weight, substantially as specified.

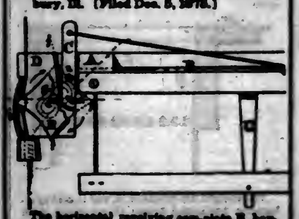
178,649. PORTABLE FOOT-RESTS FOR HOTEL ARRANGEMENTS. John Keys, New York, N. Y. [Filed Dec. 9, 1875.]



1. A foot-rest consisting of the shelf A, having the metallic plate D and hooks E arranged in the rear, book piece B, and bracket C, the several parts being constructed, arranged, and combined to operate in connection with a hot-air register, substantially as and for the purpose set forth.

2. The combination of the shelf A, provided with the metallic plate D, having slots *a*, in which are adjusted the hooks E, with a hot-air register, substantially as and for the purpose described.

178,650. CHECK-ROW ATTACHMENTS FOR CORN-PLANTERS. George W. Kring, Fairbury, Ill. [Filed Dec. 8, 1875.]



The horizontal revolving cam-plate B, having notched corners *f* to receive the knotted rope F attached to plate D on outside of the machine, in combination with the guide I, pawl *i*, pivoted lever U, rod J, pivoted lever *a*, and connection B, constructed and arranged to operate in the manner and for the purpose set forth.

178,651. KNIVES FOR BOXING HUBS. Benj. M. Legg, Bennet, Ill., assignor of one-half his right to Abraham Hays, same place. [Filed Dec. 4, 1875.]



The hub-boring knife herein described, consisting of a chank, a tapering centrally concave blade, provided with a transverse shoulder near its heel, an oblique curved point, and a cutting-edge extending along said point, and following the edge of the blade around to the heel, substantially as described.

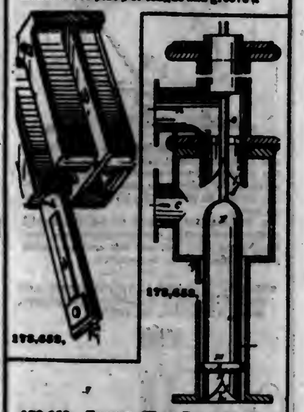
178,652. MOUTH-HARMONICAS. Casper Lightsinger, Jr., Brattleboro, Vt., assignor of one-half his right to H. D. Foote, Westchester, Conn. [Filed Jan. 13, 1876.]

Brief.—Each reed, with its block, is removable for repair or replacement by a new one. The inside of the cells and mouth-piece is enameled for greater cleanliness.

1. The combination, in a harmonica, of a separate and independent reed and reed-block for each cell, substantially as specified.

2. As a new article of manufacture, an enameled harmonica-block, substantially as specified.

3. In combination with a harmonica, the enameled mouth-piece m, attached thereto by means of the pins p or tongue and groove t.



178,652.

178,653. THREE-WAY BALANCE STOP-VALVE. Jos. M. Lesher, Cincinnati, Ohio. [Filed May 27, 1875.]

1. The chamber F, having on opposite sides of a permanent service-passage, G, two other passages, Q and L, having a common axis and terminating at said chamber in seats R and S, for supply and discharge valves P and S, whose thickness apart is greater than that of said seats, said supply-valve and exhaust-valve being connected in direction of the flow, so as to permit independent control of the supply and discharge, and their separation by a period of complete closure, substantially as and for the objects designated.

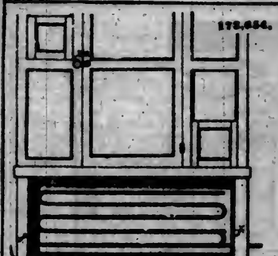
2. The tubular projection J, cylinder M, having graduations *j* and A, packing E, and packing-valve S, arranged to operate without attention from each other, substantially as specified.

3. In combination with the duplex valve plunger and the three-way passage, substantially as described, I claim the balancing-piston N, adapted to operate as set forth.

178,654. CHEMICAL HOT-AIR OR VAPOR BATH. Abram M. Lowyer, San Francisco, Cal., assignor of one-half his right to J. P. Jones, same place. [Filed Oct. 30, 1875.]

Brief.—The bath-box is composed mainly of glass, for the purposes of observation, and also to resist chemical action of the medicated vapors.

178,654.

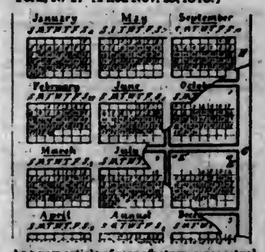


1. A chemical hot air or vapor bath, constructed of glass, in the manner substantially as described and shown.

2. In combination the chamber A, constructed of glass, and the tank *f*, placed below the same, substantially as described and shown.

3. In combination with a bath composed of glass, having ventilators *e* or registers *b b* and panels *l*, the metal-lined tank *f* and coil of pipe *c*, substantially as and for the purpose set forth and specified.

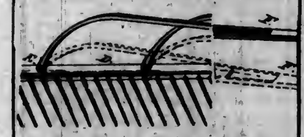
178,655. PERPETUAL COUNTING-HOUSE CALENDARS. Frederick W. Luttgen, New York, N. Y. [Filed Nov. 13, 1875.]



As a new article of manufacture, a perpetual counting-house calendar, consisting of the transferable monthly tablets A, printed without the name of any month, the case G, with its twelve or more compartments, and the perforated plate H, with twelve or more openings for the monthly tablets, and having the name of a month formed upon the face of the plate, one adjoining each opening, as and for the purpose specified.

178,656. ADJUSTABLE RAKE-HANDLES. N. B. Marston, Lebanon, N. H. [Filed Dec. 23, 1875.]

Brief.—Handle connected to rake by a clasp, which is riveted to the handle, and fastened adjustably to the rake-head by bolt and slot.



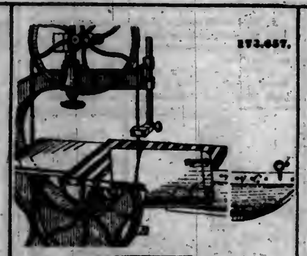
1. In a rake, the combination of the clasp E, having an arc-shaped slot, A, with the screw-threaded bolt C, the head of said bolt having projections *c c* on two sides, whereby a hinged fastening is formed, substantially as shown and described.

2. In combination, the rake-handle F, the clasp E, having arc-shaped slot, the screw-threaded bolt C, and the rake-head D, substantially as shown and described.

178,657. MACHINES FOR SAWING FELLOES. James B. McFeeters, Bedford, Ind. [Filed Jan. 22, 1876.]

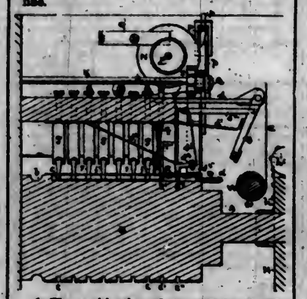
In combination with the detachable table-extension D, having perforations *a*, I claim the perforated sweep G, having hinged dogs *a a*, connected to the head H, as and for the purposes herein set forth.

178,657.



178,658. TYPE-WRITING MACHINES. G. H. Morgan, Uhrichsville, Ohio. [Filed Nov. 13, 1875.]

Brief.—Depressing the key causes the cam-bar to enter a groove in the revolving cylinder, where it comes in contact with the cam on the end of the corresponding rod, thereby moving it so that its beveled faces operate the printing-hammer and paper-feeding mechanism, which move through the end grooves of the cylinder. The type-wheel is constantly rotated, and the hammer makes the impression by a quick blow. The paper is fed the required distance for each letter by means of the varying heights of the beveled faces on the bars operating the pawl and ratchet connected to the worm-wheel shaft. The cylinder is provided with spacing and justifying rods, which operate the feeding mechanism without printing, thus forming spaces between the words. The line-space is formed by depressing the lever on the paper-carrier, thus operating the feed-rolls, and at the same time causing the rack-bar to gear with the pinion which moves the carriage back, to commence another line.



1. The combination of the cylinder B and cam-bars F with a series of sliding rods, D, provided with two beveled faces, d^2 and d^3, substantially as and for the purpose set forth.

2. The rods D, cylinder B, and bars F, operating in combination with mechanism, substantially as described, to actuate the printing-hammer, in the manner substantially as and for the purpose set forth.

3. The rods D, cylinder B, and bars F, operating, in combination with mechanism substantially as described, for operating the paper-carrier, substantially as and for the purpose set forth.

4. A rod, D, provided with two cams or laterally-beveled faces, d^2 and d^3, for the purpose of actuating the levers which operate the paper-carrier and printing-hammer, substantially as specified.

5. A rod, D, constructed with two laterally-beveled faces, d^2 and d^3, and with a cam-face, d^4, in the manner substantially as and for the purpose specified.

6. A spacing rod, D', constructed with a single laterally-beveled face, d^5, to operate the paper-carrier without actuating the printing-hammer, substantially as and for the purpose specified.

7. The combination of a spacing-rod, D', having a laterally-beveled face, d^5, and a cam-face, d^4, with the cylinder B and cam-bar F, substantially as and for the purpose specified.

8. The combination of the justifying-rod D' constructed with a single laterally-beveled face, d^5, of diminished size, with the hammer S, actuating-rods D, cylinder B, and cam-bars F, substantially as and for the purpose specified.

9. In a type-writing machine, the combination of a justifying rod, D^4, with a spacing-rod, D', each being respectively constructed in the manner substantially as and for the purpose specified.

10. The cylinder B and series of rods D, having inclined faces d^5, of different sizes, proportioned to the different sizes of the letters of the alphabet, characters, or signs, and operating, in combination with a series of cam-bars F, substantially as and for the purpose specified.

11. The cylinder B, having a series of rods, D, a spacing-rod, D', and a justifying-rod, D^4, in combination with bars F, substantially as and for the purpose specified.

12. The cam-bars F, pivoted to the adjustable brackets *f*, substantially as and for the purpose specified.

13. The combination of a rod, D, provided with two laterally-beveled faces, d^2 and d^3, cam-face d^4, and spring *d*, with a key, Q, cam-bar F, and cylinder B, substantially as and for the purpose set forth.

14. The combination of a series of rods, D, each being provided with two laterally-beveled faces, d^2 and d^3, cam-faces d^4, and spring *d*, with a cylinder, B, and a series of keys, Q, and cam-bars F, substantially as and for the purpose set forth.

15. In combination with the printing-hammer S, rod d^2 and cam-lever s^3, substantially as and for the purpose specified.

16. The combination of bars F, cylinder B, rods D, cam-lever s^3, rod s^2, and printing-hammer S, substantially as and for the purpose specified.

17. The combination of hammer S, rods s^2, lever s^3, and spring s^4, substantially as and for the purpose specified.

18. In combination with the paper-carrier T, the worm-gear M, ratchet N, pawl P, rod *p*, lever Q, rod *q*, and cam-lever R, substantially as and for the purpose specified.

19. The combination of bars F, cylinder B, rods D, lever R, rod *q*, lever Q, rod *p*, pawl P, ratchet N, and worm-gear M, substantially as and for the purpose specified.

20. In a type writing or printing machine, the combination of the following instrumentalities, to wit: a printing-hammer, S, and paper-carrier T, operated simultaneously by pressure on a single finger-key by means of a bar, F, cylinder B, rod D, and connecting mechanism, substantially as described.

21. In a type writing or printing machine, the combination of the following instrumentalities, to wit: a printing-hammer, S, paper-carrier T, and revolving type-wheel H, having adjustable type-carriers, each operated in the manner and for the purpose substantially as set forth.

22. In a type writing or printing machine, the combination of the following instrumentalities, to wit: a revolving type-wheel having independent adjustable type-carriers and printing-hammer, operated substantially as and for the purpose specified.

23. In a type writing or printing machine, the combination of the following instrumentalities, to wit: a revolving type-wheel having independent adjustable type-carriers, printing-hammer, and paper-carrier, operated substantially as and for the purpose specified.

24. The combination of a revolving type-wheel, H, printing-hammer S, cylinder B, sliding rods D, and cam-bars F, substantially as and for the purpose specified.

25. The combination of a revolving type-wheel, H, printing-hammer S, paper-carrier T, cylinder B, sliding rods D, and cam-bars F, substantially as and for the purpose specified.

26. The ratchet-wheel N, operating substantially as described, in combination with the worm-gear M, adjustable rack-bar V, and paper-carrier, substantially as and for the purpose specified.

27. The combination of a paper-carrier with an adjustable rack-bar, V, lever U, and crank *u*, substantially as and for the purpose specified.

28. The combination of the lever U, rack-bar V, and spur-wheel 5, substantially as and for the purpose specified.

29. The combination of the lever U, rack-bar V, and worm-gear M, substantially as and for the purpose specified.

30. The combination of the levers U and f^2, ratchet 6, and pawl f^3, and shaft f^4 and rollers, substantially as and for the purpose specified.

31. The shaft f^4, with elastic wheels, in combination with springs f^5 and roller W, substantially as and for the purpose specified.

178,659. FOLDING TABLES. M. B. Morris, Bridgeport, Conn., assignor to the Sewing-Machine-Cabinet Company, same place. [Filed Oct. 19, 1875.]

178,660.



1. The combination of the hinged legs, the hinged props, the stops near the ends of the props, the guides in which the props move endwise and are allowed slight vertical play, the contracting-springs bearing on the props, and the fixed stops on the under side of the table-top, these members being constructed and operating substantially as set forth.

2. The combination of the top, the cleats on the under side thereof, the hinged legs, the hinged props, the guides in which the legs slide endwise and play vertically, the springs fixed to the guides and bearing upon the props, and the stops upon the under side of the top, these members being constructed and operating substantially as set forth.

178,660. PEGGING-AWLS. Wm. S. Nowell, Greenville, Conn. [Filed Jan. 20, 1876.]

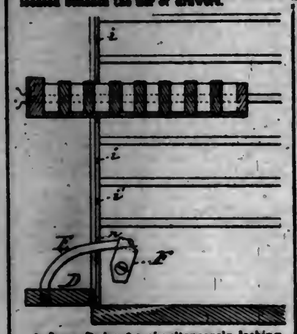


1. A pegging-awl, having an extractor that has its lower end closed, and an opening in its side so as to see where to put the awl, substantially as shown and described.

2. The combination of the stock *a*, head *c*, handle *g*, extractor *h*, flanges and spring, substantially as described.

178,661. DEVICES FOR LOCKING A SERIES OF DRAWERS. Caroline B. Palmer, Sing Sing, N. Y. [Filed Jan. 22, 1876.]

Brief.—A spring-actuated locking-rod, movable vertically, for locking and unlocking simultaneously a series of drawers, is raised by means of semicircular slides, that are attached to a hinged vertically-vibrating door located beneath the tier of drawers.



1. In a device for simultaneously locking and unlocking a set of drawers, the combination, with rod C, having lugs *i'*, and a spring, S, the hinged door D, plate F, slides E, and the notched drawers B, substantially as specified.

2. In combination, the locking-rod C, slides E, and hinged door D, combined and arranged substantially as specified.

178,662. WASH-STANDS. Chas. A. Pease, Hyde Park, Mass. [Filed Jan. 21, 1876.]

Brief.—A wash-bowl in combination with a water-tank, provided with a flexible diaphragm, which, when depressed, will force water from the tank into the bowl.

1. The tank B, provided with an inlet for water and a flexible diaphragm, *g*, in combination with bowl C and a communicating pipe, substantially as described.

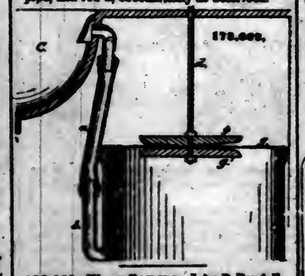
2. The tank B, provided with a flexible diaphragm *g*, in combination with reservoir I and valved opening *i*, substantially as described.

3. The tank B, provided with a communicating reservoir, I, and a flexible diaphragm, in combination with bowl C and a connecting pipe, substantially as described.

4. The combination of stand A and bowl C with the tank B, provided with a flexible diaphragm, *g*, and a connecting pipe, substantially as described.

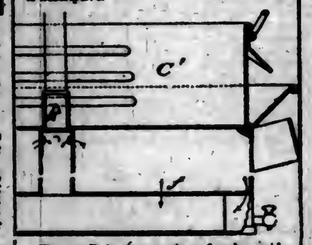
5. The combination of bowl C, tank B, provided with a flexible diaphragm, a connecting pipe, and rod *d*, substantially as described.

178,663.



178,663. WASH-BOILERS. John R. Pendell, Ontario, N. Y. [Filed Nov. 13, 1875.]

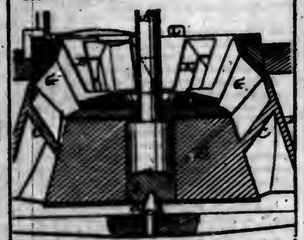
Brief.—An improvement in J. R. Pendell's patent, May 4, 1875, No. 163,876. The claim is descriptive.



The pan B, having openings *f*, and provided with the pipe C open at its lower end and attached to its upper face, in combination with the water-feeding and steam-condensing pan C' and waste-water cock *c*, substantially as described, and for the purpose set forth.

178,664. WATER-WHEELS. T. H. Forbes, Fillmore, Minn. [Filed Jan. 6, 1876.]

Brief.—This device consists in the construction and arrangement of a conical wheel with buckets and exterior case attached thereto, and a bucket-rim with interior gate placed above the same.

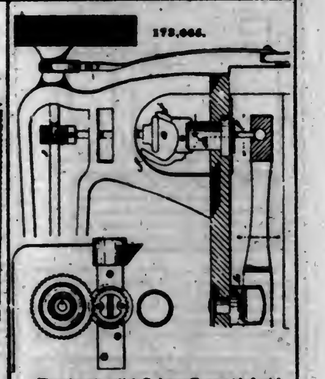


The water-wheel, consisting of the conical hub B, with buckets C extending above the same, and surrounding case D, in combination with the bucket-shaped or spout rim G and gate E, all constructed and arranged substantially as and for the purposes herein set forth.

178,665. SEWING-MACHINES. John B. Price and C. B. Fillings, Hartford, Conn. [Filed June 26, 1875.]

Brief.—The feed is mounted on a horizontal bar extending to the rear, and pivoted midway of the feed-plate. A plunging-disk, operated from an eccentric on the main shaft rocks a lever connected with the feed-bar, and gives the feed its forward or lateral movement, the direction being changed, so as to feed in any direction across the table, by turning the lever by means of gear-wheels.

178,666.



The plunging disk G, lever F, provided with the fingers *f f'*, the hub H, adapted to rotation upon an axis coincident with that of the plunger, and the vibro-reciprocating lever D, combined and operating substantially in the manner and for the purpose set forth.

178,666. ROTARY CHURNS. Charles W. Probst and Frederick Schreiber, Chicago Ill. [Filed July 8, 1874.]

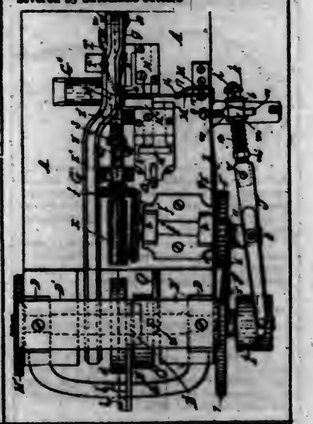
Brief.—Stationary vertical breakers surround the orbit of perforated vertical dashers, revolved with a cross-head, through which a shaft descends from an exterior motor.



The combination, with the body A of a churn, of the shaft *a*, head *b*, pendent dashers D', and cream-breakers H, the several parts operating as set forth

178,667. MACHINES FOR MAKING BARBED FENCE-WIRE. Henry W. Putnam, Bennington, Vt. [Filed Jan. 20, 1876.]

Brief.—The fence-wire is fed forward at intervals, and when at rest has a barb-wire coiled about it, from a continuous wire fed at right angles to the main or fence wire, and severed by automatic cutters



1. In a machine for making barb fence-wire or fencing by a continuous operation, the combination, with mechanism constructed and arranged to automatically feed forward the main wire at stated intervals, and mechanism constructed and arranged to automatically feed forward the cross or barb wire across the main wire at stated intervals, of mechanism for coiling the barb-wire about the main wire, and mechanism for cutting off the barb-wire, and for fastening the coil barb-wire, to the main wire, substantially as described.

2. The combination, with the feed rolls C C', provided with the feeding-projections *d d*, of cam B', and lever D', provided with bobbing-finger *f*, for the purposes stated.

3. The combination, with the hollow rotating and reciprocating shaft B', of the coiling-finger 13, for the purposes stated.

4. The combination, with the hollow rotating and reciprocating shaft B', and reciprocating head B''', of the projecting pin *i*, and shoulders B, substantially as and for the purposes set forth.

5. The combination, with the hollow rotating and reciprocating shaft B', and hollow stationary bearing and main-wire guide E, of spring *S*, substantially as and for the purposes set forth.

6. The combination, with the hollow shaft B' and finger 13 for coiling the barb-wire, of lever G', for holding the wound part of the barb wire, substantially as described.

7. The combination, with the hollow rotating shaft B' and coiling-finger 13, of the curved guide 22, substantially as and for the purposes set forth.

8. The combination, with compressing-lever G', of double main-wire-supporting lever T T', substantially as and for the purposes set forth.

9. The combination, with compressing-lever G', and supporting-stand G, of the inclined adjustable dies F F, substantially as and for the purposes set forth.

10. The combination, with hinged lever M', of adjusting-screw 14, substantially as and for the purposes set forth.

11. The combination, with levers Q' and M', for supporting the barb-wire K, of the fingers F' F'', for covering or cutting the wire to form the barbs or barb-points 26, substantially as described.

12. The combination of holding-lever B', and holding and compressing lever G', of cam B'', and H *z*, substantially as and for the purposes set forth.

13. The combination, with barb-wire-supporting lever M', of spring-arm 17, and flange or guide 20, substantially as and for the purposes set forth.

14. The combination, with shafts C''' and *f''*, of cog-gear I'', and cam and blank face gear I, of locking-lever *p*, substantially as and for the purposes set forth.

15. The combination, with the recess-flange 14 of gear I'', and stationary stand M, of the hinged barb-wire-holding lever L, substantially as and for the purposes set forth.

16. The combination, with the barb-wire feeding and retracting lever J, provided with jaws *k* and *i*, one or both movable, of the adjusting-screws *o* and *p*, and wedge *n*, substantially as and for the purposes set forth.

17. The combination, with the cutters, in a machine for feeding and cutting off wire beveled or pointed, as shown at 26, of retracting mechanism, whereby the wire is slightly withdrawn before the cutter moves back, for the purposes stated.

18. The combination of lever J and cam I', of adjusting-screw *o'*, spring 12, sliding head *m*, stationary head *h*, of the movable wedge *n*, substantially as and for the purposes set forth.

19. The combination, with feed-rolls C C', of cams B'' O' H *z*, and levers G' B' and O, substantially as and for the purposes set forth.

20. The adjustable feed-lever J, constructed and operating substantially as and for the purposes set forth.

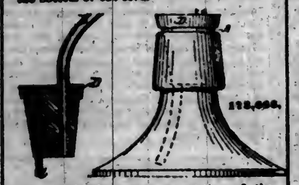
21. In a machine for making barb fence-wire or fencing, the combination of mechanism for holding the main wire and cross or barb wire, substantially as described, of mechanism for coiling the barb-wire about the main wire by a rotating and receding motion, substantially as and for the purposes set forth.

22. The mode or process of forming barb-wire fence or fencing by a continuous operation substantially as shown and described.

178,668. INK-BOTTLES. F. A. Bedington, Chicago, Ill. [Filed Jan. 7, 1876.]

Brief.—The stopper consisting of the cork, cap, and flexible metallic tube, extending above the cap and the tube, and extending below the bottom of the cork.

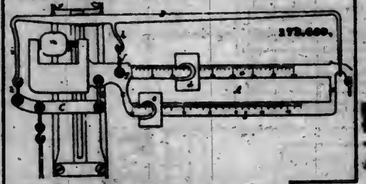
178,668.



An ink-bottle stopper, consisting of the cork A, cap B, and flexible metallic tube C, extending above the cap B, and the tube D, extending below the bottom of the cork, substantially as described.

178,669. WEIGHING APPARATUS. William W. Reynolds, Brandon, Vt., assignor to Brandon Manufacturing Company, same place. [Filed Oct. 19, 1875.]

178,669.



My improved weighing apparatus, as described, consisting of the bar B, its three arms or weighing-lever supporters, the lever O, and the main and auxiliary connected scale-beams *a b*, provided with the slide-weights *c d*, all being arranged, constructed, and applied as set forth.

178,670. BRICK-MACHINES. George T. Eddings, Monroe City, Mo., assignor of one-half his right to R. C. Bishop, same place. [Filed June 19, 1875.]

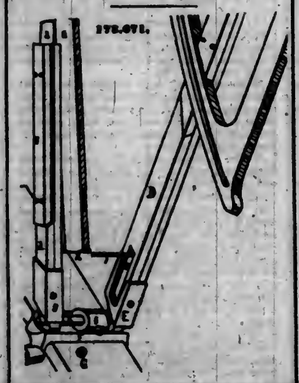
178,670.



1. The arched clay-receptacle G combined with the hopper F and pressure-plate H in a machine, substantially as described.

2. In a brick-machine a guiding-frame, hopper F, and reciprocating follower D, in combination with the arched clay-receptacle G, pressure-plate H, and diagonal scraper J, substantially, as described.

178,671.



178,672.



178,671. PIANO ATTACHMENTS. G. P. Roberts, Norwalk, Ohio. [Filed Feb. 2, 1876.]

Brief.—That part of the harmonic damper which touches the strings consists of a tube or hollow rib of rubber or like soft material.

1. A stop or damper for producing harmonics on a piano forte or other stringed instrument, having a rubber or other soft flexible surface inclosing an air chamber or space, substantially as described.

2. In combination with the strings of a piano or other instrument, a flexible tube or hollow rib of rubber or other material, forming a soft elastic surface, with an air-chamber, for producing harmonics, substantially as described.

3. In an apparatus for producing harmonics upon the strings of a piano, the combination of a clamp, F, sliding arms A' and *a'*, stops or dampers A and *a*, air-chambers B and *b*, and draw-stop K, substantially as described.

178,672. CARD-GRINDING MACHINES. Basil S. Roy, Rockville, Conn., assignor of one-half his right to R. C. Clarke, same place. [Filed Sept. 15, 1875.]

178,672.

1. The combination of the hollow shaft E, provided with an internal chain-gear, as described, with the grinding-wheel H, by means of the slotted-arm connection *n*, whereby the said grinding-wheel is made to traverse the shaft by the movement of the chain-gear, substantially as described.

2. The combination, with a grinding-wheel, arranged to revolve with a driving-shaft, and to move to and fro longitudinally thereon, of an annular oil-chamber in the hub of the wheel, encircling the driving-shaft and communicating therewith, substantially as described, whereby the entire contact-surfaces of wheel and shaft are lubricated with uniformity, as set forth.

178,673. ELECTRO-MAGNETIC VOTING APPARATUS. Alfred G. Safford, St. Albans, Vt. [Filed Feb. 5, 1875.]

Brief.—Names of each person voting set up in type in a movable carriage, which is moved to the "aye" or the "nay" side of the frame by mechanism released by an electro-magnet. Impression taken from the type above "ayes," "nays," and persons not voting. Circuit-closers, sliding down sides of frame, come in contact with metallic arms projecting from the carriages, thus closing circuits to counting mechanisms.

1. In a voting apparatus, I claim a carriage, or its equivalent, containing types, representing the name of the member voting, located in a stationary frame, and moved from the center thereof to either side by mechanism controlled by an electro-magnet, the circuit to which is closed by the pressure of a knob, or its equivalent, on the desk of the member voting, substantially as herein set forth.

2. A stationary frame or galley, divided into a series of sections containing separate and independent type-carriages, in combination with a mechanism, connected to each carriage, for moving the same, released by means of an electro-magnet at the will of the members resting, substantially as set forth.

3. The combination of the type-carriage B, arm O, with pin i, slotted spring-bolt D, with notch g, armature-lever H, with hook h, and an electro-magnet and wires connecting with the knob on the desk, as and for the purposes herein set forth.

4. The combination of the galley A, movable type carriages B, with arms e, circuit closers L, with projections m, electric connecting wires, magnets, and indicators, substantially as and for the purposes herein set forth.

172,676. WHEELS. Henry A. Sawyer, Chicago, Ill. (Filed Feb. 9, 1876.)

Brief.—The gum for the support of the wheel is provided with a groove or circle with flanges, in combination with brass and a tenon, which makes it very strong. The hub has radial arms with side flanges, and the wooden arms secured in said radial arms, and wings pivoted between the outer ends of the arms. The metallic socket is provided with flanges and inclined ears, all cast in one piece, in combination with the arm and wing pivoted to said ears. The collar or hub is cast in two parts, with a series of radial arms slotted at their outer ends.

172,677. FABRICS. Edwd. Schoppere, Philadelphia, Pa. (Filed Aug. 20, 1875.)

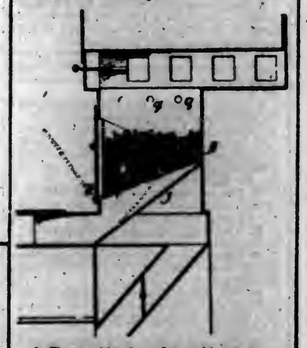
Brief.—The heavy lashing is formed of weft threads "tied up" by the face weft at regular intervals, whereby the under weft is dispensed with, and the fabric can be woven on a common single-shuttle loom.



The within described fabric, consisting of a surface web composed of warp-threads a and wefts b, combined with warps d seated at the back of the surface web, connected thereto at intervals, and entirely covering the same, as specified.

172,678. COOKING STOVES OR RANGES. J. A. Sheppard, Philadelphia, Pa. (Filed Nov. 10, 1875.)

Brief.—The refuse, after being dried, is discharged into the fire-pot.

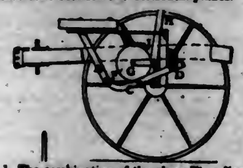


1. The combination of a cooking stove or range, with a kiln having a flue or flues communicating with those of the stove or range, all substantially as set forth, for the purpose specified.

2. The combination in a range of the connecting-casing D, the flues *p p*, hinged door E with its sides *t t*, the door I, and chute J.

172,679. SULKY-PLOWS. W. J. Slaughter, Greenfield, Ill. (Filed July 2, 1875.)

Brief.—The lifting-lever is made concentric, and locking by being pivoted on an arm of the plow-arm, and having a pulley at its end, which rolls between two horizontal planes.

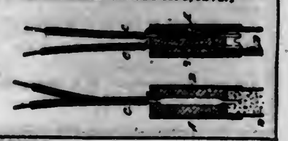


1. The combination of the plane F, pulley-lever H, yokes C and D, and plow E I, substantially as described.

2. The combination of the plane J, pulley-lever H, yokes C and D, and plow E I, substantially as described.

3. In a plow, the lever H, provided with the pulley G, in combination with the planes F and J, substantially as described.

172,680. ELECTRIC FUSES. E. J. Smith, Boston, Mass. (Filed Feb. 9, 1876.)



172,681. ELECTRIC FUSES. E. J. Smith, Boston, Mass. (Filed Feb. 8, 1876.)



1. In combination with the conducting-wires of a frictional electric fuse, a connecting-sheet of gold, silver, or other suitable foil interposed between the terminals of said wires, substantially as described.

2. In combination with the casing A, the insulating-block, grooved or recessed longitudinally for the reception of the connecting-wires, and forming a support for the foil, substantially as described.

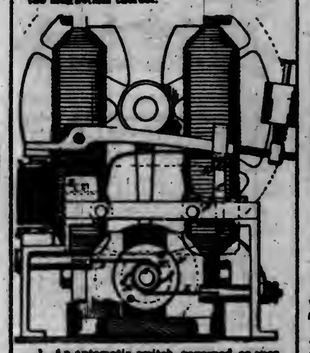
3. The combination of the casing, intermediate insulating-casing, and insulating-block, containing the wires and foil, substantially as described.

4. In combination with the recessed insulating-block, the wires bent or crimped as shown, for the purpose described.

5. In combination with the fuse containing the explosive compound, the connecting sheet of foil, and the iron conducting-wires, insulated by means of cotton or other cheap insulating material, substantially as described.

172,682. MAGNETO-ELECTRIC APPARATUS. H. J. Smith, Boston, Mass. (Filed Feb. 8, 1876.)

Brief.—Relates to that class wherein the currents generated by revolution of armatures are led around the electro-magnets, to increase the magnetism thereof.

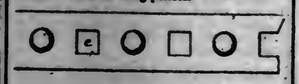


1. An automatic switch, governed or operated by the electric current, for switching or bringing into connection an outside conductor, as in a series of electric fuses, the primary wire of an induction-coil, or a series of gas-jets.

2. In a magneto-electric apparatus, a switch automatically controlled and operated by the current generated therein, and operating to throw a current onto a circuit outside the apparatus when the desired strength of current has been obtained, substantially as described.

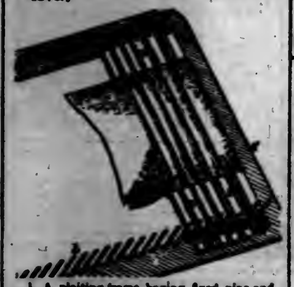
172,683. FUSE-COMPOSITION. B. Gaveral, New York, N. Y. (Filed Sept. 28, 1875.)

Brief.—To insure the accurate feeding of the ribbon, and to prevent the fire from spreading to another pellet when one is exploded, the ribbon is provided with perforations between the fulminating-pellets.



A fulminate pelleted ribbon or tape, provided with perforations between the pellets, substantially as and for the purpose herein described.

172,684. PLAITING-MACHINES. Mary P. Sellers, Philadelphia, Pa. (Filed Jan. 14, 1876.)



1. A plaiting-frame having fixed pins and adjusting-slats, said frame being open to permit the fabric folded over the slats to be operated upon on both sides, the pins being at regular distances apart, and the width of the slats being less than the distance between said pins, substantially as shown and described.

2. In combination with the frame A, having pins *b b*, the slats or tins D, formed with elongated openings *d d*, to facilitate the application of said slats to the pins, as set forth.

3. The method herein described of plaiting fibrous material, by folding the same over slats in such manner as to leave the finished portion of the material uncovered, and then fixing such plaits permanently by steaming and pressing the same, substantially as described.

172,685. REINS-SADDLES. Geo. D. Smith, Glenn Springs, S. C. (Filed Nov. 8, 1875.)



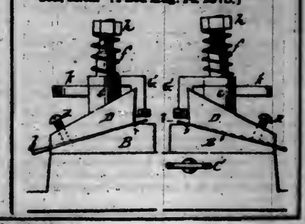
In a riding-saddle, the flanged pommel and cantle, struck up from sheet metal, and provided with perforations, substantially as herein shown and described.

172,686. DIES FOR MAKING SPLIT NUTS. Wm. H. Smethier, Trenton, N. J., assignor to Herman, Boker & Co., New York, N. Y. (Filed Aug. 12, 1875.)

1. The male die A, made flush on its face, and provided with a projecting mandrel *f*, having one or more wings, *g*, in combination with the female die B, having its nut-forming recess made partly straight and partly conical, substantially as specified.

2. The sleeve D, constructed with a reduced inner end, *i*, for entry within the nut, in combination with the female die, having the nut-forming recess in it, and the male die, with its attached mandrel, constructed to punch or clear the hole in the nut, and to aid the latter, essentially as described.

172,687. LEATHER-CRIMPING MACHINES. Ralph Taylor and Jerome J. Wood, Hudson, Mich. (Filed Aug. 14, 1875.)



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1. In an electric fuse, the conducting-wires, slotted at their ends as described, for the purpose of forming a rest for the platinum connecting-wire, to retain the same in place during and after the operation of soldering, substantially as described.

2. In combination with the casing A, the conducting-wires C C, projecting beyond the forward end of said casing, to admit of ready access to said wires for the purpose of connecting the platinum connecting-wire, substantially as described.

3. The combination of the casing A and auxiliary casing D, forming the charge-chamber of the fuse, substantially as described.

4. The combination of the casing A and auxiliary casing D, casting within the forward end of the same, the latter constructed of proper diameter and length to form a nipple for a blasting-cap, the two being relatively arranged so that the casing A will form a shoulder to prevent the cap from being forced on too far, substantially as described.

5. In combination with the insulating-packing, conducting-wires, flattened, bent, or crimped, to prevent turning or twisting of the same, substantially as described.

172,688. ELECTRIC FUSES. E. J. Smith, Boston, Mass. (Filed Feb. 8, 1876.)

1. In combination with the conducting-wires of a frictional electric fuse, a connecting-sheet of gold, silver, or other suitable foil interposed between the terminals of said wires, substantially as described.

2. In combination with the casing A, the insulating-block, grooved or recessed longitudinally for the reception of the connecting-wires, and forming a support for the foil, substantially as described.

3. The combination of the casing, intermediate insulating-casing, and insulating-block, containing the wires and foil, substantially as described.

4. In combination with the recessed insulating-block, the wires bent or crimped as shown, for the purpose described.

5. In combination with the fuse containing the explosive compound, the connecting sheet of foil, and the iron conducting-wires, insulated by means of cotton or other cheap insulating material, substantially as described.

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1. An automatic switch, governed or operated by the electric current, for switching or bringing into connection an outside conductor, as in a series of electric fuses, the primary wire of an induction-coil, or a series of gas-jets.

2. In a magneto-electric apparatus, a switch automatically controlled and operated by the current generated therein, and operating to throw a current onto a circuit outside the apparatus when the desired strength of current has been obtained, substantially as described.

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1. The male die A, made flush on its face, and provided with a projecting mandrel *f*, having one or more wings, *g*, in combination with the female die B, having its nut-forming recess made partly straight and partly conical, substantially as specified.

2. The sleeve D, constructed with a reduced inner end, *i*, for entry within the nut, in combination with the female die, having the nut-forming recess in it, and the male die, with its attached mandrel, constructed to punch or clear the hole in the nut, and to aid the latter, essentially as described.

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1. A plaiting-frame having fixed pins and adjusting-slats, said frame being open to permit the fabric folded over the slats to be operated upon on both sides, the pins being at regular distances apart, and the width of the slats being less than the distance between said pins, substantially as shown and described.

2. In combination with the frame A, having pins *b b*, the slats or tins D, formed with elongated openings *d d*, to facilitate the application of said slats to the pins, as set forth.

3. The method herein described of plaiting fibrous material, by folding the same over slats in such manner as to leave the finished portion of the material uncovered, and then fixing such plaits permanently by steaming and pressing the same, substantially as described.

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2. The sleeve D, constructed with a reduced inner end, *i*, for entry within the nut, in combination with the female die, having the nut-forming recess in it, and the male die, with its attached mandrel, constructed to punch or clear the hole in the nut, and to aid the latter, essentially as described.

172,695. LIQUID-METERS. D. B. Spencer, Syracuse, N. Y. (Filed Feb. 9, 1876.)

Brief.—In case the main valve-actuating mechanism does not operate at the proper time, the independent auxiliary mechanism starts the movement of the valve, and brings the main mechanism into operation.

1. The castings a e having the main water-ways *a*' *d*', and the discharge water-way *d*', substantially as described.

2. The combination of the recessed castings with the clamping-rings and flexible partitions, substantially as described.

3. The combination of the recessed valve-box and the bar J uniting the disk-levers, substantially as described.

4. The combination of the metal valve-rod and the hard-rubber valves, substantially as described.

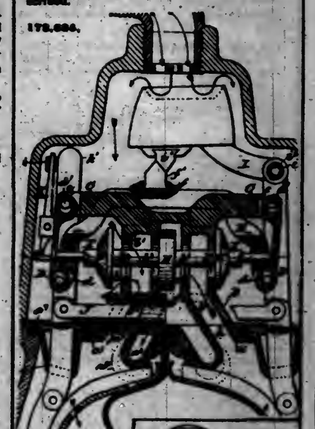
5. The employment of a friction sleeve or bushing of hard rubber, of greater length than the bearing-surface it protects, for the purpose of preventing friction upon the sides, substantially as described.

6. The combination, broadly, of valves of suitable construction, and primary mechanism for shifting them, of auxiliary independent mechanism for starting the valves when the primary mechanism fails to act, substantially as described.

7. In combination with a moving piston or diaphragm, and primary mechanism for actuating the valves, I claim auxiliary independent mechanism for starting the valves, when the primary fails to act, substantially as described.

8. The combination of the levers pivoted to the fixed portion of the meter with the measuring disk-lever, and the valve-rod provided with locking-shoulders, substantially as described.

172,696. TOOL-CARRIERS FOR DENTAL ENGINES. Eli T. Starr, Philadelphia, Pa., assignor to S. S. White, same place. (Filed Feb. 2, 1876.)



Brief.—The tool is held in an angular attachment by means of a perforated spring, which embraces both sides of the carrier, and allows the tool to be inserted in either end. The edge of the circular opening in the spring rests upon a shoulder on the tool.

1. The combination, substantially as hereinbefore set forth, of the angular attachment, its tool-socket, and the laterally-moving locking-spring, constructed on the other plan.

2. The combination, substantially as hereinbefore set forth, of the tool-socket and the locking-spring, surrounding its ends, whereby a tool may be applied and locked from either side.

3. The combination, substantially as hereinbefore set forth, of the tool-socket, the tangential pin, the locking-spring, and the tool-shank, provided with a groove, into which the pin takes, and a shoulder to abut against the spring, whereby the tool is prevented from either turning or moving endwise in its socket.

172,697. LEATHER-CRIMPING MACHINES. Ralph Taylor and Jerome J. Wood, Hudson, Mich. (Filed Aug. 14, 1875.)

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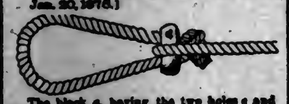
1. The combination of the head B, grooved plate D, channeling-knife *b*, and set-screw *d*, substantially as and for the purposes herein set forth.

2. The combination of the inclined plate D, with rod E, collar *e*, with handle *h*, foot G, spring *f*, and rest *k*, substantially as and for the purposes herein set forth.

3. The head B, provided with the groove *x* upon its upper surface, for the purpose described.

4. The combination, with the slotted base A, of the stationary head B, with plate D, adjustable channeling-knife *b*, and yielding foot G, and the movable head B', with similar plate, knife, and foot, all constructed substantially as and for the purposes herein set forth.

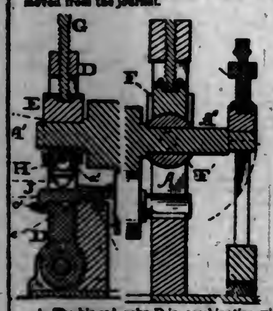
172,689. GATES-TIES. Cobro L. Taylor, Greenville, assignor of one-half his right to Thomas Shetty, Norwich, Conn. [Filed Jan. 20, 1876.]



The block *c*, having the two holes *c* and groove *c* in its top, substantially as described.

172,690. MACHINES FOR BENDING METAL PLATES. Chas. A. Teal, Philadelphia, Pa. [Filed Dec. 1, 1875.]

Brief.—The upper roll is supported in a hinged bearing in the adjustable bearing-block, and is provided with an extended axis, by means of which and the auxiliary bearing the roll is supported when the hinged bearing-yoke is withdrawn, or it may be elevated to any desired angle. The opening in the bearing carried by the yoke is adjustable as to length, so that the yoke can be freely removed from the journal.



1. The hinged yoke D in combination with the bearing E, provided with the sliding part *d'*, operating as described and for the purpose set forth.

2. The combination of the rolls C B, the latter being supported at one end in a hinged bearing, F, in the adjustable bearing-block F, substantially as and for the purpose set forth.

3. The roll B, having the extended axis A''', in combination with the bearing F F' and auxiliary bearing I, substantially as and for the purpose set forth.

4. The combination with the housing and hinged yoke of the shackle J, formed with laterally-extending lugs, and the longitudinally-extending guides *g*, whereby said shackle has both axial and sliding motion, substantially as and for the purpose set forth.

5. The yoke D, with inclined face *q*, in combination with the shackle J, formed with a head, *q*, substantially as and for the purpose set forth.

172,691. ATTACHMENTS TO COOKING-STOVES. Theodore R. Timby, Tarrytown, N. Y. [Filed Jan. 21, 1876.]

Brief.—The socket embraces a pivot or post attached to the stove in such manner that the utensil can be swung over the stove.

The handle H, provided with a downwardly-projecting pivot or pivotal socket, *p*, formed on or rigidly attached thereto, in combination with a vertical counterpart, *p'*, attached to the top plate of the stove or range, substantially as herein shown and described, for the purpose set forth.

172,692. HORSE-COLLARS. Marshall Tetley, Council Bluffs, Iowa. [Filed Jan. 22, 1876.]

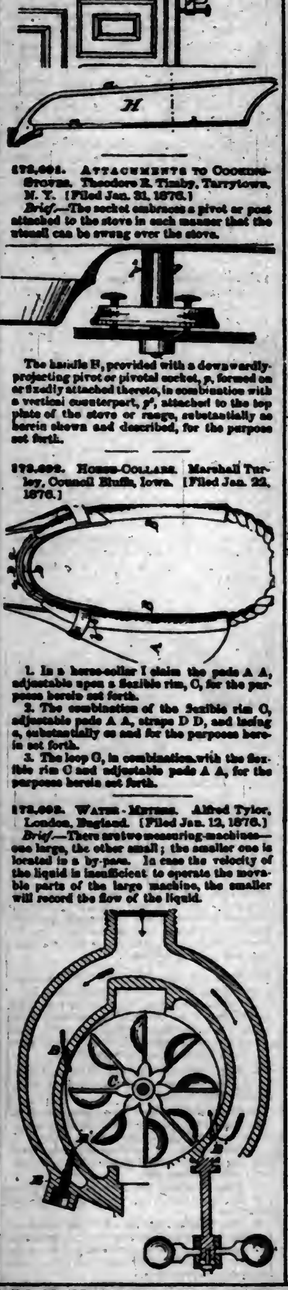
1. In a horse-collar I claim the pads A A, adjustable upon a flexible rim, C, for the purposes herein set forth.

2. The combination of the flexible rim C, adjustable pads A A, straps D D, and lacing *a*, substantially as and for the purposes herein set forth.

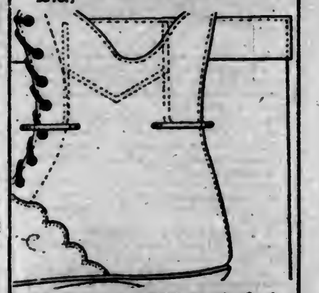
3. The loop G, in combination with the flexible rim C and adjustable pads A A, for the purposes herein set forth.

172,693. WATER-METERS. Alfred Tylor, London, England. [Filed Jan. 12, 1876.]

Brief.—There are two measuring-machines—one large, the other small; the smaller one is located in a by-pass. In case the velocity of the liquid is insufficient to operate the movable parts of the large machine, the smaller will record the flow of the liquid.



172,694. SHOE-REMOVING DEVICES. Andrew J. Upham, Sterling, Ill., assignor of two-thirds his right to W. W. Pratt and J. H. Pratt, same place. [Filed Nov. 16, 1875.]



The boot or shoe exhibitor, made of a single piece of wire, having a hook at one end, bent in line, or nearly so, with the body, and a clamp or holder upon the opposite end, at right angles with its body and hook, substantially as shown and described.

172,695. FAUCETS. Henry Varwig, Cincinnati, Ohio. [Filed Sept. 20, 1874.]



In combination with the faucet A, having sliding air-cock C, sliding-box E, vent *h*, and nipple *i*, the coupling-piece G, when used substantially in the manner and for the purpose described.

172,696. BROOM-HANGERS. S. Vrooland, Salamanca, N. Y. [Filed Nov. 20, 1875.]

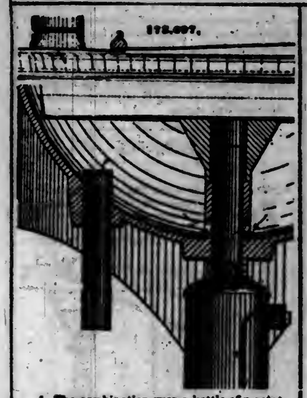


A broom-hanger consisting of a flat pivoted plate, A, having a strengthening-rib, *d*, and two concave-convex projections, *b*, with their inner surfaces corrugated, as specified.

172,697. CULINARY KETTLES. George W. Whitney, Malden, Mass. [Filed Jan. 20, 1876.]

Brief.—The interior containing-vessel, having the projection, may be revolved on the support.

172,697.



1. The combination with a bottle of a rotating pan or dish-support, substantially as described.

2. The rotating dish-support in combination with the pans adapted to contain articles to be cooked or warmed, substantially as described.

3. The bottle provided with a groove, and the lid provided with a lip to form a water-joint, in combination with a valve, to operate substantially as described.

4. The bottle in combination with the chamber *c*, provided with plugged opening, diaphragm, and outlet *p*, substantially as described.

172,698. BREAST-PADS. Elizabeth S. Weldon, New York, N. Y. [Filed Oct. 23, 1875.]



A breast-pad consisting of the pockets A, provided with openings *a* in front, and flaps *b* for closing the same, and joined by a connecting-piece, C, provided with the whalebone strip E, to adapt the whole to conform to the breast and shoulder B, and loop E, for attaching the article to the person of the wearer, substantially as described.

172,699. SKIRT-SUPPORTERS. Elizabeth S. Weldon, New York, N. Y. [Filed Oct. 23, 1875.]



1. The crescent-shaped strip A of woven fabric, provided with a flexible rib or strip around its outer edge to keep it distended, and attached at its inner edge to a belt B, adapted to be fastened around the body and over the shoulders by means of straps D, in combination with the springs F attached to the under side of said crescent-shaped strip, the lower ends resting in pockets *c* in the depending strip E, substantially as described.

2. In combination with the belt B, straps D, and crescent-shaped support, the brace or stay G, provided with the springs H H, and adapted to conform to the bust of the wearer, substantially as described.

172,700. PANNIERS OR BUSTLES. Elizabeth S. Weldon, New York, N. Y. [Filed Oct. 23, 1875.]



1. The bustle or pannier composed of the springs A bent outwardly at the ends, as described, in combination with the strips B, and lacing-strips L, forming a bearing-surface that can be adapted to fit the bodies of the various wearers, substantially as described.

2. The combination, substantially as herein described, of the springs A, binding-strips B, eyelets E, and the spring C, covered together as set forth.

3. In combination with the springs A, the auxiliary springs G G connected to the spring C, or binding-strips B, at their tops, and extending across each other to the lower spring A, to which they are loosely attached, in order to permit adjustment, substantially as described.

172,701. PANNIERS OR BUSTLES. Elizabeth S. Weldon, New York, N. Y. [Filed Oct. 23, 1875.]



1. In combination with a lady's pannier or bustle, the two springs F F, extending from one of the curved springs which distend the same, or from any other rear portion of the skirt, up to the top of the skirt, and then bent inwardly and downwardly, and attached to a flap covered to the skirt, thereby forming a spring-pad or bearing-surface to rest against the body, which will yield to the different positions of the wearer, substantially as described.

2. The combination of the curved springs D, the crescent springs E, and the springs or wires F F, extending upward at the rear of the pannier, and bent inwardly and downwardly at the top, substantially as described.

172,702. BUSTLES OR PANNIERS. Elizabeth S. Weldon, New York, N. Y. [Filed June 7, 1875.]



As a new article of manufacture, a pannier having combined with its skirt the compound spring constructed of two flat springs of unequal lengths, confined together at their ends, adapted to the skirt, as herein shown and described.

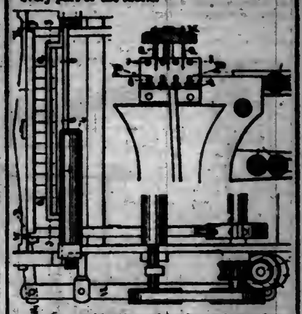
172,703. COFFEE-POTS. John P. Whitlow, Tamaroa, Ill. [Filed Jan. 17, 1876.]



The cover *c*, having the rim *r*, formed with notches, *n*, in combination with the spout S, substantially as and for the purpose herein set forth.

172,704. MACHINES FOR MAKING FELTED AND NAPPED FABRICS. L. W. Whipple, New York, N. Y. [Filed Oct. 7, 1875.]

Brief.—The bed, upon which the material to be operated upon passes, consists of a slotted plate, with ribs between the slots, and bars above the ribs, and all adjustable vertically, to regulate the depth to which the needles may penetrate the material. A cam and lever are arranged to reciprocate the needle-bar horizontally, for the purpose of penetrating every part of the fabric.



1. In combination with the reciprocating needle-bar M, the vertically-adjustable plate O, provided with ribs F and bars 3 3, all arranged and operating together as and for the purpose set forth.

2. I also claim, in combination with the needle-bar M and plate O, provided with ribs F and bars 3 3, arranged as described, the lever 12 and cam H, as and for the purpose set forth.

172,705. ROLLING SHUTTERS. J. G. Wilson, New York, N. Y. [Filed Dec. 16, 1875.]

Brief.—The shutter-slats are made of diamond shape, and have the slot for the supporting-straps cut parallel with the sides. The slats are retained in position by hooks, which catch in the supporting-bands and over the edges of the mortises in the slats, through which the supporting-bands pass.



1. A rolling shutter, composed of diamond-shaped slats strung on supporting-bands which pass through mortises running parallel to the sides *b b* of said slats, whereby, when the shutter is closed, downwardly-inclined open spaces are left between the slats, substantially as and for the purpose shown and described.

2. The combination of the hooks *c*, having lips *g*, with the mortised slats A and the metallic supporting-bands B of a rolling shutter, substantially as set forth.

172,706. TABLES. Orsemo C. Woolson, Chicopee, Mass. [Filed Dec. 18, 1875.]

Brief.—A foot-rest is arranged around the central column, which is provided with vertical grooves, into which the supports of the foot-rest may fold, and be held by a drop-collar sliding down the column. The adjusting-screw, located within the telescopic column, is provided with a hand-wheel beneath the column.

1. A table having a foot-rest platform, as herein illustrated and described, in combination with a low supporting-base and a central column, said platform extending around the the column on or above the low base, for the purpose specified.

2. The removable platform-sections 9, in combination with their folding support 10 11, substantially as shown and described.

3. The locking-bottoms 14, having lips 16 17, as described, in combination with the removable platform-sections 9, and the horizontal supporting-arms 10 beneath them, substantially as set forth.

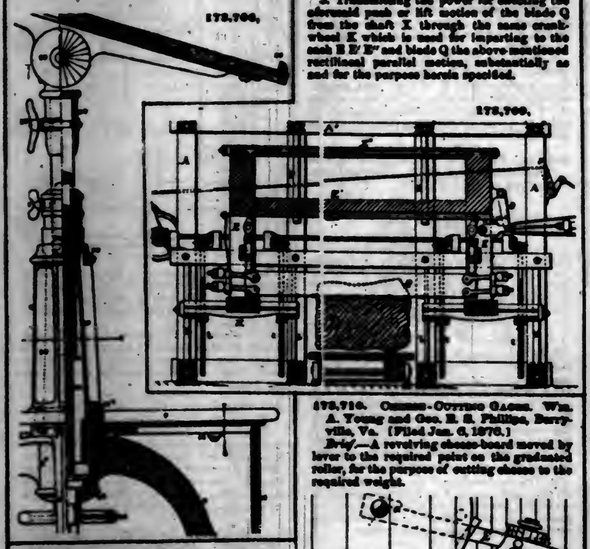
4. The vertical grooves 19 in the sides of the column and the drop-collar 20 at the top of the same, combined as described, for receiving and retaining the members of the folded platform-support, in the manner herein set forth.

5. The axial rotary screw 23 within the

telescopic column, in combination with the nut 26 at the bottom of the moving part 3, and the supporting and swiveling cap and hand-wheel 25 28 at its lower end, for raising and lowering the top 1, in the manner specified.

4. The combination of the top 1, the swivel 28 28, the central column 2 3, the low base 4 4', with its castors 5, and a foot-rest, 7, on or above this base, substantially as herein illustrated and described, to form a table, the top of which can be readily moved by the foot, or independently rotated by the hands, if desired, as herein set forth.

178,706.



178,707. BOOT-CLEANERS. J. A. Worley, Cleveland, Ohio. [Filed Nov. 6, 1875.]

Brief.—The lower brushes are held in a slotted grate, with spaces between them for dirt to pass. The side brushes are curved and converge.



The side brushes I, shaped as shown, in combination with the brushes F, secured in the grate B, having the bars B' recessed and slotted, as set forth, all arranged in the case A, having a scraper at each end, substantially as specified.

178,708. ILLUMINATING-LAMP. August W. Sonnh, New York, N. Y. [Filed Jan. 27, 1876.]



1. The combination, in a lamp, of a body composed of wood pulp or wood pasteboard, or equivalent material, a removable rib-joint of rigid material, in whose recesses the ends of the body A are secured, and a wooden bottom, F, and the vent H, all constructed and arranged substantially as described.

2. The method of filling the joints and pores of a lamp constructed of wood and paper to render the same impervious, and at the same time connecting the lamp-vent in its center by saturating the whole with water-glass, substantially as described.

178,709. RECIPROCATING DIAMOND-SAW MACHINES. Jas. L. Young, Ancram, and Hugh Young and H. G. Hubert, New York, assignors to Hugh Young, New York, N. Y. [Filed Oct. 20, 1874.]

1. The combination of the ways H, screws 4, slide-blocks E, rods E F F', and blade Q, substantially as illustrated and described, to obtain the rectilineal and parallel motion of the said blade Q, as herein set forth.

2. The combination of the bottom h, rest-blocks h, and blade Q, substantially as described, to allow of the said blade Q receiving the "push" or "lift" motion herein mentioned.

3. Transmitting the power for effecting the aforesaid push or lift motion of the blade Q from the shaft X through the same crank-wheel X which is used for imparting to the rods E F F' and blade Q the above-mentioned rectilineal parallel motion, substantially as and for the purpose herein specified.

178,709.

178,710. CHEESE-CUTTING GAGES. Wm. A. Young and Geo. B. S. Phillips, Perryville, Va. [Filed Jan. 6, 1876.]

Brief.—A revolving cheese-board moved by lever to the required point on the graduated roller, for the purpose of cutting cheese to the required weight.



The combination of the cheese-board, the lever, the roller-gage, and the screw-plate, as and for the purpose described.

178,711. SEWING-MACHINES. D. Strunk, Janesville, Wis. [Filed Dec. 8, 1875.]

Brief.—Within the case revolves the oscillating cylinder, provided with internal spiral flanges, forming separate and independent receptacles, into which a notched disk fits, that is observed onto the shaft of the feed-cylinder, for graduating the amount of feed to be sewn.



1. In a sewing-machine, a vertically-revolving cylinder, having internal spiral flanges, forming independent and oppositely spirally-shaped feed-receptacles, substantially as and for the purposes set forth.

2. The combination with the vertically-revolving cylinder, having independent and oppositely spirally-shaped feed-receptacles, of the adjustable disk, substantially as described and shown.

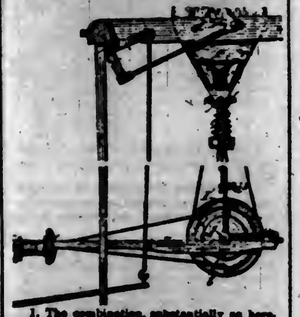
3. The combination, with the cylinder B, of the internal spiral flanges, the disk, and the openings C' in the head of the cylinder, substantially as described and shown.

4. The combination, with the casing A and cylinder B, of the spiral flanges C and surface H, substantially as described and shown.

5. In combination, the casing A, having openings a and I and surface H, the cylinder B, having internal flanges C and openings C', and the adjustable disk D, all substantially as described and shown.

REISSUES.

6,998. APPARATUS FOR TRANSMITTING POWER. Josiah K. Alwood, Mont, Ind., assignor, by mesne assignments, to S. S. White, Philadelphia, Pa. Patent No. 79,170, dated June 23, 1868. [Filed Jan. 3, 1876.]



1. The combination, substantially as hereinbefore set forth, of a portable frame, on which the driving mechanism is mounted, a trundle for operating said mechanism, an instrument suspended so as to be capable of moving freely in various directions, belt-connections between the driving mechanism and operating instrument, and a tension-spring, whereby the driving-belt is kept taut, notwithstanding variations in the positions of the operating instrument.

2. The combination, substantially as hereinbefore set forth, of the operating tool or instrument, the belt-connections, the driving mechanism, and a self-acting tension device, interposed between the instrument and its driving mechanism, for the purposes specified.

3. The combination, substantially as hereinbefore set forth, of the driving mechanism, the driven pulley, and the driving-belt, passing through a sleeve between the driving mechanism and driven pulley.

4. The combination, substantially as hereinbefore set forth, of the driving-pulley, the guides, the swiveled sleeve, and the driving-belt passing through the same.

5. The universal swivel-joint herein described, consisting of the combination of the hinged joint-ring, the flanged conical sleeve, the slide-swivel, and the tension-spring.

6. The combination, substantially as hereinbefore set forth, of the swivel-joint, the adjustable compression bars, and the tension yoke and frame, for the purposes specified.

7. The combination, substantially as hereinbefore described, of the tension-yoke, the tension-frame, the pulleys mounted therein, the pulley in the casing, and the driving-belt.

6,999. STOP-COCKS. John G. Chapman, Cambridgeport, assignor, by mesne assignments, to the Chapman Valve Manufacturing Company, Boston, Mass. Patent No. 94,800, dated Sept. 7, 1869. [Filed June 28, 1875.]



The tapering plug B, applied to and sliding within the shell A, in combination with Babbitt or soft metal packing, located at the junction between the shell and plug at the inlet and outlet openings, for the purposes set forth and described.

6,998. CLOCK-CASES. Henry J. Davies, Brooklyn, N. Y. Patent No. 161,211, dated Mar. 23, 1875. [Filed Jan. 31, 1876.]



1. The entablature A, arranged in an elevated position, and constructed to receive and support the clock-work, and the glass shade, arranged over and inclosing the clock-movement, as and for the purposes described.

2. The elevated entablature, constructed to receive and support the clock-movement, and the glass shade inclosing said movement, the pendulum of the clock passing downwardly through said entablature, and vibrating within in a case below the entablature, as and for the purposes described.

6,998. CLOCK-CASES. Henry J. Davies, Brooklyn, N. Y. Patent No. 161,211, dated Mar. 23, 1875. [Filed Jan. 31, 1876.]

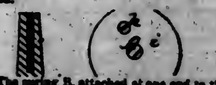


1. The combination of the annular paper-dial facing B, with the annular metal plate A, the sunken paper-dial center E, and the ring C, substantially as specified.

2. The combination of the outer ring or frame D, the annular paper-dial facing B, the annular metal plate A, the sunken paper-dial center E, the center plate C, and the ring C, essentially as described.

6,998. CORSAIR-FEATHERS. A. H. Knapp, Newton, Mass. Patent No. 118,726, dated Sept. 5, 1871. [Filed May 20, 1876.]

Brief.—The coil-spring is made in a series of layers, each outer layer being one coil shorter at each end than the next succeeding inner one. At the outer end of the spring is located an elastic washer, on which bears an adjusting-screw. The shade-stick has a deep groove cut in its upper edge, into which groove is let a strip of lead as a weight to the curtain.

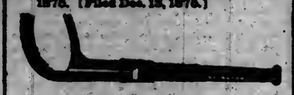


1. The spring B, attached at one end to the spindle and at the other end to the roller of a curtain-fixture, and formed of redoublings or layers *a b c d*, the coat outer being successively shorter than the adjacent inner layer, as and for the purposes herein specified.

2. The elastic friction-brake C, composed of disks or washers, substantially as described, and provided with an adjusting-screw, *h*, in combination with a spring, B, pressing against the brake, substantially as and for the purposes herein specified.

3. The shade-stick D, grooved in its upper edge to receive and hold the lead or other weighting strip *i*, substantially as herein specified.

6,996. PIPES. Floral G. Merriam, Akron, Ohio. Patent No. 160,803, dated Nov. 2, 1875. [Filed Dec. 13, 1875.]



1. A pipe, wholly or partially composed of clay, having an external coating of baked asphaltum enamel, substantially as set forth.

2. A pipe, wholly or partially composed of clay, enameled with enamel and baked after the application of the enamel, substantially as and for the purposes set forth.

6,997. TOE-PROTECTORS FOR BOOTS AND SHOES. John A. Stockwell, Boston, Mass., assignor, by mesne assignments, to the Stockwell Shoe-Tip Company of Connecticut. Patent No. 147,570, dated Feb. 17, 1874; reissue No. 6,123, dated Nov. 2, 1874. [Filed Jan. 28, 1876.]

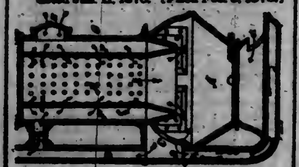


1. A tip for boots or shoes, having a folded edge, substantially as described.

2. A tip for boots and shoes, having a folded edge at the toe, and having a part of its inner edge cut away, whereby it can be bent into shape, substantially as set forth.

3. The leather strip *a*, having the pinches *a* cut in its inner edge and bent and folded so as to form the guard or tip *c* and half-sole *g*, substantially as shown and described.

6,998. MANNERS-STOVES. Wm. W. Baldwin, Cleveland, Ohio. Patent No. 162,449, dated May 18, 1875; reissue No. 6,048, dated Jan. 11, 1876. [Filed Feb. 9, 1876.]



1. In a manners-stove, the combination with the converging walls of the air-space, the same forming at their lower extremity the annular space *f*, of the opening C, constructed to extend above and below the lower portion of said converging walls, substantially as and for the purpose set forth.

2. The combination with the perforated reservoir E, the perforations of which communicate directly with the air-space F, of the air-space F, flue I, and air-register H, substantially as and for the purpose described.

3. The combination with the perforated reservoir E, the perforations of which connect directly with the air-space F, of air-space F, flue I, and air-register H, substantially as and for the purpose described.

4. The combination with the combustion-chamber B and perforated reservoir E, the perforations of which communicate directly with the air-space F, of the exit-flue C and flue I, substantially as and for the purpose described.

5. The combination with the combustion-chamber B, air-space F, and flues C and I, of the air-register H, by which means the draft can direct brisket through the reservoir E, without passing down by an indirect course, substantially as and for the purpose described.

6. The combination with the annular air-space, and the fuel-reservoir, having perforated wall, of the flue I leading to the smoke-flue D, substantially as and for the purpose set forth.

6,999. RECIPROCATING TICKET-PUNCHES. Jos. Gerhart, Hartford, Conn., assignor to the Bullard-Sanford Manufacturing Company, Buffalo, N. Y. Patent No. 159,052, dated June 16, 1874; reissue No. 6,145, dated Nov. 30, 1874. [Filed Feb. 7, 1876.]

1. The combination, with an alarm and a register, simultaneously operated for recording the number of times the alarm has been rung, of the series of ratchet-*n*, shifting-cam *o'*, and spring detent-pawl *o*, substantially as and for the purpose hereinbefore set forth.

2. The combination, with such alarm and register, of the ratchet-*n o'*, intermediate shifting-cam *o'*, reversible spring detent-pawl *o*, substantially as and for the purpose herein-before set forth.

3. The combination, with the alarm and register, of the cam *k*, provided with the tooth *k'* and shoulder *k''*, for raising the alarm-hammer, substantially as herein before set forth.

4. The combination, with the alarm and register, of the bell-hammer L, cam *k*, provided with tooth *k'*, and reversible pawl *o*, having a tooth, *o'*, for returning the cam *k* to its normal position, substantially as herein before set forth.

5. The combination, with the covers D D', provided with notched hasps *q q'*, of the locking-bar *r*, for securing the covers, substantially as and for the purpose herein before set forth.

6. The combination, with the covers D D', notched hasps *q q'*, and locking-bar *r*, of the combination-lock herein shown and described.

7. The combination, with the remontoir K and cover of the bell or registering mechanism, of the locking-pin *t'*, retained in place by said cover, substantially as and for the purpose hereinbefore set forth.

8. The combination, with the unit-registering wheel H and actuating-pawl *f*, of the secondary registering-wheel H', provided with the space *s'*, formed by cutting away one of its notches or teeth, substantially as and for the purpose herein before set forth.

9. The combination, with the locking-bar *r*, of the movable piece *t'*, provided with notches *r'*, and connected to said bar in such manner that it will slide outwardly, to move freely from the bar *r*, when an upward pressure is applied to the latter, substantially as herein-before set forth.

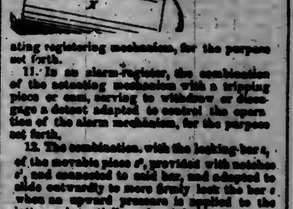
10. The combination, with alarm and registering mechanism, simultaneously operated for registering the number of times the alarm has been sounded, of one or more ratchet-teeth or bearing-pieces, adapted in shape to receive a detent, and such detent serving to prevent sounding of the alarm until the detent has been tripped or withdrawn by a tripping piece or cam, operating coincidently with the actuating registering mechanism, for the purpose set forth.

11. In an alarm-register, the combination of the actuating mechanism with a tripping piece or cam, serving to withdraw or disengage a detent adapted to control the operation of the alarm mechanism, for the purpose set forth.

12. The combination, with the locking-bar *r*, of the movable piece *t'*, provided with notches *r'*, and connected to said bar, and adapted to slide outwardly to move freely from the bar *r* when an upward pressure is applied to the latter, substantially as herein before set forth.

6,998. ROLLER-TRIPPLES FOR LOOMS. W. W. Dutcher, Hopedale, Mass., assignor, by mesne assignments, to the Dutcher Temple Company. Patent No. 97,954, dated Dec. 14, 1869. [Filed Feb. 7, 1876.]

Brief.—The inner end of the roller is sustained against the inward draft of the web by a down wardly-projecting end portion of the cap, which portion also supports the inner end of the roller-spindle.

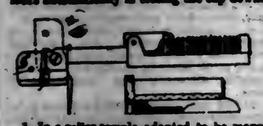


1. In a loom-temple, adapted to move with and under the action of the lay, substantially as described, a trough, a toothed roller, a cap, and an end piece adapted to support the end of the roller against lateral strain exerted by the cloth.

2. A trough provided with a lip or closed end, in combination with a roller and a cap, and an end piece, to operate substantially as described.

6,991. LOOM-TEMPLE. W. W. Datcher, Hopedale, Mass. Patent No. 106,068, dated Aug. 2, 1870. [Filed Feb. 7, 1876.]

Brief.—The cap carrying the toothed roller is hinged to the trough-support, and is confined in position, when closed, by a bolt, which locks automatically in closing the cap down.



1. In a roller-temple adapted to be moved by the lay, as described, and provided with a trough, a cap, and a toothed roller, the combination of the cap and toothed roller and trough, adapted to be separated for the insertion of the cloth, with an automatically-locking bolt, to confine the trough and roller in operative position, substantially as set forth.

2. The sliding bar and its connected trough, in combination with the roller and its cap and projection *i*, pivoted to the outer side of the bar, as and for the purpose described.

3. The bolt, constructed substantially as described, and combined with the cover and trough, to serve as a bolt and as a lifter for the cover, as set forth.

6,992. LOOM-TEMPLE. W. W. Datcher, Hopedale, Mass., assignor to the Datcher Temple Company. Patent No. 97,600, dated Dec. 14, 1869. [Filed Feb. 7, 1876.]

Brief.—A pawl or stop is attached by pivot to the fixed plate. When the heel of the temple is struck hard or forced far back by any obstacle intervening between it and the bar, the pawl engages with notched or shoulder on the sliding bar, and retains it in the position so opening back. Bars extending downward from sides of said pawl prevent spattering of oil by its action upon the cloth.

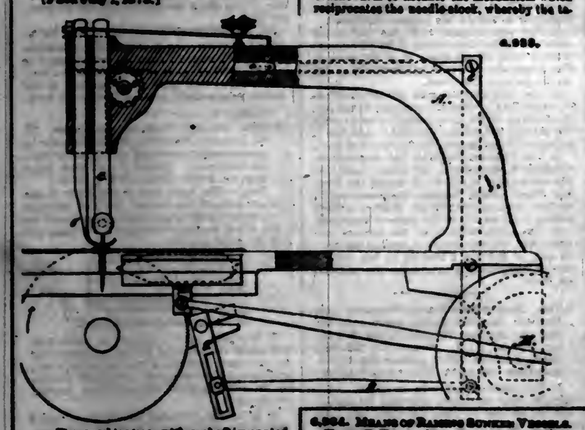


1. In a roller-temple, a movable temple-stock adapted to be struck and moved by the lay, in combination with a stop adapted to engage and hold the temple-stock back, for the purpose described.

2. The stop *h*, constructed as described, and adapted to serve as a front stop and as a holder for the stock, as described.

3. The combination, with the stock and stand, of the stop *h* and its lips *m*, to prevent the oil on the temple from being thrown on the cloth.

6,993. SEWING-MACHINE. William C. Hinks, Hamden, N. J. Patent No. 98,627, dated Apr. 12, 1869; reissue No. 5,806, dated Mar. 4, 1873; extended seven years. [Filed July 1, 1872.]



The combination, with a shaft mounted at right angles to the bracket-arm, having a crank at one end arranged under the bracket-post, and an irregular-grooved cam connected continuously with said crank, of a needle and shuttle, with their respective operating mechanisms, constructed and arranged substantially as described, whereby the needle remains at rest, or nearly so, while the shuttle passes through the loop of the thread carried by the needle, essentially as specified.

2. The combination, with a shaft mounted at right angles to the shuttle-race, and positively connected to the needle-driving mechanism, and having a crank arranged under the bracket-arm post, and with a shuttle-driver, of a connecting-rod adapted to be reciprocated in the direction of its length, said rod being connected to the crank and to the shuttle-driver on the side opposite to the shuttle, as described, whereby a direct and positive connection is made between the shuttle-driver and the shaft, substantially as set forth.

3. The combination, substantially as herein set forth, of a partially-revolving thread-controlling crank or lever, *i*, arranged on a stud set at right angles to the bracket-arm, above and parallel with the table, a pivoted lever, *j*, and cam *d*, placed under the table, and connecting mechanism, substantially as described, whereby the needle-thread is entirely controlled and drawn up by the movement of said cam without the intervention of the needle-stock.

4. The combination, substantially as herein set forth, of the needle-stock *e*, bracket-arm A, pinion *b*, connecting-rod *c*, having the rack for actuating the said pinion, and a pivoted lever, *i*, with the driving-shaft, having the irregular-grooved cam *d*, as described, whereby the motion of the cam may be transmitted to the pinion and needle-stock, as set forth.

5. The combination, substantially as herein set forth, with a flat table having a shuttle race or way, a bracket-arm for supporting the needle-stock, attached by its foot to the table, and arranged substantially parallel to the shuttle-race, and with a shaft supported at right angles to said shuttle-race, provided with a crank and an irregular-grooved cam, of mechanism, substantially as described, for actuating the needle and shuttle, and a wheel-feed or other feeding mechanism, arranged under the table, as described, whereby the material operated on shall be fed in a line parallel with said bracket, as specified.

6. The combination, substantially as herein set forth, of a table provided with a shuttle race or way, a bracket-arm and post arranged with respect to said shuttle race or way, as described, a shaft located under the table and post, and at right angles to the shuttle race or way, and provided with a crank and an irregular-grooved cam, a connecting rod adapted to be reciprocated in the direction of its length, and a bar extending longitudinally through the bracket-arm to actuate the mechanism which reciprocates the needle-stock, whereby the to-and-fro movement of the connecting-rod is converted into a rotary movement of the shaft, substantially as described.

6,994. MEANS OF RAISING SUNKEN VESSELS. Henry F. Knapp, New York, N. Y. Patent No. 182,602, dated Dec. 10, 1872. [Filed Feb. 10, 1876.]



1. The method herein described of relieving and removing vessels embedded in sand or mud by means of one or more pipes projected or manipulated beneath the wreck or vessel, in combination with a pump connected with said pipe above and operating to force a current of air or water down and out through said pipe, whereby the sand or mud is loosened or washed away from the outside of and beneath the vessel, substantially as specified.

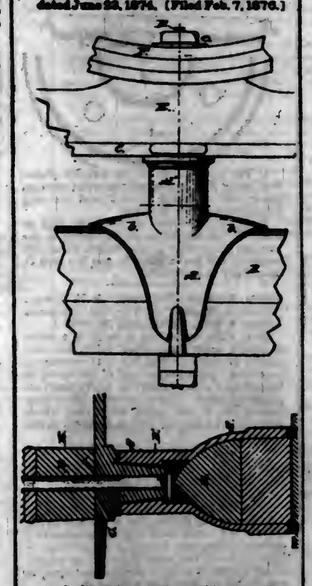
2. The means, substantially as herein described, of passing cables under sunken vessels, consisting of a tube, A, and flexible pipe D, the force-pump E, and float *h*, with its attached cord *s*, for operation substantially as specified.

3. The torpedo *d*, having an attached rod, cord, or wire, *s*, in combination with the pipe A, essentially as described.

6,995. CHECKS FOR LEATHER. A. Leach, Lynn, Mass. Patent No. 50,774, dated Nov. 20, 1865. [Filed Mar. 12, 1875.]

A composition consisting of catechoene dissolved in benzine treated with ivory-black and sulphuric acid, substantially as and for the purpose set forth, the whole forming a cement for artizan of leather, and combined in manner and proportions substantially as hereinbefore described.

6,996. CARRIAGE-COUPLINGS. A. Wesber, Davenport, Iowa. Patent No. 182,647, dated June 26, 1876. [Filed Feb. 7, 1876.]



1. A clip-socket, A', in combination with a pivoted socket, F, and king-bolt D, substantially as and for the purposes described.

2. The pivoted socket F, in combination with the bed plate C, clip-socket A', and king-bolt D, substantially as described.

3. The clip A, having flanged bearings *b*, and clip-socket A', having recess *a*, in combination with pivoted socket F, plate C, and king-bolt D, substantially as and for the purposes described.

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ERRATUM.

The Labels Nos. 541 to 549, published on page 202, GAZETTE of February 15, bear date February 22 and not 15, as there published.

NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

OFFICIAL NOTICE.

DEPARTMENT OF THE INTERIOR,
WASHINGTON, *February* 23, 1876.

SIR: I transmit herewith for your information a copy of the opinion, of this date, of Hon. A. S. Gaylord, Assistant Attorney-General, relating to the question presented in your letter of the 18th inst., in regard to the issue of a patent for an invention of an employé of your office.

I am, sir, very respy., your obt. servant,
Z. CHANDLER, *Secretary.*

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
WASHINGTON, *February* 23, 1876.

SIR: I have the honor to acknowledge the receipt, by reference, of the letter of the 18th inst. addressed by the Hon. Commissioner of Patents to you, stating that an employé of his office has made an invention deemed to be of some value, and has made an application for a patent therefor, which has been examined and allowed; but, by reason of the prohibition contained in sec. 490 R. S., no patent has issued. Also, that the inventor has assigned his entire interest in the invention to another party, by assignment duly recorded, so that the patent, if issued, would run to the assignee, and, so far as appears, the inventor would have no property therein; and the Commissioner desires the opinion of this office on the question whether it would be within the letter and spirit of the law to grant the patent to the assignee while the inventor remains an employé in the Patent Office.

The section above mentioned is as follows: "All officers and employés of the Patent Office shall be incapable, during the period for which they hold their appointment, to acquire and take, directly or indirectly, except by inheritance or bequest, any right or interest in any patent issued by the office."

The *right* to a patent is created by the statute. (R. S., sec. 4886.) But this section must be construed with the section above quoted, and will then read, "Any person (*not an officer or employé of the Patent Office*) who has invented, &c., may, upon payment of the fees required by law and other due proceedings had, obtain a patent therefor." Any person possessing such right may assign the same to another, so that under the limitation of sec. 4895 R. S. the patent shall issue to the assignee. But in such case the assignor must have an inchoate right to the exclusive use of the invention, which is capable of being perfected *in himself*.

Now, the statute which creates this right *excludes from its enjoyment* all officers and employés of the Patent Office. No such officer or employé can have or acquire any right to a patent, and it follows as a necessary sequence that he cannot assign to another a right which he does not himself possess.

It is my opinion that he cannot lawfully make any application for a patent, nor assign to another any right to a patent, and that the grant of a patent upon the application of an officer or employé of the Patent Office, whether made to the inventor or his assignee, would be in violation of the statute, and therefore void.

I am, very respectfully,
A. S. GAYLORD, *Asst. Atty. Genl.*

Hon. Z. CHANDLER, *Sec. of the Interior.*

COMMISSIONER'S DECISIONS.

LAY *vs.* WIARD.—*Interference.*

[*Appeal from the Examiners-in-Chief in the matter of the interference of John L. Lay vs. Norman Wiard for* "IMPROVEMENT IN TORPEDO-BOATS."—*Decided January* 31, 1876.]

No doctrine is better settled than that the subsequent inventor who perfects his invention and adapts it to use, while one prior

to conceive is unreasonably delaying, is in contemplation of law the original and first inventor, and entitled to a patent for the invention.

An imperfect and incomplete invention resting in mere theory or an intellectual notion, or in uncertain experiments, and not actually reduced to practice, and embodied in some distinct machinery, apparatus, manufacture, or composition of matter, is not patentable.

DUELL, *Commissioner:*

Lay, the first party named in this interference, was a party in a former interference between himself and Ballard, in which the right of priority for the invention now in controversy was decided by the Commissioner in his favor. The nature of the invention and the history of it on the part of Lay are set forth in the Commissioner's decision in that case. (OFFICIAL GAZETTE, Vol. 3, p. 687.)

It is sufficient to state briefly here that Lay had prior to 1867 been giving his attention to the subject of torpedoes, and the blowing up of vessels of war by means of such instruments. I see no good reason to doubt, as was found in the case above referred to, that Lay conceived the idea sometime in the latter part of 1866, or in any event prior to his return to the United States in the spring of 1867. With a diligence, the reasonableness of which there is no ground whatever for questioning, he endeavored to embody the idea which forms the basis of this invention, and to bring it to completion and in a condition for actual use. He worked with such diligence and success that although the invention is such as to require a large outlay of money, and concerns only governments and not private individuals, that in the month of January, 1871, he had a boat completed, subjected it to experimental tests, and shipped to the Egyptian government, for which he had contracted to build it. Returning to this country he entered subsequently into arrangements with our own government, and appears to have been diligently and successfully engaged in embodying the invention. He made his application for patent in 1872, and after the interference with Ballard obtained judgment of priority in June, 1873.

The first appearance on the record of Mr. Wiard is in January, 1874, when his application was filed, the oath accompanying the petition in that application having been made on the 24th day of January of that year. Now, in order to establish priority of invention over Lay, Wiard goes back in his claim to the conception of his invention to the spring of 1862, and although at that time, and for two years thereafter, the country was in a condition of war, and such devices were then urgently needed, though absolutely useless in the long intervals of peace, he does not appear to have brought his invention out of the dim and uncertain region of verbal explanations and imperfect sketches, (and even of the sketches there is some doubt;) nor during the whole time down to the date of his application is there to be found, after all the searching, any embodiment, or approach to embodiment, or even attempt at embodiment of the invention in controversy. Conceding each to have independently conceived of the invention, Wiard has no standing whatever as against Lay. No doctrine is better settled than that the subsequent inventor who perfects his invention and adapts it to use, while the prior to conceive is unreasonably delaying, is in contemplation of law the original and first inventor, and entitled to a patent for the invention. That Wiard has no excuse whatever to offer for his delay—first, through two years of war, and then through eight years of peace—is in my judgment, from the presentation made, perfectly clear. If therefore, as I have said, no other question arises, Lay is entitled beyond question to judgment of priority. But it is alleged on behalf of Wiard that Lay borrowed or stole the invention from him, and possessed himself of the completely-developed idea by a perusal of Wiard's drawings and by conversations with him upon the subject. If it could be shown that Lay did, as alleged, pirate the invention fully developed in description and illustrated by drawings, so that nothing was left but the embodiment of it, then he could not justly be considered the inventor at all.

I would not assert that a hint thrown out in conversation, or a bare suggestion, or even a rough sketch, all of which would amount to nothing more than the conception of the invention, could be considered as a sufficient communication of the invention, so as to deprive the party to whom the communication was made of the right to the invention if he should proceed to perfect and adapt it to use. But in this case I am not satisfied that Lay borrowed anything at all from Wiard. I have not time to go into a discussion of all the evidence bearing directly or indirectly upon this case, nor indeed does it appear to be necessary. Even admitting that Wiard had conceived of the invention prior to the spring of 1867, the evidence, outside of his own statement, that he communicated it to Lay is very slender indeed, and his own statement is directly contradicted by that of Lay. On the other hand, I am satisfied from the circumstances of the case, from the testimony of Frances and Harriet Lay, and that of Charles Ensign Reynolds, and Rowley, that Lay had conceived of the invention before he had any communications with Wiard on that subject. There is no foundation, in my judgment, for the very grave charge of the theft of the invention on the part of Lay. He has with great skill and energy, and apparently through many difficulties, perfected this invention, adapted it to use, and brought it to the attention of the Government. On the other hand, Wiard, although now claiming to have been in possession of the invention at the time when the country was in urgent need of so valuable a weapon, though not wanting in resources, or skill, or energy, or acquaintance with those in power, contented himself with efforts, of which the traces are so slight that they have been scarcely recoverable by him, and, in fact, amounted to nothing whatever. So far as appears, but for the successful efforts of Lay, Mr. Wiard would never have been heard from in this matter.

As a matter of fact, Lay has made the invention. Wiard has never made it. For the mere sketches, conversations, suggestions, steam-sleighs and torpedo-boats propelled by oars or guided by lines do not amount to the invention in controversy.

The language used by Judge Story in *Reed* vs. *Cutter*, (Robb's Patent Cases, vol. 2, p. 81,) describes well all that Wiard has done in the present case:

An imperfect and incomplete invention resting in mere theory or in intellectual notion, or in uncertain experiments, and not actually reduced to practice, and embodied in some distinct machinery, apparatus, manufacture, or composition of matter is not patentable under our patent acts.

In such a state of facts as this it would require a very strong and very clear proof to overthrow Lay and deprive him of the benefit of that invention, which, from his efforts alone, has been brought to the public notice.

No such proof, in my judgment, has been offered, and I must affirm the decision of the Examiners in-Chief.

DAVIES *vs.* HARTMAN.—*Appeal; Interference.*

[*Appeal from the decision of the Examiners-in-Chief in the matter of the interference between the patent of Henry J. Davies, granted March 23, 1873, No. 137,184, and the application of Emile Hartman, filed April 27, 1869, for* "IMPROVEMENT IN PRINTING SKIRTS." *Decided January 27, 1876.*]

The omission of section 35 of the law of 1870, in relation to patents, in the Revised Statutes of the United States, does not revive the applications which had become abandoned under that section.

It was not the intention of Congress to remove, by the revision of the laws, any disabilities or liabilities incurred under previous acts.

Abandoned applications (under the statute) affect in no way the rights of subsequent and independent applicants, and patents are issued to the latter class of persons without regard to such old applications.

Whatever rights attached to applications filed prior to the passage of the act of 1870, under the second proviso of that act, expired six months after the passage of that act.

An application coming within the provisions of the act of 1870, has no legal status in the Office after the limitations referred to in such act.

The only remedy of such applicant is by filing a new application.

SPEAR, *Acting Commissioner:*

There were originally three parties to this interference. Frobach, the third party, upon whose application the interference was originally declared, has not taken any appeal, and by acquiescence in the decision of the Examiners-in Chief is out of the case, and the interference is now between the application of Hartman and the patent of Davies.

No testimony has been taken by Hartman, and he relies upon the date of his application alone. Prior to any consideration of the testimony, or date of filing the application, or any inquiry into the question as to which party is the first inventor, I must consider the standing of Hartman in the Office.

His application, now in interference, was rejected in January, 1870; and from that time until the date of the declaration of the interference he took no action whatever in the case. It is contended, therefore, on the part of Davies, that the application of Hartman was abandoned under the operation of the second proviso of the 35th section of the act of 1870.

The declaration of interference was on the 19th day of November, 1874, more than four years after the rejection by the Principal Examiner. If, therefore, the 35th section remain in force, there can be no question but that the application of Hartman must be held to have been abandoned. So that whatever hardship there may be in this particular case, as represented by the Board, or whatever injustice may have been done to this inventor by the Primary Examiner, the question is one in which the Commissioner cannot exercise any discretion, unless the section has been repealed, because none has been allowed him by the statute. For, if the section remains in force, then this case does not come under the old 32d section of the statute, (in the revised numbered 4894,) but under the second proviso of the 35th section.

But it is argued by counsel for Hartman that the omission of the 35th section from the Revised Statutes amounts to a repeal of that section, and that, therefore, all the applications formerly included in that part of the statute are released from its operation, and come within the proviso of section 4894, and may thus be revived, if, in the opinion of the Commissioner, the delay was unavoidable.

Even admitting the repeal of the section referred to, I do not find that such discretion was ever exercised by the Commissioner in the case of Hartman. The declaration of interference did not amount to any expression of opinion on the part of the Commissioner that the delay of Hartman, in respect to this application, was unavoidable.

The declaration of interference by the established rules and practice of the Office, although by the terms of the law resting in the opinion of the Commissioner, is delegated to the Principal Examiner. The exercise of his discretion as to the delay in rejected applications is never so delegated, but it is invariably exercised by the Commissioner in person. And there is no evidence in this case that the Commissioner, in November of 1874, or at any time previous, decided that Hartman's delay was unavoidable. Nor in any view of the case is such a conclusion inevitable.

At the time of the declaration of this interference it was the practice of the Office to put rejected cases into interference for the purpose of procuring evidence relating to the alleged abandonment or public use of an invention. The clause, by inadvertence, still remains in the rules, though the practice is changed in this respect without any regard to the status of the rejected applicant, or any inquiry as to whether, in any event, he could have a patent or not. This is the explanation of the act of the Office. I have referred to this at such length in order that this case might not stand as a precedent, or it be thought that the Commissioner would decide so grave a matter as the renewal of an abandoned application without leaving any written record; or, as I believe, in the present case, in plain violation of the statute. For I cannot regard the omission of section 35 of the Revised Statutes as a repeal of the section, or as in any sense reviving the applications which had become abandoned under its operation prior to the adoption of the Revised Statutes.

The section referred to provided, "that when an application for a patent had been rejected or withdrawn, prior to the passage of this act, the applicant shall have six months, from the date of such passage, to renew his application or to file a new one; and if he should omit to do either, his application shall be held to have been abandoned. Upon the hearing of such renewed applications, abandonment shall be considered as a question of fact." If this section of the act of 1870 was repealed by the adoption of the Revised Statutes, then not only had Hartman the right to renew his old application, but upon such renewal no inquiry could be made as to the question of abandonment of his invention between the time of filing of his original application and its renewal, as this law contemplated should be done. *Marsh* vs. *Sayles*, 5 Fish, p. 610.

In the case of Andrew Mills, cited by counsel for Davies, the section under consideration was regarded as in the nature of a statute of limitations, prescribed a certain time within which rejected applications might be renewed, or new ones filed in the place of those withdrawn, and its effect was held to be that no new or second application for the same invention could be

filed by the original applicant after the expiration of the time allowed in the law. The view taken in the more recent case of Crompton is, that the purpose of the law was simply to sever all connection between old applications not renewed within the time provided for in said section, and all subsequent applications made for the same invention. But both decisions agree in this, that in order to keep an application alive which was rejected prior to the passage of said act, its prosecution must have been renewed by the applicant within six months after the passage of that act.

The question, then, to be considered is, whether the omission of this section in the Revised Statutes removed this restriction and left these applications free to be renewed at any time in the same manner as if that section had never been inserted in the statute. By the section mentioned there was clearly a statutory liability established against a certain class of applicants.

I am satisfied, from reading the repeal provisions of the Revised Statutes, that it was not the intention of Congress to remove, by the revision, any disabilities or liabilities incurred under previous acts, whether such acts were omitted or not. Section 5595 of these provisions declares that, "the foregoing 73 titles (included in which was that relating to patents) embrace the statutes of the United States, general and permanent in their nature, in force on the first day of December, 1873."

The language of section 5597 is as follows: "The repeal of the several acts embraced in said revision shall not affect any act done, or any right accruing or accrued, or any suit or proceeding had or commenced in any civil case before the said repeal, but all rights and liabilities under said acts shall continue and may be enforced in the same manner as if said repeal had not been made."

The Office, following the decisions of the courts, has given such construction to those sections relating to abandoned applications, where the time of renewal has expired, that these abandoned applications are regarded as affecting in no way the rights of subsequent and independent applicants, and patents are issued to the latter class of persons without regard to those old applications.

To now give the Revised Statutes the effect of reviving those rights which, under the operation of the 35th section, had become forfeited before the adoption of the Revised Statutes, is certainly to affect and impair most seriously the accrued rights of others who have obtained patents for the inventions which the forfeited applications may be made to cover. Further than this, whatever rights these applicants possessed in regard to their old applications filed prior to the passage of the act of 1870, under the second proviso of that act, those rights absolutely expired six months after the passage of that act. In order now to revive those applications a retroactive law is necessary. But repeal acts, like all other acts, have no retrospective effect unless they so expressly provide. This is the uniform doctrine of the American courts. Rights, therefore, accrued under previous acts cannot be abrogated, nor can rights forfeited be revived unless by express enactment. The effect of such acts is simply to repeal acts in force at the time of their enactment, and they affect only those proceedings existing at the time of the repeal, and those arising thereafter. (Potter's Dwarris on Statutes, chap. 6.)

It may be added, in regard to limitation enactments, that they are said to proceed upon the idea that the party, by lapse of time and omission on his part, has forfeited his right to assert his title in the law. And that when the period prescribed by such statutes has already run, so as to extinguish a claim or cause of action once made or begun, not only is the remedy barred, but the right itself extinguished. (Cooley's Const. Limitations, 365; *Leffingwell* vs. *Warren*, 2 Black, 605.)

It is unnecessary to discuss whether a proceeding to obtain a patent is a civil proceeding, so as to bring it within the provisions of section 5599, relating to "acts of limitation" regarding such proceedings, and excepting them from the acts of repeal. But this section, and the one above cited, appear to have been enacted for the express purpose of removing all doubts as to the retrospective effect of the Revised Statutes upon rights and liabilities previously accrued or incurred. The application of Hartman, therefore, falls under the effect of the second proviso of the 35th section of the act of 1870, and has never been relieved from the effect of that section.

The application under the operation of the law must be regarded as abandoned, and no act of the Commissioner can revive or renew it. Hartman had, therefore, when this interference was declared, no legal status in the Office, and has none now. Even if the Commissioner had expressly declared at that time that, in his opinion, the delay was unavoidable, and had left the expression of that opinion upon record, it would afford Hartman no relief, for the application not being a pending application, nor one which the Commissioner could revive, the whole proceeding was illegal. There is, therefore, but one valid course to pursue, as far as Hartman is concerned—that is, to eliminate his application from the interference and refuse it further consideration by this Office. The hardship in this case is the less, as he does not appear to have taken any testimony. He can, however, resume his claim upon a new application.

As Hartman and Davies are now the only parties to the interference, it remains for me only, in accordance with these views, to dissolve the interference.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

THOMAS A. EMMONS *et al.* vs. JOSEPH SLADDIN *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided October*, 1875.]

S. and E., patentees, executed an agreement, sale, and grant to B. of "the said invention and letters patent or extensions to be hereafter obtained on account of said invention," and containing certain covenants and agreements of quiet enjoyment of all rights under the patent so assigned, and not to make or sell, or cause to be made or sold, any other machine for the purposes to which such patented machine is applicable.

Subsequently S. and L. took out a patent and obtained a reissue thereof for inventions of the same character and purpose of that described in the sale or assignment to B., and brought suit against the plaintiffs herein, who are the purchasers and assignees of B's. interest: *Held*, that the title of S. and L. must be held to be only in trust for B. and his assigns, so far as the letters patent of the United States embraced any inventions made by S. before the conveyance to B. and incorporated in the invention described in the agreement of sale and grant to B. by S. and E.

[*A. K. P. Jey* for complainants.
W. W. Swan for defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

Letters patent of Great Britain were duly granted to James Ellis, of Bradford, in the county of York, England, and the respondent, Joseph Sladdin, then of Halifax, in the same county, now of Lawrence in the Commonwealth of Massachusetts, for an invention of Joseph Sladdin, in improvements in machinery for the manufacture of healds.

Sladdin and Ellis, the patentees, after the grant of said letters patent, by an instrument under seal, dated December 17, 1864, after reciting the grant and enrolment of said letters patent, and of an agreement with one David Bowlas for a sale to him of "*the said invention and letters patent, and also of all letters patent or extensions to be hereafter obtained on account of the said invention*," and also of a machine constructed on the principle of said patented invention, and of the models, patterns, and other appurtenances granted, assigned, and confirmed to Bowlas, his executors, administrators, and assigns, "all that and those the said recited invention and letters patent, and also all and singular the benefit, privileges, and advantages arising out of or to be derived from the said invention and letters patent, and also all and singular *other* the letters patent and extensions of time thereof to be hereafter obtained on account thereof, and all models, patterns, and other matters, explanations thereof in the possession or power of the said James Ellis and Joseph Sladdin, and all the right, title, interest, claim, and demand of the said James Ellis and Joseph Sladdin, and each of them, in, to, out of, or upon the said several premises, and also the said machine."

The *habendum* clause in the indenture is absolute as to the machine, models, patterns, and appurtenances, and as to the invention and letters patent "for all the remainder now to come, and unexpired term of the said term granted by the said letters patent, and of every other term and interest and extension thereof to be hereafter granted therein."

Sladdin and Ellis, after the usual covenants of title, covenant, among other things, that they "will not at any time or times hereafter during the residue or remainder of the said term of fourteen years, or for or during any other term or interest hereby assigned or intended so to be, make, do, or execute, or knowingly or willingly permit or suffer any act, deed, matter, or thing whatsoever, whereby or by reason or means whereof the said letters patent and privileges, or any part thereof, can, shall, or may be revoked, repealed, canceled, avoided, determined, or prejudicially affected in any manner howsoever, or whereby, or by reason or means whereof the said David Bowlas, his executors, administrators, or assigns, may, can, or shall be in any wise prevented or hindered from or impeded in or about the having, receiving, taking, exercising, or enjoying the said privileges, letters patent, and premises hereby assigned, or intended so to be, or any part thereof, to and for his and their own use and benefit for and during all the residue and remainder of the said term of fourteen years, and for and during all other the term, right, and interest therein hereby granted or assigned, or intended so to be, and every part thereof."

Then follows a covenant for further assurance at the request and cost of said Bowlas to execute and perfect all acts, deeds, and assurances for more effectually assuring the said invention, letters patent, and premises, and also for extending the time, and also for enabling him to prosecute necessary suits in the event of any infringement. They further covenant that they will not, nor will either of them, during the time for which said patent was granted, or during any extended time which may be granted therefor, make, sell, or cause to be made or sold any other machine for the purposes to which the said machine is applicable, all or any of them, and that they and each of them will, until the said patent and any extension thereof be fully expired, refer to the said David Bowlas, his executors, administrators, and assigns, all inquiries having reference to the said patent and to machines to be made thereunder or with reference thereto, and that they or either of them will not, without the consent and permission of the said David Bowlas, his executors, administrators, or assigns, make any more machines of a like character, or invent or introduce any machine or invention to supersede or compete with the invention of the said letters patent, or in any way to disadvantage the patent right or privileges hereby assigned.

Afterward, on or about August 4, 1868, Joseph Sladdin procured letters patent of the United States to be issued to himself and Lord, the other respondent in this case, for improvement in machines for making loom-harness, which letters patent were afterward, for defective and insufficient description and specification, surrendered, and new letters patent for the same invention on two separate amended specifications were reissued in two divisions, numbered, respectively, 4,509 and 4,510.

Subsequent to the assignment of the English patent to Bowlas, and before the issuing of the letters patent of the United States, the complainants, Emmons and Nichols, respectively, each purchased of David Bowlas, the owner of the invention and letters patent, machines for making loom-harness, embracing in their construction the principles of said invention with the right to use said machines, and imported them into the United States, and have since severally used said machines in their respective manufactories. Thereupon during the year 1872, Sladdin and Lord, named as patentees in the letters patent of the United States, filed bills of complaint in this court against Emmons and Nichols, respectively, alleging infringement of the letters patent of the United States by the use of the machines purchased of Bowlas and "built in England, embracing the same improvements which are patented in this country, as aforesaid in said reissued patents."

While these suits for infringement were pending, David Bowlas, having deceased in 1874, his executors and personal representatives executed an instrument under seal purporting to convey to the complainants, Emmons and Nichols, the reissued letters patent of the United States No. 4,509 and 4,510, and the original letters patent on which they were reissued, the invention in said letters patent described, and all the rights, powers, privileges, benefits, advantages, and all and every other matter, interest, and thing, which were conveyed

by the assignment from Ellis and Sladdin to David Bowlas.

The bill of Emmons and Nichols, the complainants, alleges these facts, and avers that, by force of the assignment to Bowlas of the invention and of the covenants and agreements in that indenture, the interest in the letters patent of the United States, and the reissued letters patent Nos. 4,509 and 4,510 was vested in Bowlas and his legal representatives, and secured to him and them the exclusive right and liberty of making, vending, and using in the United States the invention specified and claimed in the amended specifications Nos. 4,509 and 4,510; and that in virtue and by force of the assignment and conveyance from the executors of the estate of Bowlas to the complainants, the reissued letters patent of the United States and the invention therein recited, and the English patent and the invention therein recited, became the property and letters patent of the complainants.

The bill further charges that the institution of the suits in equity against the complainants severally, by Sladdin, is an interference with the use and enjoyment by Bowlas and his assigns of the invention and letters patent conveyed to him, which the complainants aver to be in violation of the covenants not to impede, hinder, interrupt, or interfere with said use and enjoyment; and, further, that defendants, without right and without license from Bowlas or his assigns, and in violation of the covenants in the indenture, have made, used, and sold machines to which the said invention is applicable, and machines of like character, and are still wrongfully making and using such machines against the rights of the complainants.

The bill prays that respondents may be enjoined and restrained from the further prosecution of the suits against Emmons and Nichols, respectively, and that they may be restrained from making, using, or vending, without the consent of the complainants, machines embracing the invention aforesaid, or any substantial part thereof, and from doing any act whereby complainants shall be hindered in the free enjoyment of the said invention and letters patent.

To this bill the defendants have demurred, and for causes of demurrer assign in substance the following:

1. Because the assignments from Ellis and Sladdin conveyed to Bowlas only the invention and letters patent for the unexpired term of the patent and any extensions and renewals thereof for Great Britain only.

2. Because the assignment was not recorded in the Patent Office of the United States within ninety days from the execution thereof, and not till after the letters patent of the United States were granted to Sladdin and Lord, and after Lord had become the owner of one-half of the patent and the reissues thereof.

The third and fourth reasons present in different form substantially the same question presented in the first ground of demurrer.

The fifth ground is "because the said reissued patent of the United States granted to this defendant and the defendant Lord, No. 4,510, are not for any invention recited, described, or claimed in said letters patent of Great Britain, but are for other and different inventions.

6. Because it is not alleged in said bill that said several letters patent were obtained at the request or cost of said Bowlas, or that he in his lifetime ever claimed any interest therein.

The discoverer of a new and useful improvement is vested by law with an inchoate right to its exclusive use, which he may perfect and make absolute by proceeding in the manner which the law requires. Such inchoate right, not only to the original letters patent that may issue, but to any renewals or extensions, or to any letters patent which may thereafter be issued at any time or in any place, may be conveyed by an instrument containing apt terms to show an intention to convey all the rights springing from the invention. (*Clum* vs. *Brewer*, 2 Curtis, 506; *Nesmith* vs. *Calvert*, 1 W. & M., 34; *Gayler* vs. *Wilder*, 10 How., 477; *Nicholson Pavement Co.* vs. *Jenkins*, 14 Wall, 452.)

In this last case the patentee having taken out letters patent of the United States, granted to an assignee in the words following: "all the right, title, and interest which I have in the said invention and letters patent for and in the said city of San Francisco." There were no other words of grant in the instrument. The *habendum* clause was "the same to be held and enjoyed by the said Taylor for the use and behoof of him and his legal representatives to the full end of the term for which the said letters patent are or may be granted as fully," &c.

It was contended that the words in the *habendum* clause could not be construed to enlarge the grant by extending the contract to a subject matter not before embraced in the recitals or in the granting portions of the deed. It was also argued that the words in the *habendum* clause, "for which the said letters patent are or may be granted," could be satisfied by making them embrace any reissue of "the said letters patent." But the Supreme Court held that "it would be a narrow rule of construction to say that they were designed to apply to a reissue merely when the invention itself, by the very words of the assignment, is transferred," and that the assignment transferred the extension and renewal of the patent subsequently made. The law must, therefore, be considered as settled by this decision that whenever a patentee conveys his "invention" without any other language in the deed of conveyance restricting the right to use the invention by a limitation of time or place he must be considered to have granted the right to any letters patent which may be issued thereon.

Applying these principles to the consideration of the assignment from Ellis and Sladdin to Bowlas, let us examine it to see what it purports to convey, and whether it does or not evince an intention to invest the whole interest in the assignee. It grants "the said recited invention and letters patent." In a subsequent clause it grants "all and singular *other* the letters patent and extensions of time thereof to be hereafter obtained on account thereof," and "all models, patterns, and other matters and explanations thereof in the possession of the said James Ellis and Joseph Sladdin, and all the right, title, interest, claim, and demand of the said James Ellis and Joseph Sladdin, and each of them, in, to, or out of, or upon the said several premises, and also the said machine."

Words of broader signification, or more fully indicative of an intention to invest the grantee with the whole interest in the invention, could hardly have been used; nor is there to be found in the subsequent parts of the instrument any language expressive of an intention to limit or restrict the right to use the invention to the duration of the English patent. The *habendum* clause is not only for the unexpired term of the letters patent of Great Britain (the said letters patent) but "of every other term and interest and extensions thereof to be hereafter granted therein."

Wherever after in the covenants the term of the English patent is referred to, it is supplemented by such expressions as "for and during any other term or interest hereby assigned or intended so to be," and "all other the term, right, and interest therein hereby granted or intended so to be."

There is but one exception to this, and that is that the covenants not to make or cause to be made any other machine for the purposes to which said invention is applicable, and to refer to Bowlas all inquiries respecting the machine, and not to make any machines of like character, or make any invention to supersede or compete with the one assigned, are limited to the time for which the said patent is granted, or during any extended time which may be granted therefor.

Upon the authority of the cases before cited it must be held that the terms of the grant to Bowlas were sufficiently broad to divest Ellis and Sladdin of any interest in the invention described and to vest the same in Bowlas. Under these circumstances it would be the most flagrant injustice to sustain a claim for infringement on the part of Sladdin against Emmons and Nichols by reason of the use by them of the machines purchased of Bowlas; nor is it perceived how Lord, who acquired his rights of Sladdin, who had nothing to convey so far as any invention of his was embodied in the English machine could have acquired any rights as against such machines as were purchased of Bowlas, and therefore are held under a title from Sladdin, which is prior and paramount to any title he could have conveyed to Lord.

It is objected against the claims of Emmons and Nichols to the equitable title to the letters patent of the United States that such patents were not obtained at the request and cost of Bowlas. This objection cannot avail, for the reason that Ellis and Sladdin, having conveyed all their interest in the invention, and to any letters patent that might be obtained therefor to Bowlas and his assigns, and being under obligation by their covenants to take out such other letters patent at his request and cost, could not take out such letters patent for their own benefit without a fraud on the rights of Bowlas, although not requested to take them out for his benefit. They had a right to the advance of the expenses by Bowlas before taking out other letters patent; but if they or either of them took them out without requiring such advance and without any grant or authority from Bowlas, the title of Sladdin, and probably the title of Lord also, must be held to be only in trust for Bowlas and his assigns so far as the letters patent of the United States embraced any invention made by Sladdin before the conveyance to Bowlas, and incorporated either in the English machine or in the letters patent of Great Britain.

It is clear that one division of the reissued letters patent claims in substance only what is claimed in the English patent, and the same is true of part of the claims in the other division, so far at least as claiming inventions, which were embodied in the English machine and described in the English patent as parts of the combinations referred to in the claims, even if not separately claimed. As the answer sets up a license or authority from Bowlas to Sladdin, the full determination of the rights of the respective parties to the letters patent of the United States cannot be made until the final hearing of the cause.

The cases of Sladdin and Lord against Emmons, and the same against Nichols, must, therefore, stand to await the final decree to be made after a full hearing in this case.

The demurrer in this case is adjudged bad, and is overruled, and the case stands for further proceedings under the rules.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 22, 1876.]

9,010.—Barber and Dental Chairs.—GEORGE W. ARCHER, Rochester, N. Y. Application filed December 10, 1875. Term of patent 7 years.

9,011.—Playing-Cards.—JAMES DUTHIE, New York, N. Y. Application filed February 7, 1876. Term of patent 7 years.

9,012 and 9,013.—Embroidery-Pattern.—EMIL CREMAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Applications filed January 31, 1876. Term of patents 3½ years.

9,014.—Embroidery-Pattern.—EMIL CREMAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed February 11, 1876. Term of patent 3½ years.

9,015.—Paper-Weight.—JAMES W. TUFTS, Medford, Mass. Application filed January 13, 1876. Term of patent 14 years.

9,016.—Oil-Cloth.—JOSEPH BARRETT, New York, N. Y., assignor to THOMAS POTTER, SONS & CO., Philadelphia, Pa. Application filed February 12, 1876. Term of patent 3½ years.

9,017 and 9,018.—Fancy Cassimeres.—WILLIAM BÜSSER, Utica, N. Y., assignor to THE GLOBE WOOLEN COMPANY, same place. Applications filed February 5, 1876. Term of patents 7 years.

9,019 to 9,044, inclusive.—Carpets.—OTTO HEINICKE, New Utrecht, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 11, 1876. Term of patents 3½ years.

9,045 to 9,057, inclusive.—Carpets.—HENRY HORAN, East Orange, N. J., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 11, 1876. Term of patents 3½ years.

9,058.—Oil-Cloth.—JAMES HUTCHISON, Newark, N. J., assignor to THOMAS POTTER, SONS & Co., Philadelphia, Pa. Application filed February 2, 1876. Term of patent 3½ years.

9,059.—Oil-Cloth.—JAMES HUTCHISON, Newark, N. J., assignor to THOMAS POTTER, SONS & Co., Philadelphia, Pa. Application filed February 12, 1876. Term of patent 3½ years.

9,060.—Oil-Cloth.—JAMES HUTCHISON, Newark, N. J., assignor to THOMAS POTTER, SONS & Co., Philadelphia, Pa. Application filed February 2, 1876. Term of patent 3½ years.

9,061 and 9,062.—Oil-Cloth.—JAMES HUTCHISON, Newark, N. J., assignor to THOMAS POTTER, SONS & Co. Applications filed February 12, 1876. Term of patents 3½ years.

9,063 to 9,066, inclusive.—Oil-Cloth.—HENRY KAGY, Philadelphia, Pa., assignor to THOMAS POTTER, SONS & Co., same place. Applications filed February 2, 1876. Term of patents 3½ years.

9,067.—Oil-Cloth.—G. ALBERT LEWIS, Philadelphia, Pa., assignor to THOMAS POTTER, SONS & Co., same place. Application filed February 2, 1876. Term of patent 3½ years.

9,068.—Gimp Trimming.—CARL LINDENTHAL, New York, N. Y. Application filed January 3, 1876. Term of patent 7 years.

9,069 to 9,078, inclusive.—Carpets.—LEVI G. MALKIN, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford Conn. Applications filed February 11, 1876. Terms of patent 3½ years.

9,079 to 9,089, inclusive.—Carpets.—ELMER J. NEY, of Dracut, Mass., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 11, 1876. Term of patents 3½ years.

9,090 to 9,093, inclusive.—Carpets.—HENRY NORDMAN, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 11, 1876. Term of patents 3½ years.

9,094 and 9,095.—Carpets.—WILLIAM H. SMITH, Enfield, assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 11, 1876. Term of patents 3½ years.

9,096 to 9,100, inclusive.—Carpets.—JOHN H. SMITH, Enfield, assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 11, 1876. Term of patents 3½ years.

9,101 and 9,102.—Carpets.—WILLIAM H. SMITH, Enfield, assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed February 11, 1876. Term of patents 3½ years.

9,103.—Carpets.—JOHN H. SMITH, Enfield, assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Application filed February 11, 1876. Term of patent 3½ years.

9,104.—Carpets.—FREDERICK C. SWANN, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Application filed January 24, 1876. Term of patent 3½ years.

9,105 to 9,107, inclusive.—Locket.—GEORGE W. GILL, Philadelphia, Pa. Applications filed January 24, 1875. Term of patents 3½ years.

9,108.—Centennial Badge.—HENRY GUNTHER, Philadelphia, Pa. Application filed January 31, 1876. Term of patent 7 years.

9,109.—Combined Inkstand-Base and Pen-Rack.—JOSEPH KINTZ and PATRICK J. CLARK, West Meriden, Conn. Application filed January 15, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 22, 1876.]

3,433.—Plows.—DEERE & Co., Moline, Ill. Application filed February 2, 1876.

"words 'TEXAS RANGER.'"

3,434.—Plows and Cultivators.—DEERE & Co., Moline, Ill. Application filed February 3, 1876.
"picture of a deer."

3,435.—Stoves.—GREER & KING, Dayton, Ohio. Application filed February 5, 1876.
"word 'CHESTER.'"

3,436.—Dressing for Ladies' and Children's Boots and Shoes, and other Articles of Leather.—HOLDEN & Co., Chicago, Ill. Application filed February 7, 1876.
"word 'JETTINE.'"

3,437.—Lamp-Chimneys.—HUWER & DANNENHOFFER, Brooklyn, E. D., N. Y. Application filed January 29, 1876.
"word 'SILEX.'"

3,438.—Spectacles and Eyeglasses.—JULIUS KING, Cleveland, Ohio. Application filed February 2, 1876.
"figures 76."

3,439.—Cigars.—S. LOWENTHAL & Co., Cincinnati, Ohio. Application filed February 7, 1876.
"a representation of a marble bust, or a bust of any material, and the words 'Marble Head.'"

3,440.—Cultivators.—PATTEE BROTHERS & Co., Monmouth, Ill. Application filed February 2, 1876.
"words 'New Departure.'"

3,441.—Steam-Boilers and Steam-Engines.—PORTER & Co., Syracuse, N. Y. Application filed December 18, 1875.
"word 'ECONOMIZER.'"

3,442.—Collars Made of Paper and Cloth.—RAY & TAYLOR MANUFACTURING COMPANY, Springfield, Mass. Application filed January 24, 1876.
"the imprint or picture of a cannon with the words 'Rifle Collar.'"

3,443.—Cigars.—SEIDENBERG & Co., Key West, Fla., and New York, N. Y. Application filed February 3, 1876.
"words 'ROSA DE LAS ANTILLAS.'"

3,444.—Perfumery and Cosmetics.—LEON BACKER & Co., New York, N. Y. Application filed January 22, 1876.
"word 'POTAIN.'"

3,445.—Kid Gloves.—PHINEAS BARTLETT, South Orange, N. J. Application filed January 20, 1876.
"word 'TREVOIR.'"

3,446.—Ruffling.—CHARLES BERGENSTEIN & Co., New York, N. Y. Application filed December 22, 1875.
"words 'American Ruffling Trade-Mark Beauty,' and the picture of a young woman."

3,447.—Food or Preparation Having the Appearance of a Flour or Powder.—JOHN CARNMICK, Bayonne, N. J. Application filed January 8, 1876.
"word 'ALIMENTINE.'"

3,448.—Puzzle-Blocks.—GEORGE H. CHENNOCK, Brooklyn, N. Y. Application filed February 7, 1876.
"words 'CENTENNIAL EXHIBITION,' in connection with the words 'PUZZLE-BLOCKS.'"

3,449.—Live-Geese Feathers.—FRANKLIN G. CRAIGHEAD, Pittsburg, Pa. Application filed February 10, 1876.
"five-pointed star and the words and figures 'Feathers' and 'No. 1.'"

3,450.—Boxes for Cigars and Tobacco.—MAX HILSON, New York, N. Y. Application filed February 10, 1876.
"representation of woven willow-ware."

3,451.—Shirts.—HODGES BROTHERS, Baltimore, Md. Application filed February 14, 1876.
"word 'ECONOMY.'"

3,452.—Shoe-Blacking.—LEVI & BERG, Philadelphia, Pa. Application filed February 10, 1876.
"a figure of Liberty holding aloft a flaming torch."

3,453.—Perfumery.—EMIL MAYER, New York, N. Y. Application filed February 5, 1876.
"a small glass medallion, of round, oval, or other shape, which is supported in suitable manner at the inside of the perfumery-bottle, and provided at one side with the numerals '1776,' and at the other side with the numerals '1876.'"

3,454.—Oiled Silks and Imitations Thereof.—SHADRACH H. PEARCE, Boston, Mass. Application filed September 4, 1873.
"letters 'O. W.'"

3,455.—Flour.—BENJAMIN H. PEABODY, Pittsburg, Pa. Application filed February 7, 1876.
"words 'CALIFORNIA COAST RANGE.'"

3,456.—Preparation for Throat or Bronchial Affections.—GEORGE FREDERICK ROBERTS, San Francisco, Cal. Application filed February 10, 1876.
"words 'Fog Drops.'"

3,457.—Woolens and Men's Wear.—EDWARD T. STEEL & Co., Philadelphia, Pa. Application filed February 8, 1876.
"words 'ANCHOR SUITINGS.'"

3,458.—Earth-Working Tools.—THE COLLINS COMPANY, Collinsville, Conn. Application filed December 29, 1875.
"the pictured representation of a crown, from which rises an arm holding a hammer."

3,459.—Shirt-Bosoms.—H. WALLACH'S SONS, New York, N. Y. Application filed February 7, 1876.
"the figures '76.'"

INDEX OF INVENTIONS PATENTED FEBRUARY 22, 1876.

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Finney, J. R., Mechanical movement	173,930
Finney, J. R., Nail plate feeder	173,931
Fisher, G., assignee	174 046
Foebner, M., Padlock	173,932
Forbes, G. W., Carbureter	173,933
Ford, E. C., Spring perch for bird cages	173,934
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Foreman, J. G., assignee	173,782
Fox, G. and G., Jr., Arch plate for steam boilers	173,852
Francis and Braidwood	173,761
Frazier, A. T., assignee	173,977
Freeman, A. T., Vehicle spring	173,719
Freeman, M. W., Reaper and mower	173,851
Fuller, G. P., Nut lock	173,936
Furman, S. M., Setter and threader for sewing machine needles	173 937
Gardiner, W. W., Knob latch	173,853
Garrett and Howells	173,858
Garvin, J., Die for making body loops for carriages	173,854
Gleesler, E. A., Surveyor's leveling target	173,938
Gill and Lowe	173 962
Gillett, S. M., and S. D. Saxby, Wagon brake	173 939
Gleason, D. H., and A. A. Bowler, Gas stove	173 940
Gordon, G. P., Printing press, (reissue)	6,945
Greeve, F. W. and F. W., Jr., Grating apparatus	173,941
Graham and Cady, assignees	173,814
Grant, E. W., assignee	173,896
Grant, J. J., Screw cutting die	173,780
Graves, I., assignee	173,767
Graves, I., Machine for crozing staves	173,781
Graves, J. R., Watch jewel assorter	173,782
Griscom, W. M., Apple parer	173,942
Guérin, V., Apparatus for enlarging and reducing prints	173,720
Hackett, J., assignee	173,916
Haines, L. A., Mowing machine	173,943
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Harrington, G., assignee	173,718
Harrison, W. H., Straw cutter	173,855
Harrison, W. H., Sectional wheel	173,946
Hathaway, J. A., Fire kindling rod	173,721
Haven, W., assignee	173,744
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Hayes, G., Metallic shutter	173,786
Hayes, G., Metallic shutter	173,787
Hayes, G., Panel for blinds	173,788
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Hayes, G. H. and J. H., Clothes drier	173,949
Hayes, T. W., Feed water heater	173,856
Hayward, E. B., Forming molds for casting	173,950
Heaney, W. G., Double apron	173 857
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Herman, J. C., and G. S. Lewis, Machine for crozing and chamfering barrels	173,952
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Hill, T., Instrument for solving problems in navigation	173,724
Hills, R., Fire proof building	173,953
Hinkle, P., Clutch	173 790
Hoe, R., & Co., assignees	173 738
Hoeltge, F., Manufacture of sheet metal moldings	173,954
Hornum, W. H., Fare register, (reissue)	6,946
Howard, F. A., Printer's proof press	173,792
Howarth, J., Carbon black manufactured from natural carbureted hydrogen gas, (reissue)	6,937
Howe, I. E., and W. C. Weir, Water filterer	173,725
Howe, I. P., assignee	174,046
Howells, A., W. Garrett, and J. R. Howells, Machine for straightening metal bars	173,858
Howes, E. K., Refrigerator	173,791
Hudson, H., Channeling tool for boots and shoes	173,955
Hughes, W., and J. K. Alexander, Whip socket	173,859
Hunt and Cornish	173,767
Hunt, C. P., assignee	173,781
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Irwin, J. H., Ventilating cap	173,958
Ische and Riethmayer	174 007
Iske, A., Machine for destroying potato beetles	173,728
Jameson, E. T., Machine for shaving stereotype and electrotype plates	173,729
Jamin, M., Closing gas retorts	173,959
Jenks and Richards	173,730
Jenness, J. S., assignee	173,994
Jils, W. W., Earth auger	173,794
Johnson, H., Fare box	173,960
Johnson, L., Coupling for tubing and lightning rods	173,962
Johnson, I., and D. A. Price, Lightning rod	173,963
Johnson, P., Hog scraper	173,960
Johnston, W. F., Explosive mixture	173,961
Jones, C., Snow shovel	173,964
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Jordan, A. J., Apparatus for cleansing dentists' flasks, &c	173,795
Judson, G., Life boat	174,966
Kayser, J., Packing matches	173,861
Keith, J., Sewing machine	173,967
Keith, T. K., Machinery for cutting and blacking the welts of boots and shoes, (reissue)	6,938
Kennedy, F. C., assignee	173 810
Kennell and Hall	173 945
Kenyon, J. P., Hydrant	173,796
Kepler and Palmer	173,903
Keystone Flint Glass Manufacturing Company, assignee	173,891
Kidder, M. W., Manufacturing coal gas	173,730
King, G. W., King bolt	173,797
Kingsley, H. L., Corner iron	173,968
Kirby, S. H., assignee	173,910
Knowles, C. M., Can filler	173,969
Kreighbaum, W. B., Dropper for reaping machine	173,970
Lamb and Lovewell	173,731
Lambert, W. E., Heel burnishing machine	173,971
Lancaster, J., Stop cock boxing	173,972
Landers, Frary, and Clarke, assignees	173,907
Lapaley, J. T., assignee	174,021
Larson, A. J., Animal trap	173,798
Lawler, J., Journal box for wheelbarrows	173,973
Lawrence, J. H., assignee	173,867
Lawton, S., Fish scaler	173,799
Lemman, J., Reclining chair	173 974
Leonard and North	173,807
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Lewis, R. T., Wagon brake	173,975
Liljeholm, P. J., Table leaf supporter	173,976
Lovewell, S. K., and L. L. Lamb, Band sawing machine	173,731
Lowe, C., and J. Gill, Separating mixed coal tar products	173,962
Lutch, A. J., assignee	173,896
Lyman, P. S., Lamp wick trimmer	173,977
Lynch, E., assignee	173,943
Lyeager, G. N., Safety clutch for elevators	173,978
Mack, E. E., Paper collar	173,800
Mackey, J., assignee	174,009
Maher, P. H., Guard for windows and doors	173,979
Manhattan Brass Company, assignee	173,905
Marcy, E. G., Pump valve	173,980

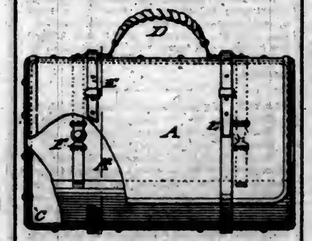
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Matthews, S., Stencil cutting machine	173,739
Maxwell, W. H., Tool for crimping lamp chimneys	173,801
May, J. G., Spark extinguisher	173,981
McClintock, J. S., assignee	173,894
McCrory and Walker	174,037
McDonald, J. M., Truss bridge	173,863
McDonough, T., Calipers and dividers	173,802
McDowell, J., assignee	173,978
McEvoy, J., Soap composition	173 962
McKain, M., Nut machine	173,983
McMakin, J. W., assignee	173,933
McNab and Harlin Manufacturing Company, assignees	173,727
Merrill, G., Press	173,735
Merritt, W. J., Dressing millstones	173 733
Merritt, W. J., Middlings separator	173,734
Miner, S. E., Sash holder	173,803
Minnich, S. B., Tobacco press	173,736
Moles, C., assignee	173,839
Moncrief and Dugan	173,777
Morand, W., Grate	173,805
Morden, W. J., Railway frog	173,804
Morgan, G. A., assignee	173,934, 173,935
Mortenson, G. F., Bench plane	173,964
Morton, A. W., Gas stove	173,985
Moulton, G. W., Bale tie	173,737
Munn, C., Machine for cutting veneers	173,986
Neate, J., assignee	173 879
Neuman and Deutsch	173,915
Newhall J. Q., Blind stop	173,806
Newton, S. S., Extinguishing fire in buildings	173,987
Nichols, J. H., Relief map	173,988
North, A. H., and J. B. H. Leonard, Machine for dressing cutlery handles	173,807
Noyes, P., assignee	173,730
Nugent, R. C., Machine for flanging boiler heads	173,808
O'Brien Brothers Manufacturing Company, assignee, (reissue)	6,947
O'Brien, W. S., Harrow, (reissue)	6,947
Ockershausen, G. P., Furnace for the manufacture of bone-black	173,989
O'Donnell, J. W., Lighting and extinguishing device	174,053
O'Hagan, T., Plumb level	173,990
Osborn, W., Railway rail	173,991
Owen, E., Grain drill	173,809
Packard, C. W., Combined side stick and quoin	173,992
Palmer, D. B., and D. C. Kepler, Car coupling	173,993
Patten, E. B., Attachment for cooking stoves	173,994
Pennoyer, J., Privy seat	173,995
Pettit, E. R., Electro magnetic dental engine	173,864
Phillips, Nimick & Co., assignees	173,606
Phillipson, R., Billiard cue	173,996
Pierce, H. K., Washing machine	173,997
Pillsbury and Boyden	173,888
Polhemus, J., Printer's imposing table	173,738
Porter, Edwards, and Edmonston	173,921
Potter, G. S., Button and stud	173,998
Powell, E. R., Combined wheel harrow and seed sower	173,810
Pratt Railway Signal and Telegraph Company, assignee	173,811
Pratt, W. E., Pneumatic railway signaling apparatus	173,811
Pratt and Whitney Company, assignee	173,780
Pratts, M., Key for pianos, organs, &c	174,003
Pratts, Read & Co., assignees	174,003
Pratt, U., Key for piano fortes, organs, &c	173,999
Pratt, U., Key for piano fortes, &c	174 000
Pratt, U., Key for piano fortes, organs, &c	174,001
Pratt, U., Key for piano fortes, &c	174,002
Prescott, D. C., Direct acting steam feed works for circular saw mills	174,004
Price and Johnson	173,963
Price, J. E., Parallel ruler	173,812
Proctor, J. K., Wool washing machine	174,005
Putnam, J. D., & Co., assignees	173,767, 173,781
Rawson, A. M., Shipping package	173,813
Rawson, J. F., assignee	173,994
Reagles, C., Composition for dental plates, &c	173,865
Renaud and Coutts	173,909
Rayburn, Hunter & Co., assignees	173,963, 173,963
Richards, H. A., and E. H. Jenks, Fire escape	173,739
Richter, H., Carriage	173,814
Rickart, A., Horse rake	174,006
Ridgway, D. H., assignee	174,031
Riethmayer, J. F., and J. Ische, Railway signal	174,007
Riette, E. N., assignee	173,769
Rising, G. M., Billiard table chalk holder	173 815
Rising, G. M., Billiard cue holder	173,816
Roberts, O. D., assignee	173,742
Rosmer, W., Staple for satchels, carpet bags, &c., (reissue)	6,939
Rorke and Anderson	173,877
Roth, E., Saw file guide	173,866
Rowe, J. L., Bolting reel	174,008
Russell, D. P., Reaper	173,817
Russell, W. H., Temporary binder	174 009
Sanford, G. B., Picking mechanism for looms	173,740
Saxby and Gillett	173 939
Schaeffer, R., assignee	173,941
Schell, I. H., Track cleaner	173,818
Schley, H. C., Device for weaning calves	174,010
Schneider, C. G., Baggage seal	174,011
Schuster, J., Sofa bedstead	174 012
Schutt and Wagner	173,832
Seabrook, C. J., and H. Heise, Combined seed planter and cultivator	174,013
Seaver, A., assignee, (reissue)	6,938
Selleck, E. M., Coach harness pad	173,819
Sellers, C., Feed motion for drilling and boring machines	174,014
Seymour, F. J., Egg beater	174,015
Seymour, M. S., and A. Hicks, Drying apparatus	173,741
Shannon, S., Windmill	173,867
Sharp, D. P., Horse rake	174,016
Sheffield, G. V., Uniting pieces of leather, &c	173,868
Shippen, E. W., Making wooden shoes and machinery for making them	173,820
Sigwalt, J., Jr., Hand stamp	174,017
Sloe, H. B., Tire heater	173,821
Smeltzer, D. B. D., Corn coverer and marker	174,020
Smith, D. W., assignee	174,024
Smith, E., Electric vapor bath	174,018
Smith, J., Tile roof	174,021
Smith, J., & Co., assignees	174,005
Smith, J. W., Bed bottom	174,019
Smith, W. B., assignee	173,949
Smith, W. J., Box for stop cocks in water pipes	173,822
Star Tool Company, assignee	173,822
Stearns, H. A., Railway gate	173,823
Stevens, E., Shade holder for lamps and gas fixtures	174,022
Stevens, J. L., Egg carrier	173,825
Stevens, J. L., Egg carrier	173,826
Stevens, T., Game apparatus	173,824
Stevenson and Strawbridge	174,025
Stiles, D. L., Stove	173,827
Stoll, J. R., Combined corn and pumpkin seed planter	174,023
Stout, S. T., Cotton and corn planter	174,024
Straight, H. D., Plow	173,869
Strawbridge, A. G., and W. M. Stevenson, Horse foot weight	174,025
Strobridge, T., Coffee mill	174,026
Swett, Quimby, and Perry, assignees	173,895
Swift, H. D. and D. W., Envelope machine	173,870
Taggart, M. V., Bread and pastry board	174,027
Talbott, J. J., Sash holder	174,029
Talley, J., Jr., Faucet and vent	174 028
Taylor, J. W. and C. H., Churn	173,898
Teachout, S., Water wheel, (reissue)	6,940
Tewksbury, L. K., Butter package	173,742
Tharp, T. D., School desk and seat	174,032
Thomas, E. T., Device for running on belts to machinery	173,992
Thompson, N. S., Sole edge trimming cutter head	173,871
Thompson, T. E., Car brake	173,830
Thorne, W. H., Machine for extracting broken screws	173,829
Thornton, J. J., Safety device for main springs	174,030
Tilton, W. G., Bench dog	174,031
Titus, G. M., Harrow	173,831
Titus, I. R., and H. C. Bossinger, Car coupling	173,743
Titus, J. C., Rotary engine	174,033
Travis, L., Tool holder for grindstones	173,744
Tregoning, J., assignee	174,034
Turner and Seymour Manufacturing Company, assignee	173,745
Van Nest and Boyden	174,015
Vick, W. H., Joint for gas, water, and steam pipes	173,887
Wagner, N., and J. Schudt, Refrigerator	174,035
Wagoner, M., assignee	173,832
Walker, F. E., Single tree clip	173,913
Walker, T., and W. A., McCrery, Weather strip	174,036
Walker, W., Direct acting pumping engine	174,037
Walrath, A., and E. D. Bronson, Broom machine	173,745
Wands, J. C., Vehicle hub	174,038
Ward, W. H., Hub and axle	173,833
Warner, J. B., Artificial leg	173,746
Waterhouse, H. K., Vehicle spring	173,872
Weir and Howe	173,834
Welch, E. B., assignee	173,725
Wellington, M. A., assignee	173,750, 173,878
Westcott, D. L., Gas apparatus	173,740
Westinghouse, G., Jr., Steam and air brake, (reissue)	174,039
Westinghouse, G., Jr., Air compressor	6,948
Wheat, M. K., Spring lock for plows	173,835
Wheeler, J. E., Sole channeling machine	173,873
Wheeler, J. E., and L. L. Barber, Wax thread sewing machine	173,836
White, H. G., Interfering pad for horses	173,837
White, S. S., assignee	173,838
Whitecomb, G. H., & Co., assignees	173,795
Whiteley, W. N., Harvester	173,870
Whiteley, W. N., Harvester	174,040
Whiteley, W. N., Reaping and mowing machine	174,041
Whyte, G., Electro magnetic railway signal	174,042
Wiard, E., Wheel cultivator	174,043
Wickham, T. B., Corn planter	173,747
Widemann, C., Venetian shade, (reissue)	174,044
Wilcox, D., Stay end clip	6,941
Wilcox, W. B., Chain pump bucket	174,046
Williams, J. T., assignee	174,045
Willis, J. T., Device for detaching horses	173,929
Wilson, G., Combined washing machine and wringer	173,874
Wingerter, F. P., assignee	174,047
Winkler, C. R., Steam cooking apparatus	173,909
Winslow, E. B., Trace gearing	174,048
Winslow, L., Railway rail joint	174,050
Winsor, G. H., Lubricating compound	174,049
Winsor, J. S., Gate	173,840
Woodbury, G. R., Elastic car wheel	173,839
Worms, J., and I. Cohn, Clasp for holding garments	174,051
Yeaman, H., Glove for husking corn	173,748
Zimmerman, J., Whiffletree	174,052
	173,749

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED FEBRUARY 22, 1876

173,719. SHAWL-BAGS. Otto Bender, New York, N. Y. [Filed June 12, 1875.]



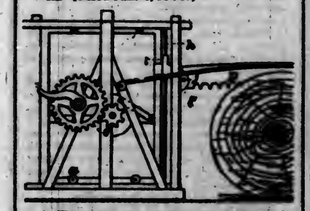
The combination, with bag A having gussets B, of the flaps A' A', frame C, handle D, and fastening-straps E, substantially as and for the purpose specified.

173,720. TEA-POTS. John W. Brewster, Kent, Ohio. [Filed July 31, 1875.]



In a tea-pot, the combination of an imperforate cover, provided with flanges *a c*, with the perforated cylinder *c*, which rests on the bottom of the pot, while its top is detachably secured to the flange *c* of the cover, substantially as and for the purpose specified.

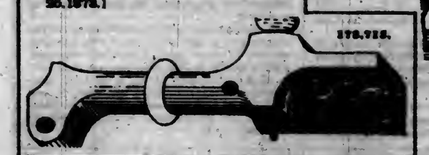
173,721. SAWING-MACHINES. Floyd N. Carter, Macon Township, Macon County Ill. [Filed Jan. 4, 1876.]



1. The combination of the rectangular frame A, guide-rod A, hanger C, and saw D, as shown and described.

2. The combination of the hanger U with the saw D, pivoted at *i*, and so arranged as to be secured in a horizontal or vertical position, shown and described.

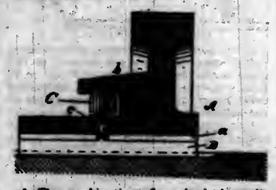
173,722. SOLE-CHANNELING MACHINES. A. E. Chickering, Albany, N. Y. [Filed Oct. 26, 1875.]



In a channeling-machine, the tool-arm constructed of two pieces, A A', the one capable of being held from all longitudinal movement from the pivot-hole *a*, and the other capable of being moved in either direction to or from said pivoted piece, in combination with the swivel-bolt B, whereby the channeling-tool can be variously adjusted to form the channel nearer to or farther from the edge of the sole, substantially as and for the purpose set forth.

173,723. SECURING WHEELS UPON SHAFTING. Jos F. Crawford, Oaseneovia, N. Y. [Filed Feb. 5, 1876.]

Brief.—The wheel or its equivalent is secured to the shaft with a key capable of rising from its seat in the shaft without being removed from the wheel.



1. The combination of a wheel, A, or its equivalent, a radially-sliding key, B, and a nut, C, substantially as shown and described.

2. In combination with a shaft, D, the wheel A, or its equivalent, provided with the radially-sliding key B, capable of rising from its seat in the shaft without being removed from the wheel.

3. The wheel A, provided with the deep seat *a*, arm *b*, and hole *c*, as and for the purpose described.

173,724. MILK-COOLERS. C. A. Douglas, Franklin, N. Y. [Filed Jan. 3, 1876.]

Brief.—Funnels slide along the trough under the water or milk outlets. Each funnel has a head around its outlet, to prevent the liquids from splashing upward, and permit the current from higher funnels to pass quietly over its head.

1. The combination, with funnel F, supported from the open side of conductor B, of the head *s*, intermediate between the bottom and the open upper side of said conductor, substantially as and for the purposes set forth.

2. The conductor B, made open on its upper side, and with rim-flanges *s s*, funnel F, and chair C, provided with locking-lips *s s*, when combined for operation substantially as set forth.

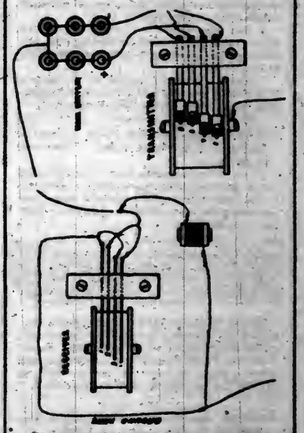
3. The funnel F, provided with head *s*, and supported by the adjustable chair C, having locking-lips *s s*, in combination with conductor B, provided with rim-flanges *s s* at the margin-edges of its open side, substantially as and for the purposes set forth.

4. The combination of an open-upper-side conductor, B, funnels F F, of varying lengths, adjustable chairs C C, locking-with said conductor, and supporting said funnels, and hoods *s s*, all adapted for operations with the several draft-pipes *a a* of a set of milk-coolers, substantially as and for the purpose set forth.



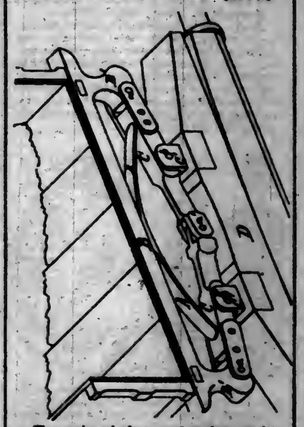
173,725. AUTOMATIC TELEGRAPHY. Thos. A. Edison, Newark, N. J., assignor to himself and George Harrington, Washington, D. C. [Filed Jan. 16, 1875.]

Brief.—For producing, as aggregation of dots, to be used in formation of Roman characters over a single wire.



Four transmitting stylus-points or rollers, connected in pairs to the positive and the negative of a battery, to which the line-wire is united at the center, in combination with two stylus-points connected to the line and two to the earth at the receiving-station, the parts being arranged and operated as set forth.

173,726. VEHICLE-SPRINGS. A. T. Freeman, Herkimer, N. Y. [Filed Jan. 24, 1876.]

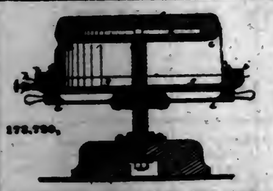


The carriage body or seat spring, consisting of the spring-bar B, the levers C C, pivoted to the legs of the spring-bar, and to jaws C' C', and the spring A, placed between the spring-bar and the jaws, substantially as and for the purpose described.

173,727. APPARATUS FOR ENLARGING AND REDUCING PRINTS. Victor Geerin, Paris, France. [Filed Oct. 11, 1875.]

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

172,726.



1. The combination of the fixed circular plate *a*, movable circular plate *g*, and clamping-ring *i*, with each other, for extending or contracting a circular elastic sheet, constructed substantially as specified.

2. The rings *b''* and *c''*, combined with the plates *a* and *g* of a sheet distending and contracting apparatus, constructed substantially as specified.

3. The slit-opening *l* applied to the plate *g* of a sheet distending and contracting apparatus, constructed substantially as specified.

172,727. FIRE-KINDLING RODS. James A. Hathaway, Acushnet, Mass. (Filed Jan. 7, 1876.)

Brief.—The flammable wood saturated with crude petroleum-oil, coated with a composition of resin, tallow, pulverized charcoal, crude petroleum-oil, and rolled in finely-cut shavings and sawdust.



The within-described fire-kindling rods, consisting of inflammable wood, saturated with crude petroleum-oil, or its equivalent, coated with the within-described composition, and rolled in finely-cut shavings and sawdust, as and for the purposes set forth and described.

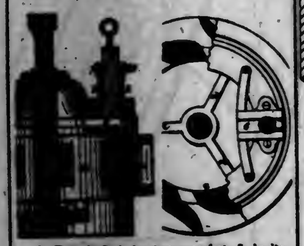
172,728. SHUTTERS. George Hayes, New York, N. Y. (Filed June 28, 1875.)



A blind, shutter, or door composed of a perforated and corrugated, embossed, crimped, or stepped metal plate or plates, essentially as described.

172,729. WATER-WHEELS. J. L. Holmes, Rome, N. Y. (Filed Jan. 4, 1876.)

Brief.—The gate is placed inside of the casing in contact with the wheel, and supported by the spider which rises from the bridge-tree. Its bottom edge is recessed to receive the flange formed on the arms of the spider, for supporting it in position. In the casing there is an annular recess, which is to be filled with packing, so as to prevent leakage between the casing and the gate.



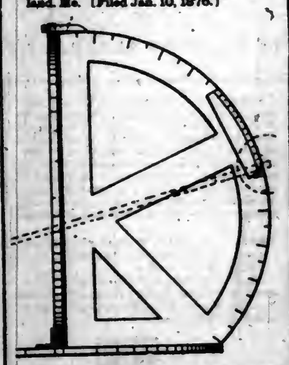
1. The shaft *A*, having a socket, *b*, in its upper end and a crank upon its lower end, in combination with the sleeve 2, substantially as described.

2. The casing *c*, having the flange *l*, and recessed on its inner edge to form a packing-chamber, substantially as specified.

3. The gate *e*, having a follower or flange, *o*, upon its outer edge, to fit in the recess in the casing, substantially as shown and described.

4. The spider *d*, for supporting the gate *e*, substantially as set forth.

172,730. INSTRUMENTS FOR SOLVING PROBLEMS IN NAVIGATION. Thomas Hill, Portland, Me. (Filed Jan. 10, 1876.)

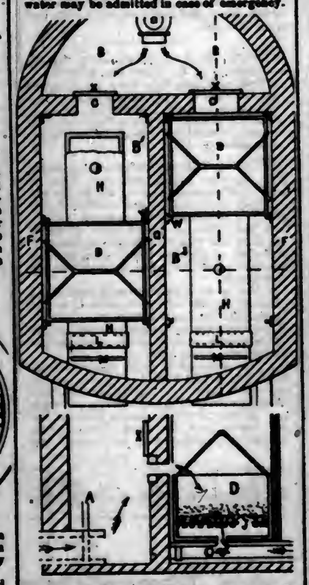


1. The combination of three arcs of equal radius—two convex and one concave, or two concave and one convex—so combined as to form a spherical triangle, for the solution of that triangle in problems of navigation or geodesy, as herein set forth.

2. The attachment of a portion of a spherical surface with a graduated limb to one of the arcs, as at H, as and for the purposes herein set forth.

172,731. WATER-FILTERERS. I. B. Howe and Wm. C. Weir, Clinton, Iowa. (Filed Oct. 13, 1875.)

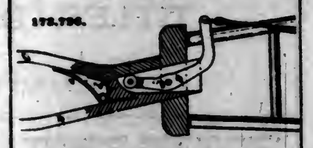
Brief.—When the filter-box is lowered to place, the valve of the conduit is opened by lever mechanism. The conduit has also gates, so that either or both of the compartments may be pumped out for repairs. Unfiltered water may be admitted in case of emergency.



A water-filterer, having compartments B B' F and conduits H H, provided with gates L M and valve O, in combination with filter-bases D, substantially as and for the purposes described.

172,732. SADDLERS' HORSES. H. H. Huntington, Hanover, Ill. (Filed Dec. 28, 1875.)

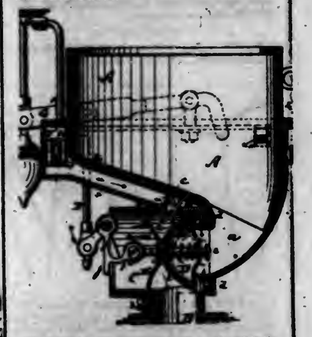
172,733.



In a saddler's horse, the combination of the elbow-lever D, having the anti-friction roller *d*, and operating by suitable treadle mechanism, with the stationary jaw B and hinged jaw C, said jaws being held normally open by a spring, substantially as and for the purposes specified.

172,737. WATER-CLOSETS. James P. Hyde, New York, N. Y., assignor to McNab & Harlin Manufacturing Company, same place. (Filed Jan. 27, 1876.)

Brief.—The pan is dispensed with, and diaphragm-valves are used in a cylinder beneath the bowl. The escape of gas either to the right or left is prevented. The supply and overflow of the bowl are on the same level, so that the trap-box of the latter is kept supplied with water, preventing the escape of gas rising between the diaphragm and valves, at the same time allowing free escape for surplus water in the bowl.



1. The water-closet basin A, made with the contracted discharge-neck *a* at the back, said neck being directly above the sewer-pipe B, substantially as specified.

2. The combination of the water-closet basin A with the horizontal chamber C, which contains the valve D, and with the pipe B, substantially as specified.

3. The combination of the basin A, carrying the projecting ring *b* at its lower discharge-opening, with a horizontally-movable valve, D, all arranged for use on water-closets, as specified.

4. The combination of the diaphragm E with the movable valve D, and discharge-opening *a* of a water-closet basin, substantially as specified.

5. The chamber C, applied to a water-closet basin, and containing at one end the valve D, and at the other end the mechanism for operating said valve, and between said valve and said mechanism the diaphragm E, substantially as and for the purpose specified.

6. The lip *f*, formed on the crank-shaft *g*, in combination with the chamber C, which has an aperture to be closed by said lip, substantially as specified.

7. The water-closet basin A, having the water-supply opening *c* on a level with the overflow-opening *r*, and combined with the trap-box I in the overflow, substantially as specified.

8. The chamber C, open to the overflow-pipe *n*, and to the sewer-pipe B, on the inner side of its diaphragm E, substantially as specified.

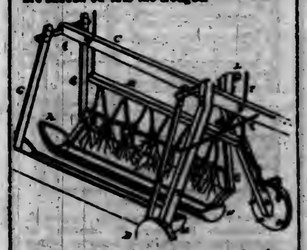
9. In the chamber C, the combination of the diaphragm E and valve-seat *b* with the horizontally-movable valve D, and with the open pipes *n* and E, substantially as specified.

10. A water-closet having a valve, D, horizontally movable within a chamber, C, and over the end of the sewer-pipe B, to close against the vertical seat *b*, substantially as specified.

172,738. MACHINES FOR DESTROYING POTATO-BEETLES. Anthony Iahn, Lancaster, Pa. (Filed July 1, 1875.)

Brief.—The rear end of the machine is mounted upon two wheels. A trough with a runner-like bow is suspended upon each side of the row, and carries any form adhesive matter. A vibrating arm or beam, carrying wings or brushes, is adjustably suspended from the frame, and as the machine is pushed along astride the row of plants the insects are shaken off into the troughs.

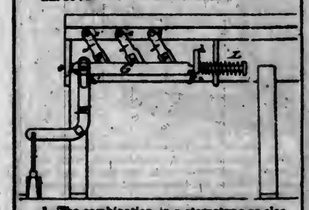
172,739.



1. In a machine for crushing potato-beetles, I claim the horizontal beam or pole C in line with the potato-rows, the two diverging uprights A A', pulley-wheel B, one of said wheels being provided with pins *a*, crank-lever E F, vibrating beam E, provided with a longitudinal series of wheels, N, the whole constructed and arranged as and for the purpose shown and specified.

2. In combination with the pole or beam C, I claim the perforated cross-arm L, vertical perforated arm O, and swinging tray or pans H, the whole constructed as and for the purpose set forth.

172,740. MACHINES FOR SHAVING STEREOTYPE AND ELECTROTYPE PLATES. Edward T. Jamieson, Pittsburg, Pa. (Filed July 22, 1875.)



1. The combination, in a stereotype or electrotype plate shaving machine, with the plate O having the sockets *d d d*, of the eccentrics *e e*, substantially as described.

2. The combination, with the clamping-dies, of the eccentrics, treadle, and intermediate connector, substantially as described.

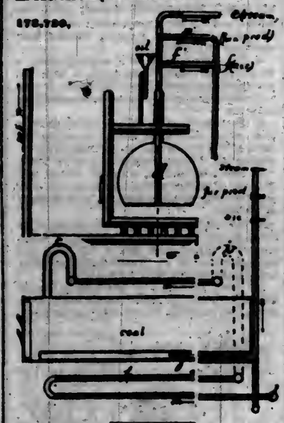
3. The spring L, in combination with the rod *i*, cranks *f*, eccentrics *e*, and plate O, substantially as described and shown.

172,741. PROCESSES FOR MANUFACTURING COAL-GAS. M. W. Kidder, Boston, Mass., assignor of one-half his right to P. Noyes, same place. (Filed Aug. 27, 1874.)

Brief.—Air, products of combustion from the furnace, and steam are introduced successively into the retort, where coal is being distilled. The mingled gases, on leaving the retort, pass through a coil of pipe above the retort, into which is admitted a liquid hydrocarbon. The mingled gases then pass through a coil of pipe under the retort, where the process of making a fixed gas is completed.

The process, substantially as herein described, of manufacturing fixed illuminating gas by introducing air, steam, and the specified mingled gases produced from fuel in a state of combustion, introduced beneath and passing them upward through ignited and burning coal in a gas-retort, heated from the outside, and combining the products of the steam, air, and specified gases, being products of fuel-combustion, with the products of the ignited coal in the retort; then by passing the combined elements produced by the air, steam, gases, and coal from the retort into and through highly-heated pipes, and introducing a gas-producing hydrocarbon into such pipes, and there combining the volatilized products of the hydrocarbon with such mixed gases; then by passing the whole combined mixture through pipes at or near a white heat and varying the supply and proportions of the gas-making elements as may be desired, all substantially as described.

172,742.

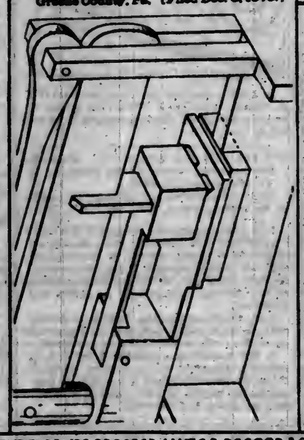


1. In a hand sawing-machine, the combination of the upright H with the vertically-adjusting screw L, horizontal piece K, rods N, springs O, and frame A, substantially as shown and described.

2. In a hand sawing-machine, the upright H, when its cross-section is a polygon, and it is held in vertical position by Babbitt metal, as described, in combination with the vertically-adjusting screw L and frame A.

3. In a hand sawing-machine, the combination, with the frame A, of the carrying-wheel B, pivoted bearing E, cut-screw G, upright H, screw L, horizontal piece K, rods N, and springs O, substantially as described.

172,743. STENCIL-CUTTING MACHINE. Sylvester Matthews, Morgan Township, Greene County, Pa. (Filed Dec. 6, 1875.)



172,744. MIDDLINGS-SEPARATORS. Wm. J. Merritt, Bardolph, Ill. (Filed Mar. 16, 1875.)

1. The frame B B B B, and sieve-frame H H H H, in combination with the hollow center-post D, toothed rims S, arms *a a*, and shaft C, substantially as shown, and for the purpose set forth.

2. The bolting-cloth, bound on the edge with canvas of sufficient width to lap over the frame, and provided with eyelets and lacing-cords, substantially as shown and described.

172,745. BED-STOVES. Geo. Merrill, New York, N. Y., assignor to Isaac P. Dobson, trustee, Boston, Mass. (Filed Jan. 28, 1876.)

Brief.—A prismatic perforated cylinder within a cylindrical case, which is open at both ends, and has on its outside, both at top and bottom, a pair of loops, to fasten the bar at top, through which the vertical follower-screw works, and the loose bottom.

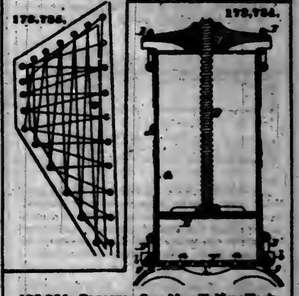
1. The combination of the outer case A, provided with the four hinged loops B B B' B', with the screw-carrier or cross-bar C, and with a movable bottom, F, provided with ears *b b*, all being substantially as described.

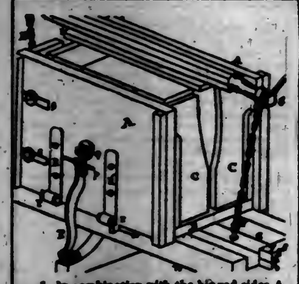
2. The combination of the corrugated or prismatic foraminous strainer G with the inner case A, the bottom F, the follower E, and the operating-screw D, all being arranged and applied as specified.

3. The ash-pan stand I, provided with the rabbets *f* and notches *g h'*, arranged in line, and for use with the press as explained.

172,746. TOBACCO-PRESSES. S. B. Minnich, Landisville, Pa. (Filed Dec. 28, 1875.)

Brief.—The lever-arms, for supporting the hinged sides in position for use, act as toggle-joints. The press-box is formed by the above sides, with end pieces secured thereto, and made adjustable by means of slots and binding-screws.





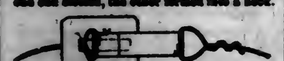
1. In combination with the hinged sides A, the jointed, hinged look-brace F G, substantially as and for the purpose specified.

2. In combination with the removable hinged sides A, provided with slots s, the adjustable centrical end pieces C, as and for the purpose mentioned.

3. In combination with the adjustable box A C, the follower J, with removable side-pieces K and notched press-beam R, provided with an end-lever, X, chain H, windlass G, ratchet and pawl M N, and detached lever L, the whole constructed and operated as and for the purpose herein set forth.

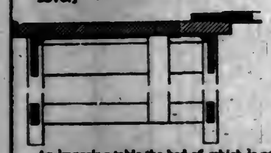
172,727. BALE-TIES. George W. Moulton, Cleveland, Ohio. [Filed Dec. 27, 1875.]

Brief.—The buckle is U-shaped, and has one end clinched, the other formed into a hook.



A hale tie or lock constructed substantially as herein described, and for the purpose specified.

172,728. PRINTING DEVICE-TABLES. Jno. Polhemus, New York, N. Y., assignor to B. May & Co., same place. [Filed Jan. 29, 1876.]



An imposing-table the bed of which is provided with a border ledge or shelter adapted to support the mouth end of a galley in such a position that the face of the table and inner surface of the galley shall lie in or nearly in the same plane, substantially as described.

172,729. PIPE-ENDER. Henry A. Hobrecht, Chicago, Ill., and Burton E. Jenkins, Philadelphia, Pa. [Filed July 23, 1875.]

Brief.—A flexible weighted wire-rope ladder is wound on a drum inclosed in a housing on the top of the building. The drum connects by a train of gearing with a cogged pinion, which runs on a ratchet-wheel and a detent, the latter being released by means of a rod extending down the side of the building. A combined governor is provided for regulating the descent of the ladder. A door in the cornice of the building is released simultaneously with the ladder, and by the same movement. Ropes and pulleys are attached to the weighted part of the ladder, for securing it to the pavement. A sheave is attached to the main drum, over which a rope passes, for raising and lowering persons and goods.

1. The combination of a winding-shaft or drum, a flexible weighted ladder, and a hoisting-device, connected thereto so as to hang vertically therefrom, and a trip-rod for releasing the ladder and hoist-device, substantially as set forth.

2. The combination of a winding-shaft or drum, a flexible weighted ladder, a hoisting-device attached to the winding-drum, and an automatic governor to regulate the rapidity of descent of the ladder and elevator, substantially as set forth.

3. The combination of a fire-escape and hoisting-device and suitable supporting-gallery, secured to the top of a building, substantially as set forth.

4. The combination of a fire-escape and hoisting-device and a protecting case or cover, substantially as set forth.

5. The combination of a fire-escape and hoisting-device and a door in the cornice of a building closing the opening, through which the ladder and elevators are lowered and opened automatically by the lowering thereof, substantially as set forth.

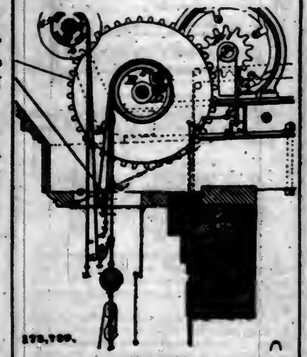
6. The combination of a winding-drum, a weighted ladder, eyebolts upon or near the pavement, and pulley-block tightening to connect the ladder and eyebolts, substantially as set forth.

7. The combination of a winding-shaft, a gear-wheel thereon, a detent engaging the teeth of the gear-wheel, and a trip-rod for operating the detent, substantially as set forth.

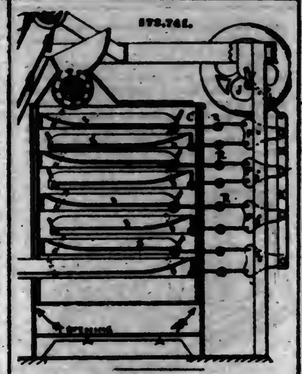
8. The combination, with the detent and trip-rod, of releasing-rods for the cornice-door and the cover of the apparatus, substantially as set forth.

9. The combination, with a fire-escape, of an independent elevator-shaft, carrying a winding-drum and sheave, and a cable, for the transportation of an invalid-basket or other articles, substantially as set forth.

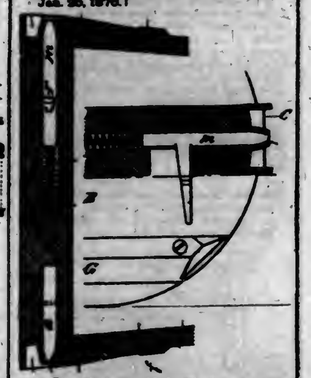
10. A flexible ladder for fire-escapes having bar-steps, united by three or more cable-strands embracing the steps, substantially as set forth.



172,730.



172,731. BUTTER-PACKAGES. Lyman K. Tewksbury, Brooklyn, Pa., assignor of one-half his right to O. D. Roberts. [Filed Jan. 26, 1876.]



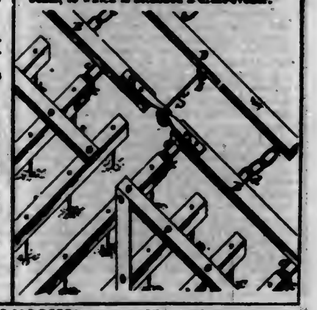
1. The tub A, provided with the ears C or their equivalents, in combination with the cover B, provided with the pin a and the spring-bolt n, all constructed to operate substantially as described.

2. The bolt n, provided with the handle r, in combination with the cleat I, provided with the longitudinal slot and the transverse or vertical notch V, all arranged to operate substantially as described.

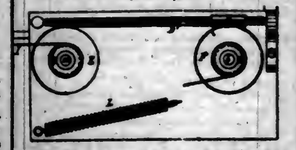
3. The ears C, provided with the inclined shoulder or web c and the lug c, whereby they are locked fast to the tub when held by the hoop f, as set forth.

172,732. HARROWS. Geo. M. Titus, Rock Falls, Ill. [Filed Nov. 27, 1875.]

Brief.—A harrow composed of two sections, both of which are attached to a jointed draft-beam, to which is attached a draft-evener.



172,733.



172,734.

In a loom, the combination of the belts D' I K, wheels or pulleys E F G H, the spring L, and the picker and the lay, essentially as set forth.

172,735. DRYING APPARATUS. Mason S. Seymour and Alonzo Hicks, Pittsburg, N. Y. [Filed Nov. 10, 1875.]

Brief.—The shelves are vibrated by means of the rocking pieces, rods, and crank.

1. A drying apparatus, consisting of a double housing-case provided with shelves arranged in a zigzag manner, in combination with the rocking pieces P P and the connecting-rods K and E E, for communicating motion to said shelves, substantially as shown and described.

2. A drying apparatus, having a double case, in combination with rocking pieces and connecting-rods, substantially as described.

3. The combination, with the shelves S S, in a drying apparatus, of the rocking pieces P P and the connecting-rods K and E E, for communicating motion to said shelves, substantially as shown and described.

1. The draft-beam consisting of two parts, B B, hinged at the center c, substantially as set forth.

2. I claim the brace F, extending from the joint c in the second draft-beam or evener at b, in combination with the jointed draft-beam B B, substantially as and for the purpose specified.

3. I claim the draft-beam or evener D, in combination with the brace F and the jointed beam B B.

172,736. ROTARY ENGINES. John C. Titus, Marion, Ohio, assignor to William Hoven, Clymer, N. Y. [Filed July 28, 1876.]

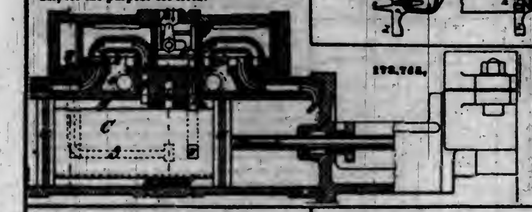
Brief.—Steam is carried into the pocket at each end of the casing by the recesses in the wheels working therein, where it is expanded, and serves to partly balance said wheels.



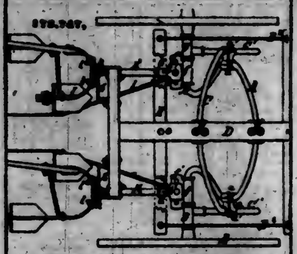
In a rotary engine having the casing A and wheels B and C C, the pockets D D, formed in the ends of the casing, substantially as and for the purposes herein set forth.

172,737. DIRECT-ACTING PUMPING-ENGINES. Wm. Walker, Manchester, England, assignor of one-half his right to John Tregaskiss, Wilmington, Del. [Filed Sept. 9, 1876.]

The valve F, having upon its ends cylindrical portions of a diameter less than that of the cylinder in which they move, in order that a sufficient amount of steam may pass said cylindrical portion to operate the valve, in combination with the pistons C, having steam-passages formed in it, and cylinder-passages a, c, d, and e, the parts being constructed and arranged substantially as herein described, whereby the valve is made to control the induction and eduction of steam to and from the spaces f, f, and h of the pistons and cylinder, for the purpose set forth.



172,738.



172,739. CLASPS FOR HOLDING GARMENTS. Jos. Warren and Israel Cohn, New York, N. Y. [Filed Dec. 16, 1875.]



172,740.

1. The shovel-beam K and the pair of shovel-standards L L thereto attached, made of separate pieces of metal, in the forms shown and described, and united by screw-bolts l l passing through branches of the beam, and through the bevel portion of the pair of standards, substantially as and for the purposes set forth.

2. The curved slotted shovel-standards L and M, having handles or concave ends a a, with separate bearings, in combination with the shovel-block g, having convex tongues g', and the yoke g, substantially as described.

3. The pivot-standard A, attached to the socket of the beam, and formed with a central channel and stops, h' h', in combination with the finder bar I, as shown and described.

4. The arch A, rising from the inner ends of the axle-arms, and bowed outwardly and upwardly to support the tongue D, in combination with the bolsted beam C, attached to the front of the axle, and extending first forward, then upward and backward, and yoked to arch A, and clamped to tongue D in rear of said arch, substantially as shown and described.

5. The double-eyed yoke-clip c, in combination with the arches A and C, substantially as described.

172,741. MACHINE-GUNS. F. L. Bailey, Indianapolis, Ind. [Filed Dec. 6, 1875.]

Brief.—The lock has two hammers, which alternately strike the firing-pins.

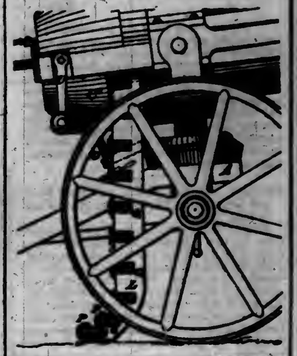


1. Detachable spring-actuated reciprocating hammers F F', secured to the fixed casing of a machine-gun, and combined with its revolving barrels and plate, and with spiral cams formed upon said shaft, substantially as and for the purpose herein set forth.

2. Locking-plate E E, combined with the revolving flange F, shaft E, and stationary reciprocating hammers F F' of a machine-gun, substantially as and for the purpose herein set forth.

172,742. MACHINE-GUNS. F. L. Bailey, Indianapolis, Ind. [Filed Nov. 20, 1876.]

Brief.—The cartridges are carried on a flange of a belt which moves past the rear of the barrels. As the barrels revolve around a central axis they move back over the cartridge, and, after the fire, move forward to remove the shell which remains on the bolt.



172,743. HOPPER AND AXLES. Wm. H. Ward, Auburn, N. Y. [Filed Apr. 17, 1876.]



1. The axle provided with the angular surface-inclines f, joining the tapering part A, and combined with sectional sleeves H, having interior angles, and the hub-sleeve H, whereby the sectional sleeves is prevented from turning upon the axle, and the hub secured thereby, as described.

2. The combination, with the axle having the tapering and angular-surface parts A f for the fixed and revolving sleeves H H, of the separate collar F, whereby the contacts of the fixed sleeve H are clamped fast to the angular bearings f sold to the inner sleeves, as described.

3. The combination, with the double-tapered axle, of the sleeve H H, the concave clamping-disks F' K for the hub, and the securing and adjusting nuts F and K' for the disks, substantially as set forth.

172,744. WHEELBARROWS. J. Hemmerman, Millville, N. J. [Filed Jan. 27, 1876.]

Brief.—The brace is detached at the collar.



The combination of the whiffletree a, having the shoulders c, staples f, and brace h, substantially as described.

172,745. WHEEL-CULTIVATORS. Edward Ward, Louisville, Ky., assignor to R. F. Avery, same place. [Filed Dec. 13, 1875.]

Brief.—Improved cultivator-arch and various connections.

172,746. PRINTING-TELEGRAPHS. Geo. L. Anders, Boston, assignor to R. B. Welch, Cambridge, Mass. [Filed Jan. 24, 1876.]

1. A series of reciprocating gun-barrels, combined in the construction of a machine-gun, with a revolving shaft and supporting-flanges, and with a fixed cam-way or guide, substantially as and for the purpose herein set forth.

2. A belt carrying cartridges, combined with the revolving shaft and reciprocating barrels of a machine-gun, substantially as and for the purpose herein set forth.

3. A series of annular plates or disks, P P, combined with a belt, L, each to uphold a cartridge in a transverse position over the belt, apart therefrom, substantially as and for the purpose herein set forth.

4. In combination with the respective barrels of a machine-gun and with a single fixed cam in the casing thereof, a series of spring-actuated hammers pivoted to the revolving shaft, carrying said barrels and successively cocked and released by the cam during the revolution of the shaft, substantially as and for the purpose herein set forth.

172,752. COMBINED POTATO-DIGGING AND CULTIVATOR. Semi. W. Barr, Mansfield, Ohio. [Filed Jan. 10, 1876.]

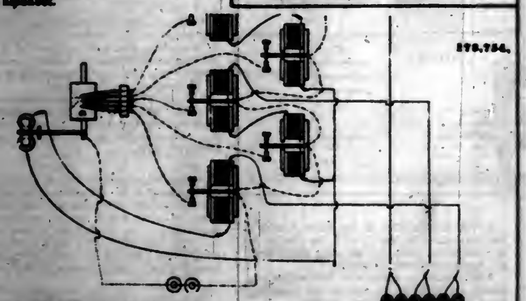
Brief.—The machine consists of a curved beam, which forms the center truck, inclining forward about forty-five degrees. A triangular frame is attached to the beam, and the handles have levers made for supplemental teeth, which are arranged in regular rank. The lower ends of the teeth are beveled at the same angle, with their flat sides parallel to the line of draft.



The teeth a, beam A, and front teeth c, in combination with the side beams d, the teeth being beveled at their lower ends, as shown, and secured to the beams d at an angle of about forty-five degrees, with their flat sides parallel with the line of draft, as shown and described, and for the purposes set forth.

172,754. AUTOMATIC ROMAN-CHARACTER TELEGRAPHER. Chas. Batchelor, Newark, N. J. [Filed Sept. 16, 1875.]

Brief.—Uses paper perforated to represent Roman alphabet.



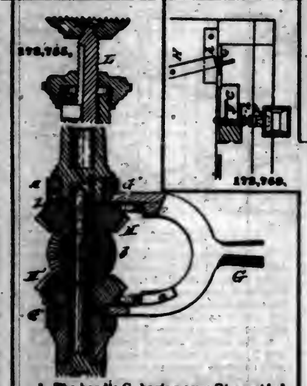
172,754.

1. The receiving-drum for the chemical paper, and the range of styluses, some of which are in advance of the others, in combination with the relay electro-magnets, local circuits, and line-connections, substantially as set forth.

2. In combination with the range of brass-mounting points or rollers and the circuits from the batteries, the finger-key at the sending-station, and the electro-magnet at the receiving-station, to liberate the receiving mechanism and allow the same to revolve, substantially as set forth.

172,755. RAZOR-STRAP. Andrew Bush and Israel Bush, Phillipsburg, Pa. [Filed Oct. 30, 1875.]

Brief.—Two gauges—one fixed and the other loose—on the drill-shaft are connected with each other by fillers, and are each provided with ratchets, the teeth of which incline in opposite directions. The ends of the pawl-carrying lever are shaved upon the drill-shaft. The pawls catch alternately engage with and slip over the teeth of the ratchets, and cause the drill to be turned continuously in the same direction by opposite motions of the operating-lever.



172,756.

1. The handle G, having arms G', provided with spring-pawls e, in combination with the drill-shaft D, wheels H H', ratchet-wheel I', and pinions b b, all constructed and arranged substantially as and for the purpose set forth.

2. The combination of the frame A, post B, collar C, shaft D, gears H H' d, handle-arms G', with spring-pawls, the hand-wheel J, screw L, and disk P, all substantially as and for the purposes herein set forth.

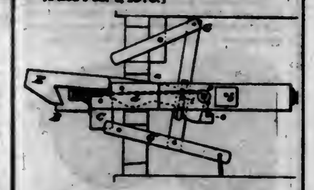
172,757. DRAFT-BARS FOR RAILWAY-CARS. Daniel A. Bennett, Wauseon, assignor of one-half his right to Herman A. Caufield, Tedrow, Ohio. [Filed Jan. 15, 1876.]

172,757.

1. The draw-head B, in combination with the loops or bows, D D', pins E F, springs G, and draft-rods C C', all substantially as and for the purposes specified.

2. The draft-rods C C', constructed in sections, and connected by suitable loops, E D, and rods e, in combination with the pins E F, springs G, draw-head B, and frame-work A, all arranged to operate substantially as and for the purpose set forth.

172,758. CAR-COUPLINGS. Daniel A. Bennett, Wauseon, assignor of one-half his right to Herman A. Caufield, Tedrow, Ohio. [Filed Feb. 4, 1876.]



1. The coupling-hook E, in combination with the chain d, pulleys e f, lever f', and dog F, all substantially as and for the purpose specified.

2. The draw-heads B and C, in combination with the hook E, dog F, and chain d, substantially as shown and described.

3. The horizontal levers G G' and vertical lever H with catch h, in combination with the hook E, dog F, and their connecting mechanism, as and for the purpose set forth.

172,759. WATER-PROOF FABRICS. George H. Hook, 104 Marylebone Road, Baker Street, England. [Filed Nov. 8, 1875.]

The herein-before-described method of manufacturing artificial leather and other fabrics composed, in part, of cork, which consists in applying to sheets of cork and pieces of fabric separate coatings of india-rubber solution, as described, and submitting the whole to pressure while the cork next between the fabrics after the cementing solution has dried, whereby, while the cork and inclosing fabrics are caused to adhere together, the cementing solution is prevented from spreading through the fabrics to the outside.

172,760. PLUGS FOR WATER-CLOSETS. W. S. Hunt, Bay Ridge, N. Y. [Filed Jan. 26, 1876.]

Brief.—The plug has a surrounding jacket, which moves with it. The object is to prevent the ingress of sewer-gas. It also serves as a siphon to supply water from the basin to the trap beneath when siphoning takes place, and, as the water-supply is automatic, such siphoning cannot take place for any length of time.



The combination, with a plug or valve, A, of the bend or sewer B and vent D, substantially as and for the purposes set forth.

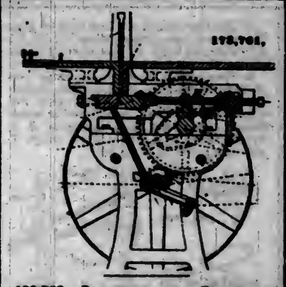
172,761. PAPER-FOLDING MACHINES. Wm. Braidwood, Mount Vernon, and Louis Francis, New York, N. Y. [Filed Oct. 11, 1875.]

Brief.—The paper is folded by the reciprocating blade into the bite of the pressure-jaws, which are operated by the toggle-lever, and when pressed it falls onto the delivery-tapes.

1. The vertically-moving blade in combination with toggle-joint, horizontally-moving pressure-jaws, and slotted guideway.

2. The delivery or tape rollers in combination with slotted guideway and pressure-jaws, all substantially as and for the purposes set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.



172,762.

172,762. PROCESSES FOR SEPARATING WOOLEN FROM COTTON FIBRE. Louis R. Broadbent and Charles F. Broadbent, Baltimore, Md. [Filed Feb. 9, 1876.]

The within-described process of separating wool from cotton fiber, which process consists in steeping the fabric in water, then boiling it in hydrochloric-acid solution of a specific gravity of from 1.015 to 1.19 for from three to twenty-five minutes, and withdrawing, substantially as described.

172,763. KEY-RINGS. Peter Brooks, Waterbury, Conn. [Filed Jan. 24, 1876.]



The herein-described key-ring, consisting of a divided ring, one end of which is forked to surround a corresponding enlargement upon the other end, which is slotted, and combined with the annularly-grooved collar c, substantially as set forth.

172,764. CAR-ROOFS. James F. Calloway, Louisville, Ky. [Filed Jan. 26, 1876.]

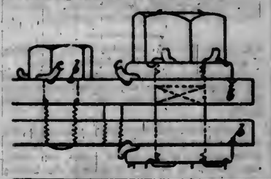


1. An apron, C, hinged to the roof of one railroad-car, near one end, and overlapping the end of an adjoining railroad-car, for the purposes herein set forth.

2. The shields H and F attached to the roofs of the cars A and B, in combination with said cars, and the hinged apron C, substantially as and for the purposes herein set forth.

3. The combination of the hinged apron C, arms I, rods or chains d, and hooks e, as and for the purposes herein set forth.

172,765. NUT-LOCKS. Hugh Carlile, London, England. [Filed Jan. 18, 1876.]





172,765.

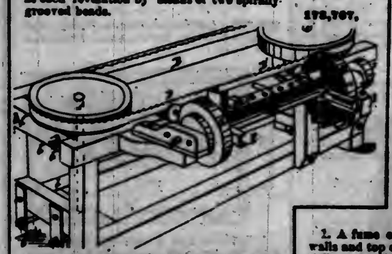
172,766. POT-COVERS. George Clements, New Milford, Pa. [Filed Dec. 8, 1875.]



The combination, with the pot-lid B, of the non-conductive bail-supporting knob b, perforations c, and lip or shield C, substantially as shown and described.

172,767. MACHINES FOR SAWING STAVES. Harry B. Cornish and Chas. P. Hunt, Minneapolis, Minn., assignors of two-thirds their right to J. D. Putnam & Co., River Falls, and Israel Graves, Hudson, Wis. [Filed Dec. 4, 1875.]

Brief.—The stave-bolts are brought to the saw by a revolving carrier, the bolt-holders being moved outward the thickness of a stave at each revolution by means of two spirally-grooved bands.



172,767.

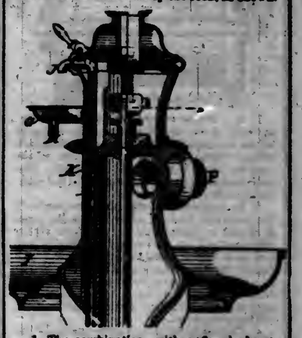
1. The combination, with an endless-band saw, B, of the revolving reel-bands E E and mechanism, substantially as described, whereby the stave-bolt is fed automatically to the endless-band saw, for the purpose specified.

2. The combination, with the beam A, of the sliding jaws a a, racks a' a', pinion a'', square-headed bolt a''', ratchet b', and pawl b'', for the purpose specified.

3. The combination, with the stationary grooved disks G G, of the rods f f, lever h, and beam h, substantially as and for the purpose specified.

172,768. COMBINED FIRE AND DRINKING HYDRANTS. Dewitt C. Crozier, Chicago, Ill. [Filed Sept. 20, 1875.]

Brief.—The water for drinking purposes passes through the channel at the side of the hydrant-stock, and falls into suitable basins. The water is controlled by the cock, as shown.



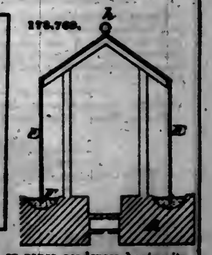
1. The combination, with a fire-hydrant, provided with one or more hose-nozzles, D, of the pipe K, cock D, rod E, handle F, spout J, shield G, and basin L, all constructed, arranged, and operating substantially in the manner and for the purposes specified.

2. The combination, in a hydrant, of the channel B, pipe K, provided with a cock, D, operated as described, spout J, and channel M, all arranged and operated as set forth.

3. A fire-hydrant, combined with a drinking-fountain for man and a trough, basin, for animals, the hydrant and drinking devices operating independently of each other, and all constructed and arranged substantially as set forth.

172,769. CONDENSERS FOR FUMES OF MINES. Charles B. Dahlgren, San Francisco, Cal., assignor of one-half his right to R. N. Blotte, same place. [Filed Nov. 15, 1875.]

Brief.—Cranes entwined with water-pipe into a trough of water. Amalgam in central basin over furnace.



172,769.

1. A fume or vapor condenser having its walls and top composed either wholly or partially of an absorbent material, B, in combination with one or more water-pipes, A, substantially as and for the purpose described.

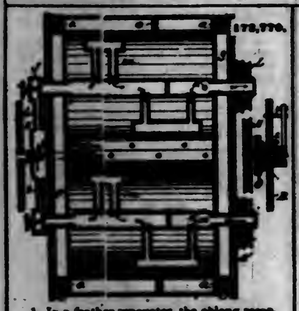
2. The housing E of a fume or vapor condenser composed of absorbent material, having its lower edge or edges submerged in a water-channel, in combination with one or more water-pipes, A, substantially as and for the purpose described.

172,770. FEATHER-RENOVATORS. Profit-M. Darling, Sophronia, Ohio. [Filed Jan. 27, 1876.]

Brief.—The outer casing of zinc prevents rapid radiation of heat, while the inner wall of the steam-chamber, being of tin or equivalent material, facilitates the escape of heat into the interior chamber.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON

178,770.



1. In a feather-renovator, the oblong receptacle C, of the shape represented—being, in effect, two parallel cylinders merged into each other—when jacket D is zinc, and when interior lining is tin, or galvanized iron, suitably connected to the frame-work in the manner specified.

2. In combination with the receptacle C, the revolving heaters, consisting of the pipes l, k, and m, constructed and arranged within the receptacle, as shown, and provided at one end with valves j, and at the other with pulleys L, for the purpose specified.

3. The combination and arrangement of the frame B, induction-pipe A, chest K, pipes i and p, valve-chambers J and Q, as and for the purpose specified.

4. The combination and arrangement of the interior lining H, provided with the nozzles o, the semi-cylindrical plate d, the disk-valve r, chamber Q, and pipe p, substantially as and for the purpose specified.

5. The combination and arrangement of the bearings O and t, pulleys N and L, pins s and u, and frame B, substantially as and for the purpose specified.

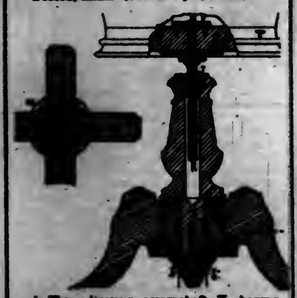
6. In a feather-renovator, the door G, suitably hinged to its casing, and having the zinc sides F', and wire netting e', in combination with the receptacle C, as and for the purpose specified.

178,771. HARNESS-TERRETS. W. Davis, Petaluma, Cal. [Filed Dec. 14, 1875.]



The hook C, provided with the two legs F, just in front of the loop E, in combination with the tongue G and the spiral spring H placed between the legs F, all constructed to operate substantially as and for the purpose specified.

178,772. PIANO-STOOLS. Elmer G. Davis, Boston, Mass. [Filed May 3, 1875.]



1. The adjusting screw-shaft K, having the extension l passing up into the frame T, where it is provided with a screw-thread to fit the centenary nut N, in combination with the bearing-plate L, having square flaws or shoulders M, for the purpose of connecting or disconnecting the seat and adjusting screw, substantially in the manner shown and described, as and for the purposes specified.

2. The metal hub B, made with the top flange C, recesses and pins V, in combination with the bottom plate F, screw H, and ornament G, having square faces or shoulders I', whereby the legs A are held in the recesses, and the tenon E in the central opening of the hub, all being constructed and arranged substantially in the manner described, as and for the purposes set forth.

178,773. DROP-LIGHT GALLERIES. C. Deave, New York, N. Y. [Filed Sept. 23, 1875.]

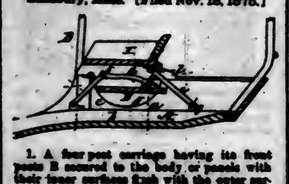
Brief.—In drawing down the extension-tube the upper part of the clutch is brought into engagement with the lever, and the friction of the spring operates to maintain the position of the tube. When the tube is raised, the clutch is disengaged, and the spring has no effect upon the tube.



1. The combination, with the drop or extension tube B in a gasolier, of a clutch, I J, and a friction-producing spring, substantially as herein specified.

2. The combination, with the tubes C L and drop-tube B, of the box D, spring E, hub G, and two-part clutch I J, substantially as herein specified.

178,774. CARRIAGE-SEATS. C. N. Dennett, Salisbury, Mass. [Filed Nov. 18, 1875.]



1. A four-post carriage having its front posts B secured to the body or panels with their inner surfaces flush with the outer surfaces of the panels, in combination with a front slatting seat, so that the seat of full width of the body may be turned back, as set forth.

2. The steps I, in combination with the brackets i and hook rest I, as and for the purpose set forth.

178,775. LOCKS FOR PIGEON-DOORS. Sylvanus A. Davis, Boston, Mass. [Filed Jan. 31, 1876.]



1. The drop bolt or latch C, in combination with the cam-shaft b and main bolt B, operating substantially in the manner and for the purpose set forth.

2. I also claim, in combination with the weighted drop-latch C, cam-shaft b, and main bolt B, the bolt or stop f, for locking the latch when down, substantially as described.

178,776. WINDOWS. James K. Dugdale, White Water, Ind. [Filed Sept. 3, 1875.]

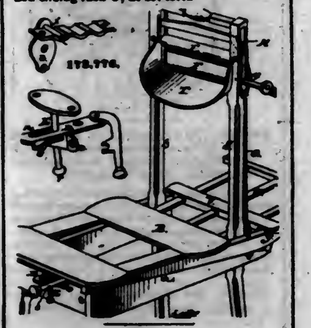
1. In combination with pintrels B, provided with guide-pin B, the device D, as and for the purpose specified.

2. The detachable hinges, composed of pin f, plate b, and sockets or indentations c, in combination with bench A and pintrels B, provided with guide-pin B and elongated eye or slot a, as described and set forth.

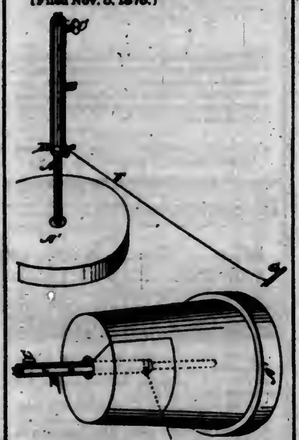
3. The combination of outer form of plate T with inside cuts, forming wings t t and Z Z and described bead, with standards S S, provided with rolls F F, substantially as set forth.

4. The combination of the adjustable lower platform or frame B, provided with detachable hinges at O, guide-pin E, and eye or slot, a, draw-rods G G, and beam H, with bench-frame A, provided with standards S S, wringer-rollers F F, curved water-trough T, and sliding-rack U, as set forth

178,776.



178,777. BUTTER-CUTTERS. Jas. E. Dugdale and George Memerick, Stoneham, Mass. [Filed Nov. 6, 1875.]



1. The described apparatus for cutting butter, consisting of the pivoted wire cutter F, adjustable collar B, and vertical standard A, all arranged and operating substantially as described.

2. The combination of the cutter F, ring D, collar B, set-screw C, and standard A, substantially as and for the purpose specified.

178,778. FLOOR-CLOTHS. T. H. Dunham, Boston, Mass. [Filed June 4, 1875.]

Brief.—Pass burlaps through a hot bath of tar, potash, tallow, resin, sulphur, ether, whiting, and camphor; then dry, calender, and print.

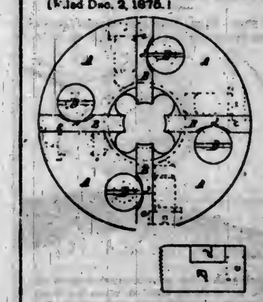
A bright-colored floor-cloth, consisting of a coarse fabric filled with a tar compound, composed mainly of tar, tallow, ether, and whiting, and being smooth and even for taking painted colors, and having alum, potash, camphor, and sulphur added to it, substantially as herein described, and for the purposes set forth.

178,779. GASFIXTURE-LIGHTERS. T. H. Dunham, Boston, Mass. [Filed June 3, 1875.]

Brief.—Tar, sulphur, alum, tallow, and clay, applied hot to the fabric, with camphor for a deodorizer.

A carpet or carpet-lining of coarse woven fabric, impregnated with a tar-compound consisting of the ingredients as stated, and having bright colors, and being free from surface adhesiveness.

178,780. SCREW-CUTTING DIES. John J. Grant, Hartford, Conn., assignor to the Pratt & Whitney Company, same place. [Filed Dec. 2, 1875.]



1. A screw cutting die consisting of the cutters B, moving longitudinally in grooves in the collet A, the adjusting-screws C, and the clamp-screws D, constructed and arranged substantially as herein described.

2. The combination of the cutters b, arranged radially in a die-stock, and moving in suitable grooves, with adjusting screws C and clamping-screws D, substantially as described.

178,781. MACHINES FOR CROZING STAVES. Israel Graves, Minneapolis, Minn., assignor of two-thirds his right to J. D. Putnam & Co., River Falls, Wis., Harry B. Cornish and Charles P. Hunt, Minneapolis, Minn. [Filed Sept. 3, 1875.]



The pulleys B B and endless belts b b, provided with the guides b' b', in combination with the spring-guards c c, curved rests D D, cams G G, presser-rollers e e, and revolving cutters F F, all constructed to operate substantially as and for the purpose set forth.

178,782. WATCH-JEWEL ARRANGERS. J. B. Graves, Corry, Pa., assignor of one-half his right to Jas. G. Foreman, same place. [Filed Jan. 20, 1876.]



A jewel-assorter, consisting of a number of cups, a, having perforated bottoms c, the holes in each bottom being one size larger than the one just below it, substantially as shown and described.

178,783. SHEET-METAL PLATES FOR SHUTTERS, &c. George Hayes, New York, N. Y. [Filed Nov. 18, 1875.]

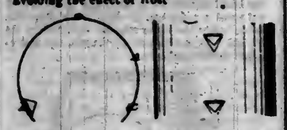
Brief.—A perforated and embossed sheet-metal plate for the outside covering of shutters, doors, closed verandas, &c.



A new article of manufacture, consisting of a plate of metal, punctured or pierced and embossed or indented, as herein described.

178,784. LEADER-PIPES. George Hayes, New York, N. Y. [Filed July 21, 1875.]

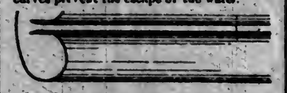
Brief.—The perforations have flaps or burrs on their interior, so that water may flow in a downward direction without wasting, but the pipe cannot become charged by stoppage, thus avoiding the effect of frost



A leader-pipe having perforated or punctured openings running in a vertical direction, and having bars or flaps on the inside, for the purpose herein set forth.

178,785. LEADER-PIPES. George Hayes, New York, N. Y. [Filed July 24, 1875.]

Brief.—The leader is open through its entire length, and is thereby made expansible to obviate injury from frost. The re-entrant curves prevent the escape of the water.



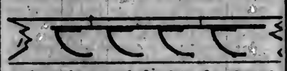
A leader-pipe of a round, oval, or square form, having its edges bent inward reversely, and having an opening the entire length, for the purpose herein set forth.

178,786. METALLIC SHUTTERS. Geo. Hayes, New York, N. Y. [Filed Oct. 14, 1875.]



A metallic plate or panel in one piece, perforated in bands and corrugated or stepped in the manner described, and for the purpose herein set forth.

178,787. METALLIC SHUTTERS. Geo. Hayes, New York, N. Y. [Filed Nov. 19, 1875.]



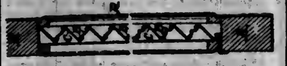
A panel composed of a plate of perforated metal or wire-cloth having blank strips of metal or other suitable material bent into the form of a ledge, secured and distributed over its outward surface, as herein described, for the purpose set forth.

178,788. PANELS FOR BLINDS. Geo. Hayes, New York, N. Y. [Filed Jan. 17, 1876.]



A panel composed of strips of metal, each strip having perforated and blank portions bent into the desired form, substantially as and for the purpose herein shown and described.

178,789. PANELS FOR BLINDS. Geo. Hayes, New York, N. Y. [Filed Jan. 17, 1876.]



A panel composed of strips of perforated metal and blank strips of metal bent into form substantially as and for the purpose herein shown and described.

178,790. CLUTCHES. Philip Hinkle, San Francisco, Cal. [Filed Nov. 27, 1875.]

Brief.—The rounded ends of the arms rest in the depressions of the hub. The grooves in the arms, outside last from the center, fit over a flange turned upon the inner face of the other side of the case. Legs cause the arms to stand in radial position, turning the hub one way; turning the other, the arms clasp the flange.

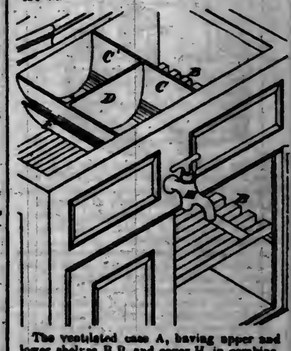
178,790.



The combination, with the hub c secured to the shaft A, and having depressions, as described, of the slotted arms F, the side B of the case, having interior flange H, and side of the case B, having stationary lugs or stops I, all constructed and arranged to operate in the manner substantially as and for the purpose specified.

178,791. REFRIGERATORS. S. K. Hoven, San Francisco, Cal. [Filed Aug. 19, 1875.]

Brief.—A central curved-bottom tank with like-shaped drip-trough, divided into water and ice compartments, both tightly closed by the lid.



The ventilated case A, having upper and lower shelves B B, and cover H, in combination with the central tank C, having cross-partition D, and curved bottom, and with curved drip-pan F, having pipe G, both the sides of the tanks and the cross partitions being imperforate, and extending upward closely to the plane of the under side of the cover, as and for the purpose described.

178,792. PRINTERS' PROOF-PRESSES. Frank A. Howard, Belfast, Me. [Filed Oct. 12, 1875.]

Brief.—The platen moves to one side, so that the galley may be placed on the bed, when the platen slides back, and the bed is raised by the rotation of cams.



The described printer's proof-press, consisting of the bed D, its carrying-frame A, and operative mechanism, consisting of eccentrics E, shafts F, gears G H, and arm I, and the platen C, and its grooved guide-rails B B, all constructed, applied, and arranged substantially as set forth.

178,793. BABY-CARRIAGES. F. J. Hynes, Springfield, Mass. [Filed June 26, 1875.]

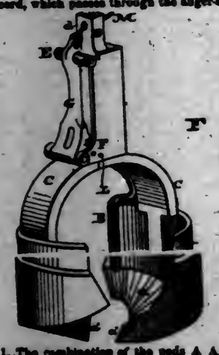
Brief.—The action of the wheels drives the fan, whose shaft is adjusted by the guide-frame.



In a baby-carriage the combination of the pulleys L L and H H with their belts, the shaft G with its fan K, and the adjustable bearings F F, substantially as and for the purpose set forth.

172,794. EARTH-AUGERS. William W. Jiles, St. Louis, Mo. (Filed Jan. 11, 1876.)

Brief.—An earth-auger of two pods, hinged together at top, and provided below with spiral-bottom cutters, having blades inclined reversing to each other, and a hollow center. The hinge is provided with side plates and an eccentric lever to clamp it, and it is operated by a cord, which passes through the auger-shaft.



1. The combination of the pods A A, bottoms a a, inclined crossways to each other and hollowed out at their centers, shanks C C and D, and hinge E, substantially as described.

2. The combination of the pods A A, shanks C C and D, plates F F, pin I, and hinge E, substantially as described.

3. The combination of the pods A A, shanks C C and D, plates F F, hinge E, lever G, and eccentric g, substantially as set forth.

4. The combination of the pods A A, shanks C C and D, hinge E, plates F F, lever G, and cord M, substantially as set forth.

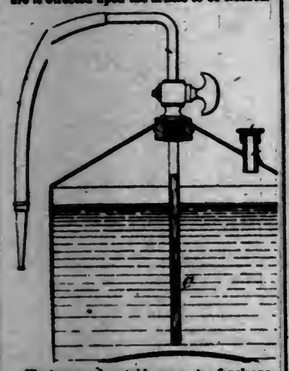
5. The combination of the shank D, hole d, plates F F, and lever G, substantially as described.

6. The combination of the pods A A and the legs J J, substantially as and for the purpose set forth.

7. The pods A A, when made in curvatures of different radii, substantially as and for the purpose set forth.

172,795. APPARATUS FOR CLEANSING DEN-TISTS' FLASKS, &c. Alfred James Jordan, Hamilton, Island of Bermuda, assignor to Saml. S. White, Philadelphia, Pa. (Filed Dec. 17, 1875.)

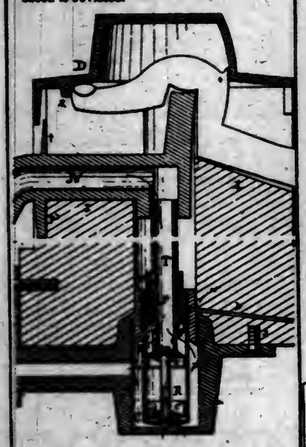
Brief.—A stream of hot water under pressure is directed upon the article to be cleaned.



The improved portable apparatus for cleansing dentists' flasks herein-before described, consisting of the combination of the vessel, the filling and escape tube, the outlet-pipe and its regulating-valve.

172,796. HYDRANTS. James P. Kenyon, Brooklyn, N. Y., assignor to Ellen Kenyon, same place. (Filed Oct. 30, 1875.)

Brief.—The working parts are not of complicated construction, and are easily removable. The hydrant is shown as open. When the hand leaves the handle, the hydrant will not have a tendency to close faster than the space below the lower cup can be filled by its feeder. As the closure is gradual, the water-shock is obviated.



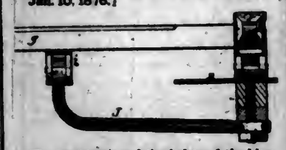
1. The dome D, handle H, and nozzle N, formed, arranged, and co-operating, as shown and described, when combined with the rod or tube of a hydrant, to actuate the lower parts thereof, all substantially as shown, and with the objects and for the purposes specified.

2. In combination with the hollow rod of a waning-hydrant, the plunger P, with its openings *o o* and cups *o o*, and the cylinder C, with its perforations *r*, *p p'*, and *r*, when operating conjointly, substantially as described, to let on and shut off the water, close the hydrant, and allow the contents of T to waste.

3. The regulator R, capped and chamfered, substantially as shown, and attached to the plunger P, to control its reaction, as explained.

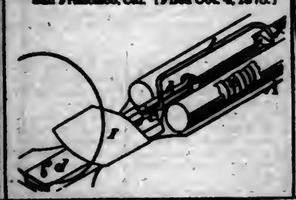
4. In combination with plunger P, cylinder O, and regulator R, the auxiliary puncture *a*, as set forth.

172,797. KING-BOLTS. George W. King, Redstone, Pa., assignor of one-half his right to Wm. King, same place. (Filed Jan. 10, 1876.)



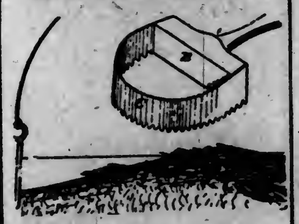
The combination of the bolster *f*, the king-bolt pivoted thereto at its upper end and passing through the axle A, and the brace J pivoted below the pole *g* and connected to the lower end of the king-bolt, substantially as set forth.

172,798. ANIMAL-TRAPS. Albt. J. Larson, San Francisco, Cal. (Filed Oct. 4, 1875.)



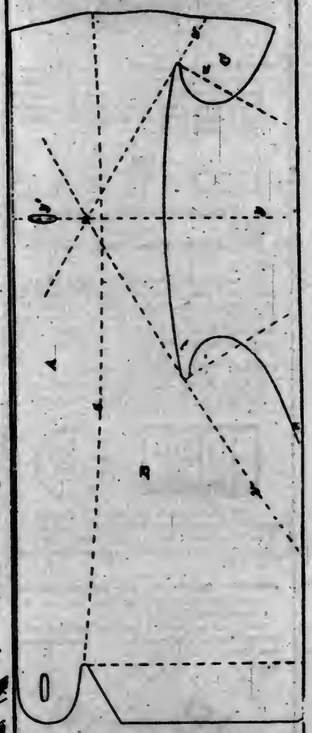
A gopher-trap, consisting of the plate A, having one or more barrels, B, with their springs *c*, tube *d*, trip-plate I, and pawl *h*, in combination with the cross-head *f*, with its hook-bar *l*, and copper or other flexible wire or cord *g*, arranged to pass through the tube *d*, and form a loop, *h*, in advance of the trip-plate, all combined and arranged to operate substantially as above described.

172,799. FISH-SCALERS. Sarah Lawton, San Francisco, Cal. (Filed Oct. 23, 1875.)



A fish scaler and scraper consisting of the handle A, with its head or cross-bar B and semicircular blade C, one edge of which is toothed, substantially as and for the purpose described.

172,800. PAPER COLLARS. Ed Elisha Mack, Albany, N. Y. (Filed Dec. 10, 1874.)



The band A, fold B, and separate folding side flaps C C, made with widened rear ends turned up against the sides of said fold on a curved arc-and line made from a radius having its point of center past the perpendicular line *y* or beneath the opposite lobe or flaps, and held by the pressure of said band at the sides of the collar, when combined to operate substantially as and for the purpose set forth.

172,801. TOOLS FOR CHIMNEY LAMP-CHIMNEYS. Wm. H. Maxwell, Pittsburg, Pa., assignor to the Keystone Flint Glass Manufacturing Company, same place. (Filed Jan. 6, 1876.)



1. A series of movable, curved, pivoted crimping-blades, operated by a retrograding sliding and expanding movement on the end of the lamp-chimney, substantially as set forth.

2. The swinging pivoted crimping-blades *a*, in combination with connecting-links or arms *c*, posts *d*, and cross *b*, substantially as set forth.

3. A crimping-tool, consisting of a head, B, arm *b*, crimping-blades *a*, connecting-links *c*, and end posts *d*, substantially as set forth.

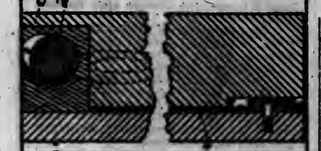
172,802. CALIPERS AND DIVIDERS. Thomas Mulligan, Mount Clair, N. J., assignor to Old Stone Tool Company, Middletown, Conn. (Filed Jan. 20, 1876.)



The slots *a* and *b* and sliding clamping-pivot D E, applied to the legs of compasses or calipers, substantially in the manner described.

172,803. SASH-HOLDERS. Saml. S. Miner, Monroe, Wis. (Filed Oct. 11, 1875.)

Brief.—In a groove in the stile is placed a strip, which is forced out against the window-frame by a cam working in a metal socket inserted in the stile, and connected with the friction-strip.



The combination of the mortised stile A, having longitudinal groove *c*, the strip B, resting C, with apertures *b*, and the shaft D, with cam *d*, substantially as and for the purposes herein set forth.

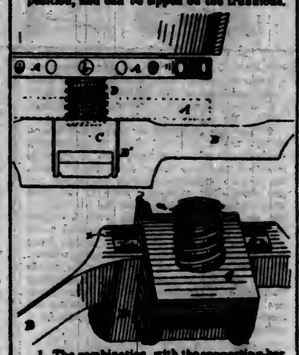
172,804. RAILROAD-FROGS. W. J. Morden, Indianapolis, Ind. (Filed Jan. 12, 1876.)



A metallic plate, A, formed into a wrought, the diverging sides of which are made to conform to the shape of the sides of the rail-sections F F, and the bottom of the wide end is formed with a V-shaped recess to receive and hold square the ends of the rails or point D D', all constructed and arranged to be secured to the rail D D' F F, and form a railroad-frog, substantially as and for the purposes set forth.

172,805. GRATES. Wm. Morand, Troy, N. Y., assignor to Sweet, Quimby & Perry, same place. (Filed Jan. 31, 1876.)

Brief.—The grate can be raised or lowered by means of the cover. It can also be vibrated horizontally without change of vertical position, and can be tipped on the trunnions.



1. The combination, with the supporting-bar B, of the stirrup B' and pivot-block C, supported by trunnions from said stirrup, and having a central hole for supporting a grate, substantially as and for the purposes set forth.

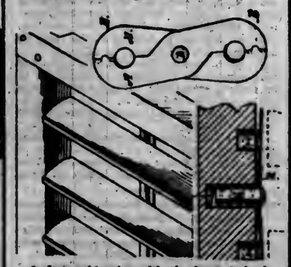
2. The supporting-bar B, cover-thread bush D, supported from said bar directly or indirectly, and having a central opening, *n*, for the pivot of the grate, and recesses *m m*, permitting a play of feathers *r* of the pivot of the grate, combined for operation as set forth.

3. The grate A, having a central pivot for its rotation, and twisted feathers *r r*, and with holes or recesses *h* for their described equivalents, made with its outer rim, cover-threaded bush D, provided with recesses *m*, pivot-block C, supported by trunnions from the supporting-bar B, combined to operate substantially as and for the purpose set forth.

4. The combination, with the pivot-block C, pivoted stirrup B', of the steps *s s*, substantially as and for the purpose set forth.

172,806. BLIND-STOPS. Josiah Q. Newhall, Medford, Mass. (Filed Dec. 27, 1875.)

Brief.—A pair of adjustable jaws swiveled on a spring-controlled pin to interlock around the axles of the blind-slats, and, when brought together, bear with an end-wise pressure to hold the slats in desired position.

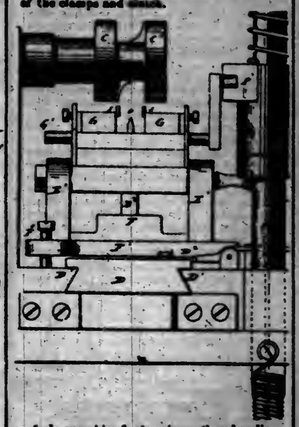


1. In combination with the jaws A A, the pin B, the spiral spring C, the locks E E, and offset H, all constructed as described and shown, and arranged to operate, substantially in the manner and for the purposes herein set forth.

2. In a blind-stop the adjustable jaws A A, arranged to embrace the axle of the blind-slat, and to momentarily bear with an end-wise pressure against the slat, substantially as and for the purpose described.

172,807. MACHINES FOR DRESSING CUTLERY-HANDLES. Albt. H. North and c. B. H. Leonard, New Britain, Conn., assignors to Landers, Frary & Clarke, same place. (Filed Sept. 15, 1875.)

Brief.—An automatically chapin the handle, held in clamps, and fed forward to the cutter on the carriage, which is provided with a suitable former. The clamps operate automatically with the forward movement of the carriage. A loose spur-gear on the shaft, in connection with a spline and cleats and return-spring, operates the carriage. The vertical shaft, with its attachments, in connection with the treadle, produces a simultaneous action of the clamps and cleats.



1. In a machine for dressing cutlery-handles, the combination of the reciprocating carriage E, the clamps O to grasp longitudinally the opposite faces of the handle, the revolving cutter with its axis arranged at right angles to the carriage and clamps, the former F', and bearing F, all substantially as described.

2. In a machine for dressing cutlery-handles, the combination of the principal carriage D, the reciprocating carriage E, the longitudinal clamps O, the revolving cutter with its axis at right angles to the said carriage, the former F' and bearing for the same, the toothed rack on the carriage, the pinion H' on the driving-shaft, and spring for returning the carriage, with an automatic clutch, H' and H', substantially as described.

3. In a machine for dressing cutlery-handles, the combination of a reciprocating carriage, clamps on said carriage to grasp and rigidly hold the handle, and arranged so that the movement of the carriage shall be in the direction of the length of the handle, a revolving cutter, the axis of which is at right angles to the movement of the handle to be dressed, a former parallel with the path of said carriage, and corresponding to the finished shape of the handle, with the screw G' and the vertically-reciprocating horizontal bar F' for the purpose of opening and closing said clamps, the combination and arrangement being substantially as described.

4. In a machine for dressing cutlery-handles, the combination of a reciprocating carriage, clamps on said carriage to grasp and rigidly hold the handle, and arranged so that the movement of the carriage shall be in the direction of the length of the handle, a revolving cutter, the axis of which is at right angles to the movement of the handle to be dressed, a former parallel with the path of said carriage, and corresponding to the finished shape of the handle, with the screw G' and the vertically-reciprocating horizontal bar F' for the purpose of opening and closing said clamps, the vertical shaft N on which said bar F' is arranged, and a spring to allow the self-adjustment of said bar, the combination and arrangement being substantially as described.

5. In a machine for dressing cutlery-handles, the combination of the clamps for holding the handle rotatively to the cutter, as described, the studs *r r* arranged in longitudinal centered line between the said clamps, and a former to present the handle, supported on said studs, to the cutter, the combination and arrangement being substantially as specified.

6. The combination of the principal reciprocating carriage D, the auxiliary carriage E hinged thereto, the stationary adjustable guide F, the former F', the clamping device on said auxiliary carriage, and the cutter, substantially as described.

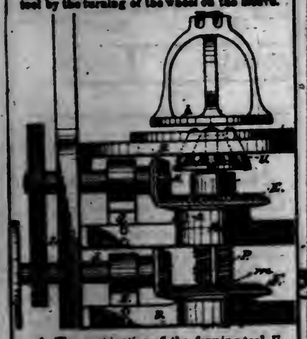
7. The combination of the clamps on the reciprocating carriage, the clamping-cover, the bar P' in connection with the said clamping-cover, the cam a, and the clutch or shipping-lever E, with the treadle, substantially as and for the purpose described.

8. The combination of the clamps on the reciprocating carriage, the clamping-cover, the bar P' in connection with the said clamping-cover, the cam a, and the clutch or shipping lever E, with the treadle, and with the stationary latch D' and cleat D' on the carriage, substantially as and for the purpose described

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172,808. MACHINES FOR FLANGING BOILER-HEADS. Richard C. Nugent, Dayton, Ohio, assignor, by mesne assignments, to Phillips, Minick & Co., Pittsburg, Pa. [Filed Sept. 20, 1875.]

Brief.—The stem of the flanging-tool rests in a socket in the head of the shaft. The hollow threaded sleeve is confined between the head and a collar on said shaft, and engages with the threaded hub of the wheel. Rapid rotary motion is imparted to the shaft, and thus to the flanging-tool, while a slow vertical movement is imparted to the shaft and tool by the turning of the wheel on the sleeve.



1. The combination of the forming-tool U, shafts P and S, with their bearings and collars, and the bevel-gearing, substantially as described.

2. The removable disk V, in combination with the clamp b and c, screw X, forming-tool U, shafts P and S, bearings R and D, wheels R and F, and their connecting-gearing, whereby a tension can be formed upon a boiler-head or plate of metal, substantially in the manner and for the purpose specified.

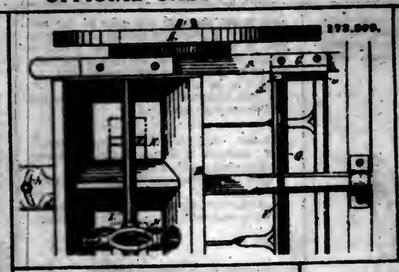
172,809. GRAIN-DRILLS. Benjamin Owen, Dayton, Ohio. [Filed June 26, 1875.]

Brief.—The drag-bars are thrown in and out of line by pivoted segmental pinions engaging with each other, the rear ones being provided with vertical arms for the reception of a cross-bar, for operating both at once by the foot. Working within the hopper upon a shaft are fluted wheels, the peripheries of which are composed of a series of concave-convex arcs, forming elliptical openings between each pair. At the bottom of the hopper is a set-off slide, arranged to open the apertures from the side toward the center of the seed-wheel.

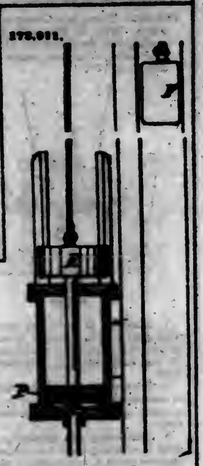
1. The combination and arrangement of the bars F F', arms a a', and cross-bar G, whereby the driver, by means of his foot, is enabled to shift the bars at will and retain them in any desired position, substantially as described.

2. The distributing feed-wheel H, having its periphery composed of a series of double concave-convex arcs, forming an elliptical opening between each pair, substantially as described.

3. In combination with the hopper described feed-wheel, the gage-slide K, and the bottom of the seed-box, the slide being arranged to open the apertures from the side toward the center of the periphery of the distributing-wheel, substantially as and for the purpose specified.



172,809.



172,811.

172,810. COMBINED WHEEL-HARROWS AND SEED-SOWERS. Edwin R. Powell, Winooski, assignor of two-thirds his right to F. C. Kennedy and L. C. Dodge, Burlington, Vt. [Filed Jan. 13, 1876.]

Brief.—The bottom of the seed-box is formed of two slides, one of which is adjustable, while the other is vibrated, each of which is provided with a series of countersunk holes, the larger diameters of which are on the upper side. The vibrating slide is provided with vertical agitating-pins for stirring up the seed. A shaft carrying a wave-shaped cam, in which one end of a pivoted lever works for vibrating one of the slides, gears with a cog-wheel on one of the bearing-wheels. The spring-lever for adjusting the slide moves over a corrugated locking-plate. Extending from the front to the rear of the frame (over the seed-box) is a flat stay, for securing the seed-box in place, and forming support for a pulley.

1. In a seeding-machine, the combination, with a seed-box, of an adjustable bottom and a vibrating bottom or slide, the perforations in both being countersunk and so placed in the seed-box that the larger diameters of the perforations are on the upper side of the bottoms, as and for the purpose herein set forth.

2. In a seeding-machine, the combination, with a seed-box, of an adjustable and a vibrating bottom having a series of vertical agitating-pins, substantially as and for the purpose set forth.

3. In a seeding-machine, the gears T and T', eccentric sleeve T, shaft T'', lever E', wave-shaped-groove cam S, and oscillating lever U, (combined as herein described,) operating the vibrating bottom of the seed-box, and operated by the rotating of the wheel R, substantially as set forth.

4. In a seeding-machine, the adjusting spring-lever X', working at its upper end in or along a corrugated locking-plate, X'', and connected to a rigid arm, X, on the adjusting-sections V, substantially as and for the purpose herein set forth.

5. In a seeding-machine, the bread flat stay Z secured to the pole, being bent under at one end and having a pulley-yoke at the other end, as and for the purposes herein set forth.

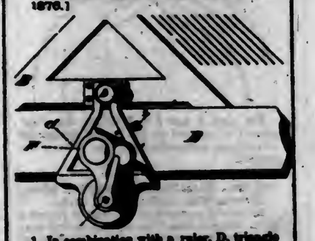
172,811. PNEUMATIC RAILWAY-SIGNALING APPARATUS. William H. Prall, Washington, D. C., assignor to Prall Railway Signal and Telegraph Company, New York, N. Y. [Filed Jan. 18, 1876.]

Brief.—The passing train opens a valve and admits compressed air into the air-cylinder, by which a weight connected with the piston of said cylinder is elevated. A cord connected to this weight passes over a pulley, and is connected with a lighter weight, which falls by its gravity when the first is elevated, and operates a system of gearing, by which a bell-hammer is operated to strike a bell. When the air is exhausted from the cylinder, the weights resume their normal positions, to be again operated by the next train.

1. A weight actuating by its gravity suitable mechanism for ringing an alarm-bell, combined with a preponderant weight, uplifted by a pneumatic piston and operating, when supported thereby, to elevate the first, substantially as and for the purpose herein set forth.

2. A pneumatic piston, P, combined with a weight, R, overbalancing and supporting a weight, F, which serves to operate, when released, suitable mechanism for ringing an alarm, substantially as herein set forth.

172,812. PARALLEL RULERS. John B. Price, Thompsonville, Conn. [Filed Jan. 26, 1876.]



1. In combination with a ruler, D, triangle B, and clamp-frame, the wheel E, having its friction-surface to move upon the edge of the ruler upon each alternate swing of the finger-piece F, to carry the triangle upon the ruler a limited distance.

2. The combination of annular friction-section E, inner section c, with stem g, rod e, pin-holder a, and pin p, with operating-lever F, for the purposes set forth.

3. In combination with the sections E and c, and with the check-pin p, pin-holder a, and rod e, the head W, for the purposes set forth.

4. In combination with finger-lever F, the sides d d of frame and sections E, for the purposes shown and described.

172,813. SHIPPING-PACKAGES. A. M. Rawson, Chicago, Ill. [Filed Dec. 7, 1875.]



A shipping-package, consisting of a messenger-vessel provided with a grocer's scoop serving as a cover, and arranged together substantially as and for the purposes specified.

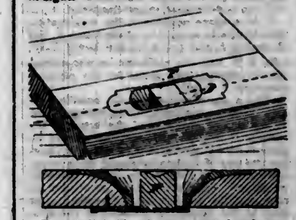
172,814. CARRIAGES. Henri Beshter, Dubuque, Iowa, assignor of one-half his right to Graham & Cady, same place. [Filed Sept. 20, 1875.]



A carriage-frame provided with the metal strengthening-piece B, substantially as described.

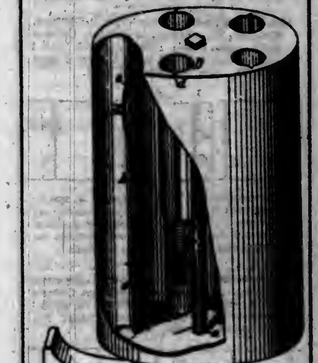
172,815. BILLIARD-TABLE CHALK-HOLDERS. George M. Rising, Cherokee, Iowa. [Filed Jan. 21, 1876.]

Brief.—The holder is let into the upper face of the cushion rail, so as to be flush therewith, and allows the chalk to be removed directly upward when desired, it being always in sight.



The chalk-holder D, constructed substantially as herein described, and arranged in the upper side of the rail of a billiard-table, as and for the purpose set forth.

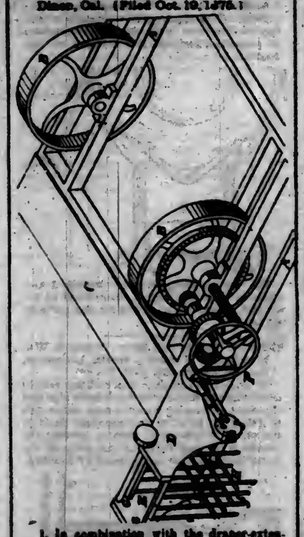
172,816. BILLIARD-CUE HOLDERS. George M. Rising, Cherokee, Iowa. [Filed Jan. 22, 1876.]



1. A revolving billiard-cue holder or rack, consisting of a cylinder mounted upon a pintle and provided with tubular devices, having adjustable spring-clamps, for holding cues in the manner specified.

2. A revolving billiard-cue holder or rack, consisting of a cylinder mounted on a pintle attached to a bracket, said cylinder having arranged thereon one or more socket-tubes, angular on one side and provided with a double spring on the other, substantially as herein described.

172,817. SNAPPERS. David Palmer Russell, Dixon, Cal. [Filed Oct. 19, 1875.]

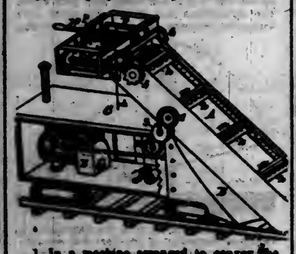


1. In combination with the draper-extension support D of an ordinary header, I claim the compound E, consisting of the vertical rods f, and provided with an automatic hinged or drop bottom, H, substantially as and for the purposes described.

2. In combination with the draper-extension support D, with its open top receptacle E, I claim the bottom H, constructed as described, and arranged to be raised at intervals by means of the pulley J, with its holes i i, spring-lever G, with its pin o, and trip-wheel P, with its cam-projection q, all connected with and operated from one of the driving-wheels of the machine, substantially as and for the purpose described.

172,818. TRACK-CLEARERS. Ira H. Sobell, Clay, N. Y. [Filed Dec. 11, 1875.]

Brief.—Snow carried up on revolving way provided with breakers, and discharged sidewise by similar ways at the top. The carrier, being pivoted, may be tipped up out of the way, leaving a plain snow-plow below.



1. In a machine arranged to convey the snow from the track to the top of a car, by conveyer or carrier moved up an inclined plane by endless chains, the elevator A, hinged or pivoted to a car in such a manner as to allow its front end to be raised, and its rear or upper end to be depressed, substantially as described, for the purpose specified.

2. The combination, with the car c, of the shaft 2, attached to the top of the car at or near the front end thereof, and the elevator A, hinged at the under side of its frame some distance from its upper end to the shaft 2 aforesaid, constructed substantially as described and shown, for the purpose set forth.

3. In combination with the elevator of a machine for removing snow from railways, a transverse carrier, attached at its side to the upper end of the elevator, and having its chain open on top and on its side, where connected with the elevator, and the bottom of said chain slightly curved upward at the ends, and provided with cross-bars or scrapers moved upon the bottom by endless chains driven at or near the upper end by gearing connected with the gearing of the elevator, as and for the purpose specified.

4. In combination with the elevator A, the transverse carrier D, hinged at the top of its side to the upper end of the elevator-frame, and having its chain open on top and on its side where connected with the elevator, and constructed of the two sections z z, provided with pinion p attached to one of the sections, and sliding in grooves on the other section, substantially as described and shown, for the purpose set forth.

5. The combination, with the elevator A, of the brackets b, attached to the endless chains c back of and near to the carriers a, constructed substantially as and for the purpose described and shown.

6. The combination of the engine E, situated on the rear portion of the car c, and independent of the propelling-power, and connected with the counter-shaft 4, the gear-wheel 4, pinion 3, wheels 1 and 5 and their intermediate gearing, and the elevator A, all constructed and combined to operate substantially as described, for the purpose specified.

7. The herein-described improved machine for removing snow from railways, consisting of the car c, provided with the snow-plow E, and carrying the engine E at one end, suitably connected with the counter-shaft 4, at or near the upper corner of the opposite end, the wheel 4 on the outer end of the counter-shaft 4, wheel 3 on shaft 2, attached on top of the car, elevator A, hinged to shaft 2, wheel 1 on a shaft passing through the elevator-frame, and suitably connected to drive the shaft of the upper chain-wheels, wheels 5 on the outer ends of the last-mentioned shaft; pinions 6 sliding on said pins attached to the elevator-frame, and having bevel-gears 7 cast on their front bevel-gears 8 on the ends of the shafts of the chain-wheels in the transverse carrier; the transverse carrier D, hinged at the top of its side to the upper end of the elevator-frame, and having its chain open on top, and on its side where connected with the elevator, and constructed of two sections, z z, provided with pinion p attached to one of the sections, and sliding in grooves on the other section, and having its bottom slightly curved upward at the ends, and scrapers moved over the bottom by endless chains passing around chain-wheels driven by gears 8; the cross-bar 9, having toes resting on its ends clasping the hubs of pinions 6; lever 10 and brackets h, attached to the endless chains c of the elevator back of and close to the carriers a, and the cable or chain h, all constructed and combined to operate substantially as described and shown, for the purpose set forth.

172,819. COACH-HARNESS PADS. Robert M. Sellock, Newark, N. J. [Filed May 10, 1876.]



1. The harness-pad frame, made with tubular ends, composed of the trough-shaped portions a and cap-plates f, substantially as set forth.

2. The harness-pad frame composed of the trough-shaped frames a and cap-plates f above each trough, leaving the ends of the frame open for the terret-bolts g, to be inserted from the ends, as set forth.

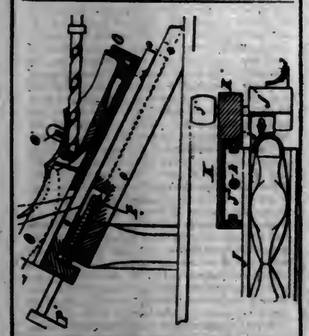
3. The removable side-straps s, having the posts 10 attached to the under sides, and inserted into the open ends of the tubular frame a f, in combination with the pad-screws 11 that pass through the plate f, as set forth.

4. The pad-frame made with the edges of the metal a extending above the plate f, and over which the covering material l is drawn, and secured, in combination with the bearing-leather l introduced within the recess thus formed in the metal pad-frame, substantially as set forth.

5. The combination, with the tubular metallic pad-frame, of the yielding pieces s, attached to the ends of the perineum a of the frame, below and independent of the straps r, for the purposes set forth.

178,890. ART OF MAKING WOODEN SHOES AND MACHINERY FOR MAKING THEM. E. W. Shippen, Meadville, Pa. [Filed May 10, 1876.]





1. The improvement in the art of manufacturing wooden shoes by machinery herein before set forth, which consists in cutting, shaving, and boring the blank by subjecting it successively to the operation of mechanism, substantially such as set forth.

2. The combination, substantially as hereinbefore set forth, of a sliding table, C, upon which the partially-shaped blank is secured, and a series of revolving cutters, b b' b², constructed substantially as described, which shape the under side of the blank, as set forth.

3. The combination of a sliding holder, I, moving on an incline, in which the blank is placed, and a revolving cutter, H², to which the blank is fed, these members being constructed and operating substantially as set forth, whereby the blank is cut away between the instep and heel of the shoe, and left higher at the heel than at the instep, as a point intermediate of the heel and instep.

4. The combination of a revolving cutter, H², and a sliding vibrating holder carrying the blank, these members being constructed and operating substantially as set forth, whereby the blank are cut away toward the toe, at the inside of the instep.

5. The combination, with a revolving cutter, J², constructed substantially as set forth, of a holder, J, a rocking supporting carrier, to which the holder is fixed, and a frame, E', for supporting and automatically guiding the holder, substantially as set forth.

6. The combination of a boring-tool and a sliding holder, O, in which the blank is changed, these parts being arranged at an inclination to each other, substantially as and for the purpose set forth.

7. The combination of an inclined, pivoted holder, c, frames on which it slides, and a boring-tool, these members being constructed and operating substantially as set forth, to cut out the inside of the shoe.

8. The bent, twisted cutter, constructed substantially as set forth, with its cutting-edge curved, having points b' b² and turned portion b³, for the purposes specified.

178,891. TIRE-HEATERS. H. B. Rice, Cadwallader, Ohio. [Filed Aug. 30, 1876.]

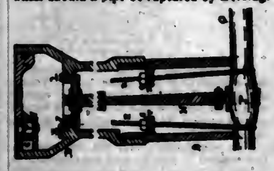
Brief.—The improvement consists in placing the frog-piece in the center of the furnace, to properly distribute the products of combustion.



The combination, with the furnace A and chamber B, of the frog C, constructed as described, substantially as and for the purpose set forth.

178,892. BOXES FOR STOP-COCKS IN WATER-PIPE. William J. Smith, Lancaster, Pa. [Filed Jan. 22, 1876.]

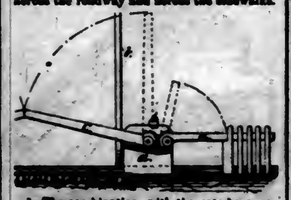
Brief.—An extensible box and key-rod, in combination with an ordinary branch pipe and its stop-cock, coming from the main water-pipe to dwellings, so as to accommodate itself to the action of frost, and thereby prevent the breaking of stop-cocks by stopping off the water should a pipe be ruptured by freezing.



The combination of the two sections of the key-rod H N and box or cylinders A B, with the lid E having flanges G H, turn-latch F f, and bottom J, made removable in the upper or jointing section A, the legs T for the hook-ended stop-cock R, provided with a screw-rod and lock B, fully connecting the lower section B with the plug Q, the whole arranged substantially as and for the purpose specified.

178,893. RAILROAD-GATES. E. A. Stearns, Pawtucket, R. I. [Filed Jan. 10, 1876.]

Brief.—An improvement on Patent No. 151,509, to J. S. Wisner, by which the gates to the approaches are closed when the gates across the track are open, and vice versa. The approaches are closed by gates both across the roadway and across the sidewalks.

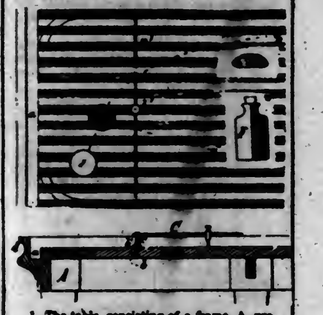


1. The combination, with the gate-bars a, swinging vertically, of the bars d d, connected with the same by means substantially as described, so that both bars are raised and lowered simultaneously, as and for the purpose set forth.

2. The combination, with the bars a a of the bars b b, connected with the same and operated by means substantially as described, so that when one set of these bars is raised the other set is lowered, as and for the purpose specified.

3. In a railroad-gate, the combination, with the bars a a a a for closing the approaches to the track, with the bars d d d d for closing the sidewalks, and the bars b b b b for closing the track when the others are open, and acting as safety-signals when raised, the whole operating together by means substantially as described, as and for the purpose herein set forth.

178,894. JAMB APPARATUS. T. Stevens, Chicago, Ill. [Filed Jan 13, 1876.]



1. The table, consisting of a frame, A, provided with the bed B, pocket or channel c, and peg b', in combination with the bowls D D', substantially as and for the purpose described.

2. In a game apparatus, the combination with the table, consisting of the frame A, provided with the pocket c, bed B, and peg b', the bowls D D' and the balls E E', substantially as and for the purpose described.

3. In a game apparatus, the combination with the table, consisting of the frame A, bed B, pocket c, and peg b', of the bowls D D', balls E E', and the indicator or measuring-gage C, substantially as and for the purpose described.

4. In a game apparatus, the combination with the table, consisting of the frame A, bed B, peg b', and pocket c, of the bowls D D', balls E E', indicator C, and the marker or game-keeper G, provided with a dial, G', having two sets of figures arranged upon opposite sides of the diametric center thereof, which said sides differ from each other in color, and the pointers g g, corresponding in color to the respective portions of the dial, substantially as and for the purpose described.

5. I claim the circular bowls, having their faces made flat and their rims convex, and inclined to each face of the bowls by a slightly-bevele' surface, and with the other face by a slightly-rounded surface, substantially as and for the purpose described.

178,895. BEE-GATHERER. John L. Stevens, Chicago, Ill., assignor to Billings, Osborn & Co., same place. [Filed June 12, 1876.]

Brief.—Improvement upon Letters Patent No. 62,378, dated February 26, 1867.



The combination of the strips A, B, and C, having therein the notches or cuts a and a', and d and d', respectively, the said notches and strips being arranged substantially as specified, and for the purposes set forth.

178,896. BEE-GATHERER. John L. Stevens, Chicago, Ill., assignor to Billings, Osborn & Co., same place. [Filed June 12, 1876.]

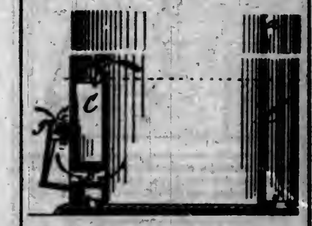
Brief.—Improvement upon Patent No. 62,378, dated February 26, 1867.



The series of egg-separating compartments, consisting of the strips A A, having in the longitudinal edge the notches or cuts a a, and in the opposite edge, near each end, the notches or cuts a' a', and of the strips B B, having the notches or cuts c c in one longitudinal edge, alternating with the notches c' c' in the other, all combined and arranged substantially as shown and described and for the purposes set forth.

178,897. STOVES. David L. Dillon, Rochester, N. Y. [Filed Dec. 28, 1875.]

Brief.—The fire-cup is inclined and arranged to prevent entrance of sparks, &c., to descending front flue. The draft-opening is covered by a door hinged at bottom, and capable of being locked in any desired position.



1. In a cylinder or other shaped stove, the fire-plate constructed with the central trunk C, curved sides b b, and inclines a f, with the parts or passages for the entrance of the draft, formed or covered to prevent the entrance of ashes, as herein shown and described.

2. The combination, with the draft-opening or tube E, of the exterior casing or jacket C and the swinging door g, capable of removal or turning back for the removal of coals, as shown and described.

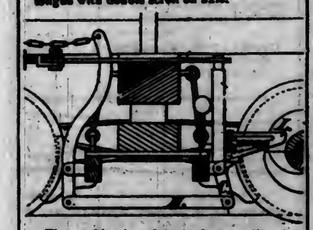
178,898. CHURNS. James W. Taylor and Chastain H. Taylor, Ashland, Va. [Filed Dec. 21, 1875.]



The cream-guard G, located on the handle B above, and at right angles to, the oscillating dasher D, and acting as a surface against which the cream is dashed, in combination with the churn-body A and dasher D, substantially as described.

178,899. CAR-BRAKES. Thos. R. Thompson, Richmond, Ind., assignee of part interest to G. M. Eldridge, Philadelphia, Pa. [Filed June 14, 1875.]

Brief.—Operated by engagement of pivoted tongue with double scroll on axle.



The combination of the brake-lever directly attached to the draw-bar and mechanism, actuated by the wheels, substantially as and for the purpose described.

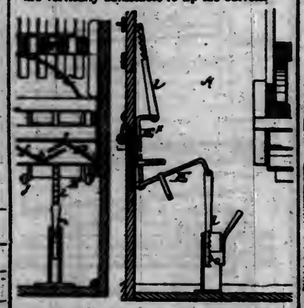
178,900. SOLE-EDGE-TRIMMING CUTTER-HEADS. Nathaniel S. Thompson, Hudson, Mass. [Filed Nov. 18, 1875.]

Brief.—The cutter-head is made solid, with spiral recesses and raised diagonal sections with cutting-edges, provided with a perforated rand-guide.



178,901. REFRIGERATORS. Nicolaus Wagner and John Schudt, Williamsburg, N. Y. [Filed Jan. 26, 1876.]

Brief.—The index and scale denote the weight of ice on the rack. The barrel-supports fold against the side of the case, and are vertically adjustable to tip the barrels.

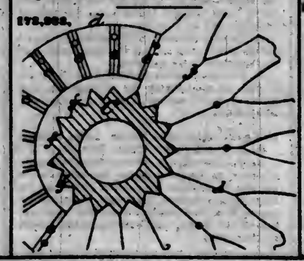


1. In a refrigerator, the vertically-movable ice-rack B, combined with the spring or springs C and pointer d, to constitute an automatic scale for weighing the ice on the rack, substantially as specified.

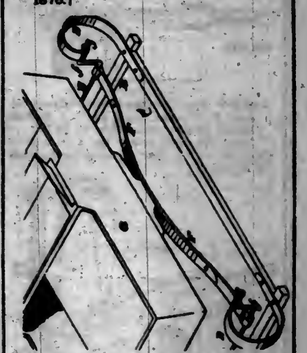
2. In combination with a refrigerator, the pivoted feeding-hook E, substantially as specified.

3. The combination of the case A and pivoted hook E with the notched rod I and locking-lever n, substantially as specified.

178,902.



178,903. VEHICLE-SPRINGS. H. K. Waterhouse, San Francisco, Cal. [Filed Jan. 4, 1876.]



In a compensating vehicle-spring device the semi-elliptic side-springs F F and crank-rods E E in combination with C-springs D D, as set forth.

178,904. AIR-COMPRESSORS. Geo. Westinghouse, Jr., Pittsburg, Pa. [Filed Dec. 20, 1875.]

Brief.—A series of independently-operating pumps, alternating with a series of independent receivers and a system of interposed check-valves, whereby the rapidity of the motion of all the pumps in the series will be regulated in part by the pressure, or lack of desired pressure, in the last of the series of receivers.

A series of two or more independent double-acting compressing air-pumps, fitted with pistons of different and gradually-reduced areas from one to the next, and intermediately-arranged receivers, communicating with each other by interposed pipes and check-valves, whereby the air is serially compressed and the speed of the pumps is regulated by the air-pressure in the various receivers, substantially as set forth.

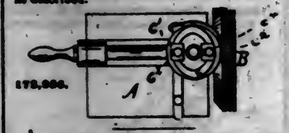
178,905. SOLE-CHANNELING MACHINES. J. B. Wheeler, Lynn, Mass. [Filed Jan. 26, 1876.]

1. The revolving disk forming an adjustable guide, provided with the projecting guiding-wall of unequal diameters, substantially as set forth.

2. In combination with the revolving disk-guide, substantially as described, the bearing-blocks d^1 d^1 adjusted thereon by the set-screws d^2 d^2, substantially as and for the purpose set forth.

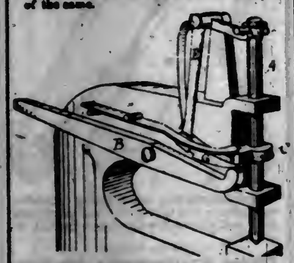
3. In channeling-machines, the combination of the disk-guide with suitable restricting mechanism arranged to stop the disk at determined points in its revolution, substantially as described.

172,826.



172,827. WAX-THREAD SEWING-MACHINES. John R. Wheeler, Lynn, and L. L. Barber, Boston, Mass. (Filed Nov. 10, 1875.)

Brief.—The presser-foot has a uniform lift from the cloth without regard to the thickness of the same.

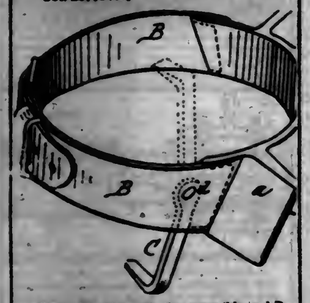


1. The wedge-shaped adjusting-block G, rocking-lever E, and presser-bar A, in combination with the lever B and projecting collar C, substantially as described.

2. The combination of the shoulder C and lever B with the variable adjusting-block G and operating mechanism, substantially as described, whereby the said block is adjusted by the thickness of the work and the presser-bar thereby caused to have a uniform lift from the surface of the work, substantially as set forth.

3. The combination of the presser-bar A, adjustable cutter D, with the rocking-lever E and spring H, all arranged and operated substantially as described.

172,828. IMPROVEMENT IN PADS FOR HORSES. Henry G. White, Palmyra, N. Y. (Filed Oct. 29, 1875.)

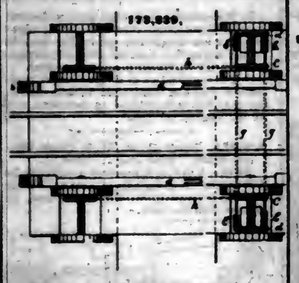


In combination with the invertible pad B, provided with the guards a a, the pivoted tee-nail C, capable of a full revolution on its pivot, whereby the pad is adapted for either the right or left foot, by inverting the tee-nail, as herein shown and described.

172,829. GATES. Joseph S. Wheeler, Providence, assignor to Chas. Meiss, Lincoln, R. I. (Filed Nov. 18, 1875.)

Brief.—Two sets of balanced bars, located on opposite sides of a roadway, are so connected together by a train of mechanism situated beneath the surface of the earth as to be opened and closed simultaneously.

172,829.



The combination, with two gates consisting of vertically-swinging balanced bars a a constructed as described, of the mechanism herein described, consisting of the cords or chains g h and pulleys c d e for opening and closing the gates, substantially in the manner specified.

172,830. BALE-TIES. Stephen Callanan, Castleton, N. Y. (Filed Feb. 6, 1876.)

Brief.—One end bent to form an eye, the other a long hook with parallel sides. Both ends also bent in planes at right angles to that of their faces, the whole forming a weaver's hook.

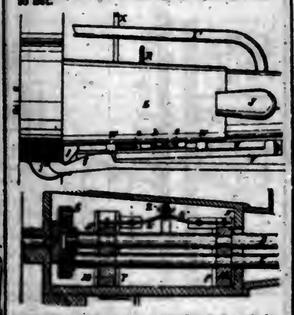


172,831. LUBRICATING COMPOUNDS. Geo. E. Winsor, Johnston, R. I. (Filed Jan. 29, 1876.)

The lubricating compound, consisting of paraffine oil, tallow, bees-wax, and dissolved borax, combined as described, and in the proportions substantially as specified.

172,841. MACHINES FOR BENDING AND WIRING HAT-FRAMES. Michael H. Arbakhan, New York, N. Y. (Filed June 12, 1875.)

Brief.—The binding is severed from the web at the proper point by sliding shears mounted in bearings on the rear side of the machine. The shears are operated by a lever passing beneath and pivoted to the machine. As the shears are moved forward to duty, a dog upon the rear end of the sliding jaw comes in contact with a cam upon the inner rear end of hinged binding-arm, and thus leaves them free to act.



1. The bearings N, guides P, springs Q, levers Q', and the lever E, combined with the movable roller-shafts D, substantially as specified.

2. The combination, with the wiring and binding machine, having shears, as described, of a binding-guide support, having an automatic backward motion to make room for the shears, substantially as specified.

3. The lever X, in combination with the sliding shears, to open and close their jaws, and move them forward to the piece for cutting, substantially as specified.

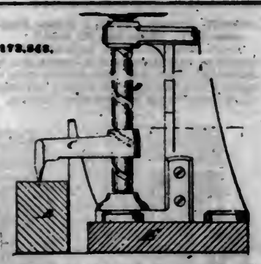
4. The combination of the shifting stops b f with the shears, having the stop e and stud d, substantially as specified.

5. The combination of the sliding shear-jaw U and its stud f with the pivoted binding-guide support h and its incline g, substantially as specified.

172,843. SAW-MILL DOGS. Luke Bunnell, St. Johnsbury, Vt. (Filed Nov. 19, 1875.)

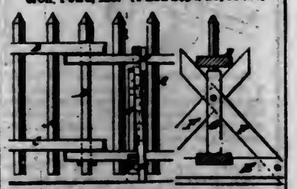
Brief.—Two dogs of different lengths, rigidly attached to the same sleeve, are mounted on a vertical screw having a quick pitch, and secured at any desired point upon the screw by means of a stud located upon the inner portion of the shears, and working in the thread of the screw.

172,844.



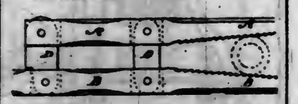
The combination, with the screw D, of the sleeve, having a stud that works in the thread of screw, and two dogs, C C' at right angles to each other, and of different length, as and for the purpose specified.

172,844. FOLDABLE FENCES. T. A. H. Cameron, Petre, Mo. (Filed Sept. 25, 1875.)



The combination of panels connected by picket D, the cross-brace E F, and the bar G, pivoted on the same bolt as the brace, and resting on lower rail, as shown and described, for the purpose specified.

172,845. PIPE-WRENCHES. R. G. Clinch, St. John, New Brunswick, Canada. (Filed Jan. 15, 1872.)



An improved pipe-wrench, formed by the combination of the parallel-toothed jaws A B, the handle C, and one or more pivoted connecting-links, D, with each other, substantially as herein shown and described.

172,846. GRINDING-MILLS. J. M. Collier, Gadsden, Ala. (Filed Jan. 10, 1876.)

1. The concave bed-stone b arranged in case C, pivoted to the adjusting-bed f, substantially as specified.

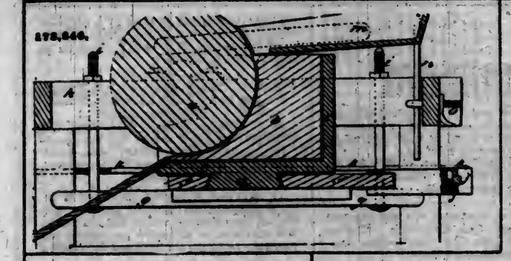
2. The combination of adjusting-bars f, case C, bed-stone b, and revolving cylinder a, substantially as specified.

3. The adjusting-supports g, and rods i, combined with bars f, bed-stone b, and revolving stone a, substantially as specified.

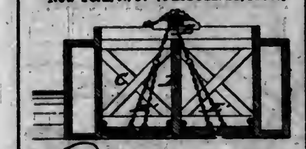
4. The lever j, rod k, and adjusting-rod l, combined with adjusting-bars f, bed-stone b, and revolving stone a, substantially as specified.

5. The hopper m, adjusting-rods n, and clamp-screws o, combined with revolving stone a, substantially as specified.

172,846.

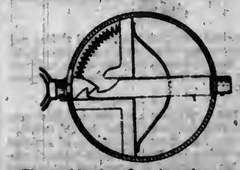


172,847. DUMPING-SCOWS. Daniel Dailey, New York, N. Y. (Filed Jan. 22, 1876.)



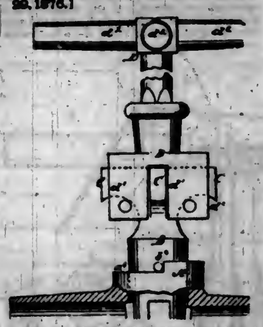
A garbage-scow, separated longitudinally by a close and transversely by open-work partitions, having sides perpendicular, and provided with several hinged gates at bottom, as and for the purpose specified.

172,848. CORRODED WATCH-CHARMS AND KEYS. Patrick Dever, Glen Riddle, Pa. (Filed Dec. 27, 1875.)



The combination of an incrusting-case with a sliding and spring-acted key-guided thereto, and a spring-catch device, substantially as specified.

172,849. COCKS AND FAUCETS. Charles E. Dickson, Jr., St. Louis, Mo. (Filed Jan. 29, 1876.)



1. The combination of the three-armed head C with the plug B of a three-way cock, the said arms C being directly over the openings of said plug B, to indicate the position of said openings with reference to the three pipes of the cocks, substantially as herein shown and described.

2. The combination of the key D, provided with a three-armed head, d^1, on its lower end, and a three-armed head or handle, d^2, upon its upper end, with the three-armed head of the plug B of a three-way cock, to indicate the position of the openings of the said plug with reference to the three pipes of the said cock, substantially as herein shown and described.

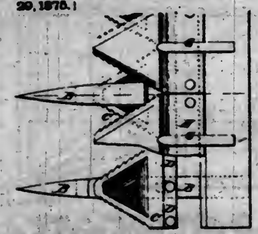
172,850. STIRRUPS. Reinhold V. Rundo, New York, N. Y. (Filed Jan. 22, 1876.)

Brief.—A projecting lip on the exterior of the barrel-head fits in a groove, and retains thereby a soft-rubber cap.



The combination, with barrel A, having flange e, and the piston-rod C, of the centrally-perforated exterior cap B, provided with a flange, b, fitting around the end of barrel, and an interior groove, d, over rim of the same, as and for the purpose specified.

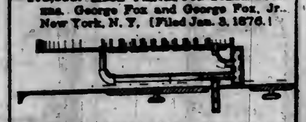
172,851. REAPERS AND MOWERS. Marvin W. Freeman, Beatrice, Nebr. (Filed Oct. 29, 1875.)



1. The ledger-bar D and fingers B, connected by screws, adjustable in slots of fingers, as and for the purpose described.

2. The combination of upper cutters and lower ledger-blades, matched, oppositely concaved, and serrated on outside bevel, as and for the purpose specified.

172,852. ARCH-PLATES FOR STEAM-BOILERS. George Fox and George Fox, Jr., New York, N. Y. (Filed Jan. 3, 1876.)

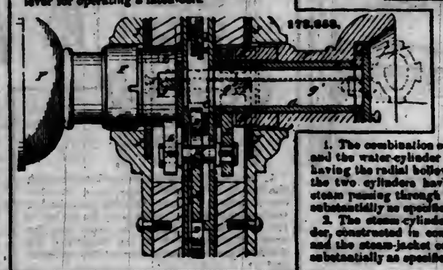


In horizontal tubular boilers, the arch-plate that separates the front ends of the boiler-flues from furnace, made hollow, and adapted to produce a circulation of water between the boiler and the arch-plate, as and for the purpose specified.

172,853. KNOB-LATCHES. W. W. Gardiner, New York, N. Y. (Filed Jan. 10, 1876.)

Brief.—A hollow knob-spindle is provided with a lever, which engages with another lever for operating a latch-bolt.

172,853.



1. The combination of the ears a^2 the ring-plates J, and the plate H, with the spindle G, the lock-case A, and the knob F, substantially as herein shown and described.

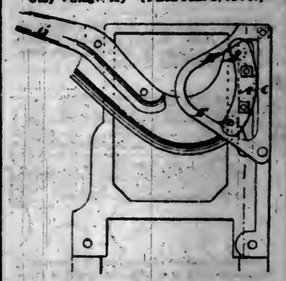
2. The combination of the lever L, notched to receive the lugs K and g^1, and the pin M, with the knob F, the knob-spindle G, and the lever and block D F, that operate the catch-bolt C, substantially as herein shown and described.

172,854. DIES FOR MAKING BODY-LOOPS FOR CARRIAGES. John Garvin, West Meriden, Conn. (Filed Jan. 15, 1876.)



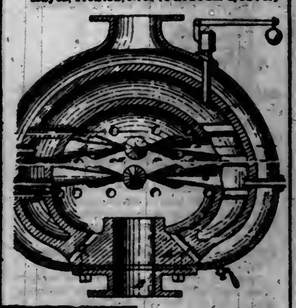
Jointly the two sets of dies, consisting of the forming-dies A B, made with recesses a^1 a^2 b^1 b^2 b^3, to form the leg-head and prong, and the finishing-dies D E, made with the recesses d^1 d^2 d^3, and the projection e^1, to finish the loops, and form the countersink for the bolt-head, substantially as herein shown and described.

172,855. STRAW-CUTTERS. W. H. Harrison, Clay Village, Ky. (Filed Jan. 3, 1876.)



The combination of the rocker-bed C and ways E with the cutter, having rocker A and rollers D, substantially as specified.

172,856. FEED-WATER HEATERS. T. W. Hayes, Trenton, N. J. (Filed Jan. 4, 1876.)

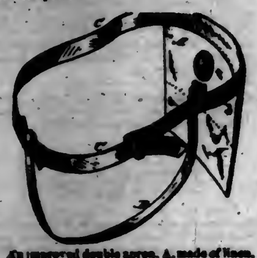


1. The combination of the steam-cylinder A and the water-cylinder C, the steam-cylinder having the radial hollow conical studs D, and the two cylinders having the exit-pipes for steam passing through and connecting them, substantially as specified.

2. The steam-cylinder and the water-cylinder, constructed in connection at the base L and the steam-jacket connected to said base, substantially as specified.

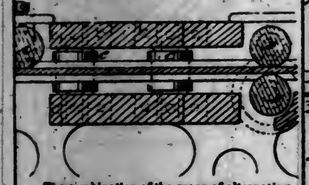
172,867. DOUBLE APRON. W. O. Hanney, Camden, N. J. [Filed Jan. 29, 1876.]

Brief.—A peculiarly arranged and constructed bag of linen is used for supporting a diseased penis.



An improved double apron, A, made of linen, with the bottom and top edges, and the lower part of its side edges closed, having its lower part lined with linen B, and provided with a hole, *a'*, in the upper part of its inner side, and with a waist-strap, C, whether the tape or cord D be used or not, substantially as herein shown and described.

172,868. MACHINE FOR STRAIGHTENING METAL BARS. Aquila Hovelle, William Garrett, and John B. Hovelle, Cleveland, Ohio. [Filed Jan. 3, 1876.]



The combination of the group of alternating horizontal rolls A A with the group of alternating vertical rolls C C and the fixed rolls D, as and for the purpose specified.

172,869. WHIP-SOCKETS. William Hughes and Joseph K. Alexander, Minerva, Ohio. [Filed Jan. 20, 1876.]

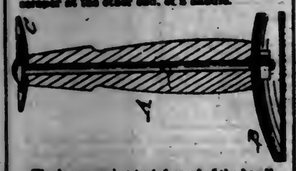
Brief.—To secure the whip in the socket.



The combination of a coiled spring, C, and a hook, D E F, with a whip-socket made in two parts, turning upon each other, substantially as herein shown and described.

172,870. HOE-SCRAPERS. Peter Johnson-Wennerede, Ill. [Filed Jan. 28, 1876.]

Brief.—A circular concavo-convex scraper at one end, and an elliptical concavo-convex scraper at the other end, of a handle.



The hoe-scraping tool, formed of the handle A and the circular and elliptical concavo-convex scrapers B and C secured to its respective extremities, as shown and described.

172,871. PLANING MACHINE. Jon Kayser, New York, N. Y. [Filed Dec. 27, 1875.]



1. The match-holder A B, provided with corrugations across its surface, and in connection with these a friction-surface near upper edge, as and for the purpose specified.

2. The corrugated strip A, combined with a plain strip, B, glued or pasted thereto, as and for the purpose set forth.

172,872. PROCESSES FOR SEPARATING MIXED COAL-TAR PRODUCTS. Charles Lowe and John Gill, Manchester, England. [Filed Aug. 14, 1875.]

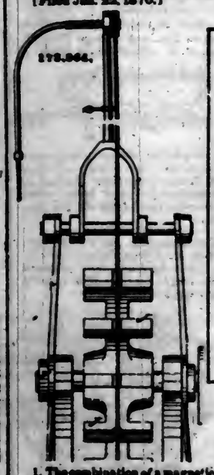
The process of manufacture and separation of carbolic acid of qualities crystallising at or between 106° and 108°.5 Fahrenheit, and boiling at 360° to 365° Fahrenheit from mixtures of carbolic, creasylic, and other tar-acids capable of crystallising when dehydrated between 62° and 95° Fahrenheit, by submitting the said mixed carbolic, creasylic, and other tar-acids to a state of partial or complete hydration to the successive steps of refrigeration, crystallization, and dehydration, substantially as herein described.

172,873. TRUSS-BRIDGE. J. M. McDonald, Tomlinson, Ark. [Filed Dec. 11, 1875.]



The combination of arch A, timbers B, cross-piece C, shoes D, supports E, and tresses a b d F, all constructed and arranged as shown and described, for the purpose specified.

172,874. ELECTRO-MAGNETIC DENTAL ENGINE. Elliot B. Pettit, Philadelphia, Pa. [Filed Jan. 22, 1876.]



1. The combination of a magnetic engine with the standard of a dental engine, in the manner described, whereby the armature-wheel of the magnetic engine bears with the pulley of the dental engine, and at the same time the armature-shaft serves for the support of the dental engine standard, substantially as specified.

2. Also, the armature-wheel of a magnetic engine, provided with a band-groove to stiffen it for driving by a band running on it, substantially as specified.

172,875. COMPOSITIONS FOR DENTAL PLATES, &c. Cornelius Reagles, Schenectady, N. Y. [Filed Dec. 27, 1875.]

Brief.—The purposes to which applicant's invention is applied are as follows: Dental plates, knife-handles, billiard-balls, brush-backs, and various purposes for which ivory, gutta-percha, &c., are used.

An improved compound, consisting of pyroxyline, compound ethylated camphor, flexible lac, cocoanut shavings, Canada balsam and corn silex, in about the proportions substantially as herein set forth and described.

172,876. SAW-FILE GUIDES. Elias Roth, New Oxford, Pa. [Filed Dec. 11, 1875.]

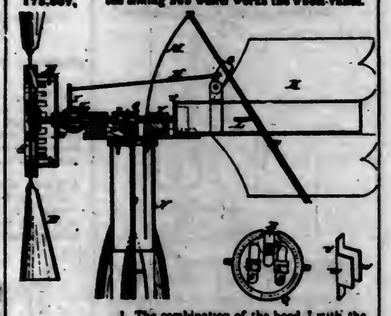


The combination of the file and sliding rod of file-carrying frame with a graduated indicator, having adjustable piece at one end and recess at the other, as and for the purpose specified.

172,877. WINDMILLS. Samuel Shannon, Shaldsburg, Iowa. [Filed Jan. 7, 1876.]

Brief.—This invention consists of a shield on the sliding hub that shifts the vanes, to prevent the lodgment of snow and ice on the shaft, which obstructs the hub; also, of a detachable and adjustable contrivance of the eccentric which works the pump-rod, to vary the length of the stroke; also, of a wearing-plate to sustain and take up the wear of the wheel-shaft at the end; also, a peculiar coupling, by which the vanes work together, the openings and closings of the wheel-vanes is mounted on the machine, and connected with the sliding hub which works the wheel-vanes.

172,877.



1. The combination of the head J with the sliding hub D and the wheel-shaft, substantially as specified.

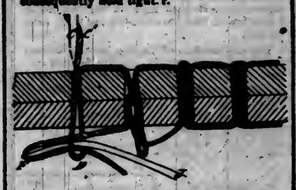
2. The adjustable and detachable eccentric, constructed of a hub-plate E and rim-plate G, having grooved clamping-faces, and the rim-plate being slotted at H and I and bolted to the hub-plate, substantially as specified.

3. The combination of the adjustable flanged wearing-plate U with the shaft V and the tail-vane beam, substantially as specified.

4. The combination of eccentric regulating-vane F, pivot-block G, and the connecting-rod H with the sliding hub D, substantially as specified.

172,878. METHODS OF UNITING PIECES OF LEATHER, &c. George V. Sheffield, East New York, N. Y. [Filed Jan. 10, 1876.]

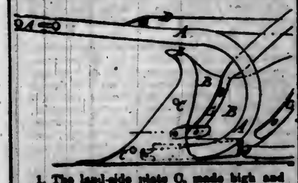
Brief.—The loop, being drawn up in the doubled state, fills the hole made in the material by the needle more completely, and is consequently held tight. r.



The method of uniting two pieces of leather herein described, which consists in passing the loop F of an under thread, E, through the loop D of an upper thread, C, first brought down through both pieces, the loop of upper thread being then drawn back flush with the upper surface of work, as shown and described.

172,879. PLOWS. Henry D. Straight, Denmark, Iowa. [Filed Nov. 27, 1875.]

Brief.—Both handles and the land-side are rigidly bolted to the mold-board. The beam and a diverging brace are hinged to the bottom and rear of the mold-board, so that the plow-point may be forced into the ground, while the plane of the beam is not changed. By adjusting the brace the plow will take more or less land.



1. The land-side plate G, made high and short, as shown, and with a forwardly-projecting hook-channel cutter H, as and for the purpose described.

2. The combination, with the described land-side plate G, of the mold-board B, curved forward at its front edge to form the cutter of plow, as set forth.

3. The brace D, secured adjustably to the plow-beam A, and having its rear end curved downward and hinged to the mold-board B, substantially as herein shown and described.

172,880. ENVELOPE-MACHINES. Henry D. Swift and Daniel W. Swift, Worcester, Mass., assignors to O. Henry Whitcomb & Co., same place. [Filed Nov. 27, 1875.]

1. The combination of the raised form A on blank-support and the plate K, provided with opening *a'* of corresponding form, and arranged with relation to said raised form, as and for the purpose described.

2. The roller J mounted in reciprocating bearings *d*, with its rollers running in its grooves, in combination with the connecting-rods *g g* and curved levers *h h*, as shown and described.

3. The combination of the vertically-vibrating frame E with the roller J, in the manner described, for the purpose of enabling roller J in its forward movement to gum the lifter B, and in its backward movement to descend and gum the edge of the blank projecting through the opening of plate K, substantially as shown and described.

4. The combination, with a blank-support holding the blanks stationary while being pasted, of a pasting-roller, which traverses over and rests upon the blanks with a slipping motion, as and for the purpose specified.

5. The combination, with plate K, of projections *n n*, for the purpose of keeping plate K from touching roller J on its way from the gum-box to the lifter B.

6. The frame O, arranged in combination with the lifter, folding mechanism, and the drier, for the purpose substantially as specified.

7. The projecting-hooks *f'*, in combination with folder F, for the purpose described.

8. The adjustable frame *e*, with its pins *e' e'*, slides 3 3, inclines 5 5, adjusting-screws 6 6, and springs *g'*, in combination with folding-bed K, for the purpose of varying to the thickness of the envelope.

9. The bars J J, combined with frame O, for the purpose of conveying the envelope to the drying mechanism.

10. The combination, with drier, consisting of endless fingers passing over and under pulleys, as described, of the gears 3 3, ratchet *i*, lever *h*, and cam *l*, as and for the purpose described.

11. The fingered links, in combination with the slotted cover *t* on frame O, as shown, and for the purpose specified.

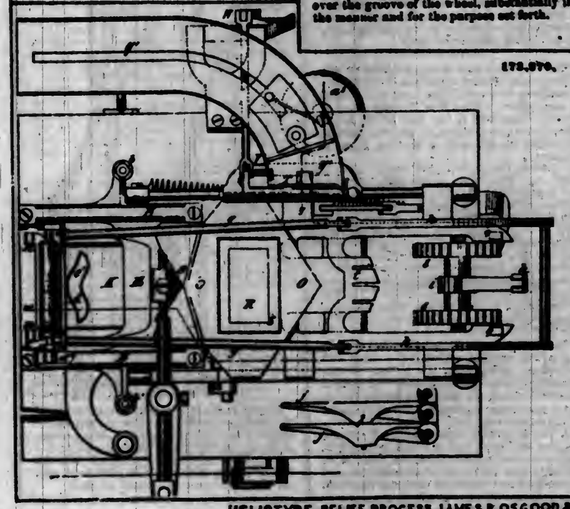
12. The plate T, with stops *u u* and inclines *x x*, in combination with dogs 9 9 on frame O, for the purpose specified.

13. The combination with receiver Y', having curved groove and self-adjusting feed slide, of a cord and weight, as shown, and for the purpose specified.

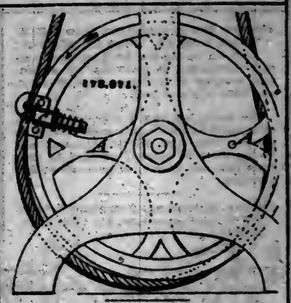
172,881. DEVICES FOR RUNNING ON BELTS TO MACHINERY. Eddy T. Thomas, Boston, Mass. [Filed Oct. 10, 1875.]

A device for running on belts to driving wheels of machinery, composed of a sliding and turning spring hook or button swinging over the groove of the wheel, substantially in the manner and for the purpose set forth.

172,879.

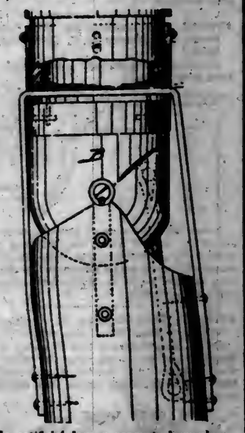


172,881.



172,882. ARTIFICIAL LEGS. Joseph B. Warner, North Dighton, Mass. [Filed Jan. 22, 1876.]

Brief.—The lower part of the leg, together with the knee-joint, has a slight vertical motion upon the thigh part by means of a slotted sliding band or collar. A flexible strap passes through an opening in the sliding band, and has both its ends secured to the lower part of the limb. As the knee is flexed this strap slides to and fro over the opening in the sliding band, and between the two portions of the leg connected by said band. The weight of the person in walking bears upon this strap, and prevents the knee bending when the weight is upon it.

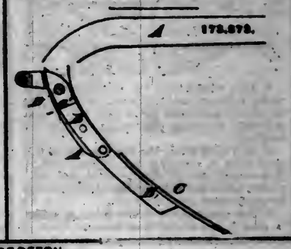


1. In artificial legs, a separate knee-piece, sliding by a slotted guide-band or socket along the end of the upper-leg section, substantially as shown and described.

2. The combination of the upper-leg section, sliding suspension-strap, and knee-piece having extension-socket, for the purpose of locking the strap firmly when the body is resting on the leg, and preventing the flexing of the joint at that moment, substantially as specified.

3. The extension-band or socket of knee-piece provided with front and rear guide-slots for the suspender-strap, substantially as set forth.

172,878.

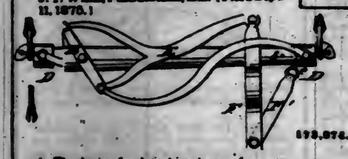


178,875. SPRING-LOCKS FOR PLOWS. M. K. Wheat, Paris, Ky. (Filed Jan. 22, 1876.)

Brief.—A spring-lock for plows, provided with shoulders at its upper end, and a plow-plate attached to its lower end, all of which is pivoted to a plow beam.

The spring lock-bars B, provided with the shoulders *b* at their upper ends, pivoted to the plow-beam A or the plow-standard, and having the plow-plate C attached to their lower ends, substantially as herein shown and described.

178,876. DEVICES FOR DETACHING HORSES. J. T. Willis, Prattsville, Ala. (Filed Sept. 11, 1875.)



178,876.

1. The device for detaching horses from vehicles, consisting of governing strap, forked lever, fulcrumed lever, connecting lever-rods, sliding locking hooks or sleeves, and pivoted trace hooks or catches, all arranged and operating substantially as and for the purposes set forth.

2. The combination of the side strap F' and pin *c* with the governing main strap F, whiffletree A, sliding band D, as and for the purposes set forth.

178,877. COOKING-STOVES. Wm. P. Abendroth, Port Chester, N. Y. (Filed Oct 20. 1875.)

Brief.—The flanged pipe is detachably fastened to either hole.



A cooking-stove or range provided with two pipe-holes, one of which may be used as a butler-hole, in combination with an interchangeable cover and a flanged collar for the pipe, adapted to fit in either hole, substantially as described.

178,878. WIND-WHEELS. M. J. Althouse, Waupun, Wis. (Filed Jan. 27, 1876.)

Brief.—The feature of this invention is the suspension of an oil-cup under the collar of a wind-wheel in such manner as to be carried therewith as the collar moves back and forth on the axle.



1. In a wind-wheel, the combination of a rotary collar mounted on the main shaft and an oil-cup suspended below said collar, substantially as shown and for the purpose described.

2. In a wind-wheel, the combination of the main shaft A, a sliding and rotating collar, B, mounted thereon, and an oil-cup, E, suspended below the collar, substantially as and for the purpose described.

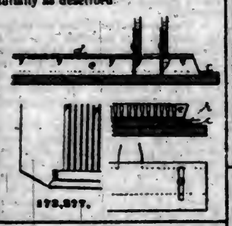
3. The combination of the shaft A, collar B, yoke C, and oil-cup E, as shown.

178,879. PLASTING-MACHINES. Samuel J. Anderson and Hugh B. Rorke, Canonova, N. Y. (Filed Jan. 17, 1876.)

1. The rack or frame *d*, in combination with the board *b* and a blade for forcing the cloth through between the strips *g*, substantially as shown.

2. The above-described method of forming plaits by forcing the cloth through spaces, and then ironing the plaits down, as specified.

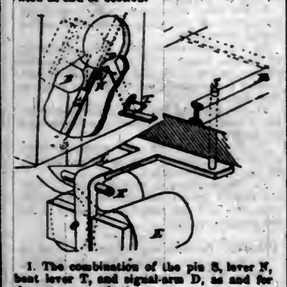
3. In combination with a rack, *d*, the knife *g*, substantially as described.



178,879.

178,880. MAGNETO-ELECTRIC RAILWAY-SIGNALS. G. L. Anders, Boston, Mass., assignor to E. B. Welch, same place. (Filed June 1, 1876.)

Brief.—Signal set to "danger" by flange of wheel operating a lever on entering a section. Returned to "safety" by a momentary current induced by an armature being forced away from the magnets of a magneto-machine by wheels of train. Magneto apparatus is located at end of section.

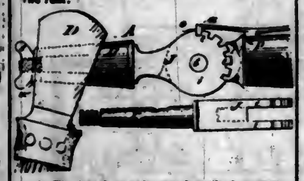


1. The combination of the pin S, lever N, bent lever T, and signal-arm D, as and for the purposes set forth.

2. The combination of the signal-arm D, stop E, lever G, stop W, electro-magnet B, and magneto-electric apparatus M, situated at any desired distance from the signal, and arranged to be operated by the passing train, as and for the purposes set forth.

178,881. HANDLE ATTACHMENTS FOR BRUSHES. Henry Anderson, Vallejo, Cal., assignor of one-half his right to J. Nente, same place. (Filed Nov. 5, 1875.)

Brief.—The hole in the head of the brush receives a tapered sleeve on the short arm of a pivoted handle, and is held by a nut in the rear.



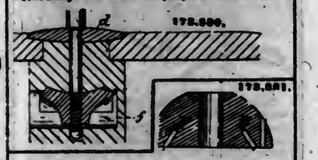
1. The brush attachment described, consisting of the recessed socket B N *a*, fitted with adjusting spring-lever L r *a*, and pivoted toothed jaw-piece J f *i*, provided with tapered threaded shank K, adjusting-socket B, set-nut *s*, and washer *w*, constructed and arranged as shown and set forth.

2. The adjustable tapered socket B, in combination with the brush D P and jaw-piece J, provided with tapered threaded spindle K, set-nut *s*, and washer *w*, substantially as and for the purposes herein set forth and specified.

178,882. SPOOLS AND BOBBINS. Jas Baldwin, Manchester, N. H. (Filed July 26. 1875.)

Brief.—The head of the spool is secured to the shaft by means of a metallic plate, through which passes a screw-bolt, the end of which screws into a flanged metallic nut inserted in a hole bored transversely into the shaft near the end.

The combination of the double convex metallic plate *d*, screw-bolt *c*, disk *e*, flanged metallic nut *a*, and shaft *b*, all constructed substantially as and for the purpose described.



178,882.

178,883. CHAIN-PUMP BUCKETS. William C. Barker, Millport, N. Y. (Filed Jan. 17. 1876.)

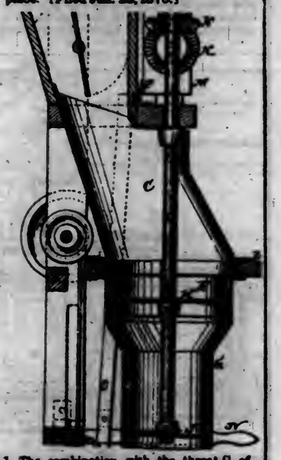
1. An elastic bucket for chain-pumps, having a groove or slit in its lower surface, passing around equidistant at all points from and contiguous to the edge, to impart elasticity to the edge of the bucket, substantially as described.

2. An elastic bucket for chain-pumps having a groove or slit in its lower surface passing around equidistant at all points from and contiguous to the edge, and such a depth as to admit of the introduction of a thin strip of cord, wire, or other material to swell out the edge of the bucket, substantially as described.

3. An elastic bucket for chain-pumps, having a groove or slit in its lower surface passing around equidistant at all points from and contiguous to the edge, and such a depth as to admit of the introduction of a thin strip of cord, wire, or other material, this groove being slanted at such an angle with the horizontal plane of the bucket that the cord or other material so inserted will rest upon the slant, substantially as described.

4. The process of expanding a rubber bucket by means of a strip introduced into a slit passing around the lower surface of the bucket equidistant at all points from and contiguous to the edge, substantially as described.

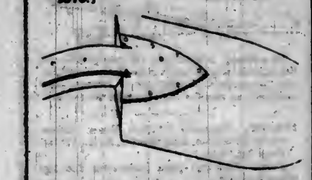
178,884. FLOUR-PACKERS. Homan A. Barnard, Moline, Ill., assignor to the Barnard & Leas Manufacturing Company, same place. (Filed Jan. 28, 1876.)



1. The combination, with the throat G, of the stationary and detachable packing-chambers E G, each provided with a packing-screw, as shown, and for the purposes set forth.

2. The spring *a*, in combination with the sliding bar M, carrying the shaft L, with pinion K', for the purposes herein set forth.

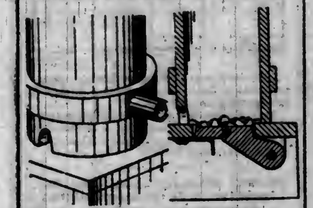
178,885. BACK-STRAPS FOR SHOVELS. H. A. Barnes, Pittsburg, Pa. (Filed Jan. 28. 1876.)



The wrought-iron back-strap, having a steel wearing or convex surface, substantially as and for the purpose specified.

178,886. PROCESSES FOR MELTING AND PURIFYING IRON. William Batty, Philadelphia, Pa., assignee of one-third his right to J. H. Armbruster, same place. (Filed July 3, 1875.)

Brief.—The bed of the cupola is covered with charcoal, and pulverized gas-coke is blown in with the blast.



1. The process of purifying, refining, and softening cast-iron in a cupola or blast furnace, by passing pulverized coal-oil carbon and gas-carbon through the tuyeres, as and for the purposes set forth.

2. A cupola-furnace having a bed of charcoal in the bottom below the tuyeres, substantially in the manner and for the purposes set forth.

178,887. HOLLOW AUGERS. Austin Berry, Waterloo, Canada. (Filed Dec. 21, 1875.)



1. In a hollow auger, A B C, I claim a central sliding plunger, D, having an adjustable center point, E, substantially as and for the purposes herein set forth.

2. The combination, with a hollow auger, A B C, of the sliding plunger D, with adjustable center point E, the sleeve G, and the set-screw *b* passing through slots *a a'*, and bearing against the adjustable point E, all constructed substantially as and for the purpose herein set forth.

178,888. SHUTTER-WORKERS. A. Bishop, Brooklyn, N. Y. (Filed Dec. 1, 1875.)

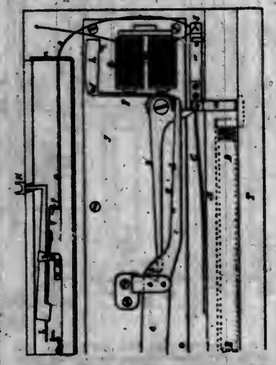
Brief.—The novelty, which is altogether in the combination and arrangement of old devices, consists mainly in placing the horizontal shaft at an oblique angle, to give more play, when the window is held in a recess or next the wall; these being also a spring-detent of peculiar construction locking in the recessed wheel to fasten the device.



178,888.

178,889. ELECTRO-MAGNETIC STOP-MOTIONS FOR DRAWING OR ROVING MACHINERY. Brastus Boyden and G. H. Pillsbury, Lowell, Mass. (Filed Jan. 12, 1876.)

Brief.—When the "drawing" or "roving" breaks or runs out, the lever to which the drawing-guide is attached tilts and closes a circuit to an electro-magnet, whose armature releases a latch mechanism holding a spring shipping-bar.



1. The electro-magnetic stop-motion, substantially as described, composed of the electro-magnet G, its circuit *a a*, armature F, drawing or roving guide H, shipper A, operative spring B, latch C, and lever D E, all arranged and applied as set forth.

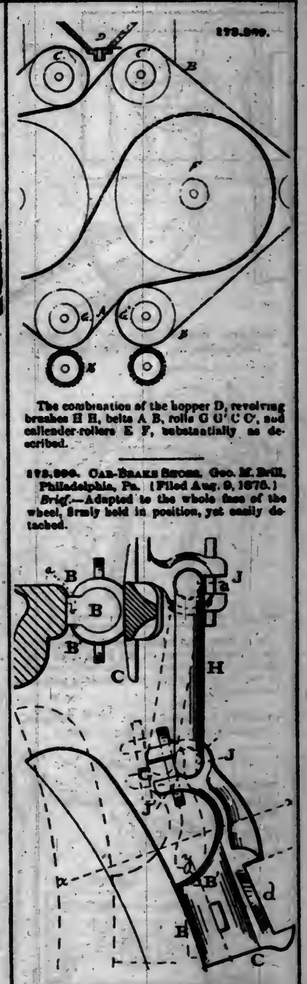
2. We claim the combination of a circuit breaker and closer, S, (so separated from the yarn-guide lever H as, while in movement, to be incapable of moving it either way on its fulcrum,) with the electro-magnet G, its circuit *a a*, armature F, the drawing or roving guide H, the shipper A, its operative spring B, and latch or latching mechanism C D E b all applied and to operate substantially as specified.

178,890. APPARATUS FOR DYEING. Stephen A. Bradley, Brooklyn, N. Y. (Filed Dec. 16, 1875.)

Brief.—The material is fed, by means of the hopper, between two endless belts, which pass around steam-heated rollers. The movement of the belts conducts the material. The brushes remove all that adheres to the belts after they separate at the point of delivery.

178,891. CAR-BRAKE SHOES. Geo. M. Bull, Philadelphia, Pa. (Filed Aug. 9, 1875.)

Brief.—Adapted to the whole face of the wheel, firmly held in position, yet easily detached.



178,891.

The combination of the hopper D, revolving brushes H H, belts A B, rolls G G' C C', and calender-rollers E F, substantially as described.

178,892. CAR-BRAKE SHOES. Geo. M. Bull, Philadelphia, Pa. (Filed Aug. 9, 1875.)

Brief.—Adapted to the whole face of the wheel, firmly held in position, yet easily detached.

1. The shoe A formed with a tread-face, *a*, and flange-embracing groove *b*, in combination with the vertically-extending head H, having a cock, *b'*, and with the holder C formed with a vertically-extending socket, B', front slot *a'*, and a horizontal ledge, D, at the bottom thereof, substantially as and for the purpose set forth.

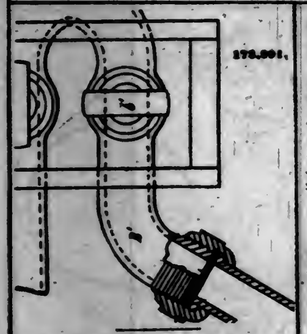
2. The flanger H formed with a flat-faced side, F', in combination with the holder, substantially as and for the purpose set forth.

178,893. STOP-COCK CONNECTIONS TO WATER-PIPES. Joseph T. Brown, St. Louis, Mo. (Filed Jan. 6, 1876.)

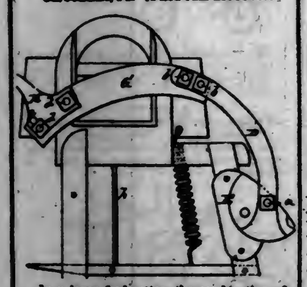
Brief.—An advantageous arrangement, designed to meet the requirements of public and private use. The branch pipes are in such proximity that a single box will answer for both cocks. The T-handles of the cocks being placed at right angles, when said cocks are open the operator can open or shut correctly the desired cock.

The pipes B B', arranged with relation to a main water-pipe, A, and having their cocks *b b'* at right angles to each other when in open condition, and inclosed in a single box, as and for the purposes set forth.

178,891.

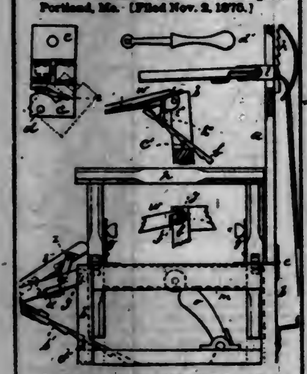


178,892. SPRAW-CUTTER. L. S. Bunnell, Carbondale, Pa. [Filed Jan. 22, 1876.]



In a lever foot-cutter, the combination of the adjustable lever D, the knife G secured thereto, and the handle H adjustably secured to the other end of the knife, for the purpose herein set forth.

178,893. INVALID-CHAIRS. N. P. Burgess, Portland, Me. [Filed Nov. 2, 1875.]



1. The combination of the back a with the body b by means of the hinges c, one of them having the pivot c', so that the back can be removed from the body, as herein described.

2. The head-rest f, constructed as described, and applied to the back a, as set forth.

3. The combination of the seat n, shaft s, and cams o, as and for the purpose herein described.

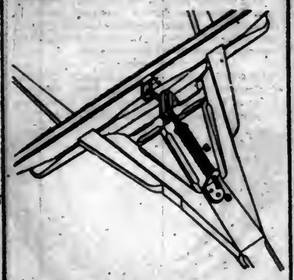
4. The arms p, slotted brasses q, and thumb-screws r, in combination with the false bottom r and the hinges of the arms, as herein described.

5. The foot-rest v, having the parts v w x, the spring x', the arms V, all to operate as herein described.

6. The folding drop-shelf W, composed of the parts t' and V, operating as herein described.

178,894. TONGUE-SUPPORTS. John A. Burnett, Macomb, Ill., assignor of part of his right to James S. McClintock, same place. [Filed Aug. 16, 1875.]

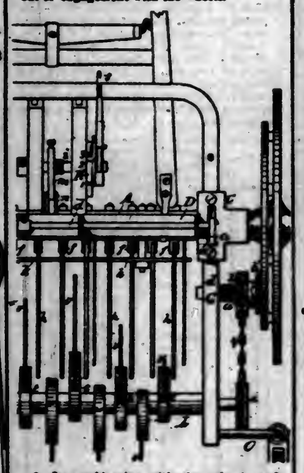
Brief.—End of rod rests upon plate on axle-tree, and is free to slide thereon when tongue vibrates.



The combination of the plate f and slotted bearing f with the curved rod a, provided with the spiral spring s and nut d, as described, and for the purpose specified.

178,895. COMBINED RAKES AND TEDDERS. D. A. Calkins, Monson, Mass. [Filed Apr. 28, 1875.]

Brief.—Mechanism belonging to and operating a tedder, and for throwing it into and out of engagement with the wheels.



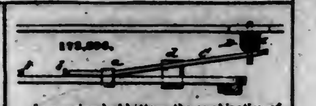
1. In combination with the axle A and boxes C C placed thereon, the sliding frame G H, provided with the staples a a, and the shaft d, provided with the eccentrics b b, and lever e, substantially as and for the purpose herein set forth.

2. The combination of the revolving shaft L, forked pins t, flat springs u, and pivoted tedder-teeth v, substantially as and for the purpose herein set forth.

3. The combination, with the tedder-shaft L, of the chain-wheels o r, chains p p, chain-wheels s n, with springs S' S', and pinions N N, all arranged on the movable frame O, so as to throw the pinions in and out of gear with the cog-wheels M on the driving-wheels B, substantially as herein set forth.

4. The combination, with the frame O, of the hollow arms O O and the caster-wheels N N, having their stems adjusted and held in said arms by the set-screws o', substantially as and for the purpose herein set forth.

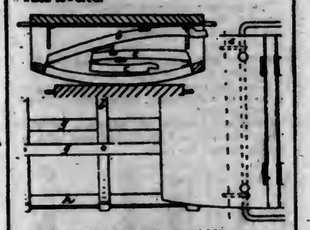
178,896. STEAM-RADIATORS. James W. Cann, Tuttlesti, Mich., assignor to E. W. Grant and A. J. Lesch, same place. [Filed Nov. 26, 1874.]



In a spring bed-bottom, the combination of the spring-bars C C with slips a a and adjustable fulcrums d d, arranged to operate substantially as and for the purposes set forth.

178,897. FOLDING WAGON-TOPS. Christophe Chevrette, Manchester, N. H. [Filed July 24, 1875.]

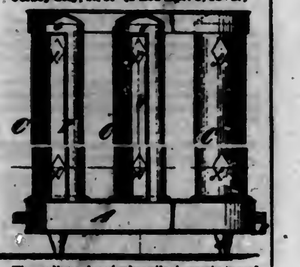
Brief.—The end-gate folds over the top when lowered.



1. In combination with the folding wagon-top, I claim the doubly-hinged door or flap d, substantially as set forth.

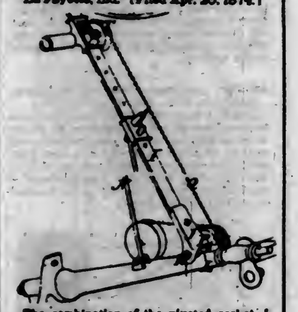
2. In combination with the folding wagon-top, I claim the hinged door d, the toothed segment e, catch f, and handle f', as and for the purpose described.

178,898. STEAM-RADIATORS. John Clary, Jersey City, N. J. [Filed Apr. 6, 1875.]



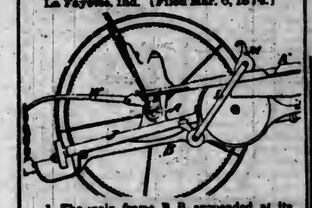
The radiator herein described, consisting of separate vertical tubes C, connected with a common base, A, each of the said tubes having apertures f near the top and bottom, and a pair of straight parallel partitions, P, all as specified.

178,899. HARVESTERS. Wm. F. Cochrane, La Fayette, Ind. [Filed Apr. 20, 1874.]



The combination of the pivoted socket J with the rear-post and the beam L on the tubular drag-bar, for the purpose of forming a knuckle-joint for the foot of the rear-post, and a shield to exclude the dirt from the pivot of the point, substantially as described.

178,900. HARVESTERS. Wm. F. Cochrane, La Fayette, Ind. [Filed Mar. 6, 1874.]

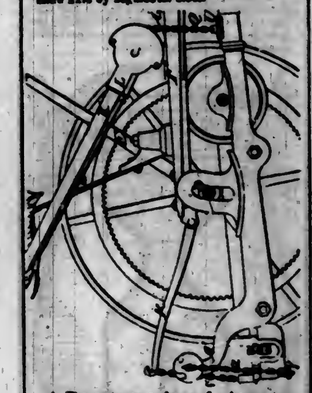


1. The main frame B B, suspended at its rear end from the extension bar W, attached to the rear end of the foot-board K, and at its front end by the adjustable traction-latch L, substantially as described, and for the purpose set forth.

2. The main frame B B, suspended at its rear end from the extension bar W, attached to the rear end of the foot-board K, and at its front end by the adjustable traction-latch L, in combination with the cutting mechanism jointed to the main frame by the drag-bar and back-brace, substantially as described, and for the purpose set forth.

178,901. HARVESTERS. Wm. F. Cochrane, La Fayette, Ind. [Filed Mar. 27, 1874.]

Brief.—The gear-frame is suspended from the tongue-frame at front and rear by flexible connections, and retained in position on the main axle by segmental slots.



1. The main gear-frame of a harvesting-machine adapted to rise and fall independently of and guided by the main axle, having its front end flexibly suspended from the foot-board or tongue-bracket by an adjustable lifting lever and chain, and its rear end suspended from the rear of the foot-board or tongue-bracket by a pivoted supporting arm and chain, substantially as described, for the purpose specified.

2. The lifting-lever L, having a grooved semicircular head, a circular recess on one side, and a spring-locking bolt, N, in combination with the bracket O, provided with a guide-flange, H, and lateral bars I, having eccentric recesses j j, substantially as described, and for the purpose set forth.

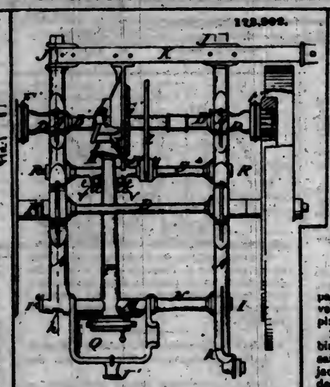
178,902. HARVESTERS. Wm. F. Cochrane, La Fayette, Ind. [Filed Apr. 20, 1874.]

Brief.—The frame is cast hollow, and secured together by through-bolts.

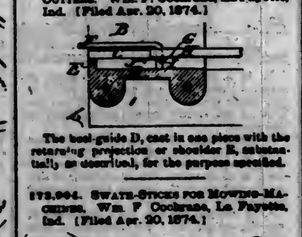
1. The combination of the side pieces of the frame, the eye-bolts G, the recessed cross-pieces J, and front girder K, substantially as described.

2. The harvester-frame, consisting essentially of the combination of the tubular cast-iron side pieces A A, the wrought-iron eye-bolts G, the rear wrought iron girder I, the sleeves M N, the intermediate cross-bolt and sleeve B B, the flat wrought iron front girder K, and the recessed cross-pieces J, all constructed and secured together substantially as described, for the purposes specified.

178,903.



178,903. GUARD-PLATES FOR HARVESTER-CUTTERS. Wm. F. Cochrane, La Fayette, Ind. [Filed Apr. 20, 1874.]



The heel-guide D, cast in one piece with the retaining-projection or shoulder E, substantially as described, for the purpose specified.

178,904. SWATH-STICKS FOR MOWING-MACHINES. Wm. F. Cochrane, La Fayette, Ind. [Filed Apr. 20, 1874.]



The beveled socket E, having shoulder f, in combination with the beveled socket J, having shoulder e, and the thimble J, substantially as described, for the purposes specified.

178,905. LIGHTNING-RODS. Henry L. Coe, Clifton N. J., assignor to the Manhattan Brass Company, New York, N. Y. [Filed Jan. 24, 1876.]



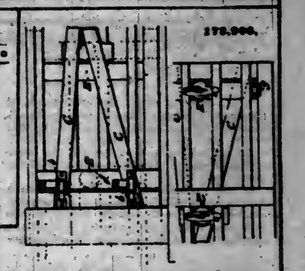
1. The lightning-rod made of a complete brazed or seamless tube of thin metal, having screw-formed ribs cast in the metal, in combination with the complete tubular coupling with similar screw-formed ribs, for uniting the lengths or tubing by the short-metal screws thus formed, as set forth.

2. The screw tubular section secured into the end of one length of the screw tubular lightning rod and carrying int. the next length of tube, substantially as set forth.

178,906. GATES. Van Rensselaer Cole, Rondout, Ohio. [Filed Jan. 8, 1875.]

Brief.—The gate-panel is supported and slides on friction-rollers, which are detachably connected with the swinging frame. Vertical bars, which are held to the sides of the friction-rollers by removable pins, have their ends extended above and below the rollers, so as to form guides for two adjacent rails.

178,906.

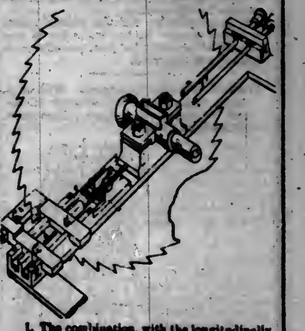


1. The combination, with the frame C and panel A, having the cross-bars d, of the inverted-T shaped blocks, the latter being applied as shown and described.

2. The vertical removable bars c', in combination with the rollers E and gate-panel A, said bars being arranged to bear against adjacent bars of the said panel, as shown and described.

178,907. SAW-GUIDES FOR CIRCULAR-SAW MILLS. Jeremiah Collins, Lincoln, Ky., assignor to Wm. M. Ferry, Grand Haven, Mich. [Filed Aug. 27, 1875.]

Brief.—The guides can be longitudinally adjusted by the operator without leaving his post, by means of a longitudinally and transversely slotted bed-plate, and screw-rods for operating the slide-bars, which support the guide-frame, in connection with pins projecting from the under side of each guide. The outer guide is formed in two parts, and the outer arm of said guide made detachable, for changing the saws when necessary.



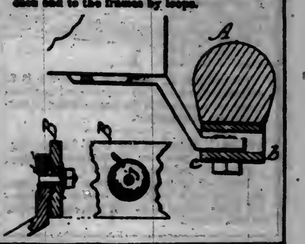
1. The combination, with the longitudinally and transversely slotted bed-plate, of the guides, and the bars for adjusting the latter in the direction of their length through the pins and diagonal slots, substantially as described.

2. The combination, with the bars for adjusting the guides, of the screw-rods for operating them at a distance from the cutting-edge of the saw, substantially as described.

3. The outer guide, made in two parts, G' G', as described, for the purpose specified.

178,908. CARRIAGE-SPRINGS. J. Cornwall, Rochester, N. Y. [Filed Aug. 16, 1875.]

Brief.—The side springs are fastened near each end to the frames by loops.





172,909.

1. In a side bar wagon, the combination of side bars A, cross-springs C, side springs B, permanently attached at the ends to the ends of the side bars, and having curves *c c d*, whereby elasticity is produced and the vibrations of the carriage body are compensated for, as set forth.

2. The combination with the body-loop *h*, having a conical hole through it and the conical bearings *f* on its bottom, of side springs B, having concave indentations *g* in their tops, and the bolt *i*, as and for the purpose specified.

172,909. MACHINES FOR MAKING STAPLES. Sanford S. Cook and William B. Rommel, Wheeling, W. Va., assignors of one-third their right to F. F. Wingerter. [Filed July 17, 1875.]

Brief.—A pair of rolls and a plunging former, provided with grooves to correspond to each other, and with, respectively, edge bar a rack, for steering uniformity and solidity in operation. Connected to the plunger is a knife for cutting off proper lengths.



1. In the rollers L L, the tapering grooves *f f*, in combination with the tapering groove *d* in the forming-plunger K, as and for the purpose herein specified.

2. In combination with the grooved rollers L L and plunger K, the cutter-bar M and gage N, all arranged for joint operation, substantially as described.

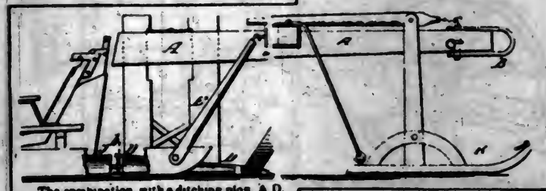
172,910. PRESSER'S LASTING. William B. Cram, Cleveland, Ohio, assignor of one-half his right to S. H. Kirby, same place. [Filed Sept. 1, 1875.]



The holders G, D, and F, the straps E E, windlass H, rope O, all constructed and combined to operate with the bed or frame A, substantially as described.

172,911. IMPLEMENT AND TILE-LAYING MACHINE. Matthew H. Orbaker, Berrey, Ohio. [Filed Jan. 10, 1876.]

Brief.—A ditching-plow with a front bearing-shoe, and a tile-laying tube with adjustable slides hinged to its rear end, and a tender or sled behind.

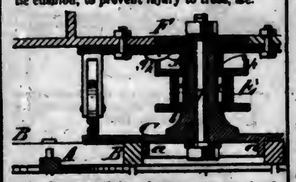


172,911.

The combination, with a ditching plow, A D, of the tile-tube B, hinged to the rear of the plow, the sled N, slide K, with standards L and lever M, all constructed and arranged substantially as and for the purposes herein set forth.

172,912. REVOLVING HARROWS. Wm R. Culver, Leavenworth, Kans. [Filed Jan. 29, 1876.]

Brief.—A revolving harrow constructed of circular pieces of timber connected by sleeves and rivets. In the center is a flanged spindle-plate, upon which revolve the load-beam and the draft-bar On outside of frame is an elastic cushion, to prevent injury to trees, &c.



1. In a revolving harrow, composed of circular pieces A A and crossed pieces B B, the center spindle-plate C, flanged and applied to the harrow-frame, substantially as described.

2. The flanged spindle-box E, constructed with notched flanges to receive a tooth, *f*, and provided interiorly with anti-friction rollers *e*, in combination with draft-beam D and the loaded beam F, applied and supported substantially as described.

3. In combination with the loaded beam F, the capped bearing *f*, roller-bearing *p*, spindle-plate C, bolt *i*, and a harrow-frame, constructed substantially as described.

4. The elastic cushion J, in combination with the circular rim of a harrow-frame, for the purpose specified.

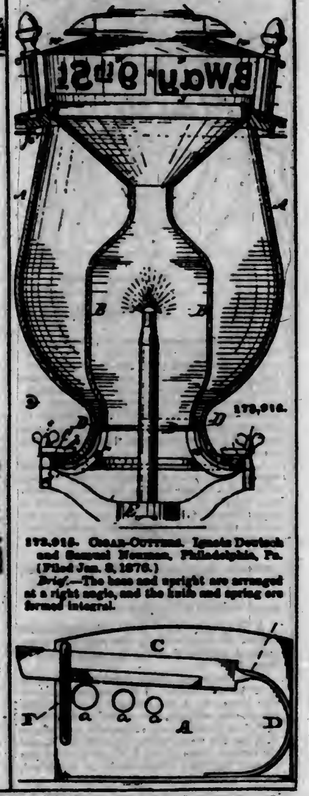
172,913. COMBINED BURIAL-CASES AND TOMBSTONES. Jerome Decker, Hunter's Land, assignor to Myra Wagoner, Albany, N. Y. [Filed Dec. 3, 1875.]



The burial case or receptacle A, having the projecting bottom A' provided with a recess, *a*, at its projecting end, in combination with the head-stone B and shaft B', having the shoulder *b*, all being constructed and arranged as described and for the purpose set forth.

172,914. STREET-LAMPS. G. K. Deutsch, New York, N. Y., assignor to William B. Deutsch, same place. [Filed Sept. 20, 1875.]

1. A lamp, composed of the base, the two globes A and B and the dome containing the reflectors *s*, *u*, and *n*, all constructed and arranged to operate as and for the purpose described.



172,914.

2. The combination of the globes A and B and the dome D, the said dome resting upon the globe A and the reflector *u*, which serves also to grasp and support the globe B at its upper end, as and for the purpose described

3 The combination of the two globes A and B and the dome, the upper end of the globe B fitting snugly into the central aperture of the conical diaphragm *n*, and there being air-spaces between the upper rim of the globe A and the dome to permit a circulation of air between the globes, as and for the purpose specified.

4 The combination of the tablets *o* and the reflectors, consisting of the outer surface of the crown *u*, and the upper surface of the base *n*, and the central aperture of the base *n*, as and for the purpose described.

5. The combination in the dome described of the frame *s*, *n*, *t*, the crown *u*, and the tablets *o*, the whole constructed substantially as described, so that the tablets are removable, as and for the purpose described.

172,915. CHAIR-CUTTERS. Ignatz Deutsch and Samuel Neuman, Philadelphia, Pa. [Filed Jan. 3, 1876.]

Brief.—The base and upright are arranged at a right angle, and the knife and spring are formed integral.

The cigar-cutter, consisting of the perforated plate A, base B, cutter C, and supporting spring-arm D, formed integral with said cutter, all constructed, arranged, and operating as set forth and for the purpose described.

172,916. MANUFACTURE OF HORSESHOES. Thos. Dollard, Brooklyn, assignor to himself and John Hechtel, New York, N. Y. [Filed July 15, 1875.]

Brief.—The trough-like bar is bent around a "former" to the shape of a horseshoe; a flexible metallic bar made of short sections, hinged together, being introduced to prevent buckling of the walls of the bar, and then the open head ends of the shoe are closed by means of the die.



1. As an improvement in the art of making horseshoes, the preparation, by rolling or otherwise, of a trough-like bar, such as that hereinbefore described, and the bending of said bar around a form to the required shape, while inclosing a flexible metallic mandrel to prevent the buckle or collapse of the walls of said bar during the operation, substantially as described.

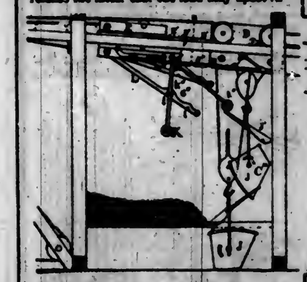
2. The gutter-shaped bar A having its one or outer edge *a* made of greater thickness than its opposite edge *a'*, for the purpose herein described.

3. The gutter-shaped bar A having its upper surfaces made beveling or inclining from its side or edge *a* to its opposite side or edge *a'*, substantially as and for the purpose herein set forth.

4. The dies G H constructed to close either end of the hollow shoe, essentially as specified.

172,917. HOISTING APPARATUS. J. Dorman, Georgetown, D. C. [Filed Jan. 20, 1876.]

Brief.—Two carriages are on ways supported by trestles, which extend from the ship to the place of deposit. One carries forms on adjustable steps, against which levers on the other strike to release the suspended sheave-block, in order that the bucket may descend, or in so relaxing the latter that the load may upset it.



1. In a hoisting and conveying apparatus, a rock-shaft, F, having projecting arm *f*, in combination with ball-crank lever H, slide H', and an adjustable stop, I, substantially as and for the purpose described.

2. A rock-shaft, F, having projecting arm *f*, in combination with ball-crank lever H, slide H', and a step, *m*, in the sliding carriage E, substantially as and for the purpose described.

3. The combination of projecting arms pivoted at *f''*, having at the upper end a projecting cross-head, and at the lower end supporting the rock-shaft F and its arm *f*, slots *f'* in the sides of the carriage to admit of vertical play therein, and pin *g* of the lazes G, for the purpose of lifting the cross-head D' over the pins *e e*, substantially as and for the purpose described.

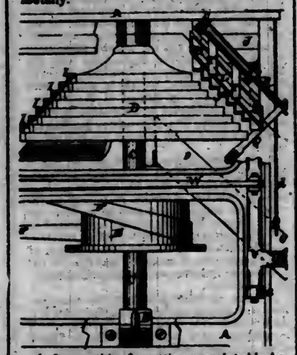
4. The hollow lazes of the sheave, with its pin *g*, substantially as and for the purpose described.

5. The combination of the arm *f* of shaft F, the lazes-head, and pin *g*, with the sloping guide and support *f''*, substantially as and for the purpose described.

6. The trip-lever J', having its lower end weighted, and at its upper end a cross-head, all substantially as and for the purpose described.

172,918. SUGAR-CUTTING MACHINES. W. Donohoe, Jersey City, N. J. [Filed Jan. 31, 1876.]

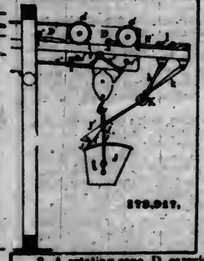
Brief.—The slab of sugar, dropped edgewise into or projecting through bottom of feed-box, rests on the steps of an underlying cone, which carries a rectangular knife at each of its steps. Cone revolves; knives cut off, at first, triangular cross-sections, afterward, cubes. The slab of sugar is held against a yielding support behind it in the feeding-box by a shoe riding to and from the front of the slab on pins, and pushed from the slab by coiled springs around the pins, and impelled against the slab by a cam on the revolving cone, actuating a rock-lever connected to the shoe. The slab is then intermittingly held just before and during the cutting, and released at other times, to drop and to afford a new grips for the knives. The cubes drop through a slot in the cone into an inclined tray covered with a wire trellis, when they are separated by shaking the tray horizontally.



1. In a machine for cutting sugar into blocks or cubes, the combination of a series of rotating knives, I, with a feed-box, J, and an intermittingly-acting clamp, L, the whole being adapted to operate substantially as described.

2. A rotating cone, D, carrying the knives I, and forming a support for the cake of sugar to be cut, in combination with the knives I and the intermittingly-acting clamp L, substantially as described.

3 In combination with a series of rotating knives, I, the intermittingly-acting clamp L and cone D, having an opening, N, I claim the separator O, substantially as described.



172,917.

172,919. RUNNING-GEARS FOR RAILWAY-CARS. David H. Dotterer, Philadelphia, Pa. [Filed Jan. 3, 1876.]

Brief.—Weight divided between lever and spring. Devices for insuring proper action, limiting expansion, &c.

1. An axle-box connected to a sill, A, through the intervention of a lever pivoted at one end, and containing a bearing-spring at the other, substantially as set forth.

2. The spring-supporting lever D, provided with jaws *d d*, for the reception of the axle-box, substantially as shown and described.

3. In combination with the lever D, having jaws *d d*, the axle-box C, provided with trunnions *c c*, substantially as shown and described.

4. In combination with the levers D D the rods H H, to prevent spreading, as described.

5. In combination with the lever D the keeper I, for the purpose set forth.

6. The box C, having trunnions *c c*, lever D, provided with jaws *d d*, bracket F, spring G, rods H H, and keeper I, the several parts being constructed and combined for operation substantially as shown and described.



172,919.

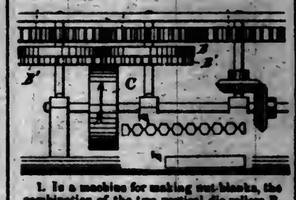
172,920. FIRE-SHOVELS. Jas. Rayner, New York, N. Y. [Filed Jan. 27, 1876.]



As an article of manufacture, the fire-shovel herein shown and described.

172,921. NUT-BLANK MACHINES. John P. Edwards, William N. B. Edmonston, and William Porter, Cleveland, Ohio. [Filed May 24, 1875.]

Brief.—The plain portions of the rolls, with or without the plain roll, maintain the bar in close contact with the forming portions.



1. In a machine for making nut-blanks, the combination of the two vertical die-rollers B, substantially as and for the purpose described.

2. The combination of the vertical die-rolls B and horizontal roll C, the whole forming a machine whereby the bar E is drawn into the form of a nut-bar, F, substantially as and for the purpose described.

172,922. FULLING-MILLS. E. Hohmeyer, Yonkers, N. Y. [Filed Dec. 28, 1875.]

Brief.—The front interior of the fulling-bed is curved in two directions—viz., laterally and vertically—thereby more readily producing a change of position of the material being operated upon. The beater is operated by a "friction-clamp," attached to the beater-helve, and an adjustable crank-rod passing through it. Then the speed of the beater is slow at the commencement of the lift, is rapidly increased, and is then gradually diminished up to the moment at which it is dropped.

1. In a fulling-mill, the combination, with a set of two or more beaters, a fulling-bed having front interior surfaces which are curved in two directions, substantially as described, whereby the fabrics may be made to move regularly, and constantly change their position while being fulled.

2. The combination, with a single beater, of a fulling-bed, having front interior surfaces which are curved in two directions, substantially as described, whereby the fabrics are not liable to be torn or twisted while being fulled.

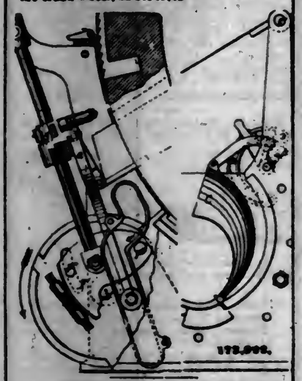
3. The combination, with one or more beaters, of a jointed fulling-bed, having front interior surfaces which are curved in two directions, substantially as described.

4. The combination, with a fulling-bed, having its front interior surfaces curved in two directions, of one or more beaters provided with graduated lifting mechanism, substantially as described.

5. The combination, with a jointed fulling-bed, having its front interior surfaces curved in two directions, of one or more beaters and graduated lifting mechanism, substantially as described.

6. The combination, with a felting-mill beater, of a reciprocating lifting rod and an automatically-operated clamp attached to the beater, substantially as described.

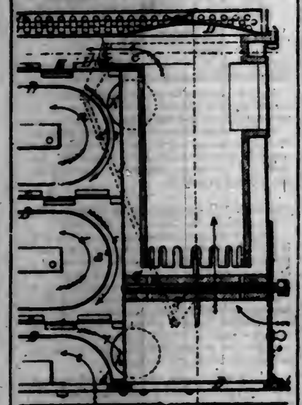
7. The combination, with the beater of a felting-mill, of a clamp, a lifting-rod, connected by means of a crank-pin to a crank-wheel, and adjusting mechanism, substantially as described, whereby the crank-pin may be set at any desired point with relation to the axis of the crank-wheel, as set forth



178,922.

178,922. AIR-HEATING FURNACES. R. Bickmeyer, Yonkers, N. Y. [Filed Dec. 8, 1875.]

Brief.—The sheet extends through the walls of the furnace, thus separating the fire-pot and combustion-flues from the air-chambers and its passages by a partition, which is without joints or perforations.



1. The combination, with a heating-flue in a hot-air furnace, a fire-pot, and a chamber containing the same, both of which have separate openings communicating with said heating-flue, of a horizontal grate, a vertical grate, and damper, which control the exit-openings of both the fire-pot and the inclosing-chamber, substantially as described, whereby the heat and the unconsumed products of combustion may be conducted into and through the heating-flue, either from the fire-pot or from the inclosing-chamber, as set forth.

2. The combination, with the dampers which control the passage of air to the vertical grate, and the central damper, which controls the exit-apertures of the fire-pot, and the damper of the chamber which contains the fire-pot, of a system of connecting-levers, substantially as described, whereby the several dampers may be simultaneously set, as set forth.

3. In an air-heating furnace, the combination, with the fire-pot and an air-chamber, of a radiating-flue, composed of a continuous radiating-sheet, bent or folded, and provided with plates or partitions, which form passages in the bends or folds, through which the products of combustion are directed to and fro throughout the length of the radiating-flue in their passage from the furnace, substantially as described.

4. The combination, in an air-heating furnace, of a fire-pot, a radiating-flue, composed of a bent or folded sheet of metal, and having an interior passage, which corresponds with the bends or folds, with an air-chamber, provided with troughs or directing-partitions, substantially as described, whereby the air in its passage through the chamber is well mixed, and made to traverse the entire heating-surface of the radiating-flue, as set forth.

5. The combination, with a heating-flue, in which the products of combustion travel from and toward the fire-pot in their passage from the furnace, of an air-chamber, in which the air travels to and fro in its passage through it, while in contact with the exterior of the heating-flue, and which is provided with a cold-air induction-passage adjacent to the exit-aperture of the heating-flue, and an exit-aperture for the hot air, located adjacent to the connection of the heating-flue with the fire-pot, substantially as described, whereby the air to be heated travels in contact with the entire radiating-surface of the heating-flue, and is conducted in a direction opposite to that in which the products of combustion pass from the fire-pot through the furnace, as set forth.

6. The combination, with a fire-pot and a radiating-flue, in which the products of combustion traverse to and fro in their passage from the furnace, of outlets or passages provided with dampers, communicating with the smoke-pipe or chimney, which are located at different points in the line of the flue, substantially as described, whereby the products of combustion may be made to traverse the entire length of the flue, or a lesser portion thereof, as set forth.

7. In an air-heating furnace, the combination, with the air-chamber, of a single continuous flue, having a radiating-surface, which is composed of a continuous bent or folded sheet of metal, which extends through the framing of the furnace, and is connected at the edges with that portion of the framing which constitutes the non-radiating surfaces of the flue, substantially as described, whereby gas escaping from the flue through its joints is discharged outside the air-chamber, as set forth.

8. The combination, with the air-chamber and the main radiating-sheet, of an auxiliary radiating-sheet located adjacent to the main sheet, for receiving heat radiated therefrom, and arranged to afford an air-passage along both surfaces of the auxiliary radiating-sheet throughout its length, substantially as described.

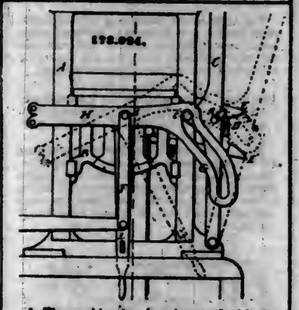
9. The combination, with a heating-flue, of a perforated heating-sheet, located in the hot-air chamber, adjacent to the radiating-surface of the heating-flue, substantially as described, whereby the air to be heated may pass along both surfaces of the heating-sheet, and through its perforations, as set forth.

10. In an air-heating furnace, the combination, with the air-chamber, of a heating-flue provided with radiating-surfaces, composed of a continuous sheet of metal, which is extended from the front of the furnace below the ash-pit to the rear, thence upward and back to the front of the furnace, above the fire-pot, substantially as described, whereby that portion of the furnace which contains the fuel and the unconsumed products of combustion is wholly separated from the air-chamber and its passages, an extensive radiating-surface afforded, and the escape of vitiating gases into said air-chamber prevented.

178,924. JACQUARD MECHANISMS FOR LOOMS. Geo. F. Bramhall, Philadelphia, Pa., assignor to himself and H. Dimock, same place. [Filed Dec. 18, 1875.]

Brief.—The jacquard-cylinder or pattern-prism is combined with mechanism whereby the prism can be reversed by hand. The arms in which are formed the S-shaped cams are pivoted to the grid, and are connected to each other at their rear ends by transverse rods or bars. The frame thereby formed is provided at one side with a hand-lever, to which is attached a spring-catch, that engages with a notch in the curved projection on the side of the grid. When this catch is withdrawn the cam-frame can be rocked by hand, thereby reversing the pattern-prism through the intermediate devices.

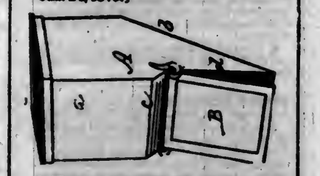
178,924.



1. The combination, in a jacquard with the rising and falling frame B and the prism-frame or press C, of the rocking cam-frame, having a stop or catch and connected with said frames B and C, substantially as specified.

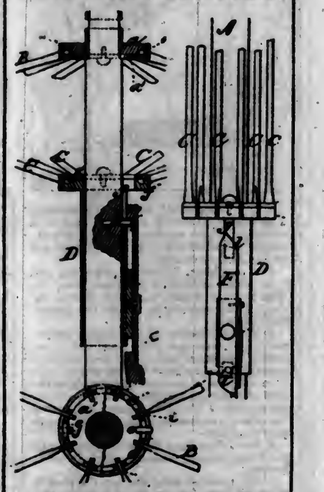
2. The combination with a rising and falling frame, B, having a bearing-arm, g, of the frame H, provided with an operating-lever, L, and spring-catch K, substantially as and for the purpose set forth.

178,925. SEWER-TRAPS. Andw. Ely, Rochester, N. Y., assignor, by mesne assignments, to Theresia Ely, same place. [Filed Jan. 24, 1876.]



1. The case A, constructed with the square top a, inclined back b, angular shelf c, and inclined seat d, for the fitting of the valve B, as shown and described, and for the purpose specified.

178,926. UMBRELLA-RUNNERS. John J. Babbenk, Lexington, Ky. [Filed Jan. 8, 1876.]



1. In an umbrella, in combination with the stick A, having pins b b', the runner D, having vertically-vibrating catch with beveled shouldered heads c c', substantially as specified.

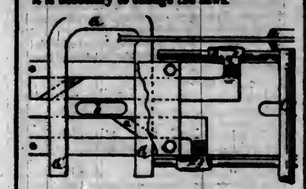
2. In combination with the stick A, having

locking-pins b b', and the slide or runner D, having slot g, the spring-actuated and vertically-vibrating catch F and spring S, substantially as specified.

3. In an umbrella, a runner, D, having the collar E' radially notched and provided with an annular groove, e', the radially-notched plate f' and turn-buttons a, in combination with the braces C, provided with pivotal pins d', whereby any one of the braces can be readily removed or inserted in its seat without affecting the others, substantially as described.

178,927. SAW-GUIDES FOR CIRCULAR-SAW MILLS. William M. Furry, Grand Haven, Mich. [Filed Aug. 27, 1875.]

Brief.—The guides can be adjusted from behind the saw while sawing, and they can be used with saws of various diameters without changing the length of the screw-bars which actuate them, by means of an adjustable connection between the sliding bars which support the guide-frame and the screw-bars. The outer guide is formed in one piece, and adapted to be removed from the guide-frame whenever it is necessary to change the saws.

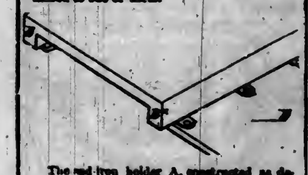


1. The screw on the rear end of each guide-bar, and a pin or key, c, for adjustably connecting the same with its screw-rod, substantially as described.

2. The guide G', made in one piece, as described, and adapted to be removed from the guide-frame, and adapted to the saw, substantially as set forth.

178,928. FLAT-IRON RESTS AND POLISHERS. George P. Fessenden, Hyannis, assignor to Frank Alba Fessenden, Arlington, Mass. [Filed Aug. 12, 1875.]

Brief.—A rest of hard material with two supports, having a flexible coated surface attached to one of them.



The rest-iron holder A, constructed as described, and provided with the coated pad D, as and for the purpose specified.

178,929. ANCHORS. Jos. T. Perkins, Philadelphia, Pa., assignor to Jos. T. Williams, same place. [Filed Jan. 19, 1876.]



1. The yoke C, consisting of two ends of inwardly-projecting arms, each formed of one piece with the flukes and shank, substantially as and for the purpose set forth.

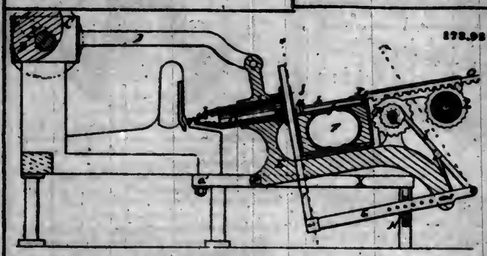
2. The bifurcated shank A, in combination with the flukes-arms b, and yoke C, constructed, arranged, and operating substantially as and for the purpose set forth.

178,930. MECHANICAL MOVEMENTS. Jos. R. Finney, Pittsburg, Pa. [Filed Nov. 23, 1875.]



In combination with two shafts, a pitman connected to the shafts at a point outside the axial centers, and moving in guides, inclined or cam-shaped, substantially as and for the purpose specified.

178,931. NAIL-PLATE FEEDERS. Joseph R. Finney, Pittsburg, Pa. [Filed June 22, 1876.]



Brief.—The operative parts of the machine are arranged upon an oscillating lever or support, which is connected, at both ends, to a laterally-adjustable frame. The invention comprises (as specified in the claims) mechanism for automatically pushing the topmost plate from the pile in the feed-box, mechanism for causing the semi-revolution of the nose-piece, mechanisms for automatically retracting the feed-plate, and mechanism upon the driving-shaft for giving, through a pitman-connection, a positive movement to the oscillating lever or support.

1. In combination, with the nail-machine shaft and cams thereon, the moving-lever or oscillating-frame, and suitable intermediate mechanism for operating the feed mechanism from the cams on the driving-shaft, substantially as specified.

2. The combination of the oscillating-frame, the plate or feed-tube, the lever pinion and pawl, and the rack, substantially as and for the purpose specified.

3. The combination of the feeding-rack, the antifriend pinion for feeding the rack forward, and the pinion having a coiled spring for retracting the rack, substantially as and for the purpose specified.

4. The combination of the moving-lever or oscillating-frame, the feeding-rack and its driving-pinion, and suitable intermediate mechanism for operating the feeding-rack from the oscillating-frame, substantially as specified.

5. The combination of the feeding-rack and its driving-pinion, the adjustable pawl-lever and pawl, and the rocking-lever or oscillating-frame, substantially as and for the purpose specified.

6. The plate-box F, having the spring false bottom f, and a door, d, connected by a chain or similar means, substantially as described.

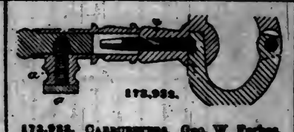
7. In combination with the feeding-rack O, the feed-plate I, provided with drop-latches, substantially as and for the purpose specified.

8. The combination of the oscillating-frame R, the feed-tube K and its operating mechanism, the feed-rack O and its operating mechanism, and the plate-box F, substantially as and for the purpose specified.

178,932. PADLOCKS. Martin Fortmeyer, Newark, N. J., assignor to himself and A. Fetler, same place. [Filed Jan. 31, 1876.]

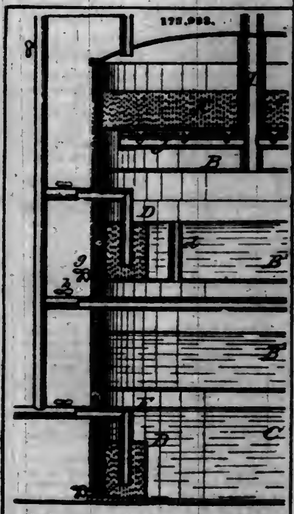
A padlock of the form herein set forth and shown, and provided with the screw-pins a a and ring O and a key, A, adapted to lock and unlock the same, all being constructed, combined, and arranged to operate substantially as set forth and described.

178,933. CARBURETORS. Geo. W. Forbes, Cincinnati, Ohio, assignor of two-thirds his right to James W. McMakin. [Filed Dec. 4, 1875.]



Brief.—The carburetor consists of pans, one above the other, which contain oil, and have overflow-pipes and agitating-vessels, with perforated sides. A purifying-chamber is placed above the carbureting-chambers. Gas or air to be carbureted passes from pipes into the perforated agitating-vessels, from which it escapes through the oil.

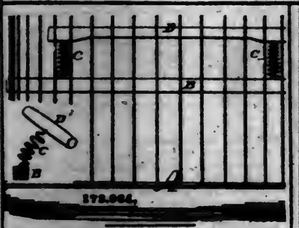
178,934. STRING-PINCHERS FOR BEE-GUARDS. R. O. Ford, Washington, D. C., assignor to G. A. Morgan, Baltimore, Md. [Filed Jan. 20, 1876.]



1. A perch-supporter upon helical springs C, adjusted so that their axes are vertical, and said springs are therefore capable of yielding in all directions with equal facility.

2. A perch, D', mounted by its center, and revolving upon a spring, C, having a vertical axis, substantially as shown and described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.



178,924.

178,925. BIRDS-PERCHES FOR BIRD-CAGES. H. C. Ford, Washington, D. C., assignor to G. A. Morgan, Baltimore, Md. [Filed Jan. 20, 1876.]

Brief.—The perch is connected to the vertical wires of the cage by means of a sheet-metal clamp and intermediate rubber tube.



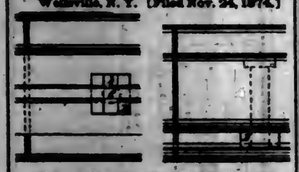
1. In combination with the perch B and a spring, F, the bar C provided with a tang, *d*, projecting from one side for ready attachment to the bars *c c*, as set forth.

2. The bar C constructed with an oblique shoulder, *e*, and the tang *d*, as described, and for the purposes set forth.

3. The bar C constructed with the tang *d* from a single blank, G, of sheet metal, as set forth.

4. In combination with the bar C, to be attached to the cage, and the perch B, the tubular spring F, as set forth.

178,926. NUT-LOCKS. George F. Fuller, Wallingford, N. Y. [Filed Nov. 24, 1874.]



The nuts D, having dovetail slots *b*, in combination with the rod B, having beveled edges for locking two or more nuts, substantially in the manner and for the purpose set forth.

178,927. GUTTING AND THREADING FOR SEWING-MACHINE NEEDLES. Samuel M. Furman, Henderson, Ky., assignor of one-third his right to Cornelius Bailey. [Filed Nov. 6, 1875.]

Brief.—A needle cutter and threader, constructed so as to slide in a groove in the needle-bar, is provided with a thread, which, by means of a spring-stop, is arrested at the proper position with respect to the eye of the needle, when it is desired to cut or thread the same. The said spring-stop serves to hold the cutter and threader in a raised position when not in use.



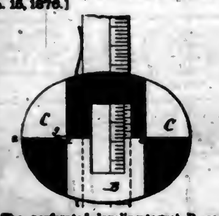
1. The combination, with a needle-carrier, of a needle threader and cutter, adapted to slide down in front of the needle, and provided with a thread and a slot to arrest the thread in proper position, substantially as herein illustrated and described.

2. The combination of the slide *d*, the spring *e*, and the thread *f*, the latter being supported by the spring, and constructed with a guide-groove, *g*, to embrace the needle, as specified, for the purposes set forth.

3. In a sliding needle threader and cutter, the stop-pin *h*, and the spring *e* carrying the same, in combination with a needle-bar having a stop-groove, *c*, shouldering to its upper end and there terminating in a retaining-depression *i*, having an inclined bottom, as herein described, for the purposes set forth.

4. The combination of the slide *d*, spring *e*, thread *f*, stop-pin *h*, and finger-pieces *j k*, with the slotted face-plate F *a*, and the grooved needle-bar B *b c*, as herein specified.

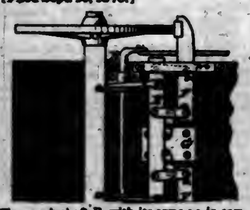
178,928. SURVEYORS' LEVELING-TARGETS. Ernst A. Gieseler, New York, N. Y. [Filed Jan. 15, 1876.]



1. The perforated leveling-target B, combined with the larger rear target C, having line *c c*, substantially as and for the purpose herein shown and described.

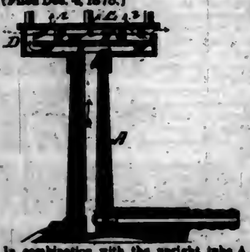
2. In combination with the two targets B and C of a leveling-rod, the diopter *g h*, applied substantially as specified.

178,929. WAGON-BRAKES. S. M. Gillett, Warsaw, and S. D. Saxby, Trenton, Mo. [Filed Sept. 10, 1875.]



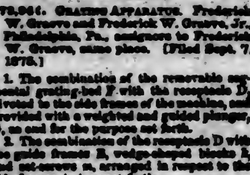
The crank-shaft B, with its arms *c c*, in combination with the rods *c a*, bar E, and brake-bars F F, the bars being connected by plates *e* and to the plate G, as and for the purpose herein set forth.

178,930. GAS-STOVES. Duane N. Gleason and Albert A. Bowler, Brooklyn, N. Y. [Filed Dec. 4, 1875.]



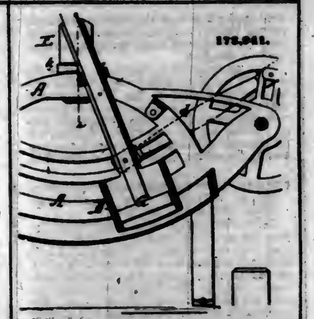
In combination with the upright tube A, having cap D with projections *d*, the perforated plate E, having spanel disk F, substantially as specified.

178,931. GRATING APPARATUS. Frederick W. Groves and Frederick W. Groves, Jr., Philadelphia, Pa., assignors to Frederick W. Groves, same place. [Filed Sept. 7, 1875.]



1. The combination of the removable supplemental grating-bed F with the receptacle D, pivoted to the side frames of the machine, and provided with a weighted and guided plunger, G, as and for the purposes set forth.

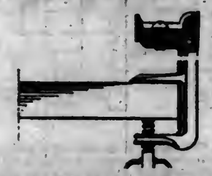
2. The combination of the receptacle D with the guide frames E, wedge-shaped blocks *k*, and set-screws *m*, arranged in respect to the side frames A A as set forth.



178,932.

178,932. APPLE-PARERS. Wm. M. Grissom, Reading, Pa., assignor to Wm. Harbster, Nathan Harbster, and Wm. M. Grissom, same place. [Filed May 22, 1875.]

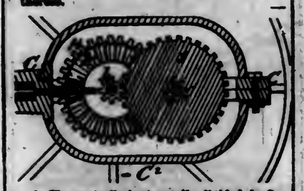
Brief.—An apple-parer having a detachable clamping-frame and flanges for steadying the same.



The combination of the frame B, carrying the operating parts of an apple-paring machine, with a detachable clamping-frame F, provided with a device for insuring the lateral steadiness of the two frames, all as set forth.

178,933. MOWING-MACHINES. Lewis A. Haines, Wakefield, Mass., assignor to himself and Edwd. Lynch, same place. [Filed Mar. 22, 1874.]

Brief.—The main frame is divided horizontally on a line through the driving-axle, and has the upper and lower gearing-covers hinged thereto.



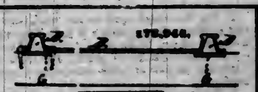
1. The centrally horizontally divided draft-frame sections C for the gearing which drive the sickle, and their recessed prolongations *c*, extended in the same plane, in combination with the upper and lower hinged bearing-caps O' O², to allow free access to the gearing, constructed substantially as described.

2. The combination, with the draft-frame C, horizontally divided to receive the axle, and provided with flanges over and under the axle-seats, of the flanged bolts D' D', secured on said axle, and suitable connecting-bolts, substantially as specified.

3. The harvesting combination, consisting of the edge-toothed and laterally-recessed master-wheel H, fixed on the axle, and the double gears *f f* on the counter-shaft *e*, the transverse double-pinion *f* on the crank-shaft, and the intermediate double gears *b b'*, loose on said axle and seated in the lateral recess of said master-wheel, all constructed and combined to operate together, substantially as described.

178,934. RAILROAD-TRACKS. Lowell Hall, Grand Rapids, Mich. [Filed Dec. 10, 1875.]

The combination, with the tie A, having grooves G, of the chair-bar B, arranged at the ends thereof for fitting to said grooves, as described, and for the reception of the rails D, secured thereto in the manner substantially as and for the purpose specified.



178,935.

178,935. MOTH-PROOF COMPOSITIONS. W. H. Hall, Jersey City, and John Kennell, Passaic, N. J. [Filed Jan. 12, 1876.]

A compound of alcohol, pure tar, spirits of camphor, essence of mirbane, citronella, bitter almonds, and extract of cedar-wood, in about the proportions specified.

178,936. SOFT-METAL SEALS. P. C. Hamilton, Brooklyn, N. Y. [Filed Oct. 18, 1875.]

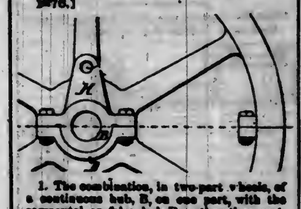


A soft-metal seal combined with a single-strand elastic-wire, wherein are formed a series of open spirals, substantially in the manner and for the purpose described.

178,937. PROCESSES OF ORNAMENTING WINDOW-SHADES. Jos. O. Hamm, Greenville, N. J. [Filed July 31, 1875.]

In the manufacture and ornamentation of window-shades, the following successive steps, viz: first, printing on the undressed muslin directly, by the lithographic, stenographic, or mezzotint process; and, second, coating and saturating the printed muslin with gelatine or equivalent material, substantially as and for the purpose described.

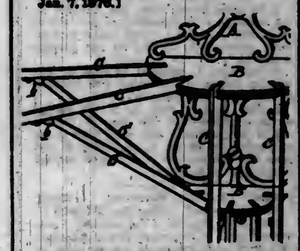
178,938. SECTIONAL WHEELS. William H. Harrison, Newcastle, Pa. [Filed Feb. 14, 1876.]



1. The combination, in two-part wheels, of a continuous hub, B, on one part, with the segmental or false hub D on the other part, substantially in the manner described.

2. The combination, in a two-part crank-wheel, of the continuous hub B and crank H on one half, with the segmental hub D on the other half of the wheel.

178,939. CLOTHES-DRYERS. Geo. H. Hayes and J. H. Hayes, De Bruyter, N. Y. [Filed Jan. 7, 1876.]



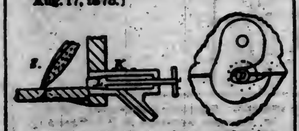
The combination of the shelf B', braces C', and cockle-plate *h*, with the arms C, shelf E, and bracket-hook A, substantially in the manner and for the purpose set forth.

178,940. FORMING MOLDS FOR CASTING. Edmund B. Hayward, Chicago, Ill. [Filed Apr. 15, 1875.]

Brief.—The pressing-roller is constructed with a gage-wheel, that travels upon the shell, and allows the roller to press the mold to the required depth.

The mirror-framed gage-wheel *p*, in combination with the arm *o* and wheel *f*, substantially as described.

178,941. BUTTER-WORKERS. Horace T. Henry, Terre Bonne Parish, La. [Filed Aug. 17, 1875.]

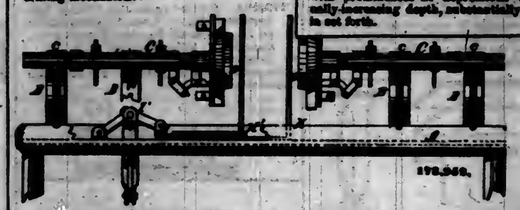


1. The combination in a butter-worker, having the pivoted leg F, or means for holding it inclined, of the guard S to hold back the butter, and perforated to allow the water to percolate of, with the faucet K, substantially as set forth.

2. The butter-worker, with the hinged top, arranged to carry back and hold the working cylinder R, out of chamber A, substantially as set forth.

178,942. MACHINES FOR GROOVING AND CHAMFERING BARRELS. John C. Herman and C. S. Lewis, Cincinnati, Ohio. [Filed Jan. 26, 1876.]

Brief.—Both ends of a barrel can be beveled, ground, chamfered, and dressed upon the outside, in one operation and at the same time, by means of two independently-adjustable cutter-heads, provided with suitable cutting-tools, and two intermediate barrel-supporting rings, in connection with suitable operating mechanism.



178,942.

1. The heads D D, constructed substantially as described, with suitable cutting-tools or bits for beveling, grooving, chamfering, and crozing both ends of barrels, kegs, and buckets simultaneously, in one and the same operation and machine.

2. The heads D D, constructed with the flaring or bevel rings *d d'* and intermediate space *e*, substantially as and for the purposes described.

3. In combination with the heads D D, constructed with the bevel-flaring rings *d d'*, the bits or cutting tools *b'*, *b²*, *b*, and *f*, for beveling, grooving, chamfering, and crozing both ends of barrels, buckets, &c., simultaneously, in one and the same operation.

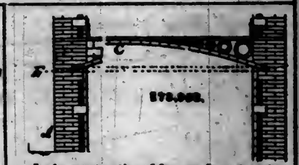
4. The tool or crozing-bit *f*, sliding in guides in the face of the heads D, in combination with an operating or reciprocating lever, J, and knuckle-joint *j*, as and for the purposes described.

5. In combination with the heads D D, constructed as described, the stationary ring or holding-head H, adjustable ring H', knuckle-joint F, and lever I, for holding and centering the barrel in place, before the cutting-heads, as described.

6. In a barrel-machine, the combination, with two independent adjustable cutter-heads, D D, of the intermediate barrel-supporting rings H H', whereby the axis of the barrel is brought in line with the cutter-shafts, and the operation of beveling, grooving, chamfering, and crozing both ends of a barrel is accomplished at a single operation.

178,943. FIRE-PROOF BUILDINGS. B. Hills, Delaware, Ohio. [Filed June 10, 1875.]

Brief.—A metallic bolt is embedded in the wall of the fire-proof building to take the thrust of the arch, which is sprung from the wall without intervening support.



178,943.

In the construction of fire-proof apartments, the combination with the voids A of the stones C and metallic bolt B, substantially as and for the purpose described.

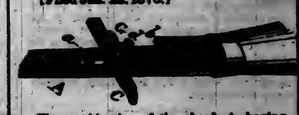
178,944. MANUFACTURE OF SHEET-METAL MOLDINGS. Frederick Hoelzer, Cincinnati, Ohio. [Filed Dec. 24, 1875.]



1. A pair of dies constructed, substantially as herein described, with protuberances or depressions of gradually-increasing depth from end to end, for the purpose of operating on sheet metal by successive blows, in the manner explained.

2. The process, substantially as herein described, for producing arched or curved moldings by successive strokes with dies formed with protuberances or depressions of gradually-increasing depth, substantially as herein set forth.

178,945. CRANK-TURNING-TOOLS FOR REMOVING CRANKS. Henry Hudson, Bentley, Ill. [Filed Jan. 28, 1876.]



The combination of the chuck A, having longitudinal slot *c* and shoulder *b*, the bolt B with flat slotted head B', cotter C, and thumb-nut G, substantially as and for the purpose herein set forth.

178,946. LOCKING-JACKS. Geo. W. Hunter, Philadelphia, Pa., assignor of part of his right to Henry M. Baker, Washington, D. C. [Filed Feb. 11, 1876.]

1. The combination, in a lifting-jack, of a standard, A, sliding bar B, lever I, link *p*, and dog J, griping the bar when tilted, and operated by the lever, substantially as set forth.

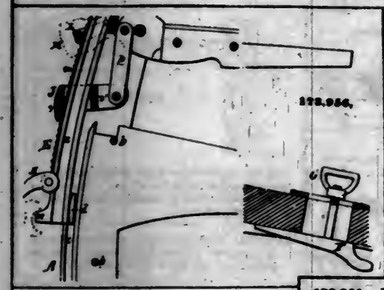
2. The combination, with the lever, dog, and bar, of stops *t t*, arranged to limit the downward movement of the dog, for the purpose specified.

3. The standard A, with its grooves *c c* and lips *i i*, in combination with the bar B, its groove *a*, and cross-plate *d*, substantially as set forth.

4. The combination of the sliding curved bar, the pawl L, and adjustable weighted arm M, for the purpose described.

5. The standard, consisting of metal cheek-pieces D D' bolted together and to the arm D, substantially as and for the purpose set forth.

6. The bush F, combined with and adjustable on the arm D, substantially as specified.



178,956.



178,964.

2. The described combination, with tube A and stiffener C, of couplers B B, having each a central recess, *b'*, for receiving the reel ends *a a*, holding the stiffener axially, and allowing a smaller, as well as much cheaper, rod to be used.

3. The conical or inclined guideway *b'* before the recess *b'*, as and for the purpose specified.

178,957. SHINGLE. Charles Inman, Hope, Mich. (Filed Nov. 14, 1874.)

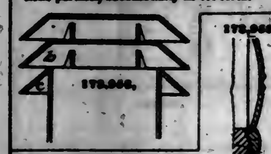


The shingle herein described, having the tapering form from its thin end to near the butt, the transverse shoulder and the rabbeted butt, finished from said shoulder with a plane side parallel with the other side of the shingle, as and for the purpose shown and described.

178,958. WEATHER-CAPS. J. H. Irvin, Philadelphia, Pa. (Filed July 28, 1875.)

Brief.—Improvement on No. 150,355, May 19, 1874, designed to effect with certainty a flow of air through the flue by the atmospheric currents outside of the cap acting against the deflecting-surfaces of said cap.

The upper plate *a*, made horizontal over a space equal to the cross-sectional area of the flue, and having its edges turned downward, in combination with the plates *b b*, said plates being so arranged in relation to each other that the apex of one shall be on the plane of the apex of the other, and their inclined portions parallel, substantially as set forth.



178,959.

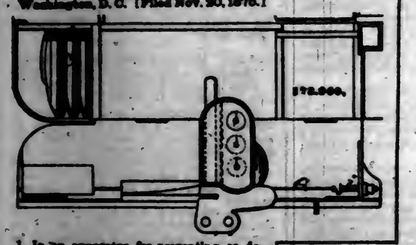


178,960.

178,959. CLOSING GAS-BURNERS. H. Jansen, New York, N. Y. (Filed July 10, 1874.)

The method herein described for closing gas-retorts, consisting in forming in the mouth-piece a series of concentric grooves and ridges, and a corresponding series in the face of the lid, so as to confine and collect the tar, thereby sealing the joint without the necessity of using luting or packing, substantially as set forth.

178,960. FARE-BOXES. Henry Johnson, Washington, D. C. (Filed Nov. 20, 1876.)



178,960.



178,960.

1. In an apparatus for preventing or detecting fraud, the combination of a recording alarm-punch, a striker, and a tensible string, substantially as described.

2. In an apparatus for preventing or detecting fraud, the combination of a desk or receptacle having compartments, a recording alarm-punch, a striker, and a tensible string, substantially as described.

178,961. EXPLOSIVE MIXTURES. Wilbur F. Johnston, Brooklyn, N. Y. (Filed Aug. 13, 1875.)

1. As a component part of an explosive compound, salts containing nitric acid and ammonia, which, by their decomposition at the time of the explosion, will produce nitrate of ammonia, as and for the purposes described.

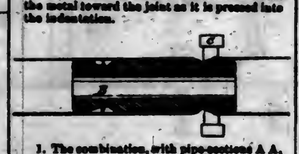
2. An explosive compound consisting of the following ingredients: an explosive material or compound to produce a primary combustion, salts which, being decomposed by the primary combustion, produce nitrate of ammonia, sulphur, and charcoal, as described.

3. An explosive compound consisting of saltpeter, charcoal, salts containing nitric acid and ammonia, and a small percentage of nitroglycerine.

4. The combination, in an explosive compound, of salts containing nitric acid and ammonia, and a small percentage of gunpowder, nitro-glycerine, or other common explosive, to produce a primary combustion and convert the salts into nitrate of ammonia.

178,962. COUPLINGS FOR TUBING AND LIGHTNING-RODS. Isaac Johnson, Chicago, Ill., assignor to Stephens, Hunter & Co., same place. (Filed Nov. 20, 1875.)

Brief.—Peculiar form of indentation forces the metal toward the joint as it is pressed into the indentation.



1. The combination, with pipe-sections A A, of intermediate short tube B, the latter having annular grooves, in which the metal of the former is circumferentially pressed, as and for the purposes described.

2. A coupling-tube, B, having the annular grooves *b*, with a longer slope toward the ends than toward the middle, as and for the purpose specified.

3. A lightning-rod section-tube having the opposite end edges correspondingly beveled on the inside and outside, as and for the purpose set forth.

178,963. LIGHTNING-RODS. Isaac Johnson and David A. Price, Chicago, Ill., assignor to Stephens, Hunter & Co., same place. (Filed Nov. 20, 1875.)

178,963.

1. A tubular section, A, of a lightning-rod stem, reinforced by an internal rod, C, conjoining solid end plugs, thus forming a continuous rigid stiffener, as shown and described.

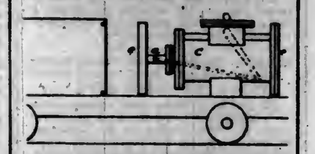
178,964. SNOW-SHOVELS. Christian Jensen, Ligonier, Ind. (Filed Jan. 22, 1876.)

Brief.—A snow-shovel with a bent blade, a metallic tip or shoe, and a bent handle attached to the blade by a bolt and staple.

The combination of the bent wooden blade A, metal shoe B, wooden stay C, bent wooden handle D, bolt *a*, and staple *b*, all substantially as and for the purposes herein set forth.

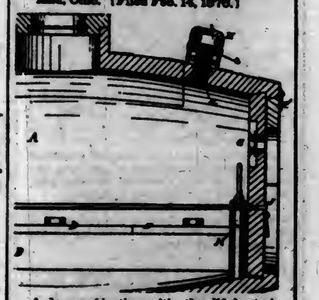
178,965. BALING-PRESSES. Geo. F. Jones, Pittston, Pa. (Filed Feb. 14, 1876.)

Brief.—On a truck a piston affixed to the piston-rod of a horizontal cylinder works into the open end of a baling-chest.



The combination of a baling-chest, B, and an engine, C, having a piston, *c*, connected to the piston-rod, and operating directly to form a bale by packing the material in small quantities at each forward movement in the baling-chamber.

178,966. LIFE-BOATS. Geo. Judson, Cleveland, Ohio. (Filed Feb. 14, 1876.)



1. In combination with the life-boat A, the ventilatory H, consisting of the tube *a*, perforated cover-cap *b*, flange *c*, and perforations, substantially as and for the purpose described.

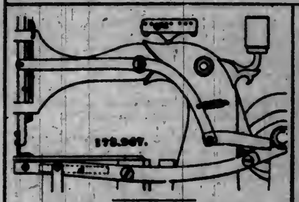
2. The mat J, attached to ends of life-boat by hinges, and provided with buttons, *d'*, substantially as described.

3. The vessel or body A, of the life-preserver, provided with the seats B, consisting of compartments and water-tank C, the supporting rod or bar I, ventilators H, and seats J, in the manner as described, and for the purpose set forth.

178,967. SEWING-MACHINES. J. Keith, Providence, R. I. (Filed July 27, 1876.)

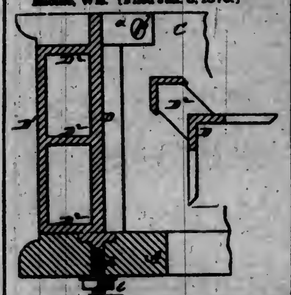
Brief.—The feed is of the ordinary "forwarding" kind. The presser-foot is automatically lifted while the needle is in the cloth, in order that the material may be prevented from being drawn back by the feed when the latter is retracted.

In a sewing-machine, a reciprocating vertical feeder, provided with mechanism for operating it, as described—viz., to cause it to retract and advance to feed the work without, in the meantime, moving out of and into contact therewith—in combination with a separate presser, provided with mechanism for raising and holding it off the work when the needle may be thereby, in order that the latter may be moved backward underneath the work, and the latter during such movement be sustained by the needle, all substantially as specified.



178,967.

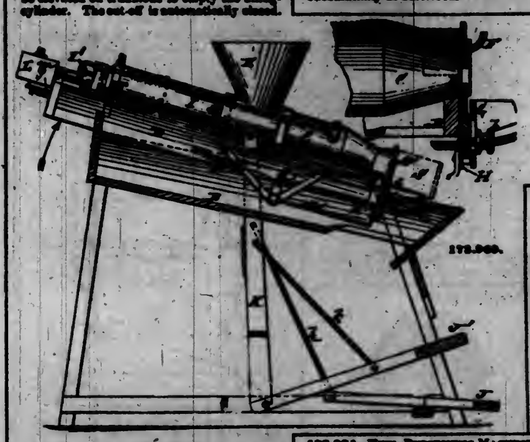
178,968. CORNER-IRONS. H. L. Kingsley, Racine, Wis. (Filed Jan. 8, 1876.)



The metal corner, consisting of the inner and outer angle-irons D D', connected together by the horizontal piston D', forming sections between the angle-irons and the inner angle-iron D, being provided with the screw-thread *d* having a nut, *e*, in combination with the tenoned pieces B B, substantially as described, and for the purpose set forth.

178,969. CAM-PULLEYS. Chas. M. Knowlton, New London, Conn., assignor to himself and W. B. Smith, same place. (Filed Aug. 13, 1875.)

Brief.—The piston is driven forward by steam, and backward by treadle mechanism, or in both directions by the treadles. A yielding box relieves the piston from excessive steam-pressure. An air-duct facilitates escape of air from the cam. The upper trough may be elevated on trunnions to empty the filling-cylinder. The cut-off is automatically closed.



178,969.

1. The combination, with the filling-cylinder or tube O and its hopper B, of a steam piston or plunger, I, and a valve and valve mechanism for operating said plunger, substantially as specified.

2. The combination of a yielding valve-box and a valve therein with the steam piston or plunger of the filling-cylinder, essentially as and for the purposes herein set forth.

2. The combination of the treadle J, the rods h, the levers K, the rods *i*, the steam piston or plunger I, the filling-cylinder O, and a valve and valve mechanism for controlling the forward or filling motion of said plunger, the backward motion of which is controlled by said treadle, substantially as specified.

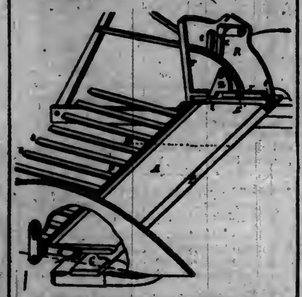
4. The combination of the treadles J J', the rods h h, the levers K, the rods *i*, the piston or plunger I, and the filling-cylinder O, essentially as described.

5. The air-duct F, in combination with the filling-cylinder or tube O, substantially as specified.

6. The combination, with the adjustable cam-holder G, the filling-cylinder O, and the sliding cut-off H, of the sliding stirrup or handle *n*, the crank *d*, the arm or lever *e*, and the spring *f*, essentially as described.

7. The tilting trough or support D, in combination with the filling-cylinder C, its hopper E, and its piston or plunger I, substantially as specified.

178,970. DROPPERS FOR REAPING-MACHINES. William B. Kreighbaum, Green Township, Summit County, Ohio. (Filed Dec. 21, 1875.)



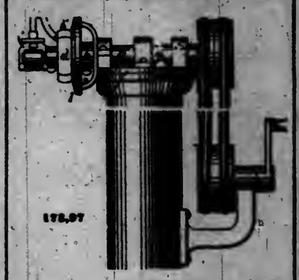
1. The board A, platform P, shaft F, arms G H, and end-board B, all operating substantially as shown, in combination with the cutter-bar C and dropper D, for the purposes hereinbefore stated.

2. The board A, having the pins *f f'*, in combination with the end-board E, provided with the ridges *r r* and gravitating catches S V, substantially as described.

178,971. HEEL-BURNISHING MACHINES. W. H. Lambert, Weymouth, assignor to Thos. A. Dodge, Boston, Mass. (Filed Jan. 31, 1876.)

1. The two burnishing-wheels b and *d*, constructed and arranged as set forth, and adapted to be revolved in opposite directions about a common axis, and moving in the same plane of revolution, and acting alternately upon the edge of a heel or sole presented thereto, as and for the purposes described.

2. The two burnishing-wheels b and *d*, constructed and arranged as set forth, and adapted to be revolved in opposite directions about a common axis, and in the same plane of revolution, in combination with the sole-carrying tread rest or gage, l, projecting radially beyond the periphery of said burnishing-wheels, as and for the purpose described.



178,97

178,972. STOP-COCK BOXINGS. J. Lemenager, St. Louis, Mo. (Filed Dec. 10, 1875.)

Brief.—Relates to the boxing, which is adapted to contain a cup-valve, which shuts the top interior part of the boxing from its lower interior part, containing the shut-off cock; also, a method of inserting and locking the cup-valve in its seat.

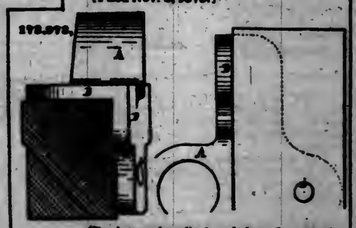


1. A cup-cock boxing having bell end A' and a cup-valve, C, as and for the purpose set forth.

2. A cup-valve, C, having rim *a*, lug *a'*, in combination with the bell end A', having a groove, *a*, and *a'*, side slots *a'*, as and for the purpose set forth.

3. The combination of the cup-valve C, having rim *a*, lugs *a'*, bar *d'*, with bell end A' of the boxing, having a groove, *a*, cut *a'*, open slots *a'*, cut *d*, flanges *b'* or *B'*, and the cup D, substantially as and for the purpose set forth.

178,973. JOURNAL-BOXES FOR WHEELBARROWS. James Lawler, Cleveland, Ohio. (Filed Nov. 8, 1875.)

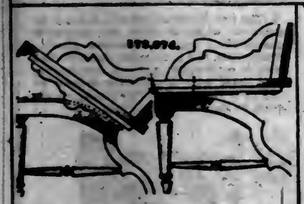


178,973.

The herein-described axle-box for wheelbarrows, consisting of the eye A, plate B, and flange D, substantially as set forth and for the purpose specified.

178,974. RECLINING-CHAIRS. J. Lemmon, Cincinnati, Ohio. (Filed Jan. 10, 1876.)

Brief.—The flat springs, in connection with the peculiar formation of the upper surface of the base or stand, permit the use of the chair as an ordinary rigid seat when the weight is thrown on the front portion thereof, and as a rocking-chair when the weight is thrown toward the rear.



178,976.

The combination of the seat, the flat springs, and the stand, the upper surface of which has the partly-flat or horizontal and partly-curved contour, substantially as specified.

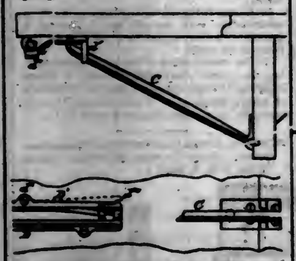
178,976. WAGON-BRAKE. Robt. T. Lewis, Anthon, Iowa. [Filed Jan. 22, 1876.]



The combination, with the arch A, lever D, and spring G, of the tension-regulating bolt A and nut i, for the purposes herein set forth.

178,976. TABLE-LEAF SUPPORTS. Peter J. Liljeholm, Rockford, Ill. [Filed Oct. 27, 1875.]

Brief.—The T-head of the brace slides in a channel between a fixed guide and a centrally pivoted locking-plate. It is held at the inner end of the channel by a notch on the locking-plate, which is closed upon the brace by a spring.



1. The brace-support C, in combination with the fixed guide-plate D, pivoted and curved plate D', and spring c, constructed and operating as and for the purposes described.

2. In a support for table-leaves, the pivoted and curved edged guide-plate D', having the notch or shoulder d'' and spring c, substantially as described.

178,977. LAMP-WICK TRIMMERS. Philip S. Lyman, Chicago, Ill., assignor to himself and Alex. T. Priester, same place. [Filed Jan. 22, 1876.]

Brief.—The cutters are in the same plane with the fulcrum of the knob handles, and run curves golden, which work under the edge of the other.

The combination of two handles, A B, angled near their ends, with two concave cutters, C D, having guides d d on the latter, and catches in a plane parallel to that in which is the fulcrum of the handles, as and for the purposes specified.



178,977.

178,978. SAFETY-CLUTCHES FOR ELEVATORS. Gabriel N. Lysaght, Chicago, Ill., assignor of one-half his right to J. McDowell, same place. [Filed Dec. 22, 1875.]

Brief.—There are eccentric recesses for rollers on both the rigid and movable parts, so that when the motion is reversed they are locked together by the positive obstruction of the parts, instead of by friction against a smooth surface.



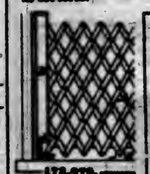
1. As a safety-clutch, the duplex recesses E E E and F F F, for the reception of loose intermediates, as described.

2. The combination of rollers G G G with the recesses E E E and F F F, constructed and operated substantially as and for the purposes shown.

178,979. GUARDS FOR WINDOWS AND DOORS. Patrick Henry Maher, New York, N. Y. [Filed July 21, 1875.]

1. The combination of grooved guide-posts B B with a key-tongs frame A, provided with toes a a, to engage with retaining-lips c c on the posts B B, substantially as shown and described.

2. The combination of a clamp or fastening, C, with the key-tongs frame A, toes a a, guide-posts B B, and retaining-lips c c, substantially as set forth.



178,979.



178,980.

178,980. PUMP-VALVES. Rufus G. Macey, Fort Wayne, Ind. [Filed Jan. 22, 1876.]

The combination of the valve C, the rubber or elastic gasket b, the ring B, and cage A, with its interior circumferential shoulder c, all constructed substantially as and for the purposes herein set forth.

178,981. GRAIN-EXTRACTORS. J. C. May, Magdeburg, assignor to R. Schneider and C. Budenberg, Buckau-Magdeburg, Prussia. [Filed Jan. 22, 1876.]



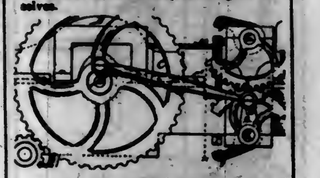
In combination with the smoke-stack of a steam-engine, the pyramidal coil or perforated pipe, located in the upper part of the smoke-stack, and connected with a steam-generator, substantially as described.

178,982. SOAP COMPOSITIONS. J. McIlvoy, Pittsburg, Pa. [Filed Jan. 26, 1876.]

The within-described soap compound, consisting of gum kauri, borate of manganese, shell-lime, resin, soda-ash, salt, and caustic-soda, substantially as herein set forth.

178,983. NUT-MACHINES. Matthew McKale, Pittsburg, Pa. [Filed Dec. 18, 1876.]

Brief.—Improvement on Patent No. 158,433. The swages are operated by cam-levers, which are fixed to shafts that are geared together, and power is communicated thereto through a slotted crank to control the oscillation of the cam-shafts, and thereby the swages themselves.



In combination with the swages, the cams and cam-shafts, the latter geared to move together, and the slotted crank-arm and pitman, substantially as and for the purposes specified.

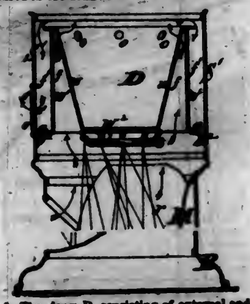
178,984. BRUSH-PLASTER. G. F. Hartmann, New York, N. Y. [Filed Aug. 20, 1875.]



The combination, with the stock of a brush-plaster, of a removable shim, C, with a detachable face-plate, E, the set-screws E E E and slots b, all constructed to operate substantially as described.

178,985. GAS-STOVES. A. W. Morton, Rahway, N. J. [Filed Jan. 17, 1876.]

Brief.—The products of combustion rise through the contracted annealing flue, surrounding the drum, and enter the latter through the perforations. Articles to be heated are placed in the drum.



1. The drum D, consisting of external and internal walls v' and v, inclosing an upwardly-contracted annealing flue f, with openings e at the top for the passage of heated air, in combination with the external downcasting flue f', substantially as set forth.

2. The combination, with the drum D and the annealing flue f, of the annular burner b, arranged concentrically with said drum and flue, substantially as described.

3. The cover C, forming the upper wall of the flue f', in combination with the drum D and the outer shell B', substantially as described.

178,986. MACHINES FOR CUTTING VENEERS. Columbus Mann, Cairo, Ill. [Filed June 26, 1875.]

Brief.—The pressure-roller, which is driven through suitable intermediate mechanism by the motion of the log being operated upon, is held in position by adjustable sectional bearing-blocks fitted in a recess in the front of the head-block, and having their outer sides conform to the curve of the roller.

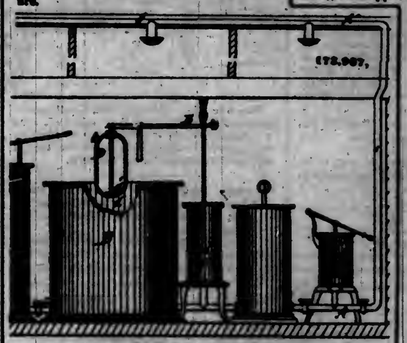


1. In combination with the pressure-roller C, the sectional bearing-blocks E and E, fitted against the rear side of said roller, and made adjustable toward or from the same, substantially as and for the purposes specified.

2. In a veneer-cutter, a pressure-roller driven, through suitable intermediate mechanism, by the motion of the log being operated upon, substantially as and for the purposes shown.

178,987. REFRIGERATORS FOR BUILDINGS. Simon G. Norton, Binghamton, N. Y. [Filed Jan. 20, 1876.]

Brief.—The pipes are first filled with air sufficiently compressed to keep the piston at the proper position for closing the valve of the said bottle. When a fire breaks out the fusible solder of the nozzle melts, the air rushes out, the piston falls, allowing the said to mix with the alkali and water. This solution is then forced through the pipes to extinguish fire.



178,987.

The combination of the following elements, namely: a series of supply-pipes and discharging-nozzles, which are closed by an easily-fusible solder, a tank containing an alkaline solution, an air-pump for compressing air within the supply-pipe, and a piston connected with the said air-pump and with the supply-pipes, substantially as set forth, whereby, when the air-pressure within the supply-pipes is relieved, the said will be discharged into the alkaline solution.

178,988. BRICK-MOLD. Joseph H. Hickok, Hillsdale, N. J., assignor to the Hillsdale School-Furniture Manufacturing Company, Cincinnati, Ohio. [Filed Dec. 20, 1875.]

Brief.—The relief-maps are divided into sections upon the lines of political division, and the sections are adapted to be held separately in the display-board by grooves and lugs, or equivalent devices in each, respectively





178,988.

1. In geographical object-teaching, I claim a relief-map of any portion of the earth's surface, composed of separate and independent models, representing complete divisions or subdivisions of said surface, and constructed with a view to be grouped together on a suitable display-board, as set forth.

2. The geographical models A, constructed as described, and formed with ledges, a, or their equivalents, upon the under side thereof, for the purposes herein set forth.

3. The display-board C, formed with a series of parallel grooves, d, in combination with the geographical models A, and the lugs or keys I, for the purposes herein set forth.

178,989. FURNACES FOR THE MANUFACTURE OF BONE-BLACK. Geo. F. Colmerhausen, New York, N. Y. [Filed Dec. 18, 1876.]

Brief.—The kiln is furnished with one or more series of retorts, which can be divided vertically, forming separate retorts, between which are vertical and lateral flues. These retorts are heated by independent furnaces arranged on opposite sides of each retort.

178,989.

The combination of the following elements, namely: a series of supply-pipes and discharging-nozzles, which are closed by an easily-fusible solder, a tank containing an alkaline solution, an air-pump for compressing air within the supply-pipe, and a piston connected with the said air-pump and with the supply-pipes, substantially as described.

1. The combination, in a bone-black kiln, of one or more series of retorts and independent furnaces, arranged on opposite sides of each retort in a series, substantially as specified.

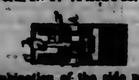
2. The combination of a series of retorts with a furnace, D, on each side of the same, and an intermediate exit-flue D, surrounding the lower parts of the retorts, essentially as described.

3. The combination of the vertical and lateral flues E F G between contiguous retorts, substantially as specified.

4. The retorts constructed with vertical and lateral flues in combination with the upper and lower kiln-flues S D, essentially as described.

5. The compound retort divided vertically, and composed of separate vertical retort-sections constituting independent retorts, substantially as and for the purposes herein set forth.

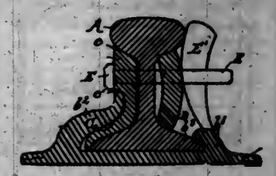
178,990. FLUME-LEVELS. Theo. O'Hagan, New York, N. Y. [Filed Feb. 4, 1876.]



The combination of the side plates A A, either or both having a circular cam, E, the top plate C, having an opening, b, and tenon D, and the pendulum B, carrying tenon F and G, the whole being adapted to operate substantially as hereinbefore set forth.

178,991. RAILROAD-RAIL CHAIRS. William Ostrom, St. Louis, Mo. [Filed Nov. 22, 1875.]

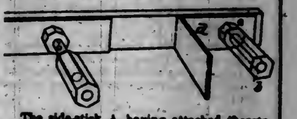
Brief.—A rail-joint chair consisting of a side-plate provided with overlapping flanges, the outer one of which hooks over the edge of the foot of the rail, and the inner one extends upward to about half the height of the rail, and at a little distance therefrom, and between it and a rail is inserted a corresponding-shaped fish-plate. On opposite side of rail the ordinary fish-bar is employed, and a flat bolt passes through both plates and rails, and is secured by a split curved key.



1. A rail-end fastener, consisting of a square bolt, E, and curved key F, in combination with ordinary fish-bars and rails, as and for the purpose set forth.

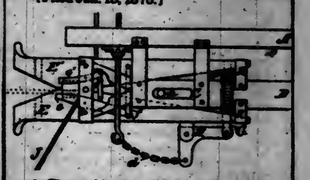
2. The combination of the chair B, having side flanges b' b', fish-bars C, its shoulder c', the fish-bar D, bolt E, key F, all said parts being constructed as is herein shown and described, and forming, with rails A A', a support and fastening for same, substantially as set forth.

178,992. COMBINED SIDE-STICKS AND QUOINS. Cyrus W. Packard, Racine, Wis. [Filed Dec. 24, 1875.]



The side-stick A, having attached thereto the screw-threaded bolts b, adjusting-nuts c, and angle-pieces d, substantially as and for the purpose set forth.

178,993. CAR-COUPLINGS. Daniel B. Palmer and David C. Kepler, Chambersburg, Pa. [Filed Jan. 15, 1876.]



1. The combination, with the perforated supports B B and the slotted support C, of the transomed draw-bar D, having studs c, the jaws E E', pivoted thereto, the link J, and the straps K, as and for the purpose described.

2. The combination of vertically-moving jaws E E', the draw-bar D, the permanently-attached loop-link J, and the straps K, as and for the purposes described.

3. The combination of the jaws E E', the levers e e', the rods f f', the spring F, stud G, elbow-lever H, chain d, and hand-lever I, as and for the purposes described.

178,994. ATTACHMENTS FOR COOKING-STOVES. Edwin B. Putnam, Dundee, Mo., assignor to Jos. F. Reymann and J. G. Jonas, same place. [Filed Apr. 28, 1876.]

Brief.—The slot in the rear of the grate permits it to be dumped without interfering with the division-plate.

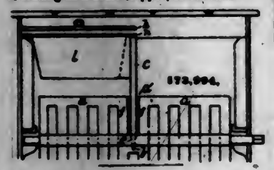
1. The combination of a partition dividing the fire-box of a stove with a slotted grate provided with a slot, a', substantially as and for the purposes described.

2. The combination of a grate, a, having a slot, a', and a cross-bar, b, as shown, and partition c, having lugs c c projecting downward on each side of said cross-bar, as set forth.

3. The combination of a slotted grate, *a*, operating as set forth, and dividing partition *c*, with a draft-stopper sufficiently raised above the surface of said grate to permit it to be dumped, as herein set forth.

4. The combination of a slotted grate, *a*, and partition *c*, with a draft-stopper, *i*, constructed to said partition, and provided with a flange, *k*, or lugs *j*, to keep it in position on the surface of the grate when the same is dumped, substantially as specified.

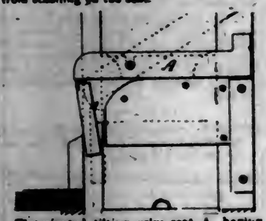
5. In combination with a partition, *c*, and pan *l*, provided with grate *m*, the cover *o*, operating as a draft-stopper, as set forth.



174,004.

174,006. PRIVY-SEATS. J. Pennoyer, Paris, Ill. [Filed Jan. 4, 1876.]

Brief.—The object is to prevent persons from standing on the seat.



The pivoted tilting privy-seat A, having the hinged front or apron B, constructed substantially as described, and for the purpose specified.

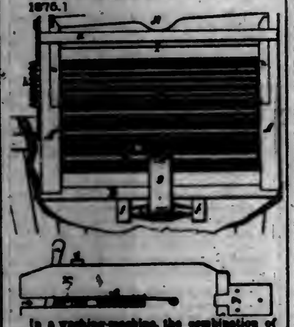
174,005. BILLIARD-CUES. B. Phillipson, Chicago, Ill. [Filed Jan. 21, 1876.]

Brief.—In the butt of the cue is a chalk holder let in flush with its surface.



The combination, with the billiard-cue A, provided with a recess, *i*, of the removable chalk-holder C, substantially as and for the purposes set forth.

174,007. WASHING-MACHINE. Henry K. Pierce, Lexington, Mich. [Filed Nov. 10, 1875.]



In a washing-machine, the combination of the cylinder C, the spring-lever H, the hand-lever *c*, the flexible rubber D, the hangers *f*, the spool E, and the apron *p*, arranged in the frame A A' B, substantially as and for the purposes specified.

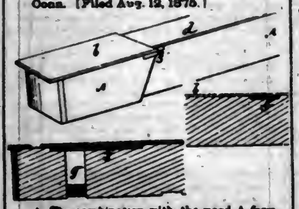
174,008. BUTTONS AND STUDS. G. S. Porter, New York, N. Y. [Filed Jan. 11, 1876.]

Brief.—The radial arms facilitate insertion in the button-hole, and save material in the manufacture of the button.



A cuff-button, A, having two or more radial arms, *a*, which are rigidly attached to the shank of the button, substantially as described.

174,009. KEYS FOR PIANO-FORTES, ORGANS, &c. Ulysses Pratt, Deep River, Conn. [Filed Aug. 12, 1876.]



1. The combination with the wood A forming the key-body, and the separate veneers *b d* applied to its top, of the joint-supporting piece *f*, of ivory or other material harder than said wood, and inserted in the latter under the meeting ends of said veneers, substantially as specified.

2. The combination, with the wood or body A of the key, and its separate top veneers *b d*, of the joint-supporting piece *f* inserted in the wood or body of the key, and extending to project over the opening or hole *g* in the forward portion of the body of the key, essentially as and for the purposes herein set forth.

174,010. KEYS FOR PIANO-FORTES, &c. Ulysses Pratt, Deep River, Conn. [Filed Nov. 10, 1875.]

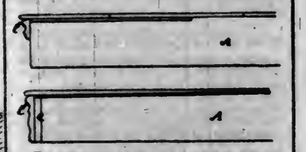
Brief.—To give the side of the key, as far as exposed by the depression of its neighbor, an ornamental appearance.



174,001.

A key for piano-fortes, organs, and other key-board instruments having an overlapping molding in front, formed and being part of the same veneer or covering which is applied to the top or face of the key, substantially as specified.

174,002. KEYS FOR PIANO-FORTES, &c. Ulysses Pratt, Deep River, Conn. [Filed Oct. 22, 1875.]



The front-end molding *i*, constructed to extend and inserted between the wood A of the key and its top veneer *b*, substantially as specified.

174,003. KEYS FOR PIANOS, ORGANS, &c. Milon Pratt, Deep River, Conn., assignor to Pratt, Read & Co., same place. [Filed Aug. 9, 1875.]

Brief.—To ornament the vertical or end face of the key.



The white key of a key-board instrument provided, upon its vertical or end face, with a molding composed of an ivory or other veneer, *g*, and a backing-piece, *d*, substantially as and for the purpose herein set forth.

174,004. DIRECT-ACTING STEAM FEED-WORKS FOR CIRCULAR-SAW MILLS. De Witt Clinton Prescott, Marinette, Wis. [Filed Nov. 13, 1875.]

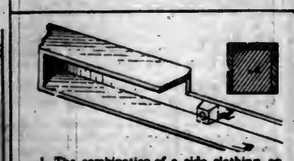
Brief.—The log-carriage is reciprocated by the pressure of steam upon a piston working in a cylinder placed beneath the carriage.



174,004.

1. The method of applying steam-power in a direct manner to operate log-carriages of circular or rotary saw mills in the process of sawing or manufacturing lumber, as specified.

2. The combination of the steam-cylinder A, with its heads B and C, piston-head D, piston-rod E, bracket F, steam-chest G, with its slide-valve H, steam-ports I and J, and exhaust-port K, steam-pipes L and M, exhaust-pipe N, valve-stem O, lever P, with its fulcrum R, connecting-rod S, hand-lever T, and steam-pipe U, constructed and operating together as and for the purposes set forth.



174,001.

174,006. WOOL-WASHING MACHINES. J. K. Proctor, Philadelphia, Pa., assignor of one-half his right to James Smith & Co., same place. [Filed Dec. 10, 1875.]

Brief.—Two revolving carriers are placed in the tank, one of which (a pushing-carrier,) delivers the wool to the lifting-carrier. The teeth of the latter are inclined on revolving shafts, and are controlled in their movements by double crank-arms, which ride in cam-grooves on the sides of the tank.

1. A wool-washing machine, in which the stock is passed through the bowl by means of a revolving carrier or carriers, the teeth of which are hung upon revolving shafts, and controlled in their movements by cam-grooves, substantially as shown and described.

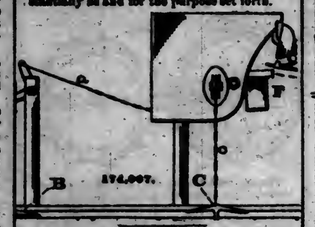
2. In a wool-washing machine, the combination, with a revolving lifting-carrier, of a revolving pushing-carrier, by means of which the stock is advanced through the bowl without being lifted from the bottom of the bowl, substantially as shown and described.

3. In combination with the carriers E G, either or both, the double crank-arms *d' d'*, on the shafts *d'*, for causing the desired partial revolutions of said shafts, as set forth.

4. In combination with the lifter E and the shafts *b* leading in the opposite direction or toward the squeeze-roll, a lifting-carrier, which raises the stock out of the liquor and deposits it upon said chute, so as to dispense with an intermediate carrier and prevent said stock from being washed back into the bowl, substantially as shown and described.

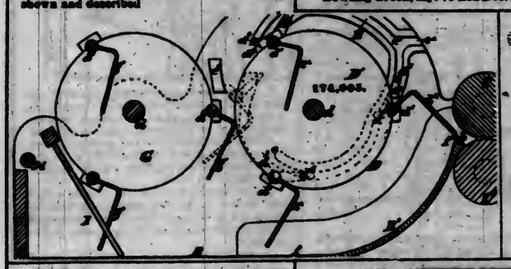
5. In a wool-washing machine, a combination-roll, composed of a central metallic shaft, *c*, and wooden segmental sections *c'*, in combination with bearing-springs *e*, substantially as shown and described.

the catch H and the diagonal guides J, substantially as and for the purpose set forth.



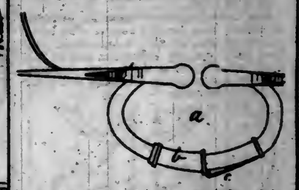
174,007.

174,008. BOLSTER-REBLA. John L. Row, Bowling Green, Ky. [Filed Dec. 20, 1875.]



174,011.

174,009. DEVICES FOR WEANING CALVES. Henry C. Sobley, Newton, Kans. [Filed Aug. 23, 1875.]



An improved calf-weaner, consisting of the ring *a*, constructed as described, sleeve *b*, spring-catch *c*, and spurs *d d' d'*, all arranged and operating substantially as and for the purpose described.

174,010. HORSE-RAKES. Alex. Bichnell, Schoharie, N. Y. [Filed Dec. 6, 1875.]



1. The combination of the hollow axle A, provided with the holes *b b'*, the teeth *f*, constructed and inserted through the said holes, as described, the slotted brace-pieces *p*, and the nuts *s*, substantially as herein set forth.

2. The brake-shoes E, in combination with the rock-shaft *r*, having the cranks *r'*, as described, the wheels W, the arms *a* and *a'*, and the axle-tree A, whereby the weight of all the parts, except the wheels, is principally thrown upon the exterior surfaces of the tube H, substantially as herein set forth.

3. The lever F, the connecting-rod *r'*, and lever-arm *r''*, in combination with the rock-shaft *r*, the brake-shoes E, the arms *a* and *a'*, the axle-tree A, and the wheels W, substantially as herein set forth.

4. The perforated link, in combination with the rock-shaft *r*, the arms *a* and *a'*, the axle-tree A, and frame F, and pin *f''*, substantially as and for the purpose herein described.

174,011. RAILROAD-SIGNALS. Jacob F. Riethmayer and Joseph Inches, Hellam, Pa. [Filed Jan. 27, 1876.]

Brief.—As the train approaches a crossing or other given station, the operating-lever is depressed, and a bell is sounded, and a flag displayed, to denote the approach of the train. As the train passes the given point, another lever is operated, which releases the flag, and allows it to resume its normal position.

1. The flag-staff E and gong G, and the connections *a b c*, in combination with the operating-lever B, catch H, and releasing-lever C, substantially as and for the purpose set forth.

2. The staff E, carrying the flag F and striking the gong G, the operating-lever B, and releasing-lever C, in combination with

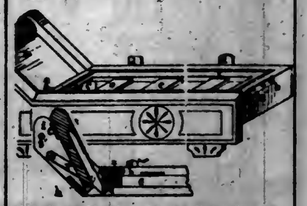


174,008.

the cross-head I, constructed and operating substantially as and for the purpose set forth.

174,012. SOFA-BEDSTEADS. Jos. Schoster, Cincinnati, Ohio. [Filed Nov. 9, 1875.]

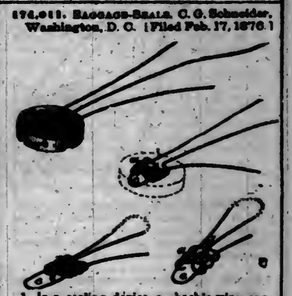
Brief.—The extension-frame slides into the stationary part, and carries one-half the bolster and bed-bottom. The bolster is hung on links, while the bed-frame is pivoted at head and foot, so that both may be brought to the same level with the other half of the bed.



1. In combination with the sliding frame B the adjustable bolster-head D, swung between the front and back rails of the frame B by the links F, and adapted to be locked in either the raised or depressed position, as shown and described.

2. The extension-lounge, composed of a stationary frame, having a space underneath its seat and head to receive a sliding frame, said sliding frame being fitted with a revolving bed-frame and adjustable bolster-head, hung on links F, both the bed-frame and bolster-head being adapted to be raised up to a level with the seat and head of the stationary frame when the lounge is extended and to close down so as to enable the extension-frame to slide within the stationary frame, substantially as shown and described.

174,013. BAGGAGE-SEALS. C. G. Schneider, Washington, D. C. [Filed Feb. 17, 1876.]



1. In a sealing device, a shackle-wire, one end thereof having two eyes vertically parallel to each other, and each formed of a series of coils, through both of which eyes the other end of said wire is threaded and locked thereto by compressing the coils.

2. In a sealing device, a shackle-wire, one end thereof having two eyes vertically parallel to each other and formed of a series of coils adapted to receive the other end of said wire, wherein it is locked by compressing the coils, in combination with a soft-metal disk having two or more threading-orifices through which the same end of the wire is passed, substantially as specified.

174,012. COMBINED SEED-PLANTING AND CULTIVATING. Charles J. Seabrook and Henry Kelso, Talladega, Ala. [Filed Jan. 8, 1876.]

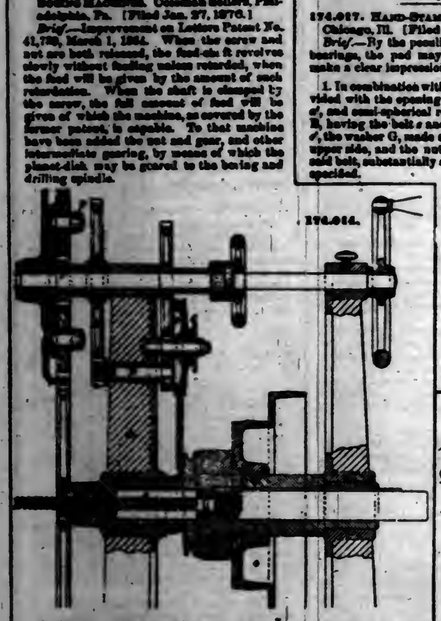
Brief.—There are two frames, one of which is secured upon bearing wheels. The other frame rests upon the first, is reversible in position, and vertically adjustable, and to this frame the cultivating devices are attached. The object of reversing is to adapt it to other kinds of cultivators.



The lifting-frame M, constructed as shown, pivoted to the frame A, and capable of being reversed, so as to arrange the plows connected thereto in different positions for different kinds of work, as set forth.

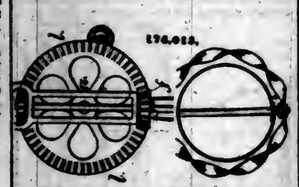
174,014. PIPE-MOTIONS FOR DRILLING AND BORING MACHINES. Coleman Sellers, Philadelphia, Pa. [Filed Jan. 27, 1876.]

Brief.—Improvement on Letters Patent No. 41,770, March 1, 1864. When the screw and nut are both released, the feed-nut is revolved slowly without feeding unless retarded, when the feed will be given by the amount of such retardation. When the shaft is clamped by the screw, the full amount of feed will be given of which the machine, as covered by the former patent, is capable. To that machine have been added the nut and gear, and other intermediate gearing, by means of which the planet-disk may be geared to the boring and drilling spindle.



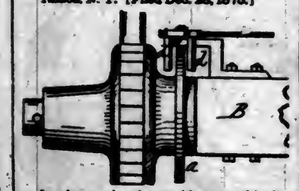
In drilling or boring machines, an epicyclic train when both the sun and planet wheels are geared to the drilling or boring spindle, substantially as and for the purposes set forth.

174,015. BOX-BRAZING. Frederick J. Seymour, Winsted'ville, Conn., assignor to himself and Turner & Seymour Manufacturing Company, same place. [Filed June 7, 1875.]



The egg-beater made with two rings or bows, revolved one within the other, in combination with the actuating-wheel *l* and pinions *e* and *f*, positioned at opposite sides of the wheel *l*, said pinion *e* being smaller than the pinion *f*, in order that the inner bow may receive an accelerated motion, for the purposes set forth.

174,016. HORSE-RAKES. Dennis P. Sharp, Ithaca, N. Y. [Filed Dec. 28, 1875.]

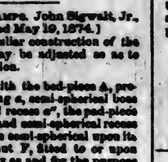


In a horse-rake, the combination, with the flange *a*, of the rocker B, provided with the two pins or lugs, *d d*, embracing the flange and adapted to produce friction upon the two opposite sides of the same, in the manner and for the purpose specified.

174,017. HAND-STAMPS. John Skywalt, Jr., Chicago, Ill. [Filed May 19, 1874.]

Brief.—By the peculiar construction of the bearings, the pad may be adjusted so as to make a clear impression.

1. In combination with the bed-piece A, provided with the opening *a*, semi-spherical boss *a'*, and semi-spherical recess *a''*, the pad-piece B, having the bolt *c* and semi-spherical recess *d*, the washer G, made semi-spherical upon its upper side, and the nut F, fitted to or upon said bolt, substantially as and for the purpose specified.



174,017.

174,018. ELECTRO VAPOR-BATHS. Elias Smith, Normal, Ill. [Filed Nov. 4, 1875.]

2. In combination with the bed-piece A, provided with the legs A' and A'' and turn-button I, the wrench H, provided with the notching h, notch *h'*, and elongated central opening *h''*, substantially as and for the purpose shown.



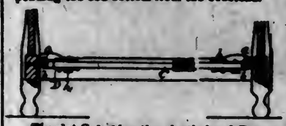
1. In a vapor-bath apparatus, the combination of the skeleton frame A and double cloth walls B C, forming an air-chamber, *c*, substantially as and for the purposes herein set forth.

2. The combination of the perforated electrode-support D and the electrode E, adjustable therein, substantially as and for the purposes herein set forth.

3. The combination of the double-walled box A B C, perforated electrode-support D, electrodes E G, and cover K, all constructed substantially as and for the purposes herein set forth.

174,019. BED-BOTTOMS. John W. Smith, Monroe, Wis. [Filed Feb. 7, 1876.]

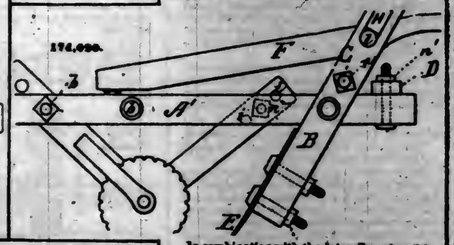
Brief.—The rods which extend from side to side of the bed, at the ends thereof, are passed through the loops formed by the elastic bands, and are then hung on the hooks, thus suspending the bed-bottom from the bedstead.



The slot C, having the elastic band D over each end, and fastened thereto by staples *a* passing through the slot, and having bar *b* on under side, in combination with the bedstead-frame, provided with hooks *b* and with rods *c*, substantially as set forth.

174,020. CORN COVERERS AND MARKERS. Daniel R. D. Smeltzer, Middletown, Md. [Filed Jan. 8, 1876.]

Brief.—The frame consists of two beams, diverging from the front from a short center beam, to which the draft is applied. The shovel-standards extend above the beams and support the handles. An extension-screw is fixed in the standards, by which the shares are regulated as to distance. A pilot-wheel supports the forward ends of the beams.



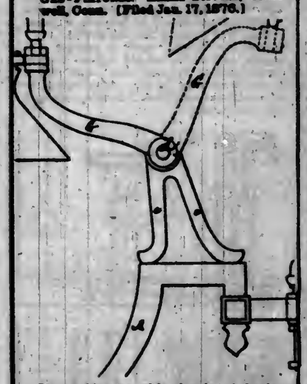
In combination with the laterally-extensible beams A' and the upwardly-extended standards B, the extension-rod C, having screw-threads *c*, nuts *n*, tie-bar D, having slots *c*, and clamp-bolts *d*, substantially as specified.

174,021. TILE HOOFS. James Smith, Lebanon, Ky., assignor to himself and Jas. T. Lapsley, same place. [Filed Jan. 8, 1876.]
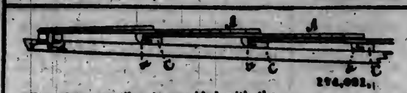


The plates or tiles A, provided with the flange or leg *a*, bent at a right angle, in combination with the rabbeted cross-bars C of the roof, as shown and described.

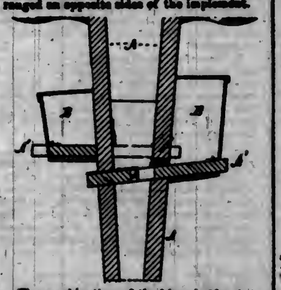
174,022. SHADE-HOLDERS FOR LAMPS AND GAS-FIXTURES. Elisha Stevens, Cromwell, Conn. [Filed Jan. 17, 1876.]



The combination, with a bracket, A, having an arm or standard, *a*, of the pivoted arm or crown C and ring or crown F, constructed to carry an open-top globe or shade, and to operate in respect to a lamp or burner, substantially as described.

174,023. COMBINED CORN AND FERTILIZER-SEED PLANTERS. Jacob R. Stoll, Newton, N. J. [Filed Jan. 6, 1876.]

Brief.—A hand-planter consisting of two sides, with receptacles having seed-slides arranged on opposite sides of the implement.

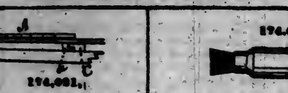


The combination of the hinged sides A A, receptacles B B, and slides A' A', arranged near opposite sides of the implement, as and for the purpose set forth.

174,024. COTTON AND CORN PLANTERS. S. T. Stout, Cedar Grove, assignor of one-third his right to D. W. Smith, Dirt Town, Ga. [Filed July 10, 1875.]



The beams A A', bolted together to form the longitudinal sides of the chute *f*, the seat for the tongue, and to which the plow-standards are attached, in combination with the plate *e*, having the tongue *e'*, spout *i*, and rotating seed-dropper D, substantially as described and for the purpose set forth.



174,025. HOUSES' FOOT-WARMERS. Alfred G. Strawbridge and Wm. M. Stevenson, Sharon, Pa. [Filed Sept. 13, 1875.]



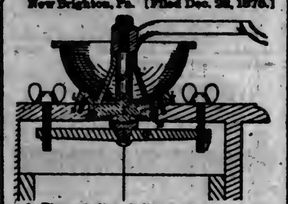
1. A toe-weight for horse's feet, constructed substantially as described, and secured to the horseshoe by a screw or bolt, thereby dispensing with the use of straps, as and for the purpose set forth.

2. The combination of the toe-weight C and elastic pad D, substantially as and for the purpose specified.

3. The elastic pad D, secured to the slotted toe-weight C by means of the saw-teeth edges *d*, substantially as specified.

4. The toe-piece C, having lugs *a*, screw B, and elastic pad D, all operating in combination, substantially as and for the purpose specified.

174,026. COFFEE-MILLS. T. Shrubridge, New Brighton, Pa. [Filed Dec. 28, 1875.]

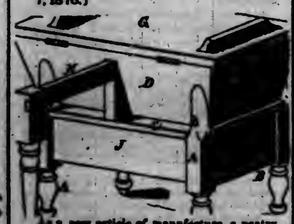


1. The grinding-shell provided with the downwardly-projecting flange *b*, substantially as and for the purpose specified.

2. In combination with the grinding-nut and washer or stop-piece, a bearing or adjusting bar tapped at the end, and a thumb-screw or threaded bolt, substantially as and for the purpose specified.

3. In combination with the grinding-nut and bearing or adjustable bar, the stop-piece or detachable button, substantially as and for the purpose specified.

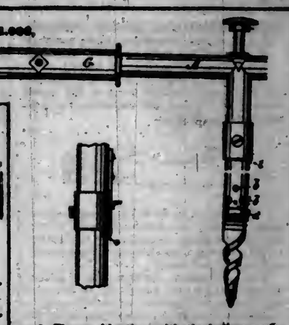
174,027. BREAD AND PASTRY BOARDS. M. V. Taggart, Mansfield, Ohio. [Filed Jan. 7, 1876.]



As a new article of manufacture, a pastry-board, consisting of frame A B C, box D, having hinged lid G, horizontal hinged drum H, supported by leg E, and drawer J, as and for the purposes set forth.

174,028. FAUCETS AND VENTS. Jas. Talley, Jr., Kansas City, Mo. [Filed Jan. 14, 1876.]

Brief.—The device may be used either as a vent or faucet; and to this end a tubular sleeve, with oppositely-located vents and liquid-discharge holes, is applied to the pinlet-pointed stem, and is adapted to be rotated and locked in either of the positions necessary to the performance of the above-stated functions.



1. The combination, with the hollow perforated stem, of the adjustable sleeve, having coincident orifices, for either air-vent or liquid-discharge, substantially as shown and described.

2. The combination, with the adjustable sleeve, having notches *i*, and air-vent and liquid-discharge openings, and the hollow stem B, having corresponding faucet and air-vent openings *b o* and *d a*, of the spring-catch F, for locking said sleeve in either adjustment, to adapt the device to perform either of its specified functions, as set forth.

3. The brush-tubes and cork-screw plug, in combination with the T-shaped air-vent and faucet-tube, for forming an extension thereof for use in boring, as set forth.

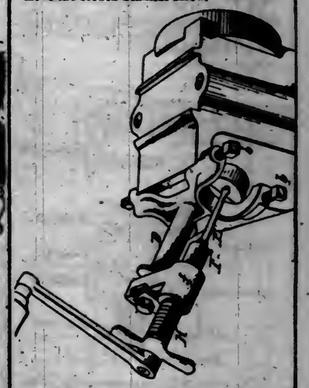
174,029. SAND-HOLDERS. Jos. J. Talbott, Crestline, Ohio. [Filed Sept. 27, 1875.]



The rubber *c* and leather buffer *d*, in combination with the frame A and sash B F, provided with inclined slots, substantially as and for the purpose set forth.

174,030. MACHINES FOR RETRACTING BROOM SCREWS. William H. Thorne, Philadelphia, Pa., assignor to himself, I. H. De Haven, and John C. De Coste, same place. [Filed Dec. 17, 1875.]

Brief.—The drill-spindle is turned by the handle and fed by manipulating the handle. The hole having been bored, the drilling-tool gives place to a bit, which is forced into the orifice until the edges bite sufficiently to remove the broken headless screw.

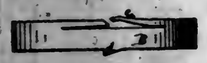


The stand D, with its horizontal set-screws *b*, and carrier G, admitting of being adjusted on the said stand, with the tubular screw H and spindle F.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON

176,681. SAFETY DEVICE FOR MAINSPRINGS. J. J. Thornton, Cleveland, Ohio, assignor of one-half his right to D. H. Ridgway, same place. [Filed Feb. 10, 1874.]

Brief.—Two springs set in the upper periphery of a supplementary hoop in the barrel press lightly against the barrel-cover and retain the hoop in place.



1. The hoop B, adapted for the purposes set forth, provided with the downwardly-projecting points *d d*, the tongue *e*, and the springs *c c*, all constructed and arranged substantially as described and shown.

2. In combination, the spring-barrel A, having the slots *b b* cut through its bottom, and the hoop B, having the downwardly-projecting points *d d*, adapted to enter the said slots, the springs *c c*, adapted to press against the cover of the spring barrel, and the tongue *e* for the reception of the end of the endangering, all constructed, arranged, and operating substantially as described and shown.

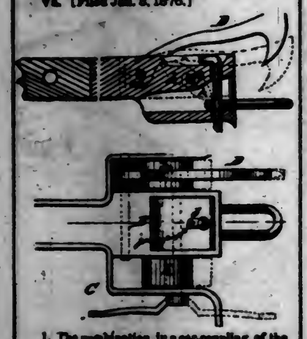
176,682. SCHOOL DESKS AND SEATS. T. D. Tharp, Marion, Ind. [Filed Jan. 6, 1876.]



1. In a school-desk having a receptacle, C, the combination of the folding lest A, supporting-bar B, and cross-piece D, substantially as described.

2. In a school-desk, the combination of the seat-supporting arms E, provided with the shoulders H, the bent ends T, and connecting cross-bar K, with the supporting-plates F, to which said arms are pivoted, substantially as described.

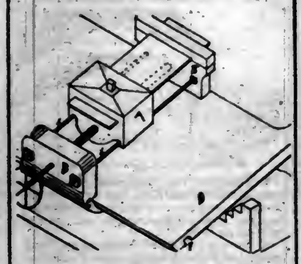
176,683. CAR-COUPLINGS. Ivor R. Titus and Henry C. Bontinger, Huntington, W. Va. [Filed Jan. 6, 1876.]



1. The combination, in a car-coupling, of the pivoted hooks D and the shafts *c* with cams A, upon which the hooks catch and by which they are uncoupled, substantially as herein set forth.

2. The combination of the draw-bar A, head B, with rear opening *a* and pin *b*, the pivoted hook D, side bars C C, and rocking shaft *c*, with cams *h h*, all as and for the purposes herein set forth.

176,684. TOOL-HOLDERS FOR GRINDSTONES. Lewis Travis, Wheeling, W. Va. [Filed Dec. 17, 1875.]

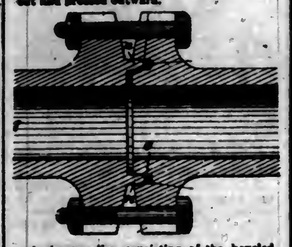


1. In combination with the oscillating tool-plate D, having the groove F on its under surface, the tool-carriage A, constructed substantially as herein shown.

2. The head-blocks B B', connected with adjustable rods *b b*, and supporting the tool-holder A, for the purposes specified.

176,685. JOINTS FOR GAS, WATER, AND STEAM PIPES. Wm. H. Vick, Rochester, N. Y. [Filed Dec. 22, 1875.]

Brief.—The tongue and groove are shaped to prevent the said lead passing from being cut and pressed outward.



A pipe-coupling consisting of the beveled groove I and tongue a, formed on the abutting ends of the pipes A A, for the secure holding of the packing-ring *c*, said pipes being provided with the slotted flanges B, for the ready insertion and removal of the bolts, all constructed to operate substantially as shown and described.

176,686. SHOULD-TIRE CLIPS. F. B. Walker, Bedford, Iowa. [Filed June 16, 1875.]



The centrally-sliding longitudinal bolt C, provided with the spring *d*, in combination with the slotted and centrally recessed sleeve E, sliding arm *f*, and sliding plate *e*, which closes the slot *a*, all constructed to operate substantially as and for the purpose set forth.

176,687. WRATHER-STRIPS. Thos. Walker and W. A. McCrory, Pleasantville, Md. [Filed Feb. 7, 1876.]

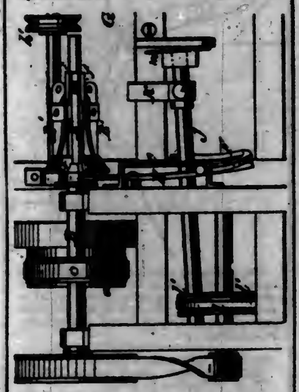


1. The combination, with the door and the door-jamb, of the molding C, spring-held slide carrying a rubber strip, the lever *a*, the pivoted rod *f*, and inclined plate *g*, as and for the purpose described.

2. The combination, with the door and the door-jamb, of the rabeted molding *e*, extensible slide D carrying a rubber strip, spring E, slotted guides *c*, and studs *b*, lever *a*, pivoted rod *f*, and the inclined plates *g g*, substantially as and for the purpose described.

176,688. BROOM-MACHINES. Alphonso Walrath and Edwd. D. Bronson, Amsterdam, N. Y. [Filed Dec. 24, 1875.]

Brief.—A circular cutter is pivoted to a handle, and can be brought against the projecting ends of the corn, to cut it off after it is bound upon the handle. A gathering device holds the corn while it is being arranged upon the handle.

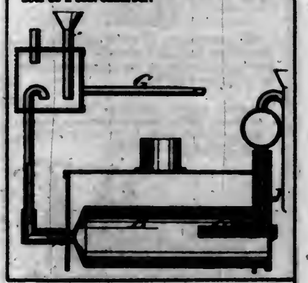


1. In a broom-machine, the C-shaped bold er G, formed of wire, with one limb extending above the other for the purpose of catching and gathering in the broom-corn, in combination with a broom-handle holder, substantially as described.

2. The rotary cutter-shaft J, having its outer end bearing in a block journaled in the frame of the machine, and its inner bearing in a perforation in the vibrating lever K, in combination with the musical B, having clamping-levers B', substantially as described and for the purpose set forth.

176,689. GAS APPARATUS. D. L. Westcott, Fort Wayne, Ind. [Filed Dec. 11, 1875.]

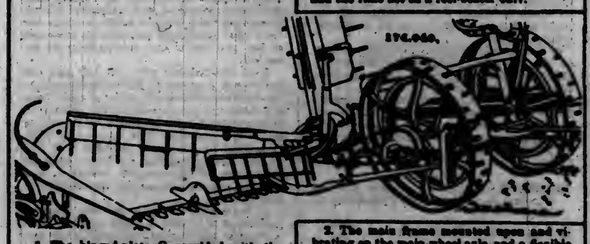
Brief.—Oil and water together pass from a receptacle into the retort, when they fall upon the vaporizer, having a spiral channel. The gas passes from the retort through a pipe which dips into the oil-supply reservoir, which acts as a seal-chamber.



176,697.

The combination, substantially as herein before described, of the rotary B, having the interior evaporating-vessel C provided with spiral channels, the electro M, heat pipe G, receptacle H, and feed-pipe J, substantially as and for the purpose set forth.

176,690. HARVESTERS. W. N. Whiteley, Springfield, Ohio. [Filed Dec. 22, 1875.]

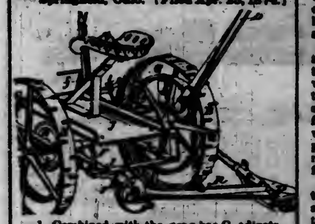


1. The hinged plate C, provided with the notches F *a* in its edge, and the arm B, pivoted to the said plate C, combined with the latch E, constructed in a zing'a piece, pivoted to the said arm B, and arranged to engage with said notches, for the purpose of regulating the height of the grain-wheel A, as set forth.

2. The lateral brace G, provided with a spherical socket-box, *f*, combined with a spherical bearing, A, formed upon and around the crank-shaft box H.

3. The combination box and shield J, arranged at the inner end of the main-wheel axle, to inclose and protect the gear-wheels Q and *o*, which transmit motion from the main wheel B directly to the revolving rake and reel.

176,691. HARVESTERS. W. N. Whiteley, Springfield, Ohio. [Filed Apr. 22, 1875.]



1. Combined with the drag-bar C, adjustable up and down at its front end, the lateral brace B, jointed to the rear end of said drag-bar, the shoe P, constructed with a tubular sleeve-bar, Q, at its front end fitted to receive the rear end of said drag-bar and move freely thereon as an axis.

3. A rectangular main frame, constructed of wrought-metal bars bolted together at the corners, the rear transverse bar, turned up at its inner end and serrated to form a fulcrum and ratchet for the lever D, as set forth.

2. The main frame mounted upon and vibrating on the main-wheel axle, and a flexible tongue hinged thereto, with a controlling device whereby the driver can regulate the relative positions of said tongue and frame, combined with a cutting apparatus, finger-beam B, and platform and raking mechanism, connected together and hinged to the main frame so as to move in unison, substantially in the manner described, and provided with a controlling-lever, whereby the driver can, while the machine is in motion, vibrate the main frame and cutting apparatus up or down, or turn the cutting apparatus, platform, and raking mechanism up or down independent of the main frame to level the platform, at whatever height it may be.

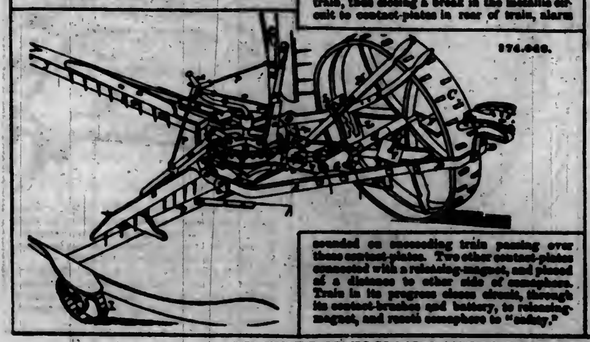
3. In combination, a main frame having the driving-wheel outside of it, the main axle turning in brass secured to each side of said frame, the rake's driving-gear between the side bars of said frame, combined with a revolving rake located upon the finger-beam H, and between said bars of said main frame, as set forth.

4. Combined with the main frame mounted and vibrating upon the main axle, a hinged tongue jointed thereto with a controlling device, whereby the driver can raise or lower the front end of said frame, combined with a cutting apparatus connected to said main frame with a rolling joint, and the lever M, whereby the driver can control the relative positions of the main frame and cutting apparatus to level the cutters and platform, as set forth.

5. The triangular frame A, provided with a tongue, J, hinged to said frame, and cutting apparatus hinged with a rolling joint across the front or base end of said frame, combined with the lever K and its fulcrum-link *h*, lever M, and the holding-rack I, arranged substantially as described.

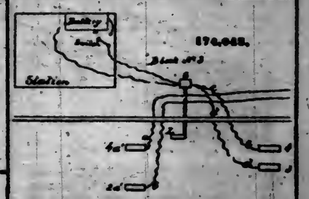
176,692. ELECTRO-MAGNETIC RAILROAD-SIGNALS. Geo. Whyte, Elgin, Scotland. [Filed Oct. 26, 1875.]

Brief.—Battery, alarm, and circuit-closing brushes on train; contact-plates on roadway, connected by wires with semaphores, which are mechanically set to "danger" by passage of train, thus closing a break in the metallic circuit to contact-plates in rear of train, alarm



sounded on succeeding train passing over these contact-plates. Two other contact-plates connected with a releasing-magnet, and placed at a distance to other side of semaphore. Train in its progress closes circuit, through its contact-brushes and battery, to releasing-magnet, and resets semaphore to "safety."

176,693.



1. The combination, substantially as specified, of the sand-slide, the lever for operating it, and the lock-lever, having a cam-shaped head.

2. The combination, substantially as specified, of the main frame, the hinged frame, and the combined lever and prop for first lifting and then supporting the main frame.

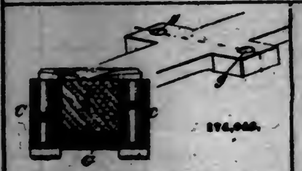
176,694. CHAIN-PUMP BUCKETS. William B. Wheeler, Ypsilanti, Mich. [Filed Jan. 21, 1876.]

Brief.—The device shows a snap-lock arrangement, whereby the chain-links may be readily inserted or removed.



The combination, in a chain-pump bucket, of the solid body A, with hooks or open links B at its ends, the springs *b*, and bolts *d*, all substantially as and for the purposes herein set forth.

176,695. STAY-BED CLAPS. Darius Wheeler, Birmingham, Conn., assignor of one-half his right to Isaac P. Howe, same place. [Filed Jan. 21, 1876.]

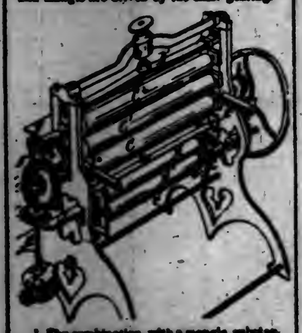


176,046.

The combination of the clip D E E, the strap or brace H C, having holes for the reception of the clip-lugs, the mouth A, and the strengthening clamp plate G, all substantially as described.

176,047. CLOTHES-WASHING-MACHINE AND WRINGER. George Wilson, Brooklyn, N. Y. [Filed Oct. 5, 1875.]

Brief.—By the crank and gearing a rotating and reciprocating motion is given to the rubber disks, and the rollers of the wringer and mangle are driven by the same gearing.



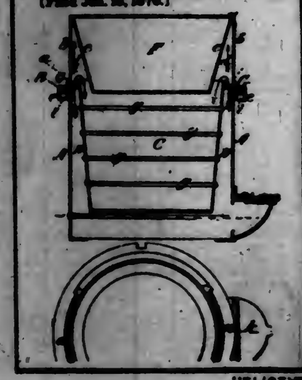
1. The combination, with a mangle, substantially as described, of the rotary and reciprocatory rubbing-disks, actuated by the rotation of said mangle through the means described, for the purpose specified.

2. The combination, with the shaft H, of the disks F F' and springs *i*, the said shaft having a reciprocatory and rotary movement imparted to it, substantially as and for the purpose set forth.

3. The combination, with the frame and driving-gear of a mangle, substantially as described, of the pin G, lugs G', rolls H H', plates *i*, and arc *I*, as and for the purpose set forth.

4. The combination in a single machine of the following elements, to wit: a set of three segmental rolls to serve as a mangle, a reciprocating and rotating rubbing-disk to serve as a washer, and a pair of rolls to serve as a wringer, all actuated by a single crank or pulley, as shown and set forth.

176,048. STEAM COOKING APPARATUS. C. E. Whitney, Toledo, Ohio, assignor of one-half his right to Geo. Fisher, same place. [Filed Jan. 18, 1876.]



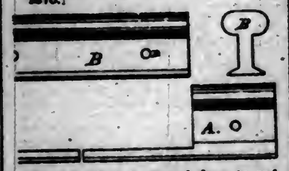
1. The reservoir-vessel A, having a flanged top, B, provided with segmental openings *a a*, and combined with the lower cooking-vessel C, provided with segmental flanges E E, coinciding and co-operating therewith, and the upper vessel F, to open and close the steam communication with said upper vessel for the purpose set forth.

2. The combination, with the reservoir-vessel A and the inner cooking-vessel C, provided with flanged steam-passages *a a*, opened and closed, as described, of an upper vessel, F, provided with double walls, whereby the upper space *d*, formed by said double walls, is made to form a continuation of the lower steam-chamber.

3. The combination, with the reservoir-vessel A, of the closed double-wall vessel, having the closed chamber *f*, as and for the purpose specified.

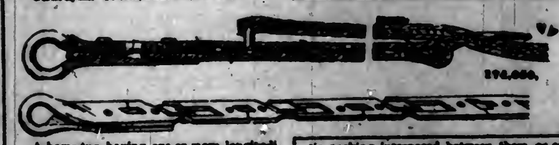
4. The combination, with reservoir-vessel A and the lower cooking-vessel C, of an upper double-walled vessel, F, with communications *a a*, governed as described, provided with separate cooking-chambers *r s t*, as and for the purpose set forth.

176,049. RAILROAD-RAIL JOINTS. Lorenzo Winslow, Rochester, N. Y. [Filed Dec. 17, 1875.]



The rail-ends A A, recessed down to and receiving a portion of the bone-fingers, as described, in combination with the interposed sectional piece B, formed to fit the spaces, and the fish-plates C C, substantially as specified.

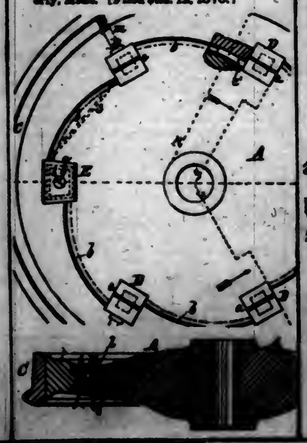
176,050. TRACE-GUARDER. E. S. Winslow, Girard, Ill. [Filed Jan. 28, 1876.]



176,050.

A hame-tug having one or more longitudinally-slotted metallic socket-plates fastened within the leather of the tug, in combination with a trace hook constructed with a T-head, substantially as and for the purposes set forth.

176,051. BEATING GAS-WHEELS. Geo. B. Woodbury, Cambridge, assignor of one-half his right to Augustus N. Clark, Beverly, Mass. [Filed Jan. 12, 1876.]



1. An elastic cam-wheel, consisting essentially of a hub portion A, an annular ring B, with a rubber or other elastic packing interposed between said hub portion and annular ring, and a metal or wrought-iron tire, C, fitted and secured to said annular ring, substantially as and for the purposes described.

2. A cam-wheel, consisting of a central or hub portion and an outer or tire portion, with rubber or other elastic material interposed between them when the line of division between said parts consists of a series of short radial lines, arranged around and equidistant from the axis of the wheel, and a series of curved or straight lines, each of which connects the outer end of one radial line with the inner end of the next radial line, substantially as described.

3. In combination with the hub and tire portions of a cam-wheel having their contiguous surfaces made up of a series of radial lines and a series of consecutively-curved or straight lines, connecting the outer and inner ends of said radial lines, as set forth, one or more keys, D, made in two parts and provided with lips *f f*, and having a spring, *g*, inserted between said parts, all constructed, arranged, and adapted to operate as and for the purposes described.

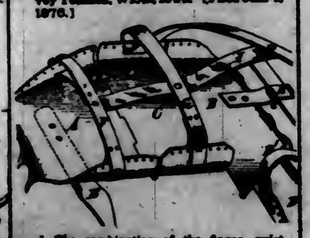
4. In combination with the hub and tire portions of a cam-wheel, the separate feathers formed as herein set forth, one or more keys or cheeks E, made in two or more pieces, divided in a plane or planes parallel to the plane of revolution of the wheel, with rubber or other suitable elastic packing between said parts and between them and the tire and hub portions of the wheel, and one or more cover-bolts *l* for binding the whole together, as and for the purposes described.

5. In combination with the hub and tire portions of a cam-wheel, having their contiguous surfaces formed of a series of teeth, with elastic packing interposed between them, as herein set forth, the grooves *e* and tongues *f*, adapted to engage with each other, as and for the purposes described.

6. In combination with the hub and tire portions of a cam-wheel, having their contiguous faces formed of a series of teeth, with elastic packing interposed between them, as set forth, the tongue *d*, having its outer edge made V-shaped in cross-section, and the groove *e*, having its bottom also of V-shape to match the edge of the tongue *d*, as and for the purposes described.

7. In combination with the hub and tire portions of a cam-wheel, having their contiguous surfaces composed of a series of teeth, with elastic packing between them, the tongues *f* and groove *e*, made dovetailing and secured together by the pins or keys *g*, substantially as described.

176,052. GLOVE FOR RUBBING CORN. Harvey Yeamen, White, Iowa. [Filed Jan. 4, 1876.]



1. The combination of the finger, wrist-plate, and thumb plates, articulated as shown when placed on the palm of the hands the device may be closed to grasp an object between the plates, substantially as set forth.

2. The plates A, B, C, and D, hinged together and combined with straps, or the described equivalent, for fastening the system of articulated plates to the palm of the hands, substantially as set forth.

2. In combination with the plates C and B, the strap C and spring-catch E, for adjustably securing the fore end of the strap, substantially as set forth.

3. The combination of the articulated plates A, B, C, and D, with claw-points suitably arranged, substantially as set forth.

4. In combination with the plates A, B, and C and straps F and G for attaching them to the hand, the elastic connecting-strap I, substantially as set forth.

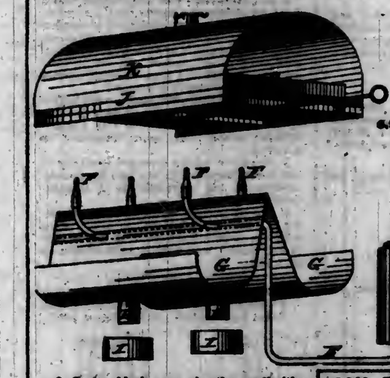
176,053. LIGHTING AND EXTINGUISHING DEVICE. Jos. W. O'Donnell, Brooklyn, N. Y. [Filed Feb. 12, 1876.]



The combined lamp-lighter and extinguisher, provided with downwardly-projecting lighting and extinguishing tubes, the latter an open tube, through which air may be forced, and both tubes formed and adapted for insertion into the lamp-chimney from the top thereof, substantially as and for the purposes set forth.

REISSUES.

6,037. CARBON-BLACK MANUFACTURED FROM NATURAL CARBURETED-HYDROGEN GAS. John Howarth, New Cumberland, W. Va., assignor, by mesne assignments, to the Carbon-Black Company, New York city. Patent No. 121,445, dated Sept. 17, 1872. [Filed Apr. 20, 1876.]



6,037.

1. Carbon-black, possessing the peculiarities of intense blackness and homogeneity, as specified, and forming a new article of manufacture.

2. I also claim the apparatus herein shown and described, consisting of the tube A, provided with a safety-valve a and connecting-pipe D, the reservoir and dome B C, pipe E provided with a series of burners, F, curved upon or trough G, tile J, dome K, and scrapers O, as and for the purposes set forth.

6,038. MACHINERY FOR CUTTING AND BLACKING THE WEBTS FOR BOOTS AND SHOES. Thomas K. Kobb, Haverhill, assignor of one-half interest to Augustus Sawyer, Milford, Mass. Patent No. 170,960, dated Dec. 14, 1875. [Filed Feb. 2, 1876.]



1. As a new article of manufacture, the flanged staple A, composed of the uprights *a a*, horizontal connecting-bar *b*, and shoulders or flanges *d d*, substantially as specified.

2. In combination with the handle or handle-cap B, the flanged staple A, constructed substantially as set forth.

6,039. STAPLES FOR SATCHELS, CARPET-BAGS, &c. Wm. Bosmer, Newark, N. J. Patent No. 124,440, dated Mar. 12, 1872. [Filed Jan. 27, 1876.]



1. As a new article of manufacture, the flanged staple A, composed of the uprights *a a*, horizontal connecting-bar *b*, and shoulders or flanges *d d*, substantially as specified.

2. In combination with the handle or handle-cap B, the flanged staple A, constructed substantially as set forth.

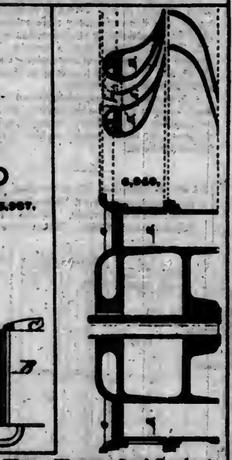
6,040. WATER-WHEELS. Saml. Tuckett, Norwich, Conn., assignor to J. P. Collins. Patent No. 91,762, dated June 22, 1869. [Filed Jan. 26, 1876.]

Brief.—The intermediate guides restrict the size of the passages through which the water passes to the buckets proportionately to the amount of water used.

1. An auxiliary or intermediate stationary pitch or plate, A, placed between the main pitches or chutes D E of a water-wheel, for the purpose herein described.

2. The combination of an auxiliary or intermediate stationary pitch or plate A with the gate C, said gate admitting the water through slots or openings to the pitches or chutes, substantially as described.

6,041. VENETIAN SHADES. Charles Widmann, New York, N. Y., assignor to Marcus Hahn. Patent No. 160,803, dated Nov. 2, 1875. [Filed Jan. 29, 1876.]

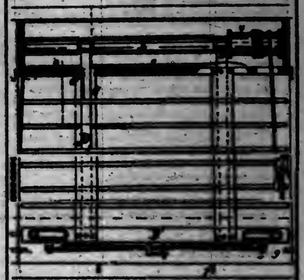


6,041.

1. A Venetian blind, consisting of the flexible holders C C, slotted slats, and elevating-tapes, detachably connected to the window-frame, combined with appliances whereby it may be pressed outwardly at the bottom and retained in that position to form a temporary awning, as set forth.

2. The combination, with a Venetian blind, of rods F, hung to the lower slat of the blind, and retainers *n*, whereby said rods may be retained in contact with the slat, substantially as set forth.

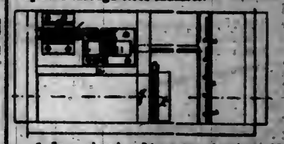
3. The combination of the holders C C, slats B, and a detachable box, G, to which the holders are hung and within which the roller E and adjusting appliances are arranged, substantially as specified.



6,042.

6,042. REFRIGERATING PROVISION-CASE. John J. Bate, Brooklyn, N. Y., assignor to the Bate Refrigerating Company, New York city. Patent No. 120,077, dated Jan. 30, 1872; antedated Jan. 19, 1872. [Filed Aug. 17, 1876.]

Brief.—Air from the top of a close chamber is drawn downward through the ice, and out from near the bottom of the ice-box into the blower-case, and forced thence, through a pipe passing from the bottom of the blower-chamber, into the close chamber at its bottom, and upward to and along its top, where it is perforated. When the car and blower stop, a gate is opened, whereupon a natural circuit of air passes downward through ice-box, and upward through close chamber.

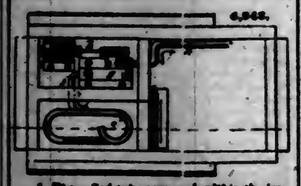


1. In a closed refrigerating-chamber, the combination of the outlet-pipe *j*, at or near the bottom of the ice-box, with the air-forcing apparatus, to force the air of the chamber through the ice-box, to and through the said pipe, substantially as and for the purpose set forth.

2. The arrangement of the door *k* in relation to the air-spaces, ice-chamber, and ice-box, for allowing the circulation of air when the car is not in motion or the blower in action, as herein recited, in combination with a blower or means for a forced circulation of the air, as described.

6,043. REFRIGERATIVE PROVISION-CASE. John J. Bate, Brooklyn, N. Y., assignor to the Bate Refrigerating Company, New York city. Patent No. 120,078, dated Jan. 30, 1872; antedated Jan. 19, 1872. [Filed Aug. 17, 1876.]

Brief.—Air drawn from the top of a closed chamber into and downward in the ice-chamber, and downward through a coil surrounded by the ice, and into the blower-case, and forced thence through a pipe (which may be perforated) extending along the floor of the closed chamber. The blower may be placed in the ice-box. Ordinarily the gate at bottom of ice-box is closed, but is opened when the blower is stopped, to permit a natural circuit of air down through the ice, and up through the closed chamber.



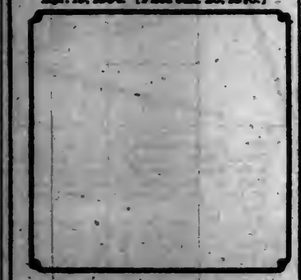
6,966.

1. The ice-chest arranged within the lower part of the refrigerating-chamber, closed against access of external air, in combination with a fan-blower arranged at its center, and having its own outlet at or near the floor of the chamber, substantially as and for the purpose specified.

2. The combination of the upper and lower openings of the ice-box with the coiled tube provided with the blower, substantially as and for the purpose specified.

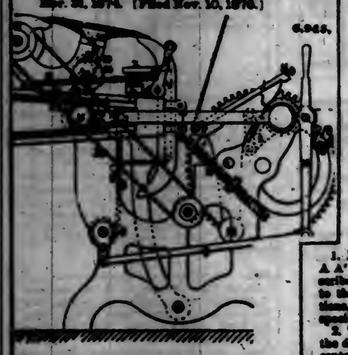
3. The arrangement of the coiled tube *f* in the ice-chamber in relation to the opening in the blower *p*, and tube *k*, for directing the air from the lower part of the provision-chamber, and delivering it near the bottom thereof, as herein recited.

6,966. METAL CASE. Edward T. Orcutt, New Bedford, Mass. Patent No. 48,261, dated Apr. 19, 1864. [Filed Jan. 20, 1876.]



Uniting the sides of sheet-metal cans by means of interlocking hook-shaped flanges and rubber, substantially as herein set forth, when such locked-shaped flanges are formed and turned upon the inside of the can, substantially as herein set forth.

6,965. PRINTING-FRAMES. Geo. P. Gordon, Brooklyn, N. Y. Patent No. 169,113, dated Nov. 23, 1875. [Filed Nov. 10, 1875.]



6,965.

1. A platen, supported and held in position to receive the strain of the impression from a movable bed by two horizontal shafts placed back of its face-line, one shaft at or near its center, and one shaft at or near its bottom, upon which latter shaft the platen rocks or swings freely to a proper position for the reception of the sheet, and alternates from one of these positions to the other, operated and operating substantially as and for the purposes set forth.

2. The combination with the chase-hook, of the wedged rod and spiral spring, placed and operating as shown.

3. The combination of a bed and platen, the motion of either of which may be suspended during the continuous movement of the other parts of the press, as and for the purposes set forth.

4. The combination of the roller-arms 14, with the holders 17 pivoted thereon, and springs 19, substantially as shown.

6,966. FARE-REGISTERS. Wm. H. Horsum, New York, N. Y., assignor of part interest to A. Hance. Patent No. 166,632, dated July 20, 1875. [Filed Jan. 11, 1876.]

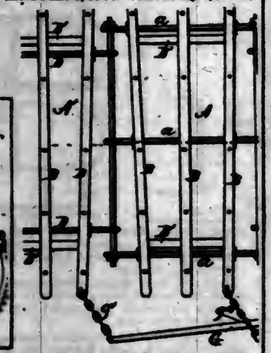


1. The combination of a switch, E, with a main trigger, D, and with two or more levers, *g g'*, and corresponding registering devices B B', substantially as shown and described.

2. The combination of a switch, E, main trigger D, two or more registering devices, B B', and a bell and hammer or other alarm, substantially as set forth.

3. The combination, with the switch E and main trigger D, of the registering devices B B', (one or more,) and a general registering device, J K, substantially as and for the purpose described.

6,967. HARROWS. W. S. O'Brien, Kewanee, Ill., assignor to the O'Brien Brothers Manufacturing Company. Patent No. 86,561, dated June 8, 1868. [Filed July 7, 1876.]



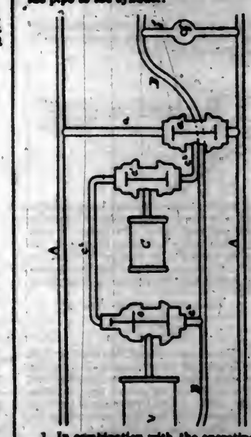
1. In combination with the harrow-sections A A' A', hinged loosely to each other, as described, the oscillating draft-bar G, pivoted to the draft-chains *g g' g''* of the harrow-sections, substantially as and for the purpose specified.

2. The oscillating draft-bar G, pivoted to the draft-chain *g''*, slightly to one side of its center, and arranged to operate in combination with the harrow-sections A A' A', substantially as and for the purpose specified.

3. The central section A, having the eye-rods *a a a*, and the nerver-rods B, for mounting and adjusting the outer sections A' A', in the manner and for the purpose described.

6,968. SHAFT AND AXLE BRAKES. George Westinghouse, Jr., Pittsburg, Pa. Patent No. 164,403, dated Dec. 21, 1875. [Filed Dec. 18, 1875.]

Brief.—A vacuum is created or kept up in the vacuum-chamber and central pipe, and the brakes are applied when air is admitted, either intentionally or accidentally, into said pipe by the central one of the triple valves being raised from its seat, and opening communication between the vacuum-chamber and brake-cylinder. The brakes may also be applied by creating a vacuum in either of the side pipes, which raises one of the double valves from its seat, and opens communication from the pipe to the cylinder.



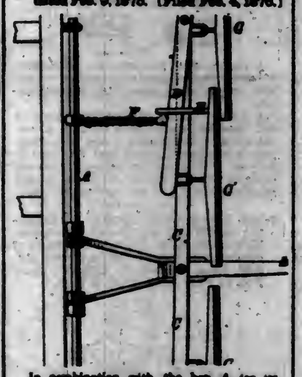
1. In combination with the operating-pipes A A', for creating or maintaining a vacuum, and a vacuum brake-cylinder, C, of suitable construction, a double-seated inwardly-seating valve, arranged to open communication with the pipe of greatest and cut off communication with the pipe of least vacuum pressure, substantially as set forth.

2. The mode of applying railway-car brakes by bringing an exhausted or vacuum chamber on the car into communication with a brake-cylinder on the same car, substantially as set forth.

3. The triple valve *a*, arranged relatively to and in combination with the pipe B, vacuum-chamber V, and brake-cylinder C, substantially as set forth.

4. The triple valve *a*, pipe B, vacuum-chamber V, and brake-cylinder C, in combination with the operating-pipe A' or A and a connecting-pipe, *f*, with cock *f'*, substantially as set forth.

6,969. DRAFT-EQUALIZERS. E. A. Bates, De Kalb County, Ill. Patent No. 166,869, dated Feb. 9, 1870. [Filed Feb. 4, 1876.]



In combination with the bar A (or its equivalent) and the pole B, the evener C, lever D, chain F, and whiffletrees G and G', said parts being arranged to operate in the manner and for the purpose substantially as specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

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OF THE

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OFFICIAL.

EDISON AND HARRINGTON *vs.* EDISON AND PRESCOTT.

Appeal to the Secretary of the Interior.

DEPARTMENT OF THE INTERIOR,
WASHINGTON, *March* 8, 1876.

SIR: I have the honor to acknowledge the receipt of your communication of the 31st of January last requesting me to make such order in the appeal of Edison and Harrington from the decision of the Commissioner of Patents as shall be agreeable to my views of the law.

On examination of the case I find that on the 20th of March, 1875, Hon. J. M. Thacher, then Commissioner of Patents, awarded patents for improvements on duplex telegraphs to Thos. A. Edison and George B. Prescott. In this case Edison appears to have been the inventor, and to have made two instruments in the nature of assignments of the inventions—one to George B. Prescott and the other to George Harrington.

Both the assignees were before the Commissioner, and the chief question presented for his decision was whether the patents should issue to Edison and Harrington or to Edison and Prescott. After a full hearing of the parties he decided in favor of the latter, and thereupon remanded the applications to the Principal Examiner for further proceedings, in accordance with the practice of his Office.

On the 29th of the same month Harrington presented a petition to Hon. C. Delano, then Secretary of the Interior, setting forth the contest between Prescott and himself and the decision of the Commissioner therein, complaining that such decision was "contrary to equity and in violation of the spirit of the law," averring that "the Commissioner of Patents is, in the exercise of his power as such, subject to the direction of the Secretary of the Interior," and praying that he would direct the proceedings theretofore had before the Commissioner of Patents to be transmitted for the examination and revision of the Secretary, to the end that the patent might be decided to be issued to Harrington and Edison; and on the following day the Secretary addressed a communication to the Commissioner of Patents, directing him to transmit all the proceedings in the cases mentioned for his examination and revision.

This direction was complied with, and the parties to the contest thereafter were heard before the Secretary upon full argument, both as to the jurisdiction of the latter to issue the order and the merits of their respective claims. The record shows no decision by him on either point prior to his resignation.

On the question of jurisdiction it is contended by Mr. Prescott:

1st. That the Secretary of the Interior has no power to review the decision of the Commissioner on the merits of any case.

2d. If such power exists at all, its exercise in this case was premature, as it could not yet be known whether any patent would ever issue under the order of the Commissioner.

On the part of Mr. Harrington it is claimed:

1st. That the statute conferring upon the Secretary powers of supervision and direction over the Commissioner included the power to review any decision of the latter; and

2d. That he may exercise the power whenever, in his discretion, it may seem proper, and is not bound to wait for the presentation of the patent for his signature.

I have considered the very able and exhaustive arguments of the learned counsel for the respective parties with great care, and have reached the conclusion that the action of the late Secretary in arresting the proceedings before the Commissioner was premature, in any view of the case, and not consonant with good practice and the orderly conduct of business in your office.

I might stop at this point and return the papers without considering the principal question, as to the power

of the Secretary of the Interior to revise the decisions of the Commissioner of Patents; but in view of its importance, and the very full argument thereon by counsel for the respective parties, I deem it proper to express my opinion upon this question also.

No appellate jurisdiction in cases like this is conferred upon my office by any express statute. The grant of power from which it is sought to be inferred is found in secs. 441, 481, and 4883, R. S. Sec. 441 is as follows:

"The Secretary of the Interior is charged with the supervision of public business relating to the following subjects: * *. Fifth, patents for inventions."

Section 481 provides that "the Commissioner of Patents, under the direction of the Secretary of the Interior, shall superintend or perform all duties respecting the granting or issuing of patents directed by law."

Sec. 4883 provides "that all patents shall be issued in the name of the United States of America, under the seal of the Patent Office, and shall be signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents."

That a grant of supervisory power has not been intended by Congress to include an appellate power I think is evident.

In defining the power of the Secretary of the Interior with respect to the census, it provides that he "shall exercise supervising and appellate powers in relation to all acts of marshals," &c., R. S., sec. 443. So, in sec. 441, above cited, the same supervision is given of public lands as of patents; yet the right of appeal to the Secretary is expressly granted by sec. 2273, R. S., in cases of contest for the right of pre-emption.

And in the act of March 3, 1849, for the establishment of this Department, it is provided "that the Secretary of the Interior shall exercise and perform all the acts of supervision and appeal in regard to the office of Commissioner of Patents, now exercised by the Secretary of State."

Nor does the statute which provides that the Commissioner of Patents shall superintend or perform all duties respecting the granting and issuing of patents under the direction of the Secretary of the Interior confer upon the latter office any appellate power. The power to supervise includes the power to direct.

Supervision is the act of overseeing, of superintendence—is concurrent with, and accompanies, the official action which is its subject—and is applicable to executive duties.

To appeal is to remove from a lower to a higher jurisdiction for review of judicial action, and necessarily *follows* such action.

The provision of the act of 1849, above cited, was repealed by the act of July 8, 1870; but I am unable to learn that any appellate jurisdiction has ever been exercised or claimed by any Secretary of State or of the Interior Department over the judicial action of the Commissioner of Patents since the creation of the office by act of July 4, 1836.

An ample remedy against the consequences of an erroneous decision of the Commissioner is provided by appeal to the Supreme Court of this District, or by bill in equity, as the case may be.

For the reasons above suggested I am of the opinion that no power is vested in me to review the decisions honestly made by the Commissioner of Patents in cases within his jurisdiction, and I return herewith all the papers relating to the applications above mentioned, in order that due legal proceedings may be had thereon in your office.

Very respectfully, your obdt. servt.,
Z. CHANDLER, *Secretary*.

To the Commissioner of Patents.

COMMISSIONER'S DECISIONS.

BERRY *vs.* STOCKWELL.—*Appeal; Interference.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the application of Geo. B. Berry, for letters patent filed December 9, 1874, and the patent of John A. Stockwell, granted February 17, 1874, No. 147,579, and reissued November 4, 1874, No. 6,122, for* "IMPROVEMENT IN SHOE-TIP."—*Decided January 27, 1876.*]

Great weight is attached to the concurring opinion of Examiners-in-Chief and the Examiner of Interferences when the issues are solely questions of fact.

The relations of these tribunals to the Commissioner of Patents are analogous to those existing between courts, where each is judge both of the law and the facts.

There is nothing in the nature of the proceedings, in cases of interference, or in the character of the rights to be determined, that precludes the application of the now well-established doctrine of estoppel.

The ordinary rules of evidence in the United States courts will be followed and adopted in proceedings in interference cases.

DUELL, *Commissioner:*

In this case priority of invention has been awarded to Stockwell by the Examiner of Interferences and by the Board. By stipulation it was heard by one member of the Board only, the Examiner of Interferences having been appointed thereon since his determination of the case, and the third position being vacant.

Great weight has always been attached to the concurring opinion of the above-named tribunals, especially where the issue is solely matter of fact, necessitating no discussion of legal principles.

The relation these tribunals bear to the Commissioner is not the same that exists between a jury and the judge; but it is analogous to that existing between those courts where each in its turn is judge both of the law and the facts. And in the latter case it is the practice in the United States courts for the appellate court to refuse to set aside the decree of the lower court unless the judgment of the latter is opposed to the weight of evidence to that clear and manifest extent that, were the case in a court of common law, the granting of a new trial would be justified on the ground that the verdict was against the weight of evidence. (*The Ship Marcellus*, 1 Black. 414; *The Grafton*, 1 Blatch., 177.) This principle has long been recognized and adopted by this Office in interference cases. (*Case* vs. *Hastings*, 7 OFFICIAL GAZETTE, 557; *Russell* vs. *Scow*, 5 OFFICIAL GAZETTE, 149; *White* vs. *Purdy*, C. D., 1870, p. 115; *Fawcett* vs. *Graham*, C. D., 1869, 113.)

There are two points, however, that have been raised by counsel for the respective parties that were not particularly discussed by the Examiner of Interferences, one of which, at least, is a question of law, and both of which were dwelt upon with considerable force and earnestness by both parties at the present hearing.

The first of these questions is whether the precise matter now in issue was clearly set forth in Stockwell's original patent, and whether, as alleged by counsel for Berry, "that Stockwell never claimed in any way to be the inventor of the folded edge, *per se*, until after Berry's testimony had been taken." The position taken by Berry being that Stockwell had invented a shoe-tip with a "*raw*" edge combined with a tap-sole, while Berry is the sole and original inventor of a tip, *per se*, having a folded edge.

In his original patent Stockwell thus sets forth the nature of his invention:

The nature of my invention relates to an improvement in *guards* for boots and shoes; and it consists in forming the *guard* from a single piece of any suitable material, so that it will not only protect the upper, but form a tap-sole at the same time, as will be more fully described hereafter.

The accompanying drawings represent my invention.

I take a single strip of leather, *a*, of suitable length and width, and after it has been compressed in any manner, so as to be as solid as possible, cut a number of nicks, *a*, in its inner edge. The outer edge *b* is then turned inward over the top, so as to form a double thickness, and then the central part *c*, which forms the guard for the front of the toe, is turned upward by bending the strip together, as shown in Fig. 3. * * * The strip of leather will be cut long and wide enough, so that when bent into proper shape it will not only form the guard around the front of the toe and the sides of the upper, but a half-sole, *g*, also. * * *

I claim the leather strip *c*, having the nicks *a* cut in its inner edge, and bent so as to form the guard or tip *c* and half-sole *g*, substantially as shown and described.

Now the principal feature here set forth is the *guard*. The patentee declares the nature of his invention to be an "improvement in guards for boots and shoes," and this guard he describes, but much more clearly shows by his drawing and model, as a strip of leather folded in, and forming a double thickness over and around the tip of the shoe. The extension of the tip to form the tap-sole appears to be an incidental and secondary matter. The idea of such tip or guard having a "*raw*" edge is entirely precluded by the terms of the patent and the conditions of the drawing and model.

Were a tip with a raw edge deemed a valuable device, and Stockwell should attempt to claim the same in a reissue application, I should unhesitatingly refuse the grant of the patent on the ground that the feature was new matter, not suggested by the original specification, nor indicated by the drawing or model.

The amendment by Stockwell of his patent by reissue, so as to claim, as he does, "a tip for boots and shoes having a folded edge at the toe," &c., I regard as a legitimate amendment of his patent.

The assertion that Stockwell never claimed in any way to be the inventor of the folded edge of the tip until after Berry's testimony had been taken is also negatived by the admissions of Berry himself in his testimony, that Stockwell made the model accompanying the original application, and made oath to the application with his (Berry's) knowledge and consent. It may also be necessary to add, in reply to the criticism of counsel for Berry upon the testimony in behalf of Stockwell, that after a careful examination of that testimony I am of opinion that Stockwell and his witnesses are quite as clear and explicit in distinguishing a shoe-tip with a raw edge from that of a tip with a folded edge as Berry and his witnesses. Stockwell introduces exhibits claimed to have been made at the time he was perfecting his invention, which show the folded edge in its present form, and which exhibits some of his witnesses swear as having seen at that time, and others allege that they conform to the description given and the models shown them by Stockwell during the same period. On the other hand, Berry corroborates his testimony by no such exhibits or models.

The second question referred to is that of estoppel. The Examiner-in-Chief is of the opinion that in view of the fact that Stockwell's patent was applied for and obtained, not only with Berry's knowledge, but by his procurement, Berry is now equitably estopped from setting up his claim to a patent as against all the world, and especially subsequent innocent purchasers and assignees under the patent. It is insisted, however, on the part of Berry that in the determination of the question as to who is the first and original inventor of the thing sought to be patented equitable estoppel finds no place. To this it may be replied that an interference is a judicial proceeding expressly provided for by law. It is instituted for the purpose of determining the question of priority of invention between two or more contesting parties, and is in the nature of an action to establish an alleged title to property. Its conduct is aided by the process of the United States courts, and in its prosecution and final determination the ordinary rules of evidence, and those decisions of the courts in which the same questions are discussed, are followed.

There is nothing in the nature of the proceeding or in the character of the rights to be determined that precludes the application of the now well-established doctrine of estoppel. The courts apply it to patent cases as well as to all others, and will not allow the defense that a patentee is not the first and original inventor to be set up whenever the defendant in transactions with the patentee has admitted the validity of the patent, and has acted, or induced others to act upon that admission, unless such transaction was the result of fraud, surprise, or imposition on the part of the patentee. (*Kinsman et al.* vs. *Parkhurst*, 18 How., 289; *Eureka Co.* vs. *Bailey*, 11 Wall., 488; *The Magic Ruffle Co.* vs. *The Elm City Co.*, 8 OFFICIAL GAZETTE, 773.)

The doctrine of estoppel, once considered odious, is now regarded as one of the most salutary rules of evidence.

It is in reality, say the United States Supreme Court, "founded upon the soundest principles, as a rule of evidence, that a party has, by his own voluntary act, placed himself in a situation as to some matter of fact that he is precluded from denying it." (*Sprigg* vs. *Bank of Mt. Pleasant*, 10 Pet., 257.)

As a general rule a party will be concluded from denying his own acts or admissions, which were expressly designed to influence the conduct of another, and did so influence it, and when such denial will operate to the injury of the latter. (*Welland Canal Co.* vs. *Hathaway*, 8 Wend., 480.)

In the case of *Dixon* vs. *Meyer*, (4 Wash., 68,) where one matter of defense was that the plaintiff surreptitiously obtained his patent for a discovery of one Wimbley, Mr. Justice Washington held:

If the jury are satisfied that the discovery was in reality made by Wimbley they must also be satisfied that the patent was obtained in fraud of any right which such discovery bestowed upon Wimbley. For if, upon the evidence, you should be of opinion that Wimbley gave up his right of discovery to the plaintiff, by expressly or impliedly permitting him to encounter the trouble and expense of obtaining a patent, it cannot be affirmed that the plaintiff obtained the patent surreptitiously, or in fraud of Wimbley's discovery.

Now, in accordance with the above definition of estoppel, if in the case last mentioned Wimbley had been the defendant, he would have clearly been estopped from setting up his own prior invention of the matter in controversy.

The character of estoppel urged against Berry is a branch of equitable estoppel, or estoppel in *pais*, known as estoppel by conduct. It is set forth by Bigelow on

page 600 of his work on estoppel that to establish estoppel of the kind in question it must be shown:

1. That the party sought to be estopped has made an admission or done an act with the intention of influencing the conduct of another, or that he had reason to believe, as a man of ordinary prudence would influence his conduct inconsistent with the evidence he proposed to give, or the title he proposes to set up.

2. That the other party has acted upon or been influenced by such act or declaration.

3. That the party will be prejudiced by allowing the truth of the admission to be disproved.

The facts in the present case in regard to this matter are clearly established by the testimony in behalf of both parties to be as follows:

December 5, 1873, Berry wrote to F. A. Lehman, of Washington, stating that he and Stockwell were about to apply for a patent, a sample or model of which they therewith inclosed; that they claimed a *guard* for the protection of boot and shoe uppers, and a *half-sole* combined; that patents had been granted for tips, but as these patents were for copper or nickel tips they were of opinion that they would not interfere with their invention, and concluding by instructing the attorney to make out the papers as follows: "John A. Stockwell, patentee, Geo. E. Berry, assignor, one-half interest." It is obvious, as it is elsewhere shown, that the word "assignee" was here intended instead of "assignor."

The attorney complied with these instructions, drew up the application, and returned the same to Berry and Stockwell. Stockwell subscribed to the oath thereto as inventor with Berry's knowledge and consent, and on the 27th of December, 1873, Berry again wrote to the attorney expressing satisfaction, and inclosing $20. The application was filed in the Office January 2, 1874, accompanied by the model referred to by Berry. It has already been shown that this model, as well as the application and drawing, embody the precise matter in issue, and Berry's reference in his first letter to other patents for *tips* shows his acquaintance with the important feature of a tip *per se*.

January 14, 1874, Berry, in a letter acknowledging the receipt of one from the attorney, informing them of the rejection of one claim, says they should like to see the claim allowed before sending him the $48 called for, to judge whether it was of any value. Up to this time Berry had written all the letters in the name of "Berry and Stockwell."

Whether a copy of the claim was sent by the attorney does not appear, but the notice of allowance of the patent, and an assignment for the parties to sign in accordance with their previous agreement were at that time forwarded to them by the attorney.

The accounts as to what then followed between Stockwell and Berry are conflicting. Stockwell alleges that Berry appeared dissatisfied with the matter, and after repeated urging declined to advance more funds or proceed at all in the prosecution of the application, and for that reason he, (Stockwell) went on to Washington and took out the patent. The patent was granted February 17, 1874.

Berry places the blame on Stockwell, alleging that Stockwell refused to go any further in the matter, for the reason that he had no money, and that he knew nothing of the patent being granted to Stockwell until he saw a notice of it published. He also alleges that in August, 1874, Stockwell came to him and made several offers for his interest in the patent. During the same month Berry again wrote to Lehman, the attorney, rehearsing the history of the application made by Stockwell and himself, stating that Stockwell had made him offers for his half, and asking what his (Berry's) rights were in the matter. To this letter the attorney replied, discussing Berry's rights as assignee. Berry still claims in that capacity, and asserts in his testimony that he has made arrangements for the prosecution of his claim in accordance with the agreement made with Stockwell before the application of the above-described patent was filed.

December 9, 1874, Berry filed his present application for the invention in controversy. He maintains his right to do so on the ground that Stockwell's original patent was for the combination of the tip with a half-sole, while he alone is the inventor of the tip *per se*. If this were so it does not help Berry's case, as both parties then would stand in the position of joint inventors, and should have made a joint application. Berry, too, in his drawing and model, shows the same combination as Stockwell, and it would appear that if Berry had a patent, a reissue application to cover that precise combination would be admissible. However that may be, Stockwell substantially asserts himself in his original patent to be the first and original inventor of the tip, as well as the tip and tap sole combined, and Berry not only acquiesced in that position, but took active measures to establish that title in a patent. His conduct was not that of one who silently allows another to lay claim to property of which himself is owner, but on the contrary he became a party to another's claim, acknowledged his rights orally and by writing, and furnished the means of instituting the proceeding to perfect the title to the property on which such claim was based. The waiver and acquiescence on the part of Berry of any right he might have had in this invention were based, too, as he himself asserts, on a valuable consideration, which he is still determined to enforce in a court of law. These are additional grounds of estoppel.

If it were shown that Stockwell knew that Berry was or claimed to be the inventor of the tip, or even helped to perfect it, he could not now urge the objection of estoppel, but, in view of all the testimony, this is not clearly established.

All the qualities and conditions of an estoppel appear to me to exist in this case as between Stockwell and Berry and their privies.

Berry knew whether he was inventor or not of the matter in controversy, but made opposing representations to Stockwell and others, by which conduct Stockwell was induced to apply for and obtain a patent in his own name, and it certainly would be greatly to the prejudice of Stockwell and his assignee to now issue a patent to Berry.

Berry asserts that he did not understand at that time the requirements of the law in regard to the taking of the oath by the inventor, and thought it would make no difference as long as he got half the invention. But his admission that he consented to Stockwell's taking the oath shows that he knew that an oath was to be taken, and he was probably aware of its nature. But admitting his ignorance of the rule of law in this matter, it cannot be regarded as a valid excuse. The doctrine on this very point is stated in the case of *Tilton* vs. *Nelson*, (27 Barbour, 595.) Speaking of one who was pleading ignorance of the rules of law as a defense to a matter of estoppel, when seeking to controvert a title to certain property, the court said that he and his privies in blood or estate encountered two principles applied by Chancellor Kent, in a case where the defendant had been really ignorant of his legal rights.

> The first of these principles is that when a party procures, or even acquiesces in, the disposition of his property by another under color of title, and pretending to title, he shall be bound by such disposition, and shall be presumed to know the law so far as it is applicable to the case. The other is that even if he shows that he was really ignorant of the law, and acted in that ignorance, still the maxim *ignorantia legis neminem excusat* will apply in favor of the other party.

Although this controversy might be properly determined on the matter of estoppel alone, yet I have carefully considered the positions taken by the Examiner of Interferences and the Examiner-in-Chief on other points.

First, I agree with the Examiner of Interferences that it was incumbent upon Berry to show that he had reduced this invention to a complete and practical form capable of use before Stockwell obtained his patent.

This is the sort of evidence the courts require to establish priority of invention against a patentee, and it is the rule the Office must follow in determining the same question.

The testimony is not conclusive in showing this to have been done on the part of Berry, even admitting his testimony to be unquestioned. He made numerous experiments, and, he says, a model; but there is nothing to show positively that he embodied the device in a shoe.

In his preliminary statement, Berry fixes the date of his invention in December, 1873; but in his testimony thinks it may have been in the latter part of November of that year. He says it was then that Stockwell came to him with a shoe-tip having a raw edge, and desired that he should assist him in perfecting it, and that in his efforts to that end he completed the invention in the form it now bears. But a large number of witnesses in behalf of Stockwell testify that the latter showed them the device in question embodied in models and shoes in October and November of that year.

It is attempted to impeach Stockwell and some of his witnesses; but as most of the impeaching witnesses appear to have been personal enemies of Stockwell, or in the employ of his opponents, and as the attempt is repelled by the testimony of an equal, and as to some a greater, number of witnesses, it cannot be regarded as successful. Besides there are quite a number of Stockwell's witnesses who are not attempted to be impeached, and whose testimony affirms his claim.

The value of this invention is great in the art to which it appertains, and has, therefore, given rise to a very bitter contest. The testimony is voluminous, and the arguments by the respective counsel have been able and elaborate. I have for these reasons carefully considered the matter, and set out my views at length. My conclusion is that the weight of evidence fully sustains the judgments of the Examiner of Interferences and the Examiners-in-Chief.

The decision of the latter tribunal is, therefore, affirmed.

ALDRICH AND EVANS.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of Willard L. Aldrich and William Evans for reissue of letters patent No. 67,395, for* "IMPROVEMENT IN MACHINE FOR TWISTING AUGERS."—*Decided January* 15, 1876.]

The rule governing the Office in cases of reissue is the same as adopted by the courts, whether the application for reissue is for the same invention as the original patent disclosed; and it is for the Office to determine, by comparison of the patent and the application, if an attempt is made in the latter to enlarge the scope of the original invention.

Where the nature of the invention described in the patent "is to produce perfectly true grooves or twists in auger or bit blanks, by means of adjustable traveling clamps, or formers, which are moved in a direction with the length of a blank or twisted shaft, during the rotation thereof, as will be hereinafter explained," the addition thereto, in the application for a reissue of such patent, that "it also has for its object to form or shape the cutting end or lips," is a separate and distinct invention, and "new matter" not proper to be introduced.

DUELL, *Commissioner:*

The Examiner is of the opinion that the amendment sought to be made in the specification of this patent consists of new matter.

The object of the invention, as set forth in the patent—

> Is to produce perfectly true grooves or twists in auger or bit blanks by means of adjustable traveling-clamps or formers, which are moved in a direction with the length of a blank or twisted shaft during the rotation thereof, as will be hereinafter explained."

This description of the purpose of the invention is materially enlarged upon in the application for reissue, by adding that it also has for its object "to form or shape the cutting end or lips." As asserted by the Examiner, and as shown by the numerous references he submits to substantiate his assertion, the twisting of the blank forms of augers, and the formation upon the ends thereof of the lips, are two distinct operations performed by an entirely different set of devices. So that the question now is, did the applicant, who now for the first time claims as one of the objects of his invention the formation of the lips upon the auger, show or describe in his patent the means of accomplishing that object?

The principal features of the machine are, first, a fast head-stock, which supports a driving-spindle and its cone-pulley; second, an adjustable tail-stock, carrying a back center, and an adjusting-mandrel to which this center is applied; and, third, double convex rollers, with their peripheries rounded, supported by two standards resting upon a slide-rest, and so arranged as to rotate in different vertical planes, and adapt themselves to the spiral twist of an auger, and on both sides of it. The slide-rest can be moved longitudinally, and the rollers are made to approach to and recede from each other by the turning of a screw-shaft.

The auger-blank to be twisted is supported at one end by the spindle-clutch on the head-stock, and at the other end by the back center. The function of the rollers is to impart regularity to the twists in the blank after they have been first formed by the action of the driving-spindle and the back center.

It is within the following further description of the back center, and the operation of the machine, that applicant alleges is contained the matter which indicates that the lips upon the end of the auger are formed by the turning of the mandrel:

> This back center *b* is bored out to receive and center the spur on the blank, and its end is constructed with two half-spiral abutments for receiving and holding the cutting end of the auger before and after the latter is twisted.

Now, it is perfectly clear that the only function allotted to the back center in this paragraph is the *holding* of the one end of the auger; and the half-spiral abutments are made to allow the holding to continue while the twist at the end is being formed, and after it is completed. The language is clear and unmistakable in its meaning.

The description continues:

The blank being adjusted between the chuck and back center, the slide-rest is moved toward the adjustable head (tail) stock to the proper point, and the rollers screwed up tightly to the blank near the back center *b*. The female or back center is then given a part of a turn, enough to twist and form the cutting ends."

Now it is evident that the word *form* here was not intended, and does not have reference to the same function as the word *holding* in the paragraph above. There, the receiving and holding of the auger end was the subject dwelt upon. Here, other functions of the back center are mentioned, viz: twisting and forming. It is upon this one word—form—in the sentence last quoted, that applicant builds his reissue application. The back center now becomes a *die*, the cutting end is enlarged to include the lips, and two new claims are made to cover the expanded matter.

It may be, as applicant has represented by his counsel, that the back center *does* act as a die, and that the single twist given thereto forms, shapes, and completes the lips of an auger; and if it were proper to grant reissues on parol testimony, the present one would be granted; but the rule governing the Office in these matters is the same as adopted by the courts. Whether a reissued patent is for the same invention as the original one, say the courts, is a matter of *comparison* of the two instruments. So, too, when an application for reissue is received, it is merely a matter of comparison with the Office to see whether the subject-matter of the application was substantially shown, or clearly suggested or indicated in the patent.

Applying this rule to the present case, there appears to be nothing in the model to indicate that the back center in the tail-stock in this machine was intended to act as a die to form the lips of the auger, further than the same are formed by giving to the blank its initial twist. No mention is made of its possessing more than that property in the specification, and the drawing does not suggest it.

When the declared object of the invention is considered, as set forth in the patent, and the description of each part and its operation is read, the only impression conveyed is that the twisting of the auger, and perfecting the twists, were the matters uppermost in the mind of the patentee, and that the turn given to the back center was to form the cutting end of the auger no more than was necessary to give the first twist its proper shape in relation to the point. This latter operation, probably, has also the effect to give the cutting end the rudimentary form of the lips, and such partial formation of that feature may, I think, be reasonably regarded as embraced within the phrase, "to twist and form the cutting ends."

If the inventor had in mind, at the time of filing his original application, the production of the lips by the combined action of the clamps "and a rotative head or die," it seems as if some mention of that important operation should have been made in his patent.

Whatever, though, is conveyed by a reasonable construction of the terms of the specification he is entitled to, and, therefore, all the amendments proposed, which do not extend to the formation of complete lips upon the auger, may be allowed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF NEW HAMPSHIRE.

HYREN HENRY, COMPLAINANT, *vs.* FRANCESTOWN SOAP-STONE STOVE COMPANY, DEFENDANT.

[*In equity.—Before* SHEPLEY, *J.—Decided January* 28, 1876.]

An application filed in 1857 was rejected, a new application was filed in January, 1859, renewing the first, whereupon a patent issued: *Held*, that the date of the application for a patent is to be the date of the first application which was rejected, and not the date of the renewed application on which letters patent issued.

Mere forbearance to apply for a patent during the process of experiments, and until the party has perfected his invention and tested its value by actual practice, affords no just grounds for any presumption of abandonment or dedication to the public.

When a renewed application is filed for the same invention, the time of the two years prior use and sale is to be reckoned from the time of filing the first application.

Public use, in good faith, for experimental purposes, while the inventor is perfecting his invention, and for a reasonable period even before the beginning of the two years of limitation cannot affect the rights of the inventor.

[*Bainbridge Wadleigh* and *Thomas L. Livermore*, for complainant. *Messrs. Sawyer & Sawyer, Jr.*, and *William L. Putnam*, for defendant.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

This is a suit in equity by Hyren Henry against the Francestown Soap-Stone Company for an alleged infringement of letters patent granted to Porter Dodge, February 1, 1859, for a new and useful "improvement in stoves."

Defendant answers to part and demurs to part of the bill. The answer sets up prior use and knowledge in William Eayrs and O. W. Wade, and also a public use and sale more than two years prior to the application by Dodge for a patent. There is nothing in the patent of O. W. Wade resembling the invention of Dodge, except that both patents were for stoves, and the material described in both was soap-stone. Here the similarity ends. Eayrs' stove was never patented. No practical working stove appears to have been made by him. He had not perfected and was not using any diligence to perfect his invention before Dodge obtained his patent. Neither is there anything in his model to anticipate Dodge's invention.

I have carefully analyzed and examined the evidence introduced to sustain the allegation in the amended answer of the defendant that Dodge "consented and allowed his said patented improvement to be in public use and in sale for more than two years prior to his application for said letters patent—to wit, from about the year 1854 to the year 1858." Before commenting on this testimony it becomes necessary to fix the date of Porter Dodge's application. His application was subscribed, and the specification sworn to, and the power of attorney to his solicitor drawn and acknowledged December 26, 1856. His model was filed in the Patent Office the next day. His formal petition, specification, drawings, affidavit, and power of attorney were filed and the fee paid at the Patent Office February 14, 1857, and correspondence ensued. His specifications and one of his drawings were returned for unimportant corrections, and after corrected specifications had been returned his application was rejected April 15, 1857, by reason of an entire misapprehension by the Examiners of his claims upon a reference of the patent to O. W. Wade and the application of William Eayrs before mentioned. January 13, 1859, he filed a new petition renewing the first petition, whereupon his patent issued February 1, 1859. Under such circumstances the date of his application for a patent is to be considered to be the date of his first application which was rejected, and not the date of his renewed application which was granted, and on which the letters issued. (*Godfrey* vs. *Eames*, 1 Wall., 317.) To the same effect is a decision of Mr. Justice Clifford in this circuit, *Jones* vs. *Sewall*, (3 OFFICIAL GAZETTE, 630,) and it has frequently been held that the date of filing the application on which the patent was granted is not the date from which the time of use or sales is to be reckoned, but that the time is to relate back to the date of *any* application. Delays in the Patent Office, which an inventor cannot prevent, will not impair his title to his invention, nor can any use of his invention during such delays, if without his consent and allowance, afford any evidence to support the idea that the inventor abandoned his invention to the public. (*Jones* vs. *Sewell*, above cited; *Stimpson* vs. *Railroad*, 4 How., 402.)

Mere forbearance to apply for a patent during the process of experiments, and until the party has perfected his invention and tested its value by actual practice, affords no just grounds for any presumption of abandonment or dedication to the public, *Agawam Co.*, vs. *Jordan*, (7 Wal., 607.) To defeat the patent on the ground of a public use and sale more than two years prior to the application of Dodge for a patent, such public use and sale must be proved more than two years prior to his first and rejected application. That application was formally filed February 14, 1857, and for the purposes of this case that may be taken as the date from which the time of the two years prior use and sale is to be reckoned. Although to save a forfeiture it might, if necessary, be just to give him the benefit of the informal application made to the Commissioner when he transmitted his model, December 27, 1856, the day after the date of his oath to the application, signed and sworn to on the 26th.

In *Birdsell* vs. *McDonald*, (6 OFFICIAL GAZETTE, 682,) the court were of the opinion that the placing, by an inventor, of his model and application and fee in the hands of a solicitor within two years after public use, was sufficient to prevent forfeiture, although the solicitor negligently omitted to file it until after the two years.

The fact of a public use or sale more than two years prior to the patent. But the objection rests upon the principle of forfeiture, and is not to be so favorably regarded as to dispense with the necessity of strict proof. Public use in good faith for experimental purposes, while the inventor is perfecting his invention, and for a reasonable period even before the beginning of the two years of limitation, cannot affect the rights of the inventor. (*Birdsell* vs. *McDonald et al.*, 6 OFFICIAL GAZETTE, 682; *Mellus* vs. *Silsbee*, 4 Mason, 111.) Applying these principles of law to the facts found in this case, the evidence does not show any such public use or sale with the consent of Dodge for two years prior to his application as would work a forfeiture of his patent. There is one case only of a sale clearly proved before February 14, 1855, and no evidence tending to show more than two or three sales before that time, and all of them accompanied with a notice of an intention to apply for a patent, and all of these during the time when he was experimenting upon and before he had perfected his invention and attained sufficient perfection in the castings to satisfy him that his invention was practically successful. As in most if not in all of these instances, the stoves were delivered on trial, to be returned if the invention did not work satisfactorily, they are to be regarded rather in the light of such practical tests as the law permits an inventor to make than as such public sales as would tend to show abandonment, or mislead the public into a belief that the inventor had made a dedication to the public.

The ground of the demurrer is that Roundy and Darling are not joined as parties to the bill. Porter Dodge died August 13, 1865, and Roundy was duly appointed executor of his will and trustee of the letters patent under a clause of the will, by which the testator had provided that all his letters patent should be held in trust for the benefit of his widow and son. The property in the letters patent in question, and in and to all claims for profits and damages for infringement passed by valid conveyances from the executor and trustee Roundy to Darling and from Darling to the complainant, the contention is that inasmuch profits and damages are claimed for a period which includes the time in which the legal title to the letters patent was held by Roundy and by Darling, they are necessary parties to the bill. In this case the assignments were not merely of a *chose in action*. Assignment of the claim for past damages and profits was in connection with, and an incident to, the transfer of the title to the letters patent. Such an assignment of past profits and damages for the infringement of a patent, when made in connection with the transfer of the title of the patent itself, courts of equity will uphold, and the modern doctrine in courts of equity is that if the assignment be absolute and unconditional and there is no remaining title or interest in the assignor to be affected by the decree, the assignor is not a necessary party. (*Threcothick* vs. *Austin*, 4 Mason, 16; *Hill* vs. *Adams*, 2d Alkine, 39 Story Eq. Pleading, S. 153, 154, 197; *Haskett* vs. *Hilton*, 30 Maine, 419; *Moore* vs. *Veasie*, 32 Maine, 355; *Wheckray* vs. *McKinney*, 7 Johns Ch. 7, 144; *Montague* vs. *Lobdell*, 11 Cash., 114, 115; *Currier* vs. *Howard*, 14 Gray, 513.)

The infringement in this case is clearly proved, and there must be a decree for the complainant for an account, and for profits, and damages, according to the prayer of the bill.

DISCLAIMERS FILED.

51,202.—Reservoir Cooking-Stove.—Granted to ESEK BUSHEY, Troy, N. Y., December 5, 1865; reissue No. 2,319, dated July 24, 1866; reissue No. 5,435, dated June 3, 1873. Disclaimer filed March 8, 1876. Disclaims:

"The first, second, eighth, ninth, and tenth clauses of the claim in the following words, to wit:

'1. The top plate of a cooking-stove, extended beyond the rear fines thereof, and provided with an opening for the reception of a reservoir or boiler, as and for the purposes described.

'2. The arrangement of an uncased reservoir at the rear of the stove, with the upper part thereof resting in the opening in the extended top plate, as and for the purposes described.

'3. In a stove having a portion of the rear casing of the vertical flues removed and a reservoir placed contiguous thereto, the arrangement of the exit-passage or smoke-pipe upon a vertical line, or prolongation of a vertical line, passing between the reservoir and the oven, as and for the purpose described.

'9. In a cooking-stove having three flues, and a portion of the casing of the vertical flues removed, and a reservoir placed in the rear thereof, the arrangement of the exit-passage or smoke-pipe over the center ascending vertical flue.

'10. In a cooking-stove having ascending and descending flues, and a portion of the casing of the vertical flues removed, and a reservoir placed in the rear thereof, the arrangement of the exit-passage or smoke-pipe over the vertical ascending flue and between the reservoir and oven.'"

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date February 29, 1876.]

9,110.—Paper Boxes.—FRANK W. CHANDLER, Brunswick, Me. Application filed January 8, 1876. Term of patent 7 years.

9,111.—Convertible Chairs.—CHARLES A. PERLEY, Baldwinsville, Mass., assignor to THOMPSON, PERLEY & WAITE, same place. Application filed January 10, 1876. Term of patent 7 years.

9,112.—Metallic Door-Plates.—JOHN SHERWIN SHADDUCK, Huron, Ohio. Application filed July 1, 1875. Term of patent 14 years.

9,113.—Lawn Urinal-Case.—WILLIAM TWEEDDALE, Brooklyn, N. Y., assignor to J. L. MOTT IRON WORKS, New York city. Application filed February 14, 1876. Term of patent 14 years.

9,114.—Pedestal for Stemmed Glassware.—THOMAS B. ATTERBURY, Pittsburg, Pa., assignor to J. S. and T. B. ATTERBURY, same place. Application filed December 14, 1875. Term of patent 7 years.

9,115.—Knocker-Plates for Curry-Combs.—CHARLES E. L. HOLMES, New York, N. Y., assignor to THE LAWRENCE CURRY-COMB COMPANY, same place. Application filed January 3, 1876. Term of patent 7 years.

9,116.—Buttons.—WILLIAM W. KNIGHT, Brooklyn, N. Y. Application filed January 28, 1876. Term of patent 7 years.

9,117.—Street-Lantern.—FRANCIS L. PISCH, New York, N. Y. Application filed Feb. 19, 1876. Term of patent 3½ years.

9,118.—Clasps for Pocket-Books.—SIMON ZIEN and LOUIS MEISEL, New York, N. Y. Application filed January 11, 1876. Term of patent 3½ years.

9,119.—Lamp-Stands.—FREDERICK R. SEIDENSTICKER, West Meriden, Conn., assignor to THE BRADLEY & HUBBARD MANUFACTURING COMPANY, same place. Application filed February 21, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 29, 1876.]

3,460.—Soap.—R. W. BELL & Co., Buffalo, N. Y. Application filed January 25, 1876.
"word 'SCHWARTZWAELDER.'"

3,461.—Soap.—JOSEPH BISCHELB, Canton, Ohio. Application filed January 3, 1876.
"words 'CALIFORNIA SOAP.'"

3,462.—Medical Compound.—I. C. FRESE & Co., Hamburg, Germany. Application filed December 27, 1875.
"words 'HAMBURGER THEE.'"

3,463.—Medical Compound.—I. C. FRESE & Co., Hamburg, Germany. Application filed December 27, 1875.
"words 'HAMBRO' TEA.'"

3,464.—Oatmeal.—FERDINAND SCHUMACHER, Akron, Ohio. Application filed December 6, 1875.
"words 'AMERICAN OAT-MEAL, GERMAN MILLS.'"

3,465.—Turbine Water-Wheels.—STOUT, MILLS, & TEMPLE, Dayton, Ohio. Application filed February 4, 1876.
"words 'AMERICAN TURBINE WATER-WHEEL.'"

3,466.—Fertilizers.—WILLIAM L. BRADLEY, Boston, Mass. Application filed February 14, 1876.
"words 'Cock of the walk.' In connection with a representation of a game-cock standing defiant in the center, a dead or wounded cock is seen laid on the ground on the left of the victorious game-cock, and a pair of birds are seen running away toward the left and right.

3,467.—Woolen and Cotton Fabrics.—EDWARD F. CHURCH, South Orange, N. J. Application filed February 10, 1876.
"words 'HUNDREDTH ANNIVERSARY OF FREEDOM.'"

3,468.—Soap.—DAY & FRICK, Philadelphia, Pa. Application filed February 14, 1876.
"words 'Pound Bleacher,' in connection with the representation of a pair of scales."

3,469.—Medals and Jewelry.—SUEVILLE J. DELAN, New York, N. Y. Application filed February 17, 1876.
"the representation of two female figures, in connection with the representation of the main Exhibition Building of the 'Centennial Exhibition,' placed between said two figures."

3,470.—Watch-Cases, Lockets, and Medallions.—T. B. HAGSTOZ & Co., Philadelphia, Pa. Application filed February 14, 1876.
"pictorial representations of the old State-House and 'Memorial Hall' in Philadelphia."

3,471.—Meats and Lard.—HOSMER & HUBBARD, Sandusky, Ohio. Application filed February 14, 1876.
"picture of a balloon carrying pigs.

3,472.—Flour.—IMBS, MEYER & Co., St. Louis, Mo. Application filed February 14, 1876.
"word or name 'TRIUMPH.'"

3,473.—Woven Cotton Fabrics.—MINOT, HOOPER & Co., New York, N. Y. Application filed February 21, 1876.
"an ornamental picture or print, in colors, with a superposed ornamental mat, of some contrasting ground, which forms a border to the field.

3,474.—Tobacco.—MARBURG BROTHERS, Baltimore, Md. Application filed February 18, 1876.
"words 'CARTE BLANCHE' and a picture of Napoleon III in profile in a circle."

3,475.—Buckskin Gloves.—IRA PARKER & Co., Littleton, N. H. Application filed February 23, 1876.
"words 'SARANAC BUCK GLOVES.'"

3,476.—Medical Preparation.—HENRY L. SAGE, Bridgeport, Conn. Application filed February 9, 1876.
"word, name, or denomination 'ODONTOLEUM.'"

3,477.—Soap.—JOHN D. SMITH, Philadelphia, Pa. Application filed February 18, 1876.
"the figure of the 'LIBERTY BELL.'"

3,478.—Perfumes and Toilet Preparations.—GEORGE J. WENCK, New York, N. Y. Application filed February 12, 1876.
"a Norman shield and bottle."

3,479.—Composition for Printing-Rollers.—WILD & STEVENS, Boston, Mass. Application filed February 23, 1876.
"words 'ANGLO-AMERICAN ROLLER COMPOSITION.'"

3,480.—Perfumery.—ALFRED WRIGHT, Rochester, N. Y. Application filed February 14, 1876.
"words 'MARY STUART.'"

3,481.—Bread Preparation.—JOHN L. YOUNG, Brooklyn, N. Y. Application filed February 14, 1876.
"word 'PIONEER.'"

3,482.—Flour.—COGGIN, KIDDER & Co., Lowell, Mass. Application filed January 3, 1876.
"words and figures as follows: 'Clark's Extra, 196,' with the representation of a Maltese cross."

3,483.—Tobacco-Bags.—WILLIAM J. CUSSEN, Richmond, Va. Application filed February 10, 1876.
"the representation of a pear, with stem at one end, blossom at the other end, and a label within the outlines of the pear."

3,484.—Fertilizers.—WINFIELD PETERS, Baltimore, Md. Application filed February 23, 1876.
"words 'THE RAGSDALE AMMONIATED DISSOLVED BONE.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date February 29, 1876.]

550.—Title: **"Alten's Excelsior Troches."**—JOHN H. ALTON, Boston, Mass. Application filed February 25, 1876.

551.—Title: **"W. E. Bow's Star Liniment."**—WALLACE E. BOW, Fowlerville, N. Y. Application filed February 17, 1876.

552.—Title: **"Beericke & Tafel's Concentrated Extract of Hamamelis."**—BOERICKE & TAFEL, New York, N. Y. Application filed February 25, 1876.

553.—Title: **"Dr. Gale's Zoagria or Fruit Tonic."**—WILLIAM GALE, Chicago, Ill. Application filed February 14, 1876.

554.—Title: **"Corduroy Havana."**—FRANCIS E. GERNHARDT, St. Louis, Mo. Application filed January 26, 1876.

555.—Title: **"An Old Sailor's Cough Remedy."**—H. C. HOLTIN, Hoboken, N. J. Application filed February 17, 1876.

556.—Title: **"Alaska Sperm Oil."**—EDWARD H. KELLOGG, New York, N. Y. Application filed February 23, 1876.

557.—Title: **"Transparent Engine and Spindle Oil."**—EDWARD H. KELLOGG, New York, N. Y. Application filed February 23, 1876.

558.—Title: **"Kendall's Spavin Cure."**—B. J. KENDALL, Enosburgh Falls, Vt. Application filed February 18, 1876.

559.—Title: **"Lady Demarest's Liquid Polish."**—LYON MANUFACTURING COMPANY, New York, N. Y. Application filed February 15, 1876.

560.—Title: **"Megow's Hair Restoratives."**—HERMAN MEGOW, Princeton, Wis. Application filed February 18, 1876.

561.—Title: **"Geranium Liquid Glycerine Soap."**—MUNCKTON & Co., New York, N. Y. Application filed February 23, 1876.

562.—Title: **"Dr. Munckton's Pure California Wine Bitters."**—MUNCKTON & Co., New York, N. Y. Application filed February 23, 1876.

563.—Title: **"St. Valentines."**—H. S. RIDDLE & SON, Chicago, Ill. Application filed February 18, 1876.

564.—Title: **"Phil. Sheridan Cigar."**—WILLIAM SCHMERLER, Racine, Wis. Application filed January 22, 1876.

565.—Title: **"Capital Yeast Cakes."**—JOHN J. SIDWAY, Lansing, Mich. Application filed February 19, 1876.

566.—Title: **"The Greenwich Manufacturing Co's. Quaker Cleaner."**—THE GREENWICH MANUFACTURING COMPANY, New York, N. Y. Application filed February 15, 1876.

INDEX OF INVENTIONS PATENTED FEBRUARY 29, 1876.

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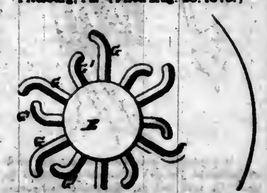
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED FEBRUARY 29, 1876

174,051. CARBURETTER, John R. Allen, Pittsburg, Pa. (Filed Aug. 20, 1875.)



In a carburetter, the air box or chamber E, provided with two series of hollow radial arms, O and O', the arms of the two series having their outer ends bent or curved in opposite directions, substantially as and for the purposes herein set forth.

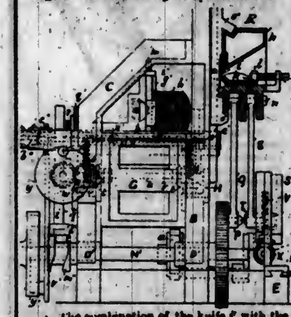
174,052. PLOW AND CULTIVATOR HANDLE, Wm. S. Babcock, Plainfield, Conn. (Filed Dec. 20, 1875.)



The circular plow-handle, bent and secured as shown, substantially as and for the purpose set forth.

174,053. MACHINE FOR CUTTING VENEERS, H. T. Bartlett, Brooklyn, N. Y., assignor of one-half his right to George W. Read, same place. (Filed Dec. 14, 1875.)

Brief.—The knife has a drawing cut, variable in length and depth to suit the work to be done. The log from which the veneers are to be cut is held and fed forward under the knife with perfect accuracy, and withdrawn as soon as the cut is completed, to keep it from the edge of the knife during its upward stroke.



1. The combination of the knife f with the reciprocating frame and horizontal adjustable pressure-bar, as specified.

2. The reciprocating knife-carrying frame E, in combination with the gibs r and vertical guide upon the uprights B B, as and for the purpose set forth.

3. The gibs L, provided with a recess and lugs o', as shown and described, for the purpose of guiding the knife-frame in its reciprocations.

4. The radial rods S, in combination with their adjusting devices, as set forth.

5. The reciprocating frame E', in combination with the mechanism by which it is operated.

6. The cutting-table J, in combination with the screws, gears, and shafts by which it is rendered vertically adjustable.

7. The vertically-adjustable table, in combination with the reciprocating knife-frame E and their operating mechanisms, as described.

8. The vertically-adjustable table, in combination with the stay-log Y, and the devices by which it is fed forward toward and retracted from the cutting knife.

9. The stay log Y, in combination with the toggle and the mechanism by which it is operated, as and for the purpose specified.

10. The shaft N', cam n'', lever r', and adjustable connections r', in combination with the pawl-carrier t', ratchet-wheel r'', and screw s', for the purpose of feeding forward the stay log, as set forth.

11. The shaft N, cam n'', arm h', vertical rock-shaft t'', sliding arm p', and connection t', in combination with the toggle and stay-log, for the purpose of retracting the latter during the descent of the cutting-knife, as described.

12. The shaft N', eccentric s, eccentric rod k, rock-shaft q, arm d', and connection c, in combination with the reciprocating frame E', radial rods S, and cutting-frame E, for the purpose of giving to the latter a horizontal movement or drawing cut, as explained.

13. The shaft M, spur-gears L and O, the latter provided with the crank-pins P, the connecting-rods Q, and cutting-frame E, in combination with the radial rods S, adjusting-blocks U, and reciprocating frame E', as and for the purposes set forth.

14. The combination and arrangement of all the devices, as shown and described, for the purpose set forth.

174,054. STRAW-CUTTER, Emil Belcher, Chicopee Falls, Mass., assignor of one-half his right to John W. Belcher, same place. (Filed Feb. 2, 1876.)



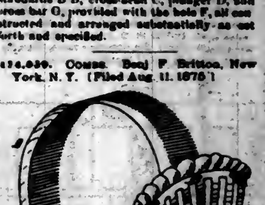
1. In a straw-cutter, the knife-carriage f, provided with projections s attached to lever E, provided with slotted projections s by set-screws d, in the manner and for the purpose set forth.

2. The combination, in a straw-cutter, of the lever E, fulcrum-rod h, sleeve g, and set-screws h, substantially as and for the purposes herein set forth.

174,055. BOTTLE-CORKING MACHINE, F. J. Berry, Boston, Mass., assignor of one-half his right to Wm. H. Greenleaf, same place. (Filed Jan. 31, 1876.)

In a bottle-corking machine, substantially such as described, the bed A, slide J, rest H, standards B B, cross-head C, plunger D, and cross bar G, provided with the bolts F, all constructed and arranged substantially as set forth and specified.

174,056. COMBS, Benj. F. Britton, New York, N. Y. (Filed Aug. 11, 1875.)

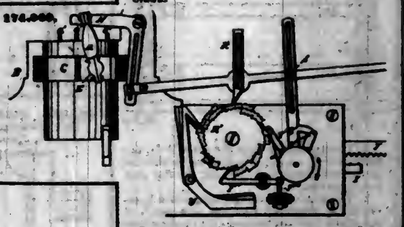


The side pieces C, in combination with the buttons, studs, or hooks a of the back comb B, and the buttons, studs, or hooks b of the semicircular comb A, substantially as and for the purpose set forth.

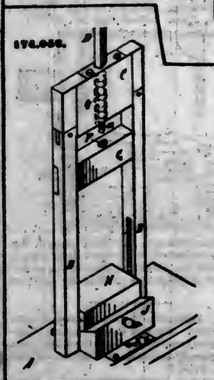
174,057. FILE-CUTTING MACHINE, F. H. Brown, Indianapolis, Ind. (Filed Oct. 17, 1874.)

Brief.—The rod ben, through the medium of the crank-rod and elbow-lever, a regular longitudinal reciprocation, and communicates motion to the rack, which carries the blank through the slotted lever, friction pawl and wheel, and pinion gearing with the rack. This motion is made irregular by the raising and lowering of the rod by means of the rod and ragged wheels. The rack and blank are oscillated laterally by means of the ragged wheels, the lever, and chain. The sliding anvil-supports are made to correspond with the swell of the blank, the anvil itself being vertically movable in a slot in the frame. The cutter can be adjusted at any angle to the blank.

174,058.



174,059.



1. The combination of the curved, perforated, and slotted extensions B B, cutter-shaft D, sliding block E E, and pins c' c', substantially as and for the purposes specified.

2. The combination of the eccentric shaft D, cutter G, arm H, vertically-slotted pendant I, and extensions B B, having therein the horizontal slot k to receive a pin projecting from the said pendant.

3. The combination of the vertically-sliding anvil, the longitudinally-sliding and laterally-rocking anvil-supports, having their supporting edges formed to correspond to the swell of the blanks, the cutter, and the blank-clamp or carrier, substantially as and for the purposes specified.

4. The combination of one or more ragged or irregularly-serrated wheels R' R' with the feeding mechanism, for the purpose of thereby rendering irregular the serrations cut into the blank.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

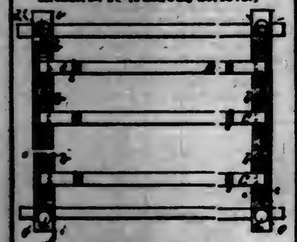
4. The combination of the pitman M, bell-crank J, adjustable arm O, and feed-lever N, substantially as described, for the purpose of thereby controlling the stroke of the latter.

5. The combination of one or more wheels B' B', the lever F, the pivoted block A' constructed to the said lever and provided with the adjustable pin d, the pivoted rag F' carried by the said pin, and the weight E, substantially as and for the purposes set forth.

176,661. HEAD-BLOCKS FOR SAW-MILLS. Lobo Bunnell, St. Johnsbury, Vt. (Filed Mar. 31, 1875.)

Brief.—The log-carriage is made in two parts, the upper one, carrying the head-blocks, being transversely movable upon the lower one, which moves in a line parallel to the ways upon which the carriage runs, thus enabling the mill to cut tapering timber.

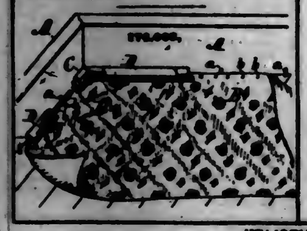
176,662. RAIL-SUPPORTER. Robert P. Carter, Arcadia, N. Y. (Filed July 26, 1875.)



1. In combination with the chair D D, the hangers C C, arranged in connection with the double wire-supports *b b*, as and for the purpose specified.

2. The wire-spring hanger-supports *b b*, arranged in connection with the end pieces of the frame A A' and hangers C C, substantially as and for the purpose specified.

3. The connecting pieces *d*, in combination with the wire *b b*, as and for the purpose hereinbefore explained.



176,663. HAY-SPREADER. Robert P. Carter, Arcadia, N. Y. (Filed July 26, 1875.)

1. The rack-bar J, reciprocating at right angles to the raking-arms, in combination with the arms operated by the raking mechanism, substantially as and for the purpose shown and described.

2. The combination of the bevel-block B, lever G, female screw H, cam-bevel D, and rack-bar J with the gear wheel or wheels on shaft B, and bevel lever on same shaft carrying a double pawl, all arranged substantially as described, for the purposes specified.

3. The combination of the part A with the part A' to form a carriage, the part A' swivelling on the part A, substantially as described, for the purposes specified.

176,664. CORN-PLANTER. P. O. Clark, Des Moines, Iowa. (Filed Sept. 20, 1875.)

In a corn-planter, the pins *a* and the independent pointed fasteners A, attached to the floor near the base-board A, in combination with the corner-pieces C and strips D, as and for the purposes set forth.

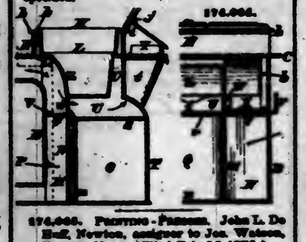
176,665. RESERVOIR COOKING-STOVES. J. B. Crowley and A. H. Chamberlain, Cincinnati, Ohio, assignors to Chamberlain & Co., same place. (Filed Oct. 18, 1875.)

1. In combination with the reservoir K, located partly above and partly below the top plate C of a cook stove, we claim the box E, flues P P' Q q, passages X X', chamber U, exit V, and extended flue-strips N N', the latter being curved, respectively, at *n n'*, as and for the purposes set forth.

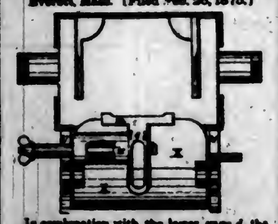
2. We claim the flanges *b b'* and wings W W', when located as described, so as to form, in conjunction with the reservoir K, the rear upper portions of diving-flues P P', when the dampers V V' are elevated, as set forth.

3. In combination with the reservoir K of a cook stove, we claim the flues P P' Q q, passages X X', chamber U, and extended flue-strips N N, the latter being curved, respectively, at *n n'*, as and for the purposes set forth.

4. We claim the central annealing flue Q, formed, as described, by the combination of the concave front Z of the reservoir, flue-strips N N', plates E and *q*, in combination with flue U and exit-pipe T, placed behind the reservoir, substantially as and for the purposes specified.



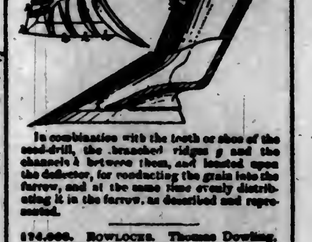
176,666. PRINTING-PRESSES. John L. De Wolf, Newton, assignor to Jos. Watson, Everett, Mass. (Filed Feb. 26, 1875.)



In combination with the lever gage *d*, the plate L, constructed with the raised edge *r* and the slide-bar S, having the edge *p*, as described, for gaging and gabling the gage, as set forth.

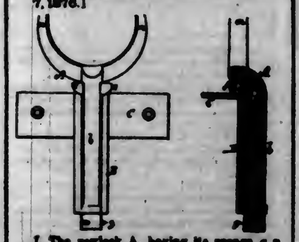
176,667. TEETH FOR GRAIN-DRILLS. Aaron H. Dixon, Auburn, N. Y., assignor of two-thirds his right to B. R. Richardson and O. Young, same place. (Filed Dec. 6, 1875.)

Brief.—The rear or delivering portion of the tooth projects forward and downward, and is provided with ridges and channels for receiving and scattering the seed into different parts of the furrow.



In combination with the tooth or shoe of the seed-drill, the branched ridges *f* and the channels *h* between them, and located upon the deflector, for conducting the grain into the furrow, and at the same time evenly distributing it in the furrow, as described and represented.

176,668. BOWLOCKS. Thomas Dowling, Gloucester, Mass., assignor to himself and Wm. H. Lepage, same place. (Filed Feb. 7, 1876.)



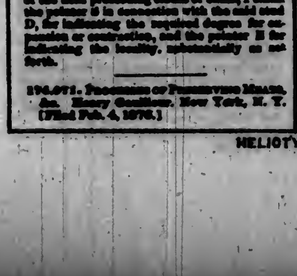
1. The rowlock A, having its prongs *c c* arranged inside of its shank *b*, substantially as represented.

2. I claim the combination of the rowlock A, having its prongs arranged inside of its shank, and provided with the step *f*, in combination with the guide-tube B, slotted and provided with the stop *e*, all being substantially as set forth.

3. I claim the rowlock A, having its prongs *c c* inside of its shank *b*, and each shank provided with the step *g*, all being as shown and described.

4. I claim, in combination with the bracket C, the guide-tube B, fixed to and arranged to extend a short distance above such bracket, in combination with the rowlock A, having its prongs *c c* arranged inside of, and to project from, their shank *b*, and furnished with the shoulder *e*, to support them on the top of the guide-tube, all being substantially as shown and explained.

176,669. MILLSTONE-PICKS. J. B. Rudrin, Monmouth, Ill. (Filed Feb. 1, 1876.)



The thumb-screw E, arranged to operate with the bent B, front *b'*, blade C, and head A', as herein fully as described, and for the purpose specified.

176,670. ELECTRIC FIRE-ALARMS. Wm. Gaines, New Haven, Conn. (Filed Apr 1, 1874.)

1. A disk or plate, B, combined with a stud, H, and with a non-elastic cords adjustable, as described, so as to set the apparatus to be self-operating at different degrees of temperature for breaking and making an electric circuit, so that the expansion or contraction of the said plate or disk by a certain predetermined extent will, through the said cords, disengage the mechanism to allow the breaking or making of the circuit.

2. In combination with the cone-shaped stud D, arranged as to revolve, I claim the lever E, and the component G and H, as that by the turning of the said stud the lever F will be held or released, substantially as and for the purposes described.

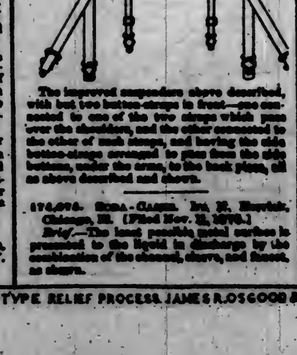
3. The combination of the disk or plate B, stud D, and lever E and F with the component G and H, so that by the expanding of the said disk the lever E is disconnected from the lever F, leaving the said lever F free to be acted on by the said component, substantially as set forth.

4. In combination with the subject-matter of the next preceding clause of claim, I claim the pointer S in connection with the said stud D, for indicating the required degree for expansion or contraction, and the pointer S for indicating the locality, substantially as set forth.

176,671. FOUNDATION OF PAVEMENTS MADE. Jas. Henry Chester, New York, N. Y. (Filed Feb. 4, 1876.)

The process of preserving breakers' meats, fish, &c., by treating the same substantially in the manner described, as a fresh or uncooked condition, with a solution of acetate of soda, prepared and used in the proportions substantially as specified.

176,672. CAR-COUPLINGS. Jos. C. Gentry, Ralls county, Mo. (Filed Jan. 11, 1876.)



1. The combination of the draw-head A, sliding bolt B, spring C, pin D, yoke E, plate F, bolts G G, and spring H, substantially as described.

2. The combination of the pin D, yoke E, bolts G G, plate F, and spring H, substantially as described.

176,673. CARBURETORS. J. Gray, Medford, Mass. (Filed Sept. 27, 1875.)

Brief.—Oil is fed into the carburetor through a feed-pipe, which extends up through the oil-reservoir, and is perforated from top to bottom, for the purpose of feeding the light and heavy parts of the oil at the same time.

The carburetor B, provided with the flanges C and partitions D, in combination with the tank A, reservoir E, perforated feed-pipe G, air-pipe H, and inlet and delivery pipes I J, all constructed, arranged, and operating in the manner and for the purposes set forth.

176,674. SUSPENSIONS. R. J. Crosby, Boston, Mass. (Filed July 31, 1875.)

The improved suspension above described, with bent two bottom-straps in front—one secured by one of the two straps which pass over the shoulder, and the other secured to the other of such straps, and having the side bottom-straps arranged to pass from the side bottoms, under the arms, to the back plate, all as above described and shown.

176,675. SIGNAL-CLOCKS. Ira M. Hewitt, Chicago, Ill. (Filed Nov. 22, 1875.)

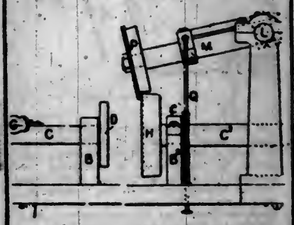
Brief.—The least possible spiral surface is presented to the liquid in discharge by the combination of the channel, sluice, and flaunt, as shown.

176,676.



The part or pipe H in the head of the cock, in combination with the sleeve G and flaunt I I, as set forth.

176,676. SEAMING MACHINES. E. Hine, New York, and G. W. Bentley, Brooklyn, N. Y. (Filed Dec 13, 1875.)



1. In a machine for seaming metal cans the combination of a bolstered disk, H, supported upon a revolving shaft, C', a flanged roller, F, supported by a rock shaft, M, and a suitable frame, A, for supporting the same, constructed and operating substantially as and for the purposes indicated.

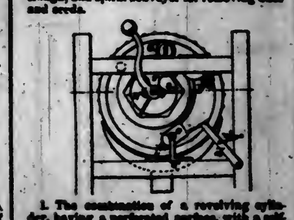
2. In a machine for seaming metal cans, the combination of a bolstered disk, H, supported upon a revolving shaft, C', a flanged roller, F, supported by a rock shaft, M, a disk, D, supported by the shaft C, and a frame, A, constructed and operating substantially as and for the purposes set forth.

176,677. MOCCASINS. E. T. Bateham, Anson, Me. (Filed Dec. 20, 1875.)

The boot-leg composed of the rectangular piece of leather, A, forming the quarters and leg, united by the seam B, in combination with the vamp D, made in one piece, and having its curved rear ends lapped over the corners of the leg on the line C *a b*, and the edge riveted as set forth.

176,678. GRAIN-SEPARATORS. H. Korth, Milwaukee, Wis. (Filed Nov. 16, 1875.)

Brief.—Rotating pitted imperforate cylinder, within which is a rotating cylindrical screen, supported on central shaft, and having internal spiral conveyer, self-adjusting rotating mesh-cleaner, elevator for packets of outer cylinder, stationary chisel, blade, and trough, and spiral conveyer for removing dust and seeds.



1. The combination of a revolving cylinder, having a perforated surface, with a self-adjusting roller revolving about an axis parallel to the axis of the cylinder and situated directly over the cylinder, so that outer surface of cylinder and roller are always in contact, whereby any grains lodging in the perforations of the cylinder are carried back into said cylinder by the weight of the roller resting upon them, substantially as and for the purpose described.

2. The combination of a revolving cylinder, having indentations in its inner surface, with a cylinder of smaller diameter having a perforated surface and revolving in an opposite direction, a self-adjusting roller, a revolving brush, a supply-board, curved trough, and endless conveyer, substantially as and for the purposes set forth.

174,079. SIGNS FOR STREET-LAMPS. P. A. La France, Elmira, N. Y., assignor of one-half his right to A. H. Baldwin, same place. [Filed Aug. 17, 1875.]

Brief.—The sign surrounds the body *M* the lamp, and is held in position with respect to it, but independent thereof.

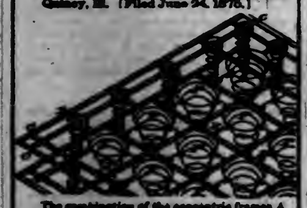


1. In combination with the body of a street-lamp a frame of metal and glass inclosing the body of the lamp and independently supported, for the purpose of inclosing the name of the street, substantially as set forth.

2. In combination with the independent wire frame A, inclosing the body of the lamp, the band-wires B, and pockets C, and glass plates D, substantially as set forth.

3. In combination with the frame and sign plate inclosing the body of the lamp, the pockets C adjustably attached to the frame, substantially as set forth.

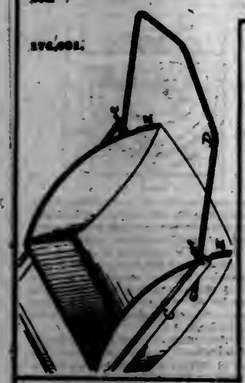
174,080. SPRING BED-BOTTOMS. J. H. Laird, Quincy, Ill. [Filed June 24, 1875.]



The combination of the eccentric frames A and C, straps D, springs F, and links E, the whole constructed, arranged, and operating substantially as described.

174,081. ROAD-SCRAPERS. R. D. Louden, Wesley, Ill. [Filed July 10, 1875.]

The combination, with the handles C and bail D of a scraper, of the rollers A A, which permit the ends of the handles to roll along the bail in dumping, substantially as specified.



174,082. HAIR-TIES. David H. Matthias, Albany, N. Y., assignor of one-half his right to C. Van Derzee, same place. [Filed Feb. 11, 1876.]

1. In a tie, the buckle end A, comprised by the loop C, hook *a*, and tongue D, when combined to operate substantially in the manner set forth.

2. The loop E of end B, in combination with loop C and tongue D, extending from the rear of loop C and past the front of the same, for operation substantially as set forth.

174,083. EARTH-AUGERS. A. W. Morgan, Indianapolis, Ind. [Filed May 19, 1875.]

Brief.—The lip of the auger-bottom is made diamond shaped, to facilitate the cutting of the earth. The frame of the auger-bucket is entered and locked to the shaft by two plates on the lower end of the shaft, with wedge-shaped points, which fit into corresponding recesses in a sleeve on the shaft.

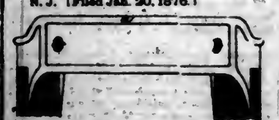


1. The diamond-shaped lip *x* of the auger, constructed and arranged to operate substantially as and for the purposes set forth and described.

2. The combination of the frame *d d' d''* with the diamond-shaped lip *x* of the auger, the point *h*, and cylinder *y*, constructed substantially as set forth and described.

3. The plates *m n*, having wedge-shaped points, in combination with the shaft *S* and corresponding-shaped sockets in the bottom of the cylinder *y* of the auger, constructed substantially as specified.

174,084. COMBS. C. H. Noyes, Mont Clair, N. J. [Filed Jan. 20, 1876.]

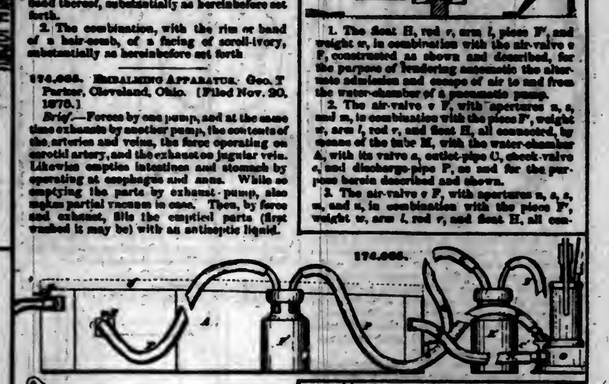


1. As a new article of manufacture, a hair-comb having an ivory facing upon the rim or head thereof, substantially as hereinbefore set forth.

2. The combination, with the rim or band of a hair-comb, of a facing of scroll-ivory, substantially as hereinbefore set forth

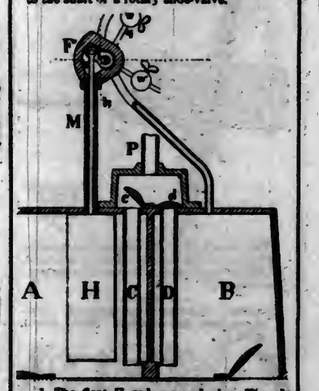
174,085. BREAKING APPARATUS. Geo. T. Porter, Cleveland, Ohio. [Filed Nov. 20, 1875.]

Brief.—Forces by one pump, and at the same time exhausts by another pump, the contents of the arteries and veins, the force operating on carotid artery, and the exhaust on jugular vein. Likewise empties intestines and stomach by operating at œsophagus and anus. While so emptying the parts by exhaust-pump, also makes partial vacuum in same. Then, by force and exhaust, fills the emptied parts (first washed it may be) with an antiseptic liquid.



174,086. PNEUMATIC PUMPS. T. O. Perry, Tecumseh, assignor of one-half his right to F. W. Dickey, Marshall, Mich. [Filed July 17, 1876.]

Brief.—The alternate admission of compressed air to the reservoirs is made automatic by a float and rod, counterbalance-weight, and momentum-weight, all attached to the shaft of a rotary slide-valve.



1. The float H, rod *r*, arm *l*, piece F', and weight *w*, in combination with the air-valve *v* F, constructed as shown and described, for the purpose of rendering automatic the alternate admission of a supply of air to and from the water-chamber of a pneumatic pump.

2. The air-valve *v* F, with apertures *n*, *o*, and *m*, in combination with the piece F', weight *w*, arm *l*, rod *r*, and float H, all connected, by means of the tube M, with the water-chamber A, with its valve *a*, outlet-pipe O, check-valve *c*, and discharge-pipe P, as and for the purpose herein described and shown.

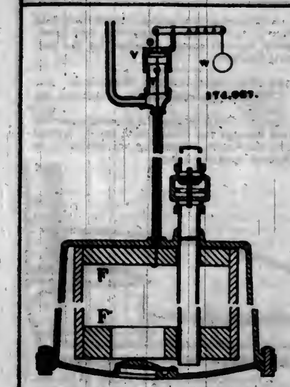
3. The air-valve *v* F, with apertures *n*, *o*, *m*, and *n*, in combination with the piece F', weight *w*, arm *l*, rod *r*, and float H, all connected by the tubes M and U with the water-chambers A and B, with their valves *a* and *b*, outlet-pipes O and D, check-valves *c* and *d*, and discharge-pipe P, substantially as shown and described.

4. In a pneumatic pump the weight *w*, combined with the piece V and float H, as and for the purpose herein described.

5. The weight *w*, in combination with the piece V and float H, as and for the purpose set forth.

174,087. PNEUMATIC PUMPS. T. O. Perry, Tecumseh, assignor of one-half his right to F. W. Dickey, Marshall, Mich. [Filed Jan. 31, 1876.]

Brief.—As the chamber fills with water, air escapes through the puppet-valve until the valve is closed by the buoyancy of the float, the water being driven out of the chamber by compressed air. The filling of the float opens the valve, permitting the escape of air and the refilling of the chamber, as before.



174,087.

1. In a pneumatic pump, the puppet-valve V, combined with the float F F' in the manner shown and described, for the purpose of automatically opening and closing the aperture O, and thus allowing the escape of air, as is necessary for the refilling of the water-chamber A.

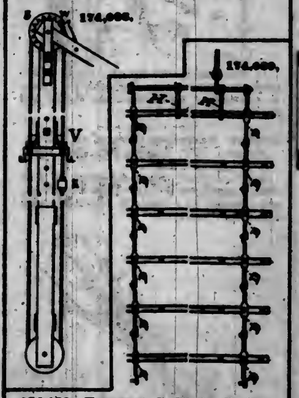
2. The weight W, combined with the puppet-valve V and float F F', in the manner and for the purpose set forth.

174,088. MECHANICAL MOVEMENTS. T. O. Perry, Tecumseh, assignor of one-half his right to F. W. Dickey, Marshall, Mich. [Filed Nov. 13, 1875.]

Brief.—A reciprocating movement at intervals is obtained, that may be varied in duration by shortening or lengthening the chain or cord carrying the tripping-knob.

1. The reciprocating piece V, constructed as shown and described, in combination with the sheaves S S', cord C, and knob K, as and for the purpose herein set forth.

2. The piece V, in combination with the reciprocating arm *l*, ratchet *r*, ratchet-wheel W, sheaves S S', cord C, and knob K, to operate substantially as and for the purpose shown and described.



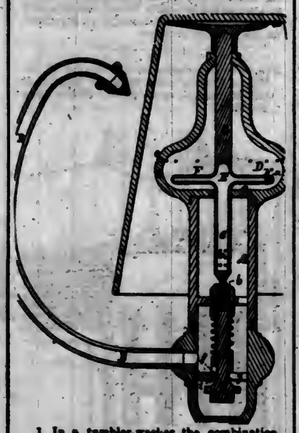
174,089. HARROWS. P. Pfeifer, Durhamville, N. Y. [Filed Jan. 17, 1876.]

Brief.—The harrow has draught-beams connected by keys and eyes. The beams carrying the teeth are adjustable at different angles, as desired.

1. In a harrow, the connecting-beam D, constructed with locking-socket and leg, and with beam-socket, in combination with perforated beam and set-screw, substantially as and for the purpose described.

2. In a harrow, the combination of the rod F and the draft-governors H H, as and for the purpose described.

174,090. TUMBLER-WASHERS. A. D. Puffer, Jr., Boston, Mass. [Filed Jan. 4, 1876.]



1. In a tumbler-washer, the combination, with the water-admission pipe or standard, of a tumbler-support rotated by the direct action of the water admitted to said support from the water pipe or standard, substantially as shown and set forth.

2. As a motor, the spindle G and hollow perforated arms F F when located in a contracted chamber, whereby great resistance is offered to the jets of water issuing from such arms, substantially as and for purposes stated.

3. The combination of the standard A, motor E, spindle G, stem *d*, and valve I, and seat *i*, substantially as herein shown and set forth.

4. The combination of the spindle G and motor E, the stem *d* and its valve I and the seat *i*, with the tubular standard A and its perforated chamber D and the pipe B, substantially as and for purposes stated.

174,091. VEHICLE AXLES AND WHEELS. B. F. Richardson, Omalemuit, Ohio. [Filed Jan. 12, 1876.]



1. The axle D, having its arm in two lengths collected to make different diameters, the larger of which has greater sectional area and strength than the sectional area and strength of the body of the axle, substantially as and for the purpose specified.

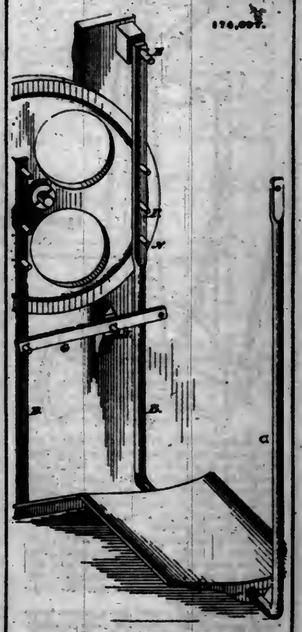
2. A carriage or wagon wheel having an axle-box of different diameters, so as to give great depth of spoke-tenons, and a separate shoulder, *a'*, for the spokes to shoulder and rest thereon.

3. In connection with the axle-arm, the lubricator-grooves F G, operating substantially as and for the purpose specified.

4. The combination of dust and dirt preventing chambers J L, washers K M, axle-collar *d*, and retaining-nut M', operating substantially as and for the purpose specified.

5. The combination of chambers J L, washers K M, axle-collar *d*, and grooves F G H I, operating substantially as and for the purpose specified.

174,092. TREADLES. Stillman W. Robinson, Champaign, Ill. [Filed Sept. 17, 1875.]

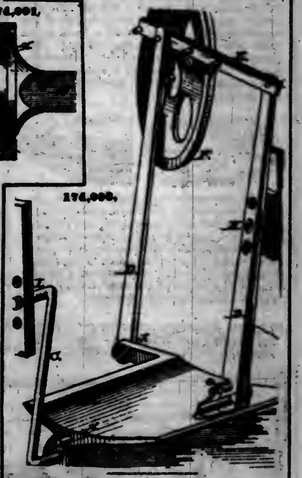


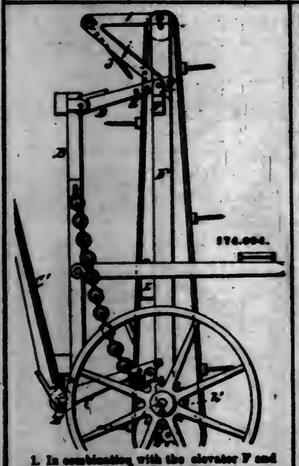
1. The combination of the U-shaped part B T C and pitmen D and E, with the pedal A, all arranged as and for the purposes specified.

2. The combination, with pedal A, of the collar or collars P, and pins B C for relieving pedal A of friction of suspension, as and for the purpose set forth.

174,093. HAY-LOADERS. H. L. Shields, Troy, N. Y. [Filed Feb. 6, 1875.]

Brief.—Adjustment for the frame carrying the rollers and endless apron. Means for reversing the travel and motion of the machine, to convert it into a tedder.





176,096.

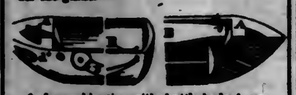
1. In combination with the elevator F and apron B, the adjustable brasses D D, constructed with a hinge-joint, *d*, at one end, and a number of adjustment-holes, *b'*, at the other, and keyed brass or levers O O', and chains R, whereby the elevator is secured to, and adjusted with relation to, the apron B, as and for the purposes described.

2. In combination with the spindle O', driving-wheel H, pinion *h'*, and removable gears *b' h'*, the removable bracket L', provided with gears *i*, for reversing the direction of the spindle O' and converting the machine into a ladder, as described.

3. In combination with the elevator-frame F and apron B, the removable thills K, adapted to be secured in the front or rear of the machine, whereby it is drawn in one direction as a loader, and in an opposite one as a ladder, as and for the purposes described.

176,097. SEWING-MACHINE SHUTTLE. J. Simms, Covington, Ky. (Filed July 10, 1875.)

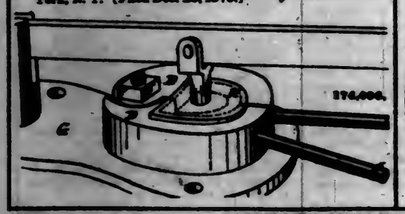
Brief.—A slot is made in the forward end of the shuttle, in which a hook is pivoted, by which means the ready insertion and removal of the bobbin is secured. The thread-guide has its hand counterpart into the side of the shuttle, and is provided with a hook in its inner side, to prevent unwinding. The thread is brought from the bobbin around the head of the guide through a slot in the side of the shuttle, and is then readily passed under the guide.



1. In combination with shuttle-body A, provided with a slot in the forward end hook C, secured in said slot immediately over the bobbin-journal, as and for the purposes described.

2. In combination with shuttle-body A, provided with the groove in its side, as described, thread-guide D, countersunk into the side of the shuttle-body at its front end, having hook A, as and for the purposes described.

176,098. MACHINERY FOR SHAPING HEELS FOR BOOTS AND SHOES. R. Taylor, New York, N. Y. (Filed Dec. 20, 1875.)

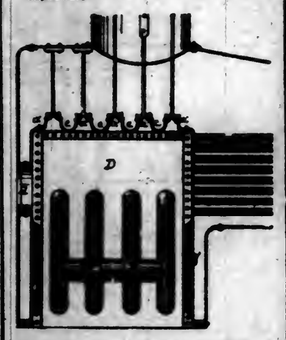


176,098.



In a heel-forming press the combination of the sectional laterally-opening mold D, having handles *f f*, with the stationary matrix F, secured to the bed-plate G, and the swinging fastening-plate H, substantially as described, for the purposes intended.

176,099. LOCOMOTIVE FIRE-BOXES. G. W. Tilton, Chicago, Ill., assignor to himself and M. Sellers, same place. (Filed June 10, 1870.)

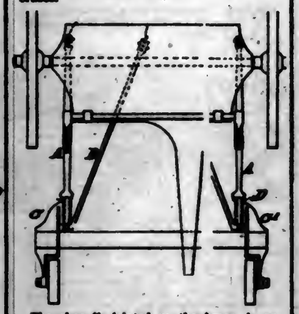


1. In a rectangular fire-box, D, a corrugated crown-sheet, *c*, having no corrugated rivetting-edge, the plane of each edge being even with or below the depressions *c*, substantially as and for the purposes set forth.

2. The rectangular fire-box D having the corrugated crown-sheet *c*, as described, and corrugated side and end sheets, as described.

176,100. MOWING-MACHINES. J. B. Tinker, Plymouth, assignor of one-half his right to E. J. Pebbleton, Buffalo, N. Y. (Filed June 7, 1875.)

Brief.—The lower ends of the main braces pass through the sides of the shoes, and screw into the ends forming the ends of the side braces.



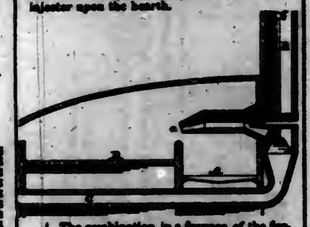
The shoe C, jointed to the brace A, as above, in combination with the brace B, substantially as and for the purposes specified.

176,101. DOUBLE-SHUTTLE. G. J. Wilbur, Buffalo, N. Y. (Filed Nov. 10, 1875.)

A drum-shield consisting of the rubber-cloth flaps A B, the fabric lining *a a*, and interposed layer of sponge *b*, as and for the purposes specified.

176,102. METALLURGIC FURNACES. Jos. Williams, Sharpsburg, Pa. (Filed Jan. 24, 1876.)

Brief.—The products of combustion are carried beneath the furnace-bed, and to a point over the hearth, where they are driven by an injector upon the hearth.

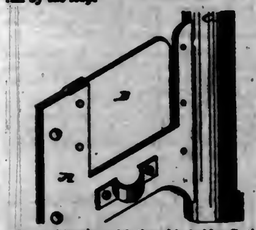


1. The combination, in a furnace, of the fire-place A, working-bed B, stack D, injecting-pipe *f*, and flue *c*, arranged to convey the gases above the fire-place from the stack to a point above the working-bed, as set forth.

2. The combination, with the fire-place, working-bed, and stack, of the injecting-pipe *f* and flue *c*, whereby the gases passing from the stack to the working-bed are reheated without being mingled with the gases rising from the furnace, as described.

176,103. COMBINED WEFT-SCORERS AND REED-HOLDERS. J. Q. A. Woodworth and W. H. Donovan, Mooresh, Ill., assignors of one-third their right to D. R. Hampton, same place. (Filed Dec. 20, 1875.)

Brief.—The device is secured to the dash-rail by the loop.



In combination with the ribbi holder C, the reciprocating frame A, provided with the spring D, constructed substantially as shown and for the purposes set forth.

176,104. GRAPPLING DEVICES AND PRINT-PICKERS. J. F. Adams, Polk City, Iowa. (Filed Oct. 16, 1875.)

Brief.—A fruit-picker consisting of four claws, whose lower ends are hinged to a shaft, and operated by a spring in connection with a bell-crank and lever.



The pole A B, having hinged claws 1 2 3, the rod *a*, the movable sleeve D, the spring *d*, the rod *b*, and the crank and lever *f g*, when arranged and combined substantially as and for the purposes set forth.

176,105. WHIP-STOCK. J. Baird, Louisville, Ind. (Filed Jan. 18, 1876.)



A bolt, in which spokes having cylindrical tenons, provided with shoulders G and screw-threads I, are inserted into holes having the diameter F, provided with screw-threads H and the plain diameter E, as and for the purposes hereinbefore set forth.

176,106. DUMB-WAITER. C. W. Bunker, New York, N. Y. (Filed Nov. 10, 1875.)

Brief.—The bottle, which constitutes the fluid-holding receptacle of the dumb-waiter, is coated with a covering of elastic material, which adheres to it—as, for instance, glue and glycerine—and while the mixture is still plastic a covering of ground cork is applied.

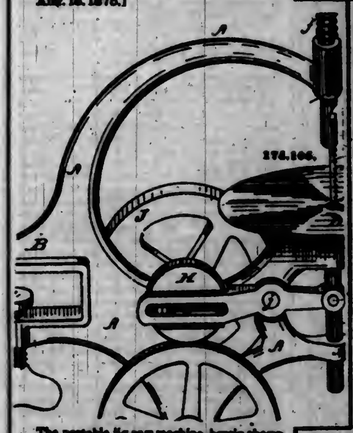


1. A dumb-bottle, consisting of a bottle provided with an elastic adherent covering, inclosed in an exterior case similar in shape to the bottle, as and for the purposes described.

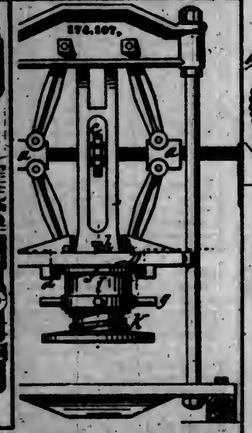
2. A dumb-bottle-bottle provided with a permanently-elastic adherent covering, as and for the purposes described.

3. A dumb-bottle-bottle provided with a permanently-elastic adherent coating and a paper or cloth envelope adherent to the elastic coating, as and for the purposes described.

176,107. JIG-SAWS. Edmund H. Beaudet, New York, assignor of one-half his right to Geo. H. Clarke, Brooklyn, N. Y. (Filed Aug. 18, 1875.)



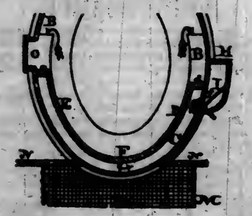
176,107.

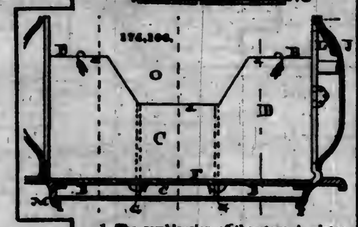


The portable jig-saw machine, herein shown and described, consisting of the frame A with jaws B B and screw C, table D, rods F and G, spring *f*, slotted lever L, disk H, wheel K, and wheel J, constructed and operating substantially in the manner described and specified.

176,108. HEATING-STOVES. C. H. Blanchard, St. Louis, Mo. (Filed Dec. 30, 1875.)

Brief.—There are four diving-flues and one ascending. The depression in the side plates affords space for window. The shoulders on the body of the stove rest on the base.





176,108.

1. The combination of the stove A, plates D and E, flanges *d d d* and *e e e*, and strips G G, forming the four diving-flues B B B B, and the exit-flue C, substantially as described.

2. The combination of the plates D E, depressions O O, and the flanges *d d d* and *e e e*, substantially as described.

3. The combination of the plates D and F and the strips G G, substantially as described.

4. The combination of the plate D, depression O, flanges *d d d*, and the strips G G, substantially as described.

5. The stove A, plate E, depression O, and window F combined, substantially as and for purposes set forth.

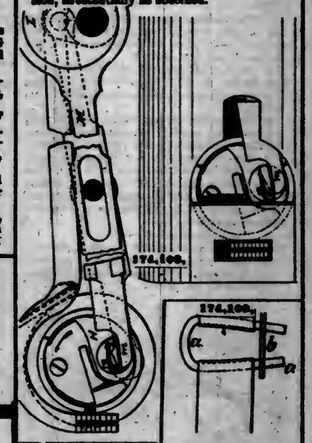
6. The combination of the stove A, base M, bastiles *a a a*, and hoods I, J, provided with the shoulders *i i i i*, substantially as described.

176,109. SEWING-MACHINES FOR SEWING STRAW BRAID. C. F. Bosworth, Milford, Conn. (Filed Aug. 10, 1875.)

Brief.—A tension device mounted upon the bobbin-case is carried with it about the axis of revolution, while it is prevented from rotating about its own axis by automatic mechanism. This consists of a vibrating arm provided at one end with a finger that rests upon the side of the tension device, and at the other with a tablet that embraces an eccentric, which is mounted upon the shaft that actuates the shuttle-carrier.

1. The combination, in a sewing-machine shuttle, of the bobbin-case, the bobbin, the axis of which is at right angles to the plane of the shuttle, a tension or thread controller attached to, or made a part of, the case, but independent as to tension of both bobbin and case, substantially as described.

2. The combination, in a sewing-machine, of a revolving shuttle-carrier, the shuttle-case, the bobbin, the axis of which is eccentric to but parallel to the axis of the carrier, the tension or thread controller, the axis of which is concentric with the axis of the bobbin, but independent as to tension of the carrier, case, and bobbin, and the follower having a combined reciprocating and vibratory movement to follow and prevent the rotation of the tension, substantially as specified.



176,109.

176,110. BALE-TIES. John A. Bostwick, New York, N. Y. (Filed Jan. 20, 1876.)

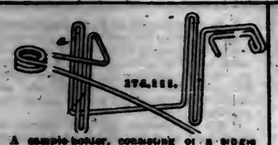
Brief.—The strain upon the bands will cause the U-shaped staple to change its shape to that shown. In so doing the plate will impinge upon the tie sufficiently to prevent the plate from slipping.

The bale-tie made with the perforated plate A, slipping upon the open parallel ends of the staple-shaped bed *a*, substantially as set forth.

176,110. REMOVING ESSENCE OF HEMLOCK-BARK. Barnabas Bradley, St. Leonard, Province of Quebec, Canada. (Filed Dec. 18, 1875.)

As an improvement in the manufacture of extract of hemlock bark, loosening the same by bringing the same or liquor of the bark into intimate contact with sulphurous acid, substantially as described.

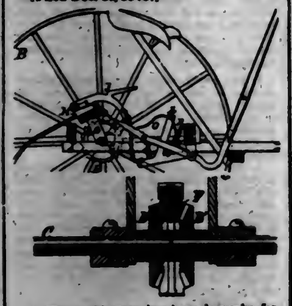
176,111. SAMPLE-HOLDERS OR EXHIBITORS FOR BOOTS AND SHOES. John D. Bridendolph, Holden, Mo. (Filed July 24, 1875.)



176,111.

A sample-holder, consisting of a single wire, one end of which forms a spring-lever and the other terminating in a pin adapted to enter the shoe-eyelet, the parts a of the said holder, which project into the box, being by their convexities rendered incapable of injuring the contents of the box, as herein specified.

176,112. HORSE-RAKES. Thos. S. Brown, Poughkeepsie, N. Y., assignor of one-half his right to John P. Adriance, same place. [Filed Dec. 31, 1875.]



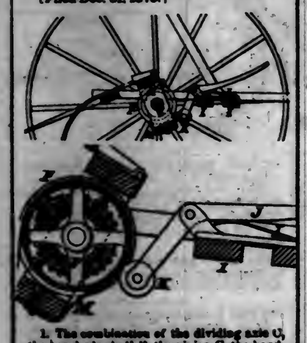
1. The combination, in a horse hay-rake, for the purpose specified, of the wheels B, the divided axle C, the bevel-wheels D D', the ratchet E, and the pinion F.

2. The combination of the foot-lever L, the ratchet E, the pronged pawl J, and the ratchet release-piece P, substantially as described.

3. The combination of the spring O with the rake-head and releasing mechanism hereinbefore described, for the purpose specified.

4. The combination, in a lifting and dropping horse hay-rake, of the wheels B, divided axle C, bevel-wheels D D', ratchet E, pinion F, foot-lever L, pawl J, ratchet release-piece P, and spring O, in the manner and for the purpose specified.

176,113. HORSE-RAKES. Thos. S. Brown, Poughkeepsie, N. Y., assignor of one-half his right to John P. Adriance, same place. [Filed Dec. 31, 1875.]



1. The combination of the dividing axle C, the bevel-wheels H E, the pinion G, the hand-wheel F, the hand M, the frame-work H, and the friction-roller lever J and roller K, the whole forming a differentially-geared lifting and dropping device for horse hay-rakes, substantially as described.

2. The friction-roller lever J and its roller K, in combination with the frame-work H, the hand-wheel F, and the hand M, the whole forming a lifting and dropping device for horse-rakes, as described.

176,114. TREE-PROTECTORS. John Bryan, New Haven, Conn. [Filed Nov. 30, 1875.]

Brief.—A tree-protector consisting of a strip of leather or other suitable material, through which is inserted, from the back side in close proximity to each other, common or other suitable pins.



The herein-described tree-protector, consisting of the flexible strip a, with a succession or single row of pointed pins inserted and projecting therefrom, substantially as described.

176,115. PLOWS. Frank Chevalier, Fayette County, Ky. [Filed Jan. 31, 1876.]

Brief.—The arrangement in a double plow, having a single beam, of the handles and braces.

The combination of the two plows secured to the same beam, one in the rear of the other, with the two handles, one of which is attached to each plow, and secured together by the round f and brace l, substantially as set forth.

176,116. CAR-COUPLINGS. Alex. H. Clark, Fond du Lac, Wis. [Filed Mar. 20, 1875.]



In a car-coupler, the ordinary draw-bar A, provided with the chamber B, in combination with the pin-supporter D, having tongue d, lip g, recess f, notch i, and shoulder e, and the removable bolt G, constructed as described, and for the purpose set forth.

176,117. MANUFACTURE OF ORNAMENTAL TUBING. James M. Clark, Jersey City, N. J. [Filed Feb. 2, 1876.]



1. The method herein specified, of ornamenting tubing, by drawing the same successively through two dies grooved spirally in opposite directions, substantially as set forth.

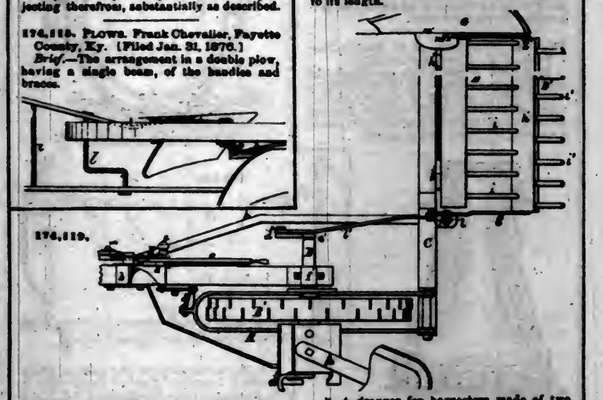
2. The ornamental tubing with the quadrangular or barley-corn projections, beat in the thin metal of such tubing, as a new article of manufacture.

176,118. PROCESSES OF OBTAINING GOLD FROM AURIFEROUS QUARTZ. T. H. Cobley, Glasgow, North Britain. [Filed Oct. 21, 1875.]

The process described of obtaining gold from auriferous quartz, by first steeping the ore in the milk of lime; second, roasting it; third, pulverizing it; fourth, subjecting it to the action of heat and chlorine in a stone vat; and, fifth, washing and filtering the chloride of gold, as described, the chloride being then reduced in the ordinary manner.

176,119. HARVESTERS. Bolivar C. Converse and Amos Smith, Springfield, Ohio. [Filed Apr. 21, 1875.]

1. A dropper for harvesters which discharges by its own gravity, made in two sections, one of which laps or passes under the other moving in the arc of a circle, the plane of which cuts the plane of the cutter-bar at right angles to its length.



2. A dropper for harvesters made of two bars extending parallel with the cutter-bar, (each provided with teeth,) which, when falling by their own gravity, lap or pass one under the other, for the purpose of instantaneously reducing their bearing surfaces in discharging the cut grain, as shown and specified.

3. Section D', with its bar b' and teeth f' f', provided with levers g g' at each end thereof, for suspending the same from pivots c and m, so that when down it shall hang under the hinged section D, below the level of the cutter-bar C, as shown and described, for the purpose set forth.

4. In combination, section D', with its bar b', teeth f' f', levers g g', pivots c and m, post i, and grain-board G, as and for the purpose herein before set forth.

5. In combination, the cutter-bar C, its hinged section D, post i, and grain-board G, with their pivots c and m, a suspended or swinging section, D', supported by arms or levers g g' extending from its ends, or formed by a single bar extending the entire length of the same, and attached thereto obliquely to the plane of its surface, so as to lower the teeth and rear edge of said bar and raise the front edge of the same, to allow it to fold under the hinged section D at an inclination parallel therewith, in discharging the grain, as shown and specified.

6. In a dropper for harvesters, made of two parts or sections, the arrangement of a hinged section to the cutter-bar and a suspended section pivoted above it, in such relation thereto that it shall fold or pass under it when depressed for discharging the grain, and elevate it when raised for receiving the same, substantially as shown and described.

7. The construction and arrangement of a dropper in two parts or sections, one of which is hinged to the cutter-bar and the other so suspended that when it drops it shall pass entirely under the hinged section, allowing the teeth of the latter to fall suddenly to the ground, thereby wholly withdrawing the supporting surface and clearing itself of the grain, as shown and specified.

8. A dropper-rock hinged to the cutter-bar of a harvester, adapted to be automatically operated by an accessory dropper-rock, substantially as shown and specified.

9. The means of operating said dropper D and D' consisting of the foot-lever g, shaft o', arms o'', connecting lever or rod l, pivoted levers g g', in combination with the hollow axle B, post i, cutter-bar C, hinges t t, and divider G, as and for the purposes set forth.

176,120. TRUSS-BRIDGES. Seton Conklin Kirkwood, N. Y. [Filed Jan. 20, 1876.]

Brief.—A bridge-truss combining of opposite arcs, with a central common chord connected by hollow struts, through which the tie-rods pass, and secured by nuts on their terminal ends. Strengthening-rods above and below may be used.

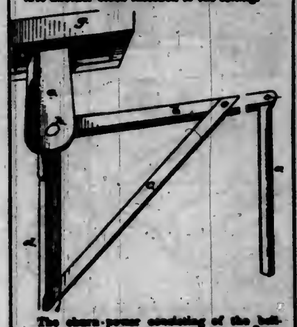


1. The truss consisting substantially of the opposite arcs A B, the common chord C, the tubular struts D D, and the tie-rods a, extending through the struts and secured by the terminal screw-nuts, as herein described.

2. The bridge consisting substantially of the two trusses constructed as herein set forth, and the top and bottom plates F G, the rods m, needle-beams E, and braces G, with or without the strengthening-rods r, as herein described.

176,121. GRAIN-POWERS. P. H. Conkling, Wyalusing, Pa. [Filed Dec. 13, 1875.]

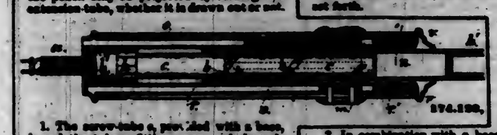
Brief.—A bell-crank lever, with a chord-decker at one end, is rested by the other end, when the angle is increased to a blank slid into another blank fastened to the ceiling.



The chord-power consisting of the bell-crank lever b c d, decker e, detachable sliding fulcrum a, and fixed block g.

176,122. REFRIGERATOR FRUIT-CASES. Charles E. Downes, Jersey City, N. J. [Filed Nov. 1, 1875.]

Brief.—The cutter is made so that it will revolve with the extension-handle, and thus prevent unwinding. The saver-tube is provided with a polygonal base dating into a dated tube, in which also slides the polygonal base of the extension-tube, by which construction the pencil may be projected by turning the extension-tube, whether it is drawn out or not.



1. The saver-tube a, provided with a base, A, and the tube a, fitting upon such base A, and polygonal or fluted internally, in combination with the extension-case or tube b and its polygonal base r, sliding within the tube a, and serving to revolve both the tube a and saver a, as set forth.

2. The cutter c, revolving freely within the head b', in combination with the extension-tube b', for the purposes specified.

176,123. CAN-OPENERS. John S. Dunton, Peoria, Ill. [Filed Feb. 1, 1876.]

Brief.—A cutter upon the lower side of the handle, just where the blade is inserted in groove, so that it embraces the edge of the can and rubbs the tooth.

1. A can-opener having its handle A curved, as described, at the end next the blade, and provided with a cutting-blade, B, formed as shown, all as and for the purpose specified.

2. A can-opener having its handle A grooved, as described, at the end next the blade, and provided with a cutting-blade, B, substantially as and for the purpose specified.

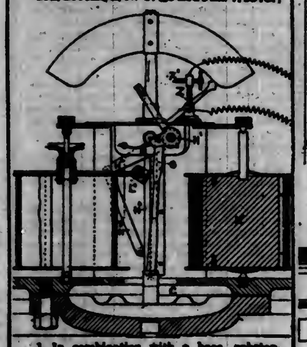


176,124. HARNESS. George C. Bateman, Lewiston, Me. [Filed Jan. 12, 1876.]



The improved shaft-supporter provided with the end eyes a b, the intermediate clasps c d, and the stud e, arranged with it substantially as set forth.

176,125. REGISTERING STEAM-GAUGE. Jarvis B. Edson, West York, assignor to M. B. Edson, Brooklyn, N. Y. [Filed Jan. 7, 1876.]



1. In combination with a base, substantially as described, a diaphragm spring or springs, each with a connecting-rod, G, arm H, rock-shaft H', arm H'', link H''', bar H', and record-marker H'', as and for the purpose set forth.

2. In combination with a base and spring or springs, as described, the connecting-rod G, arm H, rock-shaft H', arm H'', link H''', bar H', and record-marker H'', the clock-work or other equivalent mechanism, and sheet or belt of paper, whereby a record of varying pressures may be secured at regular intervals of time, substantially as described.

3. In combination with the combination of a base carrying arms or pressure gage, as described, the graduated plates or belt of paper, whereby the varying pressures are indicated, substantially as described.

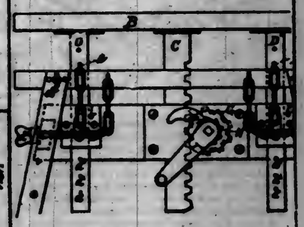
4. In a recording-gage, the combination of the two rods, for carrying the ribbon or belt of paper, with a chronometer movement, as and for the purposes set forth.

5. The combination with a recording steam-pressure gage, as described, the gong F and intermediate mechanism with the rock-shaft H', as and for the purposes set forth.

6. In combination with a recording pressure-gage, the elements of an electric circuit closer or breaker with a sounder for alarm purposes, as described.

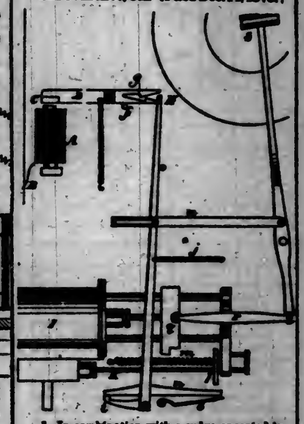
7. The combination, with the base of a recording steam-gage and suitable recording mechanism, of two or more diaphragm-springs, whereby a record from two or more boilers may be indicated.

176,126. TREDDLES. John H. Ernst, Wheeling, W. Va. [Filed July 24, 1875.]



The toothed wheel G, the rack C, and the platform floor-bar B, in combination with each other, substantially as described, and for the purpose set forth.

176,127. ELECTRO-MAGNETIC REGULATORS FOR STEAM-ENGINES. Stephen D. Field, San Francisco, Cal. [Filed Dec. 14, 1875.]



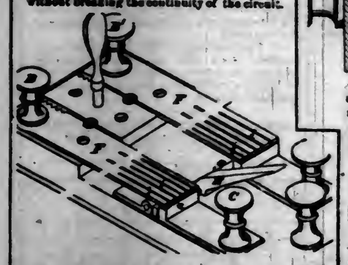
1. In combination with a valve operated in one direction by a spring, m, and having the crown-head I secured to the valve-rod, a tripping device or series of tripping-levers, which are connected with and operated by the governors G, cluster-magnet J, and armature B, substantially as and for the purpose described.

2. The valve-rod K, having the crown-head I secured to its outer extremity, and having the spring o arranged to move it in one direction, in combination with the stop-lever or pawl n, operated by a spring, o, and an automatic tripping device, whose said tripping device is operated by an electric circuit, substantially as and for the purpose described.

3. In combination with a steam-cylinder, I, having its piston-rod connected with the short arm f of a bell-crank lever, and having the valve which controls its steam-ports operated in one direction by a spring, o, and arranged to be actuated at the end of its stroke by a pawl or lever, n, the connecting-bar e, which connects the long arm of the lever with the latch-lever H, so that the latch on reverse movement of the hammer will automatically set the device and arrest the motion of the valve, substantially as and for the purpose described.

176,182. ELECTRICAL SWITCHES OR CUT-OUTS. Stephen D. Field, San Francisco, Cal. [Filed Dec. 14, 1875.]

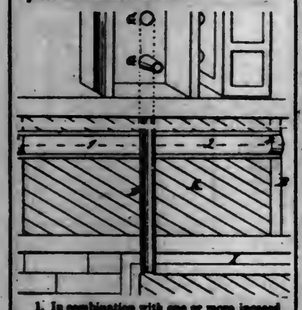
Brief.—For "cutting out" an instrument without breaking the continuity of the circuit.



The spring-plates F F, for connecting the screw-caps B B' with the metallic connections of the screw-caps C C', in combination with the rotating bar g, with its lever-handle H, said bar being arranged to lift the ends of the spring from the bars a, and serve as a metallic connection between said plates, substantially as and for the purposes described.

176,183. FIRE-PROOF SAFES. D. Fitzgerald, New York, N. Y. [Filed Aug. 28, 1875.]

Brief.—A safe-holder is constructed with an open front for the reception of the safe, and is provided with openings or nozzles that connect with openings in the safe, so as to convey steam or moisture from a mass of fire-proof material into the safe.

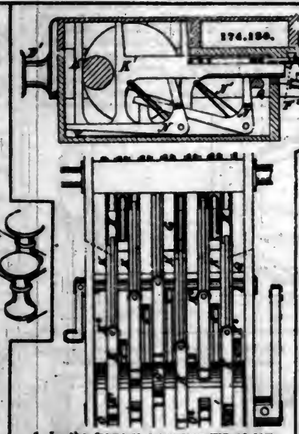


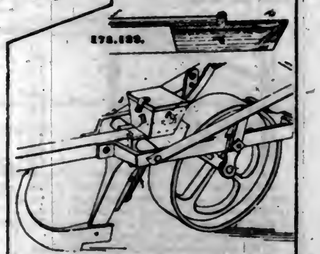
1. In combination with one or more incased fire-proof mass or masses, A A', with steam or moisture passage D, the open-front safe-holder F, for receiving a removable safe, with an orifice communicating with the steam and moisture passage D, and with openings and orifices G G, to convey the steam or moisture into the safe held by it, all substantially as set forth.

2. An interposed stratum of fire-proof material between the walls of brick or masonry and the wall C of the room which contains the main body of material, whereby moisture is produced by heat between the two, and heat is repelled, as is herein set forth.

176,184. MACHINE-GUN. Wm. Gardner, Toledo, Ohio. [Filed Aug. 10, 1876.]

Brief.—The barrels and their operating mechanism are arranged and operated in pairs. The cartridges, by means of a intermittingly-reciprocating feed-plate placed under the floor of the hopper and operated from side to side by the forward movement of the plunger, are dropped alternately into chambers in the rear of the barrels, and by the forward movement of the plunger are inserted into the barrels and exploded. The firing-pins, which are mounted in the plungers, are operated by bell-crank levers, which are depressed and released by the revolution of the main operating-cam. The plungers also carry the extractors, which ride over the rim of cartridges, and draw them back, and are dropped out upon the ground through a T-shaped slot in the bottom of the chambers; and by the forward movement of the opposite plunger the feed-plate is again carried over the chambers, and another cartridge deposited therein, and the operation repeated.





1. In the frame of a machine-gun, in combination with the independent side pieces, the block I' into which the barrels are screwed, the ends of said block passing through and supporting the side pieces from the trunnions, substantially as set forth.

2. In combination with the casing and firing mechanism of a machine-gun, the hinged arm D carrying the hopper and cartridge feed-plate F, substantially as shown.

3. In a gun in which the barrels are arranged in pairs, the reciprocating feed-plate, slotted as shown, in combination with the hopper and cartridge-chambers, and intermediate partitions for feeding the cartridges alternately to the chambers, substantially as set forth.

4. In combination with the reciprocating feed-plate the arm F', shouldered as shown, and actuated by the plungers alternately, substantially as set forth.

5. In combination with the cartridge chamber, having the slots H H' of different widths, the reciprocating feed-plate F, and projecting point F', for retaining the cartridges during part of the forward movement of the plungers, substantially as described.

6. In combination with the slots of varying widths, as shown at H H', the cartridge-extractor for discharging the empty shell, substantially as described.

7. In combination with the partition G, the narrow slot H, placed in such relation thereto that a cartridge falling from the partition will lie with its head upon the narrow slot and its point on the solid end of the bottom of the cartridge-chamber, substantially as described.

8. In combination with the barrel of a machine-gun, the reciprocating plunger K when constructed with the U-formed bearing for the actuating crank, substantially as set forth.

9. In combination with the plunger K and hammer N, the cranks O' and cams O' with notches O', constructed in one piece, to be operated simultaneously by the crank P, substantially as set forth.

176,185. OIL-CAN NOZZLES. Robert H. Rascoritter, Hermann, Mo. [Filed Jan. 22, 1876.]

Brief.—The nozzle is provided with a spring-piston, pressure upon which ejects oil from the can to which it may be attached.



1. In combination with the nozzle a, an attachment thereto and forming part thereof whereby the oil can be forced outward, as described.

2. In combination with the nozzle a, a cylinder and piston working therein, substantially as shown.

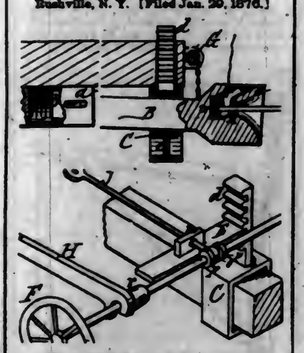
3. The combination of the nozzle a, cylinder, piston, spring, and cap, as specified.

176,186. SEED DRILLS AND PLANTERS. L. L. Haworth, London, Ohio. [Filed May 4, 1875.]



The slotted pipe e and dropper d, provided with the solid inclined bottom and the lateral-discharge opening d', in combination with the rod f and lever F, substantially as and for the purpose set forth.

176,187. CAR-COUPLINGS. W. G. Hawley, Rushville, N. Y. [Filed Jan. 20, 1876.]

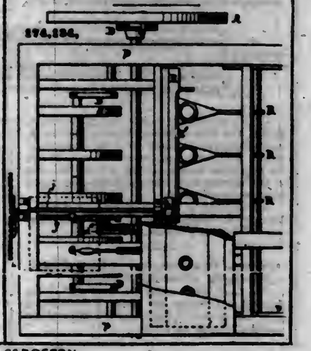


1. The combination, with the draw-head B, provided with the hook I, of the loop C, rack C', pawl E, shaft G, and pivoted arms J H, all arranged as described, to operate in the manner and for the purpose specified.

2. The combination, with the vertically adjustable loop C, provided with the rack d, of a laterally-movable pawl, E, and a pivoted lever-arm, J, connecting the pawl with the movable shaft G, as and for the purpose specified.

3. The shaft G, capable of a rotary and longitudinal motion, constructed with the circular step r, for the purpose of allowing the riding of the latch H when thrown up thereon, as herein shown and described.

176,188. [illegible]



176,189. SEED-PLANTERS. Jas. P. Hilyard and Wm. H. Hohimer, Fall River Township, Greenwood County, Kans. [Filed Aug. 29, 1873.]

Brief.—The covering-wheels are all and independently journaled upon one crank-shaft.

The combination, with the discharge-spouts or tubes and hoives or openers, of the covering-wheels journaled on the crank-shaft, and arranged to act separate and independent of each other, substantially in the manner shown and described.

176,190. SADDLE-TREES. P. B. Horton, San Francisco, Cal. [Filed June 8, 1875.]



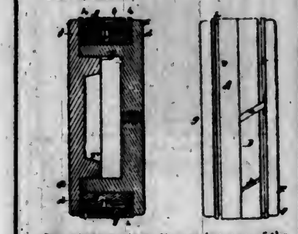
As a new article of manufacture, saddle-trees made of a mixture of paper pulp and cork dust or shavings compressed to the desired shape in molds.

176,191. GRAVER-HOLDERS. C. M. Howard, Fredonia, N. Y. [Filed Jan 17, 1876.]



A graver-holder consisting of the handle a and holder c, having a circular end and a series of recesses, c, to receive the graver d, substantially as described and shown

176,192. CYLINDER-PISTON PACKINGS. C. S. Hutchinson, Manchester, N. H. [Filed Feb. 7, 1876.]



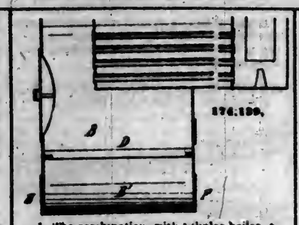
In a piston packing, the combination of the inner ring C, provided with the grooves c, the two rabbets d, and their connecting passages e, with the two expansive rings A B, provided with the flanges f, circumferential grooves h, induction-passages g, and one or more passages leading from each of the said grooves, both to the internal periphery and inner side of its ring, all being substantially as specified.

176,193. WHEELS FOR VEHICLES. O Lee, Florin, Cal. [Filed Oct. 29, 1875.]



As a new article of manufacture, a wagon or carriage wheel constructed as described, and having grooves made in the face of the felloes around the entire wheel, covered closely by shrinking on the tire, said groove being filled with oil or other wood-preserving agent, substantially as set forth.

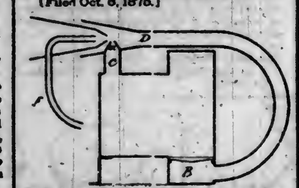
176,194. FURNACES FOR PORTABLE BOILERS. W. J. F. Liddell, Milwaukee, Wis. [Filed Jan. 3, 1876.]



1. In a windmill, the arm I, segmental guide I' and weight J, substantially as and for the purpose described.

2. The combination with the slide E, levers L M, and arm I, of the segmental guide I', sliding weight J, and rope or chain K, substantially as and for the purpose described.

176,195. SPARE ARRESTERS AND CONSUMERS. Wm. H. Mallory, Bridgeport, Conn. [Filed Oct. 6, 1875.]



1. In combination with the smoke-stack or discharge from a steam boiler furnace, a flue leading from the exit of the said smoke-stack directly to the fire, the forward end of the said flue open to the atmosphere, and a steam-jet turning into the said flue toward the fire, substantially as specified.

2. The smoke-stack or discharge from a steam boiler furnace, contracted at its exit, combined with an open flue leading from the said discharge directly to the fire, and a steam-jet across the said contracted exit of the smoke-stack, substantially as set forth.

3. The smoke-stack or discharge from a steam boiler furnace, contracted at its exit, combined with a flue leading from the said discharge directly to the fire, and a funnel-shaped mouth, F, contracted toward the contracted end of the smoke-stack, and at right angles thereto, substantially as described, so as to create a blast across the said contracted end of the smoke-stack, substantially as specified.

4. The smoke stack or discharge from a steam boiler furnace, contracted at its exit, combined with a flue leading from the said discharge directly to the fire, a funnel-shaped mouth, F, contracted toward the contracted end of the smoke-stack, and at right angles thereto, and a steam-jet directed into the contracted end of the mouth across the contracted end of the smoke-stack, substantially as set forth.

176,196. NUT-CRACKERS. Chas. B. Martin, Southington, Conn. [Filed Jan. 24, 1876.]



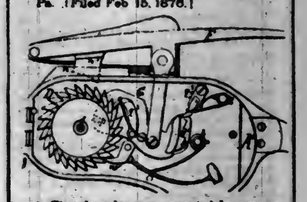
As a new article of manufacture, a nut-cracker, consisting of the handle F, also forming the bar A, the adjustable jaw B arranged thereon, the vibrating jaw G, hinged to the bar of the handle F, the second handle N hinged to it presenting fulcrum formed on the handle F, its forward end terminating in the cam P, and working upon the vibrating jaw G, the whole constructed and operating as described.

176,197. FRONTS FOR STEAMBOAT-FURNACES. Clemens B. Matthews, Allegheny, Pa. [Filed Sept. 4, 1875.]



A tile for lining the front of steamboat and similar furnaces formed from refractory material, and provided with a fire-opening, substantially as specified.

176,198. REGISTERING AND ALARM TICKET-SHEARS. Robert McCully, Philadelphia, Pa. [Filed Feb 15, 1876.]



1. The alarm-hammer operated by connections of the hand-lever, and a ratchet-wheel turning on the arbor of the registering apparatus, substantially as and for the purpose set forth.

2. In combination with a hammer operated by connections of the hand lever and a ratchet-wheel turning on the arbor of the registering apparatus, a pawl-carrying and toothed checking device and a double-jointed pawl, substantially as and for the purpose set forth.

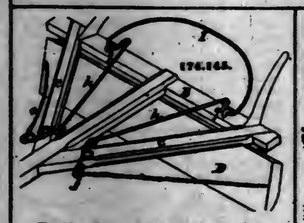
3. The alarm-hammer having its handle constructed to take into notches between the teeth of a ratchet-wheel on the register-arbor, and to act as a detent to said wheel, substantially as and for the purpose described.

4. The indicating pin *l*, in combination with the dial and a registering-wheel of the register, substantially as and for the purpose described.

5. The chamber *g*, provided with spring *g'*, constructed and arranged as herein shown, for the purpose described.

176,199. ADJUSTABLE MOLD-BOARD SCRAPERS. Frank C. Millikon, Santa Cruz, Cal. [Filed Jan. 4, 1876.]

Brief.—A tongue and cross-bar supported by braces carry the scraper, which is hinged to the under side of the bar, and supported at any desired angle by rods or chains, which reach forward and are attached to short levers, and which are, in turn, operated by connecting-rods extending back to an operating lever upon the cross-bar.



The hinged scraping-board D, in combination with the levers *f*, the connections *e* and A, and the operating-lever I, substantially as and for the purpose described.

176,166. HAME-FASTENERS. Jas. H. Newcomb, Muscatine, Iowa, assignor of one-half his right to Jos. M. Wier, same place. [Filed Feb. 3, 1876.]

The hook C, having jaws *c*, connected by a cross-piece, *c'*, and notched shank, arranged to operate with the similarly-notched shank-hook D, by pressure together, by means of a cam, E *e*, substantially as and for the purpose specified.





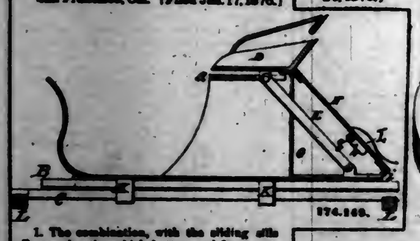
176,167. PEANUT-ROASTERS. Milton M. Northrup, Utica, N. Y. [Filed Aug. 10, 1875.]

1. In combination with the chamber *l*, in which the nuts are placed to be kept warm, the steam or hot water chamber *x*, substantially as set forth.

2. In a peanut-roaster, the perforated partition h for forming a guard to prevent the ashes from smoking, in combination with the hot-air chamber h, to retain the heat around the boiler and under the steam-chamber *x*, substantially as shown.

3. In a peanut-roaster, the combination of the reservoir *q*, provided with suitable burners, a revolving cylinder, *i*, operated by an engine, *p*, a heating-chamber, *l*, and a boiler, *k*, substantially as described.

176,168. VEHICLE-SEATS. F. Oppenheim, San Francisco, Cal. [Filed Jan. 17, 1876.]



1. The combination, with the sliding sills B, carrying the vehicle bottom and front seat, of the triangular panels C, the hinged rods *w* braces E, the support or bank F, hinged to the vehicle bottom, and the seat-D hinged to the support, all substantially as and for the purposes herein set forth.

2. The combination of the stationary bars C, with rear projections I, provided with pins *g*, the slots I in the triangular panels, the hinged braces E, hinged support F, and seat D, all substantially as and for the purposes herein set forth.

3. The seat A, provided with slots in its rear edge for allowing the passage of the braces E, which connect with the shifting-seat D, as set forth.

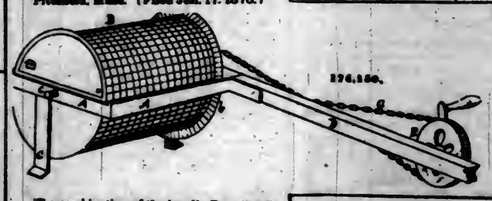
176,169. WAGON-SEATS. Chester Park, Warren, Pa. [Filed Jan. 3, 1876.]



1. An axle-skein, having tapering inner bearing *c* and cylindrical outer or end bearing *c'*, substantially as and for the purpose specified.

2. The combination of an axle-skein, having an overlapping flange, A, of the box, provided with groove B, and packing-ring *p*, substantially as and for the purpose described.

176,170. COAL-FURNACE. Chas. C. Peck, Pittsfield, Mass. [Filed Jan. 17, 1876.]



The combination of the handle D, pulley E, provided with crank *d*, pulley F, attached to shaft *c*, and endless chain G, with the frame A A, supporting legs O C, and popping-cylinder, carried by shaft *c*, and made in its periphery with meshes or openings capable of admitting the heat of the fire direct into the chamber of the cylinder, and also engaging with the kernels of the corn, constructed and arranged substantially as and for the purpose set forth.

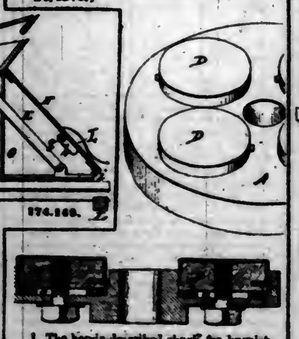
176,171. BILLIARD-TABLES. J. Peck, Boston, Mass., assignor to A. D. Peck, same place. [Filed Jan. 12, 1876.]

Brief.—The playing-surface of the table is square.



As an improved article of manufacture, a billiard table top in which the playing-surface or ball-space is square, substantially as described and shown.

176,172. POLISHING-CHUCKS. Elisha M. Pomeroy, Wallingford, Conn. [Filed Jan. 24, 1876.]



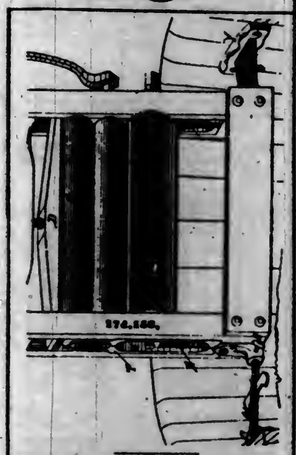
1. The herein-described chuck for burnishing plated ware, consisting of the plate A, combined with bosses D corresponding to the openings in the article to be burnished, substantially as described.

2. The herein-described chuck for burnishing plated ware, consisting of the plate A, constructed with the recesses *a*, combined with adjustable bosses D corresponding to the openings in the article to be burnished, and the elastic bed *d* for the bosses, substantially as described.

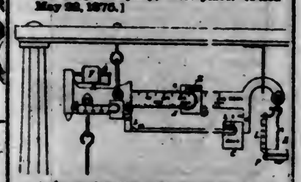
176,173. WASHING AND WRINGING MACHINES. Jas. W. Reed, Pittsburg, assignor of part his interest to J. C. Reed and G. W. Reed, same place, and Lorenzo Reed, Allegheny, Pa. Filed Aug. 12, 1874.]

Brief.—The journals of the fluted roller rest on spiral springs set in elongated journal-boxes. The journals of the middle roller rest on bearings formed on the upper end of the elongated boxes.

The elongated journal-boxes T T, containing spiral metallic springs E E, bearing up the corrugated roller A resting and revolving on and upon the journals, said journal-boxes at the same time sustaining upon their top, in the journal, the lower gum-covered roll, as heretofore set forth.



176,174. SCALE-BEAMS. W. W. Reynolds, Brandon, Vt., assignor to Brandon Manufacturing Company, same place. [Filed May 22, 1875.]



1. In combination with the scale-beam A, and its adjustable cylindrical balance-weight F, and its supporting curve G, the retaining-spring H, fixed to the beam, so as to bear against the outer surface of the weight.

2. The slide-weight C, provided with the wedge-point *h* and rider *i*, in combination with the support-bar furnished with the notches *k l* m n for reception of the rider and the wedge-point *h*, as explained.

176,175. WRENCHES. John Riley, Boston, Mass. [Filed Jan. 31, 1876.]

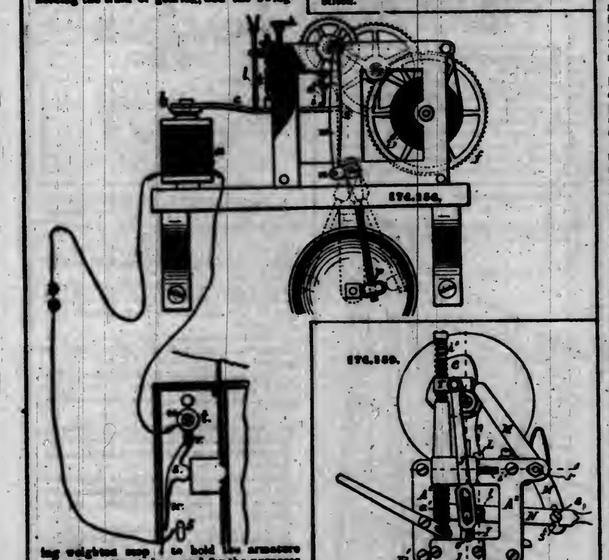


The shank A, with its stationary jaw *b* and screw portion *a*, in combination with the movable jaw *d* and a clamping device, substantially as and for the purpose described.

176,176. REACTING DUPLEX-ALARMS. W. H. Rodgers, Brooklyn, assignor to himself and C. H. Burtis, New York, N. Y. [Filed Jan. 27, 1876.]

1. The combination, in an electrical burglar-alarm, of a train of gearing, a crank *w*, link *n*, arm *u*, hammer *p*, and bell *r*, with the electro-magnet *s*, armature, and detent *t* for holding the train of gearing, and the swing-leg weighted near *t* to hold the armature when first attracted, as and for the purpose set forth.

2. The circuit-closing weights *z* connected by a swivel, *v*, to the bent block *i*, and provided with the circuit-closing finger *w* and stud *k*, as and for the purpose set forth.



176,177. SAD-IRONS. S. B. Salisbury and John McCabey, Providence, R. I. [Filed Sept. 20, 1875.]

1. The removable handle F, in combination with the single standard C, said standard being placed on the back end of the iron, substantially as set forth.

2. The combination of the latch *c*, removable handle F, and rod B, rigidly secured to a standard on the back end of the iron, substantially as and for the purpose specified.

176,178. SEWING-MACHINES FOR SEWING SEAMS. S. Sawyer and W. Doty, Fitchburg, Mass.; said Doty assignor to said Sawyer. [Filed Sept. 9, 1876.]

Brief.—The needle has a groove, into which a spline fits that is engaged by a rack, which gives the needle a rotative movement while ascending and descending. The whirl makes one revolution to each descent of the needle, remaining stationary during the ascent of the latter. The stroke of the needle is adjustable, and the presser-foot, by means of a rubber on its bar and a pawl and cam, adjusts itself to the different thicknesses of cloth. Between the bevel-wheel on the operating-shaft and the whirl is a gear-wheel, to allow of the tip of the whirl being adapted to the toe of the boot. Makes the chain-stitch or the stapling-stitch.

1. The combination, in a sewing-machine, of a barbed needle adapted to be reciprocated in the direction of its length, and to have an intermittent rotation imparted thereto, and a whirl or looper adapted to be intermittingly turned one entire revolution about its axis after each descent of the needle, and while the needle is in a state of rest, substantially as and for the purposes described.

2. In combination with a work-supporting horn adapted to enter the interior of a boot or shoe, a whirl or looper mounted in the tip of said horn, with its axis vertical and in line with the center of the needle, and mechanism, substantially as set forth, for imparting thereto a single complete revolution about its axis after each descent of the needle, and a period of rest after each revolution, said revolutions being always in the same direction, as and for the purposes described.

3. In combination with a whirl mounted in the tip of a horn, with its axis vertical and in line with the center of the needle, and a bevel-gear wheel on the upper end of an inclined shaft, mounted in bearings within the hollow of the horn, an intermediate gear-wheel provided with a series of spur-gear teeth to engage with the whirl, and a set of bevel-gear teeth to engage with the bevel-gear on the shaft, substantially as and for the purposes described.

4. In combination with a whirl or looper arranged to be rotated in the tip of a work-supporting horn, with its axis vertical and in line with the center of the needle, the pinion *r'* and wheel U, constructed and arranged to work together, as and for the purposes described.

5. In combination with a work-supporting horn adapted to enter the interior of a boot or shoe, and carrying in its tip a whirl or looper, a steam-pipe placed within the cavity formed in the horn, and bent, as set forth, through which steam passes, entering at one end and being discharged at the other, substantially as and for the purposes described.

6. In combination with a work-supporting horn and a steam-pipe arranged within the cavity thereof, as set forth, the bearing C, provided with the annular chambers *s'* and *t'*, and passages *s'* and *t'* leading therefrom, substantially as and for the purposes described.

7. The combination, in a sewing-machine, of the pitman J, provided with the slot *n* and regulating-screw *o*, and the needle-bar provided with the wrist-pin *m*, adjustably connected therein, substantially as and for the purposes described.

8. The combination, in a sewing-machine, of the presser-foot bar F', provided with teeth upon a portion of its length, the arm T, having pivoted thereon the pawl-lever *g'*, provided with teeth, as shown, and the cam *f*, all constructed, arranged, and operating substantially as described.

9. The combination of the sliding plate K, feed-bar L, mounted in bearings on said plate K, feed-point *n*, and plate S, provided with the inclined curved slot *o'*, all adapted to operate substantially as and for the purposes described.

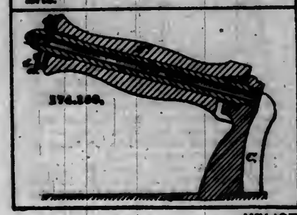
10. The combination of the needle-bar H provided with a spline-groove, *h'*, pinion *i*, provided with a feather or pin to fit said spline, plate K, having secured thereto the rack *i'*, and having mounted in suitable bearings formed thereon the feed-bar L and the plate S, provided with the curved inclined slot *o'*, all adapted to operate substantially as described.

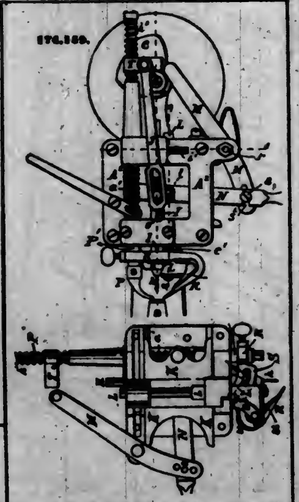
11. The combination, in a sewing-machine, of an intermittingly-acting feed mechanism, a reciprocating needle-bar adapted to be oscillated about its axis to the extent of half a revolution at each extreme of its reciprocation, a needle set in said bar with its barb toward the feed-point when the needle-bar is up, and a whirl or looper set with the thread-eye between the needle and the feed-point when the needle is descending, and adapted to be revolved entirely around its axis and the axis of the needle after each descent of the needle, and then remain in a state of rest till the needle is withdrawn from the stock, turned a half revolution, and descends again, substantially as and for the purposes described.

12. The combination, in a sewing-machine, of an intermittingly-acting feed mechanism, a reciprocating needle-bar adapted to be oscillated about its axis to the extent of half a revolution at each extreme of its reciprocation, a needle set in said bar with its barb on the side opposite the feed-point when the needle-bar is up, and a whirl or looper set with the thread-eye on the side farthest from the feed-point when the needle-bar is descending, and adapted to be revolved entirely around its axis and the axis of the needle after each descent of the needle, and then remain in a state of rest till the needle is withdrawn from the stock, turned a half-revolution, and descends again, substantially as and for the purposes described.

176,179. REMEDIES FOR HOG-CHOLERA. E. Royalty, Bolton, Ky. [Filed Dec. 28, 1876.]

A medical composition consisting of calomel, pulverized, castor-oil, and spirits of turpentine, as and for the purposes herein set forth.

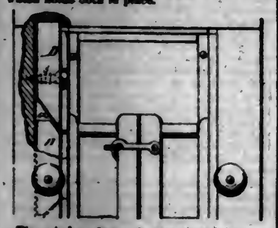




1. The combination, in a sewing-machine, of a barbed needle adapted to be reciprocated in the direction of its length, and to have an intermittent rotation imparted thereto, and a whirl or looper adapted to be intermittingly turned one entire revolution about its axis after each descent of the needle, and while the needle is in a state of rest, substantially as and for the purposes described.

174,160. WINDOW-FRAMES. J. Skinner, Maiden City, Ill. [Filed Aug. 10, 1875.]

Brief.—A recess is made in one side of the frame, of sufficient depth to admit of the removal and insertion of the sash. This space is filled with two overlapping blocks, the upper one of which is fastened by a single screw, which holds both in place.



The window-frame A, constructed in one side with the recess *a*, and the overlapping pieces or blocks D D, for the purposes herein set forth.

174,161. BUTTONS. Jos. R. Smith, Waterbury, Conn., assignor to the Waterbury Button Company, same place. [Filed Jan. 17, 1876.]



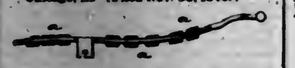
An improvement in the manufacture of covered buttons, consisting of the perforations in the rear disk, whereby the inner or holding surface of the disk is roughened, substantially as and for the purpose set forth.

174,162. BADGES. Henry H. Shew, New Haven, Conn. [Filed Jan. 17, 1876.]



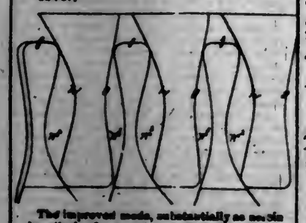
As a new article of manufacture, a badge made of molded sugar, having combined therewith the pin *a*, secured to the same in the process of molding, or otherwise, substantially as described.

174,163. TREADLES. M. De Roy Spaulding, Chicago, Ill. [Filed Nov. 30, 1875.]



In a treadle, the elastic cylindrical sections *a*, inserted through the holes *b*, substantially as specified.

174,164. MANUFACTURE OF STIFFENERS FOR BOOTS AND SHOES. W. N. Sprague, South Framingham, assignor to himself and W. W. Potter, Boston, Mass. [Filed Jan. 12, 1876.]



The improved mode, substantially as herein described, of separating a strip of stock into sheet-stiffeners for boots or shoes, consisting in beveling the strip on its opposite sides and at its edges, as represented, cutting through it transversely by curved lines *g h*, and lengthwise by lines *f*, so as to form in it a series of stiffeners, each of which is beveled on its opposite edges and at its toe, and projects at its toe beyond the heel of the next adjacent one, all being essentially as shown and specified.

174,165. DOOR-CLOSERS. John Stevens, Wakefield, Mass. [Filed Jan. 29, 1876.]

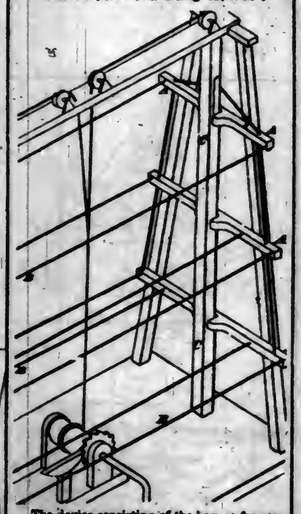
Brief.—Concealed weights, cords, and pulleys, being so arranged that when the door is closed no portion of the devices is visible, and when open only a small part of the concealed cord, there being also a slotted and recessed attaching-plate, which permits the door to be closed when the knob is removed, for detaching the weights and freeing the door.



1. The attaching-plate *k*, adapted to be connected with the edge of the door, as described, in combination with the frame-pulleys *f g* mounted thereon, and with concealed weight and connection, adapted to be applied to the casing opposite the attaching-plate, all substantially as described.

2. The slotted attaching-plate *k*, provided with recess *l*, in combination with the connection *d* and knob *i*, to permit the door to be closed when the knob is removed from its connection with the plate of the door, substantially as described.

174,166. CLOTHES-LINES. L. Swett, San Francisco, Cal. [Filed Aug. 10, 1875.]



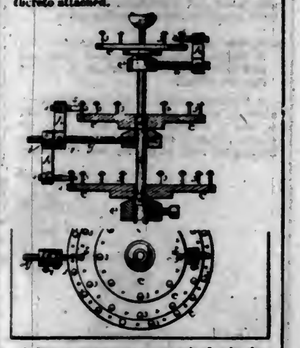
The device consisting of the bars or frames A A, with their connecting line or lines B B, said bars being united so as to be elevated successively at stated intervals, substantially as and for the purpose herein described.

174,167. PROCESSES OF PRODUCING DESIGNS UPON HARD SURFACES. R. C. Tilghman and E. A. Tilghman, Philadelphia, Pa. [Filed July 3, 1875.]

The process of producing designs upon hard surfaces with the sand-blast by means of perforatable paper or other thing readily destroyed by the cutting action of the sand, and carrying a design made or marked with matter or other suitable material capable of resisting such cutting action—said paper being applied and made to adhere to the surface to be engraved, and then exposed to the sand blast, substantially as described, whereby the unprotected parts of the paper will be first pulverized and removed, and then the corresponding parts of the hard substance or surface laid bare will be cut, while those parts of such surface beneath the resistant ink and composing the design will be protected from corrosion, as set forth.

174,168. GAME APPARATUS. Fortune Iron, Waterbury, Conn. [Filed Feb. 1, 1876.]

Brief.—Revolving horizontal plates have pins arranged to strike spring-tongues, and the pins may have also small gilt articles thereto attached.



1. In a game apparatus a standard, *a*, having two or more revolving plates, *c*, combined and arranged to operate substantially as shown.

2. In combination with the standard *a* and a revolving plate, a collar, *e*, placed under the plate to raise it from its bearing, substantially as set forth.

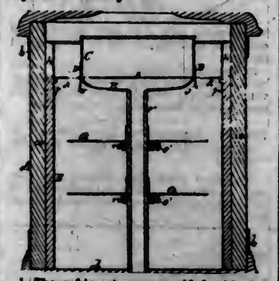
3. In a game apparatus the combination of the standard *a*, plates *c*, screw-rod *g*, arm *h*, spring 2, and pins 3 on the plate, substantially as specified.

4. The combination of the arm A, rod *g*, adjustable rod 1, and spring 2, substantially as specified.

5. The combination of the standard *a*, plates *c*, cams *d*, collars *e*, screw-rods *g*, arms *h*, and springs, substantially as shown and described.

174,169. REFRIGERATORS. J. L. Tucker, Manchester, N. H., assignor to himself and Frank Dowst, same place. [Filed Dec. 20, 1875.]

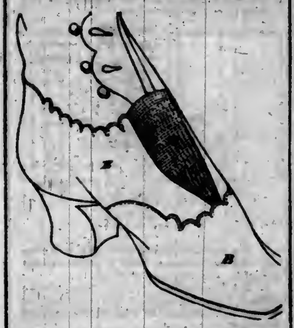
Brief.—The bottle-rack rests on projections from the inner case, and also against the sides of the ice-box. The shelves revolve, and are adjustable vertically.



1. The refrigerator as provided with the ice-receptacle C, bottle-rack D, drip-pan E, and rotary shelves G, arranged as shown, and as having the hollow column F leading from and out of the drip-pan and down through and supporting the shelves, and extending through the bottom *d*, all being arranged as shown and described.

2. The inner case B, provided with the flange *p*, in combination with the separate ice-receptacle C and bottle-rack D, connected as described, and provided with legs projecting from the said ice-receptacle down around the drip-pan, as set forth.

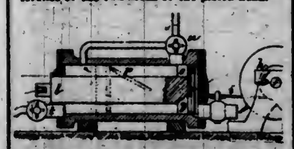
174,170. BRIDGE. H. Van Heverbeke, San Francisco, Cal. [Filed Nov. 27, 1875.]



The vamp B, quarter E, and facing C of a shoe, combined with the elastic portion D extending above and overlapping the lowest ends of the facing, substantially as and for the purpose set forth.

174,171. HYDRAULIC ELEVATORS. M. L. Wyman, Boston, Mass., assignor to himself and C. B. Moore, same place. [Filed July 15, 1875.]

Brief.—The trunk of the piston occupies about one-half the capacity of the cylinder. A valve is made in the piston-head, by which water can pass from the rear to the front of the piston. In elevating light loads, the passage of water aforesaid takes place, the space in the rear of piston-head having been filled from the front, in the last descent of the carriage, through a connecting-pipe and cock uniting the two ends of the cylinder. In lifting light loads, the water lifts by only the difference of the two areas of the piston-head.



1. The combination, in an hydraulic elevator, of the cylinder, piston, and valved piston-head, adapted to allow the water in the cylinder back of the piston-head to pass into the cylinder in front of the piston-head, substantially as described.

2. The combination, with the cylinder and piston, provided with a head and valve therein, of a stop or valve and moving-pipe adapted to lead the water in advance of the piston-head back into the cylinder, substantially as and for the purpose described.

3. The combination, with the cylinder, inlet-valve, two outlet-valves, and moving-pipe, of a piston and head, provided with a valve, and adapted to operate substantially as and for the purpose described.

4. The combination, with the cylinder and valved piston, stop or valve *n*, and connected moving-pipe, of the cross-bar, ropes *i*, shaft *f*, drums *k q*, counterpoise and car, substantially as described.

174,172. ELEVATORS. M. L. Wyman, Boston, Mass., assignor to himself and C. B. Moore, same place. [Filed Sept. 11, 1875.]

Brief.—The driving-shaft automatically operates a pawl connected therewith, and prevents the unwinding of the suspending-rope when the descent of the car is obstructed.

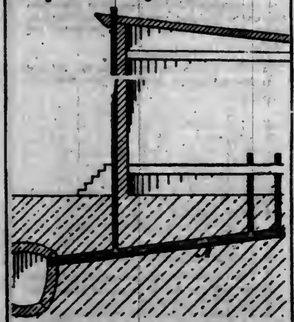
The combination of the hoisting drum of an elevator and its shaft, connected, substantially as described, with a rotating shaft to actuate the drum-shaft and a pawl, the rotating shaft being adapted to move independently of its rotation and actuate the pawl to engage and hold the drum when the descent of the car is obstructed, substantially as described.



The method herein described of ventilating house-sewers, and also the sewer in the street, and providing for the discharge of gases generated or entering therein by the employment, in connection with the house sewer or service pipe, of two pipes extending from the sewer-pipe to or above the roof of the building, and arranged so that the gases discharged from the sewer through the one will be replaced by air entering the sewer through the other, substantially as and for the purposes set forth.

174,173. HOUSE VENTILATION. B. Abrahams, New York, N. Y. [Filed Feb. 12, 1876.]

Brief.—Two pipes are employed in connection with the sewer, extending from the sewer to the roof of the building, and arranged so that the gases discharged from the sewer through the one will be replaced by air entering the sewer through the other.



174,174. COUNTER-STIFFENERS AND SHANKS FOR BOOTS AND SHOES. J. J. Adgate, New York, N. Y. [Filed Jan. 31, 1876.]



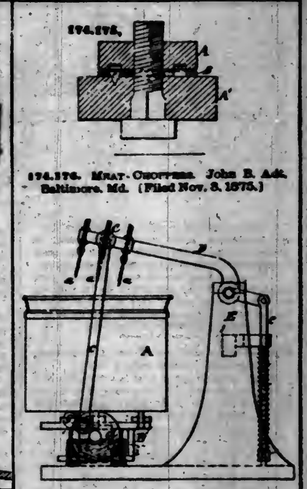
The counter-stiffener D and spring-shank C, re-enforced by a spring, E, and adapted to be secured to the sole and heel of a boot or shoe, substantially as and for the purpose set forth.

174,175. NUT-LOCKS. J. J. Adgate, New York, N. Y. [Filed Feb. 17, 1876.]

Brief.—An annular groove with ratchet-teeth is formed in the nut, instead of an annular recess, thereby providing a bearing-surface adjacent to the bolt.

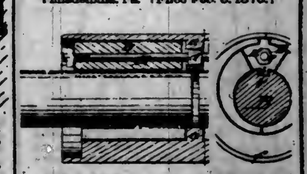
The nut A, having an annular groove, C, in the bottom of which is a series of ratchet-teeth, said groove arranged to leave a bearing upon both sides thereof, in combination with the washer B, having outwardly-projecting spring-tongues *d d* and suitable devices to prevent its turning, substantially as and for the purposes herein set forth.

174,176. MEAT-CHOPPERS. John B. Ade, Baltimore, Md. [Filed Nov. 3, 1875.]



In combination with the block A, the vibrating arm D, cross-head C, and knives *a*, rigidly connected thereto, and operated by side rods *c*, attached to the cross-head centrally of the series of knives, and driven by cranks or equivalent devices, the axis of which is in the central perpendicular of the block A, substantially as specified.

174,177. SHAFT-COUPLINGS. R. Albrecht, Philadelphia, Pa. [Filed Feb. 6, 1876.]

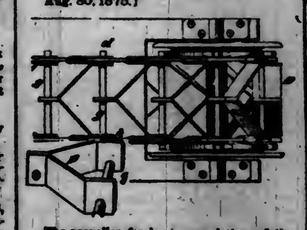


1. The dividing partition *a* of the sleeve, having central perforations for the shaft ends and square recess for the key-binding bolt, substantially as described.

2. The combination of the sleeve and shaft, having longitudinal grooves, the eccentric wedges or jaws, and the tapering key, having top and bottom tongues to produce the rigid clamping of shaft, substantially as specified.

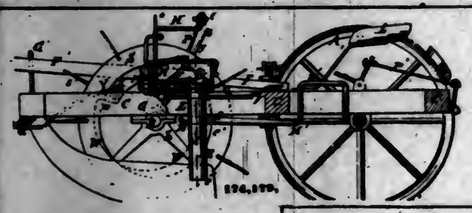
3. The combination, with the tapering keys, of the divided sleeve sections, and with the central partition, having square recess of a longitudinal connecting screw-bolt and fastening end nuts, for the purpose set forth.

174,178. ENDLESS-CHAIN PROPELLERS. I. Alvord, South Hadley Falls, Mass. [Filed Aug. 30, 1875.]



The propeller for boats, consisting of the blades D, rods *g*, links I, and rolls A I, when all constructed and arranged as set forth.

174,179. CORN-PLANTERS. G. A. Anderson, Mineral Ridge, Iowa. [Filed Sept. 6, 1875.]



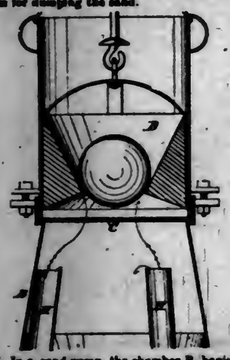
No. 174,179.

1. The combination, with sand-hopper having perforated walls and false bottom, of spring M, provided with points to pass through and hold down bottom, as set forth.

2. The combination of sand plates G and crank levers H H, connected by a rod, O, having pairs of arms, with a rotary wheel having two instinct diametrically and on different sides, as shown and described.

174,180. SAND-PUMPS. Edwd. F. Andrews, Augusta, Ga. (Filed Feb. 2, 1876.)

Brief.—A sand-pump with a sand-chamber, having the entrance tubes arranged in a concentric circle, and the bottom hinged between them for dumping the sand.



1. In a sand-pump, the chamber B, having the tubes arranged in a concentric circle, the piston D, and intervening strainer C, as shown and described.

2. In a sand-pump, the chamber B, having the concentric circle of tubes, and the hinged bottom closing the opening between the mouths of the tubes, as shown and described.

174,181. HYDRANTS. Geo. C. Bailey, Pittsburg, Pa. (Filed Aug. 26, 1875.)

Brief.—The supply-pipe is screwed into a threaded diaphragm cast with the casing. With this construction the box is rotated continuously along with the supply-pipe, as the latter is screwed into the diaphragm. The upper end of the supply-pipe constitutes the valve-seat for the valve, which latter is attached to the lower end of the pipe.

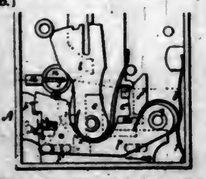
1. The stem *b'*, connecting with the head B', projecting vertically through the head of the hydrant-case, in combination with a spring and collar arranged thereon inside the case, and an eccentric, *g*, connected to the stem *b'*, bearing on top of the cap, and operated by a lever, *g'*, substantially as set forth.

2. The diaphragm *n*, cast in, and as a part of, the hydrant-case A, and transversely thereto, and having a tapped hole in the axial line of the moving water-way for the insertion of the vertical part of the supply-pipe D, substantially as set forth.

3. The flanged or cup-shaped screw-ring *o'*, screwing onto the outer surface of the sleeve *o*, and in combination therewith, and with suitable interposed packing *n*, substantially as and for the purposes set forth.

4. A waste-port, *c*, having three openings, two above and one below the diaphragm *n*, substantially as and for the purpose set forth.

174,182. LOCKS FOR DRAWERS, &c. Loring L. Bates, Boston, Mass. (Filed Nov. 27, 1876.)



1. The tumbler *p* and catch-plate *o'*, in combination with the bolt E and latch F, substantially as and for purposes stated.

2. The latch F, provided with the stud *f* to enter the fork *e* of the bolt E, and with the stud *e* to operate in connection with the tumbler *p* and catch-plate *o'*, and the tooth *x* to be operated upon by the key I, substantially as and for the purposes stated.

3. In a lock in which the bolt and the mechanism for latching or locking the same are operated each by its own key, as described, the combination, substantially as set forth, of the said bolt, and mechanism for latching or locking it in place, with a single rotating key-hub, adapted to receive in succession the operating-keys, the said bolt latching or locking mechanism and bolt being arranged with reference to said hub substantially as specified, so that each in succession may be operated by its own key through one and the same hub.

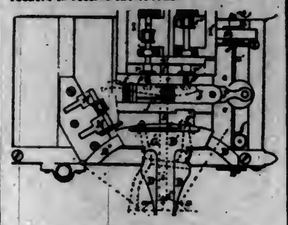
174,183. WAGON-BRAKES. Jas. L. Bayley, Rock Rapids, Iowa. (Filed Sept. 21, 1875.)



The combination, in a brake-block for wagons, of the block *A*, having the concave bearing-face *a*, studdes *b*, and flat ends *c*, the facing B, and the clamp-bolts C, having the bronze projecting-head *d*, with its under face *e*, and the nut *n*, as described.

174,184. MORTISING AND TENONING MACHINES. Geo. Benjamin, Gardner, Massachusetts, assignor to Philander Derby, same place. (Filed Jan. 20, 1876.)

Brief.—The machine is intended to form the tenons upon the legs of rocking-chairs, and at the same time make the mortises in the rockers to receive the tenons.



1. The reciprocating frame I, in combination with the vibrating table D', substantially as and for the purpose described.

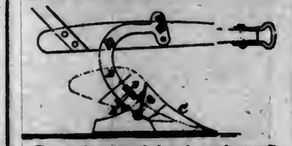
2. The combination of the reciprocating frame I, vibrating table D', and reciprocating table J, substantially as and for the purpose described.

3. The combination of the vertically-moving and adjustable cutter-heads *f f'*, cutter-heads *c* and *c'*, and vibrating table D', for the purpose of forming the tenons on legs of chairs, and cornering the same, substantially as and for the purpose described.

4. The combination of the reciprocating frame I, with its adjustable slide F, the vibrating table D', reciprocating table J, the cutting tools *f f'* and *c* and *c'*, and the mechanism for operating the same, whereby the legs of chairs are tenoned and the rockers mortised coincidently and to the proper gage, substantially as and for the purpose described.

174,185. FLOW-SHOULDERS. Joseph G. Blount and Silas Kalman, Columbus, Ga. (Filed Nov. 6, 1875.)

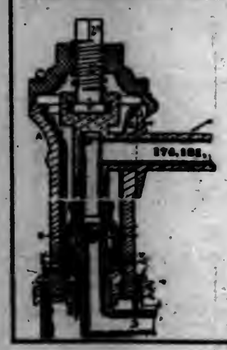
Brief.—A shoulder for shovel-plows adjustable upon the standard.



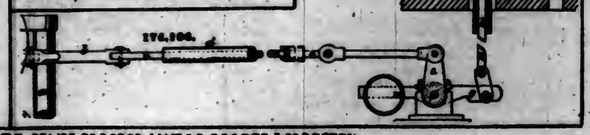
The combination of slotted standard S S, the plate D, having flanges *d' d'*, the bolt E, having its head countersunk in plate D, and the nut *e'* with a plow-plate, C, secured by its own bolt, as and for the purpose specified.

174,186. BUOYING-INDICATING APPARATUS FOR VESSELS. Justus A. Brisbash, Clapton, England. (Filed Dec. 21, 1875.)

Brief.—Signals, consisting of flags for daytime and colored lights at night, are connected by the devices claimed with the rudder of a vessel, so as to show at a distance the positions of said rudder, and consequently the direction in which the vessel is moving.



No. 174,183.

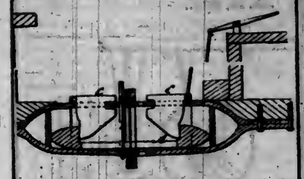


No. 174,186.

1. The combination, with the rudder-stem and suitable connecting mechanism, of the axle *f*, arms *e g*, counter-balance *n*, slide-rod *h*, and slide *k*, carrying the two different signals, substantially as and for the purpose described.

2. The combination, with the lamp-case *i*, slide *k*, and slide-rod *h* of the arm *e* and lever *p*, pivoted to the lamp-case, and carrying upon its outer ends flags or signal-disks, as and for the purpose described.

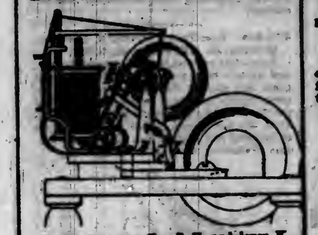
174,187. CAR-COUPLINGS. C. H. Briggs, Black Hawk, Colo. (Filed Jan. 15, 1876.)



A gravity-catch, C, hinged on the end of slot in draw-bar and behind the ordinary hole for the coupling-pin, as and for the purpose specified.

174,188. BOBBIN-WINDERS FOR SEWING-MACHINES. Walter B. Browning, Cambridge, Mass. (Filed June 11, 1875.)

Brief.—The bobbin-winder has an automatic stop-motion. The winding mechanism is pivoted to a horizontal plate, provided on its periphery with a series of notches. The lever and of a bent lever engages in these notches, and prevents the friction-pulley from swinging off from the driving-wheel. The upper end of the lever is provided with an adjusting-screw, with which the roller comes in contact when the bobbin is filled, thus forcing the lower end of the lever from one of the notches, thereby allowing the friction-pulley to swing clear of the driving-wheel. The pressure-roller is mounted in independent spring-bearings, so that it can tilt from end to end as the bobbin fills with thread.



1. The combination, with the rube or rake and reel arms, of pivoting guiding-rollers, adapting the said arms to vary their path without changing the path of the rollers, substantially as described.

2. The combination of the rake and reel arms provided with the yielding or spring guiding-roller with the single cam E, arranged and operating substantially as described.

3. The guide rail or way *b* provided with the pivoted latch or finger *b'*, in combination with the fixed guiding-cam E and the rake-arms, operating substantially as described.

4. The latch or finger *b'* pivoted to the forward end of the curved horizontal rail or way *b*, and operated by the rake and reel arms, for automatically changing the path of said arms, substantially as and for the purposes described.

5. In a harvester-rake, the removable teeth *k* hinged to the rake-head, and held to their work by means of springs *f'*, substantially as and for the purpose described.

174,189. PULLEY-CLUTCHES. Daniel W. Burnham, New Haven, Conn. (Filed Jan. 13, 1876.)



1. In a clutch, the combination of a flanged pulley, *b c*, a double clamp, *c d*, and cam *g*, substantially as shown.

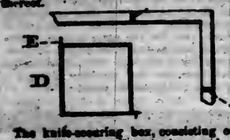
2. The combination of the arm *d*, clamp *c*, cam *g*, cord *k*, disk *h*, and flange *c*, substantially as described.

3. In a clutch, the combination of the clamp *c*, cam *g*, arm *d*, and a regulating set-screw, *l*, to take up the cross upon the clutch, flange, and arm, as specified.

4. In combination with a loose pulley, having an internal flange, *c*, cast with the pulley, a rigid arm, *d*, that bears against the outer face of the flange, a clamp, and an operating device, substantially as specified.

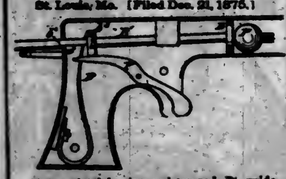
174,190. KNIFE-SCOURING BOXES. Sylvester M. Button, Sellersville, Pa. (Filed Dec. 1, 1875.)

Brief.—The water-pan is secured in the corner of the tray by means of projecting flanges entering slots in the adjacent sides thereof.



The knife-scouring box, consisting of the box A with grooves F on its inner sides, and the pan D with lips E, which project in diametrically opposite directions from diagonal corners of the pan, all as set forth.

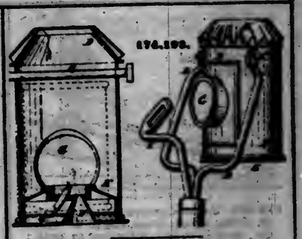
174,191. TOY PISTOLS. C. C. Butterworth, St. Louis, Mo. (Filed Dec. 21, 1875.)



A toy pistol, having a piston-rod, F, guide-hanger, C, a disk or projection, *b'*, a trigger, F, and a plate or rod spring, D, all constructed and arranged to operate substantially as shown and described.

174,192. GAS-LIGHTING FOR STREET-LAMPS. James Chapman, St. John, Canada. (Filed Feb. 5, 1876.)

The combination of the handle A, the rods B, the cone D, provided with a lamp, E, having a central tube, F, passing through it, and with a bull's-eye lens, G, and the key I with each other, substantially as herein shown and described.



174,193. STEAM-KETTLES. Stillman W. Chamberlin, Montague, Mass. (Filed Jan. 28, 1876.)



The combination, with the boiler *A*, of the tube E, communicating with the interior of the boiler below the ledge D, and provided with a valve, F, for regulating the escape of steam, substantially as described.

174,194. DOOR-CHECKS. Edmund W. Chamberlain, Sullivan, Ohio, assignor to himself and J. W. Spencer, same place. (Filed Jan. 3, 1876.)

Brief.—Reversibility adapting it to right or left hand doors, and lessening the number of parts composing the construction.



A reversible door-check, cast or otherwise formed of two pieces, one having pivot F, base-piece G, and check-cams H, and the other a reversible latch-piece B, having latch C, and check D, applicable in connection with spring E, as and for the purpose specified.

174,195. CHAIN-PUMP BUCKETS. John A. Churchill, Council Bluffs, Iowa. (Filed Feb. 5, 1876.)

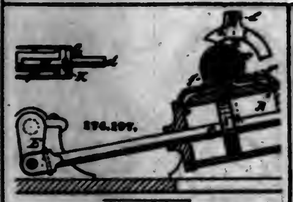
Brief.—Two half-globes of rubber, the under one being the smaller. Their concave surfaces, facing, are held together by disks screwed on a tube, through which passes a rod carrying a valve at its lower end, that closes the tube while the bucket is passing upward.

1. A pump-bucket composed of two half globes or balls, one being larger in diameter than the other, and secured together in the manner and for the purpose set forth.

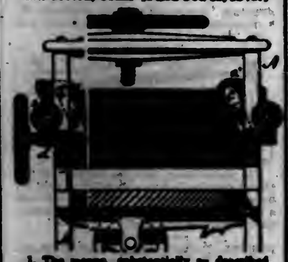
2. The hollow shaft or tube A, in combination with the rubber bucket and the rod D, with its valve F, constructed and operating as and for the purpose set forth.

174,197. OSCILLATING VALVES. Ambrose B. Clark, Myrtle River, Conn. (Filed Jan. 26, 1876.)

The combination with the oscillating cylinder A of the valve-box F, having eduction-port *e* and exhaust-port *e'* and ports *c* and *c'*, and the cylindrical valve G, having eduction-port J formed of channels *f, f'*, and *f''*, and exhaust-port K formed of channels *g* and *g'*, together with rod H, and its pin *d'* and the slot *e*, when constructed and arranged as described, to operate as specified.



176,859. PAPER-CUTTING MACHINES. John H. Cobb, Mystic River, and L. W. Morse, Jr., Groton, Conn. [Filed Oct. 18, 1875.]



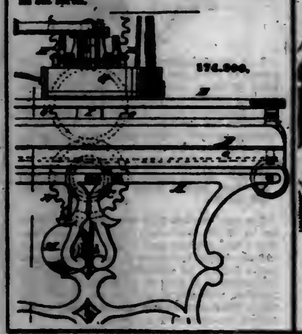
1. The screen, substantially as described, for operating the knife-bar and giving a downward movement to the knife in a paper-cutting machine, which consists in connecting the knife-bar with toothed racks *a a'* pendent with each other and inclined relatively to the longitudinal axis of the bar, and combining therewith toothed pinions *f f'*, worked by suitable worm gears and levers, as specified.

2. The combination with a knife-bar, provided with a rack-gear at each end, of the guiding-slots and rollers, substantially as described.

176,860. CORSETS. M. Cohn, New York, N. Y. [Filed Feb. 9, 1876.]



A corset having a thickened and ornamented edge, or an edging in imitation of hand-stitching, formed out of the same stock of which the corset-web is woven, and produced by the loom during the process of weaving the corset-web, as set forth.



176,861. IRONING APPARATUS. Gideon W. Cottingham, Rockport, Tex., assignor to himself and James P. Cottingham, same place. [Filed Aug. 16, 1875.]

Brief.—A reciprocating table having an elevated detachable ironing-board, above which is the iron, made adjustable by means of levers, treadle, and weight.

1. In an ironing-machine, an elevated ironing-board, E, in combination with the reciprocating carriage B, with open space between the ironing-board and carriage and the end supports D, and a vertically-adjustable iron, C, and mechanism to reciprocate the table, whereby one person can reciprocate the carriage and iron goods being ironed upon the board, substantially as and for the purpose herein specified.

2. The combination of the reciprocating table or carriage B, and supports D D, with plate *f*, and the ironing-board E, substantially as and for the purposes herein set forth.

3. The counterbalancing weight H, in combination with the treadle I, connections *f K J*, arms E, and iron C, substantially as and for the purposes herein set forth.

176,862. PICKS. Wm. L. Copeland, Philadelphia, Pa., assignor of two-thirds his right to Jos. V. Lafferty and Wm. Copeland, (agent for H. A. Leadbeater.) [Filed Jan. 26, 1876.]

Brief.—The head of the pick is formed with end sockets, having in the interior a V-shaped rib, and a corresponding groove on the shank of the tool, the parts being held by a set-screw.



1. The pick-head A formed with an end socket, B, whose inner face is formed with a wedge-shaped tongue or groove, substantially as and for the purposes set forth.

2. The pick-head A formed with an end socket, B, and the detachable bit C fitted to the socket by a wedging-joint, and held by means of a set-screw, F, passing through the wall of the socket, substantially as and for the purposes set forth.

176,863. GRAPES-MILLS. Saml. H. Cowles, Sacramento, Cal. [Filed Nov. 4, 1875.]

Brief.—The crushing-roller engages with the main wheel by spur and crown gearing, so that the wheel may run over an obstruction without breaking the gearing. The axis of the wheel, also, for the same reason, passes through a slot in the main shaft. A plow and wrist-block serve to loosen the crushed ore and force the fine particles through a screen to an amalgamated plate.

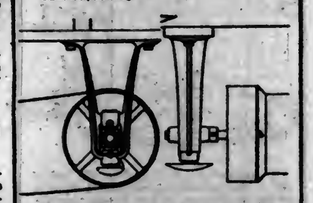


1. The combination of the slotted vertical shaft D, having wheel S, with beveled cogs *d* and vertical cogs *b*, the shaft A, passed through the slot in the shaft D, and provided with the large crushing-wheel I, having straight radial cogs *f*, all substantially as and for the purposes herein set forth.

2. The combination, with the crushing-wheel shaft A, of the wrench-block J, brace E, rod *i*, slotted arm L, with leg *n*, and the rounded wheel R, substantially as and for the purposes herein set forth.

3. The combination of the pan A, wrench-block J on the shaft A, the circular rim-screen B, and the concave amalgamated plate C, all substantially as and for the purposes herein set forth.

176,864. PULLEYS. Franklin E. Crafts, Williamsport, Pa., assignor of one-half his right to Henry Beard, same place. [Filed Jan. 20, 1876.]



In combination with a tight and loose pulley situated upon the same shaft, the conical flange *h*, substantially as and for the purpose set forth.

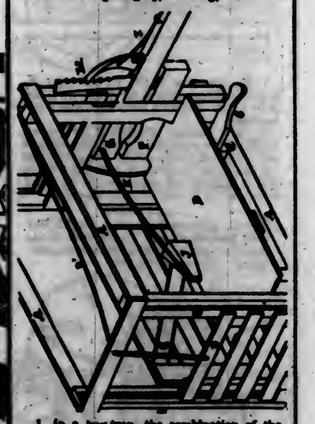
176,865. SAWING-ROLLERS. G. A. Crowder, Stockton, Mo. [Filed Jan. 7, 1876.]



The combination, with sectional roll having end shoulders, of the end caps, which hold the sections together and form bearings for the tightening-rods, as shown and described.

176,866. HOG-TRAPS. David M. Crowder, Bethany, Ill. [Filed Jan. 10, 1876.]

Brief.—At one end is a lifting gate of entry, and at one side a swinging gate. At the other end and at the other side are tilting gates rigidly connected at the angle, the end gate serving to receive and retain the animal's head, the body being baited to the side gate to be lifted and held thereon during the process of marking, ringing, counting, &c.



1. In a hog-trap, the combination of the frame A, sliding gate B, swing-gate C, platform D, yoke F G, and rubber and pawl H, substantially as described.

2. In a hog-trap, the combination of the frame A, gate C, platform D, rod E, yoke F G, and rubber and pawl H, substantially as described.

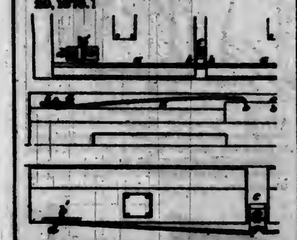
176,866. STEREOSCOPES. Andre David, St. Etienne, France. [Filed May 10, 1875.]

Brief.—The screen is moved back and forth in a stereoscope, so as to bring the differently-colored views alternately before the eye, thus giving the stationary picture an appearance of motion.



The plates F, with the differently-colored figures drawn thereon, in combination with a movable frame, E, provided with the complementary colored-glass transparent plates C D, by the motion of which virtual motions of the images are obtained.

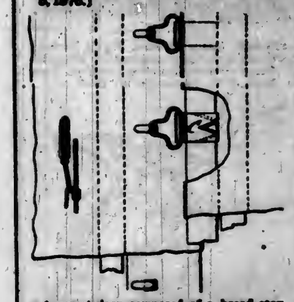
176,867. REED-ORGAN BELLOWS. Arvid Dayton, Wolcottville, Conn. [Filed Oct. 20, 1875.]



1. The combination of the spring-bolts *a a* constructed and attached substantially as shown, with the bellows of a reed instrument, when the said rods are situated outside of the bellows, and one end of each is made readily adjustable, as shown and specified.

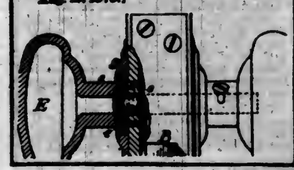
2. The combination of the spring-rods *a a*, having bent ends *b b b' b'*, with the bearings *d d*, and the bellows of a reed instrument, the whole being constructed and arranged substantially as set forth.

176,868. ORGANS—STOPPERS. Joseph Day, New York, N. Y., assignor to himself and Nathan Rykman, same place. [Filed Feb. 8, 1876.]



A cover-clasp composed of a bread cap, having fixed hooks upon it, in combination with an overlapping clap having eyes hinged to fastening-hooks within and around the clap, said eyes being made with broad bases, substantially as and for the purposes set forth.

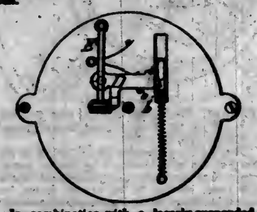
176,869. ATTACHING KNOBS TO SPINDLES. Henry A. Dirrken, New York, N. Y. [Filed Aug. 30, 1875.]



The combination of the spindle D, provided with a head, *a*, and an extending knob, *c*, with the heart knob E, provided with a recess or cavity to receive the head *a*, for securing the said heart knob to the spindle, the whole constructed to operate in connection with the latch of the door, substantially as described.

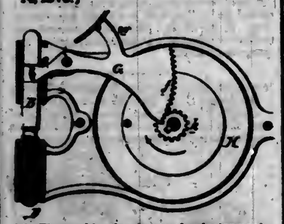
176,870. DOOR-SPRING. Henry A. Dirrken, New York, N. Y. [Filed Aug. 2, 1875.]

Brief.—The spring-follower is raised by means of a catch or dog in its front end engaging with the opening-lever. When the follower has been raised a certain distance its catch passes the lever, and it is thrown down by its spring. Its arm strikes the loosely-pivoted hammer and throws it against the bell.



In combination with a loosely-suspended hammer, E, a spring-follower, D, pivoted at its free end with a bolt, *b*, said bolt being so arranged as to be operated upon directly by a suitable lever or levers, substantially as described.

176,871. GAGES. Thomas S. Dirrken, Philadelphia, Pa., assignor of one-half his right to Henry Dirrken, Hamilton Dirrken, and Alex. E. Dirrken, same place. [Filed Feb. 14, 1876.]



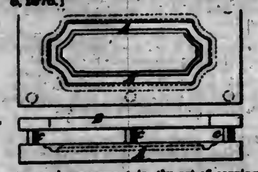
1. The combination, in a gaging instrument, of an adjustable screw or pin, D, a sliding pin, E, a spring tending to maintain the same in contact with the said adjustable pin D, and a graduated plate or plates, pivoted to and arranged to move simultaneously with the said sliding pin, all substantially as set forth.

2. The combination of the pin E, the lever G, its arm *e*, and toothed segment *f*, with the plates A, connected to the graduated plate or plates.

3. The differential pinion on the graduated plate or plates, in combination with the toothed segment on the operating-lever G, connected to the pin E.

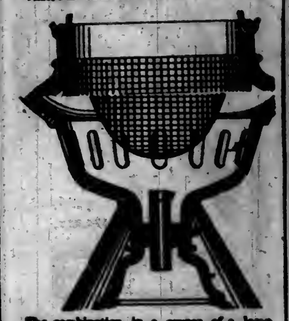
4. The combination of the two sides A A' of the casing with the graduated disk I, dished and graduated plate H, and coiled spring J, all being constructed substantially as set forth.

176,872. DEVICES FOR CARVING WOOD. W. H. Doane, Cincinnati, Ohio. [Filed Feb. 6, 1876.]



As an improvement in the art of carving wood by machinery, the method, herein described, of arranging the templet at a distance from the surface to be carved, so as to provide an open space between them, substantially as and for the purpose specified.

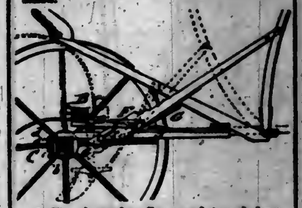
176,873. CHIMNEYS. James J. Dunn, Mendville, Pa. [Filed Jan. 15, 1876.]



The combination, in a cowcr, of a loop with a perforated or cuimbated fire-pocket, substantially as specified.

176,874. HORSE HAY-RAKES. D. D. Dunn, Greenwich, Conn. [Filed Sept. 17, 1875.]

Brief.—Detachable bar carrying the dischargers. A combination of a pendently-formed connection, a treadle, and a counting spring, for holding the rake-head in dumping position, and also retaining it in working position.



1. The clevis-bar C, secured to axle by a suitable coupling-pin, *i*, and a hook-and-eye catch on each side of said coupling, as and for the purposes described.

2. The combination of arm D, rod D', lever E, and treadle F G, as and for the purposes specified.

176,875. MEAT LADDER FOR STOVES. John W. Elliott, Toronto, Canada. [Filed Jan. 3, 1876.]



1. A sales light for stoves, having the handle-plate O at the upper end thereof, as and for the purposes specified.

2. A sales light, having perforation D and strengthening rib C, in combination with the lip *l* of the window-frame, as shown and described.

176,876. SAWS. Jos. H. Emerson, Beaver Falls, Pa. [Filed Feb. 12, 1876.]

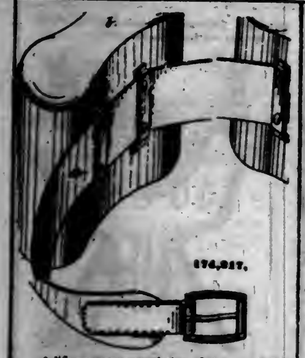


A saw, the blade of which has the recess *a*, slit B, hole *s*, slit *s'*, and spring-holder O' for each tooth B', substantially as and for the purposes described.

176,877. LOCK-FASTENINGS. P. M. English, Henderson, Ky. [Filed Nov. 24, 1875.]

Brief.—The hasps are sheet-metal vessels, adapted to fit under the arms when attached to the bolt.

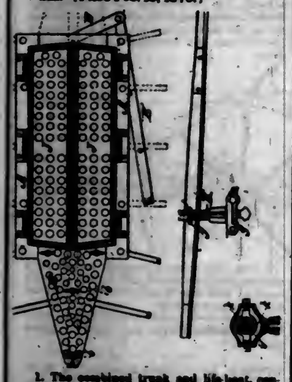
HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.



174,917.

A life-preserver consisting of the vessels B B, of the form described, attached to a belt or jacket, substantially as set forth.

174,918. COMBINED LIFE-BOATS AND TRUNK. Wilson R. Fraser, Toronto, Canada. [Filed Feb. 15, 1876.]



1. The combined trunk and life-boat, consisting of the rectangular frame in combination with the symmetrical folding end frames E E' and the folding-ribs F F', as and for the purpose described.

2. The combination, with the frame E E' and the rectangular body or trunk-frame, of the braces G and H, as and for the purpose described.

3. The combination, with the folding covers J, of the cor-locks K, as and for the purpose described.

4. The rectangular trunk or body section, consisting of frames A A' and ends B, latticed by a thin metallic lattice-work, in combination with the doors I, hinged at the bottom, as and for the purpose described.

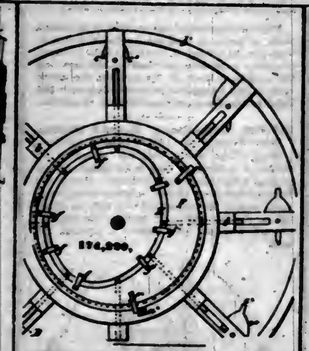
174,919. STUFFED BEECHNUT. R. J. Field, Leatherville, N. C. [Filed Nov. 3, 1875.]

A stypic, composed of rosin in solution, tannin, and camphor, substantially as herein set forth.

174,920. FEATHERING PADDLE-WHEEL. Ross Forward, Cincinnati, Ohio. [Filed Jan. 12, 1876.]

1. The paddles provided with heads having shoulders c^1 and stud c^2, said heads being formed on or attached to the paddles above the pivot thereof, as and for the purpose specified.

2. The combination of a plate having an eccentric groove, E, and mounted loose on the wheel-shaft, to adapt it to be reversed in position, sliding rods D, provided with pins or arms working in said groove, and paddles C, pivoted above the center, and having heads constructed with shoulders c^1 and stop c^2, substantially as shown and described.



174,920.

174,921. SPRINKLER-HEADS FOR WATERING-POTS, &c. Lory B. Frost, Boston, Mass. [Filed Feb. 10, 1876.]

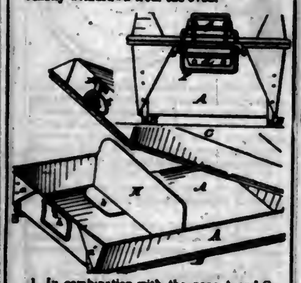
Brief.—The perforated part is locked to the body of the sprinkler-head by central screw-rivet, thus preserving the symmetrical form of the head. Owing to the central screw, the screw parts can be readily detached, notwithstanding they may be nailed by the cementing action of the deposits left from the water.



As a new article of manufacture, a sprinkler-head for watering-pots, when made with a conical body, C, united to a conical screw-coupling, D E, all the parts being formed and united substantially as described, and for the purpose set forth.

174,922. BAKING-PANS. Bradford P. Foster, Vineland, N. J. [Filed Feb. 9, 1876.]

Brief.—The runners prevent overheating of the bottom of the pan and allow it to be readily withdrawn from the oven.



1. In combination with the pans A and C, and for baking, the runners B, placed lengthwise of the pans, and constructed substantially as and for the purpose described.

2. In combination with the pans A and C, the hinged connection formed between the two by the interlocking of the handles E and F, substantially in the manner shown and described.

3. In combination with the pans A and C, the partition H and spiral spring G, arranged and operating substantially as described.

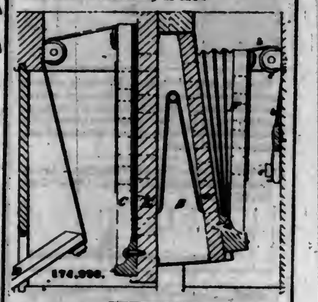
4. In combination with the pans A and C, hinged by means of the interlocked handles E and F, the wire e, located on the upper pan C, as and for the purpose described.

174,923. REED-ORGAN BELLOWS. Levi K. Fuller, Brattleborough, Vt. [Filed Oct. 30, 1875.]

1. In combination with an ordinary pedal-bellows of a reed-organ, one or more auxiliary pumpers, connected with the receiver and arranged to be operated with a lever, substantially as specified.

2. The combination of the receiver B, pumpers C, pedals D, and auxiliary pumpers F F, the latter arranged to be operated by hand and independently of the pumpers C, substantially as specified.

3. The combination of the receiver B, auxiliary pumpers F F, hinged to the beam of same, as shown, straps b b, rollers c c, and pivoted lever G, all constructed and arranged to operate substantially as show



174,923.

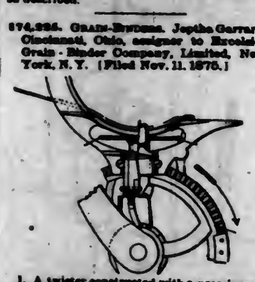
174,924. CULINARY BOILERS. Christian M. Garber, Carnarvville, Va., assignee of one-third his right to William Mallory, same place. [Filed Sept. 20, 1875.]

Brief.—The device prevents contact between the articles in the vessel and its bottom.



The frame, constructed of wire, covered with wire-gauze or ferruginous metal, and provided with cross-bars, one of which is bent downward into the shape of the letter U, forming a supporting leg or standard, the whole adapted to set within an ordinary boiler, upon the shoulder near its bottom, the standard or leg resting upon the bottom of the boiler and supporting the frame at the center, substantially as described.

174,925. GRAIN-BINDERS. Josiha Garrard, Cincinnati, Ohio, assignee to Excelsior Grain-Binder Company, Limited, New York, N. Y. [Filed Nov. 11, 1875.]



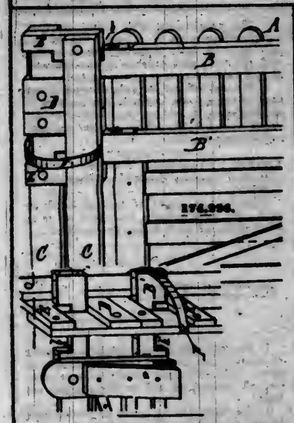
1. A twister constructed with a prominence projecting beyond the plane of the twisting-arms, and a needle-point projecting from the apex of said prominence at right angles to the plane of rotation.

2. The discharging-arm, in combination with the cradle and the lug, for actuating said arm, substantially as set forth.

174,926. GATES. George Gilbert, Michigan Centre, Mich. [Filed Oct. 19, 1875.]

Brief.—When the gate is swung open, the upper gate-bar hooks behind the hook end of the upper hook-block, while the throat of the heel end of the lower bar is taken against a head-iron segment, whose ends are secured to the edges of the heel-posts, so that no hinges are required.

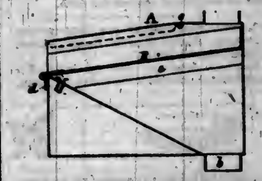
The combination of a gate having the notched bars B B' with the heel-posts C C, having the spacer-blocks D, hook-blocks E E', and segment F, substantially as described.



174,926.

174,927. RAIN-WATER STRAINER. W. P. Gill, St. Louis, Mo. [Filed Oct. 6, 1875.]

Brief.—The device consists of a box having hinged cover and inlet and exit pipes. One end of the box is left open, as shown, that the coarser particles may pass off from the strainer. The inclined strainer and water-sheets are placed as shown.



The box A, having the lid hinged at c, and the strainer-supports e, and provided with the pipes a and b, combined with the inclined bottom and removable strainer B, all arranged substantially as and for the purposes specified.

174,928. MACHINES FOR FINISHING BARRELS. Edmund W. Gilliman, Long Island City, N. Y. [Filed Nov. 18, 1875.]

Brief.—The machine levels the staves, chamfers their ends, cuts the crozing for the heads, and finally forms on the bevels, all of which operations are performed without changing the position of the barrel in the machine.

1. The combination of sliding hollow shaft T, cutter carrier-head S, shaft Y, wheels W X, and rotary cutter-head V, substantially as specified.

2. The combination of an interposed rubber spring, j, with the two metal parts compressing the rubber-bands and pressure-rings, as and for the purpose set forth.

174,929. TOY PISTOLS. Samuel D. Goodale and D. C. Goodale, De Kalb, Ill. [Filed Dec. 27, 1875.]

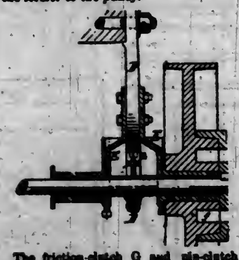
Brief.—For flipping bits of card-board edgewise to a distance.



The combination, with a barrel having horizontal slot open at the muzzle end, of an elastic trigger, D, pivoted at the lower end of a vertical slot, b, of pistol, having one end, C, extending above said slot, and the other resting behind the inclined catch c, as and for the purpose specified.

174,930. PULLEYS FOR TRANSMITTING POWER FROM LINE-SHAFTING. Wm. Gooding, Detroit, Mich. [Filed Jan. 10, 1876.]

Brief.—Adjustably attached to each side of a shaft-hanger is a cheek-piece with a sleeve and loose pulley. A shaft passing through all has loose on it, traversing a spline, an ordinary and a pin clutch, which latter locks the former to the pulley.



The friction-clutch G and pin-clutch H, feathered on the line-shaft, in combination with a pulley sleeved on the hanger-arm through which said shaft is journaled, substantially as and for the purpose set forth.

174,931. HEEL AND EDGE POLISHING MACHINE FOR BOOTS AND SHOES. Leopold Graf, Newark, N. J. [Filed Jan. 3, 1876.]

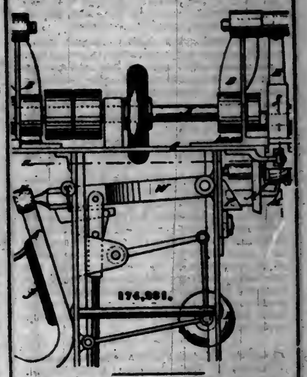
1. A polisher, pivoted at, lower end of its carrier and connected with a stationary object at L by the arm J and bar K, in combination with a carrier that swings on a pivot, F, in the top of a standard, B, as and for the purposes specified.

2. The combination of the vibrating and adjusting gage M with the polisher, substantially as specified.

3. The gage M, fixed on the pivot of the polisher and connected with stationary stud T, substantially as specified.

4. The combination of sliding gage M, spring O, and the cam-block P, substantially as specified.

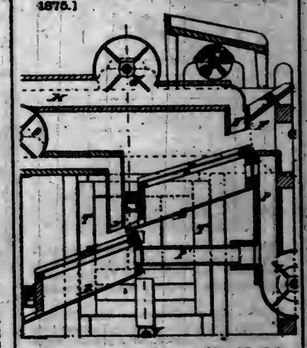
5. The combination, with the axle-plate, of clamp-frame S, connected, by the ball-and-socket-joint U, to holder V, having a sliding motion in the swinging holder W, substantially as specified.



174,931.

The combination, with sleeves M and I, of the fans G, J, and O and the spouts E, P, R, and S, substantially as specified.

174,932. MIDDLINGS-PURIFIER. Albert Greenleaf, Kingston, Wis. [Filed Dec. 16, 1875.]



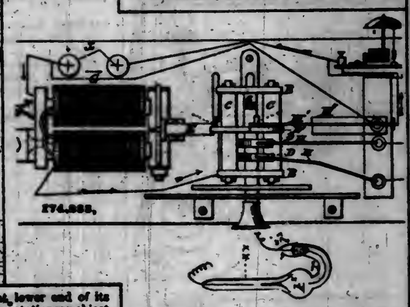
1. The combination of the pressure-rings E with the pushers G, substantially as specified.

2. The bilge trunk-hoops C and hoops B, in combination with pushers G and G', provided with pusher-heads F K, substantially as specified.

3. The pressure-gage g, in combination with cutter-head V and carrier-head S, substantially as specified.

174,933. FIRE-ALARM TELEGRAPH. John H. Grant, Brooklyn, N. Y. [Filed Oct. 7, 1875.]

Brief.—One magnet controls rotation of disk displaying numbers, circuit through magnet being controlled by break-wheels having contact-surfaces of different lengths.



174,933.

1. The combination, with a single electro-magnet, of a rotating disk carrying numbers or names indicative of points to be guarded or signaled from, a series of circuit-wheels, one for each point, having contact-points, surfaces of varying lengths, and a detent controlled by the magnet, and releasing and stopping the numbered disk at suitable times, substantially as and for the purposes set forth.

2. The combination, in an electrical annunciator, of one magnet, the circuit-breaking wheels D D, stop-wheel D', springs H H and H' H'', circuits connecting the same, and an alarm bell, substantially as described.

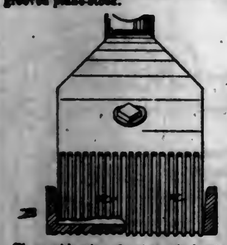
3. The combination, with a normally closed circuit, of a normally-operated signaling-box, a resistance-coil in the main line, and a shunt branch or branches containing an automatic annunciator, vibrating-ball magnet, and a thermostat or thermostats controlling the shunt-branch circuit, substantially as and for the purposes specified.

4. The thermostat having the bulb b', chamber B'', and connection r, substantially as set forth.

5. Combination with the main line, its battery, instruments of an additional battery, and an earth-connection at the point to be guarded, with two branch-circuits between the earth and line, one containing a thermostat or thermostats controlling the branch through a local annunciator, which, upon the completion of its work, breaks the branch through the thermostat, and completes the one through the local alarm, which in turn releases the signal mechanism for sending in an alarm over the main line to the central station, substantially as set forth.

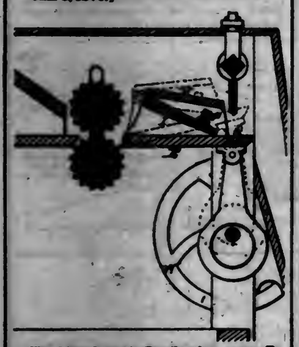
174,926. PLANES FOR MAKING RECEDING. Alston K. Hall, Jackson, Mich. [Filed Dec. 18, 1875.]

Brief.—Combines the toothed bit with a grooved plane-stock.



The combination of a plane-bit, having rectangular tongues and grooves, with the stock B, provided with similar or corresponding ones on its under side, as shown and described.

174,927. FEED-CUTTERS. Edgar R. Hall, Waterville, N. Y., assignor of one-half his right to C. Stoddard, same place. [Filed Jan. 6, 1876.]



The hinged vertically-vibrating sprue B forming a continuation of the bottom of the feed-box, provided with the hinged leaf I pivoted at its rear end and pressed downward at the front by a spring, a, in combination with suitable operating mechanism, substantially as and for the purpose set forth.

174,928. BED-BOTTOMS. Pulaski C. Hard Wadsworth, Ohio. [Filed Jan. 6, 1876.]

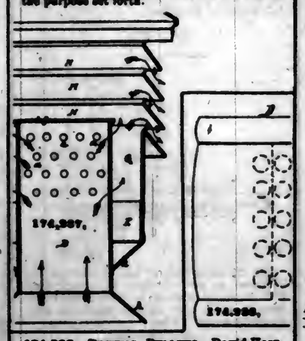


1. In combination with a spirally-coiled spring, forming one of a series of springs for supporting a bed-bottom, a spring brace, A, said brace being centrally coiled and attached to the extremities of said spring, the whole operating substantially in the manner herein-before described, for the purposes set forth.

2. In combination with a series of spirally-coiled springs, forming an outer row of springs in a bed-bottom, a series of spring-braces, A, and a rod, C, passing through the central coils of said braces, all in the manner substantially as hereinbefore described, for the purposes set forth.

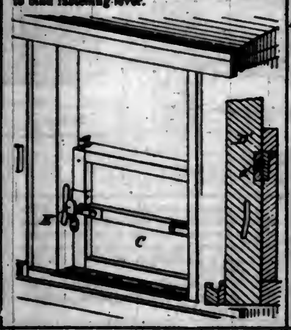
174,929. VENTILATORS FOR CHIMNEYS. L. A. Heard, Cleveland, Ohio, assignor of one-half his right to J. W. Smith, same place. [Filed Dec. 27, 1875.]

The perforated cylinder D, annular chamber C, having an inclined base provided with openings d, in combination with the deflectors H, and conical cap I, substantially as and for the purpose set forth.



174,930. GRAIN-DOORS FOR CARS. Zebina M. Hibbard, Freeport, Ill. [Filed Jan. 22, 1876.]

Brief.—Ribs and grooves to keep the door from rising. Groove inclined at oblique angle to bind fastening-lever.



174,931. DRIVING-PULLEYS. David Kerr, Philadelphia, Pa. [Filed Feb. 14, 1876.]

A driving-pulley consisting of a block, A, composed of or coated with rubber, and confined between end plates D D', having flanges overlapping the said rubber, as set forth.

174,932. GRAIN-DRILLS. Truman A. Hill, Jefferson City, Mo., assignor to himself and Joseph H. Bodine, same place. [Filed May 20, 1875.]



1. The combination of the wheel G, the grooved shaft H, the double sheath I, having inner sheaths, the collar K, lever d, crank E, and pitman B, with the rock-bars C C', attached to the spouts, as and for the purpose described.

2. The combination, with the crank-bar M, of the arm m, the plates e and registering devices, and the movable bearing f, substantially as and for the purpose described.

3. The combination with the wheel a, having side recesses, of the casing c, plate p, and pivoted cut-off g, substantially as and for the purpose described.

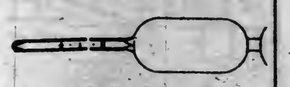
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1. The combination, with a grain-door, C, and the door-posts of a freight-car, of the parting-irons D D', provided, respectively, with the ribs a and grooves c', substantially as and for the purposes herein set forth.

2. The combination, with the door-posts and door, of the pivoted levers G, open sockets E, angling plates b, and parting-irons D D', all constructed substantially as and for the purposes herein set forth.

174,940. HYDROMETERS. James J. Hicks, Hatton Garden, England. [Filed Feb. 2, 1876.]

Brief.—Graduations of enamel fused on stem; the interior tube graduated, so as to avoid action of acids on the graduations.



1. The hydrometer-stem, partially or wholly of enamel, opal, or other analogous opaque or semi-transparent glass, having scales or graduations thereon, as and for the purpose set forth.

2. The stem having scales or graduations formed of glass enamel fused thereon.

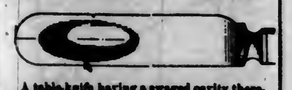
3. The combination, with the stem, of the inner tube, having scales or graduations marked thereon.

4. The combination, with the glass stem b, provided with collar b', of the weights applied to the upper part of the stem, as and for the purpose set forth.

5. A hydrometer constructed with a flat bulb, as and for the purpose set forth.

174,941. COMBINED TABLE-KNIVES AND SPOONS. James Higgins, Detroit, Mich. [Filed Jan. 15, 1876.]

Brief.—A depressure, like the bowl of a small spoon, is swaged in the end of the blade.



A table-knife having a swaged cavity therein, near the point, without alteration of the edge, back, or end, as shown and described.

174,942. GRAIN-DRILLS. Truman A. Hill, Jefferson City, Mo., assignor to himself and Joseph H. Bodine, same place. [Filed May 20, 1875.]

1. The combination of the wheel G, the grooved shaft H, the double sheath I, having inner sheaths, the collar K, lever d, crank E, and pitman B, with the rock-bars C C', attached to the spouts, as and for the purpose described.

2. The combination, with the crank-bar M, of the arm m, the plates e and registering devices, and the movable bearing f, substantially as and for the purpose described.

3. The combination with the wheel a, having side recesses, of the casing c, plate p, and pivoted cut-off g, substantially as and for the purpose described.

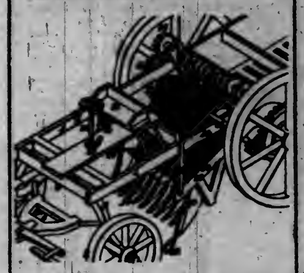
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

4. The wheel B, actuated through a gearing by the driving-wheels, and having a detent, B, in combination with the loose sheath F upon the shaft G, the spring r, and the forked wedge T, substantially as and for the purpose described.

5. The combination of the thoracic pipe, provided with valve a, having an outlet-opening large, and the discharge of the cooling device, having grooves i, and depressed seats n, as and for the purpose specified.

174,943. COTTON-HARVESTERS. A. L. Hill, Lincoln County, Ark., and G. W. Payne, Hampshire, Tenn. [Filed Aug. 4, 1875.]

Brief.—Gathering-comb operating in connection with vertical endless gathering-chains and a cleaner-brush, to gather the bolls and deliver them to a receptacle.



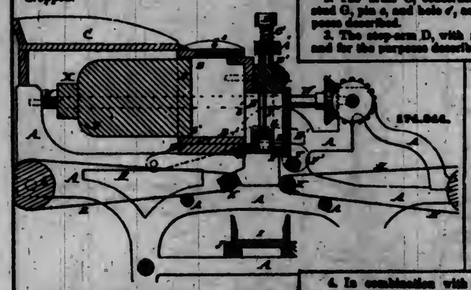
1. The combination of the comb 13, with the endless chains or bands 12, provided with cleats 14, and carried by a drum, 12, revolving on an axis transverse to the line of draft, as explained.

2. The combination of the dividers 22, wings 17, and comb 13, constructed and operating as and for the purposes described.

3. The combination of the comb 13, endless chains 12, and brush 18, substantially as and for the purposes set forth.

174,944. CRACKER-MACHINES. Daniel M. Holman, New York, N. Y., assignor to J. C. Fuller, Orange, N. J. [Filed Dec. 27, 1875.]

Brief.—Plungers armed with bevel-edged cutters reciprocate in a compartment where they are entirely surrounded by the dough, the latter being fed forward by a slow-moving pusher. The cutters impinge at each stroke against the beveled cutting-edges of the openings in the box, through which the cakes are dropped.



1. A dough-box, B, made with an extension and offset, B', to receive the cutters and enable them to operate at right angles with the plungers D, substantially as herein shown and described.

2. A dough-box made with its discharge-openings at right angles with the line of motion of the plungers D, that force out the dough, substantially as herein shown and described.

3. A dough-box divided by partitions b into two or more compartments, each provided with a discharge-opening and with a plunger, D, substantially as herein shown and described.

4. The combination of the detachable and exchangeable cutter-head E with the dough-box D and its extension and offset B, substantially as herein shown and described.

174,945. ROTARY CULTIVATORS. George B. Hopkins, Walla Walla County, Wash., assignee of one-half his right to J. D. Cook, same place. [Filed July 7, 1874.]

Brief.—The hollow cylinder revolves upon its shaft, and by its weight forces the spades into the ground. Two sets of arms project from the cylinder, which, by means of cleats running in eccentric grooves in cams fixed upon the shaft at either end of the cylinder, are alternately thrust out and withdrawn, thus holding the spades fixed as they enter the ground, and as they rise allowing them to swing over and dump the earth.



1. The cylinder A a, revolving loosely upon a stationary shaft, B, slotted at each side around its periphery, and constructed around each head with guides A', as and for the purposes described.

2. The arms C, constructed with slot C', stud G, pin c, and hole c', as and for the purposes described.

3. The step-arm D, with roller stud G', as and for the purposes described.

4. In combination with the arm C, constructed with hole c' and pin c, the curved serrated blade E, with trunnion or pivot bearings A', as and for the purposes described.

5. In combination with the cylinder A and arm F, the arms C D, as and for the purposes described.

6. The combination of cylinder A, arm F, arms C D, and blades E, as and for the purposes described.

174,946. PAIR-SPRINGS. W. H. Howard, New York, N. Y. [Filed Feb. 9, 1876.]

1. The combination, with two independent registering devices, D E, and with their pinion screws D c, of a main lever, c, and index F, whereby only one of the pinion screws can be moved at a time, the latter pointing to that registering mechanism, which is to be operated substantially as shown and described.

174,947. RAIL-TIES. James R. Horton, St. Louis, Mo., and Henry A. R. Horton, McKinney, Tex. [Filed Dec. 4, 1875.]

The hale-band provided with the lug A, having opposite lateral flanges, the stud B, with vertical sides, and the corresponding slot D and hole E, having the form shown, as and for the purposes specified.

174,948. RAILROAD-RAIL JOINTS. Samuel T. Hughes, Newburg, Ohio. [Filed Feb. 1, 1876.]

Brief.—A rail-joint consisting of a short section or filling-block inserted between the meeting ends of the rails, having grooves in the under side of its head, to receive the upper edges of the fish-bars, whose lower edges are engaged by spikes, which pass through the base of rail into the tie or sleeper, thereby dispensing with the use of bolts and nuts.

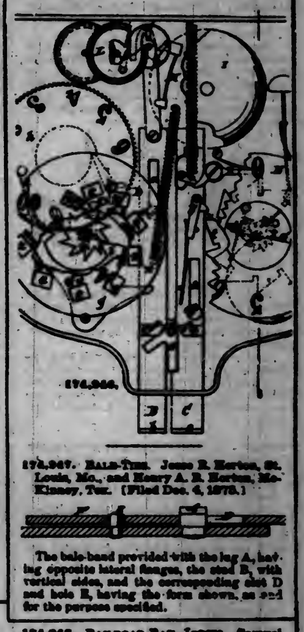
1. The combination of the rails A A, flanged and notched fish-plates B B, and spikes f f, substantially as described.

2. The flanged and notched fish-plates B B, and flanged section a, in combination with the rails A A, substantially as described.

3. The flanged supplementary rail-section a, adapted to receive and hold the fish-plates B B, substantially as shown and described.

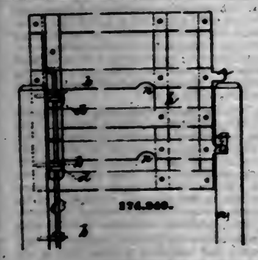
174,949. FARM-GATES. William Hudson, Oregon, Mo., assignor of one-half his right to Theo. F. Way. [Filed Dec. 31, 1875.]

The supplemental post D, consisting of the longitudinal bars e e', united by spaced blocks f, and having rollers g, and eye-bolts d, in combination with the rod C, post A, having spindle-eye-bolts h, gate B, provided with longitudinal bars g, having braces i and suitable gate-post A', whereby a swinging, sliding, and a vertically-adjustable movement may be applied to the gate, substantially as described and for the purpose set forth.



174,948.

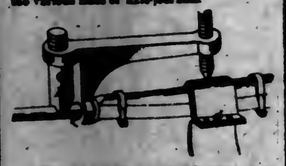
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174,860.

174,860. DEVICES FOR SETTING METALLIC WAGON-AXLES. Fountain B. Humphreys, Sun Hill, Va. [Filed Feb. 5, 1876.]

Brief.—A shield lined with flaps of cloth is interposed between the screw-spindle and the axle-box, to prevent the latter from being moved during the binding operation. The bender is made vertically adjustable, in virtue of which the device can be recommended to the various sizes of axle-journals.

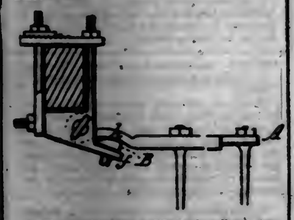


1. The implement for straightening boot carriage-axles, composed of the lever having a laterally-projecting fulcrum-arm, the vertically-adjustable bender, and the screw-spindle, substantially as specified.

2. The combination, substantially as specified, with the screw-spindle of an implement for straightening carriage-axles, of a metallic shield adapted to be applied to the axle-tree, and provided with flaps of cloth or similar material.

174,861. HARROW ATTACHMENTS FOR PLOWS. Pierson Jacobus and David B. Ambrose, Rensselaer, N. Y.; said Ambrose assignor to said Jacobus. [Filed Mar. 16, 1875.]

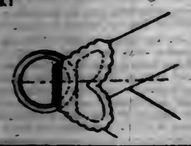
Brief.—An improvement on original Patent No. 159,616, February 2, 1875, and consists of an adjusting-wedge for the harrow attachment, and an adjustable arm that carries the harrow-teeth.



1. The combination, with the handle of the plow, of the hinged arm A, and sliding arm A', for the purpose of adjusting the teeth relatively with the wing of the plow, as shown and described.

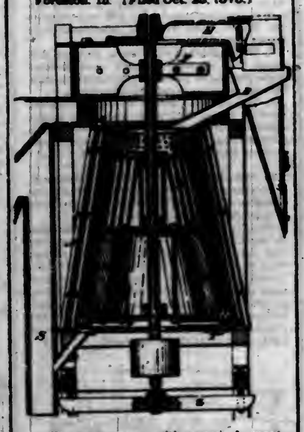
2. The combination, with the arm A and stop *f*, of the removable gage-block B, as and for the purpose specified.

174,862. STRETCHER-STRAPS. Francis B. Johnson, New York, N. Y. [Filed Jan. 15, 1876.]



A woven button-strap for suspenders, sewed, cyclotol, or otherwise fastened to the buckle connection C on a diagonal fold, as shown and described, for the purpose specified.

174,863. GRAIN-CLEANERS. B. W. Johnson, Forreston, Ill. [Filed Oct. 23, 1875.]



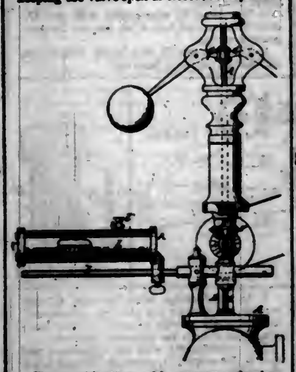
1. The combination, with screen A, spout B, fan F, and passage E, of chamber D, intermediate between the spout and passage, and provided with openings C, as and for the purposes described.

2. The combination, with fan F, of perforated case I, imperforate case N, open-ended bend J, closed lower bend K, and rods *l*, all arranged as and for the purposes set forth.

3. The combination of a regulating-valve, T, with spout S, provided with settling-chamber V and fan F, as and for the purpose specified.

174,864. GOVERNORS. Bernard W. Johnson, Barry, Ill. [Filed Dec. 27, 1875.]

Brief.—A cylinder, partly filled with mercury or other fluid, is placed in an adjustable cage, and attached to a pivoted or fulcrumed rod, which engages with a slot in the valve-stem, and by its change of leverage assists in keeping the valve open or closed, as required.



The combination, with governor having slotted valve-stem A, of the lever I, pivoted to stud J, the adjustable cage E, and spindle L, as and for the purpose specified.

174,865. GRAIN-BINDERS. Joshua A. Kay, Melbourne, Colony of Victoria. [Filed July 26, 1875.]

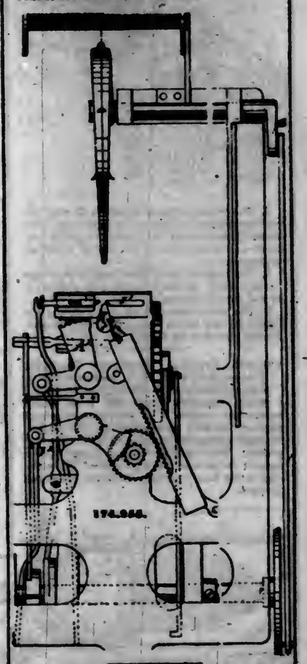
1. A machine for tying knots, being composed of a knotting-box, with a forked sliding looper; a horizontally-sliding, rotating, and fixed hook arranged therein; a top, middle, and bottom cord-carrier, with cord-cutting knife; a sliding hooked finger and thumb; a cord-clipper, and a rotary reciprocating needle, the whole arranged and operated to work in the successive order described, substantially as and for the purpose set forth.

2. The sliding looper provided with three prongs, of which the upper is grooved at the top and the middle prong at the under side, for accurate contact with horizontally sliding and stationary hooks, substantially as specified.

3. The sliding hooked finger and thumb, in combination with the inclining casing and stop device, so that the finger is allowed to enter the knotting box, while the thumb is retained for passage of retaining hook, substantially as set forth.

4. The combination of the looper and the horizontally-sliding, rotating, and stationary hooks with the sliding hooked finger and thumb, for forming the knots in the knotting-box, substantially in the manner described.

5. The combination of the sliding hooked finger and thumb with the forked knot-clipper, for tightening the cord to the material to be bound, substantially as set forth.



174,866.

174,866. FOOT-REST ATTACHMENTS FOR HOT-AIR REGISTERS. John Keys, New York, N. Y. [Filed Dec. 20, 1875.]



1. The hereinbefore-described foot-rest consisting of the shelf B, metallic clamps A, and brackets C, pivoted to the bearings *c* and *d*, the several parts being constructed, arranged, and combined to operate in connection with the open scroll-work of a hot-air register, substantially as described.

2. The metallic clamps A having overlapping edges *b b'*, in combination with the shelf B and brackets C, substantially as described, and for the purpose set forth.

174,867. FOLDING BEDSTEADS. F. M. Kibbey, Mayfield, Ky. [Filed Dec. 4, 1875.]

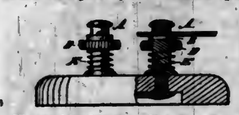


1. In combination with the legs I I' L L' and posts G G' J J' the catches S and staples T, for locking said legs and posts to the frame, substantially as described.

2. The combination with the hinged head G G' H, hinged foot J J' K, and extensions I I' L L', of hinge F F' P' *p p'* and pivoted latch R, for maintaining the extensions in either position, as herein explained.

174,868. CONNECTING-POSTS FOR ELECTRICAL APPARATUS. Jerome Kidder, New York, N. Y. [Filed Dec. 13, 1875.]

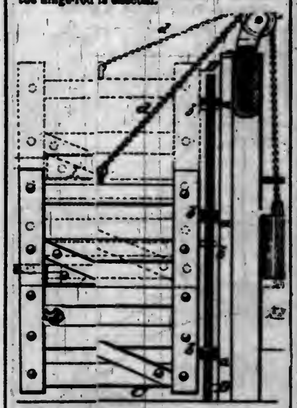
Brief.—Collar sliding on perforated post holds wire in place by stress of coiled spring.



The combination of a collar, D, and spring E, with the conductor, binding-post A, substantially as specified.

174,869. GATES. Daniel H. Kime, Kendallville, Ind. [Filed Jan. 20, 1876.]

Brief.—By means of the weighted cord or chain and swiveled pulley the vertical adjustment and balance of the swinging gate on the hinge-rod is effected.



A swinging gate, C, vertically adjustable on the rod D, in combination with chain or cord *d*, weight H, and swiveled pulley E, substantially as and for the purpose specified.

174,870. CORNICE-CORK. William King, Perth Amboy, N. J., assignor to William King & Co., New York, N. Y. [Filed Sept. 25, 1875.]

Brief.—Covers cork shavings and chips with any cementing substance, and compresses the mass in a mold.



The within-described composition of cork shavings or chips and cement, combined together under pressure, substantially as and for the purposes set forth.

174,871. FLOORING. Edwd. M. Kuhn, East Pittsburg, Pa. [Filed Feb. 10, 1876.]



The floor-boards A, provided on one edge, at or near the center, with a tongue, which is horizontal on one face and inclined on the other face, and a corresponding groove on the opposite edge, and connected to the joists or sills by screws or nails, substantially as herein set forth.

174,872. DOOR-LACER. Charles F. Kuhnle, Philadelphia, Pa. [Filed Jan. 5, 1876.]

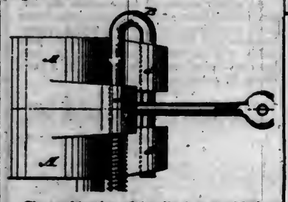


1. The solid base A, with channels B in its sides, in combination with the walls D and the inwardly-projecting metal slides E, secured to the sides of the walls, substantially as and for the purposes set forth.

2. The combination, with the channeled base A, of the walls D, hinged to the butts *a*, the latter being formed with inwardly-extending slides E, substantially as and for the purpose set forth.

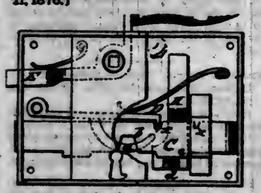
174,873. WEIGH-LEVERS. Peter P. Kunz, Florence, Iowa. [Filed Jan. 20, 1876.]

Brief.—For the quick attaching and detaching of traces.



The combination of the clip A, cast with the lugs *a' a' a'*, and the recess *a*², the U-shaped rod B, made with unequal arms, and the spiral spring C, with each other, substantially as herein shown and described.

174,874. DOOR-LOCKS. Moses Light, Manheim, Pa., assignor of one-half his right to John S. Henry, same place. [Filed Jan. 11, 1876.]

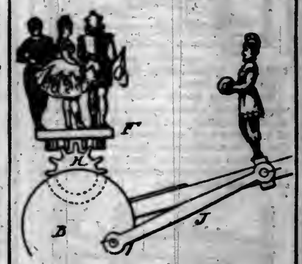


1. The key-hole guard L, attached to and turning with the spindle of the knob G, in combination with the latch E, lock-bolt C, and outer key-hole K', all constructed and arranged as and for the purpose set forth.

2. The combination of the lock bolt C, spring-hook D with arm *a*, latch E, spring H with projection *d*, slide Q, pivoted connecting-rods N N, and bolts M M, all constructed substantially as and for the purposes herein set forth.

174,875. TRUNDLE-TOYS. Hiram B. Long and Christopher Eisenhardt, Philadelphia, Pa. [Filed Jan. 12, 1876.]

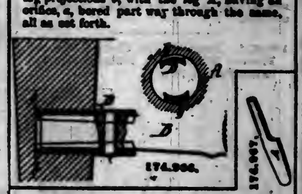
Brief.—A two-wheeled push toy having figures arranged to be moved by the revolution of the wheels, and provided with a rattle.



The combination of the driving-wheel B and ratchet-wheel D, with the spring *e* and horizontal disk F, as and for the purpose set forth.

174,876. JOINTS FOR FURNITURE, &c. T. L. Lockey, Philadelphia, Pa. [Filed Jan. 8, 1876.]

The combination of the strips D D, secured to the rail B by a rivet or screws, *d*, and having projections *b*, with the leg A, having an orifice, *a*, bored part way through the same, all as set forth.



174,876.

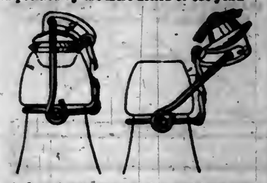
174,877. IMPROVEMENTS FOR FILLING TEETH. Carl D. Ludwig, Houston, Tex. [Filed Jan. 15, 1876.]

Brief.—The ordinary polishing and hardening instrument is made of talc.

A dental instrument, for hardening and polishing tooth-fillings, made of talc, as and for the purpose specified.

174,878. BOTTLE-STOPPERS. Adolph Lindley, New York, N. Y. [Filed Jan. 22, 1876.]

Brief.—A stopper applied by an eye to an extension of the wire neck-band, and closed by a yoke or bail, that slides in a curved slot of the stopper cap-piece, the yoke being centrally indented or bent to carry the stopper in position by the mere action of the yoke.

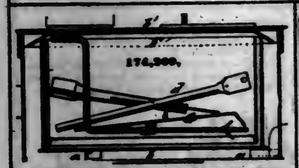


1. In a bottle-stopper, the combination of the stopper, having raised and slotted top-piece, with the swinging yoke and the extension of the wire neck-band, to operate substantially as shown and described.

2. The stopper, having an eye at the side, to be applied to the extension of the neck-band, as specified.

174,879. BRUSHES. F. Martin, Jr., West Jefferson, Ohio. [Filed Dec. 18, 1875.]

The combination, with a flat-bottomed case, having central hole *b*' in its lid, of the pan B, having center hole *b* in its bottom, and the vertical shaft, having horizontally-rotary stirrers on a cross-bar thereof, as and for the purpose described.



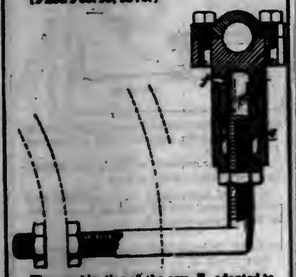
176,970. Wheelbarrow, &c. J. M. Mayhew, Mansfield, Mass. (Filed Jan. 21, 1876.)

Brief.—The handle works loosely on the upper part of a cone-frustum fixed to the end of, and concentric with, the shaft. On the end of a short arm of the former is hinged a lever, that, at its middle, encircles the shaft, and can be clamped against the base of the cone by a bolt through its other end projecting from the handle and a cam-lever.



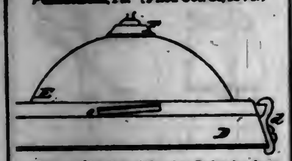
The combination of the cone frustum C, dead-lever E, collar D, auxiliary lever F, the bolt K, and cammed lever L, all being arranged and applied together and to the shaft, substantially in manner and to operate as specified.

176,971. Harness for Card-Cuttings. Francis McCormick, Philadelphia, Pa. (Filed Feb. 10, 1876.)



The combination of the arm F, adapted to the frame of a carding-machine as set to be adjustable thereon, with the bearing a and adjustable sleeve c, all as set forth.

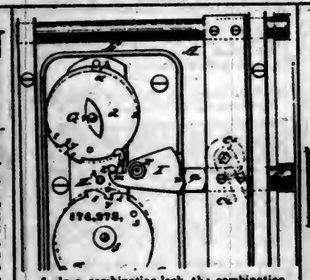
176,972. Cotton-Pots. John McComb, Philadelphia, Pa. (Filed Oct. 31, 1874.)



The combination of the ring D, having lugs d d, and the lid E, having the lateral lugs e and central safety-valve F, substantially as shown and described.

176,973. Combination-Locks. John McCaskey, Newcastle, Pa. (Filed Dec. 8, 1875.)

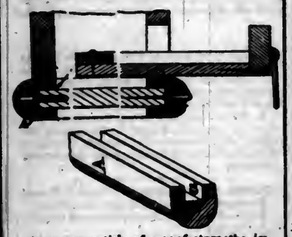
Brief.—A pivoted lock-bolt or latch is provided with a notch in its outer face, which bears against a dog-bolt, and an inwardly-projecting arm, that supports a slide having lever-pins for engaging in notched tumblers, all arranged so that if pressure is applied to the outer end of the door-bolt when the tumblers are not properly set, the lever-pins will be lifted out of contact with the tumblers.



1. In a combination-lock, the combination of the two sets of dials G^1 G^2 and D^1 D^2, tumblers G^1 D^2 having notches x y and inclines s, and the slide H with pins A A and h^1, and the latch I and arm w, all constructed and arranged to operate substantially as and for the purposes herein set forth.

2. The combination of the tumblers G^1 D^2, slide H with pins A A and h^1, latch I with arm w and incline s, and the hooked bolt C with notch e, substantially as and for the purposes herein set forth.

176,974. Bird-Cages. Fredk. J. Meyers, Covington, Ky. (Filed Nov. 11, 1875.)



As a new article of manufacture the improved bird-cage, provided with bottom bands A A' A'', having the central groove a, in combination with the removable bottom C, provided with centrally-grooved band c', said bottom C being separably secured by a fastening, D, at the back, as set forth.

176,975. Tinned Blanks. J. C. Milligan, South Orange, N. J. (Filed Dec. 16, 1875.)

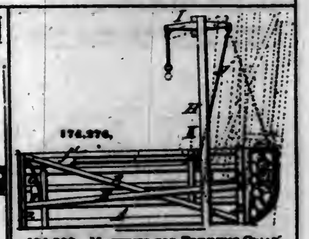


A projecting lip, B, on the edge of a round tin-plate blank, A, arranged to receive the drip of the tin from the bath and to be cut off to remove the same without detriment to the form of the blank, substantially as specified.

176,976. Gates. Richard Miller and J. D. Hilleon, Stephensville, Wis. (Filed Oct. 24, 1874.)

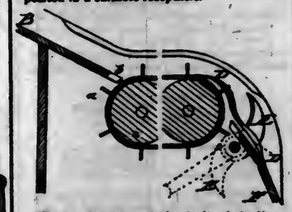
Brief.—A tilting gate, its rear end weighted; elevated posts, at top of which a lever is pivoted, said lever operated by cords, which automatically move the latch, the tilting and rounded at bottom, and having a sliding cover.

The hollow weighted receptacle C, forming a continuation of the gate, and having its lower end rounded and its upper end provided with a slide, c. In combination with the side braces B B, rigidly secured to the forward end of the gate, and also to the diagonal braces B B, and connected with the fulcrum-pin d, on which the gate vibrates, posts H H, and lever I, the whole constructed and operating in the manner and for the purpose set forth.



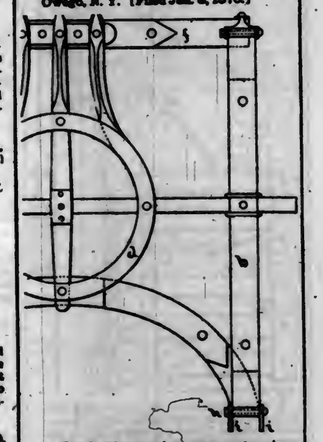
176,977. Machines for Trimming Cigarettes. Andrew Monten, New York, N. Y. (Filed Dec. 27, 1875.)

Brief.—At one end of the machine the cigarettes slide down an incline onto an endless band having side pins, and are carried under trimming-knives, and taken from the band by a stripper, and automatically deposited in a suitable receptacle.



The combination of the inclined feeding-plane B having slits b, endless belt C having spurs c at equal intervals on both sides, the guides d, the stationary cutters D, the revolving cutters E, and the stripper F, as and for the purpose specified.

176,978. Carriage-Springs. T. F. Moore, Owego, N. Y. (Filed Jan. 8, 1876.)



1. The double curved or compound spring C, constructed substantially as described, and applied to the front or rear running-gear of a vehicle, substantially as and for the purposes set forth.

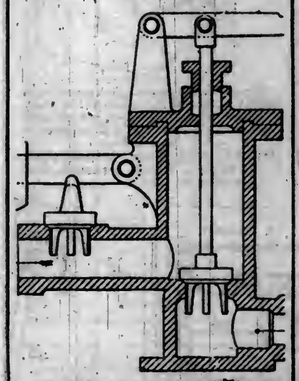
2. The clips i i, with parallel pins h h, in combination with the compound spring C and side springs b b, substantially as specified.

3. The support d constructed and connected with the compound spring C, substantially as specified.

4. The compound spring C connected with support d, and end clips, in combination with springs b b and f, substantially as and for the purposes set forth.

5. The combination of the double curved spring C, springs b and f, and clips i i, having parallel pins h h, substantially as described, and for the purposes set forth.

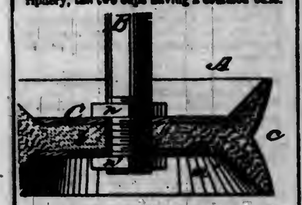
176,979. Safety-Valve Apparatus. L. Moore, Louisville, Ky. (Filed Jan. 18, 1876.)



The combination, in a safety-valve apparatus, of a main regulating-valve and a supplementary safety-valve, adjusted jointly to the pressure of the generating-boiler to keep the steam at uniform pressure in the rag-boiler, and close the main valve automatically by back pressure, substantially as described.

176,980. Gum Cups for Pumps and Hydrants. Joseph B. Mooney, Baltimore, Md. (Filed Aug. 7, 1876.)

Brief.—A double cup-packing of rubber having an annular angular groove in its periphery, the two cups having a common base.



1. As a new article of manufacture, the double-cupped rubber plunger A, molded in a single piece, and having annular peripheral groove c, substantially as specified.

2. The combination with the expansible double-cupped rubber plunger A, having an annular groove, c, of the clamping-disks C C', rod B, and nuts a a', substantially as specified.

176,981. Hame-Troughs. W. F. Moulton, Burlington, Vt. (Filed Aug. 14, 1875.)

Brief.—A wooden curved trough made thicker in the center than at the edges, and connected by flanged iron pieces.



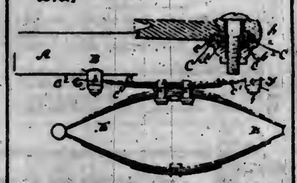
1. The wooden trough A formed with a true outside circle, its edges a a rounded or molded, and an increased swell from the edges to the center, substantially as and for the purposes herein set forth.

2. The coupling C formed tapering from the center toward both ends, and provided with flanges a a along its edges, substantially as and for the purposes herein set forth.

3. The coupling E C provided with the coupling-flange attached to the part E, and made tapering from the angle toward both ends, as set forth.

4. The flanged head H, in combination with the wooden trough A, for the purposes set forth.

176,982. Spring-Wagons. Frank J. Nearmore, Bridgeport, Conn. (Filed Jan. 28, 1876.)



1. A body-loop, H, provided with a head, b, having washers or packing d, and adapted to receive the end of a spring or cross-bar, C, with capability of horizontal motion therein between the washers or packing d d, substantially as described.

2. A body-loop, H, provided with a head, b, formed in two halves, b^1 b^2, and having recesses e and washers or packing d d, and adapted to receive the end of a spring or cross-bar, C, with capability of horizontal motion between the washers or packing d d, substantially as described.

3. The combination, with an elliptic spring, E, and a spring cross-bar, C, of the body-loops H, provided with heads b, having washers or packing d d, and adapted to receive the ends of a spring cross-bar, C, with capability of horizontal motion between the washers or packing d d, substantially as described.

176,983. Shank and Heel Supports for Boots and Shoes. Jas. S. Nelson, Hillsborough, Ill. (Filed Dec. 20, 1875.)

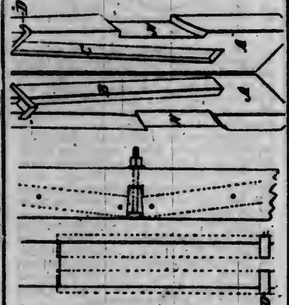
Brief.—The device supports both the heel and shank of a shoe.



The combined shank and heel supporter, composed of the parts E F H, adapted for use, substantially as set forth.

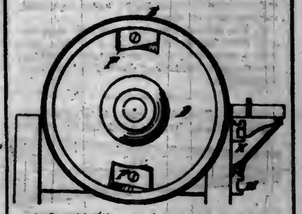
176,984. Trussed Standards for Pianos. Edwin Oakley, Levuka Ovalau, Fegee Islands. (Filed Sept. 17, 1875.)

Brief.—Counter-braces are let into grooves in the standard, so as to better sustain the tension of the strings.



The trussed standard consisting of one or more pieces, A, having obtuse angular grooves G and tapering mortise or mortises D, in combination with the trusses E B and the wedge or wedges B, substantially as and for the purposes described.

176,985. Machines for Cutting Kindling-Wood. E. E. Osgood, Columbus, Ohio. (Filed Jan. 20, 1876.)



1. In a kindling-wood cutter, the combination of the wheel D, provided with the projecting hand-saw E and the splitting-knives F, with a fixed table or support that projects beyond the extreme cut of the saw, whereby the partly-severed block is supported to receive the stroke of the cutters, substantially as and for the purpose set forth.

2. The combination, with the wheel D, provided with the projecting hand-saw E and the splitting-knives F, of the fixed table and a sliding table arranged to be reciprocated thereon, said sliding table having the clamp I hinged thereto, substantially as and for the purpose set forth.

176,986. Fireman's Suits. J. W. Ostberg, Stockholm, Sweden. (Filed Dec. 13, 1875.)

Brief.—A suit of thick cloth is connected with a helmet, and the latter provided with a face-mask, which is supplied with water, which is constantly flowed over the suit to keep it wet. Air is forced within the suit from an air-pipe inclosed within the water-pipe, and its end secured to a waist-belt.



1. A fireman's suit composed of an air and water proof body-covering dress and tightly-jointed head-gear and helmet, and a water-shedding hood fitted and connected thereto, substantially in the manner and for the purpose set forth.

2. The body-covering dress provided with an interior belt, to be strapped to the body, substantially as set forth.

3. The combination, with the water-proof dress and helmet, of an air-supply pipe, attached to the belt of the dress to fill up the space between body and dress and keep out smoke, substantially as described.

4. The combination of helmet having neck-ring and downward-extending supporting-springs, with the gussets and fastening devices at the upper part of the dress to secure tight joint of dress and helmet, as set forth.

5. The helmet provided with a hollow valve-mask made of a fixed and movable disk with holes arranged substantially in the manner and for the purpose set forth.

6. The combination of the hollow valve-seat with a water-supply pipe and with the head, having pipe connecting with mouth for the purpose of keeping moist seal and providing a constant shedding of water over seat, substantially as described.

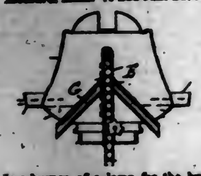
7. The helmet, provided with top aperture and tube for connecting by a flexible pipe with a protecting-cloak or equivalent contrivance, serving as a life-saving device, substantially as specified.

176,897. TOOL-HOLDING. C. F. Packard, New Britain, Conn. [Filed Jan. 27, 1876.]



A tool-handle for holding and carrying tools, which consists of a divided shell, the parts of which are pivoted together so as to have a slight rocking motion upon each other, and which are made to clamp the tool by means of the cap, substantially as shown and described.

176,898. LAMP-BURNER. Wm. H. Parr, Medford, Mass. [Filed Jan. 28, 1876.]



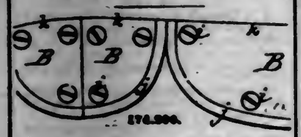
In a burner of a lamp for the burning of kerosene, or other similar material, the combination, with the wick-tube E, of a tube or tubes, G, for the passage of air to the wick, substantially as described.

176,899. COMBINED POCKET AND DRAW KNIVES. John W. Pierce, New Bedford, Mass. [Filed Feb. 12, 1876.]

Brief.—The end of the ordinary blade of a pocket-knife is furnished with a ring for the fingers, which causes the knife, when partially open, to be used as a draw-knife.



As a new article of manufacture, a cheap knife having one or more blades, one of which, G, is provided upon its outer end with a ring, c, or any equivalent means, whereby said end may be grasped by its user, substantially as and for the purpose specified.

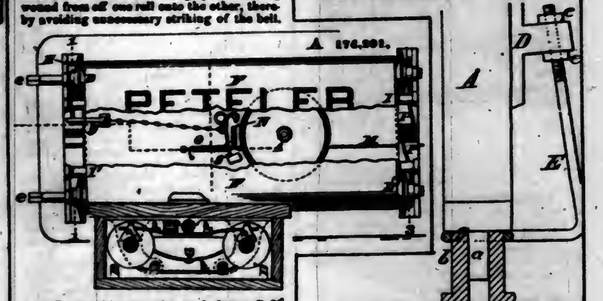


176,900.



176,901. STATION-INDICATOR. Francis Pelsher, Cincinnati, Ohio, assignor to Edwin Pelsher, Bloomington, Minn. [Filed Dec. 9, 1875.]

Brief.—The rod is turned to arrest the hall-hammer when the indicating-apron is being opened from off one rail onto the other, thereby avoiding unnecessary striking of the bell.

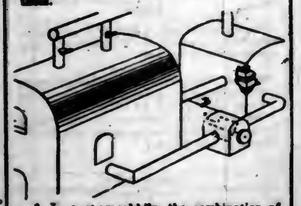


1. The combination of paired drums D D' rollers I I', inscribed band F, arbors c, springs or brakes P, and audible signal apparatus H G g g', with open-faced box or case A B.

2. The combination with said audible-signal apparatus of the finger N, having the handle M n, and self-retracting spring O, for the purpose designated.

176,902. APPARATUS FOR MAKING WOOD-CHARCOAL AND SECURING ACETIC ACID, &c. Henry M. Pierce, same place. [Filed Feb. 18, 1876.]

Brief.—Exhausts the products of combustion into a chamber holding lime, magnesia, baryta, or soda, to secure the acetic acid. Forces the uncondensed gases into the kiln to increase combustion, or otherwise utilizes them.



1. In a charcoal-kiln, the combination of one or more flues opening below the upper surface of the charge, and each having a shut-off, an outlet-flue, a recovering-chamber, and a flue or gutter within the kiln for the withdrawal of the liquid products of combustion, as and for the purpose described.

2. In combination with a charcoal-kiln, having flues opening below the surface of the charge and an outlet-flue, a recovering-chamber within or adjacent to the kiln, and an exhaust for withdrawal of products of combustion from the kiln into the recovering-chamber, as described.

3. In combination with the charcoal-kiln, having flues opening below the surface of the charge, and an outlet-flue, a recovering-chamber within or adjacent to the kiln, and exhaust and forcer, and a conduit from the latter, and communicating with the interior of the kiln, as and for the purpose described.

176,903. PLOWS. Asa H. Piland, Margaretsville, N. C. [Filed Jan. 7, 1876.]

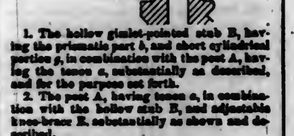
Brief.—A mold-board with an extension or wing in one piece, interchangeable with the usual mold-board.



176,904.

The combined mold-board and sweep or bat-wing, consisting of the mold-board portion F, provided with the extension *e*, cast in one and the same piece, substantially as described.

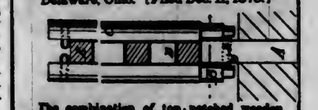
176,905. FENCE-POSTS. Edwin R. Finney and Oliver L. Finney, Brunswick, Ohio. [Filed Nov. 20, 1875.]



1. The hollow gimlet-pointed stub B, having the prismatic part *b*, and short cylindrical portion *g*, in combination with the post A, having the tenon *a*, substantially as described, and for the purpose set forth.

2. The post A, having tenon *a*, in combination with the hollow stub B, and adjustable knee-brace E, substantially as shown and described.

176,906. PENCH-POSTS. Eugene Powell, Delaware, Ohio. [Filed Dec. 11, 1875.]



The combination of top-notched wooden blocks A, cross-heads B, resting in said notches, and having an eye projecting on each side of block, and the stakes C C, having tenons to fit in said eyes, all arranged substantially as and for the purpose specified.

176,907. FILTERING APPARATUS. Leo Frenge, South Brooklyn, N. Y. [Filed Jan. 7, 1876.]

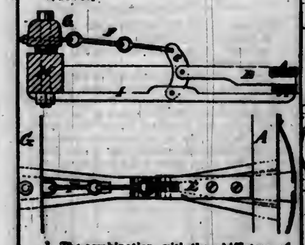
Brief.—The liquid is passed through charcoal into a series of bags formed of woolen fabrics suspended from short tubes attached to the bottom of the tank.



176,907.

The vessel D, provided with the false bottom I and the indicator tube J, attached exteriorly and communicating with the space beneath the strainer, as shown and described, for the purpose specified.

176,908. WHIFFLETREE ATTACHMENTS. S. G. Purinton, Somerset, Mass. [Filed June 7, 1875.]

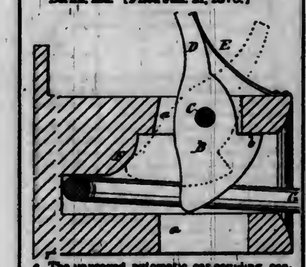


1. The combination, with the whiffletree, of the slotted cross-bar, link, and draw-rods, substantially as specified.

2. The combination of the cross-bar A, link C, rods E F, bar *c*, and draw-rod I, substantially as described.

3. The combination of the cross-bar A, link C, rods E F, bar *c*, and draw-rod I with the whiffletree, axle, and rocker G, substantially as and for the purpose specified.

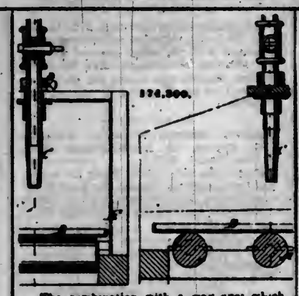
176,909. CAR-COUPLINGS. John S. Parnell, Berlin, Md. [Filed Jan. 21, 1876.]



The improved automatic car-coupling, consisting essentially of the draw-bar A, slotted at *a c*, and having the projection F, the detachable pin B, having shoulder *b* and extension D, the detachable pivot-bolt C, and the spring E, all combined and arranged as shown and described.

176,910. SPRINKLING ATTACHMENTS TO BAKING-MACHINES. Alexander Rannie, Pittsburg, N. Y. [Filed Jan. 7, 1876.]

Brief.—Adapted to sprinkle bread as it passes into the oven.

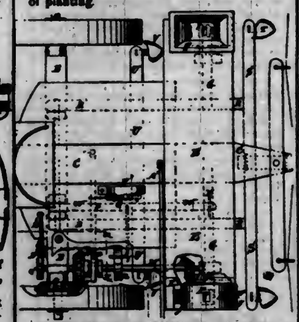


176,910.

The combination, with a way over which baking-pans are passed into an oven, of a supplemental water-sprinkler, C, arranged as and for the purpose specified.

176,911. CORN-PLANTERS. John V. Reams, Midland City, Mich. [Filed July 10, 1875.]

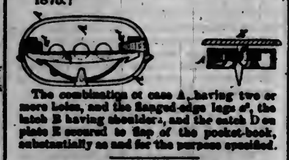
Brief.—Beneath the main frame is pivoted the supplemental frame, carrying opening and covering plows, and elevated simultaneously with the throwing of the seeding devices out of gear. A cog-wheel upon the longitudinal shaft gears with a similar wheel on the feeding-shaft. This shaft is caused to turn by a pawl and ratchet-wheel, to gain any space that may have been lost during the operation of planting.



1. The plow-frame E S U, pivoted at its rear end to axle B, the sliding-gear wheel N, the pivoted lever P, the seed-dropping mechanism, and the elbow-lever Q, arranged as shown and described, whereby the seed-dropping mechanism is thrown out of gear and the plows simultaneously raised from the ground, as shown and described.

2. In the corn-planter herein described, the combination of the pivoted hand-lever E', its attached pawl D', and the ratchet-wheel O', in combination with the shaft M, bevel-gears, and rotating seed-dropping wheels, as shown and described, to operate as specified.

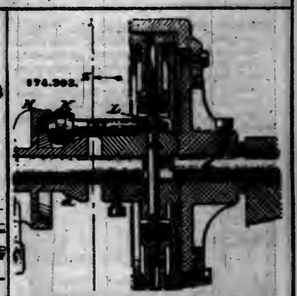
176,912. LOCKS FOR POCKET-BOOKS. D. M. Read, New York, N. Y. [Filed Sept. 17, 1875.]



The combination of case A, having two or more loops, and the flanged-edge legs *a'*, the latch B having shoulder *c*, and the catch D on plate E secured to flap of the pocket-book, substantially as and for the purpose specified.

176,913. FRICTION-CLUTCHES. E. Reynolds, Providence, R. I. [Filed Feb. 2, 1876.]

Brief.—Two shafts in the same axial line—on one a band-pulley, on the other a hub with radial slatches, made to expand and press on the inner periphery of the pulley by means of a non-rotating sleeve having two friction-surfaces, against either of which, by revolving along them, a double-cone pulley, parallel to and rotating in a bearing affixed to the hub, operates a tapered wheel.



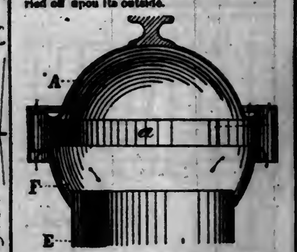
176,913.

1. The combination, in a friction-clutch, of the longitudinally-adjustable but non-rotating reversing-sleeve H, having an outer friction-surface, *c*, and inner friction-surface *d*, with the double-faced friction-wheel K, made not only to rotate on its own axis, but also to revolve in concentric relation with the non-rotating reversing-sleeve H, or around the axis of the latter, and between its outer and inner friction-surfaces *cd*, substantially as specified.

2. The combination, with the rotating and revolving double-faced friction-wheel K, and longitudinally-adjustable but non-rotating reversing-sleeve H, having outer and inner friction-surfaces *c* and *d*, of the screw *f*, one or more worm-wheels, L, one or more screws, M, one or more friction clamps or shoes, E, and the pulley or body F, rotated by the clamps, essentially as herein set forth.

176,914. VENTILATORS. Andrew J. Robinson, Troy, N. Y. [Filed Feb. 6, 1876.]

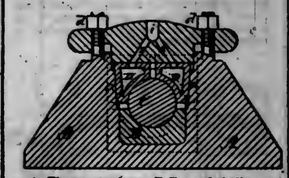
Brief.—The cap or upper end of this ventilator-shaft is so constructed that currents of air are prevented from driving down the shaft, and water falling upon the dome in carried off upon its outside.



In combination with the shaft E and segment F, the shield H and the dome A, with its perforated upturned base, substantially as described.

176,915. JOURNAL-BOXES. W. H. Robinson, Reading, Pa. [Filed Jan. 22, 1876.]

Brief.—The flaring sides of the pedestal, receiving the upper divided half of the journal-box, cause said parts to incline to the center as they are pressed by the cap, thereby insuring a close fit.

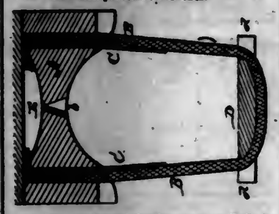


1. The quarter-boxes D D, made hollow to form oil-receivers, and provided with wicks A, in combination with the cap E and its passages, as shown and described.

2. The combination of the pedestal A having inclined sides *a a*, the lower half-box B, journal C, bisected upper box D D, forming oil-receivers, and having wicks A, and the cap E with oil-passages *f g*, all constructed substantially as and for the purpose set forth.

174,806. CAR-AXLE BOXES. Jas. T. Robinett, Petersburg, and Chas. H. Brown and George T. Platzett, Richmond, assignors to Joseph Bryan (attorney for said assignors) and George L. Wortman, Richmond, R. A. Davis, Petersburg, and J. Stewart, Henrico County, Va. [Filed Nov. 18, 1875.]

Brief.—A weighted vibk hung from above and lined with perforated leather.



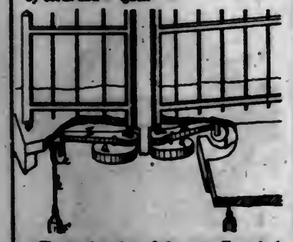
1. The perforated leather aprons G G, in combination with the wabbing B and brass or bearing A, substantially as and for the purposes herein set forth.

2. A weight or weighted plate, D, in combination with the wabbing B and brass or bearing A, substantially as and for the purposes herein set forth.

3. The brass or bearing A, provided with chambers E in its upper surface and passages leading therefrom, in combination with the wabbing B and the top G, having cross-groove h in its upper surface, substantially as and for the purposes herein set forth.

174,807. DRAW-BRIDGE GATES. Jacob Schwemmer, Chicago, Ill., assignor of one-half his right to Johann Suhr, same place. [Filed Jan. 28, 1876.]

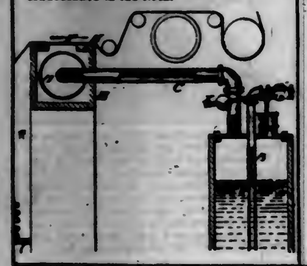
Brief.—The gates are operated by lever-arms below the floor, carrying eccentrically-pivoted rollers, acted upon by the end of the draw-span. The levers are returned to place by cords and weights.



The combination of the arms E, cords h, weights F, and rollers G with gates D D', erected at the approach of a draw-bridge, and adapted to open and close the same by the action of the draw-span, substantially as described.

174,808. FIREPROOF CLOTH. Chas. H. Steinmeyer, Allenside, Canada, assignor to Richmond Western Company, same place. [Filed Nov. 10, 1875.]

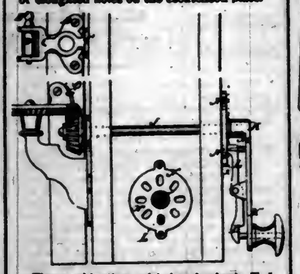
Brief.—Steam is passed through a tank of water before passing to the perforated distributor, by which its surplus heat is removed, and it more readily is deposited in condensation in the cloth.



The combination of close tank A, to be partially filled with water, an induction-pipe, B, connected with the steam-space of a boiler, and extending into the tank below the water line, the eduction-pipe C, and the perforated cylinder D in box E, as and for the purpose specified.

174,809. SHUTTER-WORKING. Abraham W. Seaver, 2d, Northborough, Mass. [Filed Dec. 4, 1875.]

Brief.—The only novelty being the spring-held lever, working through the knob of the crank-handle, its detent engaging with a circle of elongated holes on the escutcheon-plate.



The combination, with bevel wheels H I, shaft J, and crank K, of spring-held lever L, pivoted to lugs of crank, and having toe at inner end, pin O passing through knob of handle, and resting against outer end of lever and the plate N, having a circle of elongated holes, as and for the purpose specified.

174,810. PIANO-LID SUPPORTS. J. B. Shaw, Cambridge, Mass. [Filed Dec. 13, 1875.]

Brief.—A triangular rest to put upon the top face of the back part of a piano-case cover, and support at an angle the lid portion of the cover while the instrument is open. It is an efficient substitute for the piles of books against which the lid is frequently allowed to rest.



As a new article of manufacture, the triangular piano-top supporter herein described, adapted to stand alone, and having two combined surfaces, substantially as and for the purpose set forth.

174,811. COOLING-BOARDS FOR CORPSES. Noah T. Shaw, Newark, Ohio, assignor of two-thirds his right to Wm. Sturgeon and John M. Swartz. [Filed Aug. 26, 1875.]

Brief.—A vertically and laterally adjustable head-rest. A swing-frame is detachable, and (as do the legs) folds against the board.

1. A cooling-board provided with a perforated bottom, and having a frame erected thereon to support a curtain or covering, substantially as and for the purposes herein set forth.

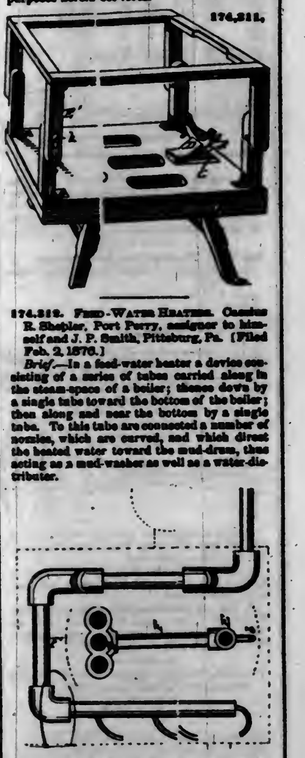
2. The combination, with the frame A, of the laterally-rotating block C, hung upon horizontal bearings, and the adjustable head-rest D, attached to the block C, whereby the head-rest has motion vertically and circularly at right angles to the axis of the supporting-block, all substantially as set forth.

3. The combination, with a cooling-board, A, of the hinged corner-posts E, having posts F pivoted thereto, and the frame G hinged to the posts F, all substantially as and for the purposes herein set forth.

4. The combination of the cooling-board A, folding legs B, resting block C, adjustable head-rest D, hinged posts E F, and frame G, all constructed substantially as and for the purposes herein set forth.

174,812. FEED-WATER HEATERS. Cassius R. Shapley, Port Perry, assignor to himself and J. P. Smith, Pittsburg, Pa. [Filed Feb. 2, 1876.]

Brief.—In a feed-water heater a device consisting of a series of tubes carried along in the steam-space of a boiler; thence down by a single tube toward the bottom of the boiler; then along and near the bottom by a single tube. To this tube are connected a number of nozzles, which are curved, and which direct the heated water toward the mud-drum, thus acting as a mud-washer as well as a water-distributer.



1. A feed-water heater, provided with a series of nozzles arranged to inject the water in jets against the bottom of the boiler, as and for the purpose described.

2. The combination of the series of pipes D, arranged in the steam-space, with the connecting-pipe F, and the pipe H arranged in the bottom of the boiler and provided with nozzles h, as and for the purpose described.

174,813. POST-DRIVERS. Wm. J. Shelton and Wilson W. Smith, Johnsonville, Tenn. [Filed Aug. 26, 1875.]

Brief.—The hammer-guides are vertically and horizontally adjustable, and the supporting-brasses are adjusted by a drum eccentrically pivoted. The horizontal beam has a hinged outer section, to turn it out of the way of the posts. The frame is provided with double-inclined side bolsters and transverse double-inclined and bolsters, and secured by blocks under each end.

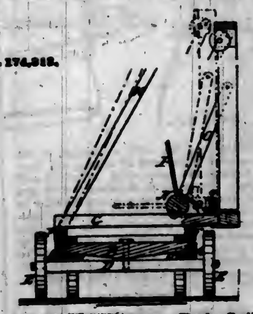
1. In a portable post-driver, the combination of the vertically and horizontally movable hammer-guides I, with their holding-pins, the pivoted supporting-brasses H, and a mechanism for adjusting the guides, substantially as and for the purpose set forth.

2. The combination of the pivoted hammer-guides I, the pivoted supporting-brasses H, drum E, eccentrically pivoted links or arms O, and chain K, with the truck-frame and hammer mechanism of a portable post-driver, as and for the purpose set forth.

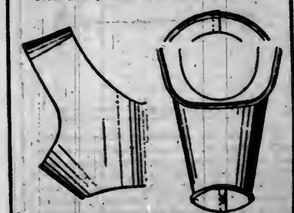
3. The combination of the horizontal rest or beam G, having a hinged outer section, G', with the guide-standards, brasses, and the hammer mechanism, as and for the purpose set forth.

4. The double inclined side bolsters F F of the upper frame, in combination with the double inclined axle-bolster B of the main frame, and the adjustable blocks a a, as and for the purpose herein set forth.

174,814.

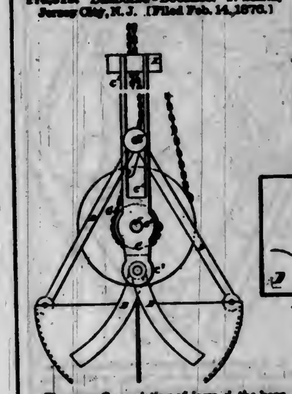


174,814. COAL-SHOVELS. Charles Smith, New York, N. Y. [Filed Oct. 5, 1875.]



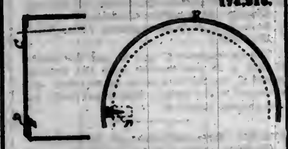
A coal-hod, the body and spout of which are formed of a single piece of sheet metal, having openings for the mouth b and for the reception of the bars or bottom, substantially in the manner herein shown and described.

174,815. DREDGING-BUCKETS. T. Smith, Jersey City, N. J. [Filed Feb. 14, 1876.]



The arms C, consisting of jaws c, the bearings c', and the slotted upper parts c', made in one solid piece, substantially as herein shown and described.

174,816. SNAP-METAL GAME. D. Steiner, New York, N. Y. [Filed Feb. 1, 1876.]



1. The manner of securing the top of a can by notching or omitting to fasten a part of the edge of the top, and closing the notch or unfastened part with a material that can be readily penetrated by the opening instrument, substantially as set forth.

2. The combination of the tongue or guard E with the notch D, for the uses and purposes substantially as shown and described.

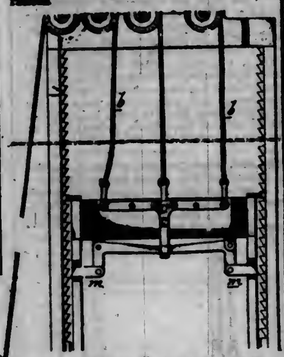
174,817. PISTON-PACKINGS. Wm. W. St. John, Pisgah, Mo. [Filed Oct. 2, 1875.]



The combination, with a grooved piston-head, of the packing-ring E, graduated in width, and so applied that its broadest portion is on the under side of the piston-head, as shown and described, for the purposes specified.

174,818. SAFETY HOISTING APPARATUS. Samuel R. Stokes, Jr., Philadelphia, Pa. [Filed Jan. 7, 1876.]

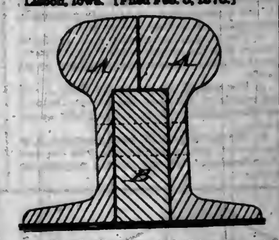
Brief.—A cleat rope on each side of the hoisting one will, on the breakage of the latter, tighten to unhook levers from the point of suspension, and to press downward a link pivoted to the ends of ball-crank levers, which have catches that enter into vertical side sections.



1. The combination, in hoisting apparatus, of the main rope d, a loose safety rope or ropes, b b', on which there is no hoisting-strain, and a drum, D, for winding and unwinding all the ropes at the same speed, with the safety-catches n and mechanism, substantially as described, through the medium of which the safety-ropes are caused to operate the catches when the main rope breaks, all substantially as specified.

2. The hooked arms G G', for retaining and releasing the main hoisting-rope, the said arms being connected to the cage-operating mechanism, in combination with devices, substantially as described, whereby the safety rope or ropes are caused to release the said hooks from the main hoisting-rope.

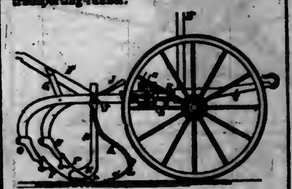
174,819. RAILROAD-RAILS. Samson Sutton, Lisbon, Iowa. [Filed Feb. 5, 1876.]



A railroad-rail constructed of two symmetrical rail-sections joined in longitudinal direction and having a central wooden rail or core, substantially in the manner and for the purpose set forth.

174,820. CULTIVATORS. M. S. Turbington, Indianapolis, Ind. [Filed Dec. 4, 1875.]

Brief.—Cultivator without tongue; plow-beam couplings also hold upright the arched axle. Draft-frames and wheels rigid with each other, and both horizontally pivoted to the axle. Block to carry the fender-bars and the transporting-runner.



1. The independent arch-supporting boxes B B', arranged with a grooved recess in each half of the box, so as to clasp a collar, c, attached to the wrought-iron axle B', and also provided with openings w w above and below the collars c, in which operate the studs a' a' to form an independent support of the arch B', as shown and described.

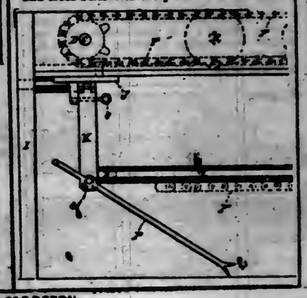
2. The coupling-beam E, constructed to support the upright arch D', in combination with the flanged plates F, having vertical slots, and with gib-slides S, provided with the brass-bags T, substantially as described and shown, for the purposes set forth.

3. The horizontally-pivoted draft-bars O, having the projecting lugs P' and wheel-spindles P', rigidly attached thereto below and in front of the axle, and the cam O', in combination with the arched axle B, having the flanged blocks B', horizontally pivoted to said draft-bars, substantially as shown and described.

4. The fender-clamps U, provided with flanges, to clasp the plow-beam, a rest, upon which the shoe-arm K rotates, and a cored aperture, to receive the fender-bar H, as shown and described.

174,821. MACHINERY FOR FORMING METAL TUBES AND SHELLS INTO A FURNACE. S. P. M. Tucker, Philadelphia, Pa. [Filed Feb. 7, 1876.]

Brief.—The sketch is made to engage alternately two loose pulleys, connected by direct and cross belts with the power-shaft.



1. The combination of the endless chain F with the double acting clutch E and pulleys L^1 and L^2, for giving a reciprocating motion to the chain, substantially as set forth.

2. The slide J, having an arm, K, in combination with the endless chain F, for the movement of a tube or sheip, substantially as set forth.

3. The arm K, hinged to the slide J, and adjustable by means of the pin *e* and holes *f*, or other suitable device, substantially as set forth.

4. The pushing rod P, having a crutch, h, at its forward end, in combination with the arm K, substantially as and for the purpose set forth.

174,893. SPINNER. John G. Taylor, Baltimore, Md. [Filed Jan. 28, 1876.]

Brief.—A spinner with swinging seats.

1. The combination of a rocking platform, a series of transverse frames erected thereon, and one or more swinging seats suspended from each frame above the platform, as substantially as shown and described.

2. The combination of the notched standards A, platform D, with bar C, gates G, frames H, and swinging seats J, as and for the purposes herein set forth.

3. The combination, with the rocking platform D, of the pendent beam K, lever L, braces M M, and rods O, for the purposes herein set forth.

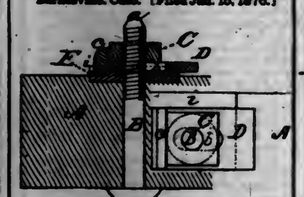
4. The rods *d*, with adjustable weights *b*, in combination with the rocking platform D, for the purposes herein set forth.

174,894. FRICTION-CLUTCHES. J. Turner, Chicago, Ill., assignor of one-half his right to A. J. O'Leary, same place. [Filed Sept. 18, 1875.]

The two clutches C and D and the shafts B and A in combination with the toothed wheel E, the clutches being constructed and arranged in the manner herein set forth, for the purpose specified.

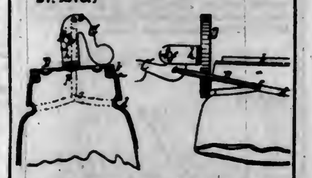
174,895. EXPLOSIVE SHELLS. Hiram Tyler, Geneseo, assignor of two-thirds his right to Ward V. Ranger, Syracuse, and Wm. H. Kelsey, Geneseo, N. Y. [Filed Aug. 20, 1875.]

174,896. NUT-LOCKS. Robert P. Thomas, Barnesville, Ohio. [Filed Jan. 15, 1876.]



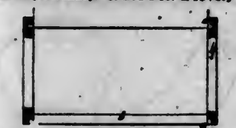
The washer B, recessed into block A, and having flanges *c c*, in combination with the slotted locking-plate D, having lip *e*, bolt E, and nut G, substantially as and for the purpose set forth.

174,897. FRUIT-JAR STOPPERS. William Vom Hofe, New York, N. Y. [Filed Jan. 27, 1876.]



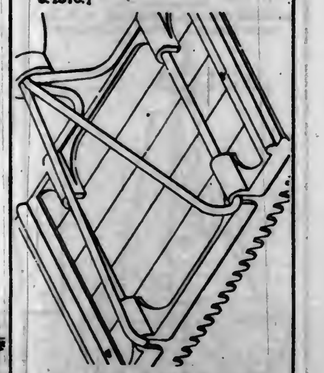
The combination, with a fruit-jar, of the cam guide *d* on the neck of the jar, and having recesses *c*, a yoke which swings in said recesses, a lever which is provided with two holes, one to receive the yoke and the other to receive a pivot, which forms the connection between said lever and the cover of the jar, a gasket-supporting shoulder below the lip edge of the jar, and a cover having a rim to bear on the gasket, all constructed and operating substantially as shown and described.

174,898. BOXES. W. Von Durbin, Bremerhaven, Germany. [Filed Feb. 4, 1876.]



A box the end pieces of which are provided with oblong cavities near their rear edges, and with recesses at their front edges, in combination with a cover provided with tenons to engage with said oblong cavities, and with lugs to engage with the recesses in the end pieces, all constructed and operating substantially as shown and described.

174,899. CURRY-COMBS. Thos. J. Walsh, New York, N. Y., assignor to himself and C. D. L. Holmes, same place. [Filed Jan. 6, 1876.]



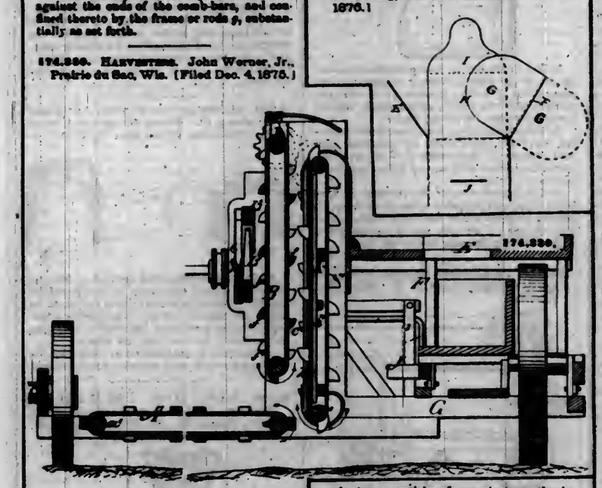
1. A curry-comb provided with a side handle and with legs at the back, to which the handle is connected through the medium of a frame or rods, as set forth.

2. The continuous wire rod passing through legs at the back of the frame, and constituting the supplementary handle, substantially as set forth.

3. The combination of the toothed bars, the rods connecting the bars and side handle, and a plate or plates bent or cast to form loops, by which the rods are connected to the bars, substantially as set forth.

4. The back pieces, having their bearings against the ends of the comb-bars, and confined thereto by the frame or rods *g*, substantially as set forth.

174,900. HARVESTERS. John Werner, Jr., Prairie du Sac, Wis. [Filed Dec. 4, 1875.]



1. The reel-shaft L, having its bearings in the slide L^1, adjustably applied to the free end of an arm, M, in combination with the equalizing-lever N, lever L^2, and endless belt *m*, substantially as and for the purpose set forth.

2. The reel-shaft L, having its bearings in a slide, L^1, adjustably applied to the free end of a long arm, M, in combination with the adjusting-levers P L^2, the endless driver *m* and its pulleys, and the equalizing-lever N, substantially as described.

174,901. ANTI-FRICTION BEARINGS. A. G. White, Pittsburg, Pa., assignor of one-half his right to J. Bigley, same place. [Filed July 20, 1876.]



As a surface-lining for frictional bearings, the within-described collstar stag-horn, used in its natural state, and applied in the manner and for the purpose substantially as described and shown.

174,902. PAPER BOXES. George M. White, Derby, assignor of two-thirds his right to Robert T. Clarke, Bridgeport, and Francis J. Sterling, Derby, Conn. [Filed Jan. 26, 1876.]

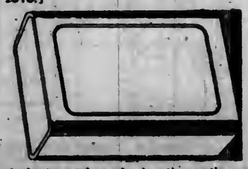
1. As an article of manufacture, the box herein described, consisting of a single-piece cut blank, having a principal or body portion which forms in folding the sides of the box, and from which project an elongated locking-strap, together with correspondingly attached top and bottom flap-pieces oppositely located, one of the top flaps being provided with a lateral extension guard-piece; the entire blank being creased and folded along the dotted lines to form the completed box, substantially as herein shown and described.

2. A blank for a manufacturer's box, having a principal or body portion, A A B B A', adapted to form, when folded, the sides of the box, and from which projects an elongated locking-strap, D, and correspondingly attached top and bottom flap-pieces C C and E F, oppositely located, one of the top flaps being provided with a lateral extension or guard-piece G, the entire blank being adapted to be folded along the dotted lines to form a box, the whole being constructed substantially as described.

174,903. HOSE-REELS FOR OIL AND OTHER CANS. Frederick W. Wiesebrock, Brooklyn, N. Y. [Filed Sept. 23, 1875.]

In a nozzle for oil or other cans, the hollow stem A, provided with screw-threads *a*, holes *a' a'*, and groove or air-vent *c*, valve-seat B, and plate F, with or without the plate F', the whole constructed and arranged to operate substantially as described.

174,904. SHEET-METAL CANS. William A. Wicks, Baltimore, Md. [Filed Jan. 26, 1876.]



A sheet-metal can having the continuous flanged ends and rounded corners, substantially as described.

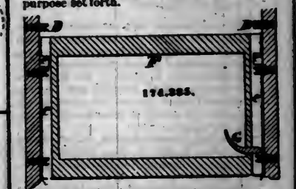
174,905. WINDOW-SCREENS. J. S. Williamson, Saugus, N. J. [Filed Jan. 29, 1876.]

1. The frame E, having its sides plowed or grooved at *c*, and provided with gauze or netting F, in combination with the studs or screws D, inserted in the frame A, substantially as shown and described.

2. The frame E, having grooves *c* and slots *c'*, for the lateral passage of the studs D, substantially as shown and described.

3. In combination with the window-frame A and sliding frame E, the studs or screws D, arranged in vertical lines for the retention and sliding of said frame E, substantially as shown and described.

4. In combination with a window-frame, A, and sliding screen-frame E, the folded rubber or cloth guard-strip H, attached to the sides of the latter, substantially as and for the purpose set forth.



174,906. LIQUID-METERS. Theodor L. Witt, Hochst, near Frankfort-on-the-Main, Germany. [Filed Jan. 31, 1876.]

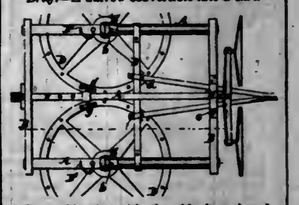
Brief.—Passages and partitions formed in a meter direct the water, so that it enters in equal quantities through induction-ports in circular partition, upon opposite sides of a chamber inclosing a rotating float, and flows out in equal quantities through eduction-ports formed in said circular partition upon opposite sides, thereby securing an equalization of fluid-pressure upon opposite sides of the float-wheel.



In combination with the circular partition surrounding the float-wheel W, and having the induction-ports c^1 and c^2 placed opposite each other, and eduction-ports c^3 and c^4 placed opposite each other, the section S^1 having the inlet I and the outlet O, the passages C^1 C^2 C^3 C^4, and the partitions P^1 P^2 P^3 to guide the liquid in its inlet, and also in its efflux, to opposite sides of the float-wheel W, substantially as described.

174,907. CONVERTIBLE ROTARY HARROWS. T. Woodard, Memphis, Kansas, assignor to himself and J. M. Palmer, same place. [Filed Sept. 23, 1875.]

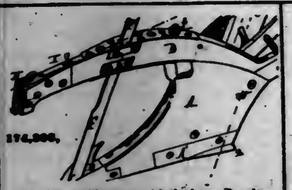
Brief.—A harrow convertible into a cart.



In combination with the side bars A and cross-bars B, the wheels D, having the eyes E E fitted upon and loosely embracing the side bars, and a device passing through the eyes and side bars for securing the eyes in their adjustable positions, as and for the object specified.

174,908. PLOWS. J. W. Wright, Wyandotte, Mich. [Filed Nov. 22, 1875.]

Brief.—The colter passes through a larger slot in the beam, beveled from each side to the center, which center ridges form bearings, on which the colter is balanced laterally, and held at any adjustment by four staples, so as to be in line with the land-side at different adjustments. Socket and blocks for vertical adjustment of the draft.



174,808.

1. The combination, with the beam D, colter F, and stirrups g g, of the land-side A, cast with an enlargement at the head of the same, the slotted socket d in such enlargement, and the T-headed bolt E, whereby the land-side and colter are adjusted laterally and kept in line with each other, the several parts being constructed and arranged substantially as described and shown.

2. In a plow, the combination, with the beam D, of a colter, F, and the four stirrups g, all constructed and arranged substantially as described and shown.

3. The ribbed or flanged plates H H, blocks a, and latch l, for securing and adjusting the clevis G to the end of the beam, substantially as set forth.

174,809. STOCKINGS. Chas. E. Wakeman, Pontiac, Mich., assignor of one-half his right to Porter A. Hitchcock, same place. [Filed Dec. 28, 1870.]



As a new article of manufacture, a felted knit woolen sock, provided with a lining of woolen loops, substantially as herein set forth.

174,810. LETTER-BOXES. F. D. Bennett, Jackson, Mich., assignor to himself and C. D. Bennett, same place. [Filed Dec. 20, 1875.]

Brief.—A letter-box with a hinged compartment and hinged flap, so arranged that when opened both compartment and flap fall into lower positions, the flap exposing a different color.

1. In a letter or newspaper box, the combination of, a frame, a box or receptacle hinged or pivoted thereto, and a lid, also hinged to the frame, and holding the box or receptacle in position, and so arranged that by raising the lid the box will fall or turn to disclose a differently-colored face, for the purposes herein set forth.

2. In a letter or newspaper box, the combination of a swinging box and a swinging flap, substantially as and for the purposes herein set forth.

3. The combination of the base A, cross-bars B B, with plates C C, hinged lid D, with flange h, and the swinging box G, with the swinging flap J and the guard H, substantially as and for the purposes herein set forth.

174,811. CAR-AXLE BOXES. Chas. H. Cox, Richmond, assignor to J. Stewart, Henrico County, Va. [Filed Nov. 18, 1875.]

Brief.—Adjustable to both narrow and broad gages.



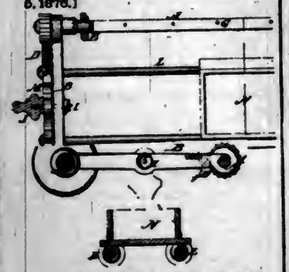
174,812.

1. The combination, with a car-truck pedestal, A, of the slide B, having flanges a a, the journal-box C, having grooves d d in its upper surface, and the pin D, substantially as and for the purposes herein set forth.

2. The combination, with a car-truck pedestal, A, of the journal-box C, provided with side flanges or projections b b, and the clevis G, substantially as and for the purposes herein set forth.

3. The combination of the pedestal B, having hooked and flanges h h, the journal-box C, having grooves d d in its upper surface, and side flanges i i, and the pin D, substantially as and for the purposes herein set forth.

174,813. BREECHBORE-FRAMES. Ernest W. Karker, College Point, N. Y. [Filed Feb. 5, 1876.]

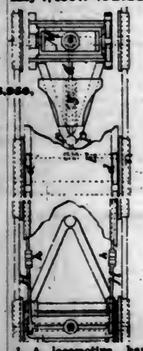


1. The rollers A, constructed as described, and provided with a ratchet, C, and pawl D, and pieces B, pivot-bolts l, nuts J, and the stand M, all combined and arranged substantially as specified.

2. The sliding work-box N and rods l, combined with the stand M and roller-frame A B, substantially as specified.

REISSUES.

6,949. LOCOMOTIVES. Wm. S. Hudson, Paterson, N. J. Patent No. 64,639, dated May 7, 1867. [Filed Dec. 7, 1875.]



1. A locomotive having driving-wheels under the central part, and a laterally-moving truck under each end, combined for joint operation, as herein specified.

2. In combination with the body of a locomotive and, with a laterally-moving truck under each end thereof, the within-described equalising-levers H A adapted to equalize between the rear drivers C and the top portion of the rear truck, and to allow the lateral movement of the running-gear of the rear truck, without disturbing the action of the equalising-levers, substantially as herein set forth.

3. The equalising-lever G g and cross-lever E mounted at the front of the locomotive, and combined with the forward truck and forward drivers, substantially as represented, so as in connection with the laterally moving truck at the rear, and the system of equalising-levers at the rear, to support the weight on the three points g h b by independently-equalising systems of levers and wheels, substantially as and for the purposes herein set forth.

6,951. MANUFACTURE OF PICKS. J. C. Klein, Pittsburg, Pa. Patent No. 146,697, dated Jan. 20, 1874. [Filed Feb. 17, 1876.]



1. The within-described method of forming the eye of picks, consisting in first punching the bar; second, in setting down the metal on either end around the eye; and, lastly, drawing down on a mandrel between rolling-dies, substantially as described and shown.

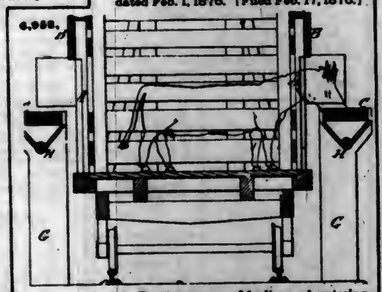
2. The dies E, constructed as described, for drawing down the eye, substantially as shown.

6,952. GLOBE-VALVES. John N. Matlock, Brooklyn, N. Y., assignor to Baker, Smith & Co. Patent No. 158,206, dated Dec. 29, 1874. [Filed Jan. 5, 1876.]



The valve i, containing annular ribs and grooves in the face thereof, in combination with the screw-stem f, rigid arm h, and body c, substantially as set forth.

6,953. DEVICES FOR FEEDING AND WATERING STOCK IN CARS. John R. McPherson, Jersey City, N. J. Patent No. 173,035, dated Feb. 1, 1876. [Filed Feb. 17, 1876.]



1. For the purpose of feeding and watering animals in stock-cars while being transported by rail, a feed and water trough or troughs arranged parallel with the car-track, at a distance therefrom, free of the car-walls, and suitably elevated to present feed and water to said animals in or upon each car or stock-car when the train passing over said track is stopped at said troughs, the cattle remaining in or upon the car.

2. For the purpose of utilizing the ordinary cattle-cars for feeding and watering, the combination of each car, having side openings A for the heads of the cattle, with fixed trough-troughs C, at suitable distances on the track or at the depots, upon each side, from which the stock feeds and waters when the train is stopped for that purpose.

3. The combination, in a stock-car, of the sectional doors D E F, in which the intermediate sections E are combined with the long shutters B of the side openings, to furnish continuous side openings from end to end of the car, through which the cattle feed from the fixed track-troughs.

4. For the purpose of utilizing the ordinary cattle-cars for feeding and watering, the combination of such a car, having side openings A for the heads of the cattle, with fixed track-troughs C, as described, said troughs provided with divisions C' C' and water-supply pipes H, as herein set forth.

6,954. INSULATING TELEGRAPH-WIRES. J. Olmsted, Providence, R. I., assignor, by mesne assignments, to the Western Electric Manufacturing Company, Chicago, Ill. Patent No. 120,858, dated July 23, 1872. [Filed June 4, 1873.]

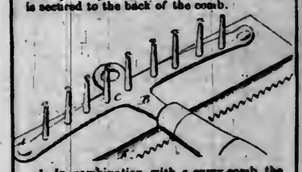
The method of insulating telegraph-wire, by first filling the pores of the covering, and subsequently compressing this covering, and thereby polishing its surface, substantially as described.

6,955. INSULATING TELEGRAPH-WIRES. J. Olmsted, Providence, R. I., assignor, by mesne assignments, to the Western Electric Manufacturing Company, Chicago, Ill. Patent No. 120,859, dated July 23, 1872. [Filed Dec. 22, 1875.]

An insulated telegraph-wire the covering of which has its pores filled and its surface polished, substantially as described.

6,956. CURRY-COMBS. Charles B. Bristol, New Haven, Conn., assignor to W. & H. T. Fitch, same place. Patent No. 83,767, dated Nov. 3, 1868. [Filed Jan. 10, 1876.]

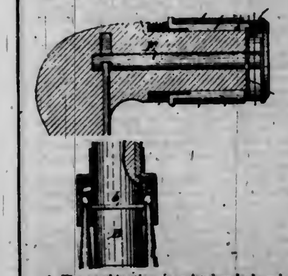
Brief.—A plate provided with conical teeth is secured to the back of the comb.



1. In combination with a curry-comb, the mane-comb consisting of the bar C and conical teeth a, substantially as described, and attached to the back of the comb.

2. In a curry-comb, the bar C, teeth a, and shank B, substantially as described, and attached to the back of the comb.

6,957. UMBRELLA-LOCKS. Henry Clarke, Baltimore, Md., assignor, by mesne assignments, to the Clarke Lock Company. Patent No. 100,396, dated Nov. 22, 1870. [Filed Feb. 14, 1876.]



1. The combination, in a keyless lock, substantially as hereinbefore set forth, of the locking-plate, the tumblers, arranged concentrically around and moving endwise through said plate, and the ring surrounding the tumblers and plate, beyond which ring the tumblers protrude, so as to be independently adjustable from the outside.

2. The combination, substantially as hereinbefore set forth, in a keyless lock, of a central shaft or spindle, a locking-plate mounted thereon, independent endwise-moving tumblers arranged concentrically around the spindle, and an enveloping-ring, beyond which the tumblers protrude, for the purposes specified.

3. The combination, substantially as hereinbefore set forth, of a locking-plate, tumblers moving endwise through said plate, a ring surrounding said tumblers and plate, and a band movable endwise on the ring.

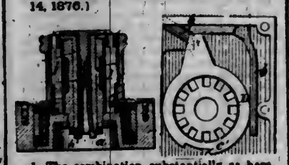
4. The combination, substantially as hereinbefore set forth, of endwise-moving tumblers, provided with laterally-projecting studs, and an enveloping-band, movable endwise upon the tumblers, whereby they may be all simultaneously moved in one direction by the band and afterward be independently adjusted by hand.

5. The combination, substantially as hereinbefore set forth, of endwise-moving active and passive tumblers, a locking-plate and enveloping-sleeve, and a shaft or spindle interlocking with an intersecting slide-bar.

6. The combination, substantially as hereinbefore set forth, of the turning locking-spindle of a combination-lock, a sliding sleeve, and a sliding bar, mounted on said sleeve and intersecting the locking-notch of the turning-spindle.

7. A keyless combination-lock consisting of the combination of a central shaft or spindle, a locking-plate mounted thereon, endwise-moving tumblers, an enveloping-ring, and an endwise-movable band surrounding said ring and tumblers.

6,958. COMBINATION SEAL-LOCKS. Henry Clarke, Baltimore, Md., assignor to the Clarke Lock Company. Patent No. 164,522, dated June 15, 1870. [Filed Feb. 14, 1876.]



1. The combination, substantially as hereinbefore set forth, of a dial or perforated face-plate, tumblers moving endwise through said face-plate, and a seal-plate, between which and the face-plate the seal is interposed to cover and prevent access to the tumblers.

2. The combination, substantially as hereinbefore set forth, of a tubular shaft, a dial or face-plate mounted thereon, tumblers moving endwise through said plate, and a seal-plate secured upon a locking-rod passing through said tubular shaft.

3. The combination, substantially as hereinbefore set forth, of a tubular spindle, endwise-moving tumblers surrounding said spindle, and a sea-plate through which the tumblers work.

4. The combination, substantially as hereinbefore set forth, of a tubular shaft carrying a dial or face-plate, endwise-moving tumblers, an enveloping-band, and a self-locking seal-plate.

5. The combination, substantially as hereinbefore set forth, of a lock-case, a central tubular sleeve, endwise-moving tumblers, an enveloping-band, and a self-locking seal-plate, whereby the parts may be removed and replaced by unfastening a central dial-shaft.

6. The combination, substantially as hereinbefore set forth, in a keyless combination-lock, of endwise-moving tumblers, a removable self-locking endwise-moving seal-plate, and a seal interposed between said plate and the ends of the tumblers, for the purpose specified.

7. The combination, substantially as hereinbefore set forth, of a turning-sleeve, its stop, endwise-moving band and its slotted compensating lining.

8. The combination, substantially as hereinbefore set forth, of the recessed lock-case, and the tubular dial-shaft, which holds the lock-case and dial together.

9. The combination seal-lock hereinbefore described, consisting of the combination of the case, slide-bolt, a turning-plate actuating said bolt, a central tubular spindle or dial-bolt, a self-locking seal-plate, endwise-moving tumblers, and an endwise-moving tubular band.

6,959. COMBINATION-LOCKS. Henry Clarke, Baltimore, Md., assignor to the Clarke Lock Company. Patent No. 135,523, dated Feb. 4, 1873; reissue No. 5,497, dated July 22, 1873. [Filed Feb. 14, 1876.]

1. The combination, in a keyless lock, of a fixed central shaft or spindle, single independent tumblers, arranged concentrically around, and movable endwise through guides supported on said spindle, a turning sleeve surrounding the tumblers, and a locking-plate, carried by said sleeve, these members being constructed and operating in combination substantially as hereinbefore set forth, whereby the tumblers may be set by the fingers independently of any key.

2. The combination, substantially as hereinbefore set forth, of a lock-case, a locking-plate turning therein, a turning sleeve interlocking with said plate, and projecting from the ends, endwise-moving tumblers surrounded by said sleeve, and endwise-movable band enveloping said sleeves and tumblers, and a removable shaft or spindle, which locks the parts together.

3. The combination, substantially as hereinbefore set forth, of a lock-case, a central spindle, a notched plate, and a perforated disk or face-plate carried thereby, endwise-moving tumblers working in guide-slots in the disk and plate, and the turning sleeve enveloping the tumblers.

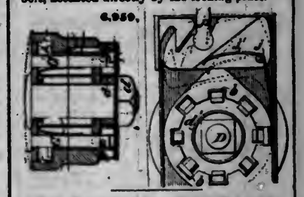
4. The combination, substantially as hereinbefore set forth, of the perforated face-plate disk, the endwise-moving tumblers, and the endwise-moving turning band surrounding the disk and tumblers.

5. The combination, substantially as hereinbefore set forth, of the central shaft or spindle, the perforated face-plate, the tumblers, movable endwise through said face-plate, arranged concentrically around said spindle, and independently adjustable to bring their notches into line with the locking-plate.

6. The combination, substantially as hereinbefore set forth, of the turning sleeve, the turning plate and disk, endwise-moving tumblers, inclosed by said sleeve and working through perforations in the face-plate disk, and the locking-bolt actuated directly by the locking-plate.

7. The combination, substantially as hereinbefore set forth, of the central spindle, its disk and plate, the concentrically-arranged tumblers, movable endwise through said disk and plate, the locking-plate, and the locking-bolt, actuated directly by the locking-plate.

6,960. HARNESS-SADDLE TREES. Braxton M. Kinne, Cuba, N. Y. Patent No. 150,960, dated May 12, 1874. [Filed Feb. 2, 1876.]





1. The combination of the concave tree B, the leather strips a a riveted thereto along the edges, and the jockey C stitched to said strips, all constructed substantially as and for the purposes herein set forth.

2. The combination of the concave tree B and jockey C with the concave pad-iron D and skirt G, the parts being connected together as and for the purpose set forth.

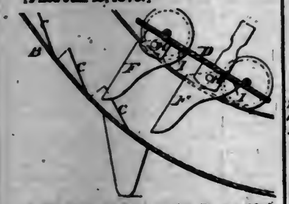
3. A gig-saddle tree consisting of two concave parts secured together by the bereits, with their concave sides facing each other, substantially as described.

4. A gig-saddle tree constructed substantially in the manner described, with the jockey tree and top seat and check-hook complete, detachable from the skirt, as set forth.

5. The concave pad-iron D, provided with

holes for the terret-shanks, holes for the admission of the nuts, and a centering-pin, in combination with the detachable concave tree B, covered by the jockey C, and provided with similar holes to be accurately attached to the pad by the terrets, substantially as described.

6,961. MACHINES FOR WASHING WOOL. J. B. Ashcroft, Philadelphia, Pa., assignor to C. G. Sargent & Son, Graniteville, Mass. Patent No. 148,603, dated Oct. 14, 1873. [Filed Jan. 12, 1876.]



1. The reciprocating carrier D, provided with yielding teeth F, constructed and arranged to operate substantially as shown and described.

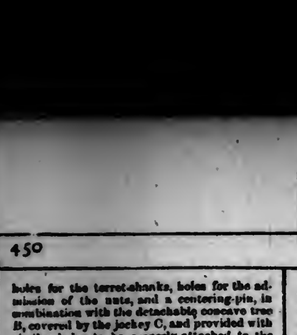
2. The combination of the stationary teeth C and the reciprocating carrier D, provided with yielding feeding-teeth F, substantially as shown and described.

3. In combination with the reciprocating carrier D, the teeth F, pivoted thereto and provided with the rear supporting-shoulders I.

4. In a wool washing machine, the combination of the following elements, namely, a tank or bowl to contain the liquid and the fiber, an inclined carrier, upon which the fiber may be carried from the fluid, and a series of reciprocating carrier-teeth, arranged to engage with the fiber as they advance, and to pass freely over the same as they recede.

6,962. APPARATUS FOR CLEANSING PRIVIES. Henry C. Bull, Brooklyn, N. Y., assignor, by mesne assignments, to Lewis R. Keiser. Patent No. 116,566, dated June 6, 1871. [Filed Jan. 11, 1876.]

Brief.—The cask is connected to the night-soil (when lowered into the vault) by a tubular funnel attached to its lower end. Cask is connected to the pump (on which the deodoriser is rigidly mounted) by a flexible tube. Pump produces in cask a vacuum, which is occupied by the night soil, which closes the air-outlet by forcing up a floating valve, whereupon connections of cask are resolved and its ends closed by screw-caps. Gases forced by pump through deodoriser.

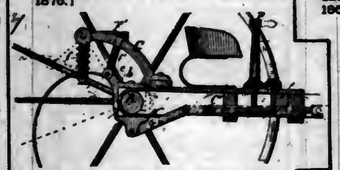


1. A privy-vault-cleaning apparatus consisting of an air-pump, a deodoriser, and suitable tubular connections, in combination with an independently-movable receiving-cask, having an induction passage or opening, and also an air-opening for connection with the air-pump, and provided with screw-necks at each opening, for receiving sealing caps or covers, substantially as described, whereby the movable cask may be hermetically sealed in any desired position with relation to the vault and privy, and the pump and deodoriser located in any desired position with relation to the vault, privy, and cask, and also whereby the casks, when filled, may be handled as is usual with filled casks, as set forth.

2. The combination, with a portable cask, having an induction-aperture at one end, of a check-valve, a screw-neck surrounding the aperture, a funnel-shaped pipe connected with the neck, and an air-eduction passage provided with a screw-neck, substantially as described.

3. The combination, with a portable night-soil cask, of a float-valve located at the air-passage, substantially as described, whereby the fluid matter is prevented from entering the air-passage and clogging the suction air-pipe and pump, as set forth.

6,963. HORSE HAY-RAKES. Samuel Leasig, Reading, Pa., assignor to Adam B. Keese. Patent No. 30,599, dated Dec. 27, 1859; extended seven years. [Filed Jan. 26, 1876.]



1. The combination, in a two-wheel horse-rake, of a rocking-head or tooth-support, and a draft-connection between said head or tooth-support, and the single-tree for raising the rake-teeth to discharge their load, by the direct draft of the team, substantially as described.

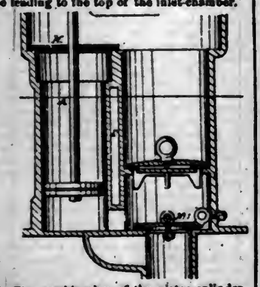
2. In a two-wheel horse-rake, having a center-draft connection between the tooth support and the single-tree by which the rake is drawn, a lever, operated by the driver in his seat on the machine, for transferring the draft or power of the team to the raising of the rake-teeth, substantially as described.

3. In a two-wheel horse-rake, in which the teeth are raised to discharge their load by the direct center-draft of the team, a lever, controlled by the driver in his seat on the machine, for resetting the rake-teeth to gather another load.

4. The combination, in a two-wheel horse-rake, of a rocking rake-head and a vibrating clearer or clearer-rods, with the draft-rod or single-tree, whereby both are vibrated to discharge the gathered load by the direct draft of the team, as described.

6,964. PUMPS. William Adair, Liverpool, England. Patent No. 78,854, dated June 16, 1868; antedated Apr. 5, 1867; reissue No. 6,028, dated Aug. 25, 1874. [Filed Feb. 24, 1876.]

Brief.—The discharge-head forms a water-chamber to keep the valve-cover of the plunger-cylinder submerged, thus obviating the necessity of a stuffing-box for the piston rod. The pump is double-acting, a branch inlet-pipe leading to the top of the inlet-chamber.



1. The combination of the piston-cylinder and the valve-chamber that contains the valves by which the water is supplied to and discharged from the lower side of the piston with an open water-head, so that said valves and the piston, or either of them, may be readily withdrawn, substantially as described.

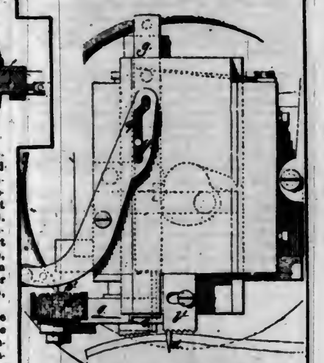
2. The combination of the piston-cylinder, the valve-chamber and its valves, by which the water is supplied to and discharged from the lower side of the piston, the water-head and a cylinder-cover, which is removable from the pump through the open water-head, substantially as described.

3. The combination of the valve-chamber and its valves, by which the water is supplied to and discharged from the lower side of the piston, with the open water-head, and a piston-cylinder, provided with a cover, acting as a discharge-valve, substantially as described.

4. The combination of the valve-chamber, piston-cylinder, and open water head, substantially as described.

5. The combination of an open water-head and piston c) linker with the valves, by which the water is supplied to and discharged from the piston-cylinder on both the up and down strokes of the piston, substantially as described.

6,965. PEGGING-MACHINES. Wm. G. Baldwin, Providence, R. I. Patent No. 38,463, dated May 12, 1863; antedated June 30, 1862. [Filed Sept. 17, 1875.]



1. In a shoe-pegging machine, a reciprocating cutter arranged to separate the fastening device from the material automatically fed to said cutter, the driver, the stock of which travels between closely fitting guides, and a spring arranged in direct contact with the driver-stock, all combined substantially as set forth, whereby the driver, with its stock, is reciprocated and acts in a direct line to drive the fastening device home at a single blow by the action of the spring, substantially as and for the purpose specified.

2. In a shoe-pegging machine, a reciprocating cutter arranged to separate the fastening device from the material automatically fed to said cutter; the reciprocating spring-pressed driver, the stock of the driver having a spring in direct contact therewith; and an adjustable retarder to regulate the force of the blow of the driver, all combined substantially as and for the purpose specified.

3. In a shoe-pegging machine, the combination of the driver, the stock of which travels between closely-fitting guides, on the latter having the spring arranged in direct contact therewith, with means, substantially as described, for raising the driver against the spring and allowing of its being released and driven in a direct line to force home the fastening device at a single blow by the action of the spring, substantially as and for the purpose described.

4. The combination, with the independent driver, of the atmospheric retarder, arranged to control and regulate the descent of said driver, as and for the purpose set forth.

5. The combination of the single cam m with the spring-pressed driver, the awl, and slides, whereby the driver and awl are vertically reciprocated and the slides laterally moved, substantially as and for the purpose described.

6. The combination, with the stock of the driver, constructed to move between closely-fitting guides and having the spring arranged in direct contact therewith, of a cam secured to the end of the driving-shaft, whereby the driver, urged solely by the spring directly connected therewith, is raised by direct pressure and is allowed to fall across the face of the cam-disk, substantially as and for the purpose specified.

7. The combination of the adjustable stop B with the cam m, for regulating the space between the fastening devices, substantially as described.

5. The combination of roughened rolls, adapted and arranged to feed the material to be sewed in fastening, with the driving-shaft and the intervening mechanism, substantially as described, whereby a positive and intermittent movement is imparted to the rolls, substantially as and for the purpose specified.

6. The combination of roughened rolls with the independent spring-pressed driver, the latter arranged to move in a direct line, to drive the peg home at a single blow by the action of the spring, the said rolls having an intermittent movement imparted to them by a pawl actuated by means substantially as described.

10. The combination, with the awl or piercing instrument, arranged to have a vertical movement independent of the driver and a lateral movement in unison therewith, with the stop E, for automatically feeding the shoe or boot the required space, substantially as and for the purpose specified.

11. The combination of the independently-moving driver, the stock of which travels between closely fitting guides and has the spring arranged in direct contact therewith, with an adjustable guide-plate for regulating the distance of the row of fastening devices from the edge of the sole, substantially as and for the purpose described.

12. The combination of the spring-pressed driver and the awl, the same constructed to be vertically reciprocated independently of each other in a direct line, and be together laterally moved any desired distance, substantially as and for the purpose specified.

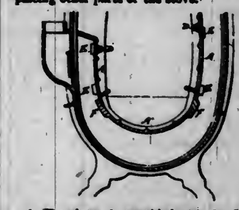
13. The combination of the awl, constructed and arranged to reciprocate in a direct line between closely-fitting guides and independently of the spring-pressed driver, with an adjustable guide-plate for regulating the distance of the row of holes for the fastening devices from the edge of the sole, substantially as and for the purpose specified.

14. In a shoe-pegging machine, the combination of a reciprocating and laterally-moving awl, constructed and arranged to be laterally adjustable independently of the driver, with a reciprocating cutter for separating the material automatically fed to said cutter, the awl and the cutter working in unison, substantially as and for the purpose described.

15. The combination of the reciprocating and laterally-moving awl, constructed and arranged to be laterally adjusted independent of the driver, as set forth, to regulate the distance between the fastening devices, with the independent driver, the corrugated or roughened feed-rolls, and the reciprocating cutter, substantially as and for the purpose described.

6,966. HEATING-STOVES. Chauncey H. Castle, Quincy, Ill., assignor to Comstock, Castle & Co. Patent No. 102,624, dated Apr. 27, 1870. [Filed Aug. 7, 1875.]

Brief.—The lining-plates, which, together with the stove-barrel, form the reversible smoke-flue, are removably secured, so that they may be adjusted or removed without displacing other parts of the stove.



1. The plates A, provided with the flanges F and F', in combination with a stove having apertures of a suitable size to permit the removal of the plates, and provided with the ears E and C, and the plates held in position by the bolts B.

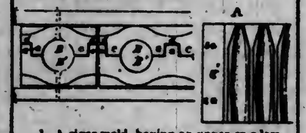
2. An improvement in Todd stoves, consisting of a lining made in one or more pieces separated from and combined with the stove-barrel or outer casing, to afford a space for the passage of the products of combustion between said lining and barrel, the said lining being capable of insertion into or removal from the stove without displacing any other portion of the stove.

3. An improvement in Todd stoves, consisting of a bottom plate separated from and combined with the stove-barrel to afford a space for the passage of the products of combustion between the plate and barrel, said plate being capable of insertion or removal, without displacing any other portion of the stove except the removable attachment.

4. An improvement in Todd stoves, consisting of a lining plate or plates separated from and combined with the stove-barrel to afford a passage for the products of combustion between the plate and barrel, and having a removable attachment operating against the lining-plate, which plate can be inserted or removed without displacing any other part of the stove except the removable attachment.

6,967. CIGAR-MOLDS. Napoleon Du Brul, Cincinnati, Ohio. Patent No. 114,922, dated May 16, 1871. [Filed Jan. 6, 1876.]

Brief.—Between the matrices are tongue-and-groove joints, and the mold can be made in sections, the division-joints of the sections coming between the matrices.



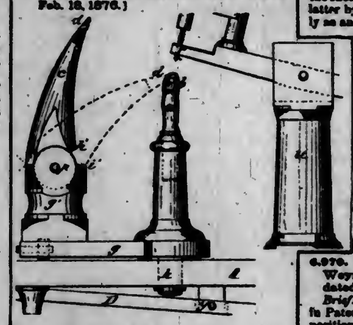
1. A cigar-mold, having an upper or a lower member constructed in sections of one or more matrices united to a rigid backing with the joints between them located in the divisions between the matrix-cavities.

2. The combination of the mold sections A A' A², bolting-lugs C C, and backing D, substantially as set forth.

3. A cigar-mold, constructed with an upper and a lower member fitting together with tongue-and-groove joints *c d e* between the mold-cavities, substantially as herein set forth.

4. A cigar-mold, constructed with an upper member having vertical flanges or followers *c e* fitting within the cavities of the lower member, and horizontal flanges *d d* resting on the edges of the partitions *e* between said cavities, substantially as shown.

6,968. SHOE-SUPPORTING MECHANISMS WHEN UNITING THE SOLES AND UPPERS. Eugene Lemercier, Paris, France, assignor, by mesne assignments, to the American Cable-Screw-Wire Company. Patent No. 37,866, dated Mar. 10, 1863; reissue No. 5,952, dated June 30, 1874. [Filed Feb. 12, 1876.]



1. The combination of the movable, vertical, and beak-shaped anvils or supports, so that either may be moved into or out of action, as the case may require, substantially as and for the purpose set forth.

2. The anvil *d*, arranged on a frame or arm, *f*, that turns around the axis of the other anvil, *a*, so that the face of either of the anvils that is for the time being in use shall be in the line of the axis of the screw that is being fed in, substantially as described.

3. An anvil for boot-work, made removable from its socket, in combination with a pivoted and swinging horn for the sole, capable of being brought into the position vacated by the boot-anvil.

4. The pivoted swinging beak-iron or anvil, supported by the abutting shoulders *b' g*, to resist the pressing action of the screw as it is fed in, and the pressure of the work-holding device, substantially as described.

5. A work-supporting beak-iron or anvil, substantially such as described, in combination with mechanism for presenting screws or screw wire, and a pressing device which operates to hold the work while the uniting screws are inserted in the soles and uppers of boots and shoes.

6. In combination with mechanism for presenting the screws to unite the sole and upper of a boot or shoe, and a pressing holding device for the work, a horizontally-revolvable horn or beak-iron, for the support and presentation of the work to the pressing device.

7. In combination with a pressing device, which operates to hold the work while the fastenings are inserted in the soles and uppers, a revolvable work-supporting beak-iron or anvil, having a solid imperforate hardened surface in the axial line of its movement, for the purpose of riveting the fastening.

8. A revolvable beak-iron anvil-support, having a solid imperforate hardened surface in the axial line of its movement, whereby to form a rester and riveter for the sole-fastening.

6,969. GIG-SADDLES. Andrew Ortmayer, Chicago, Ill. Patent No. 162,066, dated Apr. 13, 1875. [Filed Feb. 1, 1876.]

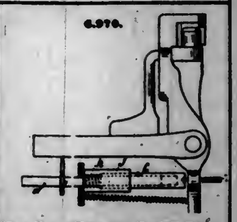


1. In a gig-saddle the combination, with the metal jockey, of the skirts A A, provided with the pockets *F F* to secure the plates or nuts *a a*, the said plates each having a screw-threaded hole for the reception of the terret-ring bolts, substantially as specified.

2. In combination, the metal jockey, provided with the check-hook D, fastened thereto by means of a nut on the under side of the jockey, and the removable pad O, having an opening in its upper face to allow the said nut and the bolt of the hook to enter the padding of the pad, substantially as and for the purpose specified.

3. The combination, in a gig-saddle, of the check-hook D with the removable pad O, having therein the loop *o'*, adapted and arranged to receive the check-hook, and extending across the forward end of an opening adapted and arranged to receive the nut and screw of the check-hook when the pad is fastened to the latter by means of the said loop, substantially as and for the purposes specified.

6,970. NAIL-PLATE FEEDERS. Benj. F. Rice, Weymouth, Mass. Patent No. 157,206, dated Dec. 1, 1874. [Filed Jan. 31, 1876.]



Brief.—Improvement on invention described in Patent No. 138,190. Consists in the interposition between the pusher-rod and the arm for actuating the griping mechanism of a socket-piece, in which said rod slides, and a spring (inclosed in a sleeve) bearing against the end of the socket-piece and a collar on the pusher-rod, the object being to cause the griping mechanism to grasp the nipper-rod with yielding pressure.

1. In a feeding mechanism substantially such as described, a push-up rod composed of a rod acting directly in connection with the arm *e* or its adjusting-screw, a rod for abutting against a stop or fixed part of the machine, and a spring arranged to operate, in combination with said rods, in such a manner as to exert a yielding pressure on said arm as the feeding mechanism is worked, substantially as set forth and specified.

2. In a feeding mechanism substantially such as described, the thimble *j*, in combination with the rods *e f* and spring *h*, as and for the purpose set forth and specified.

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NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., October 5, 1875.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

R. H. DUELL, *Commissioner.*

NOTICE.

UNITD STATES PATENT OFFICE,
Washington, D. C., March 18, 1876.

Check-slips for ordering copies of patents issued since July, 1871, are now bound up in books of 50 and 100, and are for sale, respectively, at $5 and $10. Address Commissioner of Patents.

COMMISSIONER'S DECISIONS.

CARROLL *vs.* MORSE.—*Interference.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between Carroll and Morse for letters patent for* "IMPROVEMENT IN SPINNING-RINGS."—*Decided February 7, 1876.*]

An application for reissue should not be examined in the light of the state of the art as it existed subsequent to the filing of the original application.

66

There are no decisions that would relieve this class of applications from the revision and restriction to which they would have been subjected had the claims presented in the application for reissue been made in the original application.

An application for reissue can be properly put in interference with a patent granted prior to the filing of the original application.

SPEAR, *Acting Commissioner:*

This appeal is taken from a refusal of the Examiner of Interferences to grant a motion that the interference be dissolved. The questions raised have been very fully considered by the Examiner of Interferences, and, as I agree in his conclusion, I need not enter upon any extended discussion of them.

Both the Primary Examiner and Examiner of Interferences agreeing that the first claim made by Carroll covers the same matter as that shown in the Morse patent, I should not disturb their decision without manifest reason therefor. In that claim are these elements: A ring-holder adapted to rest on the surface of a ring-rail, a ring sustained by the holder, and movable above the surface of the ring-rail, and screws placed on opposite sides of the ring and holder for the adjustment of the ring.

I think that this claim is properly based on Carroll's model. It seems proper to say that the ring-holder rests on the surface of the ring-rail. It rests none the less because a part of the holder of less diameter enters into the hole in the ring-rail. The further inquiry is pertinent, whether or not this claim includes the construction shown in the patent of Morse. In that patent there is a ring made separate from the ring-holder like Carroll's. There is also a ring-holder resting upon the ring-rail, and the whole is made adjustable by set-screws.

There are also these differences. In the Morse patent the ring-holder has no shank entering the ring-rail, but is held down by screws passing through slotted ears into the ring-rail; and, further, both—that is to say, the holder and ring fixed thereon—are adjustable together. The differences are not so much to be regarded as the resemblances. It is the resemblance which brings both devices into one class, and makes them both subject to one generic claim. In reaching this conclusion, I look simply at the claim presented, the original patent on which it is based, and the devices shown by Morse.

As to the state of the art prior to these inventions, or the utility of Carroll's device, I am not informed, and it is not my duty now to inquire.

The interference is between an application for reissue and a prior patent; and the second reason which was urged for the dissolution of this interference is that the case comes within the decision of Judge Fisher in *Merrill* vs. *Carleton*, and because, as is alleged, no foundation exists in the law for the declaration of an interference between an application for reissue and any pending application or unexpired patent.

In the case of *Paris* vs. *Bussey* I went as far as the terms of that decision appeared to me to require. That was also in accordance with the decree more recently made of the Supreme Court in the case of Mayall, (OFFICIAL GAZETTE, vol. 5, p. 389.) In the case of Mayall an interference had been declared between an application for reissue of a patent and a patent granted subsequently to the date of the patent sought to be reissued.

In *Merrill* vs. *Carleton* the interference was between an application for a patent and an application for reissue of a prior patent.

The present case differs from those before mentioned in this essential respect, that the interference is declared between an application for reissue of a patent and a patent granted prior to the patents sought to be reissued.

The practice of the Office has been, I think, uniformly from the beginning, under the section numbered in the Revised Statutes 4916, to subject applications for reissue to an examination as to novelty, and judge them according to the state of the art as it existed at the time when the original application was filed. This was the interpretation of the clause in the section specified, requiring that the specifications and claim should be subject to revision and restriction in the same manner as original applications are. If, therefore, an applicant for reissue enlarged his claim so as to include anything shown in a publication or patent prior to the filing of the application on which his patent was based, then, in accordance with the invariable practice of the Office, he was rejected on such patent or prior publication. If the rejection were based upon the patent, and the applicant believed himself to have invented the matter in controversy before the invention thereof by the patentee on whose patent he was rejected, upon his request an interference would be declared with such patent precisely the same as is done in the case of an original application for patent under section 4904—that is to say, an application for reissue was subjected to revision and restriction in precisely the same manner as it would have been subjected to had the claim made in the application for reissue been made in the original application, and the party applying for reissue has been allowed the privilege of interference on exactly the same basis.

Now, as I understand the decision of the Supreme Court of the District of Columbia, the applicant for reissue should not be subjected to any inquiry as to the state of the art existing subsequent to the date of his original application. I do not understand the decisions of the court to go beyond this. If no interference can lawfully be declared between an application for reissue and any patent granted prior to the date of the patent sought to be reissued, then only one of two courses is open to the Office, either to reissue the patent as prayed for with any claim that could possibly have been based on the original application, without any regard to the state of the art when that application was filed, or to refuse such application altogether. The latter course would, so far as this Office is concerned, cut off the applicant for reissue from all remedy whatever. The former course would inevitably lead to this dilemma, that an applicant might make an application showing inventions patented any number of years before, and, provided that he had some improvement on the patented machine, might take out a patent with a limited claim without any interference with any prior patent, because there would be no conflict in the claims.

The patent so issued might, under the practice now urged upon the Office, be subsequently reissued with claims broad enough to include the invention previously patented, without any interference, and without having the question of priority of invention settled or even inquired into.

This would be a plain evasion of section 4904 of the Revised Statutes, which requires that the Commissioner, in case an application is made which would interfere with any unexpired patent, "shall give notice thereof to the applicants, * * * and shall direct the Primary Examiner to proceed to determine the question of priority of invention."

Nor would the instance which I have supposed be an exceptional one. It might happen in a very large number of cases. The two cases, therefore, that in which it is proposed to subject an applicant for reissue to interference with applicants or patentees, who have appeared in the Office subsequent to the date of his patent, and that in which it is proposed to judge applicants for reissue by the state of the art as it existed when their applications were filed, and to reject them on prior patents, or give them the opportunity to contest the question of priority of invention with prior patentees, are materially distinct from each other. Nor do I find that the courts have anywhere confounded these two cases.

It is clear, both from the cases cited by counsel for Carroll, and from others, that an application for reissue should not be examined in the light of the state of the art as it existed subsequent to his original application; but I find no decisions which would relieve this class of applications from the revision and restriction to which they would have been subjected had the claims presented on application for reissue been made in the original application.

In the case of *Grant* vs. *Raymond*, (6 Peters, p. 218,) which was decided before the statute relating to reissues was incorporated in the law, it was held, that "the new patent, and the proceedings on which it issues, have relation to the original transaction. The time of the privilege still runs from the date of the original patent. The application may be considered as appended to the original application."

So in *Shaw* vs. *Cooper*, (7 Peters, p. 314,) "The new patent has relation to the original transaction, and the application may be considered as appended to the original application." If the application may be considered as appended to the original application, I see no reason why it should not be revised and restricted precisely as the original application was, not only for the purpose of considering whether or not the claim and the description are the same as those set forth in the original application, but whether or not the thing claimed was new and original with the applicant. The purpose of the reissue is not to enable the applicant to set up any claims which he may choose, regardless of the state of the art, but for the purpose of enabling him to give a more perfect description of his invention. (*O'Reilly* vs. *Morse*, 15 How, p. 112.)

The terms of the act relating to reissues appear to me to clearly point out the duty of the Commissioner in respect to this matter. He is directed to subject the specifications and claims in every case of reissue to revision and restriction in the same manner as original applications are.

Now, the duty of the Commissioner in respect to the examination of original applications is not simply to see that no matter is introduced by way of amendment subsequent to the filing, which was not shown at the time of filing the application, for this would be a small matter, and of very infrequent occurrence; but he must distinguish between what is old and what is new in the application, judging it by comparison with the state of the art existing at that time. It must follow, therefore, that the revision and restriction of reissue applications, in order to be the same as in case of original applications, must cover the same ground. Any other view of the matter appears to me a departure from the plain sense of the words—a departure not required by the spirit of the law, or to harmonize any conflicting sections, and with no other result than a wholly mischievous one.

When an application, then, is made for the reissue of a patent, the duty of the Examiner is first to determine what the invention of applicant is. Whatever existed prior to his invention, in any patent, or printed publication, is not his invention; and both he and the Office are required to make a distinction between what is new, and of which a monopoly may be granted him, and what is old and must be denied him. In addition to this, the Office must decide whether this new invention, which so far as appears from an examination into the state of the art may be conceded to him, was in any way shown in his original application. An examination into the state of the art is the very basis on which must be determined what his invention is, and without which nobody can know, not even the applicant himself. What a man invents is not necessarily *his* invention in a patentable sense. It may be the invention of a former generation, and any examination of an application for reissue which would leave out of sight the state of the art would not half fulfil the plain requirement of the law. This was the view of Judge Dunlap, in *Wilson* vs. *Singer*, (Mss. Appeal Cases, D. C., 60.)

A patentee on application for reissue, may claim all those which were clearly exhibited in his original specification, drawings, and model, and which he might have legally claimed at the time of taking out his original patent.

The case of *Wilson* vs. *Singer* was that of an interference of an application for a reissue of a patent to Akin & Felthousen by J. G. Wilson, assignee, with a prior patent, which had been granted to Singer. A subsequent interference was declared between this application for reissue and another prior patent, after the decision of Judge Dunlap in favor of Wilson. This interference was dissolved by Judge Dunlap on other grounds than that urged here for the dissolution of this interference. But when the patent of Wilson thus obtained was brought into court, Judge Nelson held that the order of Judge Dunlap, dissolving the interference between the application for reissue of the Akin & Felthousen patent, and the patent of A. B. Wilson, was a nullity, and that the interference was proper and lawful. (*Potter* vs. *Dixon*, 5 Blatch., p. 160.)

I find no reason, therefore, for changing the practice of the Office in the treatment of applications for reissue in respect to the state of the art existing at the time of filing such applications, but, on the contrary, ample justification in adhering to the practice already established.

I must, therefore, sustain the decision of the Examiner refusing to dissolve the interference.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF ILLINOIS.

THE TUCKER MANUFACTURING COMPANY vs. LEVI C. BOYINGTON.

[*In equity.—Before* BLODGETT, *J.—Decided October*, 1875.]

It is a matter of discretion always with the court to issue an injunction or not, upon a case made in a trade-mark suit.

The words imprinted upon a patented article of manufacture are common property from the date of the expiration of the patent.

When a trade-mark consists of a combination of words, letters, monograms, and pictures, it is not infringed unless the whole combination be used.

BLODGETT, *J.*:

This is an application for an injunction to restrain the defendant from the use of the trade-mark which has been registered by the complainant in the manner required by the Act of Congress. As the record now stands, I don't think this injunction ought to issue. It is a matter of discretion always with the court to issue an injunction or not, upon a case made in a trade-mark suit. I cannot say but that the complainant may make a case upon final hearing that would entitle the complainant to an injunction; but it seems to me that it is not made as the record now stands. I have serious doubts whether the defendant infringes the complainant's trade-mark. The words "Tucker Spring-bed" were certainly common property from the date of the expiration of the Tucker patent in 1869. In January, 1875, the complainant, being the Tucker Manufacturing Company, and the party who had owned the patent during the lifetime of the patent, obtained the trade-mark, which consists of a perspective of the Tucker bed-bottom, with the letters "T. M. Co.," in monogram in the center of the picture, and over it are the words "Tucker Spring-bed." It strikes me very forcibly that this trade-mark is for the combination, and the defendant does not infringe unless he uses the whole combination. The defendant, Boyington, had the right to use a diagram of the spring-bed as common property, and it has been such since the expiration of the Tucker patent.

It seems to me that while this may be a valid trade-

mark, when all used together, yet, when the defendant manufactures the spring-bed, he has the right to designate it as the "Tucker Spring-bed," indicating that it is manufactured under the Tucker patent, and that he has, also, the right to put any colored label upon it that he chooses, so long as he does not, by his label, indicate that it is the manufacture of the Tucker Manufacturing Company. Now, the only semblance between the label used by the defendant and the plaintiff's label is that the defendant uses at the same time a perspective of the bed-bottom, and the words "Tucker Spring-bed." He does not use the monogram, and uses nothing but what is common property. It is true that he uses the same colored label as the complainant uses. There is no patent trade-mark upon the color. Either party has the liberty to adopt any color, green, blue, or all the colors of the rainbow; so that, as the record now stands, I think this injunction must be denied.

In passing upon a motion of this kind, which involves to a certain extent the merits of the case, I have, as far as possible, refrained from expressing any opinion that would prejudice the ultimate decision of the court. I think it is right that I should indicate the doubt I have, in order that counsel may determine for themselves whether the case shall go any farther or not.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 7, 1876.]

9,120.—Paper-Clips.—OTTO F. FOGELSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Application filed February 16, 1876. Term of patent 7 years.

9,121.—Thermometer-Stands.—CHARLES KITSCHELT, New York, N. Y., assignor to NICHOLAS MULLER'S SONS, same place. Application filed February 8, 1876. Term of patent 7 years.

9,122.—Font of Printing-Types.—ANDREW LITTLE, New York, N. Y. Application filed February 7, 1876. Term of patent 7 years.

9,123.—Flag-Staff Brackets.—JOSEPH P. MILLER, Philadelphia, Pa. Application filed February 16, 1876. Term of patent 3½ years.

9,124 and 9,125.—Inkstands.—HERMANN J. MÜLLER, New York, N. Y. Applications filed February 24, 1876. Term of patents 7 years.

9,126.—Floor Oil-Cloths.—THOMAS PENNELL, Lansingburg, N. Y., assignor to R. C. HASKELL, same place. Application filed February 22, 1876. Term of patent 3½ years.

9,127.—Perforated Paper.—GEORGE M. JACOCKS and JAMES W. TAFFIN, New York, N. Y. Application filed February 5, 1876. Term of patent 3½ years.

9,128.—Ranges.—SAMUEL H. RAMSOM, Albany, N. Y., assignor to S. H. RAMSOM & CO., same place. Application filed December 28, 1875. Term of patent 7 years.

9,129.—Badge.—ALEXANDER J. DALLAS, U. S. Army, assignor to ALEXANDER M. KENADAY, Secretary of the National Association of Veterans of the Mexican War, Washington, D. C. Application filed February 23, 1876. Term of patent 7 years.

9,130.—Medal.—RUDOLPH J. DELANY, Philadelphia, Pa. Application filed August 14, 1875. Term of patent 3½ years.

9,131.—Perforated Paper.—GEORGE M. JACOCKS and JAMES W. TAFFIN, New York, N. Y. Application filed February 5, 1876. Term of patent 3½ years.

9,132.—Lamp-Stands.—FREDERICK R. SEIDENSTICKER, West Meriden, Conn., assignor to THE BRADLEY & HUBBARD MANUFACTURING COMPANY, same place. Application filed February 21, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 7, 1876.]

3,485.—Perfumery.—LEON BACKER & CO., New York, N. Y. Application filed January 22, 1876.

"the figure of a crown above a shield, wherein is a figure of an ancient Roman galley, and which is printed upon a couple of crossed tree or vine branches."

3,486.—Flour.—CROCKER, FISK & CO., Minneapolis, Minn. Applications filed February 17, 1876.

"words 'CAP STONE.'"

3,487.—Whisky.—FRIEDBERG & WORKUM, Cincinnati, Ohio. Application filed February 3, 1876.

"words 'BONANZA PASS.'"

3,488.—Champagne.—A. FROHMANN & CO., Philadelphia, Pa. Application filed February 19, 1876.

"words 'UNION LEAGUE CABINET.'"

3,489.—Cement.—ALEXANDER KEILLER, Brooklyn, N. Y. Application filed December 20, 1875.

"word 'Eagle" and the figure of an eagle."

3,490.—Cigars.—FRANCISCO MARRERO, New York, N. Y. Application filed February 19, 1876.

"words 'LA FLOR DE MARRERO.'"

3,491.—Cigars.—J. FRANK MILES, Boston, Mass. Application filed February 19, 1876.

"word 'ELECTRIC.'"

3,492.—Baking-Powders.—C. A. NULSEN & CO., Cincinnati, Ohio. Application filed February 17, 1876.

"representation of a steamboat under full headway, and having on the pennant on the jack-staff the name 'Nulsen's,' and in a half-circle on the wheel-house the word 'Unrivaled,' and on a horizontal line across the wheel-house the words 'Baking Powder.'"

3,493.—Woven and Printed Fabrics.—POMEROY & PLUMMER, New York, N. Y. Application filed January 29, 1876.

"representation of the flag of the United States."

3,494.—Cooking-Ranges.—RATHBONE, SARD & CO., Albany, N. Y. Application filed February 21, 1876.

"word 'DELMONICO.'"

3,495.—Cigars.—M. STACHELBERG & CO., New York, N. Y. Application filed February 19, 1876.

"word 'PATRIOTA.'"

3,496.—Cigars.—M. STACHELBERG & CO., New York, N. Y. Application filed February 19, 1876.

"word 'NORMANDI.'"

3,497.—Cigars.—M. STACHELBERG & CO., New York, N. Y. Application filed February 19, 1876.

"words 'LA FLOR DE PERFECTO.'"

3,498.—Whisky.—MILLER STEWART & CO., Louisville, Ky. Application filed January 24, 1876.

"a figure or picture representing two whisky-barrels, one of which is represented as lying in a horizontal position, showing the end with the letters 'M. S.' marked thereon, while the other is represented as partially standing upon its end, leaning slightly against the left side of the first barrel, as shown in the drawing, the whole being inclosed within a square formed by marginal lines at the sides and bottom, but none at the top; but, in lieu thereof, a six-pointed star is inserted in each of the upper corners."

3,499.—Horse and Cattle Feed.—PETER H. RYMAL, Jackson, Mich. Application filed May 7, 1875.

"the representation of the heads of two animals joined together at the shoulder or base of the necks."

3,500.—Medicine.—EDWARD H. FLAGG, Brooklyn, N. Y. Application filed February 23, 1876.

"words 'PAIN BALM.'"

3,501.—Soap.—MCKESSON, VAN HAAGEN & CO., Philadelphia, Pa. Application filed February 23, 1876.

"word 'Sun' and the figure of a block or cake of soap in shape similar to a parallelogram, with sharp edges and rounded corners."

3,502.—Flour.—POWER BROTHER & CO., London, England, and WILLIAM H. POWER & CO., New York, N. Y. Application filed February 21, 1876.

"words 'MARK LANE.'"

3,503.—Whisky.—RHEINSTOM BROTHERS, Cincinnati, Ohio. Application filed February 23, 1876.

"word 'Ætna.'"

3,504.—Soap.—ROCK SOAP COMPANY, San Buenaventura, Cal. Application filed December 2, 1875.

"letters 'R. S.'"

3,505.—Thrashing-Machines.—THE AULTMAN & TAYLOR COMPANY, Mansfield, Ohio. Application filed February 11, 1876.

"words 'FATTENED UPON AN AULTMAN-TAYLOR STRAW-STACK,' accompanied by the figure of an ill-conditioned animal."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 7, 1876.]

567.—Title: "Dickson's Steel Pen Ink."—JOSHUA Z. DICKSON, San Francisco, Cal. Application filed February 28, 1876.

568.—Title: "Dickson's Brilliant Carmine Ink."—JOSHUA Z. DICKSON, San Francisco, Cal. Application filed February 28, 1876.

569.—Title: "Swiss Ague Cure."—JULES HOURIET, Terre Haute, Ind. Application filed February 28, 1876.

570.—Title: Lactine—The best substitute for healthy Mother Milk."—K. JUNGK, Cincinnati, Ohio. Application filed February 28, 1876.

571.—Title: "Lewis' Old English Liniment."—WINSLOW N. LEWIS, Boston, Mass. Application filed February 28, 1876.

572.—Title: "J. M. Littell's Silver Premium Soap."—JOHN M. LITTELL, New York, N. Y. Application filed February 26, 1876.

573.—Title: "Dexter Condition Powders."—PATTON BROS., Catlettsburg, Ky. Application filed February 12, 1876.

574.—Title: "Ricker, Crombie & Co.'s Savon."—RICKER, CROMBIE & CO., Milwaukie, Wis. Application filed February 7, 1876.

575.—Title: "Strickland's Panacea Liniment."—BEDFORD S. STRICKLAND, Griffin, Ga. Application filed February 25, 1876.

576.—Title: "Diptherial Lozenges."—HARRIET A. STONE, New York, N. Y. Application filed February 25, 1876.

577.—Title: "Puzzle Blocks."—GEORGE H. CHINNOCK, Brooklyn, N. Y. Application filed February 7, 1876.

578.—Title: "These Goods are highly recommended to the trade."—COFFIN & ALTEMUS, Philadelphia, Pa. Application filed March 3, 1876.

579.—Title: "Improved Cottage Carpet Warp."—GOULD, PEARCE & CO., Cincinnati, Ohio. Application filed February 28, 1876.

580.—Title: "Green Mountain Asthma Cure."—J. H. GUILD, Rupert, Vt. Application filed March 3, 1876.

581.—Title: "Challenge Extra Sugar Cured Hams."—HENRY KRUG & CO., St. Joseph, Mo. Application filed February 29, 1876.

582.—Title: "Japanese Solvent."—HENRY R. PERKINS, Boston, Mass. Application filed March 1, 1876.

583.—Title: "Purcell's Pine Tar Cough Syrup."—WILLIAM PURCELL, New York, N. Y. Application filed March 1, 1876.

584.—Title: "Pennsylvania Centrals Wool Filling."—BERKMAN REMINGTON, Philadelphia, Pa. Application filed February 29, 1876.

585.—Title: "Dr. Arnold Wilhelmy's Genuine Essence of Alpine Herbs."—LOUIS SCHOLZ, Cincinnati, Ohio. Application filed February 17, 1876.

586.—Title: "Patriota."—M. STACHELBERG & CO., New York, N. Y. Application filed February 19, 1876.

587.—Title: "The American Popular Five Cent Segar."—J. WOLF & CO., New York, N. Y. Application filed March 3, 1876.

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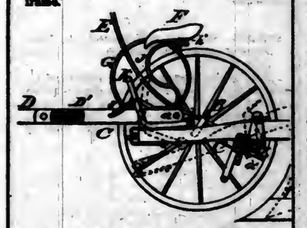
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MARCH 7, 1876.

174,338. WHEEL-PLOWS. Saml. T. Adams, Medina, Ohio. [Filed Feb. 23, 1876.]

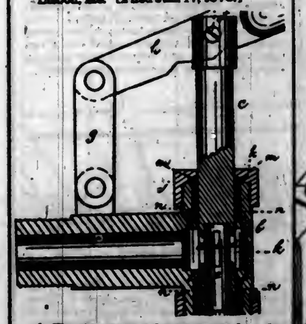
Brief.—An adjustable frame is mounted upon wheels, and fitted to receive a plow, stalk-cutter, or harrow. The plow-beam is attached to a transverse rod on the rear of the frame, and is trimmed by means of a wedge-shaped dirt, interposed between the beam and the device, by which it is secured to the frame.



1. The carriage-frame C, having the crooked axle b rigidly, but adjustably, secured to it, and having the draft-pole D pivoted to its front rod c, in combination with the lever E, its toothed segment G, the lever K, and its anti-friction roller h, substantially as described.

2. The combination of the clasp l, provided with the standard f, clip g, washer h, and collars y, with the rear rod c of the draft-frame C, substantially as described, and for the purpose set forth.

174,344. GAGE-COCKS. William Andrews, Lisbon, Me. [Filed Jan. 17, 1876.]



1. The stop-water valve constructed as described, and consisting of the parts a and b, the vertically-moving piston c, having the apertures d and the tubular part e, the screw-caps f, packings g, and followers m, and the levers g h, in combination, as described.

2. The combination of the parts a and b, the part b having the chamber b', the vertically-moving piston c, having the apertures d and the tubular part e, the screw-caps f, packings g, and followers m, and the levers g h, substantially as and for the purposes herein set forth.

174,345. KNITTING-MACHINES. Christ J. Appleton, Elizabeth, N. J. [Filed Sept. 28, 1875.]

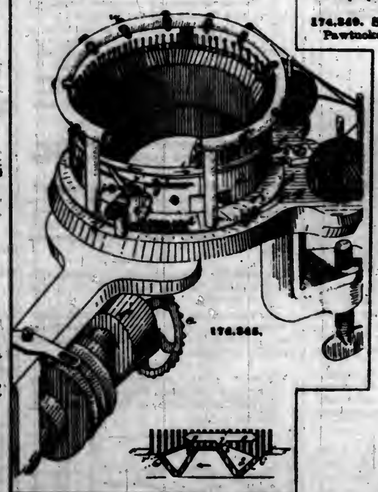
1. A needle-bed, adapted to receive reciprocating needles, and cams and a movable switch to actuate such needles at each reciprocation of the cam-cylinder, in combination with a carrier, connected with and operated by the cylinders, and provided with two or more thread-guides, whereby independent threads may be delivered automatically and simultaneously to sets of two or more needles, and be knitted into a fabric composed of strips with selvage edges knitted together, substantially as described.

2. The combination of a grooved bed adapted to receive reciprocating needles and a reciprocating cam-cylinder, provided with two needle depressing and elevating cams, and a reciprocating switch, with a carrier, connected with and operated by the cylinder, and provided with two or more thread-guides adapted to present threads automatically and simultaneously to adjacent needles of adjacent sets, to knit narrow strips of fabric with selvage edges, substantially as described.

3. The combination, with the cam-cylinder stop e' and carrier for the thread-guides, of a vibrating carrier-shifter moved by the stop on the cylinder at the end of each reciprocation of the cylinder, substantially as described.

4. The combination of the cam-cylinder and its driving-gear and hub, with a screw-shaft, flat and loose pulleys, friction devices and stationary belt-guides, whereby a straight and crossed belt may operate to reverse the motion of the cam-cylinder, substantially as described.

5. The cam-cylinder and its stop, adapted to meet a stop, e', in combination with the driving-gear c, hub, friction device, and driven shaft, whereby when the cylinder arrives at one extreme of its motion the driven shaft may continue its motion without injury to the machine.



174,346. FEED FOR HORSES AND CATTLE. Henry H. Beach, Rome, N. Y. [Filed July 3, 1876.]

As a new manufacture, the feed for horses made from Indian corn, as described, the same being distinguishable from common corn-feed by being more flaky in appearance, softer, less angular to the sense of touch, and sweeter, as specified.

174,347. DEVICES FOR PROTECTING WOOD-EN BUCKETS WHEN PACKED FOR TRANSPORTATION. John Bousfield, Cleveland, Ohio, assignor to Allison H. Delamater, same place. [Filed Aug. 9, 1875.]

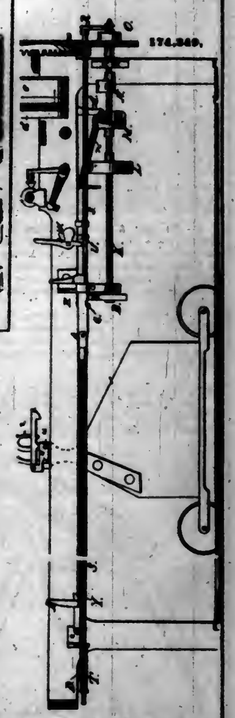
As a new article of manufacture and trade, the improved pail or tub protector herein described, consisting of a thin sheet of veneer or sole board, wrapped or bent into a circular form, tapering toward one end, which is adapted to be put into a pail and rest upon the bottom, while a second pail is nested into the upper end of said protector, and wholly covered thereby, for the purpose set forth.



174,348. COMPOSITIONS FOR FUEL. Freeman Brown, Haverhill, Mass., assignor to himself, Saml. Laubham, A. Washington Chase, and Charles H. Chase, same place. [Filed Jan. 17, 1876.]

A compound to be used with coal or fuel in the economic production of heat, consisting of lime, resin, sulphur, saltpeter, and sawdust, in the proportions substantially as set forth.

174,349. SPINNING-MULES. Jos. S. Brown, Pawtucket, R. I. [Filed Feb. 5th 1876.]



1. In spinning-mules, the sliding gate A and revolving dog E, in combination with the cam-shaft K, all in the manner and for the purposes substantially as shown and described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

2. The combination of the cam L and bent metal shaft A, the latter provided with the depending arm and shoulder, as described, all in the manner and for the purposes substantially as set forth.

3. The combination of the cam L, shaft A, and shutters i m with the catch-beam k and l, all substantially as described and shown.

4. The combination of the conical friction-pulley P with the lever W, rod S, having the collars U V, latch X, spring T, and rod D, having the horizontal arm Y, all in the manner and for the purposes substantially as shown and described.

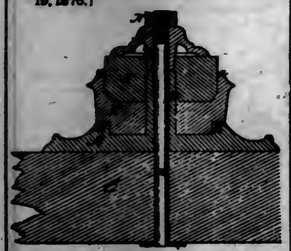
174,850. GUARD-FINGERS FOR HARVESTERS. A. Burkholder, Clarksville, Iowa. (Filed Aug. 14, 1875.)

Brief.—Device for raising fallen grain to a position in which it can be cut by the knives.



The combination, with the guard-fingers, of the guard-points severally pivoted to the front end thereof, leaving the space between said guard-fingers continually open during the operation of the machine, substantially as described.

174,851. DOUBLE-TEES SOCKETS. Wm. F. Cochrane, La Fayette, Ind. (Filed Feb. 19, 1876.)



1. The part A, having flanges B B E, recesses G G H, segments F F, and sleeve D, in combination with the part I, having flanges a a on its upper face, and a central boss, K, having abutments L L on its under face, substantially as described, and for the purpose set forth.

2. The part A, having a sleeve, D, in combination with the part I, washer N, having the thimble R on its lower face, and screw-bolt M, substantially as and for the purposes set forth.

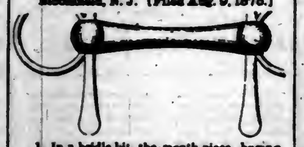
174,852. TRIPODS FOR ROCK-DRILLS. L. W. Coe, Auburn, N. Y. (Filed Oct. 18, 1875.)

Brief.—The side legs of the tripod are hinged to plates pivoted to the cylinder-support.



The plates P, having a motion about the axis of the cylinder A, and having the legs C hinged to them so as to have a lateral motion, the whole combined to operate substantially as and for the purposes herein described.

174,853. BRIDLE-BITS. Frederick Crane, Bloomfield, N. J. (Filed Aug. 9, 1875.)



1. In a bridle-bit, the mouth-piece, having a chain, wire, or other equivalent core, of uniform diameter throughout, and a coating of vulcanized soft rubber or other similar material, extending the whole length and over the bolts, and made substantially in the form shown—that is, swelled at the portions next the cheek-pieces and contracted toward the middle—as and for the purposes set forth.

2. In a bridle-bit, an elastic flexible mouth piece, permanently curved, as specified and shown in Fig. 3.

174,854. PIPE-WRENCHES. Isaiah Creasey, Gloucester, assignor to himself and Frank G. Hale, Rockford, Mass. (Filed Apr. 2, 1875.)



1. The serrations d on the cheek, in combination with those, b c, of the hook-jaw.

2. The cheek A, provided with the screw a and the hook-jaw E, in combination with the nut C, and with the slide F, separate from the said nut, and with the movable jaw G, pivoted or hinged to the slide, and provided with the spring l, or such spring and the handle H, all being arranged in the manner substantially as specified.

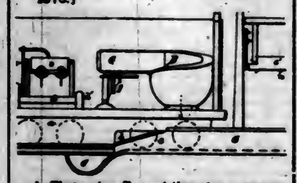
174,855. CLEANSING COMPOUNDS. Margaret N. Cross, San Francisco, Cal. (Filed Aug. 23, 1875.)

The cleansing compound herein described, consisting of a saturated solution of borax and a saturated solution of soda, mixed with common whiting to the consistency of thick paste, substantially as and for the purpose set forth.

174,856. MATERIAL FOR MOLDS AND DOORS. William P. Darling, Buffalo, N. Y. (Filed Nov. 15, 1875.)

Pulverized gas-carbon treated with fluor-water, molasses-water, or other similar fluids, as a material for molds or cores for casting metals, as specified.

174,857. APPARATUS FOR TRANSFERRING GOODS TO AND FROM MOVING CARS. Wm. H. Elliot, New York, N. Y. (Filed Jan. 4, 1876.)



1. The receiver B, consisting of an entrance-passage and a cylindrical chamber arranged upon a vertical axis, substantially as and for the purposes set forth.

2. The receiver E, consisting of an entrance, G, a cylindrical chamber arranged upon a vertical axis, and provided with a globular or rounded bottom, whereby violent concussions are avoided, substantially as specified.

3. The receiver B, adapted to swing upon the axis of the cylindrical chamber, to carry the mouth of the entrance-passage out of and into the car through the side of the same, substantially as and for the purposes specified.

4. The station-receiver G, provided with confronting passages and inclined planes at each end, whereby it is adapted to receive packages at both ends, substantially as set forth.

5. The station-receiver G, provided with rolls c' at each end, whereby the packages are arrested after passing through the entire length of the receiver, substantially as specified.

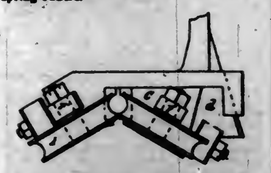
6. The station-receiver G, provided with openings c', for convenience in removing packages therefrom, substantially as specified.

7. The parallel bar c', in combination with hooks a, when said hooks are arranged to stand across the axis of the swinging frame, and of the suspending-bar, substantially as and for the purpose set forth.

8. The arrangement of the hooks a on the suspending-bar c', whereby they stand at right angles, or nearly so, to the diagonal edge f', substantially as and for the purpose specified.

174,858. CHECKS FOR ROCKAWAY. Wm. Eppelsheimer, San Francisco, Cal. (Filed July 8, 1875.)

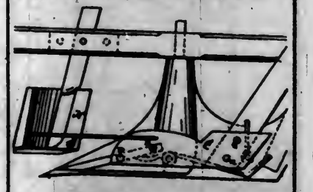
Brief.—The rope-supporting pulleys of the clamping device are attached to fixed journals on the ends of parallel sliding bars, which are secured obliquely in the frames which carry the clamps. The bars are held by spring-bolts.



The griping sliding blocks C C, the yielding bars F F, and the pulleys I I I I, arranged as axes fixed to the said bars, all constructed and combined to operate as and for the purpose described.

174,859. POTATO-DIGGERS. J. H. Godney, Rye, N. Y. (Filed Nov. 27, 1875.)

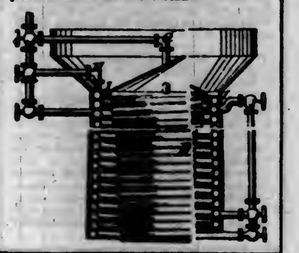
Brief.—A vine-cleaver precedes the share, which consists of a center standard with wings upon each side, and independently-pivoted fingers in the rear to separate the potatoes.



In a potato-digger, the vine-cleaver H, the double mold-boards F F, the guards G G', the independently-pivoted wire fingers or separators I I', constructed, combined, and operating substantially as shown and described.

174,860. WHEAT-SWEEPING APPARATUS. Edward H. Gratiot and Chas. L. Gratiot, Platteville, Wis. (Filed July 12, 1875.)

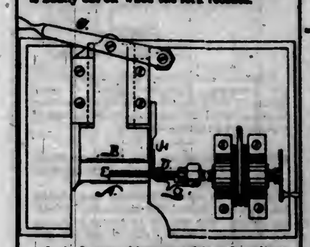
Brief.—Wheat passes between two concentric coils of pipe, and is intercepted and agitated thereby, and more thoroughly exposed to the action of the heat.



The combination, in a wheat-sweeping apparatus, of the two concentric coils of pipe A and B, as and for the purpose specified.

174,861. CHAIR-MACHINERY. M. P. Grimm, Hinchnish, N. J. (Filed June 7, 1875.)

Brief.—The bench is held and rotated by a fork, which is forced into it longitudinally, and formed by a sliding mold operating simultaneously therewith. The wrapper is also laid upon it while on the rotating fork, and is finally cut off when the fork recedes.



1. A cigar-machine comprising the adjustable vibratory former, operated substantially as described, the fixed part A of the mold, and plunger D, having the office of turning the filler in the mold, and of improving the draft in the cigar.

2. The spring-finger p, in combination with the plunger D, holding the edge of a wrapper, and the parts A and E, operated substantially as described.

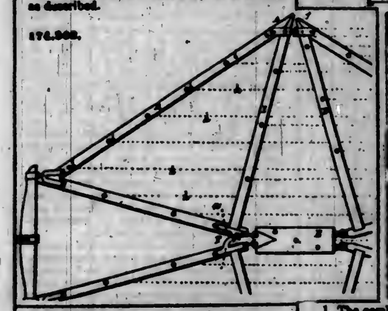
3. The cutter H, in combination with parts A, E, and D, substantially as and for the purpose specified.

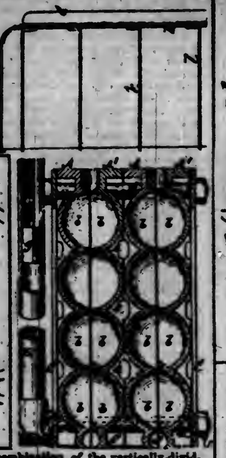
174,862. LAMP-BURNERS. Moses S. Hill Norwalk, Ohio. (Filed Nov. 20, 1875.)

Brief.—Four triangular sections attached by one corner to a center-piece.

The sections A B, as arranged in relation to each other, and in combination with sections C D and center block E, substantially as described.

174,863.





174,864. BOUQUET-HOLDERS. J. A. Hurdle, Washington, D. C. (Filed Feb. 4, 1876.)



A bouquet holder or fastener consisting of the curved portion A, wings D' D'' D''' D'''' and pins O' O'', substantially as described.

174,865. SOAP-MOLDS. James L. Jackson, New York, N. Y. (Filed Jan. 3, 1876.)

Brief.—The mold, made of sectional boxes hinged together, is placed on a truck having a blower attached for forcing air through apertures alongside of the middle pepper to cool them. Soap admitted under hydrostatic or other pressure at the bottom is forced upward through each vertical series of molds. A weighted piston or water-pressure sends up additional soap to replace shrinkage. A grate or frame is laid over the top orifices. After the molding (the boxes are opened, the half containing the bolts of soap laid horizontally, and the soaps cut off from the bolts by pressing the cutting-frame down onto and its projecting knives through them.

174,866.

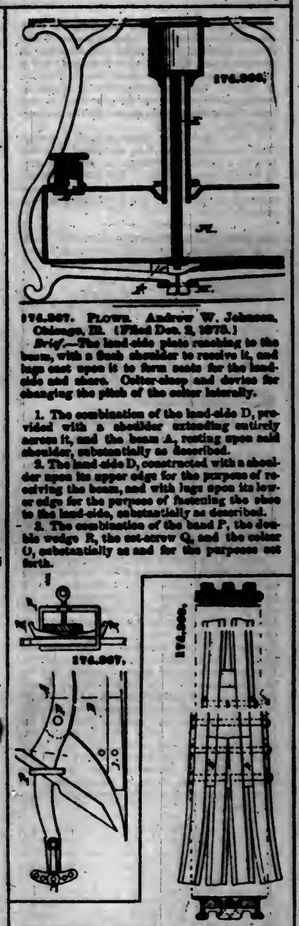
174,867. PLOWS. Andrew W. Johnson, Chicago, Ill. (Filed Dec. 2, 1875.)

Brief.—The land-side plate resting in the beam, with a flush shoulder to receive it, and bags cast upon it to form seats for the land-side and share. Cutter-share and device for changing the pitch of the cutter laterally.

1. The combination of the land-side D, provided with a shoulder extending entirely across it, and the beam A, resting upon said shoulder, substantially as described.

2. The land-side D, constructed with a shoulder upon its upper edge for the purpose of receiving the beam, and with lugs upon its lower edge for the purpose of fastening the shoe to the land-side, substantially as described.

3. The combination of the band F, the double wedge R, the set-screw Q, and the cutter O, substantially as and for the purposes set forth.

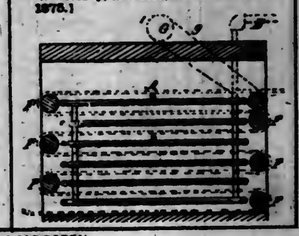


174,868. RAILROAD-FROGS. R. H. Johnson, Chicago, Ill. (Filed Feb. 1, 1876.)

Brief.—A railroad-frog having a cast or wrought bed plate, upon which rests a cast or forged plate provided with the point, the whole being secured by the ring-rails when drawn together by transverse bolts.

The cast or wrought iron base-plate b, and the cast or forged plate a resting on it, and held in place by the side rails; and I make no claim to any other part of said frog as my invention.

174,869. PAPER-DUSTING MACHINES. Albert W. Keeney, Rockford, Ill. (Filed Nov. 4, 1875.)



1. In a paper-drier, in combination with the stationary series of pipes or heater D and heating-cans C, constructed and arranged as described, the rollers F, placed at each end of the cans, opposite each shelf, and in position to receive and hold the web of paper in central position between the pipe-shelves, and from contact therewith, as and for the purpose described.

2. The paper-drier composed of a system of continuous pipes, D E, all united together and in a stationary structure, inclosing cans C, door I, opening into all the series of pipes, and rollers F G, all constructed, arranged, and adapted to operate as and for the purpose described.

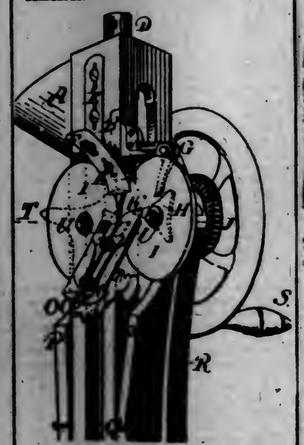
174,870. LABEL FOR PLUG-TOBACCO. John B. Lincoln and George S. Myers, St. Louis, Mo. (Filed Nov. 6, 1875.)



A skeleton or open tobacco-label, adapted to attach the wrapper and filler of a plug of tobacco, and to be held in place by the tobacco filling its interstices, when it is pressed into the plug, substantially as set forth.

174,871. MACHINES FOR STONING FRUIT. Benjamin A. Libby, Portland, Oreg. (Filed Sept. 6, 1875.)

Brief.—The fruit is placed in a hopper, from which it is fed singly by a reciprocating block operated by a bell-crank lever, which is moved by a cam on the shaft. It drops between the edges of serrated circular plates mounted on journals whose bearings are on the upper ends of two standards hinged to the frame, and forced together by springs, so as to bring the edges of the circular plates nearly in contact. They are then forced to one side by the fruit as it slides down the stone, which is firmly grasped by the toothed edges. As they rotate, the hinged standards are forced apart, and the fruit is carried onward and downward between the toothed disks until it meets two stripper, placed one on each side the disks. By them the pulp of the fruit is torn from the pit, and falls in halves on each side. The disks release the stone by turning, and are again brought in contact by the hinged spring-standards.



1. In a machine for stoning fruit, the cutters I F F', the extension-gauge J, hinged supports P, springs R, and shafts U; also, the spring-clamping knives K, the additional corrugated L, the operating-springs M, and the adjusting-screws O, substantially as and for the purposes set forth.

2. The lever G, cam H, check-bar B, spring C, and fixed prongs T, the supporting-springs R, and the adjusting-screws F, or their equivalents, substantially as described, and for the purposes set forth.

3. The combination of the cutters I F F', the extension-gauge J, hinged supports P, springs R, shafts U, spring carrying-knives K, additional corrugated L, the operating-springs M, adjusting-screws O, lever G, cam H, check-bar B, spring C, fixed prongs T, supporting-springs R, and the adjusting-screws F, substantially as described, and for the purposes set forth.

174,872. LAMDAS-CARRIAGE TOPS. Henry Lines, New Haven, Conn. (Filed Jan. 31, 1876.)

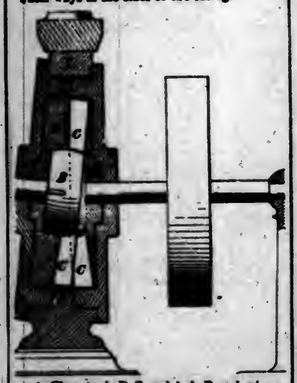


1. The spiral springs A, adjusted in recesses in the front pillars B, in combination with rods a, hinged or pivoted to the body of the carriage, substantially as and for the purposes described.

2. The flat spring C, adjusted in a recess in the top rail D, in combination with a rod, b, pivoted or hinged to the upper part of the front door-post E, substantially as and for the purposes described.

174,873. ROTARY PUMPS AND ENGINES. W. P. Manson, Hinsdale, N. Y. (Filed Oct. 20, 1875.)

Brief.—Two disks, each diametrically slotted to receive wings extending from a hub, are placed with the upper portion of their sides in contact, and the lower portion kept apart by a rib on the casing which receives them, the cams of the disks being accordingly cut of line. The rotation of the disks and winged hub exposes the wings in succession in the space left between the lower parts of the disks, as drawing and forcing water through water-ways in the sides of the casing.



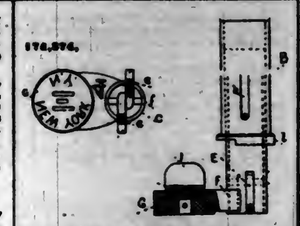
1. The wheels D E and hub B and wings C, combined and arranged to operate in relation to each other within the case, substantially as set forth.

2. The combination of the induction and eduction pipes, and recesses f h and f' h', and inclined wheels, and hub and wings, substantially as set forth.

3. The openings G' G'' through the flanges of the side pieces, in combination with the water-ways and the chamber between the wheels and side pieces, substantially as set forth.

4. In combination with the chambers and openings G' G'', the plugs of porous material, substantially as set forth.

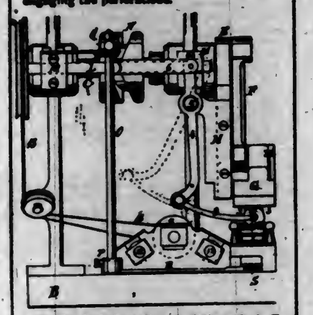
174,874. 'GASOLENE DEVICES. Hugh McDougall, Brooklyn, N. Y. (Filed Jan. 20, 1876.)



The combination of a handle, A, tinged tubular receptacle B, tubular spindle C, spiral spring D, and disk of metal d, with the cistern E, constructed and operating substantially as and for the purposes set forth.

174,875. MACHINES FOR PRINTING RAILWAY-TICKETS. Henry Messer, Chicago, Ill. (Filed Jan. 9, 1876.)

Brief.—The vertically-sliding head carries the type-box, numbering-wheels, and punching device. The strip is fed by reciprocating pin working through a slot in the bed, and engaging the perforations.



1. The bed-plate Z and sliding block T, combined with the angle-piece U, pins V, screw 17, and connecting-rod S, to constitute a regulatable intermittent feed, as set forth.

2. The sliding head O, crank R, shaft C, sliding bar L, and the rock-shaft O, and arm E, combined with the pitman F, cam N, and arm Q, whereby the feeding device is operated from the same shaft as the sliding head, as and for the purpose set forth.

3. The reciprocating head G, which carries the type-box and its operative mechanism, combined with the cam N, sliding bar L, rod 6, pivoted arm 4, ink roller-carrier 5, and swinging arm 7, to actuate the numbering-wheel, all substantially as set forth.

4. The type-box I and consecutive numbering-wheel, with their operative mechanisms, in combination with the punches 3, pins V, and inking-rollers, with their operative mechanisms, whereby the strips of paper are automatically punched, fed, and printed, substantially as set forth.

5. The grooved bed-plate W, sliding block T, provided with the adjusting-screw 17, and pivoted angle-piece U, combined with the reciprocating rod S, and adjustable piece 4, as set forth.

6. The reciprocating angle-piece U, provided with the feeding-pins V, combined with the bed-plate Z, and the spring press-roller 1, whereby the feeding-pins are prevented from moving the paper strip in their retrograde motion.

7. The type-box I, with its operative mechanism, in combination with the punches 3, feed-pins V, and inking-rollers, with their operative mechanisms, for the purpose set forth.

174,876. SHUTTLES FOR LOOMS. Guy C. Mills, Woodbine, N. H., assignor to Isaac Bates and F. B. Ayer, same place. (Filed Dec. 1, 1875.)

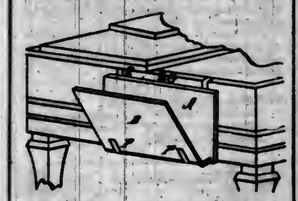
Brief.—The locking-lever is pivoted to the spindle, the two not crossing each other after the manner of shears. The lever is held from contact with the spindle when in the shuttle by its heel bearing upon the solid part of the shuttle.



174,876.

The locking-lever E, arranged beneath and hinged at its heel to the lever D, in manner and to operate therewith, and with the heel step d, all substantially as set forth.

174,877. MUSIC-PORTFOLIOS. A. P. Musser, Zanesville, Ohio. (Filed Dec. 30, 1875.)



In a portfolio, the metallic check-brace F, bearing against the lower edge of the back-leaf A, while its arm is attached at right angles to the lid B, thereby affording a support to the latter when opened, substantially as and for the purpose described.

174,878. CONDENSED VENT-SPIGOTS AND PUMPS. Wm. C. North, Cleveland, Ohio. (Filed Dec. 24, 1874.)

Brief.—The vent may be used alone; when it is desired to force in air, the pump is attached.

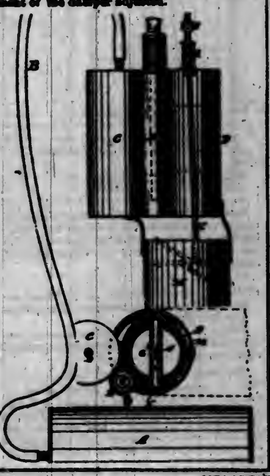


1. In a vent-spigot and pump combined, the detachable spigot A, consisting of a tubular metal shell, chamber B, valve-seat C, having air-passages b, and valve D, arranged and combined substantially as and for the purpose set forth.

2. In combination with the tubular ventilating-spigot A, the pump B, consisting of the cylinder F, stuffing-box J, provided with air-passages K, piston G, having air-passages e, and valve L, in the manner as described, and for the purpose specified.

174,879. AUTOMATIC HEAT-REGULATORS. Osgood Pitcher, Worcester, Mass. (Filed Jan. 3, 1876.)

Brief.—By means of the displacer or plunger the height of the field is raised and the movement of the damper adjusted.

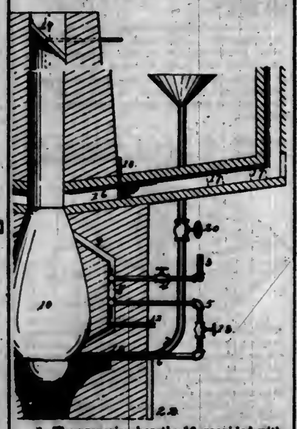


1. The combination, with the liquid-reservoir and the damper-operating float, of an auxiliary chamber or reservoir and an adjustable displacer, whereby the surface-level of the liquid in which said float is suspended may be varied and regulated, substantially as and for the purposes set forth.

2. The combination, substantially as described, of the save-thermometer or cylinder A, connecting-tube B, air and liquid chamber C D, auxiliary chamber E, displacer P, liquid F, float G, and damper L, for the purposes set forth.

3. In combination, substantially as herein described, the save-thermometer or cylinder A, connecting-tube B, combined air and liquid chambers C D, and liquid F, for the purpose set forth.

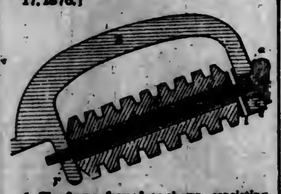
174,880. BLAST-FURNACES. John H. Hawkings and Lambert Ireton, Watsonville, Cal. (Filed Feb. 13, 1874.)



1. The preparing-hearths 16, provided with the ports 17, dampers 18, and trap 21, in combination with the smelting-chamber 10, substantially as and for the purpose set forth.

2. The preparing-hearths 16, provided with the ports 17, dampers 18, and traps 21, in combination with the smelting-chamber 10, air-pipes 2, provided with the valve 20, superheater 5, and steam-pipe 3, all constructed to operate substantially as and for the purpose set forth.

174,881. FENDERS FOR VEHICLE-WHEELS. Edward P. Boston, Bath, Me. (Filed Feb. 17, 1876.)



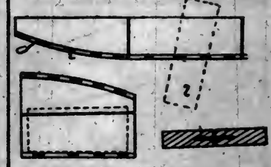
1. The frame, formed as shown, consisting of the bars or strap A, overarching brace B, and horn C, substantially as and for purpose set forth.

2. The pin or journal E, formed with a square or polygonal end entering a correspondingly socket in the frame, and having its opposite end stepped in the nut H, all combined substantially as shown and described.

3. The wheel-fenders for vehicles, the rail D, with its convex or tapering ends and roughened surface, substantially as and for purpose stated.

4. The spring I, having eyes e and d and spur c, the spring being introduced between the rail and horn C, and fastening the pin E, and its spur c entering a pocket in the horn, the parts being combined substantially as and for the purposes set forth.

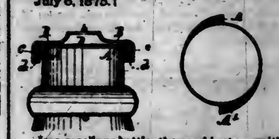
174,882. CONSTRUCTION OF BOATS. Geo. W. Schermerhorn, East Lissington, Mo. (Filed Aug. 12, 1875.)



1. The seat I, provided with a lip and set-screw, and adapted to be used as a log-board, substantially in the manner set forth.

2. In combination with the planking having its contiguous edges grooved, a strip of metal, K, substantially as described.

174,883. MUCILAGE-HOLDERS. William J. Schilling, East New York, N. Y. (Filed July 6, 1875.)



In a mucilage-bottle, the combination, with the metal cover B, having the opening b in its center, and provided with the lips d d, projecting inwardly from the flange c, and the projecting lugs A and A' on the neck of the bottle, of the water-proof cover or packing D, by means of which the contents of the bottle are prevented from leaking or escaping from the opening b in the cover, the whole combined, arranged, and operating substantially as herein shown and set forth.

174,884. SUBWAYS FOR STREET-RAILWAYS AND MEANS OF PROPULSION. Merrill A. Shepard, Lebanon, Ill. (Filed Aug. 10, 1875.)

Brief.—Two parallel gutters are located near the center of the street, and are nearly closed at top by a projecting cover. An endless traveling chain of linked bars on rollers is located in the upper portion of the gutter, and forms the means of propulsion of the street-cars, the tracks of which are laid above and in line with the gutters. The chain is kept in motion by stationary power, and connection is made and unmade therewith from the car by a downward-projecting bar, which engages with lugs on the sides of the bars near their ends. Curvilinear rods at the ends of the route enable the chain to change direction.

1. The street or roadway A, inclined toward its center, and having one or more drains or sewers, B, arranged at or near the center of the road or street, substantially as and for the purpose set forth.

2. The drain or sewer B, having a narrow longitudinal opening, b^1, in combination with the covering b^2 and projecting bar b^3, substantially as set forth.

3. The drains B, provided with rails or flanges b, for supports or rails of the endless driving-train C, composed of round-timbers or links, with wheels a upon each side, and linked together, substantially as set forth.

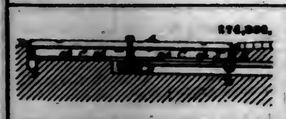
4. The endless driving-train C, composed of a series of bars linked together, and each bar consisting of a round or link, c, supported on two pairs of wheels, c', in combination with the track b and driving-wheels D, substantially as herein set forth.

5. The combination of the driving-train C c and projecting lugs c' with an adjustable draw-bar E, projecting down from the car, substantially as and for the purpose set forth.

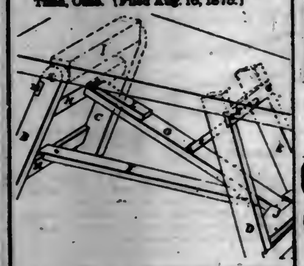
6. The combination of the draw-bar E, pivot-bolt F, lever G, spring or cushion H, standard J, and operating-handle I, substantially as set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

176,866.

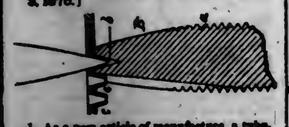


176,865. INCHING-TABLES. James V. Six, Tiffin, Ohio. [Filed Aug. 16, 1875.]



A portable ironing-table, provided with legs B, C, D, and E, braces G, F, and L, movable blocks H and J, block I, and braces M M N N, substantially as herein set forth and specified.

176,866. TUBULAR CUTTING-PUNCHES. J. A. Smart, East Medford, Mass. [Filed Jan. 3, 1876.]



1. As a new article of manufacture, a tubular cutting-punch formed by perforating a plate of metal and forming the metal displaced in the act of perforation outward in the form of an annular ring, having an unbroken cutting-edge equidistant from the plate to which it is attached, and of which it forms an integral part, substantially as described.

2. A series or gang of tubular cutting-punches struck up from and forming an integral part of a single plate of sheet metal, and arranged to represent any desired ornamental or ornamental design, and adapted to transfer said design to leather, cloth, or other like material by perforating the same, substantially as described.

3. The method of forming tubular cutting-punches from a plate of metal to which they are attached, and of which they form an integral part, after being formed, by subjecting said plate of metal to the action of a conical-pointed punch or male die, and a female die provided with a corresponding conical recess, substantially as described.

4. The female die B, provided with the conical recess or mold b and exterior longitudinal groove d, adapted for use as and for the purpose described.

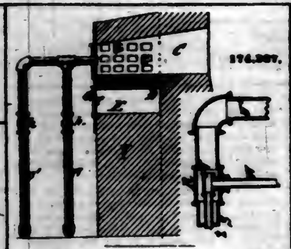
5. The combination of the conical-pointed punch C and the female die B, provided with the correspondingly conical recess b, as a means of forming conical counter-projections from the side of a thin plate of metal, as and for the purposes described.

176,867. MATRICES OR MANUFACTURING LEAD AND CHARACT. Absalom Smith, Buffalo, N. Y. [Filed Feb. 23, 1876.]

Brief.—The liquid fuel is described as such as contains an oxhydret, preferably a liquid hydrocarbon. The liquid fuel and steam may be delivered by separate pipes into the combustion-chamber. The oil may be delivered in a fluid state, or in spray, or as vapor, into the combustion-chamber.

The method of manufacturing lime or cement at a single operation, and producing an even quality of the same, which consists in subjecting the lime or cement rock to the action of heat, produced by the active combustion of the described liquid fuel or vapor-produced therefrom, combined with steam, superheated or not, and air, substantially as specified.

176,867.



176,868. SHEET-METAL RINGS. A. Taplin Forestville, assignor to the Bristol Brass and Clock Company, Bristol, Conn. [Filed Feb. 16, 1876.]



The horizontal-curved mode of forming rings for supporting lamp-shades and other purposes, from a strip of sheet metal, by rolling said strip between taper rolls to give it the form of a flat ring, and afterward grooving said ring in a die or dies to give it the required conical profile, substantially as specified.

176,869. HAT-BODY-STRETCHING MACHINES. James S. Taylor, Danbury, Conn. [Filed Jan 5, 1876.]



1. In a machine for stretching hats, the rollers O O D D', having an intermediate non-bearing surface by which the bearing-surfaces r are formed for the purpose of stretching the tips and brims of hats at the same or different operations, substantially as and for the purposes set forth.

2. The combination, with the rollers O O' D D', of the hand-center s, operating in the manner and for the purpose set forth.

3. The curved support e and rollers O O', in combination with the rollers D D', substantially as and for the purposes described.

4. The combination, with the rollers O O D D' and curved support e, of the trough B, substantially as and for the purposes described.

176,869.



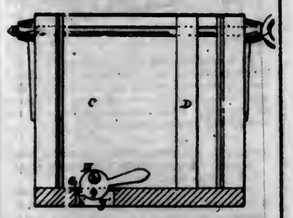
176,870. STEAM-JET PUMPS. H. P. Tennant, Novesville, Ind., assignor of one-half his right to Martin L. Powell and I. M. Harris, same place. [Filed Dec. 3, 1875.]

Brief.—The steam-nozzle and connections are finished, placed in the mold, and the shell cast around them. By this means the interior and exterior of the steam-nozzle present no roughness to impede the passage of steam and water.

1. The elbow A, wrought-iron inlet G e, and nozzle B A, of a steam-jet pump, having the shell E F G K L cast around said devices A B C, substantially as herein described, and for the purpose set forth.

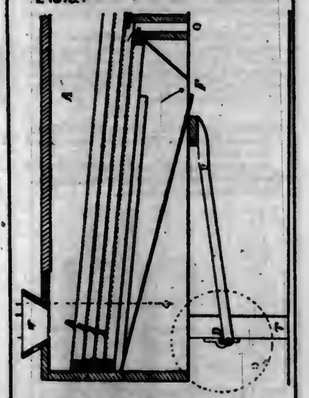
2. The tube D, communicating with the elbow A, and cored in the body of the pump by casting the shell around the devices A B C D, as herein explained.

176,871. WAGON END-GATES. Warren H. Thomas, Woodhull, Ill., assignor of one-half his right to G. W. Miller, same place. [Filed Feb. 1, 1876.]



The wagon-bottom B, having the hole f, partially covered by the slotted plate G, and arranged to operate in combination with the cam H, having projection h', and the hinged end-gate C, substantially as and for the purpose specified.

176,872. BOLTING APPARATUS. J. Turner, Oakdale, Pa., assignor of one-half his right to H. C. McEwen, same place. [Filed Nov. 1, 1875.]



The combination of the bolting-cloths, arranged on frames B B B B within the vibrating box A, the current cloth apparatus, with the feed-passage W and the outlets O O O O, substantially as described.

176,873. STOVE-DAMPER. A. F. Wanderer and Jacob Ortz, Milwaukee, Wis. [Filed Jan. 27, 1876.]

Brief.—The products may be made to pass up on one side of the vertical diaphragm and down on the other.

The drum A, center pipe B, partitions C C, base D, extension-pipe L, thumb-screw M, dampers O O, damper-rod P, hooks S S, the guide-bar Q, the bracket W, hinge-pin Y, clasp X, brackets U U, hinge V, and staples T, all the parts being combined and arranged in the manner specified, and for the purpose set forth.



176,874.

176,874. DUMB-HAMMERS. Chas. B. Ward, Vinal Haven, Me. [Filed Aug. 4, 1875.]



1. The single dovetail on upper or lower rear edge of cute, substantially as described.

2. The beveled recess made to receive the cute, substantially as described.

3. The hammer-head, made in one piece, in combination with single clamp beneath and two screw-bolts to secure the same, as specified.

176,875. SCROLL-SAWS. H. C. Waterman, Hanover, Mass. [Filed Feb. 11, 1876.]



The improved sawing apparatus above described, consisting of the table A, the adjustable turning-arm B, the hinged guide-bar C, the saw c, and its frame D, pivoted to the bar C, the whole constructed, combined, and arranged substantially as shown and described.

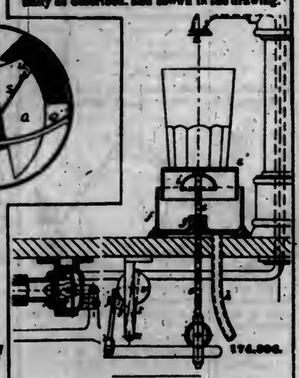
176,876. SELF-REGULATING APPARATUS FOR SUPPLYING WATER. Matthias George White, Landport, assignor to William Trigge, Portsmouth, England. [Filed Dec. 27, 1875.]

Brief.—When the tumbler is placed on the platform, the main lever falls a certain distance, opening the valve and allowing water to flow. The weight of the water in the tumbler becoming sufficient, the weight of the supplementary lever falls over its center, still further depressing the main lever and closing the valve. The tumbler being removed, the platform rises to its original position by the action of the main lever-weight.

1. The combination of the balanced lever c, carrying the glass or other vessel, with the regulating-valve, operated by it, and closing when moved in either direction, for the purpose of regulating the supply of liquid by the weight of the vessel, substantially as described, and shown in the drawing.

2. The combination, with the balance-lever c and regulating-valve, operating as described, of a supplementary weighted lever, i, operated by the weight of the liquid in the vessel, substantially as described, and shown in the drawing.

3. The combination, with the weighted lever c and i and the regulating-valve, of the ornamental supply-pipe f, the movable platform f', the frame f, and waste-pipe k, substantially as described, and shown in the drawing.



176,877. RUNG-HOLE SPOUTS. F. C. Wilcox, Chicago, Ill. [Filed Dec. 8, 1875.]

Brief.—Extending the base of the spout so that the clamping-bolt may pass through this extension, and not be in the way of the liquid running through the spout; and also in a clamping device for attaching the spout to the barrel, consisting of a sliding bolt operated by a cam-lever.

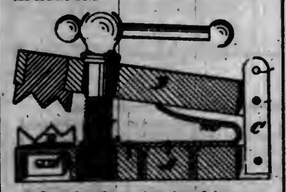


1. The spout A, cast with a perforated projection, B, substantially as and for the purposes set forth.

2. The combination of the clamping-bolt C, eccentric lever D, and spout A B, substantially as and for the purposes described.

176,878. VISES. James Wight, Rockland, Me. [Filed June 9, 1875.]

Brief.—The connecting-bar at the base of the vise allows the movable jaw a vertical movement. The gripping-plates have a limited sliding movement, and adjust themselves upon the article held.



1. In a vise, the combination of the jaws A B and loosely-articulated bar C, substantially as described.

2. The combination of the gripping plates or blocks D, having a limited sliding movement in their beds, with the jaws A B, and loosely-articulated bar C, substantially as described, for the purpose specified.

176,879. SPOKE-SHAVES. Alva A. Wood, Manlius, N. Y. [Filed July 31, 1875.]

Brief.—A spring lifts the rear of the plate which holds the bit. The spring is held down by a thumb-screw, thus controlling the width of the opening at the throat.

The adjusting-plate C, provided with the recess f and carrying the cutting-bit D, in combination with the cheek A and spring g, substantially as and for the purpose specified.

176,880.

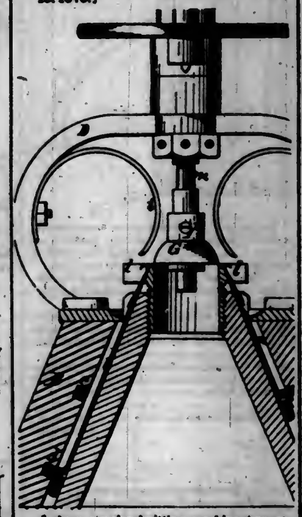


176,880. APPARATUS FOR ADJUSTING MOSQUITO-BARS. I. A. Abbot, New Orleans, La. [Filed Dec. 27, 1875.]



The combination of cords C C', guide-pulleys E and F, and the pulley-block F with the traveling rod of a mosquito-bar frame, substantially as specified.

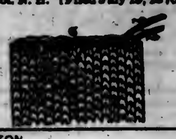
176,881. CIRCULAR-KNITTING MACHINES. Wm. H. Abel, Bristol, N. H. [Filed Apr. 13, 1876.]



1. In a circular-knitting machine, two or more sets of alternately-situated needles, a b, the needles of the different sets being of different lengths, to move in different cam-grooves c d, in combination with thread-guides h i, one for each set of needles, for knitting goods of two or more colors of yarn, substantially as herein specified.

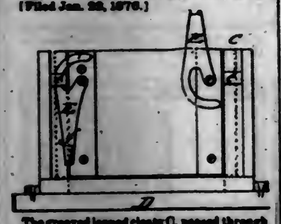
2. In combination with the adjustable head F, the adjustable cap or ring G, nearly covering the central aperture in the said head, and secured upon a vertical rod, n, projecting downward from the fixed bow D, substantially as herein specified.

176,882. KNIT MITTENS. William H. Abel, Bristol, N. H. [Filed July 19, 1875.]



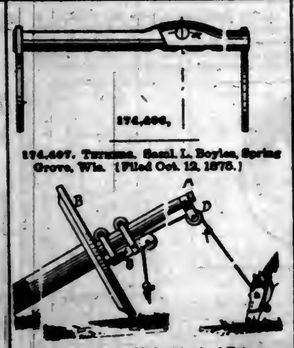
A knit mitten, A, of two or more threads, a b, having one or more of its rounds of loops at the wrist drawn tightly together to form a border or selvage, c, substantially as herein specified.

176,606. WAGON END-GATES. Samuel P. Adair and Byron K. Adair, Ozark, Iowa. [Filed Jan. 28, 1876.]



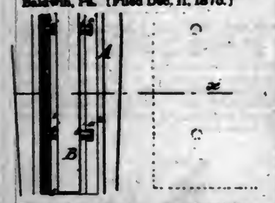
The grooved looped cleats C, passed through recesses of box, and resting with base a on the cross-bar D, to strongly bind together the sides and bottom at the same time that they hold the end gates in place, and enable the sides to be drawn together, all substantially as shown and described.

176,607. TETHERS. Saml. L. Boyles, Spring Grove, Wis. [Filed Oct. 12, 1875.]



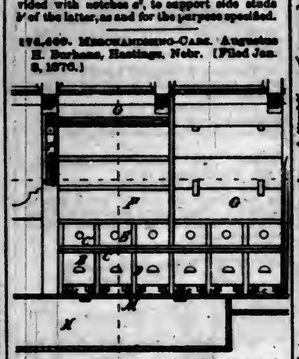
The pole A, provided with wheel B, in combination with the carriage C, pulley D, and rope E, arranged to operate substantially as described.

176,608. BELT-FASTENINGS. T. D. Brady, Baldwin, Pa. [Filed Dec. 11, 1875.]



The combination of a wedge-slotted frame, A, and wedge-shaped bar B, the former provided with notches a', to support side studs b' of the latter, as and for the purpose specified.

176,609. MERCHANDISING-CARS. Augustus H. Burbank, Hastings, Nebr. [Filed Jan. 8, 1876.]



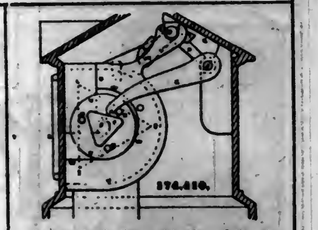
1. A merchandising-car, having arranged within its interior bins B, drawers E, shelves C and F, with hinged covers G and collar H, substantially as and for the purposes described.

2. A merchandising-car, having arranged within its interior, in connection with the bins, drawers, and shelves, the space for adjustable bed O, stove and seat opposite, and space R, with seat for book-keeper or clerk, as described.

3. In a merchandising-car, the vertically-adjustable bed O, in combination with two guides secured to the sides of the car doorway, as described, said bed being supported by means of weighted cords P, all arranged substantially as and for the purposes set forth.

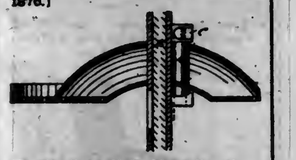
176,610. TOY MONEY-BOXES. James D. Butler, Lancaster, Mass., assignor to E. G. Solsbee, New York, and Jno. H. Bigelow, Brooklyn, N. Y. [Filed Nov. 11, 1875.]

Brief.—The pressure necessary to insert a coin in the opening thereby causes a change of picture from that previously visible.



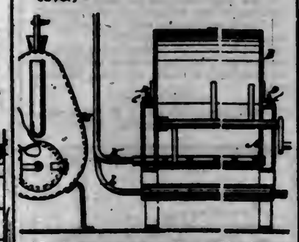
In a toy bank, the combination of the picture-prism O D E, the shaft F, and the wheel V, having pins N and plate P, with each other, and with hooked bar K and the vibrating shaft and arms O, H, I, and L, or their equivalents, substantially as described.

176,611. LAMP-LIGHTING DEVICES. Frank L. Camm, Brooklyn, N. Y. [Filed Feb. 8, 1876.]



The tube C, provided with small teeth on the inside and at the upper end, the same being arranged with respect to the burner, as and for the purpose specified.

176,612. FEATHER-RENOVATORS. Nathan P. Chaney, Potsdam, N. Y. [Filed Jan. 15, 1876.]



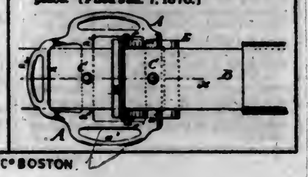
In feather-renovators, the combination of section A, provided with legs C, covered sediment-chamber C, steam-pipes F I, heating-chamber I, and shaft H, having agitating-arms, with the section B, provided with tool-bed flanges D, and door E, all substantially as shown and described.

176,613. TRILL-COUPLINGS. W. H. Cornell, Shenandoah, N. Y. [Filed Jan. 26, 1876.]



The combination of the joint-pin c, bolt d, and slotted eye e, substantially as and for the purpose herein set forth.

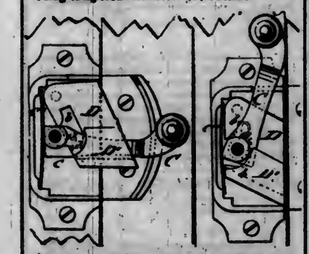
176,614. TUG-BUCKLES. Wm. J. Darr and John W. Bowman, Leon, Iowa, assignors to themselves and Alonzo Robbins, same place. [Filed Jan. 7, 1876.]



The combination, in a buckle, of two or more aligned tongues, and a bail provided with lugs, as constructed and arranged to operate substantially as described.

176,615. FASTENERS FOR THE MEETING-RAILS OF SASHES. John J. Dinman, New Haven, Conn. [Filed Jan. 20, 1876.]

Brief.—The pivoted locking-plate embracing and retaining the swinging lever, which is operated by a suitable projecting cam; the handle of the lever swinging entirely back into a recess free of the meeting-rails, but when projected forward the guard-shoulder of the locking-plate protecting the device from being tampered with from the outside.

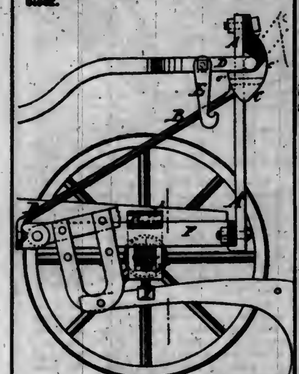


1. In a stub-lock, the combination of the pivoted and spring-acted bar or handle C, having projecting cam c, with the pivoted and recessed locking-plate D, swinging jointly with the handle or lever, and retaining or embracing it, substantially as specified.

2. In a stub-lock, a pivoted locking-plate, D, having guard-shoulder and guide-plate D' for guiding and retaining the handle in locked position, substantially as specified.

176,616. GANG-PLOWS. Enoch C. Eaton, Finckneyville, Ill. [Filed Feb. 14, 1876.]

Brief.—The lifting-lever and clamping-block.

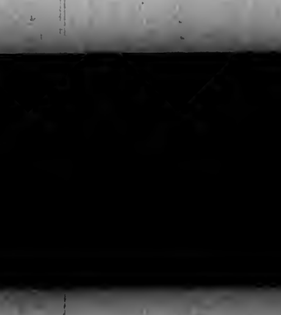


1. The combination of the pent A, brace B, bearing-block C, provided with the double shoulders or steps C', and the lever D, provided with the hooks E, to adapt the device for attachment to the frame of a gang-plow for raising the plows, substantially as herein shown and described.

2. The combination of the block H, provided with the slot h' and hook h'', and the clamping-screw I, with the axle G and the frame F of a gang-plow, substantially as herein shown and described.

176,617. POCKET-KNIVES. Geo. E. Evans, Brooklyn, N. Y. [Filed Jan. 3, 1876.]

Brief.—A wedge at the base of a sliding blade taken under a rod-pocketed leg in the slotted handle, and a spring holds the blade when drawn out its full length.



1. In combination with the handle c, the blade d with its accompanying lateral spring e, arranged to bear or press against the divided lateral stop a, in combination with the pin b, substantially as described.

2. A knife-blade, arranged to be slipped longitudinally from the handle, having its base thickened for the purpose of bearing against the stop a, and held firmly in position from motion in any direction, substantially as described.

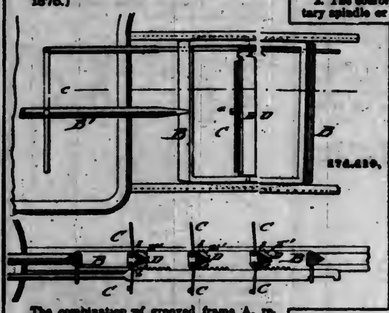
176,618. HARNESS. A. Grabner, Adrian, Mich. [Filed Jan. 29, 1876.]



1. A breast-strap slide for harness, constructed with slots O O, which are provided with bars or flanges D D, as shown, for the purpose described.

2. The flanges B B, provided with transverse sliding bars B E, eccentrically pivoted thereto, all substantially as and for the purpose described.

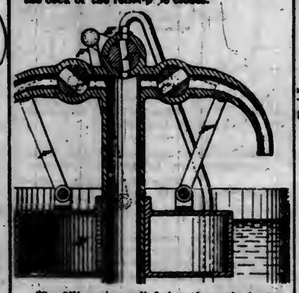
176,619. VIBRATING PROPELLERS. Louis Gugler, Milwaukee, Wis. [Filed Oct. 16, 1875.]



The combination of grooved frame A, reciprocating frame B, the standards D, pivoted in the latter, and having seats b, and the pedles C, hinged to the standards, and having cushions c, as and for the purpose specified.

176,620. AUTOMATIC TANK-FILLERS. August Hoerle, Cincinnati, Ohio. [Filed Feb. 5, 1876.]

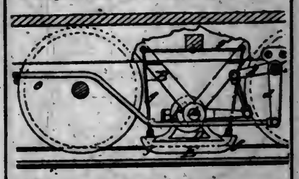
Brief.—The cocks are connected with the float by arms so adjusted that the cock of the relief-pipe opens just before those of the filling-pipe are closed. In the reverse operation the cocks of the filling-pipe open a little before the cock of the relief-pipe closes.



The filling-pipe, relief-pipe, the cocks in the same, and the float, combined in a tank in such manner that the cocks are automatically opened in the filling-pipe and closed in the relief-pipe, and vice versa, and so that the opening of the one is effected a little in advance of the closing of the other, substantially as specified.

176,621. CAR-BRAKES. Wm. L. Hoecker, White Haven, Pa. [Filed Jan. 7, 1876.]

Brief.—Shoe applied to rail by eccentric. Sliding head allows it to rest flat on rail.



The combination, with shaft A connected with hand-wheel and operative mechanism, of the eccentric C having brake-shoe at lower end, the encircling band and the shoe-carrying frame, as and for the purpose described.

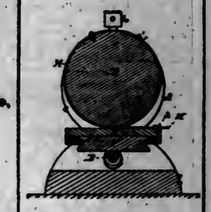
176,622. MACHINES FOR EMBOSSING RINGS. John Jennings, Boston, Mass. [Filed Jan. 21, 1876.]

Brief.—The spindle which supports the ring is non-rotating.

1. In a machine for embossing rings, the combination of an embossing-die with a stationary or non-rotary spindle or pin for supporting the ring, and allowing said ring to turn or slide around the said pin or spindle while the die is in operation.

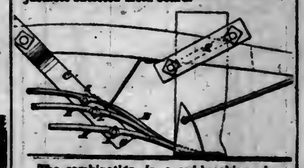
2. The combination of the movable non-rotary spindle or pin B, the die-carrier B, and the pressure-roller D, all applied to a frame, A, and arranged to operate substantially as specified.

3. The combination of the slotted spring or elastic draft-band H and the button k with the pressure-roller D, the die-carrier E, and the movable non-rotary spindle or pin B, applied to a frame, A, and all being arranged to operate substantially as described and set forth.



176,623. PLOWS. Eugene R. Knight, Omaha, Nebr. [Filed Dec. 27, 1875.]

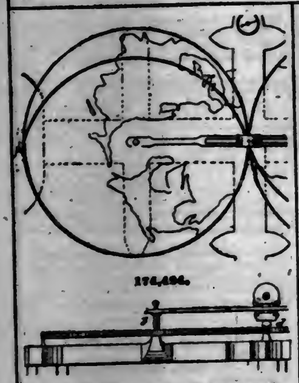
Brief.—Plow formed of a bread colter-plate bent at right angles to form a flat cutting-share, also turned up to form a vertical cutter at the outer end, and provided with an adjustable skeleton mold-board.



The combination, in a sod-breaking plow with mold-board arms H, of colter-share F, beat the width of furrow in a horizontal plane and upwardly at the outer end, as and for the purpose described.

176,624. PLANISPHERES. Paul Kuhnel, New York, N. Y. [Filed Jan. 24, 1876.]

Brief.—The disks are reversible, and have upon one side a geographic and upon the other a celestial map.



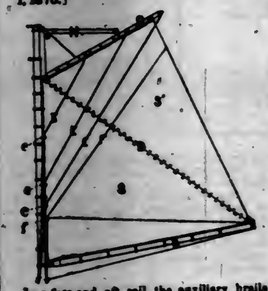
176,496.

1. A planisphere, made of two centrally-pivoted and jointly-revolving disks of equal size, for exhibiting a full and connected map of the terrestrial and celestial hemispheres, substantially in the manner and for the purpose set forth.

2. The centrally-pivoted and jointly-revolving disks, provided with arc-shaped grooves representing the ecliptic circle, in combination with the traversing-carriage, having spur-rounding in the grooves, substantially for the purpose set forth.

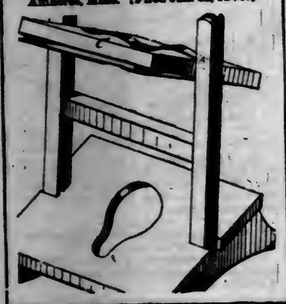
3. The combination of the center pivots of the disks, with the slotted connecting-bar, having a traversing-carriage placed thereon for guiding the same from one disk to the other, substantially as set forth.

176,496. RIGGING FORE AND AFT SAILS. Emil O. Lund, Boston, Mass. [Filed Dec. 1, 1875.]



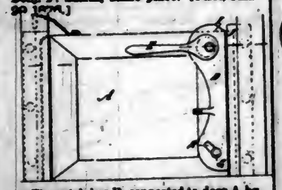
In a fore and aft sail, the auxiliary brails F F', and leading-eyes e, arranged as described, in combination with the re-enforcing-band D of the sail B B', gaff C, and brails E E', substantially as and for the purpose set forth.

176,498. FOOT-REST. Edward B. Lovell, Amherst, Mass. [Filed Jan. 21, 1876.]



An article of furniture, consisting of a pivoted foot-rest, supported by standards, and having a newspaper-pocket and slipper-holding loops attached to its opposite faces, and a base-frame, having a boot-jack formed therein, substantially in the manner and for the purpose set forth.

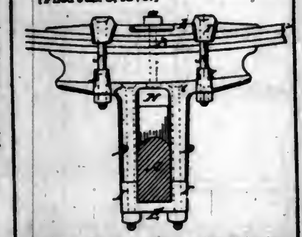
176,497. GRAIN-DOORS. Joshua W. Merriman, Wells, Mo., assignor to himself and Benj. F. Smith, same place. [Filed Jan. 20 1876.]



1. The catch-bar D, connected to door A by eccentric lever E F, stud G, and inclined slot H, in combination with grooved plate G on the door-frame, substantially as specified.

2. The catch-plate D, having the beveled upper corner I, in combination with beveled top J of the groove, and the eccentric lever and the stud I, and slot H, substantially as specified.

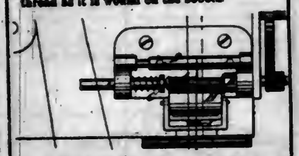
176,498. SPRING-FASTENING FOR CARRIAGES. Franklin Miller, Indianola, Ill. [Filed Jan. 3, 1876.]



The combination of the cap-plate I, having bolt-hole projections i, with the plate C, having similar bolt-hole projections, the said projections of both plates being extended beyond the faces, to prevent lateral movement of the springs, substantially as specified.

176,500. BOBBIN-WINDERS FOR SEWING-MACHINES. Charles L. Noe, Bergen Point, N. J. [Filed Dec. 27, 1875.]

Brief.—A hinged bar or guide in front of the bobbin, to regulate the tension of the thread as it is wound on the bobbin.



The combination, with hinged guide D, of press-roll H, having spring I and hinge J, as and for the purpose specified.

176,499. UMBRELLAS. John P. Underdunk, Philadelphia, Pa. [Filed Jan. 20, 1876.]



1. An umbrella or parasol the sectors or portions of the covering of which are attached to each other and to the frame by clamps, clutches, catches, springs, teeth, or wires, substantially as described.

2. A duplex rib for umbrellas or parasols composed of two parts, between which the covering passes, and to which it is secured by elastic or forced pressure, or by tongues, teeth, or points upon one part taking into corresponding grooves, seats, or depressions upon the other, substantially as described.

3. The clamp-rib D, (shown in Fig. 4 of the drawing,) as and for the purpose specified.

4. The combination of a duplex rib, B, with a clamp, C, to secure the covering of an umbrella, substantially as shown and described.

176,501. LINES FOR STEAM-BOTTOMS. Geo. Palm, Kansas City, Pa. [Filed Oct. 7, 1875.]



1. In an engine-link, A, the flanged friction-roller B arranged therein, substantially as and for the purposes herein set forth.

2. The combination of an engine-link, A, a friction-roller, B, therein, and a self-locking latch, C, for the purposes herein set forth.

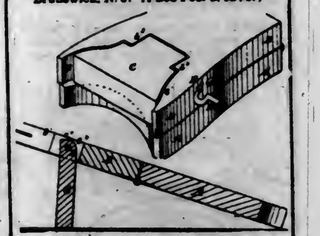
3. The combination of the link A, roller B, latch C, cord D, and spring c, substantially as and for the purposes herein set forth.

176,502. OIL-PRESS MATS. Joseph L. Perkins and George O. Baker, Selma, Ala. [Filed Jan. 22, 1876.]



An oil-press mat formed of leather on the outside and metal on the inside, the former being carried around the edges of the latter, as and for the purpose specified.

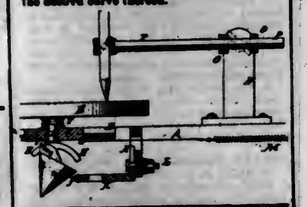
176,503. BOOT-JACKS. G. W. Phenix, New Brunswick, N. J. [Filed Feb. 5, 1876.]



An improved folding boot-jack, formed of the hinged parts A B and the pivoted part C, constructed and operating in connection with each other, substantially as herein shown and described.

176,504. MACHINES FOR DESCRIBING AND CUTTING REGULAR CURVES. F. A. Foisley, Jackson Court-House, W. Va. [Filed Jan. 20, 1876.]

Brief.—A wheel suitably pivoted to a bar attached to the frame describes the required curve upon a cone pivoted for varying adjustment upon a shaft having its bearing in a block sliding in ways in the frame, which shaft also supports the circular table. The table being revolved, a pencil adjusted above marks the desired curve thereon.



1. The combination of the table B, the shaft D, provided with the curved bar E, the pivoted and slotted cone G, provided with the lug g' and the set-screw I, the adjustable arm K, provided with the wheel J, and the spring M, with each other and with the frame A, substantially as herein shown and described.

2. The combination of the uprights E, the pivoted socket-frame G, and the adjustable bar F with the frame A, the table E, the adjustable cone G, the adjustable arm K, and the spring M, substantially as herein shown and described.

3. The combination of the grooved table Q and the adjustable blocks R, provided with the pins S, with the shaft D, that carries the adjustable cone G, substantially as herein shown and described.

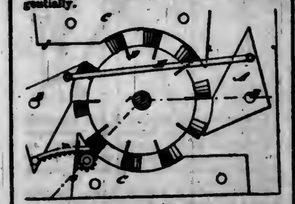
176,505. WIRE-FENCE-RAIL FASTENER. R. E. Pooler and Wm. T. Jones, Savana, Ill. [Filed Jan. 15, 1876.]



The pinchers A, made with the barbed jaws a', the shoulders a^2, and the triangular socket a^3, to adapt them for applying three-pronged barbs to the fence-wires, substantially as herein shown and described.

176,506. WATER-WHEELS. N. M. Prince, Concordia, Kans. [Filed Feb. 6, 1876.]

Brief.—Two gates pivoted on opposite sides of the wheel, and connected together, so that the water-pressure is balanced, making the gate work easier, and the form of the gate is such that each one makes two plates, through which the water enters upon the wheel tangentially.

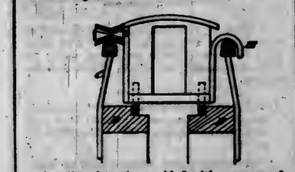


1. The triangular gate A, arranged on pivot B, in combination with curb-sections C and wheel D, as described.

2. The oppositely-located triangular gates A, pivoted at B, in combination with curb-sections C and wheel D, and connected together substantially as specified.

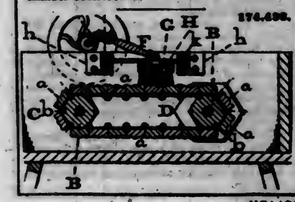
176,507. SAFETY APPARATUS FOR RAILROADS. John B. Prohim, New York, N. Y. [Filed Dec. 4, 1875.]

Brief.—Elevated guards are placed parallel to the line of track, which co-operate with hooked projections on the cars, to prevent damage in case of breakage of wheels, axles, or roadway.



A railroad-track provided with superposed guard-rails A to adapt it to support cars on side hooks or rollers E as the times and in the manner described.

176,508.



1. The curtain wash-board C, consisting of a series of slats, c, hinged to each other, and formed of rigid material, whereby bands or bats are dispensed with, and the board has an unyielding surface, substantially as and for the purpose set forth.

2. The brackets b, receiving the ends of the bars H and the springs h, substantially as and for the purpose set forth.

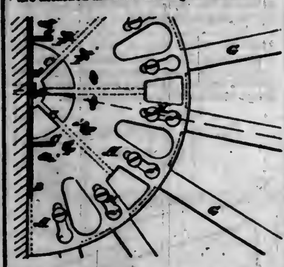
3. The combination, with the curtain wash-board, of the plates D, secured to and rotating with the roller B, and embracing the sides of said board, substantially as and for the purpose set forth.

4. The main shaft B, formed with cranks g, and carrying the pinion f, in combination with the pitmen F, pawl e, and with the rubber G, and curtain board C, substantially as and for the purpose set forth.

5. The curtain wash-board C, formed of a series of slats, c, hinged to each other, and constructed of rigid material, and the angular rollers B, in combination with the rubber G, bars H, and springs h, substantially as and for the purpose set forth.

176,509. CLOTHES-DRYERS. John J. Reed, Lyons, Iowa. [Filed Oct. 23, 1875.]

Brief.—A cast-iron wall-plate and shelf with supporting-ribs, provided with slots, to which are attached arms for holding the clothes.

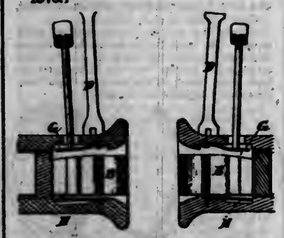


1. The shelf A, the wall-plate B, and the ribs C, cast in one piece, and provided with the slots b^1 b^2, the holes c^1, and the slots c^2, substantially as herein shown and described.

2. The combination of the hinging-wires F with the holes c^1 of the device A B C and with the ends of the arms G, substantially as herein shown and described.

3. The combination of the screws H with the slots c^2 of the device A B C and with the hinged arms G, substantially as herein shown and described.

176,510. CAR-COUPLINGS. Robt. Resnick, Woodford County, Ky. [Filed Jan. 6, 1876.]



In combination with the draw-head and shackle, the springs G and H and foot-rod F, for controlling the shackle in coupling, substantially as set forth.

176,511. FLOOD-GATES. Robert H. C. Rhea, Waverly, (Uniontown P. O.,) Ky. [Filed Jan. 25, 1876.]

Brief.—The sections of the suspended flexible gate overlap, and as they rise with the stream the drift-wood is deflected beneath the floating section or sections. The ends of the gate rest against the inner inclined stakes, thus preventing swaying by a down-stream wind.

176,512.



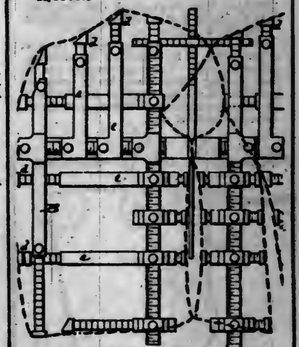
An improved flood-gate, formed of boards, planks, or sections C, hinged to each other or attached to chains or other flexible connections, D, in such a way that the lower part of each upper board, plank, or section may overlap the upper part of each lower board, plank, or section upon the up-stream side, substantially as herein shown and described.

176,513. REMEDIES FOR DISEASES OF THE THROAT AND LUNGS. Ellen Rohrer, Monmouth, Oreg. [Filed Jan. 11, 1875.]

Brief.—Tincture of mountain-balm, tincture of consumption-root, simple syrup.

The herein-described medical composition, composed of consumption-root (Jacob's Ladder, or *Polemonium reptans*) and mountain-balm, (*Bridgetia Californica*, or Wigandia,) substantially as described.

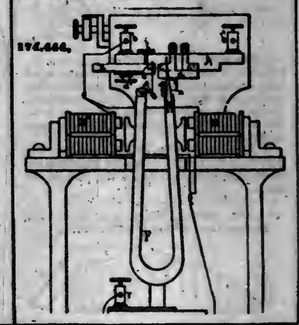
176,514. TAILORS' DRAFTING APPARATUS. Pierre Boudel, Paris, France. [Filed Oct. 11, 1875.]



1. The elastic conformator A, herein described, provided with smooth projecting ribs, lines, or marks of like material, across which the tape measure is placed in the process of measuring, substantially as specified.

2. The combination of the elastic conformator A, herein described, with the extensible delineator B, having the adjustable graduated slides d d e e and the supporting-bar f, the position of the slides on the supporting-bar corresponding, substantially, with the positions of the ribs or marks on the conformator A, substantially as and for the purpose herein shown and described.

176,515.



174,644. ELECTRO-CHRONOGRAPH. A. H. Russell, U. S. A. [Filed Feb. 3, 1876.]

Brief.—The timing-form, which measures and marks the intervals, is arranged to be the automatic circuit-breaker to a magnet controlling its vibrations.

1. In an electro-chronograph, the combination, with the tuning-fork which works the rotating cylinder, of a spring-interrupter, substantially as and for the purpose set forth.

2. The combination of the tuning-fork F, having the platinum point *e*; the spring-interrupter, consisting of the plate *l* and spring *f f*; the plate B, table A, adjusting-screws *i d*, and electrical connections, substantially as and for the purpose set forth.

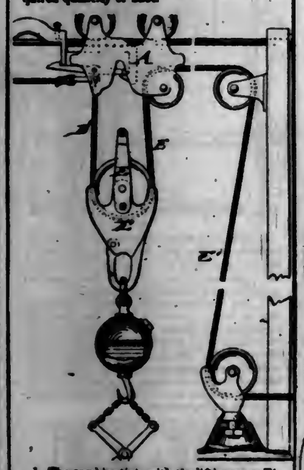
174,645. QUILTING-FRAMES. J. H. Sheets, Hartford, Minn. [Filed Dec. 11, 1875.]



The combination of the parallel rollers A, supporting-bars B, suspending-cords D, traveler E, and overhead rail F, substantially as specified.

174,646. HAY ELEVATORS AND GARDENS. M. C. Smith and Abram H. Smith, Sterlingville, N. Y. [Filed Jan. 28, 1876.]

Brief.—The swivel-pulley adjusts itself to the direction of the strain on the extending end of the rope. The weight attached to the load-carrying pulley is capable of being adjusted to the varying length of the draft-rope by filling the hollow ball thereof with the required quantity of shot.



1. The combination, with the lifting-rope E', attached at one end to front of carriage A, of the load-carrying pulley, the grooved-pulley, swiveled as described, and two intermediate pulleys *a*, one on the carriage and the other on the frame, all arranged as and for the purpose specified.

2. The combination, with the load-carrying pulley, of a variable weight for balancing the draft-rope, substantially for the purpose set forth.

174,647. SHINGLE-MACHINES. M. Stewart, Dallas, Tex. [Filed Oct. 20, 1876.]



The inclined *d* formed upon the rear ends of the guide-plates A of a shingle-machine for controlling the movements of the dogs that hold the blocks while being sawed, substantially as herein shown and described.

174,648. SELF-ACTING GRAPPLES. Jean Baptiste Tousli, Paris, France. [Filed Feb. 5, 1876.]

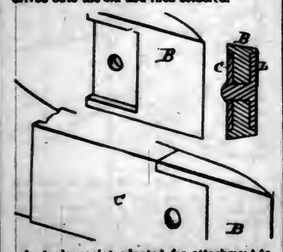


1. A grapnel provided with pivoted or jointed arms, having flukes or palms arranged as described, so that the arms are made to open or close from the mere resistance of the water when the apparatus is raised or lowered, as the case may be, as and for the purpose described.

2. The combination, with a grapnel, having a supporting-cord, C, of a chain of air-bags, A, having hollow metallic connections B, as and for the purpose described.

174,649. PLOW-POINTS. Wm. H. Trimier, Cleveland, Ohio. [Filed Jan. 31, 1876.]

Brief.—For a worn plow-point. The new point is secured by metal straps, which are driven onto the old and then soldered.



1. A plow-point adapted for attachment to a plow, consisting of the three pieces B C D, riveted together substantially in the manner herein before set forth.

2. A plow provided with a point consisting of the three pieces B C D, riveted to each other and secured to the plow, substantially in the manner herein before described, for the purpose set forth.

174,650. TRUSSES. Philip Werum, Smyrna, Ohio. [Filed Dec. 7, 1876.]

Brief.—The pad is hollow and of sheet metal. The back is hinged to the pad, and shuts over it like the cover of a box. Two slots and a button between them upon the back serve to adjust the pad and thigh-strap for either a right or left hernia.



1. A truss pad composed of interlocking sections hinged together, to form a soft receptacle for valuables.

2. The slotted back section, having the button secured thereon between the slots, for the purposes specified.

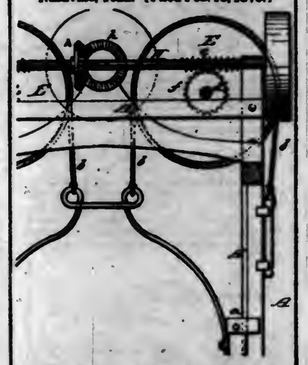
3. The improved truss herein before described, consisting of the combination of the pad, its slotted back, the button mounted thereon between the slots, and the strap provided with a buttonhole and adjustable buckle, whereby the pad is rendered adjustable and adaptable to either side of the body, or to pads of different size, and one button fastens both ends of the strap.

174,651. LOCKSTITCH-RODS. J. H. Weston, Cincinnati, Ohio. [Filed Feb. 6, 1876.]



A lightning-rod discharging point consisting of strips of sheet metal attached to the rod by a thimble or other device, said plates being concave or fluted, and pointed and bent at the lower extremity, to cause them to spread outward and make large metallic contact with the ground when driven in, substantially as specified.

174,652. ELEVATORS. Chas. B. Wheelock, Nashville, Tenn. [Filed Feb. 16, 1876.]



1. The frame A, platform B, and standards C with flanges *a*, in combination with ropes *b b*, drums E E, parallel shafts *d d*, wheels *f f*, worms *e e*, and the weights G, constructed and arranged substantially as and for the purpose set forth.

2. The shafts J and H, having beveled gears *h h*, and the shaft H having worms *e e*, in combination with parallel shafts *d*, with wheels *f*, and the drums, ropes, and platform of an elevator, substantially as and for the purpose specified.

174,653. SPIKES FOR THRASHING-MACHINES. Christopher Wilde, Canton, Ohio. [Filed Jan. 3, 1876.]



A spike for thrashing-machines, formed of malleable or wrought iron, faced with steel upon its forward edge and head, either or both, substantially as herein shown and described.

174,654. GEARS-BINDERS. C. B. Withington, Janesville, Wis., assignor to C. H. & L. J. McCormick, Chicago, Ill. [Filed Nov. 10, 1875.]

1. The combination, substantially as herein before set forth, of the binding-platform, the deflector, and the binding mechanism, all mounted upon a common frame, adjustable relatively to the length of the grain, for the purposes specified.

2. The combination, substantially as set forth, of the reciprocating binding mechanism, the frame upon which it is mounted, the rays on which the frame traverses, the driving-gearing of the binding mechanism, mounted on one of said rays, the shifting-gearing, mounted on the main frame, and the belt-connection between the shifting-gearing and the traversing binding-frame.

3. The combination, substantially as herein before set forth, of a compressor, a torsion-spring, on which it is mounted, and a crank, by which they are actuated, for the purpose specified.

4. The combination, substantially as herein before set forth, of the slotted binding-arm, the supplementary arm, pivoted centrally thereon and vibrating through its slot, and the cam which vibrates said supplementary arm, for the purpose specified.

5. The combination, substantially as herein before set forth, of a reciprocating binding-frame, a vibrating binding-arm mounted thereon, a supplementary arm pivoted on said vibrating binding-arm, and a twister mounted on the reciprocating binding-frame.

6. The combination, substantially as herein before set forth, of the slotted binding-arm, the supplementary arm pivoted thereon, and the vibrating compressor, for the purpose specified.

7. The combination, substantially as herein before set forth, of a reciprocating binding-carriage, binding mechanism mounted thereon, and a vibrated, actuated positively during the intermission of the reciprocation of the binding mechanism after binding the bundle.

8. The combination, substantially as herein before set forth, of the reciprocating binding-frame, the vibrating binding-arm, the binding-head, the positive feed for one wire, and the intermediate take-up tension-drum for the other wire, whereby the slack of the positive feed is taken up by the tension-drum.

174,655. DIES FOR MAKING PLOW-BEAMS. Chas. H. Thompson, Chicago, Ill., assignor of one-half his right to W. S. Bouton, same place. [Filed Aug. 30, 1876.]

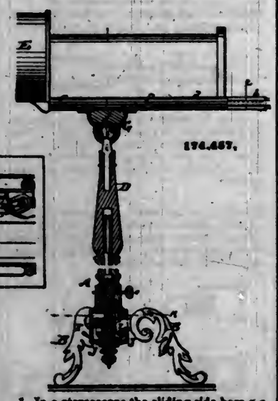
Brief.—The lower die is perforated for the reception, under the plow-beam, of a pin, which, when raised by running a wedge under it, ejects the beam from the die.



1. The combination of the bed-block A, provided with the recess or female die *a*, and pin D, as specified.

2. The slide C, in combination with the pin D and recessed bed-block A, as specified.

174,656. STEREOSCOPES. John Paglinghi, New York, N. Y., and John Ardito, Hoboken, N. J. [Filed Feb. 8, 1876.]



1. In a stereoscope the sliding side bars *a a* rigidly connected with the sliding jaws *b b*, which are adapted to lap around the edges of the board C, along which they slide, substantially as specified.

2. The board C of a stereoscope made with the projecting parallel ledges *d* to be embraced by the jaws *b* on the slide-bars *a*, substantially as herein shown and described.

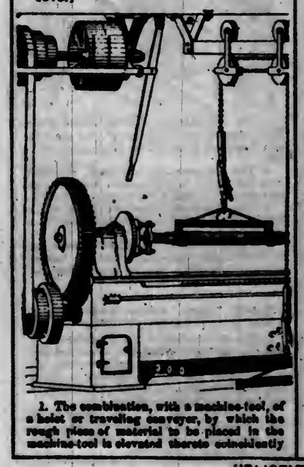
3. In a stereoscope the side bars *a a*, made with the laterally-projecting portions *g g*, which serve as spring-supports of said bars on the connecting cross-piece *f*, substantially as herein shown and described.

4. The combination of the handle or pillar *e* of a stereoscope with the two projecting metallic blades *i i*, and with the hemispherical caps *h* and *k*, which are formed on the upper ends of said blades, respectively, substantially as herein shown and described.

5. The combination of the pillar A with the plate I, which carries the pivoted legs B B, and with the movable plate J which has the notches *a a*, substantially as herein shown and described.

6. The combination of the pillar A with the plate I, legs B, notched plate J, center pin *m*, and locking-pin *n*, substantially as herein shown and described.

174,657. HOISTING APPARATUS FOR MACHINE-TOOLS. Nicholas Thomas, Chicago, Ill., assignee of one-half his right to J. S. Bell, Philadelphia, Pa. [Filed Sept. 20, 1875.]



1. The combination, with a machine-tool, of a hoist or traveling conveyer, by which the rough piece of material to be placed in the machine-tool is elevated thereto coincidently with the removal of the finished piece therefrom, and the rough and finished pieces are substantially counterbalanced, as set forth.

2. The combination of a horizontal track-rail, a carriage traveling on said track-rail, and a cord or chain passing over sheaves on the carriage, and provided with hooks or cradles on its ends for supporting the material to be moved, substantially as set forth.

3. The combination, with the suspending-chain and cradles, of the tightening levers and links, substantially as set forth.

174,658. DIES FOR MAKING PLOW-BEAMS. Chas. H. Thompson, Chicago, Ill., assignor of one-half his right to W. S. Bouton, same place. [Filed Aug. 30, 1876.]

Brief.—The lower die is perforated for the reception, under the plow-beam, of a pin, which, when raised by running a wedge under it, ejects the beam from the die.

1. The combination of the bed-block A, provided with the recess or female die *a*, and pin D, as specified.

2. The slide C, in combination with the pin D and recessed bed-block A, as specified.

174,659. STEREOSCOPES. John Paglinghi, New York, N. Y., and John Ardito, Hoboken, N. J. [Filed Feb. 8, 1876.]

1. In a stereoscope the sliding side bars *a a* rigidly connected with the sliding jaws *b b*, which are adapted to lap around the edges of the board C, along which they slide, substantially as specified.

2. The board C of a stereoscope made with the projecting parallel ledges *d* to be embraced by the jaws *b* on the slide-bars *a*, substantially as herein shown and described.

3. In a stereoscope the side bars *a a*, made with the laterally-projecting portions *g g*, which serve as spring-supports of said bars on the connecting cross-piece *f*, substantially as herein shown and described.

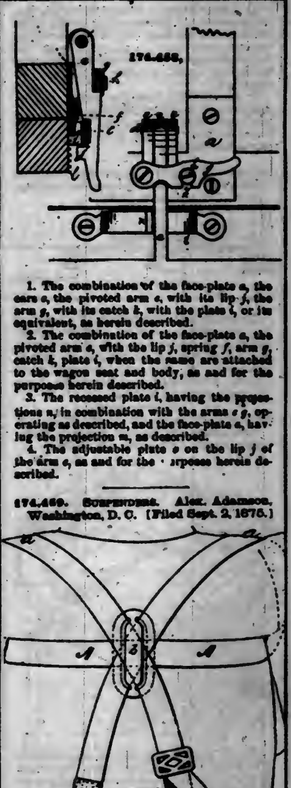
4. The combination of the handle or pillar *e* of a stereoscope with the two projecting metallic blades *i i*, and with the hemispherical caps *h* and *k*, which are formed on the upper ends of said blades, respectively, substantially as herein shown and described.

5. The combination of the pillar A with the plate I, which carries the pivoted legs B B, and with the movable plate J which has the notches *a a*, substantially as herein shown and described.

6. The combination of the pillar A with the plate I, legs B, notched plate J, center pin *m*, and locking-pin *n*, substantially as herein shown and described.

174,660. VEHICLE-SEAT FASTENINGS. J. E. Adams, Dearing, Me. [Filed Jan. 27, 1876.]

174,661.



1. The combination of the face-plate *a*, the ears *c*, the pivoted arm *e*, with its lip *f*, the arm *g*, with its catch *h*, with the plate *i*, or its equivalent, as herein described.

2. The combination of the face-plate *a*, the pivoted arm *e*, with the lip *f*, spring *f'*, arm *g*, catch *h*, plate *i*, when the same are attached to the wagon seat and body, as and for the purposes herein described.

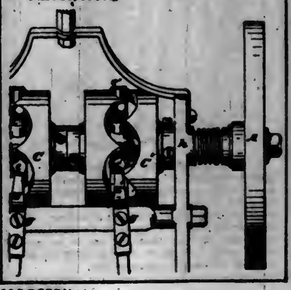
3. The recessed plate *i*, having the projections *n*, in combination with the arms *e g*, operating as described, and the face-plate *a*, having the projection *m*, as described.

4. The adjustable plate *o* on the lip *f* of the arm *e*, as and for the purposes herein described.

174,662. SUSPENDERS. Alex. Adamson, Washington, D. C. [Filed Sept. 2, 1875.]

The combination, with a single strap, A, of webbing, whereof the central portion is passed horizontally across the back, and the ends are looped around, under, and over the shoulders, crossing each other and the middle of the strap at the back, and extended downward at *a a*, of the adjustable clasp B, connecting said middle and ends of said strap at the crossing, to regulate the size and bracing action, as specified.

174,663. MECHANICAL MOVEMENTS. Myron H. Allen, New Brunswick, N. J. [Filed June 18, 1876.]



1. The combination of a rotating drum, having a cam slot or groove and an even number of scallops or engages, with two or more studs engaging said groove or slot in pairs on diametrically-opposite sides, when the said studs are rigidly secured together, substantially as described.

2. The spider D, having a boss, *a*, and radial arms *b b*, provided with friction-rollers *c c*, to engage the slot in the drum C, and wrists *e e*, to receive the yoke E, substantially as shown and specified.

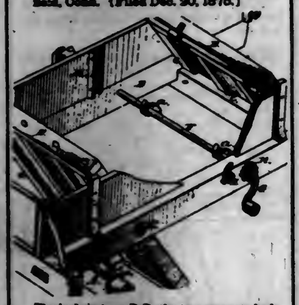
174,661. CHOKE-CLOSERS FOR ELECTRIC ALARMS. Samuel S. Applegate, Camden, N. J. [Filed June 9, 1875.]



The combination of a floor having a surface free from recesses, with the platform A, supported above said surface upon springs *d*, and provided with pins *b*, passing through suitable openings in the floor, and connected below with the circuit-breaker of an electric alarm, all substantially as set forth

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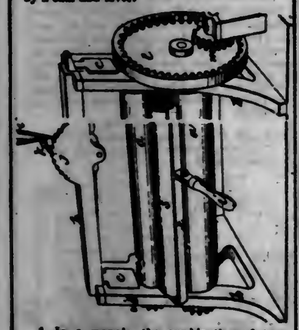
174,662. DUMPING-WAGONS. William S. Babcock and William P. Babcock, Plainfield, Conn. [Filed Dec. 20, 1875.]



The bed-timbers B B, the two separate beds D D, bolts E E, rod F *e e*, crank G, ratchet H, pawl I, support K, chain M, straps *c c*, all substantially as herein set forth.

174,663. MANGLER. Joseph F. Baldwin, Chelsea, Mass. [Filed Dec. 21, 1875.]

Brief.—One roller with a hard polished surface, one with a slightly elastic surface, and an auxiliary roll, the upper roll being adjusted by means of springs and a wedge-bar actuated by a cam and lever.



1. In a mangle, the combination of two pressure-rolls, *a a'*, one being entirely rigid and having a smooth polished periphery, and the other having a rigid body with a coating, *a'*, of slightly-elastic vulcanized rubber, and one having fixed bearings, and the other automatically-yielding bearings, which are provided with springs *s'*, substantially as described, for the purpose specified.

2. The solid or continuous wedge-bar *h*, having inclines or wedges *g g* and slot or camway *h'*, and adapted to slide longitudinally in a suitable way or guide, combined with the cam *f'*, located in said camway, and adapted to be turned therein, and thereby impart a longitudinal motion to the wedge-bar, substantially as described, for the purpose specified.

3. The sliding bearing-blocks *e* of a pressure-roll, combined with springs *s* adapted to support said bearing-blocks and exert an upward yielding pressure thereon, and a wedge-bar, *h*, adapted to simultaneously depress said bearing-blocks, substantially as described, for the purpose specified.

4. The combination of the wedge-bar *h*, having inclines or wedges *g g*, the cam *f'*, having lever *i* and pawl *k*, the stationary segmental ratchet *j'*, the sliding blocks *e*, the supporting-springs *s*, and the roll *a'*, all arranged and operating substantially as described.

5. The cam *f'*, having the ratchet *v*, combined with the lever *i*, having the pawl *w*, the pawl *x*, having the projection *c*, the spring *y*, and the wedge-bar *h*, all arranged and operating substantially as described.

6. The combination of the sliding bearing-blocks *e*, elastic blocks or springs *s'*, and pressure-roll *a'* with the lower roll *a*, all arranged and operating substantially as described.

7. The auxiliary roll S, journaled in a pivoted frame, *t*, in combination with the pressure-rolls *a a'*, all arranged and operating substantially as described.

8. The combination of the adjustable roll *a'*, sliding bearings *e'*, supporting-springs *s'*, elastic blocks or springs *s'*, wedge-bar *h*, and cam *f'* with the frame *b* and non-adjustable roll *a*, all arranged and operating substantially as described.

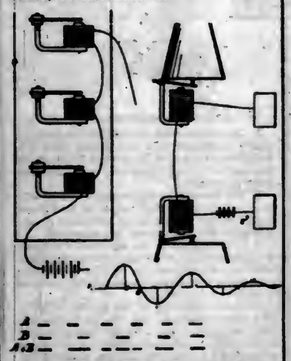
174,664. GAS-BURNERS. Arthur Barberin, New Orleans, La. [Filed Nov. 2, 1875.]



As an improvement upon the old Scotch-tip burner, and, in combination with the base A, the threaded socket-stem B, with closed lower end *c*, perforations *c c*, and check-nut *d*, the whole being arranged to operate as herein set forth.

174,665. TELEGRAPHY. Alexander G. Bell, Salem, Mass. [Filed Feb. 14, 1876.]

Brief.—Battery-current used is thrown into waves, corresponding, if graphically represented, to sinusoidal curves.



1. A system of telegraphy in which the receiver is set in vibration by the employment of undulatory currents of electricity, substantially as set forth.

2. The combination, substantially as set forth, of a permanent magnet or other body capable of inductive action, with a closed circuit, so that the vibration of the one shall occasion electrical undulations in the other, or in itself, and this I claim, whether the permanent magnet be set in vibration in the neighborhood of the conducting-wire forming the circuit, or whether the conducting-wire be set in vibration in the neighborhood of the permanent magnet, or whether the conducting-wire and the permanent magnet both simultaneously be set in vibration in each other's neighborhood.

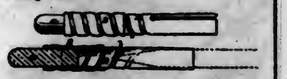
3. The method of producing undulations in a continuous voltaic current by the vibration or motion of bodies capable of inductive action, or by the vibration or motion of the conducting-wire itself, in the neighborhood of such bodies, as set forth.

4. The method of producing undulations in a continuous voltaic circuit by gradually increasing and diminishing the resistance of the circuit, or by gradually increasing and diminishing the power of the battery, as set forth.

5. The method of, and apparatus for, transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth.

174,666. COMBINED RUBBER-HEADED HOLDING AND POINT-PROTECTORS. H. G. Benson, Yonkers, assignor to J. Beckenderfer, New York, N. Y. [Filed Dec. 7, 1875.]

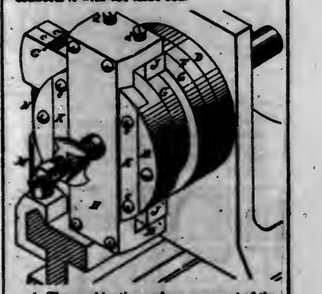
Brief.—The erasive material is rigidly attached to the "point-protecting tube," and extends a suitable distance out therefrom, and may be either covered or uncovered by a sleeve working upon the exterior of the point-protecting tube.



The point-protecting tube provided with a rubber eraser, and screw-threaded, as described, in combination with a correspondingly screw-threaded sleeve, encompassing and engaging the tube, and movable thereon, substantially as and for the purposes set forth.

174,667. LATHE-CHUCKS FOR TURNING OVALS. M. T. Boult, Battle Creek, Mich. [Filed Aug. 4, 1875.]

Brief.—The article to be turned is secured to a steel projecting from the chuck; the difference between the long and short diameters of the ellipse being regulated by an adjustable eccentric held stationary by a clamp, which connects it with the lathe-bed.



1. The combination and arrangement of the back plate D, carrying-plate F, cam-plate G, and face-plate H, as and for the purpose specified.

2. The reciprocating carrier-H, provided with the stud I, in combination with the cam and carrying plates of the chuck, as set forth.

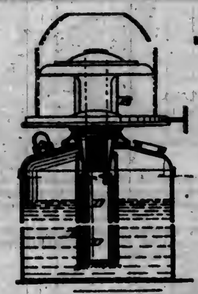
3. The adjustable holder, composed of the hook L, hand nut M, and slotted curve N, as and for the purpose specified.

4. The oval-turning chuck herein described, in combination with the adjustable holder, and a lathe-bed, as and for the purpose set forth.

174,668. LAMPS. August Brandau, Hoboken, N. J. [Filed Feb. 5, 1876.]

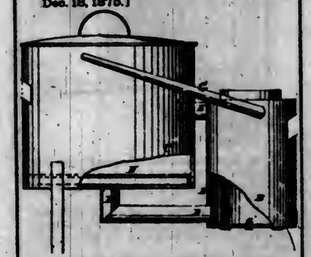
1. The combination of the oil-reservoir A, with the suspended cylinder D, which is closed at the bottom, and has the aperture *a* near the top, and with the fibrous covering E, which extends through said aperture *a*, substantially as herein shown and described.

2. The combination, in a lamp-reservoir, of the outer tube F, with the fibrous covering E and perforated cylinder D, substantially as herein shown and described.



174,669.

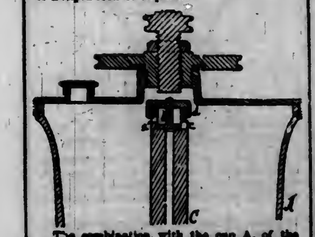
174,669. STEAM WASH-BOILERS. James T. Brown, Saranac, Mich., assignor to himself and Marion Orane, same place. [Filed Dec. 16, 1875.]



The furnace A and heater B, arranged as shown and described, and connected with boiler by means of pipes D E G, as and for the purpose set forth.

174,670. LUBRICATORS. Alexander Bruce and Alpheus A. Pool, Detroit, Mich. [Filed Jan. 28, 1876.]

Brief.—The slots on different places on the tube are to give feed or slow feed to the oil: By giving the valve a chance to fit considerably, the oil will flow out through both slots, if a rapid feed be required.



The combination, with the cap A, of the hollow stem C, guide-cap *d*, valve *b*, regulating-screw *e*, and slots *s s'*, on different planes, constructed and arranged substantially as described and shown.

174,671. GAME-COUNTERS. Henry Bryant, Hartford, Conn. [Filed June 10, 1876.]

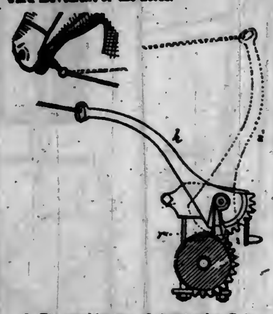
Brief.—An enumerating-board for keeping tally for games or the special game mentioned.



The game-counter, consisting of a table inscribed with lines inclosing squares A A, and divided in sections H, K, I, and O, the sections K being crossed by the bands G, substantially as shown and described, and for the purposes hereinbefore set forth.

174,672. VEHICLE DEVICES FOR STOPPING HORSES. William T. Burton and John E. Burton, Boston, Mass., assignors to Frederick Wakefield, same place. [Filed Feb. 26, 1876.]

Brief.—A checking-arm journaled in the hinged lid of box secured to axle. The lid being grooved down, segmental gear on the arm engages with the hub, and checks the forward movement of the horse.

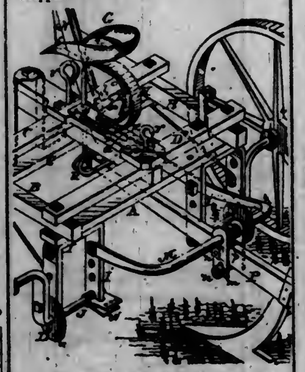


1. The combination of the step-box B, having hinged lid, with the toothed checking arm, its shaft, and spring for retaining the arm forward, substantially as described.

2. The combination, with the pivoted arm A and its sector *i*, of the spring or yielding tooth *r*, adapted to operate in one section with the teeth on the hub, as and for the purpose described.

174,673. WHEEL-PLOWS. Leroy Cahill, Kalamazoo, Mich. [Filed Mar. 2, 1876.]

Brief.—The frame is composed of two front beams and two rear beams, secured to two side beams, one of which extends forward to receive the end of the lever for raising the plow. The wheels are attached to hangers secured to the rear beams of the frame, and the land-wheel is provided with a disk and bolt, so that the crank-axle can be adjusted to any desired point. The tongue can be changed to any desired point, to accommodate the use of a plow, cultivator, or stalk-chopper.



1. The combination of the frame, consisting of the perforated bars A D and O C, supported by the side bars B B, as described, the perforated tongue S, and pins *r r*, whereby the tongue may be shifted from the center to the side, and vice versa, all constructed substantially as set forth.

2. The combination of the platform E, with slot *s* and foot-rest, the seat O, double-spring supports H H, and bolts *b b*, to adjust the seat back and forth, as herein set forth.

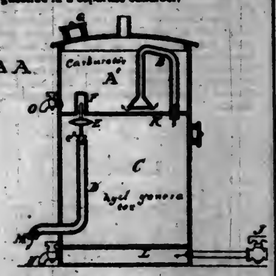
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3. The combination of the hangers I' I', crank-axle J, with perforated disk L, bolt *k*, and nut *l*, as and for the purposes herein set forth.

4. The combination of the frame A D O C, having shifting tongue, and with extended bar B at one side, the hangers *n n*, bail M, having extended arm, the link N, pivoted to the front end of the bail, and to the lever O, which is pivoted to the forward part of the extended bar B, all constructed substantially as and for the purposes herein set forth.

174,674. HYDROCARBON-GAS APPARATUS. John J. Carberry, Philadelphia, Pa. [Filed Oct. 11, 1875.]

Brief.—The spent dilute acid is automatically discharged by rising in the generating-chamber, and raising a float and valve, opening a waste-overflow-pipe. The hydrogen gas to be carbureted flows through a pipe having a non-acute opening beneath the surface of gasoline in a separate chamber.



1. The pipe D, in combination with the float E and valve *e'*, for discharging the spent acid water, as specified.

2. The combination of the vessel A A, the perforated partition L for holding the iron, the discharge pipe D, float E, valve *e'*, operating together for the purpose set forth and described.

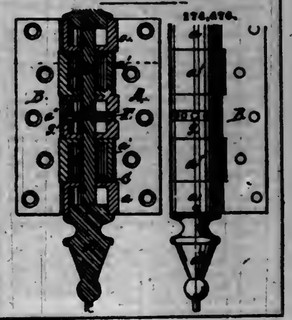
174,675. ATTACHING PUMP-BARRELS TO THEIR BASES. Geo. D. Carleton, New Britain, Conn. [Filed Dec. 1, 1875.]

Brief.—In a groove surrounding the lower end of the barrel, segments of a ring are fitted, which extend beyond the outer surface of the barrel. A ring-clamp, having been first passed onto the barrel by the lower end, is now brought down and bolted to the base, clamping the segments and the barrel firmly thereto.



The combination of the barrel A, detachable lugs *b b*, annular clamp E, and base C, all substantially as described, and for the purpose set forth.

174,676.



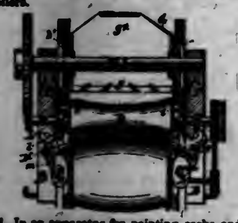
174,676. SPRING-BROOM. Geo. D. Carleton, New Britain, Conn. [Filed Dec. 1, 1875.]

Brief.—An adjusting-plate being secured to and rotating with the pintle, one of the knuckles being transversely slotted to receive this adjusting-plate, while all the knuckles are chambered or recessed to carry and conceal the springs.

The adjusting-plate F, secured to the pintle D, and rotating therewith, the knuckle d', slotted transversely to receive said adjusting-plate, the pin g, leaf A, having chambered knuckles a a, leaf B, and the springs E E, surrounding the pintle and within said chambered knuckles, all combined and operating substantially as described and shown, for the purposes set forth.

174,677. BARREL-PAINTING MACHINE. M. P. Carpenter, New York, N. Y. [Filed Dec. 13, 1875.]

Brief.—Barrels roll down an inclined plane into the grasp of rollers, one of which distributes the paint on the top of the barrel, other two spread it at the sides, other two paint the ends; that of the latter has its special paint-fountain. The end painters open sidewise, and the side painters rise and fall, to admit or release a barrel. The barrel is rotated by the friction of the paint-applying rollers.



1. In an apparatus for painting casks and other articles, the combination of a stationary roller and one or more movable rollers, for applying, spreading, and distributing paint upon the sides of the cask, said movable rollers being arranged to rise and fall to provide for the adjustment and expulsion of the cask before and after the painting operation, substantially as herein described.

2. The combination, with the admitting-roller D^2, of the pivoted arms or frame H^2, the slide I^2, having pins f^2 and f^3, and the groove-cam h^2, substantially as and for the purpose herein described.

3. The combination, with the discharging-roller D^3, of the pivoted arms or frame H^3, the slide I^3, having pins f^2 and f^3, and the groove-cam h^3, substantially as and for the purpose herein described.

4. The combination, with the frame B, of the rollers N, provided with paint-fountains P, for applying paint to the heads or ends of the cask, substantially as herein described.

5. The combination, with the roller N, of the roller-carrying arm M a a, rock-shaft L, lever R, having pin i, and peripherial cam Y, for moving said roller forward or away from the head or end of the cask, substantially as herein described.

174,678. SUSPENDER. Lester C. Chase, Boston, Mass. [Filed May 11, 1875.]



A woven suspender, having portions thereof of single thickness, and one or more portions of double thickness, to receive padding or stiffening, substantially as described.

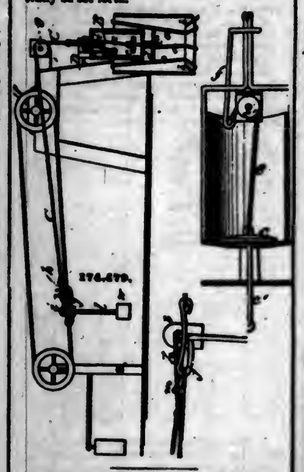
174,679. WATER-ELEVATOR. Jos. Chesnutwood, Omaha, Neb. [Filed Feb. 12, 1875.]

Brief.—A gravitating device is attached to the endless rope or chain, to which the bucket is fastened, which gives the up and down movement to the bucket. The bucket is of spiral form, with an opening through its bottom, provided with a valve, and below the bottom of the bucket is a disk, which will spread the water, and discharge it into the trough. The disk also serves as a guide for the valve-stem.

1. The rope or chain C, attached to the bucket ball, and also to the ball h, in combination with pulley g, block i, hanger j, arm n, rod l, weight p, and endless rope or chain C, substantially as described.

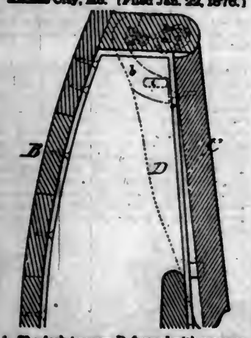
2. The tripping-rod f, rope or chain c, pulley c', and valve e, in combination with the gravitating-arm D and well-bucket E, as set forth.

3. In combination with the disk d and well-bucket, having a bottom vent, the guide-rods a and annular receiving-gutter b, substantially as set forth.



174,679.

174,680. SCHOOL-DESKS. John W. Childs, Kansas City, Mo. [Filed Jan. 22, 1876.]



1. The desk-top arm D, formed with recesses or covered slots a b and shoulder d, in combination with the pintle h and stop i, substantially as and for the purpose set forth.

2. The cushion m, inserted in the recess a on the arm D, around the pintle h, for the purpose set forth.

174,681. SCREW-DRIVER-FASTENING. Clara F. Clark, Wakefield, Mass. [Filed Sept. 4, 1875.]



The device A, consisting of the plate B, having slots a a', pin-hooks C C, and catches D D, combined and arranged substantially as and for the purpose set forth.

174,682. HAT-CUTTING. George M. Clark, Hopkinton, Conn. [Filed Feb. 3, 1876.]

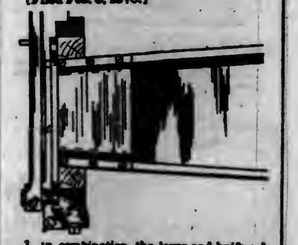
Brief.—The bearing-plate is attached to the face of the cutter by means of two stationary fingers and one adjustable one.



174,682.

The combination of the frusto-conical disk f, having a, stationary fingers b b, and adjustable finger b', all substantially as described.

174,683. FEED-CUTTERS. Thomas J. Clark and George M. Clark, Higganum, Conn. [Filed Feb. 9, 1876.]



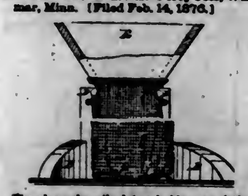
1. In combination, the lever and knife a d, part-circular shaft f, and corresponding socket h, all substantially as described, and for the purpose set forth.

2. In combination, the lever and knife a d, sleeve c, and part-circular shaft f, all substantially as described, and for the purpose set forth.

174,684. MOTH-PROOF PAPER. J. M. Cobb, Beloit, Wis. [Filed Jan. 18, 1876.]

As a new article of manufacture, a moth-proof paper or paper-board, made wholly or in part from cedar-wood pulp, for the purpose set forth.

174,685. BAG-HOLDERS. Percy Cole, Willmar, Minn. [Filed Feb. 14, 1876.]



The above-described bag-holder, consisting of the bevoled standard A, hinged hopper E a, and arms D, constructed and operating substantially as and for the purpose specified.

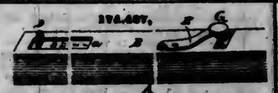
174,686. WRENCHES. B. Collingsworth, St. Louis County, Mo. [Filed Aug. 28, 1875.]



As a new article of manufacture, the wrench formed by the arm C, having jaws D, and the shank E, having a socket, B, said parts being arranged as shown and described, to adapt said arm to its respective functions.

174,687. REGISTERING YARD-MEASURE. John Conner, Pittsburg, assignor to Isaac L. Conner, Coon-Hevile, Pa. [Filed Feb. 16, 1876.]

174,687.



1. The combination, with a yard-stick, A, having slotted top plate B, of the slide D, with rack-bar f, the gears e f' f, shaft C, ratchet h, and pawl n, with knob G and spring H, substantially as and for the purpose herein set forth.

2. The combination of the yard-stick A, slotted top plate B, slide D, rack-bar f, gears e f' f, shaft C, ratchet h, pawl n, pivoted pawl h, springs o p, and knob G, with spring K, all constructed substantially as and for the purpose herein set forth.

174,688. CIGAR-PERFORATORS. Edward L. Cushey, Boston, assignor of one-half his right to Jos. Bowman, Weymouth, Mass. [Filed Jan. 22, 1876.]

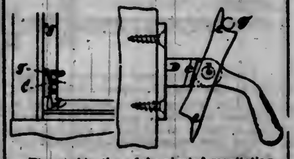
Brief.—A circular plate inside of the device is turned by pressing upon the knob which, by means of cams, throws out the perforators into the cigar.



1. The combination of the ring h, provided with the beveled openings h', the needles h h', provided with springs i, and the flanges e g, provided with openings or slots for said needles to rest in, substantially as and for the purposes above specified.

2. In combination with the knob f, plunger p, and springs, the perforations m and o, spring n, ring h, and needles h h', all constructed and arranged substantially as and for the purpose herein-before described.

174,689. SAIL-FASTENING. Wm. G. Cook, Jersey City Heights, assignor to Sylvanus Lyon, Springfield, N. J., and A. B. Hoyt, Yonkers, N. Y. [Filed Nov. 10, 1875.]



The combination of the pivoted gravitating double catch C, having opposite and notches a a, arranged in reverse relation to each other, the catch-carrier D attached to the cask, and the clasps g on the window-frame, arranged out of vertical line with each other, substantially as shown and described.

174,690. GAGES FOR CUTTING BIAS. Hiram S. Coon, Watertown, N. Y., assignor of one-half his right to L. A. Johnson, same place. [Filed Jan. 31, 1876.]



1. The base plate or gage-bar, and the adjustable gage or guide thereon, in combination with the scissors or shears-holder attached to and adjustable on said bar, substantially as set forth.

2. The combination, with the base-plate, of the gage or guide for the goods, and the scissors-holder placed at an angle to the line of feed or travel of the goods, substantially as and for the purposes set forth.

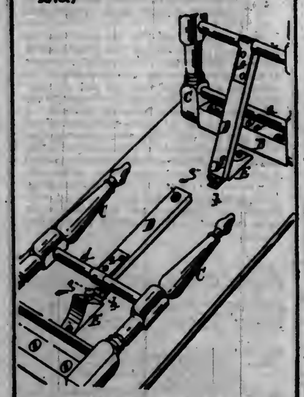
3. The gage or guide, and the scissors-holder, arranged relatively to each other, as described, and adjustable, to increase or lessen the distance between them, substantially for the purposes set forth.

4. The combination of the gage or guide for the goods, the scissors-holder set at an angle to the line of feed or travel, and the presser, substantially as shown and set forth.

5. The slotted base-plate, with scales of division thereon, in combination with the gage or guide and the scissors-holder, adjustable, one or both, on said plate, substantially as set forth.

6. The combination of the slotted base plate having scales of division thereon, the scissors-holder, the gage or guide, and the presser attached to and moving with said guide, for operation as set forth.

174,691. PORTABLE TABLES. Geo. B. Creary, Detroit, Mich., assignor to himself and D. S. Gumly, same place. [Filed July 12, 1875.]



The base B, legs C, rungs c d, brace-bars D, blocks E, stops g, and springs h, in combination with a table-top, substantially as and for the purpose set forth.

174,692. RIDING-SADDLES. W. H. Crosby, Chattanooga, Tenn. [Filed Nov. 16, 1875.]

Brief.—The stirrup rests upon a vertical series of rubber blocks, graduated in depth and thickness, the smaller block at the bottom.



The combination, with a wooden stirrup, A, of the clamp or clasp B C, with nipple a formed thereon, the rod D with loop E, and the rubber bails or springs G G, of different sizes and thicknesses, all constructed substantially as and for the purposes herein set forth.

174,693. ELASTIC LINES FOR HARNESS-CONNECTIONS. Geo. Cartwendall and J. Bonnie, Davenport, Iowa. [Filed Feb. 1, 1876.]



1. The screw-rod C, arranged to operate with the blocks B and ends A of a drop-hammer strap, for adjusting its length, substantially as and for the purpose specified.

2. The rods C and springs D, arranged to operate with the blocks B and ends A of the hammer-strap, for relieving the jarring strain on the reins, substantially as and for the purpose specified.

174,694. HEEL-STIFFENERS FOR BOOTS AND SHOES. Geo. W. Day, Haverhill, assignor to himself and Nathan D. Noyes, Newton, Mass. [Filed Feb. 11, 1876.]



An improved article of manufacture—a counter or heel-stiffener for boots and shoes, made of leather-board, and having its top boundary beveled or reduced on both of its opposite surfaces, substantially as and for the purpose set forth.

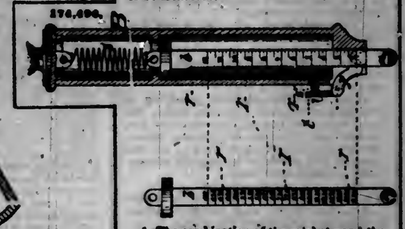
174,695. STONE PAVEMENTS. Andrew B. Dean and Henry H. Higdon, Louisville, Ky. [Filed Jan. 20, 1876.]



A pavement, composed of blocks of stone between which is applied a compound consisting of candle-gum, sand, gravel, and finely-crushed stone or other material, mixed as described.

174,696. SPRING-BALANCES FOR TESTING SILK, &c. Ira Dimock, Hartford, and Geo. Dimock, Willimantic, Conn.; said Geo. Dimock assignor to said Ira Dimock. [Filed Feb. 16, 1876.]

Brief.—A spring-balance provided with a bar graduated to a scale of weights and lengths, for purposes of testing the quantity and quality of silk and other threads. A fixed length of silk thread and a corresponding fixed weight for each length being assumed as a standard, the length and weight of any other quantity are determined by the breaking weight of a piece of thread taken from the quantity to be measured.



174,696.

1. The combination of the ratchet r and the pawl p with the graduated bar b of the spring-balance, substantially as herein described.

2. The graduated bar b, graduated in weights and lengths, substantially as herein set forth.

3. The notched, headed, and notched blanking steel or steels c, in combination with the graduated bar b of the spring-balance, substantially as and for the purpose herein set forth.

174,697. MANUFACTURE OF IMITATION JET JEWELRY. Chas. Downs, Providence, R. I. [Filed Jan. 7, 1876.]



This improvement in the art of manufacturing imitation jet-jewelry, which consists in sticking up, by means of suitable dies, a frame with recesses to receive a fusible enamel, forming the edges of such recesses beaded or serrated for the purpose described, and filling such recesses or portions to be ornamented with enamel to be fused under the action of heat, substantially as specified.

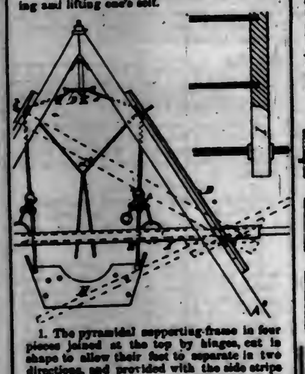
176,496. BUCKLES. Wm. Doyle, Boston, Mass. [Filed Jan. 29, 1876.]



The open U-shaped staple or link E, constructed as described, and adapted to be inserted through the material to which the buckle is to be attached, and having its free ends passed through openings in the buckle-frame and clamped in place, substantially as specified.

176,497. GYMNASTIC APPARATUS. Hiram C. Driggs, New York, N. Y., assignor of one-half his right to O. O. Spencer, East Saginaw, Mich. [Filed Nov. 6, 1875.]

Brief.—A folding frame combined with the usual appliances of a gymnasium, for swinging and lifting one's self.



1. The pyramidal supporting-frame in four pieces joined at the top by hinges, cut in shape to allow their feet to separate in two directions, and provided with the side stripe B B' having therein the holes for pins, substantially as described.

2. In combination with the supporting-frame specified, the revolving apparatus C D, substantially as described.

3. The ladder I joined at the ends and provided with the removable pins, substantially as set forth.

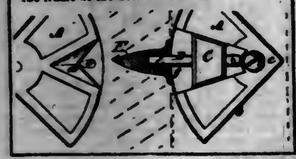
4. An exercising-machine, consisting of the roundabout, the ordinary swing, the hand-swing, the trapeze, the horizontal bar, parallel bars, horizontal and inclined ladder, the seesaw, and the spring-board, all constructed and arranged to operate substantially as herein described.

176,498. PROCESSES FOR REMOVING BURRS, &c., FROM WOOL. E. S. Eastwood, Louisville, Ky. [Filed Oct. 20, 1876.]

The herein-described process for removing burrs, &c., from wool, consisting in first bearing the wool, then subjecting it to the action of dilute sulphuric acid, drying in ovens, and, finally, immersing in a mixture of alkaline and oleaginous matter and drying, substantially as specified.

176,501. SASH-FASTENERS. Lloyd J. Earll, Pittsburg, Pa. [Filed Feb. 2, 1876.]

Brief.—A quadrant-shaped oscillating friction-holder, provided with an elastic band, which may be tightened by passing around a post or stud, has likewise a shouldered oblong bolt, to serve as a positive fastener, and the pockets in which this bolt engages are solid and chambered, with tapering or wedge-shaped ends, adapted to be readily driven into the frame at the desired intervals.



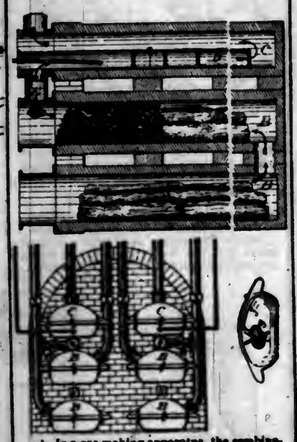
1. The holder A, having recess *d* and post *c*, in combination with continuous flexible band B, as and for the purpose described.

2. The holder A, having perforated lug C, combined with the bolt D, having a shoulder, *f*, upon one side, as and for the purpose described.

3. The solid and chambered socket E, having a wedge-shaped end, adapted to be driven into the wood-work and held in place, for the purpose described.

176,502. APPARATUS AND PROCESSES FOR MANUFACTURING ILLUMINATING-GAS. F. H. Richbaum, Detroit, Mich. [Filed Feb. 3, 1876.]

Brief.—Distills wood in the lower pair of retorts, and passes the gas into an interior retort, into which is admitted a regulated stream of fluid hydrocarbon beyond the opening of the coal-gas pipe. The wood-gas and oil-vapor combine and pass from the inner through the outer retort, where a fixed gas is made. A rich gas is made by the process, and mixed with poor coal-gas. The inner retort is open at both ends, is made of two parts, united by flanges, has interior vertical supports, and has a gas-induction pipe united to its under side. The oil-supply pipe, provided with a coupling-joint, is tapped through the lid of the outer retort. An oil-supply and measuring apparatus is attached to the side of the bench of retorts.



1. In a gas-making apparatus, the combination of the inclosed retort D, open at each end and provided with supports *c'*, of the outer retort C, and the connecting-pipe *c*, substantially as and for the purposes described.

2. In a gas-making apparatus, the inclosed metallic retort D, made in two parts with flanges or cars, adapted to be clamped together end to end, so as to form a continuous retort, substantially as and for the purposes set forth.

3. In an inclosed gas-retort, the central vertical interior supports *c'*, substantially as and for the purposes set forth.

4. In a gas-making apparatus, and in combination with the retort C, and lid *f*, and the inclosed retort D, the pipe H, provided with a coupling-joint adapted for separation of the pipe, substantially as and for the purposes set forth.

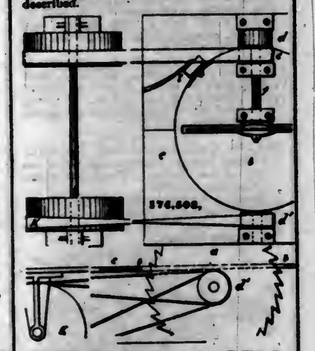
5. The process, substantially as described, of enriching coal-gas by a rich gas produced from wood and petroleum, in the manner set forth.

176,503. CIRCULAR-SAW MILLS. Charles J. Elliott and Horace B. McCool, Pottsville, Pa., assignors of one-third their right to William H. Bright, same place. [Filed Jan. 24, 1876.]

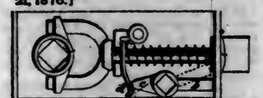
Brief.—A circular saw and mandrel, having a pulley attached to it, is securely fastened to a revolving base-plate.

1. The improved reversible-saw apparatus herein described, consisting of the saw *a*, the plates *b* and *c*, the pulleys *d*, *d'*, and *e*, mandrel *f*, the belts *h* and K, and the belts or lugs *i i*, substantially as set forth.

2. The combination of the saw *a*, the revolving plate *b*, the stationary grooved plate *c*, the mandrel *f*, the pulleys *d*, *d'*, and *e*, the straight belt *h*, the crossed belt K, the pulleys *g g*, and the belts or lugs *i i*, all combined and connected as and for the purpose described.

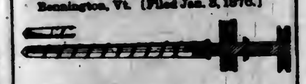


176,504. ECCE-LATCHES. Henry H. Hwell, Norwalk, Conn., assignor to the Norwalk Lock Company, same place. [Filed Feb. 21, 1876.]



In combination with a latch-bolt, its spring and the locking cam lever *c b*, the collar *a*, with its extension *d* to bear against the cam *c*, substantially as described.

176,505. COP-TUBES. Jeremiah Bates, Bennington, Vt. [Filed Jan. 3, 1876.]



Hollow or chambered cop-tubes or cop-spindles provided with a flange at bottom, having their exterior surface roughened by a spiral rib with variable pitch, and constructed with a solid or closed end in the form of a conical open, substantially as described and set forth.

176,506. PROCESSES OF DETERMINING THE GRADE OF LUBRICATING-OILS. Hiram R. Everest, Rochester, N. Y. [Filed Jan. 6, 1876.]

Brief.—The lighter portions of the oil are distilled off, and the fire-test is applied from time to time to the residual contents of the still, the fire-test determining the grade of the oil, instead of the gravity-test, the burner being indicative of the absence of the lighter portions of the oil, whereas the gravity-test is not.

The process of determining the grade of lubricating-oils, which consists in applying the fire-test therein during their manufacture, substantially as set forth.

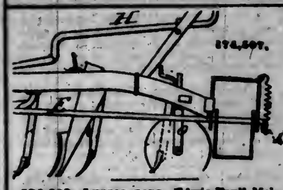
176,507. COTTON-SCRAPERS. L. Ewing, Corning, Ark. [Filed Aug. 7, 1875.]

Brief.—Main wheel laterally movable to throw the chopper-shaft out of gear. The chopper swung upward and held by a crank and spring.

1. In a cotton-scraper, the spring S, in combination with rotating cutter-bearing shaft R, having crank-arm *k*, substantially as specified.

2. The laterally-movable master-wheel O and spring *s*, in combination with the rotating cutter-bearing shaft R, having pinion *o*, substantially as specified.

3. The vibrating lever E, in combination with a laterally-movable master-wheel O, shaft R, and pinion *o*, substantially as specified.



176,508. LUBRICATORS. Edwin Paull, Melbourne, Colony of Victoria. [Filed Feb. 17, 1873.]

Brief.—A pipe rises a short distance within from the bottom of a regulating-cylinder, which covers the bottom of the reservoir above its outlet-pipe. Sponge is placed around the inner pipe, the oil reaching it through ducts in the cylinder, and passing through ducts in the pipe to its destination. The flow is regulated by a screw-threaded plug working into the top of the pipe, and operated by a stem that reaches outside the reservoir.

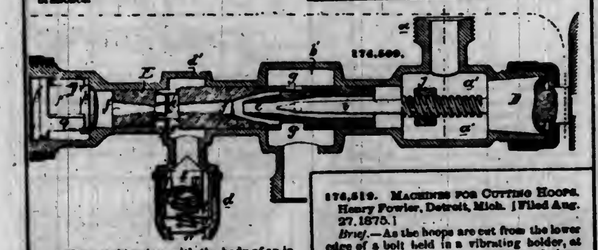


1. The combination of the cylinder B, having passages *b b' d*, with the filtering substance K and the adjusting-cap G, as described.

2. The combination of the cylinder B, having openings *b b' d*, and threaded extensions *b'*, with a cap, G, and valve D, as described.

176,509. INJECTORS. James Fergus, Philadelphia, Pa., assignor of one-half his right to James A. Brown; and said Fergus and Brown assignors of part of their right to George H. Collett, same place. [Filed July 2, 1875.]

Brief.—For facility in cleaning and making repairs, the body of the injector is fitted with a detachable tube, in which are formed the steam-nozzle and the usual passages and openings, which communicate with the interior of the tube, and the water-supply and overflow branches.



1. The combination, with the body of an injector, of a removable tube, B, adapted to a longitudinal opening in said body, and provided with a steam-nozzle, and inlet and outlet openings, the whole being combined with a fixed or movable valve-stem, as herein set forth.

2. The combination of a body, A, and its chambers *a'*, *b'*, and *d'*, and the fixed valve-spindle *i*, with the movable tube D, its nozzle *s*, passages *f f'*, and openings *g* and *h*, and with devices for operating the said tube.

3. The combination of the tapering plug D, and its projecting valve-stem *i*, partly threaded, as described, with the tube B and its set *j*, the recessed edges of which are adapted to ribs *t* on the body of the injector, as described.

4. The combination of the water-chamber *b'* and overflow-chamber *d'* of the injector with the openings *g* and *h* in the tube B, said openings being arranged in respect to each other as and for the purpose herein set forth.

5. The combination of the valve *e*, opening *h*, and contracted portion B of the tube B with the contracted portion of the body A and its valve-seat *n*, and with the overflow-branch, all substantially as and for the purpose herein set forth.

176,510. CONSTRUCTION OF BRIDGES. T. C. Fidler, Emberton, England. [Filed Dec. 12, 1874.]

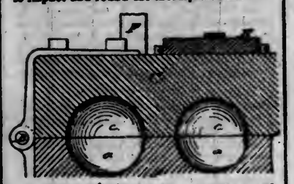


1. A suspended or arched structure, in which two half-ribs are jointed together at the center of the span, each half-rib consisting of a straight member and a curved member, so arranged that the straight member of one half-rib forms a tangent to, or a direct continuation of, the curved member of the other half-rib, substantially as described.

2. The two half-ribs, constructed of plate and angle iron, substantially as described, and hinged to each other and to the piers or saddles, as set forth.

176,511. MANUFACTURE OF BASE-BALLS. Wolf Fleshter, Covington, Ky., assignor of one-half his right to Phillipp Goldsmith, Cincinnati, Ohio. [Filed Feb. 4, 1876.]

Brief.—A hinged and weighted mold is used to inject and round the incomplete ball.

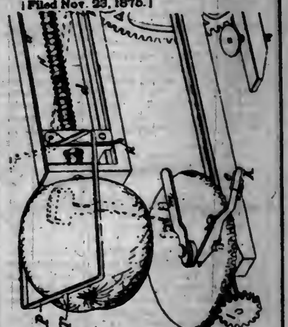


1. The described improvement in the art of manufacturing base-balls, consisting, essentially, in forming and injecting simultaneously the material composing the ball, by means of molds constructed and arranged to operate substantially as specified.

2. The combination of the mold-bed A and injecting-block C, hinged together, and provided with hemispherical depressions, arranged to operate substantially as and for the purpose set forth.

3. The combination of the forming-blocks A C, hinge B, handle D, weight E, and guides F, all constructed and arranged to operate in the manner and for the purpose shown and described.

176,512. COMBINED MACHINERY FOR PARING, CORING, AND SLICING APPLES. James L. Furey, Bellefonte, Pa., assignor of one-half his right to F. B. Wilson, same place. [Filed Nov. 23, 1875.]



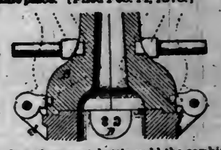
1. The cutting-knife P, constructed and arranged to operate substantially as and for the purpose set forth.

2. The slicing-knife P, provided with the coring device T, constructed and arranged, substantially as described, for the purpose of cutting and coring an apple at the same time, as set forth.

3. In combination with the knife P and nut O, the shaft N, provided with a right and left screw-thread, as herein shown and described, and for the purpose set forth.

4. In combination with the mechanism herein shown and described, the paring-knife E and the slicing-knife P, provided with the coring device T, constructed and arranged to pare, cut, and core an apple at a single continuous operation, as set forth.

176,513. BOTTLE-MOLDS. Saml. Garwood, Williamstown, N. J., assignor of three-fourths his right to John F. Bodine, Chas. B. Thomas, and Arthur F. Wrotnowski, same place. [Filed Feb. 14, 1876.]

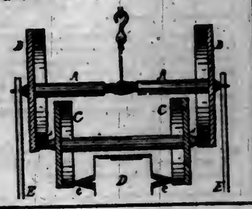


1. In a three-part bottle-mold the combination of the base A with a movable block, D, adapted to a recess in the top of the base, as set forth.

2. The combination in a three-part mold of a block, D, adapted to a recess in the top of the base A, and having a projection to be overlapped by one of the upper hinged portions of the mold, as specified.

176,514. MECHANICAL TOYS. Wm. Gifford, Wellsville, N. Y. [Filed Jan. 22, 1876.]

Brief.—The unwinding of the upper wheel from the cord suspending it is retarded by the lower wheels, carried up the inside of the flanges, as well as by the fly-wheel or fan.



1. A mechanical toy composed of one or more sets of wheels, B C, the beveled ends of the axles of each set running in the inside flanges of the wheels above it, the upper wheels receiving motion from the cord *c* unwinding from the first axle A, and the lower set of wheels having a fly-wheel, D, the beveled ends *c c* of which run in the flanges of the lower wheels, substantially as specified.

2. In combination with the axle A and wheels B B, the frame E, in which any ornamental weight may be set, substantially as specified.

176,516. DOOR-SPRINGS. Jas. K. Gilfillan, Syracuse, N. Y., assignor to Wm. Gilfillan, same place. [Filed Nov. 27, 1875.]

Brief.—The swinging spring-lever is pivoted directly to the rear surface of the supporting-plate, and has a rigid connecting-bar pivoted directly upon its outer end, and detachably connected to a bent secured to the surface of the casing and independent of the hinge-plate.



1. The combination, with the plate A, having a T-slot, a socket, a, eyes *c' c'*, and apertures *e*, and with spring O and pivoted bar E, of the T-headed screw D, one branch of its head riding in the T-slot, and the serrated nut *d*, as and for the purposes set forth.

2. The combination of the bar E, pivoted directly at the rear surface of the supporting-plate A of plate A, having lever-supports *c' c'*, and apertures *e*, and the connecting-bar F, attached to the eye *m*, with the rigidly attached casing-hook G, all arranged as described.

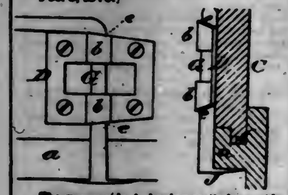
3. The combination of the plate A, having slot *e*, the hook G, having knob *n*, the rigid connecting-bar F, having key-hole slot *f*, and the spring O and the bar E, pivoted on plate A, the connecting-bar F being attached directly to the pivoted bar E, as and for the purposes set forth.

176,517. CLOTH-MEASURING MACHINES. J. S. Gold, Washington C. H., Ohio. [Filed Nov. 12, 1875.]



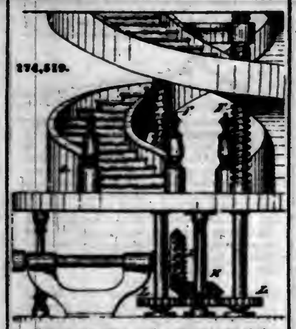
The combination of the rollers *b j*, slides *d*, guides *e*, boxes *i*, cords or chains *l*, and lever *o*, substantially as set forth.

176,518. SPRING-SEAT FASTENERS. Orson S. Gorton, North Brookfield, N. Y. [Filed Feb. 5, 1876.]



The vapor-side A, having on its inner side the grooved rib *a* in combination with the rear G, provided with the tongue *f*; plate D, having rocket *b*, with inclined edges *c*; rod G, provided with bent handle *e*; and the foot-plate J, the whole arranged, constructed, and operated in the manner and for the purpose set forth.

176,519. TURN STAIRS, ELEVATORS, AND LIGHT-SHAFTS. Samuel Gray, San Francisco, Cal. [Filed Nov. 17, 1875.]



The construction and arrangement of the combined twin stairs, elevator, and light-shaft, when operated by means of the driving-shaft I, the bevel-gear J and K, the spur-gear L, the screw-rod *l'*, having the journals O, supported in the hangers N, the sleeves M, in combination with the twin stairs S and light-shaft P, the whole being constructed and operated substantially as and for the purposes set forth.

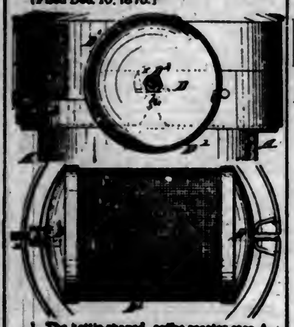
176,520. HANDLES FOR TEA-POTS. Jacob A. Graff, Jersey City, N. J. [Filed Feb. 24, 1876.]

Brief.—The blanks can be cut from narrow strips, and are afterward bent both laterally and longitudinally, and united to form the handle.



The new article of manufacture, a sheet-metal handle for tea-pots and similar utensils, formed from the straight blanks A, B, C, and D, shaped, arranged, and soldered together to form a complete handle, substantially as and with the advantages herein specified.

176,521. COFFEE-ROASTERS. Cassius L. Hall, Ypsilanti, Mich., assignor of one-half his right to Geo. W. Parsons, same place. [Filed Dec. 10, 1875.]



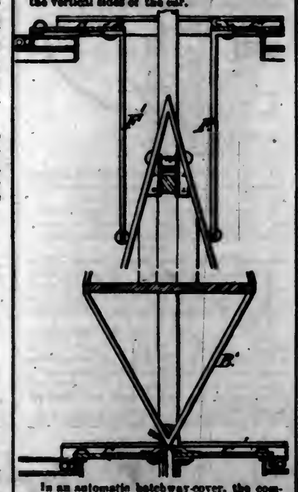
1. The bottle-shaped coffee-roaster case A, having draft-openings *a* in that portion which drops into the stove-hole, and having draft-openings *b* in the body of the case, above the stove-top, as set forth.

2. In combination with the bottle-shaped case A, having draft-openings *b*, the movable cap B, having draft-openings *d*, whereby the air may enter the interior of the case A, or be shut off at will, by rotating the cap, as set forth.

3. The combination of the bottle A with draft-holes *a b* and wide notches *a c*, the cap B with mica front C and draft-holes *d*, and the interior cylinder D D' with central shaft D', all substantially as and for the purposes herein set forth.

176,522. SELF-OPERATING HATCHWAYS. Edward A. Handrahan, Cincinnati, Ohio, assignor to himself and James Sherlock, same place. [Filed Feb. 3, 1876.]

Brief.—The horizontally-moving hatchway-doors are provided with long pendent arms carrying friction-rollers at the bottom, which are acted upon by the fenders of the platform, to separate them, the hatches being returned to place by weights. The pendent arms serve to keep the hatches apart and stationary while the load on the open platform is passing, thus performing the function ordinarily served by the vertical sides of the car.



In an automatic hatchway-cover, the combination of the parts G G', weights J J', runners B B', and arms F F', substantially as and for the purpose specified.

176,523. CAR HEATERS AND VENTILATORS. Edward B. Hargreaves, Sarnia, Canada. [Filed Jan. 28, 1876.]



The combination, with a railway passenger-car, of the following elements: openings through the bottom of the car, an exhaust-fan placed under the car, and connected directly with the said openings, a duct or ducts through the side of the car for supplying fresh air, and a heater or heaters through or around which the fresh air passes, substantially as described and shown.

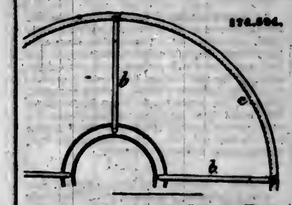
176,524. SHADE-HOLDERS FOR LAMPS. H. W. Hayden, Waterbury, Conn., assignor to Holmes, Booth & Haydens, same place. [Filed Feb. 21, 1876.]

Brief.—Avoids the use of the customary horizontal flange, which obstructs the light.

The shade-holder made of the metal arms *b*, upon which the shade rests, and the ring *c*, that is a strip of metal rolled up and attached to the vertical ends of the arms *b*, as set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON

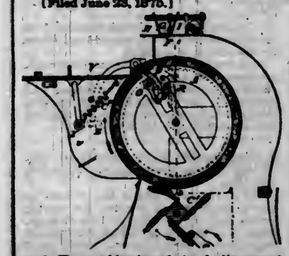
176,525.



176,526. PHOTOGRAPHIC PLATES. Horace M. Hedden, Worcester, Mass., assignor to himself, Reese Morgan, Charles A. Hill, and J. Dean. [Filed Jan. 11, 1876.]

A photographic plate consisting of a sheet coated with a composition of collodion and kaolin, or equivalent opaque backing, and having a surface-film of albumen, all prepared substantially in the manner described.

176,527. BROOMING-MACHINES. David Heston, Philadelphia, Pa., assignor of one-half his right to Robt. S. Monsanto, same place. [Filed June 23, 1875.]



1. The combination of the feeding-trough G and transversely-reciprocating scraper H, arranged to operate substantially as described.

2. The combination, with the cylinder A, covered with elastic material, of the griper D, hinged to said cylinder by a joint which is protected by the said elastic covering, substantially as described.

3. The combination, with the griper and spring T, of the rock-shaft O and arms P and R, constructed and arranged to operate substantially as shown and described.

4. The combination of the cylinder with the table V, arranged to operate substantially as and by the means described for feeding the sheet to the gripers.

5. The combination of the wiper C' and knocker F, constructed and arranged to operate substantially as described.

176,527. MATERIALS FOR CHAIR SEATS, BACKS, VENEERS, FLOORINGS, &c. Francis Blakeman, Reading, Pa. [Filed Oct. 4, 1875.]



A material for chair seats, backs, veneers, flooring, &c., consisting of sawdust or fine shavings, dissolved glue, and melted shellac, and spread upon a backing of cloth or other material, as set forth.

176,528. CURRY-COMBS. C. H. L. Schmeh, New York, N. Y. [Filed Jan. 26, 1876.]

1. A curry-comb having studs or projections *a a* at the front and rear edges, for the attachment of rods leading to the handle, substantially as set forth.

2. The combination, in a curry-comb, of toothed bars and knocker-plates, having at the ends hollow studs or eyes, arranged transversely, or thereabout, for the reception of the rods *b b'*, as set forth.

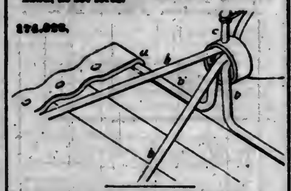
3. A curry-comb provided with a side handle, C, hung to the comb so as to be turned down upon the latter, as specified.

4. The combination of the comb, the bars *b*, jointed to the comb, and the adjustable handle, provided with appliances for connecting it to the bars *b*, substantially as described.

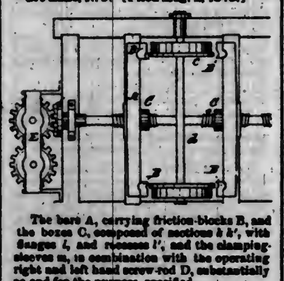
5. The combination of the curry-comb, the handle C, and bars or rods extending from the handle, and terminating and connected to the comb at the front and rear edges.

6. The spring-connections extending from the handle or tang to the back of the comb, and constituting a yielding support for the hand, as set forth.

176,529.

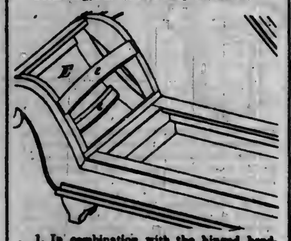


176,529. CAR-BRAKES. John Horner, Dundee Lake, N. J. [Filed Aug. 2, 1875.]



The bars A, carrying friction-blocks B, and the boxes C, composed of sections *b b'*, with flanges *i*, and recesses *i'*, and the clamping-sleeves m, in combination with the operating right and left hand screw-rod D, substantially as and for the purpose specified.

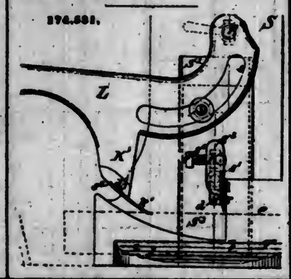
176,530. SOFA-BEDSTEADS. F. A. Hopper, Pittsburg, Pa. [Filed Aug. 19, 1875.]



1. In combination with the hinged head-rest E, the outwardly-bowed strips *c c*, constructed and adapted to give a permanent pillow within, as set forth.

2. In a sofa-lounge, constructed substantially as described, the combination, with the lounge-body having a rolling or sliding front, of the hinged head-rest E, provided with the outwardly-bowed strips, as shown, and for the purpose set forth.

176,531.

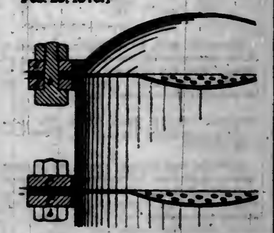


176,531. MACHINES FOR CUTTING LOCKS IN HOOPS. Lewis S. Hoyt, West Liberty, Iowa. [Filed Jan. 11, 1876.]

Brief.—Locks in hoops are simultaneously made by a single oscillation of a slotted lever provided with a knife for making the curvilinear cut, and a vertically-reciprocating knife-stock, actuated by said lever, provided with a friction-roller working in the slot in the lever, and a knife for making the vertical cut. The knives are prevented from coming together at the end of their respective cuts by means of an adjustable stop attached to the vertical knife-stock.

The standards S, formed with the rectangular space S', and the knife-slide S', arranged to move vertically in said rectangular space of the standards, carrying the adjustable knife-stock K, knife *k*, adjustable stop *s'*, and pivot *p*, in combination with the table T, having a series of steps, t, and the lever L, pivoted at its extreme upper end to the standard S, and provided with the curved slot *s*, lateral handle, knife-stock K and knife, all substantially as described.

176,532. LIQUOR-RECTIFYING CYLINDERS. Saml. B. Hulbert, New York, N. Y. [Filed Feb. 20, 1876.]



1. In a liquor-rectifying cylinder, a metallic perforated screen of dished or concave-convex form, secured at its rim to the sides or walls of the cylinder, substantially as and for the purposes set forth.

2. The combination, in a liquor-rectifying cylinder, of flanged sections, perforated metallic screens, whose rims extend between the section-flanges, and re-enforcing wrought-metal bands embracing the flanges and screens, and bound together by bolts which pass also through the flanges and screens, substantially as set forth.

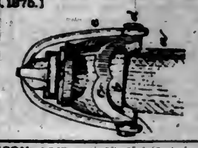
3. In a sectional liquor-rectifying cylinder, the combination, with contiguous flanged cylinder-sections, of a perforated metallic dished or concave-convex screen, whose outer edge extends between the section-flanges, and a pair of wrought-metal bands, which clamp between them the flanges and the screen, and are bolted together, substantially as shown and set forth.

176,533. CAR-TRUCKS. Charles T. Jeffries, Philadelphia, Pa. [Filed Feb. 3, 1876.]



The combination, in a car-truck or car, of springs G G', hung at the center to said truck or car, and each bearing at one end upon the axle-boxes of the end wheels, and connected at the opposite end to a rocking bar, H, hung to the frame or to the axle-box of the central wheel, as set forth.

176,534. BOTTLE-STOPPERS. Gustaf Johnson, Cambridgeport, assignor to himself, Halsey J. Boardman, Charles Mingay, and J. S. Barrow, Boston, Mass. [Filed Sept. 28, 1875.]



HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

1. The stopper-piece A *i*, loop *e*, and collar *c*, provided with cam *d*, in combination with the lever *f*, provided with the horizontally-extended thumb-piece *m*, adapted to rest on the top of piece *h* when the stopper-piece is forced in the bottle-opening to hold the loop and lever, substantially as described.

2. The combination, with a bottle, of a one-piece collar formed thereon, substantially as described, and adapted to grasp the enlarged head and engage under the flange, as and for the purpose set forth.

3. The combination of a one-piece collar provided with cam and projections, with a loop pivoted to such ear.

4. A one-piece cast-metal collar provided with projections to engage a flange or projection on the bottle neck or head, substantially as described.

174,498. CURTAIN-FIXTURES. John Wm. Johnson, Cincinnati, Ohio. [Filed Jan. 6, 1876.]



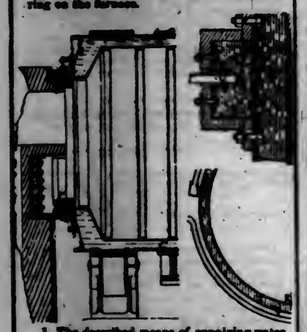
The combination, substantially as specified, of the grooved roller, the caps having, one or both, an aperture in line with the groove in the roller, the hemmed curtain, and the rod for attaching the curtain to the roller.

174,506. CHECKS, BANK-NOTES, &c. Jas. E. Johnston, New York, N. Y. [Filed July 20, 1875.]

A check, money-order, bank-note, or draft having on its face words indicating its payment on demand, and having interest-bearing coupons attached, substantially as herein described and shown.

174,507. ROTARY PUDDLING-FURNACES. R. A. Jones and J. A. Jones, Middlesbrough, England. [Filed July 14, 1875.]

Brief.—Water is led to the annular ring, or to the space between the puddler-casings, by means of a pipe passing under or between two flexible pipes, which close behind the pipe as the puddler revolves. The water is discharged by means of the called pipe. In order to prevent the usual telescope-joint from being filled with cinders, the puddler is connected to the stationary furnace by means of a flanged ring, the flange being bent twice at right angles, and fitting to a corresponding ring on the furnace.

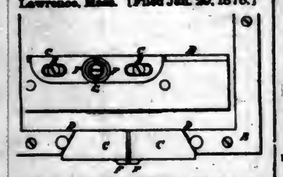


1. The described means of supplying water to the water-space of double-casing rotary puddling-furnaces, consisting of circumferential slots or apertures for reception of a stationary water-pipe, or for the passage of water, communicating with the water-space of the furnace, in combination with heads or packing, which, while yielding to permit the water-pipe or water to enter, will prevent undue leakage or escape of water, the whole being fitted, arranged, and operating as herein shown and described.

2. In combination with the water-chamber of a rotary puddling-furnace, tubular exits or annular channels or ducts, for effecting the egress of the water from said chamber, substantially as set forth.

3. In combination with the revolving barrel and stationary flanged rings of a rotary puddling-furnace, recessed rings intermediate between the revolving barrel and stationary rings, engaged with, and fitted to, said parts for the purpose of effecting the junction of the same, substantially in the manner shown and set forth.

174,508. MOLDERS' FLASKS. B. Josselyn Lawrence, Mass. [Filed Jan. 20, 1876.]



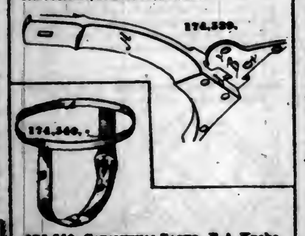
1. The combination of the movable plates C C, their flanges F F, their slots E E, and screw G, with frame A and plates B, in a manner substantially as and for the purpose herein described and set forth.

2. The combination of the plates C C and flanges F F with the screw G, in a manner substantially as and for the purpose herein described and set forth.

174,509. PLOWS. Benjamin S. Kearney, Franklinton, N. C. [Filed Feb. 5, 1876.]

Brief.—The peculiar construction of the plow-standard, fitted to receive the usual number of parts to form a complete plow.

The plow-standard A, constructed as described, with its lower end enlarged equally on both sides, and provided with the perforated rear wing B, whereby the standard is adapted to receive a series of interchangeable attachments, as herein set forth.

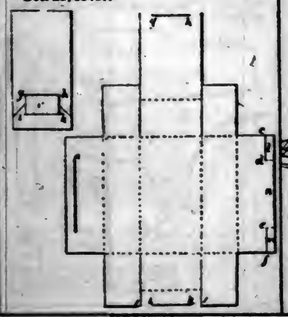


174,510. CATAMENIAL SACKS. F. A. Knabe, Cincinnati, Ohio. [Filed Feb. 17, 1876.]

Brief.—A folded pocket of cloth is buttoned to the usual supporting-strap, and serves to hold napkins or sponges.

The combination, with the belt or waist-support A, of the bandage B, detachably connected at C, the folding receptacle D, connected with the bandage B, and constructed to hold the napkin, and the end covers L, substantially as set forth.

174,511. PAPER BOXES. Frank Kuehne, Austin, Tex., assignor of one-half his right to F. B. Forster, New York, N. Y. [Filed Dec. 20, 1875.]



As a new article of manufacture, the box herein described, made from a single piece cut blank, consisting of a principal or body portion, which forms, in folding, the sides of the box, and from which project correspondingly-situated top and bottom flap-pieces oppositely located, and intermediate locking straps or tongues; the entire blank being folded along the dotted lines, and the tongue-pieces *d* *e* and *c*, passed through their corresponding slits *a b*, *i k*, and *g h*, both and completes the box, substantially as herein described.

174,512. DEVICES FOR TAPPING MAINS. Anthony Latshaw, Pittsburg, Pa. [Filed July 20, 1876.]

Brief.—The sleeve is screw-threaded internally, and is used as a coupling between the tap or threader and the service-valve while being inserted into the main.

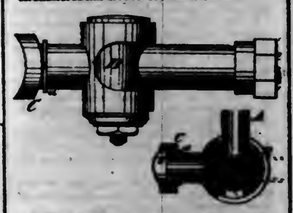


1. In combination with the threader *h* on the drill-rod, the sleeve *i*, adapted to hold the service-valve *k*, as specified.

2. In combination with the valve-section B, terminating in, and formed with, the lateral saddle *b*, the arched clip C, embracing said lating-saddle, and having a central opening, through which passes the section B, substantially as shown and described.

174,513. DEVICES FOR TAPPING MAINS. Anthony Latshaw, Pittsburg, Pa. [Filed Oct. 11, 1875.]

Brief.—The valve-plug is formed with an opening large enough to allow the tapping devices and service-valve to pass through. When it is desired to change the tool, the plug is swung around (its walls shutting off the water) until its opening registers with the circumferential slot in the valve-case.



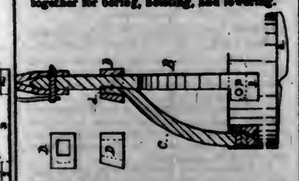
1. In a machine for tapping mains, a valve having its exterior wall or casing slotted circumferentially, as and for the purposes described.

2. In combination with the terminating pipe of the valve-section formed with the shoulders *a b*, the rotatory saddle-clip C, substantially as described.

3. The drill-cylinder A, in combination with the revolvable plug D, perforated as described, and drill-rod, substantially as set forth.

174,514. HEATS-ADJUSTER. J. H. Lippincott, Burlington, N. J. [Filed Nov. 2, 1875.]

Brief.—The bail and brass are pivoted to the auger-bucket, to turn them out of the way when emptying the earth. A notch in the bail and a look-strap secures it and the brass together for boring, hoisting, and lowering.



The combination of the pivoted bail B and pivoted brass C, having notch *d*, with the look D, constructed as shown, and for the purpose described.

174,515. REIN-HOLDERS. Isaac W. Little, Newbury, Mass. [Filed Oct. 13, 1875.]

Brief.—The levers, when dropped upon the ground, prevent forward movement of the vehicle, and, being connected with the reins, also check the animal.



1. The bar or lever A, pivoted at one end to a carriage or sleigh, and formed at the other end, to hold on the ground, and having the sliding or compensating rod *c*, in combination with a strap, *b*, for connecting said bar with a rein, all substantially as and for the purpose hereinbefore set forth.

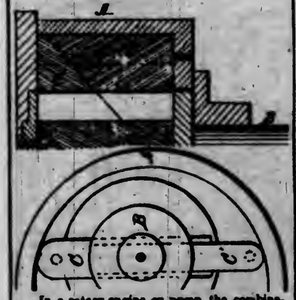
2. The combination of one or two longitudinal pieces, *a*, pivot *d*, rod *c*, spring *f*, and strap *b*, substantially as and for the purpose hereinbefore set forth.

3. The bar or lever A, standard and spring *e*, combined with a carriage or sleigh, substantially as and for the purpose hereinbefore set forth.

4. The combination of the bar or lever A, pivoted at *d*, strap *b*, and cord or strap *i*, substantially as and for the purpose hereinbefore set forth.

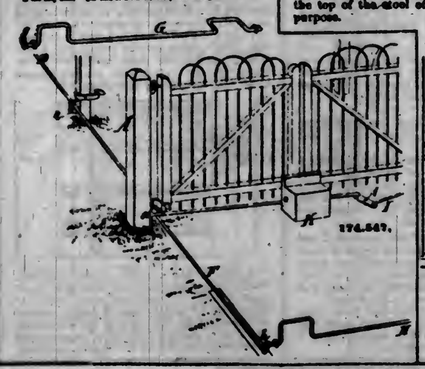
174,516. ROTARY ENGINES. William Lyon, Newark, N. J. [Filed Nov. 29, 1875.]

Brief.—The piston is composed of a shaft and four triangular plates, two of which are grooved to admit the opposite two, so that the latter may move freely back and forth therein. The four plates work in a slot in said shaft, and are expanded by steam to pack vertically and horizontally.



In a rotary engine or pump, the combination, with the case A, of the slotted shaft B and the four triangularly-shaped plates C and C', constructed, adjusted, and arranged to operate substantially as herein set forth and shown, for the purposes specified.

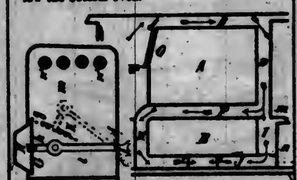
174,517. AUTOMATIC GATES. J. L. Manlove, Paris, Ill. [Filed Nov. 10, 1875.]



The combination, substantially as before set forth, with a pair of gates, each of which is hung to its post at one end by an ordinary hinge, and at the other end by a hinge composed of an oblong-slotted plate and a bent or pintle, of the arched or bowed rock-shafts G H, the cranks *g h* thereon, the rods D F for connecting the cranks to the pintle of the adjoining hinge of one of the gates, and the rods B I and intermediate lever L for connecting the pintles of the adjustable hinges of the two gates.

174,518. RANGES. T. J. March, Limerick Station, Pa., assignor to March, Brownback & Co., same place. [Filed Feb. 10, 1876.]

Brief.—The vertical side flue has a dampered connection with the horizontal flue between the ovens. When this is closed, the products of combustion enter the vertical side flue below the bottom oven.



1. In a range, the combination, with its upper and lower ovens, of an intermediate flue, F, and damper G, substantially as and for the purpose set forth.

2. In a range, the combination, with the upper and lower ovens, of the flues E, D, F, I, J, and M and damper G, substantially as and for the purpose specified.

3. In a range, the combination, with an upper and lower oven and upper intermediate and lower distributing-flues, of an exit-flue formed on the side of the range, having openings communicating with the intermediate and lower flue, and a damper located in the intermediate flue, and adapted to govern an opening in the exit-flue, substantially as and for the purpose set forth.

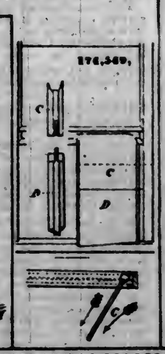
4. In a range, the combination of the perforated plates *n* and *o* with the lower oven E, substantially as and for the purpose specified.

5. The combination of the jointed rods or levers A *i* with the swinging damper G and the stop *k*, substantially as and for the purpose set forth.

6. The combination, with the flues J and H, of the flue-plates *m* and *n*, substantially as and for the purpose set forth.

174,519. CAR-VENTILATOR. George W. Maynard, Lawrence, Mass. [Filed Nov. 6, 1875.]

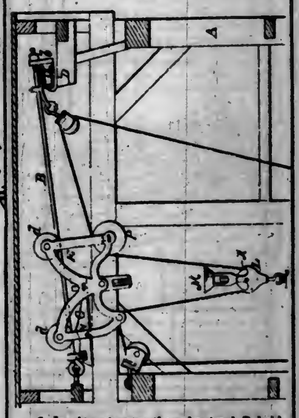
Brief.—The two sections of this ventilator are secured together by a tongue-and-groove joint, which prevents the appearance of a continuous piece of wood. The top or upper part is so constructed that it passes above the lower edge of the sash, and thereby prevents cinders passing over the top and into a car. The bottom or lower end is constructed to pass below the top of the sill of a window for a like purpose.



In a car ventilator and cinder and dust guard, constructed substantially as described, the combination of the section C with the section D, substantially as specified, and for the purposes set forth.

174,520. ELEVATORS AND CONVEYERS. J. A. McAnulty, Indiana, assignor of one-half his right to H. C. Roemer, Centre Hall, Pa. [Filed Feb. 16, 1876.]

Brief.—The suspension-carriage travels by grooved pulleys along an overhead rod, fastened at one end to a gable, the other end having a pulley-carriage traveling along a transverse rod, or one parallel with the rafters, at the other gable. The carriage remains hooked to one end until released by the upward blow of a rod attached to the loaded pulley-frame.



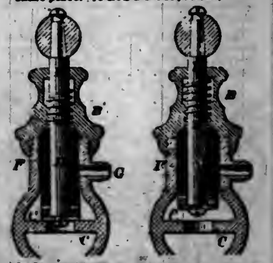
1. In a hay-elevator, the rod or track B, held stationary at one end, and provided at the other end with a pulley operating on a cross-rod, substantially as and for the purposes herein set forth.

2. The combination of the rod or track B, frame *b*, with pulley D, cross-rod C, and eye-bolt *a*, all as and for the purposes set forth.

3. The combination of the hook G, stirrup H, tube I, hooks J J, and plate *k* with the fork-pulley frame L, rim M, and pin *s*, substantially as and for the purposes herein set forth.

4. The combination of the carriage E, having depressions *x*, wooden pulley F, hollow journal *t*, with pointed ends, and the bolt *v*, substantially as and for the purposes herein set forth.

174,521. GLOBE-VALVES. David McKenzie, Jr., Washington, D. C., assignor of one-half his right to Alexander McKenzie, same place. [Filed Feb. 19, 1876.]

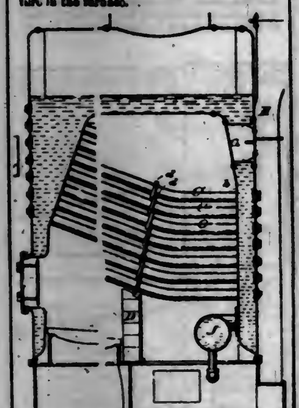


1. In combination with the valve-stem D and elastic tube F, the washer B, provided with the V-shaped annular groove upon its upper side, the office of which is to provide a seat for the elastic tube F, and confine the lower end of the same in position, so that said elastic tube cannot spread or become enlarged at its lower end, in the manner substantially as shown and described.

2. The combination of the valve-stem D, elastic tube F, and waste-pipe G, by means of which combination the latter is enabled to be opened and closed automatically, in the manner and for the purpose substantially as shown and described.

174,552. WATER-TUBE STEAM-BOILER. Merwin McKaig and Walter J. Muncaster, Cumberland, Md. [Filed Jan. 20, 1876.]

Brief.—The water-tubes are bent at a point just in rear of the bridge-wall. Hooks forming a deflector are slipped on each pipe, and lapping each other, so that the tubes may expand or contract according to the temperature in the furnace.



1. The water-tubes C C, connected at their rear ends to the rear tube-sheet b, and passing thence forward, horizontally or nearly so, to a point just in rear of the bridge-wall, then, bending upward at an angle of twenty degrees or thereabouts, they pass through the bridge-wall and over the grate to the front tube-sheet b', thereby being at all points transverse or at right angles to the draft, and with a free upward discharge at the hot end, substantially as set forth.

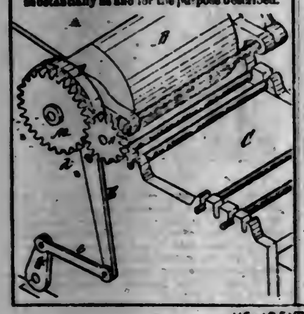
2. A bridge-wall formed of blocks d d, slipped onto, and combined with, the water-tubes, so as to lap one another and permit freedom of motion in said tubes in expanding and contracting, as set forth.

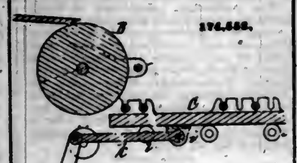
3. In combination, the within-described tubes c, bridge-wall d, furnace-chamber B, surrounded by an outside shell, with steam-dome and face H, and direct damper O, arranged substantially as described.

174,553. ROTARY PRINTING-PRESSES. F. Meisel, Boston, Mass. [Filed July 29, 1875.]

Brief.—Cam-wheel on the end of cylinder actuates the bed through a system of levers, so that the motion of bed and cylinder shall be uniform.

The combination of the cylinder B, shaft a, grooved cam-wheel D, lever E, connecting-rods e h, arms G H, rocker-shaft I, and bed C, substantially as and for the purpose described.





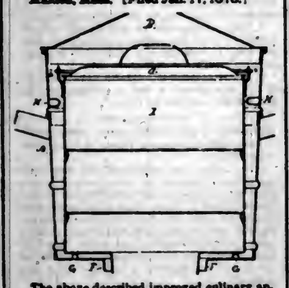
174,554.

1. The sections or boxes of an iron jacket of a bridge-pier connected together by rabbet-joints, substantially as and for the purpose specified.

2. The combination of the foundation-flooring, the rabbet-jointed sections of the iron jacket of the bridge-pier, separately provided with registering tubular bosses, and the tie-rods, which are applied through said tubular bosses, and bind the whole structure together in a vertical direction, substantially as specified.

3. The sections or boxes of the iron jacket of a bridge-pier, having feeders formed on them, substantially as specified.

174,555. CULINARY VESSELS. F. Morandi, Malden, Mass. [Filed Jan. 17, 1876.]



The above-described improved culinary apparatus, consisting of the case A provided with a perforated bottom, D, cover B, a series of horizontal and vertical ribs, G H, and the boiler I, the whole being constructed, arranged, and combined together in manner and so as to operate as set forth.

174,556. FLUID-COOLERS. George Murray, Jr., and J. J. Murray, Hobart, N. Y. [Filed Jan. 20, 1876.]

Brief.—A central ice-box, with adjacent water-tanks at its sides, and means for cutting off water from any of the side tanks, and for collecting the outflows of water in one stationary funnel, and the outflows of milk in a communicating funnel.

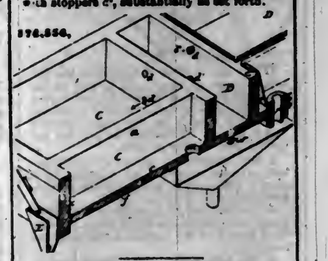
1. The combination of the ice-chest B and two series of separate and independent compartments on the same plane with and at opposite sides of the chest, each having an independent communication with the chest, and adapted to receive a pan, D, as set forth.

2. The combination of the box A, its compartments and pans D, and the tubes and channels leading from the openings d' to a funnel, f, below the opening n.

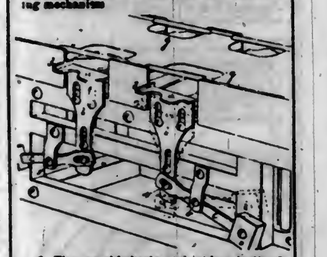
174,556.

3. The detachable funnel-casing J, combined with the box A, its water-compartments C, and with a series of discharge-tubes, F, extending from the pans D through the sealed water-compartments, and each discharging into said funnel, substantially as set forth.

4. The combination of the ice-chest B, two series of compartments, C, arranged on opposite sides of the chest, and communicating therewith through openings d d', provided with stoppers d', substantially as set forth.



174,557.

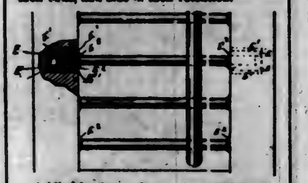


1. The movable horizontal table a, inclined from the rib d, vertical slotted plate b, and weighted lever c, in combination with the frame A and horizontal band-saw D, substantially as and for the purpose described.

2. The vertical reciprocating shingle-carrying tables a a, in combination with the band-saw D and removable table B, all constructed, arranged, and operated as set forth.

174,558. BLIND-STOPS. George H. Nimes, New York, N. Y., assignor of one-half his right to E. S. Brown, same place. [Filed Feb. 1, 1876.]

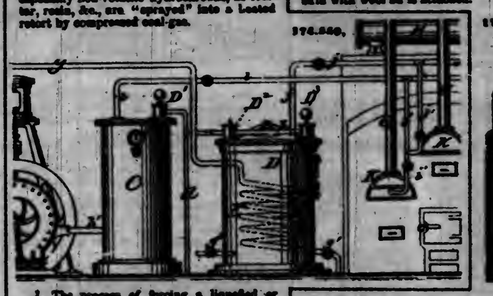
Brief.—An india-rubber socket or journal, inclosed in a metallic ring or short tube, is inserted in the frame opposite the axis of the blind-slat, the axle entering a hole in the rubber. The elastic journal is formed with a projecting semicircular face, which, when the blind slats are in position, presses against their ends, and aids in their retention.



A blind having a frame, A, provided with elastic sockets or journals E inclosed in metal rings or tubes E', and inserted in holes d of the frame, the said journals E being provided with holes f for the axles of the blind-slats, and with projecting faces E'', all constructed and operating as and for the purpose described.

174,559. MANUFACTURE OF ILLUMINATING-GAS. Geo. Olney, Brooklyn, N. Y. [Filed Jan. 19, 1876.]

Brief.—Liquid or liquefied hydrocarbons, especially non-volatile hydrocarbons, as castor, rosin, &c., are "sprayed" into a heated retort by compressed coal-gas.



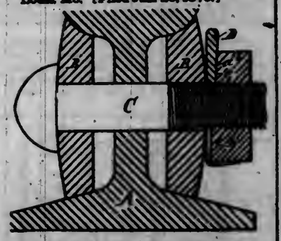
1. The process of forcing a liquefied or liquid hydrocarbon and a carbureted-hydrogen gas simultaneously into a heated retort, working under such pressure as will serve to atomize the hydrocarbon material used, ranging from one to sixty pounds to the square inch, substantially as specified.

2. The process of combining carbureted-hydrogen gas and a liquid or liquefied hydrocarbon, by atomizing the hydrocarbon by means of the gas, so as to pass them together into a heated retort, substantially as specified.

3. The process of forcing a liquid or liquefied hydrocarbon simultaneously into a heated retort by the reactive force of the compressed gas, said gas serving at the same time as a diluent, and causing it to assume an atomized form, substantially as specified.

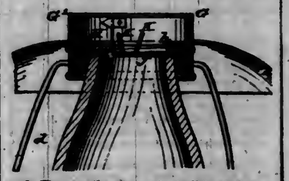
4. The combination, with the retort K, compression-cylinder C, and hydrocarbon-chamber D, of the pipes i i', leading from the said cylinder into the retort, and the pipes j j' leading from the hydrocarbon-chamber D into the same, substantially as specified.

174,560. NUT-LOCKS. William Onions, St. Louis, Mo. [Filed Jan. 20, 1876.]



A nut-lock, consisting of a fastening-plate, D, having a slot, d, and bevel face d', the nut F having bevel face e, in combination with a bolt, C, to operate as and for the purpose set forth.

174,561. LASTENERS. Theo. B. Osborne, New York, N. Y. [Filed Feb. 12, 1876.]



1. The combination of the bisected top band G G', the female screw-collar H, and disk J, with thumb-pieces K K, substantially as and for the purposes herein set forth.

2. The movable part G' of the bisected top band of a fastener-body, connected by one or more wires d, with the horizontal wire b of the surrounding frame, as and for the purposes herein set forth.

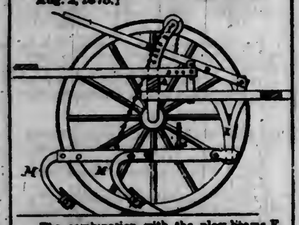
174,562. WOOL DUSTERS. J. B. Overacker, Redwood, N. Y. [Filed July 12, 1875.]

Brief.—The brush-stock is made tapering, and has a series of concentric steps, to which skin with wool on is attached.



The handle A, having a series of steps a a a to which is attached the wool skin with wool on, in sections, B B B, substantially as and for the purpose specified.

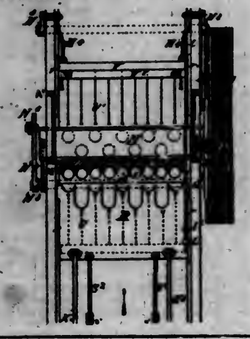
174,563. OILERATORS. Harvey Packer, Sandwich, Ill., assignor to the Sandwich Enterprise Company, same place. [Filed Aug. 2, 1875.]



The combination, with the plow-beams F, of the brackets O, having outward-projecting tubes O' O', cast therewith, the plow-stand-ards M, and the bolts and nuts O' O', all constructed substantially as and for the purposes herein set forth.

174,564. CRACKER-MACHINES. William H. Palmer, Philadelphia, Pa. [Filed Dec. 6, 1875.]

Brief.—The dough is rolled into strips, and passes down in front of a grooved guide-plate to the knife. The latter device has two separate series of cutting-edges, one behind the other. The dough cut by the first drops upon the moving apron, and is carried some distance forward before the second series is brought into action. The crackers are thus arranged in alternate order, and sufficient space is allowed between them. A series of forks is arranged to act in combination with cast series of cutting-edges, to seize and support the dough after it is cut, and after the knife is withdrawn, until they are shaped by the presser.



1. A knife for cutting cracker-bits from strips of dough, having its front edge formed of alternate recesses and projections, all equal in width, and each forming a cutting-edge, substantially as herein set forth.

2. The two series of forks U U' secured to the one and the other of two separate slides, traversing in parallel ways, and combined with the cutting and pressing mechanism of a cracker-machine, substantially as and for the purpose herein set forth.

3. The cutting rollers circumferentially grooved without interspaces, arranged in pairs to revolve over toward each other, and combined in a cracker-machine with a grooved guide-plate, M, and with a knife, R, having two separate series of cutting-edges, all substantially as and for the purpose herein set forth.

174,565. BRUSH-BINDERS. Benj. H. Purdin, Prospect, Ill. [Filed Sept. 2, 1875.]

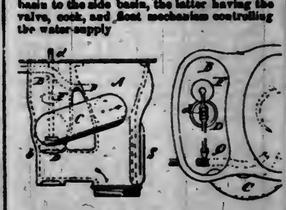
Brief.—The two sides of the binder are made elastic by their being tied together. A horizontal groove in the binder fits under the ferrule to keep the former in place, and a second groove has a spring, which clamps the binder on a brush.



The within-described brush-binder, consisting of the jaws D D, connected together, as described, and provided with the grooves a and a', catches e e, and the springs b b, all constructed substantially as and for the purposes set forth.

174,566. WATER-CLOSETS. Edwd. Pearson, London, England. [Filed Sept. 24, 1875.]

Brief.—The two basins are made of a single piece. The fecal matter passes from the main basin to the side basin, the latter having the valve, seat, and float mechanism controlling the water-supply.



1. The molded basin, formed of a single piece, and having the main basin A, side basin B, connecting-passage C, the valve-seat b, lower chamber and discharge-opening, and also the overflow-pipe S, as described.

2. The combination of the side basin B, having the valve-seat b, with the valve D, float F, and tap Q, as described.

174,567. MOSQUITO-NET FRAMES. Jacob B. Platt, Augusta, Ga. [Filed Nov. 12, 1875.]

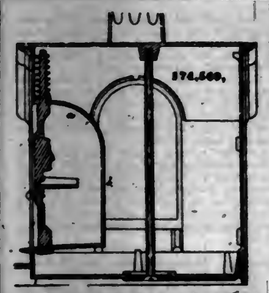


The suspension expanding canopy or mosquito-bar frame, composed of the side and end pieces a and their sockets b, and the corner-pieces c, with their bent ends to enter said sockets, and suspension chains or cords d, as and for the purpose described and represented.

174,568. FERTILIZERS. Geo. J. Popplein, Baltimore, Md. [Filed Feb. 2, 1876.]

A fertilizing compound formed of tripoli or infusorial earth and potash or soda minutely subdivided and intimately mixed, as and for the purpose described.

174,569. TOY MONEY-BOXES. Henry W. Prouty, Boston, Mass. [Filed July 15, 1875.]



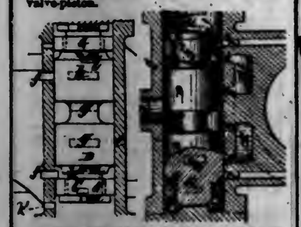
1. In a toy bank the front formed with a niche or carved recess, *a*, having an opening or slot, *b*, in combination with a door provided with a tablet or counter, and pivoted at or near its vertical center, substantially as shown and described.

2. In a toy bank, the combination, with the door, pivoted as described, and provided with a sliding or yielding catch, of a fixed stud or stop, *c*, arranged substantially as and for the purpose set forth.

3. In a toy bank, having a reversible door, hung on vertical pivots disposed near the axis and plane of the door, as described, and provided with mechanism, as stated, whereby the door may be rotated through an arc of one hundred and eighty degrees, and mechanism, as specified, for adjusting and holding the door on either side in parallelism with the front of the bank, a cashier or figure formed or cast on the door, or affixed thereto, substantially in manner as set forth.

174,570. STEAM-VALVES. Edward Purvis, New York, N. Y. [Filed Dec. 16, 1875.]

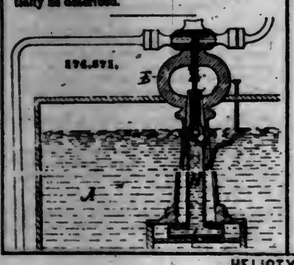
Brief.—When the main piston has nearly reached the end of its stroke, it allows steam to enter a small port and pass to one end of the valve-cylinder, and operate the small piston. While the small port at one end of the cylinder is admitting steam the port at the other end is closed by a ring-valve on the valve-piston.



1. The combination, with the main valve, of loose rings G G', arranged to form auxiliary valves, and serving to control the ports and passages that admit steam to actuate the main valve, substantially as specified.

2. The shoulders *i i'*, on the sliding main valve, in combination with the auxiliary valves G G', essentially as described.

3. The arrangement of the ports and passages H H', I F, *f f'*, *h h'*, and the inlet *d*, with the main valve D, the auxiliary valves G G', the engine-cylinder A, and its piston B, essentially as described.

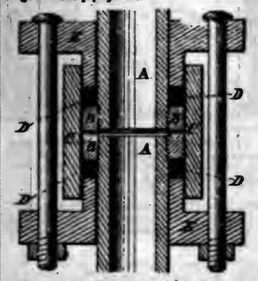


174,571. THERMOSTATIC APPARATUS FOR CONTROLLING VALVES. Henry R. Randall, Brooklyn, N. Y. [Filed Dec. 23, 1875.]

The combination of a tank for containing water, a frame, E, within the tank extending above the same, a tube or chamber, H, arranged in said frame for containing an expansible fluid, and a valve arranged above said tube, and directly controlled by the expansion of the fluid in the tube or chamber, for controlling the admission of the steam or hot air into the tank.

174,572. PIPE-CONNECTIONS FOR ICE-MACHINES. Thos. L. Rankin, Emporia, Kans. [Filed Dec. 14, 1875.]

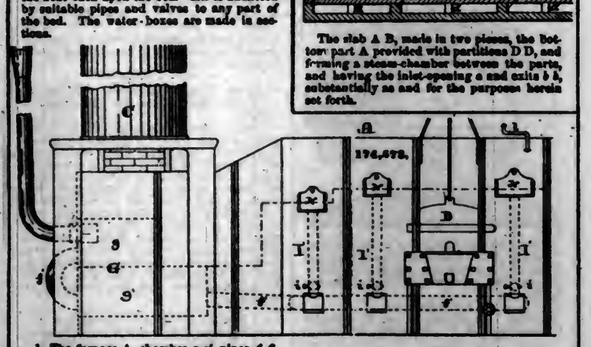
Brief.—The object is to prevent the leakage of gas at the pipe-joints.



The combination, with pipe-sections A A, of the collars B B fastened on the ends thereof, the sleeve or cylinder C, rubber collars D D, glands or followers E E, and bolts G G, all substantially as and for the purposes herein set forth.

174,573. PUDDLING-FURNACES. William L. Reynolds and David Thomas, St. Louis, Mo., assignors of one-third their right to Wm. B. Dean, same place. [Filed Dec. 1, 1875.]

Brief.—The furnace-neck is constructed so as to form re-entering angles, so as to deflect the heat back upon the bed. Air is admitted by suitable pipes and valves to any part of the bed. The water-boxes are made in sections.



1. The furnace A, chamber *a a'*, pipes *f f*, boxes G G, pipes I I I, &c., combined and operating substantially as described.

2. The furnace A, chamber *a a'*, pipes *f f*, boxes G G, pipes I I, &c., chambers J J, &c., perforations K K, &c., and doors E E, &c., combined and operating substantially as described.

3. The combination of the furnace A, pipes I I, &c., chambers J J, &c., perforations K K, &c., and doors E E, &c., substantially as described.

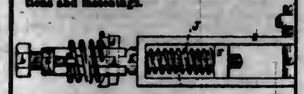
4. The furnace A, chamber *a a'*, and pipes I I, &c., chambers J J, &c., and perforations K K, &c., combined and arranged substantially as described.

5. A puddling-furnace having its rear-end wall E, constructed so as to form the re-entering angles *e e'*, substantially as and for the purpose described.

6. The combination of the furnace A, pipes I I, &c., chambers J J, &c., perforations K K, &c., and valves *i i*, &c., substantially as described.

174,574. CAR DRAW-BARS. J. D. Rhodes, Cleveland, Ohio. [Filed Jan. 12, 1876.]

Brief.—Spring-slide with suitable projections and fastenings.



1. The sliding link A, cheek D, and stem E, in combination with the bifurcated link B, gib and key *c d*, in the manner as described, and for the purpose set forth.

2. In combination with the sliding link A, bifurcated link B, cheek D, stem E, and gib and key *c d*, the spring H, in the manner substantially as described, and for the purpose specified.

3. In combination with the sliding link A, bifurcated link B, and spring H, the head I, spring J, nut F, and case N, substantially in the manner as described, and for the purpose set forth.

4. The king-bolt L and spring M, constructed as described, with projecting nib *e*, in combination with the head I, the bolt-hole provided with a notch, *h*, and recess *i*, substantially as described, and for the purpose set forth.

174,575. SLABS FOR WORKING CONFECTIONERY. Jos. B. Rivers, Baltimore, Md. [Filed Feb. 5, 1876.]

Brief.—Upper part stone, under part cast or wrought iron, separated by partitions and other supports. Heating agent admitted at one end of center compartment, and released at same end of outer compartments.
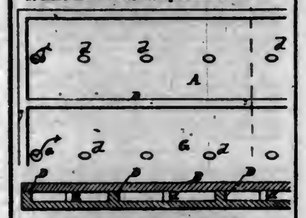


The slab A B, made in two pieces, the bottom part A provided with partitions D D, and forming a steam-chamber between the parts, and having the inlet-opening *a* and exits *b b*, substantially as and for the purposes herein set forth.

174,576. LABELING-MACHINES. Fisk Russell, Cambridgeport, Mass. [Filed Feb. 7, 1876.]

Brief.—A reciprocating carriage projects the label forward between feeding-rollers, which apply it to a grooved pasting-roller. Lifting-fingers in said grooves thrust it over a roller or a set of three lapping-rollers, which support and rotate the can, applying the label.

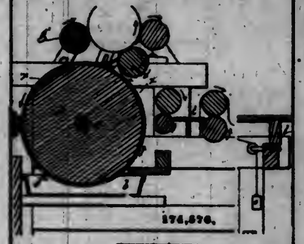
1. The combination, with the pasting-roller, of a label-lifter and an applying-roller, substantially as described.

2. The combination of the elastic or soft-surfaced applying-roller and the auxiliary rollers with a label-lifter and pasting-roller, substantially as described.

3. The combination, with the feeding-rollers, of the pasting-roller, label-lifter, and applying and auxiliary rollers, adapted to operate substantially as described.

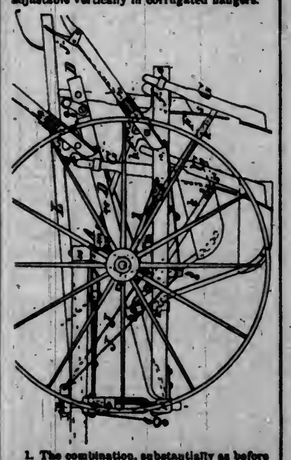
4. The combination, with the pasting-roller and label-lifter, of the adjustable rollers *d' f' f'* and the end gages *e'*, substantially as described.

5. The carriage and feeding-rollers, in combination with the pasting-roller, label-lifter, and applying and auxiliary rollers, substantially as described.



174,577. CULTIVATORS. Andrew Rutledge, Rockford, Ill., assignor of one-half his right to Wm. A. Knowlton, same place. [Filed June 23, 1876.]

Brief.—A pivoted handle with a connecting rod extending from its lower end through the plow-beam to the frame. The draft-pulleys adjustable vertically in corrugated hangers.

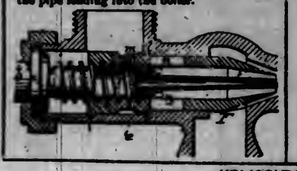


1. The combination, substantially as before set forth, of the main frame, the hand-lever, the flexible connection, and the shovel-beam, provided with an intermediate bearing, to which the flexible connection is applied.

2. The combination, substantially as before set forth, of the vibrating evener, the whiffletrees, the clamp pulley-blocks, the brackets therefor, and the flexible connections between the whiffletrees and the evener.

174,578. INJECTORS. Edward B. Rymear, Upper Dublin, assignor to Wm. H. Green, Philadelphia, Pa. [Filed Sept. 22, 1876.]

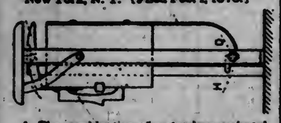
Brief.—Steam is admitted at the inlet, and, passing through the nozzle, issues therefrom in a jet, and escapes at the overflow-chamber. This jet produces a partial vacuum in the water-chamber, and the water, rising, passes in discharge. The plug is now moved back, exposing the openings shown, permitting an increased volume of steam and water, the two combining and passing through the exit into the pipe leading into the boiler.



1. The combination of the longitudinally-adjustable plug F, its openings n and end e, with the valve-face *l* and opening *p* in the casing, all constructed and operating substantially as set forth, so as to regulate the admission of both steam and water by one movement of the plug.

2. The combination of the nozzle G with the hollow plug F, its perforations n, openings n, and tapered end e, the latter being arranged in respect to the tapered opening *p* of the injector as herein set forth.

174,579. PORTABLE SEATS AND STANDS FOR BLACKING BOOTS. Edward M. Sammis, New York, N. Y. [Filed Feb. 1, 1876.]

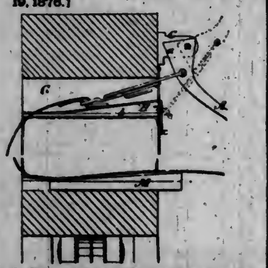


1. The combination of a stand or pedestal with a seat for a blacking apparatus, whereby the two may be folded together for portability, substantially as described.

2. In combination with a blacking apparatus, as described, the folding leg H under the seat, as and for the purposes set forth.

3. In combination with the blacking box and the seat, the self-acting locking device or spring-catch, as and for the purposes set forth.

174,580. BALE-BAND TIGHTENERS. John L. Sheppard, Charleston, S. C. [Filed Feb. 19, 1876.]



1. In combination with a press-box, having channel G in its bed, the lever A, and the arm E, pivoted thereto and carrying band-clamping jaws, substantially as shown and described.

2. The combination, with lever A, arm E, and jaws F F, of springs arranged within the channel G, and bent downward at their free outer ends, as shown and described.

3. The friction-plates I I, extending downward on the front of the press-box to facilitate the movement of the band-tightening device, as set forth.

4. The lever A, bent at an obtuse angle, and pivoted to bracket G, as shown, and the band-clamping jaws pivoted thereto, near said angle, said parts being combined and arranged on the side of the press-box, as set forth, whereby the lever is adapted for self-locking to hold the band.

174,581. LAMP-EXTINGUISHERS. John L. Shillito, Wellsville, assignor of one-half his right to J. M. Hodgen, York, Pa. [Filed Feb. 8, 1876.]



1. The bar B, provided with the journals *b* and *b'*, and with the outward-projecting ends *b'* and *b'*, in combination with suitable bearings upon or attached to the upper end of a wick-tube, substantially as and for the purpose specified.

2. In combination with the hinged or pivoted overweighted bar B, or with the sleeve C, the central enlargement *c*, substantially as and for the purpose shown.

3. In combination with the bar B, *b*, and *b'*, and with the wick-tube F, the frame A, *a*, *a'*, and *e*, constructed in the form and for the purpose substantially as set forth.

174,582. DEVICES FOR SUSPENDING GASALIERS, &c. John R. Shirley, Providence, R. I. [Filed Feb. 19, 1876.]

Brief.—Friction is applied to the sliding tube through the medium of a spring, the tension of which may be regulated by means of a set-screw.

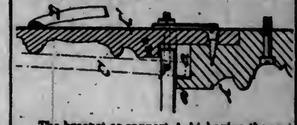


1. The combination, with the springs C C, their ends arranged to conform to the tube and provided with an indented center, of the adjusting-screws *c c*, the whole arranged and operating substantially as and for the purpose described.

2. The combination, with the boss B and tube *a*, of the bolsters *d d*, springs C C, and adjusting-screws *c c*, the whole forming an adjustable friction device for suspending gasaliers, substantially as and for the purpose set forth.

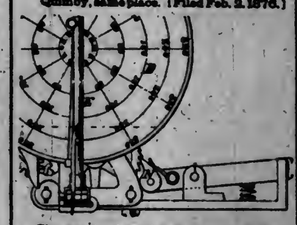
3. The combination, of the spring-pressed bolsters *d d*, arranged to conform to a portion of the section of a tube, with the adjusting-screws *c c*, arranged to regulate the pressure and adjust the frictional resistance, as and for the purpose set forth.

174,583. CLOTHES-DRYERS. Henry Shirey, Fond du Lac, Wis., assignor of one-half his right to Edward Weire, same place. [Filed Jan. 15, 1876.]



The bracket or support A A', having the recess *a* and shoulders *a' a'*, in combination with the threaded and notched wire or bar B, having the radial bars C C, with or without the fastening D, substantially as and for the purpose set forth.

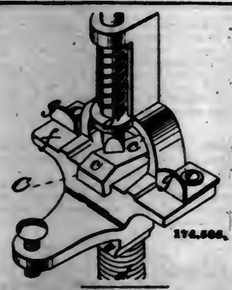
174,584. TIME AND DISTANCE RECORDERS. Calvin W. Simonds, North Bonesboro, N. H., assignor of one-half his right to A. B. Quimby, same place. [Filed Feb. 2, 1876.]



The combination, with the revolving dial D, of the marker E, moved radially by a lever and ratchet, or other suitable connection, actuated by the revolution of the wheel to be measured and retracted automatically at the end of its stroke, substantially in the manner described.

174,585. SAW-SETS. Seymour Smith, Oakville, Conn. [Filed Jan. 20, 1876.]

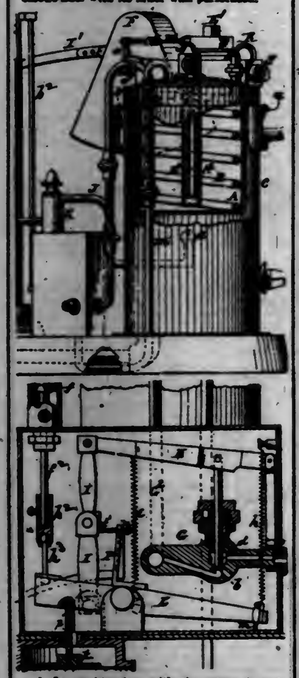
In a saw-setting machine, the frame A, having a wedge-shaped dovetailed seat, a prismatic part, *c*, and a screw-threaded projection, *d*, in combination with a removable anvil, C, provided with a downwardly and rearwardly inclined face *c'*, and the setting-tool A, having an oppositely-inclined face, *i*, substantially as described, and for the purpose set forth.



176,886.

176,886. GAS-MACHINES. T. G. Springer, New York, N. Y. [Filed Feb. 11, 1876.]

Brief.—The flow of oil to the retort and the flow of gas to the burner under the retort are regulated simultaneously and automatically by steam from the water-jacket of the retort pressing upon a flexible diaphragm, which operates a series of levers, their connections, and valves in the supply-pipes. The injector-nozzle has a number of small perforations, so that the apparatus may be worked advantageously with a low pressure. Both air and ordinary city gas are drawn in by the jet of oil-vapor. The retort-neck has an annular smoke-flue, with its inner wall perforated.



1. In combination with the retort A and jacket C, surrounding the same, the flue D, surrounding the jacket, and communicating with the interior thereof by suitable perforations, for the purposes herein set forth.

2. In a liquid hydrocarbon-gas machine, having a valve for lowing on and shutting off the oil, the combination of a jointed arm or trigger, l l, for holding such valve open, and a mechanism for tripping said joint to close the valve automatically by the descent of the bent of the retort below a certain fixed degree, as herein set forth.

3. The combination of the valve d, lever H, jointed arms l l, and spring q, as and for the purposes herein set forth.

4. The combination of the valve f, adjustable valve-stem f^2, coupling M, ball-and-socket connection h^1, lever L, spring h, pin i, and diaphragm O in the chamber N, into which steam is admitted from the retort, as and for the purpose herein set forth.

5. The combination of the gas-valve-operating lever L with arm P, having cut-away n, and the jointed arms l l, lever H, and oil-valve d, all substantially as and for the purposes herein set forth.

6. In an injector for gas-machines, a nozzle having a series of small perforations, or one or more slits, for the purposes herein set forth.

7. In combination with a hydrocarbon-gas machine, an oil-vapor injector connected to the gas main or pipe for the ordinary city gas, and provided with an air-inlet, whereby air and city gas are drawn in at the same time and mixed with the oil-vapor by the suction of the injector, substantially as herein set forth.

8. The combination of the chamber B, strainer V, valve p, mouth-piece W, and nozzle A^1 B^1, all connected substantially as and for the purposes herein set forth.

9. The combination of the injector-tube T, with devices as described, and the valve-chest C^1, with inlets E^1 v, and valve D^1, and passage t, substantially as and for the purposes herein set forth.

10. In combination with the valves D^1 and p, operated simultaneously from a rocking shaft, the lever E^1 and one or more latches, n', for holding or locking the valves in either position, as herein set forth.

11. The valve-locking device herein described, consisting of the levers H^1 E^1, arm H^2, spring d', and latches n', substantially as and for the purposes herein set forth.

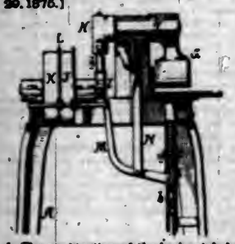
12. The arm f^1, link d^1, and lever I^1, connected to the rod h^1, and operated by the rise and fall of the holder, substantially as and for the purposes herein set forth.

13. The air-chamber K^1, with inlet s', and diaphragm L^1, in combination with the rod s' and lever H^1, substantially as and for the purposes herein set forth.

14. In combination with an oil-valve held open by a jointed arm or trigger, the levers N^1 M^1, rod P, and arms a^2, or their equivalents, for breaking said joint by the rise of the gas-holder above a certain fixed point, for the purposes herein set forth.

15. The combination, with a retort, A, having interior coil B, of the cylinder A^1, pipes F^1 C^1, air-chamber D^1, and pipes E^1 M, substantially as and for the purposes herein set forth.

176,887. STARCHING-MACHINES. Leopold Sternberger, Philadelphia, Pa. [Filed Oct. 20, 1876.]



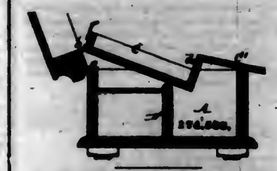
1. The combination of the horizontal shaft g, carrying at one end the rubber G, and provided at the other end with a chambered head, H, with the horizontal shaft i, its fast and loose pulleys J and K, and eccentric l, and the connecting-rod k.

2. The rubber G, made in two sections, n and n', hinged together, and provided with springs s, substantially as and for the purpose set forth.

3. The combination of the guided frame B, operated by the treadle F, with the bed E, its pins c, and springs d, and with the ball-crank lever M and its belt-shifter L, all arranged and operating as set forth.

176,888. COMBINED TABLES AND WRITING-DESKS. David J. Stein, New York, N. Y. [Filed Feb. 9, 1876.]

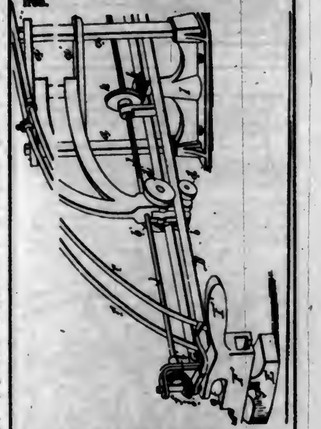
A combined table and writing-desk, constructed of the case A, having the cross-piece F, for the purposes specified, in conjunction with the hinged lid E, and folding desk C C', the whole being adapted to operate substantially as described.



176,889.

176,889. IRONING APPARATUS. Leopold Sternberger and Daniel M. Pfaelz, Philadelphia, Pa.; said Pfaelz assignor to said Sternberger. [Filed Oct. 23, 1875.]

Brief.—A universally-adjustable frame combined with a reciprocating internally-heated iron.



1. An ironing-machine in which a universally-adjustable frame is combined with an iron having a reciprocating motion independent of said frame, as set forth.

2. The combination of the longitudinally-adjustable frame D, carrying at its outer end the iron E and its reciprocating devices, with the laterally-swinging frame H, substantially as set forth.

3. The iron E, having pins adapted to a longitudinal slot in the frame F, and a transverse slot, f', adapted to a pin on a crank, f, at the lower end of the shaft f, as set forth.

4. The combination of the frame F, carrying the iron E with the shaft f, made in two parts, connected together by a universal joint, substantially as and for the purpose described.

5. The combination of the shaft f, its loose bevel-wheel l, and friction-sleeve k, with the lever G hung to the frame F, as set forth.

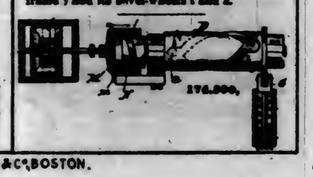
6. The combination of the iron E and its transverse slot f' with a crank, f, rendered vertically adjustable on the shaft f, as and for the purpose set forth.

7. The combination of the iron E and its inlet and outlet openings p and p' with the inlet and exhaust pipes r and r' and the flexible tubes r and r', as set forth.

8. The iron E, provided with inlet and outlet openings p and p', and an internal partition q between said openings, as set forth.

9. The combination of the frame A and lever K with the treadle-lever L, its belt-shifter M, and the fast and loose pulleys J and J' on the driving-shaft m, all being arranged and operating in respect to each other as and for the purpose set forth.

10. The combination of the bevel-wheel i on the shaft f, and the bevel-wheel l on the shaft m, with the longitudinally-adjustable frame f and its bevel-wheels l and k.



176,890.

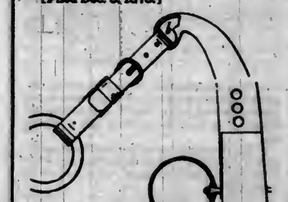
176,890. VALVE-GEARS FOR DIRECT-ACTING ENGINES. Henry Temperman, Springfield, Ohio. [Filed Jan. 12, 1876.]

1. The combination, substantially as specified, of the actuating-arm, the grooved drum, and a separate means for imparting a slight turn to the drum at the end of each stroke of the actuating-arm, thus insuring the continuous rotation of said drum for giving a reciprocating movement to the valve through proper connections.

2. In combination with the arm C a and drum D d, the grooved head L l and reciprocating valve-head M N, operated substantially as and for the purpose specified.

3. In combination with the arm C a and valve-moving drum D d, the cam P and spring-plunger G, operating substantially as and for the purpose specified.

176,891. HARNESS-HAMES. James Thornton, Wellsville, assignor of one-fourth his right to Pratt & Letchworth, Buffalo, N. Y. [Filed Dec. 3, 1875.]



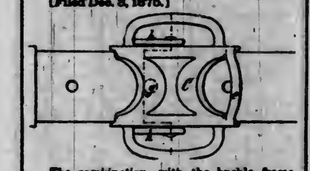
A cast hame-top formed at its upper end with an opening or ring, h, substantially as and for the purpose hereinbefore set forth.

176,892. SAFETY-HOOKS. James Thornton, Wellsville, assignor of one-fourth his right to Pratt & Letchworth, Buffalo, N. Y. [Filed Dec. 3, 1875.]



A safety-hook, composed of two parts, pivoted as shown, and provided with gripping-jaws b b' at one end, and overlapping jaws c c at the opposite end, substantially as and for the purpose described.

176,893. TRACE-BUCKLES. James Thornton, Wellsville, assignor of one-fourth his right to Pratt & Letchworth, Buffalo, N. Y. [Filed Dec. 3, 1875.]



The combination, with the buckle-frame C, provided with tongue g and fixed pivots f f, cast or otherwise formed on the sides thereof, of the swinging bail or loop H, having arms h h turning on said pivots, and being permanently attached to the buckle-frame substantially as and for the purpose herein, before set forth.

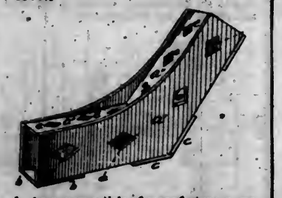
176,894. BURGLAR-ALARMS. Jas. H. Thorp, New York, N. Y., assignor to Geo. B. Fry, Franklin, Pa. [Filed Jan. 21, 1876.]

Brief.—When the hinged lever or arm is turned forward, the connecting line or wire attached thereto and to the detent is drawn taut, and the alarm cannot sound till the door is opened, by which the line is slackened. When the alarm is not to be used, the hinged lever is turned back, and a stop-catch turned into engagement with the detent to hold the latter.



In combination with a burglar-alarm bell, U, the hinged lever G, attached to a door, and connected, by means of the rod or cord h, to a coil-spring, K, said spring being connected, by a cord or wire, e, to a device or detent, which operates the burglar-alarm, all constructed and used substantially as set forth.

176,895. SOCKETS FOR BOAT-KNEES. David Tyne, Salisbury, Mass. [Filed Jan. 22, 1876.]



1. As a new article of manufacture, a metallic elbow-socket, so constructed as to inclose and hold together the adjoining ends of two portions of a boat-knee.

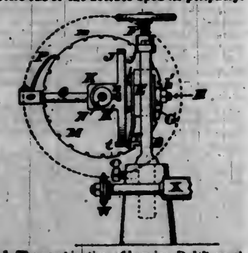
2. The above-described elbow-socket, provided with the openings a, substantially as and for the purpose set forth.

3. In a metallic elbow-socket for boat-knees, the wedge-shaped plates c c, substantially as and for the purpose herein specified.

4. The above-described elbow-socket, having the space d left between plates or cross-pieces b and c for the purpose of allowing the flow of the water in the bottom of the boat, as above described.

176,896. GRAB-CUTTING ATTACHMENTS FOR METAL-LATHES. Carl Walter, Cincinnati, Ohio. [Filed Jan. 19, 1876.]

Brief.—The device is adapted to be attached to the tool-post of a lathe. The blank-holding spindle is journaled in bearings upon a peripherally-notched plate, which can be swung around a central pivot, so as to present the blank at any desired angle to the cutter, and is secured in position by a spring-pawl, which enters one of the notches upon its periphery.



1. The combination of housing D d^2, vertically-adjustable plate J K K', spindle L N, dividing-wheel M m m', detent P, or stop R r, as and for the purpose specified.

2. In combination with the housing D d^2, vertically-adjustable box E, pivot l, plate J f K K' and its accessories L M m m' P R r, the spring T and retaining-stud t, for the purpose explained.

176,897. CHILDREN'S CARRIAGES. Jerome Walker, Brooklyn, assignor to A. A. Post, New York, N. Y. [Filed July 1, 1875.]

Brief.—The frames swing one within the other, and the flexible swinging body can be wound and folded up.

1. The jointed frame A B, in combination with the flexible bed L, having straps l P m m', for suspending and securing it, substantially as and for the purpose set forth.

2. The combination of the canopy Q and chain or cord G with the hinged frame A B, serving to brace or stay the same in the manner set forth.

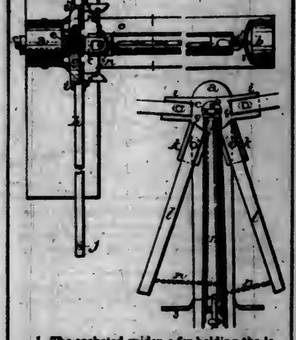
3. The flexible bed L, having straps l P m m' for suspending and securing it, substantially as and for the purpose set forth.



176,897.

176,898. GATES. Henry A. Webber, Rockton, Ill. [Filed Feb. 5, 1876.]

Brief.—The upper inner end of the gate is pivoted in a triangular slot, and moves toward the gate-post, when the long arms are forced up or down, thus releasing the latch, and by means of the arms and chains the gate is swung open or shut. The lower hinge of the gate is constructed to facilitate the closing of the gate.



1. The socketed spider g for holding the levers h i, eyebolt e, and post a, in combination with the gate d, substantially as and for the purpose set forth.

2. The combination of the spider g, collar c, and bolt e, having a triangular-shaped slot at its inner end, substantially as set forth.

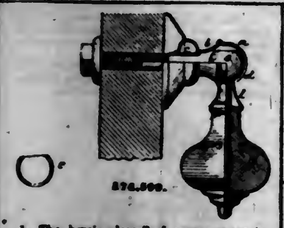
3. The combination of the gate d, having pivot e, bolt e, having triangular slot to receive said pivot, the spider g having arms to receive the levers h i, and suitable fastening to hold the gate both open and closed, substantially as described.

4. The combination of the post a, bolt e, having a triangular slot in its inner end, spider g, operating-levers h i, chains n, gate d, having the hinge c b, whereby the gate is made to close by its own weight, and is prevented from being pulled off the lower hinge while the gate is open, substantially as specified.

176,899. DRAWER-PULLS. W. N. Weeden, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. [Filed Jan. 24, 1876.]

Brief.—The socket is made of two struck-up pieces of sheet metal rimmed together, and the ball is also of struck up metal, and both itself and its neck swaged into d recess upon the spindle-socket.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.



176,000.

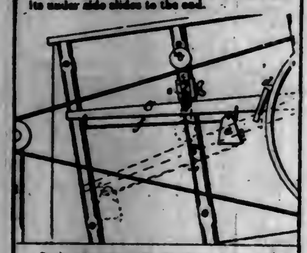
1. The herein described improvement in drawer-pulls, consisting of the ball-shaped neck b and cap a, combined to form the socket for the ball c, the said neck and cap closed together, the edge of one over the edge of the other, substantially as described.

2. The combination of the ball c and neck f, united by the shoulder on one part and projection therefrom into the other, each projection stands down upon the inner surface of the other part, substantially as described.

3. The combination of the ball c and neck f, united by the shoulder on one part and projection therefrom into the other, and the spindle m, with a shoulder to form a bearing in one of the said parts and extend into the other, the said parts secured together by striking or upsetting the spindle, substantially as described.

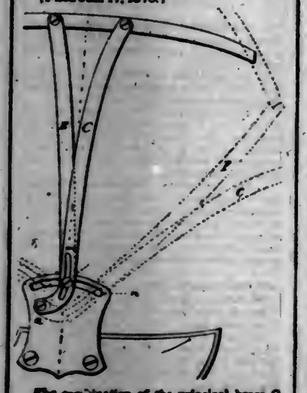
176,001. AUTOMATIC BRAKES FOR TREADPOWERS. John T. Wheeler, Newton, N. J. [Filed Feb. 10, 1876.]

Brief.—A sheet arm, pivoted at one end to the frame, has at its other end a pulley supported by the band. On the breakage of the latter the pulley-arm drops, and the brake-lever, hooked thereto, becomes detached and falls, and a weight clung on a rod affixed to its under side slides to the end.



In combination with the driving-wheel and brake of an ordinary treadpower, the traveling pulley m, lever r, hook B, and sliding weight c, substantially as and for the purposes described.

176,002. TOOL FOR CHILDREN'S CARRIAGES. George R. Whitmore, New Haven, Conn. [Filed Jan. 17, 1876.]

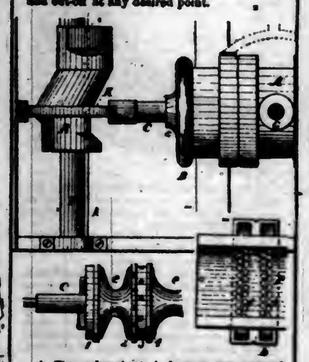


The combination of the principal brace C

and auxiliary brace E, their upper end hinged to the canopy upon opposite sides of a vertical central line, the principal brace hinged to the body at a point on the opposite side of said line, to which its upper end is hinged to the canopy, and a vertical slot, m, in the principal brace, and a horizontal slot, n, in or attached to the body, the pivot of the brace E passing through and working in both said slots, substantially as described.

176,003. BALANCE PISTON-VALVES AND GEARS. James Whitney, Yankton, Dak. [Filed Feb. 23, 1876.]

Brief.—When the pistons which form the valve turn over the ports, steam is admitted through small passages to the back of the packing-rings, to prevent said rings from being forced in by the pressure of steam around the outside. By sliding the cam-shaft to the right or left, the engine can be reversed; when said cam is in a central position, the valve remains stationary. The cams are formed so as to give an intermittent motion to the valve and cut-off at any desired point.



1. The valve-chest A, having two rows of external ports, the steam and exhaust ports of each row being separated by a central partition, and the cylinder provided with rows of perforations leading to each external port, all constructed and arranged substantially as and for the purpose specified.

2. The valve-cylinder, provided with rows of perforations, the perforations in one row being between the perforations of the opposite row, substantially as and for the purpose set forth.

3. The combination, with the valve-chest A, constructed with four rows of perforations leading to four external steam-ports, of the valve D, having four pistons, as shown, substantially as and for the purpose specified.

4. The valve D, provided with passages i, in combination with the metallic packing-rings and perforated cylinder, substantially as and for the purpose set forth.

5. The combination of the packing-rings H, having passages j, with the valve D and perforated cylinder, substantially as and for the purpose specified.

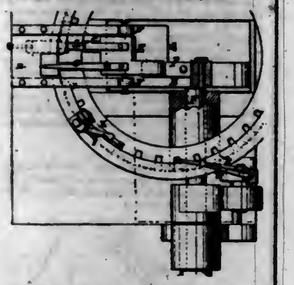
6. The combination, with the yoke K, secured to the valve-stem, of the sliding cam-shaft E, the same constructed with variable cam-surfaces, as above, whereby variable intermittent movements may be imparted to the valve, substantially as and for the purpose set forth.

7. The combination, with the rotary shaft I, provided with spline k, of the sliding cam-shaft E, having a groove, l, the said cam-shaft formed with variable cam-surfaces, substantially as and for the purpose specified.

8. The combination, with the yoke K, of the sliding cam-shaft E, the latter having a portion of its length of less diameter than the opening of the yoke, whereby the cam-shaft may be thrown completely out of engagement with the yoke, if desired, substantially as and for the purpose specified.

176,004. MACHINES FOR FINISHED HORSESHOE-NAILS. Harry A. Wills, Chicago, Ill., assignor to Julia A. Wills, same place, and Leroy S. Kingsland, Burlington, Vt. [Filed Mar. 8, 1875.]

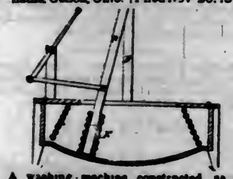
Brief.—The notched ring, that carries the nails, is rotated intermittingly by a pawl, and is locked by a pawl. Two pressure-springs—one of which is indicated to press upon the heads of the nails to hold them down as they successively reach the beveling and trimming dies, they being actuated by a wedge-piece, which, fastened to the reciprocating carriage that carries the punches, slides under the tail of a lever-piece, to which the springs are attached. Another spring serves to turn the lever in the opposite direction, and raise the springs on the withdrawal of the piece.



1. The combination, substantially as described, of the notched nail carrier rim G, the stationary supporting rim E, having the two flanges K K, and the beveling and trimming dies.

2. The combination of the head-pressor L, spring O, oscillating bar M, and the elevating F on the movable die-stock, substantially as specified.

176,005. WASHING-MACHINES. Saml. Williams, Genoa, Ohio. [Filed Nov 20, 1875.]



A washing-machine constructed as described, and consisting of the box A, provided with the upright beams B, cross-beam C, swinging arms D D, and the dasher E, having double face of corrugated and perforated boards, in combination with the partitions constructed of the rollers c c, journaled in the sides of the machine, substantially as and for the purpose set forth.

176,006. SHIRTS. Hyman Wolf and Aron Jackson, New York, N. Y. [Filed Feb. 2, 1876.]



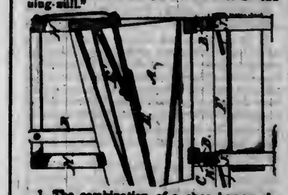
1. The collar A permanently attached along half the length of the collar-band of an open-back shirt, substantially as specified.

2. The yoke C of a shirt made with the annular portion d around the sleeve-hole, and with a button-hole, e, in said annular portion, substantially as specified.

3. The combination, in a shirt, of the waist-band F, perforated yoke C, button-holes b b e f, suspender-straps l m, and vent I, substantially as and for the purpose specified.

176,006. GRAIN-SEPARATORS. O. K. Wood, West Chazy, N. Y. [Filed Sept. 22, 1876.]

Brief.—Devices for giving smooth or true sliding motions to the separator-shoe of a "fanning-mill."



1. The combination of a shoe having detachable swinging suspenders at each end with vertically-movable and corrugated rollers under each end thereof, as and for the purposes set forth.

2. The combination of a freely-swinging shoe suspended at one end and detachably suspended at the other end, a vertically movable and corrugated roller B beneath the detachable end of the shoe, as and for the purposes set forth.

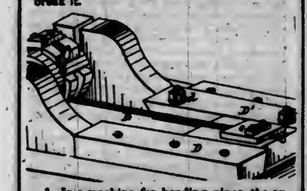
3. The combination of a swinging shoe, A, detachable suspenders D at each end thereof, corrugated plates C, and adjustable corrugated rollers B B under each end of the shoe, as and for the purposes described.

4. The combination of swinging shoe A, detachable suspenders D at either end thereof, corrugated plate C, and rollers B B beneath the end of the shoe, having the detachable suspenders, as and for the purpose set forth.

5. The combination of the diagonally-slotted bars F, roller-supports K, slotted uprights H, and pins, substantially as and for the purpose described.

176,007. MACHINES FOR BENDING TUBING. Robert Wright, Philadelphia, Pa. [Filed Jan. 7, 1876.]

Brief.—A strong coil of round wire, either inside or outside of the pipe, with a spiral coil of thin metal ribbon between it and the pipe. One end of the pipe is clamped in the sliding clamp and the other upon the periphery of the former, when by the rotation of the former the pipe is bent, the friction on the sliding clamp being so regulated as to hold the pipe from crimping, but not tear or break it.

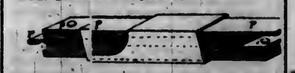


1. In a machine for bending pipes, the application of a longitudinal strain upon the pipe during the operation of bending, by means of the cylinder or former C and clamp a, in combination with the sliding clamp E and guide-plates D and D', arranged substantially as shown and described.

2. In combination with a strong mandrel, H, made of round wire wound spirally, the thin, flat steel ribbon wound spirally upon the mandrel H, and between it and the pipe that is to be bent, to protect the latter from abrasion, substantially as described and represented.

3. In combination with a strong sleeve, H, made of round wire wound spirally, the thin, flat steel ribbon wound spirally within the sleeve H, and between it and the pipe that is to be bent, to protect the latter from abrasion, substantially as described.

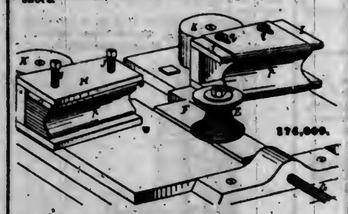
176,008. APPARATUS FOR BENDING PIPES OR TUBES. Robert Wright, Philadelphia, Pa. [Filed Feb. 17, 1876.]



In combination with a sectional metallic packing made elastic, and adapted to fit the interior of the walls of the pipe or tube to be bent, the wedges F, substantially as and for the purpose described.

176,009. MACHINES FOR BENDING TUBING. Robert Wright, Philadelphia, Pa. [Filed Nov. 1, 1876.]

Brief.—A packing (subject of the first claim) is put into the pipe on a mandrel, and sleeve (subject of the second claim) around the pipe. The bending is performed by the advance of the former carrying the pipe between the shoes.



176,009.

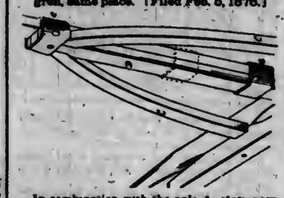
1. In combination with a packing or filling for gas or other pipes that are to be bent, a metallic strip or strips, chain or wire rope passing through said filling, and a nut and screw, or their mechanical equivalent, for expanding said filling against the pipe by longitudinal pressure, as and for the purpose described and represented.

2. A flexible metallic sleeve formed of the rings a, attached to the flexible band b, when applied to the exterior of the pipe or tube that is to be bent, to prevent rupture or crimping of the pipe in the act of bending, substantially as described.

3. The former built up out of a series of disks of sheet vulcanite rubber, paper cardboard, leather, iron, or other similar material, as and for the purpose described.

4. The shoes E I, in combination with their back supports K, as and for the purpose described and represented.

176,010. RUNNING-GEARS. A. B. Wright, Winterset, Iowa, assignor of two-thirds his right to E. C. Mercer and F. G. Nohlgren, same place. [Filed Feb. 5, 1876.]

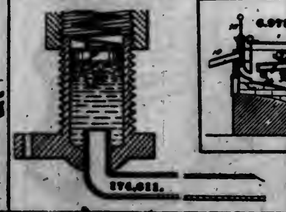


In combination with the axle A, stationary portion D, and bounds C C, provided with the collar d, the sliding portion E provided with the collar d', all constructed to operate as and for the purpose described.

176,011. OIL-CUPS FOR JOURNALS. Amer R. Yost, Somerset, Ohio. [Filed Feb. 16, 1876.]

1. The piston hinged to the end of the spring to adapt it to assume an inclined position when the plunger is being withdrawn from the cup, as and for the purpose specified.

2. The combination of the oil-cup and cap thereof, respectively, screw-threaded exteriorly and interiorly throughout their length, and the plunger having a hinged valve and a spring-stem adapted to fit the cavity or chamber of the cap, all as shown and described, whereby the adjustment of the cap compresses the spring and thus gradually forces out the lubricant.



176,011.

REISSUES.

6,971.



6,971. TEMPERING GLASS AND FURNACES THEREFOR. F. B. A. Royer de la Bastie, Paris, France. Patent No. 167,717, dated Dec. 16, 1874. [Filed Feb. 24, 1876.]

Brief.—The heated glass is immersed in oil, &c., or a liquid susceptible of a greater temperature than water under ordinary pressure.

The process herein described for tempering glass, consisting in the subjection of the hot glass to a bath, the temperature of which is above the boiling-point of water.

6,972. TEMPERING GLASS AND FURNACES THEREFOR. F. B. A. Royer de la Bastie, Paris, France. Patent No. 167,717, dated Dec. 16, 1874. [Filed Feb. 26, 1876.]

Brief.—The heated glass is immersed in oil, &c., or a liquid susceptible of a greater temperature than water under ordinary pressure.



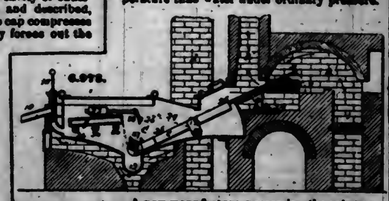
1. In combination with the oven for heating and the bath for plunging, communicating with each other, the rocking table c, substantially as and for the purpose specified.

2. In combination with the heating-oven and plunging-bath, the tables c and 19, substantially as and for the purpose specified.

3. In combination with the heating-oven and plunging-bath, the rocking table c and the receiver g, substantially as and for the purpose specified.

6,973. TEMPERING GLASS. F. B. A. Royer de la Bastie, Paris, France. Patent No. 167,717, dated Dec. 16, 1874. [Filed Feb. 26, 1876.]

Brief.—The heated glass is immersed in oil, &c., or a liquid susceptible of a greater temperature than water under ordinary pressure.



6,973.

A new manufacture, possessing the substantial properties herein described, consisting of glass subjected, while in a highly-heated state, to a temperature above the boiling-point of water, substantially as described.

6,976. BOX-LOOPS FOR CARRIAGE-TIRES. Charles H. Davis, Syracuse, N. Y. Patent No. 99,004, dated Sept. 21, 1869. [Filed Dec. 14, 1874.]



The box-loop A, formed out of thin plate metal, as described, with the legs or spurs H projecting therefrom to affix it to carriage-top, either with or without the plate C, substantially as and for the purposes specified.

6,975. LUBRICATORS. Timothy Holland, New York, N. Y. Patent No. 98,900, dated Nov. 10, 1869. [Filed Dec. 20, 1875.]



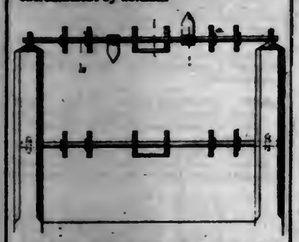
1. The combination of the rib *j* on the neck of the oil-holder D and the collar *g*, formed and applied substantially as and for the purpose set forth.

2. The collar *g*, cut open or divided, substantially as set forth, in combination with the lip *i* on the neck of the oil-holder, for the purpose specified.

3. The neck *h* of the oil-holder, constructed with the beveled end, in combination with the packing *k* and the oiler-cap F, substantially as and for the purpose set forth.

6,976. WIRE FENCES. William D. Hunt, Scott, N. Y., assignor to Charles Kennedy, Aurora, Ill. Patent No. 97,117, dated July 20, 1867. [Filed June 2, 1875.]

Brief.—The fence-wire is provided with transverse spurs or barbs, to protect it against encroachment by animals.



A fence-wire provided with spurs, for the purpose specified.

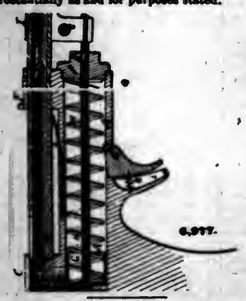
6,977. SPRING AIR-PISTOLS. H. M. Quackenbush, Herkimer, N. Y., assignor to A. A. Pope, Boston, Mass. Patent No. 159,900, dated Nov. 17, 1874. [Filed Feb. 11, 1875.]

1. In air-guns or pistols, the combination of a horizontal air-chamber, a barrel superposed on the said chamber, and having its rear end in communication therewith, a spring-impelled plunger within said chamber, and a piston or plunger-rod adapted to seat the plunger, and to then return to its first position independently of said plunger, substantially as set forth.

2. The sliding barrel D and cylinder A, in combination with the spring-impelled plunger G and rod *c*, connecting the plunger with the barrel for operation, substantially as set forth.

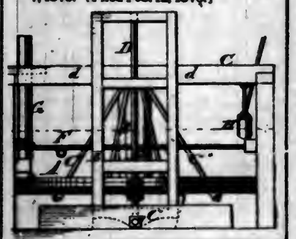
3. In combination with the barrel and the plunger-rod the adjustable clasp I, substantially as and for the purpose shown and described.

4. The cap, *f* with its stud *g*, in combination with the spring H, rod *c*, and barrel D, substantially as and for purposes stated.



6,977.

6,978. HORSE-POWERS. Hemphill Smith, Tipton, Tenn. Patent No. 120,678, dated Nov. 7, 1871; reissue No. 5,226, dated Jan. 7, 1873. [Filed Feb. 12, 1875.]

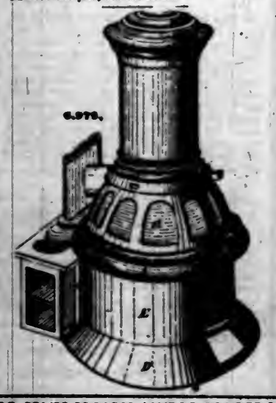


1. The draft-rope F and windlass G applied to the frame C of a horse-power, substantially as and for the purpose specified.

2. The draft-weight H applied to the horse-power, in combination with the rope F, as specified.

3. The horse-power wheel A, having the boat-wood rim A', with the teeth bolted thereto, substantially as described.

4. The shaft B, having the gudgeon-plate B', the journal of which turns in a movable cross-piece, *b*, adjustable in the notched longitudinal pieces *d d*, in combination with the pivoted frame E, substantially as described, and for the purpose set forth.



6,979.

6,979. BARK-BURNING STOVES FOR HEATING AND COOKING. John V. B. Carter and Jas. Dwyer, Detroit, Mich., assignors to the Detroit Stove Works. Patent No. 121,626, dated Oct. 6, 1872; reissue No. 5,927, dated June 29, 1874. [Filed Nov. 28, 1875.]

1. In a diving-flue heating-stove, with its ascending flue inclosed within the walls of the stove, and on the rear thereof, the combination of a culinary attachment, supported at the rear and upon the base, and between said base and the ring which forms the base of the combustion-chamber proper, and adapted to be heated by the products of combustion in their passage from the combustion-chamber to the exit.

2. In a diving-flue cylindrical-shaped heating-stove, and in combination therewith, a culinary attachment, adapted to be placed upon the rear of said stove, with openings communicating with corresponding openings in the walls of the ascending flue, substantially as and for the purposes described.

3. In a diving-flue heating-stove, a low-down double-walled oven or culinary attachment, located in rear of the fire-pot, with its upper and under surfaces in the same planes, or nearly in the same planes, with the top and bottom of said fire-pot, in combination with a rear inclosed ascending flue.

4. In combination with a heating-stove having revertible and base flues, a culinary attachment placed directly against the rear flues of said stove, so that the inner wall or front of said culinary attachment is adapted to be heated by direct radiation from the fire-pot, while the other walls of said attachment are heated by the products of combustion in their passage from the base to the exit, substantially as and for the purposes set forth.

5. In a heating-stove, and in combination therewith, a culinary attachment provided with suitable openings, to allow the products of combustion to be directed from the flues of a revertible-flue heating-stove into the inclosed flue space surrounding the oven, placed between the ring which forms the base of the combustion-chamber proper and the base of the stove, substantially as shown and described.

6,980. PROCESSES OF ORNAMENTING METAL AND OTHER PLATES. Benj. G. George, London, England. Patent No. 113,766, dated Apr. 18, 1871. [Filed July 10, 1876.]

1. The above-described process of ornamenting metal plates and other material, and of obtaining gold, silver, and other colored metallic effects by lacquering or varnishing the metal or other material, as set forth, and then transferring thereto a printed picture, design, show-tablet, or lettering, the lacquer, &c., serving both as a sizing and also to produce and display the gold or other metallic effects through the open spaces of the design, and through the transparent colors employed, substantially as specified.

2. The above-described process of producing white or other colored imitation grounds, on which the pictures, designs, show-tablets, or lettering have the appearance of lying; but which really are only printed color made to fit or register in between and around various portions of the design, but which are transferred with the design from the transfer-paper to the metal, &c., and answering the purpose of a ground, substantially as and for the purpose set forth.

3. In the process of producing ornamental plates in the manner described and claimed, embossing the portion having the gold, silver, or other metallic effects, substantially as and for the purpose specified.

4. The described process for producing a border or imitation frame to the transferred printed work, such border being the plain metal or other material uncovered, exposed, and bare, or only covered with transparent color, lacquer, or varnish, instead of the opaque color, bronze, paint, metal-leaf, paint, or gilding heretofore employed.

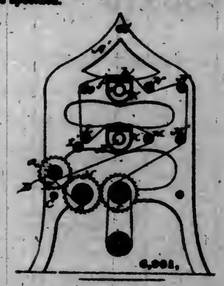
6,981. MACHINES FOR STEAMING CLOTH. Wm. Rebdon, Boston, Mass. Patent No. 144,674, dated Jan. 20, 1874. [Filed Dec. 31, 1875.]

Brief.—The winding-spit is composed of two tapering bars fitted to each other, which are removed from the roll separately. While the cloth is winding, the bars are torn therefrom and wound on a separate roller.

1. In a machine for steam-sponging cloth or other material, an unwinding-roller, I, a fleting or selvage roller, G, and a winding spit or roller, D, in combination with suitable guide-rollers and a supporting-frame, all arranged and operating substantially as described.

2. The steam-boxes K K, combined with rollers I G D, guide-rollers L M, &c., and frame A, all arranged and operating substantially as described.

3. In a machine for steaming cloth, the combination with the steaming apparatus, of a removable winding-spit, D, composed of two parts, *d d'*, adapted to be disconnected from each other and removed from a roll of cloth, substantially as described, for the purposes specified.



6,981.

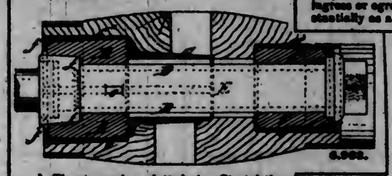
6,982. FERROTYPE-PLATES AND FERROTYPES. Horace M. Hodden, Worcester, Mass., assignor, by mesne assignments, to himself, C. A. Hill, John Dean, and Rhesa Morgan. Patent No. 100,291, dated Mar. 1, 1870. [Filed Feb. 18, 1870.]

Brief.—A metal plate is provided with a coating composed of linseed-oil and india-red, or equivalent substances, for producing a chocolate-colored base or background for the picture.

1. A ferrotype-plate covered by a coating composed of linseed oil and india-red, substantially as and for the purpose set forth.

2. A ferrotype, when taken upon a reddish-brown or chocolate-colored plate, prepared substantially as described.

6,983. WRINGS FOR WRINGERS. Gabriel Löwrich, Brooklyn, assignor to John B. Gammin, New York, N. Y. Patent No. 159,940, dated Feb. 16, 1875. [Filed Dec. 17, 1875.]



6,983.

1. The recessed or slotted ring O', and the radial spur *c* of the box or bearing D, in combination with the hub A and a cushion or cushions, the whole to operate substantially as and for the purpose set forth.

2. In an elastic hub, the internal sleeve G, and combined to permit radial play of the box or bearing D with the said bearing and one or more elastic cushions B C, the said sleeve to close the inner end of the space-sections, substantially as and for the purpose set forth.

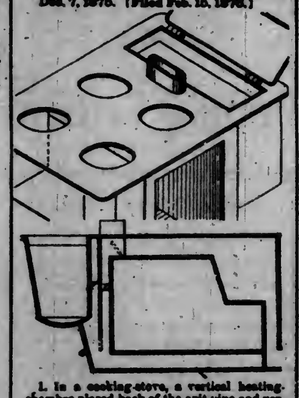
3. The cloths O', constructed with the retaining-flanges *f'*, in combination with the hub A and its elastic cushions B C, substantially as and for the purpose set forth.

4. The radial spur *c'* on the box D, in combination with a recess, *b'*, provided in the sleeve O', the whole arranged substantially as shown in Figs. 2 and 3, as and for the purpose set forth.

5. The radial spur *c* on the box D, in combination with a recess *b* in the sleeve G, the whole arranged substantially as shown in Figs. 1 and 7, for the purpose set forth.

6. The elastic hub, comprising the box or bearing D, with one or more circumferential shoulders *f*, provided with the nut F at its outer end, and having the radial spur *c*, one or more elastic cushions B C, the ring O', and the sleeve G, to permit the radial play of the box D, all combined for operation substantially as and for the purpose set forth.

6,984. COOKING-STOVES. B. Bassey, Troy, N. Y., assignor of one-half interest to C. A. McLeod. Patent No. 99,092, dated July 24, 1860; reissue No. 6,786, dated Dec. 7, 1875. [Filed Feb. 15, 1876.]



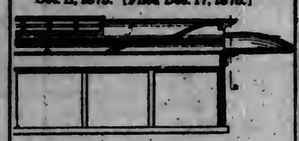
1. In a cooking-stove, a vertical heating-chamber placed back of the exit-pipe and vertical flues, and inclosed against the front wall of a water-reservoir by means of an intermediate vertical plate located between the rear oven-wall and the front wall of the reservoir, with the vertical intermediate plate forming the rear wall of the flues opposite the reservoir, substantially as and for the purposes herein described.

2. In a cooking-stove, a vertical heating-chamber placed back of the exit-pipe and rear vertical flues, in combination with the ascending flue, with the latter in communication with the chamber, substantially as and for the purposes described.

3. In a cooking-stove, the vertical plates N N, or their equivalents, to divide off the spaces opposite to and back of the descending flues, and between the rear wall of the descending flues and the reservoir front wall, with openings formed in the rear wall of the flues, connecting the flues with the spaces, substantially as and for the purposes described.

4. An intermediate plate between the reservoir and oven, with openings in the same for ingress or egress of gases of combustion, substantially as and for the purposes described.

6,985. STREET-CARS. John Stephenson, New York, N. Y. Patent No. 61,482, dated Jan. 22, 1867; reissue No. 6,000, dated Oct. 11, 1875. [Filed Dec. 17, 1875.]



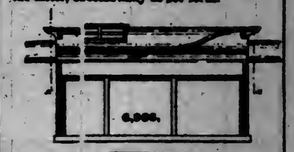
1. A street-car in which the body and roof are made of the same, or for all practical purposes of nearly the same, length, substantially as and for the purposes set forth.

2. A street-car, having the ridge of the canopy or roof which shelters the platform made or arranged in a plane lower than the plane of the ridge of the main roof, which covers the car-body, substantially as and for the purposes set forth.

6,986. STREET-CARS. John Stephenson, New York, N. Y. Patent No. 61,482, dated Jan. 22, 1867; reissue No. 6,000, dated Oct. 11, 1875. [Filed Dec. 17, 1875.]

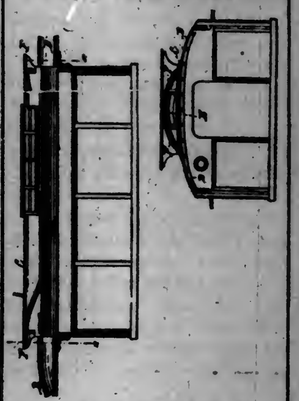
1. A detachable canopy for the protection of the driver's or conductor's platform, substantially as and for the purposes described.

2. The combination of an independent canopy with a street-car; in such manner that the former may be attached to, or detached from, the latter, substantially as set forth.



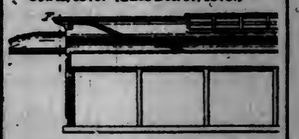
6,986.

6,987. STREET-CARS. John Stephenson, New York, N. Y. Patent No. 61,482, dated Jan. 22, 1867; reissue No. 6,000, dated Oct. 11, 1875. [Filed Dec. 17, 1875.]



A roof, C, of a street-car, in which the end or ends at the sides are made extraneous with the ends of the car, and in which the end or ends at its middle or arched portion F are made to project slightly beyond the end or ends of the car, to form a shelter or protection for the opening or opposite openings in the end or ends of the car, between the central or ridge portion of the roof and the canopy D, which shelters the driver's or conductor's platform, substantially as set forth.

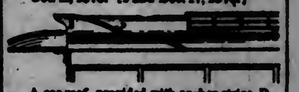
6,988. STREET-CARS. John Stephenson, New York, N. Y. Patent No. 61,482, dated Jan. 22, 1867; reissue No. 6,000, dated Oct. 11, 1875. [Filed Dec. 17, 1875.]



1. A detachable frontlet, F, for the protection of an opening in the end of a car from the sun or inclemency of the weather, substantially as set forth.

2. The combination of a detachable frontlet, F, with the roof of a car-body, constructed in the manner substantially as and for the purpose set forth.

6,989. STREET-CARS. John Stephenson, New York, N. Y. Patent No. 61,482, dated Jan. 22, 1867; reissue No. 6,000, dated Oct. 11, 1875. [Filed Dec. 17, 1875.]



A car-roof, provided with ember-strips D, in the manner and for the purposes substantially as set forth.

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COMMISSIONER'S DECISIONS.

C. B. COTTRELL.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of C. B. Cottrell, for letters patent for* "IMPROVEMENTS IN PRINTING-PRESSES," *filed July* 3, 1875.—*Decided February* 25, 1876.]

Two valid patents for the same invention cannot be granted to the same party. It has been determined by the courts that the one last granted is void.

When the invention, or any material part of it, is sufficiently described in the specification, but is not claimed so as to be protected by the original grant, the proper remedy is to reissue the defective patent.

DUELL, *Commissioner:*

Applicant admits, as an inspection clearly shows, that the subject-matter of this application, filed July 3, 1875, is described in a patent granted to him August 31, 1875, No. 167,227, the application for which was filed July, 11, 1875.

The particular devices are described more fully in this application than in the patent. Others are now eliminated, but the claims herein could have been as properly made in the patent.

The Examiner, therefore, cited the patent as a reference in finally rejecting this application.

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The objection that both applications embraced the same subject-matter should have been urged while both were pending. But, notwithstanding this omission, the question now recurs whether devices described in a patent as forming part of the invention can be validly claimed in a subsequent patent.

The attorney for applicant appears to think that this question was settled by the Board in their decision; but in this he is mistaken.

Before appealing to the Board applicant took an interlocutory appeal from the Examiner to the Commissioner upon two points, first, the form of the claims; and, second, the pertinence of his patent as a reference.

The Commissioner regarded the determination of these questions as involving the merits of the application, and thus a proper matter upon which to appeal to the board, and he, therefore, dismissed the interlocutory appeal.

The applicant then took his appeal to the board. That tribunal discussed at length the claims and the references, and affirmed the Examiner on all points, except as to the materiality of applicant's patent. On that point their conclusion was, that it would be a hardship, in this particular case, to regard the patent as a sufficient reference, the same not having passed into the hands of third parties, but approved the practice as a general rule. At the same time they express the opinion that the point is one of practice under the exclusive jurisdiction of the Commissioner.

Regarded either as a matter of practice, or as going to the merits of the case, the pertinence of applicant's patent as a reference is then a question to be now determined.

Two valid patents for the same invention cannot be granted to the same party. When such are issued the courts hold the one last granted as void. (*Jones* vs. *Sewall*, 6 Fisher, 343; *Suffolk Co.* vs. *Hayden*, 3 Wall., 515.) But when the invention or any part of it is sufficiently described, but is not claimed so as to be protected by the original grant, a remedy is provided by law, not by filing a second independent application, but by reissuing the original patent.

The provision of the statute in regard to reissued patents has been interpreted by the United States Supreme Court as allowing a patentee in a reissue to redescribe his invention, and include in the description and claims of the reissued patent not only what was well described before, but whatever else was not claimed but suggested, or substantially indicated in the specification, drawings, or Patent Office model.

(*Seymour* vs. *Osborne*, 11 Wall., 516.) All this he is permitted to do, and the reissued patent is still regarded as being for the same invention embraced in the original one.

Such being the remedy prescribed by law, to permit parties to pursue another course, and set up such matter in other and independent patents, would be to ignore the statute, and allow applicants to make a law unto themselves.

The provision in regard to reissues would thus be rendered practically a dead letter, for applicants would seldom reissue for that which they might obtain an independent patent.

This statute, too, is notice to the public of the right of a patentee to cover by amendment of his patent, if the same is defective or inoperative, all matter that he may have therein described as his invention; and it also holds out the inducement to all who may become purchasers of his patent that the same may be made operative and valid for that which, by reason of the insufficiency of its description, it failed to protect.

It becomes, then, the duty of the Office, which it owes to the law, the public, and to innocent purchasers, when an application is before it, filed by any person who had previously obtained a patent relating to the same subject-matter, to see whether the matter of the application is embraced in the patent, and if so to require the party to amend his original patent, and not to issue to him a second patent covering the same invention.

So far as merely obtaining two patents for the same invention is concerned, this could be prevented, it may be urged, by rejecting a reissue application whenever made on the subsequent patent. But this plan is objectionable, first, as being opposed to the interpretation of the law relating to the purpose of reissues as now given by the courts, and the present practice of the Office based upon that interpretation—and that is this, that a reissue application can be restricted only so far as the question of novelty is concerned by the state of the art at the time the original application was filed. This is the doctrine of *Grant* vs. *Raymond*, 6 Peters, and has been followed by the same court ever since. A subsequent patent could not, therefore, be urged as a valid reference, and in such a case, the Office being compelled to reissue the original, two patents would then be granted, one of which would necessarily be void; and, second, as failing to protect the interests of innocent purchasers who may purchase a patent upon the sole consideration raised by the statute of making available by a reissue that which is unprotected by the original patent. If, too, an applicant is to be permitted to embody parts of his original patent in subsequent ones, elastic means are thus provided him for stretching out his franchise over all time.

The only safe and proper course, then, to be pursued where an applicant wishes to make a certain device described, but not claimed, in one application the subject of another patent, is to clearly state that intention in the first application. By this means a division is made, and the world notified of it.

If he omit to do this his only proper course then is to reissue and divide his first patent in the manner the law directs.

The decision of the Examiners-in-Chief is affirmed.

ROWE & POST.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Rowe and Post for registration of Trade-Mark for "CUTLERY," &c., filed October 8, 1875.—Decided February, 25, 1876.*]

The act of 1870 provides (as also the Revised Statutes) that any lawful trade-mark rightfully in use on the 6th day of July, 1870, might be registered.

The courts in construing that act allowed the registration of the words "India Rubber Comb Co." as an exception to the general rule, that prohibits the registration of the mere name of a person, firm, corporation, place, or article, or a word or words indicating kind or quality.

The original appropriation of such words, and the exclusive use of them for a long time upon a certain class of goods, had become known and recognized by the public and the trade.

The same state of facts do not exist in this application to register the words "New York Cutlery Co." as a trade-mark, and the general rule governing such cases is to be applied.

SPEAR, *Acting Commissioner:*

Applicants ask to have registered as a trade-mark the words "New York Cutlery Co." in view of the decision in the case of the India Rubber Comb Company. (OFFICIAL GAZETTE, vol. 8, p. 905.)

In that case it was clearly and distinctly held that it was the general rule that no trade-mark could consist of the mere name of a person, firm, corporation, place, or article, or a word or words indicating kind or quality, which any person might employ with equal justice as the applicant; but that an exception to that rule had been established by the courts where some such name or words had been originally appropriated and exclusively used for a long time upon a certain class of goods, until such mark had become known and recognized by the trade and by the public as the peculiar distinguishing characteristic of an article made by a certain person or firm, and the person or firm had by this means become equitably entitled to its exclusive ownership, and that when in any case such a title had been established by the decree of a court of competent jurisdiction, the Office would regard it as conclusive evidence of such proprietorship.

That was the state of affairs in the India Rubber Comb Company case. The court decided that they had established their right to that title as a trade-mark by the fact of long and uninterrupted usage and general acquiescence. The Office regarded the decision of the court as conclusive evidence of that fact.

Another consideration that influenced the Office in that case was the fact that however doubtful might be such a title under a strict construction of the act of 1870, yet, as that act provided, as also the Revised Statutes, that any lawful trade-mark rightfully in use on the 8th day of July, 1870, might be registered, and the words in question having been rightfully in use as a trade-mark at that time by said company, they then constituted a lawful trade-mark, in accordance with the doctrine set forth in numerous decisions of the courts which were cited.

The circumstances of the present cases are entirely different from the one referred to, or from those court cases therein cited. Only two weeks' use of this mark is alleged. In the meantime it may have become the name of an incorporated company, or many other persons may have rightfully used it. It is not on the same footing as an arbitrary fanciful designation, and a right thereto cannot, therefore, be established merely by proof of original appropriation, as in the former cases.

J. ESSEX.—*Reference.*

[*Reference from the decision of the Primary Examiner in the matter of the application of Jeremiah Essex for letters patent for "IMPROVEMENT IN COP-TUBES."—Decided February 3, 1876.*]

Where a caveat and an application for a patent were filed upon the same day, and for the same invention, by different parties, the Office will presume that they were filed simultaneously, and the caveator notified under the provisions of the law.

SPEAR, *Acting Commissioner:*

It appears from the record that the application was filed on the 3d day of January last, and that upon the same day a caveat was filed by another party describing the same invention.

Upon request of the applicant the cases are brought up for decision of the question whether or not the application should be suspended and the caveator notified in the usual manner.

The law prescribes that—

a caveat shall be operative for the term of one year from the filing thereof, and if application is made within the year by any other person for a patent with which such caveat would in any manner interfere, the Commissioner shall deposit the description * * * in the confidential archives of the Office, and give notice thereof by mail to the person by whom the caveat was filed.

There is nothing in the records of the Office to show which, if either, was, in point of fact, filed first, and, in the absence of any such evidence, it must be presumed that the filing was simultaneous. It does not matter, therefore, whether it be considered, as was urged by the applicant, that the first day, or the day on which the caveat was filed, should not be counted. The same rule must be observed both for the caveat and the application.

In order to free this application from suspension and possibility of interference with the application filed by the caveator, it must appear that the application was filed prior to the filing of the caveat. That does not appear. The bounds of the lifetime of both application and caveat are, in this respect, the same.

I cannot take into consideration any representation of special hardship in this case, because it would be manifestly improper to consider any *ex parte* statements whatever. There would seem to be nothing in the attitude of either a caveator or applicant to entitle one more than the other to invoke any special equity in the case.

I do not see why the law should not be strictly applied, and the caveator notified, and direct that it be so done.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

THE GOODYEAR DENTAL VULCANITE COMPANY *vs.* CHARLES L. VAN ANTWERP.

ON BILL, &C., EXCEPTIONS TO MASTER'S REPORT.

The terms *profits* and *damages* as used in the Patent Act are not convertible.

Damages are to be awarded "*in addition*" to the former. Profits, doubtless, refer to what the *defendant* has gained by the unlawful use of the patented invention, and damages to what the *complainant* has lost.

In equity under the existing laws a complainant can recover both profits and damages.

The amount of license fee fixed by the complainant is usually considered a proper compensation in damages, except in those cases where the evidence warrants an allowance of exemplary or punitive damages, by reason of a wanton infringement.

[*B. F. Lee, Esq.*, for complainants.
P. Van Antwerp, Esq., for defendant.]

NIXON, *J:*

The bill of complaint in this case was filed June 17, 1873. It prays that the defendant may be decreed to account for, and pay over to the complainant, all such gains and profits as have accrued to him from his infringement of certain letters patent of complainant, and also, in addition thereto, the damages which have been sustained by the complainant by reason of the said infringement.

A decree *pro con.* was entered against the defendant December 2, 1873, and an order of reference to the master to take an account of the gains and profits, and also of the damages sustained by the complainant. The master has reported no gains and profits, and that one hundred and twenty dollars have been proved as damages.

Four exceptions have been filed to the confirmation of the report:

1. Because the master erred in not stating any facts, as the basis of his report, from which an opinion could be formed as to the matters in question.

2. Because the master erred in not reporting the evidence taken before him, or upon which his report is founded.

3. Because there is no evidence of any damages whatever, and the master should have found nominal damages only.

4. Because there was not sufficient evidence to justify the finding of one hundred and twenty dollars damages.

It will not be necessary to consider these objections *seriatim*. The only witnesses produced for examination before the master were the defendant and Josiah Bacon, the treasurer and general agent of the complainant. The former testified that he first used rubber on his own account about the latter part of 1870, or the early part of 1871, and that he made his last plate of rubber the 9th of October, 1873. He also exhibited a written statement of rubber dental work, and receipts, charges, and expenses, from June, 1872, to October 10, 1873, and deposed that he had used none other except the three pieces of rubber work made about the beginning of 1871.

Mr. Bacon was sworn to prove the rates of license charged by the complainant for the use of their patents in constructing dental plates; and testified that sixty dollars per annum was their minimum price in all cases, unless the license was taken and paid for in advance.

This testimony is annexed to the report of the master. He found that no gains and profits were shown to have been received, and that one hundred and twenty dollars damages have been proved.

The exceptions filed suggest for consideration the principle on which damages are to be awarded for violation of patent rights. By section 4921 of the Revised Statutes, which is substantially a re-enactment of the 55th section of the act of July 8, 1870, courts of equity are authorized, upon a decree being entered in any case for an infringement, to award to the complainant,

"in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby."

Before such jurisdiction was vested in the equity courts damages could only be recovered by suits at law. It is supposed that this somewhat anomalous and confusing authority was given in equitable proceedings to prevent multiplicity of suits. However that may be, the power exists, and it is for the court to determine in all cases how it should be exercised.

The terms *profits* and *damages* as used in the act are hardly convertible. They seem to mean different things. The latter are to be awarded "*in addition*" to the former. Profits, doubtless, refer to what the defendant has gained by the unlawful use of the patented invention, and damages to what the complainant has lost. Before the act of 1870 it was incumbent on the patentee to make his election of remedies, and to proceed at law for the damages which he could show had been sustained from the infringement, or in equity for the gains and profits that the defendant had realized for the unauthorized use of his property. Now no such election is necessary, because he is entitled to pray in one action for the relief both in regard to profits and damages. In order to ascertain these it is generally pertinent to inquire how the owner of the patent has seen fit to use his invention. He may retain a close monopoly in it, and then the damages are computed by investigating the defendant's profits, which are reckoned a fair criterion of the complainant's loss, or he may grant license fees allowing the benefits of his invention to every one who will pay a stipulated price for its use. The amount of the license fee fixed by the complainant is usually considered a proper compensation in damages, except in those cases where the evidence warrants an allowance of exemplary or punitive damages by reason of a wanton infringement. This was the rule of compensation adopted or sanctioned by the Supreme Court in *Seymour* vs. *McCormick* (16 How., 490;) in the second circuit, in the cases of *Sickles* vs. *Borden*, (3 Blatch., C 543,) and *Goodyear's Exr.* vs. *Bishop*, (2 Fisher, 160;) in the ninth circuit, in *Spaulding* vs. *Page*, (4 Fisher, 641,) and in this court in *Emerson* vs. *Simon*, (6 Fisher, 291.)

In the case under consideration the master reported that there was no proof of any gains or profits, and he allowed none. He took testimony showing that the complainant sold licenses to dentists to make or use its inventions; that the minimum price when payment was not made in advance was sixty dollars per annum; that the defendant began to use the rubber plates about the beginning of the year 1871, and continued the use, with intervals, until the month of October, 1873; and from the evidence found one hundred and twenty dollars damages, being the amount of a license for two years.

The defendant's counsel, on the argument, did not seem to comprehend how there could be any damages to the complainant when there were no profits to the defendant. He strongly intimated that because his client made no profits by his infringement he ought to pay no damages. But that is a question which the defendant should have considered when he began to use the complainant's property without authority, and is no answer to a claim of damages. It is as if one went to a livery stable and took a horse without the keeper's permission for a contemplated journey, and when sued for the trespass should attempt to show that he ought to pay nothing, because the use of the animal had not resulted in any pecuniary benefit to him, or because the objects for which the journey was undertaken had not been accomplished. In such a case it would not seem unreasonable that the keeper should at least recover the amount that he was in the habit of receiving from other parties for a similar service or use of his property.

The objections to the master's report are all overruled.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 14, 1876.]

9,133.—Coffin-Handle Socket.—RUSSELL H. BURR, West Meriden, Conn., assignor to C. ROGERS & BROTHERS, same place. Application filed January 31, 1876. Term of patent 7 years.

9,134.—Reversible Shirt-Bosoms.—SAMUEL COHN, New York, N. Y. Application filed February 23, 1876. Term of patent 3½ years.

9,135.—Child's Carriage.—ISAAC COLE, Newark, N. Y. Application filed March 1, 1876. Term of patent 7 years.

9,136.—Dress-Trimmings.—GILBERT H. PAINDLE, Philadelphia, Pa. Application filed February 9, 1876. Term of patent 7 years.

9,137.—Flag-Holders.—JOHN W. BARTH, Jr., Philadelphia, Pa. Application filed March 2, 1876. Term of patent 3½ years.

9,138.—Fan.—LUCY M. BEARD, Brooklyn, N. Y. Application filed March 2, 1876. Term of patent 3½ years.

9,139.—Chinese Lantern.—JOHN H. DE BARRY, Philadelphia, Pa., assignor of one-half his right to M. C. MCDONALD, same place. Application filed February 25, 1876. Term of patent 3½ years.

9,140.—Chain-Links.—VIRGIL DRAPER, North Attleborough, Mass. Application filed March 7, 1876. Term of patent 3½ years.

9,141.—Inkstands and Pen-Racks.—OTTO F. FOGELSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Application filed February 16, 1876. Term of patent 7 years.

9,142.—Pen-Racks.—OTTO F. FOGELSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Application filed February 16, 1876. Term of patent 7 years.

9,143.—Inkstands.—OTTO F. FOGELSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Application filed February 16, 1876. Term of patent 7 years.

9,144.—Fan.—JOHN A. LYNCH, Washington, D. C. Application filed February 29, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 14, 1876.]

3,506.—Illuminating-Oil.—WILLIAM M. BIRD & Co., Charleston, S. C. Application filed February 29, 1876.
"word 'Vestal.'"

3,507.—Horse Hay-Rakes.—DAYTON MACHINE COMPANY, Dayton, Ohio. Application filed January 22, 1876.
"words 'The Rake' and the figure of a star."

3,508.—Mucilage.—JOSHUA Z. DICKSON, San Francisco, Cal. Application filed February 28, 1876.
"words 'Standard Mucilage.'"

3,509.—Mucilage.—JOSHUA Z. DICKSON, San Francisco, Cal. Application filed February 28, 1876.
"words 'Crown Brand.'"

3,510.—Cotton Goods.—E. W. HOLBROOK & Co., New York, N. Y. Application filed January 3, 1876.
"words 'Star Mills' on a white or other colored star, which is inside of a circle, partially surrounded by an ornamental border. Above is the word 'Twilled,' and below the word 'Silesia.'"

3,511.—Paper and Paper Bags.—HOLLINGSWORTH & WHITNEY, Boston, Mass. Application filed March 4, 1876.
"letters 'H. and W.' arranged as a monogram."

3,512.—Buttons.—ISAAC LEHMANN & Co., New York, N. Y. Application filed January 8, 1876.
"representation of General Washington and General Grant in the act of clasping hands, with the dates '1776' and '1876' below the same."

3,513.—Lubricating-Oil.—LIBBY, BARTLETT & KIMBALL, New York, N. Y. Application filed February 28, 1876.
"words 'MINERAL LARDINE.'"

3,514.—Plows.—SOUTH BEND IRON WORKS, South Bend, Ind. Application filed January 28, 1876.
"words 'SOUTH BEND CHILLED PLOW.'"

3,515.—Plows.—SOUTH BEND IRON WORKS, South Bend, Ind. Application filed January 28, 1876.
"words 'OLIVER'S SOUTH BEND PLOW.'"

3,516.—Pocket Cutlery.—THE HUMASON & BECKLEY MANUFACTURING COMPANY, New Britain, Conn. Application filed March 1, 1876.
"letters and character 'H. & B.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 14, 1876.]

588.—Title: "**French Patterns Combination Suits.**"—BENJAMIN F. DEWEES, Philadelphia, Pa. Application filed March 4, 1876.

589.—Title: "**The American Feed for Cattle.**"—R. J. FARRER, Richmond, Va. Application filed March 9, 1876.

590.—Title: "**E. H. Kellogg's Sperm Engine and Spindle Oil.**"—EDWARD H. KELLOGG, New York, N. Y. Application filed March 3, 1876.

591.—Title: "**E. H. Kellogg's Extra Engine and Spindle Oil.**"—EDWARD H. KELLOGG, New York, N. Y. Application filed March 3, 1876.

592.—Title: "**India Soap.**"—JAMES S. KIRK & Co., Chicago, Ill. Application filed March 4, 1876.

593.—Title: "**Thorley's Improved Horse and Cattle Food.**"—PETER H. KYMAL, Jackson, Mich. Application filed March 6, 1876.

594.—Title: "**American or Saratoga Kisseagen Water.**"—EARLE H. SMITH, New York, N. Y. Application filed March 7, 1876.

595.—Title: "**Chartres Coffee Factory & Spice Mills.**" G. VERARD, San Francisco, Cal. Application filed March 9, 1876.

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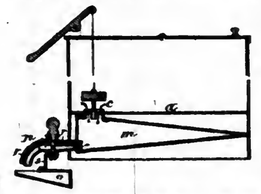
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Niagara Shear Company, assignee	174,636
Northup, L. L., Sash fastener	174,699
Nussey, G. H., and W. B. Leachman, Machine for pressing woven fabrics	174,637
Oakley, T. L., Trimming	6,998
Oberdorff, G. S., Wind wheel and gearing, (reissue)	174,868
Oliver, P. A., assignee	174,700
Ormsby, W., Sash fastener	174,842
Orr, W., Combination padlock	174,843
Oser, F., Thrashing machine	174,638
Otterson, T. G., Fruit jar	174,844
Palmer, G. H., Buckle	174,624
Palmer, L. W., assignee	174,643
Palmer, W. L., assignee	6,999
Paris, D. E., Reservoir cooking stove, (reissue)	174,845
Park, W. K., Combined whistle and flag	174,701
Parker, A. D., Combined strainer and cut off for cisterns	174,846
Parker, E., Shears	174,639
Parsons, T. D., Hinge	174,757
Pates, R. L., assignee	174,847
Perry, E. S., and R. H. Dowlin, Car coupling	6,995
Perry, J. R., Wooden house, (reissue)	174,788
Perry, J. S. and N. B., assignees	174,738
Peters, W., Axle grease	174,640
Peterson, W. L., Churn	174,612
Pharis, I. R., assignee	174,702
Phelps, C. F., Crib muzzle for horses	174,848
Phelps, E. I., Slate cover	174,849
Phillips, A., Boring machine	174,850
Plemleigh, T., Harvester wheel	174,851
Porter, A. W., and F. M. Grimes, Carbureter	174,703
Porter, D., and G. W. Baker, Sewing machine	174,852
Poznanski, J., Combined pencil sharpener, eraser, and holder	174,757
Purcell, E. B., assignee	174,853
Ramsden, J. F., and E. Bowlus, Oiler	174,854
Rankin, T. M., Propeller for vessels	174,739
Read, D. M., Pocket book fastening	174,740
Read, D. M., Pocket book fastening	174,641
Read, J. A., Stove grate	174,774
Reed and Brower	174,741
Rhodes, C. M., Japanning buttons, &c	174,741
Rhodes, M. M., & Sons, assignees	174,704
Rice, E., Toy rattle	174,855
Risley, R. F., Corn planter	174,746
Roberts, J. B., assignee	174,856
Robinson, C. M., and J. F. Lister, Crimping machine for leather	174,642
Rochow, F., Elevator	174,857
Rodermond, J., and P. Corrigan, Waste water trap	174,643
Rounds, S. H., Hydraulic hoist	174,858
Roush, D. S., and S. S. Sarver, Bag holder	174,626
Russell and Erwin Manufacturing Company, assignee	174,705
Saget, J., Anvil for paper cartridge shells	174,858
Sarver and Roush	174,859
Scott, Q. A., Dental plate	174,760
Seal, W. D., Air compressing apparatus	174,861
Settle, T., and D. Carruthers, Loom temple	174,644
Seyfang, G., Bird cage	174 853
Shafer, P. W., assignee	174,862
Shattuck, E. R., Truss	174,863
Shaw, A. B., Cigarette former	174,864
Sheldon, C. B., Window screen	174,742
Shellenback, P., Combined lock and alarm	174,706
Shiveley, C. R., Traction engine	174,865
Simonds, N. M., Range	174,707
Slattery, P., Cotton bale tie	174,866
Smith, C. H., Weather vane attachment for lightning rods	174,868
Smith, F. W., Blasting cartridge	174,645
Smith, H. A., and H. B. Wilkins, Combined stove poker and tongs	174,743
Smith, H. B., Copy holder	174,867
Smith, J. C., Rectifying apparatus	174,830
Smith and Sayre Manufacturing Company, assignee	6,991
Snashall and Baker, (reissue)	174,607
Soesbe, S. W., assignee	174,744
Solt, I., Rotary churn	174,706
Sperber, A., Manufacture of stemmed glassware	174,869
Spidle, M., and H. Holmes, Tuyere	174,745
Squire, W. J., Wrench	174,654
Stevenson, P. H., assignee	7,000
St. George, G., Jr., Stitch ripper, (reissue)	174 870
Storke, E. G., Carpenter's plane	6,996
Swartz, G. A., Windmill, (reissue)	174,709
Sweet, M., Curry comb	174,871
Sweetland, J. B., Elevator	174,839
Talcott, W. A., assignee	174,746
Tally, F. W., Mixing vessel for beverages	174,747
Tarr, B., Washing machine	174,872
Taylor, J. P., Machine gun	174,873
Taylor, J. P., Machine gun	174,710
Taylor, W. T., Fastening for knob spindles	174,874
Thorp, A. H., Fluid trap	174,711
Tivey, E., Elastic hose	174,875
Trimmer, P., Hay knife	174,646
Turner, L. W., and G. J. Capewell, Culinary fork	174,647
Tyler, E. H., Picture cord	174,876
Tyler, H., Hose coupling	174,877
Tyler, H., Pump	174,878
Tyler, H., Pump	174,734
United States Postal Stamp Machine Company, assignee	174,648
Van Camp, A., Concrete pavement	174,822
Vandenburgh, V., assignee	174,712
Vandyne, J. B., Auxiliary air chamber for engine hose	174,748
Van Horn, A. E., Wagon jack	174,879
Vetterlein, J., Carpenter's gage	174,640
Waggoner, A. L., assignee	174,749
Wallis, T. R., Cotton planter	174,750
Waltner, H., Water wheel	174,713
Walton, W. M., Underground telegraph line	174,880
Warfield, T. W., Umbrella	174,754
Warner, J. E., assignee	174,881
Webb, J., Bristle cleaning machine	174,714
Webster Loom Company, assignee	174,714
Webster, W., Wire motion for looms	174,649
Whipple, W. N., Water wheel	174,824
White and Kupferle	174,735
Wichser and Landolt	174,882
Wickes, J. H., Refrigerator car	174,606
Wier, J. M., assignee	174,645
Wilkins and Smith	174,881
Wilkins, W., assignee	6,999
Wilkinson, J. B., assignee, (reissue)	174,883
Williams, I. F., Mat	174,650
Williams, J. W., Grate	174 751
Wilson, J. S., Adjustable key guard	174,885
Wolf, A. N., Water wheel	174,884
Wolff, A. D. B., Piano frame	174,886
Woodbury, E., Grain binder	174,666
Worthington, J., assignee	174 887
Wuetig, F. A., Potato digger	174,888
Yates, W., Governor for steam engines	174,752
Young, W., Oil can	

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MARCH 14. 1876.

174,612. LIQUID-MEASURES. Geo. W. Aldrich, Syracuse, assignor of three-fourths his right to Isaac R. Pharis, Geddes, and Herman Leonard, Syracuse, N. Y. [Filed Jan. 17, 1876.]



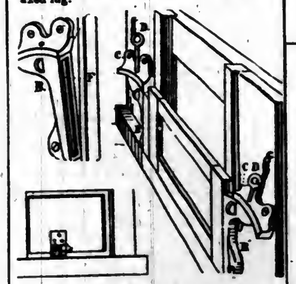
1. In combination with the tank A, having in its bottom the outlet *c*, provided with valve *c*, the measuring-chambers *m m*, having their bottom inclining and their top ascending toward the front, and provided thereat with the faucet *n*, having ventduct *r*, constructed and arranged to operate substantially as described, for the purpose set forth.

2. The combination, with a faucet, of the arm or hook *s*, attached to the spigot, to turn automatically therewith, and carrying at its free end the detachable drip-cup *o*, all constructed to operate substantially as described, for the purpose set forth.

3. In combination with the measuring-chamber *m*, the faucet *n*, having its discharge transversely through the spigot, and through a downward-curved extension of the faucet-barrel in front of the spigot, and provided with the exterior tube *r* on top of the faucet-barrel and its downward-curved extension aforesaid, and an extra passage transversely through the spigot, above and parallel with the liquid-passage through same, constructed substantially in the manner and for the purpose specified.

174,613. CAR-DOOR FASTENINGS. James Alister, Milwaukee, Wis. [Filed May 13, 1875.]

Brief.—The door slides down, and in so doing binds into a groove on a pivoted cam-piece, which is afterward locked (to prevent raising the door) by a pin sliding through corresponding holes in said piece and in a fixed lug.

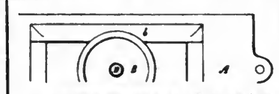


A car-door fastener constructed with side pieces B B, top piece C C, and pins D D, in combination with groove F and car M, substantially as described.

174,614. CAR PIVOT-SUPPORTS. A. Blood, Manchester, N. H. [Filed Oct. 20, 1876.]

Brief.—Straight grooves confine rollers to straight lateral motion. Straight guides confine bolster to straight longitudinal motion.





1. The described improved railway-carriage pivot-supporter, consisting of the base A provided with the slot *a*, and parallel guides *b b*, and of the friction-rollers C C, and the pivotal bearing B, provided with the elongated recesses *c c* for reception of the said rollers, all being arranged and to operate substantially as set forth.

2. The pivotal bearing B, provided with the recesses *c c*, having straight bearing-surfaces for the rollers C C to work against, all being as shown and described.

174,615. GRAIN-BINDERS. HARRY H. Bridenthal, Jr., Westmoreland County, Pa. [Filed May 26, 1875.]

Brief.—The cut grain is delivered upon an endless apron, which compresses and rotates the gavel, while a reciprocating needle-hook weaves a band around the sheaf.

1. The combination of the frame V E, rock-shafts k^2 p^{11}, arms k^3, rod d^1, frame S, arm D, belts *a d c w*, and the stationary pulleys *b* k^4, these members arranged as and for the purposes specified.

2. In combination with the hook arm *e* and the driving-shaft *w*, the slide-stock *m w*, cams *i u*, and the shipper 9, substantially as and for the purposes herein specified.

3. The combination of the frame J, slide-bar s^4, slide 19, and the hook-shaft 12, these members constructed and operating substantially as herein specified.

4. The combination of the adjustable crank *g*, pitman c^2, movable wrist 4, and the hook-shaft 12, substantially as and for the purposes herein specified.

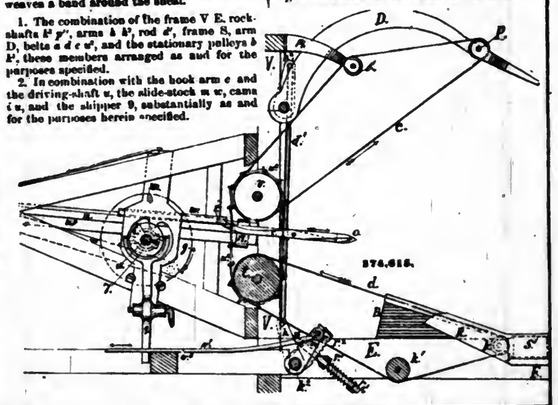
5. In combination with the rock-shaft k^2 and the operating-rod r^1, the notched arms *r s*, shaft r^7, collar r^1, and the spring *y*, substantially as and for the purposes set forth.

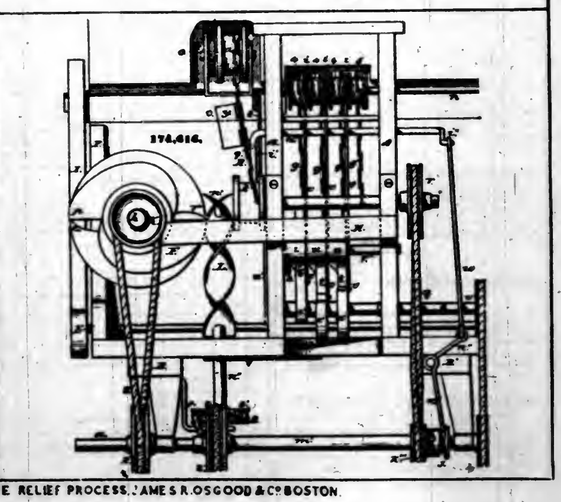
6. The combination of the rod *l*, arm k^2, ratchets 17, wheel s^2, and the feed-roller *f*, these members being constructed and operating substantially in the manner and for the purposes set forth.

7. In combination with the frame E and the platform U, the inclined platforms B E, substantially as and for the purposes herein specified.

8. The combination of the cam shipper-arm 9, operating-rod s^7, and the frame S, substantially as and for the purposes herein specified.

9. The compresser-frame S, provided with the opening O^4 and the curved U shaped arm *q*, substantially for the purposes set forth.





174,616. GRAIN-BINDERS. Harry H. Bridenthal, Jr., Westmoreland County, Pa. [Filed Mar. 22, 1875.]

Brief.—The gavel is thrown upon the rotating chain receiver, by which it is carried to the band-twisting device and there bound.

1. In combination with the frame B and the spool-shafts *o n*, the shaft E, toggle-arms *v*, arms *l l*, and the bar *c*, these members being constructed and operating in combination, substantially as and for the purposes set forth.

2. The reciprocating bands *g*, in combination with each other and with the bell-cranks *u*, levers *v*, and the reversing spools *4*, substantially as and for the purposes herein specified.

3. In combination with the chains or bands *g* and the shaft S, the cams *t t t*, bell-crank levers *u u u*, notched levers *v v v*, as and for the purpose set forth.

4. In combination with the reciprocating bands *g* and the bar *c*, the stationary chain *g'*, spool and shaft *n S*, spools *4*, and the springs *i* and D, substantially as and for the purposes set forth.

5. The chain K, holding leaf *y*, spools *a b*, reversing-spring *m*, in combination with each other and with the binder L, rotating bands *g*, and the shaft *l*, substantially as and for the purposes herein set forth.

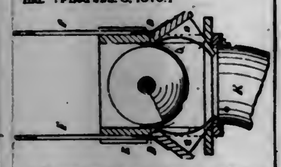
6. The combination of the chain K, shipper-gears *b' a'' a''*, clutch J, chain-gear *b''' r*, and the binder-gear *b' 2*, these members constructed and operating substantially as and for the purposes herein specified.

7. The herein described band-twister, consisting of twisted blade L, terminating with the spiral tines *n'*, in combination with the adjustable shaft *n''* and the spring V, substantially as and for the purposes herein specified.

8. In combination with the band-twister L, or its equivalent, the adjustable revolving straw-lifter V, substantially as and for the purposes herein specified.

9. In combination with a holding and rotating device composed of flexible chains or bands, as herein specified, the flexible stem-lying fingers *b' b'* and *n'*, substantially as and for the purpose set forth.

174,617. DELIVERY-GATES FOR CONVEYER-BOXES. Henry W. Caldwell, Indianapolis, Ind. [Filed Jan. 3, 1876.]

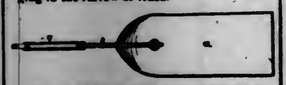


1. In a conveyer-box, a delivery-gate formed of two doors, C C, hinged to the sides of the conveyer-box as D D', and formed with their inner edges curved, and covered with a metallic covering, and operated by the slides F to open and close the same, substantially as and for the purposes set forth and described.

2. In a conveyer-box, the delivery openings or gates, operated in connection with the curved or angular delivery-spout K, constructed and operated substantially as set forth and described.

174,618. RIDING ATTACHMENTS FOR PLOWS. Henry L. Carrington, Charlestown, Ohio. [Filed Jan. 10, 1876.]

Brief.—An attachment on which to ride, secured to the rear of the implement, and dragging in the furrow or track.



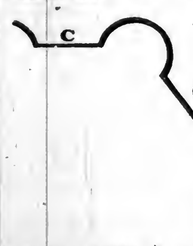
As an attachment to a plow, cultivator, or harrow, the slide *a*, in combination with the rod *c*, tubular rod *e*, and set-screw *d*, substantially as and for the purpose herein set forth.

174,619. TOOTH-PICKS. George Clark, Jr., Boston, Mass. [Filed Nov. 27, 1875.]

As a new article of manufacture, a wooden tooth-pick, as described, when artificially impregnated with a flavor or perfume, substantially as and for the purpose specified.

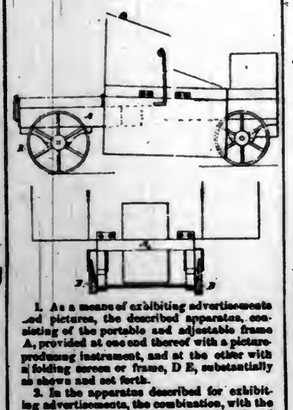
174,620. WATER-PIPES. A. J. Connelley, Philadelphia, Pa. [Filed Aug. 26, 1875.]

Brief.—The right-lined portions permit expansion, which, in ordinary corrugated pipes, is prevented by the crowns of the inwardly-extending arches.



The pipe A, consisting of a series of circular swells, B B, in combination with right-lined parts C, uniting the bases of the swells, as shown and described, and for the purpose set forth.

174,621. APPARATUS FOR EXHIBITING ADVERTISEMENTS. John H. Crane, Boston, Mass. [Filed Sept. 30, 1875.]

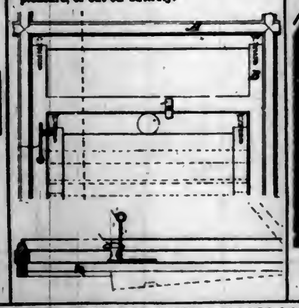


1. As a means of exhibiting advertisements and pictures, the described apparatus, consisting of the portable and adjustable frame A, provided at one end thereof with a picture-professing instrument, and at the other with a folding screen or frame, D E, substantially as shown and set forth.

2. In the apparatus described for exhibiting advertisements, the combination, with the folding screen or frame D E, of the hinged wings *b b*, as and for the purpose set forth.

174,622. DEVICES FOR VENTILATING ROOMS AND BUILDINGS. James Eveleth, Washington, D. C. [Filed Feb. 23, 1876.]

Brief.—A ventilating device adapted to be inserted in a window-sash in lieu of one of the "lights" or panes of glass thereof, and so constructed that the flow of air or current allowed to pass inward may be regulated at pleasure, or cut off entirely.

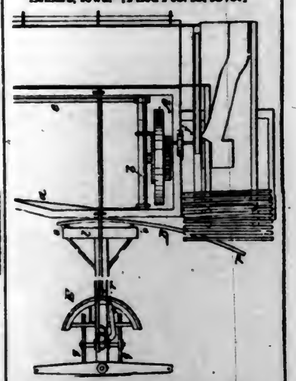


1. The ventilator adjusting-frame, constructed substantially as herein before set forth, with a pane of glass secured therein, provided with sector-shaped sides, and adapted to be secured to a window so as to swing at an angle thereto, as specified.

2. The combination, substantially as herein-before set forth, of the supporting-frame adapted to be secured to a window-sash, the hinged swinging frame, its sides, and the catch for holding the swinging frame in the desired position relatively to the supporting-frame, for the purpose specified.

3. The combination of the supporting-frame, constructed as described, to adapt it for attachment to a window-sash in lieu of one of the lights thereof, the hinged adjusting-frame having glass secured therein, and provided with fluted sides and the steps thereon, these members being constructed and operating, substantially as herein-before set forth, to admit of the sash carrying the ventilator sliding by the other sash of the window.

174,623. HARVESTERS. William Foubet, Lomars, Iowa. [Filed Feb. 12, 1876.]



1. In combination with a harvesting or heading machine, having secured to the frame thereof a curved plate or arc of a circle, B, the tongue *m*, cross-beam *l*, and buttons or headed bolts *o*, substantially as and for the purpose set forth.

2. The curved plate or arc of a circle B, tongue *m*, cross-beam *l*, and buttons or headed bolts *o*, in combination with the lever D and vertical rod G, with notches *n*, substantially as and for the purpose specified.

3. The combination with the rod G, carrying-wheels *q*, and the curved handle *r*, with pin *r'*, of the semicircular plate E, and the spring-rods *t*, constructed to operate as described.



174,624. FOLDING COTS. Edwin W. Fyler, Providence, R. I., assignor to L. W. Palmer, same place. [Filed July 6, 1875.]

1. The combination of the separate and divided side bars A A, provided with hinges *a b*, folding legs B B, and braces C C, canvas D, and cross-bars E E, locked in place, as described, all made as and for the purpose specified.

2. The side bars A A, hinged at *a a*, in combination with the cross-bars E E and canvas D, the cross-bars resting against the ends of the side bars, and passing through the hem of the canvas, substantially as described, whereby the side bars act as knee-jointed levers to stretch the canvas, as set forth.

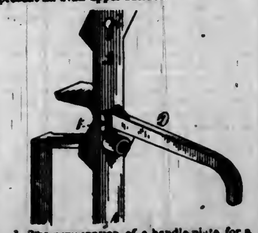
174,625. PREPARING FOR CARTRIDGES. Ernest Gaupillat, Paris, France. [Filed Nov. 22, 1875.]



The exterior cup *d' d'*, in combination with an inclosed percussion-capsule, *f*, and anvil *g*, the part *d'* serving as an internal flange to retain the contents of the primer, and the part *d'* serving as an external flange to aid in holding the primer in place, as herein set forth.

174,626. HANDLE-PLATES FOR DOOR-LATCHES. William Gorman, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. [Filed Feb. 17, 1876.]

Brief.—The handle-plate and escutcheon-plate are connected by lugs and pins, so as to present an even upper surface.



1. The combination of a handle-plate for a door latch with an escutcheon-plate by means of slip joint lugs and a pin-fastening, substantially as described.

2. As an article of manufacture, a combined handle-plate for a door-latch and escutcheon-plate made with a slip joint connection, which forms the check-piece lugs for the thumb-latch lever when a joint-pin is inserted, substantially as described.

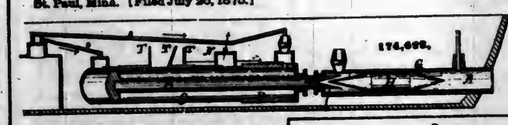
174,627. RECUMBENT CHAIRS. W. Heath, Bath, Me. [Filed June 16, 1876.]



1. In a recumbent chair having attached to its seat B a movable back, A, and a leg-rest, L, connected by arms C C *a a*, as described, a friction-arm, E, applied to the leg-rest and support-frame E, as set forth, in combination with a clamp or toggle, F, applied to said support-frame and friction-arm, and provided not only with a spring, K, to force it toward the friction-arm, but with lever H I for drawing it away therefrom, all substantially as described.

2. The seat, pivoted, at or near the middle of its ends, to the support-frame, in combination with the back and leg-rest pivoted to each seat, and with the friction-arm and the clamp-toggle applied to the leg-rest and support-frame, all being substantially as specified, and the clamp-toggle having a spring and system of levers for operating it, as explained.

174,628. TORPEDO-BOATS. H. F. Hicks, St. Paul, Minn. [Filed July 26, 1875.]

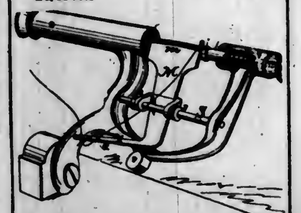


In a torpedo-boat, the combination of the hurl-barrel A, piston-rod B, and cylinder C, with their operating devices, substantially as and for the purpose set forth.

174,629. COMPOSITIONS FOR DESTROYING INSECTS. Andrew Hilpert, Philadelphia, Pa. [Filed Feb. 2, 1876.]

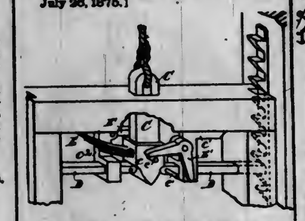
The composition of matter consisting of mercury, nitric acid, varnish, turpentine, and corrosive sublimate, substantially as and for the purpose set forth.

174,630. BOBBIN-WINDERS FOR SEWING-MACHINES. Patrick Kennedy, Jr., and N. G. Linny, Watertown, N. Y. [Filed Mar. 24, 1875.]



In a bobbin-winder the thread-guide, distributing, tension, and pressure-plate M, having a long convex upper edge, *m*, and the perforated arm X, as shown in combination with the shaft S, as and for the purpose specified.

174,631. SAFETY-STOPS FOR ELEVATORS. Phineas F. King, St. Louis, Mo. [Filed July 26, 1875.]



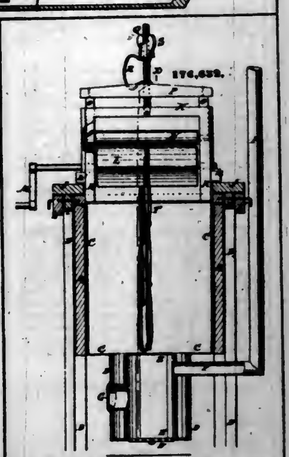
The combination of the center-piece C, its pins *a a*, angle-levers E E', sliding bars D D, having pins *a' a'*, said parts being arranged with relation to each other to form a safety-stop, operating in the manner described and for the purpose set forth.

174,632. WASHING-MACHINES. Charles A. Lockwood, Haverstraw, N. Y. [Filed July 17, 1875.]

1. The combination of the box or casing A, open at top and bottom, the frame B, the metallic box C, made with a downwardly-projecting cylindrical extension, D, and the stove or furnace E, with each other, to form the hot-water tub of a washing-machine, substantially as herein shown and described.

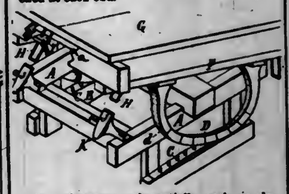
2. The combination of the cleats *b'* and the flanged bars J I with the hot-water tub A B C D E, to form a support and a way or track for the operating mechanism of the machine, substantially as herein shown and described.

3. The combination of the box K, open at the bottom and one side, the square roller L, the round roller N, the vertical sliding bars O, the connecting-bar P, the guide-rod Q, the U-spring R, and the hand-nut S, with each other, and with the bars J, attached to the hot-water tub A B C D E, substantially as herein shown and described.



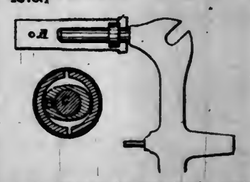
174,633. DUMPING-CAR FASTENINGS. John W. Marden, Norwich, Conn. [Filed Jan. 22, 1876.]

Brief.—When righted, automatically fastened at each end.



In a dump-car substantially such as described, the inclined strikers J, provided with the hooks K, and the pendulous links H, provided with the gibs I, constructed and arranged to operate in fastening the tilting platform G to the frame A, substantially as set forth and specified.

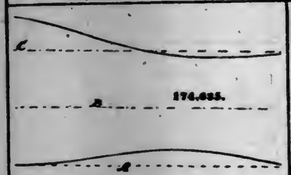
174,634. IMPLEMENTS FOR FIRE-ARMS. Ira Merrill, Springfield, Mass. [Filed July 30, 1875.]



1. An extractor for removing the empty shells of cartridges, having the expanding-jaws A^1 A^2 operated by the cam B, as shown and described.

2. The combination of an extractor having expanding-jaws for removing the empty shells of cartridges, with an ordinary screw-driver and wrench, substantially as shown and described.

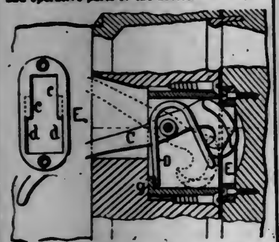
174,635. LASTS. Margaret C. Moulton, Independence, Mo. [Filed Feb. 16, 1875.]



As a new article of manufacture, a last which spreads entirely on the outside, the inside edge being no farther from the central line at the ball of the foot than at the heel, and said inside edge being straight after passing the hollow of the last to the end of the big toe, the outside edge narrowing from the heel to the middle of the foot, and thence spreading outwardly to a point on the outer side of the ball of the foot, and thence curving inwardly to the central line, as described, and for the purpose set forth.

176,636. SASH-FASTENERS. L. L. Northup, Olneyville, R. I. [Filed Feb. 7, 1876.]

Brief.—The projecting head of the cam-lever, in a sash-holder of well-known construction, is formed with side projections, which, when the sash is closed, latch into and behind a correspondingly slotted and recessed lock-plate inserted in the jamb or window-casing. The shell or case is made with parallel sides and rounded ends for its more easy insertion, and is adapted to receive the spring and operative parts of the device.



1. In combination, the case A A, having parallel sides and circular ends, cam-lever F, spring D, and lock-plate E, all substantially as shown and described, for the purposes set forth.

2. The lock-plate E, having the slot and projections *c d*, to act in combination with the cam-lever C, substantially as shown and described for the purposes set forth.

3. The cam-lever C, when provided with the projections *f f* on either or both sides of the cam end by which, when acted upon by the spring D, it will engage with said lock into and catch behind a plate, E, fixed in the jamb, substantially as shown and described, for the purposes set forth.

176,637. TRIMMING. Thomas I. Oakley, New York, N. Y. [Filed Feb. 9, 1876.]



As a new article of manufacture, the trimming, composed of two strips of plaited fabric, A A, plaited fringed borders B B, and placed back to back, and united, substantially in the manner described, and for the purpose set forth.

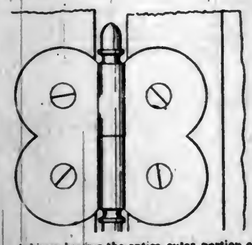
176,638. FRUIT-JARS. Thos. G. Otterson, Philadelphia, Pa. [Filed Nov. 4, 1876.]

1. The combination, with a fruit-jar the neck of which is provided with double overlapping screw-threads, of a metallic cap having double overlapping spiral grooves formed on its inner surface, substantially as and for the purpose set forth.

2. The combination, with a fruit-jar having double overlapping screw-threads formed on its neck, and a metallic cap having corresponding double overlapping grooves on its inner surface, of a rubber gasket applied between the cap and the shoulder of the jar, substantially as and for the purpose set forth.

176,639. HINGES. Thos. D. Parsons, Bristol, Conn. [Filed Oct. 20, 1874.]

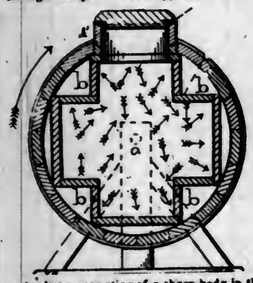
Brief.—The periphery of the leaves is made up of arcs of circles, which are intersected by the knuckles. The hinge-leaves can thus be inserted in auger-holes, and no especial mortising is required.



A hinge having the entire outer portion of its leaves formed of one or more segments of the same circle, and its hub constructed to intersect the arcs formed by the opposing segments, substantially as and for the purpose set forth.

176,640. CHURNS. William L. Peterson, Atlantic City, assignor to A. L. Waggoner, Bridgeport, N. J. [Filed Sept. 16, 1876.]

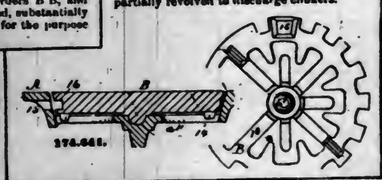
Brief.—Within a revolving cylinder is fixed the true churn-body, made in the form of a Greek cross, with one of its sections extended through the cylinder and capped.



A churn consisting of a churn-body in the form of a Greek cross, with one of its limbs extending through an exterior cylinder and capped, the whole pivoted centrally, and adapted to revolve, as and for the purposes specified.

176,641. STOVE-GRATES. Joseph A. Read, Philadelphia, Pa. [Filed Jan. 19, 1876.]

Brief.—Ordinarily the open spaces of the central grate is over the perforated segmental plate attached to the grate-rim. The rim is partially revolved to discharge clinkers.



A circular grate, consisting of the rim or outer portion A, and its plate *a*" and handle-hole 15, in combination with the central portion B having the open space 11 and mortise 16, the said parts being constructed and arranged to operate together substantially in the manner hereinbefore set forth and described.

176,642. ELEVATORS. Ferdinand Rochow, Brooklyn, assignor to himself and Frans Otto Matthiessen, New York, N. Y. [Filed Sept. 23, 1875.]

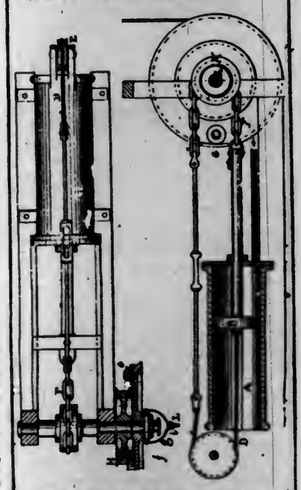


1. The dummy E of a hoisting and lowering apparatus, combined with the winding-drum H, which is hung in said dummy, and to which one end of the hoisting-rope is secured to be wound upon said drum, to be lengthened or shortened, substantially as and for the purpose herein shown and described.

2. The combination of the two dummies D E with the hoisting-rope F, that connects them, and with the drum H, which is hung in the dummy E, for the purpose of adjusting the length of the rope F, substantially as herein shown and described.

176,643. HYDRAULIC HOISTS. Samuel H. Rounds, San Francisco, Cal., assignor of one-half his right to Wales L. Palmer and Israel W. Knox, same place. [Filed Dec. 17, 1875.]

Brief.—In combination with the water-cylinder and hoisting-drum of a means or mechanism for transmitting the power from the piston to the drum; also, an arrangement of the means for varying the application of the power according to the weight of the load to be raised, the same consisting in the use of two drums of different diameters.



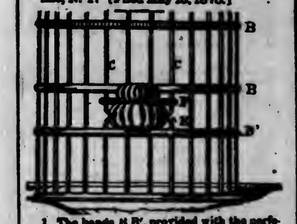
1. In a hydraulic hoisting-machine, the combination, with the cylinder, open at one end, and its piston and piston-rod, of the endless belt, formed partly of a flexible rope or chain, and partly of inflexible rod, the said belt passing around a pulley at one end of the cylinder, and around a chain sheave-wheel or gripe-pulley on the hoisting shaft, substantially as described and specified.

2. In a hydraulic hoisting machine, the arrangement and use of the main drum B and auxiliary drum B' with the sheave *c*, in the manner shown and described, when combined with mechanism, substantially as described.

for moving the auxiliary drum upon the shaft toward and away from the main drum, for the purposes specified.

3. The combination, with the shaft A and drum H, of the drum H', bracket J, stirrup *g*, and lever L, substantially as described and shown.

176,644. BIRD-CAGES. Geo. Saybag, Buffalo, N. Y. [Filed May 16, 1876.]

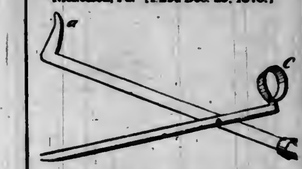


1. The bands B B', provided with the perforations O, in combination with the series of indents D, produced after the insertion of the filling-wires C, and arranged parallel with, and on each side of, the said filling-wires, substantially in the manner and for the use and purpose set forth and described.

2. The feed-cup E, having the notches E' and I, in combination with the cross-head B' and sliding bar F, as described.

3. The feed-cup E, having the projection X, in combination with the filling-wires C, with or without the projection K, substantially as described, for the purpose set forth.

176,645. COMBINED STOVE POKERS AND TONGS. H. A. Smith and H. B. Wilkins, Nicholson, Pa. [Filed Dec. 29, 1875.]



The combined poker and tongs herein described, consisting of the two blades A a B, pivoted together, one of them having the thumb-socket C, arranged at right angles to the line of the blade, and the other having the straight handle *a*', extending beyond the socket C.

176,646. ORDINARY FORKS. L. W. Turner, Talesville, and G. J. Capewell, Cheshire, Conn. [Filed Dec. 21, 1876.]



1. The fork A, provided with the prongs *a a*, in combination with the element B, pivoted to the fork, substantially as shown and described.

2. In a device for tipping kettles, the element B, substantially as shown and set forth.

176,647. PICTURE-CORDS. Erastus H. Tyler, Medway, Mass. [Filed Dec. 1, 1876.]

Brief.—The described article of manufacture consists of a body of a cord or cords, having a wrapping of fibrous material, and an outer braiding of wire, that may wholly or partially cover the wrapping, forming an ornamental and durable picture-cord.



As a new article of manufacture, a picture-cord consisting of the body A, provided with the fibrous inner wrapping B, and having an outer wrapping or covering, consisting of the wires C D, braided on, substantially as and for the purpose set forth and specified.

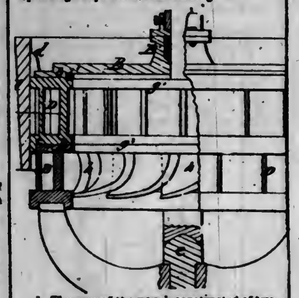
176,648. CONCRETE PAVEMENTS. Aaron Van Camp, Washington, D. C. [Filed Aug. 27, 1875.]

Brief.—Crushed and pulverized rock, about sixty per cent. of the finer and forty per cent. of the coarser portions. The rock is heated to expel the moisture, and is then saturated with dead-oil, crude petroleum, or the residuum of petroleum, and while in this heated condition twenty per cent. of natural asphaltum is added, either Cuban, Trinidad, or California, previously dissolved in crude petroleum, or the residuum of petroleum, until it assumes the consistency of pitch.

In a concrete pavement the use of crushed and pulverized rock, when the same is heated and saturated with dead-oil, crude petroleum, or the residuum of petroleum, and mixed with natural asphaltum, Cuban, Trinidad, or California, previously dissolved to a pitch by crude petroleum or the residuum of petroleum, substantially as described, and for the purpose set forth.

176,649. WATER-WHEELS. W. N. Whipple, Moravia, N. Y. [Filed Feb. 9, 1876.]

Brief.—The case of this wheel is constructed of two horizontal guide-sections, connected together by a lapping ring, which forms a partition. In the arrangement of the buckets the lower series are connected to the bottom ring of the upper buckets by means of T shaped tenons applied in a groove of corresponding shape formed in the ring.

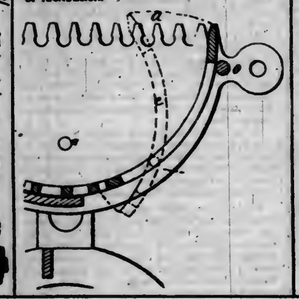


1. The case of the wheel, constructed of two horizontal guide-sections, connected together by the lapping ring which forms the partition P, substantially as described.

2. The lower series of buckets A, connected to the bottom ring of the upper series of buckets by means of T-shaped tenons *j*, applied in a groove of corresponding shape formed in said ring, substantially as described.

176,650. GRATES. James W. Williams, Charlottesville, Va., assignor of one-half his right to T. A. Michie and T. L. Michie, same place. [Filed Aug. 11, 1876.]

Brief.—May be placed at various elevations on its standards, and tilted in various degrees of inclination.

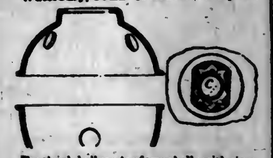


1. The toothed sliding back plate, in combination with the slotted side plates and the horizontal grate-bars.

2. In an oscillating grate, journaled in slotted standards, the front tilting grate-bars, in combination with the side plates and horizontal grate-bars.

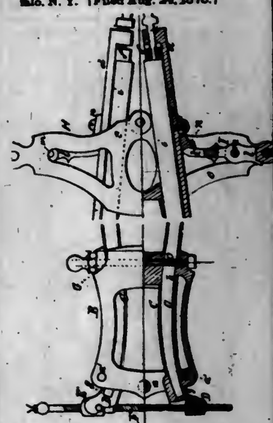
3. The elbowed detent, in combination with the standards and toothed side plates.

176,651. SLEIGH-BELLS. Lewis J. Atwood, Waterbury, Conn. [Filed Nov. 27, 1876.]



The sleigh-bell made of two shells with rims, secured together by a separate ring bent over or closed around each rim, as specified.

176,652. WOOD-BENDING MACHINES. S. R. Bailey, Boston, Mass., assignor to B. A. Gillett, same place, and O. S. Gillett, Buffalo, N. Y. [Filed Aug. 24, 1875.]



1. In combination with a central former, about one or both sides of which the body of a shaft is bent, an auxiliary former, against which the end of the shaft is bent, provided with a flexible strap, which extends the length of and incloses the shaft on the side opposite to the central former, and a flexible strap, C, which is a continuation of the main former, and is forced against or toward the auxiliary former, to bend and properly shape the interposed end of the shaft, substantially as set forth.

2. The combination, with the central former, of the end formers, the flexible straps C, and the mechanism, substantially as shown and described, for expanding or spreading said straps simultaneously in opposite directions, so as to press toward their respective formers, substantially as set forth.

3. In combination with the central former, the auxiliary former, provided with a flexible strap, extending the length of and supporting the shaft on the side opposite the central former, and the flexible strap constituting a continuation of the central former, the cam D and adjustable piston or block *f*, for confining the ends of the shaft, substantially as set forth.

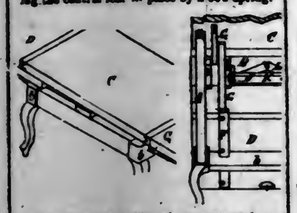
4. The combination, with the central former A and strap *b*, of the toggle-lever for confining said strap to the shaft, substantially as set forth.

5. In combination with the central former A and strap *b*, the toggle-lever and the adjustable stop *a*, substantially as set forth.

6. As a means of expanding the straps *b* and bending the wood about the former G, the screw-rod F and cross-heads E or E', operating with the cam D, substantially as and for purposes stated.

174,653. EXTENSION-TABLES, John Bennet, Cambridge, Mass. [Filed Dec. 22, 1875.]

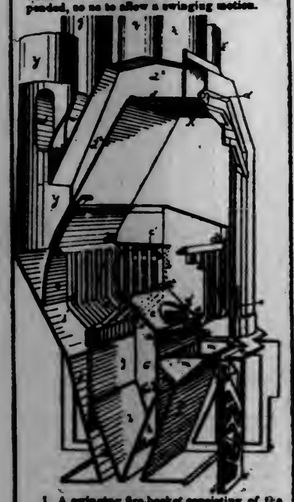
Brief.—The extension-leaves slide under the central section of the top, in the usual manner. The improvement consists in holding the central leaf in place by a bow-spring.



In an extension table, substantially such as described, the top C, spring L, leaf D, and slide U, combined to operate substantially as and for the purpose specified.

174,654. FIRE-PLACE HEATERS. I. W. Beall, Sewickleyville, assignor to himself and F. H. Stevenson, Moon Township, Allegheny County, Pa. [Filed Feb. 12, 1876.]

Brief.—The front and back grate and the walls of the chamber underneath are suspended, so as to allow a swinging motion.



1. A swinging fire-basket consisting of the front and rear grates *a a'*, and connecting-bridge *c*, constructed and arranged substantially as described, whereby the front and rear grates *a a'* catch swing upon its pivots *a'* as a center, and give the bridge-piece *c* an upward and downward and backward and forward movement within the space between the grates *a a'*.

2. The angular bridge-piece *c* for connecting the grates *a a'* at the bottom by a pivoted or hinged joint, constructed substantially as described.

3. The combination of the grates *a a'* angular piece *c*, and diaphragm *h*, constructed and arranged substantially as and for the purposes set forth.

4. The smoke and gas chamber G, having vibratory or oscillating sides and bottom, constructed and arranged substantially as and for the purposes described.

5. The combination of the fire-basket *a a' c*, doors *b b' b'' b'''*, and gas-chamber G, arranged substantially as and for the purposes described.

6. The combination of the vertically-adjustable doors *o o'*, and movable hearth-plates *r*, and springs *s*, constructed and arranged substantially as set forth.

7. The combination of the fire-basket *a a' c*, gas and vapor chamber *a' f*, and doors *o r s*, arranged substantially as described.

174,655. LIFE-PRESERVERS. Trangott Beck, Newark, N. J. [Filed June 16, 1876.]



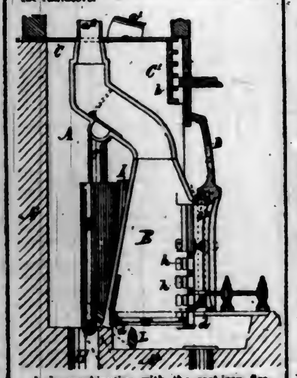
1. The vessel A, put in form for use by means of the rings A and C, and connecting joint-braces B, substantially as shown, and for the purposes specified.

2. In combination with the life-saving apparatus, having the bands F, and rings A and C, and braces B, the air-chamber D, substantially as set forth.

3. The metallic rings F made to telescope, in combination with the water-proof material attached to them, forming a protective armor for the wearer, substantially as shown and described.

174,656. FIRE-PLACE HEATERS. Allan T. Bennett, Brooklyn, N. Y. [Filed Feb. 11, 1876.]

Brief.—The draft may be indirect through the radiators.



1. In combination with the cast-iron fire-back E, the grate-frame and fire-brick holder *d*, provided with flange *f* and curved projecting flange *p*, arranged and applied substantially as and for the purposes as herein shown and set forth.

2. In combination with the fire-pot E and heat-radiators attached thereto, the metal cap G, forming an air-tight cover to the air-chamber A, provided on its top with smoke and air ports *a' a''*, and on its face with ribbed projections *b b*, arranged and applied substantially as and for the purposes as herein shown and set forth.

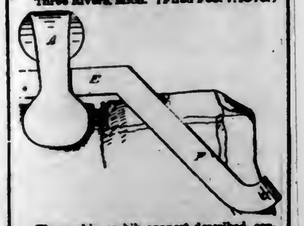
3. In combination with the cast-iron fire-pot E, the sheet-iron radiators I I, open from their apex to their base, and secured to the back of the fire-pot by bolting to flanges cast thereon, arranged, applied, and operating substantially as herein shown and set forth.

4. In a fire-place heater, in combination with the cast-iron fire-pot E, provided with the sheet-iron radiators I I attached to its rear, as described, the cast-iron receiving and discharging radiators G and G', the whole operating in unison, as and for the purposes herein shown and set forth.

5. The combination, in a fire-place heater, of the cast-iron fire-pot E, provided with grate-frame *d*, sheet-iron radiators I I, heat receiving and discharging radiators G and G', contained in an air-chamber, A, covered with the cap C, arranged, applied, and operating substantially as herein shown and set forth.

6. In a fire-place heater, in combination with the cast-iron fire-pot E, provided with grate-frame *d*, sheet-iron radiators I I, and radiators G G', the cast-iron pockets *o p*, and combined blower and summer front *k*, arranged, applied, and operating substantially as herein shown and set forth.

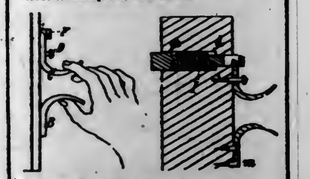
174,657. NAPKIN-HOLDERS. Orrin S. Bettis, Three Rivers, Mich. [Filed Feb. 7, 1876.]



The napkin or bib support described, consisting of the arms E F, hook A, and springs or clamps B C C, substantially as shown and set forth.

174,658. BASE-FASTENERS. W. H. Britton, Milford, Mass. [Filed Feb. 21, 1876.]

Brief.—A convenient and simple form of spring encircled bolt, operated by a bifurcated lever, having sufficient play upon a screw or rivet to manipulate the device.



In a mash-fastener, the combination of stud B, bifurcated lever C, screw D, spring I, and bolt H, provided with the shoulder *c*, flattened neck G, and head F, constructed and arranged to operate substantially as set forth and specified.

174,659. CONSTRUCTION OF PLANK SIDEWALKS. Wm. Brinley, Toronto, Canada. [Filed Jan. 18, 1876.]

Brief.—The planks are fastened to the sleepers by iron hooks, as shown, in lieu of spikes.



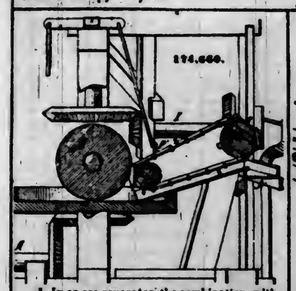
1. The construction of sidewalks and platforms in the manner shown and described, without spikes, by means of hook H, as specified, and for the purposes set forth.

2. The locking-plank C', with holes *b b*, grooves *d d*, and notches *c c*, as shown and described, and for the purposes set forth.

3. The hook H, as shown, for the purposes set forth.

174,660. ORE SEPARATORS AND SEPARATORS. Thos. Carter, Hilton, Ohio, assignor to Truth Carter. [Filed Jan. 28, 1876.]

Brief.—Ore is ground in the usual revolving pan, from which it is carried by the elevator to the jigging-sieve, which latter delivers the larger portions of ore to the pan to be reground. The elevator can be raised, by means of a lever, clear of the pan, so that no ore will be conveyed, if desired. The buckets of the elevator are slotted, so as to drop upon the surface of the chute.



1. In an ore-separator, the combination, with a revolving receiver and crushing-rolls, of an elevator, the lower end of which rests upon, or in close proximity to, the working face of the revolving receiver, substantially as and for the purpose set forth.

2. The combination, with a revolving receiver and crushing-rolls, of a vertically-adjustable elevator, the lower end of which rests upon, or in close proximity to, the working face of the revolving receiver, substantially as and for the purpose set forth.

3. The combination, with a revolving receiver, crushing-rolls, and vertically-adjustable elevator, arranged above the receiver as described, of a sieve and mechanism for agitating the same, substantially as and for the purpose set forth.

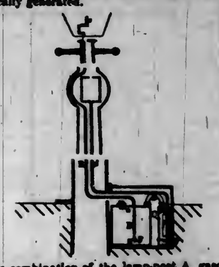
4. The combination, with a receiver, crushing-rolls, an elevator, the lower end of which is situated above the receiver, and a reciprocating sieve, all constructed to operate substantially as set forth, of a chute arranged to deliver the tailings back into the receiver, substantially as and for the purpose described.

5. The combination, with an upright shaft, having bevel-gears secured thereto, above and below a revolving receiver, of the respective driving and driven shafts A and L, and actuating intervening mechanism for actuating the elevator and sieve, whereby the revolving receiver, elevator, and sieve are operated simultaneously by the driving-shaft A, substantially as and for the purpose described.

6. The combination, with a revolving receiver, of an adjustable elevator, the lower end of which rests upon, or in close proximity to, the working face of the revolving receiver, the endless carrier of said elevator being provided with self-adjustable buckets, as and for the purpose set forth.

174,661. STREET-LAMPS. Henry Clarke, Baltimore, Md. [Filed Aug. 21, 1875.]

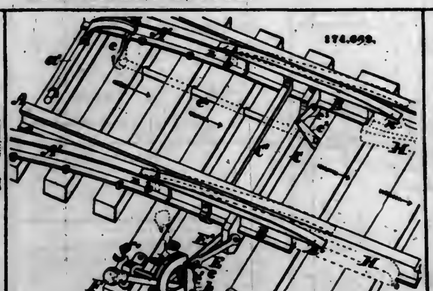
Brief.—A street-lamp in which the oil is maintained at the required height by the pressure of a column of acidulated water, acting through the medium of confined gas, automatically generated.



The combination of the lamp-post A, gas-reservoir E, gas-generating chamber G, connection D, and pipes *d* and B, the pipe *d* being enlarged at its upper end, substantially as and for the purposes specified.

174,662. RAILROAD-SWITCHES. J. B. Corey, Philadelphia, Pa. [Filed Aug. 26, 1875.]

Brief.—Peculiar mechanism whereby the switch is rendered automatic, and the cars are prevented from jumping. Flange-guards are dispensed with, and less motion is given to the operating-lever, to give it a more favorable position for operating.



1. In a railroad-switch, the combination of cam *a*, rod *a'*, lever *c*, rotating rod *c'*, crank *c''*, lever *c'''*, the pesher C, and switch-rails B B, substantially as shown and described.

2. Combination in a railroad-switch of cam *a*, rod *a'*, lever *c*, rod *c'*, crank *c''*, lever *c'''*, pesher C, with bars B' and B, quadrant D, lever F, cranks h, journal and journal-boxes *f f* and *f' f'*, substantially as shown and described.

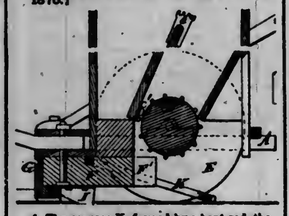
3. The combination, with a revolving receiver, crushing-rolls, and vertically-adjustable elevator, arranged above the receiver as described, of a sieve and mechanism for agitating the same, substantially as and for the purpose set forth.

4. The combination, with a receiver, crushing-rolls, an elevator, the lower end of which is situated above the receiver, and a reciprocating sieve, all constructed to operate substantially as set forth, of a chute arranged to deliver the tailings back into the receiver, substantially as and for the purpose described.

5. The combination, with an upright shaft, having bevel-gears secured thereto, above and below a revolving receiver, of the respective driving and driven shafts A and L, and actuating intervening mechanism for actuating the elevator and sieve, whereby the revolving receiver, elevator, and sieve are operated simultaneously by the driving-shaft A, substantially as and for the purpose described.

6. The combination, with a revolving receiver, of an adjustable elevator, the lower end of which rests upon, or in close proximity to, the working face of the revolving receiver, the endless carrier of said elevator being provided with self-adjustable buckets, as and for the purpose set forth.

174,663. COTTON-SEED PLANTERS. John C. Cox, Greenville, N. C. [Filed Jan. 6, 1876.]



1. The coverer K, formed by a bent rod, the curved points of which are arranged in relation to the feeding mechanism, substantially as set forth.

2. In combination with the frame and planting-roller, the wheels placed inside of the frame, and abutting against the solid ends of the cylindrical roller, substantially as set forth.

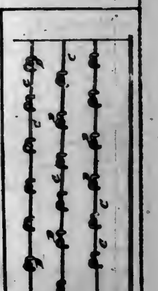
3. In combination with the planter guided by handles L L, the free swinging draft-beam E, for allowing the horses to deflect from the line of draft while the planter is held on the ridge, substantially as set forth.

4. In combination with the cylinder D for drawing down the seeds successively, the rises F, having an inclined notch at F', and coverer K, substantially as set forth.

5. In combination, the cylinder D for dropping the seed, the leveler G for preparing the ground, the opener I, the shoe with inclined notch F', and the coverer K, substantially as set forth.

174,664. BARBED FENCE-WIRES. Edwd. M. Crandal, Chicago, Ill., assignor of one-half his right to C. M. Kirkham, same place. [Filed Oct. 16, 1875.]

Brief.—Short pieces of wire have their ends interlocked and extended laterally in opposite directions to form barbs. By forming the wire in short sections and jointing it, as described, it can be folded for transportation.



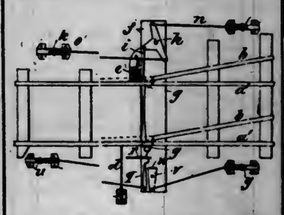
The single wire for a wire fence, composed of the single short pieces C, jointed together by the interlocking joints D, with their ends extending laterally in opposite directions, forming barbs, as specified and shown.

174,665. ELASTIC PAINTS. Arnold M. Dean, Kalamazoo, Mich. [Filed July 29, 1875.]

The elastic paint compound, consisting of bicarbonate of soda, resin, linseed-oil, water, naphtha, and oxide of zinc, as and for the purpose described.

174,666. RAILROAD-SWITCHES. Richard Dickson, Montreal, Canada, assignor of one-half his right to James Worthington, same place. [Filed Dec. 20, 1875.]

Brief.—The switch is sprung by the passing train, if wrongly set, through the releasing of a spring locking-catch, operated by an arm projecting from the train, which strikes a vertical lever connected with an arm, which releases the spring-catch, and causes the movable rails to spring into place. The switch is also set for the siding from the train, when desired, through vertical strike-levers connected by rod and bell-cranks with the movable rails.



1. The combination of the movable portions of the rails *a*, spring *c*, bell-crank *h*, connections *i*, *m*, and *n*, levers *k* and *l*, with movable arms *c'*, substantially as and for the purposes set forth.

2. The combination of the movable portions of the rails *a*, catch *q*, stop *r*, levers *u* and *y*, substantially as and for the purposes set forth.

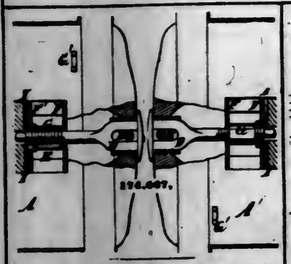
3. The combination of the movable portions of the rails *a*, spring *c*, catch *q*, stops *r*, and *g*, substantially as and for the purposes set forth.

174,667. CAR-BUMPERS. Jos. Elder, Boardstown, Ill. [Filed Dec. 23, 1875.]

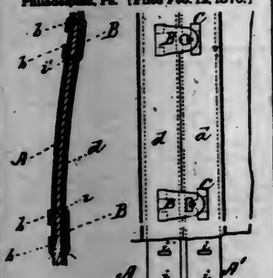
1. In combination with the platforms of railway-cars, the friction-plate C, projected after the cars are coupled by the nut G to take up the slack of the coupling, substantially as set forth.

2. In combination with the friction-plate C, actuated by a nut, G, on its stem D, the plate H H', performing the double function of a cam and set-lock, substantially as set forth.





174,667. CORSET-STEELS. John A. Farr, Philadelphia, Pa. [Filed Feb. 12, 1876.]



1. In a corset, the combination, with the steels A A', having perforations *i i*, and their respective sheaths, having registering perforations *i' i'*, the hooks C, and eyes B, having fastening-points *b* upon their lateral edges, substantially as specified.

2. The eye-blank B', consisting of the oblong body *a*, having a perforation, *c*, in one end, and projecting lugs *b'* upon its lateral edges, substantially as specified.

3. The T-shaped hook-blank C', adapted for use substantially as specified.

174,668. BRACKET-HOOKS. Edwd. C. Ford, Washington, D. C., assignor to George A. Morgan. [Filed Jan. 26, 1876.]



1. A suspension-bracket, B, joined to a bracket-plate or support, A, substantially as set forth, combined with an elastic connection or spring, C, between said support A and arm B, to make the latter elastic and yielding, for the purposes set forth.

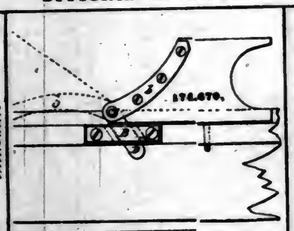
2. The bracket-plate or support A, arm B, and spring C, combined with the chain or link D, substantially for the purposes set forth.

3. The bracket-arm B, and hook A, at the extremity thereof, combined with a lock, *r*, substantially for the purposes set forth.

174,670. VEHICLE-SEATS. Sebastian Glasinger, Rondout, N. Y., assignor of one-half his right to A. A. Crosby, same place. [Filed Nov. 22, 1875.]

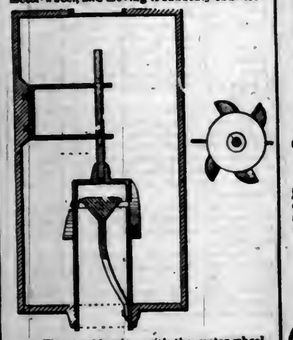
Brief.—Improvement on former patent, No. 169,356.

The sockets B arranged in and having their upper surfaces flush with the upper surfaces of the top rails of a vehicle-body, and having angular openings, in combination with the hinged tongue-pieces D, which are received into said sockets substantially as herein shown and described.



174,671. FLUID-METERS. John C. Guerrant, Danville, Va., assignor to himself and C. Leventhorpe, Rutherfordton, N. C. [Filed Feb. 14, 1876.]

Brief.—A stationary deflector at the end of the supply-pipe directs the issuing water in a nearly horizontal line, and thereby prevents the water striking against the face of the meter-wheel, and moving it suddenly endwise.



1. The combination, with the meter-wheel, having propelling and resisting wings around the supply-tube, of a stationary deflector within the meter-wheel at the end of the supply-tube, for the purposes set forth.

2. The combination, with a meter-wheel, having wings by which it is rotated, of a resistance acting in the quiescent portion of the water in the meter-case, substantially as set forth.

174,672. SEED-BAGS. Jonathan R. Hamilton, Kingston, Minn. [Filed Feb. 5, 1876.]



1. The herein-described bag closing and fastening device, consisting of two cords, C C', each having a single free end, and having their other ends secured to opposite sides of the bag, so that the bag may be closely brought together, and be secured by one of the cords, as set forth.

2. The combination of the cords C C', arranged and operated as described, with the fastening or lock plate D E, substantially as and for the purpose specified.

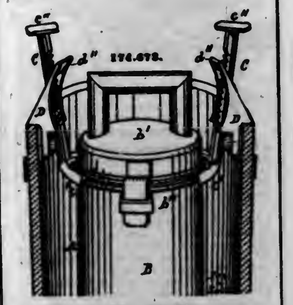
174,673. ICE-CREAM FREEZERS. R. Herbert, Philadelphia, Pa. [Filed Feb. 23, 1876.]

Brief.—Supports for the clamps have rubber springs, to hold the lower arms of the clamps against the rim of the cream-can, and have also a knife-edge to engage the teeth of the clamps.

1. The combination, in a freezing-tub for ice creams, substantially as described, of the supports D D, provided with the springs or cushions *d' d'*, respectively, for giving the elastic pressure upon the lower ends of the ratchet-bars C C.

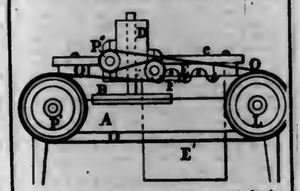
2. The ratchet-bar C, provided with the series of teeth inclined upward, as shown, and the grooved arms *c' c'*, carved to fit over the projecting rim *b''* of the can B, substantially as and for the purpose set forth.

3. The combination, in a freezer for ice-cream, substantially as described, of the supports D D, and the adjustable ratchet-toothed bars C C, with the projecting rim *b''* of the can B, for the purpose of holding the can firmly down in the tub, as occasion may require.



174,674. DOVETAILING-MACHINES. Joseph R. Haskell, Baltimore, Md. [Filed Sept. 9, 1876.]

Brief.—The materials for both sides of the joint are clamped together, and the revolving cutter, which forms the dovetail, is carried along by suitable devices, being guided in its movements by a pattern-plate.



1. The combination of the ways A A, horizontally moving table B, vertically-moving slide D, and revolving cutter F', for forming the dovetail parts *c c c' c'*, substantially as described.

2. The combination of the track T and follower *r* with mechanism connecting the same with the vertically-moving slide D, for raising and lowering the revolving cutter F in forming the dovetail parts, substantially as described.

3. The pulleys P, I, P'', and P''', combined and arranged with the horizontally-moving slide E, and the vertically-moving frame D, to give motion to the cutter F by means of the single endless belt O, substantially as described, and for the purpose set forth.

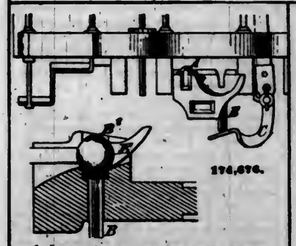
174,675. CONSTRUCTION OF SHIPS. Charles Hemje, New York, N. Y., assignor to himself and Henry Beste, London, England. [Filed Feb. 23, 1876.]

Brief.—Iron side plates are bolted to the wooden keelson, and angle-irons riveted to these are bolted to the floor-timbers.



The angle-irons C, in combination with the metal plates B and keelson A, constructed and arranged as and for the purposes herein set forth.

174,676. CAR-COUPLINGS. Phillip Hien, Rock Island, Ill. [Filed Dec. 23, 1875.]



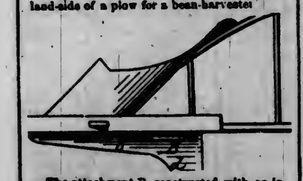
1. In combination with the ball-shackle, the recessed draw-head and the cap A, resting on an inclined seat, substantially as set forth.

2. In combination with the ball-shackle, the recessed draw-head, into which the ball falls by gravity, and is held by the notch in the front of the draw-head, the pin B, the head B', which supports the ball and lifts it to uncouple the cars, actuated by the lever C, substantially as set forth.

3. In combination with the draw-head and shackle, the pin B, lever C, and guard D, by means of which the pin may be permanently retained in each position so to prevent the coupling of the cars, substantially as set forth.

174,677. BEAN-HARVESTER ATTACHMENTS FOR PLOWS. Jonas O. Hognire, South Avon, N. Y. [Filed Feb. 4, 1876.]

Brief.—A horizontal cutter attached to the land-side of a plow for a bean-harvester.



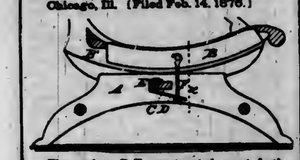
The attachment B, constructed with an inclined blade, *b*, and right-angled wing *c*, the blade widening from point to heel, and joining with the wing by a concave, *d*, in the manner and for the purpose specified.

174,678. MOP-WRINGERS. H. I. Hotchkiss, Berlin Falls, N. H. [Filed Jan. 26, 1876.]



The mop-wringer, composed of the rings and series of cotton-spiral bars *f f f f* and the tenon or bar *h*, arranged as set forth.

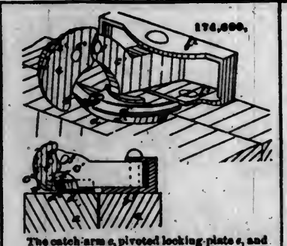
174,679. ROCKING-CHAIRS. R. S. Imoli, Chicago, Ill. [Filed Feb. 14, 1876.]



The springs D E, constructed as set forth, in combination with the cross-bar C, rods F, auxiliary pieces B, and stand A, as set forth.

174,680. FASTENERS FOR THE MEETING-RAILS OF SASHES. Robert V. Jenks, Patterson, N. J. [Filed Feb. 26, 1876.]

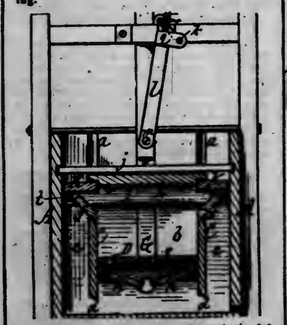
Brief.—A pivoted locking-plate, attached to the outer or hooked end of a swinging lever, is so arranged as to drop vertically into a catchable notch in the rim or periphery of the semi-circular retaining-plate, thus securely locking the device in closed position.



The catch-arm *e*, pivoted locking-plate *e*, and retaining-plate *d*, provided with the notch *d''* in its periphery, all constructed and arranged substantially as and for the purpose specified.

174,681. WASHING-MACHINES. David Jennings, Lyons, N. Y. [Filed Feb. 4, 1876.]

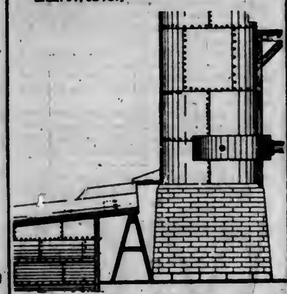
Brief.—The clothes are placed in a follower, which is reciprocated vertically in the tank. By an arrangement of valves a continuous current of water is passed through the clothing.



1. The combination, with the valves *f f*, boards C C, and follower D, of the loose blocks I K and stays *i i*, arranged to operate in the manner and for the purpose specified.

2. The combination, with the crank *k* and pitman *l*, of the block *g* resting in the pin *p* of the pitman, and pressed down by the spring *r*, the whole arranged to operate in the manner and for the purpose specified.

174,682. MANUFACTURE OF IRON AND STEEL. J. J. Johnston, Columbiana, Ohio. [Filed Aug. 17, 1875.]

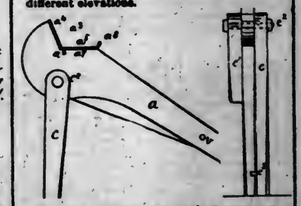


1. The process of manufacturing iron and steel, consisting in running the molten cast-iron into a bath of water holding nitrate of soda in solution, and a metallic oxide in suspension, as deteraive and converting agents, substantially as described.

2. The process of manufacturing steel, consisting in running the molten cast-iron into a bath of water with nitrate of soda and a metallic oxide or granulate the iron, and then subjecting the iron so treated to heat while imbedded in charcoal, substantially as described.

174,683. WAGON-JACKS. A. T. Jones, Stamford, Conn. [Filed Sept. 7, 1876.]

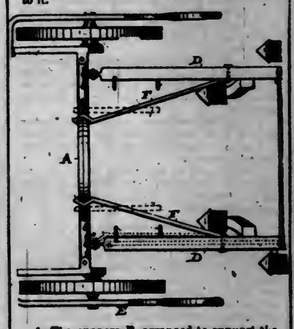
Brief.—A lever with a notched head; on each side a folding leg pivoted thereto, for different elevations.



The lever *a*, having the notch *a''*, constructed as described, projection *a''*, mortise *b*, legs *c c'*, and pins *c''*, all constructed and arranged substantially as and for the purposes set forth.

174,684. CULTIVATORS. Thos. W. Kendall, Creston, Iowa. [Filed Feb. 1, 1876.]

Brief.—An arched axle horizontally pivoted at its ends to draft-bars carrying the wheel-spindles. The wheels turn independently, and being without tongue, runners are provided to support the arch with the plow-beams hitched to it.

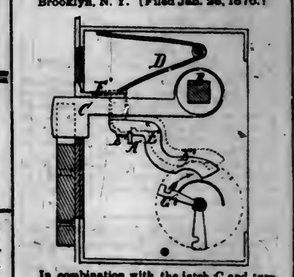


1. The runners E, arranged to support the axis of a tongueless cultivator, with the plows D suspended therefrom, in manner substantially as described.

2. The combination of the runners E, plows D, hook-rods F, and axle A of a tongueless cultivator, substantially as and for the purpose specified.

3. The combination of the axle A, runners E, plows D, hook-rods F, and uniting cross-rod G, substantially as and for the purpose specified.

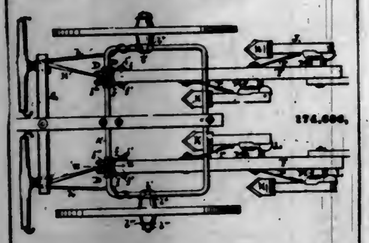
174,685. LOCKING-LATCHES. F. Klumm, Brooklyn, N. Y. [Filed Jan. 26, 1876.]



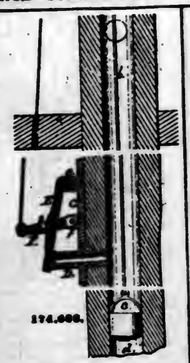
In combination with the latch C and turning means B, a bolt or locking-piece formed in a single piece, having an arm, E', adapted to be operated by the key G, a stop, *e*, to strike the latch and restrain the vertical motion, and a part, F', adapted both to receive the spring D and to form a removable stop to prevent the rising of the latch at will, all substantially as herein specified.

174,686. CULTIVATORS. James O. Leidy, Galesburg, Ill. [Filed Nov. 10, 1875.]

Brief.—Frame and axles of a single bar of iron bent to receive the wheel-spindles. Device for adjusting the standards on the beam, and attaching the beam to the frame.



174,686.



174,686.

1. The axle of a straddle-row cultivator, constructed of a single bar of iron, bent so as to form a rectangular frame, with downwardly-projecting parts *a a*, between which the spindles of the supporting-wheels are secured, substantially as and for the purpose specified.

2. The pendants E, having spherical heads *e*, in combination with the clamp-plates D and bolts *d*, substantially as and for the purpose specified.

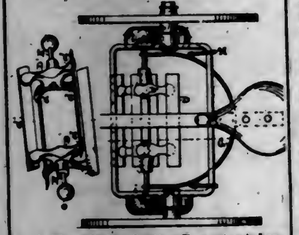
3. The standard-plates L, placed diagonally on the standards, and combined with the plates M, beams F, standards J, and bolts N, substantially as described, and for the purpose specified.

4. The combination of the spindle *b*, having head *b'*, with the notched washer *b''*, axle-bars *a a*, and thimble *b'*, substantially as and for the purpose specified.

5. The scraper G, pendants *g*, rods *h* H, combined with the beams F, pendants E, and axle A, and tongue C, substantially as and for the purpose specified.

174,687. STALK-CUTTERS. James C. Leidy, Galesburg, Ill. [Filed Nov. 12, 1875.]

Brief.—The cutting-cylinder has a divided axle, so that the two heads or sets of arms are held in place by the knives, which are bolted to the arms, forming the only bond of connection between the axles, which leaves the body of the cutting-cylinder entirely open.



1. The cylinder of cutters D, constructed as described, with heads D', having radial arms *d*, to which the blades *d'* are attached, so as to connect the heads D and hold the cutters in position without a central shaft, and provided with the short shafts E, substantially as and for the purpose specified.

2. The lever-frame Q and pendants H, in combination with the cylinder of cutters D and framed axle A, substantially as and for the purpose specified.

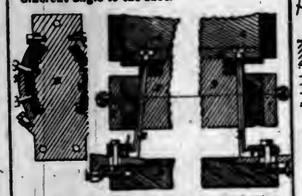
174,688. VALVES FOR PUMPS, &c. John Lemmon and Wm. Devault, Cope, Ohio. [Filed Feb. 6, 1876.]

Brief.—The valve is opened, closed, and held securely by a rod, which, if desired, may be attached to the pump-handle and operated thereby.

The arrangement and combination of the plate C with its spout D, the hinged-lever valve E with its incline *k*, the cam-lever F with its triangular opening *f*, and the rod I, operating substantially as herein shown and described.

174,689. MACHINES FOR PUNCHING HORSESHOES. Wm. W. Lewis, Cincinnati, Ohio. [Filed Aug. 27, 1875.]

Brief.—An upper movable block and a lower stationary block, between which the shoe is clamped by each reciprocation of the upper one. On each side of the lower block is an adjustable bearing-block, the punches attached to a lower moving block, being guided in grooves—half of each groove being in the stationary block, and the other half in one of the adjustable bearing-blocks, each being at a different angle to the shoe.



1. The removable bed-block B, having grooves on its sides to receive the punch rods, said grooves being inclined at different angles to the face of the shoe to be punched, where the shoe rests, in combination with the adjustable boxes F, substantially as and for the purpose described.

2. In combination with a system of independent punches, inclined at different angles to the face of the shoe to be punched, an adjustable base or bases for adjusting the length of the punches, which gives the same a bearing at right angles to the direction of punching, substantially as specified.

3. In a machine for punching horseshoes, the combination of the system of independent and adjustable punches E, bed-block B, and wedges I, substantially as and for the purposes set forth.

4. In a machine for punching horseshoes, the combination of punch-rods formed with foot *a*, counter-bearing *j*, and wedges I, substantially as and for the purposes set forth.

174,690. KALEIDOSCOPES. Robert F. Macy, Nantucket, Mass. [Filed Apr. 20, 1875.]



1. The combination of the separate annular agitator O, with the object-box E, and the main tube A, each agitator being arranged in said box and provided with a mechanism for effecting its revolution, all as and for the purpose specified.

2. The combination of the shaft *h*, provided with its two right and left screws *d c*, with the nuts *f f*, and the forks *g g*, hinged thereto, as set forth, the whole being for simultaneously moving the reflectors so as to change their angle of inclination.

174,691. NICKEL-PLATING. Camillo Maggio and Giuseppe Maffioli, San Francisco, Cal. [Filed Dec. 2, 1875.]

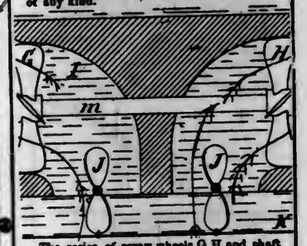
1. The solution, composed of chloride of nickel and ammonium, and chloride of iron, for the purpose of plating directly upon zinc, substantially as described.

2. The method of preparing base metals to receive an electroplating of nickel, the same consisting in applying a surface of zinc previous to the nickel-plating, substantially as described.

3. As new articles of manufacture, metal goods having a nickel-plating deposited directly on a zinc surface, as set forth.

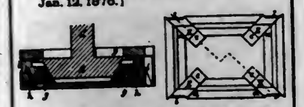
174,692. TIDE-POWERS. A. Mallory, Mystic Bridge, Conn. [Filed Aug. 2, 1875.]

Brief.—A series of screw-propeller wheels, with pitches in reversed directions, on a horizontal shaft, are arranged between two reservoirs provided with inlet and outlet valves, to utilize the tide-power in either direction, and give a constant motion for driving machinery of any kind.



The series of screw-wheels G H and shaft *m*, in combination with suitable controlling means J K, and dams C D, and automatic valves *e f*, as and for the purposes herein specified.

174,693. SHEET-METAL DISH. H. Martyn, East Medford, assignor to himself and E. F. Brown, Newton Centre, Mass. [Filed Jan. 12, 1876.]



In combination or for use with a female die, substantially as described, the male die, having two of its body sides narrowest, and the other two provided with oblique openings *a* and recessed slides E, having mechanism for operating the latter, all being essentially as set forth.

174,694. LIQUID-METERS. S. D. A. Mason, Chicago, Ill., assignor of one-half his right to E. H. F. Geewes, same place. [Filed Feb. 26, 1876.]

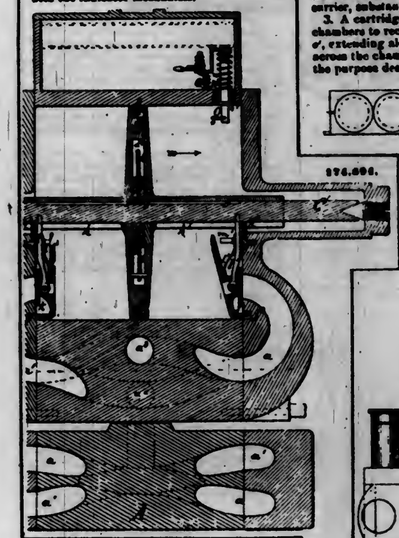
Brief.—A single vibrating piston slides back and forth within a measuring-cylinder. This rod has a radial valve-arm at each end, and on each arm a pivoted valve is hung. The cylinder has two passages at each end—one of which is a receiving, the other a discharging, passage. The ones has crossing passages, which do not intersect. At each stroke of the piston a spring is wound up, the power of which, at a certain stage of the movement, throws the valves from one side of the center of the cylinder to the other side, thus reversing the action of the motor at each stroke.

1. The vibrating shaft and the valves attached thereto, said shaft having a reciprocating piston arranged to turn and slide back and forth on it, for the purpose of expelling the water or liquid within the cylinder, and for releasing the valves and reversing them, substantially as described.

2. The case for containing the mechanism, constructed with inlet and outlet passages at each end, and with the separate crossed passages *a a'*, substantially as described.

3. The combination of the spring G, the piston and its obliquely grooved sleeves, the detents, vibrating shaft, the valves and their latching-pins, and the stops *f f* of the case, substantially as described.

4. The combination of the reciprocating piston and the vibrating arm O, which operates the indicator mechanism.



174,695.

1. In combination with the arc A, composed of two spaced sections, *a*, serrated upon their under sides, the lever D and a curved pawl or dog, G, pivoted thereto, below the arc, both extended upward independently of each other between the said sections, and guided in their movements thereby, substantially as specified.

2. In combination with the concave serrated arc A, an operating lever, D, a connecting rod, E, and a pawl, G, for holding the brakes down, the spring *g*, inclined in an independent bifurcated shield, H, secured to the said lever, in a horizontal position between it and the pawl, substantially as set forth.

3. In combination with the spaced sections *a* of arc A brake-lever D, and pawl G, extending up between the said sections, the shield H above the arc, provided with bifurcations *i* in its free end for the reception and support of the dog-handle, substantially as set forth.

174,696. SOLDIERS' ACCOUTREMENTS. Henry Metcalfe, U. S. A., Springfield, Mass. [Filed Dec 16, 1874.]

1. The combination of the straps *c*, rings *e*, belt A, shoulder-pieces *i*, and the knapsack G, all arranged substantially as and for the purpose herein set forth.

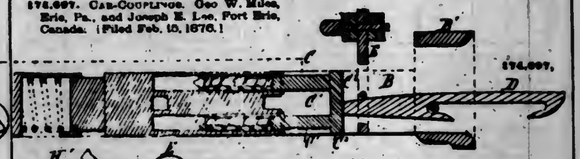
2. A carrier, A', arranged upon the belt A, to clasp and hold a cartridge-block, and provided with a flange or projection, *a*, to prevent the block from becoming detached from the carrier, substantially as described.

3. A cartridge-block provided with holes or chambers to receive the cartridges, and a slit, *a'*, extending along the top of the block, and across the chambers, substantially as and for the purpose described.



174,696.

174,697. CAR-COUPLINGS. Geo W. Miles, Erie, Pa., and Joseph E. Lee, Fort Erie, Canada. [Filed Feb. 10, 1876.]



174,697.

1. A coupling-bar for railroad cars, having a hook at or near one of its ends, and another at or near its center, it being provided with a shank extending beyond the central hook for passing through a vertically moving frame, whereby its outer end may be elevated or depressed, as and for the purpose set forth.

2. The combination of the horizontally-moving frame, consisting of rods C' C', plate C, springs for controlling the movements of said rods, and a buffer the movements of which are controlled by separate and independent springs, the construction and arrangement of the parts being as described, whereby the coupling is allowed to be housed within the buffer-head, and then both allowed to recede together, substantially as shown and described, for the purpose set forth.

3. The combination of the horizontally-moving frame C, having a plate, C', upon its outer end, and the herein-described coupling-bar D, substantially as and for the purpose set forth.

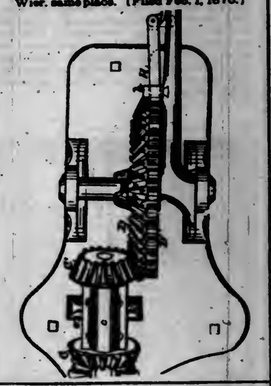
4. In a draw-head for railroad-cars, the combination of the buffer B, the sector G, the spring-dog H, bifurcated levers H' and I, the levers being arranged at a right angle to the buffer, substantially as shown.

5. The combination of the horizontally-moving frame C, the vertically-moving frame E, and coupling-bar D, substantially as and for the purpose set forth.

6. The combination of the vertically-moving frame E, the adjustable levers I and H', and spring-dog H, the parts being arranged to operate substantially as and for the purpose set forth.

7. The buffer-head B', when provided with a fixed horizontal pin, K, and a removable vertical pin, whereby provision is made for using the coupling-bar to connect to cars of the usual construction by turning said bar upon its side, as set forth.

174,698. CAR-BRAKE-OPERATING MECHANISM. Jas. B. Newcomb, Muscatine, Iowa, assignor of one-half his right to James M. Wier, same place. [Filed Feb. 1, 1876.]



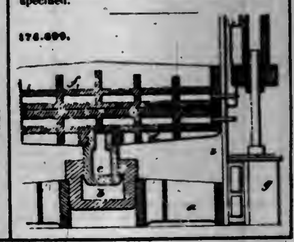
1. The spur-wheel D, arranged to operate with the pinions C, C', and B, and stem *b*, for applying car-brakes, substantially as and for the purpose specified.

2. The lever G, arranged to operate with the ratchet spur-wheel D D', pinions C, C', and B, and stem *b*, substantially as and for the purpose specified.

3. The detent I, ratchet spur-wheel D D', pinions C, C', and B, and stem *b*, combined to operate on the chain *k*, substantially as and for the purpose specified.

4. The wheel D D', arranged to operate with the pinion B, on an ordinary brake-wheel stem, substantially as and for the purpose specified.

174,699.



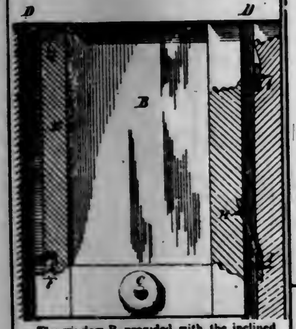
176,690. MACHINES FOR PRESSING WOVEN FABRICS. George H. Nuttall and William B. Leachman, Leeds, England. [Filed Feb. 27, 1876.]

Brief.—The moving part of the press is operated by cylinder and ram, actuated by a steam-driven press-pump.

The combination of the steam-chest, having valve *j* and inlet and outlet openings *l P*, cylinder *g*, hydraulic pump *h*, and cylinder and ram with the table *d* and plate *f*, as described.

176,699. SASH-FASTENERS. Wm. Ormsby, Boston, Mass., assignor of one-half his right to R. A. Ormsby, same place. [Filed Aug. 12, 1875.]

Brief.—One side of the window-casing is provided with an enlarged way, running nearly or quite its entire length, within which works a long spring-rod, secured at its upper end to the sash, and having a hook-shaped free end, entering a hole or recess in side of the sash. The opposite side has an inclined stud, which, when the sash is raised, passes a series of suitable stops, engaging with them to hold the sash at the desired height; the construction being such that the spring playing in the enlarged way yields to a slight lateral pressure, permitting the catch to engage or disengage with great facility.



The window B, provided with the inclined stud H, and spring E, in combination with the casing A, having the enlarged way D', and the ordinary way, D, provided with the stop I, substantially as set forth and specified.

176,701. CONCEALED STRAINERS AND CUT-OFFS FOR CISTERNS. Alfred D. Parker, Grand Rapids, Mich. [Filed Feb. 8, 1876.]

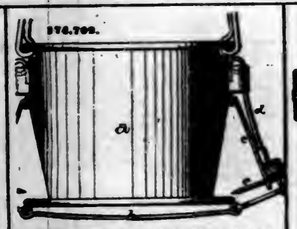
Brief.—The hinged spout acts as a scraper for removing débris from the strainer.



The above-described combined strainer and cut-off, having a concave perforated part, C, set perpendicular or at an angular inclination upward with the scraper, spout C as arranged as to act as scraper, cut-off, and spout, operated by means of thumb knob F, or its equivalent, as and for the purpose set forth.

176,703. CAM-MUSLINS FOR HOSIERY. C. F. Phelps, Waterford, Pa. [Filed Feb. 26, 1876.]

176,705.



1. The guard *a*, provided with the barbed wings *c c*, substantially as shown.

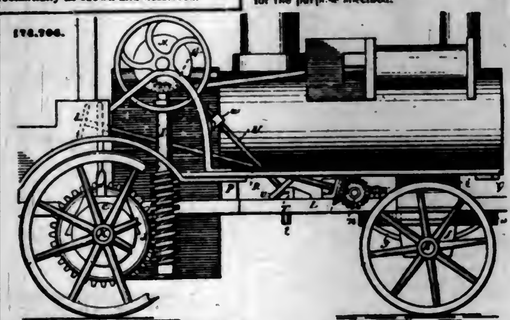
2. The combination of the guard *a*, wings *c c*, and springs *d*, substantially as described.

3. The combination of the guard *a*, wings *c*, and a connecting rod or chain, substantially as set forth.

4. The combination of the wings *c* and the horns or projections *g*, substantially as specified.

5. The combination of the guard *a*, straps *b*, wings *c c*, springs *d*, horn *g*, and rod or chain *h*, substantially as shown and described.

176,706.



176,702. SEWING-MACHINES. D'Arcy Porter and Geo. W. Baker, Cleveland, Ohio. [Filed Feb. 1, 1876.]

1. In combination with connecting rod C C', the elbow or angular lever D D' and the shuttle-arm E, whereby a reciprocating motion is imparted to the said shuttle-arm, substantially as shown.

2. In combination with the main shaft A, feed-shaft G, and shuttle-arm E, the connecting-bar C C' and elbow or angular piece D D', substantially as shown, whereby the rotary motion of the main shaft A imparts an equal and opposite rotary motion to the feed-shaft G, and a reciprocating motion to the shuttle-arm E, substantially as and for the purpose shown.

176,704.



176,705.



176,706. TOY RATTLES. Edwd. Rice, Providence, R. I. [Filed Jan. 24, 1876.]

1. The combination, in a rattle, of two arms A A, capable of revolving in directions opposite to each other, with a rattling device, C D, substantially as described.

2. The combination of the arms A A, weighted at E E, and slotted at one end, the handle B, with its rod *a*, the ratchet-wheel C C, and its clappers D D, with dowel-pin *b*, all made and arranged to operate substantially as specified.

176,705. ANVILS FOR PAPER CARTRIDGE-SHELLS. Julien Sagui, New Orleans, La. [Filed Aug. 20, 1875.]



An anvil for manufacture, the solid anvil herein described, having the conical head *a*, stem *b*, and groove *c*, extending across the top of the conical head, and thence continued down one side of the head and stem, as described, and for the purpose set forth.

176,706. TRACTION-ENGINES. Christian B. Shiveley, New Lebanon, Ohio. [Filed Jan. 11, 1876.]

Brief.—Engine supported on system of springs and frames, guided by hand through gearing and fifth-wheels, and propelled by rotating shafts and bevel-gear, which operates driving-wheels; also, contrivance for working force-pump.

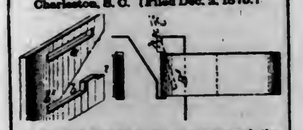
1. In a traction engine, the vertical worm shaft I, arranged as described, in combination with the fly-wheel D and axle K, with their connecting gearing, substantially as and for the purpose specified.

2. In a traction-engine, the force-pump T, located as described, in combination with the adjustable crank-rod U, actuated by means of the gearing connecting it to the fly-wheels H, substantially as and for the purpose specified.

3. In a traction-engine, the combination of the crank-rod R, bevelled gearing *z* and *u*, worm-shaft *u*, upright shaft *v*, with its pinions *s*, and fifth-wheel *t*, when arranged in the manner and for the purpose specified.

4. In a traction-engine, the frame-work consisting of the converging beams L, connected to the axles, as shown, and provided with a cross-beam, P, for upholding the spring-strips Y, connected at one end to the housing O, and at the other by the cross spring Q, the whole arranged as and in the manner specified.

176,707. COTTON-BALE TIES. P. Slattery, Charleston, S. C. [Filed Dec. 2, 1875.]

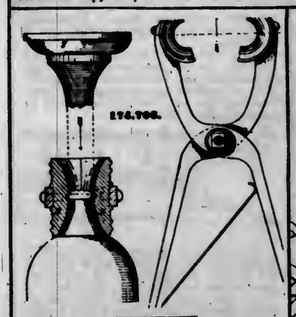


In a bale buckle or tie, as constructed, the shoulder or offset *i*, on the outer side of the lip, for the insertion of the forked lever C, substantially as and for the purpose specified.

176,708. MANUFACTURE OF STRIPED GLASSWARE. August Sperber, Pittsburg, Pa., assignor to himself and Jas. B. Lyon, same place. [Filed Dec. 31, 1875.]

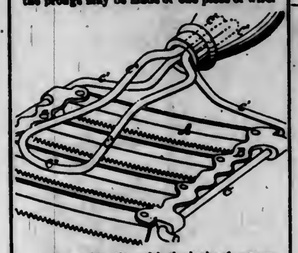
The mode described of manufacturing articles of glassware without seams, viz., by first forming two parts of the article in separate molds without partings, and then bringing the parts together upon an intervening body of molten glass within a supplementary tool or mold, thereby uniting the same and forming a continuous piece, as set forth.

176,709.



176,709. CURRY-COMBS. Miles Sweet, Troy, N. Y. [Filed Dec. 20, 1875.]

Brief.—An overlying and a side handle are attached to the comb by wire prongs, which pass to the comb from the junction of the two handles. The overlying handle, the shank upon which the side handle is mounted, and the prongs may be made of one piece of wire.



1. In combination with the body of a curry-comb and the wooden handle D, the single wire C C' C'' C', when bent so as form a reversed wire handle directly over the body of the curry-comb and a shank for the wooden handle, substantially as shown and described.

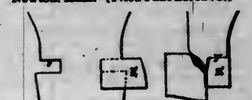
2. In combination with a curry-comb and its wooden handle D, the metallic handle F, when applied to said wooden handle in a reverse position to it, and directly over the body of the curry-comb, substantially as and for the purposes described.

176,710. FASTENINGS FOR KNOB-SPINDLES. Wm. T. Taylor, Bristol, R. I., assignor to himself, Sullivan Ingell, and E. S. Foster, same place. [Filed Sept. 26, 1876.]



The combination, with the knob-spindle and rose, of the slotted fastening-plate guided in the rose and surrounding the spindle, and a spring-plate through which the spindle passes, the spring holding the fastening-plate, all as described.

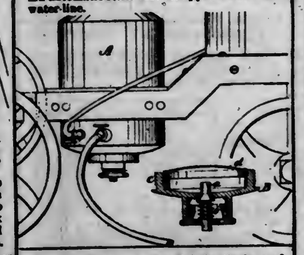
176,711. ELASTIC HOSE. Edward Tivey, Newton, Mass. [Filed June 23, 1875.]



The improved elastic hose above described, composed of the leg-piece and the heel part E, united as shown.

176,712. AUXILIARY AIR-CHAMBERS FOR ENGINE-HOSE. Jacob B. Vandyne, Louisville, Ky. [Filed June 12, 1875.]

Brief.—The loss of velocity of the stream by passing through a long line of hose is remedied by interposing an air-chamber near the discharge. Then, by closing a cock at the discharge for a few seconds, the engine continuing in operation, the water stores up in the air-chamber, with increased pressure of the air-cushion; then, opening the cock, the water is discharged with renewed velocity. An automatic relief-valve is applied below the water-line.



1. An auxiliary air-chamber for the hose of fire-engines, having an inlet-connection for the long line of hose, and an outlet-connection for the supplemental hose-pipe, substantially as and for the purpose described.

2. The combination, with an air-chamber, A, of a suitable automatic relief-valve, placed below the water-line, for the purpose set forth.

3. The combination, with the air-chamber A, of the relief-valve *a*, spring *b*, detachable plate *c*, and a strainer, *d*, as and for the purpose set forth.

176,713. UNDERGROUND TELEGRAPH-LINES. William M. Walton, New York, N. Y. [Filed Mar. 2, 1876.]



A pipe or tube for laying telegraphs composed of two parts, A B, as described, each part being provided with the parts of coupling A' and B', secured to the tube, whereby the tubes can be laid and taken up without moving the coupling, or any part thereof, independently of the tube, substantially as and for the purpose herein specified.

176,714. WIRE-MOTIONS FOR LOOMS. W. Webster, Morrisania, N. Y., assignor to Webster Loom Company. [Filed Nov. 6, 1876.]

Brief.—The mechanism for withdrawing and inserting the pile-wires is so constructed that the wire is supported while being transferred from the point of withdrawal to the point of insertion without the use of a wire trough or bar. The supporting and controlling mechanism consists of a beak having spring-jaws, which seize and sustain the point of the wire, and is mounted upon a vibratory staff, whereby the point of the wire is transferred to the place of insertion; and it further consists of a head-block provided with a latch and spring-holder, which maintains the wire head in its proper position, said head-block being mounted upon a long vibrating arm, which is provided with operating mechanism, whereby it receives the motions necessary to withdraw, transfer, and insert a pile-wire, and return to the withdrawing point.

1. In a loom for weaving pile fabrics, the combination, with a lever and a beak, having spring-jaws for seizing the end of the pile-wires, of mechanism, substantially as described, for imparting to such lever a vibratory motion, as and for the purpose set forth.

2. In combination with the spring-beak and operating mechanism herein described, a head-block provided with mechanism for inserting and withdrawing the pile-wires, as and for the purpose set forth.

3. In combination with the head-block, the spring-beak herein described, and the spring-holder, the mechanism, substantially as described, for withdrawing the pile-wire from the wire-box, as set forth.

4. The combination of the spring-beak, the head-block, the spring-holder, and the latch, constructed as and for the purposes set forth.

5. In combination, the spring-holder, the latch, the wire-box, the long vibrating arm, (for carrying said holder and latch,) and mechanism for supporting the point of the wire, as shown and described.

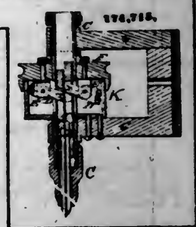
6. In combination with the head-block, the spring-holder, the mechanism for withdrawing the wires, the long vibrating arm for carrying the head-block, and the mechanism herein described for supporting the point of the wire, as and for the purpose set forth.

176,715. ENGRAVING AND CHASING MACHINES. Robt. R. Atchison, Boston, Mass. [Filed Feb. 21, 1876.]

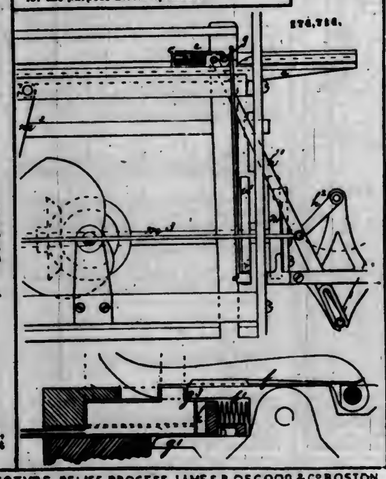
Brief.—Two rotating tools are made to reciprocate alternately by means of a fixed cam-ring.

The combination of stationary cam-ring K, levers D, pulley F, hollow mandrel C, and the tool-stocks A B, substantially in the manner and for the purpose described.

176,715.



176,716.



176,716.

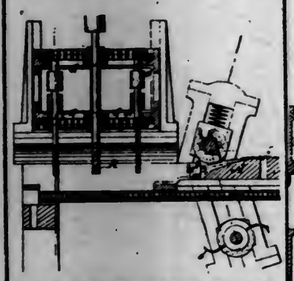


174,716. LAMP-FUNNELS. William Bodey, Galion, Ohio. [Filed Feb. 28, 1876.]

A funnel for filling lamps, made of conically-tapering shape, with a side slot or opening for inserting the spout of the oil-can, substantially as specified.

174,717. MACHINES FOR MAKING TACKLE-BLOCKS. Frederick S. Burr, Brooklyn, N. Y. [Filed Dec. 27, 1875.]

Brief.—The cheeks of tackle-blocks are shaped and bored in a single machine.



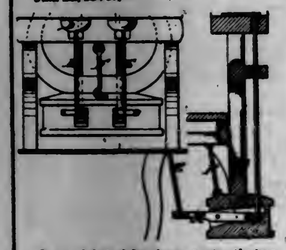
1. The combination of plates Q with removable pieces having differential bearings, as and for the purpose described.

2. A tackle-block machine having five bores, four of which are adjustable with respect to the fifth or central one, the former making the end holes while the latter makes the pin-hole, as specified.

3. The combination, with formers fastened to a movable table beside the work, of the guide-rolls carried with the work, and admitting the formers to pass between them, as and for the purpose described.

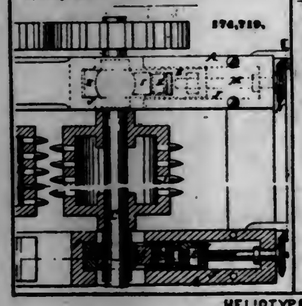
4. The combination, in a tackle-block machine, of two sets of knives and formers working simultaneously on the same piece of wood, the one on top and the other on bottom, as and for the purpose specified.

174,718. PIANO-PEDAL ATTACHMENTS. C. F. Chessman, San Antonio, Tex. [Filed Jan. 28, 1876.]



In a pedal-stool for pianos, having the treadle D and connecting-rods E, the hook F, adapted to secure said stool to the pedal-harp B, as specified.

174,719.



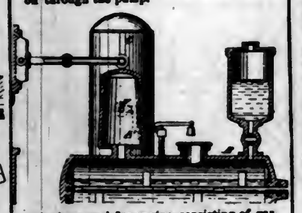
174,719. COAL-BREAKERS. David Clark, Hazleton, Pa. [Filed Jan. 22, 1876.]

Brief.—Behind the adjustable bearings are placed cast-iron tubes, which are strong enough to hold the machine rigidly to its legitimate work. Upon a piece of iron or other hard substance coming between the breakers, the cast-iron tube crushes, and injury to the machine is avoided.

The safety devices K, made of cast-iron and babbit, in combination with the bearings of a coal breaker roll, substantially as herein shown and described.

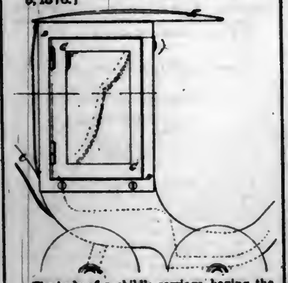
174,720. FIRE-ENGINES. Clinton W. Clapp, Wappinger's Falls, N. Y. [Filed Feb. 26, 1876.]

Brief.—Receivers containing carbonic-acid gas are used alternately, the gas being worked off through the pump.



An improved fire-engine, consisting of gas-generators A B, two or more receivers C, and steam-pump, combined and arranged to afford a continuous supply of gas for working the pump by charging and exhausting the receivers alternately, substantially as set forth.

174,721. CHILDREN'S CARRIAGES. William B. Crandall, New York, N. Y. [Filed Feb. 9, 1876.]



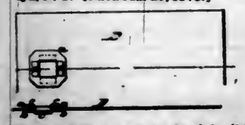
The body of a child's carriage, having the two frames D D, cover E, and sashes G made severally independent and detachable, as and for the purpose specified.

174,722. HOLDERS FOR GRINDING NEEDLES. Henry M. Dixon, Brooklyn, E. D., assignor to himself and Robt. R. Dunham, Jamaica, N. Y. [Filed Feb. 14, 1876.]



A sewing-machine-needle holder, consisting of a tab, A, having one or more notches, E, in the side, arranged for inserting the needle with the point projecting from the end, substantially in the manner described.

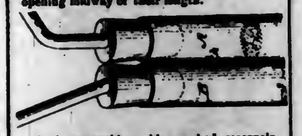
174,723. TAGS. Joseph I. Donahue, Brooklyn, N. Y. [Filed Jan. 20, 1876.]



The combination, with tag D, of the disks a b, one on each side, and each having tongues c c, as and for the purpose specified.

174,724. INHALERS. Niles I. Donaldson, Worcester County, Mass. [Filed Jan. 3, 1876.]

Brief.—One of the two air-chambers has a removable bottom piece to contain asbestos. The asbestos serves to hold the acid, and the ammonia is placed upon a sponge in the other chamber. The two chambers connect by an opening midway of their length.

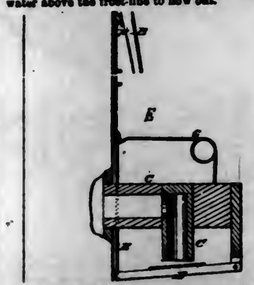


1. A removable, rubber-packed reservoir, containing asbestos in the bottom of one of the duplicate air-chambers of an inhaler, all arranged and for the purposes described.

2. In combination with the removable asbestos-reservoir, the chamber B with sponge connected with the chamber A by the orifice h, all as and for the purposes set forth.

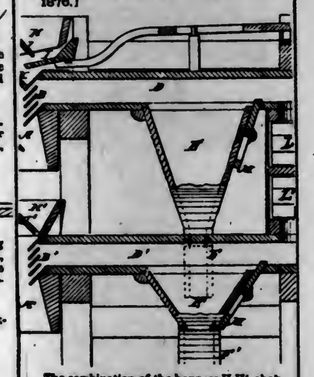
174,725. PUMPS. B. Hey and J. S. Floster, Kinzer, Pa. [Filed Feb. 21, 1876.]

Brief.—A valve-plate is pressed against the mouth of a spout located beneath the freezing point, which is uncovered to allow the water above the frost-line to flow out.



The combination of the spout C, the valve-plate D, the connecting-rod E, the lever-loop or trigger F, and the spring G, with the barrel A and the handle B of the pump, substantially as herein shown and described.

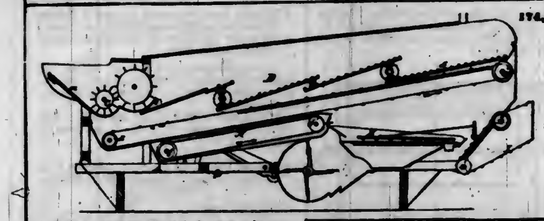
174,726. MIDDLINGS-SEPARATORS. Morris N. Elwell, Oneonta, N. Y. [Filed Jan. 22, 1876.]



The combination of the hoppers H H', chaking-shoe I, draft-boxes A A', inclined slats B B', horizontal boxes D D', and hoppers F F', having spouts F F', with the fan I, all arranged substantially as and for the purpose specified.

174,727. COMBINED THRASHERS AND CLOVER-HULLERS. Stephen M. Pember, Oneonta, N. Y. [Filed June 16, 1874.]

174,727.



1. The separator D, made in successive sections, the adjacent ends of each pair being connected and actuated by the double cranks b b', and the opposite ends placed on ways or supports which will allow them to slide to and fro, substantially as specified.

2. The toothed endless belting-belt H, carried upon the rollers f f, and constructed and operating substantially as and for the purpose set forth.

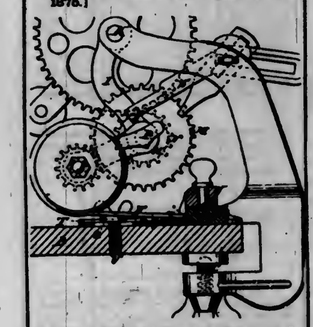
3. The combination, with the toothed endless belting-belt H, of adjustable platform c, having its upper surface roughened, substantially as and for the purpose set forth.

174,728. BOTTLE-STOPPERS. Albert Freygang, New York, N. Y., assignor to Fredk. Kalef, same place. [Filed Feb. 14, 1876.]



In a bottle-stopper, a swinging lever with eccentric recessed cam part, straight middle part, and bent handle-end, substantially for the purpose set forth.

174,729. GRINDERS FOR MOWERS. Walter B. Crosh, Reading, Pa. [Filed Dec. 27, 1875.]



1. The articulated supporting-frame A I G, driving-wheels C, M, N, and L, and the grinding-wheel, combined and arranged substantially as specified.

2. The frame A I G and the grinding mechanism combined with a clamp-holder for the cutter-bar, substantially as specified.

3. The combination of the adjusting-stops E E with the swinging grinding-wheel D, substantially as specified.

4. The adjustable clamp T, having inclined face W, in combination with the clamp V, substantially as specified.

174,730. BALE-TIES. Jas. S. Harvey, Pensacola, Fla., and Chas. B. Harvey, Savannah, Ga. [Filed Feb. 21, 1876.]



As an improvement in hand-ties, the combination of a head end, having closed L-shaped slot, with the opposite head end, being provided with recesses or notches at alternate sides, the distance of two alternating notches being equal to the length of the L-shaped slot, substantially in the manner and for the purpose set forth.

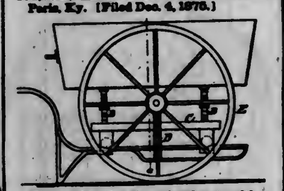
174,731. REVOLVING FIRE-ARMS. Freeman W. Hood, Norwich, Conn., assignor to the Hood Fire-Arms Company, same place. [Filed Feb. 21, 1876.]

Brief.—The cylinder is locked by the pawl coming in contact with the upper part of the slot through which it works, and the ordinary cylinder-stop is dispensed with.



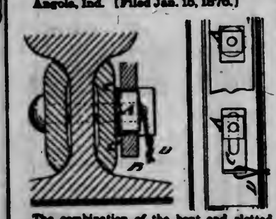
As an improvement in revolving fire-arms, the combination of the pivoted spring-pawl of the hammer with the ratchet of the cylinder, and a pawl stopping or binding recess, or equivalent device, of the stock, to securely lock the pawl when the hammer is placed in cocked position, substantially in the manner as set forth.

174,732. HAND-CARTS. Joseph M. Jones, Paris, Ky. [Filed Dec. 4, 1875.]



The combination, in a hand-cart, with a body, sliding frame, and intermediate spring B, of a crank-axle, D, journaled in the wheels E E, as shown and described.

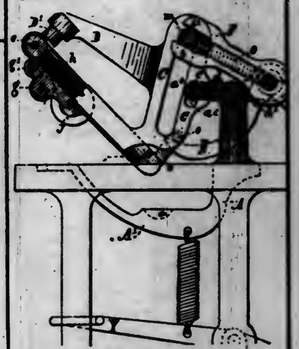
174,733. NUT-LOCKS. George F. Jordan, Angola, Ind. [Filed Jan. 15, 1876.]



The combination of the bent and slotted washers C, and keys D, with slotted nut-locking plate B, and bolt A, as and for the purpose set forth.

174,734. STAMP-CANCELLING MACHINES. Wm. Livingstone, Valley Stream, assignor to the United States Postal Stamp Machine Company, New York, N. Y. [Filed Nov. 20, 1875.]

Brief.—On depressing the foot-lever the pivoted forked arms turn on their axis, and force the shaft that they support down the slots in the stamping-frame. Immediately on passing below the slotted fulcrum of this frame, the distended springs fastened to the shaft suddenly retract, causing the stamping devices on the frame-front to descend and cancel the packet. By the same movement the inking-rolls, in their sliding grooved frame, pass into their trough below the table-surface. The slotted fulcrum enables the frame to adjust itself to the varying thickness of the packets.

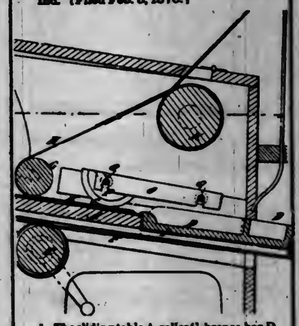


1. The swinging and reciprocating carriage C, provided with slots c^2 and c^3, arm D carrying stamping devices D', and arms C' at its base carrying inking-carriage, and operating from a compensating-fulcrum, as and for the purposes as herein shown and set forth.

2. The reciprocating ink-carriage E, provided with one or more ink-rolls, in combination with the rocking carriage C, and the operating-lever H, arranged and operating substantially as and for the purposes as herein shown and set forth.

3. The combination of the compensating swinging rocking carriage C, inking-carriage E, shaft a, forked operating-levers F and F, and actuating-springs O and O', arranged and operating substantially as and for the purposes as herein shown and set forth.

174,735. BROOMING-MACHINES. Christian Landolt and Fredrick Wichser, Tell City, Ind. [Filed Feb. 5, 1876.]



1. The sliding table A, roller G, bronze-box D, and bronzing-pads C, contrived and arranged substantially as specified.

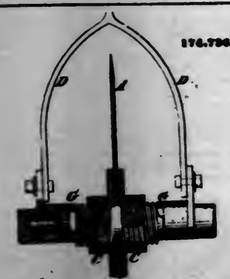
2. The combination of the flexible stencil H, with roller G, sliding table A, and bronzing-pads C, substantially as specified.

3. The adjustably-partitioned bronze-box, detachable independent bronze-pads C, and removable partition-pieces O, combined and arranged substantially as specified.

174,736. COLTERS. Elayon W. Manwaring, Council Bluffs, Iowa. [Filed Jan. 22, 1876.]

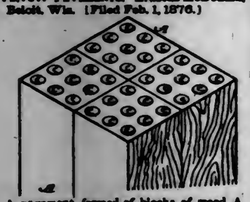
Brief.—A colter mounted in a collar, and secured on a shaft by right and left screws.

176,726.



The combination, with roller colter A, of right and left screw-shaft B, screw-collars C, and yoke D, arranged substantially as and for the purpose specified.

176,727. PAVEMENTS. Braxton McDonald, Beloit, Wis. [Filed Feb. 1, 1876.]

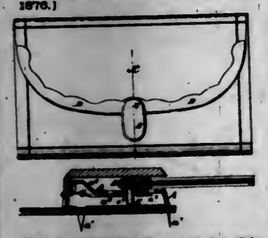


A pavement, formed of blocks of wood A A, perforated to receive the metallic plugs e e, which form the wearing-surface, and cemented together by a cement composed of plaster-of-paris and glue, as described, substantially as specified.

176,728. AXLE-GREASE. William Peters, Logansport, Ind. [Filed Feb. 21, 1876.]

The compound of black oil, hard tallow, wood ashes, white lime, salt, sulphur, and black lead, substantially in the manner and proportions set forth.

176,729. POCKET-BOOK FASTENINGS. Daniel M. Read, New York, N. Y. [Filed Jan. 31, 1876.]



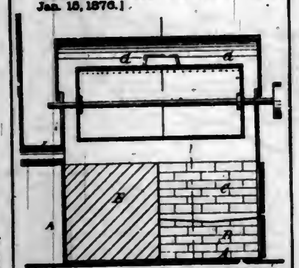
The pocket-book fastening, consisting of the base-plate A, provided with a row of holes, a', the pin E, attached to or formed of the binding or catch plate D, and the spring cap-plate B, constructed and arranged substantially as herein shown and described.

176,730. POCKET-BOOK FASTENINGS. Daniel M. Read, New York, N. Y. [Filed Jan. 31, 1876.]



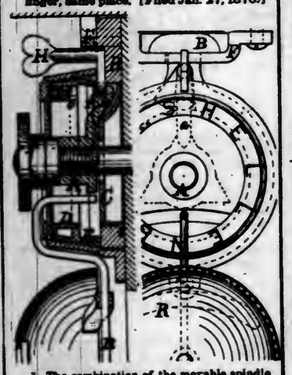
The pocket-book fastening, consisting of the base-plate A, provided with ratchet-teeth a' upon its upper side, the spring cap-plate B, provided with ratchet teeth b' upon its lower side, and the double catch hook or claw D, constructed and arranged substantially as herein shown and described.

176,731. JAPANNING BUTTONS, &c. Charles M. Rhodes, Taunton, Mass., assignor to M. M. Rhodes & Sons, same place. [Filed Jan. 15, 1876.]



The improvement in the art of japanning small articles, which consists in rotating the painted articles over a fire, and in contact with the products of the combustion thereof, whereby the articles are separated, and their coating is dried, preparatory to baking them, substantially as herein shown and described.

176,732. COMBINED LOCKS AND ALARMS. Peter Shellenback, Hamilton, Ohio, assignor of one-half his right to Ner B. Ballinger, same place. [Filed Jan. 27, 1876.]

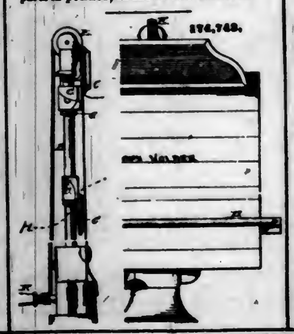


1. The combination of the movable spindle S, driver A, bolt B, rings C and D, and shell E, inclosed in a case, and arranged, constructed, and operated substantially as shown and described.

2. The combination of the spindle S, driver A, formed with projections, as shown, the hammer, and ball-wire K, one end of the latter attached to the standard which supports the bell, and twisted to form a spiral spring, substantially as shown and described.

3. The thumb-button H, for holding the parts in position, as shown and described.

176,733.

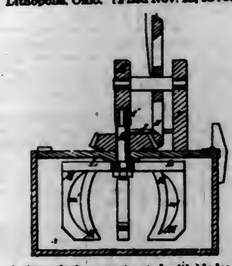


176,742. COPY-HOLDERS. Hiram B. Smith, Philadelphia, Pa., assignor of three-fourths his right to Osborn Conrad, same place. [Filed Jan. 12, 1876.]

1. The combination of the rod B with the perforated spring H and the movable jaws I, composing the clip, constructed substantially as described.

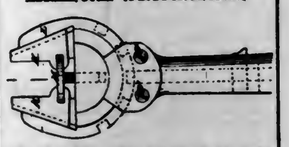
2. The combination of the pedestal A, rod B, clip C, line-guide D, pulley E, windlass F, and washer G.

176,744. ROTARY CHURNS. Israel Bolt, Lithopolis, Ohio. [Filed Nov. 13, 1876.]



A churn-dasher, constructed with blades M, straight on the outer edges, concaved on the inner ones, and provided with slots m', concaved toward the inside, as and for the purpose specified.

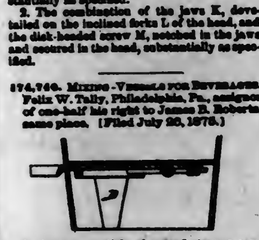
176,745. WRENCHES. W. J. Squire, East Haddam, Conn. [Filed Feb. 14, 1876.]



1. The jaw-head, having circular base B and a circular groove, C, in the sides, in combination with the handle, constructed in two parts, and grooved for the base of the head, and ribbed to fit the grooves of the head, substantially as specified.

2. The combination of the jaws K, dovetailed on the inclined forks L of the head, and the disk-headed screw M, notched in the jaws and secured in the head, substantially as specified.

176,746. MIXING-VESSELS FOR BEVERAGES. Felix W. Tally, Philadelphia, Pa., assignor of one-half his right to James B. Roberts, same place. [Filed July 20, 1876.]



1. As a new article of manufacture, a combined mixer and strainer for fancy drinks, consisting of the mixing-cup A, of ordinary shape, having a strainer in the bottom, with a valve to close and open the same, substantially as described.

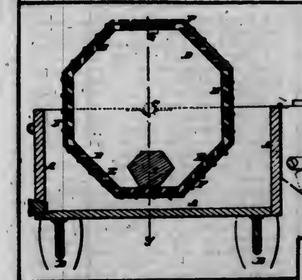
2. The funnel-spout D, in combination with a mixer and strainer, consisting of the cup A, having a strainer in the bottom, with a valve to open and close the same, substantially as described.

176,747. WASHING-MACHINES. Benj. Tarr, Evanswood, Wis. [Filed May 29, 1874.]

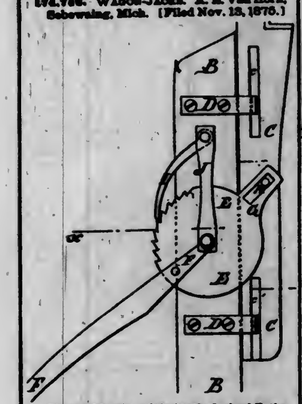
1. The combination, on the hinged cover J, of the long keepers L, with the legs M pivoted thereabove and near one end, as shown and described, so that the folding legs will be supported by the keepers, whether the cover is on the box A or not, in the manner specified.

2. The combination, with cylinder, of hands F, straps f', and pivoted button H, all arranged substantially as set forth, to hold a door, G, detachably.

176,747.

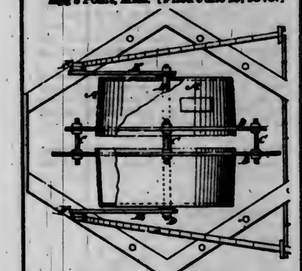


176,748. WAGON-JACKS. A. B. Van Horn, Schoharie, Mich. [Filed Nov. 13, 1876.]



The combination of the toothed wheel E, the lever F, the slotted arm G, the bolt H, and the pawl I with the standard B and the sliding bar C, connected together by the straps D and grooves d', substantially as herein shown and described.

176,749. COTTON-PLANTERS. T. R. Wallis, Bay's Point, Miss. [Filed June 19, 1876.]



The seeder-axis D, connected by pivoted bars E E with two standards, F, attached rigidly to frame, as and for the purpose specified.

176,750. WATER-WHEELS. E. Waltmer, Hamilton, Ohio. [Filed Jan. 10, 1876.]

Brief.—The buckets are provided with inner arms, to strike studs as soon as said buckets enter chutes, thereby opening one bucket to its full extent by the force of the water just as the preceding one enters the exhaust.

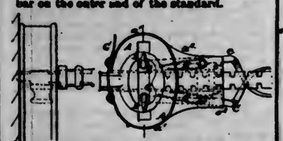
A water-wheel whose buckets are provided with inner arms H to strike studs G as soon as said buckets enter chutes C D, thereby opening one bucket to the full striking force of the water just as the preceding one enters the exhaust E, as and for the purpose specified.

176,750.



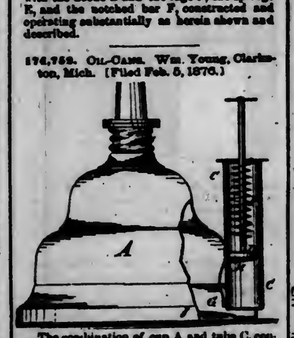
176,751. ADJUSTABLE KEY-GUARDS. Jas. S. Wilson, Trenton, N. J. [Filed Feb. 21, 1876.]

Brief.—A standard of metal is inserted in the key-hole, and in a flanged circular recess midway of its length the bow of the key is placed. The flanged circular recess is adapted for different lengths of key by spring-levers with jaws, which take into a ratchet-bar on the outer end of the standard.



An improved key-guard formed of the plate A, provided with the flange a', the extension a', and the keeper a', the levers C, provided with the hooks B and the legs c', the springs E, and the notched bar F, constructed and operating substantially as herein shown and described.

176,752. OIL-CANS. Wm. Young, Clarkston, Mich. [Filed Feb. 5, 1876.]



The cup A and tube C, connected by a valve-opening in the former, with a reciprocating piston D, having downwardly-opening valve E, as and for the purpose specified.

176,753. EYEGLASSES. Isaac Alexander, Washington, D. C. [Filed Feb. 19, 1876.]

1. The spring-clamp for eyeglasses, made adjustable by a set-screw, substantially as and for the purpose set forth.

2. The spring A for eyeglass-clamps, made adjustable, substantially as shown and described.

176,755.



176,754. BURGLAR-ALARMS. Frank H. Allen and James Lathrop, Norwich, Conn., assignors of one-third their right to John R. Warner, same place. [Filed Feb. 18, 1876.]

Brief.—The end of the cord is attached to the door or its frame, and the bell is placed on a support after winding the cord. When it is pushed off by the opening of the door its weight unwinds the cord, and causes the bell to revolve and sound an alarm.



In combination with the bells A B, the pendent wire h, with the metallic hammer d, the cord g, and screw-eye h, all arranged and operated as and for the purpose specified.

176,755. HARVESTERS. William R. Baker, Chicago, Ill., assignor to Cyrus H. McCormick, Leander J. McCormick, and Robert H. McCormick, same place. [Filed Jan. 26, 1876.]

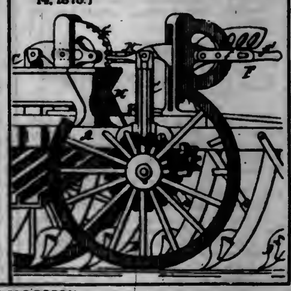


1. The rocking slotted cranks, constructed and operating substantially as set forth, in combination with the binders' frame and its rocking lever.

2. The combination, substantially as hereinbefore set forth, of the main frame, the binders' frame, pivoted thereon, the cross-bar E', interlocking with, and overlapping, the fixed shield, the grain-receptacle, and the slotted rocking cranks.

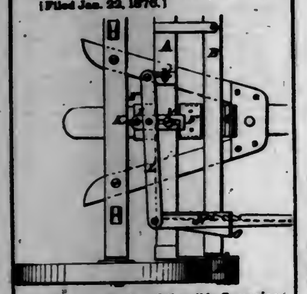
3. The guide-board grooves in the elevator-frame, said grooves surrounding the end portions of the rollers, as and for the purpose described.

176,756. CULTIVATORS. Abner S. Baker, Kalamazoo, assignor of one-half his right to John Graves, same place. [Filed Aug. 14, 1876.]



The combination, as substantially as described, of the compound levers F ff working on standards E attached to frame A, and the standards U working in plates or standards D, and carrying the wheels H, on which the trunk is supported, for the purposes set forth.

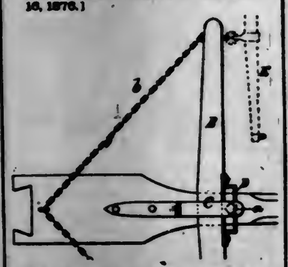
176,767. WAGON-BRAKES. Owen T. Baker, Wamego, assignor of part his right to E. B. Purcell and R. L. Peters, Manhattan, Kans. [Filed Jan. 22, 1876.]



1. The combination of the slide C, moving upon the runs E, the bar A, attached to said slide and provided at its ends with the stirrups G G, carrying the blocks H H, the slotted fulcrum-strap I, and lever L, all constructed substantially as and for the purposes herein set forth.

2. In combination with the slide C, connected pressure-bars A B, carrying the brake-blocks, the fulcrum-strap I, and lever L, the operating-lever F, connected by the bar N with the lever L, and by a bar, Q, with the pressure-bars A B, whereby force is exerted to both push and pull the pressure-bars, substantially as herein set forth.

176,768. DRAFT-EQUALIZERS. Henry C. Baldwin, North Walcott, Vt. [Filed Feb. 10, 1876.]



The combination, with the tongue A and hammer-strap C, of the double-tree B, having the elongated metallic loop D, connected directly to its front, the draft-belt a, passing through the loop, and the chains b, connecting the double-tree to the tongue, all constructed substantially as and for the purposes herein set forth.

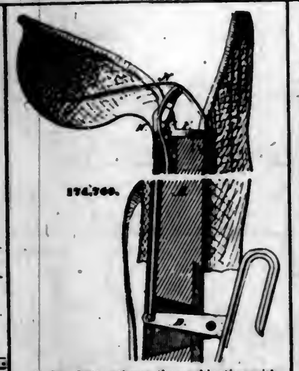
176,769. COMBINATION GUN-TOOLS. A. B. Barthel, Detroit, Mich. [Filed Aug. 27, 1875.]



The combination, with the combined tool, substantially as described, of the shell extractor *i* and the ring *f*, having the shell extractor D, substantially as described and shown.

176,770. FRUIT-GATHERERS. E. A. Barton, Boonville, Ind. [Filed Jan. 6, 1876.]

Brief.—The jaws are operated by a rod that lies in a groove in the staff of the picker. The rod is operated by a pivoted finger-piece on the side of the staff, and the pipe that conveys the fruit to the basket inclosing the staff. The jaws are opened by a coiled spring.



176,769.

1. In a fruit-gatherer, the combination, with the movable jaw-frame of the handle A, provided with an inclined groove, the wire B, and rocking lever C, substantially as and for the purposes herein before set forth.

2. The metallic head F, adapted to fit upon the end of the handle, provided with suitable holes to receive the ends of the stationary frame, and having ears or bearings to receive the ends of the moving frames, substantially as and for the purposes set forth.

3. The lever C, constructed substantially as described, and pivoted to the handle, so that the center of movement shall be under that portion of the hand at rest during the movement of the lever.

176,771. PROCESSES FOR CLEANING AND EXTRACTING OIL FROM LEATHER. Israel Bent, Lowell, Mass. [Filed Sept. 23, 1875.]

The process of extracting oil from leather, consisting first of warming it, then immersing it in naphtha, and lastly in submitting it to pressure, all substantially as described.

176,772. CHIMNEY AND STOVE-PIPE CLEANERS. Merritt C. Boymer, Creston, Iowa. [Filed Feb. 19, 1876.]

Brief.—The soot and ashes which accumulate in the bottom of the chimney, and rise above the lower point of the pipe, can be drawn forward by the cleaner.



1. The stub chimney A and stove-pipe B, in combination with the rod *e* and disk D, as described, for the purpose set forth.

2. The rods *a*, stub-chimney A, and stove-pipe B, in combination with the rod *e* and disk D, as described, for the purpose set forth.

176,773. CIRCULAR-KNITTING MACHINES. Dana Bickford, New York, N. Y. [Filed May 24, 1875.]

Brief.—The needle-rest is cast separate and detachable from the cam-plate, so that one of them may be shifted upon the other, to overcome the distance between the former and the cams on the latter.

1. The combination, with the cam-ring B, and the detachable and movable needle-rest D, of the yarn carrier G connected thereto, whereby the said yarn carrier is automatically operated and brought into proper relative position to deliver the yarn to the needles upon the rotation of the machine in either direction, substantially as and for the purpose set forth.

2. The needle-cylinder C, formed of the two grooved parts *l m*, constructed substantially as described, whereby the needles may be inserted or removed without the necessity of disturbing the clasp.

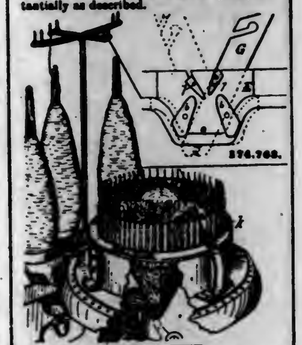
3. The combination, with the needle-cylinder, having notches *i*, of the bar or rod for holding down the work, substantially as described.

4. The combination, with the cam-ring or indexed ring or segment, of the pin *y*, spring-tooth *x*, and friction spring or springs *x'*.

5. The cam-carrying plate and needle-rest, constructed and combined as described, so that one of them may be shifted upon the other, to overcome the distance between the needle-rest or guide and the cams, substantially as shown and described.

6. A yarn-stand, constructed substantially as shown and described, in combination with the take-up wire, the yarn-carrier, and spool-stand, all constructed and arranged to operate substantially as described.

7. In combination with the cam-ring B, and the cams or switches 6 6 connected thereto, the detachable and movable needle-rest D, arranged as described, whereby all the needles are automatically operated in knitting a heel, toe, or flat web, with all needles in place, substantially as described.



176,773.

176,774. WELTED AND COVERED SEAMS. Helen A. Blanchard, Boston, Mass. [Filed Aug. 19, 1875.]



1. In combination with a seam made by stitching the superposed edges of the cloth, or other material, alternately within and without, a welt or piping, substantially as and for the purposes set forth.

2. In leather-sewing, the combination of stripe B B with a seam made through their edges by a stitch sewed alternately within and without the same, substantially as and for the purposes set forth.

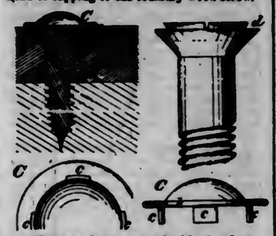
176,775. WASHING-MACHINES. David Born and David F. Born, Delta, Ohio. [Filed Dec. 11, 1875.]



The friction-plate C, having an angular flange adapted to fit within the slot in the side A, in combination with the shaft E, having metallic thimbles D fitted upon its ends, said thimbles being provided with flanges *d*, as and for the purpose set forth.

176,766. CAPPING WOOD-SCREWS. Alfred P. Bradley, New York, N. Y. [Filed Dec. 23, 1875.]

Brief.—The head of an ordinary wood-screw is encircled with a deeply-cut inclined groove, and an ornamental cap, constructed with downwardly-projecting lips or flanges, perpendicular, or nearly so, to the plane of the bottom of the cap, is adapted to clinch within this groove of the screw-head, after the screw itself is driven fully home, thus providing a very simple and inexpensive ornamental head or capping to the ordinary wood-screw.



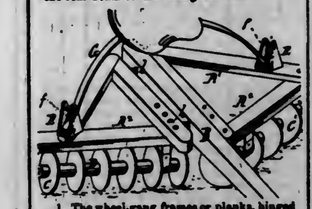
1. The cap C, constructed with the downwardly-projecting metallic lips, flanges, or tangs *c*, perpendicular or nearly perpendicular to the plane of the bottom of the cap, and adapted to clinch within an inclined groove, or its equivalent, beneath the cap, in the manner specified.

2. The screw having its head provided with an inclined groove, *d*, or its equivalent, adapted to receive tips, flanges, or tangs *c* on a cap, and to clinch the same when the cap is applied, substantially as herein shown and described.

3. The combination of lips, flanges, or tangs, one or more, projecting downward from the cap, and an inclined groove, or its equivalent, within which said lips, flanges, or tangs are clinched so as to attach the cap to the screw-head, the driver-nick and the attaching devices being concealed beneath the cap, as set forth.

176,767. WHEEL-HARROWS. Frank Bremer, Little Falls, and O. W. Badger, Whitney's Point, N. Y.; said Badger assignor to said Bremer. [Filed Feb. 4, 1876.]

Brief.—Upon each side of the tongue is hinged a triangular frame, the forward beam of which carries a gang of disk-teeth, whose axis of rotation is placed obliquo to the line of draft. A seat for the operator is mounted upon a spring-bar, whose ends rest in stirrups that are supported in brackets rising from the rear beam of the triangular frame.



1. The wheel-gang frames or planks, hinged by their inner ends to the intermediate pole or tongue, or a rigid extension thereof, substantially as described.

2. The gang-wheel frames, hinged to the intermediate pole or pole-frame, in combination with the seat-support extending transversely over said pole or frame, and connected with the gang-frames at points outside of the centers of their transverse length, for the purpose and substantially as described.

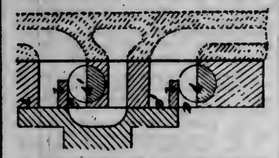
3. The transverse seat-support or bar connected with the gang-frames by means of the swinging compensating links or stirrups, substantially as described.

4. The combination, with the hinged wheel-gang frames of the swiveling supports E, stirrups *f*, and transverse seat-support or bar G, arranged and operating substantially as described.

5. The combination of the hinged gang-frames A A', intermediate pole or pole-frame B, swiveling standards E, swinging stirrups *f*, and seat spring or bar G, all arranged and operating as described.

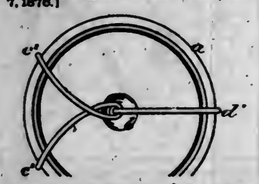
176,768. VALVES FOR ROCK-DRILLS. Jos. Brandon, New York, N. Y. [Filed Aug. 20, 1875.]

Brief.—For drilling upward or at an angle from the perpendicular, the stroke is regulated by a throttle-valve in the induction-port of one side, and a similar valve in the eduction of the opposite side of the piston.



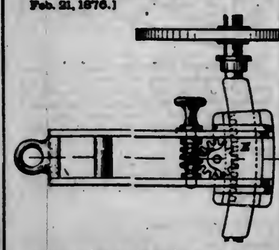
The combination, with the valve-seat and main valve, of duplicate cut-off or throttle-valves, the one of which is applied to the inlet port or passage connecting with the one end of the drill-cylinder, and the other to the outlet port or passage connecting with the opposite end of said cylinder, and both of which are adjustable to suit reversed or intermediate position of the drill, essentially as described.

176,769. FRUIT-JARS. Alex. W. Brinkerhoff, Upper Sandusky, Ohio. [Filed Mar. 7, 1876.]



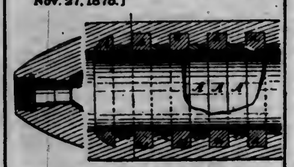
A clasp for a preserving-vessel, formed of two pieces, *c d*, bent, connected together, and hooked, substantially as described

176,770. GUN-CARRIAGES. L. W. Broadwell, Hietzing, near Vienna, Austria. [Filed Feb. 21, 1876.]



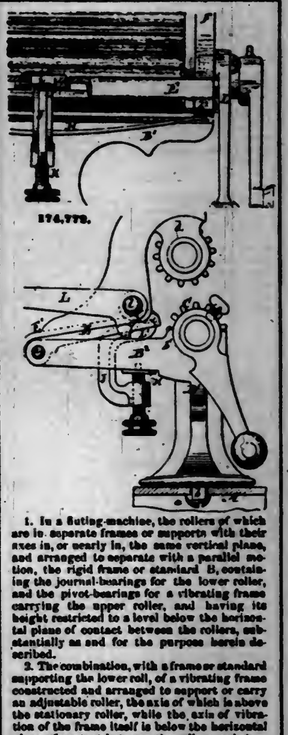
A gun-carriage having its beam arranged to slide on the axle, and provided with mechanism for oscillating said beam, and thereby training the gun, substantially as herein described.

176,771. PROJECTILES. L. W. Broadwell, Hietzing, near Vienna, Austria. [Filed Nov. 27, 1875.]



The combination, in a projectile, of the external solid casing C with the series of rings, constructed with radial projections *a*, and arranged to have such projections alternate with each other, substantially as described.

176,772. FLUTING-MACHINES. J. Broughton, Brooklyn, N. Y. [Filed Dec. 7, 1875.]



176,772.

1. In a fluting-machine, the rollers of which are in separate frames or supports with their axes in, or nearly in, the same vertical plane, and arranged to separate with a parallel motion, the rigid frame or standard B, containing the journal-bearings for the lower roller, and the pivot-bearings for a vibrating frame carrying the upper roller, and having its height restricted to a level below the horizontal plane of contact between the rollers, substantially as and for the purpose herein described.

2. The combination, with a frame or standard supporting the lower roll, of a vibrating frame constructed and arranged to support or carry an adjustable roller, the axis of which is above the stationary roller, while the axis of vibration of the frame itself is below the horizontal plane of contact between the rollers, substantially as herein described.

3. The combination of the standard B and its arms B' B', the vibrating frame E and its extensions F and G, and the rollers C D, substantially as shown and described.

4. The feed table or bed E', in combination with the upper roller frame or support E, substantially as herein described.

5. The combination, with the standard and vibrating frame, of the spring H, swinging stirrup J, and set-screw K, arranged substantially as shown and described.

6. The combination, with the standard and vibrating frame, of the cam lever *L L'*, constructed, arranged, and operating as herein shown and described.

7. The combination, with the supporting base of a fluting-machine and the vibrating frame carrying the upper roller, of a single supporting standard, located centrally in relation to the base and length of the rollers, and extending laterally in both directions from the center, to form and carry the journal-bearings of the lower roller, substantially as herein shown and described.

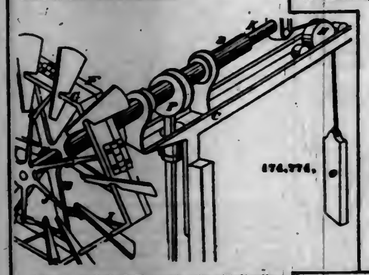
176,773. FRUIT-JARS. Aries P. Brooks, Bayonne, N. J., assignor to Jas. M. Brooks-Sold. [Filed May 7, 1875.]



A fruit-jar provided in its neck with inclined grooves, and a gasket supporting shoulder above the grooves and below the edge of the mouth, in combination with a stopper having projections to engage with the grooves, and a flange against which the gasket is placed, whereby the gasket is prevented from coming in contact with the contents of the jar, and by turning the stopper in one direction it is locked, while by turning it in the opposite direction it is raised against the pressure of the atmosphere, substantially as shown and described.

174,775. WINDMILLS. John Brewer, Perry D. Reed, and Jasper P. Reed, Colusa, Cal. (Filed Sept. 18, 1875.)

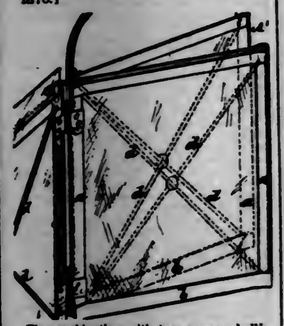
Brief.—The radial arms of this windmill are mounted upon the end of a shaft, which passes through the main shaft, and has a motion longitudinally, so that it is drawn forward when the wind throws the vanes back, and a weight or spring draws it back as the force of the wind decreases.



174,775.

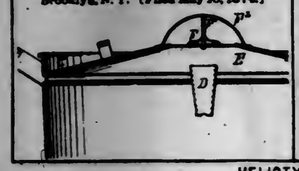
The central shaft K, moving longitudinally through the shaft D, and having the arms or disk J secured to its front end, and the arms H and connecting-rods I, in combination with the hinged sections G, carrying the vanes, the whole constructed and arranged to operate substantially as herein described.

174,776. BULLSEYE-REGISTERS. Edwin W. Bullinger, Brooklyn, N. Y. (Filed Jan. 31, 1876.)



The combination, with two or more bullseye-frames, A A', hinged together laterally, and constructed with grooved sides a a and pockets b at their bottoms, of braces d, applied to the backs of said hollow frames, essentially as and for the purpose herein set forth.

174,776. WASH-BOILERS. Dwight Burdge, Brooklyn, N. Y. (Filed May 10, 1874.)



The wash-boiler A, provided with a bead, B, in combination with the rimless lid E, provided with a valve, F, and drain-pipes D D, substantially as described.

174,777. PENCIL-SHARPENERS. Albert G. Busby, Philadelphia, Pa., assignor to P. Garrett, same place. (Filed Jan. 21, 1876.)

Brief.—The cutter-bar is adjustable laterally and diagonally. Shavings are removed from the interior of the box by a pivoted plate, which also admits of the removal of the cutter. Inclined abrasive surfaces are used to produce a sharp point upon the lead.

1. The combination, in a pencil-sharpener, of the slotted box A, the laterally and diagonally adjustable knife i, and guard p, all substantially as described.

2. The combination of the slotted box A, the blade q, and movable plate B.

3. The within-described pencil-sharpening instrument, consisting of the slotted block A, a knife or knives extending across the said slot, and the grinding-surfaces f on each side of the same, all as set forth.



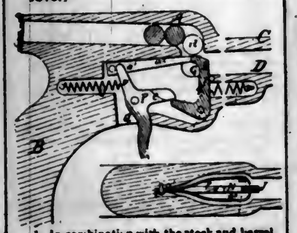
174,777.

174,778. PIPE-TONGS. George H. Bussell, Boston, Mass. (Filed Feb. 7, 1876.)



The improved pipe-tongs described, consisting of the handle A, provided with the serrated jaw B and edge e', and the handle C, provided with the tumbling jaw C, having the cutting-edge e, claw D, and teeth a, all constructed and combined to operate substantially as and for the purpose set forth and specified.

174,779. TOY REPEATING PISTOLS. Josiah W. Childs, Boston, Mass. (Filed Jan. 31, 1876.)



1. In combination with the stock and barrel of a toy pistol, the following elements, namely: First, an inclined or other proper magazine for containing a supply of pellets, which are fed toward the barrel in a suitable manner; second, a swinging lever or its substitute for holding the supply of pellets within the magazine, and for expelling the lowermost or advance one of such pellets; and, thirdly, of a pair of forceps, operating in connection with the barrel and ejector, to retain said lowermost pellet until the same is struck and expelled by said ejector, the latter being retracted by the trigger, and impelled forward by a suitable spring, and the whole operating substantially as and for purposes stated.

2. In combination with the magazine E', the gate U', with its lateral movement, serving to retire and release a pellet and suddenly return and interpose itself between the pellet thus released and those behind it, substantially as and for purposes stated.

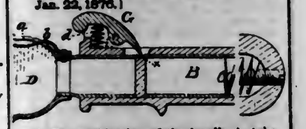
3. The combination of the ejector J', retractor K' or its substitute, and trigger L' with the magazine E', and barrel U', and the gate H' or its equivalent, substantially as and for purposes stated.

4. In combination with the magazine E and forceps a', the ejector J, intercepting the bore of the barrel, when constructed and arranged to operate substantially as and for purposes stated.

5. The combination of the spring-impelled ejector J, intercepting the barrel, as stated, and retractor F, under such an arrangement that, by a rearward pull of the trigger, the retractor retracts the ejector until the latter reaches a given point, when the retractor loses its hold upon the ejector and the latter is shot forward, substantially as and for purposes stated.

6. The construction and combination of the trigger-lever P and ejector J, substantially as herein described, whereby a complete backward pull upon such trigger results in a retraction and forward movement of the ejector, essentially as and for purposes stated.

174,780. TOY PISTOLS. Robt. W. Churchill, Bridgeport, Conn., assignor of one-half his right to A. D. Laws, same place. (Filed Jan. 22, 1876.)

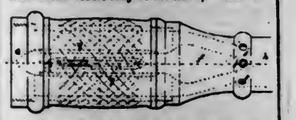


1. The combination of the handle A, tube B, spring C, cap D, and spring-trigger G, substantially as and for the purposes herein set forth.

2. The open cap D, provided with slot a and spring b, in combination with the tube B, handle A, spring C, and trigger G, substantially as and for the purposes herein set forth.

174,781. STOP-NOZZLES FOR FIRE-EXTINGUISHING APPARATUS. Melville Clemens, Worcester, Mass. (Filed Feb. 16, 1876.)

Brief.—The nozzle has a cone-valve, as shown, to regulate and stop the water. The valve is operated by a reciprocating bar and exterior screw-threaded sleeve. The operation of the nozzle may be modified, as shown.



1. In combination with a hose-nozzle, a cone-valve placed within the nozzle concentrically with and seating at its discharge-orifice, and arranged to form, regulate, and stop the stream thrown by the nozzle, substantially as and for the purposes set forth.

2. The stop-nozzle, consisting of the barrel a, ajutage f, valve-guard tube h, and the cone-valve k, carried by its valve-stem l in the tube m of the fixed wings n n, and operated by the reciprocating bar p, which engages the screw-threaded operating sleeve q, all substantially as and for the purposes set forth.

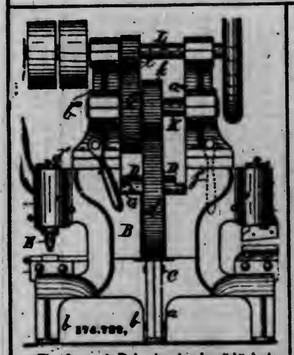
3. The central tube m carrying the valve-stem l, supported and fixed by the wings n n in the barrel a, and having the slot o through the barrel and wings for operating the valve k externally, substantially as described.

4. The valve-guard tube h, in combination with a stop-nozzle, substantially as and for the purposes set forth.

5. The air-inlet holes j j or p p, in combination with the guard-tube h and ajutage f, substantially as and for the purposes set forth.

6. In combination with a hose-nozzle, the removable and reversible disk t, having divergent holes w w, to form a spray or solid stream, substantially as and for the purposes set forth.

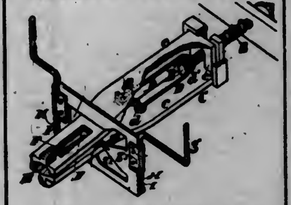
174,782. PUNCHING AND SHEARING MACHINES. G. D. Colton, Galesburg, Ill., and Geo. Geer, Plainville, Conn., assignors, by mesne assignments, to G. D. Colton & Co., Galesburg, Ill. (Filed Feb. 1, 1876.)



174,782.

The frame A B, having heads a'' b'', beds a' b', and standards a''' b''', in combination with shafts D', L'', L, and K, with their gear wheels, clutches G G', and their respective actuating mechanism, for operating the shears F and punch E, substantially in the manner and for the purpose set forth.

174,783. CAR-COUPLINGS. John B. Corey, Philadelphia, Pa. (Filed Feb. 9, 1876.)



1. The draw-head C, formed of two jaws, e e, arranged and constructed substantially as described, to open vertically for the reception of another draw-head, as set forth.

2. The draw-head C, formed of two movable jaws, e e, having vertical extensions e' e' at their rear ends, slotted vertically for the passage of the draw-rod B, substantially as shown and described.

3. In combination with the draw-rod B, the jaws e e, forming the draw-head, and connected to said rod B by the rods D D, substantially as shown and described.

4. In combination with the draw-rod B and opening jaws e e, the spring b, operating, as described, as a buffer-spring, and also to close said jaws, as set forth.

5. The jaws e e, forming the draw-head, having elongated vertical slots F and studs f f, substantially as shown and described.

6. The plate G, hung upon rods H H, and sustained by springs I, so as to permit the depression of said plate for the purpose of coupling together a high and low car, as set forth.

174,784. MOWING-MACHINES. Charles M. Deboll, New London, Conn. (Filed Oct. 16, 1876.)



1. The combination of a shoe mounted on the driving-shaft, and provided with an annular projecting lip at its outer end, with a crank-wheel provided with a flange on its rear side, which incloses the lip of the shoe, substantially as described.

2. A pitman provided with a laterally-extended tubular head, in combination with a wrist-pin surrounded at its base by an annular recess in the crank-wheel, substantially as described, whereby a telescopic joint is formed by the tubular extension of the pitman-head entering and occupying the annular recess at the base of the wrist-pin, for the purpose specified.

3. A pitman with a head having a cup-shaped front extension, in combination with the wrist-pin, and a circular flanged nut, substantially as described, whereby a telescopic joint is formed between the nut and pitman-head, for the purposes specified.

4. The combination, with a non-rotative driving-shaft sleeve, of a shoe provided with a sleeve mounted upon the driving-shaft sleeve, and a stop-joint connection at the inner or rear end of the shoe-sleeve, substantially as described, whereby the finger-bar, rigidly attached to the shoe, is prevented from falling at its outer end below a predetermined point, for the purposes specified.

5. A whip-socket located on the sector-standard, within reach of the driver on the seat, and adjacent to the catch-bar and sector-lever, substantially as described, for the purposes specified.

6. In a front-cut machine, a sector-standard mounted on a front extension of the foot-board of the machine, substantially as described, as and for the purposes specified.

7. The chain-collar i, in combination with a sector, substantially as described, whereby the chain and sector are always maintained in working position, as specified.

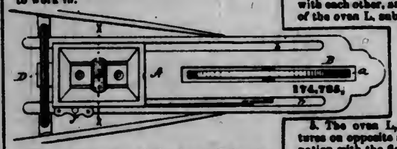
8. The combination, with the axle, of a sleeve, which constitutes the axle-frame of the machine, and a hanger rigidly attached to said sleeve for containing the driving-gearing, substantially as described.

9. The driving-gearing consisting of the main driving-gear, a rigid stud on the hanger, a hollow shaft on the stud, a pinion on the hollow shaft for engaging with the main driving-gear, a bevel-gear on said shaft, and a pitman-shaft bevel-gear for engaging with the bevel-gear on the hollow shaft, substantially as described.

10. The shipping mechanism consisting of a splined shaft geared to the main driving-gear, a bevel-wheel with a slotted eye on the splined shaft, and a shipper with lever for longitudinally moving said bevel-gear on the splined shaft, substantially as described, whereby the said bevel-gear may be moved to and from the gear on the pitman-shaft, as specified.

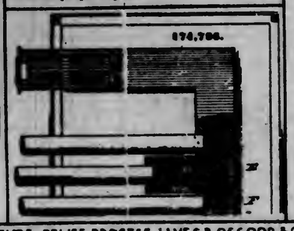
174,785. SEED-PLANTERS. Joseph Dana, Mitchell, Ind. (Filed Oct. 16, 1875.)

Brief.—The frame of the machine is made in one piece, and provided with longitudinal slots for the connecting-rod and bearing-wheel to work in.



174,785.

The combination of the frame B, having openings a and b, as described; bearing-wheel E, pitman C, and seed-dropping slide D; the several parts being constructed and arranged to operate substantially in the manner as and for the purpose specified.



174,786.

174,786. APPARATUS FOR CURING TOBACCO. J. B. Day, Woodsdale, N. C. (Filed Nov. 3, 1875.)

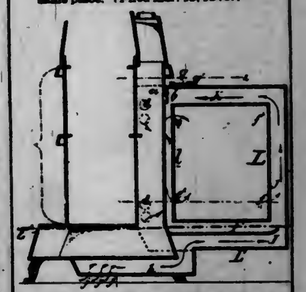
In combination with the flues B B, the short flue or section E, provided with a flue, H, extending through the front wall of the chamber, said section or flue E being adapted to fit between the ends of the flues B B and connect the same so as to form a single continuous flue, substantially as described.

174,787. SOLDERING APPARATUS. Christian Dobow, Baltimore, Md. (Filed Feb. 26, 1876.)



The tube C, square near its lower end, and provided with a screw-thread, in combination with the slotted bar E, nut D, a centering-iron, and a soldering-iron, constructed as and for the purpose set forth.

174,788. PARLOR-STOVES. Andrew Dickey and Robert E. Liddle, Albany, N. Y., assignors to John S. Perry, trustee and executor, N. B. Perry, and Andrew Dickey, same place. (Filed Mar. 18, 1875.)



1. The combination of a heating-stove having a descending and an ascending flue at the rear with a baking and boiling attachment heated solely by hot air, and admitting of being connected to or disconnected from the stove at pleasure, all substantially as set forth.

2. The oven L and flues I', J, and K, in combination with the air-heating chambers d' and apertures d, substantially as described.

3. The air-heating chamber H below the base-flues of the stove, and having air-openings, in combination with the oven L, flues I, J, and K, substantially as set forth.

4. Air-heating chambers H and d', combined with each other, and with the flues I, I', and J of the oven L, substantially as specified.

5. The oven L, air-chambers d', and apertures on opposite sides of the oven, in combination with the flues J and K.

6. The oven L, air-chambers d' and H, flues I, I', J, and K, in combination with the apertures e, substantially as described.

7. The oven L, air-chambers d' and H, flues I, I', J, and K, in combination with the apertures g.

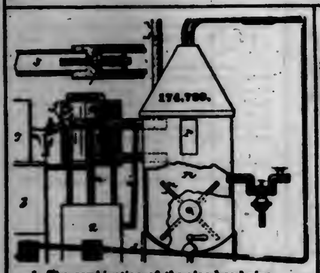
8. The oven L, in combination with the air-chambers d' and flues F and F'.

9. The oven L, in combination with the chamber H, its air-openings, and the hollow base F'.

10. The damper h, arranged and operated in combination with the flue K and smoke and gas flue F'.

174,789. OIL-REFINERIES. William Doo, Reno, Pa. (Filed Oct. 1, 1875.)

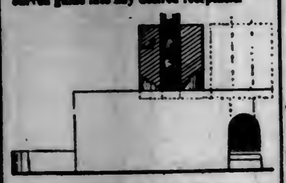
Brief.—Crude oil is evaporated while chemically treated, is condensed, and may then be withdrawn, or advanced through a steam-heated pipe to a separator, where it is treated, while agitated, to hot air or steam. The gases separated may be burned under the still.



1. The combination of the pipe h and pipe m, for heating the oil in the passage to the separator and boiler 3, substantially as shown.
2. The combination of oil h, coil k, pipes l i n, boiler 3, and separator m, provided with a stirrer, p, substantially as described.

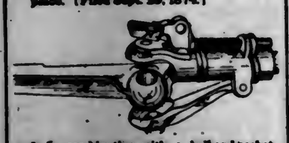
174,790. PILE-MACHINES. Joseph Dutton, Philadelphia, Pa. (Filed Feb. 16, 1876.)

Brief.—The compressor-chamber, in the base of which a short movable die is placed, slides in guides along a frame or base support. When the chamber is directly over a discharge-opening in the base-support, the lever the end of pile may be together forced downward, and the pile will pass through a curved guide into any desired receptacle.



1. The removable powder-receptacle A, the detachable plunger B, and the smaller lever die D', in combination with the base-piece, having a hole through which the pile and lever die may be together downwardly discharged, for the purpose described.
2. The movable powder-receptacle A and the detachable plunger B, in combination with the base-piece having a hole, c, which terminates in a laterally-discharging chute, for the purpose described.
3. The movable powder-receptacle A and the two movable dies B D', in combination with the base-piece C, having guideways upon its upper surface, as and for the purpose described.
4. The movable powder-receptacle A and the detachable plunger B, in combination with the base-piece, having a hole through which the pile may be downwardly discharged.

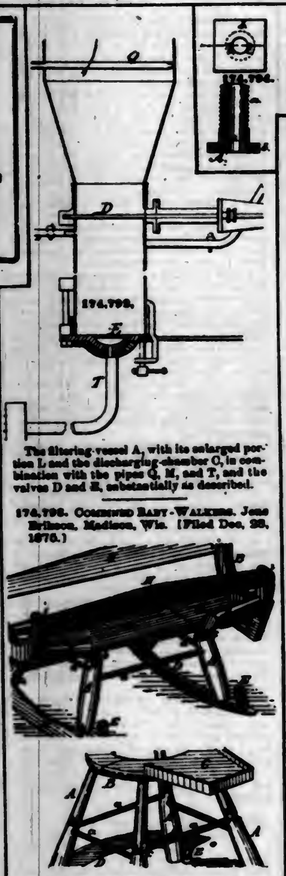
174,791. PUMPS. Rufus Dutton, Yonkers, N. Y., assignor to R. Dutton & Co., same place. (Filed Sept. 29, 1874.)



1. In combination with a ball-and-socket joint, the recessed pin or bolt and tapering or wedge-shaped key or fastening, actuated by a spring, for automatically taking up the wear of the joint, substantially as described.
2. The ball-and-socket joint, recessed bolt, wedged-shaped key, and spring, in combination with the ball-headed rod connecting-rod of a moving or reacting machine, substantially as herein described.

174,792. PROCESS FOR THE DECOLORIZATION OF SUGAR BY SOLUTION. Richard Gervase Rivers, Westminster, England. (Filed Jan. 8, 1876.)

Brief.—The liquid to be filtered passes upward through a stratum of charcoal into a chamber, from which the filtered liquid may be drawn off.



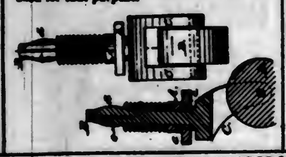
The filtering-vessel A, with its enlarged portion L and the discharging-chamber C, in combination with the pipes G, M, and T, and the valves D and H, substantially as described.

174,793. COMBINED BABY-WALKERS. Jane Brittson, Madison, Wis. (Filed Dec. 28, 1875.)

1. In a baby-walker, the combination herein described of the hinged legs A, top piece B B, having grooves i, and hinged rockers D, having casters E, substantially as and for the purpose herein set forth.
2. The combination, with a baby-walker provided with hinged legs A, top piece B B, having grooves i, and hinged rockers D, having casters E, of the seat F, having slide or extension G, and the side pieces H, substantially as and for the purpose herein shown and specified.

174,794. FURNITURE-CASTERS. David A. Fisher, Jr., Washington, D. C. (Filed Mar. 1, 1876.)

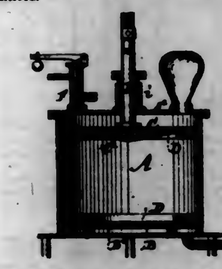
Brief.—A split end spring-spindle passing entirely through a screw-threaded socket, to prevent too easy detachment of the caster, while the socket, by means of transverse slots, is adapted for ready insertion by means of a screw-driver, instead of the wrench ordinarily used for that purpose.



An improved furniture-caster, consisting of the split end spring-shank or spindle B, frame C, and roller D, in combination with the screw-threaded socket A, having flange b, and grooves or transverse slots c c, whereby a screw-driver may be used for the more ready insertion of the socket, all substantially as described and shown, for the purpose specified.

174,795. FILTERS. Patrick A. Fogarty, New York, and Dominick McOsker, Brooklyn, N. Y. (Filed July 26, 1875.)

Brief.—The conical follower spreads and presses the filtering substance to the sides of the chamber. In ordinary filters the liquid is likely to pass the sides without being filtered.



In a filtering apparatus the upper filter and distributer C, constructed of a perforated, double plate, the upper side of which is a plane surface and the lower side conical, and provided with a packing material, D, around its edge, in combination with the vessel A, stem J, stuffing-box f, cover h, and cross-head I, all substantially as shown and described, for the object set forth.

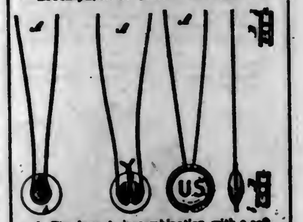
174,796. ROTARY PLOWS. Wm. H. Foye, San Francisco, Cal. (Filed Mar. 3, 1876.)

Brief.—A cutting-edge or strip of steel on a rotary spiral cutter, designed also to overlap and strengthen the joints of the sections.



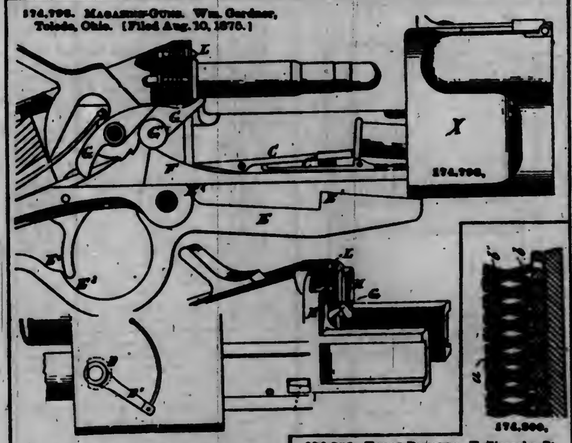
The combination of the spirally-curved steel cutting and re-cutting strip or strips C, with the concave-convex spiral cutters A of a rotary plow, substantially as described, for the purposes specified and set forth.

174,797. METALLIC SEALS. A. Friedrich, Brooklyn, N. Y. (Filed Feb. 10, 1876.)



1. The loop A, in combination with a soft-metal button consisting of two heads or disks connected by a stem and made in one piece, as described, and for the purpose set forth.
2. The loop A, in combination with a soft-metal button, consisting of two heads or disks connected by a perforated stem and made in one piece, as described.
3. The loop A, in combination with a soft-metal button, consisting of two connected disks or heads compressed at their edges into a single rifled flange, as and for the purpose set forth.

174,798. MAGAZINE-GUNS. Wm. Gardner, Toledo, Ohio. (Filed Aug. 10, 1876.)



1. The slide x, into which the barrel is screwed, and which is formed with a flanged edge, to form, with the recoil-shield, a slip-joint, substantially as set forth.
2. The slide x, in combination with the hooked head of the trigger-guard, substantially as set forth.
3. In combination with the slide x and lever C, the cam D and lever D', substantially as set forth, for converting the piece from a magazine-gun to a single-loader, or vice versa.
4. The trigger-guard formed with a shoulder, F, in combination with the piece F and stud F', to start the forward section, substantially as set forth.
5. The trigger-guard, constructed with a notched head to hold the sections, substantially as set forth.
6. The trigger-guard, constructed with the angle formed by the lines F' and E', and arranged in relation to the trigger, substantially as described.
7. The slide F, in combination with the dog G, which is pivoted at the rear and acted upon by the inclined face of the slide F, and which, extending forward into the cartridge-chamber, throws up the cartridge, substantially as described.
8. The slide F, in combination with the dog G and hammer I, connected in such manner that the lifting of the dog cocks the hammer, but the former may fall independently of the latter, substantially as described.
9. The conical-pointed detent L for confining the cartridge, substantially as described.
10. In combination with the dog G, pivoted in the rear, and projecting forward into the cartridge-chamber, the slotted plate placed between the magazine and lock mechanism, and guides H for the cartridge and pin L, substantially as set forth.

174,799. GAS-LIGHTING APPARATUS. Chas. D. P. Gibson, New York, N. Y. (Filed Feb. 26, 1876.)

Brief.—The lower end of the circuit-breaking arm carries a swinging piece, with pins projecting from it. An arm projecting from the stem of the gas-cock rides under these pins, thus oscillating the arm, and producing repeated makes and breaks of the circuit.



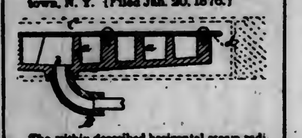
1. In combination with a gas-burner, A, and suitable electrical conductors, the compound construction C' C'' of one of the conductors, whereby it is, when the gas is lighted, automatically insured against a liability of contact with the other conductor, as herein set forth.
2. The pearl J J' J'' and stop j', in combination with the finger b on the plug of the stop-cock, and with the burner A and suitable electrical conductors, as and for the purposes herein specified.

174,800. HORSE-BRUSHES. H. Giesecke, St. Louis, Mo. (Filed Dec. 15, 1875.)

Brief.—The tufts in each alternate row slant in opposite directions toward the ends of the brush, so that one-half is brushing while the other half is combing.

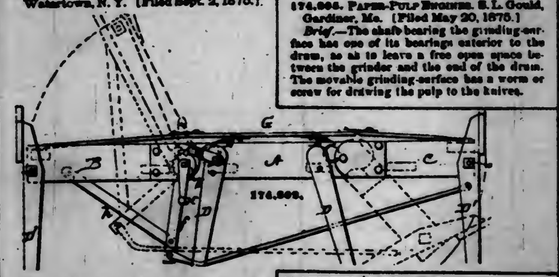
A horse-brush having its bristles arranged in alternate rows b' b'', the points of which slant in opposite directions, as shown and described, and for the purposes set forth.

174,801. RADIATORS. Lucius Gill, Watertown, N. Y. (Filed Jan. 20, 1876.)



The within-described horizontal steam-radiator, consisting of the cast-iron pan A, with concave bottom, and interior tapering flanges a, arranged in scroll-form, the cover C, inlet D, and center outlet B, all constructed to be placed in the floor of a room, substantially as and for the purposes herein set forth.

174,802. INVALID-BEDSTEADS. Lucius Gill, Watertown, N. Y. (Filed Sept. 2, 1876.)



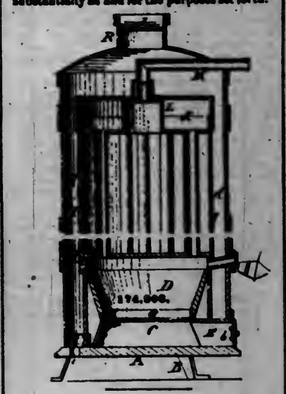
The combination of the frame-sections A, B, and C, hinged together as described, the springs E, and the sectional slats G G, all constructed and supported upon suitable legs, substantially as and for the purposes herein set forth.

174,803. HEATERS. Lucius Gill, Watertown, N. Y. (Filed Jan. 20, 1876.)

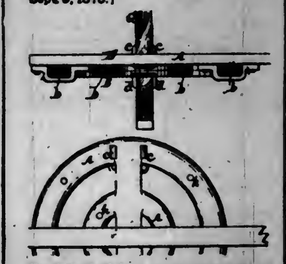
1. The open cage H, surrounding the fire-pot D, secured to the fire-pot and to the perforated loop A, and extended above the fire-pot, in combination with the tubular boiler I, substantially as and for the purposes set forth.

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2. The combination of the extended perforated base A, the ash-pit C, fire-box D, the open cage H, tubular boiler I, jacket J, forming air-chamber d, steam-dome L, chamber K, and the outlet-passages M N R, all constructed substantially as and for the purposes set forth.



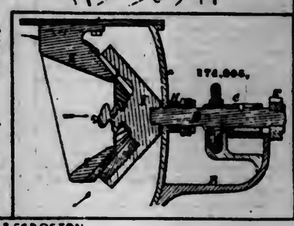
174,804. VEHICLE FIFTH-WHEELS. Christian Gormann, Union Hill, N. J. (Filed Sept. 9, 1875.)



The fifth-wheel for a wagon constructed of the sections A B, which have, respectively, concentric flanges a and corresponding grooves and legs c c and d d formed in pairs and opposite each other, substantially as described.

174,805. PAPER-PULP ENGINES. S. L. Gould, Gardiner, Me. (Filed May 20, 1875.)

Brief.—The shaft bearing the grinding-surface has one of its bearings exterior to the drum, so as to leave a free open space between the grinder and the end of the drum. The movable grinding-surface has a worm or screw for driving the pulp to the knives.



174,806. SEWING-MACHINE ATTACHMENTS. Wm. Gibbons, Jr., Boston, Mass. (Filed Jan. 31, 1876.)

Brief.—The needle-bar is provided with a slot, through which the thread passes, and a spring-finger, which, when the needle is raised, presses the thread into the slot, and holds it there until the needle descends.

1. The needle-bar C, provided with a slot, through which the thread passes, and a spring-finger, which, when the needle is raised, presses the thread into the slot, and holds it there until the needle descends, substantially as described.
2. The needle-bar C, provided with a slot, through which the thread passes, and a spring-finger, which, when the needle is raised, presses the thread into the slot, and holds it there until the needle descends, in combination with the thread-guide D, substantially as described.

1. The combination, with the case or curb and the stationary annular grinding-bed, of the rotary grinder and its supporting-shaft, which takes its bearing at one end only of the case, and terminates in the rotary grinder, substantially as shown and set forth.

2. The stationary annular grinding-bed and rotary grinder, in combination with the screw or worm attached to and revolving with the rotary grinder, and extending into the opening in the stationary annular grinding-bed, substantially as shown and set forth.

3. In combination with a rotary grinder, a stationary annular grinding-bed, arranged within the case, substantially as described, allowing a space to left between it, and the end of the case opposite to that in which the driving-shaft of the rotary grinder is supported, and having an unobstructed opening through its center, or thereabout, to permit free circulation and passage therethrough of the stock to and between the grinding-surfaces, substantially as set forth.

4. The stationary annular grinding-bed, the rotary grinder, the axial worm or screw, attached to and moving with the rotary grinder, and the deflector *c*, said parts being arranged together within the case or curb for joint operation, substantially as shown and described.

174,806. OILSTOVE OR SUPPORTER FOR STOCKINGS. Benjamin J. Crosby, Boston, Mass. [Filed Feb. 9, 1876.]



The combination of the parts *a*, *b*, *c*, and *f*, constructed and arranged to operate substantially as described.

174,807. STOVE-LID. Charles F. Greenman, Green, Iowa, assignor of one-half his right to S. W. Searle, same place. [Filed Feb. 10, 1876.]



The depressed disk B, flanged, and combined with the pot-hole and its cover, substantially as described.

174,808. HOLLOW-WARE GRINDING. R. W. Gunn, New Woodstock, N. Y. [Filed Feb. 3, 1876.]

Brief.—The grinding substances is placed on the ends of revolving arms, which, after being inserted in the article to be ground, by a moving carriage, are expanded by a sliding rod and toggle-levers, so as to come in contact with the inner surface.



1. In a hollow-ware grinder, revolving expansible grinders *c c*, applied to arms E E, and controlled by means of a rod, D, in combination with a turn-table, J, on a carriage, B, substantially as described.

2. The gravitating locking device *k* on a post, *l*, of frame A, in combination with the rod *a* and turn-table J, as and for the purposes set forth.

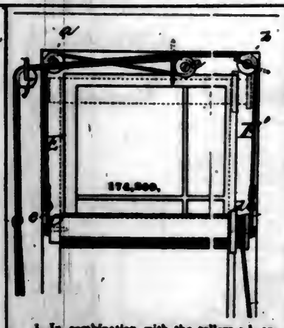
3. The table J, made vertically adjustable on carriage B, in combination with the catch *k* and its vertically-adjustable posts *l*, substantially as described.

4. The hollow-ware holder on table J, composed of the rods K K' K', as described.

5. The end-ways-movable rod D, levers F, and arms E, in a machine constructed as and for the purpose set forth.

174,809. CORSET-FINDERS. William P. Haines, West Middleburg, Ohio. [Filed Jan. 3, 1876.]

Brief.—One of the operating-cords passes over a central pulley, and then returns to the end pulley, and thence down to the hanger of the curtain-roller.

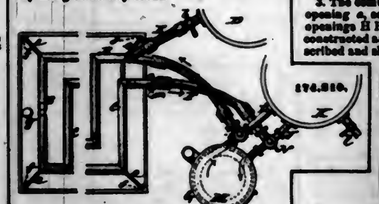


1. In combination with the rollers *a b*, arranged inside the frame, cords E E', and roller C, the pulley *c* between rollers *a b*, around which cord E passes before uniting with cord E', substantially as specified.

2. In combination with the operating-cords E E', passing over pulleys *a b* next the frame, the intermediate pulley *c*, guard F, and pulley *f*, substantially as specified.

174,810. MILK COOLERS OR HEATERS. E. A. Hannum, Canaseria, N. Y. [Filed Feb. 16, 1876.]

Brief.—Cold water passes through the reversed coil, adjustably supported in the milk-pan by hooks engaging indentations in the tank, and out at a discharge-pipe. Flexible tubes connect the reversed coil with cold and hot water tanks, or with a heated coil, through which the water may be made to flow or not, by using three-way cocks.

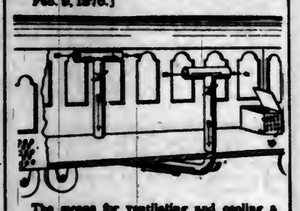


1. The reverse connected coils B C, made adjustable up or down within the pan A by means of springs or hook-catches *e* and fixed notches or projections *f*, essentially as and for the purpose herein set forth.

2. The combination of the three-way cocks M N, the heater G, and coil H, the hot-water tank K, the pipes I J, the pipes O P, and the coils B C in the pan A, essentially as specified.

3. The combination of the cold-water-supply connection E, the inlet and outlet hot-water connections O P, the reverse pan-coils B C, the heater G and coil H, the hot-water tank K, the pipes I J, and the three-way cocks M N, substantially as described.

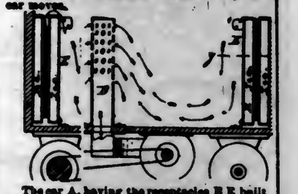
174,811. VENTILATING RAILWAY-CARS. R. Hargreaves, Sarnia, Canada. [Filed Feb. 9, 1876.]



The means for ventilating and cooling a railway-car, substantially as described, consisting of a refrigerating-box at each side of a car, having rows of air-tubes passing through it and through the side of the car, in combination with an exhaust-fan and pipes for removing or exhausting air from the upper part of said car, substantially as described.

174,812. REFRIGERATOR-CARS. R. R. Hargreaves, Sarnia, Canada. [Filed Feb. 21, 1876.]

Brief.—Exterior air drawn into car (between refrigerant-boxes) at top of the compartment, and out from the upper part of the apartment and into the fan-case, whence it is forced out through apertures in the bottom of the case. Fan exhausts whichever way the car moves.



The car A, having the receptacles B E built in pairs across each end, and with a slot, *a*, in each side, for admitting a current of air between each pair of said receptacles, in combination with an exhaust-fan for withdrawing air from the interior of the car through the pipe D, substantially as described.

174,813. EXHAUST-FANS. R. R. Hargreaves, Sarnia, Canada. [Filed Jan. 17, 1876.]

1. An exhaust-fan adapted to run at will in opposite directions, and provided with exhaust-openings on opposite sides, substantially as shown and described.

2. In an exhaust-fan, the combination, with the shell, having exhaust-openings on opposite sides of the same, of the revolving wings, adapted to run in opposite directions, and provided with flanges on each edge, projecting from each face, substantially as described and shown.

3. The combination, with the face A, having opening *a*, solid face B, and rim C, having openings H H', of the shaft *e* and wings D, all constructed and arranged substantially as described and shown.

174,814.



174,812.

174,814. SUBMERGED PUMPS. L. T. Harper, Owatonna, Minn. [Filed Nov. 20, 1876.]

Brief.—At the side of the cylinder is an inlet water-chamber, provided with a strainer and a valve opening inwardly to the cylinder. The detent-elbow has upon its upper horizontal end a flat valve. The handle is arranged to govern the length of the stroke, and drops down when not in use, leaving the piston-rod in a vertical position.

1. The combination of the cylinder A, chamber B with strainer *a*, and the valve C opening inward and upward into the cylinder, substantially as and for the purposes herein set forth.

2. The cover P, provided with the rim or flange *i*, and central vent-screw R, as and for purposes herein set forth.

3. The piston or plunger J, provided with two circumferential grooves for the packing-rings *d d'*, and the water-passages *e* and *f*, combined with the pump-cylinder A, chamber B, and inlet-valve C, substantially as and for the purposes herein set forth.

4. In a pump the combination of the plunger-rod K, eyebolt A, handle L, curved from K, and the pump-stock, all substantially as and for the purposes herein set forth.

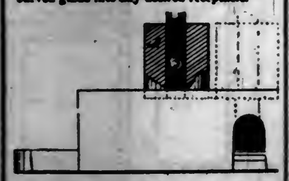
5. In combination with pump-cylinder A, having inlet-valve C, as described, and provided with piston J, the elbow D, connecting at the bottom with the lower end of the pump-cylinder, and having at its upper end a level valve-seat for check-valve E, and supporting the pump stock H, all substantially as and for the purposes set forth.

1. The combination of the pipe A and pipe B, for heating the oil in its passage to the vaporizer and heater 2, substantially as shown.

2. The combination of still 1, coil 5, pipes 3 & 6, heater 2, and vaporizer 7, provided with a stirrer, 9, substantially as described.

174,790. FILL.—MACHINERY. Jacob Dutton, Philadelphia, Pa. (Filed Feb. 16, 1876.)

Brief.—The compressor-chamber, in the base of which a short movable die is placed, slides in guides along a frame or base support. When the chamber is directly over a discharge-opening in the base-support, the lower die and pill may be together forced downward, and the pill will pass through a curved guide into any desired receptacle.



1. The combination with a ball-and-socket joint, the recessed pin or bolt and tapering or wedge-shaped key or fastening, actuated by a spring, for automatically taking up the wear of the joint, substantially as described.

2. The ball-and-socket joint, recessed bolt, wedged-shaped key, and spring, in combination with the knife-head and connecting-rod of a mowing or reaping machine, substantially as herein described.

174,790. FILTERS FOR THE DECOLORIZATION OF SUGAR IN SOLUTION. Richard Gervase Hyam, Wythenshawe, England. (Filed Jan. 3, 1876.)

Brief.—The liquid to be filtered passes upward through a curtain of charcoal into a chamber, from which the filtered liquid may be drawn off.



174,792.

The filtering-vessel A, with its enlarged portion L and the discharging-chamber C, in combination with the pipes G, M, and T, and the valves D and E, substantially as described.

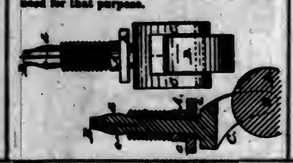
174,792. COMBINED BABY-WALKER. Jose Brihuco, Madison, Wis. (Filed Dec. 22, 1875.)

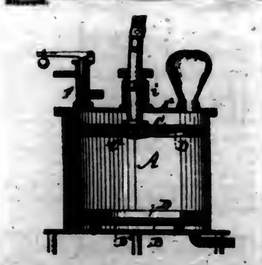
1. In a baby-walker, the combination herein described of the hinged legs A, top piece B B, having grooves *i*, and hinged rockers D, having casters E, whereby it can be converted into a supporting-frame for a cradle, substantially as herein before set forth.

2. The combination, with a baby-walker provided with hinged legs A, top piece B B, having grooves *i*, and hinged rockers D, having casters E, of the seat F, having slide or extension G, and the side pieces H, substantially as and for the purpose herein shown and specified.

174,793. FURNITURE-CASTERS. David A. Fisher, Jr., Washington, D. C. (Filed Mar. 1, 1876.)

Brief.—A split end spring-spindle passing entirely through a screw-threaded socket, to prevent too easy detachment of the caster, while the socket, by means of transverse slots, is adapted for ready insertion by means of a screw-driver, instead of the wrench ordinarily used for that purpose.

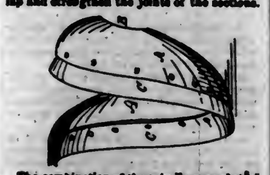




In a filtering apparatus the upper filter and distributor C, constructed of a perforated, double plate, the upper side of which is a plane surface and the lower side conical, and provided with a packing material, D, around its edge, in combination with the vessel A, stem J, stuffing-box *i*, cover *k*, and cross-head L, all substantially as shown and described, for the object set forth.

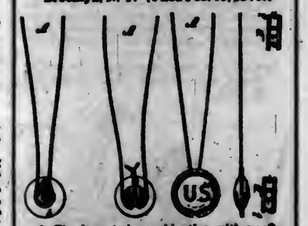
174,796. ROTARY PLOWS. Wm. H. Foye, San Francisco, Cal. (Filed Mar. 2, 1876.)

Brief.—A cutting-edge or strip of steel on a rotary spiral cutter, designed also to overlap and strengthen the joints of the sections.



The combination of the spirally-curved steel cutting and re-enforcing strip or stripe C, with the concavo-convex spiral cutters A of a rotary plow, substantially as described, for the purposes specified and set forth.

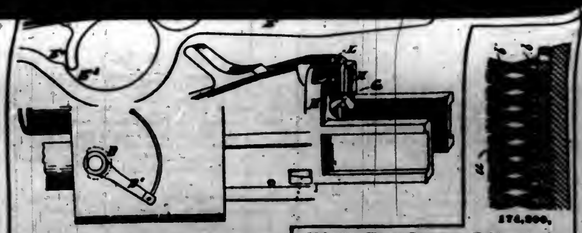
174,797. METALLIC SEALS. A. Friedrich, Brooklyn, N. Y. (Filed Feb. 10, 1876.)



1. The loop A, in combination with a soft-metal button consisting of two heads or disks connected by a stem and made in one piece, as described, and for the purpose set forth.

2. The loop A, in combination with a soft-metal button, consisting of two heads or disks connected by a perforated stem and made in one piece, as described.

3. The loop A, in combination with a soft-metal button, consisting of two connected disks or heads compressed at their edges into a single milled flange, as and for the purpose set forth.



174,800.

1. The slide *a*, into which the barrel is screwed, and which is formed with a flanged edge, to form, with the recoil-shield, a slip-joint, substantially as set forth.

2. The slide *a*, in combination with the hooked head of the trigger-guard, substantially as set forth.

3. In combination with the slide *a* and lever C, the cam D and lever D', substantially as set forth, for converting the piece from a magazine-gun to a single-loader, or vice versa.

4. The trigger-guard formed with a shoulder, E', in combination with the piece F and stud F', to start the forward section, substantially as set forth.

5. The trigger-guard, constructed with a notched head to hold the sections, substantially as set forth.

6. The trigger-guard, constructed with the angle formed by the lines F' and E', and arranged in relation to the trigger, substantially as described.

7. The slide F, in combination with the dog G, which is pivoted at the rear and acted upon by the inclined face of the slide F, and which, extending forward into the cartridge-chamber, throws up the cartridge, substantially as described.

8. The slide F, in combination with the dog G and hammer I, connected in such manner that the lifting of the dog exerts the hammer, but the former may fall independently of the latter, substantially as described.

9. The conical-pointed detent L for confining the cartridge, substantially as described.

10. In combination with the ring O, pivoted in the rear, and projecting forward into the cartridge-chamber, the slotted plate placed between the magazine and lock mechanism, and guide H for the cartridge and pin L, substantially as set forth.

174,799. GAS-LIGHTING APPARATUS. Chas. D. P. Ghioca, New York, N. Y. (Filed Feb. 26, 1876.)

Brief.—The lower end of the circuit-breaking arm carries a swinging piece, with pins projecting from it. An arm projecting from the stem of the gas-cock rides under these pins, thus oscillating the arm, and producing repeated makes and breaks of the circuit.



1. In combination with a gas-burner, A, and suitable electrical conductors, the compound connection O' O'' of one of the conductors, whereby it is, when the gas is lighted, automatically insured against a liability of contact with the other conductor, as herein set forth.

2. The pawl *j j' j''* and stop *g'*, in combination with the finger *b* on the plug of the stop-cock, and with the burner A and suitable electrical conductors, as and for the purposes herein specified.

174,800. HORSE-BRUSHES. H. Giesecke, St. Louis, Mo. (Filed Dec. 16, 1876.)

Brief.—The tufts in each alternate row slant in opposite directions toward the ends of the brush, so that one-half is brushing while the other half is combing.

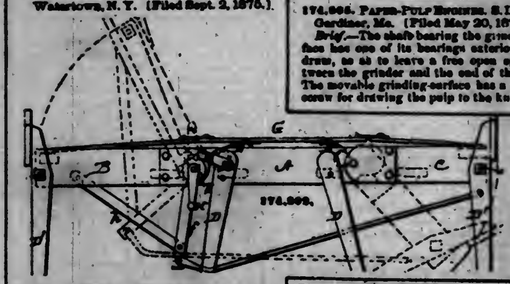
A horse-brush having its bristles arranged in alternate rows *b' b'*, the points of which slant in opposite directions, as shown and described, and for the purposes set forth.

174,801. RADIATORS. Louisa Gill, Watertown, N. Y. (Filed Jan. 20, 1876.)



The within-described horizontal steam-radiator, consisting of the cast-iron pan A, with concave bottom, and interior tapering flanges *a*, arranged in scroll-form, the cover C, inlet D, and center outlet B, all constructed to be placed in the floor of a room, substantially as and for the purposes herein set forth.

174,802. INVALID-BEDSTEADS. Louisa Gill, Watertown, N. Y. (Filed Sept. 2, 1876.)

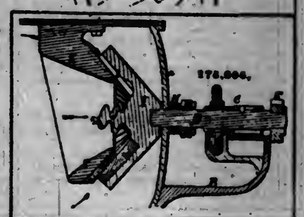


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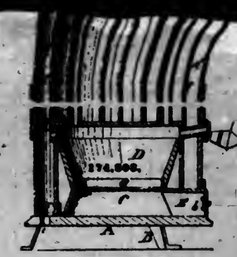
The combination of the frame-sections A, B, and U, hinged together as described, the springs E, and the sectional slats G G, all constructed and supported upon suitable legs, substantially as and for the purposes herein set forth.

174,803. HEATERS. Louisa Gill, Watertown, N. Y. (Filed Jan. 20, 1876.)

1. The open cage H, surrounding the fire-pot D, secured to the fire-pot and to the perforated hasp A, and extended above the fire-pot, in combination with the tubular boiler I, substantially as and for the purposes set forth.

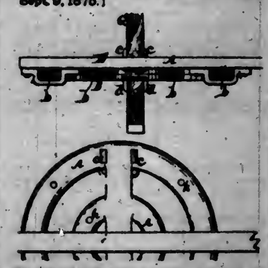


174,803.



174,804.

174,804. VEHICLE FIFTH-WHEELS. Christian Gormann, Union Hill, N. J. (Filed Sept. 9, 1876.)



The fifth-wheel for a wagon constructed of the sections A B, which have, respectively, concentric flanges *a* and corresponding grooves and lugs *c c* and *d d* formed in pairs and opposite each other, substantially as described.

174,805. PAPER-PULP ENGINES. S. L. Gould, Gardiner, Me. (Filed May 20, 1876.)

Brief.—The shaft bearing the grinding-surfaces has one of its bearings exterior to the drum, so as to leave a free open space between the grinder and the end of the drum. The movable grinding-surface has a worm or screw for drawing the pulp to the knives.

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1. The combination, with the case or curb and the stationary annular grinding-bed, of the rotary grinder and its supporting-shaft, which takes its bearing at one end only of the case, and terminates in the rotary grinder, substantially as shown and set forth.

2. The stationary annular grinding-bed and rotary grinder, in combination with the screw or worm attached to and revolving with the rotary grinder, and extending into the opening in the stationary annular grinding-bed, substantially as shown and set forth.

3. In combination with a rotary grinder, a stationary annular grinding-bed, arranged within the case, substantially as described, whereby a space is left between it and the end of the case opposite to that in which the driving-shaft of the rotary grinder is supported, and having an unobstructed opening through its center, or thereabout, to permit free circulation and passage therethrough of the stock to and between the grinding-surfaces, substantially as set forth.

4. The stationary annular grinding-bed, the rotary grinder, the axial worm or screw, attached to and moving with the rotary grinder, and the deflector *c*, said parts being arranged together within the case or curb for joint operation, substantially as shown and described.

174,906. CLASPS OR SUPPORTERS FOR STOCKINGS. Benjamin J. Crosby, Boston, Mass. [Filed Feb. 9, 1876.]



The combination of the parts *a*, *b*, *c*, and *f*, constructed and arranged to operate substantially as described.

174,907. STOVE-LIDS. Charles F. Greenman, Green, Iowa, assignor of one-half his right to S. W. Searle, same place. [Filed Feb. 10, 1876.]



The depressed disk B, flanged, and combined with the pot-hole and its cover, substantially as described.

174,908. HOLLOW-WARE GRINDERS. R. W. Gunn, New Woodstock, N. Y. [Filed Feb. 8, 1876.]

Brief.—The grinding substance is placed on the ends of revolving arms, which, after being inserted in the article to be ground, by a moving carriage, are expanded by a sliding rod and toggle-levers, so as to come in contact with the inner surface.



1. In a hollow-ware grinder, revolving expansible grinders *e e*, applied to arms E E, and controlled by means of a rod, D, in combination with a turn-table, J, on a carriage, B, substantially as described.

2. The gravitating locking device *k* on a post, *l*, of frame A, in combination with the rod *m* and turn-table J, as and for the purposes set forth.

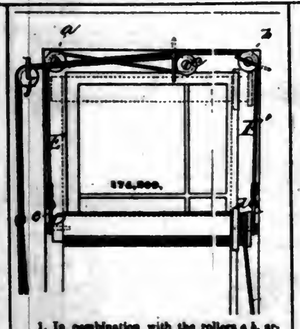
3. The table J, made vertically adjustable on carriage B, in combination with the catch *k* and its vertically-adjustable posts *l*, substantially as described.

4. The hollow-ware holder on table J, composed of the parts K K' K'', as described.

5. The centrally-movable rod D, levers F, and arms E, in a machine constructed as and for the purposes set forth.

174,909. CURTAIN-FIXTURES. William P. Haines, West Middleburg, Ohio. [Filed Jan. 8, 1876.]

Brief.—One of the operating-cords passes over a central pulley, and then returns to the end pulley, and thence down to the hanger of the curtain-roller.

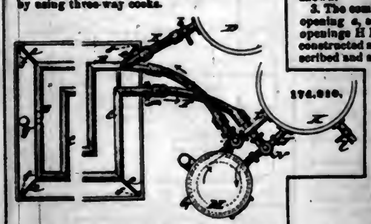


1. In combination with the rollers *a b*, arranged inside the frame, cords E E', and roller C, the pulley *c* between rollers *a b*, around which cord E passes before uniting with cord E', substantially as specified.

2. In combination with the operating-cords E E', passing over pulleys *a b* next the frame, the intermediate pulley *c*, guard F, and pulley *f*, substantially as specified.

174,910. MILK COOLERS OR HEATERS. H. A. HASTEDT, Cassenovia, N. Y. [Filed Feb. 16, 1876.]

Brief.—Cold water passes through the reverted coil, adjustably supported in the milk-pan by hooks engaging indentations in the tank, and out at a discharge-pipe. Flexible tubes connect the reverted coil with cold and hot water tanks, or with a heated coil, through which the water may be made to flow or not, by using three-way cocks.

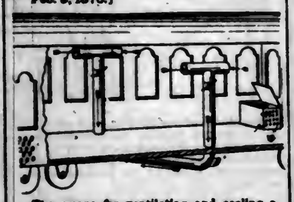


1. The reverse connected coils B C, made adjustable up or down within the pan A by means of springs or hook-catches *e* and fixed notches or projections *f*, essentially as and for the purpose herein set forth.

2. The combination of the three-way cocks M N, the heater G, and coil H, the hot-water tank K, the pipes I J, the pipes O P, and the coils B C in the pan A, essentially as specified.

3. The combination of the cold-water-supply connection E, the inlet and outlet hot-water connections O P, the reverse pan-coils B C, the heater G and coil H, the hot-water tank K, the pipes I J, and the three-way cocks M N, substantially as described.

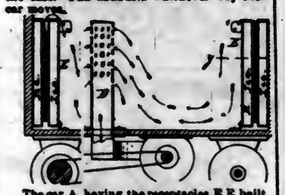
174,911. VENTILATING RAILWAY-CARS. E. E. Hargreaves, Sarnia, Canada. [Filed Feb. 9, 1876.]



The means for ventilating and cooling a railway-car, substantially as described, consisting of a refrigerating-box at each side of a car, having rows of air-tubes passing through it and through the side of the car, in combination with an exhaust-fan and pipes for removing or exhausting air from the upper part of said car, substantially as described.

174,912. REFRIGERATOR-CARS. E. E. Hargreaves, Sarnia, Canada. [Filed Feb. 21, 1876.]

Brief.—Exterior air drawn into car (between refrigerant-boxes) at top of the compartment, and out from the upper part of the apartment and into the fan-case, whence it is forced out through apertures in the bottom of the case. Fan exhausts whichever way the car moves.



The car A, having the receptacles E E built in pairs across each end, and with a slot, *a*, in each side, for admitting a current of air between each pair of said receptacles, in combination with an exhaust-fan for withdrawing air from the interior of the car through the pipe D, substantially as described.

174,913. EXHAUST-FANS. E. E. Hargreaves, Sarnia, Canada. [Filed Jan. 17, 1876.]

1. An exhaust-fan adapted to run at will in opposite directions, and provided with exhaust-openings on opposite sides, substantially as shown and described.

2. In an exhaust-fan, the combination, with the shell, having exhaust-openings on opposite sides of the same, of the revolving wings, adapted to run in opposite directions, and provided with flanges on each edge, projecting from each face, substantially as described and shown.

3. The combination, with the face A, having opening *a*, solid face B, and rim C, having openings H H', of the shaft *e* and wings D, all constructed and arranged substantially as described and shown.

174,914. SUBMERGED PUMPS. L. T. Harper, Owatonna, Minn. [Filed Nov. 20, 1876.]

Brief.—At the side of the cylinder is an inlet water-chamber, provided with a strainer and a valve opening inwardly to the cylinder. The detent-elbow has upon its upper horizontal end a flat valve. The handle is arranged to govern the length of the stroke, and drops down when not in use, leaving the piston-rod in a vertical position.

1. The combination of the cylinder A, chamber B with strainer *a*, and the valve C opening inward and upward into the cylinder, substantially as and for the purposes herein set forth.

2. The cover F, provided with the rim or flange *i*, and central vent-screw E, as and for purposes herein set forth.

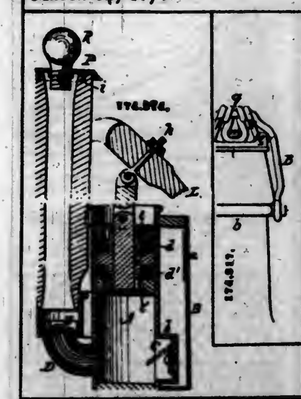
3. The piston or plunger J, provided with two circumferential grooves for the packing-rings *d d'*, and the water passages *e* and *e'*, combined with the pump-cylinder A, chamber B, and inlet-valve C, substantially as and for the purposes herein set forth.

4. In a pump the combination of the plunger-rod K, eyebolt L, handle L, curved from L, and the pump-stock, all substantially as and for the purposes herein set forth.

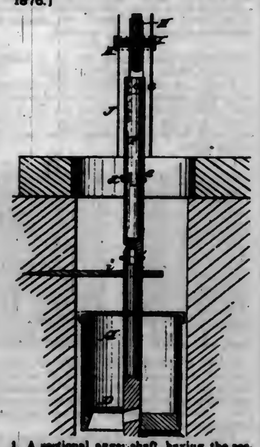
5. In combination with pump-cylinder A, having inlet-valve C, as described, and provided with piston J, the elbow D, connecting at the bottom with the lower end of the pump-cylinder, and having at its upper end a level valve-seat for check-valve E, and supporting the pump stock H, all substantially as and for the purposes set forth.



174,915.



174,916. EARTH-AUGERS. James D. Harris, Memphis, Tenn., assignor to himself and H. T. Calloway, same place. [Filed Jan. 6, 1876.]



1. A sectional auger-shaft, having the sections connected by means of the slot *c*, with recess *y*, tenon *f*, with projection *x* and slot *x*, and a pin passing through them, substantially as and for the purposes herein set forth.

2. The combination, with an earth auger-shaft, of the screw H, beam I, slotted frame J, and clamps K, substantially as herein set forth.

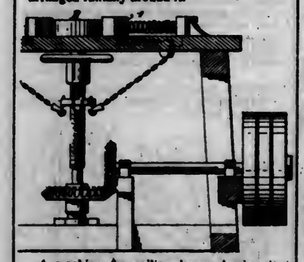
174,916.

174,917. LOCKING DEVICES FOR BOTTLE-STOPPERS, &c. Thomas Hipwell, Bridgeton, N. J., assignor to the Cohansey Glass Manufacturing Company. [Filed Oct. 20, 1876.]

The combination of the stopper and its legs *c*, the ball B hinged to the neck of the bottle, and the lever D made of wire, coiled round the ball, and having arms *p* terminating in pins *x* adapted to orifices in the said legs of the stopper, all as set forth.

174,918. MACHINES FOR COILING HOOPS. James D. Housekeeper, Jr., St. Louis, Mo. [Filed Aug. 31, 1875.]

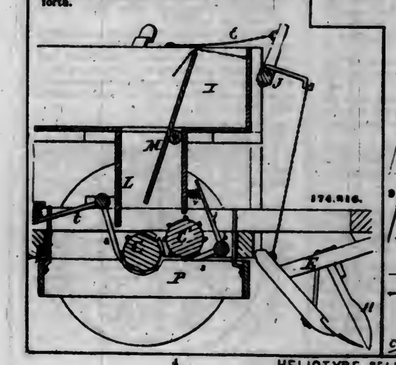
Brief.—The hoops are coiled around a removable pulley placed upon the top of a vertical shaft, they being retained in close contact with the pulley, during the operation of coiling, by means of a series of pressure-rolls arranged radially around it.



A machine for coiling hoops, having its several parts constructed, arranged, and operating substantially as set forth.

174,919. TOBACCO-STRIPPING MACHINES. David Henry Hall, Syracuse, N. Y. [Filed Mar. 6, 1876.]

Brief.—The lower roll is divided at the center, and tapers at the outer ends, and is capable of radial and lateral movement. The band for receiving the stripped leaf is arranged horizontally beneath the rolls. Water is applied to the cutters, and a peculiar stripper is arranged in rear thereof.



174,919.

1. The combination, in a stripping-machine, of a rotating cutter, *c*, and rotating cutters *c' c''*, bearing with a yielding pressure against the sides of the cutter *c*, substantially as set forth.

2. The cutters of a stripping-machine combined with appliances for depositing upon them a constant supply of fluid, as set forth.

3. The combination, in a stripping-machine, of cutters, metal feed-rolls and rubber, or its equivalent, interposed between the rolls and their shafts or bearings, so as to permit the said rolls to yield radially, substantially as set forth.

4. The yielding guide *s*, arranged and operating in a stripping-machine, as specified.

5. The clearer G arranged tangential to the rotary cutter *c* of a tobacco-stripping machine, with its bifurcated end bearing on the side collars of the cutter, as specified.

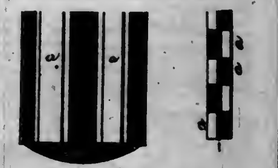
6. The combination of the cutters and rolls *b b'*, one or both of which taper toward their outer ends, as and for the purpose specified.

7. The endless band I of a tobacco stripper, arranged to traverse below, but free from contact with, the lower rolls, as set forth.

8. The blocks *b b'* carrying the upper shaft *a'* and upper box F, substantially as and for the purpose specified.

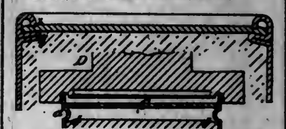
9. The cutters *c c'*, constructed with ribs *x* at the sides, and arranged as and for the purpose specified.

174,920. FOLDING BOXES. David Jackson, Chicago, Ill. [Filed Dec. 8, 1874.]



A folding box, composed of the bars or slats *a*, flexible lining *b*, and flexible bottom *c*, substantially as and for the purposes herein set forth.

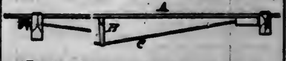
174,921. CANS. Wm. S. Johnson, Providence, R. I. [Filed Feb. 19, 1876.]



1. In the manufacture of cans, the method of forming the support for the cover by an interior bead, *a*, on the can-body, closed by means of dies, to form an inclined ledge, as shown and described.

2. In the manufacture of cans, the method of fastening the cover by forming an interior inclined ledge and bending the edge of the can over onto the cover, so as to form the two points of contact *x y*, as shown and described.

174,922. BUCK-BOARDS. Cornelius V. Kenyon, South Glens Falls, assignor of two-thirds his right to L. B. Edmonds, same place, and Van Vandenburgh, Northumberland, N. Y. [Filed Jan. 22, 1876.]



The board A, in combination with the rod C and bridge B, when the springs are connected at one or both ends of the rod, as and for the purpose set forth.

174,923. MEASURING-FUNNELS. Daniel S. Koons, Chicago, Ill., assignor of one-half his right to John C. Cooper, same place. [Filed June 8, 1874.]

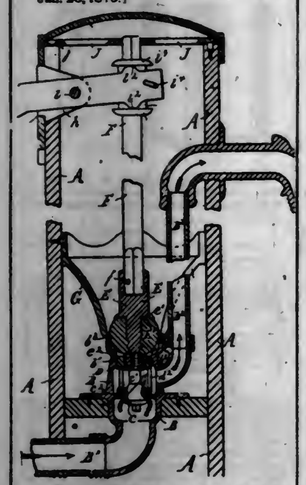
1. The combination, in a funnel, of the thumb-lever C provided with the stud *e* and the valve-rod D, having the hook *d*, when the several parts are constructed and arranged substantially as described, for the purpose of having the parts pivoted together so as to be conveniently separated.

2. The combination, in a funnel, of the removable valve-rod D, the removable valve E, and the hinged strainer G, when the several parts are constructed and arranged, substantially as described, for the purpose of having the valve and valve-rod easily removed without removing the strainer.



174,896.

174,896. HYDRANT-VALVES. J. C. Kupferle and Peter White, St. Louis, Mo. [Filed Jan. 26, 1876.]



1. The cage D, having inner lugs at d^3, in combination with corresponding grooves in the lower end of a center valve-stem, as and for the purpose set forth.

2. The cage D, having screw-threads at d, in combination with the threaded shoulder b^1 of the shell B, as and for the purpose set forth.

3. The center valve-stem E, having shoulders e e^1, and carrying an elastic ball, E^1, as and for the purpose set forth.

4. The lower valve-stem e^2, carrying valve e, washer e^3, cage D, in combination with a center valve-stem, E, as set forth.

5. The washer e^3, in combination with the cage D and valve-seat b, as and for the purpose set forth.

6. The lower valve-stem e^2, its valve e, washer e^3, cage D, center valve-stem E, and shell B, said parts being constructed to operate as and for the purpose set forth.

7. The shell B, having screw-threads at b^2, shoulder b^1 and b^3, as and for the purpose set forth.

8. The center valve-stem E, carrying a ball, E^1, the lower valve-stem e^2, carrying valve e, the washer e^3, the cage D, having threads at d, inner lugs at d^3, in combination with the shell B, having valve-seat b, screw-threads at b^2, shoulder at b^3, substantially as and for the purpose set forth.

9. The rod F, secured by pin f to a center valve-stem, E, carrying ball E^1, the lower stem e^2 carrying valve e, the washer e^3, in combination with a cage, D, to operate as and for the purpose set forth.

10. The fulcrum-plate H, consisting of a face-plate, h, having inner projecting lugs, as and for the purpose set forth.

11. The connection of the forked lever I by a coupling-pin, i^3, in combination with the sleeve i^2, having shoulders i^2, to operate in the manner shown and described, and for the purpose set forth.

12. The circular plate J, having holes j and square center j^1, as and for the purpose set forth.

13. The combination of the circular plate J, with the rod F, to operate as and for the purpose set forth.

14. The combination of the cap K with a fulcrum-plate, H, consisting of a face-plate, h, in order to close the top of said face-plate, as set forth.

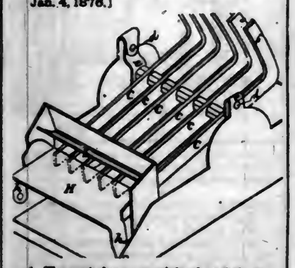
174,895. ATTACHING KNOBS TO THEIR SPINDLES. John H. La Bau, Brooklyn, N. Y. [Filed Oct. 22, 1875.]



1. The combination of the telescopic knob-shank F, the inner tube or sleeve E carried by the knob-spindle, and the detachable knob O, fitted to screw onto or into the end of the spindle and provided with a nut or half clutch, G, constructed to lock with the sliding knob-shank, substantially as specified.

2. The spring catch or snap d, in combination with the inner tube E, the telescopic knob-shank F, the detachable knob O with its attached nut or half clutch G, and the knob-spindle B, essentially as described.

174,896. STEAM-BOILER FURNACES. Michl. Laufenburg, San Francisco, Cal. [Filed Jan. 4, 1876.]



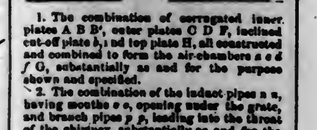
1. The grate-bars e e, weighted at their rear ends and journaled at d d as levers, to automatically close the furnace-door, substantially as described.

2. The grate-bars e e e, suspended from journals d d by means of hangers e e, and having their rear ends extended and the extension turned up so as to form a vertical grate in the rear of the horizontal grate, substantially as and for the purpose described.

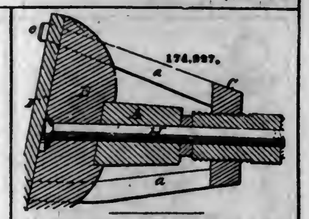
3. The grate-bars e e e, constructed and suspended as described, in combination with the inclined door H, which is pivoted at its lower end, and has its front end connected with the grate bars so as to be closed by the superior gravity of the rear ends of the grate-bars, substantially as above specified.

4. The upwardly-inclined flange I, in combination with a furnace-door, H, which opens entirely across the furnace front, substantially as and for the purpose described.

174,897. BRAKE-SHOES. Eugene W. Leamon, Chariton, Iowa, assignor of one-half his right to John May, same place. [Filed Dec. 9, 1875.]

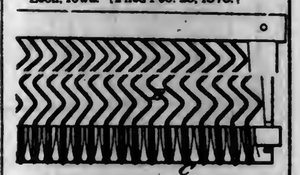


The spider C, formed with the four diverging legs c, having inwardly-projecting feet c upon their ends, and with a hollow hub having female screw-threads, in combination with the brake-bar A, block B, facing F, and hollow thumb-screw D, substantially as and for the purpose herein set forth.



174,897.

174,898. GRAIN-SCREENS. John C. Leeson, Leon, Iowa. [Filed Feb. 25, 1876.]

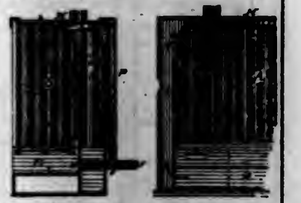


1. A grain-screen composed of a series of parallel corrugated wires arranged in the same plane, substantially as shown and described.

2. In a grain-screen, the grooved foot-piece C, constructed and arranged, with relation to the wires, substantially as specified.

174,899. FIRE-PLACES. Geo. W. S. Leeds, Salem, Ohio. [Filed Feb. 9, 1876.]

Brief.—Air entering the chamber in the rear of the fire passes into a chamber at the side, and circulates entirely around the fire to the hot-air exit flue. The two-branched pipe fans and feeds the fire, and also quickens the draft at the throat.

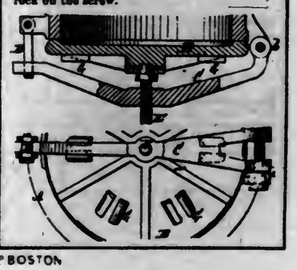


1. The combination of corrugated inner plates A B B^1, outer plates C D F, inclined cut-off plate b, and top plate H, all constructed and combined to form the air-chambers a a d f G, substantially as and for the purpose shown and specified.

2. The combination of the induct-pipes n n, having mouths o o, opening under the grate, and branch pipes p p, leading into the throat of the chimney, substantially as and for the purpose set forth.

174,900. SELF-SEALING HEADS FOR GAS-RETORTS. Philip W. Mackenzie, Hewerton-ville, assignor to the Smith & Sayre Manufacturing Company, New York, N. Y. [Filed Jan. 4, 1876.]

Brief.—The outside of the retort-head is provided with sockets for the insertion of a lever, whereby the head is oscillated and ground down upon its seat. The screw-head is secured to the retort-head in a square socket by a loose joint, to permit the retort-head to rock on the screw.

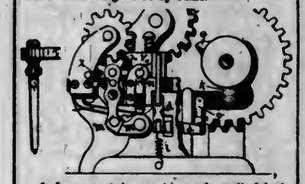


1. The lid B, provided with a series of sockets or projections, G, arranged around its outer surface, for the attachment of a lever to turn the lid, in combination with the mouth-piece A of the retort, substantially as specified.

2. The combination, with the mouth-piece A and lid B, having a series of lever-fitting sockets or projections, G, arranged around its outer surface, of the concentric screw E, attached to said lid in a free manner, to admit of the independent rocking of the latter, but so as to turn with the lid, and the swinging or hinged cotter-bar C, through which the screw works, essentially as described.

174,901. PAPER-COP-TUBE MACHINES. W. M. Marchant, Pawtucket, R. I. [Filed July 26, 1876.]

Brief.—A strip of paper, gummed on one side, is fed under the shears, which are operated by a cam to sever the paper, thence between the hollow core and the calendering-roller. The tube is formed by winding the strip around the core, which is then retracted by the cam, the tube being stripped from it by clamps. The core consists of several longitudinal parts fastened at one end, so that when it is pushed forward over the tapering spindle it expands, and when it is drawn off it collapses, to allow the tube to be pushed off by the clamp. The calender-roll is operated by cams to bear against the tube as it is being wound, and is depressed before the core is drawn back. The pressure of the finishing-brush is also regulated by cams.



1. In paper-tube machines, the cylindrical core n, having its forward end cut into longitudinal and elastic strips, in the manner and for the purposes substantially as shown and described.

2. The combination, with said core n, of the tapering spindle Z and compressing-clamp V for the purpose of alternately enlarging and diminishing the diameter of said core, substantially as set forth.

3. The combination of the adjustable calendering-roll n and of the adjustable revolving brush I with the hollow core n and tapering spindle Z, in the manner and for the purposes substantially as described and shown.

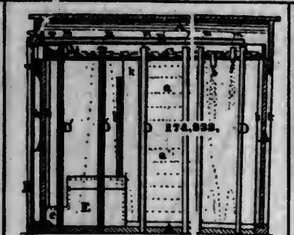
174,902. POCKET TOOTH-BRUSHES. Peter C. McChesney, Millburn, N. J. [Filed Nov. 21, 1874.]



The hollow handle or case B, its threaded opening c, and slot e, in combination with the brush-stem A, screw I, and projection J, all constructed and arranged substantially as set forth.

174,903. APPARATUS FOR FORMING ICE IN FREEZING WEATHER. Thos. B. McFadden, Peoria, Ill. [Filed Dec. 14, 1875.]

Brief.—Causes the water to run down and to be jetted against vertical conductors, (tunnels, ropes, poles, tubes,) and to be frozen about them; also, jets water against piles and floor of the room, boat, or car. Continues the process until the ice-house is filled. Then withdraws the conductors. Runs steam, hot air, or hot water through the hollow conductors, to loosen them for withdrawal. May form the ice-house by blocks of ice set in snow and showered with water, successive strata to be superposed as ice forms inside. Places provisions in air-tight receptacles, and forms a solid body of ice around them, placing rods gaged to show their distance from the outside of the ice, or places provisions in a chamber having an outlet to the outside of the ice house and surrounds it with solid ice. May build the inner chamber of blocks of ice lined with boards backed with sawdust. Removes the ice by saws, or by a pipe having suitable flexible connections for passage of steam through the pipe.



174,903.

1. In an ice-house or other room, the combination of a series of poles or conductors, which are removable after formation of ice about them, with a water-supply pipe, substantially as and for the purpose set forth.

2. The combination of the water-supply pipe B, trough C, having outlets i i, and poles or conductors D, substantially as set forth.

3. The combination of a series of pipes with a water-supply pipe, whereby the said pipes can be filled with a thawing agent, and then loosened so that they can be readily withdrawn from the ice, substantially as set forth.

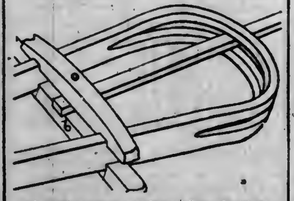
4. The combination of a pipe with flexible tubes for the reception of the thawing agent, whereby a mass of ice may be severed, substantially as set forth.

5. The combination, with an ice-house, of an interior apartment, E, for provisions, surrounded with a solid mass of natural ice, and having a ventilator, i, and passage-way e, substantially as set forth.

174,904. COMPOSITIONS FOR VARNISH. C. McConnell, Jr., Philadelphia, Pa. [Filed July 2, 1875.]

The improved composition varnish, consisting of rosin, benzine, gas-tar, and sugar of-lead, as and for the purpose specified.

174,905. WAGON-HOUNDS. Wm. Mercer, Greenfield, Pa. [Filed Dec. 8, 1875.]



A carriage or wagon hound formed with the sliders complete in one piece, by splitting or slotting the timber longitudinally for a proper distance between its ends, and bending it into proper shape, substantially as described.

174,906. CIGAR-MAKERS' BOARDS. Juan L. Montejo, Philadelphia, Pa., assignor of one-half his right to Miguel A. Montejo, same place. [Filed Jan. 26, 1876.]

Brief.—The board upon which the tobacco is manipulated is held apart from the under board, bench, or table by intervening springs, a blade of shears at the end of each board (the lower fixed and the upper moving) serving to clip the end of the formed cigar.



1. A cigar-maker's board rendered yielding and elastic, so as to give and return under the operator's touch in rolling or cutting, as set forth.

2. A cigar-maker's board formed in two sections, 2 A^1, hinged at a, and provided with interposed springs B, substantially as set forth.

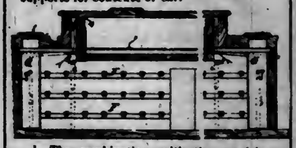
3. The section A^1, sustained upon springs B, attached to or resting upon a suitable base, substantially as shown and described.

4. In combination with a cigar-maker's board, a knife for cutting off the ends of the cigars, attached to and operated by the movement of the board, substantially as shown and described.

5. The combination of the hinged spring-board A^1, board A, cutters D D^1, and gage E F G, substantially as shown and described.

174,907. REFRIGERATOR-CARS. A. T. Nalle, Jersey City, N. J. [Filed Oct. 29, 1875.]

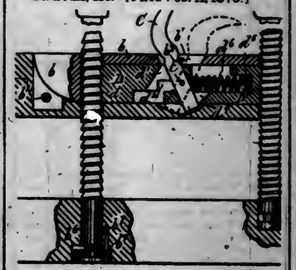
Brief.—A platform of non-conducting material at a short distance from the metallic bottom of the ice-box, and having troughs at its ends, feeding pipes in the sides of the car, disposes of condensation without hindering refrigeration. Detachable cross pieces form supports for contents of car.



1. The combination, with the provision-chamber of a refrigerator-car, of the ice-chamber C in the roof of the car, and having a metallic bottom, the lateral passages a a in its sides, the flues b b in its ends, and the non-conducting screen D at a small distance from the metallic bottom of the ice-chamber, to create a channel, all substantially as and for the object specified.

2. In combination with the ice-chamber C, the non-conducting screen D, constructed with gutters d d at its ends, and communicating with waste-pipes e e, arranged in the body of the car, as and for the object specified.

174,908. JOINERS' CLAMPS. G. A. Naumann, St. Louis, Mo. [Filed Feb. 11, 1876.]



The combination of the trigger C, hollow bar b, its pair of slides D D^1, that of D having threads d, slot d^1, spaces d^2, that of D^1 having threads d^3, slot d^4, hole d^5, the coil-spring d^6, head-screws B B^1, movable jaw A^1, and jaw A, all said parts operating as and for the purpose set forth.

174,909. NUT-LOCKS. John Nelson, Rockford, Ill., assignor of one-half his right to Wm. A. Talcott, same place. [Filed Aug. 4, 1875.]

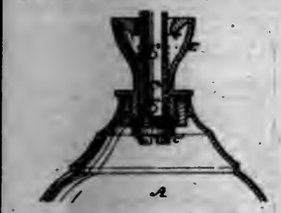


1. The combination, in a nut-locking device, of the slotted locking-plate D, provided with locking-ears or nut-stops a, fish-plates B, screw-bolts C, and screw-nuts c, constructed to operate substantially as described.

2. The sliding locking-plate D, provided with one or more bolt-slots, b, and projecting ears or nut-stops a, and held in position by a head in its free end d over the end of the fish-plate B, substantially as described.

174,840. OIL-CANS. Stephen S. Newton, Binghamton, N. Y. [Filed Feb. 19, 1876.]

Brief.—The lower end of the tube prevents the oil from being discharged from the can; but such oil as may flow down the outside of said tube will be arrested by the drip-cup, and will pass through ports into the tube, from whence it may be ejected through the tip of the tube, or may be returned to the can by opening ports.

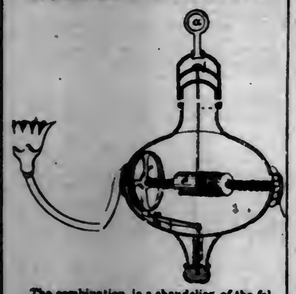


1. The combination, in an oil can, of the body A, the thimble C, and the nozzle E, having its lower end screw-threaded and provided with discharging-ports *d*, substantially as set forth.

2. The combination, with the body A and drip-cup B, of the screw-threaded nozzle E, provided with drip-ports *d*, whereby the dripping may pass into said nozzle and be ejected through its tip, substantially as set forth.

3. The combination of the body A, the drip-cup B, and the screw-threaded nozzle E, provided with ports *d d*, substantially as set forth.

174,841. CHANDELIERS. Stephn. S. Newton, Binghamton, N. Y. [Filed Feb. 19, 1876.]



The combination, in a chandelier, of the following elements, namely: two vertical telescopic tubes, an inclosing-shell, which carries the arms that support the lamps, a cord, or its equivalent, connecting the telescopic tubes and the shell, a spring-shaft, upon which the lower end of the cord is wound, and a detent which controls the movement of the spring-shaft, the shaft and detent being arranged within the inclosing-shell, substantially as set forth.

174,842. COMBINATION-PADLOCKS. Wm Orr, New York, assignor of one-half his right to John S. Bancroft, Brooklyn, N. Y. [Filed Aug. 30, 1875.]

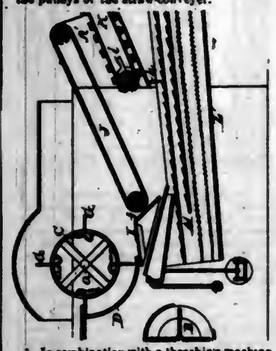


1. The combination of the base A, the fixed grooved center spindle B, the notched cap D, the rings C C, and the shank *x* of the bow or shackle E passing into the notch of the cap and groove of the spindle, substantially as herein described.

2. The combination, with the shank *x* of the shackle and the grooved center spindle B, of the screw *l* in the said shank *x*, the inner groove *i* in the said spindle, and the cap D overlapping said inner groove, substantially as herein described.

174,843. THRASHING-MACHINES. F. Oser, Wheeling, W. Va. [Filed Sept. 24, 1875.]

Brief.—Improved devices for thrashing and separating grain, and for keeping unobstructed the pulleys of the straw-conveyer.



1. In combination with a thrashing-machine cylinder, the slotted casting E, attached to the inside of the cylinder, having the lugs *a* and *b*, spring *d*, and curved flail G, substantially as shown and described.

2. In a thrashing-machine, the combination of a revolving cylinder, provided with a series of yielding flails, and an elastic apron, over which the grain is fed to the cylinder, substantially as and for the purposes herein set forth.

3. The arms *i*, formed with cutting-edges, in combination with the pulleys *h h* and endless-slat carrier K, substantially as and for the purposes herein set forth.

4. The combination of the driving shaft *a*, with eccentric *f*, the crooked lever S, bar V, stud L, connections B' C' D', and spout G', all substantially as and for the purposes herein set forth.

174,844. BUCKLES. George H. Palmer, Somerville, Mass. [Filed Dec. 21, 1875.]



The slotted frame *d*, in combination with the rectangular loop, adapted to be applied to a suspender web, and to engage and press the web between the bars, and to pass entirely through the slot in the frame, and to operate as and for the purpose set forth.

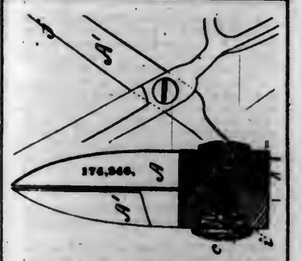
174,845. COMBINED WHISTLES AND FLAGS. William E. Park, Philadelphia, Pa. [Filed Feb. 19, 1876.]



The toy herein described, consisting of a whistle, A, and rod or staff B, (for holding a flag or signal,) said staff being constructed and arranged to be concealed in the whistle, and fastened in the end of the latter, substantially as specified.

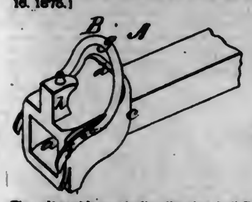
174,846. SHEARS. E. Parker, Plymouth, assignor to the Niagara Shear Company, Thomaston, Conn. [Filed Aug. 21, 1875.]

Brief.—An interposed concealed coil-spring is arranged in a suitable recess of one blade of a pair of shears, the ordinary barrel-screw, in two parts, being used for the rivet, and one head of the screw covering and concealing the spring; the construction providing an elastic union of the two blades, causing them to work easily, the one past the other, and preventing a rounding wear of the edges.



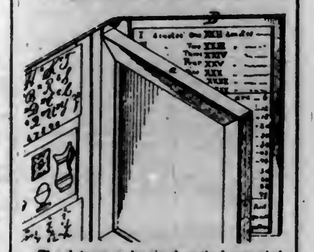
The blade A', provided with the recess *i* and flange *a*, in combination with the recessed blade A, inclosed spring *c*, and retaining screws *c c'*, substantially as and for the purpose set forth.

174,847. GAS-COUPLINGS. R. S. Perry and R. H. Dowling, Newark, Ohio. [Filed Oct. 19, 1875.]



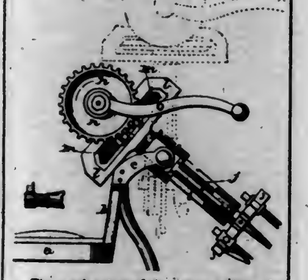
The adjustable vertically-vibrating bail B, having arms or extensions *f*, in combination with a draw-bar, A, having hook k, substantially as specified.

174,848. SLATE-COVERS. Elias I. Phelps, Salem, Mass. [Filed Jan. 6, 1876.]



The slate cover herein described, provided with arithmetical or other tables, numerals, copies, or other educational figures or designs, substantially as and for the purposes set forth.

174,849. BOMING-MACHINES. A. Phillips, Union City, Pa. [Filed Dec. 13, 1875.]



The combination of the frame *c*, sleeve *d*, frames *g l*, rod *j*, wheels *m n*, handles 2 *o*, and suitable cutting devices, substantially as set forth.

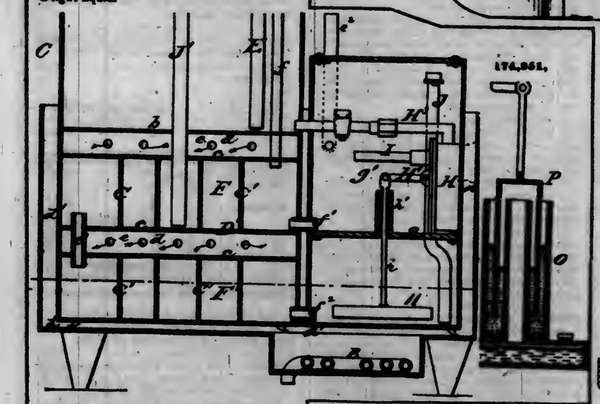
174,850. HARVESTER-WHEELS. T. Pendleigh, Dundee, Ill. [Filed Jan. 6, 1876.]



The pivoted slide D D', operating in a slotted bar, C, against rollers *a a* in the rim of a wheel, B, in combination with the spring-bolt *d* and wedge G, substantially as and for the purposes herein set forth.

174,851. CARBURETORS. A. W. Porter and F. M. Grimes, New York, N. Y. [Filed Dec. 17, 1875.]

Brief.—A thermostat automatically regulates the flow of steam to a coil in the water-tank surrounding the carburetor. The thermostat is set in a water-tank communicating with the water-tank surrounding the carburetor, and is acted on by the heat of the water. The carburetor is composed of a number of chambers connected by overflow-pipes, between which warm water circulates. A float-valve automatically regulates the flow of oil from the reservoir to the carburetor. The thermostat-chamber is filled with air, gas, or a light liquid.



1. In a carburetor the combination of a sealed air, gas, or expansible liquid box, N, steam-valve K, and intermediate devices, with a steam-coil, E, said parts being operated only by expansion and contraction of air, gas, or liquid in the box N, through the action of heat from the water surrounding the carburetor and box, without the intervention of an auxiliary flame or fire attached to the apparatus, whereby the temperature of an air or gas carbureting chamber is automatically controlled, substantially as described.

2. The carburetor-vessel C, having carbureting-chambers F F', water-passages *d*, and overflow-pipes *e*, in combination with a water-jacket, an automatic hydrocarbon-fluid feeder, and a thermostat, substantially as and for the purpose set forth.

3. The thermostat, consisting of the spirit, air, or gas vessel N', the double wall-tube O, and the inverted cup P, floating in mercury, substantially as described.

4. The thermostat, consisting of the vessel N', the double wall-tube O, and the inverted cup P, in combination with a carbureting-vessel having water-passages or spaces *d*, and the water-jacket or tank, all co-operating substantially as described, and for the purpose set forth.

5. The combination, with a carburetor and a tank, of a thermostat having at its upper end a lever, I, and a steam or water-valve, K, operating substantially as described.

6. The steam-coil E, in combination with a carbureting-vessel and a thermostat, substantially as specified.

174,852. OILERS. John F. Ramsden and Edward Bowles, Middletown, Md., assignors of one-third their right to P. W. Shafer, same place. [Filed Feb. 12, 1876.]



1. The tube C, constructed with parallel sides, and provided with contracted point *a* at one end, and with the cap D and elastic disk G, or their equivalents, at the other end, substantially as and for the purposes herein set forth.

2. A perforated elastic diaphragm, *b*, attached to an oil-bottle, A, in combination with an oil-tube having parallel sides, for the purposes herein set forth.

3. The perforated stopper B and perforated elastic diaphragm *b*, in combination with an oil-bottle, A, and oil-tube C, for the purposes herein set forth.

174,853. PROPELLERS FOR VESSELS. Thos. M. Rankin, Modesto, Cal. [Filed Apr. 5, 1876.]

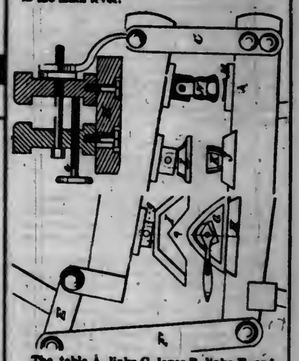
A propeller for vessels, having the following elements, viz: a driving-shaft, a cross-shaft passing at right angles through said driving-shaft, and capable of rotary motion therein, and blades attached to said cross-shaft, substantially as and for the purposes set forth.

174,854. CORN-PLANTERS. Robt. F. Risley, Breckinridge, Mo. [Filed Aug. 7, 1875.]

The boot lever J, having its front end pivoted to the rear of the arched bar *h*, pivoted on the rear I, and its rear pivoted near the center of the frame D, in combination with the slotted guide J, having its front secured to the frame H, its rear to the driver's seat *n*, substantially as and for the the purpose expressed

174,855. CRIMPING-MACHINES FOR LEATHER. Chas. M. Robinson and Jno. F. Lister, Newton, Iowa. [Filed Feb. 2, 1876.]

Brief.—Crimping, stamping, and pressing devices are pivoted to a main lever, which is actuated by means of a secondary lever having a cross-head pivoted at one end to a swinging link attached to the table, and at the other to the main lever.

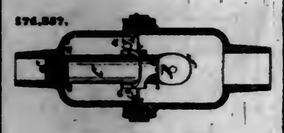


The table A, links C, lever B, links F, and secondary lever D, carrying cross-head E, one end of which is pivoted to the main lever, and the other end to the links, all combined and arranged for the purpose of receiving the crimping, stamping, and pressing devices, as described.

174,856. WASTE-WATER TRAPS. Jacob Rodermond, New York, N. Y., and Philip Corrigan, Bayonne, N. J. [Filed Dec. 13, 1875.]

Brief.—A waste-water trap or valve box constructed with lateral legs projecting upward and inward to the sides of the water-outlet pipe, and pivoted to the latter, which causes the valve to swing and shut by its own gravity, and without weights or springs.

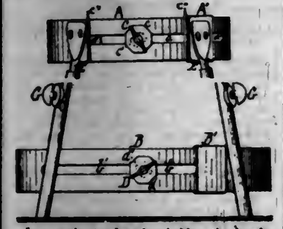
176,887.



In a waste-water trap, the valve D, constructed with the lateral supporting-lugs *f* pivoted to the sides of the outflow pipe or passage, the whole constructed and disposed substantially as herein described, whereby the valve is caused to close automatically by its own gravity, without the use of counterpoise, weights, or springs, as set forth.

176,888. BAG-HOLDERS. David S. Roush and Sebastian S. Sarver, Lobart Falls, Ohio. [Filed Sept. 9, 1875.]

Brief.—A bag-holder provided with standards, to which are attached upper and lower bands, adjustable laterally and vertically, to accommodate bags of different heights and widths.



In a grain-stand or bag-holder, the bands A B, having slots *a a'* and *b b'*, thumb-screws C D, nuts *c' d'*, pins *e' e'*, legs E F, and thumb-screws G G, the whole constructed and arranged to operate substantially as described.

176,889. DENTAL PLATES. Quincy A. Scott, Pittsburg, Pa. [Filed Mar. 4, 1876.]

Brief.—The flexible air-cup or retainer is formed with a lug upon its outer side, which lug enters a recess in the plate, and is riveted therein. The metallic retaining device is, therefore, located where it cannot come in contact with gums.



1. Removable flexible retainers attached to dental plates, substantially as described, whereby the device used in attaching them shall not come in contact with the gums or jaw.

2. The flexible atmospheric plates or retainers, made in forms, and provided with lugs or tenons, for the purpose and substantially as described.

3. The leads or soft-metal plates, cast or made in forms, and provided with tenons, for the purpose and substantially as described.

4. The dental plate provided with sockets, in combination with the atmospheric retainer, having a tongue or lug adapting it to be secured in said socket, substantially as described.

5. The atmospheric retainer, having a tongue or lug fitting within a corresponding socket in the dental plate, in combination with the transverse retaining pin or fastening, substantially as and for the purpose set forth.

176,890. AIR-COMPRESSING APPARATUS. Wm. D. Seal, Washington, D. C. [Filed Feb. 28, 1876.]

Brief.—There are two air-compressing chambers, the larger being stationary, the other movable, and pivoted on a union-joint, which forms a means of communication between the chambers.

176,890.



1. The combination of the air-compressing stationary chamber A, connecting with the moveable chamber B by means of the hollow union-joint at J, and flexible tubes I and D, substantially as set forth.

2. In combination with the air-compressing chambers A and B, the lever S, weight E, and hollow pivot L, all combined and arranged substantially as set forth.

3. In combination with the air-compressing chambers A and B, the hollow union-joint encircling-pivot L, substantially as set forth.

4. In an automatic air-compressing apparatus, the cocks J and G, connected substantially as shown, and operated by means of the movable air-compressing chamber B and the weight E, as described.

5. The cock J and vent J', connected with the lever S, as shown, and operated by the movement of said lever on its pivot L by means o the movable air-compressing chamber B and the weight E, as described.

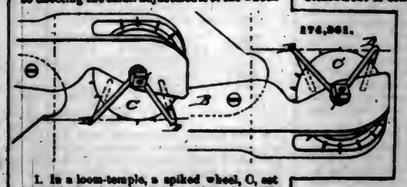
6. The regulator-valve K, cock J, vent J', flexible tube I, and movable air-compressing chamber B, combined and operating together substantially as described.

7. The combination of the self-regulator valve K, weight M, lever N, flexible diaphragm O, valve-rod P, and valve R, in connection with the movable air-compressing chamber B, all arranged, combined, and operating together substantially as set forth.

176,891. LOOM-TEMPLES. Thomas Bottie and David Carruthers, Philadelphia, Pa. [Filed Jan. 15, 1876.]

Brief.—The spiked wheel is set at an angle in the end of a lever, and is overreached by a couple of prongs, which extend down under the selvage, and direct it upon the wheel. The lever is adjustable, and secured in position by pins in holes in a rear flange of the base-plate, so effecting the small adjustments of the wheel.

176,891.



1. In a loom-temple, a spiked wheel, C, set in an inclined position, in combination with one or more prongs, D, substantially as described.

2. The plate A, with perforated flange *d*, the pivoted plate B, with twisted outer end, the spiked wheel C, and one or more prongs, D, all combined substantially as described.

176,892. TRUSSES. Edwin R. Chadwick, Olean, N. Y. [Filed Mar. 4, 1876.]

Brief.—A recess is made in the pad, for receiving the intestine when protruding through the hernial ring.

The improved hernial reservoir herein described, having the cavity B enlarged at the lower edge of the opening, and so constructed that the gut will incline downward or fall into the cavity below the angular edges *a b*, substantially as and for the purpose set forth.

176,893. CIGARETTE-FORMERS. Al B. Shaw, Medford, assignor to Martin W. Carr and Hiram W. Brooks, Boston, Mass. [Filed Feb. 26, 1876.]

Brief.—The case is hinged at the bottom to permit it to be opened and closed, and an apron is drawn through the case to bench the tobacco, and wind the wrapper upon it.

The combination of the former *a a'*, provided with the thick edges A, and bars *b b'*, and the straight ribbon *d*, having rods *e e* inserted, all substantially as and for the purpose herein set forth.



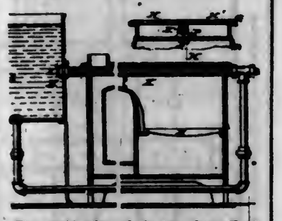
176,894. WINDOW-SCREENS. C. B. Sheldon, Brooklyn, N. Y. [Filed Aug. 27, 1875.]

Brief.—The novelty consists in the manner of forming the portions of the frame, which slide upon each other.

A window-screen consisting of the side bars C C, top and bottom bars A and B, rabbeted as at D, the upright bars E E', grooved to fit over the rabbeted top and bottom bars, and elastic band F, attached to the bar E', and to the projecting bar H on the bar E, as and for the object specified.

176,895. RANGES. Nathaniel M. Simonds, St. Louis, Mo. [Filed Jan. 14, 1876.]

Brief.—The top plate is supported by the water-pipe.

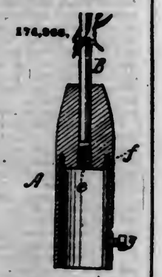


The combination of the top plates H H' and bearing water bar or pipe K, substantially as and for the purpose set forth.

176,896. WEATHER-VANE ATTACHMENTS FOR LIGHTNING-RODS. Charles H. Smith, Chicago, Ill. [Filed Dec. 3, 1875.]

Brief.—A cap for lightning-rods, provided with a pin for weather-vanes, and means of attachment to solid and to tubular rods.

176,896.

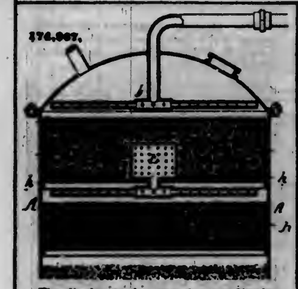


1. The cap A, provided with the interior screw-thread *c* and pivot-pin B, substantially as described.

2. The cap A, provided with pivot-pin B, projection *f*, and thumb-screw *g*, substantially as set forth.

176,897. RECUTTING APPARATUS. Joseph C. Smith, Philadelphia, Pa., assignor of one-half his right to George W. Middleton, same place. [Filed Feb. 21, 1876.]

176,897.



The diaphragm A, separating two filtering-chambers within a casing, A, and provided above with a central perforated casing surrounding a chamber, E, which communicates with a perforated distributer below the diaphragm, substantially as set forth.

176,898. BLASTING-CARTRIDGES. Friend W. Smith, Bridgeport, Conn., assignor to Paul A. Oliver, Wilkesbarre, Pa. [Filed Dec. 14, 1875.]



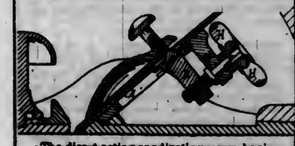
The within-described blasting-cartridge, consisting of the case A, of muslin or other similar material, having its bottom protected by the exterior metal cup E, the rigid plug D in the mouth of the same, the fuse-pipe B, passing through said plug, and the fuse C, all as herein set forth.

176,899. TUYERES. Milton Spidle and Herman Holmes, Woodbury, Pa. [Filed Jan. 22, 1876.]

The conical tuyere A, formed of two conical shells, with an annular water-space between them, in combination with the extension O, provided with the projections *e*, having screw-threaded holes, and with an annular water-space, forming a continuation of the water-space in the main tuyere, said parts being secured together by means of the long rods *b* lying in the water-spaces, substantially as and for the purpose set forth.

176,900. CARPENTERS' PLANES. Elliot G. Storke, Auburn, N. Y. [Filed Feb. 7, 1876.]

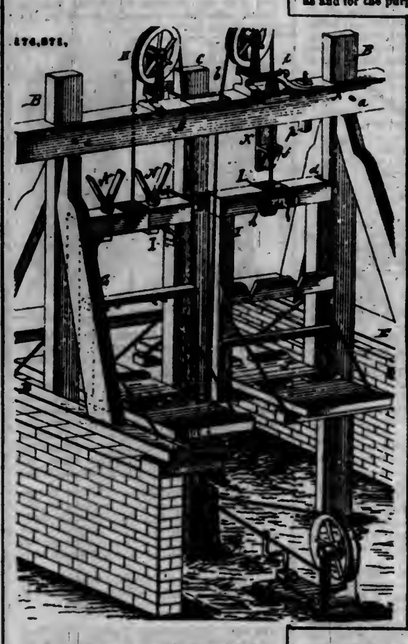
Brief.—The plane-bits are adjusted by a single direct-acting screw, operating through the medium of the cap-plates of the double irons.



The direct-acting or adjusting screw, having a thumb-wheel formed with lever-arms, as described, in combination with the bed-plate, having an elongated shank-bearing, and the sliding socket-plate, having an elongated shank-slot, all substantially as and for the purposes shown and set forth.

176,901. ELEVATORS. J. B. Sweetland, Pontiac, Mich. [Filed Feb. 21, 1876.]

176,901.



1. In an elevator-frame, the combination of the horizontal adjustable beam A, the vertical end guides E E, passing through said beam, and the vertical center guide C, passing through a loop, D, on one side of the beam, substantially as and for the purposes herein set forth.

2. The combination of the beveled bars E E, braces G G, vertical end guides E E, and the horizontal adjustable beam A, all constructed substantially as and for the purposes herein set forth.

3. The combination, with the beam A, of the angular lever K, pivoted to a plate or casting on said beam, the depending hook *f*, having a slot for the passage of the rope *h*, the spring *e* under the lever, and the platform-frame I, all constructed substantially as and for the purposes herein set forth.

4. The combination of the plate L, with studs *h*, and clamping-plate M, all grooved as described, for the purposes herein set forth.

5. The combination of the platforms, hoisting-rope *h*, pulleys H H, jack O, with pulleys *i i*, and adjustable horse-jack P, with set screw *n*, substantially as and for the purposes herein set forth.

176,902. MACHINE-GUNS. James P. Taylor, Elizabethton, assignor of one-half his right to John Baxter, Knoxville, Tenn. [Filed Jan. 11, 1876.]

1. The oscillating feed-valves constructed with fluted concave or beveled upper parts 74, as and for the purpose set forth.

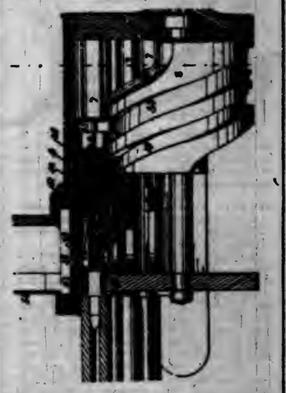
2. The combination, in a machine-gun, of a reciprocating lock or plunger and a pair of oscillating valves constructed and operating, substantially as herein described, to receive a cartridge from a feeding device above at one stroke and discharge the empty shell at the other stroke, and with supporting wings or flanges 74 at top to sustain the next successive cartridge while the bottom is opened to discharge the empty shell.

3. The combination, with the feed-valves, of the springs 73, for supporting the point of the cartridge.

4. The combination of the sliding locks or plungers, the oscillating valves, and the tappets or projections for operating said valves, substantially as set forth.

5. The cartridge-extractor 63 64 and sliding cam-plate 67, combined to operate substantially as and for the purposes herein described.

176,903. MACHINE-GUNS. James P. Taylor, Elizabethton, assignor of one-half his right to John Baxter, Knoxville, Tenn. [Filed Sept. 10, 1876.]



1. The combination of a set or series of barrels, arranged in the arc of a cylinder, a corresponding set of valves for supplying cartridges to said barrels from a hopper, a revolving cam-cylinder and a set of reciprocating plungers for transmitting motion from the cam-cylinder to operate the valves and to load the barrels, substantially as herein set forth.

2. The recess 57 in the cam-groove 16 to permit the retracting of the plungers to a point which enables their removal, as described.

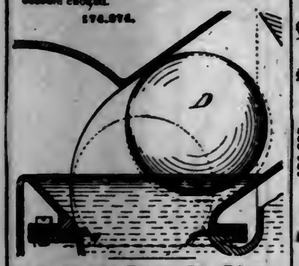
3. The adjustable hopper-front for adapting the hopper-throats to suit blank cartridges, as described.

4. The hopper-floor, adjustable to suit blank cartridges, as described.

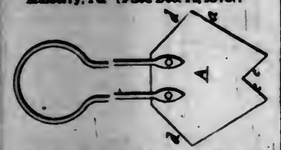
176,874. FLOAT-TRAPS. Alfred H. Thorp, New York, N. Y. [Filed Feb. 5, 1876.]

In a fluid-trap, the part C, having an inclined pipe, *a*, in combination substantially as described, with the vertical pipe, for the reception of a ball-valve, in combination with the part B, whereby the valve is rendered more sensitive and less liable to become choked.

176,874.



176,875. HAT-KNIVES. Peter Trimmer, Mulberry, Pa. [Filed Dec. 14, 1875.]

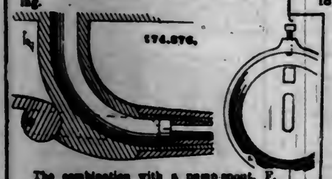


The blade A, having the long inclined cutting-edge *a a* and bottom inclines *c c*, which form points *b b*, and connected to the handle B C, substantially as set forth.

176,876. HOSE-COUPLINGS. Hiram Tyler, Genesco, N. Y., assignor of two-thirds his right to Underhill Dann and E. H. Curtiss, same place. [Filed Jan. 22, 1876.]

Brief.—The hose, when clamped between the two coupling-pieces, extends above the inner wedge-piece far enough to form a packing.

176,876.



The combination with a pump spout, F, having offset *a*, of the hose C, interior tubular wedge E, exterior tapering shell A, links D D, and eccentric-lever E, all substantially as and for the purposes herein set forth.

176,877. PUMPS. Hiram Tyler, Genesco, N. Y., assignor of two-thirds his right to Underhill Dann and E. H. Curtiss, same place. [Filed Dec. 28, 1875.]

Brief.—The cylinder is provided with a valve at each end, either one or both of which may be used, as required. When used as a submerged pump—that is, force and lift—the top valve only is to be used, and a small leak is to be made in the pipe below the reach of frost; otherwise the water would stand in the pipe, so the pressure is on the top valve, and therefore cannot run down, although the piston-rod is not packed. When used as a suction-pump and as a non-freezer, only the lower valve is used. The pressure is then in the cylinder, and if the piston-rod is not packed, the water will be slowly forced out around the rod through the packing-box.

1. The combination of the head D, valve-seat C placed therein on a bevel, and forming the suction-chamber B, the packing-ring *a*, and pump-cylinder A, all constructed substantially as and for the purposes herein set forth.

2. The combination of the cylinder A, cover G', top valve B, and top cover G, forming a reservoir, substantially as herein shown and described.

3. The vent-screw E, having a grooved stem, *b*, and shoulder *d*, in combination with the air-chamber J, as set forth.

4. The bottom S, provided with the chamber Y, constructed as described, in combination with the cylinder A and the moving bucket attached to the rod *h*, as and for the purposes set forth.

176,877.



176,878. PUMPS. Hiram Tyler, Genesco, N. Y., assignor of two-thirds his right to Underhill Dann and E. H. Curtiss, same place. [Filed Dec. 14, 1876.]

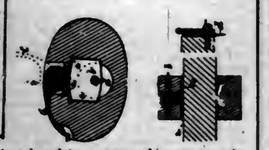
Brief.—Two short lugs catch under a flange upon the upper edge of the top, together with a set-screw, which also catches under the same flange, and fastens it in place. Upon the frame, on its under side, are two flanges, through which holes are made to receive the headed loose pins, which project below, and open the valves by striking against the bucket.

1. The frame *o*, provided with interior flange, through which are passed the headed loose pins *i i*, in combination with the frame *c*, the packing interposed between the frames *o c*, and the hinged valves *d d*, all secured on the rod G, substantially as and for the purposes herein set forth.

2. The cap D, provided with flanges *r r*, and set-screw *s*, in combination with the top B, and its rim, for the purpose specified.

176,879. CARPENTERS' GAGES. John Vetterlein, Plainfield, N. J. [Filed July 20, 1875.]

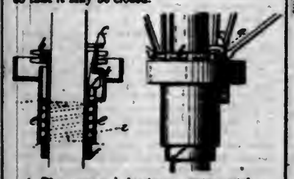
176,879.



A spring-plate, *a*, arranged in grooves *o*, in combination with the handle A, guide-block B, and cam-lever C, the whole arranged to operate in the manner substantially as and for the purposes set forth.

176,880. UMBRELLAS. Thos. W. Warfield, Baltimore, Md. [Filed Aug. 26, 1875.]

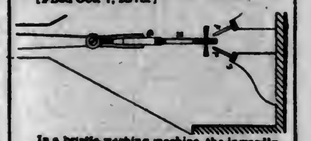
Brief.—When the tip-cap is drawn down its cam impinges upon the cam of the spring-catch, and thereby unlocks the umbrella-frame, so that it may be closed.



1. The runner *h*, having a spring-catch, *e*, provided with a cam, *j*, tip-cap B, having cam *i* and the spring *l*, and staff-staple *c*, all combined and arranged to operate substantially as described and for the purpose stated.

2. The tip-cap B, provided with an interior cam, *k*, in combination with the cam *j* of the spring catch *e*, as described.

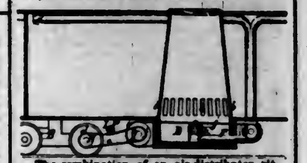
176,881. BRISTLE-CLEANING MACHINES. James Webb, Baltimore County, Md., assignor to William Wilkins, same place. [Filed Oct. 7, 1872.]



In a bristle-washing machine, the inwardly-inclined teeth *d* and comb-bases G, combined as described, and constituting a fixed comb, for the purpose specified.

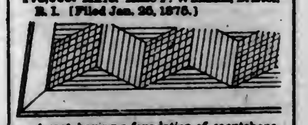
176,882. REFRIGERATOR-CARS. James H. Wicken, New York, N. Y. [Filed Feb. 4, 1876.]

Brief.—Ice fed into top, and feeds down into box below the level of the floor; air drawn from top of car, and forced upward through ice, and out at bottom of the feeder.



The combination of an air-discharger, situated in the ice-chamber below the bottom of a railroad-car, with an ice-feeder extending up through the interior of the car, and with an air-forcing and suction blower situated below the bottom of the car, and driven from one of the car-axles, all constructed and operating substantially as set forth.

176,883. MATS. Isaac F. Williams, Bristol, R. I. [Filed Jan. 26, 1876.]



A mat having a foundation of caoutchouc, or a compound thereof, and wearing-surfaces, one or both of which are composed of numerous pieces of textile fabric, arranged with relation to each other after the manner of inlaying, and united to the foundation by vulcanization, substantially as described.

176,884. PIANO-FRAMES. A. D. B. Wolf, Paris, France. [Filed Dec. 23, 1875.]

Brief.—The grooves in the sides of the pin-holes prevent any turning of the wooden bushings under the stress of the pins.



The metal frame A, having openings *a*, grooved longitudinally, and filled with wood, for the reception of the tuning-pins, as set forth.

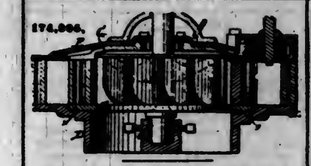
176,885. WATER-WHEELS. A. N. Wolf, Allentown, Pa. [Filed Feb. 21, 1876.]

Brief.—The lower rim of the inside register rests upon a series of balls placed in an annular concentric groove made in the bottom of the casing, and said lower rim of the register fits in a recess in the casing, as shown, so that the bottom of casing and register will be flush or level with each other.

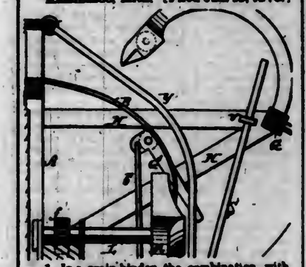
1. The casing D, having in its bottom an annular recess, in combination with the register G, which rests in said recess with its top flush with the casing, such as set forth.

2. The friction-balls *c*, in combination with the casing D and register G, for the purposes set forth.

176,886.



176,886. GRAIN-BINDERS. E. Woodbury, Kalamazoo, Mich. [Filed Jan. 15, 1876.]



1. In a grain-binder, the combination, with the vertically-operating cross-head D and braces H H attached thereto, of the rocking shaft G, wire arm J, straight rod I, and swivelled or pivoted guide *d*, substantially as and for the purposes herein set forth.

2. The pivoted and bent rods S S, and the cross-bar P attached thereto, in combination with the braces H H and perforated cam *v o* projecting therefrom, substantially as and for the purposes herein set forth.

3. The toothed or corrugated jaws P P, hung centrally upon the ends of a wire spring, O, substantially as and for the purposes herein set forth.

4. The toothed or star-shaped cutter R, in combination with the centrally-hung jaws P P, and spring O, as and for the purposes herein set forth.

5. The rotating twister M, constructed with convex or conical faces, slot or opening *y*, screws *h h'*, spring *i*, and hook *z*, as and for the purposes herein set forth.

6. The combination of the rotating tube L, twister head M, screws *h h'*, and spring *i*, all substantially as and for the purpose therein set forth.

7. The rod K, with loops *m*, axis *n n*, and spring *p*, in combination with the tube L and head M, all constructed substantially as and for the purpose herein set forth.

176,887. POTATO-DIGGERS. P. A. Wuestig, Blue Island, Ill. [Filed Feb. 16, 1876.]

Brief.—A share raises the potatoes from the soil, and they are separated therefrom by a series of rakes placed reservedly, at increasing angles, and increasing frequency of teeth.



The combination in a potato-digger, substantially as described, of the rakes or harrows E E' E'', arranged at varying angles and connected by flexible straps to the land-sides B B, inclining a shovel, A, and the inclined bars *d*, substantially as and for the purpose set forth.

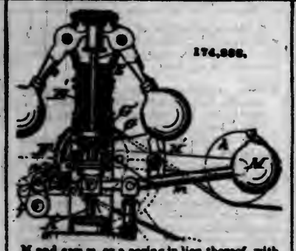
176,888. GOVERNORS FOR STEAM-ENGINES. William Yates, London, Canada. [Filed Jan. 12, 1876.]

1. The divided or two-part valve-rod A' L, connected by a clutch or key, K, under control of tripping mechanism bearing on the driving-belt, substantially as herein set forth.

2. The combination of the stem L A', yoke K, rocking crank-shaft I J J', connecting-rods *a a'*, sleeve H, adjustable arm H', and idle pulley A, with the driving-belt O, governor E *e*, and customary connections F f G G' E', substantially as and for the purposes set forth.

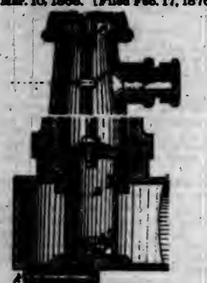
3. The combination of the counter-weight M and arm *m*, or a spring in lieu thereof, with the divided valve-rod A' L, connecting-fork or clutch K, slide-valve A, and chamber B *b*, as and for the purposes specified.

176,888.



REISSUES.

6,000. HYDRANTS. Thomas B. Bailey, Jr., Lockport, N. Y. Patent No. 75,944, dated Mar. 10, 1868. [Filed Feb. 17, 1876.]



1. In combination with a hydrant or fire-plug, a detached and surrounding casing, C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown.

2. In combination with a hydrant or fire-plug pipe, A, the supply-pipe B, and cylinder-valve and waste-valve, connected and operated substantially as herein shown and described.

3. The combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown.

6,001. WINDMILLS. Allen S. Baker and Caleb Snowball, Evansville, Wis. Patent No. 150,275, dated Apr. 26, 1874. [Filed Mar. 1, 1876.]

Brief.—As the force of the wind increases, the wind-wheel, with its shaft, and shaft-cover, and dome-cover, is forced backward until the end of the slot next to the wind-wheel presses against the stud.

1. A windmill, in which the initial lateral movement of the wheel out of the wind is effected automatically by the force of the wind tipping the wheel backward.

2. In a windmill, the combination of the shaft-support and shaft-cover, with a dome or cover supported by said parts, and arranged over the central opening of the mill, to protect the working parts beneath from the elements.

3. The combination of the mill-head support O G', wheel and shaft I H, cover J, and dome I', substantially as and for the purposes set forth.

4. The combination of the slotted dome I', attached to the mill-head, and the stud A, attached to an arm extending from the tail-vane, substantially as and for the purposes set forth.

5. The combination of a gear-rim attached to the mill-head, and having cog-teeth at its lower edge, with an independent toothed segment gearing therewith, and with a chain or cord, T, extending from the segment to the tail-vane, substantially as and for the purposes described.

6. The combination of a hand device, W V, for drawing the wheel around, with the segment R, and a gear-rim toothed around its lower edge and fixed to the mill-head substantially as and for the purposes described.

7. The combination of the weight S with the segment R, the gear-rim toothed around its lower edge and gearing with the segment, and the wind-wheel and its support, substantially as and for the purposes described.

8. The combination of an elongated and downwardly-extending support and axis, F, for the tail-vane, and an elongated and downwardly-extending support and axis, G, for the mill-head, one arranged within the other, and a suitable centering and supporting bearing surrounding the outer one, and in which they both work, substantially as described.

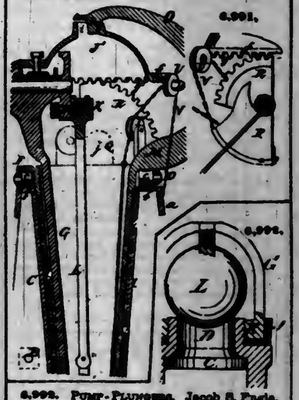
9. The combination of friction-rollers *o o*, with a shouldered bearing and supporting-plate, and with an elongated and downwardly-extending tubular support and axis, F, for the tail-vane, whereby the tail-vane is centered by its tubular portion extending down in the bearing, and is supported by the friction-rollers resting and working on the horizontal shoulder or surface of said bearing-plate, substantially as described.

10. The combination of a practically-tubular bearing with an elongated and practically-tubular axis for the tail-vane, and an elongated axis for the mill-head, one of said axes working within the other, and with a loose-revolving ring, D, connected with a set of friction-rollers, *o o*, substantially as and for the purposes described.

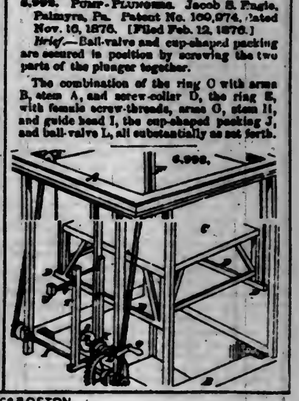
11. The combination of the elongated and tapering tubular bearing C, the elongated and tapering tubular axis F, and the elongated and tapering axis G, substantially as and for the purposes described.

12. The combination of the parts U F O G with the wheel and shaft H I, and the jointed pitman L, extending from the wheel-shaft down through, and guided by, an aperture in the lower end of the parts F G, substantially as described.

6,001.



6,002.



6,002. PUMP-PLUNGERS. Jacob S. Fagle, Palmyra, Pa. Patent No. 160,074, dated Nov. 16, 1876. [Filed Feb. 12, 1876.]

Brief.—Ball-valve and cup-shaped packing are secured in position by screwing the two parts of the plunger together.

The combination of the ring C with arms B, stem A, and screw-collar D, the ring E, with female screw-threads, arms C, stem H, and guide-head I, the cup-shaped packing J, and ball-valve L, all substantially as set forth.

6,002.



6,890. ELEVATORS. Philip Hinkle, San Francisco, Cal. Patent No. 155,205, dated Sept. 22, 1874. [Filed Feb. 10, 1870.]

Brief.—The platform may be elevated above the pavement or sidewalk, for convenience in loading onto drays, &c.

1. The platform C, in combination with the frame D D and hoisting-ropes E attached thereto at the corners, so that the platform can be raised above the level of the pavement A, substantially as set forth.

2. In an elevator, the pulleys G G and G' G', the latter provided with secondary grooves and the four ropes E, in combination with the drum H, the whole constructed to operate substantially as set forth.

3. An elevator consisting of the platform C, elevating-ropes E, pulleys G and G', in combination with the drums H, shaft I, and driving-shaft L, said drums and shaft being capable of removal to a distance to one side of the elevator, substantially as herein described.

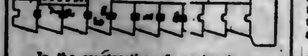
6,894. FIRE-PROOF BUILDINGS. P. H. Jackson, New York, N. Y. Patent No. 147,006, dated Feb. 3, 1874. [Filed June 26, 1874.]



1. The perforated sheet metal having place portions B and ridges B' adapted for matching against the thimbles C, and supporting the fastening E a, as herein specified.

2. The mortar E a, sheet metal B B', non-conducting thimble C, and sheet fastening D, arranged relatively to each other and to the wall or girder, as and for the purposes herein set forth.

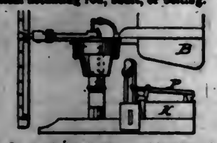
6,906. WOODEN HOUSES. Joseph R. Perry, Williamsburg, Pa. Patent No. 154,166, dated Aug. 18, 1874. [Filed Jan. 26, 1876.]



In the construction of wooden houses, a self-sustaining wall composed of the horizontal timbers E, provided with tongues and grooves I F, substantially as and for the purpose set forth.

6,906. WINDMILLS. Geo. A. Swartz, Twin Grove, assignor to the Eclipse Windmill Company, Beloit, Wis. Patent No. 157,111, dated Mar. 23, 1873. [Filed Mar. 1, 1875.]

Brief.—The wheel and shaft mounted upon a separate frame, swinging upon and independent of the vane-frame or turn-table; also, an open center head, adapted to the direct connection of the horizontal wheel-shaft with the vertical actuating rod, shaft, or belting.



1. In a windmill, the combination of the open mill-head, with the wheel-shaft and tail-vane swinging upon separate and independent supports, for the purposes herein set forth.

2. In a windmill, the combination of the wheel and its shaft upon a separate frame swinging upon and independent of the turn-table carrying the vane, with a suitable power-applying device extending vertically through the open center of the mill-head, and connected to the horizontal shaft, substantially as and for the purposes set forth.

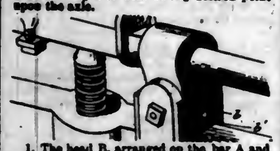
3. In a windmill, the combination of an open mill-head, a tail-vane on a suitable support, a wind-wheel on a support capable of swinging independently of the tail-vane, and a wind-wheel shaft extending to or over the central opening of the mill-head, for the purpose of enabling the power-applying devices to be connected directly to the wheel-shaft in line with the axis of rotation of the mill, substantially as described.

4. The combination of the turn-table A with vane B and arms C D, ring or collar E, with frame G, carrying the shaft H and wheel I, ropes a b, and pulleys *d d* and *e e*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

5. The combination of the rack K, lid L, with projection *i*, lever P, hook A, and weighted lever J, all substantially as and for the purposes herein set forth.

6,907. APPARATUS FOR SETTING METAL AXLES. Frederick Baer, Washington, D. C. Patent No. 171,349, dated Dec. 21, 1875. [Filed Mar. 6, 1876.]

Brief.—Metal axles that have become bent can be set by means of a metal bar of suitable form, provided at one end with a longitudinally-adjustable yoke formed of three hinged parts, and at the other with a longitudinally-adjustable head formed in two parts, the upper pivoted to the lower, and having an aperture to receive the end of the axle, and a screw operating through a threaded part of the bar between the yoke and head, and which can be brought to bear at any desired point upon the axle.

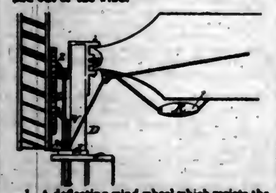


1. The head B, arranged on the bar A and provided with the hinged yoke C, consisting of the three hinged parts *c c' c''*, in combination with the head B', arranged on the bar A, and having an eye for the reception of the axle, and with the screw D passing through the said bar for bearing against the under side of the axle, while the hinged yoke and eyed head prevent vertical displacement, the whole being otherwise constructed, as set forth.

2. In combination with the bar A, provided with the screw D, the heads B and B', the latter being formed in two parts, the upper part being provided with an eye or aperture for the reception of the axle, and pivoted to the lower portion, in order to adapt itself to the axle when bent, substantially as herein set forth.

6,908. WIND-WHEELS AND GEARINGS. Geo. S. Oberdorff, Lower Windsor Township, York County, Pa., assignor to Eli G. Coe, Sandwich, Ill. Patent No. 157,704, dated June 11, 1875. [Filed Mar. 1, 1876.]

Brief.—The combination, with the wind-wheel and hinged or flexible tail-vane, of a weight of varying resistance, to counteract the deflection of the wheel, and to move it in and out of the wind.



1. A deflecting wind-wheel which resists the deflecting force in direct proportion to the amount of deflection.

2. The combination of a deflecting wind-wheel, a hinged or flexible tail-vane, and a weight of varying resistance, for the purposes herein set forth.

3. A windmill having its wheel, tail-vane, and working shaft or rod attached to a turn-post which stands eccentric to its vertical axis of rotation, substantially as and for the purposes set forth.

4. In a windmill, the combination of the solid vertical turn-post D with its fixed support, and with a working shaft or rod, or both, arranged outside of it and in line with its axis of rotation, substantially as described.

5. In a windmill having a revolving head or turn-post, a flexible or hinged tail-vane, and a weight of varying resistance, the transverse yard or cross-bar *a* in combination with the cords that operate the tail-vane, substantially as described.

6,909. REGENERATIVE COOKING-STOVES. Daniel Paris, Troy, N. Y., assignor, by mesne assignments, to Jos. S. Wilkinson, same place. Patent No. 76,620, dated June 9, 1868. [Filed Apr. 14, 1873.]



1. For the purpose of heating the reservoir only, a double flue between the oven and the reservoir, arranged to conduct the products of combustion downward in front of the back plate of a cooking-stove, and upward in rear of it, substantially as described.

2. A double-acting damper situated below or underneath the pipe-collar of a cooking-stove, having its base at or near the back plate of the stove, while its top part shall move from side to side of said pipe-collar, in combination with the reservoir in rear of and the double flue below said damper, substantially as described.

3. A pipe-collar to a cooking-stove, situated at one side or end of the stove, and over, or nearly over, a double smoke-flue, and in combination therewith, said pipe-collar being placed to receive the currents from either flue, as the damper below is shifted from side to side of said pipe-collar, substantially as described.

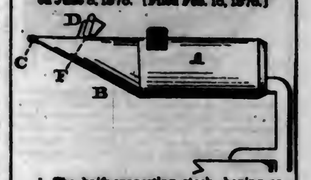
4. In combination with a water-reservoir, two flue-dampers, both situated at one side or end of a cooking stove or range, and arranged to produce, or capable of producing, the results substantially as described.

5. The combination, with a water-reservoir located in the rear of the rear flues of a diving-flue cooking-stove, having the pipe-collar in front of the reservoir, of a damper or dampers, substantially as described, whereby the gases of combustion in their passage from the fire-box to the smoke-pipe are controlled so that they can be made to pass down in the rear of the oven only, and return to the exit-passage through a flue or auxiliary hot-air chamber, thereby heating the rear of the oven and the water-reservoir without passing under the oven.

6. A damper or dampers located in and in combination with the rear upright flue or auxiliary hot-air chamber, for controlling apertures in the division-plate, which, when open, will cause the gases of combustion, in their passage from the fire-box to the smoke-pipe, to pass down in the rear of the oven only, and return upward to exit-passage, thereby heating the rear of the oven and the water-reservoir with a direct draft, without passing under the oven, substantially as described.

7. The combination, with a water-reservoir, located in the rear of the rear flues of a diving-flue cooking-stove, having the pipe-collar in front of the reservoir, of a damper or dampers, substantially as described, whereby the currents of heated air or products of combustion are reversed from a downward to an upward motion, in the rear vertical flue or flues, or auxiliary hot-air chamber, for the purpose of heating the rear of the oven and the lower or front wall of a reservoir by direct draft from the fire-box to the pipe collar, without heating the bottom of the oven.

7,000. SUTTON-REVERS. G. St. George, Jr., Philadelphia, Pa. Patent No. 104,260, dated June 8, 1870. [Filed Feb. 16, 1876.]



1. The knife-supporting stock, having an advance point or guide, *c*, substantially as and for the purposes set forth.

2. The knife D, fixed to the holder B, in combination with the stock A, supporting the said holders, substantially as and for the purpose set forth.

3. The conical portion E, formed with tongues *a a*, in combination with the slit-stock A, substantially as and for the purpose set forth.

4. A stitch-ripping knife, rendered adjustable relatively to the conical point of the supporting stock, for the purpose set forth.

5. The guard-lips F, in combination with the knife, substantially as and for the purpose set forth.

HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & Co BOSTON

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COMMISSIONER'S DECISIONS.

C. H. DAVIS.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of C. H. Davis for reissue of Letters Patent, No. 95,004, September 21, 1869, for* "IMPROVEMENT IN BOX-LOOPS FOR CARRIAGE-TOPS."]

Where a device claimed—though similar in form to a reference cited—is of more simple construction, less expensive material, dispenses with a feature essential to the reference cited, and differs in its mode of attachment: *Held*, that a patentable difference exists.

DUELL, *Commissioner:*

In his patent the applicant shows and describes a "box-loop" or keeper to confine the ends of straps, and to be used in carriage-tops, consisting of one piece of sheet metal, either cast or struck up, with a series of lugs or prongs upon its lower edges, which prongs or spurs are designed to pass through openings in the carriage-top, and also through openings in a metal stiffening-plate placed upon the under surface of the leather, and then to be bent down or clinched upon the metal plate.

This loop is made to take the place of the leather loop, and the use of the metal prongs is to produce a secure and easily-adjustable fastening for the loop, and at the same time dispense with the use of stitches, rivets, and screws.

His present claim is for—

The box-loop A, formed out of thin plate-metal, as described, with the lugs or spurs H projecting therefrom to affix it to a carriage-top, either with or without the plate C, substantially as and for the purposes specified.

The reference given by the Examiner is the patent of J. E. Ball, No. 20,246, for improved means of attaching the traces to the draft-plates of a harness. Ball shows and describes a heavy metallic plate covered with leather, and attached to the draft of the hame, upon which are placed two metallic loops or keepers—one a small loop on the end of the plate nearest the hame to hold the free end of the trace, and the other a larger loop near the opposite end of the plate, provided with a groove and stop to receive and secure a tapering wedge or key. These loops have prongs on their edges, which are passed through slits in the plate and riveted or clinched, in some way not described, to the under side of the draft-plate. The trace is represented as being first pushed through these loops, and then secured to the draft-plate by means of the wedge inserted in the larger loop. The wedge has projections on its under side to fit into corresponding holes of the strap.

As far as the loop itself is concerned, the Examiner says that both the applicant's and those of the reference "are of metal, both have the regular keeper-shape, both are shouldered and pronged, and riveted to an underlying base-plate of metal."

Ball does not describe how he clinches his prongs, and his model is lost; but the Examiner and the applicant both appear to admit that he necessarily rivets them; but applicant denies that his prongs are riveted. On the contrary, that they are thin and flat and can be easily bent over with the fingers, constitutes an essential difference in construction, he contends, between his and Ball's device.

Ball does not claim the loop *per se*; but, on the contrary admits his style of loop to be old, as well as each of his other features; but his claim rests upon the combination of the several features, so that he could not validly claim in a reissue his particular form of loop, as the Examiner intimates.

Davis also contends that Ball's loop is old; but that his is an improvement thereon. He insists that the two devices are for such different purposes that they necessarily require different material and substantial difference in construction. Ball's device being so placed as to be liable to great strain and wear, the heavy metallic draft-plate becomes necessary, and the prongs of his loop must be correspondingly heavy, and be riveted to the plate. Applicant's device is simply a piece of thin sheet metal struck up, with prongs on its edges, resembling the *form* of Ball's loop as shown in the drawing; but as the heavy metal draft plate and the riveting are dispensed with, it is substantially different in nature and operation.

It is quite apparent that applicant's device could not be used in a trace in place of Ball's.

The length of the loops has nothing to do with the question. The only thing to be determined is whether the changes in adaptation and construction between the reference and this application are sufficient to constitute invention.

This is mostly a matter of evidence, and all doubts should be resolved in favor of the inventor, especially in upholding a patent.

As I have already said, the form of Ball's loop, as shown by his drawing, is similar to that of applicant's, and it is quite possible that a skilled mechanic from seeing Ball's drawing could construct applicant's device. But the purpose to which the latter is to be applied being different, requiring a simpler and less expensive mode of construction, different material, and the dispensing with an essential and expensive feature of the reference, that, with the loss of Ball's model, and the lack of description in his specification relating to the prongs and mode of fastening the same, a doubt is created in my mind as to Ball's patent being a sufficient and satisfactory reference, and I think Davis should have the benefit of that doubt.

The decision of the Board of Examiners-in-Chief is therefore reversed.

DUNDAS DICK & CO.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Dundas Dick & Co., for the registration of a Trade-Mark for* MEDICAL PREPARATIONS.—*Decided March 8, 1876.*]

A word that is merely descriptive and used in its ordinary signification cannot be registered as a trade-mark.

An exclusive use can never be successfully claimed of words in common use, previously applicable to similar articles.

No property can be acquired in words, marks, or devices that denote only the nature, kind, or quality of the articles to which they are applied.

DUELL, *Commissioner:*

Applicant seeks to register the following symbol as a trade-mark applied to drugs and medicines made by him:

D. D. & Co.
Tasteless.

The letters D. D. & Co., have been recently added as an amendment—the word "Tasteless" originally comprising the whole of the proposed trade-mark.

This word was rejected both by the Examiner and the Acting Commissioner, on the ground that it was purely descriptive and used in its ordinary signification; that it could not be considered in this case as a word arbitrarily chosen; and that it was either descriptive or untrue. "An exclusive use," it was said, quoting from *Wolfe* vs. *Goulard*, (Cox's Am. Trade-Mark Cases, 229,) "can never be successfully claimed of words in common use previously applicable to similar articles."

I agree with the views of the Examiner and Acting Commissioner on this point, to which may be added the opinion of the court in the case of *Stokes* vs. *Landgraff*, (17 Barb., 608,) reiterating the doctrine established in the case of *The Amoskeag M'nf'g Company* vs. *Spear*, (2 Sand. Sup. Ct. R., 599.) "In respect to words, marks, or devices, which *do not denote the goods or property*, or particular place of business of a person, but only the nature, kind, or quality of the article in which he deals, a different rule prevails—no property in such words, marks, or devices can be acquired. There is obviously no good reason why one person should have any better right to use them than another. They may be used by many different persons at the same time in their brands, marks, or labels on their respective goods with perfect truth and fairness. They signify nothing, when fairly interpreted, by which any dealer in a similar article could be defrauded."

If this word had been applied to other classes of merchandise, such as cloths, crockery, &c., there would be some reason for regarding it as a fanciful term; but when applied to medicines it signifies a very desirable quality therein. It is a representation that would have controlling weight with a great majority of purchasers.

A few traders, like the two whose affidavits have been filed in this case, may have, by experience, been undeceived as to applicant's purpose in the use of this word; but not so with the general public.

The case of "Davis' Pain Killer" is cited and relied upon by applicant in support of his position. But in that case the court treated the word as a *label* indicative of the *nature of the compound*.

Said the court—"Trade-marks may be, first, the name of the maker; second, symbolical; third, the name of the compound. Of this last kind is the trade-mark of the plaintiff, Pain Killer." (*Davis* vs. *Kendall*, Am. Trade-Mark Cases, 112.) Under the law as it then stood more labels were protected as trade-marks. Under the present law, the word "pain-killer" could be registered as a label, and not as a trade-mark, and so with other words denoting quality.

There is no escaping the fact that this word is a mere label, or is deceptive. Any one has a right to use this word, descriptive of the medicines he may make. But applicant, by a deceptive use of the word, seeks to put himself in a position to restrain others who may use it truthfully.

Further distinctions, illustrations, and arguments in support of the position here taken, are copiously set forth in Browne on Trade-Marks, sections 150–181 and 276.

I am unable to see how the objection to this word is obviated by associating it with the other elements that are unobjectionable. The latter have already been registered as a trade-mark; but that is of no importance, as this combination constitutes a new mark, as counsel for applicants allege, and, consequently, its elements must be considered on their own merits.

The decision of the Examiner of Trade-Marks is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF OHIO.

GEORGE WESTINGHOUSE, JR., *vs.* THE GARDNER & RANSON AIR-BRAKE COMPANY.

[*In Equity—Before Justice* SWAYNE, *and* WELKER, *Dist. Judge. Decided April*, 1875.]

In an action of infringement, where the defendant shows that devices claimed by him are valuable improvements upon the apparatus shown and secured to plaintiffs by patents, which facts are not disputed, it is *Held*, that if defendant used, in addition to such improvements of his own, the devices and apparatus of the plaintiff, he is guilty of infringement; and that such improvements will not justify the defendant in appropriating that which has been patented to others.

It is a legitimate and important function of a reissue to modify or change the claims of the original patent so as to cover the invention set forth therein.

The words "substantially as described," in the specification and claims, must necessarily be implied, and involve a reference to the specification and drawing, to prevent any misunderstanding of the scope and meaning of the claims.

[*George H. Christy*, and *W. Bakewell*, for complainant.
John Coon, J. J. Coombs, James Parsons, and *George Willey*, for defendant.]

OPINION OF THE COURT.

WELKER, *J.:*

This is a bill in equity, for injunction and account, filed by George Westinghouse, Jr., alleging infringement by defendant of certain patents for improvements in air-brake apparatus. Of these patents two are reissues, viz: No. 5,504, dated July 29, 1873, of original patent No. 88,929, granted to complainant April 13, 1869, and No. 5,506, dated July 29, 1873, of original patent No 115,667, granted to complainant June 6, 1871. Both of these are for improvements in steam-power car-brake apparatus. A third patent is for improvement in hose-coupling, granted to Barney Mee, on May 7, 1867, No. 64,437, and assigned to complainant.

Defendant filed one original and three supplemental answers. After the proofs were all in, the case was argued exhaustively, and at great length, by able and eminent counsel. The importance of the case, however, and the large interests involved, as well as the value of the invention itself to the patentee, and to the public at large, fully justified the elaborate discussion which the case received, and rendered necessary the careful consideration which we have given to it. The printed record covers about seven hundred and fifty pages; and nearly thirty patents and provisional specifications offered in evidence by the defendant on the issue of novelty and priority of invention, and not included in the printed record, were discussed at the hearing. On account of a pressure of other duties since the hearing, it is impossible for us now to do more than state generally and briefly the conclusions arrived at by the court.

1. The claims alleged to be infringed by defendant are claims 1 to 7 of reissue 5,504, the third claim of reissue 5,506, and claims 1 to 4 of the Mee patent.

The proofs in the case fully sustain the allegation of infringement, by the defendant, of each of three patents embraced in this suit.

The defendant claims to be protected in the manufacture of its air-brake apparatus by Letters Patent No. 133,847, granted to Gardner, Ranson & Martin on December 10, 1872, for improvement in steam-pumps, reissue No. 4,879 to J. W. Gardner of original patent, dated January, 23, 1872, for improvement in steam and air brakes, and patent No. 128,220, to Gardner & Ranson, dated June 25, 1872, for coupling valves for steam and air brakes. These devices are claimed by defendant to be valuable improvements on the apparatus of Westinghouse and Mee, as was ably argued by defendant's counsel; and while we are not disposed to dispute the ingenuity and utility of these devices, and particularly the defendant's apparatus for releasing the brakes, and which may be, and no doubt is, a valuable additional improvement, we are nevertheless of opinion that the air-brake apparatus, as constructed and used by defendant, although embracing these alleged improvements, does infringe the Westinghouse and Mee patents above referred to, and that these improvements will not justify the appropriation and use by the defendant of that which has been patented to others. The right granted under complainant's patents is exclusive, and the infringement clearly proven.

2. As to reissues 5,504 and 5,506, a second defense is that they are for substantially different inventions from those constituting the subject-matter of the original patents.

A comparison of the original and reissued patents satisfies us that this defense cannot be maintained. No material change has been made in the specifications of these patents; and the reissued claims are clearly warranted by the specifications of invention, as contained in the original patents. It is a legitimate and important function of a reissue to modify or change the claims of the original patent so as to cover the invention set forth therein.

3. Defendant also avers that the second and third claims of reissue 5,504 are void, for ambiguity. Read in the light of the specification and drawing, we fail to see any ambiguity such as would justify us in declaring them void on that account. This defense must also be overruled. The words "substantially as described" must necessarily be implied; and being so implied, they involve a reference to the specification, which is sufficiently clear to prevent any misunderstanding of the scope and meaning of the claims in question. (*Seymour* vs. *Osborne*, 11 Wallace, 547; *Mitchell* vs. *Tilghman*, 19 Wallace, 391.)

4. The issue of novelty was most vigorously contested. As already stated, nearly thirty United States and English patents, and English provisional specifications, were offered in evidence on part of the defendant, and voluminous expert testimony was taken with reference thereto.

Special attack was made on the fourth and fifth claims of reissue 5,504, the patents chiefly relied on being those of Walber, March 16, 1852; Goodale, May 30, 1865; Wright, January 16, 1855; Fullerton, December 29, 1868; Weeks, January 5, 1869; Carson, December 9, 1856; Harris, (English,) Nos. 216 of 1857, and 2,163 of 1861; DuTrembly & Martin, (English,) No. 1,737 of 1860, and provisional specification of Michael Siegrist, No. 2,015 of 1863.

We are satisfied that none of these patents or specifications can have the effect claimed for them by defendant. Some are later in date than complainant's invention, (even if otherwise sufficient;) some are too general, indefinite, and ambiguous in their descriptive parts to constitute an anticipation of that which the complainant has patented and introduced into general public use almost the world over, with most marvelous results in point of increased safety to life and property; and those that are clear and intelligible in their terms fall short in one or more material respects of containing the subject-matter of the claims referred to.

The same patents and provisional specifications, as well as a number of others, are relied upon by defendant as anticipatory of the first three and the sixth claims of reissue 5,504; and particularly among such additional references were the patents of Miller, January 2, 1855; Hollingsworth, (English,) No. 2,886, of 1853; McInnes, (English,) No. 2,594, of 1860, and Kendall, (English,) No. 3,083, of 1864. As to all of these in their

bearings on the claims last above referred to, our opinion is the same as above stated. They go to show that Westinghouse was not the first to conceive the idea of operating railway-brakes by air-pressure, and that he was not the inventor of the larger part of the devices employed for such purposes. But such fact does not detract at all from his merit or rights of a successful inventor. The organisms covered by the fourth and fifth claims of his patent reissue 5,504 seem to have been entirely new with him; and the incorporation of these elements, together with that of graduating the air-pressure in the brake-cylinders—also shown to be new and of the highest importance and utility—in claims 1, 2, 3, and 6, with other substantial and material differences not necessary to enumerate, fully substantiate his pretentions as an original and meritorious inventor, and entitle him as such to the amplest protection of the law.

Suggestive as these prior patents and provisional specifications may have been, they do not any of them embody that which Westinghouse has invented and claimed; and a prior description of a part cannot invalidate a patent for the whole. The same rule applies in patent law as in mathematics.

So far as appears from the testimony in this case, none of the alleged prior inventions of air-brake apparatus have ever successfully been applied to practical use; and when we consider the immense importance of the introduction of the air-brake on railroads, and the incalculable benefit which it has conferred on the public in the readiness and certainty with which trains can thereby be controlled, and the comparative immunity from accidents thus secured, and also the number of devices which have been patented for this purpose, in connection with the fact that Westinghouse was the first, so far as appears in the record and proofs, to put an air-brake into successful actual use—such considerations only strengthen and confirm the soundness of the conclusions to which a careful examination of these prior patents has led us—that there are substantial and essential differences between these prior patents and the Westinghouse apparatus, and that to these differences we may justly attribute the successful and extensive introduction of the Westinghouse air-brake.

In this connection, we need only to refer to the language employed by Justice Swayne, in *Wood* vs. *Cleveland Rolling-Mill Co.*; 4 Fisher, 559. See, also, *Clark Pat. Steam Co.* vs. *Copeland*; 2 Fisher, 228.

As anticipatory of the seventh claim of reissue 5,504, some of the prior patents already cited are relied on, as also the patents of McLaughlin, August 15, 1854; Lee, July 28, 1868; and Peddle, February 5, 1867.

As the chief question here is one of legal construction, it will suffice to say that the construction given to the claim by the complainant's counsel seems to be the proper one, and, thus construed, the claim must be held valid.

The only citation in defendant's briefs, as anticipatory of reissue No. 5,506, was the Peddle patent of February 5, 1867; but as Peddle neither describes nor shows in his patent any means whatever of effecting a release of the brake, the defense necessarily fails.

Our conclusions as to the novelty of the invention claimed in the Mee patent are the same as those in reference to the others.

The patent of Heneage, of August 16, 1859, in some respects closely resembles it; but it, as well as the other prior patents cited in the defendant's supplemental brief—Kreuter, Frazer & Dunbar—fails to embody the complete invention, and hence necessarily fails to invalidate the claims of Mee.

5. The only remaining defense necessary to be considered is that of patentable subject-matter.

It is somewhat difficult, and perhaps impossible, to draw a clear and well-defined line between what is termed a mere aggregation of devices, and what is regarded as a patentable combination. It certainly is not necessary to do so in the present case, for we are clear in our view that the claims of the complainant's patent fall within the latter class.

The usual decree for complainant will be entered for injunction and account, with costs.

DECREE.

And now, to wit, February 5, 1876, the above-entitled cause having come on for final hearing, on bill, answer, replication, and proofs, before the Hon. Noah H. Swayne, Associate Justice of the Supreme Court of the United States, and the Hon. Martin Welker, Judge of the District Court of the United States, in and for the Northern District of Ohio, sitting as Circuit Judge, at a regular term of the said Circuit Court, holden at the city of Cleveland, within said district, on the 16th day of June, A. D. 1875; and the same having been argued at length by counsel for the respective parties, complainant and defendant, and the court having fully considered the same:

Upon consideration thereof it is hereby ordered, adjudged, and decreed by the said Circuit Court that the letters patent in the said complainant's bill mentioned—to wit, reissued Letters Patent No. 5,504, dated July 29, 1873, for an improvement in steam-power brake devices, issued to George Westinghouse, Jr.—are in all respects a good and valid patent; that the said George Westinghouse, Jr., was the original and first inventor of the improvement in said reissued letters patent described and claimed; and that the said complainant is entitled to the exclusive right in and to said reissued Letters Patent No. 5,504, and the invention and improvement secured thereby.

Also, that certain other letters patent in said complainant's bill mentioned, to wit, reissued Letters Patent No. 5,506, dated July 29, 1873, for an improvement in steam-power car-brake apparatus, issued to George Westinghouse, Jr., are in all respects a good and valid patent—that the said George Westinghouse, Jr., was the original and first inventor of the improvement in said reissued Letters Patent No. 5,506 described and claimed; and that the said complainant is entitled to the exclusive right in and to said reissued Letters Patent No. 5,506, and the invention and improvement secured thereby.

Also, that the other letters patent in said complainant's bill mentioned, to wit, original Letters Patent No. 64,437, dated May 7, 1867, for an improvement in hose-couplings, issued to Barney Mee and assigned to complainant by sundry assignments duly recorded, are in all respects a good and valid patent; that the said Barney Mee was the first and original inventor of the improvement in said Letters Patent No. 64,437 described and claimed; and that the said complainant is entitled to the exclusive right in and to said Letters Patent No. 64,437, and the invention and improvement secured thereby.

Also, that the said defendant, by reason of the manufacture, use, and sale by said corporation of railway-brake apparatus, (commonly known as the Gardner & Ranson brake,) as in said complainant's bill set forth, has infringed the said recited patents, and each of them, and has violated the exclusive rights of the said complainant thereunder; and that the said complainant do recover of the said defendant all gains and profits by it made, and the damages sustained by said complainant by reason of such infringement, as well as the costs and charges of this suit to be duly taxed; and that it be referred to Earl Bill, Esq., as special master, to ascertain the amount of such gains and profits, and of the damages sustained by said complainant by reason of such infringement. And further, that a writ of injunction, according to the prayer of said bill, be issued forthwith, restraining and enjoining the said defendant, its officers, agents, employés, servants, workmen, and all others acting by and under its authority, from any further infringement of the said recited patents, and each of them, and of the exclusive rights of the said complainant thereunder.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

ANDREW COE *vs.* WILLIAM L. BRADLEY.

[*In Equity.—Before* SHEPLEY, *J.—Decided October Term, A. D.* 1875: *To wit, February* 17, 1876.]

Where a covenant goes only to a part of the consideration on both sides, and a breach of it may be paid for in damages, it is an independent government, and an action can be maintained for a breach of the covenant, on the part of the defendant, without averring performance in the declaration.

Where the plaintiff's covenants, which form the consideration, be dependent, yet if part of the consideration be accepted and enjoyed by the defendant, and the plaintiff have no other remedy than on the covenant, and the breach on the part of the plaintiff can be compensated for in damages, the plaintiff may recover without alleging performance of the residue.

Courts of equity are still more liberal in their interpretation of contracts, allowing a specific performance of a contract, sometimes to be enforced at the suit of a party who has not punctually performed the contract on his own part, but has been in default, where the default on his part is such as admits of compensation.

[*George S. Boutwell*, for complainant.
H. G. Parker, for defendant.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

This bill is filed upon a written contract between the parties dated February 13, 1862. By this contract Coe assigns to Bradley the exclusive use for seven years of his trade-mark, "Coe's Superphosphate of Lime," reserving a limited right previously granted to the firm of Coe & Co. Coe covenants that he is the exclusive owner of said trade-mark, with the exception above named. He constitutes Bradley his attorney, irrevocable, with authority to prosecute any suits necessary to make his rights available, and protect himself in their full enjoyment.

These are the only express covenants and agreements on the part of Coe. Bradley covenants to energetically prosecute the business of manufacturing and selling the superphosphate, and to continue to make it of as good quality as that before made by Coe; and, so long as the agreements above mentioned shall be kept by Coe, Bradley shall have the use of the trade-mark, to pay him one-third of the net profits of the business, and of other "bone business," first reserving out of the profits of the business, as his own compensation, three thousand dollars.

This clause is also to be found at the close of the contract, "any breach of the agreements above cited by either party or his representatives shall be a release to the other party and his representatives from all obligations by him or them to be performed but for such breach."

By a supplementary contract of May 2, 1862, between Coe and Bradley, and Russell and Coe, and Elmore Coe, the plaintiff's share of profits is reduced from one-third to one-sixth part.

During the existence of this contract Coe, (in violation of his agreement, as implied from his conveyance of the exclusive right of the trade-mark to Bradley,) at Chelsea, and other places, manufactured and put on the market a fertilizer of an inferior quality, sometimes under the trade-mark of "Coe's Superphosphate of Lime," and sometimes "Andrew Coe's Superphosphate of Lime," which last name so nearly resembled the original trade-mark that it was calculated to deceive, and did deceive, purchasers, and, therefore, the use of it was as much a violation of his implied agreement with Bradley as the unauthorized use of the words "Coe's Superphosphate of Lime." A court of equity will examine to see if the differences are merely colorable. (*Dixon Crucible Co.* vs. *Guggenheim American Trade-Mark case*, 559; 2 Kent Com. 12th Ed. *366, cases in note. *Meriden Britannia Co.* vs. *Parker*, 39 Conn., 450.)

It is claimed on the part of the defendants that such unauthorized use of the trade-mark by Coe himself, in violation of the letter and spirit of the contract, was such a breach of the contract as exonerated the defendants from any liability to account and pay over to the complainant one-sixth part of the profits of the manufacture under the contract. In support of this position reliance is placed on the clause in the contract that "any breach of the agreements above cited by either party or his representatives shall be a release to the other party and his representatives from all obligations by him or them to be performed but for said breach." The effect of this clause in the contract is only to enlarge the right of rescission, and enable one party to discharge himself from the contract, and terminate his obligations under it, at his election, in case of the failure of the other party to perform some portion of the contract not otherwise regarded as an essential part of one entire act. (*Wallace* vs. *Shovel Co.*, 44 N. H., 521.)

But, although Bradley well knew that Coe was manufacturing and selling under the trade-mark in violation of his implied agreements under the contract, and of an express agreement under a later and supplementary contract, he did not elect to terminate his obligations and abandon his rights under the contract by rescission, but continued to manufacture in great quantities, and to put the manufactured article upon the market under the trade-mark. No construction can be given to this clause which would enable one party to the contract to enjoy the fruits of it without compensation, upon the ground that the other party had failed to

perform some stipulation on his part which was not so essential to the contract, but that the breach of it could well be compensated by damages.

The claim of the defendant that the covenants broken by the complainant were of such a nature that no recovery can be had by him of the defendant cannot be sustained. The consideration of the promises of Bradley was the conveyance by Coe of the exclusive right to the trade-mark, and there is no question but that the conveyance was operative to vest in Bradley the exclusive right to it for the term of seven years, subject only to the exception in the contract itself. The *express* covenant of Coe was only of exclusive ownership in himself, and that no persons besides the excepted party specified had been authorized to use it. There has been no breach of this express covenant. The implied covenant that he would not himself be a trespasser or infringer on the right and title he had vested in Bradley is the one which he violated, and Bradley had a right to elect to retain the title, and claim damages against Coe for infringement of his right, or to rescind the contract under the final clause enlarging his right of rescission.

Where a covenant goes only to a part of the consideration on both sides, and a breach of it may be paid for in damages, it is an independent covenant, and an action can be maintained for a breach of the covenant on the part of the defendant without averring performance in the declaration.

Where the plaintiff's covenants which form the consideration be dependent, yet if part of the consideration be accepted and enjoyed by the defendant, and the plaintiff have no other remedy than on the covenant, and the breach on the part of the plaintiff can be compensated in damages, the plaintiff may recover without alleging performance of the residue. (*Stevens* vs. *Curling*, 3 Bing., N. C. 355; *Cutter* vs. *Powell*, 2 Smith, L. C., cases in note; *Pordage* vs. *Cole*, 1 Saund., 320, and Williams' Note, 4; *Campbell* vs. *Jones*, 6, T. R. 573; *Carpenter* vs. *Cresswell*, 4 Bing., 409; *Foster* vs. *Purdy*, 5 Met., 442-444; *Wallace* vs. *Shovel Company*, 44 N. H., 521.) These are the well-settled rules applicable to proceedings in courts of law.

Courts of equity are still more liberal in their interpretation of contracts, allowing a specific performance of a contract sometimes to be enforced at the suit of a party who has not punctually performed the contract on his own part, but has been in default, where the default on his part is such as admits of compensation. In *Hayward* vs. *Angell*, (1 Vern. R., 223,) the Lord Keeper said "in all cases where the matter lies in compensation, be the condition precedent or subsequent, he thought there ought to be relief."

The defendant relies upon certain other contracts set up in his answer between himself and the complainant. Two of these are prior in date to the contract of February 13, 1862, and it is not perceived how that contract is affected by them. The subsequent contracts recognize the right to the trade-mark which Bradley has under the contract of February 13, 1862, but do not confer upon him such a right independent of that contract. The contract of August 1, 1862, recognizes the existence and validity of the previous contracts.

The case should be referred to a master to report the amount to which the complainant is entitled for his one-sixth part of the net profits under the contract, and also to report what sum is to be allowed the complainant in reduction, by way of compensation in damages for the infringement of the defendant's exclusive right to the trade-mark by the complainant by his use during the term of the trade-mark "Coe's Superphosphate of Lime," or of the trade-mark "Andrew Coe's Superphosphate of Lime."

Decree for reference to master in accordance with the opinion to be prepared and submitted to the court.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF ILLINOIS.

JAMES H. FOY AND LAVINIA H. FOY *vs.* ALEXANDER M. HUNTER.

[*In Chancery.—Before* TREAT, *D. J.—Decided February* 14, 1876.]

In the three following cases, no legal points were raised by defendant, the latter filing stipulations "waiving any further defense," and injunctions in each case granted as prayed in complainants' bill, and judgment rendered for costs and nominal damages.

[*Thos. H. Dodge*, for complainants.
Winfield S. Coy, for defendant.]

TREAT, *J.*:

This cause coming on to be heard upon the pleading and proofs therein, and Mr. Thomas H. Dodge appearing for the complainants, and filing an original stipulation, signed by the defendant, waiving any further defense therein, it is now, at this day, ordered, adjudged, and decreed:

1. That the several letters patent, viz: Letters Patent No. 22,532, granted to Damase Lamoureaux, assignor to Alexander Douglas and Samuel S. Sherwood, January 4, 1859, and extended for seven years from and after the 4th day of January, 1873; Letters Patent No. 39,910, granted to Lavinia H. Foy, September 15, 1863, for improvement in corset skirt-supporters; Letters Patent No. 45,296, dated November 29, 1864, granted to Lavinia H. Foy, assignor to James H. Foy, for improvement in corset skirt-supporters; reissue Letters Patent No. 2,654, granted to James H. Foy and Lavinia H. Foy, assignees, by mesne assignments, of Lavinia H. Foy, June 18, 1867, for improvement in corset skirt-supporters, the original letters patent having been granted September 15, 1863; and reissue Letters Patent No. 4,831, granted to Lavinia H. Foy, assignor, by mesne assignments, to herself and James H. Foy, for improvements in skirt-supporting corsets, March 26, 1872, the original letters patent having been granted September 15, 1863; as in the bill of complaint in this cause mentioned and set forth, are good and valid patents, and that the complainants became vested with the exclusive rights in and to the said letters patent, and each of them, as in said bill alleged and claimed.

2. That the said defendant has infringed upon the said complainants in their exclusive rights under said letters patent aforesaid, as in said bill set forth, and by the testimony in this cause set forth and proven.

3. And it being admitted and agreed by the stipulation aforesaid that all the damages due to the said complainant for the infringements aforesaid, excepting one dollar damages and one dollar profits, have been settled and paid to the full satisfaction of said complainants; it is further ordered, adjudged, and decreed that the said defendant, his attorneys, agents, servants, and workmen be perpetually enjoined during the lifetime of the said letters patent, and each of them, from making, manufacturing, selling, or using, in violation of the said letters patent, and each of them, any corset skirt-supporter containing the said invention of the said Damase Lamoureaux, and the said inventions of the said Lavinia H. Foy, in the said several letters patent set forth and described, and that an injunction issue accordingly.

4. And it is further ordered that the said defendant pay to the said complainants their costs of this suit, to be taxed, together with one dollar damages and one dollar profits; and that said complainants have execution therefor, according to the course and practice of this court.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF ILLINOIS.

JAMES H. FOY AND LAVINIA H. FOY *vs.* GEORGE H. HUNTER *et al.*

[*In Chancery.—Before* TREAT, *D. J.—Decided February* 14, 1876.]

TREAT, *J.*:

This cause coming on to be heard upon the pleadings and proofs therein, and Mr. Thos. H. Dodge appearing for the complainants, and filing an original stipulation, signed by the defendants, waiving any further defense therein, it is now, at this day, ordered, adjudged, and decreed:

1. That the several letters patent, viz: Letters Patent No. 45,296, dated the 29th day of November, 1864, granted to Lavinia H. Foy, for improvement in corset skirt-supporters; and reissue Letters Patent No. 4,831, granted to Lavinia H. Foy, assignor, by mesne assignment, to herself and James H. Foy, for improvement in skirt-supporting corsets, March 26, 1872, the original letters patent having been granted September 15, 1863; in the bill of complaint in this cause mentioned and set forth, are good and valid letters patent, and that the complainants became vested with the exclusive right in and to the said letters patent, and each of them as in said bill alleged and claimed.

2. That the said defendants have infringed upon the said complainants in their exclusive rights under said letters patent aforesaid, as in said bill set forth, and by the testimony in this cause set forth and proven.

3. And it being admitted and agreed, by the stipulation aforesaid, that all the damages due to the said complainants for the infringements aforesaid, excepting one dollar damages and one dollar profits, have been settled and paid to the full satisfaction of said complainants; it is further ordered, adjudged, and decreed that the said defendants, their attorneys, agents, servants, and workmen be perpetually enjoined during the lifetime of the said letters patent, and each of them, from making, manufacturing, selling, or using, in violation of the said letters patent, and each of them, any corset skirt-supporters containing the said inventions of the said Lavinia H. Foy, in the said letters patent, and each of them, set forth and described, and that an injunction issue accordingly.

1. And it is further ordered that the said defendants pay to the said complainants their costs of this suit, to be taxed, together with one dollar damages and one dollar profits; and that the said complainants have execution therefor according to the course and practice of this court.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF ILLINOIS.

LAVINIA H. FOY *vs.* GEORGE H. HUNTER *et al.*

[*In Chancery.—Before* TREAT, *D. J.—Decided February* 14, 1876.]

TREAT, *J.*:

This cause coming on to be heard upon the pleadings and proofs therein, and Mr. Thos. H. Dodge appearing for the complainant, and filing an original stipulation, signed by the defendants, waiving any further defense therein, it is now, at this day, ordered, adjudged, and decreed:

1. That the letters patent granted to Lavinia H. Foy, May 1, 1866, for improvement in combined corsets and bustles, No. 54,323, in the bill of complaint, in this cause mentioned and set forth, are good and valid letters patent; and that the complainant became vested with the exclusive right in and to the said letters patent, as in said bill alleged and claimed.

2. That the said defendants have infringed upon the said complainant in her exclusive right under said letters patent aforesaid, as in said bill set forth, and by the testimony in this cause set forth and proven.

3. And it being admitted and agreed, by the stipulation aforesaid, that all the damages due to the said complainant for the infringement aforesaid, excepting one dollar damages and one dollar profits, have been settled and paid to the full satisfaction of said complainant; it is further ordered, adjudged, and decreed that the said defendants, their attorneys, agents, servants, and workmen be perpetually enjoined during the lifetime of the said letters patent, from making, manufacturing, selling, or using, in violation of the said letters patent, any corset skirt-supporter containing the said invention of the said Lavinia H. Foy, in the said letters patent set forth and described, and that an injunction issue accordingly.

4. And it is further ordered that the said defendants pay to the said complainant her costs of this suit, to be taxed, together with one dollar damages and one dollar profits, and that the said complainant have execution therefor according to the course and practice of this court.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 21, 1876.]

9,145.—Glass Articles.—BENJAMIN BAKEWELL, Jr., Pittsburg, Pa. Application filed February 17, 1876. Term of patent 7 years.

9,146.—Carriage-Seat Backs.—DAVID BUCKLER, Listowell, Canada. Application filed December 18, 1875. Term of patent 14 years.

9,147.—Umbrella-Frame.—ABRAHAM HIRSH, St. Louis, Mo. Application filed March 10, 1876. Term of patent 14 years.

9,148.—Badge.—HENRY NEWELL, Philadelphia, Pa. Application filed February 24, 1876. Term of patent 3½ years.

9,149.—Toy Carriage.—FREDERICK W. PORTER, Springfield, Vt. Application filed April 10, 1875. Term of patent 3½ years.

9,150.—Badge.—EMMA M. REQUA, New York, N. Y. Application filed March 11, 1876. Term of patent 3½ years.

9,151.—Paper-Weights.—NATHAN J. SIMONDS, Woburn, Mass. Application filed February 9, 1876. Term of patent 7 years.

9,152.—Grocer's Can-Stand.—ZACHARIAH R. TRAVER, Detroit, Mich. Application filed November 29, 1875. Term of patent 7 years.

9,153.—Fancy Cassimeres.—WILLIAM A. WALTON, Providence, R. I., assignor to THE WESTCOTT MILLS, same place. Application filed September 25, 1875. Term of patent 7 years.

9,154 to 9,157, inclusive.—**Breastpin.**—LEONARD S. BEALS, Astoria, N. Y. Applications filed March 3, 1876. Term of patents 3½ years.

9,158.—Playing-Cards.—JAMES DUTHIE, New York, N. Y. Application filed February 11, 1876. Term of patents 14 years.

9,159.—Rosettes.—JAMES C. REED, New York, N. Y. Application filed March 3, 1876. Term of patent 7 years.

9,160.—Beau.—WILLIAM SKINNER, Lyons, Iowa. Application filed December 30, 1875. Term of patent 7 years.

9,161 and 9,162.—Badge.—BENJAMIN B. TILT, Passaic, N. J. Applications filed February 14, 1876. Term of patents 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 21, 1876.]

3,517.—Iron.—BURGESS STEEL AND IRON WORKS, Portsmouth, Ohio. Application filed January 28, 1876.
"words 'CRUCIBLE IRON.'"

3,518.—Tonic Bitters.—HARRISON T. CHAMBERLIN, Brockport, N. Y. Application filed March 3, 1876.
"words 'Crown Bitters' and the picture of a crown."

3,519.—Cambrics.—COFFIN & ALTEMUS, Philadelphia, Pa. Application filed March 3, 1876.
"word 'INTERNATIONAL.'"

3,520.—Shirtings.—COFFIN & ALTEMUS, Philadelphia, Pa. Application filed March 3, 1876.
"representation of the coat-of-arms of the State of Pennsylvania, in connection with the words 'Farmers' Extra Shirtings, No. 1.'"

3,521.—Cosmoline, a Product of Petroleum.—EDWIN F. HOUGHTON, Philadelphia, Pa. (Re-registration.) Application filed September 9, 1876.
"pictorial representation of a globe."

3,522.—Fish-Lines.—GEORGE HENRY MANSFIELD, Canton, Mass. (Re-registration.) Application filed July 26, 1871.
"the picture of a fish."

3,523.—Handkerchiefs.—NEW ENGLAND COMPANY, Rockville, Conn. Application filed February 25, 1876.
"figures '76,' arranged in the form of a monogram or otherwise."

3,524.—Pans.—A. & E. WALLACH, New York N. Y. Application filed February 25, 1876.
"picture representing three of the buildings of the Centennial Exhibition at Philadelphia—viz., the Main Building, the Art Gallery, and the Horticultural Building."

3,525.—Smoking-Tobacco.—H. WILKENS & CO., Baltimore, Md. Application filed February 17, 1876.
"words 'The Dairy Queen Smoking Tobacco,' the monogram 'E. L. W.,' and the words 'Manufactured by H. Wilkens & Co., Baltimore.'"

3,526.—Cigars.—J. WOLF & CO., New York, N. Y. Application filed March 3, 1876.
"word 'POPULAR.'"

3,527.—Woven and Printed Fabrics.—POMEROY & PLUMMER, New York, N. Y. Application filed January 29, 1876.
"representation of the Liberty Bell."

3,528.—Woven and Printed Fabrics.—POMEROY & PLUMMER, New York, N. Y. Application filed January 29, 1876.
"representation of a bell surmounted by an eagle."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 21, 1876.]

596.—Title: **"Brown's Bronchial Elixir."**—NATHANIEL K. BROWN, Burlington, Vt. Application filed March 13, 1876.

597.—Title: **"J. M. Christian & Bros' Economy Pressed Soap."**—JOHN M. CHRISTIAN & BROS., Albany, N. Y. Application filed March 6, 1876.

598.—Title: **"French Shades."**—COFFIN & ALTEMUS, Philadelphia, Pa. Application filed March 3, 1876.

599.—Title: **"The Wonder of the Age."**—SAMUEL B. COLLINS, La Porte, Ind. Application filed March 13, 1876.

600.—Title: **"Diamond Worm Powders."**—GEORGE H. MARVIN, Buffalo, N. Y. Application filed March 4, 1876.

601.—Title: **"McEwan's National Baking Powder."**—WALTER MCEWAN, Albany, N. Y. Application filed March 6, 1876.

602.—Title: **"Housekeeper's Friend."**—WALTER MCEWAN, Albany, N. Y. Application filed March 6, 1876.

603.—Title: **"Herald, Claflin, Allison & Somes."**—MERCHANTS' TOBACCO COMPANY, Boston, Mass. Application filed March 13, 1876.

604.—Title: **"Olive Branch."**—MOORE & ARMS, Bellows Falls, Vt. Application filed March 15, 1876.

605.—Title: **"The Saratoga Dressing."**—RESTORFF & BETTMANN, New York, N. Y. Application filed March 11, 1876.

606.—Title: **"Centennial Tea—Bitters."**—DAVID J. STANSBERY & FRANK C. HAINES, Newark, N. J. Application filed March 14, 1876.

607.—Title: **"J. M. Laroque's Liquid Anti-Bilious Bitters."**—WILLIAM E. THORNTON, Baltimore, Md. Application filed March 14, 1876.

608.—Title: **"Weaver's Bay Rum—The Toilet Article."**—JAMES B. WEAVER, Philadelphia, Pa. Application filed March 16, 1876.

609.—Title: **"The Weaver Cologne."**—JAMES B. WEAVER, Philadelphia, Pa. Application filed March 16, 1876.

610.—Title: **"Berlin Herb Tea."**—WEIDENFELD & CO., New York, N. Y. Application filed March 11, 1876.

611.—Title: **"Lundborg's Novel Box Recherche Perfumes."**—YOUNG, LADD & COFFIN, New York, N. Y. Application filed February 10, 1876.

INDEX OF INVENTIONS PATENTED MARCH 21, 1876.

	Class No.	No. of Patent.
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Ball and socket joint, A. P. Webber	67	174,990
Barrel, H. C. Sheffield	40	175,177
Base ball cover, M. J. Ryan	143	175,172
Battery, galvanic, F. C. Kinemund	50	175,112
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Bedstead fastening, J. W. Strong	62	174,984
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Donald, D., assignee	175,042
Draper, V., Ornamental chain link	174,949
Dugdale, J. K., Washing machine	175,055
Duncan, G., Machine for calendering printed paper	175,056
Dutcher, F. J., and C. E. Church, Machine for assorting temple teeth	174,902
Dutcher Temple Company, assignee	174,902
Eisele, W., Finger ring	175,057
Eldredge, T., Corn planter	175,058
Fagan, M. G., Furnace	175,059
Falee, E., Lever power	175,061
Farr, E. A., Ox yoke	175,060
Fay, J. A., & Co., assignees	175,054
Fecteau, A. L., assignee	175,117
Fennell, J., Horse boot	175,062
Field and Lane	174,912
Fisher, H., Clothes sprinkler	175,063
Fobes, D., assignee	175,219
Forster, J. A., Nut lock	174,903
Fox, H. K., assignee	175,228
Frame, G., Fringing attachment for sewing machines	175,064
Frank, A. H., and G. Spire, Sawing machine	174,950
Furniss and Cone	174,946
Furniss, F. H., Lamp extinguisher	174,951
Garrett, H., Grain drill	175,065
Garrett and Waitt	175,214
Gates, C. E., Filter for drugs, &c	175,066
Gates, F., Cooking utensil	175,067
Geiger and Lee	175,116
Gillen, W. S., Gas furnace	175,068
Gilmore, G. W., Force pump	174,904
Gilmore and Work	175,232
Giraudat, A., Machine for cutting stamens for artificial flowers	175,069
Giraudat, A., Stick for dipping stamens for artificial flowers	175,070
Goddard, J. M., Rattan machine	175,071
Goldstone, A. M., Strainer for coffee pots	175,072
Goodwin, W., Apparatus for transshipping grain	175,073
Goubet, C. D., and J. N. Monrocq, Machinery for transmitting motive power	175,074
Gourlay, J., assignee	174,944
Green, D. C., Hay press	174,952
Green, J., Boot jack	175,076
Green, O. C., Wheel cultivator	175,077
Green, S. W., assignee	174,899, 174,900, 174,901, 174,915, 174,916
Green, S. W., Type case	174,905
Green, W. B., assignee	174,902
Gregg, G. A., Dumping car	175,075
Grier, W. W., Hydraulic ram	175,078
Griffin, S., Toe weight for horses' feet	174,906
Groat, J. W., Car mat	175,079
Hager, A. D., Harvester cutter	175,080
Hale, H. S., J. W., and W., assignees	175,195, 175,196
Harcum, A., Glass melting pot	175,081
Hard, J. A., Pen extractor	175,082
Hargreaves, E. E., Ventilating cars, (reissue)	7,010
Harlow, T. L., Lamp filling cabinet	174,953
Harner, D. S., Portable fence	175,083
Harrington, H. N., Shade for hop boxes	175,084
Harrison, S., Thill coupling	175,085
Harrod, B. M., and F. N. Ogden, Cloth measuring apparatus	175,086
Harvey, H. A., Machine for making corrugated legged staples	175,087
Hatcher, A. T., Cotton planter	175,088
Hawkins, J. R., assignee	175,034
Hendryx, A. B., Bird cage	175,089
Herring & Co., assignees	174,995, 174,996
Herrington, E. F., Harvester finger beam catch	175,090
Herrington, E. F., Mower	175,091
Hess, J. F., Eaves trough hanger	175,092
Hill, E., Jr., Valve for steam engines	174,954
Hill, E., Jr., Steam pump	174,955
Hill, E., Jr., Valve for steam engines	174,956
Hill, E., Jr., Pump valve	174,957
Hindman and Thrapp	175,203
Hobson, J. H., Band saw stave machine	175,093
Hodgden, W., Milk cooler	175,094
Hoehn, W., Painter's scaffold	175,095
Homrighausen, F., Game board	174,958
Hooper, D. D., Wash boiler	175,100
Hotchkiss, C. A., Curry comb	174,907
Hotchkiss, C. A., Curry comb	175,096
Hotchkiss, C. A., Curry comb	175,097
Hotchkiss, C. A., Curry comb	175,098
Hotchkiss, C. A., Curry comb	175,099
Howard, C. P., Double acting pump	174,959
Howe, L. B., Dumping car	174,960
Howells, H. C., assignee	174,942
Hughes, H., Lubricator	174,908
Hughes, P., Jig saw	175,101
Hughes, S., Elevator bucket	175,102
Hurst and Bolton	174,939
Hyde, A. T., Wrench	174,909
Hyde, J. R., Cooking stove	175,103
Hyde, J. R., Ash sifting attachment for stoves	175,104
Ives, W. A., & Co., assignees	175,105, 175,151
Ives, W. A., and A. Rutz, Bit brace	175,105
Jackson, J. R., Ironing able	175,106
Johnson, C. C., Toy money bank	175,107
Johnson, S., Steam road rammer	174,961
Jones, B. F., assignee, (reissue)	7,003, 7,004
Jones, E. R., Sweat pad for horses' collars, &c	175,108
Jones, H. B., Cotton press	175,109
Karutz, T., Sash fastener	175,110
Keen and Hagerty, assignees	175,188
Kempster, D. E., Curtain fixture	174,910
Kennedy, D. L., Truss	174,962
Kidder, J., Magnetic machine	175,111
Kilburn, A. and C., assignees	175,195, 175,196
Kimes, J., Pump	174,911
Kinemund, F. C., Galvanic battery	175,112
Kohler and Roehrs	175,169
Kuhns, E., Gage attachment for squares	175,113
Kunzler, P., assignee	175,081
Landers, Frary, and Clark, assignees	175,142
Lane, W. J., and W. H. Field, Horse hay rake	174,912
Langfeld, A. H., assignee	174,932
Lanphere, W. M., Shutter worker	174,963
Lapham, E. N. and J., Middlings purifier	175,114
Laughlin, J., assignee, (reissue)	7,003, 7,004
Lauth, B., Manufacture of iron, (reissue)	7,003
Lauth, B., Polishing iron bars and rods, (reissue)	7,004
Lawrence, M. D., Harrow	174,913
Lee, G. W., and C. J. Geiger, Drier	175,116
Lee, T. A., and D. M. Ostrander, Thill coupling	175,115
Légaré, M. S., Loom shuttle	175,117
Leonard, R., Horse power	175,118
Lindsay, J., Printing type	175,119
Litchfield, G., Jr., Machine for bending rings and tube couplings	175,120
Littlefield, O., Machine for skiving boot and shoe counters	175,121
Livingston, H., Nut lock	175,122
Locke, S. D., Divider for harvesters	174,964
Lockwood, R., Treating wood	174,914
Logan, T., assignee	175,147
Lorenz, W. A., Type distributing machine	174,915
Lorenz, W. A., Type setting machine	174,916
Lovett, Sofa bedstead	175,123
Luthy, A., Bottle stopper	175,124
Mackinnon, D., Fountain pen	174,965
Major, T., Road scraper	175,125
Manning, L. W., Feather renovator	175,126
Manton and Remington	174,977
Marquette, P. H., Harvester dropper	175,128
Marsh, H. F., Toilet case	175,127
Marshall, D. M., Indelible ink	174,917
Mayhew, J. M., Car starter	174,966
Mayor, T., Speeder and fly frame	174,918
McCheaney, A. B., assignee	175,039
McCombie, W., Mechanical movement	175,129
McCormick, C. H. and L. J., assignees, (reissue)	7,001
McMaugh, R. and A., Boat detaching hook	175,130

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McMillen, G. M. L., Grain drill	174,967
McMullen, G. W., assignee	175,147
McNair, W. L., Gas furnace	175,131
McVaw, D., Side bar wagon	174,966
Mersereau, W. T., Stair rod	174,919
Metcalf, Paul & Co., assignees	174,969
Metcalf, W., Spring washer	174,969
Miller, C., and M. S. Davis, Nut lock	175,133
Miller, J., assignee	175,137, 175,138, 175,139
Miller and Woglom	175,230
Mills, W. M., Turbine water wheel	175,132
Milwain, J., Lap robe and foot pocket	174,920
Minchew, C. S., Electroplating	175,134
Minich, J. K., Felly expander	174,970
Monroeq and Goubet	175,074
Moore, L., Thill coupling	175,135
Moreau, E., Sewing machine, (reissue)	7,005
Moreau Machine Manufacturing Company, assignee, (reissue)	7,005
Morehouse, C. L., Process and apparatus for manufacturing illuminating oils	174,921
Morrin, T. F., Plug tobacco machine	175,136
Murphy, W. H., Making paper barrels	175,137
Murphy, W. H., Joint for paper barrels	175,138
Murphy, W. H., Head for paper barrels	175,139
Myers, F., Machine for canceling stamps and postmarking letters	175,140
Newell, N. C., Button	174,923
Newton, R., Grass leveler	175,141
Newton, S. S., Lamp	174,922
North, A. H., Machine for stripping cutlery steels	175,142
Ogden and Harrod	175,086
Olsen, H., Oil squeezer	174,971
Ostrander and Lee	175,115
Pacific Mills, assignee	174,891
Paddack, J. R., Steam vacuum pump	174 972
Page, C. B., Refrigerator	175,143
Painter, W., Valve	175,144
Painter, W., Valve	175,145
Parker, L., Fence	174 973
Parkhurst, E. D., assignee	175,040
Parks, W. R., Water tube steam boiler	175,146
Partridge, H., assignee	175 107
Pascoe, F. J. P., Ore concentrator	174,974
Pattyson, W. D. C., Type distributing machine	175,147
Peabody, G. H., Hulling machine	175,148
Pease, M., Hank for jibs, &c	174,975
Peck, E. A., Mowing machine	175,149
Perkins, C. H., Horseshoe blank	174,924
Pfantz, D. M., Flying bridge	175,150
Pfleghan, F. P., Bit brace	175,151
Phelps, W. E., Coal screen	175,155
Philbrook, E. W., Underwaist	175,154
Philip, R. and L. A., Sewing case	174,976
Phillips, J., Hog trap	175,152
Phillips, S., Adjustable dam for deepening the channels of streams	175,153
Phipps, C. A., and C. C. Quinn, Track clearer	175,156
Piggott, J. J., Harvester	175,157
Plummer, I. L., Trunk, (reissue)	7,011
Pontes, C., Submarine excavating apparatus	175,158
Poole, T. S., Lathe for turning rolls	175,159
Popper, M., Shirt	175,160
Porter, W. T., assignee	175,159
Prayne, W. E., Chair bottom	175,161
Pultz, J. P., Paper pulp bag	175,163
Putnam and Burleigh	175,026
Putnam, J., Car starter	175,162
Putnam Machine Company, assignee	175,026
Quinn and Phipps	175,156
Rawlings, E., assignee	174,971
Rea, B. F., Elastic trace joint	175,164
Reed and Barton, assignees	175,134
Reed, E. M., assignee	174,966
Reicherts, J. J., Bridge	175,165
Remington, G. H., and J. P. Manton, Locking gear for windlasses	174,977
Rhamy, J. H., Stove pipe damper	175,166
Rice, A. J., Vehicle wheel	174,978
Rich, W. B., assignee	175,135
Richardson and Case	175,030
Robinson, T., Iron fence	175,168
Robison, G. E., Vehicle seat lock	175,167
Roehrs, H. F., and J. Kohler, Pile driver	175,169
Romadka, A. V., assignee, (reissue)	7,011
Roman, O. P., assignee	175,117
Rousseau, D., Electric signaling attachment to railway cars	174,979
Roy, F. L., Bucket ear	174,980
Rubin, M., Neck tie holder	175,170
Rumpp, C. F., Cigar case	175,171
Ruts and Ives	175,105
Ryan, M. J., Base ball cover	175,172
Samuels, S., assignee	174,979
Sargent, G. M., assignee	174,898
Sargent & Co., assignees	175,052
Schmidt and Sinsser	175,182
Schreyer, J. C., Lamp extinguisher	175,173
Schultz, H., Raising and screening sand	174,981
Selby, J., and M. D. Spurck, Toe weight for trotting horses	174,925
Selden, G. B., Machine for shaving round hoops	175,174
Shaw, A. W., Expansion reel for reapers	175,175
Shaw, J., assignee	175,012
Sheffield, H. C., Barrel	175,176
Sheldon, C. B., Desk attachment for chairs	175,178
Shourds, D. H., Demijohn	174,988
Sill, E. E., assignee	174,962
Simons, S., Ticket case	174,926
Slagle, H. D., Angle iron shears	175,179
Slawson, G. W., and C. H. Triphagen, Trace for harness	175,180
Sloan, T. J., Revolving fire arm	175,181
Slocum, A. C., Vegetable slicer	175,182
Slusser, H., and F. Schmidt, Straw cutter	175,184
Smith, H. E., Washing machine	175,185
Smith, H. E., Washing machine	175,186
Smith, H. E., Washing machine	175,187
Smith, H. E., Rotary churn	174,979
Smith, W. F., assignee	175,183
Smith, W. and J. M., Electric telegraph apparatus	175,188
Solter, J., Sheet metal cup	175,033
Spang, Chalfant & Co., assignees	175,207
Spaulding, F., assignee	175,189
Spencer, A., Electro magnetic dental mallet	174,983
Spencer, E., Coffee steeper	174,950
Spire and Frank	174,925
Spurck and Selby	175,203
Standley, J. R., assignee	175,190
Starr, J. W., Jr., Apparatus for roughening pavements	175,193
Stead, J. C., Feed water heater for steam boilers	175,194
Steinmetz, U. G., Umbrella	175,191
Stephens, B. F., Metallic fastener for envelopes	175,150
Sternberger, L., assignee	175,195
Stevens, A. B., Spring tilting chair	175,196
Stevens, A. B., Spring tilting chair	175,192
Stevens, C. C., Tag fastener	175,100
Stevens, R. M., assignee	174,927
Stewart, J. S., Pipe tongs and cutter	175,197
St. John, R. H., Wringer	175,197
St. John Sewing Machine Company, assignee	175,198
Stockwell, E., Winding device for chronometric locks	175,199
Strong, G. S., Wind motor	174,984
Strong, J. W., Bedstead fastening	174,991
Surerus and Wharton	175,200
Swaney, J. S., Root cutting plow	175,201
Taber, E. S., Machine for making twist drills	175,202
Taylor, G. H., Medical rubbing apparatus	174,985
Taylor, S. A., Cap pad	175,204
Theobald, J., Gig saddle tree	175,205
Thompson, C., Railway switch	
Thrapp, N. E. and S. A. W., and F. M. Hindman, Animal trap	175,203
Tiffany, J. C., Manufacture of illuminating gas	175,206
Towsley and Van Kannel	175,213
Tracy, W. H. H., Shirt	175,207
Traub, F., Child's carriage	175,209
Treaize, C. L., Trunk	175,208
Treaize, J. S. and J. Q. A., Feed water regulator	174,986
Triphagen and Slawson	175,179
Tucker, F. O., Weft stop mechanism	174,928
Turman, L., Seeder and cultivator	175 210
Tuttle, C. C. and L., Shirt	174,987
Tyler, A. J., Hose coupling	174,988
Unverzagt, G. L., Cot bedstead	175,211
Van Camp, W. A., Double corn plow	175,212
Van Doren, H., Pump	174,989
Van Kannel, T., and L. D. Towsley, Injecting apparatus for gas machines	175,213
Velie, H. H., Grain separator	174,929
Waitt, G. L., and S. L. Garrett, Car brake	175,214
Walter, W., Combined office directory and desk	175,215
Walton, S., Cultivator	175,216
Warner, G. P., assignee	174,696
Way, F., Wringer	175,218
Way, F. and M., Wringer	175,217
Webber, A. P., Ball and socket joint	174,990
Wells, H., Needle threader	175,219
Wharton, J., and J. Surerus, Machine for forming hat bodies	174,991
Wheeler, G. H., Joiner's bench vise	175,220
Wheeler, W. B., assignee	175,231
Whisler, M., Corn planter	174,993
Whistler and Winans	175,227
Whitaker, D. D., Milk cooler or warmer	175,222
White, J. J., Stand for wash tubs	175,223
White, S. S., assignee	175,189
Whitelaw, J., Game counter	174,992
Whitmarsh, H. C., Combined shoulder braces and suspenders	175,221
Whittier, A. V., and C. Andrews, Corset	175,224
Williams, L., Machine for boring hubs and follies	174,994
Wilson, C. C., Glove stretcher	175,225
Wilson, F. T., and E. J. Bartlett, Hay loader	175,226
Winans, T., and T. D. Whistler, Fishing rod reel	175,227
Wineman, P., Pump, (reissue)	7,006
Winner, J. E., Postage and revenue stamp	175,228
Woglom, G. T., and L. Miller, Locket	175,230
Wolfrom, E. J., Table leaf support	175,229
Woodruff, O. D., Apparatus for separating ore from foundry refuse	175,231
Work, A., and R. J. Gilmore, Hose coupling	175,232
Wright, W. H., Rock drill	175,233
Yale, C. O., Bolting mechanism for safe doors	174,995
Yale, C. O., Time lock	174,996
Yale Lock Manufacturing Company, assignee	175,198
Yard and Sullivan, assignees	175,109

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MARCH 21, 1876.

174,889. SASH-HOLDERS. J. A. Adams, Baltimore, Md., assignor of one-half his right to A. J. Abrams, same place. [Filed Dec. 1, 1876.]



The combination of the upper outwardly-curved spring A and the under inwardly-curved spring B with the adjusting-screw C and the plate D, having overlapping projections a a to secure the springs thereto, all arranged and operating as and for the purpose specified.

174,890. BAKING-POWDERS. Chas. Arnold, Brooklyn, assignor to Dodge & Olcott, New York, N. Y. [Filed Mar. 1, 1876.]

The compound consisting of muriate of ammonia and its chemical equivalent of alkaline carbonates, in the proportions substantially as described, for incorporation with the dough of bread, cake, pastry, and similar articles, as and for the purpose set forth.

174,891. PROCESSES OF MANUFACTURING ORNAMENTAL TEXTILE FABRICS. Samuel Barlow, Lawrence, Mass., assignor to Pacific Mills, same place. [Filed Mar. 10, 1876.]

The art of producing figured cloth by weaving of vegetable fibers the portions to be stained or printed, and of animal fibers the portions to be left unstained or unprinted, and then printing the woven fabric with aniline black, and cleansing it, substantially as described.

174,892. PLUMB-LINE HOLDERS. Warren Beckwith, Geneva, Wis. [Filed Feb. 3, 1876.]

Brief.—Facilitates adjustment of plumb-bobs when attaching to surveying instruments.



1. A spring-clip, A, constructed substantially as shown and described, adapted for holding a plumb-line and permitting a ready adjustment of the same.

2. In combination with a transit, level, or equivalent instrument supported upon legs, a spring-clip, A, and plumb-line, B, arranged and operating as shown.

3. The spring-clip A, consisting of the spring arms a a', having their ends surrounded by the band b provided with the hole or recess c.

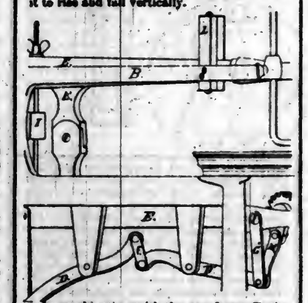
174,893. STEREOSCOPES. Edwd. Bierstadt, Jersey City, N. J. [Filed Nov. 17, 1875.]



As a new article of manufacture, a stereoscopic album consisting of a book, the leaves of which are illustrated with stereoscopic pictures, and to one of the covers of which is hinged a flap made up in two parts, connected together by a flexible joint, the upper part of the flap carrying two stereoscopic lenses, said flap being adapted to fold closely between the cover and leaves of the book when closed, giving the same the appearance of an ordinary book, substantially as described.

174,894. SCROLL-SAWING MACHINES. E. Brown, Lowell, Mass. [Filed Feb. 17, 1876.]

Brief.—The saw-frame is raised and depressed equally at each end, thereby causing it to rise and fall vertically.



In combination with the saw-frame E, the guides l l, and two or more levers D D', connected with each other and by suitable links with said saw-frame, as and for the purpose described.

174,895. MACHINES FOR MAKING SKIRT-FACINGS. Franklin G. Burley, Boston, Mass. [Filed July 23, 1875.]

Brief.—As a breadth of fabric is passed through the machine, it is folded on each side edge, and cut along the center upon a serrated line, so that it passes from the machine as two strips of skirt-facing, each folded on one edge and serrated on the other.

1. The improved skirt-facing strip B', with its crosswise threads heavier than its lengthwise threads, without crosswise seams, folded on one edge, and serrated on the other, substantially as and for the purpose set forth.

2. The combination of the folder A, pressure-rollers C C', and zigzag knife D, substantially as described.

3. The folder A and the pressure rollers C C', combined and arranged in the manner and for the purpose specified.

4. The combination of the folder A, pressure-rollers C C', lever E, and spring e, as and for the purpose set forth.

5. The mode of manufacturing two skirt facings from one strip of cloth by folding over both edges of the cloth, and dividing it into two strips by a zigzag cut, substantially as set forth.

174,896. MACHINES FOR POLISHING BUTTONS. Patrick Cahill, Leeds, Mass., assignor to George P. Warner, same place. [Filed Feb. 26, 1876.]

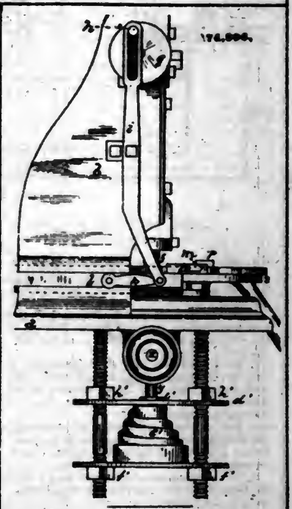
1. In combination, the non-rotating die f, the rotating die g, and the spring e, substantially as described, and for the purpose set forth.

2. In combination, the reciprocating die f, extractor i, and operating lever f, all substantially as described, and for the purpose set forth.

3. In combination, the rotating carrier-plate c, rotating shaft p, and extractor m', all substantially as described, and for the purpose set forth.

174,897. FIRE-POTS. Jos. Chartier, Worcester, Mass. [Filed Sept. 15, 1876.]

Brief.—The aperture or slot in the partition allows the dumping of the grate. The plates exclude draft from one division of the fire-pot. They tilt with the grate.





The adjustable partition C, provided with the plates E ff and aperture a for reducing the capacity of the fire-pot A, substantially as set forth.

174,898. CAR-BRAKE SHOES. I. H. Congdon, Omaha, Nebr., assignor of three-fourths his right to Geo. M. Sargent, Des Moines, Iowa. [Filed Jan. 4, 1876.]

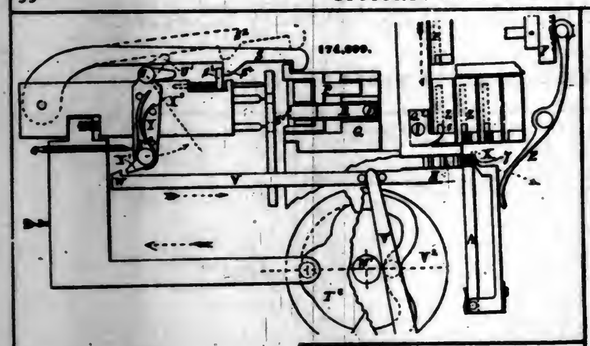


A shoe for car-brakes, composed of the cast-iron body A, having the bearing-pieces B, of wrought-iron, steel, or malleable cast-iron, embedded in its face, substantially as shown and described.

174,899. TYPE-DISTRIBUTING MACHINES. Charles W. Dickinson, Newark, N. J., assignor to Saml. W. Green, Brooklyn, and said Green assignor to Edward N. Dickerson, New York, N. Y., trustee for Henry A. Burr. [Filed July 22, 1875.]

Brief.—The movable finger pivoted to the type-driver is gently pressed by a spring and controlled by the lever. The ejector-bosts are raised by the toes. The ejector is moved forward by the books, and returned to position by the step just before the type is inserted into the carrier.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON



1. The combination of a movable finger, C, with the cut-off plunger A and the controlling-lever E, operating substantially in the manner described.

2. In combination with the type-carrier, the improved ejector, for throwing the type out of the carrier, operating without a spring, substantially as described.

3. In combination with the type-carrier, a stop, Q², so arranged that the ejector is held back as the carrier is driven forward to the initial point of the carrier movement, substantially as described.

4. The combination of the ejector-hooks with vibrating tens or cams, for the purpose of elevating the hooks independent of their own movement, substantially as described.

5. The combination of the rocker-arm Y with the hook W, operated by the cam V², substantially in the manner described.

176,900. TYPE-DISTRIBUTING MACHINE. Charles W. Dickinson, Washington, D. C., assignor to Stanl. W. Green, Brooklyn, and said Green assignor to Edward N. Dickerson, New York, N. Y., trustee for Henry A. Burr. [Filed Aug. 6, 1872.]

Brief.—The column of type is placed in the inclined gulley, when the swinging plate raises a line into the distributing-channel, where the line-follower presses it forward against the movable rest. The type-driver, pressing laterally against the type, cuts it from the line and clears the channel. A spring-tongue attached to the driver raises the retaining-spring in the carrier and guides the type into it, where the type is caught and held as the driver is withdrawn, to repeat the operation with the next type. The carriers are moved step by step in the rectangular race by the plungers and drivers, and at each step the selectors present their feelers to the type, and if they correspond with the nicks therein, the selector is allowed to advance, so that the rest-block is pressed back, allowing the hook to drop behind the ejector, and as the selectors are retracted the type is drawn out of the carrier, and falls through the conductor into its appropriate channel, when it is pushed along to make room for the next type. All the movements of the machine are automatic.

1. The detaching type-driver, combined with actuating means, substantially as described, whereby it is forced against the type, first by a feeble spring-pressure, sufficient only to detach the type from its connection with the line of type, and afterward, when the type has been detached, by a stronger spring-pressure, for the purpose of carrying the type into a position where it is controlled by another mechanism in the distributing-machine.

2. The combination, with a type-driver and a type-carrier, of an elastic tongue, which is moved in advance of the movement of the type-driver, and which constitutes a guide for leading the type into the carrier as it is forced in by the type-driver, and which opens the cloth of the type-carrier, substantially as described.

3. In a type-distributing machine, type-carriers, each so constructed as to receive and hold a type, each carrier being a complete independent removable instrument for that purpose by itself, substantially as described.

4. In combination with the type-carriers, two plungers, constructed substantially as described, moving in opposite directions, the one operating on the front and the other on the rear row of carriers, or other equivalent devices for moving a number of type-carriers with an intermittent motion, permitting an interval of rest for the purpose of removing the type, substantially as described.

5. In combination with the type-carriers, two drivers, constructed substantially as described, moving in opposite directions, simultaneously acting, the one forcing one carrier from the front to the rear row, and the other forcing one carrier from the rear to the front row, with an intermittent motion, substantially as described.

6. The combination of cams Q² and T' with the plungers and drivers, substantially as described, for presenting a constant succession of type-carriers to the type-driver, a single one at each stroke of the type-driver, for the purpose of receiving the type, substantially as described.

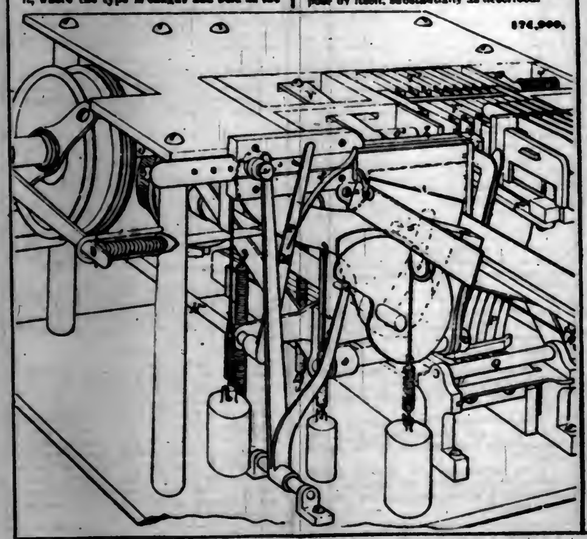
7. In combination with the type-carriers, the two pairs of channel-ways for the movement of the carriers, arranged and constructed substantially as described, so that the rows of carriers in each pair will be moved in lines parallel to each other and in opposite directions, substantially as described.

8. The combination of the hook or catch, for ejecting the type from the carrier, with a sliding detent for dropping the hook into action, and a slide-arrest with projecting pins for determining the denomination of the type in the carrier, substantially as described.

9. The combination of independent traveling carriers, carrying type to be distributed, with a series of hooks or catches for ejecting the type from the carrier at the appropriate places, substantially as described.

176,901. TYPE-SETTING MACHINE. Chas. W. Dickinson, Washington, D. C., assignor to Stanl. W. Green, Brooklyn, and said Green assignor to Edward N. Dickerson, New York, N. Y., trustee for Henry A. Burr. [Filed Aug. 15, 1872.]

Brief.—Depressing the key raises the vibrating tumbler, so that it engages with the cloth-bar on the sliding rod, then causing the plunger to force out the type, which, resting upon its side, slides down the inclined glass plate into the race, where it is pushed forward by the reciprocating plunger, the forward type bearing against the slide-rest. When type enough to form a line are in the race, a follower is automatically brought into action, which pushes the line into the galley, when a lead is raised behind it, and the whole is pushed sidewise on the galley, where it is supported by the overhanging arm. While this operation has been going on, a temporary rest has been automatically introduced to support the line of type forming in the race. Automatic stop mechanisms lock the type-expelling devices after each type is ejected, until the same or another key is struck, and during the interval between the action of the slide-rest and temporary rest.



1. The front rest formed by the edge of the glass plate, substantially as described, for giving a support to the "face" end of the type as it is ejected from the case before the bottom end is disconnected from the line in the case, so as to hold the type from turning, and secure its delivery with the proper side down, substantially as described.

2. A guiding apparatus consisting of a fixed inclined back plate, on which the type-grooves are formed, and a removable inclined plate of glass or similar smooth transparent substance, which completes the channels, and on which the types slide down upon one of their sides from the case to the race in which they are to be set, substantially as described.

3. A vibrating tumbler, substantially as described, in combination with the plunger, which expels the type, and with the reciprocating cloth, which gives motion to the plunger, so arranged that it will not engage with the reciprocating cloth until it is brought into connection by the action of the key pressed to set a type, substantially as described.

4. The combination of two followers, substantially as described, for pressing forward the line of type, which is fed into the type-channel by the conductor, one of which has a short reciprocating movement, and the other of which pushes forward the entire line out of the channel and into the galley when enough type has been cast up to form a single line of a column, substantially as described.

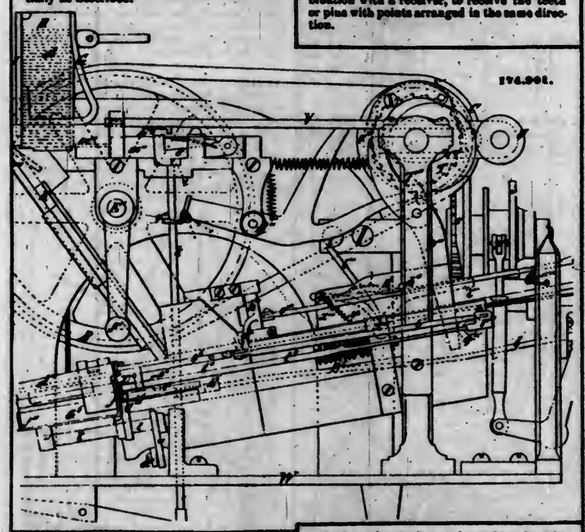
machine with the apparatus for separating the line of type of the length required for a column, so that when the slide-rest has been moved far enough to form a line of the required length it will automatically set in motion the second follower and the apparatus for making up the line into a column, substantially as described.

7. A type-setting apparatus the selecting mechanism of which is automatically locked while a single line of type is being moved out of the channel, in combination with a temporary rest which is brought into position to receive type, which may be conducted into the channel during the transfer of the forward line, substantially as described.

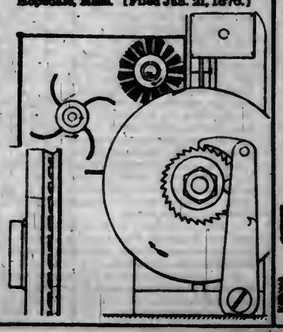
8. The combination, with an apparatus, substantially as described, for moving a line of type out of the race where it is formed into the galley, of an automatic apparatus for "leading" the line of type, and for moving it sidewise out of the track of the slide-rest, substantially as described.

9. A friction-detent for so controlling the slide-rest that it is held pressed against its slide when moving in one direction, and is automatically liberated to run freely in the opposite direction, by means constructed and operated substantially as described.

10. The combination of a mechanism in which types are selected by keys with an apparatus which automatically makes up each completed line of types into column, substantially as described.



176,902. MACHINES FOR ASSORTING TEMPLE-TESTS. Frank J. Dutcher, Hopedale, Mass., and C. E. Church, Hartford, Conn., assignors to the Dutcher Temple Company, Hopedale, Mass. [Filed Jan. 21, 1876.]



1. A carrier provided with cells shaped to conform to the entire outline ends included of the teeth, pin, or nail to be operated on, and adapted to receive teeth, pins, or nails from a mass of teeth, pins, or nails, and remove them from the mass to assort them, in combination with a clearer to remove from the cells teeth or pins lodged therein with the points or butts in opposition to the point or butt receiving portions of the cells, all substantially as described.

2. A coiled carrier provided with cells shaped to correspond with and to receive the entire sides and ends of the teeth or nails, in combination with a clearer to remove teeth improperly lodged in the cells, and with an ejector to remove the teeth or nails from the cells, substantially as described.

3. A movable coiled carrier provided with cells conformed in shape to the sides of the teeth or nails to be selected, in combination with a support under the cells of the carrier, to support the nails except at the point at which they are to be discharged.

4. A movable carrier provided with cells to receive teeth or nails, as described, a support placed under the cells, and adapted to sustain such teeth or nails except at the point where they are to be discharged, in combination with a receiver to receive the teeth or nails, with points directed in the same direction.

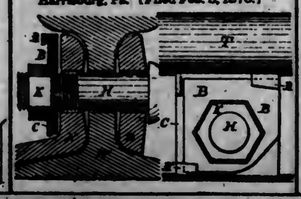
5. A movable coiled carrier, substantially as described, a support, and an ejector, in combination with a receiver, to receive the teeth or pins with points arranged in the same direction.

6. A receiver and catch, in combination with an ejector provided with a forked end, substantially as described.

7. The combination of a receiver for the teeth or nails and a catch to retain the last tooth inserted in the receiver, with a follower to keep the first tooth in the receiver in a position parallel with the last tooth, substantially as described.

8. A coiled carrier and a clearer, in combination with an ejector and a receiver, combined and adapted to operate substantially as described.

176,903. NUT-LOCKS. James A. Forster, Harrisburg, Pa. [Filed Feb. 3, 1876.]

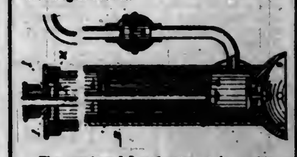


1. The nut-lock composed of the washer-plate with upturned and hooked parts A A' D arranged on its margin, and the discous locking-plate B, with rounded side B', said plates being applied to each other removably, and adapted without change thereof to the ordinary bolt and nut, and operating as and for the purpose set forth.

2. The combination of the plates A A' D and B B', constructed as set forth, and the flanges of the common rail T or fish-bar N, bolt H, and nut K, all operating as set forth.

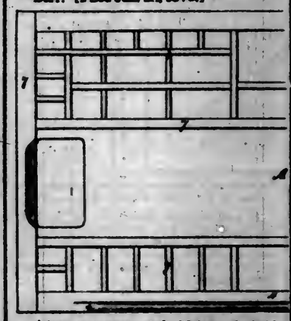
176,904. PUNCH-PUMPS. Geo. W. Gilmore, Webster, Pa. [Filed Aug. 6, 1875.]

Brief.—Perforations in the cap and as in wardly opening valve control the supply of air above the piston. By combination of the same with the hollow piston having sliding valve, (the subject of a former patent,) the entrapped air under compression is brought to bear upon the column of water, and is part discharged with it.



The openings I I and valve *n*, in combination with the piston B, constructed substantially as described and set forth.

176,905. TYPE-CASES. Samuel W. Green, Brooklyn, assignor to Edward N. Dickerson, New York, N. Y., trustee for Henry A. Burr. [Filed Jan. 21, 1876.]



A type-case constructed with boxes for holding types and a compartment for receiving and supporting a galley or similar holder for composed matter, substantially as described

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176,906. TOE-WEIGHTS FOR HORSES' FEET. Seth Griffin, Elyria, Ohio. [Filed Jan. 22, 1876.]



An improved article of manufacture, the weight or button herein described, provided with a lip, *c*, and perforated leg B, whereby to secure the same to the foot of a horse, for the purpose specified.

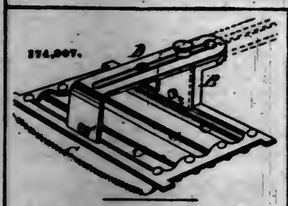
176,907. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. [Filed Mar. 4, 1876.]

Brief.—The comb is provided with an adjustable handle, which may be made to serve as a side handle, or as an overlying handle, at the will of the user.

1. A curry-comb which is provided with an adjustable device that will serve the double purpose of a side handle and also a raised grasping-handle over the back of the comb.

2. An end-wise-movable handle, D, combined, substantially as described, with a curry-comb.

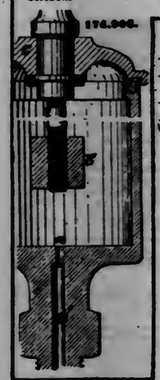
174,907.



174,908. LUBRICATORS. Henry Hughes, Leicester, England. [Filed Jan. 8, 1876.]

In cast lubricators, to be operated by the admission of steam, as herein before mentioned, one or more minute passages or orifices, of a permanently restricted area in cross-section, for the purpose of limiting the discharge of the lubricant without the employment of regulating valves or cocks, the whole being constructed substantially as herein before described.

174,908.



174,909.



174,909. WRENCHES. Alfred T. Hyde, Ithaca, N. Y. [Filed Aug. 6, 1874.]

In a wrench, the combination of the main bar A, provided with the externally-threaded sleeve C, with the extended bar B, having sectional threads, and capable of being grasped by the hand, in the manner and for the purpose set forth.

174,910. CURTAIN-FIXTURES. D. B. Kempster, Boston, Mass. [Filed Dec. 9, 1875.]



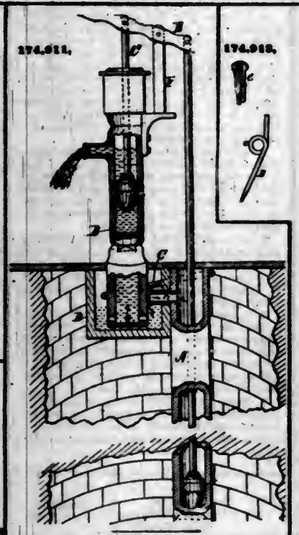
For application to a curtain-roller, A, and its spindle, B, provided with a winding-spring C, as described, the disk G, fixed to the spindle B, and provided with the chamber *l* and one or two locking-recesses, *m*, constructed and arranged in said disk as set forth, in combination with the gravitating-roller H and with the flanged carrying-disk D, provided with one or more springs, *s*, through its annular flange *b*, all being arranged to operate substantially as specified and represented.

174,911. PUMPS. Jacob Kinzer, Tecumseh, Nebr. [Filed Feb. 3, 1876.]

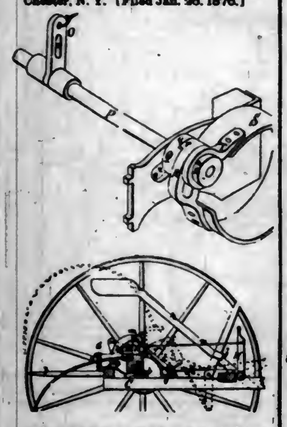
Brief.—One lifting-pump raises the water from its bed, and discharges it into a reservoir, while the other raises it from said reservoir, and discharges it where desired, by which means water may be raised by suction to double the usual height.

The combination of the two lifting or suction pumps A B, united by stirrups U with the delivery-pipe a and reservoir D, arranged to operate by means of the rods *c c'*, brake-lever E, and standard F, substantially as and for the purpose specified.

174,911.



174,912. HORSE HAY-RAKES. William J. Lane, Millbrook, and Wm. H. Field, Port Chester, N. Y. [Filed Jan. 26, 1876.]



1. In a horse hay-rake the automatic dumping apparatus, combining the foot-lever N, the torsion-rod P, the lifting-toe Q, the link R, the stationary link T, the friction-strap S, the friction-pulley U, and wheel-hub B', substantially as and for the purpose set forth.

2. The metallic rake tooth-holding bar, grooved on its inner side, perforated with a series of tooth receiving holes, and adapted for application to the side of the rake-head, substantially as described.

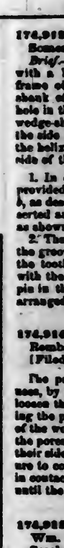
3. The combination of the wheel-hub B', having the reduced parts a^2, the friction-pulley U, and the brass bearing-washer a^3, constructed and operating substantially as and for the purpose described.

4. The torsion-rod P, hung so as to be free to move laterally toward and from the friction-pulley U, substantially as described.

5. The combination of the torsion-rod P, the lifting-toe Q, and the links R and T, and the friction-strap S, substantially as and for the purpose described.

6. The combination of the torsion-rod P, slotted lever O, sliding bolt W, having a shifting connecting-pin, *v*, and stop *g*, constructed and operating substantially as described.

174,913.

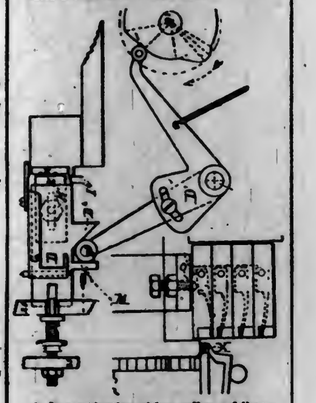


174,914. PROCESSES OF TREATING WOOD. Rembrandt Lockwood, Brooklyn, N. Y. [Filed Oct. 2, 1875.]

The process of treating wood for various uses, by first boiling or steaming the wood to loosen the contents of the pores, then emptying the pores by pressure applied to the sides of the wood, and finally introducing, through the pores a sufficient quantity of glue to coat their sides, and then applying sufficient pressure to collapse the pores and place their sides in contact, so as to solidify the mass of fibers, until the whole is dry.

174,915. TYPE-DISTRIBUTING MACHINES. Wm. A. Lovell, New York, assignor to Samuel W. Green, Brooklyn, and said Green assignor to Edward N. Dickerson, New York, N. Y., trustee for Henry A. Burr. [Filed Aug. 9, 1875.]

Brief.—The invention consists in improvements on the Dickinson distributing-machine, which are set forth in the claims.



1. In combination with a galley, a follower for pushing in the column of type to be distributed, mounted upon a rod, on which it slides in the direction of the motion of the type-column, and around which it can be rotated, so as to permit the addition of more type to the column without stopping the machine, substantially as described.

2. The combination of the revolving cam for operating the slide which feeds in the type from the line of the carrier with the bell-crank and the diverging jaws on the slide, substantially as and for the purpose described.

3. The cap G, in combination with the feeding-in slide, and moving therewith, for the purpose of preventing the type from rising in the carrier, constructed and arranged substantially as described.

4. The combination of an adjustable spring with the feeding-in slide for the purpose of giving its first impulse, substantially as and for the purpose described.

5. An adjustable friction-pulley, over which the cord operating the line-follower passes, in combination with the line-follower, for the purpose of regulating the force with which the weight drives the line-follower, substantially as described.

6. An adjustable nose-piece, E, in combination with the feeding-in slide D, substantially as and for the purpose described.

7. A corner-piece, opposite the carrier which is receiving a type, having a recess cut therein for the purpose of holding the type from being withdrawn, in combination with the type-driver and carrier, substantially as described.

8. The nose-piece E and the corner-piece I, constructed with rounded corners, substantially as described.

9. The roller on the cut-off lever G^1, in combination with the line-spacing finger, for the purpose described.

10. In combination with the type-carrier, the ejector with three prongs, of which two are of full width, constructed and operated as described.

11. The combination of the vibrating spring-stock of the carriers with the opening projecting steel O on the follower M, which moves the line of carriers, so arranged as to open the cloth for the reception of the type, and to hold it open until the type has been admitted, substantially as described.

12. In combination with the feeder-slides, the adjustable and reversible section of the cam R, for the purpose of varying the movement of the following apparatus as different kinds of type are used, substantially as described.

13. In the case V for receiving the type from the distributer, the combination of a spring stop with with a free stop, for the purpose and operated in the manner described.

174,916. TYPE-SETTING MACHINES. Wm. A. Lovell, New York, assignor to Samuel W. Green, Brooklyn, and said Green assignor to Edward N. Dickerson, New York, N. Y., trustee for Henry A. Burr. [Filed July 15, 1876.]

1. In combination with the type-case, the plunger for ejecting the type, made thicker than the thickness of the thinner type to be ejected, and tapered at its end, substantially as described.

2. In the combination of a type-case, ejector, and stop, the improved stop, consisting of the revolving roller E, for the purpose of arresting the motion of the type when ejected, substantially as described.

3. In combination with the grooved back plate, the glass front plate made in sections, each removable independently, substantially as described.

4. In combination with the type-case, the removable guide-bar H, secured by thumb-screws, or an analogous device, substantially as described.

5. In combination with a back plate having grooves of varying depth, the type arranged so that the heavier type shall travel through the longer grooves, and the lighter through the shorter ones, substantially as described.

6. The combination of the pendulum suspender and the adjustable spring for the purpose of controlling and making sensitive the vibrations of the gate, as the varying thickness of type pass through it, substantially as described.

174,917. INDELIBLE INKS. D. M. Marshall, Columbia City, Ind. [Filed Jan. 22, 1876.]

An indelible ink for canceling postage-stamps, consisting of ordinary printer's ink and carbolic acid, substantially as described.

174,918. SPINDLES AND FLY-FRAMES. T. Mayor, Providence, R. I. [Filed Nov. 17, 1875.]

Brief.—In securing to the lower end of the spool gear-shaft a quadrant, supporting the change-gear, so that by substituting one change-gear for another, larger or smaller, the speed of the contact-shaft carrying the pinion which engages with the rack is changed, and the speed of the bobbin increased or diminished, as desired, the whole supported by a yoke and bracket attached to one standard or spring-piece.

1. The combination, with the space-gear shaft *h*, and contact-shaft *e*, of the quadrant *e*, arranged to support the gear *h* and change-gear *g*, substantially as and for the purpose described.

2. The combination, with the shipper-bar *a* and contact-shaft *e*, of the supporting-yoke E, arranged to support the shipper-bar in guides directly over the said contact-shaft, substantially as and for the purpose set forth.

3. The combination, with the space-gear *l*, and shipper-rack *d*, of mechanism substantially as described, by which the motion of the space-gear is transmitted to the shipper-rack at any desired speed, varied by the interchange of gears, as and for the purpose described.

4. The combination, with the shafts *h* and *e*, of the gears *i h g*, and the quadrant *e*, the whole arranged and supported from one spring-piece or standard, substantially as described.

174,919. STAIR-RODS. Wm. T. Stevens, Orange, N. J. [Filed Jan. 13, 1876.]

Brief.—An interposed strip or plate of iron between two of brass, both strengthening and cheapening the construction.

A stair-rod made by inclosing a plate of iron or other suitable material between two thicknesses of brass, substantially as and for the purpose set forth.

174,920. LAP-ROBES AND FOOT-POCKETS. James Milwain, Albany, N. Y. [Filed Jan. 10, 1876.]

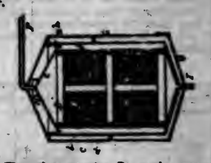
174,920.



The combination of the lap-robe A, with the foot-pocket B, substantially as and for the purpose herein specified.

174,921. PROCESSES AND APPARATUS FOR MANUFACTURING ILLUMINATING-OILS. C. L. Morehouse, Cleveland, Ohio. [Filed Oct. 16, 1875.]

Brief.—The filter is placed in a case having a double wall provided with a steam-space. The filter is composed of a wire-gauze cylinder, over which is wrapped, successively, woolen cloth, filter-paper, and again woolen cloth. The oil is agitated with steam, washed with caustic alkalies, and filtered in a warm filter.



1. The wire cylinder B', woolen wrappers *d b*, filtering-paper wrapper *c*, and hollow case or shell G, all constructed and arranged to operate in relation to each other in the manner substantially as described; and for the purpose specified.

2. In combination with the herein-described filter, the agitator B, put in connection therewith by the pipe F, as and for the purpose specified.

3. In combination with the filter and agitator herein described, the steam-boiler A, put in connection with said filter by the pipe C, in the manner as described, and for the purpose set forth.

4. The process herein described for refining hydrocarbon oils, consisting in treating them with steam, so as to remove the lighter portions, washing with caustic alkalies, and filtering with a warm filter, all substantially as specified.

174,922. LAMPS. Stephen S. Newton, Binghamton, N. Y. [Filed Jan. 20, 1876.]



A safety filling attachment for lamps, consisting of the externally screw-threaded thimble C, having a nozzle-opening, *c*, and an inclosing or covering ring, adapted to be interposed between the burner and the screw-threaded collar B of a lamp, combined to operate substantially as set forth.

174,923. BUTTONS. N. C. Newell, Springfield, Mass. [Filed Feb. 12, 1876.]

Brief.—Part of a button is first covered with an annular metal mask. It is then sprinkled with a solution of gum-acacia or analogous substance, and afterward dyed. The mask and gum are easily removed after the dyeing is effected.



The improved process in the art of ornamenting buttons, consisting in first covering part of the button in the manner described, and then sprinkling the exposed portion with an adhesive fluid that may be readily removed after the coloring is effected, substantially in the manner and for the purposes specified.

176,902. HORSESHOE-BLANKS. Charles H. Perkins, Providence, R. I. [Filed Feb. 5, 1876.]



1. As an article of manufacture, a blank for horseshoes, having its inner edge of uniform thickness, and its outer edge varying in thickness, thinnest at a point equidistant from the calks, and increasing in thickness from said point in either direction toward the calk, as set forth.

2. As an article of manufacture, a double blank for horseshoes, having its two outer edges of varying thickness, substantially as shown and described, and its central or middle portion formed so as to leave edges of uniform thickness when divided, as set forth.

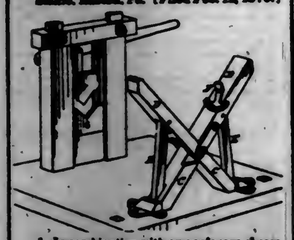
3. The blank for horseshoes, rolled flat at each end, as described, as a new article of manufacture.

176,903. TOE-WEIGHTS FOR TROTTING-HORSES. James Selby and M. D. Spurck, Peoria, Ill. [Filed Dec. 13, 1875.]



The toe-weight composed of the sections C A, and secured by the bolt a, substantially as herein shown and described.

176,904. ANGLE-IRON SHEARS. Henry D. Steele, Boston, Pa. [Filed Feb. 12, 1876.]



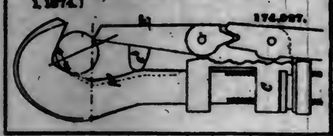
1. In combination with an angle-iron shears or shearing-machine, a crown-guide or trestle formed substantially as described, whereby the flanged or angle bar, as fed to the machine, is guided to be cut at varying bevels, as required, in the manner substantially as herein before set forth.

2. The crown-guide or trestle C, provided with hinged arms D D and legs E E, substantially in the manner hereinbefore described, for the purposes set forth.

3. The adjustable stop F, in combination with the crown-guide C, for the purpose hereinbefore set forth.

4. The combination, in a machine for shearing flanged or angle iron, of shearing-knives fixed to be successively intersected, substantially in the manner hereinbefore described, for the purposes set forth.

176,905. PIPE TONGS AND CUTTERS. Jas. S. Stewart, Philadelphia, Pa. [Filed Dec. 1, 1874.]

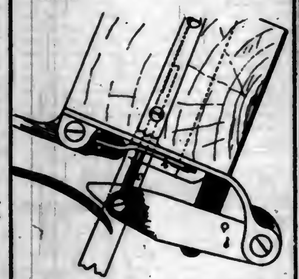


1. In pipe tongs and cutters, a hinged jaw or cutter, provided with the steady-pin s', combined with the bar A, having the groove p', substantially as and for the purposes specified.

2. A detachable jaw or cutter having the steady-pin s', combined with the bar A, provided with the groove p', substantially as and for the purposes described.

3. A jaw or cutter having the steady-pin s', and hinged to the adjustable slide C, the bar A, provided with the groove p', slide C, and lever B, hinged thereto, combined and operating in conjunction, substantially as and for the purposes specified.

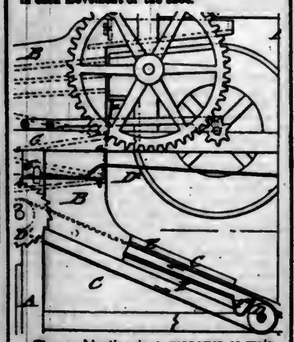
176,906. WEFT-STOP MECHANISMS. F. C. Tucker, Hartford, Conn. [Filed Nov. 20, 1875.]



In combination with the lay, the lever b, and operating mechanism, comb a, locking-piece h, and dagger g, all substantially as described.

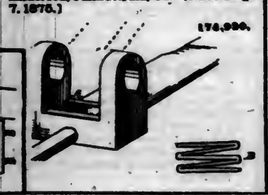
176,908. GRAIN-SEPARATORS. H. H. Valle, Grove Lake, Minn. [Filed Aug. 20, 1874.]

Brief.—An endless sieve mounted on rollers within a shaking-shoe, one of which is reciprocated longitudinally to jar the sieve, is given an intermittent travel by means of a fixed spring-pawl, which engages with a ratchet-wheel on one end of one of the rollers, once in each movement of the shoe.



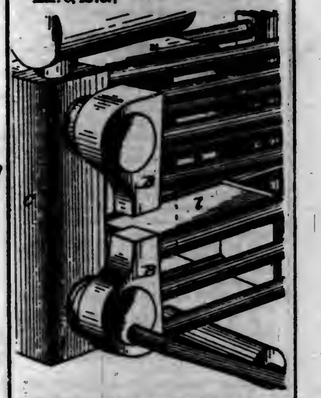
The combination, in a winnower or grain cleaner, of the reciprocating sieve-frame B, endless traveling apron C, drums D D, ratchet-wheel D^1, and lever-pawl D^2, all constructed and arranged as herein set forth.

176,909. TELL-COUPLINGS. William W. Anderson, Philadelphia, Pa. [Filed Aug. 7, 1876.]



A shift-coupling clip with a transverse bar, provided with a cavity, A, combined with a metallic spring, B, seated in said cavity, and bearing directly against the ordinary shaft-iron, substantially as shown and described.

176,910. SECTIONAL STEAM-BOILER. V. D. Anderson, Springfield, Ohio. [Filed Mar. 6, 1876.]



1. A section for a steam-boiler, composed of the manifolds A and B B, each cast complete in a single piece, and united by the wrought-iron tubes C, having a right-hand screw-thread on one end and a left-hand thread on the opposite end, substantially as described.

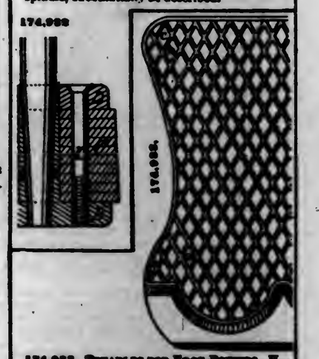
2. A steam-boiler composed of a series of sections, constructed as above set forth, said sections being united by the connecting-thimbles I, substantially as shown and described.

3. In combination with a steam-boiler having a series of horizontal tubes, the plates e, f, and g, arranged substantially as set forth, whereby the products of combustion are made to pass laterally and vertically, forward and back, up and down, as described.

176,911. MAULS. S. M. Anthony, Gloversville, N. Y., assignor to W. B. Green and A. H. Langfield, same place. [Filed Feb. 23, 1876.]

The combination, in a maul, of the hollow spindle and the clamp-plate, secured together by screw-bolts, whereby the disks are firmly held against shocking or moving upon the spindle, substantially as described.

176,912. TREADLES FOR FOOT-POWERS. H. Anthony, Cleveland, Ohio. [Filed Mar. 4, 1876.]



A foot-pad formed of elastic rubber and provided with elastic heel-flanges, substantially as and for the purpose described.

176,914. CAN-SHIELDS. Geo. W. Banker, Brooklyn, N. Y. [Filed Feb. 17, 1876.]

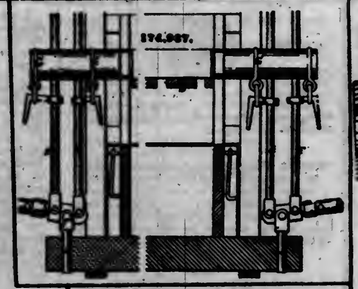
176,906.



1. A combined can and cane, with corresponding ears on each, held together by a bail or handle, the ends of which pass through the ears of both, as described.

2. The cased can A B, combined with the shield B, provided with a rotating mast, A, as and for the purposes described.

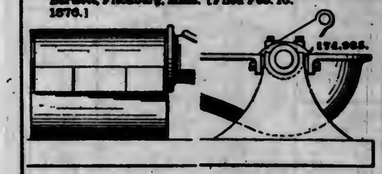
176,907.



176,908. PROCESSES OF PRESERVING MEAT. Andrew Bertsch, Lansing, Mich. [Filed Feb. 16, 1876.]

A process of preserving meats, the same consisting in treating with a dilute mixture of syrup and saltpeter, reducing, and then compressing into packing previously saturated in a solution of salt and molasses, the whole being then subjected to the action of a pickle, and subsequently smoked, all as hereinafter set forth.

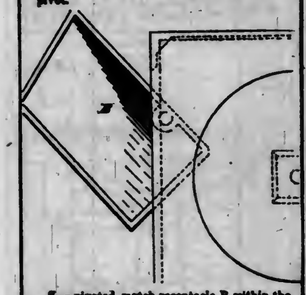
176,915. STEAM-BRUSHES FRAMES. Louis D. Bartlett, Fitchburg, Mass. [Filed Feb. 10, 1876.]



The reversible pedestal, constructed in the manner and for the purpose described, both ends being adapted for the attachment of the parts having opposite sides alike, which secured to the cylinder, and beyond the engine required by the crank, the whole combined to form an engine-frame, substantially as specified and described.

176,916. COMBINED LAMP-STANDS AND MATCH-BOXES. Edwin R. Baugh, New York, N. Y. [Filed Nov. 3, 1875.]

Brief.—The match-receptacle is opened by pressing upon it at any point in rear of the pivot.



The pivoted match-receptacle B within the base of a lamp, drop-light, or other illuminating apparatus, constructed and operated substantially as described.

176,917. COTTON-PLANTERS. C. H. Baldon, Newbern, Tenn. [Filed Mar. 13, 1876.]

Brief.—Two rods extending from each end of the follower-beam are pivoted at bottom to each side of the fulcrum of a lever; their connection to the beam being rings along there-from, that slide on the rods, and by their weight clamp them in a downward direction only.

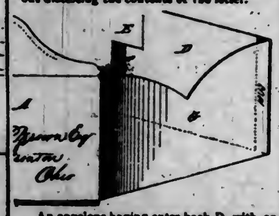
The combination of a pair of levers, each having two eating rods, with a single movable beam and clamping-rings, substantially as described.

176,918. FIRE-PROOF CEMENTS. Francis T. Bolton and Sarah H. Hurst, Terre Haute, Ind. [Filed Feb. 10, 1876.]

The combination of the inner fire A, linings B B', air-chamber C between them, ventilator D, and stove-pipe thimble E, all constructed substantially as and for the purposes herein set forth.

176,919. ENVELOPES. Henry H. Brown, Ironton, Ohio. [Filed July 24, 1875.]

Brief.—Removing the front side of the envelope exposes the address of the writer without disclosing the contents of the letter.

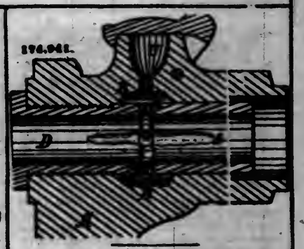


An envelope having extra back D, with excision E, as well as pasting-edge F, and connected by piece G with the ordinary back A, as shown and described.

176,920. JOURNAL-BOXES FOR HARVESTERS. Thomas S. Brown, Poughkeepsie, N. Y., assignor of one-half his right to J. P. Adriance, same place. [Filed Feb. 7, 1876.]

The combination, with a harvester-frame, of a sheathed self-oiling screw-bushing, for ready adjustment in the field, substantially as described.

176,921.



176,922. DENTAL RUBBER DAMS. S. Parmly Brown, Flushing, N. Y., assignor to Henry C. Howells, same place. [Filed Jan. 26, 1876.]

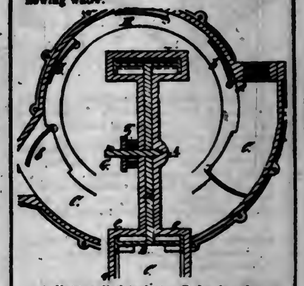
Brief.—A depression is molded in the rubber of the dam, so as to project into the mouth, and reach more easily the teeth. This arrangement prevents all puckering of the dam.



In a dental rubber dam, a concave or depression, of whatever shape, molded therein for the purpose of fitting naturally in the mouth without stretching and puckering, all as arranged and described.

176,923. WATER-METERS. John J. Burrows, Washington, D. C., assignor of one-half his right to Thos. Adams, same place. [Filed Mar. 31, 1874.]

Brief.—A light cylindrical rim has depressions in its periphery, in which are hinged leaves operating independently of each other, the cylinder being supported upon a chart, on which it revolves. The case has two diametrical and curved sides, which fit close in one portion, leaving the enlarged space in the lower portion for the falling leaves to measure the flowing water.



A light cylindrical rim, B, having depressions in its periphery, into which are hinged a series of levers, b A, or falling buckets, each half operating independently upon the rim B, which revolves on the arbor G, the same being enclosed in a case having two diametrical and curved sides, fitting the plate d and cylinder E on its upper portion, leaving the enlarged space C for the falling buckets, A, to measure the flow of water, substantially as and for the purpose herein shown and described.

176,924. PLANING-MACHINES. Adam Cant, Galt, Canada, assignor of one-half his right to John Gourlay, same place. [Filed Apr. 20, 1876.]

Brief.—The legs composing the moving platform are formed with hooks, connecting with eyes on alternate pieces, and are also provided with projections, which are acted upon by the sprocket-wheels.



176,944.



1. The combination of the cylinder A, plates C C, shields B B, and handle I, constructed and arranged in the manner and for the purpose herein described.

2. The adjustable collars E E, in combination with the cylinder A, in the manner and for the purpose herein described.

3. The casket K, in combination with the brace H, handle I, slot L, and lug i, in the manner and for the purpose herein described.

176,945.



176,946. EARTH-AUGERS. Jay Campbell, Deer Creek, Wis. [Filed Feb. 7, 1876.]

Brief.—The openings in the bucket are covered by shields controlled by the handle, being open while boring, but closing when the handle is reversed, so as to retain the earth when the auger is drawn up. Adjustable reamers are attached to the lower part of the bucket.



176,946.

1. The combination of the cylinder A, plates C C, shields B B, and handle I, constructed and arranged in the manner and for the purpose herein described.

2. The adjustable collars E E, in combination with the cylinder A, in the manner and for the purpose herein described.

3. The casket K, in combination with the brace H, handle I, slot L, and lug i, in the manner and for the purpose herein described.

176,946. ICE-CREEPERS. John L. Cone and Frederick H. Furnas, Waterloo, N. Y. [Filed Mar. 6, 1874.]



An ice-creeper consisting of the plate A, swinging arm C, and spring g, and plate being constructed in skeleton form to admit the head and journals of the swinging arm thereon, and the spring resting over and covering said head, and serving the double purpose of retaining the journals in place, and of providing the necessary spring bearing upon the head, as and for the purpose specified.

176,947. BOBBINS. Isaac Oundey, Philadelphia, Pa. [Filed July 3, 1875.]

Brief.—A recessed bobbin, formed of a single piece of wood, is strengthened by a staple inserted transversely through its head, and having its top apart, so as to form a band around the central recess for the spindle.



176,947.

The described bobbin, having the staple inserted and secured in its head, substantially as shown and set forth.

176,948. HORSE-POWERS. Daniel Cushing, Wheeling, W. Va. [Filed Nov. 27, 1875.]

Brief.—The slides on each side are drawn back according to the length of the step. Upon the animal lifting his feet, the slides are again drawn forward by the recoil of the springs inclosed in the pulleys.



1. The slides H H, as arranged in relation to, and in combination with, the pulleys C D, connected therewith by cords or straps G' G and shaft B, substantially in the manner as described, and for the purpose set forth.

2. In combination with the slides H H', shaft B, pulleys C D, the ratchet-wheel and pawl E a, and springs s, substantially in the manner as described, and for the purpose specified.

176,949.

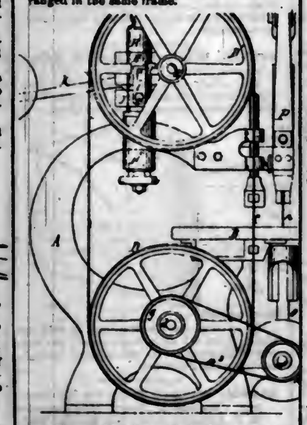
176,949. ORNAMENTAL CHAIN-LINKS. Virgil Draper, North Attleborough, Mass., assignor to O. M. Draper, same place. [Filed Oct. 8, 1874.]

1. The improvement in the manufacture of ornamental chain links, which consists in growing or otherwise indenting the two opposite sides of the central metallic bar A, and forcing the metal of the link B to fill the same by the operation of swaging, as above set forth.

2. An ornamental chain-link, composed of a central metallic bar or bars, A, and a link proper, B, mechanically held together by the means substantially as described.

176,950. SAWING-MACHINES. Andrew H. Frank and George Spire, Buffalo, N. Y. [Filed Apr. 1, 1875.]

Brief.—A band saw and a gig-saw are arranged in the same frame.



1. The combination, with the frame and upper pulley, of a band-saw, the hollow guide-post H, screw-shaft i, threaded follower J, band-bearing E, and weighted lever K, interposed between the follower J and bearing E, substantially as and for the purpose herein-before set forth.

2 The combination, with the follower J, weighted lever K, and head-bearing E, of the slotted connecting-strap l, and pin F, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the gig-saw n, and upper guide Q, provided with dovetail feather r, of the clamping-jaws P', and tightening-screw s, substantially as and for the purpose hereinbefore set forth.

4. A sawing-machine comprising in its organization a band-saw, O, gig-saw n, main frame A, and gig-saw frame P at right angles to the main frame, and rigidly connected therewith by an arm, p, arranged substantially as and for the purpose hereinbefore set forth.

5. The combination, with the frame A, shaft d, and pulley D, of the stationary sleeve-bearing d', and adjustable sleeve-bearing d'', arranged within the same, and set-screw d''', substantially as and for the purpose hereinbefore set forth.

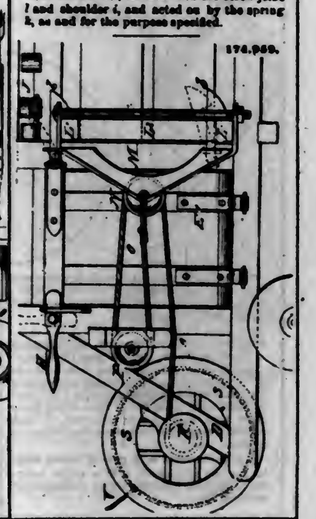
176,951. LAMP-EXTINGUISHERS. Fred. H. Furniss, Waterloo, N. Y. [Filed Feb. 17, 1876.]



1. The combination, with the spring-rod C, of the extinguisher B, made in a single piece, constructed with the slots b b resting on the pivots a a, and arranged as described so as first to turn up over the wick-tube, and then drop audibly thereon, in the manner and for the purpose specified.

2. The combination, with the extinguisher B, of the rod C, provided with the screw-joint l and shoulder i, and acted on by the spring k, as and for the purpose specified.

176,952.



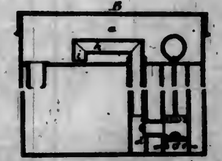
1. The combination, with the frame A, shaft d, and pulley D, of the stationary sleeve-bearing d', and adjustable sleeve-bearing d'', arranged within the same, and set-screw d''', substantially as and for the purpose hereinbefore set forth.

176,952. HAY-PRESSES. David C. Green, Union City, Tenn. [Filed Feb. 10, 1876.]

1. The combination of the follower I, extended beyond the sides of the baler-box, as described, the hinged frames M, pulleys N P, ropes O, windlasses R, with master-wheel S, and rope V, as and for the purposes set forth.

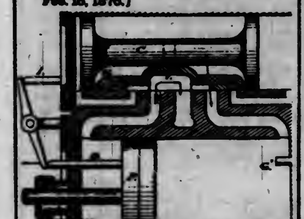
2. The follower I, hinged frames M, pulleys N P, ropes O, in combination with the windlass R, rope V, master-wheel S, and the hooks h, substantially as and for the purpose set forth.

176,953. LAMP-FILLING CABINETS. T. L. Harlow, Boston, Mass. [Filed Feb. 11 1876.]



The oil-receiving structure or cabinet herein explained, consisting of the vessel A, with its chambers a b, the pump D, and extension-tube d h, substantially as and for purposes stated.

176,954. VALVES FOR STEAM-ENGINES. R. Hill, Jr., South Norwalk, Conn. [Filed Feb. 10, 1876.]



The combination of the oscillating and reciprocating valve V, pivoted to the auxiliary piston, the ports E and F, the arm J, the rod I, and the tappets G, G', H, and H', substantially as and for the purpose specified.

176,955. STEAM-PUMPS. R. Hill, Jr., South Norwalk, Conn. [Filed Feb. 10, 1876.]



1. The combination of auxiliary piston-cylinder C, piston E, main cylinder A, valve V, all co-operating to produce the result substantially as described.

2. The combination, in a steam-pump, of main cylinder A, auxiliary cylinder C, piston E with its operating-rod passing through both cylinder-heads, with ports D D and D' D', F F and F' F', and valve V, all constructed and arranged to operate in the manner and for the purpose set forth.

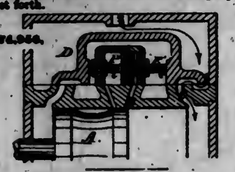
176,956. VALVES FOR STEAM-ENGINES. R. Hill, Jr., South Norwalk, Conn. [Filed Feb. 10, 1876.]

1. The combination of the stationary auxiliary cylinder upon the valve-face of main cylinder and the valve, said cylinder being located within the exhaust-passage of the main valve, substantially as described.

2. The combination of fixed cylinder P, valve D having its enlarged exhaust-passage and piston-valve E, substantially in the manner and for the purpose set forth.

3. The combination of the main piston A, ports B B', auxiliary cylinder F, valve E, with its stem E, having ports 1 2 3, with the main valve D, all arranged to operate said main valve in the manner and for the purpose set forth.

176,956.



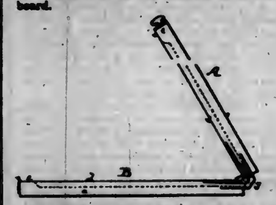
176,957. PUMP-VALVES. R. Hill, Jr., South Norwalk, Conn. [Filed Feb. 10, 1876.]



The combination, in pump-valves, of the perforated elastic or flexible disk D, constructed and arranged substantially in the manner and for the purpose herein set forth.

176,958. GAME-BOARDS. F. Hemrighausen, New York, N. Y. [Filed Feb. 10, 1876.]

Brief.—Is adapted for shuffling dominoes, and has the game-chart or design on the inner contiguous faces of the two halves of the board.



A game-box composed of the two equal halves A and B, each half having the inwardly-projecting ledges d d and e as three of its sides, the hinges f on the ledges d, and the flexible band g between their contiguous ends, all constructed and arranged substantially as herein shown and described.

176,959. DOUBLE-ACTING PUMPS. Charles P. Howard, Hartford, Conn. [Filed Dec. 14, 1876.]

Brief.—The base of the stock is formed with a flange, and below this flange the reservoir is extended downward a suitable distance, and forms a piston-cylinder. Upon this cylinder a screw-thread is cut on the outside, and on this screw-thread an annular flange-collar is screwed. When the pump is to be fastened in position upon a marble slab of a sleeping-car, the cylinder is passed down through an opening in the slab, and its flange rests upon the slab, so as to cover the opening.

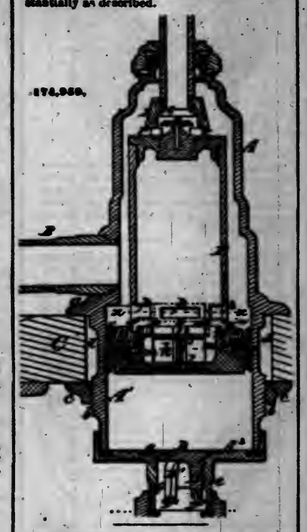
1. The hollow cylinder F, open at its bottom, and having apertures p in its circumference, and provided with an internally screw-threaded flanged extension below said apertures, in combination with the internally screw-threaded annular flanged portion E of the piston, substantially as and for the purpose described.

2. One or more channels, i, of communication between the reservoir A and the external air, in combination with the valve r, arranged to admit air into the reservoir and prevent the egress of water therefrom, substantially as described.

3. The combination of the guide-rings n n in the piston E e with the guide disk P and valve i, whereby a guide-stem extending below the valve-seat is rendered unnecessary, substantially as described.

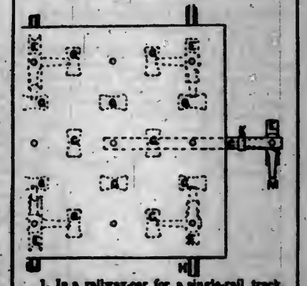
4. The combination of the piston, the valve i, the cylinder-head A', and the valve D, all in such a manner that the lower surface of the valve i is nearly a continuation of the lower surface of the piston, and the upper surface of the valve D is nearly a continuation of the upper surface of the cylinder-head A', and all the said surfaces nearly coincide when the piston is in its lowest position, substantially as described.

176,960.



176,960. DUMPING-CARS. Isaac B. Howe, Clinton, Iowa. [Filed Dec. 7, 1875.]

Brief.—Car adapted to different uses by shifting removable wheel-pedestals.



1. In a railway-car for a single-rail track, the pivoted pedestal F, in combination with the double-flanged wheel E, arranged substantially as described.

2. The brace-arms M M, or their equivalents, on the pivoted pedestal F, with or without the grooved sockets G, substantially as and for the purposes described.

3. In combination with the pedestal F and arms M M, the grooved guides G, or their equivalents, arranged substantially as and for the purposes described.

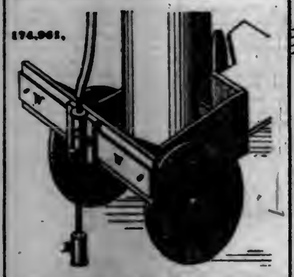
4. In a dumping railway-car, the sliding adjustable beams C C, arranged substantially as described.

5. In combination with the sliding beam C and pedestal F, the clamp K, or its equivalent, substantially as and for the purposes described.

176,961. STEAM ROAD-ENGINES. Samuel Johnson, Philadelphia, Pa. [Filed Mar. 4, 1876.]

Brief.—The steam-cylinder which operates the rammer is placed upon slide-ways, so as to be capable of being moved laterally to and fro across the pavement in straight lines as the work progresses.

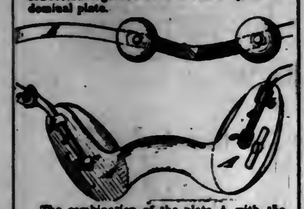
176,961.



The combination, with a suitable carriage supporting a boiler and furnace, of the steam-pipe F, cylinder C, slide S, valve W, and rammer K, all constructed, arranged, and operating substantially in the manner and for the purpose specified.

176,962. TRUSSES. De Lancy Kennedy, New York, N. Y. [Filed June 16, 1875.]

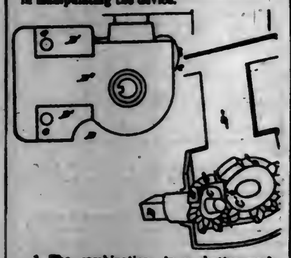
Brief.—The ends of the body-spring are swiveled upon the backs of two hernial pads, connected together in the center by an abdominal plate.



The combination of the plate A with the screw B by means of the oscillating plates e and their eccentrically-arranged transverse pivot p, as shown and described, for operation substantially as specified.

176,963. SHUTTER-WORKING. William M. Longhare, Waterloo, Iowa. [Filed Feb. 20, 1876.]

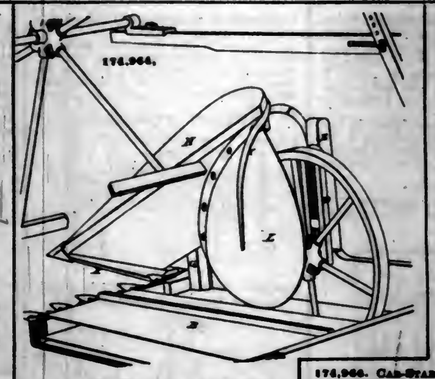
Brief.—Two cogs, one at either side, being made of extra width, and engaging with correspondingly-broadened cogless parts, thereby facilitating locking and unlocking by the same operation by which the gear-wheels are turned in manipulating the device.



1. The combination, in a shutter-worker, of beveled gears, provided, in addition to the ordinary working spurs, with broad cogs or locking-spurs, and correspondingly broader cogless parts, the said cogs and spaces arranged substantially as specified, with relation to each other, for the purposes specified.

2. The cam or box D, consisting of the parts D' and D'', the part D' having thereon the post c', and both constructed, substantially as shown and described, to match each other, and for attachment to the building, in combination with gears and their spindles or arbors, having bearings thereon, a shutter-arm, and a rod or handle for actuating the gears, for the purposes set forth.

176,964. DIVIDERS FOR HARVESTERS. S. D. Locke, Keystak Falls, N. Y. [Filed Jan. 26, 1876.]



1. The grain-wheel C, mounted upon an adjustable stud on the inside of the divider-girt, combined with the thin metallic covering-shield L, and side-delivery endless apron or belts B, the shield being attached to the divider, and in continuation of the same, to cover and protect the grain-wheel from the falling grain and conduct the latter upon the apron, substantially as set forth.

2. The divider constructed with that portion of its inner face above the cutters perpendicular to the axis of the reel, and the portion below the cutters forming a gathering-ledge, combined with a horizontal reel and a side-delivery endless apron or belts, so that the benters of the reel may sweep over the ledge and reach close to the divide-line, as and for the purposes set forth.

3. In combination with the side-delivery endless apron or belts B, for receiving and removing the cut grain, the divider-board H, having its outer edge curved outward and upward, and then over the grain-wheel, and downward toward the apron, to deliver upon the latter the tops of the cut grain, substantially as and for the purpose set forth.

4. In combination with the endless apron for receiving and removing the cut grain, the divider board H and shield L or rod O, when the shield or rod shall form with the outer edge of the board a continuous curve to conduct the grain upon the apron, as and for the purpose described.

5. In combination with a horizontal reel and an endless apron for receiving and removing the cut grain, a divider having its upper inner face coincident, or nearly so, with the divide-line, and its lower inner face a gathering-ledge, while its outer edge shall conduct the cut grain in a continuous curve outward and upward, and then over the grain-wheel and downward upon the apron, substantially as and for the purposes described.

176,965. FOUNTAIN-PENS. D. Mackinnon, Stratford, Canada. [Filed June 18, 1875.]

Brief.—Air is conveyed to a point near the gravitating-valve by means of a tube within the reservoir communicating with air-inlets of the cushioned cap; then a steady downward flow of ink is maintained. The bottom of the tube may be either perforated or provided with a valve, which may be operated by the valve-rod.



1. The air-tube G, extending to a point in the ink-reservoir near the writing-point, combined with said writing-point E, having the valve-chamber E', ink-duct e, and gravitating valve F, substantially as herein described.

2. The writing-point E having a valve-chamber and ink-duct, as described, the gravitating valve F, rod G', and the tube C, contained in a detachable manner with the tube B, having the air-tube G, substantially as and for the purpose specified.

3. The perforated cap H, combined with the tube or ink-reservoir B C, tube G, rod G', writing-point E, gravitating valve F, and spindle F', substantially as and for the purpose described.

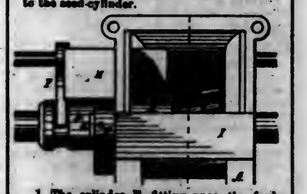
176,966. CAR-STARTERS. Jas. M. Mayhew, Mansfield, Mass., assignor to B. M. Reed and J. A. Blake, same place. [Filed Feb. 21, 1876.]

1. The car starter, substantially as described, composed of the lever N, hooked slide L, ratchet-wheel E, draw-pawl I, carrying-lever H, and connection-rod K, applied to each of the pair of rear wheels D D and the brake-frame, all essentially as set forth.

2. The combination of the brake-wheel F and brake G with the lever H, the ratchet E, and the draw-pawl I, all being applied to the car-platform and one of its wheels, substantially in manner and to operate as specified.

176,967. GRAIN-DRILLS. O. M. L. McMillen, Dayton, Ohio. [Filed Feb. 5, 1876.]

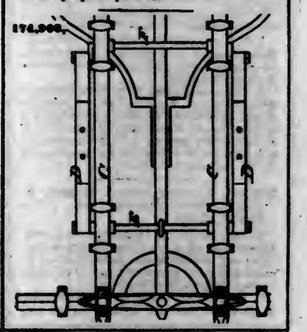
Brief.—Spiral feed-wheel keyed upon longitudinal shaft; adjustable cylinder for regulating amount of seed; adjustable cut-off; forked arm to which the cut-off is attached, and which rests in a slot in the sleeve attached to the seed-cylinder.



1. The cylinder E, fitting upon the feed-wheel C, and keyed upon the shaft B, in connection with the united slide H and arm F, the latter made adjustable upon the shaft G by the set-screw e, and having its forked end confined in the circumferential slot of the sleeve D, as and for the purpose specified.

2. The herein-described feeding mechanism, consisting substantially of the chamber A, with its middle-piece I, shaft B, feed-wheel C, cylinder E, sleeve D, slide H, arm F, set-screw e, and shaft G, journaled in bearings b, attached to the chambers A, the whole as and for the purpose specified.

176,968.



176,969. SING-BAR WAGONS. D. McVay, Gallatin, Tenn. [Filed Sept. 9, 1875.]

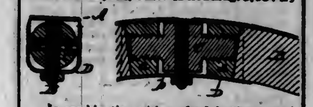
The combination of the side bars C, the transverse rock shaft or shafts F hung upon the side bars and provided with the outside cranks, and the springs D, having their ends hung upon said cranks outside of the bars C, as shown, whereby the action of both springs is rendered equal, advantage taken of the elasticity of the bars, and the wheels of the carriage permitted to pass under the springs in making a short turn.

176,970. SPRING-WASHERS. Wm. Metcalf, Pittsburg, Pa., assignor to Metcalf, Paul & Co., same place. [Filed Dec. 13, 1875.]



An annular spring-washer the transverse edges of which, near the cut or section, project beyond the true helical plane, so as to form biting-points, substantially as specified.

176,970. FELLY-EXPANDERS. J. K. Minich, Northampton, Ohio. [Filed Aug. 3, 1874.]



In combination with a wheel, having a continuous unbroken tire, A, and a divided felly, B, the right and left screw C, provided with the enlarged waist b and holes a, the nuts or blocks a, the cover D, and the bolt E inserted through the tire, the screw, and the cover, as shown.

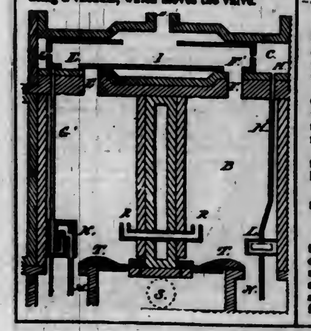
176,971. OIL-SQUEEZERS. Hans Olsen, Montreal, Canada, assignor to R. Rawlings, same place. [Filed Feb. 17, 1876.]



An oil-squeezer, constructed with two sides A A, hinge B, contacting surfaces of corrugated metal E, horse-hair bands G, rods f, straps L, metal strips I, and handle C, the whole arranged and constructed substantially as and for the purposes specified.

176,972. STEAM VACUUM-PUMPS. James R. Paddock, Chicago, Ill. [Filed Nov. 9, 1875.]

Brief.—Steam in the end of the valve-cylinder, supplied through the small orifice in the heads of the valve, is condensed, thereby creating a vacuum, which moves the valve.



1. The combination, with piston-valve I, valve-cylinder C, ports G and H, of channels or tubes G' M O H' N, and condensing-chamber K and L, arranged substantially as specified.

2. The combination, with cylinders A and B, of condensing-tube E, arranged substantially as specified.

3. The condensing-chamber K, in combination with piston-valve I and valve-cylinder C, arranged substantially as described.

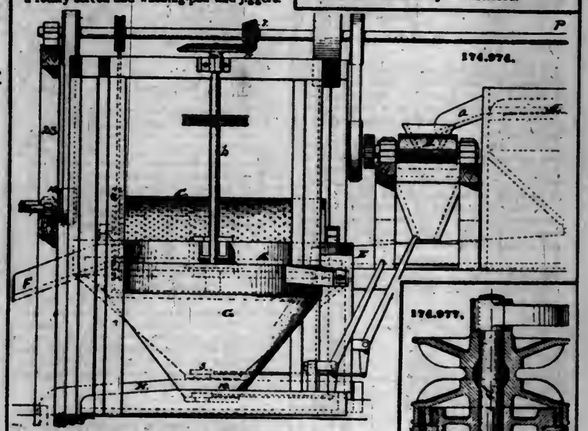
176,973. FENCES. Leonard Parker, Winterset, Iowa. [Filed Mar. 2, 1876.]



In a portable fence, two or more of the horizontal rails of each panel provided with eyelets B, each having two tangs, c, held in and to said rails through the medium of grooves and the vertical bars D, said eyelets being used in combination with the pins c, whereby two or more adjoining panels may be hinged and held together in any desired position, substantially as herein described, and for the purpose set forth.

176,974. ORE-CONCENTRATORS. Francis J. P. Fenton, Salt Lake City, Utah. [Filed Aug. 1, 1874.]

Brief.—Ore is fed upon a jigging-screen, whence the coarser portions are conducted to crushing-rolls, and thence successively through a rotary screen and washing-pan and jiggers.



1. The jigger A in the tub A', crushing-rollers B, rotary screen C, and the tossing-tube G and 16, combined to constitute a continuous series of manipulators, arranged substantially as described, and for the purpose set forth.

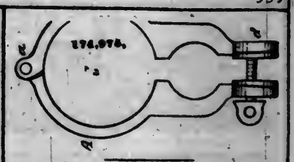
2. In combination with the jigger A, screen C, and tossing-tub G, wherein the ore and waste is separated in accordance with fineness, the troughs F E, and graded jiggers D O, arranged substantially as set forth.

3. The jiggers D O suspended from eccentrics 11 on the shaft R, combined with the lifting-levers 17, for the purposes set forth.

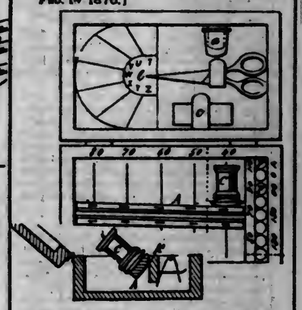
176,975. HAMES FOR JIBS, &c. M. Fenes, Greenport, N. Y. [Filed Feb. 28, 1876.]

A device for securing the jib-coils of rennels to the stay, consisting of the double semi-circular arms A, pivoted or hinged together at a, and formed with the clamping-disks d and the elastic cushions f and clamping-screw s, substantially as and for the purpose set forth.

176,976.



176,976. SEWING-GAGES. Robert Philip and Louise A. Philip, Sacramento, Cal. [Filed Feb. 19 1876.]



The combination, in a sewing-gage, of one or more bars, A A, pivoted at the ends and provided with pins for holding spools and bobbins, the spring-receptacles for holding shuttle-bobbins, and the spring-holders for securing thimbles, scissors, and other sewing implements, all substantially as described.

176,977.

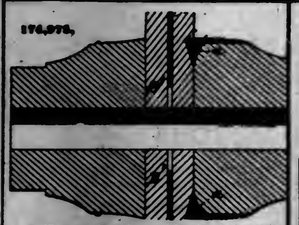
176,977. LOCKING-GEAR FOR WINDLASSES. George H. Remington and Jos. P. Manton, Providence, R. I. [Filed Nov. 10, 1875.]

Brief.—The ring has grooves or slots, into which pins secured to the locking-pawls enter; said slots acting as cams to raise the pawls, and then clutch the wild-cat when turned in one direction, or to release the same when turned in the other direction.

The arrangement, substantially as described, by which the wild-cat is connected with and disconnected from the windlass or capstan-head by means of locking-keys, operated simultaneously by a lever or its equivalent, substantially as and for the purpose herein set forth.

176,978. VEHICLE-WHEELS. A. J. Rice, Wilmington, Del. [Filed July 26, 1875.]

174,978.



1. The combination, with the hub and spokes of a wheel, of wedges entering chamfered gains cut across the edge of the tenons of the spokes, substantially as and for the purpose specified.

2. The combination, with the hub and spokes of a wheel, of wedges entering chamfered gains cut across the edge of the tenons of the spokes, and an encircling band covering the exposed portion of the wedges, all substantially as and for the purpose specified.

3. In combination with the tenoned spokes of a wheel of the metallic stiffening-pins, connected within the spokes, substantially as and for the purpose specified.

174,979. SEMAPHORIC SIGNALING ATTACHMENTS TO RAILROAD-CARS. David Rosecrans, New York, N. Y., assignor, by mesne assignments, to W. F. Smith and S. Samuels, same place. [Filed Feb. 2, 1876.]

Brief.—Horizontally-projecting arms operate circuit-closers upon posts beside track. Arm upon locomotive cuts signal to "danger," and arm upon rear car resets to "safety," whereby notice is given to engineer, or to engineer of succeeding train, if train becomes uncoupled.



1. The circuit-closing attachment C for railroad-cars, the same being a finger pivoted by a vertical pin to a shank, A, and connected with a spring, *d*, which holds the finger in line with the shank, substantially as herein shown and described.

2. The combination, on a railroad-car, of two horizontally-projecting spring-b...ers, C and D, with each other, the one being on a different plane from the other, substantially as specified, for the purpose set forth.

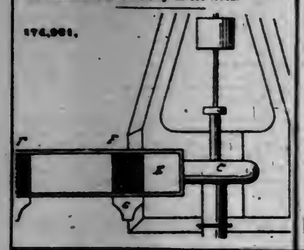
3. The circuit-closer E, suspended from a horizontal pivot, *h*, which carries a cam, *i*, and combined with the conductor ends *g'* and *g''*, substantially as herein shown and described.

174,980. BUCKET-HASP. Frank L. Roy Dartington, Wis. [Filed Feb. 16, 1876.]



The within-described separable double ears A B, as a means for the attachment of bails or handles to sheet-metal buckets or pans, the said ears being riveted to the vessels in the manner substantially as set forth.

174,981.



174,981. METHODS OF RAISING AND SCREENING SAND. Henry Schultz, Milwaukee, Wis. [Filed July 26, 1876.]

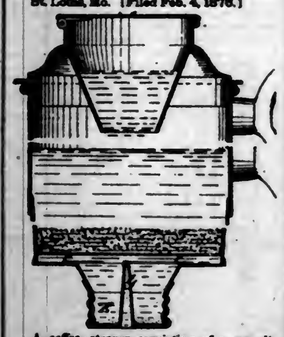
The combination of the frame A, rotary pump O D, trough E, screens F, and slides G, all constructed and arranged for operation substantially as shown and described.

174,982. TICKET-CASES. Samuel Simons, Chicago, Ill. [Filed Dec. 18, 1876.]



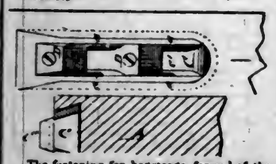
The railroad coupon-ticket case, provided with a series of horizontal bars furnished with hooks to receive the tickets, said bars being arranged vertically, one above the other, and all being inclined, with the top of each bar to the front, and the bottom of each bar to the rear, in the manner shown.

174,983. COFFEE-STEEPERS. R. Spencer, St. Louis, Mo. [Filed Feb. 4, 1876.]



A coffee-steeper consisting of a can divided in chambers by means of a perforated partition-plate, and combined with a removable bottom, which is fitted with a tube or tubes, by which the water is retained on the coffee long enough to extract its strength, without stopping the flow of the beverage to the serving-vessel.

174,984. BEDSTEAD-FASTENINGS. John W. Strong, Evansville, Ind. [Filed June 6, 1876.]

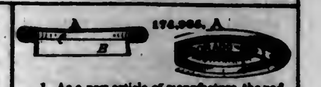


The fastening for headstands, formed of the beveled side bars and the central web and end cross-bar, having the front hook-shaped extension C', as shown and described.

174,985. CAP-PADS. Samuel A. Taylor, Cambridge, Mass. [Filed June 30, 1876.]

Brief.—The tip is kept extended beyond the side crown by an annular pad of cloth or felt, provided with an interiorly-arranged circular spring.

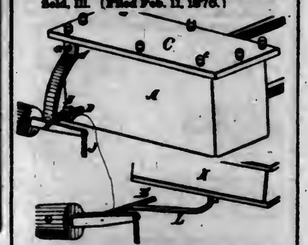
174,986. A



1. As a new article of manufacture, the pad C, provided with the spring D, substantially as specified.

2. The cap A B, provided with the pad C, having the spring D, substantially as set forth and specified.

174,986. FEED-WATER REGULATORS. John S. Trenise and John Q. A. Trenise, Springfield, Ill. [Filed Feb. 12, 1876.]



A feed-water regulator consisting of the rectangular chamber A, float E, lever I, pivoted to the bottom of the float, the rock-shaft E, stuffing-box D, and lever H, carrying the adjustable weight I on one end, and the valve-rod J on the opposite end, substantially as and for the purpose specified.

174,987. SHIRTS. C. C. Tuttle, New York, N. Y., and L. Tuttle, Westport, Conn.; said L. Tuttle assignor to said C. C. Tuttle. [Filed Feb. 9, 1876.]

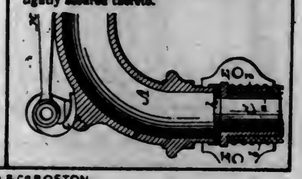


1. The improved shirt herein described, having its bosom sewed to the body-cloth at the bottom of the bosom-opening, or on a corresponding transverse line, and at its upper and longitudinal edges above said line, the said lower line of attachment being above the lower extremity of the bosom, so as to form the flap *d*, as herein specified, for the purpose set forth.

2. A shirt having a drawers-tongue attached behind the bosom, and above the lower end of the same, in combination with a flap-extension of the bosom below this point of attachment, substantially as herein specified.

174,988. HOSE-COUPLINGS. Aaron J. Tyler, Geneseo, assignee of one-half his right to R. H. Gill, Buffalo, N. Y. [Filed Aug. 14, 1876.]

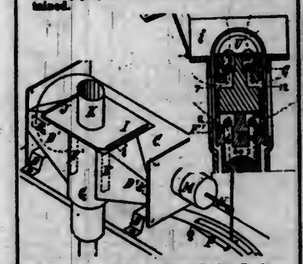
Brief.—From the center of each clamp extends an arm. Between the ends of the arms is pivoted a lever, the pivot end of which is formed with a cam, that, when the lever is pressed down, engages with a projection on the pump-spout, and causes the hose to be tightly secured thereto.



The combination of the interior flanged and toothed tube C, the grooved clamps D, provided with ears E and fastened by bolts or screws *d*, the arms G G, projecting from the clamps, lever H, with dam *e*, and spout A, with projection *f*, all substantially as and for the purposes herein set forth.

174,989. PURSE. Henry Van Doren, South Branch, N. J. [Filed Feb. 7, 1876.]

Brief.—A chamber communicates with the cylinder on each side of the piston, and contains a close-fitting block, having on each side passages provided with suitable valves, so arranged that, as the piston reciprocates, communication is established with the inlet and outlet pipes, so that a continuous flow is maintained.



The combination of the cylinder C, close-fitting piston N, chamber G, pipes K and H, openings *e f* F F', passages D D', and block U, provided with the passages 1, 4, 6, 10, and 14, and valves 2, 5, 9, 11, and 14, when constructed and operating substantially as and for the purpose set forth.

174,990. BALL-AND-SOCKET JOINTS. Alanson P. Webber, Saratoga, Ill. [Filed Feb. 2, 1876.]



1. In a ball-and-socket joint, the loose section *f*, operating conjointly with the section *d*, substantially as and for the purpose set forth.

2. In a ball-and-socket joint, the loose section *f*, operating conjointly with the section *d*, in combination with the compensating-plates or disks *g*, substantially as and for the purpose herein set forth.

174,991. MACHINES FOR FORMING HAT-BODIES. John Wharton and Jacob Sureau, Newark, N. J.; said Sureau assignor to said Wharton. [Filed Feb. 22, 1876.]

Brief.—Adjustable dampers are arranged within the perforated cone or hat-former, to control the currents of air down through it, thereby regulating and controlling the deposit of fur upon the different parts of the cone, and make any desired portion of the hat thicker or thinner, at the will of the operator. An annular diaphragm is interposed between each annular row of slots, extending from the inner to the outer cone, to prevent the air entering above or below from passing down or up between the cones, as it would when one series of slots were closed and another opened.

1. The combination of a perforated cone and one or more dampers, located within the same, for regulating the deposit of fur, wool, or other material on the cone, substantially as described.

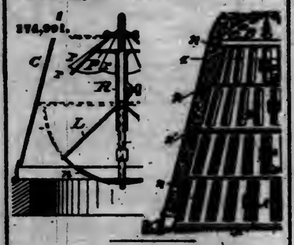
2. The lateral perforated or slotted cone A, provided with a series of dampers, arranged to operate substantially as and for the purpose set forth.

3. An adjustable diaphragm, composed of a series of ring-d plates, *r*, located within a hat-forming cone, C, constructed to operate substantially as described.

4. The hinged plates L, having the rods *s* attached, in combination with the perforated or hat-forming cone C, the whole being arranged to operate substantially as described.

5. The shaft or support T, having the plates *r* hinged thereto, in combination with the sliding tube E, provided with the plate F, or equivalent device for adjusting said plates, substantially as set forth.

174,992.



174,992. GAME-COUNTERS. J. Whitelaw, Cleveland, Ohio. [Filed Feb. 28, 1876.]



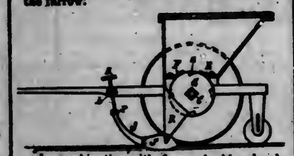
1. The game-counter, consisting of a frame, A, rotating disks B, and the spring-points or index-fingers E located intermediate between said disks, substantially as and for the purposes described.

2. The combination with the frame A and disk B, having the notches *b*, of the intermediate spring-catches or index-fingers E, provided with the projecting studs E', substantially as described and for the purposes set forth.

3. The combination, with the frame A, rotating notched disks B, and index-finger E, of the index frame or inclosure D and the spring or springs D', substantially as and for the purposes described.

174,993. CORN-PLANTERS. Mark Whisler, Boone County, Ind., assignor to himself and Thomas Whisler, same place. [Filed Sept. 16, 1876.]

Brief.—Between the sides of the frame, at the front, is pivoted a transverse bar, provided with the adjusting-screw, and coiled to the front end of the opener, for regulating the depth of the furrow.



In combination with frame A A' and collar J, the adjusting-screw K, swivel P, and pivoted bar L, substantially as and for the purpose described.

174,994. MACHINES FOR BORING HUBS AND FELLIES. Lorenzo Williams, Milwaukee, Wis. [Filed Dec. 1, 1876.]

Brief.—A series of double-ended boring-bits arranged to have a continuous rotary motion, and a reciprocating motion toward and from the center of a supporting-table, so that a hub and felly may be bored by this continuous revolution.

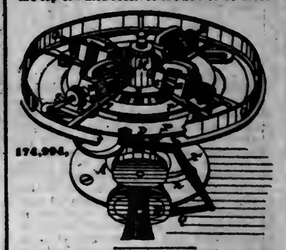
1. The central shaft A, and the stationary rings B J K, combined with radial bit-stocks G, arranged between the center and the periphery bearing-bits at each end, and their pinions *o* simultaneously revolved by a continuously rotating gear-ring, C, and an oscillating cam-ring, D, to feed said bit-stocks alternately toward and from the center, or the equivalents for these devices, substantially for the purposes set forth.

2. The stationary ring B, yoke E, guides F, and ring K, combined with the pinion *o*, bit-stocks G, arranged between the center and periphery, which slide through and are rotated by said pinions, provided with the groove *f* and shipper L, which moves on said guides F.

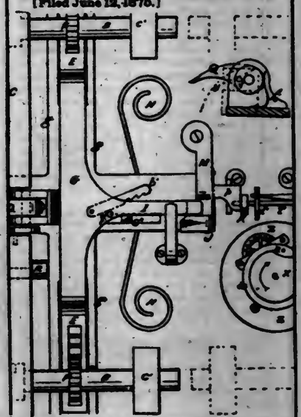
3. The sliding shipper A, oscillating or reciprocating cam-frame K, whereby the bit-stock carriage is moved along the guides F, combined with the vibrating lever E, and crank-wheel R, actuated by the driving-power, substantially as set forth.

4. The several rings, B O D, supported upon arms springing from the several hubs, *b c d*, all mounted upon and combined with the single central shaft A, the boss of which is secured to the floor or supporting-table, and the top of which receives the hub to be bored.

174,994.



174,995. SLIDING MECHANISMS FOR SAFE-DOORS. Charles O. Yale, New York, N. Y. [Filed June 12, 1876.]



1. The combination, with a safe-door and bolt-work, of a pawl and ratchet, or their equivalent, for operating the bolts by a vibrating motion of the door.

2. In combination with the bolts and pawl and ratchet, a mechanism for changing their position to permit the door to be vibrated, for the purpose specified.

3. In combination with such bolts and pawl and ratchet, a changing mechanism and a time movement, to determine the time of change, in preparing the bolts for retraction.

4. The combination, with the bolts, of bars G and *g'*, actuated by spring or weight for projecting the bolts, and afterward changing their position, for the purposes set forth.

5. The bar G, having a branch, I, resting on a catch-button, J, on which it slides when the bolts are projected, and from which it is tripped and released when changing their position.

6. The combination, with a safe-door provided with bolts constructed and arranged for operation by vibrating the door, of two-motion hinges, as herein described, with or without a lever-power to assist in vibrating the door.

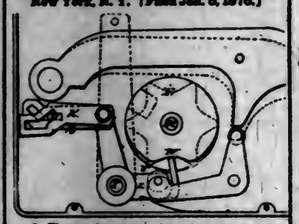
7. In combination with the three-piece, the disks or plates w and *s*, the pin *o*, slotted disk *w'*, and lever *e*, operating the tripping-block K.

8. The vibrating lever M, in combination with the branch I of bar G, and with the tripping-block K.

9. In combination with the pawl Q, the pin *r*, operated by a cam-slot, for the purpose described.

10. In combination, the detent *b'*, the catch-pin *c''*, rack-bar G, and bar *g'*.

176,000. TIME-LOCKS. Charles O. Yale, New York, N. Y. [Filed Jan. 5, 1876.]



1. The combination, with a lock having an obstruction to the unlocking of the bolt and provided with mechanism for removing such obstruction by hand, from the exterior of the safe, substantially as specified, of mechanism for checking and limiting the speed of the hand operation, for the purposes set forth.

2. The combination, with a lock having a time mechanism and also provided with mechanism for removing the obstruction to the unlocking or relocksment of the bolt, by hand, substantially as described, of mechanism for checking and limiting the speed of the hand operation, for the purposes set forth.

3. The combination, with the time mechanism of a time-lock, and with a cylinder or its equivalent operated thereby for an obstruction to, and the relocksment of, the bolt at a set time, of a supplementary train of gearing, arranged for operation by hand, substantially as and for the purposes specified.

4. The combination, with such extra gearing and the lock-spindle or its equivalent, of a train of levers, operated by a cam on the spindle, for the purposes specified.

5. The combination, with the levers and extra gear wheels, of a clutch for engaging and moving the cylinder D or its equivalent.

6. The combination, with the train of levers, of the sliding slotted bars *b'*, constructed and operating substantially as and for the purposes set forth.

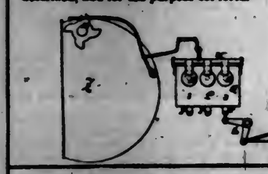
7. In a combination of gear-wheels for the purposes specified, the wheels having the number of their teeth varying, as described, and constructed and arranged for operation with an intermittent lever that forms a connection between cams on said wheels and the clutch, whereby the cylinder *D* is engaged by such clutch and moved, at long intervals only, for the purposes set forth.

176,007. BURGLAR-ALARMS. Paul Abrell, Newark, N. J. [Filed Mar. 1, 1876.]

Brief.—Upon opening the door or window with which the device is connected, the alarm mechanism is released and an alarm is sounded.

1. The combination of a bracket, C, attached to the door, lever D, with projecting pin *a*, bar E, rod F, bell-crank G, bar P, bolt R, rock-shaft U, and lever or catch W, with a suitable clock-work, S, operating an alarm-bell, substantially in the manner and for the purpose described.

2. The combination of the shutter R, with bolt or pin J, bell-crank L, provided with spring *n*, rod M, bell-crank G, bar P, bolt R, rock-shaft U, and lever W, substantially as described, and for the purpose set forth.



176,008. VENTILATORS FOR HATS. Charles F. Abbott, New York, N. Y. [Filed Jan. 26, 1876.]

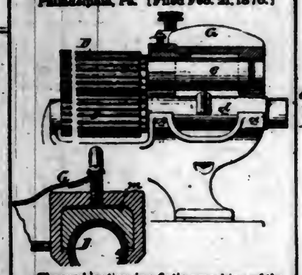
Brief.—The corrugations are confined within a given space by wires passing transversely through them, and rigidly attached to each end of the corrugated piece, and are also free to lateral displacement upon the wires.



176,008.

The flexible corrugated ventilating-piece C, having a wire or wires, *a*, passed through its corrugations and fastened at each end, substantially as and for the purpose set forth.

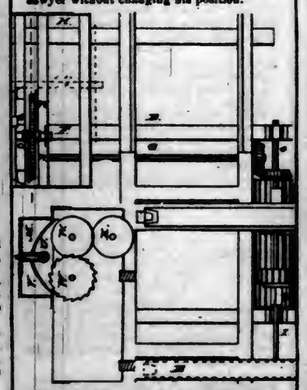
176,009. PLOTING-MACHINES. H. Albrecht, Philadelphia, Pa. [Filed Feb. 21, 1876.]



The combination, in a plotting-machine, of the upper overhanging plotting-roller D, and its spindle *c*, with the pivoted frame G, its outer bearing A, and inner adjustable bearing *m*, all substantially as set forth.

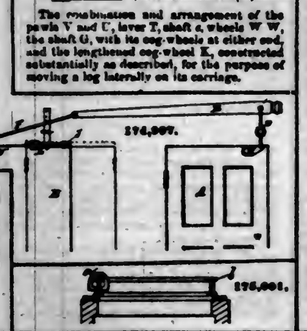
176,010. HEAD-BLOCKS FOR SAW-MILLS. Henry Alexlegl, Perry Township, Montgomery County, Ohio. [Filed Feb. 2, 1876.]

Brief.—The log-set can be operated by the sawyer without changing his position.



176,010.

The combination and arrangement of the pawls V and C, lever T, shaft *s*, wheels W W, the shaft G, with its cog-wheels at either end, and the lengthened cog-wheel K, constructed substantially as described, for the purpose of moving a log laterally on its carriage.



176,007.

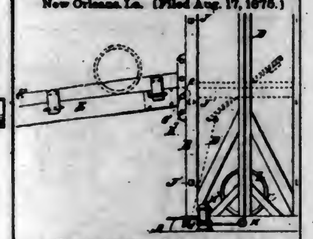
176,011.

176,011. TRAVELERS FOR SPINNING-RINGS. Nicholas I. Allen, Milford, Mass. [Filed Jan. 3, 1876.]

Brief.—The traveler is formed from horn, rubber, or other non-metallic and elastic substance, as is to be capable of being sprung over the ring-rail, and also to present greater surface, (thereby insuring a greater degree of resistance of the air,) with less weight, than the ordinary metal traveler in common use.

A non-metallic traveler, substantially as herein described, and adapted to embrace and move on a ring-race, substantially as set forth.

176,012. PORTABLE ELEVATORS. V. Andry, New Orleans, La. [Filed Aug. 17, 1875.]



1. The combination of the sectional frames B and B', lock bolts J', hoisting-rope G, guys D', and chest *d*, substantially in the manner shown and described, and for the purpose set forth.

2. The combination of frames B and B' with stage-plank E, provided with notch *e'*, pin *e*, and side pieces E', constructed substantially as and for the purpose set forth.

3. The carriage or hoisting-platform C, as constructed and fitted with a tilting plank, C', pivoted at *c'*, lugs *c'' c''*, and weight *c'''*, in combination with stocks or other captain H' and catch-block H, substantially in the manner shown and described, and for the purpose set forth.

176,013. BROOM-STAYS. Jas. H. Anderson, Newton, Kans. [Filed Feb. 16, 1876.]

Brief.—The wires that surround the broom are U-shaped, and have spiral springs upon their overlapping ends, that serve to contract and expand the stay. Side braces support these wires, and hold them upon the broom.



1. The adjustable broom-stay herein described, consisting of the IJ-shaped wires C C, having their ends overlapping each other, and springs *b b*, substantially as set forth.

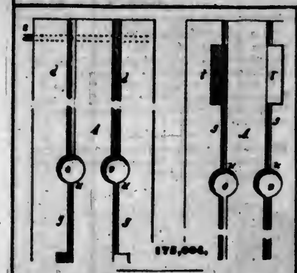
2. The combination of the bent wires C C, springs *b b*, and one or more cross wires, *d*, as shown and described.

3. The rubber tubes *h*, in combination with the adjustable broom-stay C *b*, for the purpose herein set forth.

4. The combination of the adjustable broom-stay C *b* and brace D, formed with the coils *e* and loop *f*, and held under the binding of the broom, substantially as herein set forth.

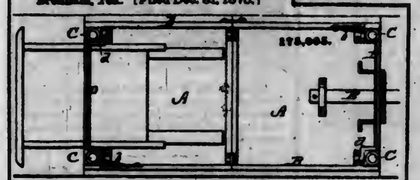
176,014. EXTENSION-TABLE SLIDES. Rollin H. Arnold, Honeoye, N. Y. [Filed Nov. 8, 1875.]

An improved extension-table slide, consisting of the contiguous sections A, having at opposite ends in each a pair of dovetail grooves, *d*, and in each, at opposite ends from the dovetail grooves, a pair of rectangular grooves, *g*, also having in each the circular cavities *o*, forming the stop *n*, the angular metal tongues *i*, secured by the pins *p*, and the removable stop *o*, all arranged for the purpose substantially as shown and specified.



176,004.

176,005. FOLDING TABLES. J. B. Arnold, Brenham, Tex. [Filed Dec. 31, 1875.]

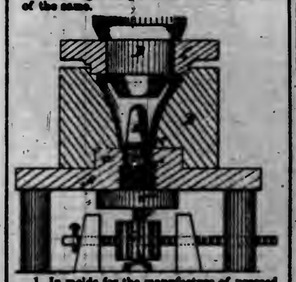


176,005.

The central sections A A, secured to the frames B B, which latter are hinged together, in combination with the hinged sections A' A', hinged legs C, and spring, and pivoted catches *b d*, substantially as described and for the purpose set forth.

176,006. MOLDS FOR PRESSED GLASSWARE. Benj. Bakewell, Jr., Pittsburg, Pa. [Filed Jan. 26, 1876.]

Brief.—The bottom plate of the press-mold is provided with a threaded peg, which engages with the threaded opening of the bottom plate, thus guiding and centering the peg, and insuring the regular and even withdrawal of the same.



1. In molds for the manufacture of pressed glassware, the combination of the threaded bottom plate, the peg provided with a thread, which engages with the thread in the bottom-plate, and suitable means for withdrawing the peg, substantially as specified.

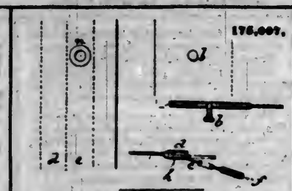
2. In molds for the manufacture of pressed glassware, the combination of the threaded bottom plate, provided with ring *a*, the peg provided with a plain portion, *g'*, and a threaded portion of greater diameter than the plain portion, and suitable means for withdrawing the peg, substantially as specified.

3. In molds for the manufacture of pressed glassware, the combination of the threaded bottom plate, the peg provided with a forming-thread, and a supplemental or withdrawing thread of equal pitch, and suitable means for rotating the peg, substantially as and for the purpose specified.

176,007. CORSET-STEMMES. C. A. Baldwin, New Haven, Conn. [Filed Jan. 24, 1876.]

The combination, in a corset, of the one steel, *a*, provided with studs *b*, the two steels *b f* in independent pockets in the edge of the other part, with the web *c* between, and provided with means for securing the said second part on the studs of the first part, substantially as described.

176,007.



176,008. COMBINED PEN-DRAWERS, BLOTTERS, AND ERASERS. Oran S. Baldwin, Brooklyn, N. Y. [Filed Feb. 14, 1876.]



176,008.

The combined implement herein described, consisting, essentially, of the handle A, blotter B, eraser-head C, pen-drawing nippers D, and blade E, as and for the purpose specified.

176,009. METHODS OF PRODUCING PRINTING-SURFACES. John Henry Banks, Battersea, assignor to George M. Bright and Francis Barrow, London, England. [Filed Dec. 20, 1874.]

Brief.—Obtains a first mold or matrix in gelatine by the action of light, and ultimately a printing-plate in metal, by casting and the electrotype process.

1. The herein-specified improvement in the art of preparing gelatine surfaces upon glass for receiving the imprints of photographic negatives, from which imprints printing-surfaces are to be obtained, which improvement consists in pouring warm gelatine on the glass, and after it becomes dry soaking it in a solution of bichromate of potash, or other bichromate or peroxide of chromium, hydrate of lime, and cold water, and then drying without exposure to daylight, as and for the purpose set forth.

2. The herein-specified improvement in the art of treating gelatine surfaces upon glass after an imprint from a photographic negative has been made upon them, in order that a printing-surface may be obtained, which improvement consists in taking the glass, with its imprinted gelatine surface, into a darkened room, and bathing it, successively, in a solution of iodine or iodide of potassium, a solution of ammonia, and a solution of acetic acid, as and for the purposes set forth.

3. The herein-specified improvement in the art of producing printing-surfaces, which consists in preparing the plaster cast by soaking it in water, or laying it in a bath, face upward, in cold water nearly to reach the face, and when the water has permeated to the face, removing the cast from the bath, and thoroughly drying its face by the application of heat prior to pouring melted wax upon it for obtaining a cast of the surface in wax, as described.

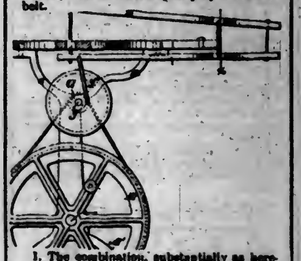
4. The herein-specified improvement in the art of producing printing-surfaces, which consists in hardening the plaster casts by immersing them in hot size, treacle, and oxide of chromium, as described.

5. The herein-specified improvement in the art of producing printing surfaces, which consists in treating the plaster-casts, as described, just at the time of setting, and when exposed to the light after a bath of hot size, treacle, and peroxide of chromium, for the purpose specified.

6. The herein-specified improvement in the art of producing printing-surfaces, which consists in preparing plaster casts, gelatine plates, or wax impressions for electrotyping, by causing vapor or fumes of mercury to settle on and form a thin film upon the surface, substantially as and for the purposes set forth.

176,010. FOOT-POWERS. Wm. F. Barnes and John Barnes, Rockford, Ill. [Filed Mar. 6, 1876.]

Brief.—A double-cranked driving-pulley is (mounted on a suitable frame) adapted to be driven by the foot without a treadle, and connecting with a smaller pulley by a band or belt.

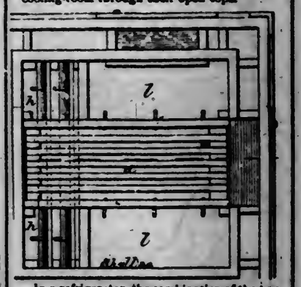


1. The combination, substantially as hereinbefore set forth, of a stationary frame, a double-cranked driving-pulley mounted thereon, and adapted to be driven directly by the feet of the operator, and gearing or belt connections passing from said driving-pulley over a pulley or shaft of the machine to be driven, whereby treadles are dispensed with.

2. The combination, substantially as hereinbefore set forth, of the frame, the double-cranked driving-pulley mounted thereon, the driven-pulley, also mounted on said frame, and connected by link-connections with the vibrating saw-frame, and the belt-connections passing from the driving to the driven pulley.

176,011. REFRIGERATORS. John O. Beck, La Porte, Ind. [Filed Feb. 20, 1876.]

Brief.—Show-cases having double glass doors, including a dead-air space, are built into the cooling-room under the ice-box, receiving cold therefrom, and directly from the cooling-room through their open tops.



In a refrigerator, the combination of the ice chambers, *h i*, ice-rack *d*, and doors *c*, the chamber *h* being located in front of the case, *l*, and having for its ceiling a portion of the bottom of the ice-rack, and elsewhere being open at the top, substantially as shown and described.

176,012. PUMPS. James Bowsher, Kansas City, Mo., assignor of one-half his right to John Shaw, same place. [Filed Aug. 7, 1875.]

Brief.—To the upper end of a frame-work of the apparatus is attached a pump communicating with a pipe, which acts both as a suction and discharge pipe. At the bottom of the pipe is arranged a sand-chamber. A body of water free from grit is acted on by the pump, while the sand and water is drawn through the suction-pipe of the chamber and forced out.

1. In a machine for pumping water mixed with sand or other granular material, the combination of a piston or plunger pump, B, a suction-pipe, E, and one or more chambers H H', communicating with the discharge-passage, and provided with an inlet pipe or pipes, projecting above the bottom of the same, the various parts being so arranged and operating in such a manner that the mixture of sand and water will be received into and discharged from the chambers H H' without passing through the pump, all as set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

2. The combination of the elevated valve-seat of the inlet-pipe with a conductor, l, communicating with the discharge-passage, as and for the purpose set forth.

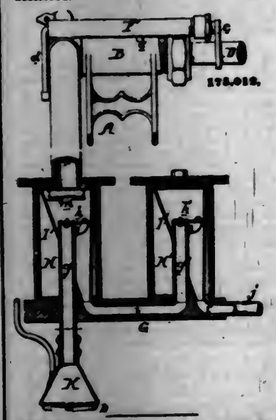
3. The combination of the inlet-pipe *g* with the agitator K, having a perforated bottom provided with flanges *p*, as set forth.

4. The combination of the plunger-pump B with a supplementary pump, F, connected to said pump B, and operated in unison with the same, all as and for the purpose described.

5. The check-valve *f*, arranged in the pipe *g*, between the pump F and the pump B, as and for the purpose described.

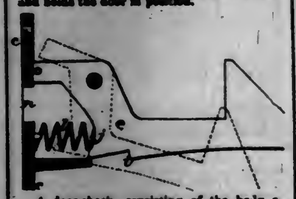
6. The combination of the seat *b* and check-valve *c* with the pump B and pipe E not having a check-valve, as and for the purpose set forth.

7. The combination of the chambers H H', their inlet-pipes *g g'*, and tapering receivers I I', with passages *i i'* formed in the base G, as described.



175,012. DOOR-CHECK. Simeon B. Billings, Flint, Mich. [Filed Feb. 28, 1876.]

Brief.—A spring-acted beveled-face catch or latch, which automatically engages with and holds the door in position.



A door-check, consisting of the body *a*, flanges *c*, latch *e* having incline *g*, recess A, stop *f*, and shoulder *j*, in combination with the spring *l*, and hole *n*, substantially as shown and described.

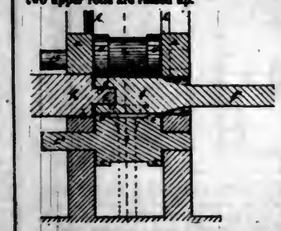
175,014. APPARATUS FOR INCREASING THE DENSITY OF OILS, &c. William H. Birge, Franklin, Pa. [Filed Feb. 7, 1876.]

Brief.—The liquid passes downward along the outside of the steam-heated and clothed pipes into the trough and lower cask.

The boiler A, closed-ended pipes B and C, wrapped with porous flexible material, as described, the perforated closed-ended reservoir, discharge-pipe D, and trough G, leading to the condensed-oil tank, all combined substantially as and for the purpose specified.

175,015. MACHINES FOR FORMING HOLLOW WELDED CYLINDERS. Mildred Bishop, Elma, Pa. [Filed Oct. 26, 1875.]

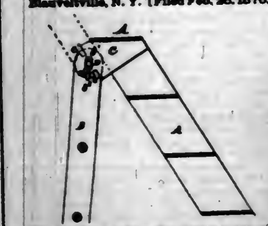
Brief.—The mandrel, placed in the midst of the five rolls, is rotated by the driving-shaft, of which a square tenon enters a mortise in the end of the mandrel, and the rolls are rotated by frictional contact with the mandrel. To release the cylinder from the mandrel, the two upper rolls are raised up.



1. In combination with a rotating mandrel, a series of surrounding rolls, substantially as described, for bending and welding at one operation.

2. In combination therewith, the guide, arranged substantially as and for the purpose described.

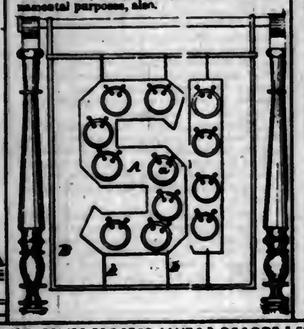
175,016. STEP-LADDERS. Silas C. Bleuvelt, Bleuvelt-ville, N. Y. [Filed Feb. 26, 1876.]



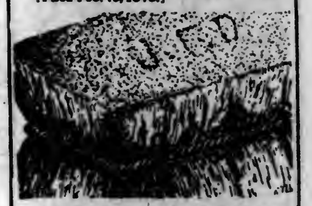
The blocks or plates C, provided with the semicircular rear ends and the notches C', the pin *b'*, and the slot *b'*, when used in connection with the pivot D and the parts A B of a step-ladder, substantially as herein shown and described.

175,017. STOVE. Henry J. Mowney, South Bend, Ind. [Filed Nov. 15, 1875.]

Brief.—Openings with pendants, adapted to allow a free passage of the wind, and for ornamental purposes, also.

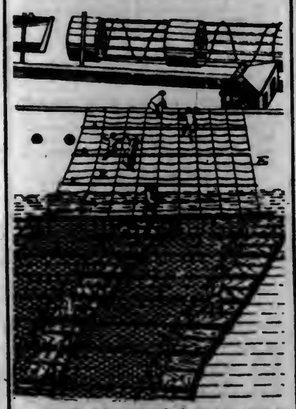


175,018. LUBRICANT-PACKING FOR AXLE-BOXES. James B. Boone, Atchison, Kans. [Filed Feb. 16, 1876.]



As an article of manufacture, manila fiber, bundled in packages, having the ends of the fibers exposed, the said packages or bundles forming a lubricant-packing for axle-boxes, substantially as hereinbefore set forth.

175,019. LIFE-RAFTS. Nicholas H. Borgfeldt, New York, N. Y., assignor to the American Flexible Life-Saving Raft Association. [Filed Feb. 19, 1876.]

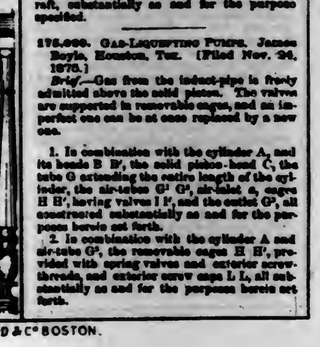


1. A life-raft composed of two or more sets of jointed floats, which are connected by transverses, and of a series of reversible bags, O O, in the spaces formed by said floats and transverses, substantially as herein shown and described.

2. The combination of the life-raft, composed of the floats A A and transverses B B, with the rope ladder E, which is an attachment of said raft, substantially as and for the purpose specified.

175,020. GAS-LIQUEFYING PUMPS. James Boyle, Houston, Tex. [Filed Nov. 24, 1875.]

Brief.—Gas from the inlet-pipe is freely admitted above the solid piston. The valves are supported in removable cages, and an imperfect one can be at once replaced by a new one.



1. In combination with the cylinder A, and its heads B B', the solid piston-head C, the tube G extending the entire length of the cylinder, the air-tubes G^1 G^2, air-inlet *a*, cages H H', having valves I I', and the outlet G^3, all constructed substantially as and for the purposes herein set forth.

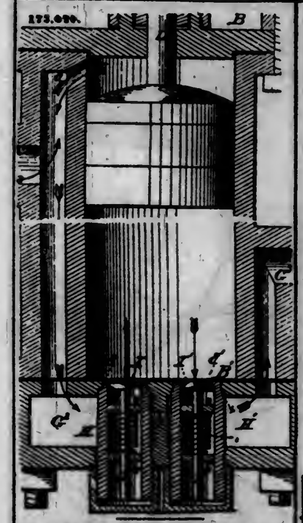
2. In combination with the cylinder A and air-tube G^2, the removable cages H H', provided with spring valves and exterior screw-threads, and exterior screw caps L L, all substantially as and for the purposes herein set forth.

175,021. HORSE-POWERS. N. B. Brown, Antwerp, N. Y. [Filed Feb. 28, 1876.]

Brief.—A bed-plate, with all the journals and bearings required, is in one casting, horizontal gearing operating the pinion of the driving-shaft.

1. The metal frame A, consisting of the longitudinal ribs *a a*, lateral rings E E, posts D D', with shafts *f* E, the ribs G G and F, and the bearing-blocks E E, all cast in one piece, substantially as and for the purposes herein set forth.

2. In combination with the frame A, having journals and journal-bearings cast upon it, the wheels I, K, and L, and the shaft H' with its pinion M, as and for the purpose specified.

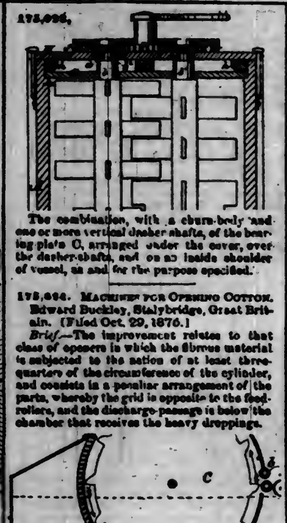


175,022. LAMP-COLLARS. Geo. W. Brown, Forestville, assignor to the Bristol Brass and Clock Company, Bristol, Conn. [Filed Feb. 9, 1876.]

As a new article of manufacture, a lamp-collar constructed of thin sheet metal, with a series of annular circumferential strengthening-ridges, *c*, curved shoulder *d* at the top, and screw-threaded flange *b*, projecting downwardly from the shoulder into the collar, substantially as described.

175,023. CRUSHER. John T. Brown, Morrisville, and Joseph W. Colbert, Fredericksburg, Va. [Filed Feb. 23, 1876.]

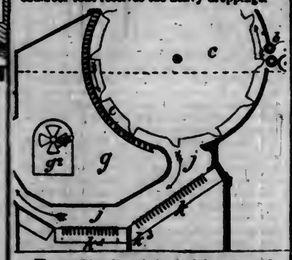
Brief.—The upper ends of the dasher-shafts rest in perforations in a board, which rests on ledges placed below the chute-top. This board prevents the mill from splashing out.



The combination, with a churn-body and one or more vertical dasher-shafts, of the bearing-plate C, arranged under the cover, over the dasher-shafts, and on an inside shoulder of vessel, as and for the purpose specified.

175,024. MACHINES FOR OPENING COTTON. Edward Buckley, Stalybridge, Great Britain. [Filed Oct. 29, 1875.]

Brief.—The improvement relates to that class of openers in which the fibrous material is subjected to the action of at least three-quarters of the circumference of the cylinder, and consists in a peculiar arrangement of the parts, whereby the grid is opposite to the feed-rollers, and the discharge-passage is below the chamber that receives the heavy droppings.



The combination of the feed *b* at one side of the cylinder *c* with the grid *e* at the opposite side, and the discharge-passage *j*, communicating below the heavy-droppings chamber *g* with a fan, as and for the purpose set forth.

175,025. DRAWER-PULLS. Saml. A. Burns, West Meriden, Conn. [Filed Mar. 2, 1876.]

Brief.—The socket is made of two struck-up pieces longitudinally united, and the ball part is struck up from a single piece, and has its screw-shank integral with it.



1. The socket for drawer-pull, consisting of the socket *a*, shoulder *c*, and shank *b*, formed in two longitudinal parts, and united substantially as described.

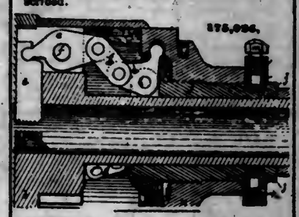
2. The ball and spindle of a drawer-pull, formed complete in a single piece of sheet metal, substantially as described.

175,026. SCREW-CUTTING MACHINES. Chas. Burleigh and J. Putnam, Fitchburg, Mass., assignors to the Putnam Machine Company, same place. [Filed Mar. 3, 1876.]

Brief.—A pivoted bell-crank lever, with one limb connected by a link to the straight die-lever, and the other limb at right angles to the first, cut-braced by a socket in the screw-collar, to adjust the dies (by moving said collar) to move through different spaces. The cap and die-holder are connected by interrupted sections of screw-threads on each.

1. In a screw-cutting machine, the dies *c*, the die-carrying holder *b*, made tubular and grooved to receive and retain the dies, and provided with interrupted sections of screw-threads, in combination with the removable open-centered covering-piece *d*, provided with interrupted sections of screw-threads, as and for the purpose described.

2. The mechanism for adjusting the dies to work of various diameters, consisting of the threaded slide *f*, threaded and grooved pieces *n*, levers *h*, links *p*, and levers *o*, combined and arranged to operate substantially as described.



175,027. CAR-TRUCKS FOR ONE-RAIL RAILWAYS. Albert G. Busby, Philadelphia, Pa. [Filed Oct. 6, 1875.]



1. The combination, in a locomotive or car having central driving-wheels H H' and steadying-wheels E E, of a frame, A, supported by the steadying-wheels, with a frame, A', supported by the driving-wheels and hinged to the said frame A, all substantially as set forth.

2. The combination, in a locomotive having central driving-wheels adapted to a central rail, of a supplementary driving-wheel, grooved to embrace the said rail, with arms K, carrying the said wheel and drivers, for raising and depressing the arms, all substantially as set forth.

175,028. PERMANENT WAYS FOR ONE-RAIL RAILWAYS. Albert G. Busby, Philadelphia, Pa. [Filed Nov. 30, 1875.]

Brief.—A railroad-track having an elevated central bearing-rail and side steadying-rails, said rails being braced and kept the proper distance asunder by distance-pieces, and the bearing-rail being deeper than the guide-rails.

1. A one-rail railroad-track, in which two continuous beams for steadying-rails and a central beam or beams for the bearing-rail are combined with and secured to transverse distance or brace pieces, all substantially as described.

2. The within-described girder for one-rail railroads, the said girder consisting of a deep central beam and two lighter beams or bars, combined with distance-pieces, all substantially as shown.

175,029. TRUSSES. Edward A. Campbell, Hastings-on-the-Hudson, N. Y. [Filed Feb. 9, 1876.]

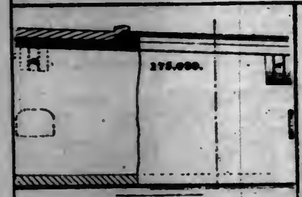


In a truss, the combination of two independent pads, each having a lever formed of the prolongation of the back of the pad, and projecting upward, with a strap for adjusting the distance between the pads, and with an elastic body-band secured to the pads, as shown, all constructed and operating substantially as described.

175,030. BURIAL-CASES. Cesar J. Cone and E. R. Richardson, Auburn, N. Y. [Filed Feb. 5, 1876.]

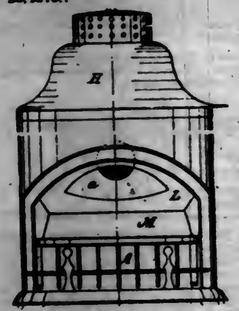
Brief.—The glass lid is secured by downward projections from its edge, which are pinned into double-recessed lugs on the upper edge of the body of the coffin.

As an improvement in glass burial-cases or coffins, the combination of the body of the case, having outer guide-projections, with the sectional top or cover, secured by downward-projecting lugs and fastening-pins, substantially in the manner and for the purpose set forth.



175,030.

175,031. HEATING-STOVES. Marius C. O. Church, Parkersburg, W. Va. (Filed Feb. 23, 1876.)

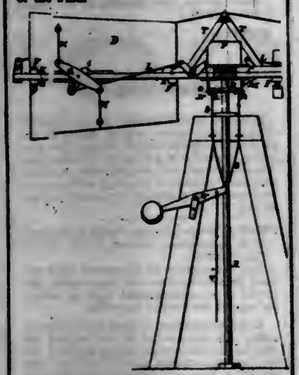


1. The combination of the outer casing D, having inlets F and G, the inner casing B, the perforated partition L, the laterally-connecting smoke-pipe J, detachable cover H, having openings e, and the heating-drum C, having a superposed water-receptacle, a, and for the purpose described.

2. The combination, with the outer casing D and the detachable cover H, having openings e, of the closed heating-drum C, having a superposed water-receptacle, a, arranged below the outlets, to receive the impact of the heated air before it escapes into the room, as and for the purpose described.

175,032. WIND-POWERS. Elwood Cleaver, Hawthorne, Iowa. (Filed Jan. 26, 1876.)

Brief.—The vertical shaft supports on its upper and four long flat bars or arms horizontally and at right angles to each other. The vanes are hinged in pairs to the arms, on the forward or advancing edge, there being an upper and lower vane to each pair. The hinges being raised a short distance from the arm by the blocks gives an open space for the passage of air when the vanes are closed, and by placing the hinges on the vanes at a distance from the edge equal to the thickness of the blocks, this space is nearly or quite closed when the vanes are opened to receive the force of the wind.



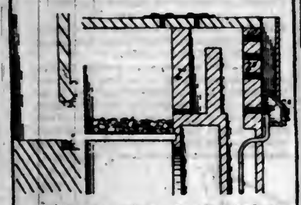
1. The combination of the arms B, the vanes D, the balance-lever G, and the links E, all substantially as specified.

2. The combination of the lever G and arm K, the rod L, the rocking lever M, and the rod N, all substantially as specified.

3. The combination of the yoke P, the regulating-plate O, the stop-plate R, the draw-rods S, the weighted lever W, and the cord Y, all substantially as specified.

175,033. GAS-FURNACES. Hugh Coll, Pittsburg, Pa., assignor to himself and Spang, Chalfant & Co., same place. (Filed Dec. 21, 1875.)

Brief.—The products of combustion from the neck of the furnace, with the aid of a gas-burner, heat the gas-induction pipe, and pass with the incoming gas into an auxiliary combustion-chamber, where sufficient air is admitted to allow a low combustion to take place before final combustion over the grate.



1. The process herein described for burning natural or similar gas in metallurgic and heating furnaces, the same consisting in inducing a low combustion of the gas in one or more preliminary or auxiliary combustion-chambers, whence the gas passes to the final or main combustion-chamber.

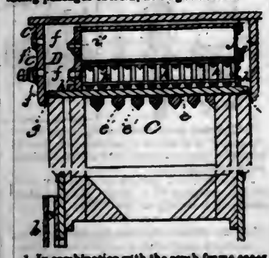
2. In combination with the main fire-place of a furnace, an auxiliary combustion chamber, provided with gas inlet or burner, substantially as and for the purpose specified.

3. In combination with the main fire-place or combustion chamber, one or more auxiliary combustion-chambers, and a flue for the gas-induction pipe, which leads to the auxiliary combustion-chamber, substantially as and for the purpose specified.

4. In combination with the auxiliary combustion-chamber, the heating-flue, and induction-pipe, a jet-pipe arranged so as to create a draft through the heating-flue, substantially as specified.

175,034. BEE-HIVES. Orson Colvin, Vicksburg, Mich., assignor of one-half his right to J. R. Hawkins. (Filed Jan. 15, 1876.)

Brief.—The comb-frames in the honey box are in ascending series, and have gauze-covered openings, a surrounding chamber, and exterior case, with gauze-covered bottoms and ventilating-passages therein, and light-shields.



1. In combination with the comb frame cases E E', having gauze-covered openings e e', the outer case D, having perforations f, and the bottoms C', having gauze-covered openings f', substantially as specified.

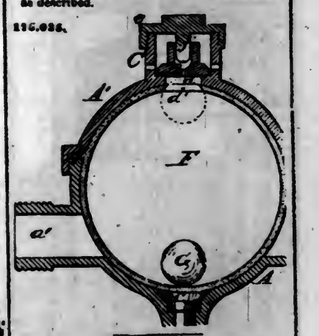
2. In combination with the bottoms C' for cutting off or allowing draft from below upward through a hive, the shields G for excluding undue light substantially as specified.

175,035. WATER-CLOSET VALVES. Thomas Connaghton, New York, N. Y. (Filed Feb. 26, 1876.)

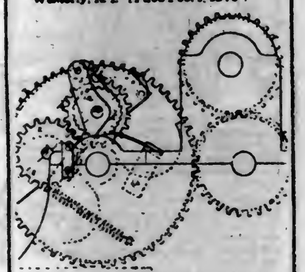
1. The sectional spherical valve case A A', constructed with water inlet and outlet a a', and with an inlet and outlet valve D, and a valve, e, in combination with the perforated elastic spherical valve E, substantially as described.

2. The spherical float G, combined with a valve constructed and operating substantially as described.

175,036.



175,037. PRINTING-PRESSES. C. B. Cottrell, Westerly, R. I. (Filed Feb. 3, 1876.)

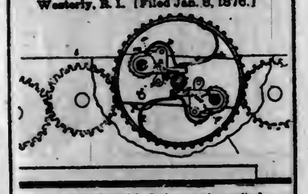


1. The combination with the second impression-cylinder of a perfecting-press, having a reciprocating bed and flat form, of an automatically shifting tympan, substantially as and for the purpose set forth.

2. In combination with an impression-cylinder and shifting-tympan, means for spreading the tympan widthwise, substantially as described.

3. In combination with an impression-cylinder and shifting-tympan, means for effecting the intermittent movement or shifting of the tympan in either of two directions, substantially as and for the purposes set forth.

175,037. PRINTING-PRESSES. C. B. Cottrell, Westerly, R. I. (Filed Jan. 6, 1876.)

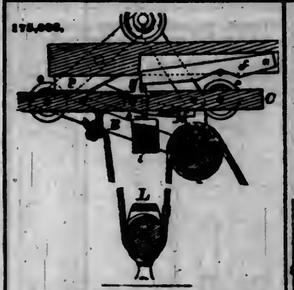


In combination with the impression-cylinder, two or more tympans and means for shifting them while the press is running, substantially as and for the purposes set forth.

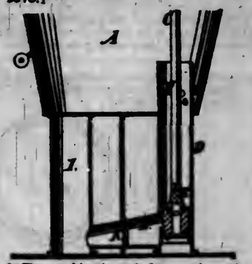
175,038. HAY-ELEVATORS. Jay C. Cramer, Strathroy, Canada. (Filed Dec. 26, 1875.)

The car constructed as herein described, with a single pair of carrying-wheels, D D, running on independent stud-shafts projecting inward from opposite sides of the frame B, so as to admit of passing the track-supports, and with steady-wheels e e below, mounted in a frame, C, to limit the oscillation of the car, in combination with the latch f, depending from the track so as to engage with the stop g, and thrown out by the contact of the elevating-pulley L, with the block i, as shown and described.

175,039.



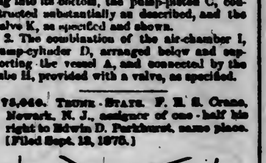
175,039. FIRE-EXTINGUISHERS AND WINDOW-WASHERS. H. M. Crandal, Chicago, Ill., assignor of one-half his right to A. B. McChesney, same place. (Filed Oct. 16, 1876.)



1. The combination of the vessel A, the tube D, extending below the vessel and opening into its bottom, the pump-piston C, constructed substantially as described, and the valve K, as specified and shown.

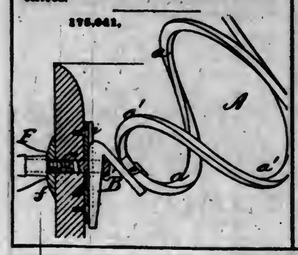
2. The combination of the air-chamber I, pump-cylinder D, arranged below and supporting the vessel A, and connected by the tube H, provided with a valve, as specified.

175,040. TROUGH-STAYS. F. H. S. Crane, Newark, N. J., assignor of one-half his right to Edwin D. Parkhurst, same place. (Filed Sept. 18, 1875.)



The within-described combined corner and hinge, consisting of the plate A, provided with the projection B, having the bearing b and stud c, and plate A', provided with the projection C, having the pivot D and stud c, constructed substantially as shown and described.

175,041.

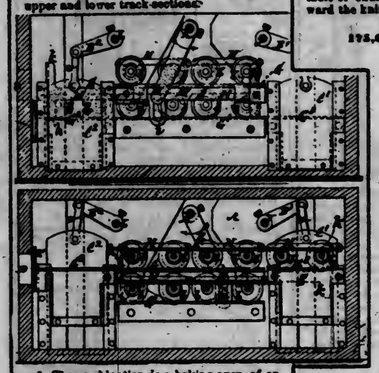


175,041. MOP-WRINGERS. H. D. Crocker, Limerville, Pa. (Filed Jan. 22, 1876.)

In combination with the plate f, having raised lateral flanges i, the eye-bolt C, semicircular sheet B of wringer A, and a clamp-nut, F, substantially as specified.

175,042. BAKERS' OVENS. Alex. Crumble, Nyack, assignor of one-half his right to David Donald, Brooklyn, N. Y. (Filed Feb. 16, 1876.)

Brief.—The trays pass alternately and intermittently in opposite directions along the upper and lower track-sections.



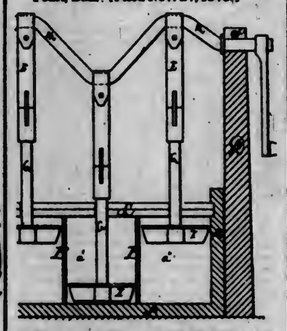
1. The combination, in a baking-oven, of an endless series of pans or trays, and mechanism applied to communicate to said trays an intermittent travel in upper and lower courses, and in opposite directions alternately, and to give a simultaneous rising and falling motion alternately to the end trays in the series, substantially as specified.

2. The combination, with the endless series of independent traveling pans or trays H, of the upper and lower fixed tracks G G', and the sectional rising and falling end tracks G² G², essentially as and for the purpose herein set forth.

3. The combination, with the front-end rising and falling track-sections G², of the gate or door E, which controls the mouth or opening D of the baking-chamber, substantially as specified.

4. The combination of the revolving cams M N, the levers O T, with their opposite attachments or rollers g l, the cross-shafts J K L, the cranks Q A', and their connecting-rods P s e, the double-armed or two-armed loose lever U, crank A', and connecting-rod r, the cranks or levs a B B' B', the longitudinally-moving sliding bars S, with their attached drivers k k, and the slides O C', with their attached rising and falling end track-sections G² G², for operation in concert with the endless series of independent pans or trays H, essentially as described.

175,043. CHURNS. James O. Damon, Elk Point, Dak. (Filed Nov. 27, 1875.)

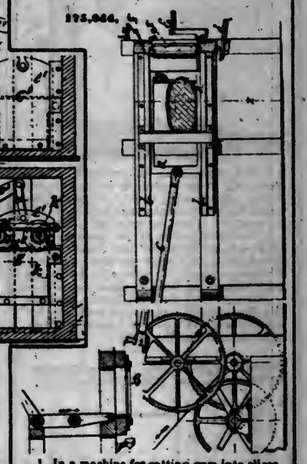


The cream-tub A, provided with the two perforated partitions B B, and compartments a a' a², in combination with the alternately reciprocating and perforated dashers I, each fitting in cross section the chamber in which it operates, substantially as described.

175,044. MACHINES FOR CUTTING RUBBER GUMS. James Davis, Pawtucket, R. I. (Filed Aug. 9, 1875.)

Brief.—A vertical reciprocating cutting-knife cuts the gum into slices, and on its backward stroke passes between vertical wipers, which are moistened by water or other liquid supplied by a pipe located above. A feeding-table or endless belt advances the gum toward the knife, by which it is sliced.

175,044.

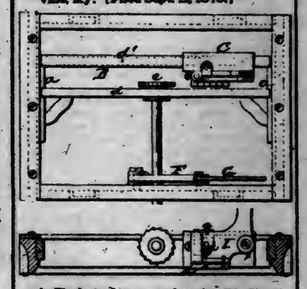


1. In a machine for cutting gum into slices, the combination of a vertical slicing-cutter, which cuts a slice at each forward stroke, a wiper for clearing the blade of the cutter, and a feeding-table for supporting the gum, which is arranged to advance the gum evenly toward the cutter, substantially as described, whereby slices of regular thickness may be cut from a mass of gum, as set forth.

2. The combination of a cutter for slicing gum with a wiper, F, composed of hinged wings or cushions, and capable of adapting their rubbing-faces to the shape of the cutter, substantially as described.

3. The combination of a cutter, B, a wiper, F, and a pipe, g, for conveying water or other lubricant to the wiper, and thence to the cutters, substantially as described.

175,045. BURR-DRESSERS. Joel Davis, Danville, Ky. (Filed Sept. 11, 1875.)



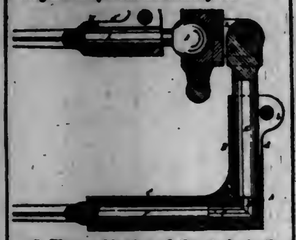
1. The lever I, connected to the slide C, and constructed and operated substantially as and for the purpose set forth.

2. The combination of the lever I with the block or box-slide C, the toothed plate n, and the toothed wheel s upon the screw D, as and for the purpose set forth.

3. The screw clamp, composed of the parts H, F, and G, in combination with the screw D and the moving frame E, as and for the purpose set forth.

175,646. DENTAL ARTICULATORS. Geo. G. Davidson, Lambeth, Great Britain. [Filed Feb. 17, 1876.]

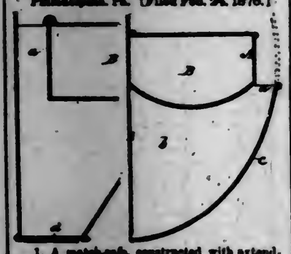
Brief.—A tube bent upon itself at right angles carries a horizontal sliding arm, and also a sliding upright standard, to which a curved arm is hinged. A rod which holds the upper cast of teeth is connected with the hinged arm by a ball-and-socket joint.



1. The combination of the stock A, the sliding rod E, the socket K pivoted on the sliding rod I, having a ball, J, fitting in the socket K, and the model-holders G and O, all substantially as and for the object specified.

2. The combination of the stock A, provided with the horizontal tube C and vertical tube E, having the lugs *b* and adjusting-screw D passing through the same, with the sliding rod I having the head F, the socket K pivoted in said head, the rod I having a ball fitting the socket K, the nut H confining the ball in place, and the model-holders G and O, all substantially as described

175,647. MATCH-SAFES. William Dawson, Philadelphia, Pa. [Filed Feb. 24, 1876.]

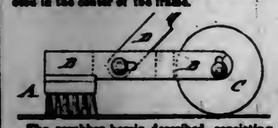


1. A match-safe, constructed with extended sides and a dividing-partition to form two compartments in one and the same containing case—one of which compartments is provided with a hinged cover and the other with an open slit and a sliding door, substantially as described.

2. The match-safe A, consisting of the receptacle B, having lower extended curved sides *b*, provided with guideways upon their edges, in combination with a curved slide, *c*, moving in the guideways and forming at once the bottom and front of the receptacle for the stubs, substantially as described.

175,648. SCRUBBERS. John Dessey, Fall River, Mass. [Filed July 31, 1875.]

Brief.—The brush is held in a frame having an anti-friction wheel in the rear, which can be adjusted as to height. The handle is pivoted in the center of the frame.

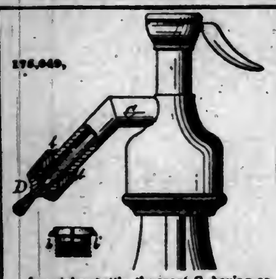


The scrubber herein described, consisting of the brush A, side strips B, adjustable wheel C, and pivoted adjustable handle D, arranged substantially as set forth.

175,649. SPRINKLING FOR SPRING-BOTTLES. Edwin Dobbins, New Orleans, La. (Filed Aug. 20, 1875.)

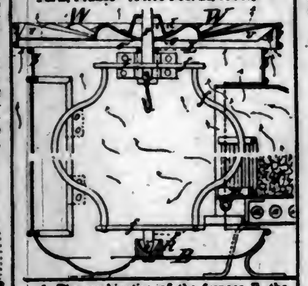
Brief.—The discharge-spout has a circumferential groove for the split screw-threaded collar. Upon the latter is screwed the reducer.

175,649.



In a siphon-bottle, the spout C, having an annular groove, *a*, coupling-ring formed in two semicircles, *b b*, having screw-threads cut on the outside, and detachable nozzle D, the whole constructed and arranged to operate substantially as described.

175,650. DUTCH-OVENS. Agarithe J. Dejoy, Paris, France. [Filed Feb. 21, 1876.]



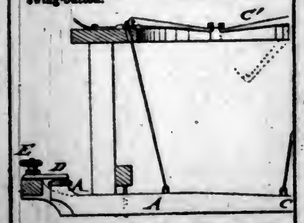
1. The combination of the furnace F, the Dutch oven, the meat-supporting frame *f*, and the turbinate wind-wheel W, whereby the said frame or spit is turned by the heated air and gaseous products of combustion passing from the furnace, through the oven, to said wheel, substantially as set forth.

2. The turbinate wind-wheel W, directly attached to the frame *f*, which supports the meat in the oven, substantially as herein described.

3. In combination with the turbinate wind-wheel W, attached to the meat-supporting frame *f* of a Dutch oven, substantially as described, the central cup-shaped disk *d*, with openings *s* at the bottom, substantially as and for the purpose herein described.

175,651. TYPE-WRITERS. Philander Deming, Albany, N. Y. [Filed Oct. 2, 1875.]

Brief.—The marking or dividing lever is made so short that it will not interfere with any other type-lever when both are depressed simultaneously. This marker may be worked separately, or attached to the space-key by a swing-button.

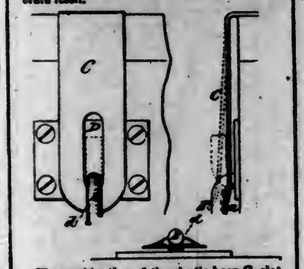


1. The combination, with the type-levers of an ordinary type-writer, of an independent marking arm or lever, having a printing-point separate from that of the common type-levers, and made shorter than the latter, substantially as and for the purpose set forth.

2. The combination of the marking or dividing key, by a swinging adjustable button, with the space-key, for being conveniently used by the same, substantially in the manner set forth.

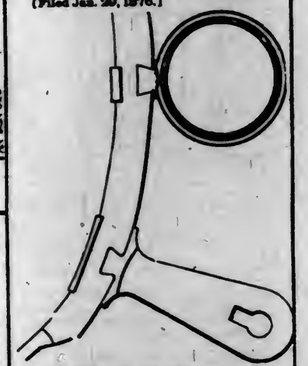
175,652. CRATE-HASPS. John De Lamater, Milford, Del., assignor to Sargent & Co., New Haven, Conn. [Filed Mar. 2, 1876.]

Brief.—A slot in the turned-up end of the spring holds the fastening-pin in a locking position, whatever may be the position of the crate itself.



The combination of the elastic loop C, slot D, and notch *d* in its turned-up end, with the rotating hook E, substantially as described.

175,653. HAMES FOR HARNESS. John K. Dodd and Peter Brower, Newark, N. J. [Filed Jan. 20, 1876.]



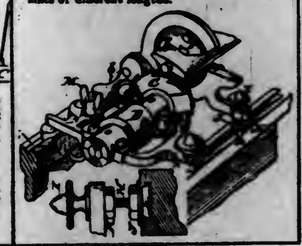
1. Hames formed with notches *a b*, of dovetail form, to receive corresponding projections on the shanks of the draft-eyes and terrets to be attached thereto, substantially as herein specified.

2. Draft-eyes and terrets formed with dovetail projections, and with shanks to hook around and embrace the hames, substantially as herein specified.

3. Hames constructed with their draft-eyes and terrets embracing them, and united thereto by swaging or clinching, substantially as herein specified.

175,654. MACHINES FOR TENONING BLIND-SLATS. Wm. H. Doane, Cincinnati, Ohio, assignor to J. A. Fay & Co., same place. [Filed Apr. 5, 1875.]

Brief.—The pivoted chuck-frames, which support the slat during the operation of tenoning, are detachably connected to the front side of the machine, and are laterally adjustable with the cutter-carriages, to accommodate slats of different lengths.



HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

In a slat tenoning machine of the character stated, the combination, substantially as specified, of the pivoted chuck-frame, the fixed roll or bed, and the means, as described, for clamping or detachably securing the former to the latter.

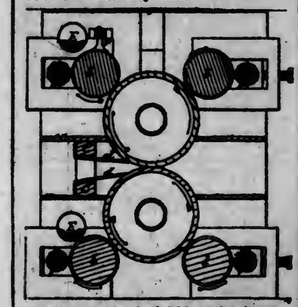
175,655. WASHING-MACHINES. James K. Dugdale, White Water, Ind. [Filed Nov. 22, 1875.]



The combination of frame A, provided with clasp B F and sliding rod G, with vibrating frame K, provided with rollers L, substantially as and for the purpose set forth.

175,656. MACHINES FOR CALENDERING PRINTED PAPER. George Dunean, Liverpool, England. [Filed Jan. 28, 1876.]

Brief.—Printed paper is fed between the set-off rolls, and is prevented from following the same by means of flexible strippers. In conjunction with the set-off and take-off rolls, having an end-wise as well as a rotary motion, in order to effectually clean the former.



1. In a machine for finishing printed paper, the combination of the set-off roll with the take-off roll or bowling device, capable of motion across the roll or in the line of the axis of the take-off roll, substantially as and for the purpose described.

2. In a machine for finishing printed paper, the combination of the set-off rolls with the elastic or yielding stripping-blade, substantially as and for the purpose specified.

175,657. PISTON-RODS. William Hoole, Marion County, Ind. [Filed Feb. 28, 1876.]



Also a new article of manufacture, a fingering composed of the section A, perforated at each end with holes F, the cam B B' arranged to receive the section A and the hinged ornamented catch C, provided with a pin D, all arranged to operate in the manner shown for the purposes set forth and described.

175,658. CORN-PLANTERS. Thos. Eldredge, Olden, Mo. [Filed July 10, 1876.]

Brief.—The seed-cylinder, having peripheral cups, is made in two parts—one of which is secured to the axle, while the other can be adjusted thereon, to increase the number of cups, and thereby diminish their size. To the lower side of the hopper the chute is attached, having an arm that is struck by pins on the seed-cylinder, to open and close the bottom. The chute is adjustable simultaneously with the adjustable cylindrical cut-off.

175,659.

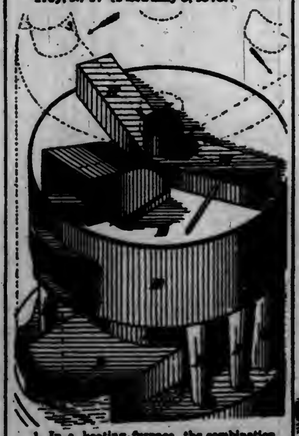


1. The dropping-cylinder herein described, consisting of the part D made fast on the shaft or axis B, and the part D' made movable thereon, and fastened to the stationary part by means of the bolts *d*, and having the dropping cups or recesses *c* formed in both parts, substantially as and for the purposes herein set forth.

2. The combination, with the dropping-cylinder D D' and chute H, of the projecting bolts *d* on the part D, lever J, connecting-rod *i*, and valve or drop *w*, all constructed substantially as and for the purposes herein set forth.

3. In combination with the corn-box G G' and cylinder D D', the hinged chute H, with plow I, the shaft A, with arm *a* and foot-pieces *k'*, the connecting-rods *f f'*, and slide *i*, all constructed substantially as and for the purposes herein set forth.

175,660. FURNACES. Michel G. Fagan, Troy, N. Y. [Filed May 6, 1876.]



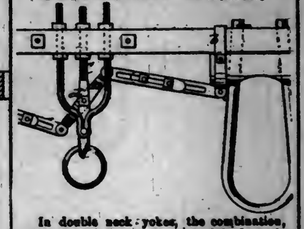
1. In a heating-furnace, the combination, with the ash-pit B, combustion-chamber D, and with the inclined air-heating space between said parts, of the fire-pot D, which is supported by said ash-pit, and has its lower end contained within the vertical annular flange *b* and at its upper end projects through the lower plate of said combustion-chamber, and is provided with an outwardly-projecting flange, *d*, substantially as and for the purpose specified.

2. In combination with the combustion-chamber B and with the bottom flue C, descending flues F and F, which extend between the same, and decrease in transverse dimensions from their upper to their lower ends, substantially as and for the purpose shown.

3. In combination with the combustion-chamber B of a reverthible-flue furnace, an ascending flue, G, which passes upward through said chamber, substantially as and for the purpose set forth.

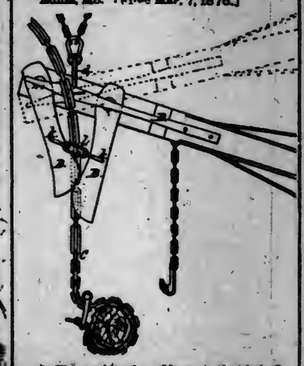
4. In combination with the combustion-chamber B, return-flues G and G, and exit-flue I, the cross-flues H and H' formed upon the dome-plate E', and furnishing communication between said parts, substantially as and for the purpose shown and described.

175,661. OX-YOKES. Eli A. Fry, Cedar Springs, Mich. [Filed Sept. 17, 1875.]



In double neck-yokes, the combination, with the main beam, of a central draft-staple and brace-rods, being vertically adjustable to greater or less depth on the beam, to regulate height of draft, substantially as and for the purpose set forth.

175,662. LEVER-POWERS. Edward Faler, Edina, Mo. [Filed Mar. 7, 1876.]



1. The combination of lever A, the chain C, the pivoted griping-arms B B, the hooks *k*, and the spring *l*, substantially as and for the purpose described.

2. The combination, with the lever A and the arms B, of the arm D and guide *f*, as and for the purpose described.

3. The combination, with the lever A, of the fulcrum-link *d*, having foot *f*, for the purpose described

4. The combination, with the griping-arms B, of the releasing-lever E, having a forked rod and a stud, *n*, as and for the purpose described.

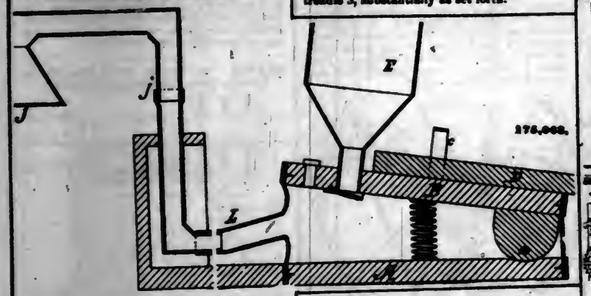
175,663. HOMES-BOOTS. Josepa Fennell, Cynthiana, Ky. (Filed Oct. 22, 1875.)



HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

An improved boot for horses, formed of the lower part or boot-boot A, made with a padded upward extension, *a'*, and provided with a strap and rubber tube, B C, to buckle around the heel of the hoof, and the padded upper part or spandy-nut boot D, connected with the part A by flexible straps E, made flaring upward and downward, and provided with a padded strap, F, to buckle around the fetlock, substantially as herein shown and described.

176,066. CLOTHES-SPRINKLERS. E. Fleiner, Lee, Ohio. [Filed Feb. 26, 1876.]



In a laundry-sprinkler, a bellows, having a treadle, D, and a water-receptacle, E, applied to it, in combination with the flexible hose L and the rose-sprinkler J, substantially as described.

176,067. FEEDING ATTACHMENTS FOR SEWING-MACHINES. Gibbons Fraser, Philadelphia, Pa. [Filed Jan. 10, 1876.]

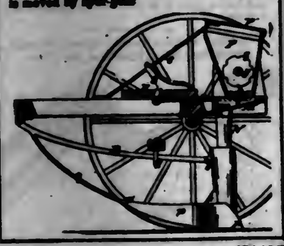
Brief.—The needle-loops, instead of being drawn up taut after leaving the hook, slide onto the longitudinal bar, which is supported at its outer end, to prevent it bearing against the hook.



The looping-hook A, in combination with the bar B, formed with a head, D, at its inner end, and a supporting-standard, C, at its outer end, substantially as and for the purpose set forth.

176,068. GRAIN-DRILLS. Henry Garrett, Richmond, Ind. [Filed July 28, 1876.]

Brief.—Upon the inclined board beneath the hopper and guides, for allowing the seed to run into the tubes. The furrow-openers have lateral rear wings, to throw the earth back into the furrow. The feed-wheel shaft is moved by spur-gear.



1. The inclined board M, carrying spout N, and provided with oval guide-plates L surrounding the apertures leading to said spouts, as and for the purpose set forth.

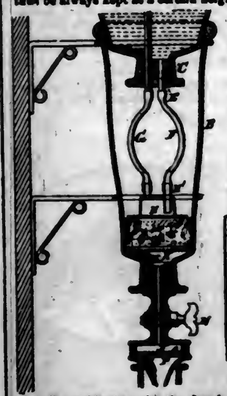
2. The openers or cutters P, having inturned rear wings *p*, to cause the earth from the sides of the furrow to fall regularly into the furrow upon the seed.

3. The combination of spur-wheels *s* and *w*, and box F, made movable at one end to disengage the spur-wheels, for the purpose set forth.

4. The combination of spur-wheels *s* and *w*, movable seed-box F, connecting-rod 5, and treadle 3, substantially as set forth.

176,069. FILTERS FOR DRUGS. Carroll B. Gates, Saratoga Springs, N. Y. [Filed Feb. 12, 1876.]

Brief.—Two flexible pipes are inserted in the cork of the inverted mesotrum-chamber. One pipe terminates within the liquid, and the other is extended to the air-chamber above it. A small frame just above the drug-chamber holds the end of the longer of the two pipes at a point to which it is desired to fill the chamber with the liquid. When the liquid rises to the bottom of this pipe, it cuts off any ingress of air to the chamber above the mesotrum, and hence no more fluid can escape. The liquid in the drug-receptacle can then be always kept at a certain height.



1. In combination with the chambers B and B', the flexible pipes F and G, and table H H', whereby the mouths of the pipe may be fixed in a certain relation to the drug under treatment, whatever may be its depth, substantially as set forth.

2. In combination with chamber B', the reciprocated diaphragm K, for supporting the drug, and the table H H' resting on the drug and supporting the flexible pipes, substantially as set forth.

3. In combination with the automatic mesotrum-supply apparatus, substantially as set forth, the stop-cock M, whereby the proper relation of supply and discharge of the mesotrum and filtrum is constantly maintained, substantially as set forth.

4. The combination, in continuous series, of the mesotrum-chamber, the percolating-chamber, and the filtering-chamber, substantially as set forth.

176,070. STICKS FOR DIPPING STAMENS FOR ARTIFICIAL FLOWERS. Ambroise Girandat, Neuvy, (Norwood P. O.,) M. J. [Filed Jan. 7, 1876.]



Brief.—The threads for the stamens are laid transversely across and held between the parts of the stick.

1. The hook C and the spring-clamps D in combination with the parts A B of the stick, substantially as herein shown and described.

2. The combination of the three cords E with the faces of the parts A B of the stick, substantially as herein shown and described.

176,071. RATTAN-MACHINES. Joseph M. Goddard, Fitchburg, Mass. [Filed Mar. 2, 1876.]

Brief.—The unequal wear upon the knives of a machine for splitting and shaving rattan is prevented by arranging the cutting-guides so that a fresh cutting-edge is continuously presented to passing strips of rattan.

1. In combination with a rattan-shaving machine, continuously-revolving cutting-gages *a b*, substantially as and for the purpose set forth.

2. The journal B and nuts E, in combination with the sleeve I, substantially as described.

3. The shaft G, with right and left screws *g g*, screw-gears B' E', and shafts D, with screws *d*, in combination with the gears *e*, sleeve 2, screw-bolts C, and knives *b*, as and for the purpose described.

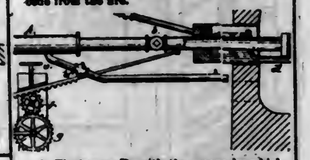
176,072. COOKING UTENSILS. F. Gates, Frankfort, N. Y. [Filed July 26, 1875.]



The herein-described broiler, composed of gutter-bars elevated above or separated from the surrounding gutter, but made in one piece with said gutter by means of connecting-posts, substantially as shown and described.

176,073. GAS-FURNACES. Wm. S. Gilles, Pittsburg, assignor to D. B. Ashbaugh, Leechburg, Pa. [Filed May 26, 1875.]

Brief.—Gas is led through a pipe centrally situated in a boiler, the steam from which is driven into the furnaces under the gas-nozzle. The latter is furnished with cog rod and wheels, in order to make it approach and recede from the fire.



1. The barrow B, with the means by which it can be regulated or adjusted in the furnace to correspond with the degree of heat, by cog-rod F, cog-wheels *f*, crank and cog-wheel *g*, as attached by section-pipe C, for the purposes herein before specified.

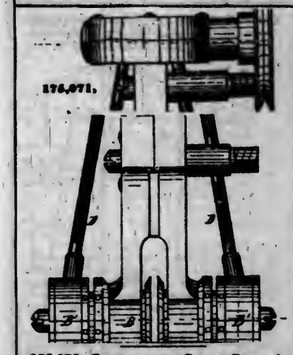
2. The heater-pipe E, water-chamber D, with the pipes A and C, cog-rod F, cog-wheels *f*, crank and cog-wheel *g*, barrow B', steam pipe or pipes *d* in combination, for the purposes herein before specified.

176,074. MACHINES FOR CUTTING STAMENS FOR ARTIFICIAL FLOWERS. Ambroise Girandat, Neuvy, (Norwood P. O.,) M. J. [Filed Jan. 7, 1876.]
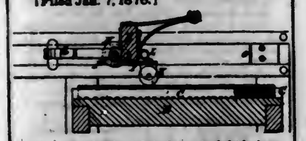
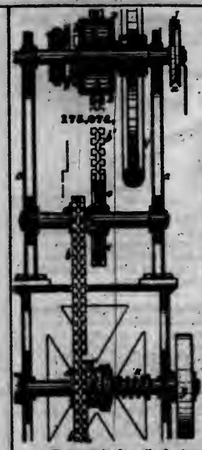


The combination of the long straight knives D and their holders G and the rollers K, the brackets I, and the springs L with the hinged beam E and its frame or carriage, and the bed-plate B of the machine, substantially as herein shown and described.

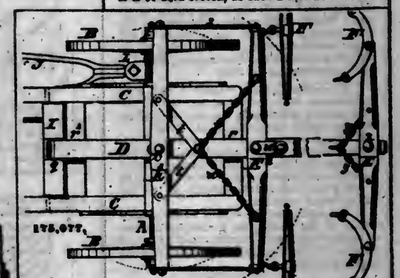
176,071.



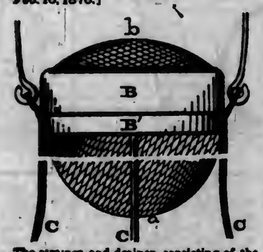
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176,075.



176,079. STRAINERS FOR COFFEE-POTS. A. M. Goldstone, Philadelphia, Pa. [Filed Feb. 16, 1876.]



The strainer and drainer, consisting of the part *a*, with chamfered head B', the part *b*, with head B, and the supporting and encircling legs C, combined and operating substantially as and for the purpose set forth.

176,076. BOOT-JACKS. John Green, Greenville, Mich. [Filed Mar. 31, 1875.]

The improved boot-jack, formed of the bars B, connected by cross-bar A, the crotch C jointed thereto, and the toe-piece D, arranged to slide in mortises in the parallel end portions E E of said crotch, as shown and described.

176,077. WHEEL-CULTIVATORS. Oliver C. Green, Dublin, Ind., assignor to Casper Green and John Green, same place. [Filed Feb. 15, 1876.]

Brief.—The tongue, double-trees, &c., are pivoted high over the axle, and, when swung around the single-trees and hangers, will clear the wheels. A drop-latch secures the tongue rigidly when the latter, after turning, comes back into the line of draft.

1. A swinging tongue, D, having its pivot *s* above the axle-tree, and perpendicular to the axes of the ground-wheels, as herein described, in combination with a main rear draft double-tree, F, hitch-bars G, and single-trees F', supported in front and outside of the frame and wheels, so as to travel around the wheels without interference when the tongue is turned in either direction.

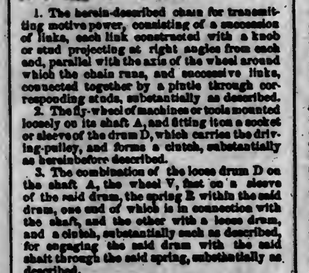
2. A swinging tongue, D, having its pivot above the axle-tree, and perpendicular to the axes of the ground-wheels, in combination with a horizontal frame, C, affording extended supports or bearings, *r r'* beneath the tongue, in front and in rear of the pivot, as herein shown and described, for the purpose specified.

3. The combination of the swinging tongue D, the rear draft double-trees F F, stayed at about right angles thereto, the low hitch-bars G, pivoted to the ends of one of these double-trees, and connected to the other by rods *s*, and the single-trees F' F', attached to the hitch-bars, substantially as herein shown and described.

4. The rocking bar I, constructed with a mortise, *q*, pivoted between the frame-bars C, and provided with the gravitating-arm *p*, in combination with the pivoted tongue D, as and for the purpose set forth.

176,078. MACHINERY FOR TRANSMITTING MOTIVE POWER. Claude D. Goubot and J. N. Monteau, Paris, France. [Filed Dec. 10, 1875.]

Brief.—An endless chain formed of flat links with a stud at each end. A fly-wheel on the sleeve of a drum, the latter connected by a band-spring with a clutch-sleeve lying around the former sleeve, the whole attachable to the shaft passing through them by the sliding of a clutch along a spline on the shaft.



1. The herein-described chain for transmitting motive power, consisting of a succession of links, each link constructed with a knob or stud projecting at right angles from each end, parallel with the axis of the wheel around which the chain runs, and successive links, connected together by a pintle through corresponding studs, substantially as described.

2. The fly-wheel of machines or tools mounted loosely on its shaft A, and fitting it on a socket or sleeve of the drum D, which carries the driving-pulley, and forms a clutch, substantially as herein before described.

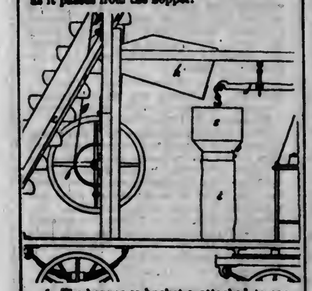
3. The combination of the loose drum D on the shaft A, the wheel V, fast on a sleeve of the said drum, the spring E within the said drum, one end of which is in connection with the shaft, and the other with a loose drum, and a clutch, substantially such as described, for engaging the said drum with the said shaft through the said spring, substantially as described.

4. The ratchet H and pawls *n n*, for preventing the said spring slackening, as herein before described.

5. The ratchet mechanism on the driving-shaft B, for allowing the machine to make an advance when the engine races or suddenly increases its speed, or to disengage from the driving-shaft, substantially as herein before described.

176,072. APPARATUS FOR TRANSSHIPPING GRAIN. Wm. Goodwin, Liverpool, England. [Filed Nov. 29, 1875.]

Brief.—The bucket attached to one end of the scale-beam is provided with catches for holding a bag, to receive and weigh the grain as it passes from the hopper.



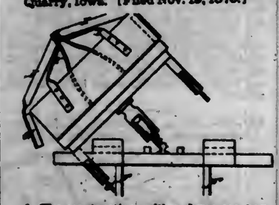
1. The hopper or bucket *a*, attached to one end of a scale-beam, and adapted to holding a bag for simultaneously weighing and sacking grain, in combination with an elevator and hopper, substantially as set forth.

2. The combination of adjustable elevator *a*, hopper A, bucket *a*, bag *i*, and counter-weighted scale-beam, all mounted on a movable truck, substantially as set forth.

176,078. MACHINERY FOR TRANSMITTING MOTIVE POWER. Claude D. Goubot and J. N. Monteau, Paris, France. [Filed Dec. 10, 1875.]

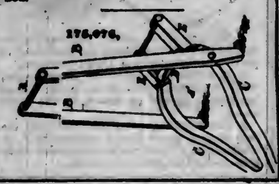
Brief.—An endless chain formed of flat links with a stud at each end. A fly-wheel on the sleeve of a drum, the latter connected by a band-spring with a clutch-sleeve lying around the former sleeve, the whole attachable to the shaft passing through them by the sliding of a clutch along a spline on the shaft.

176,075. DUMPING-CARS. Geo. A. Gregg, Quarry, Iowa. [Filed Nov. 19, 1875.]



1. The construction, with a dump-car having side wheels, of median guide-wheels journaled in swiveled bearings, as and for the purpose described.

2. The rod J, supported longitudinally over the middle of a dump-car, and provided with pivoted arms I, rigidly attached to swinging sides and ends, as and for the purpose specified.



176,077.



175,078. STEAM-TRAP. W. W. Grier, Hulton, Pa. [Filed Feb. 15, 1876.]

Brief.—When, by reason of a falling head of water, the valve ceases to operate, it falls from its seat; the lower vessel becomes empty, and is then filled by the weighted lever attached to one end carrying the lower end of the valve to the other end of the vessel to lift the valve which it closes, and hold the same tightly in its seat. Water commencing to flow again fills both vessels, when the arm supporting the upper vessels descends, thereby giving a light blow to the valve-stem, thus opening the valve and again starting the ram.

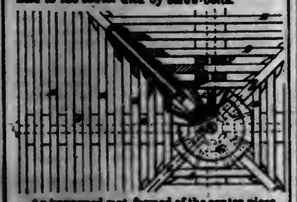
1. The water-balance vessels C and F, in combination with the valve A, whereby the said valve is operated in the manner and for the purposes substantially as set forth.

2. The gage-pipe vessel E, provided with external escape-channels, in combination with the discharge-chamber of a hydraulic ram or other water-forcing machine, and united thereto by a soft-metal sleeve, substantially as and for the purposes set forth.

3. The combination, with a water-balance vessel, C, of a water-gate, *g*, whereby the flow of water therefrom is adjusted to the head of water supplying the ram, substantially as hereinbefore set forth.

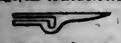
175,079. CAR-MAT. John W. Grosz, Troy, N. Y. [Filed Sept. 20, 1875.]

Brief.—The four corner-pieces are secured at the center of the mat, and the slats are mortised into the corner-pieces, and the latter held to the center disk by screw-bolts.



An improved mat, formed of the center-piece A and its cap G, the perforated and mortised corner-bars C, the screw-rods D E, the slats E, and the washers or blocks G, substantially as herein shown and described.

175,080. HARVESTER-CUTTERS. Albert D. Hager, Chicago, Ill. [Filed Nov. 16, 1875.]



1. The fingers transversely grooved at the end of the knife-slot.

2. The combination of the series of cutter-blades blunted at the apex, or at the apex and butt, with the series of fingers transversely grooved at the end of the knife-slot, substantially as and for the purposes described.

175,081. GLASS-MELTING POTS. Andrew Harcum, Pittsburg, Pa., assignor to himself and Peter Kunzler, same place. [Filed Feb. 7, 1876.]

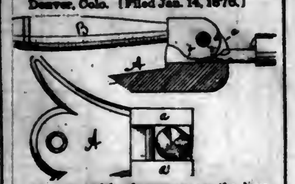


1. A glass-melting pot provided with an extension or magazine, substantially as and for the purpose specified.

2. In combination with a glass-melting pot, the valve for permitting the escape of the gases formed during the melting of the batch.

3. In combination with a glass-melting pot, an auxiliary pot, substantially as and for the purpose specified.

175,082. PEN-EXTRACTORS. J. A. Hard, Denver, Colo. [Filed Jan. 14, 1876.]



As a new article of manufacture, the herein-before-described pen-extractor, consisting of the base A, having upright bearings *a a'*, between which is pivoted the lever B, having the fluted cam *b* upon its lower end, substantially as described and shown.

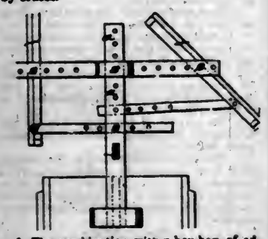
175,083. PORTABLE FENCES. D. S. Harner, Xenia, Ohio. [Filed Aug. 9, 1875.]



The panels A B, having rails extended beyond the uprights *c*, and concaved and beveled, as shown and described, for the purpose of interlocking, as set forth.

175,084. SHADES FOR HOP-BOXES. Hiram N. Harrington, Wilson Place, N. Y. [Filed Feb. 8, 1876.]

Brief.—A hop-box with adjustable shades, which are supported by perforated standards at each end of the box, and held at any angle by braces.



1. The combination, with a hop-box of adjustable and braced shades, supported on vertical standards of the box, substantially in the manner and for the purpose set forth.

2. The combination of the upright standards, perforated horizontal arms, adjustable shades, and pivoted brace-pieces, to admit the setting of the shades against sun, rain, and wind, substantially as set forth and described.

175,085. THILL-COUPLINGS. G. Harrison, Jeffersonville, Ind. [Filed Jan. 14, 1876.]

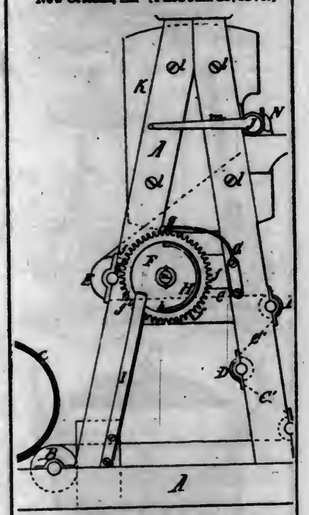


1. The detachable yoke I, surrounding the coupling-jaws, for retaining the shaft-head in position, substantially as herein described.

2. In combination with the yoke-jaws and shaft or coupling-head, the set-screws K and jam-nuts L, applied as shown, for the object stated.

3. The retaining yoke, provided with the ears or projections M and safety-bolts N, in combination with the coupling-jaws and shaft-head, as and for the object stated.

175,086. CLOTH-MEASURING APPARATUS. Benj. M. Harrod and Frederick N. Ogden, New Orleans, La. [Filed Jan. 20, 1876.]



1. A tallying and rolling machine, combining feed-rollers B, tension-rollers D, measuring-rollers E, having a cog, *c*, a counting-wheel, F, having a cam, H, spring I, and pawl G, adjustable guides K, and shaft J, all constructed and operating substantially as herein-before set forth.

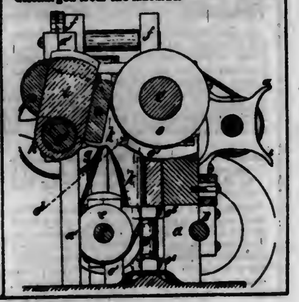
2. The combination of the measuring-cylinder E, having pins *c*, the counting-wheel F, having a cam, H, with the stop h, the spring I, and the pawl G, operating substantially as and for the purpose set forth.

3. The lateral guides K, the tension-springs *h*, and the adjustable sliding bolts L, having heads *l*, all constructed and operating substantially as and for the purpose set forth.

4. The shaft J, upon which the fabric is rolled, consisting of the halves *f*, having the wedge-shaped edges *f'*, which are outside of parallel matching or tongued and grooved portions of the shaft, and the journaled heads M, having the sockets *m'*, all constructed and operating substantially as and for the purpose set forth.

175,087. MACHINES FOR MAKING CORRUGATED-LEGGED STAPLES. H. A. Harvey, Orange, N. J. [Filed Feb. 7, 1876.]

Brief.—The machine is provided with plates, reciprocating alternately in ways upon the sides of the frame, having each a hole that coincides with holes in the frame, so that while one acts as a shear to sever the blank, the other gages the length thereof, when wire is fed from both sides at the same time. The severed blank is carried forward by rotating arms, and presented to the dies, and, when corrugated, are bent by revolving hooks and discharged from the machine.



1. In a machine for corrugating pieces of wire, a rotating circular die, in combination with a concave die, pivoted at one end, and provided with the vertical set-screw *s'*, having the jam-nuts *s''* and *s'''*, by the operation of which the concave die is swung upon its pivot toward or from the periphery of the rotating die, substantially as shown and described.

2. The combination, with each other, of two sets of corrugating-dies, each set composed of a rotating circular die and a pivoted curved die, substantially such as described, for the purpose of impressing two series of grooves upon the opposite end portions of the periphery of a length of wire introduced between the dies, substantially as shown and described.

3. Two sets of rotating circular dies and pivoted curved dies, substantially such as described, in combination with a device for guiding and delivering a length of wire in suitable position to be seized and acted upon by each die, substantially as described.

4. The revolving roller-dies *c c* and stationary dies *c' c'*, in combination with the recesses *c''* in the lower ends of the stationary dies, substantially as for the purpose set forth.

5. The revolving roller-dies and stationary dies, provided with the recesses *c'' c''*, in combination with a bender, *d*, for withdrawing lengths of wire from the recesses and bending them into a U form, substantially as described.

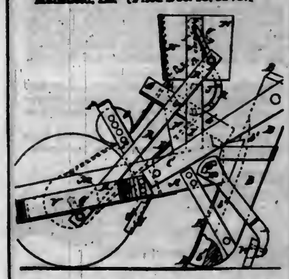
6. In a machine for making staples, substantially such as described, the combination, with each other and with a delivery-cam, of the two sets of feed-rollers at opposite ends of the machine, and the two cut-off blades *i* and *i'*, representing in opposite directions by the rotation of the reversed eccentrics *g'* and *g''*, substantially as shown and described.

7. Rolling-dies, and stationary dies, substantially such as described, for grooving both ends of a length of wire, in combination with a feeding and cutting-off device, and a delivery device for conveying the lengths of wire when cut off to the grooving-dies.

8. A device for feeding, cutting, and delivering length of wire from a coil, in suitable position to be seized and carried between rolling-dies and stationary dies, substantially such as described, in combination with such rolling and stationary dies, and the containing recesses for the reception of the lengths of wire after they have passed through the dies, and the bender operating to withdraw the lengths from the recesses, and at the same time, bending them into a U form, substantially as shown and described.

9. Rolling-dies and stationary dies, substantially such as described, with a bending device and a delivery device, substantially such as described, in combination with double feeding and double cutting-off devices, substantially as set forth.

175,088. COTTON-PLANTERS. A. T. Hatcher, Mansfield, La. [Filed Dec. 16, 1875.]



In a cotton or walking planter, the combination of the open-bottomed hopper H, revolving toothed distributing-cylinder K, rocking tooth agitating-shaft T U, inclined trough or chute G, and hollow or grooved standard B, having plate E and plow D, all constructed and relatively arranged as herein set forth.

175,089. FIRE-GRATES. Andw. B. Hendryx, Ansonia, Conn. [Filed June 3, 1874.]

The method herein described of securing the vertical wires to the annular hoops, consisting of the hooks or loops *a a*, encircling the vertical wires and riveted to the annular hoops, substantially as specified.

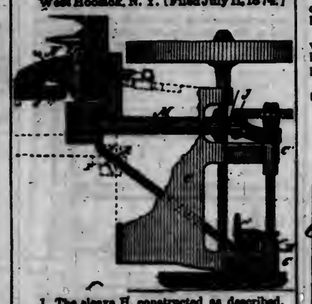
175,090. HARVESTER FINGER-BEAM CATCHES. Ephraim F. Herrington, West Hoosick, N. Y. [Filed July 8, 1874.]



1. The pivoted spring-catch A, constructed, as described, to operate directly upon the finger-beam, with a toe, *b*, to be acted upon by the foot of the driver while on his seat.

2. The combination of the bracket, the spring-catch adapted to operate directly upon the finger-beam, and the lever pivoted on the bracket, these members being constructed and operating substantially as set forth.

175,091. MOWERS. Ephraim F. Herrington, West Hoosick, N. Y. [Filed July 11, 1874.]



1. The sleeve H, constructed as described, turning freely on the counter-shaft and in its bearings in the main-frame arm, but, having no end-wise movement, and carrying a pinion at one end and a clutch at the other, in combination with the interlocking sliding clutch-collar H', turning with the counter-shaft, the crank-arm I, and the pinion J fast on the counter-shaft, as set forth.

2. The arm L, constructed as described, in combination with the main-frame arm C', through which the counter-shaft passes, its collar *e*, on which the arm *k* swings, the tubular sleeve or thrust-bar M through which the crank-shaft passes, swiveled at its rear end in the arm *k*, and the hinged coupling-arm P interlocking with the thrust-bar, substantially as and for the purposes set forth.

3. The shoe and tubular thrust-bar and crank-shaft sleeve constructed in one piece, having a neck and stop formed at the upper end, and swiveled in the swinging arm *k*, substantially as and for the purposes set forth.

4. The combination of the tubular sleeve or thrust-bar and coupling-arm, provided with an interlocking notch and stud, substantially as set forth.

5. The combination of the sickle, the pitman, the guide T, the horizontally-swinging holder V, and the spring-stop *u*, taking into the holder, these members being constructed and operating, substantially as set forth, to permit of the ready connection or disconnection of the pitman and sickle.

175,092. HAVEN-TROUGH HANGERS. Jacob F. Hess, Massillon, Ohio. [Filed Mar. 4, 1876.]

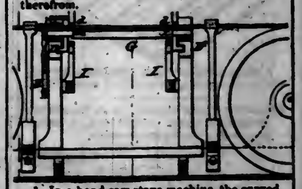


1. The cross-bar B, made with end depressions *b b*, in combination with the eave-trough A, substantially as and for the purpose specified.

2. The cross-bar B, with end depressions *b* and elongated center rivet D, in combination with the hanger C, having the elongated slot E therein, the several parts being arranged substantially as and for the purpose specified.

175,093. BAND-SAW STAVE-MACHINES. J. H. Hobson, Newtonsville, Ind. [Filed Dec. 16, 1875.]

Brief.—The carriage for the stave-bolt moves upon curved guideways, thus causing the staves to be sawed with a curvature corresponding to that of the article to be made therefrom.

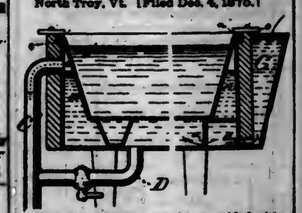


1. In a band-saw stave-machine, the curved slides D D, in which the carriage or head-block G moves to and from the saw, for the purposes herein set forth.

2. The heads J J', provided with slots *d* and offsets *x*, substantially as and for the purposes herein set forth.

3. The adjustable rests I, in combination with the curved slides D, head-block G, and heads J J', substantially as and for the purposes herein set forth.

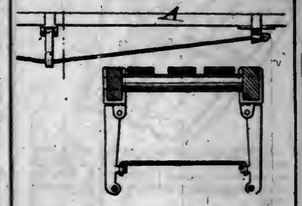
175,094. MILK-COOLERS. Wm. Hogsdon, North Troy, Vt. [Filed Dec. 4, 1875.]



In a milk-cooler, the vessel A, provided with a chute, C, openings *a*, recess *e*, overflow-pipe C' and connected waste-water pipe D, having cock *c*, in combination with the milk-pan B, provided with legs, and having the discharge-pipe *b* and flange *n*, substantially as described and for the purpose set forth.

175,095. PAINTERS' SCAFFOLDS. W. Hoskin, New York, N. Y. [Filed Feb. 5, 1876.]

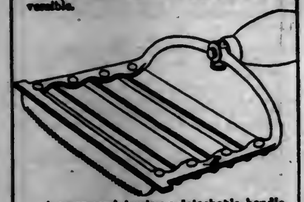
Brief.—The platform is braced by rods applied by end clips, and adjusted by tightening-screws. Lateral bracing-arms or stays are hinged to the platform, so as to fold with the rods under the platform. A lateral brace-rod supported in sockets on the stays tends to keep the stays in a vertical position when the platform is in use.



1. A painter's platform or scaffold stiffened by longitudinal bottom brace-rods, applied to hinged central arms or stays and end sockets in such a manner that they may be folded up to the under side of the scaffold, substantially as and for the purpose set forth.

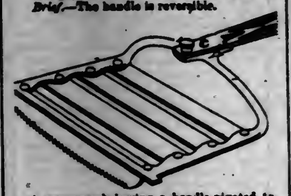
2. The combination of the hinged center arms or stays with a lateral detachable brace-rod secured to staples of the same to retain rigid position of arms and brace-rods, substantially as described.

176,098. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. (Filed Mar. 15, 1876.)
Brief.—The handle is detachable and reversible.



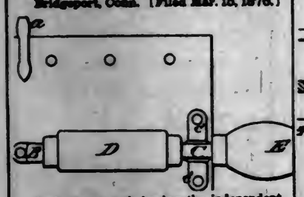
A curry-comb having a detachable handle, which is reversible, substantially as described.

176,097. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. (Filed Mar. 15, 1876.)
Brief.—The handle is reversible.



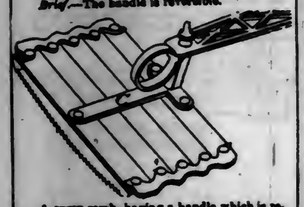
A curry-comb having a handle pivoted to it in such manner that it is adjustable for a side handle or grasping-handle over the back of the comb, substantially as described.

176,096. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. (Filed Mar. 15, 1876.)



1. A curry-comb having the independent wooden handles D and E, the supports S and O, and tangs *c*, *d*, and *d'*, together with the supporting-spider *s'*, constructed and arranged substantially as specified.
2. In a curry-comb, the support or standard O and double tangs *d d'*, substantially as shown, and for the purpose set forth.

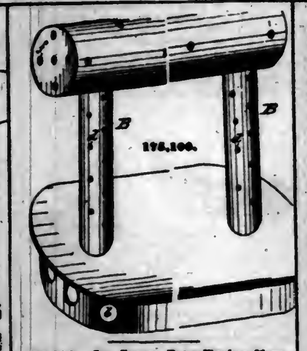
176,095. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. (Filed Mar. 15, 1876.)
Brief.—The handle is reversible.



A curry-comb, having a handle which is reversible by detaching it from its fixed position on the comb without detaching it from the comb, substantially as and for the purpose set forth.

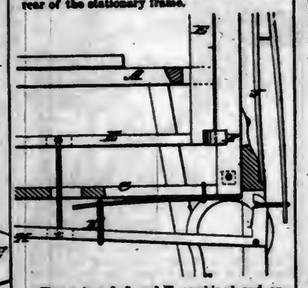
176,100. WASH-BOILERS. D. D. Hooper, Biddeford, Me., assignor of one-half his right to R. M. Stevens, same place. (Filed Jan. 4, 1876.)

In a wash-boiler, the false bottom A, with flange *a*, and perforations or openings *b*, and the partition-piece *c*, in combination with the perforated vertical tubes B and horizontal tube C, substantially as and for the purpose specified.



176,100.

176,101. JIG-SAWS. Peter Hughes, New York, N. Y. (Filed Feb. 21, 1876.)
Brief.—The saw-gate is operated by an elbow foot-treadle, a horizontal spring attached to the under side of the stationary frame, and connected by a link to the treadle, and two vertical springs—an inner and an outer one, the lower end of the outer one being attached to the short arm of the treadle, and the lower end of the inner one, and the upper ends of both, attached to the vertical beam at the rear of the stationary frame.



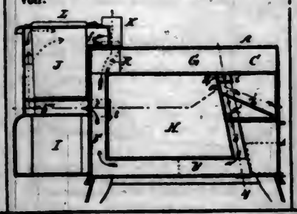
The springs I, J, and K, combined and arranged with the foot-treadle H and the saw-gate E, substantially as specified.

176,102. ELEVATOR-BUCKETS. S. Hughes, Charleston, S. C. (Filed Dec. 20, 1876.)



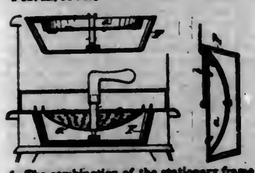
1. The body of an elevator-bucket, composed of two pieces of metal, and constructed, substantially as set forth, to form a seamless front, for the purpose specified.
2. The combination, with an elevator-bucket formed of two pieces of sheet metal, as set forth, of a strengthening-band, D, substantially as and for the purpose described.

176,103. COOKING-STOVES. Jas. R. Hyde, Troy, N. Y. (Filed Feb. 12, 1876.)
Brief.—Air taken from chambers adjacent to the fire-pot is conducted around the reservoir.



1. The combination of the apertures Z, heating-chambers or flues Z' a a', with the fire-box C, the hot-air flues *b b' b''* for heating and conducting a current of air thus heated from about the fire-box to the reservoir and warming-closet, substantially as and for the purpose described and set forth.
2. The combination of the heating-chamber *i*, having the apertures *j* and *l'* therein, and the valved duct or flue *i*, and the flue *l'* under the reservoir-tank, substantially as and for the purposes described and set forth.
3. In combination, the hot-air flues *b'''*, *b''*, and *l'* at the bottom of the reservoir-tank, through which may pass a current of heated air from the stove, substantially as and for the purposes described and set forth.
4. In combination, the hot-air flues *b b* in the stove and *b''' b''* under the water-tank, and the flue *d* at the rear of said tank, substantially as and for the purposes described and set forth.
5. The combination of the flue-space *d* at the rear of the reservoir-tank, spaces or flues at the ends thereof, the flue *f* at the front of said tank, through which may pass a current of heated air from the stove to and into the smoke pipe or flue, substantially as and for purposes described and set forth.
6. In combination, the stove top A, provided with projecting pins *c*, a reservoir having the flue *f* at the front thereof, having apertures at its lower part to receive the pins *c*, to hold said reservoir in position, substantially as and for the purposes described and set forth.
7. In combination, a reservoir having the flue *f* at its front part, the pipe K attached thereto, and fitted onto the pipe-collar of the top A, whereby said reservoir, or reservoir and warming-closet, is suspended at and against the rear part of the stove, substantially as and for the purposes described and set forth.

176,104. ASH-SIFTING ATTACHMENTS FOR GRATES. Jas. R. Hyde, Troy, N. Y. (Filed Feb. 12, 1876.)



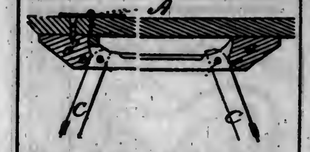
1. The combination of the stationary frame G, provided with a ball or handle, with the sieve or grate *e*, concave on its upper face, and capable of a rotating motion on or within said frame G, upon which it is mounted when the ash-pit is closed, the whole adapted to a cooking or heating stove, substantially as and for the purposes described and set forth.
2. The combination of the sieve or grate *e*, stationary frame G, with the ash-pan F, said frame fitted to or upon said ash-pan, and each provided with a ball or handle, all adapted to a cooking or heating stove, substantially as and for the purposes described and set forth.

176,105. BIT-BRACES. William A. Ives and Andrew Tuttle, New Haven, Conn., assignors to William A. Ives & Co., same place. (Filed Nov. 20, 1876.)
Brief.—The main jaws are operated by a pair of auxiliary jaws inclosed in the sleeve.



1. In a bit-brace, the combination of the following elements: the longitudinally-slotted socket or body A, the auxiliary jaws *a b*, hinged in the said slot, with their outer surfaces curved and threaded, as described, the principal jaws C D, hung between the ends of the said auxiliary jaws, and the sleeve B, threaded upon the inside, corresponding to the teeth or thread on the edge of the auxiliary jaws, and contracted at its mouth, substantially as described.
2. The grasping-jaws of a bit-brace, each constructed with a lug, *n*, and a corresponding recess, *m*, upon their meeting surfaces, substantially as and for the purpose described.

176,106. INCHING-TABLES. J. B. Jackson, Putnamville, Ind. (Filed Sept. 4, 1875.)



The longitudinal bar B, having folding legs C, and raised enlarged end blocks *a a'*, in combination with vertically-vibrating ironing-board A, substantially as specified.

176,107. TOY MONEY-BANKS. Charles C. Johnson, Chester, Va., assignor to Horace Partridge, Somerville, Mass. (Filed Aug. 30, 1875.)



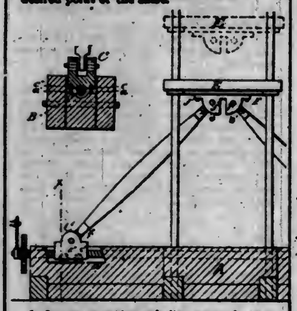
1. The combination, with a toy bank and with a spring or other power, of a cashier or figure adapted to be moved by the spring-power into and out of the bank, substantially as set forth.
2. The combination, with a bank, a cashier, and a spring adapted to move the cashier into and out of the bank, of a locking device to stop the cashier outside the bank, and to release him when desired, substantially as described.
3. The spindle-axles *f f*, cashier, and receiver *l'*, in combination with the locking device, substantially as described.
4. The bank and its two oppositely-moving doors, in combination with the cashier carried by a rotating arm, and adapted to operate substantially as described.
5. The combination of the front, side, and back pieces or walls of the bank, provided with projections to enter openings in the floor, with the roof, and with a rod extended over the roof, and engaged with the walls, and adapted to hold together the upper portions of said walls, substantially as described.
6. The doors provided with hinge-pieces *c*, and the front wall *i*, provided with openings *q*, in combination with the side walls, provided with flanges to retain the hinge-pieces and the doors in position, substantially as described.

176,108. SWEAT-PADS FOR HORSE-COLLARS, &c. R. R. Jones, Waverly, N. Y., assignor to Anna W. Jones, same place. (Filed Feb. 19, 1876.)



1. The combination, with a horse-collar, of the flexible lead-covered wings or pads C, substantially as specified.
2. The lead-covered wings or pads C, having a coating of lead, oil, carbolic acid, and varnish, substantially as specified.
3. In combination with a horse-collar, the wings or pads C, covered with lead provided with a coating of oil, lead, carbolic acid, and varnish on its outer surface, substantially as specified.
4. A flexible medicated sweat-pad, composed of a leather or cloth back, and a lining of sheet or tea lead fastened thereto, and coated with lead and oil, substantially as specified.

176,109. COTTON-PRESSES. H. B. Jones, Burton, assignor to Yard & Sullivan, Galveston, Tex. (Filed Dec. 13, 1875.)
Brief.—The slides, being semi-cylindrical, may be lifted off the screw and placed on any desired point of the same.



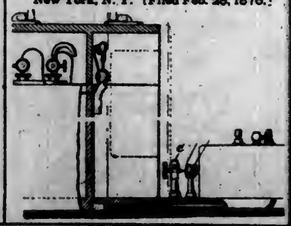
1. In a compressing or baling press, the combination of a horizontal double-reversed screw, B, made in one or more pieces, with slides C C', having a longitudinal semi-cylindrical screw-threaded recess, and provided with wheels or rollers *c''*, running on rails *c'*, parallel to the operating-screw, so as to sustain and carry the superincumbent weight or pressure, and relieve the screw B of the same, substantially as and for the purpose hereinbefore set forth.
2. In a screw-press, the slides C C', constructed with an open semi-cylindrical and longitudinal screw-threaded recess, and having wheels or rollers *c''*, substantially as and for the purpose hereinbefore set forth.

176,110. FASTENERS FOR THE MEETING-RAILS OF SASHES. T. Karuts, Brooklyn, E. D., N. Y. (Filed Feb. 19, 1876.)
Brief.—A sliding and rotating bolt has at one end a radial spar, and is attached to one of the meeting-rails in such manner as, by sliding and then turning, to catch behind either one of several catch-plates, the construction being such as not only to hold, but likewise to draw the two sashes tightly toward each other. There is also combined with the bolt a transverse slide, working under a flat or square portion of the same, and constituting a secure locking mechanism.



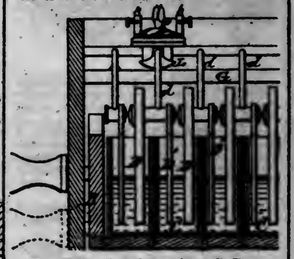
1. The combination of a locking-slide, H, with the bolt A, having the flat or square portion G and radial spar B, and with one or more catch-plates, E, substantially as described.
2. The combination of a bolt, A, having the radial spar B, flat or square part G, transverse groove *d*, and longitudinal groove *e*, with the lug *f*, locking-slide H, and catch-plate E, all substantially as and for the object specified.

176,111. MAGNETIC MACHINES. J. Kidder, New York, N. Y. (Filed Feb. 26, 1876.)



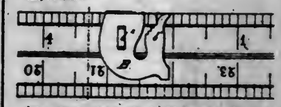
The coil-support B, hinged to the box, and the conductors of the box and coil-support arranged in such relation that the circuit is closed and opened by the opening and closing of the box, substantially as set forth.

176,112. GALVANIC BATTERIES. Frederick C. Kinsmund, Baltimore, Md. (Filed Feb. 5, 1876.)
Brief.—The sliding carriage is for the purpose of increasing or decreasing the battery-power, by throwing in at pleasure any number of cells. The switch upon the carriage serves to reverse the current.



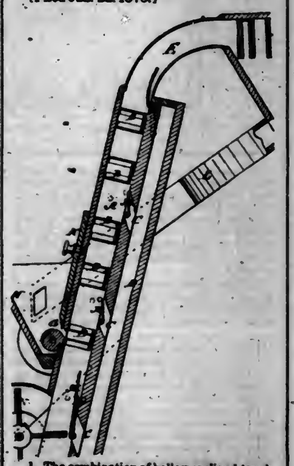
The combination of the plates D D', suspended from the bar G by the wires *d*, and the sliding carriage J, containing the binding-posts A, posts *f*, with movable shoes L, and the switch P, as and for the purposes herein set forth.

176,113. GAGE ATTACHMENTS FOR SQUARES. Edward Kuhns, St. Clair, Pa. (Filed Feb. 21, 1876.)



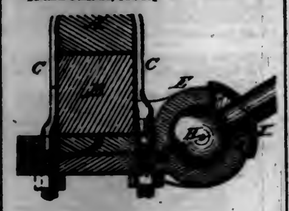
The device B, made in U-form to fit upon the edge of a square and overlap its sides, and provided with the pointers *b'*, and the set-screws *b''* to adapt it for use, substantially as herein shown and described.

176,114. MIDDLINGS-PURIFIERS. Edwin N. Lapham and Joseph Lapham, Peru, N. Y. (Filed Jan. 22, 1876.)



1. The combination of hollow inclined trunk A, stationary beaters B, passages C, valves M, and fan J, substantially as specified.
2. The horizontal portion E of the trunk, stationary beaters B', hoppers F, and spout L, combined with the inclined trunk A and fan J, substantially as specified.

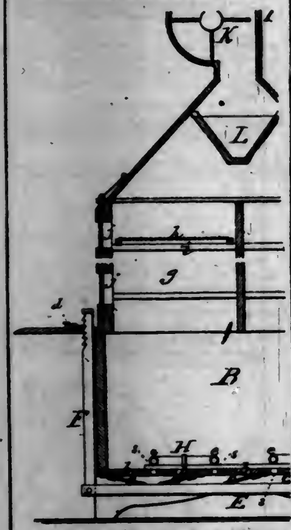
178,115. TRUCK-COUPLING. Thos. A. Lee and Daniel M. Ostrander, Whitehall, N. Y. [Filed Jan. 21, 1876.]



1. The washer d, clamped between the sections E E', and projecting within the circular recess, in combination with the ball H, as and for the purposes set forth.

2. The combination of the clip C, plates D D', sockets E E', thill-iron G, with ball H, rubber ring d, and washer or cap I, all constructed substantially as and for the purposes herein set forth.

178,116. DRYERS. Geo. W. Lee and C. J. Geiger, Ashley, Ill. [Filed Oct. 9, 1875.]



1. In a drier, the hot-air chamber B, having orifices b and hinged door c, in combination with the transverse bar E, rack-bars F, and locking-plates d, substantially as specified.

2. The chamber B, having parallel slots a, in combination with the steam-coil H, the pipes e of which are directly over and in close proximity to the said slots, substantially as specified.

3. The tapering lid, having an inverted pyramidal deflector, L, in combination with the exhaust-tube I and fan K, substantially as described, and for the purpose set forth.

178,117. LOCK-SHUTTLES. M. S. Legare, Lowell, Mass., assignor of one-half his right to A. L. Pecteau; said Pecteau assignor to O. F. Roman, same place. [Filed Dec. 22, 1875.]

Brief.—The thread is carried under one of two tines of an oscillating fork, over the bar and between the tines of a pivoted forked lever, and thence through the eye of the shuttle. The oscillation of the fork and lever, under the resistance of a light spring, relieves the thread of sudden shock, and gives a uniform tension. A curved plate covering the sharp tine of the lever and the slot in the side of the shuttle enable the latter to be easily threaded.



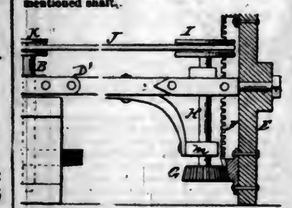
1. The combination of the forked lever E, spring I, and forked weight K, as and for the purpose specified.

2. The combination of the plate Q, bent at T, as described, and the tine G, as and for the purpose specified.

3. The combination of the plate Q and the tine G' of the lever L, as and for the purpose specified.

178,118. HORSE-POWERS. Reuben Leonard, Oakland Mills, Pa. [Filed Feb. 10, 1876.]

Brief.—The inner end of a hinged sweep works loosely on an upright shaft in a fixed frame, the outer end having a rolling wheel, with gearing on its inner face, working the pinion of another upright shaft passing through the sweep. A drum on the top of this shaft operates, by a band, a drum on the first-mentioned shaft.



In combination with the large wheel E, with beveled gear on its inner face, and the hinged sweep D D', the vertical shaft H, having gear-wheel G at its bottom, and braced to the sweep by the bearing-block m and bar n, the pulley I, belt J, and pulley K on the upright shaft in the frame A, all constructed substantially as and for the purposes herein set forth.

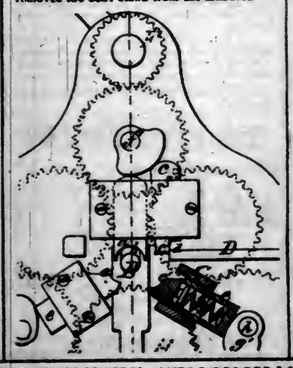
178,119. PRINTING-TYPES. John Lindsay, Williamsburg, N. Y. [Filed June 26, 1876.]



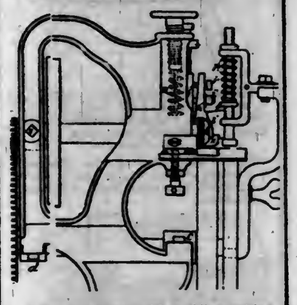
As a new article of manufacture, a single-letter type the printing surface of which consists of a series of small letters or characters, substantially as shown, and for the purpose described.

178,120. MACHINES FOR BENDING RINGS AND TUBE-COUPLINGS. George Litchfield, Jr., McKeesport, Pa. [Filed July 3, 1875.]

Brief.—The cutter, thrust down by cam, cuts off the bar lying on table, and the benders then act in succession to bend the blank around mandrel, after which the stripper, pushed outward by a cam on one of the gear-wheels on the rear face of the upright frame, removes the bent blank from the mandrel.



178,121. MACHINES FOR SKIVING BOOT AND SHOE COUNTERS. O. Littlefield, Lawrence, Mass. [Filed May 31, 1875.]



1. The combination, with an oblique-cutting blade and feeding mechanism, consisting of the wheel i and toothed wheel k, the guide y, extending beyond the cutting-edge of the knife, and adjustable relatively to the inner plane of the feeding wheels, by which means the edge of the stiffening at the point of contact with the knife-edge is held in exact and proper relative position thereto, substantially as and for the purpose described.

2. In combination with a feed mechanism, the presser-foot n, when constructed and arranged to admit of a double adjustment—that is, an adjustment relatively to the line of motion of the feed-wheels, and transversely thereto, substantially as and for the purpose specified.

3. In a skiving-machine the knife x, when so constructed or arranged that the edge thereof is oblique to both the axis and plane of the feed-wheels, substantially as described and shown.

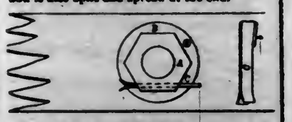
4. In a skiving-machine, the knife-holder n', rocking plate h', and cap F', when constructed and arranged to receive and hold the knife, and to be adjusted in manner substantially as described.

5. In combination with the rocking plate and knife-holder h', the intermediate plate f', provided with a vertical and oscillating adjustment, substantially as described and shown.

6. The combination of the rocking plate and knife-holder h' F with the intermediate adjustable plate f' and slotted bracket c', arranged to produce the compound adjustment of the knife in the directions substantially as described, and for the purpose specified.

178,122. NUT-LOCKS. Herbert Livingston, Hannibal, Mo. [Filed Aug. 24, 1875.]

Brief.—The washer is grooved upon one side only, and the key is constructed with a short projecting portion, fitting the groove, and is also split and spread at the end.



In combination with the slotted nut A and notched washer B, the key C, having the entering end bifurcated, and the driving end provided with the inclined and sharpened projection b, adapted to rest within the notch c in the washer aforesaid, substantially as set forth.

178,123. SOFA-BEDSTEAD. David Lovett, Louisville, Ky. [Filed June 12, 1876.]

1. A sofa-bedstead, having a head-rest, B, upholstered on one side only, and divided horizontally into two parts, which are hinged together, and adapted to be used as pillows for the extended sofa or bedstead, or as a head-rest for the sofa only, substantially as shown.

2. A sofa-bedstead composed of the main frame A, extension-frame C, connecting slides

or rolls D, horizontally-divided head-rest B, hinged cushion F, and divided legs a b, arranged and operating as herein shown and described.



178,124. BOTTLE-STOPPERS. Adolph Lathy, New York, N. Y. [Filed Feb. 5, 1876.]



1. A bottle-stopper, made of a continuous elastic band, with stopper or head-piece being fastened by the neck-band and extending up to and over the mouth of the bottle, in connection with a swinging yoke to readily close or open the same by carrying the yoke in upward or downward direction, substantially in the manner and for the purpose set forth.

2. The pivoted yoke, having loose friction-sleeve at its lateral top part to admit the ready moving of the yoke along the stopper-band, as set forth.

3. The bottle-stopper, a stopper made of a side band, with enlarged head or stopper part, of one continuous piece of elastic material, extending from the neck-band to and over the mouth of the bottle, substantially as described.

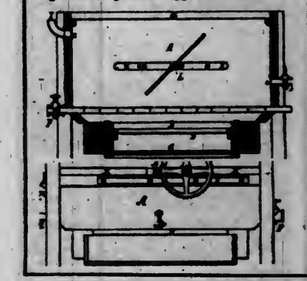
178,125. ROAD-SCRAPERS. Thomas Major, Frankfort, Ind. [Filed Feb. 3, 1876.]



The concave scraper A, pivoted to the draft-frame B, and also to the link c, by the removable pin b, in combination with the link c, having perforations for adjustment at its outer end, and provided with the handle e and stop-lip f and the pivoted link c', substantially as described, and for the purpose set forth.

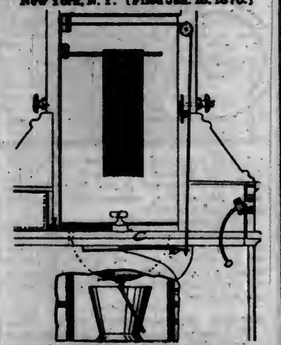
178,126. FEATHER-RENOVATORS. L. W. Messer, Somerville, Mass. [Filed Feb. 21, 1876.]

Brief.—The shaft and beaters are simultaneously revolved, and the covering-slides moved toward one end of the case. Reversing the shaft produces opposite effects.



In the described feather-renovator, the combination of the stationary racks R R, two spur-wheels O O, four pinions P N P P, the beaters shaft L, and the two slides K K, applied to the drying-case A, and the slots G G of the sides thereof, and arranged in manner and to operate substantially as specified.

178,127. TOILET-CASES. Henry F. Marsh, New York, N. Y. [Filed Jan. 18, 1876.]



1. A combined bureau and toilet-stand, constructed with a fixed water tank and basin, the latter concealed by a hinged cover, having a false drawer secured thereto at one end to serve as a cover to the soap-dish, substantially as and for the purpose described.

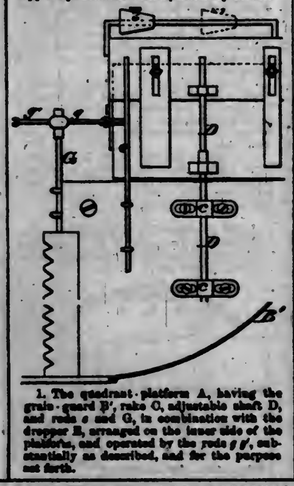
2. In a combined bureau and toilet-stand, a mirror pivoted at one side, and combined with a spring and catch, so as to be automatically turned aside when the towel is to be used, substantially as and for the purpose described.

3. In a combined bureau and toilet-stand, a towel-rack secured to the back of the mirror, so as to be out of sight when the mirror is to be used, substantially as and for the purpose described.

4. In a combined bureau and toilet-stand, the water faucet and pipe, arranged on the stand in the rear of the mirror, substantially as and for the purpose described.

178,128. HARVESTER-DROPPERS. Philip H. Marquette, Gilead, Mich. [Filed May 8, 1876.]

Brief.—A rod pivoted to dropper and adjustable on under side of platform by means of slotted blocks, to vary the power required to tilt the dropper. The inner end of dropper rests upon a rod fixed to the platform, and is tipped by means of rods operated by driver.



1. The quadrant-platform A, having the grain-guard B', rake C, adjustable shaft D, and rods e and G, in combination with the dropper E, arranged on the inner side of the platform, and operated by the rods g g', substantially as described, and for the purpose set forth.

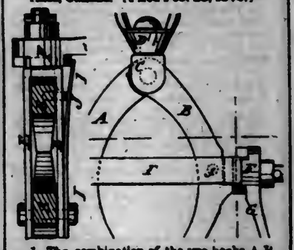
2. The adjustable shaft D, pivoted to the dropper, in combination with the slotted blocks c c, adjustably secured on the lower face of the grain-platform, substantially as described, and for the purpose set forth.

178,129. MECHANICAL MOVEMENTS. Wm. McCombie, Chicago, Ill. [Filed Jan. 3, 1876.]



In combination with a serpentine groove, d, formed within the periphery of a revolving disk, D, a double crank, G, f, and f', secured to or upon the end of a shaft, F, extending to equal distances therefrom, and arranged to engage with said groove, whereby each arm of said crank is directly moved in each direction by the sides of said groove, substantially as and for the purpose specified.

178,130. BOAT-DETACHING HOOKS. R. McMonagh and A. McMaugh, St. Catharines, Canada. [Filed Feb. 28, 1876.]

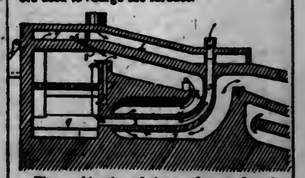


1. The combination of the two hooks A B, abutting against each other at their points and hinged to the swivel C D, and the pivoted loop E with each other, substantially as herein shown and described.

2. The combination of the cam F, the lever G, the spring I, and the pin J, with the pivoted loop E and the hinged hooks A B, substantially as herein shown and described.

178,131. GAS-FURNACES. Wm. L. McNair, Allegheny, Pa. [Filed Dec. 28, 1875.]

Brief.—The gaseous fuel and air-blast are conducted through flues which are situated between chambers, for the escape of the products of combustion, and thereby becomes heated. The air-blast enters the furnace at a point above the bridge-wall. The products of combustion, after heating the gaseous fuel and blast, are conducted above and then underneath a hearth, upon which is placed the ore used to charge the furnace.

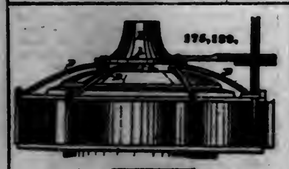


The combination of the gas flue or flues 3, the air-chamber 1, flue 5, pipe 6, and chamber 7, substantially as described.

178,132. TURBINE WATER-WHEELS. W. M. Mills, Dayton, Ohio. [Filed Mar. 9, 1876.]

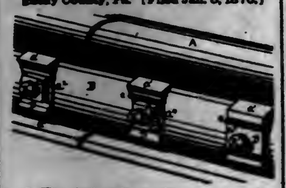
Brief.—The ring of this water-wheel is provided on its under surface with L-shaped bearings for the attachment of the rods. By this means much greater durability is given to the fastening, and the liability of the bolts becoming strained or bent is entirely obviated.

In a turbine water-wheel, the ring E, provided on its under surface with the bearings e for the attachment of the rods D, in the manner and for the purpose specified.



176,186.

176,186. NUT-LOCKS. Chambers Miller and M. Swift Davis, Kilbuck Township, Allegheny County, Pa. [Filed Jan. 6, 1876.]



1. The steel spring-washer *c*, having the bent ends *c'*, substantially as and for the uses set forth.

2. The washer described, made with one or more transverse beads or corrugations, *c*, in suitable position to engage the edge of the nut when the latter is screwed down, substantially as set forth.

3. The combination of steel spring-washer D and bolt B', nut *c*, fish-bar B, railway-rails A A', substantially as set forth.

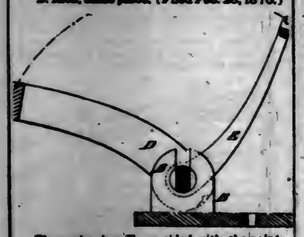
176,194. PROCESSES OF ELECTROPLATING. C. S. Minchew, Taunton, Mass., assignor to Reed & Barton, same place. [Filed Feb. 12, 1876.]

Brief.—The article to be coated is cleaned by means of nascent hydrogen. The article is then plated, heated, and suddenly cooled, the metal being thereby forced into the pores of the object coated.

1. The process herein described of rendering the ware to be plated chemically clean, by first washing and then treating it with nascent hydrogen liberated from an alkaline solution by the electric current.

2. The herein-described process of plating, coating, or impregnating the baser metals, and their alloys, with the finer metals, by first depositing a thin coating of the precious metal upon the article from a bath by the electric current, then heating the coated article and suddenly cooling it, the said steps being repeated until the desired thickness of plate is obtained.

176,195. TRILL-COUPLINGS. Levi Moore, Baraboo, Wis., assignor to himself and W. B. Nash, same place. [Filed Feb. 26, 1876.]

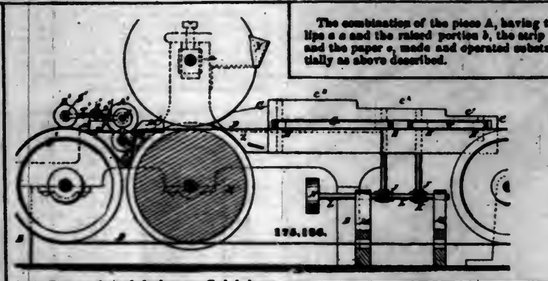


The spring-bar E, provided with the point or pin *f*, and the fastened pin or bolt C, in combination with the thill-iron D, provided with the hole *d*, and the perforated and slotted lug E, formed upon the yoke A of an axle-clip, substantially as herein shown and described.

176,196. PULP-TOBACCO MACHINES. Thos. P. Morris, Jersey City, N. J. [Filed Dec. 27, 1875.]

Brief.—The upper frame is graduated for holding different amounts of tobacco, and beneath are endless bands, that carry the pins to pressure-rolls. In rear of pressure-rolls are adjustable knives, that sever the pins longitudinally and crosswise without stopping the progress.

The combination of the piece A, having the lips *a a* and the raised portion *b*, the strip E, and the paper *c*, made and operated substantially as above described.



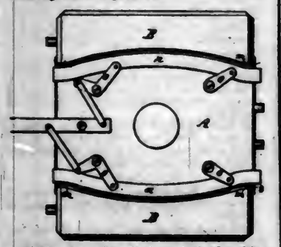
176,196.

1. The graduated feed-gages C *c' c' c'*, provided with the short side belts G, in combination with the feed-belt D and with the frame A of the machine, substantially as herein shown and described.

2. The combination of the rotary cutters A', gearing-wheels, their shaft B', and pivoted arms D', the grooved roller C', and the guide-plates M' P', with the feed-belt D, the pressing-wheels E F, and the large wheel O' that drives the feed-belt D, substantially as herein shown and described.

176,197. MAKING PAPER BARRELS. Wm. H. Murphy, Syracuse, N. Y., assignor of one-half his right to Johnston Miller, same place. [Filed Jan. 6, 1876.]

Brief.—Moistens straw or other paper-board, and molds it in heated dies, which deliver the barrel in two longitudinally-divided segments. The halves are then united by a peculiar joint, and, when the heads are inserted, a strong barrel is produced.

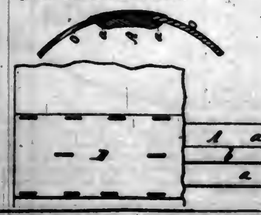


1. The above-described method of making paper-packages, having a bilge in segmental parts, by the use of the heated hollow male and female dies A and B, constructed and operated as above described, by means of which the previously-dampened paper for each segment is dried, shaped, the bilge made therein and trimmed simultaneously, and made ready to be placed in the package, substantially as above described.

2. The combination of the hollow male and female dies A and B, provided with inlet and exit pipes for the steam for heating them, and the trimming-knives *n* and *r*, combined, constructed, and operated substantially as above described.

3. A paper package made in segmental parts, having the central portion made with a bilge, and a short space at each end, made straight and free from bilge, substantially as and for the purposes above set forth.

176,198. JOINTS FOR PAPER BARRELS. Wm. H. Murphy, Syracuse, N. Y., assignor of one-half his right to Johnston Miller, same place. [Filed Jan. 6, 1876.]

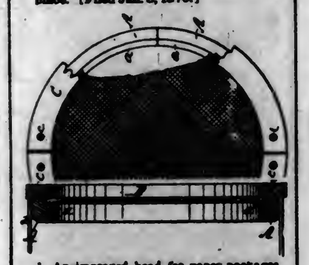


176,198.

1. An improved head for paper packages, constructed of the pieces A A, with the shoulder *a* thereon, the chime-pieces C C so arranged as to break joints with the pieces A A, and the head-piece B, substantially as above described.

2. In a head for paper packages, the combination of the pieces A A, shoulder *a*, chime-pieces C C, and head-piece B, constructed and operated substantially as above described.

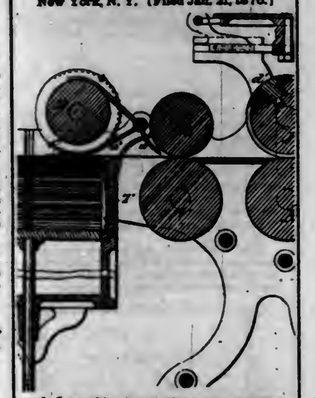
176,199. HEADS FOR PAPER BARRELS. Wm. H. Murphy, Syracuse, N. Y., assignor of one-half his right to Johnston Miller, same place. [Filed Jan. 6, 1876.]



1. An improved head for paper packages, constructed of the pieces A A, with the shoulder *a* thereon, the chime-pieces C C so arranged as to break joints with the pieces A A, and the head-piece B, substantially as above described.

2. In a head for paper packages, the combination of the pieces A A, shoulder *a*, chime-pieces C C, and head-piece B, constructed and operated substantially as above described.

176,200. MACHINES FOR CANCELING STAMPS AND POSTMARKING LETTERS. F. Myers, New York, N. Y. [Filed Jan. 21, 1876.]



1. In combination, the hopper or holder B, the automatically-operated follower C, the adjustable spring stop-gages T, secured to the end or front side V of the holder, and the feeding-wheel D, substantially as described.

2. In combination with a feed-roller, having a portion of its periphery covered or provided with a toothed or friction material, and intermittently at regular intervals acting to feed a letter from the pile, an automatically-operated follower within the letter-containing hopper or box, stop-gages T, and the guide *w* and guard *w'*, substantially as shown and described.

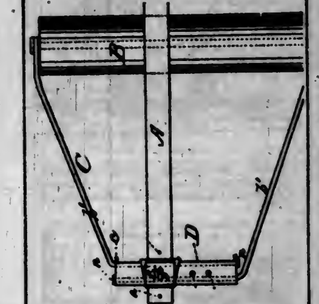
3. The combination of the intermittently-rotating ink-table *g*, inking-roller *a*, and distributing-roller *c*, with the type-roller J, substantially as specified.

4. The sliding pawl *p* and inclined arm *q* on the ink-roller arm *f*, combined and arranged with the notched rotating inking-table *g*, substantially as described.

5. In combination with the letter holder or hopper and its follower, a swing-frame pivoted to such holder, and having in its swinging arms bearings for the feed-roller, whereby the latter may be free to rise or fall, as demanded by the varying thickness of the letters to be fed, without disturbing its engagement with the devices by which it is driven, substantially as shown and described.

176,161. GRASS-LITTERERS. Reuben Newton, Sparta, Tenn. [Filed Dec. 10, 1875.]

Brief.—A laterally-adjustable and removable roller, attached to a plow, in front of the plow-point, by means of a ball passing through the ends of a perforated plate, which is attached to a metallic sleeve in the rear of the clevis.



1. In combination with the plow-beam A and transverse roller B, the ball C, plate D, having grooved perforations, perforated hooked sleeve E, and pin *f*, substantially as described.

2. The combination of the laterally-adjustable and removable leveling-roller B with the beam A of a plow, substantially as specified.

176,162. MACHINES FOR STRIPPING OUTLEMY-STEMS. Albert H. North, New Britain, Conn., assignor to Landers, Frary & Clark, same place. [Filed Feb. 6, 1876.]

Brief.—The frictional arm in the spiral slot turns with the mandrel in its downward travel, but on the same in its upward travel, caused by the pawl and ratchet holding the partial rotation of the mandrel made each time.



1. The combination of the mandrel C, having a combined reciprocating and rotary motion imparted thereto, and constructed to receive and hold the steel blank, with the cutting-plates H, one or more, substantially as described.

2. The combination of the reciprocating, rotative, steel-holding mandrel, the pawl and ratchet in connection therewith, the vertical slot for governing the operation of the pawl upon the ratchet, substantially as described.

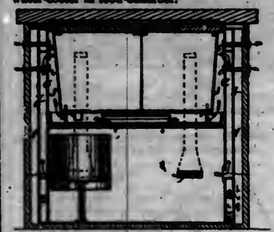
3. The combination of the reciprocating, rotative, steel-holding mandrel, the spiral slot G, and the frictional arm *a* on the mandrel, with the cutting-plates H, one or more, substantially as described.

4. The combination of the reciprocating, rotative, steel-holding mandrel, the frictional arm *a* thereon, the spiral slot G, the ratchet and pawl in connection with said mandrel, and the vertical slot *s*, substantially as described.

5. The combination of the reciprocating, rotative, steel-holding mandrel with the cutting-plates H, one or more, made self-adjusting to the surface of the steel blank, substantially as described.

176,163. REFRIGERATORS. Carter B. Page, Hagerstown, Md. [Filed Feb. 26, 1876.]

Brief.—Drip-pan having a central aperture, with sides formed by bent-up portions of its bottom, and with a cover to prevent water of condensation from falling into the food-chamber, rests removably on supports projecting from the case. Close-chambered ice-box rests removably on bars across the drip-pan. Pipe may extend from ice-box into or through the water-cooler in food-chamber.

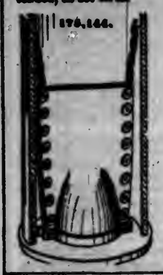


1. The combination, in a refrigerator-case, of an apertured drip-pan, extending closely to the sides of the case, a close-sided ice-box apart from the sides of the case and bottom of the pan, and one or more flues connecting the space about the ice-box with the interior food-chamber, as and for the purpose described.

2. In a refrigerator-case, the combination of an apertured drip-pan forming a partition, a close-sided and insulated ice-box, one or more flues connecting the air-spaces about the ice-box with air-passages from the exterior of the case, to the space about the ice-box, as and for the purpose described.

176,164. VALVES. William Painter, Baltimore, Md. [Filed Oct. 6, 1875.]

A valve composed of a valve-plate and the fastened flexible tube, the bore of which is normally open, and a portion of which is normally closed, in combination with independent longitudinal supporters, substantially as described, whereby said tube, although wholly flexible, is kept longitudinally extended, as set forth.



176,164.



176,164.

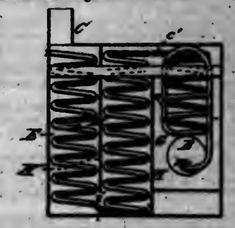
176,165. VALVES. William Painter, Baltimore, Md. [Filed Oct. 6, 1875.]

1. A valve, provided with covers composed of flexible material secured at their edges to side stiffeners, substantially as described.

2. A valve-cover composed of flexible material, and provided with the protecting-plates *c* secured to the material and located at intervals thereon, substantially as described, whereby said material is protected from abrasion without impairing its flexibility in either direction, as and for the purposes specified.

176,166. WATER-TUBE STEAM-BOILERS. William B. Parks, Palmer, Mass. [Filed Feb. 11, 1876.]

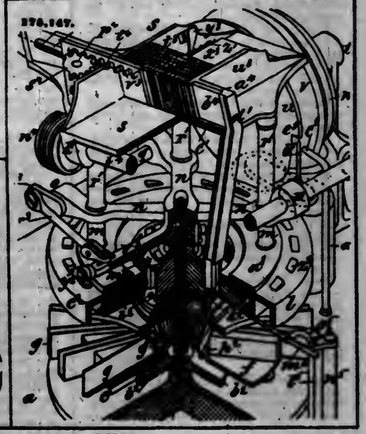
Brief.—The water is made to enter the coil at the farthest flue-chamber from the furnace, and is gradually heated in the coil on its passage to the water and steam chamber, located between the fire-grate and said coil.



The combination of the furnace A, having flues E F G therein, the pipe-coil *a*, extending through said flues, the water and steam chamber B, located between the grate *e* and the coil *a*, and wholly below the coil, and the pipe *a*, connecting said coil with the lower part of the water and steam chamber B, all substantially as and for the purpose described.

176,167. TYPE-DISTRIBUTING MACHINES. William D. C. Pettyjohn, Sherbrooke, assignor of part of his right to Wm. Angus, Montreal, Thomas Logan, Charles Brooks, and George H. Bradford, Sherbrooke, Canada, Geo. W. McMullen, Chicago, Ill., and Geo. Cornell, Lenoxville, Canada. [Filed Oct. 5, 1876.]

Brief.—Type-columns in the galley are separated into lines, and the letters in the line are loosened from each other by a vibrating pusher. The letter at the end of line drops down a tube, and trips a circuit-closer before it falls into a type-receiver at the periphery of a wheel. This wheel revolves with an intermitting motion past selecting pins arranged in a circle. When the proper slot of the type is found by the pins, the forward movement of the latter releases a trap under the type, and permits it to fall into a trough, where it is pushed back by a vibrating follower. The closing of the electric circuit by the first fall of the type actuates the feed intermittingly.



176,167.

1. The combination of the table s with angle-pieces s^2 and s^3, pawl g^3, slide-bar s^5, and cam-projection of the collar r^4, substantially as and for the purposes described.

2. The combination of the eccentrically-toothed wheel r^5 with the rack-teeth r^6 of pusher s^4 and spring s^7, substantially as and for the purposes described.

3. The combination of the worm-wheel s^1, worm-gear s^2, cam-projection of collar r^4, wheel r^5, for operating the slide-bar s^5 and pusher s^4, substantially as and for the purposes set forth.

4. The combination of the cushion b^2, separator b^3, lever g^2, and cam b^4, substantially as and for the purposes set forth.

5. In the distributer-barrel m^2, the combination of the drop-bottoms q^2 with pins s^3, substantially as and for the purposes described.

6. The combination of the distributer-barrel, provided with the grooves s^3, drop-bottoms q^2, and pins s^3, substantially as and for the purposes set forth.

7. The combination of distributer-barrel m^2, pawl n^3, lever n^2, connecting-rod r^2, and crank r^3, substantially as and for the purposes described.

8. The combination of the drop-bottoms q^2, pins s^3, and cam b^4, substantially as and for the purposes described.

9. The combination of the distributer-barrel, provided with the grooves s^3, drop-bottoms q^2, and projection m^3, substantially as and for the purposes set forth.

10. The combination, substantially as specified, of the rotating distributer-barrel, having grooves for the reception of types, and the gravitating lever for making and breaking the circuit.

11. The combination of the drop-bottoms q^2, pins s^3, and pins q^3 of the selector s^2, substantially as and for the purposes set forth.

12. In the selectors s^2, the combination of the projections n^3, bend g^3, and pins q^3, substantially as and for the purposes set forth.

13. In the selector s^2, the combination of the bolt b^3, spring f^2, and spring f^3, substantially as and for the purposes described.

14. The combination of the projections m^3 with bolt b^3 of the selector s^2, substantially as described.

15. The combination of the selector-rings s^4 and b^1, selectors s^2, and cam-ring l, substantially as and for the purposes set forth.

16. The combination of the cam-ring l, lever n^2, pawl g^3, connecting-rod r^2, and crank r^3, substantially as and for the purposes set forth.

17. The combination of the projections n^3 of the selectors s^2 with the spring n^4, substantially as and for the purposes set forth.

18. The combination of the receptacles p, bolts s^5, and rest s^6, as substantially as described.

19. The combination of the receptacles p, bolts s^5, and wheel b^5, substantially as and for the purposes set forth.

20. The combination of the electro-magnetic poles s^7 m^2 b^5 s^8 and magnets s^9, constructed and arranged for operating substantially as and for the purposes described.

21. The combination of the lever m^3, magnets s^9, armature s, and pivoted arm f, with friction-cone s, substantially as and for the purposes set forth.

22. The combination of the loose pulley w, friction-cone s, and disks r and a, substantially as and for the purposes set forth.

23. The combination of the disk a with poles b^2 and s^8, substantially as and for the purposes described.

24. The combination of the disk a, stop f^4, and armature s, substantially as and for the purposes set forth.

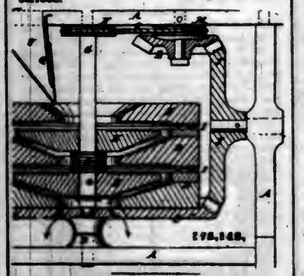
25. The combination of the magnets s^9, armature s, pivoted arm f, and spring b^4, substantially as and for the purposes set forth.

26. The combination of the pulley t^2, pulley w, cone s, arm f, armature s, and magnets s^9, substantially as and for the purposes described.

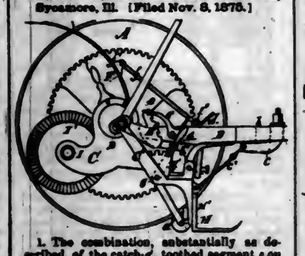
176,165. BUILDING-MACHINES. George H. Peabody, Brooklyn, N. Y. [Filed July 17, 1875.]

Brief.—Belting-machine provided with revolving disks, having alternate concave and flat emery-surfaces, and between them are placed revolving wheels having alternate convex and flat emery-surfaces. Disks and intervened wheels revolve in opposite directions and with different velocities.

The combination of the disks D E F, provided with alternate concaved and flat emery surfaces, the wheels H, provided with alternate convexed and flat emery surfaces, the shaft G, the gear-wheels G J L, the pulleys and band M N O, or equivalent gearing, and the crank K, with each other, and the frame A, substantially as herein shown and described.



176,166. MOWING-MACHINES. R. A. Peck, Sycamore, Ill. [Filed Nov. 8, 1875.]



1. The combination, substantially as described, of the catch c^1, toothed segment s on the arm B^1, and draft-pole hinged to the main frame.

2. The bell-crank shaft-iron c, held loosely in a slot in the draft-pole, within which it freely slides, substantially as and for the purpose set forth.

3. The combination, substantially as described, of the slotted draft-pole, draft-iron c, and vibrating main frame, the draft-iron being connected to the main frame by any suitable means, for the purposes set forth.

4. The combination, substantially as described, of the side piece O', the bent lever G, provided with a wheel at its lower end, and a locking-lever on its upper arm, and the toothed segment g', for the purposes set forth.

5. The shoe H', having its projecting rear end bent up and provided with a stud, k, substantially as and for the purposes set forth.

6. The combination of the shoe H', constructed as described, the side piece O', provided with a hole for the insertion of the stud k, and the bolt b', substantially as and for the purposes set forth.

7. The combination, substantially as described, of the tubular journal-box, slotted at one or both ends, crank-shaft K, and set-screws k''', for the purpose set forth.

8. The combination, substantially as described, of the crank-shaft, tubular journal-box, recessed side piece O, and clips k, for the purpose set forth.

176,860. FILTERS-BURNERS. Daniel M. Pfaudler, Philadelphia, Pa., assignor of one-third his right to Leopold Sternberger, same place. [Filed Feb. 17, 1876.]

Brief.—A flying-bridge of the "lazy-tongs" extension class, operated by bevel-gears and parallel screw-rods acting on nuts moving in slotted ways, and attached to the end levers at their junction. The outer end of the bridge carries with it, as it extends, a flexible apron, which unrolls from a roller on which it is wound. The turn-table is toothed around its circumference, and is operated by a worm.

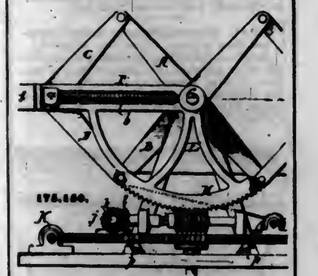
1. The combination of the two sets of hinged and connected levers forming the side trusses of a bridge, with the arms C and D, and the nuts e, adapted to the screw-rods k, all substantially as set forth.

2. The combination of the side frames of the bridge, composed of levers, as specified, with a flexible flooring attached to the outer end of the bridge, and admitting of being wound on a shaft or roller at the inner end of the bridge, as specified.

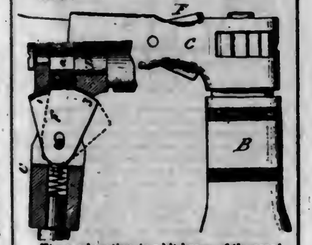
3. The combination of the bridge composed of sets of levers described, and the screw-rods for operating the same, with a turn-table, I, and intervening mechanism by which the outer end of the bridge may be raised or lowered, all substantially as set forth.

4. The pivoted frames E, having straight slotted portions F for the reception of the nuts e, and segmental-toothed portions H adapted to worms k k, all as set forth.

5. The turn-table I, adapted to bearings in the foundation J, and having teeth adapted to a worm, K, on a shaft secured to the foundation, all as specified

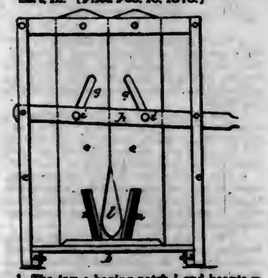


176,161. JET-BRACES. Frank P. Pingbar, New Haven, Conn., assignor to William A. Ives & Co., same place. [Filed Jan. 4, 1876.]



The combination, in a bit-brace, of the crank and socket, the socket hung in a bearing in the head C of the crank, so as to turn freely therein, the ratchet E, in connection with or a part of the said socket, and the adjustable pawl F, hung in the said head, and relatively to the ratchet E, and constructed with the three working surfaces, one for turning the socket to the right, another for turning the socket to the left, and a third for rigidly engaging the crank and socket, substantially as described.

176,162. HOG-TRAPS. Joseph Phillips, Elkhart, Ill. [Filed Feb. 10, 1876.]

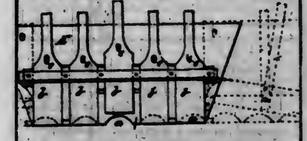


1. The jaw c, having notch d, and boards n on each side of the notch, substantially as described.

2. A hog-trap, composed of the frame a b c, jaws c, having the pieces n and slots g, in combination with the levers h and jointed table 2, substantially as shown and described.

176,163. ADJUSTABLE DAMS FOR DESPENSING THE CHANNELS OF STREAMS. Samuel Phillips, Laurel, Md. [Filed Mar. 1, 1875.]

Brief.—A movable dam extending from side to side of a stream, and of suitable height, is provided with notches or openings at its lower edge, and slides to cover them, to regulate the water-currents below it. To its rear side is attached an adjustable truss and a rudder. The dam is also provided with detachable and laterally-adjustable sections, to adapt it to different widths of streams.



1. A movable dam, constructed with openings a at its lower edge, substantially as and for the purposes set forth.

2. A movable dam, provided with openings a at its lower edge, and with a gate or gates, b, substantially as and for the purposes set forth.

3. A movable dam, provided with openings a at its lower edge, and with a gate or gates, b, and foot-board F, substantially as for the purposes set forth.

4. A movable dam, provided with openings a at its lower edge, and with a gate or gates, b, and rods G, substantially as and for the purposes set forth.

5. A movable dam, provided with openings a at its lower edge, and with a guide or rudder, H, substantially as set forth.

6. The method, herein described, of combining, in a movable dam, two or more sections, I I', together—that is to say, by lapping the end of the one over that of the other, the end of one section being made to pass between the face of the other and the end of a bar, d, secured to the frame of the latter, the two being then fastened together by pins e, substantially as set forth.

7. In combination with a movable dam, one or more laterally-sliding gates, K, and vertical support-bar O, substantially as shown and described.

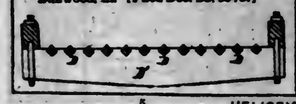
8. A movable dam, provided with pivoted timbers B and adjustable braces C, substantially as and for the purpose set forth.

176,164. UNDERWAISTS. E. W. Philbrook, Boston, Mass. [Filed Aug. 9, 1875.]



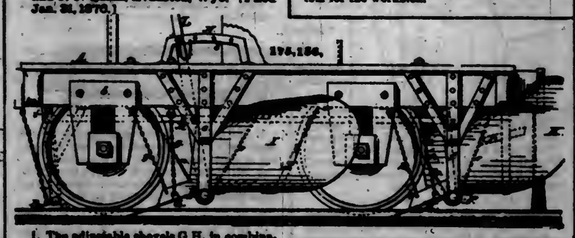
In a girl's underwaist, the combination of the wide shoulder-straps of the waist-body prolonged to cover the body below the belt, and cut and seamed in the manner shown and described, to keep the straps on the shoulders with an easy uniform bearing, and to protect and cover the chest and the body below the belt, said underwaist being provided, at the points indicated, with means for the attachment of straps for supporting the underclothing or stockings, as shown and set forth.

176,165. COAL-SCREENS. Wm. B. Phelps, Elmwood, Ill. [Filed Dec. 28, 1875.]



A coal-screen, constructed of a series of rectangular parallel bars, D, set diagonally, as described, and secured in position by means of the end bars B B, and one or more intermediate cross-bars, B', in the manner substantially as and for the purpose specified.

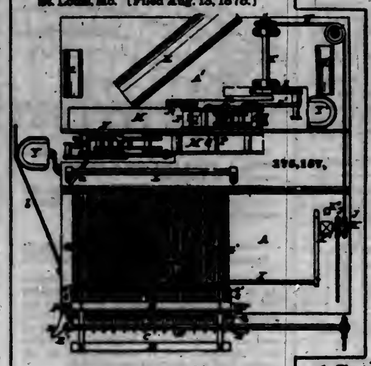
176,166. TRACK-CLEARERS. C. A. Phipps and C. C. Quinn, Evanston, Wyo. [Filed Jan. 31, 1876.]



1. The adjustable shovels G H, in combination with plows I K, arranged and operated by levers L l^4, substantially as shown and specified.

2. The combination of a railroad-truck, A, shovels D G H, and plows I K with levers i L and connecting-bar M, arranged and operating substantially as and for the purpose described.

176,167. HARVESTERS. James J. Piggott, St. Louis, Mo. [Filed Aug. 13, 1875.]



1. The combination of spring-platform G G', rake I, and harvester-platform A, substantially as set forth.

2. The combination of the spring-platform G G', rake I, and harvester-platform A, having a raised portion, A', substantially as set forth.

3. The combination of swinging gate I, rake I, and spring-platform G, substantially as set forth.

4. The combination of the fixed arm N, oscillatory arm P, and operating-lever S', with the curved holding-arm W, substantially as set forth.

5. The combination of fixed arm N and oscillatory arm P, spring R, operating-lever S', bolt b^5, and cam S, substantially as set forth.

6. The arm N, composed of bars N' N', united together by pins O, substantially as set forth.

7. The arm P, composed of bars P' P', united together by pins Q, substantially as set forth.

8. The arm N, composed of bars N' N', united together by pins O, carrying friction-rollers O', substantially as set forth.

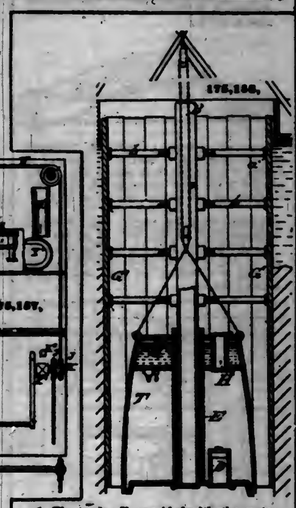
9. The arm P, composed of bars P' P', united together by pins Q, carrying friction-rollers Q', substantially as set forth.

10. The adjustable standard K', in combination with the platform A, having holes K'', substantially as set forth.

11. The vertically-adjustable rod R, in combination with the vertically-adjustable rake I and adjustable standard K', substantially as set forth.

176,858. SUBMARINE EXCAVATING APPARATUS. Charles Pontes, Omaha, Nebr. [Filed Jan. 20, 1876.]

Brief.—The tender slides upon a central hollow shaft, and fits with its edges over the excavating-chamber. A water-chamber at the upper end of the tender ballasts it, and man-holes are provided through top and bottom for the workmen.



1. The tender T, provided with the water-chamber C, well E, and man-hole H, substantially as and for the purpose set forth.

2. The combination of the excavating-chamber A and tender T with air-lock D, as a means for outer communication, forming one apparatus, the lower part covering the whole area excavated, and the upper portion of diminished size to allow it to ascend through the excavated shaft, substantially as herein set forth.

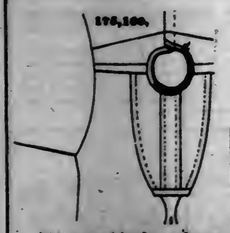
176,169. LATHES FOR TURNING ROLLS. T. S. Poole, Wilmington, Del., assignor to J. M. Poole and W. T. Porter, same place. [Filed Feb. 28, 1876.]



A lathe in which each head-stock, movable and fixed, has a revolving spindle, carrying an adjustable chucking device, substantially as set forth.

176,170. SHIRTS. Morris Popper, New York, N. Y. [Filed Jan. 29, 1876.]

176,160.



As a new article of manufacture, a partly-made shirt, having front, back, sleeves, and bosom fitted and sewed together, leaving only the side seams of body and sleeves unsewed, and the sleeves without wristbands, substantially as shown and described.

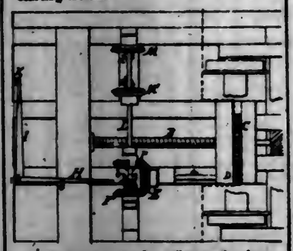
176,161. CHAIR-BOTTOMS. W. B. Pryor, Norwich, N. Y., assignor of one-half his right to A. M. Daniels, same place. [Filed Dec. 4, 1875.]



In combination with a cushion, B, the arched supporting-springs C, slotted at one end to engage with the screws or bolts a, and rigidly secured to the chair-bottom at the other, substantially as and for the purpose set forth.

176,162. CAR-STARTERS. John Putnam, Rushville, Ill. [Filed Feb. 10, 1876.]

Brief.—Power applied to gearing which operates nut on screw-threaded draw-bar, advancing or retracting the same, and thereby starting the car.



1. In a car-starter for railways, the draw-bar A and the wheel C in combination with the pinion D, and the shaft c and the wheel E, substantially as described, and for the purposes specified.

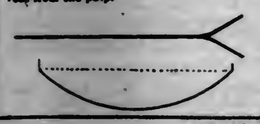
2. The draw-bar A, wheel C, pinion D, shaft c, and wheel E in combination with the wheels F F', shaft L, wheel M, and pinion d, as shown and described, and for the purposes specified.

3. The lever I, pivoted lever H, clutch h, wheels F F', in combination with the wheel E, shaft c, pinion D, wheel C, and draw-bar A, substantially as shown and described, and for the purposes set forth.

4. The draw-bar A, wheel C, pinion D, shaft c, and wheel E in combination with wheels F F', shaft L, wheels M M', and pinions d d,' substantially as described, and for the purposes specified.

176,163. PAPER-PULP BAGS. John P. Pitts, Pleasantville, assignor to himself and C. E. Adams, Unionville, Conn. [Filed Jan. 12, 1876.]

Brief.—The bag is molded on a former, distant from the pulp.



1. As a new article of manufacture, a seamless paper bag, substantially as described.

2. A flexible paper bag having a disk-shaped bottom and cylindrical body, substantially as described.

176,164. ELASTIC TRACE-JOINTS. Benj. F. Rea, La Fayette, Ala. [Filed Feb. 14, 1876.]

176,164.

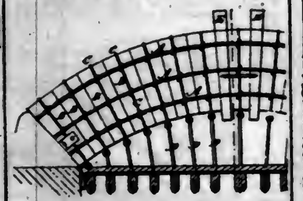


1. The combination of coiled spring C, and slack links E with the sections A of a harness tug or trace, substantially as specified.

2. The links E, screws F, rings D, stirrups B, and nuts g, combined with coiled spring c and trace-sections A, substantially as specified.

176,165. BRIDGES. John J. Reichorts, Delaware, Ohio. [Filed Mar. 13, 1876.]

Brief.—The bridge-truss is composed of a body-arch of tapering staves, inclosed in a cage of wire, to which stirrups are attached by means of eyes, which sustain the floor.

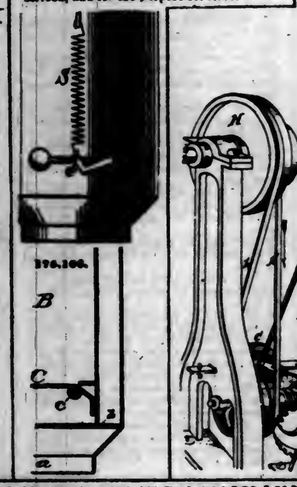


1. The combination of two or more cable-arches, A, with a body-arch of staves, B, substantially as specified.

2. The combination of stirrups C with the arched cable-wires and the body-arch B, substantially as specified.

176,166. STOVE-PIPE DAMPERS. John H. Rhamy, Antioch, Ind. [Filed Jan. 8, 1876.]

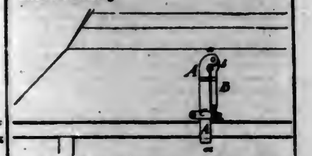
The drum A, open at both ends, terminating in the collars a a' of reduced diameters, and provided with an annular base, b, for the support of the box B, in combination with the hinged damper C, perforated rod c, having an arm, c', spring S, and weighted adjustable screw-threaded rod f, substantially as described, and for the purpose set forth.



176,166.

176,167. VEHICLE-SEAT LOCKS. G. B. Robinson, Locke, N. Y. [Filed Feb. 28, 1876.]

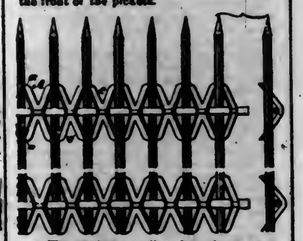
Brief.—When closed the lever prevents the latch from rising.



A seat-fastener formed of the bar A, provided with a foot, a', and having its upper end curved to one side, the pivoted lever B, having its upper end b' curved to one side, and the latch C c', constructed and operating substantially as herein shown and described.

176,168. IRON FENCES. Thomas Robinson, Philadelphia, Pa. [Filed Jan. 15, 1876.]

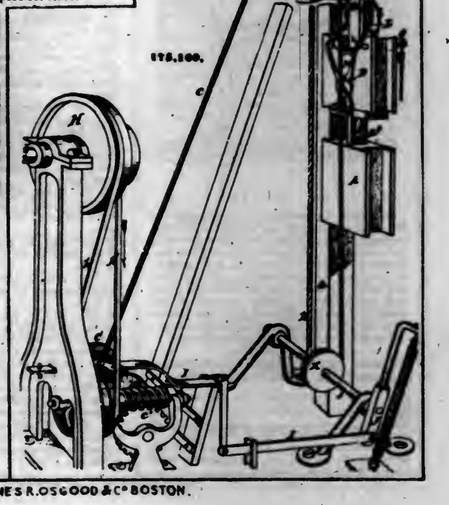
Brief.—A fence formed of perpendicular and horizontal rods, cold-twisted together at their intersections by metal rolls, reticulated and meshed so as to press the rear of the stretchers and the front of the pickets.



1. The continuous rail A, formed with open right-angled grooves a and a', for the reception of the pickets B and string-pieces C, substantially as shown and described.

2. In combination with the continuous rail A, having right-angled grooves a and a' formed in its front and back, the intersecting pickets B and string-pieces C, the several parts being constructed and combined substantially as described.

176,169.



176,169. PILE-DRIVERS. Henry F. Beahm and Jos. Kohler, Cincinnati, Ohio, assignors to themselves and F. W. Alms, same place. [Filed Feb. 2, 1876.]

Brief.—An automatic belt-shifting apparatus, consisting of a worm and gear, with drum and suitable pivoted levers, and pivoted spring tripping-clamps on the follower-head, which automatically clamp an extended end-less cable, and move it sufficiently to reverse the motion of the head by shifting the driving-belts. By this means the hammer is raised and dropped automatically, and it may also be tripped at any point by hand.

1. As applied to a pile-driving machine, the combination of driving-pulley H, cross and straight driving-belts suitably shifted, either automatically or by hand, driving-pulleys E F', idlers F F', driving-worm D, drum C, lifting-cable, and follower-head B, the whole operating substantially as and for the purpose specified.

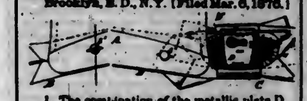
2. In a pile-driving machine, the automatic belt-shifter, composed of rod I, sliding-lever J on shaft j, an operating-spring, j', operating-chain k suitably extended from shaft j, and clamps M, acting in concert with hooks h h, and open chain k by any preferred tripping devices, the whole operating substantially as and for the purpose specified.

3. In combination with the automatic belt-shifter, the tripping-blocks N, situated, and operating substantially as specified.

4. In combination with the automatic belt-shifter, the spring tripping-levers O O, provided with operating-cord, the whole operating substantially as and for the purpose specified.

5. In combination with the automatic shifting device, the shifting-chain k, when provided with blocks m to operate substantially as and for the purpose specified.

176,170. NECK-TIE HOLDERS. Max Rubin, Brooklyn, E. D., N.Y. [Filed Mar. 6, 1876.]



1. The combination of the metallic plate D, having a transverse slot formed in it, made narrow in the middle and wider at one end than at the other, and the elastic piece E, secured to the said plate D at the opposite sides of the neck of the slot, and at its smaller end with the tie C, substantially as herein shown and described.

2. The combination of the wire guard F with the slotted plate D, the elastic E, and the tie C, substantially as herein shown and described.

3. The studs b' b', the collar-band, and the tie-band B, combined and arranged substantially as herein shown and described.

176,171. CIGAR-CASES. Charles F. Rumpp, Philadelphia, Pa. [Filed Jan. 20, 1876.]



As a new article of manufacture, a cigar or match case formed of two sliding or telescoping sections, each section being formed of two pieces of leather united at the edge by a metallic clamp and frame-piece, C, substantially as shown.

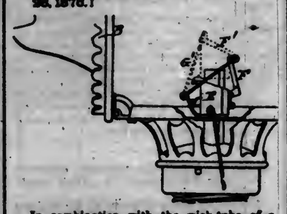


176,172.

176,172. RAIN-BALL COVERS. M. J. Ryan, Brooklyn, N. Y. [Filed Sept. 16, 1875.]

A cover for balls, composed of two trifurcated pieces of leather or other material, cut into the shape shown in Fig. 3, applied substantially as herein set forth.

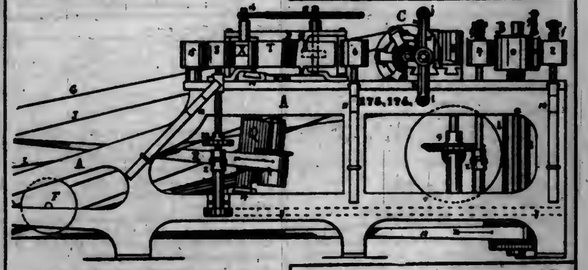
176,173. LAMP-EXTINGUISHERS. John C. Schreyer, South Bend, Ind. [Filed Feb. 28, 1876.]



In combination with the wick-tube of a lamp, the sliding sleeve E, having beveled top, the lid F, hinged to the sleeve, the wire frame H, with its two ends projecting upward and outward, and the wire frame G, hinged to the frame H and to the lid F, all substantially as and for the purposes herein set forth.

176,174. MACHINES FOR SHAVING HOUND HOOPS. George B. Selden, Rochester, N. Y. [Filed Feb. 15, 1875.]

Brief.—The splints for making half-round hoops from poles are shaved by means of two rotary cutters—one of which acts as a roughing-cutter, and the other as a finishing-cutter. The bark on the hoop is cleaned by a rotary brush, supported on a vertical shaft between the finishing-cutter and the last pair of feed-rolls. Splints of different cross-sections are presented to the cutters, so that they will be shaved on the proper line. The hoop is automatically tapered and lapped.



1. The combination of the movable coring-head C, controlled from the bark side of the hoop by the roller A, with the finishing-head D, rests T and S, and pressure-roller U, operating substantially as and for the purposes set forth.

2. The combination of the knot-cutter B, movable coring-head C, controlled from the bark side by the roller A, with the finishing-head D, rests T and S, and pressure-roller U, operating substantially as and for the purposes set forth.

3. The combination of the movable coring-head C, controlled from the bark side by the roller A, and the finishing-head D, rests T and S, and pressure-roller U, with the angular feed rolls 1 and 3, either or both, operating substantially as and for the purposes set forth.

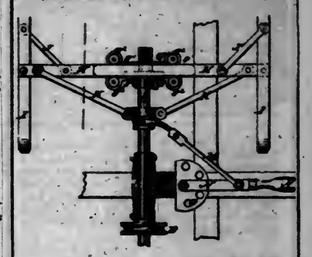
4. In combination with the finisher-head D and the pressure-roll U, the movable rest S, and the roll X, placed after the head D, and controlling the cam Y, substantially as and for the purposes set forth.

5. In combination with the head D and the pressure-roll U, the movable rest S and the cam Y, operating substantially as and for the purposes set forth.

6. The cover-head C and finishing-head D, in combination with the rotary brush b'.

7. In combination with the head C, controlled from the bark side by the elastic roller A, frame j, the adjustable arm V, and box e, operating substantially as and for the purpose set forth.

176,175. EXPANSION-REELS FOR REAPERS. Alfred W. Shaw, Chatham Centre, Ohio. [Filed Dec. 18, 1876.]



The combination of reel-shaft head F, the socketed sectional plate G g', having roller g', the sliding reel-arms H, the reel-bars I, and the braces J, as and for the purpose specified.

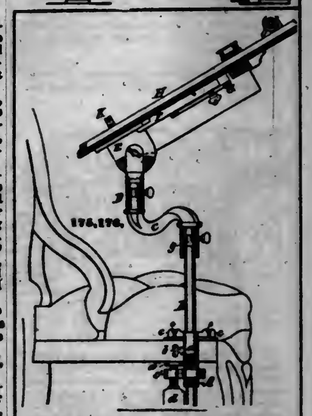
176,176. DESK ATTACHMENTS FOR CHAIRS. Cornelius B. Sheldon, New York, N. Y. [Filed Jan. 6, 1876.]

1. The clamp A, consisting of the exteriorly screw-threaded tube a, having rigid jaw a, made in one piece therewith, in combination with the adjustable interiorly screw-threaded jaw a' and the binding-screw d, as and for the purpose described.

2. The clamp A, consisting of rigid jaw a, screw-threaded tube a, and adjustable jaw a', with binding-screw, in combination with the adjustable standard B, having annular groove g, the adjustable bracket C, and the socket D, substantially as and for the purpose described.

3. The combination of the socket D, the adjustable plate E, carrying slide F, the guide-socket G, attached to the desk, and the binding-screw f, substantially as and for the purpose described.

176,176.



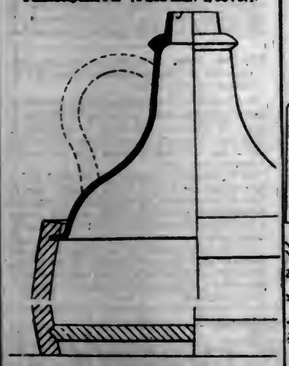
176,177. HARNESS. Henry Clay Sheffield, Cincinnati, Ohio. [Filed Jan. 3, 1876.]

176,177.



As a new article of manufacture, the barrel, substantially as described, constructed of a separate inner veneer-shell having the grain run circularly, a separate layer of veneer merely rolled upon the inner shell, and having the grain run lengthwise of the barrel, hoops for holding the body of the barrel together, and heads.

176,178. DEMIJOHNS. David H. Shourds, Philadelphia, Pa. [Filed Mar. 4, 1876.]



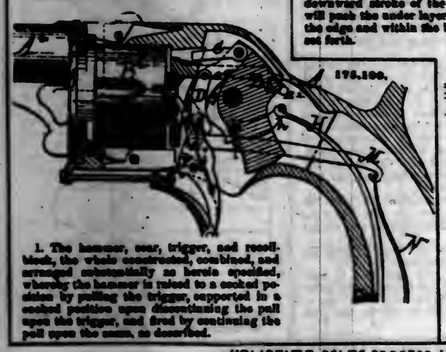
The within-described demijohn, composed partly of a wooden barrel and partly of a metal toe and neck, as set forth.

176,179. TRACES FOR HARNESS. George W. Sherwen and Charles H. Tripheger, Perrama, Minn. [Filed Feb. 11, 1876.]



The trace C, provided with the canal slot c, in combination with the rubber D, fastened between the two parts of the trace, as shown, and provided with a perforation at the lower end, constructed and arranged as and for the purpose set forth.

176,180. REVOLVING FIRE-ARMS. Thomas J. Sloan, Tombstone, N. Y. [Filed Mar. 20, 1876.]



176,180.

1. The hammer, sear, trigger, and recoil-block, the whole constructed, combined, and arranged substantially as herein specified, whereby the hammer is raised to a cocked position by pulling the trigger, supported in a cocked position upon discontinuing the pull upon the trigger, and fired by continuing the pull upon the same, as described.

2. The bar M, constructed with the pin p and the spring N, in combination with the hammer B and trigger F, substantially as specified, whereby the trigger is retained in its proper position relative to the hammer, to retain the latter at full-cock when the pull upon the trigger is discontinued, as described.

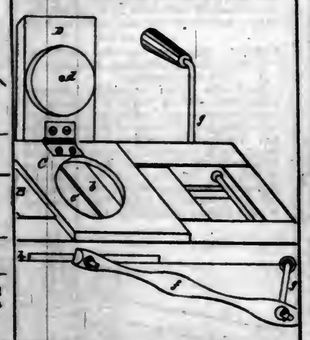
3. The pivoted button or thumb-piece S, provided with the bar s, in combination with the pivoted gear D, whereby the latter may be thrown forward out of engagement with the trigger.

4. The finger-piece V, arranged to slide upon the rod w, and pivoted to the lower extremity of the trigger F, the whole combined for operation substantially as specified, whereby provision is made for the facile manipulation of the trigger, as described.

5. The bar S and lever W, in combination with the hammer B, substantially as set forth, whereby provision is made for the withdrawal of the firing-pin, as described.

176,181. VEGETABLE-SLICERS. Aaron C. Slocum, Northville, N. Y. [Filed Oct. 6, 1876.]

Brief.—The cover embraces all the working parts; a reciprocating cutter-carrier moved by crank-rod; a slotted fixed table through which to press the vegetable; a laterally-hinged presser to condense it upon the cutters.



1. The horizontal reciprocating vegetable-slicer A B, operated by a double crank movement, g f, and carrying a double cutter, h, beneath a fixed table or support, C, said support having an opening, o, for the reception of the vegetable to be cut, as and for the purpose set forth.

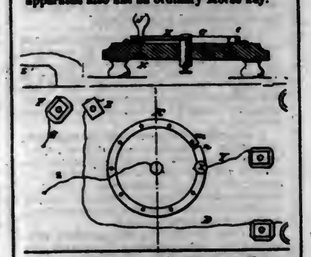
2. A hinged concave presser, D, having a centering-pin, d, on its under side, in combination with the horizontal slicer and table or support, as shown and described.

176,182. STRAW-CUTTERS. Henry Shaner and Frederick Schmidt, Glen Rock, Pa. [Filed Dec. 10, 1875.]

A ledger-knife, having the upper surface of the lip or edge extending obliquely downward and backward from the edge, so that the downward stroke of the reciprocating knife will push the under layer of straw away from the edge and within the box, substantially as set forth.

176,183. ELECTRO-TELEGRAPH APPARATUS. Walton Smith and John M. Smith, Erie, Pa. [Filed Aug. 11, 1874.]

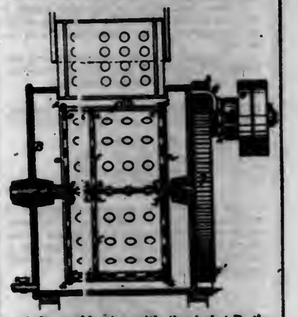
Brief.—Portable apparatus to be carried on railway-trains, and used for telegraphing in case of accidents. Line-wire brought down into boxes at intervals along the line, thus affording a means of connecting the apparatus. A circuit-breaking arm in the apparatus swings over a circle of contact-points, and is used in accordance with a certain code. The apparatus also has an ordinary Morse key.



The grooved ring L, rotating arm H, buttons t t t, and divided circle K, in combination with the signal-key S, electro-magnets B B, posts B F, plug M, and tablet A, substantially as and for the purposes set forth.

176,184. WASHING-MACHINES. Hamilton E. Smith, New York, N. Y. [Filed Sept. 16, 1875.]

Brief.—The perforated drum, in which the clothes are placed for washing, is divided into several chambers, the partitions being fitted together by flanges and lugs, and revolves in a stationary cylinder, which obtains the ends. Both the drum and the cylinder are made of cast-iron and coated with enamel. The cylinder has a projecting rim at one end, in which is a gear-wheel attached to the shaft of the inside drum. The wheel has cams that act upon a shipping-lever, so that the drum may be stopped when required; said lever being rendered operative or inoperative by a spring-plunger attached thereto, against which the cams strike, and which may be held rigid by a latch. By raising the latter the plunger yields without moving the shipping-lever.



1. In combination with the jacket B, the drum A, composed of the detachable and perforated heads a c, sections b b, and longitudinal partitions e, and transverse partitions f, the whole being held together by the lugs g g and h i, substantially as described.

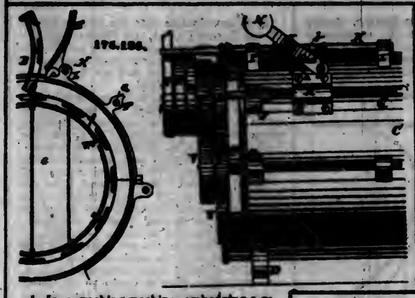
2. The iron jacket B, with its circular flange r, in combination with the cog-wheel q, mounted on one of the gudgeons of the drum A, substantially as and for the purpose set forth.

3. The combination, with revolving cloth-drum A, of a shipping-lever, D, carrying a lamb, m, a plunger, o', cams t', and cog-wheels q i, all constructed and operating substantially as shown and described.

176,185. WASHING-MACHINES. Hamilton E. Smith, New York, N. Y. [Filed Sept. 16, 1875.]

Brief.—A drum with T-shaped buckets revolves within a soak-jacket, having a reversing-gear for reversing the motion of the drum at regular intervals.

176,186.



176,186.

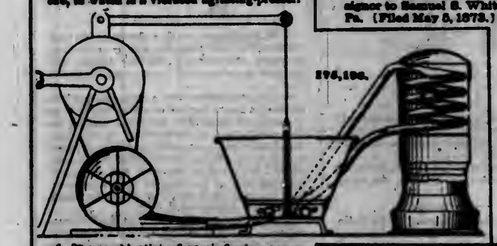


1. In a washing-machine, embodying a rotating drum A, which is arranged within a soak-jacket, C, I claim a reversing-gear for reversing the motion of the rotary drum at regular intervals, constructed of a traveler, H, cover-shaft, G, d feet pulley, Q, and feet cog-wheel, S, in addition to a loose pulley, R, and loose cog-wheel T of gearing V V', and cog-wheel U, mounted on the journal of the rotary drum, of a vibrating arm, J, and belt-shifter K, all combined and operating substantially as described.

2. The combination, with the drum A, of the T-shaped buckets W, arranged in the circumference of said drum, and connected together by a strap, f, the whole of said buckets being constructed to slide in the circumference of the drum for the purpose of introducing pure air into the water in the drum, substantially as shown and described.

176,188. WASHING-MACHINES. Hamilton E. Smith, New York, N. Y. [Filed Sept. 16, 1875.]

Brief.—A fan-blower forces a current of air through a coiled pipe, which is heated in a cylinder and conveyed to the water in the tub, in which is a vibrated agitating-presser.

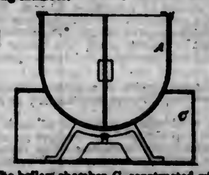


1. The combination of an air-forcing apparatus with the tub of a washing-machine, and with an agitating and squeezing device contained in said tub, all constructed and operating substantially as shown and described.

2. The combination of an air-heating apparatus with an air-forcing apparatus, and with an agitating and squeezing device contained in the tub of a washing-machine, all constructed and operating substantially as set forth.

176,187. ROTARY CHURNS. Hamilton E. Smith, New York, N. Y. [Filed Sept. 16, 1875.]

Brief.—The hollow base forms the support upon which the churn rests, and also a tempering-chamber.



The hollow chamber C, constructed with a flat base and an opening in its top, in combination with the cream-tub A, said hollow chamber forming a tempering-chamber and a support or base for the cream-tub, substantially as described.

176,189. ELECTRO-MAGNETIC DENTAL MALLET. Allen Spencer, Columbus, Ohio, assignor to Samuel S. White, Philadelphia, Pa. [Filed May 5, 1875.]

176,189.

1. A sheet-metal vessel or utensil constructed with a turned-down rim around its mouth, either with or without a wire inclosed in the same, in combination with a handle having its upper end turned into a hollow edge or wire, and secured under said turned-down rim, substantially as described.

2. In combination with a sheet-metal vessel or utensil, a handle having the lower end crimped in between the lower edge of the body and bottom of the same, substantially as described.

3. In combination with a sheet-metal vessel, provided with a turned-down hollow rim, with or without a wire inclosed in the same, a handle provided with a hollow edge or wire at its upper end, and secured in the hollow rim, and having its lower end crimped in between the body and bottom of the vessel or utensil, substantially as described.

176,190. SHEET-METAL CUPS. John Sutter, Baltimore, Md. [Filed Feb. 8, 1875.]

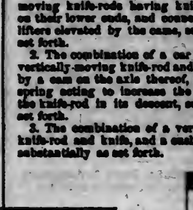
1. A sheet-metal vessel or utensil constructed with a turned-down rim around its mouth, either with or without a wire inclosed in the same, in combination with a handle having its upper end turned into a hollow edge or wire, and secured under said turned-down rim, substantially as described.

2. In combination with a sheet-metal vessel or utensil, a handle having the lower end crimped in between the lower edge of the body and bottom of the same, substantially as described.

3. In combination with a sheet-metal vessel, provided with a turned-down hollow rim, with or without a wire inclosed in the same, a handle provided with a hollow edge or wire at its upper end, and secured in the hollow rim, and having its lower end crimped in between the body and bottom of the vessel or utensil, substantially as described.

176,191. ELECTRO-MAGNETIC DENTAL MALLET. Allen Spencer, Columbus, Ohio, assignor to Samuel S. White, Philadelphia, Pa. [Filed May 5, 1875.]

176,191.



1. The combination, substantially as hereinbefore set forth, in an electric dental-mallet plugger, of the mallet-handle, outer case or covering, the perforated cups, the inner tube extending beyond the butt-cap, and the removable end casing, through which the plug-pre-operating shaft passes.

2. The combination, substantially as hereinbefore set forth, of the mallet, the battery-wires, and the break-key connected with one of the wires.

3. The key consisting of the yieldingly-connected adjustable sides, the binding-screws, and contact-points, substantially as set forth.

4. The combination, substantially as set forth, of the mallet-handle, its inner tube, the movable core therein, the helix, the spring or yielding plate, connected with one end of the helix-wire, and limited in its play by a stop on the inner tube, and the end-wise-moving break-rod, connected with the core and acting upon the yielding plate to break the circuit.

5. The combination, substantially as hereinbefore set forth, of the mallet-handle, the inner tube projecting therefrom, the posts at the sides of the projecting end of the tube, the cross-plate, the spring, its disk, the movable core, the break-rod, and the yielding bar.

6. The combination of the posts, the cross-plate, the set-screw, the disk, the spring, and the movable core-rod, substantially as set forth.

7. The combination of the mallet-handle, the battery-wires, and the vibrator, substantially as set forth.

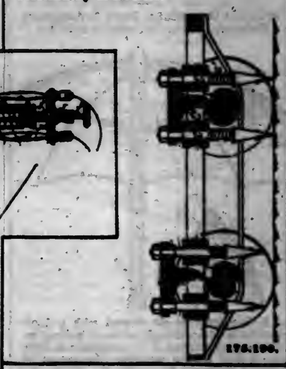
176,192. APPARATUS FOR ROUGHENING PAVEMENTS. James W. Starr, Jr., Camden, N. J. [Filed Feb. 24, 1876.]

Brief.—An apparatus for roughening stone and other pavements, consisting of a series of reciprocating chisels, which are elevated by revolving cams upon the driving-axles of the machine, and are forced down upon the surface to be roughened by springs. Cushioning-springs are employed to relieve the chisels after making a stroke, and prevent their dragging on the pavement.

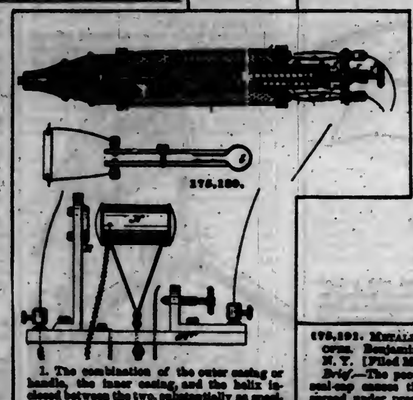
1. The combination, of a car or carriage, a series of cams secured upon and rotating with the axles thereof, and a series of vertically-moving knife-rods having knives or cutters on their lower ends, and connected at top to lifters elevated by the cams, substantially as set forth.

2. The combination of a car or carriage, a vertically-moving knife-rod and knife elevated by a cam on the axle thereof, and a driving-spring acting to increase the momentum of the knife-rod in its descent, substantially as set forth.

3. The combination of a vertically-moving knife-rod and knife, and a cushioning-spring, substantially as set forth.



176,190.



176,189.

1. The combination of the outer casing or handle, the inner casing, and the helix inclosed between the two, substantially as specified.

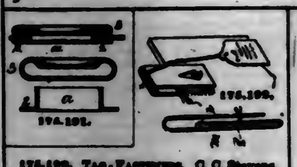
2. The combination of the mallet-handle, the inner tube thereof, the movable core, its rock, and the spring for retracting the core after striking a blow.

176,193. METALLIC FASTENINGS FOR REVOLVERS. Benjamin F. Stephens, Brooklyn, N. Y. [Filed May 27, 1875.]

Brief.—The peculiar internal shape of the oval cup causes the inserted eyelet-top to spread under pressure, thereby tightly locking the fastener in its place.

The metallic oval b, with the raised and returned edge 2, in combination with the metallic eyelet c, having a broad flange, 2, as and for the purposes set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

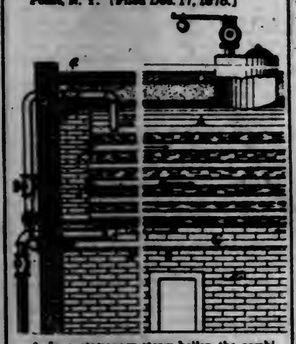


176,192.

176,192. TAG-FASTENER. C. C. Stevens, Auburn, Ind. (Filed Feb. 10, 1876.)

The within-described tag-fastening, formed of a single plate of metal, with one portion of it, a, bent and extended in between the parts m l, the part a having an opening, d, and the part l having a tongue, e, as shown and described.

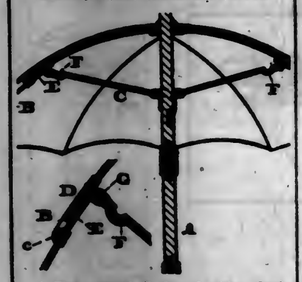
176,193. FEED-WATER HEATERS FOR STEAM-BOILERS. James C. Stead, Green Point, N. Y. (Filed Dec. 17, 1875.)



1. In a stationary steam-boiler, the combination of return bend pipes G with the bridge-wall and rear wall of the furnace, the said pipes being supported on a skeleton frame, and in line with the top of the bridge-wall, to form an unobstructed and continuous passage from the fire-box to the smoke-box, substantially as and for the purpose specified.

2. In a stationary steam-boiler, the combination, with the return bend pipes G, supported on a skeleton frame and arranged in line with the top of the bridge-wall, of a pipe, E, leading from the exit of the system of pipes G to the steam-space of the boiler, substantially as and for the purpose specified.

176,194. UMBRELLAS. Uriah G. Steinmetz, Philadelphia, Pa. (Filed Mar. 2, 1876.)

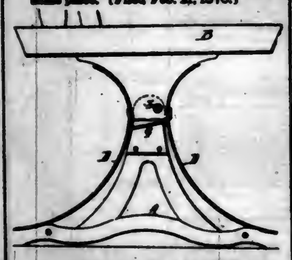


1. The sectional rib formed with a fixed section, a, and a hinged section, b, having an overlapping portion, E, in combination with the fork f of the stretcher, the extent of overlap corresponding with the opening or space of the fork, so that the stretcher will lock the sections when the umbrella is closed, substantially as and for the purpose set forth.

2. The stretcher of an umbrella formed with arches in proximity to the outer ends thereof, the grooves of which face outward, substantially as and for the purpose set forth.

3. The auxiliary fastening for the sectional rib, consisting of hooks secured to or formed on the stretchers, substantially as and for the purpose set forth.

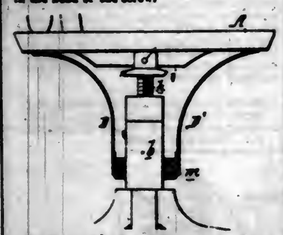
176,195. SPRING TILTING CHAIRS. Asher B. Stevens, Philadelphia, Pa., assignor to Henry S. Hale, Artemas Kilburn, J. W. Hale, Chaney Kilburn, and Warren Hale, same place. (Filed Feb. 21, 1876.)



The combination, in a spring tilting chair, of a base, A, and seat, B, pivoted together, with the curved springs D D' secured to the base and to the seat, all as set forth.

176,196. SPRING TILTING CHAIRS. Asher B. Stevens, Philadelphia, Pa., assignor to Henry S. Hale, Artemas Kilburn, J. W. Hale, Chaney Kilburn, and Warren Hale, same place. (Filed Feb. 21, 1876.)

Brief.—The height of chair can be adjusted by means of the screw-pivot, and it has an oscillating or tilting movement on the pivot in the head of the screw.



1. The combination of the screw b and seat A, pivoted to the screw, with the springs D D, ring m, and the post b of the base, all substantially as set forth.

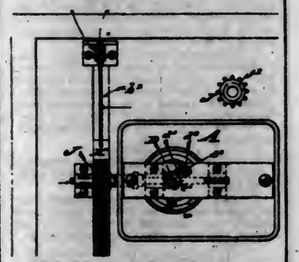
2. The combination of the seat A, the screw b, and its projection i, for limiting the vibration of the seat.

176,197. WHEELBARROW. Roswell H. St. John, Bellefontaine, assignor to St. John Sleeper Machine Company, Springfield, Ohio. (Filed Dec. 1, 1875.)

Brief.—The lever roller is forced upward by means of rods in the tubular standards, operated by eccentrics, which are rotated by a treadle-lever. An additional bench-frame is pivoted to the main structure.



176,198. WIRING DEVICES FOR CHRONOMETRIC LOCKS. Emory Stoakwell, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. (Filed Dec. 27, 1875.)



1. In combination with a chronometric lock connected to the door of a safe or vault, so as to guard the same, a winding device, constructed to be operated by the opening of said door.

2. In combination with a chronometric lock connected to the door of a safe or vault, so as to guard the same, and having a winding device constructed to be operated by the opening of said door, a connector or driver attached at one of its ends to the winding mechanism of said lock, and at its other end connected with the safe or its door in such manner as that the opening of said door effects the winding of said chronometric lock.

3. In a chronometric lock, the flexible connector L, pinion or rotatory driver J, ratchet G or their operative equivalents, in combination with the winding mechanism of the clockwork of the said lock.

4. In a chronometric lock, an automatic winding device, consisting of the cord L, rack K, pinion J, elevator f and H, shaft I, ratchet G, and gear-wheels B F, when constructed as and for the purposes specified.

5. In a chronometric lock having an automatic winding device, a device for preventing overwinding, consisting of the screw F and disconnecting-clutch H, when constructed substantially as and for the purpose set forth.

176,199. WIND-MOTORS. Geo. S. Strong, Springfield, Ohio. (Filed Feb. 28, 1876.)

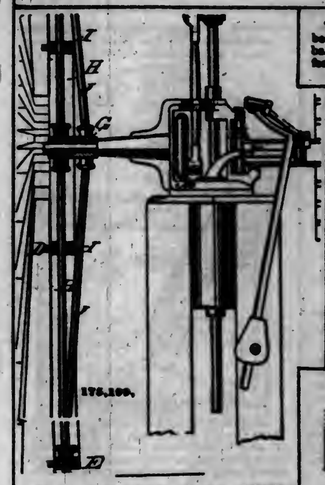
Brief.—The application to a hinged vane of a lever provided with a weight, the lever being pivoted on a swiveled fulcrum. The arms are screwed into the head, and also into the outside clamps on the rim. There are also auxiliary or bracing arms. The clamps are provided with screw-threaded tubular projections.

1. The combination of a governor pivoted on a swiveled fulcrum, substantially as set forth.

2. A vane-wheel, consisting of arms H screwed into the head and also into the outside clamp E, the inside clamps I on the rim D, with auxiliary or bracing-arms J screwed into the head and outside clamp E.

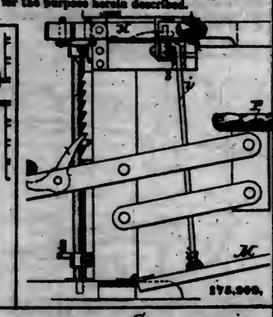
3. The clamp E, provided with a screw-threaded tubular projection, substantially as described, and for the purposes set forth.

4. The head G, provided with screw-threaded tubular projections, substantially as and for the purpose set forth.



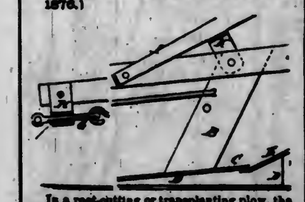
176,199.

The combination, with the seat P and rubbers H H, of the treadle or lever M, straps or bands f f, and arms U O, substantially as and for the purpose herein described.



176,200.

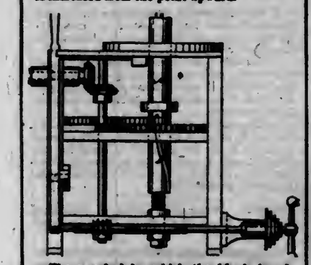
176,200. ROOT-CUTTING PLOWS. John S. Sweney, Marengo, Iowa. (Filed Jan. 10, 1876.)



In a root-cutting or transplanting plow, the combination, with two diverging beams, of the side cutters B B, inclined base cutter C, inclined plate E, and wedge-shaped axle D, substantially as herein shown and described.

176,201. MACHINERY FOR MAKING TWIST-DRILLS. Edward S. Tabor, New Bedford, Mass. (Filed Feb. 28, 1876.)

Brief.—The bar of the wheel which revolves the mandrel is made to twist or coil around the mandrel to some extent in the reverse direction to that in which the mandrel turns, so that its rotation decreases slightly as it rises, whereby the pitch of the grooves of the drill is increased from the point upward.



The mandrel by which the blank is advanced along and rotated to the cutters, constructed in combination with the rotating gear, to produce an increased pitch or spiral to the drill, substantially as specified.

176,202. MEDICAL BURNING APPARATUS. George H. Taylor, New York, N. Y. (Filed May 17, 1876.)

Brief.—The seat is upon the end of a pivoted bar, and is adjusted vertically. A treadle under the seat is connected by straps to the side rubbers, and these serve to regulate the pressure.

176,203. ANIMAL-TRAPS. Noah H. Tracy, Samuel A. W. Hindman, and Franklin M. Hindman, Bedford, assignors of one-fourth their right to Joseph R. Standley, Platteville, Iowa. (Filed Aug. 20, 1875.)

The combination of the slotted box A, slotted lever B, with spur c, spring C, arm D, with spear-shaped head d, and notched trigger-rod E, hinged or pivoted at one end, passing through the lever and box, and provided with plate G, all as and for the purposes herein set forth.

176,204. GIG-SADDLE TREES. John Theobald, Newark, N. J. (Filed Feb. 1, 1876.)



1. In the construction of a gig-saddle tree, the recesses f and m, in combination with the hole e and inclined plane r, substantially as and for the purposes specified.

2. The inclined plane r, at each side of the hole e, uniting the two levels e and e, substantially as and for the purpose set forth.

3. The gig-saddle tree provided with the recesses m and f, inclined plane r, and cap G, substantially as and for the purpose described.

176,205. RAILROAD-SWITCHES. C. Thompson, Graham, Mo. (Filed Feb. 24, 1876.)

Brief.—A railroad-switch mechanism consisting of a spirally-grooved cylinder operated by a projecting pin on the locomotive, which is guided into the groove, thereby partially rotating the cylinder, which imparts its motion, through a connecting-rod and crank, to a sliding-rod attached to the spring-bent of the vibrating switch-point.



1. The cylinder E, provided with two similar spiral grooves, g h, open at their ends, and applied in combination with switch-actuating mechanism, substantially as and for the purpose set forth.

2. In combination, the slide bar or rod K, the pivoted switch-feet L, provided with a spring-heel, a, and the frog or gap s' in the main track, these parts acting in conjunction, substantially as and for the purpose set forth.

3. In combination with the grooved cylinder H, the yielding cap S, provided with a catch, a, and the swing-pieces c c', substantially as and for the purpose set forth.

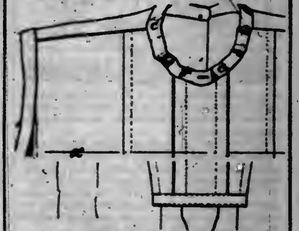
4. In combination with the spring feet or switch L a, and with the opening or frog s', the two continuous outer rails s and s' of the two tracks, the combination serving to prevent wrecks at turnouts, in whichever direction a train may be running, and whether the switch be open or closed.

176,206. MANUFACTURE OF ILLUMINATING-GAS. Joseph C. Tiffany, Cazenovia, N. Y. (Filed Dec. 6, 1875.)

Brief.—Generates coal-gas, running a charge as long as any gas, however poor, is given. In a separate retort generates gas from paraffine, and cracks it into the coal-gas of the main, holder, or other convenient point. From one to twenty-five per cent. of paraffine or oleaginous gas is used. It is said that the gases combine chemically with each other and with the condensable constituents of the coal-gas, and form an unstratifying fixed illuminating-gas.

The process of manufacturing illuminating-gas, which consists in adding to poor gas, or gas deficient in illuminating properties from coal or other gas-producing substance, the gases produced from paraffine or paraffine oils, or a gas rich in oleaginous gas, in such proportion, depending upon the illuminating power of the poor gas, as to produce a gas of the desired candle-power, substantially as described.

176,207. SHIRTS. Wm. H. H. Tracy, Troy, N. Y., assignor to himself and F. Spaulding, same place. (Filed Feb. 5, 1876.)



A shirt having its bosom left free at its side edges, but attached to the body at the top and bottom edges and along the central line, as and for the purpose specified.

176,208. TRUNKS. Catharine L. Trusten, Springfield, Ill. (Filed Feb. 19, 1876.)



A harness-trunk, having a cover, C, adapted to be locked to the lock-rail D, and a single removable tray, E, provided with locking mechanism, whereby it may be secured to the ends of the trunk, all combined and arranged substantially as and for the purpose specified.

176,209. CHILDREN'S CARRIAGES. F. Trusti, Philadelphia, Pa. (Filed Aug. 21, 1875.)

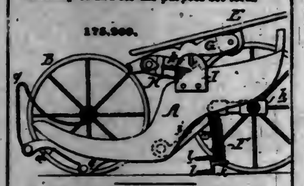
Brief.—The parts connected by hinges in such manner that they may be folded together for convenience of transportation or storage.

1. The combination of the front axle of the carriage with bent spring-arms b, hinged to the body, and constructed with locking devices, substantially as described, for the purpose specified.

2. The combination of the hinged arms b, their pivoted fingers f, and standards h, adapted to fit the rear axle of the carriage, with the curved rods F, their pivoted projections f f, and springs m, all substantially as set forth.

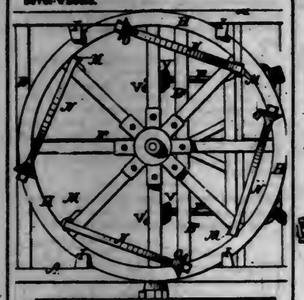
3. The combination of the spring-bar *g* with the pivoted and notched arm G, pivoted and recessed arm H, and notched plate I, all substantially as and for the purpose set forth

175,909.



175,910. SEEDERS AND CULTIVATORS. Isaac Turman, Woodbury County, Iowa. [Filed Dec. 28, 1874.]

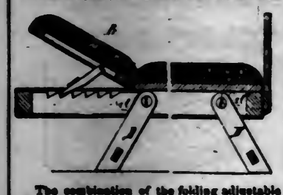
Brief.—To the under side of the wheeled frame is pivoted a circular revolving harrow-frame, having shovel-beams attached by hinged swivel-joints. Motion is communicated to the seeding mechanism through a series of bevel-wheels.



1. A revolving harrow in which the shovel-bars are connected with the frame by a hinge and swivel joint, substantially as and for the purpose specified.

2. The hereinbefore-described machine, in which are combined with the main frame the axle C, ground-wheels E and E, circular revolving frame H, shovel-bars N and N, sheaves O and O, hopper Q *q*, shafts T *t*, and pinions K, L, and V and V', said parts being arranged to co-operate in the manner and for the purpose shown and described.

175,911. CUT-BLISTERS. G. L. Unverzagt, Philadelphia, Pa. [Filed Jan. 17, 1876.]



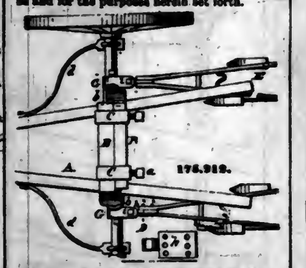
The combination of the folding adjustable head D' and the folding legs D D' with the frame A and its mattress B, the whole being adapted to be used as a mattress or a cot-bedstead, as set forth.

175,912. DOUBLE CORN-PLOWS. Will A. Van Camp, Matamora, Ind., assignor of one-half his right to Joseph A. Van Camp, same place. [Filed Jan. 20, 1876.]

Brief.—The side-bars in arched and made in two parts, which overlap and are secured by clips, so that the wheels can be separated or brought nearer together. The cultivator-beams are attached to the short arms of the axles, and thus the machine is made wider or narrower, as desired.

1. In a cultivator, an arched axle, made in two sections, B B, overlapping each other in the center and adjustably connected together by clamps C and set-screws *c*, substantially as and for the purposes herein set forth.

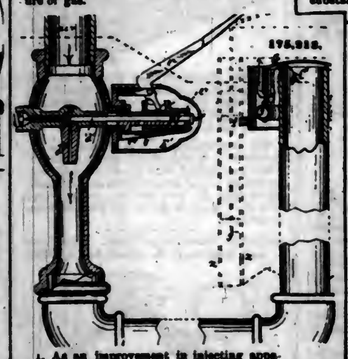
2. The combination of the adjustable axle-sections B B, beams A A connected thereto by staples *b b* and braces *d d*, with clips *e e*, the wire loop *m*, connecting the front ends of the beams, and the wedge *l*, all substantially as and for the purposes herein set forth.



175,912. INJECTING APPARATUS FOR GAS-MACHINES. Theophilus Van Kannel and L. D. Towsley, Cincinnati, Ohio; said Van Kannel assignor to said Towsley. [Filed Sept. 2, 1876.]

Brief.—The injector-valve-operating mechanism is operated by the flow of gas into or out of the holder. A check-valve on the induction-pipe to the holder prevents back pressure of gas.

175,913.

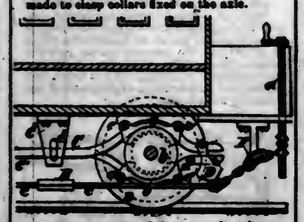


1. As an improvement in injecting apparatus for gas-machines, the mechanism consisting of the valve *d*, spring *d'*, trip *d''*, operated by lever *e*, rod *f*, locking-lever *f'*, and spring *f''*, substantially as and for the purpose described and set forth.

2. The valve mechanism, consisting of the valve *d*, spring *d'*, trip *d''*, rod *f*, locking-lever *f'*, and spring *f''*, in combination with a check-valve, whereby the vapor under pressure is admitted into the holder, and confined there, substantially as and for the purpose described and set forth.

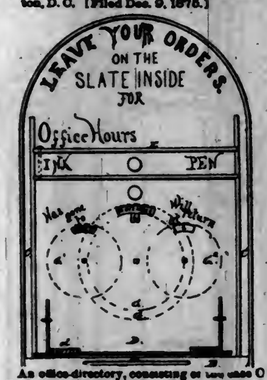
175,914. CAR-BRAKES. George L. Waitt and Samuel L. Garrett, Philadelphia, Pa. [Filed Sept. 20, 1875.]

Brief.—By turning the crank the shoes are made to clasp collars fixed on the axle.



The combination of the grooved and gradually-faleromed levers O O', shoes a, cams D D, and connecting-rod *c*, with the brake or friction wheels *i* on the car-axles, and a suitable windlass and chain device, substantially as and for the purpose set forth.

175,915. COMBINED OFFICE DIRECTORIES AND DESKS. William Walter, Washington, D. C. [Filed Dec. 9, 1876.]



An office-directory, consisting of the case C E, the front D, with springs *d*, and disks G G', slate H, and drawer I, desk I, portfolio J, and letter-box A, all constructed and arranged substantially as and for the purpose set forth.

175,916.



175,916. CULTIVATORS. Silas Walton, Moorestown, N. J. [Filed Feb. 5, 1876.]

Brief.—The curved standard and its combination with the curved beam.

1. The standard S, curved downwardly and outwardly, and terminating in a vertically-inclined stem or blade holder, arranged as described, for the purpose set forth.

2. The standard S, curved downwardly and outwardly, and terminating in an inclined blade-holder, in combination with the reversible blade *b*, cut away at *c*, as and for the purpose described.

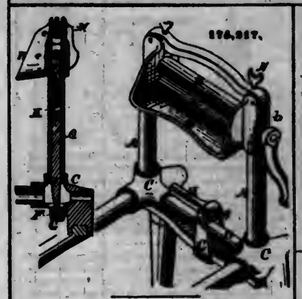
3. The combination, with the main beam A, having an offset at its rear end, of the curved standard S, for the purpose of centering the blade in such a manner as to allow obstructions to pass over the top of the same, substantially as described.

175,917. WRINGERS. Francis Way and Martin Way, Springfield, Ohio. [Filed Dec. 1, 1875.]

1. In combination with the wringer-rollers B and B, the bar F, stops G *g*, lever H, eccentric pins *h* and *h*, and the rods I and I, extending between said bar and the journals *e* and *e* of the lower roller, said parts being constructed to operate in the manner and for the purpose substantially as specified.

2. In combination with springs for producing an elastic pressure upon the journals *e* and *e* of the lower roller B, the bars M and M placed above the journals *e* and *e* of the upper roller B, and the set-screws N and N passing downward through the roller-frame and bearing upon the upper sides of said bars, substantially as and for the purpose shown.

175,917.



175,918. WRINGERS. Francis Way, Springfield, Ohio, assignor of one-half his right to Martin Way, same place. [Filed Nov. 15, 1875.]



1. In combination with the pressure-rollers of a washing or wringing machine, composed pulleys and cords for pressing the same together, substantially as and for the purpose shown.

2. In combination with the pressure-rollers of a washing or wringing machine, pulleys and cords for pressing the same together, and a treadle for operating said cords, substantially as and for the purpose set forth.

3. The frame of the machine consisting of the bars A and C, the plates F and F, and rungs B and D, combined in the manner and for the purpose substantially as shown and described.

4. The means employed for combining the basket-support E with the frame of the device consisting of the plates Q and Q provided with the bosses *q* and *q* and pivotal bearings *r* and *r*, all constructed and combined in the manner and for the purpose substantially as specified.

175,919. NEEDLE-THREADERS. H. Wells Woburn, assignor of one-half his right to D. Foben, Cambridge, Mass. [Filed July 2, 1875.]

Brief.—The needle is passed through the groove, whereby it is presented eye upward over the slot. By operation of the spring the hook draws the thread through the eye.

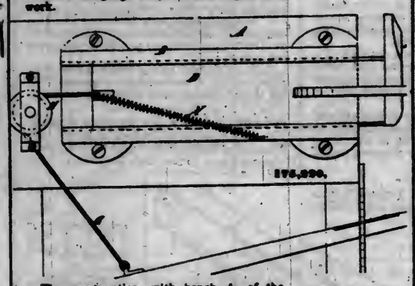


1. In a needle-threading device, the combination, with the main plate or body of the threader, of a spring-plate provided with a groove extending a portion of its length, so as to admit a needle, for the purpose herein set forth.

2. The combination of the plate *a*, provided with the rest *l*, slot *h*, and depression *h*, the plate *b*, provided with the raised portion *b''*, clamp *f*, and hook *g*, substantially as and for the purpose hereinbefore described.

175,920. JOURNAL-BEARING-VISES. Geo. H. Wheeler, Great Barrington, Mass. [Filed Feb. 14, 1876.]

Brief.—The sliding jaw, which is fitted to work in a plate attached to the end of the bench and connected with a foot-lever, can be closed by pressure upon the end of the lever, and opened by a spring attached to the lever and jaw, and passing over a pulley on the main frame. A ratchet-bar is arranged with the lever for keeping the jaw closed upon the work.



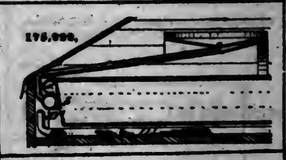
The combination, with bench A, of the grooved plate B, slide D, having jaw E, the cord G, passing over pulley H, and the lever, with its treadle end below the jaw, substantially as and for the purpose specified.

175,921. COMBINED SHOULDER-BRACES AND SUSPENDERS. H. C. Whitmarsh, Brooklyn, N. Y. [Filed Dec. 13, 1875.]

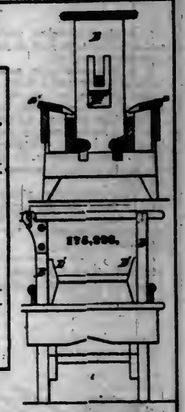


The triangular yoke Y, constructed as described, in combination with the straps S and S', the yoke being adapted to rest upon the shoulders of the wearer in such position that the weight of the garment will hold back and retain the shoulders in their normal position, substantially as described.

175,922.



175,922.



175,922. STANDS FOR WASH-TUBS. John J. White, Norfolk, Va. [Filed Jan. 26, 1876.]

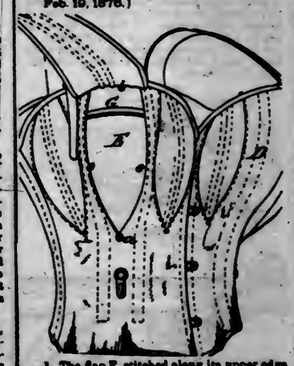
1. A combined wash-tub stand, clothes-holder, and ironing-board, consisting of a stand, having cavity *a*, inclined opposite ledges *a' a'*, the bottom in sections B B, hinged at each end, and receiving on top an ironing-board, as and for the purpose described.

2. The stand A, provided with the opposite inclined ledges, as and for the purpose described.

3. The combination, with hinged sections B B, having studs and bearings at free end, of an ironing-board, provided with one end fitting between said studs, and the other having side pins that fit in the bearings, as and for the purpose described.

4. The combination, with sections B B finding bench against end pieces C C, of hooks and eyes and spacing-bar D to hold them, in the manner specified.

175,923. CORSETS. Annie V. Whittier and Celiste Andrews, Oberlin, Ohio. [Filed Feb. 19, 1876.]



1. The flap F, stitched along its upper edge to the connecting strip *b*, in combination with the breast-opening B and fastening *a*, substantially as described.

2. In combination with the opening B and flap F, the stiffening-bow O, movable as described.

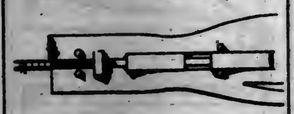
175,924. MILK COOLERS OR WARMERS. D. D. Whitaker, Carthage, N. Y. [Filed Feb. 28, 1876.]

Brief.—Ice-water in pan over milk-pan, which may have a close cover. The lower holes in its bottom may be plugged. Water-pan is detachable; its supports at one end conduct drip into water-pipes around the milk-pan, at other end lead water of condensation into its outlet-pipe. Cold water passes through pipe around milk pan and way pipe under milk-pan, cooling the air between milk and outer case. A hinged or lifted cover of wire covered with cloth fits at its edges into a groove in top of outer case. Warm air may be sent through the tubes reversely to the direction which water takes when used.

1. The combination of a milk-pan and rack, having air-space between the same, with cooling side and bottom tubes and a communicating ice or cold receptacle above the pan, to cool the air around and above milk-pan, substantially in the manner set forth

2. The combination of a milk-pan and rack with a detachable cover or screen, fitting tightly on the rack to keep cold air confined, substantially as and for the purpose specified.

175,986. GLOVE-STRETCHER. C. C. Wilson, Washington, D. C. [Filed Mar. 6, 1876.]



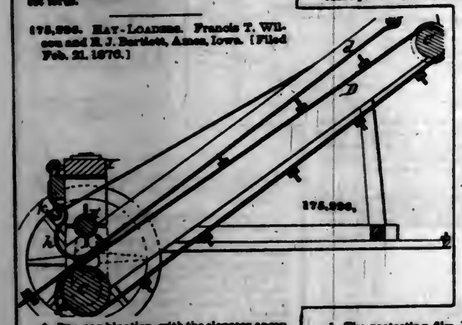
1. A glove-stretcher, made in two parts, and arranged to expand on parallel lines, substantially as set forth.

2. A glove-stretcher, made of a blocked block in the form of a hand, or of two hands placed together, and capable of being moved outward from each other on parallel lines, substantially as herein set forth.

3. A glove-stretcher, made in the form of a hand in two parts, and provided with an interior spreading device for stretching the entire glove at one operation, substantially as set forth.

4. The combination of a screw-shaft and one or more wedges, arranged to operate within a glove-stretcher, made in two parts, substantially as and for the purposes herein set forth.

175,986. HAY-LOADERS. Francis T. Wilcox and H. J. Bartlett, Ames, Iowa. [Filed Feb. 21, 1876.]

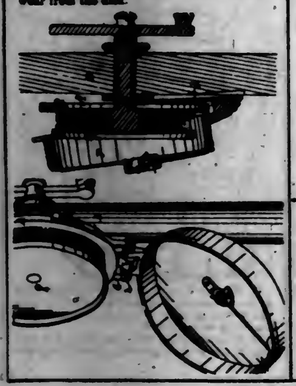


1. The combination, with the elevator-apron D, of the rods *d*, with cross-bar G, and the rake-teeth A, carried as described, and secured to the head J, substantially as and for the purposes herein set forth.

2. The combination of the elevator-apron D, rake J *h*, rods *d*, with cross-bar G, and spiked cylinder H, substantially as and for the purposes herein set forth.

175,987. FISHING-ROD REELS. Thomas Wilcox and Thomas D. Whistler, Baltimore, Md. [Filed Mar. 1, 1876.]

Brief.—The hinged reel-cover is arranged to be pressed down and prevent revolution of the reel while casting. If desired, the cover can be also opened to give instant access to the reel when occasion demands. The thumb-brake has a wrapping of thread to take the wear from the disk.



1. The guide eye or ring formed of two sections, the one fixed to the cover, the other attached to a spring arm or support, carried by, but movable to and from, the cover, substantially as and for the purposes set forth.

2. The reel-cover and line-slot therein, in combination with the sectional guide-ring, formed of a fixed section and a movable section, whose outward movement opens a passage in line with the line-slot in the cover, substantially as set forth.

3. In combination with the reel-cover and knuckle thereon, the cover-holding spring arranged to operate in connection with said cover, substantially as set forth, to hold the cover either against closing upon the reel or against receding too far therefrom, and at the same time, when the cover is thrown back, to hold the same in that position.

4. In combination with the cover and line-slot therein, as described, the deflecting shield or plate, substantially as and for the purposes set forth.

5. The combined spring-brake and thumb-piece, applied to and arranged to operate with the inner reel-disk, substantially as set forth.

175,988. POSTAGE AND REVENUE STAMPS. Joseph R. Wisner, Philadelphia, Pa., assignor of one-half his right to H. K. Foz, same place. [Filed Dec. 29, 1876.]

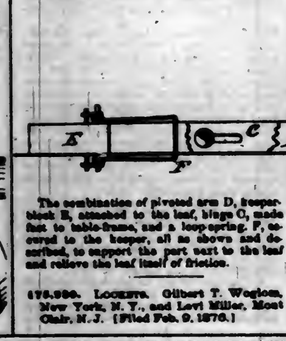


1. The protecting film B, firmly secured at all points to the imperforate body-piece A, and forming an integral portion of the stamp, and of the design subsequently printed upon it, substantially as and for the purpose set forth.

2. The protecting film, secured to the piece A, and having a color different therefrom, whereby said film protects the stamps or monetary paper, as stated, and indicates the deadening thereof, substantially in the manner set forth.

3. The protecting film, formed of a series of bars, strips, or figures connected together and applied in a body to the sheet on which a series of stamps or other monetary papers are printed, so as to occupy a part of each stamp, substantially as and for the purpose set forth.

175,989. TABLE-LEAF SUPPORTS. Eli J. Wolfrom, Washingtonville, Ohio. [Filed Jan. 28, 1876.]



The combination of pivoted arm D, stopper-block B, attached to the leaf, hinge C, made fast to table-frame, and a loop-spring, F, secured to the hopper, all as shown and described, to support the part next to the leaf and relieve the leaf itself of friction.

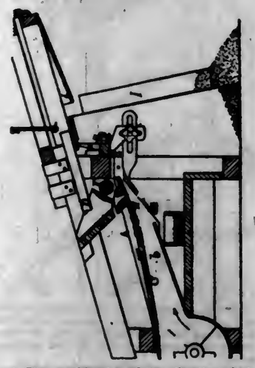
175,990. LOCKETS. Gilbert T. Wogtom, New York, N. Y., and Levi Miller, Mount Clair, N. J. [Filed Feb. 9, 1876.]



The combination of a frame composed of two bands or rings hinged together, and front and back pieces made of stone or other suitable material and recessed or countersunk so as to fit outside or over and conceal said bands or rings of the frame, substantially as and for the purposes herein set forth.

175,991. APPARATUS FOR SEPARATING IRON FROM FOUNDRY-REFUSE. O. D. Woodruff, Southington, Conn., assignor of one-third his right to W. B. Wheeler, same place. [Filed Nov. 16, 1876.]

Brief.—The stream of material falls from a hopper upon an apron, upon which an air-blast impinges, separating the light from the heavy material. The lid of the air-chute connects with the base of the hopper, and, being adjustable, regulates both blast and efflux of material. A dust-arrester is placed at the rear of the device.

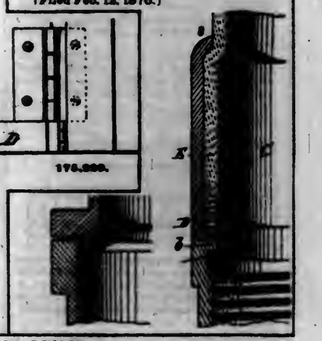


1. The combination of the vibrating chute D with an inclined distributing-apron, and an air-blast chute directed to the point of the apron upon which the material to be cleaned is deposited, all substantially as described and for the purpose set forth.

2. The air-chute b, provided with the adjustable cover c, in combination with the hopper, base E, hinged to said cover, all substantially as described and for the purpose set forth.

3. The dust-arrester I, extending above the air-blast, and placed at the efflux end of a separator, substantially in the manner described and for the purpose set forth.

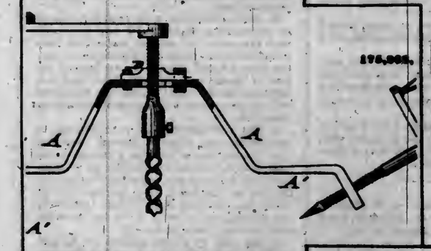
175,992. HOSE-COUPLINGS. Alanson Work and Robert J. Gilmore, Providence, R. I. [Filed Feb. 12, 1876.]



1. The combination of a frame, a, with a hose-coupling, formed with a shoulder, *d*, constructed as described, to be expanded for securing the swivel to the hand, as herein set forth.

2. The method, herein described, of attaching the swivel-ring to a hose-coupling by expanding the retaining-shoulder into interlocking position with the swivel, as herein set forth.

176,993. ROCK-DRILLS. Wm. H. Wright, Sunbury, Pa., assignor to himself and John Wright, same place. [Filed Mar. 6, 1876.]

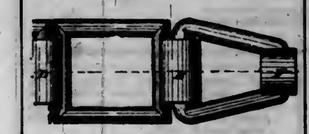


1. The improved machine for drilling boreholes in coal or rock, composed of a supporting-frame with stationary or adjustable prongs and set-screws, and with a sectional screw-nut and link for taking out the feed-screw and interchanging the drills, substantially in the manner and for the purpose set forth.

2. The combination of the frame A, having recess to pass the feed-screw and drill, with a screw-nut made of symmetrical sections, applied to pivot-bolts, and locked by a sliding link, substantially as set forth.

REISSUES.

7,001. CRANES FOR ELEVATORS. Philander Anderson, New York, N. Y., assignor, by mesne assignments, to C. H. & L. J. McCormick, Chicago, Ill. Patent No. 47,506, dated May 2, 1865. [Filed Feb. 12, 1876.]



1. A chain-link, constructed substantially as hereinbefore set forth, with a lip cast thereon to clasp the adjacent link.

2. The combination, substantially as hereinbefore set forth, of a plain link, with a link cast with a lip thereon, to clasp the plain link.

3. As an improved article of manufacture, the malleable iron square or flat link chain, the links and swivel-link being constructed and connected in the manner shown, and for purposes specified.

7,002. CLOCK-CASES. Henry J. Davies, Brooklyn, N. Y. Patent No. 101,211, dated Mar. 29, 1870; reissue No. 6,924, dated Feb. 15, 1876. [Filed Mar. 6, 1876.]



1. The combination of the annular paper dial-facing B with the annular plate A and the ring C, substantially as specified.

2. The combination of the annular paper dial-facing B, the annular metal plate A, the ring C, and the sunken dial-center E, substantially as specified.

3. The combination of the outer ring or frame D, the annular paper dial-facing B, the annular metal plate A, the sunken dial-center E, the center plate G, and the ring C, essentially as described.

7,003. MANUFACTURE OF IRON. Bernard Lauth, Howard, assignor, by mesne assignments, to B. F. Jones and Jas. Laughlin, Pittsburg, Pa. Patent No. 26,235, dated Aug. 23, 1859; extended seven years. [Filed Mar. 15, 1876.]

1. The process of cold-rolling iron or steel, substantially as described, whereby its hardness, strength, and stiffness are increased.

2. As a new article of manufacture, sheets, plates, or bars of iron or steel, hardened, strengthened, and stiffened by cold-rolling, substantially as herein before described.

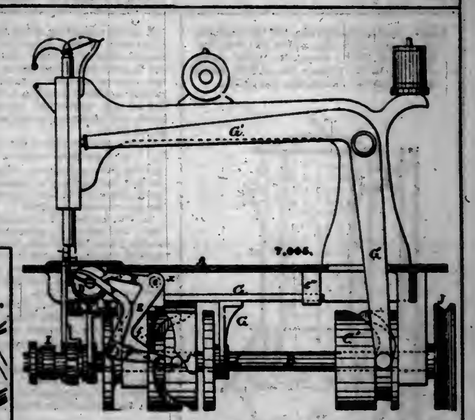
7,004. POLISHING IRON BARS AND RODS. Bernard Lauth, Howard, assignor, by mesne assignments, to B. F. Jones and J. Laughlin, Pittsburg, Pa. Patent No. 51,540, dated Feb. 20, 1861; extended seven years. [Filed Mar. 15, 1876.]

1. The process of polishing and finishing bars, rods, plates, or sheets of iron or steel by first removing the scale and then cold-rolling them, substantially as hereinbefore described.

2. Also, as a new article of manufacture, bars, rods, plates, or sheets of iron or steel polished and finished by the process of scaling and cold-rolling, substantially as hereinbefore described.

7,005. SEWING-MACHINES. Eugene Moreau, San Francisco, Cal., assignor to the Moreau Machine Manufacturing Company, same place. Patent No. 150,171, dated Oct. 20, 1874. [Filed Feb. 1, 1876.]

Brief.—A frame, operated by means of a cam, has pivoted to it the spreading-hooks, one of which is operated by means of a grooved cam, and the other by means of a roller at its rear end bearing against a guide. These parts are so arranged with respect to needle and shuttle that when the needle descends the hooks are caused to move a short distance in the direction of the shuttle-race by means of the cam operating on the sliding frame, which motion carries the points of the hooks, which are together, between the side of the needle and the thread, and as the driving-shaft continues to revolve, the hooks are separated by the action of the cams, and the loop carried by them is held distended until the reciprocating shuttle has passed through.



1. The combination, with the needle carrying the upper thread, of the loop-spreading hooks and operating mechanism, substantially as described, whereby the said hooks have imparted to them a vertical movement and also a lateral movement parallel to the shuttle-race, substantially as and for the purposes set forth.

2. The combination of the hooks E F, cams E' G', frame G, and guide *f'''*, substantially as and for the purposes described.

3. The combination of the hooks E F, cams E' G', guide *f'''*, and spring *f''''* with the shuttle D, the pin *p'* on the shuttle-frame, and the pin *p''* on the under side of the bed-plate A, all substantially as set forth.

4. The combination, with the loop-spreading hooks E F, having a vertical movement and a lateral movement parallel to the shuttle-race, the cast-off pins *p p'*, arranged and operating substantially as described and shown.

5. The combination of the shuttle, having a hollow tube through its center, the rods *d d'*, separated from each other in the center, the hooks E F, cams E' G', frame G, guide *f'''*, and spring *f''''*, all substantially as set forth.

7,006. PUMPS. Parker Wineman, Joliet, Ill. Patent No. 90,143, dated May 18, 1869. [Filed Sept. 21, 1874.]

Brief.—A metallic pumping-cylinder capable of attachment to the upper and lower sections of the pump without fastening devices.



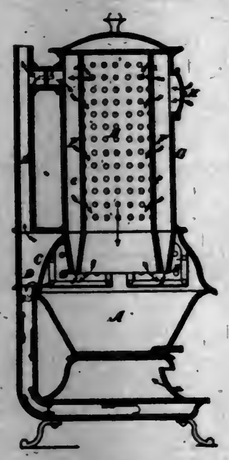
1. The metal section B, lined with a vitreous substance, and formed so as to connect the wooden sections A and C by frictional contact, without the use of bolts, screws, or other fastening device, substantially as set forth.

2. The metal tube-section or working-barrel B, coated with a vitreous substance and constructed with flaring ends, and receiving into said ends the lower terminus of the section A, and the upper terminus of the lower section B, all substantially as described.

3. An annular-grooved ring-piston, D, constructed with a raised valve-seat, *v*, and a fluted stem, *t s*, in combination with valve *p*, substantially as described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & C° BOSTON.

7,007. MAGAZINE-STOVES. W. W. Baldwin, Cleveland, Ohio. Patent No. 166,442, dated May 10, 1876; reissue No. 6,945, dated Jan. 11, 1876; reissue No. 6,926, dated Feb. 15, 1876. (Filed Mar. 18, 1876.)



1. In a magazine-stove, the combination, with the converging walls of the air-space, the same forming at their lower extremity the annular space *f*, of the opening O, constructed to extend above and below the lower portion of said converging walls, substantially as and for the purpose set forth.

2. The combination, with perforated reservoir R, the perforations of which communicate directly with the air-space, and the air-space F, of the flue I and damper *i*, substantially as and for the purpose described.

3. The combination, with the perforated reservoir R, the perforations of which connect directly with the air-space F, of air-space F, flue I, and air-register K, substantially as and for the purpose specified.

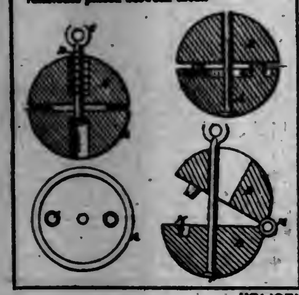
4. The combination, with the combustion-chamber B and perforated reservoir R, the perforations of which communicate directly with the air-space F, of the exit-flue O and flue I, substantially as and for the purpose described.

5. The combination, with the combustion-chamber B, air-space F, and flues O and I, of the air-register K, by which means the draft has direct transit through the reservoir R without passing down by an indirect course, substantially as and for the purpose described.

6. The combination, with the annular air-space and the flue-reservoir, having perforated wall, of the flue I, leading to the smoke-flue D, substantially as and for the purpose set forth.

7,008. TOY CAP-EXPLODERS. C. Coester, Jr., Bridgeport, Conn. Patent No. 173,312, dated Feb. 8, 1876. (Filed Mar. 8, 1870.)

Brief.—Two fulver pieces of metal, either hinged or connected by a center rod or cord, are arranged to explode, by their contact, a fulminate placed between them.



1. A toy consisting of two pieces of metal or other solid material, loosely connected and arranged adjacent to each other in such a manner that by being dropped or forced into contact with an object or surface, or having their motion suddenly arrested, a fulminating powder or cap, previously placed between the parts, will be caused to explode, substantially as set forth.

2. The combination of the two pieces A and B, of equal parts of metal or other material, having plain surfaces or edges arranged face to face, each having a central orifice and connected by a rod or cord, substantially as and for the purposes set forth.

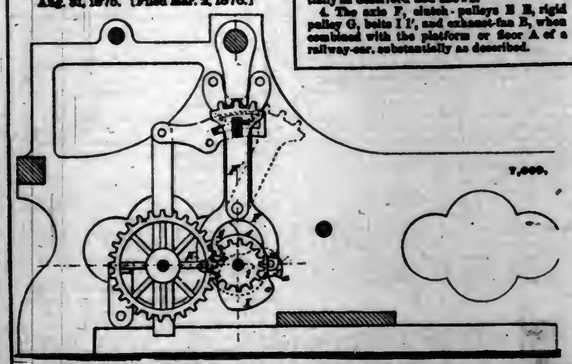
3. The pieces A B, in combination with the rod C and spring D, arranged at right angles to the plane of division, substantially as described, for the purpose set forth.

4. The pieces A B, of equal parts, hinged together at M, and centrally connected by a cord or rod, as set forth.

5. The solid pieces A B, of equal parts, centrally connected and hinged together, and provided with a nipple and corresponding groove or depression, substantially as herein set forth.

6. The metal or other pieces A B, hinged at M, connected by the rod C, and provided with a nipple and corresponding groove or depression, substantially as described.

7,009. PRINTING-PRESSES. C. B. Cottrell, Westerly, R. I. Patent No. 167,227, dated Aug. 31, 1875. (Filed Mar. 2, 1870.)



7,009.

1. The combination of the locking-catch *o'*, with the divided segmental lever F F' and rock-lever *f'*, substantially as specified.

2. The segmental lever composed of two parts, F F', and a locking-catch, *o'*, in combination with rock-lever *f'* and notched plate *o'*, arranged to lock and unlock said parts, and also to lock the part F', which gears with the cylinder, to the frame, when disconnected from part F, all substantially as specified.

7,010. VENTILATING CARS. Edward B. Morgenroth, Guelph, Canada. Patent No. 170,294, dated Nov. 23, 1875. (Filed Jan. 20, 1876.)

Brief.—The vitiated air is exhausted through perforated false ceiling by blower underneath the car, pure air entering through openings in the sides of the car.

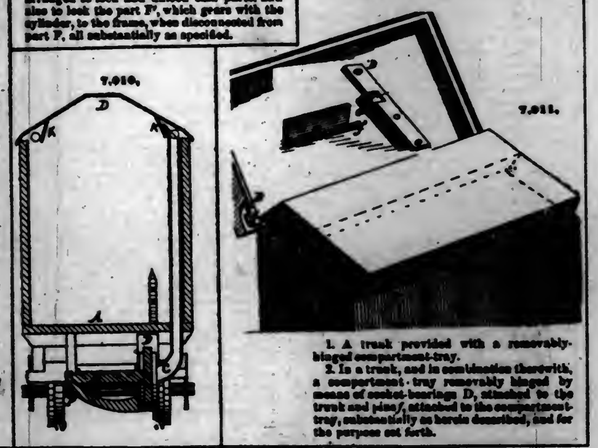
1. The combination, with a railway-car, of an exhaust-fan placed under and connected with the interior of the car, and driven from one of the axles thereof, and openings in the walls of the car, whereby the air is exhausted from the inside of the car, and the equilibrium restored by air passing at the same time through the said openings, without the use of a blower, substantially as and for the purpose set forth.

2. The combination, with a railway-car, of an exhaust-fan placed under and connected with the interior of the car, and driven from one of the axles thereof, a pipe or pipes leading from the said exhaust-fan up through the floor of the car to a point near the ceiling, and openings in the walls of the car, operating without the use of a blower, substantially as described.

3. The combination, with a railway-car, of an exhaust-fan, placed under and connected with the interior of the car, a pipe or pipes leading from the said exhaust-fan up through the floor of the car to a point near the ceiling thereof, a perforated false ceiling, behind which the open ends of said pipes terminate, and openings in the walls of the car, substantially as described and shown.

4. The axle F, elutch-pulleys E E, rigid pulley G, belts I I', and exhaust-fan B, when combined with the platform or floor A of a railway-car, substantially as described.

7,011. TRUNKS. Isaac L. Plumer, Chelsea, Mass., assignor, by mesne assignments, to Anthony V. Romadka, Milwaukee, Wis. Patent No. 82,074, dated Jan. 16, 1868. (Filed Mar. 18, 1876.)



7,010.

7,011.

1. A trunk provided with a removably-hinged compartment-tray.

2. In a trunk, and in combination therewith, a compartment-tray removably hinged by means of socket-bearings D, attached to the trunk and pins *f*, attached to the compartment-tray, substantially as herein described, and for the purpose set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

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OF THE

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COMMISSIONER'S DECISIONS.

CHASE *vs.* WITTER.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference of Lucius O. Chase and Henry M. Witter for letters patent for* "IMPROVED SURCINGLE."—*Decided March* 3, 1876.]

Where an inventor has developed his invention so far as to make a model or article showing clearly the subject-matter of his invention, and exhibits the same to one more skilled than himself, and the latter invents a machine to produce the same product, he will be considered as a skilled mechanic, who uses the knowledge imparted to him by another, and not as the inventor of the product.

SPEAR, *Acting Commissioner*:

The invention in controversy is a surcingle, part of which is woven solid and part double or tubular, the tubular portion being adapted to receive and hold padding. For this invention Witter has received a patent granted on the 16th day of March, 1875. The application of Chase was filed on the 11th day of May of the same year.

The burden of proof is therefore undoubtedly upon Chase. Upon what I consider to be the principal facts in this case there is little or no dispute between the parties. It is admitted that Chase, who was a dealer in this class of goods, was the first to suggest a surcingle woven, in part, tubular, and in part solid, in accordance with the description given in the patent of Witter and in the application of Chase now in interference. Chase also first made a model representing the invention as nearly as he could, not being himself skilled in this art, and unable by his own effort to make the article in its proper form.

The model was made by using a strip tubular throughout and sewing it at the proper place, leaving a pocket to be filled with a padding. But having conceived of this invention and proceeded as far as he was able by his own effort, Chase next applied to Witter, who was a manufacturer of the class of articles to which this invention belongs, and who had supplied Chase with large quantities of the material used by him in his business, which was that of a manufacturer of horse clothing.

It appears also that Witter promised to experiment upon the article and see if it could be made, and that it was a matter of inquiry on the part of Chase when this would be done. Chase also made inquiries of other manufacturers as to the feasibility of making the surcingle in accordance with his idea.

It is conceded that the article could be made without difficulty upon the looms then existing without any change in their structure; but that by reason of the time required, and additional force necessary in weaving surcingles in this way, it would not be profitable to manufacture them.

I think it is proved that Witter was employed by Chase to perform this work, and that the fact that he invented a loom by which it could be done economically does not entitle him to claim the article, since the article itself could be produced by machines then in existence, and without any further invention.

The machine, whatever it may have been, or whatever the improvement invented by Witter, is altogether distinct from the article in controversy. That was the invention of Chase. Supposing this machine never to have been invented, that Chase had gone to Witter as the manufacturer of this class of articles, and the party accustomed to furnish him with such goods, and in compliance with Chase's request Witter had woven upon a jacquard or fancy loom, the article, in accordance with the request in such case, I think there would be no thought of Witter as the inventor of the article. He would in that case have acted under the instructions of Chase beyond all doubt, and would have been simply performing the part of an ordinary workman operating the loom in accordance with the directions of the inventor, and weaving part of the web solid and part tubular in the proportions specified. So far as appears the article produced would have been as perfect, as fairly and fully embodying the invention in dispute as any that can be produced by Mr. Witter's machine.

I do not see how the fact of the invention by Witter of the improved machine for making these articles more

rapidly and cheaper can change the origin of the invention.

In my judgment Witter was in no sense the inventor of the surcingle in controversy. That the part he acted was simply that of a workman, and that the invention rightfully belongs to Chase.

The decision of the Examiners-in-Chief is therefore affirmed.

SCHUMACHER & ETTLINGER.—*Label.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Shumacher & Ettlinger for the* "REGISTRATION OF A LABEL."—*Decided March* 9, 1876.]

A print made up of a combination of colors, figures and words, adapted in their use to any goods or merchandise, can be properly registered as a label.

The fact that such prints are sold to others who may apply them to articles of manufacture should not deprive the applicants of the right to the exclusive manufacture of the prints produced by them.

SPEAR, *Acting Commissioner:*

It appears from the record that these applicants applied for the registration of a certain print, the proper number of copies of which were attached to the application.

The print is made up of a combination of colors, figures, and words. It is represented that the applicants are printers, and produce these prints or labels, not for application by them to any class of goods, but for sale to dealers generally, to be applied by such dealers to any goods for which they may be deemed suitable.

A certificate of registration was refused by the Examiner, first, because the print amounted to a trade-mark, being purely an arbitrary symbol, and not in any one of its features descriptive; second, because it may become a trade-mark by adoption and use; and as applicants desire to multiply and sell copies of it, it would seem that protection should be sought under the law as a new and original design; and that to entitle the label to registration under the act of June 18, 1874, it must be "intended to be used for some article of manufacture."

The position taken by the Examiner, that the print is not intended for use for any article of merchandise, and therefore not capable of registration as a print or label, does not appear to me tenable.

It appears from an inspection of the print, as well as from the statements of counsel for the petitioners, that this print is not "connected with the fine arts," but that it is designed for articles of manufacture. Now if it is not connected with the fine arts as an engraving, cut, print, or photograph, or painting, or any such thing recognizable at once as belonging to the fine arts, then these petitioners could have no protection by registration with the Librarian of Congress. If they have none here then none is provided for in law. But the registration of trade marks in the Patent Office is an offshoot of the copyright law, and I understand that these prints or labels, whenever they are intended for use with articles of manufacture, may be registered in the Patent Office on exactly the same terms and conditions, except that a larger fee is paid, as works of art may be registered with the Librarian of Congress.

The fact that these parties make and sell these prints and do not themselves apply them to articles of manufacture, should not, in my judgment, deprive them of protection in the right of exclusive manufacture of the thing which they have produced. There is no such requirement in the law. All that is there prescribed is that the points or labels must be such as are "designed for use" for articles of manufacture. Nor in this case could the print be considered a trade-mark, inasmuch as it is not appropriated to any particular class of goods. The protection which they seek and which a certificate of registration will give them is no more than protection in the exclusive right to make and sell this particular print.

The decision of the Examiner is reversed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

[The following final proceedings were had in the cases reported in OFFICIAL GAZETTE of February 15, 1876, vol. 9, No. 7, pp. 300 and 301.]

ESEK BUSSEY AND CHARLES A. McLEOD *vs.* E. J. HICKS AND G. G. WOLFE.

The President of the United States of America, to E. J. Hicks and G. G. Wolfe, and to their agents, servants, counsellors, attorneys, and solicitors, and each and every of them, *greeting:*

Whereas, it has been represented to us, in our Circuit Court in Equity for the Northern District of New York, on the parts of Esek Bussey and Charles A. McLeod, complainants, that said complainants have lately exhibited their bill of complaint in our said Circuit Court for the Northern District of New York against you, the said E. J. Hicks and G. G. Wolfe, to be relieved touching the matters therein complained of, in which bill it is stated, among other things, that you are combining and confederating with others to injure the said complainants touching the matters set forth in the said bill, and that your actings and designs in the premises are contrary to equity and good conscience. We, therefore, in consideration thereof, and of the particular matters in the said bill set forth, do strictly command you, the said E. J. Hicks and G. G. Wolfe, and the persons before mentioned, and each and every one of you, under the penalty of ten thousand dollars, to be levied on your lands, goods, and chattels to our use, that you do absolutely desist and refrain from making, vending or using, or in any manner disposing of, cooking-stoves or ranges embracing the invention or improvements described in the fourth claim of the reissued letters patent set forth in said bill, viz.: "The arrangement of a reservoir at the rear of a stove, a portion of the back plate of which has been removed, so that the front plate of the reservoir will form a part of the back plate or outer casing of the vertical flues of the stove, as and for the purpose described," until the further order of our said Circuit Court.

Witness:

HON. MORRISON R. WAITE,
Chief Justice of the Supreme Court of the United States,
at the city of Utica, N. Y., the 4th day of March, A. D. 1876.

CHARLES MASON, *Clerk.*

P. S.—A perpetual injunction was also issued in the suit against James Wager, at same date.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

STEWART HARTSHORN *vs.* JOHN SHOREY *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided October term*, 1875: *writ February* 17, 1876.]

OPINION OF THE COURT.

Although improvements may be made in the separate devices constituting a combination, which improvements may be the proper subject of a patent, yet if the combinations made by the defendants embrace and show the elements of the plaintiff's invention, operating substantially in the same manner to produce the same results, it must be treated as an infringement.

[*S. D. Law* for complainant.
A. K. P. Joy for defendant.]

SHEPLEY, *J.:*

This bill is for an alleged infringement of Letters Patent No. 2,756, dated August 27, 1867, granted to Stewart Hartshorn for improvement in spring fixtures for shades. These are the same letters patent which were the subject-matter of litigation in *Hartshorn* vs. *Almy*, (8 OFFICIAL GAZETTE, 89,) and *Hartshorn* vs. *Tripp et al.*, (Blatchford, 120.)

Defendants rely upon two grounds of defense:

First, that the alleged invention of Hartshorn was not new and patentable at the date of his original letters patent.

Second, that the devices made use of by the defendants are no infringement of the plaintiff's invention.

To sustain the defense of want of novelty the defendants rely upon evidence of the prior existence of what is well known as the "coach fixture," in which a cord is used to lift the pawl and disengage it from the ratchet when it is desirable to allow the curtain to roll up under the action of the spring. This defense is fully met and answered in the two cases above cited, to which it is only necessary to refer to dispose of this branch of the defense.

The fixture manufactured by the defendants has a spindle which rests in the bracket, and is extended for a short distance into one end of the curtain-roller, which end revolves around that portion of the fixed spindle which is projected into the roller, while the other end of the roller is provided with a journal, upon which it revolves freely in the supporting bracket. This spindle is provided with a cam-shaped recess on one side of it, within the roller, and a chamber of sufficient size to receive a small sphere or buckshot in such a position as to be directly over the recess in the spindle when the roller is revolved. The small ball or buckshot is introduced into this chamber. One edge of the recess in the spindle is so constructed that when the ball falls into the recess it will be forced against the side of the chamber, and operate as a detent to stop the revolution of the roller when it is turning one way. The other edge of the recess is so formed that when the roller is turned in the opposite direction the ball is thrown up into the chamber, where, when the roller is rapidly revolved, the ball is held by centrifugal force.

It will be seen by a comparison of this contrivance with the one described in the Hartshorn patent that it effects the same result by means of the ball operating as a detent as is effected in the Hartshorn contrivance by the pawl and ratchet. In Hartshorn's, the pawl has a tendency to fall by gravitation into the notches made in the periphery of the hub, or when affixed below the hub, in one of the modes described in the patent, it is actuated by a spring which tends to engage it in the notch. The ball operates as a detent, catch, or pawl, to engage with the notch or ratchet whenever the rotation of the roller, and the upward movement of the curtain under the influence of the spring, are checked by the manipulation of the curtain or shade itself. In Hartshorn's, when the roller is revolved rapidly, the ratchet has not time to fall by gravitation into the notch while the ratchet-notch is passing under the toe of the pawl. In Shorey's, while the roller is being rapidly revolved, the ball is kept by centrifugal force from engaging as a detent between the side of the chamber in the roller, and the edge of the recess in the spindle.

The construction of the claim in the Hartshorn patent was fully given in the case of Hartshorn and Almy. It was there shown to embrace, in combination with a spring-roller, such an arrangement of pawl and ratchet, with the varying speed of the revolution of the roller mutually acting with each other through the manipulation of the roller, that the pawl would engage with the ratchet by checking the rotation of the roller and the upward movement of the curtain by the simple manipulation of the shade, merely varying the speed of the rotation of the roller. It is equally within the scope of this invention, whether the force which determines the fact of engagement or non-engagement of the pawl or detent with the notch or ratchet be that of a spring, or force of gravity, or centrifugal force.

Improvements may be made in the spring or the roller, the shade, or the form of the pawl or detent, and these improvements may be patentable; but so long as the combination embraces, as in the case of the device of these defendants, every element of Hartshorn's invention, operating substantially in the same manner to produce the same result, it must be treated as an infringement.

Decree for complainant, for injunction and account.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date March 28, 1876.]

9,163.—Embroidery.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed March 16, 1876. Term of patent 3½ years.

9,164.—Embroidery-Pattern.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed March 16, 1876. Term of patent 3½ years.

9,165.—Clock-Cases.—EDWIN J. FARNUM, Sing Sing, N. Y. Application filed January 15, 1876. Term of patent 3½ years.

9,166.—Heating-Stove.—CONRAD HARRIS and EDWARD KUMMER, Cincinnati, Ohio, assignors to C. HARRIS & SON, same place. Application filed March 19, 1874. Term of patent 7 years.

9,167.—Font of Printing-Types.—JOHN K. ROGERS, Brookline, Mass. Application filed February 28, 1876. Term of patent 3½ years.

9,168.—Badge.—WILLIAM SCULLY and PIERRE A. DUFOUR, St. Paul, Minn. Application filed March 13, 1876. Term of patent 3½ years.

9,169.—Decorative Shields.—ANTON WEIDMANN, New York, N. Y. Application filed February 16, 1876. Term of patent 3½ years.

9,170.—Shawls.—EDWARD G. ANDRAE, Philadelphia, Pa., assignor to ANNIE E. TAYLOR, HENRY TAYLOR, and JAMES PHIPPS, same place. Application filed January 17, 1876. Term of patent 3½ years.

9,171.—Flag-Holder.—ELIJAH CUNDEY, Philadelphia, Pa. Application filed March 3, 1876. Term of patent 3½ years.

9,172.—Cigars.—FREDRICK GEILHAUSEN, Red Oak, Iowa. Application filed March 7, 1876. Term of patent 7 years.

9,173 and 9,174.—Wash-Basin.—WILLIAM TWEEDDALE, Brooklyn, N. Y. Applications filed March 21, 1876. Term of patents 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 28, 1876.]

3,529.—Photographs.—CENTENNIAL PHOTOGRAPHIC COMPANY, Philadelphia, Pa. Application filed March 9, 1876.

"a monogram formed of the letters 'C. P. Co.,' which monogram has usually been contained within a shield-like frame, over which are the dates '1776' and '1876,' and, beneath, the word 'Philadelphia.'"

3,530.—Salve.—WILLIAM DULTY, Jr., near Burlington, N. J. Application filed March 2, 1876.

"word 'COSMOPOLITAN.'"

3,531.—Cigars and Tobacco.—MORRIS GOLDSTEIN, Washington, D. C. Application filed March 11, 1876.

"words 'THE DUKE'S MOTTO' and the letters 'M. G.' upon a shield."

3,532.—Leather-Dressing.—C. L. HAUTHAWAY & SONS, Boston, Mass. (Re-registration.) Application filed November 5, 1870.

"the figure of a diamond or lozenge."

3,533.—Lamps.—CHARLES F. A. HINRICHS, Brooklyn, N. Y. Application filed January 3, 1876.

"word 'KLEEMANN.'"

3,534.—Lead Ores and Pig-Lead.—MECHERNICHER BERGWERKS-ACTIEN-VEREIN, Mechernich, Prussia. Application filed March 11, 1876.

"letters 'M M M.'"

3,535.—Band-Saws and Strip-Knives.—PERIN, PANHARD & Co., Paris, France. Application filed February 21, 1876.

"representation of a band-saw stretched over two pulleys, with the words 'Perin & Cie' printed in the space between the pulleys, to the right and to the left, with the saw above and below."

3,536.—Cigars.—HENRY ROSENHEIM, Baltimore, Md. Application filed March 9, 1876.

"title or name 'Atlas.'"

3,537.—Stoves.—ISAAC A. SHEPPARD & Co., Philadelphia, Pa. Application filed March 9, 1876.

"words 'EXCELSIOR COOK.'"

3,538.—Liquid Preparations for Improving the Gloss or Polish of Starch.—STONE & Co., Chicago, Ill. Application filed March 10, 1876.

"word 'ZOLINE.'"

3,539.—Washing-Extract.—A. TRODE & Co., Brooklyn, N. Y. Application filed March 6, 1876.

"a circle containing a six-pointed star, with the letters 'T' and 'L' joined in the form of a monogram."

3,540.—Pile-Ointment.—ELIZABETH M. ARMSTRONG, Columbus, Ohio. Application filed February 19, 1876.

"figure of a shield, having a monogram thereon composed of the letters 'E. M. A.,' together with the words 'Armstrong Pile Ointment.'"

3,541.—Opium Antidote.—SAMUEL B. COLLINS, La Porte, Ind. Application filed February 14, 1876.

"figure of a lion having a card or handbill on his side, with my name and the words 'Opium Antidote' on it."

3,542.—Paints.—HARRISON BROTHERS & Co., Philadelphia, Pa. Application filed February 14, 1876.

"words 'TOWN AND COUNTY,' arranged in connection with the firm-name, 'Harrison Brothers & Co.,' or preferably our name, 'Harrison's.'"

3,543.—Hose.—D. & H. SCOVIL, Higganum, Conn. Application filed February 5, 1876.

"a symbol formed of the capital letter 'S' and the figure of a hoe, in face view, the former standing out in bold relief on the latter."

3,544.—Extract of Annatto.—WELLS, RICHARDSON & Co., Burlington, Vt. Application filed February 19, 1876.

"words and letters 'WELLS, RICHARDSON & Co.'s GOLDEN EXTRACT OF ANNATTO.'"

3,545.—Baking-Powder.—YOUNG, PATTERSON & Co., Minneapolis, Minn. Application filed January 28, 1876.

"words 'Model Baking Powder' and the monogram 'Y. P. & Co.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date March 28, 1876.]

612.—Title: "Standard Akron Salt Glazed Sewer Pipe."—AKRON SCREW-PIPE ASSOCIATION, Akron, Ohio. Application filed March 20, 1876.

613.—Title: "Wm. G. Bell & Co., Spiced Dressing."—WILLIAM G. BELL & Co., Boston, Mass. Application filed March 20, 1876.

614.—Title: "The Centennial Enema Syringe."—JAMES J. ESSEX, Newport, R. I. Application filed March 20, 1876.

615.—Title: "The Great English Remedy."—HASLETT & GLADDING, Constantine, Mich. Application filed March 17, 1876.

616.—Title: "Sure Cure—Mrs. Ida Ludwig's Cholera Drops."—IDA LUDWIG, Chicago, Ill. Application filed March 16, 1876.

617.—Title: "Recruit Tobacco Manufactured by the Merchants' Tobacco Co."—MERCHANTS' TOBACCO COMPANY, Boston, Mass. Application filed March 16, 1876.

618.—Title: "Veteran Tobacco Manufactured by the Merchants' Tobacco Co."—MERCHANTS' TOBACCO COMPANY, Boston, Mass. Application filed March 16, 1876.

619.—Title: "Self-Raising Flour."—S. S. MARVIN & Co., Pittsburg, Pa. Application filed March 20, 1876.

620.—Title: "S. V. Stillings' Glaze in Oil."—SAMUEL V. STILLINGS, Boston, Mass. Application filed March 21, 1876.

621.—Title: "Dr. Shepherd's Wine of Health."—STEPHEN SHEPHERD, Atlanta, Ga. Application filed March 20, 1876.

622.—Title: "Chinese Compound Washing Crystal."—THE AMERICAN LYE COMPANY, Philadelphia, Pa. Application filed March 16, 1876.

623.—Title: "American Best Baking Powder."—THE AMERICAN LYE COMPANY, Philadelphia, Pa. Application filed March 16, 1876.

624.—Title: "Empire City Coffee."—ARBUCKLE BROTHERS, New York, N. Y., and Pittsburg, Pa. Application filed March 22, 1876.

625.—Title: "Our Nectar Coffee."—ARBUCKLE BROTHERS, New York, N. Y., and Pittsburg, Pa. Application filed March 22, 1876.

626.—Title: "Arbuckle's Compeno Coffee."—ARBUCKLE BROTHERS, New York, N. Y., and Pittsburg, Pa. Application filed March 22, 1876.

627.—Title: "Centennial Photographic Co.—International Exhibition."—CENTENNIAL PHOTOGRAPHIC COMPANY, Pennsylvania. Application filed March 9, 1876.

628.—Title: "Nickle Cigar."—HENRY F. FISCHEDICK, Milwaukee, Wis. Application filed March 18, 1876.

629.—Title: "Dr. Quain's Magic Condition Pills."—THOMAS W. LANE, Manchester, N. H. Application filed March 18, 1876.

630.—Title: "McEvoy's Original Ka-Lye."—JAMES MCEVOY, Pittsburg, Pa. Application filed March 24, 1876.

631.—Title: "Concentrated Chemical Tobacco Soap."—WILLIAM H. PERNER, New York, N. Y. Application filed March 22, 1876.

632.—Title: "Dr. Puchta's Infallible Rheumatism Cure."—CHARLES PUCHTA, New York, N. Y. Application filed March 22, 1876.

633.—Title: "Royal Linen Ledger Paper."—JAMES L. READ & CHARLES H. READ, Pittsburg, Pa. Application filed March 16, 1876.

634.—Title: "Red, White, & Blue."—SCHUMACHER & ETTLINGER, New York, N. Y. Application filed January 8, 1876.

635.—Title: "The Great Modern Panacea."—M. H. THARPE, Coffeeville, Miss. Application filed March 24, 1876.

636.—Title: "Whitman's Celebrated Commercial Chocolate."—STEPHEN F. WHITMAN & SON, Philadelphia, Pa. Application filed March 16, 1876.

TO CORRESPONDENTS.

Persons ordering drawings of patents, or making inquiries in regard to patents, must always state the name of the inventor, subject-matter, and date. In making inquiries in regard to applications for patents letters must state the name of the applicant, subject-matter, and date of filing.

REMITTANCES.

All money sent by mail, either to or from the Patent Office, will be at the risk of the owner. In no case should money be sent inclosed with models. All payments to or by the Office must be paid in specie, Treasury notes, national bank-notes, certificates of deposit, or post-office money-orders.

INDEX OF INVENTIONS PATENTED MARCH 28, 1876.

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Anvil bed, A. Hitchcock	60	175,284
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Armpit shield, H. D. Lockwood, (reissue)	38	7,013
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Harvester rake, E. Wilcox	74	175,315
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Horse power, W. Deering, (reissue)	150	7,012
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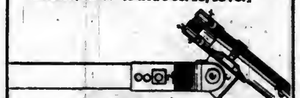
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Sprague, W., Grinding and grist mill	175,306
Spencer, J. W., assignee	175,490
Sperry, A. W., Key fastener	175,517
Starr, E. T., Revolving fire arm	175,518
Steiger, E., Educational puzzle	175,519
Stevens, A. B., Coiled wire spring	175,520
Stevenson, T. F., Machine for making lead traps and bends	175,307
Steward, S. B., Dumping wagon	175 385
Stewart, W. H., Sewing machine treadle	175,386
St. George, G., Jr., Stitch ripper	175,388
Stimpson, E. B., Leather skiving machine	175,389
Storm and Whitney	175,541
Stover, H. D., Machine for polishing diamonds, &c	175,262
Stover, H. D., Diamond cutting machine	175,390
Sullivan, J. H., Dinner pail	175,263
Swan, W. H., Knife for fleck cutting machines	175,521
Tanner, B., Privy seat	175,391
Tasker, S. P. M., Machine for reducing diameter of metal tubes	175 522
Taylor, B. C., assignee	175,413
Taylor, D. C., Water meter dial	175 523
Thayer, J., Bale tie	175,546
Thompson, L. P., Cultivator	175,392
Thomson, R. D., Car coupling	175,525
Thurman, B. W., Car coupling	175,524
Topliff, J. A., and G. H. Ely, Connecting springs to vehicles, (reissue)	7,017
Toulmin, M., Gas regulator	175,526
Toye, W. H. R., Reflector for gas burners	175 527
Treman, L. L., Umbrella	175,307
Trussell, R. W., Potato fork	175 528
Tucker, S. D., Mold for casting stereotype plates	175,393
Underwood, C., Belt gearing	175,529
Untermeyer, D., Locket	175 394
Upton, G., assignee	175,453
Van Wie, A., Wardrobe	175 308
Vergenios, C. A. R. L., Car pusher	175,309
Vernor, J. T., Windmill	175 530
Wales, Wallace, and Furness	175,310
Walker, W., Valve coupler for oil wells	175,395
Wallace, D. S., N. H. Furness, and S. Wales, Duplex reversible buckle	175,310
Warfield, C. H., Weft fork	175,396
Warren, C. M., Roof	175,531
Warren, C. M., Slate and shingle roof	175,532
Warren, C. M., Roofing tile	175 533
Watkins, J. T., Plow	175,311
Watson, W. M., Car axle journal box	175,534
Webb, B. F., assignee	175,404
Webber, S. P., Grinding mill	175,535
Weber, A., I. Hersog, and A. T. Schuessler, Apparatus for the manufacture of gas	175,536
Weddel, J. W., Combined rein holder and whip socket	175,537
Weinele, C., Milk cooler and strainer	175,397
Welch, D. T., Lifting jack	175,264
Welch, S. E., assignee	175,464
Wells, J., Dumping wagon	175,396
Wemyss, A., Hinge for oven doors	175,312
Westworth, C. H., Child's carriage	175,538
Whedon, C. A. and A. S., Paper box	175,399
Wheeler, N., and J. A. House, Clutch device	175,313
Wheeler, N., and P. M. Beers, Machine for polishing the eyes of needles	175,539
Wheeler and Wilson Manufacturing Company, assignee	175,313
	175 463
Wheelock, A. A., Paper basket	175,314
Whitaker, J. H., Picket pointing machine	175 540
White, H. K., Reed organ valve	175,542
White, L. E., assignee	175 253
Whitney, W. F., and E. Storm, Vehicle spring	175 541
Whittlesey, Goodhue, and Bignall	175 235
Wickes, J. H., Refrigerator	175,543
Wicks, G. W., Machine for making curved lead pipes	175 265
Wilcox, E., Harvester rake	175,315
Wilkinson, T., Shot cartridge	175,400
Williams Brothers, assignees	175 276
Williams, E. F., Friction clutch	175,401
Willis, A., Fireman's ladder	175,544
Wilson, J., C. Green, and W. Wilson, Jr., Seaming machine, (reissue)	7,018
Wisard, C., Tube expander	175,316
Winston, J. L., Feed water heater and purifier	175,402
Winters, L. A., Rocking chair fan attachment	175 317
Woodruff, H., Wind power machine	175,545
Wright, E., Portable wash stand	175,475
Zoller, A., Barrel washer	175,403

TITLES, DRAWINGS, AND CLAIMS

OF

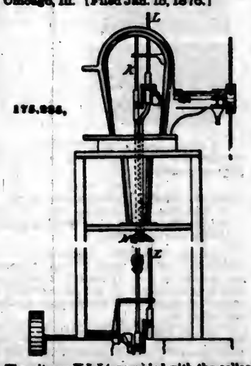
PATENTS GRANTED MARCH 28, 1876.

176,264. ANIMAL-POKER. Homer Ames, Mexico, N. Y. [Filed Feb. 10, 1876.]



1. The combination of the poke *d*, prick 1, placed in its head, cap 2, and spring 3, substantially as described.
2. The projection *c*, having the flanges or stops *i*, substantially as specified.
3. The combination of projection *c*, stops *i*, castings *b*, poke *d*, and pin or bolt *e*, as set forth.

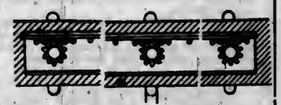
176,265. DEVICES FOR TRANSMITTING ROTARY MOTION. Solomon L. Bignall, Thos. B. Whittlesey, and Frank M. Goodhue, Chicago, Ill. [Filed Jan. 15, 1876.]



The pitmen K L L', provided with the collar N and rotating sleeve swivel-joint *o*, with the upper and lower compound cranks, as and for the purpose set forth.

176,266. WINDOW-BLINDS. Jeremy W. Bliss, Hartford, Conn., (Rossetta Bliss, executrix.) [Filed Feb. 28, 1876.]

Brief.—The pickets by which the slats are operated are made of corrugated tubing, and are noted upon by short racks of corrugated metal. The slats are secured in a supplemental frame, so as to be readily removed from the main frame.



1. The gear *i*, formed of tubing, in combination with a flange-ferrule, *g g'*, formed or one piece of metal, and blind-slat *h*, substantially as and for the purpose set forth.
2. The ferrule *g*, in combination with the bushing *d*, stop *b*, and slat *h*, substantially as and for the purpose set forth.
3. The two-part case *f f'*, in combination with gears *i* and ratchet *k*, substantially as and for the purpose set forth.

176,267. BOOTS AND SHOES. Andw. Burke, New York, N. Y. [Filed Oct. 18, 1875.]

A sheak-pass for boots and shoes, made semi-cylindrical in right cross-section through its entire length, and having the ends cut off, substantially in the manner and for the purpose specified.



176,267.

176,268. NUT-LOCKS. A. W. Darlingame, Brooklyn, N. Y. [Filed July 28, 1875.]



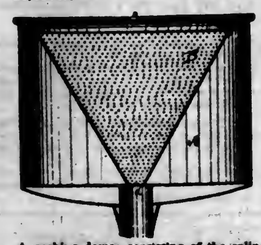
The combination of the nut G, having the perforation *d*, the pin *c*, and the fish-plate or washer E, with the radial grooves *b b b*, so that when the pin *c* is driven home through the nut it adjusts itself to one or other of the radial grooves, thereby forming a shoulder, and at the same time locking the nut and locking the pin into the nut, as and for the purpose described.

176,269. CLASPS. Dwight M. Church and A. R. Eames, Derby, Conn.; said Church assignor to said Eames. [Filed Oct. 14, 1875.]



1. In a clasp, the self-sustaining swinging bent lever F, having a tongue, *h*, adapted to be loosely held in a slot in a plate, and provided with a swell or projection, *i*, to hold itself up when opened, and operating, when closed, to pinch the fabric tightly against the surface of a bed-plate.
2. In combination, the bed-plate A, provided with the bread loop *b* at one end, the yielding top piece D applied thereto, as shown and described, and the clamping-lever F, made and applied to the piece D, as and for the purpose set forth.

176,270. CLOTHES-POUNDERS. Francis G. Clarke, Mount Vernon, Ohio. [Filed Feb. 26, 1876.]



A washing device consisting of the cylindrical open-mouthed cup A, in combination with the internal perforated vessel of smaller diameter, substantially as set forth.

176,271. STEAM-RADIATORS. John O. Cope, Philadelphia, Pa. [Filed Mar. 4, 1876.]

The combination of the chamber A, cold-air pipe D, hot-air pipe O, sectional steam-pipes E F, inclined pipes G, and the bisected return-bends H, all constructed and arranged substantially as and for the purposes herein set forth.

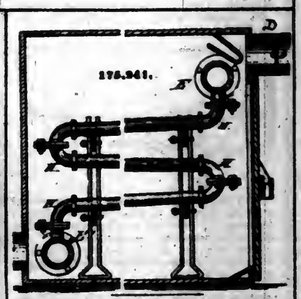
176,272. POSTAGE AND REVENUE STAMPS. Addison C. Fletcher, New York, N. Y. [Filed Mar. 9, 1876.]



1. A stamp for postal, internal-revenue, and other purposes, having the paper thereof cut entirely through in detached lines radiating outwardly from a common center, substantially as described and shown.
2. An adhesive stamp for postal, internal-revenue, and other purposes, having the paper and mucilage or other adhesive material cut through in detached lines radiating outwardly from a common center, substantially as described.

176,273. DOOR-HANGERS. Robert L. Glenn, St. Charles, assignor of one-half his right to Solomon L. Bignall, Chicago, Ill. [Filed Jan. 26, 1876.]

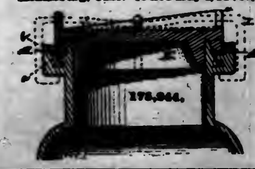
Brief.—Anti-friction rollers being confined between an annular center and a detachable ring, this last constituting the outside rim or wheel, and the cap projecting down against the track, to hold the ring in position.



176,241.

The combination of the detachable ring G, rollers I, annular center J, shaft A, case B D, the cap C projecting down against the track E to keep the ring in place on the track, all substantially as set forth, for the purpose specified.

176,274. FRUIT-JARS. Joel Haines, West Middleburg, Ohio. [Filed May 1, 1876.]

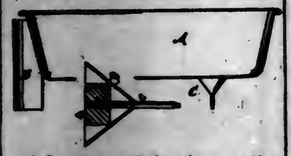


176,274.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

The combination, with the jar having a flat-bottomed groove, A, and beveled lip *b*, of the cover having a corresponding groove, K, forming two solid lips, one fitting within the mouth of the jar and the other within the groove A, the rubber ring B, and clamping-bail, substantially as and for the purpose specified.

176,865. DEEP-PANS FOR BAKERS. David M. Knight, Oswego, Ill. [Filed Jan. 27, 1876.]



1. The pan A, with the holes *a*, provided with the drip-tube B, arranged at one side of the pan, and attached to the upright portion thereof, substantially as described.

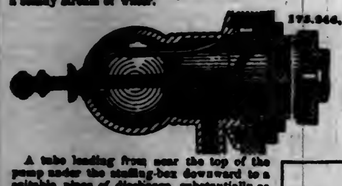
2. A drip-pan, A, provided with adjustable supports C, substantially as and for the purposes set forth.

3. The combination, substantially as described, of the pan A, drip-tube B, and adjustable supports C.

4. The support C, consisting of the cone-shaped piece D, threaded nuts *b*, and threaded rod or wire *c*, constructed and operating substantially as described.

176,866. PUMPS. Henry C. Hart, Adrian, Mich. [Filed Feb. 14, 1876.]

Brief.—Air passes in and out of the tube as the plunger is operated, thereby producing a steady stream of water.

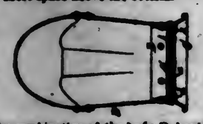


176,866.

A tube leading from near the top of the pump under the standing-box downward to a suitable place of discharge, substantially as shown and described.

176,867. COAL-HODS. Nehemiah Hawkins, Chicago, Ill. [Filed July 20, 1876.]

Brief.—The wooden bottom is lined above and below, and also the inner wall of the hod for a short space above the bottom.



The combination of the body D, having an iron-rivet-turned flange on its lower edge; the hoop or foot-piece C, arranged externally to the body; the band B, surrounding the bottom piece and extending above it, thereby forming a lining in the lower part of the hod; and the bottom piece A, inclined above and below by the ribs *a* and *a'*, all substantially as and for the purposes specified.

176,868. WINDMILL-SHAFTS. Silvester S. Hitchcock, Des Moines, Iowa. [Filed May 24, 1876.]

1. The main-beam having the end to which the weights are hung, made adjustable by means of a sleeve and suitable fastening, substantially as described.

2. The levers B B' C C', having vertical slots in their opposite ends, and provided with the slides F F having conical sockets formed in them, and which slides are attached to the levers B B' C C', and made adjustable thereon by means of set screws or bolts passing through said plates and the vertical slots in said levers, in combination with the links E E', having conical bearings, substantially as and for the purpose described.

176,869. WHEELBARROWS. Charles F. A. Lentz, Mayville, Wis. [Filed Jan. 26, 1876.]

Brief.—The upper portion of the turn-table has an annular flange or projecting ring on its under side, which fits a corresponding annular groove. This annular projection and groove serve to hold the turn-table in position, aided by a pendent foot, which travels beneath and in contact with the inner under surface of the turn-table.

The combination of the turn-table D D', constructed as described, with the foot Q, and tube or box E, and frame A, substantially as and for the purpose specified.



176,869.



176,870.

176,870. SEATING. William H. McDonald, Titusville, Pa. [Filed Jan. 27, 1876.]

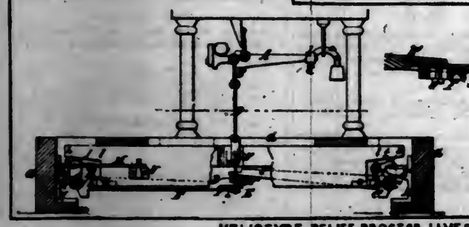
In a chair having a catch upon the back-plate, the combination of the revolving catch *e*, having the thumb-plate *g* attached to its lower end, stops 2, and spring-catch *i*, the stops 2 being so formed that they will raise the catch *i* upward as the thumb-plate is being turned, and then let it spring in between them, and thus form a dead-lock, substantially as shown and described.

176,871. CORN-PLOWS. Lewis Miller, Richmond, Ind. [Filed Jan. 24, 1876.]

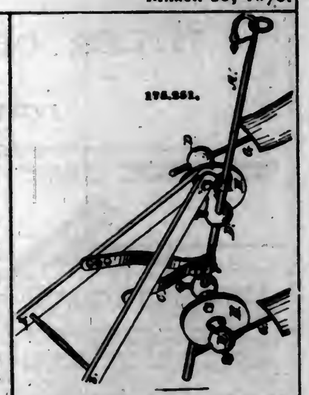
Brief.—The standard-breasts, in two parts, united by disks, one having a slot and the other a stud. Handle-fastenings clasp the round beam, giving lateral adjustment.

1. The arrangement and combination of the arms D D, circular plates E, slot F, and arms D' D', in the manner and for the purpose set forth.

2. The clutches O O, brace C C, and handles B B, in combination with the beam A, as herein set forth.

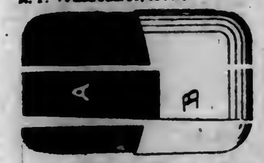


176,872.



176,872.

176,872. COMBINED CARRIAGE-BODY AND FOOT-POCKETS. James McWade, Albany, N. Y. [Filed Jan. 10, 1876.]



The combination of the carriage-rug A with the foot-pocket B, substantially as and for the purpose specified.

176,873. REED-ORGAN STOP-ACTIONS. B. C. Nicholson, Indianapolis, Ind., assignor to himself and Levi H. White, same place. [Filed Feb. 18, 1876.]

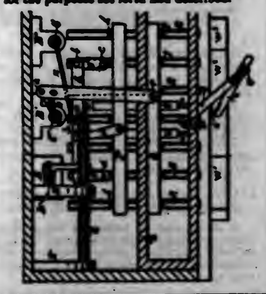
1. In an organ, the combination of the treadle W', rod G', shaft G', rod G', square upright rod D, lever F, shaft G, lever L, pivoted connecting-rod H, and stop-slide P, arranged as shown, for the purpose specified and set forth.

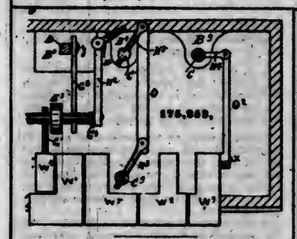
2. In an organ, the combination of the treadle W', rod G', shaft G', lever G', connecting-rod F', lever F', round upright rod C', lever J', pivoted connecting-rod O, and stop-slide Q, arranged as shown, for the purposes specified and set forth.

3. In an organ, the combination of the hinged lever V, slotted lever U, round upright rod C', lever F', pivoted connecting-rod O', lever E', round upright rod C', lever E, pivoted connecting-rod O, and stop-slide Q, arranged as shown, for the purposes specified and set forth.

4. In an organ, the combination treadle W', connecting-rod O', lever E', round upright rod C, bracket arm M, pin N', connecting-tie K, connecting pivoted bars J J', and stops R, arranged as shown, for the purposes specified and set forth.

5. In an organ, the combination of the stop-slides P Q, cross-slides T T', slide-rods s t, stops R, and pins h h *g g*, arranged as shown, for the purposes set forth and described.

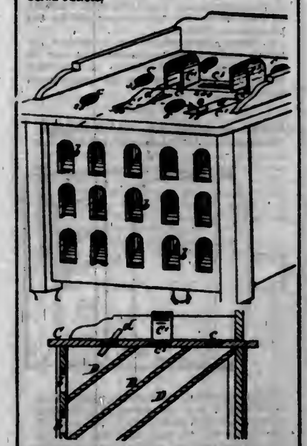




176,863.

176,874. GAME APPARATUS. C. Oberly, Canton, Ohio. [Filed Dec. 28, 1875.]

Brief.—The quoits are pitched with the view of entering rings or other openings which lead directly into inclosed passages, and to numbered cutlets.

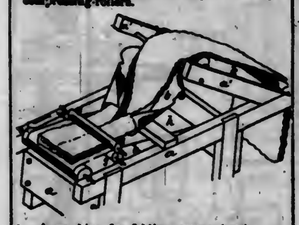


The herein-described game-table, provided with the openings *c' c'* and trap *d* in the top, the numbered outlets *b*, and chutes D, whereby said table is adapted for use in combination with the quoit *a*, substantially as and for the purpose set forth

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176,875. MACHINES FOR FOLDING COTTON BATTING OR WADDING. Chas. H. Prescott, Walpole, Mass. [Filed Jan. 17, 1876.]

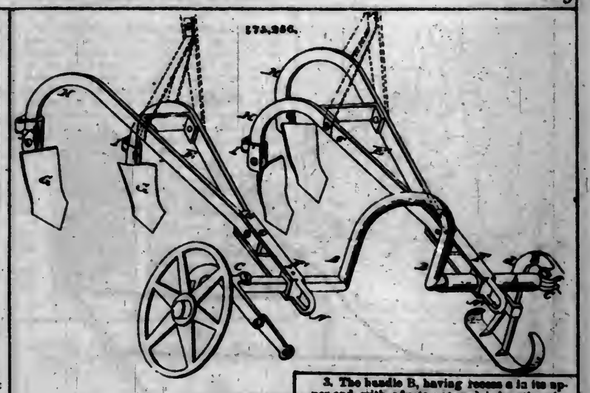
Brief.—Endless belts convey the batting from the card to the upper end of a doubling-chute, and from the lower end thereof through compressing-rollers.



A machine for folding cotton batting or wadding, consisting of the frame *a a'*, the chute *b*, constructed as described, the endless belts *k* and *h*, and pressure-rollers *g g*, all arranged and operating substantially as and for the purpose set forth.

176,876. CULTIVATORS. Alfred R. Reeves, Knightstown, Ind. [Filed Mar. 13, 1874.]

Brief.—The arch with dissimilar ends, the curved draft and supporting bar, and the hinge and latch to the shovel-fastening.



176,876.

1. The arched axle B, with ends of dissimilar form, whereby one end is rigid in the drag-bar F, and the other is allowed to turn freely in the drag-bar E', substantially as shown and described.

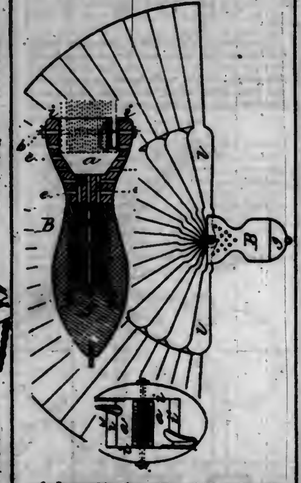
2. The arched axle B, having a square horizontal end, and the opposite end round and provided with sleeve *p*, in combination with the curved and slotted supporting-bar N, having cam C, and adapted to carry either a wheel or runner, as and for the purposes set forth.

3. The combination of the hinged draw-bar *d*, and the slotted curved bar N, hinged to the ends of the arched axle B, as herein described.

4. The clamp J, pivoted to the standard and held in its position by the latch K and pin P, in the manner and for the purposes herein described.

5. A shovel-fastening composed of the eccentric L, fitted in the standard H, and provided with the spur L', to adjust the shovels at different angles, as herein described.

176,877. FANS. Kato Robison, Washington, D. C. [Filed Feb. 21, 1876.]



1. In combination with a folding fan, the handle B, having a recess, *a*, in its upper end, with vertical walls *i* and having walls *r*, and pivot *b*, passing through the said vertical walls and the ends of the fan-sticks, substantially as specified.

2. The combination, with a folding fan and its handle, of the spring-catches *a*, for holding the said fan open, substantially as specified.

176,878.

3. The handle B, having recess *a* in its upper end, with recesses *c* at and below the pivoted ends of the fan, a perfume-receptacle in its lower end, and ducts or passages *d* connecting the said recess and chamber, substantially as specified.

4. A folding fan firmly pivoted within the recessed upper end of a handle, whereby the said fan is held against end-wise movement relative to the said handle and rotation thereon, substantially as specified.

5. The combination, with a tubular fan-handle and a perfume-sponge, of a metallic tubular shield between the sponge and hand-leaves, substantially as specified.

6. In combination with the chambered handle B, the removable end piece *g*, needle *f*, and sponge C, substantially as specified.

176,878. WOOL-WASHING MACHINES. F. G. Sargent, Graniteville, Mass. [Filed Dec. 23, 1875.]

Brief.—Within a tank is a curved table having rigid teeth, over which moves a reciprocating frame with pivoted teeth, arranged to rise and fall by means of pitman, crank, and a weighted arm. An injector with pipes for conveying water to the tank, and rollers for squeezing the water from the wool when washed.

1. In combination with the curved table C, provided with the rigid teeth *b*, the frame B, supported by a pivoted arm or arms, F, and provided with the pivoted teeth *c*, substantially as shown and described.

2. In combination with the table C and the reciprocating toothed frame B, the toothed frame M, hinged to the frame B, and arranged to rise and fall, substantially as shown and described.

3. The combination of the frames B and M, pitman I, crank K, and link N, substantially as shown.

4. In combination with the pitman I and link N, arranged and operating as described, the screw *e*.

5. The combination of the frame B, arms F, rock-shaft G, and the weighted arm H, as shown.

6. In combination with a wool-washing machine, the injector S, or its equivalent, provided with the perforated pipes T and U, or either of them, arranged to deliver a spray upon top of the fiber, as shown and described.

7. In combination with the injector S, or its equivalent, the pipes T and U, or either of them, and the pipe W, arranged as shown, whereby the water may be withdrawn from the bottom of the tank and delivered upon the fiber, as described.

8. In combination with the body A and rolls B, the screen F, arranged in the body below the rolls, but above the liquor-level, as and for the purpose described.

9. In combination with the body A and rolls B, the inclined table C, having the convex lower and covex upper end, and devices, substantially such as shown, for feeding the fiber from the body upon the table to the rolls.

10. In a wool-washing machine, a table, U, having its upper end made of a convex form, substantially as and for the purpose described.

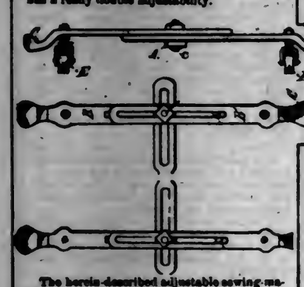
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON

176,859.

176,860. SEWING-MACHINE CASTERS. W. L. Belcman and James W. Myers, Dayton, Ohio. (Filed Nov. 20, 1875.)

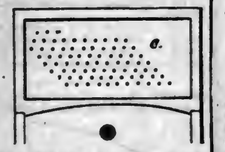
Brief.—A single bar or cross-beam, longitudinally slotted near each end, carries or supports at right angles a pair of overlapping slotted socket-beams near the ends of which the casters, having shoulders which rest against corresponding shoulders on the under side of the beam, are attached; the construction being such that, by means of screw-bolts and nuts, the frame-work of the casters has a ready double adjustability.



1. The combination of chains C, blocks D, way F, arm I, rake K, sprocket-wheels P, shaft E, and pinion Q, substantially as described.

2. The combination of clutch N, catch O, lever Z, chains C, stop M, and spring R, substantially as described.

176,861. CHILLS FOR MOLD-BOARDS. Geo. K. Smith, Waterloo, Iowa, assignor of one-half his right to G. W. Miller, same place. (Filed Oct. 19, 1875.)

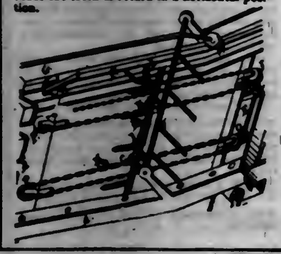


The form or chill-block C, the same being perforated with many very fine or small holes over the entire surface, of the face and sides of the pattern of the mold-board to be cast on the chill, substantially as herein shown and described, for the purpose set forth.

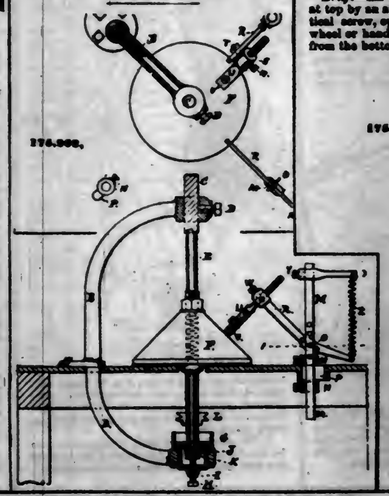
The herein-described adjustable sewing-machine castors, consisting of a single slotted cross-beam, A, supporting the slotted socket-beams B B', constructed and arranged as shown, together with the castors E, attached as set forth, all substantially in the manner and for the purpose specified.

176,862. HARVESTER-RAKES. Harvey J. Silversale, Pewaukee, Wis. (Filed May 14, 1875.)

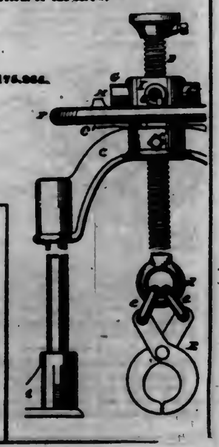
Brief.—Teeth fixed to a cross-bar project through slots in the platform. The cross-bar is attached to an endless chain passing around sprocket-wheels, and an arm on end of the cross-bar passes up around a sliding way, to cause the teeth to return in a horizontal position.



176,863.



176,864.



176,865. MACHINES FOR POLISHING DIAMONDS, &c. Henry D. Stover, New York, N. Y. (Filed Mar. 16, 1876.)

1. A revolving conical or truncated-cone skive, either flat, convex, or concave on its polishing-surface, in combination with suitable mechanism for holding the gems in contact therewith, for the purpose specified.

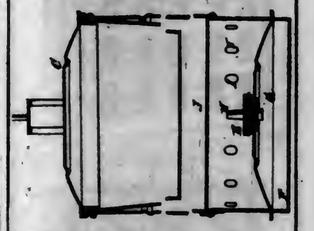
2. The conical or truncated-cone skive F, supported by and revolving with the conical step G upon the adjustable screw H, and in the step-bearing J, which contain radial or lateral openings K K for the admission of oil, when operated in the manner and for the purpose set forth.

3. The rigid but rotary and adjustable post M, jam-nuts N N, the adjustable vibratory arm R with its pin O, the rigid but adjustable and rotary joint or cast-head S, and locknut T, with the tongs U, jam-screw W, when operated in the manner and for the purpose set forth.

4. The rigid but rotary and adjustable arm X, with jam-screw Y, and spring or weight Z, when operated in the manner and for the purpose set forth.

5. The radial openings P in the table A, by which radial or lateral movements can be given to the post M, in relation to the skive F, in the manner and for the purpose set forth.

176,866. DINNER-PAILS. John H. Sullivan, Chicago, Ill. (Filed Jan. 27, 1876.)

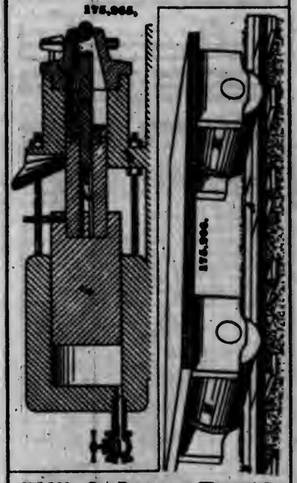


The combination, substantially as described, of the lamp E and the dinner-pail, the lamp being constructed as described, so as to fit into the top of the pail, and the pail constructed as described, so that its bottom fits upon the top of the lamp, thus enabling the latter to be placed either at the top or bottom of the pail, for the purposes set forth.

176,867. LIFTING-JACKS. David T. Welsh, St. Louis, Mo. (Filed July 28, 1876.)

Brief.—An iron frame of two posts joined at top by an arch, through which works a vertical screw, operated by a horizontal hand-wheel or hand-spikes. A grapple suspended from the bottom of the screw.

176,868.



176,869. GAS TRUCKS AND WHEELS. F. Benning, Wilmington, Cal. (Filed Dec. 14, 1875.)

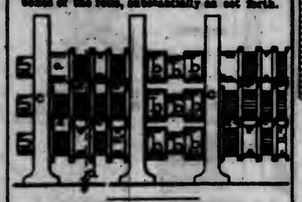
Brief.—Gas run on rollers, double-flanged, over a single wooden rail as bread on the central tread.

The cars or carriages, having the wheels B with their flanges, constructed to have a tread the entire width of the road-bed, substantially as and for the purpose herein described.

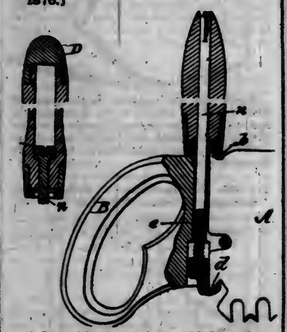
176,870. PROCESSES OF COMPRESSING AND REDUCING STEEL AND OTHER INGOTS. Geo. W. Billings, Cleveland, Ohio. (Filed Nov. 10, 1875.)

1. The process of compressing steel ingots, plate, and plates, and brass and copper ingots, which consists in passing them through the edged rolls, constructed and arranged substantially as set forth.

2. The process which consists in passing steel ingots and piles through the bases or edged spaces of the rolls to disengage the silicon and force it into the seams and porous parts of the ingot or pile, and to express the carrying silicon through the pores and out at the ends of the ingot, and then smoothing the surroundings of the compressed ingot or pile by passing the same through the smooth bases of the rolls, substantially as set forth.



176,868. SAW-SWAGERS. Ebon M. Boynton, West Newbury, Mass. (Filed Feb. 12, 1876.)



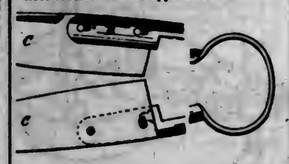
1. In combination with a saw-blade, the handles B and C, constructed and arranged to operate substantially as shown and described.

2. In combination with the saw A, provided with the cam c and d, the handle B, provided with the hole a, and the handle C, provided with the collar b and clamping-hook c, all constructed to operate substantially as described.

3. The tubular handle C, provided with a screw-cap, D, and the bolt e and hook c, the whole constructed to operate as and for the purpose set forth.

176,869. SAW-SWAGES. David Brown, Glencoe, near Mount Gambier, South Australia, and James Fulton, Greville Street, Prahran, near Melbourne, Victoria Colony, Australia. (Filed Apr. 7, 1874.)

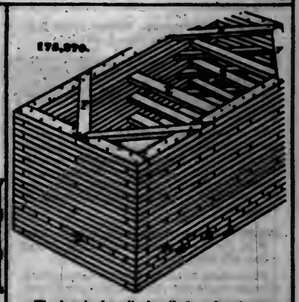
Brief.—One of the blades turns upon a pivot, and is held at different angles by a set-screw working in a slot at some distance in the rear of the pivoted point. When the point wears off it may be thus brought into close contact with the opposite blade.



In a pair of sheep-shears, the combination, with a spring-bow handle, A, provided with projecting arms B B, constructed as described, of blades C C, attached to the arms B B by a pair of pins, D' D', the pin D' forming a center of motion for the blades C, while the pin D' is adjustable in a groove or channel, O', as shown and described.

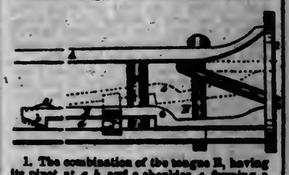
176,870. BREAKWATERS. J. G. Bruggeman, Cleveland, Ohio. (Filed Feb. 11, 1876.)

176,870.



The herein-described crib for a breakwater or piers, consisting of boards or planks, constructed with a foundation-frame, A, three floors, B C D, and the walls, with the cross-ties E and braces F, the same being made to hold sand or common earth, as and for the purpose set forth.

176,871. CAR-COUPLINGS. G. W. Burnett, Leavittsburg, Ohio. (Filed Nov. 20, 1875.)

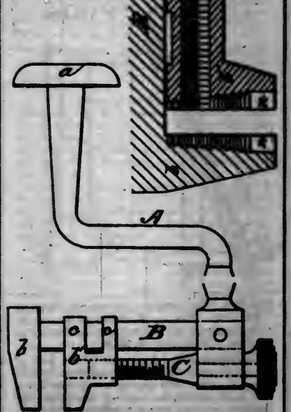


1. The combination of the tongue E, having its pivot at c A, and a shoulder, c, forming a lengthwise opening for the lever J.

2. The combination of the buffer-head A B, guide-pin F, elevating-tongue E having its pivot at c, and shoulders b and c to form a lengthwise opening, and the lever J for insertion in that opening, all operated to elevate the coupling-link, substantially as and for the purpose set forth.

176,872. WRENCHES AND BIT-STOCKS. W. F. Cross, Red Wing, Minn. (Filed July 10, 1875.)

Brief.—The jaws are constructed to receive a nut or the shank of a bit.



1. In a wrench, the jaws b b', provided with the serrations r r and notches s s, as and for the purposes set forth.

2. The combination, with the brace-arm A, shank B, and adjusting-screw C, of the fixed jaw b and the movable jaw b', operated by the said screw, each having an angular notch, s, and transverse corrugations r, whereby the wrench is adapted to be used as a brace for boring purposes, substantially as specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

176,970. PAVEMENTS. Holmes Owen, New York, N. Y. (Filed June 8, 1875.)



In a pavement, roadway, &c., the guard lining or feeder B of vegetable fiber beneath the upper layer, in combination with the other elements of the structure, for the purpose of dampening checks, and thereby increasing the durability of the structure, substantially as specified.

176,971. BREAKING FOR HIBERNATING. John F. N. De Flon, Alexandria, Minn. (Filed Jan. 20, 1876.)

The compound herein described, consisting of spirits of camphor, bicarbonate saponis camphorate, crude petroleum, chloric hyperpii, and opium acuminata, in the proportions named, and for the purpose set forth.

176,972. DITCHING-MACHINE. F. L. Dolbie, Burlington, Iowa. (Filed Feb. 10, 1876.)

Brief.—A mud-box is arranged near the forward end of the inclined chute, to catch and retain the mud and sediment. The rear end of the mud-box is open for the removal of the mud therefrom while the machine is in motion. A roller in the front end of the mud-box rests the earth in moving upon the chute, which is provided with a surfacing layer of plaster-of-paris. Water-channels are arranged under the plaster-of-paris for lubrication.

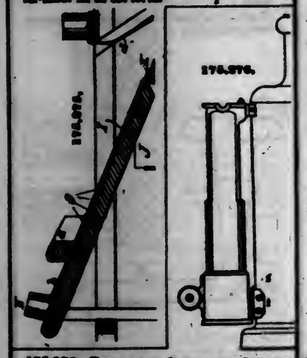
1. The cutters and chute of a ditching-machine, combined with a mud-box, J, near the forward or lower end of said chute, to catch and retain the mud and sediment.

2. The mud-box J constructed with its rear end open and removable, for the removal of the mud and sediment therefrom while the machine is in motion.

3. The chute of a ditching-machine and the mud-box J attached thereto, in combination with the roller K, to take up water from said box, and deliver it to the moving earth upon the chute to lubricate the same.

4. A ditching-machine chute, provided with a surfacing layer of same substance, to which earth will not slightly adhere, such as plaster-of-paris, substantially as set forth.

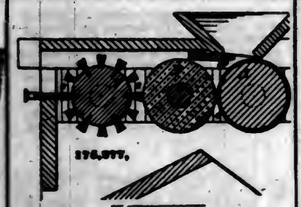
5. A ditching-machine chute, provided with a water-channels, *g*, combined with a surface-layer, I, of plaster-of-paris, and a water-tank, H, as set forth.



176,973.

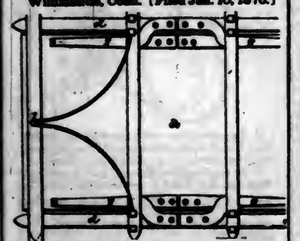
176,976.

176,973. SHAWL FOR BOOTS AND SHOES. Conrad F. Ginzville, San Francisco, Cal. (Filed Jan. 17, 1876.)



A combined welt and stay for the seams of boots and shoes, formed of the folded strip *a*, and applied so that its doubled edge forms the welt, while its single edges form stays in the inside of the seam, substantially as and for the purpose described.

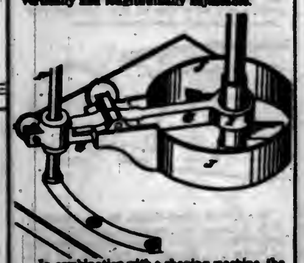
176,974. SPRING-WAGONS. O. B. Hamlin, Willimantic, Conn. (Filed Jan. 10, 1876.)



The full elliptical springs *g*, having their lower ends bent outward so as to be attached to the reaches *d*, while their upper ends are curved to the under side of the body *a*, in combination with the body *a*, cross-bars *c*, and reaches *d*, substantially as shown and described.

176,975. GUARDS FOR SHAPING-MACHINES. Marquard Hansen, San Francisco, Cal. (Filed Aug. 11, 1875.)

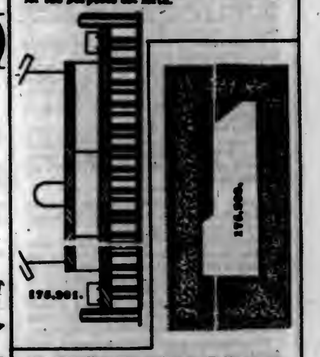
Brief.—For protecting the hands of the workmen using a shaping-machine, it is provided with a guard or feeder hand, which is vertically and longitudinally adjustable.



In combination with a shaping-machine, the guard F, adjustable bar G, with its ring I, and the guard or feeder-hand J, substantially as and for the purpose described.

176,976. PUMPS FOR OCEAN TRAFFIC. H. C. Henriksen, Baltimore, Md. (Filed Sept. 13, 1875.)

A pier or dock and storage warehouse, with sliding doors, combined with side railroad-tracks, placed substantially as described, and for the purpose set forth.



176,980.

176,981.

176,980. FIRE-PROOF SAFES. T. Heinz, jun., Covington, Ky. (Filed Dec. 27, 1875.)

The herein-described vault, composed of the metallic ends, with projecting flanges front and rear, built in a fire-proof cement-setting in the wall of a house, all substantially as and for the purpose specified.

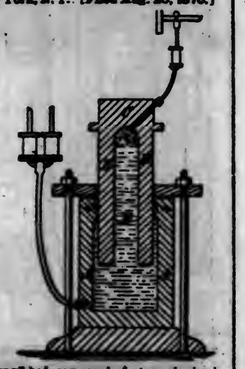
176,982. METALLIC ROOFS. Gustavus Hess, Norwalk, Ohio. (Filed Jan. 3, 1876.)

Brief.—The cleat is secured to the cap by a rivet, and the cap is closed over the joint after the cleat is nailed to the roof-boards, and the adjacent flanged plate is in place.



The cleat or cleats D, secured to and in combination with the cap C, in the manner as described, and for the purpose set forth.

176,984. ANVIL-BEDS. Alonzo Hitchcock, New York, N. Y. (Filed Aug. 20, 1875.)



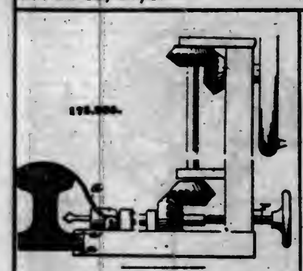
An anvil-bed, composed of atmospheric air and water, combined and operating as described, so that a blow upon the anvil, causing its movement, acts to compress the air and communicate motion to the water, as herein set forth, and for the purposes recited.

176,985. MACHINES FOR DRILLING RAILROAD-BARS. Collins D. Holcomb, Wolcottville, Conn. (Filed Aug. 10, 1875.)

1. The combination of the bed-plate, the drill and its actuating mechanism, with the overhanging and pivoted hooks G G, as described.

2. The bed-plate provided with the projections a a, as described.

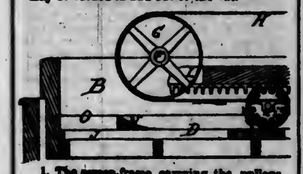
3. The combination of the bed-plate, with the projections for preventing vertical movement, with the hooks for preventing lateral movement, as described.



176,986.

176,986. PULP-SCREEN CLEANERS. Henry Hollingsworth, Herkimer, N. Y. (Filed Feb. 17, 1876.)

Brief.—The bed-plate is cleaned by a revolving brush fastened by means of a block, which acts as its bearing, to an endless belt passing over pulleys. The brush sweeps at intervals over the screens, and is there revolved upon its axis by a pinion on one end gearing with a rack-bar. The screen-frame, bearing the devices named, rests in the vat, is supported by arms, and is hinged at one side, whereby it may be turned in and out of the vat.



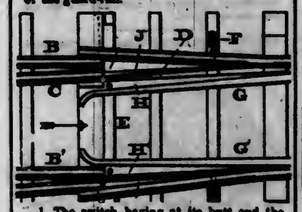
1. The screen-frame, carrying the pulleys, belts, and brush, hinged to one side of the pulp-vat, so as to be turned out and into the same, substantially as described.

2. The combination of the pulleys G, the belt H, the pinion *i*, brush I, and rack *k*, for the purpose of cleaning straight surfaces, substantially as described.

3. The combination of the trough B, the screen D, the block E, and the compartment G, substantially as and for the purpose set forth.

176,987. RAILROAD-SWITCHES. Charles W. Jones, Philadelphia, Pa. (Filed Feb. 16, 1876.)

Brief.—A switch in which the main-track rails lap past the ends of the outer rails of main and side tracks, and a flange-point rails pivoted to the operating-lever, are combined with guard-rails provided with flange-bearers for the wheels to travel upon in case the switch is misplaced. The point-rails are also provided with a flange-bearer similar to that of the guard-rail.

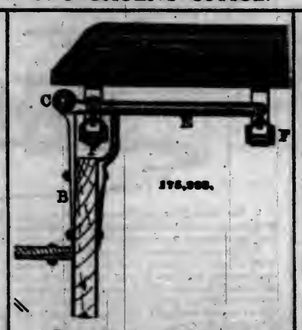


1. The switch, having at its butt end the rails of the main track, overlap the outside rail of the adjacent portion of the main track and the outside rails of the adjacent portion of the side track, substantially as and for the purpose set forth.

2. The guards G G', with flanges H H' projecting laterally therefrom, and located adjacent to the sliding points D D', substantially as and for the purpose set forth.

3. The main rails A B, side rails C, movable points D D', sliding bar E, springs F F', guards G G', and flanges H H' J J', constructed, combined, and operating substantially as and for the purpose set forth.

176,988. WAGON-SEATS. Job King, Buffalo, N. Y. (Filed June 26, 1876.)



1. The combination, with the stakes A, of the upwardly-projecting bars B, horizontal levers E, shackles or clevises F, longitudinal seat-springs G, and the seat H, said seat being suspended above the said horizontal levers, and capable of a combined horizontal and vertical movement, substantially as described, for the purpose set forth.

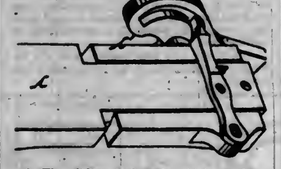
2. The suspension-levers E, swiveled at C, and supported by the rest I, in combination with the shackles or clevises F and the seat H, substantially as described, for the purpose specified.

3. The curved rest I, in combination with the levers E, movably attached to the uprights B at C, substantially as described.

4. The combination, with the uprights B, of the circular projection C in the upper end or jaw thereof, and the corresponding recess in the jaws of the levers E, whereby the bolt D is released from the shearing strain of the connected parts, substantially in the manner as described.

176,989. TIRE-UPSETTING MACHINES. John H. Koch, Bucyrus, Ohio. (Filed Mar. 7, 1876.)

Brief.—The movable jaw is actuated by means of a lever pivoted thereto at one end, and to the middle to the bed, with the loose end thereof in the cam-groove of the handle.



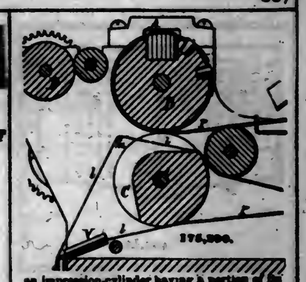
1. The sliding bed-section A', in combination with the lever B, and cam-grooved lever C, substantially as and for the purpose set forth.

2. The bed A A', having the sliding section A', in combination with the lever B C, and holding cam-lever D D, substantially as and for the purpose set forth.

176,990. ROTARY POSTMARKING AND CANCELING PRESSES. Thos. Leavitt, Everett, and Martin Leavitt, Melrose, Mass., assignors to Thos. Leavitt, trustee. (Filed Sept. 20, 1875.)

Brief.—Letters are fed down the chute upon the traveling tapes, where they are held by stops until the proper time to pass between the printing-cylinders. One of the cylinders is cut away, and a loose belt passing around it receives the impression whenever there is a break in the feed, so that no letter comes forward.

1. The combination, in a stamp-canceling, postmarking, or other printing machine, of a type-cylinder, an impression-cylinder, one or more tapes or endless belts passing around and operated by one of said cylinders, and adapted to feed the letter or other article to be printed to said cylinders, and one or more intermittently-operated stops arranged by the side of or between said tapes, and adapted to intercept the forward motion of the article to be printed and release it at a given or determined time, as and for the purpose described.



176,990.

an impression-cylinder having a portion of its periphery, opposite where the impression is taken, cut away or reduced, an endless blotter-belt passing between said cylinders and around the impression-cylinder, from which it hangs loosely by one of its loops in position to receive the impression thereon, and arranged to be intermittently fed between said cylinders, as and for the purpose described.

6. In combination with the cylinder C, having a portion of its periphery cut away or reduced in diameter, and a blotter-belt arranged to surround and hang loosely by one of its loops from said cylinder, a friction or retarding device applied to said belt at a point preceding its coming in contact with said cylinder, as and for the purpose described.

7. The combination of the type and impression-cylinders B and C, the endless blotter-belt *l*, arranged to hang loosely by one of its loops from the cylinder C, and the weighted pulley W applied to lower looper bight thereof, as and for the purposes described.

8. The combination of the cylinder C, blotter-belt *l*, and guide-pin *m*, arranged and adapted to operate substantially as described for the purpose specified.

176,991. REFRIGERATIVE PROCESSES AND APPARATUS. Samuel D. Lovell, Chattanooga, Tenn. (Filed Dec. 27, 1875.)

Brief.—Uses glycerine to cool refrigerant-pipes used to cool air, to prevent them from being coated with ice; also uses it to spray to detain and dehydrate the air passing through it. Cools air by passing it in contact with (through, over, or under) a fluid incongealable at about the congealing-point of water, the fluid itself being cooled by contact with vessels containing the refrigerating agent. Places his apparatus in a closed refrigerating-chamber, or in a chamber connected with either a closed or a ventilated food-chamber, with connecting passages for natural or artificial currents or circuits of cooled air.

1. The process of simultaneously refrigerating and dehydrating air, which consists in exposing it to direct contact with cooled glycerine, as set forth.

2. The process of cooling air, which consists in passing the air in direct contact with such an incongealable liquid as is described, the latter being refrigerated by direct contact with surfaces cooled on their reverse side by any volatile refrigerant, as and for the purposes set forth.

3. The process of cooling air, which consists in bringing the air into direct contact with any such incongealable liquid as is described, said liquid being in spray, streams, or showers, and being refrigerated by contact with vessels containing a volatile refrigerant, as and for the purposes set forth.

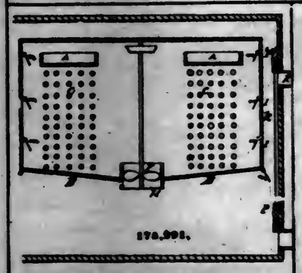
4. The combination of case L, tank B for containing incongealable liquid, having upper air-inlets I I and one or more bottom air-outlets, H, with refrigerating-coil C, as and for the purpose set forth.

5. The combination of case L the tank B, having side air-inlets I I and bottom air-outlet H, with refrigerant-coil C and the F, as and for the purposes set forth.

6. The combination of case L, the tank B, having side air-inlets I I and bottom air-outlet H, with refrigerant-coil C, perforated tank A, and fan F, as and for the purposes specified.

7. The combination of case L, tank B for incongealable liquid, having upper air-inlets I I and one or more bottom air-outlets, H, with refrigerating-coil C and perforated tank A, as and for the purpose specified.

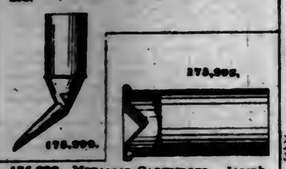
8. The combination of the case L, having controllable air-inlet B and outlet O, with tank B, coil C, and fan F, as and for the purpose set forth.



176,891.

176,899. CHIMNEY PIECES FOR DOMESTIC USE. Joseph McCoy and Isaac McCoy, Uniontown, Pa. [Filed Feb. 2, 1876.]

The combination of the cross-beam D, fitted into an upright, C, on one side, and turning on a pivot on the other upright, C', carrying with it the rack and pinion press-gear with the appliances, said uprights supported on a fixed table, B, which table is provided with a central opening, the whole arranged substantially in the manner and for the purpose specified.



176,900. 176,905.

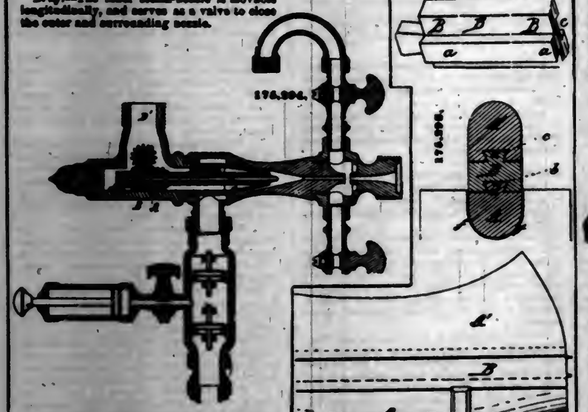
176,900. METALLIC CARTRIDGES. Joseph Merwin, Brooklyn, N. Y. [Filed Apr. 20, 1874.]

Brief.—The base of the head forms an inwardly-projecting cone, for the purpose of giving greater strength to resist the force of the explosion, and prevent the base from being driven back against the recoil-plate.

A metallic cartridge-case made with an annular projecting base containing the priming, and with the wall of the head or closed end formed into a cone projecting inward, substantially as and for the purpose described.

176,902. INJECTORS FOR STEAM-BOILERS. William T. Messenger, Somerville, Mass. [Filed Mar. 10, 1876.]

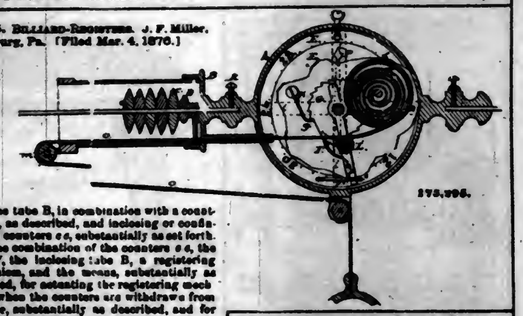
Brief.—The inner steam-nozzle is movable longitudinally, and serves as a valve to close the outer and surrounding nozzle.



176,902. 176,903.

In the injector for steam boilers, the combination of the stationary nozzle O and the movable nozzle D and the valve A thereof, applied to the cone B and steam-indexes B', and provided with operative mechanism, all being substantially and to operate as specified.

176,903. BILLIARD-REGISTERS. J. F. Miller, Pittsburg, Pa. [Filed Mar. 4, 1876.]



176,903.

1. The tube B, in combination with a counter-wire, as described, and inclosing or confining the counters *c c*, substantially as set forth.

2. The combination of the counters *c c*, the wire C', the inclosing tube B, a registering mechanism, and the means, substantially as described, for actuating the registering mechanism when the counters are withdrawn from the tube, substantially as described, and for the object set forth.

3. The combination of the dial R, shaft *f*, pearl I, ratchet-wheel G, lever H, pulley L and cord O, all constructed and operating as described, and for the object set forth.

4. The drum F, cord O, in combination with pulley L and push head D, all constructed and operating as described

176,904. CURING TOBACCO. John E. Opfin, Anaheim, Cal. [Filed Nov. 6, 1875.]

In a process for curing tobacco, covering it with a layer of earth in the field for from two to three weeks, the leaves being turned every four to six days, substantially as and for the purpose described.

176,907. BREECH-LOADING FIRE-ARMS. William R. Pape, Newcastle-on-Tyne, England. [Filed Sept. 30, 1876.]



1. The combination of the two notched lugs *d d'*, the sliding bolt *e*, provided with the projection *g'* and the lug *f*, projecting from between the ends of the barrels *a a*, and passing through the extractor *i*, substantially as hereinbefore set forth.

2. The lug *f*, in combination with the extractor *i*, substantially as hereinbefore set forth.

176,906. PANTALOONS-PRESSING BLOCKS. Wm H. Patterson, Baltimore, Md. [Filed Jan. 3, 1876.]

1. In a tailor's pantaloon-pressing block, the combination of the grooved or tongued base-section A and a similar top section, A', with an independent non-expanding adjuster, B, whereby the shape and curves of the pantaloons are preserved while pressing.

2. In a tailor's pantaloon-pressing block, wherein are combined, by an independent interposed non-expanding adjuster, two pressing sections, substantially as described, the dovetail tongue and groove jointings *a a' d b*, whereby an d sections and the adjuster are firmly braced as a whole.

176,910. BELT-FASTENINGS. A. D. Power, Akron, Ohio. [Filed Feb. 1, 1876.]



In combination with the ends of a belt, the hook-plate B and eye-plate B' and a series of removable sections, E, having hooks at one end and eyes at the other, whereby the belt is adapted to be shortened or lengthened by removing or adding said sections, as set forth.

176,908. MANUFACTURE OF RAILROAD-RAILS. Jacob Reese, Pittsburg, Pa. [Filed Aug. 24, 1872.]

The hereinbefore-described improvement in the art of re-rolling old rails, by first reducing their height so as to increase the mass of iron in the web, and then returning them by rolling, so as to reduce the size of the rail without altering the relative position in the rail of the several qualities of iron of which the old rail was composed.

176,901. TELL-COUPLINGS. Quartus Rice, Washington, D. C. [Filed Sept. 17, 1875.]



1. The plate A, constructed with the two concave open bearings *a a*, recess *j*, and bolt-hole *h*, substantially as and for the purpose described.

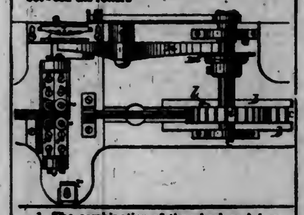
2. In combination with the plate A, the bolt B, constructed substantially as described, and serving with its nut to tighten the thill and take up the wear.

3. The thill plate or strap I, constructed with the three bearings *c c* and *g*, and with the opening *p*, substantially as and for the purpose set forth.

4. The combination of the plate A, the thill plate or strap I, both constructed as described, the hook-bolt B, having an open concave bearing, *r*, and a device for fastening and adjusting the hook.

176,909. WIRE CUTTING AND BENDING MACHINE. Arthur G. Risley, Ilion, N. Y. [Filed Jan. 13, 1876.]

Brief.—A sliding plunger, actuated by a rack and pinion, is provided with longitudinal grooves, to receive the folded ends of the wire, when it, with the holding-head, is forced between die-rollers



1. The combination of the wheel, rack-bar, plunger, and one or more sets of rollers, whereby the wires are bent in the butts, substantially as shown.

2. In combination with the rollers and plunger, the spring-catch *f*, substantially as described.

3. The combination of the slotted slides, carrying the rollers, with the adjusting set-screws, substantially as set forth.

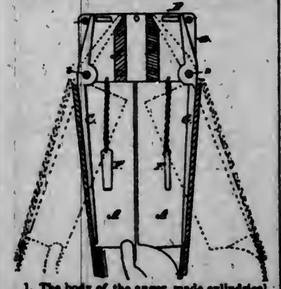
4. The combination of the plunger, rollers, and grooved guide, substantially as specified.

5. The combination of the cutting-lever with the plate *g*, having the flanges 1, substantially as shown and described.

6. The combination of the plunger and operating-wheel with the cam *m*, cutting-lever *n*, rollers 4, and guide 1, whereby the wire is measured, cut, and bent at the same motion, substantially as shown.

176,905. MORTH-AUGERS. Oscar Rust, Macon, Mo. [Filed Mar. 9, 1876.]

Brief.—The body of the auger is cylindrical in cross-section at its upper end, and elliptical at its lower end. The head is formed of two pieces, held apart by interposed pieces, to form a rectangular opening for the auger-shaft. The arms of the bracket have upward projections, which serve to hold it open, by locking-keys passing behind them and through the head, when it is desired to empty the contents.



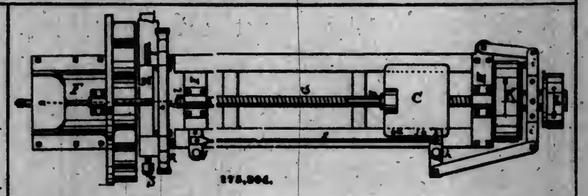
1. The body of the auger, made cylindrical in cross-section at its upper end and elliptical at its lower end, the greater axis of the ellipse not exceeding the diameter of the cylindrical portions, as shown and described.

2. In combination with the head D, formed of the plates *a a*, the arms O C of the pods A A, extending above their pivots *i*, and the locking-keys F, as shown and described, for the purpose specified.

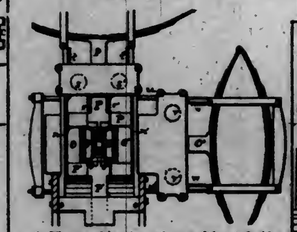
3. The combination, with the squared boring-shank, of the auger-head D, composed of plates *a a* and the interposed pie ces *f f*, arranged, as shown, to form a rectangular orifice, through which the shaft passes, and by which the auger is guided while being drawn out of or lowered into the well, as set forth.

176,906. MACHINES FOR SPLITTING HOOP-POLES. Geo. B. Selden, Rochester, N. Y. [Filed Sept. 14, 1875.]

Brief.—The hoop-pole is guided by elastic guiding-rolls, and forced through the splitting device by means of a rotating screw.



176,904.



1. The combination of a multipart knife, the centering-rolls E E' and D D', and the cross-head C, provided with the pusher *m* with the screw G, operating substantially as described.

2. In a machine for splitting hoop-poles, the movable knife-holder T, operating substantially as and for the purposes set forth.

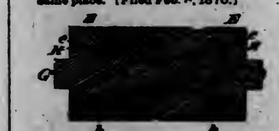
3. The combination of the centering-rolls E E' and their supporting slides P P', spring R, straps *n n'*, and racks and pinions *t t' v v'*, substantially as described.

4. In combination with the cross-head C, centering-rolls E E' and D D', the movable knife-holding plate T, operating substantially as described.

5. In combination with a multipart knife-holder, T, the cross-head C, and screw G, operating substantially as and for the purposes set forth.

6. The cross-head C, provided with the attachment *q* for splitting poles longer than the ways, operating substantially as and for the purposes set forth.

176,905. TELL-COUPLINGS. Wm. C. Shipbaird, Cleveland, Ohio, assignor to himself, Joseph J. Brooks, and Samuel K. Davis, same place. [Filed Feb. 8, 1876.]



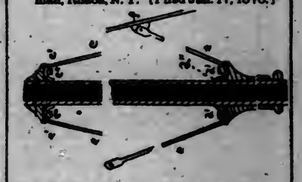
1. The coupling, consisting of the head or hub B, with the double conical eye C, the jaws provided with double conical eyes *e*, made in continuation of the eye C, the compensating double conical journal G G', and the packing H extending the whole length of the conical bearings, substantially as for the purpose described.

2. The combination, with the head B, provided with the double conical eye C, the jaws E, and the double conical compensating-journal G G', of the packing or washers *b*, substantially as and for the purpose described.

3. The combination, with the head or hub B, and jaws E, provided, respectively, with the eyes C and *e*, and the packing H, of the double conical compensating-journal G G', provided with the projecting flange I, substantially as and for the purpose described.

4. The combination, with the packing H, the jaws E, and the journals G G', provided with the flanges I, of the eyes *e*, made sufficiently large at their outer ends to permit the flanges I to play therein, when the journal is tightened up, substantially as and for the purpose described.

176,907. UMBRELLAS. Lafayette L. Truman, Ithaca, N. Y. [Filed Jan. 17, 1876.]

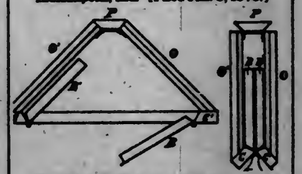


1. The rings, septums, or projecting circles *c'* and *d'*, made as part of the top piece and slide piece, parallel to the handle of the umbrella, and parallel to the tubular part *d''*, and perforated for the hooked stretchers *e* and spreaders *c*, substantially as set forth.

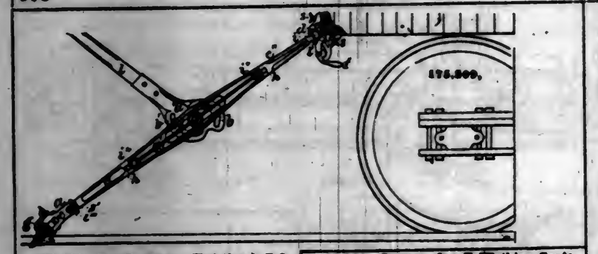
2. The septum or projecting ring, made as described, in combination with the bracing apertures or slots for the hooked spreaders and stretchers, for holding or bracing said spreaders and the stretchers, substantially as shown and described.

3. The septum or ring-projection described, and the bracing parts, apertures, or slots, in combination with the tubular post *d''* of the top piece and slide, as shown and described.

176,908. WARDROBES. Avery Van Wie, Indianapolis, Ind. [Filed Jan. 3, 1876.]



The sides O O', having their beveled rear edges attached to the beveled-edge back P, and securely fastened to the side frames O O', said side frames constructed with beveled edges at the hinge-joint, and united to the beveled edges of the doors B B' in the manner shown, for the purpose set forth and described.



176,809.

176,809. CAR-PUSHERS. Christian A. B. L. Vergenius, Springfield, Ohio. [Filed Jan. 11, 1876.]

Brief.—A prop formed of sliding pieces adapted to be extended by pins operated by cam-slots in a lever pivoted to its center.

1. The double eccentric a^{x} with its attached lever i, constructed, as shown and specified, as and for the purpose herein before set forth.

2. The double eccentric a^{x} with its slots b', in combination with the sliding sections a' and a'', and the side plates a^{2}, with their accessory parts, for producing the double-thrust movement in a car-pusher, as shown and specified, for the purpose set forth.

3. The section b', with its grooved journal b^{xx}, slot h, block h, and bolt b^{2}, and roller r', as shown and described.

4. The section a'', with its semi-spherical head i, constructed as shown, with its parts h h' and roller r', as shown and described.

5. The clamp d, with jaws c and c', which form the head of the car-pusher or push-jack, with its pin i', eccentric lever f, and set-screws s, as shown and specified, for the purpose set forth.

6. In combination with the upper section of a car-pusher or push-jack, the clamping-device shown and specified, as and for the purpose set forth.

7. The fork-piece a, with its bolt b, latch g, and set-screw s', constructed as specified.

8. The fluted steel cone-pieces f, constructed substantially as shown and described, and operated in the manner specified, as and for the purpose set forth.

9. In combination with the fork-piece a of a car-pusher, with its bolt b, latch g, and set-screw s', the rotating cone-pieces f, with their approximating journals o, secured together and operated as specified.

10. In combination with the lower section a' of a car-pusher or push-jack, the forked foot-piece a, with its operative parts b g s', and the fluted rifling cone-pieces f, constructed substantially as set forth.

11. In the construction of a car-pusher or push-jack, operated as specified, the combination of the double eccentric a^{x}, with its slots b, sections a' and a'', with their detailed parts, hereinbefore described, the side plates a^{2}, with their connecting parts, and the clamping-head d, and foot a, all arranged and operated, substantially as hereinbefore set forth, for the purpose specified.

176,810. DUPLEX REVERSIBLE BUCKLES. David S. Wallace, Yonkers, N. H. Furnam, Tarrytown, and Edgecumbe Wales, New York, N. Y. [Filed July 28, 1874.]

Brief.—The buckle has a reversible face-plate, so that when applied to a lady's belt, either side of the belt may be worn outward by reversing the plate.



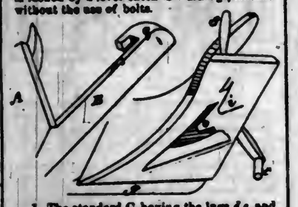
1. The combination, with the end plates or clasps for the ends of a waist-belt or garters, of a reversible face-plate, B, hinged to one of each end plates, substantially as described.

2. The combination of the reversible face-plate B with the plates A and C, having the slots at E, and suitable clasps or fastenings for connection to the ends of the belt, substantially as described.

3. The combination, with plate A or C, having shoulders K, of slide L, substantially as described, and for the purpose set forth.

176,811. PLOWS. Jas. T. Watkins, Santa Clara, Cal. [Filed Jan. 21, 1876.]

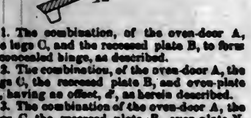
Brief.—Share and land-side formed together, and provided with lugs and slots, into which the upper part of the plow slides, and is locked by a lever-catch in working position without the use of bolts.



1. The standard C, having the lugs d e, and downwardly-projecting plate g, the forward end of which plate is formed into a toe, i, and its rear end beveled, as described, in combination with the land-side B and share A, formed in one piece and provided with the recess o, lug p, and grooved lug q, with its beveled or inclined rear face, the whole clamped rigidly together by the locking-lever s, with its rectangular bar t, all combined and arranged to operate substantially as and for the purpose set forth.

2. The land-side B and share A, made in a single piece, and having the three locking-points f o p, triangular with each other, in combination with its the standard c c d, and locking-lever s, as shown and described.

176,812. HINGES FOR OVEN-DOORS. Alex. Wemyss, Philadelphia, Pa. [Filed Mar. 3, 1876.]



1. The combination, of the oven-door A, the legs C, and the recessed plate B, to form a concealed hinge, as described.

2. The combination, of the oven-door A, the legs C, the recessed plate B, and oven-plate D, having an offset, d', as herein described.

3. The combination of the oven-door A, the legs C, the recessed plate B, oven-plate F, and removable cap H, as herein described.

4. The combination of the oven-door A, the legs C, the recessed plate B, and cups n, as herein described.

176,813. CLUTCH DEVICES. Nathaniel Wheeler and Jas. A. Hoyne, Bridgeport, Conn., assignors to the Wheeler & Wilson Manufacturing Company, same place. [Filed Mar. 18, 1876.]

Brief.—The hub of the tight pulley is recessed for the reception of the cone-portion of the loose one, the tightening being effected by the pressure of a wedge between two rings, the inner one sliding on the shaft against the loose pulley.



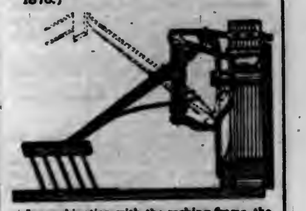
The friction clutch hereinbefore described, consisting of the combination of the balance-wheel, its recessed hub, the cone driving-pulley fitting into said hub, the expanding-ring, and a wedge, all mounted upon the driving-shaft.

176,814. PAPER BASKETS. A. A. Wheelock, Washington, D. C. [Filed Jan. 31, 1876.]



A pasteboard basket, the sides of which are formed with lugs, bent under the bottom, and the bottom, sides, and handle are connected by metallic fasteners, substantially as set forth.

176,815. HARVESTER-RAKES. Elihu Wilcox, Brockport, N. Y., assignor to Dayton S. Morgan, same place. [Filed Feb. 12, 1876.]



In combination with the rocking frame, the rake-stale, with a plate-spring mounted thereon, and both movable endwise through the rocking frame, substantially as set forth.

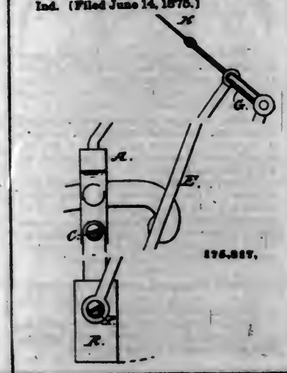
176,816. TUBE-EXPANDERS. G. Winord, Vienna, Austria. [Filed Jan. 11, 1876.]



1. A tool for calking boiler-tubes, and consisting of a mandrel, connected by a ball-and-socket joint to a bar and handle.

2. The combination of a mandrel, a, joint a' b', and bar b, with handle c and projection c', essentially as described, and for the purpose described.

176,817. ROCKING-CHAIR FAN ATTACHMENTS. Lewis A. Winters, Indianapolis, Ind. [Filed June 14, 1875.]



176,817.

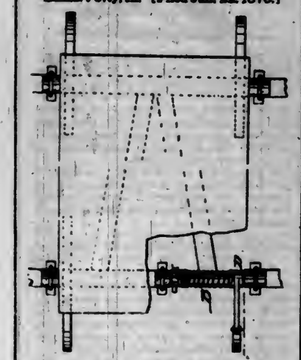
In combination with the clamp A, having the extended arm T, the weighted lever U R, pivoted to one arm of the clamp, the pinion E, rock-shaft J G, and fan K, the whole adapted to be applied to the arm of a chair, and constructed and arranged to operate substantially as set forth.

176,818. CROSSINGS FOR CONCRETE PAVEMENTS. Nathan R. Abbott and John P. Cranford, Brooklyn, N. Y. [Filed Jan. 21, 1876.]



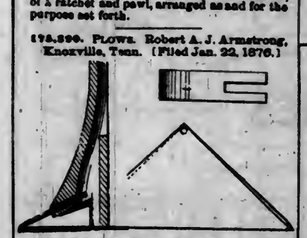
The method herein specified of applying an elevated composition cross-walk to an asphalt pavement, by channeling the pavement for the edges of the cross-walk, and then laying said cross-walk upon the pavement, substantially as set forth.

176,819. VEHICLE-SPRINGS. Thos. Alsop, Elkhart City, Ill. [Filed Jan. 22, 1876.]



The combination, with springs B arranged on shafts B' and attached to loose sockets D, of a ratchet and pawl, arranged as and for the purpose set forth.

176,820. PLOWS. Robert A. J. Armstrong, Knoxville, Tenn. [Filed Jan. 22, 1876.]



A mold-board, having oblique sockets for share and point, in combination with a triangular share having therein, and a bifurcated point without fastening, but supported by the share, as shown and described.

176,821. RAILWAY-WHEELS. A. Atwood, Brooklyn, assignor of one-half his right to A. B. Ross, New York, N. Y. [Filed Feb. 18, 1876.]

1. A cast or iron tire for a railway-wheel, having its inner surface corrugated, and presenting a waved line in cross-section, substantially as described.

2. A body for a railway-wheel, the outer surface of the rim of which is corrugated, presenting a waved line in cross-section, substantially as described.

3. A body for a railway-wheel, having on its rim a flange, F, in combination with the pins or projections G G, substantially as described.

4. The combination of a tire having corrugated inner surface with a rim of the central portion of the wheel having a corrugated outer surface, forming a chamber between said surfaces, substantially as described.

5. A fibrous packing for a railway-wheel, treated with glycerine or its equivalent, substantially as described.

6. A packing of hemp or other fibrous material, when used as an interlocking packing between the corrugated surfaces of the tire and the body of the wheel, substantially as described.

7. A wrought-iron ring shrunk upon and into a dovetail-groove formed upon the central portion or body of the wheel, substantially as described.

8. The combination of a tire, having its inner surface corrugated, with a wheel-body, having the outer surface of the rim corrugated, both presenting a waved line in cross-section, in combination with an interlocking fibrous packing material, for the purpose of holding the tire upon the central portion or wheel-body, substantially as described.

9. A railway wheel having the tire with its inner surface corrugated, and the central portion or wheel-body, whose rim has its outer surface corrugated, both presenting a waved line in cross-section, forming an annular chamber between the tire and the rim, which chamber is filled with a packing of hemp or other fibrous material, interlocking and securing the tire to the central portion or body of the wheel, in combination with the pins G G and sockets H H, substantially as described.

10. A railway-wheel composed of the following parts: First, a steel or iron tire with its inner surface corrugated, presenting a waved line in cross-section; second, a wheel-body with its corrugated rim, presenting a waved line in cross-section; third, a flange on the wheel-body with pins or projections which prevent the turning or sliding of the tire upon the central portion or wheel-body; fourth, a fibrous packing, which interlocks and secures the tire upon the body of the wheel; fifth, a wrought-iron ring to form a tight joint over the packing, all substantially as described.



176,822.



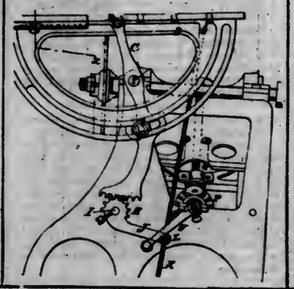
176,822.

176,822. TACK-HAMMERS. W. C. AVERY, Wallingford, Conn. [Filed Feb. 21, 1876.]

The wedge-shaped pene end of a tack-hammer having a longitudinal groove or recess of dovetailed shape that is of larger depth and width at the larger or body end, which diminishes and tapers toward the sharp or pointed edge, substantially as specified.

176,823. CIRCULAR SAWING MACHINES. J. T. Bagge, Bridgeport, Ohio. [Filed Oct. 23, 1875.]

Brief.—The tilting table is automatically adjustable laterally at the same time that it is tilted, for the purpose of shifting the saw-slit, so as to compensate for the misplacement of it by the tilting of the table. The saws are adjustable simultaneously or independently upon an A-shaped frame.

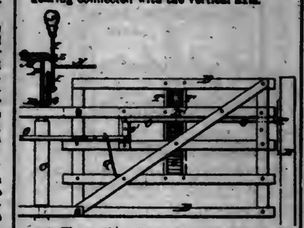


1. The combination, with the table and the oscillating segmental table-supporting arms C, of the wheels H, shaft I, arm J, and the adjustable connecting-rod K, substantially as specified.

2. The crank-hub T, arranged to clutch with the tube E and the shaft S, independently of each other, and also with both together, substantially in the manner described.

176,824. AUTOMATIC GATES. W. A. Baker, Morenci, Mich. [Filed Dec. 27, 1875.]

Brief.—A gate revolving upon a vertical axis is unlatched automatically by pressure against its sides at or near the center of either half, a weighted arm falling outwardly and assisting to operate the gate by means of a gearing connected with the vertical axis.

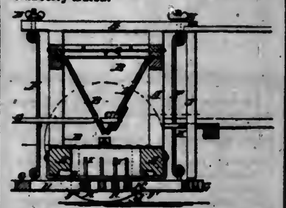


1. The combination of the small bevel-gear wheel E, the rod F, the large bevel-gear ratchet-wheel G, the pawl H, the bent weighted lever I J, the cord K, the cross-bar M, and the lever N, with each other and with the gate D and the post C, substantially as herein shown and described.

2. The combination of the latch O, made in two parts, the equal-armed lever o', the spring Q, the incline S, and the lever-board S, with the gate D, substantially as herein shown and described.

176,825. SANDING-MACHINES. Jehiel Baker, Westport Point, Mass., executor of John H. Baker, deceased. [Filed Feb. 21, 1876.]

Brief.—A sand-box, having hinged sides that can be closed or opened, is mounted upon wheels. Beneath the box is placed a wire screen having a series of transverse rods, which are provided with teeth projecting upward between the rods of the screen, and hung upon vibrating rods. Sand is put in the hopper, and the hinged sides so adjusted as to allow a sufficient discharge of sand. The suspended bars with teeth, by being shaken, sift the sand evenly over the surface of the cranberry-vatch.



1. The box B, made with two stationary and two hinged sides, and provided with a lever-latch, C, and the wire bottom D, in combination with the frame A, the axle N, and the wheels M, substantially as herein shown and described.

2. The combination of the supporting-rods F, the swinging frame G, and its toothed bars H I with the frame A, the box B, and the wire bottom D, substantially as herein shown and described.

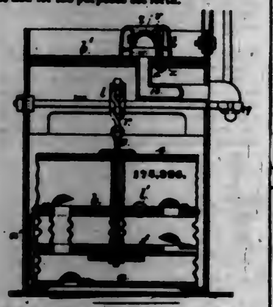
176,826. PORTABLE FORGES. John Bayliss, New York, N. Y. [Filed Sept. 23, 1875.]

Brief.—The segmental plate serves to direct the air and cause it to pass around the chamber before it enters the central chamber. The tube for discharging the ashes is provided with safety-valve. The double bend serves to retard radiation of heat.

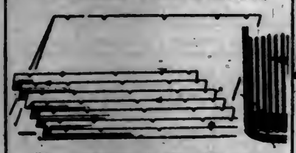
1. The tuyere a, made with the air-opening 10, and supported upon the cylindrical segment a, in combination with the surrounding tuyere-iron t and inlet-pipe B, as and for the purpose set forth.

2. The base *a*, connected with the pipe 18 and discharge-valve 19, in combination with the tuyere-iron *t*, tuyere *r*, and cylindrical segment *u*, as set forth.

3. The head *h* of the portable forge, made with the secondary hood *h'* and false back *h''*, as and for the purposes set forth.

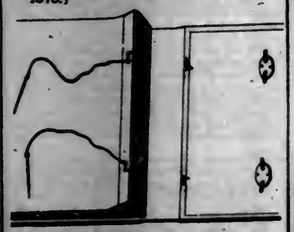


176,207. SCRAP-BOOKS. Bernard J. Beck, Brooklyn, N. Y. (Filed Feb. 26, 1876.)



The scrap-book made with a filling-piece or guard of paper folded in opposite directions, and provided with the register-notches and receiving the folded sheets, as set forth.

176,208. TEMPORARY BINDERS. Bernard J. Beck, Brooklyn, N. Y. (Filed June 11, 1875.)



The sheets for a file-binder with L-shaped slots for the binding cords or strings cut in the back edges of the detached sheets or strips, as and for the purposes set forth.

176,209. PROCESSES OF PRESERVING BURIAL-CASES, &c. Albert T. Stayley, Conception, Mo. (Filed Jan. 15, 1876.)

The process of hardening wood burial cases or other articles herein described, consisting in coating the article with a composition of pine, alum, saleratus, saltpeter, common salt, bichromate of potash, and water, applying thereto a second coating of glue and bichromate of potash, and a third coating of shellac, alcohol, and bichromate of potash, substantially as and for the purposes set forth.

176,210. SAWS. Rhea M. Boynton, West Newbury, Mass. (Filed Jan. 31, 1876.)

Brief.—A slight inclination from a vertical line outward or forward from the points of the teeth is given the outer cutting-edges.

1. A saw provided with teeth A A, each having two points, *a a'*, dressed to cut in line, and two outer cutting-edges, *b b'*, inclined slightly outward from the points, as and for the purpose shown and described.

2. The saw provided with teeth A, each having two points, *a a'*, dressed to cut in line, a notch or gullet, *d*, between said points, and two outer cutting-edges, *b b'*, inclining slightly outward from said points, as shown and described.



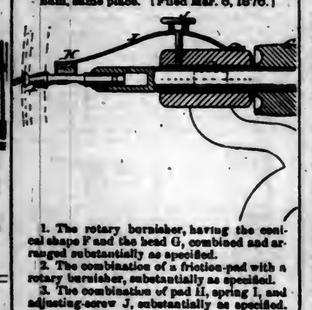
176,211.

176,212.

176,211. NAIL-EXTRACTORS. L. D. Browne, Shawnee, Ohio. (Filed Dec. 11, 1875.)

A staple-lever spike-extractor, having two end claws curved in the same direction, one pivoted on and longer than the other, as and for the purpose specified.

176,212. BURNISHING-MACHINES FOR BOOTS AND SHOES. George E. Burgess, Hudson, Mass., assignor to himself and W. B. Brigham, same place. (Filed Mar. 6, 1876.)

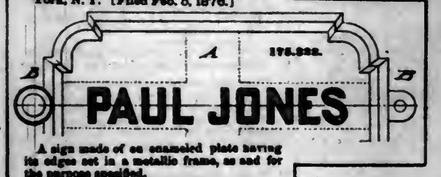


1. The rotary burnisher, having the conical shape F and the head G, combined and arranged substantially as specified.

2. The combination of a friction-pad with a rotary burnisher, substantially as specified.

3. The combination of pad H, spring I, and adjusting-screw J, substantially as specified.

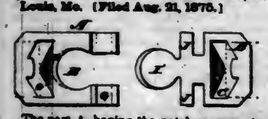
176,213. STOP-PLATES. Julius Caesar, New York, N. Y. (Filed Feb. 5, 1876.)



176,213.

A sign made of an enameled plate having its edges set in a metallic frame, as and for the purpose specified.

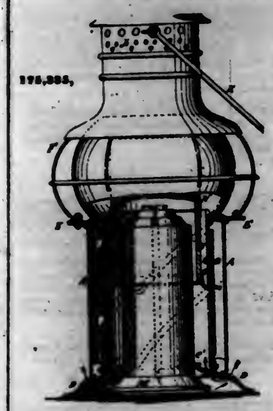
176,214. BALE-TIES. William Carson, St. Louis, Mo. (Filed Aug. 21, 1875.)



The part A, having the notch or open slot E, and sockets or hooks G, in combination with the part B, having lateral projections J and tongue I, as shown and described, whereby said parts are adapted to be disengaged, in the manner set forth.

176,215. SIGNAL-LANTERNS. Geo. J. Cave, Elizabeth, N. J. (Filed Feb. 26, 1876.)

Brief.—The outer and intermediate cases are secured and turn together. When they are turned the spiral slots in the inner case raise or lower the colored glass tubes around the light, by means of the studs on the base of said tubes, which project through the straight slots in the inner case into the spiral slots of the intermediate case. The guards are secured to the lower part by bent pins, which pass through eyes and hook over the lower wire.



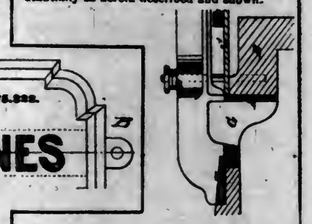
176,215.

1. The inner shell C, provided with longitudinal slots and end flanges D E, the intermediate shell B, provided with inclined slots, and outer shell A, the two latter being rigidly connected together and rotating upon the inner shell C, in combination with the lamp L and the colored glass tubes K and their frame O, provided with the pins *o'*, substantially as herein shown and described.

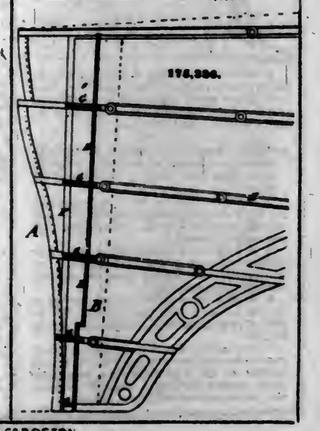
2. The pins G, provided with the hooks *g'* and thumb-pieces *g''*, in combination with the guards F and the flange E, or lower part of the lantern, substantially as and for the purpose set forth.

176,216. GRAND-PIANO-FORTE FRAMES. C. F. Chickering, New York, N. Y. (Filed Feb. 14, 1876.)

The webs G and plates H, formed in one solid piece with the longitudinal bars E and the plate F, in combination with the belly-rail B and the pin-block A, to strengthen the frame against the upward pull of the strings, substantially as herein described and shown.



176,216.



176,216.

176,217. BATTENING FOR ROOFS. Eleazer M. Conkling, Parma, N. Y. (Filed July 30, 1875.)



In combination with the blind trough or batten B, the panel A, provided with channels *b*, formed, as shown and described, upon the upper side, and provided with lips *l* on their under side, for the purposes set forth.

176,218. ELEVATOR-ANNUNCIATORS. Jno. R. Creighton, Boston, Mass. (Filed Feb. 21, 1876.)

Brief.—A weighted pulley-block is suspended in the well on a chain, one end of which is attached to the car, and the other to the side of the well. Chains passing from each landing pass around said pulley-block, one end of each chain being connected with a suitable pull at the landing, and the other end with the annunciator, so that a pull upon the chain, no matter what the position of the car, will operate the annunciator, and indicate where the car is wanted.

1. The combination, with an elevator-car, of direct-acting mechanical devices, substantially as herein explained, whereby a pull upon a chain, or its equivalent, gives notice to the attendant that the car is wanted at a given floor, essentially as and for purposes stated.

2. The combination of the chain *i*, pulley-block H, and elevator-car with a suitable auxiliary mechanical device for giving notice to the attendant of the want of the caller, substantially as and for purposes stated.

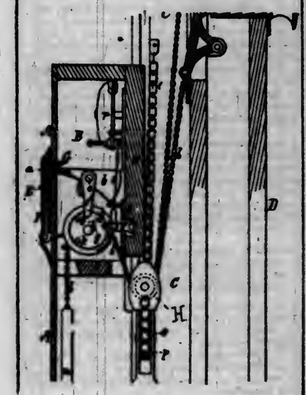
3. The combination of the pull-chain *i*, wheel *g*, and weight *o*, or other means of exerting tension upon the chain, with the elevator-car and the compensating pulley-block H, or its equivalent, and in connection with a suitable device for imparting notice to the attendant, substantially as and for purposes stated.

4. The combination of the chain *i*, wheel *g* with its pins *k*, tripper *b* with its accompanying finger or pallet *f*, and the drop or cover *V*, in connection with the number or character plate B, substantially as and for purposes stated.

5. In combination with the pull-chain *i* and the wheel *g*, the gong *r*, operated by the rocking finger or arm *v*, or its equivalent, whereby the gong is sounded simultaneously with the lowering of the drop and exposure of the number behind it, substantially as and for purposes stated.

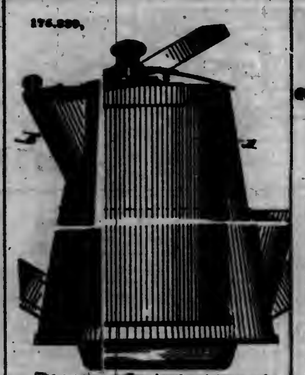
6. The pulley-block H, pull-chain *i*, and compensating chain *o*, with the elevator-car, substantially as and for purposes stated.

7. In general combination, the chains *i* and *o*, pulley-block H, wheel *g*, tripper *b*, pallet *f*, and drop F, with the elevator-car, substantially as and for purposes stated.



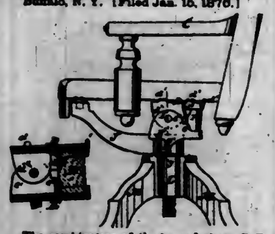
176,219. COPPER-POTS. Marille H. Curtis, Toledo, Ohio. (Filed Jan. 28, 1876.)

176,220.



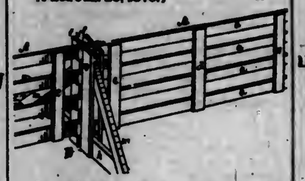
The inner or coffee chamber A, suspended within the water-jacket B, and provided with the spout E, directly attached thereto and to the wall of the water-jacket, whereby the said inner chamber and jacket are securely braced together, for the purposes hereinbefore set forth.

176,220. TELPHO CHAINS. A. B. Cushing, Buffalo, N. Y. (Filed Jan. 15, 1876.)



The combination of the hinged plates D E, provided with short flanges at the rear to form a socket for the spring, and with shoulders *d' d'* to form stops, substantially as and for the purpose specified.

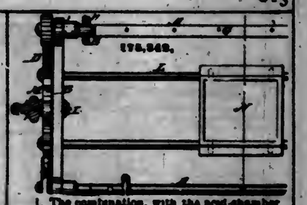
176,221. PORTABLE FENCES. Jas. M. Cuykendall and Anson G. Kellogg, Sipon, Wis. (Filed Jan. 20, 1876.)



In combination with the panels A A, the jack B, consisting of the bed-piece *k*, braces *n n*, and uprights *f f* and *g g*, the braces passing between the uprights to which they are connected, all the parts being so arranged as to form the spaces *a* to receive the ends of the panels, and the spaces *a'* to receive the pins *r r*, to connect the ends of the panels, substantially in the manner specified.

176,222. CARBONIC-ACID-GAS GENERATORS. H. W. Dopp, Buffalo, N. Y., assignor to Dopp Manufacturing Company, same place. (Filed Jan. 11, 1876.)

Brief.—A quantity of water and soda is poured into the space between the outer shell and the stone jar. The lower chamber of the jar and the pressure-regulator contain a sufficient amount of dilute acid to act on the marble chips on the perforated diaphragm. When a certain tension of gas is obtained the acid is forced away from the marble into the pressure-regulator, until the reduced tension allows the acid to flow back and ensure a regeneration of gas.



176,223.

1. The combination, with the acid-chamber C and the limestone-chamber D, of the exterior closed shell A and the annular washer K K', substantially as described, for the uses and purpose set forth.

2. The combination, with the vessel B, having the annular inwardly-projecting perforated flange F, of the perforated plates H H', substantially as described, for the purposes and forth.

3. The combination, with the acid-chamber C and the elevated acid-reservoir E, of the connecting-tube Q, said tube being connected with one extremity to the acid-reservoir in its lowest point, and with the other end to the acid-chamber C near its top, and immediately below the diaphragm, substantially as described, for the uses and purpose set forth.

4. The combination, with the washer K K', of the pendent perforated washer-tube N, when constructed and arranged in a manner substantially as described, for the purpose stated.

5. The combination, with the shell A, of the collar A''', having the lugs *a*, provided with the bolts *a'*, cap-plate G, transverse bar G', having the slot-hole *a''*, and the set-screw H, substantially as described.

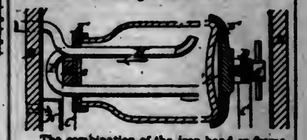
6. The combination, with a carbonic-acid-gas generator, of the connecting-tube U and the compound valve Y, having the valves Y' and Y'', arranged to operate substantially as described, for the purpose set forth.

7. The combination, with a carbonic-acid-gas generator, of the tube U, compound valves Y and Y', and the spigot X, as described, for the object stated.

8. The combination, with the vessel B and the collar A''', of the flexible packing composed of the elastic packing ring J and the upper layer of a pliable composition, substantially as described, for the purpose set forth.

176,223. LIQUID-COOLERS. Jno. Downing, Binghamton, N. Y. (Filed Feb. 26, 1876.)

Brief.—When used as a water-cooler the inlet-pipe of each jar is connected to the inlet-pipe of the next jar, and one of the jars may contain a filter, or a filter may precede the first jar. When used as a beer-cooler, each inlet-pipe may be connected with a pump, and each outlet-pipe with a two-way cock, to pass the beer out or on through the series. Water-supply and exhaust passages at corners of the tank. Ice on a grid under the cover.



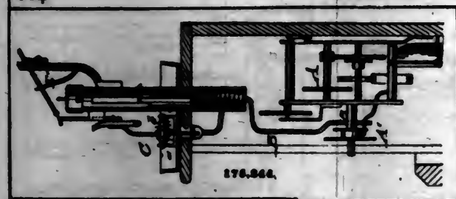
The combination of the iron band or frame B, provided with the legs C, the jars A, the packed covers E, the packed caps F, the set-screws G, the inlet-pipes I, and the outlet-pipes H, with each other and the case D, substantially as herein shown and described.

176,224. LIGHTING ATTACHMENTS FOR ALARM-CLOCKS. Frank Fischbein, Jersey City, N. J. (Filed Feb. 28, 1876.)

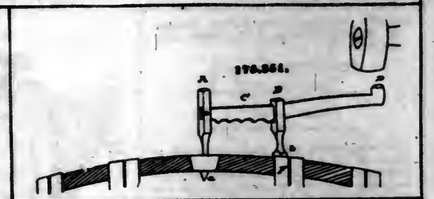
Brief.—The action of the alarm mechanism releases a lever, which brings a rasping surface in contact with a match secured by suitable supporting and gage devices above the candle to be lighted.

1. The combination, with clock and alarm mechanism, of the lever B, connected at its lower end with alarm A, and at its upper hook-shaped end with the recessed arm of a swinging friction spring-lever, C, arranged substantially as and for the purpose specified.

2. The combination of the supporting and fastening devices of the candle-socket with a sliding gage, for setting the match into exact position to be ignited on the release of the friction-lever, substantially as described.



176,844.



176,851.

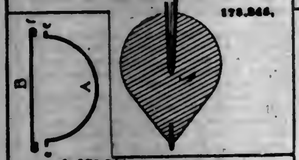
176,846. COMBINED TOPS AND WHIRLIGIGS. Reuben N. Garrett, Ballston Spa, N. Y. [Filed Feb. 6, 1876.]

Brief.—The weight of the whirligig consists of a detachable top, which is intended to disconnect by the act of spinning.

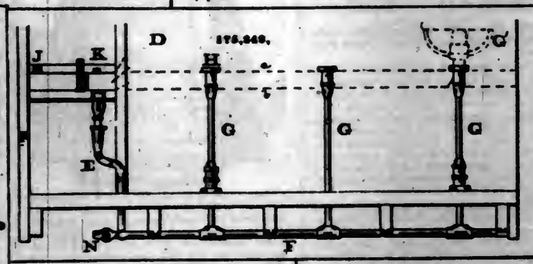
An improved toy, formed of the top or head A, having a hole formed in its upper end, the loose pin B, having a head formed upon its upper end, and the perforated and forked handle C, constructed and arranged substantially as herein shown and described.



176,846.

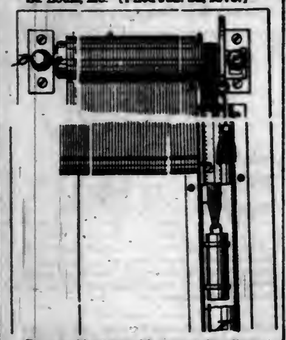


176,848.



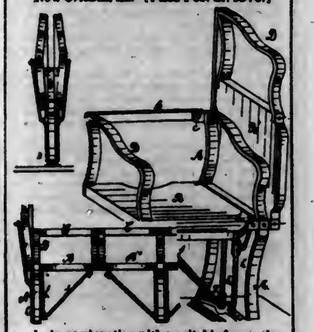
176,849.

176,849. CURTAIN-FIXTURE. M. Hamphey, St. Louis, Mo. [Filed Jan. 29, 1876.]



The combination, with a curtain-roller, of the weighted bead, weighted pawl, and the ratchet of roller-shaft, substantially as and for the purpose specified.

176,850. OPERA-CHAIRS. William Eyland, New Orleans, La. [Filed Feb. 21, 1876.]



1. In combination with a suitable frame, the seat B, arm D, and back C, the same being connected as shown, to either open or fold simultaneously, and by a single movement, substantially as described.

2. A folding chair consisting of the frame A, seat B, back C, arm D, braces *e f*, sleeve *g*, and rod A, the whole being constructed, combined, and arranged to operate substantially as described.

3. The arrangement shown and described of the two independent standards or frames A, having the seats B B' pivoted to their adjacent sides, and supported by the braces *e f*, and having backs C and arms D, whereby, when said seats are open, they shall form continuous rows or benches, and when folded shall afford aisles for ingress and egress, substantially as described.

The combination of the headed stem A, with its shouldered barb *a*, the lever-arm C, with its end head D, and the sliding or adjustable fulcrum B, with its foot *b*, the whole substantially constructed as and for the purpose specified

176,852. CHAIR. Moses H. Johnson, Chelsea, Mass., assignor to himself and George W. Gannaway, same place. [Filed Nov 19, 1875.]

1. A mousing hook provided with hooks *a'*, notches *a''*, tongues *a'*, shoulders *a''*, and grooves *a''*, constructed and arranged as and for the purpose specified.

2. The combination of a spring-key, B, with the mortised elongated shanks *a'* of the parts of the hook A, substantially as herein shown and described.

3. The combination of the blank *b'* with the ends of the pear-shaped thimble D, substantially as herein shown and described.

176,853. RAKES. Glover Hawley, Hawleyville, Conn. [Filed Feb. 21, 1876.]

Brief.—A triangular brace attached to the head and handle of a rake, for the purpose of strengthening the same.



The combination, with handle A and rake-head C, of the brace E, widening from rear to front, and receiving the two teeth D D, as and for the purposes specified.

176,854. BUNG-EXTRACTORS. Wm. Heinle, Lancaster, Pa. [Filed Feb. 17, 1876.]

Brief.—The point of the barbed stem is centrally cut upon the bung in the cask or barrel, and the lever arm at right angles. A blow with a hammer will drive the barb entirely through the bung, when a quarter-turn of the lever will bring the projecting shoulders of the barb across the cut made by it, and square against the under side of the bung. The fulcrum being adjusted, a blow on the head of the lever extracts the bung.

176,855. TUNING-FORKS. Edward Lyon, Jr., Brooklyn, N. Y. [Filed Feb. 21, 1876.]

Brief.—The weight of the tuning-fork consists of a screw-nut, which is intended to be adjusted to the fork by the ear.

The combination, with the tuning-fork A, of the screw-nut B, substantially as and for the purpose specified.

176,856. NUTMEG-GRATERS. S. W. Gear, Cambridge, assignor to Dover Stamping Company, Boston, Mass. [Filed Feb. 21, 1876.]

As a new article of manufacture, a nutmeg-grater consisting of tapering head B, semi-conical front A, bruised at *c*, and having internal to said head a the partition D, the whole united together without solder by the flanges and lugs *e f*, substantially as shown and described.

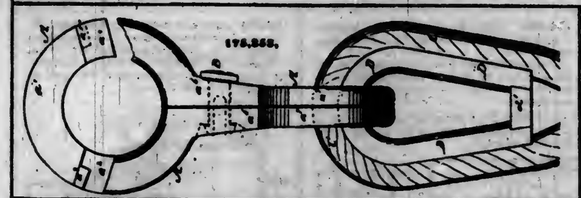
176,857. HORSESHOES. Henry Gourdier, New York, N. Y. [Filed Jan. 4, 1876.]



The tongues B, formed upon bases of heel-calks, and having forward end projecting, beveled, and slotted, to receive screw F, in combination with shoe having longitudinal dovetail slots G and closed ends, the said tongues being counted to enter slots of shoe in the same plane with lower surface of shoe, as and for the purpose specified.

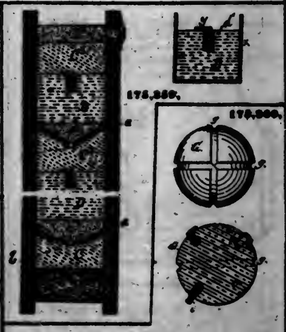
176,858. ILLUMINATING DEVICES. Levi B. Griffith, Philadelphia, Pa. [Filed Nov. 27, 1876.]

The reservoir D, constructed of a flat body, with the top and bottom *c d* of the levels, as stated, and with the supply-opening J and air-opening E, in connection with the downwardly-extending feed-pipe K, distributing-pipe F, and the supporting-pipe G, and with the outlet-tank M intermediate of the feed-pipe and distributing-pipe, all as set forth, and for the purpose specified.



176,858.

176,859.



176,860.

176,861.

176,862.



176,863.

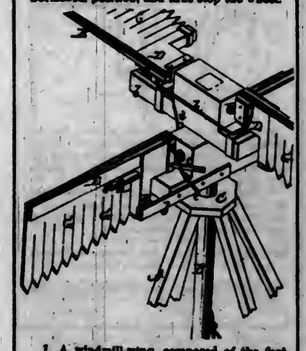
176,863. REVERSIBLE LOCKS. R. A. Kimball, Danville, Ill. [Filed Nov. 10, 1875.]



The combination, with key-holed case A and shouldered bolt B *g*, of the double-acting guard D, pivoted centrally in a recess of bolt, having curved portions *e'*, and provided with projecting teeth *e*, as shown and described, whereby the bolt can be locked by turning the same key in either direction.

176,864. WIND-WHEELS. Walter King, Richmond, Mo. [Filed Sept. 2, 1875.]

Brief.—The two wings of this wind-wheel are attached to one head and connected by a bent rod, so that each wing will assist the other in the quarter-circle shift which each makes. By means of cords passing from the tops of the wings down to the attendant below, he may lift and hold (by a fastening on the main shaft) any or all of the wings in a horizontal position, and thus stop the wheel.



1. A windmill-wing, composed of the foot or end piece D, tapering arm E, and elastic or spring slats G G, substantially as and for the purposes herein set forth.

2. The wings D E G, pivoted independently of each other upon spindles *a a*, extending at right angles from the main shaft, substantially as herein set forth.

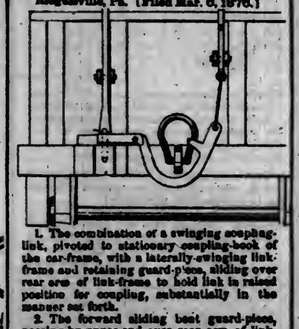
3. The combination of the main shaft B, bands C C, having spindles *a a* and stops *b a*, and the wings D E G, all constructed substantially as and for the purposes herein set forth.

176,865. GUARD-RAILS FOR RAILROAD-FROGS. John H. Lakey, Turner Junction, Ill. [Filed Feb. 21, 1876.]



The guard-rail C, in combination with the rail A, and secured thereto by means of bolts *b* passing through the necks of the two rails, and through a block or blocks located between A and C, substantially as and for the purposes specified.

176,866. CAR-COUPLINGS. John H. Lands, Riegelsville, Pa. [Filed Mar. 6, 1876.]



1. The combination of a swinging coupling-link, pivoted to stationary coupling-hook of the car-frame, with a laterally-swinging link-frame and retaining guard-piece, sliding over rear arm of link-frame to hold link in raised position for coupling, substantially in the manner set forth.

2. The forward sliding beat guard-piece, passing by upper end over rear arm of link-frame, and having a front plate at lower end to raise link-frame by contact with approaching car, substantially as set forth.

176,867. PYROTECHNIC SIGNALS. Edward F. Linton, East New York, N. Y. [Filed Feb. 14, 1876.]

Brief.—The channels through which the charge of powder is ignited are made in the periphery of the star, to preserve its strength and prevent its breaking. The powder-chamber is lined with a non-combustible lining, with a hole in the center, through which the time-fuse is ignited.

1. The colored star or stars D D for pyrotechnic night-signals, constructed with one or more vertical lateral grooves or channels, *d d*, as and for the purpose specified.

2. The colored stars D D, having channels for igniting the powder in the chamber below, and a central chamber, *d'*, for igniting the interior surface of the star, substantially as and for the purpose specified.

3. A time-fuse, having a powder-chamber of substantially the form shown, the same being protected by a thin wall or film, *a*, of some suitable flexible material, and having an opening or aperture, *b*, as and for the purpose specified.

4. The combination of one or more colored stars, D D, time-fuses C C' C', having powder-chambers, and a wall or film, *a*, with a central opening, *b*, substantially as and for the purpose specified.

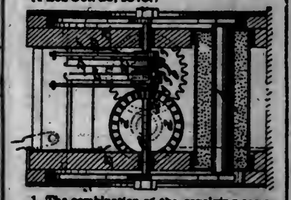
5. A pyrotechnic night-signal, consisting of a case, A, having its lower section plugged by a composition of some suitable non-combustible material, and its upper section protected by a water-proof cap or covering, one or more colored stars, D D, and one or more time-fuses, the latter being formed with a counter-sunk powder-chamber, and a powder-chamber, E, and a nipple or percussion-tube, F, the whole combined and arranged to operate in connection with any public or private system or code of signals, substantially as and for the purpose set forth.

176,868. PYROTECHNIC SIGNALS. Edward F. Linton, East New York, N. Y. [Filed Mar. 18, 1876.]

1. The colored star or stars G, for night-signals and other pyrotechnic devices, constructed or molded in the form of a sphere, and having one or more annular or belt grooves, *g*, encircling the same, substantially as and for the purpose specified.

2. The star or stars G, molded in the form of a sphere, and having one or more belt-grooves, *g*, and one or more chambers, *h*, substantially as and for the purpose specified.

176,869. MAGNETO-ELECTRIC MACHINES. Thomas W. Livingston, Ainsworth, Iowa. [Filed Oct. 29, 1875.]



1. The combination of the revolving armature carrying main shaft, having bevel-pinion, with two crank-shafts pinned at right angles thereon, and connected by gear-wheels, to produce greater or lesser speed of the main shaft, substantially as specified.

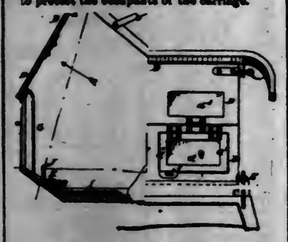
2. The revolving main shaft having insulated commutator, in combination with collecting and current-conducting springs attached to a lateral pivot-block of the frame, to adjust springs for producing currents of uniform or opposite direction, or interrupt entirely contact with commutator, as and for the purposes described.

176,870. APRONS. Joseph Malonso, Great Falls, N. H., assignor to himself and F. Malonso, same place. [Filed Mar. 18, 1876.]

As a new article of manufacture, an apron or clothes protector of patent-leather, sheep-skin, or other suitable material, having in the upper portion the gored seams B, constructed substantially as described, and a waistband, C, attached at intervals by seats D, substantially as specified

176,868. CARRIAGE-TOPS. Ezra Marsh, Newark, N. J. [Filed Dec. 4, 1875.]

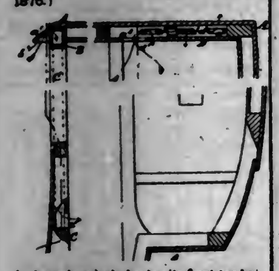
Brief.—An attachable and detachable fender to protect the occupants of the carriage.



1. The frame E, arranged on floor *c* and curved in front, as and for the purpose set forth.

2. The shield D, connected with rods C by swiveled eyes E, to enable the glass section to make a different angle with dash, according to the relative position of dash and top, as and for the purpose specified.

176,869. VENTILATING CARRIAGES. Ezra Marsh, Newark, N. J. [Filed Jan. 15, 1876.]

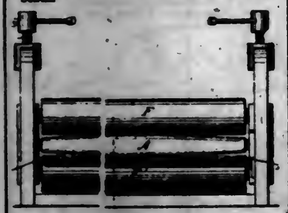


1. A carriage-body having its front top bar S and posts C made hollow or tubular, and provided with the openings *b' c'* to admit fresh air to said carriage-body, substantially as herein shown and described.

2. A carriage-body, provided with the space *c²* and the openings or holes *d' c²* in its rear part for the escape of foul air, substantially as herein shown and described.

176,865. SHEET-METAL-STRAIGHTENING MACHINES. Caleb Marshall, Philadelphia, Pa. [Filed Jan. 31, 1876.]

Brief.—The sheet to be straightened having been fed, between the horizontal fixed rolls and the pivoted roll-bearing frame, into the bite of the rolls, the frame is raised, causing the sheet, as it is fed forward, to follow short bends.



1. The combination of the fixed rollers B B B with the vibrating frame C, provided with the rollers C C, and operated by the treadle D, in the manner and for the purpose set forth.

2. The combination, with rollers A, B', and F', of the inclined adjustable plate E, arranged and operating in the manner and for the purpose of removing the curvature imparted by the action of said rollers, as stated.

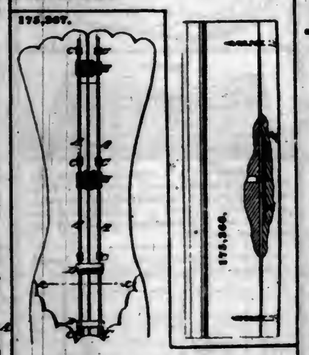
3. The roller A, having the double tapering shape described, and placed between the large rollers F F, in the manner and for the purpose indicated.

176,866. TRAM-STAFFS. Mathias Mathiesen, Rock Island County, Ill. [Filed Aug. 4, 1875.]

Brief.—The strip is secured at each end of the staff, and by turning the set-screw in the center of the staff downward it gives a convex surface.

The strip B, constructed substantially as and for the purpose and in the manner specified and set forth.

176,867. SHOE-FASTENINGS. C. Mayrain, Beardstown, Ill. [Filed Jan. 20, 1876.]



Brief.—Wires are secured on each side of the opening of a shoe, and elastic or non-elastic clasps are adapted to slide up and down these wires, to open or close the shoe.

The combination of wires A and clasps D and B, with a shoe, for the purpose of fastening it, as substantially as specified.

176,868. GUARDS FOR RAILROAD-CROSSINGS. Lyman L. McOrea and R. V. Coon, Troy, N. Y. [Filed Feb. 14, 1876.]

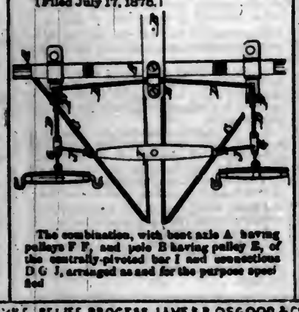


The guard D, having one edge, *d'*, formed to fit upon the flange and into the neck of the rail B, and its other edge formed to fit against the edge of the planking C, recessed upon its upper side, and provided with a flange, *d²*, and lugs *d³*, to underlap the planking C, and the flange of the rail B between the ties A, substantially as herein shown and described.

176,869. CONCRETE PAVEMENTS. James E McClintock, New Orleans, La. [Filed Apr 6, 1876.]

Trinidad or Cuban asphaltum, pulverized or reduced to a powder, as an ingredient in all paving and roofing compositions where coaltar or artificial asphaltum is used as the cementing or the basis of the cementing property, as and for the purpose specified.

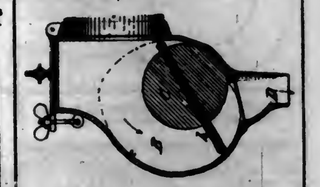
176,870. DRAFT-EQUALIZERS. Alexander Mahaffy, Pleasant Hill, Ind., assignor to himself and William Brown, same place. [Filed July 17, 1876.]



The combination, with boat axle A having pulleys F F, and pole B having pulley E, of the centrally-pivoted bar I and connections D G J, arranged as and for the purpose specified

176,871. APPARATUS FOR FILLING CANS. C. Lewis Merrill and Oscar F. Soule, Syracuse, N. Y. [Filed Jan. 26, 1876.]

Brief.—The material is forced, by the sliding flange of the roller, beneath the valve in the spout, and into the can.



1. The apparatus for filling cans, consisting of the revolving winged cylinder C, in a tight case, B, as described, with an inlet from the preparing-reservoir, and a contracted outlet, D, to fit the can-opening.

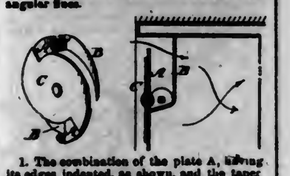
2. The valve *i* in the discharge-spout D, in combination with the revolving cylinder C, provided with the slide *h*, as and for the purpose described.

3. The tight covered case B, having a rest therein, as herein specified, in combination with the filling apparatus described.

4. The elevating spring-platform, for holding the cans up to the filling-spout, as herein specified, in combination with the filling apparatus.

176,872. DAMPERS. George Merrill, Newburyport, Mass. [Filed Jan. 12, 1876.]

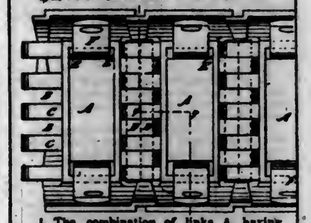
Brief.—Applicable in either circular or rectangular flues.



1. The combination of the plate A, having its edges indented, as shown, and the tapering arms B, secured rigidly to the plate immediately behind the indentations, as shown and described.

2. The combination of the indented plate A, the curved tapering arms B, and the pivoted plate C, constructed and arranged to operate as shown and described.

176,873. BELTINGS. Jno. Neumann, Brooklyn, N. Y. [Filed Mar. 6, 1876.]



1. The combination of links A, having notches B and looped projections C, and the connecting-pins D, having oval surfaces of the sides bearing together, substantially as specified.

2. The combination of the inclined side plates G with the links A, substantially as specified.

3. The side plates G, connected to the links A by the plates F, arranged in slots E, and riveted to the plates, substantially as specified.

4. The combination of ribs *a* and *b* on plate G with the belt A, substantially as specified.

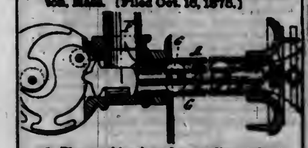
176,874. CANISTERS. Edwin Norton, Chicago, Ill. [Filed Oct. 20, 1875.]

The canister, having a storage-case, A, for the whole spices, the compartment B to receive the ground spices, the doors C and D, the mill E, and board F, all combined as and for the purpose herein set forth.



176,874.

176,875. AUTOMATIC HEAT-REGULATORS FOR FURNACES. Alvin C. Norcross, Boston, Mass. [Filed Oct. 16, 1875.]



1. The combination of expanding-tube A, non-expanding rod D, intermediate air-chamber B, and a tube, F, forming a draft-flue, as and for the purpose specified.

2. The regulating-rod, having the radial studs G, in combination with the inclosing-tube, substantially as specified.

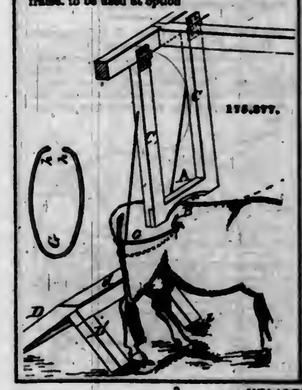
176,876. HORSE HAY-RAKES. Benj. Owen, Dayton, Ohio. [Filed July 10, 1876.]



The rake-head or beam B, when slotted longitudinally open its forward face, and provided with elliptical openings passing horizontally through it from rear to front, and opening in said slot, in combination with the bars F and G, united as described, and connected to the head by the flat steel springs *a a*, and having the teeth arranged in connection with the other parts, as shown, and held in position by the bar I, in the manner and for the purpose specified.

176,877. STOCKS FOR MILCH-COWS. Joel Page, Fitchburg, Mass. [Filed Mar. 22, 1876.]

Brief.—A frame suspended over the animal's loins, fitting sharply on the back, prevents the kicking action; a removable "hook" prevents her from bucking; a spring-clamp to constrain her tail is suspended from the suspended frame, to be used at option



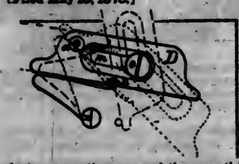
176,877.

1. The beard A, provided with the cut-out B, having beveled edge *a*, and attached to hinged hangers C C, substantially as and for the purposes herein set forth.

2. The book herein described, formed of the frames D D', hinged together, and provided with the points *i* and edge *d*, substantially as and for the purposes herein set forth.

3. As arranged in relation to the parts A B C, the bent wire G, provided with inwardly-projecting ends *h h*, and applied substantially in the manner and for the purposes herein set forth.

176,878. AUTOMATIC PROPS FOR PIANO OR ORGAN LIDS. Daniel P. Ramsdell, New Haven, Conn., assignee of one-half his right to Theodore B. Carpenter, same place. [Filed May 13, 1875.]



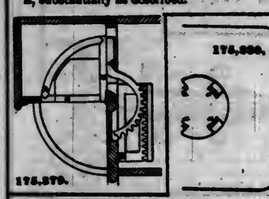
1. An automatic prop, consisting essentially of pivoted and slotted prop and a bent spring pivoted at one end and connected at the other with said prop, substantially as set forth.

2. In an automatic lid-prop device, the piece D, provided with the straight slot *m*, also provided with the projection *a*, and with the notch *n*, and with the projection around the notch *n*, substantially as set forth.

3. In an automatic lid-prop device, the spring F, made with eyes on its ends, as described, and formed and arranged to operate the slotted piece D, substantially in the manner described.

176,879. DESKS. Franz Jos. Ramsbarger, Cincinnati, Ohio. [Filed Jan. 17, 1876.]

In a writing-desk having the cylindrical revolving cover D and sliding leaf E, the combination of segmental rim A, secured to the inner brace of said rim, and the bracket B, secured to and depending from the sliding leaf E, the said rim and bracket being geared together for the purpose of opening or closing said cover D by extending or closing the leaf E, substantially as described.



176,879.

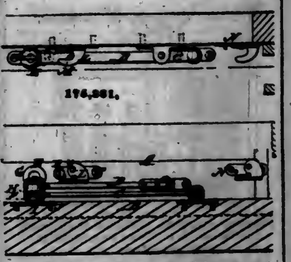
176,880. SCREW-CUTTING DIES. John F. C. Rider, South New Market, N. H., assignor to Helen A. Rider, same place. [Filed July 20, 1875.]

Brief.—The stock is of malleable iron, and has radial mortises, into which hardened steel cutters are inserted and fixed by brazing.

The within-described die as an article of manufacture, consisting of a stock and of steel bits or cutters securely and firmly connected therewith, and adapted to be removed and adjusted, substantially as shown and described.

176,881. SHUTTER AND DOOR FASTENERS. Thomas B. Rogers, Jr., Brooklyn, N. Y., assignor to Max Halhaimer, same place. [Filed Feb. 21, 1876.]

Brief.—Two bars or rods, of unequal length, jointed together, and secured one to the door or shutter, and the other to the sill-piece, in such manner that, they swing with the door or shutter, their unequal length, when they come together by the closing of the door, preventing the tampering with them from outside. The hinging connection is a clamp-joint, which can be tightened to bow the door or shutter, there being also a downward-depending stud or pin, for more positive fastening, and suitable hooks and stops, for holding the bars in position.



176,881.

1. The bars C D, of unequal length, and clamp-joint E, combined with a door-shutter or window-blind, and the door-sill, window-sill, or frame B, substantially as specified.

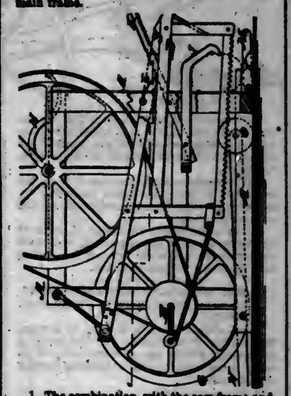
2. The stud I, in combination with clamp-joint E, of bars C D, and the blind or door and frame, substantially as specified.

3. The catches I, N on the blind or door, with stud M on bar D in such manner as to look with it both when closed and open, substantially as specified.

4. The stops P, combined with hook L or N, to hold it above the bars, substantially as specified.

176,882. SAWING-MACHINES. W. G. Saunders, Atlanta, Mo. [Filed Mar. 6, 1876.]

Brief.—A sawing-machine is provided at the front and lower part of the main frame with a ground-hook, on which the logs are to be rolled and fastened by a dog attached to and operated by a pivoted lever. For pressing a number of small pieces at the same time, a pivoted helper is attached to the ground-hook, and caused to engage with the dog by means of a stud upon its outer end. For moving the machine from place to place, the frame is mounted on a pair of truck-wheels attached to the ends of pivoted shafts secured upon the outer sides of the lower portion of the main frame.



1. The combination, with the saw-frame and the gear for operating it, of the ground-hook I, dog J, and the lever K, substantially as specified.

2. The combination of helper M with the frame A, saw B, dog J, and the lever K, substantially as specified.

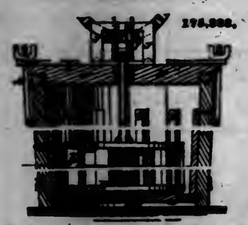
3. The truck-wheels O and shafts N, combined and arranged with the frame A and the sawing mechanism, substantially as specified.

176,883. CHURNS. Edward W. Shephard, Wilmington, Ohio. [Filed Jan. 22, 1876.]

Brief.—A vertical churn and revolving dasher, the upper and lower bars of which dasher are scroll-formed, the vertical bars between being inclined and stepped on their outer sides.

The combination of parallel concave-convex bars D D, outer vertical paddles E, having shoulders *e* and inclines *e'*, and the inner vertical paddles F, having steps *f'*, with the stationary ribs G on the inside of churn, as and for the purpose specified.

176,866.



176,866. AUGER. William H. C. Smith, Fountaine, R. I. [Filed Feb. 21, 1876.]



1. The bit B secured in an auger-tube, A, by projections on the former fitting into grooves and recesses of the latter, as shown and described.

2. The combination with a radial boring-lip, B', of a short cutting-lip, C, arranged in front thereof, as shown and described, to divide the chip and cause the auger to throw out the wood in small pieces.

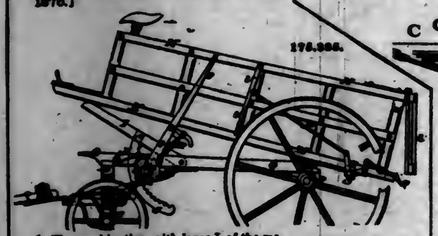
176,867. MACHINES FOR MAKING LEAD TRAPS AND BENDS. Thomas F. Stevenson, Brooklyn, N. Y. [Filed Aug. 11, 1876.]

Brief.—The rollers, when both revolve in different directions, form straight pipe, but when one remains stationary the pipe bends around it in the process of manufacture, making a single bend. A second bend for an S is secured by interchanging the respective duties of the rollers.

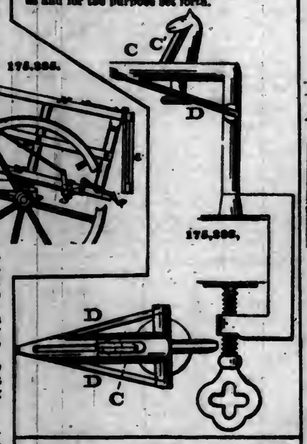


The fountain and its core and die in combination with the pair of semicircular-grooved rollers for casting and simultaneously bending lead traps, substantially as set forth.

176,868. DUMPING-WAGONS. Samuel R. Shepard, Urbana, Ohio. [Filed Feb. 14, 1876.]



176,868.



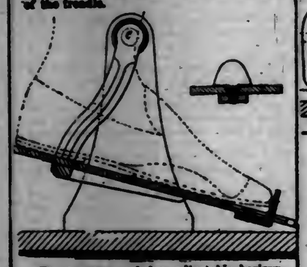
1. The combination, with lever I, of the median bar G, and middle bent-bar of bar H, arranged on different sides of the longitudinal central line of wagon, as and for the purpose described.

2. The combination of catches Q Q, one on each side of body, and both connected by angle-levers with the same rock-shaft, for the purpose set forth.

3. The combination of detent N, lever O having spring-pawl and ratchet M, with shaft having pinion K and the arc-rack J, carrying lever I, for the purpose specified.

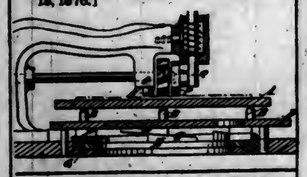
176,869. SEWING-MACHINE TREADLES. W. E. Stewart, Brooklyn, N. Y. [Filed Sept. 16, 1875.]

Brief.—The adjustable toe-step is to place the position of the foot on the foot-board of the treadle, so that the ankle-joint may be directly in line with the axis or center of motion of the treadle.



The toe-step or ledge, adjustable horizontally or otherwise upon the foot-board, in combination with a treadle, substantially as and for the purposes set forth.

176,870. LEATHER-SKIVING MACHINES. E. B. Stimpson, Brooklyn, N. Y. [Filed Mar. 18, 1876.]

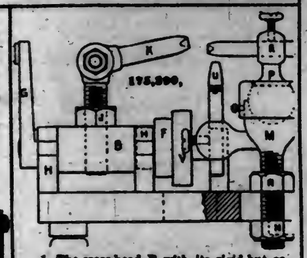


1. The combination of roller-gage N, rotary cutter K, and rotary presser P, substantially as specified.

2. The combination of the sliding, revolving, and vertically-adjusting work-table A with the rotary gage P, cutter K, and presser P, substantially as specified.

3. The combination of work-table A, cast-arc or studs B, center-plate D, and cam-ring G E, substantially as specified.

176,871. DIAMOND-CUTTING MACHINES. E. D. Stevens, New York, N. Y. [Filed June 1, 1874.]



1. The cross-head B with its rigid but rotary and adjustable post or tool-holder I and jointed arm K, when operated in the manner and for the purpose set forth.

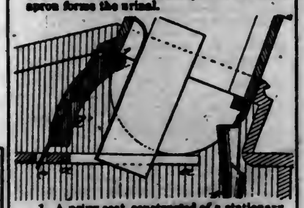
2. The rigid but rotary and adjustable tool post or holder M, with the ball-and-socket joint O and ball P, socket or tube R, and sliding dog or tube S, with the jam-nuts or binding-screws N N and T, when operated in the manner and for the purpose set forth.

3. The rigid and adjustable slide-rest U, with its binding-screw V, in combination with the holder S, operating in the manner and for the purpose set forth.

4. The reciprocating dog K, in combination with a stone-supporting holder, S, capable of free movement or adjustment in any direction, in order to present the gem to be cut at any desired angle, substantially as described.

176,872. PRIVY-SEATS. Branch Tanner, Chesneyville, La. [Filed Feb. 14, 1876.]

Brief.—When not desirable to use the device for fecal matter, the seat may be swung back under the fixed cover; then the front apron forms the urinal.



1. A privy-seat, constructed of a stationary seating, rear cover, and oscillating seat, with swinging front and rear aprons, substantially in the manner and for the purpose set forth.

2. The combination of the semicircular side parts of the seat with the supporting strips, to move therewith, as set forth.

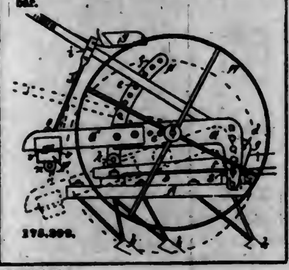
3. The seat, having rear trunnions in combination with the arc-shaped guide-grooves of the casing, to control oscillating motion of seat, as set forth.

4. The swinging front apron, in combination with the side strips of the casing, to hold apron in inclined position when seat is thrown back, for the purpose set forth.

5. The combination of oscillating seat with stationary cover and rear apron to cover seat-frame, substantially as set forth.

176,873. CULTIVATORS. L. P. Thompson, Phelps, N. Y. [Filed Jan. 26, 1876.]

Brief.—The frame carrying the shovels within the wheel-frame, and hinged to it at the front end. The latter may be turned over to travel in front of the cultivating-frame. Devices for supporting and balancing the seat-bar.

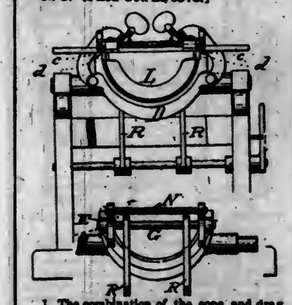


176,873.

1. In combination with the primary and secondary frames hanged together in front, the front pole, hinged seat-bar H, and pivoted standards J, and adjusting segment or bar-H, constructed and arranged to operate consistently, substantially as and for the purposes set forth.

2. In a combined fallow and drag cultivator, the secondary frame, provided with coupling-loops a on the upper and lower side of the foot-bar F, and otherwise constructed as shown and described, whereby it may be attached to the primary frame, as shown, for cultivating fallow ground, or attached thereto in an inverted position, so as to receive longer-shanked teeth or "hillers," to adapt the same machine for cultivating growing crops.

176,874. MOLDS FOR CASTING STEREOTYPE-PLATES. Stephen D. Tucker, New York, N. Y. [Filed Oct. 21, 1875.]



1. The combination of the cope and drag, the former provided with grooves running in the direction of the curve in the convex side, and the two hinged together, substantially as shown and described.

2. The combination of the cope L, provided with groove running in the direction of the curve in the convex side, with the drag D, the two hinged together at one end, and provided with means, substantially as described, at the other end for partially raising the cope from the drag.

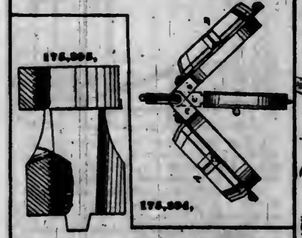
3. The side bars X, provided with beveled lips or hooks *a*, substantially as shown and described.

4. The side bars X, provided with lips or hooks *a*, in combination with the drag D, beveled off at *d*, substantially as shown and described.

5. In combination with supporting-arms R, the rod N on the cope L, substantially as shown and described, and for the purpose set forth.

176,875. LOCKETS. David Untermeyer, New York, N. Y. [Filed Jan. 15, 1876.]

The combination, in a locket, of the pivoted parts A B C, the latter holding a picture on both sides, and the two former having opposite rims or flanges that fit over and inclose the pictures, as shown and described.



176,875.

176,876. VALVE-COUPLERS FOR OIL-WELLS. William Walker, Baldwin, Pa. [Filed Jan. 7, 1876.]

Brief.—A coupling-section screwed to the top lever plunger, which is lowered into the barrel and connected by a threaded stem with an interior-threaded section, that is applied to the bottom part of the next plunger, to be screwed to the lower section when the reserve section is to be brought into operation.

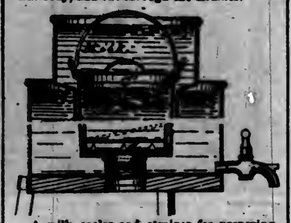
1. A valve coupling or connection of oil-well valves, composed of a lower section plunger, and of an upper section or cup to be attached to the plunger, or cup attached to the valve at the end of the sucker-rods to be connected by screw-joint, while in the working-barrel, substantially in the manner and for the purpose set forth.

2. The lower coupling-section, having a threaded stem or shank and a notched jam-nut traveling thereon, in combination with the upper interior-threaded section, having lugs to engage the jam-nut, substantially as specified.

3. The stem or shank of the lower coupling-section being threaded at the upper end and smooth at the lower end to admit the free running of jam-nut on smooth part, and the tight screwing up of the upper section, substantially as described.

176,877. MILK COOLERS AND STRAINERS. Chas. Wolcott, Bloomingdale, Ill. [Filed Mar. 6, 1876.]

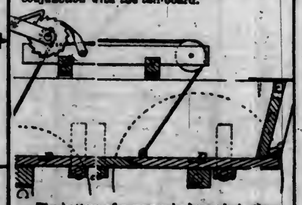
Brief.—Milk passes through spiral channel between two bodies of water, under the central body, and out through the strainer.



A milk cooler and strainer for preparing milk for transportation, consisting of an outer cooling-receptacle, with bottom exit-tube, a milk-receiver, with bottom strainer and exit-tube placed thereon, and an interior cooler, forming, by a spiral rib, a narrow passage for the milk to the outlet-tube, all arranged and applied substantially as set forth.

176,878. DUMPING-WAGONS. Jared Wells, Grand Rapids, Mich. [Filed Sept. 17, 1875.]

Brief.—The sectional bottom operates in conjunction with the tail-board.



The bottom of a wagon-body made in three sections, D D D, and having on the rear one a cleat, *c*, combined with a tail-gate pivoted near the top, as and for the purpose specified.

176,879. PAPER BOXES. Chas. A. Wheaton and Asbury S. Wheaton, Cranford, N. J. [Filed Aug. 26, 1875.]

Brief.—A band-box constructed in a simple way of two pieces of paper, in combination with a stand for a hat, which is attached by paper cleats to the bottom of the box.



1. A paper box constructed of strip A, folded transversely on the lines *a*, *b*, *d*, and *e*, in combination with piece E, having flaps C and folded on lines *f*, *g*, *h*, and *i*, substantially as specified.

2. The combination of the hat-stand D, constructed substantially as described, with the parts A B of a folding box, said stand being permanently attached at one end, B, and detachably connected by the other end to the bottom of the box, as and for the purpose specified.

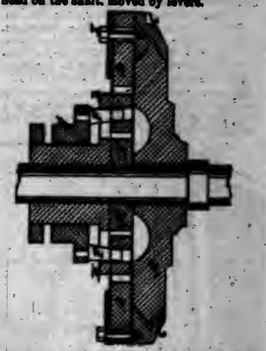
176,880. SHOT-CARTRIDGES. Thomas Wilkinson, Brooklyn, E. D., N. Y. [Filed Mar. 13, 1876.]



Shot-cartridges formed by placing perforated shot U upon sets of wires E, between two wads, A D, substantially as herein shown and described.

176,881. FRICTION-CLUTCHES. Edwin F. Williams, Bald Mountain, Colo. [Filed Mar. 13, 1876.]

Brief.—A friction-clutch in which the V-shaped brakes are drawn against the face of a disk-wheel by wedges moved by the sliding head on the shaft, moved by levers.



The combination of disk A, brakes C, slides D, disk E, wedges F, and the sliding head G, substantially as specified.

176,882. FEED-WATER HEATERS AND PURIFIERS. John L. Winston, Newport, Ky. [Filed Sept. 22, 1875.]

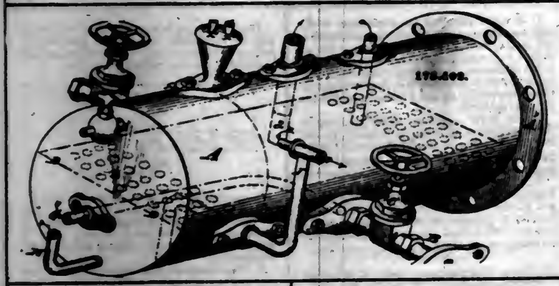
Brief.—A steam-pipe rest: the bottom of the vessel agitates the sediment, which is drawn off through a siphon-pump.

1. The chamber A, located between the ordinary heater of a steamboat-boiler and the river, and so connected as to receive cold water from the river at pipe B, hot water from the overflow of the ordinary heater at pipe E, and to deliver its water from an elevated point in the chamber through pipe *c*, substantially as and for the purpose specified.

2. The chamber A, having its pipes connected and operating as described, in combination with the perforated dividing-plate D.

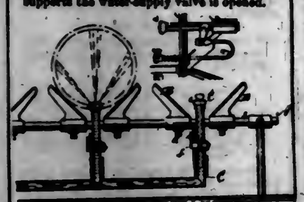
3. In combination with the supply-pipe B, the steam-jet G, operating substantially as and for the purpose specified.

4. The combination of steam-jet H and blow-off siphon-pump I, operating substantially as and for the purpose specified.



175,402. RAISER-WASHERS. Alfd. Keller, Hoboken, N. J. (Filed Jan. 20, 1876.)

Brief.—When the barrel is placed on the supports the water-supply valve is opened.

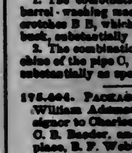


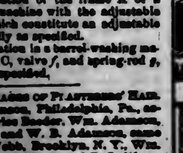
1. The combination of the frame A of a barrel-washing machine with the adjustable cruciches B B, which constitute an adjustable bent, substantially as specified.

2. The combination in a barrel-washing machine of the pipe C, valve *f*, and spring-rod *g*, substantially as specified.

175,404. PACKAGES OF FLAVORING HAIR. William Adamson, Philadelphia, Pa., assignor to Charles Reeder, Wm. Adamson, C. B. Reeder, and W. B. Adamson, same place, R. F. Webb, Brooklyn, N. Y., Wm. M. Scott, Boston, Mass., and B. J. Adamson, Chicago, Ill. (Filed Feb. 19, 1876.)

As a new article of commerce, a bundle or package of plaitwork hair, consisting of a thin layer of the hair rolled up with and enveloped by a sheet of paper, as set forth





175,405. PADDLE-WHEELS. Frederic W. Bartrufl, Lawrence, Kans. (Filed Oct. 28, 1875.)

The combination of a closed cylinder, or a sector carbon of revolution, with radial surfaces extending outward to meet tangent surfaces, either plane or curved, which extend forward, substantially as described.

175,406. BROOM GRAIN-SCOURERS. Norman A. Bernard, Moline, Ill. (Filed Dec. 20, 1875.)

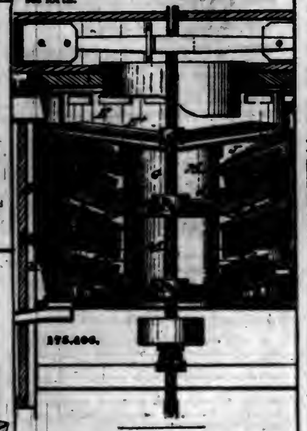
1. The stationary disk-shaped securing-plate J, provided with ribs on its under side which radiate from its central opening to the periphery, in combination with the revolving brush K, arranged with respect to the inclined face of the securing-plate, substantially as and for the purpose herein set forth.

2. The central pipe or projection M, in combination with the opening *b* of the revolving brush, for the purposes herein set forth.

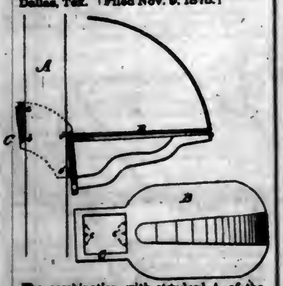
3. The combination of the stationary brush K', arranged with its bristles projecting downward, and the revolving brush K', arranged with its bristles projecting upward, so that the brushes will operate against each other, for the purposes set forth.

4. The combination, with the upright shaft and revolving brush of a grain-scouring machine, of the spider L, constructed, as described, with the inner ends of its arms set at an angle, and the spaces between the outer ends filled, substantially as and for the purposes herein set forth.

5. The projections A, formed on the under side of the spider L, for the purposes herein set forth.



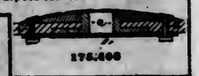
175,407. STILTS. Franklin Beaumont, Jr., Dallas, Tex. (Filed Nov. 9, 1875.)



The combination, with stirrup A, of the stirrup B and internally-toothed sleeve C, the two forming one lever, that has its fulcrum at *b*, and is adjustable, as and for the purpose specified.

175,408. HARNESS-PADS. Ernest F. Best, Newark, N. J. (Filed Feb. 10, 1876.)

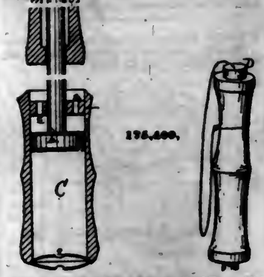
The harness-saddle pad, provided with a recess for the turret-nut, and supported by an under plate rivited to the pad, and a detachable cap-plate provided with slots in its ends for the reception of the swiveled fastening devices, for the purpose set forth.



175,409. TOY POP-GUNS. Carl Beer, Chicago, Ill. (Filed Feb. 16, 1876.)

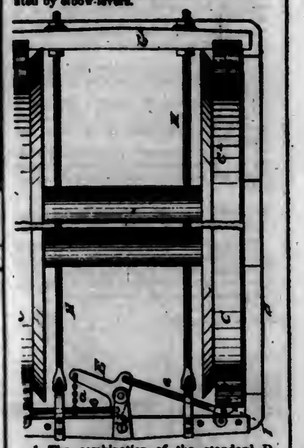
Brief.—A combined pop-gun and whistle.

The combination of the hollow handle C, having the whistle *c*, with the plunger B of a pop-gun, provided with the piston A, fitted to the bore of said handle, substantially as described



175,410. CAR-BRAKES. Stephen B. Bennett and Jesse Gongwer, Jr., Pittston, Pa. (Filed Jan. 13, 1876.)

Brief.—Brake-blocks applied by cams actuated by elbow-levers.

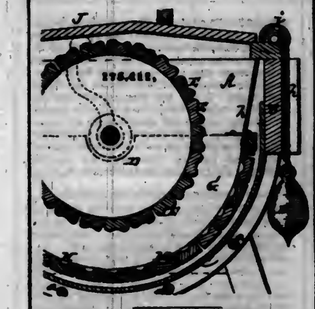


1. The combination of the standard D, chain *a*, T-shaped lever E, beam G, rods *e e*, cams I I, and shoes J J, all substantially as and for the purposes herein set forth.

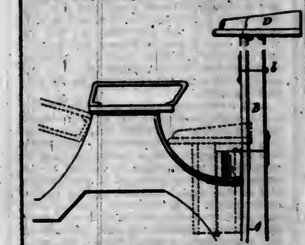
2. The combination, with the beam G, lever E, rods *e e*, cams I' I, and shoes J *f*, of the tension-rods H H, beam G', and shoes J' J', all substantially as and for the purpose herein set forth.

175,411. WASHING-MACHINES. Wm. G. Blackledge, Metamora, Ind. (Filed Sept. 18, 1875.)

The plate H H connected to the semicircular heads G G, hinged at one end to the box, and adjusted with respect to the cylinder D by the cord h (passing over the pulley *i*) and weight I, all substantially as and for the purposes set forth



175,412. FOLDING CARRIAGE-TOPS. C. W. Blackman, New Haven, Conn., assignor to Durham & Wooster, same place. (Filed Jan. 24, 1876.)

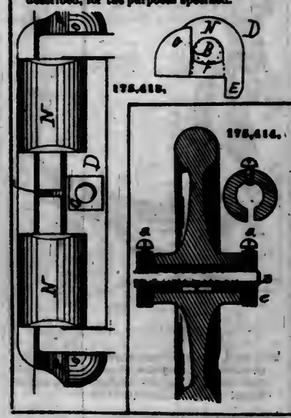


The door-post of a carriage completely divided transversely into the three parts A B C, each hinged to the other, the two sections B C to fold down parallel to each other and to the part A, and combined with a portion, D, of the top attached to the upper section C, all substantially as described.

175,413. THUMB-FASTENINGS FOR HORSE-RAKES. John Blackwood, Dayton, Ohio, assignor of one-half his right to B. C. Taylor, same place. (Filed Dec. 21, 1874.)

1. The fastening for the teeth of horse hay-rakes, consisting of the channeled base-plate D, the lip E at the front edge thereof, the bosses N N, to receive two rake-teeth, and the projections *o o*, to prevent the teeth from slipping out of the bosses, all cast in one piece, and secured to the top of the axle or rake-head by a single bolt, G, substantially as described, for the purposes specified.

2. The compound tooth-fastening device, constructed, as described, with the guide-channels outside the bosses N N, substantially as described, for the purposes specified.



175,413.

175,414.

175,414. COMPENSATING-JOURNALS FOR MACHINERY. Hiel Bonesay, Jr., Norwalk, Ohio. (Filed Mar. 22, 1876.)

1. The compensating-journal consisting of the slotted sleeve-bearing *c*, provided with the set-screw S, passing through the same, and bearing upon the shaft or rod B, whereby the sleeve is expanded to compensate for wear, substantially as and for the purpose described.

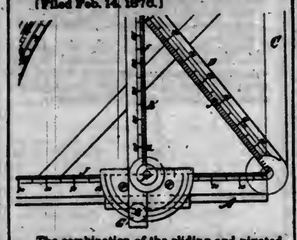
2. The combination of the two slotted sleeves *c c*, provided with their set-screws S S, piercing through the said sleeves and bearing upon the rod or shaft B, and the space X left between the two sleeves for retaining a supply of oil, substantially as and for the purposes described.

175,415. HARNESS-BUCKLES. William G. Bunker, Portage City, Wis. (Filed Feb. 10, 1876.)



A metal loop clasp or fastener, A, provided with the bars or keepers *b b'* in the same plane, and with a single cross-bar, *c*, having a pin thereon between said below the keepers, all constructed as herein shown and described, and for the purpose specified.

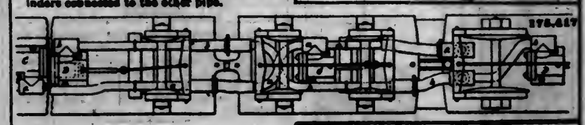
175,416. QUADRANTS. James T. Dustin, St. John, N. B., assignor of one-half his right to Charles W. Bertenex, Brooklyn, N. Y. (Filed Feb. 14, 1876.)



The combination of the sliding and pivoted bar E with the bar A, arc C, and index D, the bars A and E, and the index D, being scaled in miles, and the arc being provided with the scale I of points, substantially as specified.

175,417. RAILROAD-TRAIN BRAKES. James D. Reiter, Lancaster, Mass. (Filed Aug. 26, 1875.)

Brief.—There are two lines of pipe. The brake-cylinders on alternate cars are connected to the same pipe. Both sets of brakes may be operated together, or, if one pipe breaks, the strain may be stopped by the cylinders connected to the other pipe.



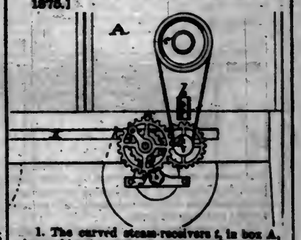
1. The combination, on each car, of two pipes crossing each other, and a brake-cylinder connected with one of said pipes, so that the cylinders of adjoining cars will be operated through different pipes, substantially as and for the purpose set forth.

2. The line of pipes throughout the train, separated into two distinct parts having no communication with each other, one of which connects with the cylinders or their equivalents, for operating part of the brakes of the train, and the other with the cylinders or their equivalents, for operating the remaining brakes.

3. The separate exhaust-chambers *a''* and *b''*, and the ejector-pipes *a'''* and *b'''*, in combination with the stove *c*, which communicates with the brake-cylinders operating part of the brakes in the train, and with the pipes *b*, which communicate with the cylinders which operate the remaining brakes, or their equivalents, substantially as and for the purpose set forth.

4. In a double ejector for a vacuum-brake apparatus, the chest *a'' b''*, with the partition *c*, substantially as and for the purposes described.

175,418. FEATHER-RENOVATORS. Alex. Carbonov, Potsdam, N. Y. (Filed Dec. 6, 1875.)



1. The curved steam-receivers *i*, in box A, in combination with pipe *c*, and valve *h h'*, as and for the purposes described.

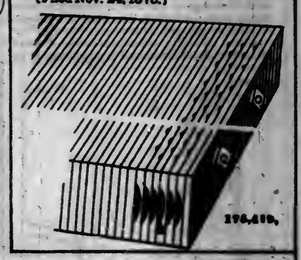
2. The perforated pipe *c*, with its connecting branches in combination with pipe *a*, communicating with steam-receivers, valve *h h'*, and steam-condensor B, as shown, for the purposes set forth.

3. In combination with the slotted frame B, the adjustable screll fan *d*, and its casing provided with cleats, as set forth.

4. The combination of fan *d*, and its casing, driving-wheel *a'* secured thereto, and pinion *b*, all being adjustable together as shown, with the feather-chambers A, as set forth.

5. The box A, with wire-cover *f*, and provided with the curved steam-receivers and screen S, forming a receptacle, and the stirrer V, in combination with pipes *b* and *c*, and their branches, as and for the purposes set forth

175,419. TABLES UPON WHICH TO ROLL PLATE-GLASS. Samuel Cassiday, John B. Ford, and Chas. S. Snead, Louisville, Ky. (Filed Nov. 24, 1875.)

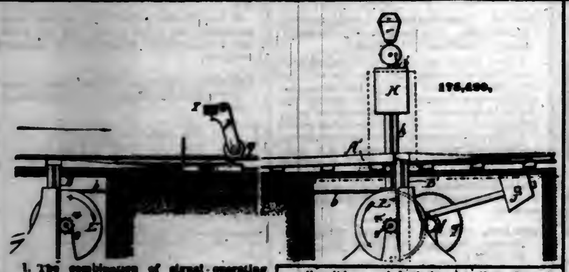


1. A table for use in rolling plate-glass, constructed of sections or bars of metal detachably secured together, whereby the size or width of said table may be varied at will, or as necessity requires, substantially as described.

2. A table for use in rolling plate-glass, constructed of sections or bars of metal detachably secured together, and having ventilating spaces or devices, substantially as described.

175,420. RAILROAD-SIGNALS. James H. Osterson and Robert Bruce, Philadelphia, Pa. (Filed Jan. 17, 1876.)

Brief.—A signal-lantern and alarm apparatus are mounted upon a post, which is elevated and depressed by the action of the train upon a system of horizontal levers and gearing. When the post is in its lowest position, the lantern and alarm are inclosed in a case. A weighted cord passes over a pulley connected with the alarm, by which, when the post is raised, the alarm is sounded.



176,490.

1. The combination of signal-operating mechanism with the levers A A', their bars B B', the wheels E E', operated by the said arms, and the connecting-rods b, all as and for the purposes set forth.

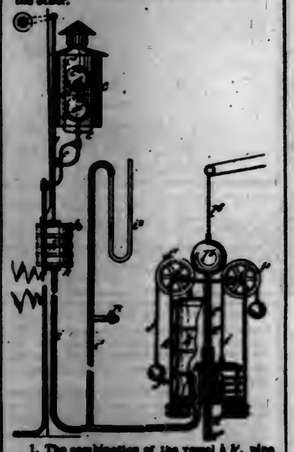
2. The combination of the levers A A' and their toothed bars B B' with the shafts c c', their pinions e e', and wheels E E', connected together by a rope, k, and with devices by which the motion of the shaft c' is transmitted to the post h of the signal, all substantially as set forth.

3. The combination of the signal F, capable of being raised and lowered, with the gong I and clock-work H, and with devices, substantially as described, whereby the clock-work is set in motion on the raising of the signal, and stopped on the lowering of the same, all as set forth.

4. The combination of the operating-levers A A' with the arm p, pivoted to the locomotive or car, and having a projection, r, adapted to the bar r, as and for the purpose set forth.

176,491. PNEUMATIC SIGNALING APPARATUS. Austin Chambers, No. 260 Marylebone Road, Great Britain. [Filed Nov. 18, 1875.]

Brief.—A manometer-arm and a signal-lantern, with "safety" and "danger" lenses, are so connected with a movable rod, which is operated by change of pressure in the air-pipe with which it is connected, that they are moved simultaneously, to indicate either "danger" or "safety," according as the levers which operate the compressors are moved in one direction or the other.



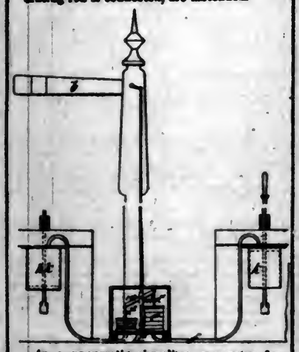
1. The combination of the vessel h h', pipe i, charged with elastic fluid, compressor k, operated by weights p' P, and the rod p, connected to the manometer-arm b, and barrel r, fed with gas by the flexible tube f, and guided by the frame s, so as to operate in conjunction with the "safety" and "danger" lenses s' s'' of the lamp s, carried by the post q, all in the manner above set forth and described with reference to Figs. 1, 2, 3, and 4, for the purposes specified.

2. As part of a pneumatic signaling apparatus for railways, the pressure-changing apparatus, consisting of the lever l P, chain P', weight P'', stem P', tube P, rod P', guide P''', collapsible vessel h, chains f, pulleys f', and weights p', the whole as arranged that the lever may be instantaneously moved over, and that the expansion or collapse of the chamber to alter the signal will be completed automatically, as above described, for the purposes specified.

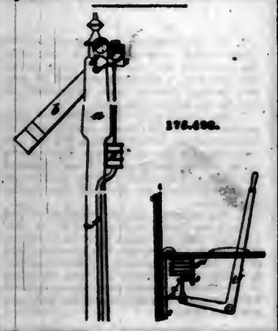
3. The combination, with a lantern, s, slotted division s', lenses s' s'', pipe i, charged with elastic fluid, and apparatus for changing its pressure, of a collapsible vessel, h, barrel d, weight p', cord or chain p', pulleys p'' p''', and brackets p, all substantially in the manner shown in the Figs. 6, 7, and 8, for the purposes specified.

176,492. PNEUMATIC SIGNALING APPARATUS. Austin Chambers, No. 260 Marylebone Road, Great Britain. [Filed Nov. 18, 1875.]

Brief.—The signal can only be operated when the air has been compressed in both compressing-chambers, by which both of the collapsible vessels, with which the signal-operating rod is connected, are distended.



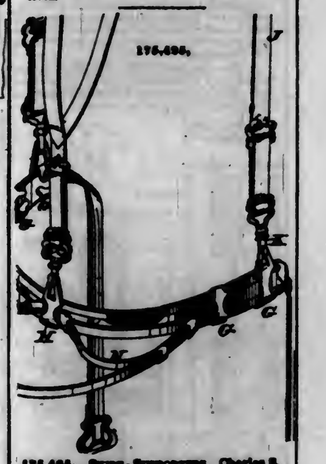
In a pneumatic signaling apparatus for railways, the combination, with a manometer-arm or its equivalent, of a slotted rod, s, lever or scale-beam m, and two collapsible vessels, e e', operated from independent stations or places, as above set forth, for the purpose specified.



176,493. DEVICES FOR WINDING WATCHES. Benjamin Charles, Evansville, Ind. [Filed Jan. 28, 1874.]

The disk, with its screw-hole, in combination with the winding-post of a watch, which is formed into a screw, substantially as set forth.

176,494.



176,494. SKIRT-SUPPORTERS. Charles S. Chaffee, Birmingham, Conn., assignor of one-half his right to Robert May, same place. [Filed Aug. 19, 1875.]

1. A garment-supporter, composed of the body A, stay F, and extension M, combined and arranged substantially in the manner set forth.

2. A metal stay, F, in one or more pieces, secured to the body of the supporter by suitable clasps G G', and at the center or any intermediate point by a clasp, H, as described.

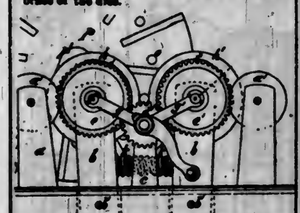
3. The extension M, in one or more pieces, secured to the stay F, substantially in the manner described, for the purpose of furnishing a complete support for the clothing, or for the purpose of a bustle, or for both combined.

4. An indented clasp, constructed substantially as herein shown, in combination with the body A and stay F, to strengthen and secure the same as described.

5. The combination of the suspenders J with the garment-supporter, constructed substantially as herein described.

176,495. MACHINES FOR TURNING AND POINTING SCREW-BLANKS. Geo. H. Clarke, Brooklyn, N. Y., assignor to H. A. Harvey, Orange, N. J. [Filed Feb. 1, 1876.]

Brief.—The device for feeding the rolling-dies toward and from each other consists in cams on the dies, which are held by a spring against stationary rollers, and which permit the dies to swing upon their bearings. The cam upon the shaft of one of the dies engages with the radial slots in the feed-wheel, imparting thereto an intermittent rotation, whereby the finished blank is carried away, while a new blank is brought within the embrace of the dies.



1. The combination, with each other, of two rolling-dies, geared together so as to rotate in the same direction, and having formed upon their peripheries the bevels i, and the serrations n, for the purpose of pointing a blank, and forming a screw-thread upon its periphery, substantially as described, each die being provided with suitable devices for feeding them toward and from each other, substantially as described.

2. The rolling-dies A A', each provided with the cams f and f', and the intermediate shaft d, geared and linked to the die-shafts, substantially as shown and described, in combination with the stationary rollers d', substantially as and for the purpose specified.

3. The pair of rolling-dies A A', and the die-shaft f'', provided with the crank r', in combination with the feed-wheel p, having a series of feed-holes, p p p, and a corresponding series of slots, q q, substantially as and for the purpose specified.

176,496. OIL-TOKEN. John Quincy Collins, Vassalborough, Me. [Filed Dec. 1, 1875.]



The combination of the spring O with the yoke A and bow B, having slot b, substantially as and for the purposes set forth.

176,497. CHURNS. W. H. CONVER, Agnew's Mills, assignee of one-fourth his right to J. Gothard, Pittsburg, Pa. [Filed Mar. 20, 1876.]



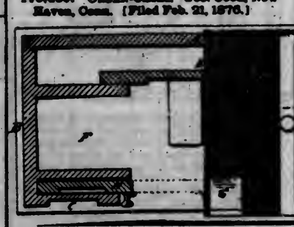
1. The combination of disks with a partition board of a reversible compartment-churn, for collecting the butter globules and separating the air, substantially as herein set forth.

2. The combination of swinging bails or frames with a reversible churn-barrel and a supporting-frame, as and for the purpose set forth.

3. The combination of spring-holders with a reversible or journaled churn-barrel and a supporting-frame, as and for the purpose set forth.

4. The combination of the frame A, having journal-boxes B, swinging bails E, and spring-holders F, to operate in connection with a reversible or journaled churn-barrel, D, as and for the purposes set forth.

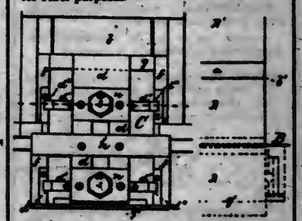
176,498. ORGAN-CASES. Geo. Cook, New Haven, Conn. [Filed Feb. 21, 1876.]



In an organ-case, the combination of the re-entrants F at the sides of, and opening into, the central or pedal recess D, and the sliding door or doors H arranged to close the front of the said recess, substantially as described.

176,499. RECORDING TABLES OR DESKS. G. A. CORUM, Greenup, Ky. [Filed Jan. 26, 1876.]

Brief.—The vertically-adjustable leaves are arranged on an independent sliding frame, so that the frame carrying the leaves and the book can be drawn out to the front of the table. The space between the two leaves may be filled with a strip, making them flush with the table-top, so that the table can be used for other purposes.



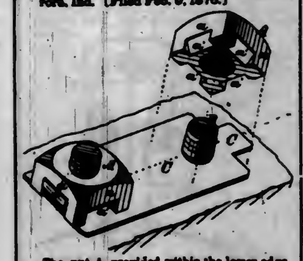
In a recording-table, the frame C, carrying the vertically-adjustable leaves A A', arranged parallel to the edge E in the opening b in the table top, by means of the metal channeled blocks c, the metal guide-brace d', the transverse brace d supporting the nuts n, in which work the screws e, the said frame C being arranged to move on the slides D set in the table-frame, whereby the said leaves A A' are laterally adjustable on the edge E of the table, as and for the purpose specified.

2. In a recording-table, the adjustable leaves A A', having the outwardly-beveled ends m arranged to fit against the reversely-beveled edges m' of the opening b, together with the strip a, having the outwardly-beveled ends n', and adapted to fill the space b' between the said leaves A A', whereby, when the table is not employed in recording, the top or upper surface thereof may be made continuous and even throughout, as described, and for the purpose specified.

176,500. CLOTHES-PINS. S. W. Durham, Table Grove, Ill. [Filed Feb. 29, 1876.]

The wire spring C, surrounding the prongs of the pin, and having its ends inserted between said prongs, and operating as and for the purpose set forth.

176,501. NUT-LOCKS. OLIVER P. COBB, Aurora, Ind. [Filed Feb. 9, 1876.]



The nut A, provided within the lower edge of each side a with a mitered notch, a', in combination with a sheet-metal plate, C, having one or more tongues, c, which may be turned upward and caused to engage with said notch, substantially as and for the purpose specified.

176,502. CHAIN-PUMP BUCKETS. William Cooper, Ypsilanti, Mich. [Filed Feb. 20, 1875.]

Brief.—The bucket has a rubber disk, provided with circumferential grooves of suitable depth to form bearing-edges and air-chambers.



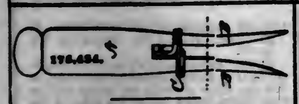
In a chain-pump bucket, the combination of one or more rubber disks, B, provided with V-shaped circumferential grooves and projecting bearing-edges a a, and clamped between two metal disks, so that the bearing-edges extend beyond the metal which holds the rubber disk, substantially as and for the purposes herein set forth.

176,503. HARVESTER-DROPPERS. John A. Coulter, Pittsfield, Ill. [Filed Jan. 28, 1876.]

The bar C, hinged to the finger-bar, and provided with the pivoted slats D, in combination with the bar H, connected with said slats by the links a, hand-lever G, shaft d, crank b, forks b b, and roller f, all constructed and arranged substantially as described, and for the purpose set forth.

176,504. CLOTHES-PINS. S. W. Durham, Table Grove, Ill. [Filed Feb. 29, 1876.]

The wire spring C, surrounding the prongs of the pin, and having its ends inserted between said prongs, and operating as and for the purpose set forth.



176,434.

176,435. WATER-PROOF PAPER BAGS. A. S. Dennison, Carthage, assignor of one-half his right to J. D. Huntington, Watertown, N. Y. [Filed Mar. 20, 1876.]

Brief.—The bag is waterproofed after it is made, so as to cover the seams.

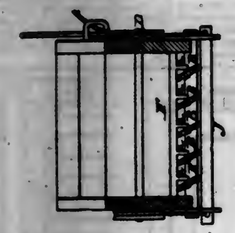
A paper bag or sack for tradesmen's use, waterproofed substantially as described.

176,436. PROPELLING CANAL-BOATS. John W. Duluth and Geo. B. Hayes, Baltimore, Md. [Filed Feb. 24, 1876.]



The combination with the beads C C, and the lower flanged half-cylinder B, of the detachable flanged half-cylinder D, carrying hangers b b, and spiral propeller E, and adapted to be fastened to the lower half-cylinder by bolts, so as to form an open channel for the propeller, as described.

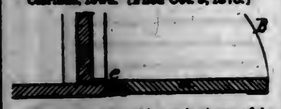
176,437. DUMPING-WAGONS. J. W. Dunn, Franklin, Ind. [Filed Feb. 21, 1876.]



1. The slats B B of a dumping-wagon pivoted off of their centers, in combination with the shaft F and its fingers, as and for the purpose set forth.

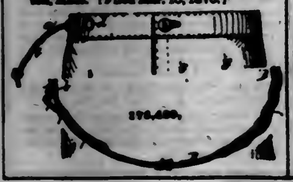
2. The shaft F, as constructed, and the bar J when connected together and operated simultaneously to start and release the slats B B, as and for the purpose specified.

176,438. WAGON-EXTENSIONS. S. Dynes, Clarinda, Iowa. [Filed Oct. 9, 1875.]



The combination, with a grain-wagon, of the detachable extension B, having the overlapping metallic bridge a rigidly secured thereto, for the purpose set forth.

176,439. OVERALLS. George B. Ragar, Boston, Mass. [Filed Mar. 10, 1876.]

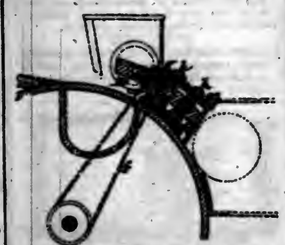


176,439.

1. Overalls having a bollow waistband, provided with a cord, *a*, one end of which is secured therein, and with an opening armed with an eyelet, *c*, grommet or ring *c*, properly secured thereto, for the purpose set forth.

2. Overalls having a bollow waistband, provided with two openings, *b* and *d*, as and for the purpose set forth.

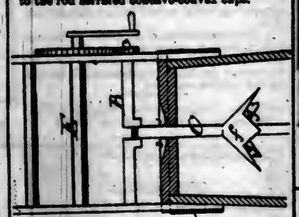
176,440. BROOMING-MACHINES. Frank J. Emmerich, New York, N. Y. [Filed Feb. 26, 1876.]



The combination, with an endless carrier on which the sheet or material to be brossed is placed, of a series of rotary brooming cushions or pads, G, having their axes perpendicular to the resting or carrying surface of said carrier, substantially as specified

176,441. CHURNS. Emmick Evans, Osceola, Iowa. [Filed Oct. 9, 1875.]

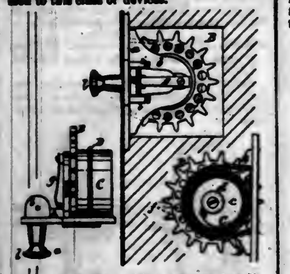
Brief.—The dasher is formed by attaching to the rod serrated concavo-convex cups.



In a churn, the dasher composed of spaced conical plates *f*, hollow upon their under sides, and serrated upon their edges, whereby air is forced into the cream and the butter-cells or cysts are broken up, substantially as specified.

176,442. SASH-BALANCES. W. H. Facer, Toronto, Canada. [Filed Feb. 15, 1876.]

Brief.—The novelty is in dispensing with a case, and utilizing a strong retaining-loop for that purpose, together with certain peculiarities in arrangement of the perforated wheel, bolt, spring, slide, and knob-shaft, all common to this class of devices.



The combination, with retaining-loop D, coil-spring G, and toothed wheel E, having perforations *f*, of the bolt F, spring *g*, slide *i*, and knob-shaft *j*, carrying cam *k*, substantially as and for the purpose described

176,443. GAS-LIGHTING. Matthew Falconer and Daniel H. Ironmonger, McLean County, Ill. [Filed Feb. 26, 1876.]

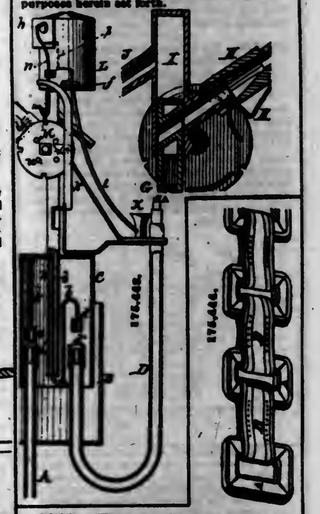
1. In a gas-lighting apparatus, the combination of the gas inlet-pipe A, holder B C, outlet-pipe D to burner E, valves *c d*, and seats *c' d'*, substantially as and for the purposes herein set forth.

2. The combination of the holder C with central tube *h*, curved rod *h*, with valve *d*, and pill elevator G, substantially as and for the purposes herein set forth.

3. The combination of the elevator G, reservoir H, with spring H', chamber I, and outlet J, substantially as and for the purposes herein set forth.

4. The combination of the tank I, valve *f*, rod *i*, valve *h*, rod *n*, latch *m*, and arm N, as and for the purposes herein set forth.

5. The combination of the wheel M with stops *s*, elevator G, with foot *p*, arm N, pawl *r*, and pins *o*, substantially as and for the purposes herein set forth.



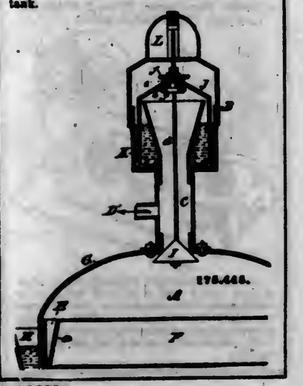
176,443.

176,444.

The leather chain as above described, consisting in the links A A and B B, arranged, constructed, and operated substantially as and for the purpose set forth.

176,445. GAS PURIFIERS AND REGULATORS. Leander B. Fish, Washington, D. C. [Filed Jan. 18, 1876.]

Brief.—The sides of the purifying-pans are inclined inward, so as to support one on top of the other, and facilitate handling. The annular water-seal for the cover of the purifier-tank is tapering in form, (in cross-section,) the outer wall flaring from the sides of the tank.



176,445.

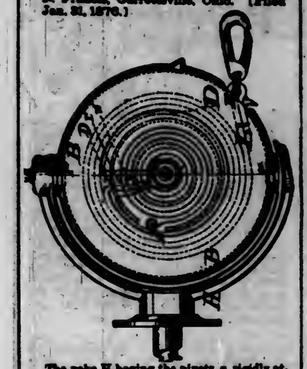
176,446. HARNESS. John Fischer, Louisville, Ky. [Filed June 12, 1876.]

1. The combination, with a gas-tank and its cover, of a tapering water-trough, made of a single piece of metal, *b*, attached to the tank at the bottom and inclining outwardly, for the purpose described.

2. The combination, with the tank B and cover G, of the partitioning-pans, having inwardly-inclined sides and perforated bottoms, located with the bottom of one resting upon the inclined sides of the one next below, as described.

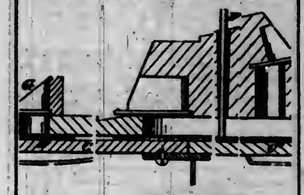
3. The combination of the water-vessel K, the cover J, stem *d*, and valve *l*, with the pipe O terminating in a funnel inside the water-vessel, which funnel forms the inner wall of the annular seal, as and for the purpose described.

176,447. HOME-HITCHING DEVICES. Allen B. Francis, Carrolsville, Ohio. [Filed Jan. 31, 1876.]



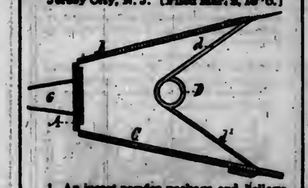
The yoke H having the pivots *p* rigidly attached to the same, and having the box B containing the spring C, drum D, and chain L, swiveled or pivoted on said yoke, substantially as and for the object specified.

176,448. REED-ORGANS. Levi K. Fuller, Brattleborough, Vt., assignor to J. Estey & Co., same place. [Filed Feb. 28, 1876.]



The combination, with the principal sets of reeds B, tracker-pin F, and hinged valves O O', of the extra set of reeds G, mounted upon the same foundation-board with the principal sets of reeds, and in the same places, controlled by the same valves, and actuated by the same tracker-pins, substantially as specified and shown.

176,449. INSECT-POWDER PACKAGES. John W. Gerard, Elizabeth, and H. J. Jaquith, Jersey City, N. J. [Filed Mar. 2, 1876.]

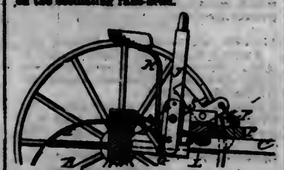


1. An insect-powder package and bellows, formed of a single pasteboard blank, provided with suitable spring and ejecting tube or nozzle, the whole covered with cloth or muslin, and arranged and operating substantially as and for the purposes as herein shown and set forth.

The combination of the pasteboard blank formed into three parts—division A, forming the end, provided with circular opening *a*, division B, forming the top, provided with opening *i*, and division C, forming the bottom—spring D, having two arms, *d d'*, ejecting-tube G, and cloth or muslin covering, as described, the whole operating as a bellows-bar, substantially as herein shown and described.

176,450. HORSE-HAY-RAKES. Reuben Gleason, Robert Hamilton, and Ephraim Bradley, Greenwich, N. Y.; said Gleason and Hamilton assignors to said Bradley. [Filed July 10, 1875.]

Brief.—Weight of driver assists the dumping of the gathered load. Seat mounted on tilting platform, pivotally connected to arms on the oscillating rake-head.



1. The hinged rake-head D, provided with the tapering cross-grooves *s s* and short grooves *p*, in combination with the rake-teeth I I, having their inner ends bent, as described, and the plates *a a*, substantially as and for the purposes herein set forth.

2. The combination of the hinged rake-head D, with arms *d d*, connecting-bars *b b*, hinged platform G, and seat H, supported on the platform, substantially as and for the purposes herein set forth.

3. The combination of the axle A, rake-head D, hinged thereto, single-tree L, and rod *n*, connecting rake-head and single-tree, all substantially as and for the purposes herein set forth.

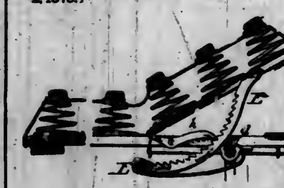
176,451. GRAPE-STRETCHERS. William S. Hamlin, Buchanan, Mich. [Filed Dec. 11, 1875.]



1. The combination, with the bar A, having hooks *d*, of the bar E, loops C, and pulleys *b*, substantially as specified.

2. In combination with the stretcher-bar A and bar B looped thereto, and having pulleys *b*, the hooked metallic dog G, having roller *g* and pulleys *i*, and operating cord J, substantially as specified.

176,452. SPRING BED-BOTTOMS. Samuel P. Hamilton, Doylestown, Pa. [Filed June 2, 1876.]



The segmental plates E pivoted to the hinged section of the bed-bottom, and arranged to be operated by the shaft *d* and straps *b*, in combination with the pawls *h*, adapted to the teeth of the segmental plates, and capable of being operated simultaneously by means of the cord or wire *i*, all as set forth.

176,453. MATCH-SPLINTS. George Hargreaves, Dorech, Mich., assignor to Mary Hargreaves, same place, and Geo. Upton, Boston, Mass. [Filed Oct. 6, 1875.]

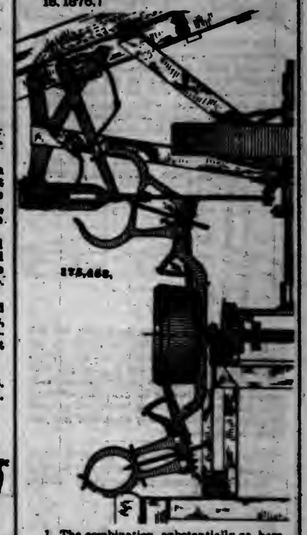
Brief.—The dip ends of match-splints are reduced to a lesser area in cross-section than the bodies thereof, the same shape or configuration being retained.



176,453.

A match-splint having its dip and tapered on all sides partially through its diameters, and thence continued to the extreme end in lines nearly parallel, substantially as and for the purposes described.

176,454. HARVESTERS. Alfred Hart, Jr., Rockford, Ill., assignor of one-half his right to Emerson & Co., same place. [Filed Jan. 18, 1876.]



176,454.

1. The combination, substantially as herein before set forth, of the elevating-apron, the grating, the deflector-bars, the vibrating receiver, and the intermittently-revolving clasps.

2. The combination, substantially as herein before set forth, of the intermittently-revolving compresser and the intermittently-revolving clasps, for the purposes specified.

3. The combination, substantially as herein before set forth, of the receptacle, the compresser, and the intermittently-revolving clasps, for the purposes specified.

4. The combination, substantially as herein before set forth, of a receiver, a binder's stand, and intermittently-revolving clasps which make one pause to receive a gavel and another to allow it to be bound.

5. The combination, substantially as herein before set forth, of an intermittently-revolving clasp and its automatic discharging mechanism carried thereby.

6. The combination, substantially as herein before set forth, of the two parallel rock-shafts, the forked clasping-jaws thereof at each end, their interposed segments, actuating lever and cam, for the purposes specified.

7. The combination, substantially as herein before set forth, of the intermittently-revolving clasps, the intermittently-vibrating cam-wheel, and the levers connecting the clasps and cam-wheel, whereby the clasps are opened or closed at proper intervals during their revolution for the reception and discharge of the grain.

8. The combination, substantially as herein before set forth, of the clasp-head, the notched pinion-wheel carried by the clasp-head, supporting-sleeve, and a spring-stop, whereby the clasp is positively locked at each half-revolution.

9. The combination, substantially as herein before set forth, of the notched wheel on the clasp-head supporting-sleeve, the spring-stop, and the cam on the disk-wheel, whereby the clasp-head is released at proper intervals.

10. The combination, substantially as hereinbefore set forth, of the compressor-shaft, its spring-bar, and the clutch-pinion actuated by the rack, whereby the shaft is intermittently rotated at proper intervals.

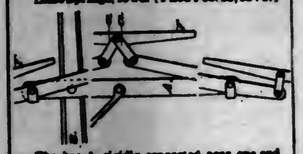
11. The combination, substantially as hereinbefore set forth, of the receiving receiver, the compressor, a clutch mechanism mounted on the shaft of said compressor, a rack-bar adapted to mesh with the clutch mechanism, and a lever acted upon by a cam to raise and lower the rack bar, whereby the receiver is vibrated and the compressor revolved intermittently in unison.

176,454. HAME TUGS AND BUCKLES. Geo. W. Hodson, Philadelphia, Pa. [Filed June 4, 1875.]



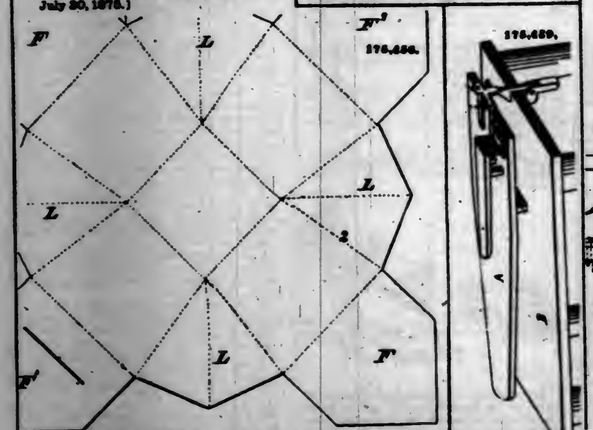
The within-described hame tug and buckle, consisting of a metallic plate, A, having an ear, d, for direct attachment to the hame, and provided with loops a b for the reception of the trace-strap, and with the bell crank lever f, the short arm of which forms a tongue adapted to an opening in the plate, all substantially as and for the purpose herein set forth.

176,455. DRAFT-EQUALIZERS. O. C. Hewitt, Lime Springs, Iowa. [Filed Feb. 10, 1876.]



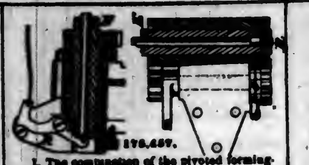
The bar A, rigidly connected near one end to the tongue E, and near its center by the brace C, in combination with the equalizing-bars D D, pivoted to the bar A, provided with the whiffletrees F F at their outer ends, and connected together and to the central whiffletree F' at their inner ends by means of the pivoted plates a a, all substantially as and for the purposes herein set forth.

176,456. PAPER-BOXES. Henry B. Hoyt, Philadelphia, Pa., assignor to the Novelty Paper-Box Company, same place. [Filed July 20, 1876.]



The box herein described, formed of a single piece of paper, shaped and folded, substantially as indicated in Fig. 1, so that the corner folds shall form tops L, which, when united to the body, shall secure the blank in box form, and retain the flaps F F F' F' in proper position to form the cover.

176,457. FORMING AND INSERTING WIRE STAPLES IN PAPER BOXES. Henry B. Hoyt, Philadelphia, Pa., assignor to the Novelty Paper-Box Company, same place. [Filed July 20, 1876.]



176,457.

1. The combination of the pivoted forming-hook R and annular cutting-tube E, constructed and operating substantially as and for the purposes set forth.

2. The bending-hook R, constructed with a V-shaped notch to receive the staple, in combination with the internally-grooved cutting-tube E, operating substantially as and for the purpose described.

176,458. MACHINES FOR CUTTING AND KEEPING PAPER FOR BOXES. Henry B. Hoyt, Philadelphia, Pa., assignor to the Novelty Paper-Box Company, same place. [Filed May 28, 1874.]

Brief.—The paper is pushed against the weighted adjuster to square it, when it is pushed into the bite of the feed-rolls. The adjustable saws cut the kerfs when the second feed-rolls pass it to the rotary cutters.



1. The weighted adjuster A, constructed and operating as described, to adjust the edge of the sheet and recede by the continued pressure thereof, as explained.

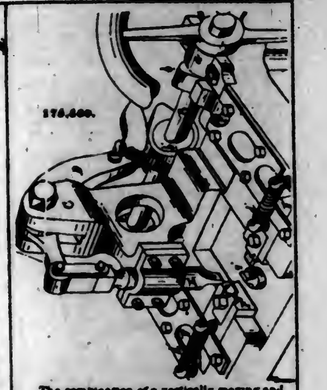
2. The combination of the driving-drum G and the several adjustable saw-stocks H, each carrying a sheave, I, a driving-cord, g, a beveling-saw, C, and a guard, M, placed close beside the saw for the purpose of keeping the paper or pasteboard firmly down upon the cylinder D, as explained.

3. The combination of the feed-rollers B, beveling-saws C, cylinder D, and cutters F for kerfing and cutting paper or pasteboard, in the manner and for the purpose specified.

176,459. BROOMS-TABLES. E. M. Hibbard Prospect, Ill. [Filed Jan. 22, 1876.]

The ironing-board A, provided with suitable supports, and connected to the table B by means of the bar c, with its shoulder and cam-lever, as and for the purpose set forth.

176,460. MACHINES FOR SWAGING BOLT-BLANKS. George B. Hill, Detroit, Mich. [Filed Jan. 22, 1876.]

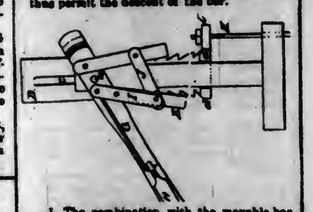


176,460.

The combination of a vertically-moving and two opposing horizontally-moving dies, converging toward a stationary vertical die, and their actuating mechanism, for pressing a round bar into a cruciform section, substantially as described.

176,461. LEATHER-JACKS. David Hinshilde, York Road, Md. [Filed Feb. 28, 1876.]

Brief.—The lifting-bar, with a rabbet down each edge, slides between two guide-posts, and is operated by two hanging pawls on a lever, the latter having a small lever pivoted to it, which can be pressed on to hold the pawls apart, through a rod and links, and thus permit the descent of the bar.



1. The combination with the movable bar D, having offset i, of the hooked rod K, as and for the purpose set forth.

2. The combination with the lifting-links E F' of the link J, lever I, rod G, and hand-lever H, as and for the purpose described.

176,462. VEHICLE-SPRINGS. H. H. Holman, Centerville, Ga. [Filed Jan. 6, 1876.]

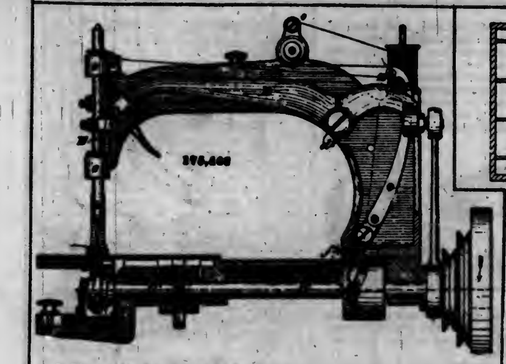


The combination, with the spring A, carrying the bar a, of the bifurcated buckle-irons B, having arms d, the bolster-bar C, having notched ends e, and the bolster D, and standards f, when constructed and arranged to operate as described, and for the purpose specified.

176,463. SEWING-MACHINES. James A. House, Bridgeport, Conn., assignor to the Wheeler & Wilson Manufacturing Company, same place. [Filed Dec. 11, 1876.]



176,463.



176,464.

1. The combination, substantially as hereinbefore set forth, of the driving-shaft revolving with a uniform speed, the hook revolving at a variable speed relatively thereto, the driving-cam, its pitman-connection, and the needle-lever, with its short arm forming an offset from the long arm, and occupying a different vertical plane from that passing longitudinally through the driving-shaft, whereby a space is left between the needle-lever and the bracket-arm for the play of the take-up lever, and a longer pause is given to the needle at the end of its upward stroke than at the end of the down-stroke, for the purposes set forth.

2. The combination, substantially as hereinbefore set forth, of the driving-shaft revolving with a uniform speed, the hook revolving at a variable speed relatively thereto, the needle-lever, with its short arm forming an offset from the long arm, and occupying a different vertical plane from that passing longitudinally through the driving-shaft, the grooved cam on the driving-shaft, and the take-up lever vibrated thereby, whereby the take-up may be located between the needle-lever and bracket-arm, and complete the stitch during the elevation of the needle.

176,465. FRUIT-CRATES. Samuel Hughes, Charleston, S. C., assignor to Dunbar J. Peal and Stephen E. Welch, same place. [Filed Aug. 20, 1876.]

1. The fruit-crate composed of horizontal end and side strips A B, vertical central strips D, and end strips C, placed and secured on the outside of the horizontal strips and united or brought together to form a solid corner, transverse bottom strips G, and lid A', fitting down within the projecting edges thereof, all constructed and united as and for the purposes described.

2. In combination with the box or crate A B and lid A', fitting down within the projecting edges thereof, the hinge and catch B F, constructed as shown, of end metallic plates a, and intermediate elastic strips or straps b, for holding the lid down into its seat, as described.

176,466. SEWER-TRAPS, &c. M. J. Hughes, Chicago, Ill. [Filed Feb. 19, 1876.]

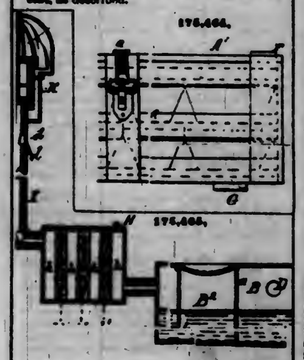
Brief.—In the event of any gas entering the outlet-trap, before it could reach the inlet-trap it would be arrested by the ventilating-pipe, and, passing through the filter, becomes innocuous. The exit of the gas is almost instantaneously caused by the suction of the revolving archimedean screw-top fixed to the ventilating pipe, which acts like a pump.

1. In a sewer-trap, the two water-sealed traps B B, with intermediate chamber B', passages a b, inlet D, and outlet E, all arranged as shown and described.

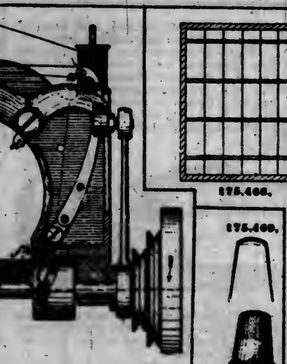
2. The combination of the trap A, filter H, and ventilating-shaft I, provided with inlets d, exterior shaft K, and revolving screw-cap J, all constructed substantially as and for the purposes herein set forth.

176,467. STEP-LADDERS. George King, Frederick, Md., assignor to himself, John H. Keller and David W. Brooks, same place. [Filed Aug. 24, 1874.]

Brief.—The stiles of the ladder are grooved longitudinally on a curve, and a tongued arched brace is let in to give increased strength.



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The combination of the tongued arched braces C C, side-grooved carriage-pieces B B, and hinging-blocks D D, in a step-ladder, substantially as described.

176,468. REFRIGERATING APPARATUS. E. Knott, Chicago, Ill. [Filed Mar. 10, 1876.]

Brief.—One or more fan blowers draws the air of a closed chamber from its top over the ice-box, and forces it from behind the ice-box through pipes surrounded by the ice or freezing mixture, and into a distributing-box, and thence through a system of perforated pipes, along the ceiling and walls, into the chamber in a continual circuit.



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1. The circulating apparatus composed of the fan-blowers, the freezing-box having a space above it, the pipe coil or coils contained within it, and the perforated air-distributing pipes, in combination with a packing-chamber, as shown and described, whereby a circulation of the same body of cold air is maintained in the chamber without contact with the refrigerating agent, as set forth.

2. The freezing-box provided with a distributing air-sheet and a coil or coils extending through the refrigerating agent, and connecting with the air-sheet, as shown and described.

3. The combination of the slotted bearers, and screws for securing the same, with the flanged columns, having a series of perforations, as shown and described.

176,469. THIMBLES. Saml. J. Ladd, Providence, R. I. [Filed Feb. 28, 1876.]

1. A thimble made in one piece from a bar or plate of gold, and hard metal or alloy, in manner substantially as described.

2. A thimble having the lip, and sides near the lip or parts subject to wear, thickened and stiffened, substantially as and for the purposes specified.

3. A thimble made in one piece from a bar or plate of gold, and hard metal or alloy, of unequal thickness, in manner substantially as set forth.

4. A thimble made in one piece from a bar or plate of gold, and hard metal or alloy, the gold being of uniform thickness, and the alloy or hard metal of unequal thickness, in the manner substantially as set forth.

176,470. PILL-MACHINES. Charles W. Le Count, South Norwalk, Conn. [Filed Mar. 11, 1876.]

Brief.—Long and short curved knives are secured to a rotating shaft upon the bed-piece, and are turned over so as to embrace and cut the rolls of pill material which lie in longitudinal grooves of the table. The longer knives cut pieces for large pills, and the shorter ones for small pills.



1. The combination of the cutters s s' and the slots s s' formed in the table T, constructed and operating substantially as herein described.

2. The combination of the grooves g g', the slots s s', and the cutters s s', substantially as herein described.

3. The combination, with slots in the table or tile, of two or more sets of cutters s s' of different lengths attached to the same shaft or stock, substantially as herein set forth.

4. The combination of the stop or stops s with slots s s' in the table T, to form a graduated scale, substantially as herein set forth.

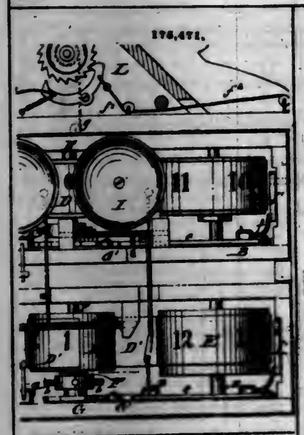
176,471. BILLIARD-REGISTERS. John Lipman and Otto Schroeter, Toledo, Ohio. [Filed Mar 6, 1876.]

Brief.—Registers points for ordinary games, or to thousands for match-games. Allows discounts to be noted, and registers games played.

1. In billiard-registers, the combination of the sliding discounting-button with bell-crank shaped check-pawl G', ratchet-wheel G, double spring-acted check-pawl d', and the spring stretched registering-band D', for the purpose of using the counting mechanism, also for discounting, substantially as specified.

2. The band returning button B, having arm f, in combination with a pivoted bell-crank lever f', connected with the game-checking mechanism and index-hand L, for keeping record of number of games played, as set forth.

3. The combination of game-checking mechanism A with a governing spring, g, for setting index-hand to zero, for the purpose described.



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176,472. FURNITURE-TIPS. Saml. W. Lloyd and Edward Coogan, Washington, D. C. (Filed Mar. 4, 1876.)



1. A tip or shoe for furniture, having a steel or nickle covering formed around a convex head, as shown and described.

2. The furniture-tip or shoe, having the soft-metal shank B, forming a part thereof, and adapted to be inserted into the legs of furniture, substantially as and for the purposes set forth.

3. A furniture-tip, having soft-metal shank B, with beveled enlargement b, convex head C, and steel or nickle covering D formed over said head, substantially as described, and for the purposes set forth.

176,473. WASHING-MACHINES. Jacob Longyear, Grass Lake, Mich., assignor of one-half his right to Charles Eddy, same place. (Filed Jan. 29, 1876.)

1. In a washing-machine, the combination of a rotating tub, a perforated yielding diaphragm placed therein, and vertically-reciprocating pounders working therein, for the purposes herein set forth.

2. The combination of the tub D, placed on, and rotated by, the cog-wheel B, the perforated diaphragm E, spiral springs *d d*, pounders H H, crank-shaft G, and the gears, belt, and pulleys, as described, and for the purposes herein set forth.

176,474. SMOKING-PIPES. R. S. Manning, Trenton, N. J. (Filed Feb. 10, 1876.)

Brief.—In the main stem, beneath the bowl, is a longitudinal slot, which is closed by the plug end of the removable stem when the pipe is in use. To remove spittle and juice from the bowl, the stem is rotated, which brings a pocket in its plug end containing the same over the longitudinal slot.



1. The pipe constructed with a longitudinal slot, *a*, in the stem and with a plug, C, inserted within the stem to close the said slot, substantially as shown.

2. The plug or inner stem C, constructed with a groove, D, in combination with the pipe A B, constructed with a longitudinal slot, *a*, in its stem, substantially as and for the purposes set forth.

176,475. PORTABLE WASH-STANDS. Reuben Wright, Clifton, Va. (Filed Feb. 26, 1876.)

Brief.—The waste-basin is placed upon a frame, by which it may be moved close to the bowl, or lowered for removal. Uses an oscillating pump of peculiar construction, especially adapted to the stand.



1. The elevating-stool, having guides *b*, in combination with the hinged lever *c*, waste-reservoir *w*, and basin *f*, substantially as and for the purposes described.

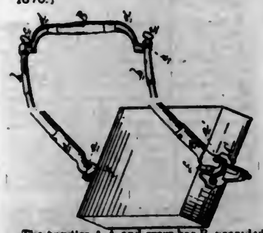
2. In a portable hydraulic wash-stand, the submerged cylindrical pump K, having two sets of triangular valve-boxes, *p p*, and two sets of valves, *r s* and *r' s'*, and piston-wing *m*, operated by the piston-rod *n* and handle *o* on top of the stand, substantially as set forth and described.

176,476. BOOTS AND SHOES. R. S. Manning, Trenton, N. J., assignor to J. H. Manning, Brooklyn, and A. D. L. Jewitt, New York, N. Y. (Filed Feb. 26, 1876.)



A boot or shoe provided with the springs A B, applied between the lining and the upper, substantially as described, and adapted to close the faces or overlapping portions.

176,477. REVERSIBLE HANDLES FOR PERAMBULATORS. George W. Marble, Chicago, Ill., assignor of one-half his right to A. Shoeninger, same place. (Filed Feb. 7, 1876.)



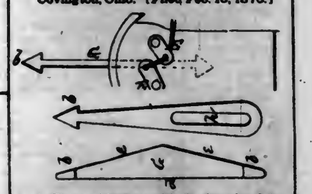
The handles A A and cross-bar B, provided with the ferrules *a*, stops *a'*, tips *b d*, and bolts *c*, in combination with the bracket-plates C, all constructed substantially as described, for the purpose specified.

176,478. CLOTHES-PINS. Jos. H. Marshall, Grand Rapids, Mich. (Filed Apr. 20, 1874.)



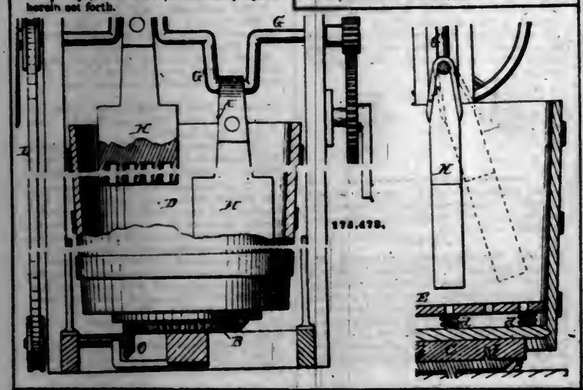
The pieces A A', having the rounded recess *a* and corresponding projection *a'*, in combination with the spring E, all constructed, arranged, and operating substantially as and for the purpose specified.

176,479. CAR-COUPLINGS. D. J. Martin, Covington, Ohio. (Filed Feb. 16, 1876.)



1. The combination, with the draw-head A, of the interior side jaws B B, the pins C C, pivoting said jaws, and projecting above and below the draw-head, the spring D connecting the lower ends of the pins, and the cranks E E, secured on the upper ends of said pins, all substantially as and for the purpose specified.

2. The reversible flat coupling-bar G, formed with the spear-shaped heads *b b*, straight edge *d*, and inclines *c c*, substantially as and for the purposes herein set forth



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176,480. RAIN-GUNS. A. McQueen, North Bergen, N. Y. (Filed Dec. 10, 1875.)

Brief.—In the brood-chamber the frames are divided horizontally at their centers, each by two bars having a space between them, and the posts are closed by slides having slots horizontal at base, and inclined upward to slide upon a fixed pin or pins.



1. The comb-frames D, constructed with the cross-slats *r r*, with passages *s* between, the lugs *u u* and comb-guides *t*, as and for the purpose specified.

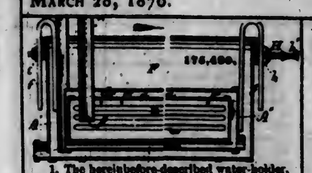
2. The notched slide *v*, constructed with the combined horizontal and inclined slots *w w'*, whereby the slide is moved horizontally, and then raised vertically by a single action on the slide, as herein shown and described.

176,481. PROCESSES FOR PRESERVING MEATS. Hippolyte Mege, Paris, France. (Filed Jan. 31, 1876.)

The process herein described for preserving meat, consisting in subjecting the meat to a temperature of 170° to 200° Fahrenheit, and then impregnating it with digestive tissues and juices, substantially in the manner described.

176,482. MACHINES FOR FORMING SPRING-WASHERS. Wm. Metcalf, Pittsburg, Pa., assignor to Metcalf, Paul & Co. (Filed Dec. 13, 1875.)

Brief.—The helical-faced die revolves with the mandrel, carrying a gripper operated by a stationary cam; the mandrel retracts to discharge the finished blank; the bending-roll is elevated and the rotation of the mandrel stopped for the feed; and the roll is capable of a movement in line with, and to and from, the axis of the die.

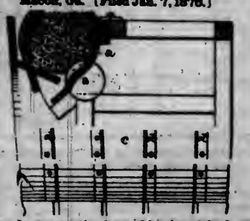


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1. The hereinbefore-described water-bottle, consisting of the outer cylinder A, provided with the pipe B and passage *a'*, and the inner cylinder D, having the openings *b*, *c*, and *d* within its upper side, and the pipe E communicating between its interior and the outer side of said cylinder A, said parts being constructed and combined to operate in the manner and for the purpose substantially as specified.

2. The means employed for combining the cylinder A and pan F, consisting of the rods G and G secured to the ends of the former, and the lugs H, provided with the openings *h* and set-screws *h'*, and secured to or upon the outer faces of the ends of said pan, substantially as shown.

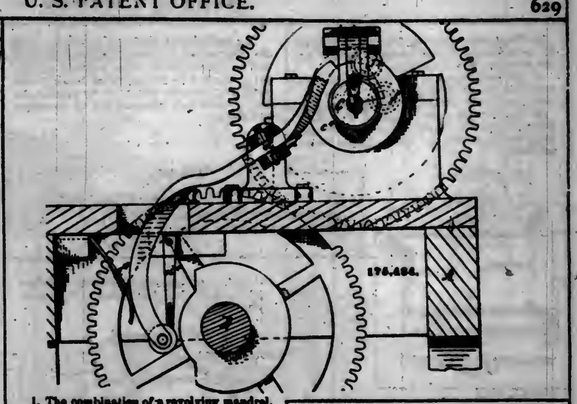
176,483. COTTON-GINS. Orren W. Massey, Macon, Ga. (Filed Jan. 7, 1876.)



In a cotton-gin, the combination of the flaring ribs *a*, pressure-board *c*, and strips or flanges *d*, the strips *d* being made to flare toward each end of the box on a line with the flare of the ribs, whereby the cotton is evenly distributed toward each end of the box, substantially as specified.

176,484. GOVERNOR-VALVES. J. D. Hirsele, Oshkosh, Wis. (Filed Sept. 6, 1875.)

Brief.—An independent actuating pressure-valve is governed by a supplemental hollow valve operated by a governor.



1. The combination of a revolving mandrel, carrying a helical-faced die concentric therewith, with a forming or bending lever or roll capable of motion toward the axis of the mandrel as well as toward the face of the die.

2. The combination of a die, having inclined or helical face, with a forming or bending roll that is caused to press the blank against the face of the die, substantially as described.

3. The combination of a rotating mandrel and helical die for shaping the blank, with a tool for pressing the blank against the face of the die, as well as sweeping it at the same time around the mandrel, substantially as described.

4. The combination of a helical-faced die, having a central mandrel receiving therewith, but capable of retraction for the discharge of the finished article, with a griper for holding the blank against the mandrel and up to the face of the die, and a forming or bending tool whereby the blank is forced to conform to the face of the die, substantially as described.

5. The combination of the revolving helical-faced die, concentric with a central mandrel, the griper mounted on and moving with said die, the fixed cam for operating the griper, and the forming-lever acting with the helical-faced die for forming the blank thereon, substantially as described.

1. In a governor for steam-engines, the combination, with the main valve E, of a secondary valve, K, acting independently of and controlling the movements of the main valve E, said valve K having its upper face perforated, for the purposes specified, and provided with the circular port *b'*, as set forth.

2. The valve throat or neck C, having steam-port *c'* formed therein, as described, in combination with the bonk D, expansion-chamber H, and outlet steam-chamber *a'*, and the valve K, constructed and operating substantially as shown and described.

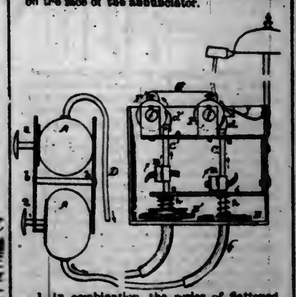
3. The valve throat or neck C, having steam-port *c* formed therein, as described, with the bonk D, expansion-chamber G, inlet steam-chamber *a*, and the valve K, constructed to operate substantially as shown and described.

4. The valve throat or neck C, having steam-ports *a c'*, the bonk D, expansion-chambers G H, steam-chambers *a a'*, and the valves E K, when constructed and combined to operate substantially as described, and for the purposes specified.

5. The spherical shell A, necks or throats O O' C', spherical diaphragm B, removable valve-seat *b*, steam-ports *a c'*, with the bonk D, having expansion-chambers G H, and the valves E K, when combined and constructed to operate substantially as shown, and for the purposes set forth.

176,486. PNEUMATIC ANNUNCIATORS. D. Morris, San Francisco, Cal. (Filed Feb. 24, 1876.)

Brief.—Upon compressing an elastic bulb at one end of a tube, air is forced through said tube, by which a movable stem is operated to sound a bell, and to expose a number on the face of the annunciator.



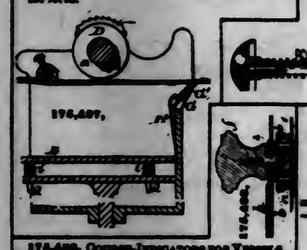
1. In combination, the series of flattened disks B B', the stems O O', with their fingers *d d'*, the notched disks or cams F F, secured upon the shafts *f f'*, and the rod *i* and hammer H, when the whole are arranged and connected together with the air-bulbs A A', and with the spring J, to cause the disks to become inflated when the bulbs are compressed, and the shaft *f* to react and give a signal, substantially as described and specified.

2. The combination, with the movable stems O O', having the arms *m m'* secured thereto, of the elastic disks B B' and the plates or shields I, of the annunciator, substantially as described and shown.

176,487. FEEDING DEVICES FOR STAMP-CANCELING MACHINES. Frederick Myers, New York, N. Y. (Filed Mar. 20, 1876.)

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

1. The apron G, provided with the rubber G', and operated by the spring b, as and for the purposes herein set forth.
2. The spring-plate H, in combination with the apron G and feed-rollers D D, for the purposes herein set forth.
3. The movable false bottom J of a feed-box or receptacle, provided with the yielding top plate I, as and for the purposes herein set forth.



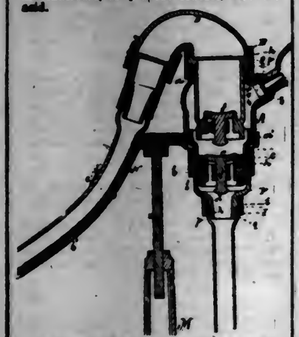
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176,498. COMPASS-INDICATORS FOR VESSELS. Edgar M. Nash, New York, N. Y. (Filed Sept. 1, 1875.)

The meridian-pointer b and compass-card c, in combination with the sliding saddle or carrier b and the rule a, substantially as set forth.

176,499. AIR SPRING-PUMPS. F. Nichols, New London, Conn. (Filed Dec. 1, 1875.)

Brief.—The parts are flexibly connected by elastic collars, in which are recesses forming air-chambers, to prevent contact with the said.



1. The combination of the grooved elastic collar E and the flanged eduction-neck D, all arranged and applied substantially as set forth.
2. The funnel-shaped glass mouth-piece F, provided with the flanges b' c and the extension k, arranged as specified.
3. The combination of the grooved elastic collar with a flanged neck, as described, and a flanged funnel-shaped mouth-piece, provided with the extension k, the whole being so that there may be around the extension and in the mouth-piece a space to hold air to insulate the collar from the fluid or acid, as specified.
4. The elastic collar E, thickened near its edges or grooved, substantially as set forth, for the purpose of receiving the flanges of the glass parts or necks embraced, or to be embraced, by such collar.
5. The improved tube joint, consisting of the flanged neck a and the elastic and grooved connection or collar applied thereon, as set forth.
6. The glass body A, provided with the nipple-receiving neck closed, and having a hole in the upper part of the closure, all as set forth.
7. The adjustable upper part of the stand, as composed of the ring and the troughed or channeled arm, arranged and connected as described.
8. The combination of the ring c', troughed arm b', and the stem or rod x, arranged and connected, as described, with the base M, provided with the clamp-screw z.

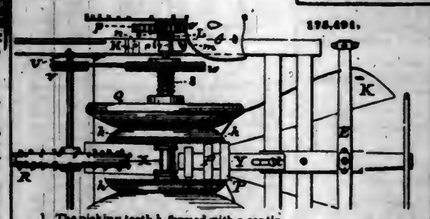
176,500. TOOLS FOR LOADING AND UNCAPPING CARTRIDGE-SHELLS. Chas. W. Parks, Union City, Mich., assignor to himself and Jos. W. Spencer, same place. (Filed Jan. 10, 1876.)

The combination, with the cylinder A a, of the plunger-rod B, head C screwed thereon, and the ejector-pin b, when the said ejector-pin is adapted to be protruded through and withdrawn into the said head by turning the said plunger-rod, substantially as described and shown.



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176,501. COTTON-HARVESTERS. William H. Pedrick, Richmond Ind. (Filed Jan. 24, 1876.)



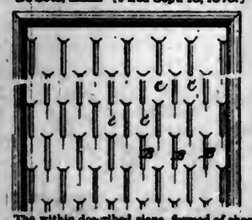
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1. The picking-teeth A, formed with a continuous base, from annular plates or strips of metal, as shown, for the purposes set forth.
2. The teeth h, formed from annular plates or strips, and secured to an elastic surface on the inner sides of the picking-wheel, in annular rows, as shown, for the purpose specified.
3. The coils c of rubber tubing, placed between the inner surface of the picking-wheel and the elastic covering of the same, so as to come between the locations of the bases of the annular rows of teeth, as and for the purpose set forth.
4. The picking-wheels, provided with elastic inner surfaces, upon which annular rows of teeth are fixed, in combination with the shaft I and spiral springs S, substantially as and for the purposes set forth.
5. In a cotton-harvester, the brush cleaning-wheel R on the shaft T, provided with the adjustable supports U, as and for the purpose set forth.
6. The conveyer X, consisting of two parts coupled to the picking-wheels, and pivoted together at their lower ends, as shown, for the purpose set forth.
7. The adjustable guard Y, secured to the frame of the harvester, and extending between the picking-wheels, with the ribs P between the annular rows of picking-teeth, as shown, for the purpose specified.
8. In combination with the draft-pole of the harvester-frame, the yoke F and double-tree E, as and for the purposes described.
9. Two similar wheels mounted at a suitable distance apart, to operate on opposite sides of a row of cotton, provided with picking-teeth on their inside surfaces, and adapted to be revolved in the opposite direction from that in which the machine is advancing, for the purpose set forth

176,502. FLAXSEED-STOVES. Hugh Fenner, De Soto, Kans. (Filed Sept. 16, 1875.)



The within described stove, formed of sheet metal, and provided with a series of narrow slots, D D, which are formed in triangular depressions below the body of the plate, and forming equi spaces C between the slots, as set forth.

176,503. FURNACES FOR BURNING FULIGINOUS FUEL. Michel Perrot, Paris, France. (Filed Feb. 10, 1876.)

Brief.—The heated air from the side flues converges into and circulates through the series of superposed communicating hearths, containing fragment fuel. The combustion products discharge finally into the gas-generator, and the ultimate burning is effected at the air-flues at the neck of the generator.

1. A furnace or apparatus for burning poor or pulverulent fuel, provided with a series of superposed communicating hearths, and with draft-flues arranged and operating to maintain an air-current upward or downward through the furnace, substantially as set forth.
2. The combination of a furnace or apparatus for burning poor or pulverulent fuel on a series of superposed communicating hearths, as described, with a gas-generator for burning fragmentary fuel, substantially as set forth.

176,504. LOCKETS. A. W. Pherson, North Attleborough, Mass. (Filed Feb. 21, 1876.)

The diorama locket, substantially as described, composed of the lock et-case A, perforated and provided with the stop-spring i and pivot d, as shown, and of the rotary disk B and its series of lens-glasses and objects or pictures, essentially as described and explained.

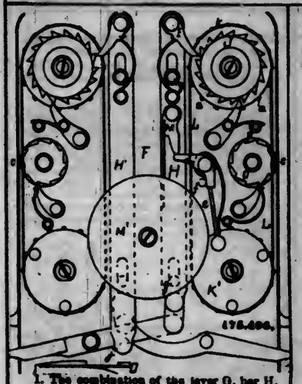
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176,505. BILLIARD-TABLES. Henry Pottin, Philadelphia, Pa. (Filed Dec. 14, 1875.)

Brief.—The table is mounted upon a central standard, upon which it is arranged to revolve. The cover is provided with adjustable legs, to adapt it for serving as a separate table. Improved adjustable centers and an alarm-signal are also shown.

1. A billiard-table, provided with a central pedestal or support, and a central spindle or pivot, upon which said table revolves, substantially as described.
2. In combination with a billiard-table, having feet B B, the vertically-adjustable center-block C for regulating said table to the proper level, substantially as shown and described.
3. In combination with the pedestal A, surmounted by the rigid disk S, the billiard-table D, provided with a central spindle, d, attached to a disk, S, substantially as shown and described.
4. In combination with a billiard-table, the cover E, provided with folding legs, and adapted for use as a separate table, substantially as shown and described.
5. In combination with a billiard-table, an alarm-register for noting the points of the game, said register being placed in or on the side of the table, and operated by a push-button, substantially as set forth.

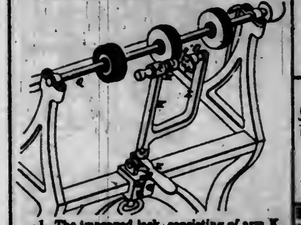
176,506. FARE-REGISTERS. Henry Pottin Philadelphia, Pa. (Filed July 10, 1876.)



176,496.

1. The combination of the lever G, bar H, pawl I, ratchet-wheel J, toothed wheels K K', and the band L, as shown and described.
2. The double bar A, in combination with the lever G, bar H, pawl I, ratchet-wheel J, toothed wheels K K', and the band L, as shown and described.
3. The combination of the band L and the ratchet and numbered wheel O P, as shown and described.
4. The combination of the band L and the nib or projection i, as shown and described.
5. The combination of the lever G', bar H', and the sounder Q, as shown and described.
6. The combination of the lever G, bar H, trip-lever M, bell and hammer M' a, spring N, pawl I, wheels J J' K, and the band L, as shown and described.

176,497. MACHINERY FOR FINISHING BOOT AND SHOE HEELS. Christian B. Ramlose, St. Louis, Mo., assignor of one-half his right to Newton M. Holtzinger, same place. (Filed Dec. 9, 1876.)

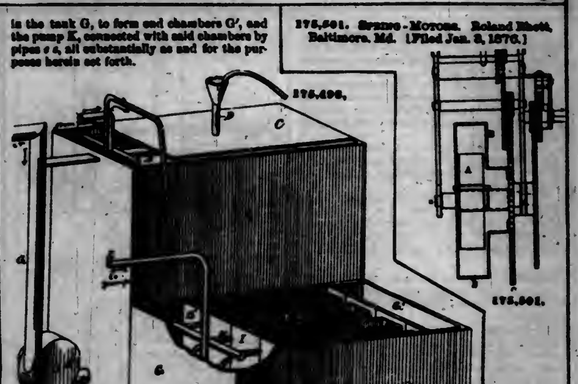


1. The improved jack, consisting of arm K, provided with socket k, spindle M, and spring F, and the arm L, provided with a stud, O, and turning head o, as and for the purpose set forth.
2. The lever E, journaled to ears F of the sliding carriage C, spring G, and hook H, in combination with jack K L M O, as and for the purpose set forth.

176,498. IGE-MACHINES. Thos. L. Rankin, Emporia, Kans. (Filed Mar. 4, 1876.)

Brief.—Separate refrigerating-coils between recessed boards. Pumps brine from one compartment against side of other compartment, and back through perforations in the supporting-boards. Condenses refrigerant gas by water shot from a revolving sprayer onto the condenser-coil, while an air-blast passes through the spray.

1. In a condenser for ice-machines, a vertical rotating water-pipe, D, provided with a series of hollow arms or nozzles, a, for discharging the water in the form of spray, as and for the purposes herein set forth.
2. The combination of the pipes B, inclined doors C, and vertical rotating water-pipe D, with arms or nozzles a, substantially as and for the purposes herein set forth.
3. The combination of the blower E, rotating water-pipe D, with arms or nozzles a, the inclined doors C, and pipes B, all constructed and arranged substantially as and for the purposes herein set forth.
4. In an evaporator for ice-machines, the perforated bolt-heads I, with coils H arranged in the tank G, to form end chambers G', and the pump K, connected with said chambers by pipes c c, all substantially as and for the purposes herein set forth.



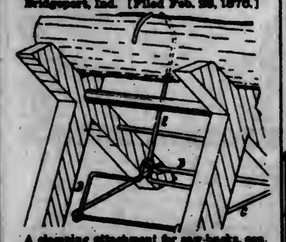
176,499.

176,499. CARPETS. Chas. A. Bond, Bridgeport, Conn. (Filed Dec. 12, 1874.)

Brief.—A mottled appearance is given to the figures by a variegated weft-yarn.

1. The process of manufacturing a figured ingrain carpet herein described, consisting in producing the figures by the Jacquard movements, and in giving a mottled appearance by the employment of a continuous variegated weft-yarn, the colors on which are arbitrarily located in any position, without care as to the position of the colors of the parti-colored weft in the fabric, and the variegated yarn being carried by a single shuttle, substantially as described.
2. As a new article of manufacture, the figured ingrain carpet herein described, mottled by a variegated weft-yarn, the colors on which are arbitrarily located in any position, without care as to the position of the colors of the parti-colored weft in the fabric, substantially as set forth

176,500. SAW-SUCKER. Israel Redmond, Bridgeport, Ind. (Filed Feb. 28, 1876.)



A clamping attachment for saw-backs, consisting of the rod B, frontlet C and D, and hooked rod E, combined as and for the purposes described.

176,501. STEAM-MOTORS. Roland Rhett, Baltimore, Md. (Filed Jan. 3, 1876.)

176,501.

1. The shaft c, spring A, cage B, and winding-wheel, combined with the winding-shaft b, winding-pinion, and ratchet mechanism, substantially as specified.
2. The spring A, the outer end of which has a free radial movement, as described, its inner end being secured to the coiling-shaft c, combined in a suitable frame with said shaft c, cage B, and power-transmitting wheel C, substantially as herein specified.

176,502. CONDENSING PUMPS AND FEED-HEATERS. Elias Rhoades, Clyde, Ohio. (Filed Feb. 3, 1876.)

Brief.—As the plunger ascends, the lower valve opens, and the lower part of the cylinder is filled with water. On the descent of the plunger the upper part is filled. The lower valve closing at the same time, the water below the plunger forces the valve in the plunger upward, thereby allowing the water to pass out through the ejector-pipe, and so on.



176,502.

1. A head for a pump-cylinder, formed with an interior recess, d, and provided with a valve-supporting bar, e, for the purposes herein set forth.
2. The combination of the cylinder A, plunger D, ejector-pipe E, piston-rod R, exit-pipe F, and the combined air-chamber and reservoir H H', all as shown and described.
3. The check-valve f, arranged in the bottom of the reservoir H', as shown and described.
4. The combination, in a pump, of the combined reservoir and air-chamber H H', exit-pipe I, air-chamber M, spout O, and stop-cock P, as shown and described.
5. The combination, with the piston-rod R and stirrups m m, of the short lever W, the long slotted lever W', bolt n, and roller p, all as and for the purposes herein set forth.



176,503.

176,503. COOKING-STOVES. Aaron P. Rich, Troy, N. Y. (Filed Jan. 10, 1876.)

Brief.—Air admitted through openings in the bottom of the stove is heated by the sank of the fire-pot, and circulates around the oven, and makes its exit into a flue adjoining the smoke-exit.



176,503.

1. In a cooking-stove, and in combination, the corrugated plates G^1, G^2, and G^3, and the series of openings H, substantially as and for the purposes set forth.

2. In a cooking-stove, and in combination, the hot-air spaces G, the rear hot-air spaces H^1 H^2, the diverging plates f f, and the hot-air space I, substantially as and for the purposes set forth.

3. In a cooking-stove, and in combination, the bank plate D^2, the triangular opening F^1, and the flue I, substantially as and for the purposes set forth.

4. In a cooking-stove, and in combination with the top plate thereof, the deflector L, placed in the main combustion-flue, and intermediate between the front pot-holes, substantially as and for the purposes set forth.

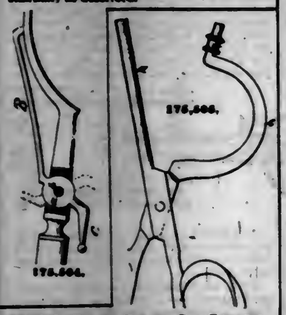
176,604. CARVING-FORK. Robert Richmond, New Britain, Conn., assignor to J. D. Peary, same place. [Filed Jan. 24, 1876.]

Brief.—The guard and rest, which passes through the fork-shank, is furnished with a circular middle plate, which rotates in a circular recess in the shank.

1. In combination with a carving-fork, the guard B, constructed with a cylindrical body, a, and the shank of the fork with a corresponding cylindrical recess, within which the said body is hung, and an automatic spring, arranged to support or hold the said guard, substantially as described.

2. In combination with a carving-fork, the rest C, constructed with a cylindrical body, a, and the shank of the fork with a corresponding cylindrical recess, within which the said body is hung, and an automatic spring arranged to support or hold the said rest, substantially as described.

3. In combination with a carving-fork, the guard B and rest C, in one and the same piece, with a cylindrical body, a, and the shank of the fork with a corresponding cylindrical recess, within which the said body is hung, and an automatic spring arranged to support or hold the said guard and rest, substantially as described.



176,605. DENTAL RUBBER-DAM PUNCHES. John Hix, Fort Madison, and F. T. Smith, Burlington, Iowa. [Filed Oct. 20, 1875.]

Brief.—A piece of thin rubber is stretched over the blunt end of a round blade of a pair of shears, and an adjustable thimble upon the end of the bevel blade cuts the round hole.

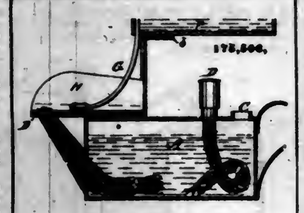
In an instrument for punching rubber dams, the combination of the straight blade a, the curved blade c, carrying an adjustable fingered cutting-thimble, all as and for the purposes described.

176,606. STEAM-LAMPS. Sylvanus S. Robinson, Holden, Me., assignor of one-half his right to W. M. Coventry, same place. [Filed Feb. 26, 1876.]

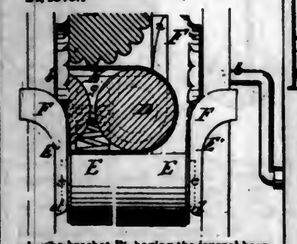
Brief.—The currents of air induced by the steam-jet are prevented from distorting the heating-flame by the surrounding shield.

1. The lamp A, having the standards E and the curved a bonded between the burners D and D', in combination with the boiler, having one or more pipes G and cocks c, as and for the purposes described.

2. The combination of lamp A, having burners D D', the standards E, and curved a located between said burners, the trough H, and the boiler F, having one or more pipes G and cocks c, as and for the purposes described.



176,607. WASHING-MACHINES. Martin Van B. Saunders, Detroit, Mich. [Filed Dec. 24, 1875.]



1. The bracket B', having the journal bearings d, and between the same the outwardly-extending guide-stud g, and extending outwardly from the same the arms F, having the beveled faces n and the clips m, substantially as specified.

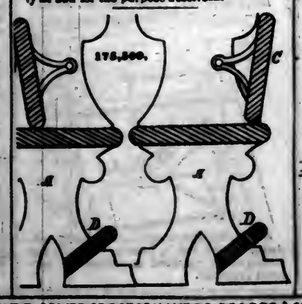
2. The combination, with the slotted standards and springs, of the rocking brackets B', having the studs g and clips m, substantially as specified.

176,608. FILTERS. Bruckurst Schleiffelin, Atlantic ville, N. J. [Filed Aug. 20, 1875.]

Brief.—A diaphragm is placed within the case near the top, to deflect the fluid toward the wall of the casing as it passes upward.



The filter herein described, consisting of an outer casing, A, and an air-tight inner case, B, provided with an entry-pipe, C, and diaphragm D, extending across the interior of said casing B, and of slightly-smaller diameter, all arranged and constructed substantially as and for the purpose described.



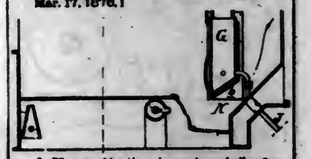
176,609. SETTEES. T. S. Scott, Philadelphia, Pa. [Filed Dec. 30, 1875.]

Brief.—By reversing the back on its pivots, the seat can be made wide for adults, or narrow for children.

1. A bench consisting of the ends A, reversible back C, pivoted as described, and the step D, the whole constructed and arranged substantially as and for the purpose set forth.

2. The step D, in a bench constructed as hereinbefore described, for the purpose hereinbefore specified.

176,610. FURNACES FOR STEAM-BOILERS. John Q. C. Searle, Cincinnati, Ohio. [Filed Mar. 17, 1876.]

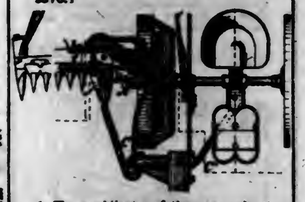


1. The combination, in a steam-boiler furnace, of a depressed grate at the rear of the fire box or fuel-chamber, the front of which depressed grate is open, with a partition, by which the products of combustion are compelled to pass through the fuel on said grate, substantially as set forth.

2. The combination of the depressed grate, the partition above the same, and the throat N with devices for forcing air into the fuel contained on the said depressed grate and toward the throat N, as specified.

3. The removable water-back G, adapted to the fire-box, in combination with feed-pipes J J and circulating-pipes H H.

176,611. MOWING-MACHINES. William H. Seymour, Brookport, N. Y., assignor to D. S. Morgan, same place. [Filed Feb. 12, 1876.]

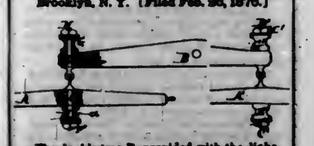


1. The combination of the main axle, the driving-wheels, the frame C outside of the wheels, the bar C', connected to the bar C and to the main axle, the tongue pivoted on the bar C', the rocking lever fixed on the tongue, and the rocking guide-post of said lever, mounted on the main axle, these members being constructed and operating as hereinbefore set forth.

2. The combination of the frame-bars C C', the tongue pivoted on the bar C', the cutting apparatus arranged within a cylinder projected from the periphery of the driving-wheels, the drag-bar swiveled to the front of the frame-bar below the line of the joint, and the double-hinged coupling-arm, these members being constructed and operating as herein before set forth.

3. The combination of the shoe, the lifting-lever pivoted thereon, its toe, and locking-detent, these members being constructed and operating as set forth.

176,612. WHEELBARROWS. W. O. Shadbolt, Brooklyn, N. Y. [Filed Feb. 26, 1876.]



The double-tree B, provided with the links D D' and springs G G', in combination with the whiffletrees A A', provided with the links C C', connected with the links D D' of the double-tree, and having the springs B B', substantially as described.

176,613. STRAIN-COCKPEEK. Fanny J. Shinn, Sheridan, Ill. [Filed Jan. 31, 1876.]



The wire-cloth vessel U, provided with strengthening-ribs a and inclined feet or legs A, in combination with an ordinary steam-cocker A, substantially as and for the purposes herein set forth.

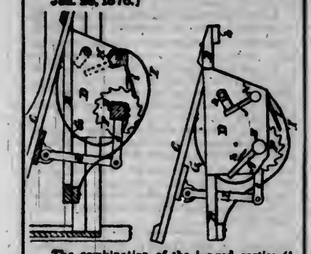
176,614. COMBINED POCKET-BOOKS AND BELTS. Meyer Simon, New York, N. Y. [Filed Feb. 16, 1876.]



1. A combined pocket-book and belt, in which the pocket-book is made to form an interposed longitudinal section of the belt itself, substantially as specified.

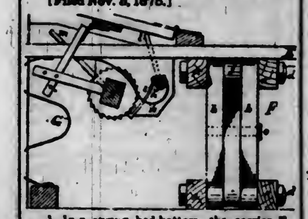
2. A combined pocket-book and belt, in which the pocket-book has a part of the buckle or fastening attached to it, by which the ends of the belt are united to the pocket-book, essentially as described.

176,615. BED-BOTTOMS. Henry Smidt and John Engfeld, New York, N. Y. [Filed Jan. 26, 1876.]



The combination of the hinged section C, frame B, shafts D and H, ratchet-wheels F F, pawls i i, springs G and I, links d d, side plates D D, and handles g g j j, substantially as set forth.

176,616. SPRING BED-BOTTOMS. Henry Smidt and John Engfeld, New York, N. Y. [Filed Nov. 8, 1875.]



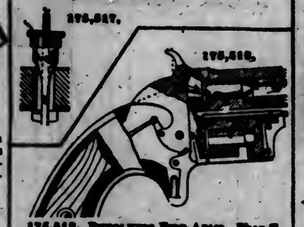
1. In a spring bed-bottom, the carrier F, composed of the cross-ties a a, diagonals b b, and bolts c d, when constructed and arranged to operate substantially as set forth.

2. The combination of the carrier or carriers F F, constructed as specified, with the springs G G and slats E E, substantially as set forth.

176,617. KEY-FASTENERS. A. W. Sperry, Wallingford, Conn. [Filed Mar. 9, 1876.]

Brief.—A flat forked piece is passed through the key-hole after the door is locked, and the key turned partially round. A shank with a T-head passes between the forks, and is screwed up with a nut at the end of the forked shank. The T-head rests against the outside of the lock-case, and the flat fork is in the path of the key, and prevents it being turned.

The herein-described key-fastener, consisting of the two legs a a, the enlarged body b, the spindle c, the cross-head d, and nut f, substantially as described.



176,618. REVOLVING FIRE-ARMS. Rhes T. Sharp, New York, N. Y. [Filed Nov. 6, 1875.]

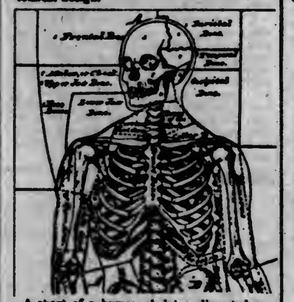
Brief.—Hammer has an adjustable bank, to adapt it to explode a center or rim fire cartridge.

1. The shell-extractor B, composed of a sliding rod or bar, c, and swinging yoke d, arranged for operation in relation with the revolving cylinder E or its chambers b, substantially as specified.

2. The detachable nose h, in combination with the hammer G, formed with the two holes I I', whereby the nose h may be applied to either one of said holes, so as to serve as a firing-pin for either center-firing or rim-firing cartridges, as shown and described.

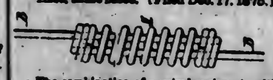
176,619. EDUCATIONAL PUZZLES. Emil Steiger, Prairie Du Chien, Wis., assignor of one-half his right to George M. Rising. [Filed Feb. 6, 1876.]

Brief.—Dismanted puzzle applied to an anatomical design.



A chart of a human skeleton dissected or cut into pieces, each piece embracing an important part of the structure, and having its appropriate name marked thereon, substantially as herein described, for the purpose of instructing children in the science of human anatomy, as set forth.

176,620. COILED-WIRE SPRINGS. Asher B. Stevens, Philadelphia, Pa., assignor to Henry S. Hale, Artemus Kilburn, J. Warren Hale, Chauncy Kilburn, and Warren Hale, same place. [Filed Dec. 17, 1875.]



The combination of a spiral spring, A, with a loop or loops, B, made of a single piece of wire, one end of which wire is coiled to form an annular bend adapted to bear on and compress the spiral, through which spiral and through the said bend at the opposite end of the wire passes, all substantially as described.

176,621. KNIVES FOR FLOCK-CUTTING MACHINES. Willard H. Swan, South Milford, Mass. [Filed Mar. 20, 1876.]



In a machine for cutting flock, the detachable knife A, having one or both of its sides serrated to form teeth or steps a a, extending across the same in planes parallel, or nearly so, to each other, the aggregate length of the outer faces b of which are equal, or nearly equal, to the whole length of the knife, and bent and twisted as shown, to adapt it to be set spirally in the outer periphery of a revolving cylinder or drum, or in the inner periphery of its fastening cylinder, with its sides, in all parts of its length, radial, or nearly so, to the axis of the cylinder or drum, as and for the purposes described.

176,622. MACHINES FOR REDUCING DIAMETER OF METAL TUBES. S. F. M. Tasker, Philadelphia, Pa. [Filed Feb. 28, 1876.]



The combination of two or more sets of rolls, graduated in size for reducing the size of the tube, each set consisting of three or more rolls, and so arranged that the rolls of a succeeding set shall press upon those parts of the tube between the pressers of the preceding rolls, substantially as and for the purpose set forth.

176,623. WATER-METER DIALS. De Witt C. Taylor, Brooklyn, N. Y. [Filed Jan. 17, 1876.]

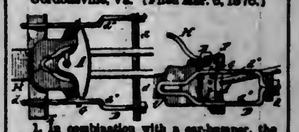


1. In a water-meter, the combination of the submerged revolving dial A with the rotating spindle E and submerged operating mechanism, and with the stationary index or pointer D, all arranged so that the dial will be washed and cleaned by the current of water produced by the revolving motion of the dial.

2. In a water-meter, the submerged dial A, perforated to prevent the accumulation of impurities, substantially as specified.

3. The combination of the index-hand or pointer D, and of the wiper a, with the submerged dial A of a water-meter, substantially as specified.

176,624. CAR-COUPLINGS. R. W. Thurman, Gordonsville, Va. [Filed Mar. 6, 1876.]



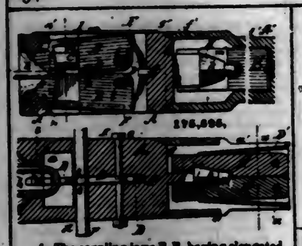
1. In combination with a car-bumper, the frame D, embracing said bumper, constructed at its rear ends, and secured upon the rectangular bar or projection B, for supporting the coupling-link in position to enter the opposite bumper, and automatically releasing the same when the two cars meet, substantially as described.

2. In combination with the car-bumper, the frame A, secured to the rectangular bar or projection E, and the removable pins G G, said frame D being enlarged at its forward end for the purpose of clearing said pins when forced backward, substantially as described.

3. In combination with the buffer, the curved frame H, for holding the coupling-pin in position for coupling the cars, substantially as herein set forth.

176,625. CAR-COUPLINGS. Robert D. Thomson, North Platte, Nebr., assignor of one-half his right to H. R. Oltman and John H. Evans, same place. [Filed Sept. 20, 1875.]

Brief.—Draw-head in two parts. Front portion, in which are coupling-hooks, detachable from rear portion, attached to car, by overhanging of ears.



1. The coupling-jaws B B, having elongated pivotal slots i i, sloping teeth, faces n n and o o, and locking and unlocking recesses m m and p p.

2. The frame A, having slots a b, bell-mouth h, with slots i j, grooves o' n', bearings d e, and recess f, as and for the purposes described.

3. The combination of spring-actuated coupling-jaws, having elongated slots and teeth, with outer faces, which incline outward and inward, with a coupler-frame, having grooves inclining as the said teeth face, as and for the purpose set forth.

4. The combination of a coupler-frame, having slot b and recess f, with coupling-jaws B B, and spring D, having a rearward projection, as and for the purpose set forth.

5. The combination of a frame having slot i and a shouldered slot, a, with weight C and bolt G, as and for purpose set forth.

6. The combination of frame A, coupling-jaws B, spring D, and weight C, as and for the purpose set forth.

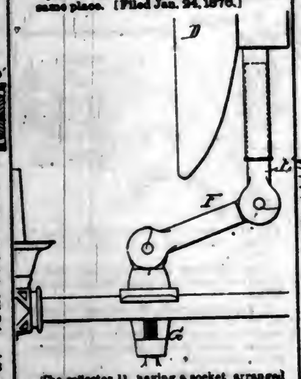
7. The combination of frame A, coupling-jaws B, spring D, weight C, and uncoupling-rod R, as and for the purpose set forth.

8. The combination of frame A', locking-jaws B' B', springs D' D', and a tension bolt and nut, as and for the purpose set forth.

9. The combination of an arrow-head, having a flat stem, and having locking-shoulders upon its longer and opposite sides only with mainly flat spring-jaws, having locking-shoulders on their longer sides only, as and for the purpose described.

10. The combination of a coupler-frame, having a circular and beveled boss, a flat shaft, and flat arrow-head, H, having locking-shoulders on its longer sides only, with frame A', having a circular beveled mouth and flat locking-jaws B' B' having open flat teeth with central rabbets, and having locking-recesses shaped mainly as the arrow-head H and springs D' D', as and for the purpose set forth.

175,897. Reflectors for Gas-Burners. William H. R. Toye, Philadelphia, Pa., assignor of one-half his right to T. P. Boyd, same place. [Filed Jan. 24, 1876.]



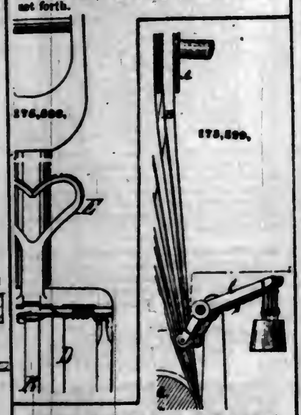
The reflector D, having a socket arranged to turn on a pin, E, in combination with one or more jointed rods, F, and an adjustable clamp, G, for attachment to the branch of a gas-burner or other support, all substantially as set forth.

175,896. Potato-Forks. R. W. Trussell, Bear Oak, Mich. [Filed Feb. 12, 1876.]

Brief.—A potato-digger constructed with a tooth or finger, rigidly fixed in the handle, and an excavating-fork and treadle, which is used for raising the potatoes from the ground.

1. The combination, in a potato-excavator, of the tine B, rigidly secured to the staff A and formed on a cross-head, C, the fork D, and its treadle E, connected to the cross-head C by means of shoulders e and coiled springs S, substantially as described.

2. The fork D, provided with the treadle E and perforated shoulders e, in combination with the tine B, having the cross-head C at right angles thereto, shank b for attachment to the handle, and spring S, substantially as set forth.



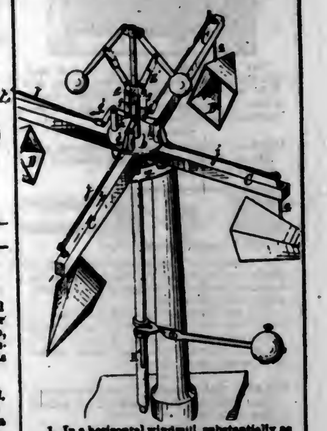
175,899. Belt-Uniting. C. Underwood, Hartford, Conn. [Filed Mar. 11, 1876.]

1. The combination, with two pulleys having their axes in angular relation with each other, and the one of which serves to drive the other, of two or more independent belts, connecting said pulleys at different portions of their width, substantially as specified.

2. The combination, with two pulleys, the one of which drives the other, of a series of independent belts, connecting said pulleys at different portions of their width, and a series of independent automatic belt-tighteners applied to said belts, essentially as described.

175,898. Windmills. John T. Warner, Marshall, Mich. [Filed Feb. 21, 1876.]

Brief.—In place of sails, pyramidal or conical cups are used, one at the extremity of each radial arm, and hung so that their mouths or bases can be turned into or out of the plane of direction of the wind; also, means for governing or regulating the speed of the mill.

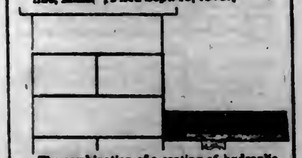


1. In a horizontal windmill, substantially as described, a conical or pyramidal cup, pivoted by a transverse axial shaft to the outer end of each radial arm, substantially as described.

2. In a horizontal windmill, substantially as described, the conical or pyramidal wind-cups, pivoted to the radial arms and weighted in their apices, substantially as and for the purpose set forth.

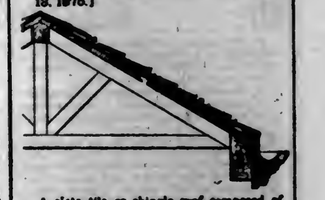
3. In a horizontal windmill, substantially as described, the conical or pyramidal wind-cups, each weighted in its apex and pivoted to a radial arm, and the combination with said cups of a centrifugal governor adapted to turn their bases into the planes parallel with the radii of their respective arms, substantially as described.

175,891. Roofs. Cyrus M. Warren, Brookline, Mass. [Filed Sept. 10, 1875.]



The combination of a coating of hydraulic-cement mortar, as an exterior and finishing layer, with a roof composed of felt or paper, pitch and gravel, sand, broken stone, or other similar material, substantially as described, and for the purpose set forth.

175,892. Slate and Shingle Roofs. Cyrus M. Warren, Brookline, Mass. [Filed Oct. 13, 1876.]

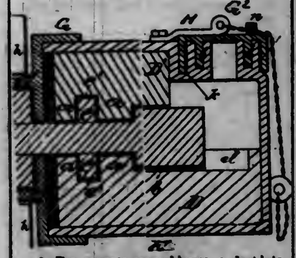


A slate, tile, or shingle roof, composed of alternate layers or strips of water-proof felt or other equivalent material, and layers of slate, tile, or shingles, said layers being arranged in relation to each other substantially in the manner herein shown and described.

175,893. Roofing. Cyrus M. Warren, Brookline, Mass. [Filed Oct. 7, 1876.]

A tile for roofing and other purposes made of a layer of hydraulic cement, an intervening layer of pitch, or other equivalent material, and a lining of felt, or other flexible material, all combined substantially in the manner shown and described.

175,894. Gas-Axle Journal-Boxes. W. M. Watson, Tonica, Ill. [Filed Mar. 4, 1876.]



1. For car-axle journal-boxes, a dust-plate consisting of a cover, D^2, provided with one or more flanges adapted to enter a recess or recesses in the frame B, substantially as described.

2. The journal-box D D', provided with shoulders a, groove b, oil-reservoir d, and trough e, for the purposes herein set forth.

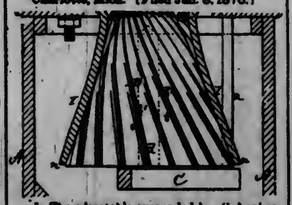
3. The fins A A, attached to or formed on the side of the car-wheel B, for the purposes set forth.

4. The flanged cover G, constructed substantially as and for the purpose set forth.

5. The recess or trough i, constructed substantially as described.

6. The catch H and chain m, in combination with the box or frame E and cover G for the purpose herein set forth.

175,895. Grinding-Mills. S. P. Webber, Charlotte, Mich. [Filed Jan. 6, 1876.]

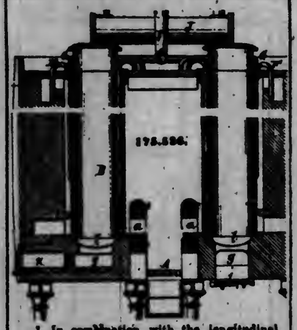


1. The adjustable suspended bar C, having a central vertical spindle rigid therewith for supporting a conical grinding-runner, as specified.

2. The combination, substantially as hereinbefore described, of a vertically-adjustable suspended bar, having a central vertical spindle rigid therewith, a conical grinding-runner, having a shaft or stem projecting from its apex, a surrounding conical shell, and a suitable operating mechanism.

175,896. Apparatus for the Manufacture of Gas. Adam Weber and Ignatz Herzog, New York, N. Y., and August T. Schwenzler, Newark, N. J. [Filed Jan. 26, 1876.]

Brief.—Manufactures water-gas by superheating steam, and passing it through upright coke-retorts, having grates at the bottom, and containing incandescent carbonaceous material. Conducts the water-gas into retorts containing refractory material, into which oil is admitted. The fire-walls on either side of the grate have longitudinal passages, superheating the steam. Longitudinal passages are provided in the sides of the retorts, next to the fire, for the same purpose. Superheaters are placed between the retorts. Pipes from each retort connect with a central pipe, which dips into the hydraulic main.



1. In combination with the longitudinal superheaters, the vertical superheaters and steam-decomposing retorts located and connected together, substantially as described.

2. The combination of the longitudinal and vertical superheaters with the vertical steam-decomposing retorts, provided with superheating-passages in their walls communicating with the vertical superheaters and the interior of said retorts, substantially as described.

3. In combination with each pair of vertical steam-decomposing retorts, the branch pipes, having valves, the central pipe I, and the vertical oil-decomposing retorts, the whole connected together and communicating with each other, substantially as described.

4. The combination, with the vertical retorts, of an intermediate pipe communicating with said retorts and the hydraulic main, and provided with a partition below the branch pipes, which form the exit from the decomposing-retorts, substantially as described.

175,897. Combined Rein-Holders and Whip-Sockets. John W. Weddel, Mount Carroll, Ill., assignor of one-half his right to John H. Deeds, same place. [Filed Jan. 7, 1876.]

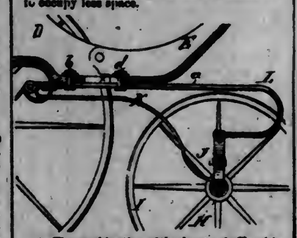
Brief.—One spring actuates both the whip-socket and rein-clamp.



In a combined whip-socket and rein-holder, the combination of a movable plate for clamping the whip, a sliding box or plate for clamping the reins, and a spring arranged to act on both said plates, in the manner shown and described.

175,898. Children's Carriages. Charles E. Wentworth, Eddystone, Pa. [Filed Feb. 12, 1876.]

Brief.—The several parts may be folded up to occupy less space.

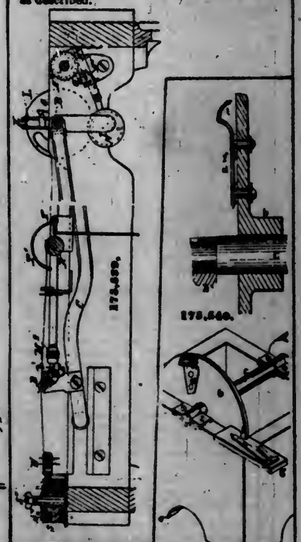


1. The combination of the front axle H, with wheels I I and spring J, the slotted arm L, braces K K, and bolts b d, connecting said arm to the carriage-body, as and for the purposes herein set forth.

2. The combination, with the stationary part D of the carriage-body, of the folding part E and the sliding locking-bolt d, moving in the slot a, as and for the purposes herein set forth.

175,899. Machines for Polishing the Eyes of Needles. Nathan. Wheeler and Philo M. Beers, Bridgeport, Conn. [Filed Jan. 12, 1876.]

Brief.—Improvement on machine described in Letters Patent No. 166,346. The cam for giving a variation of movement to the needle-clamp is operated automatically. Spring tension-fingers with forked ends, which carry over the take-up roll and stride the threads, are provided for the purpose of keeping the same taut. Reserves of unpolished needles are strung upon the threads at the end near the spools, and are arranged between notched bars, each of which can be lifted from its seat, and used to push a set of said needles forward to the clamp.



1. In a machine for polishing the eyes of needles, the combination of the needle-clamp with a cam for partially rotating said clamp, when said cam is operated in its changes of motion automatically from the main shaft, as and for the purposes set forth.

2. The combination of the cam G, crank-arm L, sliding bar K, plate M, cam-bar N, cam N^1, and ratchet mechanism, substantially as described, and for the purposes set forth.

3. The combination, with a driving-shaft, of the two pawls operated by one eccentric, and a cam-shaft for giving fast and slow movements to a sliding bar, and holding the same in alternate positions, substantially as described.

4. In a machine for polishing the eyes of needles, the combination and arrangement of the spools and their clamping-bars, whereby one binding-screw may hold all the spools in a fixed position, substantially as described.

5. In a machine for polishing the eyes of needles, the combination with the tension or take-up roll E of the curved spring-fingers F, having forked free ends for striding the threads, substantially as and for the object specified.

6. In a machine for polishing the eyes of needles, the combs or comb-bars for pressing the needles forward to the clamp, substantially as described.

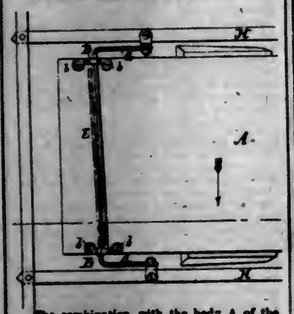
7. The combination, with the needle-clamp, of a gage-bar for raising the needles, or the threads on which they are suspended, to the same height at the same time, substantially as described.

175,900. Pocket-Pointing Machines. J. H. Whittaker, Davenport, Iowa. [Filed July 10, 1875.]

Brief.—Two or more knives, formed to suit the mold desired, are secured to a revolving head, and so sharpened as to give a shearing cut as the top of the picket is swung against the knives.

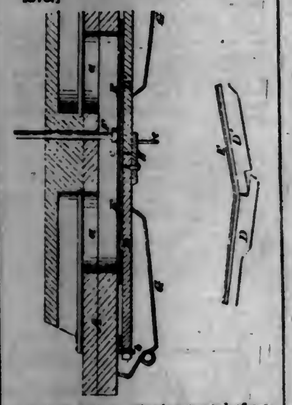
The combination of the knife *d*, revolving knife-head *b* and washers *f*, or their equivalent, as and for the purposes hereinbefore set forth.

176,641. VEHICLE-SPRINGS. William F. Whitney and Edward Storm, Poughkeepsie, N. Y. (Filed Dec. 18, 1875.)



The combination, with the body A of the vehicle, of the longitudinal side bars H, the brackets E, provided with sockets for holding the springs, and the torsion-springs E G, arranged transversely to said bars H, substantially as described.

176,642. REED-ORGAN VALVES. Henry K. White, Brattleborough, Vt., assignor to Estey & Co., same place. (Filed Feb. 20, 1876.)



1. A reed-organ valve constructed of sections, pivoted at the outer ends, abutting together, and provided with a continuous strip of packing to form a flexible joint, substantially as and for the purpose set forth.

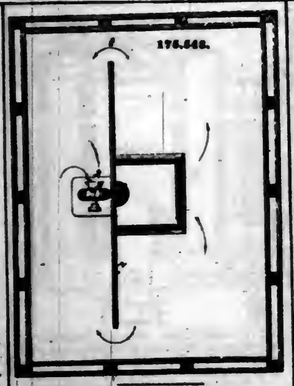
2. A reed-organ valve constructed of sections D D', continuous flexible packing E, and plate H, or its substantial equivalent, constructed and arranged to operate in the manner substantially as set forth.

3. The combination of the sections D D', flexible packing E, plate H, springs G G, and suitable guides *a a*, to prevent lateral movement, when arranged to form a valve for reed-organs, as set forth.

176,643. REFRIGERATORS. Jas. H. Wicken, New York, N. Y. (Filed Mar. 16, 1876.)

In a refrigerator-chamber, a vertical partition, C, dividing the chamber into two preserving-compartments, and having an air-passage, *a*, at either or both of its ends, in combination with an air drawing and forcing device, D, in one compartment, and an ice-reservoir in the other compartment, whereby the air of the chamber is passed in a lateral circuit through both compartments and through the intermediate refrigerating agent, substantially as described.

176,644.



176,644. FIREMEN'S LADDERS. Asa Willis, New York, N. Y. (Filed Jan. 26, 1876.)



1. The combination of the lower working base-frame B, the upper working base-frame C, hinged at or near its one end to the frame B, the slide F, and the lazy-tongs frame D D, with its attached sectionally-constructed ladder E E, essentially as described.

2. The combination of the screw G with the nut *i*, attached to the inner forwardly-projecting frame F', the main sliding frame F, and the slotted guides *f f*, substantially as specified.

3. The ladder-sections E, provided with curved slots *e* at their lower ends, in combination with the outer rungs passing through said slots and through the upper ends of adjacent ladder-sections, the lazy-tongs frame D D, and the fulcrum-rods *b* of said frame, essentially as described.

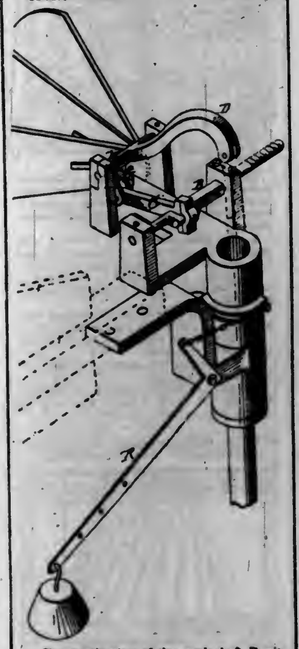
4. The combination of one or more end supporting-screws, H, with the sliding frame F and the lazy-tongs frame D D, with its attached ladder, substantially as specified.

5. The combination, with the hinged upper working base-frame C and lower working base-frame B, of the side adjusting-screws I I and the pivoted nuts *r r*, essentially as described.

6. The windlass L, and rope or chain braces K, operated by said windlass, in combination with the lazy-tongs frame D D and upper adjustable base-frame C, substantially as specified.

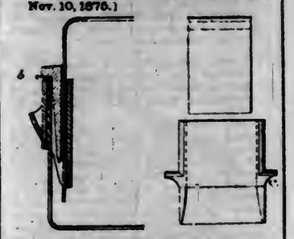
7. The pivoted or jointed side braces P, in combination with the laterally-swinging side arms or rods M, the underpinning-screws N, and the hooks or projections *u u*, with or under which the braces P look, essentially as described.

176,645. WIND-POWER MACHINES. Horace Woodruff, Sandwich, Ill. (Filed Aug. 20, 1875.)



The combination of the crank-shaft B, pitman C, slotted arm L, oscillating shaft K, and curved lever D, all constructed substantially as and for the purposes set forth.

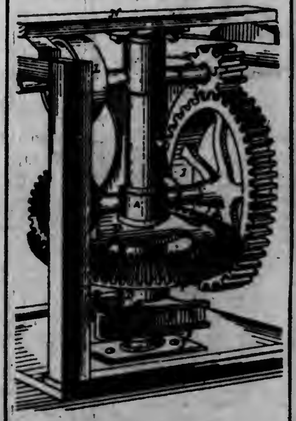
176,646. BALE-TIES. Jasper Thayer, New Orleans, La., designor of one-half his right to Charles H. Chase, same place. (Filed Nov. 10, 1875.)



The buckle having the legs *a a*, the slots or pocket *d*, Figs. 1 and 3, and the flange upon the wedge, substantially as described, and for the purposes set forth.

REISSUES.

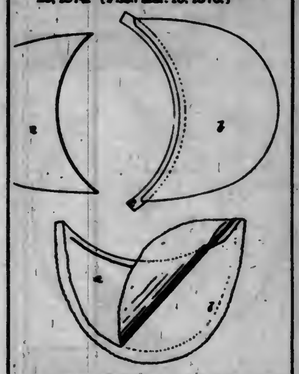
7,013. HORSE-POWERS. William Deering, Louisville, Ky. Patent No. 121,982, dated Dec. 19, 1871. (Filed Feb. 16, 1876.)



1. The stationary spindle of the revolving master-wheel, projecting through the master-wheel, and having transverse bearings for the support of one or more counter-shafts, substantially as set forth.

2. The stationary spindle of the revolving master-wheel, projected through the master-wheel, and at its upper end receiving and supporting a transverse beam of a house or framework, substantially as set forth.

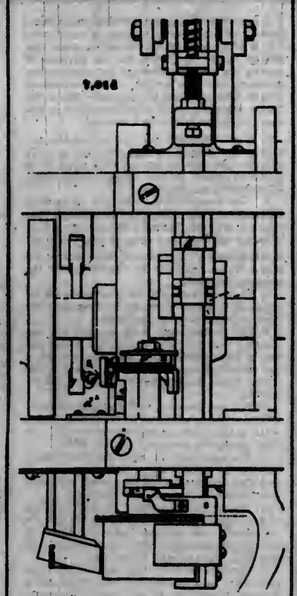
7,014. ARMPIT-SHIELDS. Annie L. Lockwood and Hooker Lockwood, Boston, Mass., and A. D. Lockwood, Providence, R. I., executors of Hamilton D. Lockwood, deceased. Patent No. 166,580, dated Sept. 28, 1874. (Filed Mar. 10, 1876.)



1. A dress-shield composed of the opposite halves *a a b b*, connected by means of an independent connecting-piece, *c*, substantially as described.

2. A dress-shield composed of two pairs of pieces connected by a connecting-piece, *c*, and stitches, substantially as described.

7,015. NAILING-MACHINES FOR BOOTS AND SHOES. Gordon McKay, Cambridge, and H. P. Fairfield, Boston, Mass., assignors to Gordon McKay. Patent No. 155,062, dated Oct. 13, 1874. (Filed Mar. 13, 1876.)



1. In a nailing-machine, the combination, with the nail tube and driver, of nail-receptacles adapted to receive and support separate nails of different lengths.

2. A series of nail-receptacles adapted to contain nails of different lengths, and with or without heads, in combination with a carrier to remove a nail from either of the receptacles to a position in line with the driver by which it is to be driven, and with a driver to drive the nail from the carrier.

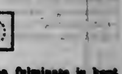
3. A series of nail-receptacles adapted to contain and guide separate nails of different lengths, in combination with a nail tube and driver, and with mechanism to present the nails singly to the nail-tube in line with the driver, substantially as described.

4. The nail tube and driver and receptacles to contain separate nails of different lengths, in combination with mechanism adapted to select the nails to be driven, according to the thickness of the stock to be nailed, substantially as described.

5. The combination of the inner and outer rings of the nail-carrier with the notched flange and the piece *c'*, to open the receptacle for the nail after it is in the proper position to receive the nail, and close it when passing the nail-troughs in either direction, substantially as described.

6. A reciprocating nail-carrier, in combination with stops *b'*, governed as to their position according to the thickness of the stock, and adapted to regulate the movement of the carrier with relation to the nail-receptacles and nail tube and driver, substantially as described.

7,016. TORPEDOES. Charles Nelson, East New York, N. Y. Patent No. 126,000, dated Feb. 16, 1872. (Filed Mar. 17, 1876.)



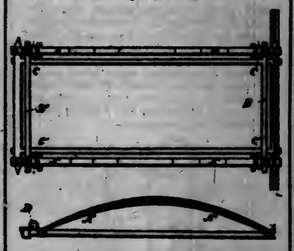
A torpedo in which the fulminate is kept separate from the gravel or other filling by being secured or attached to a piece of paper, substantially as and for the purpose specified.

7,016. TORPEDOES. Charles Nelson, East New York, N. Y. Patent No. 126,000, dated Feb. 16, 1872. (Filed Mar. 17, 1876.)



A torpedo consisting of the wrapper A, with or without an outer covering of tissue or other colored paper, and having the fulminate attached to one side of a piece of paper, D, separate from the other filling, and inclosed in one or more pieces, B, of strong paper having a hole, C, at the center, and all folded, twisted, and pasted together, substantially as described.

7,017. CONNECTING SPRINGS TO VEHICLES. John A. Topliff and George H. Hy, Elyria, Ohio. Patent No. 122,070, dated Dec. 19, 1871; reissue No. 4,607, dated Apr. 9, 1872. (Filed May 16, 1872.)



1. The combination of two connecting-rods located at the front and rear ends of a wagon-body, and arranged to turn in their bearings, with a pair of half-elliptic springs, whereby the springs are caused to yield in unison with each other, substantially as and for the purpose set forth.

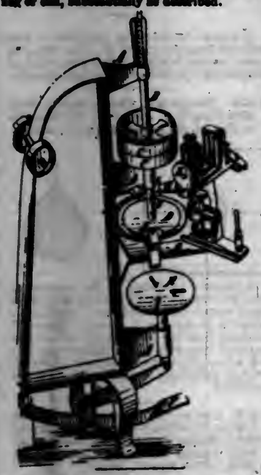
2. The combination of the connecting-rods B B', provided with arms at their ends, with the half-elliptic springs A A', substantially as and for the purpose set forth.

7,018. SEAMING-MACHINES. James Wilson, Charles Green, and William Wilson, Jr., Wilmington, Del. Patent No. 28,795, dated Apr. 10, 1860; extended seven years; reissue No. 6,097, dated Oct. 20, 1874. (Filed Dec. 10, 1875.)

1. The two disks D and E, substantially such as described, one of which acts as a mandrel for supporting the inner side of the seam, while both disks, acting together, clamp the outside of the bag or can, in combination with seaming mechanism capable of being moved forward and backward with respect to one of the disks, for the purpose of forming seams externally upon metal bags or cans, substantially as described.

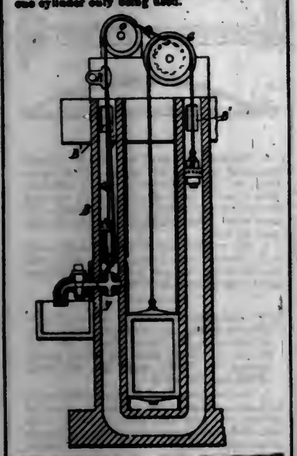
2. The combination of external seaming mechanism with the two disks D and E, arranged upon rotating shafts, so that they can grasp and rotate a can, and thus bring all parts of the flange of the can under the action of the seaming-tools for the purpose of forming an external seam, while one of the said disks acts as a mandrel for supporting the inner side of the seam so formed, substantially as described.

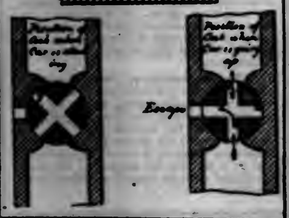
5. The combination of an external scouring mechanism with two revolving disks, the latter operating to hold the body of the bag or can, and to hold one or both heads in contact therewith, and rotate the throat of the external scouring mechanism, while the heads are being successively scoured on the body of the bag or can, substantially as described.



7,019. HYDRAULIC ELEVATORS. Cyrus W. Baldwin, Chicago, Ill. Patent No. 162,202, dated Apr. 20, 1875. [Filed Jan. 26, 1876.]

Brief.—Two upright cylinders, communicating at top and bottom, are respectively provided with a graduating and a lifting piston, the latter having a column of water above and below it. In another form a single piston is both a graduating and a lifting piston, one cylinder only being used.





1. In a water-elevator, a movable piston, combined with a stationary upright cylinder, having a water-supply above and a water-discharge below the piston, for the purpose of raising the elevator-carriage by atmospheric pressure, and the weight, or the combined weight and pressure, of the water above the piston when the water below the piston is discharged, substantially as described.

2. In a water-elevator, an adjustable discharge or escape, combined with one or more upright cylinders, to graduate the quantity of water expended to the weight to be lifted, substantially as described.

3. The combination, with the stationary elevator-tube or cylinder and the elevator-carriage, of a piston having a flexible connection with the carriage, and adapted to travel within the tube with a column of water above and below it, substantially as described, for the purpose specified.

4. The combination of the graduating valve-piston with one or more upright water-cylinders, substantially as described.

5. The combination, with the two communicating upright cylinders, of the lifting-piston in one cylinder, and the water-escape in the other cylinder, located with respect to the lifting-piston, substantially as shown and described.

6. The combination, with the main cylinder and graduating-cylinder, of the lifting-piston, water-escape, and graduating-valve piston, for joint operation, as shown and set forth.

7. The combination, with the graduating-cylinder B, of the escape, the escape-cock F, and the graduating-valve piston, arranged and operating as shown and set forth.

8. The graduating-piston B, and its valve, in combination with the escape cock, and the valve-cord, and intermediate mechanism, by which said valve and cock are connected and operated, substantially as set forth.

9. The combination, with the water-supply reservoir, the main cylinder, the lifting-piston, and the elevator-car, of the escape, the escape cock, the graduating-piston, and its valve, for joint operation, as shown and set forth.

10. In combination with the main and graduating cylinders, elevator-car, and lifting-piston, the graduating-piston, provided with a valve opening upward, and arranged to rise in the graduating-cylinder when the car rises, substantially as shown and set forth.

11. The stationary elevator cylinder or tube containing a traveling piston, having a flexible connection, with an elevator-carriage, the cylinder being joined by a tube or conduit provided with a valve by which the passage of the water from one side of the piston to the other can be controlled at the will of the operator, substantially as described.

7,020. ELEVATOR-BUCKETS. O. W. Clark, Appleton, Wis. Patent No. 90,002, dated Aug. 4, 1869. [Filed Mar. 20, 1876.]



1. An elevator-bucket, the front portion of which is formed with rounded or curved corners, substantially as and for the purpose set forth.

2. An elevator bucket, its front portion formed with rounded corners, the bucket constructed of a form to decrease in size from top to bottom, substantially as and for the purpose set forth.

3. An elevator-bucket, having its front and sides formed of a single continuous piece of metal, substantially as and for the purpose set forth.

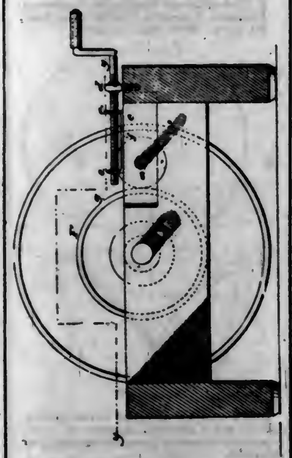
7,021. SAWS. Chas. Disston, Philadelphia, Pa., assignor to Henry Disston, Hamilton Disston, and Albert H. Disston. Patent No. 93,024, dated Mar. 10 1877. [Filed Feb. 17, 1876.]

Brief.—The detachable teeth is locked in the plate by an elastic or split segment, provided upon its periphery with V-shaped grooves.



The combination of a detachable tooth, adapted to the blade of a saw, with an elastic segment made separate from the tooth, adapted to the blade, and serving to lock the tooth to the same, all substantially as herein specified.

7,022. FRICTION-GEARS. Franklin Simmons, New Orleans, La., assignor of one-half interest to E. D. Coleman. Patent No. 159,444, dated Apr. 20, 1873. [Filed Nov. 20, 1875.]



1. A friction-gear consisting of a wheel or pulley having parallel frictional surfaces of unequal diameters, for the purpose of changing the speed and direction of motion, substantially as and for the purpose set forth.

2. The combination of a pulley or wheel having parallel frictional surfaces of unequal diameters with an adjustable frictional pulley or roller, substantially as and for the purpose described.

HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & Co BOSTON

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COMMISSIONER'S DECISIONS.

C. W. BALDWIN.—*Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of Cyrus W. Baldwin for letters patent for* "IMPROVEMENT IN HYDRAULIC ELEVATORS."—*Decided March* 14, 1876.]

A drawing accompanying an application for letters patent may be used as evidence to show the nature of the original invention.

Where letters patent issued, and the drawings attached to the patent did not include a figure or drawing filed with the original application—upon an application for reissue of such patent, claims can be based upon the figures or drawings originally filed, even if such figures or drawings had been canceled before the issue of such patent.

The model might be a basis for reissue, although forming no part of the patent, and a drawing may as clearly show the invention as a model, and is as little liable to be tampered with.

The general tenor of the decisions of the courts is to the effect that an applicant for reissue should be entitled to make the corrections which he might properly have made after filing his original application.

SPEAR, *Acting Commissioner:*

The appeal is from a refusal of the Examiner to consider the patentability of certain matter sought to be introduced into the patent in this application for reissue, which matter was not shown in the model originally, and does not anywhere appear in the patent. It appears, however, that it was fully shown in the drawing filed with the application upon which the patent now sought to be reissued was originally issued, but for some reason was canceled.

The Examiner refuses to make an examination in relation to the patentability of this matter thus sought to be introduced from the original drawings alone, on the ground that it was not in the original patent and not in the model, and that there is therefore no legal basis for a reissue. I am not aware that precisely this question has ever been decided either in the circuit courts or in the Supreme Court of the United States.

In the numerous cases in which reissued patents have been before the courts, the original specification and drawings have been referred to as a basis to support a claim in a reissued patent; but no distinction has ever been made, so far as I am aware, between the original specification and drawing filed in the Office and those attached to the patent upon issue.

The fact that the matter sought to be introduced into the patent upon reissue was not anywhere to be found in the original specification and drawing attached to the patent would not be sufficient alone in every case to prevent the introduction of such matter into the new specification. For there is no question but that the model originally filed in the Office may be made the basis of a reissue, though all that appears in the model should not have appeared in the patent as issued. It is only "interpolations of new features, ingredients, or devices, which were neither described, suggested, or indicated in the original patent or Patent Office model" that are not to be allowed. *Seymour* vs. *Osborne*, (11 Wall., p. 516.)

The mere fact, then, that there is no hint or suggestion of the matter sought to be introduced into the new specification to be found in the old patent is no fatal objection. One thing is settled beyond all question, that nothing shall be introduced into the new patent which was not a part of the original invention. Further than this it is certain that, in order to ascertain what was the original invention, the Commissioner cannot on such new application open the case to new parole testimony, except in respect to patents where there was neither model nor drawing. In cases in which there is either model or drawings, he must unquestionably restrict his inquiry to these alone. But I find no good reason either in the law or in the nature of these records as evidence for making any distinction between the drawing and the model. The law permits the Commissioner to issue a new patent for the "same invention," meaning, as I understand, by "the same invention," that which applicant had disclosed to the Office, and for which he had applied for the issue of letters patent. That it does not mean for "the same invention" as that which might be imperfectly described or suggested in the specification of the original patent, or shown in the drawings attached thereto, and that alone

is clear from the fact that the courts have held, as in the case cited above, that the model might be a basis for reissue, for the model in no sense constitutes any part of the patent. Nor could there be any difference between drawings and models generally sufficient to make any distinction, which should include the one as satisfactory evidence as to what should be introduced into the patent upon reissue and exclude the other. A drawing may as clearly show the invention as a model. As a part of the records it is as certain and as little liable to be tampered with. No good reason, therefore, appears why a drawing should be excluded as evidence of what was the original invention of applicant, and for which he applied for letters patent.

Further than this, it appears to be altogether in harmony with the spirit of the law, and with the decisions of the courts from the beginning to grant in a reissue whatever might lawfully have been granted when the original application was filed in the Office.

Before the existence of any statute authorizing in express terms the reissue of letters patent, the Supreme Court held, in *Grant* vs. *Raymond*, (6 Peters, p. 218,) that the "new patent and the proceedings on which it issues have relation to the original transaction * * * the application may be considered as appended to the original application."

This doctrine was also expressed in *Shaw* vs. *Cooper*, (7 Peters, p. 315,) in very similar terms.

The general tenor of these and other decisions of the courts is to the effect that an applicant for reissue should be entitled to make the corrections which he might properly have made after filing his original application. There is no restriction of this in the law except by that express provision that the drawings and model shall not be amended except each by the other.

Now, before the issue of the original patent, that part of the drawing which had been canceled could have been restored, and the cancellation would never have been considered as final or conclusive upon the applicant. It might have formed, notwithstanding the filing of the paper authorizing or directing the cancellation, a part of the original patent. It would seem to follow, therefore, that on an application for reissue it should have the same force, and that if it could have been made a basis for the introduction of anything into the original specification it might also be a basis for the introducion of the same matter into the new specification intended for the reissued patent.

The language used by the Supreme Court in *Seymour* vs. *Osborne*, cited above, is in perfect harmony with this view, and indicates that this is the proper course for the Office to pursue:

> The power is unquestionably conferred upon the Commissioner to allow the specification to be amended if the patent is inoperative or invalid, and in that event should issue the patent in proper form, and he may doubtless under that authority allow the patentee to re-describe his invention, and to include in the description and claims of the patent not only what was well described before, but whatever else was suggested or substantially indicated in the specification and drawings which properly belonged to the invention as actually made and perfected.

This, now sought by applicant, is a very different thing from an enlargement of the description or the insertion of claims in general terms, so as to cover inventions subsequently made, and not thought of by the original inventor when the original patent was taken out.

I see no evil that can result from it. The canceled figure is not obliterated and forms part of the record, and the invention may be of value to the patentee and to the public. It cannot be of any benefit to either buried in the archives of the Office. If it constitute an essential part of what was the applicant's original invention, then he has complied with the terms of the law and disclosed his invention to the Office, and it is to be supposed given it to the public.

In any equitable view of the case, and, in my judgment, in accordance with the true spirit and intent of the law, he should have protection commensurate with the invention which he originally disclosed to the Office. If any part of it was suppressed at the time of the issue of the original patent, it may now be brought to light and inserted in the specification, and be made the subject of a claim.

The objection of the Examiner is therefore overruled, and he will proceed to examine the application upon its merits.

T. B. ATTERBURY.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Thomas B. Atterbury for letters patent for* "IMPROVEMENT IN GLASS LAMP CHIMNEY AND SHADE COMBINED."—*Decided March* 18, 1876.]

In a lamp-chimney and globe, the change may not be great, as compared with old forms, but if such change tends to produce a new result, it is patentable.

A pattern-book, without any descriptive matter contained in it, cannot be regarded as a printed publication, such as is contemplated in the Revised Statutes, as being a bar to the issue of a patent.

There must be a *description*, in some *public work*, of the device sought to be patented, to warrant a rejection upon it, not leaving to mere inference to determine whether such a reference is a public work, or a private publication merely for private circulation.

SPEAR, *Acting Commissioner:*

The only reference which I find in this case is that contained in the book of Cassell, Smith & Co., bearing the imprint of London, and without date. There is no description whatever, and only figures illustrating what appear to be lamps with their globes or chimneys placed thereon.

Admitting this pattern-book to be a printed publication in the sense intended in section 4886 of the Revised Statutes, it is not clear that the article there represented is the invention of this applicant. What is there represented appears to be the old, well-known form of a swelled lamp-chimney. There is, undoubtedly, an expansion in the glass tube near the lower part, and a contraction above, just as there is an expansion, with the contraction above, in the device of Atterbury. But, so far as appears, the contracted lower end terminates in the ordinary out-turned flange, of only length sufficient to afford a bearing for the projections on one side and screw upon the other, by which the chimney is held to the lamp. Some of the other figures show what appears to be this construction, although those cited by the Examiner, as illustrating the particular invention, do not show even this; but the screw is represented in all of them, or in most of them, and this implies the rest.

Now it does not appear that this construction, which amounts to little more, if any more, than a mere opening in the globular part which forms one end of the chimney, would accomplish the purpose intended in the invention. What applicant is aiming at is, to get a direct draft upward without the aid of a separate chimney, through the globular part, and in the same manner as if a separate chimney were used. It is apparent that the tubular part C, which projects downward, would act in the manner indicated in applicant's specification—that is to say, the current of air passing upward through the tubular portion projecting downward, as shown in this application, would be directed, in one compact and well-defined volume, across the globular part directly into the tubular part above, in the same manner as if there were a continuous chimney running through the globular part and connecting the tube below with the tube above.

On the other hand, if there were no tubular part below, and the air were admitted freely, as by a simple opening in the lower and globular part, without any such direction, the currents would inevitably cross each other, and the air be impelled loosely in all directions into the globe without any well-defined current passing directly through.

Admitting the globular part, and the tube above through which the air and products of combustion escape, to be the same, (and of this I am not sure,) the difference below appears to be an essential one, clearly definable in structure and distinguishable in effect. There is a distinctly defined globe and as well-defined tube below. This forms the entrance to the globe, and, on whatever sort of lamp placed, must give force and direction to the current of air tending directly up through the globe, without any liability to flare with the flame and smoke against the sides of the globe.

The change may not be great, as compared with the old forms, but if it tend to produce a new result it is patentable. Even if the same effect had been produced by a construction of the lamp such as would form this lower tube, the case would not be different, since this is affected by the shape of the chimney alone.

I have discussed this matter for the reason that the shape shown in the pattern-book appears to be the same as the chimney in common use, or which was in common use some years ago, and to which some reference has been made in this case. I think that the pattern-book cannot be regarded as a printed publication. It is fatal to it that it bears no date, to go no further. On inspection, it appears to be merely a collection of plates, without a word of description, and no information is conveyed of any certain character whatever. It could only be the foundation of guesses more or less probable. Precisely such a reference as this formed the "Dreyfuss Album," referred to in *Reeves* vs. *Keystone Bridge Co.*, (5 Fish, p. 456.) That was a book of printed drawings representing different forms of iron fabrics made by a Paris manufacturer, and in all respects corresponded to this which is now before me, except that that bore imprint of a date, as this does not.

Referring to that album, the court said:

> Section 15 of the Patent Act of 1836, and it has been incorporated in the act of 1870, provides that a patent may be successfully opposed by showing that the thing patented "had been described in some public work anterior to the supposed discovery thereof by the patentee." It is obvious that this provision requires, first, a description of the alleged invention; second, that it shall be contained in a work of public character and intended for the public; and third, that this work was made accessible to public by publication before the discovery of the invention by the patentee.
>
> Whether the work in evidence is a public or only a private work, intended merely for private circulation, is fairly a disputable question. It contains an illustration, by a drawing, of the thing intended to be represented, without verbal description; and whether this is a description at all, or such a one as the act contemplates, may well be denied on the authority of *Seymour* vs. *Osborne*, (11 Wall, p. 516,) and the cases there referred to with approval. But it is unnecessary to decide these questions, as the proof is deficient in another essential particular—it is not shown that the work was published before the date of the complainant's patent. This must be directly proved. It is not deducible from the imprint on the title-page. That the work was then printed may be inferred from this imprint; but when it was put in circulation, or offered to the public, is a distinct fact, which must be proved independently. The intended circulation of a book of a public nature may be presumed from its being put into print; but it does not follow that a work, such as the one in question, was made accessible to the public as soon as it was printed, or that it was actually published at all. As it does not appear that this book was published before the patentee's invention, as evidence it is altogether inconsequential.

In respect to the allegation that the supposed invention is the same as that which is or has been in public or common use, it seems sufficient to say, that it is not proved. It is a matter about which the Commissioner has no legal methods of inquiring, and which he therefore cannot satisfactorily determine, and is not required to determine.

The law has made the courts judges in such matters, and given them ample power to investigate and determine this question, and all that pertains to it.

I find, therefore, in the records, nothing which I can consider as a legal bar to the issue of a patent to this applicant, and the decision of the Examiners-in-Chief is therefore reversed.

SHAW *vs.* KIETH, SHAW & VIDETO.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of F. M. Shaw and that of Kieth, Shaw & Videto, for* "IMPROVEMENT IN PEGGING-MACHINES."—*Decided March* 2, 1876.]

A person having sworn that he was a joint inventor with others in an invention for which an application for a patent had been filed must show very clearly and conclusively to the Office that he was in error and misled when he made such oath, and by other testimony than his own oath.

The presumption is against a party filing a second application as sole inventor who had joined with others in filing a joint application.

In a joint invention, the result of mutual suggestions, counsel, and effort, all the parties are entitled to share, and the Office will not divide the invention and parcel it out to and between the several parties who have been employed upon it.

SPEAR, *Acting Commissioner:*

The interference is between two applications of Shaw, and an application formerly made by Shaw as a joint inventor with Kieth and Videto. The single fact that Shaw having, before making a sole application, sworn that he was a joint inventor with Kieth and Videto would, under any circumstances, throw upon him the burden of proving, by other testimony than his own oath, very clearly and conclusively that he was in error and misled when he made the oath referred to. There can be no doubt that that oath was deliberately made, and after full consideration and discussion of all the circumstances relating to the case. The parties not only considered this matter of joint invention, but together stated the facts to counsel, and acted, in making the oath of joint invention, upon advice after such consultation. There is no room, therefore, for the plea that the action of Shaw was taken without deliberation or advice, or a full knowledge, both of the facts and the law relating to the case.

Kieth and Videto appear to have acted in good faith upon Shaw's oath, and might very well urge that he is now estopped from setting up any claim as a sole inventor. It does not seem to me necessary, however, to put the matter upon this ground. Beyond all question Shaw ought to be required to explain satisfactorily the

circumstances under which he made the first oath, now asserted by him to be erroneous the occasion of his mistake, and to prove beyond a reasonable doubt that he was the sole inventor.

Now the facts not seriously questioned by either side I think may be stated to be these. The first movement in this affair began with Kieth & Videto. They were endeavoring to produce or procure a machine in which they should be able to use an unsharpened peg-strip. They appear to have been led to this to avoid the expense of sharpening the strip after it had been cut from the block, and also to avoid paying certain royalties. In pursuance of this desire and plan to procure such a machine they went to Shaw. On what terms they procured his services is a matter of dispute. Kieth & Videto assert that they bargained for these services at the rate of $100 per month. This Shaw denies, but there appears to be no dispute that the services of Shaw were procured for the purpose of producing a machine of that class which would accomplish the work, which I have previously specified, and that he was engaged together with them upon the work, was in consultation with them, and received if he did not act upon suggestions made by one or both of these parties.

If the testimony of Kieth & Videto is to be believed (and in respect to the consultations and mutual suggestions, it is on some points the evidence of two against one) then there can be no doubt in relation to the question of joint invention unless perhaps an exception be made in relation to the single die (shown in Figs. 7 and 8 of the drawings of Kieth, Shaw & Videto. But it appears from Shaw's own testimony that he did consult with the other parties. He experimented upon sharpening the peg-strip with knives before severance after conversing with Mr. Videto on October 24, 1874, (Cross Int., 65, p. 13, Shaw's printed record.) Mr. Videto also brought to his notice the Sargent patent, and made suggestions in relation to that. It appears also that Mr. Kuith suggested the compression of the ends of the pegs.

I need not follow these admissions of Shaw any further. Admitting that he made the single die without direct suggestion from either of the other parties, I do not think it enough, considering the other circumstances in this case, to constitute him a sole inventor. I doubt if that would be enough had he been employed as a skilled workman by Kieth & Videto to constitute him an inventor at all in contemplation of law. What he suggested he suggested under the impulse of one or the other of the parties associated with him. They brought to his notice the other elements of the machinery, directed his mind and stimulated it toward the desired object. Pointing by compression and pointing after severance, and other suggestions more or less direct, gave the main impulse in the whole affair, and came from Kieth or Videto. It may be safely asserted that without such direction and stimulus Shaw would never have made any invention in pegging-machines such as those now in controversy.

I think, therefore, that all the parties are entitled to share in what each suggested or did. To attempt to dissect an invention of any sort and under circumstances which came into being as the result of mutual suggestions, mutual counsel, and mutual effort, to assign one member to this and another to that would be indeed a difficult and dangerous undertaking, and the oath of Shaw in the present case and whatever corroborative testimony there may be seems to me altogether insufficient to justify me in attempting to divide this invention and parcel it out among the different parties who have been employed upon it. It seems, therefore, altogether unnecessary to go into the questions raised at the hearing in regard to the state of the art as bearing upon the novelty of all the devices, excepting the single die, or into the testimony relating to their utility. All this matter has been before the Primary Examiner, and will be again when the case is returned to him for issue of the patent to the parties held to be first and true inventors.

Apart from a more particular consideration of the testimony, the attitude of Shaw before the Office is not a favorable one for himself. He may have been mistaken in his first oath. The question of joint invention is an exceedingly difficult one, and different minds may easily differ in opinion upon the same state of facts; but no reasonable explanation is offered by Shaw why he should ever have admitted Kieth & Videto to a share in the joint application, for, as he represents, they neither hired him as a workman to make the invention, nor assisted him as joint inventors. If neither of these things then what possible claim could they have upon him or upon that which he had done? His theory lacks consistency with itself and with the facts. If they hired him as a workman or assisted him as joint inventor then the solution of the problem of his conduct is easy; but either hypothesis is fatal to his claim as sole inventor.

The circumstances in this case do not differ greatly from that *DeLill* vs. *Avery* and *DeLill*, (C. D., 1870, p. 128,) or that of *Chase* and *White* vs. *Chase*, (C. D., 1873, p. 99.)

The decision of the Board of Examiners-in-Chief is accordingly affirmed, and the patent—the Examiner being satisfied with the propriety of the claims and all other requirements of the law complied with—will issue to Kieth, Shaw & Videto.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF ILLINOIS.

JOHN H. IRWIN *et al. vs.* JAMES F. DANE *et al.*

Irwin was the first inventor of a device for securing a blast of fresh air to the burner of a lamp, by means of an inverted funnel or bell, and one or more tubes, by which the air heated by the flame of the lamp is caused to rise into the tube, and be thence conducted into a close reservoir below the flame, and from thence supplied freely to the flame, so as to sustain combustion; in other words, the combination of the bell, tube, air-chamber, and burner, as shown by his first patent, was original with him, and all who use a bell and tube or tubes, substantially as and for the purposes Irwin used them, infringe his first patent. So all who use a globe in combination with the bell and tube infringe the second patent; and all who use the bell, tube, globe, and perforated plate E at the bottom of the globe, infringe the third patent.

[*Coburn*, solr. for complainants.
West & Bond, solrs. for defendants.]

OPINION OF THE COURT.

DRUMMOND and BLODGETT, *J. J.*:

The bill in this case charges the defendants with the infringement of five letters patent granted to John H. Irwin for improvements in lamps and lanterns. The

first patent bears date May 28, 1867, and is numbered 65,230. The second bears date the 7th day of January, 1868, and is numbered 73,012. The third bears date May 4, 1869, and is numbered 89,770. The fourth bears date February 2, 1869, and is numbered 86,549; and the fifth bears date February 5, 1870, and is numbered 99,443.

The title of the complainants to the patents in question is not disputed, and the proof shows that the patents have been duly assigned by Irwin to the complainants in the shares claimed in the bill by them respectively.

The defense set up is:

1. That the patents are void for want of novelty.

2. That the defendants do not infringe any of the valid portions, if there are any portions valid, of the several patents.

It was admitted on the hearing that the defendants had manufactured and offered for sale some lanterns constructed substantially as shown by the complainants' Exhibits Nos. 11 and 12.

Upon the question of want of novelty, the defendants introduced certain English and French patents, as well as various devices and patents of this country. The first patent set up by the defendants is the French patent, granted June 2, 1826, to P. Tespaz, for smoke-consuming and vapor-condensing apparatus. The second is the French patent issued to Messrs. Orry Nery and DeCorneille, dated the 4th of May, 1827. The third is the French patent to Henry Pape, dated August 20, 1841. The fourth is the French patent to Messrs. Martin and Marini, dated the 27th of April, 1853. The fifth, the English patent to John Braithwaite, dated in 1847. The sixth, the English patent to Edwin Edward Cassell, dated in 1838. Seventh, the American patent, No. 63,480, dated April 2, 1867, to A. R. Crihfield.

The scope and purpose of Irwin's first device, as shown by his drawings and specifications, attached to Patent No. 65,230, is for a novel mode of producing a blast or current of air at the burner of a lamp, for the purpose of supplying oxygen thereto, and dispensing with the ordinary in common use for that purpose; and it consisted in so constructing a lamp that the heated air, rising above the flame of the lamp, should cause a current of air to descend into a close air-chamber below the flame, and thence ascend to feed the flame. The proposed result was accomplished by suspending at a proper distance from the flame, to catch the heated air, an inverted bell or funnel, C, from which a curved tube, D, was carried downward to the base of the lamp, where it opened into a close reservoir, surrounding the oil-pot, and communicating directly and freely under the cone of the burner, so as to supply the lamp at the point of combustion with the requisite amount of air to keep up a clear and steady flame. In order to secure the successful operation of this device, it was necessary that the bell or funnel, the tube, and the reservoir, into which the tube entered, should be close, and have no apertures for the escape of the air therefrom, except at the exit into the burner; the object being to to create such an arrangement of the parts as that the sole supply of air should be forced through the funnel and pipe into the reservoir, and thence to the burner, as the same was needed to secure combustion.

The evidence in regard to the state of the art shows that up to the date of this patent all the practical or successful lamps intended for the burning of the coal or carbon oils, had been fitted with chimneys by which the draft of air necessary to secure combustion, was produced, although of course some attempts had been previously made to dispense with the chimney by the use of the fan-blast, or by inducing a current of air through the burner from below, but these attempts seem to have been barren of successful results.

The only claim in the first patent, which is in controversy in this case, is the first claim, which is, "In combination with a lamp and its burner, the tube D or its equivalent, arranged and operating substantially as and for the purpose specified." This tube D is shown and described in the specifications and drawings with the bell or funnel forming a part thereof, and we think the fair construction of the whole patent requires that the bell should be considered as part of the tube. It is not the tube D unless it has an inverted funnel at its upper end. It seems to have been the idea of the patentee of this device to secure a perfect combustion of such oils as require an unusual supply of oxygen, without the use of a chimney, and he accomplished this by a blast driven from the bell and tube down to the burner in the manner which his patent describes. The illustrations and exhibitions of the results produced by this burner, made upon the trial, show that the operation of these tubes, when not disturbed by external currents of air, was perfect, or nearly so, to accomplish the desired result. The flame was brilliant, without smoke or odor.

By his second patent, No. 73,012, Irwin claimed to have made an improvement upon the first device, by adding such parts thereto as made a portable out-of-door lamp or lantern. He accomplished this result mainly by the addition of what he calls a protector, which is nothing more than an ordinary glass globe which surrounds the flame of the lamp and extends upward nearly to the mouth of the bell or funnel, thereby directing the current of air into the funnel, and preventing it from being diverted therefrom by external currents of air or any other disturbing cause. When the rising column of heated air was once protected from the external currents and disturbances, in its passage upward from the vicinity of the flame into the bell, the subsequent operation of the lamp was precisely the some in the device shown by the second patent, as in the first—that is, the heated air was conducted around from the bell underneath the burner by one or more tubes, so as to supply air to the burner in the same manner as is described in the first patent. The claim in this patent is as follows:

I claim, in combination with the burner of a lamp and the globe, a protector thereof, one or more tubes or passages, D, or their equivalent, arranged to operate substantially as specified and described.

The third device, as shown in Patent No. 89,770, is for various improvements which more nearly perfected the invention, and adapted it to use as a portable out-of-door lantern. The theory of Mr. Irwin seems to have been, and is, that the products of combustion, such as carbonic acid gas, steam, and other matters, rise with the current of air to the top of the protector, and are there thrown off from the outside of the rising column, and pass out over the top of the protector, and between it and the bell, while the air which passes into the bell is mostly pure atmospheric air, uncontaminated by, and unmixed to any considerable extent with, the products of combustion. In order to secure the exit of

these products of combustion from the top of the lantern, a sufficient space is left between the protector and the bell, which is occupied by the perforated rim *g*, and the top of the rim is so curved or deflected in, and upward, as to prevent currents of external air from passing down the globe and extinguishing the flame. The globe also rested upon a perforated plate or disk, E, which formed the bottom of the globe, and which also by its perforations, admitted the air freely, so that the same could become heated, and crowd, so to speak, into the bell, so as to create the blast required for furnishing the air to the burner.

On the trial of this case several experiments were performed in the presence of the court, for the purpose of illustrating the operation of the various elements of this Irwin combination, which seemed to demonstrate: First, that it is essential to the operation of this lamp that a space should be left between the globe and bell sufficient to allow the escape of the products of combustion. If this space was wholly closed, so that the products of combustion were driven around into the air-chamber and into the flame, the light was nearly extinguished, and the operation of the lamp defeated. Second, that provision must be made for admitting an ample supply of air into the globe at its base, so that it might rise in the globe, become heated, and be driven into the bell and tube.

When this supply of air was cut off the flame died down, and the operation of the lamp was suspended. There was also shown in the patent a plate, *t*, fitting closely upon the top of the wick-tube, intended to prevent the air from coming so directly in contact with the flame at its base, or at the month of the wick-tube, as to extingish it by any sudden gust or increase in velocity.

The fourth and fifth patents have reference to minor devices, all intended to perfect and improve the Irwin lantern. By the fourth patent he provided for holding the globe in place, and, in fact, holding the whole lantern together by means of a sleeved tube, fitting on to the tube D, and held in place by a spring, S. The fifth patent has reference to some improvements in the burner, and the construction of the cone and jacket in one piece.

It will be seen from this brief explanation of each of the five patents, that Irwin claims to have entered a new field of invention, to have devised by his first step a new method by which a sufficient blast of fresh air could be supplied to the burner of a kerosene-lamp, or lantern, without a chimney. For although he doesn't expressly say that his lamps are only for the purpose of burning kerosene, yet it is a matter of common experience and knowledge, that these carbon or earth oils are the only ones now in general use which require any special devices for supplying air, in order to secure their combustion, for illuminating purposes; and by the second step, he protects the flame thus produced from being extinguished by external blasts of air, by surrounding the same with a globe or protector.

By the third step, he claims to construct a lantern which will withstand not only the ordinary currents of wind out of doors, but which may be swung or moved rapidly in a lateral or vertical direction without danger of extinguishing the light—an important element of which is the perforated plate or disk E at the bottom of the globe.

In other words, he claims to supply a blast by means of the inverted bell and the tube; and to secure the regularity of the blast by the protector or globe, and the perforated plate E at the bottom of the globe. He claims, broadly, the invention of the bell and tube or tubes for the purpose of producing the results aimed at; and the important question in this case is: Does the evidence shown entitle him to this broad claim?

Of course funnels and tubes were old, and we find in the evidence in this case on the state of the art, that an air-chamber at the base of the flame, and through which the air was admitted to the burner, was not new to this inventor. Cassel and Crihfield had both conducted the air into an air-chamber through tubes, and drawn the same by means of an induced blast through the burner—the globe acting as a chimney to induce the blast—but it is claimed for Irwin, in this case, that he was the first to conceive the idea, and reduce it to practice, of making an operative lamp, which should dispense with the chimney, and be supplied with fresh air by means of the bell and tube, as shown in his device, and for an operative combination of the globe and perforated bottom to the globe, by which a clear burning lantern was produced, in which carbon oils could be burned without the use of a chimney.

All the French and English patents which are shown in this case, were ostensibly devices for burning smoke, or for the condensation of the products of combustion in such a manner, as to prevent their escape into the room, to the discomfort of persons, or the injury of goods or furniture, and none of these inventors, either Tespaz, Orry Nery and DeCorneille, Edwin Pape, Martin and Marini, or Braithwaite, claimed that their devices were for supplying air to the flame for the purposes of combustion.

On the contrary they all make specific provision for the supply of air from other sources, and nowhere in their devices, either by drawings or specifications, do either of them intimate that the device is intended to do what Irwin seeks to do—that is, to supply the air for the purpose of feeding combustion solely by the bell and tubes.

All these various devices show, in some form, bells and tubes by which it was proposed to catch, or, as the witnesses say, "entrap" the products of condensation, as they arise from the flame of the lamp, and carry them either to the flame, where it was claimed they would be burned, or into some bulb or other reservoir, where they would be condensed; and although upon trial of this case we had various exhibitions and experiments, tending to show that by very slight alterations these old smoke-consumers could be made to perform substantially the function of Irwin's device, yet it is most palpably evident that none of the inventors ever intended they should perform such functions.

They never intended that their bells and pipes should be the sole source for the supply of air to support combustion—which is the leading idea in the Irwin device; but on the contrary, their one leading and only thought seems to have been to carry the products of combustion around to the flame, and deliver them there for reburning, while the flame was supported by air from other sources; and the various devices are contrived apparently with much ingenuity and purpose to that end. There is no such provision for allowing the products of combustion to escape as is shown in the Irwin device.

On the contrary, the whole effort seems to have been to drive the products of combustion into the tube, and carry them around to the flame, or to the point of condensation; and the experiments shown upon the trial of the case demonstrated that if the products of combustion are thrown or driven into the tube and brought down to the base of the flame, and no other air is supplied to the flame than what comes with the products of combustion, a flame cannot be supported.

We do not deem it necessary to dwell longer on these devices. They were evidently, as we have already intimated, intended for another purpose. It was not in the mind of any of those who conceived these French or English patents to do what Irwin was seeking to do; but they were seeking another and different end. How successfully they might have attained that end it is not our province here to inquire or determine. Of course, if we could find that these old French and English patents contained the principle of the Irwin patent, they would defeat the broad claim of his patent for the use of the bell and tubes; although the inventors of those old devices may not have understood the principle on which they operated. But it is objected that in the second step in which Irwin has placed the protector or globe around his flame, he is not entitled to a patent, because globes were old, and protectors to the flames of lamps, and especially of lanterns, are as old as lanterns themselves; and this position is undoubtedly sound, unless it appears that the globe in Irwin's lantern performs a different function from that heretofore performed by globes in lamps or lanterns. So far as we have been able to ascertain, the only function performed by globes prior to this device of Irwin's was to act as a shade for the purpose of softening the light, or perhaps in some cases as a protector for the purpose of preventing it from being blown out by drafts of air. Although in all the drawings which were shown in evidence in this case, where globes appear, and also in the drawings of lamps, under the title of lamps, in Appleton's Dictionary of Mechanics, the globe is shown with the chimney inside; the chimney acting substantially as a protector, and not requiring the globe for that purpose. We think, however, that the globe in Irwin's combination, in his second patent, and in all the subsequent patents where the globe is shown, performs a function in addition to that of merely protecting the flame from external currents of air. It directs the rising current of air into the funnel, and, by keeping the rising column of air surrounded and isolated from the external air, assists in heating it, and thereby causes it to rise more rapidly and freely into the bell, and by its pressure in the tubes produces a stronger and more steady blast. This is a new function performed by this globe, and as such, it seems to us, entitles Irwin to a patent upon the globe, in combination with the bell and tubes, as shown in his second patent; because it not only secures a better operation of the bell and tubes, but it makes the bell and tube operative under circumstances where they would not be operative without the globe. The globe operates not only to do what other globes had done before, but it does more. It creates a current, or assists materially in creating a current, by which the flame is fed, and not in the manner in which a chimney does that, for, if it did, and if the function of this globe was the same as that of the ordinary lamp-chimney, then no patent could be claimed for it; but it does its work differently, and does different work from that which is accomplished by the lamp-chimney. The chimney carries away, almost entirely, the products of combustion—the burned air—which has passed through the burner; but the globe in Irwin's combination carries a supply of fresh air, for the purposes of carrying the same into the bell, and thence down by the tubes into the air-chamber and burner.

The same line of remark will apply to the perforated plate E, forming the bottom of the globe. Galleries and other devices for holding the bottom of the globes, and holding the globe in its place, were old; but this perforated plate, while allowing the entrance of an ample supply of air into the globe, at the same time breaks up the currents by the perforations, so as to prevent the rush of an air-current which would extinguish or endanger the flame; and as an element for securing the perfect and complete operation of the Irwin device as a practical operative lantern, we think the plate E may be considered as a patentable device when used in the combination and for the purposes shown.

The rim *g* and the spring by which, under the third and fourth patents, the lantern is held together, and the globe secured in place, are obviously mere adaptations by which the leading idea is utilized, and are, as far as we can see in the evidence in this case, valid patents for the purposes to which applied, but do not necessarily cut off other parties from holding their lamps together by different methods; and the device of the defendants for the same purpose does not seem to us to be covered by the patent.

So, too, the plate *t*, upon the end of the wick-tube, undoubtedly performs an important function in securing a practical out-door lantern, which is not readily extinguished by currents of air, or by the swinging or vertical motion, as it guards the base of the flame from those sudden drafts and blasts of air to which the wind or the motions which we have suggested would otherwise subject it. But it seems to us, from the evidence in the case, that the plate *t* is not new to the art. It seems to have been used in various burners prior to the Irwin invention; and we do not find that it performs any new function in this combination.

Unlike the globe or the perforated plate at the base of the globe in this combination, this plate *t* does for Irwin's light just what it did for Adams and Bary, Johnson and Ambrose, and various other inventors who preceded Irwin in this field of invention.

So, too, it seems to us, that the cone and jacket A, formed of one piece, with the shoulder, as described in the fifth patent, are old devices applied to Irwin's combination, with no new functions performed by them.

True, we do not see in any of the burners which have been exhibited to us the idea of the shoulder *a*, and the perforated frame B, for the purpose of supporting the burner and gaging the wick-tube; but the idea of forming the jacket and cone of one piece, and causing it to engage with the rim H, so as to form a tight air-chamber, was accomplished by Gerstine long before Irwin's fifth patent was applied for; and we do not find in the device used by the defendants in their burner, the frame B described in the Irwin burner, as shown in the patents now under consideration.

The defendants' burner shows that the corners of the plate *t* are turned downward so as to form a rest for the cone, and perhaps to guide the adjustment of the wick-tube; but we do not think the evidence shows that Irwin, with reference to this device of merely guiding the adjustment of the wick-tube, stands in any position to invoke the doctrine of equivalents, and although the defendants' device may accomplish the same result, yet as it is accomplished by a substantially different mechanism, there is therefore no infringement.

It was objected that the second patent is void, be-

cause it does not give any specific directions for the space to be left between the top of the globe and the bell; but we think that when the drawings and specifications are taken together, they show the relation which the inventor intended the globe should bear to the bell with sufficient clearness to enable any skillful workman to construct an operative lamp, embodying Irwin's principle.

We then come to the conclusion that Irwin was the first inventor of a device for securing a blast of fresh air to the burner of a lamp, by means of an inverted funnel or bell and one or more tubes, by which the air heated by the flame of the lamp is caused to rise into the tube, and be thence conducted into a close reservoir below the flame, and from thence supplied freely to the flame, so as to sustain combustion; in other words, the combination of the bell, tube, air chamber, and burner, as shown by his first patent, was original with him, and all who use bell and tube, or tubes, substantially as and for the purposes Irwin used them, infringe his first patent. So all who use a globe in combination with the bell and tube, infringe the second patent. And all who use the bell, tube, globe, and perforated plate E at the bottom of the globe, infringe the third patent. The plate *t* at the top of the wick-tube, shown in the fourth patent, seems to us to be an old device which performs no new function in Irwin's combination.

The method of holding the parts of the lantern together by means of the sleeve and spring, shown in the fourth patent, we do not find in the defendants' lantern, nor do we find in the defendants' lantern the frame B used for the purpose of gaging the wick tube, the defendants' device for that purpose being the prolongation of the corners of the plate *t* from the top of the wick-tube.

The combination of the cone and jacket shown in the fifth patent is identical with the Gerstein cone and jacket, which is older than Irwin's cone and jacket. The defendants' lamps—complainants' Exhibits Nos. 11 and 12—contain the Irwin bell and tube, made operative by a close air-chamber communicating with the burner in the same manner as Irwin's bell, tube, and chamber and burner operate. They contain the globe or protector, and the perforated disk or plate at the bottom of the globe, and these parts perform exactly the same office, and no other, that they perform in Irwin's lantern.

The defendants then infringe by using in their lantern all the parts covered by Irwin's first three patents, which make his lantern operative, viz: The bell, tube, globe, and plate E.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 4, 1876.]

9,175.—Carpets.—JOHN H. BROMLEY, Philadelphia, Pa. Application filed March 14, 1876. Term of patent 3½ years.

9,176.—Ornamental Buttons.—NATHANIEL H. FURNESS, Tarrytown, and SIGOURNEY WALES, New York, N. Y. Applications filed December 30, 1875. Term of patent 3½ years.

9,177.—Organ-Case.—JOHN R. LOMAS, New Haven, Conn., assignor to B. SHONINGER, same place. Application filed January 24, 1876. Term of patent 14 years.

9,178.—Badge.—JAMES D. LYON, Grand Rapids, Mich. Application filed March 23, 1876. Term of patent 3½ years.

9,179.—Glassware.—THOMAS C. PEARS, Pittsburg, Pa. Application filed January 28, 1876. Term of patent 7 years.

9,180.—Carriage Stay-Ends and Offsets.—GEORGE F. SMITH, Plantsville, Conn., assignor to H. D. SMITH & Co., same place. Application filed March 16, 1876. Term of patent 14 years.

9,181.—Fabrics.—EDWIN R. WARRINGTON, Philadelphia, Pa., assignor to himself, ANDREAS HARTEL, and JOSEPH HARTEL, same place. Application filed March 20, 1876. Term of patent 3½ years.

9,182.—Picture-Frame.—WILLIAM H. ALLEN and ORVILLE C. ALLEN, Detroit, Mich. Application filed March 8, 1876. Term of patent 3½ years.

9,183 and 9,184.—Font of Printing-Types.—HENRY BRENNER, Stapleton, assignor to DAVID WOLFE BRUCE, New York, N. Y. Applications filed March 27, 1876. Term of patents 14 years.

9,185.—Font of Printing-Types.—DAVID WOLFE BRUCE, New York, N. Y. Application filed March 17, 1876. Term of patent 14 years.

9,186.—Font of Printing-Types.—DAVID W. BRUCE, New York, N. Y. Application filed March 25, 1876. Term of patent 14 years.

9,187.—Lower-Case Letters of a Font of Script Printing-Types.—DAVID W. BRUCE, New York, N. Y. Application filed March 25, 1876. Term of patent 14 years.

9,188.—Statuette.—RUDOLPH CHRISTENSEN, West Meriden, Conn. Application filed February 21, 1876. Term of patent 7 years.

9,189.—Coffee-Mill Covers.—PIETRO CINQUINI, Meriden, Conn., assignor to CHARLES PARKER, same place. Application filed March 16, 1876. Term of patent 14 years.

9,190.—Embroidery-Pattern.—EMIL CRISAND, New Haven, Conn. assignor to HENRY ST. JOHN, same place. Application filed March 27, 1876. Term of patent 3½ years.

9,191.—Banner.—EDWARD L. FENIMORE and CHRISTIAN GEIGER, Philadelphia, Pa., assignors to WILLIAM WILSON, EDWARD L. FENIMORE, and FRANCIS FENIMORE, same place. Application filed March 4, 1876. Term of patent 3½ years.

9,192 to 9,194, inclusive.—**Carpets.**—ALFRED HEALD, Philadelphia, Pa., assignor to HUGH MCCALLUM, ORLANDO CREASE, and ANDREW J. SLOAN, same place. Applications filed March 27, 1875. Term of patents 3½ years.

9,195 and 9,196.—Font of Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Applications filed March 20, 1876. Term of patents 14 years.

9,197.—Font of Combination-Border Type.—HERMAN IHLENBURG, Philadelphia, Pa., assignor to MACKELLAR, SMITHS & JORDAN, same place. Application filed February 19, 1876. Term of patent 14 years.

9,198.—Font of Printing-Types.—WILLIAM W. JACKSON, Philadelphia, Pa., assignor to DAVID WOLFE BRUCE, New York, N. Y. Application filed March 29, 1876. Term of patent 14 years.

9,199.—Beer-Mug.—WILLIAM C. KING, Pittsburg, Pa. Application filed February 29, 1876. Term of patent 3½ years.

9,200.—Shawl Fabrics.—CHARLES H. LANDENBERGER, Philadelphia, Pa., assignor to JOHN LANDENBERGER and GEORGE W. LANDENBERGER, same place. Application filed February 28, 1876. Term of patent 3½ years.

9,201.—Font of Printing-Types.—ANDREW LITTLE, New York, N. Y. Application filed March 13, 1876. Term of patent 7 years.

9,202.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Application filed March 27, 1876. Term of patent 3½ years.

9,203.—Cameo Card-Mount.—NATHANIEL WESTON, San Francisco, Cal. Application filed February 23, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 4, 1876.]

3,546.—Fans.—WILLIAM BELL, Perth Amboy, N. J. Application filed March 13, 1876.
"the representation of the head of General Washington."

3,547.—Plated Ware.—MERIDEN BRITANNIA COMPANY, Meriden, Conn. Application filed February 21, 1876.
"the ring and the words 'Silver Ring.'"

3,548.—Artificial Leather.—ALBERT A. POPE, Boston, Mass. Application filed February 26, 1876.
"word 'LEATHERETTE.'"

3,549.—Stoves and Ranges.—ISAAC A. SHEPPARD, Philadelphia, Pa. Application filed March 9, 1876.
"word 'ALDINE.'"

3,550.—Files.—WARNER FILE COMPANY, Holyoke, Mass. Application filed December 8, 1875.
"device of a tree."

3,551.—Washing-Crystal.—THE AMERICAN LYE COMPANY, Philadelphia, Pa. Application filed March 16, 1876.
"the words 'Chinese Compound,' and the figure of a Celestial standing at a tub washing, in connection with our firm-name, 'American Lye Company,' the whole printed invariably in blue."

3,552.—Lye and Potash.—THE AMERICAN LYE COMPANY, Philadelphia, Pa. Application filed March 16, 1876.
"the words 'American Lye, the Ready Family Soap-Maker,' and the figure of an eagle erect upon a base of rocks, and carrying a tin can printed with the words 'Manufactured by the American Lye Company, Philadelphia,' depending by a cord from its neck."

3,553.—Caustic Lye, Potash, Washing-Crystals, and Blues.—THE AMERICAN LYE COMPANY, Philadelphia, Pa. Application filed March 16, 1876.
"our firm-name, 'American Lye Company,' and the figure of an eagle carrying, by means of a cord around its neck, a metallic can."

3,554.—Burnishing-Blacking.—NATHANIEL J. DOWNING, Lynn, Mass. Application filed March 14, 1876.
"words 'Downing's Sagamore Burnishing Blacking,' and below the first two of said words, and above the last two, is an engraving of an Indian chief, with a plume of feathers upon his head, an arrow in his right hand, and a bow in his left hand, with one end thereof resting upon the ground, and a tomahawk stuck in his belt."

3,555.—Tobacco.—F. W. FELGNER & SON, Baltimore, Md. Application filed February 29, 1876.
"word 'SAME.'"

3,556.—Vermifuge.—EDWIN A. HALL, Lynn, Mass. Application filed March 13, 1876.
"number '2905.'"

3,557.—Pills.—WILLIAM N. HEDGES, Springfield, Ohio. Application filed February 5, 1876.
"words and letters 'Father Partington's Popular Pills.'"

3,558.—Black-Lead or Stove-Polish.—EDWARD JAMES & SONS, Plymouth, England Application filed March 18, 1876.
"word 'DOME.'"

3,559.—Clothing and Merchant Tailoring.—MYERS & RATHFON, Lancaster, Pa. Application filed March 16, 1876.
"words 'CENTRE HALL.'"

3,560.—Soap.—MCKEONE, VAN HAAGEN & Co., Philadelphia, Pa. Application filed March 13, 1876.
"an oval rim, of equal width and elevation, around the edge of each cake of soap, and an oval depression within said rim, of even surface and equal depth."

3,561.—Soap.—MCKEONE, VAN HAAGEN & Co., Philadelphia, Pa. Application filed March 13, 1876.
"words 'MAIZE FLOUR.'"

3,562.—Umbrellas.—DAVID W. ODIORNE, Elizabeth, N. J. Application filed June 11, 1875.
"a planisphere having star-points."

3,563.—Pins.—THOMAS PORTER, Mount Clair, N. J. Application filed March 27, 1876.
"the representation of a lion with a cupid by his side, holding a pin as if in the act of thrusting it into the lion's head."

3,564.—Cigars.—M. PRIETO, New York, N. Y. Application filed February 11, 1876.
"the engraving of the New York Post-Office building with the words 'New York Post-Office' above it, and the words 'M. Prieto, Key West, 1st Dist. of Florida' beneath."

3,565.—Tobacco and Cigars.—STRATTON & STORM, New York, N. Y. Application filed March 16, 1876.
"word 'CAPADURAS.'"

3,566.—Cigars.—J. WOLF & Co., New York, N. Y. Application filed March 3, 1876.
"the representation of the head of an animal holding a burning cigar in its mouth."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 4, 1876.]

637.—Title: "Human Hair Goods."—HIPPOLYTE GUILMARD, New York, N. Y. Application filed March 27, 1876.

638.—Title: "Liberty, Justice, Equality."—WESLEY D. HARLAN, Washington, D. C. Application filed March 27, 1876.

639.—Title: "Brooks' Multiplication-Blocks."—J. L. HAMMETT, Boston, Mass. Application filed March 25, 1876.

640.—Title: "Tallow Marrow-Oil."—EDWARD H. KELLOGG, New York, N. Y. Application filed March 25, 1876.

641.—Title: "Improved Elaine-Oil."—EDWARD H. KELLOGG, New York, N. Y. Application filed March 25, 1876.

642.—Title: "McEwan's National Baking-Powder."—WALTER MCEWAN, New York, N. Y. Application filed March 13, 1876.

643.—Title: "Gillet's Cream-Yeast."—GILLET, MCCULLOCH & Co., Chicago, Ill. Application filed March 25, 1876.

INDEX OF INVENTIONS PATENTED APRIL 4, 1876.

	Class No.	No. of Patent
Alarm, burglar, W. Boyd	24	175,590
Alarm, burglar, E. Linnard	24	175,612
Bale fastening, wire, E. S. Lenox, (reissue)	7	7,026
Bale fastening, wire, E. S. Lenox, (reissue)	7	7,027
Bale tie, A. Kilmer	7	175,711
Bale tie, R. C. Ludlow	7	175,720
Bale tie, B. A. Ramsey	7	175,752
Balloons, propelling and steering, D. H. Carl	143	175,662
Barn and stable floor scraper, A. H. Isham	144	175,610
Barrel head, C. H. Veute	40	175,790
Bee hive, E. Armstrong	9	175,547
Bell, Hill and Wing	10	175,605
Bell hanging, H. Fisher	24	175,609
Billiard table, H. W. Collender	143	175,666
Bird cage, Peters and Günther	170	175,746
Bird house, J. J. Hillman	63	175,606
Blackboard, H. Zollinger	146	175,635
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Kendall, F. B., Corn marker	175,565

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Young, J. B., assignee	175,769
Zech, J., Wrest plank bridge plate for piano fortes	175,813
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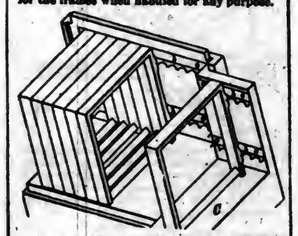
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED APRIL 4, 1876.

175,547. Bee-Hives. Elvin Armstrong, Jerseyville, Ill. [Filed Jan. 22, 1876.]

Brief.—The frames open out singly, each rotating upon a pin beneath the rear leg, and at top moving by the rotation of its rounded edge within a convexed ledge on that side of the case. An accompanying attachable extension of uniform construction is designed as a place of temporary deposit for the frames when handled for any purpose.

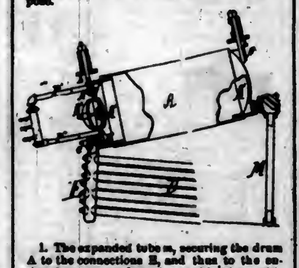


In A bee-hive, having the sections of the brood-chamber held in position by racks *b b*, provided with semicircular seats, to which the sections of the brood-chamber are adapted to rotate in said racks upon the pivot-legs, substantially as and for the purpose herein described.

2. The bee-hive described, provided with the removable shelf C, as and for the purpose specified.

176,548. Sectional Steam-Generators. George H. Babcock, Plainfield, N. J., and Stephen Wilcox, Brooklyn, N. Y. [Filed Jan. 12, 1876.]

Brief.—The boiler is suspended from girders to provide for expansion and contraction. The system of inclined tubes are suspended from the horizontal drum by vertical tubes of different lengths, the ends of which are expanded in their connections by a tool inserted through an oblique hand-hole provided for that purpose.



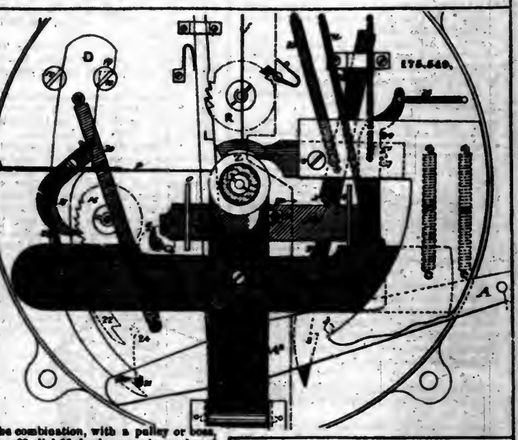
1. The expanded tube *m*, securing the drum A to the connections B, and thus to the entire heating-surface, in combination with hand-holes in the connections in line therewith, as and for the purposes specified.

2. In combination with the separating-drum A, connected with the inclined tubes D, as specified, the oblique hand-hole *g*, arranged, as shown, relatively to the two sets of tubular connections *m* M, to allow the introduction of an expanding-tool, as and for the purposes herein specified.

3. The projections A^1, cast on the ends of the drum A, in combination with the pendent links *b b* and their supporting means, and with the heating parts D E M extending deeply below the drum in inclined positions, as and for the purposes herein specified.

176,549. Revolution-Indicators. Alfred Barlow, Faloonham Street, Grey's Inn Road, Great Britain. [Filed Jan. 24, 1876.]

Brief.—A clock mechanism governs the action of machinery for indicating the number of revolutions or other movements per minute of driving-shafts.



1. The combination, with a pulley or boss, Z, finger 62, dial 33, brake *m*, spring and cord P, or their equivalents, of a pulley, Y, provided with a stud, *i*, arranged to operate in conjunction with a stud, *k*, on the pulley or boss Z, and a driving-pulley, X, provided with a spring, 66, for pressing it against the pulley Y, and with disengaging apparatus for moving it out of contact or gear with said pulley at the proper times, as herein set forth and described, for the purpose specified.

2. The combination, with the grooved pulley X and its spring 66 on the shaft 60, of the fork B, with its incline *d* and the adjusting-screw *e* or its equivalent, operated as described, for moving the pulley X out of contact or gear with the pulley next to it, substantially as herein set forth, for the purpose specified.

3. The combination of the lever A, lever C, hook-bar S, brake-lever *m*, catch-lever N, and slotted lever V, operated by clock mechanism, the whole so constructed and arranged, as by the action of the clock mechanism to release the pulley or needle boss Z from the pressure of the brake *m*, and, after the return of said brake, to move the pulley X out of contact or gear with the pulley next to it, substantially as herein set forth, for the purpose specified.

4. The combination, with the lever A, shaft 60, pulley Z, needle and dial of the catch-bar L, jointed to the lever A, and the ratchet-wheel R geared to the shaft 60, substantially as described, for the purpose specified.

5. The combination, with the pulleys X Y Z and fork B, of the shaft or axis 60, driven by clock mechanism, and having the said pulleys so arranged upon it as that the pulley X may be shifted by the fork B, but that when said pulley is in its normal position the clock mechanism will drive the pulleys Y and Z, and so move the finger forward over the dial 33, by means of the shaft 60 and pulley X, all substantially as herein set forth, for the purpose specified.

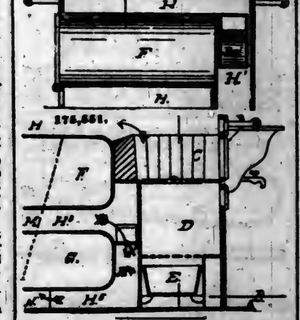
176,550. Artificial Fuel. Bartholomew Berghausen and A. L. Kissling, Cologne, Germany. [Filed Sept. 4, 1875.]

The herein-described fuel, consisting of carbonaceous matter, starch, sulphate of alumina, and nitrate of soda.

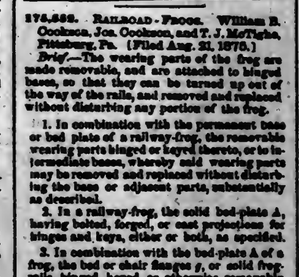
176,551. Reservoir Cooking-Stoves. A. Bickel, Milwaukee, Wis., assignee of one-half his right to Jacob Kaempfer, same place. [Filed Aug. 9, 1875.]

Brief.—The draft may be either direct through the side flue, or indirect through top, rear, central, front, base, and side flues.

1. The combination of the reservoir F, placed in the interior position shown, with the stove-pipe O, the side flue E^1, and opening N, between the base-flue H^2 and side flue E^1, substantially as described, and for the purposes set forth.



2. The flues H H^1 H^2 H^3 H^4 H^5, combined with the dampers I and K, the inclined top of the upper oven F, and the deflector L, substantially as described, and for the purposes set forth.



176,552. Railroad-Frogs. William B. Cookson, Jos. Cookson, and T. J. McTighe, Pittsburg, Pa. [Filed Aug. 31, 1875.]

Brief.—The wearing parts of the frog are made removable, and are attached to hinged bases, so that they can be turned up out of the way of the rails, and removed and replaced without disturbing any portion of the frog.

1. In combination with the permanent base or bed plate of a railway-frog, the removable wearing parts hinged or keyed thereto, or to intermediate bases, whereby said wearing parts may be removed and replaced without disturbing the base or adjacent parts, substantially as described.

2. In a railway-frog, the solid bed-plate A, having bolted, forged, or cast projections for hinges and keys, either or both, as specified.

3. In combination with the bed-plate A of a frog, the bed or chair flanges *g*, or solid frog-rails, hinged, keyed, or otherwise removably attached thereto, substantially as described.

4. In combination with the bed-plate A, the bed-flanges *g*, having their adjacent edges overlapping, as specified.

5. The tongued rails or rail-caps, in combination with the hinged or keyed bed-flanges, having grooves to receive said rails, substantially as described.

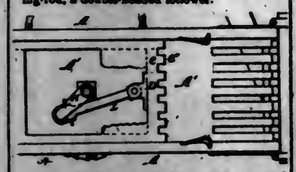
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

176,552.



176,552. BALING-PRESSES OR HAY-PACKERS. Thomas J. Corning, Monroe, Wis. [Filed May 3, 1875.]

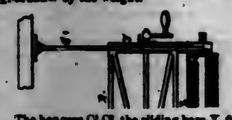
Brief.—An elongated horizontal box; a wheel beneath, round which passes an endless chain from the horse-power. A vertical shaft from the wheel ascends through the middle of the box, working, by a crank and connecting-rod, a double-headed follower.



The combination of the double-headed elongated follower D, chamber A', crank-shaft H, arranged in the said chamber and between the heads of the said follower, pitman L, and driving-gearing, all operating together substantially as and for the purposes specified, in a baling-press or hay-packer.

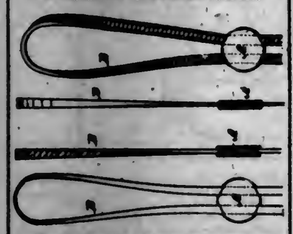
176,554. MACHINES FOR PRINTING FABRICS. Osscola Currier, Newark, N. J. [Filed Nov. 29, 1875.]

Brief.—The frame is raised and lowered by means of a pinion on each end of a shaft gearing with a rack attached to the sliding bars. The pressure of the printing-roll is graduated by the weight.



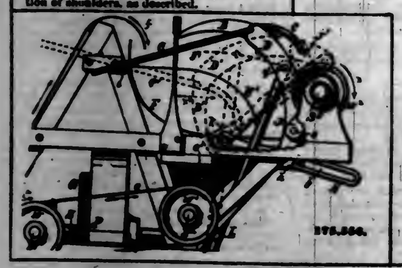
The hangers O' O', the sliding bars Y, frame F, each constructed and operated in combination with the printing-roll R, as and for the purposes set forth.

176,555. METALLIC SEALS. A. Friedrich, Brooklyn, N. Y. [Filed Feb. 10, 1876.]



The combination, with the leaden button A, having holes therethrough, of a leaden strip, B, forming the loop, whose ends are secured, when compressed, in the button by the formation of shoulders, as described.

176,556.



176,556. GRAIN-BINDERS. J. H. Gordon, Rochester, N. Y. [Filed Dec. 9, 1875.]

1. In a grain-binding machine, a binder-arm carrier, D, swinging and sliding upon a sway-bar, L, in combination with a suitable actuating mechanism, for the purposes set forth.

2. The overhanging binder-arm E, rigidly fastened to and moving with the binder-arm carrier D, in combination with a sway-bar, L, and crank J, substantially as and for the purposes described.

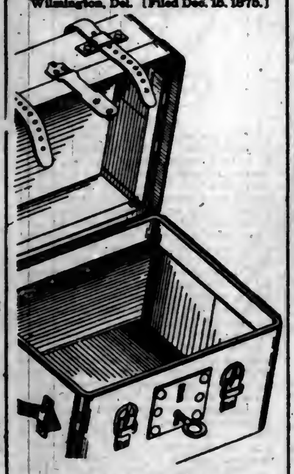
3. The crank J, in combination with the binder-arm carrier D, binder-arm E, and sway-bar L, substantially as and for the purposes described.

4. A connecting-bar H, pivoted to the movable twister-carrier bar I, and operated by the binder-arm carrier D, or its equivalent, substantially as shown and described.

5. A sliding block, T, in combination with an over-hanging twister-carrier bar, I, and offset or overhanging binder-arm E, substantially as described, and for the purpose set forth.

6. The compressor O, journaled on the binder-arm B, and carrier D, or its equivalent, in combination with lever O' and fixed guide l, whereby it is actuated in connection with the binding-arm, substantially as and for the purpose set forth.

176,557. THUMBS AND VALISES. T. Hanna, Wilmington, Del. [Filed Dec. 18, 1875.]



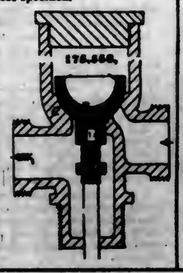
A trunk or valise, made from vulcanized fiber, the same constituting a new article of manufacture.

176,558. WATER-CLOSET VALVES. Stephen N. Haviland and John G. Morrison, Winfield, N. Y. [Filed Mar. 1, 1876.]

1. The combination of fixed and movable cup or conical valves on the same stem, with a concave valve-seat, as set forth.

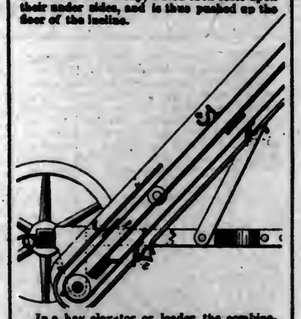
2. The combination, with a fixed valve and movable valve, one of which is provided with apertures, as described, of the adjustable nut G on the valve-stem, or any equivalent therefor, for the purpose specified.

176,558.



176,559. HAY-LOADERS. William J. Hicks, Ann Arbor, Mich. [Filed June 10, 1875.]

Brief.—The rake-heads are hinged on their rear sides to the elevator-belts, so that released from the guides they fall back, disengaging the teeth from the hay, which then rests upon their under sides, and is thus pushed up the floor of the incline.



In a hay elevator or loader, the combination of elevating-rakes e, mounted as described, with guides or guards i, the entrance to which is on the lower and the exit on the upper side of the inclined elevator-frame, substantially as and for the purpose set forth.

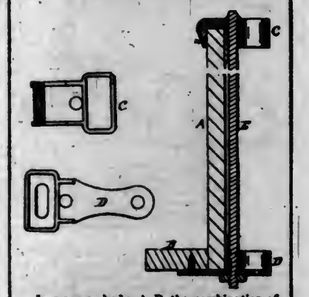
176,560. STOVE-PIPES. Charles Hoeller, Bonn, Prussia. [Filed Feb. 2, 1876.]

Brief.—Rivets are dispensed with by flattening the corresponding overlapping crimps upon each section of the pipe. These crimps serve as abutting-points for adjoining sections. Describes also a machine for making the crimps.



A straight sheet-metal tube for stove-pipes or other uses, having flattened crimps, substantially as and for the purpose specified.

176,561. BOW-SOCKETS FOR CARRIAGE-TOPS. Christoph Hein, Chicago, Ill. [Filed Mar. 2, 1876.]



In a wagon-body, A B, the combination of the removable sockets C D with the clamping-rods E, substantially as and for the purpose set forth.

176,562. SCREW-THREADS. Chas. F. Hovey, Springfield, Mass., assignor to himself and Edward F. Foot. [Filed Oct. 20, 1876.]

Brief.—In order that couplings of the same diameter, but having screw-threads of different pitch, may be adapted to each other, the screw-thread of one or both is made in or on rings, which fit in or on the part, and are split to allow them to expand, and thus increase the pitch of the thread they carry.

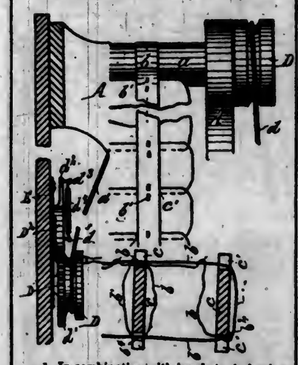
An independent adjustable screw-thread, made separate from the article to which it is to be applied, and in which the threads are arranged to be moved either nearer together or further apart, to adjust themselves to threads of different sizes or numbers with which they may be connected, substantially as described.

176,563.



176,563. VENETIAN BLINDS. Peter Hahn, St. Louis, Mo. [Filed Dec. 13, 1875.]

Brief.—The slats are held in position by a cord passing through the side bands. The blind is wound upon a roller, which is operated by a cord, the latter winding upon a toothed wheel held by a double spring-pawl.

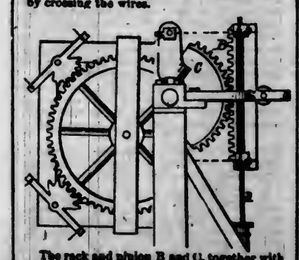


1. In combination with brackets A, having roller-shaft a, the blind-slats c, having slots at c', the cords b', and bands b, all arranged to operate as herein shown and described, and for the purpose set forth.

2. The band-gear and pawl device, consisting of the toothed roller D', the hanger E, its pawl D', arm d', spring d', cord d, in combination with a roller, D, as and for the purpose set forth.

175,564. METHODS OF OPERATING PUMPS FOR WELLS, MINES, &c. John W. Hull, Fagundus, Pa. [Filed Nov. 20, 1875.]

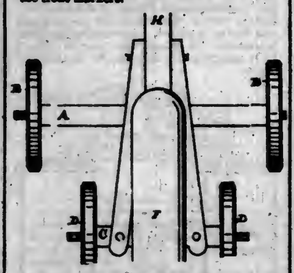
Brief.—The power applied to operate one pump is transmitted and applied to others in the vicinity by one engine or steam-cylinder. When the piston of the first pump is put in motion, the motion is communicated, through the rack and pinion and rods, to the second rack and pinion and piston, making the action reciprocal, so that when one piston is drawn up the other goes down. Should it be required to have both pumps make the upward and downward stroke together, it may be done by crossing the wires.



The rack and pinion B and C, together with the cords or cables E E, and the rack and pinion F and G, by which the motion of the piston A is communicated to the pistons H, substantially as described, and for the purposes set forth.

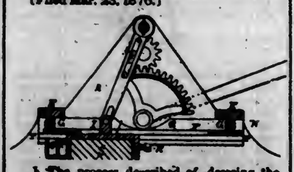
176,565. CORN-MARKERS. F. B. Kendall, Monmouth, Ill. [Filed Feb. 1, 1876.]

Brief.—A corn-marker with a long and short axle, in the rear of which a seat projects, upon which the driver by his weight raises or lowers the front markers.



The long axle A, with wheels B, and short axle C, with wheels D, in combination with the seat F, pivoted tongue H, and bar I, the seat projecting in rear of the axle C, for the purpose of raising the long axle and wheels above the ground, substantially as and for the purpose specified.

176,566. APPARATUS FOR DRESSING MILLSTONES. Jacob C. Kepler, Richmond, Ind. [Filed Mar. 23, 1876.]



1. The process described of dressing the surface of a millstone, by applying dampened pulverized millstone or burr-grit to the face of a millstone, and rubbing or grinding the same thereon with a block of burr-stone until the face of the millstone is rendered sharp and gritty, as and for the purposes described.

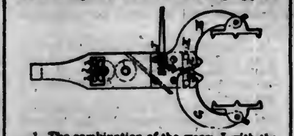
2. In a machine for dressing the faces of millstones, the block-holding frame, provided with the perforated receptacles Q and P, and set-screws R, as and for the purposes set forth.

3. The slotted way, provided with the pins or studs and springs, in combination with cross-pieces E, adjustably connected with uprights A, as shown and described.

4. In combination, with the block-holding frame, provided with receptacles and set-screws, the slotted way provided with studs and springs, the cross-pieces E on the frame A, and grooved side pieces N, as shown.

176,567. WRINGERS. Robert Krause, New York, N. Y. [Filed Sept. 13, 1875.]

Brief.—The clamping-jaws have toothed segments, that mesh into other jaws with toothed segments, and are connected by a rod, and are operated by a worm moving on a toothed segment of one of the clamping-jaws.



1. The combination of the worm J with the clamping-jaw E, toothed segment f, and with the shaft I and jaw F, all arranged so that by the motion of the worm the two jaws and their connecting-shaft will be moved simultaneously, substantially as described.

2. The jaws G H, provided with the toothed segments g g, and combined with the jaws E F that have the toothed segments h h, substantially as herein shown and described.

176,568. HORSESHOES. James Lostrop and Frank H. Allen, Norwich, Conn., assignors of one-third their right to John R. Warner, same place. [Filed Jan. 31, 1876.]

176,569.

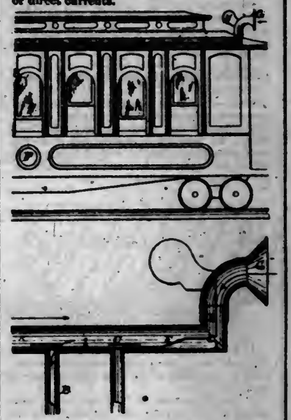


1. The metallic plate b, with opening d and slots f f, as described, and for the purpose specified.

2. In combination with the metallic plate B, the shoe A, with solid or fixed calks, the heel or projection c, and the bolts e e, as arranged, and for the purpose specified.

176,570. SMOKE-PREVENTIVES FOR RAILROAD-CARS. Charles G. Lee, Alton, Ill. [Filed Jan. 26, 1876.]

Brief.—A strong current of air enters the funnel, and passes with great velocity out of the slot across the window in a slightly-deflected plane. This thin current, when the cars are in motion, prevents dust or cinders from entering the windows either by eddies or direct currents.



1. A thin sheet of air passed at a high velocity across a railroad-car window, to prevent the entrance of dust or cinders, substantially as set forth.

2. The alternately-operating pipes B, in combination with the pipe A, reversible hood or funnel C, and a railroad-car, F, substantially as described.

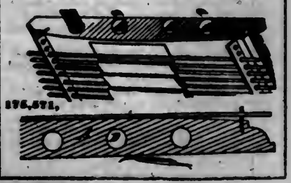
3. The pipe A, with its branch pipes B, in combination with the alternate slide-valves C, pitman E, crank D, and reversible funnel G, as and for the purpose set forth.

176,570. LUBRICATORS. F. Lumkenheimer, Cincinnati, Ohio. [Filed Feb. 2, 1876.]



A lubricator having a glass shell and a perforated metallic shield or guard therefor, adapted to rotate about the glass, and seperated therefrom by an annular space, substantially as and for the purpose specified.

176,571. PLANING-MACHINES. J. G. Mairs, Lansingburg, N. Y. [Filed Mar. 9, 1876.]



176,571.

1. The bed or frame of a plaiting-machine, raised in the middle to give convexity to the needles and held there in the holes or hooks by the friction caused by their tension, substantially as set forth.

2. In combination with the frame of a plaiting-machine, the needle-cases D, constructed substantially as set forth.

176,572. ELASTIC CLEVISES. T. N. Meehin, Wayland, Mass. (Filed Jan. 31, 1876.)



The bolted head *a*, provided with the yoke A *b*, in combination with the inclosed spring *d*, sliding hook C, and plate *e*, operating substantially as described, and for the purpose set forth.

176,573. CIGAR-MOLDS. Fredk. C. Miller, Cincinnati, Ohio. (Filed Jan. 19, 1876.)

Brief.—The grain of the wood of the plungers runs perpendicularly to the plane thereof. The plungers are secured to their backing within the cavities of a strip cut from the matrix-board. A bar is sealed in a groove across the matrices, and can be lifted to expel the pressed bunches in series.



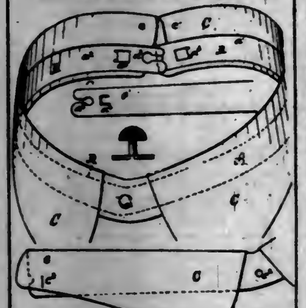
1. The plunger or cup of a cigar-mold made of wood, the grain of which runs perpendicularly to the plane of the cup, substantially as specified.

2. The male part of the cigar-mold, composed of the backing, the adhering strip D', and the cups or plungers set in the cavities of said adhering strip, substantially as specified.

3. The combination, substantially as specified, of the matrix-board, and the expeller-bar seated in a groove transversely to the matrices

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176,574. COLLARS. Frank G. Mitchell, Kansas City, Mo., and Wm. J. Saunders, Tyler, Tex. (Filed Dec. 13, 1876.)



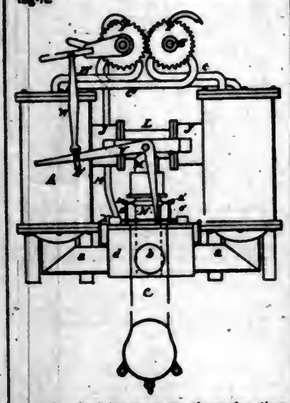
1. A spring collar or clasp, A, having closed front and open back, and provided with open slots *a'*, and clips *a''*, substantially as and for the purpose set forth.

2. A shirt-collar, C, having closed front and open back, and provided with slits *c'*, as and for the purpose set forth.

3. A spring collar or clasp, A, having closed front and open back, and provided with open slots *a'*, clips *a''*, in combination with a collar, C, having closed front and open back and slits *c'*, and the stud B, all constructed as and for the purpose set forth.

176,575. DREDGING APPARATUS. William H. Newton, Chicago, Ill. (Filed Jan. 31, 1876.)

Brief.—A steam force-pump and a vacuum-pump are combined with a suction-pipe connected by hollow horizontal arms with the pump-cylinders, and having a slip-joint containing rubber ring-rollers for packing and anti-friction purposes. A screw-shaped plate is arranged in the ejection-pipe, to give a twist motion to the material, for disintegrating it.



1. In a dredging apparatus, the combination of the vacuum-pumps A A, with force-pump *x*, having valves 10 10, cylinders I I, depending suction-pipe N N', and sleeves J J, and double elbow L M, as and for the purpose specified.

2. The suction-pipe N N' M, combined with sleeves J J, so as to operate between the vacuum-pumps, as described.

3. The combination of the sections N N' of the suction-pipe with the springs *c c'*, substantially as described and shown.

4. The combination of the suction-pipe N N' with the rubber-ring rollers O O, as and for the purpose set forth.

5. The ejection-pipe nozzle for dredging, in combination with the helical plate, as set forth.

176,576. PAPER-BAG MACHINES. James S. Ostrander, Dayton, Ohio. (Filed July 6, 1876.)

Brief.—The severed tube is fed between the endless wire-cloth bands to the hollow perforated suction-rolls, which open the end of the tube by the aid of the guide and endless belts, and fold it into the diamond shape. The lower endless belt is then withdrawn, and the tube fed upward until its end lies over the folding-rolls, when the reciprocating blade, carrying the elastic paste-bands, pastes and folds the upper part of the diamond down. The part just folded enters the pocket, and the vibrating roller is brought into contact with the other flap of the diamond, which rests against the stationary roll, feeding the bag to the second set of folding-rolls, when the second blade pastes and folds the second flap down, completing the bag.

1. The perforated suction-rollers O E, operating to separate the sides of the tube, and stretch the bottom into the diamond form, substantially in the manner and for the purpose specified.

2. In combination with the suction-rollers O E, the perforated or wire-cloth feeding-bands A A', arranged and operating substantially as and for the purpose specified.

3. In combination with the bands A A', the feeding-bands K L, operating substantially in the manner and for the purpose specified.

4. In combination with the feeding-bands A K, the folding-rollers P Q, pasting-bands B B', and knife E, operating substantially as and for the purpose specified.

5. The pocket I, arranged and operating to reverse the feeding side of the diamond, substantially as and for the purpose specified.

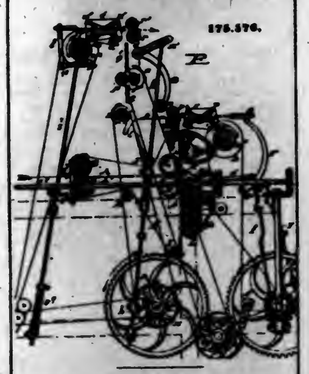
6. In combination with the pocket-guide, the feeding-roller n and pinching-roller n, operating substantially as and for the purpose specified.

7. In combination with the feeding-rollers *p p'*, the folding-rollers *r r'*, pasting-ribbons *t t'*, pasting-ribbon *u*, and knife *s*, operating substantially as and for the purpose specified.

8. In combination with the blade B and paste-wheel S', the pasting-ribbons S S', operating substantially as and for the purpose specified.

9. In combination with the blade *s* and paste-wheel *s'*, the pasting-ribbon *u*, passing through an aperture in said blade, and the pasting-ribbons *t t'*, all operating substantially as and for the purpose specified.

176,576.



176,577. LAMPS. Henry Boober, St. Louis, Mo., assignor to himself and Eberhard F. Hoppe. (Filed Feb. 26, 1876.)



1. In a lamp of the character herein shown and described, the cap thereof, provided with an annular rim and lugs, fitted to engage an annular rim and slots of the lamp-body, and further, having the locking feature of a bevel on each lug, and by means whereof the cap can be secured or removed from the body, in the manner and for the purpose set forth.

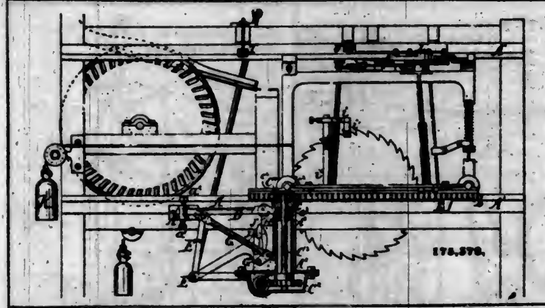
2. The cap B of a lamp, having the annular rim *b*, lugs *b' b'* beveled at *b''*, in combination with lamp-body A, having rim *a*, slots *a' a'*, substantially as and for the purpose set forth.

176,578. SHINGLE-MACHINES. Henry F. Snyder and James D. Snyder, Williamsport, Pa. (Filed Dec. 9, 1875.)

1. The adjustable screws *a' a'*, in combination with the bar D and gear-wheel *c*, so as to throw the latter to an adjustable height to strike clutch-head C', and allow for wear, as herein specified.

2. The dog-fly M, composed of the adjustable parts V and V', as herein described, and for the purpose specified.

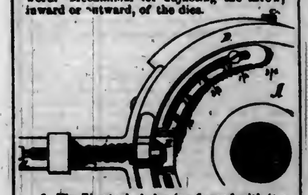
3. The wheel L', having slots *p'* adapted to receive longer or shorter crank-points *p'* at will, as and for the purpose specified.



176,579.

176,579. SCREW-CUTTING DIES. Edward A. Stimson, Dayton, Ohio, assignor of one-half his right to Ebenezer F. Stoddard, same place. (Filed Feb. 17, 1876.)

Brief.—Each jaw is provided with a gib or tongue on one side to fit a groove in the slotted head, and with a screw (passing through a groove in the cam-ring) entering the rear end, and which, by means of the outer cam acting on its head, withdraws the cutter from the work. Mechanism for adjusting the throw, inward or outward, of the dies.



1. The die-stock A, having formed with it a radially-recessed boss, B, in combination with the chasers C, formed with gibs upon their sides, that work in key-seats in the recesses of said boss, and provided with pins *c*, confined in slots of the encircling ring D, whose interior cam projections form a solid rear bearing for the chasers, in the manner and for the purpose specified.

2. The ring D, provided with the exterior and interior slotted cam projections E, and secured to the stock A, in the manner and for the purpose specified.

3. The herein-described improved screw-cutting die, consisting, substantially, of the stock A, boss B, chasers C, ring D, handle O, latch *g*, and index-plate H, when the respective parts are constructed and arranged in the manner and for the purpose specified.

176,580. BRACKET-SUPPORTS FOR IRONING-BOARDS. Charles O. Stone, Augusta, Me. (Filed Feb. 11, 1876.)

An improved bracket-support for ironing-boards, consisting of the plate C, provided with the fixed lips or brackets G G, the hinged bracket-arm D, pin E, and the hooked plate B attached to the board, substantially as herein described.



176,581.



176,581. EXERCISING APPARATUS. A. Wahl, Milwaukee, Wis. (Filed Nov. 6, 1876.)

Brief.—Principally for use as a book bender and strengthener.

1. In an exercising-machine, the brace E, standard B, and roller D, in combination with standard F, substantially as set forth.

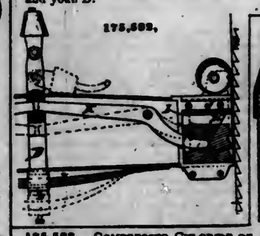
2. The standard B, roller D, cross-bar C, and adjustable brace E, in combination with standard F, substantially as described.

176,582. ELEVATORS. Warren Warner, Carthage, Ohio. (Filed Feb. 2, 1876.)

1. The combination, substantially as specified, of the toothed side racks of a hoisting-machine, the angularly-sliding catch-blocks, and the bumpers.

2. The combination, substantially as specified, of the angularly-sliding catch-blocks, provided with recesses, the levers K, the outer ends of which engage said recesses, spring L, and yoke D.

176,582.



176,583. COMPRESSED CHLORIDE OF AMMONIUM. John Wyeth, Philadelphia, Pa. (Filed Feb. 12, 1876.)

Brief.—Chloride of ammonium reduced to a powder is formed into rods by compression in suitably-shaped molds. Each rod is provided with a head-piece attached at one of its ends.

1. As a new article of manufacture, a cylinder or rod of compressed chloride of ammonium, substantially as described.

2. The combination of a rod of compressed chloride of ammonium and a casing or head-piece, substantially as set forth.

176,584. TYPE-WRITING MACHINES. Beni. Arnold, East Greenwich, R. I. (Filed Oct. 18, 1876.)

Brief.—The marker consists of a piece of type-metal, and is operated on depressing the lever into the notch in the segmental plate corresponding to the desired letter, so as to produce the impression by a rubbing motion by the crank-arm and cams. The segmental plate has notches of varying depth and width, to correspond with the different type. The paper is fed by pawl moved by the lever, and the line-space is produced by the pawl and ratchet on one of the rolls, and operated by the arm moving up an incline.

1. In a type-writing machine, the feed-rolls *a a'*, in combination with the plate C and a marking device, the rolls being so placed as to feed the paper up to the type-plate and marker placed above them, substantially as and for the purpose set forth.

2. The letter-plate C, in combination with a marker that will color the paper without the intervention of any other substance, substantially as herein set forth, and for the purpose specified.

3. A marker working with a longitudinal reciprocating and a rotary reciprocating motion, in combination with type or raised letters, substantially as and for the purpose set forth.

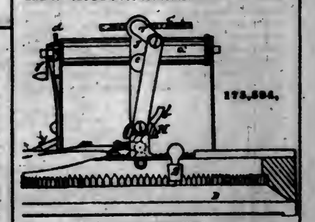
4. The shaft V, pivoted with the cam *j*, in combination with the lever S, lever N, and connecting mechanism, substantially as and for the purpose specified.

5. The lever *b* and pawl *n*, in combination with lever N and carriage F, substantially as and for the purposes specified.

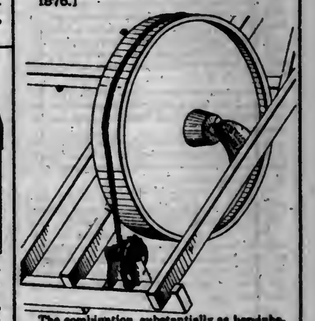
6. The adjusting-spring *i*, shaft V, screw *c*, and standard J, combined and operating substantially as specified.

7. In a type-writing machine, the notched curved plate R, with the spaces between the notches varying in width, according to the space required by the different letters represented by them, substantially as described, and for the purpose set forth.

176,584.

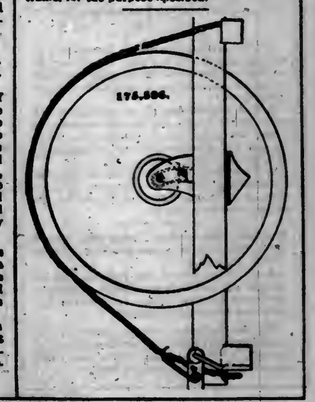


176,585. HARVESTERS. William R. Baker, Chicago, Ill., assignor to C. H. & L. J. McCormick, same place. (Filed Feb. 28, 1876.)



The combination, substantially as hereinbefore set forth, of the main wheel, the main frame mounted thereon in adjustable bearings, the lifting chain connected with the main frame and passing over the driving-wheel, and the claw-lever and detent secured upon the frame, for the purpose specified.

176,586.

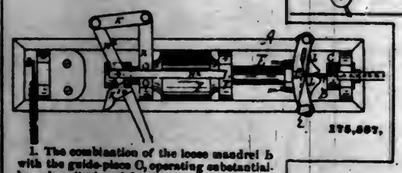


175,586. HARVESTERS. William R. Baker, Chicago, Ill., assignor to C. H. & L. J. McCormick, same place. [Filed Feb. 26 1876.]

The combination, substantially as herein-before set forth, of the main frame, the driving-wheel, the lifting-chain attached to the main frame, and passing over the driving-wheel, and the windlass, for the purpose specified.

175,587. MACHINES FOR WINDING SPIRAL SPRINGS. Geo. D. Bancroft, Lynn, Mass., assignor of one-half his right to N. W. Edson, same place. [Filed Oct. 19, 1875.]

Brief.—The end of the wire, passing through a guide-plate, is griped to a loose mandrel by eccentric jaws pivoted to the end of a hollow sliding arbor, the revolution of which forces the spring on the mandrel. The spring presses back the arbor till pins back of the jaws strike the frame-work, opening the jaws and releasing the mandrel and spring. The spring passes through the hollow arbor, which, with the mandrel, is returned to its first position by a hand-lever, a projection from which strikes a pivoted blade, cutting off a length of spring.



175,587.

1. The combination of the loose mandrel *b* with the guide-plate C, operating substantially as described, and for the purpose set forth.

2. The combination of the loose mandrel B with the revolving jaws L L' and arbor B, operating substantially as described, and for the purpose set forth.

3. The combination of the arbor E, lever K³, plate-rod H³, and mandrel B, all operating together substantially as described, and for the purpose set forth.

4. The combination of the lever K³ and the arm K⁴ with the cutting-off knife M', all operating together substantially as described, and for the purpose set forth.

175,588. FORCE-PUMPS. Roscoe Bean, Hudson, Mich. [Filed Sept. 2, 1875.]

Brief.—The cylinder is suspended in the well by two tubes, opening into the cylinder on opposite sides of it. One of the tubes, being closed at the top, acts as an air-chamber; the other, being extended and curved, forms the discharge.



1. The combination of the pump-stock A and cylinder B with the pipe C forming the air-chamber, as well as the supporter between the pump and cylinder, substantially as herein set forth.

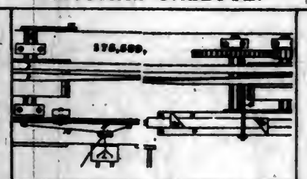
2. The combination of the pump-stock A and cylinder B with the tubular air-chamber C and discharge-pipe D, forming connection between the pump and cylinder, substantially as herein set forth.

3. The cylinder B, having the air-chamber and discharge-pipe opening into the same on opposite sides, substantially as and for the purpose herein set forth.

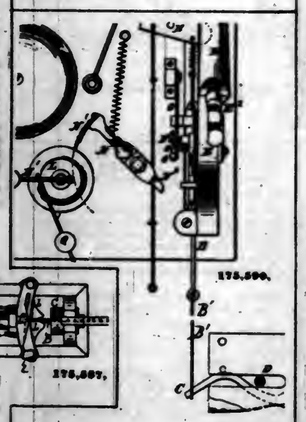
175,589. GRAIN-CAR UNLOADERS. Mason W. Bosworth, Binghamton, N. Y. [Filed Feb. 19, 1876.]

Brief.—The cams on the reciprocating rod operate the belt-shifting device, whereby a continuously reciprocating movement is produced for drawing the scrapers.

The combination of the belt-shifting-rod G, projecting pins *i* and *k*, belt-shifters or cams *j*, and belts *h*, substantially as herein shown and described, for the purpose set forth.



175,589.



175,590.

175,590. BURGLAR-ALARMS. Wm. Boyd, Mansfield, Mass. [Filed Feb. 15, 1876.]

Brief.—Upon opening the door or window to which the apparatus is connected, a pistol is discharged, a lamp lighted, and an alarm-bell sounded.

1. In combination with the wire B, the trigger F, the bell-crank H, and oscillating arm E, respectively, attached to the gun-lock, the alarm-bell, and lamp-lighting mechanism, so that either or all the parts may be actuated by drawing the wire, substantially as set forth.

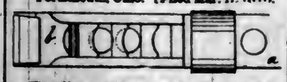
2. In combination with the wire B and spring O, and arm N², the hook O¹, inclined surface O², and stud-pin F² for releasing the lamp lighting mechanism, substantially as set forth.

3. In combination with the match-and oscillating arm for igniting it, the adjustable hook Q¹, for supporting the stem of the match near the fulminate, substantially as set forth.

4. In combination with a burglar-alarm and connecting-wires, B B¹, the bent lever C and shackle D of a lock or bolt for actuating the alarm upon the opening of a door or window, substantially as set forth.

5. In combination with the wire B, the slotted cylinder B², trigger F, spring O, and bell-crank H, for operating both the firing-mechanism of the gun and the bell-alarm, by the direct action of the wire, substantially as set forth.

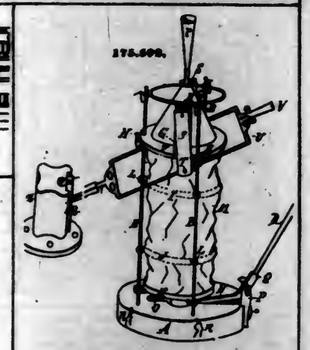
175,591. HAME-FASTENERS. M. T. Burke, Portsmouth, Ohio. [Filed Mar. 11, 1876.



The clips *a* and *b*, in combination with the loop *c* and leather straps, as described and shown, and for the purpose set forth.

175,592. FOG-SIGNALS. Paul R. Collins, Boston, assignor of one-half his right to J. W. Collins, Gloucester, Mass. [Filed Jan. 3, 1876.]

Brief.—The device operates like a bellows. It may be secured to the vertical standards at the top, and operated by the lever pivoted to the base, or it may be secured to the base and operated by raising and lowering the frame pivoted at the top. Air is admitted by means of a flap-valve, and when the device is compressed the air is forced out through the horn or whistle at the top.



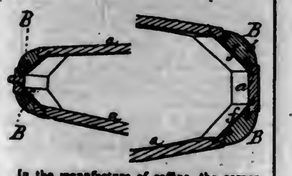
175,593.

1. In a fog-horn, substantially such as described, the base A, standards B, heads K F, bellows M, horn *r*, pins H, lever E, and handle B, combined to operate substantially as and for the purpose set forth and specified.

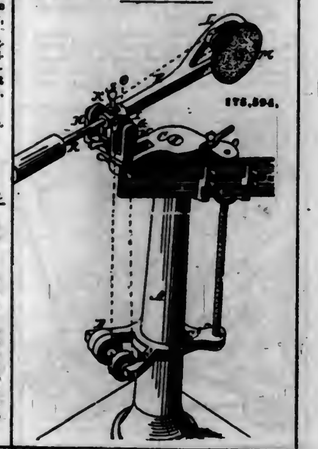
2. In a fog-horn, substantially such as described, the base A, standards B, heads K F, horn *r*, strings *n n*, frame-work U, links S, bar X, handle *N*, and post *c*, constructed and arranged to operate substantially as and for the purpose specified.

175,594. MANUFACTURE OF COFFINS. L. De Lill, Phœnix, N. Y. [Filed July 3, 1875.]

Brief.—The side and end pieces of wooden coffins are exteriorly connected by means of corner-pieces, provided with angular grooves in their opposite ends, to receive the correspondingly beveled edges of said pieces, and interiorly connected by tie-strips of tough wood, fitting in the adjacent inner ends of the same.



In the manufacture of coffins, the corner-pieces B, having angular grooves *c* cut in their opposite edges, in combination with the side and end pieces *a a'*, provided with beveled edges and tie-strips *f*, connecting the adjacent ends of the side and end pieces, substantially as set forth.



175,594.

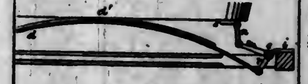
175,595. SAW-GUMMING MACHINES. Randolph Densmore, Grand Rapids, Mich. [Filed July 22, 1875.]

Brief.—The weighted arm, carrying the grinding-wheel, is supported in an oblong block, which is mounted loosely on a pulley-shaft journaled in a frame swiveled in a cross-head upon the top of an upright column. The wheel has vertical adjustment by a set-screw, governing the position of the block, horizontal adjustment on the swivel, and angular adjustment by revolution of its arm in the block supporting it.

1. The combination of the cross-head C, swiveled yoke G, adjustable block O, and arm R, carrying the emery-wheel M, all as and for the purposes herein set forth.

2. The combination of the swiveled yoke G, shaft I, carrying pulleys K K', block O, adjusting-screw U', set-screw S, and weighted arm R, with emery-wheel M, all as and for the purposes herein set forth.

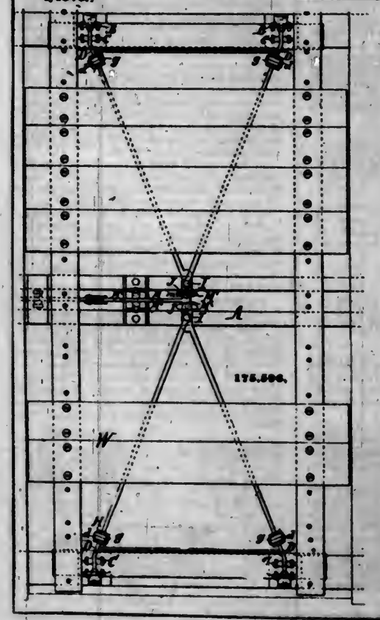
175,596. SPRING-EQUALIZERS. William H. Elliot, New York, N. Y. [Filed Feb. 7, 1876.]



1. The reach-spring *d*, secured to the carriage-body at *g'*, pivoted at a fixed point to the running-gear at one end, and connected with the carriage-body and the running-gear at the other end, and through the lever *m r* and links *n*, whereby the spring and body operate upon each other, substantially as herein described.

2. The equalizer *o m n*, supported upon the running-gear in suitable bearings, in combination with the carriage-body and a reach-spring, which is pivoted at a fixed point to the running-gear at one end, and supported at the other end upon the equalizer by means of rigid arms *r*, whereby the movements of the sides and ends of the body are equalized, substantially as specified.

175,596. WEIGHING-SCALES. Theddeus Fairbanks, St. Johnsbury, Vt. [Filed Feb. 4, 1876.]



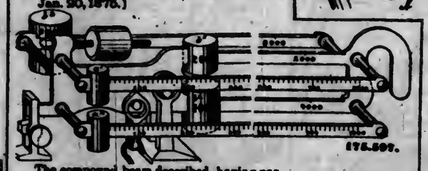
175,596.

1. The main triangular levers, formed with separate arms, rigidly secured together and to the other parts by the fastenings H I, as and for the purposes specified.

2. The combination of the T-ended lateral lever M M' M² with suitable main levers, transferring the weight to the T-ended lever through separate yokes or links J J, substantially in the manner and for the purposes herein set forth.

3. The projections M² M³ on opposite sides of the central knife-edge of the lateral lever M, adapted to receive and hold a leveling-instrument in a plane above, but parallel to, the bearings of the lever, as and for the purposes herein specified.

175,597. WEIGHING-SCALE BEAMS. Theddeus Fairbanks, St. Johnsbury, Vt. [Filed Jan. 20, 1876.]



175,597.

The compound beam described, having parallel bars carrying permanently-connected weights, and mounted on a knife-edge, located within its length, so that the weights shall be traversed from one side of the axis to the other, as herein specified.

175,598. COUNTER AND WELT SKIVING MACHINES. John W. Field, North Brookfield, Mass. [Filed Mar. 3, 1876.]



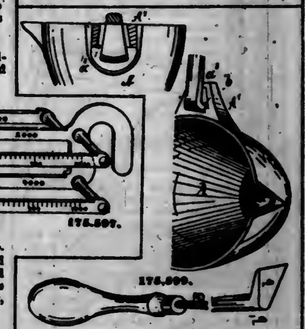
175,598.

1. In a counter-skiving machine, the combination of a double bearer, B C, adapted to operate separately or jointly, with the spring D and saddle E, all substantially as and for the purposes described.

2. In combination, the roll F, bearer B, and spring D, substantially as set forth.

3. In combination, the adjustable plate G, bearer B, spring D, and wheel A, all substantially as and for the purposes described.

4. In combination, the knives I and H, bearer B, and wheel A, all substantially as and for the purposes described.



175,599.

175,599. LADLES. Henry Fisher, Canton, Ohio. [Filed Mar. 3, 1876.]

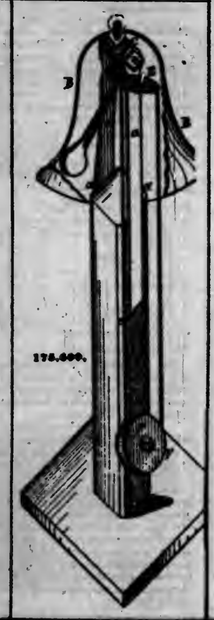
1. In combination with the body A of the ladle, provided with the dovetailed socket *a'*, the handle B *b*, substantially as set forth.

2. In combination with the body A of the ladle, provided with the ear A', having the dovetailed socket or slot *a'* and the larger slot *a²*, the handle B *b*, substantially as set forth.

175,600. BELL-HANGING. Henry Fisher, Canton, Ohio. [Filed Mar. 3, 1876.]

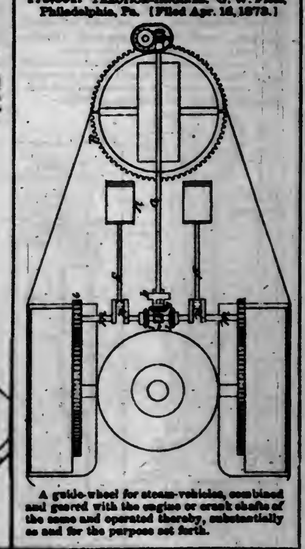
Brief.—The bell rests on the hub, and is free to rotate horizontally. The stud projects through the bell, and a nut screwed on the stud secures the bell.

As a support for the bell B, the rocking hub C, supported between the arms *a a* of the bifurcated standard, and provided with the upright stem C' substantially as set forth.



175,600.

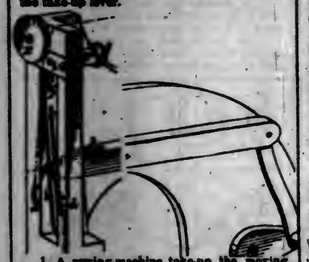
175,601. TRACTION-ENGINES. G. W. Fiske, Philadelphia, Pa. [Filed Apr. 16, 1875.]



A guide-wheel for steam-vehicles, combined and geared with the engine or crank-shafts of the same and operated thereby, substantially as and for the purpose set forth.

176,602. SEWING-MACHINE. J. L. Follett, New York, N. Y. [Filed Sept. 6, 1875.]

Brief.—The thread held in the slotted guide is engaged by the take-up lever, which, moving in the arc of a circle, leaves the thread at any desired point, determined by moving the adjustable guide into or out of the path of the take-up lever.



1. A sewing-machine take-up, the moving member of which is arranged and operates to alternately engage and leave the thread, substantially in the manner set forth.

2. In a take-up, the combination, with the moving member, of a guide and cast-off, which maintains the thread and the moving member engaged during the proper length of time, and at the expiration of that time compels their disengagement, substantially as set forth.

3. The vibratory take-up lever, in combination with the slotted guide and cast-off plate, or its equivalent, substantially as set forth.

4. The combination, with the vibratory take-up lever, of the guide and cast-off plate, adjustable substantially as described, to disengage the thread from said lever earlier or later in the movement of the latter, as described.

5. The pronged or forked take-up lever, in combination with the slotted guide and cast-off plate, or its specified equivalent, substantially as described.

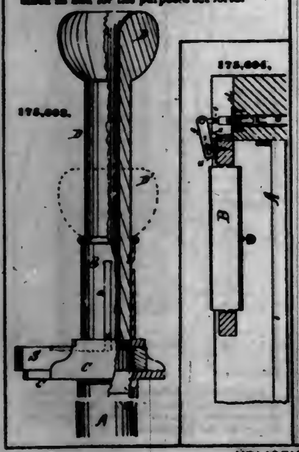
6. The combination of the take-up lever, the guide and cast-off, and guide eyes or hooks, through which and the intermediate guide and cast-off the thread passes, and is extended across the path of the take-up lever, substantially as set forth.

176,605. CARTRIDGE-LOADING IMPLEMENTS. Chas. Green, Rochester, N. Y. [Filed Feb. 9, 1876.]

1. In combination with a stock, consisting of the barrels A B and cone C, in a cartridge-loader, the transversely-sliding wad-receiver S, substantially in the manner and for the purposes shown and described.

2. In combination with the stock A B C and transverse slide S, the rammer D, whether the latter is made hollow or otherwise.

3. In combination with the barrels A B, having a transverse slide, S, and fixed guard-lip f, the hollow rammer D, constructed and combined as and for the purposes set forth.



176,606.

176,604. SHUTTER-WORKING. Hubert G. Hart, Unionville, Conn., assignor to A. D. Prentice, same place. [Filed Jan. 20, 1876.]

Brief.—A single-jointed arm has an outer link pivoted upon the blind at a point within the vertical line, passing through the knuckles of the hinges. A single pull entirely closes the blind, the link at first working across the edge of the blind as a fulcrum.

The combination of the lug *a*, secured to the blind inside of a line passing through the hinge-knuckles, the sliding bar *e*, secured to the window-frame outside of the same line, and the lever-connection *f*, slotted at *e'*, whereby a single thrust or pull of the bar *e* turns the blind to an open or closed position, substantially as described.

176,605. BELLS. F. M. Hill and F. L. Wing, Brooklyn, N. Y. [Filed Nov. 4, 1875.]

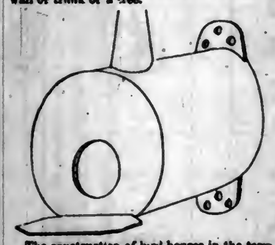


1. The combination of either a bell or gong, or similarly shaped curvature, with an air-chamber which will respond to the vibrations of the bell, gong, or curvature, substantially as described.

2. A striker, *f*, in combination with a vessel or tube and a vibrating curvature, substantially as described, and for the purposes above set forth.

176,606. BIRD-HOUSES. John J. Hillman, Cambridge, Mass. [Filed Mar. 4, 1876.]

Brief.—The body of the house consists of a horizontal cylinder, with an opening at one end for an entrance, with an alighting-board beneath the opening. Brackets are affixed to the opposite end for securing the device to a wall or trunk of a tree.

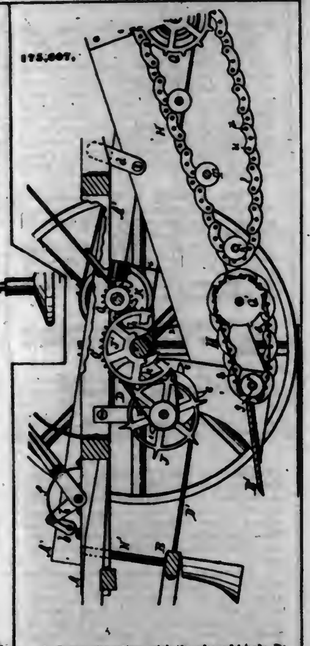


The construction of bird-houses in the form of a hollow horizontal cylinder, provided with entrance-orifice, alighting-step, and suitable means of attachment to a stationary support, substantially as described.

176,607. POTATO-DIGGERS. John S. Hopper, Rochester, assignor of one-half his right to O. S. and C. H. Gillam, Auburn, N. Y. [Filed Dec. 8, 1875.]

Brief.—The digging and separating devices are mounted upon a pair of wheels. The digging-chain is of ordinary construction. There are two sets of endless belts. All the soil, with the contained tubers, are delivered upon the first, which is close, permitting nothing to pass through. The second endless belt is an open one, permitting the soil to fall through. A vine-cutter and revolving rake are located above the chain.

176,607.



1. In combination with the shovel-blade B', the close carrier-belt H and open raddle-belt H', the two latter being constructed substantially as shown and described, and arranged to revolve upon axes at right angles or transversely to the travel of the machine.

2. The inner frame A, hung upon the carrier-shaft U, and the outer frame A', hung upon the counter-shaft u, both frames being hinged together at front and rear, as shown, in combination with the jaw or yoke h, whereby the two shafts are retained in a proper concentric position and the proper relative longitudinal position of the two frames is secured, in the manner and for the purposes set forth.

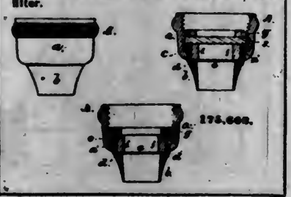
3. The revolving vine reel or reels J, in combination with the shovel-blade B' and the close chain-belt H, operating conjointly to assist in the passage of the vines and other material over said blade B' and belt H.

4. The tubular shaft *g*, constituting an oil-reservoir, as described, in combination with the hollow journal-arm *c*, fixed to the shank D, as and for the purposes set forth.

5. In combination with the tubular shaft *g*, hollow journal-arm *c*, and stock or shank D, the vertical oil-tube *t*, which latter also act as a key to secure the hollow journal *c* in position independently of the nut *a*.

176,608. FILTERS. Edward C. Houghton, Cambridgeport, assignor to Caleb C. Walworth, Boston, Mass. [Filed Dec. 6, 1875.]

Brief.—The upper part of the filter has a female screw cut in its internal surface, enabling the device to be readily affixed to ordinary taps or other cocks, provided with a screw cut upon their nozzles, and when applied should be screwed up until the end of the cock-nozzle impinges upon the washer with force enough to pack the joints of the filter.



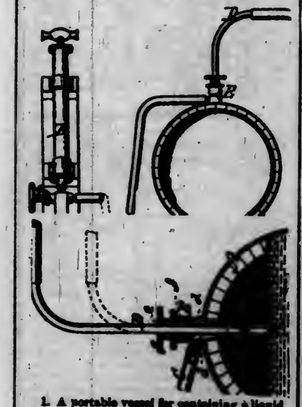
176,608.

1. As an improved article of manufacture, the improved filter, consisting of the body formed in two parts, *a b*, as described, the strainer *c*, ring *f*, and packing-annulus *g*, constructed, combined, and arranged in manner as set forth and shown.

2. In a filter, the combination of the body A formed in two parts, as stated, the strainer *c*, annulus *f*, the layer of sponge *e*, and elastic packing-ring *g*, all constructed, combined, and arranged in manner as shown and described.

176,609. PNEUMATIC PRESSURE-PUMPS. J. S. Hull, Cincinnati, Ohio. [Filed Nov. 13, 1875.]

Brief.—The main principle of this invention consists in the employment of the force of compressed air, introduced into any close vessel containing a liquid to be thrust or drawn, so that in the act of drawing all that is required is to turn a spigot, when the liquid flows out under pressure.

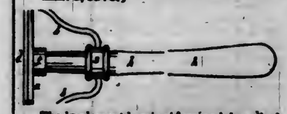


1. A portable vessel for containing a liquid to be drawn, its upper portion forming a pneumatic pressure-chamber for forcing out and elevating the liquid, and provided with a valved tube, through which air is introduced to produce the pressure, and with a valve-outlet tube or pipe, through which the liquid is expelled, substantially as and for the purpose herein specified.

2. A bung or stopper, E, constructed with an air-inlet, *d*, and liquid-outlet *c*, substantially as and for the purpose herein specified.

3. The cork packing *f* and compressing-ring *g*, arranged in the bung E, in combination with the drawing-pipe D, substantially as and for the purpose herein specified.

176,610. BARN AND STABLE FLOOR SCRAPERS. Alfred H. Isham, Avon, N. Y. [Filed Mar. 3, 1876.]



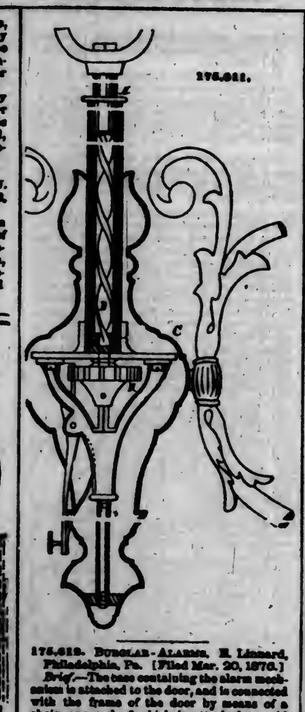
The implement herein shown and described, being composed of the stock *a* and socket *f*, brace-bars *b*, and socket *x*, formed in one piece of metal, and the blade *d*, in combination with the handle A, for the purposes set forth.

176,611. DROP-LIGHT CHANDELIERS. Gottlob Lessker, Erfurt, assignor to Berlin Lamp and Bronzing Manufactory, Berlin, Prussia. [Filed Jan. 10, 1876.]

1. The combination, in a chandelier, gasalier, or pendent lamp, of a revolving screw or spirally-twisted stem, D, with fixed suspension-tube A, chandelier C, and a device for locking the screw to the latter, substantially as herein set forth.

2. The combination of the revolving screw D, notched or toothed disk H, and spring-pressed locking-lever I with the chandelier C, fixed tube A, and sliding tube B, as and for the purposes set forth.

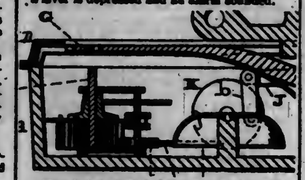
176,611.



The chain-belt D E F, in combination with the arm C, operating the stop-bar L of the alarm-hammer B, substantially as and for the purpose set forth.

176,612. BURGLAR-ALARMS. E. Linnard, Philadelphia, Pa. [Filed Mar. 20, 1876.]

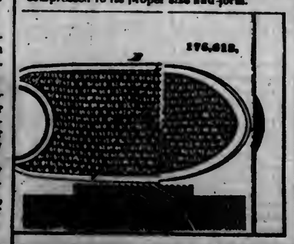
Brief.—The case containing the alarm mechanism is attached to the door, and is connected with the frame of the door by means of a chain, one end of which is attached to said frame, and the other to a sliding bolt of the alarm mechanism. An attempt to open the door draws the sliding bolt forward, whereby a lever is depressed and an alarm sounded.



The chain-belt D E F, in combination with the arm C, operating the stop-bar L of the alarm-hammer B, substantially as and for the purpose set forth.

176,613. MANUFACTURE OF BUTT-PLATES FOR FIRE-ARMS. J. F. LONG, Providence, R. I. [Filed Aug. 11, 1875.]

Brief.—The plate is first stamped in dies to nearly its required size and form; its edges are trimmed to remove the fin; it is then rebented and placed between the checking-dies, and compressed to its proper size and form.

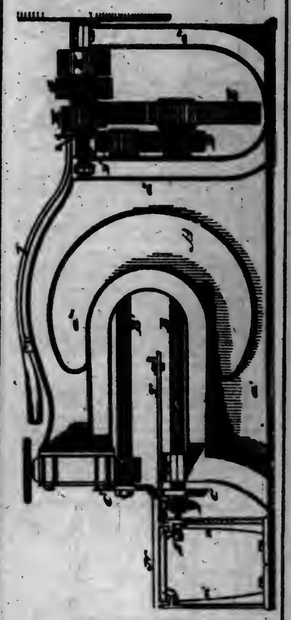


176,613.

The within-described improved method of forming butt-plates for fire-arms, whereby the plate is shaped and its surface checked or lined at the same operation, substantially as set forth.

176,614. ROTARY SHEET-METAL-SHEARING MACHINES. John J. Lucas, Belleville, Ill. [Filed Feb. 15, 1876.]

Brief.—The table upon which the plate to be cut is carried is moved on its guide-rails by a pinion upon the end of the lower center-shaft, which pinion meshes with a rack upon its under side. Springs attached, respectively, to the under side of the table at either end, encounter stops upon the guide-rails, and prevent the table from being carried so far in its movement as to disengage the rack and pinion, while at the same time they yield sufficiently to allow the pinion to turn. A system of gearing is employed which enables the workman to cause the table to be traversed either forward or back, as desired.



1. The combination of the frame A, shafts B B', wheels D D', wheel E, shafts F F', and wheels G G' and H H', operating substantially as described.

2. The combination of the frame A, shafts B B', wheels D D' E, shafts F F', wheels G G' H H', and lever I, substantially as described.

3. The combination of the wheel E, shafts F F', pulley K, wheels G G' and H H', and lever I, substantially as described.

4. The combination of the frame A, standards *a''* and *a'''*, shafts F F', fly-wheel L, pulley K, wheels G G' H H', lever I, wheels E D D', shafts B B', and blades C C', substantially as described.

5. The combination of the lever I, shafts F F', wheels G G' H H', and wheel E, substantially as described.

6. The combination of the table N, supports *a a'*, rack O, pinion P, springs Q Q', and stops R R', substantially as described.

7. The combination of the table N, supports *a a'*, blades C C', and gage T, substantially as described.

176,615. PAINT-BRUSH ATTACHMENTS. H. P. Mackintosh, Brooklyn, N. Y. [Filed Mar. 11, 1876.]

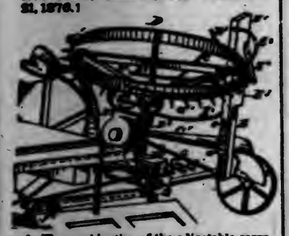
Brief.—To the ferrule of the brush is attached a hook, by which the brush can be hung upon the outside of the paint-pot, or suspended inside in the water or paint.

176,616.



The combination of the hook or projection B with the brush A, substantially as described, and for the purposes set forth.

176,618. CORN-HARVESTERS. Thomas D. McCormick, Massillon, Ohio. [Filed Jan. 31, 1876.]



1. The combination of the adjustable carrying-arms D² with the rake-wheel D and standard A', substantially as set forth.

2. The combination of the finger F² and arm F', mounted on post E', with the rake-wheel D, substantially as set forth.

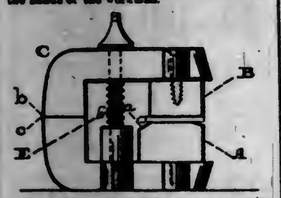
3. The combination of the fingers F² F² and their supporting-post, the finger r attached at the outer end of the cutting apparatus, and the rake-wheel D, substantially as set forth.

4. The dropper, made in two parts hinged together, substantially as set forth.

5. The dropper hinged in rear of the main frame, in combination with a guard or fender, H, which is attached to, and supported by, the main frame.

176,617. SAW-SETS. Abbott Morgan, Philadelphia, Pa. [Filed Mar. 8, 1876.]

Brief.—The anvil upon which the saw-blade is clamped is formed with a bevel at each side, over which the teeth are bent by a hammer in the hands of the workman.

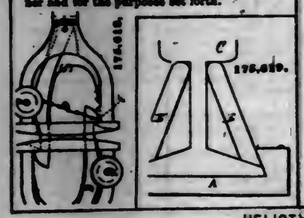


The bed A and bar B, in combination with the clamps C, formed in parts with tongue-and-groove connection *b a*, and the spring E, substantially as and for the purpose set forth.

176,618. CAR-COUPLINGS. Henry H. Morgan and Alba Gerry, Oakland, Cal. [Filed June 3, 1876.]

Brief.—The jaws are thrown out by a plate and cam.

The tripping-plate E, in combination with the cam C, when operated by means of the hand-wheel W or L and chain D, in the manner and for the purposes set forth.



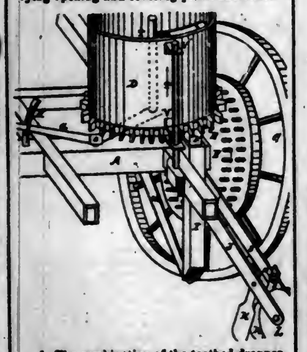
176,619. RAILROAD-RAIL JOINTS. George W. Moulton, Cleveland, Ohio. [Filed Feb. 21, 1876.]

Brief.—A rail-joint consisting of a double dovetailed sole-piece or chair, combined with inclined splice-bars, the lower edges of which are beveled to rest upon and fit the foot of the rail, while the upper edges support the heads of the rails.

The combination of the rails B C, splice-pieces M F', and solid double dovetailed chair A, all constructed substantially as and for the purpose described.

176,620. CORN-PLANTERS. Abner N. Newton, Richmond, Ind., assignor to Greenville B. Jones, Phineas Lamb, and Jos. G. Lemon, same place. [Filed Oct. 11, 1875.]

Brief.—Seed-hopper adjusted to increase or diminish rate of speed, in connection with change-wheel. Seed-disk swept in its rotation by stationary agitators for stirring the seed. Circular bar, on which the seed-disk revolves, allows chaff and dirt to escape. Hopper vertically adjustable on guide-rods by pivoted lever. Pivoted sectional cut-off made adjustable. Grain-spout adjustable with frame carrying opening and covering plows and roller.



1. The combination of the toothed dropper-wheel E, hopper D, pivot-rod T, and vertical change-wheel F, for the purpose substantially as described.

2. The conical disk A', having the stationary agitators U and pendent agitators O' attached, in combination with the hopper D, substantially as described.

3. The circular bar O, as shown and described, in combination with the dropper-wheel having the seed-cells P, for the purpose specified.

4. The combination of the bar N and circular bar O attached to the hopper, and having the horizontal toothed dropper-plate E working between the said bars, the whole sliding upon the rods T, substantially as and for the purpose described.

5. The pivoted or hinged cut-off D', made adjustable and in sections, substantially as and for the purpose specified.

6. The self-adjusting grain-spout I, having the bar M pivoted at its front end, in combination with arms J J, carrying the coverers K and roller L, substantially as shown and described.

176,621. PROCESSES OF PREPARING THE SURFACE OF WOOD-WORK OF CARRIAGES. Patrick O'Brien, South Bend, Ind. [Filed Feb. 26, 1876.]

The process herein described of preparing the surface of the wood-work of carriages and cabinet-work for the reception of the final coat of paint and varnish—that is to say, coating the surface with a solution of oil and driers in a heated condition, as and for the purpose set forth.

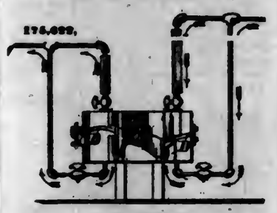
176,622. CASTING MOLD-BOARDS. J. Oliver, South Bend, Ind. [Filed Apr. 10, 1876.]

1. The process of manufacturing double-faced chilled mold-boards, substantially as described, the same consisting in casting the molten metal between vented metallic chills, while the latter are treated to a bath of hot water, whereby both surfaces of the mold-board are chilled simultaneously.

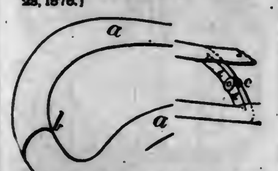
2. The combination of two counterpart chill-pans, the faces of the chills having vents for the escape of gas, one of said chill-pans being provided with a head or flange, D, upon its outer edge, the height and shape of which regulates and determines the thickness and contour of the finished mold-board, substantially as set forth.

3. The combination of two counterpart chill-pans, the faces of the chills having vents for the escape of gas during the process of casting, the space formed between the chills being of the desired size and form to be imparted to the finished mold-board, substantially as and for the purpose set forth.

176,623.

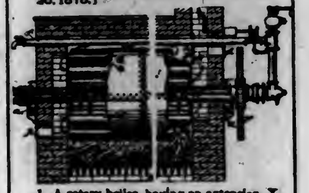


176,624. CRUPPERS FOR HARNESS. Albert H. Ordway, Groveland, Mass. [Filed Feb. 28, 1876.]



The improved horse-crupper, as herein shown, consisting of the parts a a, detached from each other at the rear, *b*, and provided at the forward end with a hinge, *c*, or flexible connection, substantially as and for the purpose set forth.

176,624. ROTARY STEAM-BOILERS. Charles W. Pierce, New York, N. Y. [Filed Jan. 26, 1876.]



1. A rotary boiler, having an extension, X, less in diameter than the outer shell, by means of which is formed an annular fire-chamber, h, and the extension and the outer tube shell are provided with tubes of unequal length, substantially as described.

2. In combination, the boiler-shell D, trunnions T, flues G and H, bucket b, damper e, doors d and p, annular chamber h, and tube f, constructed and operating substantially as and for the purpose set forth.

176,625. PACKINGS FOR CAR-AXLE BOXES. Charles T. Pierson, Ramapo, N. Y. [Filed Jan. 18, 1876.]

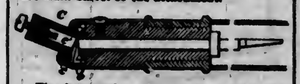
1. The new composition of matter composed, essentially, of rubber, plumbago, and wool, or their respective equivalents, mixed so as to form a homogeneous compound, substantially as and for the purpose described.

2. The new composition of matter composed of rubber, plumbago, sulpher, wool, and cork, or their respective equivalents, mixed so as to form a homogeneous compound, substantially as and for the purpose described.

3. The new composition of matter composed of rubber, plumbago, wool, and cork, or their respective equivalents, mixed so as to form a homogeneous compound, substantially as and for the purpose described.

176,626. ANGLE ATTACHMENTS FOR DENTAL ENGINES. Eli T. Starr, Philadelphia, Pa., assignor to Samuel S. White, same place. [Filed Mar. 22, 1876.]

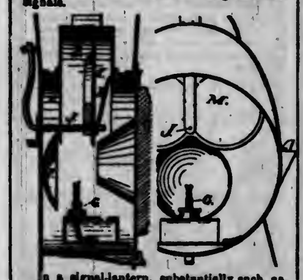
Brief.—Both the bevel-gears, by which the angle is formed, are entirely inclosed within the main barrel of the attachment.



The improved angle attachment for the hand-piece of dental engines, herein before described, consisting of the combination of the barrel, the driving-shaft mounted therein, the angle-piece, its driving-shaft, and the gearing inclosed by the barrel and angle-piece.

176,627. SIGNAL-LANTERNS. F. A. Schulz, Boston, Mass. [Filed Jan. 15, 1876.]

Brief.—Two glasses of different colors are mounted upon a shaft in such a manner that, by giving said shaft a partial turn, one or the other of the colored glasses may be brought before the light, thus allowing the colors to be changed at pleasure, for conveying different signals.



1. The combination of the rod A, spindle B, disks C C C, &c., washers *b b b*, &c., nut *b'*, and wheel D, substantially as described.

2. The combination of the rod A, spindle B, disks C C C, &c., provided with slots extending from the periphery toward the center of the disk, and forming the independent vanes *c c*, &c., washers *b b b*, &c., and nut *b'*, substantially as described.

3. The combination of the rod A and the disk C, provided with slots extending from the periphery toward the center of the disk, and forming the independent vanes *c c*, &c., substantially as described.

4. The combination of the rod A, spindle B, disk C, divided by means of the slits *s s*, &c., into independent sections, washer *b*, and nut *b'*, substantially as and for the purpose of enabling the disk to be enlarged.

5. The combination, in a fire-cleaner, of the rod A and the wheel D, substantially as and for the purpose described.

176,628. LOGGING-DOGS. Otis H. Smith, Waterville, Me. [Filed Mar. 20, 1876.]

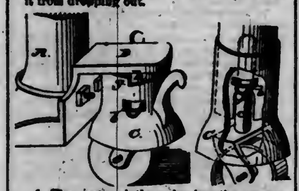


176,629.

As a new or improved manufacture, logging-dogs made, substantially as described, viz., with each sparred arm curved in two directions, essentially as set forth.

176,630. SEWING-MACHINE CASTERS. Jos. H. Strong, Des Moines, Iowa. [Filed Jan. 3, 1876.]

Brief.—A ring-shaped brake is forced down upon the caster-wheel to prevent its rotation. Inclines upon the brake and upon the stand-and throw the brake round when it is rotated. A spring-loop passes through a slot on the brake and the caster-socket, and clamps over a groove on the caster-pintle, to retain it from dropping out.



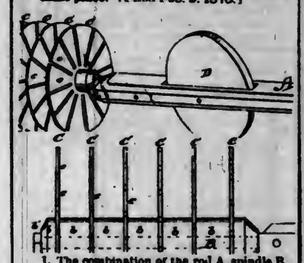
1. The caster-pintle c, having the groove *d*, the foot or socket A, having the slot *b*, the ring-formed brake C, and the securing-loop *f*, all arranged and combined substantially as and for the purposes shown and described.

2. The ring-formed brake and sleeve C, having the inclined planes *g*, in combination with a foot or bracket, D, having inclined planes A and a caster-wheel, substantially as and for the purposes shown and described.

176,631. SOAP. William Thompson, Allegheny, Pa. [Filed Sept. 24, 1875.]

The herein-described soap, consisting of olive-oil, glycerine, oil of sweet-almonds, orris-root, bicarbonate of soda, salts of tartar, and furnace-slag, substantially as described, and for the purposes set forth.

176,632. FLUE-CLEANERS. A. Schulte, St. Louis, Mo., assignor to Jos. W. Branch, same place. [Filed Feb. 9, 1876.]



1. The combination of the rod A, spindle B, disks C C C, &c., washers *b b b*, &c., nut *b'*, and wheel D, substantially as described.

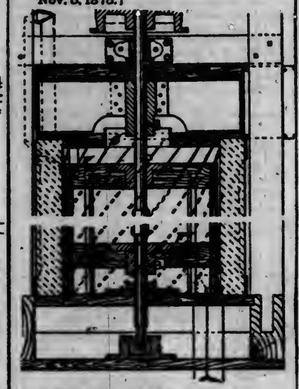
2. The combination of the rod A, spindle B, disks C C C, &c., provided with slots extending from the periphery toward the center of the disk, and forming the independent vanes *c c*, &c., washers *b b b*, &c., and nut *b'*, substantially as described.

3. The combination of the rod A and the disk C, provided with slots extending from the periphery toward the center of the disk, and forming the independent vanes *c c*, &c., substantially as described.

4. The combination of the rod A, spindle B, disk C, divided by means of the slits *s s*, &c., into independent sections, washer *b*, and nut *b'*, substantially as and for the purpose of enabling the disk to be enlarged.

5. The combination, in a flue-cleaner, of the rod A and the wheel D, substantially as and for the purpose described.

176,633. SMUT-MILLS. Pieter Van Gelder, Vryenban, near Delft, Holland. [Filed Nov. 6, 1876.]

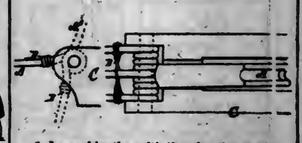


1. The combination of the hollow stationary cylinder, provided on its inside with helicoidal grooves, the revolving drum, having a perforated or open-work periphery and rough outer surface, arranged inside the cylinder, so as to leave an annular space between the cylinder and drum into which to feed the grain, and a fan, these members being constructed and operating substantially as set forth, to produce a current of air through the annular space between the drum and cylinder, as well as through the drum.

2. The combination, substantially as herein before set forth, of the hollow internally-grooved cylinder, the hollow drum therein, having openings in its periphery, and a rough outer surface, between which and the cylinder the grain-space is formed, the spindle upon which the drum is secured, the suction-fan, the fan-case, communicating with the cylinder at one end, and a single outlet for the escape of the grain and admission of air at the other end of the cylinder.

176,634. STOP-MOTION FORKS FOR LOOMS. Charles H. Worthen, Newburyport, Mass. [Filed Dec. 20, 1876.]

Brief.—The weft-fork is an improvement upon those referred to in Letters Patent No. 114,307, May 2, 1871, and No. 130,231, May 27, 1873, and differs therefrom in that it is provided with a brace, whereby the tines are prevented from spreading; and, further, that the brace is made to extend beyond the outer lines of the fork, whereby the fork is prevented (by these projections catching upon the slide) from being thrown into a vertical position.



1. In combination with the wire stop-motion fork A and its supporting-slide C, a brace, B applied and fixed to the prongs of the said fork in advance of their pivotal bellices, the same being adapted to prevent the prongs from spreading so as to bind in the supporting-slide.

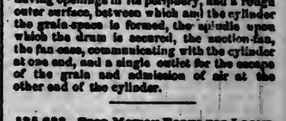
2. In combination with the wire stop-motion fork A and its supporting-slide C, as described, the brace B, adapted to connect the prongs in advance of their pivotal bellices, and made to project beyond either or both of the outermost of said prongs, as set forth, whereby the fork is prevented from being thrown into a vertical position, as shown and described.

176,635. HARVESTER-RAKES. C. D. Young, Niagara Falls, N. Y. [Filed Dec. 31, 1875.]



Grain rods or supports constructed in a circular or spiral form on the cam-way of a harvester rake, substantially as shown and described, and for the purposes specified.

176,636. BLACKBOARDS. Henry Zollinger, Hyde Park, Mass. [Filed Oct. 20, 1875.]

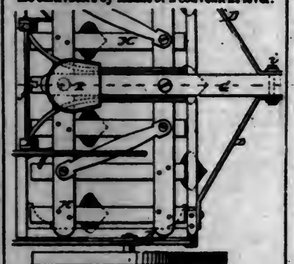


1. The frame A A, pivoted arms B B, having slots S, and the blackboard C, combined to operate substantially as set forth.

2. The frame A A, provided with pivoted arms B B, having slots S, blocks G G, acting as stops, shelf H, and wiper-basket I I, combined and arranged together substantially as and for the purposes described.

175,626. CULTIVATORS. John A. Adams, Battle Creek, Mich. [Filed Dec. 23, 1875.]

Brief.—A skeleton-frame is supported upon bearing-wheels, attached by short axles, and made vertically adjustable. The cultivating-shares are attached to a supplemental frame secured to the tongue, which, in turn, is secured to the skeleton-frame by two swiveled braces. The seat is secured to the first frame, and from which the driver can raise and lower the cultivators by means of a convenient lever.



1. The combination of the stationary main frame A, braces D D, tongue G, pivot-bolt *i*, and movable cultivator-frame H, all substantially as and for the purposes herein set forth.

2. The notched guide-plate *k* attached to the under side of the frame H, in combination with the bars L and L', as and for the purposes herein set forth.

175,627. CLASPS FOR PANTALOON-BOTTOMS. JAMES H. ANDERSON, New York, N. Y. [Filed Feb. 11, 1876.]

Brief.—The hinged spring-clasp is secured between the canvas and the cloth in the bottoms of pantaloons, which are held up behind and protected from mud and dirt by closing the clasp.



A clamp consisting of the plate A, having ears or lugs *a a*, spring B, and the plate C, having flange *b* and pivots *a a*, secured to each other as described, and adapted to be applied to the bottoms of pantaloons, substantially as and for the purpose specified.

175,628. PNEUMATIC PAPER-FEEDERS. J. T. Ashley, Brooklyn, N. Y. [Filed Oct. 26, 1872.]

Brief.—The sheet is lifted by the adjustable telescopic suction-fingers, when a blast of air from the pipes in the rear separates it from the pile below. It is then carried forward onto the feed-board, where it is given the proper register for the gripers by the vertically and laterally moving and the vibrating register-arms.

1. The reciprocating trunk *e*, carrying adjustable picking-up fingers, in combination with a feed-board, A', said board being arranged on the press-frame, substantially as described.

2. The vibrating arms e^1 e^2, in combination with trunk *e*, arms d^1, and spring d^2, substantially as described.

3. The telescopic pipes combined with picking-up fingers adjustable on trunk C, substantially as described.

4. The telescopic picking-up fingers, substantially as described.

5. The combination, with the air-trunk C, of the picking-up fingers e^1, adjustably connected by means of pivoted joints, substantially as and for the purpose set forth.

6. The air-valves *j* on reciprocating trunk, with extensions j^1 j^2, in combination with the tripping devices k^1 k^2, substantially as described.

7. The pile-tray B, having the raised surface or ridge B^1, for the purpose of bending the pile of paper into an uneven surface, thereby facilitating the separation of the sheets, as described.

8. The hinged trunk F, carrying the blast-pipes F^1, in combination with the frame-board B, substantially as and for the purpose described.

9. The self-adjusting vertically-stripping devices h^1 h^2, in combination with picking-up fingers, substantially as described.

10. The vertically-adjustable and vibrating strippers *l l*, operating substantially as specified, and for the purpose set forth.

11. The combination, with picking-up fingers, of the self-adjusting stripping devices *l l m m*, substantially as and for the purpose set forth.

12. In a machine for feeding paper, the ordinary feed board or table provided with the raised wires *b*, as and for the purpose set forth.

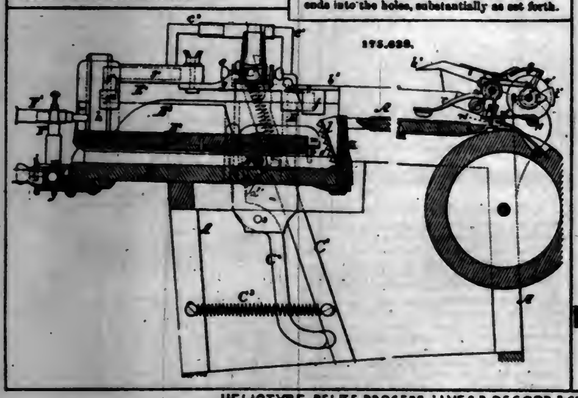
13. The depressing-fingers n^2, combined with the front guides *n* and front registering-fingers *p p*, substantially as and for the purpose set forth.

14. The vibrating registering-fingers *p p*, combined with the guides or stops n^1 n^1, substantially as and for the purpose described.

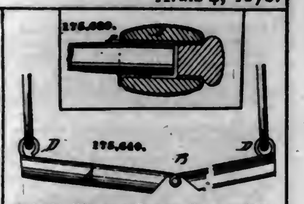
15. In a paper-feeding machine, the vertically and laterally moving registering-arm *r*, pivoted to a collar that plays loosely on a horizontal stud, *r'*, in combination with the cams *t t'* on shaft J, and a spring, *v*, substantially as and for the purpose set forth.

175,629. WHIP-FERRULES. Dexter Avery, Westfield, Mass. [Filed Feb. 14, 1876.]

An improved article of manufacture, consisting of a whip-button, either single or double, having a braided, knitted, or woven cover formed upon a mold and doubled over the ends into the holes, substantially as set forth.



175,628.



175,629.

175,640.

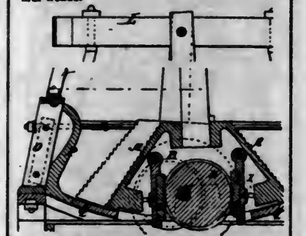
175,640. WEANING-BITS FOR CALVES. John H. Bailey and Lewis Loupee, Toledo, Iowa. [Filed Mar. 18, 1876.]

1. A section-bit made of centrally-hinged tubular sections, with open ends, the inner ends being inclined toward the hinge, substantially as and for the purpose set forth.

2. A tubular section-bit made of hinged sections, having at the outer ends fixed staples or eyes, extending to the rear for attaching the strap-rings, to prevent closing of outer open ends, substantially as set forth.

175,641. FULLING-MILLS. Joel M. Baldwin, Evans' Mills, N. Y. [Filed Feb. 14, 1876.]

Brief.—A shaft passes through an opening in the hammer-heads, and works the same by eccentric thereon, said eccentrics acting against bearing-plates pivoted inside the hammer-heads.



1. The combination of the driving-shaft C, eccentrics D, and hollow hammers A, substantially in the manner described.

2. The adjusting bearing-plates G, in combination with the hammers A and the eccentrics D, substantially as specified.

3. The metal bottom plates Q and end plates P, wood side plates R, metal frame O N, and wood cap I, combined and arranged substantially as specified.

175,642. STOVE-PIPE DAMPERS. Ashbell Barnum and J. A. Wiebert, Green Island, N. Y. [Filed Mar. 11, 1876.]

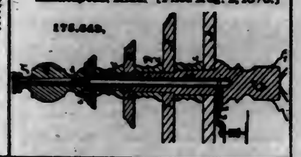


1. The circular bent damper B, provided with pivots *a a* on its concave side, and hung in projections *b* on the shaft C, as and for the purpose herein set forth.

2. The shaft C, with arm B, and hinged weighted wire G, in combination with the damper, for the purposes set forth.

3. The shank A, spring *k*, and knob D, with indexes E O S, in combination with the shaft, arm, wire, and damper, for the purposes herein set forth.

175,643. COMBINED SELF-WAITING TABLES AND AUTOMATIC FANS. C. D. Batchelor, Minneapolis, Minn. [Filed Aug. 2, 1875.]

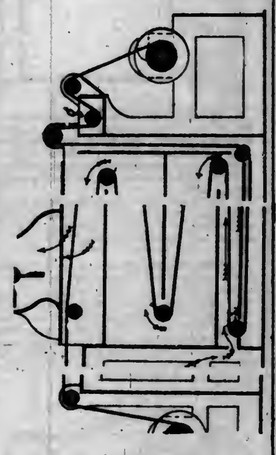


175,643.

As a new article of manufacture, a table consisting of the hollow shaft C, oscillating rods D and N, button *l*, clock-work *d*, fixed leaves A B', rotating leaves A' B, and detachable sleeves *o o' o''*, all constructed and arranged to operate substantially as described and for the purpose set forth.

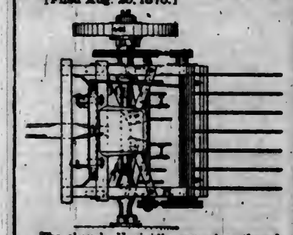
175,644. MACHINES FOR DRYING SIZED YARNS. Arthur T. Booker, Cohoes, N. Y. [Filed Feb. 11, 1876.]

Brief.—The sized yarn is conducted by rollers to and fro through a series of close chambers, a current of air being blown or drawn through the chambers along with it.



In a machine for drying yarns, the combination, with a series of air tubes or chambers, of a series of guides or guide-rolls for guiding the yarn to and fro in its passage through such chambers, and means for driving or drawing air through such tubes, substantially as shown and described.

175,645. BEAN-HARVESTERS. Ira Bentley, Howard Township, Kent County, Canada. [Filed Aug. 20, 1875.]



The shovels H, rigidly secured to the adjustable bed-piece F at each side thereof, and inclining rearwardly toward each other, in combination with the alternately-vibrating screens I, substantially as and for the purpose hereinbefore set forth.

175,646. TRACE-CLEANERS. Silas T. Bentley and Jacob Bishop, Union, Iowa. [Filed Feb. 21, 1876.]

Brief.—Scoop gathers up snow, and on pulling catch and disconnecting clutch it is dumped by its own weight.

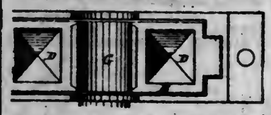
1. The combination, with the ear, having standard B, guideway *a*, and stationary cog-wheel D, of the derrick-frame C carrying the scoop, and having friction-wheels *b*, and gear-wheels *c d*, as and for the purposes described.

2. The combination, with the swinging derrick-frame, of the pivoted scoop E, pivoted frame F, bale G, cord *h*, pulley *i*, and windlass *j*, substantially as and for the purpose described.

3. The combination, with scoop E, frame F, and the derrick-frame, of the spring-catch *l*, tripping-lever I, connecting-rod *k*, cord *k'*, and windlass J, made in two sections, with a clutch-coupling and shifting-lever, substantially as and for the purpose described.

4. The combination, with the scoop E, of the cut-off K, pivoted frame L, cord *p*, pulley *q*, and windlass M, made in two pieces, and provided with a clutch-coupling, and a shifting-lever, as and for the purpose described.

175,647. GRINDSTONE JOURNALS AND HANGINGS. Solomon L. Bignall, Chicago, Ill. [Filed Feb. 14, 1876.]

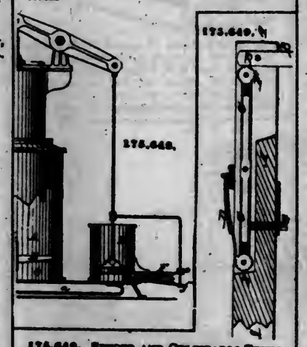


The combination of the adjustable box B, provided with oil-cups D, in combination with the frame N and cap A, as and for the purpose specified.

175,648. CALORIC ENGINES. Frank Bill, Brooklyn, N. Y. [Filed Feb. 10, 1876.]

1. The combination of tubular air-conductors with the grate of the furnace of a caloric engine and with the air-pump D and connection *c*, substantially as and for the purpose described.

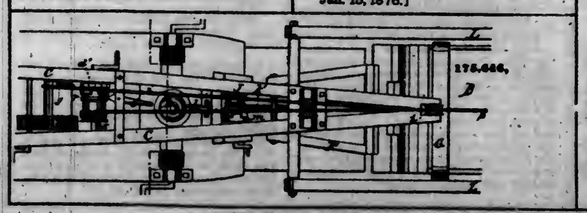
2. The combination of a pair of bellows with the air-pump D and operating mechanism, as described, and with the furnace A of a caloric engine, substantially as set forth.



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175,649. SEEDER AND CULTIVATOR TEETH. Rufus F. Billings, Kingston, Wis. [Filed Jan. 15, 1876.]



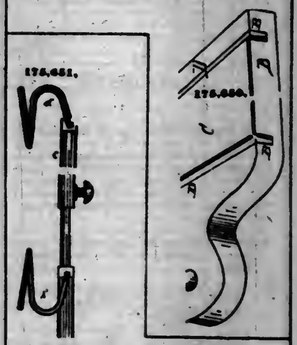
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1. The lever C, pivoted at its center in the slot of beam A, and having its opposite ends engaged by the spring D and the standard B, as shown and described.

2. The combination of the pivoted bar C, the rollers P, the spring D, and the pivoted tooth B, substantially as herein shown and described.

175,650. FLAT-IRON POLISHERS AND KNIFE-SHARPENERS. George W. Billings, Wellington, Ohio. [Filed Jan. 27, 1876.]

The herein-described flat-iron polisher, consisting of board A, having the grooves B B, the sheets of emery-paper C, and the wedges D D, all combined and arranged substantially as and for the purpose set forth.



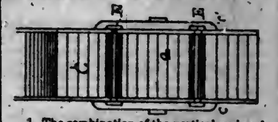
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175,651. MUSIC-RACKS. S. Tudor Bissell and Walter L. Bruce, Hartford, Conn. [Filed Nov. 29, 1875.]

In combination, rod *a*, lower support *b*, having dropped loops *b'*, sliding tube *c*, and upper support *d*, having raised loops *d'*, all substantially as described.

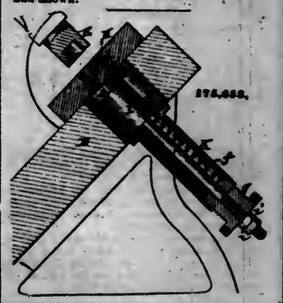
175,652. GRINDING-MILLS. O. B. Blakeslee, Rankin, Ill. [Filed Jan. 19, 1876.]



1. The combination of the vertical casing A, hopper B, stationary grinding-surface C, and reciprocating plate or grinding-surface D, when the several parts are adapted to operate substantially as described and shown.

2. The vertically-reciprocating plate D, having two sets of serrations, *b b'*, cut in its face, one in advance of the other, substantially as described and shown.

3. In a vertically-reciprocating grinding-mill, the combination of the casing A, hopper B, stationary grinding-surface C, reciprocating grinding-surface D, pitman-rod D', and adjustable rollers E, all substantially as described and shown.



175,652.

176,652. SHEET-METAL DISH. E. W. Bliss, Brooklyn, N. Y. (Filed Feb. 16, 1876.)

The combination, with the die G and its yielding ring H, of the pins d, the disconnected plunger I, the spring-tube K, the spring f, and the adjustable plug or spring support g, substantially as specified.

176,654. COMBINED SHUTTER STOPS AND FASTENERS. Frederick M. Boyce, Somerset, Mass. (Filed June 8, 1876.)

Brief.—The door-stop of ordinary style, with rubber head, such as used for a bumper, is secured in the wall of a house, on the rear of the upper end of the shutter, which is fastened at its bottom by the usual turn-buckle.



The catch C, applied opposite and below the lower end of a window-blind, in combination with an elastic strip inserted in the wall opposite the upper end of said blind, the elastic strip being of sufficient length to force the blind against the catch when in engagement, and prevent rattling, substantially as specified.

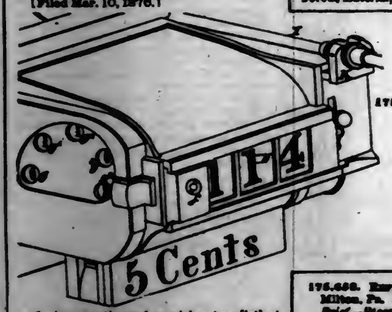
176,655. STEAM AND GAS BRACKETS. James Brady, Brooklyn, N. Y. (Filed Mar. 1, 1876.)



1. The combination, with the combustion-chamber D of the engine, of the trap G, substantially as and for the purposes herein set forth.

2. The combination of the trap G' with the exhaust-passage of the engine, and falling or inclined induction and eduction passages, connecting said trap with opposite ends of the engine-cylinder, essentially as and for the purposes herein described.

176,656. PASSENGER REGISTERS AND RECORDERS. F. W. Brooks, New York, N. Y. (Filed Mar. 10, 1876.)



176,656.

1. An operating-rod requiring two distinct movements, the last of which is effective to actuate the indicator mechanism.

2. The combination, with an indicating mechanism, of a locking device adapted to prevent the operation of such indicating mechanism correspondingly.

3. The combination, with two sets of indicators, of a shutter to give access to one set of indicators and a lock to prevent the movement of the second set when the first set is exposed, substantially as set forth.

4. The combination, in a stationary passenger-register, of the set of indicator-wheels A^1 A^2 A^3, adjustable for each day or trip, the inaccessible permanent set of register-wheels G G^1 G^2, the pull or push-rod I for operating the two sets of registers simultaneously, but independently, through connections substantially such as described, and a gong sounded at each effective movement of the rod.

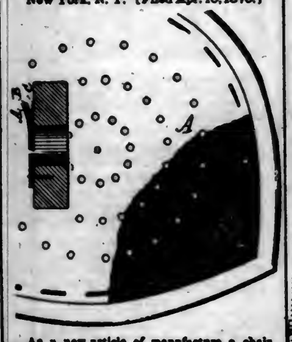
5. The stationary hollow shaft supporting the indicator-disks, and the rotary shaft within the former, in combination with the concentric ratchet-wheels, for the purpose set forth.

6. The combination, with a permanent register, of a daily or trip register, provided with one or more wheels showing visible numbers, and carrying raised characters, which will permit numbers corresponding with those exposed to view to be printed upon a trip-slip.

7. The platen, with its cam or eccentric operating-lever and retracting lug or spring, in combination with one or more indicator-disks, provided with type-projections for printing the number registered at any given time, substantially as herein set forth.

8. The fixed type for printing the number of the instrument, in combination with the indicator-disks provided with type-projections for printing the number of fares, substantially as shown and described.

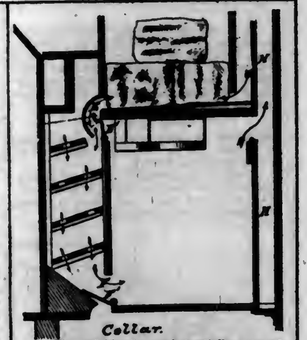
176,657. CHAIR-SEATS. Charles Brown, New York, N. Y. (Filed Apr. 10, 1876.)



As a new article of manufacture, a chair seat or back in which is combined a sheet of paper, A, sheet B of wire-cloth, and a sheet, C, of woven fibrous material, the wire-cloth being interposed between the paper and woven fibrous material, all substantially as described.

176,658. REFRIGERATORS. Gottlob Brown, Milton, Pa. (Filed Jan. 26, 1876.)

Brief.—Storage-chamber in rear of show-chambers. Passage between show-chambers, and leading into storage-chamber. Show-chambers have window-fronts and doors. Air passed at will in a circuit from ice-box down into store-room, and up at opposite side thereof again into ice-box, or from ice-box down through show-chambers, and into and upward from storage-chamber into ice-box, or from ice-box down through show-chambers into cellar, or from ice-box down a flue back of storage-chamber into cellar.

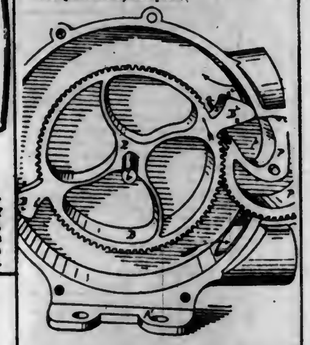


1. The combination, substantially as specified, of the elevated ice-chamber, the storage-room underneath the same, and the show cases or closets arranged in front of the storage-room, and provided with glass windows or doors, both front and rear, for the transmission of light.

2. The combination, substantially as specified, of the ice-chamber, the storage-room, the show cases or closets, the air-passages E, F, and H, and the valves therein.

176,659. WATER-METERS. John B. Button, Cleveland, Ohio. (Filed Dec. 18, 1875.)

Brief.—The gearing does not extend continuously, either around the wheel or valve, but is segmental on both, and so much of the motion as is not effected by the gearing is effected by the piston acting against the walls of the recess in the valve, and while each piston is so acting it is balanced against the water-pressure by the ports.



1. In combination with wheel B, one or more pistons B^1 B^2, and valve F, the port or ports *e' e'* opening from the inclosed spaces directly into the discharge, substantially as set forth.

2. In combination with wheel B, pistons B^1 B^2 and valve F, one or more ports, *c c*, for admitting field-pressure to the spaces inclosed, substantially as set forth.

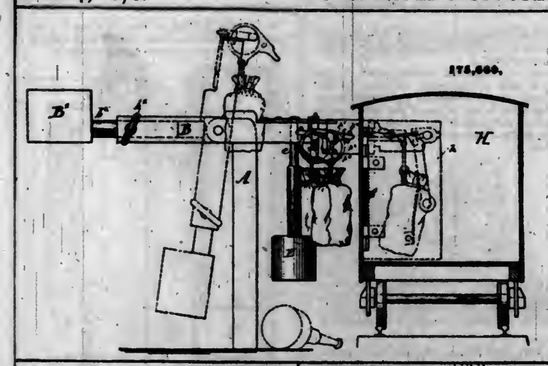
3. In combination with valve F, a port, *c*, and diaphragm *d*, substantially as set forth.

176,660. MAIL-BAG CATCHERS. Alexis P. Coubaleux, Paris, France. (Filed Mar. 7, 1876.)

Brief.—Ring for holding bag in proper position. Weight of bag opens door of car. Is caught and deposited within.

1. The combination, with the car-door h and the bag-receiving arm G carried thereby, of mechanism for opening the door and depositing the bag inside the car, actuated by the weight of the bag, substantially as herein described.

2. A suspending-ring, R, having an arm, r, with a slot or opening therein, in combination with studs or projections $p' p' p' p'$ on a delivering-beam or arm, substantially as and for the purpose herein described

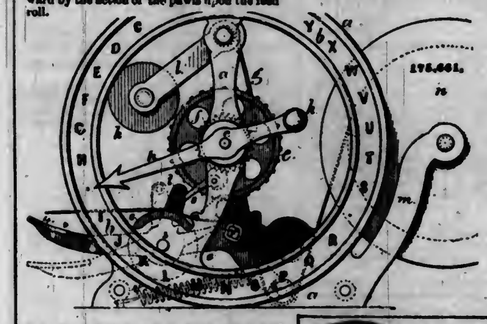


1. In a device for propelling balloons, the umbrella or umbrellas D, in combination with the shaft E, substantially as set forth.

2. A device for steering and propelling balloons, consisting of an umbrella or umbrellas and a wing or rudder, substantially as shown and expressed.

176,661. TYPE-WRITER. B. A. Calahan, Brooklyn, N. Y. (Filed Nov. 20, 1875.)

Brief.—Turning the pointer of the crank to any desired letter brings the corresponding letter on the type-wheel opposite the impression-pad. The paper, passing under the guide-roll, and over the impression-pad and feed-roll, is forced against the type-wheel by depressing the printing-lever, and is fed forward by the action of the pawls upon the feed roll.



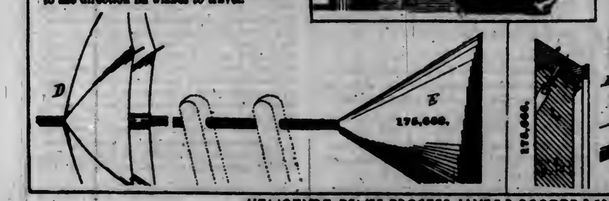
1. The printing-lever *a*, finger-rest *d*, and impression-pad *r*, in combination with the type-wheel *c*, shaft *e*, crank-handle *h*, ratchet-wheel *f*, and spring *g*, substantially as set forth.

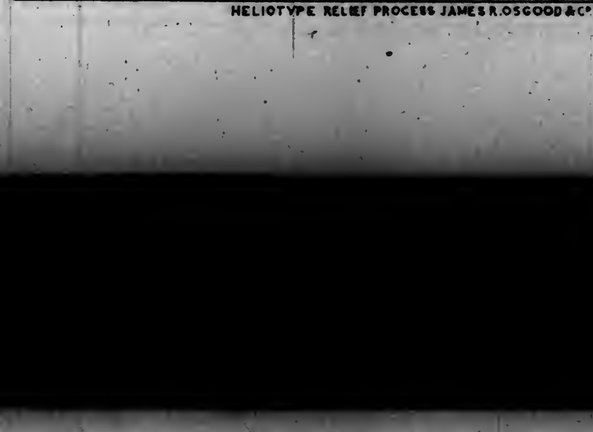
2. The printing-lever *a*, finger-rest *d*, impression-pad *r*, in combination with the feed-roller *s*, pawl *t*, and guide *6*, substantially as specified.

3. The combination, in a hand printing-instrument, of a lever, *a*, finger-rest *d*, roller *s*, guide *6*, type-wheel *c*, handle *h*, dial and pointer, substantially as set forth

176,662. PROPELLING AND STEERING BALLOONS. Daniel H. Carl, Greenwich, Ohio. (Filed Jan. 27, 1876.)

Brief.—When the shaft is thrust forward, the umbrellas will close, allowing a ready passage through the air, and when brought back the wind will open them. Thus the wind filling the inside of the umbrella and blowing against it will draw the balloon in that direction, while at the same time the wind blowing against the wing keeps the device in a proper course, the operator presenting the wing to the wind at different inclinations, according to the direction he wishes to travel.





176,663. STOVE-PIPE DAMPERS. J. Carter, Lockport, N. Y. (Filed Mar. 2, 1876.)

1. The combination, with the trunk B, consisting of a cast or sheet metal box having lugs or flanges O for attachment to a stove or furnace pipe A on one side, and its opposite end sloped, as shown, of the cover D hinged to said trunk, and provided with the pendent adjusting-rod L, having the notches F engaging with the base O of said trunk, for supporting said cover on any desired point, the whole being constructed and arranged substantially as described.

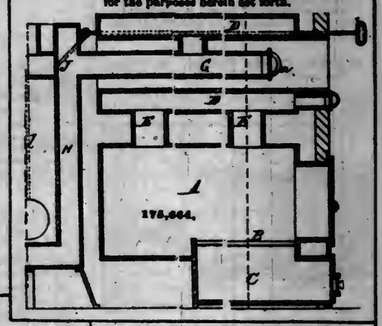
2. The combination, with the cover D, of the cord F, guide-pulleys G, having the guard *g*, rings I and H, and the pins or hooks K, said ring I being interposed between the ring H and the floor of a room at such distance above, the said floor as to allow the cover D to close without clashing the cord F, substantially in the manner and for the use and purpose set forth.

176,664. HOT-AIR FURNACES. P. B. Clark, Minneapolis, Minn. (Filed Mar. 11, 1876.)

1. The inverted-T-shaped smoke-pipe G, in combination with the horizontal drum D and vertical drum H, as and for the purpose set forth.

2. The inverted-T-shaped smoke-pipe f, with damper J, in combination with the vertical drum H, having interior partition *d*, as and for the purpose herein set forth.

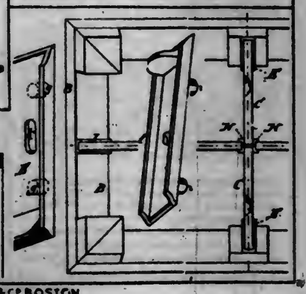
3. The combination of the furnace A, passages E, drum D, inverted-T-shaped pipe G, drum H, with air-inlet *b* and partition *d*, and inverted-T-shaped pipe I, with damper J, all for the purposes herein set forth.



176,665. BREECHING FOR HORSES. Caleb T. Cleaveland, Oldtown, Me. (Filed Sept. 20, 1875.)



As a new article of manufacture, a breeching formed with a central entering curve to fit the bams of the horse, and retained in shape by springs, substantially as set forth, for the purposes described.



HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

176,666. BILLIARD-TABLES. H. W. Collender, New York, N. Y. [Filed Mar. 6, 1876.]

1. In combination with the side bread-rails and a cross-beam, metallic shoe-pieces or holder-pieces, and a bolt or nut, or other device, for fastening the parts together, substantially as and for the purpose set forth.

2. In combination with the cross-beam of a table-frame and the longitudinal beams or bars, metallic shoe-pieces adapted to be secured on either side of the cross beam, and to hold laterally and vertically support the ends of said longitudinal beams, substantially as described.

3. In combination with the end "bread-rails and longitudinal beams or bars, metallic stands adapted to hold laterally and vertically support the ends of said longitudinal beams, as set forth.

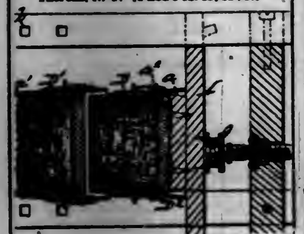
4. Shoe-pieces or castings adapted to be secured upon the opposite faces or sides of the cross-beam, and having tenons or lugs, which penetrate the beam and come together, substantially as and for the purpose described.

176,667. BARBED-WIRE FENCING. Myron W. Colwell, Dunlap, Iowa. [Filed Jan. 29, 1876.]



The combination, with a fence-wire, of four pointed barbs, formed of two short pieces of wire twisted together between their ends, and secured to the fence-wire by turning the prongs around the shoulders formed by offsets in the fence-wire, substantially as and for the purpose specified.

176,668. CHURN-PERSON. E. Cooper, Theresa, N. Y. [Filed Feb. 16, 1876.]

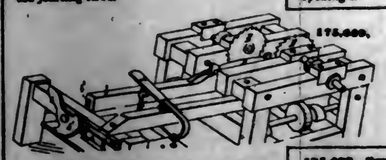


1. The followers A A, having the disks a a secured thereto, in combination with the bandager D² and hoop D', substantially as and for the purpose set forth.

2. The churn-hoop having the bandager D², consisting of the rim d² and hoop d', rivets or otherwise united together, fitting upon the hoop, and connected thereto by hooks and eyes or other suitable medium, substantially as and for the purpose set forth.

176,669. MACHINES FOR JOINTING STAVES. Harry B. Cornish and C. P. Hunt, Minneapolis, Minn., assignees of two-thirds their right to D. Putnam & Co., River Falls, and Israel Greaves, Hudson, Wis. [Filed Dec. 4, 1875.]

Brief.—The staves are placed upon an oscillating frame, which reciprocates between the jointing-saws.

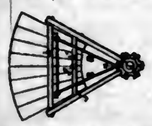


1. The combination, with the form B, having hook f and spring-hook f', of the spring-lever a, connecting-rod a', and foot-lever a², for the purpose specified.

2. The combination, with the spring-pawl h, of the connecting-rod a and pivoted and slotted foot-lever a², for the purpose specified.

176,670. WINDMILLS. Giles Cranston and Elijah L. Cortell, Marshall, Mich. [Filed Sept. 7, 1875.]

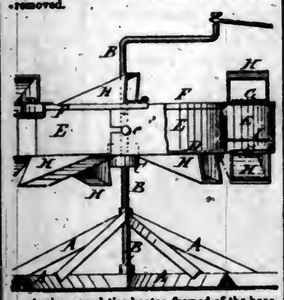
Brief.—A triangular arrangement of the rods, to form a connection between the sections and the slide-head, so as to turn out at right angles to the plane of the wheel upon an axis in the plane of the wheel, and at right angles to the radius through the center of the motion.



In a windmill, the triangular arrangement of the rods a a, to form a connection between the sections and the slide-head, substantially as and for the purpose shown and described.

176,671. TIRE-HEATING FURNACES. Nathal. Crank, Winslow, Mo. [Filed Mar. 6, 1876.]

Brief.—Two sets of openings provided with hoods and grates. The hoods of the set at the under side of the tire-box open forward to collect the air, while those of the hinged covers open rearward to facilitate the escape of smoke and gases. The tire-box is rotated by means of a crank and rod, thereby creating a blast, which causes the fire to burn fiercely. The hinged covers are turned back out of the way when the heated tire is to be removed.



An improved tire-heater, formed of the base A, the shaft B, the hub and spokes C D, the sectional ring-box E, provided with the cross-bars I, and having openings in its bottom, provided with grates G and hoods H, and the sectional ring-cover F, having openings in it, provided with grates G and hoods H, substantially as herein shown and described.

176,672. CHISELS FOR CUTTING HOLES IN MASONRY. Alba. H. Crump, Philadelphia, Pa. [Filed Mar. 14, 1876.]



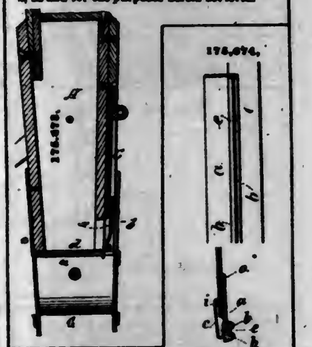
1. The hollow toothed chisel, constructed substantially as shown and described.

2. The hollow chisel A, provided with the series of pointed teeth b and the discharge-opening a.

176,673. SEED-DROPPERS. Saml. R. Davis, Hamburg, Iowa. [Filed Jan. 13, 1876.]

1. The combination of the box A, with horizontal bottom c, slide C, with recess g and slide b, flanged plate d and spring e, substantially as and for the purposes herein set forth.

2. The combination of the chamber E with mouth C, and the pivoted side C' with spring h, as and for the purposes herein set forth.



176,674. SKIRT-PROTECTORS. Theodore D. Day, Elizabeth, N. J., assignor to Sallie V. Day, same place. [Filed Mar. 6, 1876.]

The skirt-protector made of a strip of ribbed india-rubber, a b b, and a braid, c, attached together by a line of stitching, c, that is protected by the rib of the india-rubber, substantially as set forth.

176,675. INDEXING-ROLLERS. John W. Dinhoid and Henry F. Linnemeyer, St. Louis, Mo. [Filed Feb. 28, 1876.]

Brief.—By the turning of the central tapering bolt, screw-threaded at the end a series of radial type-sockets carrying types are pressed outward, thus increasing the distance between the types.

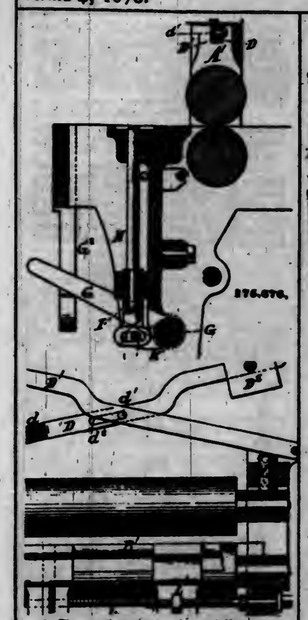
1. In an indexing-roller, the combination, with a radial series of type-sockets, of a central tapering expanding bolt, as and for the purpose described.

2. The combination of disk B, having radial grooves, the type-sockets C, having ribs c, the type D, having stem d, and the clamping-ring E, held by binding-screws f, as and for the purpose described.

3. The combination of interiorly screw-threaded hub A, carrying disk B, the type-sockets C, type D, clamping-ring E, the central screw-threaded bolt, having a tapered middle portion, and the handle G H, substantially as and for the purpose described.

176,676. FLAXINE-MACHINES. William H. Deane and George W. Bogbee, Cincinnati, Ohio. [Filed July 13, 1876.]

Brief.—The upper feed-roll is vertically adjustable by means of weighted levers, arranged directly above it, and in planes parallel to its axis. The matching-arbors are simultaneously adjustable vertically by a vertical movement of the bearings, in which they are stepped at the lower ends, imparted by crank-arms on a rock-shaft, which engages with said bearings, and are independently adjustable laterally by screw-spindles arranged in the upper part of the main frame, which engage with nuts on brackets, through which the arbors pass. The screw-spindles are prevented from turning, and locked in position, by wedges caused to operate on both spindles by tightening a screw fitted in the hub of a bearing-plate which contains the wedges.



1. The combination, substantially as set forth, of the yielding roll, the housings, and the weighted levers arranged side by side over the roll and parallel to its axis.

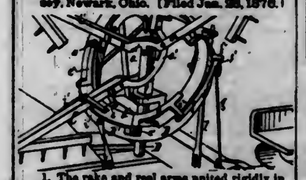
2. The adjustable feed-roll, in combination with the weighted levers D and D' suspended over it side by side, in planes parallel to its axis, and connected together by a pin, d', fixed on one, and playing in a slot, d², in the other, substantially as specified.

3. The combination of the rock-shaft G, crank-arms K K, vertically-sliding steps I I', and matching-arbors H H', substantially as specified.

4. The combination of the screw-spindles L and L', wedge or wedges m, and thumb-screw N, substantially as specified.

5. The combination of the rail e and shaft G, with the brackets F F', arbors H H', sliding steps I I', and crank-arms K K, all arranged to operate as specified.

176,677. HARVESTER-RAKES. Owen Dorsey, Newark, Ohio. [Filed Jan. 28, 1876.]



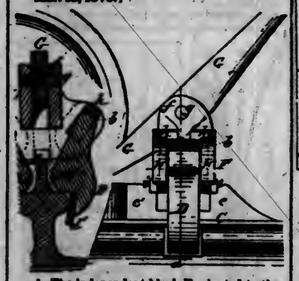
1. The rake and reel arms united rigidly in pairs, substantially as described, in combination with a cam adapting said arms to pursue different paths, and acting on the retaining inoperative arm, for holding the operative arm down to its work when acting as a rake-arm.

2. The rake and reel arms rigidly united in pairs, as described, in combination with the inclined double cam way or track D, for causing the rake and reel arms to pursue different paths, for the purpose and substantially as described.

3. The inclined cam D, provided with the groove d, or double-track portion D', and the yielding portion D² D², substantially as and for the purpose set forth.

4. The rake and reel arms rigidly united in pairs, and provided with the rollers e and arms f, in combination with the grooved way d, gate c, and lever f, arranged and operating substantially as described.

176,678. FINGER-BARS FOR MOWING CARS. Henry B. Dunson, Wilmington, Del. [Filed Mar. 15, 1876.]



1. The independent block F, pivoted to the lever G, in a vertical line with the jaws D, and combined therewith and with the bearing-plate C, to have a vertical movement thereon and independent thereof, substantially in the manner and for the purpose set forth.

2. The combination, with the independent block, provided with the shoulders f f of the guide-ribs e e', of the bearing-plate C, whereby the block is compelled to move vertically in relation to said bearing-plate and the clamping-jaws.

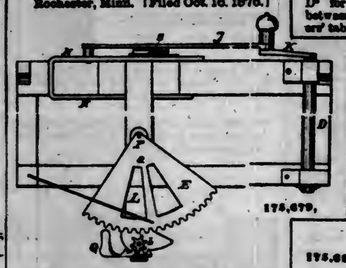
3. The combination, with the bearing-plate C, of the jaws D, hinged directly thereto, the independent vertically-sliding block F, having the upper converging grooves h h for the jaw-studs b b, and the lever G, substantially as and for the purpose described.

4. The steel plates d' of the clamping-jaws D, beveled at their front ends, and squared at their butts, as and for the purpose set forth.

5. The clamping-jaws D, provided with the round studs b b on opposite sides of their upper ends, and combined for operation with the opposite converging grooves h h in the guides H H of the independent lever-block, whereby the studs are allowed to assume different positions in the grooves, according to the angles made by the jaws with each other.

6. The clamping jaws D, arranged in vertical line with the pivot g of the lever G, to obtain the advantages stated.

176,679. GRAIN-BINDERS. John Edgar, Rochester, Minn. [Filed Oct. 16, 1876.]



1. The combination of the crank K, the pitman J, and slotted carriage H f, for giving reciprocating movement to carriage, as set forth.

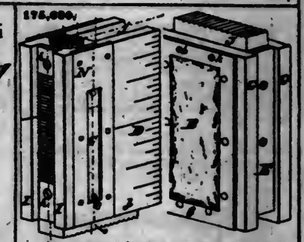
2. The combination of the crank K, the pitman J, and slotted crank E, for giving motion to the shaft O, as set forth.

3. The devices for putting the twister-pinion in and out of gear with the rack E, consisting of a combination of the cam M, a spring, c, the shaft O, and crank E, as set forth.

4. The rack P, shaft O, cam M, arm Q, and twister-pinion, for half rotating the twister-pinion and locking it when out of gear, as set forth.

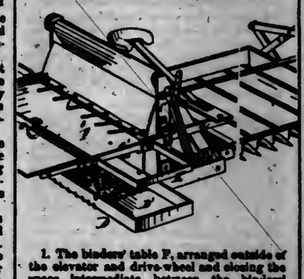
5. The combination of the shaft O, rack P, and arm Q with the twister-pinion, as set forth.

176,680. SCHOLARS' COMPANIONS. Charles P. Ellis, Parker City, Pa. [Filed Oct. 16, 1876.]



As a new article of manufacture, the scholar's companion, consisting of the block A, slate and lead pencil sharpeners, paper-cutter, ink and pencil erasure, and pin-cushion, as set forth.

176,681. HARVESTERS. John H. Heward, St. Paul, Minn. [Filed May 27, 1875.]

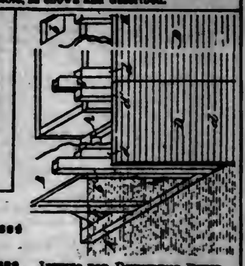


1. The binders' table F, arranged outside of the elevator and drive-wheel and closing the space intermediate between the binders' stands, located one in front and the other in rear of said table, as described.

2. The binders' grain-receptacle and binders' table, arranged in the described relation to each other and to the driving-wheel and elevator, in combination with the binders' stands D' D', arranged in front and rear of said receptacle and table, as described.

3. The binders' stands D' D', arranged in front and in rear of the binders' table, as described, in combination with the receptacle D² for the shattered grain, intermediate between said stands and underneath the binders' table, as shown and described.

176,679,



176,682. JETTIES FOR DEEPENING RIVER-CHANNELS. Primus Emerson and James Doyle, St. Louis, Mo. [Filed Feb. 26, 1876.]

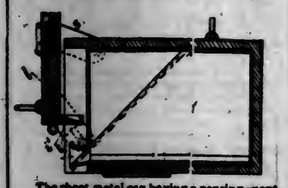
1. The apparatus consisting of the bottom A, box or chamber B, having openings b, forming box-dams, constructed as specified, weighted and submerged in manner herein shown and described, by means whereof the closed outer side of the said submerged box-dams concentrates the current or waters in the required direction to remove bars and deepen channels of rivers.

2. In combination with the box-dams, constructed as specified, weighted and sunk in the manner herein shown and described, the dams or gates D, made in sections, by means whereof the undermining action of the current or waters can be followed up, and the said box-dams kept submerged and sustained in position to form permanent bars or jetties, all as herein described.

176,685. PAINTS. John Fetzer, Rolla, Mo. [Filed Feb. 8, 1876.]

A paint consisting of fire-proof clay, sulphate of lime, sulphate of barium, calcined magnesia, bleached glue, tragacanth gum, stone, linseed-oil, shellac, and water, in the proportions substantially as herein set forth and described.

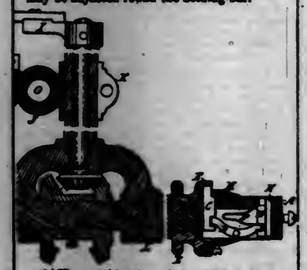
176,686. OIL-CANS. Jos. S. Field, Brooklyn, N. Y. [Filed Feb. 4, 1876.]



The sheet-metal can having a pouring-spout, a, at the top, and inclosed in a wooden case, the front of which does not extend up as high as the pouring-spout, in combination with the cover i, front piece b, and links s and t, that connect the cover to the box, and allow it to be swung open, as set forth.

176,687. PIPE-CUTTERS. Wm. R. Farber, Meadville, Pa. [Filed July 12, 1875.]

Brief.—An upright holding-bar is expansibly clamped in a face. On a horizontal arm adjustably clamped thereto is clamped a hollow bar, through which passes a shaft, operating, by bevel-gears, the shaft of the revolving cutter, which is protruded by a pivoted lever actuated by an eccentric sleeve. The cutter-shaft may be adjusted to set on all faces within the circle over which the horizontal arm may be adjusted round the holding-bar.



1. The combination of the shaft A, cutter B, slide C, lever D, key E, eccentric E, spring F, and cutter M, constructed and operated as described, and for the purpose set forth.

2. The combination of the right-angled clamp-sleeves J and K with the frame L and bar O, and with the clamp-sleeve on bar O and the bar P, the whole being constructed as described, and for the purpose set forth.

176,688. PUMPS. John K. J. Foster, Horbury, near Wakefield, England. [Filed Dec. 10, 1875.]

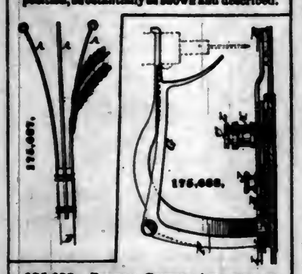
Brief.—The displacer is formed of hollow cylindrical sheet metal, with a tube running through the same, so that several displacers may be placed upon the same pump-stem, if desired.



The combination, with the pump-barrel and the pump-spear, of the cylindrical displacer a, having an open longitudinal slot, f, running therethrough and forming a detachable air-tight displacer, as and for the purpose described.

176,689. MANUFACTURE OF PLUMES. Alba A. Freeman, Philadelphia, Pa., assignor to Amanda Griffiths, same place. [Filed Dec. 7, 1875.]

In a frame for supporting the feathers of a plume, the combination of the curved-wire branches A A A with the straight stem B, and arranged to retain the feathers in a fixed position, substantially as shown and described.



176,690. BUTTON-SEWING ATTACHMENTS FOR SEWING-MACHINES. John W. Price, Salem, N. C. [Filed Jan. 7, 1876.]

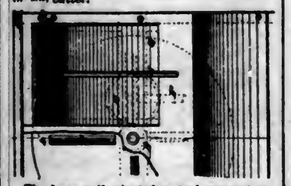
Brief.—A clamp, for holding a button in proper position for being sewed on, is vibrated back and forth on a pivot by a bell-crank lever having a vibrating cone on its lower end, which acts in connection with a wedge-shaped projection on a plate adjustably attached to the upper jaw of the said clamp.

1. The combination of the lever F G and vibrating cam D with the vibrating clamp A B and the angle-piece E, substantially as specified.

2. The combination of the vibrating clamp-plate B, having angles or corners l, with the vibrating cam D, provided with beds H, substantially as herein specified.

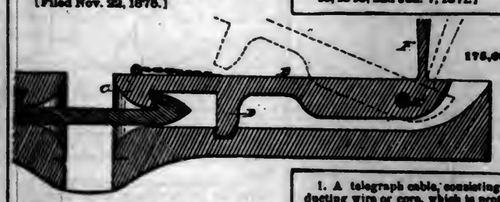
176,691. VEGETABLE-CUTTERS. Martin Gillespie, East Palestine, Ohio. [Filed Jan. 15, 1876.]

Brief.—The hopper is hinged to the frame of the cutter.



The hopper G, pivoted at its lower end to case A in front of an opening in the latter, as and for the purpose specified.

176,692. CAR-COUPLINGS. David T. Gilliam and Charles F. Gilliam, Nelsonville, Ohio. [Filed Nov. 22, 1875.]



The combination of draw-head, having countersunk or open-top drop-latch B, pivoted at B, and provided with shoulder D and handle F, and coupling-bar, having catches C C, all substantially as specified.

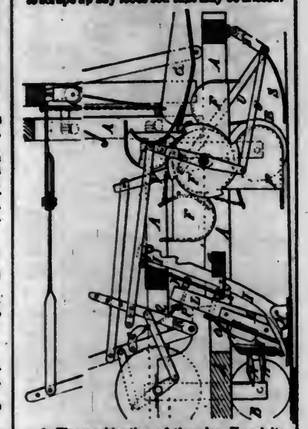
176,693. SOLDERING-TOOLS. A. Gootee, Baltimore, Md. [Filed Jan. 26, 1876.]



The tube C, having screw-stems s s rigidly united thereto, in combination with the clamping-nuts, and the copper soldering-blocks E E, having perforated upper ends, as and for the purpose described.

176,694. DITCHING-MACHINES. Hyacinthe Gonzlez, Vermillionville, La. [Filed Feb. 9, 1876.]

Brief.—An excavating-machine with adjustable plows and colters, and a revolving wheel with buckets, which deliver the earth on a pivoted discharge-pan suspended on a crane. A shovel at the rear end of the wheel is operated by pivoted bars and pawl-levers, to scrape up any loose soil that may be missed.



1. The combination of the plow H and its standard I with the frame A and the ditching-wheel F, substantially as herein shown and described.

2. The combination of the rod K, the block L, the colters M, the scrapers and spring N O, and the crank-arm and connecting-rod P Q, with the frame A, the plow H I, the ditching-wheel F, and the lever R that drives said ditching-wheel, substantially as herein shown and described.

3. The combination of the shovel S and its pivoted bars T U with the frame A and with the pawl-bars V that drive the ditching-wheel F, substantially as herein shown and described.

176,695. TELEGRAPH-WIRES. Timothy Gordon, Taunton, Mass., administrator of William Gordon, deceased. [Filed May 13, 1848, and Jan. 7, 1871.]

1. A telegraph cable, consisting of a conducting wire or core, which is protected from external injury, and relieved in a great measure from strain, by strands of hemp or other fibrous material laid up, substantially as above described, and duly insulated electrically by the use of gutta-percha, or other non-conducting substance, the whole being thus left sufficiently flexible for the purpose contemplated.

2. In the construction of a telegraph-conducting wire or cable, the employment of strands of hemp or other fibrous substance, laid up around the wire in the form of a rope or its equivalent, so as to give great longitudinal strength to the cable, while it is left sufficiently flexible for its intended use, substantially as and for the purpose described.

3. In a telegraph-conducting wire or cable, which is surrounded and strengthened by strands of a fibrous material, laid up around the wire in the form of a rope or its equivalent, so as to give it extraordinary longitudinal strength, while it thus protects the said wire from injury, and at the same time leaves it flexible, I claim the use of gutta-percha as an insulating substance, substantially as set forth and described.

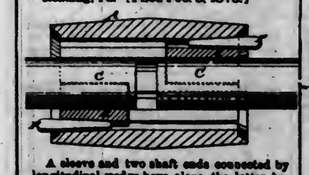
176,696. SPONGE-CUPS. William R. Gratz, Baltimore, Md. [Filed Mar. 10, 1876.]



The combination, with a water-reservoir and a perforated sponge-receptacle contained therein, of a spring arranged to hold the sponge in an elevated position, as described, and for the purpose set forth.

2. The combination of the case A, reservoir B, spring C, sponge-receptacle D, the sponge E, fibrous facing F, fastening-band a, and the flanged ring b, substantially as described and for the purpose set forth.

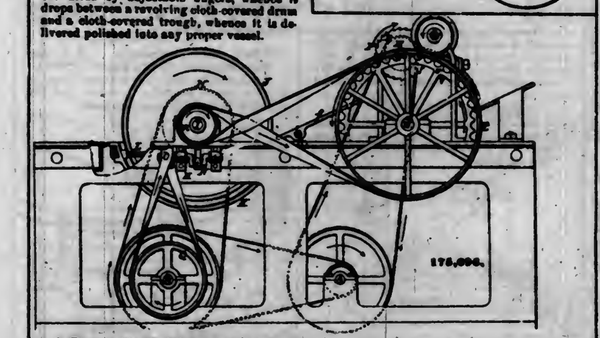
176,697. SHAFT-COUPLINGS. S. M. Gunn, Reading, Pa. [Filed Feb. 5, 1876.]



A sleeve and two shaft-ends connected by longitudinal wedge-keys alone, the latter being driven diametrically on opposite sides of the shaft-ends between the bushings and the sleeve, as and for the purpose specified.

176,698. CANDLE-DIPPING AND POLISHING MACHINES. Chas. F. Hall, St. Louis, Mo. [Filed Jan. 11, 1876.]

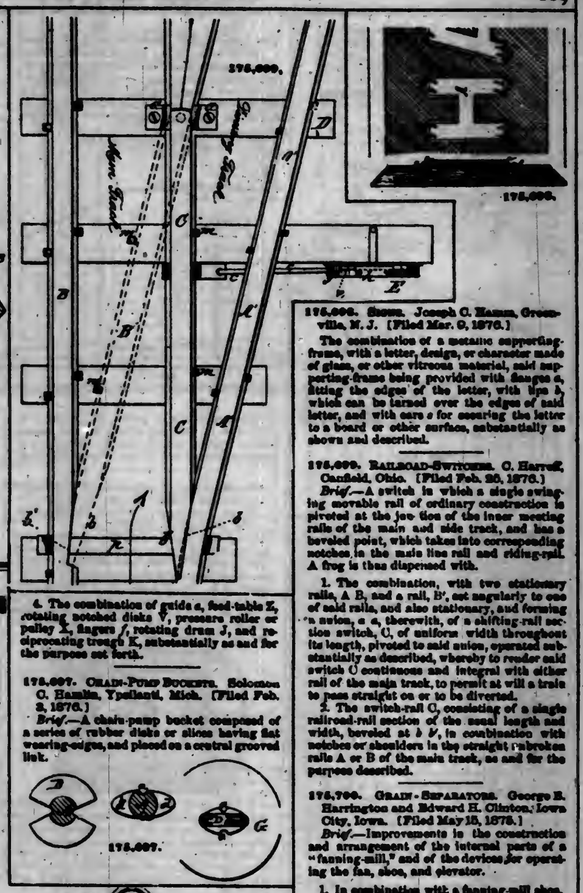
Brief.—The candles are placed on an inclined shelf, their wick-ends against an adjustable guide, are caught one by one by curved hooks on revolving disks, and borne onward under a wheel, which holds each near its butt-end while a revolving knife evenly cuts off the butt. The candle is removed from the disks by adjustable fingers, whence it drops between a revolving cloth-covered drum and a cloth-covered trough, whence it is delivered polished into any proper vessel.



1. The combination of the clothed drum J and lined trough K, having the described reciprocating motion, substantially as and for the purpose set forth.

2. The combination of notched disks V and rotary cutter F, substantially as and for the purpose set forth.

3. In combination with the notched disks V, and trough and drum J K, the inclined fingers f, substantially as and for the purpose set forth.



4. The combination of guide a, feed-table Z, rotating notched disks V, pressure-roller or pulley X, fingers f, rotating drum J, and reciprocating trough K, substantially as and for the purpose set forth.

176,699. GRAIN-PUMP BUCKETS. Solomon C. Hamlin, Ypsilanti, Mich. [Filed Feb. 3, 1876.]

Brief.—A chain-pump bucket composed of a series of rubber disks or slices having flat wearing-edges, and placed on a central grooved link.

1. A chain-pump bucket composed of a series of rubber disks or slices having flat bearing-edges, and placed on a central link, substantially as herein set forth.

2. The combination of the grooved link A with flange B, eyes C D, and projections d, and the sliced rubber G, placed thereon, and having flat bearing-edges, substantially as and for the purposes herein set forth.

176,700. STOVES. Joseph C. Hamm, Greenville, N. J. [Filed Mar. 9, 1876.]

The combination of a metallic supporting-frame, with a letter, design, or character made of glass, or other vitreous material, said supporting-frame being provided with flanges a, fitting the edges of the letter, with lips b, which can be turned over the edges of said letter, and with cars c for securing the letter to a board or other surface, substantially as shown and described.

176,701. RAILROAD-SWITCHES. C. Harrod, Canfield, Ohio. [Filed Feb. 26, 1876.]

Brief.—A switch in which a single swinging movable rail of ordinary construction is pivoted at the junction of the inner meeting rails of the main and side track, and has a beveled point, which takes into corresponding notches in the main line rail and riding-rail. A frog is then dispensed with.

1. The combination, with two stationary rails, A B, and a rail, B', set angularly to one of said rails, and also stationary, and forming a union, a a, therewith, of a shifting-rail section switch, C, of uniform width throughout its length, pivoted to said union, operated substantially as described, whereby to render said switch C continuous and integral with either rail of the main track, to permit at will a train to pass straight on or to be diverted.

2. The switch-rail C, consisting of a single railroad-rail section of the usual length and width, beveled at b b', in combination with notches or shoulders in the straight unbroken rails A or B of the main track, as and for the purpose described.

176,702. GRAIN-SEPARATORS. George B. Harrington and Edward H. Clinton, Iowa City, Iowa. [Filed May 15, 1876.]

Brief.—Improvements in the construction and arrangement of the internal parts of a "fanning-mill," and of the devices for operating the fan, shoe, and elevator.

1. In combination with a fanning-mill shoe, constructed with an upper perforated sieve, H, and a lower perforated sieve, J, the sieve H', perforated from a line drawn transversely at or near its center to its edge farthest from the fan, substantially as and for the purpose described.

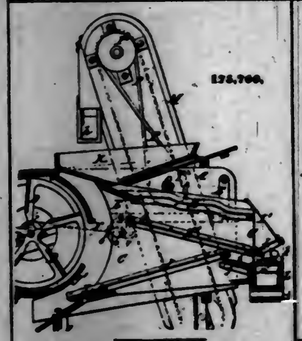
2. In combination with a fanning-mill shoe, constructed with an upper perforated sieve, H, and a lower perforated sieve, J, and the sieve H', perforated from a line drawn transversely at or near its center to its edge farthest from the fan, the deflecting sieve or perforated cut-off I, substantially as and for the purpose described.

3. The auxiliary separator L, constructed to discharge at opposite ends, and provided with the imperforate plate m and the perforated plate or sieve m', the wing-shelf i for attaching it to the ledges j of the fanning-mill, and the hooks k, substantially as and for the purpose described.

4. The combination of the angular eye-bearings b b, with the wrists a a of the shoe, and with the screw-threaded pitmen F F of the cranks d' d of the fan-shaft, substantially in the manner shown and described.

5. In a fanning-mill fan, the blades attached to the end or head pieces of the fan by dovetails and shoulders, substantially as described.

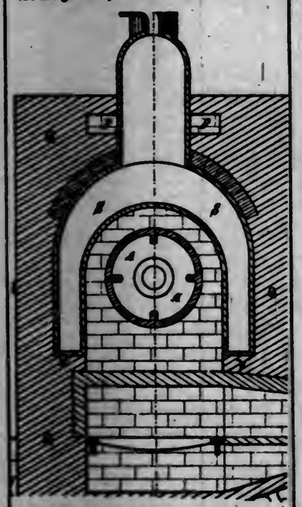
6. The combination of the main driving-shaft O, provided with pulleys P' and P², with the fan-shaft having a crank-pulley, P', for actuating the shoe, and with the pulley P², which drives the elevator, the parts being arranged as described, and operating substantially as herein set forth.



175,700.

175,701. APPARATUS FOR OXIDIZING METALS. G. L. Harrison, Jr., and M. C. Wilson, Philadelphia, Pa. [Filed Nov. 30, 1875.]

Brief.—A boiler surrounds, except on the under side, a revolving roaster, beneath which the fire-grate is placed.



In an apparatus for oxidizing metals, the combination of the rotary chamber A and arch-shaped boiler S, the crown-sheet of which acts as a reverberating surface to the chamber, and a furnace, substantially as and for the purpose specified.

175,702. GUN-SIGHT. A. G. Haskell, North Andover, Mass. [Filed Mar. 1, 1876.]

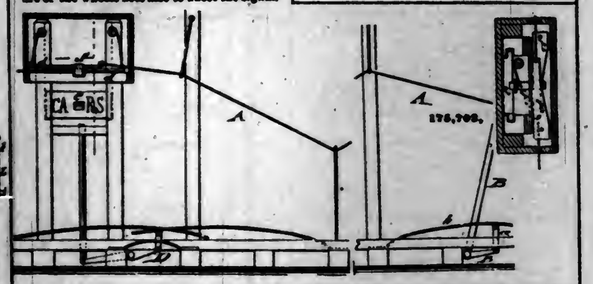
Brief.—By observing the position of the bubble in the spirit-level, when the object aimed at is in full view, the same range in a vertical plane may be obtained, although the object be obscured by smoke, darkness, or otherwise, by bringing the bubble to the same position.



The combination, with a fire-arm, of a graduated spirit-level for determining the range of the fire-arm, substantially as specified.

175,703. RAILROAD-SIGNALS. J. W. Hawley, Warsaw, N. Y. [Filed Feb. 28, 1876.]

Brief.—The pressure of the car-wheels actuates mechanism to set the signal in advance, to indicate the approach of the train. When the train arrives opposite the signal, the pressure of the wheels acts also to unset the signal.



The combination of band A, link a, crank B, and wire A, with the sliding spring wedge-plates *d*, spring-bolt *d'*, and the signal-arm *c*, substantially as and for the purpose specified.

175,704. SPARK-ARRESTING, HEATING, AND SOOT-GATHERING. Daniel Hawkesworth, Digby, and Henry Colford, Halifax, Canada. [Filed Feb. 15, 1876.]

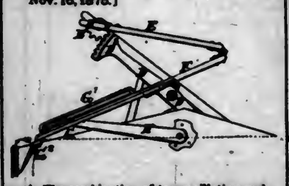
Brief.—A spark-arresting, heating, and soot-gathering device, consisting of a casing having within spirally and circumferentially arranged plates, that are removable, and which increase in length from the bottom upward, for the purpose of creating a more even draft, and also arranged to overlap at their sides as well as at the ends, for the purpose of arresting the products of combustion.



1. In a spark-arrester, heater, or soot-gatherer, constructed substantially as herein before described—that is, with a series of interior plates arranged circumferentially and spirally so as to overlap each other at the sides—the removable plates *c*, substantially in the manner and for the purpose herein shown and specified.

2. The combination of a smoke-stack or drum, A, with a system of circumferentially and spirally arranged plates that increase in size from the bottom upward, substantially in the manner and for the purpose herein shown and specified.

175,705. HARVESTER-RAKES. P. F. Hodgen, Massillon, assignor of one-half his right to Hoover & Co., Miamisburg, Ohio. [Filed Nov. 16, 1875.]

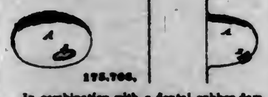


1. The combination of two oscillating rack-bar D, arm E, and segment E', arm F, slot G', and crank H, for sweeping the rake over the platform, substantially as set forth.

2. In combination with an arm, E, pivoted to the end of the rake-arm F, and oscillating rack-bar D, to project and retract it, the crank H, having stud on its outer end engaged with a slot in the rake-arm, to give it transverse movement across the platform, while it allows the other movement, substantially as set forth.

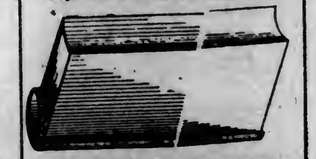
175,706. DENTAL RUBBER DAMS. Henry O Howells, Flushing, N. Y. [Filed Mar. 16, 1876.]

Brief.—A mirror is affixed to a dental rubber dam, to relieve the dentist from the trouble of holding it.



In combination with a dental rubber dam, the mirror furnished with the attaching device B, or any equivalent thereof, all substantially as set forth.

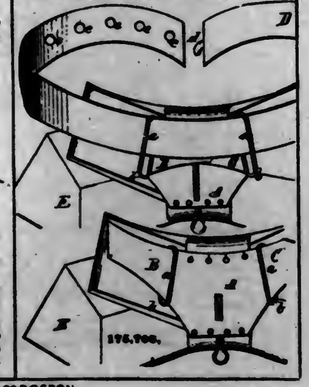
175,707. BOOK-BINDING. Asor Hoyt, Brooklyn, and H. M. Hoyt, New York, N. Y.; said Asor Hoyt assignor to said H. M. Hoyt. [Filed Feb. 18, 1876.]



A book of flexible material, bent inward at the edges, as shown, in combination with curved pins adapted to be inserted through the back margin of the matter to be bound, and projecting under the bent edges of the back, to hold it in place, Fig. 3, as and for the purposes described, to wit: To provide an economical and durable binding for books and other similar matter.

175,708. NECK-TIE SHIELDS. J. M. Hubbs, Brooklyn, N. Y. [Filed Aug. 10, 1875.]

Brief.—When worn with a standing collar, the side wings are folded inwardly, and the neck-band passed through the loops.



1. In a neck-tie, bow, or scarf shield, the combination of the sections A, B, and C, and the hinges *a a*, substantially as and for the purpose hereinbefore set forth.

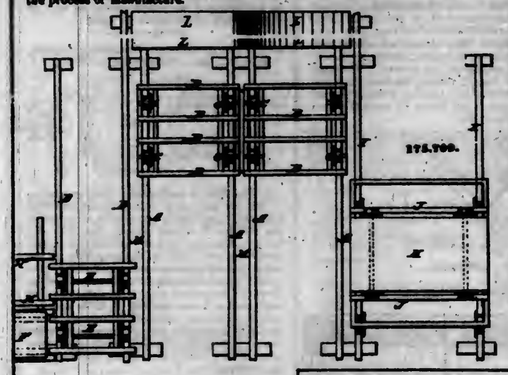
2. The combination, with the sections A, B, and C, and the hinges *a a*, of the loops *b b*, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the sections A, B, and C, the hinges *a a*, and the loops *b b*, of the clasps *c c*, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the sections A, B, and C, the hinges *a a*, the loops *b b*, and the clasps *c c*, of the neck-tie, bow, or scarf B, and the neck-band D, substantially as and for the purpose hereinbefore set forth.

175,709. BRICK-YARD PLANTS. Joseph L. Irby, Granada, Miss., assignor to himself and J. H. Campbell, same place. [Filed Feb. 14, 1876.]

Brief.—For moving bricks to and from any part of the drying-ground with minimum labor, and sheltering them from rain during the process of manufacture.



1. The improved brick-yard plant, composed of stationary rails A on the drying-ground, movable rails B, stationary rails D, movable rails E, and the trucks F G, and rails H, for conveying the bricks from the mill to the drying-ground, substantially as specified.

2. The stationary rails I, movable rails J, and truck K, combined with stationary rails A, and movable rails B, substantially as specified.

3. The shed-trucks L, and rails A, combined as described.

175,710. COOKING-VESSELS. J. B. Jones, Brooklyn, E. D., N. Y. [Filed Feb. 5, 1876.]



The combination of body A and bottom B, secured together by the head *a'* on the former and the flange *b'* on the latter, as shown and described, whereby only that portion of the vessel is made double which comes in contact with the fire.

175,711. BALE-TIES. Augustus Kilmer, Howe's Cave, N. Y. [Filed Mar. 16, 1876.]



The baling-wire A, formed with the eye or loop B at one end, and at the other end with eye or loop C and hooks D, as and for the purpose set forth.

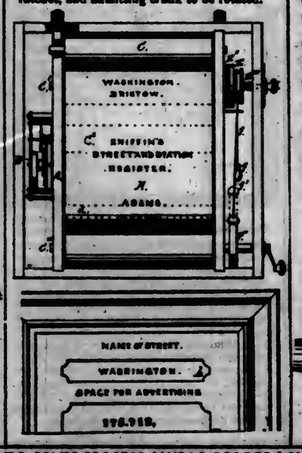
175,712. STRAINING MILK-CANS. Albert P. Knapp, Randolph, N. Y. [Filed Jan. 28, 1876.]



As a new article of manufacture, a milk-strainer consisting of a body having flat side A, curved at B, and having breast E, the hoop C diverging downward below body, and the bottom D having a concave strainer, B, all constructed and arranged substantially as and for the purpose specified.

175,713. STREET AND STATION INDICATORS. Gilbert C. Knittle, Paris, Ky. [Filed Mar. 15, 1876.]

Brief.—The name of the street or station (of the series along a given route) which the car is to start from is brought opposite the uppermost aperture in the face-plate by pulling cord which connects with ratchet-and-pawl mechanism. At each full stroke of the cord the series appear, certain, at both top and bottom apertures, thus showing the street or station arrived at, and also the one next following. To wind the apron upon the roll it was last fed off of, lock-bolt is pulled outward, thus detaching the pawl from the ratchet, and admitting crank to be rotated.

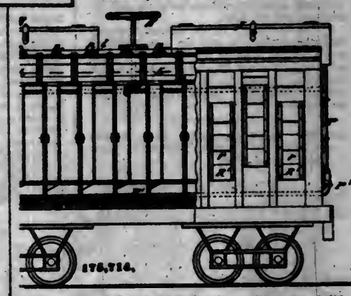


1. The combination of an apron, having upon its face two or more series of streets or stations, a face-plate provided with two or more openings through which to exhibit the streets or stations, and mechanism substantially as described, whereby the indicating-apron may be adjusted to expose the desired series.

2. The combination, in a street or station indicator, of the roller O', pulley and ratchet B'' and B, roller O'', cloak-work D, hand H, spring F, and cords *f* and *f'*, substantially as and for the purpose set forth.

3. The combination, in a street or station indicator, of the roller O' having ratchet B'', the pulley E having a pawl on its periphery, and the disengaging and locking link B' of the spring B'', substantially as and for the purpose set forth.

175,714. BROOM-CASE. Kennard Knott, London, Canada. [Filed Feb. 14, 1876.]



175,714.

1. The combination, in a railway-car, of sliding panels A, fixed partitions C, movable bars D, tie-bar E, ropes or chains F, pulleys *f* G, shaft G', and wheel H, combined and operating substantially as and for the purpose described.

2. The combination, with shafts S S', pulleys S' S'', and board S'', of the mixing-wheel T, platforms T' T'', tanks V' V'', and pipe V'', as and for the purpose described.

3. In a cattle-car, the combination, with fixed slats R, having open spaces *r* between them, of the adjustable slats R', connected by rigid bars or rods, as shown and described.

4. In a cattle-car, the combination of elevator U operated by hand connection with the axle, of the sliding-feed delivery-board T', the receiving-bin V at top of the car, as shown and described.

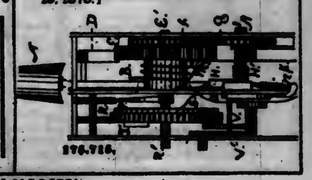
5. In a railway-car the combination of the bins J and tank K, traps and covers L L', with spring-catches *l*, and points *p*, sloping bottom M, pipes P P', couplings P'', all combined and operating substantially as and for the purpose set forth.

6. The combination, on cars and tender, of a tramway, W', having the rails joined by alternate open ends W'' and keys or bars W''', constructed substantially as shown and described.

7. In combination with the above trams, the truck W, having traction wheels W', flange-rails, and guide-wheels W'', hinged arm X, slide Y', and lever Y'', all constructed and operating substantially as shown and described.

8. The valve *a*, and lever *b*, combined with the troughs I, substantially as described.

175,715. FARE-REGISTERS. Bernard Kramm, Newark, N. J., assignor of one-third his right to L. L. Freisendoffer, same place, and said Kramm and Freisendoffer assignors to themselves, Thomas S. Osborn, and Hatfield Haffer, same place. [Filed June 10, 1876.]



175,715.

1. The combination of lever A, provided with spring-dog D, cylinder E, having indenting and rotating spring C, ratchet-wheel B, having the three sets of teeth, as shown and described, and the hinged arm H of ball-hammer K, substantially as shown and set forth.

2. The hinged arm H of the ball-hammer, in combination with the lever operating the ratchet-wheel B, substantially as shown and set forth.

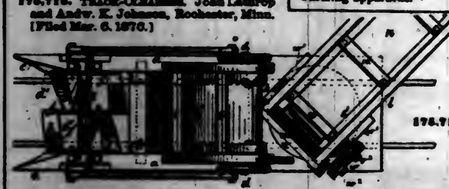
3. The ratchet-wheel B, with the double-pointed teeth n and the notches L on its surface, substantially as and for the purposes set forth.

4. The combination of arm P on the inner end of shaft B, the shaft B', journaled in one end of the shaft B', and the wheels and pinions for actuating the pointers on dials 1 and 2, substantially as and for the purposes set forth.

5. The combination of shafts B' and B', journaled together, making one line of shafting through the case, the two turning in opposite directions, so that the hands on dials 1 and 2 on opposite sides shall both move in the same direction, substantially as and for the purposes set forth.

6. The open dial 1 on one side of the case, the ratchet-wheel B, and the closed dials 2 and 3 on the opposite side of the case, and tallying from dial 1 by means of the connecting-shafts B' and B', all combined and arranged substantially as and for the purposes set forth.

176,716. TRACE-CLEARERS. John Lathrop and Andrew K. Johnson, Rochester, Minn. [Filed Mar. 6, 1876.]



176,716.

1. The blades S of the revolving wheel f, set at an inclination to deliver the snow in balls or pieces near the center of the elevator, in combination with the plows a b and the elevator A, substantially as set forth.

2. The combination, with the revolving excavating-wheel f, of the side cutting-blades e and horizontal V-shaped plow b', substantially as set forth.

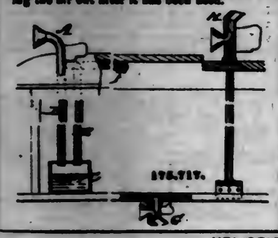
3. The second elevator c', mounted upon a turn-table, and receiving the snow from the first elevator into a hopper formed at the lower part of such second elevator, substantially as set forth.

4. The combination of an inclined elevator, a turn-table, a platform sustaining such turn-table, and gearing to drive such elevator, with a revolving excavating-wheel, and an inclined elevator conveying the snow from the excavating-wheel to the second elevator, substantially as set forth.

5. The elevator c', mounted upon a turn-table, c, and made with an incline and trough-shaped sides l, hinged to the frame w' upon the turn-table c by the shaft w' of the lower elevator-roller, so that the upper end of the elevator may be raised or lowered, as set forth.

176,717. CAR-VENTILATOR. Chas. G. Lee, Alton, Ill. [Filed Mar. 6, 1876.]

Brief.—A hood-blower with a pipe extending into a tank, and another pipe for conducting the air from the tank into the car, together with similar blowers for effecting exhaust from the car, to aid in inducing an active current of fresh air into the car, and for conducting the air out after it has been used.



176,717.

The combination, in a car, of inlet A, distributing-pipes B F, and the exhaust-blowers G H, substantially as specified.

176,718. POCKET-BOOKS. Alex. M. Lovino, New York, N. Y. [Filed Feb. 11, 1876.]

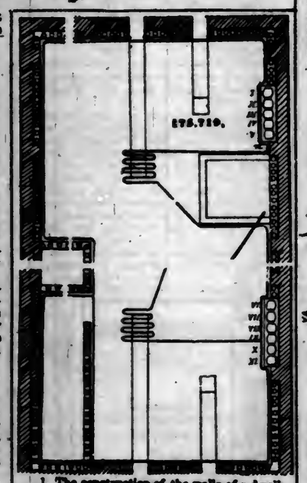
Brief.—A closing flap or pocket is attached to or forms the upper part of one side of a pocket-book, and is drawn over the elongated opposite and front side in the act of closing



The combination of a closing pocket, B, with a pocket-book or other similar article, which is provided with a projecting cover, C, substantially as described.

176,719. MODES OF VENTILATING, WARMING, AND COOLING BUILDINGS. John S. Lindsay, New York, N. Y. [Filed July 10, 1876.]

Brief.—An air-reservoir constructed between the first floor of the dwelling-house and the cellar, the outer walls of the building constituting the outer walls of the reservoir. The supply of air to the reservoir is made by horizontal flues, communicating through exterior walls, and protected by screens. The temperature of the air, which goes into the building from the reservoir through flues conveyed to every room, is regulated by coils of steam warming apparatus.



176,719.

1. The construction of the walls of a dwelling-house or building with a series of vertical parallel ventiducts surrounding the apartments thereof, and opening into and connecting the same with the distributing fresh-air reservoir, located between the cellar and first floor of the building, also opening into and connecting the apartments thereof with the exterior air above the building, substantially as and for the purposes hereinbefore set forth.

2. A foul-air chamber constructed over and upon the tubular and outer walls of a dwelling-house or building, and designed to convey the foul air received through the ventiducts to the large ventilating-chimneys erected over the stacks of smoke-flues, substantially as and for the purposes hereinbefore set forth.

2. The combination of the reservoir, as described, and tubular walls described with the improved chimney and fire-place, as described, in the construction of a dwelling-house or building, substantially as and for the purposes hereinbefore set forth.

4. The combination, substantially as hereinbefore described, of the reservoir, the tubular walls, the chimney, and fire-place with the foul-air chamber and ventilating-chimney-top in the construction of buildings, for the purpose set forth.

5. The combination of the reservoir, the tubular walls, the chimney and fire-place, the foul-air chamber, and ventilated chimney-top with a refrigerator, in the construction of buildings, for the purpose herein set forth.

6. The method of an equal and independent ventilation of each and every apartment of a dwelling house or building, by means of separate fresh-air flues, communicating from a fresh-air distributing reservoir to each and every apartment of each dwelling house or building, and by means of separate foul-air flues communicating from each and every apartment of each dwelling-house or building to the external air, substantially as and for the purposes hereinbefore set forth.

176,720. BALE-TIES. Richard C. Lafflow, St. Louis, Mo. [Filed Mar. 4, 1876.]
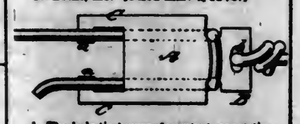
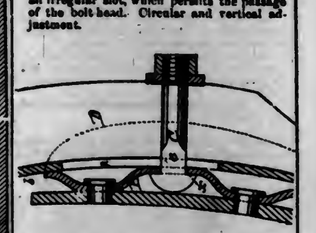


1. The bale-tie herein described, consisting the flat body A, provided at one end with prongs C C, having inwardly-projecting points a a, and the T-shaped head B, provided with holes at the other end at right angles or parallel with the body A, substantially as described, and for the purpose set forth.

2. A bale-tie having prongs terminated by inwardly-projecting points at one end of its body, and a T-shaped head, B, at its opposite end, the opening between the prongs corresponding exactly in size and shape with the head, whereby the tie may be punched from a bar without any loss of metal, substantially as described.

176,721. CULTIVATORS. Edward P. Lynch and Edgar A. Wright, Davenport, Iowa. [Filed Feb. 19, 1876.]

Brief.—Block rigid to the shovel-back, with an irregular slot, which permits the passage of the bolt head. Circular and vertical adjustment.

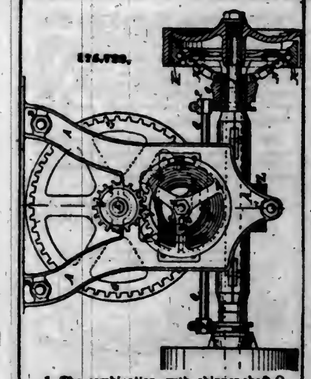


The sleeve D, having the slots a b, in combination with the block B, attached to the shovel, and provided with the irregular-shaped slot c, and the bolt C, having a square neck, e, fitting the slot c in the sleeve, substantially as described, and for the purpose set forth.

176,722. ELEVATOR HOISTING-MACHINES. Volney W. Mason, Providence, R. I. [Filed Jan. 4, 1876.]

Brief.—A shaft, with a clutch band-pulley at each end, has a worm in the middle, operating a winding-drum, the whole suspended between two hangers. A pinion on the drum revolves a disk loose on a shaft passing through it. The shaft, by a cam on its end, operates either clutch. A spiral groove on the disk's face causes a pin to traverse a radial slot in an arm affixed to the shaft, with the effect of causing the latter to rotate and work the clutches when the pin reaches the ends of the slot.

176,723.



1. The combination, with shipper-shaft Q, of the slotted arm or yoke E, the shaft S, having crank s', and the shipper-wheel T, as shown and described, to counteract centrifugal force and equalize shipping-strain.

2. The combination, with shipper-shaft S, having crank s' and cam s' in the same plane, of rod V, cap Z, and brake-shoe Z', arranged as shown and described, to enable the brake to be automatically applied whenever the clutches are unshipped.

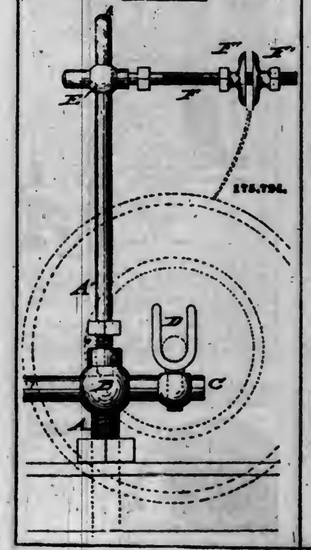
3. The combination, with hangers A A, of friction-clutches and loose pulleys, arranged upon a shaft having the median bearing and the weight balanced, as shown and described, for the purpose specified.

176,724. CARD-SUSPENDING RINGS. Geo. W. McGill, New York, N. Y. [Filed May 6, 1876.]



As an improved article of manufacture, my above-described suspending device, stamped from a single piece of sheet metal, having its fastening-lugs b b cut and swaged from between its raised borders or ribs in a plane parallel with the sides thereof, and constructed in other respects substantially as herein set forth and described, for the purposes specified.

176,725. TIPS FOR SATCHEL-HANDLES. Geo. O. Monroe, Newark, N. J. [Filed June 16, 1875.]



176,725.

176,726. ADJUSTABLE STANDS FOR DANDY-ROLLS. Archibald McDermid, West Fitchburg, Mass. [Filed Feb. 28, 1876.]

Brief.—The stand carrying the dandy-roll is adjusted by nuts, which also serve to secure the stand to the side of the frame. The roll rests in an open bearing upon a lower horizontal arm, which may be moved horizontally through the perforated head, and is held rigidly by screwing down the stem of the stand. An upper arm has clamps for holding the stick or rag, to which is attached a cloth for keeping the roll clean, and is screwed through an upper head, whereby it is held in any position.

1. The combination of the upright supporting-stand A A', horizontally-adjustable arm C, having roll journal-bearing D, and the vertically-adjustable top arm E F, provided with adjustable clamp-nuts F' F' for the stick, substantially as and for the purpose set forth.

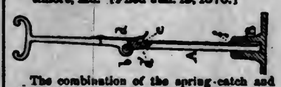
2. The combination of the perforated head B with the base part A of the stand, the horizontal arm C, and top part A' of the stand screwing into the socket to clamp the horizontal arm, as herein set forth.

176,727. VAULT-COVERS. John J. Mecklenberg, Flushing, assignee of one-half his right to Joseph J. Walton, New York, N. Y. [Filed Sept. 30, 1876.]



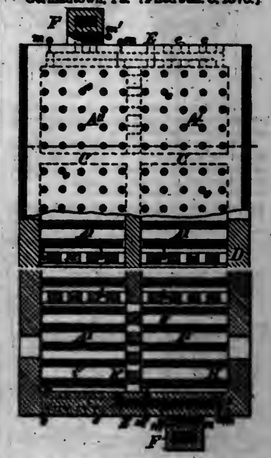
The combination of the frame A, having shoulders or offsets a b, the cover B, with tongue or lip d, the packing-ring C, and ring D, all substantially as and for the purposes herein set forth.

176,728. RIM-HOLDERS. John Mock, Baltimore, Md. [Filed Jan. 19, 1876.]



The combination of the spring-catch and hook d d', recess e, hinged jointed folding rods A A, and socket B, constructed and adapted for the purpose as shown and described.

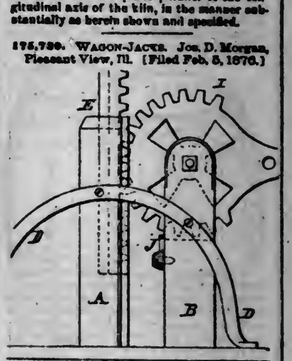
176,729. BRICK-KILNS. Augustus Morand, Germantown, Pa. [Filed Jan. 6, 1876.]



1. In a kiln, the combination of the stoking-holes c c, with the pits or recesses A b arranged directly below them, and the gratings or perforated coverings f f, all constructed and arranged to operate in the manner substantially as herein specified.

2. The arrangement, in a continuous kiln having parallel rows of chambers, of a communicating flue or flues between the pairs of terminal chambers in the end walls E E, substantially as represented, so that the current of heated gases, &c., will pass directly through said chambers in a plane parallel to the longitudinal axis of the kiln, in the manner substantially as herein shown and specified.

176,730. WAGON-JACKS. Jos. D. Morgan, Pleasant View, Ill. [Filed Feb. 5, 1876.]



1. The posts A and B, constructed substantially as set forth, arranged upon the base C, and secured by the braces D D, in combination with the lifting-bar E and wheel I, with its lever-handle, as and for the purpose set forth.

2. The plates G G, with their flanges, in combination with the post A, as and for the purpose set forth.

176,731. PLUMB-TOPS. James G. Moulton, Philadelphia, Pa. [Filed Feb. 9, 1876.]

176,732. ADJUSTABLE STANDS FOR DANDY-ROLLS. Archibald McDermid, West Fitchburg, Mass. [Filed Feb. 28, 1876.]

Brief.—The stand carrying the dandy-roll is adjusted by nuts, which also serve to secure the stand to the side of the frame. The roll rests in an open bearing upon a lower horizontal arm, which may be moved horizontally through the perforated head, and is held rigidly by screwing down the stem of the stand. An upper arm has clamps for holding the stick or rag, to which is attached a cloth for keeping the roll clean, and is screwed through an upper head, whereby it is held in any position.

1. The combination of the upright supporting-stand A A', horizontally-adjustable arm C, having roll journal-bearing D, and the vertically-adjustable top arm E F, provided with adjustable clamp-nuts F' F' for the stick, substantially as and for the purpose set forth.

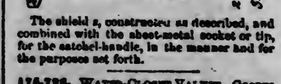
2. The combination of the perforated head B with the base part A of the stand, the horizontal arm C, and top part A' of the stand screwing into the socket to clamp the horizontal arm, as herein set forth.

176,733. VAULT-COVERS. John J. Mecklenberg, Flushing, assignee of one-half his right to Joseph J. Walton, New York, N. Y. [Filed Sept. 30, 1876.]



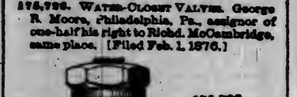
The combination of the frame A, having shoulders or offsets a b, the cover B, with tongue or lip d, the packing-ring C, and ring D, all substantially as and for the purposes herein set forth.

176,734. RIM-HOLDERS. John Mock, Baltimore, Md. [Filed Jan. 19, 1876.]



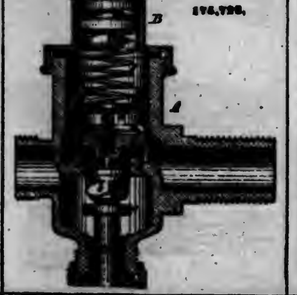
The combination of the spring-catch and hook d d', recess e, hinged jointed folding rods A A, and socket B, constructed and adapted for the purpose as shown and described.

176,735. TIPS FOR SATCHEL-HANDLES. Geo. O. Monroe, Newark, N. J. [Filed June 16, 1875.]



The shield a, constructed as described, and combined with the sheet-metal socket or tip, for the satchel-handle, in the manner and for the purposes set forth.

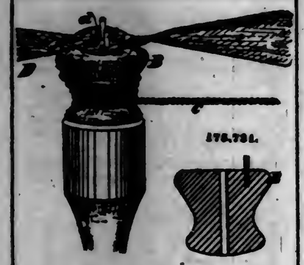
176,736. WATER-CLOSET VALVES. George R. Moore, Philadelphia, Pa., assignor of one-half his right to Richd. McCambridge, same place. [Filed Feb. 1, 1876.]



176,736.

1. The nipple-shaped rubber or elastic valve-facing E, in combination with the flanged seat b, both operating so as to pass freely to and out of the water-way of the valve-seat a, substantially as and for the purpose herein set forth.

2. The elastic nipple-shaped valve-facing E, the flanged seat b, valve-seat a, spindle d, provided with collar or stopper c, all arranged and combined substantially as and for the purpose herein set forth.

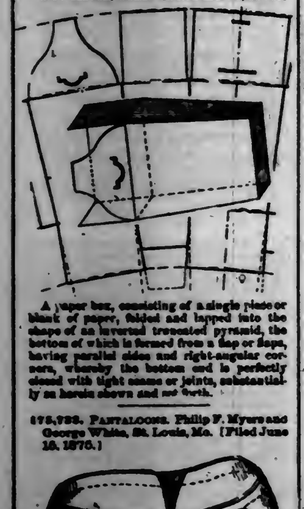


176,731.

1. The flier D, having two or more wings, *c c*, and the openings *d* and *d'*, substantially as shown and described.

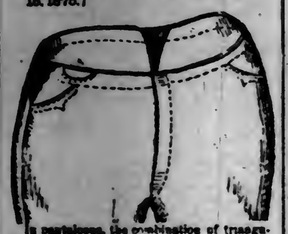
2. The toy herein described, consisting of the handle A, pulley B, and flier D, constructed and arranged substantially as described, to be operated by means of a cord, C.

176,732. PAPER BOXES. Harvey S. Munson, New Haven, Conn. [Filed Mar. 8, 1876.]



A paper box, consisting of a single piece or blank of paper, folded and lapped into the shape of an inverted truncated pyramid, the bottom of which is formed from a flap or flaps, having parallel sides and right-angular corners, whereby the bottom end is perfectly closed with tight seams or joints, substantially as herein shown and set forth.

176,733. PANTALOONS. Philip F. Myers and George White, St. Louis, Mo. [Filed June 15, 1875.]



In pantaloons, the combination of triangular-cut-away sections, with their vertices downward, and extending downward from the top of the waist, and elastic pieces corresponding in shape to the cut-away sections, and secured to the sides of the same, substantially as and for the purposes set forth.



176,734.

176,734. SULPHURIC-ACID PACKAGES. W. H. Nichols, Brooklyn, N. Y. [Filed Nov. 13, 1875.]

A package for sulphuric acid and other liquids, made of sheet iron, with the surfaces and edges of the pieces of sheet-iron coated with lead, and then united together by melted lead, as set forth.

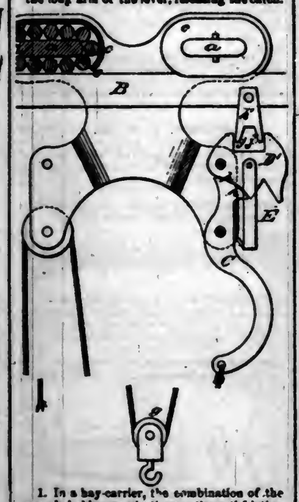
176,735. GELATINATED EXPLOSIVE COMPOUNDS. Alfred Nobel, Paris, France, assignor to Charles Eugene Armengaud, Sr., same place. [Filed Mar. 15, 1876.]

1. The method of gelatinating nitro-glycerine and other explosive liquids—such as the nitrates of methyl and ethyl—by dissolving in the explosive liquid a substance capable of gelatinating it, substantially as described.

2. As a new article of manufacture, gelatinated nitro-glycerine, substantially as described.

176,736. HAY-CARRIERS. La Verne W. Noyes, Batavia, Ill. [Filed Jan. 20, 1876.]

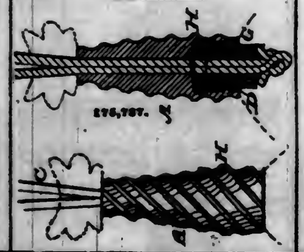
Brief.—The pronged stop causes the catch of the carrier-frame to engage therewith, and thereby release the upper end of the lever. When the load or forkful of hay is being raised to its highest point, it carries upward the long arm of the lever, releasing the catch.



1. In a hay-carrier, the combination of the rounded oblong projections *a*, the anti-friction rollers *b*, grooved around the same, and the confining-caps *c*, substantially as specified.

2. In combination with the double-pronged stop *b'* on the rail B, the vertically-vibrating double-pronged catch D' on the carrier-frame, the hooked loop E, and the hooked vertically-vibrating lever C, substantially as specified.

3. In combination, the vertically-vibratory catch D', pawl-set loop E, and the vertically-vibrating hooked lever C, operated by the raising of the said lever to disengage the catch from a stop on the rail, substantially as specified.



176,737.

176,737. TASSELS. Thomas B. Otis, Philadelphia, Pa. [Filed Apr. 4, 1876.]

Brief.—The tassel-block is of tapering form, and provided with spiral fluting, whereby the displacement of the covering is prevented. A swell is formed on the surface of the block surrounding the portion occupied by the cavity, so that the walls of the cavity are strengthened thereby.

The tassel-block constructed of tapering form, with exterior spiral flutings and with a cylindrical cavity in its bottom, substantially as and for the purpose set forth.

176,738. HAY RAKES AND GATHERERS. Jas. B. Paddack, Chicago, Ill. [Filed Feb. 10, 1876.]
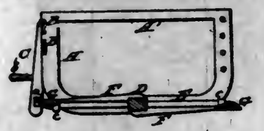


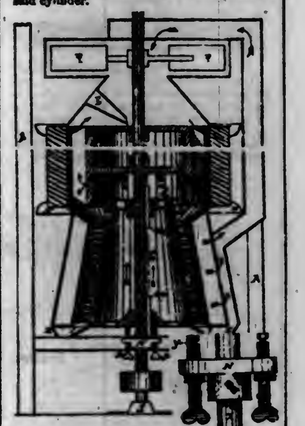
1. The detachable gathering-bars G, in combination with the rake D E, substantially as and for the purposes set forth.

2. The runners F, in combination with the rake D E, detachable bars G, frame A B, and lock C, substantially as described.

3. The runners F, in combination with the centrally-pivoted rake D E for giving the teeth a suitable pitch in raking, substantially as specified.

176,739. GRAIN-CLEANERS. G. E Palmer, Pittsburg, Pa. [Filed Mar. 30, 1876.]

Brief.—Means for vertically adjusting conical brush. Diaphragm at the upper end of said brush, (which has perforated heads,) to compel the air-currents to pass out through the perforated sides of the decorticating-cylinder above, instead of beneath, the lower edge of said cylinder.



1. The combination of the keys *n* on the shaft X, with the spiders O, piece F, and set-screws P, the whole operating in the manner and for the purpose set forth.

2. The combination of the diaphragm V, with the air-openings Q and passage through cone G, as shown, and to obtain the result set forth.

176,740. BOOK-BINDING. James F. Funk, Marlborough, N. Y. [Filed Oct. 21, 1876.]



176,740.

As an article of manufacture, a bound book consisting of a series of folio sheets perforated at and throughout the entire length of their folds, sewed to rubber bands, and secured to rubber backing with rubber or gutta-percha cement, substantially as herein described.

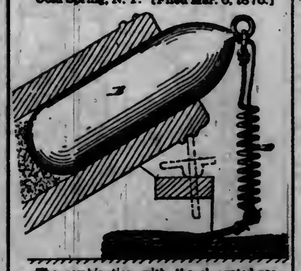
176,741. PLANTS FOR MANUFACTURING IRON. Benjamin Parker, Ironton, Ohio. [Filed Oct. 6, 1875.]

Brief.—A structure for containing rolling-mill and appliances, consisting of a central circular shed, an annular court, and an outer annular shed, and railroad-tracks, with roofs supported on hollow columns, that serve as conductors for water, &c.



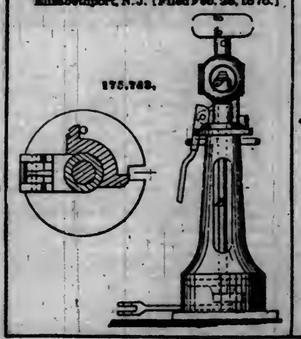
The within-described rolling-mill, consisting of a central circular edifice or mill proper, O P E, encircling annular structure A B C, and intermediate annular court L, substantially as set forth and illustrated.

176,742. PROJECTILES. Robert P. Parrott, Cold Spring, N. Y. [Filed Mar. 6, 1876.]



The combination with the elongated projectile B of the line C and interposed spring or collet wire D, applied to connect the line with that end of the elongated projectile which is forward or outermost when the projectile is inserted in the mortar, substantially as and for the purposes herein set forth.

176,743. SWITCH-SIGNALS. T. W. Peeples, Elizabethport, N. J. [Filed Feb. 28, 1876.]



176,743.

The switch-lever fitted on the switch-shaft in an opening of the lamp-case, which allows it to turn the lamp only a quarter while turning the shaft a half revolution, substantially as specified.

176,744. PROCESSES OF MAKING COKE. W. Petrose and Wm. F. Richards, Swansea, England. [Filed Nov. 15, 1874.]

The process of producing coke containing anthracite by reducing the several bituminiferous referred to constituents necessary for the production of such coke to a fine state of division and incorporation, then placing said mixture in a retort or suitable coking-oven with a layer or layers of bituminous coal, as described, and then submitting the same to the coking process, substantially as set forth.

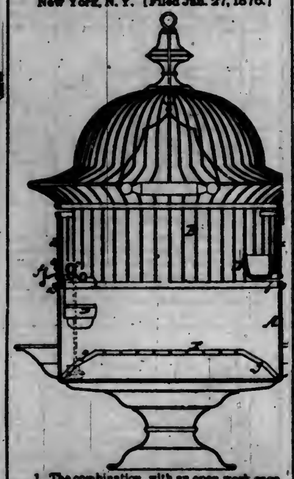
176,745. POST-HOLE AND WELL DIGGERS. Isaac M. Perry, State Out, Ind. [Filed Feb. 14, 1876.]

Brief.—A post-hole and well digger with semi-oval steel blades, attached by a shoulder to an iron head, with a handle composed of sections.



The combination, with digger-blades A, of the head B, one or more handle-sections, C, and cap D, substantially as and for the purpose specified.

176,746. BEAN-CAGES. Geo. E. Peters, Jersey City Heights, N. J., and G. Gunther, New York, N. Y. [Filed Jan. 27, 1876.]



1. The combination, with an open-work cage to which the feed-cups are attached, of a base vessel with a closed bottom and open at the top, substantially in the manner shown and described.

2. The base A, constructed with a shoulder, *a*, below its top edge, in combination with the bottom cross-head *b* of the body B, and catches *c*, by means of which said base is secured to the body, substantially as and for the purposes set forth.

3. The combination, with the doors *d* of a cage and with the base-vessel A, of sliding feed-cup supporters D, substantially as set forth.

4. The combination, with an open-work cage B, base vessel A, and feed-cups D, of a circular perch, E, made of open-work, and provided with feet *g*, whereby the perch is raised above the bottom of the base vessel, substantially as and for the purpose specified.

176,747. ORE-CRADLES. Herbert L. Phelps, Gloversville, N. Y., assignor of one-half his right to Irving D. Clark, same place. [Filed Jan. 3, 1876.]



1. The combination, with the crib A, of the elastic connection B and holding-socket *d*, as described, whereby the crib is adapted to be suspended from a suitable support and is capable of a vibratory movement, substantially as and for the purpose set forth.

2. The combination, with the crib A, elastic connection B, holding-socket *d*, and a suitable support for the crib, of the check A, substantially as and for the purpose set forth.

176,748. VEHICLE-WHEELS. H. F. Porter, South Bend, Ind. [Filed Dec. 16, 1875.]

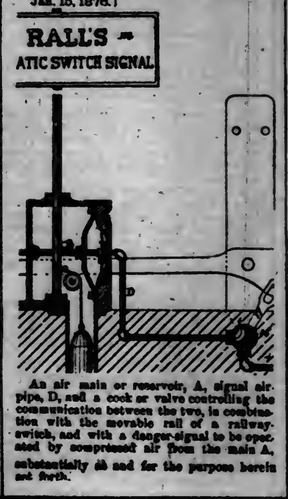


The carriage-wheel tire A, with a flat tread, and flat under side of equal width, and with rounded edges, substantially as and for the purpose set forth.

176,749. COMPOSITIONS FOR DESTROYING INSECTS. Geo. W. Powell, Halifax County, Va. [Filed July 14, 1875.]

A compound consisting of common wood-ashes and kerosene-oil, substantially as and for the purpose specified.

176,750. PNEUMATIC SIGNALING APPARATUS. William B. Prall, Washington, D. C., assignor to Prall Railway-Signal and Telegraph Company New York, N. Y. [Filed Jan. 15, 1876.]



An air main or reservoir, A, signal air-pipe, D, and a cock or valve controlling the communication between the two, in combination with the movable rail of a railway-switch, and with a danger-signal to be operated by compressed air from the main A, substantially as and for the purpose herein set forth.

175,751. SAP-COLLECTORS. August Pudigon, Monk's Corner, S. C. [Filed Sept. 16, 1875.]

Brief.—The device is V-shaped, and secured to the groove cut in the tree by spans, which are driven into the tree. The trough is made in sections, so as to form conveniently around the tree as far as desired. A wooden box receives the sap or turpentine.



The combination of the V-shaped gutters B, and one or more wings, D, on each side, for the purposes herein set forth.

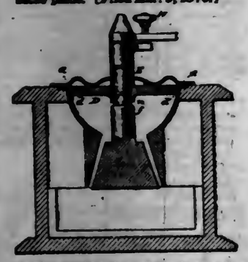
175,752. BALE-TIES. Blackmon A. Ramsey, Trenton, Tenn. [Filed Feb. 25, 1876.]



1. The wire bale-tie consisting of the loops *a a'*, linked together as described, and held against casual detachment by twisting the ends *b b'* of the wire around each other, substantially as specified.

2. A wire bale-binder, having the ends looped, as at *a a'*, and extensions *b b'*, at right angles with the length of the binder, and adapted to be twisted together and tucked under said binder, as specified.

175,753. COTTON-MILLS. Otis J. Range, Meriden, Conn., assignor to Chas. Parker, same place. [Filed Mar. 9, 1876.]



1. The combination of the hopper C, constructed with seats a diametrically opposite each other, the bar D with shoulders *d*, the bearing E to the said bar to locate and support the runner spindle, substantially as described.

2. The combination of the hopper and shell of a cotton-mill, the bar D, constructed with the bearing E for the support of the runner-spindle, the runner-spindle F, constructed with a shoulder, *f*, a corresponding bearing, *e*, on the bar, and the adjusting-screw H, with the lug *g* substantially as and for the purpose described.

175,754. PEN-HOLDING PENCIL-POINT PROTECTORS. Joseph Rechnendorfer and Hellmuth M. Fallenbo, New York, N. Y., assignors to said Rechnendorfer. [Filed Feb. 2, 1876.]

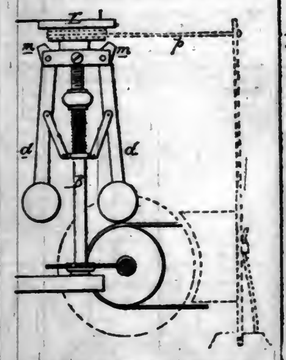


1. A combined pen-holder and pencil-point protector, consisting of a sheet-metal tube, having at one end a pen-holding device, and split for a portion of its length only from its other end, to adapt it to fit and clasp the end of an ordinary lead-pencil.

2. A pencil-point protecting tube split for a portion of its length only, and provided at the split end with an annular groove, in combination with a pencil having an annular rib or projection, which engages the groove when the pencil and tube are fitted together, substantially as set forth.

3. The pen-holding and pencil-point-protecting tube split from the end opposite the pen-holder for a portion of its length only, as described, in combination with a sleeve mounted and movable longitudinally on the unsplit portion of the tube, substantially as and for the purposes set forth.

175,755. GOVERNING DEVICES. J. D. Eddy, Skippeckville, Pa. [Filed Mar. 4, 1876.]

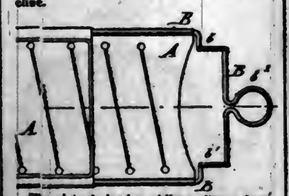


1. A centrifugal governor combined with, and arranged on, an undue increase of speed to operate the pulley E, and its cord or chain *p*, connected to the brake mechanism, as set forth.

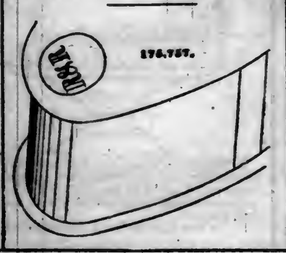
2. The combination of the arms *d* of a centrifugal governor and their fingers *m* with the pulley E and its cord or chain *p*, connected to the brake mechanism, substantially as described.

175,756. VEGETABLE-CUTTERS. Friedrich Reutschler and John Keck, Ann Arbor, Mich. [Filed Feb. 14, 1876.]

Brief.—The wire frame is produced at the ends, and bent into reversed curves, to form rests for the cutter, and to give it proper incline.



The plate A, having oblique slits and cutting-edges on opposite sides, in combination with a wire frame, B, having reversed loops *b' b''* at its opposite ends, as shown and described, whereby the vegetable-cutter may be reversed and yet placed at its proper incline.



175,757. METHODS OF PREPARING HAMS. A. B. Richardson, Dover, Del., assignor to himself and Jas. W. Robbins, same place. [Filed Mar. 3, 1876.]

1. The herein-described method of preparing hams, by removing the bone, packing the boned ham into a tightly-fitting hermetically-sealed can, and cooking the same, whereby the bone-cavity is closed and the ham rendered solid, substantially as described.

2. As a new article of merchandise, a whole, boneless, solid ham, put up in a spherically-constructed hermetically-sealed can, as described.

175,758. BOX-SCRAPERS. Henry Richards and Justus A. Trant, New Britain, Conn. [Filed Mar. 13, 1875.]



In a box-scraper, the combination of the handle B, pivoted to the head C, jaw E, blade D, set-screw G, and suitable rests for the blade, substantially as shown and described.

175,759. BOTTLE-STOPPERS. Augustus B. Rich and Charles S. Sawyer, Fall River, Mass., assignors to themselves and James H. Crittenden, same place. [Filed Mar. 6, 1876.]

Brief.—The screw is swiveled to the stopper, so as to keep it in connection with the bottle, and the stopper is made of rubber, in order that the neck of the socket will spring over the head of screw, to connect and disconnect, and also because it will compress to be forced into the bottle, and afterward expand and fill the neck better than other material.



1. The stopper B, swiveled to a thumb-screw, C, working in a nut, D, pivoted in rods E connected to a ring or band, F, to the neck of the bottle, substantially as specified.

2. The combination of a clamp-screw, C, nut D, yoke E, and ring F with a bottle and bottle-stopper, the nut being pivoted in the yoke E, substantially as specified.

3. The combination of a rubber stopper, B, having a socket in the top, with the fastening-screw C, having a head, J, and being pivoted to the yoke E, substantially as specified.

175,760. PREPARATION OF KOUMISS. Robt. Rohland, New York, N. Y. [Filed Feb. 21, 1876.]

The method herein described of manufacturing koumiss by fermentation, and the introduction of carbonic acid, substantially as set forth.

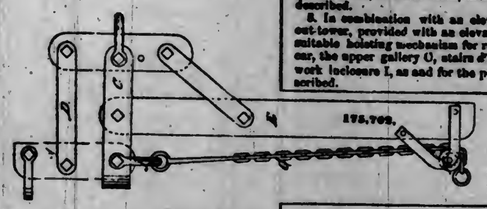


175,761. WHEELBARROWS. Chas. W. Rose, Bryan, Ohio. [Filed Jan. 31, 1876.]

1. In a wheelbarrow, having the combination of a tray, D, frame C, and leg B, the brace A, of bent timber, and carving in "the line of beauty" to form a depression, whereby said brace shall be free from contact with uneven ground when the barrow is rested.

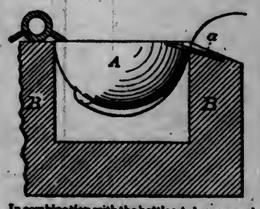
2. The combination of the brace E, independent of the barrow-leg, with main brace A and the rear end of the tray D, as said for the purposes set forth.

175,762. DRAFT-EQUALIZERS. A. O. Rowley, Bennett, Iowa. [Filed Mar. 6, 1876.]



The compound lever A B, draft-bars C, connecting-links D F, long arms E, and the chain G, combined and arranged substantially as specified.

175,763. DEVICES FOR CLEANING THE UNDER SIDES OF KETTLES IN ASHERIES. James Salmon, Syracuse, N. Y. [Filed Mar. 13, 1876.]



In combination with the kettles A A, arranged in a fire-arch as described, the metallic plate *a*, resting at one end on the side wall B, and shaped at the opposite end to rest against two adjoining kettles, and provided in the projecting portion with orifice *c* and removable cover *d*, substantially as and for the purpose specified.

175,764. CAR-STARTERS. Benj. Stanford, Newark, N. J. [Filed Jan. 6, 1876.]

Brief.—Lip attached to pawl catches in loop, and thereby removes pawl from engagement with ratchet.



In a car starter, the combination of the draft-bar B, lever D, pawl G, arm H, and loop I, with the ratchet F, substantially as and for the purposes specified.

175,765. ELEVATOR-TOWERS. L. B. Sawyer, Boston, Mass. [Filed Dec. 20, 1875.]



1. An elevated tower, consisting of a skeleton frame-work or structure, in combination with one or more cars, adapted to be moved by steam or other power from the base to the top of said tower, and vice versa, up and down suitable wall rooms provided for the purpose within said structure, all as arranged and constructed that the passengers, while moving up or down in the car, can view the surrounding scenery, substantially as described.

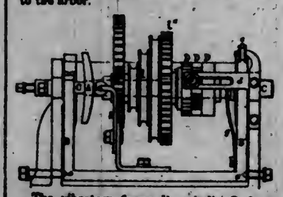
2. An elevated lookout-tower, consisting of a skeleton or trussed frame-work, and provided with two or more galleries or landing-places at equal intervals between the base and top, in combination with one or more elevator-cars and suitable hoisting mechanism for moving said cars from the base to the top of said tower, and vice versa, substantially as described.

3. In combination with an elevated lookout-tower, provided with an elevator-car and suitable hoisting mechanism for raising said car, the upper gallery C, stairs *d'*, and open-work inclosure I, as and for the purposes described.

4. The open-work inclosure I, provided with a floor arranged in a series of steps surrounding the inclosure and rising toward its center, as and for the purposes described.

175,766. LATHES FOR TURNING IRREGULAR SURFACES. Charles H. Schminke, Baltimore, Md. [Filed Sept. 3, 1875.]

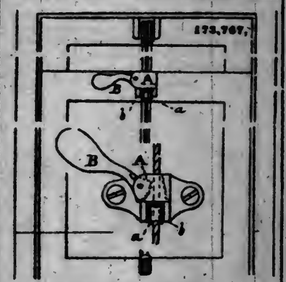
Brief.—Arbor to the end of which the work is chucked, and which carries several formers, a cone-pulley, and cam-disk, is supported by a frame, pivoted so as to be capable of rocking on pivots. A bracket connected to the main frame carries an adjustable finger, that rests in contact with either of the formers, and thus the lateral vibrations of the arbor and the work will be governed by the undulating surface of the former. Another arm bolted to the frame bears against the cam-disk, which latter thus communicates endwise movement to the arbor.



The vibratory frame B, spindle C, loose cone-pulley *i*, pinion F, wheel *f''*, formers D, disk *h*, roller *i*, and eccentrically-movable shaft *m*, with its wheel and pinion *n n'*, combined substantially as and for the purposes specified.

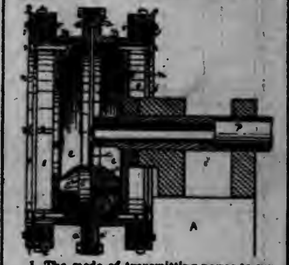
175,767. SAND-BLAST CHARTING DEVICES. Rudolph J. Schwab, Oshkosh, Wis. [Filed Jan. 3, 1876.]

The socket-clamp A, provided with an inner cord-grasping surface, and bearings *b*, in which is placed the cord-guiding pulley *c*, all of a single piece, combined with the pivoted cord-clamping lever B, extending longitudinally along the face of the cask to which the socket-clamp A is secured, substantially as herein described.



175,768. METAL-SAWING MACHINES. Jos. S. Seaman, Pittsburg, Pa., assignor to himself, J. B. Young, and Robert Sleeth, same place. [Filed Mar. 17, 1876.]

Brief.—The conically-ended bolts rest upon the sloping-faced ring-shaped track, by means of which the disk is fed to its work, and on which it revolves around the article to be cut, when brought up to the same. The feeding is done by bringing the tracks together, and this is effected by means of a lever connected thereto, which forces a wrist-plate connected therewith, through inclined slots on the fixed frame.



1. The mode of transmitting power to run a revolving saw or cutter by means of revolving frictional bearings, substantially as set forth.

2. A circular saw or cutter having simultaneously a rotating motion on its own axis, and a revolving motion around the article or object to be cut, sawed, or severed, substantially as set forth.

3. An adjustable, sloping-faced, ring-shaped track, *c*, in combination with the conically-ended bolt *a* of a revolving saw or cutter, substantially as set forth.

4. An adjusting-lever, *y*, and suitable connections to, and in combination with, fixed frame-rings, movable adjusting-rings, adjustable track, and eccentric feed, substantially as set forth.

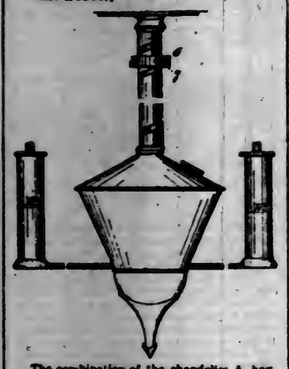
5. The box or drum D made with groove *e*, open on its outer periphery through the greater part of its length, substantially as and for the purpose set forth.

175,769. ROPE HALTERS. W. M. Shinnick, Zanesville, Ohio. [Filed Mar. 25, 1876.]



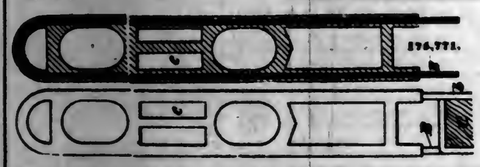
The check, crown, and nose portions of a rope halter formed of a piece of twine woven, substantially as described.

176,770. COAL-OIL CHANDELIERS. James Shriver, Baltimore, Md., assignor of one-fifth of his right to Edmund V. Hermage and James R. Brower, same place. [Filed Mar. 4, 1876.]



The combination of the chandelier A, having arms D and burners E, with the slotted and notched adjusting-tube B and sliding suspension-rod F, the latter having pin or bracket G, provided with perforations g arranged opposite to the burners E, substantially as and for the purpose herein shown and specified

176,771. FENCE-POSTS. Joshua B. Sickler, Chew's Landing, N. J. [Filed Jan. 29, 1876.]



The improved cast-iron fence-post A, having the wrought-iron rod b embedded therein, and projecting from the lower end to form footstrings for the fence-pieces C, substantially as shown and described.

176,772. HOG-SCRAPING MACHINES. Newman Silverthorn, Summerville, Canada. [Filed Apr. 29, 1876.]

Brief.—An endless belt carries scrapers, which are provided with cleaners, which operate after the action of the scrapers. Segmental ribs are attached to the sides to cause the scrapers to conform to the shape of the animal being scraped.



1. The flexible endless belts E, having the scraper-holders F, scrapers G g, scraper-cleaners H, and clips A, combined with the drums D D', adapted to be rotated by suitable mechanism, substantially as and for the purposes specified.

2. In combination with the flexible endless belts E, provided with scraping and scraper-cleaning devices, as described, the ratchet-rack N, having teeth O, substantially as specified, for the purposes set forth.

3. In combination with the flexible endless belts E, provided with scraping and scraper-cleaning devices, as described, the segments M for adapting the belts to the shape of the carcass, substantially as and for the purposes described.



176,772.



176,773.

176,773. SHAWL-STRAP HANDLES. Richard Sims, Newark, N. J. [Filed Nov. 4, 1875.]

A handle for shawl-straps and other purposes, struck up from a single piece of sheet metal in concave form, and having the ends bent over and forming the loops H H to receive the rings U U, substantially as set forth.

176,774. APPARATUS FOR THE SEPARATION OF STONES, &c., FROM CLAY, &c. Adolph Siekmon and Otto Roet, Budapest, Hungary, assignors of one-half their right to Andw. G. Myers, New York, N. Y. [Filed Mar. 17, 1876.]

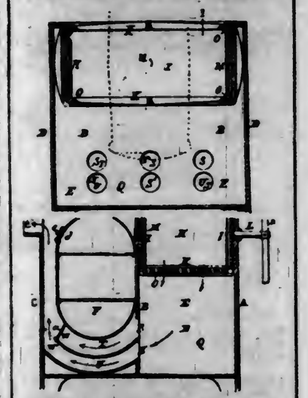
Brief.—Two crushing-rollers break the clods of clay, and permit it, with the stones that may be mixed with the clay, to fall into the hopper onto disks, where the mass is thrown by the centrifugal action of the disks against an exterior ring surrounding said disks, by means of which the clay is disintegrated and the stones separated.

1. The shape of the crushing rollers, having teeth c' with peripherical sharp edged ribs c'' between them, as described.

2. The two revolving disks a and b, bearing the concentric conical rings e, as and for the purpose specified.

3. The fixed projections K surrounding the revolving disks a and b, as stated.

176,775. COOKING-STOVES. J. R. Sprague, St. Louis, Mo. [Filed May 24, 1876.]



1. The turning fire-basket, having removable sliding fire-grates, substantially as set forth.

2. The combination of the turning fire-basket with the case A B C D, having top plate G for the reception of the grate-bars when the same are slid out of the fire-basket, substantially as set forth.

3. The combination of turning fire-basket H I K, flues T C, damper e, and oven V, as set forth.

176,776. TOOLS FOR SHAPING THE NECKS OF GLASS BOTTLES. John L. Stewart, Ellicott City, Md. [Filed Mar. 22, 1876.]



1. The combination, with a pair of clamping-jaws, A, of a central rod, C, carrying upon its lower end a bit, b, for the purpose of forming a key-hole orifice, as described.

2. The combination, with a pair of clamping-jaws, A, of a central rod, C, having a bit, b, and operating with an automatic longitudinal movement, for the purpose described.

3. The combination of springing jaws A, loose sleeve D, having bit f and cam b, rod C, having bit b and cam e, the spring G, and the collar F, having arms g, as and for the purpose described.

4. The jaws A, rod C, and sleeve D, in combination with the socket E, for the purpose described.

5. The loose sleeve D, carrying disk i and bit f, in combination with the longitudinally-moving rod C, carrying bit b, for the purpose described.

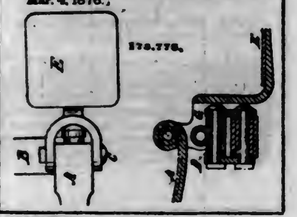
176,777. ADDING-PENCILS. Marshall M. Smith and Fletcher W. Potts, Verdi, Nev. [Filed Aug. 28, 1876.]

1. The combination of rotating spirally grooved and numbered cylinder D, slotted case A, index F, and a longitudinally-sliding pencil-point, M, geared with the cylinder, for operating it, substantially in the manner described.

2. The combination of pointer N and scale O with the sliding pencil-point M, rotating grooved and numbered cylinder D, index F, and slotted case A, substantially as specified.

3. The ratchet-gavel L, wheels J K, spring G, and follower F, combined with the sliding pencil-point M, rotating cylinder D, and the slotted case A, substantially as specified.

176,778. CARRIAGE AND WAGON STEPS. J. F. Studebaker, South Bend, Ind. [Filed Mar. 4, 1876.]



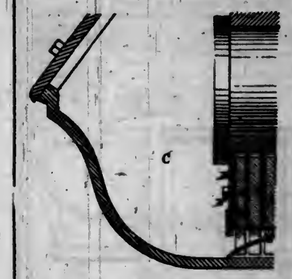
176,778.

1. In wagons and other vehicles, provided with platform-springs, a step attached to the same at the point of intersection between the side and cross springs, substantially as and for the purpose set forth.

2. A step, designed for attachment to platform-spring wagons or other vehicles, embodying in its construction a vertical shank and transverse bifurcated head or arms, provided with suitable holes for securing the same to the head of a side spring, substantially as and for the purposes described.

3. In combination with the side and cross springs and coupling A B D of a platform-spring wagon or other vehicle, the step E, provided with a vertical shank, terminating in a bifurcated head, and secured in position by a bolt or bolts, substantially as and for the purpose hereinbefore set forth.

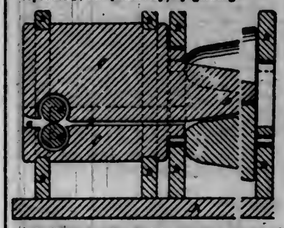
176,779. CAR-AXLE LUBRICATORS. Peter Sweeney, New York, N. Y., assignor to Robt. Somerville, same place. [Filed Jan. 21, 1876.]



A lubricator for car-axles, constructed of alternate strips A of felt and strips B of rawhide, or their equivalent material, such strips being fastened together and composing an absorbent pad, substantially as described.

176,780. MACHINES FOR BENDING TUBE-SHELLS. Stephen P. M. Tesher, Philadelphia, Pa. [Filed Mar. 11, 1876.]

Brief.—The tapered mandrel is integral with the revolving head, through which the shell is fed in a direction parallel to the axes of the mandrel and bending-rolls, the head having a slit through it, and a pair of feed-rolls, for conducting and feeding the shell. The mandrel is surrounded at equal distances from itself and from one another by three tapered bending-rolls, whose largest ends are juxtaposited to the outer or small end of the mandrel, and each of these rolls (the feed-rolls and the mandrel) are supposed to be driven separately, but positively, by gearing.



1. The revolving bed C, having a mouth, a, and channel b, for the passage of a plate to be bent, in combination with the tapered mandrel D, substantially in the manner and for the purposes set forth.

2. The combination of three or more bending-rolls, with the tapered mandrel D, for the gradual bending of the plate into cylindrical form, substantially as described.

3. The combination of the feed-rolls G G with the revolving bed C, having a channel, b, for feeding the plate to the bending-rolls, substantially as set forth.

176,781. GRAIN-BINDERS. Evert M. Thompson, Chicago, Ill. [Filed Mar. 16, 1876.]



176,781.

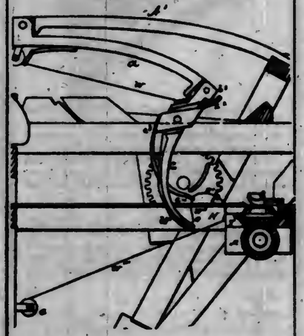
1. The twister D, provided with the cog-plate C, and having the journal-bearing faces b b, substantially as and for the purpose set forth.

2. The twister D and cog-plate C, provided with slots, as described, in combination with the wire-guide c c' c'', substantially as and for the purpose set forth.

3. In combination with a twister, constructed so as to admit of being journaled on its upper plain surfaces and upper conical bearing, the cog-wheel C with its upper beveled surface, constructed so as to admit of being journaled on that surface.

4. The twister D, in combination with the circular revolving hub and bar B, substantially as and for the purpose set forth.

176,782. GRAIN-BINDERS. Evert M. Thompson, Chicago, Ill. [Filed Feb. 17, 1876.]



1. The oscillating gatherer and compressor G, in combination with the arms b b and the arms A a, substantially as and for the purpose set forth.

2. The oscillating arms b b' in combination with the wheel W', pinion p', miter M, and twister T, substantially as and for the purpose described.

3. The twister T, provided with the slots, not radial, as shown, in combination with the gatherer G, provided with a straddler, constructed to operate substantially as and for the purpose set forth.

4. The combination of the compressor and straddler a' a' a''', constructed to operate substantially as and for the purpose described.

5. The pawls D, for elevating the gatherer in its retrograde movement over the grain, and permitting the descent of the gatherer in its forward movement, substantially as set forth.

6. The twister T, constructed with the slots, not radial, and the peculiar shape shown, in combination with the plate A', substantially as and for the purpose set forth.

176,783. GRAIN-BINDERS. Evert M. Thompson, Chicago, Ill. [Filed Feb. 29, 1876.]

1. The compressor K, in combination with the guide-arm k and frame M, substantially as and for the purpose set forth.

2. The compressor K and guide-arm k, in combination with the cross-bar J, arms I I, and wheels W and W', substantially as and for the purpose set forth.

3. The compressor K, cross-bar J, arms I I, and wheel W', provided with the cam h, substantially as and for the purpose set forth.

4. The compressor K, in combination with the grooved guides n n and springs m m, substantially as and for the purpose set forth.

5. The compressor K, springs m, and guide-grooves n, in combination with the cross-bar J, arms I I, and wheels W W', substantially as and for the purpose set forth.

6. The straddler N, in combination with the stop n', the compressor K, and twister G, substantially as and for the purpose set forth.

7. The compressor K, guide-arm k, and straddler N, in combination with the stop n' and twister G, substantially as and for the purpose set forth.

8. The cog-wheel C and pinion D, in combination with the sliding shaft d provided with the collars d' d'', spring E, miter F and f, and twister G, substantially as and for the purpose set forth.

9. The wheel W', provided with the cam h, cog-wheel C, pinion D, shaft d, miters F f, twister G, and sliding twister-case, substantially as and for the purpose set forth.

10. The twister G, provided with slots cut with particular reference to the wire striking the edge of the guide and cutting-plate, in combination with a case having a lateral motion while the twister is revolving, substantially as and for the purpose set forth.

11. The twister G, provided with slots not radial, in combination with its moving case and the guide or cutting-plate g, substantially as and for the purpose set forth.

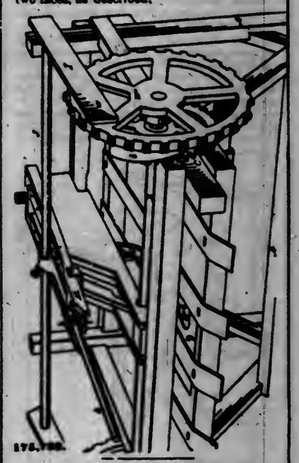
12. The combination of the twister G, provided with slots not radial, with its sliding case, substantially as and for the purpose set forth.

13. The combination of the twister G, provided with slots not radial, with its sliding case and the spring H, substantially as and for the purpose set forth.

14. The twister G, provided with slots not radial, and with a sliding case and spring H, in combination with the miters F and f and the sliding shaft d, substantially as and for the purpose set forth.

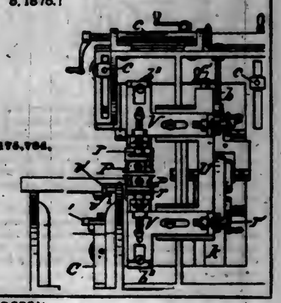
15. The combination of the twister G, spring H, miters F and f, shaft d, wheels W W', arms I I, cross-bar J, and compressor K, substantially as and for the purpose set forth.

16. The single plate-twister G, provided with slots not radial, journaled on its periphery, and having an additional bearing on its two faces, as described.



176,782.

176,784. THRONING-MACHINES. Hiram Thompson, Worcester, Mass. [Filed Aug. 5, 1876.]



176,784.

1. The frame B, constructed with the central support B' and the projecting brackets C and C', in combination with the cutter-heads K and K', the shafts of which are supported in bearings attached to the brackets outside of the cutter-heads, substantially as described.

2. In combination with the frame B, the frame G, having the two cutters-heads K and K' mounted thereon, and provided with the guides and adjusting-screw h, all constructed to operate substantially as described, whereby the two cutter-heads can be raised or lowered without varying their relative positions.

3. The combination of the frames or plates E, F, G, and B, the former having the upper cutter-head mounted thereon, and said parts being constructed and provided with the guides and adjusting-screws, as set forth, whereby the upper cutter-head can be adjusted vertically or longitudinally independent of the other or lower cutter head, as described.

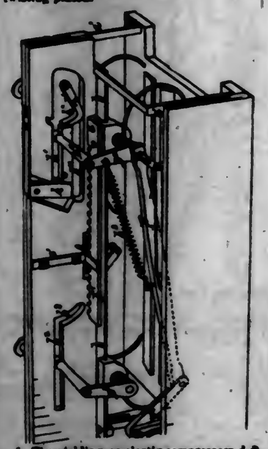
4. The sliding frame H, with the pulley a arranged in relation to the cutter-head shafts, as shown, in combination with the adjusting-screw b and crank-shaft c, provided with the bevel-gear, substantially as described.

5. The table support or way D, provided with the rib p', flange r', and the opening p, whereby the lower cutter-head is supported at its outer end, and an unbroken way and rib for the table and its gib are provided, as set forth.

6. The detachable frame or plate U, having the plates V and P attached thereto, so as to be adjusted at right angles to each other, with the cope-cutters P mounted on the latter, the whole being secured to the frame B and provided with the adjusting-screws s' and r', all arranged to operate substantially as shown and described.

175,785. GRAIN-BINDERS. Chas. L. Travis, Great Valley, N. Y., assignor to the Grain-Binder Company, Fremont, Ohio. [Filed July 28, 1876.]

Brief.—Two reciprocating and vibrating compressors commit to move forward and back relatively to each other by means of a pinion and racks, to which are imparted positive motions from a crank. In conjunction with the movements of the compressor-heads, the wire-carrying arms are vibrated; and hold the wires in such position that they are twisted together to form a band, by means of a traveling and twisting pinion.



1. The yielding or elastic compressors d d', in combination with the vibrating wire-carrying arms J J', operating substantially as described, the rear compressor d' being adapted to carry the bound bundle to the rear of the platform, where it is discharged with the aid of the rear wire-carrier, substantially as specified.

2. The combination of the gavel-compressors, and the independently-vibrating wire-carrying arm or arms with the single actuating-crank, imparting a positive movement in both directions thereto, substantially as described.

2. The combination, with the compressing compressors d d', and vibrating wire-carriers J J', of the traveling twisting-pinion n, and its actuating-rack L, arranged and operating substantially as described.

175,786. BINDER-PLATFORMS FOR HARVESTERS. Charles L. Travis, Great Valley, N. Y., assignor to the Grain-Binder Company, Fremont, Ohio. [Filed July 28, 1876.]

Brief.—The binder-platform is so connected with the main frame as to balance or nearly balance the latter upon its axle.

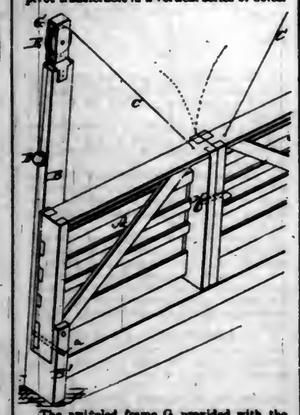


1. The combination of the binder-platform O with the main frame, through the medium of the grain-platform and the bar K, arranged and operating substantially as described.

2. The bar K and spring m, applied to and operating in combination with the main frame and binder-platform, substantially as described.

175,787. TILTING GATES. Wm. J. Turner, Battle Creek, Mich. [Filed Apr. 23, 1875.]

Brief.—The gate divides in the center, each half rising upon a pivot at its post end, said pivot transferable in a vertical series of holes.



The swiveled frame G, provided with the pulley E, arranged upon the top of the post B', in combination with the gate A, adjustably pivoted at its lower outer end for vertical rotation, the cord C, and weight D, all substantially as set forth.

175,788. ILLUMINATING AND HEATING APPARATUS. Eugene Underwood, Sr., Louisville, Ky. [Filed Mar. 20, 1876.]

1. The weights f, in combination with the pistons a, tank A, and pipes B, to supply oil to the flames C in the mode described, applied to a permanent and stationary apparatus, as described, for the purposes named.

2. The combination of the oil-pipes B, with tank A, pistons a, weights f, cord g, and windlass h, with the air-pipes G and with air-blower F, applied to a permanent stationary apparatus, for the purposes described.

3. The receptacle D, in combination with the pipe B, having an opening where it is joined to receptacle D, for the purposes described.

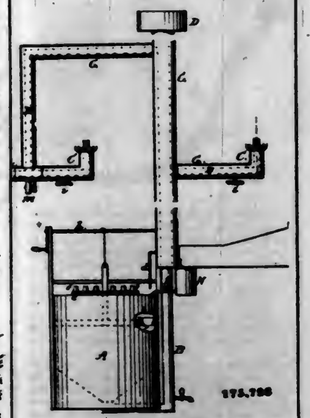
4. The inner pipes B', forming the ends of the branches of the main pipe B, combined with the exterior pipe and leaving an intervening space, the ends of the two pipes being arranged with relation to each other substantially as described, so that any overflow from the inner oil-pipe shall escape in the space between the two and flow back through pipe G to the catch-basin.

5. The air-pipes G, arranged to catch or receive any leakage or overflow of oil from pipes B, and to convey it back to tank A, as described.

6. The catch-basin H, in combination with air-pipe G, pipe B, and tank A, to receive and hold the oil that may overflow or leak from the pipes B until emptied into tank A, as described.

7. The tank A and weighted piston, in combination with the oil-pipe and branches, air-pipe, and blower of a stationary apparatus, as and for the purposes set forth.

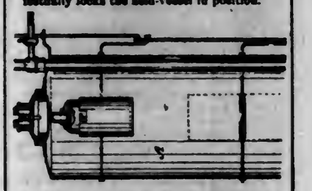
8. In a stationary apparatus, the oil-pipe arranged within the air-pipe, in combination with the tank and the blower and its forcing apparatus, as set forth.



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175,789. CHEMICAL FIRE-EXTINGUISHERS. Jacob B. Vandyne, Louisville, Ky. [Filed June 13, 1876.]

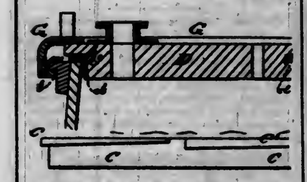
Brief.—In a mounted cylinder or reservoir there are supported, on shafts, an acid-vessel and an agitator. The shafts extend out through the side of the reservoir, and are provided with cranks, which are connected by a rod, so that they revolve together. Another rod connected to the crank of the acid-vessel extends to the upper floor of the building, and a stand-pipe is connected to the reservoir; so that the device may both be operated from and discharged above the upper floors. A stop-collar on the upper rod, engaging with a check, prevents the cranks getting upon the dead-center, while the weight of the rod effectually locks the acid-vessel in position.



1. The combination, with the horizontal shaft of the acid-vessel and the horizontal shaft of the agitator, of a suitable outside connection, whereby the operation of the two is made simultaneous, as and for the purpose described.

2. The combination, with the acid-vessel and the guide l, of the rod H, having a stop-projection attached thereto and extending up through the building, for the double purpose of holding the acid-vessel in position and adapting the same to be upset from the upper stories without preliminary adjustment, substantially as described.

175,790. BARREL-HEADS. Chas. H. Voute, Philadelphia, Pa. [Filed Mar. 11, 1876.]



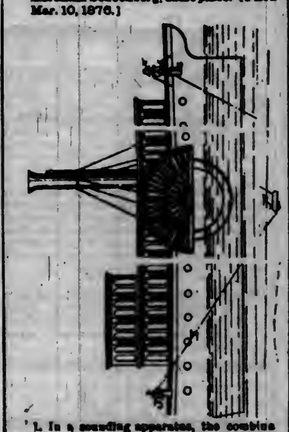
The combination, with a barrel, of the metal head C, with notched flange C', the top or head D, with circular offset b, with groove or incline b', the rubber gasket d, and flanged ring G, with lugs f, all constructed substantially as and for the purpose set forth.

175,791. HARNESS-PADS. G. W. Vosburgh, Eau Claire, Wis. [Filed Jan. 22, 1876.]



As an article of manufacture, a harness-pad constructed with a metallic form, lined on its under face with sort metal, as shown, with an external covering of leather secured thereto by the overlapping metal, and provided with loops a a, all substantially as and for the purpose set forth.

175,792. SEA-SOUNDING AND ALARM APPARATUS. Frank K. Wagner, New York, N. Y., assignor of one-half his right to Abraham Schoenberg, same place. [Filed Mar. 10, 1876.]



1. In a sounding apparatus, the combination of the sounding-line E with the case or shell D, which is, by universal joint, connected with the body of the vessel, substantially as herein shown and described.

2. The combination of the sinker F and sounding-line E with the drum d, pointer j, and counter-weight G, substantially as and for the purpose herein shown and described.

3. In combination with the movable pointer j of a ship's sounding apparatus, the alarm-actuating prong or wheel l, arranged to be operated by the motion of the sounding-line, substantially as specified.

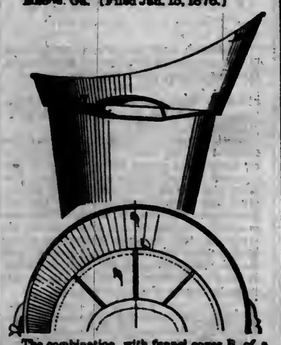
4. The combination of the sinker F with the counterweighted sounding-line E and bracing-line I, substantially as specified.

5. The combination of the sinker F with the counterweighted sounding-line E and bracing-line I, substantially as specified.

6. The windlass J, combined with the bracing-line I, sinker F, and sounding-line E, substantially as herein shown and described.

7. The brazed sinker F, provided with the horizontal scraping-tube c, which is open in front, substantially as herein shown and described.

175,793. SLOP-BUCKETS. Benj. P. Walker, Macon, Ga. [Filed Jan. 15, 1876.]



The combination, with funnel cover B, of a slop-jar provided with a flange C, having the upward extension D, as and for the purpose specified.

175,794. TOOTH-PICKS. W. W. Wallace, Philadelphia, Pa. [Filed Mar. 16, 1876.]

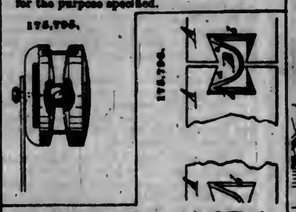


1. The bow A, in combination with an endless elastic cord, B, stretched from the ends thereof, substantially as and for the purpose set forth.

2. The bow A with notches b, and the endless cord B connected thereto, substantially as and for the purpose set forth.

175,795. TRUSS-PADS. Charles L. Warner, Homer, Iowa. [Filed Feb. 28, 1876.]

A truss-pad and base-plate, separated at the center by a ball working in corresponding recesses or sockets of each, and held together by flexible connections, substantially as and for the purpose specified.



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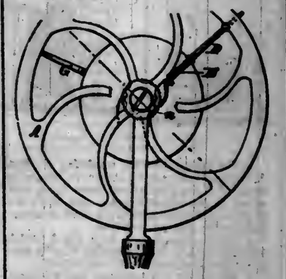
175,796.

175,796. WOODEN ROOFS. John C. Wands, Nashville, Tenn. [Filed Mar. 4, 1876.]

1. The boards A, having dovetailed grooves a a in their edges, in combination with the curved expansible gutters D, provided with vertical flanges b, embedded in cement, substantially as described, and for the purposes set forth.

175,797. MEASURING-WHEELS. Thomas B. Way, Springfield, Ohio. [Filed Mar. 16, 1876.]

Brief.—A wheel and register-dial combined, and revolving loosely upon a stud, which is fixed firmly to a handle. The register-dial is worked automatically by a pin passing through the flange of the large wheel, and into teeth placed on the back of the register, thus for every revolution indicating one point on the register-dial.

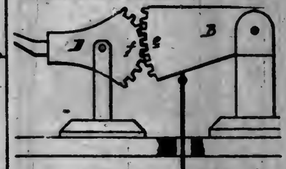


1. The combination, substantially as shown and described, of a measuring-wheel, a handle or frame having the wheel mounted thereon, and an automatic register attached to the wheel, and having no connection with the handle.

2. The combination of the handle B, wheel A, dial C, provided with ratchet-wheel c, and sliding rod D, with its spring E.

175,798. WINDLASS-OPERATING MECHANISMS. Jacob H. Weaver, Mauricetown, N. J. [Filed Mar. 9, 1876.]

Brief.—Ratchet mechanism is worked by a rod attached to each side of the pivot of a lever, which lever has a toothed segment at each end, geared with by other segments on the ends of pivoted levers.



The combination described of the pivoted lever E, connected to the windlass mechanism, and having at each end a toothed segment, e, with the levers D D and their toothed segments f.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

175,799. WAGON-BRAKES. L. B. Welch, Mount Vernon, Ohio. [Filed July 9, 1875.]

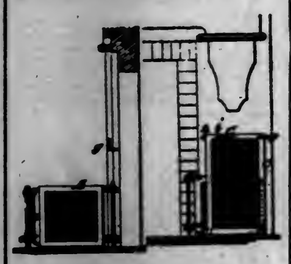
Brief.—The front and hind shoes are connected upon both sides by a rod.



The connecting-rod G, double acting levers E and F, and connecting-rods a a and c c, in combination with the cross-bars B and D, substantially as described.

175,880. FIRE-PLACE FIXTURES. Henry C. Wemen, Fulton Station, Ky. [Filed Feb. 28, 1876.]

Brief.—The hinge-connection of the middle and side sections allows the former to be turned open end.



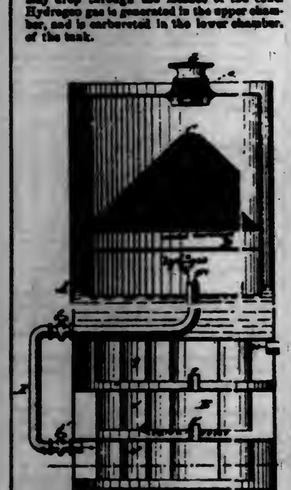
1. The sectional fender, consisting of parts A A hinged to the jambs, and part C hinged to the part A, the joint of the latter being contrived to disconnect in part, and allow the section C to fold up against the jamb, substantially in the manner described.

2. The combination of hook *g* and stud *h* with the middle folding-section C of a fire-place fender, substantially as specified.

3. The handle *i*, constructed and arranged to form a rest for the shovel, as specified.

175,881. GAS GENERATORS AND CARBURETTERS. Charles A. White, Hartford, Conn. [Filed Mar 29, 1876.]

Brief.—A cone of wire-gauze or perforated sheet metal is secured within the holder, for supporting and distributing the metal turnings. A perforated diaphragm is placed below the cone to catch the finer particles that may drop through the meshes of the cone. Hydrogen gas is generated in the upper chamber, and is carbureted in the lower chamber of the tank.



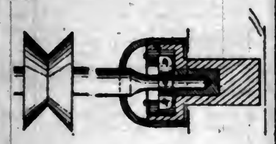
1. In the gas apparatus herein described, the combination of the generator B with the fixed perforated distributing-cone C, constructed to operate substantially as herein shown and described.

2. The combination, with the generator B, of the perforated cone C and perforated diaphragm D, in the manner and for the purpose set forth.

3. The combination, with the tank or reservoir A, of the generator B, provided with tangential *d*, cone C, and diaphragm D, the compound carburetor B, and pipe F, all constructed and arranged to operate as and for the purposes shown and described.

175,882. SPINDLE-STEP LUBRICATORS. H. Wherrell, Paterson, N. J. [Filed Mar. 21, 1876.]

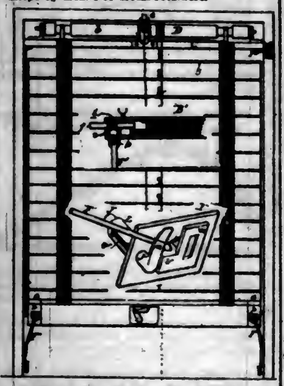
Brief.—A collar having two projecting arms fits loosely on the spindle, and the oil-cup has flanges projecting from the sides, to prevent the collar from turning with the spindle; the object of the collar being to prevent the oil from being forced around too rapidly by the spindle, thereby causing it to overflow and waste.



A collar, C, with one or more projections, D, in combination with one or more flanges, B, in the oil-cup, substantially as specified.

175,883. VENETIAN BLINDS. Charles Widemann and Jacob Heim, New York, N. Y. [Filed Feb. 1, 1876.]

Brief.—A ratchet and pawl arranged at the center of the top roller. A cord attached to the bottom slat passes through slots in each slat, and around pulleys on the roller. The lower slat is held from swinging by spring-bolts that engage with grooves in the window-frame. Said bolt is arranged in a case provided with lugs for the attachment of the extending rod. A plate is attached to the window-frame, having spring-fingers to hold the outer end of the extending rod. The cross-strips of the ladders are attached to the side strips by means of metal retainers.



1. The combination, in a Venetian blind, of the ratchet *d*, arranged in the center of the roller D, and a pawl, *e*, hung to a standard, F, on the cross-strip C, substantially as set forth.

2. The combination of the slats, having slots in the center, grooved pulleys *c c* on the roller, the pulley *c'* on the lower slat, and the cord attached to said slat, and passing through said slots and round the pulleys, as shown and described.

3. The combination of the slat B', bolts *f f*, and springs *e e*, as set forth.

4. The cam G, adapted to the slat B', carrying the bolt *f*, having an L-shaped slot, *a*, and provided with lugs *g* for the attachment of the rod F', as specified.

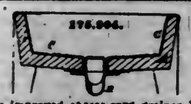
5. The spring-bars J, having fingers *n*, arranged to retain the rods F', as set forth.

6. The plate I, carrying the hasps *v*, hollow lugs *o*, and spring-bars J, and adapted to be attached to the window-frame, as set forth.

7. The combination, in a Venetian blind, of the side strip *h*, cross-strips *g g* of woven fabric, and metal retainers K, threading through both strips and bent down, as set forth.

175,884. CURD-DRAINERS. James Wilder, West Rupert, Vt. [Filed Jan. 29, 1876.]

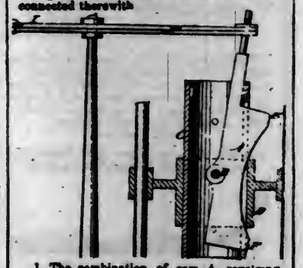
175,885.



The improved cheese-curd drainer, having the sheet-metal lining C extended through the discharge-slot and secured to, or formed solid with, the discharge-spout D, and the strainer F arranged in said slot, all as shown and described.

175,886. DEVICES FOR CONVERTING MOTION. Charles E. Willis, New York, N. Y. [Filed Feb. 21, 1876.]

Brief.—The cam is pivoted within and projects through the slotted, tubular, and revolving support, which is surrounded by a ring reciprocating thereon, and as it comes in contact with the projections on the cam, reciprocating motion is transmitted to the device connected therewith



1. The combination of cam A, revolving support C, and reciprocating ring D, substantially as specified.

2. The reciprocating ring D combined and arranged with double cam A, having two projections, E, substantially as specified.

3. The combination of the parallel bar frame I and the variable cam A, substantially as specified.

175,887. PORTABLE FENCES. B. F. Wilson, Gosport, Iowa. [Filed Jan. 22, 1876.]

Brief.—The fence-panels are supported on notched braces, which are inclined, and connected near their lower ends by a notched cross-brace, which is pivoted to the inclined braces. Pins on the upper projecting ends of the inclined braces prevent the spreading of the braces, and permit the removal of the panels.



The side bars C C, formed at their upper ends with notches *b* and projecting prongs *h*, with locking-pins *i*, in combination with the notched braces D, pivoted to the side bars, so as to be elevated above the ground, and the overlapping fence-panels, all constructed substantially as and for the purposes herein set forth.

175,887. MODES OF SMOOTHING THE INTERIOR SURFACES OF IRON PIPES. Frank Wister, Philadelphia, Pa., assignor of one-half his right to Jas. Tatham, same place. [Filed Nov. 6, 1876.]



The within-described mode of preparing iron tubes for metallic linings—that is to say, by driving or forcing through the same a plug slightly less in diameter than the interior of the tube, and having a rounded or tapered front end, thus flattening down the internal projections, all as set forth.

175,888. BRICK-MACHINES. Newton J. Webb, Canal Winchester, Ohio. [Filed Mar. 13, 1876.]

Brief.—The dies, in their forward movement, project into the molds, thereby delivering their contents within them without disturbing their carded sides. As they retreat to receive the next batch of mud from the presser, the shaped mud projecting into the molds is cut off at the surface of the molds, forming bricks.



1. The combination of the presser C, dies D, molds E, and cutters F, substantially as specified.

2. The presser C, dies D, and operating-lever H, combined and arranged to operate the presser and the dies simultaneously in opposite directions, substantially as specified.

3. The reciprocating mold-holder R, molds E, combined with the dies D and cutters F, substantially as specified.

4. The cutting-gage I, combined with the cutters F, dies D, and molds E, substantially as specified.

5. The dies D, coupled to the operating-lever H, by yoke K and stud J, arranged to allow the dies to rest a portion of the time the presser is moving up, substantially as specified.

175,889. SPEED-GAGES. Chas. J. H. Woodbury, Lynn, Mass. [Filed Dec 22, 1875.]



1. The jointed rhombic frame S surrounding the spindle D, and weighted at opposite diagonal corners, and adapted to revolve with the driving-spindle in a constant plane at right angles to the axis of the spindle, and to have its form changed by the action of centrifugal force, substantially as described.

2. The combination of a jointed rhombic frame, S, weighted at opposite diagonal corners, arranged to surround the spindle D and adapted to revolve therewith in a plane at right angles to the axis of said spindle, the collar *c* and connecting-rods *d d*, as connected to said frame that a radial motion of its weights will cause a movement of the collar *c* lengthwise of the spindle around which all of the parts revolve, as and for the purpose described.

3. The combination of the weighted and jointed rhombic frame S, collar *c*, clutch-hook *f*, and lever *g*, all arranged as set forth, and so operating to impart an oscillating motion to the segment I, as and for the purpose described.

4. The combination of the collar *c*, provided with the annular groove *e'*, clutch-hook *f*, lever *g*, counter weight M, and spring *n*, all arranged and operating as set forth, to insure the operation of the gage in any desired position, substantially as described

5. The segment I, having secured thereto the plate O provided with a cam-shaped edge, in combination with a spring, N, arranged to bear against said cam-shaped edge of the plate O, as and for the purpose described.

6. The combination of the segment I, reaction-spring N, and regulating-screw *p*, arranged and adapted to operate as and for the purposes described.

175,890. SPRING-GAGES. Chas. J. H. Woodbury, Lynn, Mass. [Filed Dec 22, 1875.]

1. The jointed rhombic frame S surrounding the spindle D, and weighted at opposite diagonal corners, and adapted to revolve with the driving-spindle in a constant plane at right angles to the axis of the spindle, and to have its form changed by the action of centrifugal force, substantially as described.

2. The combination of a jointed rhombic frame, S, weighted at opposite diagonal corners, arranged to surround the spindle D and adapted to revolve therewith in a plane at right angles to the axis of said spindle, the collar *c* and connecting-rods *d d*, as connected to said frame that a radial motion of its weights will cause a movement of the collar *c* lengthwise of the spindle around which all of the parts revolve, as and for the purpose described.

3. The combination of the weighted and jointed rhombic frame S, collar *c*, clutch-hook *f*, and lever *g*, all arranged as set forth, and so operating to impart an oscillating motion to the segment I, as and for the purpose described.

4. The combination of the collar *c*, provided with the annular groove *e'*, clutch-hook *f*, lever *g*, counter weight M, and spring *n*, all arranged and operating as set forth, to insure the operation of the gage in any desired position, substantially as described

5. The segment I, having secured thereto the plate O provided with a cam-shaped edge, in combination with a spring, N, arranged to bear against said cam-shaped edge of the plate O, as and for the purpose described.

6. The combination of the segment I, reaction-spring N, and regulating-screw *p*, arranged and adapted to operate as and for the purposes described.

175,890. SPEED-GAGES. Chas. J. H. Woodbury, Lynn, Mass. [Filed Dec 22, 1875.]

1. The jointed rhombic frame S surrounding the spindle D, and weighted at opposite diagonal corners, and adapted to revolve with the driving-spindle in a constant plane at right angles to the axis of the spindle, and to have its form changed by the action of centrifugal force, substantially as described.

2. The combination of a jointed rhombic frame, S, weighted at opposite diagonal corners, arranged to surround the spindle D and adapted to revolve therewith in a plane at right angles to the axis of said spindle, the collar *c* and connecting-rods *d d*, as connected to said frame that a radial motion of its weights will cause a movement of the collar *c* lengthwise of the spindle around which all of the parts revolve, as and for the purpose described.

3. The combination of the weighted and jointed rhombic frame S, collar *c*, clutch-hook *f*, and lever *g*, all arranged as set forth, and so operating to impart an oscillating motion to the segment I, as and for the purpose described.

4. The combination of the collar *c*, provided with the annular groove *e'*, clutch-hook *f*, lever *g*, counter weight M, and spring *n*, all arranged and operating as set forth, to insure the operation of the gage in any desired position, substantially as described

5. The segment I, having secured thereto the plate O provided with a cam-shaped edge, in combination with a spring, N, arranged to bear against said cam-shaped edge of the plate O, as and for the purpose described.

6. The combination of the segment I, reaction-spring N, and regulating-screw *p*, arranged and adapted to operate as and for the purposes described.

175,891. GAS-GENERATORS AND CARBURETTERS. Charles A. White, Hartford, Conn. [Filed Mar 29, 1876.]

Brief.—A cone of wire-gauze or perforated sheet metal is secured within the holder, for supporting and distributing the metal turnings. A perforated diaphragm is placed below the cone to catch the finer particles that may drop through the meshes of the cone. Hydrogen gas is generated in the upper chamber, and is carbureted in the lower chamber of the tank.

1. In the gas apparatus herein described, the combination of the generator B with the fixed perforated distributing-cone C, constructed to operate substantially as herein shown and described.

2. The combination, with the generator B, of the perforated cone C and perforated diaphragm D, in the manner and for the purpose set forth.

3. The combination, with the tank or reservoir A, of the generator B, provided with tangential *d*, cone C, and diaphragm D, the compound carburetor B, and pipe F, all constructed and arranged to operate as and for the purposes shown and described.

175,892. SPINDLE-STEP LUBRICATORS. H. Wherrell, Paterson, N. J. [Filed Mar. 21, 1876.]

Brief.—A collar having two projecting arms fits loosely on the spindle, and the oil-cup has flanges projecting from the sides, to prevent the collar from turning with the spindle; the object of the collar being to prevent the oil from being forced around too rapidly by the spindle, thereby causing it to overflow and waste.

A collar, C, with one or more projections, D, in combination with one or more flanges, B, in the oil-cup, substantially as specified.

175,893. VENETIAN BLINDS. Charles Widemann and Jacob Heim, New York, N. Y. [Filed Feb. 1, 1876.]

Brief.—A ratchet and pawl arranged at the center of the top roller. A cord attached to the bottom slat passes through slots in each slat, and around pulleys on the roller. The lower slat is held from swinging by spring-bolts that engage with grooves in the window-frame. Said bolt is arranged in a case provided with lugs for the attachment of the extending rod. A plate is attached to the window-frame, having spring-fingers to hold the outer end of the extending rod. The cross-strips of the ladders are attached to the side strips by means of metal retainers.

1. The combination, in a Venetian blind, of the ratchet *d*, arranged in the center of the roller D, and a pawl, *e*, hung to a standard, F, on the cross-strip C, substantially as set forth.

2. The combination of the slats, having slots in the center, grooved pulleys *c c* on the roller, the pulley *c'* on the lower slat, and the cord attached to said slat, and passing through said slots and round the pulleys, as shown and described.

3. The combination of the slat B', bolts *f f*, and springs *e e*, as set forth.

4. The cam G, adapted to the slat B', carrying the bolt *f*, having an L-shaped slot, *a*, and provided with lugs *g* for the attachment of the rod F', as specified.

5. The spring-bars J, having fingers *n*, arranged to retain the rods F', as set forth.

6. The plate I, carrying the hasps *v*, hollow lugs *o*, and spring-bars J, and adapted to be attached to the window-frame, as set forth.

7. The combination, in a Venetian blind, of the side strip *h*, cross-strips *g g* of woven fabric, and metal retainers K, threading through both strips and bent down, as set forth.

175,894. CURD-DRAINERS. James Wilder, West Rupert, Vt. [Filed Jan. 29, 1876.]

175,895.

The improved cheese-curd drainer, having the sheet-metal lining C extended through the discharge-slot and secured to, or formed solid with, the discharge-spout D, and the strainer F arranged in said slot, all as shown and described.

175,896. DEVICES FOR CONVERTING MOTION. Charles E. Willis, New York, N. Y. [Filed Feb. 21, 1876.]

Brief.—The cam is pivoted within and projects through the slotted, tubular, and revolving support, which is surrounded by a ring reciprocating thereon, and as it comes in contact with the projections on the cam, reciprocating motion is transmitted to the device connected therewith

1. The combination of cam A, revolving support C, and reciprocating ring D, substantially as specified.

2. The reciprocating ring D combined and arranged with double cam A, having two projections, E, substantially as specified.

3. The combination of the parallel bar frame I and the variable cam A, substantially as specified.

175,897. PORTABLE FENCES. B. F. Wilson, Gosport, Iowa. [Filed Jan. 22, 1876.]

Brief.—The fence-panels are supported on notched braces, which are inclined, and connected near their lower ends by a notched cross-brace, which is pivoted to the inclined braces. Pins on the upper projecting ends of the inclined braces prevent the spreading of the braces, and permit the removal of the panels.

The side bars C C, formed at their upper ends with notches *b* and projecting prongs *h*, with locking-pins *i*, in combination with the notched braces D, pivoted to the side bars, so as to be elevated above the ground, and the overlapping fence-panels, all constructed substantially as and for the purposes herein set forth.

175,897. MODES OF SMOOTHING THE INTERIOR SURFACES OF IRON PIPES. Frank Wister, Philadelphia, Pa., assignor of one-half his right to Jas. Tatham, same place. [Filed Nov. 6, 1876.]

The within-described mode of preparing iron tubes for metallic linings—that is to say, by driving or forcing through the same a plug slightly less in diameter than the interior of the tube, and having a rounded or tapered front end, thus flattening down the internal projections, all as set forth.

175,898.



175,899. MOLASSES-JUGS. Homer Wright, Pittsburg, Pa. [Filed Feb. 7, 1876.]

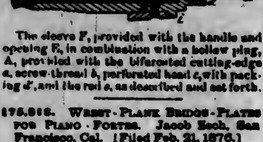


1. The combination of the hinged lid and the pivoted lever, having the arm *f* adapted to form a handle to the jug, substantially as and for the purpose specified.

2. The combination of the hinged lid and the pivoted lever, provided with a lug or stop, *a*, substantially as and for the purpose specified.

3. The combination of the hinged lid and the pivoted lever, provided with the lugs or stops *a* and *a'*, substantially as and for the purpose specified.

175,900. BUNG-BORING FAUCETS. Hugh J. Young, G. L. Ellis, and J. H. Strothman, Minneapolis, Minn. [Filed Sept. 20, 1875.]



The sleeve F, provided with the handle and opening F, in combination with a hollow ring, A, provided with the bifurcated cutting-edge *c*, screw-thread *b*, perforated head *c*, with packing *d'*, and the rod *e*, as described and set forth.

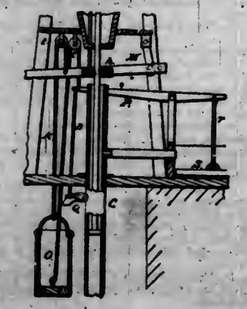
175,901. WRIST-PLATE BRIDGE-PLATES FOR PIANO-FORTES. Jacob Seeh, San Francisco, Cal. [Filed Feb. 21, 1876.]



The continuous double bearing bridge-plate D, secured to the wrest-plank, as shown, with the projection *g* and the wood facing-strips *m* and *n*, substantially as and for the purpose herein described.

175,902. WINDMILLS. John Zimmerman, Bartville, Ill. [Filed Mar. 16, 1876.]

Brief.—From the end of the lever is suspended a weight balanced by means of a bucket hanging from the end of a rope or chain, which passes up through the well-cover over a pulley, and is attached to said lever. In the bottom of the bucket is a valve, which is operated to let out its contents by means of a rope attached to a lever pivoted to a standard on the edge of the trough.



175,903. BUNG-BORING FAUCETS. Hugh J. Young, G. L. Ellis, and J. H. Strothman, Minneapolis, Minn. [Filed Sept. 20, 1875.]

The sleeve F, provided with the handle and opening F, in combination with a hollow ring, A, provided with the bifurcated cutting-edge *c*, screw-thread *b*, perforated head *c*, with packing *d'*, and the rod *e*, as described and set forth.

175,904. WRIST-PLATE BRIDGE-PLATES FOR PIANO-FORTES. Jacob Seeh, San Francisco, Cal. [Filed Feb. 21, 1876.]

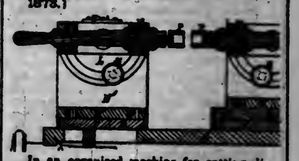
The continuous double bearing bridge-plate D, secured to the wrest-plank, as shown, with the projection *g* and the wood facing-strips *m* and *n*, substantially as and for the purpose herein described.

175,905. WINDMILLS. John Zimmerman, Bartville, Ill. [Filed Mar. 16, 1876.]

Brief.—From the end of the lever is suspended a weight balanced by means of a bucket hanging from the end of a rope or chain, which passes up through the well-cover over a pulley, and is attached to said lever. In the bottom of the bucket is a valve, which is operated to let out its contents by means of a rope attached to a lever pivoted to a standard on the edge of the trough.

In combination with the weighted lever M, arranged to operate upon a wind-wheel for throwing the same in and out of the wind, the float B, lever P, cord *e*, faucet Q, bucket O, with valve *n* and cords *b a*, all arranged to operate substantially in the manner and for the purposes herein set forth.

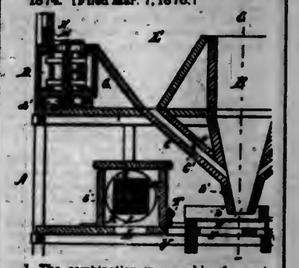
175,906. DIAMOND-CUTTING MACHINES. C. M. Field, Boston, Mass. [Filed July 24, 1873.]



In an organized machine for cutting diamonds or other precious stones, a bed-plate laterally adjustable upon a suitable tablet or support, and bearing a tool-holding carrier or "head-stock," to which alternating motions are imparted, substantially as and for purposes stated.

REISSUES.

7,006. MIDDLINGS-PURIFIERS. John Affleck, Burlington, Iowa, assignor to Robert L. Downston and Jane A. Miller, St. Louis, Mo. Patent No. 160,503, dated May 5, 1874. [Filed Mar. 7, 1876.]



1. The combination, in a machine for purifying middlings, of a fan for producing an ascending air current through a chamber in which the middlings to be operated upon pass, a reciprocating sieve for separating the middlings after being operated upon by the air-current, and a bolt for separating any flour that may be carried off by the air which passes it, from the worthless material which passes with each float, substantially as described.

2. The combination, in a machine for purifying middlings, of a fan for producing an ascending air-current through a chamber into which the middlings to be operated upon pass, and a revolving bolt, (arranged to receive the material through its head,) for separating any flour that may be carried off by the air which passes it, from the worthless material which passes with each float, substantially as described.

3. In a machine for purifying middlings, the combination of a fan for creating an ascending air-current through a chamber into which the middlings to be operated upon pass, a settling-chamber arranged between the main chamber and fan, and a revolving bolt arranged to receive through its head that portion of the material taken off by the air-current, and not returned to the main chamber, substantially as and for the purpose specified.

4. The expanding air-chamber B, formed with an enlarged central portion, and constructed at its upper and lower ends, and having a feed-spout arranged to deliver the material within said chamber below the air-exit opening in the upper contracting portion thereof, substantially as and for the purpose specified.

5. The expanding-chamber B and chamber R, pipes C and *s*, and valve *s'*, constructed substantially as described, and arranged to operate with the fan D and sleeve P, as and for the purpose specified.

6. The chamber B, pipes C a, and valve a', arranged to operate with the fan D and chamber B, substantially as and for the purpose specified.

7. The combination, with the pipe H and fan D, of the bolt I, provided with the bolting-cloth heads f f', substantially as and for the purpose specified.

7,084. PROCESSES FOR THE MANUFACTURE OF ILLUMINATING-GAS. Fredk. H. Blohbaum, Detroit, Mich., assignor, by mesne assignments, of two-thirds interest to J. T. Baker, trustee, Chicago, Ill. Patent No. 164,822, dated June 22, 1875. [Filed Mar. 9, 1876.]

1. The process of producing, at a single operation, a fixed or permanent illuminating gas of a required candle-power, by the simultaneous destructive distillation of wood, and a definite quantity of hydrocarbons at a high temperature, common to both distillations, substantially as described.

2. The process of procuring, at a single operation, a fixed or permanent illuminating-gas of a required candle-power, by causing the gas produced from the destructive distillation of wood at a high heat to combine with, carry along, and dilute, in the same vessel, the gas evolved from hydrocarbons in its passage to the stand-pipe, substantially as described.

7,085. CHAIN-PUMP BUCKETS. Edwin Hoyt, Stamford, Conn. Patent No. 163,013, dated May 11, 1875. [Filed Feb. 26, 1876.]

Brief.—A bucket of india rubber with a central hub, about which is a flange with annular indentations on both sides. In the periphery of the rim is a V shaped recess. This is connected with the flanges of the link by a recess inside the hub. Also, there are two recesses in the link-flange, to receive corresponding projections on the interior of the recess of the bucket-hub.



1. An india-rubber bucket, *a*, constructed with a central hub, *a'*, having the recess *c'*, adapted to be applied to a link, *c*, having the central flange *c*, substantially as and for the purpose set forth.

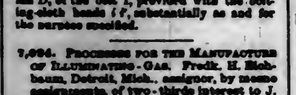
2. An india-rubber bucket, *a*, constructed with a flange or rim, *a''*, having curved or convex surfaces *a''* uniting and forming a rim edge, *a''*, substantially as described.

3. An india-rubber bucket, *a*, constructed with a hub, *a'*, and a flange or rim, *a''*, having a groove, *a''*, and curved or convex surfaces *a''*, substantially as described.

4. An india-rubber bucket, *a*, constructed with a central hub, *a'*, having the recess *c'* and provided with projections *c''*, adapted to be received within recesses on a link, and a flange, *a''*, provided with a V-shaped recess, *b*, substantially as and for the purposes set forth.

5. A link, *c*, provided with eyes or loops *c'*, and a central flange, *c*, formed with recesses *c''* in its periphery, substantially as and for the purposes set forth.

7,086. WIRE BALE-FASTENINGS. Edwin S. Lenox, New York, N. Y. Patent No. 98,169, dated Dec. 21, 1869. [Filed Feb. 3, 1876.]



1. A wire bale-tie and tie of one piece of flexible wire, having the loop B at one end, and having the other end bent back and twisted upon itself, so that the doubled wire can be passed through the loop.

2. A wire bale-tie, consisting of a loop on one end of the bale-band and a double wire catch upon the other, of wire, of the same size as, or continuous with, the bale-band wire, substantially as shown and described.

3. A wire bale-tie in which the catch is bent forward, so as to brace and support itself upon the loop end of the wire, instead of merely curving back upon itself in ordinary hoop form.

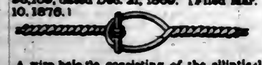
4. A wire bale-tie in which the part of the catch which is directly opposed to the strain tending to separate the wires is supported or braced upon the loop end of the wire.

5. A wire bale-tie in which that end of the wire forming the catch *c c c* is bent or doubled upon itself, substantially as shown and described.

6. A wire bale-tie in which that part of the wire forming the catch or hook *c c c* is bent upon itself and curved, so as to support or brace itself, substantially as shown and described.

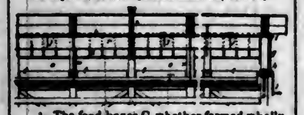
7. A wire bale band and tie, consisting of a single piece of flexible wire having a loop, B, at one end, and having the other end bent back and twisted upon itself when the doubled end of the wire is passed through the loop B.

7,087. WIRE BALE-FASTENINGS. Edwin S. Lenox, New York, N. Y. Patent No. 98,169, dated Dec. 21, 1869. [Filed Mar. 10, 1876.]



A wire bale-tie, consisting of the elliptical wire loop at one end, and at the other end having an eye, with a permanently attached cross piece of rigid metal passing through said eye, substantially as shown and described.

7,088. STOCK-CARS. John R. McPherson, Jersey City, N. J. Patent No. 161,807, dated Apr. 6, 1875. [Filed Mar. 14, 1876.]



1. The feed-boxes C, whether formed wholly within the vertical walls of a car for the transportation of live stock, as described, or partially within and partially without said walls, as shown.

2. Combined with a cattle-car, longitudinal hinged troughs, to be emptied outward from the car in the act of elevating them, substantially as set forth.

3. A car body having longitudinal openings O in its sides, in combination with hinged troughs T beneath openings O, and to operate to close them when elevated, substantially as set forth.

4. Water-sheds *u* within openings O in the sides of the car, in combination with hinged troughs, adapted to empty outward when elevated, substantially as set forth.

5. The flanged water-sheds *u*, in combination with the troughs T, having overlapping flanges *t* at their hinge edges, substantially as set forth.

6. The troughs T, having beveled ends *v*, in combination with a car body having doorways D in the sides and at the ends, as and for the purpose set forth.

7. Spark and water proof cribs C, in combination with a stock-car body, substantially as set forth.

8. The sliding rack-covers *r*, in combination with the cribs C, having racks *s* within the car, substantially as and for the purpose set forth.

9. The supply doors or covers *q* of the cribs, consisting of hinged sections of the car-roof, having overlapping edges, in combination with erect flanges *p* on the contiguous portions of the roof, to exclude sparks and water, as set forth.

10. The combination, with the hinged troughs T, of apparatus for depressing them by a positive force, substantially as set forth.

11. The combination, with the hinged troughs T, of the concentric cogged sectors *o*, shafts *n*, pinions *m*, and hand-cranks *l*, for operating the same from the car-platforms, in the manner and for the purposes set forth.

12. The combination of the hand-cranks *l*, shafts *n*, pulleys *h i*, bands *g*, windlass-shafts *k*, and cords and chains *j*, for raising and lowering the sliding rack-covers from the platforms, substantially as set forth.

13. The shafts *n*, having hand-cranks *l*, pinions *m*, and pulleys *h* thereon, in combination with the cogged sectors *o*, and the bands *g*, pulleys *i*, elevated windlass-shafts *k*, and cords or chains *j* for simultaneously operating the hinged troughs and rack-covers, as set forth.

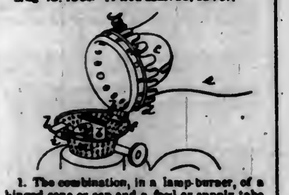
14. The combination, with the hinged troughs T, of the stay-chains *x*, as and for the purpose set forth.

7,089. LAMPS. Carlton Newman, Pittsburg, Pa., assignor, by mesne assignments, to the Ives Patent Lamp Company, New York city. Patent No. 33,047, dated Aug. 13, 1861. [Filed Mar. 16, 1876.]



A lamp burner, provided with a supply or feed tube for the oil placed within the circumference of the burner-frame and under the cone or cap, in combination with a burner-frame, having a chimney-holder hinged or pivoted to the burner-frame for the purpose of enabling the lamp to be replenished without either unscrewing the burner-frame from its socket or removing the glass chimney from the lamp, substantially as described.

7,090. LAMPS. Carlton Newman, Pittsburg, Pa., assignor, by mesne assignments, to the Ives Patent Lamp Company, New York city. Patent No. 33,047, dated Aug 13, 1861. [Filed Mar. 16, 1876.]



1. The combination, in a lamp-burner, of a hinged cone or cap and a feed or supply tube placed within the circumference or outer margin of the burner-frame, and under said hinged cone or cap, whereby the lamp may be replenished with oil or fluid without unscrewing the burner-frame from its socket, and without detaching the cone, substantially as specified.

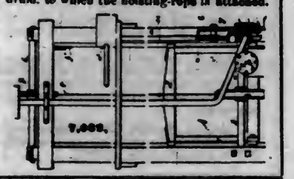
2. The arrangement of the supply or feed tube *m*, which is under the hinged cone or cap *c*, on that side of the wick-tube *b* which is farthest from the hinge *h*, by which the cone is attached to the frame, essentially as and for the purposes herein set forth.

7,091. PAINTS. Damon B. Averill, New Centreville, N. Y., assignor to the Averill Chemical Paint Company, New York city. Patent No. 66,773, dated July 16, 1867; reissue No. 3,051, dated July 28, 1868; reissues Nos. 3,077, 3,598, 3,599, 3,600, and 3,601, dated Aug. 17, 1869; reissue No. 5,096, dated Dec. 23, 1873. [Filed Feb. 3, 1876.]

A mixed liquid paint, composed of oxide of zinc or other pigments, oil, turpentine, or benzine, water, and one or more combining agents put up in tight vessels or cans, substantially as described.

7,092. HYDRAULIC ELEVATORS. C. W. Baldwin, Boston, Mass., assignor, by mesne assignments, to the Whittier Machine Company. Patent No. 127,139, dated May 28, 1872. [Filed Sept. 11, 1875.]

Brief.—The valves are operated from or by the carriage, the induction valve being opened with an accelerating movement, and the eduction-valve being closed with a diminishing rate of movement. The piston-rod drives a small drum on the same shaft with a large drum, to which the hoisting-rope is attached.



1. In combination with an elevator-carriage and main-supply and service-receiving tanks, one or more cylinders and pistons connected with said tanks and carriage, substantially in the manner described, and provided with valves for regulating ingress and egress of water, and mechanism whereby said valves may be operated from or by the carriage at any height, substantially as herein shown and set forth.

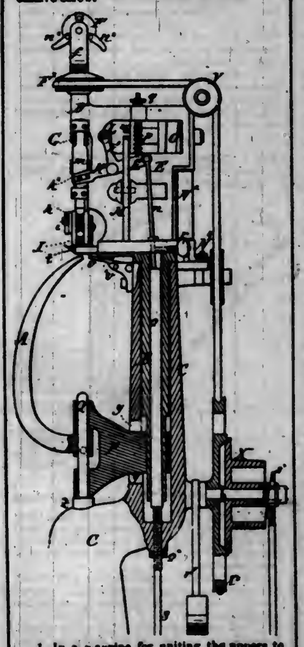
2. The combination of the cylinder *g* and its piston, and the inlet and outlet valves, with a rotary reciprocating shaft, operated by a hand-rope, and connected with, and operating to open, the inlet-valve and close the outlet-valve with a gradually accelerating and diminishing motion, substantially as described.

3. The combination, with the carriage, the cylinder, and piston, of a shaft with large and small drums, the former receiving the hoisting-rope and moving the carriage, and the latter being connected with, and operated by, the piston, the combination being and operating substantially as described.

4. The combination of the cylinder and piston with shaft *k*, its drum *m*, connector *n*, the latter connected with the piston and with the drum, the piston-rod, connector, and drum-face being in the same plane, substantially as described.

7,093. MACHINES FOR INSERTING SCREWS OUT FROM SCREW-THREADED WIRE IN THE MANUFACTURE OF BOOTS AND SHOES. Louis Goddu, Boston, Mass., assignor to the American Cable Screw Wire Company, same place. Patent No. 171,610, dated Dec. 28, 1875. [Filed Mar. 28, 1876.]

Brief.—The screws are cut from continuous screw-threaded wire. The head of the machine, which carries the wire feeding and inserting mechanism, has an automatic vertical and lateral movement in unison with a work-supporting horn. The latter movement feeds the stock forward intermittingly for each successive screw.



1. In a machine for uniting the uppers to the soles of boots and shoes by screws cut from a continuous wire, an automatic laterally-reciprocating head, carrying the screw feeding, holding, inserting, and screw-covering mechanism, to determine the distance between the screws during the operation of inserting each into the stock.

2. In a machine for uniting the uppers to the soles of boots and shoes, the combination, with mechanism for feeding, holding, and inserting screws and covering them from a continuous wire, of a work-supporting horn, having a compound rotating and automatic laterally-reciprocating movement.

3. The combination, with the upper to be sewed and the sole, of a continuous screw-threaded wire, and mechanism whereby said wire may be operated from or by the carriage at any height, substantially as herein shown and set forth.

4. The combination, in a machine which inserts and sets screws from a continuous wire, of a rotating work-support and rotator, having a compound rotating and automatic laterally-reciprocating movement, with a head carrying the feeding, holding, and screw-severing mechanism, and having an automatic vertical and lateral movement.

5. The combination, in a machine for uniting the uppers to the soles of boots and shoes by screws cut from a continuous wire, of an automatically-vertical adjusting head, E, with a rotating work-support, A, having an automatic lateral movement, and in which the vertical movement of the head is independent of the work-support, substantially as herein set forth.

6. The combination of mechanism by which screws are cut from a continuous wire and inserted in the stock of a heel, and a work-support having a simultaneous and equal automatic laterally-reciprocating movement

7. The combination of a head, which carries mechanism adapted to insert various lengths of screws cut from a continuous length of wire, with a work-support free to rotate on its axis at any point in its lateral movements with the head, substantially, as herein set forth.

8. The combination, with a rotative work-support, of an unintermittent griping device for the screw-threaded wire, whereby said device has a continuous grasp upon the threaded wire during the operation of the machine.

9. In a screw-inserting machine, a continuous corrugated or screw-threaded raceway revolving with the spindle, whereby an unintermittent grip is maintained on the wire, causing it to turn with the spindle, while allowing the wire to pass through the raceway into the work, when the wire-feeding mechanism gives it motion.

10. The combination, with a work-support, of a revolving wire-carrying spindle, D, having both a lateral and a vertical movement with and equal to that of the head.

11. The combination, with a work-support, of a revolving wire-carrying spindle, D, and an automatically-regulated slide segment, J, for operating the unintermittent pressing and griping device revolving with the spindle.

12. The combination, with the wire-carrying spindle D, of feeding and griping rolls E, having annular screw-threaded recesses and projections *k l* corresponding with the threads of the wire for receiving the same, and allowing the wire to pass between them in the direction of its length, so that pressure may be applied to grasp and feed the wire without injuring its threads.

13. A pair of rolls for seizing and feeding screw-threaded wire, one or both of which has annular-projecting screw-threaded edges *l l* adapted to the threads of the wire, and into which they enter while the wire is clamped between the rolls, whereby pressure is made upon the core or body of the wire at two or more separate and distinct points.

14. The combination, with the wire-carrying spindle D and its automatically-operating cogged slide-segment J, with its annular-grooved geared pinions *f*, the pawl *i*, and the ratchet A, whereby the descent of the slide-segment causes the feed-rolls to revolve and feed the wire, while allowing the said slide-segment to move upward without giving motion to the feed-rolls

15. The combination, with the revolving wire-carrying spindle D, of feeding and griping rolls E, constructed substantially as herein described, for feeding screw-threaded wire, with a rotating work-supporting horn, having a riveting-surface.

16. A revolving wire-carrying spindle, D, provided with a nose, D', in combination with the center-supporting arms *i*, between which it enters, and the work-supporting horn, whereby the wire is supported at the point of the convexness of the screw thereupon.

17. In combination with an automatic vertically-adjusting head, E, carrying the feeding, inserting, and severing devices, and a work-support, of an automatic vertically-adjusting edge-guide, *v*, for the work, substantially as herein set forth.

18. In combination with an automatic vertically-adjusting head, E, carrying the feeding, inserting, and wire severing devices, of an edge-guide, *v*, for the work, having an automatic vertical adjustment and an adjustment at right angles to the feed of the work, substantially as and for the purpose herein set forth.

19. The combination, with the revolving wire-carrying spindle D, and an automatically-adjusting head, E, of a wire-coil-carrying reel, F, carried by said head, and revolving with the spindle to deliver the wire thereto.

20. The wire-coil-carrying reel F, provided with pivoted curved fingers *n'*, whereby they may be folded to put on the coil and turned outward to hold it in place.

21. The combination, with a revolving wire-carrying spindle, having an automatically-operating slide segment, J, revolving therewith to operate the feeding and griping devices, and a work-support, of means for automatically determining the proper feed of the wire for the varying thicknesses of the work by governing the movement of said slide-segment.

22. The combination, with a wire-carrying spindle, having a slide, J, revolving therewith for operating the feeding and griping devices, of the vertical rod *n*, gage stop *o*, lever K, operated by a cam, L, and a spring, *p*, acting upon said lever, whereby the relative height of the head above the stop, when the stock is compressed, automatically determines the feed of the wire.

23. The combination, with the revolving spindle D, of means for throwing out of action the feeding mechanism, without arresting the revolving motion of the spindle, and without releasing the grasp of the feed-rolls upon the wire.

24. In a machine for inserting screws in the manufacture of boots and shoes, the combination, with an automatic vertically-adjusting head, and a work-support, of means for automatically locking the head at any point corresponding to the thickness of the work while inserting the screw.

25. In a machine for inserting screws in the manufacture of boots and shoes, the combination, with an automatic vertically-adjusting head, E, a revolving wire-carrying spindle, and a work-support, of means for automatically raising the head a definite height from the work, whether thick or thin, substantially as herein described.

26. In a machine for inserting screws cut from a continuous wire in the manufacture of boots and shoes, the combination, with an automatic vertically-adjusting head, E, and a work-support, of an automatic locking device, which constitutes the medium through which the head is alternately raised and kept from being raised.

27. The combination, in a machine for inserting screws in the manufacture of boots and shoes, of a locking device, one end of which is attached to the head E, and the other end connected to a lever, V, operated by the cam V', whereby the locking device is brought in and out of action.

28. The combination, in a machine for inserting screws in the manufacture of boots and shoes, of a locking device for the head, and a rod, T', connecting such device with the head, and having a yielding connection with the locking device, whereby the head is allowed to rise when the locking device is in force.

29. The locking device, consisting of a fixed pin, T, pivoted clamping-blocks x^2, and a movable carrier, T', operating to clamp the pin T, by the depression or elevation of either end of the clamp carrier by the action of the operating cam V', as described.

30. The combination with a work-support and the locking device for the head, of an adjustable lever, V V^2 x^2, whereby the head is caused to be lifted more or less from the work-support, as described.

31. The combination, with the work-support and the vertically-movable head E, of an auxiliary yielding rod, W, connecting the head with the standard, to increase the pressure of the head upon the stock to bring the work close together, substantially as herein set forth.

32. A revolving wire-carrying spindle with its feeding and unintermittent griping rolls, and a vertically-moving slide-segment, J, for feeding screw-threaded wire, in combination with the worm G, operating the cam-shaft by the direct revolving motion of the spindle.

33. The combination, in a machine for inserting screws cut from a continuous wire, in the manufacture of boots and shoes, of a treadle, E, for lifting the head E, with the automatic laterally-moving work-support, to place and remove the work.

34. The combination, in a machine for inserting screws cut from a continuous length of wire in the manufacture of boots and shoes, of a friction device operated by a treadle, X, with the vertically-adjustable head, substantially as described, for controlling the speed of the machine.

35. The combination, in a screw-inserting machine, of a vertically-adjusting head, which carries the driving-pulley for the spindle, and a driving-pulley, X', carried by the standard, with a take-up follower for making uniform the driving-power of the belt during the vertical movement of the head.

36. In a machine for inserting screws in the soles of boots and shoes, cut from continuous screw-threaded wire, the combination of the following instrumentalities, viz: a revolving wire-carrying spindle, having the automatic feed device, the uninterrupting operating screw-threaded griping-rolls for holding screw-threaded wire while being fed, a device for severing the wire close to the work, a work-support and riveter for the fastening, and an edge-guide for the sole, which rises and falls with the wire-severing device, substantially as herein set forth.

37. The combination, with a vertically adjusting head, in a machine for inserting screws cut from a continuous length of screw-wire, of a bracket, P, secured to the head stem and furnishing a pivot support, Q, for the work-support, such bracket having freedom for vertical movement with the head over the pivot-pin Q, and without disturbing the function of the work-support, as herein set forth.

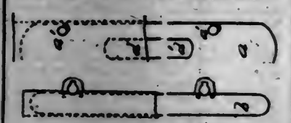
38. In a machine for inserting screws in the soles of boots and shoes to unite them to the uppers, the combination of a revolving wire-carrying spindle, uninterruptent griping-rolls, a wire-feeding mechanism, and a work-support, with cutters having their cutting-edges approaching in oblique lines, whereby the wire is severed with a cutting-edge on the entering end of each screw.

39. The head E operated by suitable mechanism to have a slow side movement while inserting the screw, and a quick return into position to insert the next screw into the work, the latter moving only during the operation of inserting the screw, but in without movement during each return of the head.

40. The head and the work-support, adjustable to vary their laterally-reciprocating movements, whereby to increase or diminish the distance between the screws.

41. The combination of the automatically laterally-moving head E, and the fixed standard C, with the oscillating post N' and its fulcrum-bracket N', for the purpose set forth.

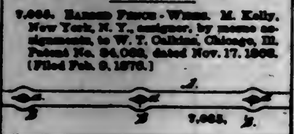
7,066. **Corset-Steels.** Catherine Judson, Boston, Mass. Patent No. 172,124, dated Feb. 6, 1876. (Filed Mar. 27, 1876.)



1. In a corset-clasp or spring, the combination, with the busk *a*, of the short strength-ening-steel *d*, said steel *d* being fastened or fixed to the said busk upon each side of the waist portion or the center of the busk, and having its ends free, as and for the purpose herein specified.

2. In a corset-clasp, the herein-described steels *a d b* and steels *c'*, arranged so that, when clasped, the steel or spring *b* lies centrically over and upon the steels *d* and *c*, thus constituting a pile of three springs, as and for the purpose herein set forth.

7,065. **Barbed Fence-Wire.** M. Kelly, New York, N. Y., assignor, by mesne assignments, to W. T. Calkins, Chicago, Ill. Patent No. 94,032, dated Nov. 17, 1868. (Filed Feb. 9, 1876.)



7,065.

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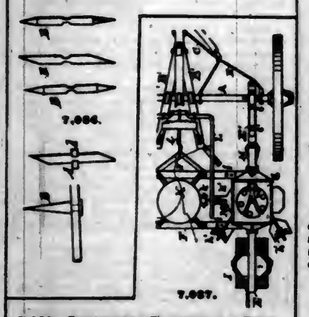
1. A thorny fence-wire, consisting of a flat wire, A, and barbs B, inserted and held in holes in the wire, substantially as described.

2. The method herein described of attaching thorns or barbs to a fence-wire, by inserting the barbs in holes in the wire and compressing the wire and the barbs forcibly together, substantially as described.

7,066. **Barbed Fence-Wire.** M. Kelly, New York, N. Y., assignor, by mesne assignments, to W. T. Calkins, Chicago, Ill. Patent No. 94,032, dated Nov. 17, 1868. (Filed Feb. 9, 1876.)

1. Thorns or barbs for wire fence, made from wire, and provided with cut beveled points at each end, substantially as and for the purpose described.

2. Thorn or barb for wire fence, pointed at each end, and having a depression about midway of its length, substantially as and for the purpose described.



7,066.

7,067.

7,067. **Convertible Planters and Cultivators.** T. W. Page, Canton, Ill., assignor, by mesne assignments, to Wm. Babcock, Jr., and the Page Manufacturing Company, same place. Patent No. 156,500, dated Nov. 3, 1874. (Filed Feb. 14, 1876.)

1. The bars F and bolt *c'*, removably attached to the beams B, carrying seeding and cultivating devices, and combined with said beams and the axle A, for converting the machine interchangeably, substantially as described, and for the purpose specified.

2. The combination of the plate E', and blocks *c''*, and bolts *c e'*, the latter bolt, *e'*, being removable, so as to adapt the machine for use as a planter or cultivator, substantially as set forth.

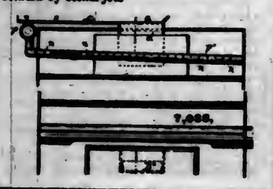
3. The plates E', combined with the blocks *c''*, axle A, keys *c'''*, and beams E, substantially as described, and for the purpose specified.

4. The combination of the axle A, rods *d*, and doubletree D, the latter being thereby sustained in position without connection with the tongue, substantially as and for the purpose set forth.

5. The furrow-openers H, seed-tubes *g*, shovels *h'*, and gage-wheels *i*, combined with beams E, carrying seed-dropping devices, substantially as and for the purpose specified.

7,068. **Treating Cane-Juice.** Francois Randon, New Orleans, La. Patent No. 156,979, dated Jan. 19, 1876. (Filed Mar. 20, 1876.)

Brief.—Passes fumes of sulpher through carbonate of soda poured upon granulated cake, and passes the resultant gases upward through skewered cane-juice, strained from the cake passed through the superposed chute. Hastens the exit of air and vapors from the column by steam-jets



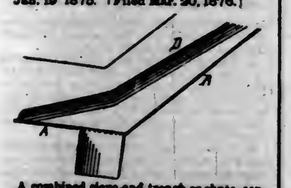
7,068.

1. The process of bleaching cane-sap, or cane-sharing juice, which consists in saturating the juice to the gases resulting from passing the fumes of sulphur through carbonate of soda, as set forth.

2. The combination of the injector F and perforated pipe F' and bleaching and drying column D, arranged to operate substantially as and for the purpose specified

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7,069. **Chutes for Straining and Delivering Cane-Juice.** Francois Randon, New Orleans, La. Patent No. 156,979, dated Jan. 19 1875. (Filed Mar. 20, 1876.)



A combined sieve-and trough or chute, consisting of the sections A B, set at an angle to each other, and provided with discharge-openings and the angular supplemental or sieve bottom D, the whole constructed and arranged to operate substantially as described.

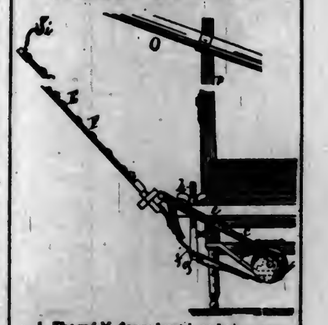
7,070. **Insulating and Finishing Compounds for Conducting-Wires.** Thos. L. Reed and Eugene F. Phillips, Providence, R. I. Patent No. 144,794, dated Nov. 18, 1873. (Filed Dec. 17, 1875.)

Brief.—Saturates fibrous covering with the compound named in first claim; then applies a finish of a hard gum in a solvent, which is also a solvent of one or more of the ingredients of such compound.

1. The compound composed of Canada balsam, or equivalent gum, paraffine, and beeswax, with or without coloring pigment, for insulating, and for giving to telegraphic conducting-wires a finished exterior, substantially as described.

2. Telegraphic office-wire covered with fibrous material treated with an insulating and finishing compound, and finished with a surface coating of hard flinty gum, substantially as described.

7,071. **Hedge-Trimmers.** Saml. B. Turner, Quincy, Ill. Patent No. 136,106, dated Apr. 22, 1873. (Filed Feb. 1, 1876.)



1. The rod M, flanged nut A, and pin *g*, combined to operate with the coupling-bar I, having slot *f*, pitman *c*, bar *c*, and sickle-bar E, substantially as described, and for the purpose specified.

2. The lever O, connecting the post P and the outer end of the finger-bar F and sickle-bar E, substantially as described, and for the purpose set forth.

3. The oscillating lever O, for raising and lowering the outer end of the finger-bar, combined with the post P, finger-bar F, and sickle-bar E, substantially as described, and for the purpose specified.

4. The arm N, curved as described, and combined with the sickle-bar E, finger-bar F, and weighted lever O, substantially as described, and for the purpose specified.

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ORDERS.

DEPARTMENT OF THE INTERIOR,
U. S. Patent Office, Washington, April 19, 1876.

On and after the FIFTH DAY OF MAY, 1876, the issue will close at 2 o'clock on Fridays, and inventors and others are requested to pay in their final fees as early in the week as possible.

R. H. DUELL, *Commissioner of Patents.*

DEPARTMENT OF THE INTERIOR,
U. S. Patent Office, Washington, April 21, 1876.

As it has been brought to notice that it is the practice of some Examiners to advise attorneys in different sections of the country to employ associate attorneys, thereby intimating to them that they are not competent to prosecute applications, it is therefore directed that the custom be discontinued.

In accordance with paragraph 131, Rules of Practice, an inventor may be advised to employ counsel when, in the judgment of the Examiner, there is novelty in the invention presented, and the papers are improperly prepared, and it is evident that it would be for the interests of the inventor to have an attorney.

R. H. DUELL, *Commissioner of Patents.*

COMMISSIONER'S DECISIONS.

AMERICAN LUBRICATING OIL COMPANY.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of the American Lubricating Oil Company, for registration of Trade-Mark filed on November* 16, 1875. *Decided February* 2, 1876.]

The word "star" and the well-known "figure" of a star are viewed in the light of a "trade-mark," substantially the same.

If both the word and figure of a "star" were registered as a trade-mark the public would be misled by their use.

There is not between them such a sufficient distinctive individuality as to prevent the word and figure from signifying substantially the same thing when applied to any article upon which they are placed of analogous character, and would result in that deception which general resemblance is calculated to produce.

DUELL, *Commissioner:*

Applicant seeks to register the word "Star" as a trade-mark to be used on packages containing lubricating-oil manufactured by it.

The Examiner rejects the same on reference to the registered case of the Galena Oil Works, April 16, 1872, No. 772.

In the latter case the essential feature of the trade-mark consists of the figure of a star, which embraces the letter "G," and is used upon the same class of merchandise that applicant proposes to apply his mark.

The ground taken by the Examiner is that the proposed mark so nearly resembles that of the Galena Oil Works as to be likely to deceive the public. That there can be no question that the use of the word "star" would be an infringement of the figure of a star, and that the oil being known in the market as "star oil," purchasers would be as likely to get the merchandise of one concern as that of the other.

To this it is replied by applicant that the word "star" and the figure are entirely dissimilar, and that the one mark could not be mistaken for the other, either by the well-read and wide-awake, or by those incapable of reading but capable of seeing.

The following rules are the most valuable among those adopted by the courts as tests to be applied in such cases as the present one:

1. That there must be such a general resemblance of forms, words, and symbols as to mislead the public.

2. A sufficient distinctive individuality must be presented, so as to procure for the person himself the benefit of that deception which general resemblance is calculated to produce. (*Croft* vs. *Day*, 7 Beav., 84; *Rowley* vs. *Houghton*, Cox's Am. T. M. Cases, 486.)

The symbols here employed by the respective parties are substantially the same, notwithstanding one is a word and the other a figure. The object of manufacturers in the adoption of trade-marks is to introduce a new brand of goods in the market, and if the same becomes popular the public soon learn to know it by the name of the brand as well as by its peculiar appearance.

"Star" soap, "Eagle" powder, "Bouquet" hams, although each brand of these classes of merchandise might not bear upon the packages containing them those words, but the figures represented thereby, yet each would soon become known by its name, and that name would be generally employed by purchasers to designate the article to those with whom they dealt without examining at each purchase the package itself. Oftentimes, too, where the article in large packages is sold at retail it would be impracticable if not impossible for the purchaser to examine the package containing the article.

As the Examiner remarks, the oil made by the Galena Oil Works is doubtless now known and called by the public the "star brand," or the "star oil," and the adoption of the word "star" instead of the figure by another company manufacturing the same article may be for the express purpose of taking advantage of this popular designation, and whether that is the intention or not such it appears to me would be the result.

The mark of applicant seems to constitute just that change which amounts to the "sufficient distinctive individuality" mentioned by the second rule, and the adoption of the proposed mark would, in my opinion, procure for the applicant the precise "benefit of that deception which general resemblance is calculated to produce."

The decision of the Examiner of Trade-Marks is therefore affirmed.

SMITH *vs.* PERRY ET AL.—*Interference.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the application of Elihu Smith vs. John S. Perry and others.—Decided December* 1, 1875.]

The issue in cases of interference is defined by law to be solely that of priority of invention, and the testimony taken in such cases should pertain directly or indirectly to such issue.

If the testimony is not pertinent to the issue of priority, it may be stricken out.

It is the duty of the Commissioner to refuse to issue a patent when it is within his knowledge that any statutory bar exists to such issue, or that the patent would be invalid if issued.

Testimony taken by parties to an interference, simply to destroy the right of either party to a patent, and not to determine the question of priority of invention, is not taken in accordance with any provision of law.

SPEAR, *Acting Commissioner:*

A motion was made before the Examiner of Interferences to strike out certain questions and answers, some ten thousand five hundred (10,500) in all, in the testimony submitted by Perry, on the ground that the testimony specified was immaterial to the issue.

The Examiner allowed the motion so far as to strike out a portion of this testimony admitted by Mr. Perry to be open to the objections urged, and some other questions and answers which, in the Examiner's judgment, were equally objectionable. Some ten thousand (10,000) questions and answers, therefore, still remain, against which objection of immateriality is still urged. I cannot, consistently with other duties, (nor does it seem necessary,) go over in detail, simply for the purpose of determining whether or not these questions are material, the whole mass of evidence specified in the motion made before the Examiner.

I can only state what I conceive to be general principles governing cases like this in the Patent Office. It was unnecessary to the granting of this motion that the questions which appellant moved should be stricken out were not objected to at the time of taking the testimony. Such objections should have been made at that time, if the objections had been merely to matters of form, or because the best evidence was not offered.

If it appear that the questions are not pertinent to the issue, they may be stricken out by the Examiner on motion or suggestion made by either party, (O. R., 113,) and appeal be taken from his decision to the Commissioner in person.

The issue in an interference in the Patent Office, as defined by the law, is solely that of priority of invention. The act of 1836 provided, in connection with interference proceedings, to determine the question of priority of right or invention, that "like proceedings shall be had to determine which or whether either of the applicants is entitled to receive a patent as prayed for." But in the act of 1870 this provision was omitted, and the section (4904 in the Revised Statutes) prescribes that the Commissioner "shall direct the Primary Examiner to proceed to determine the question of priority of invention." Under the law as it now stands, the only issue provided for is that of priority of right between the parties. It would seem, therefore, that in an interference proceeding the Commissioner has no authority to inquire into any matters not pertaining directly or indirectly to this issue.

I am aware that the practice of the Office has hitherto not always been consistent with this principle, and that there are precedents for taking notice of whatever may have been brought into the Office as testimony in an interference case, whether relating to abandonment or public use, or invention by other parties. It is true that some of these questions are often intimately connected with, if not inseparable from, that of priority of invention, and may come before the Office in such a way that notice of them cannot be avoided. Thus, if a witness, producing evidence on his own behalf to establish his priority of invention, prove conclusively more than two years public use prior to filing of his application, he might reasonably be held to be bound by his own admission against himself. There may also be cases where it may be pertinent to take testimony that one party was not the inventor at all. It would be as fatal to his claim of priority as evidence of a date of later invention than that of his opponent. But as respects testimony not relating, either directly or indirectly, to the question of priority, and not sought to be introduced for the purpose of proving one party or the other prior inventor, but simply to destroy the right of one party or the other to a patent, such testimony, in my judgment, is not taken in accordance with any provision of law, and should be stricken from the record.

Undoubtedly it is the duty of the Commissioner to refuse to issue a patent where it is within his knowledge that any statutory bar exists to the issue of such patent, or that there is any such state of facts that the patent would be invalid if issued. But his knowledge must be legal knowledge, and the sources of his information as to facts which would bar the issue of the patent, must be those defined by the statute, or the ordinary rules of evidence, or which may be plainly inferred from the practice of the courts in analogous cases.

The amplest facilities are furnished the Commissioner for determining what has been, or has not been, patented or described in any printed publication in this or any foreign country. The Examiners, who represent the Office chiefly in this matter, are experts in the examination of such records, in interpreting them and comparing them with the specifications and drawings submitted in applications for patents, and this is the special business of the Patent Office. But for making inquiries as to the prior knowledge or use by others in this country, or as to public use or sale for more than two years prior to an application, the Office has been provided with no machinery whatever, and that, too, upon questions the most difficult and intricate of any relating to the patent system—questions of fact, involving the acts of the applicant, his intentions and complicated circumstances, for a satisfactory settlement of which only the machinery of the courts is in any respect adequate.

In *ex parte* cases the Commissioner has absolutely no legal processes whatever by which he can investigate these questions of abandonment, public use, and the like. It is idle to look at *ex parte* affidavits taken against the rights of an applicant, for, besides that they are without provision of law in such cases, it would be an outrage to allow the rights of an applicant to be affected, and his application rejected on evidence of witnesses whom he was not permitted to cross-examine. Nor can I think that an interference proceeding, authorized by law for one specific purpose, can be rightfully used by the Commissioner for any other, and, in my judgment, no part of the testimony taken and submitted in such case, if plainly outside of the issue, is evidence at all against the right of an adverse party.

This appears to have been the opinion of Mr. Justice Wylie, in the case of *Bigelow* vs. *The Commissioner of Patents*, (OFFICIAL GAZETTE, vol. 7, p. 603.) Judge Wylie said:

Baldwin was the original inventor, and he is, therefore, entitled to a patent, and when that issues the contest will be transferred from the Patent Office to the courts, which is the exact position the law intended the parties should occupy in cases of this kind. I have no idea that it was the intention of the law-makers that on a question of interference the Office should go into this question of abandonment. It is true that the 51st rule of the Patent Office allows that to be done. * * * I do not think he (the Commissioner) has any right to establish such a rule. * * * If he has the right to enlarge the scope of inquiry, he can as well restrict it.

In respect, therefore, to the questions to which this appeal relates, I direct that whatever is not in any way connected with the question of priority of invention be disregarded by the Examiner as he proceeds with an examination of the case, and in forming his conclusions in the decision of the same.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

HENRY W. PUTNAM *vs.* HENRY W. YERRINGTON.

[*In equity.—Before* NIXON, *J.—Decided March* 28, 1876.]

Mere change of material used in the construction of devices is not invention; it is only the exercise of mechanical judgment, and hardly adds enough to the domain of knowledge to raise the person to the dignity of an inventor who first thought of making such a change.

The mere carrying forward of an original conception patented—a new and more extended application of it—involving change only of form, proportions, or degree, the substitution of equivalents doing the same thing as did the original invention, by substantially the same means, with better effects, is not such invention as will sustain a patent.

It is the invention of what is new, and not the arrival at comparative superiority, or greater excellence in that which was already known, which the law protects as exclusive property, and which it secures by patent.

A reissued patent must be for the same invention as the original, containing no new matter.

It is not meant by this that no new or different language should be employed.

New matter is such an enlargement of the original specification or claims as to include combinations or results which did not necessarily flow from the invention, as originally stated and described.

An inventor is entitled to all the uses to which his patent may be applied, and to all the beneficial results which legitimately follow the use of his instrumentalities, as shown by the statement of his invention, and the figures used to illustrate it; and such uses and results may be stated and described in an application for reissue by the inventor, without subjecting himself to the imputation of incorporating new matter.

[*Thomas H. Dodge* and *Palmer K. Havens* for complainant.
F. C. Nye and *L. C. Ashley* for defendant.]

NIXON, *J.*:

The bill is filed in this case for the alleged infringement of reissued Letters Patent No. 1,606, for a new and useful Improvement in Bottle-Stopper Fastenings.

The original patent was issued to the complainant March 15, 1859, for the term of fourteen years. This being duly surrendered, he obtained the reissue on the 19th of January, 1864, for the residue of the term, which was further extended by the Commissioner of Patents for seven years, from March 15, 1873.

The defendant, in his answer, and afterward by stipulation, admits the infringement of the four claims of the said reissue, but insists that the said patent is invalid for two reasons: first, because the complainant was not the original and first inventor; and second, because the reissue is not for the same invention as that shown and described in the original patent.

In considering these defenses it will be necessary to find out, as precisely as we can, what the complainant claims in his reissue, and then to compare the invention, as thus ascertained, (1) with such others as the defendant has exhibited to prove that the complainant has been anticipated, and (2) with the specifications and claim of his original patent.

The patentee's invention has reference to improvements in fastenings for bottle corks and stoppers. In the body of the specifications to his reissue he states that the nature of his invention consists in forming the

fastener of wire, bent in such a manner that if the pressure upon the cork is sufficient to bend the wire fastener, it will retain the cork more firmly, and the cork requires to be pushed in before the fastener can be pushed aside, thus causing the pressure to render the fastening more secure, instead of more liable to failure.

He also forms joints for securing the fastener and forming a hinge upon which it may be turned aside, by bending the ends of the wires at right angles, or nearly so, to the sides of the fastener, and uses a wire for attaching the fastener to the bottle in which the eyes are formed for receiving the ends of the fastener, and on which the fastener swings, thus producing by one piece of wire a much more simple, effective, and cheap attachment than any before made.

His manner of using the fastening is thus described:

The bottle is placed under the fountain, and its neck encircled at the top by the tube that conveys the saturated water or other liquid into the bottle, the cork being placed in the tube above the side pipe that admits the fluid into the bottle. By turning a stop-cock the bottle becomes filled with the liquid, and by means of the piston above the cork the cork is forced into the neck of the bottle, the fastening being turned aside. When the bottle is full, and the cork inserted, the pipe is elevated, the piston still holding the cork. The fastener is then forced over the end of the cork, in which position it is held from being pressed out by the expansion of the gas.

He then calls attention to the fact, that if the pressure of the gas in the bottle is sufficient to bend or spring the wire fastener upward, the U-shaped part will assume an inclined form with the bend the highest, and the cork being swelled up in said bend so that the wire is embedded, the cork cannot escape by acting under this incline and shoving the fastener to the left; neither can the fastener escape to the right because of the inclination itself. Hence, it is sometimes necessary to force in the cork before the fastener can be released, &c.

Disclaiming, then, a fastener of sheet metal with a U-shaped opening to pass the plunger, he proceeds to state his four claims, as follows:

1. Forming the fastener, at the part that comes over the cork, of a piece of wire of a U form, with the ends returned and connected to the bottle, in order that the pressure on the cork or stopper may cause the fastener to hold more securely, as specified.
2. I claim a wire fastener for a cork or stopper, in which the ends of the wire are bent nearly at right angles to form the joint or hinge on which the fastener is turned, substantially as specified.
3. I claim forming the eyes for the reception of the fastener, by means of a wire bent as set forth.
4. I claim a wire fastener for the stoppers of bottles, fitted so that it can be pressed aside from over the stopper, as set forth, in combination with a band or fastening attaching the same to the neck of the bottle, as specified.

If the question before the court was whether the plaintiff's reissue was an infringement of the Allender patent of July 24, 1855, it would be of very easy solution. But the latter is now open to the public by lapse of time, and the real inquiry, therefore, is, whether there is any patentable improvement in the alleged Putnam invention which had not been anticipated by other inventors. Has Putnam added anything to the previously-known mechanisms and contrivances for securing the stoppers in bottles containing aerated liquids which furnishes some new and useful results?

The mere change of material used in the construction of the fastener, of course, is not invention; it is only the exercise of mechanical judgment. The substitution of wire for tin, for instance, hardly adds enough to the domain of knowledge to raise the person to the dignity of an inventor who first thought of making such a change.

The Supreme Court, in the recent case of *Smith* vs. *Nichols*, (21 Wall, 112,) has stated all that need be said upon this point. It was there held that—

The mere carrying forward of an original conception patented—a new and more extended application of it—involving change only of form, proportions, or degree, the substitution of equivalents doing the same thing as did the original invention, by substantially the same means with better effects, is not such invention as will sustain a patent. It is the invention of what is new, and not the arrival at comparative superiority or greater excellence in that which was already known, which the law protects as exclusive property, and which it secures by patent.

Bearing this fact in mind, has any new result been produced by the substitution of wire for tin which entitles the complainant to be reckoned the inventor of a patentable improvement? If any, it is found in the first claim of the reissue.

It is there stated and claimed to follow from the use of the wire, *that the stronger the pressure upon the cork or stopper the more securely will the fastener hold.* This result arises because the wire, unlike the tin, presents a very small surface to the cork, and because the increased pressure from within the bottle forces up the cork around the wire, enveloping it, or causing it to become embedded in the cork.

It must be regarded as an important and valuable addition to the efficacy of the Allender invention, if the allegation of the complainant contained in the specifications of his reissue be true, that the notch in the metal strap of the Allender fastener "allows the cork to project at this point, and, by springing up the metal on the sides of the notch from an inclined plane against which the pressure acts, to force the fastener aside and relieve the cork."

The complainant, then, by the substitution of an equivalent, claims to have accomplished a new and beneficial and better result; and while it may be true, as was so strongly urged by the counsel for the defendant, that Putnam infringed the Allender patent in putting his improvement into practical and working form, nevertheless, it does not follow—now that the former belongs to the public—that it may be so used by the public as to include the complainant's improvement.

Upon the issue of the want of novelty and prior use, the burden of proof rests upon the defendant. It is for him to show, to the satisfaction of the court, that the complainant's invention has been anticipated. The presumption is in favor of the patent, and that the Putnam improvement contains or embraces something which is patentable, and that is not contained or embraced in the mechanism known at the date of the original application.

This is emphatically true in the present case, for the evidence shows that it was not granted without a controversy and careful examination. The Allender and the I. C. Day patent, and the De Graw application, rejected December 4, 1855, were all considered by the Commissioner, and, notwithstanding its apparent resemblance to some of the devices exhibited in these, it was issued in 1859. It stood without successful impeachment until 1864, when it was surrendered and a reissue obtained, undergoing at that time a re-examination by the Commissioner of Patents. At the expiration of the original patent, in 1873, after another contest before the proper authorities of the Patent Office, its life was extended for seven years longer.

The question of its validity and novelty has also frequently been before the courts: (1) in the eastern district of Wisconsin in 1871; (2) in this district in 1872; (3) in the eastern district of Missouri in the same year; (4) in the district of Connecticut in the same year; (5) again in the eastern district of Missouri in 1874; and (6) in the district of Massachusetts in 1875; and in every case the patent has been sustained. The records of these several suits have been exhibited here, and I have examined them with some care to ascertain whether any reason existed for the charge of the defendant's counsel on the argument that in none of them were the real merits of the controversy involved or the proper defenses set up. In some of them, and especially in the one in this district, the contest was chiefly made on the motion for a preliminary injunction, but they all seem to have been under the management and control of able counsel, and the results have been acquiesced in by the defendants without appeal. Under these circumstances it requires an exceptionally strong case to induce me to reach a different conclusion. Apart from the interest of the public that strife should cease, much deference is due to the judgment of every court of co ordinate jurisdiction, and appreciating as I do the candor and ability of the learned judges who presided in these cases, I should hesitate and indeed refuse upon the same issues and state of proofs to question the righteousness and propriety of their decisions.

But I am inclined to think that the defense in this case has been more full and able than in any of the previous suits, owing doubtless to two reasons: first, because the defendant has had all the light and experience afforded by the investigations of previous contests; and, second, because he has enjoyed the professional services of the counsel who has been heretofore in the employ of the complainant in maintaining the validity of the patent, and who is presumed to have become familiar with the weak places, if any there be, of the complainant's armor.

But notwithstanding the presumption in favor of the patent, and notwithstanding their adjudication in support of its validity, after comparing the reissue with the various devices shown in the Allender, Day, Chalus, Menage and Bougg, Bufnoir and Master patents, and McGraw's rejected application, I am not able to perceive upon what principle the second, third, and fourth claims can be sustained. I do not find anything in the second and third; nor do I observe any suggestion of new methods which are not clearly equivalents for what was before known and used. The fourth is a combination of the subject-matter or elements embraced in the first, second, and third claims; and although inventors are allowed to obtain patents for a combination, when all the constituents are old, provided a new and better result is reached, yet when the patentee gets all that he has invented or discovered in one claim it is better that he should not be permitted to set up and embarrass the public with another claim which gives no additional security or protection to his invention. It is therefore the opinion of the court that the first claim only of the complainant's reissue should be sustained.

The remaining inquiry is whether the reissue is void for being a different invention from the one described in the original patent? This question is determined by observation and comparison of the specifications and claims of the two instruments. The section of the act which authorizes a reissue requires that it shall be for the *same invention*, and that it shall not contain any new matter. It is not meant by this, as the counsel for the defendant seems to insist, that no new or different language should be employed. The very object of the reissue is to give an opportunity to an inventor to change, modify, and connect his specifications or claims to the extent necessary to cure defects and supply deficiencies arising from inadvertence, accident, or mistake, and without any fraudulent or deceptive intention. By the introduction of new matter I understand such an enlargement of the original specifications or claims as to include combinations or results which did not necessarily flow from the invention as originally stated and described.

I have carefully compared the complainant's patent as first obtained with his reissue. The statement of his invention and the figures used to illustrate it are the same in both cases. Not a device or instrumentality appears in the second that was not exhibited in the first. He states results in the reissue which were not stated in the original patent, and which were omitted, I presume, because he did not know until he was taught by experiment that such results would follow. But an inventor is allowed to do this in a reissue without subjecting himself to the imputation of incorporating new matter. He is entitled to all the uses to which his patent may be applied, and to all the beneficial results which legitimately follow the use of his instrumentalities.

The principal new effect which he sets forth in the reissue, and which he failed to note in his former specifications and claims, is the substance of the first claim—to wit: *Such a formation of the new fastener over the cork that the pressure thereon may cause the fastener to hold more securely, as specified.* No new device was needed to accomplish this result, and hence the claim falls within the objects and purposes of a reissue.

There must be a decree against the defendant for infringing the first claim of the complainant's patent, and an order for an injunction and an account.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF OHIO.

THE UNION PAPER-BAG MACHINE COMPANY *et al. vs.* NIXON & CO.

[*Before* EMMONS & SWING, *J. J.—Filed March* 20, 1876.]

It is not a fair construction of the assignment of a patent that the assignee shall first assign the entire right for a particular territory, and get its whole value from his vendee, and after having thus received all the benefit he was entitled to under the transfer sell single machines to be used in the same territory during the extended term.

An assignee of a patent, by granting and transferring the exclusive right to manufacture or use an invention within such State exhausts his whole power of disposition under and by virtue of the assignment to him; and such assignee has no right to flood the country with machines to be used after the expiration of the term of the original patent, thus defeating the interest of the patentee in the extension.

The right to use a machine after the expiration of the term of the patent is an incident to the primal right to use it during the original term; if that fails on account of fraud the incident falls with it.

EMMONS and SWING, *J. J.*:

LICENSE.

Charles Morgan, the assignee of the patent, sold to Nixon the exclusive right to the use of these machines in the State of Ohio. Nixon sold the same right to Chatfield and Woods. After this Morgan had no right to sell the use of a machine in Ohio at any time. Not during the original term, because he had already transferred that; not during the extended term, because he did not own it; nor could he sell a single machine with the right to use it until it was worn out after the expiration of the original term, because the assignment of the patentee to him transferred no such double authority as that of first transferring the exclusive right to the whole State, which would exhaust his whole power of disposition under the assignment, and then, secondly, to flood the country with machines to be used after the expiration of the term, thus defeating the interest of the patentee in the extension. It is not a fair construction of the assignment of a patent that the assignee shall first assign the entire right for a particular territory and get its whole value from his vendee, and after having thus received all the benefit he was entitled to under the transfer, sell single machines to be used in the same territory during the extended term. He will in this mode obtain the value of a right never conveyed to him.

It is argued that inasmuch as Morgan himself subsequently for a short period owned the extended term, that if he were in court seeking to enjoin Nixon he would be estopped to say that at the time of the sale he had no right to make it. If this be so, as the present complainants claim the extended term through him, they should also be estopped. There are many fallacies in this argument.

We hold the purchase from Morgan by the defendant of the infringing machine was in fraud of the complainant's rights. Such a title, although it might estop Morgan personally, is not one which would work the same consequences against one whom it was intended to defraud.

It will be noticed particularly that the argument we are now considering does not suppose the defendant to be possessed of a legal title, but only an equitable right growing out of the fact that his vendor subsequently became possessed of the right, which, by the assumptions of this argument, he pretended to grant; but this principle is applicable only where justice demands it, and to prevent circuity of action. Good faith demands the annexation of no such incident to a contract made for the purpose of defrauding others. No action could be maintained by Nixon against Morgan for a failure of his user of the machine until it was worn out after the expiration of the first term. In view of the fact that Nixon had before bought and sold the same right, that Morgan was the assignee only of the patent, and had no right to the extended term, we doubt whether any action could be maintained irrespective of the fraud. But in view of our conclusion that the contract was actually fraudulent as to third persons, it is clear that no action could be maintained by one *particeps criminis* against the other. In either view we are clear that no such right, legal or equitable, passed to the defendant Nixon as within the decisions authorized him to use it during the original term in such sense as would give him the right to use it during the extended term.

The right to use after the expiration of the term is an incident to the primal right to use it during the original term. If that fails on account of fraud the incident falls with it.

SECOND CLAIM.

In the former printed opinion the head for distending the bag so that it could be severed by an oblique cut was considered, "the all-important feature of this supporting-bar." It treated the word "supporting" as referring to that function of the bar which supported and distended for severance the tube. It treated as unimportant and utterly functionless all other portions of the bar save for the single purpose of sustaining this distending-head. So fully was this idea entertained by the court the presiding judge remarked to defendant's counsel that if a hair or thread possessed the power of support and either were substituted for the rear part of the bar he would deem it an infringement. He added that he thought the very essence of the invention would be taken if by some novel discovery of a power analogous to magnetism could be made to hold it in place in an operative machine.

It was therefore because the court erroneously assumed, as it was fully authorized to do by the argument and facts before it, that this particular mode was the only one by which the head could be supported; that it was said "the attachment of the bar to the bed of the machine was one of its leading features." The defendant has succeeded in sustaining this head by other means. He demonstrates by experiment that as matter of fact such feature is not essential. He presents a supporting-bar, around which the tube is formed, and by which it is sustained and extended for an oblique cut precisely in the mode and with the identical functions as those clearly described in the complainant's patent.

The letter of complainant's specifications is followed by the defendant, and the actual history and growth of this identical machine shows that, in fact as well in legal theory, the complainant's supporting-bar has been the parent of the defendant's device. Nixon bought an operative machine which he had no right to use. He called experts to make numerous substitutions of subordinate parts and was enjoined, they being pronounced mechanical equivalents. He has all the time been running the same machine, and the question is now presented whether the substitution of another mode of sustaining this supporting-bar, which he borrows from an English patent, is such a substantial alteration of the complainant's device as avoids infringement.

Notwithstanding what was said by the court when the final injunction was ordered under the former bill in reference to that feature of the bar by which it was attached to the bed of the machine, and which constitutes the foundation of so much of the defendant's argument, we now hold, not without some doubt, that the second claim may be so construed as to include a supporting-bar, around which paper may be formed into a tube, and in connection with which the same may be severed without including as an essential part of it the mode by which the bar is suspended or sustained. When so interpreted the defendant has not only a mechanical equivalent, but that which is identical in all particulars with that of the complainant.

The nomenclature of the first judgment arose from the accidents of the argument, and is misleading. It might be inferred that the all-important head was something different from the supporting-bar itself. The whole judgment shows, however, that all which went to form and distend the tube, the part around which the tube was formed, and in connection with which it was severed, was treated as the supporting-bar within the meaning of the patent, and all the residue or rear portion as a mere arm or mode of holding the supporting-bar in place. We adopt no new view now. The only embarrassment results from the undue prominence which was given to the mode of suspending the bar. It was then erroneously supposed to be the only mode.

We think this most useful and highly meritorious invention, one which has cheapened one of the most useful productions of commerce, should not, if any liberal reading of the claim can prevent it, be taken by the defendant and used without any alteration or addition, without one particle of invention, of even experiment or expense, because the device of another shows him a different mode of sustaining this bar. Before the complainant's invention no one ever thought of making the lap for a bag by the ingenious device of an extended tube and an oblique cut. Especially was it never thought of in connection with a continuous tube, and by which bags are made more rapidly than we can count.

It seems to us a breaking down of all the protective principles of the patent law to hand over an invention so novel and so useful to one who has done no more to improve or change it than has this defendant.

Pressed as we are for time we shall make no attempt to distinguish this case from the judgments cited by the learned counsel for the defendant. We have examined them all, and think they warrant us in saying that the essence of the complainant's device having been appropriated by the defendant he does not escape infringement as we construe the claim, even though the mode of supporting the bar were so entirely different as to constitute the subject of a patent. We should deem it a different instrumentality for a support only, and not an essential and indivisible portion of the device, around which the tube is formed, distended, and presented for severance.

We have not overlooked the many decisions which hold that where the patentee describes particular modes as essential to his invention that he is confined to those; but we do not think their principle ought to be applied to a case like this where the device is so capable of being employed in another mode where it is so complete in itself, and when so used and thus employed all its benefits are wholly secured; and we add, more especially, that where without such employment its novel purposes could not be accomplished at all. Not one of the cases have taken from an inventor so meritorious a device by such means.

It is possible we are somewhat influenced by the history of this contest before us, for it is well calculated to warp, and, perhaps, even to prejudice, the legal judgment. But if an error should be committed it is better that it should be in an effort to protect meritorious invention rather than aid in what appears to us to be an attempt to obtain the benefits of this invention without compensation. From these views it follows that the defendant's device infringes the second claim of complainant's patent.

FOURTH CLAIM.

This claim has been construed by Judge Blatchford to be a claim for the mechanism by which the paper for the manufacture of the bags is cut, as described. Giving it this construction, in connection with the construction which we have given to the second claim, it must therefore be held that this claim is also infringed by the defendant.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 11, 1876.]

9,204.—Beer-Mugs.—GEORGE B. FOWLE, Boston, Mass., assignor to J. H. HOBBS, BROCKUNIER & Co., Wheeling, West Va. Application filed March 30, 1876. Term of patent 7 years.

9,205.—Fireman's Cap.—FRED. J. MILLER, Brooklyn, N. Y. Application filed January 24, 1876. Term of patent 3½ years.

9,206.—Bottles.—EDWARD NEWMAN, Philadelphia, Pa. Application filed March 31, 1876. Term of patent 3½ years.

9,207.—Bottle.—ROBERT P. SMITH, Philadelphia, Pa. Application filed March 29, 1876. Term of patent 3½ years.

9,208.—Plates of a Range.—NICHOLAS S. VEDDER, Troy, N. Y., assignor to CHARLES NOBLE, M. D., CHARLES NOBLE, and FRANCIS P. NICHOLSON, Philadelphia, Pa. Application filed February 25, 1876. Term of patent 7 years.

9,209.—Trays.—DANIEL M. CUMMINGS, Enfield, N. H. Application filed March 11, 1876. Term of patent 14 years.

9,210.—Show-Cases.—JOSEPH LEHNBEUTER, St. Louis, Mo., assignor to CLARK & Co., same place. Application filed March 27, 1876. Term of patent 7 years.

9,211.—Beer-Mug.—JOHN OSTERLING, Wheeling, West Va., and JULIUS PALME, New York, N. Y. Application filed April 3, 1876. Term of patent 7 years.

9,212.—Glass Bottle or Jar.—CHARLES K. SHERWOOD, New York, N. Y. Application filed April 6, 1876. Term of patent 3½ years.

9,213 and 9,214.—Salvers.—AUGUSTUS CONRADT, Middletown, Conn., assignor to THE MIDDLETOWN PLATE COMPANY, same place. Applications filed January 25, 1876. Term of patents 7 years.

9,215.—Organ-Cases.—JOHN R. LOMAS, New Haven, Conn., assignor to B. SHONINGER, same place. Application filed March 2, 1876. Term of patent 14 years.

9,216.—Pocket-Handkerchiefs.—THOMAS J. MARTIN, Philadelphia, Pa. Application filed April 5, 1876. Term of patent 3½ years.

9,217.—Organ-Case.—AARON S. NICHOLS, New Haven, Conn., assignor to B. SHONINGER, same place. Application filed March 2, 1876. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 11, 1876.]

3,567.—Condensed Milk.—AMERICAN CONDENSED MILK COMPANY, New York, N. Y. Application filed March 21, 1876.
"words 'Alderney Brand,' and the figure of a cow."

3,568.—Mechanics' Tools.—HERMANN, BOKER & Co., New York, N. Y. Application filed January 26, 1876.
"a rhomb or lozenge shaped figure, having the word 'Trenton' arranged within it."

3,569.—Photographs.—ADOLPHE BRAÜN & SON, of Paris, France. Application filed February 7, 1876.

"'Ad. Braün & Son, 3 Bould. des Capucines,' inclosed in an oval and accompanied with the words: '*Benedicat vos Deus et ad nos accedant amici, inimici recedant.* Vatican 23, 7bre, 175. Pius IX.'"

3,570.—Bone-Black, Bone-Meal, and Hoof-Meal.—GEO. F. BRUNNER & CO., St. Louis, Mo. Application filed March 13, 1876.

"pictorial representation of an American bison."

3,571.—Whisky.—DAVIS, CLARK & CO., New York, N. Y. Application filed March 13, 1876.

"words 'ROYAL OAK.'"

3,572.—Piano-Fortes.—DECKER & BARNES, New York, N. Y. Application filed March 9, 1876.

"word 'DECKER.'"

3,573.—Buttons.—DICKINSON HARD RUBBER COMPANY, Springfield, Mass. Application filed March 15, 1876.

"word 'EBORINE.'"

3,574.—Watches.—ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Application filed March 4, 1876.

"word 'ELGIN.'"

3,575.—Harvesters.—GREGG & CO., Trumansburg, N. Y. Application filed March 23, 1876.

"words 'MEADOW KING.'"

3,576.—Canes, Walking-Sticks, Umbrellas, and Parasols.—EDWARD LORD, New York, N. Y. Application filed March 16, 1876.

"word 'CENTENNIAL.'"

3,577.—Rubber Boots and Shoes.—NATIONAL RUBBER COMPANY, Bristol, R. I. Application filed March 18, 1876.

"the symbol known in the United States as the 'Union Shield.'"

3,578.—Buttons.—SNYDER & EDSON, New York, N. Y. Application filed March 18, 1876.

"monogram S & E and the word 'Ivorine.'"

3,579.—Canes.—WILLIAM P. TILLEY & CO., Norfolk, Va. Application filed March 18, 1876.

"words 'Confederate Ram Merrimac,' 'First Iron Clad in the world.'"

3,580.—Spool-Thread.—GARDINER HALL, Jr., & CO., Willington, Conn. Application filed April 5, 1876.

"words 'Hall & Manning Machine-Thread. Standard, 200 yards,' or other words indicating the quality and character of the goods manufactured by us, printed within spaces between concentric circles, as shown in the accompanying drawing, the space within the smallest circle being open or cut away."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 11, 1876.]

644.—Title: **"El Merito."**—BELCHER, HUBBARD & CO., Jacksonville, Fla. Application filed April 3, 1876.

645.—Title: **"Elmerito Factory, Jacksonville."**—BELCHER, HUBBARD & CO., Jacksonville, Fla. Application filed April 3, 1876.

646.—Title: **"El Merito."**—BELCHER, HUBBARD & CO., Jacksonville, Fla. Application filed April 3, 1876.

647.—Title: **"Havana Cigar Manuf'y."**—BELCHER HUBBARD & CO., Jacksonville, Fla. Application filed April 3, 1876.

648.—Title: **"N. K. Fairbank & Co."**—N. K. FAIRBANK & CO., Chicago, Ill. Application filed March 29, 1876.

649.—Title: **"Dr. Ottofy's Instantaneous Remedy."**—LEOPOLD OTTOFY, Cincinnati, Ohio. Application filed April 4, 1876.

650.—Title: **"Wm. Simpson & Sons, Hair-Cloth Cheviots."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

651.—Title: **"New Alpaca Finish Mowing Prints."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

652.—Title: **"Silver Greys."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

653.—Title: **Anchor Shirtings."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

654.—Title: **"Wm. Simpson & Sons, Fast Black."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

655.—Title: **"Wm. Simpson & Sons, Fast Black."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

656.—Title: **"Alpaca Finish."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

657.—Title: **"J. N. Walters' Infallible Salve."**—JOHN N. WALTER, New York, N. Y. Application filed April 1, 1876.

658.—Title: **"Hallgath's Great Rheumatic Liniment."** W. J. HALLGATH, Cincinnati, Ohio. Application filed April 3, 1876.

659.—Title: **"Hayden & Allen."**—HAYDEN & ALLEN, St. Louis, Mo. Application filed March 9, 1876.

660.—Title: **"Century Pure White Lead."**—THOMAS A. KELLY, Cleveland, Ohio. Application filed April 7, 1876.

661.—Title: **"India Soap."**—JAMES S. KIRK & CO., Chicago, Ill. Application filed April 6, 1876.

662.—Title: **"Poultry-Powders."**—P. A. LONG, Taneytown, Md. Application filed March 21, 1876.

663.—Title: **"Old's Infallible Cure for Fever, Ague, and Debility."**—E. F. OLDS, M. D., Philadelphia, Pa. Application filed April 1, 1876.

664.—Title: **"Dr. Utley's Lightning Relief."**—RUFUS UTLEY, South Bend, Ind. Application filed April 7, 1876.

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Canaday and Beckelhymer	175,907
Carriker, W. M., Corn planter	175,925
Carter, J. C., assignee	175,848
Casella, L. M., Thermometer	175,926
Challinor, D., Flaring tool for glassware	175,851
Chambers, A., Pneumatic signaling apparatus	175,820
Chase, J. F., Harrow	175,852
Chatterton, R. D., Car coupling	175,927
Cheney, G. W., Furnace for roasting and smelting ore	175,928
Chisholm, J. W., assignee	176,020
Clark, P. J., assignee, (reissue)	7,054
Clark, Warden, and Muirhead	175,884
Clawson, I. N., Eyeglass holder	175,821
Coad, J., Blasting compound	175,929
Cobb, A. D., Meat chest	175,930
Codman, J. T., Furniture caster	175,853
Coe, L. W., Rock drill	175,931
Cole, J. W., Lamp stove	175,932
Cole, R. S., Lightning rod	175,933
Collier, C. B., assignee	175,903
Collier and Trader	176,098
Collingwood, J. H., Glass lined refrigerator	175,934
Comstock, L. R., Hot air furnace	175,854
Conlan, D., Pocket book	175,822
Conover, P. V., Electro magnetic car brake	175,935
Cook, W. G., Sash fastener	175,937
Cooper, W., Pump spout	175,936
Corey, A., Type setting and distributing machine	175,938
Cornell, M. H., assignee	175,963
Cornes, T. and C. C., Refrigerator	175,823
Couch, A. C., assignee	175,928
Craven, J. J., Refrigerating chamber	175,939
Crawford, J., Gas regulator	175,940
Crisman, McKinley, and Satterfield	176,070
Critchley, D. S., assignee, (reissue)	7,050
Crompton, G., assignee	176,113
Crosman, G. A., Sleigh	175,824
Culmer, J. W., Pit car oiling cap	175,941
Cummer, F. D., Condenser and heater for steam engines	175,942
Cunningham, A., Saw mill dog	175,855
Dalzell, D., Axle box	175,943
Damm, J. H., Window guard	175,825
Daniels, W. F., Wire fence tightener	175,944
Dare, C. W. F., Spring for children's carriages	175,856
Davies, T., Furnace for locomotives, (reissue)	7,050
Davis, L. H., assignee	176,040
Davis, T. D., Cooking apparatus	175,945
Dedreux, H., Machine for feeding sheets of paper	175,826
Deeds, W. S., G. H., and J. A., Air gas machine	175,827
Delhm, J. R., Coffee mill	175,946
Deitzler, G. W., Machine for packing fruit and other articles	175,947
Detlefsen, E., assignee	175,873
Dick, J., Water heater	175,948
Dixon, G. W., Fishing line hawse swivel	175,949
Dovey, J. J. and J. F., assignees	175,993
Dreher, E., Mat	175,857
Duncan, W. A., Washing machine	175,950
Earle, C. T., assignee, (reissue)	7,048
Eberhardt, Schmadel, and Feldmann	175,841
Eddy, G. W., Toy pistol	175,951
Edwards, C. D., assignee	175,833
Edwards, J., Cap for aerated liquid bottles	175,952
Eickemeyer, R., Machine for stretching hat bodies	175,953
Eldridge, G. W., Fire kindler	175,858
Elliott, H. H., assignee	176,104
Ellis, E. F., and S. D. Ely, Whip or cane mounting	175,954
Ely and Ellis	175,954
Embler, A. H., Combined cement and glass panel	175,955
Embler, A. H., Apparatus for building concrete structures	175,956
Engelke, J., Horse collar pad	175,957
Evans and Ewen	175,958
Ewen, W., and H. M. Evans, Baling press	175,958
Excelsior Grain Binder Company, (limited,) assignee	175,965
Feldmann, Eberhardt, and Schmadel	175,841
Ferris, D., assignee	176,031
Fike, J. W., Life preserver	175,828
Fish, W. H., Dye	175,829
Fiske, W. D., and G. B. N. Tower, Valve for compound engines	175,830
Flanagan, F. P., Hat ventilator	175,959
Folger, Z., assignee	175,966
Ford, W., Windmill	175,960
Fowler, G., Card grinding machine	175,961
Fox, J. M., assignee	176,035, 176,036
Frasier, W. E., assignee	175,923

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Frease, W. B., assignee	175,985
Frink, C. L., Safety valve, (reissue)	7,049
Frost, N. W., assignee	176,064
Fuller, S. B., Jig saw attachment	175,831
Fyfe, A. M., Warp tension regulator	175,962
Gabel, A. C., Plow attachment	175,963
Garland, C. W. and G. W., Throttle valve lever	175,964
Garrard, J., Grain binder	175,965
Giraudat, A., Feed mechanism for thread winding	175,967
Gleason, W., Machine for cutting the teeth of metal gears	175,859
Goerman, M., Car coupling	175,966
Goodell, A. S., Wagon end gate	175,968
Goodnow, D., Jr., Hand drill for drilling metal	175,969
Govier and Hutchison	175,989
Grauel, A. J., Composition for coating coffee	175,970
Gray, E., Telephonic telegraph apparatus	175,971
Gray, W. S., assignee	176,123
Grazier, J., assignee	175,827
Greenwold, J., Die for making washers	176,119
Griggs, A. J., Whiffletree hook, (reissue)	7,043
Grinnell, F., Hydraulic gas mains	175,832
Griswold, G. M., Chasing or matting machine	175,860
Grube, C. E. J., Machine for cutting bevel gear wheels	175,972
Gumbert, R. R., assignee	175,941
Haldeman, P. S., Car coupling	175,973
Haley, J. J., assignee	176,008
Hall, R. P., Electro medicated plaster	175,974
Harper, A. R., assignee	175,938
Harper, W. H., Door check	175,975
Harris, O. C., Machine for forming cheese boxes	175,977
Harrison, G. M., Soap and manufacturing the same	175,976
Harrison, R. J., Burglar alarm	175,833
Hawthorn, W. A., Sash holder and fastener	175,978
Hemje, C., Center board vessel, (reissue)	7,044
Henderson and Hoover	175,985
Higginbottom, J., and E. Hutchinson, Grain cleaner	175,979
Hildebrand, C., Measuring pump	175,980
Hill and Jayne	176,120, 176,121
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Hinden, M. J., Bottle stopper	175,981
Hitt, A., and D. M. Smith, Reaper and mower	175,982
Hollenbeck, W., Stump extractor	176,127
Hollingsworth, L., Gage for paper	175,983
Homogeneous Metal Manufacturing Company, assignee	176,114, 176,115
Hood, C. O., Breastpin fastening	175,984
Hoover, T. J., and J. T. Henderson, Plow	175,985
Hopper, T. C., assignee	175,885
Horn, J. and C., Jr., and P. Bloedorn, Device for attaching street car poles	175,834
Horne, J. M., assignee	175,866
Horne, W. L., Fare register	175,861
Horton, S. B., Lubricating compound	175,986
Hough, C. W., assignee	175,869
Hovey, D. A., assignee	176,105
Howard, S. H., and J. I. Wells, Earth auger	175,987
Howe, I. P., assignee	176,108
Huber, B., Fireman's elevating ladder	175,988
Hutchinson and Higginbottom	175,979
Hutchison, J. A., and J. W. Govier, Valve gear for double acting pumps	175,989
Ibbotson, E. C., Ventilating cars	175,990
Iden, F. M., Door check	175,991
Ingalls, A., Fence	175,992
Insull, T., Casting apparatus	175,993
Inward, C., Stove pipe thimble	175,994
Jacoby, G. D., Tire upsetter	175,995
Jayne, W. H., and J. H. Hill, Barbed fence wire	176,120
Jayne, W., H., and J. H. Hill, Fence barb former	176,121
Jenks, S., Wire fence	175,996
Jennings, R., Weather strip	175,997
Jensen, C., Heel for boots and shoes	175,998
Johnson, G. T., Insect destroying compound	176,002
Johnson, I., and M. Bye, Spring air pistol	176,003
Johnson, I., and M. Bye, Spring air pistol	176,004
Johnson, J., Elevated railway	176,000
Johnson, J. F., Vehicle axle	175,999
Johnson, L. D., assignee	175,986
Johnson, P. G., Plow	176,001
Jones, A. J., Index tag	176,005
Jones, J. L., Tobacco press	176,007
Jones, W. H., and J. A. Stewart, Tire shrinker	176,006
Kahlke, J., assignee	175,972
Kelly, H. and J., Earth boring apparatus	176,008
Kershbt, M., assignee	175,981
Keyser, J. H., Safety pan for water closets	175,835
Kidd Iron Works Company, assignee	175,859
King, C. A., Manufacture of gun barrels	175,862
Kintz, J., Drawer pull, (reissue)	7,054
Knapp, C. H., Hay loader	176,009
Knapp, G. R., Hand support	176,010
Knowles, I. C., Lubricating compound	176,011
Kramar, W. E., Vise	175,863
Kramer, G. W., Hose bridge	176,012
Krieger and Briel	175,917
Lasar, E., assignee	175,893
Ladd, G. W., Metallic seal	176,013
Lafteau, J., Horse power	176,014
Lake, J. C., Bracket for curtain rollers	176,015
Lapham, R., Boiler tube scraper	175,836
Lawrence Curry Comb Company, assignee, (reissue)	7,055
Lawrence, W. E., Curry comb, (reissue)	7,055
Levy, M. D., Neck tie fastener	176,016

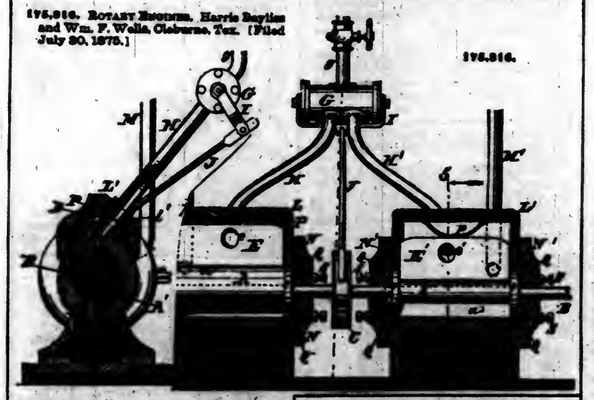
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Lewis, A. B., Jr., Rail car	176,017
Lewis, W. W., Horseshoe machine	175,864
Lloyd, C. C., Gas meter	175,865
Lloyd, J. L., Boiler cleaner	176,018
Lobdell, W. W., Chilled car wheel, (reissue)	7,045
Loewenberg, H., Apparatus for coating fabrics with plastic composition	176,019
Lyon, A., Skirt protector	176,020
Lyon, E., Gate	176,021
Maginnis, A. A., Sons, assignees	175,976
Mahn, L. H., assignee, (reissue)	7,046
Mann, E. E., Fog signal	175,866
Maranville, G., Car brake	175,867
Marsh, S. T., Shoe lacing	176,022
Martin, O., Saw sharpener	175,837
Mase, W. H., and S. Terwilliger, Fulling mill	176,023
Mason, J. L., assignee	175,890
Mason, J. L., Folding life raft	176,024
Matteson, E., Combined cane and seat	176,122
McCausey, O., assignee	176,018
McDermid, D. L., Check hook	176,025
McGrath, T. T., and T. Hill, Steam engine lubricator	176,026
McKinley, Satterfield, and Crisman	176,070
McKinny and Vincent	175,883
McLeran, A. M., Calf weaner	176,027
Meehi and Richards	176,061
Meigs, M. C. and H. L., Dumping wagon	176,028
Meriden Britannia Company, assignee, (reissue)	7,051, 7,052
Merritt, W. J., Flour bolt	175,838
Metz, B. F., Earth auger	176,029
Moor, D., Dredging machine	175,868
Moore, H. W., Combined metal working machine	176,030
Morewood, E., Manufacture of tin and other metal coated plates	176,032
Morgan, C., Belt coupling	176 031
Morley, J. F., Warp tension regulator	176,033
Morse, H. C., assignee	176,068
Muirhead, Clark, and Warden	175,884
Munroe, H. T. W., assignee	175,952
Murphy and Wilkins	176,109
Myers, S., Fire proof building	176,034
Myers, W. H., Sash fastener	176,035
Myers, W. H., Sewing machine motor	176,036
Nehinger, G. R., Press	176,037
Neer, C., Steam engine governor	175,839
Nelson, H. V., Grain sampler	176,038
Newcomb, H. A., Canopy standard for carriages	176,039
Norton, E., Die for making blanks for stove pipe elbows, (reissue)	7,049
Norton, E., Canister	175,869
Noyes, B. B., & Co., assignees	176,039
O'Connell and Butler	175,924
O'Connor, J., Wagon bound	176,040
Olney, G., Manufacture of illuminating gas	176,041
Osborn, E. H., assignee	176,035, 176,036
Osgood, J. H., Covering rounded articles with leather, (reissue)	7,046
Otis, N. S., Temporary file and binder	176,123
Otis, S. A., Horse car pole attachment	176,042
Paddock, M. H., Calendar for clocks and watches	176,043
Paine, I. A., Ball thrower	175,870
Palmer, A. D., Machine for laying out stair rails	175,871
Parent, J., Meat holder	175,872
Parkhurst, P. P., Ore separator	176,045
Parks, E. G. W., Fountain brush	176,044
Pepper, J., Circular knitting machine	175,840
Pierce, P., assignee	176,031
Plummer, J. E., Machine for cutting straps	176,046
Poorman, C. L., Thrashing machine	175,873
Pratt, E. L., Harness	176,047
Prindle, F. B., Machine for forming carriage clips	176,048
Providence Steam and Gas Pipe Company, assignee	175,892
Purdy, S. D., Bale tie	176,049
Rahmstock, J. L. and C. W., Railway rail chair	176,050
Rathbun, L. V., Spring bolt for use in flour bolts, &c.	176,051
Reagan, W. J., Machine for making cores	176,052
Reakirt, J., Lamp wick tube	175,874
Reaser, W. T., Buckle	176,053
Reed, J. R., Steam radiator	176,056
Reed, W., Adjustable dam	176,054
Reed, W., Canal lock	176,055
Reith, J. G., Tenoning machine	176,057
Reynolds, W. S., Steam boiler	176,058
Rice, J. N., Device for winding clocks	176,060
Richards, C., Printing press	176,059
Richards, J., and J. Mechi, Attachment for supplying air to fire boxes	176,061
Richardson, A. A., assignee	175,900
Ridgway, J. J., Jr., assignee	175,914
Riepe, C. H., Box fastener	176,062
Roberts, C. W., Screw cutting machine	176,064
Roberts, M. H., Range or stove oven	176,063
Robertson, J. T., Coupon bond	175,875
Robinson, R. M., Fare box	175,876
Roberds, E. M., Windlass water elevator	176,065
Rogers, G. E., Annealing glass	176,066
Rogers, G. E., Toughening glass	176,067
Roper, F. H., Carpet sweeper	176,068
Rosenfeld, A., assignee	175,937
Ross, C., Jr., Smoking tube	175,877
Rowe, H. A., Folding table and device for holding work	175,878
Rush, R. D. and E. W., Gang plow	175,879
Ryder, A., Coupling for train telegraphs	176,069
Sackmann, H., assignee	176,077
Satterfield, B. L., C. L. Crisman, and J. McKinley, Coal screen and chute	176,070
Sawkins, J. N., Spark and dust arrester for locomotives	176,071
Saylor, E. J., assignee	176,060
Scarbrough, J. L., Combined plow and harrow	176,072
Schmadel, J., J. Feldmann, and J. Eberhardt, Trunk fastener	175,841
Schneider, B. B., Lamp collar	176,073
Schneider, E. J., Step ladder hinge	176,074
Schoifield, J. J., Combined dating and canceling stamp	176,075
Schuh, P. H., Neck yoke	176,076
Seitz, A., Horse collar	176,077
Selden, G. B., Machine for shaving half round hoops	175,880
Sequeira, A., Water meter	176,078
Shaw, T. F., Windlass	175,842
Shepherd, R., Harrow	175,881
Shepherd, T. K., Pump	176,079
Siebke, C., Rein holder	176,080
Silliman, B., Imparting resonance to metallic alloys, (reissue)	7,051
Silliman, B., Imparting resonance to met. alloys, (reissue)	7,052
Simpson, A. J., Method and machine for breaking loaded shell and shot	176,081
Smith, C. C., Vehicle spring	176,082
Smith and Hitt	175,882
Smith, J. N., assignee	176,094
Smith, J. R., Belt buckle plate	176,083
Smoot, W. G., Car coupling	176,126
Snider, A., Dome support for cisterns	176,084
Souheur, A., Lamp	176,085
Spooner, J. C., Horse collar	176,086
Stapler, A. B., Copy holder	176,088
Staples, M. M., Water wheel	176,087
St. Clair, E. G. and G. A., assignees	175,929
Stepham, H., Grain register	176,089
Stewart and Jones	176,006
Stewart, S. N., Movable partition	176,090
St. John, C., Mouth organ	176,124
Stone, M. P., assignee	175,833
Stone, W. D., Preparation of food	176,092
Stover, H. D., Planing machine	176,091
Stowell, J. M., assignee	175,855
Strong and Woodbury, assignees	175,954
Sutherland, D., Car truck	176,093
Sutherland, D. A., Manufacture of boots and shoes	176,094
Tallman, W. F., Relief apparatus for air compressors	176,096
Taylor, W. H., Corn harvester	176,095
Terwilliger and Mase	176,023
Thompson, H. G., and B. F. Bergh, Tacking machine for boots and shoes, (reissue)	7,047
Thompson, S. M., Disinfecting cover for pails	175,843
Tibbetts, C. H., Axle lubricator	176,097
Tinker, H. H., assignee	176,005
Tower and Fiske	175,830
Tower, H. C. and J. N., Heel filing and buffing machine	175,882
Townsend, J. F., assignee	175,842
Trader, J. F., and S. R. Collier, Corn planting machine	176,098
Utley, G., Car coupling	176,099
Van Onner, R. B., Mill feeding apparatus	176,100
Vincent, J. P., and G. W. McKinny, Umbrella drip cup	175,883
Walker, W., Sewing machine for stitching straw braid	176,101
Wallace, W. L., assignee	176,119
Walter, C., Slide rest for lathes	176,102
Warden, W. M., J. Muirhead, and J. L. Clark, Galvanic battery	175,884
Warner, G., assignee	175,842
Warner, J., Support for upright standards	175,844
Warner, L., Slate dressing machine	176,103
Washburn, C. A., Passenger register	175,845
Waterbury Button Company, assignee	176,083
Weathers, J., Ornamental knob or curtain pin	176,104
Weber, P. J., Harness soap	176,105
Wehrle, J., Illuminating houses	176,125
Welling, S. D., Vehicle top	175,885
Wells and Bayliss	175,846
Wells and Howard	175,887
Werner, J., Jr., Harvester, (reissue)	7,053
Westinghouse, G., Jr., Locomotive air brake	175,886
Wheeler, E. H., Wagon brake lever	175,887
Whitman, H. L., Corn sheller	175,888
Whitney, F. A., Carriage Company, assignee	176,106
Whitney, F. W., Carriage top	176,106
Wiard, G. and T., Plow	175,889
Wiard, N., Projectile for heavy ordnance	176,107
Wilcox, D., Die for forming carriage steps	176,108
Wilkins, S., and J. D. Murphy, Steam cooking apparatus	176,100
Williams, R. H., Button fastening	176,110
Willis, J. B., Machine for finishing horseshoe nails	175,891
Wilson, J. M., Locomotive smoke stack	175,890
Wilson, G. W., Car coupling	176,111
Wilson, J. B., Compost	175,846
Wood, W. T., Lamp extinguisher	176,112
Wooster, G. H., assignee	176,101
Wooster, L. S., assignee	175,912
Worthen, J. E., Locomotive furnace	175,847
Wyman, H., Fancy loom	176,113
Young, McC., Machine for boring pipe stems	176,116
Young, S. W., Preparing eyelet stock	176,114
Young, S. W., Eyelet	176,115
Zachos, J. C., Type writer and phonetypic notation	175,892
Zarin, A. P., Preparing distillery mash	176,117
Zarnack, F., Cabinet calendar	176,118

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED APRIL 11, 1876.

176,016. ROTARY ENGINES. Harris Bayliss and Wm. F. Wells, Cleburne, Tex. [Filed July 20, 1875.]



176,016.

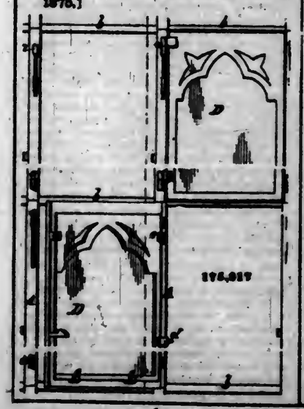
1. The combination of a pair of detached cylinders, F F', single solid shaft B, coupled and crossed pistons A A', and eccentric C, applied to the shaft between the inner ends of said cylinders, and adapted to operate, by means of a rod, J, a single oscillating valve, E, for both cylinders, substantially as and for the purpose set forth.

2. The coupled and crossed pistons A A', arranged to press out the abutments or gates B B', for alternately cutting off the supply of steam from the pipes H H', and having single orifices or perforations *e e'*, in combination with the springs P, for returning the said abutments, so as to bring said orifices in line with said supply-pipes, as set forth.

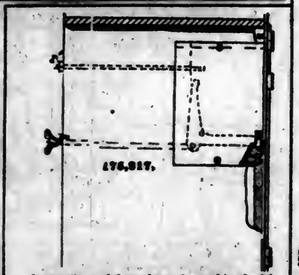
3. The cylinder-sides having longitudinal slots D, for the passage of the abutments B B', and orifices *o o'*, in combination with the removable cylinder-caps L L', having corresponding slots D and orifices *l l'*, and the pipes E E' attached thereto, and conducting the steam from the single valve E, as set forth.

4. The oscillating or reversing valve E, having the central Y apertures or ports *h h' h''*, and operating to direct the steam into the branching pipes H H' of the cylinders F F', in combination with the eccentric C, centrally located between the inner heads of the cylinders, rod J, and yoke I, as set forth.

176,017. POST-OFFICE LOCK-BOXES. Wm. H. Bramble, Decatur, Ill. [Filed Oct. 4, 1875.]



176,017.



176,017.

1. The flanged face-plates A, combined with the grooved vertical box-partitions, substantially as and for the purposes set forth.

2. The combination of a post-office box, having the usual front door and side partitions, with a lock embedded in one of the side partitions, so as to leave the interior of the box substantially unobstructed; a key-hole and locking mechanism by which the lock can be operated from the front of the box; and a rod extending through the interior of the side wall or vertical box-partition to and projecting from the rear edge thereof, whereby the front door can be either unlocked or permanently locked by a longitudinal movement of said rod, and whereby the operating mechanism of the lock is removed from all danger of interfering with the contents of the box, or from being interfered with thereby, substantially as described.

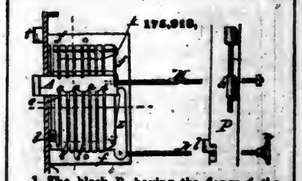
3. In a post-office box or other similar receptacle, a lock, L, arranged in the side wall, metal connections *r* for securing it to the rear edge of the wall, and a metal face-plate, A, for securing it at the front edge of the wall, all combined substantially as described.

4. In a post-office lock-box, the combination of the horizontal box-partitions with the metal door-frames, the glass plates, and the hooks O for securing the glass plates to the door-frames, substantially as described.

5. In a post-office lock-box, the combination of the doors D, the spurs *d* projecting through the lock-plate, and the springs *s* on the opposite side of the lock-plate, for opening the door when unlocked, substantially as described.

6. A series of post-office boxes, having each its own independent metal front, composed of a lateral face-plate and a door matching the other doors above and below and overlapping the lateral face-plates, substantially as described.

176,018. LOCKS FOR POST-OFFICE BOXES. Wm. H. Bramble, Decatur, Ill. [Filed Oct. 4, 1875.]



176,018.

1. The block B, having the flange *f*, the raised bed *b*, the holes h, and the channels *c d f h*, substantially as and for the purposes described.

2. The combination of a supporting block or frame, with the lever L' *l*, bar A, spring-detents *e e*, and key K, substantially as and for the purposes set forth.

3. A lock for post-office boxes, having a metallic face-plate, and a slide-bar projecting therefrom, and adapted by suitable internal mechanism to be unlocked by simply inserting the key without turning it, and then pressing the slide-bar inward, substantially as and for the purposes described.

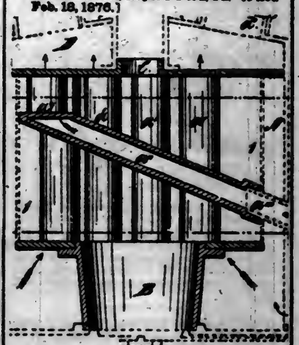
4. The combination of the lever L, the springs *i*, the plates *a*, and the slide-bar A, substantially as described.

5. The combination of the rod N and screw-head *n*, with the lever L of the lock, substantially as and for the purpose described.

6. A post-office box-lock, combined with a rod or strip adapted to be operated at the rear edge of the box for the purpose of preventing the lock from being unlocked by the key, substantially as described.

7. A post-office-box lock, combined with a rod or strip adapted to unlock the box from the rear side without a key, and also to prevent the box from being unlocked from the front side with the key, substantially as described.

176,019. AIR-HEATING FURNACES. Joseph A. Bockwalter, Boyer's Ford, Pa. [Filed Feb. 12, 1876.]

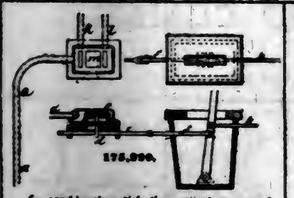


In the air-heating chamber D, containing a steam, A, provided with a circular series of vertical air-tubes, *a' a'*, and located directly above the fire-pot B, substantially as set forth, the combination of the inclined channel *c''* with the short air channels or tubes *a' a'* of the said drum A and the tubular extension *c'''* in the casing 2, substantially as and for the purposes described.

176,020. PNEUMATIC SIGNALING APPARATUS. Austin Chambers, No. 206 Marylebone Road, Great Britain. [Filed Nov. 18, 1875.]

Brief.—Either one of two signaling-pipes may be brought into communication with a supply-pipe filled with compressed air by the movement of a slide valve, which is connected with the switch-lever, so that through the movement of the switch the signals will be set to indicate its position.

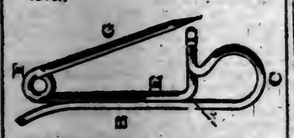
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO. BOSTON.



176,890.

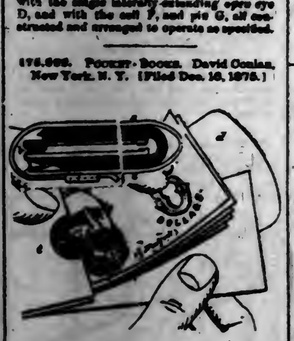
In combination with the point-lever *g*, rod *h*, pipe *c*, and box *b*, the link *f*, guided rod *e*, rod *d*, slide-valve *a*, working in the box *b*, and operating in connection with ports communicating, respectively, with the pipes *b* and *f* leading to the respective signals and with the external atmosphere for entering through a fluid medium the atmosphere around or signals of the class A and B, all as shown and above described, for the purpose specified.

176,891. HYDRAULIC-HOLDERS. I. N. Clawson, Philadelphia, Pa. (Filed Feb. 22, 1876.)



The inwardly-closing book B, bottom bend C, and bar B with the constant point *a* closing the upper space of the bend, in combination with the single inwardly-extending open eye D, and with the coil F, rod pin G, all constructed and arranged to operate as specified.

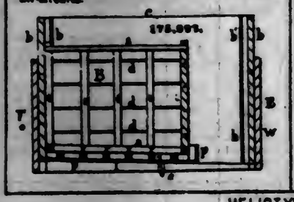
176,892. POCKET-BOOKS. David Conlan, New York, N. Y. (Filed Dec. 16, 1875.)



As a new article of manufacture, a pocket book-bill holder, consisting of the three about equal parts, *a d e*, composed of outside back and inside lining, said parts being made rigid by the insertion of pasteboard or other suitable material, and the spaces between the parts remaining double, substantially as shown and described.

176,893. REFRIGERATORS. Thomas Corson and Charles C. Corson, Brockport, N. Y. (Filed Feb. 22, 1876.)

Brief.—Strengthens the ice-crib by iron bars, on which ping hooks for supporting the meat. Walls thin and hollow, to permit air touching them to be warmed enough to maintain an interior circulation. Apertures from inside, with dampers, to admit air to interior of walls, in order to regulate such interior air-circuits.



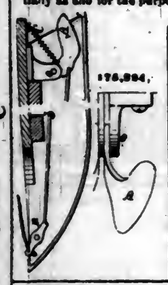
176,893.

As improved refrigerator, consisting of the double sheathed hollow walls W, having the entrance-door E and ice-feed door F the ice-crib B resting on the transverse sleepers *r*, provided with the drip-pan *p*, which is supported on the inclined base *f*, and having the drip-pipe *c*, the horizontal bars *s*, stanchions *t*, and iron slats *d*, all arranged and constructed in the manner and for the purpose substantially as herein set forth.

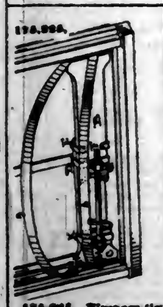
176,894. SLEIGHS. George A. Crossman, Swampscott, Mass. (Filed Mar. 31, 1875.)

1. In combination with a sled, the leaves A and A', hinged or pivoted to or upon the lower side, near the rear end of the same, to have independent vertical motion, and relatively arranged upon rearward and outward diverging lines, substantially as and for the purpose specified.

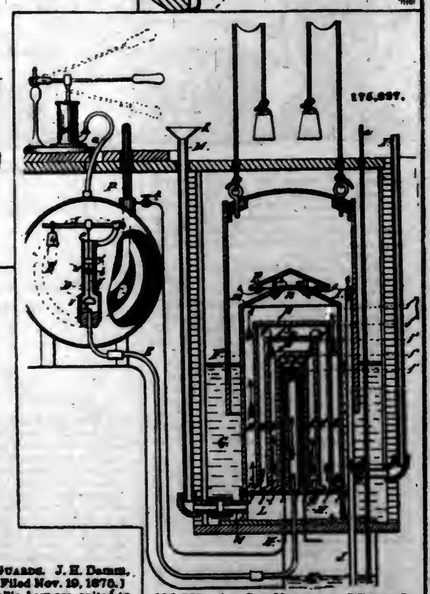
2. In combination with the leaves A and A', hinged or pivoted upon the lower side, near the rear end of a sled, the springs C, the pivoted bars *a* and *a'*, and the rods B and B, all constructed and arranged to operate substantially as and for the purpose shown.



176,894.



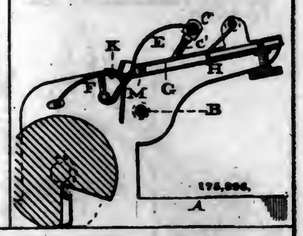
176,895.



176,897.

3. The suspended hooked fingers B K, in combination with the bed, substantially as and for the purpose set forth.

4. The hinged bed F, formed with a curved face and longitudinally-extending slots or ways I, and the frame G M, pivoted to said bed, in combination with the oscillating arm O and fingers D suspended therefrom, substantially as and for the purpose set forth.



176,896.

176,896. WINDOW-GUARDS. J. H. Damm, Milwaukee, Wis. (Filed Nov. 19, 1875.)

Brief.—Curved metallic bars are suited to the outer ends of two sliding bars, which may be adjusted in length, to fit different-sized windows, by means of clasps and a screw-rod.

1. The combination of the metallic railing or bars A A with the sliding bars B and C, substantially as and for the purpose specified.

2. The combination of the metallic railing or bars A A, sliding bars B and C, clasps D, E, and K, and screw-rod F, substantially as and for the purpose specified.

176,897. AIR-GAS MACHINES. William S. Deeds and George H. Deeds, Wilkinsburg, and James A. Deeds, Pittsburg, assignors of one-fourth their right to John Granter, Pittsburg, Pa. (Filed Nov. 3, 1875.)

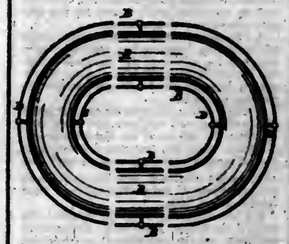
Brief.—Air for supplying the carbureter is first pumped into a reservoir, where it is heated by a steam-coil. A steam-coil also passes through the carbureting-chamber for heating it. The carbureter is placed within the water-tank of the gas-holder, and is constructed of concentric cylinders of different lengths, placed one within the other, and having openings at alternate ends. A drip tank is placed under the carbureter for collecting the condensation from the election gas-pipe.

1. The carbureter F, having the cylinders f^1, f^2, f^3, f^4, and f^5, constructed of different lengths to form the spaces f^1, f^2, f^3, &c., and having alternate foraminous and imbibing tops, in combination with the air-pipe E, reservoir B, having heating-coil C and pump A, substantially as and in the manner set forth.

2. The auxiliary chamber L, having ports *i*, *i*, &c., in combination with the annular chambers h^1, h^2, h^3, and h^4 and pipe M, substantially as and for the purpose specified.

3. The compound hot-air or steam pipes O, P, and N and valves *t* in combination with the air-reservoir B and carbureter F, substantially as and for the purpose described.

176,898. LIFE-PRESERVERS. John W. Fike, Clinton, Mo. (Filed Feb. 8, 1876.)



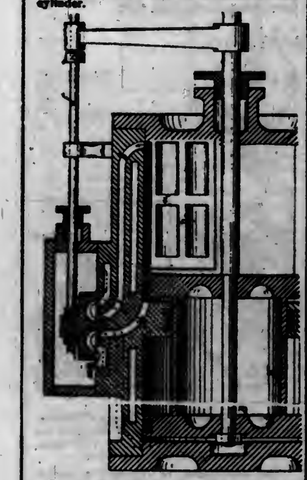
A life-preserver composed of two cylindrical tubes parallel with each other, and joined at each end by a semicircular tube of the same size, and provided with the interior and exterior safety-rods B, substantially as and for the purpose described.

176,899. DYES. William H. Fish, Pascoag, R. I. (Filed Jan. 31, 1876.)

The indigo-dye solution composed of indigo, zinc-dust, bisulphite of soda, caustic soda, and water, in, or about in, the proportions herein set forth.

176,900. VALVES FOR COMPOUND ENGINES. Wilbur D. Fiske and George B. N. Tower, Boston, Mass. (Filed Mar. 13, 1876.)

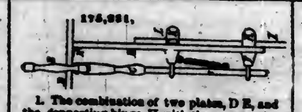
Brief.—The face of the valve is provided with a double set of live-steam and exhaust ports, and operated by means of one valve having two divisions, forming a four-ported valve, by which the live steam from the live-steam side of the piston is transferred to the expansive side of the piston to the same end of the cylinder.



The combination, in compound or duplex engines, and in which differential pistons are used as a medium of motive power, of the four-ported single valve D, and the double live-steam and exhaust ports on each side of a single valve-seat, by which a compound engine is operated in each end of the cylinder, substantially as herein described.

176,901. JIG-SAW ATTACHMENTS. S. B. Fuller, Lynn, Mass. (Filed Jan. 21, 1876.)

Brief.—The supporting-frame of a jig-saw is formed of a horizontal and a vertical part, hinged together so that the horizontal part, with the saw, can be adjusted at any desired angle with the vertical part, and it is provided with an extension-leg and a screw for clamping it in position.

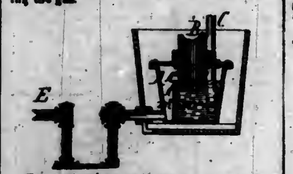


1. The combination of two plates, D E, and the connecting-hinge H with the saw-carrier B, its handle C, and the guides F F thereof, all being arranged substantially as described.

2. The combination of the extension-leg I and its clamp-screw L, the frame D E, the saw-carrier B, and the handle C, all being arranged and applied substantially in the manner and to operate as explained and represented.

176,902. HYDRAULIC GAS-MAINS. Fredk. Grinnell, Providence, R. I., assignor to the Providence Steam and Gas-Pipe Company, same place. (Filed Mar. 1, 1876.)

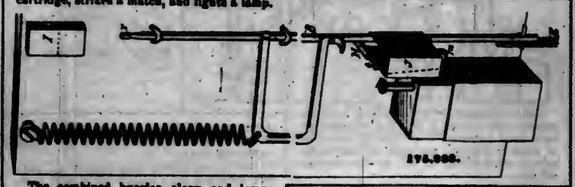
Brief.—The main is to act as a washer. It has a longitudinal vertical partition rising a little above the lower ends of the dip-pipes, over which the waste tar and water flow into a separate compartment, and pass from thence, at the bottom, through a bent seal-pipe. The inflowing water escapes in a current from a horizontal pipe, below the surface of the water, near the bottom of the main, and thus produces considerable agitation to aid in washing the gas.



The hydraulic main and gas-washer described, having, in combination with the main A, gas-passages B M, and water-passages O and E, the partition A', forming a water-compartment, *m'*, of less height than the main, and presenting relatively-clear water in an actively-agitated condition to the dip-pipes, with a uniform depth of seal, as herein specified.

176,903. BURGLAR-ALARMS. Robert J. Harrison, Raleigh, assignor of one-third his right to Mark P. Stone, Cary, and one-third to C. D. Edwards, Morrisville, N. C. (Filed Mar. 8, 1876.)

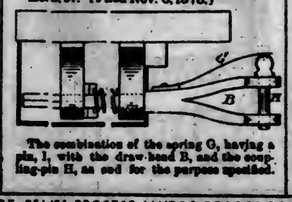
Brief.—The device is operated by the opening of the door or window with which it is connected, and explodes a detonating cap or cartridge, strikes a match, and lights a lamp.



176,903.

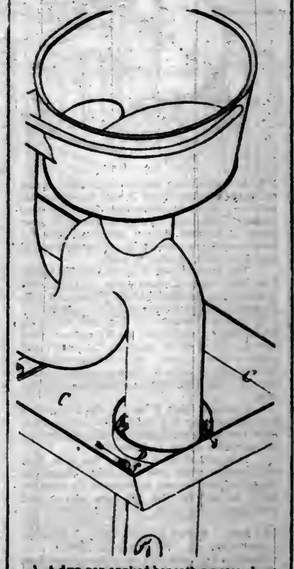
The combined burglar-alarm and lamp-lighter, herein described and shown, consisting, essentially, of the rod B, trigger E, stationary match-holder H, covered movable match-lighter J *m*, covered anvil I, and spring attachment for operating the rod B, substantially as and for the purpose herein set forth.

176,904. DEVICES FOR ATTACHING STREET-GAS POLES. John Horn, Chas. Horn, Jr., and Frank Bloedorn, Cleveland, Ohio; said Bloedorn assignor to said John and Chas. Horn, Jr. (Filed Nov. 6, 1875.)



The combination of the spring G, having a pin, I, with the draw-head B, and the coupling-pin H, as and for the purpose specified.

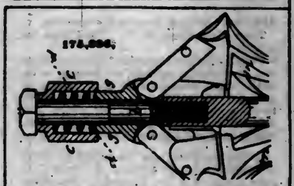
176,905. SAFETY-PANS FOR WATER-CLOSETS. John H. Keyser, New York, N. Y. (Filed Feb. 26, 1876.)



1. A drip pan applied beneath a water-closet with its gas-trap and valves, which pan receives all drippings, overflow, and leakage of the closet, and conducts them away by means of an ejection-pipe into the soil pipe, substantially as described.

2. In combination with a water-closet, a drip-pan, C, constructed with a packing-rim, D, substantially as and for the purpose described.

176,906. BOILER-TUBE SCRAPERS. Rufus Lapham, New York, N. Y. (Filed Sept. 7, 1875.)

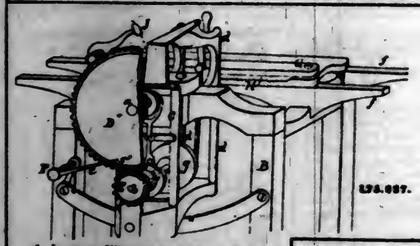


176,906.

The combination of the spring *d*, tube *g*, and shell *c*, for the purpose of providing a tight chamber and protected spring, as and for the purpose hereinbefore set forth.

176,907. SAW-SHARPENERS. Orin Morton, Bloomfield, Iowa. (Filed Nov. 17, 1875.)

Brief.—The file, while being reciprocated vertically, has imparted to it a lateral motion, to prevent contact with the saw-teeth during its backward movement. An automatic setting device is attached.



176,837.

1. In a saw-filing machine, the shaft *a*, carrying the driving-wheel D, and the adjustable collar *r*, in combination with the suspended frame *c d*, carrying the shaft *b*, pinion E, cam-wheel L, pivoted lever *p*, and crank-wheel *g*, substantially as described, to impart vertical and also lateral motion to a file.

2. The combination of the sliding file holder *h m*, the pitman *n*, crank-wheel *g* on the shaft *b*, and the suspended vibrating frame *c d*, substantially as and for the purposes specified.

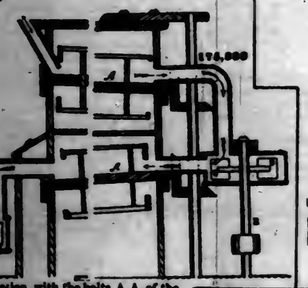
3. The combination of the saw-carrier G, trunk-rails *f f*, adjustable anvil *s*, setter *t*, hammer J, rock shaft F, carrying the prop *o* and arms *n* and *e*, and the driving-wheel D, having pins or cams to engage the arm *e*, substantially as described, to set the teeth of the saw.

4. The rock-shaft F having the adjustable arm *n*, carrying the prop *o*, in combination with the hammer J, substantially as and for the purposes shown and described.

5. The rock-shaft F having the arm *y*, in combination with the adjustable pitman *x*, weighted pawl *w*, and saw-carrier O, substantially as and for the purposes shown and described.

176,838. FLOUR-BOLTS. Wm. J. Merritt, Randolph, Ill. [Filed Apr. 2, 1875.]

Brief.—Any valuable particles drawn from the upper belt with the bran are retained in the lower one.



176,838.

The combination, with the belts A A, of the exhaust-fan blowers B B, when arranged so as to draw a current of air through each belt of equal or different strength, as may be required, substantially as and for the purpose set forth.

176,839. STEAM-ENGINE GOVERNOR. C. Nase, New York, N. Y. [Filed Sept. 28, 1874.]

Brief.—The disks, provided with projections and intermediate springs, are secured to the shaft which communicates between the engine and the machinery, and have connected to them devices which, in connection with said disks, measure and indicate the power transmitted, and regulate the supply of steam.

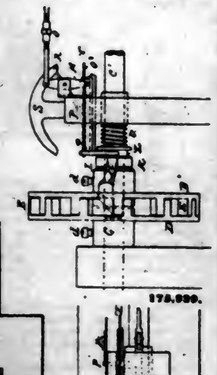
1. The combination of the two disks D and D', formed with projections or studs E at right angles with the faces of the said disks, with the coiled springs F, arranged between the said projections or studs E of the disks, substantially as and for the purposes set forth.

2. The combination of the disks D D', their studs or projections E and springs F, with the cams or incline planes G, arms H, and collar K, and spring V, substantially as and for the purpose described.

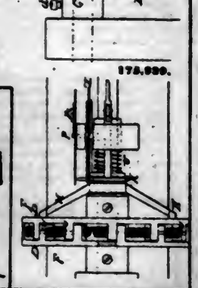
3. The combination, substantially as herein set forth, of the two disks D and D', having the projections E, the coiled springs F, arranged between said projection, the cams G, arms H, collar K, rod O', lever M, rod N, and screw nut O, as and for the purpose set forth and described.

4. The combination with the disks D and D', their projections E, coiled springs F, cams G, arms H, and collar K, of the arm or rod O', pointer R, and graduated scale S, substantially as and for the purpose set forth.

5. The combination of the rod O', when connected with the rod P, as described, with the hand or indicator R and graduated dial-plate S, or their equivalents, substantially as and for the purpose specified.



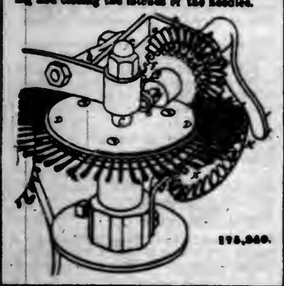
176,839.



176,839.

176,840. CIRCULAR-KNITTING MACHINE. John Pepper, Lake Village, N. H. [Filed May 12, 1876.]

Brief.—Non-sliding latch-needles are radially arranged in a needle plate, with their latches projecting outward, and are combined with looping, finishing, and cast-off wheels, (such as are commonly employed in machines using bearded needles,) and devices for opening and closing the latches of the needles.



176,840.

176,841. WHIP-LASHER. Thomas F. Shaw, Cleveland, Ohio, assignor of two-thirds his right to Geo. Warner and J. F. Townsend, same place. [Filed Feb. 11, 1876.]

The combination of the case A, screw-threaded drum B, ratchet C, dog D, worm-gear wheel E, worm-screw shaft F, guide G, lever H, and arms I I, when arranged to operate, substantially as and for the purpose specified.

176,842. DISINFECTING COVERS FOR PAILS. S. M. Thompson, Providence, R. I. [Filed Sept. 21, 1875.]

Brief.—Cover has perforated top and bottom, the latter being removable, and holds a bag containing a disinfectant.



176,842.

1. The combination of the latch-regulator A with the circular series of non-sliding latch-needles, arranged radially outward from the dial or needle-holder D, as and for the purpose described and represented.

2. The combination, with a circular series of non-sliding latch-needles, projecting radially from the outside of the dial-plate or needle-holder D, of the finishing-wheel K, arranged beneath the needles, as and for the purpose set forth.

3. The combination, with the circular series of non-sliding latch-needles *a*, projecting radially from the outside of the dial-plate or needle-holder D, of the cast-off wheel L, arranged upon a horizontal stud, as described, whereby the stitches or loops are carried back from the hooks of the needles and over their latches, as set forth.

4. The combination of the yarn-guide *i*, the ledge N, the circular series of non-sliding latch-needles *a*, and the loop-wheel G, as described, whereby the yarn shall be fed into the hooks of the needles, and the latches closed before the needles pass into or between the teeth of the looper-wheel, as described.

176,843. TRUCK-FASTENER. John Schmedel, Jno. Feldmann, and Jacob Eberhardt, Cincinnati, Ohio. [Filed Feb. 16, 1876.]

Brief.—The depending tongue consists of two portions, of which one is perforated to receive a padlock-hasp, and one serrated to enter between spring-jaws and be held in a locked position by them.

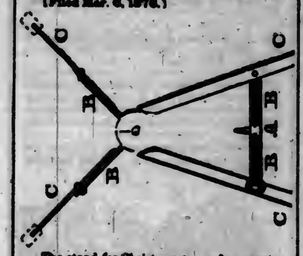
1. The plate B, having upon it a tongue, *b a*, constructed substantially as described, for the purpose of causing it to engage with dogs, which hold it in its locked position, and provided with an aperture for the reception of the bail of a padlock, as set forth.

2. A spring-lock with the tongue C and jaws D D', provided with a series of notches, arranged to operate substantially as herein set forth.

3. The combination of the compound tongue, made up of the parts *b a*, as described, the perforated socket A', and spring-hook chamber F, substantially as set forth.

The improved manufacture or deodorizing or disinfecting apparatus or cover described, consisting of the flanged, chambered, and perforated cover A, the removable and perforated bottom *b*, and the gas-pervious bag C, of charcoal or disinfecting or deodorizing matter, all constructed and arranged substantially as specified.

176,844. SUPPORTS FOR UPRIGHT STANDARDS. James Warner, Philadelphia, Pa. [Filed Mar. 6, 1876.]



The stand for Christmas trees, &c., consisting of the central support A, radiating arms B, and hinged legs C, constructed, combined, and operating substantially as described.

176,845. PASSENGER-REGISTERS. Charles A. Washburn, Oakland, Cal. [Filed Jan. 13, 1876.]



1. In combination, turnstile *a*, shaft E, bearing clutch-half *f*, clutch-half *g*, pillar *h*, and spring-stop *i*, all substantially as described and for the purpose set forth.

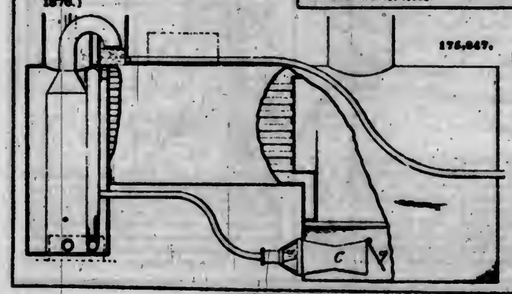
2. In combination, the entrance *b*, turnstile *d*, and exit-gate *c*, when all three are located upon a car relatively as shown.

3. In combination, the gate *c*, having latch *p*, spring *u*, and cord-loop *t*, the cord *v*, and roof-loop *x*, all substantially as described, and for the purpose set forth.

176,846. COMPOSTS. Jos. R. Wilson, Townsend's Inlet, N. J. [Filed Dec. 13, 1874.]

A compost composed of mud, muck or marl, manure or guano, salt, solution of sulphuric acid, and lime, these ingredients being mixed in or about the proportions given, and protected from the action of the air by suitable means, substantially as specified.

176,847. LOCOMOTIVE-FURNACES. John H. Wootten, Reading, Pa. [Filed Feb. 1, 1876.]



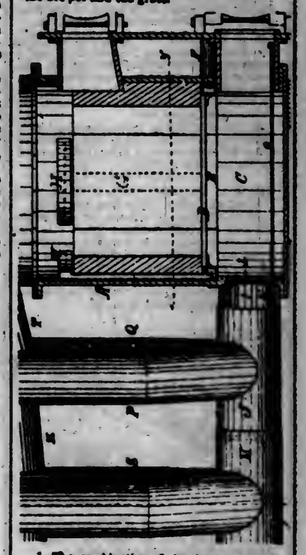
176,847.

1. In a side-board the combination of an ice chamber, F, having the openings V, water-chamber G, and chamber O, arranged between the two chambers L L', as shown, and for the purposes described.

2. The door R, having an inner curved and perforated part, R' R', above and outward curved part R below, and provided with the shelf R', as shown, and for the purposes described and set forth.

176,848. HOT-AIR FURNACES. Ralph M. Bowman, Philadelphia, Pa. [Filed Nov. 20, 1874.]

Brief.—The lower part of the air-induction chamber serves to support both the lining of the fire-pot and the grate.



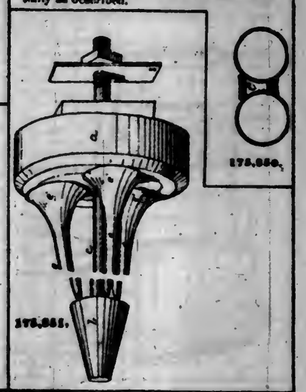
1. The combination of the drums F Q R S with the drum J K, doors L M, and rods N O, all these parts being constructed and arranged to operate substantially as described.

2. The annular chamber E, delivering air as described, and adapted to support the removable lining-plates and the grate, substantially as set forth.

3. In combination with a hot-air furnace, the pipe W X, constructed substantially as described, to permit the products of combustion to pass into the chimney, or the soot to fall into the cellar, as may be desired.

176,849. SOLDERING GUN-BARRELS. Robt. L. Brainard, Meriden, Conn. [Filed Oct. 9, 1875.]

The process herein described in brazing or soldering in the rib and breech of double barrel guns, by packing the space between the barrels with plastic material, which afterward hardens, to furnish a firm bearing to both barrels when secured together after being adjusted, preparatory to boring, substantially as described.



176,849.

176,850.

HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & CO BOSTON.

176,851. FLARING-TOOLS FOR GLASSWARE. David Challister, Pittsburg, Pa. [Filed Mar. 27, 1876.]

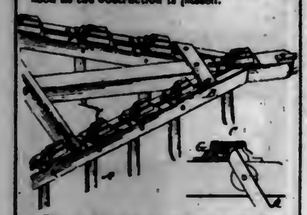
Brief.—The glass article, being held in a rest, is rapidly rotated and pressed forward, and thereby the rollers on the fixed head are caused to revolve on their axes, so as to expand or flare out the open end of the glass article without frictional contact therewith.

1. A flaring-tool for glassware, consisting of a fixed, non-rotating head or frame and a series of two or more rollers, arranged in such head or frame so as to revolve each on its own axis, and with its exterior working face cut at an angle to the axial line of the head or frame, substantially as set forth.

2. The non-rotating base *a*, tip *b*, and stem *c*, carrying and supporting a series of two or more revolving rollers, *e*, substantially as and for the purposes set forth.

176,852. HARROWS. John F. Chase, East Hadden, Conn. [Filed Mar. 24, 1876.]

Brief.—The harrow is A-shaped, with double bars for each side, between which thin flat teeth are pivoted. Just forward of each tooth, on the top of the frame, is secured a cap containing a coiled spring, which is condensed by contact of the tooth with any obstruction, the tooth returning to its normal condition as soon as the obstruction is passed.

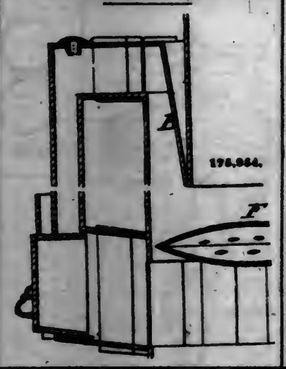


The cap C, spring G, and pivoted tooth A, in combination with the frame of the harrow B, as and for the purpose specified.

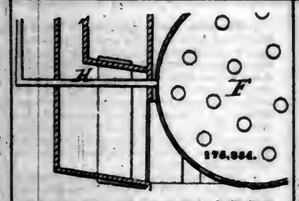
176,853. FURNITURE-CASTERS. J. T. Codman, Boston, Mass. [Filed Aug. 9, 1876.]



A collar, G, placed at and projecting beyond the end of the pintle D, and serving as a bearing on the shoulder of the pintle at one end, and bearing on the screw O or end of the socket at its other end, taking its proportionate weight of the furniture, the collar being held in place and kept from turning by friction induced by one or more slots, *h*, cut in it, allowing the collar to be contracted against the interior of the socket when placed in position, substantially as shown and described.



176,854. HOT-AIR FURNACES. L. R. Comstock, Richmond, Va. [Filed Aug. 14, 1876.]

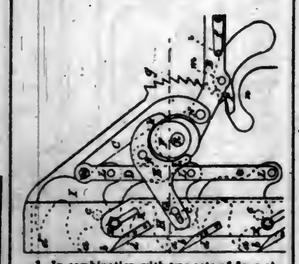


1. The hollow perforated damper F, having a hollow journal, G, in combination with a fire-box of a heater, substantially as described, and for the purpose set forth.

2. In a heater, the combination of the hollow perforated damper, having the crank-arm H, ball N, provided with a notch, *n*, and hinged door K, substantially as described.

176,855. SAW-MILL DOGS. Albert Cunningham, Milwaukee, Wis., assignor to John M. Stowell, same place. [Filed Sept. 6, 1874.]

Brief.—The timber is firmly attached to the head-block of a saw-mill, during the operation of sawing, by means of two sets of dogs, (one having single straight teeth, the other provided with double curved teeth,) arranged in suitable standards, and connected together by a sectional shaft, provided upon its main part with an extension feathered coupling-sleeve, and at each end with a universal joint, and operated by a slotted lever, cam, ratchet, and pawl.



1. In combination with two sets of dogs attached to a saw-mill carriage, the shaft R R', provided with the universal joints Q Q, and with the extension feathered coupling-sleeve S.

2. The dog I, having two teeth or hooks, substantially as and for the purposes set forth.

3. The combination of lever B, pawl P, spring *f*, and pin *i*, substantially as and for the purposes set forth.

4. The combination of lever B, cam F, arm E, and plate H, substantially as and for the purposes set forth.

5. The combination of lever B, pawl P, and ratchet *p*, substantially as and for the purposes described.

176,856. SPRINGS FOR CHILDREN'S CARRIAGES. Charles W. F. Dare, Brooklyn, N. Y. [Filed Feb. 17, 1876.]



1. On a carriage, the scroll-spring F, fastened with its two ends to opposite sides of the reach E, and connected also to the rear axle and to the carriage-body, substantially as herein shown and described.

2. In combination with the scroll-spring F, which is applied as specified, the elevated reach E and front spring D, substantially as herein shown and described.

176,857. MATS. Ernest Dreher, Newark, N. J. [Filed Mar. 20, 1876.]

Brief.—The parallel slats are spaced by balls strung upon the connecting-cords, so that the mat is made flexible.
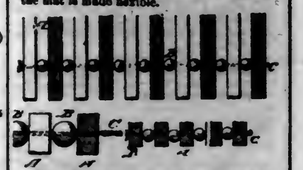


The combination of the slats A, with balls B between them, and the cords C, passing through and uniting them together, substantially as and for the purposes herein set forth.

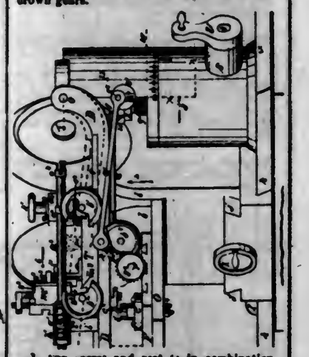
176,858. FIRE-KINDLERS. G. W. Eldridge, South Chatham, Mass. [Filed Sept. 18, 1875.]



The combination, in a fire-kindler, of the strip B, the pine bars C, saturated as described, strip of wood B', and the sawdust filling, or its equivalent, and the wrapper A, all substantially as set forth.

176,859. MACHINES FOR CUTTING THE TEETH OF METAL GEARS. Wm. Gleason, Rochester, N. Y., assignor of one-half his right to the Kidd Iron-Works Company, same place. [Filed Apr. 17, 1876.]

Brief.—A slide swinging in a vertical plane on a horizontal pivot, and in a horizontal plane by virtue of being attached to a revolvable turret, is provided with ways, upon which reciprocates the tool-carrying saddle. The tool-holder, employed when cutting bevel-gears, is mounted, and has a swivel motion, upon an upright cylindrical post, its oscillations in either direction being limited by a fixed pin projecting from the slide, which enters a slot in its rear wall. The tool is automatically tripped at the terminations of its forward end, (to throw it out, so as not to rub the teeth on the return stroke,) and rearward, (to bring it into position for the succeeding cut,) by an arm projecting from the tool-holder, which encounters adjustable dogs upon a rod provided with a cushioning-spring at one end. The slide is made to travel over the usual templet by an automatic feeding mechanism. The machine can be made to cut bevel, spur, and crown gears.



1. The turret and rest D, in combination with the gear-spindle J and its supporting-carriage, when the parts are constructed and arranged substantially as shown, whereby their relative position is rendered adjustable to any desired extent, to adapt the machine to cut or dress spur-gears or bevels of any angles in the same machine.

2. The combination of the tool-saddle T with the spindle J, turret P, and offset-rest D, when the last three elements are so arranged relatively that their axial lines shall intersect, whereby any vertical or horizontal movement of the cutting-tool shall affect its radial reciprocation with relation to the axis of the gear-wheel being operated upon, as set forth.

3. In combination with the pivoted turret P, hinged rest or slide D, and reciprocating tool carriage or saddle T, the connecting or governing strap r^3, and adjustable pin *e*, whereby, in addition to its reciprocations, the cutting-tool may be made to rise or fall or move toward or from the spindle J, for the purposes set forth.

4. In combination with the adjustable pin *e* and link or strap r^3, the rest D and feed-screw r^4, arranged to operate conjointly, as and for the purposes set forth.

5. In combination with the pin *e*, strap r^3, feed-screw r^4, and slide D, the adjustable pattern-rest *i*, and tracing follower or rider r^5, arranged to operate conjointly as and for the purposes set forth.

6. The adjustable automatic feeding mechanism s^2, a^1, reversible pawl *p*, and screw r^1, in combination with the rest D and pin *e*, for the purposes set forth.

7. The slide-block m^2, pivoted tool-clamp *n*, stop s^1, and pin s^2, arranged upon the reciprocating saddle T, in combination with the adjustable stops s^3 and s^4, all operating conjointly, as and for the purposes set forth.

8. The clamping-collar s^5, in combination with the springs in the barrel h^1, and rod s^6, whereby the latter is adjustable longitudinally, and at the same time more or less yielding in both directions.

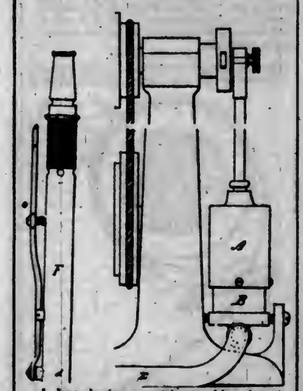
9. The slide-block m^2, having a movement laterally across the reciprocating saddle T, tool-stock m^1, rider s^5, and spring s^6, in combination with the fixed template or pattern i^2 and rest D, when all are arranged as specified for cutting or dressing the teeth of spur-gears, as shown and described.

10. In combination with the horizontally-revolving crank-arm *u*—adjustable or otherwise—and spherical wrist-pin *f*, the pitman *e*, and rising and falling slide D, for the purposes set forth.

11. The combination of the tool stock or holder m^1, pattern-plate i^2, and saddle T, with the swinging rest D, when arranged as specified, for cutting spur gears or wheels.

176,860. CHASING OR MATTING MACHINES. George M. Griswold, New Haven, Conn. [Filed Jan. 6, 1876.]

Brief.—Tool acted on by a hammer which is operated by a reciprocating column of air



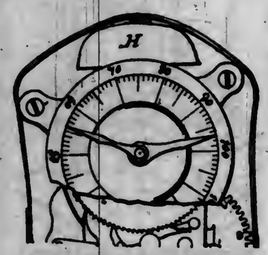
1. In a chasing or matting machine, the cylinders A and B in combination with the flexible tube E, tool-holder F, and hammer *a*, the whole constructed and arranged to operate substantially as and for the purposes set forth.

2. The stop *d*, connected to the lever *e*, pivoted to the tool-holder F, in combination with the channeled hammer *a*, substantially as and for the purpose described.

3. The valves *i i*, arranged in the tool-holder F, and constructed to operate substantially as described.

176,861. FARE-REGISTERS. Wm. L. Horne, Ypsilanti, Mich. [Filed Sept. 20, 1875.]

Brief.—In a fare-register, a device for registering full and half fares upon a single dial, also giving a single stroke upon a bell or gong for the full fare, and two distinct strokes, together with an intermediate sound, for the half-fare.



1. The combination, substantially as hereinbefore set forth, with separate mechanisms for registering different kinds of fares, and a bell or bells, of a secondary sounding mechanism, to connect, by a continuous intermediate sound, the distinct multiple strokes on the bell.

2. In a mechanism for signaling the registry of certain kinds of fares by two or more distinct sounds, the combination, with a recording-key and the alarm, of a spring movement, which is first wound up and then released by the depression of the recording-key, and when once released cannot be stopped until it has caused the full required number of sounds to be given by the alarm, substantially as specified.

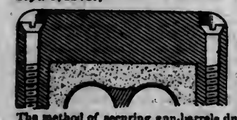
3. The combination, with the keys, of the armed rock-shaft, or its equivalent, operating so as to admit of the depression of only one key at a time, substantially as described.

4. The combination of the lever-arm B^1, guard B^2, hammer G^2, and bell H, substantially as specified.

5. The combination of pawl O^1, ratchet-wheel P^1 P^2 on shaft I, projection i^2 on lever-arm O^2, barrel K, containing spring *k*, and provided with studs k^1 and k^2 and teeth k^3, hammer L^2, and bell H, substantially as and for the purpose specified.

6. The combination, with the hammer L^2, and the spring movement for operating it, of the escapement for regulating the speed of the spring movement, as well as for producing a continuous sound connecting the strokes of the hammer on the bell, substantially as specified.

176,862. MANUFACTURE OF GUN-BARRELS. Charles A. King, Meriden, Conn. [Filed Sept. 9, 1875.]



The method of securing gun-barrels during the operations of boring and finishing them, hereinbefore described—that is to say, by embedding the barrel in a plastic material, so that when said material shall have set or hardened the barrel will be secured firmly in its position and protected from abrasion and injury, substantially as described.

176,863. VISES. William B. Kramar, Philadelphia, Pa. [Filed Dec. 6, 1875.]

Brief.—An intermediate plane-cover jaw is supported by a vertical rod, which terminates, at its upper end, with a ball, and its lower end passes through a horizontal bar, which rocks on its axis, to permit adjustment of the intermediate jaw.

1. The adjustable intermediate jaw B, rounded on its rear side, and having a socket, *a*, in combination with the stationary jaw A and ball D, having a stem, C, connected at its lower end with the bar F or other suitable device, whereby the said jaw B has an automatic adjustment in adaptation to beveled pieces or articles to be held between said jaw and the front jaw of a vise, substantially as set forth.

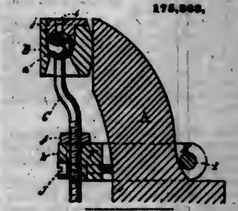
2. The combination of the ball-stem C, bars F and H H, rod I, and stationary jaw A, substantially in the manner and for the purpose set forth.

3. The combination of the set-screw *i* with the jaw B and ball D, for holding the jaw in a vertical position, substantially as set forth.

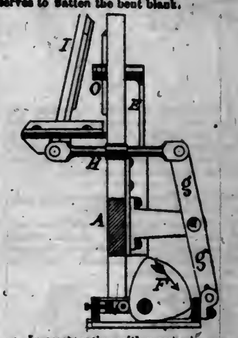
4. The combination of the set-screw *g* with the bar F and rod C, substantially in the manner and for the purpose set forth.

5. The combination of the set-screws J J with the bar F and jaw A, as and for the purpose set forth.

176,864. HORSESHOE-MACHINES. William W. Lewis, Cincinnati, Ohio. [Filed Nov. 27, 1875.]



Brief.—The die is in two parts—one stationary, and one fixed to a swinging arm, which also carries two pockets, into which the blank is left on being severed from the rod. The swinging arm carries the blank within the path of the benders, and opens the die for its discharge thereafter. The double-throw cam serves to flatten the bent blank.



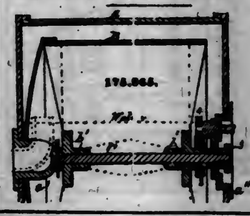
1. In combination with a swinging arm capable of adjusting itself to the irregularities of the bar a die in two separable parts, one stationary and the other attached to the swinging arm, so that the two parts of the die may be held together during the bending operation, and separated to release the shoe when the bending is completed, substantially as set forth.

2. In combination with the movable part of the die an oscillating arm, having a trunnion connection with its shaft, whereby the die is capable of adjusting itself to the entering bar on both sides, as set forth.

3. A double-throw cam, in combination with the swinging arm, for the purpose of pressing the shoe out to proper form when bent.

4. In combination with the swinging arm I the feeding slides or pockets K K', substantially as and for the purpose set forth.

176,865.



176,866. GAS-METER. Charles C. Lloyd, Philadelphia, Pa., assignor to T. C. Harper, same place. [Filed Mar. 8, 1876.]

Brief.—The shaft is stationary, being connected with the ends of the outer case, for the purpose of supporting the rotary drum, and counteracting the outward pressure against the ends of the case. Tubular bearings are attached to the drum revolving on the fixed axis.

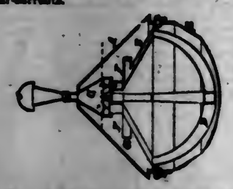
1. The combination, in a gas-meter, substantially as described, of the fixed or stationary shaft C, with the ends of the case A, for the twofold purpose of supporting the rotary drum B and preventing the said ends of the case from being sprung outward by the pressure of the water therein.

2. The tubular bearings *b' b'* of the rotary drum B, in combination with a fixed or stationary shaft in the case A, substantially as described, for the purpose of supporting the drum and allowing a perfectly free, steady, and noiseless rotary motion of the same upon the fixed or stationary shaft, as hereinbefore explained.

176,866.

176,867. FOG-SIGNALS. Edgar H. Mann, Lawrence, Mass., assignor of part of his right to Keuen Folger and Jos. M. Horne, same place. [Filed Dec. 4, 1875.]

Brief.—Improvement on Patent No. 61,643. The inside tubes contain water in the best portion, and air is expelled from the upper part of the tubes through a fog-whistle as the device rocks back and forth on the waves. A system of valves controls the direction of air-currents.

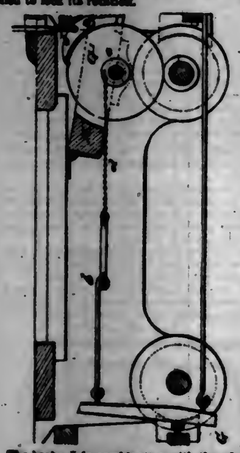


In a fog-signal, as herein described, the combination of the casements A and B, the tubes D, the valves *a a a a*, the valves *b b*, and the chambers E and G, each with exit, in a manner substantially as and for the purpose herein described and set forth.

176,867.

176,867. CAR-BRAKES. G. Merrysville, Rutland, Vt. [Filed Mar. 8, 1876.]

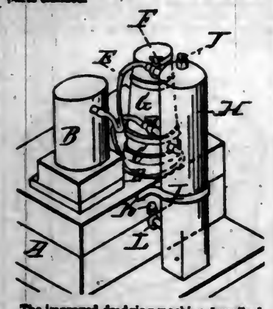
Brief.—Brakes applied by friction-wheel turned by axle. Pressure of this wheel against axle regulated by lever, which operates sliding frame that carries it. Brake applies to lock its rotation.



The brake J, in combination with the wheel G', pulleys *e*, chains *d*, and the brake mechanism connected therewith, substantially as and for the purposes herein set forth.

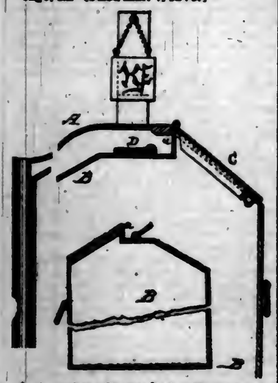
176,868. DREDGING-MACHINES. D. Moor, Waterville, Me. [Filed Mar. 20, 1876.]

Brief.—An improvement in steam-vacuum dredges, consisting in the arrangement of parts claimed.



The improved dredging machine described, consisting of the steam-chest B, water-tank C, pipe E provided with the stop-cock F, pipe D provided with the stop cock G, and receiver H, provided with the valves K J M, combined and arranged to operate substantially as and for the purpose set forth and specified.

176,869. CANISTERS. Edwin Norton, Chicago, Ill. [Filed Mar. 7, 1876.]



1. A canister, B, provided with a hinged lid, C, offset, *c*, and handle, D, adapted to be placed in a case or shell, A, substantially as and for the purpose specified.

2. A case or shell, A, having a closed front capable of receiving labels or devices for ornamentation, and having its back portion left open to receive and hold a series of canisters, B B, as and for the purpose set forth.

3. In combination with the case A, constructed as described, the canister B, having handle D, offset *c*, and hinged lid C, substantially as and for the purpose specified.

176,870. BALL-THROWERS. Ira A. Paine, New York, N. Y. [Filed Mar. 6, 1876.]

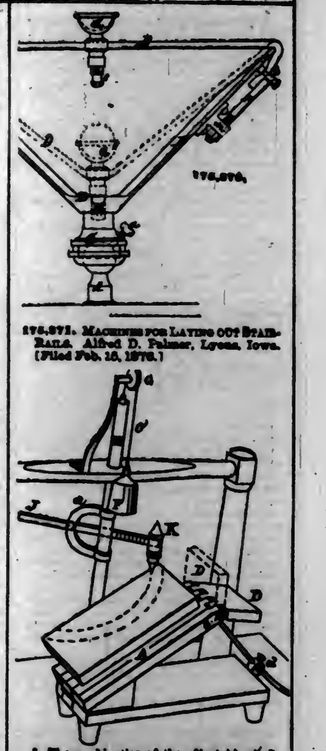
Brief.—The device is designed for throwing balls or other objects into the air, to be aimed at by sportsmen in the practice of shooting.

1. The combination of a frame, B, having diverging arms, with elastic cords D, provided with a cup, G, or a similar receptacle for a ball, attached in their center, and the spring-catch *e*, entering a recess or hole, *w*, in the bottom of the frame, substantially in the manner and for the purpose described.

2. In combination with a frame, B, provided with elastic cords D, the screw-clamps E and tightening-bolts F, arranged in the manner and for the purpose set forth.

3. In combination with a frame, B, arranged and constructed as above described, and its foot or stand A, the ball-joint C, and set-screw *s*, substantially in the manner and for the purpose specified.

176,871. MACHINES FOR LAYING OUT STAIR-RAILS. Alfred D. Palmer, Lyons, Iowa. [Filed Feb. 16, 1876.]



1. The combination of the adjustable shaft H, weight F, cord *c'*, and pulley G, substantially as and for the purpose described.

2. The automatically-adjustable shaft H, having arm J and pencil-holder K, in combination with adjustable leaf A, and D, rod L, and clamp *d*, substantially as and for the purpose described.

176,872. MEAT-HOLDERS. Joseph Parent, Washington, D. C. [Filed Mar. 15, 1876.]

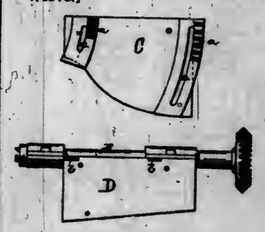


1. A meat-compressing and holding band formed of a series of spring-metal strips, D, arranged parallel to each other, with suitable spaces between them, and attached to a stationary plate at one end and adjustable at the other end, substantially as and for the purpose herein set forth.

2. The combination, with the bed-plate A, of the stationary plates B C, strips D, handle G, and sliding plate E, substantially as and for the purposes herein set forth.

3. In combination with the strips D and handle G, arranged as described, the hook G', shaft *x*, and series of holes *z z* in the bed-plate, as and for the purposes herein set forth.

176,873. THRASHING-MACHINES. Christian L. Poorman, Bellaire, Ohio. [Filed Feb. 7, 1876.]



1. The combination of plate C, formed with radiating grooves *a a*, and hanger D, provided with the tongues *b b*, substantially as and for the purpose set forth.

2. The plate C, formed with radiating grooves *a a* and arc-formed slots *c c*, in combination with the hanger D, having the tongues *b b* and bolts *d*, substantially as set forth.

176,874. LAMP-WICK TUBES. J. Benkirt Philadelphia, Pa. [Filed Dec. 13, 1875.]



As a new article of manufacture, a lamp-wick tube formed with a solid spherical or oval-shaped enlargement at the upper end, substantially as and for the purpose specified.

176,875. COUPON-BONDS. J. T. Robertson, New York, N. Y. [Filed Jan. 26, 1876.]

Brief.—The coupons due at different times of the year are distinguished from each other at a glance. Take, for instance, a bond with interest due semi-annually—say, in January and July—all the January coupons are tinted with one color, and the July coupons are tinted with a contrasting color.

A coupon bond having the coupons divided into classes according to their terms of payment, the classes being tinted with contrasting colors, to facilitate the payment, and to guard against the alteration of the coupons, substantially as described.

176,876. FARE-BOXES. R. M. Robinson, Philadelphia, Pa. [Filed May 22, 1876.]

Brief.—The fare is received in the hopper, which consists of two bodies, which rotate one within the other on a common axis, where it is inspected. The knob is then depressed, rotating the parts which form the hopper, depositing the fare, at the same time sounding the alarm and registering. If the box is reversed an automatic trap closes the hopper and prevents the abstraction of the fare.

1. A fare-box hopper composed of two bodies constructed to rotate and cover and uncover, and having a common axis, substantially as and for the purpose set forth.

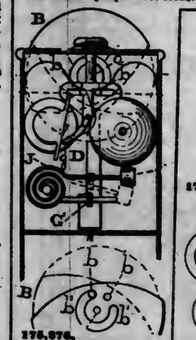
2. The two bodies B B, constructed to rotate and cover and uncover, in combination with the operating sliding bar D, the bodies and bar being connected by pins *b* and slots *c*, substantially as and for the purpose set forth.

3. The sliding rod L, operating in combination with the opening and closing hopper B, substantially as and for the purpose set forth.

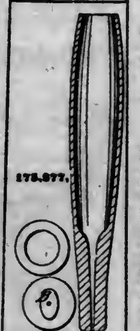
4. The trap K and sliding rod L, operating in combination with the opening and closing hopper B, substantially as and for the purpose set forth.

5. The sliding bar D, with arm G', in combination with the horizontal spring hammer-arm J, at an angle thereto, substantially as and for the purpose set forth.

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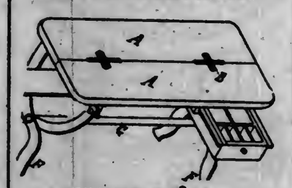


176,877. SMOKING-TUBES. Chas. Ross, Jr., Brooklyn, N. Y. [Filed May 31, 1875.]

Brief.—The tube is of cigar form, and made of clay, and has a tapering smoke-passage.

The clay smoking-tube herein described, formed in one piece and having the internal form, as and for the purpose set forth.

176,878. FOLDING TABLES AND DEVICES FOR HOLDING WORK. Harriett A. Rowe, Boston, Mass. [Filed Jan. 21, 1876.]

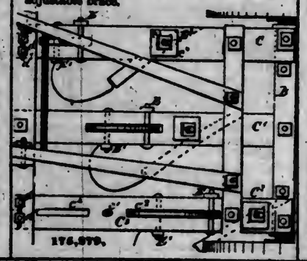


1. The improved folding work-table described, consisting of the centrally-hinged leaves A A, cross-legs F F, rod G, bar *g* and clasp A, constructed and arranged to operate substantially as and for the purpose set forth and specified.

2. The pivoted plate K, provided with the tooth L and stop J, all arranged on the leaf A, substantially as and for the purpose set forth.

176,879. GANG-PLOWS. Ralph D. Rush and Ephraim W. Rush, Washington, N. J. [Filed Jan. 24, 1876.]

Brief.—The construction of the frame adaptable to various uses. The standard and its adjustable brace.



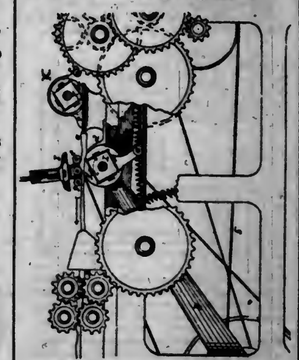
176,879.

1. The combination, with a slotted plow-beam, of plow, having a standard provided with holes *c' c'*, the pin E, pivot F, and adjustable link E', substantially as set forth.

2. The combination of the wheels A A, the axle B, the plow-beam C, the removable beam C', and the beam C', provided with two slots, *c' c'*, whereby the plows may be arranged for plowing corn, or as a gang-plow, at the option of operator, substantially as set forth.

176,880. MACHINES FOR SHAVING HALF-ROUND HOOPS. George B. Selden, Rochester, N. Y. [Filed Jan. 13, 1875.]

Brief.—The cutter-head for shaving the split side of a half-round wooden hoop is controlled and caused to conform to the irregularities in the stock, the thickness of the hoop determined from the bark side, and the knots upon said side, when properly trimmed, allowed to pass without the cutters gouging the stock, by means of a series of yielding rolls, which bear upon the bark side, and are mounted in a swinging frame directly over the cutter-head, in connection with suitable feeding mechanism. The knots are trimmed by means of a cutter-head mounted in a frame swinging on trunnions, and having sufficient vertical adjustment to enable it to conform to the curves in the stock passing under it.



1. In a hoop-dressing machine the multi-roller rest or equalizer H, composed of three rolls articulated together and operating to pass knots, substantially as described.

2. The combination, in a hoop-dressing machine, of a cutter-head, I, and a multi-roller rest or equalizer, H, operating substantially as described, for the purposes set forth.

3. The combination of the cutter-head I, equalizer H, and rest *d*, operating substantially as described, for the purposes set forth.

4. The combination, in a hoop-dressing machine, of the knot-trimmer K, the main cutter I, and the equalizer H, operating conjointly for the purposes set forth.

5. The combination, in a hoop-dressing machine, of the grooved feed-roller 4, the main cutter I, and the equalizer H, operating substantially as and for the purposes set forth.

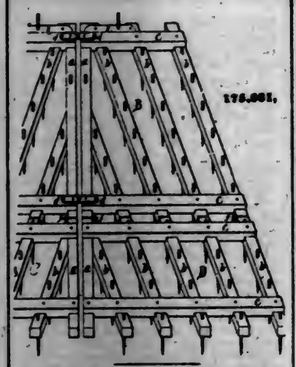
6. The combination of the grooved feed-roller 4, the knot-trimmer K, the main cutter I, and the equalizer H, operating substantially as and for the purposes set forth.

7. The sustaining-frames f and F, in combination with the pivot-bars *j f* and rollers *e f g*, constructed and arranged substantially as described.

176,881. HARROWS. Reason Shepherd, Rockford, Ill. [Filed Nov. 12, 1875.]

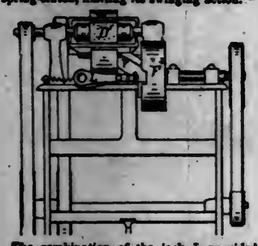
Brief.—A harrow consisting of four sections, the first two of which are hinged to each other by their inner beams, so as to vibrate parallel with the draft, and the second two hinged to the rear of the first two, so as to vibrate at right angles with the draft.

A harrow composed of sections A, B, C, and D, with the forward sections A and B hinged together to yield or fold parallel with the line of draft, and sections C and D hinged to and in the rear of the first-named sections, and at the same time fold or yield at right angles to the line of draft, constructed and operating substantially as described.



175,882. HEEL-PLIING AND BUFFING MACHINES. H. C. Tower and John N. Tower, Hudson, Mass. [Filed July 24, 1875.]

Brief.—The jack-arm is provided with a spring-clutch, limiting its swinging action.



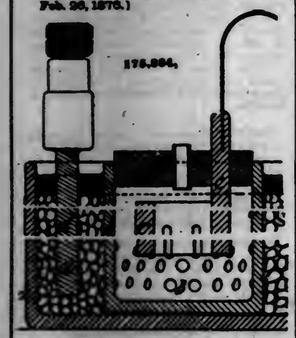
The combination of the jack L, provided with the spring-clutch L' L', the adjustable arm M with the file-wheel F', all substantially as shown and described.

175,883. UMBRELLA DRIP-CUPS. John P. Vincent and George W. McKinny, Rochester, N. Y. [Filed Mar. 3, 1876.]



The drip-cup C for umbrellas, formed of rubber or other elastic material, its upper edge being provided with a contracted or curved lip, c, substantially as and for the purposes set forth.

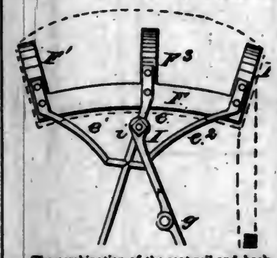
175,884. GALVANIC BATTERIES. William M. Wardlaw, John Muirhead, and Josiah L. Clark, Westminster, England. [Filed Feb. 26, 1876.]



1. A perforated stoneware or non-porous diaphragm in manganese batteries, substantially as described.

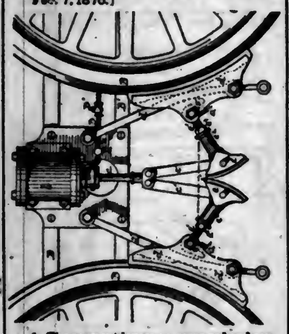
2. The arrangement of the zinc element within the inner cell, and the manganese and carbon in the space between the outer and inner cells, substantially as described.

175,885. VEHICLE-TOPS. S. D. Welling, West Carlisle, Ohio. [Filed Jan. 19, 1876.]



The combination of the seat-rail and back, formed as specified, the swinging-top supports, their projecting arms and branches, and the jointed diagonal braces pivoted at their upper ends to the central branches of the top supports and at their lower ends to arms projecting from the seat-rail, substantially as set forth.

175,886. LOCOMOTIVE AIR-BRAKES. Geo. Westinghouse, Jr., Pittsburg, Pa. [Filed Feb. 7, 1876.]



1. The segment-levers *s s*, arranged and connected to the piston of a brake-cylinder, substantially as set forth, whereby, during the first part of their stroke in setting the brakes, their touching-point shall be below a line connecting their centers of curvature, substantially as set forth.

2. In a driver-brake apparatus, a segment-lever, *s*, adjustably connected to the brake block or shoe, and in combination therewith, substantially as described.

3. The leg *a* and set-screw *a'*, in combination with hanger *d'* and brake-block *d*, substantially as set forth.

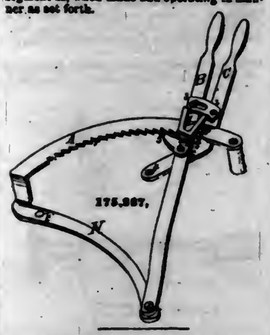
4. In combination with a brake-pipe and brake-cylinder, a valve arranged in such pipe, closing with an ingoing pressure and opening with an outgoing pressure, and having an air-port through or past the same of a transverse area less than that of the pipe, substantially as and for the purposes set forth.

5. In combination with a brake-pipe, brake-cylinder, and air-supply port of reduced area relative to the brake-pipe, a safety-valve, arranged beyond such reduced port in the direction of the inflow of air, substantially as and

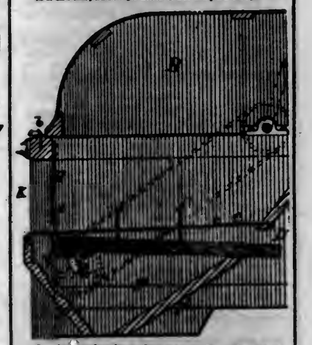
175,887. WAGON-BRAKE LEVERS. Elisha H. Wheeler, Canton, Mo. [Filed Dec. 21, 1875.]

1. The combination of levers B and C, when so constructed and arranged that lever C crosses lever B, and is united to it by a bolt or rivet at 1, lever C being provided with a hole, 4, for the attachment of a connecting-rod, as set forth.

2. The combination of levers B and C, when so constructed that lever C shall cross lever B at 1, and be united thereto by a bolt or rivet, 1, together with pawl-bracket L and ratchet-segment A, when made and operating in manner as set forth.



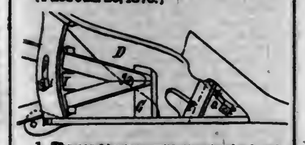
175,888. CORN-SHELLERS. H. L. Whitmer, St. Louis, Mo. [Filed Oct. 29, 1875.]



1. A mechanism for separating the corn from the cob after the same has passed through the shelling apparatus of any machine for shelling corn, said mechanism consisting of the slotted platform C, reciprocating rake D, and crank E, combined and operating substantially as described.

2. A corn-shelling machine provided with a slotted platform, so arranged in connection with the shelling mechanism as to receive the corn and cob as they pass from said shelling mechanism, and having a reciprocating rake, operating with a crank movement to carry off and discharge the cobs, substantially as described.

175,889. PLOWS. George Wiard and Thos. Wiard, East Avon, N. Y., assignors to Geo. Wiard and Chas. W. Hough, same place. [Filed Jan. 25, 1876.]

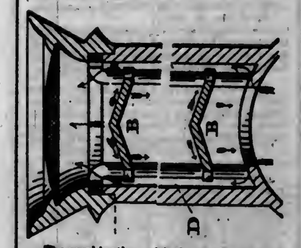


1. The combination, with the standard and land-side B C, mold-board D, and handles F F, of the pivot-bearing G, slotted transverse brace H, and adjustable bearing-plate I, having slotted legs K for making the handles laterally and vertically adjustable, substantially as and for the purpose herein before set forth.

2. The combination, with the standard B, provided with ribs *b b*, of the mold-board D, provided with lug *d* and overlapping ledge *m* for securing the mold-board to the standard, substantially as and for the purpose herein-before set forth.

3. The combination, with the standard B and brace P, of the toe-plate O, provided with slot *q* for receiving the bolt *s*, and for facilitating the casting of the parts in one piece, substantially as and for the purpose herein-before set forth.

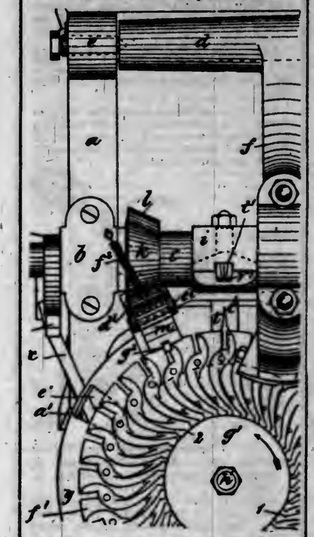
175,890. LOCOMOTIVE SMOKE-STACKS. J. M. Willson, Camden, N. J., assignor to J. L. Mason, same place. [Filed Aug. 26, 1875.]



The combination, with the smoke-stack of a locomotive-engine, of a series of shelves, B inclined toward the bottom of the stack, and having a space, D, between the outer faces of the shelves and inner faces of the stack, said space being continuous from top to bottom of the stack, substantially as and for the purpose set forth.

175,891. MACHINES FOR FINISHING HORSE-SHOE-NAILS. John B. Wills, Keesoville, N. Y. [Filed Dec. 7, 1875.]

Brief.—An intermittingly revolving radially grooved plate for receiving the nail-blanks, and upon said plate a series of fingers, provided with lips, which extend down into the grooves, and clamp said blanks in position. The rear ends of the fingers rest against a cam-surface, which, as the plate revolves, causes them to be tightened upon the blanks, a spring throwing them open when their ends are not in contact with said surface. Three sets of dies—the first for straightening, the second for shearing the sides, and the third for beveling the point—operate successively upon each nail-blank as the plate revolves.



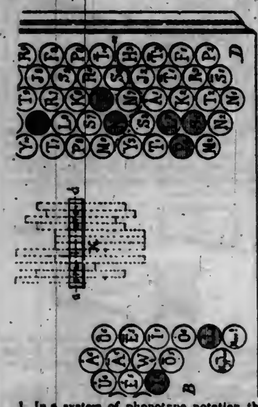
1. The combination of the dies *f* and bed-die *t*, arranged to act obliquely, as described, with the dies *f'* and *u*, whereby the beveled cut of the former compensates for the widening or enlargement caused by the latter, substantially as described.

2. The revolving plate *f*, having openings or slots *t'*, in combination with the fingers *n'*, having lips *p*, substantially as and for the purpose set forth.

3. The combination of the revolving plate *f*, and fingers *n'*, holding the nail-blank throughout a portion of its circumference, with the three sets of dies *e e'*, *t t'*, and *u f'*, substantially as described.

4. The combination of the plate *f*, fingers *n'*, and cam *p'*, substantially as and for the purposes described.

175,892. TYPE-WRITERS AND PHONOTYPIC NOTATION. John C. Eccles, New York, N. Y. [Filed Dec. 24, 1875.]

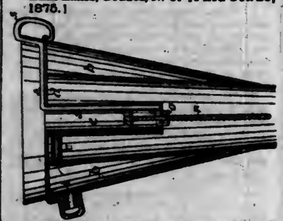


1. In a system of phonotype notation the means employed of representing the sounds of the English language, consisting, essentially, of the vowel and consonant characters, and the certain diacritical marks, substantially as herein described and shown, for the purpose set forth.

2. In a type-writing machine, the key-boards B and D, the finger-keys of which are provided with their respective vowel and consonant signs, combined in groups, and relatively arranged, substantially in the manner and for the purpose set forth.

3. In a type-writer, the key-boards B and D, and the slide-bars 1 to 12, combined and arranged to operate substantially as described.

175,893. FLAMBEAUX. George W. Aldrich, Syracuse, assignor of one-half his right to Emil Lasse, Geddes, N. Y. [Filed Oct. 20, 1875.]



1. The combination, with the wick-tube of a flambeau, of the extra loose bottom *m*, attached to the screw-threaded stem *n*, and the nut *o*, attached to the rigid bottom of the wick-tube, constructed to operate as described, for the purpose specified.

2. In combination with the loose bottom *m*, arranged to raise and lower by revolving the wire *s*, bent at the lower extremity to fit the inner circumference of the wick-tube, and secured at the top of the flambeau by a hook engaging a projecting rim or shoulder on the exterior of the flambeau, constructed to operate as described, for the purpose set forth.

3. The combination with the flambeau herein described, of a reservoir for oil or fluid, attached to the outside of the lycopodium-tube and connected with the wick-tube, as described, for the purpose set forth.

175,894. BALANCED VALVES. William D. Andrews, Brook Haven, N. Y. [Filed July 1, 1876.]

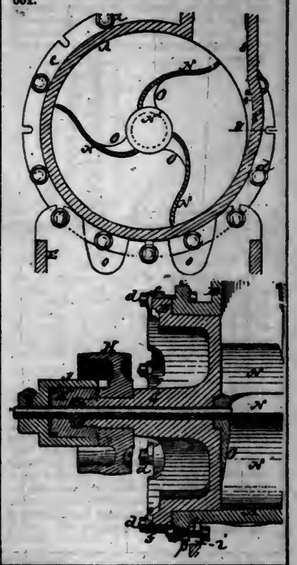
Brief.—Steam enters the hollow valve through the central opening in the case, and passes from it through the lateral ports into the opening leading to the cylinder. The two exhaust-passages converge into one.



The combination of the openings C, D, and E, the valve-case A, and its channels or passages *c d e*, the passages F' F', the outlet F, and the single cylindrical hollow valve B, with its lateral ports *i i'*, essentially as shown and described.

175,895. CENTRIFUGAL PUMPS. William D. Andrews, Brook Haven, N. Y. [Filed May 22, 1876.]

Brief.—Wings are constructed of reverse curves, and are attached to a small central hub with re-enforces. The cylinder is constructed to be adjustable in its seat, to vary the direction of discharge. The central space of the cylinder is left entirely unobstructed, and the discharge (which, in its connection with the cylinder, is rectangular, after the sectional figure of the cylinder) gradually changes to a round and contracted orifice. The working parts are all attached to the one removable head, which, on a projecting arbor, carries the pulley, and centrally through it the shaft; said pulley and shaft being connected by a coupling, covering and inclosing the packing-box.



1. In a centrifugal pump, having a cylindrical case, A, the discharge-branch or nozzle D, of an enlarged rectangular construction at its junction with the case, and coincident with the sides thereof, but terminating externally in a contracted orifice, *b*, and arranged so that the interior surface *c* of its outer side is in tangential relation with the inner periphery of the case, and with the circular path described by the outer ends of the propelling wheel or its vanes, substantially as specified.

2. The discharge-branch or nozzle D, having the interior surface *c* of its outer side in tangential relation with the cylindrical case A, and constructed or provided with a relief-opening, *c'*, having a curved surface, *c²*, arranged to connect with the inner periphery of the case, and with the tangential surface *c* of the discharge-branch or nozzle D, essentially as shown and described, and for the purpose herein set forth.

3. The vanes N of the propelling-wheel, constructed of reverse curves, constituting a volute for the greater portion of the length of the wings but having outer radial terminations, essentially as shown and described.

4. The combination of the wings N N, irrespective of their shape, having their inner edges terminating at a distance from the center of the wheel so as to provide an unobstructed central space within them, with a hub, N', on one side only of the wheel, of a diameter approximating to that of said central space, and with re-enforces O O, the said hub and re-enforces extending equally into the cylinder, all substantially as herein described.

5. The removable head B of the pump-case, provided with an arbor, G, for the wheel-shaft, and constructed to independently carry the propelling wheel, shaft, and driving-pulley, substantially as described.

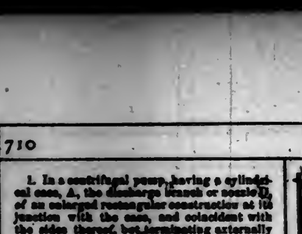
6. The combination of the pulley H, arranged on the arbor G, projecting from the removable head, with the shaft I and the coupling J, essentially as described.

7. The combination, with the removable head B constructed to independently carry the driving-pulley and wheel-shaft, having an attached clutch, of the pump-case A and its attached head C, induction-nozzle M, and discharge-branch D, substantially as described.

8. The circularly-adjustable case A, formed with circular extensions on the opposite sides or faces to form bread or distant bearings in the support of the case by the stand E, beyond opposite sides of the discharge-pipe D, essentially as shown and described.

175,896. TOOTH-PICK MACHINES. Leonard Anderson, Painesville, Ohio. [Filed Feb. 21, 1876.]

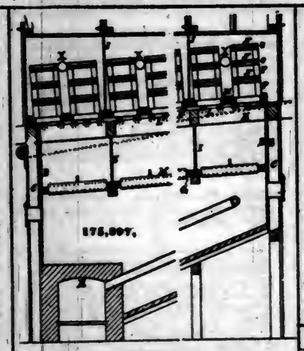
Brief.—Tooth-picks are cut from a blank secured to a revolving mandrel by means of two automatically-adjustable veneer-cutters, arranged upon opposite sides of the mandrel, a splitting-wheel geared into it immediately above the blank, and suitable operating mechanism.



The combination of rotary mandrel A, the opposite veneer-cutters O O, and the splitter H, the mandrel-cutters and splitter being connected and operated as shown and described, whereby the machine is made to adjust its splitter and cutters as the blank is cut away, thus automatically completing the whole operation.

175,897. FRUIT-DRIERS. William Aram, San Jose, Cal. [Filed July 24, 1875.]

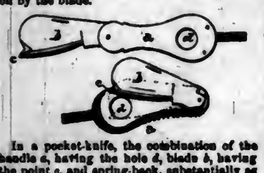
The vertical sliding partitions J, the fixed partitions I, the horizontal adjustable registers M, and drying and heating chambers provided with cold and hot air openings, all combined and arranged as shown and described, whereby the application and degree of heat may be perfectly regulated or controlled in the several compartments through which the fruit-carrying frames are made to pass.



175,897.

175,898. CIGAR-CUTTERS. Roald Arentz, Philadelphia, Pa. [Filed Sept. 26, 1876.]

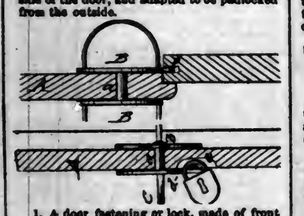
Brief.—The handle of a pocket-knife is provided with an opening in its side, in which the end of a cigar may be inserted to be cut off by the blade.



In a pocket-knife, the combination of the handle *a*, having the hole *d*, blade *b*, having the point *e*, and spring-back, substantially as described.

175,899. DOOR-FASTENINGS. C. R. Arnold, Bloomingdale, N.Y. [Filed Mar. 13, 1876.]

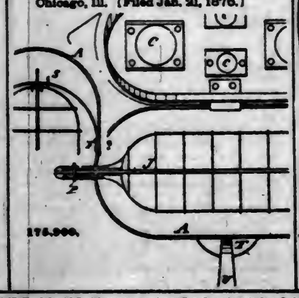
Brief.—A simple and inexpensive barn-door or other fastening, operated from either side of the door, and adapted to be padlocked from the outside.



1. A door fastening or lock, made of front and rear plates B, with handles or buttons O turning on a connecting center-bolt, *a*, passing through the door, and locking by a tongue-extension, *b*, of the inner plate into a socket-recess of the door-frame, substantially as and for the purpose set forth.

2. The combination of the recessed front plate B with a staple *c*, countersunk below the plate to admit attaching of padlock for locking plate and door, substantially as set forth.

175,900. BROILERS. William F. Atherton, Chicago, Ill. [Filed Jan. 21, 1876.]



175,900.

1. The meat-holder G H, combined with the spur S, sleeve K, handle J, loop L, and ring P, combined with a case or receptacle, A B, substantially as set forth.

2. The case A B, provided with shortening-plate B, and combined with a meat-holder arranged to receive, and to be locked in a horizontal position, as described and shown.

175,901. COFFIN-HANDLES. Charles A. Bailey, Cobalt, Conn., assignor of one-half his right to Bailey & Brainard, same place. [Filed Mar. 9, 1876.]

Brief.—Rigid arms are passed through slots in a tubular handle, and are secured by a rod passing through the handle and through perforations in the inserted ends of the arms.

The combination, in a lifting-handle, of the rigid arms, combined, with a bar having perforations or recesses corresponding to the said arms, and the arms provided with a stop to prevent the accidental separation of the bar from the arms, substantially as described.

175,902. PUMPS. Allen S. Baker, Evansville, Wis. [Filed Nov. 29, 1875.]

Brief.—The upper end of the standard is contracted, and provided with annular and vertical grooves. The collar carrying the fulcrum-arm has a burr projecting inwardly in its bore, which, in attaching the collar to the standard, passes down the vertical groove, and around, as desired, the annular one, all being made rigidly fast by a set-screw.

The combination, with the standard A, provided with the shoulder *a*, groove *a¹*, and vertical groove, *a²*, of the revolving top B, having the lug C and set-screw D, substantially as described and shown.

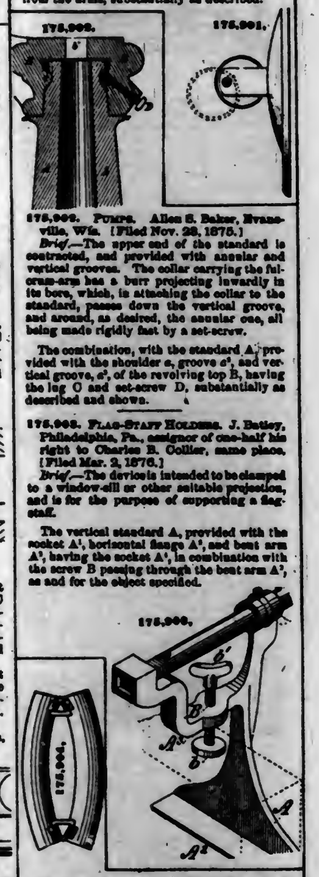
175,903. FLAG-STAFF HOLDERS. J. Batley, Philadelphia, Pa., assignor of one-half his right to Charles B. Collier, same place. [Filed Mar. 2, 1876.]

Brief.—The device is intended to be clamped to a window-sill or other suitable projection, and is for the purpose of supporting a flag-staff.

The vertical standard A, provided with the socket A^1, horizontal flange A^2, and beat arm A^3, having the socket A^4, in combination with the screw B passing through the beat arm A^3, as and for the object specified.

175,904. METAL-ROLLING MACHINERY. J. Beavis, Cleveland, Ohio. [Filed Feb. 11, 1876.]

Brief.—The two parts are hinged together at their ends, so that crowding of the metal forces them apart, providing for the escape thereof.



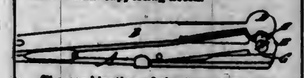
175,902. 175,901. 175,904. 175,905.

1. The combination, with rolls for rolling metal or other substances, of the guide or viaduct herein described, said viaduct being constructed in two longitudinal sections and adapted to open or unfold, substantially as and for the purpose set forth.

2. The combination, with rolls for rolling metal or other substances, of one or more guides or viaducts, constructed substantially as herein described, and placed so as to properly receive and deliver, and at the same time constructed to open or unfold, substantially as and for the purpose set forth.

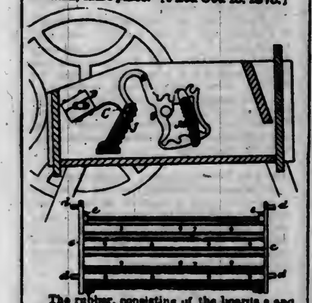
175,906. RUDDER-PIN BEARINGS FOR WATER-CRAFT. C. H. H. Beckert, Oroville, Cal. [Filed Jan. 3, 1876.]

Brief.—Tweezers, with disk-shaped holding ends to their jaws, are provided, one with a central circular hole and a notch in a flattened edge, and a holding-spring over it, and the other with a supporting-notch.



The combination of the jaws A B, having flat ends, one of which has a central hole, B, and a groove, C, in its flattened edge, and with which is combined the spring-finger I, and the other has a groove or notch, H, in its edge, substantially as specified.

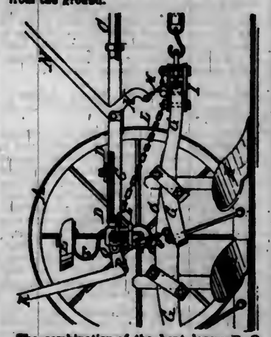
175,908. WASHING MACHINES. Leander Booker, York, Pa., assignor to N. C. Baughman, same place. [Filed Oct. 10, 1876.]



The rubber, consisting of the boards *c* and end frames *c*, provided with studs *d* and seats *e*, with lugs, having screw-holes, whereby the parts are fastened together, substantially as described.

175,907. GANG-PLOWS. Edward S. Beebehymer and Hugh H. Canaday, Fairfield, Iowa. [Filed Feb. 21, 1876.]

Brief.—Two plow-beams are secured at their forward ends by a common draw-bar, from which a chain extends back to the axle-tree of the wheels. A lever is mounted in the forks of the tongue for raising the forward ends of the beams, and a like lever is mounted upon the axle-tree, to raise the plows clear from the ground.



The combination of the bent levers E, G, P, and N, and the chains O and M, with the plow-beams G, the coupling-bar J, and the carriage A B C, substantially as herein shown and described.

175,909. WATER-CLOSETS OF RAILWAY-CARS. Alexander Bell, New York, N. Y. [Filed Apr 1, 1876.]

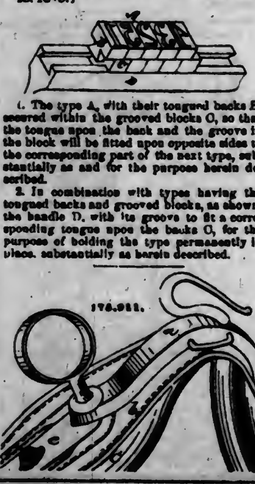
Brief.—When the car is in motion the cowl fastened beneath the closet causes a downward flow of air through said closet, protecting the person from the usual discomforts of circuits of this class.



1. The combination of the water-closet basin of a railway-car and appliances for conducting air to, and discharging it below or across, the discharge-pipe of the basin, as set forth.

2. A cowl provided with one or more deflecting funnels or vanes inclined toward the open bottom, having an opening at the top for receiving the discharge-pipe *a*, and adapted for application to a railway-car below the said discharge-pipe, substantially as set forth.

175,910. MOVABLE LOCKING-TYPES. Wm. H. Bell, San Francisco, Cal. [Filed Dec. 18, 1875.]



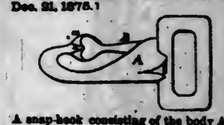
1. The type A, with their tongued backs B, secured within the grooved blocks C, so that the tongue upon the back and the groove in the block will be fitted upon opposite sides to the corresponding part of the next type, substantially as and for the purpose herein described.

2. In combination with types having the tongued backs and grooved blocks, as shown, the handle D, with its groove to fit a corresponding tongue upon the backs C, for the purpose of holding the type permanently in place, substantially as herein described.

175,911. COACH-PADS. James F. Best, Galva, Ill. [Filed Jan. 4, 1876.]

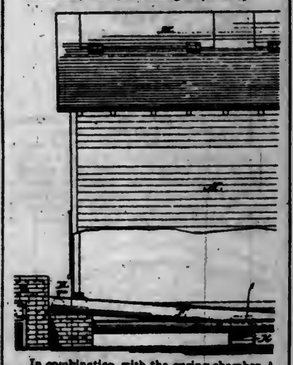
In combination with a coach-pad provided with the arched bridge *a* and adjusting-pads *c*, as described, a continuous housing, as and for the purpose set forth.

175,912. SNAP-HOOKS. C. W. Hakeston, Litchfield, assignor of one-half his right to Levi S. Wooster, Northfield, Conn. [Filed Dec. 21, 1875.]



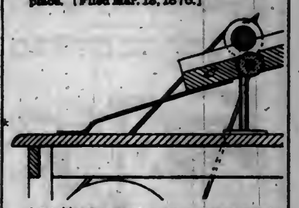
A snap-hook consisting of the body A, having the shield *a* and rib *s* on its end, in combination with the tongue B, having the projections *a* *b* and slot *c*, substantially as shown and described.

175,913. TOBACCO-DRIERS. W. H. Bowden, Danville, Va. [Filed Aug. 21, 1875.]



In combination with the curing-chamber A and ventilator M on the top of the same, the air-flue K, leading from the open air into the said chamber, for the purpose of causing a rapid circulation of the air through the tobacco in order to quickly dry the same, and prevent splotching, scalding, or sponging, substantially as described.

175,914. MACHINES FOR CANCELING STAMPS. Wm. H. Bowyer, Philadelphia, Pa., assignor to J. J. Ridgway, Jr., same place. [Filed Mar. 13, 1876.]



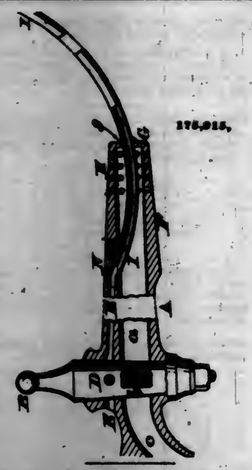
A machine for canceling stamps, constructed of a revolving grinding-roller in connection with a spring-board having a rubber feed-roller below the grinder, substantially as and for the purpose set forth.

175,915. BEAM-FASTENER. H. Bruderlow, Cincinnati, Ohio. [Filed Mar. 24, 1876.]

1. The faucet A *a* B, having the rigid air-duct I immovably secured thereto, substantially as herein described, and for the purpose set forth.

2. The combination of faucet A *a* *a*, fixed air-tube I, channel E, and rotating plug B *b* D, as and for the purpose set forth.

3. The combination of faucet A *a* *a*, fixed air-tube I, channel E, and rotating plug B *b* D, said faucet being provided with a closed end, G, and perforated sides H, as and for the object stated.



175,915.

175,916. MOP-WRINGER. R. R. Brewster, Holly, Mich. [Filed Jan. 7, 1876.]

Brief.—In the arrangement of the vertex of the wringer, a large center-piece is formed, and to it is attached an expanded arrangement of a metallic strap, forming concentric circles, within which the extremity of the mop may be grasped, the bisected extension of which straps enter side brackets within the vessel.



The combination, with the brace A, of the center-piece B, the beveled spiral center B', the center-pin B', and braces c, constructed and arranged substantially as described and shown.

175,917. BED-BOTTOMS. Michael Briel and J. G. Krieger, Washington, D. C. [Filed Aug. 28, 1876.]

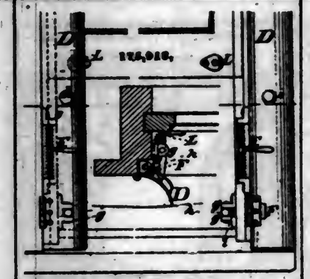


1. A bed-bottom, substantially such as described, in which the several bands of the web are separately attached to corresponding series of independently adjustable levers connected with tension-springs.

2. In a bed-bottom, such as described, the combination, with a band of the web, of independent lever C, rod E, adjusting-nut c, and spring F, substantially as and for the purpose specified.

175,918. CAR-WINDOW VENTILATORS AND DOOR-SHIELDS. C. F. Bridgman, Brooklyn, N. Y. [Filed Mar. 1, 1876.]

Brief.—The dust shields may be placed at an angle with the car-side, and are held in place by spring-catches. When the window is shut down, the catches are released, and a spring forces the shields back out of the way.



175,919.

1. The combination of the screen D, hinged to the window-frame, and the spring E, substantially as and for the purpose described.

2. The combination of the screen D with a catch, b, and a tapper, L, attached to the window-sash, as substantially as and for the purpose herein specified.

175,919. IMPLEMENTS FOR LOADING CARTRIDGE-SHELLS. James Briody and Bryan Briody, Detroit, Mich. [Filed Feb. 17, 1876.]



1. The combination of the plunger, the cap removing wire, the adjustable turning ramming-head, perforated for the passage of the wire, and the shell-holder in which the head moves, these members being constructed and operating substantially as set forth, to adapt the implement for either loading or uncapping shells.

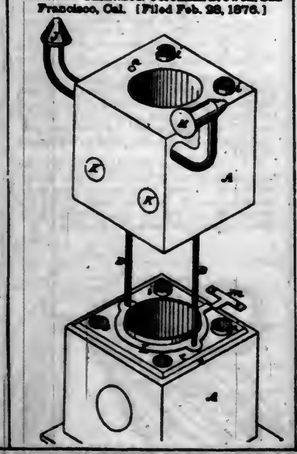
2. The combination of the tubular slotted plunger, the loose plug moving endwise therein, the wire carried by the plug, the slotted removable ramming-head, and the set-screw passing through the slots in the head and plunger, substantially as and for the purpose specified.

3. The shell-holder constructed, as set forth, with internal shoulders to adapt it for use with shells of different sizes.

4. The combination of the plunger, the knob, the holder, and the coil-spring bearing at one end against the holder, and at its opposite end passing through an opening in the plunger into the shank of the knob, as set forth.

5. The paper-shell supporting tube, open at one end to receive the plunger-head, and having a recessed central projection in its bottom, substantially as and for the purpose specified.

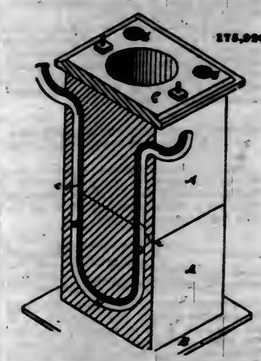
175,920. CHIMNEYS. Jeremiah Brownell, San Francisco, Cal. [Filed Feb. 26, 1876.]



1. In combination with the tubular sections A A, constructed as described, and the base and cap plates B and C, the binding-rods D D, passing through longitudinal holes a in the blocks or sections, substantially as and for the purpose herein described.

2. The chimney constructed of tubular blocks A A jointed and united, as shown, with the binding-rods D, in combination with the rings I, with their extension m, to prevent the rods from spreading and to secure and steady the chimney, substantially as herein described.

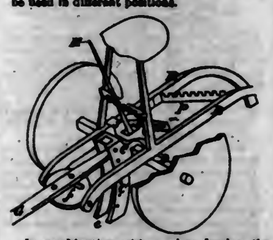
3. The passages O O', united in pairs, and provided with bonnets H J, for the purpose of providing a cooling circulation by up and down draft and drying purposes, substantially as herein described.



175,920.

175,921. WHEEL-PLOWS. Edmd. C. Brown, Antelope, Cal. [Filed Aug. 23, 1875.]

Brief.—Tongue pivoted in the center, and vibrating vertically in a grooved block at its rear. The latter slides upon the axle, and is controlled by a lever, which has its fulcrum in a plate having two holes to allow the lever to be used in different positions.



In combination with a plow, having the pole O secured to a journaled plate, *f*, and its rear end engaging with a sliding casting, C, the lever H and plate J, with its holes l and m and the horizontal racks l and P, substantially as and for the purpose described.

175,922. FURNACE'S LADDERS. Alvah W. Brown, New York, N. Y. [Filed Jan. 21, 1876.]

Brief.—The ladder is carried on an extensible trussed frame-work on wheels, and is formed of trussed sections, secured together by chocs and spring-hooks. Longitudinal brace or stay rods extend from the king-post of one section to the king-post of the next section, where they are held by a pin provided with catch-springs, which passes through eyes on the rods. The ends of the rods are notched, so as to intersect. Longitudinal and transverse sliding timbers are secured to the truck, the outer ends of which are provided with slotted pedestals, and, when extended for use, give the ladder-frame a wider base.

1. A section of a compound ladder provided on each side, at or near its middle, with a king-post and with truss-rods, the whole being constructed, arranged, and applied substantially as shown at Y, D, O, and E, for the purposes set forth.

2. A self-supporting ladder, consisting of

a truck, B, and two or more sectional ladders, each of which is trussed in the manner substantially as described—that is to say, by means of a king-post at each side, such as that shown at Y, and truss-rods, constructed, arranged, and applied like those shown at D, C, and E, for the purpose set forth.

3. The self-supporting sectional trussed ladder A, in combination with the main ladder-truck B and small truck T.

4. In combination with a section of a compound ladder, a king-post, provided with a pin or stud, *v*, arranged as described, for the purpose set forth.

5. In combination with a ladder, consisting of two or more independent sections, each of which is trussed on each side by means of a king-post and truss-rods, two or more tie-rods, arranged substantially as shown at O O and O L, for the purpose set forth.

6. A tie-rod, O O, constructed substantially as shown, for the purpose set forth.

7. A tie-rod, O L, constructed substantially as shown, for the purpose set forth.

8. In combination with a ladder, composed of two or more sections, one or more pairs of shoes *a b c*, each being provided with a grapple *g*, and applied in the manner substantially as and for the purposes set forth.

9. In combination with a ladder, consisting of two or more independent sections, the side beams of each of which is trussed by means of a king-post arranged at or near its center, and by truss-rods constructed like those shown at D C E, and said sections connected together by tie-rods arranged like those shown at O O and O L, a truck-frame, B, substantially as and for the purpose set forth.

10. The combination of the rods O O, O L, trusses D C E, N O K, I L K, and sections D N, N I, I K of ladder A with main ladder-truck B and small truck T.

11. The springs *d* and *d'*, as applied to and in combination with the pins *r*, *i*, and *v* and rods C O, O I.

12. The shoe G', as applied to and in combination with the several sections D N, N I, I K of the ladder A.

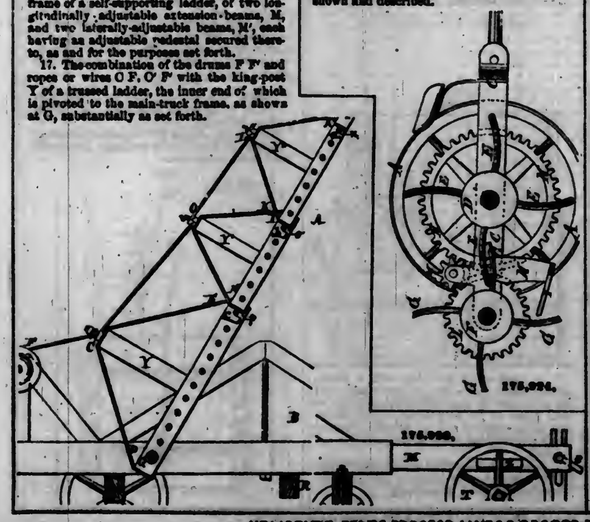
13. An auxiliary truck, provided with an adjustable table, Z, substantially as and for the purpose set forth.

14. In combination with the truck-frame of a self-supporting ladder, two extension side-beams, M, arranged to slide lengthwise of the frame, each having a slotted pedestal adjustably secured thereto by means of a screw-bolt and wrench-nut, substantially as and for the purposes set forth.

15. In combination with the truck-frame of a self-supporting ladder, two laterally-sliding beams, M', arranged to slide transversely to the length of the truck, each having a slotted pedestal adjustably secured thereto by means of a screw-bolt and wrench-nut, substantially as and for the purposes set forth.

16. The combination, with the main-truck frame of a self-supporting ladder, of two longitudinally-adjustable extension-beams, M, and two laterally-adjustable beams, M', each having an adjustable pedestal secured thereto, as and for the purposes set forth.

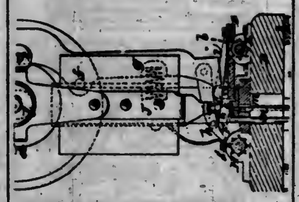
17. The combination of the drums F F' and ropes or wires O F, O' F' with the king-post Y of a trussed ladder, the inner end of which is pivoted to the main-truck frame, as shown at G, substantially as set forth.



175,924.

175,922. EYELET-MAKING MACHINES. Jas. Buckland, Hartford, Conn., assignor to himself and Wm. E. Frazier, same place. [Filed Apr. 10, 1876.]

Brief.—Lifter-pins for relieving the stock from the eyelet-forming dies working between said dies. A longitudinally-grooved die-holder having upper cross-openings, with a die having rows of holes, for punching out the closed ends, and feed and delivery rolls, operated, respectively, by push and drag pawls connected together.



1. The lifter-pins m, in combination with the dies having eyelet-forming holes or recesses, between which said pins work, and one or more feed-rolls, for operation in alternate relation with the lifter-pins, essentially as described.

2. The combination of the longitudinally-grooved die-holder P, having upper cross-openings *b'*, the die P', having one or more rows of holes, and two or more holes in each row, and a similarly-perforated bridge-piece, Q, essentially as and for the purpose herein set forth.

3. The combination, with either entering feed-roll E and delivery-roll H, of the push-pawl k and the drag-pawl *i*, arranged to operate simultaneously both rolls by their ratchets or teeth, the one pawl being pivoted to the other pawl, and both pawls actuated by the same lever or device I, essentially as and for the purpose herein set forth.

175,923. STALK-PULLERS. O. W. Butler and T. P. O'Connell, San Antonio, Tex. [Filed Feb. 14, 1876.]

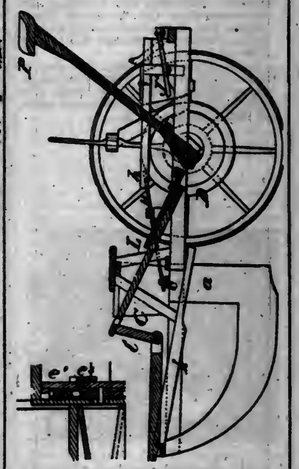
Brief.—Front cylinder with V-shaped teeth, and rear one with curved teeth, which pass between the teeth on the front cylinder, and through slots in a plate on the under side.

The combination of the cylinder D, provided with the curved and bearded tal-teeth E, the cylinder F, provided with the curved teeth G, the slotted plate I, and a suitable connecting-gearing, with the frame C, the axle B, and the wheels A, substantially as herein shown and described.

175,924.

175,925. COTTON-PLANTERS. W. M. Carriker, Irving, Ill. [Filed Feb. 12, 1876.]

Brief.—The dropping-disk has secured to its lower side an adjustable cut-off, to increase or diminish the quantity to be dropped. To the rear of the tongue is attached a lever, pivoted to the seat-supports, for elevating or depressing the tongue. This lever is provided with an extensible piece, that extends within reach of the driver on the adjustable seat.



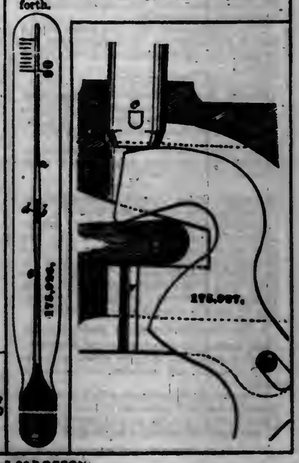
1. The hopper C, having seed-tubes c, in which are pivoted oscillating valves *c'*, in combination with perforated disks actuated by the slide *e*, and with floors *d*, perforated and provided with cut-offs *d'*, substantially as described.

2. In combination with the pivoted draft-pole K, link *l*, and extensible lever *L*, the longitudinally-adjustable seat P, substantially as described.

175,926. THERMOMETERS. Louis Marino Casella, London, Great Britain. [Filed Mar. 15, 1876.]

1. A thermometer having the trap *b* in its bore, for the purpose of preventing the index from descending below a certain fixed point, substantially as described.

2. A thermometer having the trap *b* in its bore and a contraction, *c*, to operate in conjunction with the trap, substantially as set forth.



175,926.

175,927.

176,927. CAR-COUPLINGS. Richd. D. Chetterton, Cobourg, Canada. [Filed Feb. 9, 1876.]

The combination, with the draw-head A and pin C, of the catch B, adapted to support said pin, while permitting the link F to remain in its innermost position uncoupled against the shoulders G G' of the draw-head, as and for the purpose set forth.

176,928. FURNACES FOR ROASTING AND SMELTING ORES. Geo. W. Cheney, Washington, D. C., assignee of one-half his right to A. O. Couch, Providence, R. I. [Filed Mar. 14, 1876.]

Brief.—Products of combustion may, by turning the dampers, be directed through retorts containing material to be heated, from which retorts their contents fall upon an apron, and thence onto the hearth.



1. In a roasting and smelting furnace, the combination, with the crucible and main flue, of roasters located above the crucible, and assembled around and communicating with the flue, substantially as and for the purposes set forth.

2. In a roasting and smelting furnace, the combination and arrangement of the several parts described, namely, the fire-box B, crucible C, flue F, roasters R, having supplemental flues f, together with the dampers d d', for the purpose of controlling, regulating, and distributing the heat, as set forth, all substantially as specified.

3. In a roasting and smelting furnace, the combination and arrangement of the crucible, the main flue, the roasters, and the apron A, for the purpose of discharging the ore from the roasters into the crucible.

4. In a structure or apparatus for roasting and smelting ores, the ovens or roasters R, having supplemental flues f, and operated by the surplus heat from the smelting-furnace, substantially as described.

5. In combination with the ovens R and flues F f, in a furnace for reducing ores, the dampers d d', substantially as shown and set forth.

176,929. BLASTING COMPOUNDS. Jas. Cond, Humboldt, Mich., assignor of two-thirds his right to E. G. St. Clair and G. A. St. Clair, same place. [Filed Mar. 29, 1876.]

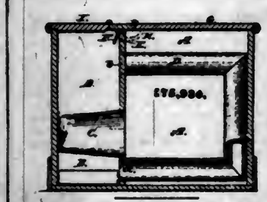
An explosive compound consisting of nitroglycerine, as described, and denaved wood, substantially as set forth.

176,930. MEAT-CHEST. Aaron D. Cobb, Portland, Me. [Filed May 26, 1874.]

Brief.—Cylindrical extension of pickle-chamber through ice-box. A cold-air tube (may be of cement) from bottom of ice-box through pickle-chamber to top of ice-box. A gravity-valve held open by pressure of the meat-cover of the pickle-chamber, to permit passage of cooling air from ice-box, and shutting by gravity when that cover is opened.

1. For preserving meat in pickle, a meat-chest, having the chambers A and B with the covers G and I, and the pipe D, and cylinders C, all arranged and combined as herein set forth.

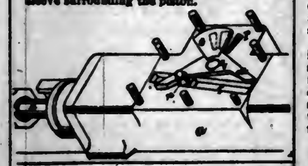
2. A meat-chest, consisting of two chambers, A and B, having the covers I and G, the valve F and lever E, and the pipe D, and cylinders C, combined and arranged as set forth.

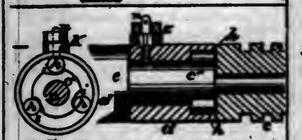


176,930.

176,931. ROCK-DRILLS. Lawrence W. Cox, Auburn, N. Y. [Filed Aug. 10, 1876.]

Brief.—The valve is actuated and the drill rotated by means of a pin attached to a loose sleeve surrounding the piston.



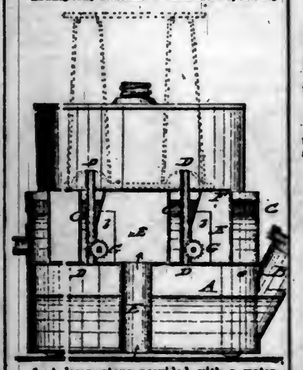


1. The pin n projecting from the piston or the sleeve d through the diagonal slot r, and operating the oscillating valve o by means of the arms m m, substantially as and for the purpose herein described.

2. The sleeve d, loosely fitted to the spindle n', said spindle having the grooves l, as shown and provided with the rollers h, in combination with the pin n, and the diagonal slot r, substantially as and for the purpose herein described.

3. The combination, in one mechanism, of the device for rotating the drill and for moving the valve, the same consisting of the piston e, with its sleeve d, the rollers h, and pin n, together with the diagonal slot r and the oscillating valve o, with its arms m m, substantially as and for the purpose herein described.

176,932. LAMP-STOVES. John Ward Cole, Brampton, Canada. [Filed Mar. 6, 1876.]



1. A lamp-stove provided with a water-compartment above the oil-receptacle, and air-chambers in the water-compartment at both sides of the wick-tubes, the air-chambers being supplied with air through side and bottom channels or tubes, substantially as described.

2. The air-chambers and horizontal air-channels or tubes, having supports for the wick-tubes, substantially as set forth.

3. The combination of the water-compartments with air-chambers between and at both sides of the wick-tubes, to furnish an increased supply of air to the flames, as specified.

4. The air-chambers, having bottom apertures connecting with air-space below the water-compartments, to increase draft, for the purpose set forth.

176,933. LIGHTNING-RODS. Robert S. Cox, Mount Pleasant, Iowa. [Filed Feb. 12, 1876.]

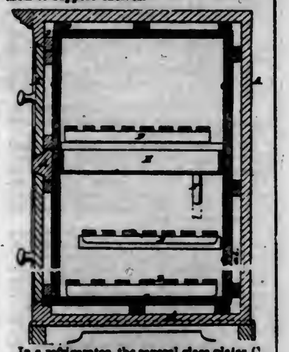


1. The lightning-conductor, made of sheet-iron, bent and folded so as to present two thicknesses of a concavo-convex form in cross-section, and having a rib, a, tubes d, wires c, and slip-joint A, substantially as described, and for the purpose set forth.

2. In combination with the conductor herein described, the ground-sheath G, made of sheet-iron, bent and folded so as to present two thicknesses of a concavo-convex form in cross-section, and provided with a funnel-shaped mouth, g, for the reception of the section of the conductor above it, and perforations b b, substantially as described.

176,934. GLASS-LINED REFRIGERATORS. Jas. H. Collingwood, Poughkeepsie, N. Y. [Filed July 17, 1875.]

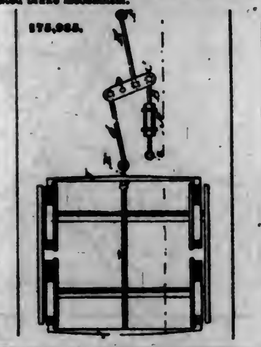
Brief.—Glass plates screwed onto cleats, jointed by mortise-and-tenon joints covered with cement. May have knobs, a part of them to support shelves.



In a refrigerator, the several glass plates C, separately fastened to cleats B and connected by tongue and groove with each other, as shown and described, for the purpose specified.

176,935. ELECTRO-MAGNETIC CAR-BRAKE. Philip V. Conover, Kentucky, La. [Filed Feb. 3, 1876.]

Brief.—The sliding core of the electro-magnet is connected to the ordinary hand-operated brake mechanism.



176,935.

In an electro-magnetic car-brake, the combination of the helix A and sliding piston B with the ordinary brake mechanism, as and for the purpose set forth.

176,936. POST-SPOUTS. William Cooper, Tyrrellmet, Mich. [Filed Sept. 14, 1875.]

Brief.—The spout is made of sheet metal, with a head raised upon its neck. A collar engaging with the head, when the spout is inserted in the stock, securely holds the same in place, being screwed to the stock.

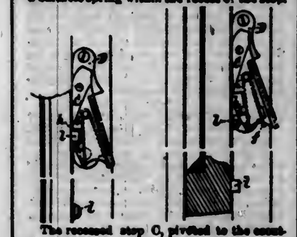


1. The spout A, made of sheet-metal and provided with the roll or bulge d, and substantially in the form and for the purpose set forth.

2. The spout constructed substantially as set forth, in combination with the collar B, as and for the purpose set forth.

176,937. SASH-FASTENERS. Wm. G. Cook, Jersey City, N. J., assignor to A. Rosenfeld, same place. [Filed Mar. 3, 1876.]

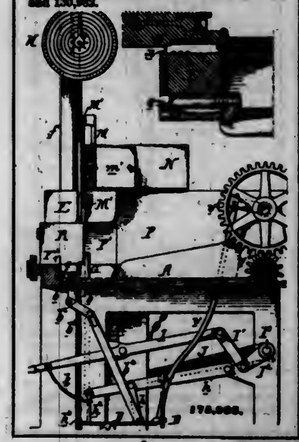
Brief.—A pivoted and recessed stop, working on a suitable escutcheon-plate, has two inclines, one on either side of a notch or indentation, and engages with suitable pins or studs, the notion being made automatic by means of a suitable spring within the recess of the stop.



The recessed stop C, pivoted to the escutcheon-plate D, and having the notch A and inclined planes i i, one above and the other below the notch A, in combination with the spring f, arranged in the recess of the stop, and the studs l on the window-frame, substantially as shown and described.

176,938. TYPE SETTING AND DISTRIBUTING MACHINES. Augustus Corey, Philadelphia, Pa., assignor of one-half his right to Alex. R. Harper, same place. [Filed Nov. 1, 1875.]

Brief.—Improvement on Patents Nos. 130,485 and 130,962.



1. The duplex pusher-bar B B', arranged and operating, in respect to the type-receptacles of the table A, substantially as described.

2. The combination of the bar b, forming the bottom of the groove a, with devices, substantially as described, for elevating and depressing said bar, so as to close the type-receptacles on the forward movement of the pusher-bar, and open them on its rearward movement, as specified.

3. The combination of the bar b with the treadle D and the cam b', shaft b'', arm b''', and rod b⁴, by which the motion of one is communicated to the other, as set forth.

4. In combination, with the adjustable type-box E, and with the front ends of the type-receptacles, the bar a, rendered adjustable in respect to said ends, for the purpose set forth.

5. The sliding spring-plate F, its bar F' and leg F'', in combination with the pusher-bar B', by which it is operated, as set forth.

6. The bar f', its plate f, and sleeve f'', in combination with the spring-arms g, embraced by the latter, as set forth.

7. The plate G and its bar G', provided with a recessed leg, h', in combination with the hooked rod h², operated by the treadle, and with devices, substantially as described, by which the rod and leg may be thrown into and out of gear with each other, for the purpose set forth.

8. The extra spaces i, each having a leg, f', in combination with devices, substantially as described, by which the said spaces are introduced into, and expelled from, the line of type.

9. In combination with the spaces i, narrower than the type, the contracted space s at the rear of the type-receiving recess in the box E, said contracted space being formed by the shoulder s' on the frame, as set forth.

10. The combination of a type-setting machine with the justifying-dial H, provided with consecutive circles, graduated to suit different sizes of type, as set forth.

11. The combination of the plate I, adapted to a recess in the type-box, and provided with a projection, i, with the type-supporting plate J, the two being arranged and operating in respect to each other, substantially as and for the purpose set forth.

12. The combination of the internally reciprocating forked frame E with the vertically-reciprocating frame K, and with the chain p, lever p', link p'', arm p''', and spring q, operating substantially as and for the purpose described.

13. The combination of the lever I with the bar J, and with the link I', arm I'', and shaft I''', connecting the two, as set forth.

14. A type-distributing apparatus, in which are combined the following elements, namely: a cylinder, rotated, or partly rotated, in opposite directions, and provided with longitudinal channels terminating in openings communicating with the various type-receptacles; a bar or plate, operating in unison with the cylinder, for forcing in rotation into the channels a number of type contained in a reservoir; and a device, substantially as described, for determining the point at which the rotation of the cylinder in one direction shall be stopped.

15. The combination of the hop-board U and vibrating arm V with the cylinder S, vibrated in one direction by a positive movement, and in the opposite direction by the action of a spring or weight, as set forth.

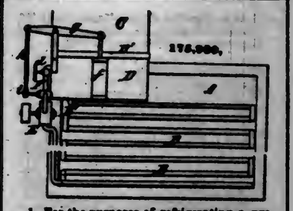
16. The cylinder S, provided with channels s, terminating in openings s, having abrupt rear edges s', for the purpose specified.

17. The combination of the channeled cylinder S, the reservoir T, and its opening s², with the reciprocating bar n, operated in one direction from some moving part of the machine, through the medium of the lever n' and arm n², and in the opposite direction by a spring, n³, as set forth.

18. The galley P, having at the front an opening for the entrance of the column of type beneath devices, substantially as described, for loading the same, and having a rear portion open at the top and at one side, as and for the purpose set forth.

176,939. REFRIGERATING-CHAMBERS. John J. Craven, Jersey City, N. J. [Filed Mar. 10, 1876.]

Brief.—Forced circuit of drip-water or brine through ice, or ice and salt, and through the chamber holding drip, then from or through the latter, and also through pipes along walls of the chamber to be cooled, automatically maintains level of drip in its chamber.



176,939.

1. For the purpose of refrigerating a preserving-chamber, the combination, with a system of circulating wall-pipes, E, and a suitable circulating motor connected therewith, of a closed ice-magazine, C, and a drainage-reservoir, D, with both of which the circulation-pipes B are in direct communication to effect a continuous closed circuit through the magazine and the reservoir.

2. The combination, with a system of refrigerating wall-pipes, E, in a preserving-chamber, and a closed ice-magazine, C, of a closed drainage-reservoir, D, arranged intermediately between these parts, and provided with communicating openings c, and on a level with the floor of the ice-magazine, to receive the drainage therefrom and supply the refrigerating-pipes.

3. The combination, with a system of refrigerating wall-pipes, E, in a preserving-chamber, and a closed drainage-reservoir, D, separate from the ice-box, and with which, and the pipes, a suitable circulating motor connects, of a branch pipe, F, from the circulation pipes B, connecting with said reservoir, whereby to effect a continuous circulation of the drainage through the reservoir and the wall-pipes only.

4. The combination, with a system of refrigerating wall-pipes, B, in a preserving-chamber, a closed ice-magazine, C, a closed drainage-reservoir, D, and a suitable circulating motor, E, placed within the circuit of these parts, of the cocks c and d, in the circulation and branch pipes B and F, whereby to effect, at will, a direct or indirect circulation of the cooling fluid, with regard to the closed ice-magazine.

5. The combination, with the closed ice-magazine C, the closed drainage-reservoir D, having openings a communicating with the magazine, and the circulation-pipe E, of the drop sealing-tubes b within the reservoir, for the purpose stated.

6. The combination, with the closed ice-magazine C, the drainage-reservoir D, and the circulation refrigerating-pipes B, of an automatic water-discharging device, for the purpose stated.

7. The method herein described of refrigerating a preserving-chamber, which consists in continuously forcing a fluid, cooled by contact with ice or a suitable freezing-mixture, in a continuous circuit through a system of channels within the preserving-chamber, through and in contact with the refrigerant, and through and in contact with the separated drainage therefrom, and alternately at will forcing such fluid through the same system of channels, and through and in contact with the separated drainage from the refrigerants, as set forth.

176,940. GAS-REGULATORS. J. Crawford, New York, N. Y. [Filed Mar. 14, 1876.]



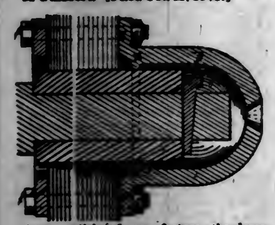
1. The cylinder A, having screw-section a''', with holes a', in combination with the cone c' having gas-escape holes c', constructed and arranged to operate in the manner described.

2. The cylinder A, constructed as described, with gas-belt a² and valve-seat b''', and cone c with holes c', in combination with the automatic conical valve B, constructed and operating as described.

3. In a gas-burner, the combination of the cylinder A, regulating cone c, and automatic valve B, with the shell D, containing, the gauze diaphragm d, slitted plug E, substantially as and for the purposes described.

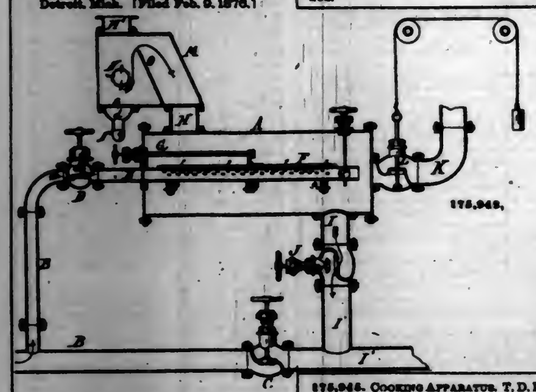
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

176,941. PIT-CAR OILING-CAPS. John W. Oulmer, Pittsburg, Pa., assignor to Robert R. Gumbert. [Filed Oct. 15, 1875.]



As an article of manufacture, the dome-shaped reservoir or oil-cup, having the outwardly-beveled central oiling-hole and base-flange provided with a packing-seat or depression whereby the cap may be attached to pit-car wheels of the common construction, by means of bolts or similar devices.

176,942. COMPRESSING AND HEATING FOR STEAM-BOILERS. Franklin D. Cummer, Detroit, Mich. [Filed Feb. 9, 1876.]



176,943.

1. In a jet-condenser, substantially as described, the combination with the perforated injection-pipe, of the perforated saddle sliding thereon, substantially as and for the purpose set forth.

2. The combination, with a jet-condenser, of the perforated injection-pipe, the sliding saddle, and valve in the said injection-pipe, substantially as described.

3. In a jet-condenser and pump, substantially as described, the suction-main B, extended to form a junction with the exhaust-water pipe I', and the combination therewith of the stop-valves O and J, substantially as and for the purpose set forth.

4. The combination, with a jet-condenser, substantially as described, of the feed-water heater M, provided with the inclined diaphragm O, perforated injection-pipe N, and suction-pipe F', as shown and set forth

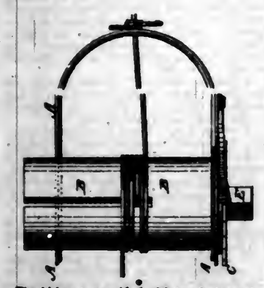
176,944. AXLE-BOXES. D. Dalzell, South Egremont, Mass. [Filed Mar. 24, 1876.]



1. As a new article of manufacture, an axle-box made of vulcanized paper, substantially as set forth.

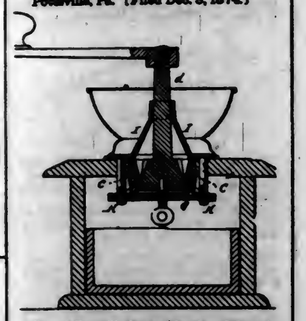
2. An axle made of vulcanized paper, in combination with an ordinary metal box, said vulcanized-paper box being arranged within the metal box, as shown and described.

176,945. WIRE-FENCE TIGHTENERS. Wm. P. Daniels, Lime Spring, Iowa. [Filed Jan. 22, 1876.]



The U-bar A, provided with top fastener, in combination with a wire-stretching windlass, herein described, as and for the purpose specified.

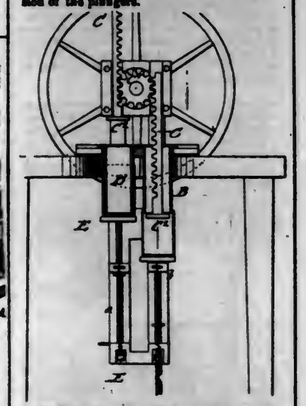
176,946. COFFEE-MILLS. John R. Dallas, Pottsville, Pa. [Filed Dec. 3, 1874.]



In a coffee-mill, the combination of the yoke I, provided with an annular boss, the nut D, and its journal d, and the grinding-ring C, the whole being secured together and attached to the top of the box or chest by means of the screws H setting through the annular boss of the yoke I and through suitable apertures in the top of the box and gearing into the threaded apertures in the cross-bar G setting against the lower edge of the grinding-cylinder, substantially as described.

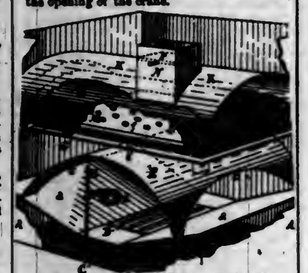
176,947. MACHINES FOR PACKING FRUIT AND OTHER ARTICLES. Geo. W. Deitsler, San Francisco, Cal. [Filed Jan. 10, 1876.]

Brief.—Boxes, open at both ends, are operated on by pistons on vertical racks having a pinion between them. The pinion-shaft has a cam-disk, actuating descending levers with latches below, to hold and release plates with supporting-rods, which receive the compression of the plungers.



176,948. COOKING APPARATUS. T. D. Davis, Waterford, N. Y. [Filed Jan. 17, 1876.]

Brief.—A culinary vessel may be placed in the opening of the crane.



1. The combination, with the fire-chamber, of the arched plate E, provided with side openings *e e*, communicating from the combustion-chamber F below the said arched plate to the chamber G above said plate, substantially as set forth.

2. The plate *e*, in combination with the arched plate E, side openings *e e*, and fire-chamber B, substantially as set forth.

3. The oven M, chamber G, arched plate E, provided with side openings *e e*, and the fire-chamber B, combined substantially as set forth.

4. The combination, with the oven M, having a bottom, *e*, over a chamber, G, and arched plate E, having side openings *e e*, leading to said chamber from the combustion-chamber, of the perforated bottom *f*, with an intermediate space between it and plate *e*, substantially as set forth.

5. The combination, with the oven M, having a chamber, G, below, of the hot-gas-circulating chamber L, openings *s s' s''*, and exit-flue N, substantially as set forth.

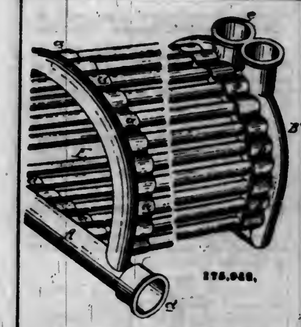
6. The combination, with the hot-gas-circulating chamber L, chambers G and F, the openings *s s' s''*, and exit-flue N, of the dampers *c*, *c'*, *c''*, and P, substantially as set forth.

176,949. FISHING-LINE HAWSE-SWIVELS. Geo. W. Dixon, Gloucester, Mass. [Filed Feb. 1, 1876.]

The combination of the weight *c*, hawse *c*, ferrule *d*, swivel *e*, and swoods, all constructed and arranged to operate substantially as shown and described.

176,950. WASHING-MACHINES. William A. Duncan, Syracuse, N. Y. [Filed Feb. 19, 1876.]

The lower rollers C C, journaled in the rocking plates J, in combination with the large upper roller B, which is held down by means of springs S S, as described.



176,948.

1. The within-described water-heater, consisting of the end casting A A' and corresponding casting B B', combined with and communicating with each other through a series of longitudinal tubes, E, forming the grate, and similar tubes D surrounding the fuel chamber, all substantially as set forth.

2. The combination of the end A A' of the heater and its inlet or inlets *d*, the system of tubes D and E, and the end B B' with outlet or outlets *e* at the top, all substantially as specified.

176,951. TOY PISTOLS. George W. Eddy, Granby, Conn. [Filed Mar. 1, 1876.]

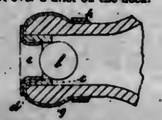
Brief.—For exploding paper fulminates.



In a toy pistol, the combination of the recessed rotating cylinder D, with a projecting pin, *i*, and the hammer G, with the angular or diagonal groove *s*, substantially as and for the purpose herein set forth.

176,952. CAPS FOR AERATED-LIQUID BOTTLES. John Edwards, Hull, assignor to H. T. W Munroe, Beverly, England. [Filed Apr. 19, 1875.]

Brief.—The cap is formed of a piece of india rubber, fitted into the neck of the bottle, and is held in position by a brass retaining-piece, secured to the neck of the bottle by being bent over a fillet on the neck.

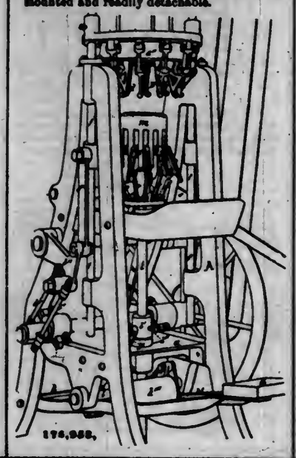


1. The combination of the tube *c*, pieces *d* and *e*, substantially as described.

2. The combination of the tube *c*, pieces *d* and *e*, screws *g*, and band *h*, substantially as described.

176,953. MACHINES FOR STRETCHING HAT-BODIES. Rudolf Eickemeyer, Yonkers, N. Y. [Filed Mar. 4, 1876.]

Brief.—A series of automatically-vibrating stretching-fingers develop the brims of hats by operating in conjunction with a vertically-sliding "former," having a cylindrical supporting-block, and also ribs which can be spread at will of the operative. The strain of the stretching devices is borne by a vertical spindle and a rock-shaft, from which, by means of a treadle, the former is elevated. A weight strips the hat-body from the vibrating fingers, when the former is lowered. The vibrating fingers and ribs are separately mounted and readily detachable.



176,953.

1. The series of automatically-operated brim-stretching fingers, substantially as described, in combination with mechanism for imparting to each of said fingers a reciprocating movement, as and for the purposes specified.

2. The combination, with a series of automatically-operated brim-stretching fingers, of a ribbed former and mechanism for placing the former and the reciprocating fingers, at the will of the operative, into working relations with a hat-body interposed between them, substantially as described.

3. The combination, in a machine for stretching the brims of hats, of a series of automatically-operated brim-stretching fingers, a former provided with stretching-ribs, and mechanism for spreading the ribs, at the will of the operative, substantially as described.

4. The combination, in the former of a hat-brim-stretching machine, of a cylindrical shell or supporting-block, having a supporting-surface at its periphery, with an adjusting-screw, substantially as described, whereby the upper surface of said block or shell may be vertically adjusted with relation to the spindle, as set forth.

5. Radial hat-stretching ribs provided with a curved pivotal slot and a curved guiding-slot, in combination with a rib-block provided with segmental guides, substantially as described.

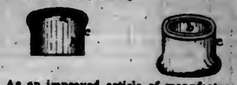
6. The combination, with the ribbed former mounted on a spindle, of a treadle, rock-shaft, levers, and rods, substantially as described, whereby the former is elevated, and the vertical strain of the stretching devices is borne by the rock-shaft, as set forth.

7. The several vibrating stretching devices independently and separately mounted, in combination with individual pivotal connections, provided with a bolt and nut, substantially as described.

8. The combination, with the vibrating brim-stretching fingers and the ribbed former, of the stripping weight, mounted above the stretching-fingers, substantially as described, whereby the hat is forced downward with the former, out of contact with the stretching-fingers, as set forth.

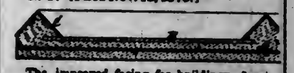
9. The combination, with the spreading-ribs and their actuating-lever, of the cross-head and the jointed rods, substantially as described, whereby, in spreading the ribs, the jointed rods are made to assume nearly a vertical position, and cause the cross-head to bear the increased downward thrust on the ribs incident to their being spread, as set forth.

176,954. WHIP OR CANE MOUNTINGS. Edgar B. Ellis and S. D. Ely, Rochester, N. Y., said Ely assignor to Anna B. Ellis and said Anna B. and Edgar B. Ellis, assignees to Strong & Woodbury, same place. [Filed Feb. 17, 1874.]



As an improved article of manufacture, a whip-cap composed of the metallic body *c b*, with an exterior covering of rubber, *a*, vulcanized thereon, as and for the purpose specified.

176,955. COMBINED CEMENT AND GLASS PANELS. Adam H. Bembler, Montgomery, N. Y. [Filed Nov. 16, 1875.]



The improved facing for buildings, furniture, and other like purposes, composed of a layer of hydraulic cement and a superposed layer of glass embedded in the surface and united to the same, substantially as described.

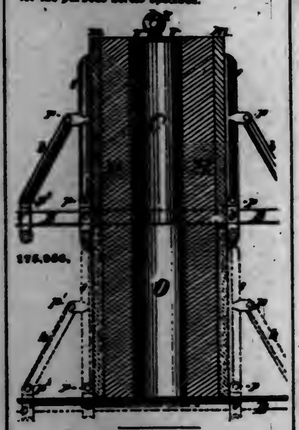
176,956. APPARATUS FOR BUILDING CONCRETE STRUCTURES. Adam H. Bembler, Montgomery, N. Y. [Filed Mar. 6, 1876.]

Brief.—A mold for forming concrete walls supported on cross-bars, and held in position by adjustable slides and braces. An open-bottomed hollow core, with vent-holes at top, is used to make flues and air-passages.

1. The combination, with the mold m, of the bar B, the adjustable support *s*, slide *c*, and brace *b*, constructed and operating substantially as and for the purpose herein specified.

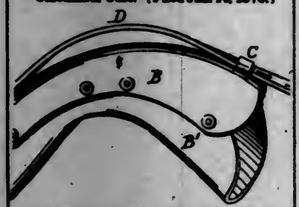
2. The combination, with the bar B, of the slides *c* and *c'*, and the support *s* and brace *b*, pivoted to the said slides, substantially as herein described.

2. The open-bottomed hollow cone C, having rest-holes c at the top, substantially as and for the purposes herein specified.



176,966.

176,967. HORSE-COLLAR PAD. J. Engelke, Cincinnati, Ohio. [Filed Jan. 14, 1876.]



A tubular horse-collar pad composed of the sections B and B', the upper section B provided with hangers O and O' to receive the fastening-strap D, substantially as described.

176,968. BALING-PRESSES. Warren Bond and Henry M. Evans, New Orleans, La. [Filed Feb. 3, 1876.]

Brief.—The bars passing within the grooves of the platens are brought to bear upon the heads of a bale under pressure, whereby they are held straight against the bale, and the ends of the bands fastened and slack avoided.



The clamping-bars b, arranged to operate within the grooves of press-platens, for the purpose set forth.

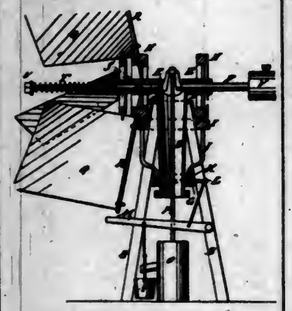
176,969. HAT-VENTILATORS. Francis P. Flanagan, Gaylordsville, Mass. [Filed Mar. 6, 1876.]



The hat-ventilator herein described, consisting of a grease cover, B, and an eyelet, C, the piece of grease forming the cover being fitted over the eyelet and pressed with the same through a hole in the hat, and then secured by clinching the eyelet, as and for the purpose set forth.

176,970. WINDMILLS. Wm. Ford, Great Bend, Kans. [Filed Mar. 18, 1876.]

Brief.—The shaft carries two balance-wheels, one on each side of the center, to regulate and control the wheel, and for the application of a brake to stop it when required.



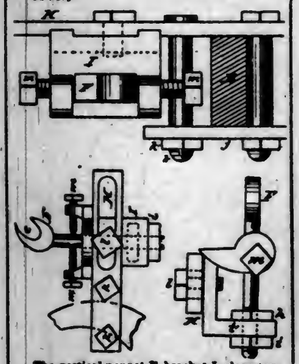
1. The hollow shaft D, bearings E, shaft F, cap C, and plate G, combined and arranged substantially as specified.

2. The brake-ring I, supports J, ring K, and lever L, combined and arranged with the wheels H and shaft F, substantially as specified.

3. The bucket N and lever M, combined with pump O, lever L, ring K, standard J, and brake-ring I, substantially as specified.

4. The bars Q, arms R, ring S, and spring T, combined and arranged substantially as specified.

176,971. CARD-GRINDING MACHINES. Geo. Fowler, Piedmont, N. Y. [Filed Jan. 17, 1876.]



The vertical poppet F, bracket I, clamping-nuts k l, and set-screws m, in combination with the slotted arm H and clamping-plate j, substantially as and for the purpose described.

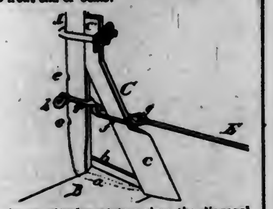
176,972. WARP-TENSION REGULATORS. A. M. Fyfe, Cornwall, Canada. [Filed Jan. 7, 1876.]

Brief.—The warp-beam is vibrated to and fro, according to the opening and closing of the shed, by means of a lever and connections, communicating thereto a motion from the movement of the lay.

The combination, with the slotted plates B and warp-roll A, having its bearings therein, of the rod F and beat lever E, having for its fulcrum the bolt C, by which the said plate is secured to the loom-frame, all as shown and described.

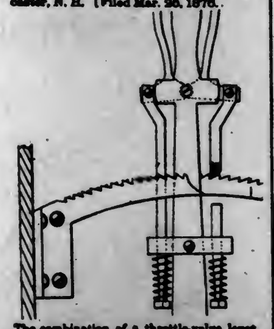
176,973. PLOW ATTACHMENTS. A. C. Gabel, Taylorville, Ill. [Filed Mar. 4, 1876.]

Brief.—The attachment occupies the place of the ordinary colter, with draft-rod attached to front end of beam.



As an attachment to a plow, the diagonal share B and colter C, secured to a standard, A, in combination with the rod E, its link *f*, loop *g*, and pin h, made adjustable, substantially as described.

176,974. THROTTLE-VALVE LEVERS. Chas. W. Garland and George W. Garland, Lancaster, N. H. [Filed Mar. 26, 1876.]



The combination of a throttle-valve lever, having supplementary handles fulcrumed thereto and sliding and spring-acted dog-bars operated thereby, with guiding arc-shaped ratchet-bars, having teeth placed in opposite direction to each other, substantially as and for the purpose set forth.

176,975. GRAIN-BINDERS. Jeptha Garrard, Cincinnati, Ohio, assignor to Excelsior Grain-Binder Company, Limited, New York, N. Y. [Filed Feb. 11, 1876.]

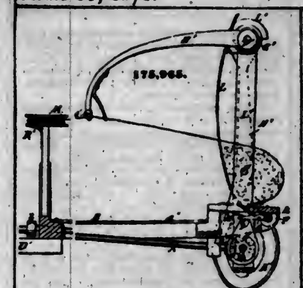
1. A slotted grain receptacle or platform, having one side wider than the other, and having a prominence on its inner and also an elevation on its outer end, the outer elevation inclining from said wider to said narrower side, and being broad enough to support a bundle of straw, substantially as shown.

2. The arms I, constructed substantially as shown, in combination with nippers A, twister B C, platform B', and wire-carrier, substantially as shown.

3. The wire-carrier B', constructed and operated substantially as shown, in combination with the arms I, nippers A, twister B, platform B', and reel M, substantially as shown.

4. The gear-wheel E, constructed substantially as shown, in combination with shaft and pinion of twister.

5. The reel M in combination with the friction device E', carrier B', pulley *e*, nippers A, twister B C, and platform B', substantially as shown.



176,965.

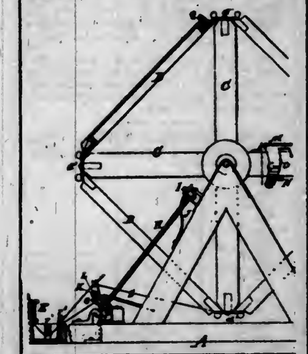
176,966. CAR-COUPLINGS. Michael Coorman, Allegheny Township, Armstrong County, Pa. [Filed Jan. 19, 1876.]



The draw-head A, the opening in which is made wedge-shaped, as set forth, to hold up the link, and provided with the slots *a a'* terminated by the grooves D D', in combination with the pin B and link C, substantially as described and for the purpose set forth.

176,967. FEED MECHANISMS FOR THREAD-WINDERS. A. Girandat, Nouvy, (forwood P. O.,) N. J. [Filed Jan. 7, 1876.]

Brief.—Has relation to the preparation of thread for making the stamens of artificial flowers.



1. The feed mechanism consisting of the graduated rack-bars G, the pawl L, the shaft and crank-arms H K I the springs S J, and the adjustable arm M O P R, with the sliding bar F, that carries the thread-guides *f'*, and with the frames A B, and the reel O, substantially as herein shown and described.

2. The combination of the clamping-bars Q with the rabbeted end bars of the frames D, for holding the threads while being cut and removed from the reel, substantially as herein shown and described.

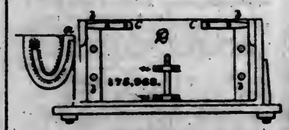
176,968. WAGON END-GATES. Andrew S. Goodell, Rock Falls, Ill. [Filed Oct. 28, 1875.]

1. In combination with a wagon-body having plates C with curved grooves *a* enlarged within the slots, the end gate D, having projecting arms with ends corresponding in shape with the said grooves, and the locking-pin E, substantially as described.

2. The arm *a*, having heads *f* upon its outer projecting end, and a boot shank, *f'*, adapted for use in connection with a groove-plate upon the wagon-body sides, substantially as specified.

3. The plate C, having a curved groove, *a*, enlarged within the slot, adapted for use substantially as specified.

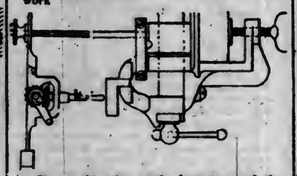
4. The curved groove *a* in a plate, C, having an open and a closed end, substantially as specified.



176,969.

176,969. HAND-DRILLS FOR DRILLING METAL. Daniel Goodnow, Jr., Boston, Mass. [Filed Mar. 4, 1876.]

Brief.—The lever-bar in which the drilling apparatus is mounted is furnished at one end, for the purpose of enabling it to be attached to any suitable stationary object. The workman, while rotating the drill with his right hand, grasps and bears down upon the handle of the implement with his left, and with the leverage thus attained feeds the drill to its work.

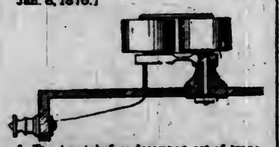


The combination of the lever-bar and the rotary drill-shaft at right angles to and interconnected between the ends of the bar, the parts being arranged for joint operation, substantially as set forth.

176,970. COMPOSITIONS FOR COATING COPPER. Andrew J. Grassi, Philadelphia, Pa., assignor to himself and La. Fayette Grassi, same place. [Filed Jan. 6, 1876.]

The composition of matter for coating coffee, consisting of dextrine, corn-meal or wheat-flour, cocoa, and water, substantially as set forth.

176,971. TELEPHONIC TELEGRAPH APPARATUS. Elisha Gray, Chicago, Ill. [Filed Jan. 6, 1876.]



1. The herein-before-described art of transmitting musical sounds telegraphically by reproducing such sounds at the receiving end of the line by means of a vibrating reed and a sounding-box of corresponding pitch.

2. The combination, substantially as herein-before set forth, of an electro-magnet, a vibrating reed, and a sounding-box of corresponding pitch, united at the receiving end of an electric circuit.

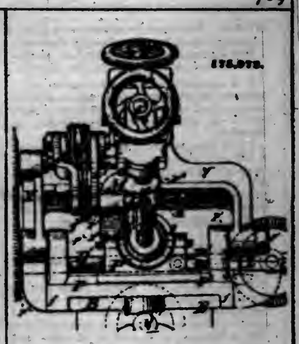
3. The combination, substantially as herein-before set forth, with an electric circuit, of a series of electro-magnets, a series of vibrating reeds, producing musical tones of different pitch, and a series of correspondingly-tuned sounding-boxes, whereby each box is caused to sound its own note while rejecting all others.

4. The vibrating reed, constructed as herein-before set forth, with parallel sides, and with recesses near its fixed end, whereby its tendency to vibrate in unison with tones other than its own is prevented.

176,972. MACHINES FOR CUTTING BEVEL-GEAR WHEELS. Carl B. J. Grube, Hamburg, Germany, assignor of one-half his right to Johann Kahlke and Emil Dettleffsen, same place. [Filed Feb. 16, 1876.]

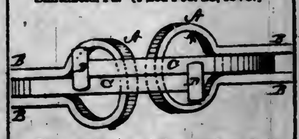
Brief.—The revolving disk-cutter has imparted to it automatically a feed movement across the face of the bevel-wheel, and also at the same time a limited lateral oscillatory movement, but without any deviation from true radial planes.

176,973.



In a gear-cutting machine, the rotating cutter *c*, having an automatic radial oscillating motion from the pivot *p'* as a center, and an automatic feed toward or from the central axis of the gear while the said gear is being cut, substantially as herein set forth.

176,974. CAR-COUPLINGS. P. S. Heldeman, Smithfield, Pa. [Filed Feb. 25, 1876.]



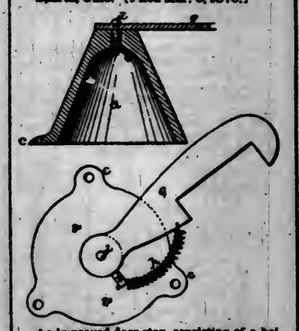
The combination of the cross-bars D D, hooks C C, and beveled eyes A A, with their arms B, substantially as and for the purposes herein set forth.

176,975. ELECTRO-MEDICAL PLASTERS. R. P. Hall, Vineland, N. J. [Filed Mar. 9, 1876.]



As a new article of manufacture, a combined galvanic, voltaic, or electric and therapeutic plaster, substantially as set forth.

176,976. DOOR-CHECKS. Wm. H. Harper, Sparta, Ohio. [Filed Mar. 6, 1876.]



An improved door-stop, consisting of a bell-crank-shaped metal block, *a*, having curved opening *c*, and lug *d*, in combination with the pivoted catch *f* and spring *h*, situated thereto at one end, and to the lug at the other end, all substantially as shown and described.

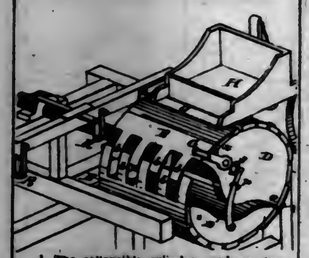
176,976. SOAP AND PROCESSES FOR MANUFACTURING THE SAME. Geo. M. Harrison, New Orleans, La., assignor to A. A. Maginnis' Sons, same place. [Filed Dec. 9, 1876.]

1. A composition for soap consisting of the following ingredients: crude cotton-seed oil, caustic alkali, water, rosin, carbonate of soda, turpentine, and ammonia, substantially as described.

2. The process herein described, consisting in boiling together crude cotton-seed oil, caustic alkali, water, rosin, and carbonate of soda, then allowing the same to settle, skimming off the niger and boiling separately, and finally mixing the two together and adding thereto turpentine and ammonia, as specified.

176,977. MACHINES FOR FORMING CHEESE BOXES. Orrin C. Harris, Newport, N. Y. [Filed Mar. 10, 1876.]

Brief.—Cheese and similar boxes can be formed, and the ends of the hoops in the same locked together, by means of a bisected collapsible cylinder, provided at its hinged part with a clamping-plate, and at its outer ends with plates having intermeshing tongues, and operated by two rocking shafts—one passing through the larger section of the cylinder, and having two arms which support a swiveled nut, the other through the smaller section, and provided with a collar, in which the screw that passes through the nut is swiveled, in connection with a pivoted tack-box provided at its front end with a metallic pressure-bar.



1. The collapsible cylinder, made in two parts, D D', hinged together, and provided at the joint with the clamping-plate C, and at the outer ends with the plates E E, having intermeshing tongues or fingers b, substantially as herein set forth.

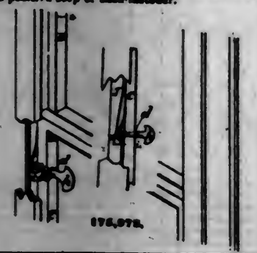
2. The combination, with the bisected collapsible cylinder D D', of the rocking shaft d, with crank G, arms f f, and swiveled nut e, and the rocking shaft d', with swiveled bolt h, substantially as and for the purposes herein set forth.

3. The pivoted tack-box H, with pressure-bar J, held, by means of the spring K, against the exterior surfaces of the cylinder D D', as and for the purposes herein set forth.

4. The combination of the pivoted tack-box H with pendent hooked arm L, and the pin n in the end of the cylinder, for the purposes herein set forth.

176,978. SASH HOLDERS AND FASTENERS. William A. Hawthorn, Carson City, Nev. [Filed Feb. 21, 1876.]

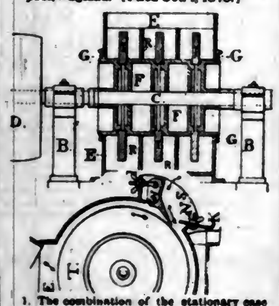
Brief.—An adjustable spring, regulated by an outwardly-projecting thumb-screw, serves, normally, as a frictional holder, and is likewise so arranged as to combine with inclined slots in the window-facing, for the purpose of a positive stop or sash-fastener.



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The screw *d* and spring-plate *e*, having one end secured to the inner surface of the sash, in combination with the sash C and window-facing *f*, provided with the inclined slot *i*, substantially as set forth.

176,979. GRAIN-CLEANERS. James Higginbottom and Edward Hutchinson, Liverpool, England. [Filed Oct. 1, 1875.]



176,980.

1. The combination of the stationary case K, having a discharge-spout, S, on the periphery, intermediate between top and bottom, with the vertically-revolving disks T, in grain scouring or cleaning machines.

2. The combination, in a grain-scouring machine, of a scouring-chamber, containing a vertically or nearly vertically revolving disk or disks, and into which the grain has free admission from the top, so that it is kept constantly full, with a slide or other regulator in the exit-pipe.

3. The combination of the stationary case K with the head H and the slide K, in grain scouring or cleaning machines.

4. The application of the disks T, made of solid emery composition, instead of being built up with a backing or core of wood or other material, in grain-scouring machines.

5. The combination of the diaphragms R with the disks T, the washer-plates P, and the casing K, in grain-scouring machines.

176,980. MEASURING-PUMPS. Chas. Hildebrand, Youngstown, Ohio. [Filed Jan. 24, 1876.]

1. The pump-stock A, having the spout L L', to which is secured the measuring-receiver M, said pump stock being provided with means for attaching it to and detaching it from the vessel containing the liquid to be withdrawn, substantially as set forth.

2. The combination, with the measuring-receiver M and discharge-spout L', of the tube O, extending downwardly from the spout nearly to the bottom of the receiver, substantially as and for the purpose set forth.

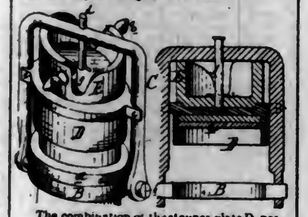
3. The combination, with the discharge-spout L', receiver M, and discharge-tube P, of the double-acting valve U, substantially as and for the purpose set forth.

4. The combination of discharging-tube P, extension-tube R, and spring T, substantially as and for the purpose set forth.

5. The perforated extensible tube R S, in combination with the adjustable bracket W, whereby both the discharge-nozzle and the vessel to receive the liquid are rendered adjustable in relation to each other.

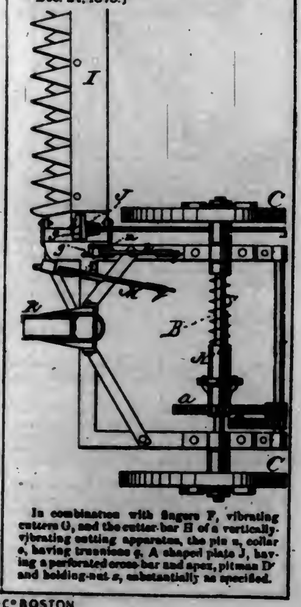
176,981. BOTTLE-STOPPERS. Matthias J. Hindon, Detroit, Mich., assignor to himself and Matthias Kerabt, same place. [Filed Sept. 16, 1876.]

Brief.—The stopper-plate has guide-yokes on each side, which partially embrace the ball and guide the plate firmly to its seat, when the ring-plate is turned so as to bring the cam-segments against the ball.



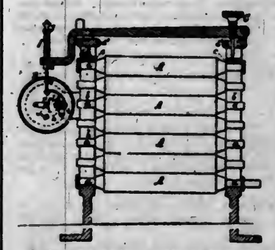
The combination of the stopper-plate D, provided with the disk *c*, stud *d*, and guide yokes *e*, and the plate E, provided with the cam-segments *f*, with the ball C, substantially as and for the purpose set forth.

176,982. REAPERS AND MOWERS. Adrian Hitt and Daniel M. Smith, Flora, Ill. [Filed Dec. 24, 1875.]



In combination with fingers F, vibrating cutters G, and the cutter-bar H of a vertically-vibrating cutting apparatus, the pin *n*, collar *o*, having transverse *q*, A shaped plate J, having a perforated cross-bar and apex, pitman D' and holding-nut *s*, substantially as specified.

176,983. GAUGE FOR PAPER. Lyman Hollingsworth, Boston, assignor to himself and Mark H. Cornell, Bridgewater, Mass. [Filed Feb. 21, 1876.]

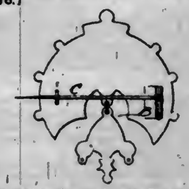


1. A paper-gaging machine, substantially as described, composed of the series of rollers A and the indicator or lever D, lifter E, arm *i*, shaft *k*, toothed sector *l*, pinion *p*, shaft *m*, index-pointer *o*, and divided limb or plate *n*, all arranged, supported, and applied essentially as set forth.

2. The spring *f* and the stop *s*, in combination with the lever D and the lifter E, case *h*, arm *i*, shaft *k*, toothed sector *l*, pinion *p*, shaft *m*, index-pointer *o*, and divided limb or plate *n*, and the rollers A, all being arranged and applied as shown and described.

3. The combination of the screw C with the lever D and the lifter E, case *h*, arm *i*, shaft *k*, toothed sector *l*, pinion *p*, shaft *m*, index-pointer *o*, and divided limb or plate *q*, and the set of rollers A, all being essentially as set forth.

176,984. BRASS-FASTENINGS. Charles O. Eood, Pawtucket, R. I. [Filed Jan. 20, 1876.]

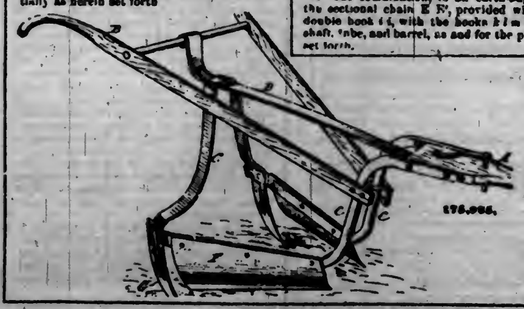


The combination, with a pin, C, right-angled at its rear end, of a hinge plate, having a socket divided into two sections, with intermediate shoulder, as and for the purpose specified.

176,985. PLOWS. Thomas J. Hoover and James T. Henderson, Woodbury, Tenn. [Filed Jan. 14, 1876.]

Brief.—A cultivator provided with two plowshares and two hoes or scrapers, setting in front of the plows, and inclined outwardly toward the rear, in such a manner as to clear and smooth the surface of the ground in front of the plows.

In combination with the beam A, handles B, and longitudinal bar D, the bent arms O C, brace C', shovels F, and plows G, substantially as herein set forth



176,985.

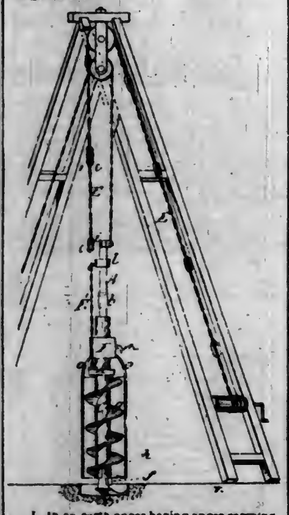
176,986. LUBRICATING COMPOUNDS. S. B. Horton, Pownal, Vt., assignor of one-half his right to L. D. Johnson, Albany, N. Y. [Filed Aug. 2, 1875.]

The metal-cutting tool lubricating compound above described, composed of water, lard or lard-oil, and sal soda, in the proportions above set forth, for the purpose specified

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176,987. EARTH-AUGERS. C. H. Howard and Jesse I. Wells, Trenton, Tenn. [Filed Mar. 2, 1876.]

Brief.—The screw portion of the auger has its vanes increasing in distance from bottom to top to prevent packing. A centering-point clamps the center-plate with counter-cutters to the shaft. A sectional chain is provided with double hooks in reverse direction for security. A barrel-case is combined with the auger-screw.



1. In an earth-auger having auger-carrying worm for the earth, the vanes *g* thereof, increasing in their distances apart from bottom to top, for the purpose of avoiding the packing of the contained earth.

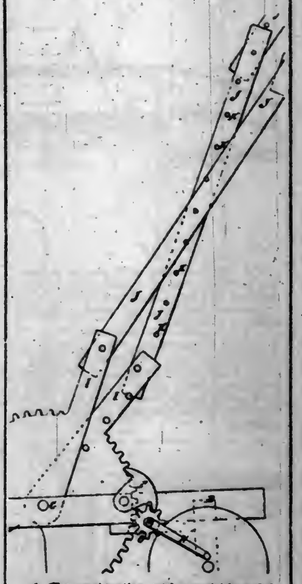
2. In an earth-auger having the combination of worm C, and shaft A, the plate B of said shaft, carrying the overlapping cutter *c*, and secured by stemmed button *d* passing through said plate into a socket in the shaft.

3. The combination of an earth-auger carrying-worm, whose vanes increase in their distance apart as they near the top, with an inclosing barrel case, for the purpose of avoiding packing in said barrel.

4. The combination, in a well-auger, of the angular centering-point *e*, with the double counter-cutter *c' c²*, the plate B, and the clamping centering-point *d*, as and for the purpose described.

5. The combination, in an earth-auger, of the sectional chain E F', provided with the double hook *i i*, with the hooks *k l m* of the shaft, tube, and barrel, as and for the purpose set forth.

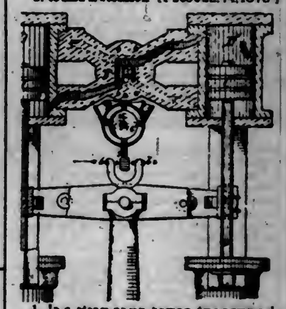
176,988. FIREMEN'S ELEVATING-LADDERS. Berthold Huber, Brooklyn, E. D., N. Y. [Filed Oct. 28, 1875.]



1. The combination, with parallel bars J J of the rounds K, running diagonally thereacross, as shown and described, to enable the ladder to be folded closely together.

2. The combination of a single device, forming both ladder and lazy-tongs, with a curved rack, H I, on each side, and operated by separate pinion, L, as shown and described, whereby the ladder may be readily thrown from right to left.

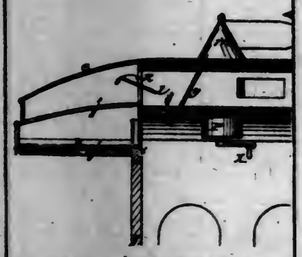
176,989. VALVE-GEAR FOR DOUBLE-ACTING PUMPS. Jas. A. Hotchkiss and John W. Govier, Pittsburg, Pa., said Govier assignor to said Hotchkiss. [Filed Jan. 14, 1876.]



1. In a steam-pump having two pump cylinders, the combination of two steam cylinders, having a single steam-chest and slide-valve, with an auxiliary plunger or piston for operating the valve, the entire stroke of the auxiliary or valve piston being effected by steam, substantially as and for the purposes specified.

2. In a steam-pump having two pump-cylinders, the combination of two steam cylinders, having a single steam chest and slide-valve, with an auxiliary piston or plunger for operating the slide-valve, and an exhaust valve or dash operated from the piston rods through a walking-beam, its shaft, or suitable intermediate mechanism, substantially as and for the purposes specified.

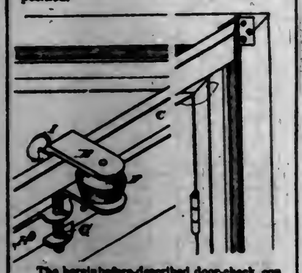
176,980. VENTILATING CASE. Edward C. Tibbetson, Chelsea, Mass. [Filed Feb. 28, 1876.]



The inlet, consisting of diaphragm A, opening *k*, with or without diaphragm *y*, in combination with outlet consisting of cowls *m*, all constructed, arranged, and operated substantially as described.

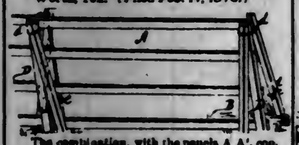
176,981. DOOR-CHECK. Francis M. Ides, Forest City, Mo. [Filed Dec. 20, 1875.]

Brief.—A novel combination of old devices, attached at or near the top of the door, whereby its movement is checked, or, by the clamping of parts, the door may be held in fixed position.



The herein-before-described door-check, consisting of the hinged arm C, bracket E, provided with binding-screw I and shaves F, standard G, and lug H, all attached and operating substantially in the manner described, for the purposes set forth.

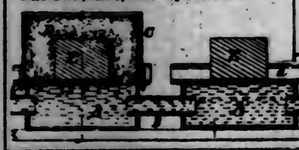
176,982. FENCE. Alfred Ingalls, Fort Worth, Tex. [Filed Feb. 17, 1876.]



The combination, with the panels A A', connected together by the wire bands *c*, of the inclined posts B C, sharpened at their ends and driven into the ground, and connected together and to the two adjacent panels by the wire *d* at the top, as set forth.

176,983. CASTING APPARATUS. Thomas Insull, Philadelphia, Pa., assignor to himself, John J. Dovey, and James F. Dovey, same place. [Filed Jan. 21, 1875.]

Brief.—A connected series of boxes, chambered, through which water may circulate, forms the bases of the flasks. The cope is formed with sand and elevated by means of a movable plate operated by cam-levers.

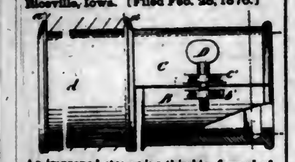


1. The combination of the movable joint-plate J, frame I, and screws K, with the bed-frame O, and elevating devices L M N, substantially as and for the purpose set forth.

2. The series of hollow chills A, constituting each one side or face of a mold, and connected by pipes B, permitting a continuous circulation of water throughout the series, substantially as herein described.

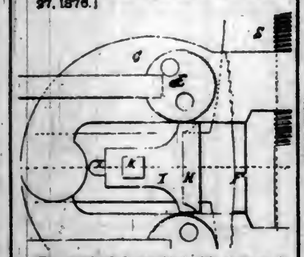
3. The combination of the hollow chills A, connecting-pipes B, and metallic bosses *a* with the sand-copes D, formed and applied substantially as and for the purpose set forth.

176,984. STOVE-PIPE THIMBLE. C. Inward, Riceville, Iowa. [Filed Feb. 28, 1876.]



An improved stove-pipe thimble, formed of the inner part A, provided with the collars *a'*, and the outer part, made in two parts, B C, the one part, B, being made in one piece with the part A, and the other part, C, being hinged at one edge to the edge of the part B, and secured at its other edge by the hand-screw D and the lugs *b' c'*, substantially as herein shown and described.

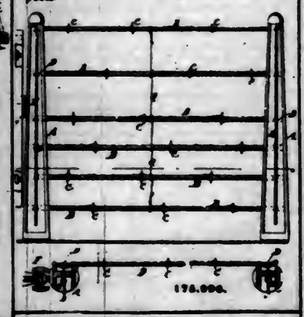
176,985. TIRE-UPSETTER. Geo. D. Jacoby, Berwick, Pa., assignor of one-half his right to Wm. B. Frear, same place. [Filed Mar. 27, 1876.]



The standard S, provided with the jaws U O, pivoted at D, in combination with the corrugated eccentrics E E, the corrugated lugs F F, shaft G, and walls H H substantially as described and for the purposes set forth.

176,986. WIRE FENCE. Schuyler Jenks, Jefferson, Wis. [Filed Sept. 25, 1875.]

Brief.—The fence-wires are held by loops drawn laterally into the concaved posts, and twisted around a vertical wire in a like vertical concavity on the opposite sides of the posts.



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The combination with double-T posts and twisted-wire rails, of the wire staples D, and long vertical wire E, as and for the purpose described.

176,987. WEATHER-STRIP. Robert Jennings, Baltimore, Md., assignor of three-fifths his right to Geo. F. Jennings, same place. [Filed Dec. 24, 1875.]



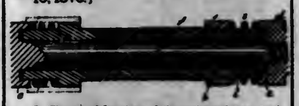
The fabled metallic clamping-strip *a*, provided with the diagonal slots *a*, rubber packing *d*, and pin *g*, combined with the offset metallic plate *e*, pins *e'*, and spring *f*, as and for the purpose specified.

176,988. HEELS FOR BOOTS AND SHOES. C. Jensen, Boston, Mass. [Filed July 30, 1875.]



A rest or stiffening heel constructed as described, and consisting of the metal disks *b c*, the metallic spring *a*, and screws *d*, in combination with rubber covering *a'* and leather top *b'*, substantially as described.

176,989. VEHICLE-AXLES. J. F. Johnson, Boston, Mass., assignor to himself and A. A. Richardson, same place. [Filed Mar. 10, 1876.]



1. The combination of the axle and box and external shoulder and bolster with the springs placed about the ends of the box, and with relation to the box and collar and nut, substantially as described.

2. The axle and the recessed collar and nut, *m* combination with the box adapted to extend its ends into the recesses *c c'*, and with the springs arranged about the ends of the box, substantially as described.

3. The removable spring-holder and spring, in combination with, and adapted to surround, the end of the box, as set forth.

176,990. ELEVATED RAILWAYS. Job Johnson, Brooklyn, N.Y. [Filed Feb. 28, 1876.]

Brief.—An elevated railway supported upon two columns, the girders supporting the rails being embraced by sectional brackets, into which the track-rails are secured; said track-rails and supporting-girders being trussed by rods bearing under brackets secured to the rails and girders. The cross-girders are secured on top of the column by clamps resting upon a plug or cap having upper and lower projections, taking into the top of the column on the under side of the clamp. The truss-rods are secured to U-shaped straps, which pass around the ends of the girders to its strength end and rest in notches. The columns rest upon or in metal plates having projecting plugs, which pass up into the column, and down into the masonry or other foundation.

1. The plate A, made with a central block, *c'*, passing up into the hollow column *d*, and a rib, *c*, around the column, in combination with the column and a filling of lead or similar material introduced into the interstices, as set forth.

2. The cap *f*, made with a projection, *f'*, entering the column, and a flange surrounding such column, and secured by means of lead or similar material introduced into the interstices, as set forth.

3. The girder-holder A, with the jaws 3, to receive the lower part of the girder at the end, in combination with the cap *f*, vertical connecting-pin 2, and the filling of lead or similar material introduced into the interstices, as set forth.

4. The strap *n*, made U-shaped, and introduced into the notched end and at the sides of the bar or girder *k*, in combination with the brace-rods *l*, brackets *m*, and bars or girder *k*, substantially as set forth.

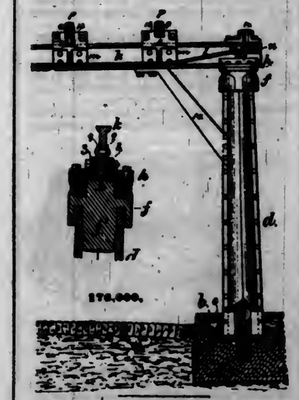
5. The brackets *m*, fastened at each side of the girder *k*, and extending up to form a recessed saddle, in combination with the girder *k*, the rail-bars *o o p*, and the filling of lead or similar material, for the purposes set forth.

6. The straps *q*, passing below and secured to the ends of the rail-bars or girders, in combination with the recessed holder or bearing for each rail or girder, and the filling of lead or similar material, as set forth.

7. The compound rail composed of the rail-bars *o o* and T-rail *p*, in combination with the brace-rod *s*, U-shaped straps *t*, brackets *s'*, and connecting-straps *r*, passing beneath such rails, as set forth.

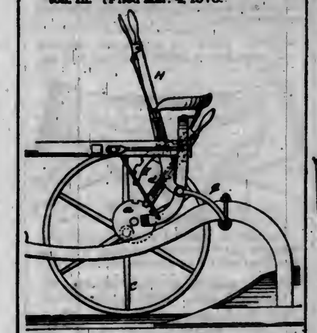
8. The combination, with an elevated railway, of plates *o*, sustained by rods passing across between the trucks and forming blinds to the passing trains, for the purposes and as set forth.

9. The combination, with the beam or girder and the rail, of the clamp *b'*, that grasps both the beam and the rail, and is extended at one side up to the top of the rail, for the purposes set forth.



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176,991. PLOWS. P. G. Johnson, Hoopeston, Ill. [Filed Mar. 4, 1876.]



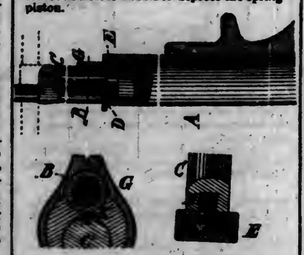
The combination, with the plow-beam and the heel lever G, pivoted to the frame and provided with an arm, H, extending upward, as shown, of the rotating sleeve *g*, the clamping eyebolts *a*, and plate *f*, all as and for the purpose specified.

176,992. INSECT-DESTROYING COMPOUNDS. George T. Johnson, Pittsylvania C. H., Va. [Filed May 24, 1875.]

A compound of kerosene-oil, turpentine, and sulphur, in the proportions and for the purpose specified.

176,993. SPRING AIR-PISTOLS. Iver Johnson and Martin Bye, Worcester, Mass. [Filed Mar. 15, 1876.]

Brief.—The barrel tips up at the rear, and serves as a cross-handle to depress the spring-piston.



1. The combination, in a spring-piston and air pistol or gun, having the barrel B, and chamber A, of the cap G, having a seat, D, fitting the end of the barrel, and forming a guide for the rod C, the rod C pivoted to the barrel and provided with a spring-head, E, for forcing the barrel B against the seat D, all constructed and arranged to operate substantially as and for the purposes set forth.

2. The combination, in a spring-piston and air pistol or gun, of the spring-compressing slotted rod C, with the guiding-cap G, having a spline or projection fitting the slot in the rod C, substantially as and for the purposes described.

176,994. SPRING AIR-PISTOLS. Iver Johnson and Martin Bye, Worcester, Mass. [Filed Mar. 15, 1876.]



The combination, in a spring-piston and air pistol or gun, of the screw-pin F, threaded socket C, and the movable end A of the barrel, arranged to be elevated for inserting the projectile, all constructed substantially as and for the purposes set forth.

176,995. INDEX-TAGS. Andrew J. Jones, Cincinnati, Ohio, assignor of one-half his right to H. H. Tinker, same place. [Filed Jan. 14, 1876.]



A series of index-tags, *d*, as formed, inscribed, and arranged upon the index-leaves of a book as to overlap, without obscuring, the characters upon the upper and subjacent tags, substantially as set forth.

176,996. TIRE-SHRINKERS. Wm. H. Jones and John A. Stuart, Excello, Mo. [Filed Mar. 4, 1876.]

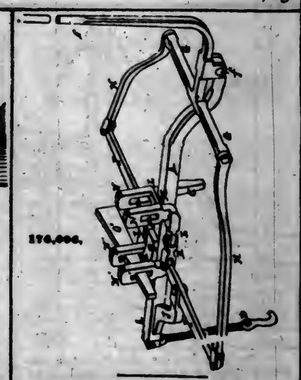
Brief.—Adapted to be fitted to an anvil by means of a pin inserted in the hardy-hole, and a hook in a staple in the anvil-block.

1. The combination of stock A, fixed jaw M' N', and moving jaw M N with clamping-wedges O O' and system of operating-levers, substantially as set forth.

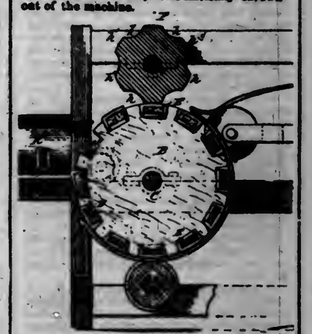
2. In combination with the jaws M N M' N' and actuating-levers P I I, the stock A, with steady-pin C, for engagement to the anvil, substantially as set forth.

176,997. TOBACCO-PRESSES. J. L. Jones, Greensborough, N. C., assignor to M. Cull, Richmond, Va. [Filed Dec. 2, 1876.]

Brief.—The molds are delivered automatically onto a rotating carrier, where a compressing-roller presses the parts together. Cutters in the rear enter the molds as they are brought past them, and sever the plug, and the molds are finally automatically thrown out of the machine.



176,997.



1. In a machine for compressing tobacco, the combination of the rotating carrier B, constructed with a series of cavities, the tobacco-receiving molds E and the compressing-roller F, all constructed to operate together substantially as and for the object specified.

2. The combination, with the rotating carrier, the tobacco-receiving molds, and the compression-rollers, of the endless traveling belt and guide-plate for automatically depositing the molds in the carrier, substantially as described.

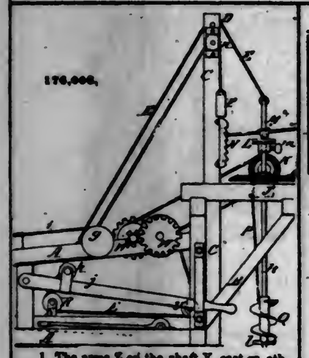
3. The combination, with the rotating carrier, the tobacco-receiving molds, and compressing-roller, of the delivering-rollers and endless belt for automatically discharging and conveying the molds from the machine, substantially as described.

4. The combination, with the slotted rotating carrier, the slotted tobacco-receiving molds, and the compression-roller, of the adjustable cutters, for dividing the tobacco in the molds into plugs, substantially as shown and described.

176,998. HARDY-BORING APPARATUS. H. Kelly and J. Kelly, Osage, Iowa. [Filed Feb. 7, 1876.]

Brief.—Arms cast in one piece on a rotating shaft intermittently operate a pivoted lever attached to the frame, and connecting with the drill. A detachable derrick frame supports the boring mechanism, which is operated by bevel-wheels, and withdrawn by a rope passing over a pulley in the upright of the frame and to a windlass. An adjustable collar, upon which a yoked hand-lever rests, and engages with a rack on the frame, regulates the pressure on the auger. A windlass and rope raise the sand-pump by gearing and a belt tightener.

176,008.



1. The arms Y of the shaft Y constructed in a single piece, substantially as and for the purpose set forth.

2. The arms Z, when cast solidly on the shaft Y, substantially as set forth, and for the purpose specified.

3. The combination, with the lever T, of the detent p, operated through rock-crank-shaft and lever r, and resisting-spring s, substantially as and for the purpose set forth.

4. The combination of the windlass h and the rope G, to which the sand-pump F is attached, with the power connecting and applying devices i j o k of the running parts of the machine, whereby the windlass h may be operated at will, and the sand-pump may be automatically lowered and raised or thrown out of operation, substantially as described, and for the purpose set forth.

5. The combination, with the lever T, of the spring-catch device p, arranged to yield when struck by the lever and pass above it, whereby the movement of the latter is arrested, and it is held down out of the way while the machine is being used for other purposes, substantially as set forth.

6. The frame B B, supporting the boring mechanism, and made detachable from the main frame A of the machine, substantially as set forth.

7. The adjustable collar L on the shaft H, in combination with the pressure hand-lever and rack, substantially as and for the purpose set forth.

8. The combination, with the shaft H and collar L, of the lever M, formed at its middle into an open yoke, M', and provided with the hook M', substantially as and for the purpose set forth.

9. The lever M, formed at its middle into a yoke, M', and provided with friction-rollers d, in combination with the flanged collar L and revolving shaft H, substantially as and for the purpose set forth.

10. The combination, with the boring-shaft H and the auger Q, of the rope P, attached to the hook O of the bevel-wheel hub J while boring, and detached therefrom for connecting with the rope R, for raising said auger, as herein set forth.

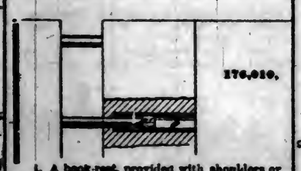
176,009. HAY-LOADERS. Chas. H. Knapp, Prospect, Ill. [Filed Nov. 6, 1875.]



The combination of the bars or levers J J, each provided at its rear end with a headed pin, h, and spring d, the brackets I I connected to the headed pins, and connecting the levers J to the cross-bar, to which the rake-teeth are attached, by hinged joint, all substantially as and for the purposes herein set forth.

176,010. HAND-SUPPORTS. Geo. B. Knapp, Vinton, Iowa. [Filed Feb. 26, 1876.]

176,010.



1. A book-rest, provided with shoulders or offsets of different height, at both sides of the blades, substantially as and for the purpose set forth.

2. A book-rest, having a sliding extension for supporting the arm, substantially as and for the purpose described.

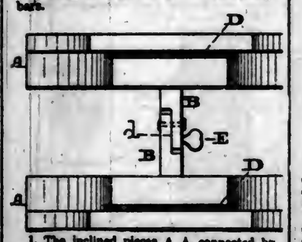
176,011. LUBRICATING COMPOUNDS. Isaac O. Knowles, Rochester, N. Y. [Filed Feb. 3, 1876.]

1. The series described lubricating compound, consisting of hydrochlorate ammonia, cyanide potash, Spanish whiting, lime-water, nitrate potash, lard-oil, nitrate silver, and soft water, in proportions substantially as described.

2. The process of manufacturing the lubricating compound from lard-oil, hydrochlorate ammonia, cyanide potash, lime-water, nitrate silver, Spanish whiting, nitrate potash, and soft water, substantially as herein described.

176,012. HOSE-BRIDGES. C. W. Kreamer, Philadelphia, Pa. [Filed Mar. 16, 1876.]

Brief.—A hose bridge consisting of two pieces having inclined ends and grooved flat top surface for wheel-flanges, said pieces being connected by a bar attached to each, and hinged in center of track, the openings for the hose being on each side of the connecting-bars.



1. The inclined pieces A A, connected by hinged bars having lap-joints d, in combination with the pin E passing through both laps, substantially as and for the purpose set forth.

2. The inclined pieces A A, in combination with the connecting-bars B hinged together, and projecting from side to side of the pieces A A, so as to form the two channels C C in each piece, substantially as and for the purpose set forth.

3. The inclined pieces A formed with grooves D D intermediate of the bases and treads of said pieces, substantially as and for the purpose set forth.

4. The inclined pieces A A with grooves D on their upper faces, the connecting-bars B, hinged together, and the securing-pin E, combined and operating as set forth, and forming an improvement in hose-protectors, as specified.

176,013. METALLIC SEALS. Geo. W. Ladd New York, N. Y. [Filed Feb. 4, 1876.]



A metallic seal composed of a soft-metal seal-blank, A, having holes a a', and a cavity, a', and a wire shackle, B, the shanks of which, after having been passed through the holes a a', are united by means of a twist, b, which lodges in the cavity a', and which, when the blank A is compressed, becomes embedded in the metal composing said blank, substantially as shown and described.

176,014. HOISE-POWERS. Jean Lafitean, New Orleans, La. [Filed Feb. 12, 1876.]

Brief.—An endless tramway within a carriage is angularly adjustable by a rear vertical screw, the carriage having a roof formed of hinged lids.

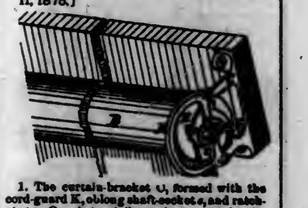


1. The frame A, provided with wheels B B, shaft D, drum E, chain-wheel c, and tramway E, in combination with the pan F, provided with gate G and rollers d, for the purpose set forth.

2. The arrangement of the nut g and screw h, for the purpose set forth.

3. The cover H, provided with lids h h', in combination with the frame A and pan F, as described, and for the purpose specified.

176,015. BRACKETS FOR CURTAIN-ROLLERS. J. C. Lake, Philadelphia, Pa. [Filed Sept. 11, 1875.]



1. The curtain-bracket C, formed with the cord-guard K, oblong shaft-socket e, and ratchet-stop G, substantially as shown, and for the purpose set forth.

2. The improved curtain-bracket, having the elongated shaft-bearing, terminating in a recess or depression at its outer end and in its lower edge, to receive and hold the adjustable curtain-roller shaft while the curtain is being wound and unwound, substantially as shown and described.

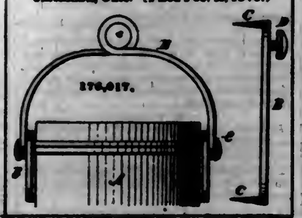
176,016. NECK-TIE FASTENERS. Michael D. Levy, New York, N. Y. [Filed Feb. 28, 1876.]



The hook A, attached near the top of bow-frame on the inside, and provided with the fork C, as and for the purpose described.

176,017. BAIL-EARS. Andw. B. Lowe, Jr., Cincinnati, Ohio. [Filed Feb. 11, 1876.]

176,017.



1. The combination of rivet or lag D, with an elongated bail-ear, having upper and lower prongs C C, substantially as and for the purpose specified.

2. The combination of the bail E, having eye e, with bail-ear having upper and lower prongs C C and rivet D, substantially as and for the purpose specified.

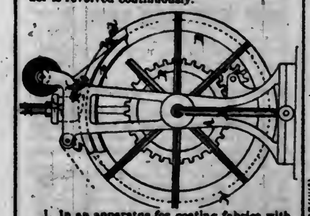
176,018. BOILER-CLEANERS. Jno. L. Lloyd, Williamston, Mich., assignor to himself and Oscar McOmsey, same place. [Filed Oct. 8, 1875.]



A boiler-brush, made of an arc shape, and having handle-socket in the center of clamping-plate A, adapted to receive a detachable handle, as and for the purpose specified.

176,019. APPARATUS FOR COATING FABRICS WITH PLASTIC COMPOSITIONS. Henry Loewenberg, Charlottenburg, Prussia. [Filed Feb. 9, 1876.]

Brief.—Fabric gripped onto the cylinder, which is revolved while the coating is fed between the cylinder and the fabric cylinder, heated by steam in an annular chamber next the periphery of the cylinder. After nearly one revolution of cylinder, fabric is detached, and attached to a delivery-roller, when cylinder is revolved continuously.



1. In an apparatus for coating fabrics with plastic material, the combination of the revolving cylinder B, having hollow gudgeons C C for the purpose specified, with feed and discharge rollers F G and reservoir H, located above the cylinder B in such position as to feed the plastic material between said cylinder and the fabric to be coated, substantially as described.

2. In combination with the reservoir H, the gate J, ratchet-wheel K, and stop s for adjusting the gate, substantially as described.

3. The combination of an annular chamber, E, and feed and discharge pipes a b with the cylinder B and its hollow gudgeons C C, substantially as described.

4. In combination with the cylinder C of the griper P and springs d d riveted to the flanges F F for pressing said griper against said cylinder, substantially as described.

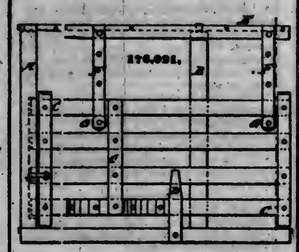
176,020. SKIRT-PROTECTORS. Albt. Lyon, New York, assignor to Jas. W. Chisholm, Brooklyn, N. Y. [Filed Mar. 4, 1876.]



A compound skirt-protector and trimming, formed of the ply-strip A, and ornamental strip B, connected by binding C near the upper end, and the trimming sewed at its lower edge to the upper part of the hem of ply-strip, as and for the purpose specified.

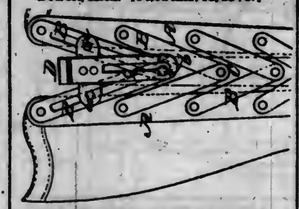
176,021. GATES. Emerson Lyon, Stoughton, Wis. [Filed Feb. 26, 1876.]

176,021.



The pivoted horizontal bar E, provided with the hangers F and the adjustable rollers G, in combination with the gate C and posts A B, substantially as herein shown and described.

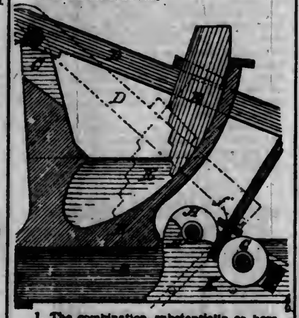
176,022. SHOE-LACINGS. Saml. T. Marsh, Detroit, Mich. [Filed Mar. 16, 1876.]



1. A shoe lace consisting of two series of pivoted metallic strips gradually increasing in size from bottom to top, and the outer ends of the corresponding strips in the two series pivoted together and to a central strip, substantially as and for the purpose set forth.

2. The combination of the side strips A A, pivoted strips B B, central strip C, and locking cross D, all constructed substantially as and for the purpose herein set forth.

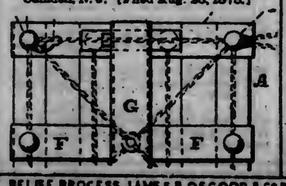
176,023. FULLING-MILLS. Willard H. Mase and Silas Terwilliger, Matteawan, N. Y. [Filed Dec. 6, 1875.]



1. The combination, substantially as herein before set forth, of the hammer-arm and its pendent link with the friction-roller and cam.

2. The combination, substantially as herein before set forth, of the hammer-arm, the pendent link, the friction-roller, the cam, and the guide for the pendent link.

176,024. FOLDING LIFE-RAFTS. J. L. Mason, Camden, N. J. [Filed Aug. 26, 1875.]



176,025. GATE-HINGES. Samuel Thomas, Jr., Cincinnati, Ohio. [Filed Feb. 26, 1876.]



1. The series of buoyant bars A, brace-bars B, and brace-bar F, in combination with the tightening-cords C, substantially as and for the purpose set forth.

2. The series of buoyant bars A and brace-bars B, in combination with the tightening-cords C, and operating buttons E, substantially as and for the purpose set forth.

3. The bars A a b, formed of wood and cork, in combination with tightening-cords C, passed through openings in the wood, substantially as and for the purpose set forth.

4. The folding seat G, pivoted to the pivoted bar F, in combination with the series of bars A, substantially as and for the purpose set forth.

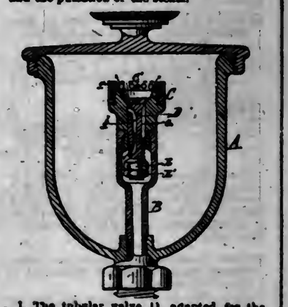
176,026. CHECK-HOOKS. D. L. McDermid, Orion, Mich. [Filed Oct. 5, 1875.]



The combination with the back-strap C and covering-strap C', of the check-hook A, cast with the cross-bar B and studs a a, said cross-bar being covered and held down by said covering-strap, substantially as described and shown.

176,027. STEAM-ENGINE LUBRICATORS. T. T. McGrath, Jackson, and Thomas Hill, Ionia, Mich. [Filed Nov. 23, 1875.]

Brief.—Ascending, as a prolongation of the stem, into an oil-cup is a hollow standard, covered with a screw-cup having a strainer. In this standard there is a loose tubular valve, with a seat at top and bottom, connected by oil-ducts, the orifices of which alternately close and open as the device is operated by gravity and the pulsation of the steam.



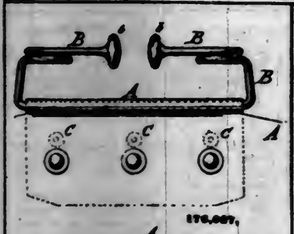
1. The tubular valve D, adapted for the purposes set forth, having a flaring top, the nuts E E', the passages b c, and the apertures d e, all constructed and arranged substantially as described and shown.

2. The combination, with the cup A, of the hollow standard B, and the tubular valve D, the said tubular valve being entirely inclosed by the said standard, and operating as set forth.

3. The combination, with the cup A, of the tubular standard B, having the screw-cap C, which is provided with the strainer C', and apertures e, and the tubular valve D, entirely inclosed by said standard and provided with the oil-duct, substantially as described and shown.

176,028. CALF-WRAPPERS. A. M. McLewis, Onawa City, Iowa. [Filed Nov. 13, 1875.]

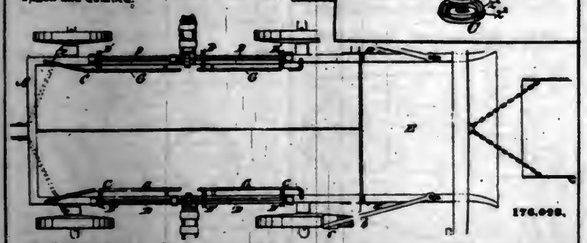
The combination of the folded plate A, hinged to the bent and knobbed wire B B', and the spikes C with each other, substantially as herein shown and described.



176,027.

176,028. DUMPING-WAGONS. Montgomery C. Meigs and Henry L. Meigs, Bonnery, Ind. [Filed Jan. 22, 1876.]

Brief.—The scraper is hoisted up in the wagon and dumped.



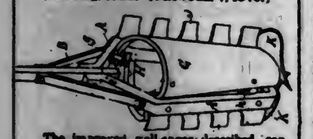
176,028.

1. The combination, with the wagon, of the double-tree of greater length than the width of the wagon, and the skid E, having pivoted arms *b*, with rests *c*, substantially as and for the purpose described.

2. The combination of the guard-rails G with the wagon having hoisting devices D D', and the double-tree of greater length than the width of the wagon, substantially as and for the purpose described.

3. The combination, with the wagon-body and the rench, of the swinging support H, pivoted to the bottom of the wagon-body, and having notch *f*, as and for the purpose described.

176,029. BARTS-ADDEMA. Benj. F. Metz, Pittsburg, Iowa. [Filed Jan. 7, 1876.]

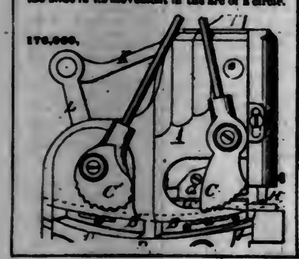


The improved well-auger described, consisting of the frame A, curved plates H G, provided with securing devices *i g*, teeth I J, pin K K, and rod C, constructed and arranged to operate substantially as and for the purpose set forth.

176,030. COMPOUND METAL-WORKING MACHINES. Hollis W. Moore, Ocean, N. Y. [Filed Feb. 26, 1876.]

Brief.—The movable slide of the tire-setting device is provided with a curved tongue on its inner face, which enters a curved groove in the standard, and serves to guide the slide in its movement in the arc of a circle.

176,030.

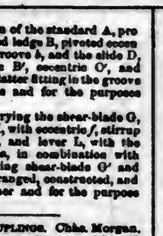


1. The combination of the standard A, provided with the curved ledge B, pivoted eccentric C, and curved groove *h*, and the slide D, provided with ledge B', eccentric C', and curved tongue *d*, the latter fitting in the groove *h*, all substantially as and for the purpose herein set forth.

2. The slide B, carrying the shear-blade G, and punch H, lever I, with eccentric *f*, stirrup J, connecting-bar K, and lever L, with the tire-upsetting devices, in combination with the standard A, having shear-blade G' and die H', the whole arranged, constructed, and operated in the manner and for the purpose set forth.

176,031. BELT-COUPLINGS. Chas. Morgan, Bridgeport, Conn., assignor to himself, Philo Pierce, and Danl. Ferris, same place. [Filed Mar. 27, 1876.]

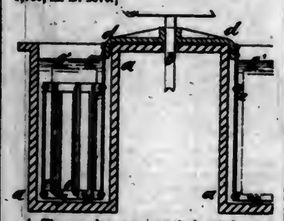
176,031.



A coupling-plate, A, having one or more screw-holes, *c*, and holding-flanges *x*, concentric therewith, in combination with screws C, having broad heads and coeccentric holding and embedding flanges thereon, to engage with the inner surface of the belt, as and for the purpose herein specified.

176,032. MANUFACTURE OF TIN AND OTHER METAL-COATED PLATES. Edmund Morewood, Llanelly, Great Britain. [Filed Jan. 21, 1876.]

Brief.—Sets the annular pot in brick-work. Puts wet plaster in the frames, one in each compartment thereof, and revolves the frame, which may revolve vertically. Cone-pulleys may regulate the speed. Flux may be chloride of zinc. Plates are passed into the frame through a flux-box having guides for the plates, and placed over the pot. Indexes show when a coil of the frame has arrived at the point where it may receive a plate. Settled flux returned to flux-box by a pump. Frothy flux may be conveyed from flux-box by a revolving band and buckets, or revolving screw. About six inches of grease or flux on the coating-metal. [English Patent No. 1,760, A. D. 1870.]

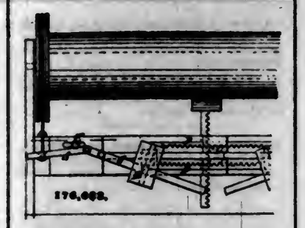


1. The annular pot *c*, vertical axis *b*, arms *d*, and cylinders *e e*, in combination with the partitions *f* and fixed bars *g" g"*, substantially as and for the purposes set forth.

2. The settling-vessel *i*, in combination with mechanical means for returning, or withdrawing and returning, the flux to the flux-box, all substantially as and for the purpose set forth.

176,033. WARP-TENSION REGULATORS. J. F. Morley, Waterloo, Canada. [Filed Jan. 15, 1876.]

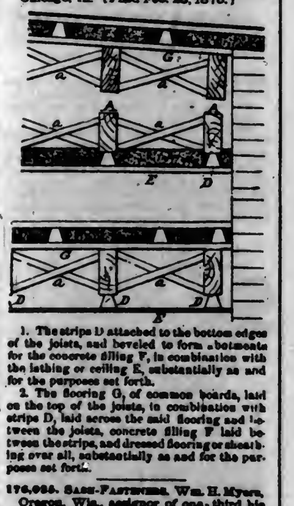
Brief.—A greater range of tensions, and applicability to the weaving of cloths of different weights, is obtained by using compound levers and adjustable fulcra.



176,033.

The combination of compound levers G G' and adjustable fulcra F with weights B, operated by mechanism to graduate their position on the levers, substantially as and for the purpose specified.

176,034. FIRE-PROOF BUILDING. S. Myers, Chicago, Ill. [Filed Feb. 28, 1876.]

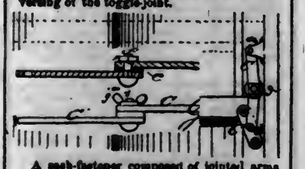


1. The strips D attached to the bottom edges of the joists, and beveled to form abutments for the concrete filling F, in combination with the lathing or ceiling E, substantially as and for the purposes set forth.

2. The flooring G, of common boards, laid on the top of the joists, in combination with strips D, laid across the said flooring and between the joists, concrete filling F laid between the strips, and dressed flooring or sheathing over all, substantially as and for the purpose set forth.

176,035. SASH-FASTENERS. Wm. H. Myers, Oregon, Wis., assignor of one-third his right to R. H. Osborn and one-third to Jas. M. Fox, same place. [Filed Apr. 1, 1876.]

Brief.—One arm pivoted to a bracket on the window-frame, and the other to a plate on the sash, the two forming a toggle-joint, are adjustably connected by a nut or thumb screw, the sash, when down, being securely held, and, when raised, held in like manner, by the reversing of the toggle-joint.

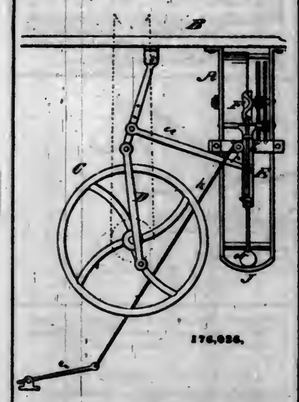


A sash-fastener composed of jointed arms C C', forming a toggle-joint, in combination with the washer *e* and a clamping device, *g*, substantially as and for the purpose set forth.

176,036. SEWING-MACHINE MOTORS. Wm. H. Myers, Oregon, Wis., assignor of one-third his right to R. H. Osborn, and one-third to Jas. M. Fox, same place. [Filed Apr. 3, 1876.]

1. In a motor for sewing and other machines whose prime force is derived from a spring or weight acting through a train of wheels, the sectional pendulum E, stop-flange J, pitman-rod *a*, toggle-joint D, and treadle-chain *k*, combined and operating substantially in the manner described.

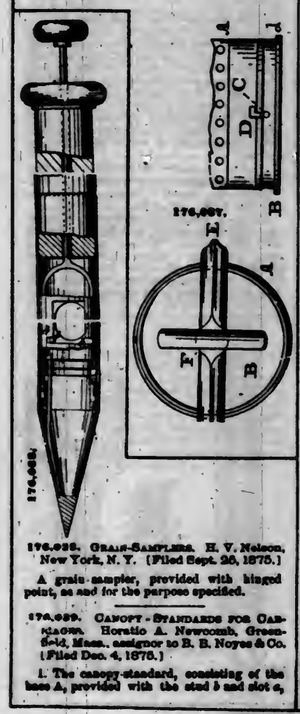
2. In a motor for sewing and other machines whose prime force is derived from a spring or weight acting through a train of wheels, the sectional pendulum E, pitman *a*, toggle-joint D, and treadle-chain *k*, combined and operated substantially in the manner described.



176,026.

176,037. PRESSES. George B. Nebinger, Philadelphia, Pa. [Filed Aug. 9, 1875.]

The combination of the perforated cylinder A, with slots D, removable solid bottom B, with projecting pins or lugs C and shoulder *d*, cushion yoke E, plunger G, and pressure-shaft F, all constructed, arranged, and operating substantially as and for the purpose set forth.



176,037.

176,038. GRAIN-SAMPLERS. H. V. Nelson, New York, N. Y. [Filed Sept. 26, 1875.]

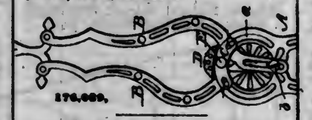
A grain-sampler, provided with hinged point, as and for the purpose specified.

176,039. CANOPY-STANDARDS FOR CARRIAGES. Horatio A. Newcomb, Greenfield, Mass., assignor to B. B. Noyes & Co. [Filed Dec. 4, 1875.]

1. The canopy-standard, consisting of the base A, provided with the stud *b* and slot *a*, and the two bars B, having their lower ends slotted and mounted on the stud *b*, and provided with the studs working in the slot *a*, as shown.

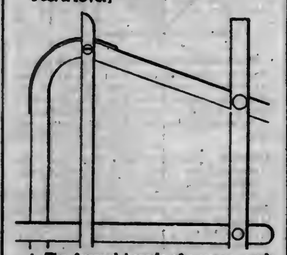
2. In a canopy-standard, the combination, substantially as shown and described, of two bars, B, swinging on a common center, and an eccentric arranged to move said bars endwise in relation to each other as they swing upon said center, for the purpose described.

3. In combination with the base A and bars B, constructed and operating as shown, the plate C, bolt E, and nut F.



176,039.

176,040. WAGON-HOUNDS. James O'Connor, Jackson, Mo., assignor of one-half his right to L. H. Davis, same place. [Filed Feb. 1, 1876.]

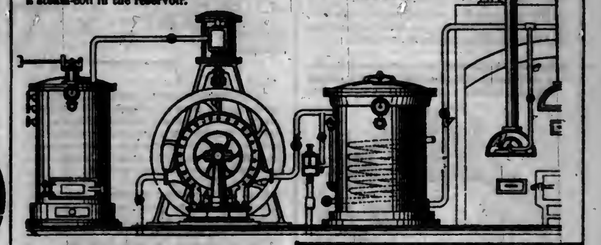


1. The forward hounds of a wagon, made of a single bar of wood, with its rear portion or transverse bar bent or curved downwardly, substantially as shown and described.

2. The combination of the forward wagon-hounds, having the bottom slider bent or curved downwardly, and the top slider, substantially as described.

176,041. MANUFACTURE OF ILLUMINATING-GAS. Geo. Olney, Brooklyn, N. Y. [Filed Mar. 4, 1876.]

Brief.—When heavy hydrocarbons are employed, they are rendered fluid by means of a steam-coil in the reservoir.



176,041.

1. The process of manufacturing illuminating-gas, which consists in injecting hydrocarbon in fine spray into a heated retort by pressure of air or gas automatically regulated upon the hydrocarbon in the reservoir, substantially as described, and for the purpose set forth.

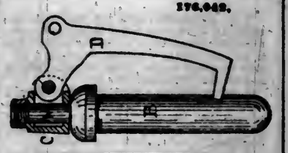
2. The combination, with a heated retort, of a forcing-engine, a pipe with an automatic check-valve, and a hydrocarbon-reservoir, substantially as and for the purposes set forth.

176,042. HORSE-CAR-FOLD ATTACHMENTS. Saml. A. Otis, Boston, Mass. [Filed Jan. 15, 1876.]

1. The combination of the pin B, hook D, and lifting chain or strap H, with the draw-bar A, substantially as described, and for the purpose set forth.

2. The combination of the pin B, staff M, swivel C, and hook D, all operating together, substantially as described, and for the purpose set forth.

176,042.



176,043. CALENDARS FOR CLOCKS AND WATCHES. M. H. Paddock, East Clarkson, N. Y. [Filed Mar. 17, 1876.]

Brief.—A calendar arranged under the dial of a watch or clock, and set in the act of winding.

1. The combination, with a time-piece, of a calendar, adapted to be operated through the winding-stem, independently of the effect of the mainspring, for the purpose described.

2. The combination, with the watch dial having perforation H, of an annular numbered calendar, F, substantially as described.

3. The combination, with the calendar devices and the winding-stem, of a self-adjusting device, which alternately makes and breaks the connection between the said calendar devices and stem, according to the direction in which the stem is turned, substantially as described.

4. The combination of the annular calendar F, having tooth *d*, with the month-wheel D, carrying an index-hand, substantially as described.

5. The disk A, located on the winding-stem, and having tooth *e*, in combination with the stop B, having slide C or its equivalent, as and for the purpose described.

6. The combination of annular internally-notched calendar F, having tooth *d*, the month-wheel E carrying an index-hand, the week-wheel D carrying an index-hand, the stop B having slide C, and the disk A attached to the winding-stem, and having tooth *e*, substantially as and for the purpose described.

7. The annular calendar F, having internal teeth or notches, in combination with the wheel D, meshing therewith, and having a stem, made square or otherwise shaped, to permit the easy setting of the annular day-calendar by hand, as described.

176,043.

176,044. FOUNTAIN-BRUSHES. Elisha G. W. Parks, Rock Falls, Ill. [Filed Feb. 16, 1876.]

Brief.—The tubular shank has lateral holes, over which is a rubber bulb, that is grasped by the hand, to force the marking liquid in the reservoir to the bristles in the act of marking.

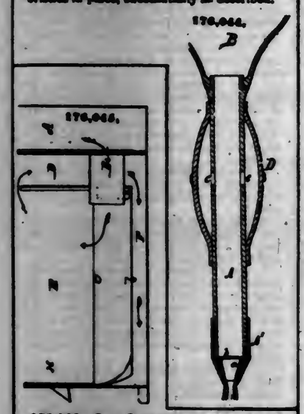
1. In combination with the handle A, terminating at its lower end in a cone-mouth, the reservoir B, bulb D, and hollow cone-wedge c, for securing the bristles and forming a conduit centrally to the brush, substantially as and for the purposes set forth.

2. In combination with the cone-shaped wedge c, having its top edge upset, as described, and handle A, the valve b, held in position, substantially as and for the purposes described.

3. In combination with the cone-shaped wedge c, valve b, and handle A, provided with holes *g c*, the rubber bulb D, whereby the flow of ink to the bristles is controlled, substantially as described.

4. The handle A, terminating in a cone-mouth, as described, in combination with a hollow cone-shaped wedge for securing the bristles in place, substantially as described.

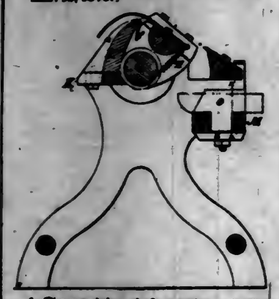
176,644.



176,645. CORE-SEPARATORS. Permenas P. Parthurst, Milford, Mass. (Filed Feb. 21, 1876.)

The combination of the head-reservoir A, washing-chamber E, and their connection-pipe B, as set forth, with the overflow-chamber D, (arranged with them as described,) and with the underflow-chamber F, opening out of the said overflow or discharge chamber D, and arranged beneath the washing-chamber E, all being substantially as specified.

176,646. MACHINES FOR CUTTING STRAPS. J. B. Plummer, Horseheads, N. Y. (Filed Mar. 13, 1876.)



1. The revolving shaft carrying a leather-carrier, provided with devices for holding the leather, in combination with a stationary knife, which cuts off a section of leather, and a series of stationary knives, which slit the cut section of leather into straps, substantially as described.

2. The rock-bar O, carrying spring-fingers *e*, and having arms upon its extremities, in combination with the cams N and the revolving shaft C, having a leather carrier or wiper-section, substantially as and for the purpose described.

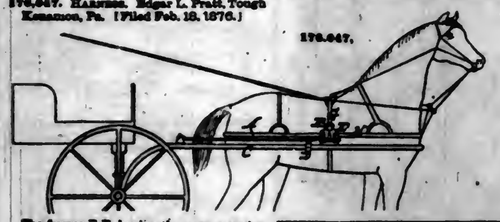
3. The combination, with the series of splitting-knives, of the spring-fingers *e* and leather-carrier, attached to the shaft and grooved transversely at *e*, as and for the purpose described.

4. The combination, with knife I, of the leather-carrier, having an adjustable portion, K, as and for the purpose described.

5. The combination, with the slotted bar M, the knives L, and the T-shaped blocks O, of the beveled or wedge-shaped block *a'* and the set-screw *d*, as and for the purpose described.

176,647. HARNESS. Edgar L. Pratt, Tough Kenamon, Pa. (Filed Feb. 18, 1876.)

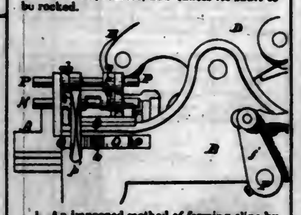
176,647.



The frames E E, having the eyes or projections *a a'*, and attached to rods A A, extending from the whiffletree and clasped to the shafts, in combination with the compound buckles F F, having the eyes or projections *f f'*, substantially as and for the purpose set forth.

176,648. MACHINES FOR FORMING CARRIAGE-CLIPS. Franklin B. Prindle, Southington, Conn. (Filed Oct. 16, 1875.)

Brief.—An intermittingly-revolving block, that has upon its periphery a series of faces, in each of which is sunk a clip-forming die, is attached to a reciprocating slide, which carries said block underneath a vertically-moving swaging roller. The shafts which carry the holding and cutting devices are journaled in said slide, and are each provided with an arm, which rises up on an inclined surface as the slide reciprocates, and causes its shaft to be rocked.



1. An improved method of forming clips by confining the ends of a blank in longitudinal position, and by means of a roller forcing the surplus metal in each direction from its longitudinal center lengthwise to the junction of its flattened and rolled portions, substantially as and for the purpose specified.

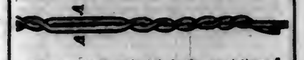
2. The die-blocks U *e e'*, constructed as shown, and arranged to reciprocate lengthwise in a horizontal direction, in combination with the lever D and roller K, which have such vertical motion as to cause said roller to impinge upon said die-block, substantially as and for the purpose shown.

3. In combination with the many-faced die-block C, pivoted within the head A, and arranged to reciprocate longitudinally with the same, the shaft N, journaled upon said head, provided with the cutters *n* and *n* and arm *n'*, and caused to oscillate within its bearings by contact of said arm with the inclined and relatively-fixed surface O, substantially as and for the purpose set forth.

4. In combination with the pivoted many-faced die-block C, the shaft P, provided with the holders *p* and *p* and arm *p'*, and caused to oscillate within its bearings by contact of said arm with the inclined and relatively-fixed surface Q, substantially as and for the purpose shown and described.

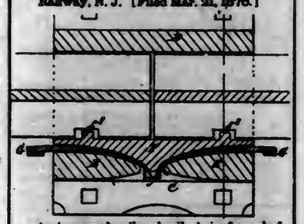
5. In combination with the pivoted die-block C, provided with the ratchet wheel C', and arranged to reciprocate with the head A, the disk K, provided with the pawl *k* and arm *k'*, the lever L *l l'*, and the stops M and M, all arranged to operate in the manner and for the purpose substantially as specified.

176,649. BALE-TIES. Stacy D. Purdy, Cleveland, Ohio. (Filed Mar. 28, 1876.)



The herein-described bale-tie, consisting of the two ends of the wire A A, twisted together and locking them, substantially in the manner and for the purpose specified.

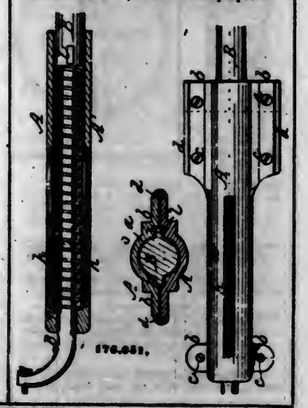
176,650. RAILROAD-RAIL CHAIRS. John L. Rahmstock and Charles W. Rahmstock, Rahway, N. J. (Filed Mar. 21, 1876.)



An improved railroad rail chair, formed of the base U, the flange D, the inclined lock-flange E, made with curved inner surfaces and with a vertical central slot, the movable plate F, made to fit between the rails and the inner surface of the lock-flange, and provided with the outer toe *f'* and the two inner toes *f'*, and the wedges G, constructed and arranged to operate in connection with each other, substantially as herein shown and described.

176,651. SPRING-BOLTS FOR USE IN FLOOD-BOLTS, &c. Lewis V. Rathbun, East Pembroke, N. Y. (Filed Mar. 10, 1876.)

Brief.—A spring-bolt works in a bisected case, which is slotted, flanged, and formed with side grooves. The bolt is provided on either side with a splice, which engages in the side groove, the open construction allowing ready escape of floor or dust, when used in floor-bolts, or for the like purposes.

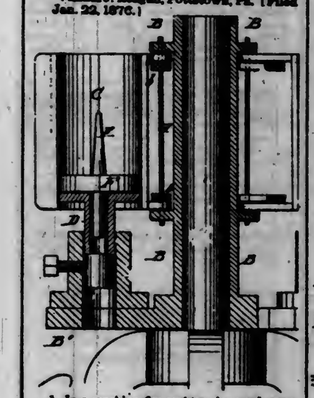


176,651.

1. The case A A, made in halves, constructed with the slots or holes *b b* A, flanges *b b*, barrel *c*, and side grooves *d d*, to receive the spring-bolt B, as and for the purpose specified.

2. The combination, with the slotted case A A, having side grooves *d d* of the bolt B, constructed with the splice *l* and the spring C, as and for the purpose specified.

176,652. MACHINES FOR MAKING CORES. William J. Reagan, Pottstown, Pa. (Filed Jan. 22, 1876.)

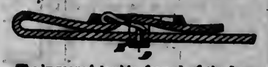


1. In a machine for making dry-sand cores the combination of a receiving stand, B, a series of sectional hinged core-boxes, U, of various sizes, and a corresponding number of adjustable pistons, D, substantially as and for the purpose described.

2. The combination, with the hinged core-box, of a sliding piston and vent-pin of equal diameter therewith, being adjustable to different height by a guide-sleeve and set-screw of the platform, to obtain cores of any required length, substantially as and for the purpose set forth.

3. The combination, with the perforated piston, of a detachable vent-pin of equal diameter therewith, and central tapering pin, for transferring the molded cores with the vent-pins to the kiln, substantially as specified.

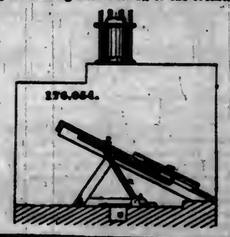
176,653. BUCKLES. Warren T. Reaser, Centralia, Wis. (Filed Jan. 29, 1876.)



The improved buckle, formed of the frame having the short tongue A pivoted to the end bar thereof, and the middle cross-bar D, having the stud B, for securing the strap and supporting the free end of the tongue, as shown and described.

176,654. ADJUSTABLE DAMS. Wm. Reed, Sewickly, Pa. (Filed Feb. 20, 1876.)

Brief.—A dam with a pivoted breast raised and lowered through the medium of levers operated by a shaft drawn longitudinally at right angles to said levers, and connected to a hydraulic engine by chains passing over wheels. Gates in the breast are opened and closed through the medium of levers operated by the raising and lowering of the breast.



176,654.

1. In a dam, a pivoted breast raised and lowered through the medium of levers operated by a shaft, D, drawn longitudinally at right angles to said levers, substantially as herein described, and for the purpose set forth.

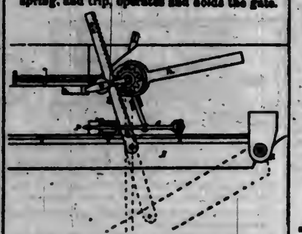
2. In a dam, a breast provided with gates which are opened and closed through the medium of levers made operative by the raising and lowering of the breast of the dam, substantially as herein described and for the purpose set forth.

3. In a dam, a pivoted breast raised and lowered through the medium of levers and shaft operated by a hydraulic engine, substantially as herein described and for the purpose set forth.

4. In a dam, the combination of the pivoted breast B, lever O, shaft D, chains *s*, wheel *f*, and hydraulic engine *p*, arranged and operating with relation to each other, substantially as herein described and for the purpose set forth.

176,655. CANAL-LOCKS. William Reed, Sewickly, Pa. (Filed Feb. 20, 1876.)

Brief.—The gate has a chamber for buoying or loading it by introducing air or water therein, and is pivoted through a hollow pintle or shaft. The edges of the gate are provided with grooves for plank facing. A rack, with wheel, spring, and trip, operates and holds the gate.



1. A gate for locks, having a chamber for buoying or loading it by introducing air or water therein, and pivoted through the medium of a hollow pintle or shaft, substantially as herein described, and for the purpose set forth.

2. A metallic gate for locks, having a chamber for buoying or loading it by introducing therein water or air, provided with grooves for the reception of planking for facing it, substantially as herein described, and for the purpose set forth.

3. The rack h, wheel i, spring n, and trip o, in combination with the gate B, substantially as herein described, and for the purpose set forth.

176,656. STEAM-RADIATORS. John R. Reed, Westfield, Mass. (Filed Jan. 29, 1876.)

Brief.—Water of condensation fills the depressed portion of the section, and by means of it and the downward projections of the diaphragms, entering steam is compelled to make an entire circuit about the diaphragms to reach the exit.



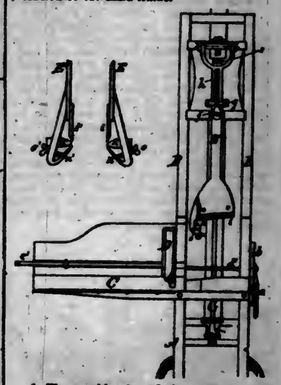
1. The combination of a series of radiator-sections having internal diaphragms with downward projections, and pipes connecting the said sections, arranged on alternate sides of the said downward projections of the said diaphragms, substantially as herein before set forth.

2. A steam-radiator section having an internal diaphragm, divided in its middle portion, and inclined downward toward the said middle portion, either in the whole or part of its length, to more readily deliver the water of condensation, substantially as herein before set forth.

3. A steam-radiator section having an internal diaphragm divided in its middle portion, substantially as and for the purpose described, the lower ends of the parts of the said divided diaphragm extending down to the level of, or below, the lower portion of the aperture, for the delivery of the water of condensation, substantially as herein before set forth.

176,657. TENONING-MACHINES. J. G. Keith, Allegheny, Pa. (Filed Mar. 16, 1876.)

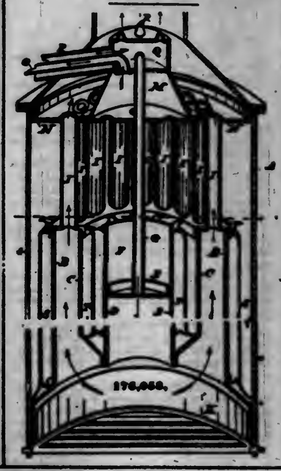
Brief.—The depth of cut to be made is regulated by two laterally-adjustable spring pressure-feet, attached to the knife-bearing arms immediately below the edges of the knives. A horizontal rod, adjustable by a thumb-nut and hook-bolt, determines the length of tenon, and equalizes the same when several are to be cut of a size. The width of the tenon is gaged, and the knives prevented from spreading while cutting, by adjusting-screws operating through the knife-bearing arms, in connection with a link embracing both of said arms, and springs attached to the inner parts of the arms. The timber is locked in position by means of a vise, adjustable by a pawl-lever through a slot in an extension of the main frame.



1. The combination of the set-screws *o o'* with the spring-pressers *n n'* to adjust the depth of cut, as specified.

2. The combination with arms E E', respectively, of the springs *s s'*, set-screw *f f'*, link *g*, and lever *h*, all operating substantially as described.

3. In combination with table C, the vise D, operated by lever *a* through extension *c* and slot *s*, as and for the purpose set forth.



176,658.

176,060. STEAM-BOILERS. W. S. Reynolds, La Fayette, Ind. [Filed Sept. 13, 1875.]

1. In combination with a boiler constructed with annular water-chambers, the septums S T, having their upper and lower edges serrated and bent alternately inward and outward so as to support the septum in the central part of the annular water-chambers, and allow the water to freely circulate above and below, as shown, and for the purposes set forth and described.

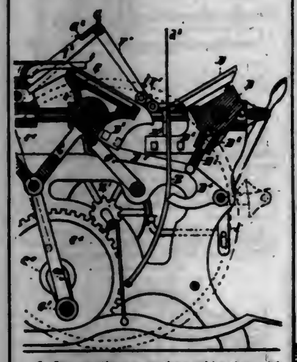
2. In combination with a boiler constructed, as shown, with an exhaust-chamber, Q, the live-steam pipe O, arranged to pass through the exhaust-steam pipe P, and connected with the live-steam space M of the boiler, as and for the purposes set forth and described.

3. Eddy-chamber F in combination with duplex water-jackets A B and C D, and water-pipes L and L', substantially as shown, and for the purposes described.

4. Circulating water-pipes L and L', in combination with the cooler water compartments in the duplex water-jackets A B and C D, substantially as shown, and for the purposes described.

176,059. PRINTING-PRESSES. C. Richards, Cleveland, Ohio. [Filed Dec. 27, 1875.]

Brief.—The bed has its bearings in hubs sliding on rods on the side of the frame. It is reciprocated by a toggle and crank, and oscillated by a link connecting it to a rock-shaft. To the back of the platen is fixed a small cylinder, the piston in which is linked to the bed, by which means the platen is oscillated, a rocking step steadying it to receive the impression. The tricket-bar is connected by a lock-hinge to a spring having its lower end secured to the frame. On the shaft of the inking-roller arms is placed an adjustable spiral-spring, by which is regulated the pressure of the rollers on the form, to which they pass from stationary guideways on the sides of the lock-disk to ways extending from the upper end of the rocking bed.



1. In a printing-press, the combination, with rods B, of slides provided with bolts that serve as bearings for the actuating-shaft of the platen, substantially as and for the purpose described.

2. The combination, with the bed C, rods B, and toggle-lever C' C², of the arms C², attached to a rock-shaft journaled in the press-frame, substantially as and for the purpose specified.

3. The combination, with the oscillating platen D, of the lock-plate D', arms D², and slides C', substantially as and for the purpose specified.

4. The combination of the bed C and its bearings, with the guide-rods B and the arm or link C², substantially as and for the purpose shown.

5. The combination of the frame A, the bed C and its bearings, the arm C², the toggle C' C², the platen C', and the crank of any suitable driving-shaft, substantially as and for the purpose shown.

6. In combination with the oscillating bed or platen of a printing-press, a cylinder, D², and its piston D', operated by suitable mechanism, for imparting a reciprocating motion to the said piston, substantially as and for the purpose described.

7. The combination of the sliding collar c', link D', cylinder and piston D² D', and the locking-piece D³, substantially as and for the purpose shown.

8. In combination with the tricket-bar E', the spring B provided with the lock-joint d', substantially as and for the purpose described.

9. The combination of the shaft to which are attached the arms carrying the inking-rollers, of one or more springs G², and an adjusting-collar, whereby the tension of the spring may be regulated as desired, substantially as and for the purpose specified.

10. The combination, with the bed C provided with extended ways f', of the plate F and stationary ways, arranged outside of the ways f', whereby the latter may pass between and below the stationary ways, as the bed is actuated, substantially as and for the purpose specified.

176,060. DEVICES FOR WINDING CLOCKS. James N. Rice, Pittston, Pa., assignor of one-half his right to H. J. Saylor, same place. [Filed Mar. 30, 1876.]

Brief.—A winding-wheel upon an independent pinion-shaft, between the plates and above the main wheel-shaft, the winding power being transferred through a supplementary wheel to the main wheel.



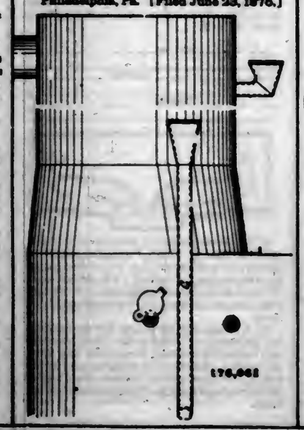
1. The combination, with the main arbor of a clock, of a winding-drum, arranged on a pinion-shaft between the clock-frames or plates and suitable intervening gearing, whereby the mainspring may be wound by the rotation of the winding-drum, substantially as and for the purpose specified.

2. The combination, with a pinion-shaft, arranged between the clock-frames, of a revolving drum, formed with a grooved periphery for the reception of a cord, substantially as and for the purpose specified.

3. The combination, with the main arbor, having a main winding-wheel rigidly secured thereto, of a winding-drum, rigidly attached to an independent pinion-shaft, and a spring-click, to lock the drum to a ratchet on the pinion-shaft when the drum is turned in one direction, substantially as and for the purpose described.

4. The combination, with the pinion-shaft, carrying the winding-drum, said pinion-shaft being arranged between the clock-frames, of a recoil-spring, one end of which is secured to the pinion-shaft, while the other end of the spring is secured to the frame, substantially as and for the purpose specified.

176,061. ATTACHMENTS FOR SUPPLYING AIR TO FIRE-BOXES. J. Richards and J. Meehl, Philadelphia, Pa. [Filed June 23, 1876.]

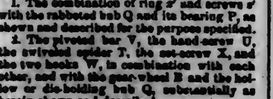


176,061

The combination of the longitudinal pipes G G, having funnel-shaped mouths e at their front ends, with the sides of the fire-box, for conveying air into the fire-box, above the arch to ignite the smoke and gas before they enter the flues, substantially as set forth.

176,062. BOX-FASTENERS. Cooper H. Biggs, Drake, Mo. [Filed Mar. 7, 1876.]

Brief.—A recess in the center of the lid passes over a lug extending upward into it from a middle partition of the box. A bolt passing along the under side of the cover passes through the lug and holds the cover in place. A seal must first be broken before this bolt can be withdrawn.



The combination of lug G, bolt I, seal plate K, and lid F, substantially as set forth.

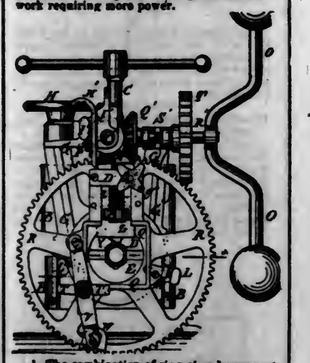
176,063. RANGE OR STOVE OVENS. M. H. Roberts, Philadelphia, Pa. [Filed Aug. 2, 1875.]



An externally-heated oven for cooking purposes, in combination with partition plate A, door E, and registers F F' above and below the said plate, to warm the air of a room by circulating it through the oven, substantially as set forth

176,064. SCREW-CUTTING MACHINES. C. W. Roberts, Cohoes, N. Y., assignor to N. W. Frost, same place. [Filed Oct. 29, 1875.]

Brief.—A large gear-wheel carries most of the mechanism, and is mounted in a frame separate from and adjustably attached to the frame which carries the holding-jaws. A pivoted lever carrying a screw for forcing the die on the work. A screw, operated through worm-gears by the spider striking against the stop, for feeding in the cutting-off tool. The machine may be operated direct for quick work, and through suitable gears for slow work requiring more power.



1. The combination of ring a' and screws a with the rabbeted bab Q and its bearing P, as shown and described for the purpose specified.

2. The pivoted bar V, the hand-screw U, the swiveled spider T, the set-screw X, and the two hooks W, in combination with each other, and with the gear-wheel E and the hollow or die-holding bab Q, substantially as herein shown and described.

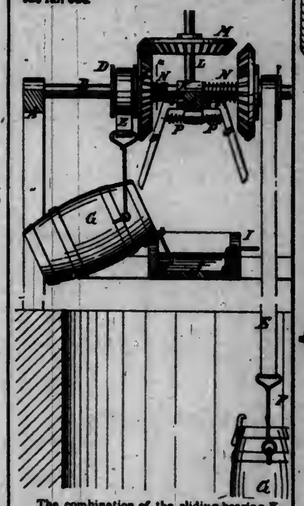
3. The combination of the sliding plate E, the knife Y, the stationary nut B', the swiveled screw O', the worm-gearing B' F', the box or block D', the spider G', and the adjustable stop-bar H', with the gear-wheel E and the vise D E E, substantially as herein shown and described.

4. The combination of the hand-screw H, the grooved projections J M M, the tongues L O O, and the set-screws n' n', with the stationary frame B and with the frame G that carries the operating mechanism, substantially as herein shown and described.

5. The adjustable pipe-holder K' and the set-screws L' L', in combination with the square cavity of the hub Q of the gear-wheel E, and with the vise D E E, substantially as herein shown and described.

176,065. WINDLASS WATER-ELEVATORS. E. M. Roberds, Hutchinson, Kans. [Filed Mar. 13, 1876.]

Brief.—Upon the rise of a bucket the toe of the lever upon that side coils up the spring. As the water is discharged the lever is tripped, and releasing the spring, the recoil of which throws the sliding bearing over, brings the power-wheel into gear with the other bevel-wheel, thereby reversing the motion of the shaft, lowering the empty bucket and raising the full one.

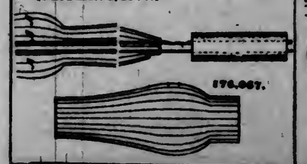


The combination of the sliding-bearing E, the spiral springs N, and the levers O, provided with the toes o' and the spiral springs P, with the horizontal shaft B that carries the gear-wheels C and the spools D, and the vertical shaft L that carries the driving gear-wheel M, for raising and lowering the buckets G alternately by the continuous movement of the wheel M in the same direction, substantially as herein shown and described.

176,066. PROCESSES FOR ANNEALING GLASS. George B. Rogers, Chelsea, Mass. [Filed Jan. 27, 1876.]

The process herein described for annealing glass, consisting in subjecting the articles to be annealed to the action of superheated steam in a close receiver.

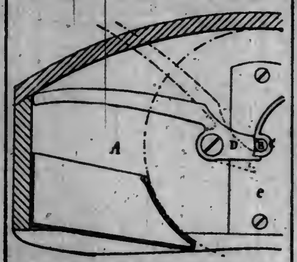
176,067. PROCESSES FOR TOUGHENING GLASS. George B. Rogers, Chelsea, Mass. [Filed Mar. 2, 1876.]



176,067.

The process herein described for toughening glass, consisting substantially in supporting a manufactured article of glass on an infusible open-work tool or holder, heating it to softness, and plunging it while in the soft condition into a cooling medium, the article being supported and prevented from losing its shape during the entire process by the open-work tool, substantially as described.

176,068. CARPET-SWEEPERS. F. H. Ropes, Milton, assignor to J. J. Haley, Newton, and H. O. Morse, Boston, Mass.; said Haley and Morse assignors to C. W. Bennett, Newton, Mass. [Filed June 27, 1874.]

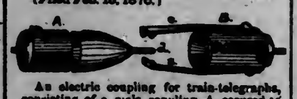


1. The combination, in a carpet-sweeper, of the case A, brush B, open bearing C, prolonged to form a spindle-guide, and the locking-piece D, substantially as described.

2. The pivoted locking-lever D, serving to open and to close the bearing C, and also as a guide in replacing the spindle B.

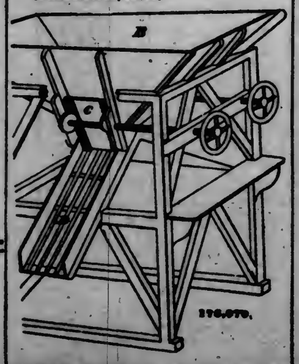
3. In combination with the end-board and brush of a carpet-sweeper, the plate c, having formed thereon an open bearing at right angles to the end board to which it is secured, and a locking-lever closing said bearing rigidly, substantially as described.

176,069. COUPLINGS FOR TRAIN-TELEGRAPHS. Andrew Ryder, Oakland, Cal. [Filed Feb. 16, 1876.]



An electric coupling for train-telegraphs, consisting of a male coupling, A, secured to one wire, and a female coupling, B, secured to the other, the former one having a conical or contracted head, and a projecting nose or pin, d, adapted to enter a recess in the end of the female coupling, and this latter one, B, having jaws e e, or equivalent fastenings of an elastic nature, to engage with the said male part A, and hold the two together, both constructed and operating substantially as herein set forth.

176,070. COAL SCREENS AND CHUTES. B. La Count Satterfield, Charles L. Crissman, and James McKinley, San Francisco, Cal. [Filed Nov. 15, 1875.]

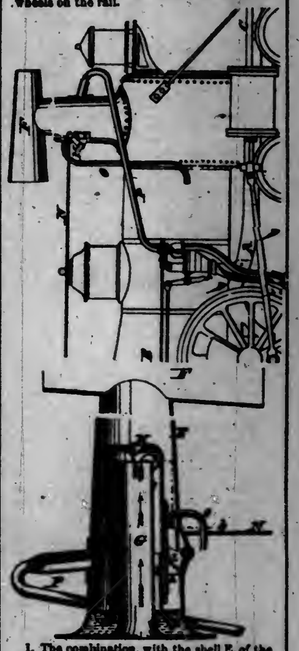


176,070.

The large reservoir B, for the reception of the unscreened coal, provided with two or more gates or doors, O, at the bottom, in combination with two or more inclined screens and chutes, D, leading in different directions, the several parts constructed and arranged to operate in the manner substantially as and for the purpose specified.

176,071. SPARK AND DUST ARRESTERS FOR LOCOMOTIVES. James N. Bowking, Philadelphia, Pa. [Filed Oct. 23, 1875.]

Brief.—The unconsumed products of combustion, passing through to the uptake, are forced through a water-reservoir and trapped. By means of a perforated pipe the water is let off from the trap, and the accumulated sparks and cinders are used under the driving-wheels on the rail.



1. The combination, with the shell E, of the central flue G, the deflecting hood H, and the adjustable annular funnel I, substantially as and for the purposes set forth.

2. The combination of the water-chamber J, the supply-pipe O, and the discharge-pipes P, the shell E, flue G, and deflecting hood or funnel H I, as and for the purposes set forth.

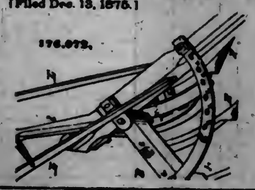
3. The reservoirs U, provided with perforated discharge-valves W, in combination with the dust-arresting apparatus, constructed to operate substantially as herein set forth.

4. The eccentric nozzle Q, in combination with the discharge-pipe P, as and for the purposes set forth.

5. The frusto-conical cowl F, in combination with the shell E, flue G, and deflecting hood and funnel H I, substantially as and for the purposes set forth.

176,072. COMBINED PLOWS AND HARROWS. John L. Scarbrough, Fayetteville, Ala. [Filed Dec. 13, 1875.]

176,072.



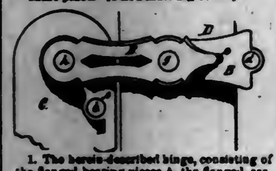
In a combined plow and cultivator, the adjustable hinged harrow-beam B, with its teeth B B, perforated adjustable arc C, and beam A, in combination with the adjustable hinged and sleded standard G, plow-point F, and adjustable abutment K, substantially as set forth and described.

176,072. LAMP-COLLARS. B. B. Schneider, New York, N. Y. [Filed Mar. 11, 1876.]



The lamp-collar A provided with grooves passing through the screw-thread into which the cap carrying the burner is screwed, as and for the purpose described.

176,074. STEP-LADDER HINGES. Edward J. Schneider, Dayton, Ohio; assignor of one-third his right to Michael Schneider, same place. [Filed Mar. 24, 1876.]



1. The herein-described hinge, consisting of the flanged bearing-pieces A, the flange1, serrated, and slotted pieces B, and the serrated connecting pieces E, when arranged and connected in the manner and for the purpose specified.

2. The combination, with the bars C and D, of a step-ladder of the herein-described hinge, constructed and arranged substantially in the manner and for the purpose specified.

176,075. COMBINED DATING AND CANCELING STAMPS. Joseph J. Scholfield, Salt Lake City, Utah. [Filed Feb. 6, 1876.]



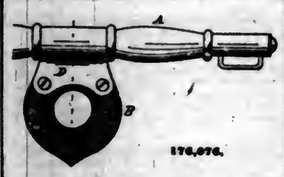
1. The combined simultaneously acting stamp and stamp-canceling device, consisting of the combination of stamp A, rigidly attached shaft C, having collar *b*, the spiral spring E, hollow detachable handle D D', the interiorly screw-threaded tube F, made in one piece with D', and the screw-threaded shaft G, carrying a rotary canceling device, substantially as described.

2. The combination, with the interiorly screw-threaded tube F, attached to the vertically-moving handle, of the screw-threaded shaft G, having collar *d*, the recessed bearing-plates H H, and the disks I and J, as and for the purpose described.

3. The combination, with the disk I, attached to shaft G, and the pins *f*, detachably fixed in the disk, of the loose disk J, as and for the purpose described.

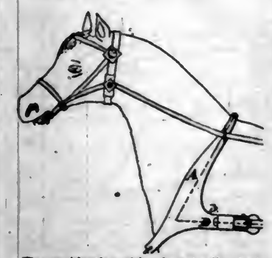
176,076. NECK-YOKES. Paul H. Schuh, Wayland, Mich., assignor of one-half his right to W. H. Schuh, same place. [Filed Jan. 7, 1876.]

The combination, with a neck-yoke A, of the separate leather band C placed adjacent to the wood, the metallic band D covering said leather band, and the pole-ring B, composed of short strips of leather, and united between the ends of the leather C and metallic band D, substantially as shown and described.



176,076.

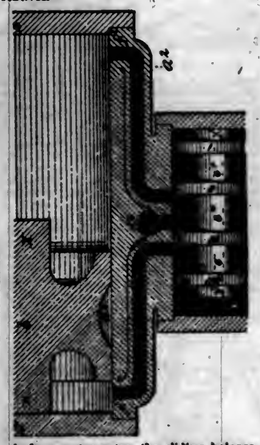
176,077. HORSE-COLLARS. August Seitz, New York, N. Y., assignor to himself and Henry Beckmann, same place. [Filed Feb. 4, 1876.]



The combination with a breast-collar, body A, provided with adjusting buckle at the top, the elongated ears D attached at an angle less than a right angle to the body, substantially as described.

176,078. WATER-METERS. A. Sequeira, Hartford, Conn. [Filed Jan. 24, 1876.]

Brief.—A cylinder closed at each end contains a vibrating piston, which plays back and forth alternately without the use of an actuating-rod, in conjunction with compound valves working in their respective chambers, and acting independently of mechanical incentives.



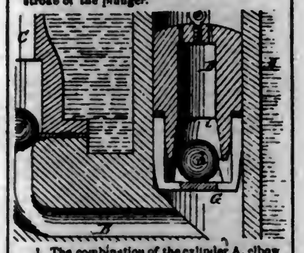
1. In a water-meter, the sliding balance-valve *e*, with its heads I II III IIII, and detents *s*, operating in and combined with chamber *c*, substantially as and for the purpose set forth.

2. The piston *b*, having detents *s*, and operating in chamber *c*, in combination with valve *e*, having lug h, substantially as and for the purpose set forth.

3. The combination of cylinder *c*, having piston *b*, provided with detents *s*, and valve-chamber *a*, having the valve *e*, lug h, with chamber *a*, having valve *e*, substantially as and for the purpose set forth.

176,079. PUMPS. Thomas K. Shepherd, Ottumwa, Iowa. [Filed Mar. 11, 1876.]

Brief.—The plunger is perforated at the top, which allows the water to pass down through it. A valve-seat and cage depend from the plunger. In the cage is a rubber ball-valve, to fit and close the valve-seat at the downward stroke of the plunger.

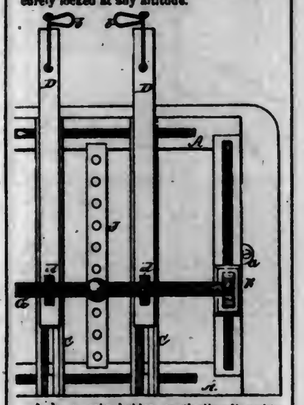


1. The combination of the cylinder A, elbow B, pump-stock C, horizontal rubber valve-seat *a*, forming the joint-packing, and glass ball-valve *b*, substantially as herein set forth.

2. The piston or plunger D, with openings on top, and provided with valve-seat *i*, cage G, and rubber ball-valve *h*, in combination with the cylinder A, as and for the purposes herein set forth.

176,080. REIN-HOLDERS. Christian Siebke, Wheeling, W. Va. [Filed Sept. 22, 1875.]

Brief.—Reins may be elevated or depressed, separated or brought together at will, and securely locked at any altitude.



1. In a rein-holder vertically-adjustable slides carrying the reins and sliding laterally-movable standards, substantially for the purposes herein set forth.

2. The combination of the slotted frame A B, laterally-movable standards C C, and vertically-adjustable slides D D, with the catches or holders *b b* at their upper ends, substantially as and for the purposes herein set forth.

3. The combination of the slides D D, with projections *d d*, the rod or bar G, slides E E, spring-pin I, and perforated bar J, substantially as and for the purposes herein set forth.

176,081. METHODS AND MACHINES FOR BREAKING LOADED SHELL AND SHOT. A. J. Simpson, Washington, D. C. [Filed Mar. 9, 1876.]

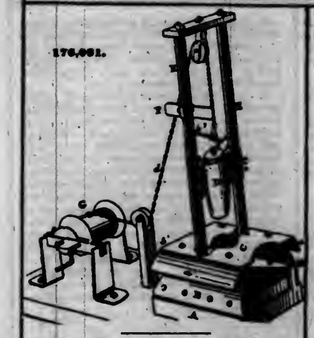
1. The method of breaking loaded shell and case-shot under water by mechanism, substantially as described.

2. A base-anvil, supplied with the proper quantity of water, in combination with a drop-hammer, substantially as and for the purpose described.

3. The portable bomb-proof C, in combination with plates B and base-anvil A, substantially as and for the purposes described.

4. The stop-bars *e*, in combination with the hammer D and base-anvil A, substantially as and for the purposes described.

176,082.



176,083. VEHICLE-SPRINGS. C. C. Smith, Stockbridge, Vt. [Filed Dec. 21, 1875.]



The combination of elliptical springs B B' and U-shaped auxiliary springs C C', forming the direct foundation of the wagon-body, and to which only said body is bolted.

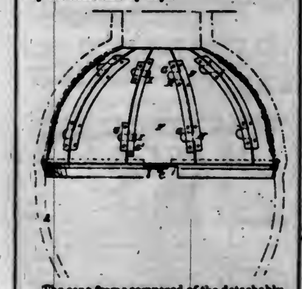
176,085. BELT-BUCKLE PLATES. Joseph B. Smith, Waterbury, Conn., assignor to the Waterbury Button Company, same place. [Filed Mar. 2, 1876.]



A belt-buckle plate provided with the recess adapted to receive the bell, substantially as shown and described.

176,084. DOME-SUPPORTS FOR CISTERNS. Adam Snider, Pierceton, Ind. [Filed Mar. 6, 1876.]

Brief.—A dome-shaped frame for holding up the arched portion of cement cisterns during construction, consisting of a detachable base-ring and removable sections, provided with tongues and loops, and secured together by the same and by keys.



The cone-frame composed of the detachably-connected base-ring A and the detachable cone-sections F, having alternate tongues H and loops G, also the guard-loops G' and keys I, substantially as specified.

176,085. LAMPS. Arnold Soubeur, Seraing, Belgium. [Filed Jan. 15, 1876.]



1. The combination of the detachable wick-tube F, with the reservoir D, screw-ring *d*, and the cap or cover H, adapted to the said wick-tube and reservoir, as and for the purpose set forth.

2. The combination of the wick-tube F and its sleeve G with the rod *g* attached thereto, passing to the outside of the reservoir, and having a regulating-nut, *g'*, adapted to its threaded end, all as set forth.

176,086. HORSE-COLLARS. J. C. Spooner, Houlton, Me. [Filed Jan. 21, 1876.]



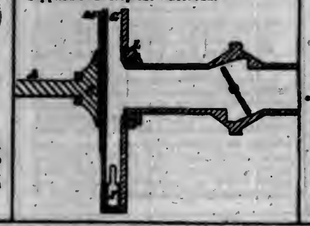
1. In the roll E of a horse-collar, the two parallel rows of stitching *a* and *b*, made a suitable distance apart to form a natural channel, without blocking, for holding the hame, substantially as herein set forth.

2. The center-piece D, inserted and fastened in the roll E, in combination with the sides A B, having tongues or points C, substantially as and for the purposes herein set forth.

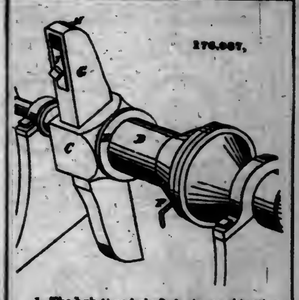
3. The curved row of stitching *c*, forming the depression *d* at the top on each side of the collar, as and for the purposes herein set forth.

176,087. WATER-WHEELS. M. M. Stapley, San Francisco, Cal. [Filed Jan. 8, 1876.]

Brief.—The centrifugal force of a stream of water under a considerable head, and escaping from the periphery of the wheel, causes it to rotate. There is also an arrangement for regulating the size of the discharge-opening, so as to proportion it to the amounts of water applied and keep the wheel full.



176,088.

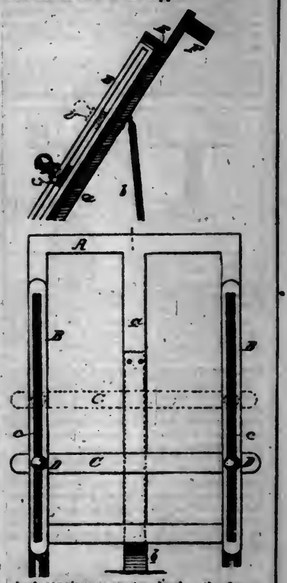


1. The hub U and shaft A, in combination with the independent removable arms formed of the box G, constructed as shown, and fixed within the hub, substantially as herein described.

2. The elongated box G, forming the arms of a wheel, perforated in the center of one side, and secured within the hubs U by the notch I, and the wedge M, said box being perforated at opposite corners, and having the adjustable gates J to regulate the flow of water, substantially as described.

176,089. COPY-HOLDERS. A. B. Stapler, Wilmington, Del. [Filed Mar. 20, 1876.]

Brief.—The manuscript to be copied is inserted in the channels between the face of the frame and the slotted projections. As the copying advances the adjustable line-indicator is slid downward. The top of the manuscript sheet, if necessary, may be folded over the top of the frame and passed into the guide, so that it will not bend over to the front and obstruct the view of the copyist.

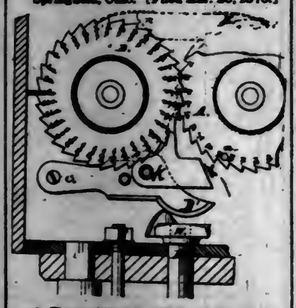


1. A copying apparatus, having the frame A, the projections B with slots *c*, the marker or line-indicator C sliding in the slots *c*, and the channels E, operating as described.

2. In a copying-easel, the combination of the frame A, the doubly-slotted projections B, the line-indicator C, and the knobs or set-screws D, operating substantially as described.

3. In a copying-easel, the combination of the frame A, having standard *b*, the doubly-slotted projections B, the line indicator or marker C, the set-screws D, and the guide F, operating substantially as described.

176,089. GRAIN-REGISTERS. H. Stephen, Springfield, Ohio. [Filed Mar. 20, 1876.]



1. The combination, with the stationary center shaft H and cam W, of a revolving lever, D, and revolving registering apparatus J, with the cam B, for operating the registering apparatus in either direction, as substantially set forth.

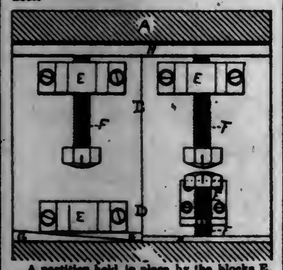
2. The combination, with the ratchet-wheel A, of the lever C, cam B, and arm K, having weighted end K', substantially as described.

3. The combination, with shaft H, having shoulder A, of shoulder-block V and screw d, substantially as set forth.

4. The combination, with actuating finger or pawl a and lever C, of cam B, adapted to operating the register on its movement in either direction, substantially as set forth.

176,090. MOVABLE PARTITIONS. Sylvester N. Stewart, Philadelphia, Pa. [Filed Mar. 20, 1876.]

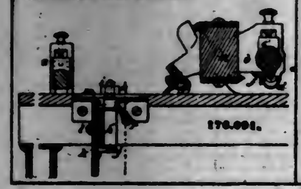
Brief.—A movable partition held in place by screw-bolts, which pass through cleats or blocks screwed to the top and bottom of each section, and bearing against strips of wood or wedges, to prevent injury to the ceiling or floor.



A partition held in place by the blocks E, the screw-bolts F, the wedges G, and the bridge H, substantially as described.

176,091. PLANING-MACHINES. H. D. Stover, New York, N. Y. [Filed Feb. 26, 1876.]

Brief.—Pressure is applied upon all portions of the lumber as it passes beneath an adjustable sectional metallic pressure-roller, and said roller is caused to accommodate itself to any inequalities in the thickness of the lumber by means of an adjustable external elastic backing-roll, supported in suitable bearings immediately above the pressure-roll. The matcher-heads are laterally adjustable for any width of lumber, vertically adjustable for operating upon the same, and capable of being lowered entirely beneath the bed-plate of the machine when not in use.



176,091.

1. A pressure-roller composed of a series of movable metallic rings mounted upon a suitable support, in combination with an external elastic backing-roll, e, as and for the purpose specified.

2. A pressure-roller composed of a series of movable rings, in combination with an elastic and rotating roller, as shown and described.

3. A pressure-roller composed of a series of movable rings, d d d, mounted upon a rod, the internal diameter of the rings being greater than the diameter of the rod, in combination with the bar f and elastic roll e, as and for the purpose specified.

4. In an adjustable pressure-bar for planing-machine, the combination of the main portion of the bar g'', adjustable plate g', which form the bearing for the roller, and the scrapers for cleaning it, and the roll g, all substantially as and for the purpose specified.

5. The vertically-sliding frame h, carrying the latterly-sliding frame j and matching devices, in combination with a pivoted hand-lever for moving the same, substantially in the manner shown and described.

6. The vertically-sliding frame h, carrying the matching devices, and provided with studs n n, in combination with a hinged stop or pawl, n, as and for the purpose specified.

7. The eccentric shaft p, provided with a slot, as described, in combination with the pawl n and pin i, as and for the purpose specified.

176,092. PREPARATION OF FOOD. William D. Stone, London, England. [Filed June 12, 1875.]

Brief.—Describes a compound of seconds flour, lentil-flour, barley, prepared groats, rye, maize, rice, calcium carbonate, chloride of sodium.

As a new article of manufacture for food, the flour or meal of various nutritive grains mixed with mineral salts, whereby the composition shall contain albumen, gluten, fibrine, starch, sugar, gum, oils, cellulose, and mineral salts, substantially as described.

176,093. CAR-TRUCKS. David Sutherland, Detroit, Mich. [Filed Oct. 5, 1875.]

The truss-struts B of a swing-beam truck, cast with the lateral bracket c, substantially as and for the purpose set forth.

176,094. MANUFACTURE OF BOOTS AND SHOES. D. A. Sutherland, Lynn, Mass., assignor to himself and J. N. Smith, same place. [Filed Feb. 7, 1876.]

The seam portions c c, arranged on the outer side of the pieces C C', and covered with the stay S, sewed to both of said parts C C', said stay being provided with the grooves g and fillets h i, and the edges of the stay being folded, as shown, for the reception of the seam portions c c, all in the manner described.

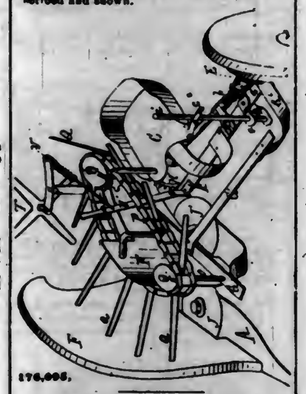
176,095. CORN-HARVESTERS. Wm. H. Taylor, Toledo, Ohio, assignor of one-fourth his right to Zach Taylor, Detroit, Mich. [Filed June 17, 1876.]

1. In a corn-harvester, substantially as described, the combination with the shafts, I O, carrying the flanged wheels N N' of the endless chain P, having the ball-crank arms pivoted between its links, and the guide-plate F, situated on one side of the path of the endless chain, and next to the cutters, leaving the opposite side free, whereby the said ball-crank can be folded in against the chain on that side, substantially as described and shown.

2. In a corn-harvester, substantially as described, the combination of the endless chain P, having the ball-crank arms pivoted between its links, the guide-plate F', and the post B, when the several parts operate substantially as described and shown.

3. In a corn-harvester, substantially as described, the combination of the angular throat, having projecting sides, the revolving cutting-disks situated in the rear of the mouth of the said angular throat, the endless chain, having the pivoted ball-crank arms, and the guide-plate situated on one side of the angular throat and on one side of the path of the said endless chain, leaving the opposite side free, when the several parts are constructed and arranged to operate substantially as described and shown.

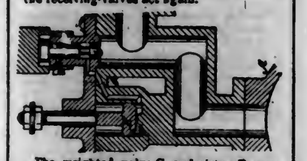
4. In a corn-harvester, substantially as described, the combination of the support S, crossed arms T, latch-bolt V, projected by a spring and lever, V', when the several parts are constructed and arranged with relation to the cutting disks and carrying-arms, as described and shown.



176,095.

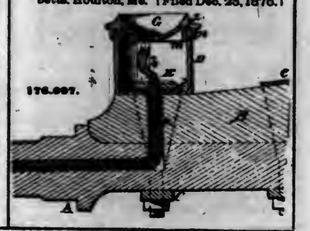
176,096. RELIEF APPARATUS FOR AIR-COMPRESSORS. Wm. F. Tallman, Minerville, N. Y. [Filed Feb. 21, 1876.]

Brief.—When the pressure in the receiver is too great, the weighted valve will rise and admit air under the piston, causing it to rise and close the receiving-valves of the compressor, so that they neither receive nor discharge air until the air-pressure falls below the required pressure, when the weighted valve will fall and allow the air to escape from under the piston, which will descend and let the receiving-valves act again.



The weighted valve C and piston E, combined with the receiving valves or other valve of an air-compressor, A, substantially in the manner described, for regulating the pressure, as specified.

176,097. AXLE-LUBRICATORS. C. H Tibbetts, Houlton, Me. [Filed Dec. 23, 1876.]

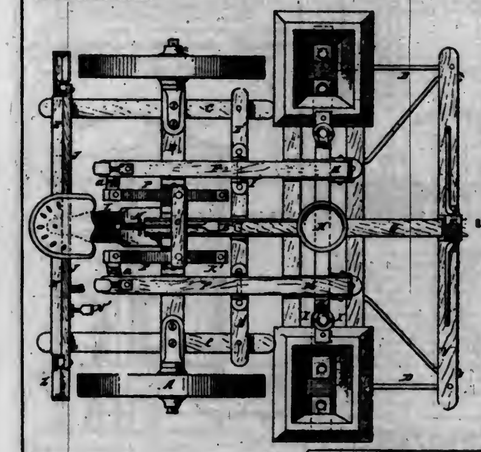


176,097.

The hollow screw F, provided with a head, in combination with the oil-cup D, washer d, perforated axle A, wick h, and oil-passage f, all substantially as and for the purposes herein set forth.

176,098. CORN-PLANTING MACHINES. Jas. F. Trader and Samuel R. Collier, Xenia, Ohio. [Filed Sept. 6, 1876.]

Brief.—The runner-frame is balanced upon foot-levers centrally pivoted thereto. The draft-tongue is secured at the rear in slot in the seat-support, and in brackets on the cross-beams, the front end vibrating in the clevis on the runner-frame.

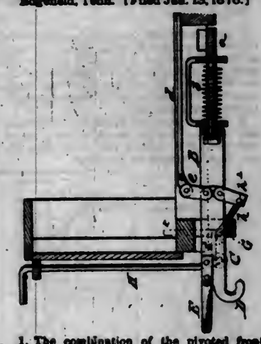


176,098.

1. In a corn-planter, the combination of the main frame, mounted on the driving-wheels, the runner-frame D S, connected together by means of levers F and M, pivoted centrally to the runner-frame, substantially as herein set forth.

2. In combination with the main frame and the runner-frame S D, provided with the strapped clevis T, the levers E M, pivoted centrally to the runner-frame, and the tongue G, substantially as and for the object set forth.

176,099. CAR-COUPLINGS. Gabriel Utley Edgefield, Tenn. [Filed Jan. 13, 1876.]



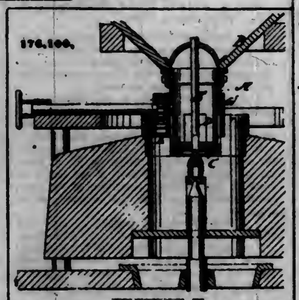
1. The combination of the pivoted front draw-bar C, link e, and spring d, for the purposes herein set forth.

2. The combination of the pivoted front draw-bar C, link b', shaft G, having arms b i k, and the rod H, all substantially as and for the purposes herein set forth.

3. The combination of the jointed draw-bar B C, hook D, clevis E, link e, spring d, link b', shaft G, with arms b i k, and the rod H, all constructed substantially as and for the purposes herein described.

176,100. MULL-FEEDING APPARATUS. Robt. B. Van Omer, Millintown, Pa., assignor to himself and Jos. N. Van Omer. [Filed Feb. 28, 1876.]

The combination of stationary tube A, having openings D in the sides of the lower part, rotary disk C in the bottom of said tube, and the vertically-adjusting tube G outside of the tube A, substantially as specified.



176,100.

176,101. SEWING-MACHINES FOR STITCHING STRAW BRAID. William Walker, Brooklyn, N. Y., assignor of one-half his right to Geo. H. Wooster, New York, N. Y. [Filed Jan. 3, 1876.]

Brief.—The straw braids are passed through guides, so arranged as to feed them to the presser (which also acts as a feed) with their edges superimposed, the face of the presser being in two planes, to accommodate it to different thicknesses of the material. A circular oscillating needle carries its thread in and out of braid on the lower side, and a shuttle passing through the path of the needle makes a lock-stitch.

1. A supporting-bed for the material being sewed, and a curved circularly-moving eye-pointed perforating-needle adapted to be projected from the under side of the supporting-bed and through the material being sewed, in combination with a shuttle, and with mechanism to move it through the circular or ring-like needle to link the loop of needle-thread, substantially as described.

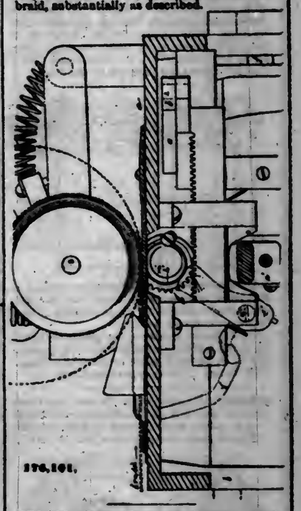
2. The combination, with the support of a rotating feeding-wheel and presser, provided with a grooved periphery and with a toothed peripherical surface, adapted to project beyond the grooved portion of the wheel, whereby the wheel is permitted to properly hold and feed superimposed braids, substantially as described.

3. A curved circularly-moving needle, in combination with a needle-supporter, adapted to operate on the convex surface of the needle during the time it penetrates the fabric, substantially as described.

4. A circular and rotary reciprocating eye-pointed perforating-needle, in combination with a shuttle-race located within the circular path in which the needle moves, and provided with a raceway located eccentrically with relation to the arc in which the needle moves, substantially as described.

5. A circular rotary reciprocating eye-pointed needle, in combination with a supporting-bed and an adjustable needle-hole plate through which it works, to govern the extent to which the needle penetrates the material being sewed, substantially as described.

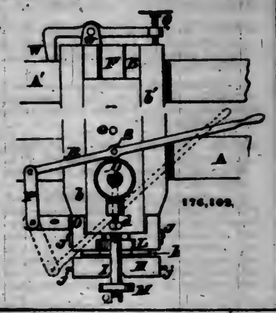
6. A supporting-plate for the material, a guide adapted to guide the edge of one course of braid, and a guide adapted to direct the edge of another course of braid to be sewed to the preceding course, in combination with a curved circularly-moving eye-pointed penetrating-needle, a thread-carrier to loop the loop of needle-thread, and a feed to move the braid, substantially as described.



176,101.

176,102. SLIDE-REST FOR LATHES. Carl Walter, Cincinnati, Ohio. [Filed Mar. 16, 1876.]

Brief.—The bed-piece of the device lying on the shears has a hinged section at one end, which, when in its normal position and adapted to give the usual gradual feed, embraces a collar on the feed-screw, but which, when a more rapid movement along the shears is desired, is disengaged from the collar by being turned down, when, by means of a lever, a rapid movement may be given to the cut, and by means of another lever a rapid traverse may also be given to the tool-carrying slide.



176,102.

1. A slide-rest for lathes, when adapted to have either a slow or a rapid movement transversely of the shears, substantially as herein described and set forth.

2. The combination of hinged box H A J *j* and removable cap K *k*, for engaging the collar M of feed-screw G with the recess L of bed-plate B, for the purpose specified.

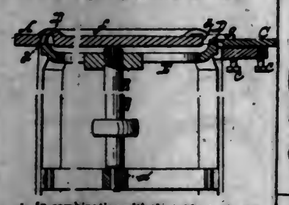
3. The detachable bracket O *o* U V and hooks P, for permitting the engagement of lever R *d* with either of the perforated legs T T', for the purpose designated.

4. The dog Q W, pivoted at *w* either to the front or rear end of bed-plate B, for the object stated.

5. The combination of lever 1, shiftable fulcrum-clamp 2 5, rod or rods 3, and attachments 6 and 7, as and for the purpose herein specified.

176,106. SLATE-DRESSING MACHINE. L. Warner, Belvidere, N. J. [Filed Nov. 2, 1875.]

Brief.—In a circular and partially-covered groove on the under side of a table of somewhat larger diameter than revolves, on a vertical shaft beneath it, worked by belting, a corresponding wheel, with upright tools near its edge, which operate on the under side of the slate, to reduce its thickness while lying as an adjustable table, the slate being drawn forward during the progress of the work.



1. In combination with the table A, the cutter groove or opening *d* and leaf C, the rotating cutter or cutters D D, substantially as and for the purpose set forth.

2. The table A, having the groove or opening *d* and leaf C, in combination with the cutters D D, frame E, shaft or axis B, substantially as and for the purpose set forth.

176,104. ORNAMENTAL KNOBS FOR CURTAIN-PINS. James Weathers, Greensburg, Ind., assignor of one-half his right to H. H. Elliott, same place. [Filed Feb. 17, 1876.]



The combination of the knob A, having two annular concentric recesses, the shaft B, provided with a flange, *a*, connected to the knob by screws or nails, and the ornamental cap D, fitted into the larger recess, and covering the flange, substantially as herein set forth.

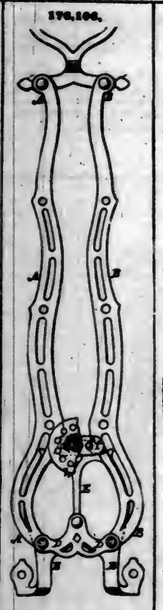
176,105. HARNESS-SOAPS. Philip J. Webber, Buffalo, N. Y., assignor of one-half his right to Darius Aurora Hovey, same place. [Filed Feb. 14, 1876.]

A harness-soap consisting of cotton-seed oil, tallow, ocean nut oil, caustic soda-lye, lamp black, and coach-black or black paint, substantially as described.

176,106. CARRIAGE-TOPS. F. W. Whitney, Leominster, Mass., assignor to F. A. Whitney Carriage Company, same place. [Filed Dec. 9, 1875.]

In combination with the uprights or standards A B, pivoted at both their upper and lower ends to cross-bars, so as to have a parallel movement, the base-piece B, to which said standards are also pivoted, and by which they are supported, and may be clamped by the thumb-nut to set the canopy in any desired position, as described and represented.

176,106.



176,107.



176,107. PROJECTILES FOR HEAVY ORDNANCE. Norman Wiard, Washington, D. C. [Filed Mar. 2, 1876.]

1. A mechanical-fit projectile, having a sub-caliber puncturing portion of chilled cast-iron, provided with a full-caliber sabot and flanges, all made together in one piece, substantially as and for the purpose set forth.

2. A projectile, having a sub-caliber puncturing portion of lenticular cross-sectional form, provided with a full-caliber sabot, substantially as and for the purpose described.

3. In combination with a base or sabot, B, the mitten-shaped puncturing portion A, having its body twisted forward of the sabot to conform to the pitch of the rifling of the gun, substantially as and for the purpose herein set forth.

4. The mitten-shaped portion A, provided with the flanges D, substantially as described.

5. The hollow mitten-shaped sub-caliber portion A', with or without the fine-hole *a*, and provided with a full-caliber sabot, B, with the opening *l* and plug *k*, substantially as set forth.

6. In mechanical-fit projectiles, the grooves *b b* for retarding the flow of gas around the windage space, as set forth.

7. As an improvement in great-gun projectiles, a projectile having the points with the converging lines *r d s* and *t d p*, so as to form the gradually-contracting cutting-point *r d s*, substantially as and for the purpose set forth.

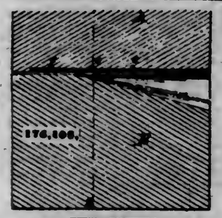
8. A centered projectile with windage, having its body twisted to conform to the pitch of the rifling of a gun, and having a point of an Ogival form, of about one and one half diameters radius on its narrower side elevation, and the curvature of the point on the wider side elevation of a greatly increased diameter, and its general form lenticular or oval in cross-section, substantially as and for the purpose described

176,108. DIES FOR FORMING CARRIAGE-STEPS. D. Wilcox, Birmingham, Conn., assignor of one-half his right to I. P. Howe, same place. [Filed Feb. 28, 1876.]

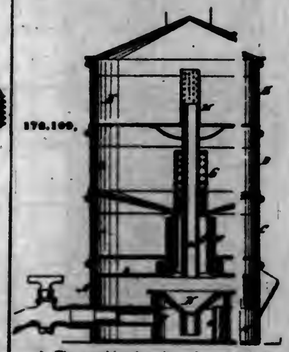
Brief.—One of the dies is provided with depressions, into which metal is forced for forming projections on the step, to prevent slipping of the foot.

The dies constructed and operating as herein described, for the purpose of forming carriage-steps with raised points of any preferred design.

176,109.



176,109. STEAM COOKING APPARATUS. S. Wilkins and J. D. Murphy, Abingdon, Ill. [Filed Feb. 28, 1876.]



1. The combination, in a domestic boiler, of the concentric tubes F G H, constructed substantially as shown, and tray D, having a concaved bottom, with the trays O E and boiler A, as and for the purpose set forth.

2. The combination of the drip-cup J, its funnel-shaped cover K, and the tube M with stop-cock *m*, with the boiler A, and with the tubes F G H of the sections or trays O D E, substantially as herein shown and described.

3. The combination of the vent-pipe O with the boiler A, the drip-cup J, the sections or trays O D E, and the tubes F G H, substantially as herein shown and described.

176,110. BUTTON-FASTENINGS. Richard H. Williams, Mount Vernon, N. Y. [Filed Feb. 9, 1876.]

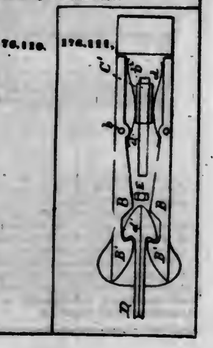
1. In a button-fastening, the combination of the two jaws A and B, one of which is pivoted to the sides of the other, and the pivoted swinging clamping-arm C, carrying at one end the button D, and the other end being constructed to operate on the pivoted jaw, substantially as described.

2. The clamping-arm C, having the bevel *c*, and carrying the button D, in combination with the jaw A, having the bevel *d* and the jaw B, substantially as described.

176,110.



176,111.



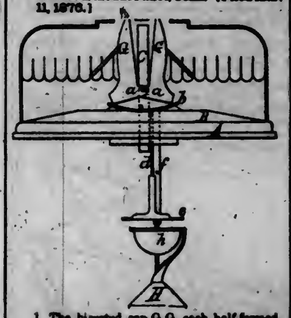
176,112. CAR-COUPLINGS. G. W. Wilson, Osceola, Iowa. [Filed Apr. 7, 1876.]

1. A draw-head having angular tapering depressions *b*, in combination with coupling-tongue D, having angular ridges *b*, substantially as and for the purposes described.

2. Draw-bars B, having hooks B' and recess *c* on the inner sides of the bars, in combination with slide-block O', carrying springs *d*, adjusted to operate the bars and hooks, substantially as and for the purposes described.

3. The pivoted levers F and G, having rods *e f*, in combination with slide-block O', carrying springs *d*, and adjusted to operate the draw-hooks, substantially as described.

176,113. LAMP-EXTINGUISHERS. William T. Wood, Mount Juliet, Tenn. [Filed Mar. 11, 1876.]

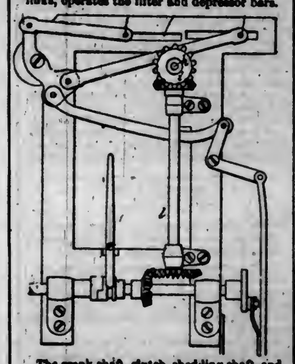


1. The blocked cap G G, each half-formed with two arms, *a a*, pivoted to the wick-tube, in combination with the plate *b*, weight E, and rod *d*, as and for the purpose set forth.

2. The plate *b*, with arm *d* and foot *e*, in combination with the cap G, arms *a'*, rod *f*, and disk *h*, with weight H, all substantially as and for the purpose set forth.

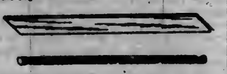
176,114. FABRIC-LOOMS. Horace Wyman, Worcester, Mass., assignor to G. Crompton, same place. [Filed May 21, 1875.]

Brief.—Improvement upon the device covered by Letters Patent No. 156,630, November 10, 1874. A shedding-shaft is provided in line with the crank-shaft, and carries a bevel-pinion, which meshes with the bevel-gear wheel of the vertical shaft. The shedding-shaft is thrown into action with the crank-shaft by means of a clutch, or it may be disconnected thereby, when it is desired to reverse the pattern-chain mechanism. The shedding-shaft is provided with a crank upon its outer end, which, by means of connecting-links, operates the lifter and depressor bars.



The crank-shaft, clutch, shedding-shaft, and connecting-shaft *i*, in combination with the pinion and crank on the shedding-shaft, the one adapted to operate the connecting-shaft to move the pattern-surface, and the other to move connecting-links adapted to operate the lifter and depressor, and with a shaft and pinion adapted to operate these parts after they are disconnected from the crank-shaft to find a true shed, substantially as described.

176,115. METHODS OF PREPARING EYELET-STOCK. Solomon W. Young, Providence, R. I., assignor to the Homogeneous Metal Manufacturing Company. [Filed Feb. 24, 1876.]



The method of preparing eyelet-stock herein described, consisting in the drawing of the metal into wire, and the subsequent rolling or flattening of the same, as and for the purposes specified.

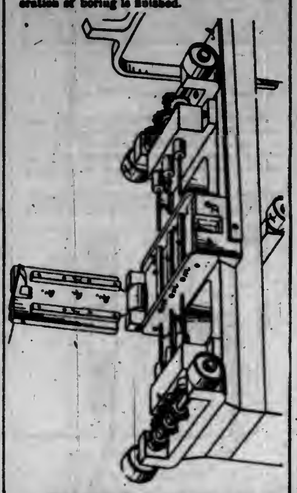
176,116. EYELETS. Solomon W. Young, Providence, R. I., assignor to the Homogeneous Metal Manufacturing Company. [Filed Feb. 24, 1876.]



A steel eyelet, as a new article of manufacture.

176,117. MACHINERY FOR BORING PIPE-STEMS. McClintock Young, Frederick, Md. [Filed June 19, 1875.]

Brief.—A series of blanks for pipe-stems are held, centered, and prevented from turning in a reciprocating carriage while being bored by means of a hinged clasp, provided on its upper end with a latch and projecting handle, and upon its under side with a pair of rubber strips and a series of spurs, and are moved by suitable mechanism to a gang of revolving drills arranged at one end of the bed, by which said blanks are partially bored, and then moved toward another or similar gang at the opposite end, by which the operation of boring is finished.

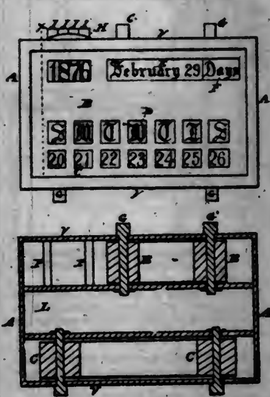


1. The carriage D, provided with a series of seats, *c c*, for placing and centering a series of sticks or blanks in relation to a series of drills, as and for the purpose described and represented.

2. In combination with a carriage having a series of seats, *c c*, to receive the sticks or blanks that are to be bored, the rubber strips *f* and spurs *i* on the clamp or holder, for holding said sticks or blanks to prevent turning while being bored, substantially as described.

3. In combination with a moving carriage carrying a series of sticks or blanks, centered therein by means of a clamp and seats, *c c*, the holes *n n*, for guiding and steadying the series of drills in relation to their special stick or blank, as and for the purpose described.

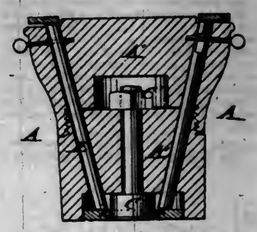
176,118. CABINET-CALENDARS. F. Eernock, Chicago, Ill. [Filed Mar. 3, 1876.]



A cabinet-calendar consisting of the case A V T W, rollers G G', belts O E, pocket-cases H and L, strips I, with figures and letters, as and for the purpose set forth.

176,119. DIES FOR MAKING WASHERS. J. Greenwold, Buffalo, N. Y., assignor to himself and W. L. Wallace, same place. [Filed Jan. 22, 1876.]

Brief.—The punch being most exposed to wear is adjustably or removably fixed to the lower section of its die or holder, to admit of easy removal or renewal.



The movable die A, being made of two sections, A', screwed together, and of a central puncher attached by shank and screw-nut to the lower section, substantially as described.

176,120. BARBED FENCE-WIRE. William H. Jayne and James H. Hill, Boone, Iowa. [Filed Jan. 20, 1876.]

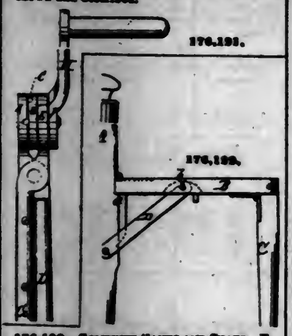
Brief.—Barbs are formed of two pieces of pointed U or staple shaped wire, and are secured upon the fence-wire by folding their arms within each other and bending them, with their points projecting in four directions, around the wire.



The combination, with a fence-wire, of a four-pointed barb made of two pieces wrapped around the rail, so as to cross each other upon opposite sides thereof, as shown and described.

176,191. FIBER-BARK FORMERS. William H. Joyce and James H. Hill, Boone, Iowa. [Filed Jan. 20, 1876.]

An improved bark-former, formed of the four-grooved disks A B E F and the three handles D G H, constructed, connected together, and operating substantially as herein shown and described.



176,192. COMBINED CANES AND SEATS. E. Matteson, Norwich, Conn. [Filed Sept. 14, 1875.]

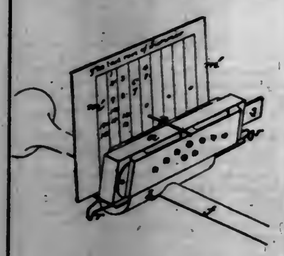
The combination of the stick A with hinged seat B, hinged leg C, and pivoted hook-brace D, all constructed substantially as and for the purposes herein set forth.

176,193. TEMPORARY FILES AND BINDERS. Newton S. Otis, New York, N. Y., assignor of one-half his right to William H. Gray, same place. [Filed Sept. 9, 1875.]



In a letter file or binder, the strips or wings D and D', projecting from the back and inside of the covers A, and operating as a binding device, in combination with a bar or bars, armed with a series of needles or wires tapering to a point, or provided with eyes or slotted near their points, and an auxiliary binding strip or bar, either channeled, flat, or tubular, arranged and operating substantially as and for the purposes as herein shown and set forth.

176,194. MOUTH-ORGANS. Cornelius St. John, Boston, Mass. [Filed Feb. 7, 1876.]



1. A harmonica or mouth-organ, combined with an air-tube having an orifice which is adapted to register with one or more of the air-passages of the mouth-organ, the latter being adapted to slide on the air-tube, so as to connect any of its air-passages with the orifice of the air-tube, substantially as described, for the purpose specified.

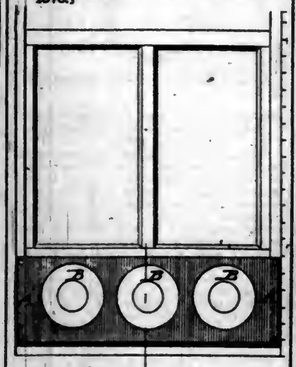
2. An attachment for a harmonica or mouth-organ, consisting of an air-tube having a variable opening adapted to register with one or more of the passages of the mouth-organ, and a graduated mechanical guide or chart so located on the tube and provided with such graduations and characters as to indicate mechanically to the operator the successive positions of the mouth-organ with relation to the opening of the air-tube in playing a given tune, substantially as described.

3. The combination of the guide or chart *m* with the air-tube *f* and a sliding harmonica or mouth-organ, substantially as described.

4. The air-tube *f*, having the cross-piece *h*, opening *i*, and valve *j*, in combination with a harmonica or mouth-organ, substantially as described.

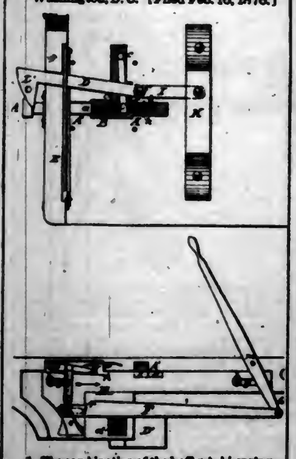
5. The combination of the guide or chart *m'* with the air-tube *f* and a sliding harmonica or mouth-organ having a pointer, *p*, all arranged to operate substantially as described.

176,195. ILLUMINATING HOUSES. Joseph Wehrle, New York, N. Y. [Filed Apr. 4, 1876.]



The device for illuminating houses and other objects herein described, consisting of an opaque or non-transparent board or plate, having openings covered with sheets of transparent paper, as and for the purpose set forth.

176,196. CAR-COUPLINGS. Wm. G. Smoot, Washington, D. C. [Filed Feb. 16, 1876.]



1. The combination of the buffer A A', spring B, lever-arm C, and draw-bar D, substantially as and for the purpose herein before set forth.

2. The sliding lock-plate E, having perforations *d f*, projecting arm or bracket *f*, offset *e*, and slot or recess *e'*, constructed and arranged to operate substantially in the manner and for the purpose herein before set forth.

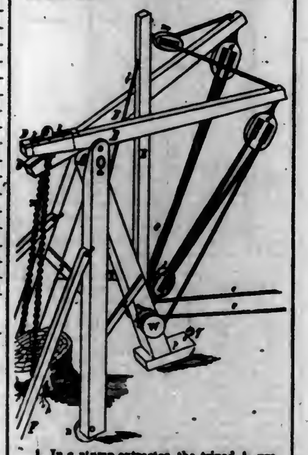
3. The combination of the lock-plate E, spring *i*, pawl H, and spring *p*, all constructed and arranged to operate substantially in the manner and for the purpose herein before set forth.

4. The combination of the buffer A A', having slot or recess *s*, spring B, lever-arm C, and lock-plate E, all constructed and operating substantially in the manner and for the purpose herein before set forth.

5. The combination of the lever G, arm F, having beveled shoulder *v*, and spring-pawl H, having arm *g*, all constructed and arranged for operation substantially in the manner and for the purpose herein before set forth.

176,197. STUMP-EXTRACTORS. William Hollenbeck, Chemung County, assignor of one-half his right to Joseph Hollenbeck, Corning, N. Y. [Filed Nov. 10, 1875.]

Brief.—On a tripod are fulcrumed two levers, to the long arms of which blocks and tackle are slung, the other extremities having chain-hooks, adjustable as to leverage in longitudinal slots.



1. In a stump-extractor, the tripod A, provided with the bolt *a*, the bars *b*, the casters *h*, the shoe *p*, the hook *q*, and the stay-braces *F*, all constructed, arranged, and operated in combination with the levers R, the blocks and tackles *s*, *d*, *c*, and *m*, and the winches W, the vertical standard B and its guy *l*, substantially as and for the purposes specified.

2. In a stump-extractor, the interchangeable fish-shaped and double-tailed hangers *g*, in combination with the alternately-oscillating levers B and the winches W, and also with their co-operative blocks and tackles *c*, *d*, *c*, and *m*, substantially as and for the purposes specified.

REISSUES.

7,045. CAR-ELEVATORS. Henry Arden, Brooklyn, N. Y. Patent No. 77,706, dated May 5, 1868. [Filed Mar. 26, 1876.]

1. In a car-elevator, a number of lifters, provided with lifting-surfaces, so connected that they may be operated simultaneously to raise and lower a car-body, and permit a change of the trucks, substantially as and for the purposes specified.

2. In an apparatus for lifting a car-body bodily, lifting-surfaces adjustable at right angles to the general direction of the tracks, substantially as and for the purposes specified.

3. In an apparatus for lifting a car-body bodily, lifting-surfaces made adjustable, in relation to each other, in the general direction of the length of the car, substantially as and for the purposes specified.

4. The combination of a beam with a pair of car-lifters, substantially as and for the purposes specified.

3. The combination of the first mover, connected to a steam or hydraulic engine or equivalent motor, with a number of car-body lifters in such manner as to operate the lifters simultaneously, substantially as and for the purposes specified.

4. Simultaneously-operated car-lifters, arranged at the side of railroad-tracks, combined with guides for securing vertical motion of the same and lifting-surfaces, for transferring such motion to a car-body without interference with the removal of the trucks, substantially as and for the purposes specified.

7. Transmitting-levers, combined with simultaneously-operated car-lifters and a first mover, substantially as and for the purposes specified.

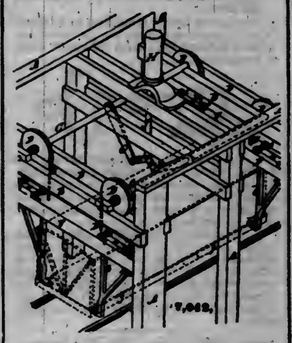
8. The combination of the frame A, shafts C, and arms G with the links *e* and rod *f*, substantially as and for the purposes set forth.

9. The shafts U and pulleys D, in combination with the ropes or chains M and beams F, all as shown and described.

10. The combination of the beams F and lifters *h*, all as shown and described.

11. The combination of the arms G, shafts C, and pulleys D, all as shown and described, and for the purposes specified.

12. The combination of the shafts C, pulleys D, and ropes or chains E, all as shown and described, and for the purposes specified.



7,043. WHIFFLETREE-HOOKS. Andrew J. Griggs, Chicago, Ill. Patent No. 110,207, dated May 30, 1871. [Filed Jan. 19, 1876.]



1. The combination of the trace-hook B and hook D, with recess in its back end to inclose spiral spring A, substantially as described and shown.

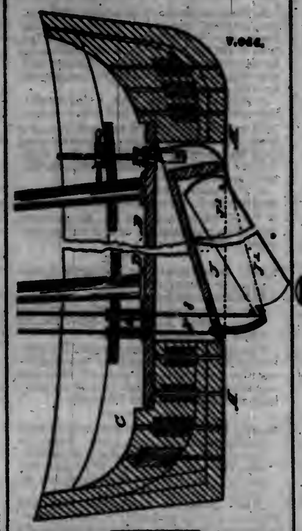
2. The trace-fastener described, consisting of the casting C, having the hook B and cylindrical chamber *b*, the hook D, having a cylindrical end, pintle X, collar *c*, and spiral spring A, substantially as described and shown.

7,044. CENTER-BOARD VESSELS. C. Hemje, New York, N. Y. Patent No. 156,706, dated Jan. 12, 1876. [Filed Mar. 14, 1876.]

1. In the construction of vessels, where a short and deep board is proposable, the combination of the combined heel and keelson A B, half-frames G G, and rider D, the latter for the purpose of covering the top of the center-board, substantially as specified.

2. The combination, substantially as described, of the frames G G and rider D with the combined heel and keelson A B, whereby great strength is preserved, while a full-sized center-board may be used without interfering with the position of the masts, and whereby the ordinary floor-timbers are dispensed with, substantially as and for the purpose specified.

3. In combination with a center-board, composed of two or more sections, J J', pivoted together at or near their front ends, the rigid forward hoisting device and independent after hoisting cords or chains *b b'*, substantially as and for the purpose described.



7,045. OBLIQUE CAR-WHEELS. William W. Lobdell, Wilmington, Del. Patent No. 172,461, dated Jan. 18, 1876. [Filed Mar. 10, 1876.]



1. A cast-iron car-wheel, having a chilled and traced rim, as herein set forth.

2. A cast-iron car-wheel, from the chilled rim of which the defects beneath the skin of the chill have been removed, as specified.

7,046. COVERING ROUNDED ARTICLES WITH LEATHER. Jas. H. Osgood, Boston, Mass., assignor to Louis H. Mahn. Patent No. 127,093, dated May 21, 1872. [Filed Mar. 17, 1876.]



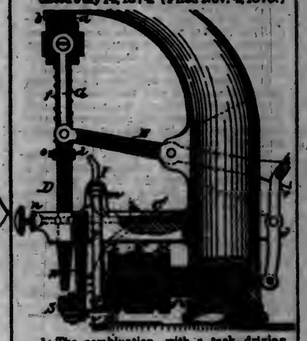
1. A base-ball cover formed of two pieces of leather, secured to each other by a single seam, substantially as and for the purpose specified.

2. A base-ball cover having its seam united by the double herring-bone knotted lock-stitch, substantially as and for the purpose specified.

3. The covering of a base-ball consisting of an outer and an inner covering, each of which is composed of two pieces of leather, and applied to the ball independently of each other, substantially as and for the purpose specified.

4. A base-ball covering composed of independent inner and outer coverings, made up of hemispherical sections, the seams of the inner and outer covers arranged relatively to each other, to break joints, substantially as and for the purpose specified.

7,047. TACKING-MACHINES FOR BOOTS AND SHOES. Henry G. Thompson and Bror F. Bergh, Milford, Conn.; said Bergh assignor to said Thompson. Patent No. 122,027, dated July 14, 1874. [Filed Nov. 4, 1875.]



1. The combination, with a tack-driving mechanism, of the feed-cylinder M, revolved by means of a ratchet movement, substantially as herein set forth.

2. In a tack-driving machine, employing a hammer for driving the tacks, the combination of a ratchet for rotating, and cam for vibrating, the feed-cylinder, provided with a stationary head, substantially as herein set forth.

3. In a tack-driving machine, a revolving feed-cylinder, provided with a stationary head at its front end, substantially as herein set forth.

4. In a tack-driving machine, an inclined roadway, having an intermittent reciprocating motion, in combination with a feed-cylinder, having a stationary head, substantially as shown and described.

5. The combination of the stationary head L, with incline K, revolving head M and shell N, ratchet device O *y s*, rod *w*, and cam levers J J, all constructed substantially as and for the purposes herein set forth.

6. The apron *r*, attached to the inner side of the stationary head L, of the revolving feed-cylinder, for the purposes herein set forth.

7. In combination with the incline K, having the tack-channel *h'*, a feeding mechanism having a motion parallel thereto, substantially as herein set forth.

8. The combination of the bar *m'*, slide *n'*, with leather *o'* and pin *p'*, the forked lever *r'*, and connecting-rod *s'*, substantially as and for the purposes herein set forth.

9. In a tack-driving machine, the combination, with a revolving feeding-cylinder, of a distributing-cylinder for separating, holding, and delivering the tacks under the hammer, substantially as herein set forth.

10. The combination, in a tack-driving machine, of a distributing-cylinder, operated by a ratchet-movement, and a parallel feed motion, substantially as herein set forth.

11. The combination, with the hammer D, having circumferential groove *i*, of the sleeve H, spring *j*, and adjustable collar *d*, for the purposes herein set forth.

12. The spring-bolt *k*, in combination with the circumferential groove *i* in the hammer D, for the purposes herein set forth.

13. The combination, with the spring-bolt *k*, of the cam-lever I, and operating lever E, substantially as and for the purposes herein set forth.

7,048. SAFETY-VALVES. C. L. Frink, Rockville, assignor, by mesne assignments, to Oscar T. Hoyt, Norwalk, Conn. Patent No. 60,020, dated June 19, 1866. [Filed Mar. 11, 1876.]

1. The cross-bars *e* and *g*, and links *f*, in combination with the valve-stem and lever, as shown and described.

2. The central screw *h*, and clamping-plate *i*, in combination with the valve.

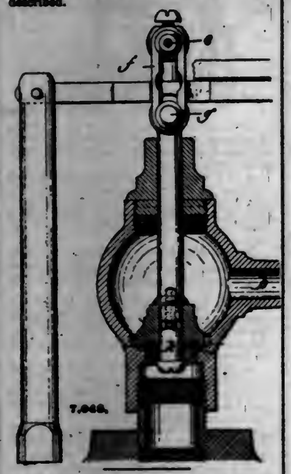
3. In a valve held to its seat by positive pressure, the combination of a seat or bearing and a metal valve or head provided with an elastic packing, so constructed that when the valve is closed the packing and the metal both bear upon the seat, producing a combined metallic and elastic joint.

4. A valve or valve-head provided with a molded annular elastic packing, held in place by a clamping-plate, substantially as and for the purpose specified.

5. In a valve, held to its seat by positive pressure, the combination of a seat or bearing, and a valve or head provided with an elastic packing inclosed by the metal in such a manner that when the valve is open the bearing-surface of the packing is the only portion exposed to the action of the passing current.

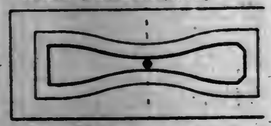
6. In combination with the annular seat, the valve provided with the elastic packing D and metallic surface i, the former adapted to fit against the seat, and the latter arranged to enter and close the throat or inlet for the purpose of protecting the packing.

7. A valve provided with an elastic packing to bear upon the valve-seat, and with a metal plate entering and closing the valve throat or passage, for the purpose of protecting the packing, substantially as shown and described.



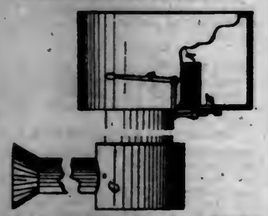
7,049.

7,049. DIES FOR MAKING BLANKS FOR STOVE-PIPE ELBOWS. Edwin Norton, Chicago, Ill. Patent No. 121,607, dated Dec. 12, 1871. (Filed Mar. 10, 1874.)



A series of dies having curved cutting-faces, for cutting blanks of metal to form curved elbows for stove-pipe and other purposes, substantially as described.

7,050. FURNACES FOR LOCOMOTIVES. Thos. Davies, Cleveland, Ohio, assignor to D. S. Critchley. Patent No. 134,422, dated Dec. 31, 1872. (Filed Mar. 10, 1876.)



1. The combination, with a locomotive fire-box, of a horizontal arch or deflector, K, and openings E E, located beneath said arch and in the front wall of the fire-box, substantially as and for the purpose specified

2. The combination, with a locomotive fire-box, provided with a horizontal arch or deflector, K, of the openings E E, located in the front of the fire-box, as described, and valves for regulating the supply of air through said openings, substantially as and for the purpose set forth.

3. The combination, with a locomotive-boiler, of a fire-box, provided with openings E E in its front wall, and valves D D, and a lever-connection, whereby the fireman may, from the cab or rear end of the boiler, regulate the positions of the said valves, substantially as set forth.

4. The combination, with a fire-box, of openings E E in its front wall, and valves D D and mechanism F H I J, for operating said valve, substantially as and for the purpose described.

7,051. PROCESSES OF IMPARTING RESONANCE TO METALLIC ALLOYS. Benjamin Silliman, New Haven, assignee to the Meriden Britannia Company, West Meriden, Conn. Patent No. 171,960, dated Jan. 11, 1876. (Filed Apr. 6, 1876.)

The process of producing crystallies rearrangement and musical ring or resonance in metallic alloys by submitting such alloys to a regulated temperature just short of the melting-point, substantially as described.

7,052. PROCESSES OF IMPARTING RESONANCE TO METALLIC ALLOYS. Benjamin Silliman, New Haven, assignor to the Meriden Britannia Company, West Meriden, Conn. Patent No. 171,960, dated Jan. 11, 1876. (Filed Apr. 6, 1876.)

Brief.—The articles are likewise for a short time in a bath, preferably of heavy hydro-carbon oils, heated to a point just short of the melting-point of the alloy.

A new manufacture, possessing the substantial properties herein described, consisting of articles made from metallic alloys, known as Britannia, pewter, &c., possessing resonance from having been subjected to a regulated temperature just short of the melting-point, substantially as described.

7,053. HARVESTERS. J. Werner, Jr., Prairie du Sac, Wis. Patent No. 151,923, dated May 26, 1874. (Filed Feb. 17, 1876.)

1. In a harvester having an elevated side delivery of the cut grain, a supplemental frame, upon which the grain-receiver, binders' tables, and binders' platform are mounted, and which is hinged to the wheel or carrying frame, so that the latter may be tilted and the cutting apparatus may be raised and lowered independently of the supplemental frame, substantially as and for the purposes specified.

2. The combination of the hinged supplemental frame and the tongue B', rigidly attached to the supplemental frame, and connected to the main frame by suitable mechanism for tilting the latter, substantially as and for the purposes set forth

3. A binders' platform, G, attached to and carried by the hinged supplemental frame, and supported from the main frame by a flexible connection, substantially as described.

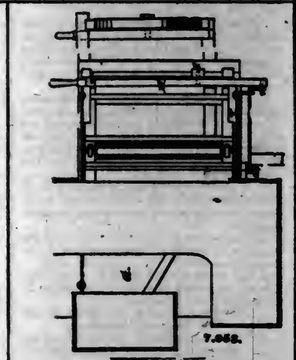
4. The binders' tables, arranged upon and carried by the hinged supplemental frame independently of the main frame and elevating apparatus, substantially as and for the purpose set forth

5. An elevated grain-receiver, supported upon and carried by the hinged supplemental frame independently of the elevating apparatus, substantially as and for the purpose set forth.

6. The combination of the hinged supplemental frame and the binders' tables, supported by standards, which are mounted upon the supplemental frame, and arranged in front and rear of the axis of the driving-wheel, substantially as and for the purposes set forth.

7. The combination of a supporting-frame, carrying the cutters and elevating apparatus, and an independent supplemental frame for the binders, hinged to the carrying-frame, substantially as and for the purposes set forth.

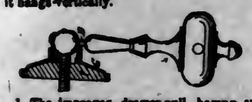
8. The combination of a main supporting or carrying frame, to which the cutting apparatus and elevating devices are attached, and an independent supplemental frame for the binders and binders' tables, arranged on the stubble side of the machine, and hinged to the carrying-frame at or near the axis of the drive-wheel, substantially as and for the purposes set forth.



7,054.

7,054. DRAWER-PULLS. Jos. Kirby, West Meriden, Conn., assignor to himself and Patrick J. Clark, same place. Patent No. 112,616, dated Mar. 21, 1871. (Filed Mar. 13, 1876.)

Brief.—The handle is attached to its shank by a ball-and-socket joint, and the socket has a notch to admit the stem of the handle when it hangs vertically.

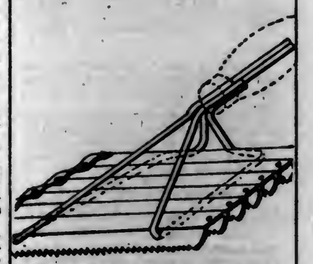


1. The improved drawer-pull, having the handle attached to the shank by a ball-and-socket joint, the socketed part having the notch C, to admit the stem D of the handle and allow it to hang vertically, all substantially as specified.

2. The socketed escutcheon-plate of the shank, consisting of the metal back I and sheet-metal front, the latter having the socket either formed out of it or of another piece, and attached and secured to the metal back I by turning the edge of the front inward and upon said metal back I, all substantially as specified.

7,055. CURRY-COMBS. Wm. B. Lawrence, New York, N. Y., assignor to the Lawrence Curry-Comb Company, same place. Patent No. 157,010, dated Nov. 17, 1874. (Filed Apr. 1, 1876.)

Brief.—The comb is provided with handles over the back.



1. A curry-comb provided with a grasp or support above the back, consisting of two rods or bars extending above and across the back.

2. A curry-comb having two bars or rods extending at an angle to each other across and above the back, affording a means of grasping the comb, as set forth.

3. A curry-comb provided above the back with a rest or grasp for the hand, consisting of two bars extending above and across the back at an angle to the direction of the comb-bars.

4. A curry-comb in which a continuous wire extends from the handle through parts of the comb and back to the handle, substantially as set forth.

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COMMISSIONER'S DECISIONS.

CHAMBERS AND MENDHAM *vs.* DUNCAN, WILSON, AND LAUDER *et al.*—*Interlocutory Appeal.—Interference.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the patents of Chambers and Mendham and the applications of Duncan, Wilson, and Lauder et al.—Decided March 21, 1876.*]

In determining the date of a foreign patent this Office will be guided in its decision thereupon by the date upon which the completed specifications were filed and patent sealed.

An American patent cannot be avoided by previous knowledge and use of the same invention in a foreign country, unless it is proven that such invention had been patented in such foreign country, or had been described in some public work, anterior to the discovery thereof by the patentee in this country.

DUELL, *Commissioner:*

This appeal is taken from the decision of the Examiner of Interferences on motion made at the hearing to strike out certain testimony introduced by applicants Duncan, Wilson, and Lauder *et al.*, going to prove the date of their invention in a foreign country.

As the motion involves the question as to what constitutes proper evidence in a certain case, and is not one of merely Office practice, it is a matter on which the Board of Appeals should be allowed to also express an opinion, especially in view of the fact that the Examiner of Interferences has passed upon the point in rendering a final decision upon the question of priority.

But inasmuch as the parties prepared to argue this motion by printing elaborate briefs, and as no motion was made to dismiss on the ground of want of jurisdiction at this time, and as, too, my predecessors have established a uniform practice upon this point, I will proceed to express my views, but without intending to control any opinion that the Board of Appeals may have upon the competency of the particular evidence submitted.

The parties making this motion have an English patent dated November 19, 1870, but the completed specification was not filed nor the patent sealed until May 16, 1871. In accordance with the doctrine established in the cases of *Howe* vs. *Morton*, (1 Fisher, 586,) and *Brooks* vs. *Norcross*, (2 Fisher, 661,) the last-mentioned date is considered, in this country, as the date of the patent.

Upon the rule of evidence to be followed in cases like the present one the courts also seem to have settled the matter. It has been frequently held that a patent cannot be avoided by the previous knowledge or use of the thing patented in a foreign country, if at the time of making his application for a patent the patentee believed himself to be the first inventor, unless the same invention had been patented in such foreign country, or had been described in some public work anterior to the discovery thereof by the patentee. *Bartholomew* vs. *Sawyer*, (4 Blatchford, 347.)

The case just cited arose under the act of July 4, 1836, the 15th section of which prescribes that—

Whenever it shall satisfactorily appear that the patentee, at the time of making his application for the patent, believes himself to be the first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention or discovery, or any part thereof, having been known or used in a foreign country.

The 7th section of that act made it the duty of the Commissioner, upon the application of any one for a patent, to make an examination of the alleged new discovery or invention, and then provided that—

If on any such examination it shall not appear to the Commissioner that the same had been invented or discovered by any other person in this country prior to the alleged invention or discovery thereof by the applicant, or that it had been patented or described in any printed publication in this or any foreign country, or had been in public use or on sale, with the applicant's consent or allowance, prior to the application, if the Commissioner shall deem it to be sufficiently useful and important, it shall be his duty to issue a patent therefor.

These provisions have been substantially re-enacted in sections 4886 and 4923, Revised Statutes.

The true meaning of the section last quoted was held by the court in the above case to be that—

A patent shall issue to the applicant and be valid if he is the originator and author of a useful invention or discovery, unless the thing invented by him had, prior to the alleged invention or discovery by the applicant, been *invented, discovered, or used by some one else in this country*; or unless the invention of the appli-

cant had been patented or described in some printed publication in this or some foreign country prior to the alleged invention or discovery by the applicant.

It is seen by the language thus employed that a rule is established for the guidance of the office in issuing a patent, as well as for the court in considering when that patent shall be held void, and this rule, as before intimated, has been recognized and followed by all my predecessors, so far as I am aware. The latest decision of the Office upon this point is that of *Smith* vs. *Barter*, (7 OFFICIAL GAZETTE, page 1.) In citing the authorities, the Commissioner there observed that to admit evidence of the character now rejected would not only upset the long and well-established practice of the Office, but also defeat the provisions of the 62d section of the law of 1870, which declares that—

No patent shall be held void because of a foreign use or discovery prior to the patentee's invention, provided it has not been patented or described in any printed publication. If such use cannot defeat rights vested by the grant of a patent, it ought not to affect the inchoate right existing in an applicant therefor.

The foundation for this rule, established by the courts and incorporated in the Statutes, appears to be the impracticability if not the impossibility on the part of inventors in this country to attend upon and prosecute the investigation of the alleged fact of invention in a foreign country. Great room also for fraud and imposition upon native inventors would be given if the rule were otherwise, and persons were permitted to establish the date of an invention in a foreign country inaccessible to the native inventor for the purposes of collecting testimony, &c., without an outlay perhaps of a fortune.

The rule is just as applicable and necessary in the matter of conflicting applications as in cases where a patent is involved.

There are no good reasons for admitting evidence in a contest in this Office to establish the date of an invention which would be rejected by the courts whenever attempted to be there introduced for the same purpose.

It is not pretended here, I believe, that the American patentee had knowledge of the foreign invention before making his application for a patent.

The decision of the Examiner of Interferences on this motion is affirmed.

JACOB LAGOWITZ *vs.* JAMES S. TOPHAM.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Jacob Lagowitz and the patent of James S. Topham, for* "IMPROVED HANDLE FOR TRAVELING BAGS."—*Decided March* 24, 1876.]

In determining the issue of priority the only question is, who was the first to conceive the device and embody it in a complete form, capable of producing the result sought to be accomplished.

If an adaptation to use, or even use itself, is merely experimental, the invention is not perfected.

Merely oral testimony, advanced after an opponent has successfully made the invention, introduced the same into public use and obtained a patent, is not sufficient to establish priority unless it is of the clearest and most undoubted character.

DUELL, *Commissioner:*

The subject-matter involved is thus defined by the Examiner:

A wooden handle, bent into shape, and provided at the ends with swiveling fastenings, for attachment to the bag or other article.

Topham filed his application November 9, 1871, and a patent was granted to him February 6, 1872. Lagowitz filed his application May 11, 1872.

The original claim of Lagowitz was for a "wooden handle for bags, shawl-straps, &c., substantially as set forth." The Examiner, however, in a letter to this applicant, dated June 13, 1873, in reply to his demand to be put in interference with the patent of Topham, informed him that Topham's patent was not for a wooden handle, which was confessedly old in the art, as in baskets and other receptacles, but for a rigid handle in combination with certain other devices, and that applicant's claim covered in effect the old style of handle.

January 27, 1874, two years after the grant of a patent to Topham, Lagowitz amended his claim to read as follows:

A handle of wood bent or bowed into shape in combination with end fastenings, affording a flexible or swiveling connection with a bag, or other article, substantially as described.

It will be seen, then, that the matter in controversy is not simply the employment of bent or bowed wooden handles upon bags or satchels, but is restricted to the combination of such handles with a particular kind of fastening—viz., a flexible or swiveling connection. The only question, then, is, who was the first to conceive such a combination and embody it in a complete form capable of producing the result sought to be accomplished." *Coffin* vs. *Ogden*, (18 Wall, p. 120.)

Lagowitz's experiments in this line began as far back as 1857, when he made handles out of bent pieces of rattan and fastened them to the frame of the traveling bag by means of trunk-rivets. The material and the mode of fastening proving imperfect and unsatisfactory, he abandoned his experiments until 1864. He then took the young shoots of trees, cut them the desired length, bent them in proper shape by nailing them to a piece of round timber, and left them in that condition until they were dry and stiff. He then fastened them to bag-frames by means of small hinges, resembling those used on doors. The handles thus constructed and used, also failing to answer the purpose, were thrown aside. His next efforts were not made until 1869, when he resumed his experiments, making some handles and fastenings to bags in the same way that he fastened the rattan-handles in 1864.

Another way he says of fastening the handle, which he found to be much better, was, after covering the ends of the handles with iron caps, into which holes were bored, to screw into these holes wire hooks, and clinch the same over staples on the jaws of the bag-frame, so that the handles would turn freely as on a hinge. Two handles were so placed on each frame, one on each jaw.

It appears from the testimony of Lagowitz and one or two of his witnesses that several handles were attached to bag-frames in substantially the same manner just described during the spring of 1869, but they were mere experiments, described as such by all the witnesses; and upon inquiry, finding that they were too expensive to be manufactured with profit in that shape, they too were abandoned, thrown aside in a factory building, which more than a year afterward was destroyed by fire.

These few experiments made in 1869 no doubt exhibited the principle of the invention in dispute; but they were not considered by Lagowitz, nor can they now be regarded as amounting to anything more than experiments which fell short of a complete perfected invention.

"If an adaptation to use, or even use itself is merely experimental, the invention is not perfected." *Coffin* vs. *Ogden*, (7 Blatch., p. 70.)

This doctrine is reiterated in the same case before the Supreme Court above cited.

After this fugitive experiment Lagowitz devoted time and money for several years in getting up machinery by which the wooden handles could be easily and successfully bent. He acknowledges that he continued his efforts and experiments in this direction from February, 1870, to the summer of 1873. It does not appear that Lagowitz reduced his invention to practical use, or put the same on sale until 1872, when a machine had been finally obtained for making suitable handles. This was nearly a year after Topham had reduced the invention to use, engaged in its manufacture, and filed his application for patent.

Admitting that Lagowitz was reasonably diligent in his efforts to produce this invention, yet I cannot conclude in view of all the evidence adduced that he had succeeded in accomplishing this object prior to its completion by Topham. The evidence of Lagowitz's early efforts rests mostly on the oral testimony of witnesses who are or were in his employ, and who rely upon their memory alone as to the nature of those experiments. No models or complete devices made during the course of those experiments were preserved.

Merely oral testimony to sustain the fact of invention, advanced after an opponent has successfully made the invention, obtained a patent, and introduced the same into public use, must be regarded with the closest scrutiny, and if not of the clearest and most undoubted character will not suffice to establish priority in such a case.

In accordance with this view, and regarding it unnecessary to enter more minutely into the details of the case, after the very elaborate review by both the tribunals that have passed upon it, I cannot but affirm their conclusions and award priority to Topham.

ELOI BOUSCAY, JR.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Eloi Bouscay, Jr., for letters patent for* "IMPROVEMENT IN SEWING-MACHINES."—*Decided March* 29, 1876.]

Where the simpler means consist in the substitution of one mechanical equivalent for another, the difference is not patentable.

Where a new and better result is accomplished by a change in the position of old elements, and in the formation of some of them; or, if the result is the same and the means improved, the improvement in either case is patentable.

DOOLITTLE, *Assistant Commissioner:*

This is an application for a patent for certain improvements in a sewing-machine. Five of the claims were rejected by the Primary Examiner. Upon appeal to the Examiners-in-Chief his decision was affirmed as to two, and reversed as to the remaining three.

Appeal is now taken from the decision of the Board upon the two claims. The first of these is applicant's fourth claim, and is as follows:

As a means of regulating the pressure of the feed against the fabric, the combination, with the rock-shaft C, and the feeding mechanism, of the adjustable eccentric sleeve-bearing H, the said bearing constructed to remain stationary during the rotation of the shaft, substantially as described.

In the specification the purpose of this combination, and its several features, are thus described:

It is desirable in sewing-machines that the feed should be so far adjustable as to permit the raising or depressing of the same as the various kinds of work to be performed require. This I accomplish by fitting the end of the rock-shaft C, immediately under and supporting the feed mechanism, into an eccentric sleeve journal, H, held in the hanger I. By inspection of the drawing, Fig. 3, it is obvious that the vertical adjustment of the feed is performed by turning the eccentric H in the hanger I.

The Examiner and the Board regard this claim as substantially met by the patents of Wm. C. Hicks, March 26, 1861, and M. H. Merriam, January 1, 1867.

The Hicks patent is the one most relied upon by the Examiner as meeting the claim. I do not think the Merriam patent a sufficient reference. There, as applicant contends, the eccentric is rigidly secured to the rock-shaft. They move together, and the feed cannot be adjusted while the machine is in motion.

But I agree that the Hicks patent is a substantial anticipation. Hicks claims—

The method, substantially as described, of raising or lowering and adjusting the feed-wheel, in relation to the sewing-table, by combining with it, or the shaft or stud which carries it, an eccentric or screw under operation by a hand-lever, or its equivalent, essentially as shown and described, whereby the adjustment may be effected whether while the machine is operating or at rest, for the purposes set forth.

This is a broad claim, but no broader than is justified by the means described. It includes within its scope the entire matter of applicant's claim, and all that appertains thereto, except the particular kind of feed. Applicant admits that the result is the same, but asserts that his means are simpler. But the simpler means consist of employing a thumb-nut instead of a lever to raise and lower the feed. These features are equivalents, and their substitution, one for the other, would seem to depend alone on the varying weight of the other parts of the machine. The difference in the form of applicant's feed, and that of the reference, makes no difference in the principal of the operation which they both adopt to raise and lower the same.

The sixth claim is for—

The combination with needle-bar *n*, cross-head X, guide W, and face-plate provided with the slot U, whereby any tendency to revolve is obviated.

In regard to this combination, the applicant, in his specification, remarks:

The device which I make use of to prevent the round needle from turning in its bearing is as follows: The cross-head X, on needle-bar *n*, has a wing, W, projecting from the side, fitting loosely in the groove cut in a corresponding side of the front plate of the machine, and in a line parallel with the needle-bar. The groove, of course, allows the wing to move vertically as the needle-bar carries it in its regular motion, but the grooves and wing being fitted close enough to prevent the needle-bar from turning.

The reference given for this claim was the patent to G. W. Hunter, October 21, 1873, No. 143,766. In Hunter's patent the needle-bar is placed near the edge of the face-plate, next to the operator, for the purpose of bringing the thread from the tension device to the eye of the needle in front of the operator "without turning," as the patentee asserts, "a corner, as in the case of other transverse shuttle-machines."

This operation is accomplished by providing on one side of the face-plate a groove in which a movable guide is placed. The needle-bar is on the opposite side. The cam is secured upon the face of the needle-bar and the guide. One end of the cam projects beyond the guide and bears upon the face-plate.

Hunter makes no mention of preventing the rotating of the needle-bar by these means, but it is obvious that when the screws in the face-plate and the other parts are properly adjusted this result will be accomplished.

But applicant does not depend upon the proper adjustment of the face-plate and cam by screws to control the steady movement of the needle-bar. I think, on the whole, a new and better result is accomplished by applicant than by Hunter, and certainly the means are not the same.

The position of the needle-bar, and the position and construction of the cam, are both different. The stationary guide, and the groove employed by applicant, are also new features. These changes, admitting the result in both cases to be the same, constitute an improvement in the means, and are, therefore, worthy of a patent.

The decision of the Examiners-in-Chief is affirmed as to the fourth claim, but reversed as to the sixth.

JEREMIAH KIETH.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of Jeremiah Kieth for reissue of his patent No. 112,719, dated March 14, 1871.—Decided April 5, 1876.*]

Objections as to new matter in a reissue, and to the character of a combination, relate to the merits, and are not proper subjects of an interlocutory appeal.

Claims for the means, and not for the results, are not functional, although the operation and construction of the means are set forth therein.

DOOLITTLE, *Assistant Commissioner:*

In this case the Principal Examiner alleges that new matter is introduced into the specification, and for that reason and others refuses to allow seven of the claims.

Four of the claims are refused because they are functional in form. One of these it is said also covers a device protected by a subsequent patent, and another is for an "inoperative combination."

The objections as to new matter and the "operativeness" of a combination go to the merits, and if insisted upon by the Office are fatal to the specification and the particular claim embracing the combination in question.

In that case applicant has the right to appeal to the supreme court of this district. As a preliminary to such appeal the regular course of appeal within the Office, in the manner prescribed by the law, should be observed—viz., from the Primary Examiner to the Board of Examiners-in-Chief, from the latter tribunal to the Commissioner, and thence to the court.

The question whether a claim is for a function is one of verbal construction merely. If objectionable for this reason the objection can be usually removed by amendment without affecting the intended scope of the claim.

The language of such a claim is generally in the participial form, as "I claim the," "determining," "operating," "producing," "so constructing," &c., and is not made for certain particular features or a combination thereof. Such claims are for the result irrespective of the means for producing it. (Case of Hahn, 8 OFFICIAL GAZETTE, 597.)

This objection, then, is the proper matter for an interlocutory appeal.

It is urged in this case against the fourth, fifth, sixth, seventh, eighth, ninth, and tenth claims. In the fourth and fifth applicant claims "The reciprocating punch or bending-fork *t*," &c. This bending-fork *t* is the subject of both claims.

In the fourth claim this feature is described as—

Operating to sever the wire in its descent upon the former-bed, to bend the wire into a staple over a suitable mandrel or beak, *q*, and to carry the staple so formed forward into position to be driven, &c.

In the fifth claim the same feature is described as—

Constructed with a cutting-edge, and with internal longitudinal grooves, whereby a staple-blank is severed, bent around a suitable mandrel, and held and guided for driving, &c.

The tenth claim is for the same feature, a different function and construction being allotted it.

It will be seen that the matter in these claims which the Examiner regards as establishing a claim for functions is simply descriptive of the functions which the feature mentioned performs and the manner of its construction. It appears to me that the two matters are made quite distinct, and that if a subsequent inventor should perform the same operations by a substantially different feature he would not be precluded from obtaining a patent by reason of these claims.

The sixth, seventh, and eighth claims are each for a combination of this punch or bending-fork *t* with other specified features, and so with the ninth claim. The same may be said of the descriptive matter therein as has been said of the fourth claim.

The objection of prolixity might be urged against these claims with more force than that they are functional.

The decision of the Examiner, therefore, in regard to the objection urged against the last-named claims is reversed, and the appeal, so far as it relates to new matter, and the claim covering the alleged inoperative combination, is dismissed. The appeal in those matters should be taken to the Board of Examiners-in-Chief, as above indicated.

JESSE REYNOLDS.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Jesse Reynolds for letters patent for* "IMPROVEMENT IN HEATERS."—*Decided April 1, 1876.*]

A combination should be regarded as an entirety, and it is hardly a proper answer to the same that some of its features have been used to perform their separate functions in other positions and arrangements.

DOOLITTLE, *Assistant Commissioner:*

The appeal to the Board was based upon applicant's first, second, and fourth claims. The fourth claim is not urged, as applicant admits it to be fairly anticipated by the references.

The second claim was rejected upon a rejected and abandoned application. Such references being regarded as no longer pertinent, that claim will be allowed.

This leaves for consideration the first claim only, which reads as follows:

The combination, in a heater, of an oval combustion-chamber, G, the fire-place E, communicating with the lower part of the said chamber at one end, and an outlet, H, leading from the opposite end of the said chamber near the top, all as and for the purposes described.

The applicant sets forth in his specification the object and advantages of this combination as follows:

After many practical tests I have ascertained that this combination of oblong fire-place, oval combustion chamber and outlet, situated in respect to each other, as shown, is the best for effecting a thorough combustion of the soft coal, and for imparting to the casing the greatest heat. Another advantage of the oval casing is the facility and economy with which it can be made of comparatively light material, for it has sufficient inherent strength to retain its shape in the absence of corner angle-irons.

These advantages are not denied by the Examiner, but he is of the opinion that the several features of this combination are anticipated by the patents which he cites as references.

Upon a careful examination of these references I am of the opinion that no one of them sets forth the same substantial arrangement of devices as is here claimed.

Perhaps, considered by itself the *oval* feature is a mere matter of configuration, as the Examiner insists; but that being but one element of the combination, the rejection of the claim should not rest upon the fact that such feature is in itself unpatentable.

But the combination should be regarded as an entirety; and it is hardly a proper answer to the same, that some of its features have been used to perform their separate functions in other positions and arrangements.

In the references cited to meet this case, where an upper outlet is shown, the chamber is not of the same form or construction, and where the chamber approaches a similar construction, this particular arrangement of outlet and fire place is lacking, &c. No one of them shows or describes the present arrangement of parts.

This is not a broad claim for a combination of old elements, but it is a combination of elements arranged in a certain position as to each other, which certain position is fixed and restricted by the terms of the specification and the claim.

The many practical tests which the applicant alleges he has made to accomplish the object which he had in view might have been made, and doubtless were made, in view of the state of the art as shown by several of the patents referred to.

The Examiners-in-Chief give no particular reason for their decision, but simply affirm the Primary Examiner.

In view of the above facts and principles their decision is reversed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

BOSTON ELASTIC FABRIC COMPANY *vs.* EAST HAMPTON RUBBER-THREAD COMPANY.

[*In equity.—Before* SHEPLEY, *J.—Decided October term, 1875: to wit, April 4, 1876.*]

A patent may be defeated by showing that the thing secured by the patent had been invented and put into actual public use prior to the discovery of the patentee, however limited such use (other than experimental) or knowledge of the prior discovery may have been.

[*James E. Maynadier* for complainants.
George Gifford, Hillard, Hyde, and *Dickenson* for defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.:*

A former suit between these parties commenced for alleged infringement of letters patent granted to Liveras Hull, dated January 20, 1863, for an improvement in cutting sheets of rubber into threads, was dismissed upon the ground that the patent, as it then stood, was for a machine, and that the machine used by Hull was substantially the same machine as one of prior date known to manufacturers of rubber thread as "the bottle-machine."

Since the decision in that cause the patent has been reissued to the complainants, as assignees of Liveras Hull, by reissue 5,903, dated June 2, 1874, as a patent for an art or process, the claim being "for the improved mode of manufacture, consisting in cutting the sheet into a series of threads by a continuous cut of one cutter," as described in the specification.

At the hearing of the former cause it clearly appeared that Liveras Hull, without any knowledge of any prior machine, or of any prior use of an art of cutting rubber threads in the mode described in his specification, had invented both the machine and the mode of manufacture. But it also appeared as clearly that there was proof of a machine of an earlier date than his invention, although it was unknown to him.

It did not quite satisfactorily appear, from the evidence in the former case, that the process or mode of manufacture described by Hull, and now, but not then, claimed, had been practiced on the anticipating machine, although that mode of manufacture could have been practiced on that machine, or at least on one differing from it only in the enlarged size of the drum on which the sheet rubber is wound. There was no conclusive evidence in that case that Hull was not the first, as he undoubtedly was in one sense an original, inventor of his mode of manufacture. But this issue was not directly involved in that case, the patent, as it then stood, being for the machine, and not for the art or process. Evidence has now been introduced, much of it coming from witnesses who were not examined before, which seems to prove satisfactorily that a machine was constructed by one Helm during the fall of the year 1860, and completed before the 1st of January, 1861; that a sheet of rubber, many yards in length, was wound round and round upon the drum of said machine; that the machine had a single circular cutter which was pushed up to the drum through the rubber at one end of the cylinder; that the drum was then caused to rotate slowly, and the circular cutter to rotate rapidly, and at the same time to traverse slowly along the face of the drum until it reached the other end of the drum, by which operation the sheet of rubber was cut into a series of threads by a continuous cut of one cutter.

That this was the same process claimed and described in complainants' patent is too clear to admit of dispute. Complainants contend that the process was only imperfectly carried on, that the thread made was imperfect, and that the use of the Helm machine was merely experimental, and the experiment was abandoned before Hull made his invention.

The law upon this subject is too well settled to require the citation of any authorities.

A patent may be defeated by showing that the thing secured by the patent had been invented, and put into actual public use, prior to the discovery of the patentee, however limited such use (other than experimental) or knowledge of the prior discovery may have been.

Seven witnesses, who are unimpeached and uncontradicted, testify to the public and practical, not merely experimental, use of the patented process, in New Brunswick, on the Helm machine, prior to the time of the alleged invention by the patentee. They prove that the threads cut by that machine were good marketable threads, well cut, and publicly made and used in large quantities in the manufacture of both shirred goods and suspenders, and that the fabric made from them was a good salable fabric and regularly sold in the

market. There is some conflict in the testimony as to the subsequent history of the Helm machine on which this was first cut by the patented process. That history is not material to this inquiry. We are dealing with the mode of manufacture of the thread. The evidence shows that mode of manufacture to have been practiced, not for experiment, but in the regular course of business, openly, successfully, and practically within the knowledge of a large number of persons at a time prior to the date of the alleged invention.

Bill dismissed.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

HELEN MARIE McDONALD *vs.* S. M. BLACKMER *et al.*

[*In equity.—Before* SHIPLEY, *J.—Decided October term*, 1875: *to wit*, *April* 4, 1876.]

The patent of plaintiff sustained, and decree for injunction and account against defendants. No legal principles involving construction of patent law involved, in the opinion of the court.

[*George E. Betton* for complainant.
Browne and *Holmes* for defendants.]

OPINION OF THE COURT.

SHIPLEY, *J.*:

Since the disclaimer, which was filed before the date of the bill in this case, the claim of the complainant is limited to that only which was described in the specification of her patent—viz., "as a new article of manufacture, a skirt-protector, having a fluted or plated border bound with or composed of enameled cloth or other water-proof material." I see no reason to doubt that she was the first and original inventor of this article, as distinguished from a skirt-facing, which is an entirely different article, and from a skirt-protector, which being made of wiggan or similar material, was substantially useless for the purpose, as compared with the complainant's invention.

Decree for injunction and account, as prayed for in the bill.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

THE GILBERT AND BARKER MANUFACTURING COMPANY *vs.* THE WALWORTH MANUFACTURING COMPANY.

[*In equity.—Before* SHIPLEY, *J.—Decided April* 4, 1876.]

Mere change of location is not patentable; but where change of location brings into existence a new combination of devices, operating by reason of such new combination to produce a new and useful result, such new combination is patentable.

[*E. W. Stoughton* and *William Stanley* for complainants.
Causten Browne and *Jabez S. Holmes* for defendants.]

OPINION OF THE COURT.

SHIPLEY, *J.*:

The complainants are the owners of letters patent of the United States, dated August 3, 1869, No. 93,268, for an Improved Apparatus for Carbureting Air. The invention is described in the specifications as relating to the apparatus used for carbureting air in the manufacture of illuminating-gas for dwelling-houses and factories, and as consisting in the arrangement of the carbureter with the meter wheel or pump for driving the air through said carbureter to the burners, and the coil and heating pipes for evaporating the oil within the carbureter, whereby the whole apparatus is rendered perfectly safe with regard to life and property in the building lighted, the carbureter being situated in a *vault or house* away from the building to be lighted, while the heating apparatus and the pump or meter wheel are within the building to be lighted, and where they can be easily and quickly reached, and under perfect control of the occupant of the house. There was nothing novel in the meter-wheel, or the carbureter, or the combination of a meter-wheel with a carbureter, or their connection with the gas-pipe, air, or heating-pipes, except so far as their location and arrangement was claimed to be new, by placing the carbureter in a vault or house by itself, separate from the building to be lighted, and arranging the meter-wheel and the heating-coil in the building to be lighted where they could be easily reached, and under control of the occupant of the house without exposure to explosion consequent upon frequent access to the room in which the carbureter is placed, and connected by pipes passing through a wall or the ground, so as to cut off any communication of gas or flame between the room in which the carbureter is placed and the building to be lighted.

It is denied on the part of the defendants that there is any patentability in such a change of location of parts, all of which are confessedly old. Mere change of location is not patentable, but where change of location brings into existence a new combination of devices operating by reason of such new combination to produce a new and useful result, such new combination is patentable. (Woodruff, J., in *Marsh et al.* vs. *The Dodge Stevenson Manufacturing Company*, 3 OFFICIAL GAZETTE, 398.)

I am not prepared to say that the new arrangement and location constituting a new form or mode of combination, as described in the patent, taking into consideration the new and useful result claimed for it, was not patentable, if it was novel at the time claimed as the date of plaintiffs' invention. The combination and arrangement of the respondents embrace all that is claimed in the first claim of the patent. No issue of infringement need therefore be considered. The only material question left for consideration is whether what is claimed in the first claim of the patent was new in the sense of the patent law. The determination of this question requires a careful and critical analysis of the supposed invention and of the first claim of the patent, and a careful comparison of the claimed invention with the prior existing combinations and arrangements claimed as anticipating it.

The invention described and claimed is "the arrangement of the carbureter" [that is, any carbureter, for no new form of carbureter is claimed or was invented] "with a meter-wheel being driven by a descending weight, or other equivalent mechanical power, applied to force the air through the carbureter to the burners," [this allows the use of an equivalent for the weight to drive the meter-wheel, and embraces the use of "other equivalent mechanical power applied to force the air through the carbureter to the burners," as, for instance, an hydraulic blower, an air-pump, a pump with a gas-holder, known generally as a gasometer, a bag weighted, or

other well-known equivalents for this purpose of a meter-wheel pump,] "said carbureter being situated in a vault," [*i. e.*, an arched or vaulted apartment, especially a subterranean room] "*or house*" "by itself, away from the building to be lighted," "the whole arranged and connected with pipes, substantially" as therein (in the patent) "described and set forth." This arrangement and connection embraces, *first*, pipe A, the air-pipe, which, running through the wall of the building, and, also, when required, the ground between the walls of the building to be lighted and the carbureter room connects the meter-wheel pump, or its equivalent, inside the building with the carbureter in its "vault or house," furnishing a conduit for the air from the pump to the carbureter; *second*, the heating-coil P and pipes R R connecting a heating-coil in the building with a carbureter in the vault or house; *third*, the pipe N, the gas-pipe leading through the wall or ground, or both, as the case may be, from the carbureter in its vault or house into the building to be lighted, furnishing a conduit from the gas in the carbureter to the distributing-pipes to the burners. The first claim in the patent is for all this combination and arrangement (exclusive of the heating-coil P and heating-pipes R R.) The second claim is for the heating-coil and its connections with the heating-pipes, and the carbureter with reference to their respective locations. As the defendants use no heating coil or pipes, no question arises in this case on the second claim, and its only importance is in aiding in the construction of the first claim.

Having now definitely stated the invention described and claimed in the patent, we pass to the consideration of the function and purpose of the patented combination and arrangement. This is clearly set forth by the patentees. They describe their invention as consisting in an arrangement "whereby the whole apparatus is rendered safe with regard to life and property in the building lighted, the carbureter being situated in a vault or house away from the building to be lighted, and where they can be easily and quickly reached, and under perfect control of the occupant of the house."

Without instituting a comparison between the patented invention and all the other prior existing forms of apparatus for carbureting air for illuminating purposes, which have been proved to have existed, I have selected the Meriden machine for the reasons that it is proved to have been constructed and operated successfully in the fall of 1864, while the invention of Gilbert & Barker is not even claimed to have been before June, 1867, and also because this apparatus appears to me to have embodied in 1864, in successful and practical and public use, every element of the first claim of the complainants' patent of August, 1869.

The Meriden apparatus was used for carbureting air for illuminating a factory. It consisted of an air-pump and air-receiver, a well-known equivalent for the meter-pump wheel, a carbureter, the equivalent of complainants' carbureter, placed in a brick vault built on the surface of the ground ninety-three feet from the main building to be lighted. This was actually both a vault and a house, and therefore identical with complainants' vault or house. There was an air-pipe, which connected the pump inside of the building to be lighted with the carbureter in the vault, passing underground and furnishing a conduit from the air in the pump to the carbureter, being thus the equivalent of complainants' pipe A. There was a gas-pipe leading from the carbureter in the vault through and underground, and furnishing a conduit for the carbureted air or gas from the carbureter to the building to be lighted. This is identical with complainants' pipe N. There was also a steam-pipe with its connections, but that is not material to the inquiry involved in this case, because the defendants do not use any artificial heat, and the complainants do not make their heating coil and pipes a part of the arrangement and combination claimed in the first claim.

The Meriden apparatus contained every element of location, arrangement, and combination claimed in the first claim of complainants' patent.

I have carefully examined and considered the learned opinion of Judge Woodruff, of the second circuit, in the case of these same complainants against Oakes Tirrell. It is not without much diffidence and great reluctance that I am forced to arrive in this case at conclusions which may appear to be at variance with the opinion of that learned, upright, and able judge.

Had the record in this case presented the same or substantially the same state of facts as was presented in the record before Judge Woodruff I might have been contented to rest my conclusions upon the weight of his high authority, leaving the responsibility of revision, if revision were necessary, to the Supreme Court of the United States; but the additional evidence in this record, not found in the case before him, compels me to make an independent and critical comparison of the invention claimed with prior existing combinations and arrangements. Such examination and comparison force upon me the conclusion that the assignors of the complainants were not the first and original inventors of what is claimed in the first claim of their patent. I cannot find, upon the most careful examination of this patent, what Judge Woodruff seems to have found in it, any claim or description of an invention of such an arrangement of the gas-pipe as would effect a preliminary condensation before the gas enters the distributing-pipes, which would relieve the operation of the apparatus from the dangers arising from condensation by reason of the pipes passing through cold apartments in the building to be lighted. I can find nothing in the patent which discloses any such danger. I can find nothing in the patent or drawings which teaches how such danger is to be avoided by preliminary condensation. I can find no statement that by the patented apparatus such danger is obviated, or any statement that it is the purpose of the invention, or the function of the arrangement or combination, to avoid such danger by such preliminary condensation. John F. Barker, one of the patentees, in his testimony says machines are highly dangerous unless condensation in the building is prevented; that this is done by laying the pipe in the ground about the frost-line in a cooler medium, causing preliminary condensation. The patent is silent as to this danger, and fails to disclose any mode of adjusting such an arrangement to meet the different requirements of different climates and temperatures. On the contrary, the drawings show only a gas-pipe passing through a partition-wall between the building to be lighted and the carbureter-vault, under such conditions that no amount of preliminary condensation

would be likely to take place in any degree equal to what took place in the then existing well-known arrangements in common use. The advantages of the arrangement claimed in the patent itself are these, and only these: first, "whereby the whole apparatus is rendered perfectly safe with regard to life and property in the building lighted, the carbureter being situated in a vault or house away from the building to be lighted, while the heating apparatus and the pump or meter wheel are within the building to be lighted, and where they can be easily and quickly reached, and under perfect control of the occupant of the house;" and again "so that the possibility of any accident resulting from the escape of the gas from the carbureter shall be entirely removed, as there will then be no vessel containing gas within or near the building to be lighted." There are many other references to the patent and the drawings, and other comparisons between the described invention and arrangements other than those of the Meriden apparatus which might be made confirmatory of the views I have taken; but those already stated are so conclusive to my own apprehension, that further illustration would seem to be superfluous. It follows that the bill must be dismissed.

Bill dismissed with costs.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 18, 1876.]

9,218.—Garden-Vase.—DAVID W. LEWIS and JOSEPH WILLETT, Hyde Park, Mass. Application filed March 9, 1876. Term of patent 7 years.

9,219 and 9,220.—Child's Carriage.—GEORGE W. MARBLE, Chicago, Ill., assignor of one-half his right to ADOLPH SHOENDORR, same place. Applications filed March 6 and 29, 1876. Term of patents 3½ years.

9,221.—Burial-Cases.—JOHN MCGRATH, New York, N. Y. Application filed March 21, 1876. Term of patent 3½ years.

9,222.—Handles of Table-Knives.—ALONZO PARKER, Greenfield, Mass. Application filed February 28, 1876. Term of patent 7 years.

9,223.—Shoe-Uppers.—LUCIUS F. ALDEN, Brockton, Mass. Application filed March 20, 1876. Term of patent 7 years.

9,224.—Badge.—ROYAL C. BIERCE, Menomonee, Wis. Application filed March 21, 1876. Term of patent 3½ years.

9,225.—Card-Holders.—LENTHEL S. DAVIS, Waterbury, Conn. Application filed March 31, 1876. Term of patent 3½ years.

9,226 and 9,227.—Cooking-Stoves.—CONRAD HARRIS and EDWARD KUMMER, Cincinnati, Ohio, assignors to C. HARRIS & SON, same place. Applications filed March 18, 1874. Term of patents 7 years.

9,228 and 9,229.—Perforated Paper.—GEORGE M. JACOCKS and JAMES W. TAPPIN, New York, N. Y. Applications filed April 7, 1876. Term of patents 3½ years.

9,230.—Apron.—CHARLOTTE JENKINS, New York, N. Y. Application filed April 10, 1876. Term of patent 3½ years.

9,231.—Toy Money-Boxes.—ROBERT F. KANE, Cambridgeport, assignor to DOVER STAMPING COMPANY, Boston, Mass. Application filed December 10, 1875. Term of patent 7 years.

9,232.—Flag-Holders.—JOHN H. ODELL, Philadelphia, Pa. Application filed April 10, 1876. Term of patent 3½ years.

9,233.—Toy Arrow Holder and Guide.—CHARLES ROBINSON, Cambridgeport, Mass. Application filed February 29, 1876. Term of patent 7 years.

9,234.—Twine-Holders.—OTTO F. FOGELSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Application filed February 16, 1876. Term of patent 7 years.

9,235.—Canisters.—JOSEPH B. ROHRMAN, Philadelphia, Pa. Application filed March 10, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 18, 1876.]

3,581.—Pistols.—EDWARD PALMER BOARDMAN, Boston, Mass. Application filed March 20, 1876.
"word 'RIGHT.'"

3,582.—Soap.—DAVID S. BROWN & Co., New York, N. Y. Application filed March 27, 1876.
"words 'David's Prize Soap,' ('Preis Seife.')"

3,583.—Compositions for Laundry Purposes.—CHARLES A. FRENCH, Boston, Mass. Application filed March 25, 1876.
"word 'MOLIEN.'"

3,584.—Tonic Beer.—GARRIN & BILLGER, Philadelphia, Pa. Application filed March 31, 1876.
"a triangular-shaped figure."

3,585.—Loom-Pickers and Machine-Belting.—A. & C. W. HOLBROOK, Providence, R. I. Application filed February 19, 1876.
"letters 'H' and 'K.'"

3,586.—Tobacco.—A. M. LYON & Co., Richmond, Va. Application filed March 9, 1876.
"word 'SULTANA.'"

3,587.—Writing-Paper and Envelopes.—PORTER & BAINBRIDGE, New York, N. Y. Application filed March 31, 1876.
"words 'STAR OF INDIA.'"

3,588.—Writing-Paper and Envelopes.—PORTER & BAINBRIDGE, New York, N. Y. Application filed March 31, 1876.
"words 'EMPRESS OF INDIA.'"

3,589.—Bourbon Whisky.—JOHN B. SMITH, New York, N. Y. Application filed March 30, 1876.
"word 'ELKHUN.'"

3,590.—Cigars.—GEORGE F. THOMPSON, Detroit, Mich. Application filed March 13, 1876.
"words 'VANITY FAIR' and representations of the obverse and reverse sides of the prize-medal awarded at the Vienna Exposition in 1873."

3,591.—Locks and Lock-Fittings.—ISAAC P. TURNER, Albany, N. Y. Application filed March 25, 1876.
"word 'Contentment,' in connection with the word 'Lock.'"

3,592.—Wash-Boards.—UNION MANUFACTURING COMPANY, Toledo, Ohio. Application filed March 27, 1876.
"representation of a globe and the word 'The.'"

3,593.—Smoking-Tobacco.—WEYMAN & BROTHER, Pittsburg, Pa. Application filed March 31, 1876.
"a pair of scales held up by a hand, containing a crown and a pipe."

3,594.—Fertilizers.—P. ZELL & SONS, Baltimore, Md. Application filed March 31, 1876.
"words 'Zell's Economizer.'"

3,595.—Coffee, Tea, and Spices.—ARBUCKLE BROTHERS, New York, N. Y., and Pittsburg, Pa. Application filed March 22, 1876.
"word 'Arbuckle's' and the representation of an angel floating in the air, clothed in a star-spangled robe, and assuming a benedictory attitude."

3,596.—Cigarettes.—COMPAGNIE LAFERME, Dresden, Saxony. Application filed March 10, 1876.
"words 'COMPAGNIE LAFERME,' in connection with the representation of an elephant."

3,597.—Preparation Employed for the Prevention of Acid Fermentation in Beer, &c.—GÜLICH & Co., New York, N. Y. Application filed March 9, 1876.
"words 'Anti Acid Fermentine.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 18, 1876.]

665.—Title: "Chamberlain, Roe & Co., Provision Dealers."—CHAMBERLAIN, ROE & Co., New York, N. Y. Application filed April 10, 1876.

666.—Title: "Mrs. Drury's Chart."—Mrs. L. DRURY, Springfield, Ohio. Application filed April 5, 1876.

667.—Title: "The Defiance Smoking Tobacco."—F. B. FLORES, New Orleans, La. Application filed April 11, 1876.

668.—Title: "My Own Fine Cut Smoking Tobacco."—F. B. FLORES, New Orleans, La. Application filed April 11, 1876.

669.—Title: "Daniel's Taraxacum or Dandelion Coffee."—THOMAS JACKSON, Philadelphia, Pa. Application filed April 11, 1876.

670.—Title: "G. R. & I. Cigars."—KRUGER & DAVIDSON, Grand Rapids, Mich. Application filed April 5, 1876.

671.—Title: "Elastic Bands & Rings."—NATIONAL RUBBER COMPANY, Providence, R. I. Application filed April 8, 1876.

672.—Title: "Shaw's Railroad Liniment."—EDWARD SHAW, Richmond, Ind. Application filed April 12, 1876.

673.—Title: "Star Company Refined Lard."—W. J. WILCOX & Co., New York, N. Y. Application filed April 7, 1876.

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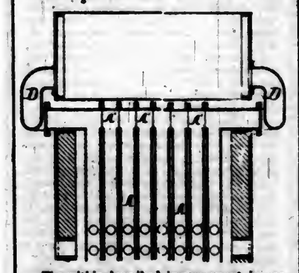
OF

PATENTS GRANTED APRIL 18, 1876.

176,190. PROCESSES FOR TREATING REFUSE MATTER CONTAINING GUMS, RESINS, &c. Leander Butler, Chelsea, assignor to himself and Romulus Norwood, Rockport, Mass. [Filed Jan. 12, 1876.]

The art or process, substantially as described, of treating loom-harness or varnished material for the purpose of separating therefrom its varnish or covering matter, and preparing such for use in the arts, such consisting in first subjecting it to an alkaline solution and heat, and next to an acid, and afterward drawing off the surplus liquid and baking the residuum in an oven, all essentially as set forth.

176,192. SECTIONAL TUBULAR BOILERS. William H. Dougherty, New York, N. Y. [Filed Mar. 1, 1876.]



The within-described improvement in sectional boilers, having the junctions A^1 at the top, in combination with sections A, standing crosswise of the structure, and with the drum C, standing lengthwise of the structure, provided with the connections D, all adopted to serve as and for the purposes herein specified.

176,196. PROCESSES OF UTILIZING BESSEMER-STEEL WASTE. William Fields, Wilmington, Del. [Filed Mar. 8, 1876.]

Brief.—The scrap is first melted with chromate of iron, sal-ammoniac, saleratus, salsoda, York ore, litharge, and iron scale; then remelted with chromate of iron, sal-ammoniac, black oxide of manganese, antimony, wolfram, saltpeter, and charcoal.

The process herein described of utilizing Bessemer waste steel, consisting of melting it twice in separate charges in the presence of or mixed with chemicals, substantially as described.

176,181. DOOR-KEYS. Wm. C. Frederick, Medford, Mass. [Filed Dec. 23, 1875.]

Brief.—A spring-catch is inserted in a slot in a door-key, and arranged so as to engage with the lock-case, when the key is inserted therein, and prevent the key from being forced out.



1. A slotted door-key, provided with the spring-catch O D constructed substantially as described, for the purpose specified.

2. A slotted door-key, in combination with the spring-catch O D and loose ring R, substantially as and for the purpose described.

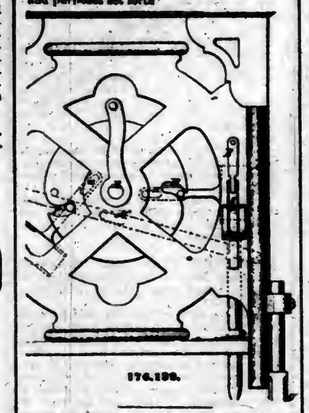
176,188. STONE DRILLING AND DRESSING MACHINES. F. A. Grant and W. P. Crouch, Wabash, Ind. [Filed Sept. 1, 1875.]

1. The wheel with parallel sides, but with sufficient space between, and no more, with hammer attached, to allow the rise and fall of the hammer, substantially as and for the purpose herein before set forth.

2. The attachment of the hammer to the revolving wheel eccentrically, and so as to be moved back and forth by the slots X X, substantially as and for the purpose set forth.

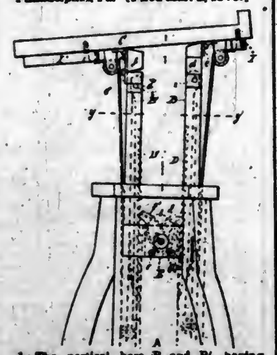
3. The revolution of the drill or dresser at the blow of the hammer, by the use of the pendulum and spring, substantially as and for the purpose set forth.

4. The combination of the several parts into a machine, substantially as and for the uses and purposes set forth.



176,188.

176,185. CAMERA-STANDS. John Haworth, Philadelphia, Pa. [Filed Mar. 2, 1876.]



1. The vertical bars B and B', having hinged racks D and D' in combination with the adjustable table O, to which they are hinged, and the block A, having pawls g and g', substantially in the manner and for the purpose set forth.

2. The combination of the levers I and I', having cords h, with the table C, racks D and D', and bars B and B', substantially as and for the purpose set forth.

3. The combination of the casting G, with the block A, and pawls g g' for the stoppage of the latter, substantially as set forth.

176,194. GAS-BURNER SPRINGS. J. Hayden, Philadelphia, Pa. [Filed Mar. 2, 1876.]

1. The combination of one or more compressing-springs and one or more tension-springs with the piston D and cylinder A, substantially in the manner and for the purpose set forth.

2. A combined spring, having a cylinder, A, piston-rod C, provided with a piston, D, a reacting collar, D', one or more tension-springs, and one or more compressing-springs, constructed and arranged in relation to each other substantially in the manner and for the purpose set forth.

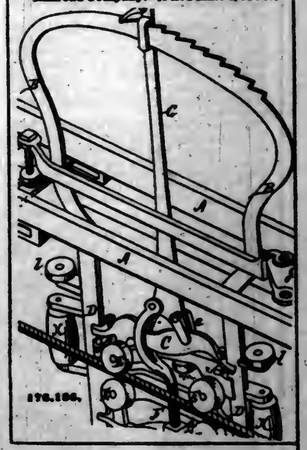
176,195. TOBACCO-PRESSES. R. Herbert, Baltimore, Md. [Filed Feb. 19, 1876.]

Brief.—Each successive charge of tobacco is retained under pressure, on the withdrawal of the follower, by the previous insertion through the staves of spike-hooks, adjustable in the links of chains attached to a base-plate.



The combination of a tobacco-press with a head-block, and chains and pins, as set forth.

176,186. ROPE-GRIPING DEVICES FOR PROPELLING VEHICLES. Asa B. Hovey, San Francisco, Cal., assignor to Sutter Street Railroad Company. [Filed Mar. 4, 1876.]



176,186.



176,194.

1. A rope-griping apparatus or device, consisting of the two parallel bars C C, carrying the opposing rollers E E within their tubes *a*, said bars being connected together and operated by means of the screw-bolt F, short arms *c*, and operating-lever G, all combined to operate substantially as above described.

2. The metal plate B, bent as described, so as to favor the entire frame of the griping apparatus, and having the upper edge of its middle or circular portion provided with ratchet-teeth, in combination with griping-jaws or rollers E E, which are forced together by a lever, G, said lever being provided with a spring-pawl, which engages with the ratchet-teeth, substantially as and for the purpose described.

3. A griping apparatus, consisting of the metal frame E, with its upright friction-rollers K K, horizontal friction-rollers *l l*, and counteracting friction-roller *m*, arranged as described, and provided with rope-griping jaws or rollers E E, substantially as and for the purpose described.

176,127. WHEELBARROWS. W. H. Jacobs, Columbus, Ohio. [Filed Mar. 17, 1876.]

Brief.—The barrow is arranged to fold flat, in order to occupy less room.

1. In a wheelbarrow adapted to receive removable sides, the combination of the side bars A and wheel-bars C, forming the main frame of the wheelbarrow, substantially as and for the purpose set forth.

2. In a wheelbarrow adapted to receive removable sides, a back-board frame consisting of the swinging bars F F, the cross-bar G, and the swinging braces H, substantially as and for the purpose set forth.

3. In a wheelbarrow adapted to receive removable sides, the swinging legs K, the cross-bar L, and the swinging braces M, substantially as and for the purpose set forth.

4. In a wheelbarrow adapted to receive removable sides, the combination of the main frame of a wheelbarrow, the swinging back-board frame, having swinging braces, and the swinging legs, having swinging braces, the said braces being detachable from the main frame, whereby the back-board frame and the legs may be folded upon and into the main frame, substantially as and for the purpose set forth.

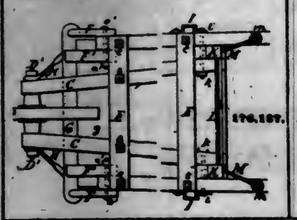
5. In a wheelbarrow-frame adapted to receive removable sides, the auxiliary or wheel-bars C, whereby the weight of the load is greatly reduced on the side bars A, thereby permitting the use of lighter material in the construction of the wheelbarrow, substantially as set forth.

6. In a wheelbarrow-frame adapted to receive removable side boards, and having its back board arranged to swing down, the cross-bars B and the bolts *a*, whereby the weakening of the frame with mortises and tenons is avoided and the labor of taking the frame apart is greatly simplified, substantially as set forth.

7. In a wheelbarrow with a swinging back board, the braces H, pivoted to the cross-bar G and fastened with their swinging ends by the wheel-bolt D' to the wheel bars F', substantially as and for the purpose set forth.

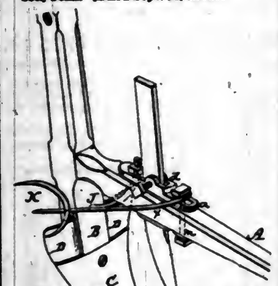
8. In a wheelbarrow with a swinging back-board frame, the combination of the braces H and the inclined edge *g'*, of the cross-bar G, to which they are pivoted, and upon which they are folded together, side by side, when the said back-board frame is folded up, substantially as hereinbefore set forth.

9. In a wheelbarrow with swinging legs, the braces M and the inclined edge *l*, of the cross-bar L, to which they are pivoted and upon which they are folded up, side by side, so that they may enter between the frame F, with the said cross-bar when the legs K are folded up in the said frame, substantially as hereinbefore set forth.



176,127.

176,128. PLOWS. Andrew H. Jester, Jackson, Tenn. [Filed Sept. 14, 1875.]

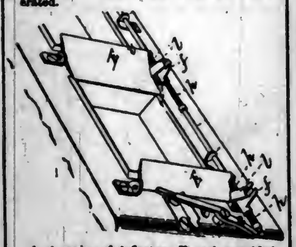


1. The wings D D, hinged to the plow-standard, the bars I I, and brace J, in combination with the foot B and its shovel blade, as and for the purpose set forth.

2. The slotted plate *a d*, set-screw *b*, and the plate or loop *c*, in combination with the beam, for holding and adjusting the cutter, as and for the purpose set forth.

176,129. CAR-VENTILATORS. Charles H. Kellogg, East Leverett, Mass., assignor to himself and George S. Lewis. [Filed Sept. 25, 1876.]

Brief.—A series of deflectors, each provided with projections, and pivoted about midway its width to the outside of a car, between the windows, and of a width to occupy the whole space between two adjacent windows, in combination with the longitudinally-operating rod and the projecting arms jointed or pivoted to the projections, by which rod and arms all the deflectors on one side of the car are operated.



1. A series of deflectors, E, each provided with a projection, *i*, and pivoted at a point midway its width to the outside of a railway-car between the windows, and of a width to occupy the whole space between two adjacent windows, in combination with the longitudinally-operating rod *e* and the projecting arms *f*, jointed or pivoted to the projections *i*, by which rod and arms all the deflectors on one side of the car are operated, substantially as described.

2. In combination with the series of deflectors E, pivoted midway their width, and provided with projections *i* and sliding rod *e*, the springs *h*, secured to said rod, and the projecting arms *f*, arranged loosely upon said rod, whereby a constant pressure is exerted against said deflectors, substantially as and for the purpose set forth.

176,130. MOWERS. Henry K. Kenyon, West Falls, N. Y., assignor of one-half his right to Robt. B. Allen, Parker's Landing, Pa. [Filed Apr. 7, 1876.]

1. In the cutter-bar of a reaper or mower, the sectional driving-shaft, in combination with the two tiers of rotary cutters, adapted to cut in reverse directions, and suitable devices for transmitting power from the shaft to the cutters, substantially as and for the purpose specified.

2. In the cutter-bar of a reaper or mower, the combination of a driving-shaft, having suitable pulleys, with two tiers of rotary cutters, and belts or chains for driving the cutters from the shaft, substantially as and for the purpose specified.

3. The combination of two tiers of rotary toothed cutters, each tooth having two cutting-edges with suitable mechanism for reversing the rotation of the cutters, substantially as and for the purpose specified.

4. The combination of two tiers of rotary cutters adapted to be run in opposite directions, the cutters of one tier having fewer teeth than the cutters of the other tier, substantially as and for the purpose set forth.

5. In the cutter-bar of a reaper or mower, the combination of the finger-guard with the bearing-block, the two pieces abutting and secured by a single binding-screw, substantially as and for the purposes specified.

6. The combination of the top and bottom plates, having beveled edges, with the finger-guards and bearing-blocks, having lips or shoulders which take over the beveled edges of the plates, and a binding-screw for securing the parts, substantially as specified.

7. In a cutter-bar, having rotary cutters driven by a shaft and belts or like mechanism, the combination of the flanged or winged finger-guards with the bottom plate and cap plate for inclosing and protecting the mechanism, substantially as described.

8. In a reaping or mowing machine, the floating cutter-bar, in combination with the main frame and mechanism for locking and lifting the bar at any desired angle relatively to the main frame, substantially as described.

9. The combination of the cutter-bar with the oscillating shaft, having ratchet mechanism, and with the lifting-lever and intermediate ratchet-lever, substantially as and for the purpose described.

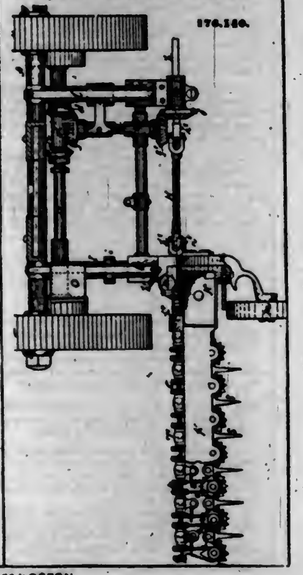
10. The combination of the cutter-bar, the hinged stock-pieces and the oscillating shaft, one stock-piece being connected to the oscillating shaft and the other to the cutter-bar, substantially as and for the purpose specified.

11. The combination of the main frame, lifting-lever, pivoted lever *k*, and catch *k'* for locking down the long arm of the lever so that the main frame and heel of the cutter-bar may be raised without locking the cutter-bar, substantially as and for the purpose specified.

12. In the cutter-bar of a reaper or mower, the combination of two tiers of rotary cutters adapted to be run in opposite directions, with finger-guards interposed between each pair of cutters, substantially as and for the purpose specified.

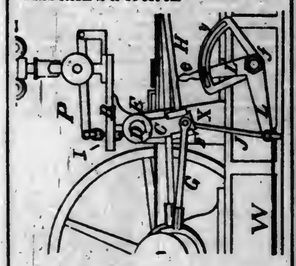
13. In the cutter-bar of a reaper or mower, the combination of a single driving-shaft, having fixed pulleys, with two rotary cutters, one immediately above the other, adapted to run in opposite directions, and an endless belt for driving the two cutters in reverse directions.

176,130.



176,131. CUT-OFFS AND GEARS. J. Knowlson, Troy, N. Y. [Filed Jan. 27, 1876.]

Brief.—A device for governing the point of cut-off in a steam-engine, consisting of a swinging segment, upon which slides a swinging block, connected to the valve, which is governed by a governor automatically, or is set at some fixed point by a hand-lever, at which steam is to be cut off.

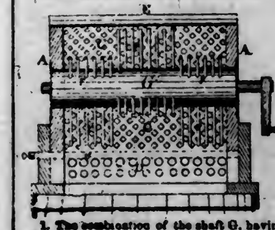


1. In combination with a governor and cut-off-valve rod, the reciprocating segment C, slide F, spring or weight W, connections I J, and lever P, all substantially as shown and described.

2. In combination with a governor and cut-off-valve rod, the reciprocating segment C, slide F, connections I J, spring or weight W, and adjustable elbow-lever L L', all substantially as shown and described.

3. In combination with a governor and cut-off valve rod, the reciprocating segment C, slide F, connections I J, spring or weight W, eccentric rod G, and elbow-lever L L', all substantially as shown and described.

176,132. OBSTRUCTION-CLEARING MACHINES. Nelson B. Little, Chicago, assignor to Henry T. Barnes, Washburn, Ill. [Filed Dec. 23, 1875.]

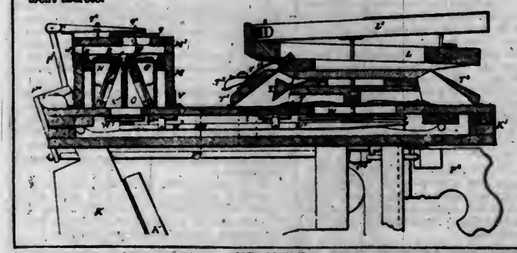


1. The combination of the shaft G, having the eccentric arrangement of projecting arms or bosses F, with the cylinder A composed of the finely-perforated metallic grater covering C and metallic cover D, with larger perforations, substantially as and for the purpose described.

2. The combination of the cylinder A, constructed with perforate sections, as described, having a door, E, with the longitudinal slide *a*, all constructed and arranged substantially as and for the purpose described.

176,133. REED-ORGANS. M. J. Matthews, Boston, Mass. [Filed Aug. 14, 1876.]

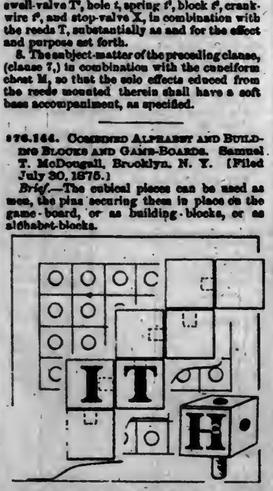
Brief.—Novel construction of reed-chest, and operative mechanism attached; also means for producing a soft bass accompaniment thereto.



176,133.

176,134. COMBINED ALPHABET AND BUILDING BLOCKS AND GAME-BOARDS. Samuel T. McDougall, Brooklyn, N. Y. [Filed July 20, 1875.]

Brief.—The cubical pieces can be used as men, the pins securing them in place on the game-board, or as building-blocks, or as alphabet-blocks.



1. Cubical alphabet, building, or game blocks, provided with a pin projecting from one side, lettered on the opposite side, and with holes through one or more of the remaining sides, substantially as described, and for the purposes specified.

2. A game-board provided with pin-holes, and the cubical alphabet, building, and game blocks, having pins and holes, all arranged to operate substantially as herein set forth.

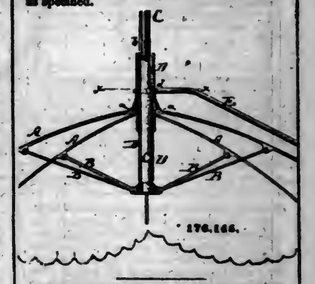
176,135. UMBRELLA-TOPS FOR CARRIAGES. Daniel McRedmond and William D. Chase, New York, N. Y.; said McRedmond assignor to Stephen Lane, Jr., same place. [Filed Sept. 7, 1875.]

1. The suspended umbrella or parasol having the upwardly-projecting rod C, extending through the tube D, and provided at its upper part with the spring-catch *b* to lock against the upper end of the tube D, substantially as herein shown and described.

176,136. UMBRELLA-TOPS FOR CARRIAGES. Daniel McRedmond and William D. Chase, New York, N. Y.; said McRedmond assignor to Stephen Lane, Jr., same place. [Filed Sept. 7, 1875.]

2. The swiveled ring *d*, applied around the tube D of a suspended umbrella or parasol, and pivoted in the forked lever E, substantially as and for the purpose specified.

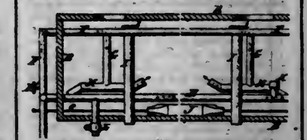
3. The combination of the standard F with the forked lever E, pivoted thereto, and with the suspended parasol or umbrella, all arranged so that said three parts can be conveniently folded together on the carriage, substantially as specified.



176,136.

176,146. REFRIGERATING APPARATUS. Jos. Parisette, Indianapolis, Ind. [Filed Feb. 3, 1876.]

Brief.—Agitator draws the refrigerant mixture from beneath, and at either end of its barrel, and forces it out in a sheet, stirring up the mixture, and knocking ice from the tubes. Same piston-rod may actuate several agitators. Air forced through pipes passing entirely through, and opening back into and near the top of the chest, and also into pipes passing along top of chest, with branches down into the frigorific mixtures, and from either of each systems of pipes downward through valved pipes into the apartment to be cooled. Puts salt into pipes to absorb the condensation. May attach inlet-pipe to blower, with an air-condensing or an air-refrigerating apparatus.



1. The agitator J, composed of the barrel *b*, flattened end pieces *g*, provided with valve *d*, piston *p*, and piston-rod *c*, constructed and arranged to operate in the manner substantially as set forth.

2. The pipes F, furnished with stop-cocks E', passing through and returning the air to the top of the ice-chest B, in combination with the vertical pipes I, either with or without the valves *i*, substantially as set forth.

3. In combination with pipes E, the cups K, for introducing any suitable deliquescent salt, and the draw-off cocks L, constructed and arranged substantially as and for the purpose set forth.

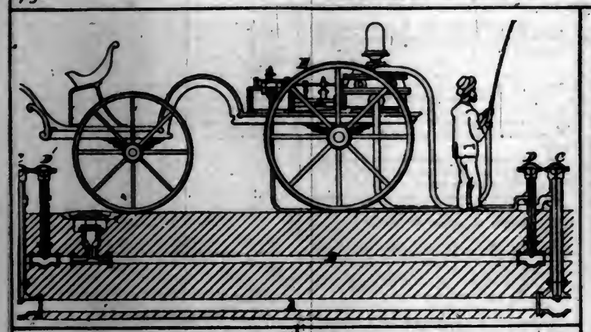
4. The vertical pipes I, furnished at their tops with the valves or dampers *i*, in combination with the pipes E F G H, arranged and operating substantially as set forth.

5. The air-tight refrigerating-chest B, furnished with the air-circulating pipes E F G H I, and the agitators J, in combination with any suitable air-condensing or air-refrigerating apparatus, substantially as set forth.

176,147. APPARATUS FOR EXTINGUISHING FIRES. Wm. B. Prall, Washington, D. C. [Filed Mar. 26, 1876.]

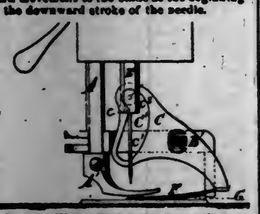
Brief.—A combination of two mains—one containing water, the other compressed air. At once, the portable pump is connected with both, one supplying power, the other water for extinguishing fire.

An improved apparatus for extinguishing fires in towns or cities, consisting of a series of suitable delivery-plugs arranged in pairs, one of each connecting with a main charged with compressed air, and the other with a water-main, and both combined with a portable pumping-engine, to be supplied simultaneously from any pair of the series with air for power and water for delivery, substantially as and for the purpose herein set forth.



176,148. RUFFLER ATTACHMENTS FOR SEWING-MACHINES. John D. Scurvine, Indianapolis, Ind. [Filed Feb. 26, 1875.]

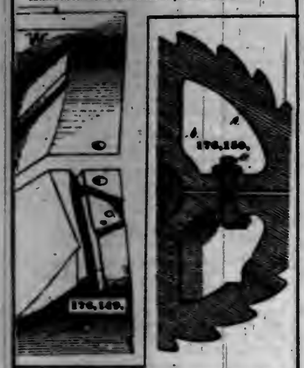
Brief.—Improvement on Letters Patent No. 163,698. The ruffling-blade is devoid of the usual slot for the passage of the needle. The needle-carrier strikes a projection in the groove of the operating-lever, and imparts a backward movement to the blade at the beginning of the downward stroke of the needle.



In a ruffling attachment for sewing-machines, the oscillating plate or lever C, having the ruffling finger or blade F, and provided with a cam-slot, C', which has a projecting shoulder, *c*, near its upper terminus, substantially as and for the purpose specified.

176,149. DIES FOR MAKING "FIN-CUTTER" PLOWSHARES. Chas. H. Thompson, Chicago, Ill., assignor of one-half his right to N. S. Boston, same place. [Filed Jan. 22, 1876.]

The dies W K, constructed, arranged, and operating substantially as described, for the manufacture of fin-cutter plowshares.



176,150. FASTENINGS FOR SECTIONAL RATCHET-WHEELS. H. Fowler Stoddard, Dayton, Ohio, assignor to John W. Stoddard & Co., same place. [Filed Mar. 31, 1876.]

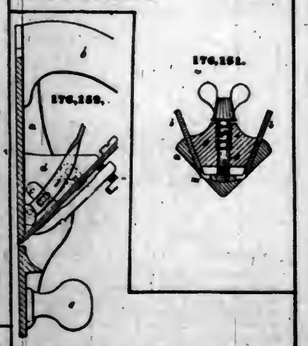
Brief.—The wheel is two sections, bolted together, the hub portion of each having an orifice, which receives the projecting end of a pin passed diametrically through the shaft.

A sectional ratchet-wheel, secured upon its shaft by a steel pin passed through the shaft and entering orifices in the hub of the wheel, as and for the purpose specified.

176,151. SPOKESHAVE. Justus A. Trant and Henry Richards, New Britain, Conn. [Filed Jan. 24, 1876.]

Brief.—Locks the two cutting-bits by the adjustable dogs, which rise by the springs with the action of the thumb-screws.

The combination, in a spokeshave, of the stock *a*, having two faces, cutting-irons *b*, dogs *c c*, and clamping set-screws *h h*, substantially as shown and described.



176,152. BENCH-PLANES. Justus A. Trant and Henry Richards, New Britain, Conn. [Filed Dec. 27, 1875.]

Brief.—The plane-iron is longitudinally adjusted by the compound levers acting upon the rocking spindle, which receives the teeth of the adjustable stud attached to the cap-plate.

The combination of the levers *h f*, rocking spindle *f*, having groove *g* and brackets *d*, with the stud *e*, having the tooth projection *e'*, substantially as shown and described.

176,153. MACHINES FOR LACING TOGETHER JACQUARD-CARDS. Lyman A. Upson, Enfield, Conn. [Filed Aug. 13, 1875.]

Brief.—The cards are placed on projections on an endless-chain feed-table, moved intermittingly by pawl and ratchet, and are fed first under punches, which perforate their edges, and then under barbed or crochet needles, which unite them by a crochet-stitch. These needles, in their reciprocation, rotate on their own axes, (the rotation being effected by pins working in grooves in the sleeves in which the needles move,) the object being to facilitate the hooking up of a loop from below, and the dropping of the loop previously taken up through the card.

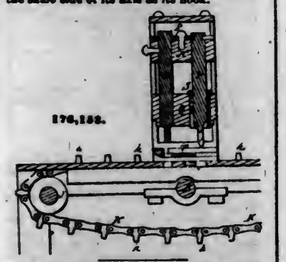
1. The combination, with the eccentric pointed hook-needle, of operating mechanism, substantially as described, whereby a vertical reciprocating and rotary motion is imparted to the said needle, in the manner and for the purpose set forth.

2. The combination of the vertically-moving bar *d* with the rotating needle-bars and the fixed punches, substantially as herein described.

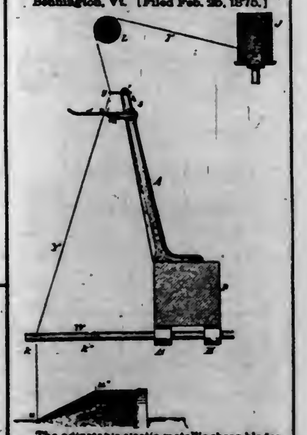
3. The combination of the intermittently-progressing carrying mechanism with the punch O and rotating hooked needle P, for lacing together loom-cards, substantially as herein described.

4. The combination of the shaft B, the cam D, the rod F, the wheels H I, the connecting-rods M, and the bar N, for giving simultaneous and proper motions to the carrying-chain, the punches, and the needles, substantially in the manner described.

5. An eccentric pointed hook-needle, having its back and side inclined from its point toward its tang, whereby the point is formed on the same side of its axis as its hook.



176,154. MECHANISM FOR REMOVING BUNGERS FROM YARN. H. E. Valentine, Bennington, Vt. [Filed Feb. 26, 1875.]



The adjustable elastic metallic shear-blades *a a'*, guard *g*, and sliding yarn-guide, W, combined in the manner and for the purpose set forth.

176,155. REVERSIBLE HANDLES FOR CHILDREN'S CARRIAGES. Francis W. Whitney, Leominster, Mass., assignor to F. A. Whitney Carriage Company, same place. [Filed Mar. 26, 1876.]

1. In combination, with eyes attached to the front and rear axles of a child's carriage, the hooks *g* and feet *i*, formed on the lower extremity of the braces attached to the handles, to connect them to the carriage, substantially in the manner and for the purpose specified.

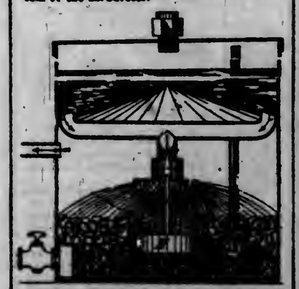
2. In combination with the handles of a child's carriage, connected by hooks to the eyes attached to the front or rear axles, and the projection *h*, placed at or near the center of the reaches F, the latch-lever D, constructed substantially as and for the purpose described.

3. In combination with the handles A, reaches F, and the front or rear axles of a child's carriage, having eyes *h*, the braces B C *d e* to connect said handles, substantially in the manner and for the purpose specified.



176,156. CARBURETTERS. Andrew Wigin, Boston, Mass. [Filed Jan. 26, 1876.]

Brief.—Oil is supplied to the carbureting-chamber from the reservoir through a stationary sprinkler having perforated sides, and its flow is regulated by an automatic valve operated by a float. A spiral air or gas distributer, with perforated sides, is placed in the bottom of the carburetter.



2. In a carburetter the float H, provided with a guide-rod, *i*, combined with a sprinkler, having perforated sides, the rod passing through such sprinkler, and terminating in an enlarged end, having a fine elongated point, and serving as a valve to check or to prevent the downward flow of the liquid into the said sprinkler, substantially as and for the purpose set forth.

3. The stationary sprinkling or showering vessel *k*, provided with fine perforations in its periphery, depending from and in communication with the fluid vessel or reservoir, and serving to shower the liquid toward the circumference of the carbureting-chamber, and upon the upper surface of that part of the absorbent material which is above the liquid in such chamber, and not moistened by capillary attraction therefrom.

176,157. GRINDING-MILLS. Horace E. Wild and Benj. L. Smith, Gadsden, Ala. [Filed Mar. 30, 1876.]

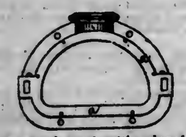
1. The combination, with the bed-stone casing D, of the rods G G, cross-bar H, and set-screw I, for the purposes set forth.

2. The adjustable spring J and nuts *a*, in combination with the rods G, and bed-stone casing D, for the purposes herein set forth.

3. The set-screw E in combination with the casing D, rods G, cross-bar H, and set screw I, as and for the purposes set forth.

176,158. GAS-TIGHT JOINTS FOR RETORT-LIDS. Austin C. Wood, Syracuse, N. Y. [Filed Feb. 15, 1876.]

Brief.—A tempered steel ring, with a sharp-edged rib, is secured to the retort-lid. A rim of cast metal is secured to the outer end of the mouth-piece, upon which is forced the lid with its sharp-edged rib, for making a tight joint.



The tempered-metal cutting-ring *b*, constructed, arranged, and combined with the mouth-piece and cover of a gas-retort, substantially as and for the purpose herein described.

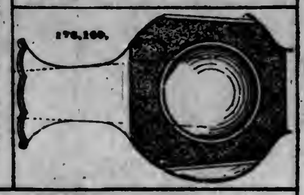
176,159. DIES FOR FORMING THE SOCKETS OF TOOLS. John D. Allison, Cromwell, Conn. [Filed Mar. 2, 1876.]

Brief.—The socket is partially formed by dies with closed bottom; then shaped in die open entirely through, and by means of a plug passing through it and a plane-die, which latter also straightens the tool.



1. The dies D *b* and plug B, constructed and used conjointly, substantially in the manner herein described.

2. The combination of the dies B C, the plug B, and the dies D F, for forging the elongated sockets of tools, substantially as described.



176,160. COMBINED LAMP-CHIMNEYS AND SHADES. Thos. B. Atterbury, Pittsburg, Pa., assignor to himself and Jas. S. Atterbury, same place. [Filed June 7, 1876.]

The globe-shaped shade or bowl, with a chimney at its top, and a neck at its base, the whole constructed of glass and in one piece, and taking the place on a lamp of the ordinary chimney, and serving the purposes of the ordinary globe and chimney which are made in separate parts, substantially as described.

176,161. STREET-RAILWAY SWITCHES. R. Bevalander, Boston, Mass. [Filed Jan. 31, 1876.]

Brief.—Small wheels are placed diagonally in the turn-out frogs, which have the effect to turn the car-wheels to one side when the latter are partially locked by the brake, but when allowed to revolve freely they are carried forward in their ordinary course upon the main line of rail.



1. In a horse-railway switch, the guiding-wheels *c c'*, arranged to project their peripheries diagonally across the grooves in the frogs at an angle greater than that of the converging rails, substantially as and for the purpose described.

2. In a horse-railway switch, the combination of the frog A with the guiding-wheel *c*, substantially as described.

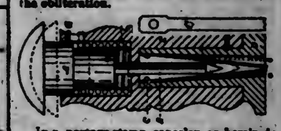
3. The combination of the frog A and guiding wheel, substantially as described, with the wheel D, all arranged and operating substantially as described.

176,162. TREATING LEATHER. William B. Brock, Philadelphia, Pa., assignor to Brock Manufacturing Company, New York, N. Y. [Filed Apr. 10, 1876.]

The within-described process of treating leather, consisting in saturating the leather with a solution of flour, water, and glue, for the purpose set forth.

176,163. PERFORATING-STAMPS. Augustus S. Bunker, Lawrence, Mass., assignor of one-half his right to Jesse Moulton, same place. [Filed Dec. 4, 1875.]

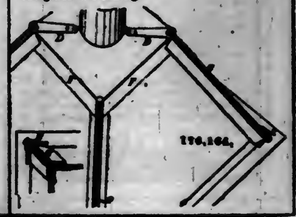
Brief.—When the stamp is struck down upon the packet, the wedge-rod descends in the lower case, and pushes aside the abrading springs, whose projecting serrated ends effect the obliteration.



In a postage-stamp canceler, as herein described, the combination of the head and wedge-piece A B, the springs C C, the plate D, the spiral spring F, the pin G, and the set-screw H with the handle R, substantially as specified

176,164. LANTERNS FOR STREET-LAMPS. Augustus S. Bunker, Lawrence, Mass. [Filed Mar. 6, 1876.]

Brief.—To facilitate the ready removal of the glass in cleaning.



The combination of the frame A, the spring D, the eye E, the corner C, and the dowel F, in a manner and for the purpose substantially as herein described and set forth.

176,165. BOOT-TREES. Henry C. Case, Chicago, Ill. [Filed Mar. 16, 1876.]

1. In a boot-tree, the rod D, provided with a left-hand screw, and furnished with the heel-rod or sleeve E, which is provided with a right-hand screw, in combination with the cut-rings d d, the collars g g', and the fixed guide c, substantially as shown and described.

2. The handle F, in combination with the rings c c, the cut-rings d d, and the rod D and sleeve E, as shown and described.

3. In a boot-tree, the rods a a', provided with the arms or links b b b' b', in combination with the rod D, sleeve E, guide c, and parts A E, substantially as shown and described.

176,165.



176,166.

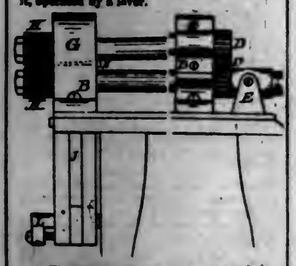


176,166. QUARTER-BOOTS FOR HORSES. E. G. Clark, Argyle, N. Y. [Filed July 18, 1874.]

The combination, with a boot A B and its fastening-straps, of the compressing-strap G and loops H I J, as and for the purpose specified.

176,167. MACHINE FOR SWAGING SCREW-THREADS ON BLANKS. Henry E. Coy, Cleveland, Ohio, assignor to Chas. H. Robison, same place. [Filed Nov. 6, 1875.]

Brief.—Three swaging dies or rolls—the two upper ones mounted in stationary bearings, and the lower one, at one end, in a trunnioned bearing, and at the other end in a sliding bearing, adjusted by means of a toggle under it, operated by a lever.



1. The combination of the dies H H H, the shafts C C C, gears D D D, head G, supports B B, and the pivoted box E, substantially as and for the purpose described.

2. The adjustable box F, dies H H H, knuckle-joint I, lever J, spring K, and adjuster L, arranged in the hanger below the head G, for operating the lower die, substantially as described.

176,168. PROCESSES AND MACHINERY FOR SOFTENING LEATHER. E. Cunningham, Albany, N. Y. (Filed Nov. 10, 1875.)

176,168.



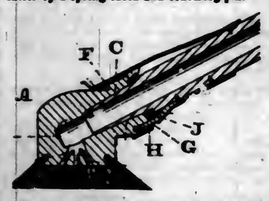
1. The process for softening leather herein described, consisting of bending and rebending its substance by mechanically imparting to the sides of leather a rapid shaking or snapping motion, by the means and in the manner herein specified.

2. The combination of the shaft B and crank-wheels D with the pinions F and tubular holder G, when constructed and arranged to operate as and for the purpose set forth.

3. The tubular holder G, having a slotted opening, g, in combination with the fastening-bar H, as and for the purpose specified.

176,169. BRUSHES. William Davies and Puleg Wernl, Philadelphia, Pa. [Filed Sept. 20, 1875.]

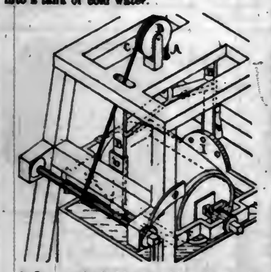
Brief.—The handle is hollow for the passage of the liquid to the brush, and is held to the latter by a spring-catch and centering-pin.



The handle B, having a catch, C, and stud G, in combination with the head A, having shoulder F and opening H, substantially as and for the purpose set forth.

176,170. MACHINES FOR PITCHING CASES. Albert F. Dobler, Albany, N. Y. (Filed Feb. 23, 1876.)

Brief.—By means of set-screws the cask is secured in the swinging frame; then hot pitch inserted, and while revolving may be raised or lowered by means of a windlass, rope, and pulley. In order that the heads of the cask may be coated, the swinging frame may be held at any angle by means of the arched projection and a pin. The pitch is cooled by lowering the cask, while revolving, into a tank of cold water.



1. In a cask-pitching machine, the combination of the yoke B and swinging frame F with the hoisting device, substantially as herein described, and for the purpose specified.

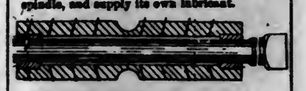
2. The sliding centers G and H, secured by the set-screws g and A, substantially as herein described, and for the purpose specified.

3. The method herein described for cooling the coating of pitch, consisting of the application of cold water thereto while the cask is revolving, substantially as and for the purpose specified.

4. The swinging frame F, provided with an arched projection, I, in combination with the yoke B and pin J, for holding the frame at any required angle, substantially as and for the purpose specified.

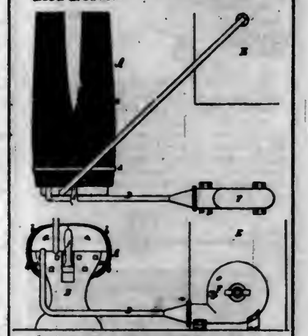
176,171. TEMPLE-ROLLERS. Albert F. Dow, Fall River, Mass. [Filed Jan. 14, 1876.]

Brief.—A bushing of rawhide or other permanently oily substance is introduced in the roller, to support the interior thereof from the spindle, and supply its own lubricant.



In combination with a temple-roller, a bushing of rawhide, or other similar greasy substance, placed in either or both ends thereof, and supporting the interior of the roller from contact with the pin, substantially as and for the purpose described.

176,172. APPARATUS FOR SHAPING TROUSERS. John B. Eglesion, Cambridge, assignor to H. Lord, Boston, Mass. [Filed Sept. 2, 1875.]



1. A trousers or garment shaper composed of the external coverings b, of woven wire, and the series of chambered supporters a thereof, all arranged as specified.

2. The combination of the garment-shaper A, a steam-generator, B, and air-blast apparatus F, whereby steam or air, or both, may be forced into said garment-supporter, as and for the purpose specified.

3. The garment-supporter composed of the external coverings of woven wire b, the series of chambered supporters a thereof, and means of lateral extension and contraction, all as set forth.

176,173. WRENCHES. Chas. Flesch, Rochester, N. Y. [Filed July 14, 1875.]

The pivoted adjustable wrench, having jaws N N and E E, provided with handle, combined with back-handed lever and finger-piece D and pressure set-screw, substantially as specified.



176,173.

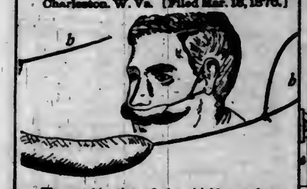
176,174.



176,174. COILED SPRINGS FOR CARS. A. French, Pittsburg, Pa., assignor to A. French & Co., same place. [Filed Feb. 26, 1876.]

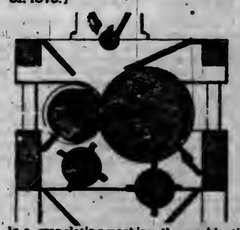
A coiled spring made of steel rods or bars, tapered through the successive coils from the middle to each bearing end, substantially as set forth.

176,176. MOUSTACHE-GUARDS. V. A. Gates, Charleston, W. Va. [Filed Mar. 18, 1876.]



The combination of the shield a and the elastic loop-cord b, substantially as and for the purpose specified.

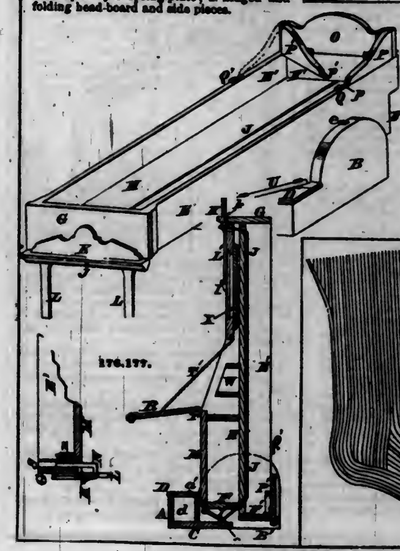
176,176. GRANULATING-MACHINES. A. B. Gulliver, Minneapolis, Minn. [Filed May 31, 1875.]



In a granulating-machine, the combination of two rollers of unequal size, the ridges of which mesh with each other, and one of which revolves with greater velocity than the other, so as to produce a combined pushing and crushing motion, substantially as described.

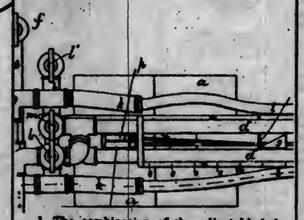
176,177. WARDROBE-BEDSTEADS. John C. Hall, Jas. S. Grimard, and Recd. F. Gossin, Cincinnati, Ohio. [Filed July 12, 1875.]

Brief.—A gravitating detent to hold the bedstead when folded; folding head-supports held open by a spring-plate; a hinged and folding head-board and side pieces.



176,177.

176,178. APPARATUS FOR SHAPING PANTALOONS. Patrick Howe, Boston, Mass., assignor to Isaac Fenno, same place. [Filed Mar. 23, 1876.]



1. The combination of the adjustable hollow shaping and drying-pipes i i i i, with their inner circulating-pipes h h h h, the stationary drying-pipes d d d d, and the perforated steam-pipes n n n n, as and for the purpose set forth and described.

2. In combination with the adjustable shaping and drying pipes i i i i of the rods r r', wedges s s', projections t t', and bushings u u', as and for the purpose set forth and described.

176,179. MANUFACTURE OF STOCKINGS. J. Holmes, Newton, Mass. [Filed July 9, 1875.]

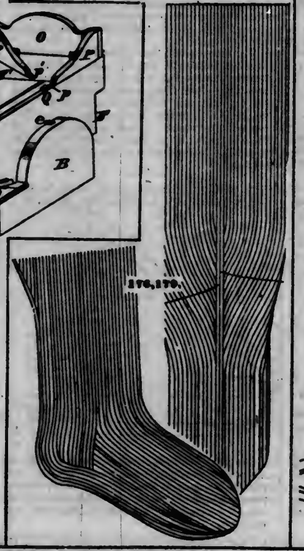
Brief.—The stocking is manufactured upon a straight-knitting machine, and the invention consists in the method adopted for narrowing and widening the fabric in the process of knitting. Instead of throwing out of action the outside needles at one end of the machine in narrowing, or adding needles at that point for widening, two or more stitches or loops are taken off upon the transferring-combs at each end of the machine, and removed one needle nearer the center, for narrowing, and the reverse for widening.

1. In combination with the supporting-base A B B' C, swinging case E e E' F G H M, and hinged cornice K, the gravitating detent or catch I and operating medium J, when adapted to operate in the manner described.

2. The combination of the case or frame E E' G M, hinged cornice K L L', and spring-step f E s, as and for the purpose specified.

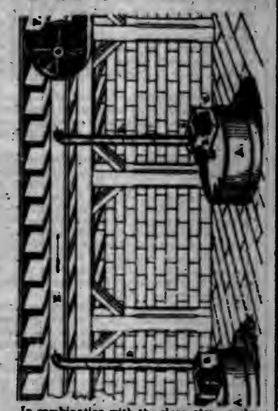
3. The combination of case E E' V, head-board O, wings P P' tongues p p', and hooks Q Q', for the purpose stated.

176,178.



The method herein described of producing seamless machine-knit stockings shaped to conform to the leg of the wearer by narrowing or widening entirely upon one row of needles, transferring for the purpose two or more stitches at each narrowing or widening from each end of said row of needles one or more stitches toward or from the center thereof, as the case may be, all as and for the purpose described.

176,180. MILLSTONE-EXHAUSTS. Fredk. A. Howland, Lambton Mills, Canada. [Filed Jan. 13, 1876.]



In combination with the close stone casing A, provided with an opening, a, the sheet-metal hood B, provided with an opening in lower side corresponding to the hole cut in casing, with tubular extension C, and fitted with the air-valve G, and connected to the exhaust-fan F and general exhaust-tube E by the thin metal tube D, arranged and operating substantially as shown and described.

176,181. CRIMPING-MACHINES FOR LEATHER. Samuel W. Jamieson, Newark, N. J., assignor to the S. W. Jamieson Boot and Shoe Crimping Machine Company, New York, N. Y. [Filed Dec. 14, 1875.]

Brief.—Crimping-jaws, carried by laterally-adjustable ways, are moved up and down by means of vertical screw-rods, which are combined with suitable gearing, so that the jaws are made to come in contact at proper intervals with a stationary former or stock-support.



176,181.

1. In a crimping-machine, having moving jaws combined with adjustable guide-ways, as described, the combination, with the guide-ways and the jaw-supporting brackets, of rotating screw-threaded shafts or rods, which support and give motion to said brackets, substantially as set forth.

2. In a machine for crimping boots and shoes, the combination, for the purpose of forcing together the crimping-jaws, of laterally-movable jaw-supporting ways, a right and left screw-threaded shaft, a lever-arm, and a weight adjustable thereon, substantially as set forth.

3. The combination, in a crimping machine, of three elements, namely, laterally-moving jaw-supporting ways, a right and left screw-threaded shaft, a lever-arm on said shaft, a weight adjustable on the lever-arm, and mechanism by which the shaft may be rotated in a direction opposite to that in which the weight tends to move it, substantially as shown and set forth.

4. The combination, with each set of hinged ways, whether one or more sets be employed, of the right and left screw-threaded shaft and its adjustably-weighted lever, substantially as set forth.

5. The crimping-form, in combination with its laterally self-adjusting slides, and the supports for the same; but this combination is claimed only when the said slides and supports are arranged and located with reference to the crimping-form, as shown and specified.

6. The combination, with the described bolt-shipping mechanism, of the levers, connecting-rod, and handle, constructed and arranged to operate together and in connection with a stripper or fender on one of the jaw-brackets, substantially as set forth.

7. The combination of the hinged ways, the vertical screw-shafts that move and support the jaws, the pedestal, and the driving-shaft, pulleys, and shipper, arranged in and carried by the pedestal, for operation as set forth.

8. The combination, with the right and left screw-shaft for controlling the pressure of the jaws, of a lifting-bar, moving with the crimping-jaws, and an adjustably-weighted lever-arm, provided with a pin or other projection to engage the lifting-bar, substantially in the manner set forth.

9. The right and left screw-threaded shaft and its adjustably-weighted lever-arm, in combination with the lifting-bar, back brace, and friction-roller, substantially as set forth.

176,183. TRUSSES. Boice W. Johnson and Leonard L. Young, Fort Dodge, Iowa, assignors to Boice W. Johnson, same place. [Filed Oct. 22, 1875.]

Brief.—A metal plate with turned-up sides encases the elastic body-belt. An upper plate passes over a hemispherical rubber pad, and a projection is inserted in the upturned sides of the metal back plate.



The combination, in a truss-fastening, of the slotted plate C with the toothed plate B, with its projections *a a'*, as and for the purposes as shown and described.

176,184. CALENDAR-INDICATORS. George R. G. Jones, Memphis, Tenn. [Filed Aug. 12, 1875.]

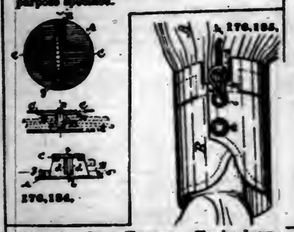


An internal, composed of any suitable material, and provided with an internal bat-wall, A, and exterior circumferential groove, in the manner described, said groove being closed by removable rings C D E, provided with holes X, by means of which holes the said rings are operated through suitable openings in an external jacket B, the whole operating in the manner substantially as described, for the purposes set forth.

176,185. SLEEVE-BUTTONS. R. G. Ladd, Providence, R. I. [Filed Mar. 9, 1876.]

1. A button or stud fastening device, consisting of two hinged plates or leaves, O O, having projecting lock-arms *d* operating in combination with a lock-bar, E, substantially as and for the purpose specified.

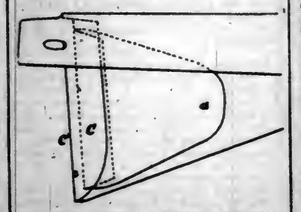
2. The lock-bar E, having the notch or notches *e*, and arranged to operate in combination with the spring G, and hinged leaves O, having arms *d*, substantially as and for the purpose specified.



176,186. CUFF-HOLDERS. Charles Levy and Herman Hirsch, Chicago, Ill. [Filed Feb. 28, 1876.]

The combination, with the safety-pin F, of the metallic loop D, adapted to receive the shank of the cuff-button, and provided with the spring G, substantially as and for the purpose specified.

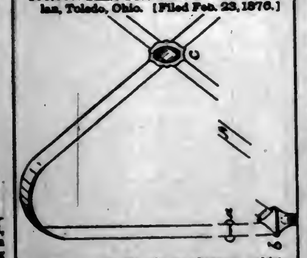
176,187. PAPER COLLARS. Ed H. Mack, Albany, N. Y. [Filed Mar. 3, 1876.]



1. The combination, with the end flap of a folded end collar, of the supplementary piece D having parts *d* and *e* separated by a creased folding line, and attached to the said end flap from the base of the part *d'* of said supplemental piece, substantially as and for the purpose set forth.

2. The supplemental piece D, in combination with the end flap C, with the creased folding line *c* separating the parts *d* and *e* at a distance from the creased folding line *c* of the said end flap, whereby the line of the conjunction of the parts *d* and *e* may be at a distance back from the line of the conjunction of the end flap with the fold, when all the parts are folded, substantially as and for the purpose set forth.

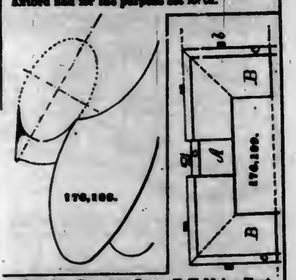
176,187. SKIRT-SUPPORTERS. W. A. McMillan, Toledo, Ohio. [Filed Feb. 23, 1876.]



As a new article of manufacture a skirt-supporter, as described, and consisting of the elastic straps A B and slide C, in combination with the slides *a a*, pieces *b b*, and hooks *c c*, when arranged to operate substantially as set forth.

176,188. PLOWS. Solomon Mead, New Haven, Conn. [Filed Aug. 11, 1876.]

The standard of a plow, the upper front edge of which, above the point of the junction with the mold-board, conforms to a section of the shorter curve of an ellipse, the major axis of which is twenty inches and its minor axis ten inches, substantially as shown and described and for the purpose set forth.



176,189. CHIMNEY-CAPS. R. H. Meige, East Berlin, Conn. [Filed Mar. 11, 1876.]

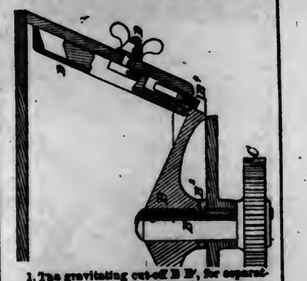
1. An extension chimney-cap, composed of sections of angular flanged plates laminating each other, and made to slide one upon the other, to extend or contract the plan contour of the cap to conform to the walls of chimneys of varying sizes, substantially as described.

2. The combination of the angular flanged side pieces A, corner pieces B, fastening bolts *b* in one of said parts and extension slots *a* in the other, through which the bolts pass, substantially as described and for the purposes set forth.

3. The side pieces A, provided with mitered ends, in combination with the corner pieces B, fitted to slide thereon, substantially as described and for the purpose set forth.

176,190. CORN-PLANTERS. Ed. Morgan, Dublin, Ind. [Filed Feb. 16, 1876.]

Brief.—Within the hopper, and above the notched feed-wheel, is secured the chambered cut-off just over the discharge-opening. The cut-off is provided with a curved piece, that allows but a single grain to pass at a time, and this grain is forced out, as the notch in the wheel comes over the discharge-opening, by the independently-revolving disk.



1. The gravitating cut-off B D, for separating the grains and allowing only one to pass with the notch in the feed-wheel to the discharge-opening, substantially as set forth.

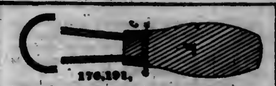
2. In combination with the feed-wheel B and cut-off E, the chambered shield D, substantially as set forth.

3. In combination with the feed-wheel and shield cut-off, the shield, constructed with a shoulder, D^1, to prevent the cut-off from bearing on the wheel.

4. In combination with the chambered gravitating cut-off B, the disk F, revolving in the recess and on the face of the feed-wheel, substantially as set forth.

5. In combination with the feed-wheel, the shield D, the cut-off E, and the disk F, substantially as set forth.

176,191. CARPET-BEATERS. Royal Morris, Chicago, Ill. [Filed Mar. 20, 1876.]



176,192.

The hand carpet-beater, consisting of the handle A, ferrule C, and beater D D, the beater made of a single piece of wire bent at its ends to form the prongs *a a*, adapted to enter the aperture in the handle and secured therein by the ferrule, substantially as specified.

176,192. MIDDLINGS-PURIFIERS. Nils Nilson and Nils Olson, Minneapolis, Minn. [Filed Aug. 27, 1875.]

Brief.—Middlings pass into top of machine, and are deflected upon upper revolving riddle. The fine parts pass through riddle into funnel below, whence they pass into hollow shaft, and through bottom of machine. The coarse parts, by centrifugal force, pass into a gutter at outer edge of revolving riddle, and are scraped into a spout, and descend to next deflector and riddle, when the same operation takes place. The bran passes from outer edge of lower riddle to spout, and escapes from machine. Middlings are subjected to suction-blast as they pass through machine.



1. The combination of the riddles D, having scrapers *i*, with the perforated circumferentially-flanged shelves or gutters *c*, having tubes or spouts H, substantially as and for the purpose herein shown and specified.

2. The combination of the central revolving tube C, circumferential deflectors *d*, riddles D, and funnels E, substantially as and for the purpose herein shown and specified.

3. The combination of the inlet-pipes *f'*, case A, and suction-pipes *h*, the latter disposed between the riddles D and under side of funnels E, substantially as and for the purpose herein shown and specified.

176,193. DAMPING APPARATUS FOR LITHOGRAPHIC PRESSES. Frederick Ehrell, Cambridgeport, Mass. [Filed Mar. 10, 1876.]

Brief.—The doctor-blade of the fountain-roller is in sections, independently adjustable on a supporting cross-bar, which is also adjustable. The blade and bar may be together swung back from the roller.



The lithographic-press-roller damping apparatus, substantially as described, composed of the trough A, roller B, the series of pressers E, the lifter-bar F, and the adjusting-screws G H of said pressers and bar, all arranged and combined essentially as set forth.

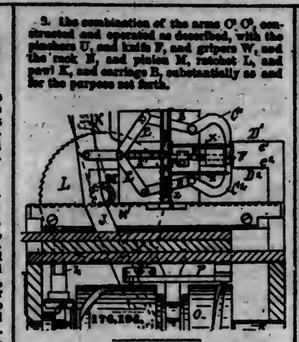
176,194. MACHINES FOR TYING WARP THREADS. Israel L. G. Rice, Cambridge, Mass. [Filed July 10, 1876.]

1. In a warp-tying machine, the reciprocating hooked arms O^1 O^2, each adapted to select a single thread and to set upon the parallel warps D^1 D^2, as set forth.

2. The pinchers U, in combination with the arms O^1 and O^2, constructed and operated as described, substantially as and for the purpose set forth.

3. The combination of the arms O^1 and O^2, constructed and operated as described, and pinchers U, with the knife F, substantially as and for the purpose set forth.

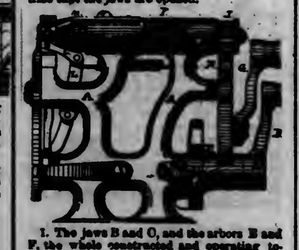
4. The combination of the pinchers U with the former V and the lower grippers W, for the purpose of tying a knot.



2. The combination of the arms O^1 O^2, constructed and operated as described, with the knife F, and tucker U, and gripers W, and the rock H and pinion M, rocker I, and pawl K, and carriage B, substantially as and for the purposes set forth.

176,195. MACHINES FOR WINDING SPIRALS FOR STOVES. Frederick Richardson, Providence, R. I. [Filed Mar. 13, 1876.]

Brief.—The wire attached to the stud is inserted in the slot in one jaw, clamped therein by the other jaw, and at the same time bent at right angles into the slot in the end of the upper arbor, which latter is made to rotate to wind the wire thereon. During this operation it is held to the arbor by jointed levers and guided by fingers, after which it is discharged by the clearer, actuated through jointed levers, by a cam upon the lower arbor, at the same time that the jaws are opened.



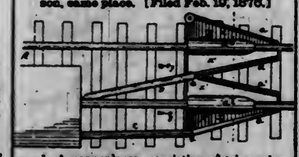
1. The jaws B and C, and the arbors B and F, the whole constructed and operating together, in the manner substantially as described, for the purposes specified.

2. The combination of the arbor E, the rods L L, the clearer K, and arbor F, the whole constructed and operating together, in the manner substantially as described.

3. The combination of the fingers M and N, and the arbor F, the whole constructed and operating together substantially as described.

4. The combination of the arbor E, the rod P, and the lever O and arbor F, the whole constructed and operating together in the manner substantially as described.

176,196. CAR-REPLACERS. S. D. Robbins, Allegheny, Pa., assignor to Rebecca Robbins, same place. [Filed Feb. 10, 1876.]



1. A car-replacer, consisting of triangular metal frogs A B, each having a central bridge, *a'*, inclined ribs *a a'*, and faces *c c'*, having different inclinations, substantially as set forth.

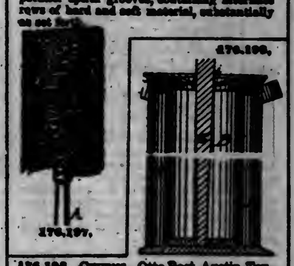
2. The frogs described, provided with recessed eyes or studs, *b b*, arranged to rest one upon the other, and to receive the pin *l* of a detachable frog-rail, substantially as and for the purpose described.

176,197. BRUSHES. Calvin B. Rogers, Deep River, Conn. [Filed Jan. 18, 1876.]

Brief.—The brushing material is arranged in spiral grooves, with soft and stiff material alternately, around the handle.

1. A brush having at one end a handle, A, and at the other alternate layers of hard and soft material, which layers are arranged transversely to the axial center of the brush to which they are attached, forming a cylindrical brush, substantially as specified.

2. A brush-stock provided with two or more parallel spiral grooves, containing alternate rows of hard and soft material, substantially as set forth.

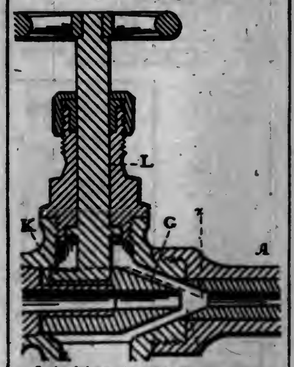


176,198. CRUSHER. Otto Best, Austin, Tex. [Filed Feb. 16, 1876.]

The combination of cylinder A, perforated tube B, having perforated flanges *b* and rim *c*, fitting in cylinder A, and perforated cover *d*, all constructed and arranged substantially as and for the purpose set forth.

176,199. INJECTORS. Samuel Bee, Philadelphia, Pa., assignor to the Bee Manufacturing Company, same place. [Filed May 31, 1875.]

Brief.—The steam-plug is made in two parts, fitted telescopically, so that steam can only get into the water-chamber by passing through the entire length of the plug.



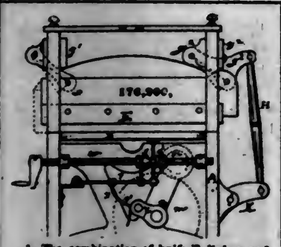
1. An injector in which the steam-plug is made of a fixed plug and a sliding plug, which are fitted to each other telescopically, the sliding plug being adjustable relatively to the mouth of the combining-tube, substantially as and for the purpose set forth.

2. An injector in which the steam-plug is made in two parts, fitted to each other telescopically, whereby the distance that the end of the plug projects into the water-chamber can be regulated by mechanism inside of the water-chamber, substantially as and for the purpose set forth.

3. The adjustable steam-plug G, formed with the way H, and the operating head or piece K, combined and operating therewith, substantially as and for the purpose set forth.

176,200. PAPER-CUTTING MACHINES. Richard Schlenker, Buffalo, N. Y. [Filed Feb. 2, 1876.]

Brief.—The cutter-bar is swung in the frame by links to adjustable hangers, and is operated by a crank-disk and slotted connecting-lever, the latter pivoted to the frame, with its outer end connected to the cutter-bar through the medium of a pitman and a bell-crank link. By means of the arm on the crank-shaft and a compound lever, the knife-bar may be thrown out of gear, either automatically or by hand.



1. The combination of knife B, link g, and bell-crank g' with pinion H and slotted lever K, operating in the manner substantially as and for the purpose specified.

2. The combination of shaft w, bevel-gear wheels o' o', pinion n, and gear-wheel m, having eccentric pin l, for operating the lever K, in the manner substantially as and for the purpose specified.

3. The combination of the shaft w, clutch o, and compound lever F, having the arm F', operated by means of the crank o, substantially as and for the purpose specified.

176,901. MOLD-FLOWS. John Scott, Morgan County, Ill. [Filed Feb. 14, 1876.]

Brief.—The mole is provided with a recess or chamber, enabling it to receive the end of the tile and protect it from falling earth.

1. The solid mole A, having a flat bottom, A', and a hollow chamber or bearing, B, at its rear, provided with a clevis or hook at its center and a vertical slotted bearing, B', the whole constructed and arranged to operate substantially as described.

2. The mole A, having socket-bearing B and clevis or hook C, in combination with chain C', cap E, and bag B', the whole constructed and arranged to permit of the tiles being laid, substantially as described.

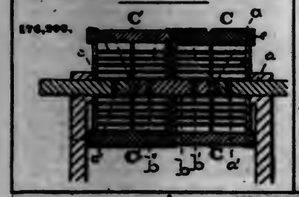




176,902. CURTAIN-ROLLER BRACKETS. E. Seehausen, Memphis, Tenn., assignor of one-third his right to G. R. G. Jones, same place. [Filed Oct. 21, 1875.]

1. The combination of the bracket G, pivoted plate D, and the spring d with the curtain-roller, pulley with pivot, and curtain-cord, substantially as and for the purposes herein set forth.

2. The projection h on the bracket G, in combination with the roller-pulley h, pivoted plate D, and spring d, substantially as and for the purposes herein set forth.



176,903. SPRING-MOTORS. David Shive, Philadelphia, Pa., assignor to the Shive Governor Company. [Filed Aug. 20, 1875.]

Brief.—Two barrels, each containing two springs, winding in reverse directions, are attached to a divided shaft. Washers are interposed between the springs in the drums.

1. A series of springs winding in reverse order, in combination with an arbor formed in sections, substantially as and for the purpose set forth.

2. The barrels O O', inclosing the springs, and mounted on the arbor A, which is constructed in sections a b c, fitted together by pin and socket joints d, substantially as and for the purpose set forth.

3. The combination, with the barrels O O', of the washers g, interposed between the springs in said barrels, substantially as and for the purpose set forth.

176,904. GOVERNOR-VALVES. David Shive, Philadelphia, Pa., assignor to the Shive Governor Company. [Filed Apr. 12, 1876.]

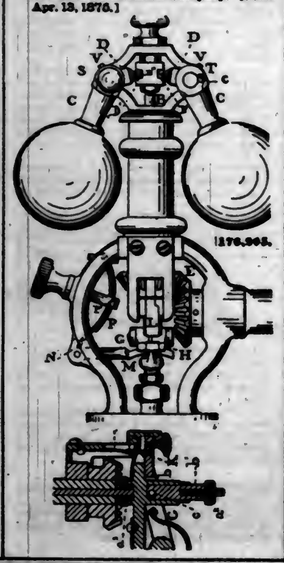


1. The outer chamber and an inner chamber, in combination with a divided or double passage leading to the inner chamber, substantially as set forth.

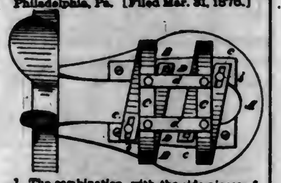
2. The inner chamber B, open at top and bottom, and having side ports C, in combination with the outer shell A, the divided passage E, and the passages F G, substantially as and for the purpose set forth.

3. The upper piston G', with a rounded edge, a, and its seat with a right-lined face, a', in combination with the lower piston G'', having a right lined face, b', and its seat with a rounded edge b, substantially as and for the purpose set forth.

176,905. GOVERNORS FOR STEAM-ENGINES. David Shive, Philadelphia, Pa., assignor to the Shive Governor Company. [Filed Apr. 13, 1876.]



176,906. RIDING-SADDLES. J. H. Spofford, Philadelphia, Pa. [Filed Mar. 31, 1876.]



1. The combination, with the side pieces of a saddle, of transverse elliptic springs C, arranged as shown, to bear the weight on the inwardly-turned slotted ends of the springs, substantially as and for the purpose specified.

2. The combination, with the side pieces of a saddle, of transverse elliptic springs, having inwardly-turned slotted ends and metal plates D D, substantially as and for the purpose specified.

176,907. ELEVATORS. Samuel Squire, New York, N. Y. [Filed July 27, 1875.]

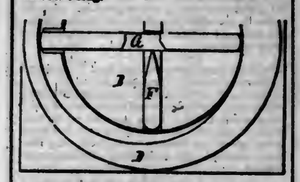
1. In an elevator provided with an air-chamber at the bottom of the shaft, a door in such air-chamber, arranged and operating to stop or lock the motor, by the act of unbolting or opening such door, substantially as and for the purposes set forth.

2. In an air-chamber at the bottom of an elevator-shaft, the openings F, arranged to graduate the escape of the air when the platform first passes the air-chamber, substantially as and for the purposes set forth.

3. In an air-chamber at the bottom of an elevator-shaft, the slide B, to regulate the outlet of compressed air, substantially as and for the purposes set forth.

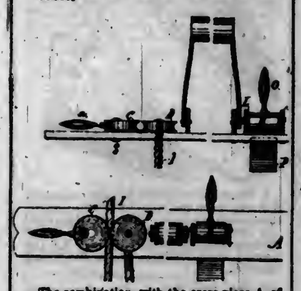
176,908. MACHINES FOR MAKING STAPLES. Shepherd H. Wheeler, Peru, Ind. [Filed Aug. 30, 1875.]

Brief.—The disk carrying the rod is revolved to wrap wire around the rod, the wire being severed into staple form by the reciprocation of the cutting-bar, caused by the eccentric ring.



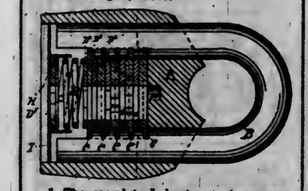
The combination of the disk B and rod F with the bar G and eccentric ring D, as and for the purposes hereinbefore set forth.

176,909. METALLIC SHAWL-STRAPS. Lewis Wilkinson, Brooklyn, assignor to Samuel Wilkins, New York, N. Y. [Filed Aug. 4, 1875.]



The combination, with the cross-piece A, of the stationary cam D, the swinging eccentric cam C, bolt attached to the face of the cross-piece, and the cable or cord I, the whole constructed from metal, and arranged, combined, and operating for the purposes of a shawl or blanket strap, substantially as herein shown and set forth.

176,910. KEY-HOLE GUARDS. Emil Wilt, Philadelphia, Pa., assignor of one-half his right to Andrew J. Loecker, same place. [Filed Aug. 4, 1875.]



1. The cap-plate I, having a rim, g, provided with slots h h, in combination with the revolving key-hole cover H and washer D', having guide-lugs i i, substantially as set forth.

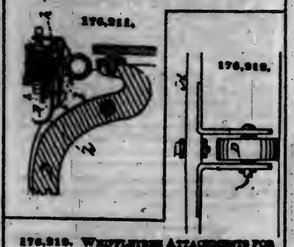
2. The cap-plate I, having the rim g, in combination with the revolving key-hole cover H, having a key-hole, with side openings l, for the insertion of the projection of the key, whereby the said cover may be revolved, substantially as and for the purpose set forth.

176,911. TENSION DEVICES FOR SEWING-MACHINES. Sewall A. Witherspoon, Boston, Mass. [Filed Jan. 31, 1876.]

Brief.—The thread passes from the spool over a thread-rest, to which it is held by a spring, and is released by the needle-arm raising the spring on its upward stroke, thus allowing a portion of the thread to be drawn off at each stroke, the amount being regulated by raising or lowering that part of the spring which is struck by the needle-arm.

1. The within-described tension device D, consisting of a thread-rest, b, and a clamping-spring, A, in combination with and operated by the needle-arm B of a sewing-machine, substantially as and for the purpose set forth.

2. The screw I and bar i, in combination with the spring A, substantially as and for the purpose described.



176,912. WHIFFLETREE ATTACHMENTS FOR PLOWS. Thomas B. Baldwin, Troy, Pa. [Filed Mar. 26, 1876.]

Brief.—An evener with a gage attached to its under side at or near its center.

The combination of gage-wheel D with the evener A, substantially as specified.

176,913. RAILROAD-TIES. G. D. Blaisdell, Cambridge, Vt. [Filed Mar. 13, 1876.]



The metal tie A, having raised and bored ends B, chairs D, clamp-plates G, and the rod F, combined and arranged substantially as specified.

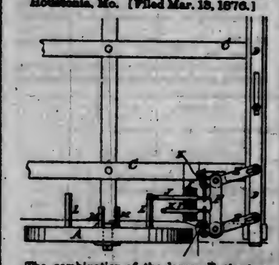
176,914. STEP-LADDERS. John C. Blauvelt, Blauveltville, N. Y. [Filed Mar. 13, 1876.]

Brief.—A step-ladder having an adjustable ladder-prop, which forms an extension-piece when turned around and self-locked in place.



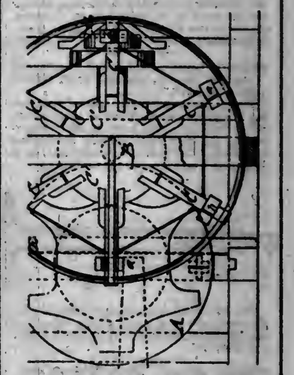
The plate U and its slot s' and pins s' s', the circle D, with its lugs E and notches s' s', the plate F, with its opening, the concave-convex plate I, with its shoulders r, and the stop G and pin H, in combination with each other and with the parts A B of a step-ladder, substantially as herein shown and described.

176,915. SEED-PLANTERS. A. J. Branham, Houstonia, Mo. [Filed Mar. 13, 1876.]



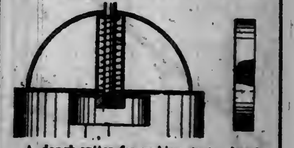
The combination of the levers E, the two bent levers G, the two unequal levers J K, and the two sets of pins L M, with the dropping-bar D and the wheel A of a seed-planter, substantially as herein shown and described.

176,916. MACHINERY FOR DRESSING LEATHER. E. D. Chamberlin and J. P. Luther, Berlin, Wis. [Filed Mar. 6, 1876.]



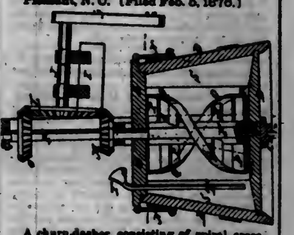
The combination of the stones and brushes, applied to pivoted arms of a revolving shaft, with the lower guide-ring and a semicircular top guide-ring, or suitable weights to hold the stones and brushes to the work, substantially as specified.

176,917. CAKE-CUTTERS. James Collins, Central City, Colo. [Filed Feb. 26, 1876.]

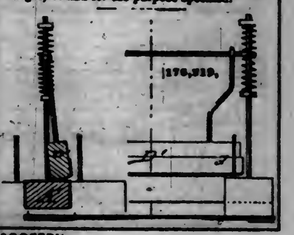


A dough-cutter for making tarts, doughnuts, biscuits, &c., composed of an outer cutter, and an interior sliding spring acted shaping device, that may be worked simultaneously with the outer cutter or not, as desired, substantially as set forth.

176,918. CHURNS. Jones Cook, Mount Pleasant, N. C. [Filed Feb. 5, 1876.]



A churn-dasher, consisting of spiral cross-bars F, spiral disk Q, and circular disk R, the said cross-bars being inclined downwardly on the upper edges, and upwardly on the lower edges, as and for the purpose specified.



176,919. HAM-HEADING MACHINES. Ella J. Crosby, Sabula, Iowa. [Filed Mar. 13, 1876.]

The combination of the lateral cross-rod of the swinging piece with the adjusting-springs and cut-curve of the standards, to produce a greater or less friction of the swinging piece, substantially as specified.

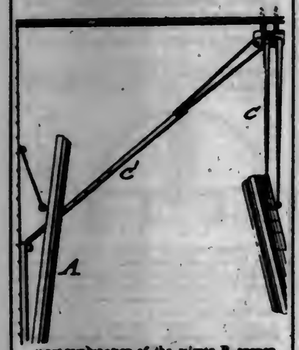
176,920. LETTER-JACKS. J. B. Fagnitz and Lorenzo Meeker, Oswego, N. Y. [Filed Mar. 28, 1876.]

Brief.—The standard is formed of a rod sliding within a sleeve affixed to another rod, which works in a tube below it, the lever pivoted to the sleeve, and working the top rod by a link. The middle rod is adjustable as to height by a cam-lever on the tube.



The combination of the eccentric I K with the base tube A and the sliding tube C of the lifting-jack, substantially as herein shown and described.

176,921. MIRRORS. Henry Goldberg, Herkimer, N. Y. [Filed Feb. 14, 1876.]



The combination of the mirror B, suspension-straps C C, adjusting-strap C', and the pulleys D D, attached to the ceiling of a room, as and for the purposes set forth.

176,922. MACHINES FOR MAKING NUTS. C. O. Gustafsson, Jonkoping, Sweden. [Filed Dec. 4, 1876.]

Brief.—The bar is fed against the spring-gage, which yields as the blank is cut off by the chisel-shaped cutters. The sheared-off blank is held between the gage and the cutters, and then presented to the intermittently-rotating disk, to be successively shaped, partially punched, punched, and discharged. The shears, the punches for inserting and for punching the blank, are attached to the reciprocating slide; as, also, are the rollers for operating the shears; but the shears and the spring-gage are fixed to the frame. The disk is intermittently rotated by means of a crank engaging with radial slots in the disk.

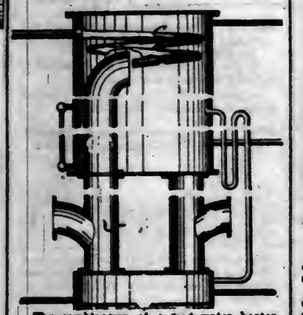
1. The combination of the recessed pivoted shear-levers, having chisel-shaped cutters, with the operating-rollers of the slide-piece, substantially as set forth.

2. The combination of the spring-gage with the shears, having chisel-shaped cutters for retaining the sheared-off blank, substantially as shown and described.

3. The combination of the rotating disk, having shaping-dies, with a cam and spring acted socket-punch, and with a pointed punch at the opposite side for expanding and partly perforating the blanks, substantially as set forth.

4. The combination of the sliding and spring-acted holding-punch with a cam-shaft, having outer arms, operated by a pin of the slide-piece, to force the punch forward and permit the withdrawal of the same at the proper time, substantially as and for the purpose set forth.

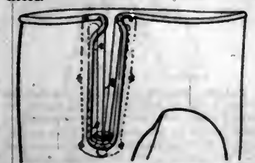
176,923. FEED-WATER HEATERS. Samuel N. Hartwell, Wollaston Heights, Mass. [Filed Feb. 21, 1876.]



The combination of a feed-water heater with an oil or grease condensing chamber, for purifying the exhaust steam before entering the heating-chamber, in the manner and for the purpose substantially as described.

176,924. GLOVE-FASTENINGS. W. Hassall, New York, N. Y. (Filed Mar. 21, 1876.)

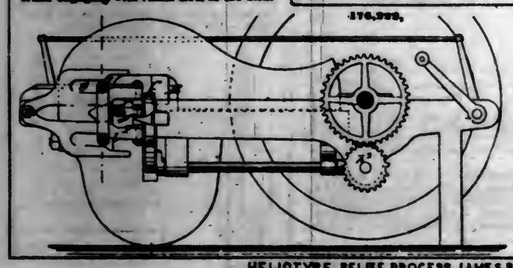
Brief.—By sliding the ring up or down the slotted plates, the glove may be opened or closed.



An improved glove-fastener, formed of the two plates A, hinged to each other at their lower ends, slotted longitudinally, and having a ring or link, B, operating in the said slots, substantially as herein shown and described.

176,925. BAYONETS. Saml. W. Hill, Pittsburg, Pa. (Filed Feb. 28, 1876.)

Brief.—Ramrod-bayonet held by a spring-catch on middle band when used as bayonet.



176,926.



176,926.

The combination, with the recessed stock, of the slotted rod A, correspondingly slotted tube H, the spring-catch F, and the hand G, all arranged substantially as and for the purpose specified.

176,928. REVOLVING SCRAPERS. E. Huber, Marion, Ohio. [Filed Mar. 13, 1876.]

Brief.—The rear ends of the sides are provided with inwardly-curved extensions, to prevent the earth from being scraped up by the back of the scraper. An apron attached to a cross-bar of the handles, and overlapping the back, prevents the earth from slipping over behind.

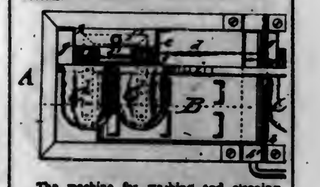


1. The inwardly-curved upward extensions *e'*, formed upon the rear ends of the sides O, substantially as herein shown and described.

2. The apron F, attached to the cross-bar *e* of the handles E, to overlap the back B of the scraper, substantially as herein shown and described.

176,927. DISH-WASHING MACHINES. H. P. Hudson, New York, N. Y. (Filed Mar. 28, 1876.)

Brief.—The dishes are passed between sponge-rolls placed upon perforated water-pipes. After leaving the rolls they drop upon an endless belt, and are carried to the adjoining tank, where they are treated in a similar manner, and pass in a wire basket. Both tanks are filled with water, which prevents the dishes from fracture as they drop to the bottom.

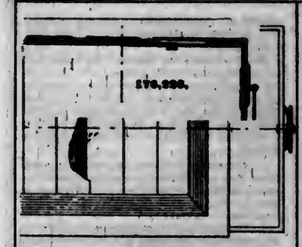


The machine for washing and cleaning dishes, consisting of receptacle A, divided into separate chambers, in combination with the perforated hot-water tube *f*, having sponge-rollers C, endless belt B, and basket D, when connected and driven by suitable motive power, and constructed and arranged substantially as and for the purpose described.

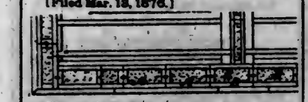
176,928. TOY BOXES. Joseph Kayser, New York, N. Y. [Filed Feb. 26, 1876.]

Brief.—The design or picture upon the cover of the box is instantly and totally changed by drawing out endwise the inner compartment, making it a surprise toy.

A toy box made of paper, or other material, provided with a drawer, and having at its upper part two sets of transverse stripe, C C', the first being stationary and the latter movable, and arranged to slide backward and forward and in between and over the stationary set by the opening and closing of the box-drawer, substantially in the manner and for the purpose described.



176,929. CONSTRUCTING WALLS. Philo A. Knapp and Ira S. Knapp, Danbury, Conn. [Filed Mar. 13, 1876.]



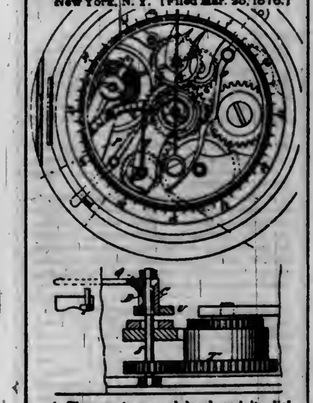
The method of constructing the walls of buildings so as to render unnecessary any siding, sheathing, lathing, or plastering, by forming the building-blocks with sides, and connected ends of wood, as shown and described.

176,930. CLOTHES-WRINGERS. S. F. Leach, Chelsea, Mass. [Filed Dec. 26, 1876.]



In a clothes wringer, the combination of the pairs of springs *p p*, top cross-bar *y*, the frames *b* and *b'*, pairs of friction-rollers *f f*, and rubber rolls B B', having journals *e e* working in vertical slots of the frame A, as shown and described.

176,931. S-OP-WATCHES. Henri A. Lugrin, New York, N. Y. [Filed Mar. 25, 1876.]



1. The quarter-second hand and its dial, located on the top of the watch-movement, substantially as specified.

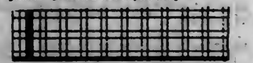
2. The minute-hand Q and sectional dial R, located on the top of the watch-movement, and relatively arranged with the quarter-second hand, substantially as specified.

3. The quarter-second hand, mounted on the short center-post E, and geared with the second-wheel G of the watch-train, substantially as specified.

4. The adjusting-lever O, arranged in relation to the quarter-second and minute hands, whereby it adjusts both at the same time, substantially as specified.

5. The hand A, connected to the post E by tube C and spring D, substantially as described.

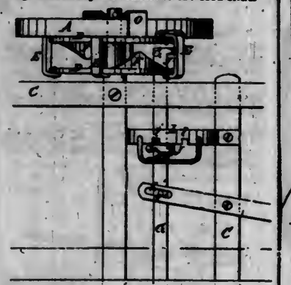
176,932. GLAZED PLAID PAPER. John F. Marsh, Springfield, Mass., assignor to Springfield Glazed Paper Company, same place. [Filed Feb. 21, 1876.]



The method herein described of manufacturing glazed plaid paper, consisting of the following steps consecutively performed, viz., coating the paper with an ordinary glazing preparation, ruling the glazed surface in suitable colors and designs, and finishing or glazing the coated and ruled surface by polishing or pressing the same, as and for the purpose set forth.

176,933. SEED-PLANTERS. John H. Martin, Thos. Bamford, and Stephen S. Rye, Glen Rock, Nebr. [Filed Jan. 26, 1876.]

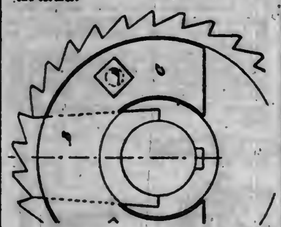
Brief.—Double cam-wheel attached to inside of one of the bearing-wheels, for imparting a vibratory movement to the seed-slide.



The combination of the two parallel rings D, their connecting-bars E, and inclines F, the sliding bar C, provided with the finger *g* and the pin *g'*, and the pivoted and slotted lever H, with the wheel A, the frame C, and the dropping slide I of a planter, substantially as herein shown and described.

176,934. SPLIT WHEELS. Benj. G. Mills, Fall River, Mass. [Filed Mar. 21, 1876.]

Brief.—Two disks—one lying within a peripheral flange of the other, the latter having a dovetail portion abstracted from its hub and disk, to receive corresponding parts on the former.



1. A split wheel composed of two parts, A and B, one of which has curved flanges C fitting and bolted to the side of the other, substantially as specified.

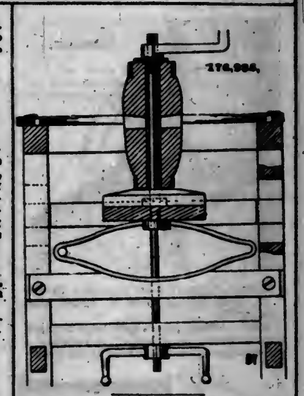
2. The part A, having the dovetail notch B, in combination with the part B, constructed to fit said dovetail notch, and having the flanges C, substantially as specified.

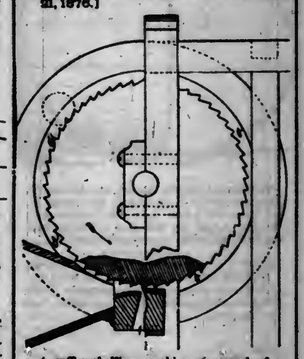
176,935. SPOKE-SETTING MACHINES. T. S. Morgan, New Columbia, Ill. [Filed Mar. 13, 1876.]

Brief.—The spokes can be set to a rapid manner, and the exact inclination of all the spokes obtained by means of a vertically-adjustable hub-supporting frame, in connection with a stationary spoke-setting top ring.

A machine for setting spokes, consisting of a vertically-adjustable hub-supporting frame, in combination with a spoke-setting guide-ring, substantially in the manner and for the purpose set forth.

176,936. COFFEE-HULLERS. Jose A. Mosquera, Caracas, Venezuela. [Filed Mar. 21, 1876.]





A coffee-hulling machine composed of a grooved and notched revolving cylinder, in combination with breaking and separating knives, of which the lower separating-knife is placed nearer to the cylinder than the upper breaking-knife, substantially as specified.

176,937. CIGAR-PIPES. Albert L. Mumson, New York, N. Y. [Filed Aug. 4, 1876.]

Brief.—The outer shell is of cigar form, and placed longitudinally therein is a tin tobacco-receptacle, which is removable, so that tobacco may be added to it when desired.

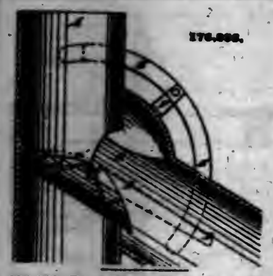


1. In a smoking tube, the combination of the shell or tube A, shaped to imitate a cigar, and the removable tobacco-case D, provided with the cover D', and arranged to be inserted longitudinally inside the shell A, constructed and operating as and for the purposes substantially as herein shown and set forth.

2. The tobacco-receptacle D, having adjustable cover D', and provided in its interior with a cell containing an absorbent, the whole arranged for longitudinal insertion in a smoking-tube, substantially as and for the purposes as herein shown and set forth.

176,938. OUT-DOVE FOR WATER-CONDUCTORS. William P. Myer, Terre Haute, Ind. [Filed Mar. 21, 1876.]

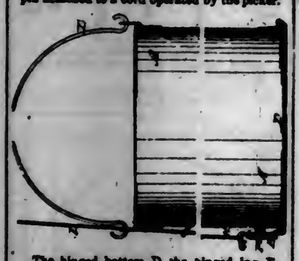
The combination of the rigid shaft *d'*, the rigid lever D, and the curved spring-catch bar E, with the shifting spout U and the branched pipes A B, substantially as herein shown and described.



176,939.

176,939. FRUIT-PICKERS' BASKETS. Orville W. Odell, Woodhull, N. Y. [Filed Mar. 21, 1876.]

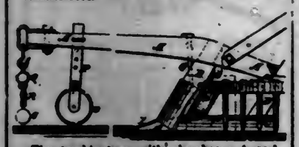
Brief.—A fruit-picker's basket with a hinged bottom, which can be opened by removing a pin attached to a cord operated by the picker.



The hinged bottom D, the hinged ing E, the pin or staple F, the pin G, the spring H, and the cords I and C, in combination with the body A and the ball B of a basket, substantially as herein shown and described.

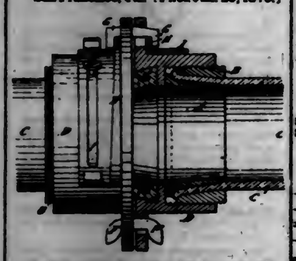
176,940. CULTIVATORS. Casper Cohrlein, St. Paul, Minn. [Filed Nov. 19, 1875.]

Brief.—A plow, as shown; capable of carrying interchangeable parts, to adapt it to various uses.



The combination, with plow-beam A and standard B, of the share C, with flat sole and curved sides rising to an edge, and having a triangular point, I, curved plate J, and eyes b', the whole adapted to use as a furrow-opener, or to receive a pair of extensible mold-boards, H, or rakes K, all constructed as herein shown and described.

176,941. HOSE-COUPLINGS. Geo. W. Price, San Francisco, Cal. [Filed Jan. 29, 1876.]

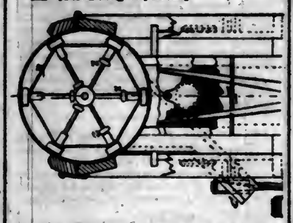


1. In hose-couplings, the circular wedge B, screwed in both ways over the hose, and holding its rod against a shoulder of the ring A, as shown and described, for the purpose specified.

2. The detachable hook E, permanent hook G, and the keys H, combined with the hose-coupling, substantially as specified.

3. The combination of packing K with couplings D, hooks E G, and keys H, substantially as specified.

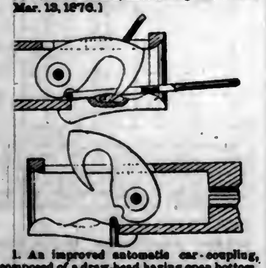
176,942. MIDDLINGS-SEPARATORS. Joseph P. Reed and Andrew J. Soyer, Cedarville, Ill. [Filed Aug. 21, 1876.]



1. The spreaders e, arranged in passage B, above the chute F, projecting from one side thereof, partly across it, and inclined at different angles, as and for the purpose described.

2. The series of knockers W, rigidly attached to a common vibratory shaft, X, as and for the purpose specified.

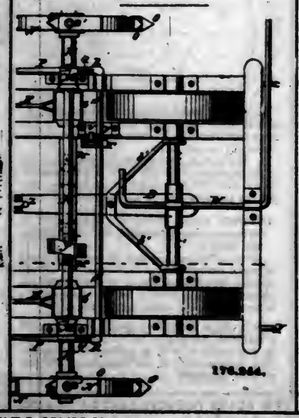
176,943. CAR-COUPLINGS. M. V. Remaly and J. P. Kinnard, Kittanning, Pa. [Filed Mar. 13, 1876.]



1. An improved automatic car-coupling, composed of a draw-head having open bottom, with central longitudinal rib, a coupling-link swinging thereon, and a pivoted coupling-hook, all arranged substantially as and for the purpose set forth.

2. A draw-head made with central longitudinal bottom rib, and opening or recesses at both sides of the same, substantially as described.

3. The combination of the pivoted coupling-hook, having recess to bear on link, and of the central bottom rib with the coupling-link, having central dishing ears part to hold link in position for coupling, substantially as set forth.



176,944.

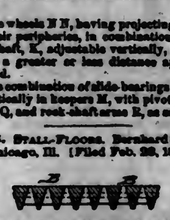
176,944. CHECK-ROW PLANTERS. Joseph Rothschild, Shelbyville, Ky. [Filed Nov. 27, 1875.]

Brief.—Across the front of the frame, and adjustably mounted in guides, is an axle having a double cam-wheel, located centrally, for operating the seed-slide intermittingly, and wheels having peripheral projections, to penetrate the soil deeper or shallower, to increase or diminish the distance between the hills, as desired.

1. The wheels H H, having projecting points O on their peripheries, in combination with a rotary shaft, K, adjustable vertically, to drop seed at a greater or less distance apart, as described.

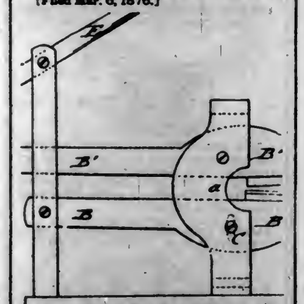
2. The combination of slide-bearings L, movable vertically in keepers M, with pivoted bars P, links Q, and rock-shaft arms R, as set forth.

176,945. STALL-FLOORS. Bernhard Schaefer, Chicago, Ill. [Filed Feb. 28, 1876.]



The combination, with tapered strips B, of the short wedge-shaped blocks and transverse bolts, arranged substantially as and for the purpose specified.

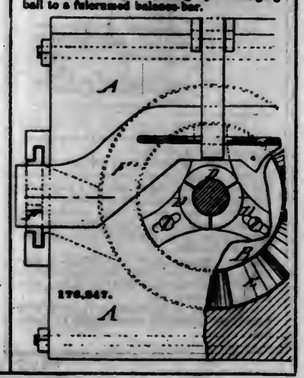
176,946. METAL-CUTTING MACHINES. Jacob Schofield and Jno. Stevens, Newton, Iowa. [Filed Mar. 6, 1876.]



The herein-described improved iron-cutter, consisting of a lower rear pivoted jaw, B, adjustable by a bottom vertical screw, C, and an upper jaw, B', actuated by a lever, E, all arranged substantially as shown and described.

176,947. WATER-WHEELS. John Shortridge, Frank W. Shortridge, and Ernest W. Shortridge, Beckingham, N. C. [Filed Feb. 5, 1876.]

Brief.—The casing is provided with two side openings at diametrically opposite points, the openings being at the upper half of the casing, and closed by vertically or otherwise sliding gates, that may be adjustable to different sizes of gates by means of vertical rods and lateral connecting-bar, hung by a swinging ball to a fulcrumed balance-bar.

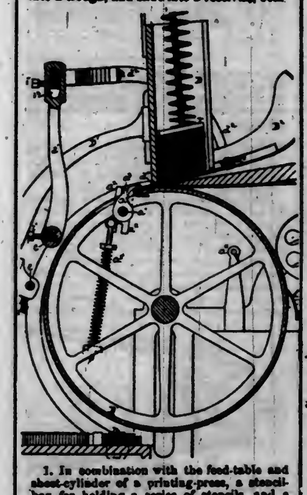


176,947.

The water-wheel, having tapering bottom part below the bottom edge of buckets, to rest on conical turning-point and form escape-box below the wheel, substantially as described.

176,948. ADDRESSING ATTACHMENTS FOR PRINTING-PRESSES. H. Slocum, Youngstown, Ohio, assignor to himself, J. Smith, and J. G. Decker, same place. [Filed Jan. 31, 1876.]

Brief.—Above the feed-board is fixed a box containing stencil address-plates, which are automatically fed from the bottom of the box to one of the sheet-grippers on the impression-cylinder, and carried around therewith, printing the address on the margin of the sheet, ink being furnished by an elastic pad secured to the bed with the type form. In the rear of the cylinder the printed plates are delivered into a trough, and slide into a receiving-box.



1. In combination with the feed-table and sheet-cylinder of a printing-press, a stencil-box for holding a series of stencils, and a pusher for feeding the stencils successively out of the box and to the machine, substantially as set forth.

2. The combination of the pusher and nippers, with devices for operating the same, substantially as set forth, whereby the stencils are fed one at a time to the nippers at the time the latter in their ordinary operation engage the sheet.

3. An india-rubber or composition pad arranged in the marginal part of the form, in combination with a stencil-feed and stencil, for addressing the sheet at the same time it is printed, substantially as set forth.

4. In combination with a stencil-plate addressing attachment of a printing-press, a trough, *g*, arranged to receive the stencil when released by the nippers and discharge it, substantially as set forth.

5. In combination with the transverse rod *e* and intermediate connections for giving the pusher *d*' its forward motion, a spring, *e*, or equivalent weight, for producing a reverse motion, substantially as set forth.

6. The jointed frame *m m'*, as a holder for the stencil-plate-inking pad, substantially as set forth.

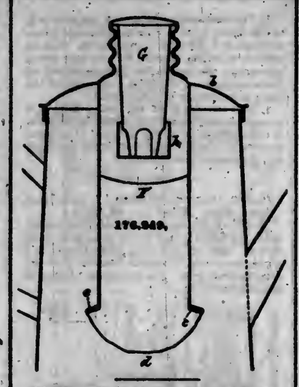
7. A spring follower, *r*, in combination with stencil-box, pusher, and nippers, substantially as set forth.

8. In combination with the stencil-box D, the slotted arm D', set-screws *d*', and transverse carrying-rod *c*, substantially as set forth.

9. The arm *d*' adjustably arranged on the rod *c*, and having an adjustable connection with the rod *d*', which operates the pusher, substantially as set forth.

176,949. CHURN-POTS. Peter Sours, Matchen, N. J. [Filed Apr. 0, 1875.]

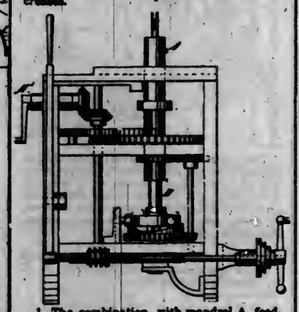
The cover *b*, biggin or cylinder A, perforated disk F, and annular flange *c*, over which to secure the filter *d*, in combination with the conical tube G and cap *h*, substantially as and for the purpose specified.



176,949.

176,950. MACHINES FOR MAKING TWIST-DRILLS. Edward R. Taber, New Bedford, Mass. [Filed Feb. 28, 1876.]

Brief.—The feed-screw, provided with a shoulder, rests upon a disk, which in turn, provided with rollers, rests upon another disk, so that as the latter rotates in the same direction with the mandrel the feed-screw descends. The cams on their disk are so graduated that the descent of the feed-screw decreases, and the advance of the mandrel consequently increases.

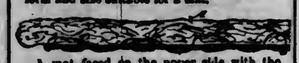


1. The combination, with mandrel A, feed-screw D, and disk F, having roller-studs, of the cam-disk H, graduated as shown and described, to cause the feed-screw to descend decreasingly and the mandrel to ascend increasingly, thus gradually increasing the pitch.

2. The feed-screw-supporting disk F, having studs N, in combination with the cam, having slots O, substantially as specified.

176,951. MATS. Arthur Thompson, Warner, N. H. [Filed Jan. 15, 1876.]

Brief.—"Excelsior" or curled shavings are attached to and fixed upon a flexible back, in form and size suitable for a mat.



A mat, faced on the upper side with the wood stock known as excelsior, substantially as and for the purpose specified.

176,952. MILLSTONES. J. W. Truax, Essex Junction, Vt. [Filed Feb. 21, 1876.]

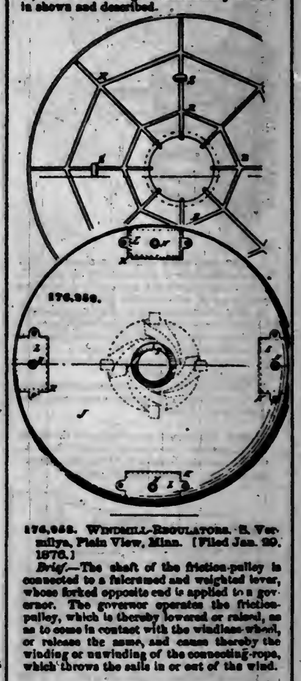
1. The combination of cover G, having flanges *g*', and a driver, H, having achievement recess, with the spindle of a millstone, as and for the purpose described.

2. The combination of spindle F, cover G, driver H, ball I, and runner J, constructed and arranged as and for the purpose set forth.

3. The cover G, made hollow, with flat bottom plate and convex top plate, hinged around its inner edge, made a little wider than the bush-cone C, and provided with bolts *g*', passing through said bush-cone, substantially as herein shown and described.

4. The skeleton shell B, secured to the stone J by hook-rods B, to receive the plaster backing, substantially as herein shown and described.

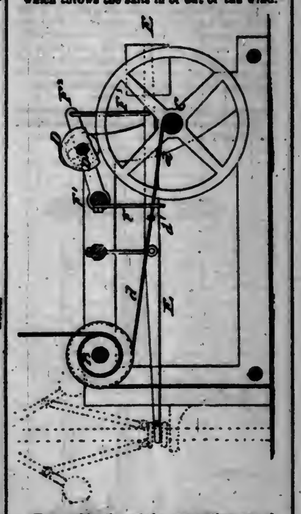
5. The drum formed of the furrows T and U, made and arranged substantially as herein shown and described.



176,952.

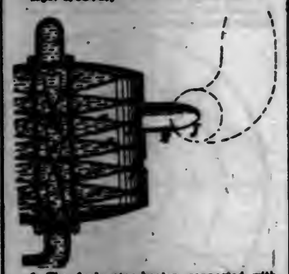
176,953. WINDMILL-REGULATORS. S. Vermilya, Plain View, Minn. [Filed Jan. 29, 1876.]

Brief.—The shaft of the friction-pulley is connected to a fulcrumed and weighted lever, whose forked opposite end is applied to a governor. The governor operates the friction-pulley, which is thereby lowered or raised, so as to come in contact with the windmill-wheel, or release the same, and causes thereby the winding or unwinding of the connecting-rope, which throws the sails in or out of the wind.



The combination of the connecting-rope d, having knot or button *d*', slotted lever F, shaft F', fixed arm F', link F', wind-wheel-regulating pulley D, and weighted and fulcrumed lever E, substantially for the purpose described.

176,864. LOCOMOTIVE FEED-WATER HEATER. Horatio N. Wolcott, West Meriden, Conn., Milton W. Hamilton, Chicago, Ill., and Jos. K. Taylor, Boston, Mass. [Filed Apr. 4, 1876.]

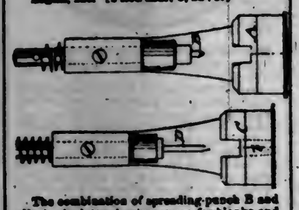


1. The feed-water heater, connected with the exhaust-pipes of a locomotive by pipes B, having a spoon-shaped extension, *f*, into the exhaust-pipes, substantially as specified.

2. The corrugated water-pipe A, composed of metal disks *a*, riveted together in pairs at the outer edge *b*, and connected together around the center opening by bolts *d*, extending through the tube and nuts *e* to each pair, substantially as specified.

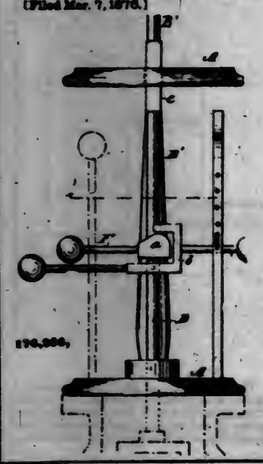
3. The combination of the spiral deflecting-cone H with the corrugated water-tube, substantially as specified.

176,865. MACHINES FOR FORMING SOCKETS OF HAMMERS AND OTHER TOOLS. Chas. A. Williams and Joshua F. Williams, Shownegan, Me. [Filed Mar. 6, 1876.]



The combination of spreading-punch B and die A, the latter having recess for blanks and central concave indentations, with a shaping-die, C, having straight sides and tapering center hole, and the perforating-punch D, having straight sides and beveled face above the shoulder, as and for the purposes set forth.

176,866. GOVERNORS FOR STEAM-ENGINES. Christ Ackermann, Young America, Minn. [Filed Mar. 7, 1876.]



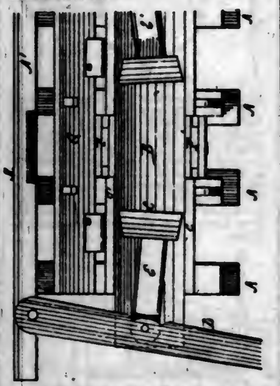
176,866.

1. The combination, with the coupling *a b* of the frame A, having an angular hole therethrough, and the stem B', having an angular portion, *c*, fitting therein, for the purpose of preventing the accidental disengagement of the coupling from the axial movement of the stem, substantially as described.

2. The section B of the stem, having a loosely-pivoted catch, *h*, balanced by weights, in combination with the standard D and the section B', having counterbalanced lug *g*, as and for the purposes described.

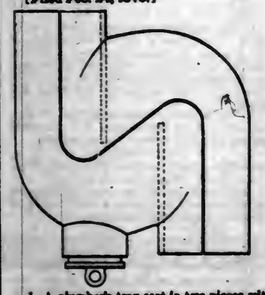
176,867. COTTON-PRESSES. J. A. Adams, Bahs, Miss. [Filed Jan. 20, 1876.]

Brief.—The hinged door or cover or top extends the entire length of the press, and, when thrown back to open the press, serves as a chute, to convey the cotton from the gin-room into the press-box. The side doors are hinged at their bottoms.



The hereinbefore-described cotton-press, consisting of the side walls C C, hinged doors F F, hinged door G, levers D D, followers E E, and frame-work A A, said frame-work and levers being fastened to the rear frame A', all being constructed and arranged substantially as set forth.

176,868. CAST LEAD TRAPS. Frederick Adee and James Foley, Brooklyn, N. Y. [Filed Feb. 24, 1876.]



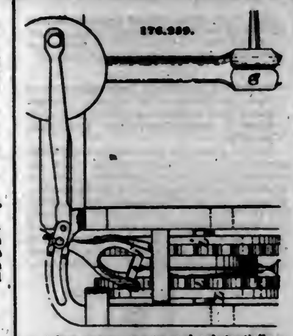
1. A plumber's trap cast in two pieces with one of the dams cast in each piece, substantially as set forth.

2. The plumber's trap made of two corresponding pieces placed together and united, each half having in it a cast plate, forming the dam, as set forth.

3. A plumber's trap made with a plate dam cast in one of the open pieces thereof, substantially as specified.

176,869. HOOP-POLISHER. H. K. Andrews, Decatur, Tex. [Filed Jan. 27, 1876.]

Brief.—Overhead gearing on a vertical shaft rotates an eccentric disk to rock a weighted double pawl, which revolves a wheel on a horizontal axle by means of a double rack on its periphery.

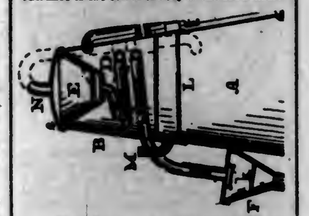


176,869.

A horse-power constructed, substantially as herein set forth, with a tappet oscillated by the power of the team, and weighted, so as to communicate rotation to a driving-wheel, as explained.

176,870. APPARATUS FOR DISTILLING FRESH WATER FROM SALT. De Witt C. Anthony, Philadelphia, Pa., assignor to J. W. Retford, same place. [Filed July 30, 1875.]

Brief.—In the lower part of *d* tank is placed the boiler. Above this, with an air-space intervening, is secured the condenser, into which the cold salt-water is admitted, surrounding the coil, which communicates by a pipe with the steam-boiler, conveying the vapor to be condensed. Another pipe extends from the condensing-chamber to the boiler, conveying to it the salt-water. A filter is placed at the entrance to the coil in the top of the condenser.



1. The boiler A, condensing-chamber B, and worm D, in combination with the filtering-vessel E between the steam-pipe and condensing-worm, substantially as and for the purpose set forth.

2. The combination, with the boiler A, of the condensing-chamber B, provided with the two bottoms *b c*, and the pipe M, communicating with the space between the bottoms, substantially as and for the purpose set forth.

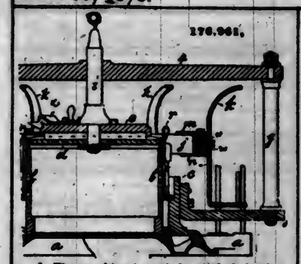
3. The boiler A, and condensing-chamber B supported thereon, in combination with the filtering-vessel E supported on the condensing-chamber, and interposed between the steam-pipe H and condensing-worm D, substantially as and for the purpose set forth.

4. The combination, with the condensing-worm D, of the pot F attached thereto, and communicating therewith, and having a perforated bottom or strainer, K, substantially as and for the purpose set forth.

176,871. RIBBONMENT-RIB-KNITTING MACHINES. Charles J. Appleton, Elizabeth, N. J. [Filed Mar. 1, 1876.]

Brief.—The revolving yarn-guide feeds the cylinder-needles, and a portion of yarn is placed behind the latches of the embroidery dial-needles, which have shorter latches than the other dial-needles. The dial-needles are operated by cams in cam-cap, and when pushed out the embroidery yarn-guides, (one of which, attached to embroidery-ring, is opposite every embroidery-needle,) by action of pawls and cams, cross the embroidery-needles, laying the yarn in their hooks. On the return of embroidery-needles within the dial, the loop of embroidery yarn, laid behind the latch, is thrown off the needle-head upon the embroidery-yarn, between said head and guide, and the two yarns are interlocked, forming the vertical embroidery-strips.

176,961.



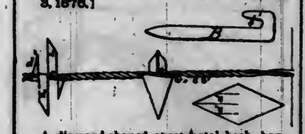
1. The combination of the dial *d*, having needles *s* and *s'*, the latches of which are of different lengths, with the cam-cap *o*, embroidery-ring *j*, pawls *n n*, cap *o*, yarn-guides *m m* and *t*, cam-ring *c*, cylinder *b*, and vertical needles *r r*, substantially as and for the purpose described.

2. The combination of grooved-edged dial *d*, cylinder *b*, and needles *r r*, operating together substantially as and for the purpose described.

3. The combination of ring *j*, adjustable screws *l l*, and cylinder *b*, operating together substantially as and for the purpose described.

4. The combination of cam-ring *c*, embroidery-ring *j*, pawls *n n*, cam *o*, yarn-guides *m m*, and needles *s s*, operating together substantially as and for the purpose described.

176,962. BARBED FENCE-WIRE. Frank Armstrong, Bridgeport, Conn. [Filed Feb. 3, 1876.]



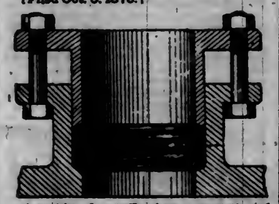
A diamond-shaped sheet-metal barb, having a central longitudinal slit at one of its points and provided with additional side slits to form short abutting points when the barb is inserted within a double twisted fence-wire, substantially as described.

176,963. ELASTIC ADJUSTING-STRAPS. F. Armstrong, Bridgeport, Conn. [Filed Feb. 21, 1876.]



As a new article of manufacture, the elastic adjusting-strap for garments, consisting of the buckle A and loop B, provided, respectively, with shanks *d* and hooks *d'*, and the wire coils C, fastened to the hooks, as herein described and shown.

176,964. PACKINGS FOR STUFFING-BOXES, &c. Benj. F. Babbitt, New York, N. Y. [Filed Oct. 6, 1876.]

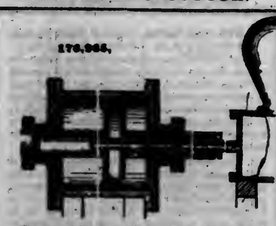


A packing for stuffing-boxes, consisting of an unbroken tube of soft metal, in combination with a fibrous filling for supporting its walls and keeping them distended, substantially as described.

176,965. AIR-PUMPS. Benjamin T. Babbitt, New York, N. Y. [Filed Oct. 6, 1876.]

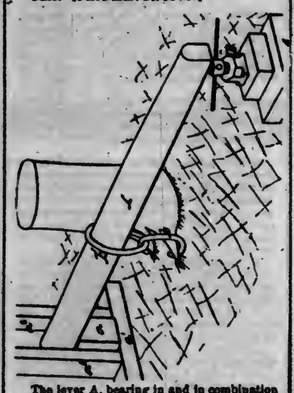
Brief.—The water-supply pipe entering the piston rod is to prevent the heating of the piston and rod.

176,966.



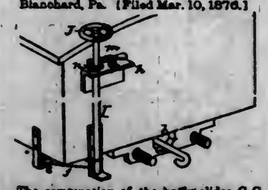
The combination of a hollow piston and piston-rod and a stationary water-supply pipe entering the piston-rod, substantially as and for the purpose herein described

176,966. STUMP-EXTRACTORS. Tilmann Balliet and John S. Demarest, Nevada, Ohio. [Filed Mar. 31, 1876.]



The lever A, bearing in and in combination with the uprights a^2 a^3 a^4, links *b b'*, and screw B, substantially as and for the purpose set forth.

176,967. CAR-COUPLINGS. Jas. Banks, Port Blanchard, Pa. [Filed Mar. 10, 1876.]

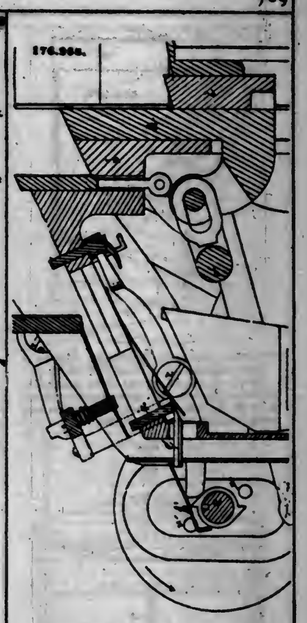


The combination of the buffer-slides C C, rod or bar G, with hook *d*, drum H, chains *f f*, pulleys *e e*, shaft I, with hand-wheel J, and notched disk *n*, and the pawl *m*, all substantially as and for the purpose herein set forth.

176,968. NAIL-SEPARATING MACHINES. B. Bevelander, Boston, Mass., assignor to Globe Nail Company. [Filed Feb. 11, 1876.]

Brief.—A vertically-reciprocating lifter carries up, at each reciprocation, one or more blanks from the mass in the hopper, and deposits them in a second hopper, from which they are raised singly by a selector and deposited upon an inclined chute, down which they slide until arrested by a detainer. The detainer being withdrawn, the blanks which are right side up—*i. e.*, with their flat sides against the table—slide down the way, passing freely under a gage, until arrested by a stop, which, upon being retracted, the second blank being held by a pressure-foot, allows the lowermost blank to fall upon a knife-edged bar in the guide-tube, and turn head downward. The ends of the improperly-positioned blanks above the gage rest upon laterally-movable ways, which, upon being withdrawn, allow the blanks to fall into a trough, from which they are carried back to the hopper by a feeding mechanism.

176,969.



1. The gage and guideways, in combination with a stop and a deflector and guide-tube, substantially as described.

2. The guideway and the stop, in combination with the holder, substantially as described.

3. The gage, in combination with the slide-rests to discharge blanks placed wrong-side up, upon the guideway.

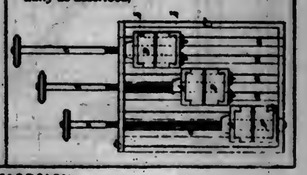
4. The gage and slide-rests, in combination with the blank-receiving box, and belt or chain and plates, to carry the blanks back to the hopper, substantially as described.

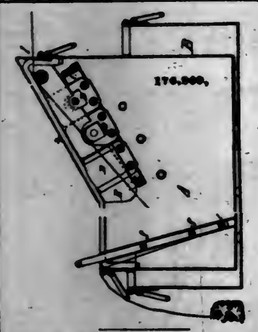
176,969. MACHINES FOR WAXING AND TARRING SOFT CORDING, ROPE-YARNS, &c. Raymond Blakiston and W. C. Blakiston, Quebec, Canada. [Filed Sept. 26, 1875.]

Brief.—The machine consists of an inner and outer case, the former being adapted to contain the waxing or tarring material, and the latter to contain warm water for keeping the material soft. The inner box is divided into three or more compartments, and is provided with an inclined grating at the higher end of the case, upon the bars of which are arranged wringers or clearers. Each wringer is in two parts, one of which is movable and is controlled by a screw. At the other end of the machine is an inclined frame, containing guide-bars for the thread, whereby the yarn or thread may be made to pass at different depths through the coating material.

1. The combination, as hereinbefore described, of the wax-box A, (higher at one end than at the other,) the grating C, arranged at an angle and provided with elastic wringers D, and a warm-water vessel, B, substantially as and for the purpose set forth.

2. The combination, substantially as hereinbefore described, of the wax-box A, inclined guide F, grating C, provided with elastic wringers D, and a warm-water vessel, B, substantially as described.

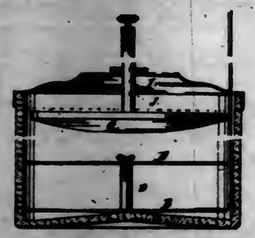




176,969.

176,970. GALVANIC BATTERIES. George H. Bliss, Chicago, Ill. [Filed Feb. 10, 1876.]

Brief.—A zinced copper plate, attached to a post rising from the copper element, serves to keep the sulphate-of-copper solution separate from the sulphate of zinc.



1. The combination, in a galvanic battery, of the disk B, post D, and disk E, supported upon the post, as specified and shown.

2. The combination, in a galvanic battery, of the disks B and E, connected by a post, D, the zinc G, the zinc being suspended from the cover I and made adjustable, as specified and shown.

176,971. GAGES FOR TRIMMING LAMP-WICKS. William T. A. Beardman, West Medway, Mass. [Filed Mar. 6, 1876.]

The gage for trimming lamp-wicks, having the shoulders a, the tongue f, the gaging-piece p, parallel to the plane in which the said shoulders lie, and the spring clamping-jaw e, substantially as and for the purpose specified.



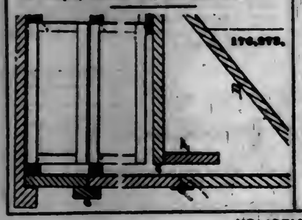
176,971.



176,972.

176,972. TICKET-HOLDERS. W. U. Bohm, San Francisco, Cal. [Filed Sept. 20, 1876.]

A ticket-holder formed from a single strip of metal, and having the spring c, opening f, and stop e, substantially as described.



176,973.

176,973. BEE-HIVES. Caleb H. Boot, Davidson College, N. C. [Filed Feb. 8, 1876.]

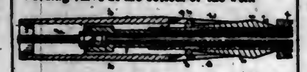
Brief.—The honey-chamber above being removed, the cap fits down upon the walls around the brood-chamber, which chamber is elevated by corner-supports; a floor inclined from the rear to the front serving as a lighting-board, air-chamber, and moth-trap, in front having a descending passage for the expulsion of litter from the hive.

1. The detachable supplemental section J of the same transverse dimensions of the hive, and having a lap-joint to connect therewith, in combination with the hive A and the cover K, provided with rim d, and adapted to fit either upon and form the top of the supplemental section J or the hive proper, as described.

2. The hive A, having extended sides, and a horizontal bottom, C, with opening a, in combination with the pendent projection F, and the inclined lighting-board D, substantially as and for the purpose described.

176,974. METHODS OF PUMPING OIL-WELLS. D. C. Brawley, Parker Township, Butler County, Pa. [Filed Feb. 10, 1876.]

Brief.—The oil passes to the top of the well through the hollow tube, which operates the working-valve at the bottom of the well.



1. In a pump, for oil and similar wells, the combination of the working-barrel and suitable device, substantially as hereinafter described, for anchoring the barrel with the plunger or bucket, and the discharge-tube, connected to and adapted to reciprocate the plunger, substantially as and for the purpose specified.

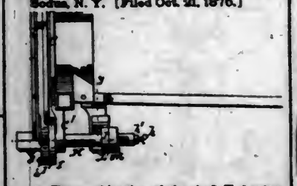
2. The combination of the packing, the sliding cone, the jar, and suitable intermediate devices for transmitting the stroke of the jar, substantially as and for the purpose specified.

3. The combination of the packing, the sliding double cone, and the wedges or similar for locking the cone, substantially as specified.

4. The combination of the jar-head p, rigidly attached to tubing f, shoulder or yoke w, rods s, and wedges t, substantially as and for the purposes set forth.

5. The combination of the tubing, the jar-head, the follower, and stuffing-box, substantially as and for the purpose described.

176,975. FEED-CUTTERS. W. O. Bryan, Sodus, N. Y. [Filed Oct. 21, 1876.]



1. The combination of the shaft H, having plate I, provided with the rib a and open-end slots s, the lever-handle E, having plate I', provided with the groove b and similar slots, the bolts d, and nuts e, substantially as and for the purposes herein set forth.

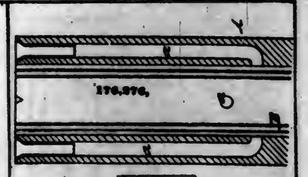
2. The combination of the rocking shaft H, provided with the slot i, and having the lever-handle E rigidly secured thereto, the stationary bearing G, adjustable bearing J, collar L, lug M, with tongue p, set-screw h, and jam-nut h', all as shown and described, and for the purposes herein set forth.

176,976. BREECH-LOADING FIRE-ARMS. John Barnett, Lexington, Ohio. [Filed Mar. 17, 1876.]

Brief.—The object of the springs is to retard the ball in the bore of the gun, to allow it to receive the full force of the accelerating charges.

1. The herein-described improvement in fire-arms, consisting of the combination, with the barrel A, having accelerating-chambers, of the retarding-springs B B, substantially as and for the purpose set forth.

2. In combination with the barrel A, provided with accelerating-chambers, the springs B B, curved at their outer ends inwardly, so as to slightly converge, as set forth.



176,976.

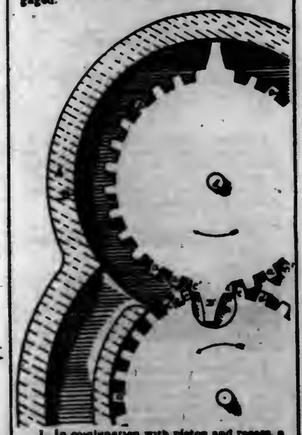
176,977. ROCKING-CHAIRS. Wm. H. Buser, Chilicothe Ohio. [Filed Feb. 6, 1876.]



The combination, with the rocking-chair and platform, of a connecting device, consisting of a slotted plate, bent arm, and a spring, said parts being applied and arranged to operate substantially as shown and described.

176,978. FLUID-METERS. John B. Button, Cleveland, Ohio. [Filed Mar. 10, 1876.]

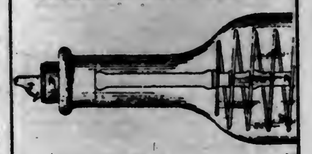
Brief.—The gear-teeth on the discharge side engage each other as soon as, or a little before, the teeth on the receiving side become engaged.



1. In combination with piston and recess, a rear cut-off, closing at the base of the piston and end of the recess simultaneously with or in advance of the opening on the front or receiving side, substantially as set forth.

2. In combination with the balanced piston, the gear-teeth *c c d d* at the base of the piston and at the extremities of the recess, substantially as and for the purposes set forth.

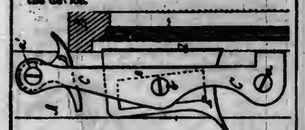
176,979. POWDER-EJECTORS. G. Chinnock, Brooklyn, N. Y. [Filed Feb. 24, 1876.]



A powder-ejector for exterminating insects, consisting of a vessel, A, having a flexible bottom, expanded by a coiled spring arranged in the vessel, in combination with a tube passing through the stopper B of the vessel, and provided with a flexible sectional discharge-tube, D, the whole being constructed and arranged substantially as described, for the object specified.

176,980. SASH-FASTENERS. L. B. Clark, Aurora, N. Y. [Filed Feb. 21, 1876.]

Brief.—A metal plate attached to the window-frame carries a sliding block, with inclined slot, which works on a lug or pin on the plate, and acts as a friction-holder. There is also pivoted to the upper end of the plate a suitable stop or fastener, which serves to lock the device.

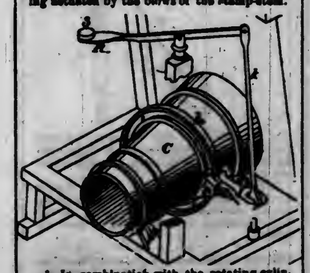


1. The window-catch, constructed with and combining the side piece C with lug or pin c, and the sliding incline E *d e*, and fastened to the casing A, substantially as specified.

2. In combination with the plate C, lug or pin c, and sliding block E, having an inclined slot, the stop or fastener D pivoted to the upper end of the plate C, substantially as described.

176,981. OIL-FURNACES. Thomas A. Cochrane and Joshua Hendy, San Francisco, Cal. [Filed Sept. 23, 1876.]

Brief.—Ore is fed into a hopper, in the lower end of which a hollow truncated cone is fitted. The cone is caused to revolve by means of a clutch on the rim of the cone, the clutch being actuated by the bivers of the stamp-stem.



1. In combination with the rotating cylinder C having grooved flange h, the pawl-bar J having plates *l l*, and the ribs O corresponding with the grooves i in the flange h, substantially as and for the purpose described.

2. In combination with a rotating feeder, the adjustable friction-ratchet grips, consisting of the pawl-bar J with its friction-bearing roller i, having the side plates *l l* with their gripping-ribs f secured to it by the bolt V, and made adjustable by means of the set-screw W, the whole arranged to gripe upon the grooved flange h, substantially as and for the purpose described.

3. In combination with a rotating feeder the jointed lever R R and elastic buffer S, substantially as and for the purpose set forth.

176,982. COMPOUNDS FOR COLORING PHOTOTYPES. Charles H. Collagan, Philadelphia, Pa. [Filed Feb. 9, 1876.]

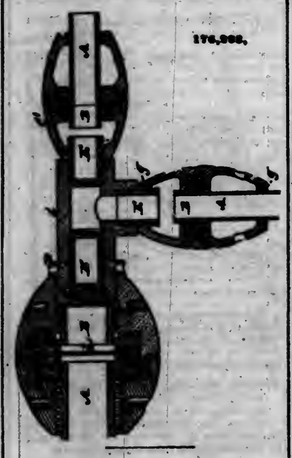
The compound herein described for coloring ferrotypes or positive iron-plate pictures, composed of pastel and anhydrous peroxide of iron in about the proportions specified.

176,983. PLUMBERS' PIPE-JOINTS. Owen Collins, New York, N. Y. [Filed Feb. 21, 1876.]

1. The combination of the transversely divided or male and female screw coupling O O', formed with an interior chamber, c, and having interior and screw-threads p, with the end flared or flanged pipe-sections A B, and packings within the chamber c, substantially as specified.

2. The combination of the internally and externally screw-threaded thimble D with the internally-chambered and transversely-divided screw-coupling O O', having interior and screw-threads p, and the pipes or pipe-sections A B, essentially as described.

176,984.



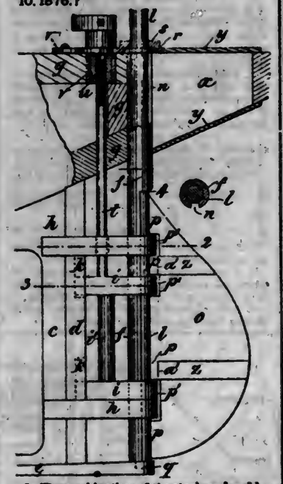
176,984. CARRIAGE-STEPS. R. A. Cooper, Lancaster, assignor to Pratt & Letchworth, Buffalo, N. Y. [Filed Mar. 6, 1876.]

Brief.—To be covered by the same bolts that fasten the body-loop to the body.



A carriage-step composed of a tread, C, bent shank D, guard d, and horizontal plate, d, formed in one piece and adapted to be secured in position, substantially as and for the purpose herein before set forth.

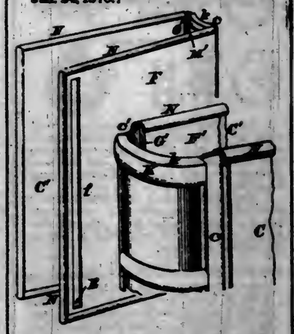
176,985. MEANS OF ATTACHMENT OF SHIPS' RUDDERS. Geo. H. Couvrette, Montreal, Canada, assignor of one-half his right to Pierre Frigon, same place. [Filed Mar. 10, 1876.]



1. The combination of the stock and rudder *l e*, rudder-tube f, stationary clasps h, and movable clasps i, substantially as and for the purposes described.

2. The combination of the stock and rudder *l e*, rudder-tube f, clasps h and i, rudder-post d, screwed bolt t, and nut u, as described.

176,986. BOOK-BINDINGS. H. C. Deller and H. F. Richter, Cincinnati, Ohio. [Filed Jan. 24, 1876.]



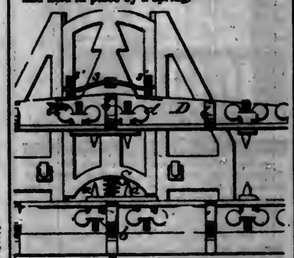
1. The cockets G G', formed by the covers C C, fillings E, and inner sheets F F' of a files or separable book-cover, for the purpose specified.

2. The combination of the separable cover C C D, fillings E, and inner slotted sheets F *f F f*, as and for the object stated.

3. The metallic binding F, having its edges seated in the grooves or crevasses P of the cover C, as and for the purpose explained.

176,987. MACHINES FOR LAYING OUT MORTISES. Samuel W. Dickinson, Rumbersteese, Canada. [Filed May 23, 1876.]

Brief.—The vertically-reciprocating marking-bar is pivoted near the middle of its length and held in place by a spring.



In a machine for laying out mortises, the pivoted arm D, provided with a double spring, S S, substantially as and for the purpose described.

176,988. PREPARED WOOD FOR THE MANUFACTURE OF ILLUMINATING-GAS. Frederick H. Hitchborn, Detroit, Mich., assignor of two-thirds his right to W. W. Morton, J. T. Salter, J. H. Sheldon, and Jas. Aikens, Chicago, Ill. [Filed Jan. 13, 1875.]

A gas-fuel, composed of non-resinous or hard woods, infused with a certain definite quantity of hydrocarbons, so that, by destructive distillation, it will evolve a permanent or fixed illuminating-gas of a desired candle-power.

176,989. LOCKET-BEZELS. D. P. Fitzgerald, Newark, N. J. [Filed Feb. 3, 1876.]



A bezel for lockets, &c., consisting of a single piece of metal bent to form two flanges, one for the support of the stone, and the other for overlapping and securing the stone, substantially as set forth.

176,990. METALLIC SEALS. A. Friedrick, Brooklyn, N. Y. [Filed Mar. 21, 1876.]

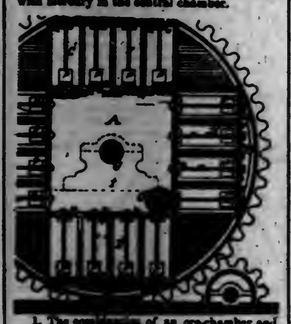


1. The soft-metal button, having a perforated ear, *a*, projecting from its outer edge, in combination with the sheath-wire, having both ends passed through one and the same perforation in said ear, as and for the purpose described.

2. The sheath-wire A of a metallic seal in combination with a soft-metal button, consisting of two connected disks, provided with a projecting eye or its equivalent, as, and for the purpose described.

176,891. APPARATUS FOR PULVERIZING AND AMALGAMATING GOLD AND SILVER ORES. Robt. M. Pryor, New York, N. Y., assignor to the Pryor Noble Metal Mining Company of New York. [Filed May 20, 1876.]

Brief.—Ore is pulverized by the impact of the descending weights, which fall freely upon the guide-rods as the machine revolves. During the process the ore may be amalgamated with mercury in the central chamber.



1. The combination of an ore-chamber and reciprocating weight, the chamber revolving about an axis at right angles to its length, the weight and ore falling from one end of chamber to the other, substantially as and for the purpose above set forth.

2. The combination of the revolving chambers, or subdivided chambers, B, C, D, and E, with the reciprocating weights P, substantially as and for the purposes above set forth.

3. The combination of the revolving chamber A and chambers B, C, D, and E, and weights P, for the combined purpose of pulverizing and amalgamating, substantially as and for the purpose above set forth.

176,892. PANTALOONS-PROTECTOR. Henry Gardner, Baltimore, Md., assignor to Clarence Hollyday, same place, and Francis S. Gardner, New York, N. Y. [Filed Aug. 17, 1875.]

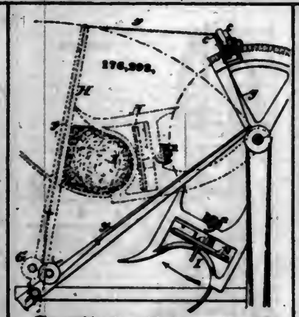
Brief.—The bottom edge of the pant-leg is inserted between the folds of the protector, which is held in place by the springs.



1. As a new article of manufacture, a pantaloons-protector made of india-rubber or other water-proof material, and so constructed as to embrace the outer and inner sides of the garment at the bottom, substantially as described, and for the purposes set forth.

2. A pantaloons-protector provided with the springs B C C, having the oval projections *a a*, or their equivalents, substantially as described and for the purposes set forth.

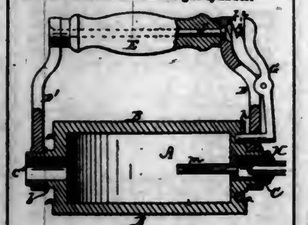
176,893. GRAIN-SEPARATOR. Josiah Garrard, Cincinnati, Ohio, assignor to Excelsior Grain-Binder Company, Limited, New York, N. Y. [Filed Nov. 12, 1875.]



The combination, with the carrying-arm or cradle I, of a former, H, whose fixed point is outside of the sweep or radius of the circle described by said arm, substantially as and for the purpose set forth.

176,894. SELF-HEATING SAD-IRONS. O. W. Gerow, Toledo, and John A. Gerow, Findlay, Ohio. [Filed Mar. 20, 1876.]

Brief.—The cylindrical gas-chamber is detachable from the iron, and the gas-burner is in turn detachable from the gas-cylinder.

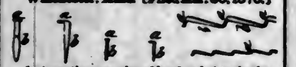


1. The combination of the hollow reversible end-iron, having faces B B, journals C C, and recess *c*, with the arms D D', rod *f*, and pivoted lever O, with spring S, and pin *b*, all constructed substantially as set forth.

2. The combination, with a hollow end-iron, of a gas-burner, consisting of a detachable hollow plug, H, closed at both ends and provided with the tube *m*, detachable burner I, and air-holes *b a*, substantially as herein set forth.

3. The combination of the the hollow reversible end-iron A B, having hollow journals C C', handle D E, fastening-lever G and burner H I *m*, all constructed substantially as and for the purpose herein set forth.

176,895. CONTINUOUS LAP-HEAD TACKING-WIRE FOR LASTING-MACHINES. L. Goddu, Winchester, Mass. [Filed Mar. 20, 1876.]



1. A continuous wire of lap-headed tacks for use in machines for lasting boots and shoes.

2. A continuous wire of lap-headed tacks, in which the lap-head of each tack of the series joins the point of the tack next succeeding.

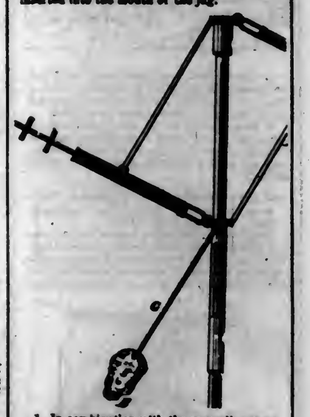
3. A continuous wire of lap-headed tacks, having tapering or beveled shanks.

176,896. VERTICAL STEAM-BOILERS. T. W. Godwin, Norfolk, Va. [Filed Mar. 20, 1876.]

The combination, in a vertical boiler, of the fire-chamber B, offset B', tubes E, water-space F, and return-tubes J, at the sides of said fire-chamber, constructed and arranged to operate substantially as described.

176,897. CLEANERS FOR JUGS, &c. Louis Gotz, La Grange, Ohio. [Filed Mar. 6, 1876.]

Brief.—Sponges or other cleaners are attached in any suitable manner—as, for instance, by clamping nuts upon the ends of the arms. They are then wet, and, while the sleeve is well down on the handle, the contrivance is inserted into the mouth of the jug.



1. In combination with the expanding arms D, the extension rods or slides D' for increasing the scope of the cleaners, substantially as and for the purpose shown.

2. The combination, with the jug-cleaner herein described, of the independent swinging arm G, provided with the sponge or cleaner H, substantially as and for the purpose described.

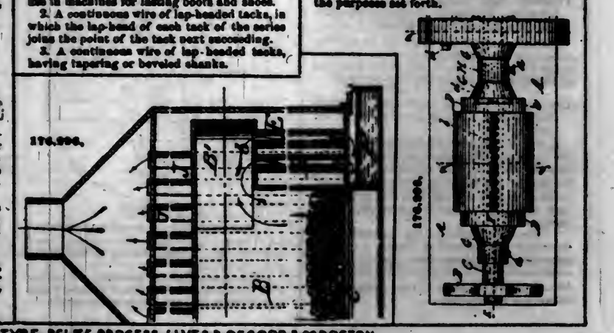
176,898. MACHINERY FOR BUFFING THE BOTTOMS OF BOOT AND SHOE SOLES. Charles C. Greene, Worcester, Mass. [Filed Mar. 28, 1876.]

1. The combination, with the slotted buffing wheel or pulley D or E, of a slotted tightening and holding spindle, K, substantially as and for the purposes set forth.

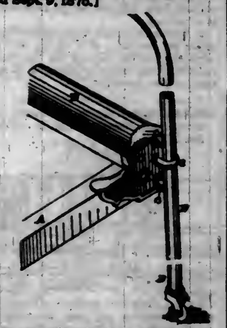
2. The combination, with shaft C and wheel or pulley D, provided with square wedge-shaped projections F, of holding-cups G, substantially as and for the purpose set forth.

3. The combination, with pulley or wheel D and tightening and holding spindle K, of wedge-shaped projections F and holding-cups G H, substantially as and for the purposes set forth.

4. The combination, with buffing wheels or pulleys D E and shaft C, of the double holding cup-piece G H C, substantially as and for the purposes set forth.



176,899. BEDSTEADS. Gustav Griesche, St. Louis, Mo., assignor of one-half his right to Charles H. Campbell, Jr., same place. [Filed Sept. 9, 1875.]



The corner-casting A of a mattress-frame, having cleat legs *c* for the reception of the leg D, in combination with the binding-bolt H, having a clamping-hook, *e*, substantially as set forth.

176,900. IRON FENCES. David C. Guttridge, Akron, Ohio. [Filed Dec. 31, 1875.]

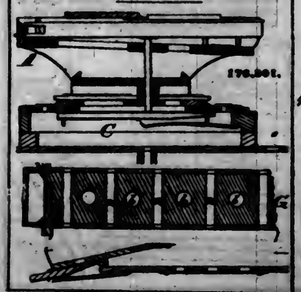
Brief.—The coupling-links which unite the pickets and stringer, and each other, have diagonal slip-joints, which are also self-coring.



1. The combination, with the top links A, having the self-coring diagonal slip-joints, constructed as described, of a continuous wrought-iron stringer or rail, C, substantially as and for the purpose described.

2. The combination, with links having self-coring diagonal slip-joints, constructed as described, of pickets arranged to interlock and connect the links in place, substantially as and for the purpose described.

3. The combination, with links having self-coring diagonal slip-joints, the said links being interwoven and partially intersecting each other, of pickets and a continuous wrought-metal stringer or rail, substantially as shown.



176,901. REED-ORGANS. Samuel Hale, Bloomfield, N. J. [Filed Feb. 5, 1876.]

1. The reed-box or viol B, provided with the bounding-partition G, having the vertical perforations *a* and the horizontal perforations *b*, constructed and arranged to operate substantially as described.

2. In combination with the action A, wind-chest C, and the bellows D, the viol B, constructed as described, all substantially as set forth.

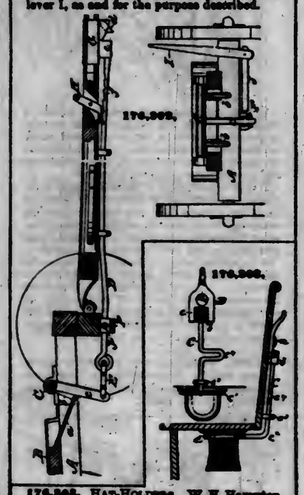
176,902. WAGON-BRAKES. J. Hamelback, Hopewell, Ohio. [Filed Feb. 28, 1876.]

Brief.—The brake is automatically operated by the neck-yoke.

1. The combination of the brake-bar B, rods *a*, rock-shaft C, having arms *b c*, the link E, connecting-rod D, and the collar G, having projection *e* and pivoted catch *d*, as and for the purpose described.

2. The combination, with the rod D, having teeth *f*, of the detent H, pivoted in the tongue and projecting above the same, whereby it is adapted to be automatically disengaged by a connection with the neck-yoke, substantially as described.

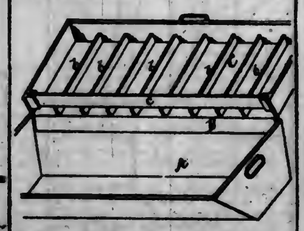
3. The combination, with the rod D and the guide-eye F, of the sliding-rod J and the lever I, as and for the purpose described.



176,903. HAT-HOLDERS. W. H. Hampton, Luray, Va. [Filed Feb. 26, 1876.]

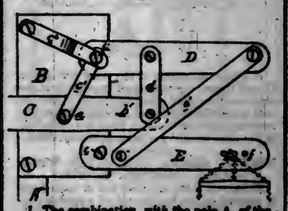
The wire C, end-threaded at *c*, having hatting *c'*, bent as *c²*, and having stop *c³*, in combination with a staple, *c⁴*, and nut-plate B *b*, both attached to back of pew, as and for the purpose described.

176,904. DISH DRAINERS AND DRAINERS. Elijah S. Harper, Florenville, Tex. [Filed Jan. 11, 1876.]



A dish-pan drainer, consisting of the pan A and tray C, detachably united at an obtuse angle, and provided with the bars *b*, rim *c*, and legs D D', all substantially in the manner hereinbefore described, for the purposes set forth.

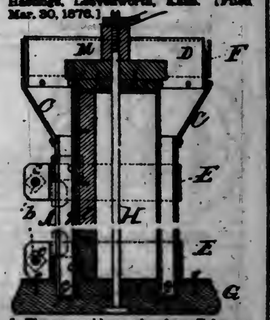
176,905. DRAFT-EQUALIZERS. George W. Harrington, Plain View, Minn. [Filed Jan. 26, 1876.]



1. The combination, with the pole A, of the plank, plate, or block B and the levers C D E, all pivoted to such plank on the same side of the pole, substantially as described and shown.

2. In combination, the pole A, the plank B, the levers C D E, the plates *d d'*, and the diagonal straps *e e'*, all constructed and arranged substantially as described and shown.

176,906. CONCRETE-PIPE MOLDS. Stewart Hastings, Leavenworth, Kans. [Filed Mar. 30, 1876.]



1. The removable annular clamp F, in combination with a vertically-divided cylindrical external mold-wall, having a vertical cleft for ing portion, C, and a cleft right-cylindrical flange, D, substantially as specified.

2. In combination, the vertically-divided mold-wall A, having guide-lugs *d d* upon its edges, and the clamp-rings E, having draw-holes *b*, substantially as specified.

3. The key-slide K', consisting of the block I, convex on one face, and having a metallic T-shaped tenon, *q*, in combination with the vertically-divided core K, having guide-strips *h*, adapted to be received between block *I* and tenon *q*, substantially as specified.

4. The combination of a base-plate, G, having an annular groove, *e*, with a spring-core adapted to embrace the raised portion of the said base, a key-block, *r*, a T-shaped tenon, *q*, substantially as specified.

5. The flange or lip core-block P, in combination with an exterior mold-wall, A, having flaring portion C and right cylindrical flange D, an interior body-core, K, and a clamp-rod, H, substantially as specified.

176,907. COMPOUND GIRDERS. R. A. Healy, Paterson, N. J. [Filed Dec. 15, 1875.]



1. A compound girder or beam, the sections of which are united edge to edge as well as side to side, so that the resulting joints are both horizontal and vertical.

2. The combination of the sections A B C D, having flanges *h*, and their meeting edges *e*, formed to interlock, and rivets, bolts, or other means for securing them together, substantially as and for the purpose herein set forth.

3. A section for a compound girder or beam, formed as described, consisting of a flat web, provided at one side and edge with a flange, and at the other with an offset, lip, or scarf, in the manner shown, for securing it to the adjacent section, the two forming one lateral half of a girder, substantially as specified.

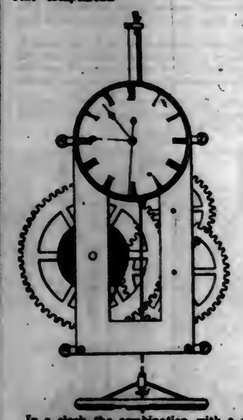
176,208. BUTTONS. David Heaton, Providence, R. I. [Filed Mar. 13, 1874.]



A button consisting of the head A B, shank C, and having the bifurcated prongs E E at one side and the single prong F at the other, the said prongs being tapered or chisel-pointed in reverse directions to adapt them to be attached in the manner and for the purpose specified.

176,209. CLOCKS. John W. Ella, Waterville, Kans. [Filed Mar. 20, 1876.]

Brief.—A collet carrying one or more arms is secured on the flexible rod of a torsion-pendulum, which arms actuate directly a "dead beat" escapement.



In a clock, the combination, with a dead-beat escapement, of a weight, *w*, suspended by a torsion-spring rotating alternately from right to left, substantially as and for the purpose set forth.

176,210. BOUQUET-HOLDERS. William H. Hoffman, Passaic, N. J., and E. St. J. Hoyt, New York, N. Y. [Filed Mar. 22, 1876.]

Brief.—A bouquet-holder with a tube to pass through the button-hole, with a flange to secure the flowers, and a hook-shaped arm to hold it in place.



1. In a bouquet-holder, the combination with the tube or bottle A of a hooked-shaped arm or stop, B, and flange D, substantially as and for the purpose herein described.

2. The combination, with the tube or bottle A, of the laterally-projecting flange, whereby provision is made for securing the stem of the bouquet by an elastic band, and for supporting the rear portion thereof, and for assisting in the retention of the holder in the button-hole, substantially as herein set forth.

176,211. ATOMIZERS. Thomas J. Holmes, Boston, Mass. [Filed Mar. 2, 1876.]

Brief.—A single piece of cast metal furnishes a concave bulb-support, a valve-support, and exit-tube support, and also carries both the cork and a tube passing into the liquid to be operated upon.



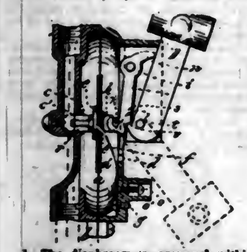
176,212.

1. The arrangement of the air-valve *l* on the opposite side of the central portion *d* to that in which the discharge-orifice is located, substantially as and for the purpose set forth.

2. The hollow screw-shank *b*, in combination with the central portion *d*, bulb-support *a*, and valve-support *r*, all cast in the same piece, substantially as and for the purpose described.

3. The central portion *d*, provided with a screw-thread for the reception of the upper end of the liquid tube *m*, in combination with the hollow screw-shank *b*, substantially as and for the purpose described.

176,213. GAS-LIGHT EXTINGUISHERS. W. H. Hovey, Springfield, Mass. [Filed Mar. 23, 1876.]

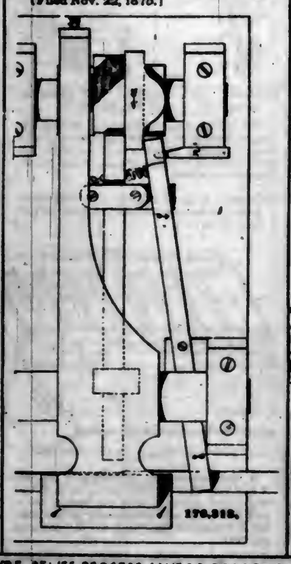


1. The diaphragm *c*, arranged within a chamber to form two compartments therein, in connection with a valve-stem and valve to close the escape-orifice *e*, the adjustable spring *f*, and the weight D, substantially as and for the purpose herein described.

2. The combination of the diaphragm *c*, arranged to form two compartments within a chamber, a valve-stem and valve to close the escape-orifice *e*, the adjustable spring *f*, the lever H, and the weight D, all operating substantially as and for the purpose specified.

3. A pivoted weight, D, arranged in combination with a valve-stem and valve located in a chamber, whereby a gas-light is extinguished automatically by the fall of said weight, at any determined pressure of gas within the pipes, to shut the valve and close the escape-orifice, substantially as set forth.

176,214. MACHINES FOR FLANGING SHOE-NAIL STRIPS. Philip R. Howe, Lawrence, assignor to Lyman R. Blake, Boston, Mass. [Filed Nov. 22, 1875.]

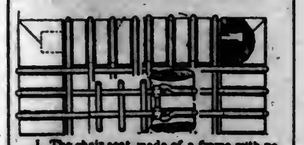


176,214.

1. In a machine for flanging sole-fastening strips, the combination, with a holding mechanism for the strip, of a feeding and reciprocating flanging mechanism, adapted to operate and form a double flange, all substantially as described.

2. The combination, with the holding mechanism for the strip, of a spring and gage to retain beyond the edge of the bed the proper amount of the strip to form the flange, substantially as described.

176,215. CHAIR-SEATS AND BACKS. George Hunsinger, New York, N. Y. [Filed Jan. 24, 1876.]



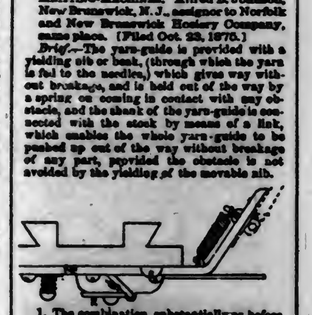
1. The chair-seat made of a frame with peripheral grooves and pins, and wires passed partly around each frame and pins, and laid in said grooves, substantially as set forth.

2. The chair-seat made of metallic wires or strips, covered with thread wound or braided upon each wire, substantially as set forth.

3. The chair-seat made of a wooden frame, with metallic wires or strips stretched from side to side and secured by pins, substantially as set forth.

176,216. YARN OR THREAD GUIDES FOR KNITTING-MACHINES. Alfred B. Johnson, New Brunswick, N. J., assignor to Norfolk and New Brunswick Hosiery Company, same place. [Filed Oct. 22, 1875.]

Brief.—The yarn-guide is provided with a yielding nib or beak, (through which the yarn is fed to the needles,) which gives way without breakage, and is held out of the way by a spring on coming in contact with any obstacle, and the shank of the yarn-guide is connected with the stock by means of a link, which enables the whole yarn-guide to be pushed up out of the way without breakage of any part, provided the obstacle is not avoided by the yielding of the movable nib.



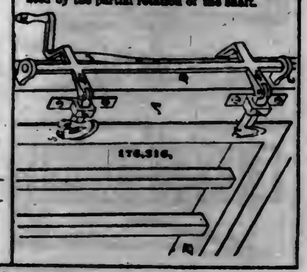
1. The combination, substantially as before set forth, of the shank of the yarn-guide, with a movable yielding nib, whereby the said nib is permitted to move independently of the driving mechanism of the guide when the nib meets an obstacle.

2. The combination, substantially as before set forth, of the shank of the yarn-guide, the movable nib, and the spring which rests upon said nib.

3. The combination, substantially as before set forth, of the shank of the yarn-guide, the stock, and the link.

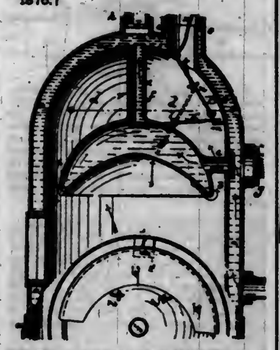
176,217. GATE-LATCHES. Henry Jones, Shasta, Cal. [Filed Mar. 13, 1876.]

Brief.—A vertical shaft journaled upon the outer side of the gate-post carries upon a cross-bar two sliding latches, which are operated by the partial rotation of the shaft.



176,216.

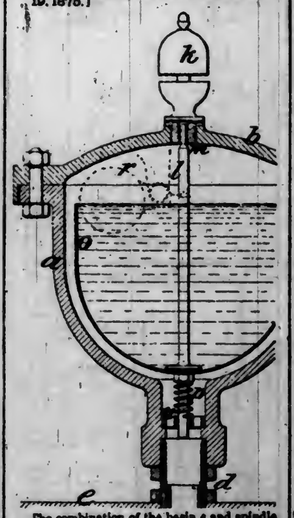
176,217. HOT-WATER BOILERS. James D. Kesley New York, N. Y. [Filed Mar. 11, 1876.]



1. The semi-annular pivoted shelf E placed in the smoke-chamber *d* of the boiler, between the smoke-passage *b* and the smoke-flue *k*, substantially as and for the purpose herein shown and described.

2. The combination of the pivoted shelf E with the rod *m*, which extends into and through the smoke-flue *k*, substantially as herein shown and described.

176,218. LOW-WATER-ALARM APPARATUS FOR STEAM-GENERATORS. John W. Kenyon, Manchester, England. [Filed Nov. 19, 1875.]



The combination of the basin *c* and spindle *i*, rigidly attached thereto, and arranged to act as a valve, with the whistle *k* and the spring or weighted lever, all substantially as set forth.

176,219. WATCH-POCKET GUARDS. Joseph Koehler, New York, N. Y. [Filed Feb. 14, 1876.]

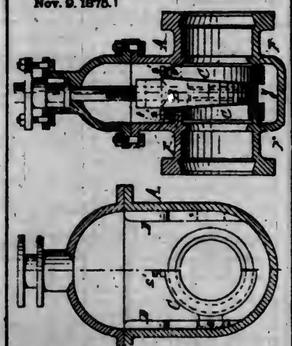
176,219.

176,220.

176,220. ARTIFICIAL CANDLES. Wladislaw A. Kowalski, New Orleans, La. [Filed Feb. 28, 1876.]

An artificial candle, composed of the casing A, provided with a double bottom *a a'*, having air-inlets 1 2 and tube B, in combination with the wick-tube C, provided with threaded head *c*, cap *d*, and a silk wick, as and for the purpose set forth.

176,221. STOP-COCKS. Otto Kromer and Wesley Royce, Sandusky, Ohio. [Filed Nov. 9, 1875.]

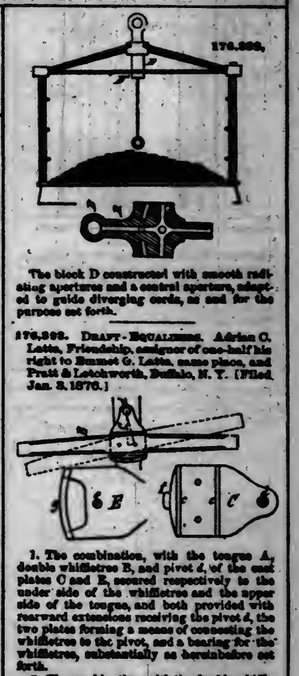


1. In a stop-valve, in combination, the annular flanges F F, the annular valve-seats C C, having a circular groove in the back of each, and an elastic packing placed on the said flanges in the said grooves, substantially as described and shown.

2. In a stop-valve, the combination with the annular valve-seats C C, having lugs *o o*, of the annular flanges F F, the guides D D, and set-screws *o' o'*, substantially as described and shown.

3. In a stop-valve, the combination with the case A of the wedge-shaped valve B, the guides D D, the oblique annular valve-seats C C, having lugs *o o*, set-screws *o' o'*, and grooved hooks, the annular flanges F F, and the elastic packing, substantially as described and shown.

176,222. MOSQUITO-BARS. L. B. Ladd, Philadelphia, Pa. [Filed Mar. 22, 1876.]



176,222.

The block D constructed with smooth radiating apertures and a central aperture, adapted to guide diverging cords, as and for the purpose set forth.

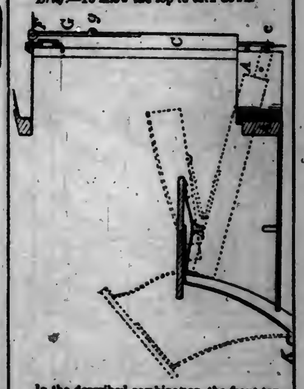
176,223. DRAFT-EQUALIZERS. Adrian C. Latta, Friendship, assignor of one-half his right to Emmet G. Latta, same place, and Pratt & Letchworth, Buffalo, N. Y. [Filed Jan. 3, 1876.]

1. The combination, with the tongue A, double whiffletree B, and pivot *d*, of the end plates C and E, secured respectively to the under side of the whiffletree and the upper side of the tongue, and both provided with rearward extensions receiving the pivot *d*, the two plates forming a means of connecting the whiffletree to the pivot, and a bearing for the whiffletree, substantially as hereinbefore set forth.

2. The combination, with the double whiffletree B, tongue A, and pivot *d*, of the plate C, provided with flange *f*, and wear-plate E, provided with raised guide *g*, substantially as and for the purpose hereinbefore set forth.

176,224. VEHICLE-TOPS. E. M. Laurence, Cincinnati, Ohio. [Filed Feb. 16, 1876.]

Brief.—To allow the top to turn down.



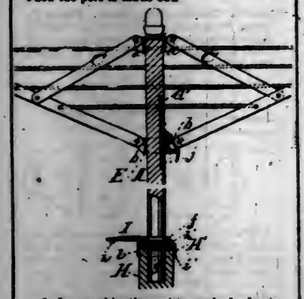
In the described combination, the front top E, connected by the pair of double-jointed hinges F G *g* F' G' *g'*, with a pair of hinged front posts, C C', arranged and operating as set forth.

176,225. WAGON FIFTH-GEARS. Watson B. Little, Chicago, Ill. [Filed Feb. 7, 1876.]

The irons E, formed at their upper ends as shown and described, in combination with the tail-board A and side-boards B, provided with recesses *a*, irons *b*, having slots *c* and stops *i*, substantially as and for the purpose specified.

176,286. CLOTHES-DRESS. D. B. Lovejoy, Augusta, Me. [Filed Jan. 8, 1876.]

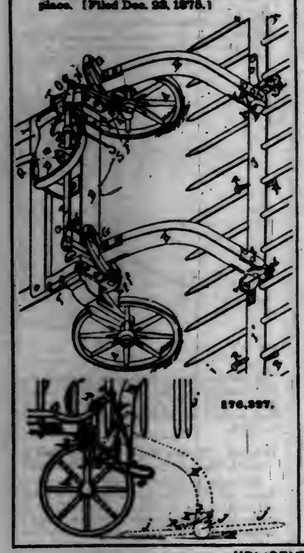
Brief.—The arms are adjusted by means of a sleeve, rack, and spring-dog. The pole is placed in a socket, which has a cap to cover it when the pole is taken out.



1. In combination with post A, having sleeve B, with flange *f*, and spur *f'*, the metallic capping H', having flange *h'*, with slit *i'*, and the tubular base H, with groove *l*, substantially as specified, and for the purposes set forth.

2. In combination with the capping H', having flange *h'*, with slit *i'*, the vibrating plate I, having lug *p*, adapted to engage with the said slit, substantially as specified.

176,287. REVOLVING SULKY-RAKES. John J. Lenox, Belleville, Ill., assignor of one-half his right to Enoch W. Prince, same place. [Filed Dec. 22, 1875.]



176,287.

1. The combination, with the jointed rake J J' J' J and pulley, of the staples T and chain S, for securing the rake in elevated position, in the manner set forth.

2. The combination, with the rake J and axle-bar B, of the beams H H, provided with vertically-elongated elevises G, allowing the vertical movement of the fore ends of the beams, substantially as and for the purpose set forth.

3. The combination of beams H with elongated elevises G, links N, arms O, rock-shaft P, and treadle-arm Q, substantially as and for the purpose set forth.

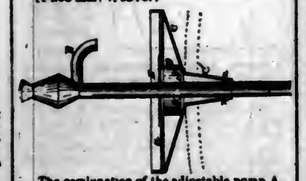
4. The combination of axle B, having brackets H provided with clevis-pins F, beams H, having elevises G and jointed rake J J' J' J, all arranged as and for the purposes set forth.

176,288. HORSE-DETACHERS. John A. MacKinnon, Caledonia, N. Y. [Filed Mar. 7, 1876.]



The combination, with the wooden portion A, provided with the bore *a*, and the metallic end portions C C, provided with jaws *d d*, of the pivoted hooks E, locking-bolts *g*, and releasing-cord *j*, all inclosed within the sleeves C C and portion A, substantially as and for the purpose hereinbefore set forth.

176,289. APPARATUS FOR PUMPING FROM BARRELS. Sidney B. Mallett, Corry, Pa. [Filed Mar. 7, 1876.]



The combination of the adjustable pump A, pan C, provided with the centrally-tapering tube C', supporting-ring D, and racks E C, the whole adapted to be set in an oil barrel or cask, substantially as shown and described.

176,290. PUMPS. Neil Malmquist, Brooklyn, N. Y., assignor to W. and R. Douglas, Middletown, Conn. [Filed Nov. 13, 1875.]

Brief.—A single supply is effected on the upward stroke of the piston by means of the foot-valve. The double-acting discharge is effected on the upward as well as on the downward stroke by means of the piston packing-ring, which, sliding a distance limited by flanges, serves as a valve to keep up communication between the lower and upper side of the piston. The hollow piston acts as an air-vessel.



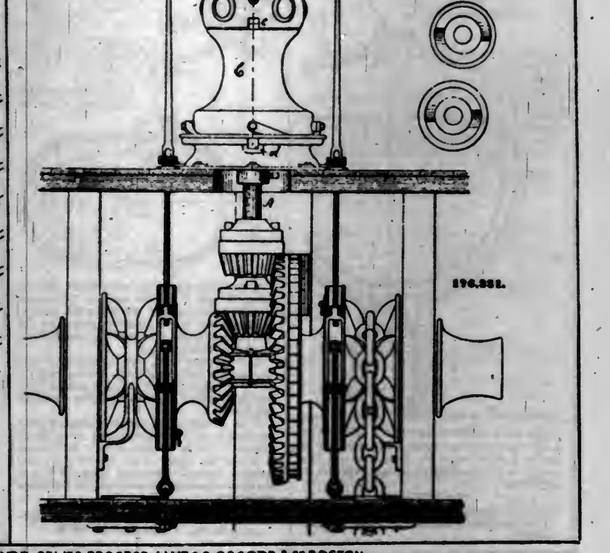
For effecting, in a house or garden pump, the functions of double-action, air-vessel, piston-rod, and piston, the combination with the hollow piston-rod E (having an area of cross-section equal to one-half of that of the pump-cylinder) of the sleeve I sliding to open and close connection with openings *f g* formed directly on the said piston-rod proper E, and with the foot-valve C, substantially as specified.

176,291. WINDLASSES. Joseph P. Manton, Providence, R. I. [Filed Oct. 12, 1874.]

Brief.—The capstan-shaft descends below the deck, to work the windlass by the capstan-bars; a plate on the top of, and forming one piece with, each shaft being then locked to the capstan-head by a key. This key being withdrawn to lock the head and barrel together gives them the ordinary capstan function.

The combination of the upright shaft and the windlass, the two directly geared together, and with the windlass-head keyed to said shaft, the power-capstan and a capstan-head revolving around said shaft, and arranged to interchangeably drive the capstan or the windlass, substantially as described.



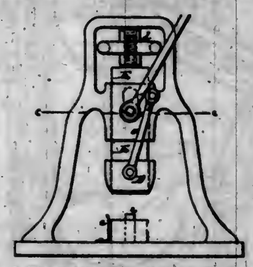


176,292.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & C° BOSTON

176,292. MACHINES FOR TRIMMING PLATING-CLAMPS. Victor B. Manger, New York, N. Y. [Filed Mar. 4, 1876.]

Brief.—A tubular knife reciprocated by means of a crank-arm and connecting-rod fits closely around a block reciprocated by means of a screw, which block holds in position the article to be trimmed, placed on a stationary block, which the knife in its descent surrounds.



1. The reciprocating tubular knife D, in combination with the reciprocating follower E, to move each independent of the other, the cutting-edge of the knife being in contact with said follower, substantially as herein shown and described.

2. The combination of the tubular reciprocating knife D and inner reciprocating follower E, each moving independently of the other, with the stationary block or bed B, with which the cutting-edge of the knife comes in contact, substantially as herein shown and described.

3. In combination with the knife D and follower E, the flexible gages *e e*, substantially as specified.

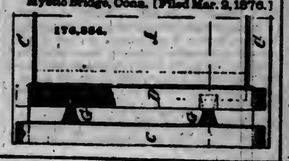
176,293. COMBINED TACK-DRIVERS AND CARPET-STRETCHERS. John McWilliams, Belle Vernon, Pa. [Filed Oct. 28, 1875.]



1. In a tack-driver, the combination of a spring-actuated hammer with the catch F, for the purpose specified.

2. In a tack-driver, the hammer D, having spring *f*, pivot *d*, and rest E, in combination with the catch F, having the spring *s*, substantially as shown and described.

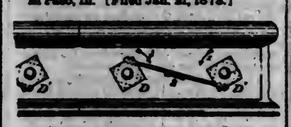
176,294. BOSOM-BOARDS. E. S. Morgan, Mystic Bridge, Conn. [Filed Mar. 2, 1876.]



176,294.

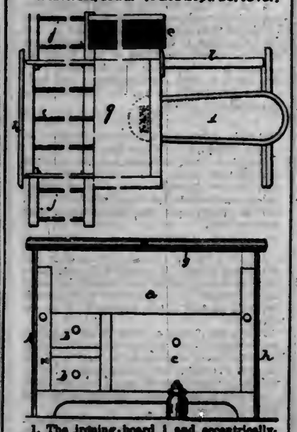
The detachable frame C and sliding cross-bar D, having recess near each end, said frame being provided with rubber springs G at one end, in combination with the board A and cross-bars B, arranged as and for the purpose set forth.

176,295. NUT-LOCKS. John Morton, Cincinnati, Ohio, assignor to James T. King, El Paso, Ill. [Filed Jan. 21, 1873.]



In combination with the grooved nuts D D', the tie-rod F, passed through the grooves and looped about the edges of the nuts, and extending from the upper corner of one nut diagonally across the center plane of the bolts to the lower corner of the other nut, to which it is tied, whereby the unscrewing of one nut will tighten the other, as specified.

176,296. IRONING-TABLES. H. A. Negus, Winterset, Iowa. [Filed Sept. 26, 1876.]



1. The ironing-board I and eccentrically-pivoted catch 3, in combination with the frame *a*, having the slot 2, in which the end of the catch drops, as set forth.

2. The combination of the molding *h* with the clothes-rack *i* and smaller racks *j*, moving at right angles thereto, substantially as specified.

3. The combination of the frame *c*, drawers *b c*, ironing-table *c*, molding-board *g*, racks, and ironing-boards, as shown and described.

176,297. AUTOMATIC HOSE-REELS AND WATER-COCKS. Wm. Norscher, Cleveland, Ohio. [Filed Jan. 23, 1876.]

Brief.—The reel is combined with a hydrant in such a manner that, as the hose is being unwound, it is automatically supplied with water. Therefore the necessity of attaching unwound hose to hydrant is avoided.

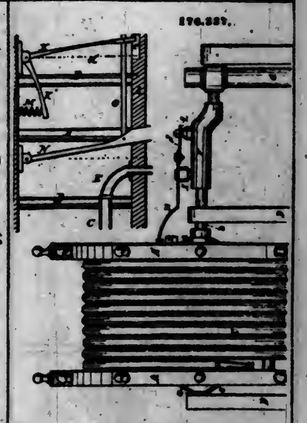
1. The right-angled lever, consisting of the arms K and K' and spring M, in combination with the arm N and hose-reel, substantially in the manner as described, and for the purpose set forth.

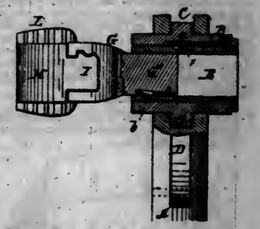
2. The hose-reel and right-angled lever above described, spring M, and arm N, arranged to operate in combination with the lever H, substantially as set forth, for the purpose specified.

3. The hose-reel and tubular trunion *b*, in combination with the cock F and hydrant G, in the manner substantially as described, for the purpose set forth.

4. The combination of the reel-hose C, and right-angled lever, herein described, spring M, arm N, link O, tubular trunion *b*, lever H, cock F, and hydrant G, substantially in the manner as described, and for the purpose set forth.

176,298. WRENCHES. Wm. I. Neal, Walton, Ind. [Filed Jan. 26, 1876.]

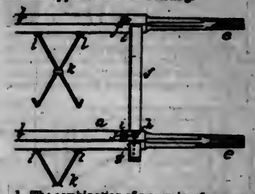




The combination of the head G, having sliding jaw B', fixed jaw H, rocking jaw I, and provided with shank G', spring-catch *b*, with the ratchet-wrench A, having sleeve B, spring-catch *a*, and thimble E, for the purposes shown and described.

176,299. CARRIERS FOR BARRELS, BOXES, &c. Nathaniel Oak, Exeter, Me. [Filed Mar. 2, 1876.]

Brief.—The side pieces are adjustable upon the cross-pieces, and have grapples attached on their lower side, and are provided with rings at each upper corner for hoisting.



1. The combination of a carrying-frame, provided with handles *e e*, and inclosing the article to be carried, with hooks or grapples sustaining said article, as and for the purposes set forth.

2. The frame *a*, consisting of side pieces *b b*, having handles *e e* adjustable upon the cross-bars *f f* of said frame, as and for the purposes specified.

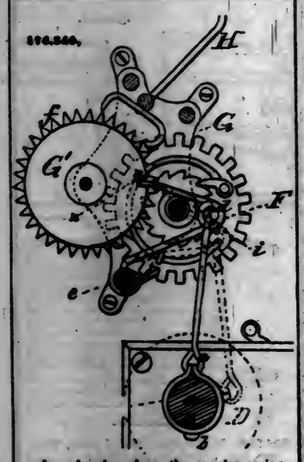
3. The frame *a*, inclosing the article to be carried, and provided with rings or eyebolts at its corners, as and for the described purposes.

4. The carrying-frame inclosing the article to be carried, and provided with handles *e e*, in combination with the swinging hooks or grapples *n n*, substantially as shown and described, for the purposes specified.

176,300. BUSHLAR-ALARMS. Charles M. Clipbant, Osceola, Iowa. [Filed Aug. 31, 1876.]

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & C° BOSTON

176,840.



Is a burglar-alarm the angular spring-wire detent F, having the coiled eye d, one of the ends of which is rigidly attached to the stationary shaft e, and the other end held by spring-tension *a* in contact with the notched disk D', in combination with the escapement-wheel *f* and hammer H, substantially as specified.

176,841. BOXES FOR HOLDING SHEETS OF PAPER. David K. Osborne, Baltimore, Md. [Filed May 29, 1874.]



As a new article of manufacture, a box having sides the upper edges of which decline from the back piece, and an inclined bottom, to facilitate the withdrawal of the papers, substantially as described, and for the purposes set forth.

176,842. GRAIN-CAR DOORS. A. Packard, Pembroke, Mass. [Filed Jan. 22, 1876.]

1. As an improvement in freight-cars, the bisected outwardly-opening door A B, united by hinges *a a*, and secured on the inside of the car by hinges C C, sliding on a vertical stationary rod, E, as and for the purposes described.

2. In a freight-car, the bisected outwardly-opening door A B *a*, secured on the inside of the car by hinges C C, sliding on stationary rod E, and made to project at each end beyond the edges of the opening of the car or frame 1 2, whereby said frame is made to form the jambs or support for the door, as described.

3. In a freight car, in combination with the bisected outwardly-opening door A B, secured on the inside of the car, the pivoted bolt or bar D *d* and retaining spring-stop *g*, one end of said bolt D working in a retaining-strap, *e*, and the other end in a catch, *f*, whereby the door A B is securely locked and retained in proper place, as and for the purposes described.

4. In a freight-car, in combination with the bisected outwardly-opening door A B, the hinges C C and rod E, secured in a vertical position in the inside of the car, whereby the door A B is secured in place to the car, and is adapted to be swung inward, outward, or raised and lowered, as described.

5. As an improvement in freight-cars, the bisected outwardly-opening door A B, united by hinges *a a*, secured to the inside of the car by hinges U U and rod E, projecting slightly beyond the edges of the jambs or frame 1 2, and locked on the outside by pivoted bar D *d*, catch *f*, spring-stop *g*, and loop *e*, all substantially as and for the purposes described and shown.

176,843. MITERING-MACHINES. Stephen R. Fay, Peoria, Ill. [Filed Feb. 9, 1876.]

Brief.—A fixed semicircular bed receives the material, which is cut, as desired, by a circular saw journaled in a pivoted sliding frame or saw-carrier, arranged above the bed, and extending over and across the pivotal point or axis.

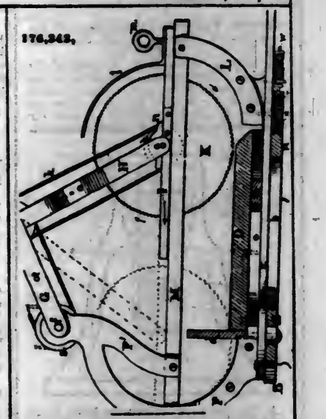
1. The saw frame or slide M, when extended over and across its pivotal point or axis u to the opposite side of the table D, and there fixed to and supported on a radial lever, *c*, for the purpose of allowing the saw K to traverse the axis of said pivot, substantially as described.

2. The saw frame or slide M, supported at its free end on an arm or lever, *c*, radiating from the disk E or pivot, and extending across the bed D, over and across its pivot u, and attached to curved arm F', rising from the pivot or its disk E, substantially as and for the purposes described.

3. The combination, with the pivoted saw-frame M, of pivot-frame F, pivotal disk E, arm *c*, provided with catch *w*, and brace L, substantially as and for the purposes described.

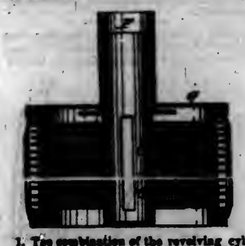
4. The combination and arrangement of the bed D U B, pivotal table E, frame F, attached to the saw-frame M, and provided with pulley *s* and axle *f*, frame O G, fixed axle *p*, provided with band-pulley r, frame H, attached to saw-carrier I, operated as and for the purposes described.

176,844.



176,844. MACHINES FOR MAKING PAPER CYLINDERS. Charles O. Perrine, Chicago, Ill. [Filed Sept. 23, 1875.]

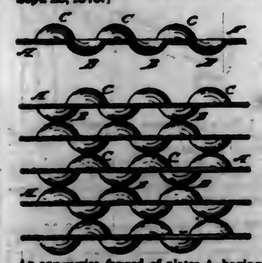
Brief.—The paper-pulp escapes through the slot in the central feed-pipe, and is deposited upon the inner revolving wire-gauze cylinder. Water and moisture are expelled by centrifugal force, and the cylinder is removed with the inner wire frame, which may be replaced by another. The paper cylinder is then sufficiently dry to be placed in heating-rollers and finished.



1. The combination of the receiving cylinder A with the head G, axle F, and feed-pipe O, substantially as and for the purpose specified.

2. The interior detachable cylinder B, in combination with the cylinder A and central feed-pipe C, substantially as and for the purpose specified.

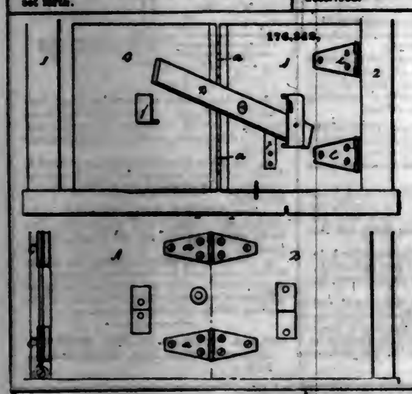
176,845. DEVICES FOR PACKING EGGS. Charles O. Perrine, Chicago, Ill. [Filed Sept. 23, 1875.]



An egg-carrier formed of plates A, having concave portions B and convex portions C, arranged as described, whereby the ends of the eggs are brought nearly together, and the plates allowed to be packed closely for transportation, substantially as and for the purpose set forth.

176,846. HONEY CASES OR PACKAGES. Charles O. Perrine, Chicago, Ill. [Filed Feb. 26, 1876.]

176,845.



176,846.



The border or lining C and comb foundation or support B, in combination with an outer case, package, or frame, substantially as specified.

176,847. FILLING PACKAGES WITH COMB-HONEY. Charles O. Perrine, Chicago, Ill. [Filed Feb. 26, 1876.]



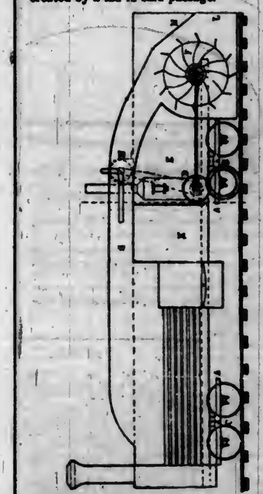
1. A case, *c*, in combination with a foundation, *c*, and a suitable rest, whereby the case can be filled by the bees, and the case serve as a package for the honey, substantially as set forth.

2. The case *c*, in combination with a foundation, *c*, attached to the upper end of the case, substantially as and for the purpose specified.

3. The head or comb rest *b*, in combination with the case *c*, substantially as set forth.

176,848. TRACK-CLEARERS. J. H. Pielert, Baltimore, Md. [Filed Mar. 4, 1876.]

Brief.—The revolving blades throw the snow back through the passage to the melting-chamber, being aided by a current of air created by a fan in said passage.



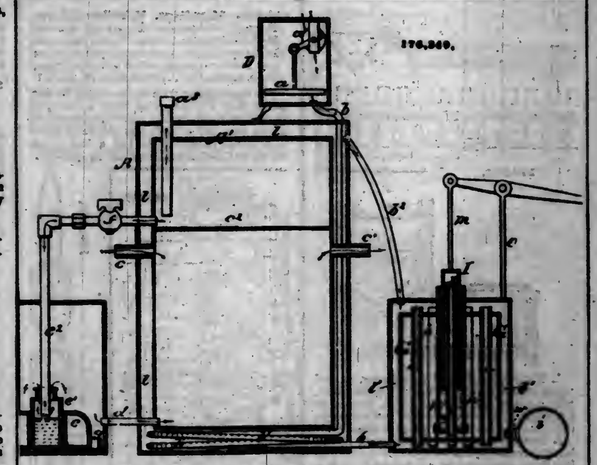
1. The excavator F, inclosed by the funnel G, combined with said funnel G and melting-chamber I, substantially as herein set forth.

2. In combination with the excavator F, snow-funnel G, and melting-chamber I, the fans H, adapted to force air into the snow-funnel in a direction corresponding with that of the moving snow thereto, substantially as specified.

3. The snow-funnel G, adapted to be distended laterally at the forward end thereof, substantially as and for the purpose described.

4. In combination with the snow funnel G, the apron M, hinged thereto, for the purpose of adjusting the vertical height of the feeding-aperture L to suit the depth of the snow to be removed, substantially as set forth.

176,849.



176,849. CARBURETORS. Alonzo W. Porter and Francis M. Grimes, New York, N. Y. [Filed Feb. 26, 1876.]

Brief.—Hot water is admitted to the water-tank surrounding the carburetor, and escapes from a perforated coil of pipe. Its inflow is automatically regulated by a valve and float. As the water cools, it is let off automatically by a thermostat, which operates a valve in the ejection-pipe. A float and mercury-seal are combined to automatically regulate the flow of oil from the reservoir to the carburetor.

1. The method of maintaining a uniform temperature of hydrocarbon fluid during the process of carbureting air or gas, by means of a gradual inflow of hot water, automatically controlled, from a steam or bath boiler, substantially as and for the purpose set forth.

2. In combination with a carbureter, a hot-water box, D, having automatic float and valve for controlling the inflow of the hot water and arresting the pressure thereof, substantially as and for the purpose set forth.

3. The combination, with a hot-water box, D, of a pipe, *b*, and perforated coil *b'* for evenly distributing hot water to temper the cold water around the carbureting-vessel, substantially as and for the purpose set forth.

4. The combination, with a carbureter having a water-jacket, of a hydrothermostat having a sealed box, G, with a series of vertical tubes, *k*, substantially as and for the purpose set forth.

5. The combination, with a carbureter, of a hydrothermostat, and a waste-water cock, substantially as and for the purpose set forth.

6. In a carbureter, the combination of an automatic hot-water inlet and an automatic cold-water outlet, substantially as and for the purpose set forth.

7. In combination, with a carbureter having a water-jacket, the hydrothermostat, consisting of the tubular sealed box G, inverted cup I sealed in mercury, valve *i*, and intermediate devices, operated by the heat of the water around the same, which heat controls the expansion and contraction of the contents of the sealed box, substantially as and for the purpose set forth.

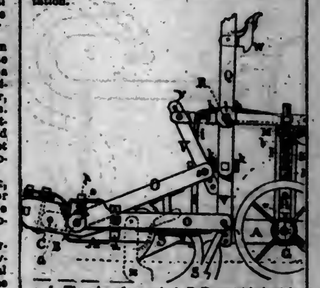
8. The combination, with a carbureter, of the hydrothermostat, consisting of the tubular sealed box G, inverted cup I sealed in mercury, valve *i*, and intermediate operating devices, operated in the manner as described.

9. In a carbureter, a waste-water valve provided with suitable inlet and outlet chambers and A removable oscillating perforated disk, *y*, the latter kept in contact with a perforated valve-seat by means of a spring, *i*, in the chamber *u*, substantially as described.

10. The combination, with a removable glass mercury holder, of a glass or black-iron cap at the bottom of a feed-box to catch any overflow of mercury, substantially as described.

176,850. GANG-PLOWS. William W. Pusey, Cuba, Ill., assignor of one-half his right to Francis M. Snively and Wm. H. Wilson, same place. [Filed Feb. 29, 1876.]

Brief.—A vertically-sliding wheel-frame within the main frame. The front end of plow-beams pivoted adjustably upon the cross-rod. The rear end linked to levers, and when lifted brings the rear end of tongue against a stop, rendering it rigid with the frame, which is then held clear of the ground for transportation.



1. The plow-frame A A D B, provided with standards I I, cross-piece M, carrying the adjustable wheel-frame H H L, screw K, and wheel E, substantially as and for the purpose described.

2. The combination, with the plow-frame, of the plow-beams O O, pivoted at their front ends upon the cross-rod B, the adjustable links V, levers Q, and horizontal locking-detents W, as and for the purposes described.

3. The tongue U, having the heel *t*, and pivoted upon the cross-rod B, in combination with the plow-beam O, provided with the stirrup *n* and the lever Q, locking upon the cross-bar M of the frame, whereby the plows are held above the ground, as shown and described.

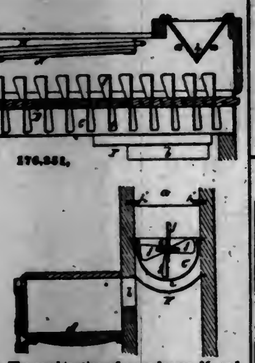
4. The combination, with the levers Q Q and plow beams O O, (laterally adjustable upon the pivot-rods B B,) of the elevated frame I M *l* *k* and cross-brace *k*, as and for the purposes described.

5. The slotted recessed clevis or pivotal recess *o o* and slide or bolt *p*, substantially as and for the purposes described.

176,851. FURNACES FOR DESICCATING ANIMAL OR OTHER MATTERS. Geo. W. Rawson, Cambridgeport, Mass. [Filed Sept. 9, 1875.]

Brief.—Moisture is condensed in the drying-chamber by means of the pipes, through which pass currents of cool water, and is conducted away by means of the intercepter or trough.

176,851.

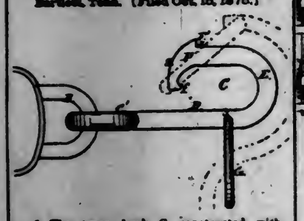


1. The combination of a condenser, M, and water-interrupter N, substantially as described, with a drying-chamber, C, and a furnace or fire-place, A, all being arranged and to operate essentially as and for the purpose specified.

2. The combination of a condenser, M, water-interrupter N, and an agitator and propeller, D, all substantially as described, with a drying-chamber, C, and a furnace or fire-place, A, all being applied essentially and to operate as and for the purpose specified.

3. A drying-furnace having the hopper or receiving-mouth of its drying-chamber provided with one or more valves, G, applied thereto, and to operate automatically, as specified.

176,852. TRACE-HOOKS. W. G. Reeves, Bartlett, Tenn. [Filed Oct. 15, 1875.]



1. The trace-hook C, constructed with straight portion D, curved hook-end E F, with shoulder F' and trace retaining ring or loop G, as and for the purposes described.

2. In a trace hook or lock, constructed as described, with hook-end E and trace-retaining ring or loop G, the end or nose F, constructed with a shoulder, F', a straight or curved face, g, and hooked or projecting end f, whereby to prevent the accidental release of the trace-loop, past the end of the hook, as described.

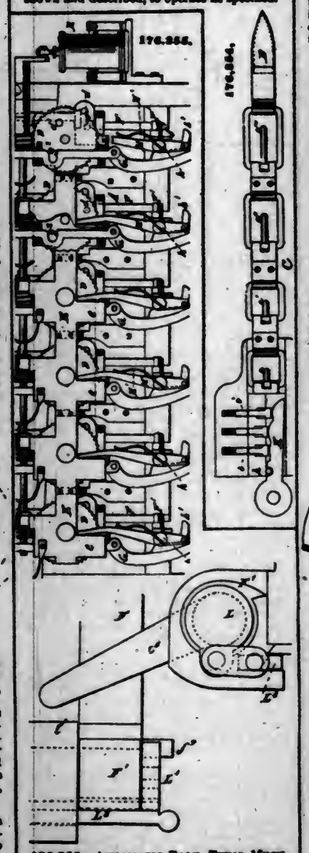
176,853. SMOKE-BELL ATTACHMENTS FOR CHANDELIERS. George B. Biddle, Rochester, N. Y., assignor of one-half his right to Daniel Sonnlie and Wm. McCarthy, same place. [Filed Mar. 10, 1876.]



1. The smoke-bell attachment C, having its hub constructed in two sections, D D', fitting the hanger, whereby the attachment is made removable without removing the hanger, as and for the purpose specified.

2. The smoke-bell attachment C, with its hub constructed in two sections, D D', provided with the bevel-joints b c d, and connected by the screws a e, in the manner and for the purpose specified.

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176,854. MAIL-BAGS. B. Walter Roberts, Troy, N. Y., assignor of part his right to Erskine Schuits, Edwin W. Burrage, and M. Russell, same place, and said Schuits and Burrage assignors to Frank Maddock, Pennington, N. J. [Filed Dec. 17, 1875.]

The combination with the mail-bag, having staples and a folding flap, B, of a chain, C, formed of links having bolts graduated in length from left to right, and the flexible pull D, attached to said chain, and a lock, E, as shown and described, to operate as specified.

176,855. AUTOMATIC BALE-TYING MECHANISMS. Wm. Rogers, New Orleans, La. [Filed Mar. 11, 1876.]

Brief.—Worm-gearing on one horizontal shaft revolves a disk for each band, which disk has pins on its face, operating to raise and depress a clamping device for each end of the band, binding it also on the buckle, and shearing off the surplus.

1. The combination, with the platen of a cotton-press, of a group of bale-tiers, substantially as specified, constituting one automatic tying mechanism for simultaneously tying all the bands of the bale.

2. In a bale-tier the combination, substantially as specified, of the hold-fast, the stretcher, and the doubler.

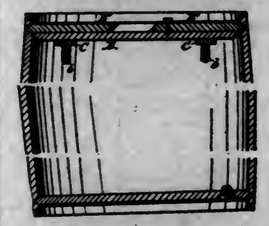
3. The combination, substantially as specified, of the stretcher and the thears.

176,856. TRANSFERRING FOR COPYING-TELEGRAPHS. Andrew J. Russell, New York, N. Y., assignor to Wm. B. Sawyer, same place, and J. G. Smith, Hackensack, N. J. [Filed Jan. 14, 1876.]

In a copying-telegraph, the method of obtaining a transfer of a message upon a metallic plate, consisting in pressing the message and the plate together while the plate is in a heated state.

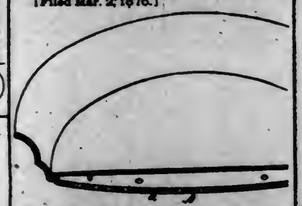
176,857. BARREL-HEADS. J. W. Sawyer, Jr., Horse Head, Md. [Filed Mar. 29, 1876.]

Brief.—An expansible barrel-head is formed of one lower and two upper sections, each of the upper ones being pivoted near one end to the lower, and provided with a corresponding inclined recess, forming a wedge-shaped opening for the reception of a tapering recess to secure the head in position.



An expansible barrel-head, consisting of the herein-described four pieces B B' B' D, the pieces B' being pivoted on the upper ends of piece B, and expansible by forcing the key D in their undercut tapering recesses, as shown and described.

176,858. BUTTER-DRIERS. George R. Sawyer, West Meriden, Conn., assignor to the Meriden Britannia Company, same place. [Filed Mar. 2, 1876.]



In a butter-drainer, the combination of the perforated disk A and the glass disk B, supported thereon, substantially as described.

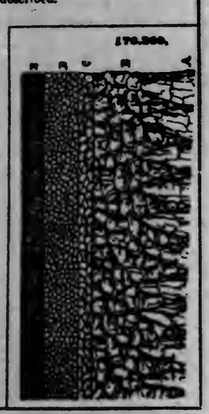
176,859. SPINDLE-BOBBINS. J. H. Sawyer, Lowell, Mass. [Filed Sept. 11, 1875.]

A bobbin provided with spindle-bearing, an opening in its base larger than the spindle-bearing, and a groove in the interior of the base of the bobbin between the enlarged opening at its base and the spindle-bearing, substantially as described.

176,859.



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176,860. ASPHALT CONCRETE PAVEMENTS. Saml. R. Scharf, Washington, D. C. [Filed Mar. 20, 1876.]

Brief.—A five-course pavement in which the lower or foundation course consists of wedge-shaped stone blocks placed with their largest end down; the second course of broken stone, coated with distilled and raw coal-tar; the third course of finer broken stone, heated and saturated with distilled coal-tar and asphaltum. The fourth course is the same as the third, the proportion of asphalt being increased. The fifth course is crushed stone, stone-dust, sand, lime or cement, impregnated with distilled coal-tar and asphalt.

1. In a concrete asphalt pavement, the combination of the sub-base A with the base B, constructed, prepared, and laid substantially as described.

2. In a concrete asphalt pavement, the combination of the sub-base A, the base B, and the lower intermediate course C, constructed, prepared, and laid substantially as described.

3. In a concrete asphalt pavement, the combination of the sub-base A, the base B, the lower intermediate course C, and the upper intermediate course D, constructed, prepared, and laid substantially as described.

4. The composition described for the base of a concrete asphalt pavement, consisting of distilled coal-tar and raw coal-tar, prepared in the proportions and in the manner substantially as set forth.

5. The composition described for the lower intermediate course, consisting of distilled coal-tar and asphalt, prepared in the proportion and in the manner substantially as set forth.

6. The composition described for the upper course of a concrete asphalt pavement, consisting of distilled coal-tar and asphalt, prepared in the proportions and in the manner substantially as set forth.

7. The five-course concrete asphalt pavement, constructed substantially as described.

176,861. MUCILAGE-HOLDERS. William J. Schilling, East New York, N. Y. [Filed Feb. 23, 1876.]

Brief.—Peculiar construction of neck of bottle facilitates removal of cork without breaking it.



1. A mucilage or ink bottle provided with a funnel-shaped mouth, E, terminating at its base in the curved recessed neck B, the apex *e* of which forms the shoulder or holding-point of the cork, and its base *a* forming a rest or stop for the bottom of the cork, substantially as and for the purposes as herein shown and set forth.

2. In a mucilage or ink bottle, in combination with a wide or flaring mouth, D, the base of which is the apex of the neck, the curved recessed neck B, the apex *e* of which is of greater diameter than its base *a*, the whole arranged and operating substantially as and for the purpose as herein shown and set forth.

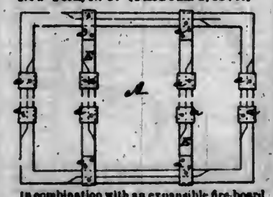
176,862. PLATFORMS FOR SEWING-MACHINES. Chas. L. Schuyler, Parish, N. Y. [Filed Nov. 20, 1875.]



1. A platform for sewing-machines, made in two parts, hinged together, one part being supported upon casters, and the other part having solid supports, substantially as and for the purposes herein set forth.

2. The combination of the platform A with casters B and end pieces C, and the platform D hinged thereto and provided with moldings E, substantially as and for the purposes herein set forth.

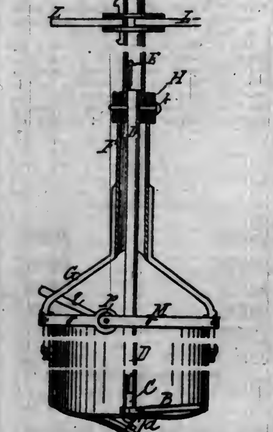
176,863. FIRE-BOARDS. Ernst C. Schwarz, New York, N. Y. [Filed Jan. 3, 1876.]



In combination with an expansible fire-board frame, A, the central braces E, capable of expanding or contracting, substantially in the manner and for the purpose as described.

176,864. EARTH-AUGERS. Geo. E. Sherry, Rochester, N. Y. [Filed Feb. 4, 1876.]

Brief.—A valve with socket is arranged to revolve eccentrically on the shaft-tube, to close the bottom of the auger when withdrawn. To the ball is attached a thimble with a clamp ring, having slots for the reception of the coupling-pin, which forms a gage to the movement of the tube. An adjustable head-plate has levers with serrated ends pivoted to it, for griping and operating the auger. A locking-clamp of separate straps is attached to a small crank-shaft, with eccentric to clamp the bucket and bail. The bent reamer on the inside of the bucket is operated by a pin on the central shaft and a pitman. The reamer is formed of a spring, with a curved projection extending outside of the bucket.



1. In an earth-auger, the combination of the valve B, socket-piece C, and tube D, arranged to operate in the manner and for the purpose specified.

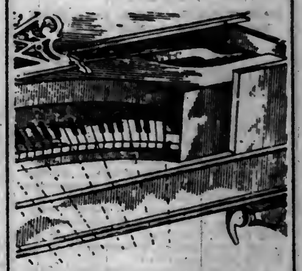
2. The combination, with the pipe D and thimble F, of the clamp-ring H, provided with the slots *i*, for the reception of the coupling-pin *k*, and forming a gage to the movement of the tube D, as and for the purpose specified.

3. The combination, with the pipe E, of the adjustable head-plate K and levers L L', as shown and described, and for the purpose specified.

4. The combination, with the auger A and bail G, of the locking-clamp M, constructed with the separate straps *o o'*, connected by the eccentric *p*, and provided with the spool *s*, as and for the purpose specified.

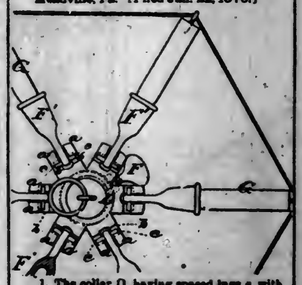
176,865. KEY-BOARDS FOR MUSICAL INSTRUMENTS. Theodore F. Simpson, Cincinnati, Ohio. [Filed Mar. 14, 1876.]

Brief.—The ordinary straight key-board has its ends curved slightly toward the player, for greater facility of reaching thereto.



In a musical instrument, a key-board, the front line of the central part of which is straight, and the front lines of the two ends are curved, substantially as shown and described.

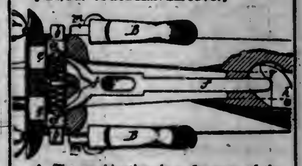
176,866. CLOTHES-DRIERS. E. S. Steel, Meadville, Pa. [Filed Jan. 22, 1876.]



1. The collar D, having spaced lugs *a*, with curved notches *b*, a cylindrical part, *n*, and a recess between the lugs in the said cylindrical part, in combination with the boot-shaped socket F, having journals *c*, an angular heel, *d*, and a calk, *f*, substantially as specified.

2. In combination with the collar D, the vertically-vibratory and detachable sockets F, substantially as specified.

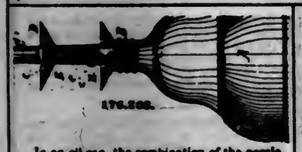
176,867. SAFETY-LOCKS FOR FIRE-ARMS. Adolph Skerl and Thomas Clark, Philadelphia, Pa. [Filed Mar. 22, 1876.]



1. The combination, in a fire-arm, of the hammer B with a spring-bolt, *h*, projecting from the stock into the path of the hammer, and capable of being retracted by pressure applied to the end of a lever, *k*, as set forth.

2. The combination of the spring-bolts *h b* and their pins *e* with the forked arm *f* and lever *k*.

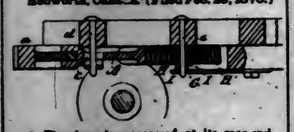
176,868. OIL-CANS. Jas. C. Slafter, Minneapolis, assignor of one-half his right to O. O. Nash, St. Paul, Minn. [Filed Feb. 28, 1876.]



176,268.

In an oil-can, the combination of the conical C, provided with a perforation, *c*, the drip-cup D, and the tubular sliding valve E E', substantially as set forth.

176,269. GAS-COUPLINGS. Jas. B. Smith, Beeworth, Canada. [Filed Feb. 29, 1876.]



1. The draw-bar recessed at its rear end, and combined with the stationary pivoted box G, having independent springs upon each side, as and for the purpose described.

2. The combination of the recessed draw-bar, having guide-slots *g*, the vertically pivoted box G, the springs H H', and the attached sliding plates I, having studs *f*, as and for the purpose described.

3. The pivoted draw-bar slotted at *e*, in combination with the keeper F and the stop-pin *d*, as and for the purpose described.

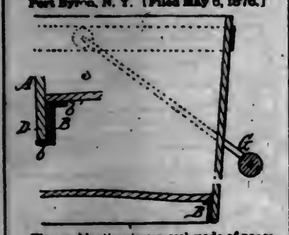
176,270. MOSQUITO-NET FRAMES. Jessie H. Spafford, Philadelphia, Pa. [Filed Mar. 15, 1876.]



1. The combination of the detachable rods D D' with the upright bar A, provided with the sleeve C, substantially as and for the purpose specified.

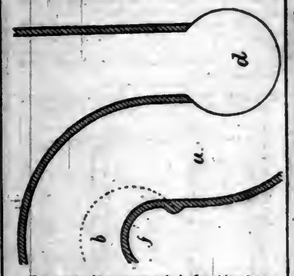
2. The combination, with the upright bar A, provided with one or more brackets, E, of the sleeve C and detachable rods D D', substantially as and for the purpose specified.

176,271. PAPER VESSELS. John Stevens, Port Byron, N. Y. [Filed May 6, 1876.]



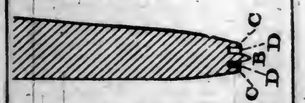
The combination, in a vessel made of paper board, of the separate filling-hoop D, cemented to the interior of the chime and forming a shoulder thereto, and the interior metallic hoop E, embracing and covering the filling-hoop, and constructed with the reverse right-angled flanges *b b'*, one of which projects inward and forms the seat for the vessel-bottom, while the other projects outward and overlaps and covers the chime, as herein shown and described.

176,272. MANUFACTURE OF LEAD TRAPS. Thomas F. Stevenson, Brooklyn, N. Y. [Filed Jan. 15, 1876.]



The method herein specified of making traps or bends by opening the pipe at the inner side of the curve and then bending the pipe to shape and closing said opening with a cap piece, as set forth.

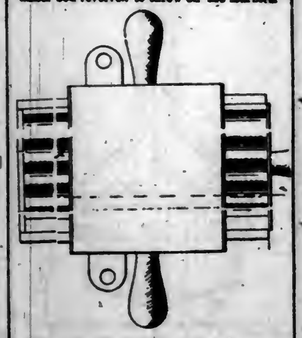
176,273. TOOLS FOR EMBOSSING EYELETS. Samuel Sternberger, Philadelphia, Pa. [Filed Sept. 30, 1876.]



As a new article of manufacture, the hand-tool for punching and embossing eyelet-holes, the same consisting of the stock A, prong B, and circumscribing flange C, the latter forming an annular space, D, around said prong, and whose inner and outer sides are parallel, substantially as and for the purpose set forth.

176,274. CANDY-MARBLE MACHINES. Bernhard Stern and Herman Stern, Chattanooga, Tenn. [Filed Mar. 30, 1876.]

Brief.—Sticks of candy, slightly warm, are placed across the cutters of the pivoted under bed. The upper cutter is reciprocated, by hand or otherwise, over the sticks, cutting them into pieces, and rolling them into "marbles." Upper cutter is removed, and pivoted under bed revolved to throw off the marbles.



1. In a candy-cutting machine, the combination of the bed C and pivoted bottom cutter A, whereby the balls may be readily dumped, as set forth.

2. The combination of the bed C, the pivoted bottom cutter A, and the sliding cutter B, provided with guards B F, substantially as and for the purposes herein set forth.

176,275. SHOVEL-HARROWS. J. Stoever, Prospect, Pa. [Filed Jan. 26, 1876.]

Brief.—A triangular harrow, with a wheel at each of its angles, attached to a standard by an adjustable arm, which is regulated by a sliding collar and set-screw.

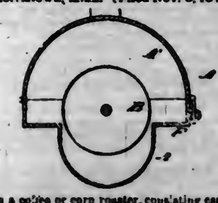
176,276.



1. The sleeves H G, sliding on the rods D E, and provided with set-screws H, in combination with the arms C E, formed with bosses *p*, sliding on said rods, substantially as and for the purpose set forth.

2. The frame *a b c d*, wheel-arms C E, with bosses *p*, rods D E, sleeves H G, and set-screws H, the standards *e*, shovels *f*, and bolts and pins *m n*, combined and operating as set forth, and forming an improvement in shovel-harrows, as specified.

176,276. COFFEE-ROASTERS. A. A. Story, Morristown, Minn. [Filed Nov. 6, 1876.]



In a coffee or corn roaster, consisting essentially of the close box or case A, in two hinged sections, inclosing the wire-gauze or perforated rotary cylinder B, the combination, with the upper semi-cylindrical section A' of the lower section A'', having a depending semi-cylindrical base of smaller diameter than the upper section A', with flanges F bent horizontally and vertically, and constituting means for the support of the roaster upon a stove, and the hinging and locking together of the two sections, as shown and described.

176,277. SPRING-HINGES. A. A. Stimson, Montpelier, Vt., assignor to himself and O. T. Sabin, same place. [Filed Dec. 13, 1875.]

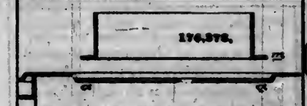
Brief.—A single or double acting spring-hinge so constructed that the ordinary third plate is dispensed with, two plates only being used, and united together by the plates and knuckles or sockets, those upon the upper portion of one plate or leaf alternating with those upon the lower portion of the other leaf, there being also links or jointed bars passing through openings in the leaves, and bearing against the rear side of one of the leaves, together with suitable spring-connections.



1. The plates A A', each having upon one side a pintle and upon the other side a slotted knuckle or socket, in combination with the links or jointed rod B B' B'', having a stop, *f*, bearing against the rear side of the plate A, and provided with a spring, A, bearing against the rear side of the plate A', substantially as shown and described.

2. The two-part double-acting spring-hinge, consisting of plates or leaves A A', one having the pintles *a a* upon its upper surface, and directly below the same slotted knuckles or sockets *a' a'*, and the other a similar arrangement of pintles, *a'' a''*, and slotted knuckles or sockets *a' a'* upon its lower surface, in combination with suitable connecting mechanisms, substantially as and for the purpose set forth.

176,278. COLLARS FOR COOKING-STOVES. David Stuart, Philadelphia, Pa. [Filed Mar. 31, 1876.]

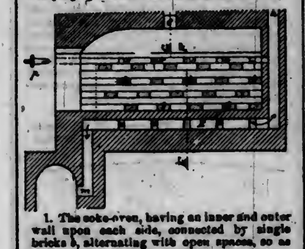


176,278.

In a range or cook-stove having a permanent pipe-collar at the rear, the combination of a detachable pipe-collar, K, having a perforated flange, with the recessed flanges *a a* of the boiler-holes, each of the latter having a threaded hole corresponding with the holes in the said pipe-collar, all as set forth.

176,279. COKE-OVENS. Sebastian Stone, Pittsburg, Pa. [Filed Mar. 6, 1876.]

Brief.—Air-openings, gas-inlets, and chimney-flue being open, the oven is heated highly before introduction of the coal to be coked. Thereafter these openings are closed and the oven charged. Gases evolved are fired, and pass out at top passages at sides and end of oven into zigzag side passages and irregular bottom passages, into central flues leading to the chimney; or place cover over chimney, and conduct the unburned remainder of the gases then under another oven; or stop each outtake and conduct them into a gas-reservoir, whence they may be taken to heat other ovens, or blast or puddling furnaces, or, when purified, be used for illumination. Ovens have discharging-openings at one or both ends. Conical plugs graduate admission of air.



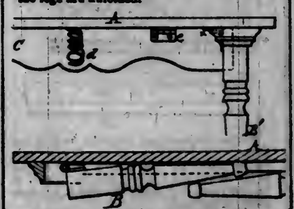
1. The coke-oven, having an inner and outer wall upon each side, connected by single bricks *b*, alternating with open spaces, so as to form zigzag passages, and having bottom spaces *c* communicating with said passages, and also with the chamber E, as and for the purpose described.

2. The coke-oven, having side passages and bottom spaces *c* E, in combination with a reservoir, E, connected with the said bottom spaces through passages *m*, substantially as and for the purpose described.

3. The coking-chamber O, with its door-openings *d d*, and charging-openings C C, the side chambers S S, constructed in a zigzag form, and connected with the cooking-chamber O, the separate bottom chambers *e e*, connected with the common chamber E E, the chimney A, and the reservoir E, substantially as shown and specified.

176,280. FOLDING TABLES. Wm. H. Tambling, Rockford, Ill. [Filed Feb. 16, 1876.]

Brief.—A spiral spring is arranged between the hinged brace and the under side of the table-top, so as to throw out the brace when the legs are unfolded.



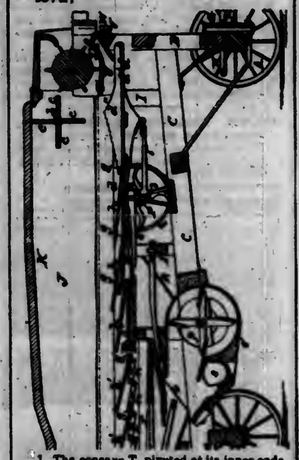
The combination of the top A, legs B B, hinged directly to the under part of the same, the legs B' B', hinged to the block *x*, attached to the bottom of the same, the hinged board C, and the coil-spring *d*, all constructed substantially as and for the purpose herein set forth.

176,281. HEATING FOR STEAM-BOILERS. Robert Thrush, New York, N. Y. [Filed Feb. 1, 1876.]
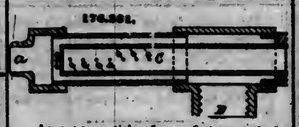


As a new article of manufacture, a feed-water heater, consisting of an outer steam-pipe, its inlet B, and nozzle *a*, at the end, and the inner water-pipe C extending through the steam pipe, through the narrow annular steam-chamber *a'*, and open or perforated at the end, all constructed substantially as described, to pass the exhaust steam through the narrow annular space between the pipes, and discharge the steam and water through the end nozzle *a*.

176,282. THRASHING-MACHINES. John A. Throp, Three Rivers, Mich. [Filed Apr. 6, 1874.]



1. The concave T, pivoted at its inner ends by pivots U and the extension-plate T', in combination with the adjustable Y-bar V, slotted at its lower end to receive a set-screw, W, and adapted to adjust the concave T by the pressure of the set-screw on the lower end of said bar, or lower said concave by withdrawing said set-screw, as set forth.

2. The combination, with the cylinder L and beater *b c* contiguous thereto, of the perforated concave T T' and reciprocating pan *d*, having solid bottom *d'* extending forward under the concave T, the whole arranged and operating as and for the purpose set forth.

3. In combination with the pan *d* the arms *i*, links *j*, pins *k*, and slotted holding-caps *l l'*, to limit the movement of the pan, as set forth.

4. The combination, with the inclined trough *t*, at the rear of the shoe, of the fixed deflecting-plate *n*, adapted to direct the blast downward into said trough, to assist the removal of the chaff, as set forth.

5. The combination of the pan *d*, rock-shaft *g'*, arm *g''*, tongues *v x*, and rods *w w*, substantially as set forth.

176,283. MUSKLES FOR CALVES. S. Tilton, Atlas P. O., Iowa. [Filed Feb. 14, 1876.]



A calf-muzzle having a rigid bar, A, provided with a swinging portion, C, jointed to it, and held in a clamping position by a spring, *d*, substantially as and for the purpose herein specified.

176,284. MAIL-PLATE FEEDERS. Robert C. Turner, Steubenville, Ohio. [Filed Jan. 7, 1876.]

Brief.—The threaded portion of the nipper-rod works in a divided nut, which slides on horizontal rods carried upon a rising and falling platform. The platform is raised by eccentrics upon a shaft, and at the same time the feed-nut is forced bent against springs on the horizontal rods (carrying with it the nipper-rod) by curved arms upon the same shaft. The mechanism for turning over, raising, and retracting the nipper-rod are operated by lever-connections from the cutter.



1. The combination, with the pivoted cutting-lever *d*, the holding- and feeding screw-rod *e*, and the pawl-connection K *k'*, of the rod *p*, connecting the screw raising and lowering devices, so that these devices and the feeding-screw rod are controlled by direct connections with the nail-cutting lever.

2. The combination, with the pivoted cutting-lever *d*, of the connecting-rod *p*, slotted arm *q*, and the devices for both raising and lowering the nail-plate, and moving it backward and forward, substantially as hereinbefore set forth.

3. In a nail-plate holding and feeding machine, the arm *g*, having the slot *g'* and the notch *e* for operation, in connection with the pivoted cutting-lever *d* and feeding-screw, in raising the feeding-screw, and releasing automatically the arm by which such elevation was effected.

4. The combination, with the pivoted lever *d*, the connecting-rod *p*, and the slotted holding-arm *g*, of the eccentrics *w* and the feed-screw box *h*, as and for the purpose herein set forth.

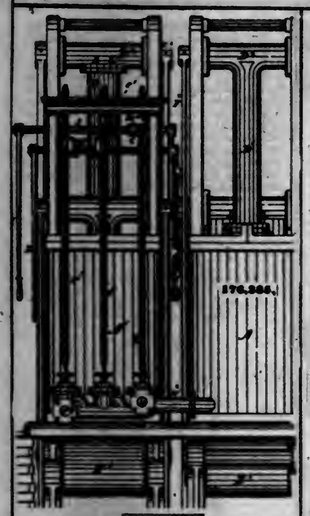
5. The combination, with the feeding-screw rod *e* and the jaw-nut *g*, of the movable box *h*, the eccentrics *m*, and the arms *x*, as and for the purpose herein set forth.

6. The bed-plate H, provided with slots and set-screws D as, both ends thereof, whereby either or both its ends may be adjusted with regard to the pivoted cutting-lever, as described.

176,285. HYDRAULIC COTTON-PRESSES. P. B. Tyler, New Haven, Conn. [Filed May 4, 1875.]

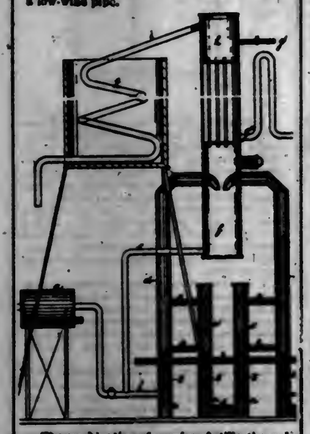
1. In combination with a hydraulic press, one or more steam pumping-engines or pumps, the steam pistons of which are combined with the force-pumps, through the intervention of progressive levers, substantially as described, whereby the action of each pump or pumps upon the piston or follower of the press shall give a force increasing in the ratio of the increasing resistance, or nearly so.

2. The combination of the piston of a steam-cylinder with the pistons of a pump, through the intervention of progressive levers.



176,866. STILL. Saml. Van Syckel, Titusville, Pa. [Filed June 16, 1875.]

Brief.—The central stills are connected with two others, which lead to the condenser. All are furnished with steam-jet pipes, and the first still is connected with the condenser by a low-wire pipe.



The combination of a series of stills, the end stills of the series being connected with the condenser, the intermediate stills connected with the adjoining stills, and the first still of the series connected with the condenser by a return or low-wire pipe, substantially as and for the purpose specified.

176,867. CORTON-PRESSES. W. B. Villard, Sunny Side, Ga. [Filed Oct. 21, 1875.]

Brief.—The pawls hold the follower while the lever is being raised, the straps slipping off from the projecting arms of the follower. The arms catch in other perforations in the straps, whereby the follower is further depressed by the weight of lever operating on the cross-head carrying the straps.



176,867.

The combination of the follower D with projecting arms *a a*, hinged perforated straps O O, head H, bar I, long weighted lever J, pulleys K L M, and cord *i*, whereby the lever is elevated, and the fall of said lever causes the material to be pressed, all constructed substantially as and for the purposes herein set forth.

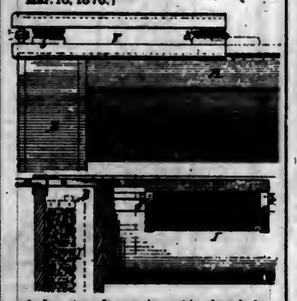
176,868. SNAP-HOOKS. Pliny E. Washburne and Charles A. Babcock, Buffalo, N. Y. [Filed Oct. 12, 1875.]



1. The combination, with the spring B and body A of a snap-hook, provided with seat *c*, of the stud *d*, formed on said seat and adapted to engage in a hole in the spring, and the lip *e* adapted to be bent over the end of the spring for securing the latter in place, substantially as herein before set forth.

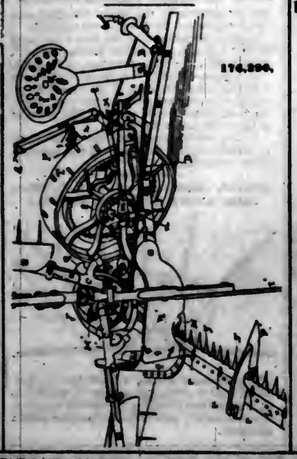
2. The combination, with the spring B, of the body A, provided with seat *c*, stud *d*, lip *e*, and side guards *f f*, constructed and arranged substantially as herein before set forth.

176,869. MEAL-BINS. Marvin E. Weller, Albert Ayres, and Wm. T. Lintner, Fort Plain, assignors of one-fourth their right to Moses C. Smith, Starkville, N. Y. [Filed Mar. 16, 1876.]



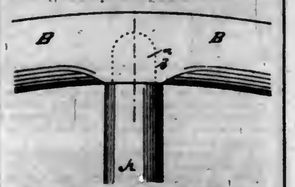
1. In a tray for use in making bread, &c., the removable flanged cover or lid F, jointed centrally, and either half adapted to be folded back on the other to form a rolling-board, substantially as described.

2. A bread-tray consisting of the jointed flanged cover, removable sieve, sieve-receptacle, dough or sponge compartment, and flour-receptacle, mounted on legs and constructed substantially as described.



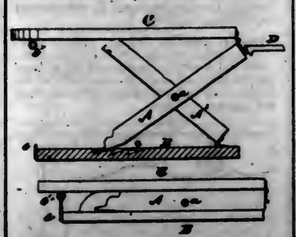
176,870.

176,870. SPOKE-SOCKETS. P. Wineman, Rock Island, Ill. [Filed Mar. 30, 1876.]



The spoke A having the rounded tenon *c*, and felly B having mortise *b*, constructed substantially as described, the tenon filling the mortise as and for the purpose specified.

176,871. IRONING-TABLES. Conrad Wirth, Elizabeth, N. J. [Filed Feb. 24, 1876.]

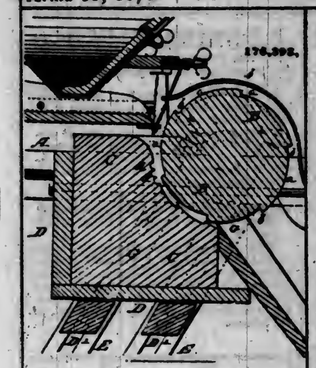


1. The combination, with the base B and ironing-board C, of the cross-bars A A', pivoted to each other, the bars A being hinged to the end of the board C, and the bars A' to the corresponding end of the base B, substantially as set forth.

2. The detachable and iron support D, connected to the cross-bars A, as and for the purpose set forth.

176,872. GRAIN-MILLS. Horace H. Witt and Saml. L. Smith, Gadsden, Ala. [Filed Mar. 30, 1876.]

In combination with the bed-stone C and its casing D, the projecting cross-bars D' D', inclined guides J K, rods G G, and thumb-nuts A A, substantially as and for the purposes herein set forth.



176,873.

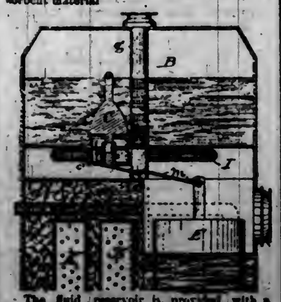
176,874. STOVE-LIDS. C. D. Woodruff, Toledo, Ohio. [Filed Feb. 24, 1876.]



In combination with the arm A', constructed as shown, and provided with the recess *c*, the set-screw D, passing inward and upward through the lug *b* of the recess B, and engaging with said recess *c*, substantially as and for the purpose specified

176,875. CARBURETERS. B. H. Woolman, Portland, Me. [Filed Feb. 12, 1876.]

Brief.—A weighted valve and float regulate the flow of oil from the reservoir to the carbureter. The oil, on passing from the reservoir, enters a perforated coil of pipe secured to the bottom of the reservoir, from which it is distributed upon perforated plates over the absorbent material



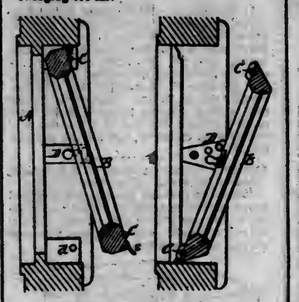
The fluid reservoir b, provided with a horizontal tubular perforated coil, I, secured to its under side and communicating with its outlet-passage, controlled by the weighted feed-valve C, within the reservoir, these parts operating as and for the purpose set forth.

176,876. CAR-COUPLINGS. Geo. Worden, Pittston, Pa. [Filed Aug. 5, 1875.]

In an automatic car-coupler, the curved-faced primary lever or trigger G, pivoted at its top end in the casing B above the draw-head A, and inclined lever D, constructed in its under edge with a curved slot or groove, *d*, into which the end or nose of the trigger G enters and operates said lever D and pin E by the passage of the incoming link, as described.

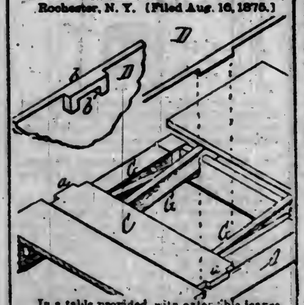
176,877. CAR-WINDOWS. Geo. B. Wright, Minneapolis, Minn. [Filed Dec. 31, 1875.]

Brief.—Strap to prevent the window from swinging too far.



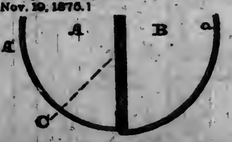
In combination with a car-window, arranged to open from either side, the safety-strap E, for the purpose set forth.

176,878. EXTENSION-TABLES. G. Zeiglein, Rochester, N. Y. [Filed Aug. 16, 1875.]



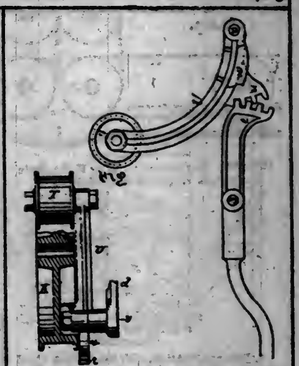
In a table provided with extensible leaves, the removable top D, constructed with cleats *b b* at the ends, having open sockets *b' b'* which engage with tenons *a a* on the ends of the center piece C, the whole combined and arranged to operate in the manner and for the purpose specified.

176,879. BOXES FOR PACKING CRACKERS. Henry Bradbury, Philadelphia, Pa. [Filed Nov. 10, 1875.]



As a new article of manufacture, the cake or cracker box, consisting of the semi-cylindrical front A', the straight back B, the connecting-tongues F, the bottom piece E', the lid B, and flexible hinge C, said box being adapted to be packed in pairs within a barrel for transportation, as and for the purpose set forth.

176,880. ANTOMATIC HAMMERS. John C. Butterfield, Chicago, Ill. [Filed Apr. 6, 1875.]



1. A hammer, A, attached to one end of a hammer-beam mounted on journals about midway of its length, combined with an air-cylinder, C, attached to the opposite end of said beam, and a piston, D, in said cylinder, actuated by an eccentric or crank-rod, E, operating in the manner and for the purpose set forth.

2. An oscillating hammer-beam, B, mounted upon journals about midway of its length, and attached to opposite ends of the same, a hammer, A, and an air-cylinder, C, the piston whereof is actuated by a crank or eccentric, combined with a supplemental cylinder, L, with an adjustable valve, p, near its upper end, and its piston-rod jointed to said beam between its fulcrum and the hammer, for the purpose of arresting the upward thrust of said hammer, as set forth.

3. An oscillating hammer-beam, B, mounted upon journals about midway of its length, and attached to opposite ends of the same, a hammer, A, and an air-cylinder, C, the piston whereof is actuated by a crank or eccentric combined with a supplemental air-cylinder, L, provided with an adjustable valve, r, near its lower end for the purpose of cushioning the downward blow of the hammer to regulate the impact thereof without affecting the speed of delivery.

4. The air-cylinder L provided with adjustable valves p and r near its upper and lower ends respectively, and with a piston, F, in length nearly equal to the length of stroke, combined with a hammer, A, and its operative mechanism.

5. The treadle S, provided with the rack *t*, combined with the tightener-arm U, provided with the rack *u*, for the purpose of operating said tightener, as set forth.

6. The combination of the tightener-arm U, substantially as described, and the laterally-projecting shoe *w* adapted to enter within the rim of the pulley K, and act as a break thereon.

7. A hammer-beam for power-hammers, constructed of cast metal with a central longitudinal web, *s*, flanges *y*, and angular transverse ribs *z*, as set forth.

176,881. DELIVERY APPARATUS FOR PRINTING-PRESSES. Joseph L. Firm, New York, N. Y., assignor of one-half his right to C. B. Cottrell and Nathan Babcock, Westerly, R. I. [Filed Feb. 3, 1876.]

Brief.—Endless delivery-bands borne upon rollers have cut from their body, or secured to their surface, tongues, which open by the passage of the bands round the rollers, and close while the bands pass in a straight line from one roller to the other. Stops on the delivery-board arrest the motion of the sheets as they are released from the bands.

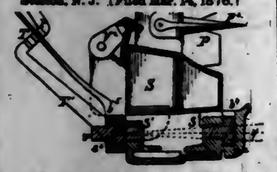
1. An automatic sheet-delivery belt or band composed of a flexible material, and constructed or provided with one or more tongues attached in a fixed or positive manner to the belt or band, or forming part of the same, in combination with the end pulleys or curved surfaces round, or with which said belt or band travels, substantially as and for the purpose herein set forth.

2. The combination of one or more guides or stops, D, with one or more endless and tongued belts or bands, A or A', and the pulleys or curved surfaces over or with which said belts or bands work, essentially as and for the purpose herein described.

176,401.



176,402. HARVESTERS. Wm. F. Goodwin, Station, N. J. [Filed Mar. 14, 1876.]



1. The combination, with the driving-wheel A, provided with the ratchet-teeth a, of the arm C, rigidly connected with the axle, the pawl a, and tripping-link D, for withdrawing the pawl from the ratchet-teeth and permitting the wheel A to revolve without actuating the cutters, substantially as set forth.

2. The combination of the segments D¹ E¹ F¹, pinion E I, and cam F with rock-shaft G, for operating pawl a, substantially as set forth.

3. The combination, with rock-shaft G, cam F, and perforated pinion I, of the bearing c, of greater size than shaft G, whereby the segment-clamps E¹ F¹ may both be moved in opposite directions with a single cam, F, substantially as set forth.

4. The herein-described reciprocating-screw movement, consisting of the part K¹, each of whose faces is formed of two series of intersecting warped surfaces of the helicoid rigidly attached to the axle, and the reciprocating nut or casing acting as a cam-block, the inner faces of which are suited to the conformation of the part K¹, substantially as set forth.

5. In combination with the central part M of the rod, provided with trunnions m, the bifurcated lever N N, substantially as set forth.

6. In combination with the bifurcated lever N N, the adjustable standard O O¹, substantially as set forth.

7. In combination with the lever N and tubular standard O O¹, the pivot O², connected to and oscillating with the lever, substantially as set forth.

8. In combination with the lever N, provided with plate n² and the pivot O², the bearing-blocks o², substantially as set forth.

9. In combination with the bifurcated lever N N, composed of bars or plates of metal, the buffer-guard R², constructed to operate substantially as set forth.

10. In combination with the vibrating lever N, the buffers o², secured in bosses or sockets cast upon the frame B B¹, substantially as set forth.

11. A cast-metal harvester-frame, provided with a drooping front portion, B¹, adapted to sweep the cut grain from the path of one of the supporting-wheels, substantially as set forth.

12. A cast-metal harvester-frame, provided with a grooved standard; b, in combination with the leading-wheel E, mounted upon the adjustable plate E¹, which slides in the grooved standard b, substantially as set forth.

13. The cutter-frame S S¹ S², provided with slots to receive the finger-bar and the cutters, substantially as set forth.

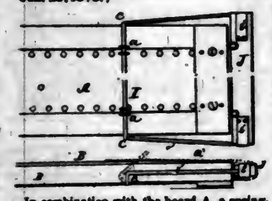
14. In combination with the cutter-frame, the pivoted rock-shaft s¹ s² and a tilting lever attached to and extending the rock-shaft, substantially as set forth.

15. The tilting-lever having the part T¹ arranged below the main frame, the part T² arranged above the frame, and the toothed part T vibrating through the frame, substantially as set forth.

16. The combination, with the cutting apparatus, of the lifting crank-arm V¹, provided with the locking-spar v, the pivoted rock-shaft s¹ s², and the tilting-lever, substantially as set forth.

17. The combination, with the yoke or bracket attached to the rear end of the tongue, of the clamp which engages with the arm on the rear of the frame, substantially as set forth.

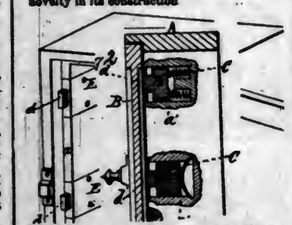
176,403. IRONING-BOARDS. Edwin King and Arthur Irvine, Dunkirk, N. Y. [Filed Jan. 29, 1876.]



In combination with the board A, a spring-clasp, consisting of a cross bar or head, J, and a single piece of wire, I, to the ends of which said bar is secured, the wire being bent to form the shouldered ends e, and secured to the bottom of the board by staples a, near the edges of the board, so that the intermediate part of the wire between the staples shall serve as a spring for drawing the head or bar J against the end of the board, substantially as described, and for the purpose set forth.

176,404. DOOR-CUSHIONS. C. F. Lovelace, Iowa City, Iowa. [Filed Feb. 17, 1876.]

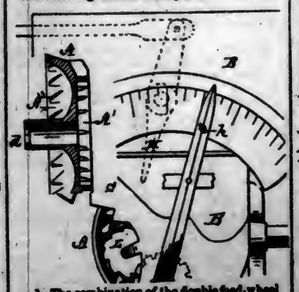
Brief.—An ordinary door-check is provided with a suitable re-enforcing spring within the box or case, in rear of, and bearing against, the rubber face or bumper, the sole feature of novelty in its construction



The door-cushion D d, combined with box or case, E, and re-enforcing-spring C, and adapted to be recessed in a door-jamb, substantially as and for the purposes set forth.

176,405. SEED AND FERTILIZER SOWERS. Edwin D. Mead, Shortsville, N. Y. [Filed Aug. 14, 1876.]

Brief.—The casing is made in two parts, for the reception of the double feed-wheel, made concave on one side and flat on the other, and provided with peripheral feeding-flanges. The exterior of the feed-wheels is provided with a circle of cogs, by which it receives motion from a pinion. Within one portion of the wheel are secured notched revolving scrapers (at different angles) for stirring the material to be sown. The levers carrying the cut-offs are all attached to one bar, one of which is extended up to form an index-finger, that traverses a graduated dial-plate.



1. The combination of the double feed-wheel A, having hollow hub d formed therewith, and the casing E E made in two parts, one of which is provided with the short journals b and the shaft c, all substantially as and for the purposes set forth.

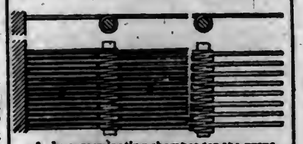
2. The combination of the feed-wheel A, constructed with feed-cavities A¹ A² and exterior circle of cogs, the pinion C and square shaft c, all as and for the purposes herein set forth.

3. The rotating scrapers L L, in combination with the feed-wheel A and casing E, as and for the purposes herein set forth.

4. The combination, with the series of pivoted cut-offs and crank-levers, of the connecting-bar I and dial-plate, one of the crank-levers being extended to form an index-finger, substantially as described.

176,406. MALT KILNS AND GERMINATORS. Victor Noback, Prague, Austria. [Filed Jan. 22, 1876.]

Brief.—The germinating-chamber has trays, consisting of a number of V-shaped troughs, arranged to dump their contents into similar troughs below. The trays in the germinator increase in size from top to bottom; those in the kiln, otherwise similarly constructed, do the reverse.



1. In a germinating-chamber for the preparation of malt, the floors or trays in two or more vertical series or columns, increasing in size from top to bottom, with an air-space around the same, for the purposes herein set forth.

2. In an apparatus for the preparation of malt, a series of floors or trays of varying size arranged in a vertical column, and gradually increasing or decreasing in size, substantially as and for the purposes herein set forth.

3. In an apparatus for the preparation of malt, as set forth, a series of angular troughs pivoted in a frame, and arranged to turn from side to side, for the purposes herein set forth.

4. In an apparatus for the preparation of malt, as set forth, a tilting floor or tray having its flaps formed of a central bar with wires secured thereto, so as to mesh or interlock with each other, as and for the purposes herein set forth.

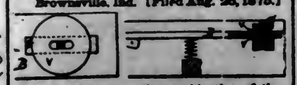
5. In an apparatus for the preparation of malt, as set forth, a series of inclined parallel gutters with roofs arranged over the spaces between them to form a chute or conductor in the bottom of the kilns for the grain, and allowing free circulation of hot air, substantially as and for the purposes herein set forth.

176,407. SKIRT-SUPPORTERS. Amasa H. Pike, Chicago, Ill. [Filed May 1, 1875.]
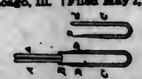


A skirt-supporter constructed with the buckle A, composed of two similar triangles of wire, having their spaces inclosed within the fold of the shield-plate B, and the hook C, one end whereof is soldered to one end of said shield, and the other or sharpened end guarded under the other end of the same, as set forth.

176,408. END-BOTTOMS. John L. Ritter, Brownsville, Ind. [Filed Aug. 26, 1875.]

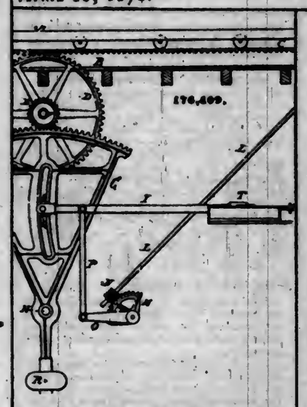


In a bed-bottom, the combination of the slats B, having the slot S, washers V, crossbars, and bolt, pin, or screw E, substantially as shown and described.

176,409. DEVICES FOR MOVING THE LOG-CARRIAGES OF SAW-MILLS. A. Rodgers, Muskegon, Mich. [Filed Mar. 26, 1876.]

Brief.—A vibrating toothed segment is put in motion by the piston of a cylinder, and is connected with a pinion upon a shaft placed beneath the log-carriage. This shaft carries a large wheel, which imparts motion to the log-carriage through the agency of gear or wire ropes, the movement of the piston causing an increased movement of the carriage.

176,409.



1. The vibrating toothed segment G, provided with a series of holes, or their equivalents, to receive the pin for adjusting the connecting-rod I, as and for the purpose set forth.

2. The segment G, in combination with the adjustable counter-balance R, as specified.

3. The segment G, provided with the series of holes for adjusting the throw of the segment, in combination with the connection I, cross-head T, and its connected rod and piston within the cylinder J, as shown and described.

4. The saw-carriage A, rack C, wheel D, and pinion E, in combination with the segment G and its operating mechanism, as described.

5. The crank-shaft L, screw N, quadrant M, arm O, link P, connection I, and block S, in combination with the segment G, as set forth.

176,410. CONSTRUCTION OF NECKS OF PUDDLING-FURNACES. Luke Ryan, Sharon, Pa., assignor of one-half his right to Geo. Westerman, same place. [Filed July 26, 1875.]

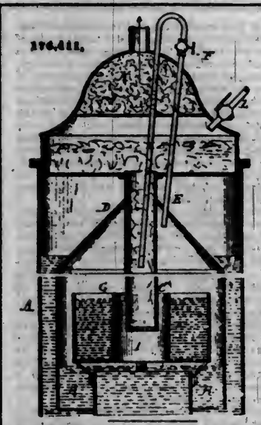
Brief.—Sandstone iron-clamped slabs are used in the construction of the neck, to lessen the cutting action of the gases and slag.



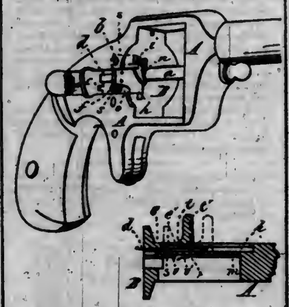
1. The neck of a puddling or reverberatory furnace, constructed of blocks of sandstone clamped with metal, substantially as and for the purpose specified.

2. In a puddling or reverberatory furnace, the hinged door H having a lining of fire-brick or other refractory material, and an opening or hole, J, for the passage of the clinker, substantially as set forth.

176,411.



176,412. EXTRACTORS FOR REVOLVING FIRE-ARMS. Dexter Smith, Chas. O. Marshall, and Joseph C. Marshall, Springfield, Mass. [Filed Jan. 17, 1876.]

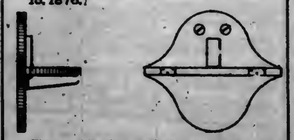


1. A revolving fire-arm in which the chambered cylinder is or may be rotated and the extractor operated by means of a movable piece placed in the rear of the revolving cylinder, substantially as described.

2. The combination of the slide c, the extractor d, the spring m, and the pivoted lever e, all substantially as and for the purpose described.

3. In combination with the frame A, the spring m and the extractor d, whereby the said extractor is held in place against the rear end of the cylinder while the latter is being revolved to bring each shell into position to be extracted, substantially as described.

176,413. MATTRESS-SUPPORTERS. Jennie H. Spofford, Philadelphia, Pa. [Filed Mar. 16, 1876.]

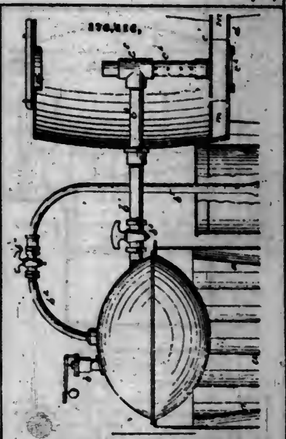


The combination, with the side rails of a bedstead, of four or more folding angle-iron supports, formed with flat upper surfaces, substantially as and for the purpose specified.

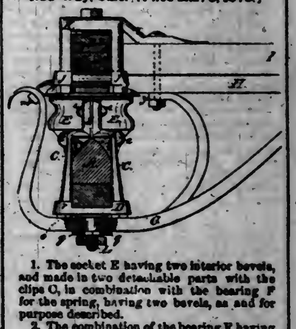
176,414. VELOCIPEDE-STEERERS. Miles Stangeland, Rock Dell, Minn. [Filed Apr. 1, 1876.]

The metal plate bottom d, having the right-angular ribs m attached to its under side, and provided with the opening e, in combination with the true bottom d, as shown and described.

176,415.



176,415. FIFTH-WHEELS. David G. Wyeth, New Way, Ohio. [Filed Mar. 3, 1876.]



1. The socket E having two interior bevels, and made in two detachable parts with the clips C, in combination with the bearing F for the spring, having two bevels, as and for purpose described.

2. The combination of the bearing F having leg m, the T-shaped plate H and J attached to the bearing F, and the brace G extending around the axle and fastened to the shank H in the rear, and the lug m in front, as and for the purpose described.

3. The combination, with the detachable socket-sections E and clips C, of the clip-plate D, having side flanges r, and the brace G, as and for the purpose described.

4. The round stud L formed on the bottom of plate D, and having a raised base, o, and a square end, p, in combination with the perforated brace G, the retaining nut, and a washer, q, having a square hole placed over the square end of the stud, as and for the purpose described.

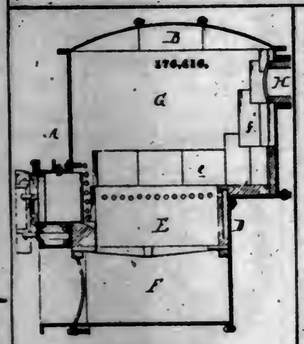
5. The combination of the T-shaped plate carrying the double inclined bearing F, the sectional socket E with clips C, having two internal bevels, and fastened together by bolts, the clip-plate D securing the lower ends of clips, and the brace G passing around the axle and secured to the T-shaped plate upon one side, and the bearing F upon the other, as described.

176,416. HEATERS. James Reynolds, Philadelphia, Pa. [Filed Apr. 9, 1874.]

1. The combination, in a heater, of an oval combustion-chamber, G, a fire-place, E, communicating with the lower part of the said chamber at one end, and an outlet, H, leading from the opposite end of the chamber, near the top, all as and for the purpose described.

2. The concave-convex cover or roof of the combustion-chamber, made of plates flanged and riveted to form strengthening-girders, as described.

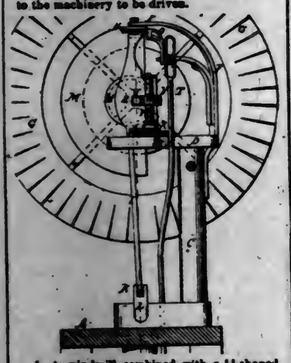
3. The combination, with the fire-place and combustion-chamber, of refractory tiles arranged in courses at the rear end of the chamber, each course being recessed to receive the course above it, as set forth.



REISSUES.

7,066. WIND-WHEELS. Arthur T. Page, Garden Prairie, Ill., assignor to the Eclipse Windmill Company. Patent No. 140,300, dated Jan. 6, 1874. [Filed Mar. 26, 1876.]

Brief.—The wheel is relieved from pressure by swinging laterally out of the wind. The invention consists, first, in the mode of supporting the wheel; secondly, in a mode of hanging the tail-vane; thirdly, in an arrangement of the vertical axis of rotation with relation to the wind: fourthly, an arrangement for deflecting; fifthly, an auxiliary mechanism for assisting the deflection; sixthly, a combination of devices for connecting the counterbalance-weight; seventhly, a combination of devices for applying the power of the wheel to the machinery to be driven.



1. A windmill combined with a U-shaped support, B C D, substantially as and for the purpose described.

2. The U-shaped support B C D, combined with the tail-vane projecting behind the vertical gear C, and with the main axis of rotation at the front end of the lower horizontal arm B, and the independent axis for the lateral movement of the wind-wheel at the front end of the upper horizontal arm D, substantially as described.

3. A windmill having a dishing wind-wheel, and the independent vertical axis of rotation of the wheel and head arranged within the dishing part of said wheel, substantially as herein shown and described.

4. The combination of the U-shaped support B C D, the vertical frame or axis E, supported at the forward end of the arm D, and the dishing wheel G, substantially as described.

5. In a windmill in which the wheel is relieved from over-pressure by lateral deflection out of the wind, the combination of an open-center wind-wheel with a deflecting surface attached to the wind-wheel support and arranged in such relation to said open center that the wind, blowing through the open center, forces said surface out of its path and thus initiates the lateral deflection of the wheel out of the wind, substantially as described.

6. The combination of an open-center wind-wheel, having an independent vertical axis of motion on which it can swing bodily out of the wind, with a deflecting vane or surface, arranged at said open center and attached to the wheel-support, whereby the lateral deflection of said surface by the wind at the center of the wheel deflects the wheel out of the wind, substantially as described.

7. The combination of a dishing open-center wind-wheel with a deflecting-vane, attached to the wind-wheel support and arranged within the dishing part of the wheel, whereby the wheel is laterally deflected out of the wind, substantially as described.

8. The combination of a dishing open-center wind-wheel with an independent vertical axis of deflection and a deflecting-surface, both arranged and operating within the dishing part of the wheel, substantially as described.

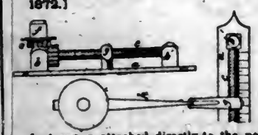
9. The combination of a wind-wheel which relieves itself of undue wind-pressure by swinging bodily out of the wind, an auxiliary independent wind-wheel, having the same support as the main wind-wheel, and a train of mechanism by which the power of said auxiliary wind-wheel is applied to turn the common support of both wheels on its vertical axis of rotation, and thus throw, or assist in throwing, them both out of the wind, substantially as described.

10. The combination of the center fan T, the toothed shaft U, the gear-wheels V X, and the stationary segmental gear-wheel Y, with the hollow hub of the wheel G and the pivoted frame F, supporting the main wind-wheels, substantially as described.

11. The combination of a wind-wheel which relieves itself automatically by lateral deflection out of the wind, a gear-rim, F, attached to the wind-wheel support, and having downwardly-projecting teeth, and a gear-segment, O, attached to or forming part of a weight-lever, P, which is pivoted independently of the said wind-wheel support, substantially as and for the purposes described.

12. The combination of the bent rod I, rod J, lever K, and arm L with the U-shaped support B C D and dishing wind-wheel, substantially as described.

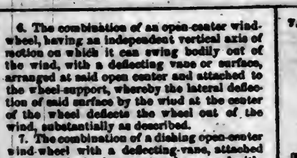
7,067. WATCH-REGULATORS. W. B. Tucker, Hillsborough, Ohio. Patent No. 68,324, dated Aug. 27, 1867. [Filed Apr. 26, 1872.]



1. A bent, *g*, attached directly to the point of and in combination with the regulator *h* and screw *c*, substantially as set forth.

2. The combination of the scale base-plate *a*, supporting-knobs *b b'*, horizontal screw-shaft *c*, toothed wheels *d* and *e*, winding-arbor *f*, and the attaching and indicating nut *g*, for operating the regulator of a watch or other time-keeper, substantially in the manner herein set forth.

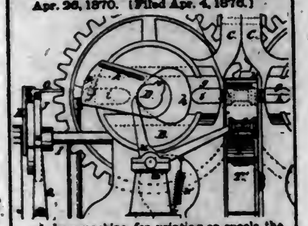
7,068. IRONING-TABLES. Cornelius Blom, Jr., Grand Haven, Mich., assignor, by mesne assignments, to Jacob Brinkerhoff. Patent No. 145,614, dated Dec. 16, 1873. [Filed Mar. 23, 1876.]



1. The hinged slotted legs B, in combination with the pivoted prop D, connection *d*, and the part A, for the purpose set forth.

2. The ironing-board A, having the hinged oblique-slotted legs B, the pivoted prop D, having the horizontal cross-bar *d*, with rounded ends, sliding in the slots *c* of said legs, said slots being of proper length to allow the legs and prop to be folded closely up against the board, and, when down, to take a bracing position nearly rectangular with each other, substantially as specified.

7,069. MACHINES FOR PRINTING ON SPOOLS. G. Hall, Jr., South Willington, Conn., and G. W. Averell, New York, N. Y., assignors to G. Hall, Jr. Patent No. 102,257, dated Apr. 26, 1870. [Filed Apr. 4, 1876.]



1. In a machine for printing on spools the combination, with a spool-carrier, of a set of reciprocating dies, and an intermittently-operating feeding device, as and for the purpose described.

2. In a machine for printing on spools, the intermittently-revolving skeleton spool-carrier B, revolving in vertical planes, and having spool-cavities *y*, in combination with the holders *e*, as and for the purpose described.

3. The combination of the intermittently-revolving skeleton spool-carrier H with the shaft I, plate K, ratchet-wheel J, connecting-rods M N, lever O, and the wheel E', as and for the purpose described.

4. The combination, with oppositely-operating printing-dies, of an intermittently-revolving spool-carrier, located between the same, substantially as and for the purpose described.

6. The combination of an intermittently-revolving spool-carrier with the reciprocating dies, and an intermittently-operating feeding device, substantially as described.

6. The combination, with the barrel B, of the die-plates *g*, dovetailed in guides therein, and carrying dies *f* and lugs *i*, and the shaft D, carrying cams *h*, as and for the purpose described.

7. The combination, with barrels B and the reciprocating dies *f* contained therein, of the plates *k*, attached to shafts D, and carrying inking-rollers *j*, adapted to revolve upon the periphery of the barrel, and ink the surface of the dies *f* when the latter are withdrawn from the spool, as described.

8. The synchronously-revolving wheels E E', geared together, and combined with shafts D D', the reciprocating dies, barrels B B, and the intermittently-revolving spool-carrier, located between the said dies, substantially as and for the purpose described.

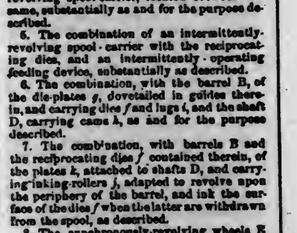
9. In a machine for printing spools the combination of an inclined chute, T, the intermittently-rotating spool-carrier, and an intermittently-operated feed-regulator, as described.

10. The feeding device T and rotating carrier H, combined with reciprocating dies *f f*, constructed as and for the purpose described.

11. The combination, with a carrier-wheel H, dies *f*, and feeding-chute T, of a revolving shaft, D, cams *h v*, and lever *u w*, whereby a corresponding number of spools will always be fed in and headed automatically.

12. The combination of the stationary cam *d* with the lever *a* and spring *c'*, as shown and described, to hold the spool while being imprinted, and allow its exit from the chamber at the time and in the manner set forth.

7,070. SPOOLS FOR THREAD. G. Hall, Jr., South Willington, Conn., and G. W. Averell, New York, N. Y., assignors to G. Hall, Jr. Patent No. 102,257, dated Apr. 26, 1870. [Filed Apr. 4, 1876.]

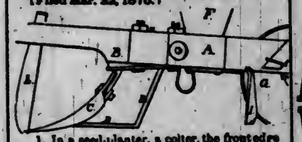


As an improved article of manufacture, an axially-perforated wooden spool, having the label printed upon the end thereof around the axial perforation, directly upon the fiber of the wood, whereby the axial perforation is left open at both ends, and the spool is free to revolve upon the spool-holder, exempt from the objection of the internal edges of a paper label, substantially as described.

7,071. PRESERVING GREEN CORN. John W. Jones, Deering, Me., assignee, by mesne assignments, of Isaac Winslow, deceased. Patent No. 93,274, dated May 13, 1869. [Filed Mar. 2, 1876.]

The improved process of separating and obtaining the nutritious and edible parts of the corn, boiling them in a liquid composed wholly or mainly of their own juices, and confining the material in cans hermetically sealed, substantially as herein described.

7,072. SEED-PLANTERS. H. C. Locke, Somerville, Tenn., assignor to F. B. Hunt & Co. Patent No. 95,121, dated Sept. 21, 1869. [Filed Mar. 22, 1876.]

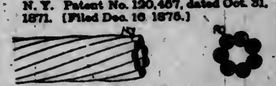


1. In a seed-planter, a colter, the front edge of which is curved or inclined backward, said colter resting in contact with the toe of the shovel or opener, said shovel acting as a stay or brace to the colter, substantially as described.

2. The colter E, the front edge of which is curved or inclined backward, said colter resting in contact with a shovel or opener in front of the seed-hopper, in combination with the teeth or coverers I, and seed-hopper, substantially as set forth.

3. The colter E and shovel or opener, arranged in front of the seed-hopper, in combination with the teeth or coverers I, and wheel G in rear of said seed-hopper, substantially as and for the purpose set forth.

7,073. LIGHTNING CONDUCTORS, RODS, OR CABLES. Othniel Preston, Hornellsville, N. Y. Patent No. 120,457, dated Oct. 31, 1871. [Filed Dec. 16, 1876.]



The tubular rod or cable A, composed of wires B, twisted together, substantially as shown and described.

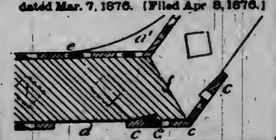
7,074. MEASURING PACKAGED FABRICS. S. C. Talcott, Ashtabula, Ohio. Patent No. 160,131, dated June 29, 1875; reissue No. 6,920, dated Dec. 28, 1875. [Filed Apr. 5, 1876.]



1. The preparation of fabrics for sale and inventory, by measuring, graduation, notation, and packaging, substantially as described.

2. In combination with the graduation and notation, transverse guide-lines to facilitate the folding or severance of the fabric without bias, substantially as described.

7,075. SOCKETS FOR BOAT-KNEES. D. True, Salisbury, Mass. Patent No. 174,696, dated Mar. 7, 1876. [Filed Apr 3, 1876.]



1. As a new article of manufacture, a metallic elbow-socket so constructed as to inclose and hold the inner ends of two portions of a boat-knee.

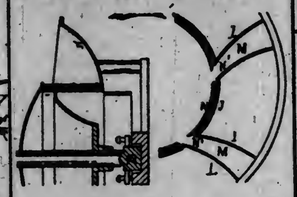
2. The above-described elbow-socket, provided with the openings *c*, substantially as and for the purpose set forth.

3. In a metallic elbow-socket for boat-knees, the wedge-shaped plates *c c*, substantially as and for the purpose herein specified.

4. The above-described elbow-socket, having the space *d* left between plates or cross-piece *b* and *c*, for the purpose of allowing the flow of the water in the bottom of the boat, as above described.

7,076. WATER-WHEELS. Waldo Whitney, Leominster, Mass. Patent No. 42,708, dated May 10, 1864. [Filed Mar. 3, 1876.]

Brief.—The combination, in a water-wheel, of an inverted conical disk with a peculiar-shaped bucket; also, a concave disk or basin around the wheel, provided with guides or chutes to direct the water tangentially against the wheel. Besides this there is a cylindrical gate arranged to open and close the chutes or apertures that supply the wheel with water.



1. In combination with the peculiarly-shaped floats F, the inverted conical center E and hoop G, to which the floats are fastened, substantially as described, and for the purpose set forth.

2. In combination with the concave disk or basin around the wheel, the stationary guides L and chutes M, to direct the water onto the wheel, substantially as described.

3. In combination with a water-wheel of this class, a cylindrical gate fitted to traverse or revolve, so as to open and close the gate-apertures which supply water to the wheel, substantially as described, and for the purpose set forth.

7,077. INDIAN CORN PRESERVED GREEN. John W. Jones, Deering, Me., assignee, by mesne assignments, of Isaac Winslow, deceased. Patent No. 94,926, dated Apr. 2, 1862. [Filed Mar. 2, 1876.]

The improved article herein described, consisting essentially of the softer and more edible parts of green Indian corn, separated from the harder and more woody parts, boiled in a liquid consisting wholly or mainly of its own juices, and packed in air-tight cans, substantially as described.

7,078. BLASTING-POWDER. Herrenstein Courtelle, New York, N. Y., assignor, by mesne assignments, to the Triumph Patent Safety Powder Company, Baltimore, Md. Patent No. 167,503, dated Sept. 7, 1875. [Filed Mar. 26, 1875.]

1. The improved safety blasting-powder, containing the elements of common gunpowder and also the uncombined elements of nitro-glycerine, substantially as described.

2. The process of manufacturing an explosive compound by treating the components of ordinary gunpowder in the presence of oleaginous or tarry matters, peat, and metallic sulphates, substantially as and for the purposes set forth.

7,079. LAMP-CHIMNEYS. W. L. Fish, Newark, N. J., assignor, by mesne assignments, to the Kerosene Lamp Heater Company, New York city. Patent No. 35,698, dated June 17, 1862; reissue No. 1,368, dated Dec. 23, 1862; reissue No. 1,696, dated Jan. 5, 1864. [Filed Apr. 5, 1876.]

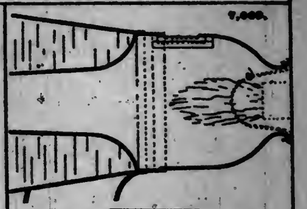
1. The combination, substantially as herein shown and described, of a kerosene-oil lamp, deflector or cone, and a metallic heating chamber or shell, adapted to support a vessel to be heated.

2. A kerosene-oil-lamp heater in which the deflector or cone of the lamp is arranged in the bottom of a metallic heating-chamber or shell that is adapted to support the vessel to be heated.

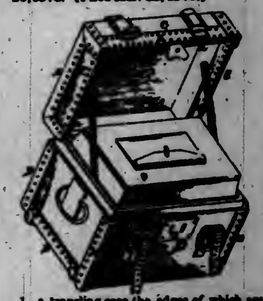
3. The combination of a kerosene oil lamp, a deflector or cone, and a metallic heating-chamber under the arrangement substantially as herein shown and described, so that the air for the sustenance of the flame in the heater shall be admitted through the bottom of the heater, and the products of combustion shall pass off through a contracted opening in the top of the heater.

4. The combination of a kerosene-oil lamp, a metallic shell adapted to support a vessel to be heated, and a window made of transparent material in the walls of the shell, substantially as herein set forth.

7,080.



7,070. THUMB. Geo. B. Jenkinson, Newark, N. J. Patent No. 130,126, dated May 30, 1873. [Filed Mar. 28, 1876.]

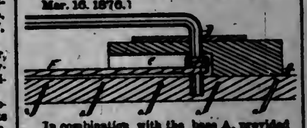


1. A traveling-case the edges of which are protected by strips of heavy leather, in the manner set forth.

2. The traveling-case provided with leather strips D, applied and secured to the corners and edges in the manner shown, substantially as and for the purpose set forth.

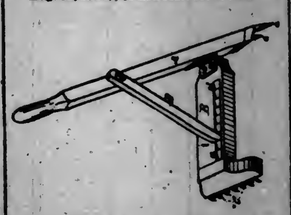
3. The leather strips C, secured around the valances of a traveling-case in the manner shown, substantially as and for the purpose set forth.

7,071. CARPET-STRETCHERS. Samuel Pennock, Geneva, Ill., assignor to Hiram Druliner, La Porte, Ind.; said Druliner assignor to Royal Morris, Chicago, Ill. Patent No. 86,690, dated Jan. 5, 1869. [Filed Mar. 16, 1876.]



In combination with the base A, provided with the teeth *a*, adapted to take into the carpet, the windlass D, cord F, and hook G, substantially as and for the purpose specified.

7,072. CARPET-STRETCHERS. Ira P. Warner, Marengo, Ill., assignor, by mesne assignments, to Hiram Druliner, La Porte, Ind.; said Druliner assignor to Royal Morris, Chicago, Ill. Patent No. 67,690, dated Aug. 13, 1867. [Filed Mar. 16, 1876.]



1. The lever A, provided with one or more points, *a*, in combination with the base B, provided with the hooks or teeth C, substantially as and for the purpose specified.

2. In combination with the lever A and base B, the pawl D and ratchet *d*, substantially as and for the purpose specified.

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COMMISSIONER'S DECISIONS.

LAUTZ BROS. & CO., *vs.* SHULTZ & CO.—*Trade-Mark; Interference.*

Motion to dissolve the interference. Hearing before the Commissioner of Patents in person.

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the interference between the applications of Lautz Bros. & Co. vs. Shultz & Co., for registration of Trade-Mark for* SOAP.—*Decided April* 3, 1876.]

An interference in trade-mark cases can properly be declared and proceedings had in the Patent Office in accordance with the usual practice governing interference cases between applications for patents.

The law governing trade-marks being engrafted upon the patent laws in force at the time of its enactment constitute "statutes in *pari materia*" that may be regarded as one system.

The construction of any separate act may be aided by the examination of other provisions which compose the system.

[*A. H. Evans & Co.*, attorneys for Lautz Bros. & Co.
M. D. Leggett & Co., attorneys for Shultz & Co.]

DUELL, *Commissioner:*

The history of this case is substantially as follows: An interference was declared between the applications of Lautz Bros. & Co., and Shultz & Co., who had procured a registration of the trade-mark in controversy. A large mass of testimony was taken by the respective litigants, and the case fully argued upon the testimony so taken before the Examiner of Trade-Marks, who decided the case adversely to the registrants, Shultz & Co. From this decision an appeal was taken to the Board of Examiners-in-Chief, who, having no jurisdiction over appeals in trade-mark cases, transferred the same to the Commissioner of Patents.

The reasons of appeal filed by Shultz & Co., are in substance the allegation of errors in the Examiner's decision awarding priority of adoption of the trade-mark in controversy to Lautz Bros. & Co.

Upon the hearing before the Assistant Commissioner of Patents the question argued was not based upon the reasons of appeal given to Shultz & Co., but upon a motion to dissolve the interference declared in this case, for the reason that the law upon the subject of trade-marks did not directly or indirectly provide for such proceedings before the Patent Office.

The opinion of the Assistant Commissioner was in favor of granting such dissolution, and a rehearing was requested before the Commissioner of Patents. This request was granted, and the hearing had on the 27th of March, 1876.

I would here state that much delay and great expense would be avoided to litigants in the Patent Office if the proceedings therein should more strictly conform to judicial proceedings; that exceptions to the jurisdiction and other dilatory pleas should first be decided before making farther progress in the case.

It is with some hesitation that I feel obliged to differ in opinion from the late Assistant Commissioner's very able decision; but it seems to me that a fair construction of the law and the performance of exact justice to all who desire to avail themselves of its provisions is so apparent as to warrant me in assuming jurisdiction in the case referred to, and deciding that the interference herein was properly declared.

It is well understood that there are well-defined and distinct differences between trade-marks and patents. It is unnecessary to discuss the specific features of either, but to state as clearly as may be the analogy that exists, or may properly exist, between the two in the "*conduct of proceedings in the Patent Office.*"

Section 4939 of Title 70, Revised Statute, Chap. 1, defines the restrictions imposed upon the Commissioner of Patents in the registration of trade-marks. The duty of an examination to determine the propriety of registration, in view of the antecedent action of the Office in granting registration for trade-marks that "may anticipate or nearly resemble the trade-mark sought to be registered" is clearly defined. The character of the examination required is analogous to that of applications for patents for inventions. The copies of the trade-

mark required to be filed conform substantially to the law and rules in relation to applications for patents. The rules and regulations of the Office required in the preparation of trade-mark cases for examination are the same as for applications for patents. Corresponding to the specification in an application for a patent there is required to be filed "a statement specifying the names of the parties and their residence, the class of merchandise, and the particular description of goods comprised in such class, by which the trade-mark has been or is intended to be appropriated, a description of the trade-mark itself, with fac-similes thereof, showing the mode in which it has been or is intended to be applied and used."

Second. "By making payment of a fee of twenty-five dollars in the same manner and for the same purpose as the fee required for patents."

Third. "By complying with such regulations as may be prescribed by the Commissioner of Patents." (Vide Sec. 4937 and Sec. 483.)

Section 4938 requires that the statement above referred to shall be accompanied by a written declaration verified in substantially the same manner as are specifications in applications for patents.

The remedies provided by law for infringing registered trade-marks are analogous to the remedies provided for infringement of patents. The law in relation to trade-marks passed in 1870 is engrafted upon the law referring to patents, and is in *pari materia* a portion of the same.

In the construction of a statute, the courts will look out of it to other statutes in *pari materia*, or statutes of a similar import, which may be regarded as one system, in which the construction of any separate act may be aided by the examination of other provisions which compose the system. *United States* vs. *Collier*, (3 Blatch., 325.)

Under section 483 of title 70, herein referred to, the Commissioner of Patents is authorized "from time to time to establish regulations not inconsistent with law for the conduct of proceedings in the Patent Office." This confers a power over *all* proceedings over which he has jurisdiction. In pursuance of the authority thus vested by law in the Commissioner of Patents he has from time to time made rules and regulations applicable to interference cases as regards both patents and trade-marks, and soon after the passage of the law of 1870 giving the Commissioner of Patents jurisdiction over trade-marks, the first interference in trade-mark cases of *Armistead* vs. *Blackwell* was declared, and decision made by the Commissioner upon appeal to him in 1872. (See Com's. Decisions of that year, p. 128.) Subsequently this practice has been repeated, and a judicial construction thus given to the law regulating proceedings in trade-mark cases.

The intention of the law relating to trade-marks, as well as of every law, is that its spirit should be enforced, and the means employed such as will give full force and effect to the law, if such means are not a violation of both the spirit and letter of the law. There is nothing in the laws regulating the subject-matter of trade-marks that conflicts with the construction here given, and while it is admitted no express authority is given by law to declare interferences in trade-mark cases, it is equally true, in order to carry out the law according to its true intent and meaning the construction here given it is necessary for the protection of the interests and property of meritorious persons. Cases may arise where two applications for registration are filed on the same day. How is the Office to determine which of the two is the proper one to become the subject of registration? Or is the Office deterred from deciding such a question by the allegation that the law does not provide by express enactment for such a state of facts?

If the *date* attached to the verified statement furnishes a clue that may solve this question, is not that in effect determining the question of "priority of adoption of the trade-mark?" Or, suppose another state of facts to exist: One who is the proprietor of a trade-mark under the common law is permitted to secure his rights and pursue his remedy in the courts of the country, and this right is recognized and not impaired to any extent or degree by the law governing the registration of trade-marks. Such a person may sue the registrant, and prove priority of adoption, and recover a judgment for damages for the wrongful use of what was his property. In such case "the interference" is tried outside of the Office, and the rights of the parties determined, and the result proves that the registration made by the Patent Office was erroneous. As a matter of common justice and equity this person who has thus been successful in his suit should be allowed to file a copy of the court record with his application for registration of his trade-mark, and the Patent Office required to register the same. To avoid the necessities for such litigation I deem it important that a construction reasonable, just, and equitable should be given to the law under consideration, allowing the Commissioner of Patents to determine the questions of conflicting interests that may arise in cases like the one under consideration.

It may not be improper for me to say in this connection that, to remove all doubt and controversy upon the question of authority of the Commissioner of Patents to declare interferences in trade-mark cases, an amendment to the law has been suggested to the Committee on Patents in Congress, conferring upon the Commissioner that authority that is denied by the registrants herein to exist in the law now in force.

It is ordered that the motion for dissolution of the interference hitherto declared be overruled, and the case proceed in the usual manner in accordance with the rules and regulations of the Patent Office.

WALTER DE SANNO vs. C. F. RITCHEL.—*Interference; Appeal.*

[*Appeal from the decision of the Examiners-in-Chief in the matter of the interference between the application of Walter De Sanno, filed March 26, 1874, and that of C. F. Ritchel, filed March 14, 1874, for an* "IMPROVEMENT IN SERIAL BORING-MACHINE."—*Decided April 15, 1876.*]

The merits of an improvement belong to the one who conceived and gave practical form and effect to the ingenious arrangement which constituted the described improvement.

A workman, without knowledge of his employer's previous experiments, conceived and completed an invention, while his employer failed in his experiments to complete the same invention. Under these circumstances, the workman or employé should be deemed to be the first inventor.

[*Livingston & Norris* for De Sanno.
Lehman for Ritchel.]

DOOLITTLE, *Assistant Commissioner:*

The subject-matter of this application is a machine used for boring brush-blocks, and consists in a combination of jointed rods, drill-stock, and crank-shafts, for boring block-holes in brush-blocks for the reception of the bristles.

The Primary Examiner declared the subject-matter of the issue to be, "the combination of the crank-arbors, tumbling-rods, and tool-holders, whereby excessive friction of the tool-holder is avoided."

The contest, however, appears to center upon the one feature of the jointed or "tumbling" rod. The testimony shows that Ritchel conceived of this invention in 1871, and made a small model at that time, showing a single rod with a universal joint. After some experiments, not amounting to a reduction of the invention to practice, or going beyond the construction of the model in question, the making a sketch of the same, and some discussion as to the practicability of the matter, the model was thrown aside, and another machine adopted, which is the subject of Ritchel's patent, November 21, 1871, No. 121,074. The chief distinction between that patent and the present application consists in the nature of the boring rods or tools, which, in the patent, are simply flexible rods, while in the present application the rods have eye-link joints.

In his testimony Ritchel, in answer to an interrogatory relative to both of these inventions, which appear to have been conceived about the same time in 1871, states:

I had at that time invented two methods for boring on the flare; the other method consisted in using flexible steel rods in the place of joints, the model of which I had had constructed about the same time the jointed model was made, and I had the choice between the jointed rods and the flexible rods; and, on comparing the methods as represented in the models, both Allen and I favored testing the flexible rods first, on account of their being cheaper to make than the jointed rods.

Allen appears to have been the head of a company manufacturing brush-blocks, and Ritchel the superintendent. After they had adopted a flexible rod, it does not appear that anything more was said or done about the jointed rod until the summer or fall of 1873. At that time De Sanno was employed as a machinist in Allen's shop, at Corry, Pennsylvania.

By Ritchel's own testimony it is shown that De Sanno, at that time, inquired of Ritchel if he had ever thought of any other way to rotate and connect the spindles in the flare-machine. Ritchel then told him of his former experiment, and also of the reason why that experiment had been discarded. De Sanno then stated that he could show Ritchel a simple link that could be applied on these rods at no greater expense than the style of rods then in use. De Sanno did show this new device, a rod with an eye-link joint, to Ritchel the next day. Ritchel then consulted with Allen about it, and the result of the consultation was, that De Sanno was paid $100 for the invention, which was at once adopted and put in practical use at Allen's manufactory. In regard to the assignment of the invention by De Sanno, two papers are produced by the respective parties, one made by De Sanno to Allen and Ritchel, and one to Allen alone. Considerable dispute has arisen in regard to the validity of the assignment, but in the former one, to which Ritchel does not deny he was a party, De Sanno explicitly avers himself to be the inventor of the improvement.

De Sanno's improvement is everywhere spoken of by Ritchel and his witnesses as an *invention*, they regarded it as such, and it was adopted and paid for as such.

There is no escaping the fact that Ritchel's efforts in the direction of this invention prior to the summer of 1873 were abandoned experiments; and it is also perfectly clear that it was entirely by the independent invention of De Sanno that the matter was developed into a practical operative form.

The improvement made by De Sanno was not the suggestion of a workman made to an employer who was striving to perfect an invention, but it was an independent thought, the adoption of which produced a radical change in the construction and operation of the machinery previously in use.

There is no testimony showing that Ritchel conversed with De Sanno in regard to jointed rods, or that De Sanno was aware of Ritchel's early experiment prior to the communication by De Sanno to Ritchel of the improvement, as above described.

But, admitting for the sake of argument, that De Sanno was the workman and Ritchel the employer, the doctrine in the case of *Trotter* vs. *Bartlett*, (7 OFFICIAL GAZETTE, p. 3,) is quite applicable. There it was held that notwithstanding the fact that the employer was seeking to make the improvement, and had made many efforts to that end, yet if he fell short of completing the invention, and, in the meantime the workman, without knowledge of his employer's previous experiments, independently conceived and completed the invention, he, and not the employer, should be considered the first inventor.

The case must be distinguished from that of the *Agawam Co.* vs. *Jordan*, where the suggestions came to the employer from the workman while the former was constantly engaged in perfecting his machine.

Judge Nelson, in *Pitts* vs. *Hall*, (2 Blatch., 229,) in discussing to whom belonged the merits of an improvement in a similar case, observed:

I do not mean who constructed the first machine, but who conceived and gave practical form and effect to the ingenious arrangement which constitutes the improvement grafted on the old machine.

As we have seen, in Ritchel's machine the flexible rods were employed, and the fact that a great number of these rods were continually breaking, subjecting the company to great annoyance and expense for several years, but that as soon as De Sanno proposed this improvement the old style of rods was discarded and the new at once adopted, shows clearly that an actual improvement had for the first time been made, and that De Sanno was the independent author of it.

There is but little force in the allegation that Ritchel had previously conceived the broad idea of a jointed rod. Admit that he had, what of it? Broad ideas that rest in theory, or end in trifling experiments, are but the shadows, and not the invention itself. Besides, it is not the broad idea that is in controversy. The improved combination made and claimed by De Sanno is the precise and only one claimed by Ritchel.

The decision of the Examiners-in-Chief, awarding priority to De Sanno, is affirmed.

JEREMIAH KEITH.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of Jeremiah Keith, for reissue of his patent No. 112,719, dated March 14, 1871.—Decided April 5, 1876.*]

The objections as to "new matter" and the "operativeness" of a combination go to the merits, and if ascertained to be facts are fatal to the specification and claim embracing such combination.

In such proceedings the regular course of appeal is to be taken within the Office to the Examiners-in-Chief and Commissioner of Patents, and on such questions an interlocutory appeal will not be sustained.

If the question decided by the Examiner is that the claim is for a function merely, an interlocutory appeal will lie to the Commissioner of Patents.

DOOLITTLE, *Assistant Commissioner:*

In this case the Principal Examiner alleges that new matter is introduced into the specification, and for that reason and others refuses to allow seven of the claims.

Four of the claims are refused because they are functional in form. One of these, it is said, also covers a device protected by a subsequent patent, and another is for an "inoperative combination."

The objections as to new matter and the "operativeness" of a combination go to the merits, and if insisted upon by the Office are fatal to the specification and the particular claim embracing the combination in question. In that case applicant has the right to appeal to the Supreme Court of this district. As preliminary to such appeal the regular course of appeal within the Office, in the manner prescribed by the law, should be observed, viz: From the Primary Examiner to the Board of Examiners-in-Chief, from the latter tribunal to the Commissioner, and thence to the court.

The question whether a claim is for a function is one of verbal construction merely. If objectionable for this reason the objection can be usually removed by amendment without affecting the intended scope of the claim. The language of such a claim is generally in the participial form, as I claim the "determining," "operating," "producing," "so constructing," &c., and is not made for certain particular features or a combination thereof. Such claims are for the result irrespective of the means of producing it. (Case of Halm, 8 OFFICIAL GAZETTE, 597.)

This objection then is the proper matter for an interlocutory appeal.

It is urged in this case against the fourth, fifth, sixth, seventh, eighth claims. In the fourth and fifth applicant claims the reciprocating punch or bending-fork *t*, &c. This bending-fork *t* is the subject of both claims.

In the fourth claim this feature is described—

As operating to sever the wire in its descent upon the former-bed, to bend the wire into a staple over a suitable mandrel or beak, *q*, and to carry the staple so formed forward into position to be driven.

In the fifth claim the same feature is described as—

Constructed with a cutting-edge and with internal longitudinal grooves, whereby a staple-blank is severed, but around a suitable mandrel, and held and guided for driving.

It will be seen that the matter in these claims, which the Examiner regards as establishing a claim for functions, is simply descriptive of the functions which the feature mentioned performs and the manner of its construction.

It appears to me that the two matters are made quite distinct, and that if a subsequent inventor should perform the same operations by a substantially different feature he would not be precluded from obtaining a patent by reason of these claims.

The sixth, seventh, and eighth claims are each for a combination of this punch or bending fork *t* with other specified features, and so with the ninth claim. The same may be said of the descriptive matter therein, as has been said of the fourth claim.

The objection of prolixity might be urged against these claims with more force than that they are functional.

The decision of the Examiner therefore in regard to the objection urged against the last-named claims is reversed, and the appeal, so far as it relates to new matter, and the claim covering the alleged inoperative combination, is dismissed.

The appeal in those matters should be taken to the Board of Examiners in-Chief, as above indicated.

DAVID EDWARD.—*Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of David Edward for reissue of letters patent for* "MOP AND BRUSH HOLDERS."—*Decided April* 21, 1876.]

Reasons given by the Examiner that go to the merits of the case for his rejection cannot be brought before the Commissioner of Patents on interlocutory appeal. The remedy is by appeal to the Examiners-in-Chief.

DUELL, *Commissioner:*

The specification contains five claims. To the first four of them the Examiner interposes objections, and, as appears from his action in the case, the application has been twice rejected.

The first and second claims are considered "too vague." The third for "parts not constituting a complete device." The fourth is alleged to be "like the first," and to the fifth no objection is interposed by the Examiner, being substantially the claim in the original patent.

Section 4903 defines the nature of the proceedings in cases of rejection of an application; it applies as well to reissues as to original applications, and is as follows:

Whenever, on examination, any claim for a patent is rejected, the Commissioner shall notify the applicant thereof, giving him briefly *the reasons* for such rejection, together with such information and references as may be useful in judging of the propriety of renewing his application or of altering his specification, &c.

The reasons given by the Examiner seem to be of such a character, if presented to a court, to raise the question for judicial construction of the claims affecting the validity of the patent, and in view of the decision of the Assistant Commissioner of Patents rendered in the case of Jeremiah Keith, April 5, 1876, *are reasons* going to the merits of the case and determinable by the Examiners-in-Chief on appeal to them.

In may be proper in this case, without intending to express an opinion upon the merits, to state that I have carefully examined the specification filed and the original patent. There are defects in the former that require correction in the descriptive portion of it, different names are given to the same device that are calculated to mislead; as, for instance, "A is the main plate," "The jaw A," "the fixed jaw A." "C is the upper or clamping plate;" also the "clamping-jaw C."

It is the duty of the Examiner to call the attention of applicants to such misnomers, and the duty of applicants to comply with the requirements of the Office to make their specifications intelligible.

This interlocutory appeal is dismissed, and the applicant can pursue his remedy in the manner herein indicated.

ISAAC WINSLOW.—*Reissue.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of J. Winslow Jones, assignee of the late Isaac Winslow, deceased, for reissue of letters patent No.* 34,928, *granted April* 8, 1862, *and No.* 35,274, *granted May* 13, 1862, *to said Isaac Winslow, for "a new and useful* IMPROVEMENT IN PRESERVING INDIAN CORN."—*Decided April* 11, 1876.]

Under the last clause of section 4916 R. S., in applications for reissue, the proof there required should be submitted to the Commissioner in person. If the proof is satisfactory the amendment will then be examined in the usual manner.

The decisions of an inferior court and a dissenting opinion in the court above in a proceeding where the patent was not vacated, together with numerous affidavits, including one from an Examiner in the Patent Office, showing clearly the belief of applicant that he had incorporated the invention in his patent, regarded as sufficient evidence in showing that the omission was by inadvertence, accident, or mistake, &c.

DOOLITTLE, *Acting Commissioner:*

In this matter the application was rejected by the Primary Examiner for the reasons that the same contained new matter, that such new matter constituted a different invention from that indicated by the original patents, and that the late decision of the United States Supreme Court in *Sewall* vs. *Jones et al.*, 9 OFFICIAL GAZETTE, p. 47, so declared, which decision was binding upon the Office.

Interlocutory appeal was taken from the decision of the Examiner, but before the same came to hearing it was abandoned, and a motion substituted therefor, made to the Commissioner in person, to introduce said alleged new matter into the amended specifications. This motion was based on the last clause of section 4916 Revised Statutes, relating to reissue applications, which reads as follows:

But when there is neither model nor drawing amendments may be made upon proof satisfactory to the Commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake, as aforesaid.

I am of opinion that in such a case a motion to the Commissioner in person is the proper course to pursue. If otherwise, and the Examiner rejects the application, as has been done here, for the reason alone of the new matter, the rejection goes to the merits of the case, and an appeal lies from the Examiner to the Board of Examiners-in-Chief, as in all other cases affecting the merits. Should that tribunal reverse the Examiner the matter would be determined without its consideration by the Commissioner in person upon the proofs adduced, as is plainly provided by the terms of the law.

The decision of the Supreme Court, above mentioned, went to the extent only that the matter now sought to be introduced by amendment was not a part of the *patents*, and not that such matter was not a part of Winslow's *original invention*.

They do not discuss the patentability or novelty of what was then and is now insisted to be Winslow's real improvement, but determined that such improvement was not covered by his *patent*.

The patents were not vacated nor was the suit for that purpose.

The decision of the court below and the dissenting opinion in the court above were based upon the ground that this matter, viz., the product and process, consisting of corn cut from the cob in such a way that leaves the coarser part of the corn on the cob, and breaks open the kernels to liberate their juices, and of then surrounding the corn in the can with such juices and cooking it therein in sealed cans, &c., *did* constitute not only Winslow's *invention*, but were incorporated in and protected by the patents now sought to be reissued.

The latter-mentioned elaborate decision and opinion are very good evidence to me, accepting as I do the decision of the majority of the court as binding, that the alleged matter was not a part of the *patents*, that the same was part of the original invention, and was omitted from the patents by *accident, inadvertence, or mistake*.

The entire litigation under this patent was based solely upon the understanding or belief of the inventor and owners of the patent, which was very strongly supported by the testimony in his behalf, and which was afterward substantiated by the decision of a United States circuit court, that the invention and patents embraced this particular matter.

But in addition to that evidence applicant now submits numerous affidavits, including that of the Assistant Examiner in this Office, who had charge of the case at the time it was originally pending, and who after his resignation was counsel for the inventor, and from those who were intimately acquainted with the inventor for many years who have read this reissue application, and who swear that the inventor continually and persistently claimed this precise matter as his own invention, and put it into actual and successful practice; that he made application for a patent therefor, and if omitted from his patent it was by accident, inadvertence, or mistake.

I deem it unnecessary to state more minutely the contents of these affidavits. I find the proof satisfactory to me that the new matter or amendment introduced into the specification filed with the application for reissue was a part of the original invention of the said Isaac Winslow, and was omitted from the specification attached to his original patents by inadvertence, accident, or mistake without any fraudulent or deceptive intention.

I therefore direct that the amended specification be received in this case as a true and sufficient description of the original invention of the said Winslow, and that the Examiner receive and examine the applications in the same manner as other like applications are examined.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF ILLINOIS.

MARTIN T. CALKINS *vs.* THEOPHILUS F. BERTRAND, *et al.*

[*Before* BLODGETT, *J.—Decided December* 7, 1875.]

PATENT—REISSUE—INFRINGEMENT.

1. *Claim on a Reissue.*—That the law of 1836 has been construed to authorize a patentee to claim on a reissue whatever shall clearly appear to have been a part of his original invention, as described or shown in his original specifications, drawings, or models.
2. *This Case—Infringement.*—That the reissue by which Gerber, as assignee of the Smith patent, was allowed to amend his specifications so as to secure the joint M as an element of his device or in the Smith device, and to cover the idea of jointing between the evener and the neck-yoke as a specific element in his invention, is a valid reissue under the patent law as it then stood; and that having obtained the reissue, and covering now the ground occupied by the defendants, the complainants are entitled to recover.

[*S. A. Goodwin* and *G. W. Ford* for complainant.
West & Bond for defendants.]

OPINION OF THE COURT.

BLODGETT, *J.*:

This is a bill in equity for gains, profits and damages, and final injunction against the defendants for an alleged infringement of a reissued patent "for an improvement in cultivators," granted to Julius Gerber, April 26, 1870, upon an original patent issued to Imlus R. Smith, dated April 24, 1860.

The answer denies that Smith was the first inventor of the improvement described and claimed in the original Smith patent, and as reissued, and also insists that the reissued patent is not for the same invention as that described in the original patent. The defendants also deny that they infringed the plaintiff's patent even if its validity is conceded or established.

The drawings attached to the original Smith patent showed a cultivator-frame mounted on wheels and fastened to the tongue at a point forward of the evener.

This frame worked freely above the axle, the axle gaging the depth which the shovels could run into the ground. The claim was for the combination of this frame as constructed with the wheels and tongue by the joint M, as shown and specified. In the reissue to the complainant Gerber, he was allowed to amend his specifications in several particulars, the most material of which is, that—

> The auxiliary frame is hinged or otherwise loosely attached to the main frame at a point between the evener and the neck-yoke by means of which great length of beam is obtained, and more purchase in the side motion. * * * By means of the long swing obtained by bringing the beam of the auxiliary frame forward of the evener, the difference between the movements of the front and rear shovels is rendered relatively less.

His general claim in 1860 was for the idea of mounting this cultivator-frame upon wheels so that the operator could ride upon the wagon-frame without his weight resting upon the cultivator-frame, and operate the cultivator-frame from his seat or platform. The patent was for the combination of the cultivator-frame and the wagon-frame together, connecting them by the joint M. He did not seem to realize that there was any very special merit in bringing the beam forward to the point where he coupled it to the tongue; at least he makes no mention of it in his specification as a novel or useful element in his machine. It was, however, found by experience that this cultivator, by reason of the long swing which it had in its beam, was much more readily manipulated and handled than any other which had been produced, and therefore the cultivator seems to have come into somewhat general use, and finally the owners of the patent surrendered it, and obtained a reissue covering, as a specific device, this idea of coupling the beam forward of the evener so as to secure a long swing as the essential element in the invention.

The claim of the reissued patent is as follows:

> 1. An auxiliary frame carrying two or more shovel standards on each side as shown, when said frame is hinged to the pole between the evener and neck-yoke, as described for the purposes set forth.

There is no doubt but what Smith's original model shows that he hinged his plow-beam forward of the evener. The evener is shown in the original model, and it is also shown in the drawings. And Gerber, therefore, had the right, as the assignee of Smith's patent, to cover that feature of the Smith invention by the reissued letters patent. And it seems, too, that the Patent Office took the same view of the matter, and gave him what he claimed.

This reissue was made on the 26th of April, 1870, and while the Patent Office was acting under the law of 1836, as amended, up to the act of 1861, so far as related to the matter of reissues. This law has been construed to authorize a patentee to claim on a reissue whatever shall clearly appear to have been a part of his original invention as described or shown in his original specifications, drawings, or models. There are ample authorities upon that point construing the act of 1836 with amendments up to 1861 in that regard, and giving the inventor the right to a reissue where the new claim is clearly justified by his drawings, or specifications, or models, or either, and allowing him to amend his specifications, if necessary, so as to cover more fully what, upon experience, has proven to be a meritorious part of his invention. (*Battin* vs. *Taggert*, 17 How., 74; *Gallahue* vs. *Butterfield*, 10 Blatch, 232; *Wheeler* vs. *Clipper Co.*, 6 Fisher, 1; *Seymour* vs. *Osborne*, 11 Wallace, 544.)

It seems clear, from the proofs in this case, that, as wheel-cultivators came into use, the value of the long swing to the beams, in the practical working of the machine, became more apparent, and hence the owners of the Smith patent sought and obtained this reissue for the purpose of covering this special feature in the original Smith machine.

The defendants contend that the reissued patent is void because the distinguishing feature—the location of the joint forward of the evener—is not patentable. They urge that hinging forward of the evener instead of back of it, produces no new result; that no definite point is fixed, and no directions given, as to the point where the joint is to be placed. The evidence, however, seems to me to show that the "long swing," obtained by the hinging of the beam forward of the evener, is a new and useful result.

The machines of Ganse and Whitehall, shown in the proofs which antedate the Smith patent, show the shovel-beams hinged back of the evener, producing a jerky motion, and rendering it almost, if not wholly, impossible to guide the shovels so as to avoid hills out of line, or stones, roots, or other obstacles in the direct line.

The suggestion that this is not a change of result, but is only a change in degree, is, I think, not sustained by the proof. The long radius, in other words, secures a practicable cultivator, which can be guided along the side of a crooked row of plants so as to avoid disturbing them, while the short beams would seem to be practically useless except in straight, or nearly straight, rows. This is a practically new result, and the proper subject of a patent as such. The objection that the first claim of the patent is void for uncertainty, because the precise location of the joint is not described or fixed in feet or inches, seems to me untenable. The amended specifications say:

> This auxiliary frame is hinged, or otherwise loosely attached to the main frame at a point between the evener and neck-yoke, by means of which great length of beam is obtained and more purchase in the side motion.
> * * * * * * * * * *
> When two shovels are employed upon each side of the auxiliary frame, the rear set are necessarily wider apart than the front set, and as they swing in the arc of a larger circle, they move relatively over more ground.
> In the ordinary cultivator, this difference of relative movement is quite marked, and consequently there is danger, when the front shovels are swung aside to avoid irregularly-planted hills, of the rear shovels interfering with the wheels or the adjacent rows.
> By means, however, of the long swing obtained by bringing the beam of the auxiliary frame forward of the evener, the difference between the movements of the front and rear shovels is rendered relatively less, and the difficulty referred to obviated. * * *

The easy but limited side motion of the auxiliary frame enables the driver to so control its action as to cultivate with safety those crops which have been irregularly planted, or which may have come up in other than straight lines.

Here the direction is to make the swing long enough to secure the desired result, and enables a person of skill, who understands the result to be attained, to construct a machine embodying the principle, and this is all the certainty required by law.

So that when you consider these specifications, together with the idea that the end to be obtained is the "long swing," it seems to me there is sufficient in the specifications to notify a party who attempts to construct a cultivator as to the length of beam to be adopted. It does not say that the joint M shall be three feet six inches or five feet six inches forward of the evener, or that it shall be eight feet back of the point where the neck-yoke connects, but it says it shall be far enough forward to secure that easy motion, that facility of handling, and that long radius which will secure ease of handling, and not bring the rear shovels in contact with the wheels, while it will move the forward shovels far enough to avoid the hills out of line, or any inequality in the surface of the ground, such as a root, or a stone, or a stump.

The next point made by the defendants is, that the complainant's machine is constructed upon a different principle than that of a swinging machine; that it is intended to act by a rocking and not by a swinging motion. There seems no doubt that the original Smith machine was intended to rock upon the saddle P, but provision was also made for swinging, that is—there is play enough between the plows and the frame O to allow of a swing or side motion.

Now, I think there is no doubt, from the proof, that Mr. Smith, in his original patent, intended to not only swing his cultivator-frame, but that he also intended to avoid small obstructions by rocking the plow-beam upon this pivoted point—this saddle; and any one at all familiar with plowing knows that a plow is very readily guided by rocking—that is, by tipping the top a little to the right or left. Now, the least tipping of a plow, we all know, causes the plow to run, as the plowmen say, "to" or "from the land," and the tipping or the rocking of this frame, so that one set of shovels shall run deeper into the ground than the other, would, of course, cause the frame itself to swing to the side, because it would increase the draft on one side and relieve it on the other. So that the rocking motion of itself would cause the swinging motion. The moment that you rock the shovel enough to secure inequality in the hold upon the ground upon one side more than the other, you would of course produce a swinging motion if your plow was moving forward in straight lines, and undoubtedly this was one of the ideas in the mind of this inventor.

While the rocking motion is provided for in the original patent, nothing is said about it in the reissued patent, and I can see no reason why the complainant is not at liberty to hang or suspend his auxiliary frame under the axle as well as to mount it on or over the axle. This point is not raised in the case, and I do not intend to decide it. Certainly the complainant leaves himself at liberty to rock or swing his shovels, or do both, as shall be deemed best in practice, by means of the joint M between the evener and the neck-yoke.

Now, upon the question of infringement. I do not see that there can be any doubt that if Smith was the first to invent the "long swing," to be secured by jointing the beam to the pole between the evener and the neck-yoke, and is entitled to a patent for the idea, then the defendants' machine infringes the complainants' in this particular.

I have here a model of the defendant's machine which has the plow-beam jointed to the pole between the evener and neck-yoke, and suspended under the axle, and operated by means of handles, the driver being seated upon a seat which is but an extension of the tongue or pole to the rear of the axle. Here we have provision for the long swing by the joint between the evener and the neck-yoke, and the essential element of the complainant's device is manifestly in defendants' machine.

Both machines are limited in their side motion by the wheels, and the wheels must necessarily be so near together as to run freely between two rows straddling one.

I therefore come to the conclusion that the reissue by which Gerber, as the assignee of the Smith patent, was allowed to amend his specifications so as to secure the joint M as an element in his device, or in the Smith device, and to cover the idea of jointing between the evener and the neck-yoke as a specific element in his invention, is a valid reissue under the patent law as it then stood; and that having obtained the reissue, and covering now the ground occupied by the defendants, the complainant is entitled to recover.

It will be necessary to make a reference in this case, unless counsel agree upon the matter of damages.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date April 25, 1876.]

9,236.—Cooking-Stove.—EDWARD CALLELY, Philadelphia, assignor to JESSE ORR, JOHN R. PAINTER, WILLIAM GRAUDER, P. W. NAGLE, H. C. POSEY, WILLIAM H. SCHICK, ELIJAH BULL, JASPER SCHEELER, and WILLIAM M. STAUFFER, Reading, Pa. Application filed April 15, 1876. Term of patent 7 years.

9,237.—Monument.—PETER RITTER, Richmond, Ind., assignor of one-half his right to THOMAS C. VICKREY, same place. Application filed February 1, 1876. Term of patent 3½ years.

9,238.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed March 31, 1876. Term of patent 3½ years.

9,239.—Badge.—JOHN C. W. WRIGHT, Philadelphia, Pa. Application filed March 7, 1876. Term of patent 3½ years.

9,240.—Badge.—WILLIAM W. ELLIOTT and GEORGE R. JARMAN, Baltimore, Md. Application filed March 31, 1876. Term of patent 3½ years.

9,241.—Badge.—WILLIAM G. HEANEY, Camden, N. J. Application filed March 25, 1876. Term of patents 3½ years.

9,242.—Base-Burning Stove.—WILLIAM J. KEEP, Troy, N. Y. Application filed May 13, 1874. Term of patent 3½ years.

9,243.—Watch-Chain Charm.—JAMES D. LYON, Grand Rapids, Mich. Application filed March 16, 1876. Term of patent 3½ years.

9,244.—Jewelry-Pendant.—PHILIP C. MASI, Washington, D. C. Application filed April 8, 1876. Term of patent 3½ years.

9,245.—Medallion Cast.—JUSTINIEN REVEL, Philadelphia, Pa. Application filed April 1, 1876. Term of patent 3½ years.

9,246.—Lamp-Chimneys.—JOHN SCHMITT, Pittsburg, Pa. Application filed November 1, 1875. Term of patent 7 years.

9,247.—Watch-Chain Charm.—WILLIAM W. SCOTT, Pittsburg, Pa. Application filed March 1, 1876. Term of patent 3½ years.

9,248 and 9,249.—Bas-Relief.—GEORGE W. TUCKER, Waterbury, Conn. Applications filed February 7 and April 10, 1876. Term of patents 7 years.

9,250.—Toy Piano.—FRANK VOIGT, Philadelphia, Pa. Application filed March 31, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 25, 1876.]

3,598.—Cigars.—BELCHER, HUBBARD & CO., Jacksonville, Fla. Application filed April 3, 1876.
"words 'EL MERITO.'"

3,599.—Cigars.—BELCHER, HUBBARD & CO., Jacksonville, Fla. Application filed April 3, 1876.
"representation of a detached tobacco-leaf."

3,600.—Tobacco.—EDMOND BOURGEOIS, New Orleans, La. Application filed April 3, 1876.
"representation of a carrot of tobacco, and of the words 'Genuine St. James,' 'Perique Tobacco,' 'Grand Point,' 'Grand Point.'"

3,601.—Whisky.—BRYCE & SMITH, New York, N. Y. Application filed April 4, 1876.

"the title 'SHERIDAN.'"

3,602.—Whisky.—BRYCE & SMITH, New York, N. Y. Application filed April 4, 1876.

"words 'PACIFIC COAST.'"

3,603.—Carpet-Linings.—GEORGE W. CHIPMAN, Boston, Mass. Application filed March 28, 1876.

"a fibrous bat having a color substantially approximating the natural color of red-cedar wood."

3,604.—Knitting-Cotton.—DEXTER & BROTHER, Pawtucket, R. I. Application filed February 21, 1876.

"a portrait of our late father, Nathaniel G. B. Dexter, annexed to which is a rectangular border, inclosing the following words and lines: 'Superior Premium Steam Mill Ball Knitting Cotton; 2 lb., 4 thd., Unbleached, No. 6; Manufactured by Nathaniel G. B. Dexter, Pawtucket, R. I.'"

3,605.—Blood-Medicine.—PATRICK KEARNEY, Tottenville, N. Y. Application filed March 3, 1876.

"two squares, placed one within the other, the inner square containing two diamond-shaped figures, and the outer square containing a star, which is located directly above the diamond-shaped figures."

3,606.—Playing-Cards.—ISAAC LEVY, New York, N. Y. Application filed April 4, 1876.

"word 'MONACO.'"

3,607.—Sewing-Machines.—JOHN MCCLOSKEY, New York, N. Y. Application filed April 3, 1876.

"word 'CHAMPION.'"

3,608.—Cigars.—ERNESTINE PICKHARDT, Greenwich, Conn. Application filed April 4, 1876.

"word 'Record' and a representation of two trotting-sulkies."

3,609.—Japan Varnishes.—LEONARD RICHARDSON, Brooklyn, N. Y. Application filed April 4, 1876.

"word 'Union.'"

3,610.—Japan Varnishes.—LEONARD RICHARDSON, Brooklyn, N. Y. Application filed April 4, 1876.

"a shield or shield-shaped figure or device."

3,611.—Medical Compound.—L. F. C. SCHMIDT, Pittsburg, Pa. Application filed August 9, 1875.

"letter 'S,' the representation of a bottle with two rings around the neck, and the words 'Man's Friend,' 'Family Gem.'"

3,612.—Ague Cure.—J. C. AYER & CO., Lowell, Mass. Application filed August 24, 1874.

"word 'AYER.'"

3,613.—Compound Concentrated Extract of Sarsaparilla.—J. C. AYER & CO., Lowell, Mass. Application filed August 24, 1874.

"word 'AYER.'"

3,614.—Preparation for the Hair.—J. C. AYER & CO., Lowell, Mass. Application filed August 24, 1874.

"word 'AYER.'"

3,615.—Pills.—J. C. AYER & CO., Lowell, Mass. Application filed August 24, 1874.

"word 'AYER.'"

3,616.—Allopathic Medical Preparations.—DUNDAS DICK & CO., New York, N. Y. Application filed November 30, 1875.

"letters 'D D.'"

3,617.—Cement.—THOMAS H. HATHAWAY, New Bedford, Mass. Application filed April 4, 1876.

"word 'Herculean.'"

3,618.—Beef, Pork, and Lard.—ROHE & BROTHER, New York, N. Y. Application filed March 31, 1876.

"a bull's head, facing to the right, and a hog's head, facing to the left, with their necks incased in a sort of a frame by appearance, and a butcher's cleaver in the center between the two heads, and two American flags, one above each head of the animals, and a full-shaped pig between the two flags on the top, and a monogram composed of the letters 'R. & B.' at the bottom, all inside of a circle."

3,619.—Shirts.—H. WALLACH'S SONS, New York, N. Y. Application filed April 3, 1876.

"the representation of a dollar coin."

3,620.—Perfumes and Toilet Preparations.—GEORGE J. WENCK, New York, N. Y. Application filed February 12, 1876.

"words 'THE WENCK.'"

3,621.—Gin and Whisky.—VAN DEN BERGH & CO., Antwerp, Belgium. Application filed March 10, 1876.

"representation of a bell."

3,622.—Medical Preparations.—BOERICKE & TAFEL, New York, N. Y. Application filed March 20, 1876.

"an oval picture, representing a lightly-dressed woman (Aurora) standing on tiptoe on a large leaf, sipping the dew from a morning-glory."

3,623.—Cooking-Stoves.—CONKLIN, WILLIS & CO., Baltimore, Md. Application filed March 22, 1876.

"word 'STONEWALL.'"

3,624.—Baking-Powder.—JOSEPH EHRSTEIN & CO., Pittsburg, Pa. Application filed January 21, 1876.

"words 'RISING SUN BAKING POWDER THE BEST IN THE WORLD.'"

3,625.—Yeast-Cakes.—FOX RIVER YEAST COMPANY, Fort Howard, Wis. Application filed February 17, 1876.

"words 'THE WHITE LILY DRY HOP YEAST.'"

3,626.—Water-Proof Blacking.—GLOZINE COMPANY, St. Albans, Vt. Application filed April 13, 1876.

"word 'GLOZINE.'"

3,627.—Wigans.—E. W. HOLBROOK & CO., New York, N. Y. Application filed March 31, 1876.

"words 'Thistle Mills' and the picture of a thistle."

3,628.—Bronze Stationery Ware.—NICHOLAS MULLER'S SONS, New York, N. Y. Application filed February 5, 1876.

"a shield bearing the monogram 'N. M. S.'"

3,629.—Mineral-Spring Water.—HIRAM RICKER & SONS, South Poland, Maine. Application filed April 5, 1876.

"words 'Poland Mineral Spring Water,' in connection with the monogram composed of the letters 'P. M. S.'"

3,630.—Yeast-Cakes.—JOHN J. SIDWAY & CO., Lansing, Mich. Application filed February 19, 1876.

"the words 'Capital Yeast Cakes.'"

3,631.—Wigans and Cambrics.—SAMUEL SLATER & SONS, New York, N. Y. Application filed March 13, 1876.

"the figure of a cross, and the word 'Cross.'"

3,632.—Corsets.—WARNER BROTHERS, New York and McGrawville, N. Y. Application filed April 18, 1876.

"word 'Health.'"

3,633.—Blacking.—JAMES D. WATTLES, Brooklyn, N. Y. Application filed March 3, 1876.

"words 'LIGHTNING POLISH BLACKING.'"

3,634.—Paints and Linseed-Oil.—WHITTIER, FULLER & CO., San Francisco, Cal. Application filed January 31, 1876.

"two triangles inverted upon each other, so as to form a star-shaped figure, as represented. Inside of the hexagonal figure, formed by the two triangles, we place the monogram 'W. F. & Co.'"

3,635.—Fertilizers.—P. ZELL & SONS, Baltimore, Md. Application filed March 31, 1876.

"words 'Zell's Ammoniated Bone Superphosphate,' the representation of the bale, hogshead, and bags, which is placed between the words 'Zell's' and 'Ammoniated,' and with the representations of the ear of corn and the sheaf of grain, placed under the word 'Ammoniated.'"

3,636.—Fertilizers.—P. ZELL & SONS, Baltimore, Md. Application filed March 31, 1876.

"word 'CALVERT.'"

3,637.—Fertilizers.—P. ZELL & SONS, Baltimore, Md. Application filed March 31, 1876.

"words 'Zell's Tobacco Fertiliser,' with an accompanying pictorial device representing a bale of cotton on end, a hogshead of tobacco on its side, and a number of bags lying around the said bale and hogshead."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date April 25, 1876.]

674.—Title: "The Bees."—C. P. DRAKE, Lewiston, Me. Application filed April 15, 1876.

675.—Title: "Queen's Own Co., Sheffield."—NATHAN JOSEPH, San Francisco, Cal. Application filed April 15, 1876.

676.—Title: "British Workman's Co., Sheffield."—NATHAN JOSEPH, San Francisco, Cal. Application filed April 15, 1876.

677.—Title: "Weber's Genuine Hamburg Tea."—ERNST WEBER, Brooklyn, N. Y. Application filed April 15, 1876.

678.—Title: "Superior Silk Back Buttons."—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.

679.—Title: "Extra Heavy Railroad Mucilage."—R. B. DOVELLS' SON, New York, N. Y. Application filed April 19, 1876.

680.—Title: "Fisk, Clark, & Flagg's Gloves."—FISK, CLARK, & FLAGG, New York, N. Y. Application filed April 19, 1876.

681.—Title: "Dr. Johnston's Indian Compound Herbaline."—GEORGE E. FITTON, Boston, Mass. Application filed April 20, 1876.

682.—Title: "Excelsior Professional Dead-Ball."—J. G. LAUER, Pittsburg, Pa. Application filed April 20, 1876.

683.—Title: "Moriarty's Own Specific."—E. J. MORIARTY, Clarence, Iowa. Application filed April 15, 1876.

684.—Title: "United States Laundry and Cleaning Powder."—CHARLES H. PHILLIPS, New York, N. Y. Application filed April 21, 1876.

685.—Title: "Rohe & Brother, Pork and Beef Packers and Lard Refiners."—ROHE & BROTHER, New York, N. Y. Application filed April 20, 1876.

686.—Title: "J. S. Sanborn & Co.'s Defiance Mustard." J. S. SANBORN & CO., Boston, Mass. Application filed April 20, 1876.

687.—Title: "G. F. Whitney's Centennial Soap."—G. F. WHITNEY, Boston, Mass. Application filed April 15, 1876.

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Favier, V., Thrashing machine	176,463
Felix, F. X., assignee	176,505
Fellows, T. S., Outlining camera	176,464
Ferris, I. S., Fare box	176,430
Fleisch, J. H., Neck tie	176,611
Foskett, W. E., Culinary steamer	176,612
Foster, A. G. W., Plow	176,465
Foster, A. G. W., Cultivator and subsoiler	176,466
France, G. S., Bale tie	176,613
France, G. S., Bale tie	176,614
Fremont Manufacturing Company, assignee	176,712
Frets and Gollner	176,526
Fry, G. W., Holder for tumblers	176,525
Gable, G. B., Harrow	176,431
Gaines, A. P., Fence	176,615
Gardner, J. M., Rotary engine	176,616
Garlick, W. H., Pavement	176,617
Garrigues, H. H., assignee	176,473
Gately, M. R., assignee	176,672
Gendebien, F., Steam motor for tramways, &c	176,618
Gerry, D. B., Ice plow	176,619
Godley and Doubler	176,607
Godley, G. F., Spring power	176,620
Gollner, E. G., and E. Fretz, Automatic fan	176,526
Goodyear, R. B., Shedding mechanism for power looms	176,467
Graber, J., Carbonic acid gas generator	176,621
Grader, G. W., Tree protector	176,468
Grant, G. H., School furniture	176,622
Graves, J. A. S., assignee	176,636
Green, F. D., Belt tightener	176,624
Greene, R., Street sweeper	176,623
Grosvenor and Sangster	176,484, 176,485
Hamilton, C. W., Carpet beater	176,469
Hamlin, W., assignee	176,571
Hannan, Langley, and Ralph	176,049
Hannay, P., Spectacles	176,695
Harper, C. A., Grinding mill	176,587
Harper, W., Metallic packing	176,697
Harrison, T. S., and T. H. Savery, Drying apparatus	176,698
Hartman, E., Mach. for printing fabrics of circular form	176,626
Haskin, H. P., Gate	176,470
Hawes, Butman & Co., assignees	176,590
Hendee, A., Piston packing	176,629
Henkel, W. H., Wagon lock	176,630
Henry, S., Tube well	176,598
Heyl, H. R., Construction of books	176,632
Heyman, I., assignee	176,655
Hickman, F., assignee	176,634
Hickox, F. Z., Grate	176,529
Hill, J., and G. J. Stephenson, Wagon seat lock	176,530
Hoffman, A. E., Machine for edging lumber	176,531
Holman, D. O., Pump	176,633
Holton, C., Lock nut	176,634
Homogeneous Metal Manufacturing Company, assignee	176,501
Hornbake, O., and A. J. Wilkins, Fountain	176,635
Hough, C. W., assignee, (reissue)	7,075
Howard, E. L., Mechanism for operating sewing machines	176,636
Howell, G. W., Plug tobacco machine	176,637
Huffman, O., Grain calculator	176,432
Hughes, F. M., Puzzle block	176,532
Hughes, S. A., Coffin attachment	176,533
Humphrey, H. L., F. H., and I. G., Agricultural boiler	176,534
Irving and Barnes	176,579
Isaacs, J., assignee	176,644
Jacob, F., Car coupling	176,638
Jacobs, W. E., Wheelbarrow	176,433
Jarvis, K. M., Smoke and gas consuming furnace	176,639
Jenkins, L. R., Leather dressing machinery	176,535
Johns, W. B., Paper fastener	176,641
Johnson, L. C., and W. L. West, Ditching machine	176,640
Johnston, W. W., Horse power	176,536
Juch, J., Sectional tablet for teaching music, &c	176,471
Judd, E. M., Curtain fixture	176,537
Judd, E. M. and H. L., assignees	176,532
Judd, N. B., assignee, (reissue)	7,076
Julien, N. A., Window	176,642
Jarvis, K. M., Smoke and gas consuming furnace	176,639
Kaehler, O., Muff	176,644
Kahari, E. M., Ironing table	176,643
Kauffman, White, and Carpenter	176,511
Kepner, S., Automatic stove pipe damper	176,645
Keya, F. W., Boiler feed water heater and regulator	176,538
Kibbee, G. W., Fever cot	176,472
King, J. H., Folding wagon body	176,646
Klein, W., Spring hinge for gates, &c	176,539
Lahaye, J. J., Car coupling	176,647
Lake, E. B., Curtain fixture	176,434
Lancaster, L., End of church pews	176,648
Langley, W. H., E. P. Ralph, and J. Hannan, Car coupling	176,649
Lee, J. Q., Miner's lamp	176,650
Lefferts, J. W., Filter	176,651
Leland, W., Preserving meat	176,652
Lewis, G. C., Preparation of photographs for the reception of colors	176,653
Liller, F., Umbrella	176,473
Liskow, R., Spark arrester	176,435
Lissagaray, H. P., Desiccator for fertilizers	176,474
Lloyd, M., assignee	176,674
Lunger, M. V., Tilting chair	176,654
Mackey, J., assignee	176,690
Main, W. H., Trace carrier	176,437
Mallett, S. E., Button	176,436
Marshall and Smith	176,448
Marshall, T. S., Lamp stove	176,656
Martin, W., Apparatus for cleaning ships' bottoms	176,655
Mason, H. H., Combined mop and brush holder	176,657
Mayfield and Chappell	176,510
McAlpine, D., assignee	176,549
McArthur, A., Invalid bedstead	176,540
McBroom, A. R., Machine for making pipe tiling for pump stocks	176,658
McCarty, J. F., Fire kindler	176,661
McCauley, G. W., and W. L. Crowson, Cotton cleaner, (reissue)	7,074
McCloskey, J., Sewing machine	176,660
McComas, W. K., assignee	176,699
McConnell, W., Toilet stand	176,659
McCulloch, J. L., Cultivator	176,438
McKaig, M., and W. J. Muncaster, Raising and lowering screw propellers	176,541
McKay, J. W., Smoking pipe	176 662
McKee Brothers, assignees	176,449
McKinnon, Turner, and Culbertson	176,712
McKinzie, B. G., assignee	176,432

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McNeely & Co., assignees	176,535
Mearns, J. H., Grate	176,439
Meriden Britannia Company, assignee	176,676
Messer, L., Clasp for pocket books	176,663
Miller, A., Cork extractor	176,664
Mills, J., assignee	176,529
Mitchell, W., Manufacture of artificial stone	176,666
Moore, G., Die for the manufacture of shovel blocks	176,667
Moore, G. R., Car starter	176,542
Morey and Cahill	176,595
Morley, A. M., assignee	176,714
Morley, J. H., Spring power and treadle for sewing machines	176,543
Morse, C. B., Ring spinning frame, (reissue)	7,085
Müller, G. F., Furniture tip	176,668
Müller, J. G., Extinguisher for lamp chimneys	176,669
Muncaster and McKaig	176,541
Munger, C. A., and A. P. Yates, Oil tank	176,665
Musser, S., Fire place heater	176,670
Myers, G. A., Windmill	176,671
Myers, J. H., assignee, (reissue)	7,082
Nadermann, H., Fruit and jelly press	176,475
Neff, P., Scraper for lamp black apparatus	176,476
Neff, P., Scraper for lamp black apparatus	176,477
Neff, P., Scraper for lamp black apparatus	176,478
Nerney, P., Driving rein	176,440
Nimmo, A., Hot water boiler	176,441
Noonan, T., Barber's chair	176,672
Novelty Paper Box Company, assignee	176,633
Odaniel, J. W., Wagon brake	176,544
Ordway, F. J., Wash basin or sink plug	176,674
Orr, T. C., Rotary engine	176,545
Osgood, G. W., Block lock for lasts	176,673
Owen, T. L., Lamp collar	176,546
Palmer, E. A., Machine for bending hoops	176,442
Palmieri, H., Sun shade	176,675
Paris, D. E., Reservoir cooking stove, (reissue)	7,080
Parker, E. A., Tea and coffee pot	176,676
Parmelee, F., assignee	176,493
Patterson, C. R., Planing machine	176,479
Patterson, J. F., Jr., Stock shed and wind screen	176,677
Perdue and Taylor	176,565
Peters, G. M., Fender	176,443
Peters, J. R., Rotary engine	176,547
Phelps, W. M., Metallic socket for fence posts	176,549
Phillips, T., Paper bag	176,548
Piper, A. S., assignee	176,619
Pitts, W. J., assignee	176,576
Plumb, H. G., Refrigerator	176,678
Plummer, F., Grain cap	176,480
Porter, W. T., assignee	176,627
Powell, J. G., Toy watch	176,679
Pratt, C., assignee	176,646
Prescott, J. R., Grain binder	176,550
Pumphrey, R. B., Swimming apparatus	176,444
Purdy, H., Heat extracting apparatus	176,445
Purdy, W., Hame fastener	176,620
Quimby, J. F., Magazine heating stove	176,681
Raiford, P. H., Brush	176,622
Ralph, Hannan, and Langley	176,649
Ramsey, H. B., Churn	176,551
Renshaw, J., Ratchet drill	176,683
Reppard, A., Roller gage for saw mills	176,552
Respess, N. L., Locomotive	176,684
Rice, T. M., Sewing machine thread controller	176,686
Richardson, F., Manufacture of paper chains and rings	176,481
Richardson, J., Combined alarm lock and door bell	176,685
Riggs, D. and R., Ship's log	176,687
Romadka, A., Trunk, (reissue)	7,081
Romadka Brothers, assignees, (reissue)	7,081
Rose, W. B., Jr., Temporary binder	176,690
Rosenthal, R. M., Pile remedy	176,688
Ross, A. M., Scrap metal for casting	176,689
Rousseau, D. and W. C. Smith, Self locking railway switch	176,691
Rowan, W. R., Bogie truck for locomotives	176,482
Rowan, W. R., Surface condenser for cars	176,483
Rowland, J. L., Manufacture of artificial stone, (reissue)	7,084
Russell, A. J., Tripod head for camera stands	176,692
Russell, E., Car coupling, (reissue)	7,092
Saffey, J., Jr., Grain and seed sieve	176,693
Samuels, S., assignee	176,691
Sangster, J., and W. S. Grosvenor, Marine engine governor	176,484
Sangster, J., and W. S. Grosvenor, Marine engine governor	176,485
Saunders, D., Sons, assignees	176,694
Saunders, E., Screw cutting die stock	176,694
Saunders, T. P., assignee	176,633
Savery and Harrison	176,628
Saxe, J. L., Vehicle seat lock	176,695
Schafer, S. M., Coupon cutter	176,553
Scharf, S. R., Asphalt sidewalk	176,696
Scharf, S. R., Surface course for concrete pavements	176,697
Schimper and Blank	176,698
Schlingman, A., Wash tub	176,554
Schnabel, W., Chair seat	176,426
Scholfield, J. J., Bag filler and measurer	176,555
Schule, F. A., Printing press	176,487
Schwerdtfeger, C., Heel for boots and shoes	176,488
Scrymgeour, D., Forming heel stiffeners, &c., in the manufacture of boots and shoes	176,556
Selby, J., Corn planter, (reissue)	7,083
Shelly, C. H., Water pressure regulator	176,489
Shepard, M. A., Roof	176,446
Shepard, S. E., Stone lifter	176,557
Shields, G. W., Grease box for car axles	176,699
Shore, J., assignee	176,467
Sible, J. S., Coal cart	176,700
Singleton, J. H., Wood sawing machine	176,447
Sionaker, C., Axle thimble skein	176,490
Smith, D., and J. C. Marshall, Revolving fire arm	176,448
Smith, H. D., & Co., assignees	176,718
Smith, M., assignee	176,529
Smith and Rousseau	176,691
Smithson and Wilson, (reissue)	7,076
Sparks, J. C., Windmill	176,558
Spencer, W. F., School furniture	176,701
Springer, L. H., Frame for exhibiting dress goods	176,559
Stedman, G. H., assignee	176,643
Steinbach, A., and H. Zwanziger, Buckle	176,702
Stephenson and Hill	176,530
Stevenson, W. S., Grate	176,560
Stewart, E., Water spout cut off	176,491
Stillwell, E., Clothes drier	176,703
St. Marie, P. C., Capstan and windlass	176,561
St. Marie, P. C., Hawse pipe	176,562
Stoehr, L., Tool for flaring and crimping lamp chimney tops	176,449
Stonebreaker, G. J., assignee	176,498
Stoesberg, F. W., Cultivator	176,704
Stutzman, D., Fruit drier	176,492
Sullivan, J. E., Baggage check	176,493
Sweetland, J. B., Fire kindler	176,705
Taber, F. A., Lamp attachment	176,563
Tangeman, G. P., Compound for treating carpet lining paper	176,706
Tasker, S. P. M., Coupling for tubes	176,707
Taylor, H. P., F. A. and J. M. Perdue, Guide for sawing machines	176,565
Taylor, W., Harrow	176,564
Templin, T., Seed dropper	176,708
Thies, J. B., Hay press	176,494
Thomas, E. W., Envelope	176,451
Thompson, C. A., Umbrella runner	176,450
Thompson, S. R., Machine for rossing and grinding bark	176,709
Tibby, J., Jr., J., W., and M., Cleaning blow pipes in glass manufacture	176,495
Tiffs, A. H., assignee, (reissue)	7,077
Titus, A. N., assignee	176,496
Todd, A. W., Dental drill	176,710
Townsend, C. H., Kitchen table	176,711
Tupper, W. H., Manufacturing gas	176,496
Turner, B. G., E. A. Culbertson, and M. A. McKinnon, Harvester	176,712
Turner, E., assignee	176,423
Turner, S., Sr., Washing machine	176,566
Tyler, A. H., Roofing compound	176,497
Van Horn, J. M., Hat box and valise	176,714
Van Lew, J. N., assignee	176,582
Van Urder, W., Power churn	176,713
Wagner, J., Car coupling	176,715
Walton, G. E., Vaccine case	176,716
Ward, S. B., Plow	176,717
Ward, W. S., Die for forging carriage stay ends	176,718
Washburn, J. S., Wash board	176,567
Washburn and Moen Manufacturing Company, assignee	176,613
	176,614
Waterbury, E. D., Game counter	176,452
Waters, C. H., assignee	176,431
Wells, J. J., Animal trap	176,453
West and Johnson	176,640
Westcott, J. M., Seeding machine	176,719
Wheeler, Madden, and Clemson Manufacturing Company, assignee, (reissue)	7,078
Whitcomb, A. J., Folding kite	176,721
White, Carpenter, and Kaufman	176,511
Whitlow, J. P., Preserving eggs	176,720
Wiard, G. and T., Plow, (reissue)	7,075
Wilcox, W. W., Engraver's vise	176,722
Wilkins and Hornbake	176,535
Wilkinson, J. B., assignee, (reissue)	7,090
Wilkinson, R. B., Fender for life boats	176,723
Williams, D. M., Watchmaker's lathe	176,568
Williams, H., Filter and process for cleaning the same	176,571
Williams, J., Proof staff	176,498
Wilson, A., Corset	176,499
Wilson, G. R., and G. Smithson, Brick machine, (reissue)	7,076
Wilson, T., assignee	176,655
Winans, T., Pneumatic action for organs	176,724
Wineman, P., Barbed fence wire	176,725
Wolfenden, J. and J., assignees	176,467
Wood, J. B., Pavement	176,726
Woodruff, H. S., assignee	176,437
Woods, T., Stone dressing machine	176,569
Woodward, J. M., Valve for sewers	176,500
Woolfolk, L. B., Refrigerator car	176,727
Worrall, L. P., Check brace for vehicle springs	176,570
Worthington, J. M., Laboratory table	176,728
Wrisley, S. H., Side hill plow	176,729
Yale Lock Manufacturing Company, assignee, (reissue)	7,073
Yates and Munger	176,665
Young, F. E., Vaginal syringe	176,454
Young, J. W., Potato digger	176,572
Young, S. W., Eyelet stock	176,501
Zarin, A. P., Making bread	176,502
Zwanziger and Steinbach	176,702

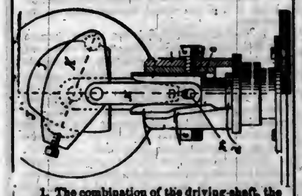
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED APRIL 25, 1876.

176,417. FEED-PUMPS FOR STEAM-BOILERS. James Armstrong, Toledo, Ohio. [Filed Aug. 24, 1875.]

Brief.—Length of stroke is adjusted by a crank-plate, which may be adjusted within the limits of the segment of a circle, upon a block attached to the shaft, the center upon which the plate moves being aside from the axis of the shaft; the plate also being held in position by shoe and set-screw, binding upon the edge of the block. Wear of the pivot-joint of the connecting-rod and plunger is taken up by an adjusting-screw in the upper part of the eye of the plunger.

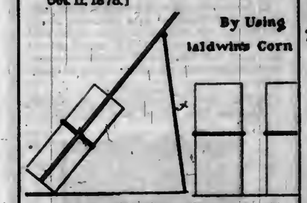


1. The combination of the driving-shaft, the eccentric crank-block, the adjustable clamp-plate secured to the crank-block, the crank-wrist on the clamp-plate, the connecting-rod, and the plunger, these members being constructed and operating substantially as set forth.

2. The combination of the crank-block, its curved inclined portion J^1, the clamp-plate, its inclined pin fitting in the flaring bearing in the crank-block, the inclined flange on the clamp-plate, the set-screw, and the crank-wrist on the clamp-plate, substantially as set forth.

3. The combination of the plunger, its forked end, the connecting-rod, the pivot-pin uniting the plunger and connecting-rod, and the set-screw passing through the end of the plunger between its forks and bearing on the pivot-pin, as and for the purpose set forth.

176,418. ADVERTISING-CARDS. Ransford F. Baldwin, Fort Edward, N. Y. [Filed Oct. 11, 1875.]



As a new article of manufacture, the within-described card, having the slots or openings in its margin, into which the packages are inserted and held, provided with the prop J, as and for the purposes described.

176,419. FARE-REGISTERS. George Beadle, Syracuse, N. Y. [Filed Apr. 8, 1876.]

1. The ratchet-registering wheels C, D, E, and F, made with the flanges c, c', and c'', with gaps or openings c, c', and c'' therein, and with the spring devices o for preventing their movement backward, when constructed and operated substantially as described.

2. The actuating-mechanism, composed of lever H, having pawls h, m, n, and o located thereon and operated thereby, connections s and r, tail-pieces and springs u, and the cap-piece t and spring t, when constructed and operated substantially as above set forth.

3. The combination of the ratchet-registering wheels C, D, E, and F, flanges c, c', and c'', gaps or openings c, c', and c'', with the lever H, the pawls h, m, n, and o, connections s and r, and tail-pieces and springs u, when combined and operating together substantially as above set forth.

4. The combination of the bell L with the striking mechanism composed of the yoke located over lever H, shoulder g, cam x on the end of lever H, with its bell-hammer p, and springs y and l, when constructed, combined, and operated substantially as above set forth.

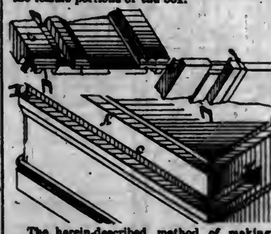
5. The combination of the registering-wheels C, D, E, and F, flanges c, c', and c'', gaps or openings c, c', and c'', and the springs for preventing any movement of the wheels backward, with the bottom B, rims a a' a'', ratchet-teeth d, and hub f, when combined with each other and operated substantially as above described.

176,419.



176,420. MANUFACTURE OF BOXES. Solon Bingham, Conklingville, N. Y. [Filed Feb. 19, 1876.]

Brief.—The box and cover are formed out of the same piece. The corners are united by a series of grooves formed in the crown and base, and a single one in the paneled part of the female portions of the body of the box, and a series of tenons in the male portions of the same. The paneled portions are provided with veneers, which cover the grain ends of the female portions of the box.



The herein-described method of making boxes by grooving or channeling the stuff from which the cover and body are jointly to be made near its upper or one end, upon one side, as shown at B c, and upon its opposite side, as shown at B' a a', the said grooves severing the said parts and adapting them to each other, substantially as and for the purpose described.

176,421. BRICK-KILNS. John W. Brown, Milton, Vt. [Filed Oct. 2, 1875.]



The combination, with a brick-kiln body, A, of covering-tiles B, having holes C, dampers D, and edge-supports E, as and for the purpose specified.

176,422. LUBRICATORS. George B. Bryant, Pottsville, Pa. [Filed Nov. 13, 1875.]

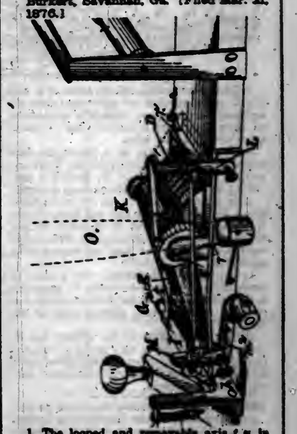


As an improved article of manufacture, an attachable and detachable lubricator, constructed with the cup C, chamber O, outlet i, fibrous substance e, plate w, spring e, screw-stem s, and cap s', all combined substantially as described.

176,422. PROCESSES OF REMOVING GREASE FROM LEATHER. William J. Burgess, East Cambridge, assignor to himself and Edward Turner, Quincy, Mass. [Filed Feb. 21, 1876.]

For the purpose set forth, the liquid composition, substantially as described, composed of kerosoline and of cyanide of potassium, borate of soda, and salts of tartar, dissolved in water, as specified.

176,424. ADDRESSING-MACHINES. John M. Burkett, Savannah, Ga. [Filed Mar. 21, 1876.]



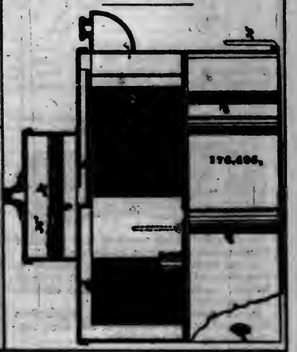
1. The looped and removable axis f u, in combination with the belt-roller G and with the stationary cutter L, as and for the purpose set forth.

2. In combination, the pasting-trough, the roller D, the loose removable frame g, and the spring r, as shown and described.

3. In combination with the roller F and its ratchet, the loose, removable, and hinged frame and the springs r' r'', as shown and described.

4. In combination with a mailing-machine, the lifting-handle O, arm M, spring m^2, adjustable link V, lever L, pawl K, and ratchet-wheel J J, substantially as and for the purpose set forth.

176,425.



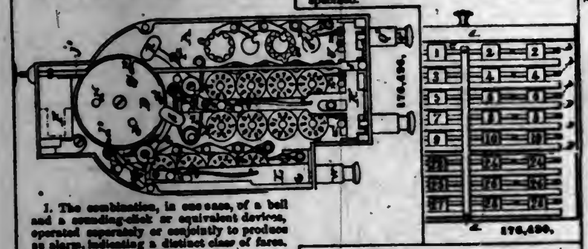
176,426. GAS-CARBURETERS. George R. Caldwell, Philadelphia, Pa. (Filed Nov. 16, 1875.)

Brief.—Frames are provided with grooves in their peripheries, for securing the screens upon them. A chamber on top of the case, border containing sawdust saturated with dilute sulphuric acid for purifying the gas.

1. The grooved screen-frames in combination with the fibrous or porous screens *d*, substantially as described.

2. The combination, with the carbureting-tank, of the receptacle H', containing sawdust saturated with a weak solution of sulphuric acid and water, substantially as and for the purpose specified.

176,428. FARE-REGISTERS. R. Chesterman Philadelphia, Pa. (Filed Aug. 20, 1875.)



176,428.

176,430.

1. The combination, in one case, of a bell and a sounding-clock or equivalent device, operated separately or conjointly to produce an alarm, indicating a distinct class of fares, substantially as set forth.

2. The combination, in a passenger-fare enumerator, of a registering device, F, a hammer, E, and an alarm-bell, D, having a projecting lip, *d*, as and for the purpose set forth.

3. In combination, with the registering and alarm devices, the push and pull knobs Q and I, respectively arranged at opposite ends of the case as an additional means of distinguishing different classes of fare, substantially as set forth.

4. The case A, constructed with a step, in combination with the push-knob W, arranged in said step as a means for distinguishing one class of fare received, substantially as set forth.

5. The combination of the sliding bar K, the pawl *h*, pivoted to said bar, pin *h*', pawl *r*', and hammer E, to prevent the sounding of an alarm without registering the fare, substantially as set forth.

176,427. MACHINERY FOR SPLITTING LEATHER. Richard Crocker, Des Moines, assignor of one-half his right to M. N. Dunlap, Moulton, Iowa. (Filed Jan. 3, 1876.)



In a leather-skiving machine, the inwardly-bent bow-guide J, having the lever-handle *i*, and adapted to be raised from the work by its crank-arms *j*, all constructed and operating substantially as specified.

176,429. BUCKLES. Aaron M. Daniels, Hartford, Conn. (Filed May 24, 1875.)



1. An article of felt prepared with steam and vinegar, substantially as herein described.

2. An elastic compound of felt, prepared as described, with an under layer of artificial leather, or other suitable substance, substantially as herein described.

3. An elastic compound of felt, prepared as described, having a surface of silk fiber, substantially as herein set forth.

176,429. NUT-LOCKS. Daniel Dull, Rossville, Pa. (Filed Jan. 6, 1876.)



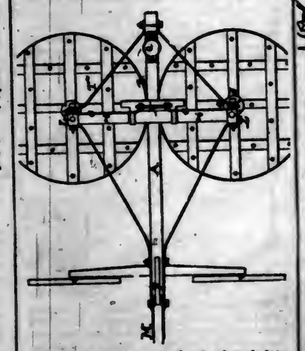
The spring D C C, constructed with the flange C C, to pass behind the nuts, in the manner described, for the purposes set forth.

176,430. FARE-BOXES. Isaac S. Ferris, Hudson, N. Y. (Filed Feb. 11, 1876.)

In a conductor's fare-box, the combination of the elevated central strip *d* with the transverse elevated stripes D, rubber stripe *b*, and tags *a*, substantially as and for the purpose specified.

176,431. HARROWS. G. B. Gable, Dayton, Ohio, assignor of one-half his right to C. H. Wickers, same place. (Filed Oct. 23, 1875.)

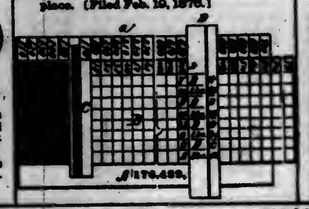
Brief.—The harrows are circular, and can be turned at right angles to the axle-tree, thus converting it into a truck. The tongue is jointed and supplied with a locking device, by which it can be rendered rigid when used as a truck, or flexible when used as a harrow.



1. In a truck-harrow frame, the slotted plate H and adjustable eye-bearings E E, catches F, for controlling the harrow, substantially as set forth.

2. The combination, in a convertible harrow, of the jointed tongue M and the devices D, F, and A, constructed to stiffen the joint and correct it to the harrow-frame.

176,432. GRAIN-CALCULATORS. Orlando Huffman, Friend, Nebr., assignee of one-half his right to Bailey G. McKenzie, same place. (Filed Feb. 10, 1876.)



176,432.

1. A grain-calculator consisting of the weighing-beam and slide of any scales, in combination with the plate B, registered and indexed, substantially as and for the purpose set forth.

2. In a grain-calculator, the combination, with a supporting-frame and a sliding central plate, of slides C and D, arranged relatively to the above-named frame and sliding plate, to register tare and gross weight, substantially as and for the purpose set forth.

176,433. WHEELBARROWS. W. H. Jacobs, Columbus, Ohio. (Filed Apr. 16, 1875.)



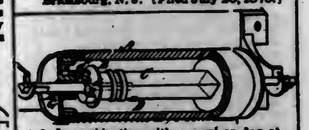
1. The combination of the ferrule or tube D, spokes with beveled ends *a*, and hub-sections C C of the wheel, substantially as described.

2. The felly-sections of the wheel, formed at their meeting ends with surfaces which are concave and convex, respectively, or segments of the inside and outside of a hollow sphere, substantially as described.

3. The narrow self-embedding ridges formed on the inside of the tire, in combination with the wheel, having the surface of the outer periphery of its wooden felly or rim made plain, substantially as described.

4. The hub-sections C C of the wheel, formed with bearing-sleeves, and the ferrule E between the sections for the spokes to bear upon and for holding the spokes in position, in combination with the stationary rod *g* on the bearing-extensions of the barrow-frame, substantially as described.

176,434. CURTAIN-FIXTURES. H. B. Lake, Brickabury, N. J. (Filed July 20, 1875.)



1. In combination with a pawl or dog attached to the roller-shaft, the central and outer stops attached to the roller, and controlling the motion of the same, substantially as described.

2. In combination with a curtain-roller, having the pawl attached to a stationary shaft, and having one or more studs to protect said pawl outwardly, the studs *h h*, located outside said pawl and adapted to receive the same when thrown outward, substantially as specified.

176,435. SPARE-ARRESTERS. B. Lickow, Houston, Tex. (Filed Mar. 28, 1876.)



1. The combination, with the stationary section A, provided with dedenters F, of the hinged section D, having dedenters F attached thereto, substantially as and for the purpose specified.

2. The combination, with the sectional stock, provided with the annular dedenters F F', of the conical dedenters H, substantially as and for the purpose specified.

3. The combination, with the central exhaust-pipe G, of the series of conical dedenters H, arranged substantially as and for the purpose specified.

4. The combination, with the central exhaust-pipe G, carrying dedenters H, and provided with a funnel-shaped cuff, *l*, of the depending exit-pipe J, whereby a space, *i*, is formed between the same for the passage of smoke, substantially as and for the purpose specified.

3. The combination, with the central exhaust-pipe G, of a branch pipe, K, provided with a valve or damper, substantially as and for the purpose described.

4. The combination, with the central exhaust-pipe G and branch pipe K, of the sliding valve or damper L, substantially as and for the purpose set forth.

176,436. BUTTONS. Sydney E. Mallett, Corry, Pa. (Filed Apr. 10, 1876.)



A button or fastening, *a*, having a screw-socket, and a groove, *d*, in combination with the clamping-screw *c*, having the notches *e*, substantially as shown and described.

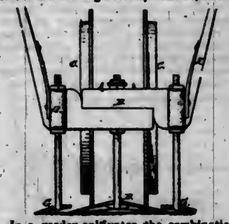
176,437. TRACE-CARRIERS. Wm. H. Main, Boscobel, assignor of one-fourth his right to H. S. Woodruff, Janesville, Wis. (Filed Dec. 27, 1875.)



A trace-carrier, consisting of a frame, having a loop at one end and the rigid hooks C C at the other, the said loops and hooks being integral with, and in the same plane as, the side bars, and having a cross-bar uniting the side bars, and adapted to receive the back-strap, substantially in the manner and for the purpose specified.

176,438. CULTIVATORS. J. L. McCulloch, Davenport, Iowa. (Filed Aug. 16, 1875.)

Brief.—The adjustable frame with its combination of rolling cutters, weeders, and fork.



In a garden-cultivator, the combination of the frame adjustable laterally at both ends, the wheels C C having cutting-flanges, and adjusting with the frame, the horizontal weed-cutters D G, and the hinged fork H, all arranged and operating substantially as described, and for the purposes set forth.

176,439. GRATES. James H. Mearns, Philadelphia, Pa. (Filed Sept. 30, 1875.)

Brief.—The vibration of the horizontal grate swings the vertical one. The movement is effected by a cam-shaft. Fingers on the under side of the brick-supporting plate work between the horizontal grate-bars at their rear end.

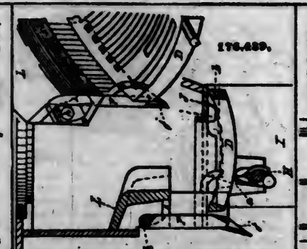
1. The combination of the bottom grate D, having pivots *b b* at its back edge, and bearings *a a* at its front edge, with the upper edges of the sides I I of the ash-pit, and with the crank-shaft H, having lifters *d d*, whereby a sliding backward and forward movement is given to the grate at its back edge, and a raising and lowering movement to its front edge, substantially as set forth.

2. The combination of the front grate F, having hooks *f f* and lugs *j j*, with the bottom grate D, whereby an oscillatory motion is given to the front grate by the movement of the bottom grate, substantially in the manner and for the purpose set forth.

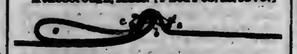
3. The combination of the protecting-cap L with the upper edge of the front grate F, substantially as and for the purpose set forth.

4. The brick-rest J, having fingers K, in combination with the bottom grate D, for the purpose of preventing slate and coal working in between the grate and brick-rest, substantially as set forth.

176,439.

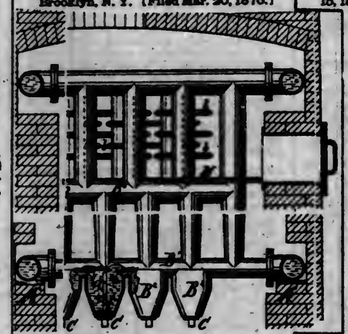


176,440. DRIVING-REINS. Peter Norney, Attleborough, Mass. (Filed Feb. 21, 1876.)



In combination with the open arched slide A, provided with the cover-bar *b*, the rein A, looped or doubled on itself, and passed in opposite directions through the said slide, and around its bar *b*, all as shown.

176,441. HOT-WATER BOILERS. A. Nimmo, Brooklyn, N. Y. (Filed Mar. 20, 1876.)

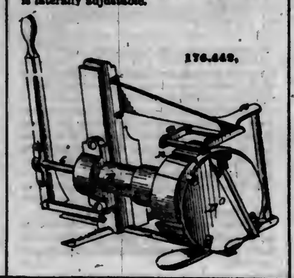


1. The downward extensions B^2 from the horizontal circulating-pipes B^1 and the plugs C, the dividing-plate *c c'* being cast on and forming part of the latter, all adapted to serve as and for the purposes specified.

2. The movable plates M, pipes B^3, and openings A^1, combined and adapted to serve as herein specified.

176,442. MACHINES FOR BENDING HOOPS. Edwin A. Palmer, Clayville, N. Y. (Filed Aug. 14, 1875.)

Brief.—The hoops are bent and held until nailed together by means of a sectional and expansible drum, provided upon its periphery with a hook for holding the end of the hoop, and upon its outer side with a slotted plate, to which is attached a jointed crank for operating the hub. The size of the drum can be varied by means of a wedge-shaped hub, provided with dovetail grooves, to receive corresponding projections on the inner portion of the sections of the hub, upon which the drum is laterally adjustable.



176,442.

The combination of the hook *a* with the jointed crank *c*, drum *m m*, hub B, and plate D, all constructed and arranged to operate as shown and described, and for the purpose specified.

176,443. FENDERS. George M. Peters, Columbus, Ohio. (Filed June 19, 1875.)

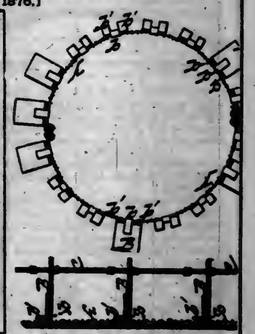


1. A rub-iron, in combination with the adjacent ends of the halves of a body-loop and a vehicle-body, as a splice for said halves.

2. A rub-iron provided with an outer flange and an inner flange, substantially as and for the purpose specified.

3. The adjacent halves of a body-loop, in combination with a rub-iron provided with one or two flanges, and one or more openings through it to receive bolts or screws to secure the rub-iron over the spliced loop and to the vehicle-body.

176,444. SWIMMING APPARATUS. Robert B. Pumphrey, Baltimore, Md. (Filed Jan. 10, 1876.)



1. In combination with the wire-cloth or net-work A, the propellers B B B, hinged thereto by the eyes *b b b*, or other suitable medium, and provided with the angular stops *b' b' b'*, substantially as and for the purpose set forth.

2. In combination with the propellers B B B *b' b' b'*, hinged to the wire-cloth or net-work A, the cords or other medium *c o c*, connecting the said propellers together in longitudinal rows, substantially as and for the purpose set forth.

176,445. HEAT-EXTRACTING APPARATUS. Hiram Purdy, Burlington, Iowa. (Filed Feb. 11, 1876.)

1. In a heating apparatus, the combination of the drum, provided with conical air-flues, which run from front to back, and are flared from their receiving to their discharging end, and an air-jacket inclosing the receiving and discharging ends of the said flues, substantially as and for the purpose described.

2. The combination of the broad flaring top flue C', having its bottom corrugated, the flaring flues C, enlarged from their receiving to their discharging end, and the drum B, substantially as and for the purpose described.

3. The double-walled fire-box A, having walls *a* and openings *a'* in its outer walls, in combination with the conical flue C, drum B, and jacket, with flaring sides E^2 and inlet and outlet passages, substantially as and for the purpose set forth.

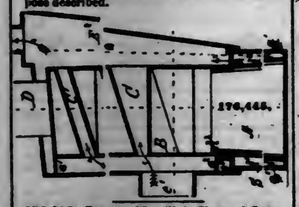
4. In combination with the heating apparatus, the smoke-pipe I, having conical flues *i* and a reservoir, K, substantially as and for the purpose described.

5. The heater, having its drum provided with the conical flues C, which run from front to back, and are flared from their receiving to their discharging ends, and its jacket divided into the compartments E^1 and E^2, substantially as and for the purpose described.

6. The combination of the fire-box A, having compartments A^1 A^2 and the compartment E^2, substantially as and for the purpose set forth.

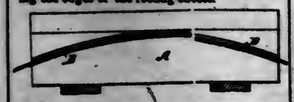
7. The combination of the fire-box A, the drum B, transverse conical flues C, and the jacket E, the elements of the combination being constructed and combined substantially as herein described.

8. The combination of the drum, provided with conical flues C, and the fire-box, having compartment A^2, and the jacket, having compartment E^2, substantially as and for the purpose described.



176,446. ROOFS. Morrill A. Shepard, Lebanon, Ill. [Filed Aug. 21, 1875.]

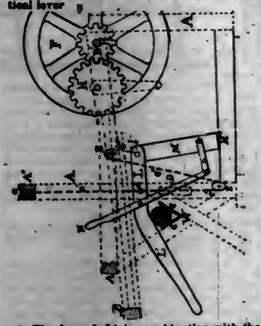
Brief.—The wooden rafters extend above and below the roof, and are provided with longitudinal grooves or channels, for receiving the edges of the roofing-sheets.



The wooden rafters A, with their upper edges extending above the roof D, and having the longitudinal groove or channel B, for receiving the edges of the roofing material D, substantially as and for the purpose set forth.

176,447. WOOD-SAWING MACHINES. John H. Singleton, St. Louis, Mo. [Filed Mar. 3, 1876.]

Brief.—The wood is clamped for sawing, and released after being cut by a pair of levers, in connection with a drop or strut pivoted to the outer end of the horizontal lever, and connected by a bar to the lower end of the vertical lever.



1. The lever L L', in combination with the drop M, substantially as and for the purpose described.

2. The combination of the lever L L', drop M, lever N, and connecting-rod N', substantially as and for the purpose described.

3. The combination of the swinging frame B, carrying the sliding saw-frame C, cords c c' c'' pulleys a a' E, and weights D, and lever L L', substantially as and for the purpose described.

176,448. REVOLVING FIRE-ARMS. Dexter Smith and Jos. C. Marshall, Springfield, Mass. (Filed Mar. 4, 1876.)

Brief.—The object is to extract the fired shells by the act of firing the succeeding cartridges. This is accomplished by pivoting an extractor to the hammer in such a manner that when the hammer falls the point of the extractor is projected under the rim of the shell, guided by grooves in the rear of the cylinder, and, as the fall of the hammer continues, is brought against the breech-frame and forcibly thrown back, carrying the shell with it.



1. In a revolving fire-arm, the ejector h, swinging upon a movable pivot, and arranged to be forced under the rim of the cartridge-case, starting and ejecting the same from the rear end of the cylinder by an accelerated backward movement, substantially as described.

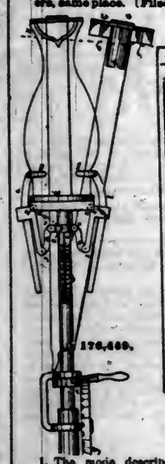
2. In combination with a cartridge-shell ejector, the grooves or recesses f, made in the rear face of the cylinder, for the purpose of guiding the said ejector under the head of the shell, substantially as set forth.

3. The combination of the hammer, the frame, and the ejector, provided with the protuberances e on its front edge, which strikes against said frame, whereby an accelerated backward movement is imparted to said ejector, all constructed substantially as described.

4. The combination, substantially as herein described, of the ejector h, the spring h, and projection x, whereby the ejector is held back by the spring when the hammer is at half-cock, and thrown forward by said projection into position by raising the hammer to full cock.

5. In combination with an extractor swinging upon a movable pivot, and arranged to insert its end into the grooves f made in the rear face of the cylinder, a gate, F, pivoted to the frame, against the rear face of which, when shut, the end of the extractor strikes, and is thereby prevented from entering the said grooves, substantially as and for the purpose set forth.

176,449. WOOD-TOOLS FOR FLARING AND CRIMPING LAMP-CHIMNEY TOPS. Lorenz Stoehr, Pittsburg, Pa., assignor to McKee Brothers, same place. [Filed Mar. 20, 1876.]

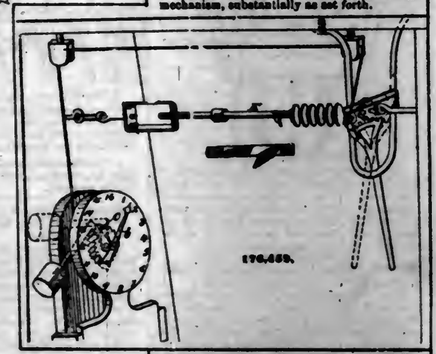


1. The mode described of forming the crimped tops of lamp-chimneys—that is, first rotating the chimney and pressing it against a conical former to distend the mouth, and then against a separate crimping-tool to indent the mouth, as set forth.

2. The shaft s, adapted to a bearing on a base, A, combined with appliances for rotating it, with a disk, i, for the end of a chimney to bear against, and carrying stamping devices for holding the chimney in contact with the disk, substantially as specified.

3. The combination, with the disk i and levers, of griping-arms l, carried by the levers, and adjustable, substantially as set forth.

4. The revolving holder, in combination with the disks B and C, constructed substantially as herein described, and for the purpose set forth.



176,450. UMBRELLA-RUNNERS. Charles A. Thompson, St. Louis, Mo. [Filed Oct. 7, 1875.]

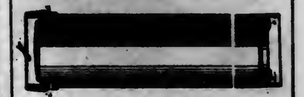


1. In an umbrella-runner, the ring E, provided with radial slots A, and secured within the runner, as shown and described, for the purpose set forth.

2. The spring-catch herein described, composed of the catch f, the spring e, and the plate F, arranged in relation to each other and applied to the staff A, as set forth.

3. The combination and arrangement herein shown and described of the tube C with its enlarged end b, the tube D, having an enlarged portion, e, and contracted upper end f, the slotted ring E, and catch f, as and for the purpose herein set forth.

176,451. ENVELOPES. Eugene W. Thomas, Georgetown, assignor of one-half his right to Geo. C. Thomas, Jr., Washington, D. C. [Filed Oct. 12, 1875.]



As a new article of manufacture, the cylindrical envelope, having the holes a', and provided with the cord a and disk c, arranged and operating as and for the purpose described.

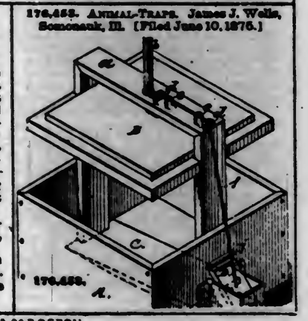
176,452. GAME-COUNTERS. Emery D. Waterbury, Mason City, Iowa, assignor to L. J. Waterbury and Jas. Allingham. [Filed Mar. 1, 1876.]

1. The wire E, for holding the counting-buttons, provided with the latches or stops M M, operating substantially as set forth.

2. The combination, with the wire provided with the latches or stops, of a pinion, segmental gear, and lever, substantially as set forth.

3. The combination, with the wire, pinion, and segmental-gear lever, of a registering mechanism, substantially as set forth.

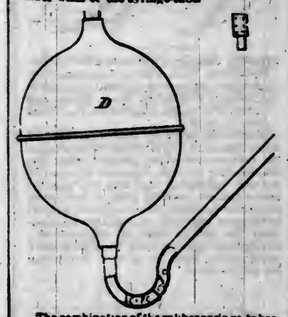
176,453. ANIMAL-TRAPS. James J. Wells, Somonauk, Ill. [Filed June 10, 1876.]



In an animal-trap, the trigger-guard E, in combination with the box A, trigger D, catch j, pedal C, weight B, guide-rod b, and cord f, constructed to operate substantially as and for the purpose set forth.

176,454. VAGINAL SYRINGES. F. B. Young, New Berlin, Ohio. [Filed Jan. 26, 1876.]

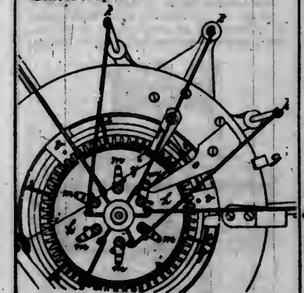
Brief.—The valves are constructed of soft rubber, and are permanent attachments to the inner walls of the syringe-tube.



The combination of the rubber syringe-tube, the ball D, and the flap-valves c c', attached to the walls of the tubes without other seats, substantially as set forth.

176,455. EMBROIDERY-KNITTING MACHINES. Charles James Appleton, Elizabeth, N. J. [Filed Mar. 1, 1876.]

Brief.—The cylinder-needles receive yarn from their yarn guide in the usual way, but each embroidery-needle receives yarn from its own yarn-guide, located on the central plate. These embroidery needles slide out a little in advance of their respective yarn-guides, and, when out, the cylinder-needles draw their yarn, and knit through their loops, leaving the connecting thread behind the latches of the embroidery-needles. The instant the thread is secured behind the latch, the yarn-guide-driving cam drives the embroidery-yarn guides successively across the embroidery-needles, and holds them till they slide back with yarn in their hooks. The cylinder-thread, placed behind the latch of the embroidery-needles, is thrown off its head upon the embroidery-yarn, between the head of the embroidery-needle and its yarn guide, while, at the same time, the driving-cam passes and releases the embroidery-yarn guide, which returns to its original position by force of a spring, which action is repeated indefinitely until the embroidered fabric is completed.



1. In a knitting-machine, the combination of two independent sets of needles and cams, arranged at nearly right angles to each other, as described, whereby plain work is produced by the joint operation of the two sets of needles, substantially as specified.

2. The combination of embroidery-needles e e with cylinder-needles r r and embroidery-yarn guides m m and operating mechanism, whereby the loop is laid behind the latch, to be thrown over upon the embroidery-yarn and interlocked between the loops of embroidery, the parts operating together substantially as described.

3. The combination of cam-ring c, needle-cylinder b, cam-plate c, plate d, yarn-guide-driving cam e, and embroidery-yarn guide m with needles r r and e e, operating together substantially as described.

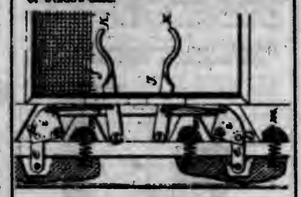
4. The combination of yarn-guide plate h, holders f f, and needles r r, operating together substantially as described.

5. The combination of needle-cylinder b, needle-plate d, and needle-plate holders y y, operating together substantially as described.

6. The method of forming embroidery on knitted fabrics herein described, which consists in interlocking the embroidery thread or yarn with and around the thread or yarn of the fabric, whereby the thread or yarn of the fabric is entirely concealed, and the embroidery thread or yarn brought to the face of the fabric in the form of a wale, as and for the purposes described.

176,456. SASH AND SCREEN HOLDERS. Jas. Bischke, Denver, Mass. [Filed Jan. 7, 1876.]

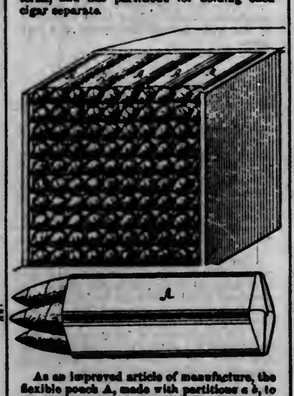
Brief.—A long thin tongue or strip of wood being automatically pressed into a corresponding groove, and manipulated by suitable levers having rods, plates, and link-connections, mainly concealed within the face of the screen or window-sash.



In a window screen or sash, substantially such as described, the levers K K, rods J J, plates i i, links o o, long thin tongue D, and springs m m, constructed and arranged to operate substantially as and for the purpose set forth and specified.

176,457. CIGAR-POUCHES. Charles Bondy, New York, N. Y. [Filed Mar. 27, 1876.]

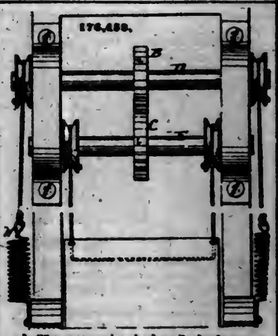
Brief.—The pouch is made of flexible material, and has partitions for holding each cigar separate.



As an improved article of manufacture, the flexible pouch A, made with partitions a b, to constitute compartments d d for cigars, said pouch being closed at one end and open at the other, and made shorter than the cigars which it is intended to contain, substantially as herein shown and described.

176,458. PREPARING TOBACCO-STEMS. N. E. Borgfeldt, New York, N. Y. [Filed Feb. 23, 1876.]

Brief.—The leaves are passed between rollers having ratchet-shaped cutters, which divide the midrib into short sections, without removing the same, thereby making the leaves pliable.



1. The process herein described of preparing tobacco-leaves by cutting the stems in the leaves into short sections, and leaving the cut sections in the leaves, substantially as specified.

2. In a machine for cutting tobacco, the combination of the rotary ratchet-cutter B, having the teeth a, with the ratchet-cutter C, having the teeth b, for operation substantially as specified.

3. The combination of the shaft E and cutter C, having the teeth b, with the shaft D, cutter B, having the teeth a, and with the spring or weight H, substantially as and for the purpose herein shown and described.

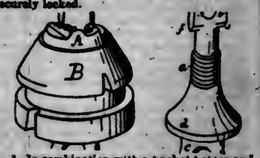
176,459. PADLOCKS. Israel D. Boyer, Dayton, Ohio. [Filed Mar. 2, 1876.]



The herein-described padlock, consisting of the shell A, bow B, bolt C, arranged to slide through an aperture in the side of the shell and to be shot by the thumb, steel-strip D, spring F, tumblers E, and springs e, when the respective parts are constructed and combined in the manner and for the purposes specified.

176,460. CHAIN-PUMP BUCKETS. James A. Cauldwell, Union, N. Y. [Filed Mar. 7, 1876.]

Brief.—The bucket-holder has a threaded periphery, a link at one end with a projecting shoulder, and a link and brace at the other. A nut, with teeth on its upper surface, engages the shoulder on the link, whereby the bucket is held in proper position and the nut securely locked.

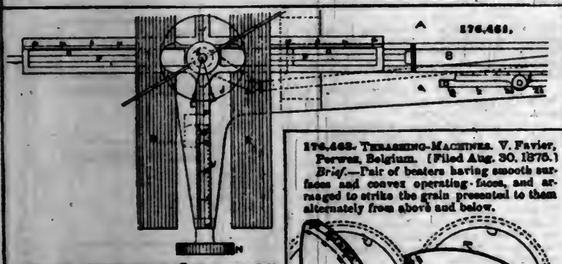


1. In combination with a bucket-holder and bucket of any desired form, a nut, provided with teeth on its upper surface, substantially as described, and for the purposes specified.

2. In combination with the nut A and rubber bucket B, a bucket-holder, having the link b, with its abutments f f, screw c, link e, and convex plate d, all cast in one piece, and the whole arranged together, substantially as herein described, and for the purposes specified.

3. A rubber bucket, consisting of the conical surface h, depression k, and flange i, as described, and for the purposes specified.

4. In combination with a rubber bucket of any suitable shape, a holder, having its link b, screw c, link e, and convex plate d, all cast in one piece, substantially as described, and for the purpose specified.



176,461.

176,461. APPARATUS FOR SETTING OUT THE SLIDE-VALVES OF STEAM-ENGINES. Wm. Cooper, North Shields, England. [Filed Dec. 30, 1875.]

1. As a instrument for ascertaining the working of or setting out slide-valves for steam-engines, consisting essentially of a mechanism having a motion similar to the piston and its connections of a steam-engine, imparted thereto by suitable gearing, a fixed and an adjustable scale to determine the length of the connecting-rod and its ratio of travel in relation to that of the slide-valve, adjustable graduated steel plates and a suitable scale to set the instrument to the required or assumed lap and lead of the valve, and an indicator and suitable scale to determine the stroke or travel of the valve, all mounted on a suitable frame, and operating substantially as described.

2. The connecting-rod and sliding block and the swivel block F, operated so that their movements shall correspond to the movements of a piston and its connections, in combination with the adjustable scale E and fixed scale D of the frame A, for adjusting the relative length of the connecting-rod to the stroke of a piston-rod, and for ascertaining the position of each piston-rod at any point of its stroke, substantially in the manner and for the purposes specified.

3. The combination of the connecting-rod and sliding block with the bevel-wheel J, pinion L, and its shaft M, carrying a milled wheel, N, the adjustable scale E, and the slot-scale D and frame A, when constructed and combined to operate substantially as and for the purposes specified.

4. The combination of the adjustable lap and lead plates B, operating as described, with the graduated scale of the slot O of the frame, for adjusting said plates to the proposed lap of the valve, substantially as described, for the purpose specified.

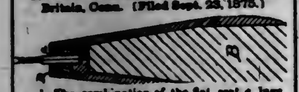
5. The adjustable lap and lead plates B, having equidistant parallel lines formed on the faces, and the adjustable pointer or indicator T, operated as described, for adjusting the latter to the desired lead of a valve, in the manner substantially as specified.

6. The adjustable pointer or indicator, operated as described, in combination with the graduated scales of the cross-arms U of the frame, for adjusting the length of the pointer relatively to the travel of the valve, in the manner substantially as specified.

7. The frame A, having slots B D O, the latter two of which are provided with graduated scales, the graduated cross-arms U, the center stud K, and adjustable graduated scale E, in combination with the lap and lead plates B B, the pointer T, and the operating mechanism, constructed and operating together in the manner substantially as described, for the purpose specified.

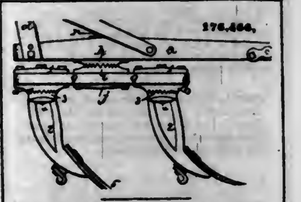
8. The combination of the adjustable lap and lead plates with the adjustable pointer, the graduated scales on the cross-arms U, the slots O, and the operating mechanism, substantially as described, for the purpose specified.

176,462. AWL-HAFTS. J. P. Curtiss, New Britain, Conn. [Filed Sept. 23, 1875.]



1. The combination of the flat seat *a*, lugs *b b*, jaws *c c*, and nut D, all substantially as described, and for the purpose set forth.

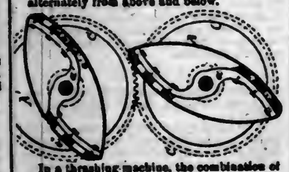
2. The combination of the nut D, jaws *c c*, lugs *b b*, seat *a*, socket A, and pin or handle B, all substantially as described, and for the purpose set forth.



176,464.

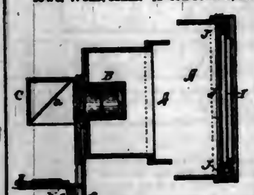
176,463. THRASHING-MACHINES. V. Favier, Perwez, Belgium. [Filed Aug. 30, 1875.]

Brief.—Pair of beaters having smooth surfaces and convex operating-faces, and arranged to strike the grain presented to them alternately from above and below.



In a thrashing machine, the combination of two beaters, A A′, arranged to operate as described, and having smooth convex surfaces for operating upon the grain, substantially as and for the purposes specified.

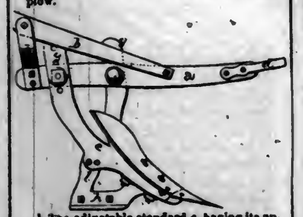
176,464. OUTLINING-CAMERAS. T. S. Fellows, Wells, Minn. [Filed Mar. 2, 1876.]



The combination of the table H, a mirror, a, hood C, and lens B with the camera A, grooved glass I, and shield J, substantially as shown and described.

176,465. PLOWS. Abraham G. W. Foster, Newnan, Ga. [Filed Dec. 2, 1875.]

Brief.—The construction of a standard adapted to receive various kinds of shovels, or the land-side and mold-board of a turn-plow.



1. The adjustable standard *a*, having its upper part divided into the branches *g*, carrel to straddle the beam, one in the rear of the other, and provided with the seat *d*, to receive various kinds of shovels or a land-side and mold-board, as shown and described.

2. The combination of the standard *a*, having the seat *d*, land-side *h*, having seat *i*, and arm *l*, and the mold-board, the parts being arranged and constructed as shown.

176,466. CULTIVATORS AND SUBSOILERS. Abraham G. W. Foster, Newnan, Ga. [Filed Dec. 1, 1875.]

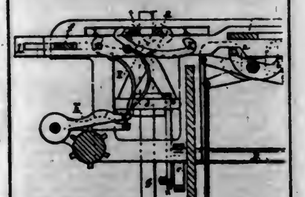
Brief.—The bar carrying the standards is pivoted under the plow-beam, to be swung around at any angle. Standards and bar are adjusted and held by serrated plates.

The cross-bar *g*, swiveled to the plow-beam by the bolt *i*, and the ratchet-plates *h i*, in combination with standards 3, having serrated top notched plate *o*, and bolt *i*, whereby said cross-bar is adjusted in line with the beam for a subsoiler, or at an angle with it for a cultivator, as described.

176,464.

176,467. SHEDDING MECHANISMS FOR POWER-LOOMS. Robert Barnes Goodyear, Philadelphia, assignor of one-half his right to Jonathan Wolfenden, Jesse Shore, and James Wolfenden, Cardington, Pa. [Filed Feb. 18, 1876.]

Brief.—The invention relates to the shedding mechanism, and is an improvement upon the devices covered by Letters Patent No. 163,054, May 11, 1875. In order that the lifting and depressing bars may slip over the hooks without breaking them, a bow spring connection is used to unite the hooks with the lever upon which the pattern-cylinder operates. The sliding bars are provided with double-faced cams on their lower inner ends, which operate upon the shoes of the oscillating heddle-levers.

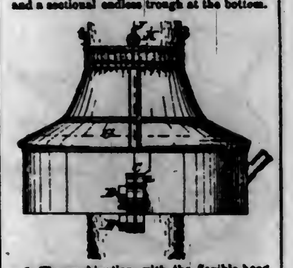


1. The bar or jack I, adapted to be reciprocated in a horizontal position, and provided with two inclined faces, *a a′*, in combination with the pivoted double hook K, (adapted to be controlled by the pattern-cylinder,) and the oscillating lever S, provided with two projecting shoes, *b b′*, for the purpose of raising and lowering the heddles, and holding them in an open position until changed by the action of the pattern chain or roller, as shown and described.

2. The bow-spring connection F, in combination with the lever-finger E and double hook K, as shown and described, and for the above purpose.

176,468. TEMPLE-PROTECTORS. G. W. Grader, Marblehead, Mass. [Filed Feb. 1, 1876.]

Brief.—A pressure-protector with a flexible hood or bonnet, with an elastic band at the top, and a sectional endless trough at the bottom.



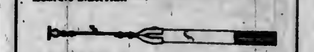
1. The combination, with the flexible hood or bonnet G, of the elastic band H, applied to the upper edge of said bonnet, and connected thereto by stitching through and through the material of the bonnet and the band while the latter is in a stretched condition, so as to cause it, in contracting, to gather the upper part of the bonnet uniformly around the tree, as herein represented and explained.

2. The sectional endless trough, with packed joints at opposite sides, and a flexible strap, D, to form a hinge when the clamp-bolts B are loosened, as explained.

3. The combination of the endless trough A A′, the bonnet G, to shelter said trough and prevent the passage of insects, and the supports E E, sustaining the trough from below, and provided with springs *s*, to retain said trough in concentric position as the tree expands.

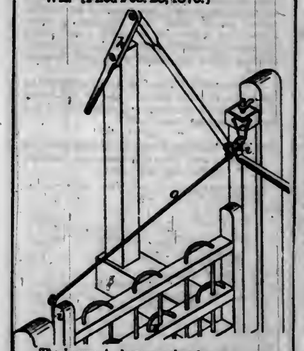
176,469. CARPET-BEATERS. C. W. Hamilton, Chicago, Ill. [Filed Mar. 15, 1875.]

Brief.—A weighted beater covered with flexible material.



The weighted beaters *f*, covered with flexible material, as and for the purpose specified.

176,470. GATES. Henry P. Haskin, Beloit, Wis. [Filed Feb. 23, 1876.]



The levers A, bars *c*, miter-lever *e*, center plate *i*, rod *o*, and latch *l*, constructed and arranged, in relation to the gate B, substantially as and for the purpose specified.

176,471. SECTIONAL TABLETS FOR TEACHING MUSIC, &c. Justin Juch, New York, N. Y. [Filed Feb. 21, 1876.]
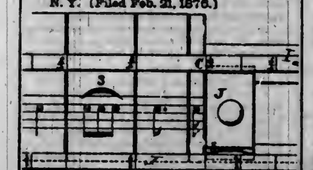


1. The sectional musical tablets herein described, having upon their faces representations of the staff and the musical characters, said tablets varying in width in relation to the measure, so that the length of staff on each tablet will indicate the value of the musical character placed on such staff, substantially as specified.

2. The frame I, open in front and back having the slotted upper rail *a* and provided with measures of length, in combination with the sectional musical tablets arranged to slide therein, substantially as specified.

3. In combination with the slotted frame I, the movable spring-slide J, substantially as herein shown and described.

176,472. FEVER-COTS. George W. Kibbee, Salem, Oregon. [Filed Dec. 18, 1875.]

Brief.—The upper bottom is pervious, to allow water to percolate through it onto the lower bottom, which is impervious, and from which the water runs into a suitable receptacle.



176,472.

A double-bottomed fever-cot, the upper bottom of which is pervious to water, and the lower bottom composed of rubber cloth or other water-proof fabric, substantially as described and shown, and for the purposes set forth.

176,473. UMBRELLAS. Fred. Liller, Baltimore, Md., assignor to himself and Henry H. Garrigues. [Filed Mar. 8, 1876.]

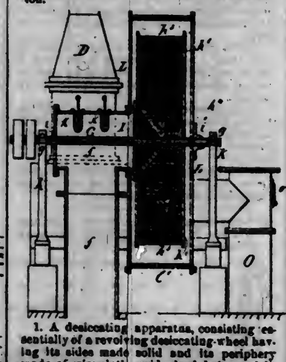


1. In an umbrella or parasol frame, the combination of the ribs A and stretchers C, having broad flat ends, with the broad notches in the crown-piece and runner, all constructed and arranged to operate substantially as and for the purposes set forth.

2. The stretchers C, provided with the broad lower ends, in combination with the runner, having broad notches and prominent shoulders, substantially as set forth.

176,474. DESICCATORS FOR FERTILIZERS. Henri P. Lissagaray, Pantin, near Paris, France. [Filed Feb. 5, 1876.]

Brief.—Material is placed in a revolving drum having wire-gauze sides and solid ends, the drum being covered by a casing, and products of combustion of a furnace being drawn through the drum. Heat-indicators show the proper temperature for conducting the desiccation.



1. A desiccating apparatus, consisting essentially of a revolving desiccating-wheel having its sides made solid and its periphery made of wire-cloth, said wheel being subdivided into a series of compartments, and provided with a suitable orifice for the admission of heat, and suitable charging-doors, and the inclosing casing made of sheet metal and forming a heating-chamber, in combination with a furnace or other source of heat-supply, substantially as described, for the purpose specified.

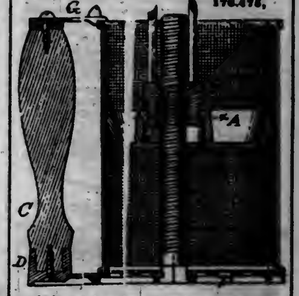
2. The combination, with the heat-supply pipe and branch pipe *f*, wheel H, casing L, eduction pipes O, flue *o*, and chimney D, of a suction device for exhausting the heated and saturated gases from the apparatus, substantially as and for the purposes set forth.

3. The desiccating-wheel H, having its sides solid and its periphery of wire-cloth, and subdivided into a series of compartments provided with suitable doors, in combination with the cone I, made of wire-cloth, substantially as and for the purposes set forth.

4. The combination of the wheel H and cone I, constructed, substantially as described, with the short sleeve A and shaft G, substantially as and for the purposes set forth.

5. The combination of the wheel H, cone I, and short sleeve A, and shaft G, with the casing L and pipes *f o*, provided with suitable heat-indicators, the air-inlet *c*, and a furnace or other source of heat-supply, substantially as described, and for the purpose specified.

176,475. FRUIT AND JELLY PRESSES. Henry Nadermann, Cincinnati, Ohio. [Filed Feb. 18, 1876.]



176,475.

1. In combination with the cylinder of a fruit and jelly press, and the handle C, the latch G, substantially as and for the purpose described.

2. In combination with a screw and follower, A, and handle C, the handle-socket D and projection *d*, to prevent the handles twisting when the follower is screwed down, substantially as set forth.

3. In combination with the perforated bottom F and strainer E, the lugs *f f* and turned-down piece *e*, substantially as specified.

4. A follower or pressure-head in form of an inverted frustum, substantially as and for the purpose described.

5. The cup-shaped follower A, substantially as and for the purpose described.

6. The expansible nut B, in combination with its socket and the projections *b b* on the nut, each and the whole substantially as set forth.

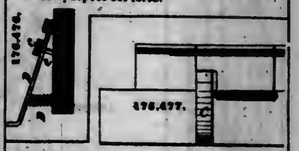
176,476. SCRAPERS FOR LAMP-BLACK APPARATUS. Peter Neff, Gambier, Ohio. [Filed Mar. 15, 1876.]

Brief.—The blades are loosely fastened to their common support, are held to their work by a subjacent spring, have a common stop against their vertical movement, and each has a pin loosely passing through it to stop its lateral movement.

1. In a scraper for the removal of lamp-black from its depositing-surface, the combination, with a rigid cross-bar, of overlapping metallic scrapers, the same loosely hinged to the cross-bar, and their outer ends pressed upward by interposed springs, substantially as and for the purpose described.

2. In a scraper for the removal of lamp-black, the combination, with hinged and overlapping metallic scrapers and springs seated in the cross-bar, and supporting the free ends of said scrapers, of a stop-bar extending transversely over the inner ends of the scrapers to limit their upward movement, substantially as and for the purpose set forth.

3. The combination, with the overlapping scrapers, of the stop-bar, as described, and guide-pins passing through the scrapers, and secured to the cross-bar and stop-bar, whereby the scrapers are restricted in their vertical and lateral movements, substantially as and for the purpose set forth.



176,476. 176,477.

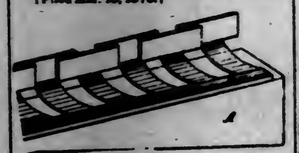
176,477. SCRAPERS FOR LAMP-BLACK APPARATUS. Peter Neff, Gambier, Ohio. [Filed Sept. 3, 1875.]

Brief.—The scraper-blade shown is a metal plate bent in U shape, the hinge-bolt passing through the center of the U at the junction of its sides, and each branch of the U bending outward in a flange, so one flange scrapes when the scraper or depositing-surface moves in either direction. Models show metallic bristles mounted on rubber back, the whole mounted on a yielding spring, and on a car, whose body receives the lamp-black; also, a scraper having a wooden support, holding parallel rubber strips, on which are mounted metal scrapers at intervals.

1. Spring-pressed metallic scrapers loosely hinged to opposite sides of a supporting cross-bar, in rows having alternate space intervals between their respective scrapers, substantially as and for the purpose described.

2. Vertical spring-pressed metallic scrapers, having flanged working extremities, and loosely hinged to opposite sides of the cross bar, in rows affording alternate space intervals, substantially as and for the purpose described.

176,478. SCRAPERS FOR LAMP-BLACK APPARATUS. Peter Neff, Gambier, Ohio. [Filed Mar. 15, 1876.]



1. In apparatus for the removal of lamp-black from a depositing-surface, overlapping metallic scrapers, flexible and elastic in themselves, and carving upward from a rigid bearing, substantially as and for the purpose set forth.

2. In manufacturing apparatus for lamp-black, the combination of curved and overlapping spring-metal scrapers, with a binding-strip running transversely over their lower extremities, and thereby securing them to a rigid cross-bar, substantially as and for the purpose described.

176,479. PLANING-MACHINES. Chester R. Patterson, Pittston, Pa. [Filed Mar. 20, 1876.]

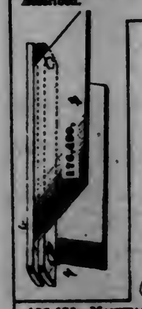
Brief.—Constructs the sectional chip-breaker as described.



The pressure-foot F, in combination with the guide E, anti-friction rolls n n, and caps G, provided with springs H, all constructed and arranged as described, and for the purpose set forth

176,480. CHAIN-CAPS. F. Flemmer, Lawrence County, Ill. [Filed Feb. 12, 1876.]

The combination of the clamp B and the gravel A, to form a hay-cap, substantially as described.



176,480.



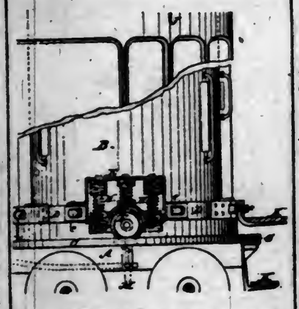
176,481.

176,481. MANUFACTURE OF PAPER CHAINS AND BEADS. Frederick Richardson, Providence, R. I. [Filed Aug. 6, 1875.]

The herein-described method of making paper chain-links and rings by winding strips saturated with glue on an arbor, and then subjecting the material to pressure in a die, substantially as set forth.

176,482. BOGIE-TRUCKS FOR LOCOMOTIVES. William E. Bowen, Randers, Denmark. [Filed Jan. 18, 1876.]

Brief.—A frame with friction-wheels, and attached to the car-body, surrounds the boiler, and revolves on a plate attached to the truck.



1. A hollow band-frame, provided with friction-wheels, revolving on a track or ring plate, in combination with street or other cars, substantially as specified.

2. The combination of a hollow band, provided with friction-rollers *c c*, with a track, G, and wheels F, arranged in a spring-bearing, as shown, and for the purpose set forth.

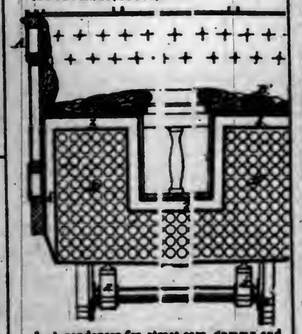
3. The combination of a hollow band, D, having friction-rollers *c c*, with a track, G, wheels F, spring-bearing E, and a frame, A, constructed and arranged substantially as set forth.

4. The combination of a hollow band, D, with track *g*, rollers *f*, spring *h*, draw-bar N, pin M, and spring O, all constructed and arranged substantially as shown and herein described.

5. The combination of a hollow band, D, having rollers *c c*, with a track, G, wheels F, spring-bearing E, frame A, and stops K, constructed and arranged substantially as described.

6. The combination of a hollow band, with spring-bearings, constructed as shown, and for the purpose herein described.

176,483. SURFACE-CONDENSERS FOR CARS. William E. Bowen, Randers, Denmark. [Filed Jan. 18, 1876.]



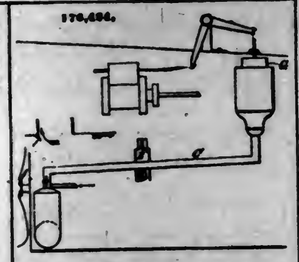
1. A condenser for street-cars, dummy and other engines, arranged under the seats and floor of the cars, substantially as shown and described.

2. The combination of a condenser, A, forming the seats and floor of a car, with the body of the car, and bearings *d d*, constructed substantially as shown, and for the purpose specified.

176,484. MARINE-ENGINE GOVERNORS. Jas. Sangster and Wm. S. Grosvenor, Buffalo, N. Y. [Filed Jan. 4, 1876.]

Brief.—The relief-valve regulates the pressure or vacuum within the tube and inner vessel, and prevents air from being forced through the mercury in the annular vessel.

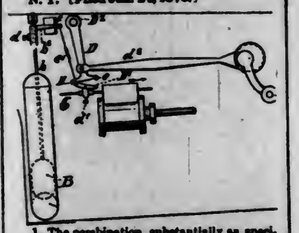
176,484.



1. The combination, substantially as specified, of the water-tube, the gauge-tube pneumatic governor, composed of an annular vessel partly filled with mercury or other liquid, and a movable inverted vessel partly immersed in said liquid, and the steam-controlling valve connected with said inverted vessel.

2. The combination of an outlet and inlet relief-valve, E, with the air-tube C and vessel G of a marine governor, substantially as and for the purpose described.

176,485. MARINE-ENGINE GOVERNORS. Jas. Sangster and Wm. S. Grosvenor, Buffalo, N. Y. [Filed Jan. 24, 1876.]



1. The combination, substantially as specified, of the float, the oscillating arm connected with the stem of the steam-supply valve and with the float, and the mechanism driven by the engine for operating on said arm.

2. A valve-rod provided with an oscillating arm, D^1, in combination with connection *e* and movable arm D, which has projections or toes N O, and is driven from the engine, as and for the purpose specified.

3. In a marine governor controlling the steam-supply valve by means of a float, the combination, substantially as specified, of said float B, rod *h*, sleeve b^1, and set-screw *d*, rendering said float vertically adjustable to adapt it for uniform action, whether the vessel be lightly or heavily loaded.

4. The combination of the movable or reciprocating arm D, oscillating arm or plate D^1, rod *e*, provided with a spring, as described, and a float, substantially as and for the purpose specified.

176,486. CHAIR-SEATS. William Schnabel, Orillia, Canada. [Filed June 26, 1876.]

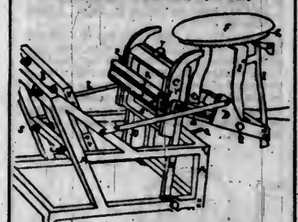
Brief.—A solid wooden seat, grooved diagonally upon its upper surface, to increase the elasticity.



1. The chair-bottom described, consisting of a thin sheet of wood, having shallow grooves cut diagonally or of a diamond shape on its upper face, as and for the purpose described.

2. In combination with the chair-bottom A, constructed as described, the frame B and bridge E adapted to support the spiral spring F, as and for the purpose described.

176,487. PRINTING-PRESSES. F. A. Schmie, Boston, Mass. [Filed May 2, 1874.]



The oscillating frame U U, carrying the chase, rollers J J, and ink-table F, in combination with the links L L, and frames A, B, and D, all constructed, arranged, and operated as described.

176,488. HEELS FOR BOOTS AND SHOES. C. Schwerdtfeger, Palmyra, Mo. [Filed Mar. 22, 1876.]



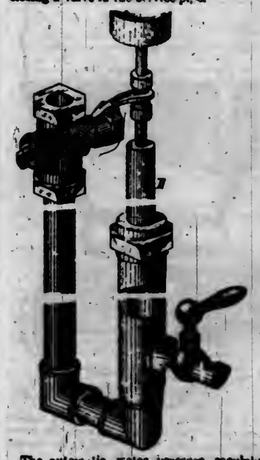
1. A heel for boots or shoes, formed in two parts, connected together by means of a hinge or flexible joint, substantially as described, for the purpose set forth.

2. A heel for boots and shoes, consisting of the parts A B, plates *a b*, shank B, and a suitable recess, in combination with the screw F, substantially as described, for the purpose specified.

3. The combination of the part A B, connected together by a flexible or hinge joint, and the shank E with the transverse pin I, substantially as described, for the purpose specified.

176,489. WATER-PRESSURE REGULATORS. Charles H. Shelly, Providence, R. I. [Filed Apr. 7, 1876.]

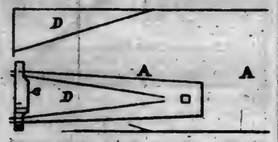
Brief.—A weighted piston rises and falls with the variation of pressure, opening or closing a valve in the service-pipe.



The automatic water-pressure regulator herein described, consisting of the pipe A, valve F, cylinder C, and weighted piston D, the whole constructed and operating together in the manner substantially as described.

176,490. AXLE THIMBLE-SKEINS. Christopher Slonaker, Cold Stream, W. Va. [Filed Mar. 7, 1876.]

Brief.—To utilize the clipping.

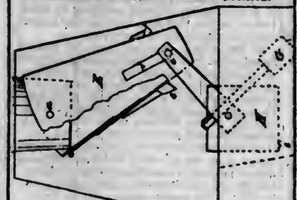


1. A thimble-skein, A, having a tapered piece, D, constructed substantially as and for the purposes described.

2. A burter bead, *b*, provided with a steel bearing, *c*, substantially as and for the purpose described.

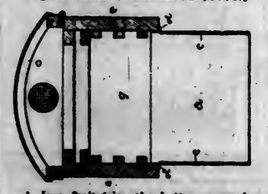
176,491. WATER-SPOUT CUT-OFFS. Edwd. Stewart, Fort Madison, Iowa. [Filed Aug. 31, 1876.]

Brief.—Leak orifices are placed on each side of the funnel-shaped chute, so that after the bucket has been filled, and the chute swung so as to conduct the water into the cistern, the bucket will still receive water as long as the rain continues. After the rain has ceased and the water has leaked out of the bucket, the chute will swing to its normal position.



The arrangement of the leak-orifices *e* and *f* in the opposite sides of the pendent funnel-shaped chute E, in combination with the bucket H and weight G, as and for the purpose specified.

176,492. FRUIT-DRIERS. David Stutsman, Ligonier, Ind. [Filed Mar. 23, 1876.]

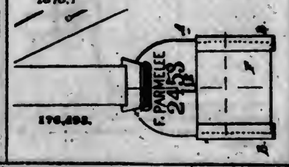


1. In a fruit-drier, the bottom a, made of sheet-metal plates, and pivoted together at the corners, as described, so that it can be folded up for transportation, substantially as shown.

2. In a fruit-drier, the combination of the frame c and bottom a, pivoted together at its corners, and provided with the rods e, the rods having their upper ends *d* bent outward, so as to form a support for the frame, substantially as set forth.

3. The wooden frame c, having a hinged cover, e, in combination with the sheet-metal bottom a, hinged at its corners, as described, the bottom serving as the receptacle for the store or furnace, substantially as shown.

176,493. RAGGAGE-CHECKS. Jeremiah B. Sullivan, Chicago, Ill., assignor to Franklin Parmelee, same place. [Filed Dec. 14, 1876.]

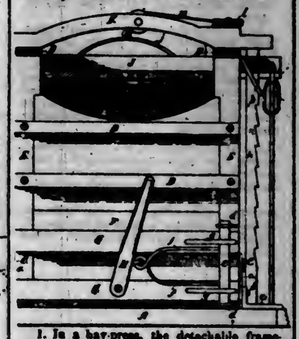


176,493.

A device for use in transferring baggage, consisting of duplicate metallic checks A, bearing the same number, in combination with erasure-tablets F, which are held in place on the checks A by means of the turned-over edges B and shoulder E, substantially as and for the purposes set forth.

176,494. HAY-PRESSES. John B. Thies, Dayton, Ohio. [Filed Mar. 27, 1876.]

Brief.—The serrations on one of the vertical racks at each end of the press afford successive fulcrums for the lever in pressing, and the serrations on the other supply catches for the loops attached to the follower-beam.

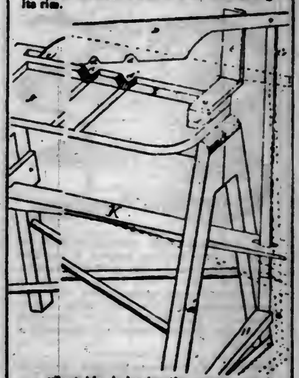


1. In a hay-press, the detachable framework consisting of the end beams E, the sides braced by the beams D, the door F, the top beam K, and wall M, when the respective parts are constructed and arranged as described, and held upon the platform A by the studs *b*, in the manner and for the purpose specified.

2. In a hay-press, the combination of the above-described frame-work, the racks *h* and *i*, with their plates at right angles to each other, the beams K and L, loops *p* and *r*, plates I, beams J, cord *s*, pulleys *t*, *t*, and *u*, wall m, and weight *v*, when the respective parts are constructed and arranged in the manner and for the purpose specified.

176,495. CLEANING BLOW-PIPES IN GLASS-MANUFACTURE. James Tibby, Jr., John Tibby, Wm. Tibby, and Matthew Tibby, Pittsburg, Pa. [Filed Apr. 5, 1876.]

Brief.—A table on trestles has pivoted to one end a knife operating against the edge of the table, its handle being worked by a treadle. Its cutting-edge has notches corresponding to others extending across the table and through its rim.



1. The table A, having the notched bar E, in combination with a movable knife, D, provided with corresponding notches *d d*, as set forth.

2. The table A, bar E, provided with notches *d d*, and the movable knife D, provided with notches *d d*, in combination with the depending bar G, spring K, and treadle H, substantially as and for the purpose described.

176,496. PROCESSES OF MANUFACTURING GAS. William H. Tupper, New York, N. Y., assignor to Amos M. Titus, same place. [Filed Mar. 7, 1876.]

Brief.—Waste cotton, such as has been used in journal-boxes, and is saturated with grease or oil, and has mixed with it particles of metal, is sprinkled with water, and then distilled in a retort.

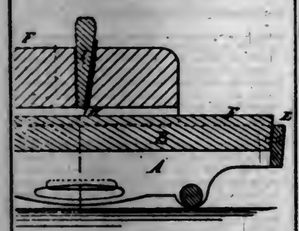
The process of manufacturing illuminating-gas from oiled cotton-waste, in combination with water, by distilling it in a retort, in the manner substantially as described.

176,497. ROOFING COMPOUND. Amasa H. Tyler, Mishawaka, Ind. [Filed Mar. 16, 1876.]

Brief.—Twenty pounds mineral paint, twelve pounds hydraulic cement, of water-lime, four gallons water; mix thoroughly, and add two gallons boiled linseed-oil, two gallons japan, two gallons asphaltum; mix and add six gallons boiled linseed oil, or a sufficient quantity to make it spread easily; apply on heavy sheeting in three or more coats, sifting sand on each coat.

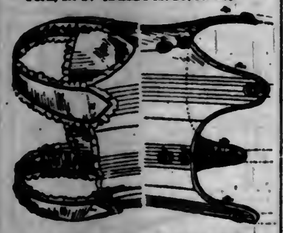
A compound consisting of hydraulic cement, mineral paint, japan, asphaltum, sand, water, and boiled linseed-oil, forming a cement, substantially as and for the purposes specified.

176,498. PROOF-STAVES. John Williams, Dresden, assignor to himself and Geo. J. Stonebrenker, Fayetteville, Tenn. [Filed Oct. 21, 1874.]



The hollow cast-metal frame A, having the projecting wood staff B rigidly secured therein, as described, and having its edges E placed true, whereby it is adapted to receive and support a scraper or plane, F, in the manner substantially as and for the purpose specified.

176,499. CORSETS. Annie Wilson, New York, N. Y. [Filed Feb. 26, 1876.]



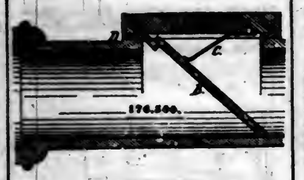
1. A waist or corset extended at the lower edge to form hanging tongues *b*, provided with attachments for the garments, as specified.

2. The tongues *b b*, forming part of the corset, extending below the lower edge, and arranged in lines directly below the points where the shoulder-straps are attached, as specified.

176,500. VALVES FOR SEWERS. Jabez M. Woodward, Brooklyn, N. Y. [Filed Jan. 20, 1876.]

Brief.—The valve is placed within a small section of sewer-pipe, and should be located below all the other water-traps of the building.

The combination of valve B with lips D of the gasket, spring C, and cover F, substantially as and for the purpose specified.



176,500.

176,501. EYELET-STOCK. Solomon W. Young, Providence, R. I., assignor to Homogeneous Metal Manufacturing Company. [Filed Feb. 24, 1876.]

Eyelet-stock consisting of a thin plate of iron or steel coated with copper, substantially as and for the purpose specified.

176,502. PROCESSES OF MAKING BREAD. Alexis P. Zerin, Moscow, Russia. [Filed Jan. 5, 1876.]

1. The process herein described of preparing dough for bread—that is to say, first soaking in water unstripped grain, retaining its nutritious qualities, and then bruising the soaked grain, substantially as described.

2. The within-described mode of making bread—that is to say, first soaking stripped or unstripped grain in water, and bruising the soaked grain, then mixing part of this bruised mass with leaven and the water used for soaking, and kneading this with the remainder of the bruised grain into baking-dough, all substantially as set forth.

3. As a new article of manufacture, bread baked from dough which has been prepared from a mass of bruised unstripped grain, previously soaked in water, as specified.

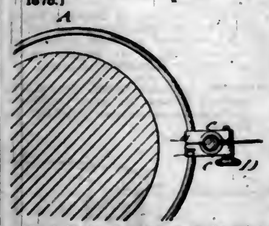
176,503. MAKING ENDLESS WOVEN FABRICS. David Bailey, Dresden, Ohio. [Filed Feb 5, 1876.]

Brief.—Warps are arranged in pairs, and the sheds are opened in the several pairs in succession, so that as many fabrics are woven, united to each other at the edges in such a manner that a large circular fabric is formed in folds.



The mode of weaving endless fabrics herein described, which consists in opening the sheds in the several pairs of warps in succession, so that independent layers *a b c d*, more or less, shall be formed and connected together by folds *h h g*, more or less, substantially as shown and described.

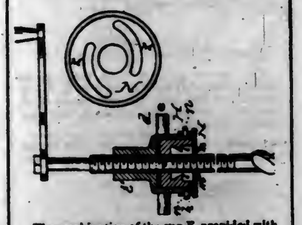
176,504. MEANS OF ATTACHING MAST-HOOPS AND SAILS. Edgar B. Beach, West Meriden, Conn., assignor to himself and H. B. Beach, same place. [Filed Mar. 30, 1876.]



The half-tubes O U, set out on the end extensions of hoop A, and held together by a screw, D, to connect a mast-hoop and sail, as set forth.

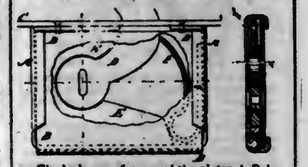
176,505. ADDERS FOR BOXING HOOP. Geo. J. Best, East Brady, Pa., assignor of one-half his right to Frank X. Feltz. [Filed Mar. 31, 1876.]

Brief.—Placed within the cup is a bit-rest provided with adjustable bits, with studs projecting through the slots in the cup, the slots being arranged tangentially to the aperture in the center of the cup. When the cup is moved in one direction, the bits are separated, and closed by a reverse movement, thus permitting the vertical elevation or depression of the auger-bit.



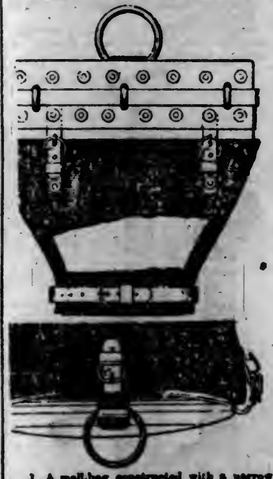
The combination of the cup E, provided with the bit-rest H, bits I, and cap N, having the slots M, substantially as described.

176,506. PIANO-LOCKS. Amos S. Blake, Waterbury, Conn. [Filed Oct. 28, 1875.]



The lock case, formed of the plates A B, by bending up the side and end edges and letting over the end edges of the plate A, and slipping the plate B into the seat thus formed, substantially as herein shown and described.

176,507. MAIL-BAGS. John Boyle, New York, N. Y. [Filed Jan. 15, 1876.]

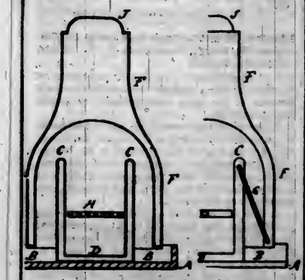


1. A mail-bag constructed with a narrow contracted part or throat between the mouth and bottom part, substantially in the manner and for the purpose set forth.

2. A mail-bag formed of an inner leather and outer canvas tube, the former to contain the letters, and the latter to admit of its being seized by the catcher without slipping.

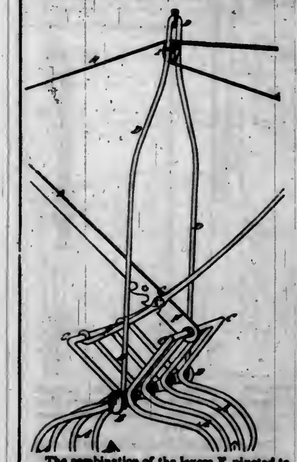
176,508. STEAM HOUSE-FURNACES. Dexter B. Brown, Waltham, Mass., assignor to himself and Rufus G. Brown, same place. [Filed Apr. 3, 1876.]

Brief.—A great area of water-containing vessels is exposed to the impact of the heating currents.



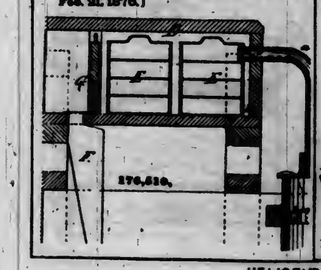
In steam-heaters, the combination and arrangement of the platform A and the grate H, with the fire-box D, the fire-walls C C C², the connecting-pipes G G, the shell F F¹ F², and the shell-cap J, all constructed and arranged substantially as described and shown.

176,509. HORSE HAY-FORKS. D. S. Chaffin, Vinton, Iowa. [Filed Feb. 14, 1876.]



The combination of the levers F, pivoted to each other at G, and one of said levers having notches for shifting the position of the pivot, with the pivoted tines A, suspension-bail D, and cords H, as and and for the purpose set forth.

176,510. DISH-CLEANERS. B. W. Chappell and Isaac Mayfield, Spencer, Ind. [Filed Feb. 21, 1876.]



1. In a dish-washer, a chamber, D, connected by a pipe with pump, and by spout F with water-tank, for the purpose described.

2. In dish-washers, the combination, with a chamber, D, of the gate G and racks E, arranged substantially as and for the purpose set forth.

176,511. MACHINES FOR PUNCHING METAL LATHS. Le Roy Carpenter, Victor Kauffman, and Hiram White, Beardstown, Ill. [Filed Mar. 20, 1876.]

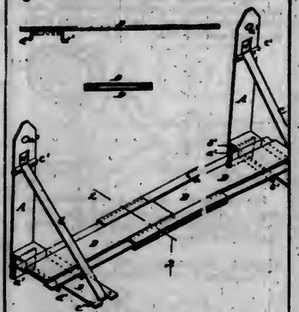
Brief.—The rolls are provided with punches and dies for punching the plaster and nail-holes in the sheets.



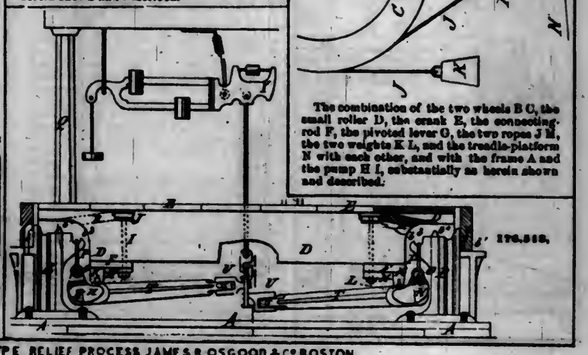
The combination of roll A, having the punches I J and the cutter M, with the roll B, having the dies G H, said rolls being geared together and arranged in connection with table C and guide D, substantially as specified.

176,512. HANGING SHELVES. Richard St. Leger Brodrick Chinnery, Kankakee, Ill. [Filed Feb. 21, 1876.]

Brief.—Each bracket is composed of three detachable parts, and the shelf is also composed of three parts arranged to slide together.



An improved hanging-shelf, consisting of the brackets A B C and the extension-shelf D, constructed and arranged substantially as herein shown and described.



176,512.

The combination of the two wheels B C, the small roller D, the crank E, the connecting-rod F, the pivoted lever G, the two ropes J M, the two weights K L, and the treadle-platform N with each other, and with the frame A and the pump H I, substantially as herein shown and described.

176,513. PLATFORM-SCALES. A. W. Comstock, Mount Pleasant, Iowa. [Filed Nov. 13, 1875.]

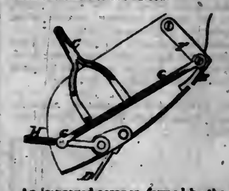
1. In a platform-scale, the combination of the chains B, having outer shoulders *b¹ b²* and inner hooks *b³*, with the platform timbers and the balance-levers, as and for the purpose set forth.

2. The combination of the transverse rock-bars H, cross-heads S, inclined levers T, and blocks U, with the platform and beam of a platform-scale, as herein shown and described.

3. The combination of the inclined pieces or bars E, with the parts of the chords D, and with the bearings of the platform, substantially as herein shown and described.

176,514. SCRAPERS. Prosper Coupal, St. Anne, Ill., assignor to himself and Joseph Dalpay, same place. [Filed Mar. 20, 1876.]

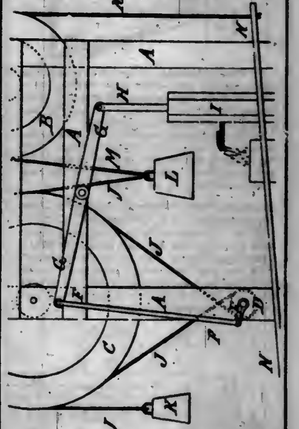
Brief.—The catch-plate is attached to swinging arms, and is operated by links attached to the bail, so as to release the revolving bottom when the handles are raised.



An improved scraper, formed by the combination of the catch-plate E, and its swinging arms F and pivoted rods G, and the spring-catches I, with the sides B, the bail H, and the revolving bottom D, substantially as herein shown and described.

176,515. PUMPING APPARATUS. W. Coats, Brownsville, Nebr. [Filed Mar. 21, 1876.]

Brief.—The weight of the cattle upon the platform draws down the rope, which raises the middle weight, and allows the outer weight to descend and work the pump.



The combination of the two wheels B C, the small roller D, the crank E, the connecting-rod F, the pivoted lever G, the two ropes J M, the two weights K L, and the treadle-platform N with each other, and with the frame A and the pump H I, substantially as herein shown and described.

176,516. TEMPORARY BINDER. Thomas J. Crebbin, New York, N.Y. [Filed Mar. 6, 1876.]

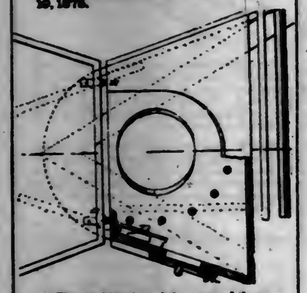


1. A back for a binder for papers or periodicals, provided above and below with tips, having an opening or openings adapted to receive the ends of the binding-rod, substantially as described.

2. A back, substantially as herein described, for a binder for papers and pamphlets, provided with three or more joints, and fastenings between the joints for the binding-rods, whereby the back is rendered capable of extension, for the purposes set forth.

3. In combination with the back of a binder for papers and pamphlets, detachable binding-rods and tips, adapted to receive the ends of said rods, substantially as described.

176,517. CHILDREN'S COMMODES. Allen B. Crowell, West Dennis, Mass. [Filed Nov. 10, 1875.

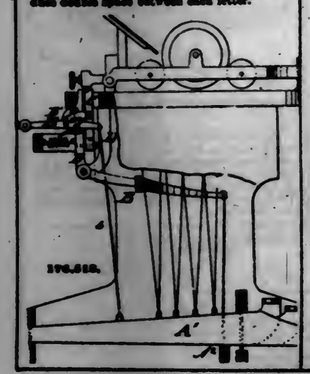


1. The combination of the cover of the commode, having stapler or eyes, with hooks of the commode and recessed supporting slide-pieces, for arranging the cover as tray and guard, substantially as specified.

2. The commode provided with rear extensions of the side walls or guard-pieces, carrying a lateral rod to give support to the baby, and preventing the tumbling over the commode, substantially as specified.

176,518. TYPE-WRITERS. Philander Deming, Albany, N. Y. [Filed Feb. 21, 1876.]

Brief.—A separate escapement mechanism, operated by a separate key and lever, produces a double escapement when its key is depressed. This key may be operated separately to produce double spaces between words, or, in combination with the common escapement, to produce double spaces between each letter.



176,519.

1. The combination, with the escape feed mechanism, of the additional escape feed mechanism, that produces the double escapement of the feed when its key is depressed, and allows of simultaneous working with a common key, substantially as and for the purpose described.

2. A weighted sarril fulcrumed to the upper arm of the escape-lever, and operated by a separate key and key lever, in combination with the swinging and weighted escapement-lever of the feed mechanism of the type-writer, to admit single or double escapement of feed mechanism of printing-cylinder, as required, substantially in the manner described.

3. The combination of sarril E, having the leg d, and fulcrumed to upper arm of lever E, connected, by pivoted wire b, with the key-lever A, and weighted at rear end with the swinging and weighted escapement-lever C, having stop a, substantially as and for the purpose specified

176,520. SCISSORS. Jakob Doss, Elizabeth, N. J. [Filed Feb. 1, 1876.]



The arrangement of an annular recess at the inner sides of scissors blades, concentric with their joint-pin a, and ents'de and surrounding the hub of said joint-pin, in combination with a coiled spring, D, situated in said recess, having one end attached to the scissor-blade A and the other end attached to the blade B, to force them apart, substantially as described, and for the purpose set forth.

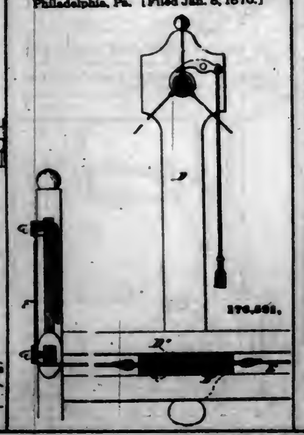
176,521. SEEDERS. Henry Dorshburgh, Olmsteadville, N. Y. [Filed Mar. 21, 1876.]

Brief.—A bread band is secured at each side of an enlarged portion of the blade, and between this band and blade the second blade is passed and pivoted.



The combination of bar A and bread bearings b c with pivot D, to prevent the shears from turning and cutting each other, thereby injuring the edges.

176,522. AUTOMATIC FANS. E. Dornheim, Philadelphia, Pa. [Filed Jan. 8, 1876.]



176,522.

1. The frame D, supporting the fan and clock-work, in combination with the rods E', having the grooves E; the cords F, and pulleys G, substantially as and for the purpose set forth.

2. In combination with the subject-matter of the above claim, the rollers D', substantially as and for the purpose set forth.

176,523. WHIFFLETREES AND NECK-YOKES. Geo. W. Eddy, Waterford, N. Y. [Filed Feb. 26, 1876.]

1. A whiffletree or neck yoke composed of the tubular bar A and the brace-rod B, secured thereto at its ends, substantially as shown and described.

2. In combination with the bar A and brace B, permanently united at their ends, the screw cap D, constructed and applied as set forth.

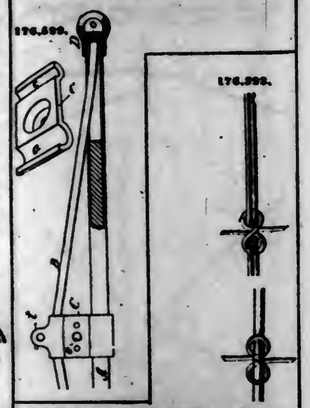
3. The bridge C, composed of the two plates, provided with the grooves a and c, in combination with the bar A and brace B, substantially as described.

4. The combination of the tube A, having groove for the brace B to fit in, with the brace B, having its ends extended beyond the ends of the tube, and the cap D, made to screw on said extended ends of the brace, and fit over and inclose the ends of the tube or bar A, substantially as shown and described.

5. The screw-cap D, provided with the ring or eye, and made reversible, as set forth.

6. In combination with the bar A and cap D, the bolt or pin I, arranged to fit in a notch or recess in the end of the bar, substantially as and for the purpose set forth.

176,524.

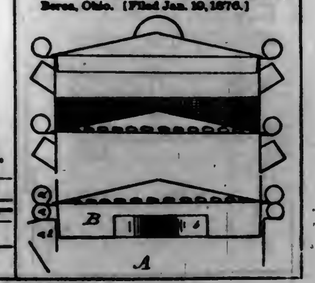


176,525.

176,524. BARBED FENCE-WIRE. Richard Emerson, Sycamore, Ill., assignor to himself and Chauncey Ellwood, same place. [Filed Mar. 6, 1876.]

The combination, with a fence-wire having the indentation described, of a wire pointed at both ends, placed diagonally across said indentation, the ends bent around the shoulders and passed through the same, forming two barbs, pointing in opposite directions, substantially as and for the purpose specified.

176,525. STEAM-COOKERS. Chas. Hinson, Berea, Ohio. [Filed Jan. 20, 1876.]





1. In a dripping-catching device for cooking utensils, the drip-pan B, constructed with a central flanged opening, rising from the bottom, and having a surrounding receptacle and an external banded flange, a, substantially as shown and described.

2. The banded flange a, in combination with the boiler, tray, and steamers, as shown and described, and for the purpose set forth.

176,526. HOLDERS FOR TUMBLERS. George W. Fry, Rochester, Pa. [Filed Mar. 27, 1876.]

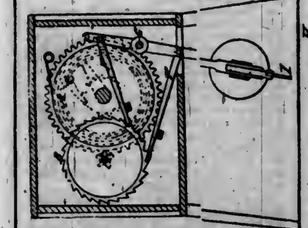


1. Securing a tumbler on the end of a holder by atmospheric pressure, substantially in the manner and by the means described.

2. The combination of a disk A, holding-surface, having an opening for air, with an air-chamber, piston, and piston-rod, substantially as and for the purposes herein set forth.

3. The combination of a disk or holding-surface, having an opening for air, and the connecting-pipe, with an air-chamber, piston, and piston-rod, substantially as and for the purpose herein set forth.

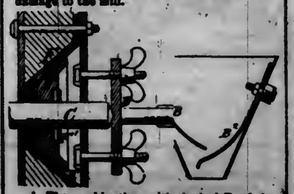
176,527. AUTOMATIC FANS. Erwin G. Collmer and Emil Frenz, Dallas, Tex. [Filed Mar. 13, 1876.]



The pendulum-rod E, having a tie, I, attached to it, and also having pawls F, combined and arranged with the escape-wheel H, for working the rod, as described.

176,528. GRINDING-MILLS. C. A. Harper, Burlington, N. J. [Filed July 21, 1875.]

Brief.—Runner is loosely attached to shaft, to allow stones, &c., to pass through without damage to the mill.



1. The combination, with the bed E, of the runner F, swung loosely on a longitudinally-adjustable shaft, having bearings at both ends, and carried by the pin P', engaging a groove in the back of the runner, substantially as set forth.

2. In combination with the mill E F and hopper B, the independently-adjustable curved plates D' D', substantially as set forth.

176,529. TUBE-WELLS. Stephen Henry, Marshfield, Mass. [Filed Apr. 4, 1876.]

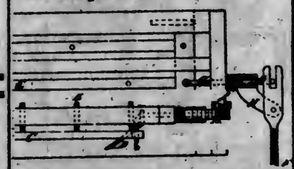
Brief.—To admit water, the tube is raised to the central part, after driving the plug to the required depth.



The point A, having shoulder B, shank C, and point D, combined with tube E, substantially as specified.

176,530. GRATES. Francis Z. Hickox, Utica, N. Y., assignor of one-third his right to Michael Smith and one-third to John Mills, same place. [Filed Apr. 4, 1876.]

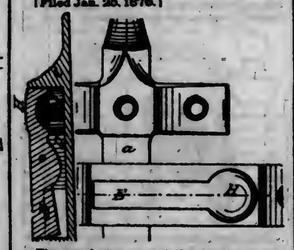
Brief.—The raking-teeth move obliquely upward through the coal.



1. The combination of a raking-shaker, O E, mounted on inclined ways D, with a fire-grate, substantially as specified.

2. The lever for working the shaker, pivoted on one of the trunnions of the grate, and connected to the shaker by a rod extending through the trunnion, substantially as specified.

176,531. WAGON-SEAT LOCKS. Jos. Hill and George J. Stephenson, Wabash, Ind. [Filed Jan. 25, 1876.]



The seat-lock or catch herein described, consisting of the box C, having recess D, coiled spring F, and catch-plate E H, the latter pivoted to box C, so as to form a close-fitting cover for the recess or aperture wherein it works, in combination with the seat-iron A, having beveled point d, notch b, and shoulder c; all constructed, combined, and operating substantially as and for the purpose hereinbefore set forth.

176,532. MACHINES FOR HOOPING LUMBER. Andrew R. Hoffman, Fort Wayne, Ind. [Filed Mar. 26, 1876.]

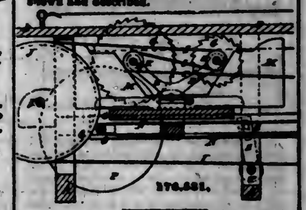
Brief.—Lumber can be edged by means of two circular saws, having their bearings in opposite ends of an angular and longitudinally-reeking frame, pivoted to the middle of a carriage sliding on longitudinal ways attached to the inner sides of the main frame; a notched sliding trip-plate for projecting alternately the saws through a longitudinal slot in the top of the table; a guide-wire placed directly over the slot for adjusting the lumber from the front of the machine; and suitable operating mechanism

1. The combination of the carriage D, the tilting frame E, the two shafts F, the two saws G, the two pulleys H, the band I, the two pulleys J, and the two shafts K, to one of which the power is applied, with each other, and with the frame A and table B, substantially as herein shown and described.

2. The combination of the band H, the two shafts O, the two friction-pulleys P, and the connecting-bar Q with the carriage D, that carries the tilting frame and the two saws, substantially as herein shown and described.

3. The combination of the notched sliding trip-plate M with the carriage D, the tilting frame E, and the shafts F, that carry the two saws G, substantially as herein shown and described.

4. The combination of the pin R, the slotted arm S, the shaft T, and the cross-bar U with the bar Q, that connects the shafts O of the friction-pulleys P, substantially as herein shown and described.



176,533.

176,533. PUZZLE-BLOCKS. F. M. Hughes, Brooklyn, N. Y., assignor to H. M. Judd and H. L. Judd, same place. [Filed Dec. 13, 1875.]



The alphabetical toy composed of four cubical blocks, the six surfaces of each of which contain portions of letters, arranged to form, when properly placed in connection with the adjacent block-surfaces, a complete letter or letters, substantially as set forth.

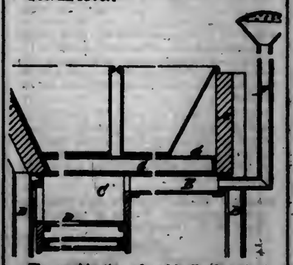
176,534. COFFIN ATTACHMENTS. Samuel A. Hughes, Parker's Landing, Pa. [Filed Mar. 13, 1876.]

Brief.—A hook for passing the lowering-ropes under is attached to the handle-plate of a coffin.



The hook attachment mounted upon the handle-plate of coffin, substantially as and for the purpose specified.

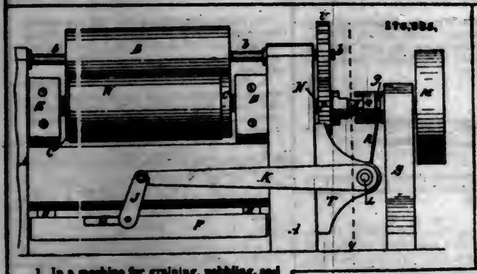
176,535. AGRICULTURAL BOILERS. Henry L. Humphrey, Fredk. H. Humphrey, and Ira G. Humphrey, Monroe, Mich. [Filed Feb. 21, 1876.]



The combination of end-inclined tank A, supported on legs B, the fire-box C, the grate D, the flue E, the smoke-pipe F, the perforated plate G, and the end-inclined boilers H, all constructed and arranged as shown and described, to form an apparatus adapted to be used for the several purposes specified.

176,536. LEATHER-DRESSING MACHINERY. L. R. Jenkins, Philadelphia, Pa., assignor to Mallory & Co., same place. [Filed Mar. 13, 1876.]

176,526.



176,541.



1. In a machine for graining, pebbling, and beveling leather, the combination of the cod-lum belt W with the roller B, the former being caused to traverse in a direction opposite to that in which the roller is caused to revolve, for the purpose of acting on the folded leather in the manner described.

2. The combination of the roller B with the rollers C D, swinging arms E E, and belt W, together with mechanism for operating the same in the manner set forth.

3. The combination of the arms E E, links I I, arms H H, rock-bar F, and treadle G, in the manner and for the purpose specified.

4. The combination of the treadle O, arms J K, rock-shaft L, fork R, clutch Q, and pinions P U V, as and for the purposes stated.

176,536. HORSE-POWERS. W. W. Johnston, Summitville, Ohio. [Filed Mar. 20, 1876.]

1. In a horse-power, the combination of the shaft B, with the pinion C, shaft d, and pinion D, substantially as and for the purpose herein before set forth.

2. The combination, in a horse-power, of the shafts B d, pinions C D, and rod or shaft J, substantially as and for the purpose herein-before set forth.

176,536.

176,537.

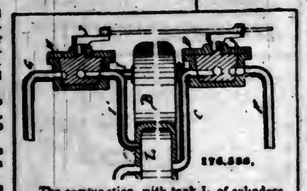
176,537. CURTAIN-FIXTURES. E. M. Judd, Brooklyn, N. Y. [Filed Feb. 2, 1876.]

Brief.—A swinging pawl is pivoted to the flattened side of the spindle, and, when not in use, lies parallel with the spindle in the slotted bracket.

The ring *c*, with the stop *e*, in combination with the pawl *b*, pivoted upon the flattened portion of the spindle *d*, the helical spring *g*, the curtain-roller *a*, and the bracket sustaining the spindle, substantially as and for the purposes set forth.

176,538. BOILER FEED-WATER HEATERS AND EVAPORATORS. Frank W. Kops, New York, N. Y. [Filed Mar. 6, 1876.]

176,539.



The combination, with tank L, of cylinders A B, the valves D H, connected by crank and rod, the water-pipes C E F, the steam pipes G I, and the exhaust-pipe F', substantially as and for the purpose specified.

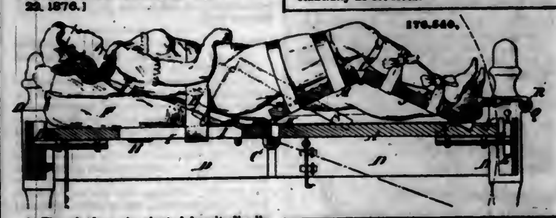
176,539. SPRING-HINGES FOR GATES, &c. William Klein, Plainfield, N. J. [Filed Mar. 1, 1876.]

Brief.—A double volute spring, with its projecting ends standing in opposite directions, and made to act on blocks, one on either part of the hinge, operates to swing the gate in either direction, and also to bring it back to a state of rest in normal position.

The double volute wire spring *a*, formed from one piece, with the projecting ends 2 and 3 standing in opposite directions, in combination with the blocks *c* and *e* upon the respective parts *d* and *f* of the hinge, substantially as set forth.

176,540. INVALID-BEDSTEADS. Andw. McArthur, South Chenango, Pa. [Filed Jan. 22, 1876.]

176,540.



1. The platform A, pivoted longitudinally and transversely to the frame D, and having sliding or removable supports E, for the pivots, whereby the platform is allowed to tilt in the manner described.

2. The combination of the bed F, having flexible margins G, with the platform A, substantially as specified.

3. The removable supports E, combined with the pivots of the platform, substantially as specified.

4. The crank-shaft Q, combined with the rope or strap R, and adjustable leg-supports J, substantially as specified.

176,541. RAISING AND LOWERING SCREW-PROPELLERS. Merwin McKaig and W. J. Muncaster, Cumberland, Md. [Filed Apr. 6, 1876.]



1. The vertical engine-frame B, mounted upon trunnions A, and provided with the tubular arm C, extending through the stern of the boat and provided with the boxes G G and D, combined with the crank-shaft F, mounted in said boxes.

2. The vertical engine-frame B, provided with an arm, C, having a box at its extremity for the reception of the crank-shaft combined with trunnions A A, whose axis is in line with, or nearly so, the intersection of the axes of the crank-shaft and piston-rod

3. The vertical engine-frame B, mounted upon trunnions A A, and provided with the tubular arm C, extending through the stern of the boat for the reception of the crank-shaft F, combined with the lifting chain W, whereby the engine-frame may be tilted without strain upon the crank-shaft.

4. The vertical engine-frame B, provided with the arm C, and mounted upon trunnions A A, combined with the crank-shaft F, and the double-jointed packing-boxes I J K, substantially as set forth.

5. A crank-shaft, F, mounted in bearings oscillating on a transverse axis at its front end, combined with a suspension-box, X, at its rear end outside of the boat, and the windlass V and worm-screw V', substantially as set forth.

6. A windlass, Y, composed of a chain-sheave, with a worm-wheel provided with an internal ratchet, *d*, and coupled with a pawl, *c*, combined with a worm-screw, Y', substantially as set forth.

7. The vertical engine-frame B, mounted upon trunnions and provided with the tubular extension-arm C, for the reception of the crank-shaft F, combined with the suspension-chain W, windlass Y, and steam piston and cylinder Z, as set forth.

8. The vertical engine-frame B, mounted upon trunnions A A, and provided with a tubular sleeve or arm, C, for the reception of the crank-shaft F, and arranged so that the said crank-shaft may be adjusted with an upward or downward inclination from the crank-end, as may be desired.

9. The double-jointed packing-boxes I J K, combined with the sleeve C and shaft F, which is thereby permitted to rise or fall freely, and without cramping in the packing.

10. The packing-boxes I J, constructed with their vertical longitudinal section circular, as shown in Fig. 2, combined with axial trunnions or pivots *g g*, as set forth.

11. A vertical engine-frame, B, mounted upon trunnions A A, and provided with a hollow arm or sleeve, C, with bearings G G D for the reception of a crank-shaft, combined with a crank-shaft in two parts, coupled together with a slightly-flexible coupling, substantially as set forth.

176,542. CAR-STARTERS. George R. Moore, Philadelphia, Pa. [Filed Mar. 16, 1876.]

1. The sprocket operating-lever D, pivoted to the car-frame for its fulcrum at its lower end, and carrying, by the connecting-bar G, the slotted vibrating lever E, having its fulcrum upon the revolving axle of the car, and provided with a pawl, E', in combination with the revolving car-axle, with its rigid ratchet-wheel E, all arranged and combined substantially as and for the purpose herein set forth.

2. The upright operating-lever D, in combination with the car-frame and the connecting-bar G, and provided with the horizontal pull-rod F, substantially as and for the purpose herein set forth.

3. The guard-frame *f*, extending out horizontally in front of the car, at or near the upper end of the operating-lever D, and inclosing the same, substantially as and for the purpose herein set forth.

4. The connecting-bar G, provided with the spring *a*, for operating upon the broad head of the pawl E', to hold the same firmly in gear with the ratchet-wheel E, or out of the same, as may be required, substantially as shown.

5. The stay-pin *g* upon the frame of the car, in combination with the hand-pull F, substantially as and for the purpose herein set forth.

6. In combination with the guard-frame *f* and tongue B, the supporting rod or chain A, substantially as and for the purpose herein set forth.

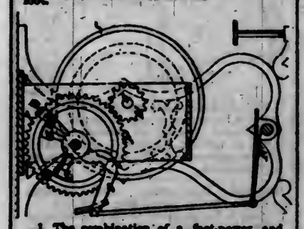
7. The pawl E', provided with a broad top, for affording a bearing to the spring *a* on either side of its pivot *c*, and in combination with spring *a* and the ratchet-wheel E, substantially as and for the purpose herein set forth.

176,543.



176,543. SPRING-POWERS AND TREADLES FOR SEWING-MACHINES. Jos. H. Morley, Holyoke, Mass. [Filed Mar. 25, 1876.]

Brief.—The spring-power wound by one foot is used, as desired, to re-enforce the direct treadle-movement operated by the other foot.



1. The combination of a foot-power and spring-power in a sewing or other light machine, substantially in the manner described.

2. In a machine having a combined foot and spring power, one of the treadles connected to the machine for working it directly, and the other connected to the spring-power for winding it up, substantially as specified.

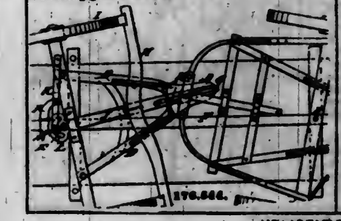
3. The spring-power shaft T, geared to the foot-power mechanism by friction-pawls N O and wheel P, substantially as specified.

4. The foot-treadle I, geared to the spring-power shaft by the friction-pawls J L and wheel M, substantially as specified.

5. The combination of the detacher U with foot-treadle I and the friction-pawls K L, substantially as specified.

176,544. WAGON-BRAKES. J. W. Odenthal, Cloverdale, Ind. [Filed Mar. 18, 1876.]

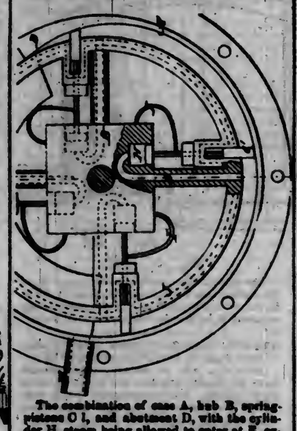
Brief.—The brake may be applied when the running-gear is turned.



176,544.

The brake H of an oscillating gear coupled to the brake-lever K by the bar J, fitted to slide on the center pivot B, and having the curved slot L for the coupling-pin M, substantially as specified.

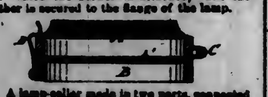
176,545. ROTARY ENGINES. Thomas C. Orr, Rudolf, Ill. [Filed Mar. 13, 1876.]



The combination of cams A, hub B, spring-pistons O I, and abutment D, with the cylinder H, steam being allowed to enter at E, exhaust at F, and reach cylinder through passage G, as shown and described.

176,546. LAMP-COLLARS. Thos. L. Owen, Geneva, N. Y. [Filed Mar. 21, 1876.]

Brief.—A lamp-collar in two parts, to one of which the burner is attached, while the other is secured to the flange of the lamp.

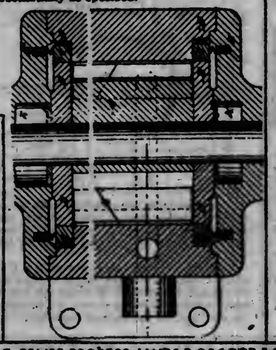


A lamp-collar made in two parts, connected together at one side by a hinge, C, and at the other by a spring-catch, D, the upper part A closing down into the lower part B, and the lower part B having a flange, *b'*, upon its inner surface, substantially as herein shown and described.

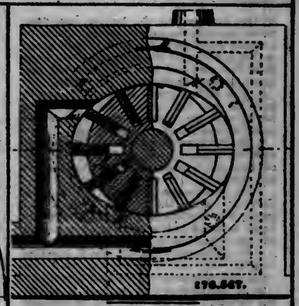
176,547. ROTARY ENGINES. John R. Peters, Dover, N. J. [Filed Feb. 14, 1876.]

1. The combination, in a rotary engine, of the stationary packing-rings C, and springs D and E with the casing, plain flanges H, hub A, and pistons H, said flanges extending out to the inner periphery of the casing, or as far as the pistons move, as and for the purpose set forth.

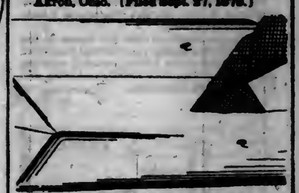
2. The compound pistons, consisting of two or more plates in each groove in the hub, the ends and tops of which may be formed to prevent serrated edges, and constitute with condensed steam what is called "water-packing," substantially as specified.



176,547.



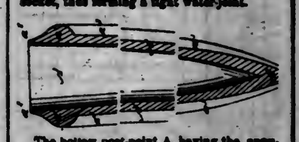
176,548. PAPER BAGS. Thomas Phillips, Akron, Ohio. [Filed Sept. 27, 1875.]



The herein-described paper bag, having one surface of bleached pulp for the sake of ornamentable appearance, and the other surface of unbleached or slightly-bleached pulp, for the sake of cheapness and strength, as described and represented.

176,549. METALLIC SOCKETS FOR FENCE-POSTS. Wm. M. Phelps, Oconto, Minn., assignor to himself and Daniel McAlpine, same place. [Filed Feb. 14, 1876.]

Brief.—The upper portion of the collar at the top of the metal socket is tapered to a sharp edge, which enters the base of the wooden post as the latter is driven into the socket, thus forming a tight water-joint.



The hollow post-point A, having the annular collar *a'*, tapered to an edge, *b'*, at top, as and for the purpose specified.

176,550. GRAIN-BINDERS. Jos. B. Fremont, Beloit, Wis. [Filed June 24, 1875.]

Brief.—A rotating knotting-hook opened by means of a positive motion; also, a reciprocating apron carrying a compressor, acting in connection with a fixed receiver.

1. The combination of the fixed receiver C, the reciprocating apron B, and the arm D, mounted upon the apron, substantially as shown, the apron serving to support the grain and carry the same into the receiver, and the arm to compress and hold the same therein.

2. In combination with the fixed receiver C, the endless apron B, provided with the arm D and weighted cord *a'*, and connected with the driving mechanism in such manner that it is moved forward with a positive motion to advance the arm, and then released, so that it will be instantly returned to its original position by the weight.

3. The combination, in a machine for binding grain with cord, of devices for holding the bundle of grain in a fixed position, a rotary reciprocating tying-hook, mounted in a fixed bearing, a crank-arm, provided with a jaw for taking up, casting, and releasing the cord, and a cord gripped consecutively by said jaw, and passing thereof to a guide or eyelet located in the same vertical plane as the jaw and the tying-hook, substantially as shown and described.

4. In a grain-binding machine, the combination, in the same vertical plane, of a rotary tying-hook, M, a spool or guide to retain the cord in position, and a jaw, E, attached to the end of a crank, and arranged to carry the said

of the cord around the bundle, and then, while retaining the end, to grasp the cord at a second point, carry the doubled cord across the hook, and, after the formation of the knot, cover the cord and retain the new cord produced thereby, as shown and described.

6. The gathering and compressing arm D, provided with the toothed end d^1, in combination with the endless apron B, fixed receiver C, and shoulder P, as shown.

7. The cord-carrying crank-arm H, provided with the clamping and cutting jaw K, constructed and operating substantially as shown and described

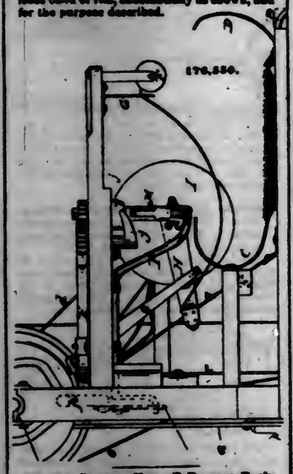
8. In combination with the rotary tying-hook M, having the pivoted finger h and spring o, the stationary cam f, whereby the finger is raised with a positive motion to admit and release the cord.

9. In combination with the arm H, provided with the ribs c and d, the pivoted jaw K, provided with the recess and the knife e, as shown.

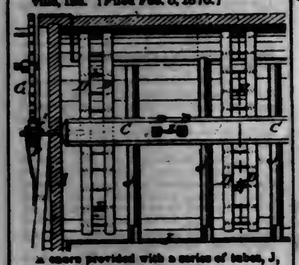
10. In combination with the hook M, operating as described, the filler-arm O, substantially as shown.

11. In combination with the rotary knotting-hook M, the vibrating clasper-arm P, substantially as shown.

12. In combination with the apron B, the friction driving-pulley p, connected therewith by the intermediate parts, provided with the loose band or ring, substantially as shown, and for the purpose described.



176,550.

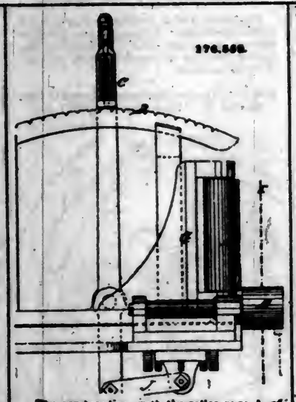


176,551. CHURN, Henry B. Bassett, Rockville, Ind. [Filed Feb. 5, 1876.]

A churn provided with a series of tubes, J, passing through the churn to a water-reservoir at bottom, as shown and described, to break up the currents of cream, and at the same time serve as water-conveyors.

176,552. ROLLER-GAMES FOR SAW-MILLS. Aaron Baggard, Savannah, Ga. [Filed Mar. 6, 1876.]

Brief.—Every board can be gaged exactly alike as to thickness by means of an adjustable vertical roller-guide mounted in bearings in a bracket sliding upon a supporting-bed, a pivoted shifting-lever connected to said bed by a link, and a toothed scale.

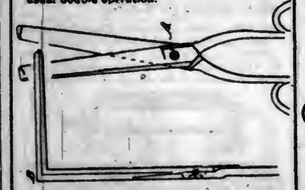


176,553.

The combination, with the roller-gage A, of the sliding bracket C, supporting-bed E, lever G, link J, and toothed scale or lever-retaining segment D, as and for the purpose set forth.

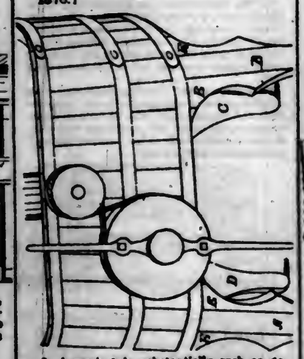
176,553. COUPON-CUTTERS. S. M. Schaffer, New York, N. Y. [Filed Apr. 4, 1876.]

Brief.—A pair of ordinary paper-shears have the blades, at about mid-length, bent at right angles; the construction being contrived to cut two sides of a right angle at one time, whereby coupons can be clipped from a board more neatly and exactly than by the usual double operation.



The improved coupon-cutter herein described, consisting of the shears A, with right-angle blades B, substantially as specified.

176,554. WASH-TUBS. Adolph Schlingman, West Alexandria, Ohio. [Filed Mar. 9, 1876.]



1. A wash-tub, substantially such as described, having three adjacent corners near each corner continued or lengthened to form legs to support the tub, and braces for said legs, as set forth.

2. The tub above, having staves A B C D, of about double the usual length, to form legs for the tub, the staves E E being also lengthened and constructed as shown, to form braces for said legs, for the purpose described.

176,555. BAG-FILLERS AND MEASURERS. Joseph J. Schofield, Salt Lake City, Utah. [Filed Jan. 20, 1876.]



1. The combination of spring C with the filling-tube A, substantially as specified.

2. The springs C, connected to the tube at one end, and fitted in slots at the other end, substantially as specified.

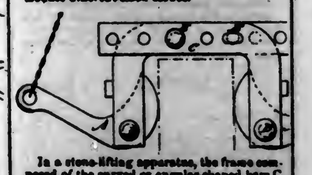
176,556. PROCESSES OF FORMING HEEL-STIFFENERS AND OTHER ARTICLES IN THE MANUFACTURE OF BOOTS AND SHOES. D. Szymgoosf, Boston, Mass. [Filed Feb. 21, 1876.]



The process of making molded shoe-stiffenings and analogous articles, as specified, by first forming the article from pulp on a vacuum-mold, and subsequently pressing the same in a finishing-mold, substantially as set forth.

176,557. STONE-LIFTERS. S. E. Shepard, Mineral Point, Wis. [Filed Mar. 26, 1876.]

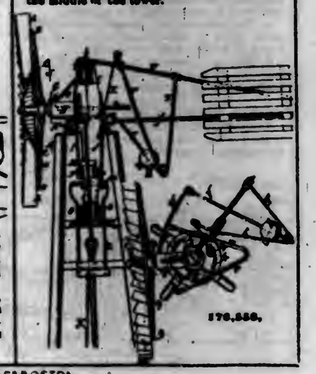
Brief.—The griping-jaws are pivoted to the angular bars, which are capable of adjustment toward or from each other, to accommodate different-sized stones.



In a stone-lifting apparatus, the frame composed of the curved or angular-shaped bars C D, arranged in pairs, and having a series of holes, as specified, the pins E, and eccentric pivoted gripers A A, all combined as shown and described.

176,558. WINDMILLS. Jason C. Sparks, Tipton, Iowa. [Filed Mar. 6, 1876.]

Brief.—The rases of the wheel are attached to the rings supported by dished arms. The short arm and the secondary hub are combined with them in a manner to make great strength. The shaft is carried in the long bearing, and attached to the upright bar, which is pivoted in the vertical support composing two uprights, with a turn-table attached to the middle, carrying the pivot and cap, and being itself pivoted on a plate supported at the middle of the tower.



176,558.

1. The wheel-shaft bearing H, upright supporting-bar I, brace Q, pivots L M, and the turn-table K and uprights J, combined and arranged substantially as specified.

2. The cap L on the upright I, in combination with the pivot b of frame J, substantially as specified.

3. The weight S, rod V, arms T W, combined and arranged with tail-rod U, and the wheel-shaft bearing H, substantially as specified.

4. The swivel Z c, combined with rod X, weight S, and turn-table frame, substantially as specified.

176,559. FRAMES FOR REMEMBERING DRESS-GOODS. Lewis E. Springer, Claremont, Minn. [Filed Feb. 5, 1876.]



The combination, with a cross-bar, C, having outer hooks D, of an upright, B, arranged in the socket of the movable base A, as and for the purpose specified.

176,560. GRATES. Walter S. Stevenson, Philadelphia, Pa. [Filed Feb. 16, 1876.]



The basket-grate described herein, the same consisting of the series of grate-bars each corrugated transversely from end to end, as shown at 1 2 3 4 5 6, and their ends connected to the front plate and the rear tie-bar, respectively, by casting the whole grate in one piece, as shown and described.

176,561. CAPSTANS AND WINDLASSES. P. C. St. Marie, Montreal, Canada. [Filed Apr. 17, 1876.]

176,561.

1. The combination, with the shaft E of a capstan provided with an endless screw, F, capable of working to the right hand, of a windlass, having a pawl-lifter, O, shaft G', arms Q', and a series of pawls, J', substantially as and for the purpose described.

2. The combination, with a windlass, of the pawl-lifter lever Q, shaft G', arms Q', and a series of pawls, J', substantially as and for the purpose described.

3. The combination, with a windlass, of a dial or indicating means so arranged as to represent the number of fathoms of rope or chain passed around the same, substantially as set forth.

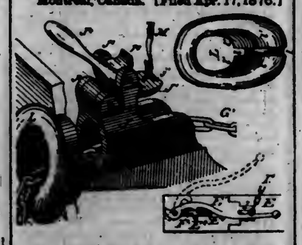
4. The combination, with a windlass, of an eccentric, R, operating a series of levers and a ratchet-wheel in such a manner as to cause a pointer or hand to indicate on a dial the number of feet or fathoms of rope or chain paid out or hauled up, substantially as set forth.

5. The combination of the dials T, ratchet-wheels S, indicators or hands S^2, drivers r^1, levers and arms r^2, r^3, r^4, rods r, and eccentrics R, with the wild-cat-head wheels K K of a windlass, substantially as and for the purpose set forth.

6. The combination, with a windlass, B, dials T, ratchet-wheels S, indicators or hands S^2, drivers r^1, levers and arms r^2, r^3, r^4, rods r, and eccentrics R, of the chain-stoppers N, having hinged plates N^1 and cam-levers N^2, substantially as and for the purpose described.

7. In a windlass or hoisting apparatus, the combination, with the wheels K and J, of the pins or locking-pieces k, having shafts k^2, provided with arms k^1, substantially as and for the purpose described.

176,562. HAWSE-PIPES. P. C. St. Marie, Montreal, Canada. [Filed Apr. 17, 1876.]



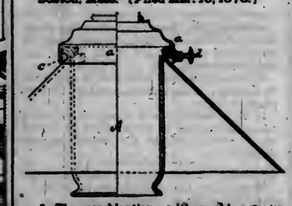
1. The combination, with a chain-stopper, J, of the plate J', provided with a notch or recess, j', and a pivoted lever, J^3, provided with a cam-surface, J^4, substantially as and for the purpose described.

2. The combination, with a chain-stopper, J, provided with a groove or channel, J^2, and a pivoted locking-plate, J^3, formed with a notch or recess, j', in its forward end, of the pivoted lever J^3, provided with a cam-surface, J^4, substantially as and for the purpose specified.

3. A chain hawser-pipe, L, having a groove or channel, l, for the purpose of guiding the alternate links of the chain, constructed as and for the purpose described.

4. The combination, with the anchor G and chain G', of the anchor-hanger chain-lever E', having lugs or catches E^2, and the hanging-chain F, substantially as shown and described.

176,563. LAMP ATTACHMENTS. F. A. Taber, Boston, Mass. [Filed Mar. 10, 1876.]



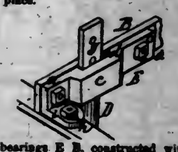
1. The combination, with a chimney or globe, and a lamp-shade, of a chimney or globe cap, which supports the shade and holds together the same and the chimney or globe, substantially as set forth.

2. The chimney or globe cap, formed substantially as described, to hold together the chimney and shade, and to cover the joint between said parts, substantially as set forth.

3. The combination of the cap, the shade, and the globe or chimney, suspended from and supported by said shade, substantially as shown and set forth.

176,564. HARROWS. Wm. Taylor, Rochester, N. Y. [Filed Apr. 10, 1876.]

Brief.—The invention consists of a right-angled bracket, for securing together the bars of harrow-frames, and at the same time providing a seat for the teeth, and securing the same in place.



The bearings E E, constructed with the right-angled lugs k^1 k^1 for bolting the longitudinal bars to the cross-bars of the harrow without rivets, and with offsets c c and inclined sockets d d for receiving the flat swinging teeth D D, as and for the purpose specified.

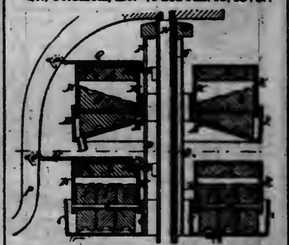
176,565. GUIDES FOR SAWING-MACHINES. Harrison P. Taylor, Franklin A. Perdue, and Jeremiah M Perdue, Minerva, Ohio. [Filed Feb. 21, 1876.]

Brief.—The guide can be adjusted to vary the width, bevel, and taper of the work.



In planer-guides, the plate E connected with quadrant D, by a dovetailed plate, d^1, on which the plate E slides, as shown and described, to enable the plate E to be reversed at the times and in the manner specified.

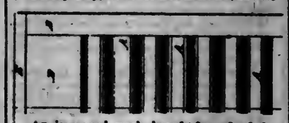
176,566. WASHING-MACHINES. S. Turner, Sr., Columbia, Mo. [Filed Jan. 10, 1876.]



1 is a washing machine, the standards D F, having rollers G I extending up from tubs and made to support the bearing G, in the manner shown and described.

2. The combination, with a bar, L, and a tub having a horizontal bottom, of the roller-sections I, arranged in a washing-machine side by side on the same shaft J, as and for the purpose set forth.

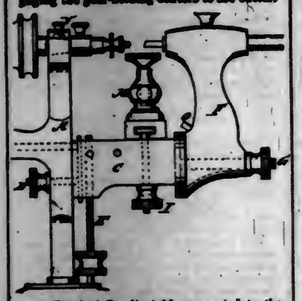
176,567. WASH-BOARDS. J. S. Washburn, Jersey City, N. J. [Filed Mar. 25, 1876.]



An improved wash-board, formed of the grooved side bars B, the two rows of bars A, the strip C of flexible material, the block D, and the cross-bar E, constructed and arranged substantially as herein shown and described.

176,569. WATCHMAKERS' LATHES. Daniel M. Williams, Calvert, Tex. [Filed Mar. 18, 1876.]

Brief.—The pivoted tail-stock is adjusted in position for use by means of a set-screw upon a block clamped to the bed, and the index-plate and latch are provided with a gage for gaging the gear-holding centers to the cutter.



1. The bed C, adjustably connected to the head-stock A by clamp-bolts D, and provided with the adjusting-screw E for supporting interchangeable parts of the machine, substantially as specified.

2. The tail-stock F, pivoted to the bed C by clamp-screw G, substantially as specified.

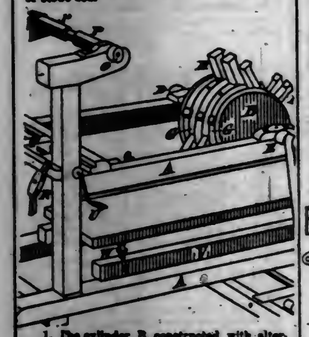
3. The combination of block H and adjusting-screw K, with the bed C and the tail-stock F, substantially as specified.

4. The bed F, slide P, centers R, index-plate S, and hand-lever Q, combined with the bed C, and head and tail centers of a lathe, substantially as specified.

5. The lever-latch T, combined with the notched index-plate S, and having a gage, U, arranged relatively to its centers R, for gaging them to the cutting-tool, substantially as specified.

176,570. STONE-DRESSING MACHINES. T. Woods, Nicholasville, Ky. [Filed Sept. 17, 1875.]

Brief.—The frame carries a cutter-cylinder provided with adjustable cutters, for dressing the face of the stone, adjustable cutters for dressing the edges, and an adjustable carriage or stone-bed.



1. The cylinder B, constructed with alternating recesses C, in combination with the combined centers H and their brakes I, substantially as described.

2. In a stone-dressing machine, the edgers R, in combination with their bearing-blocks N and the set-screws U, whereby said edgers are adjustable in the main frame relatively to the stone to be dressed, the mechanism being constructed, arranged, and operated substantially as shown and described.

3. In a stone-dressing machine, the stone bed or platform Q, mounted on the carriage V, and adjustable thereon at any height and angle by set-screws W, substantially as shown and described.

176,570. CHECK-BRACES FOR VEHICLE-SPRINGS. Lewis P. Worrall, Smarttown, Pa. [Filed Mar. 13, 1876.]



The combination with a vehicle perch and springs, of brackets G having coupling-box at base, and plates F reversely curved at the ends, as shown and described, in order to form a double-acting brace that will allow the springs to come together without striking perch or body, and without making any rattling or noise.

176,571. FILTERS AND PROCESSES FOR CLEANING THE SAME. Horace Williams, Buffalo, N. Y., assignor to Wm. Hamlin, same place. [Filed Jan. 3, 1876.]

Brief.—The filtering-partitions are vertical. Each is provided with an endless filtering-apron. Intermediate strips or bars clamp the edges of the endless apron, so as to form a tight joint. A series of perforated pipes direct streams of water upon the filtering-surfaces to detach impurities therefrom.

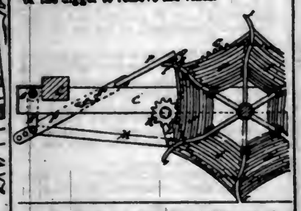


1. The combination, with a filter provided with vertical filtering-partitions B, of the water-supply pipe G and horizontal branch pipes F, provided with openings or perforations on their under side, and arranged above the spaces between the filtering-partitions, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the filtering-partitions B, of the endless filter-cloths A and intermediate strips 4, substantially as and for the purpose hereinbefore set forth.

176,572. POTATO-DIGGERS. J. W. Young, Southfield, Mich. [Filed Jan. 20, 1876.]

Brief.—The frame is rectangular and supported on two wheels. The share is flat and pointed, and supported from the front end of the frame. Directly behind the share, which passes under the tubes, is a revolving digging-wheel with curved fingers. This digging-wheel has a forced rotation. An oscillating rake is automatically operated upon the rear of the digger to remove the vines.



1. The digging, gathering, and sifting wheel, in combination with the horizontal blade, all constructed and arranged as and for the purpose described.

2. The combination, with teeth I, of screens J, connected in the middle, as and for the purpose set forth.

3. The combination of wheels G K, crank L, connecting-bar M, cranks N, shaft O, and bar P, substantially as and for the purpose specified.

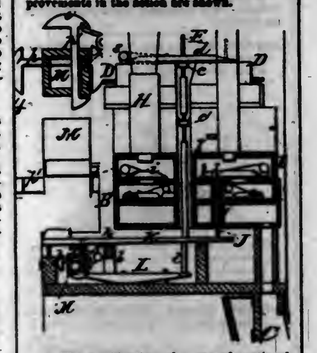
176,573. PAVEMENTS. Joseph R. Abrams, Greenville, Ala. [Filed Nov. 12, 1875.]



The combination of the cylinders A, of artificial stone or analogous earthenware, with a filling of broken stone and a top-dressing of gravel and sand, substantially as and for the purpose described.

176,574. BEND-ORGANS. Charles Austin, Lowell, Mass. [Filed Jan. 20, 1876.]

Brief.—A device for making the action of the keys, when uncoupled, of the same touch as when the coupler is in action. Other improvements in the action are shown.



1. The combination of a spaced sectional wind-chest, B B', and an intermediate tracker-rod, E, substantially as specified, and for the purpose set forth.

2. In combination with the pipe-box I, having valve A, the wind-chest B', having tubular sleeve *j*, adapted to receive a tracker-rod, J, for operating the said valve, substantially as specified.

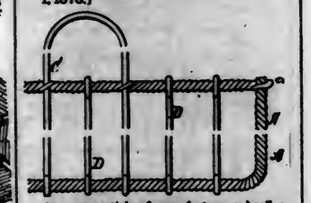
3. In combination with the reeds of an organ the supplementary reed G, having a resonance-chamber, *g*, suspended above it, substantially as specified.

4. In combination with the wind-chests B B', the reed-boxes D D', arranged on top of the same, substantially as specified.

5. In combination with the tracker-rod E the spaced horizontal wind-chests B B', reed-boxes D, and valve *d*, closing both reed-boxes, substantially as specified.

6. In combination with the key F the endwise-movable pin *f* and a compensating-spring, S, substantially as specified.

176,575. BROILERS. F. O. Badger, Greenport, N. Y., assignor to Badger Manufacturing Company, same place. [Filed Apr. 1, 1876.]



As a new article of manufacture, a broiler, the frame A of which is composed of several strands of wire twisted together, with an eye or loop, *a*, in one end, in which is inserted the other end of the twisted wire, and having a handle, C, with its arms inserted between the strands of the twisted wire on one side of the frame, and the ends of said arms looped and clinched around the opposite side of the frame, and cross-bars D looped and clinched at their ends over the sides of the twisted frame, substantially as and for the purpose set forth.

176,576. WASH-BOILERS. Marion Rains, Cerro Gordo, Ill., assignor of one-half his right to Wm. L. Pitts, same place. [Filed Jan. 6, 1876.]

Brief.—A boiler; an inner vessel with a covered valve at bottom; at ends chambers for the ascent of the boiling water, perforated inside for its descent; at the sides clear-water reservoirs with gates; and at the base a discharge-cock.



1. The combination, with the boiler A, of the clean-water reservoir E and gate or slide S, adapted to be operated at the will of the attendant, substantially as described, for the purpose specified.

2. The false bottom, constructed in two parts, D D, and having upturned ends and turned-down side edges, in combination with the diaphragms B B and the rim or flange E, provided with upturned edges, substantially as described, for the purpose specified.

3. The valve V, constructed and arranged substantially as described, for the purpose specified.

176,577. STOVES. Charles Baldwin, Chicago, Ill. [Filed Feb. 20, 1876.]

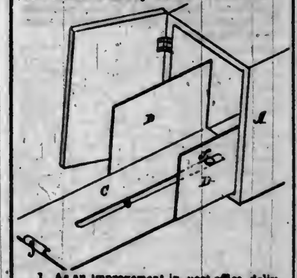


1. A supplementary chamber, E, projecting from the back plate of a stove independently of a detachable reservoir, and communicating with the flues by openings in the back plate of the stove, but closed entirely at the rear, so that the products of combustion cannot pass behind it, substantially as and for the purposes set forth.

2. The combination of the back plate D and chamber E, cast in one piece, substantially as described.

176,578. POST-OFFICE LETTER-BOXES. E. T. Barlow, San Francisco, Cal. [Filed Dec. 15, 1875.]

Brief.—The sliding bottom affords ready access to its contents, especially where the box is too small to readily admit the hand.



1. As an improvement in post-office delivery-boxes, the combination of an inside sliding drawer, C D, having open ends, with the ordinary pigeon-hole box A, substantially as and for the purpose described.

2. In combination with the post-office box or pigeon-hole A, the sliding bottom C, with its slot *c*, and the guiding pin or screw *f*, substantially as and for the purpose described.

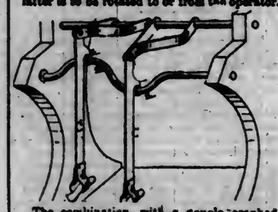
176,579. LAMP-STOVES. M. H. Barnes and Joseph Irving, Chicago, Ill. [Filed Mar. 18, 1876.]



In a lamp-stove, the combination of the non-conductor *g*, disk C with a metallic sleeve extending up around the burner from the lower plate of the disk, and with a shallow cup of foraminous metal, as and for the purpose herein specified.

176,580. TREADLES FOR SEWING-MACHINES. V. D. Enoch, Battle Creek, Mich. [Filed Oct. 9, 1875.]

Brief.—Two treadles are hung to the driving-shaft of the machine, having a two-throw crank turned on it, and each treadle pivoted to a vibrating fulcrum, either above or below the driving-shaft, according to whether the latter is to be rotated to or from the operator.



The combination, with a double-cranked driving-shaft, of two treadles, each of which is pivoted to a vibrating fulcrum, and to one of the cranks, substantially as shown and set forth.

176,581. SLAT-HOLDERS FOR BLINDS. Jos. Belcher, Newark, N. J. [Filed Oct. 19, 1875.]

Brief.—A longitudinally-split metal tube is journaled upon the lower part of the blind-frame. Through this tube passes a rod pivoted to the slat-rod. The gripe of the split metal tube holds the rod, and consequently the slats, in any required position.



The oscillating and longitudinally-split metal friction-tube E, in combination with the pivoted rod D, fitted to slide therethrough, for operation in relation with the blind-frame and the slat-operating bar C, substantially as shown and described.

176,582. PACKINGS FOR CAR-AXLE BOXES. Isbon Benedict, Richmond, Va., assignor to himself and J. N. Van Low, same place. [Filed Feb. 16, 1876.]

A packing composed for lubricating journals, consisting of cork comminuted and intimately mixed with a lubricant, as set forth.

176,583. TRILL-COUPLINGS. W. J. Bass, Amsterdam, N. Y. [Filed Mar. 4, 1876.]

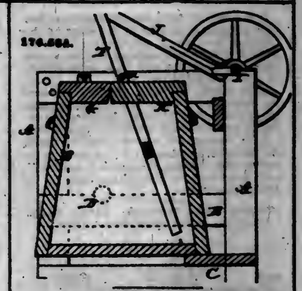


In combination with the slotted box F, the thill-iron C, having the surrounding rubber sleeve D and the independent side latches, connected to the box and arms of the thill-iron, all constructed substantially as and for the purposes set forth.

176,584. CHURNS. B. C. Blasdel, Champaign, Ill., assignor of one-half his right to J. S. Blasdel, same place. [Filed Feb. 28, 1876.]

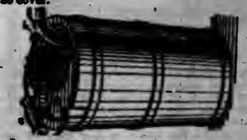
1. The tapering box B, having trunnions D placed below the center of the box, and forward of a line through its center, in combination with the frame A, having cross-pieces E, forming bearings for the trunnions, and the ledge C, all substantially as and for the purposes herein set forth.

2. The combination of the frame A, with cross-pieces E and ledge C, the tapering box B, hung upon trunnions D, placed below the center of the box, and forward of a line through the center, the straight slotted dashers F, pivoted to the frame by means of the removable rod K, the double crank-shaft I, pinion J J, gears L M, and balance-wheel N, all constructed as and for the purposes herein set forth.



176,585. DEODORIZERS. Jerome Bradley, Washington, D. C. [Filed Jan. 6, 1876.]

Brief.—Forces air through water and through a sponge loaded with a disinfectant, as carbolic acid. An elbow, carrying flexible connection with air-pump, is bayoneted onto the cover.



In a portable deodorizer, the combination of the bucket, the bezel B, the partition B', the sponge C, closing the top of the bucket, and the pipe D, leading through the bezel nearly to the bottom of the said bucket, substantially as described and shown.

176,586. HAND-TRUCKS. Jerome Bradley, Washington, D. C. [Filed Jan. 26, 1876.]



1. In a truck, the combination of the side pieces, bent substantially as described, and the toe, whereby a barrel can be carried in a nearly upright position, substantially as shown and specified.

2. In a truck, the combination of the side pieces to the same, made of angle-iron, constructed substantially as described and shown.

3. In a truck, the combination of the toe D, having a circular outer end, and the side pieces C C', having the curves *c c'*, constructed and arranged substantially as described and shown.

4. In a truck, the combination, with the arm E, of the dog F, having a tooth on one end and a hook on the other, sliding loosely on the said arm, and adapted to be turned end for end, constructed and arranged substantially as described and shown.

5. The truck described, and, in combination, the axle A, wheels B B', side pieces C C', toe D, arm E, and dog F, all constructed and arranged substantially as described and shown.

176,587. FITTING-MANDRELS. Jerome Bradley, Washington, D. C. [Filed Jan. 6, 1876.]

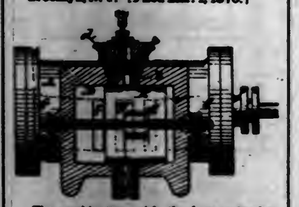


1. In a cask or barrel, the combination of two hooked castings secured to the sides of the barrel, a metal cover, two swinging dogs engaging with the said castings, and set-screws tapped through the said dogs, substantially as described and shown.

2. In a cask or barrel, the combination of the cast-metal cover C, having the circular rib *d*, cross-rib *d' d'*, and groove *e* on its under side, substantially as described and shown.

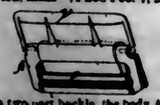
3. In combination with the cask or barrel A, the bronze castings B B', the cover C, the rubber ring packing, the pivoted dogs D D', and the set-screws *f' f'*, substantially as described and shown.

176,680. GAS-BURNER. James Brady, Brooklyn, N. Y. [Filed Mar. 1, 1876.]



The combination, with the burner, having one or more reticulated safety-interceptors, *b*, and the combustion-chamber D, of a single cylinder, A, of a double-acting engine, and a valve, B, interposed between said cylinder and the combustion-chamber, and operating to control the induction and ejection passages *f f* to and from opposite ends of the cylinder, for supplying and exhausting the gases produced by ignition in the combustion-chamber to and from opposite sides alternately of the single piston B, substantially as shown and described.

176,679. BUCKLES. Warren L. Braddock, Boston, Mass. [Filed Feb. 7, 1876.]



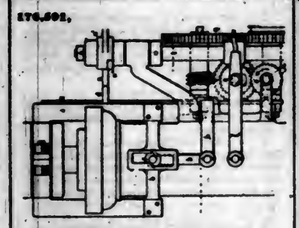
In a two-part buckle, the body A, composed of the elastic slotted arms or flaps *f f* and tongues B B, adapted to secure itself to the strap S without additional fastening, substantially as and for the purpose specified.

176,680. MERRY-GO-ROUNDS. Charles H. Brigham, Marlborough, assignor of two-thirds his right to Hawes, Butman & Co., Boston, Mass. [Filed Mar. 13, 1876.]



In a merry-go-round, two series of objects, H, adapted to rotate concentrically in substantially horizontal planes, and simultaneously in opposite directions around a common center, substantially as described.

176,681. INDIRECT-ACTING GOVERNOR. Johann Georg Bodmer, Esslingen, Saxony, Germany. [Filed Jan. 18, 1876.]



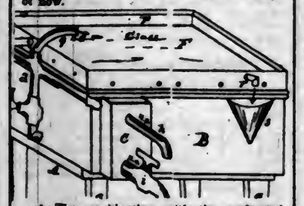
1. The combination of the yoke *a* of the governor, having a slot, *f*, by which the lever *h* is controlled, with the bar *a*, connected to the said yoke by friction, and from which the valve is controlled, as set forth.

2. The combination of the sheave *w* on the shaft of the governor with the sheave *w'*, eccentric *x*, and arms *u u' u'' u'''* on the shaft *t*, and with the projection *d* under the control of the governor, all substantially as described.

3. The combination of the shaft *t*, operated by friction from the governor, and having the arms *u u' u'' u'''* and the cam disk *v*, with mechanism substantially as described, through which the tappet *s* is caused to act on the bar *a*, as and for the purpose set forth.

176,682. MILK COOLERS OR WARMERS. E. B. Bunnell and A. B. Brown, Guilford, N. Y. [Filed Feb. 26, 1876.]

Brief.—The water enters at the forward portion of the lower chamber, and passes back before entering the filter-chambers. The air above the water at the left of the filter-chambers is compressed, thus causing uniformity of flow.



1. The combination, with the perforated pipe *b b*, of the supplemental or branch pipe *f* and the vertical section of pipe *g*, the latter extending up near the top of the cooling chamber or vessel B, for the purpose of drawing off the water from the top of the vessel as it becomes warmed by coming in contact with the bottom and sides of the pan D containing the milk, substantially as and for the purpose specified.

2. In combination with the milk-cooler, a thermometer having its lower portion surrounded in a casing, *e*, filled with a non-conductor, and connected to the vessel B by a pipe or tube, *n*, to allow the water to come in contact with the ball containing the mercury, substantially as and for the purpose described.

3. In a milk-cooler, the glass cover F, with frame G and flange *p*, in combination with the pipe *q*, substantially as and for the purpose set forth.

4. The glass cover F, frame G, with flange *p*, pipe *r*, and the pipe *q*, in combination with the vessel B and the funnel *e*, substantially as and for the purpose specified.

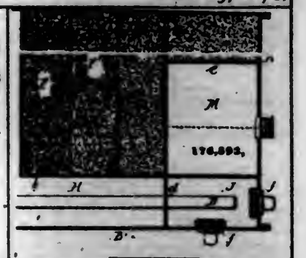
176,683. WATER-FILTERS. Henry J. Burke, Philadelphia, Pa. [Filed Mar. 22, 1876.]

Brief.—Runs a stream of water over a glass cover. Allows a thermometer in a packing of plaster-of-paris to the outside of vessel, and connects the bulb with the water by a tube. Withdraws the water from the surface and from the end farthest from its inlet, and discharges it near the inlet and of the vat by a continuous tube.

1. The combination, in a water-filter, of one or more filtering-chambers, with an air-chamber, into which the water must pass before it enters the said filtering-chambers, all substantially as set forth.

2. The combination of the sediment-collecting chamber J with the detachable plugs *f f*.

3. The combination of the filtering-chambers F, F', and F'', contained in the same casing with the connecting-tubes G G'.



176,683.

176,684. MAIL-TAGS. Walter P. Burrow, Norfolk, Va. [Filed Feb. 10, 1876.]

Brief.—Disengaging the spring-catch allows the disk to be rotated, so as to expose the other half of the face of destination-slip.



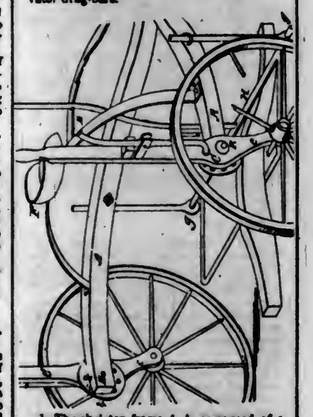
1. In combination with a removable destination-slip, C, the disk A, having flange *b* and spur *a*, with rectangular base *b'*, substantially as specified.

2. In combination with slip C and disk A, having annular flange *b* and central spur *a*, the rotating disk B, having flange *g* fitting over flange *b*, and an opening, *h*, for reading the slip, substantially as specified.

3. In combination with a fixed slip, C, and disk B, the spring-catch D, for holding the disk B in position, substantially as specified.

176,685. SULEY-PLOWS. Mortimer Cahill and Amos F. Morey, Avon, Ill.; said Morey assignor to said Cahill. [Filed Feb. 26, 1876.]

Brief.—The bounds are pivoted upon the crank-axles, which extend upward as levers. The hangers carry a frame and plow, or cultivator drag-bars.

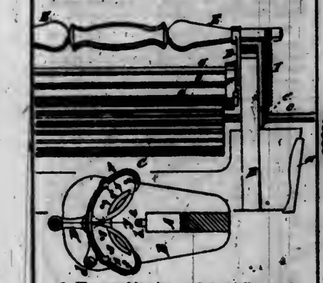


1. The skeleton frame A A, composed of a tongue with arms branching to the rear, having the hangers *g g* and circle-plates *b b*, in combination with the levers C C, extended to form crank-axles *c c* and spring-catches D D, substantially as shown and described.

2. The combination of frame A A, hangers *g g*, levers C C, and circle-plates *b b* adapted to carry the rectangular frame H, supporting a plow-beam, or the double-jointed couplings *i* attached to cultivator beams, constructed and arranged to operate substantially as and for the purpose set forth.

176,686. WASHING-MACHINES. Alonzo H. Cahlkins, Chicago, Ill., assignor to William Z. Cahlkins, same place. [Filed Jan. 16, 1876.]

Brief.—A corrugated roll is surmounted by a roller-jacket, the rolls composing the latter being arranged in sections, each journaled in independent rocking plates, placed in bearing-plates, which are pivoted to the standards of the frame.



1. The combination, substantially as described, of pivoted, rocking, supporting plates F, and a sectional roller-jacket, the sections of which are independent of each other, and are provided with bearings in the supporting-plates, so as to have a limited rocking motion independently of the rocking movement of the supporting-plates.

2. The combination, substantially as described, of the corrugated roller C, and yielding jacket of rollers constructed in sections, which are independent of each other, and have bearings in pivoted rocking supporting-plates.

3. The combination, substantially as described, of the rocking supporting-plates F, and pieces H, and rollers G, for the purpose set forth.

4. The combination, substantially as described, of swinging arms D, pivoted to the frame of the machine, and the roller-jacket, having its supports therein, for the purposes set forth.

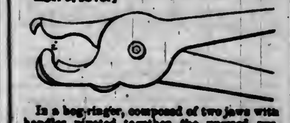
5. The combination, substantially as described, of the swinging arms D, pivoted to the standards B, supporting-plates F, and end plates H, for the purposes set forth.

6. The combination, substantially as described, of the handle E and the pivoted arms D, for the purposes set forth.

7. The combination, substantially as described, of the pivoted arms D, jacket of rollers supported thereon, handle E, and springs I I, connected to the frame of the machine, for the purpose set forth.

8. The combination, substantially as described, of the handle E, supported in the arms D, springs I I, and plates *c' c'*, provided with a series of holes, and rigidly attached to the standards of the machine.

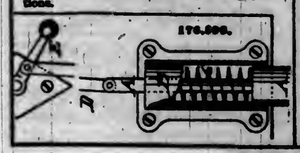
176,687. INSTRUMENTS FOR RINGING HOGS. William B. Chambers, Decatur, Ill. [Filed Apr. 6, 1876.]



In a hog-ringer, composed of two jaws with handles pivoted together, the upward-projecting points *f f* formed at the extreme end of one of the jaws, substantially as and for the purposes herein set forth.

176,688. DOOR-CHECKS. James Collins, Central City, Colo. [Filed Feb. 26, 1876.]

Brief.—A spring-acted and rubber-headed bolt, operated by a peculiarly-arranged lever-rod and crank, to hold the bolt in varied positions.



176,688.

The combination, with pivoted spring-bolt A working in a guide, of the lever-rod D and the crank E, the former pivoted to the latter at a short distance from its turning-point, and between the pivot and the handle, substantially as and for the purpose specified.

176,689. BOTTLE-COVERS. Earl K. Cooley, San Francisco, Cal. [Filed Dec. 23, 1874.]

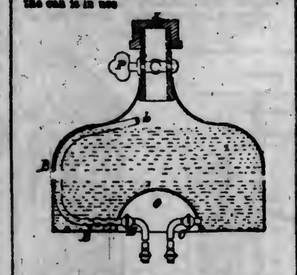
Brief.—An envelope for fragile ware, made of the spongy stalks of tule-grass, secured together by threads passing laterally through each stalk, one end of the envelope being left open, while the other is tightly pressed into a cone shape, and secured by wrapping.



As a new article of manufacture, an envelope for fragile ware, made of the spongy stalks of tule-grass, secured together by threads passing laterally through each stalk, one end of the envelope being left open while the other is tightly pressed into a cone shape and secured by wrapping, substantially as herein explained and described.

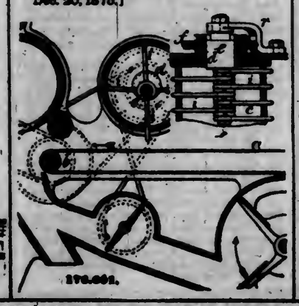
176,690. SAFETY FILLING-CANS FOR CARBURETORS. Edward H. Covel, New York, N. Y. [Filed Nov. 16, 1870.]

Brief.—The can has a nozzle provided with a screw-cap and a stop-cock. The connecting pipes at the bottom, for letting in the oil to a carburetor and taking off the vapors, are provided with stop-cocks. The vapor-tube passes from the bottom to near the top of the can above the oil. The peculiar construction prevents any vapors escaping into the room when the can is in use.



A safety-filling can for carburetors, provided with a filling-nozzle, having a screw-cap, X, or a stop-cock, P, and provided at the bottom with a recess, O, through the sides of which projects the exit-pipe C, having cock, and the vapor-pipe B, having stop-cocks, said vapor-pipe extending up the inside of the can, and opening near its top, as described.

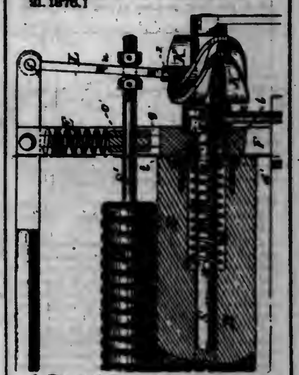
176,691. COTTON-GIN FEEDERS. Thos. C. Cravens, Hudson, N. Y., assignor to himself and Freeman Cocke, same place. [Filed Dec. 20, 1875.]



176,691.

The screen-cylinder revolving in stationary bearings, and provided with an eccentric shaft and teeth or pins *f*, in combination with the feeding-apron *e*, and the arm *r* upon the shaft *s*, whereby the distance between the teeth or pins and the apron is adjusted, as set forth.

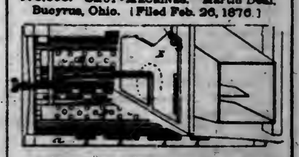
176,692. WASHING-MACHINES. Charles A. Daniels, Waterville, N. Y. [Filed Mar. 21, 1876.]



1. The combination of the nodulous roller B, the ridged roller A, the shafts S and S', the nuts *s*, the lever L, and the cam E, substantially as described.

2. The combination of the lever-cam *n*, the fixed cam *o*, the pin *i*, the recessed plate *d*, attached to the roller B, and the shaft S, substantially as and for the purpose described.

176,693. SMUT-MACHINES. Martin Deal, Bucyrus, Ohio. [Filed Feb. 26, 1876.]



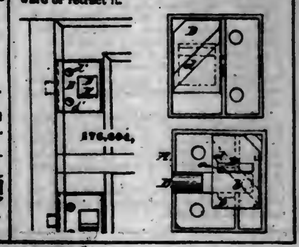
1. In a separator and smutter, the cylinder C, provided with overlapping longitudinal slots entirely around it, in combination with the frame A, provided with the air-passages *b b*, substantially as and for the purpose set forth.

2. The perforated spiral beaters D, in combination with the slotted horizontal cylinder C, substantially as and for the purpose set forth.

3. In a separator and smutter, the sliding valve E, placed over the inner air-passage leading from the separating-chamber into the fan, and provided with the lever *e*, in combination with a suction-fan, substantially as and for the purpose set forth.

176,694. SASH-FASTENERS. J. De Gratery, Fort Wayne, Ind. [Filed Mar. 20, 1876.]

Brief.—A two-part box or case is formed with suitable guides and slots, and incloses a horizontally-moving bolt, which is operated by a vertical slide having a thumb-piece and diagonal grooves, a pin on the bolt working in these grooves, to project the bolt forward or retract it.

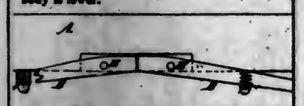


176,694.

The combination of the bisected box A B, provided with guides and slot, as described, the bolt C, having pin *b*, and the slide D, provided with thumb-piece D' and diagonal groove *d*, all substantially as and for the purposes herein set forth.

176,605. SIDE-BAR WAGONS. A. W. Doty, Windham, N. Y. [Filed Mar. 20, 1876.]

Brief.—By pivoting the spring-bars to the side of the body, instead of the bottom, the body is lower.



In a side-bar wagon, the combination, with the box A, of the pairs of supporting-bars B B, each pivoted to the side of the box at E, above the bottom thereof, and provided with spring-bearings, as shown and described.

176,606. TANNING PROCESSES. Jos. L. De Montessus, Manchester, England. [Filed Mar. 18, 1876.]

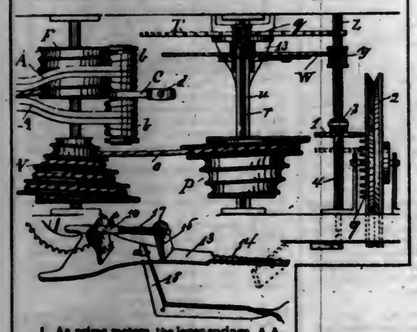
1. The above-described process of removing the hair from skins—that is to say, subjecting the skins to the influence of a solution consisting of hydrate of lime, sulphide of barium, sulphide of arsenic, potash, and hydrosulphate of soda or other form of alkali, in about the proportions set forth.

2. The within-described process of tanning hides—that is to say, immersing them in a solution of lime and in one or successive solutions of sulphuric or other acid, chloride of sodium, and alum, as set forth.

3. The within-described process of tanning hides—that is to say, immersing them in solutions of sulphuric or other acid, chloride of sodium, alum, tungstate of soda, and carbonate of soda, substantially in the manner described.

4. The process herein described of tanning hides—that is to say, immersing them in solutions of sulphuric or other acid, chloride of sodium, and tannic acid.

176,607. STEAM-POWERS. John W. H. Doubler and George F. Godley, Philadelphia, Pa. [Filed Apr. 10, 1876.]



1. As prime motors, the lever-springs A A, terminating in a coil at their fixed ends, and connected at their opposite ends to the drum-cord or chain *p*, substantially as shown and described.

2. The combination of the lever-springs A A with a swinging frame or crane, substantially as and for the purpose set forth.

3. The combination of lever-springs A A, sheaves, swinging crane, and drum F, substantially as and for the purpose set forth.

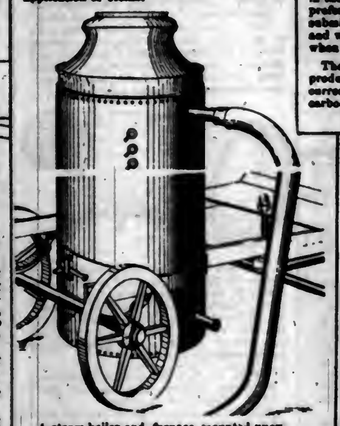
4. The combination of the rod 13, spring 14, brake-bar 16, spring 17, and foot-lever 18, the brake-bar serving as a brake and speed-regulator, said being substantially as shown and described.

5. The combination, with the wheel 2, provided with eccentric sets of teeth upon its face, of the shifting gear 1, provided with a locking mechanism, the combination serving as a means for changing or varying the power at will.

6. A motor receiving its impulse from the torsion-strain of a spiral spring or springs, as shown and described.

176,608. FIRE-EXTINGUISHING APPARATUS. Thomas H. Dunham, Boston, Mass. [Filed Sept. 2, 1876.]

Brief.—A steam-boiler furnace provided with steam-conducting hose mounted upon a suitable carriage, to form a portable apparatus for the extinguishing of fires by the direct application of steam.



A steam-boiler and furnace mounted upon a suitable carriage and provided with steam-conducting hose, the whole forming a portable apparatus applicable to the extinguishing of fires by the direct application of steam, as set forth.

176,609. STOVES FOR BURNING OIL. Oliver Edwards, Florence, Mass. [Filed Mar. 11, 1876.]

176,607.



1. The reflecting and radiating plate *g*, of sheet metal, bent in the form to deflect the heated gases downward and outward from the center, in combination with the cylinder F of an oil-burning stove, as and for the purposes described.

2. The plate C', interposed between the top of the wick-tubes and the oil-reservoir, constructed of sheet-zinc, or other metal that is a bad conductor of heat, in combination with the pillars C of an oil-burning stove, constructed as and for the purpose described.

3. In an oil-burning stove, the pillars C, standing upon the oil-reservoir and supporting the superstructure, and constructed of zinc, or other metal that is a bad conductor of heat, substantially as and for the purposes described.

4. An oil-burning stove composed of the combination of the oil-reservoir A, supporting-pillars C, zinc plate C', air-space C', wick-tubes b, foraminous plate D, tube E, having flange E', stove-cylinder F, and plate *g* therein, all constructed and arranged to operate substantially as described.

176,610. PROCESSES OF MANUFACTURING ILLUMINATING-GAS. Fredk. H. Blathesen, Detroit, Mich. [Filed Mar. 20, 1876.]

Brief.—Distills wood in one end coal in the other of two lower retorts, and passes the gas from each into an upper retort, where the two kinds combine and overtake the hydrocarbon in the form of vapor or oil, which is admitted, preferably, in an inner retort. The coal is subjected to an exhaustive distillation. Coal and wood may be placed in the same retort, when the wood is placed back of the coal.

The process, substantially as described, of producing an illuminating-gas from the concurrent distillation of coal, wood, and hydrocarbons at the same time, as set forth.

176,611.



176,611. NECK-TIES. Jacob H. Fleisch, New York, N. Y. [Filed Apr. 6, 1876.]

The combination, with a bow, A, shield B, and swinging hook C, of a neck-band, D, which can either be folded up or drawn out, the whole being constructed and arranged to operate substantially in the manner described and shown.

176,612. CULINARY UTENSILS. Warren R. Peaket, Cleveland, Ohio. [Filed Jan. 26, 1876.]



As a new article of manufacture, the within-described removable and reversible culinary steamer, made from sheet-metal, and consisting of a perforated convex disk, A, having upon it raised portions for strengthening the same, and provided on its under surface with legs D, as and for the purpose herein shown and described.

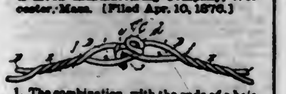
176,613. BALE-TIES. Gustus S. France, Cohoskill, N. Y., assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. [Filed Apr. 10, 1876.]



1. The combination, with the ends of a bale-tie, of the hooks D D and loops C C, substantially as and for the purposes set forth.

2. As an improved article of manufacture, a bale-tie, each end of which is provided with a loop, D, and hook C, with a partial twist between the respective loops and hooks, substantially as and for the purposes set forth.

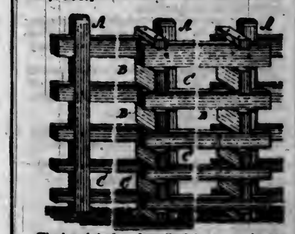
176,614. BALE-TIES. Gustus S. France, Cohoskill, N. Y., assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. [Filed Apr. 10, 1876.]



1. The combination, with the ends of a bale-tie, of hooks C, and loops D, substantially as and for the purposes set forth.

2. A bale-tie as an improved article of manufacture, having interlocking ends C D, constructed substantially as and for the purposes set forth.

176,615. PUMPS. A. P. Guinea, Sweet Water, Texas., assignee of one-half his right to J. R. Guinea, same place. [Filed Mar. 6, 1876.]



The herein-before-described fence, consisting of the posts A, short cross-pieces B, and long parallel rails C, the several parts being constructed, arranged, and secured substantially as described and shown.

176,616. ROTARY ENGINES. J. M. Gardner, Silver Spring, Tenn. [Filed Feb. 10, 1876.]



1. In a rotary engine, the abutments and cut-off valves G G', provided with oil-channels on their upper faces and centrally pivoted in the steam-chest, in combination with the eccentric pistons D D, operating as described.

2. In a rotary engine, the cut-off valves G G', provided with oil-channels on their faces, substantially as and for the purpose set forth.

3. The steam-inlet pipe H and oil-tube J, connected together by the pipe e, having a regulating-valve, in combination with cut-off valves G G', having oil-channels upon their upper faces, substantially as and for the purpose set forth.

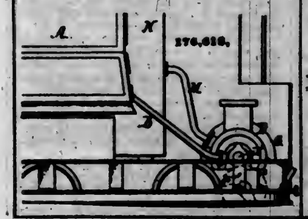
176,617. PAVEMENTS. Wilmot H. Gerlick, Calumet, Ohio. [Filed Jan. 3, 1876.]



1. The herein-described pavement, consisting of the tubular cylindrical blocks A, made of the material specified, and arranged as set forth, and the interstices between and the hole or bore of said blocks filled with cement or other material, in the manner as and for the purpose set forth.

2. The tubular cylindrical blocks A, consisting of, fire-clay or other ceramic material, burned in a kiln or otherwise, for roadways and foot-pavements, as herein set forth.

176,618. STEAM-MOTORS FOR TRAMWAYS, &c. Felix Gondebien, Brussels, Belgium. [Filed Jan. 10, 1876.]



176,618.

The combination of the water-reservoir N' with the steam-passage below the same, the condenser N, and pipe O, all substantially as described.

176,619. ICE-PLOWS. David B. Gerry, Chicago, Ill., assignor to Amzon S. Piper, same place. [Filed Nov. 16, 1875.]

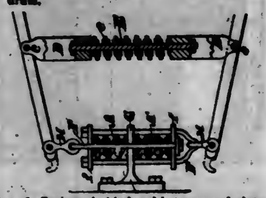
Brief.—Each adjustable tooth has a fixed back. A tongue in the tooth slides in a groove in the back. Each tooth has a flange upon its front, and projecting from each side. This flange extends a part of, or the whole of, the length of the tooth. In the latter event both ends of the tooth have a cutting-point, and the tooth may be reversed.



In an ice-plow, an adjustable cutter, in combination with the fixed part c and frame or back A, all constructed and operating substantially as and for the purposes set forth.

176,620. SPRING-FORKS. Geo. F. Godley, Philadelphia, Pa. [Filed Feb. 9, 1876.]

Brief.—A pawl-and-ratchet mechanism may be employed in connection with the gearing, so that the chain may be wound upon its drum.



1. Springs A A' placed between end plates *f f*, and connected by rods F, substantially as described, so that the expansive force of said springs will be exerted in both directions of their longitudinal axis, substantially as set forth.

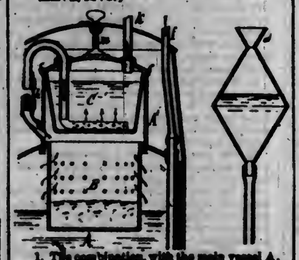
2. The combination of the springs A A', rods F F, and intermediate plate-end or bearing G, substantially as shown and set forth.

3. In combination with pivoted levers C C, the spring *e*, affording elastic fulcra for said levers, substantially as shown and described.

4. In combination with the springs A A', rods F F, and bends *f*, the levers C C, substantially as shown and described.

5. The combination of springs A A', levers C C, fulcra D D, spring *e*, rods F F, and plates or bends *f f* G, the several parts being arranged and combined for operation substantially as shown and described.

176,621. CARBONIC-ACID-GAS GENERATORS. John Graber, Buffalo, N. Y. [Filed Mar. 2, 1876.]

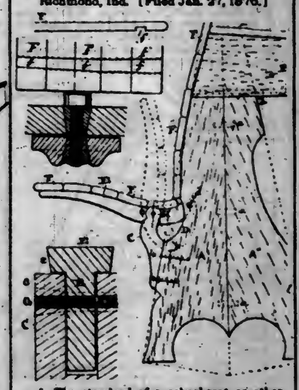


1. The combination, with the main vessel A, provided with contracted neck A' and inner flange *a*, of the perforated alkali-vessel B and cracking-vessel C, resting respectively upon the rim *a* and top of neck A', so as to be readily removable, substantially as hereinbefore set forth.

2. The combination, with a carbonic-acid gas-generator, of the acid-receptacle D, composed of a double conical body and funnel *d*, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the generating-vessel A A' and removable vessel C, of the inclosing-case I, provided with set-screw *m*, substantially as and for the purpose herein-before set forth.

176,622. SCHOOL-FURNITURE. G. H. Grant, Richmond, Ind. [Filed Jan. 27, 1876.]



1. The standard of a school-seat or other like article of furniture, constructed of two parts, A' A'', cut from a single piece of wood, reversed, and then united, in the manner substantially as set forth.

2. The desk-bracket and standard, united at the upper portion of the standard, as described, and having the gain *b*, for the reception of the book-shelf, formed partly in the bracket and partly in the standard, substantially as and for the purpose specified.

3. The seat-arm E, having the inner pointed end *e'*, constructed substantially as described, in combination with the bracket C and standard, having the mortise D, substantially as and for the purposes specified.

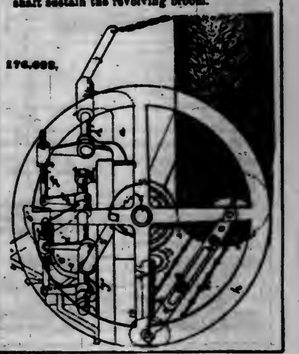
4. The seat-bracket C, having one or more supports or jaws, *c*, and the seat-arm or lever E, all having a screw-thread, G, to receive the screw-bolt H, and arranged to operate in combination therewith as a noiseless hinge, substantially as set forth.

5. The seat-arm and standard having concavously-tapering bevel-edged flanges F, in combination with the slats F, having correspondingly-shaped gains or grooves *f*, substantially as and for the purpose specified.

176,623. STREET-SWEEPERS. Robt. Greene, Boston, Mass. [Filed Mar. 28, 1876.]

Brief.—The adjustment, by which the height of the brush from the ground is regulated, is made by parallel rock-shafts with crank-arms, linked together by rods with nut and screw-extensions. Crank-arms from the outer rock-shaft sustain the revolving broom.

176,623.



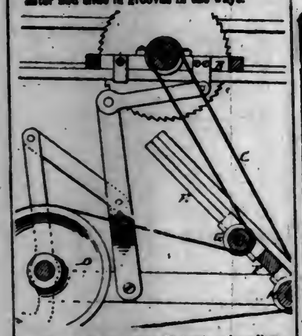
1. The brush roller and its pivoted supporting-arms, in combination with the connected rock-shafts *a* *g* *h*, to raise and lower the brush-cylinder, substantially as described.

2. The rock-shaft *a*, and connected rock-shafts jointed with the brush-roller frame, in combination with the strap and windlass adapted to move the rock-shaft and brush-roller vertically.

3. The rock-shaft *a*, and rock-shafts *g* *h*, and adjustable connecting-links *e* *f*, substantially as described.

176,624. BELT-TIGHTENERS. F. D. Green, Williamsport, Pa. [Filed Sept. 2, 1875.]

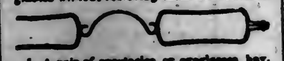
Brief.—The pulley-frame has two pulleys secured in it, and has its sides rabbeted to enter and slide in grooves in the ways.



The sliding carriage F, having the adjusting-pulleys G H, in combination with the grooved frame E, bolt C, hand-wheel D, and an arbor-pulley, all constructed substantially as and for the purposes set forth.

176,625. SPECTACLES. P. Hanney, Washington, D. C. [Filed Mar. 24, 1876.]

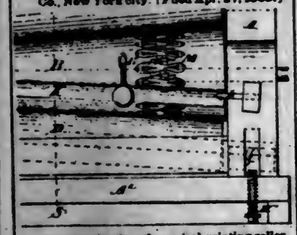
Brief.—Reduces the lens to a width of thirty to forty five hundredths of an inch, so as to enable the wearer to look over or under the glasses without removing them from the face.



1. A pair of spectacles or eyeglasses, having lenses constructed in the manner and for the purposes substantially as set forth.

2. A lens for spectacles and eyeglasses, constructed in the manner and for the purposes substantially as set forth.

176,626. MACHINES FOR PRINTING FABRICS OR CIRCULAR FORM. B. Hartman, Brooklyn, E. D., N. Y., assignor to L. Dryfoos & Co., New York city. [Filed Apr. 27, 1869.]



The combination of a conical printing-roller and a conical impressive-roller, operating together, substantially as and for the purposes set forth.

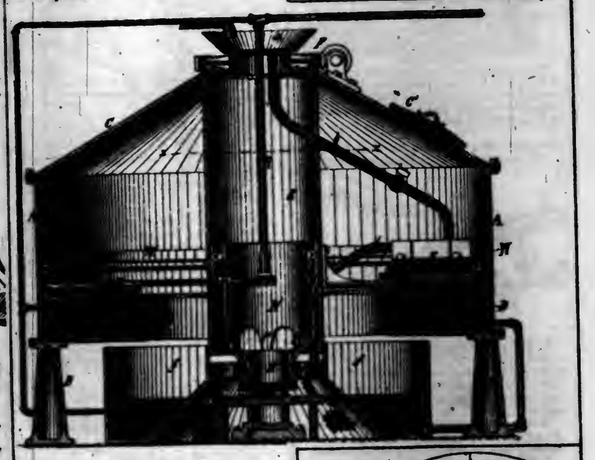
176,627. METALLIC PACKINGS. William Harper, New Haven, Conn., assignor of one-half his right to Wm. T. Porter, same place. [Filed Feb. 2, 1876.]



The combination of the inner and outer inlets or passages *g* *f*, the chambered base A, the cap D, the inner rabbeted outer packing-ring B, and the packing-ring C, arranged within the rabbet of the outer ring, substantially as specified.

176,628. DRYING APPARATUS. Thomas S. Harrison, Philadelphia, Pa., and Thomas H. Savery, Wilmington, Del. [Filed Feb. 12, 1876.]

Brief.—The material is spread evenly upon the platform, and its moisture driven off by the heat of the platform and the pounders. The scrapers remove the material, causing it to fall upon a drying-pan, where the drying is completed.



1. In a drying apparatus, the combination of an intermittently-rotating shaft and a series of pounding arms or sleds, substantially as described.

2. In a drying apparatus, the combination of an intermittently lifting and dropping shaft and a series of pounding arms or sleds, substantially as described.

3. In a drying apparatus, the combination of a both intermittently-rotating and intermittently lifting and dropping shaft and a series of pounding arms or sleds, substantially as described.

4. In a drying apparatus, the combination, with a rotating shaft, E, of a series of lifting and dropping pounding-arms, H, adapted to be rotated but not carried by the shaft, substantially as described.

5. A series of rotating pounding-arms, adapted to be lifted and dropped upon the platform, substantially as and for the purpose specified.

6. The automatically discharging and overflow-regulating feed apparatus S, adapted to be rotated over the platform of a drying apparatus, substantially as described

7. The combination of the overflow-pipe *d*, from the feed apparatus S, with the pan *c*, to avoid waste, as specified.

8. In combination with a steam-heated platform, having an annular or circular opening through it, a steam-heated annular trough, located below each opening, to receive the dried material escaped from the platform, for the purposes specified.

9. The combination of a pan-sweeper, 13, with its operating feed apparatus S, substantially as and for the purpose described.

10. The combination of the pan-sweeper 13, driven by and in advance of the feed apparatus, and the steam-heated conveyor 14, for the final removal of dried material, substantially as described.

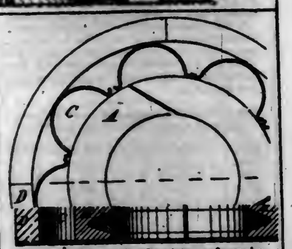
11. The combination of the worm-gearing F 7, cam 8, lever 9, sacred collar 17, shaft B B', and frame-work H, the whole forming a continuous mechanism for intermittently rotating and intermittently lifting and dropping a series of pounding-arms, substantially for the ends herein before set forth.

12. The cylinder or frame-work H, substantially as specified, in combination with the shaft B B', collar J, lever K, and trip-wheel M, to lift and drop a series of pounding-arms, substantially as described.

13. The combination of an obliquely corrugated *g* *g'* *g''*, with its operating-shaft E, and feed apparatus S, located behind it, substantially as described.

14. In a drying apparatus, steam-heated platform 1 2, having an annular opening or division, 21, through it, for the purpose specified.

176,629. PAPER-FASTENER. A. Hendee, Key West, Fla. [Filed Mar. 18, 1876.]



In a metallic packing for piston-rods or similar devices, the combination of the interior sectional ring A, having the ends of the sections overlapping each other, and provided on the inside with Babbitt metal B, the springs C C', and the exterior bisected ring D, substantially as and for the purpose set forth.

176,630. WAGON-LOCKS. Wm. H. Hemker, Morton, Ind. [Filed Mar. 2, 1876.]

Brief.—When the lever is operated, the crank interferes with the spoke and locks the wheel.

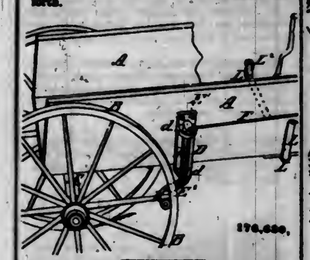
1. The combination of a rock-shaft, B, having brake arm or crank B', with wheel E, substantially as and for the purpose set forth.

2. The combination, with the rock-shaft B and wheel, of an anti-friction roll, K, on the brake arm or crank of said rock-shaft, substantially as and for the purpose set forth.

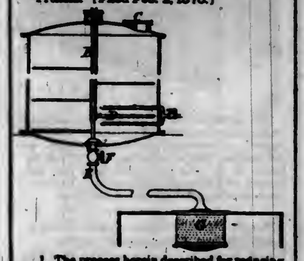
3. The combination, with the rock-shaft B and wheel E, of an anti-friction roll, K, on the brake arm or crank of said rock-shaft, said roll being made tapering at its outer end, substantially as and for the purpose set forth.

4. The combination of rock-shaft B, having brake arm or crank B', with a link, lever, and rock for engaging and disengaging the same, and retaining it in either position, substantially as set forth.

5. The combination of hand-lever, detachable link, and rock-shaft L, arranged beneath the wagon-bed and transversely thereto, and having upwardly projecting arms *L' L''*, with the rock-shaft B and its brake or crank arm B', substantially as and for the purpose set forth.



176,631. PROCESSES FOR TREATING GRAIN. J. D'Heureuse, Schmiedeberf, near Barmen, Prussia. [Filed Feb. 2, 1876.]



1. The process herein described for reducing grains, seeds, and similar products to a pulpy mass, consisting in treating the entire grain or seeds, whole or broken, in a steam vessel by high-pressure steam or by steam or heat and air-pressure, substantially as described.

2. The process of preparing pulp or paste from cereals, grains, and seeds, consisting in steaming so as to loosen the pulp from the hull, and then forcing the mass against a sieve or filter so as to separate the hard from the soft portions, as set forth.

3. The process of treating grains and seeds, such as described, consisting of the following operations, viz: steaming so as to soften the pulp, then separating the hard portions, and finally drying the mass, substantially in the manner described.

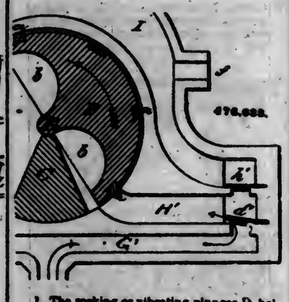
176,632. CONSTRUCTION OF BOOKS. Henry B. Heyl, Philadelphia, Pa., assignor to the Novelty Paper-Box Company, same place. [Filed Feb. 26, 1876.]



A book prepared for binding, having wire staples *b* connecting the leaves of each signature *a*, and twine *c* rove around the said staples in a succession of loops to connect the signatures, all substantially as herein set forth.

176,633. PUMPS. David O. Holman, Adams, N. Y., assignor of one-half his right to T. P. Saunders, same place. [Filed Mar. 4, 1876.]

Brief.—A piston vibrates upon a stationary abutment within the chamber, the rubbing-surface of the piston being kept tight by packing. The fluid rises on each side of the piston through a valve in separate compartment, below that in which the piston moves. The fluid received by the movement of the piston in one direction is discharged as the piston vibrates in the opposite direction, and vice versa. A faucet at each end of the pump has apertures, which communicate with passages immediately above the valves, to drain the pump and prevent freezing.



1. The rocking or vibrating plunger D, bolowed out at *b b* and provided with packing *c*, in combination with the cylinder B and stationary abutment C, substantially as shown and described.

2. The combination of the casing A, cylinder B with abutment C and rocking plunger D, inlet-passages G G', valves *d b* and *d' b'*, passages H H', and chamber I, with one or more outlets, *f*, all as and for the purpose set forth.

3. The faucet J with double apertures *x*, in combination with the passages and valves, as and for the purpose set forth.

176,634. LOCK-NUTS. Cassius Holton, Reading, Pa., assignor to Francis Hickman, same place. [Filed Jan. 22, 1876.]



The nut B with parallel outer and inner faces, and provided with a screw-threaded orifice, which is inclined as set forth.

176,635. FOUNTAINS. Oliver Horsbake and Albert J. Wilkins, California, Pa. [Filed Feb. 29, 1876.]

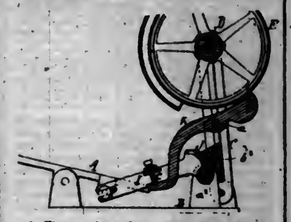
Brief.—The clock-work actuates the pistons. The rubber bulb is distended by the water, and, tending to gain its normal shape, produces a constant flow of water in the basin.



In a fountain, the combination of the bellow pedestal *a*, an operating mechanism, *d*, pistons *c*, cylinder *g*, bowl A, tubes *i e*, and basin *n*, substantially as shown and described.

176,636. MECHANISMS FOR OPERATING SEWING-MACHINES. Elijah L. Howard, Boston, Mass., assignor to J. A. S. Graves, same place. [Filed Apr. 10, 1876.]

Brief.—The sewing mechanism and friction-pulley are on a standard pivoted at bottom. On pressure of the foot on the pedal, a cam-lever pushes the standard into a vertical position, bringing the pulley in frictional contact with one of a series on a line of revolving shafting, and dropping out of gear and operating a brake on removal of the foot.



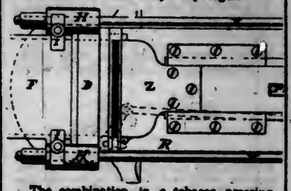
1. The cam-lever I, in combination with the pedal A and wheel E, as a means of imparting the movement of such pedal to the standard to raise the latter to an erect, or nearly erect, position, and throw the wheel E into contact with the driving-pulley, substantially as and for purposes stated.

2. The lever K, in combination with the pedal A, standard C, and wheel E, whereby a movement of the pedal is transmitted to the wheel to stop the motion of the latter, substantially as and for purposes stated.

3. The combination of the pedal A, standard C, levers I and K, and wheels E and G, under the arrangement, substantially as herein described, whereby a tilting of the pedal from its idle position results in, first, separating the said wheels E and G, and immediately thereafter stopping the rotations of the first, essentially as and for purposes stated.

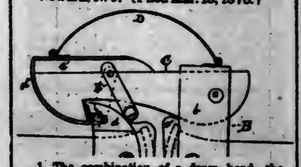
176,637. PLUG-TOBACCO MACHINES. Geo. W Howell, Covington, Ky. [Filed June 26, 1876.]

Brief.—The mold in which the plug is formed has one side which automatically opens and closes, and upon the side opposite to the plunger is an abutment, which rises and falls, to permit the finished plug to be pushed out of the mold by the plunger.



The combination, in a tobacco-pressing machine, of the former G, pivoted guide *d*, vertical chute E, receiver F, automatically-adjusting abutment D, and reciprocating plunger Z, the whole constructed and arranged to operate substantially as herein shown and described.

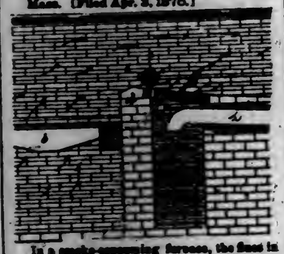
176,638. CAR-COUPLINGS. Profit Jacob, Newark, N. J. [Filed Mar. 13, 1876.]



1. The combination, of a draw-head, the plates *a a a* passing through, above, and below the draw-head, pivoted thereto and forming a hook, B, the hook C, pivoted at *c* to one end of the hook B, and the spring D bearing upon both hooks, as set forth.

2. The combination, with the hook B and its plates *a*, of the cap *d* and pin *e*, as specified.

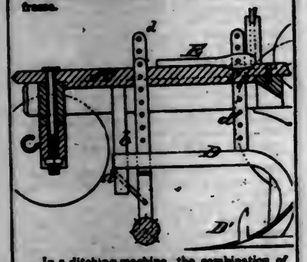
176,630. SMOKE AND GAS CONSUMING FURNACES. Kingsbury M. Jarvis, Peabody, Mass. [Filed Apr. 3, 1876.]



In a smoke-consuming furnace, the flues in the side walls and openings *i* at the sides over the bridge-wall, in combination with the flues *h* and the perforated plate and chamber *f*, all arranged with reference to each other and the boiler, or described, whereby the heated air is introduced and commingled with the gas or flame in the combustion-chamber, substantially as described.

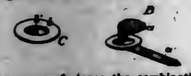
176,640. DITCHING-MACHINES. Lewis C. Johnson and Wm. L. West, Martinsville, Ohio. [Filed Mar. 20, 1876.]

Brief.—The plow-beam is adjusted to different heights by two perforated bars, and an eccentric lever mounted on the beam of the frame.



In a ditching-machine, the combination of the plow-beam D, with loop *a*, the bar *b*, beam A', perforated bars *d d'*, and eccentric lever E, substantially as and for the purpose set forth.

176,641. PAPER-FASTENERS. W. B. Johns, Georgetown, D. C. [Filed Mar. 11, 1876.]



1. In a paper-fastener, the combination of a tongue and a plate adapted to be passed over the end of such tongue on the opposite side of the paper from its head, substantially as described and shown.

2. In the paper-fastener described, the combination of the tongue B, having the enlarged end *c* and shank *c'*, and the plate C, having the central raised portion *b* and hole *b'*, all constructed and arranged substantially as shown and specified.

176,642. WINDOWS. Narcisse A. Julien, Tarrytown, N. Y. [Filed Feb. 28, 1876.]

Brief.—The windows are hinged, and are pivoted with rule-joints at the hinging and meeting points. The frame in which the window is hung is made adjustable by horizontal slats, in which screws are inserted.

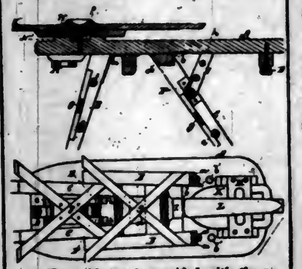


1. The hinged sash, constructed with convex-cylindrical rule-joints at O D E F, as described, for the purpose set forth.

2. The adjustable hanging-stiles O O, in combination with the hinged sash-frames D D.

3. The combination of the inside blind-stiles H with the adjustable hanging-stiles O O, as explained.

176,643. IRONING-TABLES. R. M. Kehrl, Newton, (Upper Falls,) assignor to G. H. Goodnow, Cambridgeport, Mass. [Filed Mar. 10, 1876.]



1. The table-top A, provided with the recessed rotary head M, and adapted to support the shirt and sleeve boards K L, arranged near one end of it, as and for the purpose set forth.

2. The table-top provided with the raised projection N, the recessed rotary head M, and the latch *p*, all arranged and applied substantially as set forth.

3. The legs C C, hinged to the table-top, and provided with the strut E and its extending-spring F, all being substantially as specified.

4. In combination with each pair of the legs B B C C, the diagonal braces *g g*, extended screws and beyond them, substantially as set forth.

176,644. MUFFS. Otto Kachler, Philadelphia, Pa., assignor of one-half his right to Judah Isaacs, same place. [Filed Mar. 6, 1876.]



1. The combination, in a lady's muff, substantially as described, of the adjustable opening at one end of the muff A, with the annular pocket 6, for the purpose of giving access to said pocket through said end.

2. The combination, with the outer edge of the pocket 6 and adjustable semicircular bail or bow 8, of the adjustable satchel-cover B, substantially as and for the purpose set forth.

3. The wire ring 7 and the semicircular bow 5, jointed together by the parts 9 10 11, as described, and shown in Fig. 5, in combination with the adjustable opening in the end of the muff A, for the purpose set forth.

176,645.

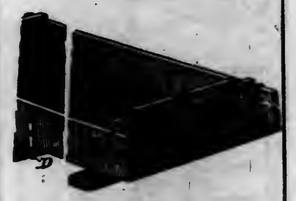


176,645. AUTOMATIC STOVE-PIPE DAMPERS. Solomon Kepner, Pottstown, Pa. [Filed Mar. 24, 1876.]

1. An automatic damper consisting of the combination of a movable damper, an air-valve, and a weighted lever, substantially as shown.

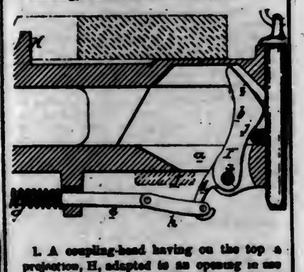
2. The combination of the movable damper, a perforated diaphragm, air-valve, and a hole in the pipe, whereby the damper is made to close and cold air is admitted into the pipe, substantially as set forth.

176,646. FOLDING WAGON-BODIES. Joseph H. King, Roswell, assignor of one-half his right to Olna. Pratt, Atlanta, Ga. [Filed Mar. 4, 1876.]



The combination, in a folding sectional wagon-body, constructed substantially as described, of detached side-boards, secured to the central hinged cross-bar of the bed by hooks D D, with removable head and tail boards, secured to the side-boards by the lever latch-hook H, substantially as described.

176,647. CAR-COUPLINGS. John J. Lahaye, Reading, Pa. [Filed Mar. 27, 1876.]



1. A coupling-head having on the top a projection, H, adapted to an opening in the framing of the car, as and for the purpose set forth.

2. The combination of the coupling-head with the pivoted lever F and spring-rod *e*, connected to the short arm of the lever, as set forth.

3. The combination of the spring-rod *e* and the hooked short arm *d* of the lever F with the connecting-link *h*, as set forth, for the purpose specified.

176,648. BIRDS OF CHURCH-PEWS. Israel Lancaster, Richmond, Ind. [Filed May 14, 1874.]



176,648.

As a new article of manufacture, a pen-rod consisting of the body C, formed of strips *a b*, &c., notched and fitted together, and the arm-piece D *d d'* and base B, the whole being formed from strips sawed from the roots of trees, substantially as and for the purpose described.

176,649. CAR-COUPLINGS. W. H. Langley, E. P. Ralph, and Jos. Hannan, Gallipolis, Ohio. [Filed Mar. 28, 1876.]



The combination of the draw-bar, the sliding block *a*, with its spring *d'*, the gate *d*, carrying the coupling-pin, and lever *e*, for raising the gate and coupling-pin, all constructed, combined, and arranged to operate substantially as described.

176,650. MUSEUM LAMPS. John Q. Lee, Plymouth, Pa. [Filed Feb. 17, 1876.]

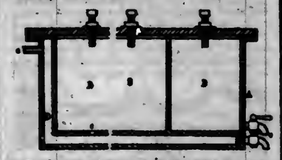


1. A lamp-top composed of two thicknesses, and united by having one piece turned up and over the projecting flanges of the other, thereby dispensing with the use of solder, as described.

2. A lamp-top, A, punched or cut from one sheet of metal, in combination with a hinge, B, substantially in the manner and for the purpose set forth.

176,651. FILTERS. John W. Ieffers, Baltimore, Md. [Filed Mar. 4, 1876.]

Brief.—An advantageous and compact arrangement of parts. The water may pass away through the lower duct without being filtered, if desirable.



The covered box A, provided with the duct D, into and from which the unfiltered water is passed, the communicating filtering-chambers B, passage *c*, inlet *a*, outlet *b*, and discharge-orifice *e*, substantially as and for the purposes herein specified.

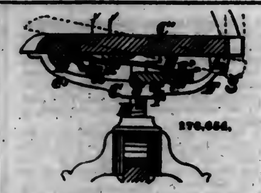
176,652. PROCESSES OF PRESERVING MEAT. Windsor Leland, Chicago, Ill. [Filed Oct. 9, 1875.]

The herein-described process of preserving meats, the same consisting in first cooking the meat by boiling or steaming, then cutting or chopping it, then evaporating, as described, and finally sealing the meat so treated in air-tight cans, substantially as set forth.

176,653. PREPARATION OF PHOTOGRAPHS FOR THE REPRODUCTION OF COLORS. George C. Lewis, Washington, D. C. [Filed Sept. 9, 1875.]

The process herein described of preparing the surfaces of photographic pictures for the reception of coloring material by applying to the same a coating of gummy or gelatinous substance combined with honey or other hygroscopic material, substantially as set forth.

176,654. TILTING CHAIRS. M. V. Lunger, Philadelphia, Pa. [Filed Sept. 16, 1875.]



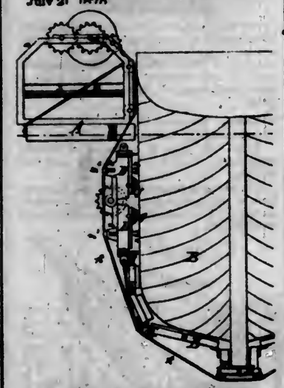
176,654.

1. In combination with the seat C, and spring B, the bracket D, secured to said seat, set-screw *d*, and shoulder or fulcrum *d'*, substantially as shown and described.

2. The combination of the spider C, having the rearwardly-extending studs *c' c'*, the legs D, having set-screws *d*, and the curved springs E secured at one end in said legs, and having the other end free to work on said studs, substantially as set forth.

3. The swinging lever or curved arm F, arranged to operate as a lock for the seat and prevent the tilting of the latter, substantially as shown and described.

176,655. APPARATUS FOR CLEANING SHIPS' BOTTOMS. William Martin, Poughkeepsie, assignor of one-third his right to Isaac Heyman, same place, and one-third to Thos. Wilson, Weddington, N. Y. [Filed July 21, 1875.]

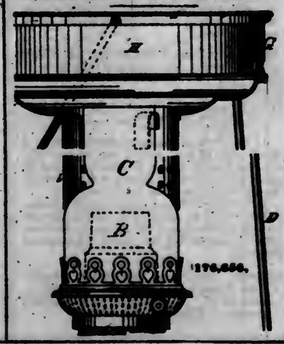


1. In a device for cleaning ships' bottoms, a series of rotating brushes suspended in adjustable frames, substantially as described.

2. A series of rotating brushes suspended in adjustable frames, in combination with scrapers set in frames adapted to be expanded and contracted, substantially as described.

3. The series of rotating brushes set in adjustable frames, in combination with fixed brushes therein, substantially as described.

4. The floats A, bearing windlasses, in combination with the series of adjustable rotating brushes and expanding and contracting scrapers, substantially as shown and described.



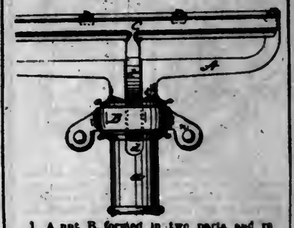
176,656.

176,656. LAMP-STOVES. Thos. S. Marshall, Syracuse, N. Y. [Filed Apr. 1, 1876.]

The combination of the elevated heating-chamber G, interior hoop H, and perforated adjustable center-tube E, all supported above a lamp by rods D, as and for the purpose specified.

176,657. COMBINED MOP AND BRUSH HOLDER. H. H. Mason, Springfield, Vt. [Filed Feb. 14, 1876.]

Brief.—The pivoted jaw has gears upon its lower end, into which the threads on a rotating nut mesh to operate the jaw, to clamp a brush or mop-cloth against the stationary jaw.

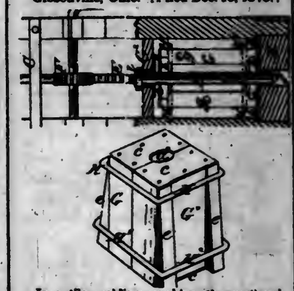


1. A nut, B, formed in two parts, and revolved between fixed stationary bearings or flanges, substantially as and for the purpose described.

2. In a combined mop and brush holder, the shank of the adjustable jaw provided with gears on its end which mesh into the screw threads of a revolving nut, substantially as and for the purpose described.

3. In a combined mop and brush holder, a fixed jaw having its shank formed with a socket for the handle, a slot for the reception of the shank of the adjustable jaw, and also a flanged bearing for the operating-nut, in combination with a movable jaw having an irregular-shaped shank with gears on its lower end, fitting into screw-threads formed within a revolving nut by which it is operated, substantially as and for the purpose described.

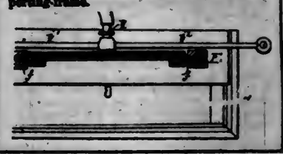
176,658. MACHINES FOR MAKING PIPE-TUBE FOR PUMP-STOCKS. A. B. McBroom, Gibsonville, Ohio. [Filed Dec. 16, 1875.]

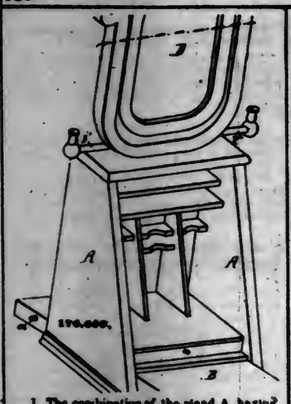


In a tile-molding machine, the sectional mold, provided with the end plates *c c* and vertical corner wedges *c c*, and combined with the plunger D, clamps E F, the opening *f*, and the base-guides A, the plates having central openings *d d*, and the plunger *c* stop, *i*, all arranged to operate as herein set forth.

176,659. TOILET-STANDS. W. McConnell, Philadelphia, Pa. [Filed Mar. 9, 1876.]

Brief.—The cover is arranged on pins that slide in grooves, so that it can be held in front of the stand, or slid in under the shelves. The glass is provided with pins that slide in grooves, open at the top, made in the supporting-frame.





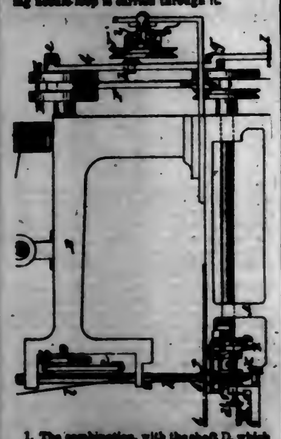
176,660.

1. The combination of the stand A, having receptacles for toilet articles, and having supports for a looking-glass, with the cover B pivoted to and capable of sliding within the stand, all substantially as set forth.

2. The glass D, having pins *f f*, adapted to corresponding slots *g g* in the supports E, so as to be readily withdrawn, substantially as described.

176,660. SEWING MACHINE. John Mc Clenkey, New York, N. Y. (Filed June 6, 1876.)

Brief.—The improvement relates to the mechanism for operating the needle-shaft to the feeding mechanism, and to devices for making a chain stitch, connected with the revolving hook. The needle-shaft is operated by a system of double cranks and rods, connecting said cranks with the wrist-pins of a corresponding system of cranks upon the main driving-shaft. One of the rods is provided with devices whereby it may be detached from the crank-pins, when it is desired to use but one connecting-rod and system of cranks. The feed-block can be operated in line with the driving-shaft, or at right angles thereto. The revolving hook is provided with mechanical devices, whereby it is adapted to produce a simple chain-stitch. A ring, provided with an inner and outer hook, is inserted between the revolving hook and the ordinary bobbin-supporting ring of the Wheeler & Wilson pattern. This device serves to distend and retain the loop until the succeeding needle-loop is carried through it.



1. The combination, with the shaft D, which extends the needle-bar, of the crank, wrist-pins *f e*, arranged at right angles, or thereabout, with each other, the correspondingly-arranged wrist-pins *f g*, and the connecting-rods F G, substantially as described.

2. The needle-driving mechanism, comprising the double system of wrist-pins *f e*, the revolvent connecting-rod G, the detachable connecting-rod F, and the weight I, attached to the wrist-pin of the rod G, whereby the needle-shaft may, on occasion, be driven either by a single rod and its connected wrist-pins, or by the double system of rods and pins, as described.

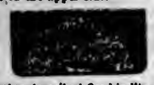
3. The arm or driver O, attached to the sliding and rocking eccentric bar P, in combination with the fixed eccentric-cam Q, the slide L, and the feeding-dog M, substantially as and for the purposes specified.

4. The flat or inner hook T, attached to or forming part of a ring or center-piece, *e'*, having a loop-detaining wing or arm, *e''*, in combination with the revolving hook K, for operation with reference to the needle, substantially as and for the purpose set forth.

5. The rotating hook K, provided with a groove or channel, *f'*, in combination with the ring-frame A and its loop-detaining screw or stop *e''*, substantially as and for the purpose set forth.

176,661. FIRE-KINDLERS. Jas. F. McCarty, Philadelphia, Pa. (Filed Feb. 26, 1876.)

Brief.—The coke surrounds the saturated shavings on the upper side.



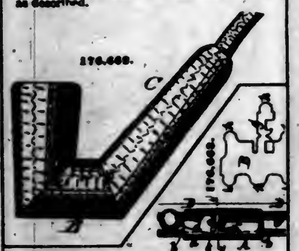
The within-described fire-kindling package, consisting of an outer bag or casing of paper, a mass of granulated coke, and a quantity of shavings or chips saturated with inflammable material and embedded in the said mass of granulated coke, all being combined as set forth.

176,662. SMOKING-PIPES. J. W. McKay, Caverna, Ky. (Filed Feb. 26, 1876.)

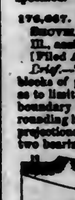
Brief.—The pipe is composed of mitered sections of a corn cob, held by glue and dowels.

The new and improved article of manufacture, to wit: a corn-cob pipe, made of mitered sections A B C, secured together substantially as described.

176,662.



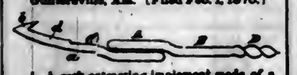
176,663.



176,663. CLASPS FOR POCKET-BOOKS. L. Messer, New York, N. Y. (Filed Mar. 22, 1876.)

The combination, with metallic binding-strips C D, of a latch-containing case, A, provided with a lip, *c*, and with ears *b b*, and of a thumb-piece, B, provided with a hook, *g*, and with ears *h h*, all constructed and operating substantially in the manner herein shown and described.

176,664. CORK-EXTRACTORS. A. Miller, Guntersville, Ala. (Filed Feb. 1, 1876.)

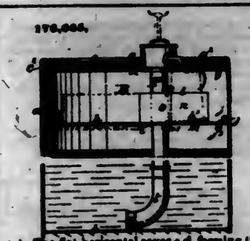


1. A cork-extracting implement made of a single piece of steel wire or rod, bent to form the ring handle A, arm B, with corkscrew D, and arm C, with flanged hook *b*, substantially as and for the purposes herein set forth.

2. A cork-extracting implement consisting of the handle A, arm C, and hook *b*, the arm having a knife-edge, *d*, and being curved at the point *a*, substantially as and for the purposes set forth.

176,665. OIL-TANKS. Charles A. Munger, New York, and Arthur P. Yates, Syracuse, N. Y.; said Yates assignor to said Munger. (Filed Mar. 28, 1876.)

176,665.



1. The flat horizontal cover *c d*, forming the top of the tank, and composed of a fixed rear portion and a pivoted front portion or lid, the latter turning horizontally above the pump-chamber and beneath the flat rear portion of the cover, in combination with a pump which is covered by said lid when the tank is closed, substantially as illustrated and described, for the purpose specified.

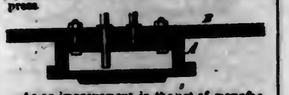
2. The sink-floor *h h'*, having the segmental drop *h'*, hinged, and provided with holding devices, substantially as shown, for the purpose set forth.

3. The adjustable pump-head, adapted to slide vertically, so as to occupy an elevated or a lowered position, and arranged within a tank can, substantially as herein set forth.

4. The combination of the fixed pump-support *l o*, the vertically-adjustable pump *P*, and the extension-tube *i*, substantially as shown and described.

176,666. MANUFACTURE OF ARTIFICIAL STONE. Wilson Mitchell, Philadelphia, Pa. (Filed Apr. 1, 1876.)

Brief.—Steam is admitted by a pipe to the cavity within the plunger. The plunger is operated by a hydraulic or other powerful press.



As an improvement in the art of manufacturing artificial stone, the method of solidifying the material in a mold with a heated plunger, substantially as and for the purpose specified.

176,667. DIES FOR THE MANUFACTURE OF SHOVEL-BLOCKS. Gilpin Moore, Moline, Ill., assignor to Deere & Co., same place. (Filed Aug. 30, 1876.)

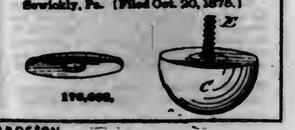
Brief.—The dies are designed to form the blocks of plate metal, and are so constructed as to limit and define the lateral spread and boundary of the article by means of a surrounding horizontal shoulder, while two salient projections on the upper surface produce the two bearings for the two shovels.



1. The dies A B, curved in their cross-section, and otherwise shaped so as to produce upon the shovel-block one or more bearing-surfaces, substantially as described, and for the purpose specified.

2. The dies A B, curved in their cross-section, and otherwise shaped so as to produce upon the shovel-block one or more bearing-surfaces, and provided with projecting shoulders *c*, substantially as described, and for the purpose specified.

176,668. FURNITURE-TIPS. Geo. F. Muller, Sewickly, Pa. (Filed Oct. 20, 1875.)



176,668.

As a new article of manufacture, the solid anti-friction furniture-tip G, hemispherical in form, and provided with the screw E, secured to its flat surface, substantially as and for the purpose set forth.

176,669. REFRIGERATORS FOR LARD-CHIMNEYS. John Gest Muller, Memphis, Tenn. (Filed Nov. 20, 1876.)



The closely-fitting hinged cap E, constructed and applied to a lamp-chimney in the manner shown, for the purpose of cutting off the passage of air, and thereby extinguishing the light, as explained.

176,670. FIRE-PLACE HEATERS. S. Musser, Beaver Falls, Pa. (Filed Jan. 26, 1876.)



The rectangular outer case, consisting of plates A, C, and D, in combination with the oval fire-back plate F, having flanges *a* fastened to the front and bottom plate by screws *b*, and the smoke-pipe G, passing through the heating-chamber, and connected with the top plate and the fire-back, the whole being so arranged as to be used either as a fire-place heater or a stove, as described.

176,671. WHEELS. George A. Myers, Schoolcraft, Mich. (Filed Oct. 9, 1876.)

Brief.—An oscillating shaft arranged in a plane parallel to the face of the wheel, and having at its outer end the vane, and at its inner end an expansible fan, which can be adjusted to increase or diminish the superficial area of the fan. A spring is coiled around the shaft and secured to the cross-head. The recoil of the spring keeps the vane to the wind. When the vane is edge to the wind, it will be stopped in this position by means of an arm abutting against an elastic cushion, which prevents injurious shocks.

1. The oscillating shaft J, arranged in a plane parallel to the face of the wheel F, and having at its outer end the vane K, and at its inner end the expansible fan L, substantially as and for the purpose set forth.

2. The arms *n h'* and cushion *r*, combined with the rudder-vane shaft J, substantially as described.

3. The cross-head G, secured on turn-table H, at right angles to the wheel-shaft D, in combination with the oscillating shaft J, carrying the vane K and fan L, and with the spring S, cushion *r*, and check-arms *n h'*, substantially as described.

176,672. RAZORS' CHAIRS. Timothy Noonan, Boston, Mass., assignor to himself and M. R. Cassidy. (Filed June 8, 1876.)

Brief.—The height and inclination of the back of the chair are adjusted by means of the devices named in the claim.



The combination of the chair-frame A, having the segmental slots *d d* and *b b*, the former having orifices *a*, with the back F, having the guides E, latches *b b'*, and lugs I, substantially as described.

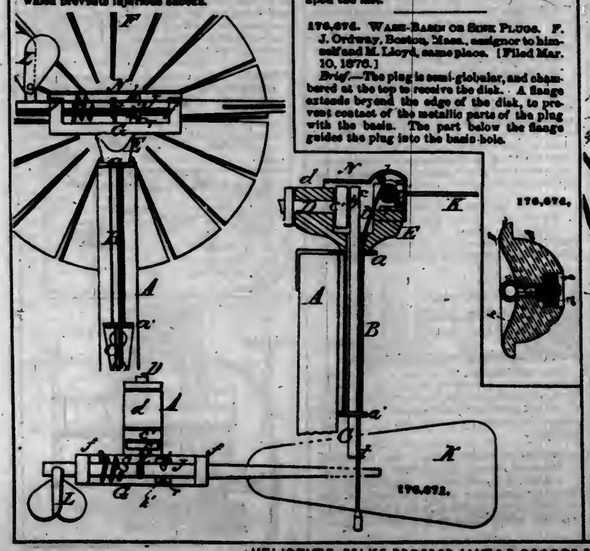
176,673. BLOCK-LOCKS FOR LASTS. George W. Osgood, Weymouth, Mass., assignor of one-half his right to Bigelow W. Arnold, same place. (Filed Feb. 21, 1876.)



In a last-block fastening, the bifurcated spring H, catch flush with the bottom of block D in the recess F, and arranged to clamp laterally under the head of screw B, which projects into said recess when the block is placed upon the last.

176,674. WASH-BASIN OR SINK PLUGS. F. J. Ordway, Boston, Mass., assignor to himself and M. Lloyd, same place. (Filed Mar. 10, 1876.)

Brief.—The plug is semi-globular, and chambered at the top to receive the disk. A flange extends beyond the edge of the disk, to prevent contact of the metallic parts of the plug with the basin. The part below the flange guides the plug into the basin-hole.



176,674.

176,672.

My improved basin-plug, substantially as described, consisting of the elastic semi-ball body A, provided with the flange *a* and top and bottom chambers, in combination with the convexo-convex disk B, and with the screw C and nut *d*, arranged, as specified, within the said body and disk.

176,675. SUN-SHADES. Henry Palmbert, New York, N. Y. (Filed Apr. 6, 1876.)



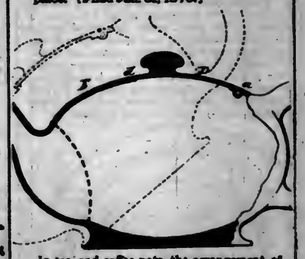
1. A sun-shade, provided with the back supporting-brace D G, side brace C, front martingale-straps, and wristband E, all constructed and arranged substantially as and for the purposes set forth.

2. A frame for supporting the canopy, composed of a series of semicircular ribs, A, and a hoop, B, secured by pivots, in order that the frame may collapse, substantially as and for the purposes hereinbefore set forth.

3. In combination with the brace D, the wire brace C, provided with eyes to receive the martingale-straps, and having the tongues *b*, substantially as and for the purposes set forth.

4. In a head sun-shade the strap H, split, as shown and described, to form the connecting-straps I I and J J, substantially as for the purposes set forth.

176,676. TEA AND-COFFEE POTS. Edmund A. Parker, West Meriden, Conn., assignor to the Meriden Britannia Company, same place. (Filed Jan. 31, 1876.)



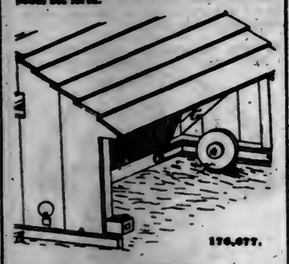
In tea- and coffee pots, the arrangement of the cover concentric to and in rear of the vertical axis of the body of the pot, and so as to form a guard, E, on the top, forward of the cover, substantially as specified.

176,677. STOCK-SHEDS AND WIND-SCREENS. Jas. F. Patterson, Jr., Pocahontas County, W. Va., assignor of one-half his right to E. M. Patterson, Monterey, Va. (Filed Oct. 21, 1875.)

Brief.—A three-sided stock-shed and wind-screen provided with movable axles and wheels, so that they can be moved longitudinally or laterally from place to place.

1. A three-sided stock-shed, provided with movable axles and wheels, for the purposes herein set forth.

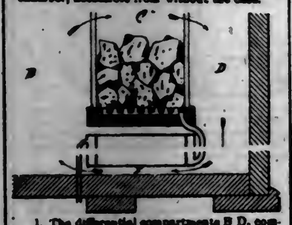
3. The combination of the three-sided stock-shed, provided with movable axle and wheels, and the wind-screen J, having movable axles and wheels, substantially as and for the purposes set forth.



176,677.

176,678. REFRIGERATORS. H. G. Plumb, New Milford, Conn., assignor of one-half his right to I. B. Bristol, same place. [Filed Jan. 24, 1876.]

Brief.—The ice chamber being nearer to one than to the other side of the case, the air sinks in the narrower and colder chamber, and rises in the wider and warmer chamber. The drip is made to fill the walls of a secluded chamber, accessible from without the case.

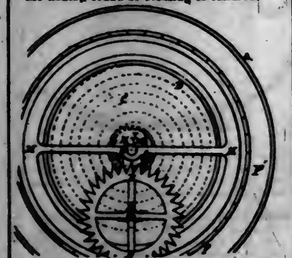


1. The differential compartments B D, combined with the intermediate ice-compartment C, with the communication between the compartments B and D below the compartment C, and also through the compartment C.

2. In a refrigerating device, the combination of the auxiliary cooling-chamber F, constructed with hollow walls, and with a conductor for the water into said hollow walls from the ice-chamber, and an outlet from said hollow walls, substantially as described.

176,679. TOY WATCHES. John G. Powell, Philadelphia, Pa. [Filed Nov. 10, 1875.]

Brief.—The hands are carried by a post secured to the plate, which is retained by the spring. Pivoted to, and carried round by, said rotating plate is the escapement-wheel, which is made to revolve (thus having a planetary motion) by gearing into an internal fixed wheel. It also engages the pallets on the balance-wheel, which vibrates and gives forth the ticking sound so pleasing to children.



1. The combination of the revolving escapement-wheel D with the stationary wheel F, balance-wheel H, and mainspring C, the latter working in one direction only, as set forth.

2. The mainspring C in combination with the winding-post J, ratchet-wheel I, the spring-pawl M, the revolving plate B, and escapement-wheel D, as set forth and described.

3. The projection O in combination with the shaft J and cap I, adapted to be turned by the key P, as set forth and described.

4. The stud E, having a journal eccentric to the body thereof, in combination with the wheel D and pallets G^1 and G^2, as set forth and shown.

5. The balance-wheel H, having the pallets G^1 and G^2, formed on the piece G, which is inserted in the fold of the plate, forming the arms of the wheel, as set forth.

176,680. HAME-FASTENERS. Wm. Purdy, Scioto, Ohio. [Filed Mar. 16, 1876.]



In a hame-fastener, the combination of the link A, provided with the angular hook *a*, the link B, provided with a series of slots, and a leather thong or key, C, substantially as described.

176,681. MAGAZINE HEATING-STOVES. J. F. Quimby, Troy, N. Y. [Filed Jan. 3, 1876.]



1. The combination of the descending flue H and ascending flue J, separated by flue-strip S, made either in a single piece or in sections, and extending vertically from damper *d* to the bottom of chambers *a* and *b*, with their upper portions relatively as shown, and their lower portions relatively transverse to said upper portions, substantially as set forth.

2. The combination, with the space inclosed by the rear extension of the stove, and occupied by descending and ascending flues, of the flue-strip S, composed of either a single piece or sections, and dividing said space by the lateral extension of its width from side to side, in its upper portion, and from front to rear or transversely in its lower portion, with the twist *s* between said upper and lower portions, substantially as set forth.

3. The combination, with the horizontal top opening *e* over the space containing the descending and ascending flues, and the vertical opening *e'* at rear of the head of said space, provided each with lugs *n* and bolt-holes 2 2, of the exit-flue ring K and stop-plate K', each provided with bolt-holes 3 3, and capable of an interchange of attachment with said openings *e* and *e'*, substantially as and for the purpose set forth.

176,682. BRUSHES. Philip H. Raiford, St. Mary's, Ga. [Filed Oct. 13, 1875.]

Brief.—The frames that hold the brushing material are provided with openings, into which it is inserted and held by side strips.



The combination of a series of notched holders, A A, a series of bunches or sections, C C, of flexible material, and a follower-board, B, with a series of fastening-pins, *a a*, all arranged substantially as and for the purpose specified.

176,683. RATCHET-DRILLS. Jos. Renshow, Hartford, Conn. [Filed Sept. 14, 1875.]

1. The combination of the hollow externally-threaded feed-screw *d* and the hollow internally-threaded ratchet-spindle *a*, with a drill-tang-tool, substantially as described.

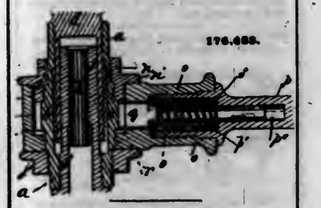
2. The combination of the hollow externally-threaded feed-screw *d*, the hollow internally-threaded ratchet-spindle *a*, and an interior tool-holding socket, substantially as herein described.

3. The combination of the hollow externally-threaded feed-screw *d*, the hollow internally-threaded ratchet-spindle *a*, the collet *f*, pin *h*, and drilling-tool, substantially as described.

4. The combination of the hollow externally-threaded feed-screw *d*, the hollow internally-threaded ratchet-spindle *a*, a tool-holding collet or socket, and a drilling-tool, substantially as described.

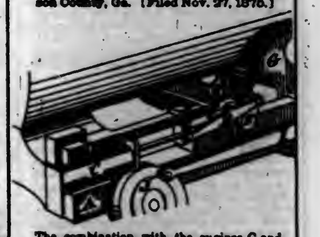
5. The combination of the hollow feed-screw and the interior open-ended drill-socket, to expel the drill, substantially in the manner herein described.

6. The combination of the hollow internally-threaded ratchet-spindle *a*, the band *m*, with its socket *o*, the collars *f f*, the lever *p*, and the pawl *q*, substantially as described.



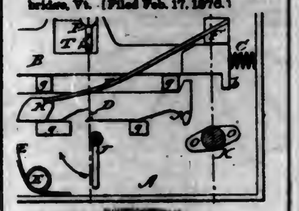
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176,684. LOCOMOTIVES. N. L. Rogers, Upson County, Ga. [Filed Nov. 27, 1875.]

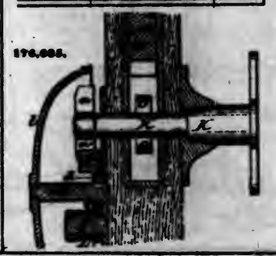


The combination, with the engines C and driving-wheels J J, of the pitman D, cranks F F', links H I, and gearing E G, constructed and arranged as shown and described, so that the power of the engines is applied at the verge of the driving-wheels, substantially as and for the purpose specified.

176,685. COMBINED ALARM-LOCKS AND DOOR-BELLS. Jeffers Richardson, Stockbridge, Vt. [Filed Feb. 17, 1876.]



176,686.



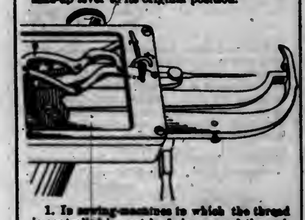
1. In a spring-lock, the combination of the lock-bolt B, having shoulder *b*, operating-bar D, having shoulders I M, key J, shaft K, having arms O O and *a a*, and a bell-ringing mechanism, adapted to be operated by the rotation of the shaft, all substantially as described.

2. In a spring-lock, the shaft K, having arms O O within the lock-casing, and arms *a a* on the outside of the lock-casing, combined with and adapted to operate the lock mechanism, and an external bell-ringing mechanism, substantially as described.

3. The shaft K, adapted to operate the mechanism inside of the lock, and provided with the arms *a a* on the outside of the lock, combined with the pivoted rocking plate *d*, adapted to operate the two hammers *b b*, substantially as described.

176,686. SEWING-MACHINE-THREAD CONTROLLER. T. M. Rice, Kalamazoo, Mich. [Filed Mar. 6, 1876.]

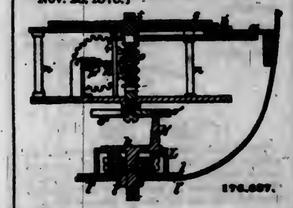
Brief.—The upper end of the take-up lever is pivoted to the inner side of the face-plate while its lower end is provided with a flange, which projects through a slot in the face-plate, and has an eye, through which the thread is passed. The lever is moved by means of a friction-roll on the needle-bar working in a slot in the lever, which is of such configuration as to cause the following action: In the first part of the downstroke of the needle the take-up lever is moved away from the staple or eye through which the thread is passed, and takes up the slack caused by the descent of the needle before entering the cloth, to prevent entanglement; the second part of the downstroke brings back the take-up, to slacken the thread for the passage of the shuttle; the first part of the upstroke takes up the slack and tightens the stitch; and the last part of the upstroke returns the take-up lever to its original position.



1. In sewing-machines in which the thread is controlled in part by being passed through or over the needle-bar, or some part moving therewith, the vibratory take-up or thread-controlling lever, provided with a cam-slot formed and proportioned to operate in connection with a stud or pin on the needle-bar or other part moving in unison therewith, substantially as and for the purposes shown and set forth.

2. The combination of these elements namely, the vertically-reciprocating needle-bar, the stud or pin thereon, the pivoted thread-controller or take-up lever, having a cam-slot formed and proportioned to operate substantially as described, the thread-eye on the end of said lever, the staple, or its equivalent, on the head of the machine, and the take-up lever-spring, these elements being combined to operate substantially as herein set forth.

176,687. SHIPS' LOGS. Daniel Riggs and Robert Riggs, Philadelphia, Pa. [Filed Nov. 26, 1875.]



176,687.

The combination, in a ship's log or speed-measure, of the following instrumentalities, viz., the propeller P, stocker O, cord H, shaft K, with disk *k* and pin *k'*, communicating motion to the registering gearing and mechanism, substantially as shown and described.

176,688. PILE REMEDIES. R. M. Rosenthal, Jeffersonville, Ind. [Filed Mar. 27, 1876.]

The within-described medical compound, consisting of catnip, stramonia, tobacco, onions, whisky, and lard, substantially for the purposes herein set forth.

176,689. SCRAP METAL FOR CASTINGS. A. M. Ross, Elon, N. Y. [Filed Nov. 1, 1875.]



1. The herein-described process of producing cast metal from scrap steel, cast and wrought iron, which consists in first reducing the different metals to pieces of nearly uniform size, and then arranging them in a cupola-furnace, substantially as and in the proportions specified, in layers of coal, cast-iron, and a mixture of cast, wrought, and steel scrap, successively, substantially as set forth.

2. As an improved metal for castings, the product of scrap steel, wrought-iron, and cast-iron (the steel and wrought-iron preponderating in the charge) melted together, substantially as shown and described.

176,690. TEMPORARY BINDERS. W. B. Rose, Jr., New York, assignor to Jos. Mackey, Brooklyn, N. Y. [Filed Jan. 26, 1876.]



In combination with the folio binder, provided with apertures for the cord, the fastening plate secured at one end to one of the backs of the folio, and provided with an aperture immediately over the aperture for the binding-cord, through which said cord can be passed, the rear end of the plate being shaped so that the cord can be wrapped and secured under the same, substantially as described.

176,691. SELF-LOCKING RAILROAD-SWITCHES. David Rousseau and William C. Smith, New York, N. Y., assignor to William F. Smith and Samuel Samuels, same place. [Filed Feb. 20, 1876.]

Brief.—A switch-locking mechanism consisting of a sliding switch-bar, with holes to receive a projection upon a locking-latch, which has inclined surfaces on its under side, against which a moving arm impinges while moving to engage a stop on the sliding bar, thereby raising the latch unlocking the bar, which is again locked by the latch falling into the bar, when the moving arm has passed from under the incline.

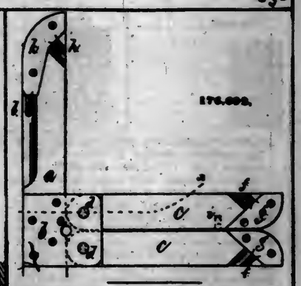


1. The switch-locking lever F, made with the projecting leg *f*, and with the two oppositely-inclined edges, *i* and *j*, to operate substantially as specified.

2. In combination with the finger E, and with the rod D, which has the projections *a* and *b*, the locking-lever F, arranged to lock the rod D and to be raised by the same finger E that actuates said rod, substantially as specified.

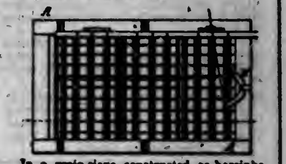
176,692. TRIPOD-HEADS FOR CAMERA-STANDS. Andrew J. Russell, New York, N. Y., assignor to E. and H. T. Anthony & Co., same place. [Filed Mar. 22, 1876.]

The tripod-head, made of the bar *a*, plates *b b*, swinging bars *c*, and pivot-pins *f*, *h*, and *l*, substantially as set forth.



176,693. GRAIN AND SEED SIEVES. John Bailey, Jr., Mount Vernon, Iowa. [Filed Mar. 14, 1876.]

Brief.—Lateral shake of screen-frame causes the agitators to rise and fall.



In a grain-sieve, constructed as hereinbefore described, the rock-shafts D, provided with lifting-fingers E and arms F, in combination with elbow-lever H, connections G, and shaking-frame A, substantially as and for the purpose described.

176,694. SCREW-CUTTING DIE-STOCKS. R. Saunders, Yonkers, N. Y., assignor to D. Saunders' Sons, same place. [Filed Apr. 3, 1876.]



In a die-stock for threading pipes, the system of separately-formed dies D, for cutting different diameters of pipe, in combination with the longitudinal ledges or shoulders *b*, provided at the sides of the chamber B' of the stock A, and the top or holding plate E, fixed to the stock A by the screws *c*, the whole constructed and arranged for use and operation substantially as and for the purpose herein set forth.

176,695. VEHICLE-SEAT LOCKS. J. L. Sage, Waterbury, Conn. [Filed Jan. 7, 1876.]



The herein-described shifting-seat lock, consisting of the base or plate A, constructed with the recess C at right angles to the plane of said plate at its lower end, combined with the bolt D, pivoted in said recess so as to be turned back into said recess flush with the said plate, and the spring *d*, substantially as set forth.

176,696. ASPHALT SIDEWALKS. Samuel R. Sobert, Washington, D. C. [Filed Mar. 20, 1876.]

Brief.—Coarse gravel or broken stone is coated with hot distilled coal-tar, having first been heated to about the boiling-point of the same. The mixture is applied to the road-bed while still hot, and heavily rolled. The top course is composed of asphaltum, petroleum-oil, and crushed stone.

1. The sidewalk composed of the courses A and B, constructed and prepared substantially as described.

2. An upper course for a sidewalk, composed of crushed stone, asphalt, and petroleum, mixed and prepared and laid substantially as described.

176,697.



176,698.



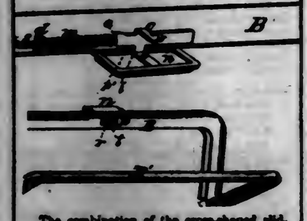
176,697. SURFACE-COURSE FOR CONCRETE PAVEMENTS. Samuel R. Schaff, Washington, D. C. [Filed Mar. 23, 1876.]

Brief.—Trinidad asphaltum, seventy to ninety parts by bulk, is heated to the boiling-point, to which heavy paraffine-oil, ten to thirty parts by bulk, is added, and brought to boiling-point. Stone-dust and clean sharp sand are then added, in the proportions of one-half to two-thirds part of the former to one-third to one-half part of the latter, being first heated to the temperature of the boiling mass. The whole is applied as a surface-coating to concrete pavements and rolled, first with a light roller, and then with a heavy one, and finally dusted with hydraulic cement.

1. In paving compositions, a compound of asphalt and paraffine-oil, prepared substantially in the manner and in the proportions as set forth.

2. The surface or upper course for concrete pavements, consisting of stone-dust, sand, asphalt, and paraffine-oil, substantially as described.

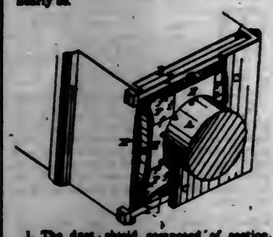
176,699. CLASPS FOR POCKET-BOOKS. B. M. J. Blank, Jersey City, N. J., and Theo. Schimper, New York, N. Y.; said Blank assignor to Wm. Schimper, New York, N. Y. [Filed Mar. 16, 1876.]



The combination of the cross-shaped sliding catch, the spring *m*, the spring-bearing and guide *l*, and the hollow bow B, substantially as herein described.

176,699. CURTAIN-BOXES FOR CAR-AXLES. Geo. W. Shields, St. Louis, Mo., assignor of one-fourth his right to W. K. McCosman, same place. [Filed May 20, 1875.]

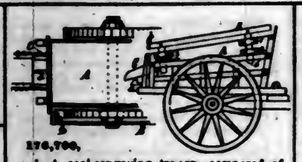
Brief.—The collar is divided into four or more sections, pressed against the axle by springs, so that in case of wearing above, below, or on either side, the sections will slide past each other, to correspond for the wear, and keep its inner surface a true circle, or nearly so.



1. The dust-shield composed of section-blocks b E E E and springs G G G G, said blocks being made with parallel sides, and of aggregate breadth equal to that of the four sides of the largest square containable in the circumference of the axle, and said springs adapted to force the blocks to the axle to compensate for wear, substantially as set forth.

2. The movable corner guide-sections F F f f, in combination with the section-blocks E E E E and springs G G G G.

176,700. COAL-CARTS. John B. Shirk, Harrisburg, Pa., assignor to himself and J. C. Cowan, same place. [Filed Nov. 12, 1875.]



1. The pivot-bolt E, having the ribs or wings *e*, substantially as and for the purpose specified.

2. The combination of the pivot-bolt E, having ribs or wings *e*, with the bracket C, cent-arm D, and nut D', substantially as and for the purpose specified.

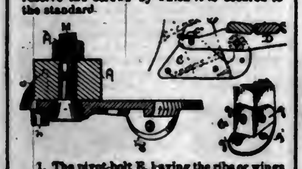
3. The triangular bracket C, having stop *d*, and arranged to operate in combination with the wooden standard B B' and cent-arm D, substantially as and for the purpose specified.

4. The plates G, constructed as described, and for the purpose specified.

5. The bracket C, having bosses *f f*, operating in combination with the wooden standards or legs B B, substantially as and for the purpose specified.

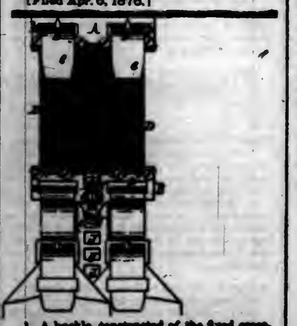
176,701. SCHOOL-FURNITURE. William F. Spencer, Richmond, Ind. [Filed Feb. 1, 1876.]

Brief.—The pivot-bolt is provided with wings or ribs, to prevent its turning in the cent-arm, and the conical head of the bolt turns in bearing in the bracket. The bracket braces the joint between the legs of the standard, and is constructed with a stop for the timber end of the seat-arm, and with bosses to receive the screws by which it is secured to the standard.



1. A double seat constructed of the fixed cross-head A, movable cross-head B, longitudinal bar C, and spiral springs D, one or more, the whole being combined and adapted to operate substantially as described.

176,702. BUCKLES. Alois Steinbach and Heinrich Swoboziger, Vienna, Austria. [Filed Apr. 6, 1876.]

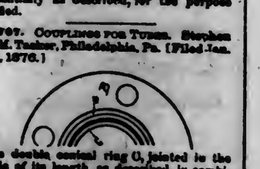


1. A buckle constructed of the fixed cross-head A, movable cross-head B, longitudinal bar C, and spiral springs D, one or more, the whole being combined and adapted to operate substantially as described.

2. The combination of a stop, H, with the longitudinal bar C, substantially as described, and for the object specified.

3. The combination of one or more hooks, I, and a rack, J, with the movable cross-head B and longitudinal bar C, when arranged to operate substantially as described.

176,703. CLOTHES-DRYERS. Elias Sullwell, Rockville, Mo. [Filed Feb. 28, 1876.]



The combination of the posts A A, having open rear bearings near the top, the corrugated-grooved rolls B C, provided with crank on the latter, the pivoted frame D, and the endless lines F, as shown and described, so that a number of lines may be moved out with the clothes, may be tightened or loosened by a bar, *c*, or may be wound up on the roll C, as set forth.

176,704. CULTIVATORS. F. W. Stoneberg, Pond, Mo. [Filed Feb. 19, 1876.]

Brief.—The construction of cultivator-frame and combination with the guards.



The perforated adjustable cross-bars H H, with screws on their outer ends, in combination with the standards J, adjustable forward and backward in a vertical plane, braces K E, nuts A A, pin *f*, and guard-rods L L attached to the cross-bars H H at their rear ends, and adjustable therewith, substantially as described and for the purpose set forth.

176,705. FIRE-KINDLERS. J. B. Sweetland, Pontiac, Mich. [Filed Oct. 21, 1875.]

The combination, in a fire-kindler, of the perforated head A, having a groove, *c*, which extends vertically on two sides and across the bottom of the same, with the wire handle B, which is wrapped around said head in the groove *c* and connects by a hook, *c*, formed on the wire, as set forth.

176,706. COMPOUNDS FOR TREATING CARPET-LINING PAPER. George P. Tangeman, Hamilton, Ohio. [Filed Mar. 9, 1876.]

Brief.—The ingredients are used in their natural or crude condition, or used as prepared in their commercial state. Hemlock may be substituted for cedar. The paper lining may be treated with the liquid composition by a brush-roll attached to the paper-machine, as the paper is discharged therefrom in the manufactory, or the composition may be subjected to the action of steam in a closed vessel, and then beaten in the engine with the paper-stock.

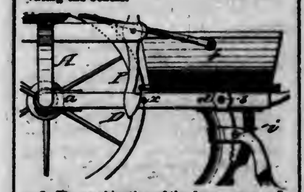
The compound for preparing or treating carpet-lining paper, consisting of cedar, tobacco, tansy, hops, and salse-acid, in proportions substantially as described, for the purpose specified.

176,707. COUPLINGS FOR TUBES. Stephen P. M. Tauber, Philadelphia, Pa. [Filed Jan. 20, 1876.]

The double conical ring C, jointed in the middle of its length, as described, in combination with the flared ends of the tubes A, clamping-collars B, and screw-bolts D, substantially as and for the purpose set forth.

176,708. SEED-DROPPERS. Thos. Templin, Hillsborough, Ohio. [Filed Jan. 10, 1876.]

Brief.—The coverers are made in one piece, and are adjustable in notches on the furrow-openers. The beams carrying the seed-boxes are hinged to the axle, and are connected together by a rod, with which a hook pivoted in the rear end of the tongue engages for elevating the beams.

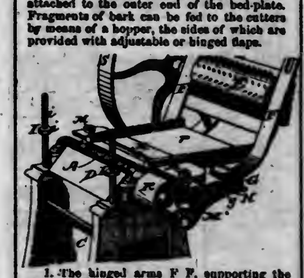


1. The combination of the furrow-opener J, provided with a series of notches in its rear edges, and the double coverer L, formed of a single piece of metal and adjustably held to the opener J by a single cross-bolt, *i*, resting in the notches in the rear of the opener, substantially as herein set forth.

2. The combination, with the axle A, of the bars D D, carrying the seed-boxes, hinged to the axle and provided with a connecting-rod, *x*, and the lever-hook F pivoted to the rear extension of the tongue C, all constructed substantially as and for the purposes herein set forth.

176,709. MACHINES FOR ROSSING AND GRINDING BARK. Samuel R. Thompson, Portsmouth, N. H. [Filed Mar. 8, 1876.]

Brief.—The bark can be ground entire, or any desired thickness of "rind" or "liber" separated therefrom, by means of a rotary sectional cutting-cylinder, a vertically-adjustable bed-plate, and a vertically and horizontally adjustable spurred roller, supported by two arms hinged to slotted ears in the supporting-frame, and oscillating in a vertical plane, in connection with suitable operating mechanism. Longitudinally-curved pieces of bark can be fed to the cutters by a hinged apron attached to the outer end of the bed-plate. Fragments of bark can be fed to the cutters by means of a hopper, the sides of which are provided with adjustable or hinged flaps.

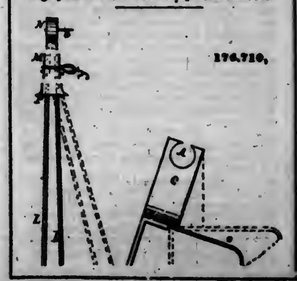


1. The hinged arms F F, supporting the feed-roll E, combined with the horizontal slots *f*, whereby the feed-roll is enabled to be adjusted horizontally.

2. The stationary cutting-cylinder A, combined with the horizontally and vertically adjustable feed-roll E, and the vertically adjustable bed-plate M, substantially as described.

3. The hopper T, having the hinged flaps U U, combined with the feed-roll E and cutting-cylinder A, substantially as described.

176,710.



176,710. DENTAL DRILLS. Anderson W. Todd, Chicago, Ill. [Filed May 3, 1875.]

Brief.—The cord which operates a dental drill passes over a pulley journaled by the drill, and then passes through a tubular hand-piece to pulleys, which are connected by a novel attachment to the ordinary dental lathe.

1. In a dental drill, the combination of the tube-handle M, cross-bar V, cord L, pulley N, journaled by the tool O, all as and for the purpose specified.

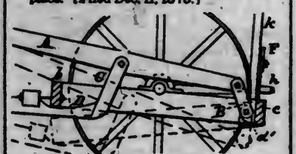
2. The combination, with the lathe-head A and its shaft B, of the slotted foot C, section D, pulleys G E, foot F, and section D, Fig. 4, all as and for the purposes set forth.

176,711. KITCHEN-TABLES. C. H. Townsend, Oakland, Cal. [Filed Apr. 2, 1876.]



A kitchen-table consisting of the top A, provided with the bread-board F, arranged to slide from either side of the table, and the sliding semicircular drawers C C below, all constructed to operate substantially as and for the purpose set forth.

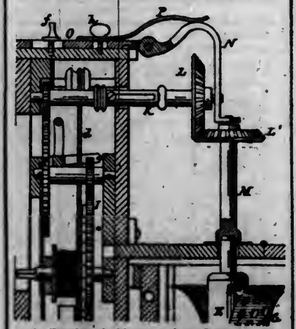
176,712. HARVESTERS. Benj. G. Turner, Edward A. Culbertson, and Malcolm A. McKinnon, Fremont, Nebr., assignors to Fremont Manufacturing Company, same place. [Filed Dec. 11, 1875.]



1. An adjusting-lever, having a reversible auxiliary arm or link connected to the main frame, in combination with a standard attached to an extension of the tongue, substantially as and for the purpose set forth.

2. In a harvesting-machine, the belt-tightener, consisting of the slotted plates F G, adjustable belt-roller *h*, set-screw *i*, and standard *k*, constructed and combined to operate substantially as set forth.

176,713. POWER-CHURNS. Wm. Vanorder, Woodburn, Ind. [Filed Mar. 11, 1876.]

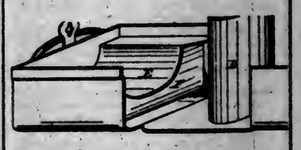


1. The detachable, curved, perforated metal dashers G G, provided with flanges *b b*, and attached to the vertical revolving roller E, in combination with the frames B B, having radial vertical breakers O D, as and for the purpose set forth.

2. In combination with the shafts E M, having gears L L', operating the churn-dasher, the sliding bar O, with hinged and beat-arm N, adjustable spring P, and set-screws *f h*, substantially as and for the purposes herein set forth.

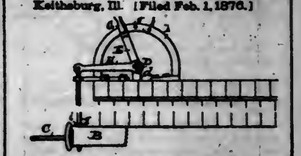
176,714. HAT-BOXES AND VALISES. James M. Van Horn, Hartford, Conn., assignor of one-half his right to Ansbel M. Morley, same place. [Filed Feb. 28, 1876.]

Brief.—The bottom of the box is provided with a hollow cylinder to receive a silk hat, and the two sides have compartments adapted for the reception of such articles as are usually carried in a valise or traveling-bag.



A box, opening in the middle, the sides of which are hinged to the bottom, and provided with curved covered receptacles, as described, which, when the box is closed, inclose a space, within which is the cylindrical box D, substantially as and for the purpose herein set forth.

176,715. CAR-COUPLINGS. John Wagner, Keithsburg, Ill. [Filed Feb. 1, 1876.]



The segment-bar G, having series of holes *f*, lever E, and thumb-lever C, rock-shaft D, arm H, and extended coupling-pin I having the collar *i*, all arranged to operate in combination with the draw-head B and link C, so that when the levers E and G are in one position the link will be held in the draw-head; when in another position the link may be withdrawn therefrom, and when in a third position the coupling-pin will be held clear above the draw-head, so that the cars may come together without coupling, substantially as set forth.

176,716. VACCINE-CASES. Geo. B. Whiten, Cincinnati, Ohio. [Filed Mar. 6, 1876.]

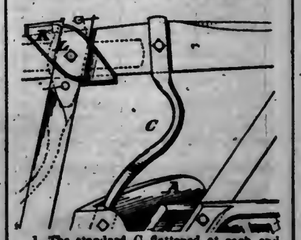
Brief.—A diaphragm in the box partitions off a small space, in which an absorbent of moisture is placed.



For inclosing and preserving vaccine virus, the sealing-case A, provided with diaphragm B, either pervious or perforated, the whole to operate substantially as and for the purpose specified.

176,717. PLOWS. Samuel B. Ward, Locust Mount, Va. [Filed Oct. 12, 1875.]

Brief.—Form of standard, removable section of mold-board, fingers and their clamps, eccentric scraper, and mold-board extension.



1. The standard C, flattened at each end and fastened to the land-side and beam in or near the same vertical plane, having a middle portion, round in its cross-section, laterally and rearwardly inclined, and bowed over the land-side, as and for the purpose set forth.

2. The removable face-plate or wearing-section F, provided with leg *f*, in combination with recessed mold-board A, having an aperture or socket, *e*, as and for the purpose set forth.

3. The deflecting-fingers J J', clamps K K', and bolt L, in combination with the beam B, as and for the purpose set forth.

4. The adjustable eccentric steel boe M, adapted to be set at a greater or less elevation, and attached rigidly to the stock S by bar N, said bar fitting over the land-side D, as and for the purpose set forth.

5. The adjustable extension-plate O, provided with intersecting slots *a*, for various adjustments, in combination with the mold-board A, as and for the purpose set forth.

176,718. DIES FOR FORGING CARRIAGE STAY-ENDS. Wm. S. Ward, Plantsville, Conn., assignor to H. D. Smith & Co., same place. [Filed Apr. 6, 1876.]

Brief.—The dies are made to leave the fin on the edge of and perpendicular to the face of the plate.



The dies for forging carriage stay-ends, constructed as shown and described.

176,719. SEEDING-MACHINES. John M. Westcott, Milton, Ind. [Filed Sept. 22, 1875.]

Brief.—Through the seed-cup passes a shaft carrying a longitudinally-ribbed cylinder, one end of which rests in a scalloped ring revolving in the cup, the opposite end having a hub formed on it, to receive a winged sleeve for cutting off the flow of seed.



1. The combination of scalloped feed-wheel C and sleeve E, the sleeve E being of smaller diameter than the wheel C, to provide for the free access of grain to both the periphery and ends of the scallops, as set forth.

2. The combination of the peripheral seed-wheel and the sliding sleeve E, provided with cut-off wings *a a'* at top and bottom of the seed-cup, substantially as and for the purpose specified.

3. The combination of revolving peripheral feed-wheel C and sleeve E, the wheel having a bearing at its outer end, and at its other end a projecting hub, *c*, resting and revolving within the sleeve E, substantially as and for the purpose specified.

4. The combination of sliding shaft D, collar G', jaw-arm K, pointer-slide L *l*, and scale M, substantially as and for the purpose specified.

5. The combination of sliding shaft D, collar G, swiveling jaw-arm I, and lever H, operating substantially as and for the purpose specified.

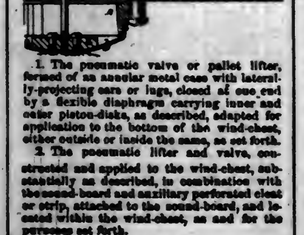
6. The combination of sliding shaft D, collars G G', indicator K L *l* M, swiveling-jaw I, and lever H, connected and operating substantially as and for the purpose specified.

176,720. PROCESSES FOR PRESERVING EGGS. John F. Whitlow, Tamaroa, Ill. [Filed Mar. 6, 1876.]



The process of preserving eggs by packing them between layers of fibrous, granular, or gluinaceous materials, with pulverized nitrate of potash and pulverized muriate of ammonia, in a hermetically-sealed receptacle, substantially as and for the purpose herein set forth.

176,721. FOLDING KITES. A. J. Whitcomb, Utica, N. Y. [Filed Mar. 16, 1876.]



The folding kite herein described, consisting of the cover or sail and its marginal rings or thimbles, the spider-joint and its radial tubes, and the adjustable spokes or arms, substantially as specified.

176,722. ENGRAVERS' VISES. W. W. Wilcox, Chicago, Ill. [Filed Jan. 22, 1876.]



1. The rectangular posts P P', provided with the recesses *i i* and shoulders I I, in combination with the bar A, socket C, screw S, and base B, substantially as described.

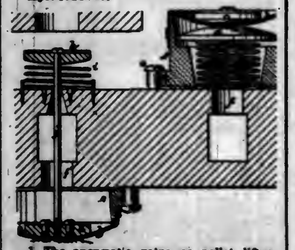
2. In combination with the posts P P', the adjustable jaws O O, having the loops *x x*, and constructed with steps or notches, substantially as described.

176,723. FENDERS FOR LIFE-BOATS. R. R. Williamson, Groton, Conn. [Filed Apr. 8, 1876.]



The combination of the ball A, provided with the guard L, and the air-float J, the guard serving the threefold purposes of a fender, support for the air-floats, and protector for the same, as described.

176,724. PNEUMATIC ACTIONS FOR ORGANS. Thomas Winans, Baltimore, Md. [Filed Apr. 5, 1876.]

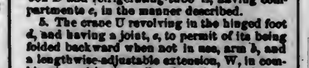


1. The pneumatic valve or pallet lifter, formed of an annular metal case with laterally-projecting ears or lugs, closed at one end by a flexible diaphragm carrying inner and outer piston-disks, as described, adapted for application to the bottom of the wind-chest, either outside or inside the same, as set forth.

2. The pneumatic lifter and valve, constructed and applied to the wind-chest, substantially as described, in combination with the sound-board and auxiliary perforated cleat or strip, attached to the sound-board, and located within the wind-chest, as and for the purposes set forth.

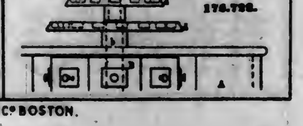
3. The annular metallic case and its flexible diaphragm and piston-disks, in combination with the spring, inclosed by, and held in the contracted portion of, said case, substantially as set forth.

176,725. BARBED FENCE-WIRES. Parker Wineman, Rock Island, Ill. [Filed Mar. 10, 1876.]



The barb device B, constructed, as described, with three points, *b*, radiating and tapering on all sides from a common center, in combination with the three-strand wire cable A, substantially as and for the purpose specified.

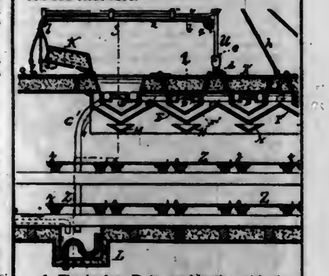
176,726. PAVEMENTS. J. B. Wood, Santa Rosa, Cal. [Filed Feb. 10, 1876.]



Pavement-blocks B, constructed of short lengths of the bark of trees, placed vertically side by side and cemented together, so as to present the end of the grain of the bark for wear, substantially as and for the purpose described.

176,727. REFRIGERATOR-CARS. Lucien B. Woolfolk, Lexington, Ky. [Filed Aug. 24, 1874.]

Brief.—Salt in perforated boxes; ice between and beneath them. Resultant brine fills a tube having partial partitions. Rake stirs up the refrigerant mixture between such partitions. Upper surface of brine and drip from said ice-chamber drained off into tank in bottom of car. Trucks raised and transferred by crane, capable of being extended in its horizontal reach, and laid down on the top of the car. Water or brine in beneath the ice-box and brine-tube.



1. The ice-box D, in combination with the trap-door K, the salt-box *c*, the refrigerating-tube E, and the casing-box F, substantially as described.

2. The refrigerating-tube E, divided into compartments by the partitions *c*, in combination with the ice-box D and salt-box *c*, substantially as set forth.

3. The rake *c*, in combination with the refrigerating-tube E, for the purposes mentioned.

4. The casing-box F for containing water for the purpose of modifying the excessive chill of the ice, in combination with the ice-box D and refrigerating-tube E, having compartments *c*, in the manner described.

5. The crane U revolving in the hinged foot *d*, and having a joist, *c*, to permit of its being folded backward when not in use, arm *b*, and a lengthwise-adjustable extension, W, in combination with the railroad-tracks *p* and cars Z, all constructed and arranged substantially as set forth.

176,728. LABORATORY-TABLES. Joseph M. Worthington, Baltimore, Md. [Filed Feb. 7, 1876.]

176,728.

A laboratory-table, consisting of a fixed counter or table, A, a vertical central shaft, and a reversible chest of drawers, B *c*, with the shelves *d* revolving concentrically with said chest, substantially as herein specified.

176,729. RING-HILL PLOWS. S. H. Wrisley, Cambridge, N. Y. [Filed Mar. 4, 1876.]

Brief.—Mold-board with concave center and adjustable colter for a right or left plow.

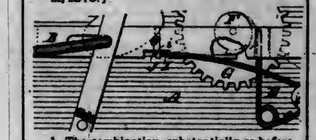


1. A mold-board for a reversible plow, made concave its entire length, and provided with convex edges, substantially as herein set forth.

2. The combination of the colter I, pivoted block K with set-screw *s* and semicircular projection *t*, and the pivoted lever L, all substantially as and for the purposes set forth.

REISSUES.

7,072. TIME-LOCKS. John Burge, Circleville, Ohio, assignor, by mesne assignments, to the Yale Lock-Manufacturing Company, Stamford, Conn. Patent No. 123,378, dated Feb. 6, 1872. [Filed Feb. 11, 1876.]



1. The combination, substantially as before set forth, of the bolting device adapted to secure the door by engaging with its jamb, the clock-work, and suitable intermediate connecting mechanism, whereby the clock-work determines the time at which the bolting device is locked or dogged by the operation of said clock-work.

2. The combination, substantially as before set forth, of the bolting device adapted to secure the door by engaging with its jamb, the clock-work, the dog, and suitable connecting mechanism, whereby the clock-work determines the time at which the dog is so engaged with the bolting device as to prevent the unlocking or retraction of the latter.

3. The combination, substantially as before set forth, of the bolting device, the clock-work, a revolving device operated continuously by said clock-work, and suitable connecting mechanism, whereby the said bolting device is periodically dogged by the continuous movement of said revolving device.

4. The combination, substantially as before set forth, of the bolting device, the clock-work, and two revolving devices operated by said clock-work, whereby the continuous movement of said clock-work acting upon said revolving devices determines the times at which said bolting device is both locked, and unlocked.

5. The locking mechanism, adapted to secure the door independently of any combination or key lock, consisting of the combination, substantially as hereinbefore set forth, of, first, the bolting device adapted to secure the door by engaging with its jamb; second, the dog adapted to be set by hand prior to the closing of the door to permit said bolting device to remain in the unlocked position until the door is closed; third, the shoulder with which said dog engages to secure the bolting device in the locked position after the door is closed; fourth, the cam having an offset adapted to be automatically brought in and out of coincidence with the bolting device; and, fifth, the clock-work and connecting mechanism adapted to release the bolting device.

7,074. COTTON-CLEANERS. George W. McCauley, Pleasant Plains, Ark., and Wm. L. Crowson, Memphis, Tenn.; said McCauley assignor of all his right, and said Crowson assignor of one-half interest, to Allison Brothers. Patent No. 162,066, dated Apr. 13, 1875. [Filed Mar. 11, 1876.]

Brief.—Cotton introduced at the top of the machine is plated by the teeth on the cylinder and breast, and discharged clean at the front, the dust being drawn through the screen by the exhaust-fan, and discharged at the rear through a spout.



1. In combination with mechanism for cleaning cotton by thrashing or beating, and with a reticulated or open-work diaphragm for inclosing the lower side of each mechanism, an exhaust-fan which communicates with the space beneath said diaphragm, and operates to withdraw downward such dust and dirt as are separate from said cotton, substantially as and for the purpose shown.

2. In combination with the beating or thrashing mechanism for cleaning cotton, which is partially inclosed on its lower side by an open-work or reticulated diaphragm, and provided with an inclosed space below or in rear of the feed and discharge openings, an exhaust-fan which communicates with said space, in the manner and for the purpose substantially as set forth.

3. The hereinbefore-described machine, in which the beating-cylinder B *b b*, concave D' *d d*, screen F, exhaust-fan G, casing A, induction-opening C, eduction-opening E, casing H *h h'*, and chute L are combined and relatively arranged in the manner and for the purpose substantially as shown.

7,075. PLOWS. George Wiard and Thomas Wiard, East Avon, N. Y., assignors to George Wiard and Chas. W. Hough, same place. Patent No. 166,903, dated July 20, 1875. [Filed Apr. 6, 1876.]

Brief.—The land-side is secured by socket, hooked lug, and single bolt; also, devices for securing and bracing the handles.



1. The combination, with the beam A, provided with a lug, *b'*, and recess *c'*, of the land-side B, constructed with offset *b'*, semicircular hook *b*, and elliptical lug *c*, and fastening-bolt *c*, substantially as and for the purpose herein-before set forth.

2. A plow-handle, secured to two supports, *f f'*, by two bolts, *g g'*, arranged at right angles to each other, for preventing the splitting of the handle, substantially as and for the purpose herein before set forth.

3. A mold-board cast with the handle-supporting arm *f'* and a lateral brace, *f''*, connecting the upper end of the arm *f'* with the rear end of the mold-board, substantially as and for the purpose herein before set forth.

4. The handle-brace E, constructed in one angular piece, flattened at the bent, in combination with a socket, *k*, arranged on the beam A, and having undercut lip *k'*, substantially as and for the purpose herein before set forth.

7,076. BRICK-MACHINES. George B. Wilson and George Smithson, Washington, D. C., assignors of one-half interest to Norman B. Judd. Patent No. 167,720, dated Sept. 14, 1875. [Filed Apr. 12, 1876.]

Brief.—The outer ends of the molds, being farther from the axis of the mold-plate, pass under the rollers with more rapidity than the inner ends. The movements of the mold-wheel and rollers cause to give a twist to the pressure exerted upon the molded brick.

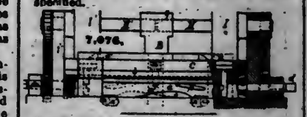
1. A machine for making bricks, combining in its construction a mold-plate revolving around a vertical axis, and pressing-rollers revolving around horizontal axes, said rollers being connected to the mold-plate substantially as described, whereby a motion is given to their peripheries which is greater than that given to that portion of the plate over which they are placed, substantially as and for the purpose set forth.

2. The arrangement of the rollers I I', having peripheries of equal diameters throughout, at right angles to the axis of the mold-plate C, whereby a shearing or sliding motion is given to the clay under said rollers, by which all the surplus material is removed from the pressed brick, substantially as set forth.

3. The mold-plate C, provided with plungers *m'*, having stems *m''*, and grooves *o'*, combined with the rollers I I' and bed-plate A, having a stop, *a*, inclined planes *o*, and ribs *p*, substantially as and for the purposes herein specified.

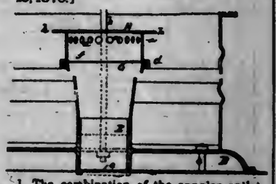
4. The combination of the mold-plate C, yoke *f*, plungers and stems *m' m''*, and rollers *w'*, with the rollers I I', revolving around horizontal axes, substantially as specified, and for the purposes set forth.

5. The mold-plate C, and rollers I I', combined with the yoke *f*, placed at an angle, as described, and inclined knives or boards *n*, substantially as and for the purposes herein specified.



7,076.

7,077. GAS-STOVES. Elijah J. Caldwell, New York, N. Y., assignor, by mesne assignments, to Alaneon H. Tiff. Patent No. 49,499, dated Aug. 15, 1865. [Filed Apr. 15, 1876.]



1. The combination of the annular outlet through which the inflammable material passes from the burner, the perforated diaphragm through which the air and gas pass and become thoroughly mixed, and the chamber intermediate between the diaphragm and the outlet, substantially as described.

2. In a burner for gas-stoves, the combination of the following elements, namely, an air-cylinder, a gas-supply pipe, a perforated diaphragm, a cap above the diaphragm, an annular outlet below the top of the cap for escape of the inflammable material, the combination being and acting substantially as set forth.

3. The combination, with the horizontal perforated diaphragm, of the cap provided with an annulus of lateral perforations or openings for escape of the inflammable material, substantially as set forth.

4. The combination, with a burner, substantially such as described, of a laterally-projecting flange, overhanging and protecting the gas-outlet and the perforated diaphragm, substantially as set forth.

7,078. SAW-HANDLES. William Clemson, Middletown, N. Y., assignor to the Wheeler, Madden & Clemson Manufacturing Company. Patent No. 143,413, dated Mar. 10, 1874. [Filed Mar. 31, 1876.]

Brief.—The handle is provided with a segmental slot, for the use of one or both hands. By means of a slot formed in the heel of the blade, the saw-plate is projected in the handle on both sides of the segmental slot.



1. As a new article of manufacture, a saw-handle provided with a continuous circular or segmental slot, C, to form provision for the use of one or both hands, substantially as and for the purposes herein set forth.

2. In combination with the saw-handle having an opening for the hand or hands, the blade B, the heel having an opening corresponding to the opening in the handle, as herein shown and described.

7,079. MINING-MACHINES. Alex. Crombie, Wilmington, Ill. Patent No. 171,470, dated Dec. 28, 1875. [Filed Apr. 8, 1876.]

Brief.—A carriage on ways parallel with

the breast of coal has vertically pivoted within it a wheel made to revolve with the effect of cutting a horizontal channel near the floor in the coal by knives on its periphery and on the rim of its disk, operated by gearing which simultaneously winds the carriage forward.



The mining-machine described, in which a cutting-wheel provided with planing-cutters or knives on its outer rim revolves on a shaft supported by and and within the body of a main frame, and receives its motion from engines by means of gears and shafts, which are supported by and arranged within said frame, substantially as and for the purpose described.

7,080. RESERVOIR COOKING-STOVES. Daniel Paris, Troy, N. Y., assignor, by mesne assignments, to Jos. B. Wilkinson, same place. Patent No. 79,619, dated June 9, 1868; reissue No. 6,999, dated Mar. 14, 1876. [Filed Apr. 15, 1876.]



1. For the purpose of heating the reservoir only, a double flue between the oven and the reservoir, arranged to conduct the products of combustion downward in front of the back plate of a cooking-stove, and upward in rear of it, substantially as described.

2. A double-acting damper situated below or underneath the pipe-collar of a cooking-stove, having its base at or near the back plate of the stove, while its top part shall move from side to side of said pipe-collar, in combination with the reservoir in rear of and the double flue below said damper, substantially as described.

3. A pipe-collar to a cooking-stove, situated at one side or end of the stove, and over, or nearly over, a double smoke-flue, and in combination therewith, said pipe-collar being placed to receive the currents from either flue, as the damper below is shifted from side to side of said pipe-collar, substantially as described.

4. In combination with a water-reservoir, two flue-dampers, both situated at one side or end of a cooking-stove or range, and arranged to produce, or capable of producing, the results substantially as described.

5. The combination, with a water-reservoir located in the rear of the rear flues of a diving-flue cooking-stove, having the pipe-collar in front of the reservoir, of a damper or dampers, substantially as described, whereby the gases of combustion, in their passage from the fire-box to the smoke-pipe, are controlled so that they can be made to pass down in the rear of the oven only, and return to the exit-passage through a flue or auxiliary hot-air chamber, thereby heating the rear of the oven and the water-reservoir without passing under the oven.

6. A damper or dampers located in and in combination with the rear upright flue or auxiliary hot-air chamber, for controlling apertures in the division-plate, which, when open, will cause the gases of combustion, in their passage from the fire-box to the smoke-pipe, to pass down in the rear of the oven only, and return upward to exit-passage, thereby heating the rear of the oven and the water-reservoir with a direct draft, without passing under the oven, substantially as described.

7. The combination, with a water-reservoir, located in the rear of the rear flues of a diving-flue cooking-stove, having the pipe-collar in front of the reservoir, of a damper or dampers, substantially as described, whereby the currents of heated air or products of combustion are reversed from a downward to an upward motion, in the rear vertical flue or flues, or auxiliary hot-air chamber, for the purpose of heating the rear of the oven and the inner or front wall of a reservoir by direct draft from the fire-box to the pipe-collar, without heating the bottom of the oven.

7,081. THIMBLE. Arthy Romadka, Milwaukee, Wis., assignor to Romadka Brothers. Patent No. 156,217, dated Dec. 29, 1874. [Filed Mar. 16, 1876.]



1. A self-supporting corner hinge and clamp combined for trunks, consisting of a clamp, C, cast with a strengthening-bulb and re-entering pin c, and a clamp, D, cast with a similar bulb, a supporting-flange, and socketed bulb, substantially as and for the purpose set forth.

2. In a combined clamp-hinge for trunks, the re-entering pin c and socketed bulb c, when cast with the parts of the same, as and for the purpose set forth.

3. In a self-supporting combined clamp and hinge for trunks, the longitudinal supporting-flange E, cast with and upon the rear side of the lower clamp and hinge, as set forth.

7,082. CAR-COUPLINGS. Ephraim Russell, Millerstown, Pa., assignor, by mesne assignments, to J. Hiram Myers, Rochester, N. Y. Patent No. 64,646, dated Dec. 1, 1868. [Filed May 19, 1875.]



1. The combination, with the link for connecting the draw-heads of cars, of a block, adapted to be interposed between said draw-heads, substantially as and for the purpose set forth.

2. The block B, provided with shoulders adapting it to rest upon and be supported by the coupling-link, intermediate between the draw-heads, substantially as described.

3. The slotted draw-heads in combination with the open coupling-link A, applied and operating substantially as described.

4. The combination, with the draw-heads of the slotted link A and the interposed block or handle B, substantially as and for the purpose set forth.

7,083. CORN-PLANTERS. James Selby, Peoria, Ill. Patent No. 126,751, dated May 14, 1872. [Filed Aug. 2, 1876.]



1. The combination, in a corn-planter, of the levers c and d, arranged to operate substantially as described, whereby the driver is enabled to press the runners into the ground, or raise them therefrom, as set forth.

2. In combination with the levers c d, arranged to operate as set forth, a locking device, whereby the levers can be locked in position to regulate the depth that the runners shall enter the ground, as set forth.

3. In combination with the levers and latch a, an adjustable stop, h, for regulating the position at which the runners shall be locked, substantially as described.

4. The arrangement of the seat S and the levers c d, substantially as shown and described, whereby the driver can operate the levers by his feet, both to raise and lower the runners, and also lock and unlock the parts, as set forth.

5. In combination with the rigid frame, having the runners pivoted thereto, the two seats, arranged on opposite sides of the axle, whereby the weight of the driver and dropper are made to counterbalance each other without affecting the runners, as set forth.

7,084. MANUFACTURE OF ARTIFICIAL STONE. Jas. L. Rowland, New York, N. Y. Patent No. 137,822, dated Apr. 1, 1873; reissue No. 6,234, dated Jan. 12, 1875. [Filed Apr. 5, 1876.]

1. In an apparatus for manufacturing stone artificially, an indurating or curing chamber, G, in combination with a gas-generator and a vapor or steam generator, substantially as described.

2. In an apparatus for manufacturing stone artificially, a gas and vapor mixing chamber, pipe, or passage, in combination with a gas-generator, a vapor or steam generator, and an indurating or curing chamber, substantially as described.

3. In an apparatus for manufacturing stone artificially, a gas and vapor mixing chamber, pipe, or passage, wherein the gas and vapor or steam commingle before being introduced into the indurating or curing chamber, for the purpose set forth.

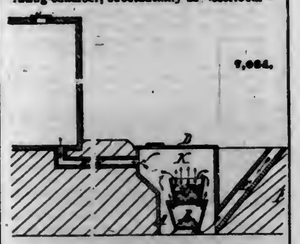
4. In an apparatus for manufacturing stone artificially, by the use of gas generated by the burning of carbonaceous matter, a gas pipe or flue, subjected in part or in whole to a cooling medium or agent, other than atmospheric air, for reducing the temperature of such gas in its passage through the pipe or flue into the indurating-chamber.

5. In the manufacture of stone artificially, with the use of gas evolved by the burning of carbonaceous matter, and after its evolution subjected to cooling agencies, or a cooling process, for the purpose of reducing its temperature before the application of the gas to the material or articles treated with it, I claim such cooling of the gas or reducing its temperature effected before the introduction of the gas into the indurating-chamber.

6. In the manufacture of stone artificially, in which the material to be indurated is treated with gas generated by the burning of carbonaceous matter, I claim such gas when it has been subjected to a cooling process before its introduction into an indurating-chamber.

7. In the manufacture of stone artificially, vapor, in combination with gas generated by the burning of carbonaceous matter, when such gas has been subjected to a cooling process before its introduction into an indurating-chamber.

8. The process of treating the material to be indurated or transformed into stone with gas generated by the burning of carbonaceous matter, and subjected to a cooling agent or agencies, whereby it has its temperature reduced before its introduction into the indurating-chamber, substantially as described.



7,084.

7,085. RING SPINNING-FRAMES. Cyrus B. Morse, Rhinebeck, N. Y. Patent No. 76,798, dated Apr. 14, 1868; reissue No. 6,345, dated Mar. 23, 1876. [Filed Mar. 6, 1876.]



1. The combination, substantially as described, with the continuous lifting and ring rail, provided with spindle-openings, of a holder for containing a spinning-ring, which holder is adjustable in position upon the rail, substantially as set forth.

2. The combination, substantially as described, with the continuous lifting and ring rail, provided with spindle-openings, of a holder for containing a spinning-ring, which holder is adjustable in position upon the rail, and a detachable ring carried by said holder, substantially as set forth.

3. The combination, substantially as described, with the continuous lifting and ring rail, provided with spindle-openings, of a holder for containing a spinning-ring, which holder is adjustable in position upon the rail, a detachable ring carried by said holder, and adjusting and holding screws passing into the ring-rail, substantially as set forth.

4. The tubular bearing, in combination with the slotted rails and lifting-rod, as and for the purposes set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

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OF THE

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COMMISSIONER'S DECISIONS.

S. AND I. LOESER.—*Interlocutory Appeal.*

[*Appeal from the decision of the Examiner in the matter of the application of Simon Loeser and Isidor Loeser for a patent for* "COMPOSITION OR PROCESS FOR DESTROYING INSECTS."—*Decided April 27, 1876.*]

In an application for a patent for a process or composition of matter, it is not proper to make separate claims including less or more than the composition described.

Where one ingredient of the composition is omitted in one of the claims, the composition is so changed as to become the subject of a separate application.

DUELL, *Commissioner:*

This appeal is taken from the decision of Examiner, who decides that the specifications and claims describe two separate and distinct compositions or processes to be used in destroying insects, and that there is contained in said specification and claims the proper subject-matter for two separate and distinct patents.

Inventions or discoveries of the kind indicated by the applicant are considered as a unit—that is, that each constituent part of the composition described is required to produce the result claimed. It is the combination of the ingredients described and their chemical action that is relied upon to destroy the insects, whose life is an annoyance to the occupants of dwellings.

The claims as amended are as follows:

1. The method herein described of destroying insects and vermin by the combustion, within a closed apartment, of a compound of sulphur, niter, and iodine, in a metallic vessel coated with indigo, substantially as set forth.

2. The compound obtained by an admixture of sulphur, niter, and iodine, for the production of insect and vermin-destroying gases, substantially as herein set forth.

In the first claim, in addition to the sulphur, niter, and iodine, the coating of indigo applied to the surface of a metallic vessel, as described in the specification, performs an important part of the process in destroying the vermin, eggs, &c. It undergoes complete distillation when the box becomes heated, mingling with the fumes of the compound, the whole producing the result desired and claimed.

The second claim is for a different compound or process, and if the parts therein described produce any beneficial results, it is not proper to be considered in the same application where different compounds constitute the first claim. If the conclusions of the applicant are correct he could introduce as many claims as there are ingredients described if they produced some result in the way of destroying insects, &c.

The decision of the Examiner is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

GEORGE B. CORNELL *vs.* LOMAX LITTLEJOHN.

A clause contained in a specification stating that "we do not wish to confine ourselves exclusively to the V-shaped projection, as any form that will prevent the core from turning independently of the bush will produce the same result;" the patentees could not have in view every method whereby the core or wrench could be mechanically prevented from turning independently of the bushing. It is not any form of wrench or core, but any form of *projection*, that is meant, suited to engage with any corresponding notch in the bushing.

A decision on a preliminary application for an injunction is not of controlling right in another circuit, as was held in the *Sargent Manufacturing Company vs. Woodruf*, (5 Bissell, 444.)

[*S. A. Goodwin* and *B. F. Lee*, for plaintiff.
S. A. Duncan and *Hiram Ketchum*, for defendant.]

OPINION OF THE COURT.

JOHNSON, *Cir. J.*:

In my opinion the bush and wrench used by the defendant are not infringements of the patents Nos. 5,026

and 5,027 of the plaintiff, or either of them. The obvious proof of this consists in the facts that the plaintiff's wrench cannot be used with the Littlejohn bush, and that the plaintiff's bush and wrench are adapted to each other, the bush by a V-shaped notch in its outer rim, and the wrench by a projection of a shape to fit into the notch in the bush. The turning force applied to the wrench operates upon the bush by the contact and engagement of the projection with the notch in the bush. At that point only is the force applied. The plaintiff's patent, reissue No. 5,027, division B, says:

> The object of this notch is to allow a suitable wrench adapted for the purpose to engage therewith, whereby the said bushing may be turned into place without the wrench slipping from its seat, as would be the case with a bushing having a smooth surface.

It will be observed that it is the notch which prevents the wrench slipping from its seat, and that it is the notch which is contrasted with "the smooth surface," and which prevents this bushing from being subject to the difficulty a smooth surface would occasion; and accordingly the claim specifies—

> The screw-threaded metallic bung-bushing, made tapering upon both its outer and inner sides, and provided with the flange B having the V-shaped notch *d*, as and for the purpose described.

In the plaintiff's reissue, No. 5,026, division A, the specification, after describing the wrench, with a V-shaped projection adapted to fit a corresponding notch formed in the bushing, whereby the same may be turned into place, and also preventing the wrench from slipping from its seat, goes on to say that—

> In using the said invention the core is inserted into the opening through the bushing, and turned until projection D falls into a notch formed in the bushing, which is adapted to fit the same, and by the contact of the projection within the notch the wrench is prevented from slipping from its seat, thereby enabling the bushing to be readily turned into place.

Then follows a clause, which it is contended on the part of the plaintiff, prevents his being confined to the device specified. It says:

> We do not wish to confine ourselves exclusively to the V-shaped projection, as any form that will prevent the core from turning independently of the bush will produce the same result.

Upon this language it seems to me impossible to say that the patentees had in view every method whereby the core or wrench could be mechanically prevented from turning independently of the bushing. It is not any form of wrench or core, but any form of *projection*, that is meant, suited to engage with any corresponding notch in the bushing. Therefore in the claims which follow, the projection D is retained as a distinctive feature of the invention.

The device which the plaintiff's patents extend to covers every sort of direct physical engagement of some part of the wrench against some part of the bush. If it has a greater extension than this it must cover every means whereby a bung-bush may be screwed into a barrel by the application of force through a wrench.

The Littlejohn wrench operates in a different way from the patented device. As has already been noticed the plaintiff's wrench cannot engage with and turn the defendant's bush. The defendant's wrench does not carry a core which fits closely into the bush, nor engage with it by any projection and corresponding cavity. It carries an eccentric ribbed boss or bit of metal fitted upon a part of the surface of a loosely-fitting core. Upon turning the wrench in the proper direction the eccentric boss is pressed against the inner surface of the bush, and the friction thus caused is sufficient to turn the bush into the barrel.

If this can be regarded as a mechanical equivalent for the plaintiff's device, then I see no limit to the extent of the plaintiff's right, and upon a patent for a V-shaped projection and corresponding aperture, he will have secured to himself every mechanical means whereby motion can be given to a rimmed hollow screw to force it into its place. I do not think this the proper construction of his claims, nor a case for the application of the doctrine of mechanical equivalents, to the extent claimed.

On the plaintiff's own statement as to a wrench made by him, like the Littlejohn wrench, in 1867, when he was experimenting upon wrenches, it is apparent that having found it practically a failure, for whatever reason, he abandoned it, and did not attempt to include it in his patent. His device was the interlocking V-shaped projection and cavity. With the two devices present to his mind, no man could have chosen words so exclusively applicable to one, intending to include the other also. So that I feel no doubt in the conclusion that the plaintiff's patent not only does not, but was not intended to, include the Littlejohn form of wrench.

The decision on final hearing in the Eastern District of Wisconsin, against Schumacher and Johnson, does not touch the question upon which, in my judgment, this case turns. On the motion for a preliminary injunction, in the case against the Bemis Brewing Company, the same learned judge who decided the former case refused to grant an injunction, unless a bond was given. The wrench produced in that case seems to me, in principle, not distinguishable from that here in controversy, though the other circumstances of the case are not fully disclosed.

But a decision on a preliminary application for an injunction is not of controlling right in another circuit, as was held in the *Sargent Manufacturing Co.* vs. *Woodruff*, (5 Bissell, 444,) and I feel so strong a conviction that the plaintiff cannot maintain his claim to the wrench used by the defendant, as an infringement of the plaintiff's patent, that I must act upon my own judgment in the premises.

The motion for an injunction must be denied.

U. S. CIRCUIT COURT—DISTRICT OF INDIANA.

ROSWELL R. ROUSE vs. INGRAM FLETCHER, ALBERT E. FLETCHER, THOMAS H. SHARPE, AND EBENEZER SHARPE.

[*In Chancery.—Before* GRESHAM, *J.—November Term*, 1875.—*Decided February* 18, 1876.]

The following case came to hearing on the pleadings and the stipulations of counsel as to the facts. Defendants had driven two wells for their own use, and the present suit was brought to test the question of infringement. The license fee was already fixed.

[*Hatch* and *Parkinson* for complainant.
Harrison, Hines, and *Miller* for defendants.]

GRESHAM, *J.*:

This cause being brought on for hearing upon the pleadings and stipulations of counsel, and both parties thereto appearing by their respective counsel, the Court doth find:

1st. That the Letters Patent No. 130,571, granted to Roswell R. Rouse, the complainant herein, on the 27th day of August, 1872, for Improvement in Well-Tubes, and the reissued Letters Patent No. 6,337, granted to Louis M. Rumsey and Moses Rumsey, on the 16th day of March, 1875, as a reissue of the letters patent originally granted to John M. May, August 1, 1865, for Improvement in Drills for Well-Boring, are good and valid in law.

2d. That this complainant is the sole and exclusive owner of all rights created, conferred, or secured by said reissued letters patent respectively, in and for the county of Marion, and State of Indiana.

3d. That these defendants have infringed and violated said reissued letters patent respectively, by using, in the construction and operation of certain wells in Indianapolis, within said Marion county, well-tubes or drills embracing improvements described and claimed in said reissued letters patent.

It is therefore ordered, adjudged, and decreed:

1st. That these defendants, their servants, agents, and attorneys, be, and they hereby are, enjoined from making, using, or selling, other well-tubes or drills similar to that heretofore used by them, or to those described and claimed in said reissued letters patent, or from any use of the tubes heretofore purchased and used by them other than in the wells in which they are already sunk.

2d. That said defendants pay to said complainant, as damages for infringement of said letters patent as aforesaid, and as his royalty for the wells so made by them, and for the use of said well-tubes in constructing and operating said wells, the sum of twenty-five dollars.

3d. That said defendants pay the costs of this suit, and that in default of the payment of damages and costs, as aforesaid, within sixty days from the entry of this judgment, execution issue therefor.

DESIGNS PATENTED DURING THE WEEK.

Each Design bearing date May 2, 1876.

9,251 and 9,253.—Font of Printing-Types.—DAVID W. BRUCE, New York, N. Y. Applications filed March 31, 1876. Term of patents 14 years.

9,253 and 9,254.—Carriage-Steps.—EDWARD A. COOPER, Lancaster, assignor to PRATT & LETCHWORTH, Buffalo, N. Y. Applications filed March 6, 1876. Term of patents 14 years.

9,255.—Heating-Stove.—CONRAD HARRIS and EDWARD KUMMER, Cincinnati, Ohio, assignors to C. HARRIS & SON, same place. Application filed March 19, 1874. Term of patent 7 years.

9,256.—Watch-Chain Charm.—GEORGE M. SAVAGE, Detroit, Mich. Application filed April 5, 1876. Term of patent 7 years.

9,257.—Buckles, Badges, &c.—ISAAC SCHEUER and HERMAN SCHEUER, New York, N. Y. Application filed February 28, 1876. Term of patent 3½ years.

9,258.—Flower-Holder.—AUGUSTUS WAYNE, New York, N. Y. Application filed April 4, 1876. Term of patent 3½ years.

9,259.—Flower-Holder.—JOHN C. WILSON, New York, N. Y. Application filed April 4, 1876. Term of patent 3½ years.

9,260.—Drawer-Pull.—PATRICK J. CLARK and JOSEPH KINTZ, West Meriden, Conn. Application filed April 10, 1876. Term of patent 7 years.

9,261.—Advertising Table-Napkin.—ENOS G. TORBERT, Philadelphia, Pa. Application filed April 7, 1876. Term of patent 3½ years.

9,262.—Flag.—WALTER BROWN, New York, N. Y. Application filed April 4, 1876. Term of patent 3½ years.

9,263.—Tables.—HARLOW R. BROWN, New York, N. Y. Application filed April 7, 1874. Term of patent 7 years.

9,264.—Bas-Relief.—JAMES M. M. CONRAD, Baltimore, Md. Application filed April 18, 1876. Term of patent 3½ years.

9,265.—Embroidery-Pattern.—EMIL CHESAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed April 26, 1876. Term of patent 3½ years.

9,266.—Carpet-Borders.—EUGENE DANIEL, Paris, France, assignor to the ROXBURY CARPET COMPANY, Boston, Mass. Application filed April 22, 1876. Term of patent 3½ years.

9,267.—Carpets.—JOHN HAMER, Dutchess county, N. Y. Application filed April 20, 1876. Term of patent 3½ years.

9,268.—Manufactured Tobacco.—WITCHER JONES, Danville, Va. Application filed March 20, 1876. Term of patent 7 years.

9,269.—Carpets.—DAVID MCNAIR, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY. Application filed April 24, 1876. Term of patent 3½ years.

9,270.—Coffin-Handle Tips.—WILLIAM M. SMITH, West Meriden, Conn., assignor to THE MERIDEN BRITANNIA COMPANY, same place. Application filed April 26, 1876. Term of patent 7 years.

9,271.—Revolver-Cylinders.—HENRY C. WEBB, Norwich, Conn. Application filed April 26, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 2, 1876.]

3,638.—Whisky.—BRYCE & SMITH, New York, N. Y. Application filed April 6, 1876.
"words 'GOLDEN STATE.'"

3,639.—Mixed Pickles.—CROSSE & BLACKWELL, London, England. Application filed April 17, 1876.
"British coat-of-arms, and the words 'Mix'd Pickle, Crosse and Blackwell, London.'"

3,640.—Griddle-Cake Self-Raising Flour.—GEO. V. HECKER & CO., New York, N. Y. Application filed April 10, 1876.
"figure of a griddle, and the words 'Griddle Cake.'"

3,641.—Green Corn Packed in Cans.—JOHN WINSLOW JONES, Portland, Maine. Application filed August 13, 1876.
"the combination of a red ground with the representation of an ear of green corn."

3,642.—Baking-Powder.—FRANCIS H. LOOMIS, Syracuse, N. Y. Application filed April 10, 1876.
"picture of fruit and flowers, together with the words 'Fruit Yeast.'"

3,643.—Cotton Sheetings.—NAUMKEAG STEAM COTTON COMPANY, Salem, Mass. Application filed February 19, 1876.
"words 'Pequot Twilled Cottons,' used in connection with a representation of a bull's head."

3,644.—Manufactured and Leaf Tobacco.—A. S. ROSENBAUM & CO., New York, N. Y. Application filed April 12, 1876.
"representations of a donkey and a dog."

3,645.—Leather.—DAVID WALLERSTEIN, New York, N. Y. Application filed April 11, 1876.
"words 'Imperial' and 'four crowns.'"

3,646.—Rubber Goods, Consisting of Syringes, Breast-Pumps, Nursing-Bottles, Nipples, Tubing, and Nursery-Bottle Fittings.—AMERICAN RUBBER COMPANY, Boston, Mass. Application filed March 25, 1876.
"word 'DOMESTIC.'"

4,647.—Saw-Mill Dogs.—FILER, STOWELL & CO., Milwaukee, Wis. Application filed, April 17, 1876.
"words 'THE BOSS DOG.'"

3,648.—Flour.—RANDOLPH L. FRAZER, Frazee City, Minn. Application filed April 10, 1876.
"the figure of a hand holding cards."

3,649.—Plug-Tobacco.—A. G. FULLER & CO., Danville, Va. Application filed April 15, 1876.
"words 'LITTLE MAGGIE.'"

3,650.—Chills and Fever Medicine.—CHARLES I. HART, Dryden, N. Y. Application filed April 24, 1876.
"words 'The Lamar Chills and Fever Exterminator.'"

3,651.—Medical Compounds for Throat and Lung Diseases.—WILLIAM HUGHES, Allegheny, Pa. Application filed February 14, 1876.
"words 'HONEY OF TAR.'"

3,652.—Kerosene-Oil.—A. F. SISE, Boston, Mass. Application filed March 27, 1876.
"word 'NOONDAY.'"

3,653.—Cosmetic.—EDGAR B. WHITNEY, San Francisco, Cal. Application filed February 21, 1876.
"words 'Whitney's Crème Vegetale,' and the monogram medallion 'W. C. V.'"

3,654.—Buttons.—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.
"letters and characters 'W., K. & Co.'"

3,655.—Buttons.—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.
"words 'BOUTONS DE NATIONALE.'"

3,656.—Buttons.—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.
"letter 'F.'"

3,657.—Buttons.—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.
"letters 'F. F.'"

3,658.—Buttons.—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.
"letters 'A. A.'"

3,659.—Buttons.—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.
"representation of a crown."

3,660.—Buttons.—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.
"representation of a vignette surmounted by a crown, and ornamented on the border with alternate representations of the French eagle and the United States coat-of-arms. At the base of the vignette a French eagle is represented between the American and French flags."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 2, 1876.]

692.—Title: **"Pure Broken Roasted Coffee."**—ARBUCKLE BROTHERS, New York, N. Y., and Pittsburg, Pa. Application filed April 21, 1876.

693.—Title: **"Roasted by the Pure Spice Mills."**—ARBUCKLE BROTHERS, New York, N. Y., and Pittsburg, Pa. Application filed April 21, 1876.

694.—Title: **"Quaker City Unground Roasted Coffee."** ARBUCKLE BROTHERS, New York, N. Y., and Pittsburg, Pa. Application filed April 21, 1876.

695.—Title: **"Boutons de Nationale."**—WILLISTON, KNIGHT & CO., New York, N. Y. Application filed April 17, 1876.

696.—Title: **"Continental Champagne."**—CHRISTIAN G. FRASH, New York, N. Y. Application filed April 27, 1876.

697.—Title: **"Leipzig Cologne."**—ARTHUR FRICKE, Camden, N. J. Application filed April 27, 1876.

698.—Title: **"1-51 Long Cut Smoking-Tobacco."**—FRIEDMUTH, BRO. & Co., Philadelphia, Pa. Application filed April 28, 1876.

699.—Title: **"Hutschler's Improved Extension Yoke Shirt."**—R. V. HUTSCHLER, Brooklyn, N. Y. Application filed April 27, 1876.

700.—Title: **"Mrs. Miller's All-Healing Salve."**—MRS. GEORGE MILLER, Albion, Mich. Application filed April 27, 1876.

701.—Title: **"200 lbs American Guano."**—MUSGRAVE & POPE, Boykin's Depot, Va. Application filed April 25, 1876.

702.—Title: **"James G. Steele & Co., Perfumers."**—JAMES G. STEELE, San Francisco, Cal. Application filed April 27, 1876.

TO CORRESPONDENTS.

Persons ordering drawings of patents, or making inquiries in regard to patents, must always state the name of the inventor, subject-matter, and date. In making inquiries in regard to applications for patents letters must state the name of the applicant, subject-matter, and date of filing.

REMITTANCES.

All money sent by mail, either to or from the Patent Office, will be at the risk of the owner. In no case should money be sent inclosed with models. All payments to or by the Office must be paid in specie, Treasury notes, national bank-notes, certificates of deposit, or post-office money-orders.

INDEX OF INVENTIONS PATENTED MAY 2, 1876.

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Odenheimer, F. G., Tourist's tablet	176,985
O'Hagan, T., Elevator	176,986
O'Keeffe, R., Railroad rail joint	176,866
Olds, H. H., Spoke socket	176,883
Oldshue, L., Music leaf turner	176,987
Oley, C. H., Scroll sawing machine	176,988
Oliver, J., Plow, (reissue)	7,097
Oliver, J. C., Side spring buggy	176,802
Oliver, P. A., assignee	177,034
Oliver, P. A., Blasting cartridge	176,989
Overpeck, J. M., Portable fence	176,990
Owen, J. R. N., Breech loading ordnance	176,884
Owens, D., assignee	176,926
Owens, G. T., Horse detacher	176,803
Palmer, C. S., Bridge	176,991
Palmer, G. N., Cooking stove	176,992
Palmer, M., Middlings separator	176,885
Parker, J. E., Heater for melting wax from electrotype cases	176,886
Patten, J. R., Jump seat carriage	176,804
Paul, A., Nut lock	176,993
Pearce, R., Reverberatory furnace	176,994
Peebles and Mefford	176,754
Peer, P. A., Barn door fastening	176,887
Pennybacker, F. S., Car coupling	176,888
Phillips, E., Stand or table	176,889
Phillips, E. F., assignee	176,978
Pickering, E. and B., assignees	176,820
Platt, N., Sash holder for use in carriages, &c	176,995
Plimpton Manufacturing Company, assignee	177,048
Post, J. W., Draw bridge	176,805
Post, J. W., Bridge	176,806
Potter, J. W., Attaching handles to axes, hammers, &c	176,807
Pratt and Gridley	176,783
Prenbrey, J. W., Machine for making collar buttons and studs	176,808
Price, J. M., and W. Lewis, Rolling mill apparatus	176,996
Procter, D. C., Stove grate	176,997
Procter, D. C., Heating stove	176,998
Procter, D. C., Coal stove	176,999
Pruitsman, J. P. and J. E., and J. P. McIntyre, Plow	177,000
Purinton, J., assignee	176,871
Radford, J., Composition for lighting cigars	177,001
Randall, S. B., Machine for cutting waved edges on leather straps	176,809
Rankin, J. R., Printing press	177,002
Reibenstein, H., Compound for beverages	177,003
Reichle, C., and T. Krauss, Window bead fastener	177,004
Reimel, C., Edge finishing tool for boots and shoes	176,810
Reynolds, E., Pump	177,005
Reynolds, T. J., Railway switch	176,890
Richard, J. A., Car coupling	177,006
Richards, D. C., Screw driver	176,811
Richards, J. F., and J. Herkimer, Rein button	176,758
Rigby, A., Cultivator	177,007
Rimpler, F., Potato digger	177,008
Robinson, W., Model flowing oil well	176,812
Rogers, G. K., and A. D. Goodell, Postal card file	177,010
Rogers, R., Stock chute for railway cars	177,009
Rogers, R. E., Recovering nitric acid used in separating gold and silver	176,813
Roley, J., Nose ring	176,891
Rollins, E. H., Machine for making wood gutters	176,892
Rosby, J. R., Clothes drier	176,814
Rutherford, A., Horse collar	177,011
Saladee, C. W., Curry comb	177,012
Saladee, C. W., Curry comb	177,013
Saladee, C. W., Curry comb	177,014
Salloo, I. G., Wagon body and frame	176,893
Samuels, J., Heel for boots and shoes	177,015
Sarchet, G. E., and G. W. Dickinson, Sash balance	177,016
Saunders, A., Pipe cutter	176,815
Saunders, C. I., Andiron	177,017
Saunders, D., & Sons, assignees	176,815
Sawyer, O., A. and H. C. Knowlton, Sanding machine	177,018
Schallert and Hampe	176,858
Schmitt, L., Corset	177,019
Scholz and Kuhns	176,965, 176,966
Schultze, F. W., and L. H. Seidel, Padlock	176,759
Seidel and Schultze	176,759
Sherwood, D., E. P. Woods, and G. D. Dudley, Wire stand	176,894
Simon, W., Traveling bag	177,020
Sims, E., Fence post	177,021
Sloan, G. W., and E. Getsinger, Oyster dredge apparatus	177,022
Smith, C., Abdominal supporter	176,895
Smith, F. L., Jr., assignee	176,888
Smith, F. W., Blasting cartridge	177,024
Smith, H. R., and N. K. Wade, Core striker	176,760
Smith, J., Combined cane and stool	177,025
Smith, J. C., Rectifying apparatus	176,896
Smith, W., Water closet valve	177,023
Snyder, C. P., Extension table slide	176,816
Southworth, W. B., Billiard ball holder	177,026
Stansbury, G. H., Stove grate	177,027
Stephens, W. A., Blast apparatus for furnaces	177,028
Stephens, W. A., Process and apparatus for reducing iron ore	177,029
Stone, J. C., Rotary cultivator	176,897
Strata and Ducournau	176,937
Suckert, J. J., Composition for preventing acid fermentation	176,898
Swift, R. B., Molding wheels, &c	176,899
Talcott, E. B., W. and A. Guthrie, Fluid meter	176,817
Taylor, J. P., Machine gun	177,030
Thomas, E. O., Sr., Broiler	176 819
Thompson, H. G., assignee, (reissue)	7,094
Thomson, T., Rowlock	176,818
Thurston, J. Y., Lifting jack	176,900
Tierney, D. H., Lathe chuck	177,031
Tiffany, O. F., Fruit drier	177,032
Todd, G. W., Grate for furnaces	176,761
Tremblay, E., Horse hay rake	177,033
Trout, E. W., assignee	176,811
Trout, E. W., Mail bag fastening	177,034
True, D., Socket for boot knees	176,901
Turnbull, M., assignee	177,015
Turrell, G. B., Curry comb	176,902
Ucker, S. D., Car coupling	177,035
Van Geel, A., Vehicle hub	176,903
Vanhorn, J. S., Paper clip	176,762
Van Kannel, T., Tag	177,036
Verdier, C., Slate	176,904
Vermilya, L. D., Lightning rod	176,820
Wachter, H. C., assignee	176,812
Wade and Smith	176,760
Wagner, A. H., Sewing machine	177,037
Wagner, A. H., Sewing machine	177,038
Wagner, A. H., Sewing machine	177,039
Wagner, A. H., Sewing machine	177 040
Wagner, A. H., Sewing machine	177,041
Wagner, A. H., Sewing machine shuttle	177,042
Walton, H. F., Shade standard	176,905
Warner and Misso	176,877
Wassmer, U., Spinning lathe	177,044
Waterson, S. K., Corn planter	176,821
Watkins, W. J., Railway rail bender	177,043
Watterson, A. R., Sash pulley	176,906
Webb, E., Stopper for wash basin overflow openings	176,907
Webb, J. W., Cotton gin feeder	176,908
Webb, R. H., Fountain lamp	177,045
Wells, J. C., Bed for leather rolling machines	176,763
West, E., Hydraulic engine	176,822
Westen, M., and A. H. Johnson, Combined weeder and seed drill	176,909
Wharton, W., Jr., assignee	176,861
Whipple, A. M., Shifting rail for carriages	176,764
Whitaker, W. W., Car axle box	177,046
Whitcomb, A., Bell pull attachment	176,910
White Manufacturing Company, assignee	176,995
White, N. B., Clothes wringer, (reissue)	7,098
Whorf, C. F., Railway car heater and ventilator, (reissue)	7,088
Whysall, J., Jr., and C. M. Merrick, Finishing horseshoe nail blanks	176,911
Whysall, J., Jr., and C. M. Merrick, Machine for forging horseshoe nails	176,912
Whysall, J., Jr., and C. M. Merrick, Machine for shearing horseshoe nails	177,047
Wickham, H. J., Envelope machine	177,048
Widman, J., assignee	176,873
Willard, I. W., Railway switch	176,765
Williams, C. H., Animal nose bag	176,914
Williams, P. B., assignee	176,860
Williams, P. W., Motive power engine	176,923
Wilson, W. B., Cistern filter, &c	177,049
Witherbee, T. F., Tuyere	176,913
Woglom, W. H., assignee	176 762
Wood, J. B., Sofa chair or lounge	177,050
Wood, L. D. C., Radiator	176,915
Woods, Dudley, and Sherwood	176,894
Woods, Sherwood & Co., assignees	176,894
Woodside, E. H., assignee	176,901
Wright, W. D., Burglar alarm	177,051
Yerkes, G. S., assignee	177,025
Yoch, B., Portable and road engine	177,052
Zorn and Gahren	176,949
Zwisler, C. W., assignee	176,792

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MAY 2, 1876.

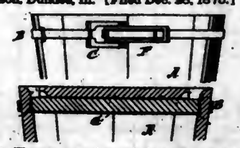
176,780. GLASS TILES FOR DECORATIONS. Thos. G. Aickin, Philadelphia, Pa. [Filed Nov. 16, 1876.]



1. As a new manufacture, a glass tile ornamented at the back and corrugated in front, as set forth.

2. The within described glass tile, having a corrugated front, a design at the back, produced by painting or enameling or otherwise, and backing of metallic leaf or any suitable pigment, as set forth.

176,781. BUTTER-PACKAGES. W. J. Allison, Dundee, Ill. [Filed Dec. 28, 1876.]

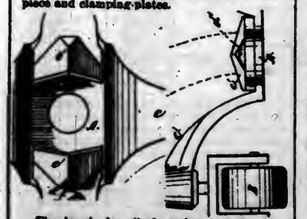


1. The stave-package A, hoop B, provided with a cam-clasp, C and F, for tightening and loosening the same, as and for the purposes specified.

2. The combination of the staves, having dovetailed notches I upon their inner surfaces, the head G, having its edge beveled, and the tightening hoop and clasp, substantially as and for the purpose set forth.

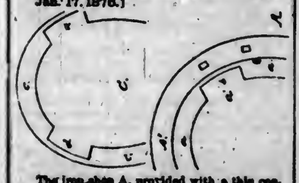
176,782. SEWING-MACHINE GAITERS. William Altick, Dayton, Ohio. [Filed Feb. 16, 1876.]

Brief.—A novel construction of the shoe-piece and clamping-plates.



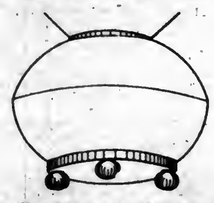
The herein-described sewing-machine gaiter, consisting of the shoe A, plate b', forming a recess at one end, and clamping-plate a', at the opposite end, provided with a slot for the passage of the set-screw d', when the respective parts are arranged as described, and mounted upon rollers B, in the manner and for the purpose specified.

176,783. ELASTIC SOLES AND HORSESHOES. Thos. B. Bishop, Washington, D. C. [Filed Jan. 17, 1876.]



The iron shoe A, provided with a thin continuous flange, extending inwardly entirely around said shoe, and depressed below its upper face A', and having a continuous shoulder, c, recesses b b, and projections a a, in combination with the elastic sole C, having a continuous marginal web extending entirely around said sole, and provided with recesses e e and projections d d, substantially as described and for the purpose set forth.

176,784. COFFADORES. Isaac G. Booth, (Geo. Booth, administrator,) Philadelphia, Pa. [Filed Apr. 28, 1876.]



A self-righting cuspadore, formed of a single shell, of equal, or substantially equal, thickness through out, and provided with counterpoising feet, substantially as shown and described.

176,785. DEVICES FOR TEACHING THE METRIC SYSTEM. William F. Bradbury, Cambridge, Mass. [Filed Mar. 1, 1876.]

Brief.—The measure of liquid fits over the measure of solid contents and superficies, and the latter is also a measure of weight.



1. The combination of the rectangular measure for liquids with the cubical block representing or indicating the corresponding long, square, and cubic measures, and the measure of weight, substantially as herein described.

2. A measure for liquids, adapted to serve as a close-fitting case for a measure of solids, and in combination therewith, the latter having the specific gravity of water, and suitably spaced to designate certain decimal parts of its bulk, substantially as herein described.

3. A cubic decimeter, weighing one kilogram, provided with a removable section representing one or more cubic centimeters, weighing one or more grams, substantially as herein described.

176,786. WASHING-MACHINES. Charles Campbell, Philadelphia, Pa. [Filed Dec. 17, 1876.]



In a washing-machine the combination of a revolving cylinder, a cloth or flap attached at one of its ends to said cylinder to hold the clothing to be washed between it and the cylinder, and four spring-rollers impinging their whole length across the convex surface of the cylinder, the said rollers held against the cylinder by means of arms pivoted at their middles to a spring-supported bearing, substantially as set forth.

176,787. GRAPPLERS FOR REMOVING STONES FROM BORED WELLS. Charles Campbell, Cambridge, assignor to Jay Campbell, Door Creek, Wis. [Filed Jan. 20, 1876.]

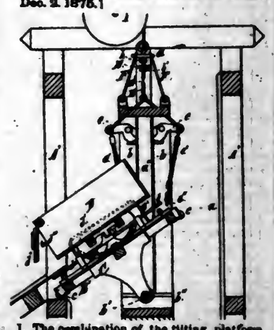
Brief.—Curved prongs are jointed to a cross-head, and are expanded or compressed by means of a vertical screw-rod and a sliding cross-head, through which the prongs pass, for removing stones from bored wells.



176,787.

The prongs B, three or more, in combination with the sliding cross-head C, cross-head A, and coupling-rod E, in one or more sections, as and for the purpose set forth.

176,788. HOISTING AND DUMPING APPARATUS. Wm. S. Cherry, Streator, Ill. [Filed Dec. 2, 1876.]



1. The combination of the tilting platform B', elevated above its pivotal support, and the short guideways e', substantially as and for the purpose set forth.

2. The combination, substantially as described, of the platform B', rock-shaft b', and guides a e', for the purposes set forth.

3. The guards D', extending above and over the wheels of the car, substantially as and for the purpose set forth.

4. The combination of the latch-bar d'' and inclined plate or stop c''', substantially as and for the purpose set forth.

5. The combination of the dogs e, pivoted to the sides of the cage, the guide-posts e'', and the springs e', constructed and operating substantially as and for the purposes set forth.

6. The combination, substantially as described, of the dogs e, springs e', rods B' f, and hoisting-rope l, for the purpose set forth.

7. In a hoisting apparatus, the combination, substantially as described, of an elevating device and a safety attachment, the latter being adjustably connected to the former, for the purpose set forth.

8. The combination, substantially as described, of the dogs e, rods f and E', adjustable disk H, and draft-rod g, provided with screw-nut h', for the purposes set forth.

9. The combination, substantially as described, of the rods F, attached to the cage, rods E' and f, attached to the dogs e, disks G and H, and draft-rod g, provided with screw-nuts h h', for the purposes set forth.

176,789. LUBRICATORS. John T. Cody, Cincinnati, Ohio. [Filed Mar. 27, 1876.]

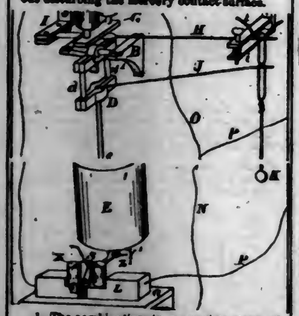


1. A glass globe for a lubricator, lamp, or other use, whose neck is formed with shoulder a, groove a, and groove a', substantially as and for the purpose specified.

2. The combination of glass globe A, thimble B, and ring C, constructed and connected substantially as and for the purpose specified.

176,740. ELECTRO-MAGNETIC CLOCKS. W. M. Davis, Cleveland, Ohio. [Filed Apr. 19, 1876.]

Brief.—Peculiar form of gravity-impellent. Cup holding the liquid immergent for the contact-points so constructed as to allow the immergent to be drawn off from below without disturbing the mercury contact-surface.



1. The combination, in an electric clock, of the magnet F, armature G, lever H, stop-post *i i'*, and gravity-impellent K K, with the horizontal arm J of a common clock pendulum, substantially as shown, and for the purpose described.

2. In combination with the contact-points of a rheotome or other director of an electric clock, the immergent-cup S, constructed substantially as and for the purpose described.

3. The horizontal lever H secured at stud 1, thence passing under and beyond the magnet, its further extremity being provided with the gravity-impellent K, and its vertical movement limited by the stop-pern *i i*, substantially as and for the purpose described.

4. The combination of the primary magnet F, primary pendulum B *c*, current-switch L, secondary or auxiliary magnet F', with or without a pendulum, E' *g'*, auxiliary rheotome *l'*, secondary or auxiliary battery, and one, two, or more clock-movements, constructed and operated substantially as shown and described.

176,741. DOORS FOR FURNACES. Charles F. Degelman, Pittsburg, Pa. [Filed Feb. 26, 1876.]

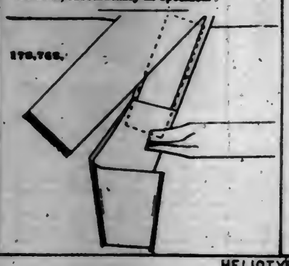


1. In a boiler or similar furnace, wherein the grate-bars of the furnace approach the level of the bottom of the door, a door bent or curved inward at the bottom substantially as described, so as to cause the draft to pass through the fuel, as and for the purpose specified.

2. In a boiler or similar furnace, wherein the grate-bars of the furnace approach the level of the bottom of the door, a door or doors bent or curved inward in combination with the liners of said furnace, so as to form an air-chamber for the protection of the liners, substantially as specified.

3. In combination with the curved or bent door or doors of a furnace, the side pieces for preventing the entrance of air at the sides of the door, substantially as specified.

176,742.

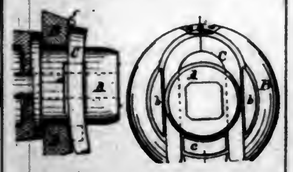


176,743. NECK-SCARFS. T. J. Flagg, New York, N. Y., assignor to Fisk, Clark, & Flagg. [Filed Mar. 20, 1876.]

1. The combination, substantially as before set forth, of the imitation artificial knot, the adjustable apron secured to said knot and adjustable in the same, and the neck band having one of its ends fast to said knot and apron, and its other end arranged to slip into the loop of the adjustable apron, and also into said artificial knot.

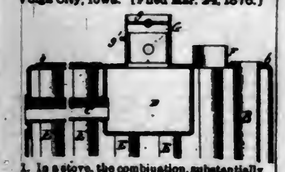
2. The combination, substantially as before set forth, of the imitation knot, the adjustable apron secured to said knot and adjustable in the same, the front apron secured at its upper end in the said knot, and the neck-band having one of its ends fast to said knot, and its other end arranged to slip through said knot behind the faces of both aprons.

176,744. WAGON-AXLES. George S. Garth and Wilson Elder, Mill Hall, Pa. [Filed Mar. 23, 1876.]



The combination of the channeled axle or thimble skein A, the washer B, having a curved face and lugs, *b e f*, channels *d*, and projections *e*, and the curved spring-key C, all constructed to interlock, substantially as described.

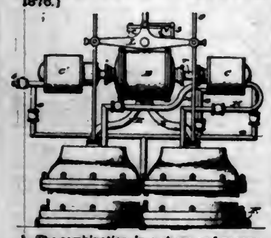
176,744. HEATING-STOVES. W. S. Garrison, Volga City, Iowa. [Filed Mar. 24, 1876.]



1. In a stove, the combination, substantially as specified, of the air-heating pipes B O E, the air-receiver D, the air-induction pipe G, the damper *g*, and the register *g'*.

2. The tapering air-heating pipes O, having a flange at the outer end, and a bead, *c*, near the other end, in combination with the air-receiver D and the body of the stove, the pipes being fitted in the body of the stove and the air-receiver, substantially as specified.

176,745. STEAM AND VACUUM PUMPS. Geo. R. Gleason, Beloit, Wis. [Filed Feb. 21, 1876.]



1. The combination, in a steam and vacuum pump, of the pump-chamber, a valve which controls the steam-passages thereto, operated by a direct application of steam, and a cut-off valve.

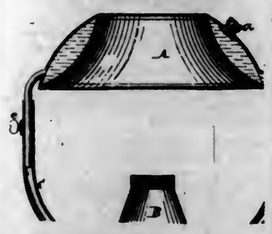
2. The combination of the chambers A A, main valve P, pipes E E, cut-off valve V², and the injection-pump, substantially as and for the purpose set forth.

3. In a steam and vacuum pump in which the steam-passages thereto are controlled by a valve operated by the direct application of steam, the combination of the main valve and its cut-off, the injection-pump, and the boiler feed-pump, as and for the purpose specified.

4. The combination, in a steam and vacuum pump, of the chambers A A, injection-pump O, boiler feed-pump O', main valve P, which acts as a piston to operate said pumps, and the cut-off valve V², as and for the purpose specified.

5. The combination of the chambers A A, injection-pump O, cylinder B, piston-head P, cut-off valve V², walking-beam L, operated by floats in the vacuum-chambers, as and for the purpose specified.

176,746. LAMPS. J. Sidney Goldsmith, New York, N. Y. [Filed Mar. 18, 1876.]



1. The combined reflector and reservoir A, connected with the fount B by one or more stationary tubes or pipes, C and C', substantially as described, and for the purpose set forth.

2. The combined reflector and reservoir A, connected with the fount B by one or more tubes or pipes, C and C', made in two parts, which slide or telescope one within the other, and the set-screw *e*, for regulating and adjusting the reflector A, substantially as described, for the purpose set forth.

176,747. ANIMAL-POKES. Milton Hartman, Sharon Centre, Ohio. [Filed Mar. 10, 1876.]



1. An animal-poke having a stale-supporting pivot with hinged forked extremity, substantially as shown, whereby the bow, when sprung at its free end, may be turned over and backward in a direct line.

2. The combination, with the bow, cross-head, jaggers, and spring in an animal-poke, of the forked pivot G, supporting the stale, substantially as and for the purpose shown.

3. The combination, with the cross-head and jaggers, of the single spring D, elbowed at D', and passing from its rigid engagement on the cross-head downward and backward through the clamping device D' up to its union with said jaggers, substantially as and for the purpose described.

4. The combination, with the bow and the stud H, provided with the annular groove H', of the sliding key plate *i'*, substantially as and for the purpose described.

5. The combination, with the bow and stud H with the annular groove H', of the key-plate I' and recess *i*, substantially as and for the purpose described.

6. The combination, with the bow, of the metallic plate F, hinge-rod, fork, or jaw G, and stud H, substantially as and for the purpose described.

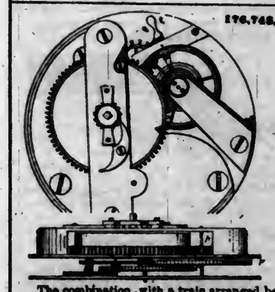
7. The combination, with the stale A and the stud H, provided with the annular groove H', of the key plate I, substantially as and for the purpose described.

8. The combination, with the stale A and the stud H, of the pin K and the circumferential slot K', substantially as and for the purpose described.

176,748. WATCHES. John Harris, Canandaigua, N. Y. [Filed Dec. 6, 1872.]

Brief.—A watch-movement in which the barrel is arranged on a plane above the rest of the works, thus allowing the use of a spring of sufficient power to run the watch from ten to twenty days without winding.

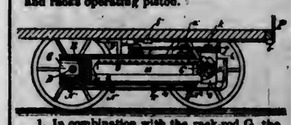
176,748.



The combination, with a train arranged between two plates, or between a plate and suitable bridges, of the barrel and elongated pinion located above the train, and supported by a bridge, all so arranged and combined that the barrel is not limited as to size by the center pinion, as and for the purposes substantially as set forth.

176,749. CAR-STARTERS. Wm. Hildebrand, Fort Wayne, Ind. [Filed Sept. 11, 1876.]

Brief.—Car started by vacuum-cylinder, the vacuum having been created by cog-wheels, and racks operating pistons.



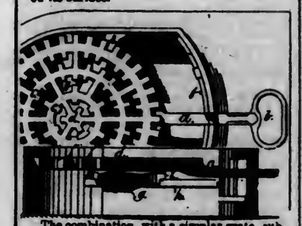
1. In combination with the rack-rod G, the slide O, provided with one or more cogs above and below on opposite sides, arranged to operate as described, and held either up or down by means of the V-shaped bar *p* and pointed pawl *p'*, substantially as and for the purpose set forth and described.

2. In combination with the cylinder C, the projecting arms T' T', arranged with the boxes S S, to support and keep in line the cylinder C, rack-rod G, and its connections with the axle C', substantially as and for the purpose set forth and described.

3. The lever G, pivoted to the cylinder C at *e*, and to the sliding clutch *h*, as shown, and operated by the cross sliding lever *d* and crank-rod F, substantially as and for the purpose set forth and described.

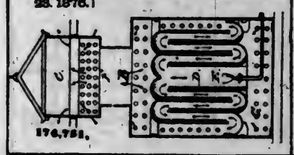
176,750. GRATES. Jason Lewis, Providence, R. I. [Filed Sept. 23, 1876.]

Brief.—The grate can be slid forward on its supports, and drawn from under the refuse on its surface.



The combination, with a circular grate, substantially as described, having the handle *b* permanently secured to the same, of the bearers *p*, the slides h A, and the slit cover *f*, the whole operating together substantially as and for the purpose described.

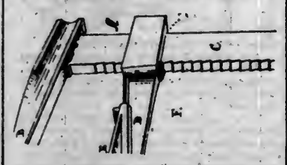
176,751. VENTILATION OF BUILDINGS. B. J. Martin, New York, N. Y. [Filed Mar. 28, 1876.]



176,751.

In combination with the fire B, extended and enlarged, the vacuum-chamber, provided with the copper radiator and the burner E, together with suitable valve-registers for both vacuum-chamber and fire, arranged and constructed substantially as described.

176,752. CLAMPS. Thomas H. Marsh, Toronto, Canada. [Filed Mar. 28, 1876.]



In a clamping-tool, A, the adjustable jaw D, with sliding wedge E attached, and tooth F, in combination with the notched stem or bar C, attached to, and projecting downwardly from, the jaw B, arranged and operating substantially as described, and for the purpose specified.

176,753. HAME-FASTENERS. De Witt C. Meeker, Columbus, Ohio. [Filed Mar. 20, 1876.]



In a hame-fastener, the plate A, having the holes or diagonal slots *a*, in combination with the plate B, provided with the pivoted lever E, having the headed pin F, substantially as shown.

176,754. PROCESSES OF PRESERVING FRUIT. Elizabeth B. Mefford and Susan Peebles, Adrian, Mich. [Filed Mar. 24, 1876.]

The process herein described of preserving fruit by first subjecting it to the action of sulphurous acid and afterward drying it, substantially as and for the purposes specified.

176,755. EXHAUST AND BLOWER FANS. Francis Murphy, Streator, Ill. [Filed Nov. 20, 1876.]

Brief.—The blades of this fan are attached to a flaring or bell shaped rim, which construction reduces friction when the wheel is used as an exhaust-fan, and facilitates the gathering and compression of the air when the fan is used as a blower.



1. The exhaust fan or blower, constructed with blades C and the flaring or bell-shaped rim D, substantially as described.

2. The combination of the rim D, provided with a rib, *d*, the spokes *c*, and the plates C' C', substantially as and for the purposes set forth.

176,756. MINE-VENTILATING APPARATUS. Francis Murphy, Streator, Ill. [Filed Jan. 18, 1876.]

Brief.—Air may be exhausted from the shaft through the main chamber, or fresh air may be forced into the shaft through the supplementary chambers and side passages, the fans revolving in the same direction in either case by changing the position of the doors.

1. The combination, substantially as described, of the air-chamber A, placed immediately above and opening directly into the shaft B, the supplementary compartments A', and the fans D, for the purposes set forth.

2. The supplementary compartments A', arranged on opposite sides of the chamber A, and inclosing the fans, substantially as and for the purpose set forth.

3. The combination, substantially as described, of the chamber A, provided with doors A'', the chambers A', inclosing the fans, and passages leading directly from the chambers A' to the shaft of the mine.

4. The combination, substantially as described, of the chamber A, provided with doors A'', the chambers A', inclosing the fans, the doors H at the mouth of the shaft, and the passages G connecting the chambers A' with the shaft of the mine.

5. The combination, substantially as described, of the chamber A and compartments A', provided with doors *a' a''*, and either with or without an air-flue, F, for the purposes set forth.

6. The doors H for opening and closing the mouth of the shaft and the passages G, substantially as and for the purposes set forth.

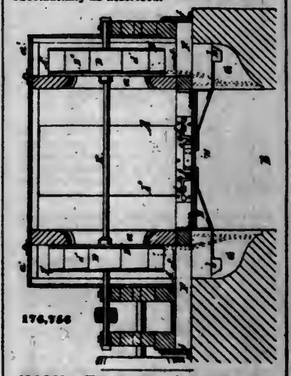
7. A ventilating apparatus, substantially as described, which may be used either as an exhaust or a blower without reversing the revolution of the fans.

8. The combination of the weighted catches *b* attached to the doors H, and the plates *c*, substantially as and for the purpose set forth.

9. The weighted dogs *d*, constructed with two arms at right angles to each other, and a projection at their junction through which the pivot-bolt passes, so that the whole weight of the dog will be behind the pivot.

10. The combination of the dogs *d* and doors H, having catches *a*, substantially as described.

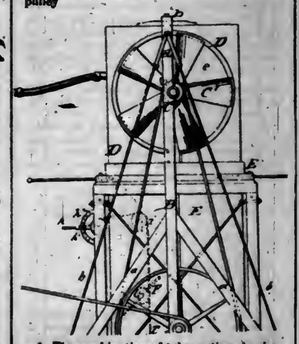
11. The fans or blowers D, consisting of a disk, D', flanges *d'*, and annulus *d''*, constructed substantially as described.



176,756

176,757. VENTILATING APPARATUS FOR COAL-MINES. Francis Murphy, Streator, Ill. [Filed Apr. 10, 1876.]

Brief.—The supply and exhaust are regulated by fans. The tubes have suitable supports, and the valves are arranged to ventilate the branch levels, being regulated from above by rope and pulley contrivance, with weight or spring acting on sector-shaped pulley



1. The combination of tube sections having inverted side brackets and surrounding supporting-pieces, with brackets of shaft-lining

for bearing the tube-sections separately of each other, as set forth.

2. The combination of the valve F, lever h, rope and pulley i, sector-pulley l, spring P, and lever-locking plate P, with the air-tube H of a mine-ventilating apparatus, as and for the purpose set forth.

3. The combination of the air-receiving chamber D, provided with openings e at opposite sides thereof, and the balanced fans C', arranged on the same shaft and outside of the air-receiving chamber, all constructed and operating substantially as described.

1. The combination, substantially as described, of the air-receiving chamber D, the balanced fans C', and the shaft-tubes H, provided with suitable valves F.

176,759. RING-BUTTONS. Jos. F. Richards and Jacob Harkimer, Chicago, Ill. [Filed June 20, 1874.]



The serrated eccentric cylinder A, in combination with the frame B, provided with the parallel bar b', shaft C, and shield E, substantially as described, for the purpose set forth in the foregoing specification.

176,760. PADLOCKS. Fredk. W Sesselne and L. H. Seidel, Philadelphia, Pa. [Filed Jan. 10, 1876.]



The double-acting tumblers, having locking projections e of different lengths and escapement-points h, in combination with the shackle C, having upon its heel a locking shoulder, d, and escapement-point g, substantially as and for the purpose set forth.

176,761. CORE-STRAINER. Herbert R. Smith and Nicholas E. Wade, Columbus, Ohio. [Filed Mar. 1, 1876.]



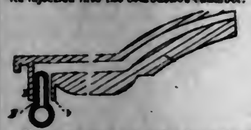
1. A sectional core-strainer, constructed substantially as set forth, with a central part or body section adjustably secured to supporting arms or holders, and movable independently of its end sections.

2. The combination, substantially as hereinbefore set forth, of the supporting-arms, the fixed end sections secured thereto, and the adjustable body sections of the strainer, moving in and out between the fixed sections.

3. The combination, substantially as hereinbefore set forth, of the supporting-arms, the adjustable body of the strainer, the fixed end sections thereof, the screw-bolts and the studs, moving with the body and working in slots in the fixed sections.

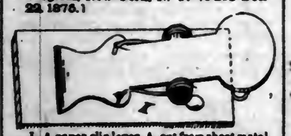
176,762. GRATES FOR FURNACES. George W Todd, Allegheny, Pa. [Filed Dec. 31, 1875.]

Brief.—The steam pipe enters the downward projection in such a manner that an annular space is formed, through which air is drawn in, and mingled with the steam before its injection into the combustion-chamber.



The pipe A, having branches B, entering the downward projection D of the grate-bar C, with the space f between the branches B and inner walls of said downward projection, substantially as herein described, and for the purpose set forth.

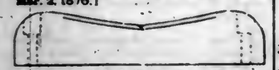
176,763. PAPER-CLIPS. Joseph S. Vanhorn, Jersey City, N. J., assignor to William H. Woglom, New York, N. Y. [Filed Dec. 29, 1876.]



1. A paper-clip lever, A, cut from sheet metal, and having ears or wings b b integral therewith, adapted to be bent into the form of bow journals, substantially as shown and described.

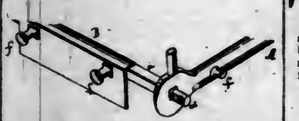
2. In combination with a base, K, and with a clip-lever having two bow journals in integral therewith, the two spiral springs, serving as bearings for these journals, and serving also to connect this lever with the base or bed, and to force it down to hold the papers, all as set forth.

176,764. BEDS FOR LEATHER-ROLLING MACHINES. J. C. Wells, Warren, Pa. [Filed Mar. 2, 1876.]



An improved bed for leather-rolling machines, consisting of an iron base and a brass or other suitable metallic composition supporting-surface, secured to the base, substantially as shown and described.

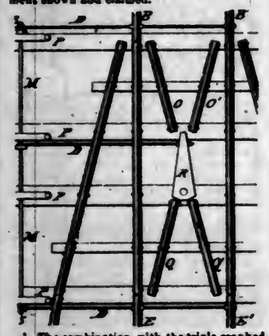
176,765. SHIFTING-RAILS FOR CARRIAGES. Arobd. M. Whipple, North Adams, Mass. [Filed Apr. 7, 1876.]



The combination, in a shifting-rail for carriages, of the back rail B, provided with the square end e and screw-tenon d, and the end rail A, provided with the square opening e, each having projections f cast thereon, and the back rail adjustable upon the end rail, all substantially as and for the purposes set forth.

176,766. RAILROAD-SWITCHES. Iram W. Willard, Hillsdale, assignor of one-half his right to Cholett C. Beach, Battle Creek, Mich. [Filed Aug. 9, 1873.]

Brief.—Frogs and guard-rails are alike dispensed with by the triple shifting arrangement shown and claimed.



1. The combination, with the triple-cranked rock-shaft M, of the vibrating center point R, the vibrating portions B B' of the main track, and the vibrating portions E E' of the main and side tracks, substantially as specified.

2. The combination, with the vibrating center point R, of the fixed converging inner rails O O' and the vibrating rails B E and B' E', substantially as specified.

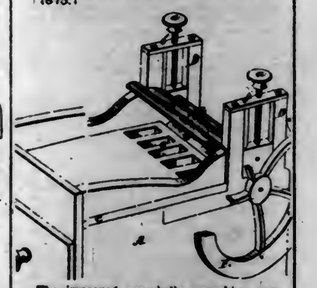
176,766. FRUIT-JARS. James H. Anchors, Pollock, Pa. [Filed Feb. 28, 1876.]



1. The jar a, having the flange c, groove to receive the packing g, and tongue or flange 2, in combination with the cover f, having the shoulder h, tongue l, and groove 3, substantially as set forth.

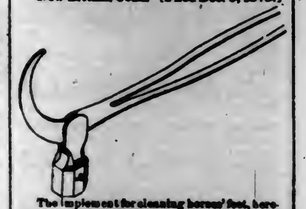
2. The combination of the jar a, flange c, bale d, screw 7, cover f, and plate 8, substantially as specified.

176,767. PEA-SHELLING MACHINES. Thos Arkell, Brooklyn, N. Y. [Filed Nov. 12, 1875.]



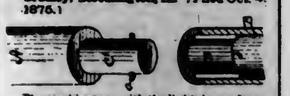
The improved pea-shelling machine, consisting of the rollers C C, wheel E, box A, having the cover c' and grating g, stands D-D, and a removable screen, S, substantially as and for the purposes set forth.

176,768. HOOF-CLEANERS. C. Blakeslee, New Britain, Conn. [Filed Dec. 9, 1875.]



The implement for cleaning horses' feet, herein described, consisting of the hooked blade B, extending from the block A, and both arranged upon the same end of a common handle, all substantially as described.

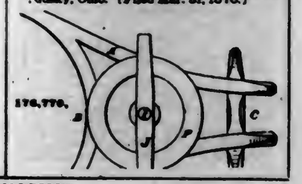
176,769. LIGHTNING-ROD COUPLINGS. S. Bradley, Bloomington, Ill. [Filed Oct. 4, 1875.]



The combination, with the lightning-rod sections A B, of the coupling, consisting of the male part C C', with pins a a, and the centrally-bored female part D, with grooves x x and inclines b b, substantially as and for the purposes herein set forth

176,770. FIFTH-WHEELS. John Burt, Sandusky, Ohio. [Filed Mar. 31, 1876.]

176,770.



1. The circular plate D, constructed with an inclined track or roller-way, D', and provided with the arched cross-piece E, the crown of the arch formed with a raised flat bearing for supporting the upper plate F, substantially as and for the purpose set forth.

2. The combination, with the lower plate D, of the elevated outwardly-inclined roller-way D', substantially as and for the purpose specified.

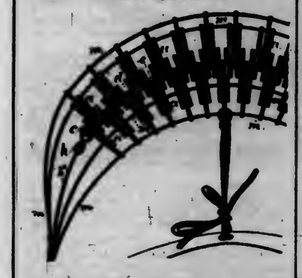
3. The combination, with the upper plate F, the rollers G, and the dependent trunnion-seats F', of the slots f, substantially as and for the purpose described.

4. The combination of the lower plate D, upper plate F, and inclined rollers G, with the open-slotted trunnion-seats F', substantially as and for the purpose described.

5. The combination of the bolsters J, the upper plate F, the lower plate D, provided with an inclined roller-way, inclined rollers G, and the arched cross-bar E, the said parts so constructed, substantially as described, that the direct weight shall be borne by the said cross-bar E, substantially as and for the purpose described.

6. The fifth-wheel, composed of the lower plate D, with the inclined elevated way D', the upper plate F, with the dependent trunnion-seats F', the inclined rollers G, the arched bar E, the plate H, the bolster J, and the king-bolt I, substantially as and for the purpose described.

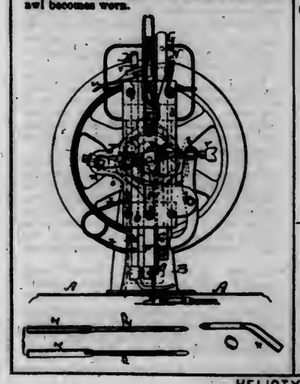
176,771. BUSTLES. Albert Carter, Brooklyn, N. Y. [Filed Apr. 3, 1876.]

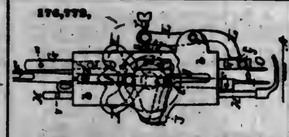


The combination, with the nodes or loops of wire a, and the twisted central cord d, of the wires or springs m that pass through the loops and are united together at the ends of the bustle, substantially as set forth.

176,772. WAX-THREAD SEWING-MACHINES. L. Chevallier, Williamsburg, N. Y. [Filed July 3, 1875.]

Brief.—The awl and needle are both above the fabric, and are made to reciprocate vertically in stationary guides, and also to vibrate on pivots by means of cams and suitable connections. The awl pierces and feeds the material, and the needle is caused to enter the hole made by the awl. The awl is provided with a shank arranged at an angle with its axis, in order to allow of adjustment as the awl becomes worn.





1. The Y-shaped awl O, made in one piece with the shank e, arranged at an angle to its axis, substantially as herein shown and described.

2. The needle P, made with the groove in the side of its shank x, in combination with the vibrating and reciprocating awl O, substantially as specified.

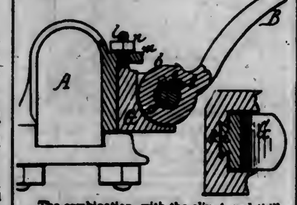
3. In a sewing-machine which has an awl above the fabric, the combination of the needle-bar F with its horizontal pivot-pin d, and with the awl-bar G and the horizontal pivot-pin i, arranged as described, whereby the needle-bar and the awl-bar are capable of reciprocating motion and also of vibrating motion on their horizontal pivots, substantially as set forth.

4. The vertically-reciprocating needle-bar F, provided with the projecting pins d e, and combined with the needle-guide k, which has the straight slot f and the curved or bent slot g, for the purpose of causing the needle-bar to vibrate during its reciprocating motion, as specified.

5. The vertically-reciprocating awl-bar G, provided with the projecting pins i l, and combined with the grooved needle-guide k, operating lever or crank m, and vibrating lever I, substantially as herein shown and described.

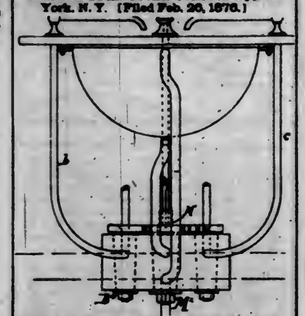
6. The combination of the presser-foot H and lever N with the stationary needle-guide k, and with the awl-bar G and pin w, whereby the descending awl-bar will cause the presser-foot to rise, substantially as set forth.

176,773. TRILL-COUPLINGS. George W. Cogswell, Rochester, N. Y. [Filed Mar. 10, 1876.]



The combination, with the clip A and thill-iron B, provided with the feathered pin C, of the clamp G, constructed with the dovetailed rib i and the screw-stem l, extending through the bearing m, and secured by a nut, n, as and for the purpose specified.

176,774. BASIN-COCKS. John F. Cory, New York, N. Y. [Filed Feb. 20, 1876.]



1. The cock or valve M', adapted to close the discharge and overflow passages, in combination with a hand-basin, and with means for simultaneously lowering the closing of the water-supply, substantially as and for the purposes herein specified.

2. The gears or partial gears B' C' M', in combination with each other and with the cocks B' C' M', controlling the several passages, adapted to be operated by the single shaft M, and to not only forbid the access of water to the bowl while the discharge is closed, but also to properly control the passages for the filling or emptying the bowl, or retaining the contents at will, as and for the purposes herein specified.

176,775. APPARATUS FOR MAKING CONFECTIONERY. Samuel Croft, Philadelphia, Pa. [Filed Aug. 18, 1876.]



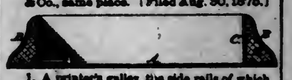
The arched yoke E, in combination with the blocks F fitted thereon, and formed in recesses loosely connected by pins c, substantially as and for the purpose set forth.

176,776. INKSTANDS. Saml. Darling, Providence, R. I. [Filed Dec. 6, 1875.]



The combination, in an inkstand, of an elastic ink-reservoir or fountain, a metallic case surrounding the elastic fountain, an elastic stopper, and a screw-cap, substantially as described, and herein set forth.

176,777. PRINTERS' GALLEYS. Alex. T. De Puy, New York, N. Y., assignor to R. Hoe & Co., same place. [Filed Aug. 30, 1876.]



1. A printer's galley, the side rails of which are bent, from the sheet or blank forming the bottom, into such tubular form as shall present an interior wall or side at right angles to the bottom plate, substantially as described.

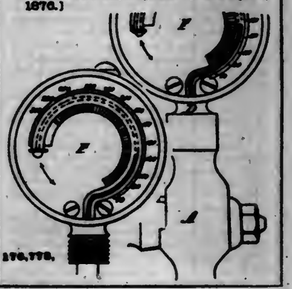
2. In combination, with side rails formed by bending the bottom plate into tubular form, the end pieces so shaped as to conform to the plane surface of the bottom plate and to the ends of the side rails, and be united thereto to form a printer's galley, substantially as described.

3. A printer's galley formed of one piece of sheet metal, consisting of the walls or sides C, braces H, of any suitable shape, and bottom or base A, substantially as described.

4. In combination with the edge rails, formed by bending a single sheet or blank into tubular form, the supporting-pieces D, substantially as described.

176,778. THERMOMETERS FOR STEAM APPARATUS. Saml. Diplock, 92 Regina Road, Tollington Park, England. [Filed Apr. 6, 1876.]

176,778.

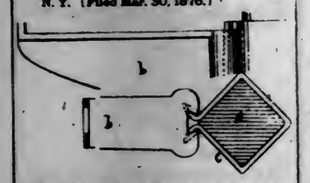


1. The combination of the cock or tap, adapted to be secured to a pipe, boiler, or other closed vessel, the tube fitting water-tight in the way through the shell of said cock or tap, and passing through the hole of its plug, the thermometer having its bulb and lower part inserted in said tube, and packing around the thermometer, these members being constructed and operating substantially as herein before set forth, whereby the thermometer may be applied to and detached from the cock, and the bulb be immersed in the fluid, the temperature of which is to be tested.

2. The combination of the gage-index, its collar threaded both externally and internally, the thermometer, the tube screwing into the gage-collar, and containing the bulb and lower portion of the thermometer, and the packing around the thermometer inside the gage-collar, substantially as and for the purpose set forth.

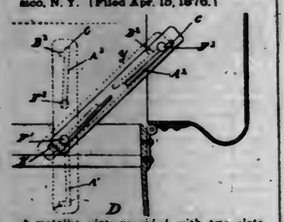
3. The combination, substantially as herein before set forth, of the tap or cock, having its ends threaded, one internally and the other externally, the gage-index, the externally-threaded collar thereof, the tube secured at its upper end to the inside of said collar, and the thermometer having its lower end and bulb inserted in said tube, for the purposes specified.

176,779. STILTS. John S. Ebert, New York, N. Y. [Filed Mar. 30, 1876.]



An adjustable stilt, consisting of the foot-rest *b*, provided with a tapering groove and open ferrule, *c*, the ends forming a tapered tenon corresponding to said groove, in combination with staff *a*, substantially as and for the purpose set forth.

176,780. TROWEL. Stephen Poote, Kenosco, N. Y. [Filed Apr. 15, 1876.]



A metallic plate provided with two slots, A' and A², which extend on an incline from near the center to near the ends thereof, the slot A' having a rectangular recess, B', at its outer end, and the slot A² having a recess, B², and an extension, C, beyond the recess, and the plate secured to the trowel lid and body by the bottoms F' F², substantially as and for the purposes herein set forth.

176,781. GRAIN-BINDERS. Joseph Friedlaender and Isidor Frank, Vienna, Austria, and Casimir Jachimowicz, Jaroschenka, Russia. [Filed Feb. 1, 1876.]

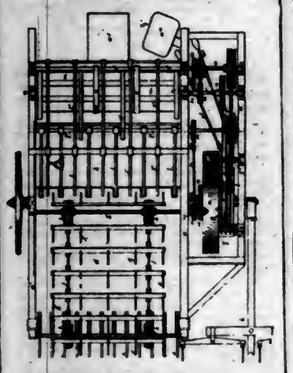
1. The incline *d*, with fingers *e* at the lower end, in combination with the endless chain *f*, rake-teeth *g*, receiver *h*, and gatherers *i*, substantially as set forth.

2. The combination of the receptacle *h*, the gatherer *i*, the cradle *m*, and the compressor *o*, substantially as and for the purposes set forth.

3. The wheel *r*, connected with the main driving wheel of the machine, and provided with pressure, in combination with the curved slide-bars *s* and slides *t*, for communicating motion to the bundling mechanisms, substantially as set forth.

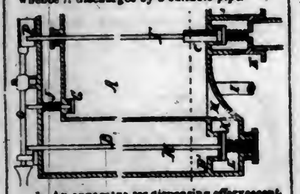
4. The pulleys for actuating the gatherer and compressor, in combination with the wheel *r*, the curved slide-bars *s* and slides *t*, and connecting cords or chains, substantially as set forth

5. The combination, with the endless-chain rake *g*, the receptacle *h* for the grain, and the gatherer *i*, of mechanism for arresting the movement of the rake while the gatherer is delivering the grain, substantially as set forth.



176,782. APPARATUS FOR DISPENSING EFFERVESCENT LIQUIDS. Charles Greiner, New York, N. Y. [Filed Sept. 11, 1875.]

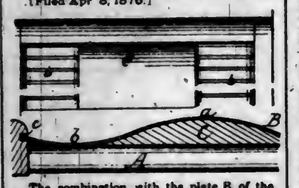
Brief.—The device has an outer and inner chamber, the latter having two valves—one for admission of liquid, the other for escape of gas. The former has a valve for the passing of liquid from the inner to the outer chamber, whence it discharges by a suitable pipe.



1. An apparatus for dispensing effervescent liquids, constructed of the chambers A B, in combination with the valves C G K, substantially as described.

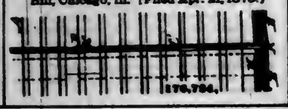
2. In combination with the valves C G K, the rods F J N, oscillating arm O, and main cam P, adapted to operate substantially as described.

176,783. WASH-BOARDS. Charles C. Grizley and Charles W. Pratt, Waterloo, N. Y. [Filed Apr 8, 1876.]



The combination, with the plate B, of the longitudinal bridge or stay C, attached at the back of the plate, made curved in cross-section, to fit the central curvature of the plate, and filling the entire central depression of the plate on a line with the depressions *b b*, as shown and described, and for the purpose specified.

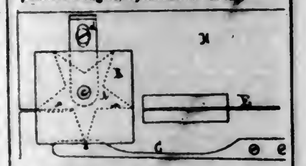
176,784. ELECTRIC ANNUNCIATORS AND FIRE-ALARM CONDUCTORS. Edward A. Hill, Chicago, Ill. [Filed Apr. 21, 1873.]



The combination, with the wires of a series of circuits, of a series of insulating fabrics or pipes arranged within the walls or floors, either or both, of a building, and separated from each other by breaks accessible from the exterior of the walls or floors, substantially as and for the purpose set forth.

176,785. SAW-TABLES. John Holt, Lowell, Mass. [Filed Apr. 3, 1876.]

Brief.—Any desired number of wooden stars, (used in the manufacture of flags,) of exactly the same shape and size, are formed by placing the pattern and the blank on a post projecting from a laterally-adjustable plate secured to a sliding saw-table, so that one side of the pattern will be in a straight line with the plane of the saw, and cutting the alternate sides of the star, then turning and resetting the blank by a guide-slide adjustable in a longitudinally-grooved guide-holder, when the other sides are cut. A notched spring-catch prevents any lateral motion of the blank and pattern during the operation of sawing.

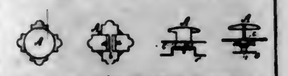


1. The combination of the pattern A, spring-catch C, and table H, substantially as described.

2. The combination of the pattern A, table H, and sliding guide E, substantially as described.

3. The combination of the adjustable pattern-stud *c* with the table H, pattern A, and spring-catch C substantially as described.

176,786. CUFF-FASTENINGS. S. Houghton, Worcester, Mass. [Filed Mar. 24, 1876.]



The stud A, provided with the hooked jaws *a a*, constructed as described, and adapted to be applied to the catch C, substantially in the manner and for the purpose specified.

176,787. PROCESSES FOR TREATING MOLTEN METALS. Edward P. Hodson, New York, N. Y. [Filed Aug. 26, 1875.]

Brief.—Refining or carbonaceous material, or both, are introduced in graduated quantities, in the form of cores, beneath the surface of the molten metal. The cores may be covered with any material which will protect the furnace from their corroding action.

1. The process herein described of treating molten metals, consisting in the introduction in graduated quantity below the surface of the metal of solid refining materials finely divided, but compacted into masses, substantially as herein specified.

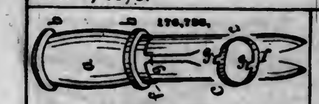
2. The process herein described of treating molten metals, consisting in the introduction in graduated quantity below the surface of the metal of solid carbonaceous materials, finely divided but compacted into masses, substantially as herein specified.

3. The process herein described of treating molten metals, consisting in the introduction in graduated quantity, below the surface of the metal, of a mixture of refining and carbonaceous materials solid and finely divided, but compacted into masses, substantially as herein specified.

4. The process herein described of treating molten metals, consisting in the introduction in graduated quantity, below the surface of the metal, of solid and finely-divided refining materials compacted into masses, which are coated with a substance that has little or no affinity for the lining of the furnace or containing vessel, substantially as herein specified.

176,788. CLOTHES-PINS. David Hunter and Geo. W. Batterbie, Des Moines, Iowa. [Filed June 19, 1876.]

The metal band *f*, having the projections *g g*, in combination with a bifurcated wooden clothes-pin, *a b c d*, in the manner and for the purpose specified.

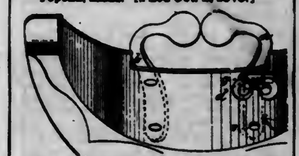


176,789. VENTILATORS FOR WINDOWS. S. D. Ingram, Harrisburg, Pa. [Filed Mar. 29, 1876.]



The removable frames A B, provided with the hinges C C, the transoms S V, the screws *H*, latch A', and catch B', these parts being arranged for operation in the ordinary grooves for window-sashes, substantially as set forth.

176,790. CALF-WEANERS. D. H. Johnston, Topeka, Kans. [Filed Oct. 8, 1875.]



1. A calf-weaner consisting of the flanged shield, provided with suitable means for attaching it to the nose, substantially as described.

2. The combination of the flanged shield, the stationary clip *b*, the swinging clip *c*, and the thumb-screw, substantially as described.

176,791. WATER-PRESSURE REGULATORS. Hiram T. King, Rochester, N. Y. [Filed Mar. 3, 1876.]

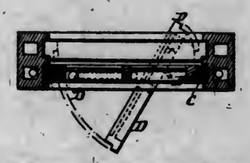
Brief.—The pressure of the water from the main, acting upon a flexible diaphragm and spring, opens and closes a valve regulating the supply to the service-pipe.



1. As an improvement in water-pressure regulators, the valve C and inlet and outlet water-passages, in combination with an adjustable spring, S, and flexible diaphragm, the valve and diaphragm being connected together, whereby the slightest movement of the latter shall produce a corresponding movement of the valve, as and for the purposes set forth.

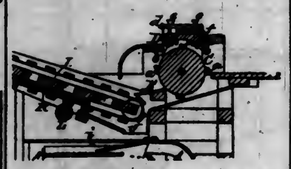
2. In combination with a hollow cylindrical valve-seat, having its upper end closed by a head, A, and provided with lateral openings *i*, the annular balance-valve C, arranged upon the outside of the seat, and constructed to be operated substantially in the manner and for the purpose set forth.

176,792. WINDOW-SASHES. Andrew J Kraussmann, New York, N. Y., assignor to himself and C. W. Swisler, same place. [Filed Mar. 16, 1876.]



In combination with the mortised sliding sash-frame B and inner pivoted frame D, the locking device *b*, placed in a groove of the frame D, and provided with a tubb which passes through a slot of said inner frame D, all substantially as herein shown and described.

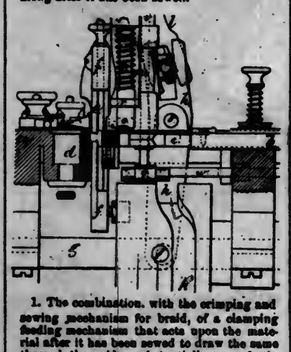
176,793. THRASHING-MACHINES. Wm. J. La Grange, Stuyvesant Falls, N. Y. [Filed Mar. 22, 1876.]



The flanged frames *d*, provided with set-screws *e*, in combination with the concave D and springs *f*, substantially as and for the purposes set forth.

176,794. MACHINES FOR SEWING STRAW BRAID. Robert Leamont, Brooklyn, N. Y., assignor to William B. Doubleday, same place. [Filed Feb. 21, 1876.]

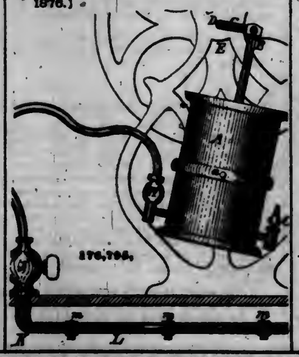
Brief.—A shaft mounted above the table receives a rocking motion by an adjustable connection to a lever, oscillated by a cam on the driving-shaft below the table, and carries on its front end a grasping device, consisting of a stationary and a spring-actuated serrated surface or jaw, the latter being above the former, and raised therefrom on the return stroke, to release and slide over the braid, by a projection on the cam on the driving-shaft above mentioned. This device pulls the braid along after it has been sewed.



1. The combination, with the crimping and sewing mechanism for braid, of a clamping feeding mechanism that acts upon the material after it has been sewed to draw the same through the guides, substantially as set forth.

2. The feeding mechanism and its rock-shaft *k*, in combination with the lever-arm *l*, adjustable connecting-block 12, and lever *h*, that receives its motion from the cam *h'*, substantially as specified, for varying the length of stitch by changing the relative lengths of the levers, substantially as set forth.

176,795. AIR-PUMPS. Frederick Mead, Canton, Ohio, assignor to himself and C. A. Bechele, same place. [Filed Mar. 4, 1876.]



176,795.

Brief.—The pressure-pipe, with its valves, forms intermediate chambers between the reservoir and air-pump, in which to begin compressing the air at each stroke, to avoid pumping directly against the full reservoir-pressure.

1. The pressure-pipe L L, provided with check-valves m, in combination with the inlet-pipe K and air-receiver R, substantially as and for the purpose specified.

2. The combination of the oscillating air-pump A B O D, flexible tube I, inlet-pipe K, pressure-pipe L, provided with check-valves m, and air-receiver R, the several parts being arranged substantially as and for the purpose specified.

176,796. TUBING FOR OIL-WELLS. Wm. M. Martin, Baldwin, Pa. [Filed Aug. 26, 1875.]

Brief.—A thimble or joint made in two parts, each having a right-hand female screw cut on the outer end, while the two parts are joined together by a left-hand screw. All of the tubing may be separated from the lower section without cutting away any portion.



A thimble or coupling for casing of oil-wells that is made in two parts, *a b*, and provided with right and left hand screw-threads, substantially as described.

176,797. SMOKING-PIPES. Jacob Marshall, New York, N. Y. [Filed Apr. 17, 1876.]

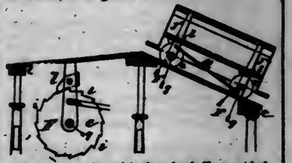
Brief.—In the bowl, and in line with the stem, is a removable tube, that has a hole connecting with the opening in the bowl.



The tubular plug *d*, passing into the stem from the bottom of the bowl, and having a hole, *e*, at one side, in combination with the bowl and stem of the tobacco-pipe, as set forth.

176,798. CAR-PROPELLERS. A. Maynard, Williamsburg, N. Y. [Filed Oct. 8, 1875.]

Brief.—Connected levers operate pawls and ratchets, turning wheels.



In combination with the wheels F, provided with teeth *i*, the pawl *l*, the levers J, and connecting-rods M, substantially as described, and for the purposes set forth.

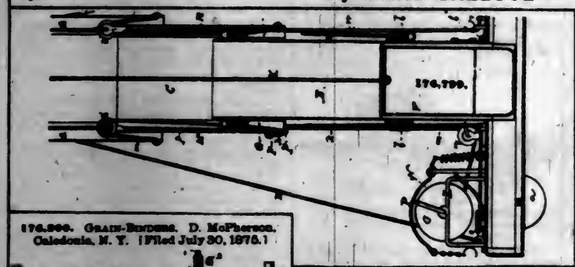
176,799. FIRE-ESCAPES. Wm. McAllister, Lawrence, Mass. [Filed Apr. 5, 1876.]

Brief.—The sections of the telescopic elevator have rope-chambers at the sides to contain the pulleys and elevating-tackle, and the largest sections are at top.

1. The telescopic fire-escape column, substantially as described, composed of the main tube B and one or more additional tubes, C D E, provided with rope-chambers G G, all arranged and applied as set forth.

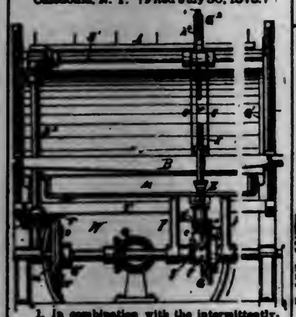
2. In combination with the telescopic fire-escape column composed of the tube B and one or more tubes, C D E, arranged and provided with rope-chambers, as specified, the raising-lines and guide-wheels applied to them, and arranged with their rope-chambers, substantially as set forth.

3. The combination of the elevator F and its lifting-rope K with the telescopic column, composed of the tube B and one or more auxiliary tubes, C D E, provided with rope-chambers, and raising-ropes applied to them, all being substantially as specified.



176,799.

176,800. GRAIN-BINDERS. D. McPherson, Caledonia, N. Y. [Filed July 30, 1875.]



1. In combination with the intermittently-rotating gavelor C, vertically-reciprocating arm B, and wire-carrier N, the depressed section M at the edge of the gavelor-concave, whereby the gavelor-arms are permitted to pass over the bar B in making their rotations, as set forth.

2. In combination with the wire-twister of self-binding harvesters, the compound bevel-wheel G, composed of two segments of teeth, so arranged as to gear into the pinion on opposite sides of the twister-shaft, for the purpose of rotating it alternately in opposite directions, with an interval of rest.

3. In combination with the compound bevel-gear wheel G, constructed substantially as shown, and bevel-pinion h, the rectangular lug e and bearings f and f' and e and e', for the purpose of insuring the registry of the teeth of the pinion with those of the two segments of the gear-wheel G, when the pinion is passing from one to the other, as the wheel G revolves.

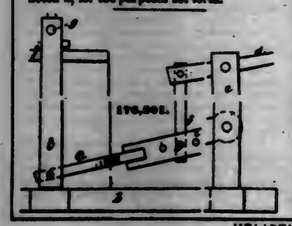
4. In combination with the revolving wire-clamping head d, constructed, substantially as shown, with a cutting-edge, v, the revolving clamp b', acting conjointly to grasp, cut, and twist together the two ends of the wire forming the bond.

5. In combination with the head d and clamp b', the former provided with the radial slot or groove g', the governing-pawl p and pin d'.

6. In combination with the loose head d and latch or clamp b' fixed to the twister-shaft a, the pawl p hinged to the latter, and provided with the adjusting-pin d', for the purposes set forth.

7. In combination with the head d, clamping-jaw b', and swinging pawl p, the circular recess r' and spring-points f and f', having an opening between them, for the purposes set forth.

8. The combination, with the fixed jaw b and pivoted or swinging jaw b', the spring s and annular trunk n, provided with the cam-notch n, for the purposes set forth.



176,801.

176,802. CHURNS. Walter S. McManus and Robert S. Merryman, Brunswick, Me., assignors to themselves and R. H. Woodside, same place. [Filed Dec. 13, 1875.]

The combination, in a device for churning, of standard a, hand-lever d, connecting-rod f, bifurcated lever e, constructed as shown, link i, cross-head g, dash-rod h, and cover j, having a suitable guide on its under side, substantially as and for the purposes set forth.

176,803. SIDE-SPRING BUGGIES. James C. Oliver, Louisville, Ky. [Filed Jan. 6. 1876.]



The combination of the body B, the rods C rigidly secured thereto, the links D, and the side springs A, all substantially as and for the purpose specified.

176,804. HORSE-DETACHERS. G. T. Owens, Owensville, Va. [Filed Dec. 6. 1875.]



1. The combination, in a whiffletree, of a sliding rods a and adjustable yokes F, substantially as set forth.

2. The combination of the pole or shafts A, the brake shaft or lever, and rod or chain connecting the same, so that the brakes are applied on the descent of the pole, and the downward motion of the latter limited, as set forth.

3. The spring r, provided with a hitching-rod, o, and combined with the pole A, substantially as and for the purpose specified.

176,805. JUMP-SEAT CARRIAGES. John R. Patten, Amesbury, Mass. [Filed Jan. 21. 1876.]



1. In combination with the carriage-body A, provided with a doorway, c, and a swing-door, b, to either or each of its sides, the jump-seat rest E, and its pivotal arms G G, and a turn-down fore seat F, and its pivotal arms e, and legs f, all arranged and applied substantially in manner and to operate as set forth.

2. The steadying-bar D, arranged and combined with the lateral arms G G, connecting the back seat and the carriage-body, as specified.

176,806. DRAW-BRIDGE. John W. Post, New York, N. Y. [Filed Apr 11. 1876.]



1. The draw-bridge herein described, consisting of tubular chords C [illegible] a b, cross-braces c d e f, and operating mechanism, substantially as shown.

2. The flanged ring g h, provided with teeth g', into which the pinion m on shaft w' meshes, in combination with a draw-bridge, substantially as shown and herein set forth.

3. The combination of the ring i, provided with notches for the braces d and e, in combination with the draw-bridge C D, constructed substantially as shown and described.

176,806. BRIDGES. John W. Post, New York, N. Y. [Filed Apr. 11. 1876.]

Brief.—The chords, braces, and struts are made of tubes, and braced transversely by double iron railroad ties, into which the rails are let. The piers are also made of metallic tubes, braced and held in position by tubes with anchor and clamp plates.

1. The girder or truss herein described, constructed of tubular chords A B, with vertical braces or struts C and inclined braces O', substantially as shown.

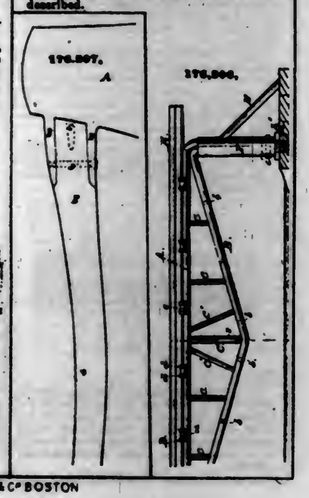
2. In combination with a bridge, the metal cross-ties D, composed of the parts d d and thimbles e, and provided with notches or recesses for the reception of the railroad-rails E, when constructed substantially as shown and herein described.

3. The combination of the bridge herein described, consisting of tubular chords A B, vertical braces or struts C, and inclined braces O', with the tubular piers F F', secured by tubes F'', anchor-plates h, cap-plates h', and keys i, all constructed and arranged as shown and specified.

4. The bridge herein described, consisting of the upper and lower chords A B, braces C O', cross-braces a b c, and diagonal braces H, and the cross-ties D, all constructed substantially as shown and described.

5. The bridge constructed, in the manner herein described, of tubes or pipes, in combination with the piers F F', provided with diagonal cross-braces G and struts H, all as shown, and for the purpose set forth.

6. The tubular piers F F', secured in place by the tubes F'', anchor-plates h, cap-plates h', and keys i, substantially as shown and herein described.



176,807.

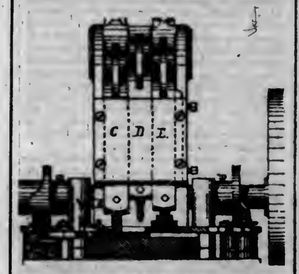
176,806.

176,807. ATTACHING HANDLES TO AXES, HAMMERS, &c. Jeffery W. Potter, Pettyville, R. I. [Filed Nov. 11, 1875.]

The combination of the implement A with the flanges B B, the pin C, bolt D, and handle E, as set forth.

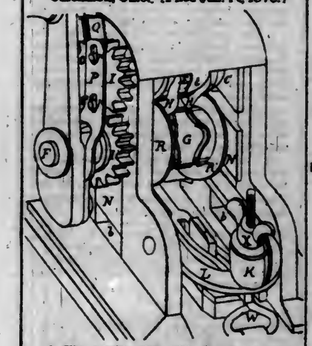
176,808. MACHINES FOR MAKING COLLAR-BUTTONS AND STUDS. Jeremiah W. Pressbrey, Providence, R. I., assignor to Edwd. A. Luther and W. H. Luther, same place. [Filed Dec. 20, 1875.]

Brief.—The plungers are so constructed as to cut the disk, convert it into a cup, and turn over the edge successively, and the carriers present the blank to the several plungers in turn.



The plungers C D E, actuated by suitable levers and cams, operating in combination with the carriers I J, actuated in like manner, the whole arranged and operating in the manner substantially as described, for the purposes specified.

176,809. MACHINERY FOR CUTTING WAVE EDGES ON LEATHER STRAPS. C. B. Randall, Cincinnati, Ohio. [Filed Jan. 14, 1876.]



1. The combination, with the upper wave cutting and feeding roll H H' E, mounted in fixed bearings C, of the geared lower roll G, provided with confining collars or flanges E E' and wave-grooves h'' h''', and mounted in yielding bearings N N', as and for the purpose set forth.

2. The combination, with the stationary upper roller, of the metallic cap T, whose tongues f f' impinge against the roller's periphery, as and for the purpose set forth.

3. The combination, with the upper cutting-roll, mounted in fixed bearings, and the lower roll, mounted in yielding bearings, of the locking device, consisting of the studs O O', slotted latch P p p', and button Q, as set forth.

176,810. EDGE-FINISHING TOOLS FOR BOOTS AND SHOES. Christopher Reimel, Philadelphia, Pa. [Filed July 24, 1875.]

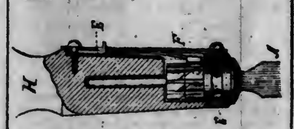


176,810.

The improved sole-edge-finishing tool, composed of the handle A, provided with the adjusting-screw C, the stock B, provided with a curved shoulder upon each side, and a curved slot adapted to receive an adjustable bit, D, all substantially as and for the purpose described.

176,811. SCREW-DRIVERS. D. C. Richards, Reed City, Mich., assignor of one-fourth his right to E. W. Trout, same place. [Filed Mar. 26, 1876.]

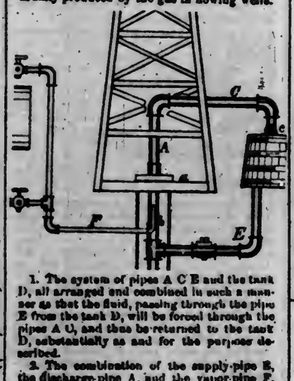
Brief.—The driver is provided with two adjustable ratchets, attached to its shank, and operated by a reciprocating spring-pawl through an oblong slot in a metal plate, attached to the handle and ferrule upon the same.



The combination of the screw-driver A, provided with ratchets B and C, with reciprocating spring-pawl D d, ferrule E, plate F, and handle H, substantially as and for the purpose specified.

176,812. MODEL FLOWING OIL-WELLS. W. Robinson, St. Petersburg, Pa., assignor of one-half his right to H. C. Wachter, same place. [Filed Dec. 10, 1875.]

Brief.—The object is to illustrate the flowing of oil-wells, for the purpose of instruction, &c. The fluid makes a constant circuit to and from the tank. Through the ejecter, air from the pump or steam from a boiler is forced. Thus the issuing stream is accompanied by spray and a roaring noise, as usually produced by the gas in flowing wells.



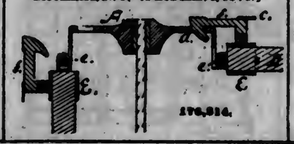
1. The system of pipes A C E and the tank D, all arranged and combined in such a manner as that the fluid, passing through the pipe E from the tank D, will be forced through the pipes A C, and thus be returned to the tank D, substantially as and for the purpose described.

2. The combination of the supply-pipe E, the discharge-pipe A, and the vapor-pipe F, the whole arranged so as to force a continuous stream of mingled vapor and fluid from the pipe A, essentially as and for the purpose described.

176,813. METHODS OF RECOVERING NITRIC ACID USED IN SEPARATING GOLD AND SILVER. Robert R. Rogers, Philadelphia, Pa. [Filed Mar. 17, 1876.]

The method herein described for the recovery of nitric acid from nitrate-of-silver solutions by the employment of hydrochloric acid, either in the liquid or gaseous form, in the parting or refining of gold and silver, substantially as set forth.

176,814. CLOTHES-DRIERS. Jos. R. Busby, Bloomfield, N. J. [Filed Mar. 1, 1876.]



176,814.

1. In a clothes-drier, the dogs f, attached to the arms D, and made to catch in the openings a in the plate A, substantially as and for the purpose specified.

2. The combination of the plate A, having openings a, with the dogs f, pivoted to the arm-sockets E, and wire c, substantially as and for the purpose set forth.

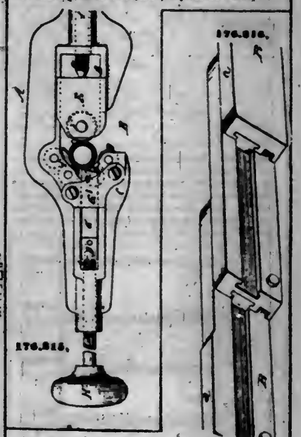
176,815. PIPE-CUTTERS. Andrew Saunders, Yonkers, N. Y., assignor to D. Saunders Sons, same place. [Filed Sept. 29, 1875.]

1. The circumferential rib c, provided upon the anti-friction roller of a pipe-cutter, substantially as and for the purpose set forth.

2. In a pipe-cutter, the anti-friction roller F, provided on the movable jaw E, in combination with the triangular series of anti-friction rollers D, the roller F, being arranged in line with the apex of the recess formed by the series of rollers D, whereby the implement is enabled to operate with the same degree of steadiness on pipes of widely differing diameter, substantially as set forth.

3. The combination, in an open-jawed pipe-cutter, of the movable cutter G, arranged in the recess or guide f in the stock A, and in a plane passing by the ends of the rollers D, the whole arranged for use and operation substantially as and for the purpose set forth.

4. The combination of the head D', constructed with the lugs g and socket for receiving the sliding cutter a, and actuating-handle H having the circumferential groove c', substantially as and for the purpose set forth.



176,816.

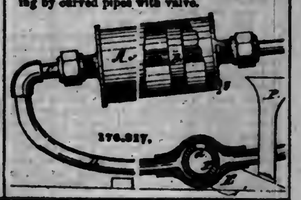
176,815.

176,816. EXTENSION-TABLE SLIDES. Chas. F. Snyder, Dayton, Ohio. [Filed Mar. 6. 1876.]

The sections B B provided with the elevations a a on their outer ends, as and for the purpose set forth, in combination with one or more extension sections.

176,817. FLUID-METERS. Edward B. Talcott, Wardell Guthrie, and Alex. Guthrie, Oshcago, Ill. [Filed Feb. 3, 1876.]

Brief.—A moving measuring-cylinder with a fixed piston, having an oscillating motion given to it by its own weight and the weight of the incoming fluid, motion being communicated to the valve. The motion is regulated by a guide-bar. The piston-rod is hollow, with openings on each side of piston, and connecting by curved pipes with valve.



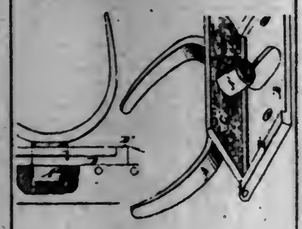
176,817.

1. In a fluid-meter, a moving measuring-cylinder over a fixed and stationary piston instead of a moving piston through a fixed and stationary cylinder, whereby its own weight and the weight of the incoming fluid are carried beyond the center of the oscillating valve, and thus act as a lever to effect a proper movement of the valve, substantially as described.

2. The points *g g*, and the adjustable frame or plate F for determining the extension or travel of the cylinder A, substantially as described, and for the purposes set forth.

3. The combination and arrangement of the oscillating valve E, the hollow arms D D, the hollow piston-rods U U, in connection with the fixed piston B, and the movable measuring-cylinder A, for the purposes and in the manner substantially as herein set forth.

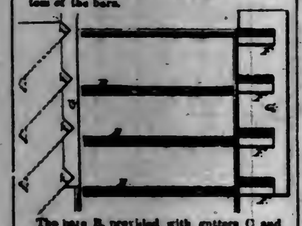
176,818. ROWLOCKS. Thomas Thomson, Bluff Harbor, Otago, New Zealand. [Filed Apr. 7, 1876.]



The combination of the plate B, having the projections B', with the plate C carrying the rowlock, as described.

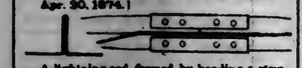
176,819. BEARINGS. Ryan O. Thomas, Sr., Dayton, Ohio. [Filed Nov. 1, 1875.]

Brief.—The flanges prevent any moisture from running down the under side of the inclined bars. The gutters that empty into the receiver are continuations of those at the bottom of the bars.



The bars B, provided with gutters C and flanges D, in combination with gutters F and receiver G, substantially as set forth.

176,820. LEATHER-EDGE. Leland D. Vermilya, Dayton, assignor of two-thirds his right to Edwin Pickering, West Milton, and B. Pickering, Dayton, Ohio. [Filed Apr. 20, 1876.]

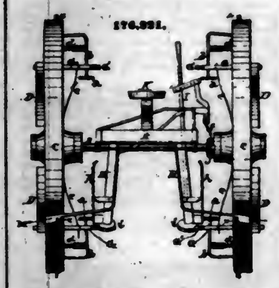


A lightning-rod formed by bending a strip of metal upon itself, as shown, so as to form two right-angled triangles, placed back to back, the whole being then twisted, substantially as shown and set forth.

176,821. CORN-PLANTERS. S. K. Watercon, Mad River Township, Allen County, Ind. [Filed Mar. 31, 1876.]

Brief.—Depending from the main frame are two adjustable hinged frames provided with trunk and rollers. To the spokes of the bearing-wheels are attached seed-boxes, having seed-slides projecting inwardly, and provided with cams to engage with the rollers as the bearing-wheels revolve, for dropping the seed into the "hills." The hills project a little beyond the periphery of the wheel. One-half of the hill is pivoted, and to it is attached a right-angled arm carrying a small wheel, that runs upon the trunk, for opening the hill to allow the seed to escape to the ground.

176,822.



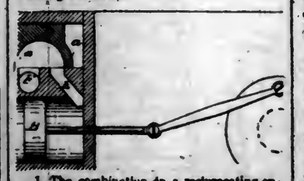
1. The hinged frames H, provided with the coupling-rollers *i* and tracks *h*, and operated by a lever, I, for the purposes herein set forth.

2. In combination with the frame H, constructed so that it can be expanded and contracted at the will of the driver, the slide G, spring *e*, and roller *i*, whereby the horse D are thrown in and out of operation, as shown.

3. In combination with the hinged frames H and lever I, the hinged doors E, having the bent arms *b*, rollers *a*, and springs *d*, and tracks *h*, whereby the seeds are deposited in the ground, substantially as specified.

176,823. HYDRAULIC ENGINES. E. West, Lockport, N. Y. [Filed Mar. 20, 1876.]

Brief.—Using a slide valve having its faces of a width less than that of the ports, to admit the actuating fluid (at the end of each stroke) to both sides of the piston and valve, and permitting a continuous flow of water through the engine, for the purpose of preventing concussion.



1. The combination, in a reciprocating engine, of the ports E E and the slide-valve D, having its faces a a of a width less than that of said ports.

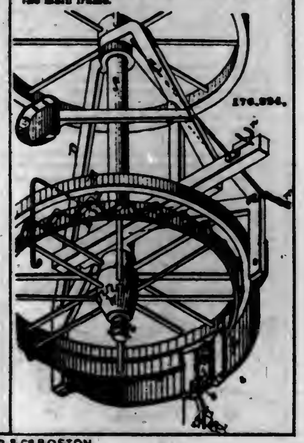
2. The combination of the cylinder A, containing the piston B, and provided with the ports E E and F, and the slide-valve D, having its faces a narrower than the ports E, substantially as shown.

3. In a reciprocating engine, a slide-valve constructed and arranged substantially as shown and described, to admit the actuating fluid at the end of each stroke to both sides of the piston, as and for the purposes described.

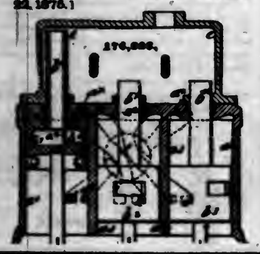
4. In a reciprocating hydraulic engine, the combination, substantially as shown and described, of induction and eduction ports, and a slide-valve which permits a continuous flow of water through the engine, from the inlet to the exhaust, for the purpose of preventing concussion.

176,824. MOWING-MACHINES. A. Adams, Oshkosh, Wis. [Filed July 19, 1876.]

Brief.—The cutter-bar is reciprocated by means of a slide carried upon a shoe rigid with the main frame.



176,825. MOTIVE-POWER ENGINES. P. W. Williams, Lewisham, England. [Filed Oct. 22, 1875.]



Brief.—There are three cylinders; the piston of each cylinder acts as a valve to admit steam to and exhaust it from one of the other cylinders. The steam is taken through the hollow piston-rods to the inside of the pistons, from whence it passes through ports in the pistons and sides of the cylinders, which register at the proper time to the upper end of a cylinder to operate its piston. The engine is reversed by a valve, which changes the direction of the steam-passages between the cylinders.

1. The combination, in three-cylinder engines, of single-acting cylinders, their pistons constructed, as described, to receive the entering fluid, connecting-rods, by which the pistons are connected directly with the crank-shaft, single passages between the cylinders acting alternately as admission and exhaust passages, and a chamber or casing surrounding the crank shaft, and into which the cylinders open, these members being constructed and operating substantially as hereinbefore set forth, whereby the piston of one cylinder serves as the valve of another, and the fluid, after having passed from one piston to act upon another, escapes by the cylinder to the piston of which it was first admitted directly into the crank inclosing casing.

2. The combination of the cylinders, their pistons, into which the fluid enters, the single passages between the cylinders (each of which serves both as an admission and escape passage,) and the cock *f*, these members being constructed and operating substantially as and for the purpose set forth.

3. An engine constructed, substantially as hereinbefore set forth, with three cylinders, each having a side port and an end port, and each provided with a piston, having a chamber to which the fluid is admitted, and a port by which it escapes, with single passages, each of which serves alternately for the admission and escape of the fluid, connecting the side port of each cylinder with the end port of one of the other cylinders, whereby the fluid passes through the piston-chamber of each cylinder by the side port of the cylinder to the end port of another cylinder to act upon the piston therein, and exhausts by the same passage and cylinder port.

4. The combination of the fluid-sheet, the cylinders, the tubular piston-rods, the pistons, the piston chambers and ports, the cylinder-ports, and the fluid-passages, these members being constructed and operating substantially as set forth.

5. The combination of the fluid-sheet, the cylinder, the tubular piston-rod, the cut-off valve thereon, and the chambered piston, substantially as set forth.

6. The combination of the cylinders, their side and end ports, the chambered pistons, their ports, the passages connecting the cylinder-ports, and the valve or cock in said passages, substantially as set forth.

The slide J with friction-rollers *b b*, and working in a groove in the shoe H under the cam-wheel, in combination with the cutter-bar I and cam *d* on the wheel L, all constructed substantially as and for the purposes herein set forth.

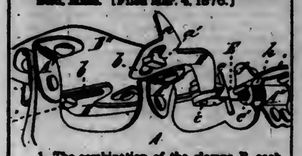
176,826. STOVE-COVER LIFTERS. Deloine K. Adams, Willsie, N. Y. [Filed Mar. 9, 1876.]

Brief.—The upper prong is forked to give a wider grasp upon the article to be lifted.



As an improved article of manufacture, a stove cover and plate lifter, consisting of the handle A, tongue B, and the two curved and pointed prongs or claws U U', said claws being arranged in relation to said tongue, substantially in the manner and for the purpose set forth.

176,827. SEATER. H. H. Barney, Springfield, Mass. [Filed Mar. 4, 1876.]



1. The combination of the clamps B, each provided with a slot, *b*, the piece D, the single-threaded adjusting-screw E, and the clamp A, arranged between the heel-brackets A'' of a skate, substantially as described.

2. The combination of the foot-plate B', the studs *c'*, having elongated heads, and the clamps B, each provided with a slot, *b*, substantially as described, whereby said clamp is secured to the foot-plate when in use, but which may be easily removed by turning said clamp into such position that the slot and the head of the stud will coincide in direction, as specified.

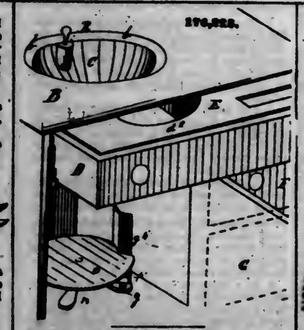
176,828. PORTABLE WASH-STANDS. N. C. Bond, Fairfax, Va. [Filed Mar. 27, 1876.]

Brief.—The drawer is utilized for the purpose of a reservoir.

1. The combination of the bowl, having the communicating-chamber, with the siphon L and reservoir E, located in drawer D, substantially as herein specified.

2. In a portable reservoir wash-stand, the waste-water bucket lifting device, consisting of the circular plate O, with legs or guides *p* with under revolving handle *n*, on which are legs *n' n''*, combined with the operating-links F F, legs *p' p''*, bottom piece *q*, and uprights *p' p''*, all combined substantially as and for the purpose described.

176,829.



1. In a hose-coupling, the annular wedge F, in combination with an annular ring, E, and screw D', constructed to operate substantially as and for the purpose set forth.

2. An annular ring, provided with the inner groove E and shoulder *e*, in combination with an annular wedge, F, and screw for holding the same in position, substantially as described.

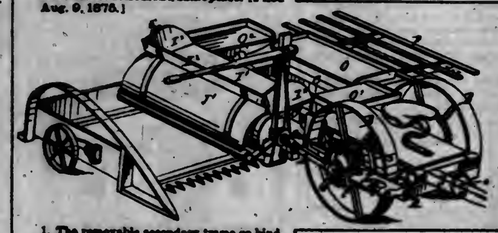
3. The rings A B of a hose-coupling, provided with the drain-holes H H, substantially as and for the purpose set forth.

176,830. OIL-CHANDELIERS. Jos. Callery, New York, N. Y. [Filed Mar. 20, 1876.]



176,831.

176,832.



1. The removable secondary frame or binder-carriage attached at its forward end to the machine or truck-frame, and supported at its rear by the caster-wheel, as described, in combination with the hinged platform and elevator-frames, attached to, and made removable with, said binder-carriage, substantially as described.

2. The binders' stand, suspended within the removable secondary carriage, in combination with the platform and elevator frames hinged to said carriage, substantially as described.

3. The supporting-bar B, to which the grain-platform is hinged, pivoted adjustably in the hanger *b'* at the rear of the secondary frame, for permitting the adjustment of the cutting apparatus and platform, as described.

4. The cutting-platform, hinged at the front and rear to the pivoted bar B, attached to the secondary frame, substantially as and for the purpose described.

5. The arm *c*, on the hinged bar B, passing through the slotted support *b*, in combination with the lifting-lever *f*, attached to the removable secondary frame C, as described.

6. The cutting or grain platform, with the horizontal grain-carrier, elevator, binders' grain-receptacle, and rod, all attached to said platform, and hinged to the pivoted bar on the removable secondary frame in rear of the truck-frame, as described.

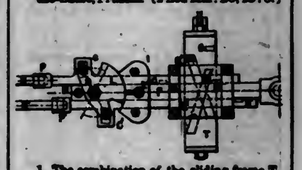
7. The combination, with the horizontal carrier and the elevated grain-receptacle, of the revolving elevating-cylinder, provided with the retracting-fingers, adapted to pick up and elevate the grain, and to be withdrawn to release the grain and pass the grain-receptacle, as described.

176,833. HOSE-COUPLINGS. C. Callahan, Chelsea, Mass. [Filed Apr. 11, 1876.]

Brief.—The hose is passed into the outer ring; the annular wedge is inserted into the mouth of the hose; the annular screw is then screwed down, causing the wedge to force the hose into the groove of the outer ring.



176,834. EXPANSION-GEAR FOR STEAM-ENGINES. Carl Joseph Carlo, Nienburg-on-the-Saale, Prussia. [Filed Mar. 20, 1876.]



The float H and valve J, located in a chamber, G, of the burner fluid-pipe C, and arranged to close the pipe when the burner is detached, substantially as specified.

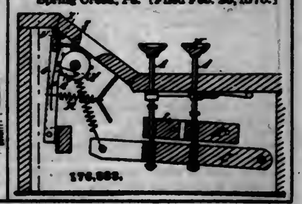
1. The combination of the sliding frame T, controlled by the governor, and having inclined projections or slots M, with the expansion or cut-off valve rods B B', each having a tappet or tappets G H', as and for the purpose set forth.

2. The combination of the sliding frame T, having inclined projections or slots M, and the expansion-valve rods B B', and rod F, with friction mechanism, substantially as described, whereby the relative positions of the rods are maintained, as set forth.

3. The combination of the rod F, carrying the friction-block I, with the lever D and sector I, and the valve-rods B B'.

4. The combination of the sliding frame T, having inclined projections M and projections Q Q', with the valve-rods B B', having tappets G H', as described.

176,835. ADDING-MACHINES. D. Carroll, Spring Creek, Pa. [Filed Feb. 26, 1876.]



176,836.

1. The combination of the double ratchet-bar E, spring F, treadle C, and screws O with the double series of keys A and the number-wheel D, having a spur-wheel on its shaft, as and for the purpose set forth.

2. The combination of the independent treadles K L and the stop-pawls I, with the double series of keys and the ratchet of the number-wheel D, as and for the purpose set forth.

3. The sliding rod T and the pivoted blocks U, in combination with the pawls F, substantially as specified.

176,826. HORSESHOES. Chas. J. Carr, Manchester, England. [Filed May 2, 1874.]



As an article of manufacture, the herein-described horseshoe, as constructed with the inner flange *a*, and the outer flange *d* extending around and up on the outer surface of the hoof, the straps *r r* and *r*², and the projections *s* on the upper surface, substantially as described.

176,825. DIES FOR FORMING TRAP-SECTIONS. John M. Carson, Louisville, Ky. [Filed Apr. 6, 1876.]

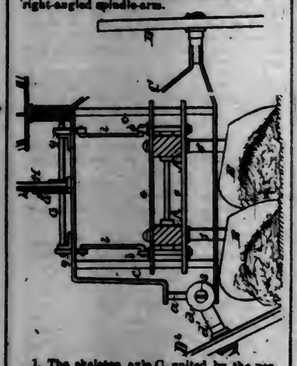


1. The combination of the dies A B, having the steps or shoulders *a b* and the dies A' B', substantially as and for the purpose set forth.

2. The section C, jointly with the section C' of the trap, formed to be united by lap-joints, substantially as and for the purpose herein described.

176,826. SULKY-PLOWS. W. L. Casaday, New Carlisle, Ind. [Filed Jan. 21, 1876.]

Brief.—Devices for elevating the plow-frame on vertical guides by crank-shafts, transverse axle, and a wheel with angular rim, adjustable at various angles oblique to the other by ratchet-disks upon the two sections of the right-angled spindle-arm.



1. The skeleton axle C, united by the vertical posts *c c*, and having a fixed wheel-spindle at one end, and at the other end a spindle capable of oblique vertical adjustment, whereby the wheel is adjusted to stand vertically, or at an inclined angle from the other, substantially as shown and described.

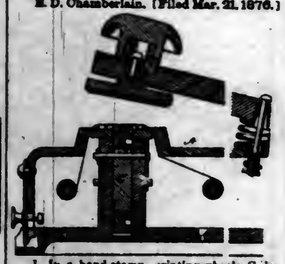
2. The skeleton axle-tree C, provided with the guide-braces *e e*, in combination with the slotted plates *e e* sliding thereon, and with the plow beam or beams A, whereby the plows are adjusted to any desirable depth and width of furrow, substantially as shown and described.

3. The combination of the beam or beams A, plates *e e*, axle-tree C, links *l l*, shaft G, provided with arms *g g*, and lever H, whereby the said axle-tree is operated, substantially in the manner hereinbefore described, for the purposes set forth.

4. The block *b*⁵ swiveled vertically upon the axle *c*, and held at any adjustment thereon by set-screw *s*, in combination with the wheel-spindle *b*⁵ placed at right angles therewith, the two adjustably connected by the ratchet-disks, whereby the wheel D² may be adjusted to various angles to the axle, substantially as shown and described.

5. In a sulky-plow, the wheel D² provided with an angular pointed rim, *r*, in combination with the frame C C, having the adjustable spindle and axle *c*, and the wheel-spindle *b*⁵, substantially as shown and described.

176,827. HAND-STAMPS. Dexter H. Chamberlain, West Roxbury, Mass., assignor to E. D. Chamberlain. [Filed Mar. 21, 1876.]



1. In a hand-stamp, printing-wheels C, in combination with a hinged or removable cap, for the purpose described.

2. The hinged cap A, containing the ribbon and ribbon spindles, in combination with the printing-wheels attached to the base-plate of a stamp, for the purpose described.

3. The hinged cap A, constructed as described, and carrying the top of the stamp, ribbon, ribbon-spindles, and die, in combination with the printing-wheels C, attached to the base-plate of a hand-stamp, substantially as and for the purpose set forth.

176,828. HORSE POTATO-FORKS. George C. Clark, Freehold, N. Y. [Filed Sept. 11, 1876.]

Brief.—The digger consists of a revolving head having tines upon two sides. The head is composed of two beams, between which are secured the tines. The head is hung upon journals, and is held by a stop-latch, which is raised at intervals to allow the head to revolve.



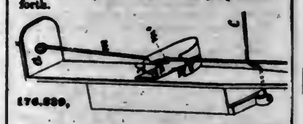
The combination of the rake-head D, composed of two parts having grooves in their adjoining faces, with the rake-teeth E, having straight middle portions, and bent or curved ends, as and for the purpose set forth.

176,829. THREAD-CATCHERS FOR KNITTING-MACHINES. Richard Cooke and Florus J. Cooke, New Hartford, N. Y. [Filed May 16, 1876.]

Brief.—The thread-catching device is provided with a slit terminating in an eye, for clearing the yarn from encumbering material, and an acute notch with flaring mouth, whereby the yarn is caught in the acute notch, and the drop-lever is supported and prevented from falling during any stoppage of the machine.

1. In combination with a thread-catching device, provided with the acute notch *m*², the drop-lever C of a stop-motion, substantially as described, and for the purposes set forth.

2. The thread-catcher described, having the eye *m*², with a slit leading into it, and having also the acute notch *m*², in combination with the drop-lever C, as and for the purposes set forth.



176,830. [illegible]



176,831. ELEVATORS. Alfred B. Darling, New York, N. Y. [Filed Apr. 4, 1876.]

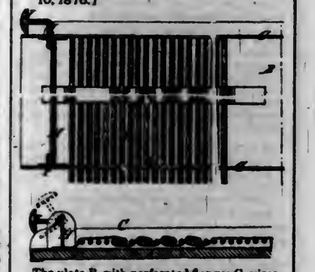
Brief.—A retarder is geared to a carriage of an elevator by ropes, and retarder, shaft pulleys, and counter-pulleys, with drums below, allow the descent of the carriage a certain limit.



1. The retarder A, geared to the carriage of an elevator by ropes C coiled one or more times around the retarder-shaft pulleys and counter-pulleys, substantially as specified.

2. The herein-described elevator, having the power applied to drum, at one side of which the hoisting-rope is wound on, and, at the other, the pulling-down ropes wound off, or the reverse, substantially as and for the purpose specified.

176,832. PLAITING-MACHINES. Andrew J. Decker, Fond du Lac, Wis. [Filed Apr. 10, 1876.]



The plate B, with perforated flanges C, wires or needles E, and the holding-clamp H, combined and arranged substantially as specified.

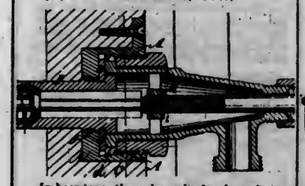
176,833. WINDOW-SHADE FIXTURES. Chas. De Quillfeldt, New York, N. Y. [Filed Feb. 21, 1876.]



176,842.

The combination, with roll and curtain A B, of cap C, having a drum, D, on which is wound a cord, E, the disk F having hub L, and centrifugal pawls G K, the screw H serving both as clamp and roll-pivot, and the cam-disk I, formed on the bracket which supports the pivot, all constructed and arranged substantially as and for the purpose specified.

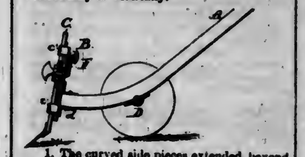
176,844. BEER-TAPS. G. C. Driscoll, Brooklyn, N. Y. [Filed Mar. 13, 1876.]



In beer-taps, the valve-cylinder I, made independent of bush, and removable without detaching the bush or barrel-head, in combination with bush A, as and for the purpose specified.

176,845. HAND-CULTIVATORS. James K. Dugdale, White Water, Ind. [Filed Dec. 20, 1875.]

Brief.—The frame of this hand cultivator consists of two nearly parallel beams, supported by a single wheel, the beams extending beyond the wheel, and carrying a series of cultivating-teeth, which are made adjustable horizontally or vertically.



1. The curved side pieces extended beyond the wheel, in combination with arched frame B, provided with vertical bars *c c* and sockets *d d*, as and for the purpose specified.

2. In combination with frames A and B, provided with guides *c'* and devices F, the frame C, provided with notches *k*, as described and set forth.

3. The adjustable arm E, in combination with frame C, as and for the purpose set forth.

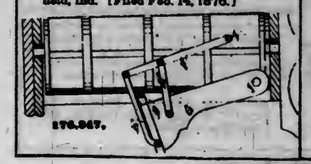
4. The device F, serving both as a pin and button, in combination with frame C, having notches *k*, as and for the purpose described.

176,846. SPRING BED-BOTTOMS. J. Eckart, New York, N. Y., assignor to Louisa Eckart, same place. [Filed Jan. 15, 1876.]



The combination of the angle-straps G with the base-slats C D of a spring bed-bottom, to adapt it to receive a detachable cover, substantially as herein shown and described.

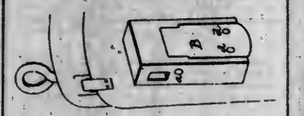
176,847. DRESS. Henry H. Strong, Greenfield, Ind. [Filed Feb. 14, 1876.]



176,847.

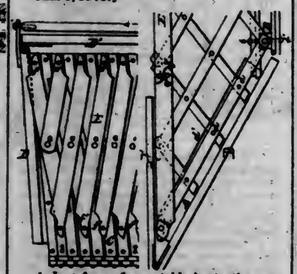
A writing-desk consisting of cam A, having hinged doors, revolving cylindrical racks, stationary pigeon-holes, and a pivoted table, O, provided with bar E, lever F, hinged support G, and bar H, all constructed and arranged substantially as and for the purpose specified.

176,848. CLAMPS FOR BOOT TREES OR FORMS. Charles A. Roslyn, Naugatuck, Conn. [Filed Mar. 27, 1876.]



In combination with a boot-form, the hinged clamp B, constructed with teeth or rough-cased surface, and provided with a spring, substantially as described.

176,849. PORTABLE FOLDING BOATS. Chas. A. Fenner, Mystic River, Conn. [Filed June 6, 1876.]



1. In a frame for portable boats, the combination, with the lazy-tongs devices A and C, forming the bottom and sides of the frame, of the end pieces D having the ribs *d'* and the hinged pieces D', when constructed and arranged to operate as described, and for the purpose specified.

2. In a frame for a portable boat, the combination, with the lazy-tongs devices forming the bottom and sides, and the end pieces D, of the sets or series of pivoted bars E, constructed and arranged to operate substantially as described, and for the purpose specified.

176,850. LAMP-BURNERS. Benj. F. Flint, Westfield, Pa. [Filed Mar. 20, 1876.]

Brief.—For scraping and turning the wick. A light spring acts on the top of the snuffer, and secures its contact with the wick when passed over the burner-tube.

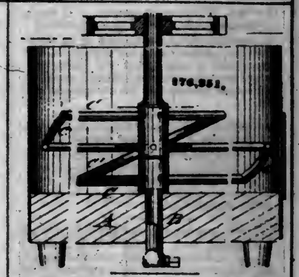


The combination, with wick-tube, of the flat hook-shaped and swinging blade B, provided with a superposed spring, D, the whole arranged substantially as and for the purpose specified.

176,851. APPARATUS FOR HEATING AND MIXING OLEAGINOUS SEEDS. W. M. Force, Newark, N. J. [Filed Mar. 16, 1876.]

Brief.—The end pieces are curved as the contour of the holder, and each connects the ends of three spiral tubes, which are at different heights, as shown. Each piece connects three ends.

An apparatus for mixing oleaginous seeds, composed of a receptacle with a centrally-revolving hollow shaft, provided with spirally-arranged stirrup-pipes, connected at the outer ends by curved pipe-sections, to admit circulation of steam for the proper heating, mixing, and tempering of the seeds, substantially in the manner and for the purpose set forth.



176,851.

176,852. DEVICES FOR REMOVING WIRES FROM BOTTLE-CORKS. John Frank, Croton Falls, N. Y. [Filed Feb. 14, 1876.]

Brief.—A device for removing wires from the corks of bottles, having a crotch-tracer and a forked claw, the latter of which is adapted to catch the wire on each side of the cork.



A tool having the handle A, crotched brace B, and forked claw D, constructed, connected, and adapted to operate as and for the purpose specified.

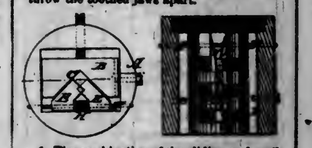
176,853. CARPET-BEATERS. E. Freeman, Anconia, Conn. [Filed Nov. 16, 1875.]



As an article of manufacture, the carpet-whip described, consisting of the handle A, having a socket at one end, the independent strands *a b c* inserted in said socket, and retained therein by means of the headed nail *d* passing through said socket and into the wood of the handle, all as and for the purpose set forth.

176,854. CHUCKS FOR HOLDING METAL-DRILLS. Wm. Frost, New Bedford, Mass. [Filed Mar. 25, 1876.]

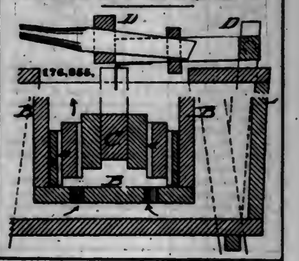
Brief.—A transversely-sliding jaw having a large A-shaped notch and two toothed jaws, (arranged at right angles thereto,) formed with beveled side faces, and forced together by said transversely-sliding jaw. Springs tend to throw the toothed jaws apart.



1. The combination of the sliding and oscillating jaw B, having notch C, and the laterally-adjusting notched and meshing jaws E, substantially as specified.

2. The combination of springs H with the jaws E and B, substantially as specified.

176,855.



176,866. WASHING-MACHINE. J. M. Gano, Newport, Ohio. [Filed Mar. 28, 1876.]

A rocking-machine, composed of an outer wash-tub, a funnel-shaped box with perforated bottom, and a deep-shaped and perforated plunger working in the funnel-box, substantially in the manner and for the purpose set forth.

176,867. JAPAN COMPOSITIONS. A. Gigrich, Artificville, N. Y. [Filed Apr. 12, 1876.]

The white japan for wooden and other wares herein described, composed of ordinary baking-japan, varnish, Cremnitz white, and Prussian blue, all mixed in about the proportions herein before set forth.

176,868. SPRING BED-BOTTOM. R. M. Hall, Westfield, N. Y. [Filed Dec. 11, 1875.]

Brief.—The springs are connected by cups, and they are connected by transverse straps of suitable material, which are attached to the cups by headed screws or bolts, which pass through elongated slots in the longitudinal slats, and hold them in place.
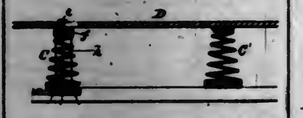


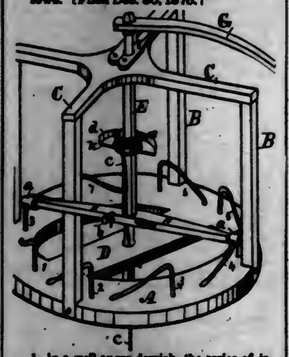
The combination of the springs C with cups *f*, straps A, screws or bolts *e*, and perforated slats D, as and for the purposes herein set forth.

176,869. SHUTTERS. Gustav Hampe and Adolf Schubbert, St. Louis, Mo. [Filed Mar. 22, 1876.]



The combination of the lowermost shutter-section, made in the form of a panel, with the horizontal top board or sill, of the outermost shutter-section, to inclose the sections in stored position, substantially as described.

176,870. ROCK-DRILLING AND WELL-BORING APPARATUS. Philemon Hiles, Montour, Iowa. [Filed Dec. 20, 1875.]

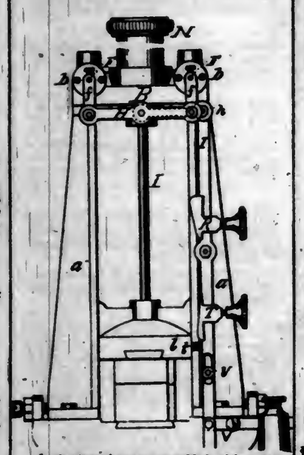


1. In a well-auger derrick, the series of inclined planes 1 2 3 4 on the base-plate A, in combination with the movable arms H H, carried by the rotating auger-shaft E, to operate a drill when the auger is removed, substantially as shown and described.

2. The shaft E, in combination with the shaft B, substantially as and for the purposes shown and described.

3. The derrick A B C D, having a series of inclined planes, 1 2 3, in combination with the shaft B, carrying the arms H H, shaft K, rope *c*, and drill I, substantially as and for the purposes set forth.

176,871. STEAM HAMMER. Thomas Hill, Quincy, Ill., assignor of one-half his right to Filey B. Williams, same place. [Filed Feb. 12, 1876.]



1. A steam hammer provided with a projecting stud, which, as the hammer descends, strikes against a dog, thereby opening the receiving and closing the exhaust valves, and when the hammer ascends strikes a dog, closing both valves, holding the hammer suspended.

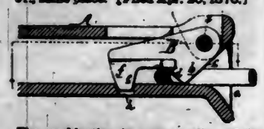
2. The combination of the exhaust and receiving valves, arranged in relation to each other, as specified, in combination with the levers *f*, cross-bar H, draw-rod A, and lever I, substantially as specified.

3. The steam-chamber provided with a movable head, N, annular shoulder *n'*, recess *n*, and ports P, substantially as set forth.

4. The dog E, in combination with the lever I, draw-rod A, cross-bar H, and levers *f*, for operating the valves, substantially as specified.

5. The dog T, in combination with the lever I, draw-rod A, cross-bar H, and levers *f*, for operating the valves, substantially as described.

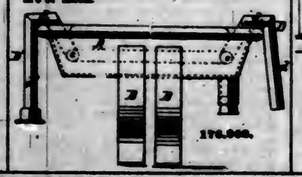
176,872. CAR-COUPLINGS. Henry Howson, Philadelphia, Pa., assignor to W. Wharton, Jr., same place. [Filed Apr. 20, 1876.]



The combination, in a car-coupling, of the pivoted arm B, the retaining and releasing dog *b*, the shoulder *c* on the said arm, and the enlargement *f*, wide enough to ride on the coupling-link, all being constructed and adapted to a coupling-head, A, substantially as and for the purpose herein set forth.

176,873. MILK COOLERS OR WARMERS. F. D. Hubbard and Mary R. Gresham, Carthage, N. Y. [Filed Mar. 17, 1876.]

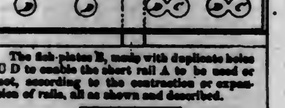
Brief.—The device, as constructed, is supported on the pan by the elbows of its inlet and outlet pipes. The supports of the pan are of metal.



176,874.

An apparatus for maintaining or regulating the temperature of milk in dairy-pans, consisting of the series of pipes C placed side by side at intervals across the width, and extending in right lines the length of the pan A, and united at the ends by the pipes *a*, together with the induction and eduction tubes D and D', respectively formed with the elbows *d*, whereby the apparatus is suspended near the bottom of the said pan A, as described.

176,875. BOX-COVERS. Wm. L. Hubbell, New York, assignor to Raymond Jenkins, Brooklyn, N. Y. [Filed Feb. 3, 1876.]



A flanged cover, for boxes and similar articles, connected to a box by means of an extended pivot and closing-spring, and capable of being raised vertically and swung laterally, substantially as described.

176,876. GAME FOR ONE-RAIL RAILWAYS. David R. James, Visalia, Cal. [Filed Jan. 20, 1876.]



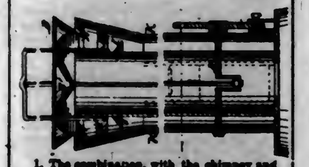
1. The car-body J suspended on pivots K in its longitudinal axis and the pivots mounted on a platform suspended on wheels O, also arranged in the longitudinal axis of the car, substantially as specified.

2. The guide-wheels having lateral movement in combination with the rail A, platform L, and springs H, substantially as specified.

3. The springs M, combined with the car-body J and the platform L, substantially as specified.

4. A single-rail railway-car having side wheels working in movable boxes and kept to the carving side of track by springs, as shown and described.

176,877. SPARE-ARRESTERS. Waldo H. Jordan, New York, N. Y. [Filed Feb. 9, 1876.]



1. The combination, with the chimney and the under-receptacle, of the mitre-lined deflector B, made with inverted conical flanges and operating substantially in the manner described.

2. The combination, with the said mitre-lined deflector, chimney, and casing K, of the annular flanges H H' *l*, as set forth.

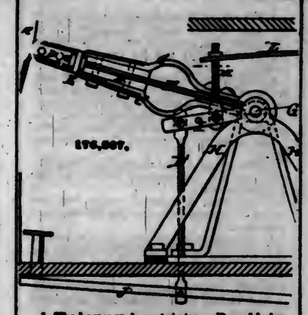
176,878. RAILROAD-RAIL JOINTS. Richard O'Keefe, Omaha, Nebr. [Filed Feb. 6, 1876.]



The fish-plates B, made with duplicate holes C D to enable the short rail A to be used or not, according to the contraction or expansion of rails, all as shown and described.

176,879. BLACKSMITHS' FORGING-APPLIANCE. J. Kaplin, Rock's Landing, Miss. [Filed Mar. 6, 1876.]

An apparatus for forging the ends of bolts, consisting of the die-block A, having the recess *a* and the projecting lip *b*, and the hammer B, having the projecting lip *c*, substantially as described.

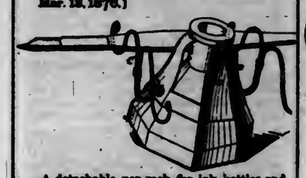


176,867.

1. The hammer A, metal straps D, and helve B, metal bow C, rods F, and pivot-shaft G, combined and arranged substantially as specified.

2. The hammer A, helve B C D, shaft G, spring L, arm I, and foot-treadle J, combined and arranged substantially as specified.

176,868. PIPE-RACKS. Carol B. Kunzl and Carl H. E. Beebert, Oroville, Cal. [Filed Mar. 13, 1876.]



A detachable pen-rack for ink bottles and stands, made of a rim, with retaining-springs fitted to body and neck of bottle, and with bent supporting-arms, substantially in the manner and for the purpose set forth.

176,869. PAPER HANGERS. G. W. Lorcwey, Port Byron, N. Y. [Filed Sept. 18, 1875.]

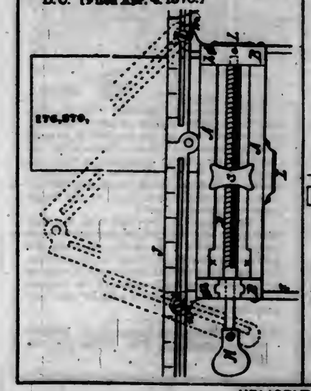


1. A molded pulp barrel having beveled ends enlargements and body, substantially as shown and described.

2. A molded compressed-pulp bilged barrel, substantially as described.

3. A molded-pulp barrel, the fibers of the ends thereof being of stronger material than those of the body, substantially as described.

176,870. COMBINED REVERA, SQUARE, AND LEVERA. Samuel W. Lloyd, Washington, D.C. [Filed Apr. 4, 1876.]



176,870.

1. The parallel side bars A A, grooved and shouldered heads B B, grooved and shouldered division-block C, tensional screw D, and bar G, all constructed and combined substantially as and for the purposes herein set forth.

2. The jointed rods J J, having its parts slotted longitudinally, and adjusted by set-screws as on the sides I I, as and for the purposes herein set forth.

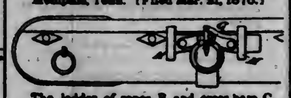
3. The combination of the frame A B, division-block C, screw D, sides I I, jointed rods J J, and levers L L, all constructed and arranged substantially as and for the purposes herein set forth.

176,871. STOVE-PIPE SUPPORTER. James L. Loring, Dallas County, Iowa, assignor to himself, P. Hubbard, and J. Parkins, same place. [Filed Mar. 21, 1876.]



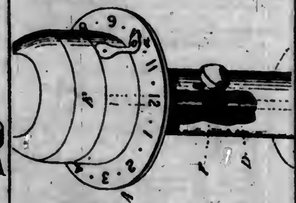
A stove-pipe supporter having its ring and screw A D connected by a double T-shaped key, B, and hollow open-sided block C, substantially as and for the purpose specified.

176,872. GANG-PLANES. George Malone, Memphis, Tenn. [Filed Mar. 21, 1876.]



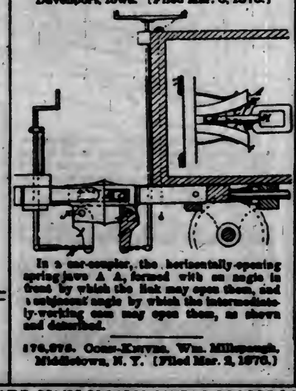
The ladder of ropes B and cross-bars C, combined with the stage-plank A in such manner that one end can be readily attached and detached, substantially as specified.

176,873. TOY BOOLSTER. John Mantle, Hamden, assignor of one-half his right to John Wildman, New Haven, Conn. [Filed Mar. 10, 1876.]



The combination of the horizontal disk A with a succession of characters around its edge, the revolving head E, supported upon the spindle D, and with the pointer *c* attached thereto, and the pull-cord F attached to the said spindle, all constructed and arranged substantially as specified.

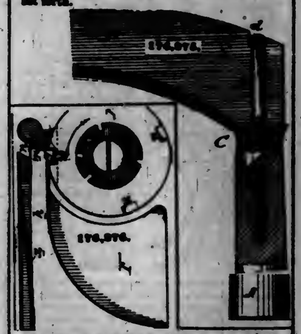
176,874. CAR-COUPLINGS. J. R. Meadley, Davenport, Iowa. [Filed Mar. 6, 1876.]



In a car-coupler, the horizontally-opening spring-jaws A A, formed with an angle in front by which the link may open them, and a subjacent angle by which the intermediately-working cam may open them, as shown and described.

176,875. CORN-KNIVES. Wm. Millspaugh, Middletown, N. Y. [Filed Mar. 2, 1876.]

In a corn-knife, the blade B, ferrule C, and slotted loop D, having a screw-shroud on its upper end, the parts being held in position by means of the loop and handle, without the use of metal screw-threads within the handle, all combined substantially as and for the purpose set forth.



176,876.

176,876. COMBINATION-LOCKS. Daniel K. Miller, Philadelphia, Pa. [Filed Nov. 13, 1875.]

1. The combination, in a permutation-lock, of two or more tumblers, each of which consists of a single flat ring, having on its inner edge a series of lugs for the action of the pin on the driver, in connection with one or more notches in its outer edge for the entrance of the dog or bolt, so as to operate in conjunction with a like tumbler or tumblers, all substantially as set forth.

2. The combination, in a permutation-lock, of a bolt, G, with tumblers having deep notches only, and a driver, having a deep notch and false notches, which, when the driver is revolved, causes a constant elevation and depression of the inner end of the bolt, all substantially as set forth.

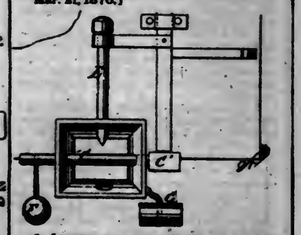
3. The combination of the tumblers, having deep notches only, and a driver, having both a deep notch and false notches, with the projection *g* of the bolt, as constructed that it is prevented from touching the bottoms of said false notches, as set forth.

4. The combination of the leg *g* and inclined projection *n* of the bolt, with the tumblers and with the inclined leg *o* on the lock-case, as and for the purpose set forth.

5. A combination-lock, in which the tumblers have their notches for the entrance of the dog or bolt arranged to correspond with a number on the dial, substantially as set forth.

6. The knob A, carrying the dial, in combination with the tubular spindle D split at its outer end, and provided with a longitudinal taper screw, J, all substantially as set forth.

176,877. CAR-COUPLINGS. Rocco Mimo and Bishop J. Warner, Macon, Miss. [Filed Mar. 21, 1876.]

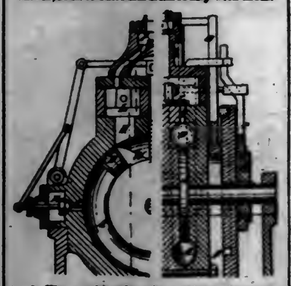


1. In automatic car-couplings, the swinging rock-bar of a draw-head having center pendent weight and rest-piece, in combination with a sliding pin, carrying rod, and the coupling-link, to drop pin for coupling when the weight of the rock-bar is carried back, substantially as set forth.

2. The draw-head in automatic car-couplings, provided with a rigid forward-extending arm and buffer to strike pendent weight of rock-bar of adjoining draw-head and drop pin-holding rod, substantially as set forth.

176,878. ROTARY ENGINES. Josephus Moore, Mound Valley, Kans. [Filed Feb. 28, 1876.]

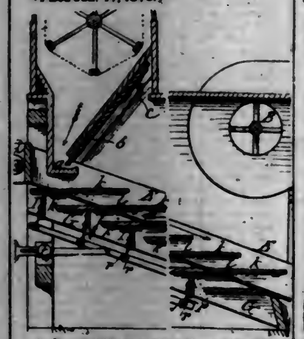
Brief.—The valves which control the exhaust-ports are connected to the reversing-valves, so as to shift simultaneously with them.



1. The combination, in a rotary steam-engine, of the two parallel steam-chambers A, disks C, pistons D, sliding abutments E, steam-ports H I, valves L M, and exhaust-valves E S, all constructed and relatively arranged as herein set forth.

2. The combination of steam-ports H I, valves L M, exhausts J K, valves E S, sliding abutments E, grooved cams F, and bars G, with the cylinders and pistons, substantially as specified.

176,879. MIDDLINGS-SEPARATORS. George Motley, Rochester, N. Y., assignor of one-half his right to J. B. Moseley, same place. [Filed Jan. 17, 1876.]



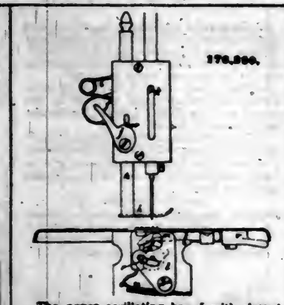
1. In a middlings-purifier, the combination, with the series of graduated sheives h h, of the series of valves l l, hung at the rear of the air-passages formed by said sheives, and serving to gage the passage of air through the same, substantially as described.

2. In a middlings-purifier, the combination of the two series of sheives h and h', one fixed and the other movable, situated in the same coincident line to form the air-passages l l, as shown and described, and for the purpose specified.

3. In a middlings-purifier, the shaker B and bed C, consisting of two independent rectangular frames, fitting one over the other in the bottom of the machine, one being stationary and the other movable, and each constructed with a series of horizontal sheives, those in one frame coming in coincidence or in the same horizontal line with those of the other, thereby forming straight air-passages between the sheives, as shown and described, and for the purpose specified.

176,880. SEWING-MACHINES. R. Murphy, New York, N. Y. [Filed Jan. 28, 1876.]

Brief.—A lower rotating shaft has on one end a crank-pin, which, moving in a slot in the looper, properly oscillates it, and a cam for operating the feed-bar, and at the other end an eccentric, whose rod connects by a crank-arm to one end of an upper rock-shaft, which has at the other or forward end another crank-arm, to reciprocate the needle-bar.



176,880.

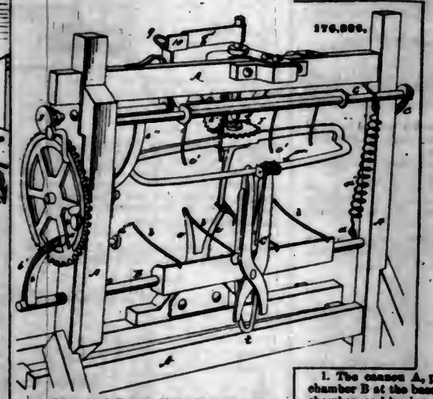
The upper oscillating bar *d*, with slotted arm *f*, for receiving the pin *h* upon the needle-bar *g*, in combination with the lower rotary shaft *a*, having upon its end the disk *p* and pin *r*, for operating the pivoted hook or looper, and the eccentric *s*, for operating the feed-bar *t*, the latter being regulated by the regulator *v*, substantially as and for the purpose set forth.

176,881. ASH-SIFTING SHOVELS. Edward B. Neal, Wisconsett, Me. [Filed Feb. 26, 1876.]
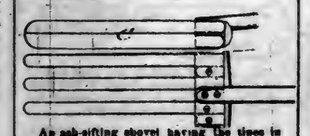


An ash-sifting shovel having the tines in pairs, connected by a bead at the outer end, the sides returning parallel, and the points fitted directly into a wooden bead, as shown and described.

176,882. HARVESTERS. John Nell, Chicago, Ill. [Filed Mar. 3, 1876.]



176,882.

1. The wheel D, provided with the cam 4, in combination with the sliding shaft E, provided with the shoulder 5, for operating a stop mechanism and shoulder, 6, the pinion *e'*, spring 7, wheels *c'* F, and twister H, substantially as and for the purposes set forth.

2. The shaft C, provided with the cut-off fingers, in combination with the oscillating sheers O' and twister H, substantially as set forth.

3. The wheel D and shaft *d*, provided with the arms *d' d''*, in combination with the shaft C, provided with the cam *c''* and cut-off fingers *c' c'*, substantially as and for the purpose set forth.

4. The twister H, shaft *f*, and stop *g*, in combination with the pivoted spring-catch G, substantially as and for the purpose set forth.

5. The wheel D, provided with the arms 2 and 3, in combination with the shaft B, provided with the eccentric cam *b'* and sheers O', substantially as and for the purpose set forth.

6. The eccentric cam *b'*, constructed with eccentric tracks *a a*, to give an irregular movement to the sheers, substantially as described.

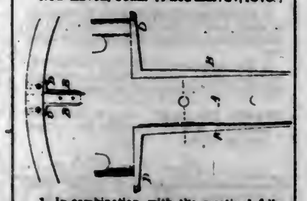
7. The twister H, in combination with the oscillating sheers O' and oscillating fingers *b b*, substantially as and for the purpose set forth.

8. The sheers O', in combination with the cam-arms *c c*, substantially as and for the purpose set forth.

9. The shaft B, in combination with the sheers O', substantially as and for the purpose set forth.

10. The oscillating sheers O', in combination with the spring *i*, substantially as and for the purpose set forth.

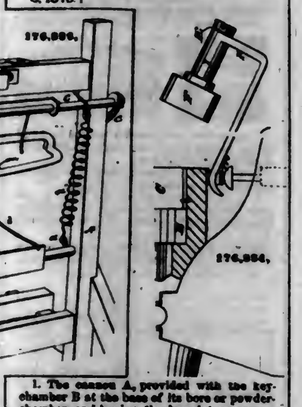
176,883. SPOKE-SOCKETS. Henry H Olds, New Haven, Conn. [Filed Mar. 27, 1876.]



1. In combination with the mortised felly and tenoned spokes of a carriage wheel, the web or plate A C, arranged in a slot in the end of the spoke through the tenon, and extending into a corresponding slot through the mortise in the felly, substantially as described.

2. The herein-described device for securing spokes to the felly, consisting of the web A C, with the flanges B D, constructed and applied to the spoke and felly, substantially as specified.

176,884. BREECH-LOADING ORDNANCE. J R. N. Owen, Hamilton, New. [Filed Nov. 6, 1875.]

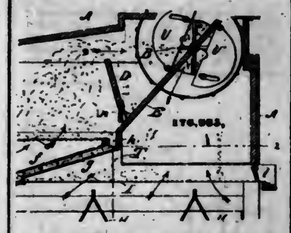


176,884.

1. The cannon A, provided with the key-chamber B at the base of its bore or powder-chamber, and having the key-slot or passage C leading from said chamber through the escahel of the gun, in combination with the breech-block F, with its stem E and lever-handle *g*, all constructed, combined, and arranged to operate substantially as and for the purpose above described.

2. The cannon A, provided with the key-chamber B and key-slot or passage C, when the rear faces *d d* of the key-chamber are constructed on a spiral or incline, in combination with the breech or head-block F, with its corresponding spirally arranged or inclined rear faces, substantially as and for the purpose described.

176,885. MIDDLINGS-SEPARATORS. Monroe Palmer, Hamilton, Wis. [Filed Apr. 19, 1876.]



176,885.

1. A middlings-machine, constructed, substantially as described, with two air-chambers, in one of which the material is subjected to the action of a force and a suction blast, and in the other to a suction-blast only.

2. The partition D, located in the passage or chamber between the force and the suction fans, and provided with the hinged gate or valve *a*, arranged to operate substantially as described.

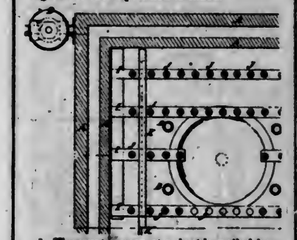
3. The exhaust-fan S, set in the partition E, with the openings of its case communicating direct with each chamber, and provided with the valves *v* and *v'*, whereby the exhaust from each chamber can be increased or decreased at will, as set forth.

4. In a middlings-machine, an exhaust-fan, arranged to draw air continuously through the graded screen, and also through a separate screen, over which the material is fed before entering on the graded screens, as and for the purposes described.

5. The frame or shaker T, provided with the screen *e*, inclined plates *f* and *g*, and the screen I, all combined and arranged to operate substantially as described.

176,886. HEATERS FOR MELTING WAX FROM ELECTROTYPE CASES. John H. Parker, Boston, Mass. [Filed Feb. 28, 1876.]

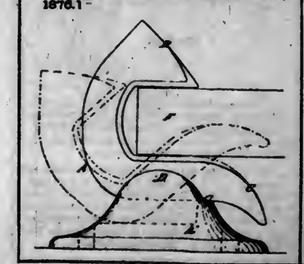
Brief.—The cases are placed between the bars. The pins support the cases for warming before the impression is taken.



1. The combination of a double-walled box, A, having upper and lower steam-spaces connected by pipes B, the corresponding pans E H, the bars J, and the cases K, all constructed and arranged substantially as shown and described, to form an apparatus for removing wax from electrotype cases.

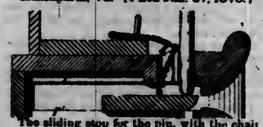
2. The combination, with box or chamber A A inclosing an intermediate steam-space, of the pins L attached to the top or cover of the same, substantially as and for the purpose specified.

176,887. BARN-DOOR FASTENINGS. Perry A. Pease, Comstock, Mich. [Filed Mar. 21, 1876.]



A springless automatic fastening for barn-doors, consisting of but two castings, one being a pivoted hook, A D, having in front the broad beveled catch-nose B, and at the rear a curved arm, C, while the other is a stand, E, having the stop G, all substantially as shown and described.

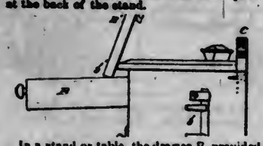
176,888. CAR-COUPLINGS. Francis S. Pennybacker, Sioux City, Iowa, assignor of one-half his right to Francis L. Smith, Jr., Alexandria, Va. [Filed Jan. 27, 1876.]



The sliding stop for the pin, with the chain connected to the pin and to the crank, in such a manner that the movement of the crank may raise the pin and draw forward the block at the same time, as set forth.

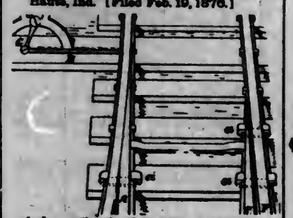
176,889. STANDS OR TABLES. Edward Phillips, Chicago, Ill. [Filed Feb. 12, 1876.]

Brief.—The rear part of the drawer is provided with stops, that strike against other stops on the table-frame. The drawer can be removed by taking off the detachable piece at the back of the stand.



In a stand or table, the drawer B, provided with the hinged lid B' and with the rear stops *c c*, in combination with the removable back-piece C, substantially as and for the purpose specified.

176,890. RAILROAD-SWITCHES. Thomas J. Reynolds, Watseka, Ill., assignor of one-half his right to Wm. D. Guernsey, Terre Haute, Ind. [Filed Feb. 19, 1876.]



1. In a railroad-switch, the combination of the two pointed switch-rails A C, bridle, rod E, spring-lever G, and plates *a a a*, with the main and siding rails, as shown and described.

2. The plates *a a a*, in combination with the switch and main rails, substantially as shown and described.

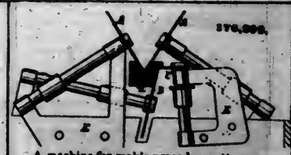
176,891. NOSE-RINGS. James Boley, Hebron, Ohio. [Filed Feb. 15, 1876.]



A ring or jewel for hog's noses, composed of a roller, *a*, of wound wire, and straps or side pieces *b c*, as and for the purpose described and represented.

176,892. MACHINES FOR MAKING WOOD GUTTERS. Edmund H. Rollins, Bangor, Me. [Filed Feb. 28, 1876.]

Brief.—The main part of the groove to be cut in the upper side of a piece of timber for a gutter-trough is formed by two circular saws arranged upon the ends of inclined arbors, and mounted in adjustable supports, and the excess of timber upon the front side is removed by two circular saws arranged upon arbors (one of which is nearly vertical, and the other nearly horizontal) mounted in adjustable supports, and suitable operating mechanism.



176,893.

A machine for making wooden gutters, consisting of a series of saws, A A B C, placed upon the ends of shafts arranged in supports E, substantially as shown and described.

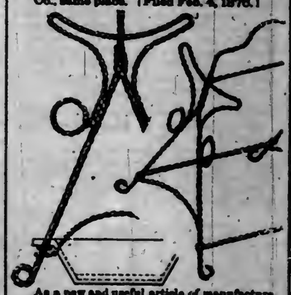
176,893. WAGON BODIES AND FRAMES. I. O. Sailee, Montgomery, Ky. [Filed Mar. 21, 1876.]



1. The combination of the bottom boards F, the side boards G, and the end boards H with the frame A B C, substantially as herein shown and described.

2. The uprights C, of a wagon-frame, made in two parts connected with each other by the hinged D and bands E, substantially as herein shown and described.

176,894. WIRE STANDS. Daniel Sherwood, E. P. Woods, and Geo. D. Dudley, Lowell, Mass., assignors to Woods, Sherwood & Co., same place. [Filed Feb. 4, 1876.]



As a new and useful article of manufacture, a wire stand, having on its side two opposite parallel projecting arms, substantially as described.

176,895. ABDOMINAL SUPPORTERS. Cyrene Smith, New York, N. Y. [Filed Nov. 6, 1875.]

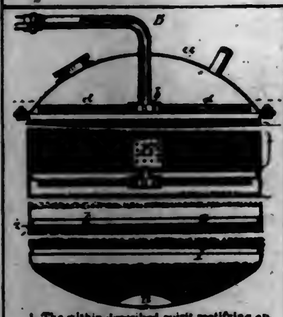
Brief.—The supporter has an upper front and two lower side openings, with elastic connected, and upper side and lower rear laced openings, to insure a perfect fit to the varying sizes of abdomen during pregnancy.



An abdominal supporter, made with adjustable-laced upper, front, and rear gussets, and elastic front and side gussets, fitting the supporter to the shape of the abdomen, and adapting the same to the varying state of the same, substantially as specified.

176,896. RECTIFYING APPARATUS. Jos. C. Smith, Philadelphia, Pa., assignor of one-half his right to Geo. W. Middleton, same place. [Filed Dec. 4, 1875.]

Brief.—Masses of charcoal, varying in the size of the pieces, in separate chambers, with an empty space at top of each chamber. Imperforate annulus to conduct fluids to center. Stationary radial deliverer of fluid.



1. The within-described spirit-rectifying apparatus, consisting of a casing inclosing concentric and entirely separated layers of granulated filtering material of various degrees of fineness, and with open spaces between each layer, in combination with means, substantially as described, for spreading the liquid into minute streams.

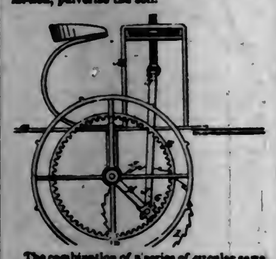
2. The combination, in a casing, A, of the supply-pipe B and its stationary radial perforated arms with the perforated plate *f* and the underlying mass D of charcoal.

3. The centrally-perforated diaphragm *i*, having an imperforate annulus supporting the mass D of charcoal within the casing A, in combination with the lower centrally-perforated diaphragm, having an imperforate annulus supporting another layer of charcoal above the outlet-chamber, as specified.

4. The combination of the imperforate diaphragm A, having a central opening, the diaphragm *i*, having an imperforate annulus, with the diaphragm *m*, having a narrower imperforate annulus, making complete separate chambers within the casing A, substantially as and for the purposes herein set forth.

176,897. ROTARY CULTIVATORS. James C. Stone, Leavenworth, Kans. [Filed Feb. 5, 1876.]

Brief.—A frame is mounted on wheels, and beneath the frame is placed a shaft rotated by internal gears, and upon said shaft is placed a series of circular saws, which, when put in motion, pulverize the soil.



The combination of a series of circular saws, I, and the shaft G with the wheels, axle, and frame of a plow, substantially as herein shown and described.

176,898. COMPOSITIONS FOR PREVENTING ACID FERMENTATION. Julius J. Sinebert, New York, N. Y., assignor to Gelien & Co., same place. [Filed Mar. 13, 1876.]

The herein-described compound, consisting of sulphurous acid, carbonate of lime, and salicylic acid, with or without the addition of the carbonate of soda and the oxide of aluminum, in the proportions substantially as specified.

176,899. MOLDING WHEELS, &c. Rufus B. Swift, Cleveland, Ohio, assignor of one-half his right to Joseph J. Brooks, same place. [Filed Feb. 6, 1876.]

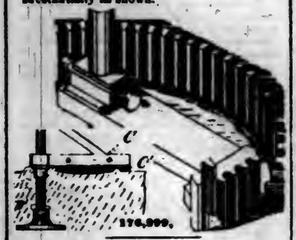
1. The combination, with a spindle-bearing, A, and spindle B, of a circular sweep for carrying blades or formers, the said spindle-bearing adapted to be embedded in the sand below the circular sweep, substantially as and for the purpose described.

2. The combination, with the spindle-bearing A and spindle B, of the sweep and movable blades C C', the said spindle-bearing arranged below the lower plane of the circular sweep, substantially as and for the purpose described.

3. The removable post or spindle B, in combination with the slot and wedge B', and base A, substantially as and for the purpose shown.

4. In combination with the central post or spindle B, the segment-arm D and segment D' of a cog-wheel pattern, provided with the movable tooth *d*, substantially as and for the purpose shown.

5. The process, substantially as herein described, in the molding of wheels and articles of a similar character, of molding or forming the cope by first shaping the sand upon the molding-floor by a bladed circular sweep, and molding said cope over the floor thus shaped, substantially as shown.



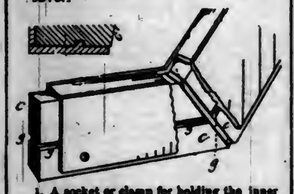
176,899.

176,900. LIFTING-JACKS. J. Y. Thurston, Medfield, Mass. [Filed Apr. 4, 1876.]



A lifting-jack consisting of a sliding ratchet-bar, retaining spring-pawl, and operating-lever with spring-bolt, constructed and operated substantially as specified.

176,901. SOCKETS FOR BOAT-KNEES. David True, Salisbury, Mass. [Filed Apr. 7, 1876.]



1. A socket or clamp for holding the inner ends of two portions of a boat-knee, consisting of sides and top extending from side to side, but without complete bottom, for the purpose of allowing the bottom of said boat-knee to be beveled to fit its position in the boat.

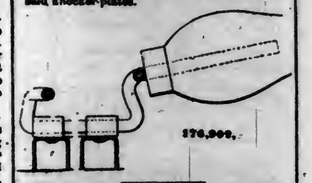
2. In a socket or clamp for holding the inner ends of two portions of a boat-knee, a partition, for the purpose herein described.

3. In combination with the timber *e*, provided with the groove *g*, the rib *f*, substantially as and for the purpose above set forth.

176,902. CURRY-COMBS. Geo. B. Turrell, South Orange, N. J. [Filed Dec. 6, 1875.]

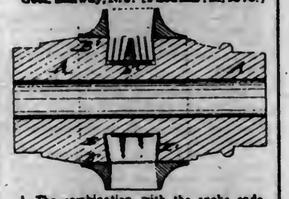
1. The curry-comb having a grasping-piece that is made of the wire that extends across from the eye on one of the knocker-plates to the eye on the other knocker-plate, and passes through such eyes and forms the handle, as specified.

2. A curry-comb with the grasping-piece *e* extending across the forward edge of the curry-comb, from one knocker-plate to the other, in combination with a wooden handle connected at the other side of the comb with said knocker-plates.



176,902.

176,903. VEHICLE-HUBS. Antonius Van Geel, Rahway, N. J. [Filed Mar. 21, 1876.]



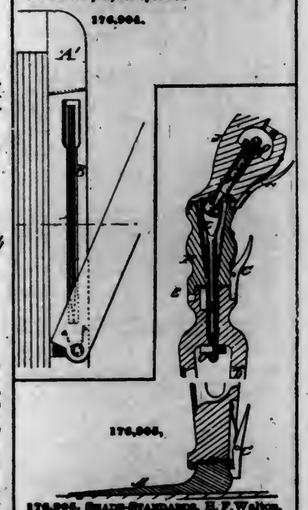
1. The combination, with the spoke ends and cock-et-ring, of sheet-metal pieces and layers of elastic material, to firmly yet elastically retain spoke ends, substantially as set forth.

2. The combination, with the slitted spoke ends and the hub having annular spoke-recess, of one or more notched central and side wedge-rings, substantially as and for the purpose described.

176,904. SLATES. Claudius Verdier, Detroit, Mich. [Filed Mar. 6, 1876.]

A slate having frame A', provided with a pencil-receptacle, B, enlarged at the upper end, and with the hinged spring-held door, as and for the purpose specified.

176,904.



176,905.

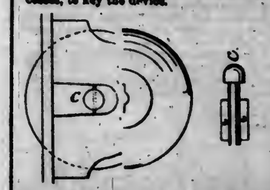
176,905. SHADE-STANDARDS. H. F. Walton, Woodman, Wis. [Filed Feb. 28, 1876.]

Brief.—To allow the shade to be turned in every direction and folded down.

In a shade-supporter, the combination of parts A D F J, the first connected with second by a hinge, B, the second with the third by a swivel-joint, E, and the third connected with the fourth by spindles G N, held together by a joint that allows the part J to be oblique, as and for the purpose specified.

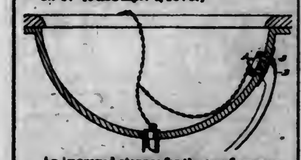
176,906. BALE-PULLEYS. A. B. Watterson, San Francisco, Cal. [Filed Jan. 22, 1876.]

Brief.—A fin or double projecting flange formed on the detachable cross-pin engaging with corresponding elongated slots or recesses, to key the device.



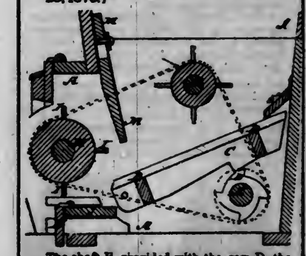
A sash-pulley having its shaft or cross-pin O secured by fins or projecting flanges, e, formed thereon, and fitting in the corresponding elongated slots or recesses of the pulley and of one of the side plates, substantially as and for the purpose specified.

176,907. STOPPERS FOR WASH-BASIN OVERFLOW-OPENINGS. Hiram Webb, New York, N. Y. [Filed Apr. 4, 1876.]



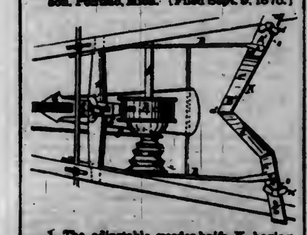
An improved stopper for the overflow-openings of wash-basins, formed of the back or plate A and the projections B, substantially as herein shown and described.

176,908. COTTON-GIN FEEDERS. John W. Webb, Union Springs, Ala. [Filed Feb. 28, 1876.]



The shaft E, provided with the cam D, the pivoted rack B, provided with a shouldered bar, C, the shafts F and H, provided with the radial pins I, and the adjustable guard-board M, constructed and arranged, in relation to each other and the cone A, substantially as and for the purpose herein shown and described.

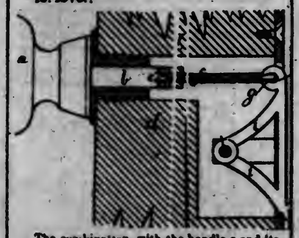
176,909. COMBINED WHEELBARROW AND SHEET-DERRICK. Mason Weston and A. E. Johnson, Pontiac, Mich. [Filed Sept. 9, 1875.]



1. The adjustable worder-knife K, having the transverse blade D', with its angle *c'*, and inclined portions *b'* and *c'*, and upright blades *d'*, as described.

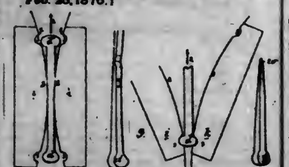
2. The combination of the adjustable drill-bar A, cone-pulleys *c d*, belt C, chain E, adjustable opener G, with the adjustable knife K, as described.

176,910. BELL-PULL ATTACHMENTS. Austin Whitcomb, Beverly, Mass. [Filed Jan. 19, 1876.]



The combination, with the handle *a* and its screw-threaded shank *b*, of the screw-threaded wire *f*, having hook *g* attached to the bell-crank *i*, substantially as and for the purpose set forth and described.

176,911. MODES OF FINISHING HORSESHOE NAIL BLANKS. Job Whysall, Jr., and C. M. Merrick, New Brighton, Pa. [Filed Feb. 28, 1876.]



1. The mode of reducing horseshoe-nail blanks by rolling the partly-formed blanks while cold, jointly with the mode described of executing said rolling operation—that is to say, by means of four converging die-rolls acting simultaneously upon the four sides of the blank, substantially as set forth.

2. The mode described of forming the bevelled face upon a partly-formed horseshoe-nail blank—that is, by subjecting the blank to the action of converging rolls acting simultaneously on all the faces of the blank, and confining it at all sides, while a projection on one of the dies imparts the beveled face without spreading or forcing the metal into a permanent recess, as set forth.

3. In finishing nails for horseshoes, the process of beveling the points by indenting and condensing the metal without spreading in dies that close upon the metal on all sides, and then removing the superfluous parts, thereby forming a nail with a solid, dense, beveled point, as set forth.

176,912. MACHINES FOR FORGING HORSESHOE-NAILS. Job Whysall, Jr., and C. M. Merrick, New Brighton, Pa. [Filed Feb. 25, 1876.]

Brief.—Improvement on machine described in Letters Patent No. 147,483. Heated rod is fed forward by intermittingly-revolving feed-rolls, the lower one of which has a limited vertical movement, and is pushed up against the rod by a treadle and lever. These rolls are automatically operated by a series of pawls (carried by an oscillating disk) of varying lengths, so pivoted that their points shall be at regularly-increasing distances from the shoulders of the series of teeth of the ratchet on the shaft of the upper roll. Two hammers (one horizontal and the other vertical) and a stationary side die, each having faces corresponding to the contour of the nail to be produced. The horizontally-working hammer is pivoted at a point on a line with the axis of the dies, in virtue of which it will recede from the end of the rod without jamming against it. Each hammer is formed with an inclined face, which acts on a wedge in case the spring fails to operate, to force the other hammer back to its place. The feed can be suspended by the mechanism specified in the sixth claim.

1. The combination, with the stationary die *b'* and reciprocating hammer, carrying the die *b'*, of the cutter G, arranged to slide in stationary bearings and shear the bar against the edge of the hammer-die, as set forth.

2. The combination of the fixed die *b'*, reciprocating die *b'*, and hook *h*, for carrying the bar from the die *b'* to a position directly beneath the die *h*, substantially as specified.

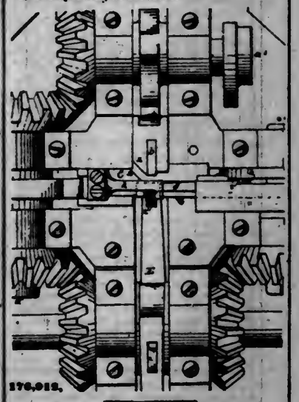
3. The combination of the stationary die *b'*, reciprocating hammers, carrying dies *b' b'*, and roller-carrier R, all constructed and operating as described, whereby the lower support for the blank is withdrawn after the nail has been cut from the rod prior to the last movement of the upper hammer, as set forth.

4. The combination of the dies *b' b'*, cutter G, and hook *g*, for drawing back the end of the bar after shearing the same, as set forth.

5. The combination of the die *b'* and hammer C, carrying the die *b'*, vibrating at right angles to the face of the machine, and pivoted, as described, whereby the die is withdrawn from the cut end of the nail when the hammer is thrown back, as specified.

6. The combination of the lever R, regulating-screw T, and retaining-lever U, substantially as and for the purpose set forth.

7. The combination, in a nail-making machine, of feed-wheels, operated intermittingly from the machine, and a treadle and operating devices, whereby the wheels may be brought against the nail-rod with a pressure regulated by the operator, as set forth.



176,913.

176,913. TUYERES. T. F. Wilmerton, Fort Henry, N. Y. [Filed Feb. 28, 1876.]

Brief.—A partition, extending the entire length of the tuyere, is formed between the induction and eduction pipes, in virtue of which the water is made to circulate entirely around the annular chamber. Holes are cut in this partition to let the imprisoned air escape. The tuyere is flared or tapered divergingly in an opposite direction from the end of the blast-pipe nozzle, which construction allows the blast to diffuse and blow out the cinders and ashes.



1. The tuyere A, flared in an opposite direction from nozzle B, substantially as and for the purpose specified.

2. The partition E in the water-chamber between the inlet and outlet, substantially as specified.

3. The partition E, having the air-passages H, substantially as specified.

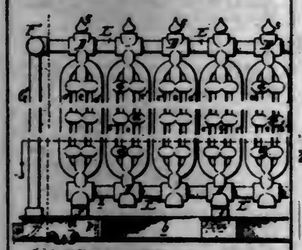
176,914. ANIMAL NOSE-BAGS. Groton H. Williams, New York, N. Y. [Filed Feb. 21, 1876.]

The nose-bag attachment for animals, consisting of a cord, B, knotted at E, in combination with head-strap and pulleys, as and for the purpose specified.



176,914.

176,915. RADIATOR. Lorenzo D. C. Wood, Brooklyn, N. Y. [Filed Mar. 1, 1876.]



1. A radiator, consisting of a number of groups of pipes arranged side by side, each group being connected by means of heads D to pipes E and F at the top and bottom, as specified.

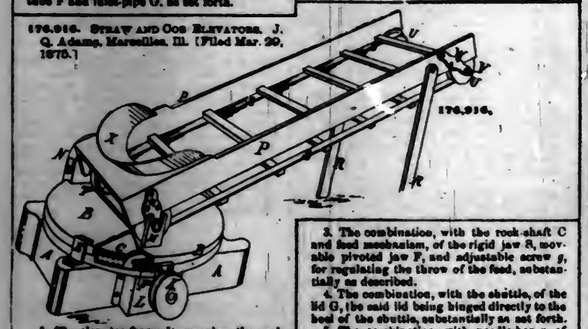
2. The pipe c, connected at both ends to a head, D, in combination with the side pipes d' d and lateral rods or tubes d.

3. The combination of the base A with one or more rows of radiators, each having but one communication with said base, as described.

4. The combination of the radiators with the base A, consisting of two or more chambers with intervening triangular connections b.

5. The combination of the radiators and their connecting-pipes E with the transverse tube F and inlet-pipe G, as set forth.

176,916. STRAW AND COB ELEVATORS. J. Q. Adams, Marseilles, Ill. [Filed Mar. 20, 1876.]



176,916.

1. The elevator-frame P, carrying the endless belts S S, and provided with the supporting-legs R R and brackets Q Q, in combination with the shaft I, operated from the double grove-wheel U through the medium of the pinion H, and supported in bearings secured to the movable top of the case B, for the purpose of adjusting the elevating frame and belts, substantially as described.

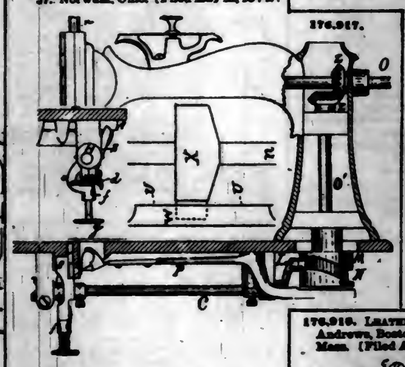
2. In an elevator of the form described, the double grove-wheel, with bevel O, meshing into the pinions P and H, the closely-fitting case B, the upper part movable upon the lower and held thereto by clamps, all constructed and operating together as and for the purpose set forth.

3. In the described elevator, the closed case, made in two parts, an upper and lower, the former moving freely on the latter, but closely fitting thereto, and carrying the casing F, covering the pinion H, as and for the purpose set forth.

4. The closed casing B, carrying the grove-wheel, on which is fixed the standard M, the casing N, the inner side of which furnishes bearing for one end of the shaft I, and the brackets Q Q, resting on the shaft, and supporting the elevator frame, all constructed and operating as and for the purposes set forth.

5. The covered box R, combined with the pivoted top of the case B, to form one bearing for the shaft I, and a protecting-case for the pinion H thereon, substantially as described.

176,917. SEWING-MACHINES. R. Bonesny, Jr., Norwalk, Ohio. [Filed May 21, 1874.]



176,917.

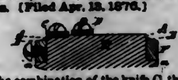


176,918.

1. As a means of causing the forward motion of the shuttle and upward motion of the needle to stop at the same instant, and begin the reverse motion simultaneously, the horizontal oscillating-lever shuttle-carrier F, provided with the cam-slot K, the needle-bar a, provided with the cross-head X and intermediate mechanism, substantially as set forth, for driving the same.

2. The combination, with the horizontal drive-shaft O and vertical shaft O', of the rock-shaft C, for actuating the feed, substantially as described.

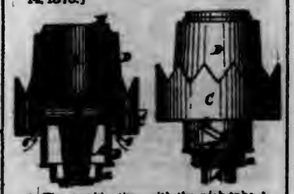
176,919. LEATHER-SEWING MACHINES. T. Andrews, Boston, and S. Moore, Sudbury, Mass. [Filed Apr. 13, 1876.]



1. The combination of the knife C, the yielding presser D, the edge-rest A, and a bed in cloud in one direction on its top to the edge of the knife, as set forth, all being arranged substantially as specified.

2. The combination of the knife C, the yielding presser D, the curved or cylindrical edge-bearing A, and the adjustable bed-ring F, slanted transversely and longitudinally on its upper edge, all being constructed, arranged, and applied substantially in manner and to operate as and for the purpose or purposes as set forth.

176,920. LAMP-BURNERS. Albert Angell, East Orange, N. J., assignor to Charles F. A. Hinrichs, New York, N. Y. [Filed Jan. 14, 1876.]



1. The combination, with the wick-tube A, cross-channel b, center draft d, and pin h, of a sleeve, B, with air-space d', openings e f, and oblique slot g, all constructed and operating substantially as shown and described.

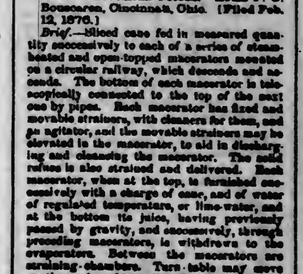
2. The combination, with the wick-tube A and center draft d, of an absorbent non-combustible ring, E, and a packing, F, of fibrous material, substantially as set forth.

176,921. CUPBOARDS. Joseph Anstey, Gowanda, N. Y. [Filed July 20, 1876.]

1. The combination, with the cupboard A, of the removable revolving shelves G, composed of a number of strips having U shaped sockets on both ends and removably arranged upon the spindle H, substantially as described, for the purpose set forth.

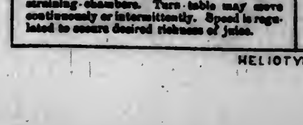
2. The cupboard A provided with the table D, having supporting-brackets D', provided with pivots F, resting in sockets E, attached to the said cupboard in a manner as herein described, whereby the said table D is rendered removable, substantially as described, for the object specified.

3. The combination, with the cupboard A, of the spindle H, having removable and revolving shelves G, and the upper separable bearing L, consisting of two longitudinal halves, hinged together at one end and connected at the other end by a transverse bolt, whereby the said spindle H, and its shelves, are rendered removable from the said cupboard, substantially as described.



176,923.

176,922. HAT-CASTS. Ernestus B. Bigelow, Boston, Mass. [Filed Aug. 16, 1875.]



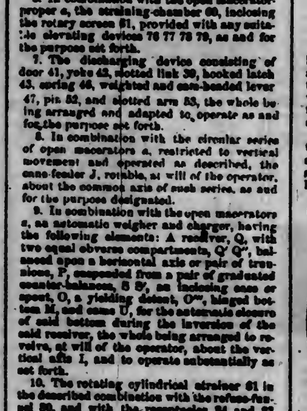
In combination with a cart-body, constructed substantially as herein represented and described, a series of stakes, when said stakes are inserted in its horizontal part, and supported by its upright part, substantially as and for the purposes specified.

176,924. SAW-SHARPENERS. Peter Bird, East New York, assignor to himself and R. I. Board, Humphrey, N. Y. [Filed Feb. 4, 1876.]

The guide-plate A, provided with adjustable guides E, in combination with the file-holder O, having a longitudinal groove, F, and carrying at one end a screw, N, provided with lock-nuts T T and socket I, and at the other end with a head, J, having a recess, M, in which is arranged the rotating socket H, all substantially as and for the object specified.

176,924. EXTRACTING SACCHARINE AND OTHER VEGETABLE JUICES. Louis P. G. Bonnecaze, Cincinnati, Ohio. [Filed Feb. 12, 1876.]

Brief.—Sliced cane fed in measured quantity successively to each of a series of steam-heated and open-topped macerators mounted on a circular railway, which descends and ascends. The bottom of each macerator is telescopically connected to the top of the next one by pipes. Each macerator has fixed and movable strainers, with cleaners for them, and an agitator, and the movable strainers may be elevated in the macerator, to aid in discharging and cleansing the macerator. The solid refuse is also strained and delivered. Each macerator, when at the top, is furnished successively with a charge of cane, and of water of regulated temperature, or lime-water, and at the bottom its juice, having previously passed by gravity, and successively, through preceding macerators, is withdrawn to the evaporators. Between the macerators are straining-chambers. Turn-table may move continuously or intermittently. Speed is regulated to ensure desired richness of juice.



176,924.

1. The process of obtaining a concentrated extract by the continuous flow of the diffusing liquor through a circular and connected series of open macerators automatically elevated and depressed, the charge therein being heated and agitated at will to facilitate, if need be, the complete diffusion of the substance to be extracted, pure water being continuously fed to the upest charge into the—for the time being—highest macerator in the series, and the concentrated infusion being continuously drawn from the—for the time being—lowest macerator in the series containing the freshest charge.

2. An apparatus constituted substantially as herein set forth, with a circular endless series of macerators automatically and successively elevated and depressed, for the purposes set forth.

3. The circular series of open macerators a, having yielding connecting-pipes 66 from the bottom of each macerator to the top of the next, said macerators being mounted upon a revolving double-incline track or turn-table, d, for their consecutive and automatic elevation, in the manner and for the purpose set forth.

4. In combination with the circuit of vertically shifted open macerators a, the heaters b, having yielding connections f, with steam-pipe c, substantially as and for the purpose set forth.

5. In combination with an open macerator, a, the agitating and straining mechanism s w i, with the described or any suitable hoisting apparatus, as and for the purpose set forth.

6. In combination with the open macerator-proper a, the straining-chamber 60, inclosing the rotary screen 61, provided with any suitable elevating devices 76 77 78 79, as and for the purpose set forth.

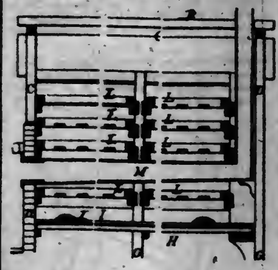
7. The discharging device consisting of door 41, yoke 42, slotted link 39, hooked latch 43, spring 44, weighted and cam-headed lever 47, pin 52, and slotted arm 53, the whole being arranged and adapted to, operate as and for the purpose set forth.

8. In combination with the circular series of open macerators a, restricted to vertical movement and operated as described, the cane-feeder J, rotuble, at will of the operator, about the common axis of such series, as and for the purpose designated.

9. In combination with the open macerators a, an automatic weigher and charger, having the following elements: A receiver, Q, with two equal obverse compartments, Q' Q'', balanced upon a horizontal axis or pair of trunnions, P, suspended from a pair of graduated counter-balances, S S', an inclining cane or spout, O, a yielding detent, O'', hinged bottom M, and cams U, for the automatic closure of said bottom during the inversion of the said receiver, the whole being arranged to revolve, at will of the operator, about the vertical axis I, and to operate substantially as set forth.

10. The rotating cylindrical strainer 61 in the described combination with the refuse-funnel 80, and with the receptacles 84 and 85 for the spent fiber and waste-water, respectively, substantially as set forth.

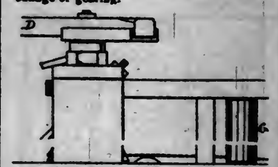
176,925. FRUIT-DRIERS. G. W. Bowman, Morrow, Ohio. [Filed Feb. 16, 1876.]



The described arrangement of external furnace A of masonry, whose rear wall constitutes part of that of the drying-closet B, having gable-ends C D, lags G, pervious and registered floor H I, flaps J, and trays L, extendible to the mid-width of the closet.

176,926. GEARING-MACHINES AND CAPSTANS. Roswell W. Burk, Penfield, assignor of one-half his right to D. Owens, Bedford, Mich. [Filed Mar. 30, 1876.]

Brief.—In a frame portable on rollers, and adapted to be anchored to the ground, are two vertical winding-drums, with spur-wheels on top, either of which is operated by a middle shaft and pinion, working at top in an eccentric bearing, whose partial rotation effects the change of gearing.



In combination with the two drums, B B, having gear-wheels G' G' upon their upper ends, the upright shaft a, provided with driving-pinion C, the eccentric H, sweep D, and lever E, substantially as and for the purposes herein set forth.

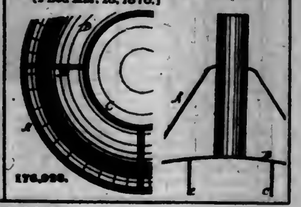
176,927. SHOE-FASTENINGS. J. M. Cayce, Franklin, Tenn., assignor to himself and O. A. Bailey, same place. [Filed Apr. 11, 1876.]



1. In a shoe-fastener, the combination of the hook and mooning-plate, pivoted together, and one of them adapted to be attached to the shoe-flap, the other movable and provided with a lug for holding the parts locked together, substantially as shown and described.

2. The hook-lever A', constructed with the hook proper in the same plane with the shank, and pivoted to the arm B', as shown and described, whereby it is adapted to swing horizontally, as and for the purposes specified.

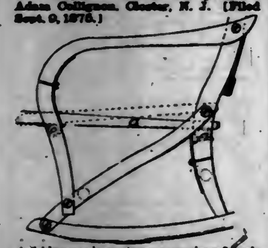
176,928. CLOTHES-FOUNTAINS. Francis G. Clarke, Mount Vernon, Ohio, assignor to himself and Benj. A. F. Greer, same place. [Filed Apr. 18, 1876.]



176,928.

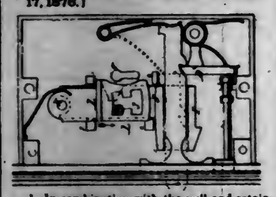
As an improved article of manufacture, a clothes-pounder consisting of the cone A, provided with the internal cylindrical partition C, straight partitions D D, and diaphragm E, braced by the socket-tube c, substantially as set forth.

176,920. FOLDING ROCKING-CHAIRS. Malcolm Culligan, Claudius C. Culligan, and Adam Culligan, Chester, N. J. [Filed Sept. 9, 1875.]



A folding rocking-chair, consisting of back-pieces jointed below the seat and connected with the front ends of the rockers by diagonal braces, arm pieces attached at their lower ends to said braces and jointed above the seat, and a seat pivoted to the arm pieces and detachably connected to the back, substantially as shown and described.

176,930. LOCK FOR SLIDING DOORS. John Collins, Hohokus Township, Bergen County, N. J., assignor to Hopkins & Dickinson Manufacturing Company. [Filed Mar. 17, 1876.]

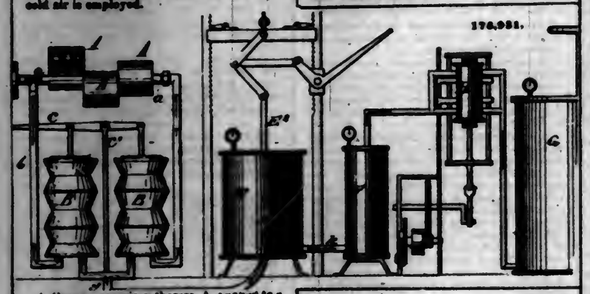


1. In combination with the pull and retaining catch or device, a push-pin, arranged substantially as set forth, the whole constructed to operate as described.

2. The combination of a pull with a sliding carrier or its equivalent for shifting the position of the pull to make it perform also the office of a locking-bolt, substantially as set forth.

176,931. AIR-COMPRESSING APPARATUS. John R. Crocker, Alton, Ill. [Filed Feb. 12, 1876.]

Brief.—A pressure of a given number of pounds to the square is produced as may be required to overcome all opposing forces, and then maintaining that pressure for supplying continuously an equivalent to that expended in working the machinery. In this device cold air is employed.



1. One or more air-gatherers, A, applied to a hollow rotary shaft, which communicates with one or more bellows, B, in combination with the lever e and its connections, for collapsing the bellows, and with an air-receiver, E, for the purposes set forth.

2. In an apparatus described, the receiver E, provided with a piston, F, actuated by toggle-levers, substantially as set forth.

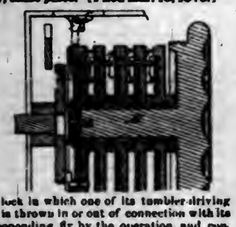
3. An air-pump, H, actuated as described, in combination with the air-retainer F and an air-reservoir, G, provided with a piston, which is controlled as set forth.

176,932. BUTTONS. Lewis G. Curren, Baltimore, Md. [Filed Mar. 27, 1876.]



The combination of the disk A, one or more metal loops, B, and hollow button C, substantially as and for the purposes herein set forth.

176,933. TIRE ATTACHMENTS FOR LOCKS. Milton A. Dalton, Cincinnati, Ohio, assignor to the Hall's Safe and Lock Company, same place. [Filed Mar. 16, 1876.]



A lock in which one of its tumbler-driving pins is thrown in or out of connection with its corresponding fly by the operation and connection of a time attachment.

176,934. CAPSTANS. J. H. David, Damariscotta, Me. [Filed Apr. 17, 1876.]



The capstan formed of a set of vertical rollers or spindles, B C, with a double head, D E, and operated at different speeds by means of the cogged gearings F G H, substantially as described and set forth.

176,935. SHIRTS. Sigmund Deutsch, Philadelphia, Pa. [Filed Mar. 8, 1876.]

1. A shirt the front of which is formed or provided with button-holes B B, arranged in a line coincident with that occupied by the edge of a bosom, substantially as specified, or in a line or lines passing on each side of the middle of the front, as shown and described.

2. A shirt-front provided with the stay or backing C, and having button-holes passing through said front and stay, substantially as shown and described.

176,931.

3. A shirt-front with a removable lining, D, forming a chest-protector, substantially as shown and described.

4. A shirt-front, D, constructed as described, and provided with buttons d d on one side to permit its use either as a chest-protector or shirt-front, as shown and set forth.

5. As a new article of manufacture, a combined shirt and removable chest-protecting lining and bosom combined, said shirt being provided with button-holes, arranged on a line coincident with that occupied by the edge of a bosom, or on either side of a central line, and the removable bosom having buttons to correspond with said button-holes, and allow it to be worn either outside or inside the shirt as a chest-protector or bosom, substantially as described.

176,936.



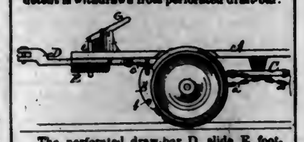
176,936. STUFFENING HAT-BRIMS. George H. Dimond, Bridgeport, Conn. [Filed Mar. 2, 1876.]



As a new article of manufacture, a hat the brim of which is stiffened by one or more rows of cord or braid stitched thereon, as set forth.

176,937. CAR-BRAKES. Leonce P. Ducournau and Charles J. Strate, New Orleans, La. [Filed Dec. 14, 1875.]

Brief.—Draft of horse applies brake when detent is withdrawn from perforated draft-bar.



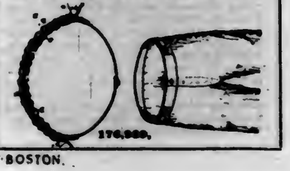
The perforated draw-bar D, slide E, foot-lever G, and bolt c, in combination with the brake-lever C, as described, and for the purpose set forth.

176,938. MANUFACTURE OF ARTIFICIAL HYDRAULIC CEMENTS. C. F. Dunderdale, Brooklyn, N. Y. [Filed Jan. 20, 1876.]

1. The process of crushing and mixing in water, with a suitable mill, the one or more clays and lime to a dense semi-fluid state, then flowing same directly onto a suitable drying floor or pan, for the purpose of expelling the water thereof, then pressing the same in any suitable device, and afterward burning the same in any suitable kiln, substantially as and for the purpose specified.

2. The process of crushing and mixing in water, with a suitable mill, the one or more clays and lime, or its carbonate, in a semi-fluid state, then causing same to pass between other known mechanism for completing the reduction of the particles thereof into an impalpable state of subdivision, thence directly onto a drying-floor, substantially as and for the purpose specified.

176,939. OYSTERS. George R. Hagar, Boston, Mass. [Filed Mar. 10, 1876.]

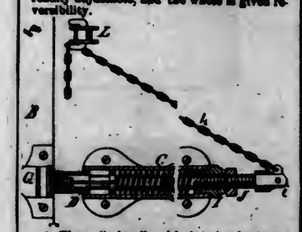


176,939.

A hollow waistband for pantaloons and other garments, when constructed and provided with two straps, b and c, and two buckles, e and f, in the manner and for the purpose set forth.

176,940. DOOR-SPRINGS. James O. Bignall, Brooklyn, N. Y., assignor of one-half his right to Geo. W. Evans. [Filed Mar. 20, 1876.]

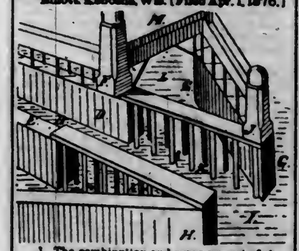
Brief.—A combination of old devices, wherein by the feathered plunger and spring are made readily adjustable, and the whole is given reversibility.



1. The cylinder C, with interior feathered plunger D, having the roller a and rod d, in combination with the spring b, regulating-screw I, jam-nut J, and convex casting or plate G, substantially as described, and for the purpose set forth.

2. The cylinder C, spring-plunger D, regulating-screw I, jamb-nut J, and convex casting or plate G, constructed as set forth, in combination with the screw-cap f, chain h, pulley L, and hook m, substantially as described, and for the purpose set forth.

176,941. BREAKWATERS AND PIERS. A. M. Elliott, Kaposha, Wis. [Filed Apr. 1, 1876.]



1. The combination and arrangement of the piers G and H with the piers D E and series of piles K K, substantially as and for the purpose specified.

2. The combination and arrangement of the piers G H and D E, series of piles K K, light-houses F J, and bridge M, substantially as and for the purpose specified.

176,942. BEE-HIVES. Christopher Hills, Level Land, S. C. [Filed Mar. 20, 1876.]

The combination of the brood-chamber, having its top edges beveled or chamfered, the bottom board, having the opening and the perforated plate beneath, and the chamfered surface surrounding said opening, substantially as shown and described.

176,942.

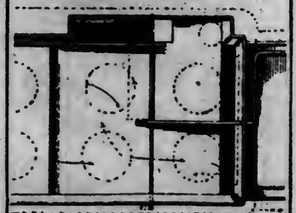


176,943.

176,943. HOT-AIR DEFLECTORS AND WATER-EVAPORATORS. Simon Fairman, Baltimore, Md. [Filed Mar. 8, 1876.]

The portable hot-air deflector and water-evaporator, consisting of the open-topped box A, provided with the top perforated water-tray C, and having front vertical slots a and a horizontal guide-slot, combined with the vertically-slotted plate b and knob c, substantially as herein described.

176,944. REMOVABLE COOKING-STOVES. A. B. Falso, Troy, N. Y. [Filed Mar. 31, 1876.]

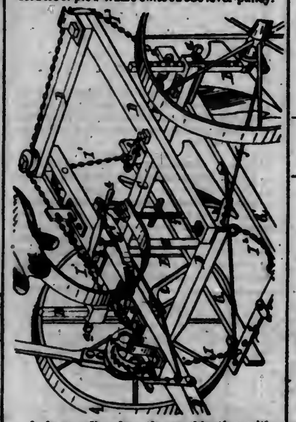


1. In a reservoir cooking-stove, the combination, with the parallel flues leading from the fire above the oven to the flue below the same, and the flue under the water-reservoir in the reservoir-casing, of the double damper, for closing communication between one of said parallel flues and the flue above the oven, and opening communication between the said flue and the exit-flue for the purpose of throwing the heated products of combustion under the reservoir, substantially as described.

2. The combination, in a reservoir cooking-stove provided with a reservoir-casing at one end, and with parallel flues leading into a flue within the reservoir-casing and a flue under the oven, of a partition extending from the rear of the flue under the bottom of the oven to near the front of the same, for compelling the heated products of combustion to thoroughly traverse said flue under the oven on their way to the exit-pipe, substantially as described.

176,945. SULKY-PLOWS. John Fay, Wayne, Mich. [Filed Jan. 26, 1876.]

Brief.—Both ends of axle adjustable, with braces made adaptable to height of axle. Guides for the plow-beam may be thrown out of vertical position. Chains from the several corners of plow-frame unite on one lever-pulley.

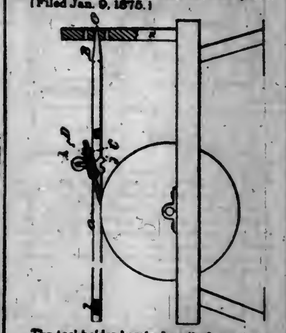


1. In a sulky-plow, the combination with the frame D and beam C of the axles E, having arms adjustable in either end of the said beam, the brace-rods J J, and the plates b f, substantially as described and shown.

2. The combination of the guide B, laterally adjustable at the upper end, with the cranked shaft b and lever c, substantially as described and shown.

3. The combination with the frame D and beam C of the vertically adjustable axles E, the gang of plows G' G', the lever H, and the chains I F F F, all substantially as described and shown.

176,946. GRINDING-MACHINES. Charles N. Fisher, Willis, Tex., assignor of one-half his right to Joseph Frampton, same place. [Filed Jan. 9, 1876.]



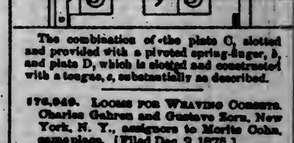
The tool-holder herein described, consisting of the triangular frame A, provided with the angle-iron B, having the tapering point c, the clamp plates D and C, the plane of the latter being inclined to the plane of the frame, and the former being provided with the hook h having a screw-shank, i, and thumb-nut j, substantially as and for the purpose set forth.

176,947. DEVICES FOR PROPELLING BOATS. Henry Fox, Waterloo, N. Y. [Filed Apr. 7, 1876.]



The combination of paddle-wheels C, having axles e, pinion E, cog-wheels g G, and plates d f, substantially as and for the purpose herein shown and specified.

176,948. NUT-LOCKS. James E. Fred, Greenville, Ohio. [Filed Apr. 1, 1876.]

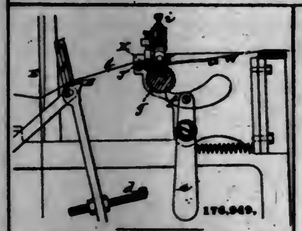


The combination of the plate C, slotted and provided with a pivoted spring-finger, b, and plate D, which is slotted and constructed with a tongue, c, substantially as described.

176,949. LOOMS FOR WEAVING CORDAGE. Charles Gehren and Gustave Korn, New York, N. Y., assignors to Martin Cohn, same place. [Filed Dec. 2, 1875.]

1. The combination, with the positively-operated single take-up roll H, extending throughout the width of the web, of a series of independent automatically-operating yielding pressure-rolls, I, held by springs in constant contact with the cloth, and, by their pressure on the latter against the take-up roll, operating to prevent any take-up of the cloth by the roll H, excepting where slackness is produced by the beating up of the lay between the take-up and the last shot of the filling, substantially as specified.

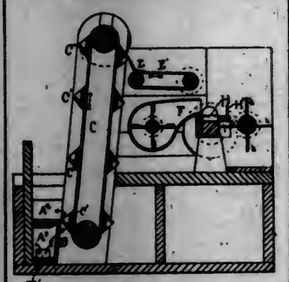
2. The retaining device, to prevent back action of the web after each take-up of the latter, consisting of a combination, with the take-up roll H, of a stationary smooth bar, J, and roll K between the take-up and the reed, the roll K being interposed between said bar and take-up, and the stationary bar between said roll and the reed, and the roll K being constructed and arranged, with relation to the bar J and take-up, as described, whereby the cloth is carved or bent between said bar and the take-up, essentially as shown and described.



176,949.

176,950. MACHINES FOR GATHERING AND ASSORTING CRANBERRIES. Albion K. Gile, Alfred, M. [Filed Jan. 17, 1876.]

Brief.—A machine for gathering and assorting cranberries, constructed with fingers, into which the berries are carried by water, and then elevated by buckets onto sectional shutes, where they are assorted.



1. The combination of the belt-elevator C with the water-fingers and ways A A' A', arranged to gather and elevate the berries from the water, substantially as described and for the purpose set forth.

2. In a cranberry separator, the combination of the grill E' and shafts H with the revolving arms b b b b, operating substantially as described and for the purpose set forth.

3. In a cranberry gatherer, the combination of the sections E² and E³, pivoted together, and arranged to separate the berries, substantially as described.

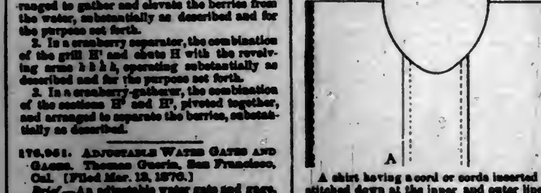
176,951. ADJUSTABLE WATER GATES AND GAGES. Thomas Guerin, San Francisco, Cal. [Filed Mar. 13, 1876.]

Brief.—An adjustable water gate and gage, consisting of a curved bent pipe, the mouth of which is attached to two floats, and furnished with a screw adjustment, by which the flow of water into the pipe is regulated. Gage-rods are also attached, which give, on inspection, the amount of flow. A bonding with cover of wire-netting protects the parts from being tampered with, and gates are provided at the sides for the admission of water.

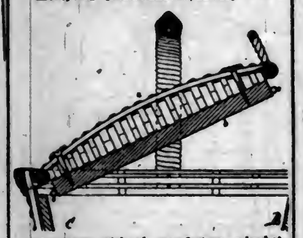
1. The connected floats A A, having the standards B and transverse beam D, in combination with the pipe or box E, connected with the beam F by means of the screw-rods g g, and provided with a self-acting weir, substantially as and for the purpose described.

2. In combination with the float A, having the transverse beam D, and arranged to support a pipe or box, B, for the purpose specified, I claim the gage-rod h h, substantially as and for the purpose described.

3. The case or housing M, with its transparent top, and having the inlet openings n n, and outlet opening, through which the pipe F passes, in combination with the float A A and hinged pipe or box B, substantially as and for the purpose described.

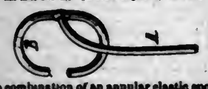


176,952. BASKETS. John R. Hare, Baltimore, Md. [Filed Mar. 17, 1876.]



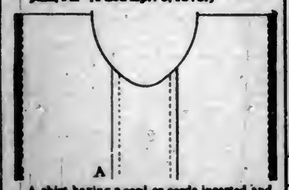
As a new article of manufacture, a basket having the food-receptacle B surrounded with some non-conducting material, and provided with the ice-chamber C and air-tight lid b, substantially as and for the purpose set forth.

176,953. STRETCHER. Geo. J. Harris, Brooklyn, E. D., N. Y. [Filed Apr. 6, 1876.]



The combination of an annular elastic spout, B, with the injection-pipe A of a syringe, substantially as herein shown and described.

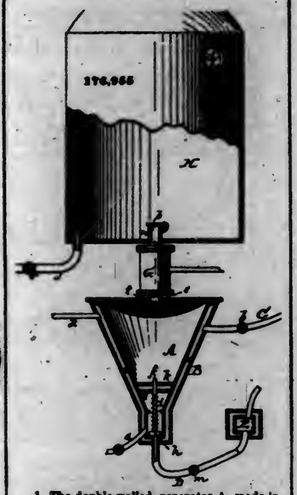
176,954. SKIRTS. James Hayden, Philadelphia, Pa. [Filed Apr. 6, 1876.]



A skirt having a cord or cords inserted and stitched down at the inner and outer lines of stitching, along the outer edges of the bones, substantially in the manner and for the purpose set forth.

176,955. CARBURETING-GAS APPARATUS. Jas. G. Haymaker, Pittsburg, Pa. [Filed Oct. 9, 1876.]

Brief.—The carbureting-chamber is made in the form of an inverted cone, and the entrance of the induction air pipe placed at the bottom, so that the hydrocarbon liquid may be all taken up. A pump is provided for forcing the gas from the carburetor into the holder, where it is stored under pressure.

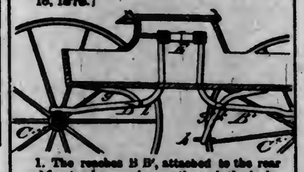


176,955.

1. The double-walled generator A, made in the shape of an inverted cone, with the air-pipe D entering the same at the lower (smaller) end, and provided with a spring plunger or valve, h, as and for the purposes set forth.

2. In a carbureting gas machine, the combination of the generator A, the closed gasometer H above the same, and a force-pump, G, interposed between them, for compressing the gas into the gasometer, as set forth.

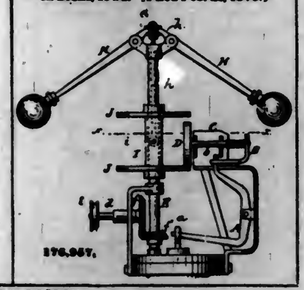
176,956. LIGHT CARRIAGES. J. C. Hester, Clifford, Canada, assignor of one-half his right to I. H. Culp, same place. [Filed Feb. 18, 1876.]



1. The reaches B B', attached to the rear and front axles, passing up through the body, and united at their upper ends under the seat by the horizontal elliptic spring E, in combination with the rear brace g, pivoted at its lower end to the rear reach, and attached at its upper end to the body, and front brace g, attached to the body, and passing through the loop h, substantially as and for the purpose set forth.

2. The circular table H for the fifth-wheel G, formed on a box through which the front axle C passes, the latter being grooved to receive the tenon x on the head of the king-bolt m, substantially as described.

176,957. GOVERNORS. Henry Howe, Council Bluffs, Iowa. [Filed Feb. 21, 1876.]



176,957.

1. The valve-stem c, sliding frame B, both connected by the bent lever A, the screw-shaft h, friction-wheel D, and disks J J', all substantially as and for the purposes herein set forth.

2. The combination of the rotating governor-shaft E, with weighted arms H H, having their ends connected to the adjustable head G, rod h, and tube I, with disks J J', friction-wheel D, screw-shaft h, frame B, lever A, and valve-rod c, substantially as and for the purposes herein set forth.

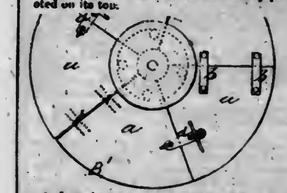
176,958. WHIPS. David C. Hull, Westfield, Mass., assignor to himself and H. J. Bush, same place. [Filed Apr. 10, 1876.]



As an improved article of manufacture, a whip provided with a molded India-rubber butt and a ferrule, to embrace and retain the butt on the end of the whip, all combined as shown and described.

176,959. DRIVERS' SEATS FOR HORSE-POWERS. Jehial B. Hutchinson, Spring Valley, Minn. [Filed Apr. 1, 1876.]

Brief.—Formed of folding hinged sectors, adapted to be placed around the central shaft. A stool thereon has a false seat loosely pivoted on its top.



1. In a horse-power, a sectional platform, the parts of which are adapted to be clamped around the center or pivot bolt of the power, substantially as specified.

2. A driver's platform for horse powers, made of sections composed of the sectors a, hinged together upon their radial edges, substantially as set forth.

3. The sectional horse-power platform, made up of the sectors a, adapted to fold the one upon the other, substantially as specified.

176,960. CORN AND COTTON STALK CHOPPERS. Benj. S. Byers, Pekin, Ill. [Filed Oct. 13, 1875.]

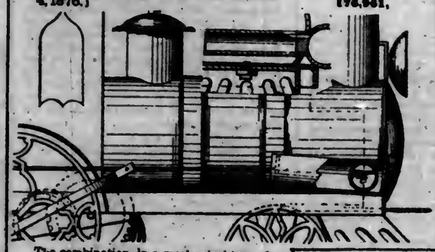
Brief.—The construction of the bounds, which constitute the frame, and contain the journal-boxes for both wheels and cutter-shaft. Vertical and longitudinal adjustment of seat.



1. In a corn and cotton stalk cutter, the bounds F F, provided each with double axle-boxes a f, box f being constructed to receive the axle of the revolving cutter, and box a the axles of the wheel, in combination with the locking mechanism, constructed and arranged to operate in the manner as set forth.

2. The longitudinal bar I, having a pivotal connection with the post H, and provided with the seat K, adjustable by means of the holes l in the bar, and screw-bolt or other fastening device 2, in combination with the elliptical spring g, adjusting-bracket h, and post J, constructed and adapted substantially for the purpose as set forth.

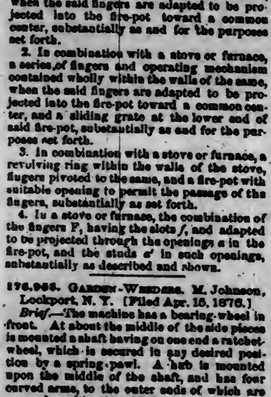
176,961. AUTOMATIC TOYS. Edward R. Ives, Bridgeport, Conn., assignor to Ives, Blakeslee & Co., same place. [Filed Mar. 4, 1876.]



176,961.

The combination, in a mechanical toy, of a spring movement for propelling the same, one or more air-cylinders, with whistles connected thereto, and a mechanism, operated by the propelling mechanism, for forcing air through said cylinders while the toy is in motion, and causing sounds to be produced through the whistles, substantially as set forth.

176,962. STOVES. Grove H. Johnson and Charles G. Moulton, Erie, Pa. [Filed Feb. 25, 1876.]



1. In combination with a stove or furnace, a series of fingers and operating mechanism contained wholly within the walls of the same, when the said fingers are adapted to be projected into the fire-pot toward a common center, substantially as and for the purpose set forth.

2. In combination with a stove or furnace, a series of fingers and operating mechanism contained wholly within the walls of the same, when the said fingers are adapted to be projected into the fire-pot toward a common center, and a sliding grate at the lower end of said fire-pot, substantially as and for the purposes set forth.

3. In combination with a stove or furnace, a revolving ring within the walls of the stove, fingers pivoted to the same, and a fire-pot with suitable opening to permit the passage of the fingers, substantially as set forth.

4. In a stove or furnace, the combination of the fingers F, having the slots f, and adapted to be projected through the openings a in the fire-pot, and the studs a' in such openings, substantially as described and shown.

176,963. GARDEN-WHEELS. M. Johnson, Lockport, N. Y. [Filed Apr. 10, 1876.]

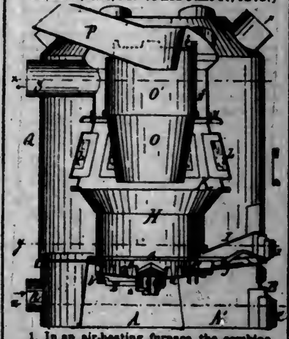
Brief.—The machine has a bearing-wheel in front. At about the middle of the side pieces is mounted a shaft having on one end a ratchet-wheel, which is secured in any desired position by a spring-pawl. A hub is mounted upon the middle of the shaft, and has four curved arms, to the outer ends of which are secured cultivating-blades, shares, forks, rakes, or other desired form of tool. This shaft can be rotated so as to bring either tool in contact with the soil, and the operator uses the implement by pushing it forward by the handles.

The rotating axle C, having ratchet-wheel E and radial arms d, for the attachment of cultivating devices, in combination with the spring tooth-pawl G, substantially as and for the purpose set forth.



176,963.

176,964. HOT-AIR FURNACES. Grove H. Johnson, Erie, Pa. [Filed June 17, 1875.]



1. In an air-heating furnace, the combination of the entire homogeneous outer casing Q, without mica windows or openings to permit the outward passage of heat or light, the inclosed heater provided with mica windows, and a hot-air space between said heater and said outer casing, for the purpose of increasing the radiation of heat and confining the same within the hot-air space, substantially as described.

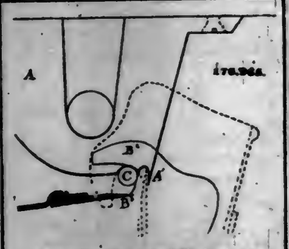
2. In an air-heating furnace, the combination of the solid fire-pot, fitting closely upon the top of the ash-chamber, and having a flanged lower end, D, extending down into said ash-chamber, the ash-chamber A, and the hot-air space between the inclosed heater and its outer casing, the several parts constructed and arranged substantially as and for the purposes set forth.

3. In an air-heating furnace, the combination of the water-vessel T, projecting outwardly from the outer casing, and extending inwardly to the ash-chamber, the ash-chamber A, and the hot-air space between the heater and the outer casing, substantially as and for the purposes set forth.

4. In combination, in a heat-reservoir for heating stoves or furnaces, the lower section O suspended from the ring above the combustion-chamber, and half upper sections O' and O², supported from the lower ends and having flue-strips h cast solidly upon one of said half sections, substantially as and for the purposes set forth.

176,965. SEED-CUPS FOR GRAIN-DRILLS. Benj. Kuhns and Charles Scholz, Dayton, Ohio, assignors to the Farmers' Friend Manufacturing Company, same place. [Filed Dec. 30, 1875.]

Brief.—The seed-cup is provided with projections on either side, and a lip at the rear, for the reception and retention of the grain-conductor.



1. A cup for grain-drills, consisting of an outer and an inner portion, the inner part being pivoted to the outer one, as described, and provided with a feed-aperture and a lip or plate, for preventing the detachment therefrom of the grain-conductor when in use, substantially as and for the purpose set forth.

2. The combination of the interior cup, having a feed-orifice and a projecting lip or plate, as described, and the conductor for guiding the grain to the hose, substantially as set forth.

3. The combination of the swinging cup and the perforated projections O U upon the stationary portion A, for adjusting said swinging portion so as to adapt it for the passage of grains of different sizes, substantially as and for the purpose set forth.

4. The arrangement of the swinging cup with reference to the stationary one, whereby it is made to admit of the removal of the seed-wheels, substantially as set forth

176,967. GRAIN-DRILLS. Edward Kuhns, Logansport, Ind., assignor of one-half his right to Benjamin Kuhns, Dayton, Ohio. [Filed Dec. 20, 1875.]

Brief.—Spirally-flanged adjustable feeding-agitator—one end revolving in a circular aperture in the side of the case, the other end grooved to receive a flange upon one end of the segmental feed-regulator.

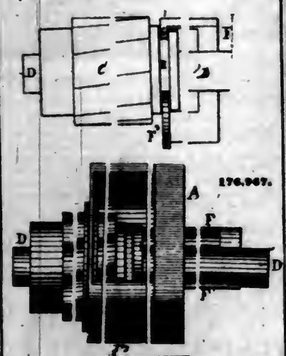
1. A seed-cup for grain-drills, one of the vertical plates of which is provided with an annular aperture for the reception of a rotating collar, and the other with an aperture for the segmental passage of the sliding grain-regulator, substantially as and for the purpose specified.

2. The sliding grain-regulator F, having a segmental portion, as described, for the purpose of preventing the grain from falling into the cups when the delivery-orifice is diminished, and a projection, F', for contracting the delivery-orifice, substantially as set forth.

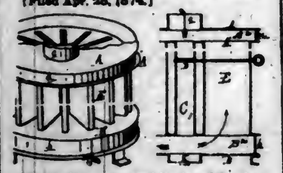
3. The combination, in a grain-drill, of the feed-wheel C, shaft D, and a segmental sliding feed-regulator passing through one of the vertical walls of the seed-cup, substantially as and for the purpose set forth.

4. The combination, in a grain-drill, of a cup, A, having in one of its ends a circular aperture for the reception of a rotating collar, and in the other a segmental aperture for the passage of the grain-regulator, a feed-wheel, C, a shaft, D, and a segmental sliding grain-regulator, the parts being arranged to operate substantially as and for the purpose set forth.

5. The combination, in a grain-drill, of a grooved feed-wheel, a rotating collar adapted to be rotated by said wheel by having projections formed upon its inner surface to fit the depressions in the wheel, a segmentally-formed sliding feed-regulator working through one of the vertical walls of the seed-cup, and a seed-cup, all constructed substantially as and for the purpose set forth.

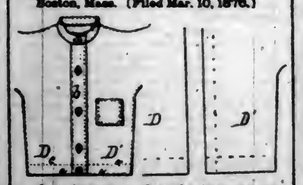


176,968. HEATING-DEVICE. G. A. Lothrop and H. C. Goddard, East Saginaw, Mich. [Filed Apr. 28, 1874.]



In a radiator, the combination of the chambers A' and B', a central flue, C, provided with a damper, D, and radial flues E, and the openings inclosed by the collars c c, all the parts constructed and arranged substantially as described and shown.

176,969. BLOOMS OR JUMPERS. S. Lankey, Boston, Mass. (Filed Mar. 10, 1876.)



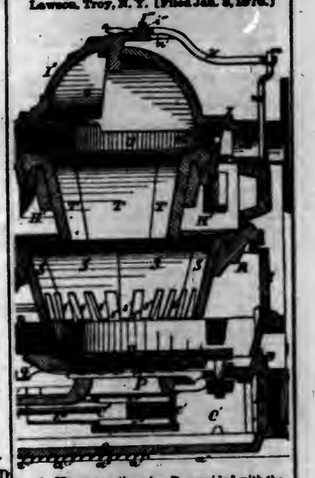
1. A jumper, in which the front and rear halves of the sleeves are cut in one piece with the corresponding parts of the body of the jumper, substantially as set forth.

2. A jumper, in which the bosom-plait is cut in one piece, with one of the parts D or D' and its corresponding half of the sleeve, which form the front half of the garment, substantially as set forth.

3. A jumper, in which the wristband and sleeves are cut out with and form a portion of the several parts which constitute the body of the jumper, substantially as set forth.

4. A jumper, consisting of a bias half cut in one piece with the rear halves of the two sleeves, and of two front parts, D D', each cut in one piece with the front half of its corresponding arm or sleeve, and one of them with the bosom-plait, substantially as set forth.

176,970. FIRE-PLACE HEATERS. JAMES A. LAWSON, Troy, N. Y. (Filed Jan. 8, 1876.)



1. The supporting-ring R, provided with the annular chamber r and vertical openings r' and r², in combination with the fire-pot sections S and S, having each a projecting ledge, s, and two vertical studs, s' and s², substantially as and for the purpose specified.

2. In combination with the supporting-ring R, provided with the radial openings r'' and r'', the fire-pot sections S and S, provided within their outer faces with parallel grooves r''' and r''', which are formed by means of the bars or ribs r'' and r², substantially as and for the purpose shown.

3. In a fire-place heater, a supporting-ring for a sectional fire-pot, which ring at its upper side and outer edge forms part of the external frame or casing of the heater, and from thence extends downward and inward to form an air-space between its lower portion and said casing, substantially as and for the purpose set forth.

4. In combination with the supporting ring U, attached to and depending from the top plate I, the magazine composed of the sections T and T, each of which is provided at its upper end with an outward and downward projecting ledge, t, and with two vertical pins, t' and t², substantially as and for the purpose shown.

5. The cover I'', pivoted upon and revolving horizontally around the axial center of the heater, and provided with the crank-arm i''', and the butterfly-damper M', arranged within the cross-pipe M, and having the crank-arm m' combined with each other, so as to be simultaneously moved by means of the rod N, which is pivoted upon and extends between said crank-arms, substantially as and for the purpose shown and described.

6. The rod N, pivoted upon and extending between the damper-rod crank m', and the magazine-cover crank I''', capable of being disconnected vertically from the latter, and provided with dependent side flanges n' and n², which operate to prevent the lateral displacement of said rod from said crank, substantially as and for the purpose set forth.

176,971. GRATES. JAS. A. LAWSON, Troy, N. Y. [Filed Feb. 23, 1876.]

Brief.—The supplemental grate is supported under the main grate by the framework which it can be slid forward to dump refuse through the central aperture in the main grate.

1. In combination with the horizontally-sliding supplemental grate B and the rotating main grate C, the supporting-frame composed of the circular portion A, and parallel bars A' and A², provided each with a rubber, c, substantially as and for the purpose specified.

2. In combination with circular main grate C, provided with an open center, c, and arranged to rotate around its axis, the supplemental grate B, placed below said main grate, and arranged to slide horizontally upon or within the parallel ways A' and A', which are attached to and form part of the supporting-frame A of said main grate, substantially as and for the purpose shown.

3. In combination with the supplemental grate B, provided with the semicircular bars b, opening b', and recess b'', the shaker-bar D, having the pin d and feather d', substantially as and for the purpose set forth.

4. In combination with the longitudinally-reciprocating shaker-bar, capable of having its forward end moved laterally, the right-angled lug E, secured upon the lower side of the base-plate of the stove, and furnishing a support for said bar, substantially as is shown and described.



176,972. MACHINERY FOR MAKING HOLLOW METAL BARS. Geo. J. Le Vake, Cleveland, Ohio, assignor, by mesne assignments, to J. R. Hall, Clara G. Le Vake, and J. M. Le Vake, same place. [Filed Apr. 6, 1876.]

1. The opposing mandrels A B, constructed to be united by means of a cavity in the end of one mandrel and a corresponding projection on the end of the other, substantially as and for the purpose set forth.

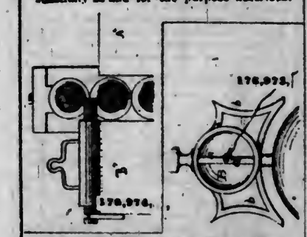
2. In combination with opposing mandrels, constructed to be united as described, of the rests A' B', provided with suitable stops for retaining the mandrels in position, substantially as and for the purpose set forth.

3. The combination of opposing mandrels, constructed to be united as described, with grooved rests A' B', and tubes or barrels B' C', substantially as and for the purpose set forth.

4. The tube or barrel B' C', constructed with a bell or trumpet shaped end for receiving the pile, substantially as and for the purpose set forth.

5. The tubes B' C', provided with a handle for lifting it, and its contained pile and mandrel from one pass to another, substantially as and for the purpose set forth.

6. An improved machine for manufacturing hollow bars, consisting essentially of suitable rolls, standards, or rests, represented by A' B' B, mandrels represented by A B C, and tubes or barrels represented by B' C', substantially as and for the purpose described.

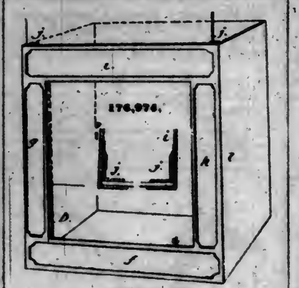


176,973. TOY WHIRLIGIG. Chas. A. Lines, New Haven, Conn. [Filed Oct. 22, 1875.]

The toy herein described, consisting, essentially, of the spherical ball B, provided with the perforated spindle a, forming the journals and winding surface, and the cap B, provided with the handles b b, the cap and handles constructed in one piece, and arranged to operate substantially as specified.

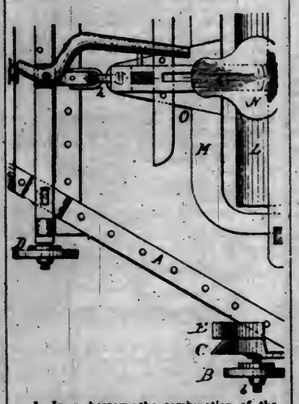
176,974. SNOW CRACKER-BOXES. Edward Magina and Charles Magina, Allegheny, Pa. [Filed Apr. 19, 1873.]

As a new article of manufacture, a show-box for crackers, constructed of straw-paper pasteboard, provided with a glass front, held in position by the angular guides j, the edges of the pasteboard frame extending over upon the glass front, so as to form ornamental borders i j g h, substantially as and for the purpose described.



176,976. HARROWS. Lewis J. Manor, Delphi, assignor of two-thirds his right to P. W. Conway and James M. Allen, Carroll County, Ind. [Filed Dec. 8, 1875.]

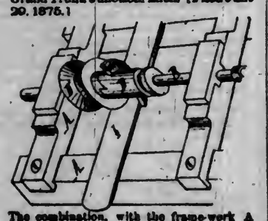
Brief.—The triangular frame is supported by four wheels, and is raised and lowered by means of a lever. To the center cross-beam, and between the two outside beams, is swiveled a single adjustable roller.



1. In a harrow, the combination of the wheels D, sliding boxes d, springs e, rods f, cross-bar l, perforated link J, and lever K, having hook p, for engaging in the perforations of the link J, as and for the purposes herein set forth.

2. A single roller, L, connected to the frame M, and coupled to the center of the cross-bar of a harrow, and between the inclined bars A A, as and for the purposes herein set forth.

176,976. CLUTCH-BOXES. Henry Martin, Grand Trunk Junction, Mich. [Filed June 29, 1876.]



The combination, with the frame-work A and shaft B, of the clutch-sleeves D D', the sleeve D having the spiral rib a cast thereon, and the spring-lever b let into the frame at one end, and extending across the axis of the shaft, all constructed and arranged substantially as described and shown.

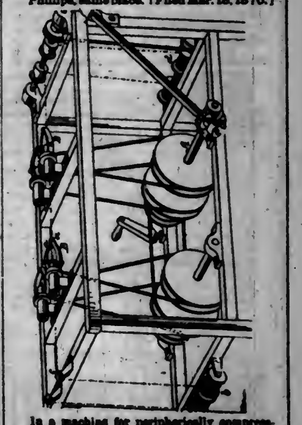
176,977. PUDDLING-FURNACES. William L. McNair and William Graff, Pittsburg, Pa. [Filed Feb. 16, 1876.]



1. The combination of the furnace c, one or more puddling or melting chambers, b a, the hot-air chamber c, with connecting-flue i, for supplying air over the top of the bridge of the furnace, and air-passages e, arranged in the flue d for supplying air to the furnace c, substantially as herein shown and described.

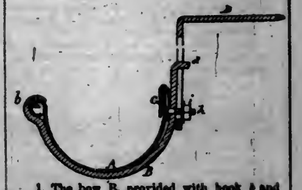
2. The combination of the furnace c, puddling or melting chamber b, hot-air chamber c, gas-pipes n, arranged therein, and hot-air chamber c, with connecting-flue i, for supplying air over the bridge of the furnace, substantially as specified.

176,978. MACHINES FOR COMPRESSING JACKETED TELEGRAPH-WIRE TREATED WITH INSULATING MATERIAL. Frank S. Mead, Providence, R. I., assignor to E. F. Phillips, same place. [Filed Mar. 18, 1876.]



In a machine for peripherially compressing telegraphic wires covered with fibrous and insulating matter, the combination, with suitable wire-feeding mechanism, of two or more compressing-heads, each having an axial opening, and a compressing clamp or suitable springs, all arranged to operate simultaneously on the same wire, and provided with driving mechanism for revolving some of said heads in one direction and others in the opposite direction, substantially as described.

176,979. EAVES-TROUGH HANGERS. John S. Miller, Pontiac, Mich. [Filed Mar. 21 1876.]

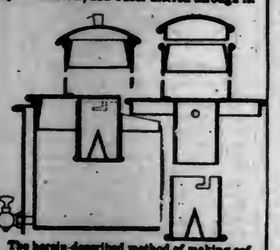


1. The bow B, provided with hook b and T-shaped head d, for the purposes herein set forth.

2. The tongue or pallet G, in combination with the trough, bow, and hanger, for the purposes herein set forth.

176,980. MEMBERS OF MAKING TEA AND COFFEE. Jonathan Miller, Elmira, N. Y. [Filed Mar. 13, 1876.]

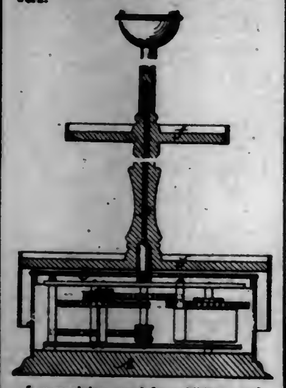
Brief.—The coffee or tea is placed in an infusing or unyielding chamber, perforated at top and bottom, and water filtered through it.



The herein-described method of making coffee and other decoctions from the ground or loose material, by filling a tight and unyielding chamber full of the said material and then passing the water through the same, whereby the expansion of the grains is utilized to close the interstices between the same and compel the water to pass through the pores, the pressure also preventing the grains from rising up in the water-chamber, substantially as described.

176,981. REVOLVING SHOW-STANDS. H. R. Morrison, New York, N. Y. [Filed Oct. 22, 1875.]

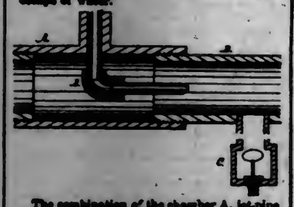
Brief.—The show frame or stand rests loosely on a spindle, which is rotated by clockwork.



In a revolving stand for exhibiting goods, the combination, with a clock-work or other mechanism, and a spindle rotated thereby, of a removable stand provided with a hollow shaft, supported loosely upon and rotated by friction of said spindle, substantially as and for the purpose herein described.

176,982. APPARATUS FOR INCREASING THE PRESSURE OF GAS IN PIPES. C. A. Murray, Pittsburg, Pa. [Filed Jan. 24, 1876.]

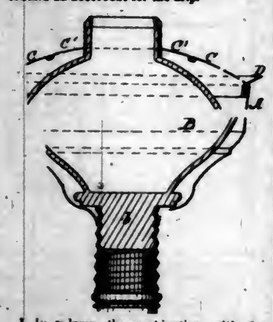
Brief.—Pressure of gas is increased by a jet of steam. An automatic drain allows the escape of water.



The combination of the chamber A, jet-pipe B, and automatic drain-valve C with the gas-pipe D, substantially as herein described, and for the purpose set forth.

176,983. LAMPS. Stephn. S. Newton, Binghamton, N. Y. [Filed Apr. 3, 1876.]

Brief.—A case to surround the lamp and contain an absorbent for the drip.

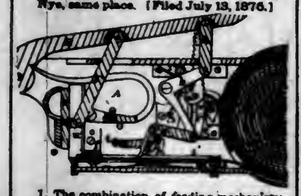


1. In a lamp, the combination, with the body or oil-receptacle, of an inclosing case or shell, having a perforated removable top or plate, substantially as set forth.

2. The combination, with the body B, of the shell A, the plate C, and the flange D, substantially as set forth.

3. The combination, in a lamp, of a body or oil-receptacle, a shell which surrounds the body, and a non-conducting ring or collar arranged between the neck of the lamp and the top or upper plate of the shell, substantially as set forth.

176,984. CONDUCTORS' PUNCHES AND REGISTERS. Chas. H. Nye and Henry B. Fessel, Cincinnati, Ohio, assignors to Henry Nye, same place. [Filed July 13, 1876.]



1. The combination of feeding mechanism, composed of guides *s* and *s'*, carriage A, slide *m*, and dog *c*, when operated in the manner described.

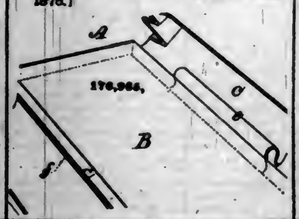
2. In a conductor's punch, the combination of cutting mechanism, composed of movable blade D, sliding between guides in the sides A and A', lower shear-blade formed upon the forward end of slide *s*, pitman F, stud-pin *w*, and lever B, as shown and described.

3. The combination of ratchet-arm *p*, pawls *s* and *s'*, spring *v*, and guides *r* and *r'*, for regulating the stroke of the lever B, substantially as shown and described.

4. The pivoted hammer-lever *x*, with the spring *o'* and the slide *q*, having the incline *o'* and spring *q'*, all arranged to operate substantially as described.

5. The registering and canceling punch above described, composed of mechanism for feeding paper from a coil, severing coupons from the same, regulating the stroke of lever B for sounding a signal as each coupon is severed, and for canceling the tickets, the whole constructed substantially as described.

176,985. TOURISTS' TABLETS. F. G. Odenheimer, Philadelphia, Pa. [Filed Jan. 22, 1876.]

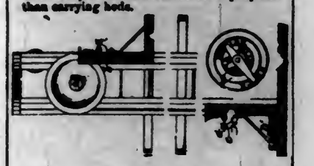


1. As a new article of manufacture, a tourist-tablet, consisting of the pocket-case A, stiff backing *f*, and the detachable tablet B, secured to a false back, which is itself fastened to the central fold of the pocket-case, substantially as described.

2. In combination, the tablet B, having false bottom or backing C, the casing having eyeleted stiffened backs *f*, and the detachable rivets or fasteners *t*, substantially as specified.

176,986. ELEVATORS. Thomas O'Hagan, New York, N. Y. [Filed Apr. 12, 1876.]

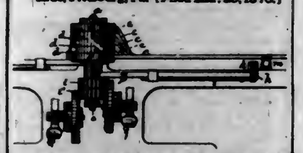
Brief.—The index is to be used for indicating what is required to be sent up, whether brick, mortar, &c. The bed-rack is hinged, so that it may be dropped down out of the way when the platform is used for other purposes than carrying beds.



1. The combination, with the platform of a portable elevator, of an index of the character herein described, for the purpose specified.

2. The combination, with the platform of a portable elevator, of a hinged bed-rack, constructed and arranged to operate substantially as described.

176,987. MUSIC-LEAF TURNERS. L. Oldshue, Pittsburg, Pa. [Filed Mar. 20, 1876.]



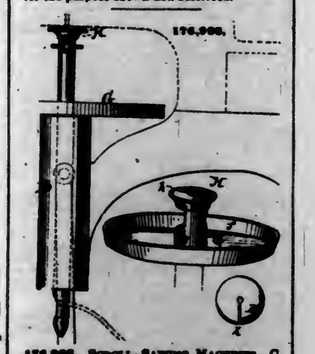
1. In a music-leaf turner, the combination of the following elements, viz: a series of wires projecting from a series of disks, having opposite the wires overlapping lugs; a semi-rotating arm, provided with a spring-finger to yield one way, and be rigid the other; gearing to give motion to the wires, and a recovery-spring to make the return automatic, all constructed and arranged substantially as described.

2. The duplicate combination of the semi-rotating arm, spring-finger, gearing, and recovery-spring, substantially as and for the purpose specified.

3. The combination of the guide *h*, spring-finger *h*, and the arm B, substantially as and for the purpose shown and described.

176,988. SCROLL-SAWING MACHINES. C. H. Otey, Brooklyn, N. Y. [Filed Oct. 6, 1875.]

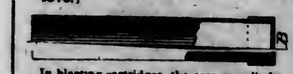
Brief.—The sawdust is collected and prevented from clogging the machine, or absorbing the oil used in lubricating, by means of a metal pan formed with a central collar and



peripheral rim, and fitting loosely upon the lower saw-guide, and a radially-slotted cap, provided with a downwardly-extending rim, and fitting closely on the upper end of the lower spindle.

The combination of the cap H, the pan G, and the saw-spindle, substantially as herein described.

176,989. BLASTING-CARTRIDGES. Paul A. Oliver, Wilkesbarre, Pa. [Filed Mar. 6, 1876.]



In blasting-cartridges, the case or cylinder A, provided at its lower end with a rubber cap, B, fastened thereto, substantially as herein set forth.

176,990. PORTABLE FENCES. John M. Overpeck, Greenbush, Ohio. [Filed Oct. 4, 1875.]

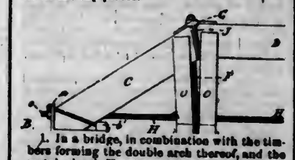
Brief.—At the end of each panel two vertical posts and two lateral inclined braces are grasped by one ring, and a wedge is driven between the posts.



The combination of the two fence-sections or panels A A, the inclined braces B B, connected by the notched bars C, the twisted wire loop D, and the wedge *e* inserted between the posts of the fence-sections, as set forth.

176,991. BRIDGES. C. S. Palmer, Stroudsburg, Pa. [Filed Feb. 10 1876.]

Brief.—The bridge is provided with metal shoes, caps, and joints, so arranged that any one piece of the timbers forming the arches can be removed and replaced by new ones without interfering with the use of the bridge. The shoes are provided with lugs and tie-rods to take the extra strain. The cap pieces have depending arms, between which and the timbers of the bridge wedges of metal may be fitted, having their apexes turned at an angle to fit the cap-pieces.



1. In a bridge, in combination with the timbers forming the double arch thereof, and the metal chord H tying their base, the metal shoe or seat B, provided with lugs *b b'* and tie-rods *c* and *c'*, cap and joint G, and wedge or key J, constructed, applied, and operating substantially as herein shown and set forth.

2. The metal shoe B, provided with lugs *b b'* and tie-rods *c* and *c'*, substantially as herein shown and set forth.

3. The metal cap or joint G, provided with two depending arms, *g g'*, shaped and formed substantially as herein shown and set forth.

4. The wedge J, shaped as shown, its apex being turned at an angle, substantially as herein shown and set forth.

176,992. COOKING-STOVES. George N. Palmer, Elmira, N. Y., assignor to Susan M. Palmer, same place. [Filed Feb. 19, 1876.]

1. The combination, with the three sets of boiling-holes C C' C', on different levels, of the fire-box F, the horizontal and ascending flues surrounding the oven, and a damper, *b*, for regulating the flow of gases in said flues, substantially as set forth.

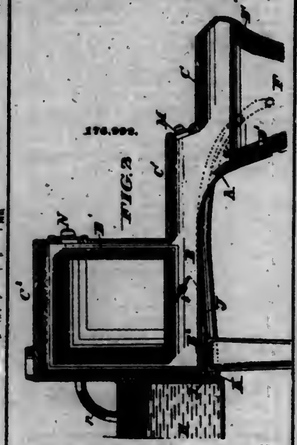
2. The combination, with the fire-pot F, of the heating jacket F' surrounding said fire-pot, provided with a rear induction, *f*, near its lower part, and discharge apertures *a* guarded by a damper, A, at top, all as herein shown and described.

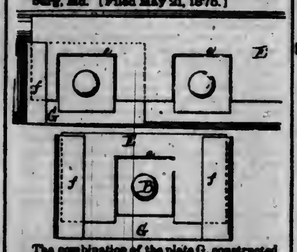
3. The combination, with the fire-box F, of the two dampers A and M, for admitting currents of air to the combustion-chamber in opposite directions, as and for the purposes set forth.

4. The combination of the horizontal flue B F', vertical flue B', and dampers *b* and N, for regulating the draft around the oven, as explained.

5. The combination of the reservoir R, applied at the rear of the oven-flue, the heater L at the end of the fire-box, and the circulation-pipes J K, substantially as and for the purpose set forth.

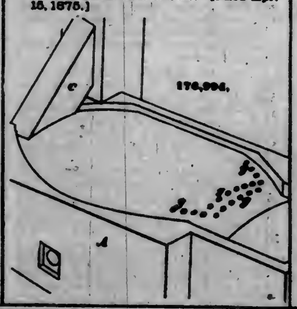
176,993. NUT-LOCKS. Alex. Paul, Meyersdale, Pa., assignor to Thos. H. Paul, Frostburg, Md. [Filed May 21, 1875.]





The combination of the plate G, constructed with the end flanges *f*, with the plate E, constructed with notches *e*, to fit the nuts confining the rail-sections together, and having its ends overlapped by the flanges *f* on the plate G, as shown and described.

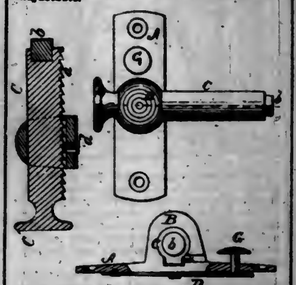
176,994. REVERBERATORY FURNACES. R. Pearce, Black Hawk, Colo. [Filed Apr. 18, 1876.]



The furnace A, having the roof perforated with openings *g g* over and behind the bridge-wall, and arranged along the sides, substantially as and for the purpose described.

176,995. SAND-HOLDERS FOR USE IN CARRIAGES, &c. Norman Platt, Bridgeport, Conn., assignor of one-half his right to White Manufacturing Company, same place. [Filed Mar. 11, 1876.]

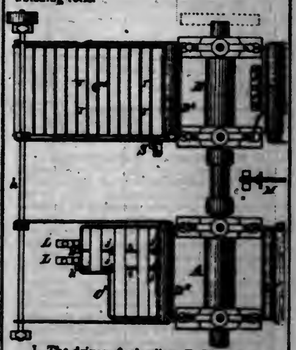
Brief.—Ratcheted teeth on the under surface, combined with a spring-plate, knob, and detent, making the sliding bolt or stop readily adjustable.



The sliding bolt or stop C, having toothed or ratcheted under surface *a*, and with or without rubber bumper *b*, the bed plate A, provided with perforated head B, and the spring-plate D, having button or knob O and spring-bolt *d*, all substantially as shown and described; and for the purposes herein set forth.

176,996. ROLLING-MILL APPARATUS. John M. Price, Syracuse, and William Lewis, New York, N. Y. [Filed Mar. 1, 1876.]

Brief.—The dogs specified in the third claim are for the purpose of automatically moving the pile or billet laterally on the rollers of the platforms to the right position for entering the next pass. A device is employed for receiving the pile or billet as it emerges from the last pass of the roughing-rolls, and transferring the same to the platform of the finishing-rolls.



1. The driven feed-rollers D D', operating on the top of the billet, pile, or ingot, in combination with the supporting-rollers in the platforms, when constructed and operating substantially as and for the purposes set forth.

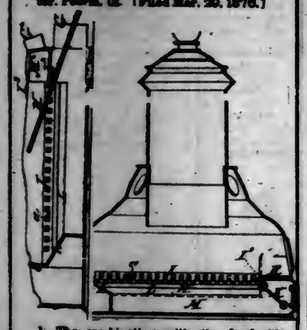
2. The swinging feed-rollers D D' D' D' and the platforms C C' C' C', as connected by the levers *g* and rods *e f*, or similar mechanism, that when each of the platforms receives the billet, pile, or ingot from the rolls the feed-roller shall be raised up out of the way, and when moved to position for entering the rolls the feed-roller is made to bear on top of the piece and feed it to the rolls, substantially as described.

3. The dogs *j j j j* and *r r r r*, operated by the moving platforms C' C' and standing-pieces L L and *i*, in combination, as set forth.

4. The receiving and transferring arms M M, in combination with the two sets of rolls A A and B B, as and for the purposes described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

176,997. STOVE-GRATES. David C. Proctor, Peoria, Ill. [Filed Mar. 20, 1876.]



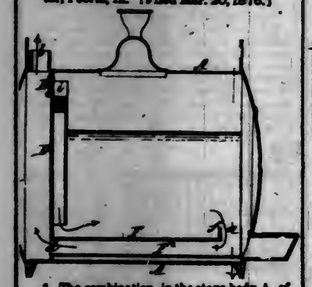
1. The combination, with the fixed side grates I I, of the longitudinally-reciprocating middle section H, substantially as described.

2. A longitudinally-shaking grate, H, in combination with the grate-way beneath the fixed grate-plates, whereby the grate may be wholly or partially withdrawn and dumped through the front door.

3. The combination, with the opening F, of the longitudinally shaking and tilting grate H, whereby the grate may be both shaken and dumped to discharge the cinders through said opening.

4. The combination, with the opening F and the longitudinally-shaking and dumping grate H, of the removable cover R, as herein set forth.

176,998. HEATING-STOVES. David C. Proctor, Peoria, Ill. [Filed Mar. 20, 1876.]



1. The combination, in the stove-body A, of the diaphragm D, provided with an opening in the bottom, with the floor F, cleaned at its rear and sides, and extending nearly to the front of the stove, and forming, in conjunction with the bottom of the stove, a passage or flue beneath the fire-chamber, extending from front to rear of the body of the stove, substantially as set forth.

2. The combination, in the stove-body A, of the diaphragm D, provided with openings in the top and bottom, the former closed by means of adjustable valve B of the floor F, closed at its rear and sides, and extending nearly to the front of the stove, and forming, in conjunction with the bottom of the stove, a passage or bottom flue, extending from front to rear of the stove, substantially as set forth.

3. The combination, with the stove-body A, of the floor F, said floor being closed except at the front, and forming, in connection with the body of the stove, a flue passing lengthwise of the stove beneath the fire, and communicating at the rear, through the rear chamber, with the stove-pipe b, substantially as set forth.

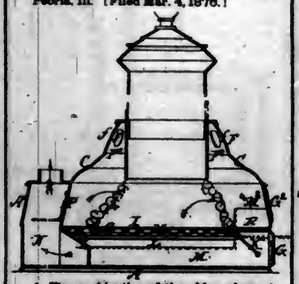
4. In a stove, the floor F, arranged within the body and above the bottom thereof, having its rear and sides joined with the walls of the stove, and its front edge provided with a raised ledge or guard, f, substantially as set forth.

5. The combination, in a wood-burning stove, having a bottom, F, closed, except at the front end a of a rear end flue, I, communicating with the fire-chamber at its rear end only, and terminating near said closed floor, for the purpose set forth.

6. The combination, with the stove-body A, divided into a smoke-draft chamber and a fire-chamber, and provided with a floor or fire-bed, said fire-chamber communicating with the smoke-flue through a free passage beneath the bed from front to rear, of a draft-pipe, I, arranged to descend into the interior of the stove at a point opposite to the entrance of the diving-flue, substantially as set forth.

7. The combination, in the stove-body A, divided into a smoke-draft and a fire chamber by a transverse partition, provided with openings in the top and bottom, the upper one being closed with an adjustable valve, and a horizontal floor or fire-bed, forming, in conjunction with the bottom of the stove, a longitudinal flue beneath the fire-bed, communicating at the forward end with the fire-chamber, and at the rear with the smoke-draft chamber, of a vertical draft-pipe, communicating at the top with the outer air, closed with an adjustable slide or slides, and having its lower end descending to a point within a short distance of the fire-bed, substantially as set forth.

176,999. COAL-STOVES. David C. Proctor, Peoria, Ill. [Filed Mar. 4, 1876.]



1. The combination of the oblong base A, provided with a grate of fixed and movable sections, of length and width equal to the base, with the top C, base F, and the magazine B, constructed and arranged substantially as herein set forth.

2. The base F, secured upon the top C, and serving as a support for the barrel or magazine B, said base F being made of greater diameter than the magazine, and having between it and the magazine the space P', and provided with the window-lights f, and combined with the oblong broad grate H I I, substantially as and for the purpose set forth.

3. The combination, with the base A, provided with an elevated longitudinally-reciprocating grate, H, and fixed side grates I, of the side base-flues M, immediately beneath the side grates, and having their diving ends M' above the plane of the grate, substantially as herein set forth.

4. The combination, with the front-side diving-flue M' and the rear direct-draft opening P, both arranged above the grate, with the magazine arranged between and above these direct and indirect draft openings, as herein set forth.

5. The combination, with a longitudinally-reciprocating grate, H, and the opening P in front of and in line therewith, of the front door G, as and for the purpose set forth.

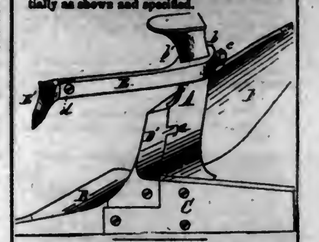
177,000. PLOWS. John P. Prutzman, Jos. B. Prutzman, and Jas. P. McIntyre, Three Rivers, Mich. [Filed Mar. 8, 1876.]

Brief.—The form of plow-standard and combination of parts.

1. In a side-draft plow, the combination, with the standard A, of the form substantially as shown, having the dovetail recess *a'* of the shin D', inclosing the front edge of the said standard, and cut inwardly to correspond with the face of the same, and having the leg *a*, all substantially as described and shown.

2. The combination, with the standard of a plow, of the arm E, having the legs *b b'*, which grasp the neck of the standard, and the set-screw *c*, setting against the said standard, constructed and arranged substantially as described and shown.

3. In a plow, the combination of the standard A, of the form substantially as described, of the point B, the land-side C, the mold-board D, and the shin D', when the several parts are constructed, arranged, and connected substantially as shown and specified.

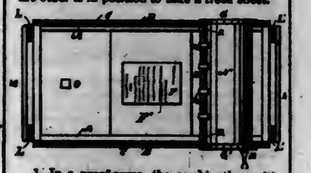


177,001. COMPOSITIONS FOR LIGHTING GAS. Joseph Radford, Philadelphia, Pa. [Filed Jan. 22, 1876.]

A composition consisting of pulverized anthracoal, wheat-flour, chlorate potash, and diluted vinegar or acetic acid, for the purpose herein set forth.

177,002. PRINTING-PRESSES. J. R. Rankin, Indianapolis, Ind. [Filed Nov. 19, 1875.]

Brief.—The catch-levers attached to the middle of each griper-rod strike the projecting studs located near each end of the bed as the cylinder rides over the guide-rails, and thereby force open the spring-gripers to release the sheet. As one set of gripers release, the other is in position to take a fresh sheet.



1. In a proof-press, the combination, with the cylinder N having the notched end flanges G G', of the guide-rails O, and the slotted journal-plates R R' supporting the griper-rods P P', said plates being located upon the cylinder in such a manner as to secure its free revolution without the interference of the griper-rods, substantially as herein described.

2. The combination, with the adjustable journal-plates R R' attached to the cylinder N substantially as described, and the griper-rods P P', provided with the fingers Q Q' and corresponding retaining-springs T T', of the lever V V' and the catches *v w*, whereby the griper-fingers are held from contact with the cylinder while the paper is being fed, substantially as herein described.

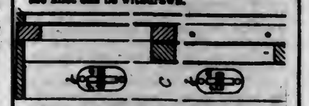
3. The combination, with the adjustable journal-plates R R' attached to the cylinder N substantially as described, and the griper-rods P P' having the fingers Q Q' and corresponding retaining-springs T T', of the levers V V' and stands O O', whereby the printed sheets are released from the griper-fingers during the revolution of the cylinder, substantially as herein before set forth.

177,003. COMPOUNDS FOR EMBALMING. H. Rothenstein, New York, N. Y. [Filed Feb. 14, 1876.]

A compound for making beverages consisting of caramel, sugar, Glauber's salt, tartaric acid, chloride of sodium, tincture of red pepper, extract of quassia, and water, substantially as described.

177,004. WINDOW-BLIND FASTENERS. Chas. Reichle and Theo. Krause, Saginaw City, Mich. [Filed Mar. 20, 1876.]

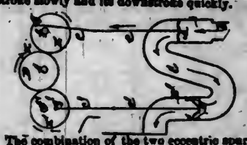
Brief.—The detachable strip or fillet is slotted, and provided with slotted metal plates, through which are passed edgewise suitable flat-headed thumb-screws, over which the fillet can be withdrawn.



The combination, with a window-frame, of the slotted strip or fillet C, slotted metal plates b, and flat-headed screws D, substantially as and for the purpose set forth.

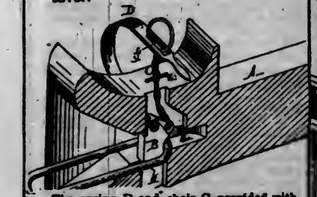
177,005. PUMPS. Edwin Reynolds, Providence, R. I. [Filed May 17, 1875.]

Brief.—Two eccentric gears, operating by crank-pins and pitmen the buckets of a double pump, are engaged and operated by an intermediate eccentric gear, in such a manner that each bucket commences its upstroke a little before the other ends it, and makes its upstroke slowly and its downstroke quickly.



The combination of the two eccentric spur-gears E E' with the intermediate spur-gear D, the wrist-pins *g g'*, and the two buckets of a double-acting pump, essentially as described.

177,006. CAR-COUPLINGS. Joseph A. Richard, Columbiaville, Mich. [Filed Mar. 18, 1876.]



The spring D and chain C, provided with the toggle *c*, in combination with the latch B, pivoted in the slot *b* of the draw-head A, substantially as and for the purpose set forth.

177,007. CULTIVATORS. A. Bigby, Upper Stillwater, Me. [Filed Mar. 11, 1876.]

Brief.—A harrow attached to an adjustable beam-cultivator.

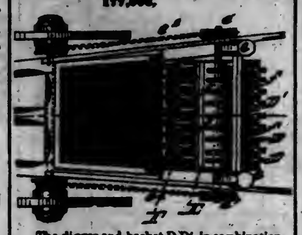


The combination, with the adjustable side beams of a gang-plow, of the hooked rods b A, harrow G, with elongated staple *i*, chain *k*, and round *a*, with its hook, substantially as and for the purposes herein set forth.

177,008. POTATO-DIGGERS. F. Simpler, Plymouth, Ind. [Filed Mar. 26, 1876.]

Brief.—The digging is accomplished by means of curved teeth, and the potatoes are pushed backward and upward by means of the forward movement of the machine, and deposited in a curved receptacle, where they are separated by a revolving cylinder with a series of curved fingers, and thrown into a box.

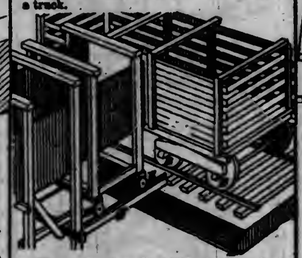
177,008.



The digger and basket D D', in combination with the toothed elevating-cylinder E, having the projections or chains *g g*, and vibrating apron or shaker F, substantially as and for the purpose set forth.

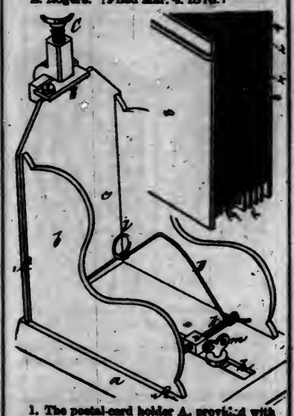
177,009. STOCK-CHUTES FOR RAILROAD-CARS. Robson Rogers, La Grange, Ky. [Filed Dec. 31, 1875.]

Brief.—The sliding section is mounted upon a truck.



The moving chute D, combined with a wheel truck or frame riding on rails, and with a stationary chute or platform and operating device, constructed and arranged substantially as described.

177,010. POSTAL-CARD FILES. George B. Rogers, Greenfield, and Albert D. Goodell, Miller's Falls, Mass., assignor to George B. Rogers. [Filed Mar. 4, 1876.]



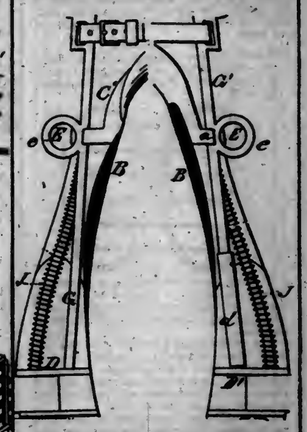
1. The postal-card holder A, provided with the adjustable sliding block *i*, carrying the spring B, substantially as described.

2. The postal-card holder consisting of the slotted base *a*, sides *b c*, adjustable sliding block *i*, carrying the spring B, and the panel C, substantially as described.

3. The base *a*, end and side pieces *c b*, with their slots *e*, and hooked projections *d*, locked together by the pin *f* passing through the projection *g*, substantially as described.

4. The combination of the index-cards or leaves *r*, cut away or perforated at their opposite edges, so as to form grooves or channels, with the binding-cord *g* and the auxiliary cord *s*, substantially as described.

177,011. HORSE-COLLARS. Adam Rutherford, Walla Walla, Wash. [Filed Mar. 4, 1876.]



1. A horse-collar composed of the metallic body A, pads B, and neck-piece C, with lip C', substantially as and for the purpose set forth.

2. The neck-piece C, having slot and corrugated bar or flange *e* at one end, and lip C', with corrugated flange, at the other end, substantially as and for the purpose set forth.

3. The combination of the body A with brace D, the pads B, neck-piece C, with lip C', and the rods G G', with connecting-clasp H, all as and for the purpose set forth.

4. The jointed rod G', with sleeve *d*, in combination with the body and neck-piece, as and for the purpose set forth.

5. The jointed adjusting-rods I, with spiral-spring *s* J and nuts *k*, in combination with the body and neck-piece, as and for the purpose set forth.

177,012. CURRY-COMBS. Cyrus W. Baldee, Washington, D. C., assignor to C. H. L. Holmes, New York, N. Y. [Filed Dec. 10, 1875.]

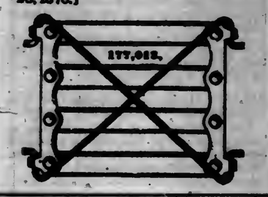
Brief.—A supplemental handle is placed diagonally across the back of the comb, the end near the side handle being raised higher than the other.



1. The combination, with the handle A of a curry-comb, of a diagonal hand-hold bow D, as and for the purpose herein set forth.

2. In a curry-comb, the diagonal bow D, having its end nearest the handle elevated higher than at the diagonally-opposite corner, as and for the purpose herein set forth.

177,013. CURRY-COMBS. Cyrus W. Baldee, Washington, D. C., assignor to C. H. L. Holmes, New York, N. Y. [Filed Feb. 26, 1876.]



A curry-comb provided with a grasping device, consisting of two metallic handles or braces, extending diagonally over the top of the comb, whereby to brace the latter, and affording additional grasp and support for the hand.

177,016. CURRY-COMB. OTTUS W. Sainsbe, Washington, D. C., assignor to C. H. L. Heinsen, New York, N. Y. [Filed Mar. 20, 1876.]

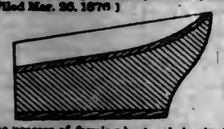


1. A curry-comb provided with a grasping device, consisting of two metallic bars or braces, extending over the back of the comb in a right-angle position to the teeth-bars of the same.

2. A curry-comb provided with two metallic bars or braces, A A, passing over the top of the comb in a right-angle position to the teeth of the same, and extended out over the side of the comb, as at A' A', substantially as and for the purpose set forth.

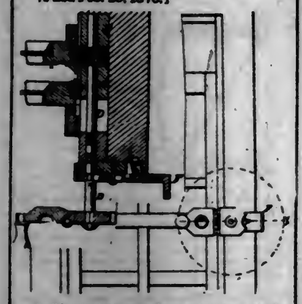
3. The side bars B, extended at both ends, and terminate in forming the overlying bars or braces A A, substantially as and for the purpose set forth.

177,016. HEELS FOR BOOTS AND SHOES. Jos. Simonds, Vineland, assignor of one-half his right to Mary Turnbull, Camden, N. J. [Filed Mar. 20, 1876.]



The process of forming heel and shoe heels by dissolving gutta-percha in benzine, adding to the solution about an equal weight of cotton, coal, resin, shellac, or other finely-divided body substances, allowing the benzine to evaporate, rolling the residue into sheets, and cutting out the heels by dies, substantially as specified.

177,016. SASH-BALANCES. Geo. B. Sarchet and George W. Dickinson, Charleston, Ill. [Filed Feb. 26, 1876.]

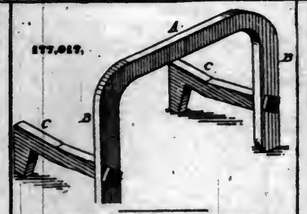


1. The endwise-moving and rotary shaft D, provided with the gear-wheel n, the blocks *d d'*, with their feathers fe ribs *n n*, and the annular grooves *s s s*, as and for the purpose set forth.

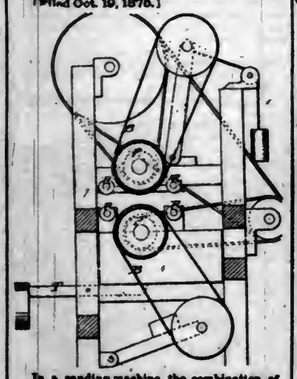
2. The shaft D, having annular grooves *s s s*, in combination with the sash and their rack-bars, and the locking-slide F and spring *e*, as and for the purpose specified.

177,017. ATTENUOUS. Crockett L. Saunders, Gogginsville, Va. [Filed Apr. 7, 1876.]

The combination of the front plate A, curved to form legs B B, with the adjustable curved plates C C, substantially as and for the purpose shown and described.



177,018. SAND-MACHINE. OTTUS SAWYER, Winchendon, and Augustus KNOWLTON and H. C. KNOWLTON, Gardner, Mass. [Filed Oct. 19, 1875.]



In a sanding-machine, the combination of the feed-rolls E E, located in fixed bearings, and the feed-rolls E' E', located in yielding bearings, with the pulley P located in fixed bearings, and supporting the sand-belt B, or with the pulleys P P' located, respectively, in fixed and yielding bearings, and supporting the belts B B', substantially as described, for the purposes specified.

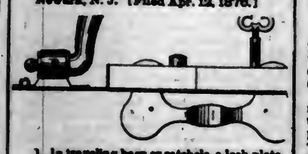
177,019. CORSETS. Louise Schmitt, New Orleans, La. [Filed Apr. 8, 1876.]



1. The combination of the gores C D E, constructed and arranged as set forth, for the purpose specified.

2. The combination of the gores C D E and braces F G H, arranged to operate as set forth, for the purpose designated.

177,020. TRAVELING-BAGS. Wm. Simon, Newark, N. J. [Filed Apr. 12, 1876.]

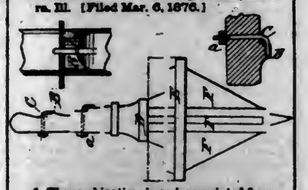


1. In traveling-bags or satchels, a lock-plate having secured to it the lock-fastening and ring-loops, substantially as shown.

2. The lock-plate *a*, having the recesses *i* formed in or on its surface to receive the ring-loops, substantially as described.

3. In combination with the plate *a*, a lock and a fastening device, all formed together in the manner described, and adapted to be fastened to the bag-frame, substantially as set forth.

177,021. FENCE-POSTS. Elijah Sims, Aurora, Ill. [Filed Mar. 6, 1876.]



1. The combination, in an iron-pointed fence-post, of the base-collar D and the driving radial ribs F with the disk E and the top ribs F', all constructed as and for the purpose herein set forth.

2. The post A, formed with recessed shoulders B, and provided with detachable L-formed saver-bolts C and nuts, substantially as and for the purpose set forth.

177,022. OYSTER-DREDGE APPARATUS. G. W. Sloan and Elwood Geisinger, Dividing Creek, N. J. [Filed Feb. 1, 1876.]

Brief.—Upon the dredge becoming obstructed, the recoil of the crank-shaft is prevented by the sliding of the shaft endwise, thus releasing the clutch, and allowing the spur or driving wheel to move freely on its shaft, while the shaft is held in place by the ratchet and pawl.



1. In an oyster-dredge winder, the crank-shaft D, arranged to slide lengthwise when a fast is cast, for the purpose set forth.

2. In combination with clutch F, gearing E *e*, and windlass C, the sliding shaft D, having a pin, L, and the loose encircling sleeve G, having the spiral or bevel slot *g*, substantially as and for the purpose set forth.

3. In combination with the shaft D, having pin L, and sleeve G, having slot *g*, the bracket H, ratchet I, and pawl *k*, substantially as shown and described.

4. The combination of standards A, drum C, pinion *e*, crank-shaft D, gear-wheel E, clutch F *c*, sleeve G, bracket H, ratchet I, pawl *k*, and pin L, the several parts being constructed and combined substantially as described.

177,023. WATER-CLOSET VALVES. Wm. Smith, San Francisco, Cal. [Filed Mar. 13, 1876.]

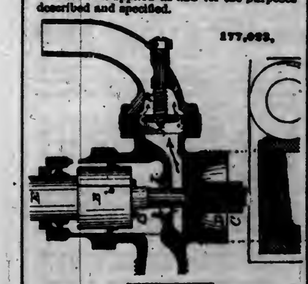
1. In a valve for water-closets, the relief-piston E attached to the water-valve B, and working within an air-tight chamber, constructed and operating substantially as described and specified.

2. In a valve for water-closets, the combination, with the spindle C, of the valve-seat I, the plunger B above the valve-seat, and the plunger D, of larger diameter, below such valve-seat, whereby the water is cut off by the pressure on the larger plunger without the use of a spring, substantially as described and shown.

3. The regulator M for reducing the area of the orifice of the outlet L of a water-closet valve, constructed and operating substantially as described and specified.

4. The chamber B, when combined with the valve and receiver of a water-closet, having an outlet through one end, and a flange for securing it to the side of the receiver, constructed and applied as and for the purposes described and specified.

177,024. BLASTING-CARTRIDGES. Friend W. Smith, Bridgeport, Conn., assignor to Paul A. Oliver, Wilkesbarre, Pa. [Filed Mar. 6, 1876.]



In a blasting-cartridge case, formed of paper or other similar material, the material being folded under at the bottom, a metallic fastening, which is passed through from the bottom and clinched on the inner side, as set forth.

177,025. COMBINED CANES AND STOOLS. John Smith, Conshohocken, Pa., assignor of one-half his right to George S. Yerkes, same place. [Filed Apr. 4, 1876.]



1. A combined convertible cane and stool, consisting of a staff, A, and seat B, said staff forming a single central support for the seat, substantially as described.

2. The seat B, having two sockets for the staff A, for alternate use when the device is employed as a cane and as a stool, substantially as described.

3. In combination with the cane or staff A, the sectional folding seat, substantially as described.

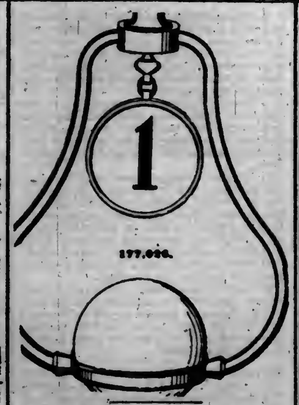
4. In combination with the staff A and seat B, the handle C, substantially as shown and described.

177,026. BILLIARD-BALL HOLDERS. Wm. B. Southworth, New York, N. Y., assignor to Hugh W. Callender, same place. [Filed Apr. 12, 1876.]

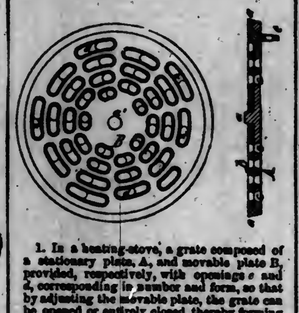
Brief.—For attachment to the gas-fixture immediately above the center of the table.

1. A ball-holder or receptacle constructed and adapted to be placed in a pendent position over the table, substantially as described.

2. The combination of a ball seat or retainer, and table number-plate, with a single supporting stem or device, substantially as described.



177,027. STOVE-GRATES. George H. Stanbury, Milwaukee, Wis., assignor of one-third his right to Hubbel & Brother, Buffalo, N. Y. [Filed Mar. 13, 1876.]



1. In a heating-stove, a grate composed of a stationary plate, A, and movable plate B, provided, respectively, with openings *c* and *d*, corresponding in number and form, so that by adjusting the movable plate, the grate can be opened or entirely closed, thereby forming a tight grate, which will retain all the ashes and coal, and enabling a wood fire to be kept a great length of time, substantially as herein set forth.

2. In a heating-stove, a grate composed of a stationary plate, A, and swinging plate B, provided, respectively, with corresponding concentric openings *c* and *d*, arranged and operating as herein before set forth.

3. In a heating-stove, the combination of the stationary grate-plate A, and swinging plate B, provided, respectively, with concentric openings *c* and *d*, arranged alternately in radial sets or rows, so that the openings of one set will be opposite the solid portions of the plate between the openings of the next adjacent sets, substantially as herein before set forth

177,028. BLAST APPARATUS FOR FURNACES. William A. Stephens, Succasunny Plains, N. J., assignor to Wm. Moller, New York, N. Y. [Filed Dec. 3, 1875.]

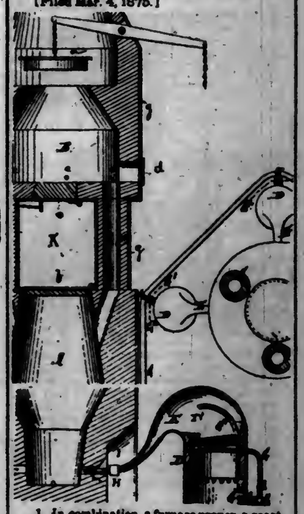
Brief.—The opening beneath the deflector is to permit the introduction of a flexible rod to test the temperature, or of a cleaning-rod.



1. In combination with the ducts H and J and deflector I, the opening M placed directly at the rear of the deflector and adapted to give access to the interior of the tuyere, substantially as and for the purposes described.

2. In combination, the blast-pipe G, the ducts H and J, and the deflector I, substantially as and for the purposes set forth.

177,029. PROCESSES AND APPARATUS FOR REDUCING IRON ORES. Wm. A. Stephens, Succasunny Plains, N. J., assignor to himself and Wm. Moller, New York, N. Y. [Filed Mar. 4, 1876.]



1. In combination, a furnace proper, a roasting-oven directly above the same, hollow supports connecting both, leaving an open space between the oven and the furnace proper, whereby a charge of roasted ore may be dropped directly from said oven into said furnace, substantially as described.

2. In combination with the furnace A, the heater D, with a reverberating combustion-chamber, a coiled blast-pipe, G', and the duct E, terminating in the tuyere H, substantially as and for the purposes set forth.

3. In combination, the roasting-oven B, connecting hollow supports C C, furnace A, the heaters D D', provided with the coiled blast-pipe G', and the duct E, substantially as and for the purposes set forth.

4. In reducing iron ores with anthracite coal and a hot blast, the process, substantially as described, consisting in first roasting the ore in successive charges in an oven, and then filling the furnace by dropping a charge of the same upon incandescent coal in the furnace, then supplying charges of limestone and coal in the furnace, then at intervals, as described, dropping new charges of roasted ore and supplying charges of limestone until the furnace is filled.

177,030. MACHINE-GUNS. James P. Taylor, Elizabethton, assignor of one-half his right to John Baxter, Knoxville, Tenn. [Filed Apr. 5, 1876.]

1. The combination of a series of cams carried by a through-shaft and a series of followers, bifurcated to pass the said shaft when operated by the cams, as explained.

2. The cam S, constructed with shoulders 12, in combination with the lock-carriers 15, and shoulders 13 14 acted on by the said cam S, in substantially the manner described.

3. The sliding lock-carrier 15, having a bifurcation to adapt it to pass the shaft, and a vertical slot for the passage of the operating cam in the manner described.

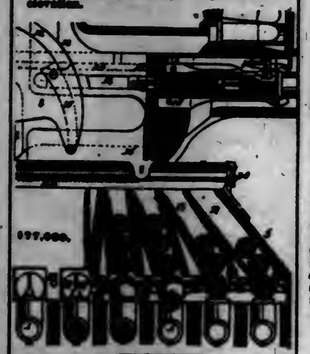
4. The combination of the operating cam, the lock-carrier, and the sliding lock or plunger, constructed, connected, and operated substantially as and for the purpose set forth.

5. The feeding-hopper 5, provided with the oscillating valves 47, in combination with the sliding lock or follower 9, and plate 35, for operating the said valves, in the manner substantially as described.

6. The combination of the firing-pin 17 and the removable slide 18, constructed and operating as described.

7. The hinged hopper-cap 36, in combination with the hopper 5 and slotted sliding plate 45, to receive and deliver the cartridges from a suitable case or box, in the manner substantially as set forth.

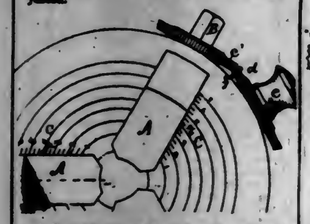
3. The catch H, employed in the manner described, to retain the cartridge within the breech-trough when the gun is pointed at an elevation.



197,660.

197,661. LATHE-CHUCK. D. E. Tierney, Forestville, Conn. [Filed Jan. 21, 1876.]

Brief.—The fulcrum on the extremity of the die-screw is eccentrical to, and for other adjustment than is possible by, that on the face of the chuck, and the gears on the side of the chuck are designed to lock the jaws in position after they shall have been adjusted.



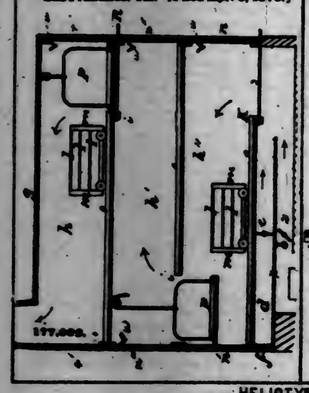
1. In a lathe-chuck two or more independent holding-jaws, two or more independent screws, each provided with an indicator, *h*, all operating together substantially as described, and for the purpose set forth.

2. In a lathe-chuck the indicator *c*, moving over graduation-marks on the face of the chuck, in combination with the jaw A, screw B, and indicator *h*, substantially as described.

3. In a lathe-chuck the combination of the indicator *h*, adjustable collar *f*, and screw B, substantially as described.

4. The locking mechanism *d d'* in combination with the screw B and jaw A, substantially as described.

197,662. FRUIT-DRIER. Oscar F. Tiffany, San Francisco, Cal. [Filed Apr. 3, 1876.]



197,662.

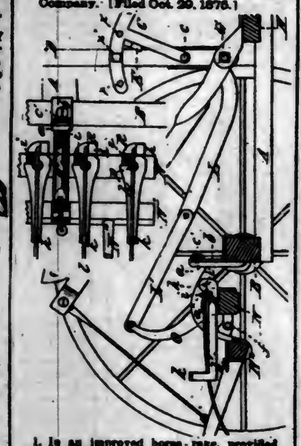
1. The combination, in a drier, of a furnace or heater *s* surrounding hot-air chamber, and a superposed fruit-air passage, the two latter adapted to conduct their contents to the drying-chamber in parallel lines, and to discharge them together into the drying-chamber after they are commingled.

2. The diaphragm *a*, having above it the opening *d* to the outer air and damper *c*, in combination with the hot-air chamber 1 and opening 2, provided with a damper, *b*, substantially as described, and for the purpose set forth.

3. In a fruit-drier, a series of horizontal drying-chambers, *h h' h''* arranged in different planes, provided with trunks *p q*, elevators *p p*, and doors *n*, *n'*, *n''*, *r*, and *r'*, communicating at alternate ends by means of hatchways *t t*, closed by movable hatches B B, in combination with a furnace, A, located below the lowest chamber, and a draft-stack above the upper chamber, as described.

4. The V-shaped cutting or roof *s* of a fruit-drying chamber, in combination with the longitudinal parallel gutters *t*, passing immediately beneath each angle of the roof, and the side gutters *u*, to conduct the water outside the drier, as set forth.

197,663. HORSE HAY-RAKE. Reuben Trembley, Chicopee Falls, Mass., assignor to the Belcher & Taylor Agricultural Tool Company. [Filed Oct. 20, 1875.]



1. In an improved horse-rake, provided with tooth-clearers, the combination of the following elements: the axle E, the slotted piece *b*, the piece *c*, having thereon the arm *c'*, with its lug, the rake-head N, hinged to the latter, and the clearer-beam N', all combined substantially as described.

2. In an improved horse-rake, the combination of the tooth *l* and the tooth-socket E, made in two parts, *h'* and E', both parts secured together and to the beam N by a screw, *e*, and provided with the lug *f* and the eye *h*, to secure the tooth properly in position, substantially as described.

3. In an improved horse-rake, the combination of the lever D, the adjustable piece C, having the foot-rest B thereon, the arm L, the link L', and the piece O, secured to the beam E, all substantially as herein set forth.

197,664. MAIL-BAG FASTENINGS. Emerson W. Trout, Reed City, Mich. [Filed Mar. 20, 1876.]



1. In a mail-bag, the combination of the two flaps, with plates F and L attached to the back of the bag, the staple I and the bars H H', all arranged as described, for the purpose set forth.

2. In combination with the two flaps, the sole-leather strips D D D and metal armor-plates D' D', as and for the purpose set forth.

197,665. CAR-COUPLINGS. Saml. D. Usher, Circleville, Ohio. [Filed Apr. 15, 1876.]



1. The combination, with the draw-head of a car, of the pivoted latch-bar, B, and pivoted locking plate or latch C, arranged and operating substantially as described.

2. The locking plate or latch C, secured to the pivoted latch-bar B, and provided with the projections *d c' f*, for locking said plate in position and sustaining the draft of the coupling-link, as described.

3. The pivoted latch-bar B and pivoted sliding locking plate or latch C, in combination with the bar or handle D, for withdrawing the latch, and permitting the latch-bar to be raised for releasing the latch, as described.

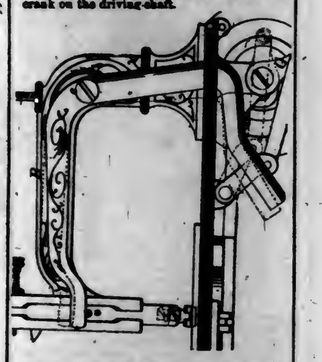
197,666. TAGS. Theophilus Von Kannel, Cincinnati, Ohio. [Filed Mar. 8, 1876.]

1. The herein described method of cutting tags without waste, consisting essentially in dividing a strip of stock of suitable width, upon a central curved or angular line of such conformation that the projecting head-lines of one series of tags extend into the recesses formed between the projecting head-lines of the other series, substantially as described.

2. A tag having the eyelet pierced through with a pointed instrument, and the burr thus produced flanged out and pressed down on the opposite side to re-enforce the eyelet, as herein described.

197,667. SEWING-MACHINES. A. H. Wagner, Chicago, Ill. [Filed Feb. 16, 1876.]

Brief.—The needle-arm, the lower end of which extends below the table, is vibrated by means of a sliding block attached to an arm or crank pivoted to the under side of the table, the block sliding in a groove in the lower end of the needle-arm, and the crank which carries the block having a vibratory reciprocation imparted to it by a link from a crank on the driving-shaft.



In a sewing-machine, the combination of a sliding block, which works longitudinally within a corresponding groove in the lower end of the vibrating arm, a crank-arm that is pivoted or journaled at one end to or upon the base-plate, that occupies a portion substantially at a right angle to the line of said vibrating arm, and has its lower end connected with said sliding block, and suitable mechanism for giving to said crank-arm a reciprocating motion, substantially as and for the purpose specified.

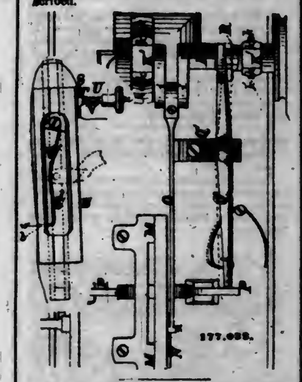
197,668. SEWING-MACHINES. A. H. Wagner, Chicago, Ill. [Filed Apr. 6, 1876.]

1. The take-up spring W *w*, constructed as shown, and arranged within the head B', in combination with the stud *d*, which bears upon its rear inclined side, and operates to withdraw the slack of the upper thread within said head, substantially as and for the purpose shown.

2. In combination with the lever Q, the ball-and-socket bearings P and Q', respectively, substantially as and for the purpose specified.

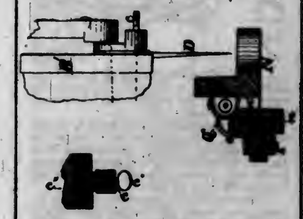
3. In combination with the shaft I, the fixed boxes K and K, provided each with jaws *h h*, and the detachable boxes K' and K', fitted within said jaws, and secured in place by means of the pins *b'* and *b''*, substantially as and for the purpose set forth.

4. In combination with the presser-bar C, working longitudinally within the vertical slot *b* of the bearing B', the screw F, passing downward through a threaded opening in said bearing, and the spiral spring E, attached at its upper end to said presser-bar, and at its lower end to the lower end of said screw, substantially as and for the purpose shown and described.



197,669.

197,669. SEWING-MACHINES. A. H. Wagner, Chicago, Ill. [Filed Apr. 10, 1876.]



1. In combination with the needle D and nosing B', having the vertical groove *h*, the head O, as described, fitted into and moving within said groove, and provided with suitable means for the attachment of said needle, substantially as and for the purpose specified.

2. The needle-head C, as described, provided with the combined screw-boss, journal *c*, set-screw *d*, and needle-opening *c''*, substantially as and for the purpose shown.

3. The shuttle-race N provided within one side with the T-shaped groove *a*, and within its upper side with a shuttle-groove, *a'*, and having at the lower side of the latter a longitudinal slot, *a''*, substantially as and for the purpose set forth.

4. The shuttle-carrier O fitted to or within the T-shaped groove *a* of the side of the race N, and provided with arms *o* and *o* which extend upward and into the groove *a'* of said race and engage with the ends of the shuttle Q, substantially as and for the purpose shown and described.

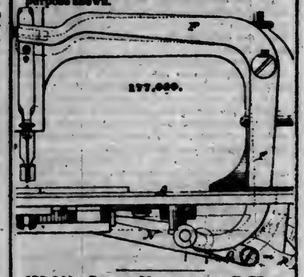
197,670. SEWING-MACHINES. A. H. Wagner, Chicago, Ill. [Filed Oct. 27, 1875.]

Brief.—Improvement on Patent No. 182,932. Invention consists in making the block which works in the vibrating needle-arm, and which is connected to the needle-bar, round instead of square, as shown in said patent.

1. In combination with the vibrating arm F, provided at its forward end with the longitudinal cylindrical opening *f f'*, and with the needle-bar C, having the horizontally-projecting stud *o*, the cylindrical block G fitted within said opening *f f'*, and provided with an opening, *g*, which receives and contains said stud, substantially as and for the purpose specified.

2. In combination with the shaft I, the fixed boxes K and K, provided each with jaws *h h*, and the detachable boxes K' and K', fitted within said jaws, and secured in place by means of the pins *b'* and *b''*, substantially as and for the purpose set forth.

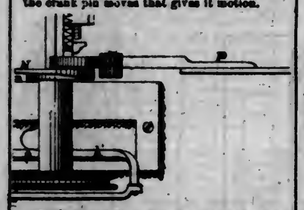
3. In combination with the vibrating arm F, and with the driving-shaft, provided with the crank M and crank-pin *m*, the arm M', secured upon said crank-pin by means of the screw *m'*, and provided with the threaded openings *p* and *p'*, the pin P, fitted to said openings, and the connecting-bar Q, pivoted to and extending between said pin P and said vibrating arm F, substantially as and for the purpose shown.



197,669.

197,671. SEWING-MACHINES. A. H. Wagner, Chicago, Ill. [Filed Apr. 6, 1876.]

Brief.—The needle-bar is operated by an angular arm pivoted in the head of the machine, and attached at its lower end to a horizontally-moving arm, sliding in a bearing, and having a cam-groove in its front end, in which the crank-pin moves that gives it motion.



The horizontally-moving bar P, pivoted at its rear end to or upon the lower end of the vibrating arm F, and provided at its forward end with the cam-groove P', in combination with the bearing-lug Q, provided with the disk *p*, and the pin or stud R', which is secured within the face of the disk N, substantially as and for the purpose herein set forth.

197,672. SEWING-MACHINE SHUTTLES. A. H. Wagner, Chicago, Ill. [Filed Feb. 1, 1876.]



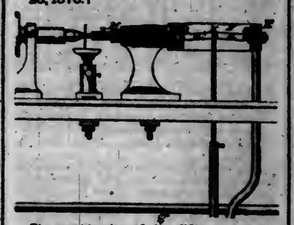
The hereinbefore-described shuttle A, provided within its outer and lower sides with the longitudinal openings or slots *a* and *a*, substantially as and for the purpose specified.

197,673. RAILROAD-RAIL BENDERS. Wm. J. Watkins, Mahanoy City, Pa., assignor of one-half his right to Daniel D Jones, same place. [Filed Apr. 1, 1876.]



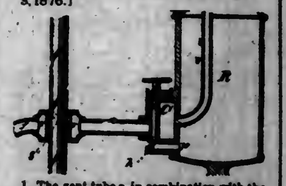
The within-described rail-bender, consisting of the blocks A bound with iron, as described, the curved fulcrum, and the bolts D, with hook D', and nuts G, substantially as and for the purposes herein set forth.

197,674. SEWING-LATHES. Ulrich Wagner, Cincinnati, Ohio, assignor to himself and Edwd. Kirby, same place. [Filed Jan. 28, 1876.]



The combination of the sliding center H, slotted sleeve E, knuckle-jointed lever *a a' a''*, rod *f*, treadle *d d' d''*, and weight *c*, substantially as and for the purpose specified.

197,675. FOUNTAIN-LAMPS. R. H. Webb, Brooklyn, assignor to himself and John R. Hill, Long Island City, N. Y. [Filed Mar. 3, 1876.]



1. The vent-tube *v*, in combination with the chamber C, the passage *p*, and reservoir R, substantially as and for the purpose herein described.

2. The valve *h*, in combination with the passage *p*, reservoir R, chamber C, and vent-tube *v*, substantially as and for the purpose herein described.

197,676. CAR-AXLE BOXES. William W. Whitaker, Gloversville, N. Y. [Filed Dec. 17, 1875.]



1. An axle-box provided with a divided hopper B, filled with waste or equivalent absorbent, arranged to afford a constant supply of lubricant to the axle by the operation of capillary attraction in such waste, substantially as specified.

2. The combination, in an axle-box, of a dividing-plate, C, oil-conducting bearing-plate E, and absorbent G, the capillary attraction in which latter operates to return the lubricant once used to the axle for reuse continuously, substantially as specified.

197,677. MACHINES FOR SURFACING HORSESHOE-NAILS. Job Whysall, Jr., and Chas. M. Merrick, New Brighton, Pa. [Filed Feb. 26, 1876.]

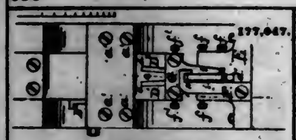
Brief.—A forked plate is bolted to the cutter-carrying slide. The forked ends of this plate properly position the blank upon the anvil before the cutters reach it.

1. In a shearing-machine, the slide B, having slots *d d*, and an intermediate stationary projection, *c*, to the opposite sides of which the detachable cutters D' D'' are clamped, whereby each cutter may be adjusted independently, as set forth.

2. The slide having slots *d d*, inclined toward each other, intersecting at the rear, with a stationary tongue, *c*, between, and adapted to receive independent detachable cutters D' D'', as set forth.

3. The combination, with the stationary die, of the stationary plate F and the forked plate G, secured to the slide, substantially as and for the purpose set forth.

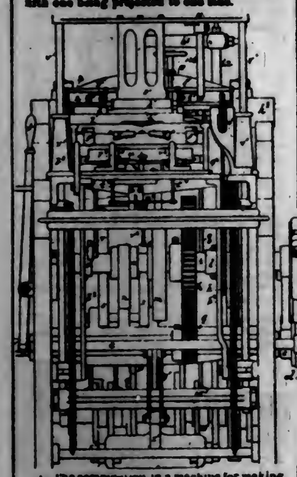
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.



177,647.

177,648. ENVELOPE-MACHINE. Horace J. Whitham, Hartford, Conn., assignor to Morgan Envelope Company, Springfield, Mass., and Plimpton Manufacturing Company, Hartford, Conn. [Filed Apr. 7, 1876.]

Brief.—The blanks are put into the machine end-flap forward, and are held by spring-fingers in the slotted posts. Paste is applied to the pasters by the rolls moving in opposite directions. The blank is pasted by the pasters, and carried forward by the intermittently-moving feeders to the printing devices, and from them to the folders, from which it is delivered to the drier. The envelopes are removed from the drier by reciprocating fingers, which carry them to the packer, every twenty-fifth one being projected to one side.



1. The combination, in a machine for making envelopes, of mechanism to gum and pick up, and mechanism to fold, envelope-blanks, with mechanism arranged between the gumming and folding mechanisms to stamp or print the face of the blanks prior to folding, and with an intermittingly-acting feed to take the blank lifted by the gummers and carry it to the stamping-dies, and when stamped, to carry it to the folding mechanism, substantially as described.

2. The hollow post, in combination with rod F and spring-separator, adapted to bear against the upper portion and edge of the blank, as set forth.

3. The envelope-blank-sustaining bed and hollow posts, in combination with separators arranged to move up and down within the posts, substantially as described.

4. The envelope-blank bed and back posts and separators, in combination with front posts and spring-separators, to keep the uppermost blank pressed against the back posts, to be acted upon by the gummers, substantially as described.

5. The gum-box and its roller b', and the gummers, arranged at each side thereof, as described, in combination with the independently-acting gumming-rollers, adapted to move simultaneously in opposite directions from the gum-box roller over the gummers, substantially as and for the purpose set forth.

6. The combination of the gum-box and its roller with the scraper and its adjusting-screws, and interposed pieces, substantially as described, whereby the scraper can be moved away from the roller, and be replaced without disturbing the screws, as set forth.

7. The gum-box roller and its journals, in combination with the sleeves F and disks f, substantially as described.

8. The gum-box f and its supplying chamber g', and roller h' and scraper, in combination with the bearings d', extended across the gum-box, and constructed to afford a passage-way for the circulation of the gum, substantially as described.

9. The seal and back flap gummers, and independently-actuated gumming-rollers, as described, in combination with the side-flap gummer, constructed as described, and its lever 143, and stop 147, to regulate the quantity of gum discharged, substantially as described.

10. The combination, with the feeding and envelope-blank supporting devices, of the cords, and a tension device to keep the cords taut, and hold the blanks down, substantially as set forth.

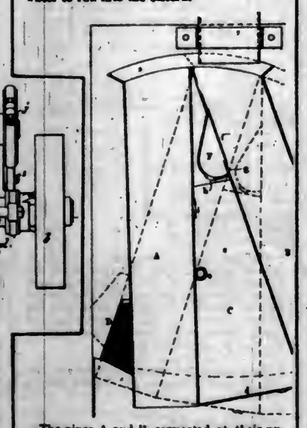
11. The combination of the support for the blank, and the die and cords 6 7, with the cord-lifter, substantially as described.

12. The combination, with the carrier that receives the folded envelopes, of a reciprocating jaw or picker, and devices to open and close it, to seize and draw the folded envelopes laterally from the machine.

13. The combination, with the reciprocating jaw or picker to draw the envelope from the carrier and plate 97, and its supporting-rod 96, of a ratchet-wheel and indicator 90, to move the plate 97, and project an envelope beyond the envelope next in advance of it, substantially as described.

177,649. CISTERN-FILTERS, &c. William B. Wilson, Louisville, Ky. [Filed Mar. 17, 1876.]

Brief.—After the roof has been cleansed, the spout automatically shifts, allowing the water to run into the cistern.



The pipes A and B, connected at their upper ends and diverging downwardly and separated by the receiver C, cap F, provided with apertures h and g, gauze f, and balance-chamber D, all hanging upon or pivoted to the bolt e, in combination with the stationary sleeve-spout G, substantially as and for the purpose set forth.

177,650. SOFA-CHAIRS OR LOUNGES. John B. Wood, Cranston, R. I. [Filed Jan. 19, 1876.]



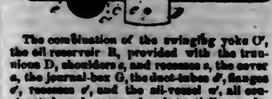
1. In a sofa-chair or lounge, the combination of the arm and head-rest, each capable of independent adjustment, substantially as described.

2. In a sofa-chair or lounge, the spiral spring E, the ratchet D, and the pawl F, in combination with the arm, substantially as and for the purpose set forth.

3. In a sofa-chair or lounge, the combination of the head-rest with the ratchet H and its pawl, substantially as and for the purpose set forth.

177,651. BURGLAR-ALARMS. W. D. Wright, Baltimore, Md. [Filed Mar. 17, 1876.]

Brief.—When the hammer is raised its arm or lever lies flat on the thin extension of the body, and both are together placed in the crack of a door or window. The opening of the door or window releases the hammer, and allows it to fall and explode the cap or cartridge.



1. In combination with body A, the hammer D, having tooth c, and removable lever G, substantially as and for the purposes specified.

2. The burglar-alarm herein described, consisting of body A, having slots C F, tapering blade B, pivoted hammer D, spring d, and removable lever G, all combined and arranged to operate substantially as and for the purposes shown and specified.

177,652. FOOTBALLS AND ROAD ENGINES. Bembd. Tock, West Belleville, Ill. [Filed Feb. 5, 1876.]

Brief.—Wheels are turned independently, and are provided with spring-calks projecting beyond the rim. Operated by cog and chain gear. Front guide-wheels worked by crank-shaft from rear.

1. The traction-wheels supplied with spring-calks a', working in their rims, and projected more or less by the plate-springs a², substantially as set forth.

2. The combination of the shaft F, wheels G H J K L, and gear-chain K', to cause the rotation of one or both of the wheels E E' on shaft F, but allow different speeds of rotation in the said wheels, by power applied to the loose wheel J, as set forth.

3. The combination of traction-wheels A A', chain-gear wheels C C' and E E', gear-chains D D', shaft F, spur-wheels G H J, chain-wheels K L, and chain K, substantially as set forth.

4. The longitudinally-extended steam-drum T connected to steam-boxes b b, at different parts of the boiler-top, substantially as set forth, and combined with the steam-pipe X opening into the steam-drum at or near the midlength of the latter, substantially as and for the purpose set forth.

5. The guiding mechanism, consisting of horizontal shaft j, provided with worm i, gear-wheel k, vertical shaft g, cross-bar f, rods o o, and axle a as set forth.

177,653. BEARINGS FOR SHAFTING. Moses H. Boyden, Chicopee Falls, Mass. [Filed May 10, 1876.]
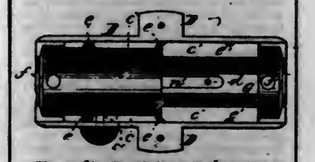


The combination of the swinging yoke C', the oil reservoir B, provided with the trunnions D, shoulders c, and recesses a, the cover a, the journal-box G, the duct-tubes d', flanges d', recesses e', and the oil-vessel a', all constructed and arranged substantially as described.

177,654. TIME ATTACHMENTS FOR LOCKS. Henry Grom, Cincinnati, Ohio, assignor to the Halle Safe and Lock Company, same place. [Filed Mar. 16, 1876.]

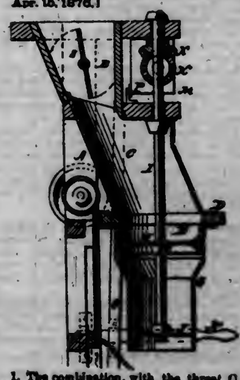
Brief.—A time attachment is so connected to a lock as that, while the gravitating hooked arm by which the bolt is thrown is prevented by the clock, the angle-bar or tumbler-dog is left free to operate in the ordinary way, so that the tumblers can be set in the combination, and the ordinary motion to open the lock proceeded with, without the engagement of the hooks necessary to throw the bolt.



In combination with the time-trigger G, the hooked arm F f, notched angle-bar or dog E e', and hooked arm D b b', connected and operating in the manner substantially as and for the purpose specified.

REISSUES.

7,666. FLOUR-PACKERS. Herman A. Bernard, Moline, Ill., assignor to the Bernard & Lane Manufacturing Company. Patent No. 173,662, dated Feb. 22, 1876. [Filed Apr. 15, 1876.]



1. The combination, with the throat C, of the stationary and detachable packing-chambers B C, each provided with a packing-screw, as shown, and for the purposes set forth.

2. The combination of the spring a with the sliding bar M, fulcrum-lever P, rod O, and hand-lever N, substantially as and for the purposes herein set forth.

7,667. PAPER AND TWINE HOLDERS. Benjamin F. Eaton, Albany, N. Y. Patent No. 169,202, dated Dec. 30, 1874. [Filed Mar. 20, 1876.]

Brief.—The frame is provided with two cylinders, one above another, and parallel to each other, each to receive and hold a web or roll of wrapping-paper, the end of which is drawn out through a slot in its cylinder, and over an elastic tape-plate, on which it is clamped by a turning-bolt, to maintain a straight-edged severance from the web.



7,667.

1. A case for holding a roll of paper, provided with an opening through which the paper is drawn, in combination with a rest and a swinging knife against which the paper is torn, substantially as set forth.

2. The rest c, for the paper, having a notch at c', in combination with the tearing-knife and holder for a roll of paper, substantially as set forth.

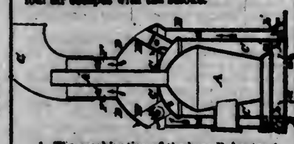
3. The rest c, for the paper, projecting from one side of the paper-holder, and having a notch, c', to facilitate the grasping of the paper, in combination with the tearing-knife v and its button-head 16, substantially as set forth.

4. The removable case for holding a roll of wrapping-paper, combined with a frame having ledges or flanges upon which such case rests, and a turning-knife supported by such frame, and against which the paper is torn, substantially as set forth.

5. The rest c, for the paper, covered with a strip of rubber or yielding material, and the swinging knife, arranged in relation to the removable paper-holding case, substantially as set forth.

7,668. RAILROAD-CAR HEATERS AND VENTILATORS. Chas. F. Wheef, St. Louis, Mo. Patent No. 128,062, dated Apr. 23, 1872. Filed Feb. 7, 1876.)

Brief.—The outer casing is perforated near its base for the purpose of ventilation, and the foul air escapes with the smoke.



1. The combination of the base B, heater A, and casing C, the base having the central opening a communicating with the outer air, and with the chamber formed between the heater A and casing C, this chamber being provided with apertures discharging into the car and into the ventilating shaft or chamber, the discharge being regulated and controlled by dampers, as described.

2. The combination of the base B, provided with openings d', with the chamber between the casings C and D, and the ventilator-shaft, by which means impure air is drawn from the room and discharged into the open air, as described.

3. The combination of the base B, rims b b', openings a a, orifices d' d', &c., casings C and H, tubes or pipes B B, dampers e e, ventilating-shaft F, when arranged to operate as and for the purposes set forth.

4. The combination of a heater or furnace, a hot-air chamber, and a ventilating-chamber, the two latter being in the vicinity at the level of the body of the former, and heated thereby, and the hot-air chamber receiving pure air from without the apartment, or building and delivering it, after being heated, into the apartment or building, and the ventilating-chamber receiving the foul or cooler air from the apartment or building, and delivering it outside the apartment or building.

5. The combination of a heater, a hot-air chamber, and a ventilating-chamber, the hot-air chamber delivering pure warm air into an apartment at a level above the lower part of the apartment, and the ventilating-chamber receiving impure or cooler air from the lower part of the apartment and delivering it outside the apartment.

6. The method, herein described, of heating an apartment evenly and rapidly by delivering hot air into the upper part of the apartment, and withdrawing the cooler air from the lower part of the apartment by means of a heater heating outside chambers and generating air currents therein, and which are, respectively, delivered and withdrawn in the directions named.

7. The combination of a heater and a ventilating-chamber, the latter being in the immediate vicinity, and at the level of the body of the heater, and warmed thereby, causing an ascending air-current therein for the purpose of ventilation.

8. The combination of a hot-air chamber and a ventilating-chamber, arranged at or about the same level, the latter being warmed, and an ascending air-current caused therein by heat given out by the former.

9. The combination of the heater A, ventilating-shaft F, ventilating-chamber d, and pipe A', substantially as described.

10. The combination of a central heater, A, an annular hot-air chamber, and an outer ventilating-chamber, d, substantially as described.

11. The method herein described for heating and ventilating an apartment or building by delivering a current of pure warm air into the apartment or building, and by withdrawing a current of foul and cooler air from the apartment or building, said air-currents being induced and directed by means of a heater heating chambers in the vicinity and at the level of the body of the heater, and inducing ascending currents therein, and, respectively, in the directions described.

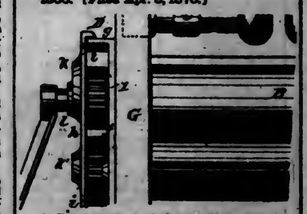
12. The combination of a heater, hot-air chamber, and ventilating chamber or shaft, substantially as described, and suitable dampers and openings, by which the hot air can be delivered into the apartment or building being warmed, or, if desired, into the ventilating chamber or shaft, substantially as and for the purpose set forth.

7,669. ROPE TRACES. Thomas Nourse, New Orleans, La., assignor of one-half interest to James W. Brouraise. Patent No. 76,757, dated June 9, 1868. [Filed Mar. 20, 1876.]



A rope trace for harness, provided with metallic clips, and having a chain, D, secured to the rear clip, whereby the rope trace can be more conveniently attached to the whiffle-tree, substantially as described.

7,670. CLOTHES-WRINGERS. Jacob Bobsherzell, Auburn, N. Y., assignee of Ann E. Nash, administratrix of Hiram Nash, deceased. Patent No. 56,009, dated Oct. 9, 1866. [Filed Apr. 8, 1876.]



1. The combination of the inclosing-case D, made up of the plate f and cover h, and provided with the eccentric bearing k k and the set of gearing 1 2 3 4, arranged as described, the whole used in connection with rollers B E, substantially in the manner and for the purpose specified.

2. In a wringing-machine, a driving-pinion of smaller size than the gears on the ends of the rollers, and suitable connecting mechanism for imparting motion to the rolls, in combination with a supporting-frame having a clamping device and squeezing-rollers, for the purpose set forth.

7,671. LANTERNS. James A. Cowles, Chicago, Ill., assignee of one-half interest to Harlan B. Goodrich, same place. Patent No. 40,922, dated May 31, 1864. [Filed Apr. 6, 1876.]



1. In a lantern provided with a hood to prevent a descending current of air from entering the globe, the perforated diaphragm K, arranged between the globe and the oil-pot, substantially as and for the purpose specified.

2. The combination, with the bead F of a lantern, of the perforated diaphragm L, globe B, and perforated diaphragm K, substantially as specified.

3. The combination, with the perforated diaphragm K, of the perforated rims D and C, as and for the purpose specified.

4. In a lantern, the combination of the perforated diaphragm K, globe B, and hood F, substantially as and for the purpose specified.

5. In a lantern, the combination, with the oil-pot, of the perforated diaphragm K and globe B, as and for the purpose specified.

6. In combination with the perforated diaphragm K and globe B, the rim C, provided with the opening *d*, to admit of adjusting the wick, substantially as specified.

7. In a lantern, the combination of the perforated diaphragm K, globe B, hood F, and bail H, substantially as and for the purpose specified.

7,002. GRINDING AND AMALGAMATING PANS. C. Cunningham, Virginia City, Nev. Patent No. 168,621, dated Oct. 11, 1875. (Filed Apr. 7, 1876.)

Brief.—The shoes are connected with the muller by a hinge-joint placed between the shoes and muller. Shoes and dies are made thickest at the outer side, where the wear is greatest.

1. In an amalgamator, the combination, with the muller and die, of tapering shoes E, substantially as and for the purpose specified.

2. In an amalgamator, the combination, with the muller and shoes, of a hinged joint located between the same, and serving to connect the shoes to the muller in a self-adjustable manner, substantially as and for the purpose specified.

3. The combination, with the shoes of an amalgamator, of an extended hinged joint, provided with bolts for securing the same to the muller, substantially as and for the purpose set forth.

4. The combination, with the muller, of the shoe E, provided with the plate *a*, provided with ears *b*, shaft *c*, and threaded eye bolts *g*, substantially as and for the purposes specified.

7,003.



7,003. MACHINES FOR CROZING AND CHAMFERING BARRELS. John Greenwood, Rochester, N. Y. Patent No. 127,478, dated June 4, 1872. (Filed Jan. 24, 1876.)

Brief.—The crozes and chims at the ends of the staves can be formed by means of a pair of internally crozed and revolving clamps, for holding the barrel while being operated upon by suitable crozing and chamfering cutters; a pair of rotary pressure-pieces for regulating the depth of cut; a pair of springs which allow a thick stave to pass the gages; a pair of friction driving and supporting wheels; and suitable operating mechanism.

1. The disk-gage G, in combination with the cutter-head F and clamp C or C', operating substantially as set forth.

2. In combination with the revolving clamp C or C', the friction-wheels *g* and rollers *j* arranged to support said clamps, and one of which constitutes the driver, as and for the purposes set forth.

3. In combination with the disk-gages G G', the springs *p*, arranged to operate substantially as described.

4. The combination, with a revolving clamp, C C', of a supporting wheel or roller, *g*, giving motion to the clamp, and made longitudinally movable upon its shaft or bearing to adapt itself to the different positions of the clamp, as specified.

7,004. MACHINES FOR MAKING AND SETTING RIVET-STAPLES. Jeremiah Keith, Providence, R. I., assignor to H. G. Thompson, Milford, Conn. Patent No. 112,710, dated Mar. 4, 1871. (Filed Feb. 24, 1876.)

Brief.—The staple-blank is severed, bent, held, and guided for driving by a reciprocating bending-fork having a cutting-edge, and provided with internal longitudinal grooves.

1. In combination with the supporting-table *d*, the sliding and feeding carrier-plate *f*, the bender plate or fork *i*, provided with a cutting-edge, *c*, and the driving-rod *b'*, all combined and arranged to operate substantially as hereinbefore set forth.

2. In combination with the mechanism for cutting, forming, and driving the wire staples, the cutters *r*, whereby the wire is nicked, substantially in the manner and for the purpose herein before set forth.

3. In combination with the reciprocating bender-plate *i*, and driving-rod *b'*, the reciprocating bank *q*, whereby the wire is bent before the driver descends, substantially as hereinbefore set forth.

4. The reciprocating punch or bending-fork *i*, operating to sever the wire in its descent upon the former-bed, to bend the wire into a staple over a suitable mandrel or beak, *q*, and to carry the staple so formed forward into position to be driven, substantially as hereinbefore set forth.

5. The reciprocating punch or bending fork *i*, constructed with a cutting edge, and with internal longitudinal grooves, whereby a staple-blank is severed, bent around a suitable mandrel, and held and guided for driving, substantially as hereinbefore set forth.

6. The reciprocating punch or bending fork *i*, constructed with a longitudinal central opening, through or within which opening a hammer or staple-driving rod may operate, in combination with a cutting plate or die, substantially as hereinbefore set forth.

7. The reciprocating punch or bending fork *i*, constructed with a cutting-edge and a longitudinal central opening, through or within which opening a hammer or staple-driving rod may operate, in combination with a mandrel or beak, *q*, substantially as hereinbefore set forth.

8. The punch or bending fork *i*, the mandrel or beak *q*, and the staple-driving rod *b'*, operating in combination for purposes of severing a wire, of forming a staple therefrom, and of driving the same into or through the material without previous perforation, all substantially as hereinbefore set forth.

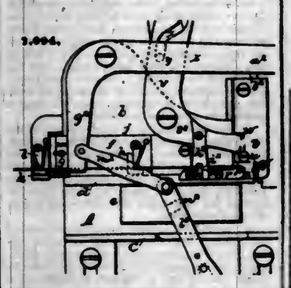
9. The combination of a bending and cutting punch or fork, with a hammer or driving-rod, whereby a staple is forced into or through the staple-receiving material, while the hammer rests on the head of the staple, substantially as hereinbefore set forth.

10. The former or bender plate *i*, so constructed that, as it descends with the staple, its bottom shall come in contact with and hold in position the material receiving the staple while the staple is being driven, substantially as hereinbefore set forth.

11. In combination with the feeding, cutting, bending, and driving mechanism hereinbefore described, the arm P and link *m'* for effecting the feed movement of a slat-rod, substantially as set forth.

12. In combination with the staple-forming and driving mechanism hereinbefore described, the die plate or cutter *r*, whereby both ends of the staple are pointed at any desired angle, substantially as set forth.

7,004.



7,005. SUPPLYING HEAVY HYDROCARBON OILS FOR ILLUMINATION. Rufus S. Merrill, Cambridge, Mass., assignor, by mesne assignments, to Wm. B. Merrill, Joshua Merrill, and Rufus S. Merrill. Patent No. 100,915, dated Mar. 15, 1870. (Filed Mar. 6, 1876.)

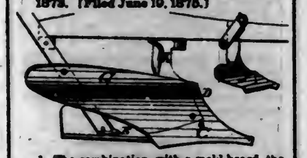
The burning, for illuminating purposes, and in the manner herein shown and set forth, of the herein described and referred-to latter products of distillation of coal, shale, and petroleum, known as heavy oil—that is to say, heating said oil, and drawing it up around the hollow or equivalently formed wick, and subjecting it, at the burning point, to an artificial draft of atmospheric air, both within and without the wick.

7,006. HEAVY HYDROCARBON OILS FOR ILLUMINATION. Rufus S. Merrill, Cambridge, Mass., assignor, by mesne assignments, to Wm. B. Merrill, Joshua Merrill, and Rufus S. Merrill. Patent No. 100,915, dated Mar. 15, 1870. (Filed Mar. 6, 1876.)

Brief.—The oil is manufactured by distilling "intermediate oil"—*i. e.*, the oil of from 300° to 450° Baumé, which comes over in fractional distillation—at a comparatively low temperature. This oil has a flashing-point of 200° Fahrenheit, and does not clog the lamp-wicks.

As an article of manufacture an illuminating-oil derived from petroleum, coal, shale, and cahist, emitting no inflammable vapor at a temperature of less than 200° Fahrenheit, as herein set forth.

7,007. PLOWS. James Oliver, South Bend, Ind. Patent No. 144,750, dated Nov. 18, 1873. (Filed June 10, 1876.)



1. The combination, with a mold-board, the upper edge of which is constructed to extend well forward the shank X of the standard, of a colter having the whole length of its rear edge seated directly against the front edge of the mold-board, and extending to the top and in line with the upper edge of the mold-board, substantially as and for the purpose described.

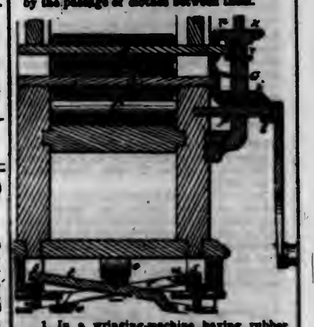
2. The standard B, extended forward, as shown at *a*, the mold-board and land-side extended forward even with the standard, together forming a uniformly-curved seat for the colter and plow-point, substantially as described.

3. The standard B, extended forward, as at *a*, provided with bearings for and conforming to the shape of the mold-board and land-side, and with an enlarged foot for supporting the plow-point C, substantially as described.

4. The slanting land-side E, sloping inward from its top to bottom edge, in combination with the plow-point C and colter D, the said colter and plow-point seated directly against the forward edge of the mold-board through its entire length, substantially as and for the purpose described.

7,008. CLOTHES-WRINGERS. N. B. White, South Dedham, Mass., assignor, by mesne assignments, to Jacob Brinkerhoff. Patent No. 94,013, dated Mar. 4, 1862; reissue No. 2,267, dated June 12, 1866. (Filed Mar. 21, 1876.)

Brief.—The operating gearing is organized and arranged to prevent a too rapid revolution of the rolls, and also to give both rolls a continuous motion when they are separated by the passage of clothes between them.



1. In a wringing-machine having rubber rolls, a pendent cog-wheel mounted upon an independent axis and connected, by gearing, with the cogs upon the ends of the roller-shafts, for the purpose set forth.

2. In a wringing-machine for wringing clothes, the gear K, having groove *r* and the gears *n*, *i*, and *m*, and shafts *b* and G, arranged substantially as described, in combination with rolls of india-rubber, as set forth.

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COMMISSIONER'S DECISIONS.

JOSEPH BARSALOUX.

[*In the matter of the application of Joseph Barsaloux, assignor, &c., for patent for* "IMPROVEMENT IN HEELS FOR BOOTS AND SHOES." *Decided May* 5, 1876.]

Where a patent has issued to joint inventors, and more than two years have elapsed since the issue of such patent and the filing by one of the joint inventors of a separate application for a patent, and claiming to be the sole inventor of the device claimed and described in the joint patent: *Held*, that the public use and sale of such invention by the joint patentee with the knowledge and consent of the alleged sole inventor, will preclude him from obtaining a patent upon his sole application.

DUELL, *Commissioner:*

This case comes before me upon request of applicant to suggest "a course of practice agreeable to law, and rules of practice in the Patent Office" applicable to this case.

The disposal of this matter involves questions of law rather than practice, and the course taken by the several parties interested in the invention described has complicated the proceedings before the Office. The facts admitted to exist are set forth in a communication from the attorney of Barsaloux, James, and Lyon, dated December 7, 1875, and are substantially as follows: On May 11, 1872, the parties above referred to filed their joint application for a patent for the same invention that is now applied for by Barsaloux as sole inventor. The oath required in such cases was taken by *each* of the aforesaid parties, and on July 9, 1872, the patent was issued to them, No. 128,843. In the fall of 1872 the patentees commenced the manufacture and sale of their patented article, and continued so to do until, as they allege, up to December 7, 1875.

Upon the 19th of November, 1875, Barsaloux files a separate application for the same invention that had been hitherto the subject of a joint patent to Barsaloux, Lyon, and James. An interference was declared between said application and the joint patent, and affidavits of each of the above parties filed affirming that Barsaloux was the sole inventor, and that the joint application above referred to was made in error and in ignorance of the law. The Examiner of Interferences decided the question of priority in favor of Barsaloux, the sole applicant.

Cases of somewhat analogous character have arisen in this Office, and I will call attention to three of them: The first, *De Lill* vs. *Avery & De Lill* came before Commissioner Fisher on appeal, and was decided by him October 7, 1870, (*vide* Comr's. Dec., 1870, p. 128,) in which he says:

> It is a matter of grave doubt whether one who joins another in an application for a patent, which he declares, under his signature verified by his oath, to be the joint production of himself and his co-applicant, ought ever to be permitted to deny that oath and seek a sole patent. It would appear that a sound public policy would require that he should suffer the consequences of his mistake even if it be innocent.

Commissioner Leggett in the case of *Chase & White* vs. *Chase*, (Comr's Dec., 1873, p. 99,) in referring to the decision above quoted, states that "I have no doubt of the soundness of this opinion."

Acting Commissioner Spear, in the case of *Shaw* vs. *Keith, Shaw, & Videto*, (OFFICIAL GAZETTE, p. 641,) states that "the circumstances of this case do not differ greatly from that of *De Lill* vs. *Avery & De Lill*, or that of *Chase & White* vs. *Chase*."

In the foregoing decisions the proper practice of the Office indicates that proceedings of the character under consideration should not be entertained by this Office, and that ignorance of the law offers no excuse for its violation; but when we take into consideration the fact that Barsaloux from July 9, 1872, was a joint patentee, and with his alleged co-inventors had manufactured and sold the product of his invention, and continued so to do down to December 7, 1875, (if not to the present time,) for the term of three years and six months, the law will intervene to prevent the issue of a patent to him, for the reason that the invention has been in public use and on sale more than two years prior to the filing of his sole application, and that such public use and sale was also with his consent and allowance, in addition to which another reason that should prevent the issue of a patent to Barsaloux as sole inventor is that the term or life of a patent thus issued would in

effect run for the term of twenty years and six months. No evidence has been submitted to the Office as to when the alleged error or mistake was discovered by the parties to the original patent, or that proceedings for a separate application for a patent were instituted immediately upon the discovery of the error or mistake aforesaid.

Under the circumstances surrounding this case I have endeavored to define the rule that should govern this Office in analogous cases to the one under consideration, and to the construction that should be given to the law governing proceedings of this character.

A separate patent to Barsaloux should not be issued, and the application is remanded to the Examiner in charge for final rejection in pursuance to this decision.

FREEBORN *vs.* FOYE.—*Appeal; Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of William Freeborn, filed May 17, 1875, and patent of William H. Foye, No. 158,422, granted January 5, 1875, for* "IMPROVEMENT IN ROTARY PLOWS."—*Decided April 28, 1876.*]

A few unsuccessful experiments made with an imperfect machine, the first and only one constructed, are not regarded in the courts of any greater value than similar experiments made by models, or of greater weight than written descriptions and drawings.

An incomplete invention is not in itself sufficient to establish priority as against a patent either in the courts or the Patent Office.

A patentee if first to conceive the invention, and first to apply for and obtain a patent, if diligent, entitled to priority as against one later to conceive but first to reduce the invention to practice.

[*A. H. Evans & Co.*, attorneys for Freeborn.
Hill & Ellsworth, attorneys for Foye.]

DOOLITTLE, *Assistant Commissioner:*

The subject of this interference is a rotary plow consisting of a series of concavo-convex cutting-blades arranged spirally around a supporting and driving shaft in such manner that when the shaft is rotated the blades will cut and turn the soil in furrows.

Both the Examiner of Interferences and Examiners-in-Chief have awarded priority to the patentee, Foye. The arguments of counsel on the present hearing turn more on a question of law than on questions of fact.

The facts are briefly these: Freeborn conceived the idea of this invention in 1870 or 1871, constructed his first model in 1871, and a working model of full size in 1873. His model of 1871 was made from an auger, part of which only was preserved. About July 31, 1873, he had working drawings made for a machine, which machine was completed in December, 1873. This machine he tried at an industrial fair near San Francisco on Christmas of 1873. He claims in his direct testimony that the result was satisfactory, but this is not supported by his statements on cross-examination, or by the testimony of other witnesses.

In fact it was a mere experiment, and not regarded by Freeborn himself as altogether successful. From that time until May 4, 1874, no use was made of the machine save repairing. It was then shipped to Antioch, California. Two trials of the machine were made in 1874, one in May, and one in December. At the first trial Freeborn alleges that the ground was too hard and dry, and at the second a heavy shower the night before occurred, by reason of which a successful operation of the machine was not had on either occasion.

After the experimental trial last mentioned the machine was shipped to San Francisco for changes to be made in the gearing. In January, 1875, learning that Foye had obtained a patent, Freeborn gave up the idea of making any change in the machine, and it remains in the same condition still. At the time of Freeborn's last experiment in December, 1874, Foye was preparing his application for a patent. It was filed on the 22d of the same month, and a patent was granted to him January 5, 1875.

It is further shown on the part of Foye that he conceived of the idea of the invention in 1868, and in May, 1869, conversed with others about it, experimented with an anger, made a drawing, and suggested the manner of altering the pitch of the proposed machine, so as to make it applicable to different kinds of soil. From that time forward he appears to have been continually experimenting, and made numerous models, some of which are filed as exhibits in this case. In the latter half of 1874 Foye completed his model for the Patent Office, and during the same period paid one or two visits to Washington for the purpose of informing himself as to the state of the art. He shows constant diligence in the pursuit of his idea, and convinced numerous parties of the practicability of his proposed machine.

At the time of the granting of his patent he had not constructed a full-sized machine; but at the time of the examination of witnesses in his behalf he had commenced and was constructing a plow to be used in the coming season.

The question of law raised by counsel on behalf of Freeborn upon this statement of facts is that Foye not having constructed a practical working machine prior to the obtaining of his patent, cannot prevail against Freeborn, who had made a practical working machine, in the matter of priority. He cites a number of authorities tending to support the point that it is necessary, in order to establish priority of invention, that the inventor should have reduced the invention to a practical working form and put it to actual use.

It appears to me that he has arrived at his conclusions in law upon a false premise as to facts, for after a careful consideration of the testimony I agree with the decisions of the tribunals below that Freeborn did not perfect a practical successful working machine. His experiments went further than Foye; but so far as the result is concerned the practicability of the invention was demonstrated by Freeborn no further than by Foye.

A few unsuccessful experiments made with an imperfect machine, the first and only one constructed, are not regarded by the courts of any greater value than similar experiments made by models, or of greater weight than written descriptions and drawings.

I regard Foye's experiments with his models, by which he actually turned over ground, as demonstrating the success of the invention as fully as the experiments made by Freeborn with a machine that was set aside after two or three unsatisfactory trials. That being the condition of the invention at the time Foye made his application for a patent, it is necessary to settle priority upon other grounds than that of the completion and successful working of the invention by either party.

Foye was the first to conceive the invention, and he diligently followed up the conception by numerous experiments and by filing his application for a patent. The patent was granted and the public put into full knowledge of the invention months before Freeborn came to the Office. Foye's patent was granted while Freeborn was unsuccessfully experimenting.

Counsel for Freeborn insists that the case of *Dana vs. Greenleaf & Adams* recently decided by the Acting Commissioner established a rule which governs this case. He appears to have overlooked the paragraphs in that decision which recognize the precise rule which we are following here, viz: That an incomplete invention is not in itself sufficient to establish priority against a patent either in the courts or this Office.

The courts have uniformly held that when a patent is attempted to be defeated on the ground of priority, the defendant must show that a complete, practical, and successful working machine was constructed before the patentee's invention thereof; and also that the patentee is not to be confined to the date of the completion by him of a working machine as establishing the date of his invention, but can go back to the time of his early experiments. If Freeborn had been the first to conceive the invention, and reasonably diligent in constructing and perfecting the same, he certainly would have been regarded as the prior inventor notwithstanding the patent to Foye. The efforts of both parties before Foye obtained his patent consisted of experiments alone, and in such a case priority certainly belongs to the one who was first to conceive the invention, if diligent in applying for a patent.

The decision of the Examiners-in-Chief in favor of Foye is accordingly affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF PENNSYLVANIA.

REEVES *et.* THE KEYSTONE BRIDGE COMPANY.

[*In equity.—Before* MCKENNAN, *Cir. J.—Decided April 3, 1876.*]

A rehearing may be granted at any time before final decree.

The practice to ask for a rehearing is by petition to court for leave to file a supplemental bill, setting forth the newly-discovered evidence, and for a rehearing of the cause at the time when the supplemental bill may be ready for hearing.

The defendants must satisfy the court that the omission to produce the evidence is not due to any negligence on their part.

The new evidence must be material.

[*George Harding* and *R. C. McMurtrie* for complainant.
Theo. Ouyler and *Henry Baldwin, Jr.*, for respondents.]

OPINION OF THE COURT.

MCKENNAN, *J.:*

This is an application for a rehearing, to the end that the respondents may file an amended or supplemental answer, setting up the newly-discovered matter stated in their petition. Its allowance is opposed upon three grounds: First, that the decree heretofore entered in the cause is a final adjudication of the right of the complainant to his patent, to an injunction, and to damages, and that the court cannot, therefore, grant the prayer of the petition; second, that the defendants have not exercised due diligence in discovering the new matter stated in their petition; and, third, that this new matter is immaterial, as it may affect the right of the complainant to a decree against the defendants.

1. There is no doubt that the decree heretofore rendered is determinate, as it stands, of the contested merits of the cause. It imports a hearing, consideration, and decision of the issues presented by the pleadings, and, accordingly, adjudges appropriate relief to the complainant. But it does not follow that it has passed beyond the power of the court to modify or vacate it. A final decree only would have this effect after the expiration of the term at which it was entered. But this is not a final decree, because it does not end the cause. There still remains the ascertainment of profits and damages by a master, and a decree to be made after his report comes in, and not until then is the cause definitively disposed of. Indeed, there can be no doubt of the interlocutory character of the decree entered in this case. As such it is classified by Mr. Justice Story in *Jenkins vs. Eldridge*, (3 Story's R. 302;) and in reference to exactly such a decree in *Barnard vs. Gibson*, (7 How. 656,) the Supreme Court say: "the decree in the case under consideration is not a final decree within the decisions of this court. The injudction prayed for was made perpetual, but there was a reference to a master to ascertain the damages by reason of the infringement," and it was, therefore, determined that an appeal would not lie from such a decree.

It is evidently such a decree that is contemplated by the eighty-eighth rule in equity. Until a decree is made from which an appeal will lie, it is the clear implication of the rule that the cause remains under the control of the court, and that a rehearing may be granted at any time before final decree.

But it remains to consider in what mode the rehearing prayed for must be applied for. In reference to this the practice seems to be well settled. It is by petition to the court for leave to file a supplemental bill setting forth the newly-discovered evidence, and for a rehearing of the cause at the time when the supplemental bill may be ready for hearing. This practice seems to have been long observed in England, and is said, by Mr. Justice Story, in *Baker vs. Whiting*, (1 Story, 233,) to have been sanctioned by Chancellor Kent in *Wiser vs. Blachly*, (2 Johns Ch. R. 488;) and *Livingston vs. Hubbs*, (3 id. 124;) and by the Circuit Court in Rhode Island in *Dexter vs. Arnold*, (5 Mason, 303.) In *Jenkins vs. Eldridge*, supra, where a decree similar to the one entered here had been made, the same eminent judge thus strongly states the rule:

> The present application, if maintainable at all, should properly, in its prayer, be for leave to file a supplemental bill, to bring forward the new evidence, and for a rehearing of the cause at the time when the supplemental bill should be ready for hearing. In my judgment it would be against the settled principles and practice of courts of equity to allow the new evidence to be brought forward by a mere order on the petition, and, indeed, in this stage of the cause, wholly irregular to admit it, except upon a supplemental bill, where testimony could be taken on both sides to meet the new exigencies of the case.

The petition in this case does not contain the specific prayer which is required to attain the desired result, and, in its present form, cannot be granted. But, as the argument upon it has been directed mainly to a discussion of its merits, as if it were allowable, it may be amended so as to make it conformable to the requirements of the practice. Its allowance, then, will depend upon the sufficiency of the two remaining grounds on which it is opposed.

2. It is incumbent on the defendants to satisfy the court that the omission to produce the evidence, which they now seek to make available, before the former hearing of the cause, is not due to any negligence on their part, but that they made diligent efforts to discover and obtain it. There is no doubt that it was entirely unknown to them until some time after that hearing. Their researches in the preparation of their defence are shown to have been extensive and thorough, and in quarters most likely to furnish all the information obtainable touching the subject-matter of the suit; but they failed to disclose any trace of the existence of this new evidence. No negligence can be imputed to them on this score. Some time after the decree was entered, however, indefinite information of the probable existence of this evidence was acquired by them, and they have certainly prosecuted the pursuit of it with a zeal and industry which supply the full measure of any legal requirement. On the 27th of September last it came to them in such shape that it could be used in this application, and it was promptly thereafter brought to the attention of the court.

Under these circumstances the defendants are not chargeable with any lack of reasonable diligence.

3. Is the new evidence material? It is not cumulative or corroborative of any of the original proofs, but sustains a distinct and independent relation to the fundamental question in the cause. I do not say that it is of such cogency as to entitle the defendants to a reversal of the decree heretofore made. That is to be determined hereafter, and I reserve any commitment whatever in reference to it. But I do say that it is of such significance, touching the complainant's title to the invention described in his bill, as to render it deserving of an answer, and to constitute it a fit subject of judgment in the cause, to the end that it may properly receive the consideration of the appellate tribunal.

If, therefore, the defendants' petition is amended so as to embody an appropriate prayer, as hereinbefore indicated, it is ordered that the defendants have leave to file a supplemental bill, to bring forward the new evidence set forth in their petition, and that, when the proofs touching the same are completed, the said cause be reheard.

TILGHMAN *vs.* HARTELL & LETCHWORTH.

In equity.—Before McKENNAN, *Cir. J.—Decided April* 3, 1876.

A plea alleging that the defendants had a license to practice complainant's invention unless established by the proofs will not be sustained.

[*Geo. Harding* for complainant.
M. D. Connelly for respondents.]

OPINION OF THE COURT.

McKENNAN, *J.:*

The relief which the complainant seeks by his bill is contested on the ground that the court has no authority to grant it. There is nothing upon the face of the bill to warrant this objection, for it contains the usual averments of a bill for the infringement of a patent, coupled with an averment of an incomplete arrangement with the defendants for a license to use the patented invention, and prays for the appropriate relief of a discovery, an injunction, and account. It, therefore, presents a case which is clearly within the jurisdiction of the court.

The plea of the defendants, however, alleges that a license was actually granted to them by the complainant to practice the invention described in his patent. If this fact be true, it is a complete answer to the bill, because it would be beyond the power of the court, in this case, to decree the relief prayed for as the result of an inquiry touching the fulfillment or non-fulfillment of a contract between the parties. The only jurisdiction which the court has of such a subject is conferred by act of Congress, and is limited to "suits in law or equity arising under the patent or copyright laws of the United States." Now, if a contract has been made investing the defendants with a right to use the complainant's patent property, an injunction and an account could only be decreed as the consequence of an adjudication that the defendants had forfeited this right by reason of non-compliance with the terms upon which it was granted. But whether such an adjudication ought to be made would depend "altogether upon the rules and principles of equity, and in no degree whatever upon any act of Congress, concerning patent rights:" *Wilson, Sanderson & Musgrove*, (10 Har. 99.) If this plea then is sustained by the proofs the bill must be dismissed.

The only witnesses examined in the cause are the defendants and two gentlemen, who were agents of the complainant. They all agree in stating that the subject of a license to use the sand-blast process, as the complainant's invention is designated, was the subject of discussion, and that negotiations touching it were carried on, on different occasions, between one or other of the defendants and one or other of the complainant's agents. But did these negotiations attain the completeness of a determinate contract?

It was manifestly contemplated by both parties that a license to use the patented invention would be furnished to the defendants, and this was to be the conventional basis and evidence of their right to such use. That this license was to be in writing or printed is clearly shown by the proofs. It was, therefore, essential to constitute a contract between the parties investing the defendants with a right to use the invention, that such license should be delivered to and accepted by the defendants. Without this there was nothing to bind the complainant to allow the use of his invention for any period, nor the defendants to render a conventional consideration for the enjoyment of such right. Upon this hypothesis the defendants acted; for when the complainant's agent, at different times afterward, transmitted to them a printed schedule of royalties charged for the use of the sand-blast process, and a printed blank for a monthly return to the complainant of the various kinds and amount of work done by it, they regarded these papers as constituting the license for which they had previously negotiated. In this, however, they were obviously in error. The purport and object of these papers are plain upon their face, and they certainly do not, by any possible construction, concede any right to the defendants to use the process to which they relate.

But some time afterward a formal printed license, embodying the terms upon which it was granted, and was to be enjoyed, was sent in duplicate by mail to the defendants, one copy of which was to be retained by them, and the other to be returned with their signatures. No answer was made to this suggestion, and in a subsequent interview with one of the complainant's agents the defendants refused to sign any license or agreement, taking the ground that they had authority to use the invention in the papers before furnished to them.

Under such a state of facts there is no warrant for the assumption by the defendants that they were licensed to use the complainant's invention, and so their plea, which sets it up, must be overruled.

It is, however, argued that the defendants purchased from the complainant three machines, which were specially adapted to work the patent process, and that such purchase carried with it the right to use the process until they were worn out. But the proofs show that the complainant furnished only parts of these machines, and that he did not hold a patent for any of them. What implication such a sale might warrant it is unnecessary to discuss, because it is very clear that the right to use the process at all was dependent upon an express license to that effect by the complainant. As it does not appear that such a license was obtained by the defendants, it follows that they had no right to work the process upon *any* machine.

The answer of the defendants admitting the complainant's title to the invention described in the bill and the use of it, there must be a decree for an injunction and account, as prayed for, with costs.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 9, 1876.]

9,272.—Hassocks.—ALEXANDER A. GANIARD, Brooklyn, N. Y. Application filed March 13, 1876. Term of patent 7 years.

9,273.—Statue.—HENRY GEBHARD, New York, N. Y. Application filed March 6, 1876. Term of patent 3½ years.

9,274.—Fences.—JOSEPH H. RICKER, Lock Haven, Pa. Application filed March 3, 1876. Term of patent 14 years.

9,275.—Canister.—JOSEPH B. ROHRMAN, Philadelphia, Pa. Application filed April 28, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 9, 1876.]

3,661.—Pile-Ointment.—ROBERT RUMFORD, Philadelphia, Pa. Application filed April 22, 1876.
"a portrait of myself."

3,662.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"words 'OVER THE WATER.'"

3,663.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"words 'NEW ZEALAND JOYS.'"

3,664.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"words 'YOU CANNOT OVERTAKE ME.'"

3,665.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"words 'THE ENCHANTER.'"

3,666.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"word 'INTERNATIONAL.'"

3,667.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"word 'Aminta.'"

3,668.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"words 'Black Swan.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 9, 1876.]

703.—Title: "**The Genuine Dr. Fisher's Golden Seal.**" JAMES E. BLAKE, New Bedford, Mass. Application filed May 3, 1876.

704.—Title: "**Oriental Electron.**"—HENRY M. DUREA, New York, N. Y. Application filed May 1, 1876.

705.—Title: "**Knickerbocker Mills.**"—V. C. & C. V. KING, New York, N. Y. (A.) Application filed May 1, 1876.

706.—Title: "**Knickerbocker Plaster Mills.**"—V. C. & C. V. KING, New York, N. Y. (B.) Application filed May 1, 1876.

707.—Title: "**Meyer's Best Chewing Tobacco.**"—H. W. MEYER, Brooklyn, N. Y. Application filed May 2, 1876.

708.—Title: "**Middlesex Coating.**"—MIDDLESEX COMPANY, Lowell, Mass. Application filed March 4, 1875.

709.—Title: "**Wiggins' Rheumatic Compound.**"—T. SCOTT & Co., Northfield, Iowa. Application filed May 3, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED MAY 9, 1876.

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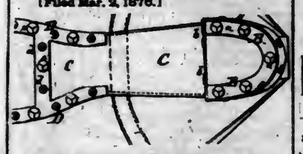
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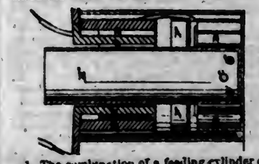
177,046. ICE-CREEPERS. Phillip Abrahams and Johann A. Runnig, New York, N. Y. [Filed Mar. 3, 1876.]



As an improved article of manufacture, an ice-creeper composed of the toothed heel-frame B, cross-bar b, toothed sole-frame D, cross-bar d, and flexible instep-connection C, which is attached to the cross-bar d, and placed over and against the back of the cross-bar b, and closely fitted to the shank portion of the boot or shoe, substantially as and for the purpose herein shown and described.

177,047. GALVANIC BATTERIES. Louis P. Brunelle and Sigismund Mohr, Quebec, Canada. [Filed Sept. 30, 1875.]

Brief.—For use with gravity-batteries. A "receiver" attached to the feeding-tube below the level of the zinc serves to separate the zinc solution from the copper solution, and to catch the "zinc residue."

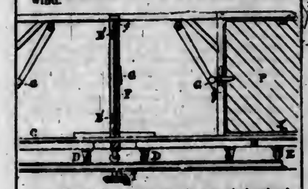


1. The combination of a feeding-cylinder or tube provided with perforations e, and having a residue zinc-receiver, F, formed on or attached around the same as described, with a gravity-battery, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the feeding-cylinder E, provided with perforations e, and having a residue zinc-receiver, F, formed on or attached around the same, and a copper-coil plate, D, surrounding the perforations e, of the vertical zincs B C, supported around the cylinder E, and one within the other, substantially as shown and described.

177,048. WIND WHEELS. William Bowes, Pinkerton, Canada. [Filed Nov. 2, 1875.]

Brief.—While to the wind the sails are held in position by their catch-bars, from which they are released when the sails complete a half-revolution, and turn edgewise to the wind.

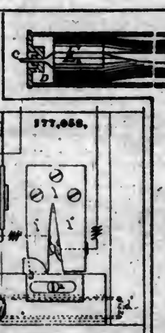


1. The horizontally-revolving wind-wheel A, working around the center pivot I, the said wheel consisting of the platform C, friction-wheels D and E, radially-placed sail-arms B, pivoted catch-bars G, and pivoted sails F and F', arranged and operating substantially as described, and for the purposes specified.

2. The sail F, in combination with the cleats F' and catch-bars G, arranged and operating substantially as described, and for the purpose specified.

177,049. ELECTRO-MAGNETIC STOP-MOTIONS FOR DRAWING OR ROVING MACHINERY. E. Bordeu, Lowell, Mass. [Filed Mar. 20, 1876.]

Brief.—Relates to improvements in the latching mechanism, the construction of the guides and their circuit-closer attachment, and to a device for opening the circuit at the instant that the belt shipper is released.



1. The combination, with the levers E and D, of the stud a and arm C, substantially as described.

2. The combination of the two wires f g from a battery, with the balanced or oscillating circuit-closer n, substantially as described.

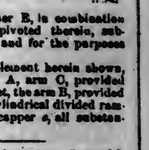
3. The thread guide M, provided with a circuit-closer attachment, and combined with the metallic edge O by the saddles e e, substantially as described.

4. The balanced thread-guide M, in combination with the finger m, substantially as described.

5. The metallic points e f, placed upon the leg 1" and the spring-leg 1', in combination with the leg J actuated by the shipper-bar, substantially as described.



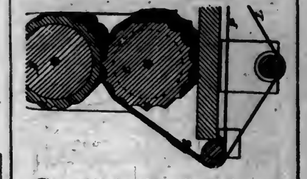
177,050.



1. The divided rammer E, in combination with the uncapper e, pivoted thereto, substantially as described, and for the purposes set forth.

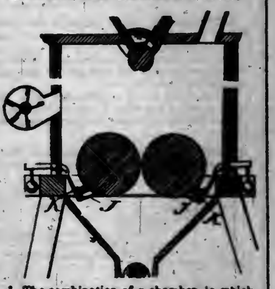
2. The improved implement herein shown, consisting of the head A, arm C, provided with shell-holding socket, the arm B, provided with the capper b, the cylindrical divided rammer E, and pivoted uncapper e, all substantially as described.

177,051. WASHING-MACHINES. Samuel L. Denney, Gap, Pa. [Filed Feb. 26, 1876.]



The combination of the rollers B C, covered with rubber facings a, formed as described, with the band P, wires S, and band L, substantially as set forth.

177,052. MACHINES FOR CRUSHING AND PURIFYING MIDDLINGS. E. L. Downton, Milwaukee, Wis. [Filed Mar. 7, 1876.]

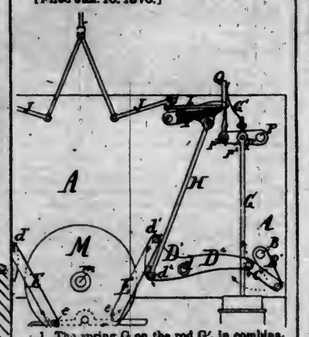


1. The combination of a chamber, in which the middlings, or other granular substances, are subjected to the action of air-currents and crushing-rolls arranged therein, substantially as and for the purpose set forth.

2. The combination, with the crushing-rolls B B, of the scrapers J and brushes K, substantially as and for the purpose specified.

3. The combination, with the crushing-rolls B B, of the pivoted and self-adjusting scrapers and brushes J K, as and for the purpose herein shown and described.

177,053. VALVE-GEARS FOR STEAM-ENGINES. Geo. H. Corliss, Providence, R. I. [Filed Jan. 10, 1876.]



1. The spring G on the rod G', in combination with a hook, Q, and engaging device I, as herein specified.

2. In combination with the turning arm P', hook Q, and operating-rod H, the lever I, turning on a stud, t, distinct from the valve-stem F, as herein specified.

3. The lever I, channeled or duplex, as shown, with the reversible piece P, in combination with the hook Q and valve-arm P', as specified.

4. The intermediate levers J, between the governor-rod K and pusher-rods L, in combination with the same, and with the vibrating levers I and the engaging-hooks Q, connected with the valve-arms P', as herein specified.

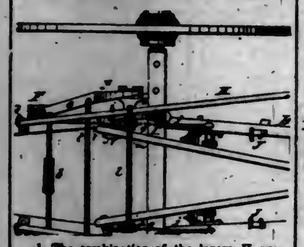
5. The operating means M E, exhaust-valve lever D' B', intermediate rod H, and steam-valve-operating lever I and its connections, combined and arranged to serve as and for the purposes herein specified.

177,054. CARTRIDGE-LOADING IMPLEMENTS. Edward H. Davison and Alfred Beam, New Britain, Conn. [Filed Mar. 31, 1876.]

4. The combination, with the hopper E, of the double-inclined and double-tapering board G arranged therein, whereby the material is distributed over both sides of the double-tapering board, substantially as herein shown and described.

177,068. COUNTYATONS. Reuben Hiwood and Ithiel L. Pitcher, Sycamore, Ill.; said Pitcher assignor to said Hiwood. [Filed Nov. 17, 1876.]

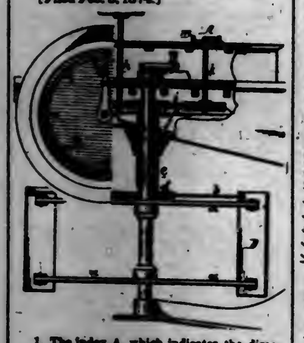
Brief.—The spring connecting the levers to cause them to engage with the ratchet. Devices for hanging and oscillating the plow-beams.



1. The combination of the levers H, provided with pins *d* and the spring *h*, with the curved standards I, provided with openings *e* on their sides, substantially as and for the purposes specified.

2. The beam bar *p*, in combination with the drag-bar D, shank O, cylinder F, bar *s*, and crank-rod *t*, substantially as and for the purposes specified.

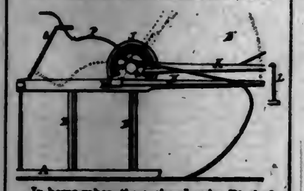
177,069. INDEXES FOR STEERING-PROPELLERS. Frank G. Fowler, Bridgeport, Conn. [Filed Feb. 3, 1874.]



1. The index A, which indicates the direction of propulsion at all positions of the propeller, in combination with a marine propeller whose thrust can be carried in a direction corresponding with any point of the compass, substantially as described.

2. The rods *a*, in combination with the index A and a propeller whose thrust can be carried in any direction, substantially as set forth.

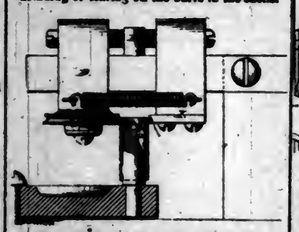
177,070. HORSE HAY-RAKES. Jas. Hiatt Chesterfield, Ohio. [Filed Oct. 16, 1875.



In horse-rakes, the spring J, rake B', shaft E, and bar C, arranged as described, in combination with the handles K, bar L, and arms M, substantially as and for the purpose set forth.

177,066. MACHINES FOR MAKING CARTRIDGE-SHELLS. Alfred C. Hobbs, Bridgeport, Conn. [Filed Feb. 8, 1876.]

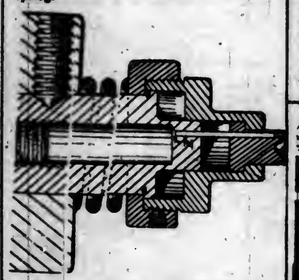
Brief.—The upper ends of each mandrel, located in this instance on a rotating plate, are serrated, and the shells fitted upon them are forced between a grooved fixed plate and a grooved rotatable disk, which has the effect of turning the shell on the mandrel, and thus striading or tearing off the burrs in the shells.



The combination of one or more standing mandrels, upon and around which the shells are placed, and mechanism to cause the shells to revolve on said mandrels, the same being a grooved but stationary plate, and means for moving the shells along and in contact with said plate, substantially in the manner herein described.

177,067. DEVICES FOR PUNCHING THE HEADS OF CARTRIDGE-SHELLS. Alfred C. Hobbs, Bridgeport, Conn. [Filed Mar. 9, 1876.]

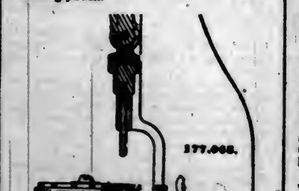
Brief.—The bushing that guides the small punches, and supports them laterally, is solid, and solidly fixed in the lower end of the yielding protector, that is backed by a spiral spring.



The combination, with a punch-holder, of a punch or punches, yielding support, and guide-bushing, substantially as herein set forth.

177,068. MACHINES FOR DRAWING CARTRIDGE-SHELLS. Alfred C. Hobbs, Bridgeport, Conn. [Filed Aug. 7, 1874.]

Brief.—The sliding die-holder—that may be fixed in place by a pin—is, in thickness, equal to the height of the die, that is placed loosely in a hole in its end, and, when ready for use, just fills the space between the plate on which the die and holder rest and a perforated cap fastened to said plate and overhanging the die. A perforated disk moving over the die-cap brings the shells one by one over the cap perforation and die, to be operated on by the descending punch.



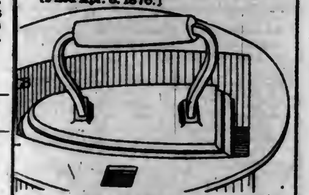
177,069.



177,070.

The combination, with a reciprocating punch or plunger, of a die-support and perforated die, retainer or cap, a sliding die-holder, and

177,069. STOVE-LIDS FOR HEATING FLAT-IRONS. Geo. R. Moore, Philadelphia, Pa. [Filed Apr. 3, 1876.]



1. The within-described one-piece casting, consisting of the range or stove lid, provided with the flat-iron-shaped and open-topped receptacle, substantially as and for the purpose herein set forth.

2. A range or stove lid provided with a flat-iron-shaped depressed receptacle, extending down to any desired depth, and having a bulged bottom, substantially as and for the purpose herein shown.

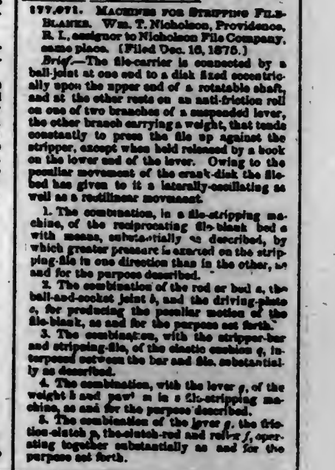
3. A range or stove lid provided with a flat-iron-shaped depressed receptacle, extending down to any desired depth, and having one or more apertures, *a a a*, through it, substantially as and for the purpose herein set forth.

177,070. FILES. Wm. T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Dec. 16, 1875.]

A file whose rows of teeth, from tip to heel, are arranged in groups, the rows of teeth of each group being spaced, relatively to each other, variably, according to a fixed ratio of increase and decrease, and also having the spacing of the teeth of each group in succession, from tip to heel, relatively wider or narrower, as the case may be, than the spacings between the teeth of the preceding or the succeeding group, substantially as specified.



177,071.



177,070.

177,071. MACHINES FOR STRIPPING FILE-BLANKS. Wm. T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Dec. 16, 1875.]

Brief.—The file-carrier is connected by a ball-joint at one end to a disk fixed eccentrically upon the upper end of a rotatable shaft, and at the other rests on an anti-friction roll on one of two branches of a suspended lever, the other branch carrying a weight, that tends constantly to press the file up against the stripper, except when held released by a hook on the lower end of the lever. Owing to the peculiar movement of the crank-disk the file-bed has given to it a laterally-oscillating as well as a rectilinear movement.

1. The combination, in a file-stripping machine, of the reciprocating file-blank bed *a* with means, substantially as described, by which greater pressure is exerted on the stripping-file in one direction than in the other, as and for the purpose described.

2. The combination of the rod or bed *a*, the ball-and-socket joint *b*, and the driving-plate *c*, for producing the peculiar motion of the file-blank, as and for the purpose set forth.

3. The combination, with the stripper-bar and stripping-file, of the elastic cushion *g*, interposed between the bar and file, substantially as described.

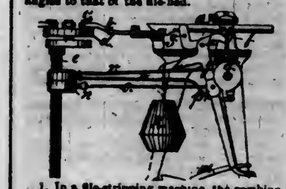
4. The combination, with the lever *g*, of the weight *h* and part *n* in a file-stripping machine, as and for the purpose described.

5. The combination of the lever *g*, the friction-cloth *p*, the cloth-rod and roller *f*, operating together substantially as and for the purpose set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON

177,072. MACHINES FOR STRIPPING FILE-BLANKS. Wm. T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Dec. 16, 1875.]

Brief.—The file-carrier, loosely joined by a hook to the pitman connected to the crank-disk, rests on an anti-friction roll underneath the stripper, which roll is on the extremity of one of two branches projecting from a suspended lever, the other branch carrying a weight, and another roller-arm projects oppositely to the first, so that while the latter tends to press the file bed upward against the stripper, it may also be depressed, and the other roll be thrown up, to liberate the bed from the pitman, by pressing upon the foot-piece of the lever. In this instance the stripper has a reciprocating movement given to it at right angles to that of the file-bed.



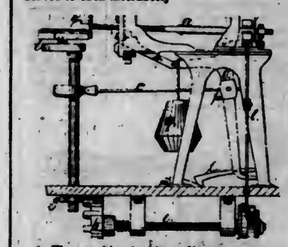
1. In a file-stripping machine, the combination of the reciprocating bar *b* and the reciprocating detachable filing bed *a*, operating together substantially as and for the purpose described.

2. The combination, with the driving-shaft, of the rods *r r*, the pawls *s s*, and the barrel *q*, for imparting rotary motion to the barrel-shaft, and transmitting lateral reciprocating motion to the stripping-file, substantially as and for the purpose set forth.

3. The combination, with the weighted lever *i*, carrying the roller *f*, of the auxiliary lever *g*, for raising the bed *a*, substantially as described.

177,073. MACHINES FOR STRIPPING FILE-BLANKS. Wm. T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Dec. 16, 1875.]

Brief.—In this instance the file-carrier reciprocates rectilinearly, has two file-beds on opposite sides, and is reversible as to position, and two reciprocating strippers are employed—the lower one for roughing and the upper one for smoothing the files being presented to each alternately



1. The combination, in a file-stripping machine of the reversible bed *a*, and the laterally-reciprocating stripping-files *f* and *r*, operated substantially as and for the purpose set forth.

2. The combination, with the reversible bed *a*, of the lever O, weight *q*, and lever *s*, the whole operating together as and for the purpose specified.

3. The combination of the pinion *g*, face-wheel *h*, and eccentrics K K, with the levers I *l*, for imparting lateral reciprocating motion to the stripping-files, as and for the purpose described.

177,074. MACHINES FOR STRIPPING FILE-BLANKS. Wm. T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Dec. 16, 1875.]

Brief.—In this case a roughing stripper instead of a roll is placed on the branch of the suspended lever, and above it is a stationary smoothing-stripper. The carrier has two file-beds, on opposite sides, and is reversible, and the crank-disk imparts, through the medium of ball-and-socket joint, laterally oscillating as well as longitudinally-reciprocating motions to the file beds.

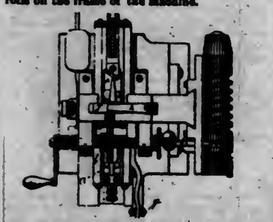


177,074.

The combination of the roughing-file *f*, mounted on the hinged lever *g*, with the reversible reciprocating bed *a* and the finishing-file *t*, substantially as described.

177,075. MACHINES FOR CUTTING FILES. Wm. T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Dec. 16, 1875.]

Brief.—The file-bed has given to it a variable progressive movement in a wavy or sinuous line, the variation in the progressive movement being effected by giving to the worm which drives the eccentric worm-wheel a variable endwise movement by means of a series of rambling cams, and the wavy motion by a suitably shaped guide-piece attached to the file-bed, and working between friction-rolls on the frame of the machine.



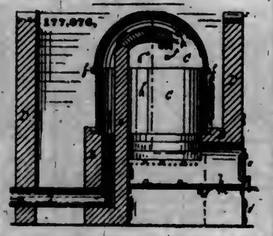
1. The combination, with the mechanism which imparts motion to the bed of a file-cutting machine, of a worm-screw, or equivalent device, to which a variable endwise movement is given, whereby the teeth of the file, as they are cut, are arranged in groups, having varying spaces between the successive rows, substantially as described.

2. The combination, with the mechanism which imparts motion to the bed of a file-cutting machine, of a rambling cam, or equivalent device, substantially as described, for giving a variable uncertain movement to the file-bed within defined limits, whereby the teeth of the file, as they are cut, are variably and uncertainly spaced, as specified.

3. The combination, with a worm-wheel set eccentrically upon the shaft that actuates the traveling bed of a file-cutting machine, of a worm-screw, or equivalent device, to which a variable endwise movement is given as it revolves, substantially as described.

4. In combination with a file-bed to which a variable progressive movement is given, means, substantially as described, for giving a sinuous path of movement to the file-bed, whereby the consecutive rows of teeth are, in addition to being variably spaced, arranged out of parallelism with each other, as set forth.

5. The combination of the driving-shaft which works the cutter, a worm-screw adapted, through suitable gearing, to give movement to the file-bed, and which screw is arranged to occupy different planes of elevation to conform to the eccentricity of the gearing, and a link connecting the driving-shaft with the pawl gear which drives the worm-screw by a series of ball-and-socket-joint connection, substantially as described.



177,076.

177,076. HOUSE-HEATING FURNACES. L. Peterson, Jr., and Wm. H. Irwin, Allegheny, Pa. [Filed Mar. 17, 1876.]

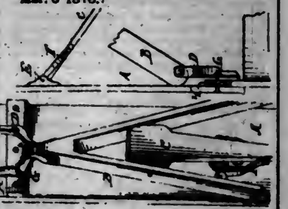
Brief.—After being coked, the coals are removed to the fire on the grate.

1. A house-heating furnace having a foundation of masonry for supporting the fire-grate and combustion-chamber, with air-heating flues *d* and air-supply flues *n* therein, in combination with a metallic cylindrical dome-topped combustion-chamber, C, and bridge-wall *e*, and deflector *s* within the cylindrical chamber, substantially as and for the purposes set forth.

2. The cylindrical combustion-chamber C, made with a bridge-wall, *e*, and deflector *s* within the chamber, substantially as set forth.

3. The combination of coking-plate *b*, grate-bars *c*, air-supply flues *n*, and close combustion-chamber C, substantially as set forth.

177,077. FOLDING IRONING-BOARDS. Jos. Rayner, Piqua, Ohio, assignor of one-half his right to John Baine, same place. [Filed Mar. 6 1876.]



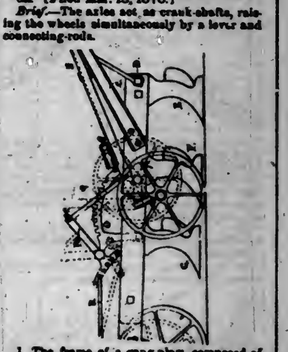
1. An ironing board having a clamping jaw hinged to a bar attached to one end of said board, and operated by the hinged leg B, having a rounded end, to which the clamp is pivoted said leg acting as an eccentric, constructed to bear against the under surface of the table, to open and close said jaws, in the manner shown.

2. The combination, with the ironing-board, pivoted with the socket-plate E, of the brace C and stirrup F, as shown and set forth.

3. The combination, with the board A, of the hinged leg B, clamp D, hinged to bar H, the brace C, stirrup F, and socket-plate E.

177,078. GANG-PLOWS. Thomas Richardson and Malcolm McInnes, Fergus, Canada. [Filed Mar. 13, 1876.]

Brief.—The axles set, as crank-shafts, raising the wheels simultaneously by a lever and connecting-rods.



1. The frame of a gang-plow, composed of the rails A, B, and J and brace K, in combination with the cleris-block T and the plow-standard E, F, and G, having shoulders and flat shanks, as shown and described

2. The bell-crank P, having holes *p* pierced in one of its arms, as shown, and connected to the cranked axle L by the rod R and lever S, in combination with the rod Q, quadrant O, hand-lever B, and cranked axle M, arranged and operated substantially as and for the purpose specified.

177,079. ROTARY PUMPS. Otto F. Schultz, Louisville, Ky. [Filed Mar. 2, 1876.]

Brief.—The rotation of the plunger forces water into the upper part of the cylinder, the valve admitting but preventing its return. A small valve, held in its place by a spring, serves to keep the valve tight.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON

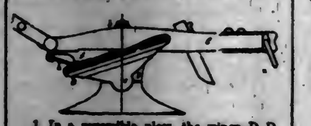
177,079.



The combination of the cylinder A B, with inlets *a*, rotating plunger G, with cavities *b*, valve H, with spring *f*, and water-chest G, all substantially as and for the purposes herein set forth.

177,080. SIDE-HILL PLOWS. Henry F. Shaw and George F. Shaw, Boston, Mass. [Filed Dec. 24, 1875.]

Brief.—The plow has two points and shares, which revolve horizontally. The revolution also carries a double upper wing, which forms the mold board, and is pivoted eccentrically to the lower part of the plow. In turning, the wing comes in contact with lugs or devices secured to the beam, which bring the ends alternately into proper working position.

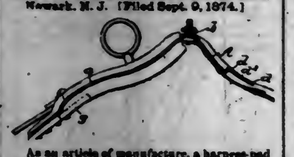


1. In a reversible plow, the wings D D, pivoted at *c* to move in an inclined plane, whereby in reversing the plow the forward wing may be brought upward and inward, and the rear wing downward and outward into working position, substantially as shown and described.

2. The combination of the beam C, pivoted at *b*, the wings D D, united as one piece, pivoted at *c*, and the plate *f*, with inclined plane, or its equivalent, whereby the wings are brought into position, all substantially as hereinbefore described.

3. The combination of the beam C, wings D D, and lock *g*, substantially as and for the purpose hereinbefore set forth.

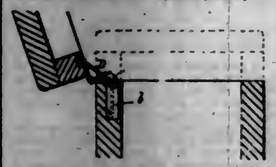
177,081. COACH-PAD TREES. Leo O. Smith, Newark, N. J. [Filed Sept. 9, 1874.]



As an article of manufacture, a harness-pad plate or tree cast in one piece, in the shape substantially as described, consisting of a main body or web, A, provided with perforated flanges *a*, recessed web *d*, and ribs *g g*, in the manner substantially as described, for the purposes set forth.

177,082. TREDLE-STAVE. James M. Stroud, Boston, Mass. [Filed Mar. 9, 1876.]

Brief.—The step is either attached to an ordinary butt-hinge or to separate plates.



1. The step D, constructed as set forth, in combination with an ordinary butt-hinge, through each leaf of which it passes freely, all adapted to operate as and for the purposes described.

2. The step D, constructed as set forth, in combination with the plates *c* and *d*, attached one to body of the trunk and the other to the lid, through each of which plates it passes freely, all adapted to operate as and for the purposes described.

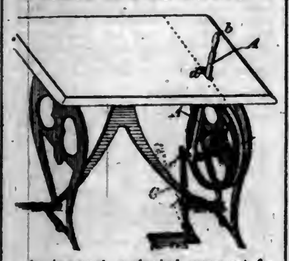
177,083. COMBINED KETTLES AND COOKING APPARATUS. Benjamin Temple, Hamilton, Canada. [Filed Nov. 27, 1875.]



1. The kettle I, with the fire tube or chamber D fitted through the center of it, all surrounded by the water-spaces P, in connection with the damper E and the float N, for the purposes shown.

2. The connecting-slide H, in connection with the neck G and the stove-pipe F, for the purposes shown.

177,084. DEVICES FOR OPERATING SEWING-MACHINES. Georgiana L. Townsend, Philadelphia, Pa. [Filed Apr. 10, 1876.]



An improved mechanical movement for operating sewing-machines, consisting of an upright lever, A, connected at the lower end to the crank arm of the drive wheel of the machine, its end passing through a slot in the table and provided at the top with a handle, *b*, and adjusted to be operated by a reciprocating vertical motion with the hand, substantially as and for the purposes described.

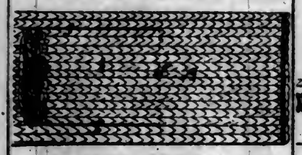
177,085. ABDOMINAL SUPPORTERS. M. A. Wilson, Baltimore, Md. [Filed Aug. 4, 1875.]

Brief.—A central hinged perforated metal pad is connected at its four corners to double waistbands, and to perineal bands, and also to short straps, which connect it with an upper waist-belt.



The central hinged perforated metal pad A, connected at its four corners to the double waistbands, and to the connections *f f f f* of the perineal bands at its lower edge, and also by the short straps *c c* to the upper waistband, all arranged as described.

177,086. METHODS OF MANUFACTURING KNIT MITTENS. William H. Abel, Bristol, N. H. [Filed June 21, 1875.]



The method of forming knit mittens from a continuous circular knit web, as herein described, which consists in making a cut across the same, and attaching thereto the thumb D, which is formed from a separate knit piece, and inserted in the said cross-cut, as shown

177,087. MANUFACTURE OF GLASSWARE. Augustus A. Adams, Pittsburg, Pa., assignor to Adams & Co., same place. [Filed Apr. 6, 1876.]

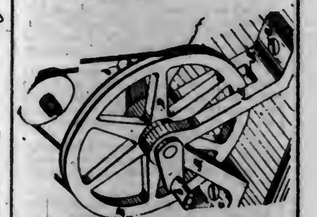


1. A lamp, or similar article of glassware, having the pressed-glass drip-cup, in combination with the blown bowl, substantially as and for the purpose specified.

2. The pressed-glass foot, having the cup or bowl section, and the annular grooved flange, substantially as and for the purposes specified.

177,088. FOOT-POWERS. Wm. P. Barnes and John Barnes, Rockford, Ill. [Filed Apr. 17, 1876.]

Brief.—A frame, detachable from its bed, has on it a double-crank band-pulley, to be operated by both feet.



The foot-power hereinbefore described, consisting of the combination of a movable frame separate from that of the machine to be driven, a double cranked driving pulley mounted therein, to the cranks of which the feet of the operator are directly applied, and belt-connections passing from the pulley to the driven machine.

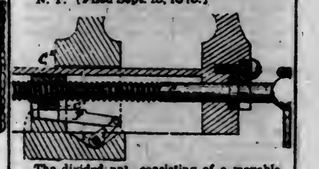
177,089. BIT-STOCKS. Eben M. Boynton, New York, N. Y. [Filed Feb. 14, 1876.]

Brief.—The shanks of bits of various sizes can be firmly secured in a head, provided with a rectangular tapering socket, by means of a screw-cap provided with a pair of short pivoted jaws, which grasp the stem of the bit between their ends when the cap is screwed down on the head.



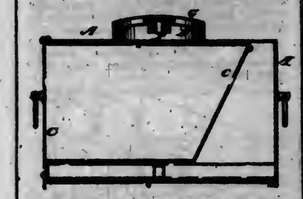
In combination with the head-piece A, having a socket, C, for receiving the tool, the short pivoted jaws D, constructed and arranged to grasp the tool between their ends, substantially as shown and described.

177,090. VISES. James H. Brundage, Williamsburg, Brooklyn, assignor of one-half right his to Eugene F. Brundage, Harlem, N. Y. [Filed Sept. 15, 1875.]



The divided nut, consisting of a movable half, C^1, and fixed half, C^2, the wedge F, and the rock-shaft I, in combination with the screw and jaws of a vise, substantially as and for the purpose herein described.

177,091. GARBAGE-BOXES. Benj. Burling, Whitehall, N. Y. [Filed Apr. 10, 1876.]



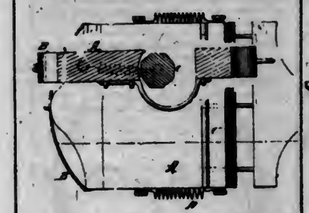
An improved garbage-box, formed of the case or shell A, provided with two drawers, C, and with a door, E, inclosing a perforated part of its top, having a hole in its top closed with a screw-cap or plug, F, and covered with a detachable cap, G, substantially as herein shown and described.

177,092. SLEIGH-RUNNERS. W. O. Calkins, Winneconne, Wis. [Filed Feb. 14, 1876.]



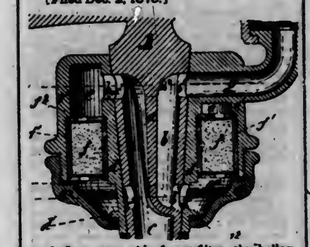
A sled shoe, A, cast with chilled sides B B, substantially as and for the purposes specified.

177,093. IRONING-BOARDS. Eli O. Catt and Henry H. Harrod, Red Oak, Iowa. [Filed Mar. 13, 1876.]



The combination, with the board A, provided with the spring B at one end thereof, of the roller C and springs D, arranged at the other end, substantially as and for the purpose described.

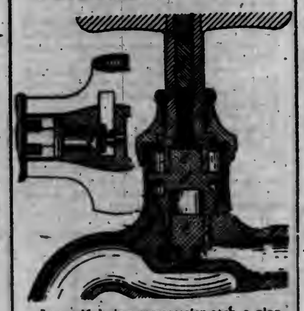
177,094. REVERSIBLE FAUCET-FILTERS. Minford S. Clark, New York, N. Y., assignor to Charles Harrison, same place. [Filed Dec. 2, 1875.]



1. In a reversible faucet filter, the hollow faucet-plug A, provided with the interior diaphragm *a*, extending downward from the upper portion of the plug to a point opposite the lower boundary of the external filter-chamber, and then extending laterally to one side of the plug, the exterior shell of the plug being provided with the perforations b^1, b^2, b^3, and c^2, substantially as and for the purposes set forth.

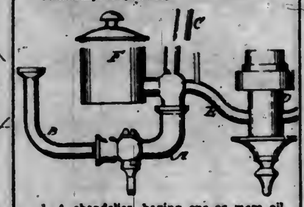
2. A hollow faucet-plug provided with the interior diaphragm, extending downward from the upper portion of the plug to a point opposite the lower boundary of the external filter-chamber, and then extending laterally to one side of the plug, and provided with the perforations b^1, b^2, b^3, c^1, and c^2, in combination with the supply-pipe *g* and the annular filtering-chamber *a*, the interior wall of which is provided with the perforations g^1, g^2, *h*, and *h'*, substantially as and for the purposes set forth.

177,095. SLOW-CLOSING COMPRESSION-COCKS. Minford S. Clark, New York, N. Y., assignor to Chas. Harrison, same place. [Filed Dec. 2, 1875.]



In a self-closing compression-cock, a plunger recessed to contain a loose plug, substantially as described, in combination with an adjustable stop for the purpose of regulating the height to which the plunger and loose plug can be elevated, and thus determining the time taken for the closing of the valve, and governing the quantity of water discharged by the valve.

177,096. COMBINED GAS AND OIL CHANDELIERS. George P. Clark, Newton, Mass. [Filed Apr. 18, 1876.]



1. A chandelier, having one or more oil-burners in the middle portion, together with oil-tanks F, to supply them, and also having outer gas-burners, substantially as specified.

2. The branched suspending and gas-conducting pipes C, gas-burner branches A B, oil-pipe E, tanks F, and the oil-burners D, combined and arranged substantially as specified

177,097.



177,097. FIREMEN'S LADDERS. Isaiah H. Corbin, Baton Rapids, Mich. [Filed Nov. 10, 1876.]

Brief.—The ladder is mounted upon trunnions in a frame secured to the truck. The lower end of the ladder is provided with a counter-balance, to assist in raising it to a vertical position. The movable platforms have hinged foot-boards.

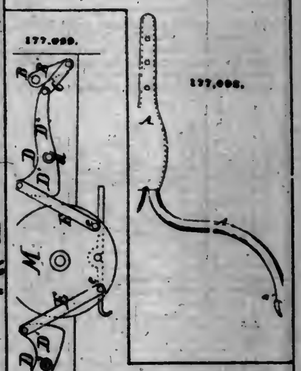
1. In combination with a wheeled truck, A, a fireman's or fire-escape ladder, provided with a preponderance at one end and mounted upon trunnions in a frame secured to said truck and composed of a subsidiary ladder, C E, and members B D, the whole arranged and operating in the manner substantially as hereinbefore described, for the purposes set forth.

2. In combination, with a fireman's or fire-escape ladder, the adjustable platform or platforms L L, provided with hinged foot-boards M M, in the manner substantially as described and set forth.

177,098. HARNESS. Charles H. Corey, San Jose, Cal. [Filed Mar. 13, 1876.]

A winker stay, A, for harness, made of rubber, substantially as herein shown and described.

177,098.



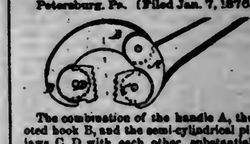
177,099.

177,099. EXHAUST-VALVE GEARS. George H. Corliss, Providence, R. I. [Filed Jan. 10, 1876.]

1. In combination with the shaft B and arm B', giving motion to an exhaust-valve, the moderately-oscillating arm D^3, describing an arc near the shaft B, and the link C connecting the arms B' and D^3, all combined and arranged for joint operation, as and for the purposes herein specified.

2. The levers D^1 D^2, link C, and arms B' on the respective valve-shafts, in combination with the rocking-piece M, and links E therefrom, communicating motion to both sets, as specified.

177,100. PIPE-TONGS. Geo. M. Curry, St. Petersburg, Pa. [Filed Jan. 7, 1876.]



The combination of the handle A, the pivoted hook B, and the semi-cylindrical pivoted jaws C D with each other, substantially as herein shown and described.

177,101.

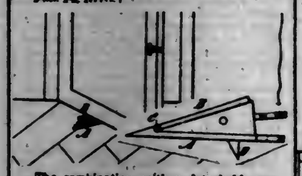


177,101. ART OF MANUFACTURING ARTIFICIAL-STONE COFFINS. Taylor B. Daniels, Detroit, Mich. [Filed July 16, 1876.]

Brief.—A fixed core, placed upon a base, is used in connection with removable side walls, allowing the coffin to be cast in an inverted position, and readily removed.

An improvement in the art of manufacturing artificial-stone coffins, casting them in an inverted position in a sectional mold, substantially as described and shown.

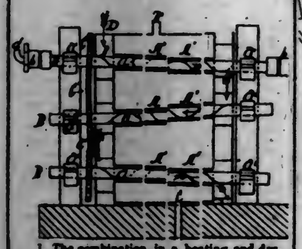
177,103. DOOR AND WINDOW FASTENERS. John H. Dundale, New York, N. Y. (Filed Feb. 14, 1876.)



The combination, with a detachable escutcheon-wedge, of the plates A B, jointed at C, and held by stud D, as and for the purpose specified.

177,104. DRYING APPARATUS. Saml. Davis, Chicago, Ill. (Filed Jan. 12, 1876.)

Brief.—The substance to be dried passes from the hopper into a tube surrounded by steam-chamber, and is conveyed by means of the worm on the revolving steam-pipe.



1. The combination, in a heating and drying apparatus for treating animal matter, of the steam-heated vessel A, provided with a tube or tubes, A', through which tube or tubes pass a revolving steam pipe or pipes, B, carrying upon the outer surface a screw or worm, c, substantially as and for the purpose specified and described.

2. In combination with any suitable steam-heating vessel, the tube or tubes A', hopper D, revolving steam-pipes B, worm c, gears O', and the stuffing-boxes b and b', substantially as and for the purpose specified and described.

177,105. GARDEN-RAKE. William S. Deede and Geo. H. Deede, Pittsburg, Pa., assignees of one-half their right to Jas. A. Deede and John Grenter, same place. (Filed Jan. 22, 1876.)

Brief.—A water-wheel is used for working the air-pump, and the flow of water to the wheel is automatically regulated by a valve, intervening mechanism, and the rising and falling gas-holder. The flow of oil to the carburetor to the holder is automatically regulated by a valve, connections, and a float on the surface of the oil in a separate chamber, provided with a gage for showing the height of the oil. A valve is fitted to the top of the air-pipe in the carburetor to prevent back pressure.

1. The combination of combined curved tubes, having a stem, F, and arranged in different horizontal planes above and below the support E, with the holder B, rod C, teppets D' and D², rod I, and valve J, substantially in the manner and for the purpose specified.

2. The combination of the spring H, with the rod I, valve J, and stem F, substantially in the manner and for the purpose set forth.

3. The combination of the support E with the spring H, rod C, and holder B, substantially in the manner and for the purpose described.

4. The combination of the rod I, having a slot, c, with the spring H, levers d' and d², crank A, and valve J, substantially in the manner and for the purpose specified.

5. The combination and arrangement of the pump L, water-wheel K, valve J, rod I, spring H, stem F, levers d' and d², teppets D' and D², rod C, and holder B, substantially in the manner and for the purpose set forth.

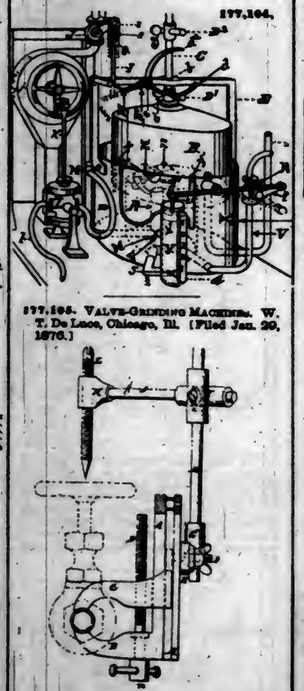
6. The combination of the delivery-pipe R, having a valve, T, with the air-pipe M, hydrocarbon-liquid pipe V, and carburetor N, substantially in the manner described.

7. The combination of the valve T, having a spring, r, with the delivery-pipe R, and the pipes M and V, substantially as and for the purpose specified.

8. The combination of the glass tube or gage 4 with the chamber Y and carburetor N, substantially as and for the purpose specified.

9. The combination of the flexible tubes s and y, with the chamber Y, glass tube 4, and water-tank A, substantially in the manner and for the purpose set forth.

177,106. VALVE-GRINDING MACHINES. W. T. De Lacy, Chicago, Ill. (Filed Jan. 29, 1876.)



The combination of pipe-clamping device A B C D E F and valve-stem centering-screw L of the L-coupling G, receiving the adjustable stem of slide E in one arm, the rod H adjustable in the other arm, the T-coupling I adjustable on the rod H, the rod J adjustable in coupling I, and the cross-head nut K, as shown and described, to enable valves to be ground without removal.

177,107. DRAFT-EQUALIZERS. John F. Donoghue, Springfield, Mass. (Filed Feb. 26, 1876.)



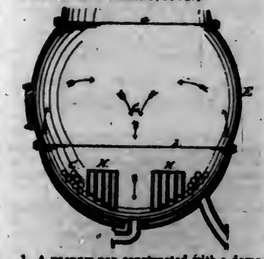
The petticoat-pipe, consisting of the series of sections, constructed and arranged as shown and described, to form a reduced space between the nozzle of one and the wall of the succeeding section, and having the beads c d, as and for the purpose set forth.

177,108. ROTARY CHURNS. G. C. Eastman, Lewiston, Me. (Filed Jan. 12, 1876.)



The rotary churn-reservoir A, provided with the dasher or grid D, arranged diagonally therein, and obliquely to the axis of rotation of such reservoir, all being substantially and to operate as specified.

177,109. VACUUM-PANS. John Fairburn, Upton Station, assignor of one-half his right to Isaac Plumb Wilson, Montreal, Canada. (Filed Mar. 9, 1876.)



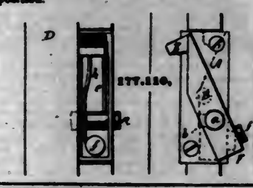
1. A vacuum-pan constructed with a dome, B, middle section or belt E, curving inward from a point near its vertical center toward its ends, in combination with the lower section F, the whole forming a pan in shape of solid of an oblate spheroid larger axis is vertical.

2. The inwardly-curved projecting lip, situated on the inside top edge of the middle belt or section E, to prevent priming, substantially as specified.

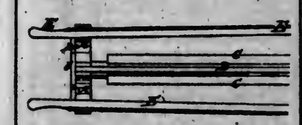
3. The circular and vertically tubular steam drum or drums H H, having an increasing vertical depth from circumference to center.

177,110. SASH-FASTENERS. R. H. Fenton, New Haven, Conn. (Filed Feb. 21, 1876.)

Brief.—The tarri-button, in normal position, fitting into a cut-away portion of the parting-strip, being made to appear as a part thereof, while the tongue at one end, when the button is turned, engages with a notch in the upper sash, and the outer end moves out over the top of the lower sash, there being also suitable mechanism to hold the button in locked position.



177,111. APPARATUS FOR DRYING HIDES. John Finnigan, Houston, Tex. (Filed Mar. 20, 1876.)



The frame formed of the legs A, the top bar B, the angular side bars C, the head-bar b', the cross-bars D, and the longitudinal bars E, to adapt it for use in drying hides, substantially as herein shown and described.

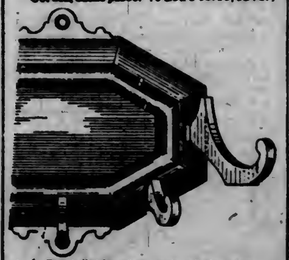
177,112. RAILROAD-SWITCH CHAIRS. H. C. Fox and Joseph Hayward, St. Joseph, Mo. (Filed Mar. 18, 1876.)



1. A switch-chair for railroads, having base A, provided with slips B, extended into contact with the upper face of the foot, the whole side face of the web, and the under surface of the head of the rail, to form a solid head-support, as shown and described.

2. The detachable supports H, combined with the base, web, and head of the movable switch-rail, substantially as specified.

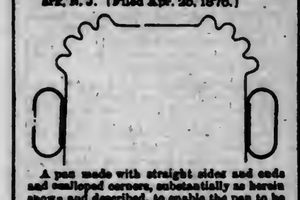
177,113. TOILET-BRACKETS. F. T. Frecker, New Britain, Conn., assignor to P. & F. Corbin, same place. (Filed Feb. 16, 1876.)



1. The toilet-bracket made of the plate a, having beveled edges and diverging arms attached upon the beveled portions of said plate, as and for the purposes set forth.

2. The toilet-bracket made of diverging arms, having pyramidal surfaces surrounding the attaching-screw and entering corresponding recesses in the surface of the plate, as set forth.

177,114. BAKE-PANS. John Gilbert, Newark, N. J. (Filed Apr. 26, 1876.)



A pan made with straight sides and ends and scalloped corners, substantially as herein shown and described, to enable the pan to be brought into shape by a single pair of dies and at one operation, as set forth.

A turn-button, B, having the tongue E, adapted to fit in and appear as a portion of the parting-strip, and pivoted, as described, to engage both the upper and lower sash, combined with a suitable spring and locking device, substantially as specified.

177,115. APPARATUS FOR DRYING HIDES. John Finnigan, Houston, Tex. (Filed Mar. 20, 1876.)

The frame formed of the legs A, the top bar B, the angular side bars C, the head-bar b', the cross-bars D, and the longitudinal bars E, to adapt it for use in drying hides, substantially as herein shown and described.

177,116. RAILROAD-SWITCH CHAIRS. H. C. Fox and Joseph Hayward, St. Joseph, Mo. (Filed Mar. 18, 1876.)

1. A switch-chair for railroads, having base A, provided with slips B, extended into contact with the upper face of the foot, the whole side face of the web, and the under surface of the head of the rail, to form a solid head-support, as shown and described.

2. The detachable supports H, combined with the base, web, and head of the movable switch-rail, substantially as specified.

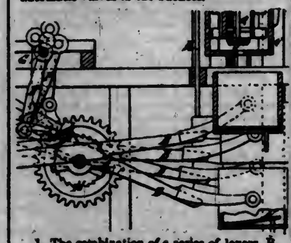
177,117. TOILET-BRACKETS. F. T. Frecker, New Britain, Conn., assignor to P. & F. Corbin, same place. (Filed Feb. 16, 1876.)

1. The toilet-bracket made of the plate a, having beveled edges and diverging arms attached upon the beveled portions of said plate, as and for the purposes set forth.

2. The toilet-bracket made of diverging arms, having pyramidal surfaces surrounding the attaching-screw and entering corresponding recesses in the surface of the plate, as set forth.

177,118. WATER-MOTORS. Israel F. Good, Goodwille, assignor to himself and H. P. Steiger, Crabtree, Pa. (Filed Apr. 18, 1876.)

Brief.—A series of levers, having a bucket at either or both ends, is attached to a shaft having ratchets and pawls to each lever, and connected with a crank-shaft. The buckets receive water alternately from a fore-bay by automatic valves, and discharge the water by automatic valves in the buckets.



1. The combination of a series of levers, E, having a bucket at either or both ends, a shaft, C, having either one or two ratchets, H, and pawls I, to each lever, and a crank-shaft, G, having the levers connected to it substantially in the manner described.

2. The combination, with a series of buckets and levers rising and falling in succession, of a fore-bay, having valves to open and fill the buckets, and close after filling them, substantially as specified.

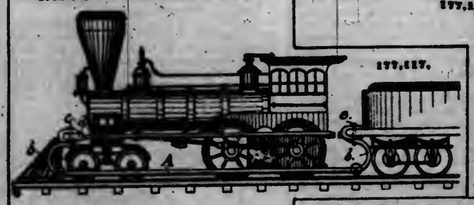
177,119. THERMOSTATS. John H. Guest, Brooklyn, N. Y. (Filed Apr. 15, 1876.)



1. The thermostat composed of two mercurial bulbs, stems, and electrodes, connected by an electrical connection, substantially as set forth.

2. In a thermostat, the stem formed with a bulb or chamber at its upper end, and provided with a liquid seal, substantially as set forth.

177,120. CAR-COUPLINGS. Wm. Halsted, Trenton, N. J. (Filed Feb. 5, 1876.)



1. The described method of connecting a locomotive to its tender or car by bars reaching from the forward end of the locomotive, downward and under the same, to the forward end of its attached car, substantially as and for the purposes set forth.

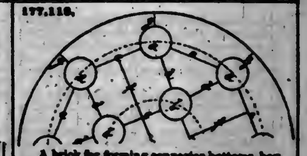
2. The coupling-bars A, constructed each with an upward curve, b, at each end, and adapted to be adjustably applied in pairs to couple cars together, substantially as and for the purpose set forth.

177,121. MANUFACTURE OF FIRE-BRICKS FOR CONVERTER-BOTTOMS. Samuel P. Harbison, Allegheny, assignor to Harbison & Walker, Pittsburg, Pa. (Filed Apr. 3, 1876.)

Brief.—Forming, when laid, two concentric rings and the remaining central portion, the outer edges of the outer ring conforming to the circular rim with radial sides, the remaining side and the sides of all the other bricks being straight lines. Each brick has a portion of its edges illustrated to form, when together, perforations for the tuyeres.

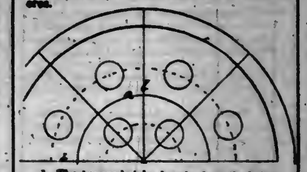
177,122. BRICK FOR CONVERTER-BOTTOMS. Samuel P. Harbison, Allegheny, assignor to Harbison & Walker, Pittsburg, Pa. (Filed Apr. 3, 1876.)

Brief.—A brick for forming converter-bottoms, having a series of concave or grooved faces corresponding to portions of a tuyere, and a bevel face or side, upon which the brick may rest in drying, substantially as and for the purpose specified.



177,123. MANUFACTURE OF FIRE-BRICKS FOR CONVERTER-BOTTOMS. Samuel P. Harbison, Allegheny, assignor to Harbison & Walker, Pittsburg, Pa. (Filed Apr. 3, 1876.)

Brief.—A bottom lining of bricks, forming an outer ring and remaining central portion, the joining edges of all being radial, the inner and outer edges of the former and latter being, respectively, concave and convex, all with perforations for the insertion of the tuyeres.



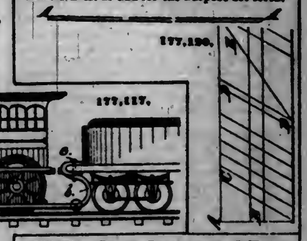
1. The tuyere-bricks herein described, having one or more longitudinal tuyere-holes, substantially as and for the purpose specified.

2. The cylindrical tuyere-brick, having a series of longitudinal tuyere-holes, substantially as and for the purpose specified.

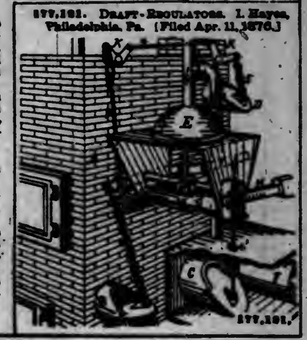
3. A converter-bottom formed by a central cylindrical tuyere-brick, or sections forming the same, and a series of tuyere-bricks having longitudinal tuyere-holes, the whole arranged and combined substantially as specified.

177,124. GAUGE FOR TEACHING PENMANSHIP. Lorenzo Dow Harvey, Sheboygan, Wis. (Filed Mar. 6, 1876.)

The writing-gage herein described, consisting of a transparent plate, A, having the horizontal lines B, and the inclined or slanting lines C D E, as and for the purpose set forth.



177,125. DRAFT-REGULATORS. I. Hayes, Philadelphia, Pa. (Filed Apr. 11, 1876.)

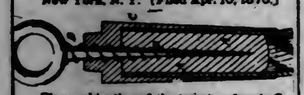


1. The combination, in an automatic heat-regulator for air-heating furnaces, substantially as described, of the automatically-actuated valve C, with the mouth or entrance opening for the flush cold air into the air-heating chamber.

2. The combination, in an air-heating furnace, substantially as described, of the valve C with the valves B and D, all of the said valves being actuated, when in use, by the variations of the temperature of the air in the air-heating chamber of the furnace, and the gravitating tendency of the lower ends of the respective valve-plates, as described.

3. The valves B C D, each consisting of the combination of the inclined oval seat, having the flat bearings 7 and 8, and the valve-plate 9 10, having the projecting ears 11 11, the plate and seat being attached together, as described and shown in Fig. 1.

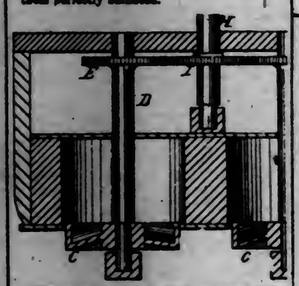
177,192. ROPE TRACES. Peter Hayden, New York, N. Y. [Filed Apr. 10, 1876.]



The combination of the tapering ferrule C, having a screw-hole through its base, and the tapering eye-screw D, with a rope trace, substantially as herein shown and described.

177,193. TURBINE WATER-WHEELS. Thos. Holmes, Mansfield, Ohio. [Filed Feb. 12, 1876.]

Brief.—Utilizing the power of two turbine wheels by placing the gear-wheel of the driving-shaft directly between them, thus keeping them perfectly balanced.



The turbine water-wheels C, provided with their respective shafts D, and gear-wheels E, in combination with the gear-wheel I and driving-shaft H, when the shafts of the turbine-wheels are arranged in the same plane as the central plane of the driving-shaft, substantially set forth.

177,194. STREET-RAILROAD-RAIL FASTENING. R. J. Houston and Elihu Thomson, Philadelphia, Pa. [Filed Oct. 16, 1876.]

Brief.—The rails are secured to the stringer by a hook shaped clutch grasping the rail by its upper end, while its lower end is spiked to the stringer. A removable rail-head is also used, secured to a reversible base-plate by a toe or projection entering holes in the same, the outer side being held by the aforementioned clutch.



1. The clutch or clamp A B, provided with a hook, A, the openings E, (one or more,) for the introduction of the nuts or bolt, and the projections E, applied to the manner set forth in the accompanying specification.

2. As a fastening for a sectional rail with a detached upper part or head, the projection or toe T, formed on the base of the head, the recess or opening V in the flange-plate F F, for the insertion of the toe, substantially as described in the foregoing specification.

3. The combination of the toe T, the opening V, and the clamp or clutch A B, as a secure fastening for the several parts of sectional rails.

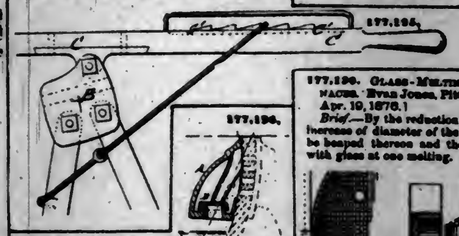
4. As a fastening for a sectional rail, in which the entire upper surface consists of a single piece, the combination of the clutch or clamp A B with the hook H, as set forth in the foregoing specification.

5. In a sectional reversible rail, the combination of the toe T and the interchangeable spike-holes V W, to be used in the manner for the purpose described.

6. In a sectional reversible rail, the combination of the toe T and the interchangeable spike-holes V W with the clamp or clutch A B, substantially as set forth.

177,195. LIFTING-JACK. Geo. G. Howe, Faribault, Minn. [Filed Apr. 4, 1876.]

A lifting-jack constructed of a top socket or support, swinging legs pivoted to the lower part, and a fulcrumed lever at the upper part of the socket, the lever having a top ratchet and guard, and being locked by a folding brace-link hinged to one of the legs, to be operated substantially as and for the purpose specified.



177,196. WASH-BASIN VALVE-TRAPS. W. W Hurd, New York, N. Y. [Filed Mar. 26, 1876.]

Brief.—The object is to prevent the rising of sewer-gas through the waste-pipe.

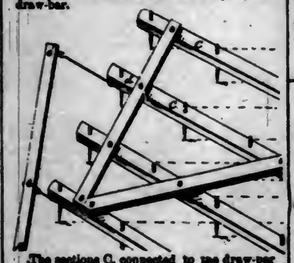
The trap formed of the casting A, made with an open side, so formed as to fit against the side of a wash-basin, and with an opening in its bottom, closed with a valve, B, substantially as shown and described.

177,197. COMPOSITIONS FOR REPAIRING CRUCIBLES. Jas. Irwin, Pittsburg, Pa., assignor to the Pittsburg Steel Casting Company, same place. [Filed Apr. 25, 1876.]

A compound consisting of soda-ash, sand, old crucibles, and fire-clay, compounded with water in about the proportions specified, and for the uses set forth.

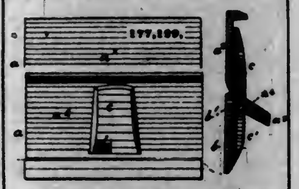
177,198. HARROWS. Peter J. Jacoby, Sterling, Ill. [Filed June 12, 1876.]

Brief.—The harrow-frames are rectangular and diagonally braced. They are attached to a common draw-bar by a short and long link each, which gives them freedom of motion, and causing their tracks slightly to overlap. The harrows are not connected except by the draw-bar.



The sections C, connected to the draw-bar A by loose connections *e*, and drawn and held from the direct line of draft by the extended loose connections *e'*, whereby the sections tend to swing in one way only, and are at the same time allowed to conform to the unevenness of the ground, combined and arranged as and for the purpose set forth.

177,199. EXTENSION-SHELVES FOR COOKING-STOVES. Augustus T. Jones, Stamford, Conn., assignor to the Stamford Foundry Company, same place. [Filed Apr. 1, 1876.]



In an extension-shelf, b, the combination, with the stove *a*, provided with the mortise *a'*, within which and on the dropping-edge *a''* is formed the vertical projection *a'''*, having its inner side beveled or inclined, as shown, of the straight tenon *c*, having formed in its under side the inclined surface *d*, adapted to slide upon the beveled face of the projection *a'''*, as and for the purpose set forth.

177,200. GLASS-MELTING POTS AND FURNACES. Evan Jones, Pittsburg, Pa. [Filed Apr. 10, 1876.]

Brief.—By the reduction of the height and increase of diameter of the pot, the "frit" can be heaped thereon and the pot nearly filled with glass at one melting.

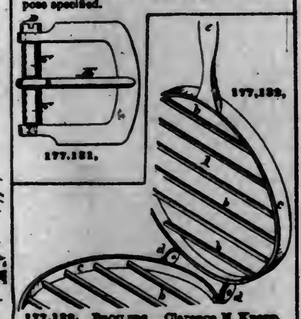


1. A glass melting pot the diameter of which is increased and the height decreased, in about the relative proportions and for the purpose specified.

2. The glass-melting furnace having the benches flush with the sole or grate, substantially as and for the purpose specified.

177,201. BUCKLES. Joseph M. Junkin and John Gunn, Red Oak, Iowa. [Filed Feb. 14, 1876.]

The buckle-tongue E, arranged on a detachable shaft, D, between loose spacing-tubes F F, substantially as and for the purpose specified.



177,202. BUCKLES. Clarence M. Knapp, Cuyler, N. Y. [Filed Feb. 29, 1876.]

Brief.—The bars are beveled to a thin edge, and the rings slope outwardly from the bars toward their meeting edges.

The beveled rims *c c*, handles *e e*, stop-hinges *d d*, and bars *b*, all combined and arranged substantially as and for the purpose set forth.

177,203. BUCKLES. William Lesser, Cincinnati, Ohio. [Filed Mar. 2, 1876.]

In a buckle, the frame A, provided with two swinging levers, each lever being provided with two points, and the rear lever being further provided with a cam bearing on the frame, substantially as described, and for the purposes set forth.

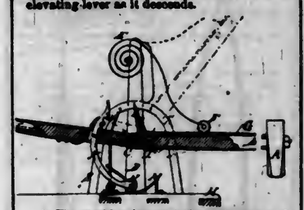


177,204. COMPOSITIONS FOR CIGAR-LIGHTERS. William J. Littlefield, Philadelphia, Pa. [Filed Apr. 4, 1876.]

A compound of lime, charcoal, cascarilla bark, gum, and water, in substantially the proportions specified, for the purposes set forth.

177,205. PORTABLE SPRING-POWER HAMMERS. Ray F. Livermore, Fort Henry, N. Y. [Filed Mar. 13, 1876.]

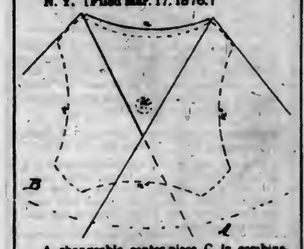
Brief.—A hand-lever provided with a pawl, which centers on the end *a'* of an arm projecting from the helve, raises the hammer against the resistance of a spring. The spring carries a roller at its free end, which, as the hammer rises, runs along a rail upon the helve. The pawl carried by the elevating-lever has two catches, the upper of which engages with the arm projecting from the helve, and partially raises the hammer—a stationary catch, engaging with said projecting arm, holding the hammer as thus raised—until the lower catch can be carried over the arm. The holding-catch is pressed out of the way by the elevating-lever as it descends.



1. The combination, with the spring-pressed hammer A B, arranged on a pivot, C, and having an arm, L, of a lever, I, and the catch and tripping-pawl K, substantially as specified.

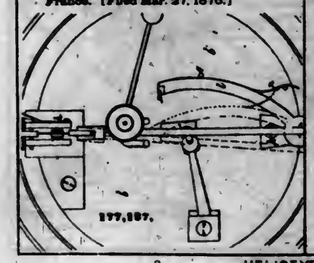
2. The combination of holding pawl F with the hammer A B, arm L, and lever I, substantially as specified.

177,206. SCARFS. Obed Loch, New York, N. Y. [Filed Mar. 17, 1876.]



A scarf, made with closed shoulders, and with backward-extending lower flap, and an overlapping top flap that is retained by a suitable fastening device, substantially as specified.

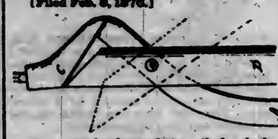
177,207. DEVICES FOR STARTING PENDULUM-CLOCKS. Ernest A. Lourdelet, Paris, France. [Filed Mar. 27, 1876.]



1. The combination, with the pendulum of a clock, of a rock-shaft carrying an arm for the purpose of starting or stopping the pendulum, as described.

2. The shaft *j*, having squared end *i*, and arm *l*, with elbow *m*, in combination with spring *n*, stop-pin *o*, and the pendulum, as and for the purpose described.

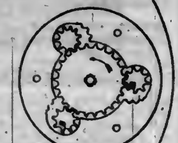
177,208. OYSTER-OPENERS. George H. Lum and T. Perry Stanford, New Haven, Conn. [Filed Feb. 8, 1876.]



As an article of manufacture, the herein-described oyster-knife, consisting of the principal handle A terminating in the blade B, and having the jaw C, the face thereof being at an angle of nearly forty-five degrees thereto, combined with the handle D hinged to the handle A, and terminating in a jaw corresponding to the jaw C on the principal handle, substantially as described.

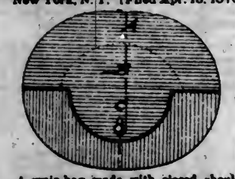
177,209. RATCHET-STOPS FOR WATCHES AND OTHER MACHINERY. Jas. D. McAnlis, Beaver Falls, Pa. [Filed Apr. 10, 1876.]

Brief.—The small pinions slide in the recessed and tooth-encircling frame, and allow the turning of the ratchets in one direction, while stopping them positively in the opposite direction.



An improved stop device for ratchets of all kinds, consisting of the combination of the ratchet-wheel with sliding and turning pinions and locking-recesses of a retaining band or ring, substantially as specified, for the purpose set forth.

177,210. GRAIN-BAGS. Arthur McKenna, New York, N. Y. [Filed Apr. 18, 1876.]



A grain-bag, made with closed shoulders, and with backward-extending lower flap, and an overlapping top flap that is retained by a suitable fastening device, substantially as specified.

177,211. REFLECTORS. Wm. S. McLoyne, New York, N. Y. [Filed Jan. 24, 1876.]

The plates D of a reflector, formed with a series of concavities in the plates, and silvered, as described, in combination with the silvered balls C, all constructed and arranged as and for the purpose specified.



177,212. EXTENSION WAGON-BODIES. Jos. K. Milner, Baltimore, Md. [Filed Sept. 20, 1876.]
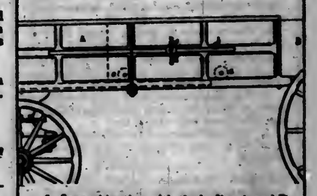


1. In combination with the bodies A and B, the friction-rollers *a*, substantially as described.

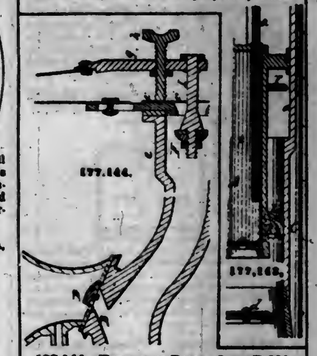
2. The slotted outer body A, combined with the inner body B and clamping devices *c* and *d*, substantially as and for the purpose specified.

177,213. FORCE AND LIFT PUMPS. F. Miller, Pittsburg, Pa. [Filed Mar. 7, 1876.]

Brief.—The inner diameter of the telescoping cylinder exceeds that of the fixed cylinder, so as to permit the interposition of flexible packing.

1. The combination of the discharge-pipe or fixed cylinder, the movable valve-cylinder, substantially as described, and the interposed flexible packing C, secured to the fixed cylinder or discharge-pipe, for the purpose specified.

2. The combination of the discharge-pipe or fixed cylinder, having the interposed packing, the movable valve-cylinder, and the guides, substantially as and for the purpose specified.



177,214. HYDRAULIC RAMS. Isaac B. Millington, Salt Harbor, Pa. [Filed Feb. 21, 1876.]

Brief.—The terminus of the ram-tube is provided with a horizontally-acting spring-valve, so arranged as to receive the full head of water flowing through said tube. The air-chamber is provided with an inclined flap-valve, which yields easily to the pressure occasioned in the tube by the closing of the spring-valve.

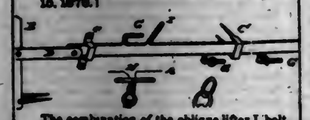
1. In a hydraulic ram, the horizontally-acting spring-valve F, substantially as described.
2. In a hydraulic ram, the air-chamber closed by inclined flap-valve D, substantially as set forth.
3. The ram-tube A, having branch B opening into air-chamber C, and guarded by inclined flap-valve D, in combination with branch E, the outlet of which is provided with horizontally-acting valve F, as shown.
4. The combination, with a hydraulic-ram tube, of the spring-valve, consisting of head F, spindle *f*, and bent spring G.
5. The combination of valve-head F, spindle *f*, plate *g*, bent spring G, and regulating-screw h.

177,146. CARRIAGE-THILLS. N. Mitchell, Haverstraw Falls, Mo. [Filed Jan. 18, 1876.]



A carriage-thill, A, provided with a rubber forward end, B, substantially as herein shown and described.

177,147. DISTANCING CATTLE FROM STALLS. Henry S. Hoff, Manheim, Pa. [Filed Feb. 15, 1876.]



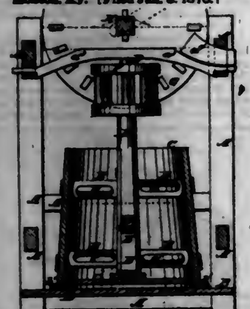
The combination of the oblique lifter I, bolt G, and lever E, when said lever is connected by a hinged piece, D, with a flat sliding bar, B, simply held in keepers C against the inside of a trough, A, arranged and operated as and for the purpose specified.

177,147. CULINARY UTENSILS. Henry S. Hoff, Manheim, Pa. [Filed Apr. 1, 1876.]
Brief.—For steaming eggs.



The perforated disk A, raised upon legs or supports B, and provided with a central handle, D, together with the flanged removable cups C, in combination with a deep covered tin kettle of the ordinary form, the whole arranged and operated substantially in the manner and for the purpose specified.

177,148. CHURNS. William B. Nunn, Edmonton, Ky. [Filed Jan. 3, 1876.]

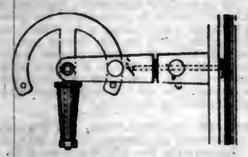


The combination of the detachable bar *a'* and the wedge *a''* with the frame A, having opening for receiving the bar and wedge, the churn-barrel C, and the dasher D, as and for the purpose set forth.

177,149. DRINKING. John Oesterling, Wheeling, W. Va. [Filed Feb. 17, 1876.]

The pressed glass tobacco-cup, having the base A, ink-cup B, and combined cup and cover C, substantially as and for the purposes specified.

177,150. PAINTERS' WHEEL-HORSES. A. D. Osgood, Oneida, Ill. [Filed Apr. 12, 1876.]
Brief.—The top revolves horizontally on the base, and is held at any point by a set-screw. The wheel rests and revolves on a thimble in the hub, and loosely mounted on a central arm. The wheel turns in a vertical arc, and is held at any point by a set-screw.



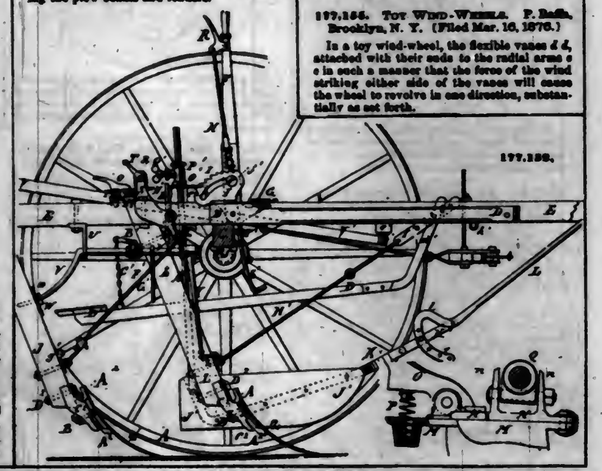
A painter's wheel horse, consisting of a base-stand, revolving top with set-screw, swinging top arm, with guide and clamp-screw, and hub-holding thimble, substantially in the manner and for the purpose specified.

177,151. ROASTING-PANS. John G. Peace and John S. Wingfield, Salem, Mo. [Filed Mar. 25, 1876.]



A roaster for insertion within a stove-oven, provided with a perforated false bottom, C, to receive the article to be cooked, and immediately thereunder a sliding pan to receive successive portions of water as the cooking progresses, all as shown and described.

177,152. WEEDS-CULTIVATORS. H. H. Perkins, Osceola, Ill. [Filed Sept. 17, 1875.]
Brief.—Devices for laterally oscillating the plow-standards, and for hanging and adjusting the plow-beams and fenders.



177,152.

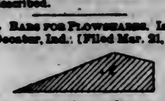
1. The combination of the bent rock-shafts V, slotted adjustable plates W, stationary bar G, as U, inwardly-extending rods B', treadles D', downwardly-extending rods E, and links Z, with the inner and outer adjustable shovel-standards, and the vertically adjustable beam-frame, as and for the purposes set forth.
2. The combination of the swinging and laterally-adjustable collars Q, notched plate N, cap-plate M, pivoted catch O, and spring P, with the inner shovel-standards L, transverse screw-shaft R, and the beam-frame, as and for the purpose set forth.
3. The combination of the roller M', adjustable front rod L, having perforated, hooked rear portion *l'*, with the plant-fenders J', and its front arms K', as and for the purpose set forth.
4. The combination of the bent and forked bar B', with the adjustable supporting-rod B'' of the guard-plates J', and the yoke B', pivoted to the plow-standards L, substantially as herein shown and described.

177,153. BOATS. Aaron Pitman, Matawan, N. J. [Filed Dec. 17, 1875.]
Brief.—Sheets of celluloid are cut to the proper shape, formed on a skeleton, and fastened together and to the skeleton by a "paste" made of celluloid dissolved in naphtha.



As a new article of manufacture, a seamless boat or vessel formed of celluloid, substantially as described.

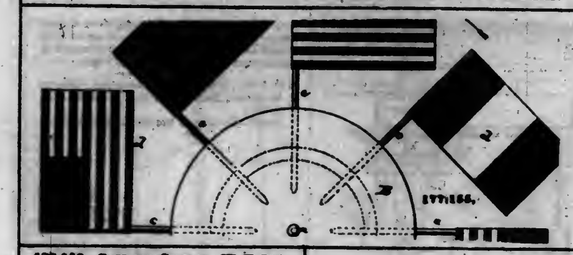
177,154. RAKES FOR FLOWER-BEDS. Isaac N. Fyle, Decatur, Ind. [Filed Mar. 21, 1876.]



As a new article of manufacture, a rolled metallic bar drawn to a sharp edge, having flat bottom, a long upward bevel from said edge, and from thence a short rearward bevel, meeting a perpendicular rear side, substantially as shown and described.

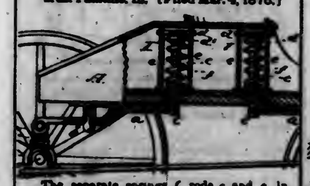
177,155. TOY WIND-WHEELS. P. Roth, Brooklyn, N. Y. [Filed Mar. 16, 1876.]

In a toy wind-wheel, the flexible vanes *d d*, attached with their ends to the radial arms *c* in such a manner that the force of the wind striking either side of the vanes will cause the wheel to revolve in one direction, substantially as set forth.



177,156.

177,156. CARRIAGE-SPRINGS. W. H. Richards, Palatine, Ill. [Filed Mar. 4, 1876.]



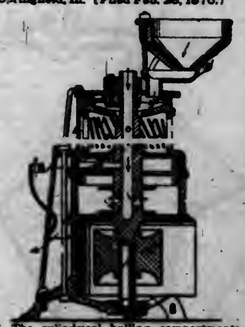
The separate springs *f*, rods *e* and *e*, in combination with bars *a*, supports *b* and *l*, and body A, substantially as and for the purpose set forth.

177,157. DENTAL PLUGGERS. Cassius M. Richmond and Alex. Warner, Jr., San Francisco, Cal. [Filed Mar. 13, 1876.]
Brief.—A pivoted sliding frame carries a cam, which operates a hammer attached to a bent spring over the end of the plugging-tool. The cam-frame adjusts by means of a sleeve sliding on the tool-case.



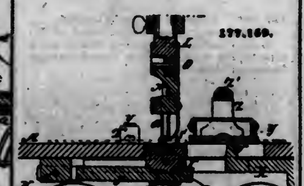
1. The cam-shaft frame J, mounted on the tool-stock A by sleeve K, and screw L, arranged to allow the stock to slide relatively to the frame, substantially as specified.
2. The spring M combined with the tool-stock A, head D, and the frame-sleeve K, substantially as specified.
3. The cam-shaft frame J, having a joint, N, in combination with the mallet and tool-stock, substantially as specified.

177,158. COAL-HULLERS. G. W. Richmond, Springfield, Ill. [Filed Feb. 28, 1876.]



1. The cylindrical hulling-compartments, being made of rimmed cylindrical sections, having diagonally-inclined exit openings or slots for the hulls, substantially as described.
2. The huller-plates secured by a T-flange, having small lug on inside of section-ring, and a notch to each part of plate, as shown and described.

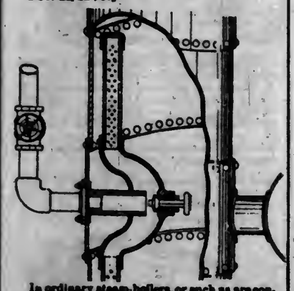
177,159. LEATHER-PUNCHING MACHINES. Alonzo O. Rickey and Martin D. Norris, Eldora, Iowa. [Filed Mar. 20, 1876.]



177,159.

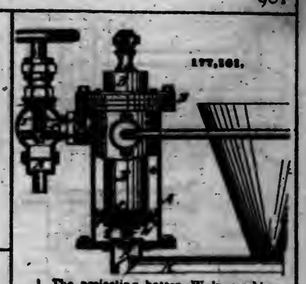
1. The combination of bed H, cam U, and punches G, substantially as specified.
2. The feeder W, slide X, cam D, crank F, and presser Y, combined with punches G, substantially as specified.
3. The presser Y, forked elbow Z, and spring Z', combined with the feeder W, substantially as specified.
4. The vertically-sliding punch-carrying bar P, arranged in ways in the side of the frame, and overhanging the bed, and the cam E, combined and arranged substantially as specified.
5. The jointed punch-stock I, in combination with the bed H, substantially as specified.

177,160. SUPPLYING FEED-WATER TO BOILERS. Wm. B. Russell, Pittsburg, Pa., assignor to Jas. Russell, same place. [Filed Feb. 21, 1876.]



In ordinary steam-boilers, or such as are constructed to contain the body of water from which the steam is to be generated— 1. The method herein described of supplying the feed-water, the same consisting in introducing the water in a finely-divided state, or spray, into the steam-space of the boiler, away from the fire-surface, and at a point near the mud-drum: 2. In combination with the boiler, a trap spray-feed pipe arranged in the steam-space, substantially as specified: 3. In combination with the trap spray-feed pipe of a steam-boiler, the equalizing-valve, substantially as and for the purpose specified.

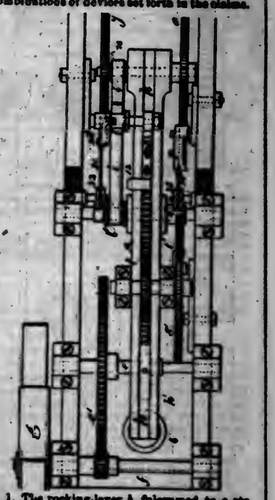
177,161. WATER-CLOSETS FOR VESSELS. Alfred B. Sands, New York, N. Y. [Filed Apr. 10, 1876.]
Brief.—The plunger has a projection on the lower part, to prevent the valve from lifting when the ship rolls. At the left is apparatus for shutting off the water-supply, the loose valve being held to its seat by the steam worked by a wheel.



177,161.

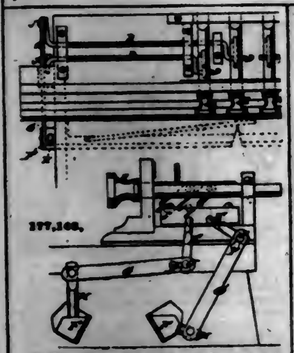
1. The projecting bottom W, in combination with plunger S and valve Q, substantially as described, and for the purpose set forth.
2. The combination of the globe-chamber I' with the loose circular valve J', the threaded stem n, the water-inlet pipe H and cylinder A, substantially as described, and for the purpose set forth.

177,162. BOBBIN-WINDERS. Joseph Schofield, West Pittsfield, Mass. [Filed June 28, 1875.]
Brief.—The bobbin winder is adapted to be used in a spinning-jack, or in a winder of any character. The operation of the mechanism is such that a conical coy may be wound upon a bobbin without a tapering base. The extent of motion of the follower or faller is regularly increased until the base of the cop is completed, when this motion becomes fixed. The position of the faller is regularly advanced along the spindle of the bobbin until the cop is finished. In addition to these motions, the faller has an oscillating movement, for distributing the thread upon the several layers. These three motions are produced by special combinations of devices set forth in the claims.



1. The rocking-lever A, fulcrumed to a stationary frame and the revolving cam *h'*, in combination with the let-off roller n, hand *i*, ratchet-wheel o, pawl *p*, and thread-guide *d*, substantially as set forth.
2. The regulator-roller *l*, rack *s*, pinion *t*, and ratchet-wheel *s'*, in combination with the rocker-lever A, fulcrumed to a stationary frame, let-off roller n, hand *i*, and winding mechanism, substantially as set forth.
3. The shifting-bar v, and operative mechanism, latch w, drums *o o'*, pawls *p p*, and their connections, in combination with the rocker A, ratchet-wheels *s' o p*, let-off roller n, rack *s*, and regulator-roller *l*, substantially as specified.

177,163. STOP-ACTIONS FOR REED-ORGANS. Eugene H. Schofield, Mendota, Ill. [Filed Feb. 21, 1876.]



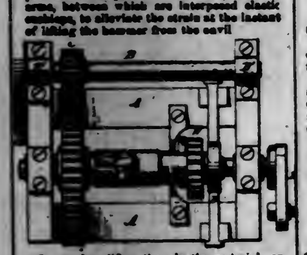
177,165.

1. The combination, with stop-drawn A and stop-valves F, of the shafts B having cranks D E, the rods G, and the arms H, all arranged substantially as and for the purpose specified.

2. The stop-drawn connected to the crank-shafts by the forked pawls C fitted on the cranks and pivoted to the stop-drawn, substantially as specified.

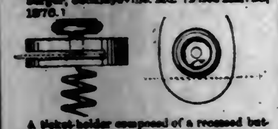
177,166. DROP-LIFTERS. Frank Seward, New Haven, Conn., assignor to Mills Peck, same place. [Filed Apr. 12, 1876.]

Brief.—The sleeve carrying the ratchet-wheel and the driving-gear is divided, and provided at the junction of the two parts with arms, between which are interposed elastic cushions, to alleviate the strain at the instant of lifting the hammer from the anvil



In a drop-lifter the elastic material or spring arranged between the driving-gear and the lifting mechanism, substantially as described.

177,168. TICKET-HOLDERS. Daniel Shamberger, Bucklesyville, Md. [Filed Mar. 26, 1876.]



A ticket-holder composed of a recessed button or holder, having a spiral screw-pin at the back or under side, and a ticket-clamping thumb-screw at the front part, substantially as and for the purpose set forth.

177,169. HAT-ELEVATORS. Michael M. Shellenberger, Hamilton, Mo. [Filed Mar. 28, 1876.]

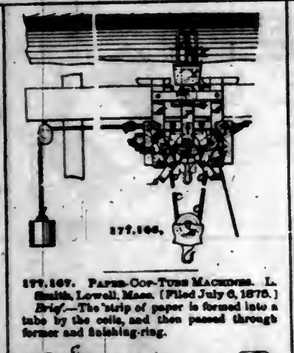
Brief.—When the block is lowered into the check-notch the carriage passes over it and clear on the supporting-beam. When raised, the roller-frame, as it moves along, drops into the notch, and holds the device for elevating its load.

1. The combination of the dropping roller-frame F, and rollers E, with the hoisting-block B, carriage A, and the check-notch G, substantially as specified.

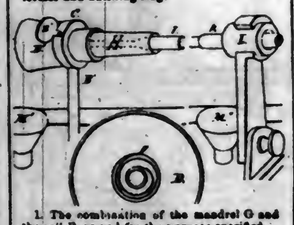
2. The block I, in combination with the check-notch G, substantially as specified.

3. The running-lever L, and links M, in combination with the dropping-frame F, and the hoisting-block B, substantially as specified.

4. The return-cord having temporary connection with the carriage by the grips of the hoisting-block, substantially as specified.



177,166.



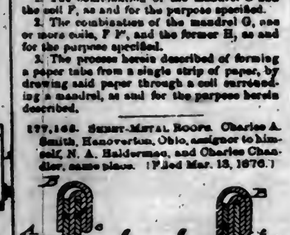
1. The combination of the mandrel G and the coil F, as and for the purpose specified.

2. The combination of the mandrel G, one or more coils, F F', and the former H, as and for the purpose specified.

3. The process herein described of forming a paper tube from a single strip of paper, by drawing said paper through a coil surrounding a mandrel, as and for the purpose herein described.

177,167. PAPER-COP-TUBE MACHINES. L. Smith, Lowell, Mass. [Filed July 6, 1875.]

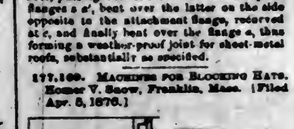
Brief.—The strip of paper is formed into a tube by the coils, and then passed through former and finishing-ring.



1. The combination of the mandrel C, coil F, and former H, substantially as specified.

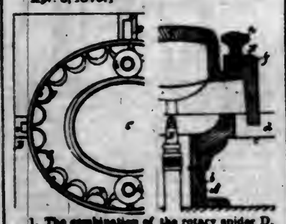
2. The combination of the mandrel C, former H, and finishing-ring I, substantially as specified.

177,168. SHEET-METAL ROOFS. Charles A. Smith, Hanoverton, Ohio, assignor to himself, N. A. Halderman, and Charles Chandler, same place. [Filed Mar. 13, 1876.]



In combination with the vertically-flanged metallic sheets A, the continuous anchor-cap B, flanged and pierced for attachment to the roof, passing between the vertical roof-plate flanges a a', bent over the latter on the side opposite to the attachment flange, recessed at c, and finally bent over the flange a, thus forming a weather-proof joint for sheet-metal roofs, substantially as specified.

177,169. MACHINES FOR BLOCKING HATS. Homer V. Snow, Franklin, Mass. [Filed Apr. 5, 1876.]



1. The combination of the rotary spider D, its supporter A, the gas-burner E, and the hat block or mold C, all arranged substantially as and for the purpose specified.

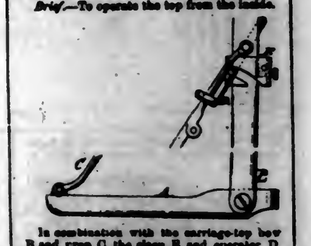
2. The combination of the enclosed or recessed rim-cap E, as described, with the hat block or mold C.

3. The hat-block C, provided with the studs or tenons a, in combination with the rotary spider D, provided with the slots d in its arms c, to receive such tenons, all being arranged as and for the purpose set forth.

4. The combination of the standard A, gas-burner E, rotary spider D, hat-block or mold C, and the rim-cap E, enclosed or recessed at and around its periphery, as and for the purpose set forth.

177,170. TOP-PROP OPERATORS. George W. Spink, Bellona, N. Y. [Filed Mar. 13, 1876.]

Brief.—To operate the top from the inside.



In combination with the carriage-top bow B and prop C, the clasp E and operator D, constructed and applied to actuate the prop C, in the manner and for the purpose herein set forth.

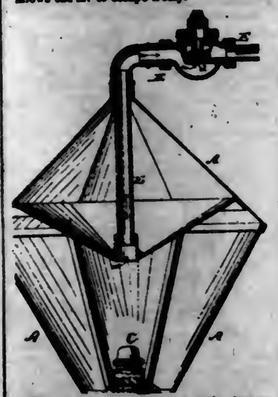
177,171. BUTTON-HOOKS. C. Stickel, New York, N. Y. [Filed Feb. 21, 1876.]



The pattern, consisting of vamp A, quarter B, button-piece C, and leg-piece of one piece, and provided with the slots F G and the leg-piece E, adapted to be united thereto, to form a button-hook, substantially as specified.

177,172. SUBMARINE LANTERNS. Julius H. Strindinger, New York, N. Y., and Albert Zoller, Hoboken, N. J. [Filed Apr. 5, 1876.]

Brief.—A submarine lantern furnished with an air-discharge pipe, extending from the center of the reflector upward through the body, and provided with a self-acting check-valve, which prevents the water from entering, but allows the air to escape freely.



The combination of the submarine lantern A with the discharge-pipe E, which contains the check valve d, all arranged substantially as described, so that the pipe E will discharge the foul or heated air directly into the water, as set forth

177,173. COFFEE-POTS. Samuel Theobald, Baltimore, Md. [Filed Nov. 4, 1875.]

Brief.—Provides spring-pressure against the expansion vertically of the coffee.



The pressure-plate C, provided with the stem b and adjustable elastic cross-bar f, in combination with a coffee-percolating vessel, B, substantially as and for the purpose herein specified.

177,176. CONCENTRATING-TABLES FOR ORES. John U. Tolles, Virginia City, Nev. [Filed Jan. 22, 1876.]

Brief.—The ore is fed with water into a feed-box, and issues from the box through inverted pear-shaped openings upon a cloth-faced table. Heavy mineral catches in the nap, while refuse passes over the table. Jets of water are then allowed to impinge upon the cloth, to loosen the mineral and wash it into a box placed at the lower edge of the table.



1. In a concentrator, the combination of a stationary inclined flat table, A, provided with a cloth facing and a stationary feed-box, provided with perforations, and arranged to deliver the ore and water upon the table, as shown and described.

2. The feed-box B, provided with the discharge-openings c, of decreasing width toward their lower ends, as shown.

3. In combination with the inclined concentrator-table A, the collecting-box C and hinged leaf D, as and for the purpose described.

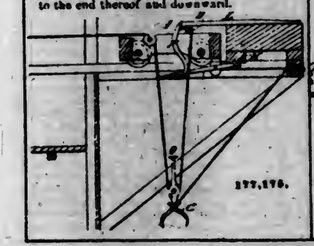
4. In combination with the concentrator-table A, the rotating perforated tube E, substantially as and for the purpose described.

5. The feed-box B, provided with the openings c, and partially filled with the rough stones, as and for the purpose described.

6. The combination of the inclined cloth-covered table A, the feed-box B, and the rotating perforated pipe E.

177,174. HAY-ELEVATORS. Hector Tooth and Clinton Tooth, Jefferson, Ind. [Filed Apr. 16, 1876.]

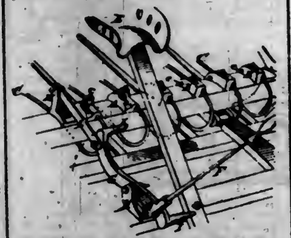
Brief.—The load, on reaching the carriage on the overhead ways, strikes, with a stop on the end of the grapple, the latch to release the carriage. The hauling-rope is attached to the upper end of a catch, which below passes under the stop; it then leads under the grapple-pulley and over another on the ways, thence to the end thereof and downward.



177,176.

The claw-lever F and stop-piece L, combined with the headed elevator-fork C, carriage A, and the latch J, substantially as specified.

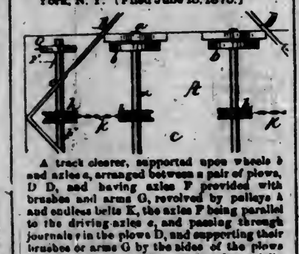
177,178. HORSE HAY-RAKES. J. P. Trader, Xenia, Ohio. [Filed Apr. 1, 1876.]



1. The curved tooth-fastener A or B, provided with a groove for the tooth, and a slot for end adjustment, substantially as shown and described.

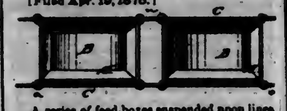
2. The compound hand and foot lever, composed of the arms F O L, foot-pads I K, and stop i, substantially as shown and described.

177,177. SNOW-PLOWS. Robert S. Van Zandt, Williamsburg, N. Y., assignor of one-half his right to George Boyd, New York, N. Y. [Filed June 18, 1875.]



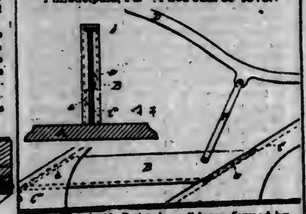
A tract-clearer, supported upon wheels b and axles c, arranged between a pair of plows D D, and having axles F provided with brushes and arms G, revolved by pulleys h and endless belts K, the axles F being parallel to the driving-axles c, and passing through journals in the plows D, and supporting their brushes or arms G by the sides of the plows D and over the rails of the track, substantially as shown and described.

177,175. FEED-BOXES. William M. Walton and Joseph J. Walton, New York, N. Y. [Filed Apr. 19, 1876.]



A series of feed-boxes suspended upon lines C C by means of the eyes a or hooks b, projecting from the ends of the boxes, substantially as and for the purposes herein set forth.

177,179. BREAD-CUTTERS. J. B. S. Ward, Philadelphia, Pa. [Filed Jan. 31, 1876.]



1. The knife B, having slides c, formed by bending each end edge in opposite directions, in combination with T-shaped grooves b, substantially as and for the purpose set forth.

2. The knife B, having oblique ends, with slides c c projecting in opposite directions from the sides of the blade, in combination with oblique guides C and C', having T-shaped grooves b, a reciprocating movement being given to the knife by the lever D and rod F, substantially as and for the purpose set forth

177,180. STOP-COCKS. Henry Watkeys, Syracuse, N. Y. [Filed Oct. 30, 1875.]



The combination, with the shell or barrel a having the longitudinal tapering plug-seat b, and the tapering or wedging plug d having central cavity e, side outlet or orifice f, and stem g, of the stuffing-box s having annular recess s extending partly the length of the plug, and the spiral spring o, constructed substantially as described and shown, for the purpose set forth.

177,181. JOURNALS AND COUPLINGS. Theophilus Weaver, Harrisburg, Pa. [Filed Mar. 20, 1876.]



1. A journal or coupling, which employs in it a tubular stock, provided with a screw-threaded partially-slotted attaching-sheet, and operating medially by a common nut on said sheet, to hold in clamped condition in said stock the smooth stem of a journal-bolt or other smooth body, substantially as set forth.

2. The journal proper B B', in combination with the partially-slotted journal-stock A A', by means of the nut C operating on the stem B' mediately as a slip-joint in the stock A A', and extensible for different lengths of wrists or wheel-hubs, substantially as set forth.

3. The journal proper B B', in combination with the partially-slotted stock A A', with the wheel-hub N, centrally reamed out at its ends, and with the standard H, by means of the common lock-nut C operating as a cam or vise, both to attach the journal to said standard, and to hold it confined in said stock, substantially as and for the purposes set forth.

177,182. MACHINES FOR PRINTING ON CANS. Jacob B. Weaver, Baltimore, Md. [Filed Apr. 13, 1876.]

Brief.—The cans at the trough receive a coating, which is evenly distributed by the oscillating brush, while the cans roll under the same on the inclined railway. The cans then pass by the semicircular railway, down the printing-board, over the elastic type fixed on the same, thus receiving the impression. The printing-board, after a can has passed over the same, rises, and the type receive ink from the inking-rollers, which, as the printing-board falls, recede to the distributing-roller.

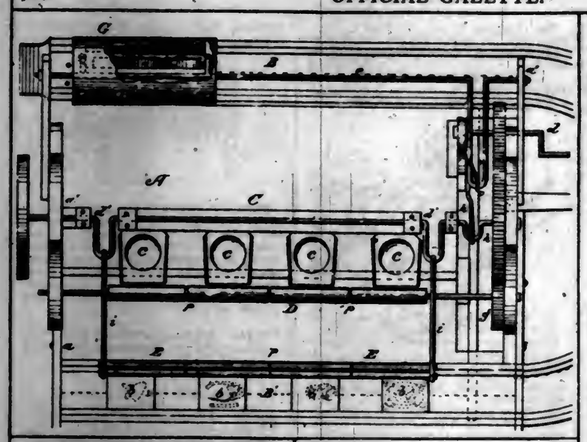
1. The combination, with the table A, of the adjustable center-piece C, inclined railway B, circular railway H, and movable printing-board B', having elastic types b b, substantially as and for the purpose herein described.

2. The adjustable center C, supporting the color-plates c c, in combination with the crank-shaft d', pitmen f f, distributing roller or rollers D, and gum inking-rollers E E, substantially as set forth.

3. The inclined railway B, paint-trough F, and fender G, in combination with the rock-shaft e and brush f, substantially as herein described.

4. The crank-shafts d d' and gearing g h f, in combination with the distributing roller or rollers D, gum inking-rollers E E, levers I K, rock-shaft e, connecting-rods I a, and pitmen f f, substantially as and for the purpose herein described.

5. The apparatus for printing on cans, herein described, consisting in the combination, with the adjustable inclined railway B and printing-board B', of the oscillating brush f, one or more distributing rollers, D, and gum inking-rollers E E, with suitable operating mechanism, said printing-board being provided with elastic types b b, and arranged to rise for the purpose of inking the type, and then fall to allow the cans to roll over its surface, substantially as set forth.



4. The sheave L, arranged to operate in connection with the sheave O on the hub M, by means of the rope m and its connections with the lever m^1, as shown, and for the purposes set forth.

5. The clutch F^2 provided with the sleeve n, in combination with the clutch F^3, the pump-rods F^5 F^6, and rods f^3 f^4, arranged as shown, for the purposes specified.

6. The casket-casting n, formed, as shown, in connection with the frame of the wind-wheel, as set forth and described.

7. The angular sail-supporting casting o^1, constructed as shown, and provided with the screw o^2 to secure the casting to the wind-wheel or face-board, as set forth and described.

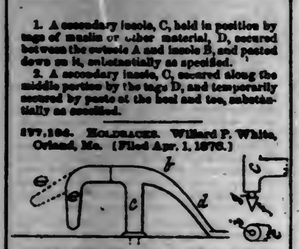
177,186. SHOES. John C. Weil, Baltimore, Md. [Filed Mar. 20, 1876.]



1. A secondary insole, C, held in position by tags of muslin or other material, D, secured between the outsole A and insole B, and pasted down on it, substantially as specified.

2. A secondary insole, C, secured along the middle portion by the tags D, and temporarily secured by paste at the heel and toe, substantially as described.

177,185. HOLDBACKS. Willard P. White, Orland, Me. [Filed Apr. 1, 1876.]



1. The improved holdback, substantially as herein described, consisting of a metal standard, in combination with a rubber retaining-hook, attached to the upper extremity of said standard, and serving inwardly toward the shaft, as shown, for the purposes set forth.

2. In a holdback, the metal portion c, provided with the projection f and groove h, in combination with the rubber retaining-hook e, having the socket i therein, said parts operating as set forth, for the purposes described.

177,187. STOPPER-BOTTLES. Samuel A. Whitney, Glassborough, N. J. [Filed Apr. 22, 1876.]

Brief.—The stopper is of glass, and screw-threaded to enter female screw in the neck of the bottle. The central opening for the fluid-tube is tapering, with largest part at the bottom.

1. A screw-bottle stopper consisting of disk and threaded collar formed of glass, as having a central perforation, substantially and for the purposes set forth.

2. The same bottle stopper having a perforation of tapering form, the widest portion of which is at the inner thereof, substantially and for the purposes set forth.



177,188. WHIP-SOCKETS. Thos. L. Whitcare, East Rochester, Ohio, assignor to himself, H. F. Whitcare, and G. T. Whitcare, same place. [Filed Apr. 10, 1876.]

Brief.—The cam is operated by a key



The combination of a whip-socket, having interior clamping-spring and slot back of the same, with a swinging eccentric cam for locking or releasing the whip, substantially as specified.

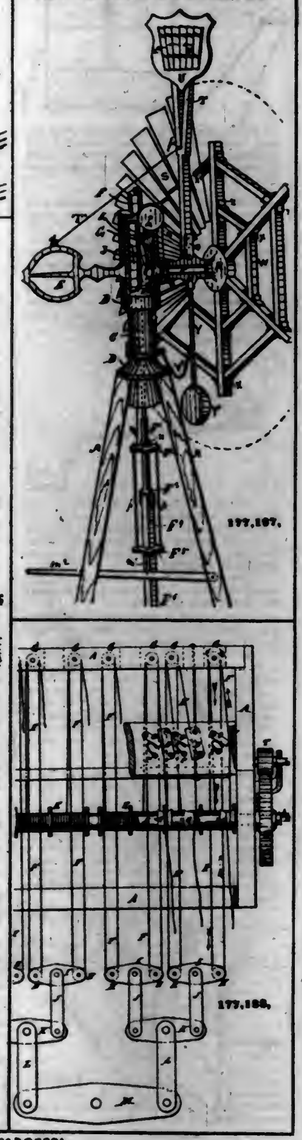
177,189. WINDMILLS. Elmore Williamson, New York, N. Y., assignor to himself and Geo. W. Williamson, same place. [Filed Feb. 11, 1876.]

Brief.—Above the cap is arranged a revolving head, which is mounted upon rollers. The upper part of the revolving head is formed with a frame, which is provided with a hollow guide, and the lower part has a hole through it from bottom to top, in which works the pump-rod. On one side of the frame is secured the vane. On the other side of the frame is permanently attached a wrought-iron tube, which is bored out, and in which is fitted the main shaft with a crank-wheel. On the outside of the hollow pipe is the hub of the governor, which has at one end a sheave, and at the bottom a leg to receive the weight-rod.

1. In combination with the pipe H² and revolving head C D, the hub M of the governor, arranged to operate in the manner shown and described.

2. The hub M, provided with the sheave O at one end, and the hinge-joint Q at the top, as shown and described.

3. The combination of the hub M, rod and weight Y Y¹, and hinged arm T, provided with the face-board U, which is perforated and furnished with the sails V, as shown and described.



177,197.

177,188.

177,190. STRAIN-EQUALIZERS FOR PULLEY-BLOCKS. Samuel Woolston, Vincentown, N. J. [Filed Apr. 18, 1876.]

Brief.—The blocks are connected to coupling-plates, and have pulleys pivoted at each end, over which (the capstans on the shaft and pulleys above) ropes pass, the ends of which connect with clamps, whereby power can be applied to one or more series of ropes.

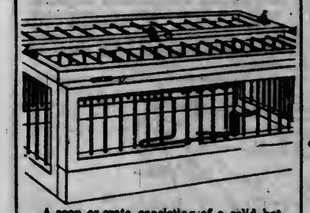
The combination of gear-wheels B C, shafts D E, spools E, rope F, pulleys G H Q, blocks I K M N, plates J L, cams O, and springs P, substantially as and for the purpose specified.

177,190. CARBONIZING OR COATING ARTICLES OF IRON OR STEEL. S. W. Young, Providence, R. I., assignor to the Homogeneous Metal Manufacturing Company. [Filed Feb. 24, 1876.]

The process of carbonizing or coating small articles of iron or steel, which consists in exposing them in a tight chamber (and during constant rotation) to an atmosphere of heated oil vapor, substantially as herein described.

177,190. FOLDING COOPS. Chas. C. Allen, San Francisco, Cal. [Filed Dec. 11, 1875.]

Brief.—The bottom is solid; the ends let down by hinges and rest upon the bottom. The top, divided longitudinally, folds down inwardly, when the sides, hinged to the bottom, fold down upon all the other parts.



A coop or crate, consisting of a solid bottom, sides composed of wire frames hinged to the bottom, a top composed of two wire frames hinged to the sides, and the ends composed of wire frames hinged to the bottom, all combined substantially as described and shown.

177,191. LAMPS. Charles E. Ball, Philadelphia, Pa. [Filed Nov. 8, 1875.]



1. The copper-wire coil D, located in the volatilising-chamber B, and serving as a frame or support for the fibrous material B', in combination with an arm passing through the walls of the chamber B, and proceeding to the chimney or above the flame, for conducting heat therefrom to said coil to facilitate vaporization, substantially as shown and described.

2. In a hydrocarbon-lamp in which the fluid is drawn by capillary attraction from a reservoir to a volatilising-chamber, and converted into a vapor in the latter, and before reaching the burner, the combination, with the fibrous packing of such volatilising-chamber, of a central filling of pumice-stone, to prevent liquid accumulation and assist in the formation of gas, substantially as set forth.

3. In a hydrocarbon-lamp, the combination with the chamber B, containing the coil D and packing B', of the pipes E and E^1, conveying air to the center and outer surfaces of the coil, substantially as described.

4. The arm F, made of copper wire, bent to form a ring, f, and connecting with the coil D, serving as a chimney holder or stay and heat-conductor, substantially as shown and described.

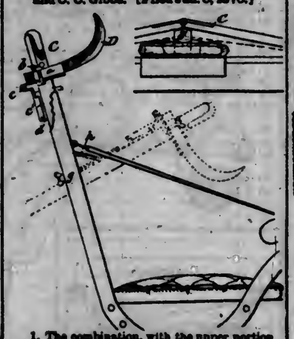
177,192. LAMPS. John M. Barnett, Lynn, Mass., assignor to himself and Joseph N. Smith, same place. [Filed Apr. 5, 1876.]



1. In combination with a lost-body, D, and its movable instep-piece C, the headed stud or screw F and the locking-plate A, having the open and angular slot B, all being essentially as shown and described.

2. In combination with a lost-body, D, and its movable instep-piece, C, a headed stud or screw, F, an open channel or groove, B, and a locking-plate, A, provided with an open and angular groove, B, all being substantially as set forth.

177,193. CHAIRS. J. W. Barnes, Nauvoo, Tex., assignor to himself, Bigton Quinney, and C. C. Gibbs. [Filed Jan. 6, 1876.]



1. The combination, with the upper portion of the back of a chair, of stiff inflexible arm-supports, adapted to fit beneath the arm-pits and support the body, substantially as and for the purpose described.

2. The shoulder-supports D, having slots c, in combination with the screw-stem and nut b, the hinged plate c, carrying a slide, c', and the guideways d, substantially as and for the purpose described.

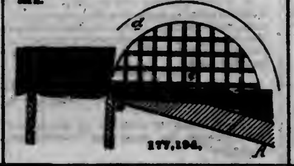
3. The shoulder-plate, consisting essentially of two hinged leaves, in combination with a suitable adjusting device, as and for the purpose described.

4. The combination of the shoulder-supports D with the shoulder-plate C, having a backward inclination from the center, as and for the purpose described.

5. The movable back, carrying shoulder-supports, pivoted to the chair-frame at g, and having a retracting-spring, h, substantially as and for the purpose described.

177,194. MANUFACTURE OF BALLS AND ROVINGS OF YARN. Oscar Boehme, Philadelphia, Pa. [Filed Mar. 10, 1876.]

Brief.—By the use of a hollow cone, the yarns may be compressed and more accurately tied and cut, and by the reel on its larger end the colors may be arranged to a desired pattern.



177,194.

1. As an improvement in the manufacture of balls, tufts, or rosettes of yarn, the mode described of first condensing the threads, and then binding and covering the same, as set forth.

2. The combination of the condensing-tube A with the reed-plate D.

177,195. CORN-PLANTERS. A. SOTHMAN, Lancaster, Ohio. [Filed Feb. 18, 1876.]

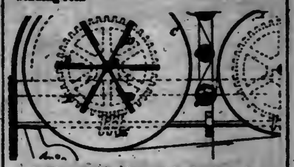


1. The combination, in a hand-planter, of the roller E, crank-arm d, link d', and valve-lever D, all arranged and operating, as described.

2. The compensating-loop or U-shaped spring f, applied to the stud or frame i, and operating in combination with the valve-lever D, substantially as and for the purpose described.

177,196. APPARATUS FOR DRYING PAPER. Henry Braunhold, New York, N. Y. [Filed Apr. 6, 1876.]

Brief.—Paper to be dried passes around the perforated drum containing fan, and thence around an imperforate heating-drum and guide-rollers to another perforated drum, as shown by line and arrows, or it may pass direct from the heating-drum over guides to the winding-roll.

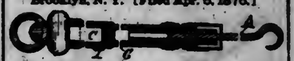


1. The combination, with the foraminous drum and its internal revolving fan, of an air-forcing device, arranged in relation to the drum, for driving a current of air over the circumference of the drum, for driving off the vapors arising from the material being dried, substantially as set forth.

2. The bearing-cylinder I, combined with the foraminous drum O and its internal revolving fan, substantially as described, and for the object specified.

3. The combination of a fan-blower, K, with the heating-cylinder I, the foraminous drum O and its internal revolving fan, substantially as described.

177,197. BUTTON-HOOKS. S. M. Broughton, Brooklyn, N. Y. [Filed Apr. 6, 1876.]



A button-hook consisting of the hook A, with its rod and stud, the slotted tube C and sleeve G, said sleeve being adapted to slide under the cone I, and over the cone H, substantially in the manner and for the purpose specified.

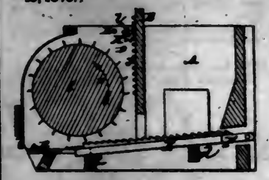
177,198. UMBRELLA-TIP CUPS. F. S. Brown, Jersey City, N. J. [Filed Nov. 1, 1875.]



1. The notched ring f, attached to the tube h, and the spring i within the tube h, in combination with the tip-cup a and tube b, as set forth.

2. The combined runner and tip-cup, made with the tip-cup tube of a size to slide upon the stick, and with the end of such tube enlarged, as at c, for the purposes and as set forth.

177,899. COTTON-GIN FEEDERS. Israel F. Brown, New London, Conn. [Filed Oct. 19, 1875.]



1. The combination of the toothed cylinder C, rotating as described, the stationary bars E, and intermediate reciprocating feed-bars F, arranged in the bottom of the hopper or receiving-chamber A, and both provided with ratchet-shaped or inclined teeth, substantially as specified.

2. The combination, with the adjustable feed-board B and sides of the case, in which it works, of the clamping-bar L and its screw-nut M, essentially as and for the purpose herein described.

177,900. CAR-COUPLINGS. Mortimer M. Brown and David D. Martin, Oneida, and Harvey Gilbert, Gilman, Ill. [Filed Feb. 2, 1876.]

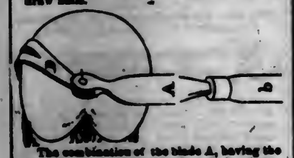


1. The rods a b and F, operating in combination with the supporting-plate G, substantially as and for the purpose specified.

2. The rods E E and F, operating in combination with the plate C, and the plate H, and standards f, said plate H and standards operating as fulcrums, substantially as and for the purpose specified.

177,901. HOOF-PARERS. Levi S. Burroughs and M. M. Carruthers, Sulphur Springs, Ohio. [Filed Feb. 10, 1876.]

Brief.—The forked clamp is adapted to a nail slightly driven into the hoof, to steady the instrument, and also serves as a claw to draw nails.



The combination of the blade A, having the handle A, and swivel-joint C, and the clamping-hook D, provided with the flaring prongs f, substantially as shown, and for the purpose described.

177,902. SULLEY-BOARDS. James A. Crandall and De Witt C. Taylor, Brooklyn, N. Y.; said Crandall assignor to said Taylor. [Filed Mar. 30, 1876.]



1. A bulletin-board, A, combined with the removable letters B B, and with the removable rod C, which is applied to lock said letters, substantially as specified.

2. The combination of the bulletin board A and removable locking-rod C, with the device D for securing said rod C, substantially as herein shown and described.

177,903. HAY-ELEVATORS. Wm. Carroll, Indiana, Pa., assignor of one-third his right to R. A. Young, and one-third to Josias H. Young, same place. [Filed Apr. 24, 1876.]

Brief.—The bars are pivoted to the frame, which connects with the bars, having shoulders, which are opened and closed by a shouldered block, to which the load is held and released.

1. The combination of pivoted bars E E' with frame A and latch C, substantially as and for the purposes set forth.

2. The combination of bars E, having shoulders F', with block F, having swivel-head f, substantially as and for the purposes set forth.

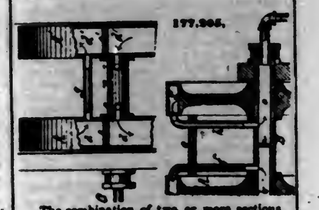
3. In combination with frame A, carrying bars E E', and hinged latch C, the revolvable catch D d d', substantially as described.

4. In a hay-elevator, substantially as described, the latch C, having shoulder C', and constructed to operate in conjunction with catch D, substantially as described.

5. The combination, in a hay-elevator, of frame A, provided with slots d', pivoted bars E E' F', having pins d' working in said slots, pulley F f, with latch C 2 C', and revolvable catch D, substantially as set forth.

6. The revolvable latch C, in combination with frame A, and ears c' c', substantially as and for the purposes set forth.

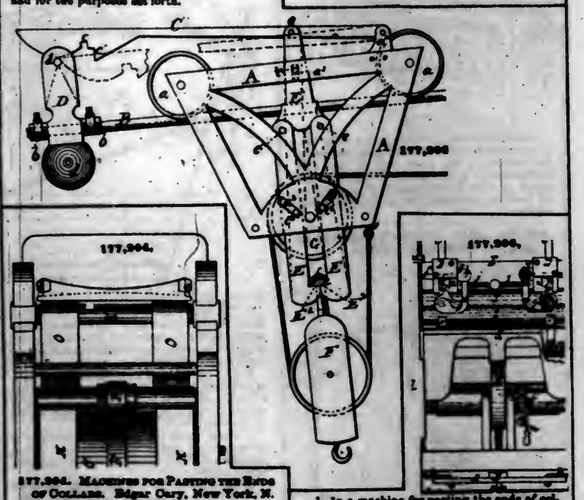
177,905.



The combination of two or more sections, A A', of a heating-drum, with a tubular shaft, B, having compartments b c, which communicate with the hollow rims of the sections A A', and with the pipes C D, substantially in the manner set forth.

177,906. MACHINES FOR PASTING THE ENDS OF COLLARS. Edgar Cary, New York, N. Y. [Filed Jan. 27, 1876.]

Brief.—Collars are gaged and piled upon the table, in succession, when vertically-reciprocating pasters deposit paste upon the ends of the uppermost one, whose ends are then folded by hand, and fed to and between pressing-rolls, from which it is carried to a drying-cylinder by carrying-tapes, and subsequently delivered from the machine by a discharge-trough interposed between the presser-rolls and drying-cylinder. The face of each paster is kept coated by an oscillating paste-distern, having an intermittent rotary supply-roll within it.



177,904.

177,906.

177,906.

177,904. MACHINES FOR PASTING THE ENDS OF COLLARS. Edgar Cary, New York, N. Y. [Filed Mar. 3, 1876.]

Brief.—The collars are piled to a gage upon the table, their lap ends thereof pasted and folded, and then fed into the bight of carrying-tapes, which convey them to and around a drying-cylinder, from which they are delivered at the rear of the machine.

1. In a machine for pasting the ends of collars, the combination of a retaining-tape or apron, O, with the carrying tape or tapes N, the drying-drum C, and the table B, on which the ends of the collars are supplied with paste, all constructed and operating substantially as set forth.

2. The combination of a discharge-tape, P, with the carrying-tapes N and drying-drum C, said discharge-tape being situated between the carrying-tapes and arranged in relation to the same, substantially in the manner shown and described.

177,906. DRYING FOR DRYING PAPER. Edgar Cary, New York, N. Y. [Filed Apr. 6, 1876.]

Brief.—Steam is admitted to the hollow rims through the pipes and intermediate passages.

1. In a machine for pasting the ends of collars, the combination of reciprocating pasters, oscillating paste-cisterns, a collar-supporting table, two collar-guides, and a treadle or other equivalent device for imparting to the pasters the required motion, all constructed and operating substantially in the manner shown and described.

2. The combination, with the reciprocating pasters and the collar-supporting table, of a lifting mechanism for adjusting the table in the proper relation toward the pasters, substantially as set forth.

3. The combination, with the reciprocating pasters, the collar-supporting table and its lifting mechanism, of presser-rollers and a drying-drum, substantially as shown and described.

4. The combination, with the reciprocating pasters, the collar-supporting table, the lifting mechanism, the presser-rollers, and the drying-drum, of a discharge-trough extending out through the side of the frame of the machine, substantially as set forth.

177,907. DUST-DRAINERS. Vashti Onan-dier, Pontiac, Mich. [Filed Aug. 6, 1874.]

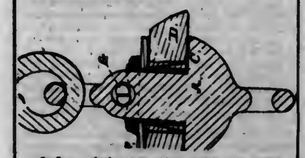


177,907.

Two inclined shelves A A, decreasing uniformly in width from bottom to top, and having the longitudinal grooves C C, and drip-tubes E E, in combination with the inclined slats D and vertical slats D', the whole being constructed and arranged in the manner and for the purpose set forth.

177,908. CHAIN-PUMPS. Wm. A. Cherry, Warsaw, Ill. [Filed Sept. 6, 1875.]

Brief.—The central stem is made long, and pierced to receive a pin or key, binding a washer upon the rubber, by which means a slitted annular wedge, or other means of expanding the rubber, may be introduced without disconnecting the chain.



1. In a chain-pump, the combination, with the rubber bucket D and washer F, of the central part A, having shoulder C and the pin G separate from the link of chain, all arranged as the bucket D may be moved on part A, for inserting means for expansion by removing pin G, and without taking the chain in two, substantially as set forth.

2. The combination, in a chain-pump, of the rubber D and the central part A with the separate annular expansion-wedge, substantially as set forth.

177,909. SUPPORTING-RESTS FOR INVALIDS. Paschal T. Clement, Belfast, Me., assignor of three-fourths his right to John Homer, same place. [Filed Dec. 28, 1875.]

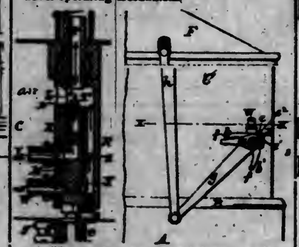


1. The improved supporting-rest described, consisting of the back A B C D, serrated bed-pieces M M, jointed extensible braces F F, hinged adjustable arms G G, and pivoted braces P P, constructed and arranged to operate substantially as set forth.

2. In a supporting-rest, substantially as described, the table Q, provided with the rods R R and extensible support U, in combination with the arms G G, provided with the pins S S and hooks T T, substantially as set forth and specified.

177,910. CARBURETTERS. Isaac Cook, St. Louis, Mo., assignor of one-half his right to Jacob H. Sprague, same place. [Filed Feb. 12, 1876.]

Brief.—The carburetter is placed within the air-holder, the outer wall of which rests in an annular water-seal, below which is an overflow-tank, to catch the drip from condensation of gas. Air or gas is injected by a steam-jet into the holder, from which it passes through vertical tubes extending through the carburetter, finally entering it at the bottom. Both the air-injector valve and the valve in the gasoline feed-pipe are operated by the rising and falling air-holder. Both valves have novel operating mechanism.



1. The supply apparatus or injector, consisting of the case K, provided with steam, air, and gas supply orifices and passage T, and the plug M, having passage V, substantially as and for the purpose set forth.

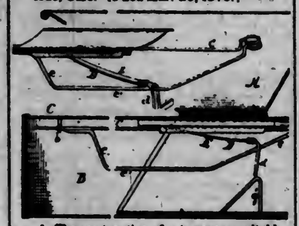
2. The combination of the plug M, arm a, fork b b', spring d, lever g, rod h, and receiver F, all operating substantially as set forth.

3. The combination of the receiver F, arm 3, cock-lever 2, having tilting latch 1, with the gasoline-cock p, as and for the purpose set forth.

4. The combination of the cock lever 2, tilting-latch 1, slotted adjusting-plate p', screw p', and arm 3, with the gasoline-cock p, as and for the purpose set forth.

5. The case A having a closed top and water-joint, B, having an overflow-pipe, B', or its equivalent, in combination with the shell U of the upper or main part of the machine, forming an air-tight joint through which the water of condensation escapes, substantially as set forth.

177,911. CANISTERS. John J. Curran, Toledo, Ohio. [Filed Mar. 20, 1876.]



1. The combination of a hopper or suitable receptacle, A, a casing, B, having an opening in its top, a slide, D, traveling on a horizontal guide-rod, C, a spring-arm, E, attached to the slide, and an inclined guide-wire, c, on which the spring-arm of the slide moves, the whole being constructed for operation in connection with a scoop having two arms for operating the spring arm E to move the slide, all substantially as described.

2. In combination with the receptacle A, casing B, and slide D, having the spring-arm E, the guide-rod C and guide-wire c, detachably connected at their front ends to the screw-stud c, as and for the object specified.

177,913. AXLE-LUBRICATORS. Alfred G. Curtis, Ottawa, Ill. [Filed Mar. 28, 1876.]



177,913.

1. The sliding-tube E and plunger F, combined with each other and adapted to fit within the open end of a grease-reservoir, c, as and for the purpose described.

2. The plunger-handle, having a wrench, f, bent so as to form a support for the same, as described.

177,915. MILL-STAFFS. William Dale and Thos. Bastell, South Toledo, Ohio. [Filed Apr. 1, 1876.]



The staff J, having the spirit-level I, and adjustably connected by set-screws d with the rotating arm G, in combination with the bed-ring A and frame B C D, substantially as described, and for the purpose set forth.

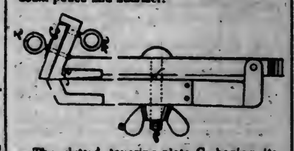
177,914. PEG-FLOATS. General Davis, Mumford, Ala. [Filed Apr. 15, 1876.]



The bars A and B, pivoted to the ears of the rasp at one end, and the inside shave at the opposite end, and regulated by a set-screw, substantially as and for the purpose set forth.

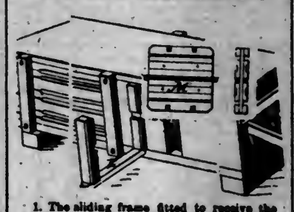
177,916. SAW SETS AND JOINTS. Edwin Day, Rockford, Ill. [Filed Apr. 6, 1876.]

Brief.—The teeth of the saw are set against the edge of a plate (which can be elevated by set-screws to give it any bevel desired) upon the top of the stationary clamp-jaw by the usual punch and hammer.



The slotted tapering plate G, having its edges beveled at different angles, in combination with the jaw A, having rest d, and the thumb-screws h h and e m, substantially as and for the purpose set forth.

177,916. SALING-PRESSES. P. K. Dederick, Albany, N. Y. [Filed Apr. 4, 1876.]



1. The sliding frame fitted to receive the followers and guide them into the box, as set forth.

2. In combination with the frame, moving in slots in the box, the supplemental passage covered by the valve, as set forth.

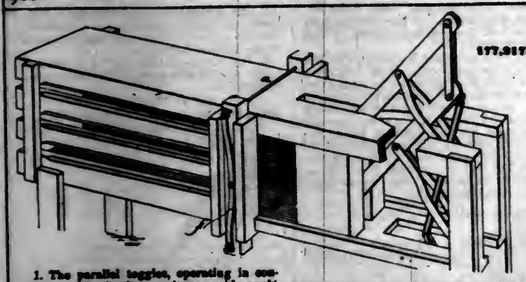
3. The follower M, provided with projections formed of sheet-metal, bent to fit the grooves and inserted, as set forth.

4. The traverser, provided with yielding substance between the leaves.

177,917. SALING-PRESSES. P. K. Dederick, Albany, N. Y. [Filed Apr. 4, 1876.]

Brief.—The folding-bars double over the loose ends of hay as the traverser recedes.

177,917.



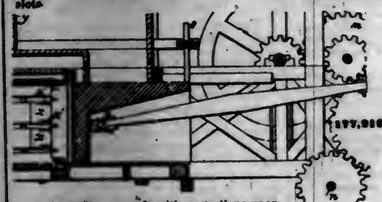
1. The parallel toggles, operating in connection with the frame, pitman, and crank, and the traverser of the continuous press, as and for the purposes set forth.

2. The horizontal press-frame and case, provided with tying-slots, and made with open sides E, in combination with the traverser, as and for the purposes set forth.

3. The folding-bars, fitted in the sides and held by rods and springs, in combination with the traverser and coverings E, as and for the purposes set forth.

177,918. BALING-PRESSES. P. K. Dederick, Albany, N. Y. [Filed Apr. 6, 1876.]

Brief.—The follower is provided with projections upon its ends, whereby it fills the press-box in its passage, and at the same time passes through the narrower part of the chamber, the projections passing within the slots.



1. The follower made with projections upon its ends, as set forth.

2. The retainers arranged in the sides of the box, and grooved to correspond with projections on the ends of the follower, as set forth.

3. The springs applied to the rods and bent for the purpose of affording regulated pressure upon the discharge end, as set forth.

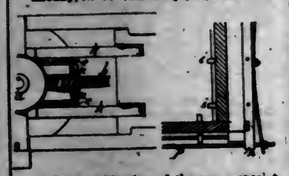
4. The projection fixed upon the walking-beam, in combination with the follower, by which it is moved, as and for the purposes described.

5. The shaft *a* and gear wheels thereon, meshing into the crank-wheels, for connecting the mechanism to a horse-power, as and for the purposes set forth.

6. The flanged plates *x*, in combination with the retainer and slotted chamber, as set forth.

7. In combination with the baling-press, the scaffolding, with its screen and inclined guide, all arranged to operate as and for the purposes set forth.

177,919. BALING-PRESSES. P. K. Dederick, Albany, N. Y. [Filed Apr. 15, 1876.]



1. The combination of the worm-wheel *b*, with one or more cranks, *c*, sleeves *b b*, and traverser, substantially as and for the purposes set forth.

2. The worm and shaft *a*, provided with a balance-wheel, in combination with worm-wheel *b* and crank, for the purpose described.

3. The retainers *i i*, fixed to the bars *n*, in combination with the springs and rods, and applied to the baling-press, as and for the purposes set forth.

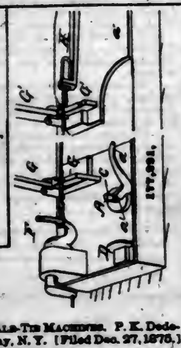
177,920. HAY-PRESSES. P. K. Dederick, Albany, N. Y. [Filed May 26, 1876.]



1. In a continuous baling press, the two press-boxes A A, provided with tying-slots, combined with a common follower, C, substantially as described, for the purpose specified.

2. The spring or yielding top I of the press-case, substantially for the purpose set forth.

177,921. BALE-TIE MACHINES. P. K. Dederick, Albany, N. Y. [Filed Dec. 27, 1875.]



1. The bending-disks A, having the sheet-ders *a'* and adapted to rotate on the posts O, substantially as described, for the purpose specified.

2. The bending-disks A, in combination with the stop D, and cutting-jaws E E, substantially as described, for the purpose specified.

3. The rotating hook F, in combination with the clamping-jaws G G, substantially as described.

4. The bifurcated hook H, combined with the clamping-jaws G' G', substantially as described.

177,922. WIRE BALE-TIES. P. K. Dederick, Albany, N. Y. [Filed Dec. 27, 1875.]

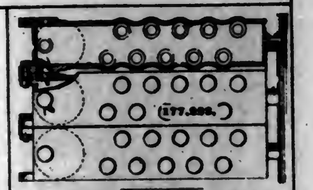
Brief.—The attached wire of larger size supplies a portion for manipulation in tying, and withal possessing the requisite strength for holding.



A wire tie constructed with a loop or eye at one end, and a point or locking end at the other, of larger wire, twisted or otherwise attached to the body of the tie, for the purpose specified.

177,923. SECTIONAL STEAM-GENERATORS. Byron Densmore, Brooklyn, N. Y. [Filed Dec. 13, 1875.]

In a steam-generator having hollow side walls connected by transverse tubes, and composed of independent upright sections, the connection of the adjacent sections in either side wall by means of perforated facings, substantially as specified.



177,924. GAS-BURNERS. A. W. Dinsmore, Lynn, Mass. [Filed Mar. 31, 1876.]

Brief.—For regulating and steadying the flow of gas to the burner-tip.



In a gas-burner, the combination of the pipe D, the tube E, arranged in the pipe, and the cap F, adjustably arranged over said tube, both the cap and the tube being formed with downwardly and upwardly inclined orifices *c* and *d*, as and for the object specified.

177,925. MACHINES FOR COILING TUBING. Hugh Dorning, Pittsburg, Pa., assignor, by mesne assignments, of part of his right to Geo. A. Bennautine, Sr., same place, and Geo. A. Bennautine Jr. [Filed Feb. 20, 1876.]

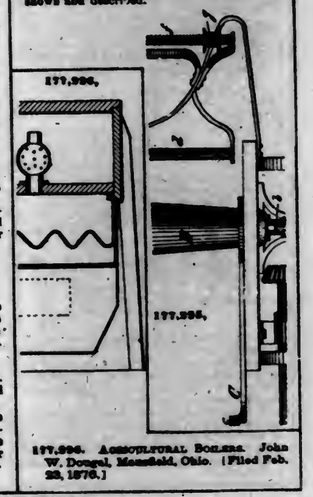
Brief.—Attached to the mandrel, and revolving with it, is a sweep, on the outer end of which are jaws, in which the extremity of the tube is laid and held; and at the opposite side, but some distance beyond the mandrel, is a vertical screw with a flanged nut upon it, which latter, being rotated by the tube as it impinges against it, travels up the screw, and thus elevates the tube in the ratio required for the successive coils, while between the nut and the mandrel is a long vertical roll, to prevent the tube from buckling while being moved.

1. Mandrel B, sweep C, friction-roller *d*, and flanged nut *g*, traveling on screw *f*, all combined, arranged, and operating substantially as and for the purpose specified.

2. The combination of a mandrel B, sweep C, both continuously rotative, and a friction-roller *d*, parallel with the axis of the mandrel, and supported above the plane of rotation of the sweep, so as to permit the unobstructed passage of said sweep, substantially as shown and described.

3. In a coiling-machine, the guiding flanged nut *g*, traveling on screw *f*, substantially as shown and described.

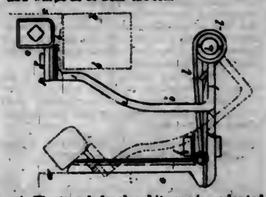
177,926. AGRICULTURAL BOILERS. John W. Dougal, Mansfield, Ohio. [Filed Feb. 23, 1876.]



In an agricultural steamer, the combination of the perforated globe *c* with a boiler having a corrugated bottom, substantially as shown and described.

177,927. LOOM-TEMPLES. W. W. Datcher, Millbird, Mass. [Filed Mar. 10, 1876.]

Brief.—The roller is supported by a carrier pivoted vertically (or nearly so) beneath it to an adjustable plate and stand, the effect of which is, that the vibrations of the trough and roller under the action of the lay are nearly in line with the direction of the cloth and warps at or near the fell.



1. The temple-head and its carrier, adapted to turn on a pivot substantially under the beam of the lay when the lay is nearest the breast-beam, in combination with a spring to throw the head and carrier forward, substantially as described.

2. The adjustable stand and adjustable pivot-plate, in combination with the carrier and temple-head and spring, to enable the adjustment of the carrier and head with reference to the lay, substantially as described.

3. The combination with the carrier and plate *g* of the detachable spring, to permit the carrier to be disengaged and to be thrown back to the breast-beam to correct imperfections in the weaving, as set forth.

4. the plate *g* and its pivot, in combination with the carrier, head, and spring, and forward stop, substantially as described.

5. The combination with the breast-beam of a vertically-adjustable stand and a pivot-plate and carrier and temple-head, to place the head in proper vertical position with reference to the cloth-making point and top of breast-beam.

6. The carrier and its hub *a'* and the coiled spring, in combination with the plate and its hub, adapted to terminate within the spring, substantially as described.

7. The plate and pin *h*, in combination with the carrier pivoted at one side of the plate, substantially as shown and described, whereby the carrier may be turned back and rest with reference to the breast-beam, as set forth.

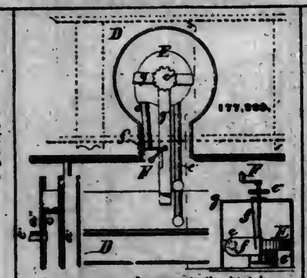
177,928. MATERIALS FOR LINING STOVES, &c. Ralphus Sn. George L. Hagen and Chas. M. Plumb, Boston, Mass. [Filed Nov. 13, 1875.]

Brief.—The compound is supplied in a dry pulverized form, and, when moistened with water, is applied directly to the surface to be protected.

A new and useful article of manufacture, being a material for lining stoves, furnaces, &c., composed of fire-clay, pulverized soapstone, silicate of soda, and plaster-of-paris and hydraulic cement, compounded and prepared substantially as and for the purpose described.

177,929. PROPELLING CARS. John W. D. Bolden, Harmony Grove, assignor of one-third his right to Jas. W. Carter, Walnut Grove, and one-sixth to Berry B. Doby, Lithonia, Ga. [Filed Apr. 10, 1875.]

Brief.—Two air-tight tubes divided into lengths, extending over distances having rise or fall of sixty-six feet, each section or length having an opening in its deflected end, and at the elevated end being provided with a valve. These tubes are arranged alongside in quincunx order, and are completely submerged in a race or trough containing a constant supply of water. The tubes being filled from the upper valves and the valves closed, the water escapes through lower opening into the race, until the barometric column is attained, and a vacuum is thereby produced in the upper half of the tube. The supply-pipe of the turbine water-wheel in the race then being opened, the water rushes in, and as the waste-pipe enters the vacuum-space in the tube, a continuous vacuum can be maintained as long as the valve at top of tube is kept closed. The cars are propelled by the revolutions of wheels on top of shaft of turbine wheel.



1. As a means of automatically obtaining a continuous vacuum, a tube or chamber, greater or less in its length, according to the angle of its inclination, having an altitude of sixty-six feet, more or less, from one extremity to the other, and open at its bottom or lower end, said tube or chamber inclined in, and completely submerged by, the contained water or fluid of an external race, trough, or tube, whereby a barometric column of fluid and consequent vacuum may be maintained, notwithstanding an introduction of fluid within the vacuum-space above said barometric column, substantially as shown and described.

2. In combination with a tube, *a* or *a'*, and race or tube D with its contained water, constructed and operating substantially as specified, the turbine water-wheel E, having its feed-pipe tightly closed by a spring-valve, and its exit or vent connected with, and opening into, the vacuum-space of said tube *a* or *a'*, substantially as and for the purpose shown.

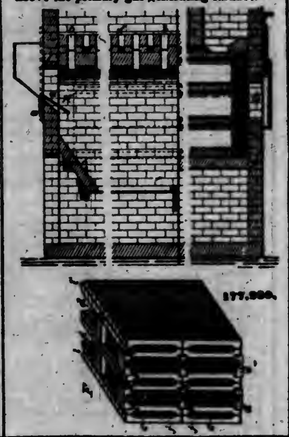
3. In combination with the feed-pipe *e* of the turbine water-wheel E, the gate or valve *f*, spring *f'*, and crank-lever F, substantially as shown, for the purpose of the automatic opening and closing of the feed-pipe *e*.

4. In combination with the race or external tube D, the tubes *a* and *a'* placed relatively to each other in quincunx order, substantially as and for the purpose shown.

5. In combination with the turbine wheel E and the arm or lever F of its gate or valve *f*, a cam of the car or vehicle, substantially as and for the purpose shown.

177,930. REGENERATOR-FURNACES. F. H. Hobbaum, Detroit, Mich. [Filed Feb. 20, 1876.]

Brief.—Each tile is concave on one side, and a pair of them are placed together to form a flue. They are beveled at the ends, so that the ends of each pair in a line are alternately convex and concave, forming socket-joints. Their corners are cut out to form rectangular recesses, into which fit solid bricks, for separating the flues of tiles containing the air-flues, and thus make passages between them for the outgoing hot products of combustion, by which the incoming air is heated. A secondary combustion-chamber is placed above the primary gas-generating furnace.



1. The brick or tile *f*, hollowed out on one side, and having a corner cut away, substantially as and for the purposes set forth.

2. The group of passages, ducts, or flues F, composed of the bricks or tiles *f*, each hollowed out upon one side, and cut away at one corner, with concave and convex ends, and the intermediate bricks *m*, constructed and arranged substantially as and for the purposes set forth.

3. In a furnace, the combination, with the chamber I, of the ducts *g* and the fire-box E, the flues *d*, the chamber H, the openings *a*, the ducts *f*, and the opening *b*, constructed and arranged substantially as and for the purposes set forth.

4. In a furnace, the combination, with a fire-box, of a secondary combustion and heating chamber above it, with a suitable communication between both, and flues adapted to carry away the products of combustion to the exit placed between ducts, for leading air from the rear to said secondary combustion and heating chamber, and heating the air in its transit, the several parts constructed and arranged substantially as and for the purposes set forth.

177,931. HARVESTERS. John H. Heward, St. Paul, Minn., assignor to St. Paul Harvester Works, same place. [Filed Mar. 14, 1876.]



1. The reel mounted in sliding boxes on the pivoted reel-bearers *b b'*, in combination with the rock-shaft *c'*, connecting-links *c*, and adjusting-levers *d d'*, all arranged and operating as described.

2. The gear-plank, slotted or forked at its forward end, in combination with the tongue-straps, arranged to stride one of the arms of said gear-plank, as described.

3. The dumping bundle-carrier I, in combination with the inclined delivery-chute K, extending between the binders' grain-receiver and said carrier, and arranged in the described relation thereto, substantially as and for the purpose set forth.

4. The binders' carriage-frame, suspended from the main frame on a transverse pivot arranged at or near its upper edge, and adapted to be vibrated thereon by means of the rock-shaft and connecting-link *k*, arranged and operating substantially as described.

5. The rotating bundling-arm Q, in combination with the compressing-cord *s*, arranged and operating substantially as described.

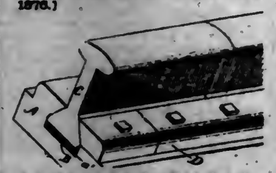
6. The shaft of the bundling-arm Q, having the eccentric arrangement to its driving-wheel P, in combination with the arms or cross-head *o'* and actuating pin or tooth *p*, arranged and operating as described.

7. The bundling-arms Q and the vibrating arm *r'*, to which the compressing cord or strap is connected, in combination with the stops *o'* and *n'*, for locking said arms in position while the gavel is being bound, substantially as described.

8. The combination, with the intermittingly-rotating shaft O and its gavaling-arms Q, of the cone-pulleys P, substantially as and for the purpose described.

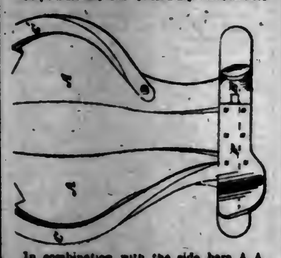
9. The bundling attachment, consisting of the frame F F', with its bundling-shaft O, arm Q, and compressing devices, made removable as a whole, when desired, substantially as and for the purpose set forth.

177,223. COMPOUND RAILROAD-RAIL. M. Fuday Providence, R. I. [Filed Feb. 5, 1876.]



In combination with the rail, the bed-piece A, having the recess *a*¹ adapted to hold the rail against lateral movement, and the extended securing-strip D, adapted to prevent movement in a vertical direction, the rail, bed-piece, and securing-strip all breaking joint, as described.

177,224. SIDE-SADDLE TREES. Orlando V. Flora, Madison, Ind., assignor of two-thirds his right to Meyer, Bannerman & Co., St. Louis, Mo. [Filed Apr. 20, 1876.]



In combination with the side bars A A, cantle B, and horns E F, of a open seat side-saddle tree, the wooden side rails C C steamed, bent, and dressed into the proper form, and rigidly secured to the said tree, in the manner substantially as shown and described.

177,225. COFFIN. John Gilbert, Ypsilanti, Mich. [Filed Jan. 28, 1876.]

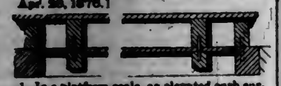
Brief.—Pendent spring-hooks attached to the lid automatically pass over and fasten themselves to lugs on the inside of the coffin.



1. The combination, with the spring-hooks D, of the rods *d*, substantially as and for the purposes set forth.

2. The combination, with the coffin A, having lugs secured to the sides of the same, of the cover B, having pendent spring-catches engaging with the said lugs, substantially as described and shown.

177,226. PLATFORM-SCALE PROTECTORS. David A. Gilbert, Morrisville, Vt. [Filed Apr. 20, 1876.]



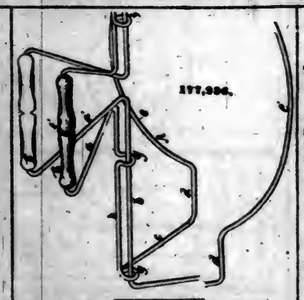
1. In a platform-scale, an elevated curb surrounding the platform or opening for the ordinary platform, in combination with a cover resting on the platform or lower beams, as set forth.

2. In a platform-scale, a removable curb surrounding the ordinary platform, and a cover fixed to beams or legs thereof on said platform, all combined and operating as set forth.

3. The cover (in sections or whole) made with a flange fitting over the curb, and adapted to rest on the lower platform or beams, and to receive and bear the load to be weighed, as set forth.

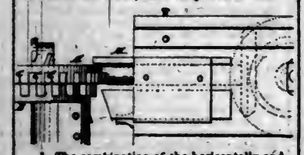
177,227. JAR-LIFTERS. Cyrus B. Gillespie, Edwardsville, Ill. [Filed Feb. 24, 1876.]

The herein-described lifter A A', consisting of the bails *a a'*, bars *b b b' b'*, parts *c c c' c'*, parts *d d d' d'*, parts *e e e' e'*, hinges *g g*, &c., and handles B B', combined and operating substantially as and for the purpose described.



177,227. MACHINES FOR FINISHING HORSE-SHOE-NAILS. Nelson W. Goodrich, Vergennes, Vt. [Filed Apr. 19, 1873.]

Brief.—The notched rim of the carrying device rests on a ring fastened upon the top of a segmental pedestal, and is rotated by a cam on the periphery of a wheel. Beveling-punch and trimming-punch co-operate, respectively, with an anvil-die and an open shearing-die on and in the wall of the pedestal, and a pusher co-operates with the cutting-punch to push the nail toward the die, and afterward pushes it off the rim. The beveling and trimming punches and the pusher are all connected to a block that is reciprocated by an eccentric.



1. The combination of the horizontally and intermittently rotating ring A and the stationary ring B, the former resting on the latter, and provided with teeth, projecting downward below its lower surface, adapted for carrying the nails and holding them to the dies, as shown and described.

2. The combination of the carrier, stationary and movable dies, sliding die-stock, the disk and worm for actuating ring A, and the driving mechanism, substantially as specified.

3. The pusher M, combined with the carrier A and the trimming-dies, substantially as specified.

177,228. CAR-COUPLINGS. James Kent Griffin, Watertown, Canada. [Filed Sept. 9, 1876.]



The combination of the buffer B, the rod R, link L, pivoted to said rod, and the link C, joined to the link L, all substantially as and for the object specified.

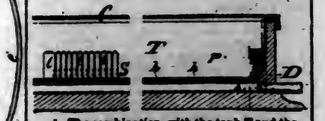
177,229. ADJUSTABLE NOZZLES FOR HOSE-PIPES. Thomas Haley, Cambridgeport, Mass. [Filed Apr. 17, 1876.]

Brief.—An adjustable nozzle for hose-pipes, so constructed as to admit of the diameter of the stream being instantly changed without the necessity of shutting off the water.



The mouth-piece B, the ring *c*, with its guideways, the sliding blocks *d e*, with their pins *f f*, and the cap D, with its cam-grooves *g h* and aperture *m*, in combination with the nozzle A, all constructed, arranged, and operating as set forth.

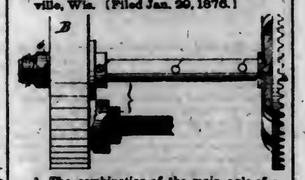
177,230. TANK-GALLEYS FOR PRINTERS. Jas. F. Hannan, New York, N. Y. [Filed Jan. 31, 1876.]



1. The combination, with the tank T and the perforated shelf or galley S, of one or more supporting-levers or pivoted legs attached to the ends of the said shelf or galley, and one or more bearings provided for the said levers or pivoted legs at each end of the tank, substantially as herein set forth.

2. The inclined planes D at the ends of the tank, in combination with the levers or pivoted legs at the ends of the perforated shelf or galley S, substantially as and for the purpose herein set forth.

177,231. HARVESTERS. Jas. Harris, Janesville, Wis. [Filed Jan. 20, 1876.]



1. The combination of the main axle of a harvester and two independent wheels, adapted substantially as described, to serve as a single wheel with a broad tread, as set forth.

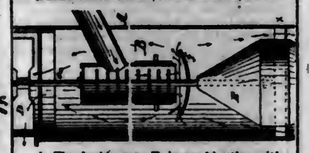
2. The combination of the removable wheels B B, having set-screws *b b*, with the main axle, having recesses for the set-screws, substantially as described.

3. In combination with a main axle and removable wheels, substantially as described, a clutch-casting adapted to act with one of the wheels, when these are separated, and capable of removal, to clear the axle on one side to permit the wheels to be placed together, as set forth.

4. The combination of the main axle, having a feather with the longitudinally-grooved removable wheels, and securing-screws, as described.

5. An axle, adapted substantially as described, to hold its supporting-wheels at its ends and center, as and for the purpose set forth.

177,232. MIDDLINGS-SEPARATORS. T. Hart, Battle Creek, Mich. [Filed Mar. 21, 1876.]



1. The double cone E, in combination with the chamber A, shaft *a*, and conductor B, having beaters *d d*, as and for the purposes herein set forth.

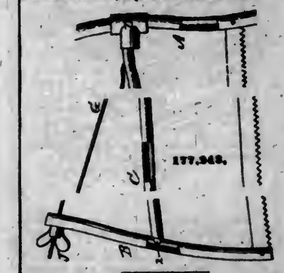
2. The combination of the chamber A, conductor B, fan D, revolving shaft *a*, with beaters *d* and disk *f*, and the double cone E, all constructed and arranged to operate substantially as and for the purposes herein set forth.

177,233. BUCK-SAW FRAMES. Robert C. Hayter and Benjamin F. Potter, Ypsilanti, Mich. [Filed Mar. 20, 1876.]

Brief.—The frame is constructed entirely of gas pipe or tubing, and the center piece is secured to the longer end piece by a T-shaped joint, and to the opposite end piece by a tenon fitting in a slot in the same. The saw is strained by a diagonal brace connected to the center piece, by a hooked projection passing through the upper end of the shorter end piece, and secured in position by a thumb-nut.

1. In a buck-saw frame, the brace G, extending from the inner end of the center piece to the upper end of the outer end piece, and tightened by a thumb-nut, so as to have the upper end of the handle perfectly free, substantially as and for the purposes herein set forth.

2. The combination of the end piece A with T-joint D, center piece C, fastened in said joint and formed with a tenon, *a*, at the opposite end, the end piece B, diagonal brace G, and thumb-nut J, all constructed substantially as and for the purposes herein set forth.



177,234. PROTECTION-RODS FOR LOOMS. George Hetherington, Philadelphia, Pa. [Filed Jan. 7, 1876.]

Brief.—The rod is provided with fingers projecting both forward and backward, in order, by means of connecting slides and levers, to stop the loom just before the crank reaches either dead-point, provided the shuttle is in the box when it should be out, or out when it should be in. A rearwardly-projecting finger at the other end of the loom prevents springing of the lay when stopped just before the back center.

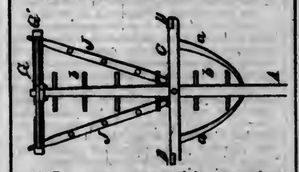


1. In combination with the lay and shipping mechanism, a loom-protection rod, operated by the swell-finger of the box, having a forwardly-projecting finger to prevent smashes while the shuttle is out of the box, and a rearwardly-projecting finger to prevent smashes while the shuttle is in the box, substantially as shown and described.

2. The combination of the box T, having a swell-finger, P, the protection-rod F, having arm E and finger G, the slide I, stud K, shaft L, having arms *l l*, bar N, slide O, and shifting-lever C, the several parts being constructed and operating substantially as described, to stop the loom and prevent smashes, as set forth.

3. In combination with the protection-rod F and fingers G G', the block U, for preventing the cranks from passing the dead-center, as described.

177,235. FRUIT-TREE PROTECTORS. S. W. Hill, Pope, Miss. [Filed Apr. 1, 1876.]



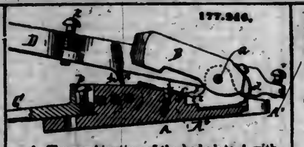
1. The posts A, connected by a cross-bar, and provided with the arms C C, connected by the bars D D, as and for the purpose set forth.

2. The combination of the posts A, platform O D, top frame G G', and arms J J, substantially as and for the purpose herein set forth.

177,236. SAW-SETS. Hiram Hitchcock, Adams Township, Hillsdale County, Mich. [Filed Mar. 7, 1876.]

Brief.—The blade of the saw rests upon the inclined face of a forked lever, and is held thereon, while each tooth is being set, by a clamping-lever provided with a projecting lip.

177,236. [image]



1. The combination of the bed-plate A with projection A', having inclines *f h*, the gage-plate C, lever D, with lip *n*, and set-screw *k*, and the lever G, with set-screw *p*, all substantially as herein set forth.

2. The pivoted punch B, with spring *d*, in combination with bed-plate, gage, and levers, as shown and described.

177,237. SASH-HOLDERS. Richd. Holcroft, Philadelphia, Pa. [Filed Mar. 16, 1876.]

Brief.—An ordinary cam, with weighted handle, has upon its periphery a shoulder-stop, to prevent wedging when the sash is raised. This cam is pivoted through a flanged sleeve, and is preferably arranged to impinge on a flat rubber strip recessed in or attached to the window-casing.



1. The cam A, provided with a gravity-handle, E, and shoulder-stop *a'*, substantially as shown and described.

2. The combination of the cam A, having a shoulder, *a'*, enlarged part *a*, and gravity-handle E, with the sleeve B, having flange *b* and screw C, with or without the elastic strip G, substantially as shown and described.

177,238. DROP-LIGHTS. Henry Iden, New York, N. Y. [Filed Apr. 12, 1876.]

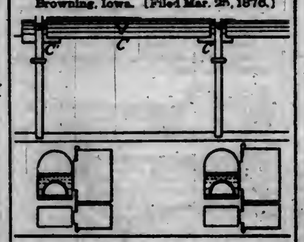
Brief.—The necessary amount of friction to sustain the weight of the drop-light is produced by pawls situated in a closed chamber between two stuffing-boxes.



1. The combination, in a drop-light, of a closed chamber, C, hinged dogs *a* secured in sliding frames *c*, one or more springs, *f*, acting on said dogs, and a tube, A, which extends through the closed chamber, the whole being constructed and operating substantially as shown and described.

2. The combination, with the sliding tube A, chamber C, and dogs *a*, of two stuffing-boxes, *i m*, one above and the other below said chamber, substantially as and for the purpose set forth.

177,239. BRICK-KILNS. F. F. Ingersoll, Browning, Iowa. [Filed Mar. 28, 1876.]



In a brick-kiln, the top or roof composed of alternate stationary sections O' built into the sides of the kiln, and movable or adjustable sections O, and fastened thereto by thumb-screws or their equivalents, as and for the purpose set forth.

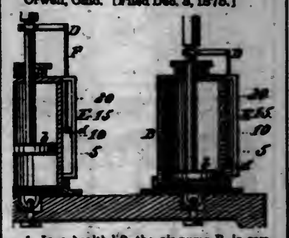
177,240. PLUG-TOBACCO BOXES. Benj. F. Jaques, Peterburg, Va., assignor to C. A. Jackson, same place. [Filed Apr. 7, 1876.]

Brief.—The two side pieces are flanged and embrace the plugs, while the ends secure them in position, and the sides from coming apart. These ends are open at the center to permit inspection of the plugs.



A box made of sheet metal, wood, or other material, for packing plug-tobacco, consisting of the flanged sides A A, open-ended bottom B, and open-ended hinged lid C, substantially as specified.

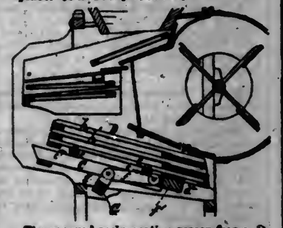
177,241. HEALTH-LIFTS. H. U. Johnson, Orwell, Ohio. [Filed Dec. 3, 1875.]



1. In a health-lift the air-pump B, in combination with the indicator *d*, vertically adjustable upon the exterior lateral scale E, substantially as set forth.

2. The health-lift composed of the exhaust or compressed air-pumps B B, provided with pistons *b b*, piston-rods *c c*, and handles *e e*, in combination with the arm D, rod F, scale E, and indicator *d*, all constructed and arranged substantially as set forth

177,242. GRAIN-SEPARATORS. John W. Johnson, Towanda, Pa., assignor to United States Fanning-Mill Company, same place. [Filed May 4, 1876.]



The grooved reciprocating screen-frame D, mounted on friction-rollers on the adjustable frame C C', in combination with the jointed connecting-rod *f f'*, and crank-arm *g* on the rock-shaft G, arranged centrally of the width of the screen-frame, and underneath the same, and operating as described.

177,243. BUTTONS. John Keats, Newcastle-Under-Lyme, England. [Filed Aug. 2, 1875.]

Brief.—The button is struck up from a sheet-metal blank, and has duplicate studs or posts, and also duplicate fastening-disks.



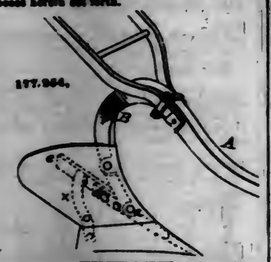
A button having its shank constructed of duplicate socks, posts, or studs, parallel with each other, and each one carrying a disk or flange arranged below the head of the button, substantially as and for the purposes herein set forth.

177,244. PLOWS. Isaac R. Kern, Bloomington, Ill., assignor of one-half his right to Christn. C. Martens, same place. [Filed Feb. 10, 1876.]

1. In combination with the mold-board and land-side of a plow, the curved beam A B, with seats *a a d*, constructed of one piece of metal, and curved laterally above and over the mold-board, substantially as shown and described.

2. The combination, with the beam A and handles F F, of the sockets H H, clamp C, and bolt g, passing through the sockets, beam, and handles, substantially as and for the purposes herein set forth.

177,864.



177,865. CURRY-COMB. W. R. Lawrence, New York, N. Y. [Filed Mar. 31, 1876.]



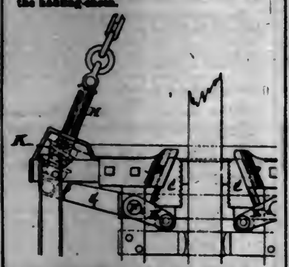
1. A curry-comb, provided with the usual side handle, and with a head rest or support, consisting of bars diverging from the handle toward the corners, and extending over and parallel, or nearly so, to the back of the comb, substantially as and for the purpose specified.

2. The hand-support, connected to the side handle, extending over the back of the comb and downward toward the same without being attached thereto, substantially as described.

3. The combination of the comb-body, side handle, and continuous wire formed into a loop, the sides of which diverge and constitute a support or grasp for the hand, and the transverse portion of which is arched, substantially as specified

177,866. SAFETY APPARATUS FOR MINES AND HOISTS. Nicolas Libotton, Gilly, Belgium. [Filed Apr. 27, 1876.]

Brief.—On the breakage of the chain, wedge-formed friction-blocks, with biting-teeth, slide up into wedge-formed slots, and clamp each side of a vertical guide-beam on each side of the shaft. The blocks are pivoted to cranks on shafts, the outer arms of which are connected by springs to four chains along to the hoisting-chain.

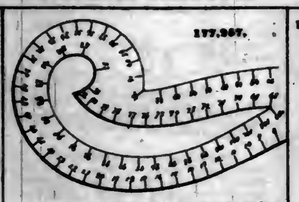


The combination of the friction blocks or wedges C C with the inclined guiding-shoes D D attached to the cage A, the levers E O, the rods H, and the springs K, arranged for operation in relation with each other, and with the guides B and hoisting chain, rope, or cable, substantially as shown and described.

177,867. DRAFTING INSTRUMENTS. William A. Lorens, New York, N. Y. [Filed Apr. 21, 1876.]

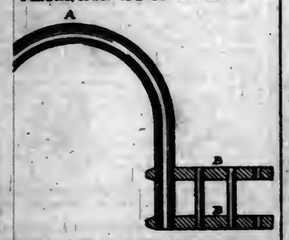
Brief.—Graduations or other indicating-marks placed on the edge, to point out what portions of the instrument have been or are to be used.

177,867.



A drafting instrument having an irregular or curvilinear guiding-surface, provided with an indicator, substantially as and for the purpose specified.

177,868. CULTIVATORS. William Louden, Fairfield, Iowa. [Filed Feb. 2, 1876.]



The axle or beam-yoke of a straddle-row cultivator, constructed, as described, with its arched central portion A made of tubular iron, and the side portions B B attached rigidly or cast thereon, in manner substantially as and for the purpose specified.

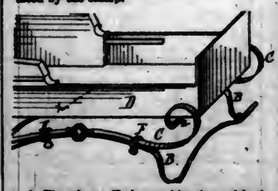
177,869. COFFEE-POTS. John Lundgren, New York, N. Y., assignor of one-half his right to Andrew Prior, same place. [Filed Mar. 17, 1876.]



In a coffee-pot the joint herein shown and described, for connecting the neck B to the body A, the said joint being formed by the double bands *a' a'* and *b' b'*, provided on the overlapping portions of the neck B and body A, respectively, the said parts being arranged, as shown, and afterward soldered, for the purposes set forth.

177,870. WAGON-SPRINGS. Geo. W. Marble, Chicago, Ill., assignor of one-half his right to Adolph Shoeninger, same place. [Filed Feb. 7, 1876.]

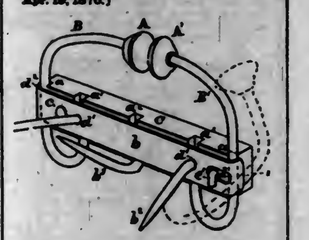
Brief.—The tension of the spring is regulated by the clamp.



1. The clamp F, in combination with the springs C and reaches B, as and for the purposes set forth.

2. The combination, with the body D, of the curved reaches B, the C-springs C, the pins *c*, and the sliding clamps F, all constructed and arranged substantially as described and shown.

177,871. CALF-WEANERS. J. S. Maughlin and Wm. C. Marr, Osawa, Iowa. [Filed Apr. 10, 1876.]



1. Nose-bulbs connected with the muzzle by swivel-joints, substantially as and for the purpose described.

2. The swivel nose-bulbs A A', made of metal or other hard material, and covered with rubber or other elastic or soft substance, substantially as and for the purpose described.

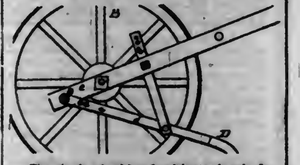
3. The wooden block C, forming a wooden bearing-surface, in combination with wires B B', plate *b*, and spurs *b' b' b'*, substantially as described.

4. The wires B B', having nose-bulbs A A' at one end, and spurs *b' b'* at the other end, and bent and adjusted as described and shown, in combination with plate *b* and block C, substantially as and for the purposes described.

5. The combination of the swivel-bulbs A A', wires B B', plate *b*, wooden block C, locking-hook *c'*, and spurs *b' b' b'*, substantially as and for the purposes described.

177,872. HAND-PLOWS. William L. Mayo and Andrew B. Tigrett, Dyersburg, Tenn. [Filed Aug. 7, 1876.]

Brief.—The handle-shafts project in front of the wheels, the draft-strain being upon that part and relieving the holder.



The single-wheel hand-cultivator herein described, having the handle-levers A A, carrying the journals of the wheel B, and extended forward and downward beyond said journals in a spread position, the oblique shovel-beam D, bifurcated at *d d*, provided with the adjusting perforations *e e*, and pivoted to the spread extended ends of said levers, and the adjustable connecting-braces E, constructed and arranged as shown and described.

177,873. SAW-GUMMERS. Eli McCloy, Zanesville, Ohio, assignor to H. & F. Blaedy, same place. [Filed Aug. 2, 1875.]

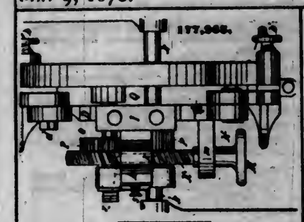
Brief.—The shaft that carries the cutting-tool and the driving or crank shaft have their bearings on a frame that embraces—and by means of a screw is adjustable to different positions on—another frame or arm, that is suspended from the main frame by a bolt that passes through one end of it, and of which the other end has a long transverse slot, through which a binding-screw passes into the main frame, that may clamp and confine the free end of the suspended arm at any point within the limits of its oscillation.

1. An improved saw-gummer, constructed with a frame adjustable in virtue of the curved slot *e* at its lower extremity, in combination with a cutter-shaft carriage adjustable thereon by set-screw M, substantially as and for the purpose described.

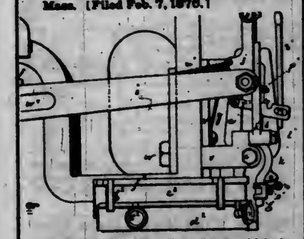
2. The cutter-shaft carriage L, provided with ways I I', in combination with the frame D, pivoted at *d*, and adjustable in virtue of the curved slot *e*, substantially as and for the purpose described.

3. In a saw-gummer, the combination of the forked bracket B, grooves *r*, and thumb-screw S, substantially as and for the purpose described.

177,873.



177,874. BOOT AND SHOE TACKING MACHINES. Gordon McKay, Cambridge, Mass. [Filed Feb. 7, 1876.]



1. Two guideways and a guide in which the driver works, provided with separate passages for the introduction of nails, in combination with a feeder to feed and cutters to sever a nail from either strip at will, substantially as described.

2. A cutter provided with a notched blade, in combination with a nail-engaging feeder, adapted to enter the notch in the cutter, and to place the nail to be driven directly into the path of the driver, substantially as described.

3. The cutters *a' b'*, in combination with the cutter-locking devices, substantially as described.

4. The pivoted shifting-lever, combined with and adapted to operate the links *r' r'* alternately.

5. The cutters *a' b'*, and mechanism to lock them when closed, to prevent the passage of the nail-strip, in combination with an engaging-feeder and spring adapted to hold the end of the nail-strip pressed against the cutter blade or blades, substantially as described.

6. The driver-rod and cross-head, in combination with the cutters and feed-actuating wedges attached to and adapted to move with the cross-head.

7. Two strip-guides, two feeding devices, two sets of cutters, and a nail-driver, and mechanism to operate them, substantially as described, in combination with a locking device to lock either set of cutters, and suspend the action of the feeder adapted to present the nail-strip to each cutters, to bring the desired nail-strip into operation, all substantially as described.

8. The combination, with cutters adapted to engage and hold, and then to sever a nail from a strip, of a feeding mechanism adapted to be moved backward to re-engage the strip during the time the cutters hold the strip, substantially as described.

9. The driver-rod, its connected toggle, a lever and mechanism to operate the lever to raise the driver, in combination with a spring adapted to be compressed as the driver is raised, and then to force down the driver, and with a tripping device to trip the toggle as the driver descends, substantially as described.

177,875. STOVE-PIPE-ELBOW MACHINES. William T. McMillen, Cincinnati, Ohio. [Filed Oct. 4, 1875.]

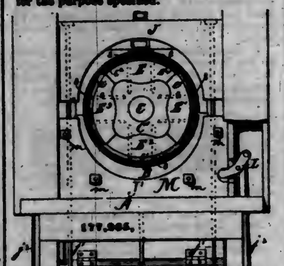
Brief.—Mold dies, whose outer surfaces correspond to the inner periphery of the stove-pipe, are forced outward into female dies by cams rigidly attached to a rock-shaft passing through the pipe.

1. In a machine for making stove-pipe elbows, the combination of a series of internal expanding-dies with external contracting die-blocks, for the purpose of forming external crimps, substantially as described.

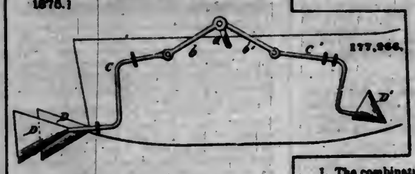
2. The dies E E' F F', block F, rods *e e*, and cylinder B, in combination with the shaft C and cams O O', substantially as described.

3. The crimp-dieser M, in combination with the die-block J, rods *m*, plates M' M', and eccentric N, substantially as described.

4. The plate Q, provided with the spring-pins *s s*, combined with the cylinder E and operating mechanism, substantially as described, for the purpose specified.

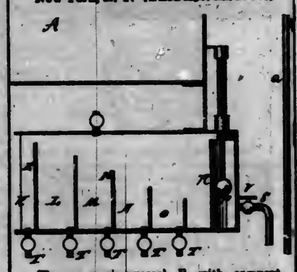


177,876. VIBRATING PROPELLERS. Hugh Mulholen, Fostoria, Pa. [Filed Dec. 28, 1875.]



The combination, with the shaft B, having a crank, *a*, at or near each end, of two pitmen, *b b'*, on each crank, the rods C C', and conical-shaped hollow buckets D D', all constructed and arranged substantially as and for the purposes herein set forth.

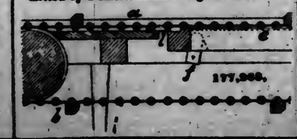
177,877. LIQUID-MEASURES. J. D. Muller, New York, N. Y. [Filed Apr. 22, 1876.]



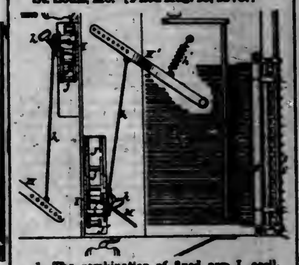
The measuring-vessel E, with compartments K, L, M, N, O, and R, swimmer P, inlet-pipe *d*, and outlet-pipe S, and faucets T and V, in combination with the reservoir A with inlet-pipe *c*, and outlet-pipe *b*, substantially as described, and for the purpose set forth.

177,878. MACHINES FOR SEPARATING WASTE FROM SAWDUST. D. C. Newell, Yonkers, N. Y. [Filed Jan. 13, 1876.]

Brief.—In planing and molding mills the fine chips are separated from the larger by running them, as they come from the machine, over a screen having a short quick motion, to prevent the choking of its meshes, and passed in a chute, through which they are carried to the fire-room, while the large chips are transmitted by a carrier-chain along the chute.



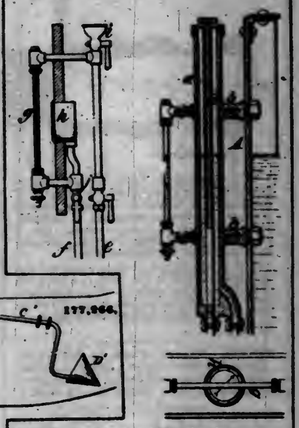
177,879. HARVESTERS. James J. Pigrott, St. Louis, Mo. [Filed Aug. 18, 1875.]



1. The combination of fixed arm I, oscillating arm J, and rake H, substantially as set forth.

2. The combination of fixed arm I, oscillating arm J, rake H, and operating-cord *h* and spring *h'*, substantially as set forth.

177,880. WATER-GAGES. John Nicholas, Manchester, England. [Filed Nov. 19, 1875.]

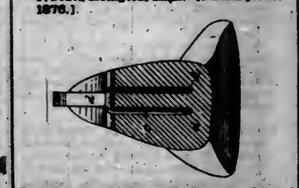


1. The combination of the chamber *a*, communicating with the steam and water spaces of the boiler, with the pipes *d*, *e*, and *f*, and the connecting-gage *g*, as and for the purpose set forth.

2. The combination of the pipes *e* and *f*, glass gage *g*, and pressure-gage *h*.

3. The combination of the pipes *e* and *f* and gage *g* with the valved cup *i*.

177,881. LAST-BLOCK FASTENINGS. Henry J. Pratt, Abington, Mass. [Filed Apr. 15, 1876.]

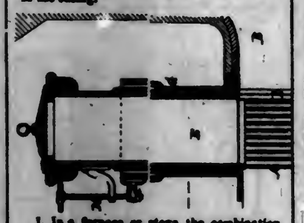


1. The combination, with the last and last-block, of a spring-fastening pin, adapted to extend through the last-block and into the last, substantially as described.

2. The last and last-block in combination with a spring-pin and flexible connection, to confine the pin to the last-block.

177,879. STOVES. Andrew A. Putz, Vienna, Austria. [Filed Apr. 6, 1876.]

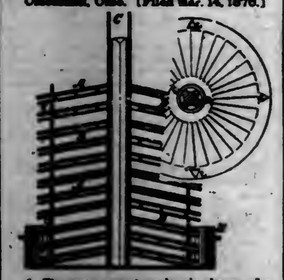
Brief.—When the grate is depressed to a point below the bottom of the casing of the magazine, it may be tilted forward. The grate and magazine together may be elevated within the casing.



1. In a furnace or stove, the combination of a flue, E, for carrying off the products of combustion, a magazine, B, and a basket-grate, A, arranged at the mouth of said flue, and constructed to have a vertical and a swinging motion imparted thereto, substantially as and for the object specified.

2. In combination with the grate A and flue E, a magazine, B, to the lower and open end of which the grate is affixed, not an adjusting-screw, H, or other equivalent device, the whole being adapted to operate substantially as described.

177,878. VOLTAIC PILES OR BATTERIES. Isaac L. Pulvermacher, London, England, assignor to John Edward Hetherington, Cincinnati, Ohio. [Filed Mar. 14, 1876.]



1. The arrangement, as herein shown, of a series of copper and zinc disks, disked or cased in alternate order with a fibrous absorbent material interposed between members of the same element, upon a hollow central stem, supplied with the exciting fluid, and slitted or perforated to cause the passage of the exciting fluid from the tube to the absorbent material between the disks, the whole to form a battery, substantially as set forth.

2. The combination of a flexible tube, C, and a rigid fluted or corrugated central core, D with concave or disked copper and zinc disks A B, to form a battery, substantially as herein shown and described.

3. The radially-slotted disks shown in Fig. 5, provided with tongues *a a*, at intervals, for the opposite metal disk of the adjoining element to rest upon, substantially as herein set forth.

4. The disk shown in Fig. 6, having a slot, F, from the periphery to the center, and threads carved into it in concentric circles, as fully shown in the drawings, and for the purposes set forth.

5. In batteries formed of disks on a hollow central stem, the disk shown in Fig. 7, constructed of thread-wrapped wire, wound spirally until a suitable diameter is attained and an aperture left at the center to engage the central stem, as set forth.

177,876. VOLTAIC-ELECTRIC APPARATUS. Isaac L. Pulvermacher, London, England, assignor to John Edward Hetherington, Cincinnati, Ohio. [Filed Mar. 14, 1876.]

1. The copper plate forming the negative element, surmounted with prongs A A, slots *a a*, and tongue B, substantially as shown and described, and adapted to be folded or rolled into tubular form, as set forth.

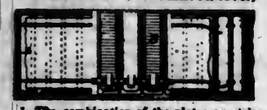
2. The zinc plate forming the positive element, constructed and perforated, substantially as shown and described, and wrapped with thread or other suitable fibrous material or tissue, as an absorbent for the exciting fluid, and adapted to be folded or rolled, so as to be inserted into the copper element, as set forth.

3. The combination of a zinc plate, as shown in Fig. 2, provided with slots *a a*, to receive and hold a thread, with a thread wound spirally thereon, and fastened by sewing or punching into the said slots, as set forth.



177,876.

177,876. VOLTA-ELECTRIC APPARATUS. Isaac L. Pulvermacher, London, England, assignor to John Edward Hetherington, Cincinnati, Ohio. [Filed Mar. 14, 1876.]



1. The combination of the plates or strips A B of dissimilar metals, notched or looped, and arranged in alternate order upon cords, with a backing-strip of non-absorbent material and a facing-strip of absorbent material, between which the said strips or plates are secured, as herein set forth.

2. The arrangement of the plates in two rows or series, as in Fig. 3, upon a continuous backing of non-absorbent material, so as to be folded, as set forth, upon a strip of absorbent material containing an exciting-fluid, all as and for the purposes set forth.

177,876. VOLTA-ELECTRIC APPLIANCES. Isaac L. Pulvermacher, London, England, assignor to John Edward Hetherington, Cincinnati, Ohio. [Filed Mar. 14, 1876.]



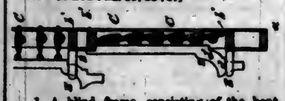
1. Voltaic bands formed of wire spun upon edge cords, and having upon one face a series of insulating buttons, placed at intervals, and provided with a groove or indentation, A, in the other face, as and for the purposes herein set forth.

2. In the construction of voltaic bands, formed of wire spun upon edge cords, the gut to perchs strips or cords B B, as and for the purposes set forth.

3. In the construction of voltaic bands, formed of wire spun upon edge cords, the arrangement of two gutta-percha cords or strips, B B, near the said edge cords, and a third at the center or near the center of the width of the belt bearing pieces of porous absorbent material C C, substantially as and for the purposes set forth.

4. The pole-plate, substantially as herein shown, consisting of two cheeks, D D, a tie, *c*, and suitable hinge-loops *d d*, adapted to be folded, as in Fig. 7, and secured to the end of the band, substantially as set forth.

177,877. METALLIC WINDOW-BLINDS. M. Rothkmeobt and V. Rothkmeobt, Chicago, Ill. [Filed Jan. 10, 1876.]

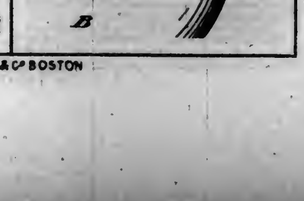


1. A blind-frame, consisting of the bent bars *a a'*, straight upright bars *b*, and cross-bars *b'*, fastened together by halving and dovetailing, substantially as and for the purpose set forth.

2. The cast metallic slats C, provided with journal-rods *c*, around which the slats are cast, substantially as described.

3. A slat adjusting and fastening device, consisting of the bar D, linked to the slats, and having an angular shoulder, *d*, at its lower end, and a forked strap, E, attached to the blind-frame.

177,878. FRICTIONAL GEARING. Moses Bay, Valley Grove, W. Va. [Filed Mar. 21, 1876.]



The combination of a loose bar, I, against the slide-bearings, a movable bar, K, in contact therewith, and a single median screw, L, with the spring J, as set forth.

177,879. PAPER BOXES. Reuben Ritter, Philadelphia, Pa. [Filed Mar. 26, 1876.]



1. The blank A, rectangular in form, having the projecting tongues *a' a'*, and cut or slit to form the flaps *d d' e f*, substantially as shown and described.

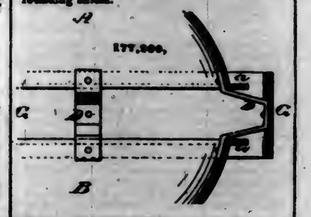
2. A folded paper box, locked on the end flaps by means of the tongues *a' a'* and slits *g g*, formed in or upon said end flaps, the same being produced from the outermost wings of the blank, substantially as shown and described.

3. A folded paper box having five end flaps, each of said flaps completely covering the end of the box, and two of the flaps at each end being formed with tongues *a' a'*, substantially as shown and described.

4. A folded paper box, locking on the end flaps, the body of said box having three single sides and one double thick side, the ends of said box being closed by quintuple flaps, each of said flaps completely covering the end of the box, and two of the flaps at each end being formed with inserting or locking tongues, substantially as shown and described.

177,880. VENTILATORS. Andrew J. Robinson, Troy, N. Y. [Filed Apr. 6, 1876.]

Brief.—At the top edge of the lower dome, and at the bottom edge of the upper dome, are projecting flanges, which may be either straight or curved, and the two domes are separated by means of brackets. These brackets support the top dome as well as the surrounding shield.

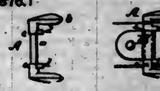


1. In a machine for shaving, pointing, or threading screws, a multiple tool mounted on the tool-post, and so governed by a locking index-wheel that, by turning forward and locking the index-wheel, a new tooth may be presented to a revolving blank, and caused to operate upon it, substantially as described.

2. In machines for shaving, pointing, or threading screws, a multiple tool having bearings in the tool-post, in combination with an index-wheel and mechanism for making and preserving the adjustment, whatever may be the diameter of the tool, substantially as described.

3. In machines for shaving, pointing, or threading screws, a multiple tool revolved and adjusted substantially as described, in combination with mechanism, substantially as described, for controlling the revolution of the tool automatically.

177,882. CLIPS FOR TRAVELING-BAGS. W. Roemer, Newark, N. J. [Filed Mar 13, 1876.]

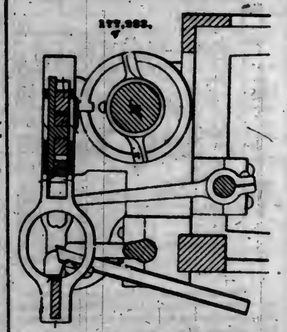


1. The clasp A, cast in one piece with the projecting arms *b b*, and with the two projecting pins *d d*, substantially as herein shown and described.

2. The clasp A, cast in one piece, with the projecting pins *d d*, and made with the shoulders *c c*, and combined with the strap B, which confines it directly to the jaw C, and lies between the pins or shoulders, substantially as specified.

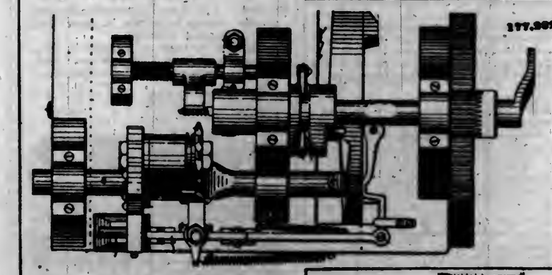
177,883. MACHINERY FOR THREADING SCREWS. Charles D. Rogers, Providence, R. I. [Filed Apr. 22, 1876.]

Brief.—The chasing device is a denticulated disk, the teeth constituting so many distinct chasers, uniform in shape, and used one at a time until dulled, when another is substituted. The shaft on the end of which the disk is placed carries on its opposite end a ratchet-wheel, to which are applied a locking-pawl and a pushing-pawl, the latter being operated, at intervals, automatically by mechanism, or at any time by hand, to turn the disk so as to bring a fresh tool to the work.



In combination with an ordinary screw-threading machine, the mechanism described for accelerating, retarding, and limiting the sidewise cuts of the chaser over the cone and cylindrical body of the screw proportionately to the depth of the cut of the chaser toward the axis of the screw, so as to bring the threads to an edge of a uniform angle over those parts without changing the outer periphery of the screw.

177,884. FEED-COCKERS. Andrew Rogers and Christophr. Whitacre, Freeport, Ill., assignors of one-half their right to W. Swansey, same place. [Filed Mar. 27, 1876.]



1. In machines for shaving, pointing, or threading screws, a multiple tool mounted on the tool-post, and so governed by a locking index-wheel that, by turning forward and locking the index-wheel, a new tooth may be presented to a revolving blank, and caused to operate upon it, substantially as described.

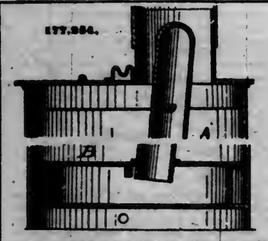
2. In machines for shaving, pointing, or threading screws, a multiple tool having bearings in the tool-post, in combination with an index-wheel and mechanism for making and preserving the adjustment, whatever may be the diameter of the tool, substantially as described.

3. In machines for shaving, pointing, or threading screws, a multiple tool revolved and adjusted substantially as described, in combination with mechanism, substantially as described, for controlling the revolution of the tool automatically.

177,885. MACHINES FOR MAKING WOOD-SCREWS. Charles D. Rogers, Providence, R. I. [Filed Mar. 27, 1876.]

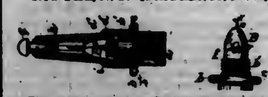
Brief.—The chaser is brought up to the blank by a wedge with uniform but intermittent throw, with another wedge bearing against it, operated by a cam-wheel, whereby the depth of the cut is increased from the neck to the body of the screw. The sidewise cuts are controlled by means of another wedge inserted in a slot in the end of the comb-bearing shaft, which is operated by a swinging lever and cam-wheel, whereby the chaser is made to cut alternately on the upper and lower sides of the thread. The machine is so timed and the respective cam-wheels so constructed that while under the influence of one the cut increases in depth; under the influence of the other it diminishes in width.

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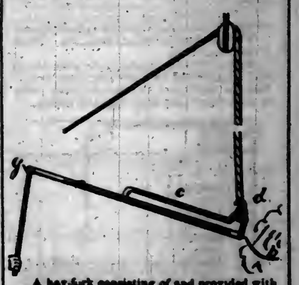
The combination of the cooker A, having grate B, and the air-supplying pipe D, passing down through the center of the cooker, and through and below the center of the grate, substantially as and for the purposes herein set forth.

177,886. GAS-BURNERS. Silas C. Salisbury, New York, N. Y. [Filed Apr. 12, 1876.]



The gas-burner described, having in combination the perforated valve B, the wire *c* with its free end serving as a stop, the expansion-chamber *b'*, and the wire gauze A, substantially as and for the purposes described.

177,886. HORSE HAY-FORKS. Jos. L. Saunders, Blue Hill, Me. [Filed Mar. 31, 1876.]



A hay-fork consisting of and provided with the handle *a*, tines *b*, clevis *c*, traveling ring *d*, and eyebolt *g*, all substantially as described and shown.

177,887. PORTABLE BATH-TUBS. Arnold Seligsberg, New York, N. Y. [Filed Nov. 11, 1876.]

Brief.—Light and flexible water-proof material is made use of in making this bath-tub, so as to allow it to be packed in a small space. It is provided with braces sufficiently strong and stiff to preserve the proper outline of the upper edge of the tub when arranged for use, but sufficiently flexible to admit of their being bent so as to be inclosed in the tub when it is folded and packed. There are also vertical props for supporting it in proper shape and position, and an air-cushion or pillow provided for supporting the head.

1. The combination, with a flexible bath-tub, of bow-shaped or curved head and foot braces B B, the posts or props O O, and cross-heads O' O', substantially as herein described.

2. The combination, with the posts or props O O and cross-heads O' O', of the flexible connections *c*, as shown and described, for the purpose set forth.

3. The combination, with the flexible folding tub A and its bow-shaped head-brace B, of the head-prop E, arranged as shown and described, for the purpose specified.

4. The combination, with the flexible folding tub A and its head-brace B, of the air-cushion or pillow G, substantially as herein described.



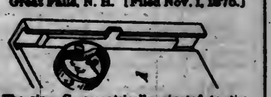
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177,888. SHOES. Elijah Shaw, Milwaukee, Wis. [Filed Mar. 20, 1876.]

The quarters B B, in combination with back piece C, in the form described, so that a shoe may be made of the same in the proper shape without crimping the back piece, substantially as set forth.

177,889. SAW-HOLDERS. Daniel P. Shaw, Great Falls, N. H. [Filed Nov. 1, 1875.]

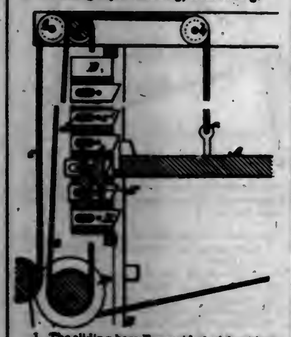


The ring C, eccentrically pivoted to the casing A, and provided with the counterbalance D, lying entirely on one side of the pivot, and flange *c*, cast therewith, having a thumb-opening, and having a rubber band, G, on its circumference, the ring being rotated

...in either direction by the counter-balance, substantially as described, and for the purpose set forth.

177,890. SAFETY-CATCHES FOR ELEVATORS. Willis S. Smith, Philadelphia, Pa. [Filed Apr. 20, 1876.]

Brief.—The sliding bars in the sides of the cage are operated by slides and ropes, to prevent the platform of an elevator, in the event of the lifting-ropes breaking, from falling.



1. The sliding bars E, provided with springs e', for projecting them into the path of the elevator.

2. In combination with sliding bars E, the slide F, operating to withdraw said bars, substantially as shown and set forth.

3. The combination of cage or platform A, moved by lifting-rope C, winding on drum C', and slide F, moving coincidently by means of a rope or cord, G, winding on a separate drum, H, and operating upon sliding bars E, substantially as shown and described.

4. In combination with the slide F and cord G, the adjusting and tightening screws f f, substantially as shown and described.

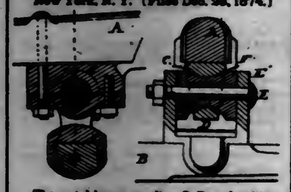
5. The combination, with slides F F and cords or ropes G G', of drums H h, pulleys b b' b', and cords or ropes K K', substantially as shown and set forth.

177,891. SIDE-BAR WAGONS. H. Soper, New York, N. Y. [Filed Nov. 7, 1874.]



A two-motion joint, connecting the side bar and spring of a side-bar wagon, in which the spring and side bar are free to oscillate each in a plane at right angles to the other, and without subjecting either to torsion, substantially as specified.

177,892. SIDE-BAR WAGONS. H. Soper, New York, N. Y. [Filed Dec. 26, 1874.]

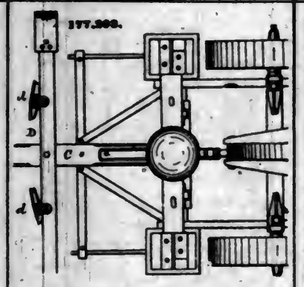


The metal boxes or clips C D and rubber cushion F, in combination with the bar A, bolt E, clips D', and bolster B, substantially as and for the purposes set forth.

177,893. MARKING FOR CORN-PLANTERS. Chas. W. Speer, Braddyville, Iowa. [Filed Mar. 6, 1876.]

Brief.—Pivoted to the tongue is a bar having marking devices at each end. The bar just over the hounds is provided with whiffletrees for attachment of the draft.

177,894.



1. The dually-extended bar D, having marking devices on its ends, and pivoted to the draft-pole C, so as to operate as a double-tree, substantially as set forth.

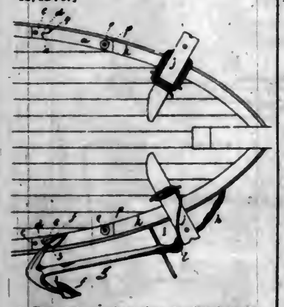
2. In a land-marker, the combination of the draft-pole C with the pivoted bar D, having the single-trees d, and extended hinged ends provided with marking devices, substantially as and for the purpose set forth.

177,895. STOVE-DOOR KNOBS. R. Strickland, Albany, N. Y. [Filed Mar. 27, 1876.]



The non-conducting stove-knob herein described, consisting of the shell or metallic body a, attachable cap a', non-conducting filling or core B, screw-stem C, and nut c, all constructed and relatively arranged as herein set forth.

177,896. ANCHOR-TRIPPERS. R. C. Sturges, Boston, assignor to S. N. Staples and W. H. Phillips, Taunton, Mass. [Filed Apr. 15, 1876.]



1. The plate a, adapted to be fitted to the surface of the rail, and provided on its upper surface with a projection, c, and a recess, d, to receive, and shaped to retain, the anchor-flake, or permit its discharge therefrom, all substantially as described.

2. The plate a and guards b, in combination with a projection, c, on the top of the plate, and shaped, as described and shown, to receive and operate in connection with the flake, as set forth.

3. The guard-plate, in combination with the pivoted projection c, adapted to retain or discharge the flake, and a locking device to permit the projection to turn on its pivot, substantially as set forth.

4. As a new article of manufacture, a metallic guard-plate, a b, provided with a projection to operate in connection with the anchor, substantially as described, and with a cheek and friction-roller, as and for the purpose set forth.

177,897. PRESSER-FEET FOR SEWING-MACHINES. D. A. Sutherland, Lynn, Mass., assignor to himself and J. N. Smith, same place. [Filed Feb. 21, 1876.]

Brief.—The toe of the presser-foot is turned upward and is hollow, the opening being a guide for a seam-stay piece, and being divided by a partition. From the bottom end of the opening, along near each side of the bottom of the presser-foot, is a rib or fillet, through one of which passes the needle-hole, their purpose being to imprint grooves for the thread or seam.

A sewing-machine presser-foot, provided with means, substantially as described, for folding and channeling a seam-stay piece, each consisting of the fillets a a and of the folder, composed of the tapering mouth c, the partition d, all being arranged with the guide-groove b and needle-hole f, as set forth.

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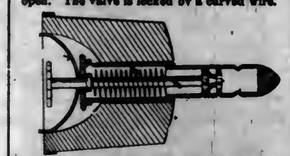
177,897. SASH-FASTENERS. Isaiah W. Sylvester, Passaic, N. J. [Filed Jan. 27, 1876.]

Brief.—The perforated rotary disk, when out of engagement, rests on the retaining-pin, to hold the bolt in withdrawn position.

An improved sash-fastener, consisting of the bolt A, cylindrical shell and base-plate B, spring C, perforated rotary disk H, and retaining-pin or spring-resister J, the disk either resting upon the pin or permitting it to pass through the perforation therein, all substantially as herein shown and described.

177,898. AIR-VENT ATTACHMENTS FOR BUNGS. James Talley, Jr., Kansas City, Mo. [Filed Apr. 1, 1876.]

Brief.—The vent-tube is indented to form shoulders to engage the T-head of valve when open. The valve is locked by a curved wire.

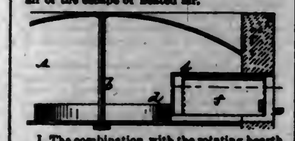


1. The valve-stem, provided with the hole to receive the wire c, as shown and described, whereby the valve may be locked above the vent-holes, as specified.

2. The vent-tube, having its sides indented or bent in to form shoulders a to engage with the T head of the valve-rod, as shown and described.

177,899. OVENS. Wm. H. Tesling, Pittsfield, Mass. [Filed Apr. 24, 1876.]

Brief.—The box allows access to the baking hearth or floor, and prevents an inflow of cold air or the escape of heated air.



1. The combination, with the rotating hearth O, of the open-bottom box or chamber G, arranged to extend from the mouth D of the oven over the baking-surface of the hearth on the forward side of the axis of the latter, and constructed to form a covered passage or close chamber in communication with the baking-chamber by an intervening space beneath the lower edges of its sides and the top of the hearth, substantially as specified.

2. The open-bottom box or chamber G, constructed with hinged sides or doors f f, in combination with the rotating hearth, and arranged in relation with the mouth D and baking-chamber A of the oven, essentially as and for the purposes herein set forth.

177,900. STEAM-BOILERS. Jos. C. Thompson and John E. Thompson, Tamaroa, Ill., assignors of one-half their right to D. C. Barber, same place. [Filed Mar. 6, 1876.]

177,900.

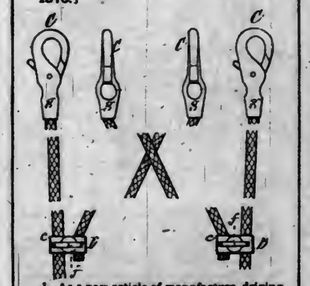


The combination, in a steam-boiler of arched construction in transverse section, and having a flat bottom, of the oblique stays E on the inside thereof, the longitudinal exterior flanges b, and the heads D, having face-flanges a c, and inserted in the ends of the boiler, as and for the object specified.

177,901. PROCESSES OF TREATING GYPSUM. C. T. Tompkins, Hillsborough, Canada. [Filed Feb. 16, 1876.]

The within described process of preparing hydrated gypsum in the form of an impalpable powder, which process consists in agitating in a body calcined gypsum with more water than is sufficient to effect the hydration of the same, but until the process of hydration is complete, substantially as set forth.

177,902. DRIVING-REINS. James P. Tolman, Boston, assignor to the Silver Lake Company, Newton, Mass. [Filed Apr. 22, 1876.]



1. As a new article of manufacture, driving-reins composed of cord, and provided with adjustable clamps B and snap-hooks C, substantially as and for the purpose set forth.

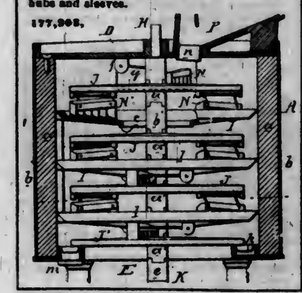
2. An adjustable clamp, B, composed of two portions, e e, each having two grooves, d, with holding-lips c, in combination with the thumb-screw f, for connecting the different portions of driving-reins composed of cord, substantially as described.

3. In combination with driving-reins composed of cord, a snap-hook, C, provided with a tapering socket, g, for the reception of the end of the cord, secured therein by a screw or wedge, substantially as set forth.

177,903. APPARATUS FOR DRYING AND ROASTING ORES. Thomas Walker, Philadelphia, Pa., and Judson J. Embrey, Fauquier County, Va., assignors to themselves, J. W. Bancroft, and S. H. Safford, Philadelphia, Pa. [Filed Aug. 27, 1875.]

Brief.—The roaster consists of a cylinder, into which the ore is fed from a hopper. From the hopper the material falls upon an inclined disk, which discharges it upon the edge of a circular plate having a central opening, through which it is driven by rakes attached to the under side of the inclined disk. The central shaft is made in sections, which connect with each other by means of clutch-like hubs and sleeves.

177,903.

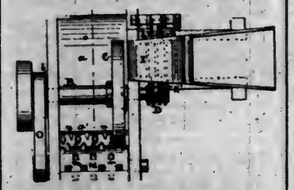


1. An ore roasting or drying apparatus, in which a cylinder, A, having inlets and outlets for the admission and discharge of products of combustion and pulverized ore, is combined with stationary plates I, having central openings e, revolving disks J, and rakes N, substantially in the manner and for the purpose herein set forth.

2. The combination of the revolving disks J, stationary plates I, and intervening rakes N, having arms hinged to the disks, as specified.

3. The combination of the disks J, their clutch-like hubs a', sleeves b', and the collar c of the hub of the driving-wheel, with the central shaft H.

177,904. CORN-STALK CUTTERS AND CRUSHERS. Isaac Wentzel and John F. Wentzel, Kutztown, Pa. [Filed Nov. 23, 1875.]



The feed cutting and crushing machine, consisting of an automatically-operating feed device, comprising the rollers F and J, gears O H, and worm-gear D, a revolving cutter-wheel, C, and a crushing-cylinder, M, and concave a', all arranged for continuous operation through the revolution of the shaft B and belt O, substantially as and for the purpose specified.

177,905. SUN-DIALS. Marshal Wheeler, Grand Rapids, Mich. [Filed Apr. 17, 1876.]

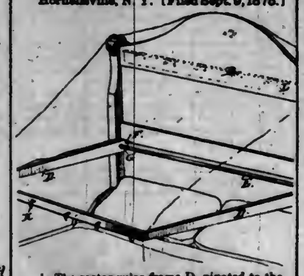


1. The semicircle j, having its surface made on a curve, so as to form the segment of a hemisphere, substantially as shown.

2. The revolving solar plate, in combination with the semicircle, substantially as specified.

3. In a solar chronometer, the combination of a pivot, e, plate g, standard i, semicircle j, having journals upon its ends, graduated arc, and revolving solar plate, substantially as shown and described.

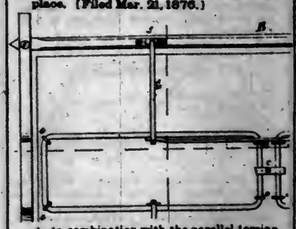
177,906. MOSQUITO-NETS. S. P. Whitcomb, Hornellsville, N. Y. [Filed Sept. 9, 1876.]



1. The rectangular frame D, pivoted to the transverse rod E, the hooks K on the front of the rectangular frame, the hooks L on the head-board, and the cross-bar F, for arresting the downward movement of the rectangular frame, and supporting it in a horizontal position, all combined as and for the purposes specified.

2. The rectangular frame D, having the recesses G G at its inner ends, combined with the head-board B, having the cross-bar F, forming an abutment, against which the recessed ends of the frame bear when in a horizontal position, as and for the purpose described.

177,907. VEHICLE-SPRINGS. William F. Whitney, Poughkeepsie, N. Y., assignor of one-half his right to Edward Storm, same place. [Filed Mar. 21, 1876.]



1. In combination with the parallel torsion-springs, constructed and connected as described, and the side bars B of the vehicle, the connecting-arms G, attached rigidly to the springs, and loosely to the side bars, as herein shown and set forth.

2. The auxiliary spring or equalising-bar J, in combination with the torsion-springs E, substantially as and for the purpose herein described.

177,908. ARCH-BARS FOR FIRE-PLACES. Isaac McC. Wickersham, Harrodsburg, Ky. [Filed Mar. 27, 1876.]



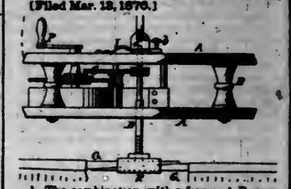
The improved metal arch-bar, formed of a flanged vertical front plate and an inclined back plate, the same being joined at their lower edges, substantially as shown and described.

177,909. VEHICLE HUBS AND AXLES. A. B. & A. Williams, Goshen, Ind., assignor of one-half his right to R. M. Johnson, same place. [Filed May 7, 1875.]



The combination of the detachable tubular sleeve C, having the conical shoulders C' at its inner end, and screw-threaded shoulder at its outer end, the cylindrical axle-spindle B, provided with the screw-threaded nib K at its outer end and the cylindrical journal E, the hub-box I' beveled at its inner end, the sleeve G, having the sand-cap H, and the hub-band L, substantially as and for the purpose set forth.

177,910. AUTOMATIC FANS. John A. Williams, Elizabeth, assignor of one-half his right to John B. Taylor, Freeport, and Ensworth to Patrick McQuillen, Elizabeth, Ill. [Filed Mar. 13, 1876.]



1. The combination, with a frame, A B, carrying a fly-fan or brush, of the hinged bail J, cord d, and pins x, arranged so that the frame can be tilted as desired, for the purposes herein set forth.

2. The bar K, with loops L L, sliding bar M with hook O, and the spring-catch M, in combination with the bail J and frame A B, carrying a fly-brush mechanism, as and for the purposes herein set forth.

3. The combination of the shaft D, having screw-threads on its lower end, the socket E, and adjustable arms G G, as and for the purposes herein set forth.

177,811. HOES. Grove Wright, Rock Falls, Ill. (Filed Oct. 7, 1875.)

Brief.—The blade of the hoe is long and narrow and sharp upon every side. The handle is obliquely attached by means of a divided shank.



1. The flat narrow hoe-blade, having its ends *d c* forming both acute and obtuse angles *d' c' d' c'*, standing front and rear alternately, and forming the points *d' c'* of the long parallel cutting-edges, the point of one end being in front and the point of the other in rear, and combined with the handle *i* and the yoke *f*, as described.

2. The hoe, consisting of the flat narrow blade, the ends *d c* of which form both acute and obtuse angles *d' c' d' c'*, with their points *d' c'* standing front and rear, and terminating in the long parallel cutting-edges *b c*, in combination with a handle, *i*, having both an upward and a sidewise oblique inclination to said blade, in the manner and for the purposes herein set forth.

177,812. HASP-LOCKS. Edward S. Young, Geneva, N. Y. (Filed Feb. 21, 1876.)



The combination, with cylindrical casing A, formed with a recess, *b*, in one side, and a recess for receiving the bolt, of curved bolt *f*, moving back and forth in curved guides, and provided with thumb-piece and shield *g*, substantially as and for the purpose set forth.

177,813. INJECTORS. William R. Mack, Boston, Mass. (Filed Sept. 16, 1874.)

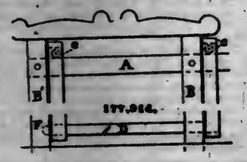
Brief.—The auxiliary combining-tube is of different taper from either the main combining-cone or the delivery-tube. The proportions and dimensions are set forth in the specification.

1. In an injector having the tapering combining-cone A and tapering delivery-tube O O', the auxiliary tapering combining-cone B, constructed substantially as described, and interposed between the cone A and tube O, for the purposes herein set forth.

2. The combination, in an injector, of the combining-cone A, auxiliary combining-cone B, delivery-tube O O', and auxiliary delivery-tube ..., all constructed substantially as described, and for the purposes herein set forth.

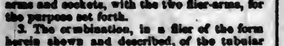
3. The combination of the steam-nozzle E', combining-cone A, and auxiliary combining-cone B, constructed, as described, with the point of the nozzle smaller than the adjacent end of the auxiliary cone, and larger than the other end thereof, for the purposes herein set forth.

177,814. SLIDING GATES. Saml. B. Daniel, Coffee County, Ga. (Filed Apr. 27, 1876.)



A gate, consisting of two vertical posts and a series of horizontal bars, the lower one of which projects as at *f*, said vertical posts being provided with the rollers *e*, combined with the posts B and B', and horizontal bar A, extending beyond post B, the said post B' having the mortise F, as and for the purposes specified.

177,815. MANUFACTURING ILLUMINATING-GAS. Wm. H. Tupper, New York, N. Y., assignor to Amos N. Titus, same place. (Filed Apr. 15, 1876.)



1. In the manufacture of illuminating-gas from fibrous waste containing oil and metallic particles, the process of sprinkling or wetting such waste with salt water previous to charging it into the retort, as and for the purpose specified.

2. In the manufacture of illuminating-gas from cotton-waste, the method of preventing the inflammation of the waste, which consists in charging said cotton-waste with a perforated or reticulated cartridge, substantially as set forth.

REISSUES.

7,099. FLUMES FOR SPINNING-MACHINES. T. T. Abbot, Lunenburg, Mass., and J. A. V. Smith, Manchester, N. H.; said Abbot assignor to said Smith. Patent No. 110,617, dated Jan. 3, 1871. (Filed Mar. 29, 1876.)

Brief.—The nose and bottom pieces of the flier are provided with sockets, which project therefrom at a slight angle, to receive the ends of the arms, which ends are bent inward slightly, in the general direction of the length of the arms. The thread-carrying arm is tubular, and re-enforced at its center by a tubular metal plate, to prevent breakage at the thread-delivering point.



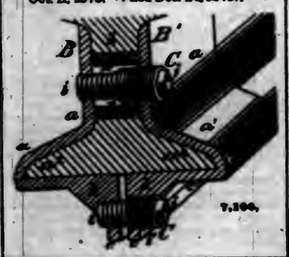
1. A nose-piece, A, of a flier, provided with two angularly-projecting arms *a* and sockets *g*, one of said arms and sockets being provided with a slit, *f*, arranged as described, whereby it communicates at one end with the throat *c* of the nose-piece, and at the other with the slit *f* and opening *i* in the arm C, that carries the thread, substantially as and for the purpose set forth.

2. The combination of the shoulder-pieces A A', each provided with angularly-projecting arms and sockets, with the two flier-arms, for the purpose set forth.

3. The combination, in a flier of the form herein shown and described, of the tubular metal plate E with the thread-carrying arm C, as and for the purpose set forth.

4. In combination with the nose-piece A, provided with the throat *c*, the auxiliary tube F, provided with openings D, arranged therein in the manner substantially as and for the purpose set forth.

7,100. RAILROAD-RAIL JOINTS. H. Allen, Titusville, Pa. Patent No. 166,704, dated Oct. 11, 1875. (Filed Dec. 24, 1875.)



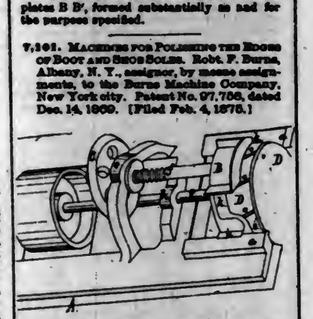
1. As a new article of manufacture, the lock-bolt C, screw-threaded from its head to its point, the diameter of the threaded portion *f'* greater than the diameter of the threaded portion *f*, and the screw-threads of the latter being coarser than the screw-threads on the former, substantially as specified.

2. The bolt C, constructed as set forth, in combination with the block *b'*, fitting in a slot of the rail, and provided with perforations of the same diameter as the screw-threaded part *f'* of the bolt, substantially as described, and for the purpose set forth.

3. The combination of the lock-bolt C with clamping or fish plates for rail-joints, each plate being provided with threaded openings corresponding in diameter with and adapted to receive, respectively, the parts *f f'* of said bolt, substantially as specified.

4. The combination of the bolt C with the plates B B', formed substantially as and for the purpose specified.

7,101. MACHINES FOR POLISHING THE ROOMS OF BOOT AND SHOE SOLES. Robt. F. Burns, Albany, N. Y., assignor, by mesne assignments, to the Burns Machine Company, New York city. Patent No. 97,706, dated Dec. 14, 1869. (Filed Feb. 4, 1876.)



1. In an organized machine arranged and adapted for the burnishing and polishing of the sole-edges of boots and shoes, the adjustable gage B, arranged for governing the width of the sole-edges presented to the action of the polishing-cylinder D, operating by means of the hand-wheel C, screws *f*, or their equivalents, substantially as and for the purposes as herein shown and set forth.

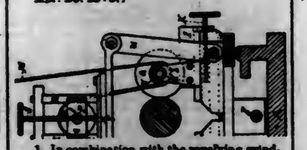
2. In combination with the adjustable gage B, having screw-shank *f* and operating-wheel C, the burnishing-cylinder D, provided on its periphery with channels, grooves, or recesses *o o*, which are cut therein at any desired line of inclination with respect to its axis, the whole combined, arranged, and operating substantially as and for the purposes as herein shown and set forth.

3. In combination with the adjustable gage B, having screw-shank *f* and operating-wheel C, the beading, creasing, or molding lips *o o*, formed on the circumference of the outer disk or face of the polishing-cylinder D, arranged and operating substantially as and for the purposes as herein shown and set forth.

4. The stops *h h*, formed or cut into, and in combination with, the adjustable gage B, substantially as and for the purposes as herein shown and set forth.

5. In combination with the burnishing-cylinder D, provided with the molding-lips *o o*, and grooves or recesses *o o*, and adjustable gage B, having screw-shank and operating-wheel, of the beating devices, as herein described.

7,102. MACHINES FOR GRINDING ROLLS. Gorton Gavit, Philadelphia, Pa. Patent No. 151,495, dated June 2, 1874. (Filed Apr. 20, 1876.)



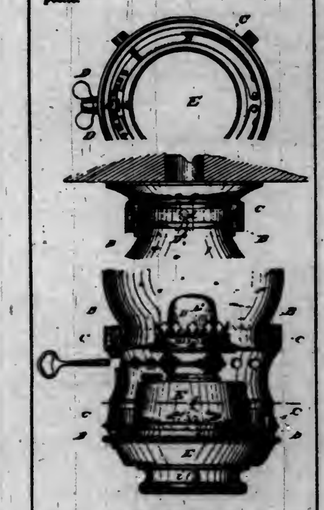
1. In combination with the revolving grindstones of a grinding-machine, a fixed revolving shaft or drum, two movable pulleys to turn the stones, an intermediate adjustable pulley, and a single belt passing over and driving all the rest from said fixed revolving shaft or drum, the said intermediate pulley to take up and give slack belt from and to the movable pulleys, substantially as described.

2. The combination of a revolving shaft, two movable pulleys to turn the stones, and an intermediate pulley, located at a point between the two movable pulleys and the said revolving shaft, from which they are driven, all turned and running on, one belt, the said intermediate pulley to take up between said movable pulleys the belt which drives them from said fixed shaft, substantially as set forth, and for the purpose described.

3. In a machine for grinding rolls, in combination with the adjustable carriages I I J J, carrying the grinding-wheels, the pivoted bars U U U U and T T, for supporting the belt-adjusting device, substantially as described.

7,103. GAS-LAMPS. Michael Hicks and Thomas Smith, New York, N. Y. Patent No. 160,007, dated Feb. 23, 1875. (Filed Apr. 27, 1876.)

Brief.—The springs move the arms in one direction, and the cam moves them in the opposite.

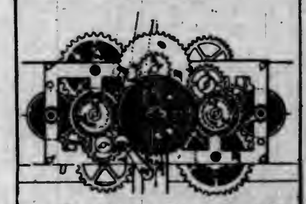


1. The combination of the arms B, pressed inward by spring-pressure to hold the lamp, and thrown outward by a device, *b*, and the lamp E, substantially as herein set forth.

2. The lamp or reservoir E, provided with circumferential groove *c*, in combination with the arms B, held in position by spring-pressure, substantially as and for the purposes herein set forth.

3. The combination of the carved arms B B, hinged at one end, and provided with lugs *a a* at the other ends, the springs C C, cam *b*, and handle or key D, substantially as and for the purposes herein set forth.

7,104. TIME-LOCKS. Samuel A. Little, Buckland, Mass., assignor to the Yale Lock Manufacturing Company, Stamford, Conn. Patent No. 146,332, dated Jan. 27, 1874. (Filed Mar. 15, 1876.)



1. The combination, substantially as before set forth, of the adjustable mechanism for continuously locking and unlocking duty the clock-work, and a device for preventing unlocking during a period greater than twenty-four hours.

2. In a chronometric locking mechanism, the combination, substantially as before set forth, of the clock-work and two adjustable devices for determining, respectively, the times of locking and unlocking.

3. The combination, with one or more clock-movements, of one or more wheels, H I, one or more ratchets, K L, and a common wheel, M, arranged as described, for the purposes set forth.

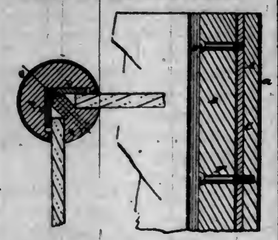
4. The wheels B and C, with the depressions *d* and *f* and the projections *e* and *g*, located relatively to each other as described, to increase and diminish the surface of a common cam, *i*, or depression *h*, by rotation on each other, for the purposes described.

5. The wheel A, with a cam, *a*, adjusted as described, to prevent the falling of the lever E and dog V either periodically or at required times, as described.

7. The combination, substantially as before set forth, by means of suitable connecting mechanism, of the following elements, adapted, as combined, to secure the door of a safe or vault, and to automatically release the same at a predetermined time, viz: first, the multiple sliding bolt-work; second, the oscillating stop or dog, adapted to prevent the retraction of the bolt-work, and to be turned on its pivot to release the bolt-work at a time determined by the clock-work; third, the vibrating lever for holding the stop or dog in position to prevent the retraction of the bolt-work; and, fourth, the clock-work for determining the time when said lever shall be moved to permit the stop or dog to release the bolt-work.

8. In a chronometric locking mechanism, the combination, substantially as before set forth, of the following elements, adapted, as contained, to guard or dog the bolt-work of a safe or vault door, and to automatically release the same at a predetermined time, viz: first, the oscillating stop or dog, adapted to prevent the retraction of the bolt-work, and to be turned on its pivot to release the bolt-work at a time determined by the clock-work; second, the vibrating lever for holding the dog in position to prevent the retraction of the bolt-work; third, the clock-work for determining the time when said lever shall be moved to permit the dog to fall to release the bolt-work; and, fourth, the graduated wheel or disk, rotated by the clock-work, and adapted to operate said lever, said to be set for varying and controlling the time when said lever shall be moved to permit the dog to release the bolt-work.

7,105. SNOW-WINDOWS. O. B. Potter, New York, N. Y. Patent No. 172,685, dated Jan. 18, 1876. (Filed Feb. 19, 1876.)



The combination of the exterior molding A with the sills, substantially in the manner herein shown and described, so that the said molding can be readily removed for repair, and again restored without disturbing the integrity of the window.

7,106. THILL-COUPLINGS. Ephraim Soper, Brooklyn, N. Y. Patent No. 150,618, dated Feb. 9, 1875. (Filed Aug. 2, 1875.)

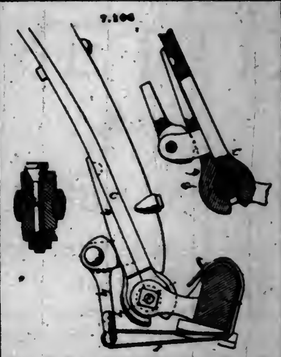
1. The combination of a bolt having conical head and a nut of conical shape fitted only in the ears of clip, as and for the purpose described.

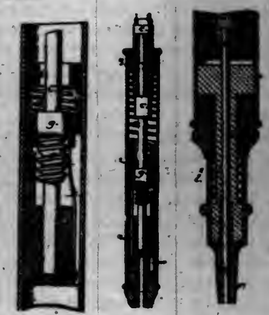
2. The combination of clamps C D, cam-lever E, and strap I, as and for the purpose set forth.

3. The combination, with eye-clamp, of a jack-bolt cushion, that forms also a cushion between the eye-clamp and ears of clamp, as and for the purpose specified.

7,107. DENTAL PLUGGERS AND BURRING-TOOLS. Irving M. Seaman, Buffalo, N. Y., assignor, by mesne assignments, to Johnston Brothers. Patent No. 131,123, dated Sept. 3, 1872. (Filed Apr. 4, 1876.)

Brief.—A spring-tooth is attached to the hammer, and engages with a screw on the revolving shaft of the plugger. The hammer is elevated by the rotation of the shaft, and released when the spring-tooth runs out upon a cylindrical enlargement above the screw. The tool is keyed into its socket by a longitudinal groove, terminating in a cross-groove upon the tool and a pin on the exterior of the socket.





1. The combination, with the revolving shaft and hammer of a dental plugger, of the screw *f*, enlargement *g*, and spring-tooth *h h'* substantially as and for the purposes set forth.

2. The combination, with the hammer provided with the spring-tooth *h h'*, and a plugger-shaft provided with the screw *f* and enlargement *g*, of the loose sleeve A and spring *j*, substantially as and for the purposes set forth.

3. The combination, with the plugger-shaft C, sleeve A, spring *j*, and spring-tooth *h h'*, of the disengaging-pin *a*, substantially as set forth.

4. The combination, in a dental plugger, of a revolving shaft provided with a tool-socket, a hollow plugger-spindle, a locking-sleeve, *r*, and a burring-tool which passes from the shaft through the said hollow spindle and locking-sleeve, in the latter of which it has an outer bearing, substantially as set forth.

5. The combination, with the screw-plug B', hollow plugger-spindle L, and burring-tool, of the locking-sleeve *r*, substantially as set forth.

6. The combination, with the cone, and piece B', plugger-spindle, and hammer, of the spring F, guide-pin *m*, and wire *n*, substantially as set forth.

7. A dental tool formed with a longitudinal passage or groove, terminating in a cross-groove, substantially as shown and set forth.

8. The rotary socket or holder provided with interior projection, as described, in combination with the dental tool formed with a longitudinal groove or passage, terminating in a cross-groove, substantially as shown and set forth.

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COMMISSIONER'S DECISIONS.

GEORGE W. LAVEES *et al.*—*Appeal.*

[*On appeal to the Commissioner of Patents from decision of the Board of Examiners-in-Chief in the matter of George W. Lavees and Sceva S. Rawlings for application for a patent for* "BUSINESS-CARDS."—*Decided April* 28, 1876.]

A business-card cut in the shape of an article of merchandise, such as a hat, gloves, boots, &c., with the name of the dealer in such articles printed upon it is anticipated by business-cards printed in public newspapers as well as in the form of tablets of like configuration, and is not the proper subject of a patent.

DUELL, *Commissioner:*

This invention consists of a business-card cut in the shape of an article of merchandise sold by the party whose name or advertisement is printed on the card.

The application was rejected by the Examiner in charge, and his decision affirmed by the Examiners-in-Chief on appeal to them.

The references cited are substantially anticipations of the invention sought to be patented, and nearly every newspaper published in the United States has business-cards printed and published for circulation in and with the paper.

There is no invention in adopting such printed business cards for separate and independent circulation. The "Chronicle," "Republican," and "Evening Star" newspapers of Washington, D. C., "The New York Graphic," and "Northwestern Lumberman," of Chicago, Illinois, show many illustrations of business-cards of analogous character to the exhibits filed with this application.

The tablets referred to by the Examiner supply all the necessary conditions peculiar to the business-cards produced by the applicant. They illustrate the form of the manufactured article of merchandise, to wit: Hats, gloves, shirts, &c. These tablets are composed of a series of sheets or cards. They are readily detached one from the other, and all that remains to be done to constitute the business-card of applicant is to print upon each of them the name of the person employing them. Even in their present condition they may be, and as a matter of fact are, distributed indiscriminately to the public, thereby subserving the identical purposes described by applicant.

It would be contrary to the policy of the patent laws of this country to allow a monopoly of manufacture and use of the cards referred to, when the streets of our commercial cities are lined with placards and signs of the varied forms of merchandise or manufactures sold by the advertiser.

If the tablets referred to are or may become the subject of letters patent under the decision made by Justice Nixon, if an application were made for a reissue of such patent, the inventor would be "entitled to all the uses to which his patent may be applied, and to all the beneficial results which legitimately follow the use of his instrumentalities, as shown by the statement of his invention and the figures used to illustrate it; and such uses and results may be stated and described in an application for reissue by the inventor without subjecting himself to the imputation of incorporating new matter." (*Vide Putman* vs. *Yerrington*, OFFICIAL GAZETTE, April 11, 1876, p. 689.)

The decision of the Examiners-in-Chief rejecting this application is affirmed.

W. H. HOWELL.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of William H. Howell for an alleged* "IMPROVEMENT IN THE PROCESS FOR PRESERVING EGGS."—*Decided May* 9, 1876.]

The application of an old process of preserving articles of food to an article which it is not shown has ever before been so treated is not a proper subject for a patent.

Where such a process has always been regarded of general application to vegetable and animal substances, it has by virtue of its publicity become public property.

It was never the design of the patent law to grant a separate patent to every possible application of a process. To do so would be a fraud upon inventors and the public alike.

DOOLITTLE, *Acting Commissioner:*

Applicant insists upon the following claim:

The process for preserving eggs by packing the same in cans, jars, boxes, or vessels, after which the air is to be expelled, and said cans, jars, boxes, or vessels are to be hermetically sealed, in the manner and for the purpose substantially as described and set forth.

He is rejected, upon reference to three English and two American patents, which, taken together, show that it is not new to preserve fruits, meats, vegetables, milk, and other articles of food, or other substances liable to decomposition or decay, by placing them, while in their natural state or cooked, in cans, jars, or other vessels, exhausting the air therefrom, and then hermetically sealing the jars, cans, or other vessels.

The means employed by the applicant form no part of the invention, for he says in his specification:

I partially immerse the can or jar in warm or hot water for a few seconds, and by this means, *or by any other suitable means*, expel the air from said can or jar.

The alleged invention consists, then, in the application of an old process of preserving to an article which it is not shown has ever before been so treated.

It is a well-known principle of chemistry that oxygen is the producer and promoter of decay and decomposition in animal and vegetable tissues, and that if this gas is wholly removed the slow combustion incident to decay will be reduced, or entirely prevented, and putrefaction, which in nitrogenous compounds follows eremacausis or decay, cannot occur. In the English Cyclopedia, under the head "Eremacausis," (decay,) it is stated that:

Eremacausis appears essential to precede and determine the processes of fermentation and putrefaction, and, hence, if organic substances be rigidly excluded from contact with oxygen they cannot be subject to either of these processes, since eremacausis can only occur in the presence of free oxygen. Advantage is taken of this fact to preserve meat and vegetables in all their original freshness by inclosing them in air-tight canisters, from which atmospheric air has been carefully expelled. If the smallest trace of air be suffered to remain in the canisters, or in the pores of the inclosed substances, eremacausis commences and determines putrefaction.

It would appear that this mode of preventing decay and putrefaction has always been regarded of general application to vegetable and animal substances, and by virtue of its publicity has become public property.

It is of no significance that eggs have never been preserved in this way. Any one has the right to do so. Whether or not they assert it is of no consequence; the right is not thereby extinguished.

We may regard this public knowledge of the process as in the nature of a patent claiming, broadly, the process of preserving animal and vegetable substances by "inclosing them in air-tight canisters, from which atmospheric air has been carefully expelled." Could such a patent be said to cover any one substance, or be invalid and inoperative, because it did not refer by name to each particular subject in the animal and vegetable kingdoms? The courts do not put such a limited construction upon claims of this kind.

In the case of *Pike* vs. *Potter* (3 Fisher, 55,) Judge Pitman charged the jury as follows:

You are therefore to consider this as a patent for a mode of curing meat and preserving fruits and provisions by means of ice, as stated and specified in the specification of the patent, whatever form or structure of boxes may be used, if the same thing that is described in Mr. Schooley's patent is done in substantially the same way. It is not denied that Mr. Schooley is the inventor of a new method as applicable to pork-houses, but his patent goes beyond this; he states that it is particularly applicable to pork-houses, which is an inference that it was applicable to other things. He is not obliged to state everything to which it is applicable, in order to be protected in the exclusive right to everything to which it is applicable, as a mode of curing meats and preserving provisions, substantially in the mode described.

And the same doctrine is laid down in *American Wood Paper Company* vs. *Fiber Disintegrating Company*, (3 Fisher, 362.) "It was never the design of the patent law" says the Commissioner in the case of L. C. Goodale, (2 OFFICIAL GAZETTE, 589,) "to grant a separate patent to every possible application of a process. To do so would be a fraud upon inventors and the public alike."

The value of a process of this kind does not depend upon the particular article treated. It is for a mode of producing a given effect or result, and is not influenced by a change in the material operated upon.

If it is true that eggs form an exception to the general rule, and cannot successfully be treated as other animal substances, as applicant's attorney contended at the hearing, then the applicant should show that he has devised some *new* means of overcoming this difficulty, or some novel adaptation of old means. In that case a patent might be granted him; but he has done neither.

As in Morton's discovery of a new application of ether, "there is only a naked discovery of a new effect resulting from a well-known agent working by a well-known process," (1 Fish., p. 320.)

This doctrine is also adverted to in the case of Levi Stevens, (1 OFFICIAL GAZETTE, 225,) where it is said that—

To apply a device to a new purpose requires no invention, and is simply a double use; but when adaptation is required to secure a new result invention is presumed, and the new organization may be patentable. (See also *Conover* vs. *Roach*, 4 Fish. 12.)

The present case is found wanting in novelty and invention, and therefore the decision of the Board of Examiners-in-Chief refusing the patent is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

GEORGE B. CORNELL *vs.* LOMAX LITTLEJOHN.

A decision on a preliminary application for an injunction is not of controlling weight in another circuit.

The Cornell reissued patents Nos. 5,026 and 5,027, of August 6, 1872, the one being for a bung-bush, and the other for a wrench for operating such bush by direct positive engagement, are not infringed by the use of a bush and a wrench in which the engagement is effected by frictional contact, and in which the bush is so constructed that the patented wrench cannot be used with it.

[*S. A. Goodwin*, for plaintiff.
S. A. Duncan, for defendant.]

JOHNSON, *Cir. J.*:

In my opinion the bush and wrench used by the defendant are not infringements of the patents Nos. 5,026 and 5,027 of the plaintiff, or either of them.

The obvious proof of this consists in the facts that the plaintiff's wrench cannot be used with the Littlejohn bush, and that the plaintiff's bush and wrench are adapted to each other, the bush by a V-shaped notch in its outer rim, and the wrench by a projection of a shape to fit into the notch in the bush. The turning force applied to the wrench operates upon the bush by the contact and engagement of the projection with the notch in the bush. At that point only is the force applied. The plaintiff's patent, reissue No. 5,027, Division B, says:

The object of this notch is to allow a suitable wrench, adapted for the purpose, to engage therewith, whereby the said bushing may be turned into place without the wrench slipping from its seat, as would be the case with a bushing having a smooth surface.

It will be observed that it is the notch which prevents the wrench from slipping from its seat, and that it is the notch which is contrasted with "the smooth surface," and which prevents this bushing from being subject to the difficulty a smooth surface would occasion; and accordingly the claim specifies—

The screw-threaded metallic bung-bushing, made tapering upon both its outer and inner sides, and provided with the flange B, having the V-shaped notch d, as and for the purpose described.

In the plaintiff's reissue No. 5,026, Division A, the specification, after describing the wrench with "a V-shaped projection adapted to fit a corresponding notch formed in the bushing, whereby the same may be turned into place, * * and also preventing the wrench from slipping from its seat," goes on to say that—

In using the said invention the core is inserted into the opening through the bushing, and turned until projection D falls into a notch formed in the bushing, which is adapted to fit the same; * * and by the contact of the projection within the notch the wrench is prevented from slipping from its post, thereby enabling the bushing to be readily turned into place.

Then follows a clause which, it is contended on the part of the plaintiff, prevents his being confined to the device specified. It says:

We do not wish to confine ourselves exclusively to the V-shaped projection, as any form that will prevent the core from turning independently of the bushing will produce the same result.

Upon this language it seems to me impossible to say that the patentee had in view every method whereby the core or wrench could be mechanically prevented from turning independently of the bushing. It is not any form of wrench or core, but any form of *projection* that is meant, suited to engage with any corresponding notch in the bushing. Therefore, in the claim which follows, the projection D is retained as a distinctive feature of the invention. The device which the plaintiff's patents extend to covers every sort of direct physical engagement of some part of the wrench against some part of the bush. If it has a greater extension than this it must cover every means whereby a bung-bush may be screwed into a barrel by the application of force through a wrench.

The Littlejohn wrench operates in a different way from the patented device. As has already been noticed, the plaintiff's wrench can not be engaged with and turn the defendant's bush. The defendant's wrench does not carry a core which fits closely into the bush, nor engage with it by any projection and corresponding cavity. It carries an eccentric ribbed boss or bit of metal fitted upon a part of the surface of the loosely-fitting core. Upon turning the wrench in the proper direction the eccentric boss is pressed against the inner surface of the bush, and the friction thus caused is sufficient to turn the bush into the barrel. If this can be regarded as a mechanical equivalent for the plaintiff's device, then I see no limit to the extent of the plaintiff's right, and upon a patent for a V-shaped projection and corresponding aperture he will have secured to himself every mechanical means whereby motion can be given to a rimmed hollow screw to force it into its place.

I do not think this the proper construction of his claims, nor a case for the application of the doctrine of mechanical equivalents to the extent claimed.

On the plaintiff's own statement, as to a wrench made by him like the Littlejohn wrench in 1867, when he was experimenting upon wrenches, it is apparent that having found it practically a failure, for whatever reason, he abandoned it and did not attempt to include it in his patent. His device was the interlocking V-shaped projection and cavity. With the two devices present to his mind, no man could have chosen words so exclusively applicable to one, intending to include the other also, so that I feel no doubt in the conclusion that the plaintiff's patent not only does not, but was not intended, to include the Littlejohn form of wrench.

The decision on final hearing in the Eastern District of Wisconsin against Schumacher and Johnson does not touch the question upon which, in my judgment, this case turns. On the motion for a preliminary injunction in the case against the Bemis Brewing Company the same learned judge who decided the former case granted an injunction unless a bond was given. The wrench produced in that case seems to me in principle not distinguishable from that here in controversy, though the other circumstances of the case are not fully mentioned. But a decision on a preliminary application for an injunction is not of controlling weight in another circuit, as was held in the *Sargent Manufacturing Co.* vs. *Woodruff*, (5 Bissell, 444,) and I feel so strong a conviction that the plaintiff cannot maintain his claim to the wrench used by the defendant as an infringement of the plaintiff's patent that I must act upon my own judgment in the premises.

The motion for an injunction must be denied.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

NEW YORK RUBBER COMPANY *vs.* JAMES CHASKEL
IMPLEADED WITH HENRY BESELS.

Where the defendant in an action for infringement uses substantially the same devices as plaintiff, and produces the same result and certain other results differing from those produced by plaintiff, it will still be considered that the patent of plaintiff has been infringed, and that defendant appropriates the invention of complainant.

[*B. F. Lee*, for complainant.
S. Hirsch, for defendant.]

JOHNSON, *Cir. J.*:

The answer of the defendant, Chaskel, makes an issue upon the novelty of the invention for which the patent owned by the complainant was granted; but as no evidence was given in support of the allegation of the defendant in this respect, the presumption arising from the patent itself is sufficient to determine the question in favor of the complainant.

The defendant's answer sets up that the articles claimed by the complainant to work an infringement of its patent were made under a patent granted to Chaskel by the United States, being Patent No. 153,155, dated July 21, 1874. Assuming this to be so, and that the fact of the patent creates the usual presumption of validity and consequently of patentable distinction between the claims of the defendant's patent and that secured by the complainant it still remains to be considered whether this presumption is not overthrown by a comparison of the article made and sold by the defendant with the patent owned by the complainant.

The claims in this patent are two: The first for the combination of a hollow elastic toy, of rubber or the like, with a reed or other speaking device, so that by compressing the toy the reed or other device is made to speak; and, second, for joining the two parts by a groove in the frame of the reed, around which the rubber will close tightly by its elasticity when the reed-

frame is inserted through a small hole cut out of the rubber.

In the body of the specification a whistle is mentioned as one of the forms of the speaking contrivance contemplated by the inventor. The defendant's manufacture is the exact thing there described and something more. He uses a whistle sounded by compressing an elastic rubber ball, which is attached to the whistle by its contraction around and into a groove cut around the frame of the whistle. He prolongs the frame of the whistle so that it also serves as a handle to the toy, and he adds to it a whistle at the further end of the handle to be blown in the usual fashion.

Whatever may be thought of the patentable quality of these additions, there can be no mistake in the proposition that the defendant's toy or manufacture appropriates both points of the complainant's patent. A whistle with a frame prolonged into a handle does not cease to be a whistle; nor does adding still another whistle at the end of the handle cure the violation of the complainant's patent in the employment of the first whistle in the method and for the purpose specified in and covered by the patent of the complainant.

The complainant is therefore entitled to a decree in its favor in the usual form for a perpetual injunction and for an account, and the master must also inquire and report as to any damages occasioned by the breach by the defendant, Chaskel, of the preliminary injunction issued in this cause, and as to the proper fine, if any, to be imposed therefor.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 16, 1876.]

9,276.—Flag.—JOSEPH B. ALTEMUS, Philadelphia, Pa., assignor to himself and LEMUEL COFFIN, same place. Application filed March 27, 1876. Term of patent 3½ years.

9,277.—Carpets.—JAMES L. FOLSOM, Brooklyn, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Application filed April 29, 1876. Term of patent 3½ years.

9,278.—Pipe-Stems.—ANDREW J. HARRIS, Providence, R. I. Application filed March 6, 1876. Term of patent 3½ years.

9,279 to 9,286, inclusive.—Carpets.—OTTO HEINICKE, New Utrecht, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed April 29, 1876. Term of patents 3½ years.

9,287 and 9,288.—Fancy Cassimere Fabrics.—WILLIAM A. WALTON, Providence, R. I., assignor to THE WEYBOSSET MILLS, same place. Applications filed May 6, 1876. Term of patents 7 years.

9,289.—Steam-Radiator.—GEORGE W. BLAKE, New York, N. Y. Application filed May 4, 1876. Term of patent 14 years.

9,290.—Shawl or Breast Pin.—THOMAS S. DROWNE, Boston, Mass. Application filed April 22, 1876. Term of patent 3½ years.

9,291.—Smoking-Pipe.—JOHN K. NEAL, New York, N. Y. Application filed April 4, 1876. Term of patent 3½ years.

9,292.—Harness Ornaments.—WILLIAM S. ROBBINS, New Bedford, Mass. Application filed April 11, 1876. Term of patent 3½ years.

9,293.—Cassimeres.—WILLIAM BURGER, Utica, N. Y., assignor to THE GLOBE WOOLEN COMPANY, same place. Application filed April 18, 1876. Term of patent 3½ years.

9,294.—Pump-Curb.—HENRY L. FRY, Oakley, Ohio. Application filed April 26, 1876. Term of patent 7 years.

9,295 to 9,300, inclusive.—Oil-Cloths.—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed May 5, 1876. Term of patents 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 16, 1876.]

3,669.—Medical Compounds.—C. V. L. PITTS & CO., Kingston, N. Y. Application filed March 25, 1876.
"words 'OLD HOME.'"

3,670.—Chucks for Drills.—THE VICTOR SEWING MACHINE COMPANY, Middletown, Conn. Application filed March 11, 1876.
"word 'VICTOR.'"

3,671.—Lubricating-Oil.—DAWSON & WATSON, Smith's Ferry, Pa. Application filed February 29, 1876.
"words 'AMBER LUBRICATING OIL WORKS.'"

3,672.—Coffee.—DILWORTH BROTHERS, Pittsburg, Pa. Application filed April 29, 1876.
"word 'Brazil,' accompanied by a picture or likeness of the Emperor Dom Pedro."

3,673.—Writing-Paper.—F. H. DUNKINSON & CO., New York, N. Y. Application filed April 29, 1876.
"words and letters 'Pure Irish Linen. F. H. D. & Co.,' and the representation of a crown."

3,674.—Cigars, Tobacco, and Snuff.—F. W. FELGNER & SON, Baltimore, Md. Application filed April 10, 1876.
"the letters 'F. W. F. & S.' in the form of a monogram, the illuminated border around the monogram, and the words 'Herbe de la Reine.'"

3,675.—Cigars, Tobacco, and Snuff.—F. W. FELGNER & SON, Baltimore, Md. Application filed April 21, 1876.
"picture of the miner with his sleeves rolled up, his right hand resting on the handle of a pickax, his left hand on his left hip, with a lamp or candle in his hat, the scene representing the interior of a mine, with the words 'Miner's Choice' and 'Dark color.'"

3,676.—Cigars.—E. C. HAZARD & CO., New York, N. Y. Application filed May 2, 1876.
"a black rectangular field, surrounded by a border of lighter color or shade."

3,677.—Cigars.—E. C. HAZARD & CO., New York, N. Y. Application filed May 2, 1876.
"word 'KING.'"

3,678.—Cigars.—E. C. HAZARD & CO., New York, N. Y. Application filed May 2, 1876.
"word 'QUEEN.'"

3,679.—Stencil-Plates.—SAMUEL G. MONCE, Bristol, Conn. Application filed April 24, 1876.
"the representation of two hands, in the act of putting together interchangeable stencil plates or characters."

3,680.—Guns, Pistols, and Parts thereof, and Appurtenances thereto.—SHARPS RIFLE COMPANY, Bridgeport, Conn. Application filed April 20, 1876.
"words 'Old Reliable.'"

3,681.—Dairy Products.—THEODORE VAN SKELLINE and FRANK MANNIE, Williamsburg, N. Y. Application filed April 21, 1876.
"the letters and character S & M, in connection with the figures of two cows facing each other, and an interposed representation of a churn."

3,682.—Writing-Paper.—CHARLES H. CLAYTON & Co., New York, N. Y. Application filed March 2, 1876.
"the arbitrarily-selected words 'LINEN FABRIC.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 16, 1876.]

710.—Title: **"Consolation—Pure Rye Whisky."**—RUSS COATS, Rochester, N. Y. Application filed May 8, 1876.

711.—Title: **"Elastic Vulcanite Coated."**—ROBERT S. GRUMMON, Newark, N. J. Application filed May 6, 1876.

712.—Title: **"Tonic Friction Bath."**—GEORGE W. HOLLERMAN & Co., Morganton, N. C. Application filed May 1, 1876.

713.—Title: **"A. H. Myers' Diamond Blood Searcher."** ADDISON H. MYERS, Augusta, Ohio. Application filed May 8, 1876.

714.—Title: **"Neff's Ague Cure."**—D. NEFF & Co., Kingston, Mo. Application filed May 11, 1876.

715.—Title: **"Dr. Ragland's Lightning Relief."**—J. B. RAGLAND, Jackson, Tenn. Application filed May 9, 1876.

716.—Title: **"Ritmeier's German Essence of Life."**—W. RITMEIER, Milwaukee, Wis. Application filed April 24, 1876.

717.—Title: **"The Oriole Mills Commercial Note."**—HENRY THOMAS, Holyoke, Mass. Application filed May 8, 1876.

718.—Title: **"Baja California Damiana Bitters."**—WINDER & SHEARER, San Francisco, Cal. Application filed May 9, 1876.

719.—Title: **"Sanford's Jamaica Ginger."**—WEEKS & POTTER, Boston, Mass. Application filed May 4, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED MAY 16, 1876.

	Class No.	No. of Patent.
Abdominal supporter, F. H. Sale	156	177,569
Alarm, burglar, C. H. Pierce	24	177,555
Alarm signal, audible, N. J. Holmes	138	177,398
Alloy, anti incrustation, O. Holden	99	177,513
Anchor, F. Francis	137	177,492
Aspersorium, J. J. Dunn	98	177,484
Auger handle, J. Magers	29	177,529
Bag holder, A. J. Mosher	57	177,540
Balance wheel, F. W. Wild, (reissue)	134	7,114
Bale tie, J. M. Goldsmith	7	177,330
Barrel headings, machine for cutting, V. Groom	40	177,331
Bed lounge, F. Braun	62	177,462
Beds, adjustable bolster for, J. Hofmann	62	177,511
Binder, temporary, R. O. Peirce	15	177,352
Blotter, rotary, S. Wales	146	177,441
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MAY 16, 1876.

177,316. DETONATING TOYS. George B. Adams, Newark, N. J., assignor to Jos. A. Halliday and Adam M. Halliday, same place. [Filed Feb. 26, 1876.]

Brief.—A ball or other shaped body, with an attached cord or not, and having a weighted side or end armed with a projection, upon which to explode a fulminate cap.

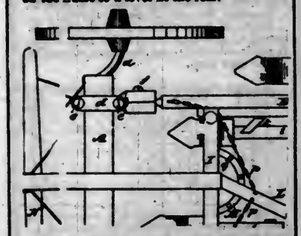


1. The ball or body A, with the weighted end B, for exploding detonating-pellets, substantially as specified.

2. The ball or body A, constructed with the weighted point or end B, and the cord D attached to said body, as specified.

177,317. CULTIVATORS. Gleason Barcafer, Springfield, Ohio. [Filed Mar. 27, 1876.]

Brief.—Posts hinged to the arched axle and with the draft-equalizer, permitting independent longitudinal movement of the plows, the same movement further controlled by chains passing from the beams around pulleys on the frame to a lever at the rear.



1. In a wheel cultivator, the combination of the swinging posts C with the arched axle A *a*, and with the plow-beam coupling D *g*, substantially as and for the purpose set forth.

2. The double-tree N, swinging rods *e*, with loops *i*, and draft-rods *s*, in combination with the swinging posts C, ball-and-socket joint D *g*, and plow-beams E, having a draft longitudinally independent of each other and of the axle, substantially as and for the purpose specified.

3. The combination with the plows, connected to the swinging posts C by the ball-and-socket joint, consisting of the sectional boxes D and the pieces *h*, with balls *g*, of the cross-bar I, carrying upon each end hooded sheaves K, and the chains *p*, pivoted lever L and semicircular plate M, with stops *q*, substantially as and for the purpose set forth.

177,318. COUPLINGS FOR TELEGRAPH-WIRES. Stephen M. Barbour, Philadelphia, Pa. [Filed Oct. 16, 1875.]



The perforated block A, with an aperture intersected by the holes C, in combination with the key D, constructed as and for the purpose described and shown.

177,319. ROLLING-PINS. Louis Blasi, Lancaster, Pa. [Filed Jan. 6, 1876.]

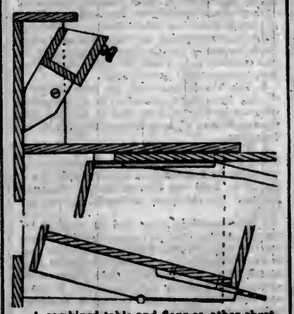
As a new article of manufacture, a rolling-pin having a body or core composed of a wooden cylinder, provided with a central bore to receive a detachable shaft, the latter having handles at each end, said cylinder being covered with a sheet of metal having ornamental designs stamped on its surface in intaglio, each figure being bounded or separated from the others by raised edges, substantially as shown and described.



177,320.



177,320. MEAL-CHESTS. Erastus G. Burgett, Wabash, Ind. [Filed Oct. 2, 1875.]

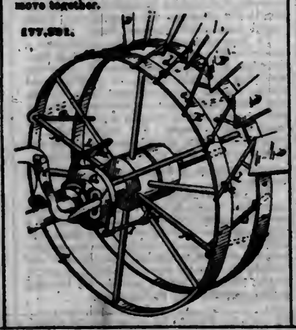


A combined table and flour or other chest, said table being provided with bottom rails, on which are pivoted side extensions or rails, the lower surfaces of which are beveled in front of the pivots, to form an obtuse angle with the rear part, and thereby support and retain the chest securely in closed or opened position, substantially in the manner and for the purpose set forth.

177,321. WIND-WHEELS. C. W. Cathcart, Westville, Ind. [Filed Mar. 22, 1876.]

Brief.—A series of radial sails pivoted at one edge between two circular bands or rims, which forms the wind-wheel. This large wheel is secured upon the end of an axial shaft. Loose upon this shaft, and in rear of the sails, is a recessed wheel, provided at its periphery with staples, which receive rods extended back, one from the free edge of each of the pivoted sails. It has a limited rotary independent motion imparted to it from the sails or the weight at the moment of opening or closing the sails, and serves as a means of connection between the sails, causing them to move together.

177,321.



1. The main or sail-carrying wheel, attached rigidly to the shaft, and bearing sails pivoted at one edge, in combination with a second wheel upon the same shaft, fixed at a certain distance from the main wheel, and having a limited independent rotation, induced or permitted by a weight, said second wheel being connected to the sails by means set exactly as specified, so that it will operate the sails without sliding back and forth upon the shaft, all substantially as specified.

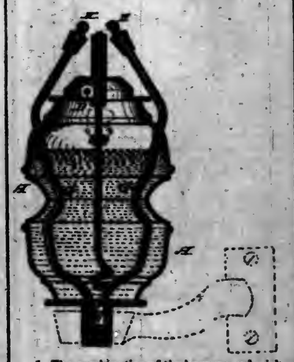
2. The combination and arrangement of the pivoted sails D, the second wheel E, the rock-shafts and arms L M N, and the sliding head G and weighted lever, substantially as specified.

3. The combination, with the weighted lever and sliding head, of the rock-shafts, and arms L M N, and second wheel E, all substantially as specified.

4. The combination of the pivoted sails and the second wheel, the sails being connected with the second wheel by rods *d*, placed at a dividing angle, and playing through eyes upon said second wheel, substantially as specified.

177,322. GAS-BURNERS. James M. Clark, Lancaster, Pa. [Filed Apr. 13, 1875.]

Brief.—Gas is supplied on opposite sides of an adjustable wick.

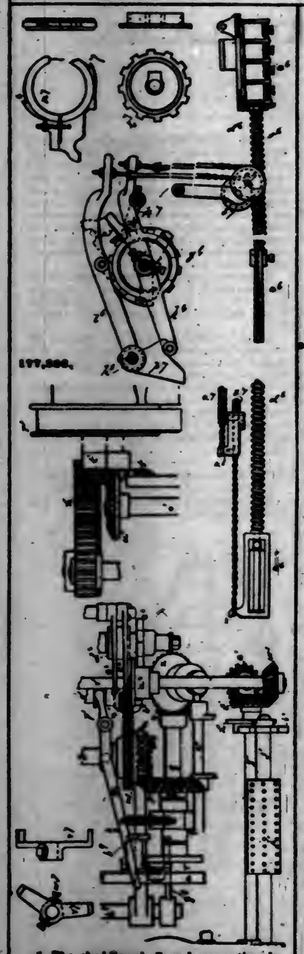


1. The combination of the burners and wick and the adjustable wick, whereby the wick can be adjusted to correspond to the pressure of gas, substantially as and for the purposes set forth.

2. The oil-reservoir A, having the tubes G G arranged within the same, with the collar E at one end, and the inclined burners H H at the other, in combination with the wick-tube B and adjustable wick, substantially as and for the purpose set forth.

177,323. LOOMS. George Crompton, Worcester, Mass. [Filed Feb. 7, 1876.]

Brief.—A shaft is introduced called a "finder-shaft," actuated by the loose pulley, which may be thrown into engagement with the shedding-shaft at the will of the operator, to reverse the shedding and pattern motion, and shuttle-box pattern motion, to return to the exact point where an imperfection occurred in the weaving. The clutches connecting the crank and finder with the shedding shafts operate together, the one engaging when the other disengages. The shuttle-box-operating levers are connected to the box-rod by cords and auxiliary levers and sheaves, in such a manner that any desired change of box may be obtained by one movement of the mechanism. By means of a treadle the movement of the lay may be arrested simultaneously with the reversing of the shedding, and when the foot is removed the action of a spring restores the order in readiness for forward movement, so soon as the belt shall be shipped upon the fast pulley. The shuttle-box friction-binders are made in two parts, united by retaining and adjusting screws.



1. The shedding-shaft and connecting devices to operate the shed-forming mechanism and its pattern-surface, as described, and adapted to be connected with or to disconnected from the control of the crank-shaft, in combination with a finder-shaft and a loose pulley to operate it, whereby the shedding-shaft is engaged with the shedding mechanism may be operated through the finder-shaft, to form sheds and move the pattern-surface backward or forward while the crank-shaft is at rest, substantially as set forth.

2. A shedding-shaft and connecting devices adapted to operate the shed-forming devices and the pattern-surface of the shedding device, substantially as described, in combination with a crank-shaft, a clutch to connect or disconnect the shedding and crank shafts, a finder-shaft, a foot-motion shaft, and fast and loose pulleys, and a clutch or equivalent coupling mechanism, to connect and disconnect the finder and shedding shafts, substantially as described, whereby a driving-belt on the fast pulley, during the engagement of the crank-shaft with the shedding-shaft, will actuate the shedding devices and the pattern-surface thereby, and, during the time the belt is on the loose pulley and the crank-shaft at rest, the finder-shaft driven from the loose pulley will operate the shedding-shaft to find a true shed, substantially as described.

3. The shedding-shaft connected with and adapted to operate shed-forming devices, a pattern-surface for the shedding devices, and a pattern-surface for the shuttle-box mechanism, both pattern-surfaces being located at the same end of the loom, in combination with a crank-shaft and a finder-shaft, and with clutches adapted to connect the crank and shedding or finder and shedding shafts at will, while either the finder or crank shaft is at rest, substantially as described, whereby the shedding-shaft and its connected shed-forming mechanism and pattern-surface, and pattern-surface for the shuttle-boxes, as above described, may be operated from either the crank-shaft or the finder-shaft, substantially as described.

4. The finder-shaft o', extended across the loom frame parallel with the crank-shaft, and actuated by the loose pulley, and a clutch to engage and disengage the shedding and finder shafts, in combination with a shedding-shaft, connected with the shed-forming devices, and with the pattern-surface thereof, and with a crank-shaft and device for disconnecting or connecting the shedding and crank shafts, substantially as described.

5. In combination, the finder-shaft, a loose pulley to operate it, as described, the crank-shaft, the shedding-shaft, a pinion on the crank-shaft, a pinion on the finder-shaft, and two clutches, or substantially equivalent coupling devices, and a shipper, whereby either the finder or the crank shaft may be connected with or disconnected from the shedding-shaft, to permit either the crank-shaft or the finder-shaft to be operated to move the shedding-shaft, to weave in the regular manner, or to find the true shed while the crank-shaft is at rest, substantially as described.

6. The shuttle-box rod, the connections f' f', and levers to move them, in combination with the lever n' and its sheave, and the stationary sheave o', to operate substantially as described.

7. A ratchet-cam for operating the shuttle-boxes, and a friction device, constructed substantially as described, in combination with a detent to hold the friction device when not actuated by the pawl, substantially as set forth.

8. The auxiliary lever and its sheave, arranged as described, to sustain a flexible connection which is joined to the shuttle-box rod, in combination with a flexible connection connected with the auxiliary lever, and with mechanism to move this connection to raise and lower the lever and its sheave, substantially as described.

9. Shafts g' h' and levers h' F, in combination with a cam on shaft g' to operate lever F, and with a cam on shaft h' to operate lever h', substantially as described.

10. Shuttle-box ratchet o', link f', arm h', and shaft h', in combination with the cam at the opposite end of shaft h', and with a shuttle-box lever and connection to raise or lower the auxiliary lever, substantially as described.

11. The two-part shuttle-box ratchet-cam and connecting and adjusting screw and friction device, in combination with a double pawl to move the cam, and a detent to hold the friction device, substantially as described.

12. The finder-shaft and a loose pinion adapted to be operated by it when the crank-shaft is at rest, and the shedding and crank-shaft, and a clutch to connect or disconnect them, in combination with a shipper adapted to operate the clutches, or equivalent connections between the shedding, crank, and finder shafts, whereby movement of the shipper to engage the shedding and crank shafts will disconnect the shedding and finder shafts, and movement to engage the shedding and finder shafts will disengage the shedding and crank shafts, substantially as described.

13. A crank-shaft, a shedding-shaft, and a finder-shaft, and clutches or equivalent connections, to connect or disconnect either the shedding or crank shafts, or shedding and finder shafts, and a shipper to move the clutches or equivalent connections, in combination with a foot-treadle and connecting mechanism, whereby the foot-treadle is adapted to move the shipper to engage the shedding-shaft with, or to disengage it from, either the crank or finder shafts, substantially as described.

14. The rock-shaft, the treadle, a spring to move the treadle in opposition to the action or movement of the foot, in combination with a clutch, and the shedding and crank shafts, and a shipper and connections between the treadle and the shipper, to automatically operate the clutch, to engage the shedding and crank shafts when the belt is moved onto the fast pulley, substantially as described.

177,884. DUMPING-BOXES FOR WAGONS. D. J. Dean, Grand Rapids, Mich. [Filed Mar. 15, 1876.]

Brief.—May be applied to ordinary wagon running-gear.



1. The dumping-box D, supported by and in combination with the single longitudinal beam B B B, which beam is supported at either end by the axle-tree of the wagon, and forms, as it were, the wagon-reach, when constructed substantially as and for the purpose described.

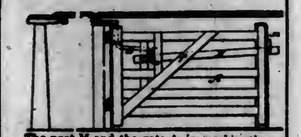
2. The combination-chain F, bent bar E, and lever-trap V, for the purposes described.

3. The combination, the trap V provided with loop K, with the trap U, provided with the spring S, so as to work or act simultaneously in dumping the load, substantially as described.

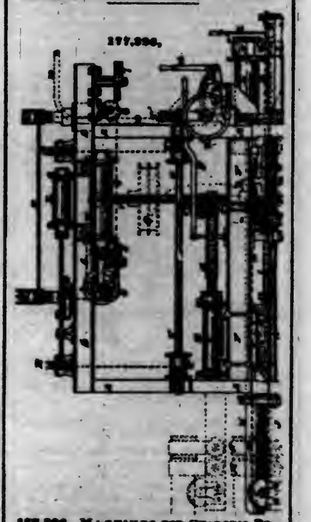
4. The combination of the box D, beam B B B, provided with short reach B, and the bolsters of a wagon F and F', substantially as and for the purposes described

177,885. AUTOMATIC GATES. S. R. Emery, Dresden, Mo. [Filed Mar. 21, 1874.]

Brief.—A crank at the rear of the gate, operated by rods transverse to the gate, moves the gate outwardly, and depresses the rear of the pivoted latch.



The post M and the gate A, in combination with the slotted latch H and angular crank-shaft G, substantially as and for the purpose described.



177,886. MACHINES FOR CHAMFERING BUTTONS. William Fowlis, Glasgow, North Britain. [Filed Mar. 20, 1876.]

Brief.—The machine is traversed on the tenet by hydraulic cylinders, pistons, connecting-rods, and gearing. The charging-scoop is raised and lowered by chains, drums, a worm-wheel and tangent screw, and a hand-wheel B is projected into the street, turned over, righted, and withdrawn by hydraulic apparatus, chains, pulleys, &c. Cranes are provided with chains, pulleys, &c., for raising and lowering the completed load from the charger.

1. The mechanism for traversing the scoop, consisting of the hoisting-chain, the scoop E, the chamber bar or block L, provided with grooves r' and r, the bearings K and B, the cylinder a, the rack i, the spur-pinion m, the shaft n, the bevel-pinions o and p, the shaft r, the drum Q, and the grooved rollers r', s, and s, all combined as described.

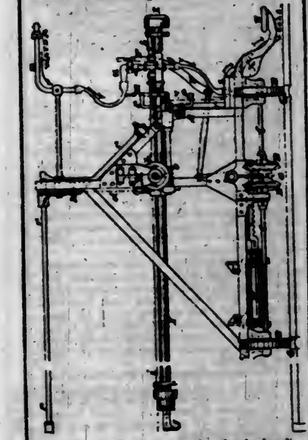
2. The mechanism whereby the charging apparatus is raised and lowered, consisting of the shedding f, provided with eyes or rings, the guide-pulleys E upon the girders S, the drums T on the shaft U, the worm-wheel V, the tangent screw U', the hand-wheel U', the frame I, provided with a bracket, 20, and the drum Q, all combined as described.

3. The combination of the cranes V, provided with pulleys, the cylinder W, to the piston-rod of which pulleys are attached, the chains 8, the pulleys 1, 2, 4, 5, 7, 8, and 9, as and for the purposes described.

4. The cranes V, cylinder X, crank 10, and link 11, all combined as and for the purposes described.

177,887. APPARATUS FOR DRAWING ENTRANS. William Fowlis, Glasgow, North Britain. [Filed Sept. 1, 1875.]

Brief.—The apparatus is traversed on its rails by a hydraulic cylinder having a rack-bar, which works in a pinion on a shaft, which works bevel-gearing on the axles of the wheels on which the machine moves. The rake is operated forward and backward by water-power, and works in a hydraulic cylinder having suitable valves and ports.



1. The combination whereby the hydraulic cylinder H may be utilized in traversing the machine continuously in one direction, consisting of the wheels B, shaft C, bevel-wheels D, pinion E, bevel-pinion e, cross-shaft b provided with a spur-pinion, and hydraulic cylinder H provided with a rack, 4, combined as and for the purposes described.

2. The mechanism whereby the rake is operated, and the ends thereof raised and lowered, consisting of the hydraulic cylinder I, provided with a piston-rod, to which the rake J is attached, pipes f and h, provided with branches v and x, chest v', divided longitudinally by a diaphragm, c, double piston-valve t, valve-spindle t', lever R, and ports a, communicating with the lower chamber of the chest V.

177,888. VISES. Orville H. Gardner, Fulton, N. Y. [Filed Feb. 26, 1876.]

Brief.—The movable jaws are adjustable, either separately or together, by means of two right-handed screws separately connected by suitable clutches. The bed-plate is adapted to swing upon a bench.

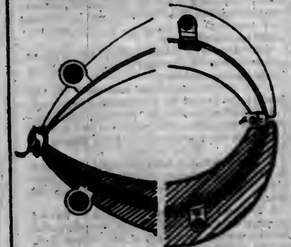


1. The combination of the hollow speed-screw F with the power-screw E, that passes through its full length, and a clutch, D, whereby the screws can be used together or independently of each other, substantially as shown.

2. In a vise, the combination of two movable jaws, and two separate screws, E F, one of which screws is used for speed and one for power, and whereby the jaws can be made to move separately or together, substantially as specified.

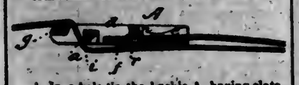
3. The hollow screw F, having the shoulder G, in combination with the standards c, screw E, clutch D, spring and lever O, substantially as specified.

177,889. HORSE-COLLARS. W. D. Gibbs, Ithaca, N. Y. [Filed Nov. 11, 1872.]



In a horse collar, the foundation or core composed of a tubular frame, fastened at its upper end, and provided with tug loops, and swivel-rings extending through the padding, also with end fastenings, substantially as described.

177,890. BALE-TIES. J. M. Goldsmith, Boston, Mass. [Filed Nov. 6, 1876.]



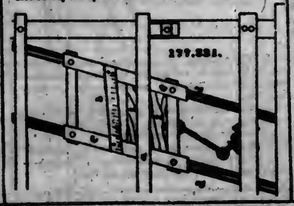
1. In a bale tie the buckle A, having slots b b' and bars a a, guideways c c, and notches n, adapted for use substantially as specified.

2. The binder B, having a transverse locking-piece, f, in combination with a slotted buckle, having inclined ways c, and notches n, substantially as specified.

3. The lock-piece f, riveted to the end of a binder, B, and projecting beyond the lateral edges of the same, substantially as and for the purpose specified.

177,891. MACHINES FOR CUTTING BARREL-HEADINGS. Vincent Groom, Hector, N. Y. [Filed Sept. 21, 1874.]

Brief.—The thickness of the bending is accurately gaged by adjustable gage pieces or stops secured to the back of the reciprocating gate, which carries an oblique knife, and slides on oblique rods in the main frame.



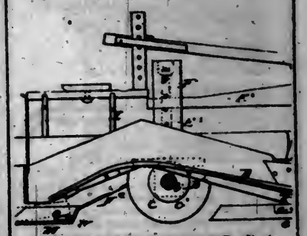
The reciprocating gate e, riding upon the oblique rods d d, and carrying the oblique knife k, and stop or gage panel i, for regulating the thickness of the bending, in combination with the horizontal table or bed a, substantially as shown and described.

177,892. PROCESSES OF JAPANNING SURFACES IN IMITATION OF TORTOISE-SHELL. Andw. J. Harris, Providence, R. I. [Filed Mar. 2, 1876.]

The process of fluxing enamelled, japanned, or painted surfaces in imitation of shell, horn, or other substances of clouded and mottled appearance and colors, by means of alternate coatings of pigments and enamel, or varnish, spread and mingled by means of a violent swinging or other suitable motion given to the article, and then baked or otherwise dried and finished, substantially in the manner specified.

177,893. POTATO-DIGGERS. Iris Hibbon and Coborn J. Boyner, Fort Scott, Kans. [Filed Sept. 18, 1875.]

Brief.—Double adjustment of share, by which the pitch and depth are both regulated.



1. In combination with the share B, adjustable to regulate independently its pitch or inclination, the fulcrumed standards E, and lever F, substantially as described and shown.

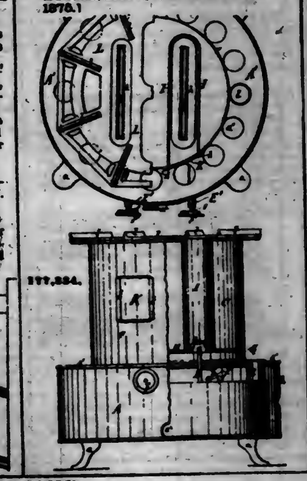
2. The share B, adjustable to regulate its pitch or inclination and vertical height, respectively, substantially as described and shown.

3. In combination with the share B, adjustable vertically, and to regulate its pitch, the sliding standards E and pivoted guide-plates F, substantially as described.

4. The receiver M, rod N, spur o, and lever n, combined and arranged substantially as and for the purpose specified.

5. The box M', having the flanges o' o', in combination with the receiver M, having the rod N, with spur O, as and for the purpose described.

177,894. HYDROCARBON-STOVES. Abner R. Hutchins, Brooklyn, N. Y. (Filed Oct. 4, 1875.)



1. The water-vessel A, with its perforated top plate A' and hot-air cylinder C, hinged at *c*, to plate A', and top perforated plate L, all arranged and connected together substantially as and for the purpose set forth.

2. The chimneys I, having one of their sides formed by the hot-air cylinder C, to which they are connected by the groove-clips *h*, that also receive the mica windows K, as and for the purpose set forth.

177,836. WATER-COOLERS. C. B. Hutchins, Ann Arbor, Mich. [Filed Feb. 26, 1876.]

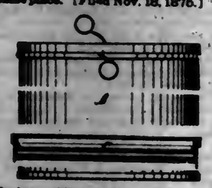
Brief.—Wooden case is lined with paper; the wooden frame put onto it; the whole is inverted; the stone slabs set into grooves in the frame. The composition is poured in until it covers the bottom slab, when the paper-lined wooden bottom is put on. Cover is filled in same way, the stone slab being screwed on.



1. The combination of an outer wooden case, an inner lining of stone, and intervening layers of paper, and of a non-conducting and water-tight composition, substantially as described.

2. The non-conducting and water-tight composition, consisting of rosin, tallow, or grease, and a powdered or fibrous non-conducting material, as described.

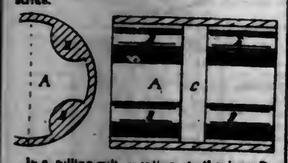
177,837. CANE. Tryon J. M. Jewell, New York, N. Y., assignor to Katharine L. Jewell, George I. Stevens, and Nathan Seeley, same place. [Filed Nov. 13, 1876.]



The internal brace C, forming no part of the cane proper, but inserted within the body A of the same, and holding the ripping or cutting wire *c* in place, substantially as and for the purpose set forth.

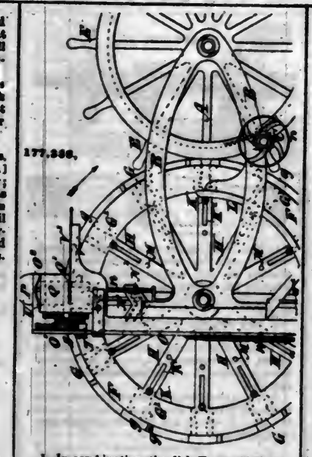
177,838. COUPLING-BOXES FOR ROLLS. C. F. Johnson, Philadelphia, Pa. [Filed Oct. 13, 1875.]

Brief.—The ribs in the interior of the box, to engage with the grooves of the wabbler, are grooved in their central portions, or cut away, to cause them to wear evenly, and not leave shoulders where the ends of the wabbler strike.



In a rolling mill coupling, A, the legs B, divided by a transverse groove, C, for the purpose shown and described

177,839. MACHINES FOR FORMING HEEL-STIFFENERS FOR BOOTS AND SHOES. Jos. Kiefler, Montreal, Canada. [Filed Apr. 1, 1876.]



177,839.

1. In combination, the disk F, provided upon its periphery with molds or recesses, and disk A, carrying upon its peripheral surface teeth or molding-dies, all arranged as shown and described, and adapted to form counter-stiffeners, as set forth.

2. In a mold for a heel-counter, the ledge or upturn *g*', having serrated surface, as and for the purposes set forth.

3. In combination with the mold G, the flanges *g g*', as and for the purposes described.

4. In an apparatus for forming heel-counters, the formation of the molds in two or more parts, provided with bands *s*, as herein set forth.

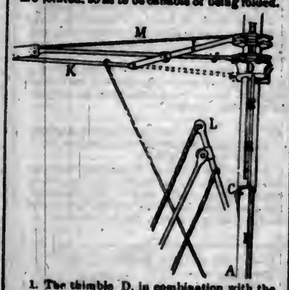
5. In combination with the mold G and arm H, the rod I, springs I', rollers K, and segment L, as and for the purposes herein set forth.

6. In combination with the disk F, having recesses or molds formed in its periphery, the feeding device, consisting of the rollers R R, having roughened surfaces, one or both being hung in yielding bearings and driven by the rotation of the disk F, substantially as herein described.

7. In combination with the disk F and molds G, the knife P, operated by the rotation of the disk F, substantially as described.

177,840. FOLDING UMBRELLAS. George B. Kirkham, New York, N. Y. [Filed May 12, 1875.]

Brief.—The stick is telescopic, and when the thimble or runner is drawn down it presses in the spring, holding the sections of the stick apart, and the lower section is inclosed in the upper. The ribs and stretchers are jointed, so as to be capable of being folded.

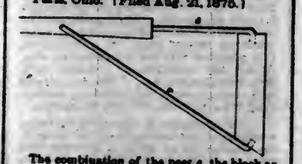


1. The thimble D, in combination with the stick A, tube B, and spring C, constructed and arranged substantially as and for the purpose set forth.

2. The combination of the rods I J K L, pivoted clasp B, and string M, substantially as and for the purpose set forth.

3. The combination of the rods I J L, cord K', pivoted clasp B, and string M, substantially as and for the purpose set forth.

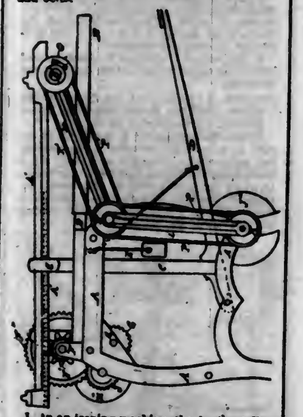
177,841. FENCE-POSTS. Geo. W. Leonard, Paris, Ohio. [Filed Aug. 21, 1875.]



The combination of the post *a*, the block or stone *s*, and the rods *c* and brace-rod *e*, having their lower ends bent toward each other and inserted in holes in opposite sides of the block or stone *s*, substantially as and for the purpose herein set forth.

177,842. IRONING-MACHINES. J. C. Mackey and Geo. M. Munger, Chicago, Ill. [Filed Sept. 20, 1875.]

Brief.—A horizontally-projecting table has a reciprocating frame, which carries a rotating iron, heated by gas and driven by gearing and belts.



1. In an ironing-machine, the horizontally-projecting table B, adapted for insertion between the parts of the garment, in combination with a reciprocating frame or carrier carrying an ironing-iron, substantially as and for the purpose specified.

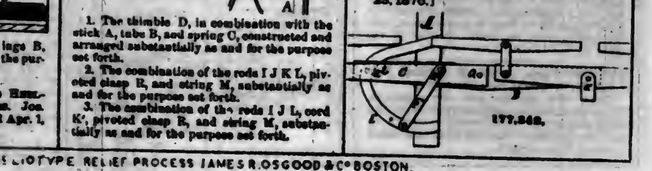
2. The combination of the reciprocating frame, provided with an ironing-roller and with racks, the shaft F, carrying the pinions F' F'' and spur-wheel F''', the shaft G, carrying pinion G', and driving-wheel H, loose wheel H'', loose wheel H''', the pinion I, and spur-wheel J, all arranged substantially as described for operation together, for the purposes set forth.

3. The combination of the reciprocating and rotary irons, shaft J', carrying belt-wheel J'' and pulley K, loose arm L, loose arm M jointed to the arm L, pulleys K, N, and O, and belts P and P', all substantially as and for the purposes specified.

4. The combination of the reciprocating frame A', bearings C C, and treadle D, all arranged and operating together substantially as and for the purposes set forth, in connection with an ironing-machine.

5. The reciprocating frame A', provided with the annular leg Q and pin Q', in combination with the hollow roller B', arranged substantially as described, with relation to the said leg, for the purposes set forth.

177,843. DRAFT-EQUALIZERS. Albert B. Manchester, Calmar, Iowa. [Filed Mar. 23, 1876.]



177,843.

In a three-horse equalizer the long lever B, attached to the pole-strap E at *e*', the short lever C, pivoted at *a* to the lever B, and held rigid at *c*' by the strap F, in combination with the pole-strap E, fastened to the pole A, in combination with the lever C' and the pole A, substantially as described, and for the purpose set forth.

177,844. LOCOMOTIVES. William Mason, Taunton, Mass. [Filed Apr. 6, 1876.]

Brief.—The opening around the exhaust-pipe is closed by movable plates resting upon the casting secured to the boiler.



1. In combination with a double-truck engine, a rigid exhaust-pipe, without joints, firmly attached to the truck and entering the smoke-arch, substantially as described.

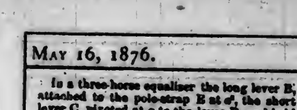
2. The combination of the discharge-pipe, the smoke-arch having an elongated opening, as described, and means, substantially as described, for closing the opening around the discharge-pipe, as and for the purpose set forth.

3. The combination of the pipe *d*', casting B, intermediate sliding plates O D E, as described.

4. A double-truck engine, having a fixed discharge-pipe for the exhaust located upon the moving truck in line below the smoke-stack upon the relatively-fixed boiler, substantially as described.

177,845. STRETCH-BOXES. Morris Meinzer, New York, N. Y. [Filed Dec. 9, 1876.]

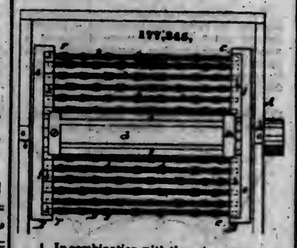
Brief.—The division to hold the extra syringe-tubes is in the body of the box instead of the tray, as in the common practice.



As a new article of manufacture, a syringe-box, A, having compartments *c*, and a perforated diaphragm, *i*, the edges thereof forming a cover for the said compartments, and while the bulb is permitted to pass down into the box, serves as a support and partition to separate the syringe from its attachments, and to allow the removal of the former without disturbing the latter, substantially as shown.

177,846. APPARATUS FOR DYEING YARN IN SKEINS. William McAllister, Lawtucca, Mass. [Filed Mar. 10, 1876.]

Brief.—Improvement upon Patent No. 183,975, August 11, 1876. The yarns are stretched upon rods, which fit at one end into holes in a board, and at the other into holes in a series of slats, each slat holding a pair of rods. The board and slats holding the rods slide like a drawer into a favoring holder, and are fastened in place by keys. The whole is then revolved in the dye-vat.



177,845.

1. In combination with the rotary supporter B, the skein-holder carrier C C applied to it, substantially as described.

2. The combination of the skein-holder carrier C and a series of skein-holders, F, constructed and applied thereto, substantially as set forth.

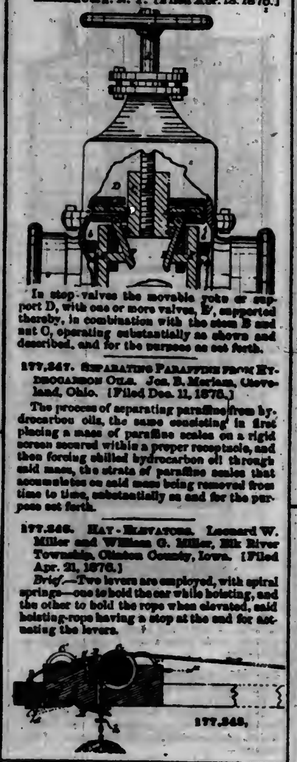
3. A skein-holder carrier, C, substantially as described, composed of the frame *g*, the holed bend-board *h*, and the rods *i i*, arranged as specified.

4. The skein-holder F, substantially as described, composed of the two rods D D, and the perforated bar *k*, all arranged and applied as specified.

5. In the said skein-holder, each of the rods D, made in two parts or pieces, provided with means of connecting or disconnecting them, as set forth.

6. The combination of the rotary supporter B, the skein-holder carriers C C, and their two series of skein-holders F, all constructed and applied substantially in manner and for use with a vat, A, as set forth.

177,846. STOP-VALVES. O. H. McMurray, Lanesinsburg, N. Y. [Filed Apr. 12, 1876.]



In stop-valves the movable yoke or support D, with one or more valves, B', supported thereby, in combination with the stem B and nut C, operating substantially as shown and described, and for the purpose as set forth.

177,847. SEPARATING PARAFFINE FROM HYDROCARBON OILS. Jos. B. Merlam, Cleveland, Ohio. [Filed Dec. 11, 1875.]

The process of separating paraffine from hydrocarbon oils, the same consisting in first placing a mass of paraffine scales on a rigid screen secured within a proper receptacle, and then forcing chilled hydrocarbon oil through said mass, the strata of paraffine scales that accumulates on said mass being removed from time to time, substantially as and for the purpose set forth.

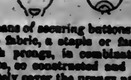
177,848. HAY-ELEVATORS. Leonard W. Miller and William G. Miller, Elk River Township, Clinton County, Iowa. [Filed Apr. 21, 1876.]

Brief.—Two levers are employed, with spiral springs—one to hold the car while hoisting, and the other to hold the rope when elevated, said hoisting-rope having a stop at the end for actuating the levers.

177,848.

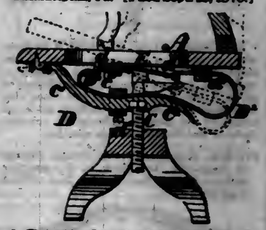
The pivoted levers D and E, as constructed, in combination with stop *a*, catch *d*, springs *e f*, and hoisting-chain having stop h, substantially as and for the purposes described.

177,849. BUTTON-FASTENINGS. A. Morehouse, Danbury, Conn. [Filed Jan. 7, 1874.]



As a means of securing buttons and similar articles to fabric, a staple or fastening, provided with prongs, in combination with an under plate, so constructed and arranged as to completely cover the prongs upon the side of the fabric opposite the button, substantially as described.

177,850. TILTING CHAIRS. Peter Nilson, Philadelphia, Pa. [Filed Sept. 18, 1875.]



1. The spider C, having lateral arms *c c* and arms *c' c'* transverse thereto, the arm *c'* curving upwardly to meet the chair-seat, and the arm *c'* having a reverse downward curve, substantially as shown and described.

2. The spring D, secured to the spider C in advance of the center of the latter, and to the chair-seat A in rear of the central line of said seat.

3. The spring D, having curved ends D' and D', united by a yoke or equivalent means, substantially as set forth.

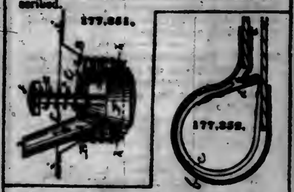
4. In combination with the curved spring D, the yoke E, and adjusting-screw *e*, substantially as shown and set forth.

177,851. FAUCETS AND FUNNELS FOR OIL-CANS. Frederick Ochs, New York, N. Y. [Filed Nov. 4, 1876.]

Brief.—The faucet is detachably secured within a funnel formed in the can by means of a screw-threaded cup.

1. The faucet C, constructed as described, and combined with the receiver and threaded embracing-cup O, substantially as specified.

2. The combination of the funnel B, having the step *c*, and the screw-threaded cylindrical portion above such step *d*, with the faucet C and the screw-threaded cup O, substantially as and for the purpose herein shown and described.



177,851.

177,852.

177,852. TEMPORARY BUTTONS. Robert O. Peirce, Portland, Me., assignor of one-half his right to F. Dunn, same place. [Filed Feb. 24, 1876.]

In combination with the bottom *a*, back *b*, cover *f*, said spring *c*, the holder or retainer *d*, formed of a single piece of metal, clamped around a strip of leather, *e*, at its lower end, said strip of leather being fastened at its opposite end to the cover, as set forth, and said spring being attached to the bottom and the back of the tie, substantially as and for the purposes herein described.

177,853. FIRE-SCREENS. John A. Pomeroy, Cincinnati, Ohio. [Filed Nov. 4, 1875.]

Brief.—The vanes are connected with and operated by means of the washers, which are rotated successively by means of the pintle.



A sufficient number of vanes E to form, when expanded, a continuous screen, in combination with a corresponding number of vanishers J, mounted upon and oscillating on plate G, fitted with collars R and V and ring S, in connection with some suitable device for attaching the cause to a fire-grate, substantially as and for the purpose specified.

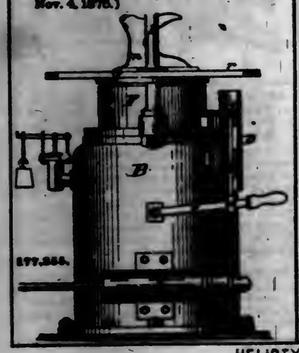
177,864. MANUFACTURE OF BOOKS. George E. Reynolds, New York, N. Y., assignor to Robt. Barrett, East Orange, N. J. [Filed July 20, 1876.]



1. The wire-look book B, having side extensions E E, rows of perforations O O O O through the body of the book, with staple wires G G G G passing through the perforations, and projecting from the surface of the book, and secured in their positions by the bent ends of the staples being in contact with the reverse side of the book, substantially as shown and for the purpose described.

2. The new article of manufacture, a book constructed with an outer cover, having a back, A, and an inner wire-look back, E, with side extensions E E, rows of perforations O O O O, wires G G G G passing through perforations and extending from the surface of the back and passing through the folds of the sheets or sections D D, with the ends of the wires bent down against the inner folds of the sheets or sections, locking them securely to the back, substantially as described.

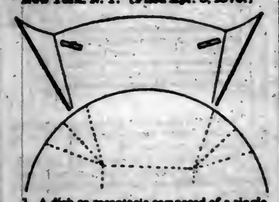
177,865. MACHINES FOR BRAKING OUT AND MOLDING SOLES OF BOOTS AND SHOES. Simon Dean, Cincinnati, Ohio, assignor to Dean, Davis & Co., same place. [Filed Nov. 4, 1876.]



177,866. MACHINE FOR MAKING SPOKE-BLANKS. Alonzo Sedgwick, Poughkeepsie, N. Y. [Filed Aug. 31, 1876.]

Brief.—The combination of an air-chamber, B, valve-chamber D, fitted with valves f and g, cylinder and piston F and G, on the cylinder G of which is fixed a mold, m, operating against an upper fixed mold, m', by means of an air-pump, G, substantially as and for the purpose specified.

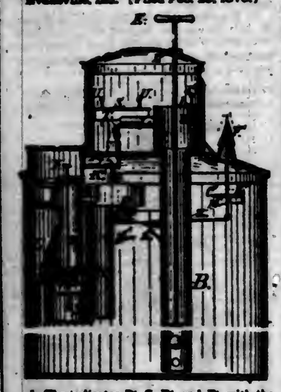
177,867. PAPER DISHES. Daniel H. Brassil, New York, N. Y. [Filed Apr. 6, 1876.]



1. A dish or receptacle composed of a single piece or blank of material, uncut, folded up into substantially the shape set forth, and having its interior coated with a grease-proof preparation, all substantially as and for the purposes described.

2. A dish composed of fibrous material, and triangular in shape or contour, as described, for the purpose set forth.

177,868. LIQUID-MEASURES. T. Sanville, Wevesville, Ind. [Filed Feb. 29, 1876.]

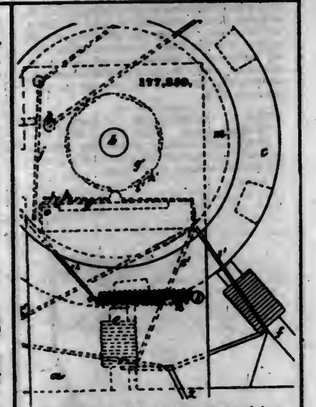


1. The indicator B' 2, E', and F', with the guide and stopper O', as and for the purpose specified.

2. The stationary plate S, in combination with the movable plate T, the pins U U, the fastener I, the socket V, and the pin J', as and for the purposes specified.

177,869. ELECTRO-MAGNETO MOTORS. A. Sherlock, New York, N. Y. [Filed Feb. 12, 1876.]

Brief.—Relates to the commutator and to a brake, which, when applied to the brake-wheel, automatically breaks the current of the battery.



1. The combination of the springs g h i, secured to the insulating-block, the rigid conducting-plate c, and the cylinder formed with the series of ridges g' h' i', the bearing-point of the ridges on the springs being between the block and plate, substantially as hereinbefore set forth.

2. The combination of the magnets d e f, springs g h i, disks g' h' i', plate c, and spring f, substantially as hereinbefore set forth.

3. In combination with an electro-magnetic motor, the lever l, constructed and operating substantially as described, so as to close the circuit before the brake is released from the brake-wheel w', as and for the purposes hereinbefore set forth.

4. The combination of the lever l, spring f, and stud k with the rheostats of an electro-magnetic motor, substantially as and for the purposes hereinbefore set forth.

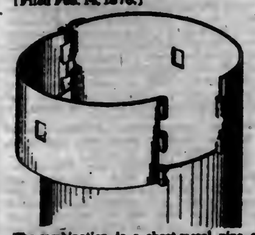
177,870. WAGON RED-GATES. A. Scales, Grand Rapids, Mich. [Filed Feb. 4, 1876.]

Brief.—The board is adjustable lengthwise to fit wagons of different widths.



The combination, with an end-board for wagons composed of two equal parts, A A', having support D on the inside, and sleeve C on the outside, of the slotted plate B, barrel-socket E, and thumb-screw I, the several parts constructed and arranged to operate in the manner substantially as and for the purpose specified.

177,871. SHEET-METAL PIPE JOINTS. J. C. Stanton, Hutchinson, assignee of one-half his right to C. G. Hall, Hall Valley, Colo. [Filed Feb. 14, 1876.]

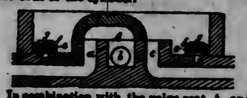


The combination, in a sheet-metal pipe, of the hinged flap, staple, openings, apex, and metallic pin for connecting the sections together, substantially as described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

177,872. STEAM-ENGINES. N. P. Stevens, Hopkinton, N. H. [Filed Apr. 5, 1876.]

Brief.—The auxiliary valves are kept closed by pressure of steam. When steam is shut off, their springs will raise them from their seats, and establish communication between the ends of the cylinder.



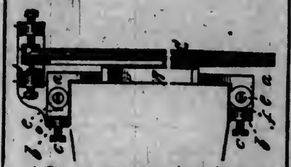
In combination with the valve-seat A, and main and exhaust ports a b c of the valve-chest of a steam-engine cylinder, the auxiliary ports d d, and the valves e e and their elevating-springs g, arranged with the said valve-seat and its ports, substantially in manner, and to operate as and for the purpose specified.

177,873. AUTOMATIC AIR-VALVES FOR STEAM-CYLINDERS. N. P. Stevens, Hopkinton, assignor to himself and J. N. Leader, Concord, N. H. [Filed Mar. 10, 1876.]



The valve A, provided with the perforated shot-flanged standards G G and the auxiliary-valve seat B, in combination with the valve C and lifter-spring D, arranged between and applied to the said standards, all being substantially as specified.

177,874. HAY-CUTTERS. Reuben Trombley, Chicopee Falls, Mass. [Filed Feb. 28, 1876.]

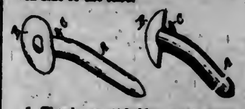


1. In a hay-cutter, the movable mouth-piece B, arranged to be adjusted to and used in combination with the pivoted lever-knife C, vibrating vertically, substantially as described.

2. The combination of the mouth-piece B, provided with flanges a, the stops f, provided with lugs b and set-screws c, as a means of adjusting said mouth-piece to the knife C, all substantially as described.

177,875. BOUQUET-HOLDERS. John Whitford, Chicago, Ill. [Filed Apr. 10, 1876.]

Brief.—A small curved tube, closed at the bottom, with an oblique annular flg at the top, is pressed through the button-hole of the lapel of a coat or other garment, or headdress. For additional security a projection or horn is secured below the flange on the convex side of the tube.



1. The bouquet-holder consisting of the curved tube A and inclined annular flange B, substantially as and for the purpose specified.

2. The bouquet-holder consisting of the curved tube A, inclined annular flange B, and projection or horn C, substantially as and for the purpose set forth.

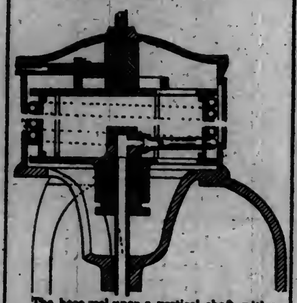
177,876. CAR-COUPLINGS. Alfred Willets, Belle Ewart, Canada, assignee of one-half his right to P. B. Drake and H. M. Low, same place. [Filed Feb. 1, 1875.]



The draw-head A, having the inclined bell-bearing face A', in combination with the hinged independent counter-balance weights C and C, depending from the top of the interior of the draw-head, one at either side of the pendent pin B, and adapted to rest upon the link D, substantially as and for the purpose specified.

177,877. HOSE-REELS. John F. Bartlett, Winsted, Conn. [Filed Feb. 14, 1876.]

Brief.—When the reel is not in use the water runs out of the hose.



The hose-reel upon a vertical shaft, with a supply-tube and coupling connected to the lower end of the shaft, in combination with a pipe extending from the said central shaft to the surface of the reel, and the hose wound upon such reel, substantially as and for the purpose set forth.

177,878. FASTENINGS FOR CAR-DOORS. Sol. Wm. P. Beasley, Baltimore, Md. [Filed Apr. 26, 1876.]



1. The sliding staple b, concealed and secured within the car, in combination with the perforated door and body of the car, substantially as and for the purposes specified.

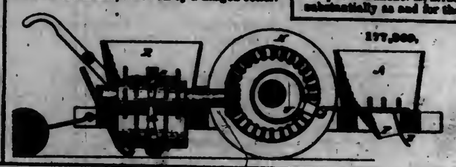
2. The combination of the pipe C, secured within the car, staple b, rod d, perforated plates A, A' of the car, and sliding door B, having the opening f, substantially as and for the purpose set forth.

3. The combination of the shield e, secured to and within the car, and concealing and existing in the securing of the pipe C, with the said pipe, substantially as herein specified.

4. The rod d, secured to the inside of the car, in combination with the pipe C, the rod passing through the pipe, as specified, for the purpose designated.

177,880. COMBINED COTTON-PLANTING, GUANO-DISTRIBUTING, CULTIVATING, AND ROLLING. Matthew O. Beasley, Concord, N. C. [Filed May 1, 1876.]

Brief.—The frame is rectangular, and is supported near the middle by a pair of laterally-adjustable wheels. Upon the forward end of the frame is mounted a guano-distributer, the agitator of which is worked by an eccentric upon the middle of the hub-brace. The distributer has a furrow-opener and spout. In rear of the wheels is mounted a cotton-seed hopper, with a conductor running from the seed-opening to the furrow opened by the furrow-opener under the distributer. A shaft put in motion by a gear-wheel upon the axle-tree carries a hub in the center of the seed-hopper, and this hub carries a series of hook-wardly-curved arms, which push the seed through the seed-opening. A pair of covering-teeth are adjustably affixed to the rear end of the frame, followed by a hinged roller.



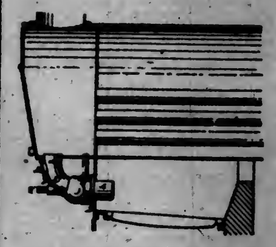
177,869.



177,879. HYDRAULIC LIFTS. James Cowan, Port Colborne, assignee of one-half his right to John Barrow, Walter Chatfield, and Albert Chatfield, St. Catharines, Canada. [Filed Apr. 13, 1876.]

Brief.—A vertical metallic cylinder connected with a force-pump, and provided with a plunger and rod. The upper end of rod is attached to a lifting-arm, which, as it rises, carries up the anchor.

177,878. HYDROCARBON-INJECTORS FOR FURNACES. Matthew Boynton, Chicago, Ill. [Filed Feb. 23, 1876.]



In combination with a hydrocarbon-injector, the receiver C, directly connected with the smoke-stack of the furnace, by means of which hot air is conveyed from the smoke-stack into the injector, the parts being constructed substantially as described.

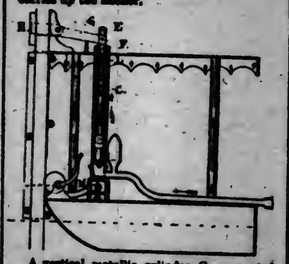
177,881. SEWING-MACHINE TENSIONS. E. F. Bradford and Vernon B. Peirce, Boston, Mass. [Filed Jan. 28, 1876.]



The combination, with the thread or needle plate b, provided with the slot f on one side of the needle-thread a, and the feed-dog c, of the movable bar k and trimmer g, as and for the purpose set forth.

177,882. HYDRAULIC LIFTS. James Cowan, Port Colborne, assignee of one-half his right to John Barrow, Walter Chatfield, and Albert Chatfield, St. Catharines, Canada. [Filed Apr. 13, 1876.]

Brief.—A vertical metallic cylinder connected with a force-pump, and provided with a plunger and rod. The upper end of rod is attached to a lifting-arm, which, as it rises, carries up the anchor.



A vertical metallic cylinder, C, connected by suitably-arranged piping to a force-pump, or its equivalent, and provided with a plunger, E, having a block or pin, F, by which is held the lifting-arm G, in combination with the strap H and anchor E, arranged and operated substantially as and for the purpose specified.

HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & Co BOSTON

177,872. TEMPLE-BARS FOR LOOMS. Mathew Chapman, Hopedale, Mass., assignor to Woonsocket Machine Company, Woonsocket, R. I.; said Woonsocket Machine Company assignor to Dutcher Temple Company. [Filed Jan. 6, 1876.]

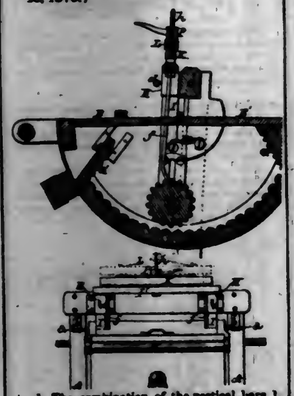
Brief.—The tension of the spring acts upon the temple-bar, to press it forward toward the lay as long as the button or "releaser" is in substantially a vertical position; but whenever the temple-bar is pushed back far enough to carry its shoulder beyond the button or releaser, the latter is forced into substantially a horizontal position, and the spring no longer acts to return the temple-bar toward the lay. This construction enables the operative to push back the temple-bar to a stationary position whenever it is desirable to have access to the warps at the cloth-making point.



1. The combination of a movable temple-carrier and supporting stand or case with a spring, adapted to press the carrier forward, to be moved by or with the lay, and to be thrown out of action with relation to the carrier when the temple head and carrier are moved back beyond the backward position to which the temple-head is usually moved by or with the lay during the regular operations of weaving, substantially as described.

2. The combination, with the case and carrier, of the spring and the releaser, adapted to operate with the carrier and its shoulder or projection, substantially as described.

177,874. WASHING-MACHINES. James H. Christopher, White Oak, Ill. [Filed Mar. 13, 1876.]



1. The combination of the vertical bars l, having slots in their lower ends for the vertical adjustment of the roller J, with the elevating-rods f, bar K, spring L, screw-rod h, and nut P, substantially as shown.

2. The combination of the frame I I', adjusted in the loops H by the pins d, the rods f, bar K, spring L, and bolt h, with lever-rod P, all substantially as and for the purposes herein set forth.

177,875. CHURNS. John Christie, Caledonia, N. Y. [Filed Apr. 1, 1876.]

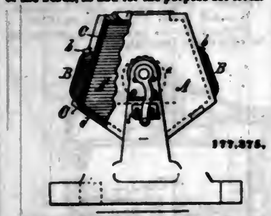
Brief.—A pentagonal box is hung on trunnions set "off the center." Water-pockets are fixed to the sides of the box.

1. A churn having a rotating box or body for holding the cream, composed of two heads, A and A', and five equal sides, C, said heads and sides corresponding to bases and faces of a right pentangular prism, substantially as shown and described.

2. A rotating box or body of a churn, having water apartments or pockets B attached, for the purpose set forth.

3. In combination with the frame and crank of a rotating churn, a latch, f, substantially as shown, and for the purpose set forth.

4. A rotating box or body of a churn, having the trunnions set to one side of the center of the heads, as and for the purpose set forth.



177,876.

177,876. TOY BUBBLE. William Conard, Washington, D. C. [Filed Apr. 11, 1876.]

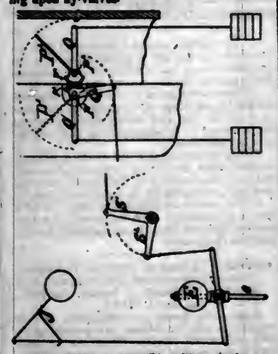
Brief.—The bear is propelled by the breath.



A toy constructed as described, and composed of the frame A, pivoted disk B, and tube C, set at an angle to the plane of the disk, for the purpose set forth.

177,877. GOVERNORS FOR AIR-PUMP ENGINES. Geo. H. Corliss, Providence, R. I. [Filed Nov. 18, 1876.]

Brief.—The condenser air-pump is operated by a separate engine, which is regulated, through a rocker and connecting-rods, by the rapidity of the flow of water in the main acting upon fly-valves.



1. The valve or wing P', subject to the action of the water being pumped, and a train of connections to the movable rod or piece e, controlling the supply of steam to the engine, so as to regulate the engine by the velocity of the water, as herein specified.

2. The rod e, which controls the supply of steam to the engine, in combination with and partly controlled by a device, P', operated by changes of motion of the pumping-engine, and also in combination with and partially controlled by a governor, J, operated by changes of motion of the independent air-pump engine or engines, all substantially as and for the purposes herein specified.

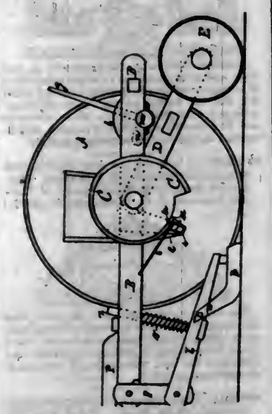
177,878. WELL-BORERS. John M. Creal, Los Angeles, Cal. [Filed Mar. 24, 1876.]



177,878.

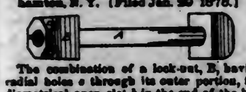
The weighted cylinder C, with its spring-arms L and pawl-rollers K, and the guide-rods M, in combination with the reciprocating cylinder P, substantially as and for the purpose herein described.

177,879. SEED-PLANTERS. Chas. H. Crosk, Marengo, Iowa. [Filed Mar. 4, 1876.]



The shoe B, frame L F B D, springs s, post x, lever p, roller m, cam n, and covering-wheel E, all combined and arranged to operate in conjunction with each other, as and for the purposes set forth.

177,880. NUT-LOCKS. Jas. Curran, Binghamton, N. Y. [Filed Jan. 20 1876.]



The combination of a lock-nut, B, having radial holes e through its outer portion, the diametrical open slot b in the end of the bolt A, and a key, c, said open slot being of a depth sufficient to receive and act as a bearing for said inserted key when the nut is screwed in place.

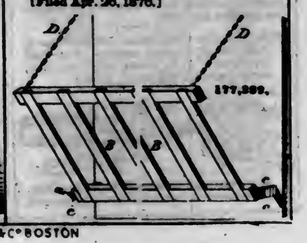
177,881. MOPS. James W. Cuthbertson, Brantford, assignor to Isaac Hazel, same place, and Jno. Ewing, Wellington Square, Canada. [Filed Apr. 24, 1876.]

Brief.—The head for clamping the mop-cloth is operated by a single nut on the handle, and an extensible rod connected with the handle pushes the mop-cloth out in order to wring it.



The handle A, having the sleeve D, the screw-thread G, and lower mop-head E, in combination with the mop-head F, having the boss I, constructed to embrace the screw-thread G, and the thumb-nut H, arranged on the screw-thread G, and bearing upon the boss I, substantially as and for the purpose shown and described.

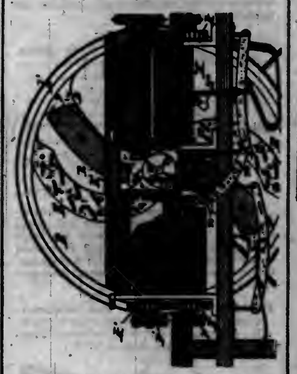
177,882. SAFETY DEVICES FOR FIREARMS. Jos. Davenport, Massillon, Ohio. [Filed Apr. 20, 1876.]



177,882.

The safety device for freight-cars, composed of rack consisting of horizontal strips A A and vertical strips B B, swung upon trunnion-supports a a c c at the bottom or lower edge of the ends of the cars, and held in a vibrating or inclined position by chains D D secured at the top corners of the rack and cars, substantially as and for the purposes described and shown.

177,883. STRAW-CUTTERS. Joseph Dick, Jr., Canton, Ohio. [Filed Jan. 19, 1876.]



1. In combination with the two feed-boxes and the two sets of feed-rollers, the intermediate ratchet-wheel K and pawl-frames L L', arranged and operating substantially as described, for imparting an intermitting feed to the feed-rollers, as set forth.

2. The pawl-frames L L', provided each with the pivoted pawls I P P, and arranged to operate alternately on the intermediate ratchet-wheel or barrel K', substantially as and for the purpose set forth.

3. The feed-boxes S S', the one, S, rigidly connected with the frame, and the other connected with said fixed box s, and made vibratable, as described.

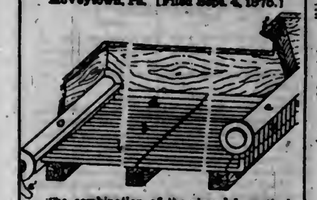
4. The driving cutter-wheel B, constructed and operating substantially as described, in combination with the flanged incasing-plates F F', applied substantially as described.

5. The combination, with the rotating cutter-wheel B and cutting-knives d, of the cam-faced hub d' and rotating cam-faced adjusting-disk d', applied and operating substantially as described.

6. The curved slitting-knife bars B, provided with the slitting-knives e e, arranged in the described reading relation to each other, and at right angles to radial lines intersecting them, substantially as and for the purpose set forth.

7. The stationary knife-bars I I', provided with the guards P and stripping-plates P', in combination with the adjusting-screws P P, arranged and operating as described.

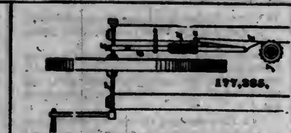
177,884. SHAFT-DRIVERS. Casper F. Dull, McVeytown, Pa. [Filed Sept. 4, 1876.]



The combination of the pipes b b, vertical pipes b' b', and the manifolds a a, the pipes b b being connected by the right and left hand threaded quarter-turns, substantially as and for the purpose specified.

177,885. STRAW-CUTTERS. John Elliott, London, Canada. [Filed July 6, 1876.]

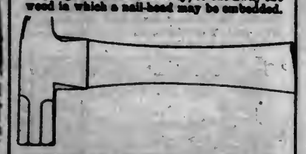
The ratchet-slide G, coil-spring H, dog I, and guards a a, in combination with the cam B, ratchet-wheel J, and feed-roller K, operating substantially as and for the purpose specified.



177,886.

177,886. HAMMERS. Eugene A. Ely, Madison, N. J., assignor of one-half his right to William F. Ely, same place. [Filed Dec. 7, 1875.]

Brief.—The claws are made with sharp cutting-edges at their extremity, to cut away the wood in which a nail-head may be embedded.



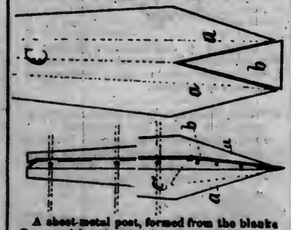
A hammer, having claws terminating in gouge-points, substantially as and for the purpose specified.

177,887. SALVES. Ivory W. Emerson and George A. Emerson, Lewiston, Me. [Filed Jan. 27, 1876.]

The compound of aqua fortis, blue vitriol, glycerine, alum, red precipitate, sulphur, and hog's lard, in the proportions herein described, for the purposes set forth.

177,888. FENCE-POSTS. Andrew Fuller, Newton, Iowa. [Filed Oct. 2, 1876.]

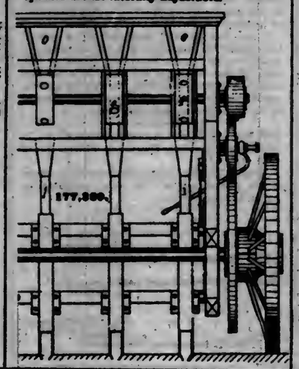
Brief.—After cutting a piece of conical shape from the sheet-metal blank, said blank is bent longitudinally. Each half of the body of the blank is then bent at right angles, leaving its central part doubled to form a stiffening-rib, with a slot at its base. The removed conical piece is then inserted, with its point downward, into said slot and secured.



A sheet-metal post, formed from the blanks C a c and b, substantially as and for the purpose shown and described.

177,889. DRILLS FOR SOWING AND PLANTING. Charles De Fever, Paris, France. [Filed Aug. 12, 1876.]

Brief.—The seed-hoppers, disks, tubes, and openers are all laterally adjustable.

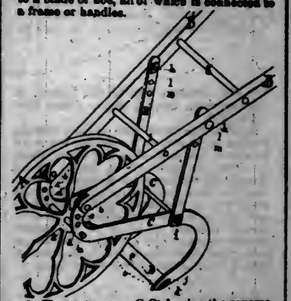


177,889.

In combination with the series of laterally-adjustable hoppers, the series of revolving disks, the series of discharging-tubes I, and the series of furrowers, all laterally adjustable, the furrowers being also free to be simultaneously raised and lowered, as set forth.

177,890. WHEEL-HOES. Charles H. Fiske, Pittsfield, assignor of one-half his right to Henry McLaughlin, Bangor, Me. [Filed Mar. 1, 1876.]

Brief.—A wheel-hoe with reversible curved arms, the forward ends of which are attached adjustably to the wheel-axle, and the rear ends to a blade or hoe, all of which is connected to a frame or handles.



1. The cutter-arms C C', having the reverse curves, as shown, each arm hung adjustably at one end to the wheel-axle, and connected at their rear ends by the blade or knife D.

2. In combination with the reversely-curved arms C C', hung as shown and described, and connected by the blade D, the handles B B', connected directly to the upper short curves of arms C C' at points near the axis of the wheel.

177,891. WATERING-POT SPRINKLING-HEADS. L. B. Foss, Boston, Mass. [Filed Apr. 12, 1876.]

Brief.—A cone-shaped head, having a detachable rose, is provided with a spout or nozzle projecting within it, and having a leak-hole near bottom of cone.

1. The combination of the cone-shaped body B, provided with the detachable rose, substantially as described, with the spout of a watering-pot extended into the same and forming the nozzle A', substantially as described.

2. The combination of the nozzle A', provided with the drainage-hole D, with the surrounding cone-shaped body and detachable rose, substantially as described

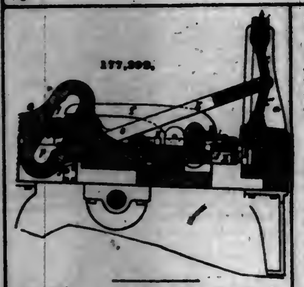
177,892. MACHINES FOR MAKING HORSESHOES. Henry H. Gilmore, Cambridgeport, Mass., assignor to himself and Wm. E. Ellis, trustee, same place. [Filed Dec. 1, 1876.]

Brief.—A discharger having two thin prongs, which, when the rabbeted former is retracted, pass underneath the heels of the shoe, raise the same from said former, and discharge it from the machine.

1. The combination of the shoe lifter and discharger M, as described, with the stationary recessed former-receiver I, and the movable rabbeted former H, cranes D, and the pair of benders K K, all arranged and provided with mechanism for operating them, substantially as specified.

2. The combination for operating the cranes, such consisting of the toggles C C', furcated pitmen E, projections f f, and the cams b b b, the latter being fixed on the driving-shaft, and all being arranged as specified.

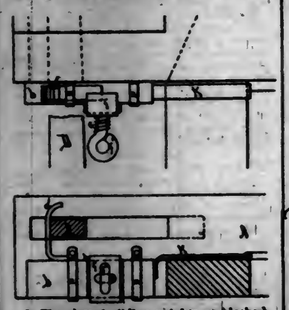
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.



177,868.

177,868.—FRAME-CHECKS FOR LOOMS. S. Greenwood, Lowell, Mass. (Filed Dec. 28, 1875.)

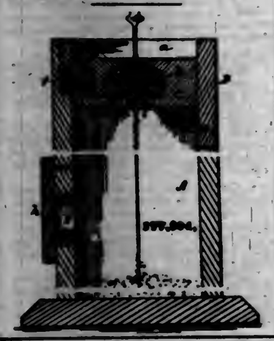
Brief.—The inner ends of the opposite weights or blocks are operatively connected by a wire, rod, cord, or leather strap, whereby, when the blow of the shuttle effects, through the medium of the picker-staff, either weight or block, the opposite weight is dragged along with it, and this weight, having been adjusted by means of the friction device to exactly equalize the blow of the shuttle, thereby cushions and saves the shuttle and picker-staff from injury, and prevent the splitting or separating of the cop or filling.



1. The slotted sliding weights or blocks b, provided with offsets or hooks *d d*, as described, and attached one at each end of the lay-sill of the loom, and in combination with and operated by the picker-staffs D.

2. The slotted weights or blocks b provided with offsets or hooks *d d*, as described, in combination with the wire, rod, cord, or leather strap E, whereby the blocks are connected and operated by the picker-staffs D, as described.

3. The combination of the slotted weights or blocks b, provided with offsets or hooks *d d*, connection E, the straps *a*, whereby the blocks are connected to the sill A, pieces *f*, pendent g, keepers or plate *f*, and spring C, whereby friction is produced upon the blocks b, as shown and described.



177,894.

177,894.—MOLDERS' FLASKS. T. F. HASKINS, Brandford, Conn. (Filed Mar. 20, 1876.)

Brief.—A plate to be placed on the flask to contain the basted sand, and to prevent it from getting on the edges of the flask, is provided with three flanges.



1. The above-described molder's plate B B O O, having projections D D, all substantially as and for the purposes shown and described.

2. The flange-plate B B O O D D, in combination with a molding-flask with square or flat edges, as seen at A A, Fig. 2, all substantially as and for the purposes set forth.

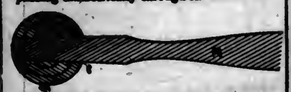
177,896.—SHOE-FASTENINGS. Philip Harris, Chatham, England. (Filed Apr. 4, 1876.)



The flap B, in combination with strap C and ankle-strap E, provided with a runner, *b*, for closing boots or shoes, substantially as shown and described.

177,897.—MALLETS. ABM. Holbrook, Providence, R. I. (Filed Mar. 10, 1876.)

Brief.—The head of the mallet is formed of a sheet of rawhide rolled closely in spiral form, and held from unrolling by the handle passing diametrically through it.

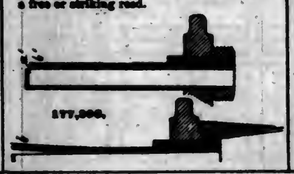


1. As an improved manufacture, a mallet constructed as shown and described, viz: with its head a strip of rawhide, rolled together in a spiral, and held from unrolling by the handle going through it diametrically, as specified.

2. As an improved manufacture, a mallet having its head composed of a roll of rawhide, as shown, its handle extending through the coils of the roll, and the outer coil further secured on each side of the handle by screws inserted in such coils and there countersunk by it, all as shown and described.

177,900.—AUTOMATIC ALARM-SIGNALS. N. J. Holmes, London, England. (Filed Sept. 17, 1875.)

Brief.—The reed-tongue is double, or in two pieces, placed against each other, and may be a free or striking reed.



177,900.

1. The described double reed, consisting of two or more vibratory reeds, *a* and *b*, placed one upon the other throughout their lengths, and united at one end to the reed block or tube, and free to vibrate at their other ends, for the purpose of producing, by each vibration, a powerful sound, substantially as set forth.

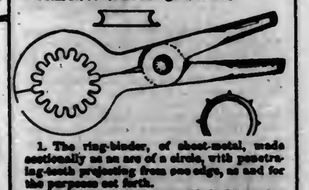
2. In a device for audible alarm-signals, the compound free-reed, composed essentially of the reed block or tube, and the double reed *a b*, arranged to vibrate freely in said tube without striking, substantially as and for the purpose specified.

177,899.—FENCE-POSTS. H. N. Houghton, Halifax, Vt. (Filed Apr. 6, 1876.)



The improved fence-post described, consisting of the base A, feet B B, rods H H, wires O O, and body C, provided with the loops F E D, constructed and arranged to operate in combination with the wires I J K, substantially as and for the purpose set forth and specified.

177,900.—RING-BINDERS FOR UMBRELLA-CASES. John C. Harcombe, New York, N. Y., assignor to David W. Odiorne, Elizabeth, N. J. (Filed Aug. 9, 1876.)



1. The ring-binder, of sheet-metal, made sectionally as an arc of a circle, with penetrating-teeth projecting from one edge, as and for the purposes set forth.

2. The method herein specified of inserting metal ring-binders into umbrella-cases, consisting essentially of first gathering and holding the fabric into the grooved ring by means of the constricting instrument, and compressing such ring edgewise, then removing the constricting instrument, and afterward compressing such binder firmly, substantially in the manner and for the purpose set forth.

177,901.—FORCE-PUMPS. Daniel Johnson, Ashland, Ohio. (Filed May 5, 1876.)

Brief.—When the pump is in operation the vent-pipe is closed by the valve. As soon as the pump is stopped the pipe is opened, discharging the water above it.



In combination with the discharge-pipe H of a force-pump, the valve-seat I, interior vent-pipe L, and valve J, with stem *i*, substantially as and for the purposes herein set forth.

177,902.—SHEEP-RACKS. D. P. Johnson, Canton, N. Y. (Filed Sept. 17, 1875.)

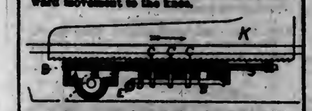
Brief.—The rack is divided longitudinally—the lower half fixed, the upper half hinged to it—and the trough is fixed to the upper section, so that when raised up the contents of the trough are thrown out on the ground, and the entire back of the rack is also closed.



A sheep-rack, A, having the back B divided longitudinally, with the lower portion fixed, and the upper portion hinged thereto at *b*, the said upper portion having a trough, C, attached, as set forth.

177,903.—HEAD-BLOCKS FOR SAW-MILLS. Carl J. Jonasson and Fred. B. Bliss, Warren, Pa. (Filed Apr. 6, 1876.)

Brief.—A reciprocating motion given to an angularly-slotted slide, transversely with the length of the block, gives an intermittent forward movement to the knee.

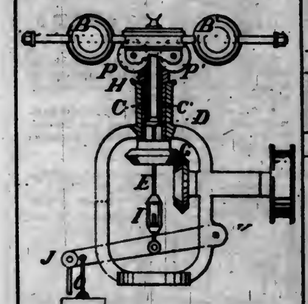


1. The angularly-slotted reciprocating slide A and slides B B, carrying catches O O O, arranged to impart motion to knee K, substantially as described.

2. The combination, with the slides B B, of the springs S S, substantially as described.

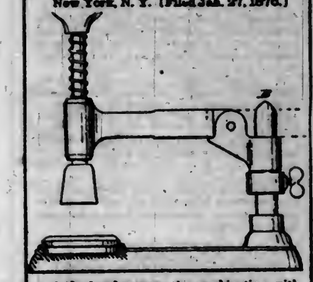
3. The combination of the catches O O O, bars D D, and arm E, arranged and operated substantially as described.

177,904.—GOVERNORS FOR STEAM-ENGINES. John Knowlson, Troy, N. Y. (Filed Jan. 27, 1876.)



The combination, in a governing device, of a vertical and revolving hollow shaft, H, having at or near its top a bar or bars, upon which slide the weights B B', the pulleys P P', over which passes a cord or chain, O O', attached at one end to the weights B B', and at the other to the block D, which slides in vertical grooves in the shaft H, the rod E, hooks I, adapted to hold in suspension a valve-rod, all for the purposes set forth and described.

177,905.—HAND-STAMPS. John K. Krieg, New York, N. Y. (Filed Jan. 27, 1876.)



1. In hand-stamps, the combination, with the jointed oscillating arm or arms carrying the stamp, of the adjustable sleeve on the standard E, for setting the arms at various heights.

2. In combination with the standard and adjustable sleeve thereon, the jointed arm or arms, having slots therein for admitting the standard when the stamp is inverted.

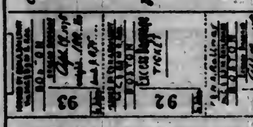
177,906.—SHACKLES. Wm. H. Leininger, Salem, Oreg. (Filed Feb. 11, 1876.)

An improved shackle, consisting of the two halves, one having the bolts S and bolt-hole H cast with it, and the other cast with bosses G and holes O, and adapted to be secured together by pins D, in the manner shown and described.

177,906.



177,907.—TICKETS. Joseph F. Leavitt and Henry T. Clark, Bangor, Me. (Filed Apr. 28, 1876.)



1. The device for checking excess baggage, consisting of the ticket *a*, check *b*, and stub *c*, substantially as herein described, for the purposes set forth.

2. The check and receipt ticket, substantially as described, the former being attached to the luggage, and the latter being the passenger's receipt for excess baggage-charges, substantially as set forth.

177,908.—STOVE-PIPE-ELBOW MACHINES. John S. Lugg, Springfield, Ohio, assignor of two-thirds his right to Wilson G. Bryant and Lafayette Bancroft, same place. (Filed Mar. 21, 1876.)

Brief.—The overlapping edges of stove-pipe-elbow sections are beaded and joined together



1. In combination, the die-plate C and reciprocating punches E, and the shears O O', for cutting a sheet of metal into strips or sections without waste, substantially as set forth.

2. The combination of the crank-shaft and reciprocating punches, and the shear blade O, rod F, walking beam Q, slotted pitmen H H', and pin S, substantially as set forth.

3. In combination with a cutter-plate, C, constructed with a series of openings, as shown, and the head-plate F, carrying a series of correspondingly-formed punches, E, arranged to cut a sheet into sections of the elbow-pipe across the entire width of the sheet at one movement of the plunger, acting on the sheet while held in fixed position by a stop on the cutter-plate, substantially as set forth.

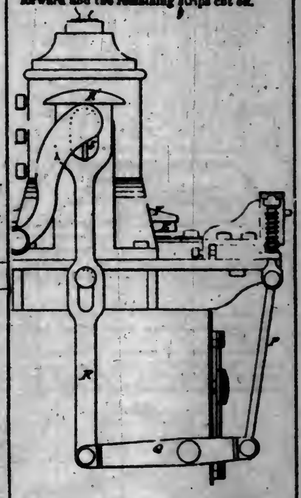
4. In combination, the recessed sectional clamp, ribbed sectional die, and plunger, for expanding the die to form the heel and swell the sections of the elbow, substantially as set forth.

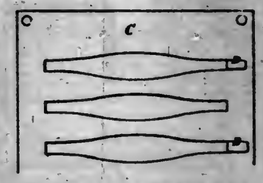
5. The combination of the horn and the sectional die with the sectional clamp and plunger, substantially as set forth.

6. The clamp C, having its upper edges beveled to correspond with the angle of the sections of the elbow, substantially as set forth.

177,909.—STOVE-PIPE-ELBOW-BEADING MACHINES. John S. Lugg, Springfield, Ohio. (Filed Mar. 21, 1876.)

Brief.—A portion of the blanks is punched from a sheet-metal strip, which is then passed forward and the remaining strips cut off.





1. In combination, the die-plate C and reciprocating punches E, and the shears O O', for cutting a sheet of metal into strips or sections without waste, substantially as set forth.

2. The combination of the crank-shaft and reciprocating punches, and the shear blade O, rod F, walking beam Q, slotted pitmen H H', and pin S, substantially as set forth.

3. In combination with a cutter-plate, C, constructed with a series of openings, as shown, and the head-plate F, carrying a series of correspondingly-formed punches, E, arranged to cut a sheet into sections of the elbow-pipe across the entire width of the sheet at one movement of the plunger, acting on the sheet while held in fixed position by a stop on the cutter-plate, substantially as set forth.

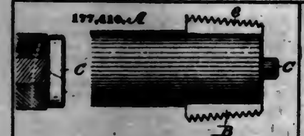
177,910.—SCREW-TAPS. Samuel W. Martin, Springfield, Ohio, assignor of one-half his right to P. P. Mast, same place. (Filed Apr. 5, 1876.)

Brief.—A cutter formed with overhanging lips, which are concave on their under sides, so as to fit the periphery of the arbor, to secured in a slot in the end of the arbor by a screw-clamp.

1. The bar or mandrel A, having a slot formed in its end, in combination with the cutter B, provided with the lips *c*, as shown and described.

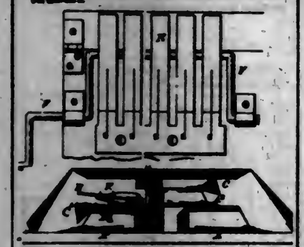
2. In combination with the bar A and cutter B, the dog-screw C, constructed and arranged to operate substantially as set forth.

177,410.



177,411. REED-ORGANS. M. J. Matthews, Boston, Mass., assignor to Mason & Hamlin Organ Company. [Filed Aug. 14, 1875.]

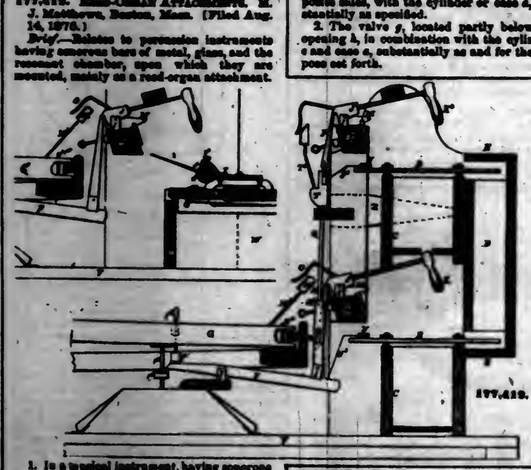
Brief.—For perfecting the vox-celeste attachment, and increasing the resources of the instrument.



The crank F or its equivalent, the metes D and levers E, in combination with the reeds A' and stop-valve O', substantially as and for the purpose set forth.

177,412. REED-ORGAN ATTACHMENTS. M. J. Matthews, Boston, Mass. [Filed Aug. 14, 1875.]

Brief.—Relates to percussion instruments having conerous bars of metal, glass, and the resonant chamber, upon which they are mounted, mainly as a reed-organ attachment.



177,412.

1. In a musical instrument, having conerous bars free at both ends, a hammer or percussion action, arranged in two rows, one above the other, as herein specified.

2. The two harmonious-bars, arranged one over the other, having conerous bars resting thereon, in combination with keys to operate them through the medium of a percussion action, substantially as and for the purpose specified.

3. The resonant-chambers D, with reflectors E, in combination with the harmonious-bars C, substantially as and for the purpose set forth.

4. The resonant-box W, having the sound-board W', and mounted on the upper side of the wind-chest of a reed-organ, in combination with a percussion action giving a downward blow of the hammer, substantially as set forth.

5. The spring-bar V, or its equivalent, in combination with a sound-board, when employed in an instrument having steel tongues held at one end and operated by a percussion action, for the purpose specified.

6. The wedges w, inserted between and in combination with the sound-board W' and the box W, for the purpose specified.

7. The damper Y, inserted in the trachure Q and in the lever F, in combination with the resonous bars B, as set forth.

8. The screw and nut P P'' of the key, together with the nut P' on the push-pin P' of a reed-organ, in combination with the lever F, for the purpose specified.

9. The check-lead-wire N', when fastened forward of the pin-rail R' into the key G of a reed-organ, as herein specified.

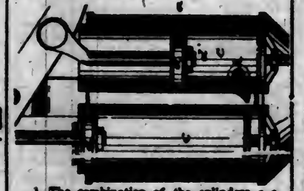
10. The fluted groove s' in the side of the main groove of the plate X, substantially as and for the purpose set forth.

11. The fluted metal strip s', in combination with the subject-matter of the above fourth clause of claim, as and for the purpose specified.

12. The flange-joint I, in combination with the lever F, jack H, tracker Q, and hammer-butt J, as set forth.

177,413. PUMPS. George R. McOrum, Chicago Ill. [Filed Feb. 9, 1876.]

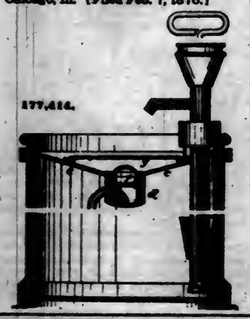
Brief.—The case forms an air-chamber around the pump-cylinder.



1. The combination of the cylinders c c, with their discharge-valves located upon opposite sides, with the cylinder or case e, substantially as specified.

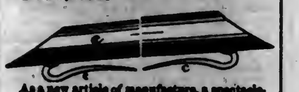
2. The valve g, located partly below the opening h, in combination with the cylinders c and case e, substantially as and for the purpose set forth.

177,414. OIL-CANS. George R. McOrum, Chicago, Ill. [Filed Feb. 7, 1876.]



177,414.

177,415. SAFETY-TUBES. John Milner, Washington Court-House, Ohio. [Filed Mar. 10, 1876.]



As a new article of manufacture, a spectacle-case, consisting of the case c, slightly tapering and open at both ends, and provided with the hooks c, turned in opposite directions, substantially as shown.

177,416. NUT-LOCKS. John Nelson, Rockford, Ill. [Filed Feb. 11, 1876.]

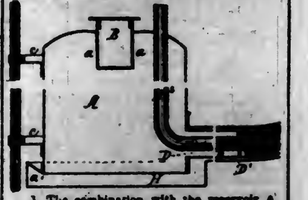


1. The chisel-edged and bent locking-pin D, screw-nut O', having hole c, and screw-bolt C, in combination with plate B, substantially as and for the purpose described.

2. In a nut-locking device, the curved locking-pin D, having its holding end beveled to form a chisel-edge, as and for the purpose described.

177,417. LAMPS. Stephen S. Newton, Binghamton, N. Y. [Filed Mar. 20, 1876.]

Brief.—The safety-tube is made of wire coiled spirally.



1. The combination, with the reservoir A and the curved feeding-tube D, of the air-supply tube D' for supplying air to the interior of an Argand or tubular wick, substantially as set forth.

2. The combination, with the reservoir A, feeding-tube D, and drip-cup H, of a drip-tube or guard, which incloses the feeding-tube, and serves not only as a drip-tube, but also to conduct a current of air in an upward direction around the outside of said feeding-tube.

3. The combination, with the curved feeding-tube of a lamp, of an elastic flexible safety-tube, adapted to be rotated while being introduced within said feeding-tube, substantially as set forth.

4. The combination, with the feeding-tube D and air-supply tube D', of a safety-tube, F, which is open at its lower end to receive the air-supply tube, substantially as set forth.

5. The combination of the feeding-tube D, the perforated diaphragm D', and the safety-tube F, having its lower end open, substantially as set forth.

177,418. HAY-TEDDERS. Stuart Perry, Newport, N. Y. [Filed Feb. 12, 1876.]

1. The reel-frame, constructed without a cross-bar in rear of the through-axle, and arranged to carry the reel between the road-wheels, in combination with the rocking tine-shafts and the through-axle, substantially as and for the purpose set forth.

2. The combination of the cross-bar D' of the reel-frame with the through-axle B, the said cross-bar being rigidly secured to the axle, substantially as and for the purpose set forth.

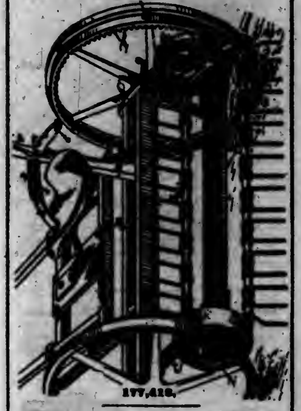
3. The combination of the tilting or reel frame and through-axle with the draft-frame, the latter carrying the driver's seat, and hinged to said reel frame in such a manner that the weight of the driver serves to counterbalance wholly or in part the weight of the reel, substantially as set forth.

4. The gears, constructed with perforated berms, the same provided with cellets, in combination with the reed-wheels, properly recessed to receive said cellets, substantially as and for the purpose set forth.

5. The combination, with the hand-lever and sector, of a spring capable of adjustment on the sector, and arranged to preserve a constant pressure between the rod and draft frames, substantially as set forth.

6. The hand-lever M and sector K, in combination with the lock-bar O, spring P, and link or pawl s, substantially as and for the purpose specified.

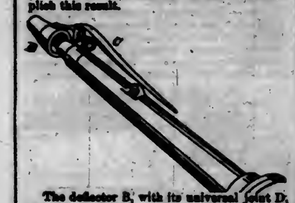
7. The combination of the spring-lever J, with the pawl s, the latter having its bearing in the gear-wheel I, substantially as and for the purpose specified.



177,419.

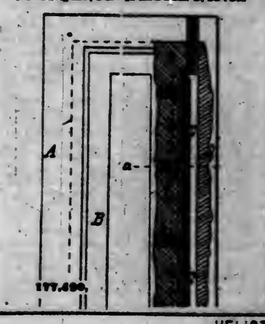
177,419. HYDRAULIC NOZZLES. Henry C. Perkins, North Bloomfield, Cal. [Filed Jan. 17, 1876.]

Brief.—The deflector at the end of the nozzle may be so varied that the issuing stream will, by its own force, turn said nozzle in the desired direction, thereby dispensing with powerful mechanism now in use to accomplish this result.



The deflector B, with its universal joint D, or equivalent device, and operating lever C, in combination with the nozzle of a hydraulic machine, substantially as and for the purpose herein described.

177,420. WINDOWS. Albert H. Peterson, Philadelphia, Pa. [Filed Jan. 6, 1876.]

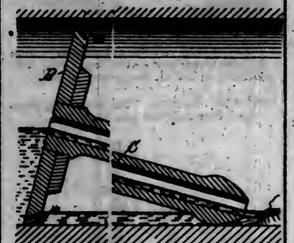


177,420.

The window-frame A and groove i, in combination with the sash B, groove k, pressure-strips C, plate f, pin-openings g, and the springs h, substantially as and for the purpose shown and described.

177,421. DEVICES FOR CLEARING SEWERS. Samuel Phillips, Laurel, Md. [Filed Mar. 20, 1876.]

Brief.—A self-acting dam, corresponding to the shape of the sewers or pipes, is provided with openings around its circumference, and a supporting-arm in its center, on the front side, which rests on the bottom of the sewer, and guides the dam, as the sediment is washed out by the head of water then formed.

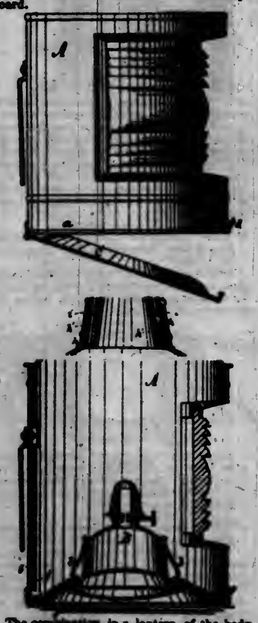


1. A movable dam, B, provided with an opening or openings, a, around or at its lower edge, and with a guide and supporting-arm, C, substantially as and for the purpose set forth.

2. A movable dam, B, provided with an opening or openings, a, around its edge, and with a hollow guide and supporting-arm, C, substantially as and for the purpose set forth.

177,422. LANTERNS. Robert W. Procter, Clifton, N. Y. [Filed Mar. 31, 1876.]

Brief.—The supplementary bottom aids in securing the lamp in position, and excludes air, and the whole is intended for use on shipboard.



The combination, in a lantern, of the body A, lamp B, secured in the stationary bottom a by suitable fastening, and the movable supplementary bottom C, all constructed to operate as and for the purpose described.

177,423. TRACE-FASTENERS. Wm. Quinlan and Alex. Pierce, Mayfield, Cal. [Filed Mar. 24, 1876.]



The catch-plate c, pivoted to a bent arm, b, and constructed to engage with the pin a, outside of the trace, in combination with the single-tree A, substantially as and for the purpose specified.

177,424. CONSTRUCTION OF GROOVED ROLLS. Samuel Richards, Reading, Pa., assignor to William W. Sellers, same place. [Filed Sept. 10, 1875.]

Brief.—The roll is composed of two disks, which are formed with projecting surfaces, the said surfaces being ground off enough to bring the groove back to its original diameter when it becomes enlarged by wear.



A grooved welding and sizing roll, constructed of the disks D D, attached together by the bolts E E', substantially as herein shown and described.

177,425. FORMING JOINTS IN GLASSWARE. Daniel C. Ripley, Pittsburg, Pa. [Filed Mar. 30, 1876.]

Brief.—The glass is formed around a piece of metal of such a shape as will not interfere with the shrinking of the glass. The socket-piece has a tapering collar, reducing points, and bulbed edges.

1. The method herein described for attaching portions of glassware and metal, the same consisting in embedding a metallic socket-piece, having the characteristics specified, within the glass article at the time of forming the article.

2. A metallic socket-piece having beveled edges, the lines of which recede from the center of the piece, substantially as and for the purpose specified.

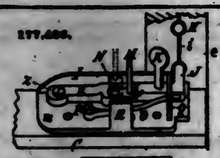
177,426. FASTENERS FOR THE MEETING-RAILS OF SASHES. J. B. Hodgman, Salem, Mass. [Filed Apr. 5, 1876.]

Brief.—A flanged bed-plate, with suitable stop, carries a laterally-swinging lever, with bolt-head, and actuated by a spring. A series of holes in the casing, connected by a thin metal strip, receives the bolt-head of the lever, and there is also a supplementary locking bolt or lever, which serves to lock the main swinging lever when its bolt-head is either in or out of engagement.

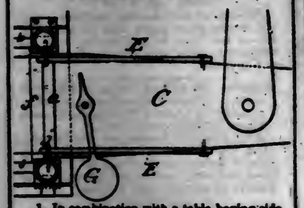
1. The improved sash-fastener described, consisting of the body or bed-plate a, provided with the stop E and flange I, the lever c, provided with the bolt J, stud K, and spring O, and the locking-lever L, provided with the stud M, constructed and arranged to operate substantially as set forth and specified.

2. The rail c, provided with the holes H and strips t, in combination with a window-fastener having the lever c, bolt J, stop E, and flange I, substantially as set forth and specified.

177,626.



177,627. COMBINED TABLES AND IRONING-BOARDS. John H. Rohrer, Philadelphia, Pa. (Filed Mar. 4, 1876.)



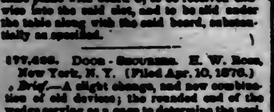
1. In combination with a table having side rails *b*, with inside ways *c*, and an end rail, *a*, provided with horizontal slot *e*, a sliding board, C, provided with the vibrating sleeve-board F, and end-iron holder G, pivoted to the said board and adapted to be swung inward parallel with the length of the board, and to be thrust back therewith through slot *e*, out of sight, behind side rails *b* of the table, substantially as specified.

2. In combination with a table having legs D, constructed with a shoulder, A, the end-wise-sliding board C, having the end cleat *f*, provided with the projecting arms *g*, substantially as specified.

3. In combination with a table having end rail *a*, provided with horizontal slot *e*, and a sliding board, C, extensible through the said slot, the vibrating bracket E, pivoted to the edge of the said board, adapted to engage with pins *j*, or to be thrown upward into the same plane with board C, to be received endwise into the said slot, and to be slid under the table along with the said board, substantially as specified.

177,628. DOOR-SECURERS. H. W. Rose, New York, N. Y. (Filed Apr. 10, 1876.)

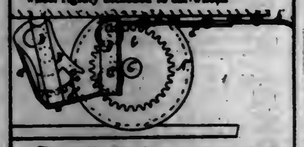
Brief.—A slight change, and new combination of old devices; the rounded end of the wedge serving as a gage to determine the position of the fastening-plate to the edge of the door-jamb, and the general construction strengthened and simplified.



The portable door-fastening, made with the horns *d* and widened slot *b* in and upon the plate *a*, and the hook *i* and flange *k*, notched at *l* upon the wedge *c*, rounded at 3, and serving as a gage, all substantially as set forth.

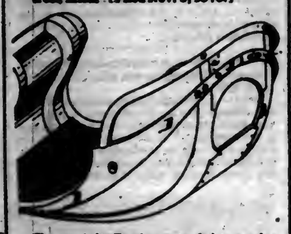
177,629. CAR-STARTERS. Henry Schreiner, Philadelphia, Pa. (Filed June 4, 1876.)

Brief.—Pivoted toothed lever turns gear-wheel rigidly attached to car-wheel.



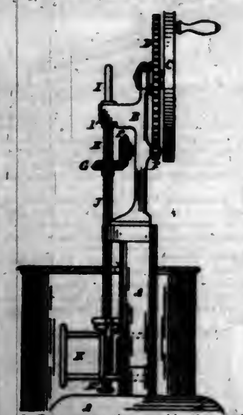
The combination, in a car-starter, of the toothed lever B', gear-wheel C, swinging frame D, pulleys *a* and *a'*, frame D, lever D', rope or chain *b'*, bracket *b''*, and drop-bar F, substantially as and for the purpose specified and described.

177,630. CUTTER-BOXES. John Shire, Detroit, Mich. (Filed Nov. 9, 1876.)



The arm-bolts D, when extended to overlap the beak-frames A of a swell body cutter, substantially as and for the purpose set forth.

177,631. CRUETS. Thos. Simmons, Hartford, Conn. (Filed Apr. 10, 1876.)



1. The construction, combination, and arrangement of the stationary interior serrating-plate B, the cast I for locking it to the frame, the exterior driving-tube J, and the revolving damper K, substantially as herein described.

2. The combination of the frame A B and the geared wheels C D E F G with the driving-tube J and its dog J', for operating the revolving damper K, substantially as herein described.

177,632. OBSERVATION-TUBES FOR DOORS. S. A. Smith, Philadelphia, Pa. (Filed Apr. 26, 1876.)

Brief.—A short tube with a colored outer glass and plain inner glass, and a cover inside, for insertion into outer doors, for taking observations on vagrants.



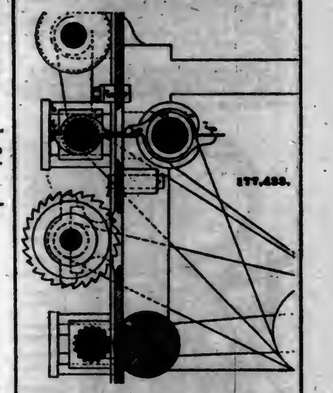
A peep-tube with glasses inserted therein, when used in combination with a fastened door, through which observation may be taken previous to unfastening the door, as described, and for the purpose specified.

177,633. MOULDING-MACHINES. R. S. Smith, Brooklyn, N. Y. (Filed Oct. 13, 1876.)

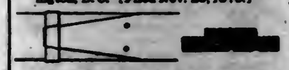
Brief.—The board from which the beadings are to be made is carried into the machine over an embossing-roll, and sawed into strips. The strips are given the desired form by rotary cutters, and then polished before leaving the machine.

1. The revolving pinion-shaft *c*, mounted in the sliding bearings *c'*, in combination with the cam *i*, constructed and operating as herein described, and for the purposes set forth.

2. A hoop-machine, in which are combined saws for dividing a plank into strips, a planer to smooth one side of the strips, and a planer to bevel the other side, one of the planers being connected with a cam, or other equivalent mechanism, for causing it to rise and fall, for the purpose of tapering the ends of the hoops, substantially as specified.



177,634. HOOP-FASTENERS. H. B. Smith, Brooklyn, N. Y., assignor of part of his right to A. T. Briggs and W. H. Thrall, New York city, and F. A. Lohmann, Washington, D. C. (Filed Nov. 20, 1876.)



A hoop-fastener made of the strip *a*, bent and shaped substantially as shown and described.

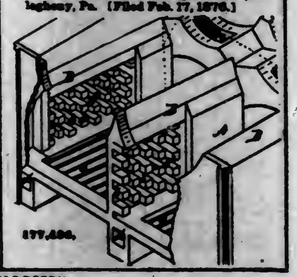
177,635. ADJUSTABLE BOOKSTANDS FOR PIANOS. Benj. F. Sperr, Hartford, Iowa. (Filed July 28, 1876.)

Brief.—The eccentric is slotted from center to rim, and has notched flanges on the sides of the slot, in which notches a pin passing through the shaft engages, controlling the measure of eccentricity to the shaft. The eccentric works in a slotted yoke attached to the pump-rod.



The disk A having perforated or notched flanges *b* on the sides of its slot *c*, the yoke B B having slots D, in combination with the shaft *a*, and rod or piston *r*, to form an adjustable eccentric, substantially as and for the purposes shown and described.

177,636. HEATING AND FEEDING AIR TO BOILER-FURNACES. Henry Swindell, Allegheny, Pa. (Filed Feb. 17, 1876.)

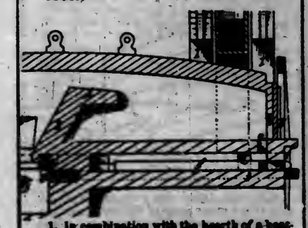


1. In combination with a boiler or similar furnace, the air-flue B', having the series of chest-blocks *b b* and the transverse walls *b' b'*, substantially as and for the purpose specified.

2. The combination of the air-flue B', provided with chest-blocks *b b* and the transverse or seat flue C, substantially as and for the purpose specified.

3. In combination with the series of air-flues or chambers, arranged in the side walls of the furnaces, the transverse or collecting and discharging flue, substantially as specified.

177,637. STEAM-HEATING FURNACES. Wm. Swindell, Allegheny, Pa. (Filed Mar. 7, 1876.)



1. In combination with the hearth of a heating-furnace, the overhanging bridge-wall, inclined or forming an acute angle therewith, substantially as and for the purpose set forth.

2. In combination with the hearth of a heating-furnace the door B, located as specified, and the flues *e f*, substantially as specified.

3. In combination with the hearth and fire-chamber of a heating-furnace the flues *e f f*, and the blast-pipe K, arranged beneath the hearth, and in relation thereto, substantially as and for the purpose set forth.

177,638. DICE-BOXES. Stephen Thorne, New York, N. Y., assignor to M. B. Thorne, same place. (Filed Mar. 11, 1876.)

Brief.—Depressing the lever draws down the center of the elastic bed, wherein the dice rest, which, upon being suddenly released, are thrown upward.



1. The dice-box herein described, consisting of the base B, the rubber disk C, and glass cover A, in combination with the lever H and cord G centrally secured to said disk, substantially as and for the purpose set forth.

2. In a dice-box having a transparent cover, an elastic disk, on which the dice are supported, combined with operating mechanism by which the disk may be centrally depressed and suddenly released, substantially as described.

177,639. STABLE-STALLS. G. P. Thompson, Cincinnati, Ohio, assignor of one-half his right to J. M. Sears, same place. (Filed Feb. 26, 1876.)

1. A stable-stall provided with a movable bed, H, and having a rounspanic below the latter for an earthen filling, J, as set forth.

2. The sliding door O combined with the trunk E, arranged above the feed-box, as set forth.

3. A stable-stall provided with a water-tank and with an inlet-pipe, R, and outlet A, as set forth.

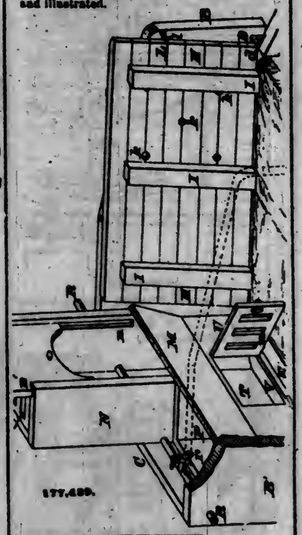
4. The tank P fitted in the feed-box M, and having an inlet, R r, and an exit, S, whose faucet or cock, *s*, is housed within the closet T, in the manner described, and for the purpose stated.

5. The grooves K and apertures *h* in the hinged bed H *h' h'* of a stable-stall, for the object designated.

6. The combination of the sill D', having a gutter, G, leading from the waste-pipe, and the movable bed H, arranged to cover and protect the sill when depressed, substantially as set forth.

7. The combination of the movable bed H, arranged to leave a space beneath the same, and the movable sill F for closing the said space at the end, as specified.

8. The described combination of stall A B B', sills D D' E F, and hinged perforated bed H *h h'* K, substantially as herein described and illustrated.



177,640. FAUCETS. James O Weddell, Newark, N. J. (Filed Oct. 13, 1875.)



The extension Z and w...-ways X, applied to the thimble of a faucet, substantially as and for the purpose specified and shown.



177,641. ROTARY BLOTTERS. S. Wales, New York, N. Y. (Filed Feb. 26, 1876.)

Brief.—An apron connects the roll and rest-bar, and also relieves the blotting-paper from undue strain. The roll, being hinged to the cross-bar, recedes from the rest-bar when pressure is applied to the frame, and approaches it when pressure is released, by means of a recoil, rubber, or other suitable spring.

The combination, with the frame C, B, B, and F, of the hinged arms D D, roller A, apron T, elastic rings G G, and the springs E E, or their equivalent, substantially as and for the purpose hereinbefore set forth.

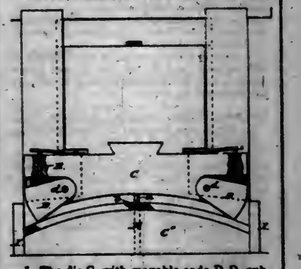
177,642. BUTTON-LOOPS. S. Wales, New York, assignor of one-half his right to N. H. Furness, Tarrytown, N. Y. (Filed Dec. 20, 1876.)

Brief.—A spring is secured to or forms part of the loop. The end of the spring engages with a recess or perforation in the center of the button, and holds it in place.



A button-loop having a spring-tongue, C, substantially as and for the purpose hereinbefore set forth.

177,643. MACHINES FOR BENDING THE LEAVES OF ELLIPTIC SPRINGS. William M. Watson, Tonica, Ill. (Filed Mar. 16, 1876.)



1. The die C, with movable ends D D, substantially as described.

2. The combination of the upper die C and lower die C' with the plate *b*, to hold the spring, the guides I I, and punch *a*, substantially as described.

177,644. TRANSPLANTERS. R. M. Widney, Los Angeles, Cal. (Filed May 26, 1875.)



The combination of the outer cylinder A', of equal diameter throughout its whole length, and provided with suitable handles E D of the inner cylinder B, having an exterior rim, K, that fits the inner surface of the outer cylinder, and having the upper end of equal external diameter with the inner diameter of outer cylinder, and provided with an exterior flange, H, of sufficient size to cover the upper end of the outer cylinder.

177,645. POST-DRIVERS. John Wilkinson and James Calnan, Moulton, Iowa. (Filed Mar. 28, 1876.)

Brief.—The windlass by which the ram is raised is provided with a semicircular slot in its side, into which an angular spring-actuated bar, which is located upon a cylinder mounted on the windlass-shaft, is forced. The cylinder has the ordinary detent-ratchet and pawl, and the spring-bar allows of the descent of the ram at will from any point on being pressed.

In a post-driver the windlass L, having the slot *a*, in combination with the cylinder H, provided with the angular bar I and spring J, substantially as set forth.



177,446.



177,446. INSERTIBLE SAW-TEETH. Calvin Adams, Russellsburg, Pa. [Filed Dec. 7, 1875.]

The saw-tooth B, constructed with the slot K, extending radially from a point near the center of the teeth to the outer edge thereof, and adapted for a locking-key to be retained in the tooth, and driven outwardly, substantially as described.

177,447. SAW-SWAGE. Calvin Adams, Russellsburg, Pa. [Filed Dec. 7, 1875.]

Brief.—The interior faces of the covering-plates coincide with the sides of the tooth at all points, and prevent the same from twisting while being swaged. All of the parts are held together by a stirrup and key.



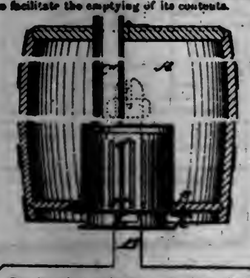
1. In a saw-sharpener, the plates B and H, substantially as described.

2. In a saw sharpener, the combination of the dies F and G and the plates B and H, substantially as described.

3. In a saw-sharpener, the combination of the plates B and H, the dies F and G, the bead I, and key J, substantially as and for the purposes set forth

177,448. WARM AND FEED BOILERS. Geo. C. Alden and Stephen M. Irvin, Moulton, Iowa. [Filed Apr. 6, 1876.]

Brief.—The furnace or fire-pot can be removed from the casing, for supplying it with fuel or to clean it out. The barrel can be tilted to facilitate the emptying of its contents.



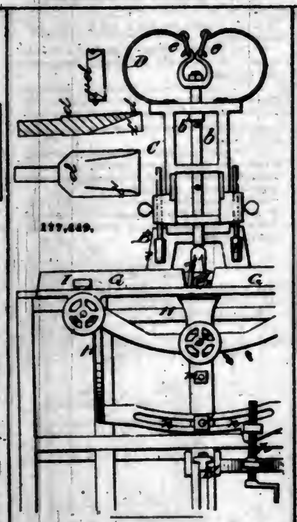
The barrel A swinging in the frame B, in combination with the removable fire-pot J, casing O, and outlet-pipe C', substantially as and for the purpose set forth.

177,449. MORTISING AND TENONING MACHINE. Peter M. Andriot, Oxford, Ohio, assignor of one-half his right to Jas. Nutt, same place. [Filed Mar. 13, 1876.]

Brief.—The chisel-shaft is connected by long links to springs arranged upon the top of a frame, vertically adjustable upon an arched standard at the center of the front of the machine. The work is held against a flange upon a transversely-slotted and adjustable table by two adjustable vises. The chisel is provided with double square corners of sufficient width to cut the shoulder at the same time that the bar part of the chisel cuts the tenon, without the use of a saw. The machine can be changed from tenoning to mortising by simply changing chisels.

1. The combination of the chisel d, shaft b, links c c, and springs D D, all arranged upon the adjustable head or frame, C, as shown and described.

2. The combination of the adjustable table G, having adjustable vises I I, and the frame H, adjustable up and down, and at any angle, substantially as and for the purpose set forth.



177,449.

177,450. GLOBE-VALVES. Henry Atkinson, Pittsburg, Pa., assignor of one-half his right to A. P. Bachelor, same place. [Filed Mar. 31, 1876.]



1. The combination of a nut, n, or similar device, and a washer, w, constructed with an inclined annular ridge, substantially as described, as a means for adjusting the packing, as specified.

2. In combination with valve A, the half-arch B and cap b, constructed as shown, to allow adjustment of nut n, as set forth.

3. The within described globe-valve, consisting of chamber A, cap b, and arch B, globe E, piston e, packing, washer w, hollow screw C, and wheel D, all arranged and operating substantially as shown and described.

177,451. BROILERS. F. O. Badger, Greenport, N. Y. [Filed Apr. 15, 1876.]

Brief.—By forming screw-threads along the opposite sides of the frame, any number of cross-bars may be bent and secured to the frame at pleasure, thus varying, as desired, the spaces between the cross-bars.



The broiler-frame A, made of a single piece of wire, bent and fastened together, as set forth, and having two of its opposite sides screw-threaded, in combination with the cross-bars B, having their ends bent around said sides and into the screw-threads a a, and handle C, having its ends bent into the screw-threads, substantially as described, and for the purpose set forth.

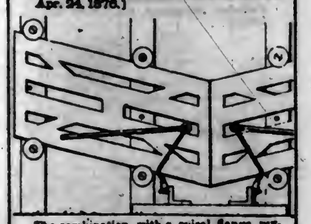
177,452. METHODS OF ATTACHING SWEAT-BANDS TO HATS. N. A. Baldwin, Milford, Conn. [Filed Apr. 6, 1876.]



177,452.

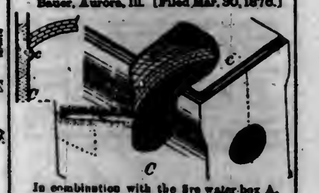
In the manufacture of hats, the method herein described of attaching sweats, consisting in securing the sweat to the inner edge of an independent strip of material, and the said strip secured to the hat, substantially as specified.

177,453. RAILROAD-GATES. Howard J. Ball and Michael S. Brewer, Paris, Ill. [Filed Apr. 24, 1876.]



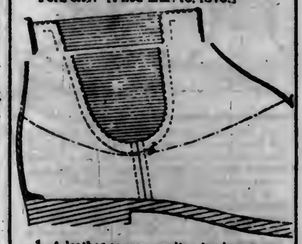
The combination, with a spiral flange, pivoted to the outer sides of the rails, and provided with a rigid arm, of two gates, sliding on inclined ways, and connecting rods, secured to the lower portion of the gates, whereby the power is exerted nearly in line with the travel of the gates, substantially as and for the purpose described.

177,454. FIRE-BOXES FOR BOILERS. Augustus Bauer, Aurora, Ill. [Filed Mar. 30, 1876.]



In combination with the fire water-box A, provided upon or within each of its side plates C with a ledge, c, the arch F extending between said plates, and resting upon and supported by said ledges, substantially as and for the purpose specified.

177,455. CONGRESS GAITERS. Charles D. Bigelow, Brooklyn, N. Y., assignor to Bay State Shoe and Leather Company, New York city. [Filed Mar. 16, 1876.]



1. A leather congress-gaiter, having its upper portion reduced in thickness, as and for the purpose stated.

2. A congress-gaiter, having a thick foot portion with the upper or ankle portion integral therewith, reduced by skiving or splitting, substantially as and for the purpose stated.

3. In a congress-gaiter, the combination, with upper having its foot portion of the full thickness of the leather, and the upper or ankle portion reduced in thickness, and forming an integral part of the foot portion of an elastic goring.

177,456. CIGAR-HOLDERS. B. L. Blackford, Washington, D. C. [Filed Apr. 24, 1876.]

Brief.—A saucer having in the center spring grasping-jaws, for holding a cigar horizontally.

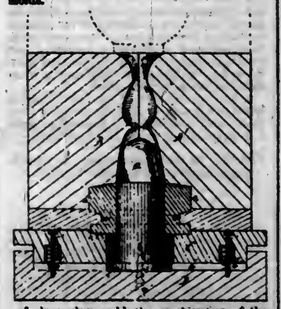


177,456.

An ash-receptacle, a, provided with a spring cigar or cigarette holder, b, substantially as and for the purposes herein before set forth.

177,457. GLASS-MOLDS. Peter Blankinsop, Martin's Ferry, Ohio, assignor to Excelsior Glass Company. [Filed Mar. 23, 1876.]

Brief.—The yielding bottom plate under the mold allows the peg to rise within the mold during the pressing of the article, and automatically retract the peg when the pressure is removed. The pegs are interchangeable, that the bottom plate, which is provided with a detachable collar, may be used with various molds.

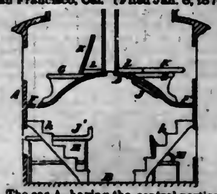


1. In a glass mold, the combination of the mold with the yielding bottom plate, the rigid peg, and a spring or springs for lifting the bottom plate, substantially as and for the purpose specified.

2. In a glass-mold, the combination of the mold, the bottom plate and its peg, and a loose or detachable peg-collar, grooved to engage with the mold, substantially as and for the purpose specified.

3. In a glass-mold, the combination of the bottom plate, and detachable peg and collar, substantially as and for the purpose specified.

177,458. SLEEPING-CARS. B. Blochman, San Francisco, Cal. [Filed Jan. 6, 1876.]



1. The car A, having the central portion of the floor B placed at a lower level than the ends, and provided with a second floor, D F, substantially as and for the purpose herein described.

2. In a car, A, having two floors, B D, the arrangement of the seats E beneath the passage F, and the seats G upon the arch D, substantially as and for the purpose herein described.

3. The seats G, constructed as shown, and having the folding back K, and the rear extension L, substantially as herein described.

4. The construction in a car, A, of two floors, B and D, having the seats E and G, respectively, and the hanging and removable berths J J', substantially as and for the purpose herein described.

177,459. ELECTRIC GAS-LIGHTING APPARATUS. Abraham L. Bogart, New York, N. Y. [Filed Mar. 20, 1876.]

Brief.—The invention consists in the means for operating the vibrating arm, for strengthening the insulating section, and for attaching the fixed arm to the burner.

177,460.



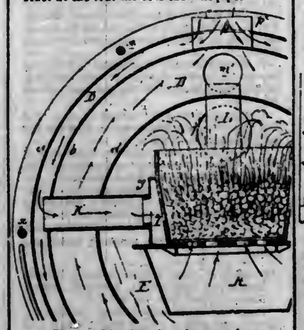
1. In combination with the vibrating arm E, the means employed for moving the same so as to cause its point e to impinge upon the point f' of the stationary insulated arm d, consisting of the pivoted cam-lever I, arranged with its vertical portion in engagement with the lower end of said arm, substantially as and for the purpose specified.

2. In combination with the opening c of the insulator C, constructed of or from ivory, rubber, or other like material, the metal pipe or tube c', fitted into and forming a lining for said opening, substantially as and for the purpose shown and described.

3. In combination with the burner described, the fixed arm d, provided with an annular collar, D, which collar is contained between the contiguous ends of the burner-section B and the insulator-section C, and operates to secure said arm in position with relation to said burner, substantially as and for the purpose specified.

177,460. HEATERS. Geo. Boyd and Lewis Bridge, Philadelphia, Pa.; said Bridge assignor to David Stuart and Richard Peterson, same place. [Filed Apr. 19, 1876.]

Brief.—A casing at the front covers doors to fire-pot, ash pit, and lower door, and another at the rear incloses the exit pipe.



1. The combination, in a heater, of a combustion-chamber with a fire-pot and ash-pit encircled within the said chamber, and surrounded by the casing d of the same, all substantially as set forth.

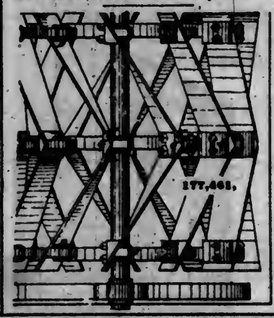
2. The combination, in a heater, of the combustion-chamber E and the suspended fire-pot with the hot-air chamber D, surrounding the said combustion-chamber, as set forth.

3. The combination, in a heater, of the annular hot air chamber D, the combustion-chamber, and the surrounding annular cold-air chamber B, as set forth.

4. The combination of the front plate A of the heater with the casing M, as set forth.

5. The combination of the flue g, the door f', and its damper e with the casing M and its door w, as set forth.

6. The combination of the combustion-chamber E and exit-flue i with the flue g.

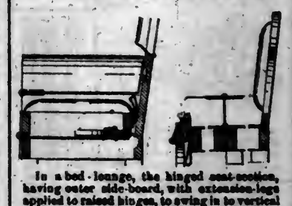


177,461.

177,461. PADDLE-WHEELS. Edward Brest and John Boger, Powhatan, Ohio. [Filed Mar. 20, 1876.]

The buckets, connected to the arms at the center by a yoke, D, angle-plate F, and a double angle-block, G, or an angle-plate, substantially as specified.

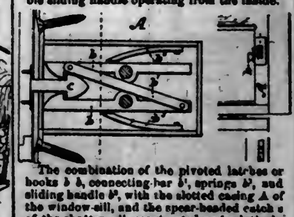
177,462. END-LOUNGES. Ferdinand Brass, New York, N. Y. [Filed Oct. 2, 1876.]



In a bed-lounge, the hinged seat-section, having outer side-board, with extension-legs applied to raised hinges, to swing in to vertical supporting position, substantially as specified.

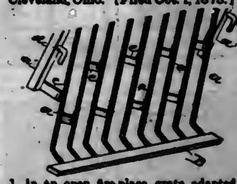
177,463. SHUTTER-FASTENERS. Joshua B. Brooks, Baltimore, Md., assignor to himself and Valentine Grobaker, same place. [Filed Mar. 20, 1876.]

Brief.—A spear-headed fastening-catch on the shutter enters a case inserted in the window sill, engaging with a pair of pivoted spring-pressed tumbler-latches, in such manner that, when the shutter is closed, the catch will be automatically grasped, and held until the spring-latches are thrown apart by a suitable sliding handle operating from the inside.



The combination of the pivoted latches or hooks b b, connecting-bar b', springs b², and sliding handle b³, with the slotted casing A of the window-sill, and the spear-headed catch a of the shutter, all constructed and relatively arranged substantially as herein set forth.

177,464. FIRE-PLACE GRATES. T. Brown, Cleveland, Ohio. [Filed Oct. 1, 1873.]



1. In an open fire-place grate adapted to have its entire front exposed to view, the combination of the inclined bars a and inwardly-projecting V-shaped irons c, arranged at regular intervals, and operating, by the settling of the fuel, as permanent pokers to loosen up the said fuel and keep the front of the grate clear and bright, substantially as described.

2. In an open fire-place grate adapted to have its entire front exposed to view, the combination of the bars A B, inclined bars a, and projecting V-shaped irons c, substantially as described and shown.

3. In combination with a grate having inclined bars, the vertical pieces a' united to the cross-bars A, and the end inclined bar a² of the series, as described.

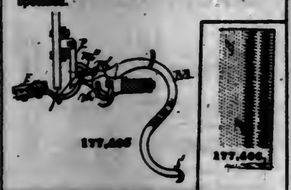
177,465. CORN-PLANTERS. Geo. W. Brown, Galesburg, Ill. [Filed Dec. 26, 1876.]

Brief.—Double fulcrumed lever connects tongue and rear frame, and regulates depth of furrow of runner-frame. Device for holding runner-frame in the ground.

1. The pedal-lever M, having foot-rests at its rear end and slot m' at its forward end, pivoted to the rear frame, and arranged to operate with the forward frame, as described, so as to increase the downward pressure on the forward frame, substantially as specified.

2. The lever M, arranged to operate on a double fulcrum, n n', so as to raise and lower the frame A, in the manner substantially as and for the purpose specified.

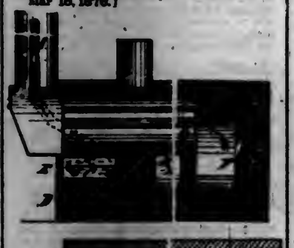
3. The gravitating catch F, having cushion p p pivoted to the base frame, and arranged to straddle the end of the projection E, and to swing under it, so as to engage with the studs r', substantially as and for the purpose specified.



177,666. METHODS OF UTILIZING THE LEATHER OF OLD CARD-CLOTHING. Frank H. Brownell, Walnole, Mass. [Filed Jan. 28, 1876.]

The method of utilizing the leather of old card-clothing by treating it with gum-tragacanth, and remitting it with teeth reversely to the original teeth, substantially as specified.

177,667. FURNACES AND BOILER-SETTINGS. Thomas R. Bateman, Milan, Ohio. [Filed Mar 16, 1876.]







1. The combination, with one or more boilers, of the calorido hollow wall C, longitudinally arranged, whereby the intense heat is prevented from burning the bottom of the boiler, substantially as described.

2. The combination of the hollow calorido wall C with the two sets of grates and the boiler, said wall being provided with horizontal slits, whereby the proper supply of air is so distributed that all the combustible gases are consumed, substantially as described, and for the purpose set forth.

3. The combination, in a furnace, of the concave side walls and central deflecting end wall, substantially as described, and for the purpose set forth.

4. The combination of the pendent partition G, the wall F, the secondary bridge-wall N, and the side walls, whereby the intense flame is prevented from impinging upon the boiler above the water-line, substantially in the manner and for the purpose set forth.

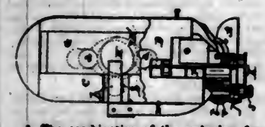
5. The combination of the division ash-pit wall D, the hollow calorido wall C, the crown-wall H, with the double fire-grate of the furnace, substantially in the manner and for the purpose set forth.

6. The combination of the hollow horizontal-slitted calorido wall C, the hot-air pipe A, with the boiler, substantially as described.

7. The combination, in the boiler-furnaces, of the longitudinal division-wall D, and transverse wall H, forming the bridge-wall of the furnace, and the cross-partition wall of the ash-pit, whereby the cold air is prevented from passing under the boiler in the rear of bridge-wall, substantially as described, and for the purpose set forth.

8. The hollow slitted wall C, division ash-pit wall D, boiler O, concave side walls F, conical deflecting wall F, pendent partition G, wall N, cross ash-pit wall H, and hot-air pipe A, combined and arranged to operate in the manner and for the purpose set forth.

177,668. PEGGING-MACHINES FOR BOOTS AND SHOES. Charles A. Garman, Cochituate, Mass. [Filed Mar. 28, 1876.]



1. The combination of the swinging face-plate D, with roller h, the reciprocating awl-bar G, with rollers e e, and the cams H H', substantially as and for the purposes herein set forth.

2. The combination of the bar or slide O, awl d, driver m, arm P, and knife s, substantially as and for the purposes herein set forth.

3. The combination of the head O, swinging face-plate D, stud f, spring c, and plate k, substantially as and for the purposes herein set forth.

4. The gage I, with ratchet-wheel k, and the pawl l on the face-plate, as and for the purposes herein set forth.

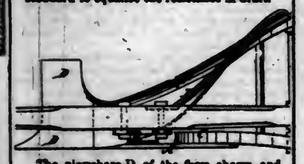
5. The box J, with roller n, clutches p p, spring s, and connecting-bar k, substantially as and for the purposes herein set forth.

6. The combination, with the box J and roller n, of the plate L, screw t, and spring v, as and for the purposes herein set forth.

7. The spring-slide w, in combination with the peg-box J, for the purposes herein set forth.

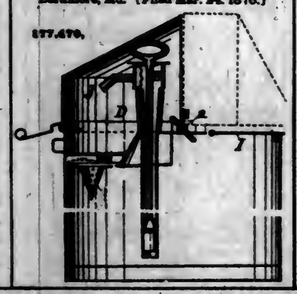
177,669. PLOWS. Robert Cassidy, Thos. B. Lamb, and Chauncey L. Vaughan, Beloit, Kans. [Filed Feb. 26, 1876.]

Brief.—A share nearly level, its edge extending outward at a right angle, with a bent standard to equalize the resistance in draft.



The plowshare D, of the form shown, and having the cutting-edge at right angles with land-side, in combination with the slotted standard B, curved inward to bring the plow-beam nearly over the center of share, as and for the purpose specified.

177,670. OIL-TANER. John C. Chadwick, Baltimore, Md. [Filed Mar. 24, 1876.]



The combination, with the oil-can having a hinged segmental cover, I, of the detachable hood J, hinged to the can by means of the removable rod s, substantially as and for the purpose described.

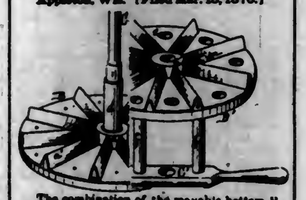
177,671. MEAT-HOOKS. Benj. F. Clark, Philadelphia, Pa., assignee of one-half his right to George J. Weckerly, same place. [Filed Feb. 24, 1876.]



1. As a new article of manufacture, the improved meat-hook, consisting of the grooved and slotted bracket A and the removable hook-bases and hook B, said hook projecting outwardly and upwardly from the base, and tapering to a point, for special adaptation to meat-stalls, as shown and described.

2. The combination of bracket A, having slot E and groove C, hook D, springing from base B, and retaining-pin F, fastened by chain f, substantially as shown and described.

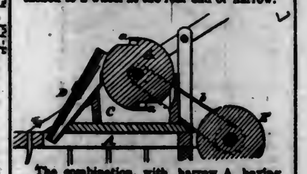
177,672. WASHING-MACHINES. L. Cooley, Appleton, Wis. [Filed Mar. 15, 1876.]



The combination of the movable bottom B, having the radial ribs a, the hub c, and its face covered entirely with sheet metal, the rubber B', provided with the radial ribs b, the hub c', and sheet-metal-covered face, the standard C, and handle C', all constructed and arranged substantially as described and shown.

177,673. SEEDING ATTACHMENTS FOR HARROWS. W. J. Covington, Crystal Springs, Miss. [Filed Mar. 4, 1876.]

Brief.—A seeding attachment for a harrow, consisting of a box with a solid rotating wheel, in the periphery of which are buckets, the same being rotated by a belt or band attached to a wheel at the rear end of harrow.



The combination, with harrow A, having box C, with inclined chute D, of the solid rotating wheel G, cut out on its periphery, and having buckets a a, the wheel E, and cord b, all constructed substantially as and for the purposes herein set forth.

177,674. COMPOUNDS FOR GLUE. James H. Craig, Indianapolis, Ind. [Filed Mar. 7, 1876.]

1. The glue herein described, consisting of common glue, dry white lead, English precipitated chalk, and carbolic acid, in the proportions substantially as herein described.

2. The process of improving glue, consisting of mixing with the said glue dry white lead, English precipitated chalk, and carbolic acid, in the proportions substantially as herein described.

177,675. LASTER. Joseph P. Crawford, Canonsyria, N. Y. [Filed Apr. 10, 1876.]



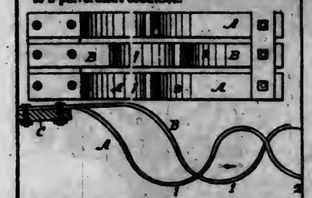
1. As an improvement in turning-lathes and similar machines, a cast-metal frame, A, having a round or elliptical rod, B, of rolled, drawn, or finished metal applied thereto, as shown and described, to form a way or guide.

2. The combination of a main frame, A, provided with the ribs C and the round or oval rod B secured thereon, as described and shown.

3. The combination of a main way or frame, A, and a round or oval guide-rod, B, as shown, and for the purpose described.

177,676. GRID-CHECKERS. J. M. Crockett, Dallas, Tex. [Filed Apr. 15, 1876.]

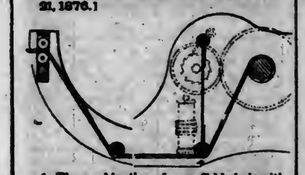
Brief.—A series of iron bars with alternate curves are secured in rank to front and rear bars. The curves are so arranged that they alternate in position, thus reducing the clods to a pulverulent condition.



1. The improved drag, composed of a series of flat and curved metal bars attached to a head-block, substantially as described.

2. The combination of the two series of bars A and B, each curved at two points, 1 2, and arranged in the alternation specified.

177,677. PAINTERS' SCAFFOLD-CHAIRS. J. R. Crockett, Pleasnia, Tex. [Filed Mar. 21, 1876.]

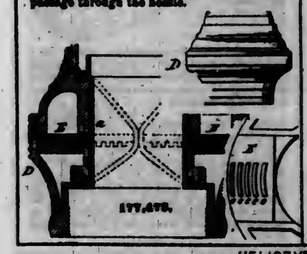


1. The combination of a scaffold-chair with hoisting and lowering windlass mechanism, and suspension-ropes, guided on rear, top, and side pulleys, all arranged substantially in the manner and for the purpose set forth.

2. A scaffold-chair for painters' use, which is hoisted or lowered by suitable windlass mechanism placed below the seat on a suspension-rope passing over rear and top guide-pulleys to keep the chair in balanced position, substantially as described.

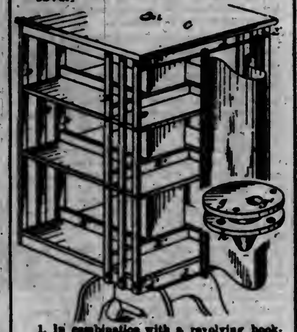
177,678. HOSE-NOZZLES. Moody S. Curtis, Edwd. P. Dodge, and Richard R. Colburn, Ansonia, Conn., assignors to the Starry Faucet Company, same place. [Filed Apr. 24, 1876.]

Brief.—An india-rubber or elastic sleeve within the nozzle, combined with transverse slides working toward the center, so as to compress the sleeve, and cause it to close the passage through the nozzle.



In a hose-nozzle, the combination of the elastic sleeve d, the screw-threaded collar D, and the slides E, constructed and operating substantially as specified.

177,679. REVOLVING BOOK-CASES. John Danner, Canton, Ohio. [Filed Apr. 13, 1876.]

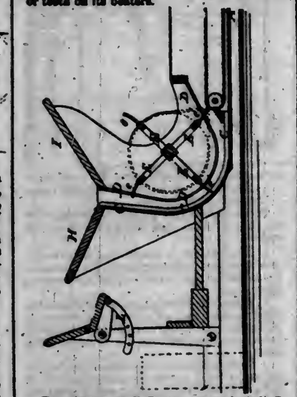


1. In combination with a revolving book-case, suspended from the top of a stationary post, having an oil-cup bearing, h, the pendent spindle g, attached to the top shelf of the frame, and oil-duct i, constructed substantially as and for the purpose described.

2. In combination with a revolving book-case, suspended from the top of a stationary post, F, the series of horizontal bars B', and vertical strips D, to cover the joints of the shelves and support them, substantially as shown and described.

177,680. HARVESTERS. J. J. Dewey, Hay Creek, (Red Wing P. O.,) Minn. [Filed Dec. 12, 1874.]

Brief.—The cut grain from the platform-apron is elevated to the binders' table through an inclosed passage by a reel having fingers or teeth on its bosters.



The slotted shell D, the grooved shell C, the elevating-wheel E, and the inclined tables H I, in combination with each other and a harvester-platform, substantially as herein shown and described.

177,681. INDESTRUBLE SAW-TEETH. Henry Disston, Philadelphia, Pa. [Filed Apr. 20, 1876.]



The within-described duplex tooth, consisting of a segmental base, terminating in cutters b b', inclined in contrary directions, the whole being adapted to a recess in the blade, as set forth.

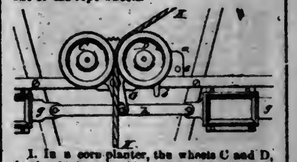
177,682. WINDOW-SHADE FIXTURES. John B. Dohen, Brooklyn, N. Y. [Filed Feb. 14, 1876.]



The combination of roller B, having tongued groove, the grooved key b', and the slotted cups, having pivots D, as and for the purpose specified.

177,683. CHECK-ROW DEVICES FOR CORN-PLANTERS. William W. Dunn, Peoria, Ill. [Filed Aug. 16, 1876.]

Brief.—The check-rope runs between two wheels, and having V-shaped peripheries, one of which is secured on a swinging frame for convenience in removing the rope, and is held, when in working position, by a latch. Pivoted centrally is a lever, one end of which is attached to the seed-slide, while the other end, being forked, is acted upon by a cam on the spur-wheel, which gears with a wheel on one of the rope-wheels.



1. In a corn planter, the wheels C and D, having V-shaped rubber bands or peripheries i, in combination with the rope K and forked pivoted lever G, substantially as and for the purpose specified.

2. The swinging supporting-arm e, pivoted to the frame of the planter, in combination with latch b, wheels C D, and rope K, substantially as and for the purpose set forth.

177,684. ASPERSORIUMS. James J. Dunn, Meadville, Pa. [Filed Apr. 10, 1876.]



The combination of hollow front perforated bulb B, having sponge-chamber and tubular neck, with a reservoir, tapered and fitting at the small end over the said neck, as shown and described, for the purpose specified.

177,685. FASTENERS FOR THE MEETING-RAILS OF SASHES. Geo. Edwards, Brompton Road, South Kensington, England. [Filed Mar. 27, 1876.]

Brief.—A ribbon-spring attached to the inner plate curves upward, so that its free end will engage with a notch in the under side of the spring-bolt, to hold the cross-head free, and permit the raising of the sash. There is also a milled nut on the screw-threaded portion of the bolt, which serves to draw the meshes together, to prevent rattling, and also to lock the spring-bolt against tampering from the outside.



1. The combination, with the spring-bolt c c' and the catches f, of a spring, i, adapted to engage a notch upon the under side of the spring-bolt, substantially as and for the purpose described.

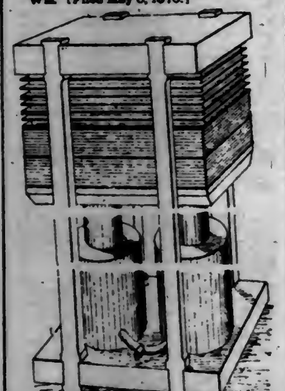
2. The combination, with the spring-bolt c c', having cross-head d, engaging with catches f, as described, of the nut l, working upon a screw-threaded part of said bolt, for the purpose described.

177,486. GLOVE-FASTENINGS. F. G. Farnham, Hawley, Pa. (Filed Mar. 13, 1876.)



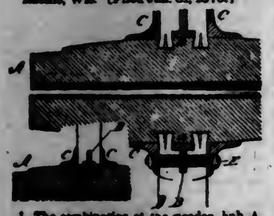
1. The cam-shaped depression J in the spring-key C, in combination with the pivot G of the staple, substantially as specified.
2. The spring-key constructed, as described, by bending one end, K, over the other end, substantially as specified.
3. The pivot G of the hasp, constructed of the prongs L, formed from the hasp-plate, substantially as specified.
4. The combination of the stretcher M with the glove-fastening, consisting of the hasp A, staple B, and spring-key C, substantially as specified.

177,487. MANUFACTURE OF STRAW-BOARDS. Benjamin F. Field, Fond du Lac, Wis. (Filed May 8, 1876.)



The process of forming paper boards directly from the pulp, which consists in placing raw sheets or layers of pulp, in any desired thickness, separately between the surfaces of smooth metal plates, then subjecting the same to pressure, whereby the water is expelled and each sheet or layer is compressed into board, then removing each sheet or board from the press, and drying the same, and finally pressing again, as and for the purposes set forth.

177,488. VEHICLE-WHEELS. A. C. Fish, Racine, Wis. (Filed Jan. 31, 1876.)

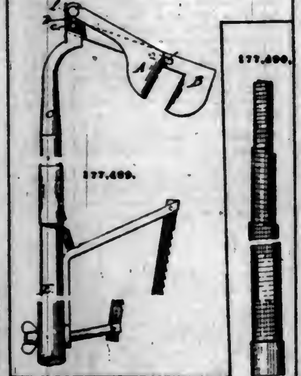


1. The combination of the wooden hub A, provided with the two dovetail grooves, the heads B B C, the wooden spokes D, and the bolts or rivets E passing through the three heads and the spokes, as shown.
2. A wooden hub, provided with a circumferential groove, and a continuous pointed spoke, a, framed radially thereto, as shown, and adapted to spread solid-ended split spokes entirely within the hub, without increasing their width outside of the same, as shown.
3. In a carriage-wheel, the combination of a circumferentially grooved wooden hub, having a continuous wooden wedge, c, braced thereon within the groove, and wooden spokes having their ends split and driven directly into the groove over the wedge, without the interposition of or assistance from other parts or devices, as shown.

177,489. PRUNING IMPLEMENTS. Parker P. Pleasonton, Bethesda, Md. (Filed May 3, 1876.)

Brief.—A single rod is pulled upon to operate the cutting blades, same rod being in two divisions, and coupled together by a novel spring-coupling. The lower part of the rod has a saw attached at its lower end by a screw, which serves also to tighten it.

1. The combination of the chisel-knife A and hook-knife B, united by a rivet, which is stationary in the chisel-knife, and slides in a slot in the hook-knife, with the handle C, the chisel-knife by a stationary rivet and the hook-knife by a bolt, sliding in the curved slot *b*, both being opened and held open by a spring, substantially as described, and for the purposes set forth.
2. The single rod, divided into two sections, which are coupled by a slotted sleeve, fixed upon the staff D, and furnished with a spring within, and a catch, revolving on a rivet fixed in the extension staff E, said catch, when it comes in contact with the spring, being thrown up into the slot in the sleeve, and held by the continued pressure of the spring.
3. The saw, mounted in an iron frame, which is attached to the extension-staff E, and stretched by a screw, by which it is drawn in the direction of a tangent to its circle of revolution around the point at which it is attached to the iron frame, this screw forming the support for the lower end of the saw.

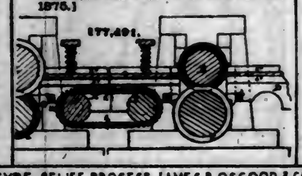


177,490. FLEXIBLE SHAFTS. Civilion Fonce and William J. Baulieu, Bridgeport, Conn. (Filed Apr. 26, 1876.)

Brief.—Formed of several reversely-coiled flat strips of steel, each being a sheath to that within it.

1. A flexible shaft, constructed, as herein before described, of spring-coils, composed of flat metallic strips or ribbons, coiled in reverse directions.
2. The sheath or casing, constructed, as herein before described, of spring-coils composed of flat metallic strips or ribbons coiled in reverse directions, and adapted to envelop the shaft.
3. The combination, substantially as herein before set forth, of the shaft composed of reverse coils, and the similarly constructed enveloping-sheath.
4. The herein-before-described flexible shaft, composed of three or more coils, with the adjacent coils wound in opposite directions, to render the shaft reversible.

177,491. ROLLS AND CONDUCTORS FOR ROLLING METALS. Samuel C. Fox, Pittsburg, assignor to himself and James H. Lindsay, Allegheny, Pa. (Filed Sept. 20, 1875.)



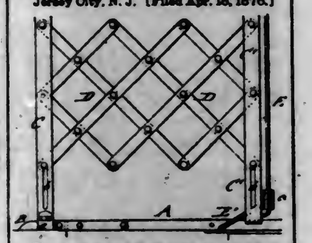
1. The combination of two or more pairs of hoop-rolls, the tongues and grooves of the alternate pairs being reversed, and intermediate conductors having relief tops, substantially as and for the purpose specified.
2. The combination of two or more pairs of hoop-rolls, the tongues and grooves of the alternate pairs being reversed, and intermediate conductors provided with chain-belt or traveling bottoms, substantially as and for the purpose specified.
3. In combination with two pairs of wire-rolls, the interposed conductor having a traveling bottom, substantially as and for the purpose specified.
4. A conductor for feeding metal to or between rolls provided with a relief top, and, having its bottom formed by a chain-belt or carrier, substantially as described.

177,492. ANCHORS. Frank Francis, Vienna, Austria. (Filed May 2, 1876.)



The within-described anchor, consisting of the stem A, with cross-bar D, the two curved arms E E on each side, and the connected flukes or blades G G on said arms, all constructed substantially as herein shown and described.

177,493. SAFETY-BRIDGES. L. F. Frasse, Jersey City, N. J. (Filed Apr. 18, 1876.)



The pivoted guard-railing D of intersecting pivot-rods, in combination with fixed posts C, movable posts C', guide-rods E, cranks E', and gang-plank A hinged to end piece B, as and for the purpose specified.

177,494. RECEPTACLE-PURCHASE. John H. Frost, Naperville, Ill. (Filed Mar. 6, 1876.)



The case S S', fitted with the central stud *b'*, register-wheels C D, springs *e e f*, bracket *f*, and spring-pawl *d d'*, in combination with an actuating lever, substantially as and for the purpose set forth.

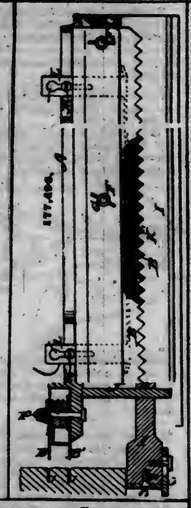
177,495. APPARATUS FOR COMPRESSING AIR BY WIND-POWER. M. A. Fulton, Hudson, Wis. (Filed Mar. 20, 1876.)

Brief.—A wind-wheel is applied directly to drive pumps for condensing air in proper reservoirs, while at the same time any surplus power is used in raising sand or other materials to an elevated receptacle, to be used on an overshot wheel when the wind has ceased to blow.

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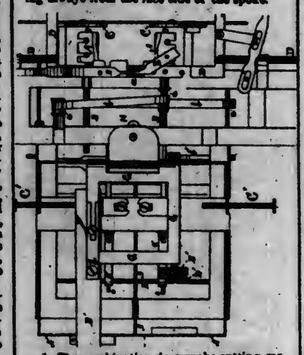
177,496.



1. In combination with one or more wind-wheels, W, and a main shaft, S, driven by them, the condensing-pump I, driven from shaft S, the belt U and its elevator-buckets driven from the same shaft, all constructed, arranged, and operating substantially in the manner and on the principal described and explained.
2. In combination with shaft S, the bucket-wheel O, driven by sand, or other material, falling upon it from tank T, and driving the said shaft intermittently or simultaneously with the wind-power, as and for the purpose set forth.
3. In combination with a wind-wheel, mechanism, substantially as described, driven by it, whereby the wind-power received by the wheel, or as much thereof as may be needed, is applied directly to the driving of one or more pumps for condensing air in proper storing-reservoirs, while, at the same time, any surplus of such power is used in raising sand, or other material, to an elevated receptacle, whence the substance so raised may be stored till needed, and then be made, in descending, to drive by its weight a wheel connected with an air-condensing apparatus, and continue its operation after the wind has ceased to blow, all substantially in the manner and for the purpose set forth.
4. In combination with a wind-wheel, mechanism, substantially as described, for the double application of the wind-power, whereby part of the power may be used directly in the condensation of air, and the remainder be employed in the storing of power, for the continuation of the condensing operation after the wind has ceased to blow, all substantially in the manner and for the purpose specified.

177,497. MACHINES FOR TURNING AND FINISHING SPOKES. Wm. Gallup, Newark, N. J. (Filed Oct. 19, 1875.)

Brief.—The machine is supplied with two rotary cutters, revolving in opposite directions, which thrust the spokes as they pass over the cutters upon a suitable carriage, the cut being always from the face side of the spoke.



1. The combination, in a spoke-cutting machine, of two cutters and devices for rotating them in respect to the spoke-carrier, as described, whereby the opposite sides of the spoke are reduced by the cutters successively, each operating from the front toward the rear edge of the spoke, as set forth.
2. The combination of the cutters, rotating in respect to the carriage, as set forth, and two independent formers, arranged as specified.
3. The combination of a circular saw, D', and emery-wheel F, so arranged and adjusted in relation to a spoke and pattern, B', as to finish and polish said spoke in conformity with said pattern, substantially as set forth.
4. The combination, with said saw D' and wheel F, of the shaft F', frame G, and oscillating shaft H, arranged and operating substantially as and for the purposes set forth and shown.
5. The combination of the frame G, carrying the saw D', wheel F, and set-screw or guide-pin h, with the sliding frame A', carrying the spoke, and pattern B', when operating substantially as and for the purposes set forth.
6. The combination, with the sliding frame A', carrying a spoke, and pattern B', of the shaft I, ratchet or cog-wheels *a*, *a*, and *f*, bar *f*, dogs or detents *o'*, cross-bar *f'*, and shaft H, when operating substantially as and for the purposes set forth and described.

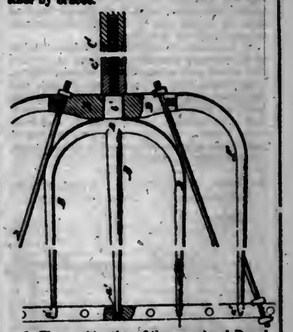
177,498. TOOLS FOR SAWING AND JOINTING SOAP-STONE SLABS. Patrick H. Gafney, South Boston, Mass., assignor to himself and Julia F. Martinez, same place. (Filed Apr. 12, 1876.)

Brief.—The saw-gage frame has two adjustable saws, which are held parallel with each other, at variable distances apart, by washers, and provided with adjustable guard, to regulate the cut to any desired depth into the soap-stone slab, and also constructed with a jointer attached to the under side of the gage-bar, to dress the edges of the slab.

1. The slotted saws B B, combined with the frame A, bolts F, and washers H', substantially as described.
2. The combination of the frame A, adjustable saws B B', and adjustable guard K', substantially as described.
3. The combination of the frame A, having the adjustable saws B B', with the gage I, substantially as described.
4. The jointer, composed of the plate O, serrated on both sides, the bar U, and the adjustable gage J'.

177,499. COMBINED FORKS AND RAKES. B. L. Gebhardt, Milford, Pa. (Filed Mar. 20, 1876.)

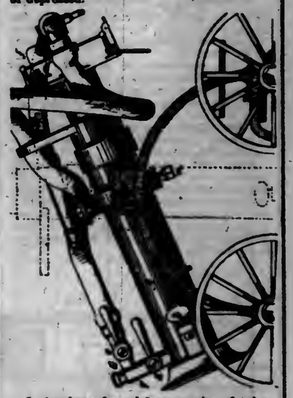
Brief.—Fork and rake, with detachable rake-head, held in place upon the ends of the tines by braces.



1. The combination of the cross-head D and the detachable side tines F with the fork B *b'* and the handle C *c'*, substantially as herein shown and described.
2. The combination of the rake-head A and the brace-rods E with the fork B C F, substantially as herein shown and described.

177,500. FIRE APPARATUS. John Gerard and Andrew Turnbull, New Britain, Conn. (Filed Apr. 27, 1876.)

Brief.—A telescopic extensible tube, with a gallery at top, is mounted on a truck, and receives water at top through a hose provided with a suitable cut-off to raise or lower the column, so that the firemen on the gallery can operate the apparatus. The tube is provided with trunnions, which allow it to be elevated or depressed.

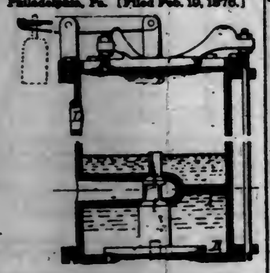


1. A column formed from a series of tubes of diminishing diameter, arranged one within the other, and extensible in telescopic form, constructed with a gallery at the top, and combined with a water-supply entering at the top, and suitable cut-offs to adjust the elevation of the column, substantially as specified.
2. A column formed from a series of tubes of diminishing diameter, arranged one within the other, and extensible in telescopic form, constructed with a gallery at the top, and combined with a water-supply entering at the top, and an exit with suitable cut-offs to adjust and fix the elevation of the column and then connect the supply with the exit, substantially as specified.
3. A column formed from a series of tubes of diminishing diameter, arranged one within the other, and extensible in telescopic form, constructed with a gallery at the top, and combined with a water-supply entering at the top, and suitable cut-offs to adjust the elevation of the column, and a truck for transporting the said column, substantially as described.

4. A column formed from a series of tubes of diminishing diameter, arranged one within the other, and extensible in telescopic form, constructed with a gallery at the top, and combined with a water-supply entering at the top, and suitable cut-offs to adjust the elevation of the column, and hung upon a truck so as to be turned out of the vertical position, substantially as described.

5. A column formed from a series of tubes of diminishing diameter, arranged one within the other, and extensible in telescopic form, constructed with a gallery at the top, and combined with a water-supply entering at the top, and suitable cut-offs to adjust the elevation of the column, and the ring A' and transoms a and a', whereby the column is hung to and made adjustable relatively to the truck, substantially as described.

177,566. STEAM-TRAPS. Joseph C. Gotz, Philadelphia, Pa. [Filed Feb. 10, 1876.]



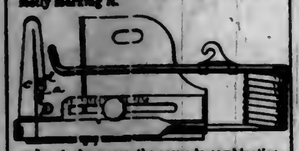
1. A steam-trap consisting of a casing, A, having inlet and outlet openings and a yielding head, connected to the stem of a valve adapted to the outlet, the said head being operated by an excess of water accumulated upon it, all substantially as specified.

2. The casing A, having its opposite ends closed by flexible diaphragms B and D, connected together, the latter being attached to the stem of the escape-valve, all substantially as set forth.

3. The combination of the casing A and the flexible diaphragms B and D with mechanism, substantially as described, for regulating the pressure on said diaphragms.

177,567. TUCK-CREASERS FOR SEWING-MACHINES. Harry C. Goodrich, Chicago, Ill. [Filed Feb. 28, 1876.]

Brief.—The spring-arm, which is usually provided with the creasing-notch, is in this case divided longitudinally to form two arms, the second or auxiliary arm being provided with the notch, and so constructed as to pass over or slide on the cloth a short distance each time it is pressed down, thus more perfectly marking it.



In a tuck-creaser, the arm a, in combination with a secondary spring-arm, d, provided with a notch, c, and the blade d, the said arm d being arranged with relation to the blade as described, whereby the notch is caused to slide or move over the cloth when in use, substantially as specified.

177,568. SEWING-MACHINE ERECTORS. H. C. Goodrich, Chicago, Ill. [Filed Feb. 10, 1876.]

Brief.—The bent portion of the hemmer, being that part by which the fabric is folded over, is made of diagonally grooved or corrugated sheet metal. The grooves, after the guide is bent, all extend in the proper direction to fold the cloth, as desired.

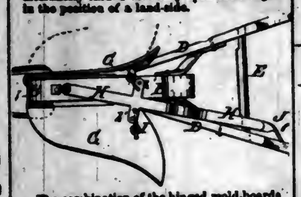


177,569.

The hemmer constructed of corrugated metal, whereby the inside of the same is provided with diagonal grooves, extending in the proper directions over the entire inside surface of the hemmer, substantially as and for the purpose set forth.

177,570. PLOWS. William I. Gossett and James P. Stark, Liberty, Texas. [Filed Mar. 6, 1876.]

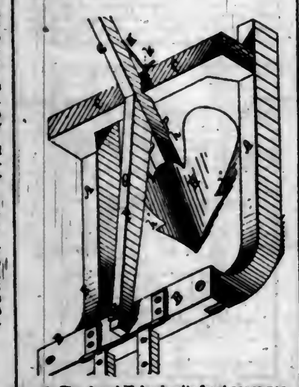
Brief.—Hinged mold-boards connected to the cross-arms of a lever, by which they are alternately turned vertically upon their edges in the position of a land-side.



The combination of the hinged mold-boards C and the pivoted lever H J with the standard B, the plow F, and the round E of the handles D, substantially as herein shown and described.

177,571. POTATO-DIGGERS. Christphr. Harris, Martville, N. Y. [Filed Jan. 3, 1876.]

Brief.—Between the runners of a sled with but two beams is mounted a plow made vertically adjustable, the share being convex in front, with angular recesses in each wing, the rear end of the wings sweeping the horizontal plane of the point of the share.



1. The shovel H, having its front upper portion convex, its wings extended outward and rearward, with their lower edges upon a line horizontally with the point, provided with the space h at its rear upper central portion, and having a triangular space, h', within each side at its lower end, substantially as and for the purpose specified.

2. The sled A, A, B, and C, the bolt E, the beam F, the standard G, and the plow H, constructed and combined in the manner and for the purpose substantially as shown.

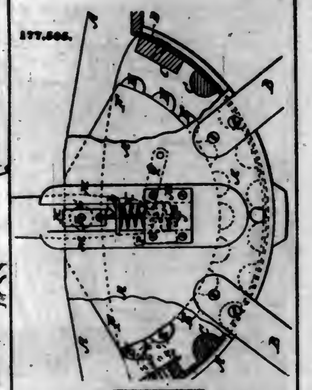
3. In combination with the bolster C, provided with the recess e and eye h, the shovel-standard G, having pivoted upon its rear side the hook K, substantially as and for the purpose set forth.

177,572. WASHING-MACHINES. Francis M. Hallstrom, Lawrence, Kans. [Filed Mar. 21, 1876.]

1. The combination of the perforated plates H, the rods J, the spiral springs K, and the stop-plates L with the shaft G of the movable rubber E F, and with the wash-box A, substantially as herein shown and described.

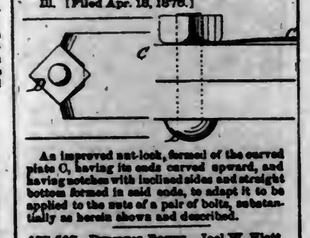
2. The lever-handle F G, pivoted to the shaft G of the movable rubber E F, and connected with the disks F of said rubber by the plates F and bottom or catches Q, substantially as herein shown and described.

177,573.

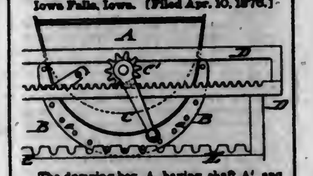


As improved nut-lock, formed of the curved plate C, having its ends curved upward, and having notches with inclined sides and straight bottom formed in said ends, to adapt it to be applied to the nuts of a pair of bolts, substantially as herein shown and described.

177,574. NUT-LOCKS. S. Henry, Chenoa, Ill. [Filed Apr. 18, 1876.]



177,575. DUMPING-BOXES. Joel W. Hiatt, Iowa Falls, Iowa. [Filed Apr. 10, 1876.]



The dumping-box A, having shaft A', and mounted on rockers B, having pins a, the parallel rack-bars E and D, the crank C, pinion C', and hub C', all combined as shown and described, to operate as specified.

177,576. OIL-WELL TUBING. I. N. Hoadley, Butler, Pa., assignor of one-half his right to Stephen Bredin, same place. [Filed Apr. 1, 1876.]

Brief.—The well-tubing is provided with openings below the water-packing, for the discharge of gas from the lower part of the well to the interior of the tube.

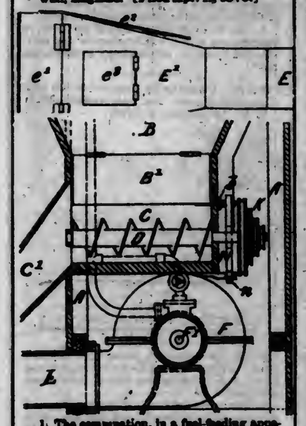


1. A well-tube, A A', provided with apertures J below the send-bag or water-packing H, to admit gas from the oil-chamber to the interior of the well-tube above the pump-piston, substantially as described.

2. The combination of the packing-ring H with the well-tube sections A' A², the sections A' being constructed with a wedge-shaped end, a', to expand the packing when screwed down, as explained.

3. The combination of hollow sucker-rod E, well-tube A A', the packing-ring H, and the perforations J J, to permit the passing of gas from the well-tube into the pump-tube above the piston and around the hollow sucker-rod, as and for the purpose set forth.

177,577. APPARATUS FOR BURNING SAWDUST, CHIPS, &c. Richard Hodson, Blackwall, England. [Filed Apr. 11, 1876.]



1. The combination, in a fuel-feeding apparatus, of the hopper B B', chamber C, propelling-screw D, chute C', feed-trunk E, fan or blower F, motive-power engine G, and steam supply-cock e, arranged as described, so as to enable the attendant to supply fuel, mingled with a blast of air, at any desired rate to a furnace

2. The arrangement of gearing f' h, differential chain-pulleys I and K, and chain i, for transmitting motion from the shaft of the engine G to the propelling-screw D, so as to allow of the speed of the propelling-screw being readily adjusted relatively to the speed of the fan or blower, and of the action of the apparatus being arrested automatically should the feed-passages become choked.

3. The tapering mouth E' of the feed-trunk E, constructed with hinged adjustable lips e f, substantially in the manner and for the purpose above described.

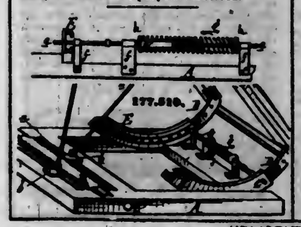
177,578. CLOCK-KEYS. Francis Hoelle, Newark, N. J., assignor to himself and J. Obelz, same place. [Filed Feb. 24, 1876.]

Brief.—A clock-key secured in clamps, so that it may be held rigidly to control the relaxing of the mainspring.



1. The combination of a clock-key, A, and clamps C, when combined and arranged to operate substantially as and for the purpose set forth.

2. The combination of the clock-key A, provided with a collar, B, and the clamps C, when combined and arranged to operate substantially as and for the purpose described.

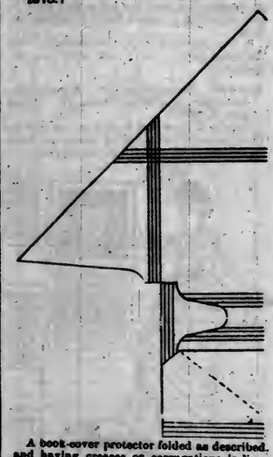


177,579. ADJUSTABLE BOLSTERS FOR BEDS. Jacob Hofmann, Portland, Oreg. [Filed Feb. 7, 1876.]

1. The rotary serrated bar B, pintels b b, and braces b' b', in combination with the frames A and C, for adjusting the inclination of the latter, substantially as described.

2. The segments D D, flanged arm E B, and the spring-bolts a a, for adjusting the elevation of the frame C with relation to the frame A, substantially as described.

177,580. BOOK-COVER PROTECTORS. Geo. W. Holden, Dayton, Ohio. [Filed Oct. 22, 1875.]

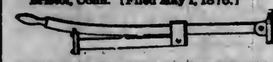


A book-cover protector folded as described, and having creases or corrugations in lines parallel to its outer folds, to adapt it to fold over book-covers of various sizes, substantially as set forth.

177,581. ANTI-INCRUSTATION ALLOYS. O. Holden, Chicago, Ill. [Filed Oct. 19, 1875.]

An alloy for preventing incrustation in steam-boilers, consisting of—zinc and tin, from thirty-three to fifty parts, by weight, lead and antimony, one to ten parts, by weight, substantially as described.

177,582. WAGON-JACKS. E. S. Hollister, Bristol, Conn. [Filed May 1, 1876.]



1. In a wagon-jack, the combination, with the long lever, of an adjustable fulcrum-block and a short lever pivoted thereto, substantially as and for the purpose set forth.

2. In a wagon-jack, a long lever notched a portion of its length to form a rack-bar, in combination with an adjustable fulcrum, and a short lever pivoted thereto, substantially as and for the purpose set forth.

3. In a wagon-jack, an adjustable fulcrum-block, provided with a rib or tooth, and formed with an opening through the same decreasing in size from top to bottom, in combination with a short lever and the rack of a long lever, substantially as and for the purpose set forth.

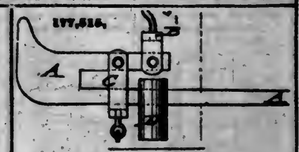
4. In a wagon-jack, the short lever provided with an axle-supporting plate, having lugs projecting therefrom to engage with the long lever, substantially as and for the purpose set forth.

5. A wagon-jack, consisting of a long lever pivoted to a standard, and a short lever pivoted to a fulcrum-block adjustable on the long lever, substantially as and for the purpose specified.

177,583. BEAM-SCALES. Jacob J. Hopper, New York, N. Y. [Filed Jan. 3, 1876.]

The beam A, having a lower long and upper short arm, the latter provided with pivoted fulcrum-piece B, and to one side of it with a hanger, C, while the former has a sliding weight, D, as shown and described, whereby the weight need never be lifted off, but simply slided up under the fulcrum.

177,584.



1. The combination of girder a and hollow earthenware or clay pipes b, the former being inclosed within the hollow or tubular space of the latter, substantially as set forth.

2. The pipes or tile b, containing girder a in the hollow or tubular openings of the same, alternately arranged with pipe or tile d, without girders therein, substantially as set forth.

3. The pipes or tile b d, made wedge-shaped in cross-section, with steps f in the inclined lateral faces, in combination with a concrete filling between such pipes or tubes, and engaging the steps, substantially as set forth.

177,585. ELASTIC BLOCKS FOR SPLITTING KINDLING-WOOD. John C. Hubbs, New York, N. Y. [Filed Mar. 6, 1876.]

Brief.—The block, when not in use for splitting kindling-wood, can be used as a seat.



1. The splitting-block formed of the two blocks A B, the interposed springs C, and guide-pins D, and the flexible strips E, substantially as herein shown and described.

2. The combination of the cover F with the splitting-block A B C D E, substantially as herein shown and described.

177,586. FIRE-PROOF BUILDINGS. Lewis Hornblower, Liverpool, England. [Filed Apr. 5, 1876.]



1. The combination of girder a and hollow earthenware or clay pipes b, the former being inclosed within the hollow or tubular space of the latter, substantially as set forth.

2. The pipes or tile b, containing girder a in the hollow or tubular openings of the same, alternately arranged with pipe or tile d, without girders therein, substantially as set forth.

3. The pipes or tile b d, made wedge-shaped in cross-section, with steps f in the inclined lateral faces, in combination with a concrete filling between such pipes or tubes, and engaging the steps, substantially as set forth.

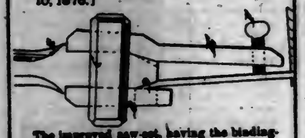
177,587. LETTER-BOXES. Franz Iserahe, New York, N. Y. [Filed Apr. 10, 1876.]



1. A letter-box made of a number of separate lock-boxes, with downward-inclined and grated partitions, substantially as herein shown and described.

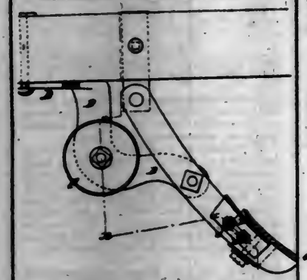
2. A letter box made with downward-inclined top and bottom partitions, and provided with openings at the bottom partition or wall, to show the letters in the lower box, substantially as herein shown and described.

177,510. SAW-SET. Henry Itskin and John Gregg, Rockfield, Ind. [Filed Apr. 10, 1876.]



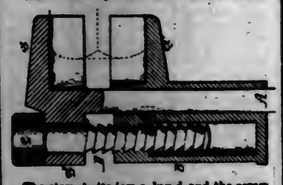
The improved saw-set, having the binding-notch D and the gage E F, substantially as specified.

177,509. PLOWS. David H. Jarrard, Talladega, Ala. [Filed Mar. 21, 1876.]



The combination of crooked brace D, made reversible before and behind the standard, with the sod-cutter F, secured detachably, as and for the purpose specified.

177,521. WRENCHES. Benjamin F. Joslyn, Worcester, Mass., assignor to B. F. Bruff, New York city. [Filed Feb. 26, 1876.]

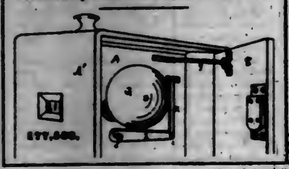


The stem A, its jaw a, lug d, and the screw e, in combination with the slide B, its jaw a', and its chamber for the reception and protection of the screw, all being constructed as set forth.

177,522. MUD-SIPHONS. Lewis King, Dunn, Pa. [Filed Mar. 21, 1876.]



The herein-described mud-siphon, consisting in a pipe or pipes communicating with the interior of the boiler, and having, under the water-line inside, wide-mouthed vortex-forming flooters, located near the different mud-collecting surfaces, arranged and operating substantially as and for the purpose specified.



177,523. FARE REGISTERS AND INDICATORS. Jos. W. Atwell and Frederick Korf, Chicago, Ill. [Filed Mar. 9, 1876.]

1. In a passenger-fare register, the combination of an audible, a visible, and a type-printing recording-indicator, substantially as and for the purpose set forth.

2. The pull H, levers D and g, and pawl d, in combination with the ratchet C, drums E E', bell G, and numbered ribbon f, as and for the purpose described.

3. The pull H, lever D, pawl d, roller B with ratchet C, in combination with the pinion i, cog e, and type-wheel W, as specified.

4. The bar b, with the projection and catch, in combination with the bar a, rock shaft p, and projection g, as and for the purpose set forth.

5. The bar b and rod l, in combination with the crank-lever r, pawl 2, and roller L, as described.

177,524. FASHION-CHARTS. Martin Landenberger, Jr., Philadelphia, Pa. [Filed Apr. 7, 1876.]

Brief.—A show-card having on one part an illustration of the prevailing mode, and upon an adjacent part samples of the fabrics.

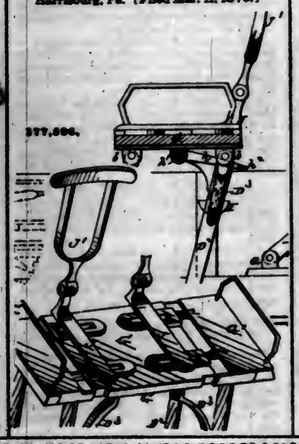


The combination, on a pattern-card, of an illustration or illustrations of articles of dress, with strips of fabric appropriate to the articles, as set forth.

177,525. LUBRICATING COMPOUNDS. Thos. H. La Roche, Lockport, N. Y. [Filed Apr. 7, 1876.]

The lubricating compound, composed of kerosene-oil, bees-wax, plumbago, crude petroleum or dead-oil, salts of tartar, water, and glycerine, in the proportions substantially named, and prepared by the process herein described, substantially as and for the purposes specified.

177,526. VEHICLE-SEATS. J. W. Lawrence, Harrisburg, Pa. [Filed Mar. 11, 1876.]



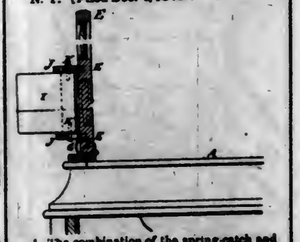
1. The locking-bolts I, provided with notches and inclines, as described, in combination with the supports D', with their arms D², substantially as and for the purposes herein set forth.

2. The combination of the bolts I, arms h, coil-springs i, rocking shaft h', and thumb-pieces h², substantially as and for the purposes herein set forth.

3. In combination with the shifting seat G, the movable end pieces G', sliding bars G², connecting-bars G³, and lever G⁴, substantially as and for the purposes herein set forth.

4. The castings J and hinged backs J', in combination with the sliding bars G² and movable end pieces G', substantially as herein set forth

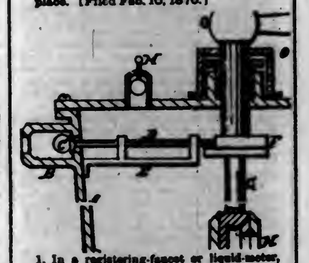
177,527. COMBINED STEREOSCOPES AND GRAPHOSCOPES. Jas. Lee, New Brighton, N. Y. [Filed Dec. 4, 1875.]



1. The combination of the spring-catch and pin G B with the bed-plate A and hinged lens-holder E, substantially as herein shown and described.

2. The combination of the lugs or flanges J and the pins or screws K with the lens-holder E and the wings or shields I, for hinging the said wings to the said lens-holder E, substantially as herein shown and described.

177,528. MEASURING-FAUCETS. Asa S. Libby, Lawrence, Mass., assignor of one-third his right to M. V. B. Paige, same place. [Filed Feb. 10, 1876.]



1. In a registering-faucet or liquid-meter, as herein described, the combination of the tank A with the pipe B, its ball-and-socket valve C, the bracket E, and rod D, in a manner substantially as and for the purposes herein described and set forth.

2. The combination of the tank A, the faucet H, the spindle G, the cam F the rod D, the bracket E, the ball and socket C, the pipe B, the vent M, the cam O, and the lever K, each with each, in a manner substantially as and for the purpose hereinafter described and set forth.

177,529. AUGER-HANDLES. Jas. Maguire, Gervais, Oreg. [Filed Mar. 13, 1875.]

Brief.—The bit can be readily attached to and detached from the handle, and firmly held in place by means of an inwardly-projecting nut, which receives the threaded end of the shank of the bit, and is held in a recess in the handle by a metallic band. The auger-shank is prevented from turning in the handle, when the auger is in use, by a forked locking-plate fitted upon the lower side of the band, and secured by a stud and key

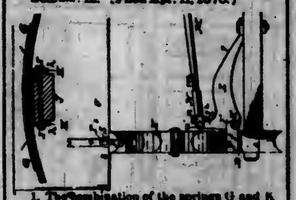


177,530.

1. A nut, *d'*, for the threaded end of auger-bit, held in the socket of the auger-handle by a surrounding band, C, as and for the purpose described.

2. In augers, the plate D, forked at one end to hold the squared shank of bit, and apertures near the other to fit over the lug *d'* of band-plate, substantially as shown and described, for the purpose specified.

177,530. SPRING-VEHICLES. J. W. Marten, Somerset, Ill. [Filed Apr. 11, 1876.]



1. The combination of the springs G and K with hinges D E F, connecting them to the running-gear or lower works of the vehicle at A C, substantially as set forth.

2. The combination of body U, pins T, eye-bolts S, and spring-bars K K, substantially as and for the purpose set forth.

3. The combination of hinges D E F, springs G K, and strut and stay brace M, joints S T, and body U, substantially as set forth.

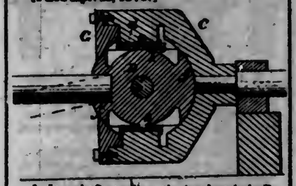
4. The combination of the brace M, spring K, and fixed bracket L, hinged to the brace and to the spring, so as to allow of their oscillation, substantially as set forth.

5. The combination, with the brace M, of the curve-cap N, forming the hinge-connection to the bracket L, and made adjustable on the brace, substantially as set forth.

6. The buffer-guard, composed of plate H, with lugs h h forming guards, and carving for the connection of the rubber spring block J, by bolts I I.

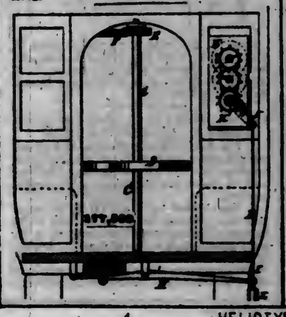
7. The combination of guard H with lugs h h, rubber blocks J, and bolts I I screwing into the substance of the block to form a buffer, substantially as set forth.

177,531. UNIVERSAL SHAFT-COUPLINGS. Alexander McDonald, Cumberland, Md. [Filed Apr. 15, 1876.]



1. In a shaft-coupling, the head or hub D, constructed as described, with arms h h, convex ends *f f*, and flat sides, and the convex plates D' D' placed against the flat sides, in combination with the cone C, having cap G, and made concave with straight shoulders c, substantially as and for the purposes herein set forth.

2. The rubber-cushioned plates b b, in combination with the cone C and hub D, substantially as and for the purposes herein set forth.

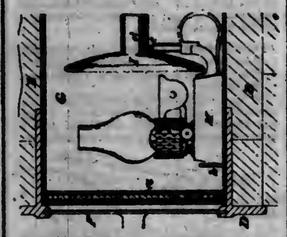


177,532. PASSENGER-REGISTERS. William Mehan, Hoboken, N. J. [Filed Mar. 20, 1876.]

The combination of the turnstile C D and its ratchet and pawl E F with the movable plate-arm G, the lever H, the balancing-weight I, the connecting-rod l, the pawl J, and the registering-wheels K, to adapt the device for use as a passenger-register, substantially as herein shown and described.

177,533. ILLUMINATING APPARATUS FOR BAKERS' OVENS. Anton Meier and Peter Denker, New York, N. Y. [Filed Apr. 20, 1876.]

Brief.—The lamp and reflector are placed in an opening in the wall of the oven, at a short distance from the door.



1. In combination with the frame D, provided with a slide, F the lamp-case G, having a removable glass-front plate, a, and arranged to receive a suitable lamp, E, or a burner, all arranged to operate as set forth, for the purposes specified.

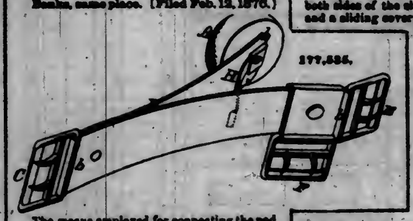
2. In combination with the frame D, slide F, and case G, having a glass front, a, the lamp E, and removable reflector I, arranged to rotate on a vertical spindle, r, so as to direct the reflected rays to any part of the oven desired, when arranged to operate as and for the purposes set forth.

177,534. MEAT-EXTRACTS. Charles Meesman, St. Louis, Mo., assignor of two-thirds his right to Alex. D. Gordon and Jos. W. Keller, same place. [Filed Dec. 29, 1875.]

1. The process for preparing a concentrated meat-extract by the boiling of flesh and brains and the subsequent addition of spirits.

2. The tonic preparation of meat, consisting of a concentrated extract of flesh and brains with preserved blood and spirits, substantially as described.

177,535. TRUSSES. T. M. Merck, Gainesville, Ga., assignor to himself and D. R. Banks, same place. [Filed Feb. 12, 1876.]



The means employed for connecting the pad A to or with the belt D, and for producing an elastic pressure upon said pad when in use, consisting of the V-shaped springs B b b' b', supplemental spring H, and buckles C, E, and F, combined with each other, and with said parts, in the manner substantially as specified.

177,536. CUT-OFF VALVES. Geo. F. Meyer, New York, N. Y., assignor of one-half his right to C. H. Delamater and C. H. Robinson, same place. [Filed Mar. 16, 1876.]

The combination, with the rolling main valve B, having an exhaust-cavity, c, and independent induction-passages *f f*, as described, of the externally-adjustable lined plug, or valve C, the induction and eduction passage b' in the valve box or case controlled by the hand-valve C, and also by the main valve B, the separate eduction-passage *b'*, controlled by the main valve, and the passages *b' b*, substantially as and for the purpose or purposes set forth.

177,537.



177,538. PROOF-STAVES FOR MILLSTONES. Jonathan Mills, Milwaukee, Wis., assignor of two-thirds his right to Edward P. Allis & Co., same place. [Filed Apr. 10, 1876.]

Brief.—Square in cross-section, with cylindrical bore. Cast in a vertical position and planed.

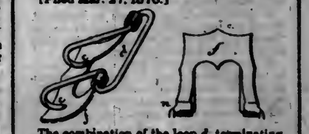


1. The square metal staff A, provided with the central hole b, and the planed faces *a*, as shown.

2. A metal proof-staff, made in one piece, of a polygonal cross-section with a hole through its center, substantially as shown and described.

3. The herein-described method or process of forming cast-metal proof-staffs—that is to say, casting them on end in an upright position, as and for the purposes described.

177,539. BUCKLES. Lyman D. Minor and Charles B. Gruendler, New Haven, Conn. [Filed Mar. 27, 1876.]



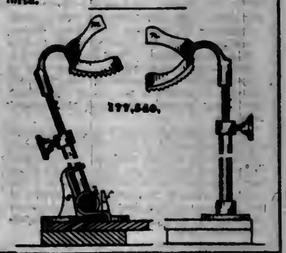
The combination of the loop *d*, terminating in the hooked ends *e*, the plate *f*, hinged to the said loop, and constructed with the projection *n*, substantially as and for the purpose described.

177,540. SLATES. William J. Montgomery, St. Louis, Mo., assignor of one-half his right to Charles H. Stone, same place. [Filed Apr. 7, 1876.]

Brief.—The frame is grooved out on one or both sides of the slate, with a holding-groove and a sliding cover adapted to fit therein.



The combination of slate A B C E, and reversible sliding cover D, substantially as set forth.



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177,640. RAIL-HOLDERS. Andw. J. Meeker, Portland, assignor of one-half his right to Thos. J. Shiffin, Deering, Me. [Filed Apr. 10, 1876.]

1. The combination of the inclined jaws and the standards a and b with the spring h and step c, as and for the purposes set forth.

2. The combination of the inclined jaws, rods i, standards a' and b, spring h, and step c.

3. The counterscrew or angular jaws, having serrated flanges, said jaws being mounted upon standards, as constructed as to permit of being drawn toward each other, and to separate on the withdrawal of the force.

177,641. VAULT-COVERS. Lear A. Maynard, New York, N. Y. [Filed Nov. 6, 1875.]



1. A vault-light or illuminating-plate, provided with bull's eyes of glass embedded within the metallic frame by casting, as described, as a new article of manufacture.

2. The method herein described of manufacturing vault-light or illuminating plates by pouring the molten metal into the mold and around the bull's eyes.

177,642. GRAIN-HEADERS. Chas. E. Myers and John W. Irwin, Pekin, Ill., assignors to said Myers and Peter Wagrick, same place. [Filed Feb. 21, 1876.]

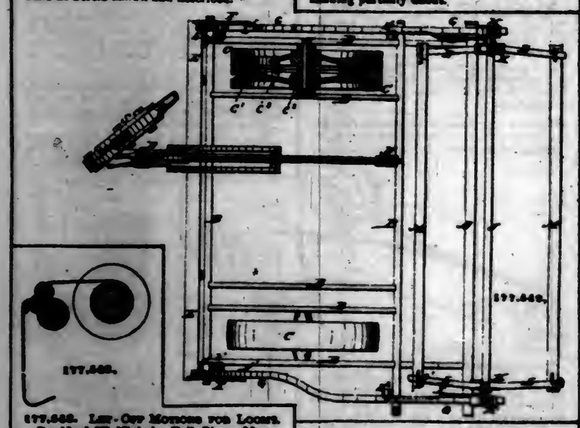
1. The bars F, in combination with the tongue-roller E and the pivoted levers G, that support the reel, substantially as herein shown and described.

2. The pivoted bars I, in combination with the frame B and the sliding bearings H of the reel-shaft J, placed upon the pivoted levers G, substantially as herein shown and described.

3. The reel-heads K, constructed as described, in combination with the reel-shaft J, the reel-arms L, and the reel-bars M, substantially as herein shown and described.

4. The clamp S, constructed as described, for securing the lever R adjustably to the shank P of the center-wheel O, substantially as herein shown and described.

5. The drive-wheel C, formed in two parts by casting hubs c' and ribbed rims c upon the ends of wrought-iron spokes c', and securing said parts to each other by bolts, substantially as herein shown and described.



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177,643. LIFT-OFF MOTIONS FOR LOOMS. Bradford W. Nichols, Fall River, Mass., assignor of one-half his right to R. C. Kilburn, same place. [Filed Oct. 20, 1875.]

Brief.—By supporting the nipper-roll in links borne by the journals of the guide-roll, increase of tension of the warps holds them the tighter between the nipper and delivery rolls.

The combination, with a positively-driven delivery-roll and a guiding-roll, of a nipper-roll mounted in link-bearings, substantially as described, whereby the warp from the beam may be maintained in close contact with the greater portion of the peripheral surface of the delivery-roll, and firmly nipped between the surfaces of the delivery-roll and nipper-roll, as set forth.

177,644. FEATHER-EDGE BEDS. G. L. Nye, Bergen Point, N. J. [Filed Apr. 4, 1876.]

Brief.—The pivoted thumb-step permits directly upon the line-rod or line vessel thereon.



The combination, with spool A B, of the plate C, pressing upon the spool itself, pivoted on the rod D, and having an extension, E, supported on spring F, as shown and described, for the purpose specified.

177,645. GARMENT-FORMS. Alba H. North, New Britain, Conn., assignor to Landers, Frary & Clark, same place. [Filed Apr. 20, 1876.]

Brief.—A guard and rest are independently pivoted—one in the lower and one in the upper part of the recess in the forked shank, and a U-shaped spring placed between them.



1. The combination, in a carving-fork, of the swinging guard and the swinging rest, independent each of the other, substantially as described.

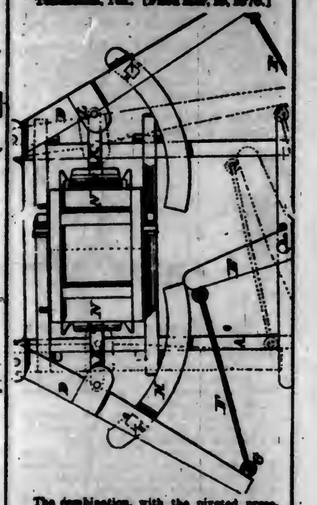
2. The combination, in a carving-fork, of the swinging guard and the swinging rest, independent each of the other, and a U-shaped spring between the two, substantially as set forth.

177,646. LAMP-WICK TRIMMERS. Clarence J. Magnet, Forest City, Ark. [Filed Dec. 10, 1875.]

Brief.—The outer ends of the cutting-blades are nearer together than the heads of the same, so that an inward draw-cut is made to prevent the wick from slipping out and remaining partially uncut.

The pivoted blades B, the cutting-edges of which form an obtuse angle with the handles A A', the outer ends of the cutting-edges being nearer to each other than the head ends, substantially as and for the purposes set forth.

177,647. RAILING-FENCES. John H. Page, Tuscumbia, Tex. [Filed May 10, 1876.]



The combination, with the pivoted pressbar N, of the horizontal driving-levers D, connected together at their fulcrum ends by a bar or rod, C, and connected at their moving ends by rods F F to the operating-lever E, on opposite sides of its fulcrum *r*.

177,648. COUPLINGS FOR CHAINS. J. Peard, Brooklyn, N. Y. [Filed Feb. 9, 1876.]

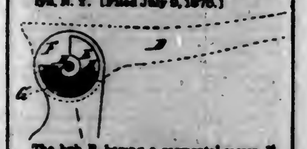
Brief.—The eye-plate is placed at the bottom of the bow, so that the coupling-pin can have a vertical movement through it, and thus permit of a vertical adjustment of the chains with relation to each other.



1. In a coupling for chains, the combination of a supporting-plate, c, having a downwardly-projecting boss, d, with the eye-plate a, so as to throw off said eye-plate from the lower surface of the seat, substantially as shown and described.

2. The combination, with the eye-plate a, of a coupling-pin, f, having a hook, g, with or without a spring, substantially as and for the object specified.

177,649. SCHOOL-SEATS. J. Peard, Brooklyn, N. Y. [Filed July 9, 1875.]



The hub B, having a segmental recess, H, and a web, F, on one side, in combination with the arm D, provided with a segmental rib, G, adapted to set and work in the recess H, substantially as described.

177,650. HYDRANTS. John Pennycook, Chicago, Ill. [Filed Mar. 18, 1876.]

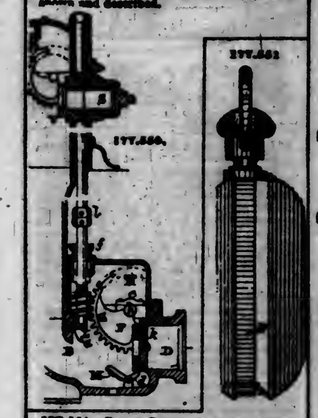
1. The disk-valve E, segmental cam G, and adjustable center bearings I I, in one piece, said bearings fastened on the surface of the base part, as shown and described, for the purpose set forth.

2. The coupled rod I, guided in its upper part at K, passing down and fastened in the face part, having an eccentric screw, H, on the lower part, and so arranged that the eccentric screw gears with the segmental cam G at a point above the center of the valve-journals, as shown and described, for the purpose set forth.

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2. The shoulder L on the termination of the rod I, located beneath a lug, *s*, to keep the rod, with the endless screw H, in true position in gear with the valve-gear G, substantially as described, for the purpose set forth.

3. The twe-way angular outlets, in combination with the independent valves V V, worked by endless screws, as and for the purpose shown and described.



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177,651. CLOCK-CASES. Sullivan H. Foster, Brooklyn, N. Y., assignee of part of his right to Bladdo Dorman, same place, and A. Judson Dorman, Plainfield, N. J. [Filed Feb. 26, 1876.]

As a new article of manufacture, a clock-case of rattan-pith, made in two separate sections, one of which is provided with the ring D, and hinged together, substantially as described and shown.

177,652. VESSELS - BOTTOMS. Sullivan H. Foster, Brooklyn, N. Y., assignee of part of his right to A. Judson Dorman, Plainfield, N. J., and Bladdo Dorman, Brooklyn, N. Y. [Filed Feb. 26, 1876.]



1. A carriage or phaeton body made of strips or sections of rattan-pith or reeds laid side by side, and held together by a coating of glue or adhesive material, substantially as shown and described.

2. The combination of the stiff base B, bracket I K, and boat and sides L, composed of rattan-pith or reeds, substantially as shown and described.

3. A carriage or phaeton body, or similar article, composed of strips of rattan or rattan-pith, laid in close and together by adhesive substance, and provided with a lining of fibrous or textile material, substantially as shown and described.

177,653. APPARATUS FOR FACILITATING THE CONVEYANCE AND DELIVERY OF BOXES. G. E. Perkins, Philadelphia, Pa., assignee to himself, Joseph Le Comte, New York city, and Atlantic Refining Company, Philadelphia, Pa. [Filed Apr. 10, 1876.]

Brief.—A skid or inclined way with friction-rollers and flexible sides, adapted for construction of the way to check the descent of the goods, also a lateral way with a counterbalanced platform.



1. The combination of the ways X and A, with the table b and its rollers e.

2. The combination of the table b and ways A with the pit d.

3. The inclined ways A, combined with braking appliances, by which the descent of the boxes may be retarded or stopped, as described.

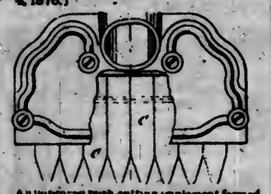
4. The combination of the yielding portions of the ways and their strips B E and the lever E, with devices substantially as described, by which, upon the movement of said lever E the ways are caused to approach each other, as set forth.

5. The combination of the ways A A, down which the box slides, with the marking-wheel *g*.

6. The combination of the ways A with the ways B, and the sliding carriage I, the descent of which is regulated by a spring or weight.

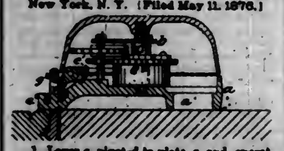
7. The combination of the carriage I and its cord *m*, with the roller *n*, weights *r* and *s*, and spring-bar J.

177,654. DOOR-CUTTING IMPLEMENTS. O. Pickering, Needham, Mass. [Filed Apr. 4, 1876.]



An improved mob-cutting implement formed of the recessed and flanged boat plate A, made with a V rib in the bottom of its recess, the face plate B, and the cutters C, made with V-shaped forward ends and V-shaped cross-grooves upon their outer sides, substantially as herein shown and described.

177,655. BURGLAR-ALARMS. C. B. Pierce, New York, N. Y. [Filed May 11, 1876.]



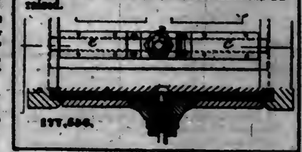
1. Lever *g*, pivoted in plate *c*, and operating to hold and release arm *c'*, in combination with plate A, having slots A' and A², substantially as described.

2. Slotted plate A, in combination with bolt *c'*, which is rigidly connected to slotted bars *c*, thus forming a locking device, substantially as described.

3. Plate A, having slots A' A², in combination with bolt *c'* and pivoted lever *g*, both extending into said slots, as and for the purposes set forth.

177,656. SASH-HOLDERS. Henry Fowlerton, New Brunswick, N. J. [Filed Apr. 28, 1876.]

Brief.—Two rods or bars, having friction-bars or end projections, are arranged lengthwise in the bottom rail of the sash. A cone-pointed screw forces these rods apart, thus pressing the ends against the window-frame, and when the point of the screw is withdrawn the pressure is released, and the sash can be raised.



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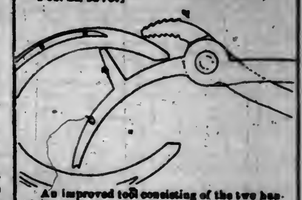
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177,657. OILCUPS - FOUNDING. Russel B. Prindle and Henry V. Winne, Norwich, N. Y. [Filed Mar. 24, 1876.]



In combination with the reservoir E, the plunger A, constructed with a conical upper side, provided at each corner with a lug, *a*, which prevents contact between said plunger and reservoir, and arranged to have a, vertically-reciprocating motion within the latter, substantially as and for the purpose set forth.

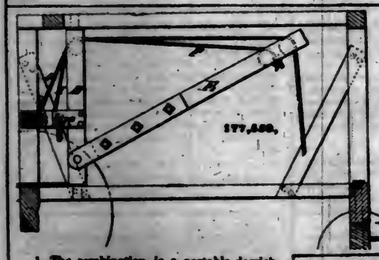
177,658. TOOLS FOR BENDING HORSESHOES. William Bay, Poplar Post, Ohio. [Filed Feb. 21, 1876.]

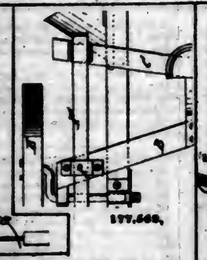


As improved tool consisting of the two handles A B, pivoted to each other, the long jaw C curved calward, and provided with an arm, D, upon its inner or convex side, and the short jaw E, curved inward, constructed and arranged substantially as herein shown and described.

177,659. PORTABLE DERRICKS. Elmwood Y. Reams, Belleville, Tex. [Filed Oct. 28, 1875.]

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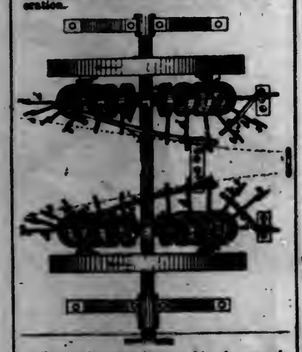


1. The combination, in a portable derrick of the post D, sweep E, adjusting-cord F, windlass G, and the hoisting-rope and windlass, all constructed and arranged as set forth.

2. The combination of the lateral brace-hooks K with a portable derrick, as and for the purpose set forth.

177,560. MACHINES FOR SPREADING NETTING. Peter C. Ritchild, New York, N. Y. [Filed Dec. 10, 1875.]

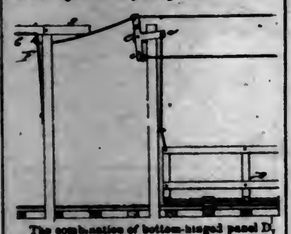
Brief.—A series of oscillating spreading-arms, with two series of guides, are arranged opposite the feed-throat of a machine for closing netting, so that the spreading-arms are caused, by one set of guides, to converge from opposite sides at a point close to the said feed-throat, and after said arms have caught in the selvage edges of the netting, they are gradually forced apart by the other or spreading guides, and the netting thereby spread out to its full width, ready for the closing operation.



The combination, in a machine for spreading netting, of a series of oscillating arms, mounted upon a revolving shaft for causing the spreading-arms to converge from opposite sides toward the feed-throat, and guides for distending said arms, in order to spread the netting, substantially as described.

177,561. RAILROAD-SIGNALS. Ira Robbins, Hughesville, Pa. [Filed Apr. 24, 1876.]

Brief.—Obstructions falling or rolling upon the track depress a gate hinged at its bottom, by which a signal is released, to give warning to the engineer of a passing train.

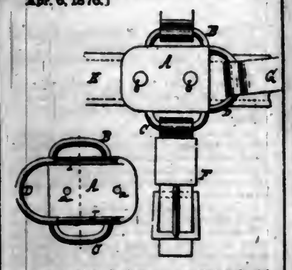


The combination of bottom-hinged panel D, levers C, and spring-catches F with signals G, connected by cords or wires, substantially as shown and described, for the purpose specified.

177,562. WHEEL-PLOWS. W. A. Ruddick, Carthage, Mo. [Filed Mar. 21, 1876.]

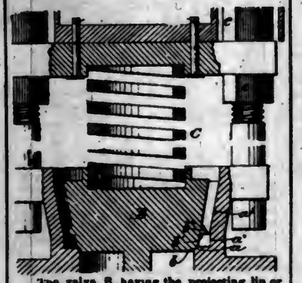
The A-frame B C, vertically-adjustable caster-wheel D, vertically adjustable wheel E, and the vertically-adjustable tongue F, combined and arranged with the plow, substantially as specified.

177,563. HARNESS ATTACHMENTS. Adolph B. Rudolph, Jeffersonville, N. Y. [Filed Apr. 6, 1876.]



A trace-plate for harness, constructed with laterally-projecting loops B C D, rivet-holes *a*, and flanges I I, substantially as described.

177,564. SAFETY-VALVES. Robert Rudd, Alexandria, Va., assignor of one-half his right to J. B. Waddey, same place. [Filed Apr. 12, 1876.]



The valve E, having the projecting lip or flange *b'*, in combination with the valve-cap, having the cylindrical portion *a'* and tapering portion *a²*, the construction being such that the valve must move some distance to clear the cylindrical portion of the valve-cap, as described.

177,565. PARLOR-SKATES. C. W. Saladee, Washington, D. C. [Filed May 2, 1876.]

Brief.—Relates to the construction of a brake applied to the floor or to the rollers; also, to a pad at front, from which to start the other foot; also, the method of applying the spring to restore the rollers to a straight line.

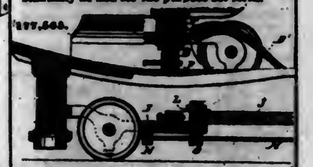
1. In a parlor-skate, the combination of the front and rear coupled roller-frames I and J and the rear brake or stop L, when constructed and arranged to operate substantially as described.

2. The lever D', in combination with the brake D'', substantially as and for the purpose described.

3. In a parlor-skate, the forward-projecting stop or pad K, substantially as and for the purpose herein set forth.

4. In a parlor-skate, the spring H, in combination with the steps F G, and rear caster-pin B, substantially as and for the purpose set forth.

5. The caster-pin B, having the conical hole F, in combination with the spring H, substantially as and for the purpose set forth.



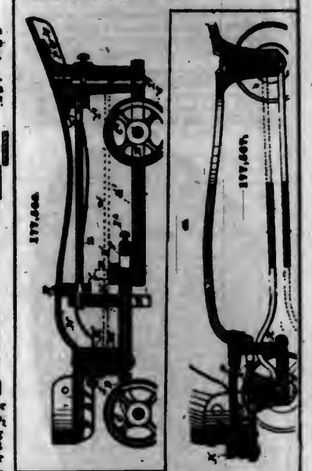
177,566. PARLOR-SKATES. C. W. Saladee, Washington, D. C. [Filed May 2, 1876.]

Brief.—The rollers are pivoted to the stock in front of their axles, like the ordinary caster; but the weight is balanced and the leverage on the pivots avoided by joining the roller-frames at a point between the front and rear rollers. The skate may be used with two, three, or four rollers, as desired, the axles being detachable, and a central space in each frame between the axle-bearings being left to receive a single roller when the skate is to be used with two or three rollers.

1. In a parlor-skate, the roller-frames G G', in combination with the coupling D F, axle-bearings V V', and pivots H H', the whole constructed and arranged to operate substantially as and for the purposes described.

2. In a parlor-skate, the roller-frames G G', having the axle-bearings V V', in combination with the detachable axles, all constructed and arranged to operate substantially as and for the purpose set forth.

3. In a parlor-skate, the torsional spring E or spring E', in combination with the stock B, and swaging-bars G G', substantially as and for the purposes set forth.



177,567. PARLOR-SKATES. C. W. Saladee, Washington, D. C. [Filed Apr. 28, 1876.]

Brief.—The skate is steered by oscillating the heel-plate, which is pivoted to the foot-stock, and is connected to a steering-bar on the roller-axle, which causes the axle to assume a position radial to the curve described.

1. In a parlor-skate, the rocking heel-plate P, in combination with the swinging axle A, and mechanism by which the oscillation of said heel-plate will turn said axle, substantially as and for the purpose set forth.

2. In a parlor-skate, the steering-bar D, in combination with the rear axle, the swinging standard K, and the oscillating heel-support P, substantially as and for the purpose herein set forth.

3. In a parlor-skate, the oscillating heel-support P, in combination with a suitable fastening to secure it to the foot, substantially as herein set forth.

177,568. PARLOR-SKATES. O. W. Saladee, Washington, D. C. [Filed May 2, 1876.]

Brief.—The skate is directed in a curve by imposing greater weight upon one side. This retards the roller upon that side, and the axle assumes a position radial to the curve. At the same time the rear axle is adjusted to a similar position by means of the diagonal rods.



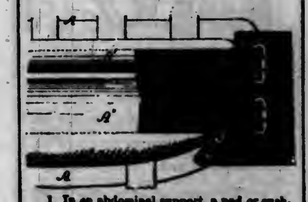
1. In a parlor-skate, the diagonally-arranged bars H and H', in combination with the front and rear axles and rollers, substantially as and for the purpose herein set forth.

2. In a parlor-skate, the rear wheel G, having the vertical center-pin S, in combination with the front wheels G' G', having the inclined center-pin E' and the diagonally-arranged equalizing bars H H', substantially as and for the purpose herein set forth.

3. In a parlor-skate, the stop S', provided with set-screws S', in the manner and for the purpose substantially as shown and described.

177,569. ABDOMINAL SUPPORTERS. Fleetwood H. Hale, Dilleborough, Ind. [Filed Jan. 18, 1876.]

Brief.—The inflated rubber pad is divided longitudinally by a diaphragm into an upper and lower compartment. Small air-openings are made through the diaphragm.

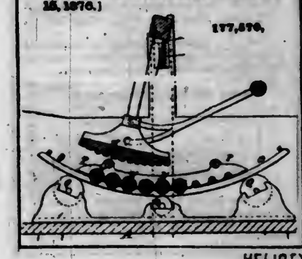


1. In an abdominal support, a pad or cushion, constructed from elastic material, and provided with an upper and a lower air-chamber, which are connected by suitable passages, so as to cause the compression of either of said chambers to operate to distend the other chamber, substantially as and for the purpose specified.

2. In combination with the pad or cushion A, the elastic strips A''' and A'''', placed vertically against its inner faces, and having their ends secured to or upon the upper and lower portions of said pad, substantially as and for the purpose shown.

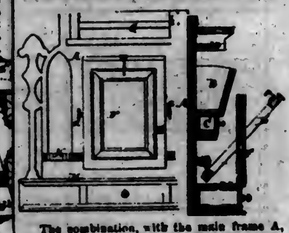
3. In combination with the pad A, provided with the bands B and B, the band C, placed longitudinally across the front of said pad, having its ends attached to or upon said bands, and arranged to be shortened or lengthened, substantially as and for the purpose set forth.

177,570. WASHING-MACHINES. Thomas Sault, New Haven, assignor to William Church, West Haven, Conn. [Filed Jan. 25, 1876.]



In a washing-machine having a series of parallel rollers, E, the combination of movable bars C, notched middle-plates P, and fixed supporting-rollers Q, the construction and combination being and operating as described.

177,571. TOILET-BRACKETS. Helwig Sohler, New York, N. Y. [Filed Feb. 19, 1876.]



The combination, with the main frame A, of a wall-pocket, C, hinged frame E, toilet-glass F, and shelf H', whereby said toilet-glass can be turned up to the face of the wall-pocket, or turned down to form a writing-desk, substantially as described.

177,572. HOISTING AND CONVEYING APPARATUS. Frederick Scholes, Brooklyn, E. D., N. Y. [Filed Apr. 12, 1876.]

Brief.—The swinging arm for carrying the bucket stands at an angle, and out of the way of the bucket when the truck is in position, and held by the hook or parallel arms for elevating the load.



1. A wheeled truck, carrying a swinging arm, E, which is provided with a hook or other equivalent device, and combined with a weight or spring, by the action of which it is held at an angle to a perpendicular line or plane, substantially as described.

2. The combination of a wheeled truck, the swinging arm E, and truck-fastening arm G, the whole being arranged to operate substantially as described.

3. In combination with a wheeled truck and the arms E and G, the parallel arms I I, arranged and operating substantially as described.

4. The combination, with a wheeled truck and the arms E, G, and I I of the rope K, hoisting-block L, and pulley M serving to elevate the goods, substantially as described.

177,573. SCRAPERS. B. Selph, Lynchburg, Ohio. [Filed Mar. 27, 1876.]



The combination, in a road-scraper, of the rectangular frame A B C, circular irons D D, having notches *a a* in their rear edges, the arms D', rigidly connected to the center of the irons D, the scraper-plate E, secured between the irons, and the sliding bar G, having thimbles which surround the bars A, and the flat spring *b*, all constructed substantially as and for the purposes herein set forth.

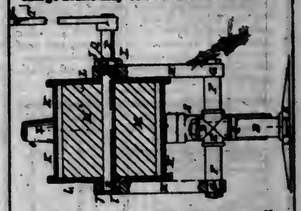
177,574. EGG-BEATERS. F. J. Seymour, Wolcottville, Conn. [Filed Oct. 16, 1876.]

The egg-beater made with a polygonal hub, *f*, upon the pinion *e*, and beaters or floats of flat metallic strips attached to the flat sides of the hub by rivets, upset at their inner ends by contact with a mandrel inserted in the hole for the shaft, on which said pinion revolves, as and for the purposes set forth.



177,575. ROTARY PUMPS AND BLOWERS. George Sloane, East St. Louis, Ill. [Filed June 7, 1875.]

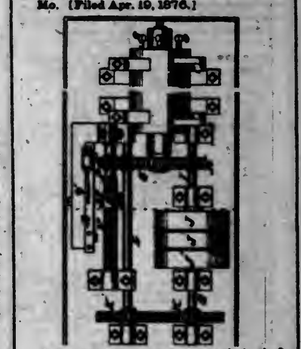
Brief.—The pump-case has the supporting-frame and swivel-head shown. Thus the discharge-nozzle may be directed as desired.



1. The combination of the pump-case K, supporting-frame F G H, swivel-head E, arbor D, and supporting-base A B, substantially as set forth.

2. The combination of the cogged pinions M M', gudgeons R, horses J', and bearings I, for supporting the case K and its contained pinion M' on the standards H, in the manner explained, substantially as set forth.

177,576. LEATHER STUFFING AND FULLING MACHINES. John A. J. Sheets, St. Louis, Mo. [Filed Apr. 10, 1876.]



1. The combination of the trough A, shaft B, and clamp *b*, arranged and operating substantially as described.

2. The combination of the trough *a*, cover *a'*, shaft B, and clamp *b*, arranged and operating substantially as described.

3. The combination of the trough A, shaft B, follower E, and screws *c c*, &c., substantially as described.

4. The combination of the trough *a* and pipe F, arranged outside and independent of the trough, substantially as and for the purpose set forth.

5. The combination of the trough A, shaft B, wheel G, pinion H, shaft I, and pulley J, substantially as described.

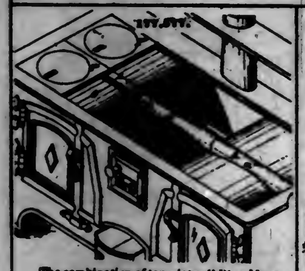
6. The combination of the lever Q, forks *q q*, slide R, nut O, and projection *s*, substantially as described.

7. The combination of the wheel G, pinion P, shaft M, nut O, projection *s*, lever Q, and forks *q q*, substantially as described.

8. The combination of the cylinder A, shaft B, clamp *b*, and ribs C C, &c., substantially as described.

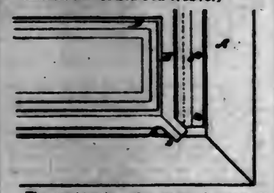
177,577. BEARING-BARS FOR HARVESTERS, &c. N. M. Simonds, St. Louis, Mo. [Filed Mar. 10, 1876.]

197,577.



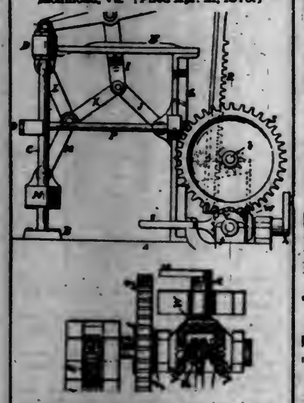
The combination of top plates F F' and bearing-bar A, said plates extending part way across the top opening of the stove and their inner edges supported on said bar, and said bar made solid throughout the whole or a portion of its length, substantially as and for the purposes set forth.

197,578. MACHINES FOR THE MANUFACTURE OF ARTIFICIAL STONE. W. H. Smith, Philadelphia, Pa. [Filed Oct. 7, 1875.]



The combination of a power-hammer, F, with an anvil, A, mold B, die D, and sub-elastic mass E, to effect the compacting and solidification of the semi-plastic material of which artificial stone is composed under powerful percussion, substantially as described.

197,579. COTTON-PRESSES. J. H. Snyder, Richmond, Va. [Filed Apr. 21, 1876.]



1. In a cotton-compress, the combination, with the follower N, of the arms M M, bearers L L, levers K and J J, forked arm I, and lever H, all arranged substantially as and for the purposes herein set forth.

2. The combination, with the mechanism for operating the follower, of the frame-work, consisting of the vertical guides C C, head-block D, stringers E E, standard G, arched brace O, and rods F F, substantially as herein set forth.

3. The combination, with the shaft b and its cog-wheel B and pinion a, for operating the rack-bar R, of the shaft f, with pinion e, bevel miter-gears V V, feathered clutch X with lever Z, and the miter-gear W on the driving-shaft A, all substantially as and for the purposes herein set forth.

197,580. APPARATUS FOR WASHING AND ABSORBING GAS. Brasse Solvay, Brussels, Belgium. [Filed Nov. 16, 1876.]

Brief.—The induction-pipe for the gas extends from near the top of one chamber, and is bent down and extends into the open end of the overflow-pipe for the water. A float-valve in the water-supply tank shuts off an excessive supply of water to the washer.

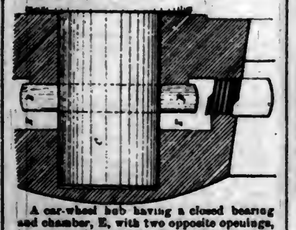


1. The process herein described, of washing and absorbing the impurities from gas, the same consisting in causing the washing and absorbing liquid and the gas to circulate horizontally, and utilizing the pressure of the gas, to cause the washing-liquid to flow in a direction the reverse of the gas, as and for the object specified.

2. An apparatus constructed of a series of chambers, A A' A² A³ A⁴ A⁵, and having orifices *d e* for the inlet and outlet of liquid, and gas-orifices *f g*, one or more, in combination with bent pipes *a b*, the whole being adapted to operate substantially as described.

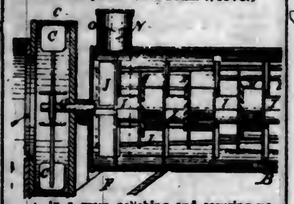
3. In combination with the chambers A A' A² A³ A⁴ A⁵ and the bent pipes *a b*, the float-box K, substantially as described, and for the object specified.

197,581. SECURING WHEELS TO AXLES. A. Soubour, Soreing, Belgium. [Filed Jan. 15, 1876.]



A car-wheel hub having a closed bearing and chamber, E, with two opposite openings, in combination with the journal C of the axle and the fusible B.

197,582. WHEAT-SCOURERS. Morris Sower, Princeton, Ill., assignor to Sower Brothers, same place. [Filed Jan. 7, 1876.]



1. In a grain polishing and scouring machine, the combination of the slotted horizontal cylinder B, constructed as described, with the rotating shaft C, provided with the slotted flights H, blocks I, and keys J J, arranged and operating as set forth.

2. In combination with the horizontal cylinder B and rotating shaft C, constructed as described, the inclined strips L, arranged in the manner and for the purpose set forth.

3. In combination with the cylinder B, the delivery-pipe F, hood O, and trough E, constructed and operating as specified.

4. The flights H, provided with radial slots and inclined lips, in manner and for the purpose described.

197,583. SCHOOL-DESKS. David I. Stagy, New York, N. Y. [Filed Mar. 6, 1876.]

Brief.—The desk-top is adapted to be folded over against the back of the adjoining seat.

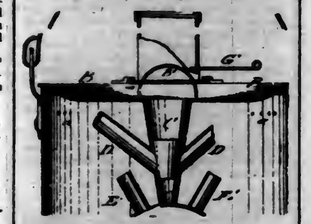
197,584.



The combination of the arms D, provided with the two pins *d' d²*, and the two shoulders *d³ d⁴*, and the pivoted shaft E, having the said arms D rigidly attached to its ends, with the slotted brackets F, to which the desk-board G is attached, and with the end frame A and the pins *a'*, attached to said end frames, substantially as herein shown and described.

197,585. MOTH-TRAPS. John R. Stephens, Lone Star, Miss. [Filed Feb. 14, 1876.]

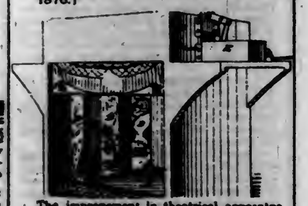
Brief.—A close-fitting cover carries the devices claimed. Tubes from holes in a concave cover converge some distance below, where decoy-tubes mislead each on attempt to return. On an elevated part of the cover a trap-box, with a slide or bottom and transparent top, is made to slide on and off.



1. A moth trap made of a vessel with central and side entrance-tubes, and a sliding top box or receptacle, with top light and bottom slide piece, all arranged in the manner and for the purpose set forth.

2. The detachable lid or cap, having central funnel-shaped entrance-tube and inclined side tubes opening into the same, with bottom plate and short false tubes extending therefrom, as and for the purpose described.

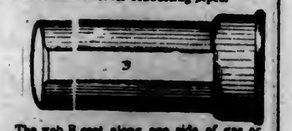
197,586. THEATRICAL APPARATUS. John I. Stoddard, Savannah, Ga. [Filed Apr. 4, 1876.]



The improvement in theatrical apparatus specified, consisting of cotton gins or beaters E and cotton, in connection with a tightly-inclosed stage, A D, to represent a snow-storm, substantially as herein shown and described.

197,587. GAS AND OTHER PIPES. Alexander Strecker, New York, N. Y. [Filed Apr. 6, 1876.]

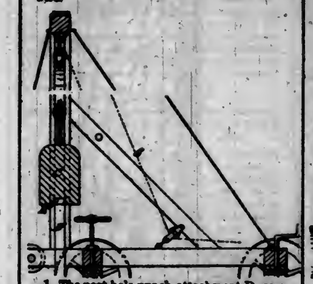
Brief.—A web or rib is cast on one side of a gas or other metal pipe, to form a bearing for branches or other connecting pipes.



The web B cast along one side of gas or other metal pipe to form bearings for branch or other connecting pipes, substantially as described.

197,587. PILE-DRIVING MACHINES. T. J. Tully, Beaufort, Tex. [Filed Mar. 13, 1876.]

Brief.—A post-hole punch is attached to the hammer-head by a dovetailed end for removing it. A clearer, secured to a sliding frame of a boring attachment, discharges the borings out of the hole. Wire-drums are arranged on each side of the frame, for carrying wire.



1. The post-hole-punch attachment D, combined with the pile-driver C, substantially as specified.

2. The punch D, adjustably attached to the driver, for shifting it out of the way of the post, substantially as specified.

3. The combination of clearer M with the auger I, substantially as specified.

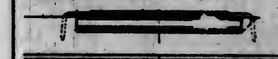
4. The wire-drums K, combined with the post-setting machine, substantially as specified.

197,588. PACKING-BOXES. Jas. B. Tarbox, Lynn, Mass. [Filed Mar. 10, 1876.]



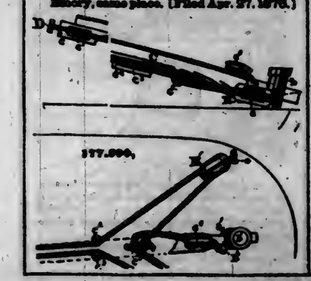
The glassware-packing case, substantially as described, composed of the box A, the boards B D, and their containing-springs U U', and the series of supporters B, all arranged, applied, and constructed substantially as set forth.

197,589. PENCIL-CASE ATTACHMENTS TO RULERS. Wm. S. Thomas, Ford's Store, Md., assignor to himself and J. R. Emory, same place. [Filed Mar. 20, 1876.]



The pencil-tube open at each end, and hinged on the side to the rod spanning the recess in the frame, as shown and described, whereby it is adapted to turn laterally on said rod, and be held by friction produced by the pressure of said rod, in the manner specified.

197,590. TELL-TALE HOLDER ATTACHMENTS FOR VESSELS. William R. Thomas, Ford's Store, Md., assignor to himself and J. R. Emory, same place. [Filed Apr. 27, 1876.]



197,590.

In a tell-tale attachment for vessels, the slider C, provided with the pulleys *c'*, *c²*, and *c³*, and the staple *c⁴*, combined with the set-screw D, the blocks B B' containing the pulleys *c'* and *c²*, and instead to stanchion fixed to the deck, and the rope F fastened at one end to the staple *c⁴*, and belayed at the other to a cleat or pin to the slider, as and for the purpose herein specified.

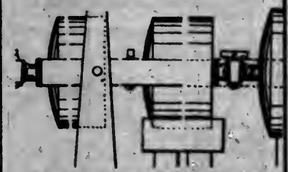
197,591. MECHANISMS FOR OPERATING TAKE-UP ROLLERS FOR KNITTING-MACHINES. Ira Tompkins and Albert Tompkins, Troy, N. Y. [Filed Sept. 4, 1875.]

Brief.—The tension-spring, for regulating the tension of the fabric, is interposed between an arm of the crank-rod and a stud on the rod, which operates (through pawl and ratchet and lever mechanism) the take-up rollers, and is so arranged that, whenever the machine temporarily ceases to deliver the fabric, the spring will compress, and allow the crank-rod to work its regular course, while the pawl-lever will be held by the tension of the fabric until the machine resumes its regular delivery.
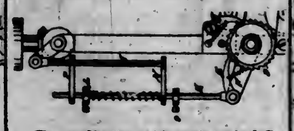


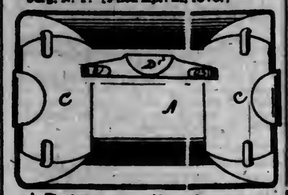
The combination, with ratchet-wheel D, pawl E, spring-detent E', and pawl-lever F, of the rods H I, connected by a spring arranged between pawl-rod stop L and crank-rod arm N, the stop O, and arm P, as shown and described, so as to lift or pull on ratchet-pawl and cause spring to exercise a lengthwise tension upon the cloth.

197,592. METHODS OF ROASTING COFFEE. Joseph B. Underwood, Fayetteville, N. C., assignor of one-half his right to Wm. A. Whitehead, same place. [Filed Apr. 10, 1876.]



The herein-described method of roasting coffee in a closed chamber, and transferring the same to a cooling-chamber without exposure to the air, where the exhalations that arise from the next roasting charge are collected and restored to the charge which is being cooled, substantially as and for the purpose set forth.

197,593. BUTTER-PACKAGES. Theo. Van Sholline and Frank Mannie, Williamsburg, N. Y. [Filed Apr. 21, 1876.]



1. The bottom A A, sides B B, and ends C C, constructed of one piece of wood, or equivalent material, in combination with clasps D D, all arranged substantially as described.

2. The clasps D D, constructed, as shown and described, with a lip, *d'*, to embrace the top of the dish, and two arms or lips, *d² d³*, for the purpose set forth.

197,594. NUT-LOCKS. A. Walton, Browning, Ill. [Filed Apr. 7, 1876.]

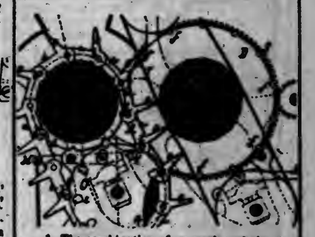
The washer A, constructed with its recesses and groove, in connection with the crank-pin B, and the nut C and bolt D, as and for the purpose set forth.

197,595.



197,595. MACHINES FOR COMPRESSING GRANULATED AND OTHER SUBSTANCES. Johann Wanke, New York, N. Y. [Filed Apr. 21, 1876.]

Brief.—The levers of the chain-links are gradually closed as they approach the abutment, thereby compressing into blocks the material fed between them from the hopper. The clearer discharges the compressed blocks at the lowest point of the circuit.



1. The combination of an endless chain, A, composed of links *a*, having toes or levers, with drums B C, having notched rims to engage with the pivots *b c* of the chain-links *a*, and with notched disks D, and an abutment, G, all constructed and operating substantially as shown and described.

2. The combination, with the endless lever-chain A, drums B C, notched disks D, and abutment G, of a bolt, I, to prevent the material to be pressed from dropping out of the lever-chain, substantially as set forth.

3. The combination, with the lever-chain A, of the clearer K, actuated by the pins *i* projecting from the drum C, substantially as described.

197,596. TOE-BUCKLES. Herbert C. Ward, Willmar, Minn. [Filed Mar. 13, 1876.]

The combination, with horse-fag A, of the buckle-frame C and bail D, the former provided with a tongued bar, *c'*, and notched side bars *c² c³*, and the bail D, provided with arms *d'*, lugged bar *d² d³*, and cross-bar *d⁴*, all constructed and arranged substantially as and for the purpose specified.

197,597. WINDMILLS. James Ward, Winamuoca, Nev. [Filed Apr. 4, 1876.]

Brief.—An upright wheel with spirally-curved buckets or floats, with fixed shutters and hinged weighted shutters, to produce automatical adjustment of shutters by the wind.



1. In upright windmills, a wheel, having upright inwardly-curved floats or buckets, substantially in the manner and for the purpose set forth.

2. The combination of an upright wheel, having upwardly-curved buckets or floats, with fixed inclined and hinged weighted shutters, to prevent excessive adjustment of shutters by the wind, and uniform speed of shaft, substantially as set forth.

177,600. MECHANISMS FOR OPERATING VALVES. John Ward, Waterford, assignor to Ludlow Valve Company, Troy, N. Y. [Filed Jan. 27, 1876.]



1. In combination, the valve-stem, and the cam-lever that opens and closes the valve, with a hand-wheel or hand lever and a catching or recording rod upon the hinging-pin, which forms the attachment of lever and stem, to hold the same in a fixed position, substantially as shown and described.

2. The combination of valve-stem, fulcrum-standard, and cam-lever, with a registering-dial arranged upon the cam-lever, and a depending pointer upon the end of the valve-stem, to indicate, by the position of pointer and dial, the capacity at which the valve is opened or closed, substantially as shown and described.

177,601. CORK-FASTENING FOR BOTTLES. Ephrm. D. Weatherbee, Worcester, Mass. [Filed Jan. 24, 1876.]

Brief.—A wire fastener having H form at the top, and adapted to be pressed on before the withdrawal of the corking-plunger.



1. A cork-fastener, formed as shown, having two parts, C C', passing under a third, D, and making an H form around the plunger, and bearing on the top of the cork, and, substantially pointed and secured to the neck of the bottle, substantially as above set forth.

2. A cork-fastener, composed of two parts, having a third or top bar crossing them on the top of the cork, and connected to them by spring-connections at the sides, so as to yield slightly when the fastener is forced on beyond the plunger, and to spring into a central position when the plunger is removed, the whole suitably jointed and connected to the neck of the bottle, substantially as above described.

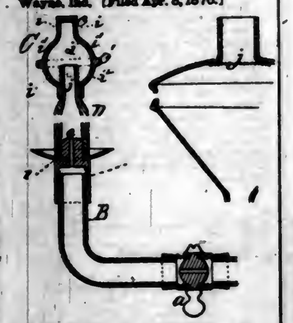
3. A cork-fastener, consisting of the combination of two or more separate bearing parts, which spring apart to pass the plunger, allowing them to be pressed on while the cork is held by the plunger, all suitably connected to the neck of the bottle.

177,602. STOVE-PLATFORMS. Wm. Westlake, Chicago, Ill. [Filed May 1, 1876.]



A platform for stoves, consisting of the central sheet *a*, raised portion *b*, and edge *c*, all made from a single piece of sheet metal, in combination with the bead *d*, substantially as described.

177,603. LAMPS. Daniel L. Westcott, Fort Wayne, Ind. [Filed Apr. 8, 1876.]

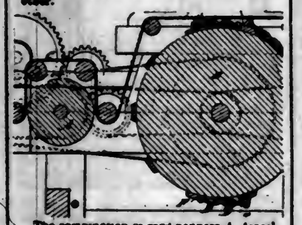


1. In combination, the burner C, having a bulb, *c*, provided with flame-jets *f f*, respectively, upon its upper and lower halves, and the feed-pipe D, having tapered and reduced upper end *j* projecting up into the said bulb substantially as specified.

2. The coupling B', having the axial reduced passage *a*, in combination with a fixed pipe, B, and a removable burner-carrier pipe, D, substantially as specified.

177,604. CLOTH-NAPPING MACHINES. M. H. Whitcomb, Holyoke, Mass. [Filed Mar. 8, 1876.]

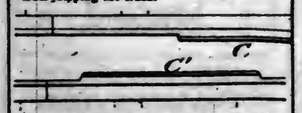
Brief.—Wire card-nappers are employed to raise the nap, and tenons to finish it, the cloth passing continuously from one to the other.



The combination of card-nappers A, tenon-cylinder B, and tenons D, the latter seated in a frame, E F G, on the cylinder, substantially as and for the purpose specified.

177,605. STREET-RAILWAY TURN-OUTS. Amos Whittemore, Cambridgeport, Mass. [Filed Nov. 20, 1876.]

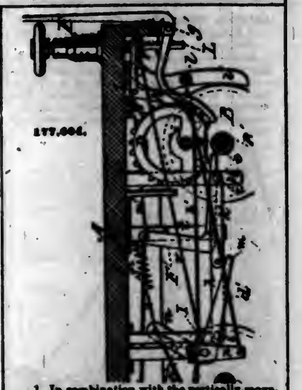
Brief.—A street-railway siding or turn-out provided with raised guard-flanges on the outside of the track-plates near the turn-out points, whereby the wheels are prevented from jumping the track.



Guard-flanges C C', arranged in the relation to each other and to the siding or turn-out, substantially as described.

177,606. CAR-STARTERS. Amos Whittemore, Cambridgeport, Mass. [Filed Nov. 20, 1876.]

Brief.—Eccentric gear-wheel is made to engage with gear fast on rear axle, and lift rear of car. Its weight operates, when devices are properly tripped, to force the car forward.



1. In combination with the vertically-movable axle B', having gear-wheel *c*, the eccentric gear-wheel D, adapted to be thrown into engagement with gear-wheel *c*, substantially as specified.

2. In combination with the eccentric gear-wheel D and the vertically-movable axle B', having gear-wheel *c*, the supporting-eccentrics E, substantially as specified.

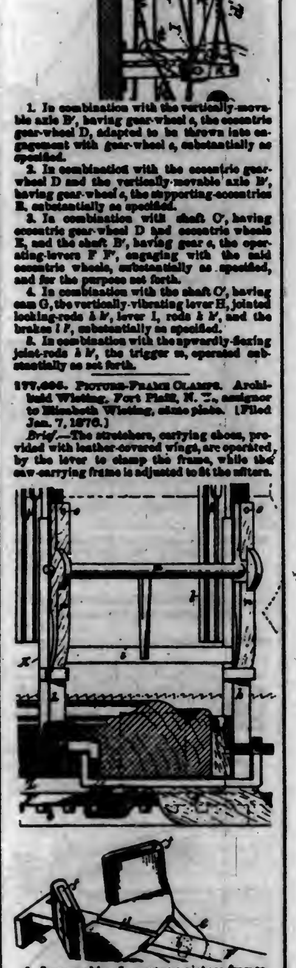
3. In combination with shaft C', having eccentric gear-wheel D and eccentric wheels E, and the shaft B', having gear *c*, the operating-levers F F', engaging with the said eccentric wheels, substantially as specified, and for the purposes set forth.

4. In combination with the shaft C', having cam G, the vertically-vibrating lever H, jointed locking-rods *h h'*, lever I, rods *h h'*, and the brakes I I', substantially as specified.

5. In combination with the upwardly-facing joint-rods *h h'*, the trigger *m*, operated substantially as set forth.

177,607. PICTURE-FRAME CLAMPS. Archibald Whitney, Fort Plain, N. Y., assignor to Elizabeth Whitney, same place. [Filed Jan. 7, 1876.]

Brief.—The stretchers, carrying cleats, provided with leather-covered wings, are operated by the lever to clamp the frame, while the saw-carrying frame is adjusted to fit the mitre.



1. In a machine for making picture-frames, the combination of the cleats H, having covered ears *f* and loop *e*, and the adjustable stretchers F, having the lugs *b*, as and for the purpose set forth.

2. The combination of the toothed lever G, the cog-wheels D, and stretchers F, carrying cleats H, all constructed and operating substantially as shown and described.

3. The combination, with a device for clamping picture-frames, of a tenon-saw arranged in an adjustable frame, K L, and constructed substantially as and for the purpose described.

177,608. PROCESSES FOR SEPARATING WOOL FROM MIXED FABRICS. J. Wilkins, Baltimore, Md. [Filed Apr. 17, 1876.]

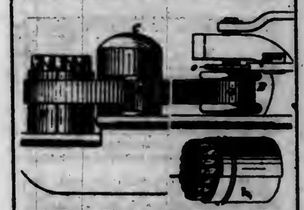
The herein-described process of separating wool from its admixture with cotton fiber, by subjecting the rags or mixed fiber to the action of sulphuric, nitric, or hydrochloric acids in the presence of chromic acid or a salt of chromium, substantially as and for the purpose described.

177,607. PROCESSES OF MAKING SOAP. A. J. Woodworth, Penn Township, Chester County, Pa. [Filed Mar. 10, 1876.]

The herein-described process of making soap, consisting in, first, dissolving a bleaching compound, consisting of caustic soda and vegetable oil, in water by boiling; then dissolving, in separate vessels, whiting and water, starch and water, and glue and water; then adding these separate solutions to the dissolved bleaching compound, and mixing; then boiling and stirring the mixture; then adding, while stirring, washing-soda, spirits of turpentine, spirits of ammonia, and spirits of wine; and then boiling the complete compound, after which it is poured into suitable molds, all substantially in the manner and for the purpose, and in about the proportions, hereinbefore set forth.

177,608. CIGAR-PACKING MACHINES. S. Woodard and Alex. Woodard, Zanesville, Ohio, assignors to Isaac A. Wilson, same place. [Filed Jan. 26, 1876.]

Brief.—The cigars are bunched in a loop in a metal strap by means of a windlass.

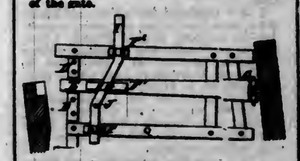


1. The combination of the table A, windlass B, ratchet-wheel and pawl *c a*, the metallic band E, connected to said windlass and forming the loop E' at its center end, the part C, having an angular plate, *c*, connected to the metallic band, and the friction-roller D, all constructed substantially as and for the purposes herein set forth.

2. The combination, with the table A, of the block H, the open band F, and spring band or ring G, as and for the purposes herein set forth.

177,609. FARE-GATES. E. Young, Camden Centre, Mich. [Filed Feb. 24, 1876.]

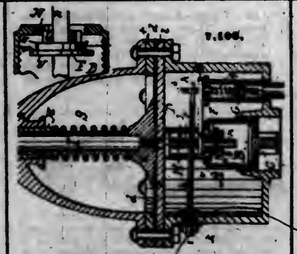
Brief.—By lifting the handle the lock-slide runs up within the clamps, moving the front end of the gate up, and holding it there until released by upward pressure on the front end of the gate.



The lock-slide I, clamps F F' F', friction-blocks D D', combined with the gate, all as and for the purpose set forth.

REISSUES.

7,108. STEAM AND WATER PRESSURE REGULATORS. Nathan. C. Locke, Salem, Mass. Patent No. 112,060, dated Mar. 28, 1871. [Filed Jan. 26, 1876.]



1. The combination, in a pressure-regulator, constructed to be connected with a street-main or other supply-pipe, and having a receiving-chamber, A, and a supply-valve, of a relief-valve for preventing any excess of pressure in the receiving-chamber, substantially as described.

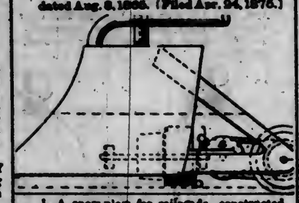
2. The yielding connection between the supply-valve F and the diaphragm or piston D, whereby after the supply-valve is closed the diaphragm or piston can have a further upward movement, and thus operate upon a safety or relief valve, substantially as described.

3. The combination, in a pressure-regulator, constructed with a receiving-chamber A, a flexible diaphragm D, and a check-valve, C, of a relief-valve, G, arranged in said receiving-chamber, and connected with the flexible diaphragm, substantially as and for the purpose described.

4. The combination of the diaphragm or piston D, supply-valve F, safety or relief valve G, substantially as and for the purpose specified.

5. The valve-box or body B, formed with the metallic valve-seat, having a cylindrical opening, N, into which the projection on the valve closes, in combination with the valve F, having the disk U formed with the metallic prolongation or extension L, closely fitting within and entirely filling the opening of the metallic valve-seat, as and for the object specified.

7,109. SNOW-PLOWS. Ahner L. Bachman, Minneapolis, Minn. Patent No. 40,216, dated Aug. 6, 1863. [Filed Apr. 24, 1876.]



1. A snow-plow for railroads, constructed with double walls, to admit of a steam or hot-air chamber between its exterior surfaces, for the purpose of keeping said surfaces in a heated state, substantially as set forth.

2. Rotary shovels, in combination with rotary brushes, placed at the rear of a plow and over the two lines of rails, the shovel and brush for each rail being mounted on the same shaft D, and operating substantially as and for the purpose set forth.

7,110. MILK-COOLERS. Wm. H. Johnson, Delhi, N. Y., assignee of one-half interest to H. A. Fletcher and F. A. Ray, same place. Patent No. 168,102, dated June 20, 1876. [Filed Jan. 4, 1876.]



1. The milk-pan B, made of cast iron, enameled upon its inner surface, as constructed as to adapt it to be used in connection with a water-vat, A, substantially as and for the purpose set forth.

2. The combination of the enameled pan B and the cast-iron vat A, constructed and adapted for use substantially as described, whereby all wood-work is dispensed with, and both pan and vat are provided throughout with smooth interior surfaces free from the joints and seams incident to the use of sheet metal for such purposes, as set forth.

3. The milk pan and vat combined, the discharging end of the pan forming a part of the end of the vat, and having its discharge-passage projecting outside of the vat, substantially as described.

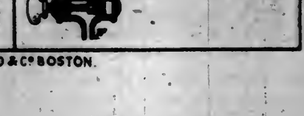
4. The combination of the water-vat A, milk-pan B, and cream or ice vessel C, all constructed to operate substantially as described.

5. The vat A, provided with the heat pipe h, arranged to operate as set forth.

7,111. STAIR-RODS. William T. Montgomery, Orange, N. J. Patent No. 107,661, dated Oct. 4, 1870. [Filed Nov. 16, 1876.]

Brief.—The center is struck up out of a single piece of sheet metal, and has two perforated eyes for receiving screws, and two supports for front edges.

A formed-up sheet-metal stair-rod fastening, in which there is a support or hook for the rear surface, and a support for the two edges of the rod, and two ears exterior to such parts, all in one piece, substantially as described



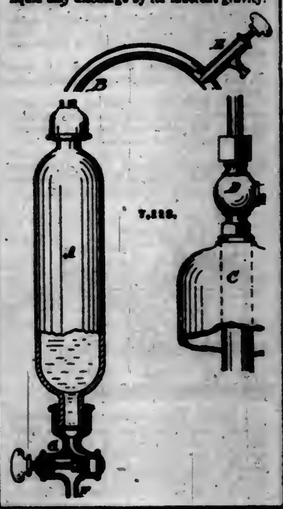
7,112. CARPETS. Wm. Wallace, Philadelphia, Pa., assignee to himself and C. McAllister, same place. Patent No. 104,220, dated June 14, 1870; reissue No. 4,904, dated May 14, 1872. [Filed Apr. 3, 1876.]

Brief.—The thin filling, instead of passing over two warp-threads of one face and under two threads of the opposite face in each set, as in the ordinary fabric of this kind, passes alternately over and under two threads, of which one is a thread of one face, and the other a thread of the other face of the fabric.

A damask-carpet fabric, in which the warp-threads of a set, on either side of the thin filling, consist one portion of the threads of one face, and the other portion of the threads of the opposite face, of the fabric, as set forth.

7,113. APPARATUS FOR DRAWING EFFERVESCENT LIQUIDS. Thomas Warner, New York, N. Y. Patent No. 144,809, dated Nov. 18, 1873. [Filed Apr. 12, 1876.]

Brief.—After the liquid has passed into the pressure-chamber, the free gas is allowed to escape through the relief-valve. Thus the liquid may discharge by its inherent gravity.

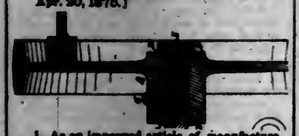


HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

1. The combination of a vessel or fountain, C, containing effervescent liquid, and a pressure-relieving chamber, A, provided with a discharge-aperture, F, and having a gas-escape valve, E, connected with its upper end, said chamber A being situated between the vessel C and the discharge-aperture F, as arranged that the liquid will flow out of the chamber A by its inherent gravity, in the manner and for the purpose substantially as described.

2. The described combination of the pressure-relieving chamber A, having a discharge-aperture, F, the gas-escape valve E, and the pipe H, having a stop-valve, D, and adapted to a vessel containing effervescent liquid, in the manner and for the purpose specified.

7,114. BALANCE-WHEELS. Frederick W. Wild, Baltimore, Md., assignor to the Domestic Sewing Machine Company. Patent No. 114,940, dated Apr. 20, 1871. [Filed Apr. 20, 1876.]



1. As an improved article of manufacture, the herein-described journal-stud, provided with a stem threaded at its extremity, adapted for ready connection with a machine or stand, said journal-stud having two conical bearing-surfaces, one of which is adjustably related to the other, substantially as and for the purposes set forth.

2. The combination, with a balance-wheel or pulley, provided with a recessed hub, of a journal-stud, provided with a stem and conical bearings, one of which is adjustable with relation to the other, substantially as and for the purposes set forth.

7,115. FOLDING EXTENSION-TABLES. John F. Eberhard, Milwaukee, Wis. Patent No. 160,808, dated Mar. 9, 1875. [Filed Mar. 24, 1876.]



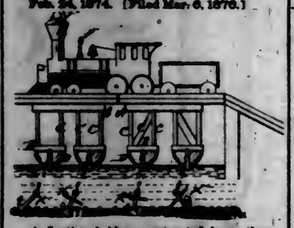
1. An extension-table top, adapted to be folded parallel with its supporting-legs, substantially as and for the purpose described.

2. An extension folding table, constructed as described, and provided with leaves A and A', permanent pillars and legs B B, slides G, and joints L, substantially as shown and specified.

3. The combination of loose legs C'C, brace D, and slides G, arranged substantially as described.

4. The shelf I for supporting the loose or extra leaves of an extension-table, in combination with pillars and feet B B, substantially as shown and described.

7,116. PONTOON-BRIDGES. David Klein, New York, N. Y. Patent No. 147,776, dated Feb. 24, 1874. [Filed Mar. 6, 1876.]



A floating bridge constructed in sections, each section consisting of one or more boats, provided with standards at each end, connected at the top by beams, and supporting a series of the crossing, which sections are secured by rigid connections, all the parts being combined and operating as set forth.

7,117. DRAIN-SCREW ATTACHMENTS FOR STENCH-TRAPS. James A. Lowe, New York, N. Y. Patent No. 127,620, dated June 4, 1872. [Filed May 4, 1876.]

Brief.—In casting the trap the hard-metal screw-sleeve is inserted for engaging with the screw-cap.



1. The combination, with the bend D or cleaning-out opening of a lead or soft-metal stench-trap, of a hard-metal nut, secured in said soft metal, with a portion thereof overlapping or lapping upon the outermost end of said nut, and forming a soft-metal seat, *d*, for the flange or rim of the screw-plug to bear against, and thereby producing a liquid-tight joint, substantially as herein specified.

2. The combination of the lead or soft-metal trap, having a bend, D, the nut or screw-box G, the screw cap or plug E, and the soft-metal seat *d*, substantially as and for the purpose herein specified.

7,118. WASHING-MACHINES. P. A. Shipley and Abraham Wheeler, Woodberry, Md. Patent No. 159,971, dated Feb. 16, 1876. [Filed Apr. 12, 1876.]



1. The board A, slotted frames B, provided with the vertical rollers F, shaft C, fluted roller D, spiral springs *b*, hooks *g*, and plain rollers E, constructed and combined in a washing-machine, substantially as herein specified.

2. The strips *c*, in combination with the toothed disks *f* and the plain rings *d*, forming a support for said strips, and triangular projections *e'*, the whole forming the roller D, substantially as specified.

7,119. MACHINERY FOR ROLLING METALS. Harvey Waters, Boston, Mass. Patent No. 114,736, dated May 9, 1871. [Filed Dec. 28, 1876.]



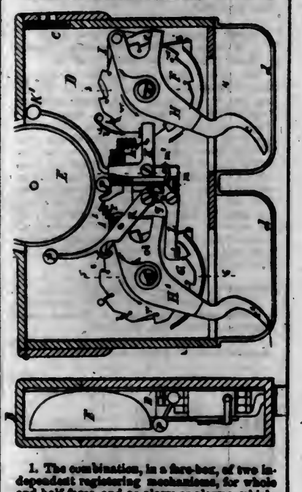
1. A movable gage-bar and guides to position the blank, in combination with shaping die-rolls, adapted to operate substantially as described.

2. A shouldered roller-die for rolling knife-blades, having an eccentric groove, shaped transversely substantially as described, to roll two blades side by side and back to back, from the chord to and over the point, substantially as described.

3. A shouldered roller-die, having an eccentric groove, shaped transversely substantially as described, to roll two knife-blades back to back, in combination with a shouldered roller-die, adapted to roll the handle-plates from the chord to and over the point, the two dies being constructed and adapted by their joint operation to roll knife-blades, substantially as set forth.

4. In the manufacture of knives, the described process of holding and guiding the blank with reference to the die-shoulders, and rolling the blank outward from the chord-forming portion, defined and regulated by the tongs, to form both the blade and handle-plate portions for two knife-blades back to back, all substantially as described.

7,120. FARE-REGISTERS. Fredk. Blackburn and Geo. W. Woodside, Philadelphia, Pa., assignors, by mesne assignments, to the Passenger Fare Enumerator and Classifier Company, same place. Patent No. 100,715, dated Mar. 15, 1870; antedated Feb. 28, 1870. [Filed Mar. 28, 1876.]



1. The combination, in a fare-box, of two independent registering mechanisms, for whole and half fares, and an alarm or alarms, which, on being sounded, distinguishes the character of the fare received and recorded, all substantially as described.

2. The combination, with the whole-fare register and bell E, of the disk G, (for registering half-fares,) pins *w*, or their equivalents, and two levers or hammers so arranged as to both strike the bell on the movement of the disk, substantially as specified.

3. The combination of the arm *s*, connecting rod or wire *s'*, and spring-striker P with a spring striking-lever, H, and lever I, operated by pins *w* of disk G, substantially in the manner described.

4. In a passenger fare-register and alarm, the combination of the operating-lever H, double pawl I, registering-disks F F', striking-hammer K', and alarm-bell E, substantially as herein described.

5. In a passenger fare-register and alarm, the combination of the operating-lever H', double pawl P, pins *w* on disk G, the intermediate tripping-lever I, striking-hammer P', and alarm-bell E, substantially as herein set forth.

6. In a passenger fare-register and alarm, two or more independent registering mechanisms for recording fares of different values, each in combination with a separate striking mechanism, operating on a single bell, E, whereby the recording of fares may be properly indicated, as described.

7. The combination, with a passenger fare-register and alarm, of the tripping-lever I, provided with a tripping-point, *n'*, and one or more projections for raising the alarm-hammer, as herein set forth.

8. In a passenger fare-register and alarm, one or more ratchet-teeth or bearing-pieces, *r*, adapted to receive a detent, *t*, and such detent serving to prevent sounding of the alarm until the detent has been withdrawn, as herein set forth.

9. In a passenger fare-register and alarm, the combination of the lever H, actuating the recording-disks F F', tripping-pins *w*, striking-hammer K', alarm-bell E, and a spring-pawl, *t*, falling into ratchet-teeth, to retain the registering mechanism, and prevent the sounding of an alarm without registering a fare.

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COMMISSIONER'S DECISIONS.

HENRY C. SERGEANT.—*Interlocutory Appeal.*

[*Appeal from the decision of the Examiner in the matter of the application of Henry C. Sergeant for Letters Patent for* "IMPROVEMENT IN ROCK-DRILLS," *filed February* 5, 1876.—*Decided April* 20, 1876.]

It is competent for the applicant to embrace in one application two or more improvements on the same machine, when such improvements contribute to the general result to be accomplished.

The question to be considered is whether the machine, as a whole, has been improved by the particular device or combination of devices that aid in a better manner to produce the results for which the machine, as a whole, is designed.

If it is denied that such improvement has been made, the objection goes to the merits, and an appeal may be taken to the Examiners-in-Chief.

[*Blanchard & Singleton*, attorneys.]

DOOLITTLE, *Acting Commissioner:*

Applicant's sixth claim, upon which this appeal is based, reads as follows:

I claim the hollow split sleeve or collar attached to the piston-rod, and having a space between the same and the rod, it being bored out at its lower end, so as to receive the drill, and arranged to clamp the same, substantially as shown and described.

In his second letter of rejection the Examiner states that—

The sixth claim is objected to for the reason heretofore given. Said claim relates to a chuck only of particular construction, and not broadly to improvements in rock-drills. If applicant was the first to invent a steam rock-drill having a chuck for holding the drill, there is no doubt but that it could be properly considered in an application containing the other devices. Applicant has merely invented certain *improvements* in chucks. Said improvements, not relating to the other parts of the machine, must be made the subject-matter of a separate application.

If, as the Examiner intimates, the applicant had been the first to invent the steam rock drill, having a chuck for holding the drill, his claim would have been considered in an application like the present one, it is difficult to see why an *improved* chuck for the same purpose could not be likewise considered.

If a device which, when originally adopted, amounted to an improvement on a certain machine, can be considered in an application for a patent therefor, what reason exists for throwing out the device in a subsequent application, simply because that device has been improved upon?

Leaving out of consideration the object alleged to be accomplished by the applicant, namely, an improvement in the construction and operation of rock drills, and considering each separate feature, or the subject of each claim by itself, without regard to the object in view produced by the general combination, at least seven applications for patents can be made up from the present one.

The first claim is for—

The double-ended oscillating slide-valve, (in a machine for drilling rock or other substances,) pivoted at or near its center, it being constructed substantially as shown and described, whereby it is made to control the induction and eduction of steam to and from the cylinder, as set forth.

This might be construed as an improvement on valves, applicable to all valves of that class, when so constructed, whether used in a drilling or other machine. The same may be said of the second claim, which is for—

A double-ended oscillating valve, having upon its inner surface tappets arranged to close the openings to the cylinder through which they pass, and to give motion to the valves, substantially as set forth.

The third claim is for—

A steam-chest, constructed as described, whereby it is made to form a passage for the steam to the opposite ends of the cylinder, in combination with a valve having tappets to close the ports to the cylinder through which they pass, for the purpose of preventing the passage of steam through said ports.

Here, so far as the record shows, is a new combination of elements, the peculiar advantages of which do not appear to be necessarily confined to a rock-drill.

The fifth claim is for—

The ratchet and pawls, when arranged in the head of the cylinder, and surrounded by the pressure of the steam or air, in combination with the supporting-ring in the cylinder, substantially as shown, and for the purpose set forth.

No objection appears to have been made to this claim; yet it is not apparent that the improvement, if it is an improvement, is confined in its operation to rock-drills.

The sixth claim has already been cited. The seventh claim has been erased.

An entirely different feature from those before mentioned is made the subject of the eighth claim. Here, then, as has been said, are the proper subjects of seven different applications, if the objection of the Examiner to the matter of the sixth claim is a valid one.

I see no reason for abrogating in this case the doctrine set forth in the case of *Clinton* vs. *Knowlton*, (9

OFFICIAL GAZETTE, p. 249;) and also in the case of Jesse Jopling, (8 OFFICIAL GAZETTE, p. 1032,) based upon the decisions in the court cases of *Moody* vs. *Fisk*, (2 Mason, 112,) and *Morris* vs. *Barrett*, (1 Fisher, 461,) to the effect that it is competent for an applicant to embrace in one application two or more improvements on the same machine, regard, of course, being had to the fact that the alleged improvements are really such in relation to the general result to be accomplished.

The simple question is, whether applicant has made an improvement in rock-drills, and whether the particular feature or combinations of features which he claims aid in any way to produce that improvement. In urging that there is no special adaptation of his chuck to the other parts of the drill, and that "this particular chuck will perform all its functions when used with any kind of a rock-drill," the Examiner means to be understood as alleging that no improvement has actually been made by the addition of this feature, and that it bears no part in the accomplishment of the alleged new and useful result, he should clearly say so. Objection will then go to the merits of the subject, and is proper matter for an appeal to the Examiners-in-Chief.

With the present understanding of the objection, however, the decision of the Examiner is reversed.

WALPUSKI *vs.* JACOBSEN AND FABER.—*Interference; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Charles Walpuski, filed March 3, 1875, the application of R. Jacobsen, filed February 12, 1875, and the application of Lotharvon Faber, filed January 12, 1875, for* "IMPROVEMENT IN PENCILS."—*Decided May 16, 1876.*]

In an interference proceeding, where parties are allowed in their preliminary statements to fix and determine the date of their invention or conception thereof, it is proper that they should be restricted to a substantial adherence thereto.

It has become the established practice of the Office, when both of the lower tribunals have agreed upon a statement of facts not to overthrow their decisions thereon unless such decisions are clearly at variance with the testimony.

[*Bailey*, for Walpuski.
Washburne, for Faber.]

DOOLITTLE, *Acting Commissioner:*

The subject-matter of this interference is a copying-pencil, having its marking core or lead composed in the main of an aniline coloring-matter, in combination with a suitable base or binding medium.

Jacobsen has taken no appeal, and the contest which originally included more parties than the present ones, has narrowed down to Walpuski and Faber.

Faber's invention was made in Germany, and his application for a patent was not filed in this country until January 12, 1875. There is no evidence on the part of Faber showing that knowledge of his invention was brought to this country prior to a few days before the filing of his application, so that it simply remained for Walpuski to substantially overcome the *prima facie* case established by the date of Faber's application and the fact of the introduction of a few pencils of this description into this country a short time previous thereto.

The Examiner of Interferences and the Board of Examiners-in-Chief both agree that Walpuski is clearly entitled to priority of invention, and also that the invention was completed by him before he learned of the same having been perfected in Europe.

The main objection urged by counsel for Faber against the testimony in behalf of Walpuski is that it is inconsistent with his preliminary statement, and that, therefore, under a proper construction of the rule setting forth what is required to be stated in a preliminary statement, and holding the parties strictly in their proof to the matter there set up, the discrepancies between Walpuski's statement and his proof are such as to invalidate the principal part of his testimony.

The particular point on which this objection is based is that, whereas Walpuski alleged in his preliminary statement that he could not fix the time when he made his invention "with greater accuracy than in the winter of 1872–1873," yet in his proofs he claims to have completed it in August, 1872.

That portion of his preliminary statement which sets up matter alleged to be at variance with his proofs, is as follows:

> In the spring of 1871 I was employed by Mr. Joseph Reckendorfer, of New York, manager of the Eagle Pencil Company, under circumstances which put me, personally, under special obligations to him. Mr. Reckendorfer placed the graphite and crayon department, or the compound department, under my charge, and I made experiments to produce lead or composition equal to those imported from Europe. While thus engaged I made the invention of the copying-pencil, the subject of my application for patent. I cannot fix the time with greater accuracy than the winter of 1872–1873. I had previously used for ink pencils, mixed with carbon black, aniline in too small quantities to copy. That was within a few days, say from three to five days after the marriage of the superintendent of the Eagle Company's works, which I think took place on or about the end of October, 1871, when I left the lodgings which we had occupied in common. In experiments subsequently conducted the proportions and consistency of the compound were varied until I obtained perfect samples of various colors, hardness, and forms, which I have now in my possession, and which are copying-pencils in the strictest sense of the word. That was in the winter of 1872–1873.

It will be seen that this statement does not preclude evidence as to his experiments prior to the winter of 1872–1873; but that he restricts himself as to the final and successful completion of his invention to that time, so that testimony showing the character of his experiments as far back as the spring of 1871 is not inconsistent with his preliminary statement. It is right, however, that the winter of 1872–1873 should be regarded as the date of the completion of his invention, and no previous period. That statement affords him a very liberal margin. Good practice requires that an applicant who has been thus permitted to fix his own date should be restricted to a substantial adherence thereto.

It must, however, be borne in mind that the main reason for establishing the practice of requiring preliminary statements was to prevent the manufacture of proof by one of the contesting parties after learning his opponent's date for the purpose of fixing an earlier date. (*Schenck* vs. *Rider*, C. D. 1870, p. 135.)

But there can be no harm done where a party's proof shows a later date of invention than is set up in his preliminary statement, except in certain instances to throw suspicion upon his integrity.

Walpuski commenced his experiments some time in 1871 with liquid aniline, clay, gum, some coloring matter, and other ingredients dissolved in alcohol and water, which composition he then dried to a paste and made into such shapes as were wanted. In 1872 he made other experiments, using powdered aniline, and substituting some compounds for others previously used.

Witness produces samples of lead made by him in 1873. It may have been the summer or fall of that year, it is not very clear which, but it is quite satisfactorily shown that his experiments commenced in 1871 and culminated successfully about August or September, 1873. From that time Walpuski did very little toward carrying this invention into practice until the return of his employer from Europe in the fall of 1874. He did not succeed in inducing his employer to listen to his proposals to introduce and manufacture pencils made of this material until February, 1875, after his attention had been called to a similar invention imported from Europe, whereupon Walpuski convinced him that he was the inventor of the identical pencil in question, and at once produced specimens of what he had done. His employer swears that Walpuski called his attention to this invention on the 31st of December, 1874, and showed him marks on a piece of paper which Walpuski alleged he made with an aniline pencil of the same nature as the one now in controversy. That Walpuski was engaged at intervals in experiments in the line of this invention from 1871 until its final and complete development in 1875; that he did not abandon the same, but continually strived to enlist his employer's aid in its adoption and introduction to the public, and that he was entirely dependent upon his employer for his means of livelihood, is established by the testimony of himself and others, and amounts to a substantial disproof of the charge of lack of diligence.

These witnesses, although consisting of members of his own family, his employer, and those engaged in the same business, and having therefore an interest in the result of this controversy, are not to be entirely disbelieved. They were closely cross-examined and ample opportunity given their opponents to impeach or contradict them; but the effort in this direction was not in my opinion successful.

It has become the established practice of the Office, where both the lower tribunals are agreed upon the facts, not to overthrow their decisions thereon unless clearly at variance with the testimony. And although I have some doubts as to the correctness of a number of facts in this case, alleged to have been proven in behalf of Walpuski, yet those doubts do not rise to a conviction that the tribunals who have heretofore passed upon this matter arrived at an erroneous conclusion.

The decision of the Board of Examiners-in-Chief is therefore affirmed, and priority awarded to Walpuski.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

WEBSTER LOOM COMPANY *vs.* ELIAS S. HIGGINS *et al.*

In a proceeding in equity where the answer to the bill is filed and sworn to by defendants, and replication filed by complainants, and proofs taken and closed upon the issues raised: *Held*, that a motion to amend answer by interposing one or more new defenses will be denied.

[*C. A. Seward*, for complainants.
G. Gifford, for defendants.]

JOHNSON, *Cir. J.:*

The answer in this case was sworn on the 4th of September, 1874. A replication was filed, and the complainant's proofs were taken, and were closed on the 9th of October in that year. On the 30th of December, 1875, the defendants gave notice of the present motion to amend their sworn answer by interposing two new defenses. They seek to aver, on information and belief, that the complainants' alleged invention was in public use for more than two years prior to the application for the letters patent to Webster; and that the same is described in Letters Patent of the United States, granted in the year 1857 to Wm. Wield, dated January 13, 1857, and numbered 16,415.

The only excuse offered for the omission to insert the first of these supposed defenses in the original answer is found in the affidavit of the defendants' counsel, who prepared the answer, that when he prepared it he omitted to state the facts now proposed to be inserted because he was under the impression that the suit was subject to the law as it stood prior to the patent act approved July 8, 1870. He does not say that his impression has since changed, although that may, perhaps, be inferred from his present motion; nor is it claimed that the facts were not known at the time when the answer was interposed. If the suit is governed in the respect in question by the act of July 8, 1870, or by the equivalent provision of the Revised Statutes, and if the law is that a public use in this country for more than two years before the application of an inventor for a patent bars his right to a patent, or avoids the patent after it has been granted, irrespective of his consent to, or acquiescence in, such use, then I think that a party who wishes to avail himself of such a defense ought, under all ordinary circumstances, to do so at the earliest opportunity. If he fails to do so, something more must be established than that he has been guilty of laches to induce a court to excuse his neglect, and to allow so harsh a defense to be interposed.

Nor do I think the defendants entitle themselves to be now allowed to interpose the other defense proposed.

The patent they seek to set up as an anticipation of the Webster patent they owned for a number of years, and until it expired. They must be taken to have known its specification and claims. Their counsel does not state that he was not acquainted with the patent, nor that he had not, before the answer was put in, examined and considered the specifications. His statement falls very far short of that. It is that when he prepared the answer he had no knowledge or information of any description in any patent, prior to the patent on which the suit is brought, of a cylinder wire motion, such as is referred to in the affidavits of Duckworth and Hicks. He does not say that he has any such knowledge now, nor give the court any reason to consider that he finds in that patent what the two affiants Duckworth and Hicks are understood to say they conceive to be described there. These persons also base their statements upon the ground of a particular construction, to be put on a claim in the Webster patent, which the plaintiffs do not assert, and have not asserted, and which seems to me quite incapable of being maintained.

I am of opinion, therefore, that justice does not require that the amendment should be permitted to be made, in view, as well of two laches which have occurred, as of the substance of the amendment itself.

The motion to amend the answer must be denied.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 23, 1876.]

9,301 and 9,302.—Ornamental Shirt-Borders.—ISIDOR HAUSER, New York, N. Y. Applications filed April 11, 1876. Term of patents 3½ years.

9,303.—Abacus.—GEORGE M. KENDALL, New York, N. Y. Application filed April 4, 1876. Term of patent 7 years.

304.—Beer-Mugs.—WILLIAM C. KING, Union township, Allegheny county, assignor to KING, SOK & Co., Pittsburg, Pa. Application filed May 8, 1876. Term of patent 7 years.

9,305 to 9,308, inclusive.—Carpets.—WILLIAM SPURWAY, Kidderminster, England, assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed May 11, 1876. Term of patents 3½ years.

9,309.—Hand-Wheels of Valves.—EDWARD G. BURNHAM, Bridgeport, Conn. Application filed May 4, 1876. Term of patent 7 years.

9,310.—Pan.—MARY F. FOSTER and ANNA W. THOMAS, Washington, D. C. Application filed May 5, 1876. Term of patent 3½ years.

9,311.—Spoon and Fork Handles.—LE ROY S. WHITE, Waterbury, Conn., assignor to BROWN & BROTHERS, same place. Application filed October 16, 1875. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 23, 1876.]

3,683.—Albums.—E. & H. T. ANTHONY & Co., New York, N. Y. Application filed April 17, 1876.
"word 'Perfect.'"

3,684.—Washing-Crystal.—THEODORE K. BATT, Philadelphia, Pa. Application filed May 3, 1876.
"words 'LEIDY'S PHILADELPHIA WASHING CRYSTAL,' and the monogram 'T. D. L.'"

3,685.—Washing-Crystal.—THEODORE K. BATT, Philadelphia, Pa. Application filed May 3, 1876.
"the figure of a crescent and the words 'Crescent Brand.'"

3,686.—Washing-Crystal.—THEODORE K. BATT, Philadelphia, Pa. Application filed May 11, 1876.
"word 'Cardinal' and the picture of a cardinal's hat."

3,687.—Shirts.—BOHN BROTHERS & Co., Cincinnati, Ohio. Application filed February 18, 1876.
"letter 'B' upon a shield."

3,688.—Tonic Preparations of Iron.—FLORENTINE J. BOUDREAUX, St. Louis, Mo. Application filed May 4, 1876.
"words 'BOUDREAUX'S IRON PREPARATIONS,' and the monogram 'B I P.'"

3,689.—Fertilizers.—WILLIAM L. BRADLEY, Boston, Mass. Application filed May 8, 1876.
"words 'ENGLISH LAWN FERTILIZER,' and the representation of a sickle."

3,690.—Hermetically-Sealed Goods.—CROSSE & BLACKWELL, London, England. Application filed April 17, 1876.
"a fac-simile of the signature or autograph of our firm."

3,691.—Shirts and Shirt-Bosoms.—GEORGE D. EICHMIR, Poughkeepsie, N. Y. Application filed May 8, 1876.
"capital letters 'G. D. E.'"

3,692.—Flour.—JOHN B. GANDOLFO, St. Louis, Mo. Application filed March 27, 1876.
"word 'Ready.'"

3,693.—Stoves.—GREER & KING, Dayton, Ohio. Application filed May 2, 1876.
"word 'Tuscola.'"

3,694.—Smoking-Tobacco.—G. JAQUET & Co., New Orleans, La. Application filed May 6, 1876.
"the word 'America,' and of a vignette, in which is represented a group of figures with surroundings emblematic of the nation's return to peace and prosperity."

3,695.—Refrigerators.—JOHN C. JEWETT & SONS, Buffalo, N. Y. Application filed May 6, 1876.
"the word 'Palace.'"

3,696.—Whisky.—GEORGE W. KIDD & Co., New York, N. Y. Application filed May 1, 1876.
"words 'My Old Kentucky Home Pioneer Bourbon.'"

3,697.—Plastic Articles of Decoration.—HENRY LOEWENBERG, Charlottenburg, Germany. Application filed April 6, 1876.
"the representation of an oval hand-mirror, which is provided with a handle at one end, while on the opposite end of said mirror the frame thereof is ornamented, as shown. Upon the surface of the mirror is placed a monogram composed of the letters H L."

3,698.—Manufactured Tobacco.—MACHIN & BARKLEY, Petersburg, Va. Application filed May 2, 1876.
"A pentagonal figure within which are the letters 'O K,' and to the right of said figure and at the upper part thereof is the letter 'P.'"

3,699.—Soap.—ROSELL H. MEAGLEY, Binghamton, N. Y. Application filed April 12, 1876.
"words 'Tip Top.'"

3,700.—Hard-Rubber Goods.—H. C. MEYER, Jr., Hamburg, Germany. Application filed March 30, 1876.
"letters 'H. C. M., Jr.,' intermingled."

3,701.—Cotton Sheeting.—NAUMKEAG STEAM COTTON COMPANY, Salem, Mass. Application filed May 8, 1876.
"word 'Pequot' and the picture of an Indian."

3,702.—Drier for Paints.—SICCIFIC MANUFACTURING COMPANY, Sycamore, Ill. Applications filed April 7, 1876.
"a representation of an eagle rising out of ashes, (commonly described as a phenix,) together with the words 'Siccific Trade-Mark.'"

3,703.—Gin.—ISAAC H. SMITH'S SONS, New York, N. Y. Application filed May 1, 1876.
"word 'Stadhuis.'"

3,704.—Edge-Tools.—TEN EYCK AXE MANUFACTURING COMPANY, Cohoes, N. Y. Application filed March 21, 1876.
"a symbol composed of figures of edge-tools, with the name 'Ten Eyck' and letters 'Mfg Co.'"

3,705.—Corsets.—THOMSON, LANGDON & Co., New York, N. Y. Application filed April 22, 1876.
"a symbol, described as follows: A plain figure or representation of a corset, the outline of which is determined or defined by a surrounding ground of a different color."

3,706.—Corsets.—THOMSON, LANGDON & Co., New York, N. Y. Application filed April 22, 1876.
"a plain form or figure of a corset disclosed or prominently presented to view by the employment of a darker-colored surrounding ground in connection with the representation of a scroll on each side of such corset for containing words."

3,707.—Writing-Paper.—THE AMERICAN NEWS COMPANY, New York, N. Y. Application filed April 15, 1874.
"words 'Hamilton Mills' and the monogram composed of the letters 'A. N. Co.'"

3,708.—Locks.—THE YALE LOCK MANUFACTURING COMPANY, Stamford, Conn. Application filed May 4, 1876.
"word 'STANDARD.'"

3,709.—Time-Locks.—THE YALE LOCK MANUFACTURING COMPANY, Stamford, Conn. Application filed May 4, 1876.
"word or title 'YALE.'"

3,710.—Lager-Beer.—EDWARD W. VOIGT, Detroit, Mich. Application filed February 21, 1876.
"letter 'V' in the center of an equilateral triangle."

3,711.—Hose for Pumps, Engines, &c.—WANNALANCET MANUFACTURING COMPANY, Boston, Mass. Application filed February 19, 1876.
"one or more threads or yarn of blue color woven into the fabric of which the hose is composed, and running lengthwise, parallel with the axis of the hose, in connection with the word 'Blue.'"

3,712.—Bitters.—WINDER & SHEARER, San Francisco, Cal. Application filed May 9, 1876.
"a picture or representation of an American eagle, perched or standing upon a cactus plant, with a serpent held in its beak."

3,713.—Bitters.—WINDER & SHEARER, San Francisco, Cal. Application filed May 9, 1876.
"words and letters 'BAJA CALIFORNIA DAMIANA BITTERS.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 23, 1876.]

720.—Title: "Holleway's Pills."—JOSEPH HAYDOCK, New York, N. Y. Application filed May 13, 1876.

721.—Title: "True Blue for Laundry Purposes."—ROCHESTER WASHING FLUID COMPANY, Rochester, N. Y. Application filed May 15, 1876.

722.—Title: "Dr. Kennett's Vital Bitters."—SMITH & CORSCADEN, Providence, R. I. Application filed May 12, 1876.

723.—Title: "The Only Genuine Litix Bretzels."—JULIUS F. STURGIS & THOMAS H. KELLER, Litiz, Pa. Application filed May 13, 1876.

724.—Title: "Perfumed Shells."—CHARLES A. ATKINSON, New York, N. Y. Application filed May 16, 1876.

725.—Title: "Yacht Club, Fabrica De Tabacos."—C. BREWER & SONS, Boston, Mass. Application filed May 17, 1876.

726.—Title: "Charles Emerson's Elastic Razor Strap."—CHARLES EMERSON, Boston, Mass. Application filed May 16 1876.

727.—Title: "The Best One Dollar Shirt in the United States."—MOSES, BLUM & WEILL, New York, N. Y. Application filed May 18, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED MAY 23, 1876.

	Class No.	No. of Patent.
Air for motive powers, device for using compressed, L. Mekarski	2	177,736
Alarm, burglar, S. H. Harrington	24	177,637
Alarm, burglar, F. A. Lane	24	177,727
Bag, grain, H. Redden	57	177,749
Bale tie, J. N. Briggs	7	177,663
Bale tie, cotton, J. McMurtry	7	177,650
Bale tie, cotton, J. McMurtry	7	177,651
Basket, grain, G. Amsden	109	177,763
Bath tube, back support for, E. F. W. Eisenmann	8	177,700
Beds, hinge for, T. Q. Hall	62	177,711
Bird cage, J. D. Heine	170	177,715
Bird cage hook, Osborn and Drayton, (reissue)	62	7,133
Bird cage hook, Osborn and Drayton, (reissue)	62	7,134
Blasting powder, J. K. Dolde	71	177,819
Boat, life, J. F. Cosgro	13	177,694
Boiler, cast iron sectional, J. W. Hard	148	177,635
Boiler, domestic, J. McConnell	154	177,734
Boiler, sectional steam, W. P. Skiffington	148	177,757
Boiler, steam, G. H. Corliss	148	177,692
Boiler, steam, S. Smith	148	177,760
Boiler, wash, E. M. Mallett	136	177,730
Bolt and chain, combined door, W. R. M. Adams	94	177,674
Boot and shoe, S. F. Pray	16	177,660
Boot and shoe heel burnishing machine, R. C. Lambart	16	177,726
Boot and shoe, water proof, H. D. Osgood	16	177,656
Boot tree, J. H. Sampson	16	177,753
Boots and shoes, screw soling machine for uniting the uppers and soles of, C. Tyson	16	177,772
Bread machine, W. P. Jones	6	177,849
Brick and tile machine, P. H. Kells	20	177,851
Brick machine, J. Bonshire	20	177,615
Brick machine, J. Denning	20	177,815
Bridle bit, L. Earhart	72	177,822
Buckle fastening, R. Meyer, (reissue)	23	7,129
Bung borer, A. M. Norton	29	177,742
Burial case, T. E. Daniels	39	177,812
Burial case, J. B. Merray	39	177,741
Burial cases, mold for artificial marble, T. E. Daniels	39	177,813
Burner for light house lamps, J. Funck	90	177,825
Burner, lamp, H. A. Chapin	90	177,618
Butter worker, M. Hutchinson	45	177,844
Button and stud, sleeve, E. Verpillier	23	177,899
Calendar for time pieces, automatic, M. H. Paddock	36	177,879
Camp kit, M. A. Stephen	62	177,766
Can, A. R. Waller	136	177,902
Can spouts, cap or stopper for, W. Collins	136	177,620
Car coupling, W. H. Farris	122	177,705
Car coupling, W. R. Kaschie	122	177,729
Car coupling, C. H. Knowlton	122	177,648
Car heater and ventilator, E. S. Jenison	166	177,847
Car heater and ventilator, H. Macy	166	177,858
Car, street, L. Wood	121	177,672
Cars, mechanism for driving fan blowers in, J. H. Wickes	166	177,907
Carpet stretcher and tack driver, combined, J. M. Farrar	62	177,704
Carriage lifting frame, C. F. Haynes	31	177,638
Carriage top, G. E. Spare	31	177,763
Caster, furniture, G. B. Warren	24	177,903
Cattle, device for feeding salt to, Winterscheid and Schultes	144	177,778
Chain, ornamental, J. L. Healey	86	177,834
Chair, R. Skoog	62	177,891
Chair, cradle, &c., combined, J. H. Leamond	62	177,855
Chair, rocking, M. Schrenkeisen	62	177,754
Cheese vat, Howe and Hill	45	177,719
Chimney tops, apparatus and process for the manufacture of fire, H. McMahan	4	177,735
Churn, A. L. Starkey	45	177,765
Cigarette machine, J. and A. Marengo	160	177,732
Clasp for supporting garments, spring, E. W. Philbrook	23	177,882
Clothes wringer, W. F. and H. L. Williams	91	177,910
Clothing, ornamental seam for, J. H. Nichols	38	177,876
Coal, apparatus for mining, P. Sheldon, (reissue)	124	7,135
Coal screens, loom for weaving wire for, C. P. Seltsinger	170	177,664
Coal scuttle, A. F. Burnett	154	177,617
Compass, mariner's, J. McNabb	50	177,869
Concertinas, reed organs, &c., bellows for, L. T. Simon	102	177,890
Condenser for purifying exhaust steam, grease, S. N. Hartwell	148	177,713
Condensers, injection regulator for, G. H. Corliss	69	177,807
Cooker, steam, W. F. Guernsey	154	177,898
Cooler, milk, G. Hofstatter	45	177,846
Coop, folding, J. O'Connor	116	177,878
Copy holder and galley stand, combined, C. R. Brainard	117	177,881
Coughs, colds, &c, remedy for, M. Battaglia	98	177,614
Curry comb, C. A. Hotchkiss	144	177,838
Curry comb, C. A. Hotchkiss	144	177,839
Cradle, J. H. McLean	62	177,640
Culinary vessel, D. J. Esser	154	177,703
Cultivator, D. C. Tanner	43	177,666
Cultivator, wheel, E. M. and M. L. Kissell	43	177,853
Curtain cord tightener, H. Kesley	62	177,895
Desk, school, J. W. Childs, (reissue)	62	7,132
Desk, school, A. W. Hempleman	62	177,835
Digger, potato, C. Small	114	177,759
Ditching machine, Skinner and McClure	114	177,758
Doll head, C. Wiegand	143	177,777
Door hanger, S. H. and E. Y. Moore	24	177,654
Door, screen, J. Palm	30	177,657
Doweling machine, A. P. Merchant	175	177,652
Drier, E. W. Bakewell, (reissue)	48	7,131
Ear muff, C. Sedgwick	38	177,755
Egg box, J. L. Stevens, (reissue)	116	7,131
Elevator, J. Meyer	79	177,730
Elevator, hydraulic, C. A. Chandler	118	177,808
Envelope, L. P. Hays	146	177,714
Evaporator, gyro, E. H. Gouge	98	177,827
Explosive compound, J. H. Dolde	35	177,818
Fabrics, machine for molding, W. H. Hart, Jr.	109	177,831
Fabrics, measuring attachment for packaged, E. Morgan, (reissue)	37	7,123
Fare controller and indicator, L. Von Hoven	43	177,900
Faucet, A. Tomeska	167	177,898
Felt cloth, machine for pouncing, H. S. Richardson	76	177,662
Fence, portable, O. Thomas	52	177,897
Fence post, J. E. Phillips	52	177,658
Fence, wire, L. B. Smith, (reissue)	52	7,126
Fence wire, barbed, C. H. Salisbury	52	177,752
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Fire arm, breech loading, N. King	18	177,852
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McMahan, H., Apparatus and process for the manufacture of fire chimney tops	177,735
McMillen, G. M. L., Horseshoe calk	177,868
McMurtry, J., Cotton bale tie	177,650
McMurtry, J., Cotton bale tie	177,651
McNabb, J., Mariner's compass	177,869
McWilliams, J. H., Padlock, (reissue)	7,122
Mekaraki, L., Device for using compressed air for motive powers	177,736
Melick, J. H., Horse rake	177,870
Merchant, A. P., Dowsing machine	177,652
Mettler, J. L and W. J., Corn harvester	177,738
Mettler, W. J., Hay raker and cocker	177,737
Meyer, J., Elevator	177,739
Meyer, J. H., Flower basket	177,653
Meyer, R., Buckle fastening, (reissue)	7,125
Mignea, J. B. J., Press	177,871
Miller, J. D., Corn harvester	177,872
Millingar, H., Mechanical movement	177,873
Minchin, G., assignee, (reissue)	7,130
Moessner and Hackett	177,633
Moore, S. H. and E. Y., Door hanger	177,654
Moremen, C. G., Cover for corn planters	177,740
Morgan, E., Measuring attachment for packaged fabrics, (reissue)	7,123
Morray, J. B., Burial case	177,741
Morrell, A., assignee	177,676
Muravour, F., Machine for retouching photograph negatives	177,874
Nash, C. H., assignee	177,755
Naylor, S., Lamp wick trimmer	177,875
Nichols, J. H., Ornamental seam for clothing	177,876
Niles, S. S., Door knob attachment	177,877
Norton, A. M., Bung borer	177,742
Nunn, E. J., Wood screw, (reissue)	7,124
O'Connor, J., Folding coop	177,878
Olts, J., Sash cord fastener	177,655
Osborn, G. E., and B. A. Drayton, Bird cage hook, (reissue)	7,133
Osborn, G. E., and B. A. Drayton, Bird cage hook, (reissue)	7,134
Osgood, H. D., Water proof boot and shoe	177,656
Overaheimer, G. M., assignee	177,765
Paddock, M. H., Automatic calendar for time pieces	177,879
Palm, J., Screen door	177,657
Pangle, W. S. and F., Wagon brake	177,880
Partlow, W. C., Vehicle hub	177,881
Peck, A. A., Expanding wall curb	177,743
Pelletier, A., Concrete pavement	177,744
Philbrook, E. W., Spring clasp for supporting garments	177,882
Phillips, J. E., Fence post	177,658
Philpott, C. H., assignee	177,630
Pinas, R. H., Gas governor	177,745
Pond, G. H., Elastic hanging for revolving hammers	177,883
Prahar, L., Pocket book fastening	177,746
Prahar, L., Pocket book fastener	177,747
Pratt, H. L., Scroll saw frame	177,659
Pray, S. F., Boot and shoe	177,660
Priest, J. V., assignee	177,678
Pryor, E. F., assignee	177,806
Purinton, J., assignee	177,720
Putnam, B. W., Metal turning lathe	177,884
Quemner, J. and C., Portfolio	177,748
Randall, C. A., Printing telegraph	177,661
Redden, H., Grain bag	177,749
Rein, H. M., Burglar alarm telegraph	177,750
Resley, H., Curtain cord tightener	177,885
Reynold, F., Harness	177,886
Reynold and Zahn, assignees	177,887
Richardson, H. S., Machine for pouncing felt cloth	177,662
Richardson, W. A., Attaching springs of fire arms	177,887
Ringfrak, L. M., Trunk	177,751
Robbins, J. M., assignee	177,646
Rogers, D. J., Ice cream freezer	177,888
Roulstone, E. A. G., Trunk, (reissue)	7,130
Russell and Erwin Manufacturing Company, assignee	177,645
Russell Manufacturing Company, assignee	177,841
Salisbury, C. H., Barbed fence wire	177,752
Sampson, J. H., Boot tree	177,753
Saxby and Wolf	177,911
Saxton, G. D., assignee	177,794
Schneider, G. P., Pencil sharpener	177,663
Schrenkeisen, M., Rocking chair	177,754
Schuessler, C., assignee, (reissue)	7,129
Schultes and Winterscheid	177,778
Sedgwick, C., Ear muff	177,755
Seibke, C., Rein holder	177,756
Seidewitz, F. W., Paper jewelry	177,889
Seltzinger, C. P., Apparatus for crimping wire for sieves, (reissue)	7,125
Seltzinger, C. P., Loom for weaving wire for coal screens	177,664
Seymour, H. A., assignee	177,727
Sharps Rifle Company, assignee	177,852
Sheldon, P., Apparatus for mining coal, (reissue)	7,135
Simon, L. T., Bellows for concertinas, reed organs, &c	177,890
Skiffington, W. P., Sectional steam boiler	177,757
Skinner, C., and W. B. McClure, Ditching machine	177,758
Skoog, R., Chair	177,891
Slade, C. L., Drawing slate	177,892
Small, C., Potato digger	177,759
Small, J. W. and E., Hay loader	177,893
Smith, F. B., Foot measure	177,762
Smith, G. W., and J. H. Gill, Nut lock	177,665
Smith, J. B., Tobacco curing apparatus	177,761
Smith, L. E., Wire fence, (reissue)	7,136
Smith, S., Steam boiler	177,760
Snow, J. T., assignee	177 6e9
Spare, G. E., Carriage top	177,763
Stanwood, I., Obtaining isinglass	177,764
Starkey, A. L., Churn	177,765
Stephen, M. A., Camp kit	177,766
Stern, E., assignee	177,721, 177,848
Stern, E., Process and apparatus for the manufacture of gas	177,767
Stevens, B. R., assignee	177,639
Stevens, J. L., Egg box, (reissue)	7,131
Stewart, E., Sieve	177,894
Stuebner, A., Decorating walls	177,895
Suckow, E., Machine for finishing horseshoe nails	177,768
Syms, W. E., Producing safety papers	177,896
Tanner, D. C., Cultivator	177,666
Taylor, R., Shoe last	177,769
Taylor, W. B. S., Manufacture of flexible tubing, (reissue)	7,137
Thilmany, W., Apparatus for impregnating timber with antiseptics	177,770
Thomas, O., Portable fence	177,897
Thompson, J. S., assignee	177,673
Tomeska, A., Faucet	177,898
Tottingham, A., Camp lounge	177,771
Trahern, W. D., Pump	177,667
Tuttle and Woods, (reissue)	7,138
Tyson, C., Screw soling machine for uniting the uppers and soles of boots and shoes	177,772
Underwood, J. K., Rotary plow	177,668
Verpillier, E., Sleeve button and stud	177,899
Von Hoven, L., Fare controller and indicator	177,900
Vrooman, W. P., Paper glove band	177,669
Walker, E. L., Hay carrier	177,901
Waller, A. R., Can	177,902
Walsh, J. E., assignee	177,749
Warren, G. B., Furniture caster	177,903
Warren, L. I., assignee	177,801
Washburn, S., Jr., Holder for price lists	177,904
Watson, P. H., assignee, (reissue)	7,123
Webb and Applega'e	177,784
Weber, A. M., Stocking supporter	177 670
Webley, P., T. W., and H., assignees	177,642
Welch, A. T., assignee	177,733
Welles, J. C., Breech loading fire arm	177,905
West, L., Heater	177,906
Western Electric Manufacturing Company, assignee	177,856
Westlake, W., Lamp support	177,773
Weyner and Kath	177,850
Wheeler, E. A., Velocipede	177,774
Wheeler, J. B., assignee	177,878
Wheeler, Melick & Co., assignees	177,870
White, J. J., Adding pencil	177,775
Whitney, S. E., Match box	177,776
Whittemore, H., Electric register and time detecter	177,671
Wickes, J. H., Mechanism for driving fan blowers in cars	177,907
Wiegand, C., Doll head	177,777
Wiles, T. S., Ironing apparatus	177,908
Wiley and Russell Manufacturing Company, assignee	177,820
Williams, J. S., Gas making apparatus	177,909
Williams, W. F. and H. L., Clothes wringer	177,910
Winterscheid, M., and B. Schultes, Device for feeding salt to cattle	177,778
Wolf, D. C., and F. M. Saxby, Stove pipe shelf	177,911
Wood, A. C., Pipe cutter	177,673
Wood, L., Street car	177,672
Woods, B. O., and W. S. Tuttle, Printing press, (reissue)	7,138
Woodward, L. F., Lady's work table	177,779
Yeomans, C., Attaching uterine and other supporters	177,780
York, C. and J. F., Grain separator	177,781
Znek, A. L., Thill coupling	177,912

TITLES, DRAWINGS, AND CLAIMS

OF

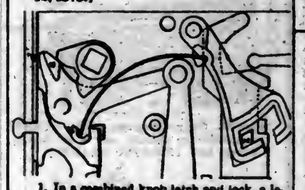
PATENTS GRANTED MAY 23, 1876.

177,610. TEMPLOS FOR REED-ORGANS. C. H. Arne, Cambridge, Mass. [Filed Oct. 11, 1875.]



In a reed-organ, the board D, having openings A A', and the tremolo-valve E, provided with cloth or other facing, in combination with the spring C and regulating-wire E F, all constructed and arranged substantially as and for the purposes described.

177,611. LATCHES AND LOCKS. Horace L. Arnold, Grand Rapids, Mich. [Filed July 10, 1876.]



1. In a combined knob latch and lock, a lever-tumbler, a spindle-hub having a V-shaped notch, and a latch-lever, provided with a stop for limiting its movement, and with a V-shaped lug, in combination with spring-seats on latch-lever and tumbler, and a normally-straight flat spring, which is deflected by abutting endwise against its seats on latch-lever and tumbler, and is capable of being reversed side for side, substantially as described, whereby the tumbler offers a soft resistance to the key, the knob and latch lever are maintained in proper relations with each other, the latch is made heavy on the head and light on the strike, and is withdrawn by the movement of the knob in either direction with nearly an equal degree of force on the knob, and also whereby the spring may be reversed in position after it is set or weakened, as set forth.

2. The combination of a latch-lever having unequal arms, provided with a V-shaped lug on one of its arms, and with a stop which limits its movement, with a latch, a spring acting on the lever for throwing the latch, and a spindle-hub provided with a V-shaped notch for engaging with the V-shaped lug on the latch-lever, and maintained in proper working position, with relation to said lug, by means of the stop which limits its rocking movement, substantially as described.

3. The combination, with a gated-lever tumbler, of a bolt provided with a stump, and a key-notch which has a width equal to the distance traversed by the bolt, substantially as described, whereby at the initial outward or forward movement of the bolt, the tumbler will occupy the same position with relation to the line traveled by the bolt-stump, as set forth.

177,612. VEHICLE-SPRINGS. R. L. Baldwin, Stamford, Conn. [Filed June 4, 1874.]



1. An elliptical steel spring, composed of the exterior plates a and the auxiliary interior plates or springs b b, constructed, arranged, and operating substantially as set forth.

2. In an elliptical spring, composed of exterior plates and interior auxiliary plates, substantially as set forth, the guide and friction-rollers x, one end of the interior auxiliary springs, constructed and operating substantially as set forth.

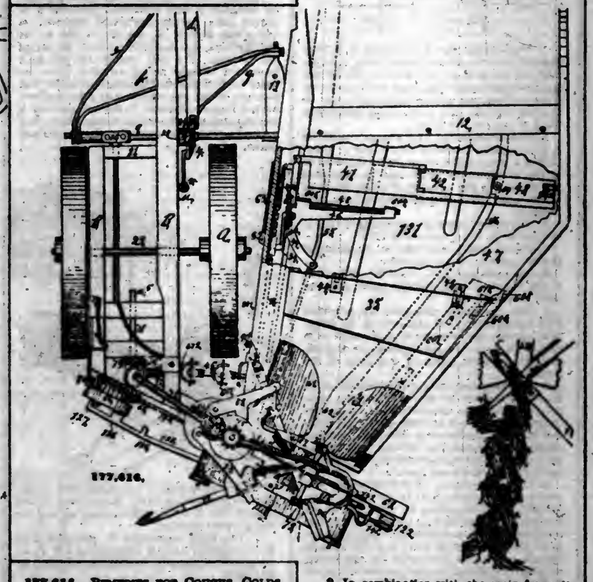
177,613. BRICK-MACHINES. Jacob Bonshire, Pittsburg, Pa., assignor to himself and Jas. Dalzell, same place. [Filed Apr. 15, 1876.]

1. In a brick or similar machine, the combination of the cut-off, mold, and yielding mold-follower, substantially as specified.

2. The combination of the cut-off, mold, spring-top mold-follower, and the cam for actuating the mold-follower, substantially as specified.

177,614. GRAIN-BINDERS. Harry H. Bridenthall, Jr., Westmoreland County, Pa. [Filed Feb. 18, 1876.]

1. The combination of the wedge-shaped platform 131, secondary platform 47, door 35, carriage 46, pivoted reciprocating extension-rake 41, chain 64, and the pulleys 60, these members constructed and operating substantially as and for the purposes herein specified.



177,614.

2. In combination with the main frame B, the detachable arm 63, having the binder mounted thereon, substantially as and for the purposes herein specified.

3. The combination of the arm 63, eyebolt 64, hook 83, and the platform 131, substantially as and for the purposes set forth.

4. The combination of the arm 63, driving-pinion 68, toothed pulley 81, crank-disk 66, connecting-rod 125, carved arms 67, guides 142, pulleys 101, 103, and 104, and the compressing-cord 140, substantially as and for the purposes herein specified.

5. In combination with the compressor-arms 67 and the supporting-arm 63, the rollers 102 and 103, pivoted rollers 101 and 104, and the web 131, as and for the purposes herein specified.

6. The combination of the slotted plate 118, needles 81, tines F, disk 71, driving-disk 86, and the compressor-cord 140, as and for the purposes herein specified.

177,615. REMEDIES FOR COUGHS, COLDS, &c. M. Battaglia, Boston, Mass. [Filed Mar. 7, 1876.]

A cough compound formed of St. John's bread, (*Ceratonia siliqua*,) brown sugar, dried figs, licorice-root, elder-flowers, and water, substantially as described.

177,616. SUPPLY-PIPES FOR STEAM-PUMPS. Jas. M. Bailey, Pittsburg, Pa. [Filed Apr. 8, 1876.]



The chamber B, provided with the pipe C and pipe D, for conveying the exhaust steam from the engine, in combination with the ordinary suction-pipe, whereby the water in the suction is kept in motion and maintained at a high level near the pump-cylinder by the vacuum in the chamber D, produced by the action of the pump-piston and the condensation of the steam, substantially as described, and for the purpose set forth.

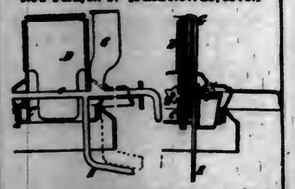
177,617. COAL-SCUTTLES. A. F. Barnes, Chicago, Ill. [Filed Mar. 23, 1876.]

1. In a coal-scuttle, the bottom B, stamped from a single piece of sheet-metal, with flaring and diverging sides, and provided with a hollow bead or wedge, substantially as described, and for the purposes set forth.

2. The bottom B, in combination with the annular A, made with diverging and flaring sides, and the feet D, flaring and diverging in the opposite direction, substantially as described, and for the purposes as set forth.
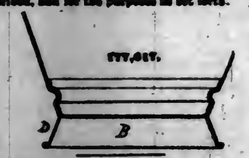


177,618. LAMP-BURNER. H. A. Chapin, New York, N. Y. (Filed Nov. 29, 1876.)



1. The combination of the body of a lamp-burner, an extinguisher, and a catch, substantially as herein described, whereby the burner is absolutely precluded from being removed from the reservoir or fount to which it may be applied until the said extinguisher is manipulated to put out the light.

2. The combination, with a mouth or orifice in a filling-tube provided in a burner or reservoir of a lamp, and a cover for such mouth or orifice, of an extinguisher and an appliance for producing the opening of such mouth or orifice while the extinguisher is in its normal position.

3. The part of a burner consisting of the extinguisher C, rod c, and catch H.

4. The part of a lamp-burner consisting of the extinguisher C and its rod c.

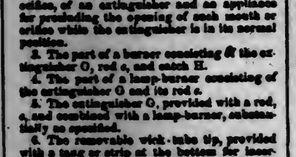
5. The extinguisher C, provided with a rod, c, and combined with a lamp-burner, substantially as specified.

6. The removable wick-tube tip, provided with a tang or strip at the bottom for insertion between the lower portion of a wick-tube proper, to which the said tip may be applied, and the adjacent parts of the body of the burner.

7. In a lamp-burner, the combination of an air-distributer having on one side of the wick-tube an opening of suitable size to permit the insertion of a match or other means for lighting the wick, and a cover for such opening perforably perforated to correspond with the said air-distributer, substantially as and for the purposes herein set forth.

8. The combination of the following elements in a lamp-burner, to wit: The wick-tubes C D, extinguisher G, catch H, or its equivalent, for precluding the replenishing of the reservoir or fount while the wick is alight; the opening *b*, through which the wick may be lighted, and a suitable cover for the latter, substantially as and for the purpose herein set forth.

177,619. DEAD-SAWING MACHINE. C. R. Clifford and Isaac S. Cory, Henry County, Ind. (Filed Nov. 1, 1876.)

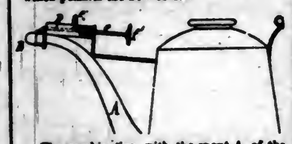


1. The rotative arrangement of the shafts T, S, and c, provided with spur-wheels or pinions D, E, and F, in combination with the forked lever L, pivoted to the shaft S at V V', and operated, as described, to move the saw K, by means of the pitman J, and crank H, substantially as specified and set forth.

2. The forked lever L, arranged as described, and pivoted to the shaft S, to such a manner as to operate the crank-shaft x with a circular movement around the wheel E, substantially as described, and for the purpose specified.

177,620. CAPS OR STOPPERS FOR GAS-BURNERS. William Collins, Niagara Falls, N. Y., assignor to Chas. H. Philpott, same place. (Filed Mar. 13, 1876.)

Brief.—The end of the spout is provided with a thimble-form cover, having within a flexible pad, the cover being held in place by a spiral spring on a hand-rod, pressure against which permits the flow of oil.



The combination, with the spout A, of the cap or stopper B, push-rod *a*, provided with arm *c*, spiral spring *f*, and inclosing-tube D, provided with slot *d*, substantially as and for the purpose hereinbefore set forth.

177,621. SCROLL-SAWS. E. J. Cordesman, Jr., Cincinnati, Ohio, assignor to Cordesman, Egan & Co., same place. (Filed Feb. 19, 1876.)

Brief.—The saw is adjustable and removable by means of a solid cross-head provided with flaring jaws having horizontal depressions *a*, and a step formed on the top of one *a*, as guide-plates, and extending above the top of the pitman. The belt can be shifted on a loose and a tight pulley secured upon the outer end of the driving-shaft, and the momentum of the saw arrested by means of two curved fingers attached to the outer end of a shifting-rod, a brake-wheel, a cam-brake, and a cam foot-lever, for operating the fingers and brake.



1. The cross-head F, provided with guide-plates C C', having step *g*, flaring jaws E, and depressions *h* h^1 h^2, substantially as and for the purpose specified.

2. The solid cross-head F, provided with flaring jaw E, having depressions *h* h^1 h^2, arranged substantially as and for the purpose specified.

3. In combination with the brake-wheel D and foot and loose pulleys b^1 *b* the cam-brake K, cam foot-lever J, and shifting-rod C, connected and operating substantially as and for the purpose specified.

177,622. BAND SAWING-MACHINES. H. J. Cordesman, Jr., Cincinnati, Ohio, assignor to Cordesman, Egan & Co., same place. (Filed Feb. 19, 1876.)

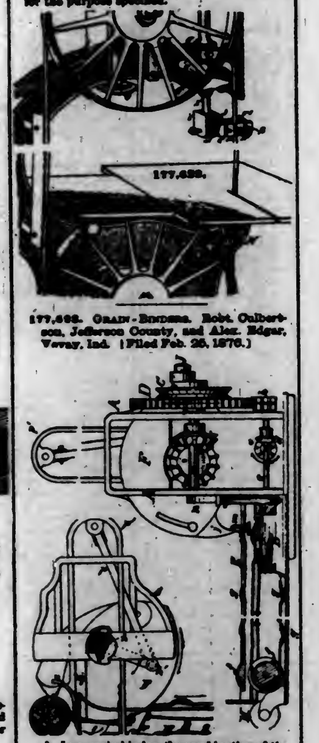
Brief.—The weight of the guide-slide is balanced by means of a section of rubber tubing placed inside of a guide-supporting post, vertically adjustable in a tubular slideway, upheld in detachable sockets attached to arms formed upon the top extension of the main frame. The table is adjustable at any angle by a semi-cylindrical bearing-carrier and slotted flange formed on a plate, which supports the table in a concave bearing upon a small seat of the lower portion of the main frame. The side guides are attached to a bent plate, which is secured to a guide-plate provided with a stem, and are adjustable in a split retaining-socket by a set-screw.

1. The combination of tube H, guide-post I, and rubber connection L, connecting and operating substantially as and for the purpose specified.

2. In combination with the neck E, having concave bed *a*, the semi-cylindrical bearing-arm O, having flanges *c b' b*, and slot 1 for fastening-screw, substantially as and for the purpose specified.

3. The combination of guide-plate J, adjustable back-plate Q, adjustable side guides R R', adjusting-screws T T' T T', and fastening-screws S, connected and operating substantially as and for the purposes specified.

4. The sliding plate E, having adjusting-screw *d*, in combination with the adjustable notched bearing F *f f*, substantially as and for the purpose specified.



177,623. GRAIN-BINDERS. Robt. Culbertson, Jefferson County, and Alex. Edgar, Vevay, Ind. (Filed Feb. 25, 1876.)

1. In a grain-binder, the combination of the carrier E, constructed of endless bats, provided with plates *g g*, with the teeth *n* and rake-heads F F, all arranged to operate substantially as set forth.

2. In a grain-binder, the rake-head F, provided with a spring-tooth, *j*, and a spring, *i*, in combination with a fixed cam, *k*, the whole constructed substantially as set forth, and arranged to operate in connection with the carrier E, as specified.

3. In a grain-binder, the vertically-reciprocating cord-holder G, composed of the bar *g'*, wheel *i*, spring-jaw *f*, stop *r'*, and latch *i*, all arranged substantially as specified.

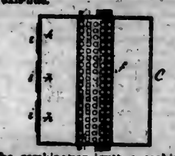
4. The combination of the cord-roller G, constructed as set forth, the treader *q*, reciprocating frame *g'*, pitman *p*, shaft A, and crank *b'*, all constructed and arranged to operate substantially as set forth.

5. The combination of the plate M, slotted as set forth, the tube I, spiral rib *n*, guide *n'*, casing 3, spring 4, bridge 2, flanges or collars 5 6, and forks 7 7, with the grooved hook 10 and pinch-rod 11, when constructed and arranged to operate substantially as set forth.

6. The combination of the tube I, plate M, casing 3, rib *n*, guide *n'*, spring 4, forks 7 7, hook 10, pinch-rod 11, pin 12, spring 13, bell-crank 14, cam-lever 15, cam 16, stop 18, and cam 19 with the cutters 8 and 17, stop *n'*, hook 9, and crane-head I, to form a knotting device for a grain-binder, substantially as set forth.

177,624. STOVE-COVERINGS. Harvy P. Dargett and Richard B. Keith, Flint Hill, Mo. (Filed Mar. 27, 1876.)

Brief.—The odors are carried, through openings in the drum and perforations in the pipe, to the exit-flue.

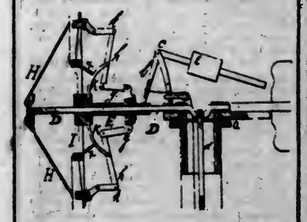


1. The combination, with a cooking stove or range, of a ventilating box or drum, C, having openings *h* and covers *i*, and the perforated pipe *f*, substantially as and for the purpose set forth.

2. In combination with the casing A, provided with doors *a b c* and openings *d*, the ventilating box or drum C, with openings A, covers *i*, and perforated pipe *f*, substantially as and for the purpose described.

177,625. WINDMILLS. Ephrm. Dice, Scioto, Ill. (Filed Apr. 26, 1876.)

Brief.—The wheel-shaft is journaled through bearings on the turn-table, and connected with the reciprocating rod. The hub is sleeved on the shaft, the outer end of which is connected with the lever, which is pivoted and provided with a weight. The pitman is fixed to the sliding hub near its outer end, and the legs are pivoted to the levers, and connect the disk with the sections of the wind-wheel.



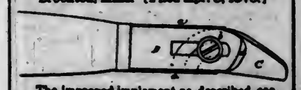
1. A wind-wheel composed of sectional sails, each of which is provided with the stop X, the curved projecting arms K K, mortised into the hub, in combination with the shaft D and the truss-rods H H, substantially as described, and for the purposes set forth.

2. The right-angled lever A, pivoted at *e*, and provided with the weight *e'* at one end, and slotted at the other end to embrace the sliding hub, in combination with the sliding hub E and the connecting-levers *g*, *h*, and *k*, the lever A being pivoted at the arm K, which acts as a fulcrum for the whole series of levers, the extended shaft D, and the truss-rods H H, substantially as described, and for the purposes specified

177,626. ARTIFICIAL FUEL. Frederic Dixon, Islington, England. (Filed Feb. 24, 1876.)

An artificial fuel, consisting of a mixture or composition of aluminate of soda and dextrine or gummy matters, and of fossil-oil, naphtha, rock-oils, alcohol, or hydrocarbons, with suitable carbonaceous matters in a disintegrated or granular state, in or about the proportions hereinbefore set forth.

177,627. SHOE-KNIVES. Isaac A. Dunham, Brockton, Mass. (Filed Apr. 5, 1876.)



The improved implement as described, consisting of the handle A, the stock B, formed with flanges *a a*, the adjustable guide-plate D, provided with the curved inclined guard or lip *d*, the detachable blade C, having a slotted shank, and the set-screw *b*, arranged and combined together substantially as shown and described.

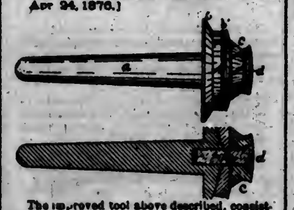
177,628. PROCESSES OF ANNEALING CAST-IRON PLATES. Oliver Edwards, Florence, Mass. (Filed Mar. 16, 1876.)

1. The process of manufacturing malleable cast-iron skates, same consisting in annealing the cast-iron plate, packed in magnetic oxide of iron, substantially as and for the purpose specified.

2. The process of manufacturing malleable cast-iron skates, same consisting in annealing the cast-iron plate, packed in magnetic oxide of iron, with an admixture of black oxide of manganese, substantially as and for the purpose described.

3. As a new article of manufacture, a malleable cast-iron skate, substantially as and for the purpose set forth.

177,629. SOLE-EDGE-BURNISHING TOOLS. Charles S. Fifield, Boston, Mass. (Filed Apr. 24, 1876.)



The improved tool above described, consisting of the parts *a b c*, arranged together, as set forth.

177,630. NOZZLES OR JETS FOR FOUNTAINS. Chas. B. Foster, Washington, D. C. (Filed Feb. 21, 1876.)

Brief.—Rotary motion is imparted to a loose plate by the force of the water, the plate being held in position by the pressure of the atmosphere.

1. A nozzle for fountains, in which the cap is free to move upon or away from its seat, and is retained in its position by atmospheric pressure, as set forth.

2. The combination, in a nozzle, of the seat *y*, central opening, and a plate, *d*, resting loosely on said seat.

3. The combination, in a nozzle, of the seat *y*, plate *d*, and a rod for retaining the plate laterally, substantially as set forth.

4. The loose plate *d* adapted to the seat *y* of the nozzle, and provided with channels at its inner face, substantially as specified.

5. The combination of the plate *b* adapted to the seat *y*, rod *i*, and enlargement or stop, for the purpose set forth.

177,631. LAMP-EXTINGUISHERS. Fred. H. Furniss, Waterloo, N. Y. (Filed Apr. 6, 1876.)

Brief.—The wick-tube is depressed within the stationary tube when the extinguisher is operated.

1. The combination, with the wick-tube C, sliding loosely in the fixed tube D, of the extinguisher H, attached to the edges of the fixed tube by the pivots *h h*, resting in the slots *i i*, the whole arranged to operate as and for the purpose specified.

2. The two tubes C D, sliding one within the other, and the extinguishing-cap H, pivoted to the outer tube, in combination with a spring-rod, O, connected with the extinguisher, in the manner and for the purpose specified.

3. The combination, with the extinguisher H and sliding wick-tube C, of the rods *k k*, connecting the extinguisher with the said tube, as and for the purpose specified.

177,632. NASAL DOUCHES. Chas. H. Genese, Robt. C. Gray, and Joseph R. Isaacs, New York, N. Y. (Filed Nov. 9, 1876.)

Brief.—An air-pump constructed of a bulb of rubber stretched over a plate of metal, and furnished with induction-ports, valves, &c., is connected by a tube with a chambered nozzle, which contains a medicated compound, the spray from which is blown into the nose.



1. The air-pump, composed of elastic bulb or diaphragm C', metallic cap C C', with induction-ports *b*, valve b^1, washer b^2, and ejection-tube b^3, as and for the purposes described.

2. The medicated atomizing nasal douche or irrigator, consisting of chambered nozzle A A^1, containing the medicating compound, tube B, and air-pump C C', constructed and arranged substantially as and for the purposes described.

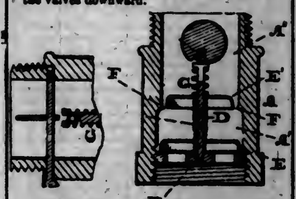
177,633. HATCHWAYS. E. M. Hackett and Brust Moesmer, New York, N. Y. (Filed July 10, 1876.)



The combination of the hoisting-drum and series of cams connected thereto by intermediate gearing with a series of cam-levers so arranged that their pivotal points shall be between such series of cams, and the cords or chains connected directly from said levers to the respective hatchway-doors, substantially as described.

177,634. GAS-REGULATORS. John R. Hall, Philadelphia, Pa. (Filed Apr. 22, 1876.)

Brief.—The shaft carrying the cam can be operated from the outside, to increase or decrease the tension of the spring which presses the valves downward.



1. The chambers A' A^2, each of uniform diameter throughout, in combination with the adjustable valves E E^1, located at the bottoms of said chambers, respectively, substantially as shown and described.

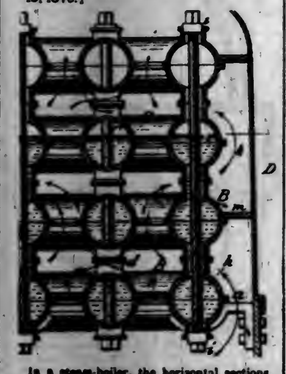
2. The chambers A' A^2, each of uniform diameter throughout, in combination with the valve-seats B F and adjustable valves E E^1, arranged and operating substantially as described.

3. The valves E E^1, connected together to have common motions, and adjustable relatively to each other and to their seats, substantially as and for the purpose set forth.

4. The valves E E^1, in combination with the sleeve-collar D, substantially as and for the purpose set forth.

5. The valve or valves, in combination with the spring G, which is adjustable from the outside of the shell, substantially as and for the purpose set forth.

177,636. CAST-IRON SECTIONAL BOILERS. J. W. Hard, Decorah, Iowa. [Filed Feb. 19, 1876.]



In a steam-boiler, the horizontal sections, consisting of circular tubes B, cast in equal divisions, and tubular cross-arms C, provided with hollow bosses *b d*, bolts *h*, and nuts *i*, in combination with the surrounding shell D, annular deflecting plates *n*, and triangular deflecting plates *o*, all constructed and arranged substantially as and for the purpose set forth.

177,637. COMBINED HARROWS AND ROLLERS. John Hartinger, Cincinnati, Ohio. [Filed Nov. 11, 1875.]

Brief.—A combined harrow and roller constructed to fold upon one another, and rigidly secured by a screw and nut.



The combined harrow and roller, hinged one to the other in the manner described, to adapt them to fold compactly back to back, in combination with the screw and nut for rigidly securing them together, as specified.

177,638. BURGLAR-ALARMS. Samuel H. Harrington, Baltimore, Md., assignor to himself and Alonzo M. G. Gorton, same place. [Filed May 8, 1876.]



1. The combination of the alarm and the locking-lever, constructed and arranged as herein described to engage the crank of the alarm or the arbor on which the same is mounted, and operated to release the same at the time and in the manner set forth.

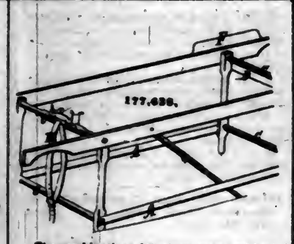
2. In combination with the locking-lever, the system of cords or wire, and the weight arranged and operating as described, so that the lever shall be caused to release the alarm when the cord is either slackened or tightened.

3. The described device for automatically setting the alarm, consisting of the hinged latch on the one part, and the sliding rod, its spring, and the sliding and dropping hook on the other parts, said members being combined and arranged for joint operation, as shown and set forth.

4. The combination, in their supporting frame, of the sliding spring-impelled rod, and the sliding and dropping hook, arranged to enter a slot in the rod, and to uphold the latter against the pressure of its spring, as and for the purpose set forth.

177,639. CARRIAGE-LIFTING FRAMES. C. F. Haynes, Shrewsbury, Mo. [Filed Dec. 13, 1875.]

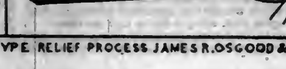
Brief.—To lift the carriage and support it while the wheels are removed.



177,639.

The combination of the legs, cross and horizontal bars, by which eight movable joints are formed, with rests and stops, substantially as described, and for the purposes herein set forth.

177,640. SPOON-HOOKS FOR FISHING. L. S. Hill, Grand Rapids, Mich., assignor of one-half his right to B. R. Stevens, same place. [Filed Apr. 1, 1876.]



The combination of the rod or wire *a*, the spoon *g*, attached loosely thereto at its upper end, and spring *i*, the said spring having a hole through its lower end, so as to slide up and down on the rod with the spoon, substantially as shown and described.

177,642. MILK-COOLERS. Geo. Hofstatter, New London, Ohio, assignor of one-third his right to Geo. A. Fox, same place, and one-third to C. V. Hemminway, Wellington, Ohio. [Filed Mar. 21, 1876.]

Brief.—Construction of the outer vat to distribute and delay the water passing beneath the milk-pans.

In a milk-cooler, the water-tank A, having a central passage, E, flanked by the chambers C C, and connected therewith by apertures *e e*, said chambers having angular projections G G, for diverting the course of the water, as described, having the outside passage F connected with the chambers C C by apertures *f f*, leading to the discharge Q, as shown and described.

177,641. LOOM-PICKERS. Albt. Holbrook, Providence, R. I. [Filed Mar. 10, 1876.]

Brief.—The plug is formed with a fillet or rib, in one piece therewith, through which the rivets in the neck of the picker pass, giving additional security to the plug in its place.

The improved manufacture of rawhide pickers, substantially as described—viz., as constructed with its head-plug A, provided with the fillet *a*, in one piece with the rest of the plug, and having the rivets *b b* of the body next the plug extended through the said fillet, all as set forth.

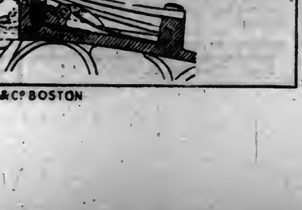
177,643. BREECH-LOADING FIRE-ARMS. E. Hughes, Lambeth, assignor to P. Webley, T. W. Webley, and H. Webley, Birmingham, England. [Filed Nov. 5, 1875.]

1. The combination, substantially as hereinbefore set forth, of the locking-bolt bent upward at its rear end, the hammer-tumblers, and the hand-lever rocking vertically on an axis, substantially in line with the axes of the tumblers, and engaging with the bent portion of the locking-bolt, whereby the bolt may be withdrawn to allow the breech to be tilted, and the hammers are cocked by the direct action of the lever.

2. The combination of the hand-lever, the hollow pin upon which it works, and the hammer-tumblers having their axes inserted in said hollow pin, substantially as and for the purpose set forth.

177,643. SELF-HEATING SMOOTHING-IRONS. Mary P. Jackson, Kennett's Square, and Sarah P. Ball, Frankford, Philadelphia, Pa. [Filed Mar. 30, 1876.]

Brief.—The inclination of the gauze promotes draft. The coiled pipe projects the burning gas to the outer edge of the lower section.



1. The combination, with a smoothing-iron, composed of the upper and lower sections A B, of the gas-supply pipe C, coiled on the lower section to project the flame on said section, substantially as set forth.

2. The combination, in a smoothing-iron, of the upper section and lower section with intervening space, and an interposed web of wire-gauze surrounding and inclosing said space, substantially as set forth.

3. The combination, with a smoothing-iron, of a wire-gauze web, having a greater inclination outward toward the front than at the rear of the iron, substantially as set forth.

4. The combination of the upper and lower sections, the interposed wire-gauze web, the gas-supply pipe, having a series of burner-openings, and an opening and cap for the ignition of the gas, substantially as set forth.

177,644. CORN-HARVESTERS. S. S. Johnston, Polo, Ill. [Filed Oct. 9, 1875.]

Brief.—Improvements in construction and arrangement of the parts of a combined corn-harvesting and husking machine.

177,644.

177,649.

1. The guides or gatherers D and D' D', hinged to the frame, and operated by means of the rods *a*, chains *b*, roller E, with lever G and rack H, substantially as and for the purpose herein set forth.

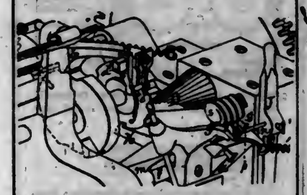
2. The screw or auger feed devices I I, arranged on the outer sides of the spaces *c c*, in combination with the knives *d d*, and elevators J J, substantially as and for the purposes herein set forth.

3. The adjustable gage K, with knife *f* at its upper end, in combination with the screw or auger I and elevator J, substantially as and for the purposes herein set forth.

4. The combination of the hacking-wheel R, receptacle S, heat-elevator T, having spout V, and corn-elevator X, having hinged spout or chute Y, substantially as and for the purposes herein set forth.

177,645. SCREW-CUTTING MACHINES. H. K. Jones, Berlin, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. [Filed Feb. 4, 1876.]

Brief.—The hopper rests upon a shoulder on the vertical shaft, and is carried around therewith, held thereto simply by its own weight. The bolt-shipper is so arranged as to be put in operation whenever the comb travels farther than desired.



1. The combination, with a hopper or revolving dish for containing screw-blanks in mass, with a tilting separator and conveyer of the blanks, when each hopper is attached to its driving-shaft by an adhesive frictional bearing, substantially as described.

2. The combination, substantially as described, of the stationary bifurcated finger, constituting separate points of bearing for correctly aligning the screw-blank, with a spring-holder applied to the opposite side of the blank, intermediate between the two branches of the bifurcated stationary finger, substantially as specified.

3. The combination, with the vertically and laterally moving fingers, of the adjustable arm F and the holding-jaws, the several parts co-operating, substantially as described, for presenting a blank to the jaws and forcing it therein, as set forth.

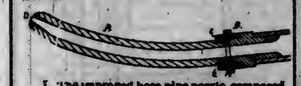
4. The lever H, having a shoe, *i*, in combination with a leading screw, and with a rocking and laterally reciprocating post, carrying a cutting-tool and a comb, and arranged to slide on the face of the lever-shoe, substantially as described.

5. The combination, substantially as described, of the belt-shipper lever with the reciprocating tool-post, whereby, in case the tool-post overruns its proper extent of lateral movement, the machine will be stopped, as set forth.

6. A rocking-post mounted on a fulcrum-shaft, and provided with a tool-arm and a comb-arm, substantially as described.

177,646. HOSE-PIPE NOZZLES. Rufus Kendrick, Wakefield, assignor to himself and James M. Robbins, Cambridgeport, Mass. [Filed Mar. 29, 1876.]

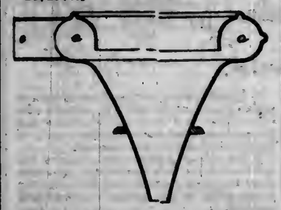
Brief.—The nozzle is intended for insertion in the hole of a partition, so as to put out fire in places impossible to reach by the ordinary nozzle.



1. The improved hose-pipe nozzle, composed of a single metallic pipe, curved as shown and described, and provided at one end with a connecting-screw, and at the other with a head, *c*, as set forth.

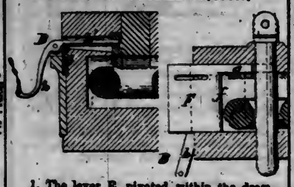
2. A swiveling hose-pipe nozzle, composed of the curved pipe A and the nut B, constructed and arranged substantially as shown in Figs. 3 and 4.

177,647. WATER-CLOSET BOWLS. Thomas G. Knight, New York, N. Y. [Filed Feb. 29, 1876.]



The closet bowl or basin *d*, provided with the annular chamber *c*, having an elongated slit opening, *e*, the eder-exit pipe *a*, and water-induction pipe *b*, substantially as described.

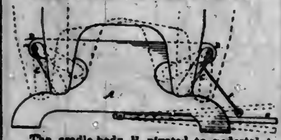
177,648. CAR-COUPLINGS. C. H. Knowlton, Rockland, Me. [Filed Mar. 18, 1875.]



1. The lever E, pivoted within the draw-head, in combination with the lever B, pivoted to the sides of the draw-head, and having arms *b b'*, substantially as described, for the purpose specified.

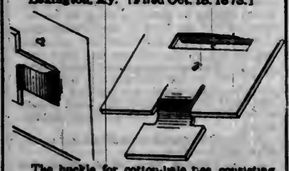
2. The beveled slide F, having the arm *g*, and combined with the draw-head, so as to slide laterally therein, substantially as and for the purposes set forth.

177,649. CRADLES. Jas. H. McLean, Steubenville, Ohio. [Filed Oct. 18, 1875.]



The cradle-body B, pivoted to pedestal A by means of links C, hung so that their lower ends will converge toward each other, in the manner shown, whereby a rocking and reciprocating or swinging motion may be imparted to the cradle, substantially in the manner shown and set forth.

177,650. COTTON-BALE TIES. J. McMurtry, Lexington, Ky. [Filed Oct. 18, 1875.]



The buckle for cotton-bale ties, consisting of the two parts *a d*, which are constructed and made to hook together, substantially as shown and described, and for the purpose set forth.

177,651. COTTON-BALE TIES. J. McMurtry, Lexington, Ky. [Filed Nov. 12, 1875.]

1. As a cotton-bale tie, the band *a*, having two or more inclined slots cut in its edge or edges, substantially as shown.

2. The band *a*, having an increased thickness along its center, substantially as described.

3. The band *d*, having the inclined slots *d* and thickness *e*, substantially as and for the purpose described.

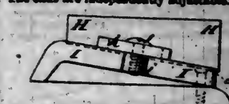
4. The band *d*, having inclined slots that are widest at their mouths, and having the depressed lips 2, substantially as shown and described.

177,652.



177,652. DOWELING-MACHINES. Andrew P. Merchant, Guilford, N. Y. [Filed Mar. 6, 1876.]

Brief.—The support for the heading rests upon inclined ways, so as to be raised or lowered by moving it to or from the boring-bits. The ends are independently adjustable.



In a doweling-machine, the stationary inclined ways I, having upon their face grooves *c*, and the legs *d*, with nut-screws J, in combination with the independently-adjustable inclined rests H, formed with slotted plates *h*, substantially as and for the purpose set forth.

177,653. FLOWER-BASKETS. J. H. Meyer, Moberly, Mo. [Filed Mar. 10, 1876.]

Brief.—A flower-basket with sections, which can be detached and used as a bracket-basket, together as a hanging basket, or, in connection with a pedestal, as a flower-stand.



1. A flower-basket, having a detachable support or pedestal for converting the basket into a flower-stand or suspension-basket, substantially as and for the purpose set forth.

2. A suspension-basket or flower-stand, in which the basket or receptacle for holding flowers is made in sections for converting the flower-stand or suspension-baskets into one or more wall or bracket baskets, substantially as and for the purpose specified.

3. A combined flower-stand, suspension-basket, and wall or bracket basket, consisting of the sections A A', formed of the strips *a* and the wires *e e*, connected to said strips by flanges *h*, and to each other by loops *f*, and the arms *h h* and wings *i i* connected to the bottom of said basket and the pedestal B, substantially as and for the purpose described.

177,654. DOOR-HANGERS. Saml. H. Moore and Edward T. Moore, Chicago, Ill. [Filed Apr. 20, 1876.]

Brief.—The wheel is chambered, its annular recess, combined with the non-rotating box on the shank, holding friction-rollers, a bolt or screw passing through the hub of the wheel, and a suitable cap-piece holding all in position.



The wheel G, having rim *c*, annular recess *b*, and hub *d*, in combination with strap A, having rim B, and circular box C, and the friction-rollers D, and with the cap-piece H, all constructed and arranged substantially as and for the purpose set forth.

177,655. SASH-CORD FASTENERS. John Otis, Ithaca, N. Y. [Filed Mar. 27, 1876.]

Brief.—A metal clutch, with spring sides and notched teeth, adapted to grasp the end of the sash-cord without knotting, and securely hold it in position.



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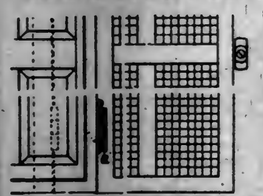
The metallic clutch or fastener *b*, with elastic spring sides *b'* and *b''*, and provided with teeth or projections *c* and *d* and curved extremity *f*, in combination with the cam *a*, the same constructed and operating substantially as and for the purpose set forth.

177,656. WATER-PROOF BOOTS AND SHOES. Hermann D. Osgood, Somerville, Mass., assignor of one-third his right to James M. Osgood, same place. [Filed Apr. 19, 1876.]



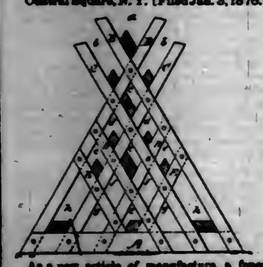
In the manufacture of water-proof boots and shoes, the combination of the intermediate seamless upper and sole, of water-proof material, with the shoe-upper, lining, and soles, all arranged substantially as and for the purpose hereinbefore set forth.

177,657. SCREEN-DOORS. Jeremiah Palm, Sandwich, Ill. [Filed Apr. 29, 1876.]



The combination-door, consisting of the hinged frame A, screen C, and panel-door B, substantially as specified.

177,658. FENCE-POSTS. John R. Phillips, Central Square, N. Y. [Filed Jan. 3, 1876.]



As a new article of manufacture, a fence-post composed of the horizontal base-piece A, and oblique bars B C, crossing each other at their upper ends to form spaces *a b*, and at their lower ends to form spaces *b*, for the reception of rails for anchoring the post, and the bars D E, the whole forming together a series of spaces, so that said post may be adapted to counteract forces of a greater or less number of rails, and admitting of their position being changed to bring the weight or pressure of said rails at the center of sides of the post, as and for the purpose shown and described.

177,659. SCROLL-SAW FRAMES. Henry L. Pratt, Brooklyn, N. Y. [Filed Feb. 11, 1876.]

Brief.—The frame is made of spring-steel, and provided at each end with perforated blocks, through the lower parts of which pass set-screws, for clamping rods provided with internal bore, and having spherical heads with central cavities, in which the ends of the saw are clamped, and the saw adjusted as desired by set-screws working through either side of the head. The saw is strained by the spring of the frame when released from the force compressing its sides.



177,659. *b*

1. In combination with the frame A and set-screws *b b'*, the round rods B D, provided with internal bore, and the clamping-screws *d* and *d'*, constructed and operating substantially in the manner described and specified.

2. The clamping device for clamping the saw-blade to the rods, consisting of the screw *d* and the screw *c*, constructed and operating substantially in the manner described and specified.

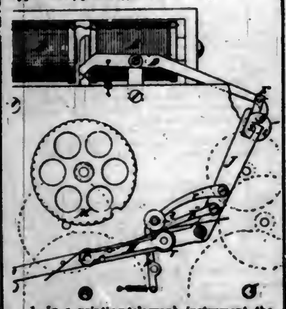
177,660. BOOTS AND SHOES. Samuel F. Frey, Baltimore, Md., assignor to himself, Abraham S. Adler, and Jas. M. Clement, same place. [Filed Apr. 24, 1876.]



The combined welt, stay, and protector for the heel-seam of a boot or shoe, substantially as and for the purpose set forth.

177,661. PRINTING-TELEGRAPHS. Charles A. Randell, Brooklyn, N. Y. [Filed Nov. 3, 1875.]

Brief.—A single electro-magnetic escapement controls the mechanisms for setting the type-wheel, printing, and unlocking.



1. In a printing-telegraph instrument, the combination of a type-wheel, an electro-magnetic escapement, a mechanical power to effect the printing, and a unison device, when the movement of the type-wheel, the unlocking of the same, and the printing mechanism are controlled by the electro-magnetic escapement.

2. In a printing-telegraph instrument, the printing device J H I, cam or eccentric *i*, dog F, and gearing for operating the same, in combination with the lever D, the vibrating arm *f*, or equivalent, a type-wheel, and its actuating-gearing, substantially as set forth.

3. In a printing-telegraph instrument, a type-wheel and its operating-gearing, an electro-magnetic escapement, and printing devices, controlled by the electro-magnetic escapement, in combination with a unlocking mechanism.

4. The unison mechanism *e' a p o p' g*, substantially as shown.

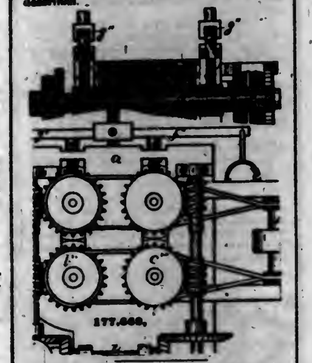
5. The improved type-wheel, constructed with letters and fractions of equal length upon the same, and figures of a different length than the letters or fractions, as and for the purpose set forth.

177,662. MACHINES FOR POUNCING FELT CLOTH. Henry S. Richardson, Winchester, Mass. [Filed Jan. 26, 1876.]

Brief.—Each roll consists of independent grinding and feeding sections. Each vertical pair of rolls has the grinding sections interposed between the feeding sections, or vice versa, as desired. The shaft of the grinding section passes through the tubular shaft of its companion or feeding section, thus enabling the feeding and grinding sections to be rotated in opposite directions.

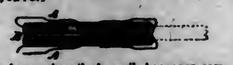
1. A pouncing or surfacing machine, consisting of rollers having flexible faces for the feed of the material, and gritty surfacing-rolls for the pouncing of the material, each roll in the series being composed of both feed and surfacing rolls, substantially as and for the purpose described.

2. In combination with the feed and surfacing rollers, as described, the adjustable blocks *h h*, levers *f'' g''*, weights *f''' g'''*, and rods *f g*, as and for the purpose set forth and described.



177,662.

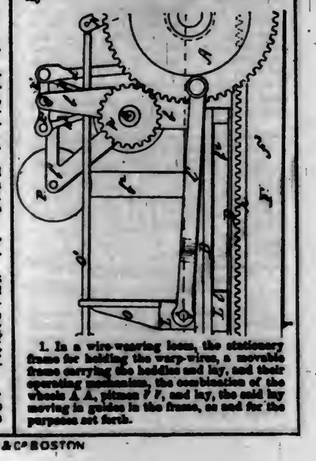
177,663. PENCIL-SHARPENERS. George P. Schneider, Cleveland, Ohio. [Filed Mar. 30, 1876.]



The baron-described pencil-sharpener, composed of two pieces of steel, A, constituting a frame lower at one end than at the other, and formed with an inclined trough, B, having roughened faces and a slotted bottom, *a*, substantially as and for the purpose specified.

177,664. LOOMS FOR WEAVING WIRE FOR COAL-SCREENS. Charles P. Sattinger, Scranton, Pa. [Filed Jan. 18, 1876.]

Brief.—The improvement relates to that class of machines in which the warp-wires are held stationary, and the harness and lay, and their operating mechanism, are moved step by step toward the opposite end of the frame. A standard upon the lay is provided with a guide, through which extends a horizontal rod, connected with a lever that operates a pawl. The standard, as the lay beats up, strikes against a pin upon the rod, and sets the pawl, and upon the back stroke of the lay the standard strikes an opposite projection upon the rod, and moves the ratchet one tooth, thereby shifting the carriage upon the frame. The carriage is provided with horizontal slots, which serve as guides for the reciprocating lay



1. In a wire-weaving loom, the stationary frame for holding the warp-wires, a movable frame carrying the heddles and lay, and their operating mechanism, the combination of the wheels A A, pitmen F F, and lay, the said lay moving in guides in the frame, as and for the purpose set forth.

2. In a wire-weaving loom, having the sliding frame, carrying lay and heddles and their operating mechanism, the standard O in the lay, bar O with stops *o o'*, lever N, and ratchet-wheel *i*, and pawl gearing into rack, all combined and operating as and for the purposes set forth.

3. In combination with the carriage moved upon its frame, and carrying lay and heddles, the pinions *a a*, driven from the shaft of the wheels A A, all having their bearings fixed in the sides of the frame, the pitmen *f f* moving the arms on the rock-shaft, and through them the pitmen which connect said arms to the heddles, as and for the purposes set forth.

177,665. NUT-LOCKS. George W. Smith and James H. Gill, Mount Pleasant, Ohio. [Filed Feb 16, 1876.]

Brief.—Two retaining-plates are employed. One is held by a screw-threaded shank; the other (recessed) is set around the nut, and is secured by lugs on the former entering its recesses.



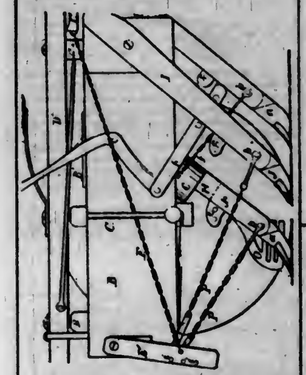
1. A retaining-plate, D, having a threaded shank, D', and lugs or projections D'', substantially as and for the purpose described.

2. The combination, with a retaining-plate, D, having a threaded shank, D', and lugs or projections D'', of the locking-plate E, formed with notches or recesses E' and a central aperture, F, substantially as and for the purpose described.

3. The combination, with a retaining-plate, D, formed with alternate pairs or series of lugs D'' on opposite sides thereof, of a locking-plate, E, formed with notches or recesses E' and a central aperture, F, substantially as and for the purpose specified.

177,666. CULTIVATORS. Daniel C. Tanner, Kirtland, Ohio. [Filed Dec. 27, 1875.]

Brief.—The *beams* are heavy wide side pieces to which are attached the standards. The shares have a double adjustment. The standards are raised and lowered by means of clevises, and bell cranks. Chains extend from pendent bars to an evener in the rear, and to the shovel-standards.



1. The combination of the side pieces B B of the frame, constructed as described, the chains F' and F, the standards I I, and the pendent vibratory arms D', the parts being constructed and arranged to operate as shown and described.

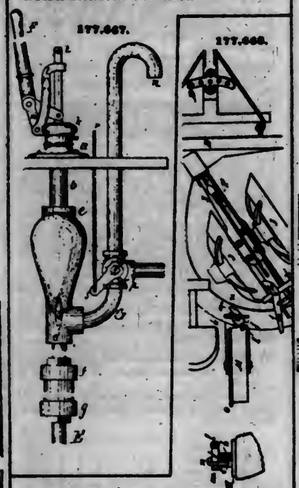
2. The combination of the standard H, adjustable in the sleeve G, with the foot *a*, adjustable in the standard H, substantially as and for the purpose described.

3. In a cultivator, the combination of the standards F and H and the sleeves G, for rendering the shares adjustable, substantially as and for the purpose set forth.

4. The combination of the sway-bar C', pivoted to the rear end of the machine, the chains F' and F, the pendent vibratory arms D', and whiffletrees E''.

177,667. PUMPS. Wm. D. Trabern, Rockford, Ill. [Filed Apr. 10, 1876.]

Brief.—The pump is suspended from the surface-covering, which admits the piston to play virtually in the axis of the pump, thereby obviating any lateral action of the pump-rod.



177,667.

177,668.

1. The twin air-chambers, provided with stuffing-box and suitable connection for the reception of the suspension-pipe *b*, water-pipe C, and discharge-pipe D, cast in one piece, substantially as and for the purpose hereinbefore set forth.

2. In combination with the air-chambers, as described, the water-pipes C and E, and pump-barrel D, as and for the purpose hereinbefore set forth.

3. In combination with the air-chambers, as described, the discharge-pipe C, with delivery branches *n* and *o*, fitted at the junction of the several branches with a three-way faucet, *p*, operated by rod *r*, as and for the purpose hereinbefore set forth.

4. The suspension-pipe *b*, in combination with the pump-base *a* and stuffing-box *s* by yoke-connection, with pump thereto attached, for the purpose of suspending the pump from the surface-covering, and to admit the piston-rod to play vertically in the axis of the pump to prevent lateral vibration of the suspended parts, substantially as hereinbefore set forth.

5. In combination with the pump-base *a*, the adjustable cap *b*, fitted with guide-arm *l*, fulcrum-link *m*, and lever-handle F, for the purpose of adjusting the lever-handle to be operated from any convenient position, in the manner hereinbefore set forth.

177,668. ROTARY PLOWS. John K. Underwood, Sauk Centre, Minn. [Filed Mar. 13, 1876.]

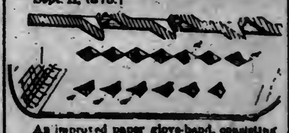
Brief.—The shape and arrangement of the frame, the hanging, and means for elevating the disk-plows.

1. In combination, in a rotary gang-plow, the bent horizontal arm B, rigidly attached at its forward end to the truck, the diagonal brace F attached to the rear part of the arm B and to the forward part of the implement, the bent vertical part of the said brace forming the plow-beam guards or keepers, and the pivoted and diagonally-arranged plow-beam, having its free end arranged in the said keepers, substantially as and for the purposes specified.

2. The combination of the bent arm B, pivoted plow-beam I, beam-guide F, lever H, ratchet G, pawl *a*, piece *a'*, connecting-rod *h*, and disk-shaped plow-wheels J J, set diagonally to the line of draft, all arranged substantially as described, in a rotary gang-plow, for the purposes set forth.

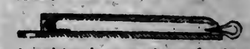
3. The combination of the plow-beam I, having a broad or flat central part, the separate axles *e e*, elongated loops *f f*, nuts *e' e'*, and wheels J J, journaled adjustably on the single beam, all substantially as and for the purposes specified.

177,669. PAPER GLOVE-BANDS. William P. Vrooman, Johnstown, N. Y., assignor to Mathew Beaucroft, same place. [Filed Sept. 11, 1875.]



An improved paper glove-band, consisting of a continuous strip cut to form a series of tongues, *d*, near one end, and a series of slits near the other, the whole constituting a new article of manufacture.

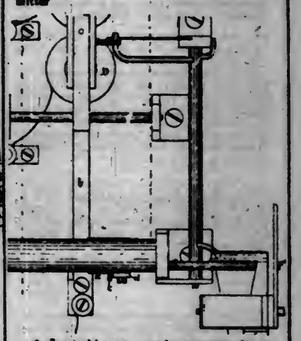
177,670. STOCKING-SUPPORTERS. Aaron M. Weber, Oshkosh, Wis. [Filed Mar. 7, 1876.]



A retaining device consisting of a plate, a hook or hooks connected thereto, and serving to support the stocking or garment, and a spring cap hinged to said plate, and covering the point of the hook, substantially as set forth.

177,671. ELECTRIC RECEIVING AND TRANSMITTING. Harrison Whittemore, Somerville, Mass. [Filed Oct. 23, 1876.]

Brief.—Number of stations, each with a transmitter having a distinct arrangement of circuit-closing points. Recorder consists of a strip of moving paper, across face of which a marking-point is carried by mechanism released by electro-magnet closing circuit at any station. During its traversing movement pencil pressed into contact with paper by armature-lever, at intervals determined by arrangement of circuit-closing points of transmitter



1. In combination, a series of current-closers, A A, a magnet, D, strip C, moved by a time-piece, and traversing marker E, whereby one or more marks in a straight line are made across the strip by manipulating any of the circuit-closers.

2. The circuit *a*, magnet D, lever *b*, stop *c*, key *d*, mechanism F, and circuit *a*, substantially as described.

3. In combination, the circuit *a*, magnet D, lever *b*, stop *c*, key *d*, mechanism F, cam *f*, and cam-rod *g*, substantially as described.

177,672. STREET-CARS. L. Wood, Brooklyn, N. Y. [Filed Dec. 14, 1875.]

1. A street-car so constructed with removable panels as to be convertible from an open into a close car, and vice versa, substantially in the manner described and specified.

2. An open street-car provided with wire-work or other open-work screens or frames, arranged to form the back, or a portion of the back, of the seats, substantially in the manner described and specified.

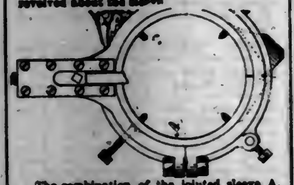
3. The combination of the curtain M and its roller, shaft *b*, provided with crank *c*, ratchet *d*, and pawl *e*, constructed and operating substantially in the manner described and specified.

4. The combination of the curtain M, provided with eyes *f*, shaft *b*, provided with crank *c*, ratchet *d*, pawl *e*, and hooks *g*, constructed and operating substantially in the manner described and specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

177,672. PIPE-CUTTERS. Austin C. Wood, Syracuse, N. Y. [Filed Mar. 9, 1876.]

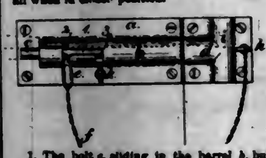
Brief.—A hinged sleeve, provided with centering-screws, movable independently of the cutter, is adjusted about the pipe. A jointed collar, formed with ratchet-teeth and cutter-head, is centered by a jointed ring, inclosing the teeth, and carrying a pawl. The collar is revolved about the sleeve.



The combination of the jointed sleeve A, provided with independent centering-screws, jointed collar, and revolving cutter-head, substantially as shown and described.

177,673. COMBINED DOOR BOLTS AND CHAINS. Wm. R. M. Adams, New York, N. Y. [Filed Oct. 6, 1875.]

Brief.—The essential novelty being the vertical tube, made in one piece with the bolt cam or socket, and serving as a convenient keeper for the bolt and chain; the construction permitting the partial opening of the door while still chained, the easy detachment of both bolt and chain, or the padlocking of all when in closed position.



1. The bolt *a*, sliding in the barrel *b*, but removable therefrom, the socket *d*, for the end of the bolt, and a chain connected at one end to said socket, and at the other end to the bolt, for the purposes and as set forth.

2. The barrel *b*, bolt *a*, eye *e*, and chain *f*, in combination with the staple *h*, for a padlock or other fastening, and the socket *d*, substantially as described.

3. The vertical tube *i*, made in one piece with socket *d*, and forming a keeper for the bolt and chain when not in use, substantially as set forth.

177,674. TERRET-PADS. John R. Bangor, Harrisonville, Mo. [Filed Apr. 24, 1876.]



The improved terret or hook pad for harness, made of a screw-socket for a terret-ring, with loop or recess for retaining the layer of the headband, and of a base-plate, with articulations, for being riveted or screwed to the backband, substantially in the manner and form herein specified.

177,675. WRENCHES. Silas H. Beach, Geneva, N. Y., assignor of one-half his right to Andrew Morrell, same place. [Filed Mar. 31, 1876.]

Brief.—To the handle is attached a cam, which extends the whole length of the wrench. By rotating the handle, the longest diameter of the cam forces the key-bars outward, and connects them with the jaws; by turning the handle back the key-bars and jaws separate, and the lower jaw can be moved up and down by hand, and can be set again whenever desired by rotating the handle.



1. In a wrench, the combination with the jaws B B, of the key-bars C C, resting loosely in the mortises of the jaws, and the cam A', resting between the key-bars, the key-bars and cam extending the whole length of the working portion of the wrench, and the cam forming a part of the handle, as shown and described, and for the purpose specified.

2. The combination, with the cam A', of the key-bars C C, constructed with the recesses *d d* and hooks *b b* at the top, to receive and hold the stationary jaw, and one of them provided with the ratchet *f*, to engage the movable jaw, as and for the purpose specified.

3. In combination with the cam A' and key-bars C C, the movable jaw B, constructed with the depression *g* on one side of its working-face, of a depth equal to one-half the distance between the ratchet-teeth, as and for the purpose specified.

177,677. WATCH-KEYS. John S. Birch, New York, N. Y. [Filed Apr. 4, 1876.]



1. The spirally-grooved tube D, combined with the case A and the jaws B C of a watch-key, to extend and open the jaws, substantially in the manner described.

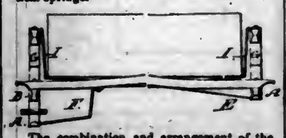
2. The jaws B and the case A of a watch-key, combined and arranged to close the jaws on the post by pressing the case down with the finger on the case-jaws when resting on the post, substantially as specified.

3. The rod C and bent-headed spring E, combined with the jaws B, substantially as specified.

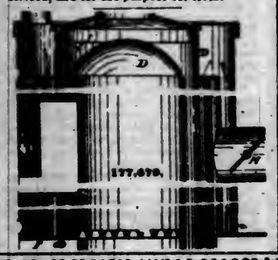
4. The friction-pin L, combined with the slotted rod C, case-jaws B, and case A, substantially as specified.

177,678. LIGHT SPRING-WAGONS. John J. Black, Cleveland, Ohio. [Filed Apr. 1, 1876.]

Brief.—Dispenses with a central reach, and hangs the body between side spars, upon elliptical springs.



The combination, and arrangement of the axles A A, bolster B, side spars C C, the body D, braces E E and F F, the springs G G, bars H H, and loop-irons I I, as shown and described, and for the purpose set forth.



177,679. HOT-AIR FURNACES. David Boyd, New York, N. Y. [Filed May 16, 1876.]

The combination, with fire-pot *J*, of a surrounding flue, *F*, separated from the heating parts of furnace by diaphragm C D, extending from the bottom to the top of case, and connected through cap H with outer casing E, as and for the purpose specified.

177,680. HARVESTERS. C. C. Bradley, Syracuse, N. Y. [Filed Mar. 18, 1876.]

Brief.—A ball-and-socket joint connecting pitman and cutter; the ball hollow-filled with elastic material, supersaturated with the lubricant. One portion of the socket works in the other portion by a pivot stopped on a piece of rubber.



1. In a harvester, a hollow spherical cutter-bar head, to contain lubricating material, substantially as described.

2. In a harvester-pitman, the combination of a detached socket-clasp, F, a fixed socket-clasp, E, a bolt and lock-nut, G, and an elastic cushion, K, the whole forming an elastic socket-joint, as shown and described, and for the purpose specified.

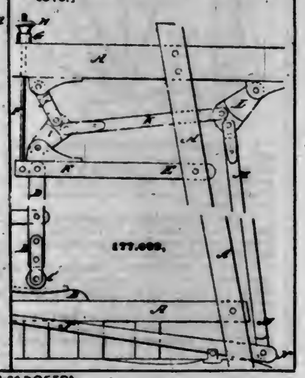
177,681. COMBINED COPY-HOLDERS AND GALLEY-STANDS. Charles E. Brainard, Boston, Mass. [Filed Nov. 15, 1875.]



1. A subdivided copy-holder, having a letter or symbol attached to each subdivision, in combination with a galley having a like number of subdivisions bearing corresponding letters or symbols, substantially as and for the purpose described.

2. A copy-holder consisting of a standard, *e*, in combination with a movable piece, K, having projecting arms H, spurs I, and set-screw L, all constructed, arranged, and operated as set forth.

177,682. LEATHER-ROLLING MACHINES. J. Bright, Stoneham, Pa. [Filed Apr. 20, 1876.]



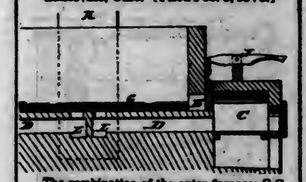
The combination of the lever E, the rod F, the rubber block G, the two toggle-joints I J and K I, the connecting-bar M, and the foot-lever N, with the vibrating lever D that carries the operating-roller O, and with the frame A of the machine, substantially as herein shown and described.

177,683. BALE-TIES. John N. Briggs, Coeymans, N. Y. [Filed Apr. 17, 1876.]



The wire bale-tie A, constructed with an open hook, B, at each of its ends, for the purpose of interlocking the ends together, in the manner and for the purpose herein specified.

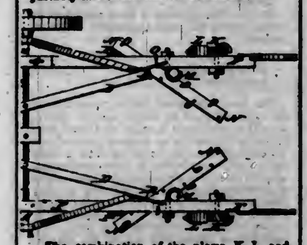
177,684. RIDGE-REELS. Jerome Brooker, Zanesville, Ohio. [Filed Feb. 5, 1876.]



The combination of the outer furnaces C C, dampered flues D E, cross-flues I, and chimneys K, arranged substantially as and for the purpose specified, whereby the smoke may be confined from the kiln until all moisture has been evaporated from the bricks.

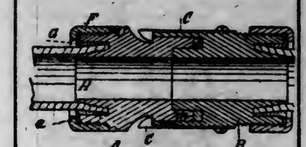
177,685. COMBINED HARROWS AND CULTIVATORS. Harlin Bonner, Dunnon's Bridge, Mo. [Filed Mar. 18, 1876.]

Brief.—A pair of wheels with an arched axle-tree and elevated tongue, the bends and braces extending some distance behind the axle-tree. The cultivator-beams are attached in the usual manner, and to the beams are adjustably affixed the harrow-teeth bars.



The combination of the plows K L and harrows M N O, relatively arranged substantially as and for the purpose specified.

177,686. HOSE-PIPE COUPLINGS. George H. Bunnell, Boston, Mass. [Filed Apr. 20, 1876.]

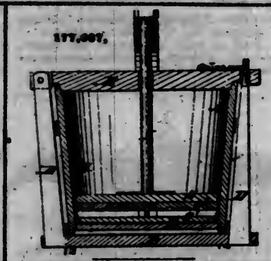


The improved hose-pipe coupling described, consisting of the part A, provided with the flange *m*, shoulder *l*, thimble F, ring G, groove *s*, and nipple H, and the part B, provided with the socket J, spring-hook C, thimble F, ring G, groove *s*, and nipple H, all constructed and arranged to operate in combination with the pipe I, substantially as set forth and specified.

177,687. WASHING-MACHINES. William Bymaster, Jamestown, Ind. [Filed Mar. 31, 1876.]

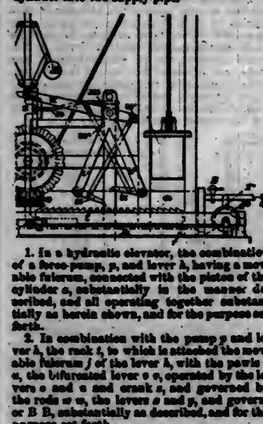
The close cover B, pivoted to an end of one and fastening over an end of another post, D, in combination with a tub and rubber shaft, as shown and described.

177,687.



177,688. HYDRAULIC ELEVATORS. Clarence A. Chandler, East Bridgewater, Mass. [Filed Apr. 17, 1876.]

Brief.—A force pump, worked by a lever having a movable fulcrum, and regulated by a governor, forces back part of water that has been discharged from the main or working cylinder into the supply-pipe.

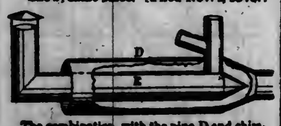


1. In a hydraulic elevator, the combination of a force-pump, *p*, and lever A, having a movable fulcrum, connected with the piston of the cylinder *c*, substantially in the manner described, and all operating together substantially as herein shown, and for the purposes set forth.

2. In combination with the pump *p* and lever A, the rack *t*, to which is attached the movable fulcrum *f* of the lever A, with the pawls *u u*, the bifurcated lever *o o*, operated by the lever *n* and *n* and crank *s*, and governed by the rods *w w*, the levers *o* and *p*, and governor B B, substantially as described, and for the purpose set forth.

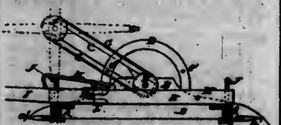
3. In combination with the force-pump *p* and supply-pipe *q* of the cylinder *c*, the pipes *r r'*, substantially as described, and for the purpose set forth.

177,689. VENTILATORS. H. Childs, Providence, R. I., assignor to himself and J. T. Snow, same place. [Filed Nov. 1, 1876.]



The combination, with the pipe D and chimney-flue, of the tube E, closed at one end and opening into the chimney-flue, and at a higher point, and the ventilating-pipes leading from the lower part of the room or rooms into said tube, whereby the cold and impure air is drawn from the room or rooms near the floor thereof and passed directly up the chimney-flue.

177,690. REAPERS AND HARVESTERS. Wm. Clewater, Liberty Pole, Wis. [Filed Mar. 6, 1876.]



1. The combination of frame B, bars O O E E, and a reel capable of being reversed to set over either of the two cutter-bars, substantially as shown and described.

2. The combination of the parallel bars H, the guide-rod J, and the loop M with the tongue I and the frame B, substantially as herein shown and described.

177,691. WATCHMEN'S TIME-RECORDERS. Augustus A. Coes, Staunton, Va. [Filed May 1, 1876.]

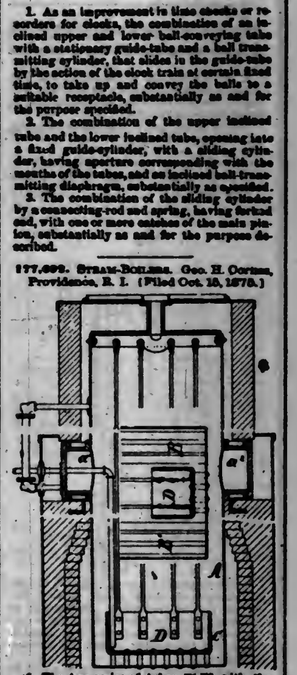


1. As an improvement in time-checks or recorders for clocks, the combination of an inclined upper and lower ball-conveying tube with a stationary guide-tube and a ball transmitting cylinder, that slides in the guide-tube by the action of the clock train at certain fixed time, to take up and convey the balls to a suitable receptacle, substantially as and for the purpose specified.

2. The combination of the upper inclined tube and the lower inclined tube, opening into a fixed guide-cylinder, with a sliding cylinder, having aperture corresponding with the mouths of the tubes, and an inclined ball-transmitting diaphragm, substantially as specified.

3. The combination of the sliding cylinder by a connecting-rod and spring, having forked end, with one or more catches of the main pinion, substantially as and for the purpose described.

177,692. STEAM-BOILERS. Geo. H. Cortes, Providence, R. I. [Filed Oct. 18, 1875.]



1. The two series of tubes F F, with the open space C between them, in combination with the man-holes *a' a'*, as and for the purpose specified.

2. The mud-tub D, arranged in the open space C between the sets of tubes, as herein specified.

3. The rigid mud-tub D, in combination with a series of steps connecting therefrom to the bottom of the boiler, and with a series of steps extending from the sides of the tub to a point in the top plate of the boiler, substantially as and for the purposes herein specified.

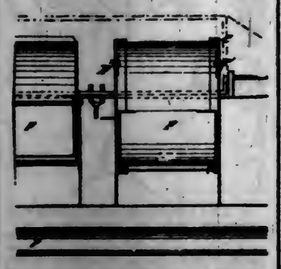
4. The blow-off pipe G, in combination with the boiler A, man-hole cover *a'*, and mud-tub D, as herein specified.

177,695. DEVICE FOR ACTUATING RAILROAD-SWITCHES. Thomas F. Oxley, Covington, Ky. [Filed Mar. 31, 1876.]



The point or shoe A, attached to, or being made a part of, a rod or chain B, passing through a guide, C, and provided with a spring, D, substantially as and for the purposes herein set forth.

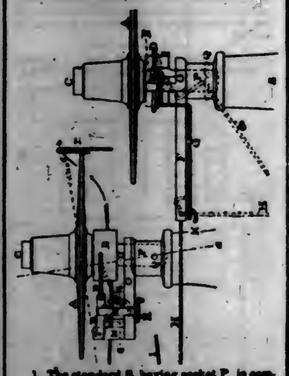
177,696. LIFE-BOAT. James F. Cooper, Santa Clara, Cal. [Filed Mar. 21, 1876.]



1. The combination of the rotating or sliding semicircular decks A B with a life-boat, having the circular-bottomed cabins or spaces F, substantially as specified.

2. The hollow keel F, combined with a boat, substantially as specified.

177,697. ROTARY KNITTING-MACHINE. G. W. Cunningham, Bennington, Vt. [Filed Dec. 16, 1875.]

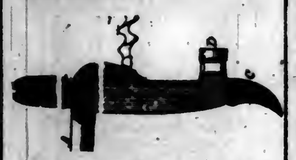


1. The standard S, having casket P, in combination with the wheel A and arbor C, pivoted at Q, and mechanism, substantially as described, whereby, upon the breaking or running out of the yarn, the wheel A is caused to recede from the needles, as and for the purposes set forth.

2. The combination of the presser-wheel A, pivoted arbor C, casket P, toggle E D, supporting-wire G, and drop-wire H, as and for the purposes described.

177,698. COMBINED IMPLEMENTS. T. Davis, Scranton, Pa. [Filed Apr. 26, 1876.]

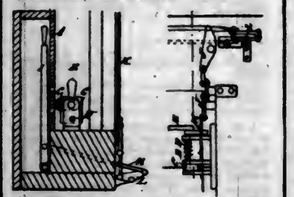
Brief.—A knife-blade, cigar-box opener, hammer, corkscrew, and hoof-cleaner are arranged in one handle.



The improved implement herein described, consisting of the knife-blade A, cigar-box opener B, hoof-cleaner C, hammer D, and corkscrew E, combined with the inclosing case or handle H, substantially as described.

177,699. WINDOW-SHUTTER OPENER. J. R. Day, New York, N. Y. [Filed Feb. 21, 1876.]

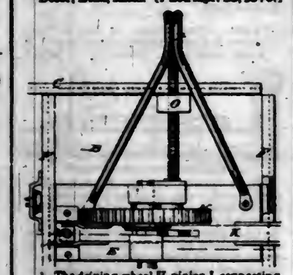
Brief.—A hand-lever in a suitable locked-up box or case outside the building is connected, by rods, links, and elbow-joints, with a series of spring-bolts and hasp-fasteners, in such manner that any desired number of fire-proof shutters can be manipulated at one time, and, in case of fire, opened from the outside; there being also separately connecting arms, by which the spring slide-bolt can be moved from the inside by hand, independently of the lever or main devices.



1. The combination, with the spring slide-bolt B and hasp C, of arm G and rod H, connected, by suitable lever J L and rods K M, with a hand-lever, I, located outside of the building, substantially as specified.

2. The spring slide-bolt B and the arm G, connected to the rod H, arranged to allow the bolt to be moved by hand independently of rod H, substantially as specified.

177,700. MILLSTONE-DRESSER. Augustine Dodge, Elma, Minn. [Filed Apr. 20, 1876.]



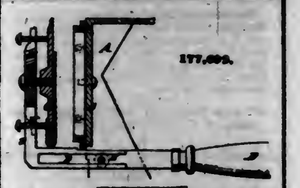
1. The driving-wheel H, pinion I, connecting-rod L, pick-handle K, and adjustable pivot N for the pick-handle, combined substantially as specified.

2. The feed-screw G, pinion I, plate E, plate B, nut O, and the supports F, combined and arranged substantially as specified.

177,701. PRINTING-PRESSES. Edward T. Dockum, New York, N. Y., assignor to himself and Thomas Dockum, same place. [Filed Apr. 26, 1876.]

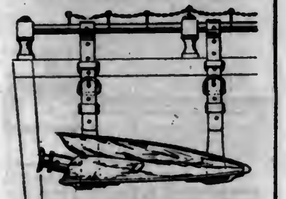
The lever D, L-ist at right angles, pivoted to the frame A by a single bolt or pin, E, and having four arms, H, projecting in the form of the letter X, formed open in upper end to receive the set-screws for adjusting the platen, substantially as herein shown and described.

177,702.



177,703. BACK-SUPPORTS FOR BATH-TUBS. Emil F. W. Hennemann, New York, N. Y. [Filed Apr. 4, 1876.]

Brief.—A means of supporting the back while bathing, which can be fixed to the bath-tub, and allowing adjustment thereof.

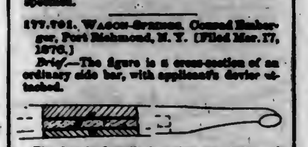


1. A back-support for bath-tubs, combined with means or devices for attaching it to the tub, and allowing adjustment thereof, substantially as shown and described.

2. The combination, with longitudinal side rods of the tub, having retaining-pins, of the adjustable back support or cushion, applied to lateral suspension-straps, substantially as specified.

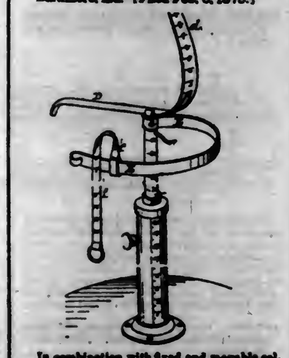
177,704. WAGON-SPRINGS. Conrad Emberger, Port Richmond, N. Y. [Filed Mar. 17, 1876.]

Brief.—The figure is a cross-section of an ordinary side bar, with applicant's device attached.



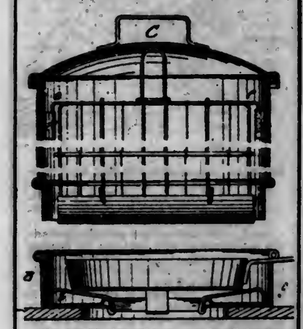
The herein-described spring, consisting of the combination of an elastic wooden spring, A, with a steel plate B, when said steel plate B, placed in a cavity at the under side of said wooden spring or bar, is inclosed in a linen cloth, *c*, or its equivalent, to which the bottom wooden piece C is firmly attached, and these parts surrounded with another linen or other cloth, *c*, attached to the same, and to the inside of the cavity in the wooden spring A, by means of glue or other suitable paste, substantially in the manner and for the purpose herein set forth.

177,705. TAILORS' MEASURES. B. Ryder, Baltimore, Md. [Filed Feb. 6, 1876.]



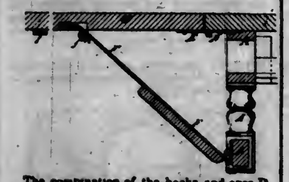
In combination with fixed and movable scrolls B C, and their cranks, the arm D, and measurer *d E f*, as and for the purpose described and represented.

177,706. CULINARY VESSELS. D. J. Ensor, Mount Clemens, Pa. [Filed Mar. 6, 1876.]



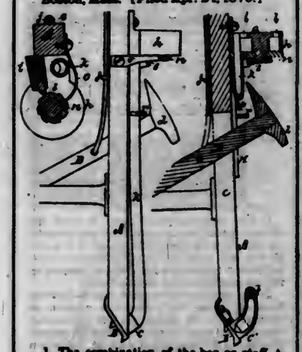
The combination of upper section B, having cover C, with lower section B', having central opening a and rests b, as and for the purpose specified.

177,707. COMBINED IRONING-BOARDS AND TABLES. Jas. A. Geraghty, Newark, N. J. [Filed Apr. 18, 1876.]



The combination of the books and eyes D E, the brace F, provided with the hook *f*, the flanged plate G, and the hangers H I, with the table A B and the ironing-board C, substantially as herein shown and described.

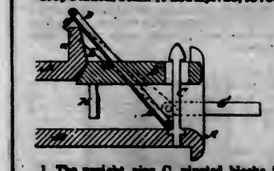
177,708. CORNICE CARPET-STRETCHERS AND TACK-DRIVERS. John M. Farrer, Boston, Mass. [Filed Apr. 24, 1876.]



1. The combination of the bar or staff A, toothed feet B, tack-jaws C C', and hammer D and its operative rod *e* with a feeding apparatus, substantially as described, composed of the cam k, notched final-wheel G, conduit *i*, curved tube h, lever H, ratchet-wheel n, impelling-pawl *s*, and retaining-spring *o*, all being arranged and applied essentially as and to operate as explained.

2. For feeding tacks for being driven, as explained, the combination of the tube h, cam k, conduit *i*, notched wheel G, ratchet-wheel n, retaining-spring *o*, and the lever H, provided with the hook *r* and the impelling-pawl *s*, all being substantially as explained.

177,709. CAR-COUPLINGS. W. H. Ferris, Troy Station, Tenn. [Filed Apr. 26, 1876.]

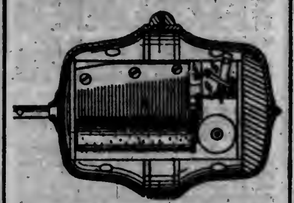


1. The upright pins C, pivoted blocks B, and notched pins E, in combination with the draw-heads A, having an open upper side, and with a coupling-link, D, substantially as herein shown and described.

2. The combination of the pivoted bars E, the longer cross-bars F, and the sliding bars G, with the open-topped draw-bars A, the pivoted blocks B, the pins H, and the link D, substantially as herein shown and described.

177,710. MUSICAL TOPS. Ella M. Gelliard, New York, N. Y. [Filed Apr. 10, 1876.]

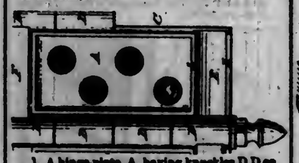
Brief.—Stop mechanism within the top is released by centrifugal force during the act of spinning, thus allowing the inclosed music-box or other device to sound until the nearly-spent top permits the stop-work to act again.



A musical instrument, located in a spinning-top, and having combined with it stop mechanism that releases and allows it to run when the top spins, substantially as herein shown and described.

177,711. COMBINED HOOKS AND EYES. Jas. K. Gilliland, Syracuse, N. Y., assignor to William Gilliland, same place. [Filed Jan. 13, 1876.]

Brief.—A two-way hinge, connected by suitable plates and two cross-bars of peculiar construction, has deep recesses formed at each end of each plate or leaf, for reception of the cross-bars. These cross-bars have at each end a supplementary knuckle, with shoulders or offsets, the whole constituting a strong, compact, closely fitting, two-way hinge, all the peculiarities of which are exhaustively set forth in the claims.



1. A hinge-plate, A, having knuckles D D on its opposite sides, and near to its opposite ends, and provided with recesses E E, formed therein, one in each end thereof, as and for the purpose described.

2. The cross-bar F, having supplementary knuckles D', having shoulders or offsets J J, as and for the purpose described.

3. The two plates A A of the same construction, each having the knuckles D D on its opposite sides, and near to its opposite ends, in combination with two cross-bars, F F, having supplementary knuckles D', with shoulders or offsets J J, and with suitable pintles and nuts, as and for the purpose set forth.

4. The two plates A A of the same construction, each having the knuckles D D on its opposite sides, and near to its opposite ends, and having recesses E E formed therein, in combination with cross-bars F F, having supplementary knuckles D', with shoulders or offsets J J, and with suitable pintles and nuts, as and for the purpose set forth.

5. In a two-way hinge, the combination of two hinge-plates, each having a recess formed therein, at each end thereof, as described, with two cross-bars, and with suitable pintles and nuts, as and for the purpose set forth.

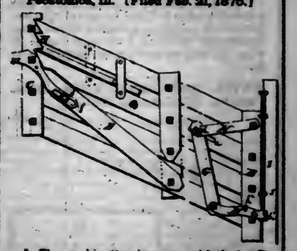
177,712. FIRE-KINDLERS. D. B. Goewey, Lyons, N. Y. [Filed Jan. 29, 1876.]



1. As an article of manufacture, a porous block for fire-kindling purposes, consisting of fire-sand, two-thirds, and fire-clay, one-third, substantially as and for the purpose herein shown and specified.

2. The process herein described of manufacturing fire torches or kindlers, consisting in first mixing fire-sand, fire-clay, sawdust, and water in or about the proportions named; then molding the plastic mass thus formed into any suitable shape; then perforating the block thus formed; then burning or baking it at a white heat; and, lastly, supplying it with a suitably shaped handle, substantially as and for the purpose herein shown and specified.

177,713. FARM-GATES. Andrew J. Grady, Pecatonica, Ill. [Filed Feb. 21, 1876.]



1. The combination, in a gate, with the bar D pivoted to lowest rail, and having side stud *d*, of the post C having notches E, and the lever F having slot *f*, the latter pivoted on gate, substantially as and for the purpose specified.

2. The combination, with gate-pintle I, of the straps H H, connected by bar G and post E, having the end-curved stud *h'*, one of said straps being pivoted to upper end of said post, and the other to a sliding eye, *h'*, as and for the purpose set forth.

177,714. HINGES FOR DOORS. Thos. Q. Hall, Indianapolis, Ind. [Filed Jan. 3, 1876.]

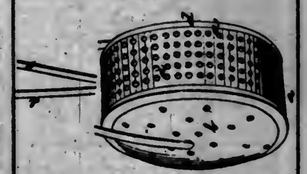
Brief.—The peculiar construction of the hinge gives ample room for the moldings on the lounge-frame when the lounge is opened, and, when the folding leaf is closed, holds all the parts firmly in position.



1. In a double-jointed hinge, the plate *c*, substantially as and for the purpose set forth.

2. The combination and arrangement of the plates *a*, *b*, *c*, and *d*, in a double-jointed hinge, substantially as and for the purpose set forth.

177,715. SOAP-HOLDERS. Samuel Harlow, and Horace P. Bailey, Plymouth, Mass. [Filed Feb. 26, 1876.]



As a new article of manufacture, a soap-holder, composed of the struck-up perforated metal cup and bottom plates *b d'*; the perforated sheet-metal body *c*, and the spring-wire handles *d a*, crossed midway of their length, and having the spring-coil *a*, substantially as and for the purposes set forth.

177,715. GREASE-CONDENSERS FOR PURIFYING RENDERED STEAM. Samuel N. Hartwell, Wellington Heights, Mass. [Filed Feb. 21, 1876.]

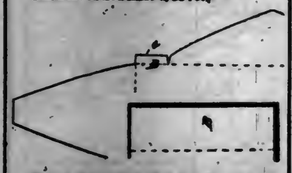


1. A grease-condenser for purifying exhaust steam, in order that it may be used for boiling, drying, or heating feed-water, consisting of a water-chamber, having a top inlet for steam near one end, and an outlet near the other end for the egress of steam, as shown and described, whereby the steam may be impinged upon the water, relieved of its grease, and passed off in a purified state to some suitable receptacle.

2. A grease-condensing chamber, having inlet and outlet tubes B B and a lateral partition with bottom slot to form a filtering and fluid chamber, as shown and described.

3. In a condensing-chamber, having inlet and outlet tubes B B and separated by a bottom-slotted partition, a bottom to the filtering-chamber made on a curve or incline toward the rear, as and for the purpose specified.

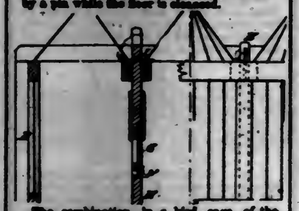
177,716. BEVELOMETER, L. P. Hays, Donegal, Pa. [Filed Apr. 4, 1876.]



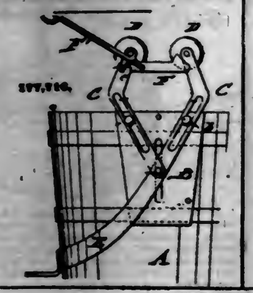
The swinging bevels described, formed of a blade having the portion B, with extensions or tongues a, as and for the purpose set forth.

177,717. BIRD-CAGES. John D. Helms, New York, N. Y. [Filed Mar. 28, 1876.]

Brief.—The cage is divided into compartments by sliding partitions provided with apertures, and closed by hiding doors. The partitions may be entirely slid out through the top of the cage, or partially so, and held by a pin while the floor is cleaned.



The combination, in a bird-cage, of the cross-sliding partitions B, having a passage, F, with a sliding cover, G, substantially as specified.



177,718. MOP-WRINGERS. David Hoag, Warrensburg, N. Y. [Filed Apr. 18, 1876.]

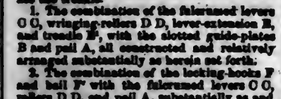
Brief.—The side arms that carry the rolls are slotted, and pins on the levers and pail slide in slots in the pail and levers, to open or close the rolls, when the foot is made to operate the treadle.

1. The combination of the fulcrumed levers C C, wringing-rollers D D, lever-extension E, and treadle F, with the slotted guide-plates B and pail A, all constructed and relatively arranged substantially as herein set forth.

2. The combination of the locking-hooks F and bail F' with the fulcrumed levers C C, rollers D D, and pail A, substantially as and for the purpose set forth.

177,719. METHODS OF MAKING ICE. Bernard Hoppenyan, Hancock, Mich. [Filed Apr. 18, 1876.]

Brief.—Freeze by natural cold a layer as thick as desired; cover the layer of ice with paper coated with melted resin or tallow. May turn off one or more ends of the paper to form short blocks, and may bleat the upturned ends of the paper, to form blocks of ice which shall be easily removable.



The method of making and storing ice in layers or blocks, by sprinkling water, in freezing weather, on and between partitions of paper prepared so as not to stick to the ice, the partitions being arranged in the ice-house, substantially as specified.

177,720. DRESS FOR METALLIC GRINDING-RINGS. Edmund S. Howland, Batavia, Ill. [Filed Oct. 26, 1876.]



1. The solid grinding-ring A, having the feeding-drifts a partly upon the curved surfaces of the eye, with the grinding-drifts b extending partly into the eye, and the entire grinding-surfaces upon three tangents, substantially as and for the purpose set forth.

2. The shallow spaces between the grinding-ridges in combination with the fine sharp ridges for preventing clogging, substantially as set forth.

177,721. CHURN-VATS. Solomon Howe and Andrew Hill, Wapakoneta, N. Y. [Filed Feb. 14, 1,776.]

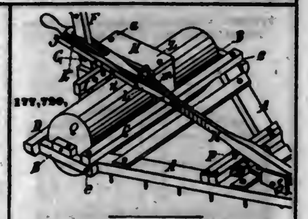


A churn-vat, A B, as arranged with the shaft C, roller D, mounted in arms E, the lever F, and the ratchet and pawl G H, all as shown and described.

177,722. COMBINED HARROWS AND FIELD-ROLLERS. Milton Hutchins, Carlisle, Mass. [Filed Apr. 6, 1876.]

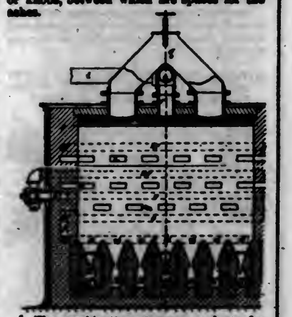
Brief.—A triangular harrow with a roller pivoted to its rear. The harrow is raised and lowered by a lever acting upon a bearing-roller, the crank lever raising and lowering the leveling-roller at the rear.

In a combined harrow and field-roller, substantially such as described, the combination of the roller Q, harrow A, hinged frame E O D, rest H, adjustable tongue N, truck a, standard F, lever J, and pin K, arranged to operate substantially as set forth and specified.



177,723. APPARATUS FOR THE MANUFACTURE OF HEATING AND ILLUMINATING GAS. Reuben J. Jeremiasowski, New York, N. Y., assignor to Edward Stern, same place. [Filed Apr. 19, 1876.]

Brief.—The walls of the generating-chamber are provided with passages for heating the incoming air and steam. Recesses extend from the inside into the walls of the generator, so that the heat will the better reach the steam and air ducts. The floor of the generator is composed of fire-brick, in the form of ridges or knobs, between which are spaces for the ashes.



1. The combination of pipes or ducts for air and steam with the walls of the generating-chamber, having recesses *s*, so that a single fire may more effectually suffice for heating the air and the steam, and for generating the gas, substantially as described.

2. The combination of inlet-valves, heating flues or pipes, and discharge nozzles or tuyeres, with the lining of the generating-chamber, whereby the air and steam are passed alternately through a hot duct to heat them to the temperature required, and delivered directly into the generating-chamber, substantially as described.

3. The bottom of the generating-chamber, constructed with refractory ridges or knobs for supporting the fuel, and forming receptacles for ashes, substantially as described.

4. The combination of the air and steam tuyeres with ridges or knobs in the bottom of the chamber, for supporting the fuel, and intervening troughs to receive the ashes, whereby the air and steam are blown along the spaces between the supports, so as to cause the ashes from the fuel, and promote chemical reactions in the chamber, substantially as described.

177,724. CAR-COUPLINGS. W. R. Kanchie, St. Mary's, Canada. [Filed Dec. 31, 1875.]

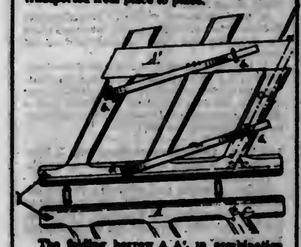
Brief.—The ways guide the link, strengthen draw-head, and prevent lateral play of hammer-catch.



The slotted draw-head A, having inclined blocks or abutments F rightly edined to its sides, in combination with a closely-fitting coupling-hook, B C, all constructed substantially as described, and for the purpose specified.

177,725. HARROWS. Augustus Kohm, Middletown, Ohio. [Filed May 12, 1876.]

Brief.—The harrow is in two sections, one of which can be folded upon the other. Into the rear beams staples are driven, which serve as keepers of curved iron handles, by which either wing can be raised by the driver. Upon one section are four other staples, so located that when the curved handles are lowered they form runners, upon which the harrow is transported from place to place.



The folding harrow A A', in combination with the convertible runners a, adapted for attachment to the harrow, as runners or handles, by the staples b or c, substantially as described.

177,726. SCREW-DRIVERS. J. F. Kingwill, Chicago, Ill. [Filed Mar. 16, 1876.]

Brief.—The ferrule on the handle is notched to form a ratchet, which is engaged by a reversible pawl riveted to the blade.

The combination of the handle A and toothed ferrule B with the blade C, pawl c, and shifting spring d, constructed and operating substantially as described.

177,727. WASH-BOILERS. George King, Providence, R. I. [Filed Apr. 24, 1876.]

177,728. MACHINES FOR BURNISHING THE HEELS OF BOOTS AND SHOES. Richard C. Lambert, Brockton, Mass., assignor to T. A. Dodge, trustee. [Filed Mar. 6, 1876.]

1. The U-shaped burnishing-tool I, combining the outer curved edge of the heel, and adapted to bear upon and burnish all portions either by an intermittent reciprocation of the burnisher or the heel in a direction at right angles to the tread-surface of the heel, as and for the purposes described.

2. The combination, in a heel-burnishing machine, of the U-shaped burnishing-tool I, the heel-levers J J, spring-standards K K, and rocking-beam L, all constructed, arranged, and adapted to operate substantially as described, for the purposes specified.

3. The combination of the burnishing-tool I, levers J J, spring-standards K K, rocking beam L, screw-shaft M, and nut N, all arranged and operating substantially as described.

4. In a machine for burnishing the edges of boot or shoe heels, a jack for holding the boot or shoe mounted in fixed guides, and adapted to be automatically reciprocated at right angles to the tread-surface of the heel, in combination with a burnishing-tool, adapted to be successively brought to bear upon all parts of the other circumference of the heel, as and for the purposes described.

5. In a machine for burnishing the edges of boot or shoe heels, a jack, adapted to hold the boot or shoe, and to be automatically reciprocated in a direction at right angles to the tread-surface of the heel by means of mechanism, the throw of which is adjustable to vary the movement of the jack, and adapted to the thickness of the heel to be burnished, substantially as described.



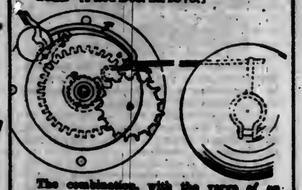
177,729. SCREW-DRIVERS. J. F. Kingwill, Chicago, Ill. [Filed Mar. 16, 1876.]

Brief.—The ferrule on the handle is notched to form a ratchet, which is engaged by a reversible pawl riveted to the blade.

The combination of the handle A and toothed ferrule B with the blade C, pawl c, and shifting spring d, constructed and operating substantially as described.

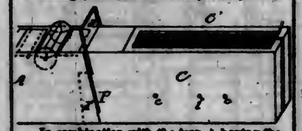
177,730. WASH-BOILERS. George King, Providence, R. I. [Filed Apr. 24, 1876.]

177,731. BURGLAR-ALARMS. Frederick A. Lane, New Haven, assignor, by mesne assignments, to Henry A. Seymour, Bristol, Conn. [Filed Dec. 22, 1875.]



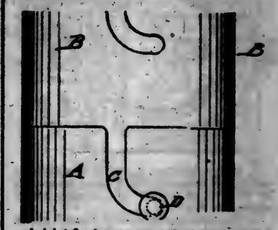
The combination, with the vergo of an alarm movement, said verge having the alarm-hammer connected therewith, of a rod and a detachable cam secured to the shank of a door-knob, whereby the rotation of the door-knob causes the alarm to be sounded, substantially as and for the purposes set forth.

177,732. ANIMAL-TRAPS. John C. Linder, Chicago, Ill. [Filed Dec. 18, 1876.]



In combination with the trap A having the sliding platform, the receptacle C, provided with the apertures D and D', sliding doors or platforms F, wire f, chain P, door O, and the door d, constructed and arranged to operate substantially as and for the purpose specified and described.

177,733. STOVE-PIPE JOINTS. James L. Loring, Dallas Center, Iowa, assignor to Hannah, F. Hubbard, and Julius Pardee, same place. [Filed Mar. 31, 1876.]



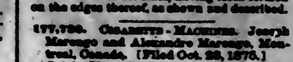
A joint for two pipes, A B, formed by the curved slot C, and bread-headed stud D, as shown and described.

177,734. WASH-BOILERS. H. M. McNeil, Westville, Mich. [Filed Feb. 26, 1876.]



The wash-boiler A, with cover B, and having a circuit formed by the upwardly-tapering and tubes O O outside of said boiler, provided with perforated flanged tubes between D, the middle circuit plate E, edge-bent plate F, and angle-plate G, as and for the purpose specified.

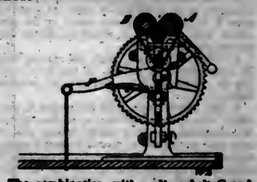
177,735. SCREW-TAPS. Samuel W. Martin, Springfield, Ohio, assignor of one-half his right to F. P. Mast, same place. [Filed May 2, 1876.]



A screw-cutting tap, consisting of a round rod fluted on its sides, having teeth formed on the edges thereof, as shown and described.

177,736. CHARNEYS - MACHINES. Joseph Marengo and Alexandre Marengo, Montreal, Canada. [Filed Oct. 28, 1876.]

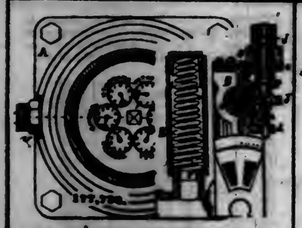
Brief.—The rolls that carry the head to form the blight are arranged to approach each other, and the distance regulated by a set-screw.



The combination, with cutters bolt C and roller K on sliding frame, of the rollers A B, arranged in arms E E, one of which arms is provided with adjustable screws, and the other with lugs or stops, to regulate the closeness of approach of the said rolls A B, substantially as and for the purpose specified.

177,737. LEGGED-MACHINES. R. S. Martin, Fernwood, N. J., assignor of one-half his right to Alonzo T. Welch, Brooklyn, N. Y. [Filed Nov. 10, 1876.]

Brief.—Equalizes the pressure throughout the revolution by a third cylinder-piston and spring. The shaft of the work-wheel carries a valve to exclude water from the dry chamber, which is kept tested by a spring. A single casting constructs journal-bearing and packing for said shaft. Gibs hold the valve-boxes to their seats. The dry chamber is ventilated by an arrangement of holes in the sheet of the hinge, that forbids any tampering with the register by a wire.



1. In liquid-meters, the relief or equalizing cylinder H, pistons F, and spring r, when used in the manner and for the purpose herein shown and described.

2. The combination of worm-wheel J, shafts a and g, spring h, and valve f, when constructed in such manner and for the purpose herein specified and set forth.

3. The combination of two oscillating cylinders operating one crank-shaft with the lips or ribs a a a a.

4. The arrangement of holes a f f in the hinge of case, for the purpose set forth.

5. The combination of the oscillating cylinders G G, the casting H, cylinder K, piston I, shaft spring r, when operating in conjunction, and for the purpose herein shown and described.

177,725. DOMESTIC BOILER. J. McConnell, Cleveland, Ohio. [Filed May 2, 1876.]

Brief.—The reservoir is provided with a spout or nozzle with cap, also removable cover provided with hinge, one of which is curved upward. The hinge are intended to be sprung into loops upon the top of reservoir.



1. The reservoir A, provided with the spout or nozzle a, in combination with the loops or cams B B', and removable cover or lid provided with the hook D, substantially as and for the purposes shown.

2. The combination, with the spring-loop B, constructed as shown, of the lid C and lug D, substantially as and for the purpose shown.

3. The combination, with the vessel A, provided with spout or mouth cap a', of the stamped B, constructed with a lower flange, that it may rest on the top of vessel A, and a cover, C, adapted to snugly fit either vessel A or steamer B, substantially as and for the purpose specified.

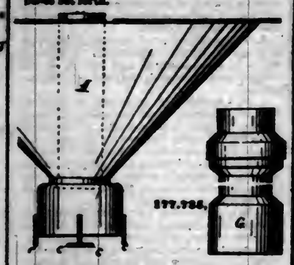
177,726. APPARATUS AND PROCESSES FOR THE MANUFACTURE OF FIRE CHIMNEY-TOPS. Hugh Mathiesen, New Cumberland, W. Va. [Filed Jan. 31, 1876.]

Brief.—The clay is formed by the steam-cylinders drove into the funnel of the die, and through the opening around the core and the form. The flange on the lower part of the form keeps the lower end open of the clay, and the base of the chimney-top is thus formed. By the use of the collar when placed on the form, the upper parts are made, and the three parts are then joined together.

1. The combination of die A, core C, form D, and collar or ring E, in the manufacture of flue chimney-tops, substantially as and for the purposes hereinbefore described.

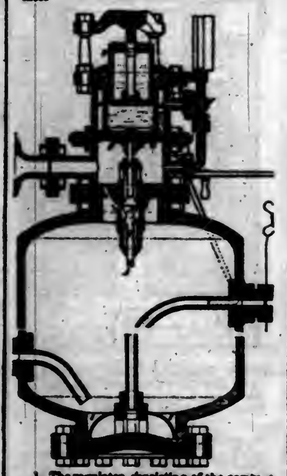
2. The combination of the die A, form D, collar or ring E, hooks a, and arms or supports F, for the purposes hereinbefore specified.

3. The process of manufacturing flue chimney-tops in three parts, arranged and combined as herein described, and for the purposes set forth.



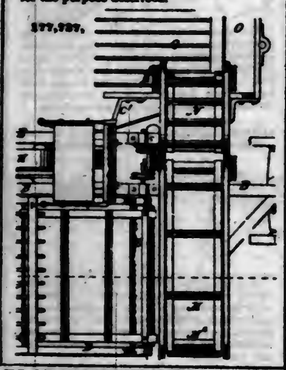
177,727. DEVICES FOR USING COMPRESSED AIR FOR MOTIVE-POWER. L. Mekarski, Paris, France. [Filed Dec. 10, 1875.]

Brief.—The compressed air is forced through heated water, and then passes through a regulator



1. The regulator, consisting of the combination of the pistons P, the casing, having annular air-chamber A, the diaphragm d, and the valve c, supported by spring e.

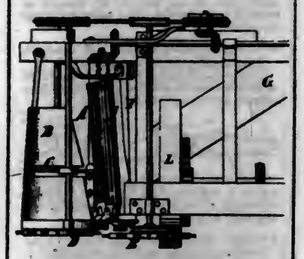
2. The combination, with the hot-water receptacle, of the regulator and the air-pipe T, terminating in a rose, C, substantially as and for the purpose described.



177,727.

177,728. DEVICES FOR COMBINED GATHERING AND DROPPING THE SHEET IN PLATING-MILLS. Jos. I. Mosher and William J. Mosher, Mendota, Ill. [Filed July 9, 1875.]

Brief.—A shield and gathering device operating in connection with upright finished plating-rolls of unequal diameters, whose axes are in a line oblique to the line of advance of the machine.



1. The upright picking-rolls, disposed substantially as specified—namely, so as to lean to one side and one in advance of the other, so that a line passing through their axes will form an obtuse angle with the line of draft or progression of the machine.

2. In combination with the larger advanced roll A, the smaller roll A', having a boss of increased diameter, substantially as set forth.

3. In combination, the rolls A A' and the shield B, arranged in relation to one another, substantially as set forth.

4. In combination, the rolls A A', shield B, and spider C, substantially as set forth.

5. In combination with the rolls A A' and spider C, the wheel E, substantially as set forth.

6. The rolls A A', constructed with scallops at the bottom, to gather the stable singly, substantially as set forth.

7. In combination with the rolls, the revolving platform and carrier, substantially as set forth.

8. In combination with the rolls, the spider, the wheel E, and the revolving platform D, having pins on its periphery, substantially as set forth.

9. In combination with the revolving platform, the board F and endless carrier F', substantially as set forth.

10. In combination with the revolving platform, the compound carrier F F' H, substantially as set forth.

11. In combination with the rolls and frame I, the U-formed bracket P, substantially as set forth.

12. In combination with the revolving carriage, the driving-wheels L L, placed so as to run between the rows, substantially as set forth.

177,729. ELEVATORS. Jacob Meyer, Hattiesburgville, Ill. [Filed May 1, 1876.]

1. The combination of the post A and its cross-beam and braces B C, the crank-shafts D D' and their ratchet-wheels and pawls E E', the ropes F and their guide-pulleys G I, and the bails J with each other, substantially as herein shown and described.

2. The combination of the frame K and rods L with the bails J of the elevator, substantially as herein shown and described.

177,730. HAY RAKING AND COCKING. Wm. J. Mosher, Mendota, Ill. [Filed Sept. 30, 1876.]

1. The combination, with the rake for gathering the hay, and elevators C, H, and F, for carrying it up and discharging it on one side of the machine, of the carrier O, constructed with the falling bottom Q, by which when enough hay has been gathered to form a cock it may be deposited on the ground, substantially as set forth.

2. In combination with the hinged carrier bottom Q and driver's seat, the lever and chain for dropping the cock, substantially as set forth.

3. In combination with the main frame supporting the gathering and elevating mechanism, the carrier and dropper connected thereto by rods, allowing a vertical oscillation and a flexible connection between the lever and dropper, substantially as set forth.

177,731. COMB-HARVESTERS. Jos. I. Mosher and William J. Mosher, Mendota, Ill. [Filed July 9, 1876.]

Brief.—A shield and gathering device operating in connection with upright finished plating-rolls of unequal diameters, whose axes are in a line oblique to the line of advance of the machine.

1. The upright picking-rolls, disposed substantially as specified—namely, so as to lean to one side and one in advance of the other, so that a line passing through their axes will form an obtuse angle with the line of draft or progression of the machine.

2. In combination with the larger advanced roll A, the smaller roll A', having a boss of increased diameter, substantially as set forth.

3. In combination, the rolls A A' and the shield B, arranged in relation to one another, substantially as set forth.

4. In combination, the rolls A A', shield B, and spider C, substantially as set forth.

5. In combination with the rolls A A' and spider C, the wheel E, substantially as set forth.

6. The rolls A A', constructed with scallops at the bottom, to gather the stable singly, substantially as set forth.

7. In combination with the rolls, the revolving platform and carrier, substantially as set forth.

8. In combination with the rolls, the spider, the wheel E, and the revolving platform D, having pins on its periphery, substantially as set forth.

9. In combination with the revolving platform, the board F and endless carrier F', substantially as set forth.

10. In combination with the revolving platform, the compound carrier F F' H, substantially as set forth.

11. In combination with the rolls and frame I, the U-formed bracket P, substantially as set forth.

12. In combination with the revolving carriage, the driving-wheels L L, placed so as to run between the rows, substantially as set forth.

177,732. ELEVATORS. Jacob Meyer, Hattiesburgville, Ill. [Filed May 1, 1876.]

1. The combination of the post A and its cross-beam and braces B C, the crank-shafts D D' and their ratchet-wheels and pawls E E', the ropes F and their guide-pulleys G I, and the bails J with each other, substantially as herein shown and described.

2. The combination of the frame K and rods L with the bails J of the elevator, substantially as herein shown and described.

177,760.



177,760. COVERING FOR CORN-PLANTERS. Charles G. Moreman, Mead County, Ky. [Filed May 12, 1876.]

The levers D D, with their covers E E and eye-piece J, as above described, in combination with the standard F and spring G, arranged, constructed, and operated substantially as and for the purpose hereinbefore set forth.

177,761. BURIAL-CASES. Joseph H. Morray and Robert J. Morray, New Burnside, Ill., executors of James B. Morray, deceased. [Filed Apr. 4, 1876.]

Brief.—A coffin to be placed on an outer cement sarcophagus has its body of cement, and a top of glass bated to it, and made air-tight by a cemented groove.



The improved burial-case made of bottom cement portion A, and top glass portion B, which are cemented by bolts, flanges, and tongue and groove, substantially as described.

177,762. BUNG-BORERS. Aurelius M. Morton, Hignumm, assignor to A. H. Brockett, Branford, Conn. [Filed May 16, 1876.]

Brief.—A bung-borer is provided with a continuous thread on its rear surface.



The herein-described bung-borer, having a screw-thread upon its convex surface, substantially as specified.

177,763. EXPANDING WELL-CURBS. Alex. A. Peck, Hammond, Wis. [Filed Apr. 4, 1876.]

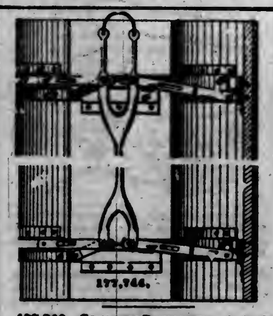
Brief.—An expanding well-curb consisting of a sectional shell, expanding rings, adjusting-arms attached to a central ring, and a vertical shaft. Metal joint-lapping plates connect the outer sections of the curb. The arms have an adjusting-joint, and are held by a set-screw, and jointed to the rims and central ring.

1. The combination of the sectional shell A, expanding sectional rims C, adjusting-arms D E, ring K, and shaft F, substantially as specified.

2. The combination of the metal joint-lapping plates B and the sectional curb A, substantially as specified.

3. The arms D E, constructed with an adjusting-joint, I, and set-screw J, and jointed to the expanding-rims and the ring K, substantially as specified.

177,764.



177,764. CONCRETE PAVEMENTS. Antonio Pellettier, Washington, D. C. [Filed Nov. 6, 1875.]

Brief.—On a bed of broken stone or gravel is spread a grouting composed of hydraulic lime of tiel, terra alba, flour-spar, or any similar hydraulic cement, mixed with oxide of iron and a dry chloride, either of calcium or of iron, in the following proportions, to wit: one part of the oxide of iron to twelve parts of the composition of the bed of the pavement, including the stone or gravel, and one ounce of the chloride to one square yard of the pavement, calculated at one foot in thickness. The grouting is made of such a consistency as to freely fill up the interstices of the stone foundation. Upon this foundation, after it has set or hardened, is spread a coating, one or more inches in thickness, of a composition consisting of the following ingredients: fifteen parts asphaltum or bitumen, fifty parts carbonate of lime, three parts oxide of iron, and two hundred parts clean sharp sand. The surface is heavily rolled with a corrugated roller.

1. The combination of broken stone or gravel with hydraulic lime of tiel, terra alba, flour-spar, or other similar hydraulic lime, oxide of iron, and chloride, for the foundation of a pavement, substantially as set forth.

2. The combination of the asphalt or bitumen, carbonate of lime, oxide of iron, sand, and chloride of calcium, for the coating of a pavement, substantially as set forth.

3. The combination, in a carriage-pavement, of a foundation and coating constructed of the materials, and substantially in the manner, as set forth.

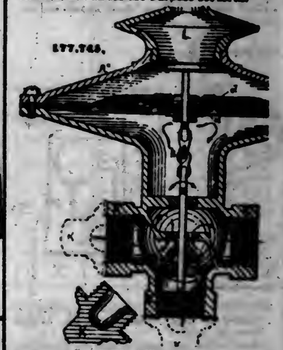
177,765. GAS-GOVERNORS. R. H. Plass, New York, N. Y. [Filed Apr. 21, 1874.]

1. The combination, in a gas-regulator, of the valve-stem B, guided above and below the valve, and consisting of two sections, connected by a universal joint, and a flexible diaphragm secured to the upper section of the stem, substantially as and for the purpose set forth.

2. A gas-regulator, the case of which is provided with an outlet-branch, G, and with two inlet-branches, E E', arranged at right angles to each other, and each adapted to receive a detachable plug, K, for the purposes described.

3. The combination of the cap A' and an overhanging casing, I, perforated at its under side, as and for the purpose set forth.

177,765.

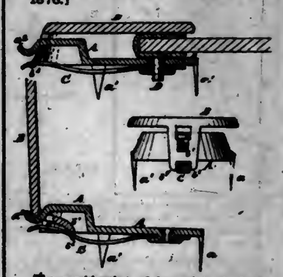


177,765. POCKET-BOOK FASTENINGS. Louis Prahar, New York, N. Y. [Filed Mar. 6, 1876.]
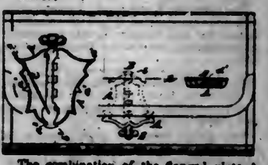


The combination of the flanged plate A, having a notch, *a'*, formed in the flange at the rear end, and the latch B provided with a nock, *b'*, at its rear end to fit into the said notch, to pivot the said latch in place, substantially as herein shown and described.

177,767. POCKET-BOOK FASTENERS. Louis Prahar, New York, N. Y. [Filed Mar. 20, 1876.]



The combination of base-plate A, having arm *a'* on its rear end, with the face-plate B, having a slotted arm, *b'*, substantially as and for the purpose specified.

177,768. POSTHOLES. John Quenzer, New York, and Chas. Quenzer, Brooklyn, N. Y. [Filed Apr. 4, 1876.]



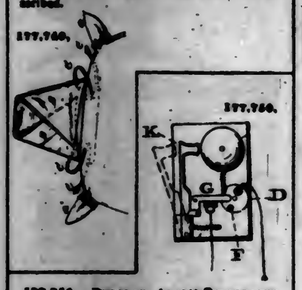
An improved portable hook-case, formed of the bottom, back, and ends, rigidly connected together, the front D, hinged at its lower edge to the forward edge of the bottom, the cover

E, hinged at its rear edge to the upper edge of the back B, and having a flap, F, formed upon its forward edge, the pocket G, the tapes H, and the bail I, substantially as herein shown and described.

177,760. CHAIR-BACK. Henry Redden, New York, N. Y., assignor to himself and J. B. Walsh, same place. [Filed Apr. 25, 1876.]

The combination of the straps U with the mouth of the bag A and with the funnel-shaped tube B, substantially as herein shown and described.

177,760.

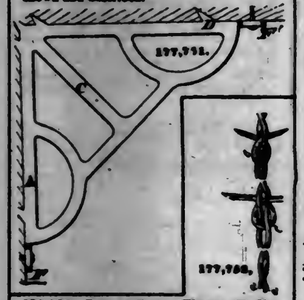


177,760.

177,761. TROUSER. Lansing M. Bingwalt, Cincinnati, Ohio. [Filed Feb. 28, 1876.]

Brief.—The bracket strengthens the corner and supports the tray.

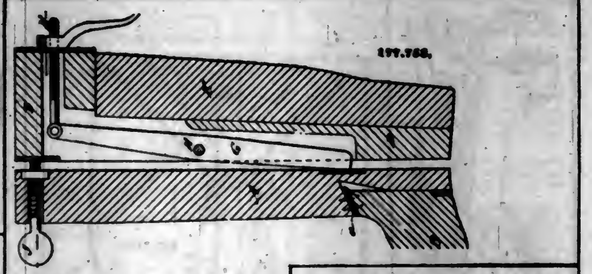
The within-described angle-bracket for trunks, having spurs D, and constructed either with or without the ears F F', for the purpose shown and described.



177,762.

177,762. RAISED FENCE-WIRE. Charles H. Salisbury, De Kalb, Ill., assignee of one-half his right to Jacob Haish, same place. [Filed Apr. 1, 1876.]

The combination, with the strands a a, of the barb C, made of a single piece of wire pointed at its ends and bent at its center, so as to form a loop, the said strands passing through the loop and across each other, so as to bear against alternate sides of the loop, whereby the loop is firmly held in position by the twist of the strands, and so that its pointed ends project laterally from the plane of the twisted wire, as specified.



177,763. BOOT-TREES. James H. Sampson, Paris, Canada. [Filed Apr. 10, 1876.]

The combination, with sections A D, of the screw J and lever G, the latter bearing against the ankle at one end, and at the other operated by device H I, as shown and described, to admit the use of varying backs and insteps.

177,764. ROCKING-CHAIRS. Martin Schrenkeisen, New York, N. Y. [Filed Feb. 21, 1876.]



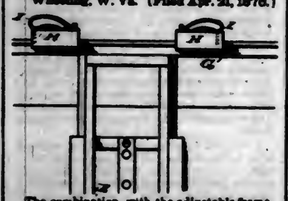
The rear springs F, arranged on a chair to counterbalance the front springs E, the two sets of springs being coiled in opposite directions, as shown and described.

177,765. EAR-MUFFS. Charles Sedgwick, New York, N. Y., assignor to C. H. Nash, Bloomfield, N. J. [Filed Sept. 20, 1875.]



As a new article of manufacture, an ear-muff made in one piece, either knitted or woven, substantially as shown and described.

177,766. HEM-HOLDERS. Christn. Seibke, Wheeling, W. Va. [Filed Apr. 21, 1876.]

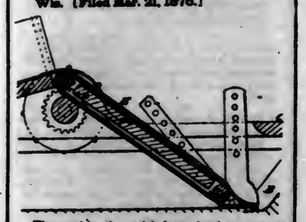


The combination, with the adjustable frame E, of the perforated bar G, sliding beads H H, and the springs I I, provided with the pins i and lips d, substantially as and for the purposes herein set forth.

177,767. SECTIONAL STEAM-BOILER. W. P. Shillington, New York, N. Y. [Filed Nov. 18, 1874.]

A tube-head, consisting of a section of a pipe, whose diameter exceeds the length of each section, in combination with a pair of tubes arranged at one side of the diametrical center of each section, substantially as described.

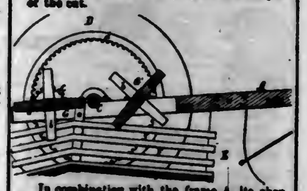
177,768. DITCHING-MACHINES. Charles Skinner and Wm. B. McClure, Eau Claire, Wis. [Filed Mar. 21, 1876.]



The combination, with frame having a wheel on each side, of oblique cutters B, horizontal cutter A, inclined endless carrier E, and the platform G, having side delivery, all as shown and described.

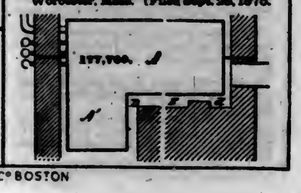
177,769. POTATO-DIGGERS. Cyrus Small, London, Mo. [Filed Apr. 5, 1876.]

Brief.—A longitudinal frame is supported by a pair of wheels, and underneath the frame is suspended a concave digging-share, the rearward extension of which is formed into parallel bars, so close together as to prevent the potatoes from passing through. Above this trough-like scoop two reels with radial arms are mounted, driven by internal gears on the main wheels. These reels move the potatoes and vines to the rear of the machine. A caster-wheel under the forward end of the frame, by being adjustable, regulates the depth of the cut.

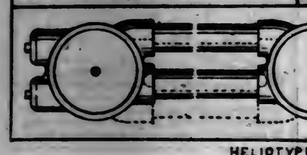


In combination with the frame A, its shoe E, grid F, bosters G G', axle C, and wheels D D', arranged as described, the two internal gears *d d*, and the two pistons *c c*, applied to the said wheels and beaters, as specified.

177,770. STEAM-BOILERS. Sidney Smith, Worcester, Mass. [Filed Sept. 28, 1875.



177,770.



177,767.

In combination with the fire-box, the steam-boiler arranged longitudinally over the fire-box, and constructed with a projection, A', from the lower plane of the boiler down into the fire-box, and with an open flue directly from the fire-box to expose the lower surface of the boiler, substantially as described.

177,771. TOBACCO-CURING APPARATUS. J. B. Smith, Milton, N. C. [Filed Jan. 29, 1876.]

Brief.—Frames provided with wires for suspending the tobacco are elevated by tackle, and held in place by cross-bars at their ends.



The combination of frames C, provided with the pins and wires and the tackle H, all substantially as and for the purpose specified.

177,772. FOOT-MEASURES. F. B. Smith, New York, N. Y. [Filed Apr. 10, 1876.]



1. The vertically-adjustable heel-piece C, in combination with the foot-measure, substantially as described.

2. The stud-pins I, combined with the tape-centers, substantially as described.

177,773. CARRIAGE-TOPS. Geo. B. Sperry, New Haven, Conn. [Filed Mar. 9, 1876.]



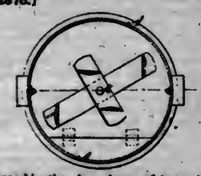
1. In a folding carriage-top, the combination of the vertical bows B C, the transverse bows H G, attached respectively to the said vertical bows, and the hinged braces E F, substantially as described.

2. In a folding carriage-top, the combination of the vertical bows B C, the transverse bows H G, one or both hinged to their respective vertical bows, and the hinged braces E F, substantially as specified.

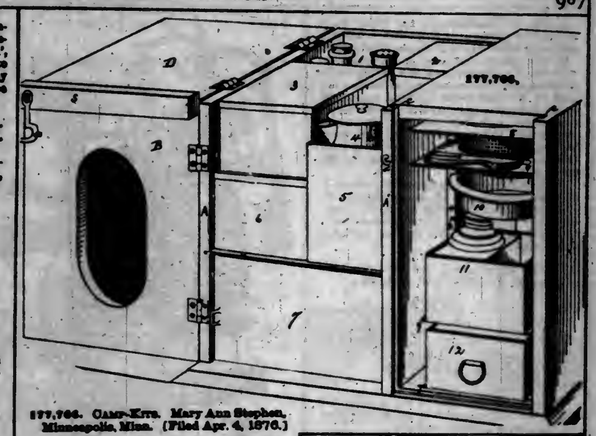
177,774. PROCESSES FOR OBTAINING ISINGLASS. Isaac Stanwood, Gloucester, Mass. [Filed Mar. 2, 1876.]

The process herein described of producing isinglass from salt fish-skins consisting essentially in cooking them, drying them with the scales on, decanting the liquor after boiling, settling it in tanks, removing the impurities, and then drying in sheets suitable for the market, as set forth.

177,775. CHURNS. Alonzo L. Starkey, Elwood, Ind., assignor to himself and Geo. M. Overholtzer, same place. [Filed Feb. 21, 1876.]



The combination, in a churn, of two sets of paddles revolving in opposite directions, the faces of one set being inclined so as to gather the liquid toward the center, and those of the other set to throw it back, thus producing conflicting currents, as above described.



177,776.

177,776. CAMP-KITS. Mary Ann Stephen, Minneapolis, Minn. [Filed Apr. 4, 1876.]

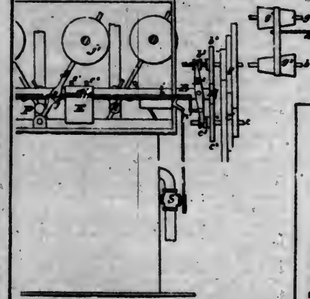
1. A lunch-box, A, provided with the partition A', swinging doors B D, sliding door C, and air-openings E E, substantially as and for the purpose set forth.

2. The improved plate 9, having perforated bottom and sides and flanged rim, substantially as described.

3. The ventilating lunch-box, having partition A, warming device 7, coffee-pot 4, shelves 8, receptacles 9 10 11 12, and boxes 3 5 6, all arranged as described.

177,777. PROCESSES AND APPARATUS FOR THE MANUFACTURE OF GAS. Edwd. Sperr, New York, N. Y. [Filed Apr. 10, 1876.]

Brief.—The steam, air, gas, and purge valves are operated automatically by a series of weighted levers, which are operated by a tripper traveling upon a screw-threaded bar, each bar being turned and the speed regulated by cone-pulleys, or pulleys of different diameters, with the proper shifting-gearing, &c.



1. The combination of a gas-generator with automatic mechanism, substantially as described, for working its valves, or some of them, to admit in alternate succession two or more different gases or vapors, or mixtures thereof, and distribute and discharge their products, substantially as described.

2. The process of purging the generating-chamber, by expelling therefrom one kind of gas before the admission of another, substantially as described.

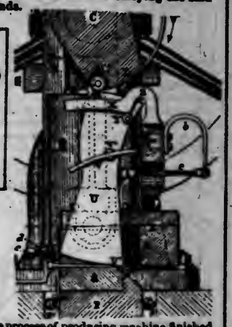
3. The combination, in gas-generators, of the purge-valve with the steam-valve, substantially as described.

4. The combination, in gas-generators, of the purge-valve with the air-valve, substantially as described.

5. The method of preventing contamination of the water-gas by air-gas, by constructing and working the valves substantially as described, so that the valve admitting air shall remain shut until the instant at which the port of the water-gas valve closes, and the port of the water-gas valve shall remain shut until the instant at which the contaminating gas is removed from the generator, substantially as described.

177,778. MACHINES FOR FINISHING HORSE-SHOE-NAILS. Edmund Suckow, Buffalo, N. Y. [Filed Mar. 20, 1876.]

Brief.—A vertically-reciprocating die shears the surplus metal from the sides of the nail upon the anvil. A rocking shaping-bar, working between the dies, and formed with a toe or projection for imparting the bevel to the point, is caused to roll over the nail, (from point to head,) to harden, stiffen, and elongate it, lateral spreading being avoided by confining the nail between the wall of the shearing-die. Should the nail stick in the die, the rocking shaping-bar will act as a stripper to discharge it as the cross-head carrying the said die ascends.



1. The process of producing machine-finished horseshoe-nails, consisting of first shearing the forged nail by suitably-arranged punches and dies into its proper shape broadwise, and then subjecting the same to the action of a shaping-bar rocking over said nail, whereby it is pointed, stiffened, and compressed to its proper thickness, all when remaining in and confined by the dies, substantially as described.

2. The combination, with the stationary punch Q, of the movable dies P P', and the rocking shaping-bar U, operating within said dies, in the manner and for the use and purpose set forth and described.

3. The rocking shaping-bar U, combined with the springs V V', cam-shaped guards Σ Σ', and the rollers Y Y', for the purpose mentioned.

4. The rocking shaping-bar U in combination with the cam L, as described.

5. The rocking bar U, having the toe U', for the purpose herein before mentioned.

6. The combination, with the cam L, of the roller M, shaping-bar U, having the stop *m*, springs V V', spring *b*, cam-shaped guides Σ Σ', with the return-curve Z, and the rollers Y Y', the whole being constructed and arranged substantially as described.

7. The combination, with the die-block E, of the removable dies P P', retained within said die-block by the checks *d*, set-screw *e*, and transverse plate *f*, substantially as described.

8. The combination, with the punch Q, of the curved spring-guides *g*, constructed and applied in the manner and for the object stated.

9. The spring *h* attached to the bed-plate with one of its extremities, and having on its opposite end two projections to receive the head of the nail to be operated upon, said spring being arranged to partake of the movement of the nail when confined between the cutting-dies, and to discharge the same from the machine, when the nail is released from said dies, substantially as described, for the object stated.

10. The combination, with the standards B B', of the eccentrics H H', connecting-rods K, shaft O, cam L, rocking bar U, dies P P', and the punch Q, constructed and arranged substantially as described, for the use and purpose stated.

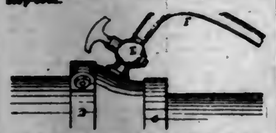
177,769. SHOE-LASTS. Robert Taylor, New York, N. Y. [Filed Apr. 10, 1876.]



A shoe-last, consisting of the sections A B C, the first two connected by an inelined joint, as and for the purpose specified.

177,770. APPARATUS FOR IMPREGNATING TIMBER WITH ANTISEPTICS. W. Thilmany, Cleveland, Ohio. [Filed Apr. 1, 1876.]

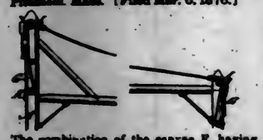
Brief.—Clamps each end of an elastic band onto the end of a timber, and forces an antiseptic into the space thus formed, and into the pores of the timbers, by means of a pipe and stop-cock.



1. The combination of the elastic ring or band A, clamps B and C, consisting of two or more sections each, stop-cock E, and pipe F, substantially as described, and for the purpose set forth.

2. The elastic band A, open at each end to receive a log, in combination with clamps B and C, and pipe F, in the manner as described, and for the purpose specified.

177,771. CAMP-LOUNGES. A. Tottingham, Pittsfield, Mass. [Filed Mar. 6, 1876.]



The combination of the canvas F, having straps G at the ends, with the knock-down frame, having cross-bars I and K, to the head and foot frames, substantially as specified.

177,772. SCREW-SOLING MACHINES FOR UNITING THE UPPERS AND SOLES OF BOOTS AND SHOES. Charles Tyson, Philadelphia, Pa. [Filed Apr. 15, 1876.]

1. The combination, in a screw-soling machine, of the continuously-rotating stud-frame T, the studs *a a*, and the frame-spring *a'*, essentially as and for the purposes specified.

2. In combination with a wire-containing spindle, U, provided with perforations passing inward to its hollow core, of studs *a a*, passing into and through said perforations, and adapted to bite direct upon the wire, essentially as shown and described.

3. The segmental stud-frame T and attachments, in combination with an operating device carrying simultaneously to effect the clinching of the wire and its advance to and entrance through the stock, essentially as described.

4. In an organized machine, the combination, with mechanism for carrying, threading, inserting, and cutting off wire, essentially as and for the purpose described, of other mechanism, viz: detaining-bar H", trip-lever K", trip-pin L", latch-trip N, and composite lever L M O, constructed and operated as specified, all working automatically in connection with the former to so regulate the action of such former mechanism as to cause its complete operation to be proportionately more quickly performed when directed to the union of thin stock than to that of thick, substantially as described.

5. The combination, with a fixed or removable beveled surface upon the nose-lever C, of obliquity corresponding with the desired pitch of the thread and provided with gains J" J", of a chaser-cap, *r*, to receive the chaser *s*, substantially as specified.

6. The combination, in a screw-soling machine, of a beveled surface and channel, *f"*, upon the nose-lever, a chaser, *s*, conforming to the channel, as described, a chaser-cap, *r*, and a set-screw, *t*, for adjustment, essentially as described.

7. The chaser *s*, in combination with the channel *f"*, constructed, as specified, for easy adjustment.

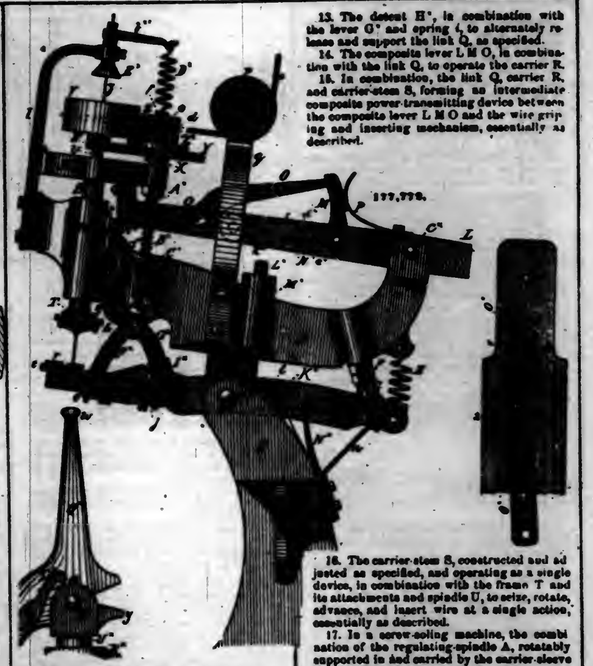
8. The combination of the latch-lever L, latch M, and carrier-lever O, forming together, when locked, a single composite lever, to transmit the force exerted by the treadle through its rod to the link Q, as and for the purposes specified.

9. The combination of the nose-lever C and the frame D with each other and with the composite lever formed by the latch-lever, latch, and carrier-lever, to effect an automatic pressing, and, in connection with the treadle-spring *v"*, an automatic releasing, action upon the stock, essentially as described.

10. The combination of the nose-lever C and frame D with the crooked actuating-lever G", to operate said lever, as described.

11. The crooked lever G", pivoted to and operated, as described, by the nose-lever C and frame D, in combination with a spring-detent, H", a cut-off, I", and a feed-gage device, G", and operating both to release said detent, so as to set free the wire griping, inserting, and regulating mechanism, to actuate said cut-off and to control said feed-gage device, substantially in the order and manner specified.

12. The combination of the composite lever L M O with the treadle-rod K and treadle J, to operate the entire mechanism, essentially as described.



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13. The detent H", in combination with the lever G" and spring *i*, to alternately release and support the link Q, as specified.

14. The composite lever L M O, in combination with the link Q, to operate the carrier R.

15. In combination, the link Q, carrier R, and carrier-stem S, forming an intermediate composite power-transmitting device between the composite lever L M O and the wire griping and inserting mechanism, essentially as described.

16. The carrier-stem S, constructed and adjusted as specified, and operating as a single device, in combination with the frame T and its attachments and spindle U, to seize, rotate, advance, and insert wire at a single action, essentially as described.

17. In a screw-soling machine, the combination of the regulating-spindle A, rotatably supported in and carried by the carrier-sleeve X, and adapted to be rotated in the manner described, with the fixed nut C' upon the main frame D, to form a regulating device for determining the rapidity of entrance of the screw-threaded wire into the stock, essentially as described.

18. The combination of the driving pulley V, pinion W, and wire-containing spindle U, with the cage Z, head *s*, and differential gear wheel Y, to clinch and rotate by its head *d* the regulating-spindle A" through its fixed nut U" when themselves put into action, substantially in the manner and to the end set forth.

19. The combination of the regulating-spindle A", gear-wheel Y, and pinion W, to regulate proportionately the rapidity of descent of the screw-threaded wire, and the rate of its rotation, substantially as set forth.

20. The combination of the carrier K and carrier-stem S with the stud-frame T and attachments, wire-containing spindle U, pinion W, driving-pulley V, cage Z, head *s*, gear-wheel Y, and regulating-spindle A", constituting, when put into action, a single operative device, adapted with a single motion to seize, advance, and insert wire, and to regulate the rapidity of such insertion, and, consequently, the number and pitch of the threads, essentially as described.

21. The standard *q*, carrying the pulleys *p p*, and attached to and vibrating with the frame D to keep the driving-belt *o o* taut about the driving-pulley V at any inclination of the frame, and at any height of the driving-pulley, substantially as described.

22. In combination with the nose-lever C a feed-gage, consisting of an adjustable toothed face-piece, O", a sliding bar, *j*, controlled by a lever, G", set by a spring, *u*, and limited in its throw by two gage-studs, *v v*, to operate substantially as described.

23. The gage-bar O", adjustable as to length, and operating automatically to determine the space between the screws and their distance from the edge of the stock.

24. A one-piece work-supporting horn, provided with two work-supporting surfaces, and so pivotally adjusted that the same action which throws one of such surfaces into plane beneath the axis of the wire-containing spindle will throw the other completely out of plane, and vice versa, substantially as described.

25. The combination of one-piece work-supporting horn Q", constructed and pivotally adjusted, as described, with a rotating upright, U", substantially as described.

26. The combination, with mechanism for carrying, threading, inserting, and cutting off wire, of a one-piece work-supporting horn, provided with two work-supporting surfaces, and so pivotally adjusted that the same action which throws one of such surfaces into plane beneath the axis of the wire-containing spindle for the insertion of wire will throw the other surface completely out of plane, and vice versa, substantially as described.

27. The combination of the horn Q", lock T", and shelves *y y*, as and for the purpose specified.

28. The combination of the nose-lever C with the pivoted horn Q", constructed, as specified, to present heel or sole surfaces to the pressure of the nose-lever C.

29. The combination of the nose-lever C, trip-lever K", detaining-bar H", and standard A, with the trip-pin L", to elevate the trip-pin proportionately to the forward descent of the nose-lever, substantially as specified.

30. The combination of the trip-pin L" with the latch M, approximately central between the fulcrum *x"* of the latch-lever and the link Q, to trip the latch at the moment when the screw has been completely entered through the stock, substantially in the manner specified.

31. The combination, in a screw-soling machine, with mechanism for carrying, threading, inserting, and cutting off wire, of other mechanism to elevate the trip-pin L", whereby the distance between the trip-pin and hook of latch-trip is made proportionate to the distance between the nose and the horn, to determine the length of time to be occupied in an action, which varies with the thickness of stock, and to determine the length of the screw, essentially as described.

32. The combination of the stop W" upon the frame D with the supports F" upon the nose-lever C, to arrest the action of the frame D and lever G", essentially as and for the purposes specified.

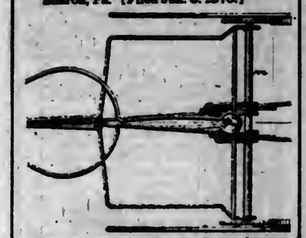
33. The combination, to effect relative stoppage of the treadle, of the rod K, latch-lever L, stop *d"*, and latch-trip N, with the pin L", trip-lever K", bar N", and standard A, operating as specified.

177,774. LAMP-SUPPORTS. William Westlake, Chicago, Ill. [Filed Jan. 3, 1876.]



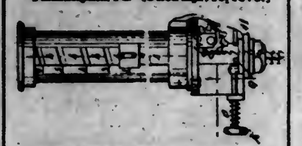
In a lamp-support, the suspended cross-bar b, having socket *e* and set-screw *f*, in combination with the clamping-hoop *d*, having stem *c*, and projections *h* and screw *i*, substantially as and for the purpose set forth.

177,775. VELOCIPEDES. Earl A. Wheeler Sharon, Pa. [Filed Jan. 3, 1876.]



The combination with an axle, *m*, having medius treadle-operated ratchets, of the fast ratchets on ends, and the pawls attached to the loose ground-wheels, as and for the purpose specified.

177,776. ARDUINO-PENCILS. John J. White, Philadelphia, Pa. [Filed Apr. 10, 1876.]



1. The sliding indicator *t'*, detachably connected to the spirally-grooved revolving cylinder, substantially as described.

2. The swivel M, having shoulders P, in combination with stop-pin Q, thumb-bit N and spring O, substantially as described.

177,776. MATCH-BOXES. Stewart S. Whitney, Brooklyn, N. Y., assignor of one-half his right to C. W. Bowman, same place. [Filed Mar. 14, 1876.]

A pocket-box formed of the receptacle B, with the open end *c* pivoted inside the casing A, with the open sides *a* and *b*, and the closed sides *c* and *d*, substantially as described.



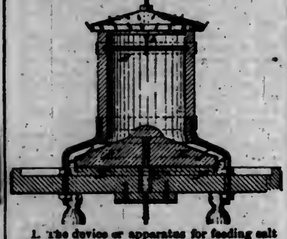
177,776.

177,777.

177,777. DOLL-HEADS. Carl Wiegand, New York, N. Y. [Filed Mar. 13, 1876.]

A doll-head that is molded in sections of a material composed of two or more layers of textile fabric with an intermediate layer of paper, substantially as described.

177,778. DEVICE FOR FEEDING SALT TO CATTLE. Mathias Winterscheid and Bernard Schulten, Mendota, Ill. [Filed Apr. 18, 1876.]



1. The device or apparatus for feeding salt to cattle, consisting of a table with salt-receptacle above the same, and a conical revolving salt-distributer, substantially as and in the manner specified.

2. The combination of the bottom rim of the salt-receptacle with the vertically-adjustable conical distributer, to increase or decrease the width of the opening between the same, for the purpose specified.

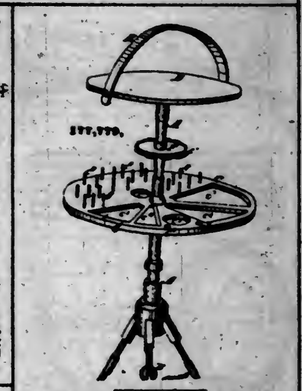
3. The salt-receptacle, having a detachable top lid with spars hooked to the same, substantially as specified.

4. The combination of the revolving distributer, having outer guide flange or rim, with a disk-shaped plate of the table, to prevent entering of the salt below the distributer, as specified.

5. The conical salt-distributer, provided with radial feed-channels, to assist in being turned, as specified.

177,779. LADIES' WORK-TABLES. L. F. Woodward, Woodstock, Vt. [Filed Apr. 4, 1876.]

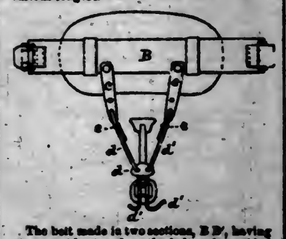
A work-table consisting of the standard A, the feet B, the lower leaf C, provided with cavities and pins, the upper leaf or basket D, provided with the ball or handle E, and the small intermediate leaf F, provided with the looped strap or tape *f*, substantially as herein shown and described.



177,779.

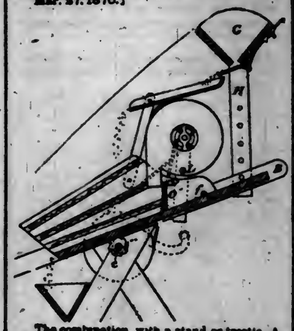
177,780. ATTACHING UTERINE AND OTHER SUPPORTERS. Clara Yeomans, Clinton, Iowa. [Filed Mar. 21, 1876.]

Brief.—The waist-belt is in two sections, and has eyelet straps buttoned to it on front. Through the eyelet-holes are feuned the end of an rubber cords which secure a pessary. An elastic ring holds the cord when adjusted to various lengths.



The belt made in two sections, B B', having straps *a a'* buttoned to the belt and provided with eyelets, in combination with elastic cords *d' d'*, looped through the eyelets in the straps, and fastened by elastic bands *c*, substantially as and for the purposes described.

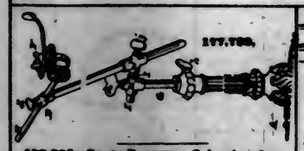
177,781. GRAIN-SEPARATORS. Chas. York and John F. York, Robinson, Ill. [Filed Mar. 27, 1876.]



The combination, with a stand or trestle, A B; having pivots *e* and *f* for different forms of screens, of reversible fan I, and reversible and vertically adjustable hopper G H, the whole being arranged and adapted to operate as set forth.

177,782. PHOTOGRAPHIC HEAD-RESTS. E. F. Adams, St. Louis, Mo. [Filed Mar. 17, 1876.]

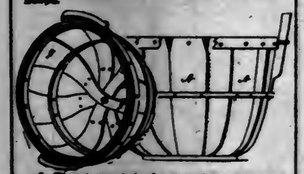
The rod G, socket H, set-screw A, rod I, socket J, and set-screw *j*, in combination with the head-rest rod C, upright B, and base A, substantially as set forth.



177,788.

177,788. GRAIN-BASKETS. Galen Amsden, Minneapolis, Minn. [Filed Nov. 12, 1875.]

Brief.—A single series of staves which are lapped at the edges to make a tight joint, and notched at their tops in order that they may be brought side by side between the upper hoops.

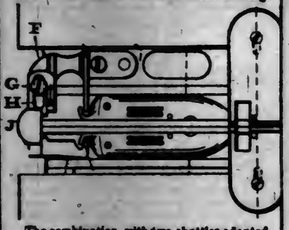


1. The staves A A of a stave basket, lapped and notched, substantially as and for the purpose set forth.

2. A single-stave basket, constructed as described, and consisting of the staves A A, cut, tapered, and formed in the manner set forth.

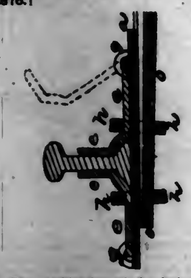
177,789. SHUTTLE-MACHINES. John H. Applegate and Chas. B. Webb, Philadelphia, Pa. [Filed Jan. 27, 1876.]

Brief.—Two shuttles, in parallel adjustable races, driven by a single shuttle-driver and its connecting-arms, of the construction specified in the claim and illustrated in the drawing.



The combination, with two shuttles adapted to parallel adjustable races, of the arms F J, connected by an adjustable joint, G H, and provided with fingers to engage the rear ends of the shuttles, and a single driver, connected with one of the arms, substantially as and for the purpose set forth.

177,790. RAILROAD-RAIL JOINTS. Charles F. Arnould, Titusville, Pa. [Filed Apr. 20, 1876.]



1. The combination of the bed-plate a, clamps c, and staples g, substantially as shown.

2. The combination of the clamps c, having the links h secured thereto, slot i, and wedge e, substantially as described.

177,791. TOASTERS. F. O. Badger, Greenport, N. Y. [Filed May 6, 1876.]

Brief.—The ring is held in various positions by the depressions in the sheath.

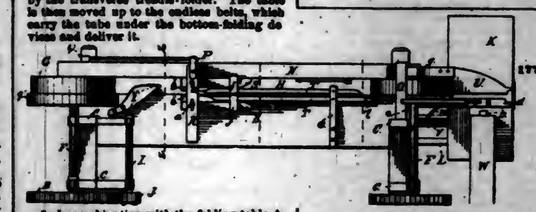


177,786.

As a new and improved article of manufacture, a bread-toaster of zigzag palms and shanks B B, twisted at *b b*, in combination with the ring *c*, substantially as and for the purpose set forth.

177,787. PAPER-BAG MACHINES. John H. Baisley, Dayton, Ohio, assignor to Elijs Kuhns and Allen J. Kuhns, same place. [Filed Jan. 20, 1876.]

Brief.—Flattened tubes of paste, cut the bag-length, are laid lengthwise across the folding-table, and the portion which is to form the bottom forced open and down upon the side by the transverse treadle-folder. The table is then moved up to the endless belts, which carry the tube under the bottom-folding devices and deliver it.



1. In combination with the folding-table A, the feeding-table K, arranged to slide in and out at its front end, substantially as described, the folder p, and the actuating-treadle lever V, as and for the purpose specified.

2. The folder p, arranged in the bearing W upon the table K, and actuated by means of the treadle-lever V, to which it is connected by the cord *i* passing over the pulleys *j*, *k*, and *l*, and held in position by the spring *n*, substantially as described.

3. The combination of the gage U, holder *d*, table K, folder p, and a pair of belts, H, arranged upon the pulleys G, in the manner and for the purpose specified.

4. In combination with the table A, provided with a longitudinal slot throughout its entire length, the horizontal belts H, arranged with reference to it, substantially as described, and the strip N, supported by the brackets O in such manner that its inner edge shall be contiguous to the edge of the upper belt, in the manner and for the purpose specified.

5. The combination, with the horizontal belts H and strip N, of the flattening-folder T, the overlapping-folders *b* and *b*, the turning-over folder Y, and the compressing flanged pulley G *g*, when constructed and arranged upon the table A, in the manner and for the purpose specified.

177,792. SEWING-MACHINE THREAD ATTACHMENTS. Lyman L. Barber, Boston, Mass. [Filed Feb. 7, 1876.]

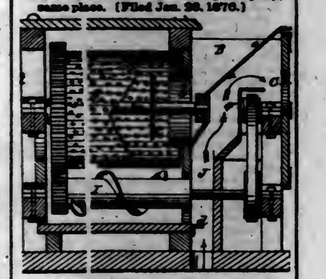
Brief.—Improvement on Patent No. 156,367, October 27, 1874, consisting in pivoting the knife on a sliding plate, to allow of adjustment and compensate for wear of the edge, and making the rear end of the bar flexible or elastic, so that it may be lifted off and thus disengaged from its driving-pin, which projects through the table from a lever below.



1. In combination with the operative mechanism of a sewing-machine, a trimmer constructed substantially as described, and adapted to be swung in a horizontal plane into or out of its operative position, and be thereby connected with, or disconnected from, its driver, substantially as set forth.

2. The shank B of the knife A, combined with the adjustable plate H, substantially as described, for the purpose specified.

177,793. ROTARY GRAIN-SEPARATORS. H. A. Bennett, Malden, Ill., assignor to the Bennett & Lane Manufacturing Company, same place. [Filed Jan. 29, 1876.]



177,793.

1. In a corn-cleaner, the hopper B, provided with one or more series of openings, *a*, in its side, for the purposes set forth.

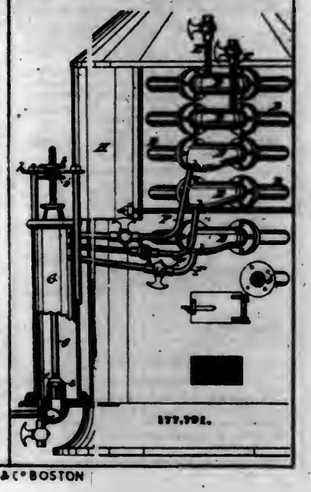
2. The combination, in a corn-cleaner, of a rotating cylindrical screen, D, hopper E, conveyer I, separating-trunk J, and centrifugal-fan C, all constructed and arranged substantially as and for the purposes herein set forth.

177,794. LINIMENTS. Geo. Bennet, Helena, Mont. [Filed Apr. 7, 1876.]

A compound of croton-oil, iodine, oil of origanum, Spanish flies, and spirits of turpentine, forming a liniment for rheumatism.

177,795. WATER-COIL STEAM-GENERATORS. R. S. Benton, Baltimore, Md. [Filed Feb. 16, 1876.]

Brief.—The coils are so arranged that each section of them may be removed by means of the reversible detachable couplings. Said couplings are provided with bolted or cup-shaped steam-separators, which are also connected to a thermostat or trap, by which the surplus water is carried off.



177,795.

1. In a steam-generator, the combination, with a cylindrical containing-shell, of a spiral coil of pipes projecting eccentrically upon one side through the containing-shell, and provided at each points with detachable couplings, substantially as and for the purpose described.

2. In a steam-generator, the combination, with the spiral coil of pipes projecting eccentrically through the containing-case, of pipes E and reversible couplings D, provided with pipes F, as and for the purpose described.

3. The combination of the couplings D, bolted at *b*, with the water-pipes F, as and for the purpose described.

4. The combination of the couplings D, bolted at *b*, and the coil-pipes B of the interposed thimble *i*, as and for the purpose described.

5. The combination, with the coil B, bolted couplings D and water-pipes F, connected with the coil, of the thermostat, consisting of the receptacle G, having outlet *d* and valve-seat *e*, the rod *g*, made of readily-expansible metal, and carrying-valve *f*, the frame *h*, and adjusting-nuts *i*, as and for the purpose described.

6. The combination, with the coil B and the upper part of the shell, of the pendent loop-rods C, provided with alternating links *c*, as and for the purpose described.

177,796. SHEDDING-MACHINES. Jirah B. Bligs, Appleton, Wis., assignor to Appleton Manufacturing Company, same place. [Filed Feb. 3, 1876.]

Brief.—Devices for raising the drill-teeth from the earth.

1. In a shedding-machine, the lever B, eccentric head or ring C, in combination with the eccentric D, substantially as described.

2. Arms A, lever B, head or ring C, and eccentric D, in combination with wire F, substantially as described.

177,797. AIR-TRAPS FOR STEAM-RADIATORS. George W. Blake, New York, N. Y. [Filed Apr. 11, 1876.]

The combination of the three-leaved buckling spring B S B', the cylinder A, the valve-box E, and the inwardly-closing valve a, with its stem f penetrating through the leaves B and S of the buckling spring nearer the valve-seat, and secured to that leaf, B', farthest from the seat, substantially as described.

177,798. HEALTH-LIFTS. William B. Blake, Canton, Ohio, assignee of two-thirds his right to O. D. Saxton and Zebulon Davis, same place. [Filed Mar. 22, 1876.]

1. In combination with the base-plate A, the tubes or tubular standards B B, spring D, and lift-rods C, arranged to operate within said tubes, substantially as described.

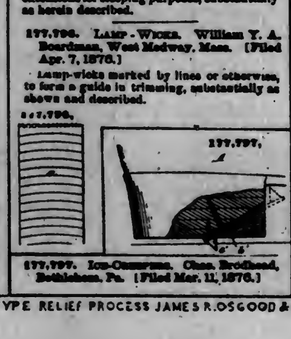
2. The tubes B B, having the socket-pieces *a a'*, in combination with the base-plate A, substantially as and for the purpose described.

3. The lift-rods C, provided with the threaded tubular ends, in combination with the seats *d*, adjustable extension-rods *f*, and handles F, substantially as and for the purpose set forth.

4. In a health-lift, the three registers a a a, (three at the sides indicating which is the stronger side of the person lifting,) in combination with the adjustable lifting-handles, substantially in the manner and for the purpose set forth.

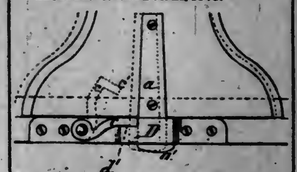
5. The combination of the lifting-rods with the index m, the cord or cords p, sliding rack-bar J, and pinion L, all arranged to operate substantially as described.

6. The combination of the rack-bar J, pinion L, index m, spring *b'*, and cord p, substantially as and for the purpose described.



177,794.

177,799. VEHICLE-SEAT LOCKS. Judson Brundige and Robert C. Hall, Cedar Rapids, Iowa. [Filed Dec. 21, 1875.]



In a shifting wagon-seat, the combination of the weighted catch c, having tongue *c'*, with slot *b* and recess *b'* of the plate D, and hook-iron *a a'* of the seat, as and for the purpose described.

177,800. FOUR-WHEELED VEHICLES. Wm. Breheridge, Port Huron, Mich., assignor to himself and John Johnston, same place. [Filed Nov. 6, 1875.]

The reach formed of two parts, A B, jointed contiguous to the front bands, and rigidly connected to the front and rear axles, respectively, the wagon-body M, pivoted to the front axle, supported at its rear end by friction-rollers F, all combined as shown and described, to operate as and for the purpose specified.

177,801. RAILWAY-CARRIAGES. Emanuel Blochman, San Francisco, Cal. [Filed Jan. 8, 1876.]

177,801.

1. The seats D, having the elevated floor H' beneath them, and the hinged folding extension H, for the purpose of forming a berth, substantially as herein described.

2. In combination with the seats D, with their hinged convertible backs I, the slides as frames J, for the purpose of adjusting the upper berth to any desired height, substantially as herein described.

3. The upper passage C, having seats E longitudinally arranged upon each side, and provided with backs M, so hinged as to form extensions for sleeping purposes, substantially as herein described.

177,802. LAMP-WICKS. William Y. A. Boardman, West Medway, Mass. [Filed Apr. 7, 1876.]

Lamp-wicks marked by lines or otherwise, to form a guide in trimming, substantially as shown and described.

177,796.

177,797.

177,797. ICE-CHISELS. Chas. Brodhead, Bethlehem, Pa. [Filed Mar. 11, 1876.]

In combination with a recessed heel, the hinged scraper, adapted to be turned over upon the tread-surface of the heel when in use, or to be turned down upon the inner surface or breast of the heel when not required.

177,803. VEHICLE-SEAT LOCKS. Judson Brundige and Robert C. Hall, Cedar Rapids, Iowa. [Filed Dec. 21, 1875.]



In a shifting wagon-seat, the combination of the weighted catch c, having tongue *c'*, with slot *b* and recess *b'* of the plate D, and hook-iron *a a'* of the seat, as and for the purpose described.

177,804. DRIVING MECHANISMS FOR SEWING-MACHINES. Samuel F. Burdett, New Bedford, Mass. [Filed Apr. 10, 1876.]

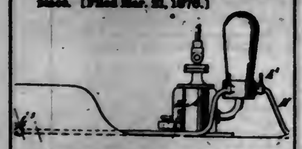
Brief.—A pulley affixed to the shaft is operated by two loose cords, with bands around them leading to treadles. The fixed pulley has friction-dogs in a recess, which, by a spring, binds on the inner peripheries of the loose pulleys in one direction only.

177,799.

The shaft c, the single fixed sub g, provided with a longitudinal recess, h, and two dogs, *i i'*, arranged side by side on the same longitudinal line, and springs acting against the dogs, in combination with two loose pulleys, adapted to fit the hub closely, and with straps and treadles, all constructed, connected, and arranged substantially as described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & C° BOSTON

177,801. REVERSIBLE PROPELLERS FOR VESSELS. Geo. G. Cobbett, Bickmore, Md., assignee of part of his right to John Ahern, trustee, and Lawrence I. Warren, same place. [Filed Mar. 31, 1876.]



As a propeller for vessels, the combination, with a double-acting force-pump, of the bow and stern water-discharge pipes I I and H H, having a common inlet or suction pipe, C, and provided at the points of their connection with the pump with cocks *b b* and *b' b'*, substantially as herein described.

177,802. WASHING-MACHINES. James F. Chesebro, Trenton, N. J. [Filed Oct. 27, 1874.]



The pinion *a*, shaft *a'*, and arm-supports *a''*, cast in one piece, in combination with the delicate journal-box halves // bearing the flange *f'*, all as described.

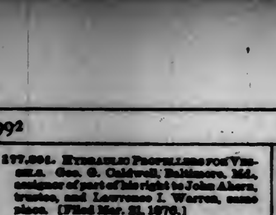
177,803. ARTIFICIAL TEETH. Sherwood B. Cheesman, Bowling Green, Ky. [Filed Apr. 12, 1876.]

Brief.—The securing-pins are in countersunk recesses, and the usual thickened surface is dispensed with.



Artificial teeth, single or in sections, with or without gums, provided with securing-pins, arranged within countersinks or depressions, the lingual surfaces of the teeth being without increased thickness, substantially as and for the purposes hereinbefore set forth.

177,804. STEAM-GOVERNORS. J. W. Clark, Iola, Kans. [Filed Mar. 26, 1876.]



1. In a automatic governor, the combination, substantially as described, of the indicator K, adjustable rods *h l*, lever F, piston E, and rotary valve T, operating substantially as described, and for the purpose set forth.

2. The connecting-rod l, jointed at *a*, and provided with nuts *d d*, in combination with the lever F and movable wrist *h*, in the crank M, as and for the purpose set forth.

177,805. WINDMILLS. Geo. B. Comstock, Mankato, Minn. [Filed July 26, 1875.]

Brief.—There is a compound gearing between the wind-wheel shaft and the vertical driving-shaft of the mill; said gearing consisting of plane-faced friction bevel-wheels, one of which is a crown-wheel, so constructed that it serves as a balance-wheel, and also a water-shed for protecting the mechanism from rain. Also, a novel mode of connecting gravitating-weights to a hinged vane, and of connecting one of each weights to the vertically-movable collar of a ball-governor.

1. In a windmill, the combination of the crown-wheel C, constructed on its under side with plain and toothed bevel-surfaces, the brass and shaft of the wind-wheel, the compound toothed and plain bevel-gear C', and the power-shaft B, all arranged and operated substantially as herein set forth.

2. The large wheel C on shaft B, serving both as a balance-wheel and a water-shed for the mill, substantially as described.

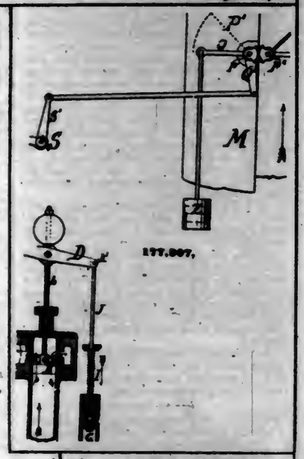
3. The adjustable or hinged vane G', hinged to G, and connected, by cords *c' t* and an arm, *q*, to the sliding collar *n* of the governor, for the purpose of having the governor regulate the speed of the mill according to the force of wind, substantially as described.

4. The cord *t'*, connected to vane G opposite the point of attachment of the cord *t* to this vane, and carried over pulleys *r'*, *s*, and *t*, thence down through tube P and collar *r*, and thence over a pulley on the outer end of an arm, K, in combination with the weight *w* and extension *d'*, substantially as described.

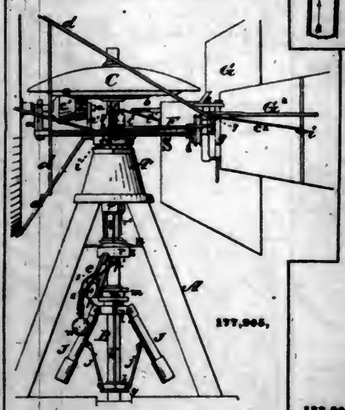
5. The belaying-extension *i* on arm *e*, for the cord *t*, which is acted on by the governor, substantially as described.

6. The revolving but vertically-fixed collar *r*, carrying arms *e* K, and connected rigidly to a collar on the lower end of a tube, P', substantially as described.

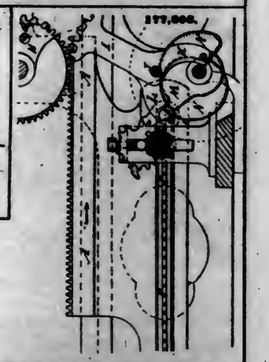
7. The pulleys *s' s''* on shaft S, carrying cords *s'* and *t*, the cord *s''* being connected to the vane G', and the cord *t* communicating with the governor, substantially as described.



177,807.

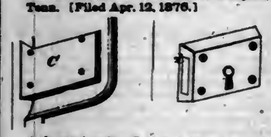


177,805.



177,808.

177,806. SECURING LOCKS ON JAIL-DOORS. Jas. B. Cook and Jas. W. Heath, Memphis, Tenn. [Filed Apr. 12, 1876.]



A dovetail socket, C, cast in one piece with an iron door, in order to secure a lock on said door without the use of screws or other fastenings, as set forth.

177,807. INJECTION-REGULATORS FOR CONDENSERS. George H. Corliss, Providence, R. I. [Filed Nov. 18, 1875.]

Brief.—The velocity of the current in the water-main and the pressure regulate the amount of water to be admitted to the condenser.

1. In steam pumping machinery, operated by condensing-engines, the wing P' and its connections, subject to the motion of the water in the main M, in combination with the injection-valve E, and adapted to increase and diminish the injection-opening by the changes in the velocity of the water being pumped, as and for the purposes herein specified.

2. The device G, actuated by the varying water-pressure on the low side of the pump, and the device P', actuated by the varying motion of the water being pumped, in combination with each other and with means D for communicating the joint effect to the valve E, as and for the purposes herein specified.

177,808. PRINTING-PRESSES. C. B. Cottrell, Westerly, R. I. [Filed July 3, 1876.]

Brief.—The bed, having a mangle-rack attached to its under side, is reciprocated by a pinion on a universal-joint shaft, and has on its top a rack intermittingly engaging a mutilated gear on one end of the impression-cylinder. A pivoted segment-rack, oscillated by a double cam, engages a toothed segment bolted to the other end of the cylinder, and stops it when released by the bed-rack, holds it while the bed returns, and starts it to re-engage the bed.

1. In a stop-cylinder press, in which the impression-cylinder travels at quite, or nearly, its maximum speed at the time of its disengagement from the driving-bed, the combinations, with said cylinder, of means, substantially as described, for gradually taking up its momentum, and bringing it to a stop, as set forth.

2. In a stop-cylinder press, in which the cylinder-driving bed moves at quite, or nearly, its maximum speed at the time of its engagement with the cylinder, the combination, with said cylinder and bed, of means, substantially as described, for gradually overcoming the inertia of the cylinder, and so moving it with an accelerated velocity that it and the bed shall come into engagement with a common rate of speed.

177,809.



177,809. HORSE-BLANKETS. Alvah H. Crittenden, Canaseraga, N. Y. [Filed Apr. 24, 1876.]

1. In combination with the blanket A, the cords B and B, contained within tacks or guides *a* and *a* at each side of the same, and the elastic bands C and C, extending between the ends of said cords, substantially as and for the purpose specified.

2. In combination with the blanket A, provided with the side cords B and B and elastic bands C and C, the transverse cords D and D, contained within tacks or guides *a* and *a*, and at their ends connected to or with said bands, substantially as and for the purpose shown.

177,810. STUMP-EXTRACTORS. J. Cummins, Allegan, Mich. [Filed Nov. 18, 1875.]



The frame composed of the uprights A A and the pieces D D, in combination with the shaft E, wheel F, and cords and chain described, as and for the purposes set forth.

177,811. NOISELESS PAWLS. Edwd. Curtis, New York, N. Y. [Filed Apr. 13, 1876.]



1. A noiseless pawl, thrown out of gear and kept entirely free from contact with the teeth of the ratchet by friction with the main wheel, as it revolves in one direction, and thrown into gear by means of friction against the main wheel as soon as the main wheel moves in the opposite direction, the said pawl being controlled by intermediate levers, substantially as and for the purposes described.

2. A friction-wheel, E, used to control a pawl, the said friction-wheel being mounted upon a radius and pivot, and having an elliptical socket, so as to be kept continually engaged with the main wheel, substantially as described.

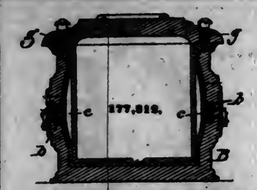
3. A pawl, P, whose center of gravity corresponds with its center of rotation, so as to be easily moved around its center, and to be controlled by friction against the main wheel, substantially as described.

4. The use of a pendulum to control the movement of a pawl, substantially as described.

5. The use of a pendulum to control a pawl limited in its action by the stops *o* and *p*, substantially as described.

177,812. BURIAL-CASES. Taylor B. Daniels, Detroit, Mich. [Filed May 10, 1876.]

Brief.—An iron frame, over which the artificial marble is molded, carries wooden blocks to hold the handle-screws. The screws to fasten the lid pass through leaden tubes, and into a leaden nut or washer.



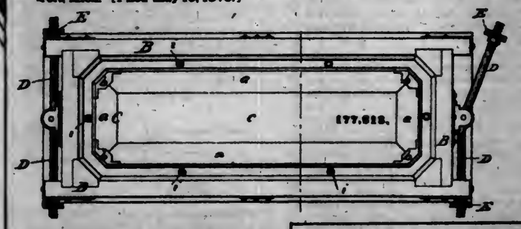
1. The artificial-marble coffin B, having embedded in its walls the two metal frames A, each having the arms *a* provided with the protuberances *b* and holes *d*, as shown.

2. The wooden blocks *e*, seated in the metal frames A, of an artificial-marble coffin, B, for the purpose of receiving the screws which secure the handles in place.

3. The artificial-marble coffin B, having the leaden blocks *e* molded in the upper edges of its walls, in combination with the pointed wood-screws seated therein to secure the lid in place.

4. In combination with an artificial-marble coffin-lid, leaden thimbles *g*, mounted in the edges thereof to receive the lid-fastening screws, and prevent them from fracturing the lid.

177,813. MOLDS FOR ARTIFICIAL-MARBLE BURIAL-CASES. Taylor B. Daniels, Detroit, Mich. [Filed May 10, 1876.]



1. In contradistinction to a mold for straight-walled coffins, the combination of the removable outer walls B, having recesses or concavities in their inner faces, and the sectional collapsible core C, having its sides formed with corresponding convexities or protuberances, as shown, whereby the mold is adapted for the formation of coffins having bulged or irregular walls of uniform thickness.

2. The combination of the corner-pieces *b*, side and end pieces *a*, plates *f*, screws *g*, and removable top *c*, provided with the bottom *d*, as shown.

3. In combination with the side and end walls B, constructed as shown, the pivoted rods D, provided with the nuts E, as and for the purpose described.

4. A mold for artificial-stone coffins, provided with internal studs or points *i*, as and for the purpose described.

5. In combination with a coffin-mold, a metal plate, I, applied as and for the purpose described.

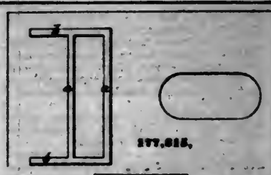
177,814. PADLOCKS. Adolph Delkescamp, Southington, Conn., assignor of one-half his right to James D. Bacon, New York, N. Y. [Filed Nov. 20, 1876.]



The combination of the pod or body A and bow or shackle B, connected on one side by a swivel-joint, and provided on the other side with teeth *e* and notches *f*, engaging with each other, and a sliding spring-bolt, C, substantially as herein described.

177,815. BRICK-MACHINES. Jas. Denning, Pittsburg, Pa., assignor to Keystone Brick Machine Company, (limited,) same place. [Filed Mar. 26, 1876.]

In a brick-machine, a cut-off with the stripe *a* and *b*, with or without the prolongation of the latter.



177,815.

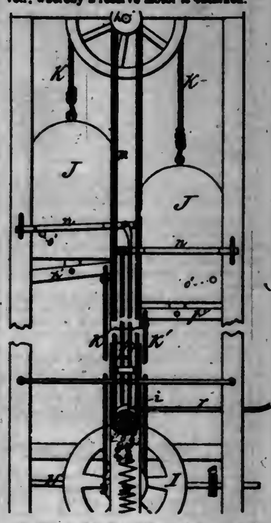
177,816. CHECK-REIN GUARDS. Charles B. Dickinson, Brooklyn, N. Y. [Filed May 1, 1876.]



The rubber block A, having a deep longitudinal groove, *a'*, in one side, a shallower longitudinal groove, *a''*, in the opposite side, and a hole, *a'''*, formed through it, near one end, to adapt it for use upon a check-rein hook, substantially as herein shown and described.

177,817. SAND-POWERS. Saml. B. Dimock, Lincoln, Nebr. [Filed May 8, 1876.]

Brief.—The invention consists in combining, with a wind-wheel and an elevating-belt, a reservoir for storing away sand, and an overshot bucketed wheel, to be operated by the regulated discharge of the sand from the reservoir, whereby a reserve motor is obtained.



1. The combination of the endwise-movable shaft H', having gear-wheels *c*, with an over-

shot wheel, H, and the actuating-wheel I of a windlass, J, substantially as specified.

2. The end-wise-movable catches *j*, for holding disk *g* against backward rotation, in combination with a lever, *n*, adapted to be operated by the elevator-cabs J, for the purpose of disengaging gears *o* from wheel I, substantially as specified.

3. The rotating disk *g* and rod *r*, in combination with the sliding door *o* of sand-reservoir G, substantially as specified.

4. The fan-wheel *r'*, adapted to be automatically geared to actuating-wheel I of cabs J and to be disengaged therefrom, substantially as specified.

5. The rotating disk *g*, adapted to throw gears *o* into and out of engagement with wheel I, to open door *o* of reservoir, and to throw fan-wheel *r'* into and out of engagement with wheel I, substantially as specified.

6. In combination with a wind-wheel and an elevating-belt operated thereby, a reservoir for storing away sand, and an overshot-bucketed wheel, rotated by the discharge of the sand from the reservoir for actuating machinery, substantially as specified.

177,819. EXPLOSIVE COMPOUNDS. John H. Dolde, St. Louis, Mo., assignor of one-half his right to Samuel L. Carter, same place. [Filed Apr. 18, 1876.]

A compound for sporting-powder, consisting of chlorate of potash, gall, and yellow prussiate of potash, as herein set forth.

177,820. BLASTING-POWDER. John H. Dolde, St. Louis, Mo., assignor of one-half his right to Samuel L. Carter, same place. [Filed Apr 18, 1876.]

The within-described compound for blasting-powder, consisting of silica, nitrate of potash, chlorate of potash, nitrate of soda, water, sawdust, sugar, and tannin, substantially as herein set forth.

177,880. TAP-WRENCHES. James F. Duniam, Deerfield, assignor to Wiley & Russell Manufacturing Company, Greenfield, Mass. [Filed Feb. 8, 1876.]

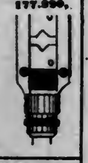
Brief.—The handles have journals, on which are passed thimbles. On one end of each thimble is a thumb-nut, and on the other an actuating-screw. The journal, with its sleeve, is passed through the journal-bearing, and rigidly attached to the sliding jaws. By revolving each thimble by its thumb-nut, each jaw and its attached handle are moved inward and outward together.

The combination of the stock, the collars, the jaws, and the handles attached to said jaw, as and for the purposes described.

177,881. POSTAGE-STAMPS. S. R. Dummer, Jersey City, N. J. [Filed Apr. 20, 1876.]



177,890.



1. A postage or other stamp, provided with a strip of paper or other suitable material glued to the rear of the stamp and protruding through a slit or opening in the face of the stamp, substantially as hereinbefore set forth.

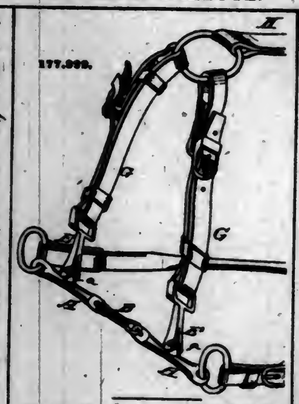
2. In a stamp provided with a cancelling-strip, the re-enforcing piece of paper in rear of the stamp and cancelling-strip, and visible only upon the cancellation of the stamp, as hereinbefore set forth.

3. The re-enforcing piece of paper arranged behind the stamp and cancelling-strip, and provided with figures, lines, or tints different from the stamp, which become visible upon the cancellation of the stamp, as herein before set forth.

177,882. BRIDLE-BITS. Lewis Herbert Irvin, Ind. [Filed Jan. 21, 1876.]

The construction, with a bit composed of the bars A A, and center connecting-link B, of the uprights or arms E E, pivoted to ears *a* on the bit-bars A; the curb-straps G G, and center-strap F, all substantially as and for the purposes herein set forth.

177,883.

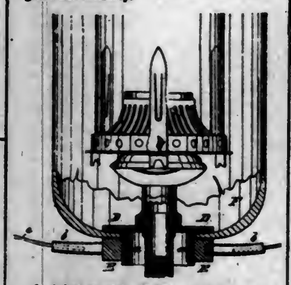


PLATFORM-SCALES. H. Estabrook, Paterson, N. J. [Filed Dec. 14, 1875.]

The levers M, pendent links, and exchangeable bearings *b* therefor on the platform-arms B', in combination with means E for lowering the weigh-beam G and the connected parts out of use, to form a drop-lever scale with exchangeable bearings, as herein set forth.

177,884. HOT-AIR GLOBE AND SHADE HOLDER. Leander R. Fisk, Washington, D. C. [Filed Apr. 26, 1876.]

Brief.—The draft is downward between the globe and chimney.



1. A hot-air globe, F, for a gas-burner, having horizontal inwardly-drawn lower edges, ground smoothly, and adapted to be clamped with an air-tight connection at the base, substantially as and for the purpose described.

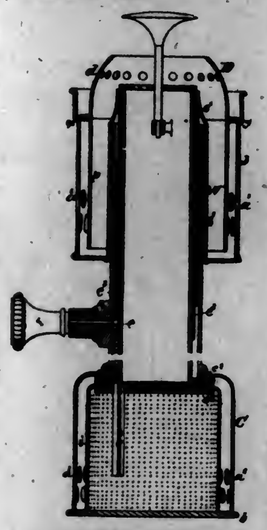
2. A hot-air globe for a gas-burner, having horizontal inwardly-drawn lower edges, in combination with a clamping device, adapted to hold the same with an air-tight connection, substantially as and for the purpose described.

3. The combination, with the globe F, of the clamping-nut E, and the disk D, having screw-threaded portion *a*, substantially as and for the purpose described.

4. The clamping-nut E, having screw-threaded sockets, in combination with the curved telescopic shade-holder *b a*, substantially as and for the purpose described.

5. The telescopic shade-holder consisting of the combination of the curved tube *b*, and the straight automatic spring-arms *a*, sliding therein, and provided with beaded extremities for holding the shade, substantially as described.

177,885. BURNERS FOR LIGHT-HOUSE LAMPS. Jos. Funck, Tompkinsville, N. Y. [Filed Mar. 22, 1876.]



1. In combination with an annular wick-tube, adapted to receive the wick at top, and constructed with a fixed outer wall, terminating a short distance below the upper extremity of the inner wall, the wick-contractor *c'*, adapted to be applied after the wick is inserted, and to form a contracted extension of the outer wall of the wick-tube independent of the wick-elevator, substantially as herein shown and described.

2. The combination of the wick-contractor *c'*, formed at the end of the sleeve *s'*, and the jacket J, attached to the lower end of said sleeve, the same being adapted to be applied to and removed from the wick-tube together, substantially as set forth.

3. The perforated chimney-flange *f*, in combination with the jacket J, drop portion *p*, and dome *d*, for the purposes set forth.

4. The removable deflector D, consisting of the dome *d*, chimney-flange *f*, and drop-partition *p*, in combination with the jacket J, having the shoulder *s'*, to support the same in position, substantially as shown and described.

5. The removable and separable cap C, having concentric annular walls, A bottom disk, *b*, and screw-collars *c' c''*, combined substantially as herein described, for the purposes set forth.

177,886. DEVICES FOR CONVEYING REFUSE FROM SAW-MILLS TO FURNACES OR BURNERS. Wm. Ghee, Muskegon, Mich. [Filed Aug. 26, 1876.]

Brief.—Refuse is conveyed by an endless carrier from beneath the saw to a chute in the burning-furnace, which delivers it in the center of the grate.

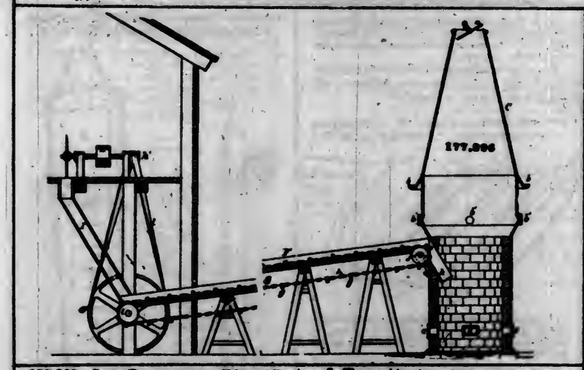
1. The method of conveying refuse to a refuse-burning furnace by means of the devices herein shown and described.

2. The endless carrier G, composed of the chains K and transverse bars *g*, guideway-trough F, sprocket-wheels *i* and *j*, in combination with the chute I in the mill and chute *h* in the furnace, constructed to operate as described.

177,896.

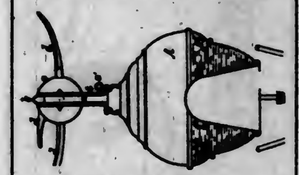


177,886.



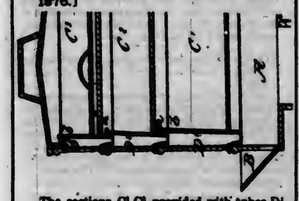
177,887. GYRO-EVAPORATORS. Edward H. Gouge, New York, N. Y. [Filed Nov. 2, 1876.]

Brief.—Provides the tube which supports the gyrating parts with an adjustable valve.



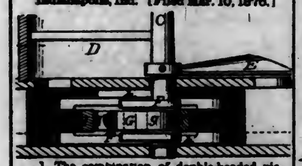
The combination of the perforated sleeve *s* with the tube *a*, perforated in its sides, boiler A, and hollow revolving arms *d*, and projection or stud *d'*, for operating the same, all constructed and operating substantially as shown and described.

177,888. STEAM-COOKERS. W. F. Guernsey, Kalamazoo, Mich. [Filed Apr. 1, 1876.]



The sections C' C', provided with tubes D' D', having flaring shoulders *a*, in combination with the section C', provided with a tube, D', closed at its upper end, and having perforations *b*, and section A, substantially as and for the purpose set forth.

177,889. TILE-MILLS. Artemus N. Hadley, Indianapolis, Ind. [Filed Mar. 10, 1876.]



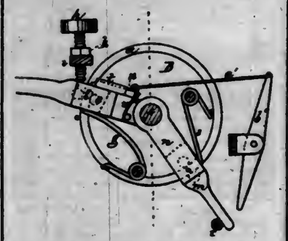
1. The combination of double-headed piston or plunger H, constructed with top and bottom slots *h h'*, for the passage of the shaft O, and side slots *h'' h'''*, for the passage of the roller G, with the shaft O, double-crank F, and wrist O' as and for the purpose set forth.

2. The roller G, composed of segments *g g'*, having fastenings *g'' g'''*, in combination with the double-headed piston or plunger H, and double-crank-shaft F O, as and for the purpose set forth.

3. The combination, with the double-headed piston or plunger H, crank F, and roller G, of the facing or lining plates I I'.

177,890. TAKE-UP MECHANISMS FOR LOOMS. Thomas W. Harrison, Boston, Mass. [Filed Dec. 23, 1874.]

Brief.—In a loop upon the upper side of the beat arm, to which the clutch-lever is pivoted, a wedge-shaped bar is fitted to slide, being held back by a wire and lever while the loom is in operation. The break of a weft-thread releases said lever, and discharges the wedge into the space between the clutch-lever and screw-stop, so stopping the take-up.

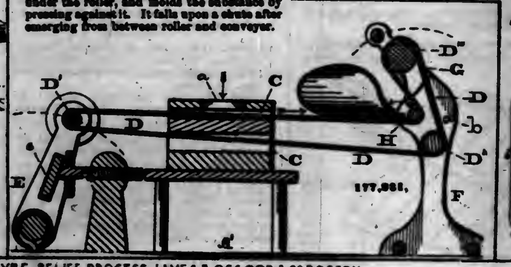


1. The combination of the take-up roll A, the wheel B, with flange *a*, the lever *d*, pivoted to the beat-arm *g*, and provided with the pins *b c*, the shaft *f*, spring *g*, regulating-screw *h*, and the lever *m*, pivoted to the arm *n*, and provided with clutch-pins *p q*, the spring *s*, and stop *r*, all substantially as and for the purposes herein set forth.

2. In combination with the take-up mechanism, substantially as described, the stop-bolt *u*, operating in the manner and for the purpose set forth.

177,891. MACHINES FOR MOLDING FARINOS. Wm. H. Hart, Jr., Philadelphia, Pa. [Filed Apr. 4, 1876.]

Brief.—The piece of pliable substance falls from the die or punch through the opening of the plate onto the conveyer, which carries it under the roller, and molds the substance by pressing against it. It falls upon a chute after emerging from between roller and conveyer.



177,891.

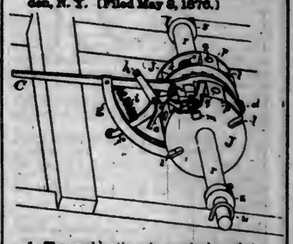
1. The bed B, with channels C C, in combination with the conveyer or belt D passed therethrough, substantially as and for the purpose set forth.

2. The endless conveyer D, supported on rollers D' D'', in combination with an elevated roller D''', and the interposed molding-roller H, forming together an improvement in molding apparatus, substantially as and for the purpose set forth.

3. The combination, with the rollers D'' D''' and molding-roller H, of the roller D', supporting the endless conveyer D, and mounted on the adjustable tightening arm or frame E.

4. The combination, with the roller D''' and molding-roller H, mounted on the support F of the elevated roller D''', supporting the endless conveyer D, and mounted on the adjustable arm or frame G, which is pivoted to said support F, substantially as and for the purpose set forth.

177,892. WINCHES. John B. Hawley, Hamden, N. Y. [Filed May 6, 1876.]



1. The combination, in a winch, substantially as described, of the adjusting side wheels J J with the ratchet-wheel B, for the purposes specified.

2. The combination, in a winch, substantially as described, of a supporting-arm, C, with the tripping-pawl *e f* and ratchet-wheel B, for the purposes specified.

177,893. SPARK-ARRESTERS. D. Hawbeworth, Digby, and Henry Goltard, Halifax, Canada. [Filed Apr. 22, 1876.]



In a spark-arrester, heater, or soot-gatherer, A, the combination of a lower set of removable concave or heat plates, *a'*, with an upper set of flat plates, *a*, both sets of plates being arranged circumferentially and spirally, substantially in the manner and for the purpose herein before set forth.

177,894. ORNAMENTAL CHAINS. James L. Healey, North Attleborough, Mass. [Filed Mar. 15, 1876.]

In an ornamental chain, a coupling composed of an oval ring depressed in the middle, two side pieces, and a collar, which embraces the ring and the side pieces, substantially as set forth.

177,894.



177,865. SCHOOL-DESKS. Aaron W. Hempleman, Philadelphia, Pa. [Filed Feb. 26, 1876.]



1. The combination of the standard A, provided with a V-shaped projection, *a*, along its forward edge, and the back C, provided with a corresponding groove, *b*, on its rear side, substantially as and for the purpose herein set forth.

2. The combination, in a school-desk hinge, of the recessed flange B' on the seat-arm, the fixed jaw *h*, and elastic jaw *h'*, on the standard, the bolts *e e'*, and cushion *i*, all substantially as and for the purposes herein set forth.

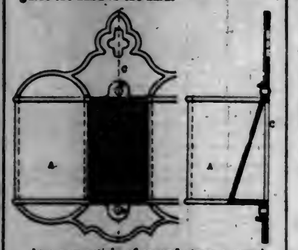
177,866. NECK-YOKES. Nicholas Hiatt, Plum Hollow, Iowa. [Filed Apr. 10, 1876.]



The clasp A, metallic eye B, with its flange, plate C, and the screws E E and D, the several parts constructed and arranged as and for the purpose set forth.

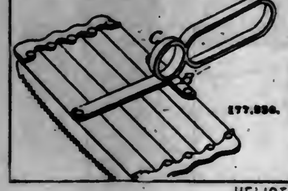
177,867. MATCH-BOXES. Oliver H. Hicks, Baltimore, Md. [Filed Mar. 23, 1876.]

Brief.—The striking-surface is inclined outwardly to carry the match away from the wall, and it is placed between the pockets, which guide the hand in the dark.



As a new article of manufacture, a match-box having the back plate C, the vertical side pockets A, and the outward-inclined striking-surface *c*, placed centrally between said pockets, constructed substantially as herein specified, and for the purposes described.

177,868. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. [Filed Mar. 16, 1876.]

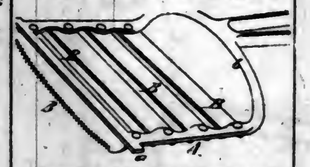


177,869.

1. A curry-comb side handle, to which is attached a thumb-rest, C, at or near the end adjoining the comb, substantially as and for the purpose specified.

2. A curry-comb side handle, having thumb-rest C, and frame or spider E, formed of one piece, substantially as specified.

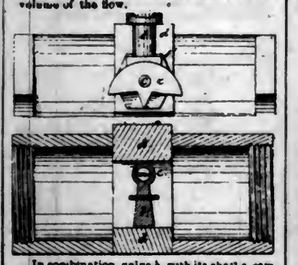
177,869. CURRY-COMBS. C. A. Hotchkiss, Bridgeport, Conn. [Filed Mar. 16, 1876.]



In curry-combs, the handle C, raised bar *b*, frame A, and knockers *a*, all constructed in one piece of cast metal, substantially as described.

177,870. CURRENT-INDICATORS. Benjamin W. Hoxie, Hartford, Conn., assignor to J. H. Bingham, said Bingham assignor of one-half his right to Lydia A. Hoxie, same place. [Filed Apr. 10, 1876.]

Brief.—A swinging valve is held down to close the current aperture, when the flow of water ceases, by means of a spring pressure foot bearing upon a cam on the end of the shaft which carries the valve, this end projecting outside of the pipe. The valve is adapted to yield to the current, and the position of the cam indicates the direction and volume of the flow.



In combination, valve *b*, with its shaft *c*, cam *e*, and spring-pillar *f*, all substantially as described, and for the purposes set forth.

177,871. HOSE GOODS. H. G. Hubbard, Middletown, Conn., assignor to Russell Manufacturing Company, same place. [Filed Mar. 21, 1876.]

Brief.—In one or more of the interior plies the ply-warps are omitted, the wefts thereof being held in their position by the binders. The device diminishes weight without proportionately diminishing the strength of the fabric.



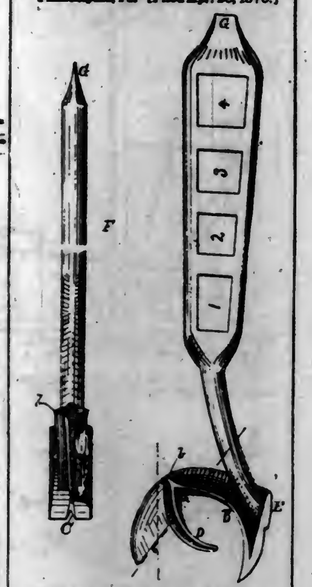
An improved hose goods, of three or more plies, in which one or more of the inner plies are without warp-threads, substantially as herein shown and described.

177,872. PROCESSES OF MAKING FLOOR-CLOTHS. William W. Hulse and Benj. T. McKay, Manchester, Great Britain. [Filed Mar. 20, 1876.]

Brief.—Material resembling shoddy is pulped and run into sheets, painted and oiled, and finally lined with cloth.

The process, substantially as described, of manufacturing floor-cloth—that is to say, forming a web or sheet of fibrous material, in which the fibers are aggregated by pulping, applying a liquid or plastic composition to the web, uniting the same to a backing of canvas previously coated, and then passing the composed fabric between calendering and condensing rollers.

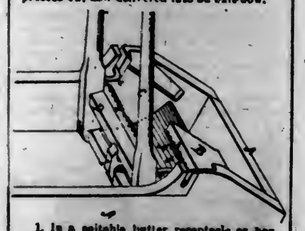
177,873. COMPOUND TOOLS. Jackson Hunt, Philadelphia, Pa. [Filed Apr. 26, 1876.]



As a new article of manufacture, a combination tool, the handle of which, having the openings 1, 2, 3, and 4, constitutes a wrench, the one end of which handle has a screw-driver G, and the other end having a tack-hammer, E, tack-drawer C, stove-cover lifter H, a plate-lifter consisting of the curved portions B and D, these curved portions forming an angular intersection at *a*, constituting a kettle lifter, and also a blade, F, which, in combination with the flanges *b*, constitutes a can opener, all in one and the same piece of metal, as shown and described.

177,874. BUTTER-WORKERS. Moses Hutchinson, Owatonna, Minn. [Filed Apr. 17, 1876.]

Brief.—A butter-worker is trunnioned transversely within a trough, having long arms for a rocking movement. The butter deposited in the rear is gathered as the worker descends, and carried forward and up against an abutment, which, like the worker, is corrugated and covered with cloth, whereby the water is pressed out and delivered into an exit-flow.

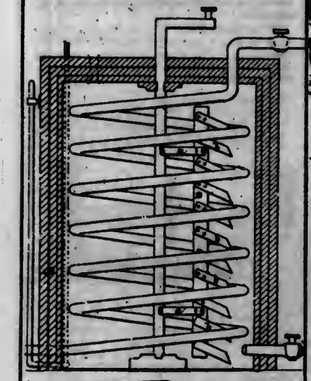


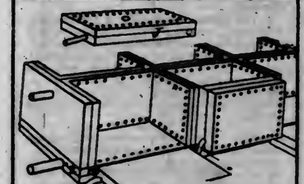
1. In a suitable butter receptacle or box, A A', the combination of filter B, having grooved face *b*, covered as described, with movable filters C D *d d*, substantially as and for the purposes set forth.

2. A filtering butter-worker, adapted to press the butter between filters, having grooved surfaces, properly covered with muslin or analogous flexible filtering material, substantially as and for the purposes described.

177,875. ICE-MACHINES. Auguste Jas. New Orleans, La., assignor of one-half his right to Alfd. C. Janin, same place. [Filed Apr. 27, 1876.]

Brief.—The water is condensed to about 0° centigrade before it is drawn into the congealer. During condensation it is gently agitated by a rotary stirrer. The congealer is formed of one or more cells having horizontally-hinged doors, which are connected by flexible tubing for the passage of the refrigerant. This construction allows any one of the doors to be opened singly.





1. The method described of condensing water and depriving it of air by subjecting it to the action of a cooling-agent, and at the same time gently agitating it in such a manner as to bring all its parts in contact with the cooling-agent, substantially as set forth.

2. The water-condensing apparatus, consisting of the closed vessel, in combination with the cooling-coil and the agitator, arranged and operating substantially as set forth.

3. The described congealer, formed of one or more cells, each provided with a horizontally-hinged door, having flexible tubing for the entrance and discharge of the refrigerant, substantially as set forth.

177,876. KEY-FASTENERS. R. T. Jenkins, Brooklyn, N. Y. [Filed Apr. 15, 1876.]

Brief.—A clasp inserted in the key-hole, and held to the shank of the key by a set-screw, prevents the key from being turned by burglar's nippers on the outside.

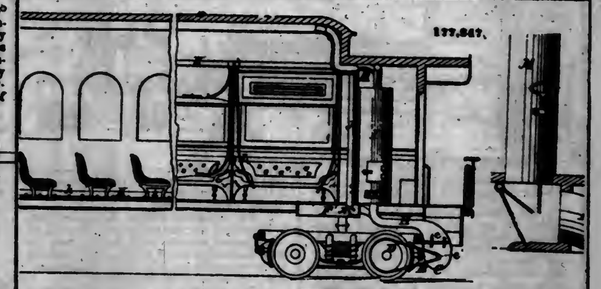


The clasp A, constructed of the horn *h*, having at one end the vertical jaws *j j'*, one of which is provided with a notch, *n*, in combination with the set-screw *s*, passing through one of the vertical jaws, as and for the object specified.

177,877. CAR HEATERS AND VENTILATORS. Edward S. Jenison, Chicago, Ill. [Filed Feb. 10, 1876.]

Brief.—The air is thrown downward toward the floor in jets, and is supplied to each person through flexible or movable tubes; also, a portion or the whole of the air-supply may be drawn from that contained within the upper portion of the room or rooms being ventilated and heated. The mechanism for setting the air in motion is provided with a relief-valve, through which air may pass from the delivery-pipe to the supply-pipe whenever the pressure exceeds a given amount.

177,847.



1. Ventilating and heating apparatus in which air is supplied to each person through a separate duct or channel, substantially as and for the purpose shown.

2. Ventilating and heating apparatus in which air is delivered to individuals through flexible or movable tubes, substantially as and for the purpose set forth.

3. Ventilating and heating apparatus in which air is thrown downward toward the floor in jets, substantially as for the purpose shown and described.

4. Ventilating and heating apparatus in which a portion or the whole of the air-supply may be drawn from that contained within the upper portion of the room or rooms being ventilated and heated, substantially as and for the purpose specified.

5. Ventilating and heating apparatus in which the mechanism for setting in motion the air is provided with a relief-valve, through which air may pass from the delivery-pipe to the supply-pipe whenever the pressure exceeds a given amount, substantially as and for the purpose shown.

177,848. PROCESSES OF MAKING ILLUMINATING-GAS. Erasm J. Jermanowski, New York, N. Y., assignor to Edwd. Stern, same place. [Filed Apr. 26, 1876.]

1. The process of making illuminating-gas by producing and purifying water-gas; distilling and purifying carbureted hydrogen gas; mixing the purified gases, and passing them through earthen retorts, white-hot, or thereabout; the proportions of the mixture being such that there will be an excess of hydrogen, or of hydrogen and carbonic oxide, substantially as described.

2. The process of making illuminating-gas by producing and purifying water-gas; distilling and purifying carbureted hydrogen; mixing the purified gases; supplementing any deficiency of carbureted hydrogen by the vapor of petroleum, or other heavy hydrocarbon; and passing the mixture through retorts, white-hot, or thereabout, in the presence of hydrogen, or of hydrogen and carbonic oxide, in excess, substantially as described.

3. The process of making illuminating-gas by producing water-gas, and purifying it from moisture; mixing the purified gas with the vapor of a hydrocarbon; and passing the mixture through a retort at a white-heat, or thereabout; the proportion of vapor, and the time of contact of it and the gas with the hot retort, being such as to leave an excess of hydrogen, or of hydrogen and carbonic oxide, in the product, substantially as described.

177,849. BREAD-MACHINES. Wm. P. Jones, Georgetown, assignor of one-half his right to John M. Houston, Milleborough, Del. [Filed Mar. 14, 1876.]

1. The fluted roller F, in combination with a box, A, having a cover, *c*, platform E, an eccentric concave, C, and a platform, D, said platforms being placed below the cover some distance, and one being located about in the plane of the axis of the roller, and the other nearly in the plane of its upper surface, so that the dough can be placed upon the platform D within the box and closed in against dust by the cover *c* while it is being kneaded, and as fast as kneaded can be deposited upon the platform E under the cover, substantially as described.

2. The concave, constructed with a flaring channel, C', in it, substantially as described.

3. The combination of the roller and the eccentric concave, having the flaring channel C', substantially as described.

4. The kneading-box, having a flaring channel formed by the undersloped shoulders or wings *c c*, substantially as described.

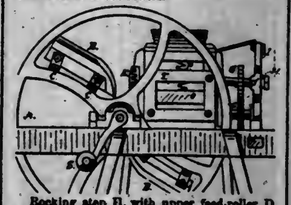
5. The box A, having the lining B, the concave C, the guides *a*, and packing-blocks *d*, substantially as described.

6. The guide-blocks *e*, diminishing in thickness, but increasing in width, and having their opposing sides change from a vertical position at the greatest thickness to an inclined position at the least thickness of the said guide-blocks, substantially as and for the purpose set forth.

7. In a dough-kneading machine, the combination of the journal-box *f'*, the slab H, having a projection, *h*, and the locking-block G, substantially as and for the purpose set forth.

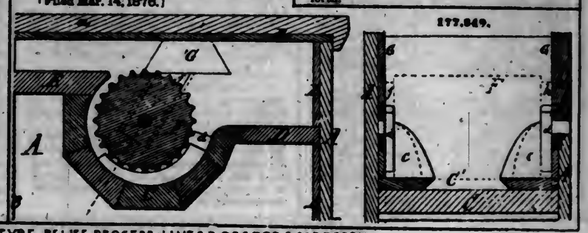
177,850. STRAW-CUTTERS. Albt. Kath and Gotthilf Weyner, Grafton, Wis. [Filed Oct. 12, 1876.]

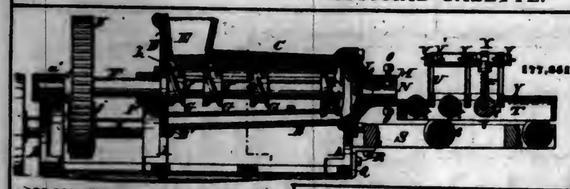
Brief.—The upper roller has a step upon its shaft, which is stepped into grooves on the shaft-support, and allows the upward and downward motion of the upper roller without destroying the mesh of the gear-wheels which give motion to the rollers.



Rocking step E, with upper feed-roller D stepped in its side, so as the roller rises the step H rolls, in combination with feed-rollers D D and cog-wheels G G, substantially as set forth.

177,849.





177,861.

177,861. BRICK AND TILE MACHINES. P. E. Kelly, Adrian, Mich. [Filed Mar. 9, 1876.]

1. The removable girts A^1, bolts a^2, journal-caps a^3, and casting-cap C, constructed and applied, substantially as described, to facilitate the removal of the shaft and master-wheel.

2. The two-part back-plate B', in combination with the shaft F and collar I, the latter fitting within a chamber in the said back-plate, as explained.

3. The combination of the frame S, supported adjustably by means of brackets Q, with rollers to carry the columns of clay, and dies R, removable and changeable, to produce bricks or tiles of different sizes or sections, as explained.

4. The combination of the supporting-frame S, having rollers s s, and the longitudinally-sliding roller-frame T, as and for the purposes set forth.

5. The combination of the nose-piece M, dead dies N N, and the roller-frame T, provided with two parallel independent sets of cylindrical carrying-rollers l l, all constructed and operating as and for the purposes set forth.

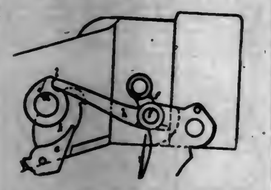
6. The combination of the longitudinal carrying-frame T, the transverse cutting-frame U, and the clamp X, for holding the bricks while being cut, as explained.

7. The combination, in the cutting-frame U, of the vertical wires W, horizontal tars V, and jam-nuts V', as and for the purposes set forth.

8. The combination of the elastic forming-dies N, and the set-screws O O, bearing on the upper and under sides of said dies to compress and contract their central parts, as explained.

9. The combination of the tapering horizontal casing B C, longitudinally-grooved shaft F, oblique knives G G, beaks H, lugs h, and curves h', nose-piece M, and double delivery-dies N N, all constructed and arranged to operate as and for the purposes set forth.

177,862. BREECH-LOADING FIRE-ARMS. Amos Nelson King, Bridgeport, Conn., assignor to the Sharp's Rifle Company, same place. [Filed Mar. 4, 1876.]



1. In combination with the hammer and trigger, the swinging guard d, the cocking-finger h, pivoted to the guard, and the tumbler j, when these last three elements are so arranged relatively that the finger first partially rotates the tumbler, and then, passing on, swings free from the tumbler, substantially as described, and for the purpose set forth.

2. In combination, guard d, finger h, tumbler j, and shipper-ring o, all substantially as described, and for the purpose set forth.

3. In combination, the breech-piece a, provided with the mortise a', and the vibrating extractor h', provided with the mortise-closing leg h^2, all substantially as described, and for the purpose set forth.

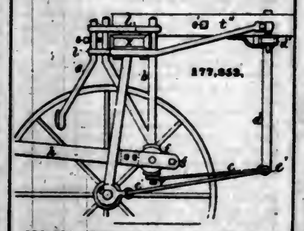
177,863. WHEEL-CULTIVATORS. Emanuel M. Kissell and Martin L. Kissell, Springfield, Ohio. [Filed Jan. 10, 1876.]

1. In combination with draft-post b and rod c of a wheel cultivator, with its key V, the frame-bars h and h', clevis-plates l l, and connecting-bolt p, as shown and specified, for the purposes set forth.

2. Hook-bars e, in combination with draft-post b, links l l', set-screw s, and the cross-bar s of a wheel-cultivator, as shown, as and for the purposes set forth.

3. The suspended draft-bar d, provided with a T-head, d', for the purpose of allowing of two separate points of attachment thereto for the draft-rods c and c' by their front ends, in order to equalize the draft in the manner specified, and for the purposes set forth.

4. The draft-bar d, provided with pivoted cross-head c', in combination with the evener d' and rods c c' to form separate means of attachment to the wheel-spindle and plow-beam, as shown and described.



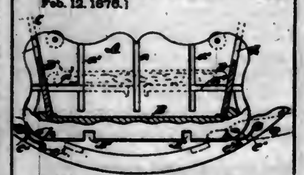
177,863.

177,864. VELOCIPEDES. Adolph Knudson, Chicago, Ill. [Filed Oct. 22, 1875.]



In a velocipede, the combination of the vibrating seat-bar D, having seat E, with the uprights F F', substantially as and for the purpose herein shown and specified.

177,865. COMBINED CHAIRS, CRADLES, &c. James H. Loamond, Camden, N. J. [Filed Feb. 12, 1876.]



1. In combination with the sides A A, having grooves a a' a^2 a^3, the slides C D for forming a low or high chair and table, substantially as shown and described.

2. In combination with the slides C and D, the sides A', having transverse and longitudinal grooves, permitting the conversion of the chair into a crib, cradle, or sled, by altering or varying the arrangement of said slides, substantially as set forth.

3. In combination with the sides A A, the removable rockers, constructed as described, so as to permit the cradle to be rocked lengthwise or crosswise at will, and serving, when desired, as a leg or brace for the chair, or shafts for the sled.

4. In combination with the sides A A, the rockers B B, having hinged extensions, so as to be lengthened or shortened for use when the crib is rocked lengthwise or crosswise, as described.

5. In combination with the sides A A and back or leaf B, having a removable disk, B', the rollers F F to enable the within-described article to be used as a baby-walker, substantially as described.

177,866. TELEGRAPH-KEYS. Charles W. Lewis, Chicago, Ill., assignor to the Western Electric Manufacturing Company, same place. [Filed Jan. 20, 1876.]



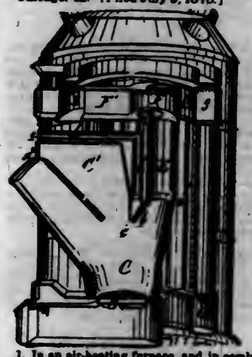
1. The base A, provided with the chamber A' to receive the screw-heads connecting the operating parts to the base, substantially as and for the purpose specified.

2. The combination of binding-post F', connecting-plate J, and saril G, substantially as specified.

3. The spring-washer H, in combination with bolt K, and the circuit-closing lever C', substantially as and for the purpose specified.

4. In combination with the key-lever and trunnion shaft of a telegraph-key, the posts D D, secured to the base A by the screws m, and adjusted to receive the journals of the trunnion, substantially as and for the purpose specified.

177,867. HOT-AIR FURNACES. W. H. Lotz, Chicago, Ill. [Filed July 9, 1875.]



1. In an air-heating furnace, and in combination, the hollow bridge-wall across the back part of the fire-pot, and within the same, and having a narrow slit across its lower end, and an air-tube, having a register at its outer end, said tube passing over and behind the combustion-chamber, and its inner end terminating directly over the slit aforesaid, substantially as and for the purposes set forth.

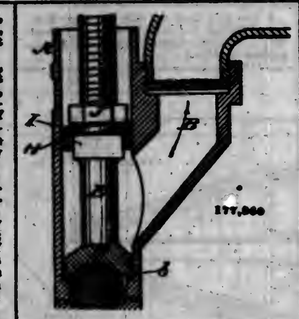
2. In an air-heating furnace, the combination of the following elements, viz: a fire-pot, having an elevated combustion-chamber directly above and connected with it, and closed at the top; an inclined magazine-chute, adapted to deliver fuel to the front of the fire-pot; a hollow transverse bridge-wall, adapted to deliver a thin stream of hot air into the fire-pot back of the inner mouth of the magazine-chute; a tube with a register for admitting hot air to the gases of combustion before passing under the bridge-wall; and flues at the back of the fire-pot for carrying off the products of combustion, substantially as described.

3. In an air-heating furnace, the combination of the annular flue O, having the partition f and reversible damper g, the segment-flue G', the diving and ascending flues H H', and the flues E, F, and F', and the fire-pot C, substantially as and for the purposes set forth.

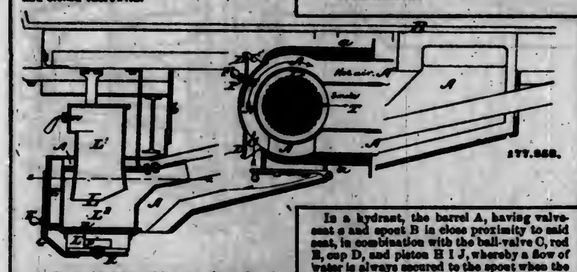
4. In an air-heating furnace, in combination, the pendent bridge-wall within the fire-pot and across the same, the combustion-chamber, and the ignition-door, for the purpose of interposing said bridge-wall and the current of hot air passing through it between the openings into the combustion-chamber and the opening into the ignition-door, substantially as described and shown.

177,868. CAR HEATERS AND VENTILATORS. H. Maey, Zurich, Switzerland. [Filed Apr. 24, 1875.]

Brief.—When the rear mouth is closed by the damper, air is conveyed into the car; when the front one is closed it is taken out of the car, and when both are open the air in the car is not affected. Draft-openings below the grate, corresponding in front and rear location with the mouths, are simultaneously opened and closed therewith.



177,868.



177,868.

1. In combination with a car, the casing A, having the mouths O O', and interchangeable valve E, and adapted to conduct air into or out of the car, substantially as described, for the purposes specified.

2. In combination with a car, the casing A, having the mouths O O', and interchangeable valve E, and inclosing a heater or a receptacle for a cooling substance or mixture, substantially as described, for the purposes specified.

3. A car-heating apparatus, consisting of the heater L, having the valved draft-orifices p p' and flue T, and the casing A, inclosing a portion of the heater and its flue, and having the valved mouths O O', the apparatus being arranged in such relation to the car that the motion of the latter in either direction shall cause currents of air to enter and pass through the heater and its flue and the casing simultaneously, substantially as described.

4. The combination of the heater L, having draft-openings p p' and valves S S', with the casing A, having the mouths O O' and valve E, the valves S, S', and E being connected to operate simultaneously, substantially as described.

5. The valve E of the casing A, and the valves S, S', and R of the ash-box D', combined with the connecting-bar G, whereby they are operated simultaneously, substantially as described.

177,869. STONE PAVEMENTS. Arthur Magiunis, Forks Post-Office, Pa. [Filed Dec. 4, 1875.]

Brief.—The pavement-blocks are laid in arch form, and abut at the ends of the arch upon stepped curb-stones, which prevent the end blocks from vertical depression.



1. A street pavement or roadway in which a series of arches, composed of hewn blocks a and key-stones b, are combined with each other and with longitudinal abutment-block B, recessed at the corners, so as to afford a vertical support for the end blocks of the arch, as and for the purpose set forth.

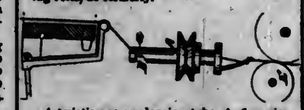
2. The abutment-block B, having a vertical projection, d, at one side, as and for the purpose set forth.

177,870. HYDRANTS. Thomas Maguire, Port Jervis, N. Y. [Filed Apr. 1, 1876.]

In a hydrant, the barrel A, having valve-seat c and spout B in close proximity to said seat, in combination with the ball-valve C, rod E, cup D, and piston H I J, whereby a flow of water is always secured to the spout when the valve is open, and at the same time, when desired, the ball may be removed through the spout by the pressure of the water without detaching the parts, substantially as described, and for the purpose set forth.

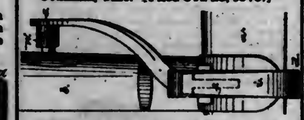
177,871. TWISTING AND CONDENSING TUBES IN SPINNING MACHINERY. Celestin Martin, Verviers, Belgium. [Filed Jan. 4, 1876.]

Brief.—By means of the notches in the recess of the tube, the roving is seized and held fast at each revolution of the tube, and just before the jerk takes place, and therefore the shock is confined to that part of the roving between the delivery-rolls and the notched recess, instead of extending the whole length of the roving between the delivery and drawing rolls, as formerly.



A twisting or condensing tube, A, for spinning, provided with the recess B, having toothed or roughened edges, for the purpose of diminishing or obviating the tension of the roving between the tube and the drawing-rolls, substantially as described.

177,872. TRUSS-SUPPORTS. Jos. McCarty, Franklin, Ohio. [Filed Oct. 26, 1875.]



The jointed arm g, provided with the catch w, and held by spring i, in combination with the stud s on shaft b, substantially as and for the purpose specified.

177,873. FRUIT-LIFTERS. W. McCormick, Blair, Nebr. [Filed July 31, 1875.]



177,873.

The herein-described fruit-gager, having its prongs C nearly straight for about half their length, and then twisted or curved sidewise about one-half turn, substantially as shown and described.

177,874. ROLLERS OR PULLEYS. James J. McCormick, Brooklyn, N. Y. [Filed Apr. 27, 1876.]

Brief.—A dry lubricant is either put in longitudinal recesses in the axle-bearing, or spread on cloth and used as a bushing.



As a new article of manufacture, a roller or pulley provided with a central opening, having its bearing-surface formed of a dry lubricator, inserted therein substantially as described.

177,875. SHINGLES. Marshall McComb, Pittsburg, Pa., assignor of one-third his right to David P. Hoyle, same place, and one-third to Daniel Crabtree, Belmont, N. Y. [Filed Apr. 24, 1876.]

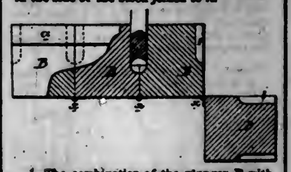


1. As a new article of manufacture, a shingle having the coursing line or lines marked upon its side or sides or edges, substantially as and for the purpose described.

2. The herein-described improvement in the manufacture of shingles, consisting in marking the coursing line or lines on each shingle, or in marking the edge of the blocks before sawing, as specified.

177,876. MOLDS FOR PILLS. J. A. McFerran, Philadelphia, Pa. [Filed Apr. 26, 1876.]

Brief.—A plunger works in the openings between the blocks composing a chain of molds. The half of each chamber or mold for receiving the pill material is formed in the side of one of the blocks, and the other half in the side of the block joined to it.



1. The combination of the plunger B with the stationary frame A and chambered blocks B, hinged to each other, substantially as described.

2. The combination of the chambered blocks, hinged together at their lower edges, and having at or near the top flanges a, with supporting-ledges on a guiding-frame, A, all substantially as specified.

3. The combination of the blocks, hinged together as specified, and chambered at their junctions, with a plunger, the movement of which in each that, when depressed, its lower end shall be below the support of the blocks.

177,877. FEEDING DEVICES FOR PILL-MACHINES. J. A. McFerran, Philadelphia, Pa. [Filed Apr. 26, 1876.]

Brief.—A revolving scraper is carried around upon the inside of the feed-hopper, and an automatically-moved arm keeps the powder from clogging in a spout leading to the hopper. A quantity of powder is taken up in a discharge-tube, which has an automatic reciprocating vertical movement, and the quantity of powder is regulated by the height to which it is raised.

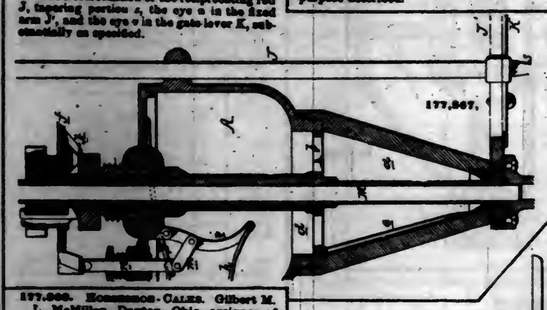
1. The combination, with a hopper and discharge-tube, of a sliding tube, I, sliding rod M, and gate o, operating together substantially in the manner described.

2. The combination, in a pill-machine feeder, of the hopper A, its lower conical portion a, and the revolving scraper s, adapted to the said conical portion, all substantially as and for the purpose set forth.

3. The combination of the hopper A, its feeding-pipe B, and reciprocating rod b, substantially as set forth.

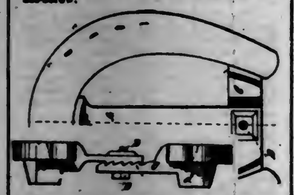
4. The combination of the reciprocating rod J, tapering portion e, the eye a in the fixed arm J', and the eye c in the gate-lever K, substantially as specified.

6. The half-thimble f, with the finger E attached thereto, and the set-washer g, provided with a set-screw, substantially as and for the purpose described.



177,868. HORSESHOE-CALKS. Gilbert M. L. McMillen, Dayton, Ohio, assignor of one-half his right to Edwd. F. Pryor, same place. [Filed Apr. 10, 1876.]

Brief.—To attach the calk to a shoe, separate the ratchet cross-bars, which carry the heel-calks, and close the heel-calks toward each other; press the bar carrying the toe-calks against the inside of the shoe, spread the heel-calk bars until they engage with the inside of the shoe, and then fasten with the set-screw.



The herein-described adjustable and detachable calk for horseshoes, consisting of the pieces A and C, constructed and arranged with reference to each other and the shoe as described, and held in position by the serrations in each and the set-screw D, as and for the purpose specified.

177,869. MARINERS' COMPASSES. James McNabb, Widder, Canada. [Filed Feb. 14, 1876.]



1. The combination of the feather or blade f of shaft h, with the nozzles g', by flexible connections, to indicate the leeway of a vessel and show her true course, substantially as set forth.

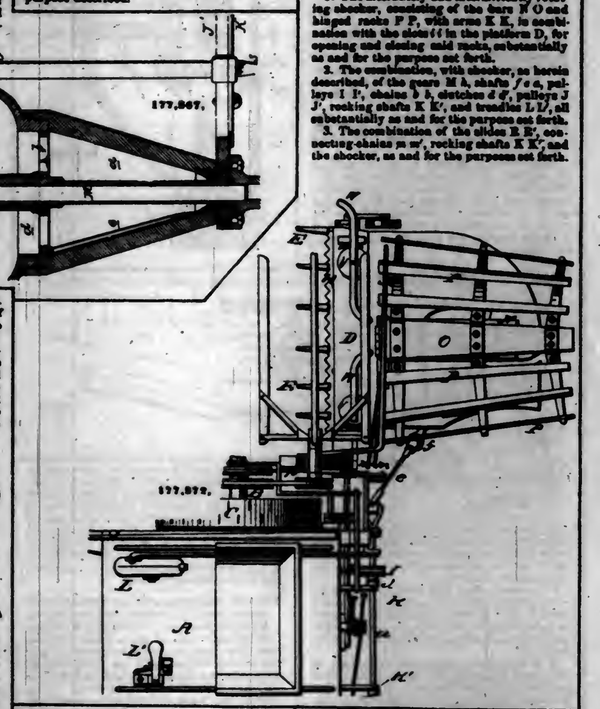
2. The combination, with the card, of one or more magnetic-needles arranged south of the center-pin, and at right angles to the east and west line of the card, for the purpose of neutralizing the influence of local attraction, substantially as set forth.

177,870. HOOKS-RAISE. James H. Melick, Albany, N.Y., assignor to Wheeler, Melick & Co., same place. [Filed Oct. 18, 1876.]

1. The combination, with the lever N, pivoted to bar b, of the hand-lever P, operating with the free end n of lever N, for operation with the adjuncts employed to raise the figure E E, substantially as set forth.

2. The pivoted foot-lever L, capable of being moved in either direction, in combination with the draft-bar J, operating with the adjuncts employed to raise the figure, substantially as and for the purpose set forth.

3. The staple-bar F, holding the fingers, pivoted staple-bar-lever H, draft-bar J, and foot-lever L, c on combined to operate substantially as described.



177,871. PRESSES. J. B. J. Mignon, Paris, France. [Filed Apr. 17, 1876.]

Brief.—Two cylinders are used, a large one below and a smaller one above, having pistons connected, and terminating in a plunger for pressing. Steam, water, or compressed air may be used, being admitted first to the upper cylinder, and afterward to the lower cylinder, as increased pressure is required. The plunger is raised by using the upper or third cylinder, the piston of which is connected with plunger by straps.





1. In a power-press, the combination of the cylinder D' and the cylinder D, larger in diameter, with their pistons G and G', to which the plunger is attached, as set forth.

2. The combination of the plunger P and the pistons G G' with the piston H and the connecting-rods, as and for the purpose described.

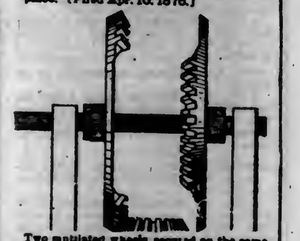
177,873. COMB-HARVESTERS. J. D. Miller, Lancaster, Ohio. [Filed Apr. 6, 1876.]

1. The alternately and intermittently rotating sheaker, consisting of the bars N O and hinged racks P P, with arms K K, in combination with the slots f in the platform D, for opening and closing said racks, substantially as and for the purpose set forth.

2. The combination, with sheaker, as herein described, of the gears M h, shafts f e, pulleys I I', chains b b, sketches d d', pulleys J J', rocking shafts K K', and treadles L L', all substantially as and for the purpose set forth.

3. The combination of the slides B B', connecting-chains m m', rocking shafts K K', and the sheaker, as and for the purposes set forth.

177,874. MACHINES FOR ENGRAVING PHOTOGRAPH-NEGATIVES. Henry Millinger, Pittsburg, Pa., assignor of one-half his right to James S. Thompson, same place. [Filed Apr. 10, 1876.]



Two mutilated wheels secured on the same shaft, and operating alternately upon an intermediate wheel or pinion, to give the same an alternating rotating motion, substantially as herein set forth.

177,875. MACHINES FOR ENGRAVING PHOTOGRAPH-NEGATIVES. Henry Meinwood, New York, N. Y. [Filed Feb. 6, 1876.]

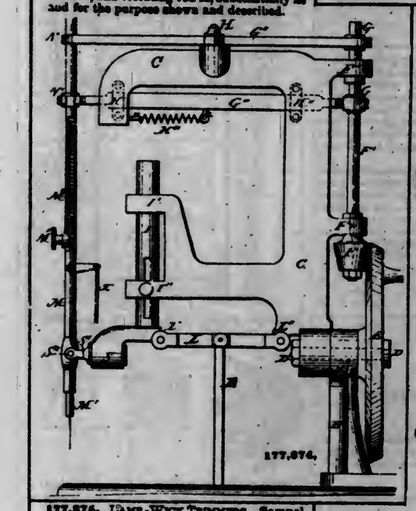
Brief.—A combination of motions is transmitted to the pencil, by which it inscribes on the surface minute figures "8," having a stippled effect. The frame can be inclined at any angle to correspond with the work.

1. The vibrating rod M, pencil-holder M', thumb-screw M'', and universal joint S S' S'', substantially as and for the purpose set forth.

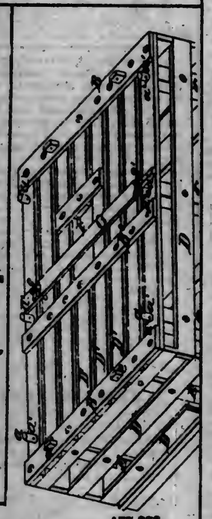
2. In combination with the vibrating rod and universal joint, the rod I, arm L, and rod R, substantially as and for the purpose set forth.

3. The frame C, in combination with the pivot D and stand B, as and for the purpose shown and described.

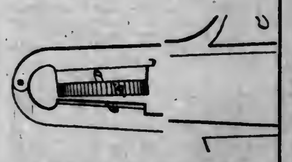
4. The combination of the bevel-wheel E, pinion F, shaft F', cams G and G', lever G'', rod G''', and vibrating rod M, substantially as and for the purpose shown and described.



The combination of the screw-threaded ring D, rose F, constructed with a threaded projecting ring, G, slot K, and shoulder M, and the knob-shank H, provided with a lug, I, substantially as described.



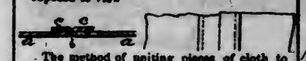
177,875. LAMP-WICK TRIMMERS. Samuel Naylor, Independence, Iowa. [Filed Mar. 20, 1876.]



The arms A B, each having an eye, C, at one end, curved inward toward each other at the other ends, and pivoted together, and provided with the block D, curved knife E, and soft-metal plate G, as shown and described.

177,876. ORNAMENTAL SEAMS FOR CLOTHING. J. H. Nichols, Boston, Mass. [Filed Mar. 14, 1876.]

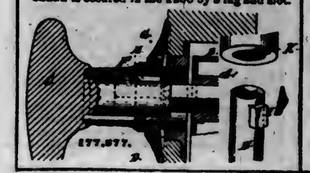
Brief.—An ornamental seam for overcoats and similar garments, whereby the wrong and right sides of the goods are simultaneously exposed to view



The method of uniting pieces of cloth to form a garment of wearing apparel, or a portion thereof, consisting of the seam b c c, constructed and arranged as described, so that a portion of the wrong side of the goods shall be shown on the right side of the same, as specified.

177,877. DOOR-KNOB ATTACHMENTS. S. S. Niles, Oak Park, Ill. [Filed Mar. 20, 1876.]

Brief.—A projecting screw-threaded ring forms a part of the lock-case itself, and a projection of the rose screws into it, and the knob-shank is secured in the knob by a lug and slot.



177,878. FOLDING COOPS. Jas. O'CONNOR, Jackson, Mo., assignor of one-half his right to J. B. Wheeler and John V. Priest, same place. [Filed Apr. 4, 1876.]

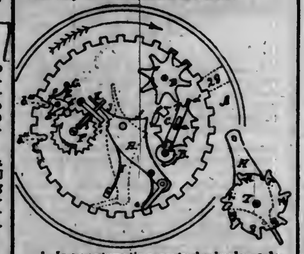
Brief.—The sides, with their hinged posts, fold inward, and the detached ends are laid upon them. A door on top is held down by a bar, connected by loops on the upper ends of two opposite posts, hinged at the sides of the floor to fold down thereon.

1. The coop composed of the base A, sides, ends, and top D D' D², entrance F, and bolt G, with folding posts h and loops g g', substantially as described and shown.

2. The bolt G and posts h, with loops g g', in combination with the coop, having the entrance-opening F, substantially as shown and described.

177,879. AUTOMATIC CALENDARS FOR TIMEPIECES. Minor H. Paddock, East Clarkson, N. Y. [Filed Apr. 12, 1876.]

Brief.—A perpetual automatic calendar for watches, set by the act of winding, the irregularities of the months being adjusted by certain skip-lever mechanism described.



1. In an automatic perpetual calendar, a device, b^{29} b^{31}, or equivalent, in combination with a wheel representing the greatest division of days common to all the months, as described, and adapted at proper time to move the skipping devices, for purposes set forth.

2. The wheel F, or equivalent, having its circumference divided to represent, in their proper order, the odd ends or remnants of the months, substantially as and for purpose set forth.

3. The wheel F, having its circumference divided into notches relatively proportioned to actuators b^{30} and b^{31}, so as to revolve once a year, and provided with slots corresponding to and arranged in the order of the short months, in combination with a slot-bar, J, or equivalent, for the purpose set forth.

4. The wheel A, having an established measurement of thirty-one days, and provided with two teeth, b^{30} and b^{31}, or their equivalent, one of which is located to operate for the short month of February, and the other for the thirty-day months of April, June, September, November, to effect the skipping of the calendar to first of succeeding month, substantially as described.

5. The skipping-lever H and the notched wheel A, having teeth b^{30} and b^{31}, combined with suitable intervening skip producing mechanism, to regulate the number of days to be skipped, substantially as described.

6. The combination of annular calendar A with the skipping-lever H, adapted to operate the calendar A at one end, and be operated by said calendar A at the other, through a suitable intervening skip-producing mechanism, substantially as described.

7. The month-regulator wheel F, having slots of different depth, correspondingly relatively to the different number of days to be skipped at end of short months, to regulate the movement of the skipping-lever, for purpose described.

8. The wheel F, having twenty-three notches, in combination with the day-wheel, having two teeth, b^{30} b^{31}, and a pallet or double-acting lever, E, as and for purpose described.

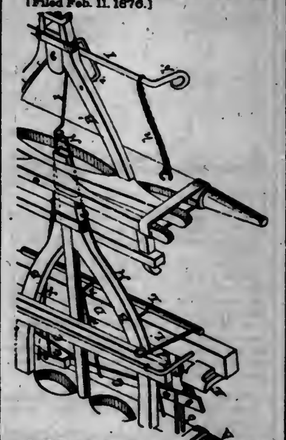
9. The skipping-lever H, in combination with the notched day-wheel, as and for purpose described.

10. The combination of the notched day-wheel A, having teeth b^{30} b^{31}, the pallet E, the wheel F, twenty-three notched and slotted, as described, and the skipping-lever H, carrying slide-bar J, substantially as and for purpose described.

11. The skipping-lever H, adapted to operate the day-wheel, in combination with the slide a of the stop-wheel or its equivalent, for the purpose of effecting the skip through the winding of the time-piece.

12. The seven-toothed week-wheel L, pivoted upon the same fulcrum with the skip lever, and combined with the slide of the stop-wheel, as and for purpose described.

177,880. WAGON-BRAKES. Wm. S. Pangle and Frederick Pangle, Whitesburg, Tenn. [Filed Feb. 11, 1876.]



1. The brake-bar D, having the brake-shoes E, and suspended below the bounds by an angular rod resting upon the cross-bar C, the levers G G overlapping each other, the connecting-rods c d, springs e e, irons f b, bent rod H, connecting-rod f, and swinging double-tree I, with center crank or arm g, all constructed and combined substantially as and for the purposes herein set forth.

2. The rocking shaft L, with crank L', arm e, and connecting-rod m, in combination with the levers G G, substantially as and for the purposes herein set forth.

177,881. VEHICLE-HUBS. W. C. Partlow, Brandon, Vt. [Filed Dec. 7, 1875.]



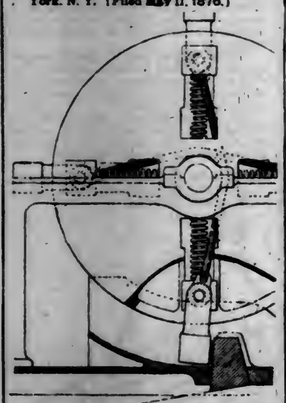
In a hub, the combination of the box F, having the shoulder and head b formed with it, the wooden portions a, rings c, ring and band e, collar D, nut H, and cap L, substantially as shown and described.

177,882. SPRING-CLASPS FOR SUSPENDING GARMENTS. Emeline W. Philbrook, Boston, Mass. [Filed Apr. 1, 1876.]



The twin spring clasp having its ends normally apart, and adapted to operate substantially as and for the purpose described.

177,883. ELASTIC HANGINGS FOR REVOLVING HAMMERS. Goldsbury H Pond, New York, N. Y. [Filed May 11, 1876.]



1. The concentric and elastic hanging for revolving hammers, picks, ground-cutters, thrashing-machines, &c., as set forth and described.

2. The rubber spring around the journal of the pin on which the hammers, picks, and cutters swing, forming a part of the journal-box, to prevent the machine from breaking by blows, jars, or concussion.

3. The spring from heel to heel of the hammer-handle or shank, across or to the center of the disks, or both combined, to keep the hammers, picks, cutters, thrashers, and beaters in a working position.

177,884. METAL-TURNING LATHES. Salmon W. Putnam, Jr., Fitchburg, Mass. [Filed Sept. 2, 1874.]

Brief.—The feed-nut is slotted and attached to the slide-rest by screws passing through the slots. On the slide-rest a crank-lever is pivoted at its angle, the upper end of which carries a friction-roll, which travels in a slot in an adjustable rod or bar, while the lower end rests in another slot in the nut. As the upper end of the crank-lever, by traveling in the inclined bar, is raised, the lower end, resting in the slot in the feed-nut, becomes the fulcrum of the lever, and the movement of the lever causes the slide-rest to travel slightly faster or slower than the nut; also, a taper-turning attachment.

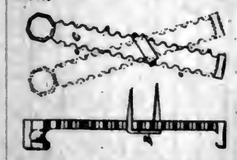


1. The carriage A and nut B, capable of being moved at different speeds, in combination with the tapering attachment, consisting of the rod h and loop e, substantially as set forth.

2. The guide-bar D and bent lever C, pivoted at the angle c to the carriage, and the end inserted in the nut B, in combination with the nut B, provided with slots b b, and the screw G, as set forth.

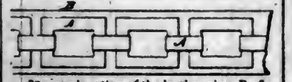
3. In a taper attachment for lathes, the saddle H, in combination with the reciprocating cross-rod h and diagonal groove f in the nut B, substantially as described, and for the purpose set forth.

177,885. CURTAIN-CORD TIGHTENERS. H. Resley, Cumberland, Md. [Filed Mar. 9, 1876.]



The under-ribbed plate C, suspended from a curtain-cord, in combination with the keeper S, arranged obliquely on the frame, as and for the purpose specified.

177,886. HARNESS. Fredrick Reynold, Newark, N. J., assignor to Reynold & Zahn, same place. [Filed Apr. 20, 1876.]



The combination of the leather piece B of a harness and the metal plate A, cut away to reduce the weight, and formed to constitute an ornamental stiffening, as set forth.

177,887. ATTACHING SPRINGS OF FIRE-ARMS. Wm. A. Richardson, Worcester, Mass., assignor of one-half his right to O. H. Harrington, same place. [Filed Apr. 11, 1876.]

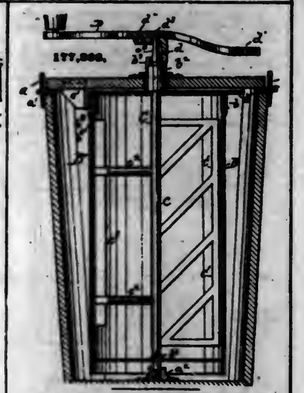


As an improvement in the securing of springs in fire-arms, an arc-shaped recess in the frame, in combination with an arc-shaped curve in the spring, whereby the latter is securely attached and held in place, substantially as herein described.

177,888. ICE-CREAM FREEZERS. David J. Rogers, Bardstown, Ky. (Filed Apr. 12, 1876.)

Brief.—When the square-head shaft of dasher is in the central hole of the handle, the dasher can be semi-revolved either way without moving the cream-can. If revolved farther in one direction it revolves the cream-can also; if in the other direction, cream-can is stopped. Finally, to scrape off and solidify the frozen cream, insert shaft in either of the outer holes of handle, when the dasher alone revolves.

In an ice-cream freezer, the dasher C, having square-headed shaft d and can B, provided with the sleeve b', having attached to and forming part of it the projection b', in combination with the handle D, having projection f, as and for the purpose herein specified.



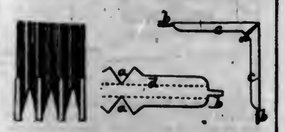
177,889. PAPER JEWELRY. F. W. Seidewitz, Baltimore, Md. [Filed Mar. 3, 1876.]



The combination, with the stamped and embossed paper design, of a bent pin, c, and a small fibrous disk, b, adapted to be attached to the paper by an adhesive wax or cement, substantially as described.

177,890. BELLOWS FOR CONCERTINAS, REED-ORGANS, &c. Louis T. Simon, New York, N. Y. [Filed Apr. 27, 1876.]

Brief.—Metal corner-pieces to protect the sharp corners of the bellows.



The combination, with an angular bellows, of a binding or corner strip, A, of the character herein described, consisting of a strip of sheet metal which is bent at right angles, or nearly so, and provided with lips c c, to overlap the edges of the bellows-folds, substantially as specified.

177,891. CHAIRS. Rudolph Skoog, Boston, Mass., assignor to himself and J. F. Marliare, same place. [Filed Apr. 12, 1876.]



1. A chair composed of a foundation-frame, A, seat B, and upper frame C, all detachably connected, substantially as described.

2. The frame A, composed of the bent pieces a, forming legs, braces, and a foundation for the seat, substantially as described.

177,892. DRAWING-SLATES. C. L. Slade, New York, N. Y. [Filed Apr. 22, 1876.]

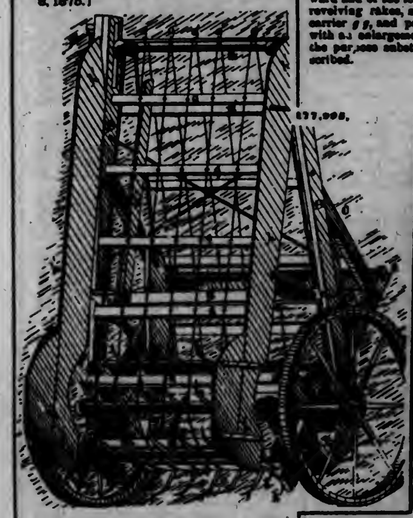
1. The combination of a transparent tracing-slate, A, and an opaque slate, B, with copies for the respective slates, and a frame common to all, substantially as herein illustrated and described.

2. A thin paper copy-sheet, C, provided on one end the same side with two copies, r r, for use in connection with the transparent slate and with the opaque slate, respectively, and adapted to be laid between the slates, as set forth, for the purposes specified.

3. A frame, F, having a clasp, hook or latch, g, and an internal supporting-shoulder, s, at the top, in combination with the pair of removable slates A B, resting on said shoulder, and copy-sheets C, laid between the slates, the same forming a covered space of the entire internal area of the frame, for the reception of other articles, as herein shown and described, for the purpose set forth.



177,893. HAY-LOADERS. James W. Small and Edwd. Small, Aurora, Ill. [Filed Nov. 8, 1875.]



1. The means employed for giving to the rake-heads E' and E' a variable rotary motion, so as to cause the teeth s and s to engage with, raise, and then release, the hay, consisting of the trips F and F, secured upon, and extending radially outward from, the journals at said heads, and having the forward edge of each formed upon a curved line from a point near its outer end to the intersection of said end with the opposite straight edge; the tripping-blocks F' and F', constructed in the form of a curved wedge, and secured upon the main frame, so as to engage with the curved front edges of said trips; the angle-irons f and f, secured upon the rear side of each alternate arm E, and extending rearward and outward, so as to limit the forward motion of said trips; and the pins f' and f', which are secured within, and project radially inward from, each of said rake-heads, and engage with fixed pins f'' and f'', that project horizontally inward from the arms E and E, said parts being constructed and combined to operate in the order and for the purpose specified.

2. In combination with the side rails B B of the carrier-frame, which are pivoted at their ends to or upon the main frame, the stands C C, each pivoted at its upper end to said side rails, provided at its lower end with a longitudinal slot, c, and a series of transverse semicircular grooves, d d, that are caused to engage with a ledge, corresponding with said grooves, upon the inner face of the rails A A, and firmly secured in position by a screw-bolt, a', by means of which said carrier-frame may be raised or lowered by a person standing upon the ground, substantially as and for the purpose shown and set forth.

3. In combination with the clutches d' d and coil-springs h h, as arranged, the inner projecting portions of the hubs of the wheels D D, to and upon which the movable portions of the said clutches are fitted, said projecting portions of the hubs providing a bearing for said movable parts of the clutches, in the manner and for the purpose substantially as shown and described.

4. In combination with the side rails B B and stands C C, the carrier-guides C' C', pivoted at their forward ends, and secured to the stands C C by means of a bolt and nut, and supported at their rear ends by means of a vertical dowel-pin or stand, the lower end of which latter is fitted loosely to a hole provided in cross-bar a', while the upper end of said dowel-pin or stand is pivoted to the rear end of said carrier-guides C' C', in the manner and for the purpose substantially as shown and set forth.

5. In combination with the side rails B B, the side boards b' b', extending from the forward end of the former to the rear end of the revolving rakes, and upon each side of the carrier g g, and provided at their rear ends with a enlargement, in the manner and for the purpose substantially as shown and described.



177,894. SIEVES. Edward Stewart, Fort Madison, Iowa, assignor of one-half his right to Wm. H. Kretsinger, same place. [Filed Apr. 20, 1876.]

1. A sieve-hoop having separable ends and a groove, E, substantially as and for the purposes described.

2. A sieve-hoop the body of which has separable ends, and a fastening therefor, in combination with a detachable bottom, substantially as described, and for the purpose set forth.

177,895. PROCESSES OF DECORATING WALLS. Adolph Steckner, Pittsburg, Pa. [Filed Mar. 21, 1876.]

The improvement in the art of decorating walls, &c., consisting in first laying on the design in water-colors, then laying on the within-described aqueo-aceous enamel, and finishing with a hot iron, substantially as specified.

177,896. PROCESSES FOR PRODUCING SAFETY-PAPERS. W. H. Syms, Holyoke, Mass., assignor to Crocker Manufacturing Company, same place. [Filed Mar. 28, 1876.]



The described process of manufacturing safety-paper, which consists in applying the coloring material directly to but a portion of the surface of the pulp web before pressing or calendering, whereby the coloring material is permitted to partially penetrate and spread in the pulp web, blending or irregularly coloring its surface, substantially as described.

177,897. PORTABLE FENCES. Orin Thomas, Rochester Depot, Ohio. [Filed Oct. 26, 1875.]



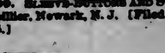
In a portable fence, the posts A, perforated in the bottom, in combination with the stone blocks C, having a metallic pin, c, in the top, and holes in the ends, and the rod-braces c, hooked in the holes in the ends of the stone blocks, and adjustably secured to the posts A, substantially as described.

177,898. FAUCETS. Anton Tomeska, Iowa City, Iowa. [Filed Feb. 26, 1876.]



The faucet herein described, consisting of wooden body A, wooden spout A', spigot B b, spring b', and nut b'', and metal coverings or bands C C' c C', all combined substantially as and for the purposes set forth.

177,899. SLEEVE-BUTTONS AND STUDS. B. Verpillier, Newark, N. J. [Filed Nov. 18, 1875.]



The improved sleeve-button or shirt-stud, consisting of the outwardly-curved bar extending across the inside of the front piece, and provided with the screw or worm S, the end of the laser wing being adjacent to the curved cross-bar for guiding the material into the screw, substantially as herein shown and described.

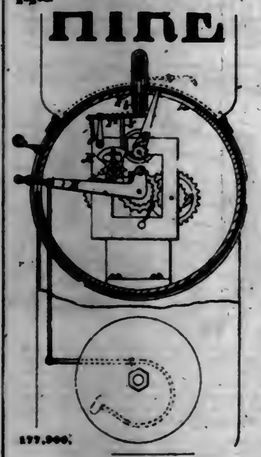
177,900. FARE CONTROLLERS AND INDICATORS. Louis Von Hoven, Philadelphia, Pa. [Filed Feb. 2, 1876.]

1. A fare controller and indicator embodying the following instrumentalities: a sign for showing when the vehicle is for hire, a clock for noting the time the vehicle is engaged, and a dial or register for recording the amount of fare demanded of the passenger by the driver, whether the carriage be in motion or at rest, these several parts being combined for conjoint operation, as set forth.

2. A fare controller and indicator having a clock for noting the time a vehicle is hired, and a register or dial for numbering the successive hirings, in combination with a sign for showing when the vehicle is for hire and when engaged, and sign being connected by appropriate mechanism with the clock, so as to keep the latter when said sign is exposed, and to per-

mit it to run when concealed, being also connected with said register, as set forth, so that dropping or concealing said sign, or raising or exposing it after it has been concealed, will mark on the register a number or point, and thus indicate successive hirings, or show to how many different parties the vehicle has been hired during the time noted by the clock.

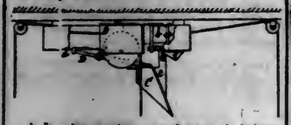
3. The combination, in a fare-controller and indicator, of a sign to show when the vehicle is engaged and when for hire, a clock for noting the period during which the vehicle is engaged, a recording apparatus for indicating the amount of fare paid, and a register or dial to denote successive hirings, or to tell to how many different parties the vehicle was engaged.



177,000.

177,001. HAY-CARRIERS. E. L. Walker, Twin Grove, Wis. (Filed Apr. 7, 1876.)

Brief.—The load, on reaching the overhead carriage, pushes aside, by means of a stop, a catch that oscillates laterally, and dislatches the carriage, the catch dropping then underneath the stop to hold it suspended. The carriage is then drawn along the ways by a counterbalance weight until, on reaching a projecting plate, the catch is pushed aside and the stop released.

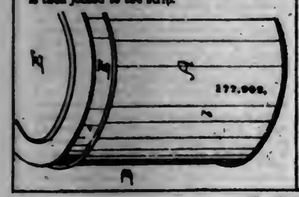


1. In a hay-carrier, a pendent catch, being so arranged that it may be shoved aside by a plate or fastening, bolted or otherwise secured to the hoisting-rope, and operating substantially as described.

2. The combination of the sheaf-case B, pendent catch C, and lever D, in the manner and for the purposes specified, and operating with the catch *c* and guard *f*, substantially as described.

177,002. CANS. Arthur E. Waller, New York, N. Y. (Filed Sept. 3, 1875.)

Brief.—A soft-metal strip is swaged and soldered to, and forms a continuation of, the periphery of the can, and the top of the can is then joined to the strip.

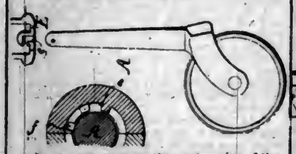


177,002.

As a new article of manufacture, a metal can constructed with a strip or rim of soft metal, E, inserted between the ends or top and bottom of the can, and solely forming a continuous portion of the periphery or sides B thereof, substantially as shown and described.

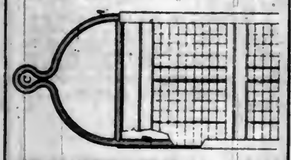
177,003. FURNITURE-CASTERS. George B. Warren, Prospect, assignor to Lewis W. Klahr and Chas. F. Klahr, Philadelphia, Pa. (Filed Mar. 20, 1876.)

Brief.—A slightly modified form of the well-known bayonet-fastening heretofore applied to detachable furniture-casters.



In a furniture-caster, the combination of the stem A and its pin *f* with the internal flange E, recess *a*, and projection *d* of the socket, all substantially as and for the purpose set forth.

177,004. HOLDERS FOR PRICE-LISTS. S. Washburn, Jr., Taunton, Mass. (Filed Nov. 27, 1876.)



The holder above described, consisting of the frame A, provided with a handle, B, on one end, and a loop, C, for hanging, on the other, and the receptacle for the price lists, the latter being mounted upon the frame A and divided by it into two compartments, all as set forth.

177,005. BREECH-LOADING FIRE-ARMS. John C. Wallen, Milwaukee, Wis. (Filed Apr. 10, 1876.)

Brief.—A locking-bolt for break-down guns.

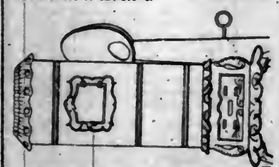


1. Key-bolt *F*, made with one side of its head square, and also of one solid piece, and extending up into rib E, and locking into same, and pressing against the back side of the notch in the extension-rib, holding the breech piece and barrel together, both vertically and horizontally, substantially as described.

2. Key-bolt F and spring L, in combination with barrel A and breech-piece B, substantially as described.

177,006. HEATERS. Landon West, Sinking Springs, Ohio. (Filed Apr. 12, 1876.)

Brief.—A conduit for the admission of pure air, and a concave deflector to direct it against the surface of the stove.



The combination, with a stove or heater, of the combined ventilator and heat-reflector, isolated, consisting of a pipe surmounted by or terminating in a flaring mouth, and extending beyond the apartment to be heated, substantially as described.

177,007. MECHANISM FOR DRIVING FAN-BLOWERS IN CARS. Jas. E. Wickes, New York, N. Y. (Filed Apr. 21, 1876.)

Brief.—A gravitating-frame, which forms the bearing for a shaft, on which are mounted two pulleys—one of which, by its own weight and by the weight of the gravitating-frame, bears down upon the circumference of a pulley mounted on the axle of a railroad-car, while the other pulley serves to transmit motion to the blower-shaft situated beneath the platform of the car, so that by raising the gravitating-frame the motion of the blower can be stopped, and when the frame is lowered the motion of the blower is rendered independent of the rising and falling motion of the car-body.



The combination, with a pulley, *c*, mounted on a car axle, D, of a gravitating frame, E, attached to the bottom of the car, and carrying a shaft, with a friction-pulley, *c*, and with a pulley, *f*, from which motion is transmitted to the blower shaft, the whole being constructed and operating substantially as shown and described.

177,008. IRONING APPARATUS. Thomas S. Wiles, Albany, N. Y., assignor of one-half his right to Alonzo P. Adams, same place. (Filed Apr. 27, 1876.)

1. The combination of two separate sets of ironing and clothed rollers, arranged apart and reversely to each other, and an intermediate active feeding device, whereby articles of less length than the distance between the two sets of rollers will be ironed first on one side only by the first set of rollers, and thence carried directly to the second set of rollers, and thereby ironed only on the other side, substantially as set forth.

2. The combination of two separate sets of ironing and clothed rollers, B C and D E, arranged reversely to each other, and a separate endless apron, F, between the two sets of ironing and clothed rollers, substantially as described.

3. The combination of two separate sets of ironing and clothed rollers, B C and D E, arranged reversely to each other, the intermediate endless apron F, and the incumbent roller G, substantially as described.

4. The combination of two separate sets of ironing and clothed rollers, B C and D E, arranged reversely to each other, an intermediate active feeding device, substantially such as described, and a clearing-guide, H, arranged in respect to the feeding device and the lower roller of the first set, as set forth.

5. Two separate sets only of ironing and clothed rollers, of which the ironing-roller B is under the clothed roller C in the first set, and the ironing roller D is over the clothed roller E in the second set, and an intermediate active feeding or carrying device, all combined and operating together substantially as set forth, and having an open feeding-in space, J, between the upper rollers of the two sets, as described.

6. The combination of two separate sets of reversely-arranged ironing and clothed rollers, having the ironing-rollers B D mounted to turn in constant positions, and the clothed rollers C E mounted to turn in journal-boxes which are movable and adjustable toward and from the ironing rollers, a driving-shaft, L, and two separate sets of gearing, of which one set constantly connects the said driving-shaft with the two ironing-rollers, and the other set continually connects the same driving-shaft with the two clothed rollers, wherever the latter shall be moved and adjusted in respect to the ironing-rollers, as described.

7. The combination, with two separate reversely-arranged sets of ironing and clothed rollers, of a rotary driving-shaft, L, a set of gearing constantly connecting the said driving-shaft with the two clothed rollers C E, and a separate set of gearing connecting the same driving-shaft with the two ironing-rollers B D, and made changeable, so that the rollers can be thereby made to produce either polished or lusterless ironed surfaces, substantially as described.

8. The combination, with two separate sets of reversely-arranged ironing and clothed rollers, of a rotary driving-shaft, L, a set of changeable gearing connecting the said driving-shaft with the clothed rollers C E, whereby the two sets of rollers can be made to properly iron articles of very different thicknesses, and also produce thereon either lusterless or polished ironed surfaces, as described.

9. In combination with an ironing-roller, B, and a clothed roller, C, over the ironing-roller, and mounted in movable journal-boxes *a'*, the hangers M, secured to the said journal-boxes, and connected together by a horizontal bar, P, having thereon weights Q, adjustable along the bar, substantially as described.

10. In combination with ironing and clothed rollers, of which one roller, B, is movable, and arranged under and against an upper one, D, a seat or platform, R, arranged in proper position to be occupied by a person introducing articles between the rollers, and mounted on a lever or levers, S, connected with the said movable roller, so that the weight of the person on the seat or platform shall press the movable roller against the upper one, substantially as described.

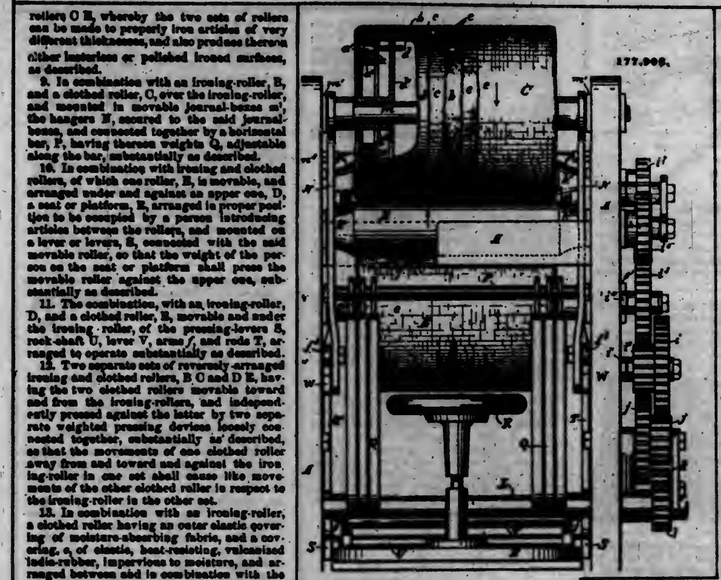
11. The combination, with an ironing-roller, D, and a clothed roller, B, movable and under the ironing-roller, of the pressing-levers S, rock-shaft U, lever V, arms *f*, and rods T, arranged to operate substantially as described.

12. Two separate sets of reversely-arranged ironing and clothed rollers, B C and D E, having the two clothed rollers movable toward and from the ironing-rollers, and independently pressed against the latter by two separate weighted pressing devices loosely connected together, substantially as described, so that the movements of one clothed roller away from and toward and against the ironing-roller in one set shall cause like movements of the other clothed roller in respect to the ironing-roller in the other set.

13. In combination with an ironing-roller, a clothed roller having an outer elastic covering of moisture-absorbing fabric, and a covering, *c*, of elastic, heat-resisting, vulcanized India-rubber, impervious to moisture, and arranged between and in combination with the said moisture-absorbing covering and the body of the roller, substantially as described.

14. In combination with an ironing-roller, a clothed roller having an outer cloth covering, *a*, a body, *d*, immediately surrounded by an inner covering, *c*, of elastic vulcanized India-rubber, impervious to moisture, and an elastic porous covering, *b*, of woolen fabric, which is a good non-conductor of heat, and is arranged between and in combination with the said outer and inner coverings, substantially as described.

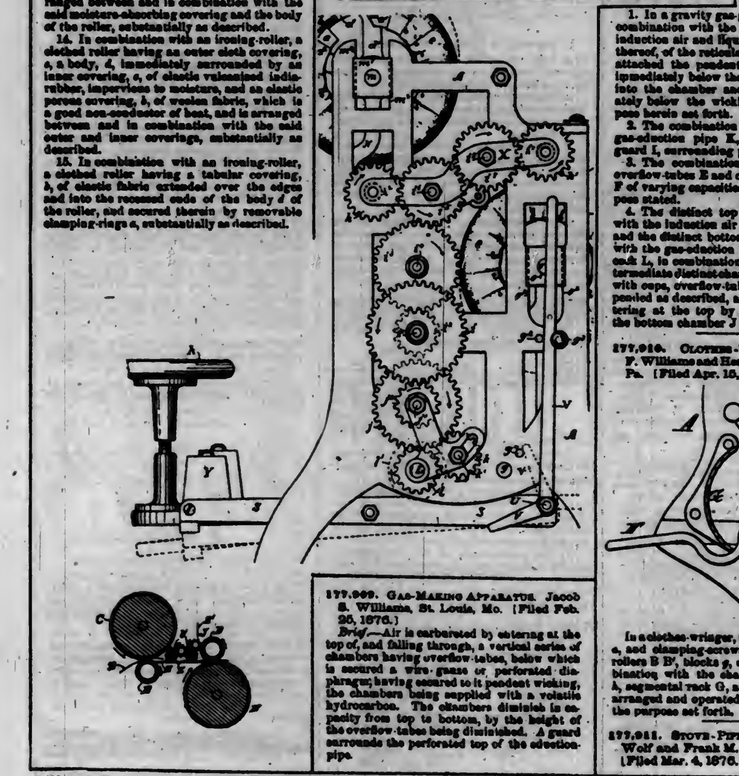
15. In combination with an ironing-roller, a clothed roller having a tubular covering, *b*, of elastic fabric extended over the edges and into the recessed ends of the body *d* of the roller, and secured therein by removable clamping-rings *a*, substantially as described.



177,008.



177,009.



177,009. GAS-MAKING APPARATUS. Jacob S. Williams, St. Louis, Mo. (Filed Feb. 26, 1876.)

Brief.—Air is carbureted by entering at the top of, and falling through, a vertical series of chambers having overflow-tubes, below which is secured a wire-gauze or perforated diaphragm; having secured to it pendent wicking, the chambers being supplied with a volatile hydrocarbon. The chambers diminish in capacity from top to bottom, by the height of the overflow-tubes being diminished. A guard surrounds the perforated top of the eduction-pipe.

1. In a gravity gas-generating machine, the combination with the top chamber D and the induction air and liquid pipes B C at the top thereof, of the reticulated plate H, to which is attached the pendent wicking H', arranged immediately below the entrance of the pipes into the chamber and the tubes E, immediately below the wicking, as and for the purpose herein set forth.

2. The combination of the chamber J, the gas-eduction pipe K, and the deflector or guard I, surrounding pipe K, as set forth.

3. The combination, with the graduated overflow-tubes E and chambers G, of the cups F of varying capacities, as and for the purposes stated.

4. The distinct top chamber D, provided with the induction air and liquid pipes B C, and the distinct bottom chamber J, provided with the gas-eduction pipe K, and the waste-cock L, in combination with one or more intermediate distinct chambers, G, provided, each with cups, overflow-tubes, and wicking, suspended as described, and in which the air entering at the top by gravity is delivered at the bottom chamber J for use.

177,010. CLOTHES-WRINGERS. William F. Williams and Henry L. Williams, York, Pa. (Filed Apr. 15, 1876.)



In a clothes-wringer, the cheeks A, with jaws *a*, and clamping-screws *b*, and provided with rollers B B', blocks *g*, and springs S, in combination with the shaft J, having eccentrics *h*, segmental rack G, and handle F, the whole arranged and operated in the manner and for the purpose set forth.

177,011. STOVE-PIPE SHELVES. David C. Wolf and Frank M. Saxby, Keota, Iowa. (Filed Mar. 4, 1876.)

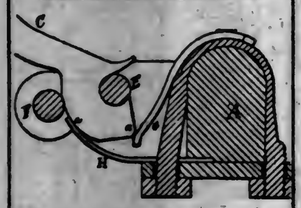
HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO. BOSTON



177,012.

The leaf C, provided with the semicircular hooks *b b*, in combination with a shelf or bracket having slotted projections *d d*, whereby, when the leaf is horizontally secured to the shelf or bracket, a bearing is formed under both shelf and leaf, substantially as and for the purposes herein set forth.

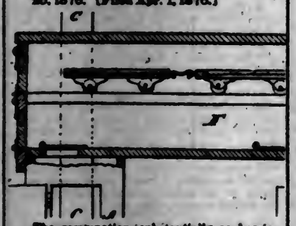
177,013. TRUSS-COUPLINGS. Alvin L. Stolt, Marion, Ohio. [Filed Apr. 24, 1876.]



The shaft-iron C, constructed substantially as set forth, in combination with the belts B and F and the springs G and H, for the purposes specified.

REISSUES.

7,182. DRESS. Edwin W. Bakewell, Normal, Ill. Patent No. 172,608, dated Jan. 25, 1876. [Filed Apr. 1, 1876.]



The combination, substantially as hereinbefore described, of the hot-air chamber B, provided with suitable inlet-apertures, the foul-air chamber A, provided with exhaust-shaft C, and the horizontal chamber F, communicating with said chambers by means of apertures provided with regulating-dampers, the whole arranged to operate as herein set forth and shown.

7,183. PADLOCKS. James H. McWilliams, New York, N. Y. Patent No. 116,977, dated July 11, 1871. [Filed May 10, 1876.]

Brief.—The shackle has shoulders, which prevent it from being driven through the bottom of the padlock-case.



The padlock containing a staple-formed shackle, having shoulders *i* all around the upper parts of the parallel portions *b b* to rest upon the upper part of the case *a*, and notches in the opposite sides of the parallel portions for the tumblers *c*, substantially as and for the purposes set forth.

7,184. WOOD-SCREWS. Richard J. Nunn, Savannah, Ga., assignor to S. Elliott, New Haven, Conn. Patent No. 68,261, dated Sept. 3, 1867. [Filed Mar. 18, 1876.]

Brief.—In place of the usual nick, two slots or notches are formed, one upon either side, and with parallel sides oblique to the longitudinal axis of the screw. These slots converge and meet at the center of the upper surface of the screw-head.



1. The nails or locking-brads *b*, in combination with the screw having its head constructed with nicks or notches *a'*, substantially as and for the purposes set forth.

2. The supplemental head *c*, in combination with the locking-brads *b* and the notched head of the screw, substantially as and for the purposes set forth.

3. A screw the head of which is constructed with converging notches or slots, meeting at the top of the screw-head, the sides of which are parallel to each other, and oblique to the longitudinal axis of the body of the screw, substantially as described.

4. The combination, with a screw having its head provided with slots or notches the sides of which are parallel to each other, of a screw-driver having an angular bit to fit the slots or notches in the screw, substantially as described.

7,185. APPARATUS FOR CRIMPING WIRE FOR SIEVES. Charles P. Seitzinger, Scranton, Pa. Patent No. 112,263, dated Aug. 22, 1871. [Filed Mar. 7, 1876.]



1. In a wire-crimping apparatus, the bars F or G', notched to hold the wires or rods, and crimp them, as set forth.

2. In a wire-crimping apparatus, the bars F or G, F' or G', constructed with the ends *f* or *g*, and adapted to be held and adjusted in the notch, recess, or space *i*, substantially as and for the purposes set forth.

3. The combination of the two metallic blocks, A B, the movable metal bars F G, and the grooved bars F' G', fastened by screws or otherwise, substantially as and for the purposes herein before set forth.

7,186. FLUE-CLEANERS. Addison Crosby, New York, N. Y. Patent No. 156,543, dated Nov. 3, 1874. [Filed May 2, 1876.]



7,186.

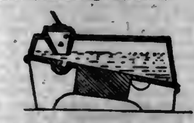
1. In a boiler-flue cleaner, the combination of a suction-pipe, which is reduced from its flue-mouth to its discharge-mouth, and provided with a steam-jet, a steam-supply pipe, and controlling-valve, substantially as and for the purpose set forth.

2. In a boiler-flue cleaner, the combination, with a suitable handle and with a steam-pipe, I, of a suction-pipe, C, provided with a flange, *w*, faced with rubber or other packing material, substantially as set forth.

3. The combination of the reduced suction-pipe C, jet I, pipe E, handle *e*, supply-pipe S, and controlling-valve, substantially as and for the purposes described.

4. The combination of suction-pipe C, jet I, pipe E, handle *e*, valve-seat W, valve V, stirrup H, lever G, and supply-pipe S, substantially as and for the purpose set forth.

7,187. INKSTANDS. Samuel Darling, Providence, R. I. Patent No. 61,021, dated Jan. 9, 1866; reissue No. 4,197, dated Dec. 19, 1870. [Filed Aug. 24, 1874.]



1. An inkstand, having an ink-reservoir arranged to be rotated horizontally upon its bed or stand, and having a dipping-cup on one side of its center of rotation, so that the ink may be caused to stand at the proper height in the dipping-cup by receiving the reservoir, substantially as described.

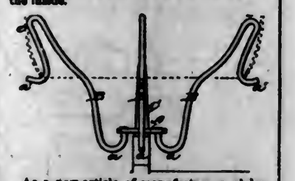
2. The combination, in an inkstand, of an ink-reservoir, a dipping cup or tube, the lower diameter or opening of which is less than the width of an ordinary writing-pen, and an ink-well or recess in the bottom of the reservoir under the dipping-cup, substantially as described, and for the purpose herein set forth.

3. The combination, in an inkstand, of an ink-reservoir, a dipping-cup, the lower diameter or opening of which is less than the width of an ordinary writing-pen, through which there is an open communication with the interior of the reservoir, and also an opening for the free passage of air to and from the ink-reservoir, substantially as and for the purpose herein described.

4. The combination, in an inkstand, of an ink-reservoir, a dipping-cup, the lower part of which extends downward into the ink when in use, and through the lower part of which there is an open communication with the ink in the reservoir, an ink cavity or well in and below the bottom of the main reservoir under the dipping-cup, and an opening above the ink for the free passage of air to or from the interior of the reservoir, said air-passage being constantly open when the inkstand is in use, causing the ink in the reservoir to stand at its natural level, substantially as described, and for the purpose herein set forth.

7,188. SCALE-SUPPORTS. Thos. F. McGann, Boston, Mass. Patent No. 168,761, dated Oct. 11, 1875. [Filed Apr. 5, 1876.]

Brief.—The springs support the shade at the bottom, and press against it laterally on the inside.



As a new article of manufacture, a globe-holder composed of a punched or socketed plate, A, and elastic wire arms B, connected thereto, substantially as described.

7,189. BUCKLE-FASTENINGS. Robt. Meyer, Buffalo, N. Y., assignor to C. Schumacher. Patent No. 61,626, dated Jan. 29, 1867; antedated Jan. 10, 1867. [Filed May 4, 1876.]

7,189.



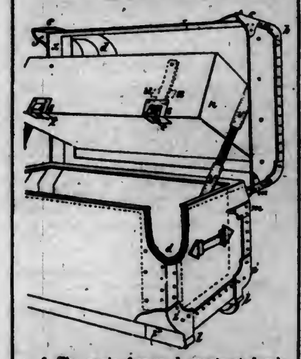
1. The case or shell E, made with an open bottom, and provided with the pins *a b*, adapted to pass through the strap and firmly hold it in place, substantially as and for the purpose herein shown and described.

2. The case or shell F, made with the bottom plate *d*, and combined with the buckle D, which is attached to said plate, substantially as specified.

3. The case or shell F, made with the bottom plate *d*, and with the projecting pins *c c*, substantially as herein shown and described.

4. The combination of the case E and strap C with the case F and buckle D, substantially as herein shown and described.

7,190. TRUSSES. Edward A. G. Roulstone, Boston, Mass., assignor to Geo. M. Ballard and George Minchin. Patent No. 59,272, dated Oct. 30, 1866. [Filed Apr. 24, 1876.]



1. The angle-frames *d*, constructed substantially as described, and adapted to be applied to the interior of the body of a trunk, and with the side of the body lapped over the end, or vice versa, and riveted to the angle-frame, substantially as described.

2. The guard *e*, provided with extension *f*, and adapted to be secured to the frame or body *x*, substantially as set forth.

3. The metal guard *h*, constructed as described, and adapted to be secured to the angle-frame or body *d*, substantially as set forth.

4. The guard or angle iron *i*, provided with a shoulder or projection, *l*, at the angle or corner of the iron, for the purposes herein set forth.

5. The projections *j* and shoulders *l*, formed on the guards *i*, for the purposes herein set forth.

6. The spring-latches *o*, constructed and adapted to be applied substantially as herein set forth.

7. The springs *v*, in combination with the webbing, as and for the purposes herein set forth.

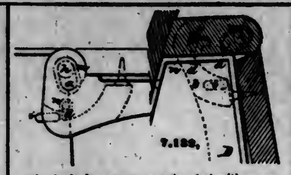
7,191. HOG-BOXES. John L. Stevens, Chicago, Ill., assignor to Billings, Coburn & Co., same place. Patent No. 163,274, dated May 11, 1875. [Filed Feb. 21, 1876.]
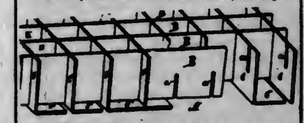


1. The removable tray A, formed of transverse and longitudinal strips, the former provided with the part C', adapted to fold across one or more of the series of compartments, substantially as specified.

2. An egg-carrier provided with removable trays A, divided into compartments B, the trays consisting of the series of strips B C, having the slots *a a'*, whereby the strips are locked together, the strips C being provided with the part C', adapted to fold across one or more of the series of compartments, substantially as specified.

7,192. SCHOOL-DESKS. J. W. Childs, Kansas City, Mo. Patent No. 174,480, dated Mar. 7, 1876. [Filed Apr. 15, 1876.]



7,192.

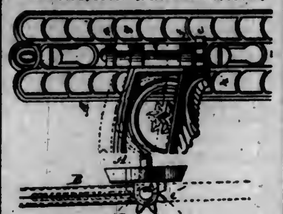
1. A desk-top arm constructed with a covered elongated slot, *a*, and a covered curved slot or recess, *b*, substantially as and for the purpose set forth.

2. The desk-top arm D, formed with covered slots or recesses *a b* and shoulder *d*, in combination with the pintle *h* and stop *i*, substantially as and for the purpose set forth.

3. The cushion *n*, inserted in the recess *a* around the pintle *h*, substantially as and for the purpose set forth.

4. The cushion *n*, inserted in a recess in the arm D, and projecting over the shoulder *d*, substantially as and for the purpose set forth.

7,193. BIRD-CAGE HOOKS. G. B. Osborn, East Orange, N. J., and Benj. A. Drayton, New York, N. Y. Patent No. 160,571, dated Nov. 2, 1875. [Filed Jan. 20, 1876.]



1. A swinging suspending arm for hanging bird-cages, &c., provided with suitable devices for engaging with a notched portion of a removable plate or fixture, so that said arm may be retained in various horizontal positions, for the purpose specified.

2. The bracket or plate A, provided with the notched or perforated lug *c*, in combination with the arm B, having a hook and tenon, A.

3. The plate A, having lug *c*, notched or perforated lug *d*, and bolt or pin *d*, in combination with the arm B, having lugs *f g* and tenon *h*, said lugs being relatively arranged so as to allow of a vertical movement of said arm upon the bolt *d*, for the purpose set forth.

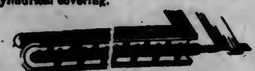
7,194. BIRD-CAGE HOOKS. G. B. Osborn, East Orange, N. J., and Benj. A. Drayton, New York, N. Y. Patent No. 160,571, dated Nov. 2, 1875. [Filed Jan. 20, 1876.]



A suspension-bracket having a hook provided with a guard or guards arranged to form an indirect passage or outlet from the suspending-point, substantially as shown and described.

7,195. APPARATUS FOR MINING COAL. P. Sheldon, Jamestown, N. Y. Patent No. 155,593, dated Oct. 6, 1874. [Filed May 1, 1876.]

Brief.—The exhaust air of the engine passes along a tube parallel with the rotating tool, and through perforations along it, to clear each tool of the pulverized material, the blast being deflected toward its object by a semi-cylindrical covering.

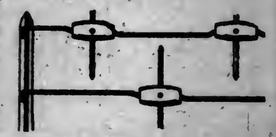


1. In a coal-mining machine, the combination with the blower, for removing cuttings from about the cutter, of a pipe leading to the exhaust of an engine, substantially as and for the purpose specified.

2. The combination, with a cutter, of an independent blower, extending nearly the length of the cutter, substantially as and for the purpose specified.

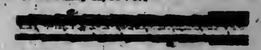
3. The combination, with a rotary cutter and blower, of a deflector interposed between said cutter and blower, substantially as and for the purpose specified.

7,196. WIRE FENCES. L. B. Smith, Kent, Ohio. Patent No. 66,162, dated June 25, 1867. [Filed Feb. 12, 1876.]



In a wire fence, the bent wires forming the panels, in combination with a barb, whereby the barb is prevented from moving lengthwise upon the wire, for the purpose set forth.

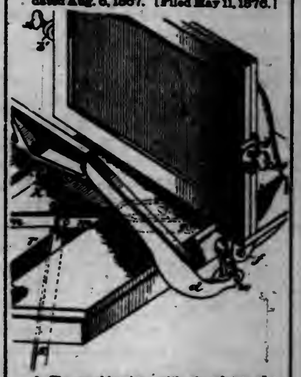
7,197. MANUFACTURE OF FLEXIBLE TUBING. William B. S. Taylor, New York, N. Y. Patent No. 55,740, dated June 19, 1866. [Filed May 11, 1876.]



1. The combination, in a flexible gas-tube, of a layer or layers of animal membrane, coated with glue or other gelatinous cement, substantially as described, and for the purpose of resisting the penetrative action of the gas and its fluids.

2. In the manufacture of flexible tubing for illuminating-gas and similar purposes, the application and use of glycerine, or its equivalent, for the purpose of keeping soft and flexible those constituents of the tubing which otherwise are liable to stiffen or harden, substantially as described.

7,198. PRINTING-PRESSES. Sophronia P. Woods (administratrix of Benj. C. Woods, deceased) and William S. Tuttle, Boston, Mass.; said Tuttle assignee to Sophronia P. Woods, aforesaid. Patent No. 67,475, dated Aug. 6, 1867. [Filed May 11, 1876.]



1. The combination, with the platen of a printing-press, and the frame-work or bed thereof, of the adjustable crank-arms, to which the platen is pivoted for adjusting the face of the platen with respect to the face of the type.

2. The combination, with the platen of a printing-press, and the arms *d*, carrying the same, the pivoted crank-arms attached to the arms, and the set-screw *g* for adjusting the crank-arms, as and for the object specified.

3. In a printing-press, provided with a swinging platen, the combination, with such platen and the bed provided with legs carrying adjusting-screws, of a type-chase and adjusting devices, substantially as described, applied to the said platen, whereby the type or form is brought in proper central position with respect to the platen, and the face of said platen is adjusted with respect to the face of the type as and for the purposes set forth.

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COMMISSIONER'S DECISIONS.

JAS. F. GORDON *vs.* CHAS. B. WITHINGTON.—*Appeal; Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the patent of Jas. F. Gordon, dated June 30, 1874, No. 152,481, for* "SELF-BINDING HARVESTERS," *and the application of Chas. B. Withington for a similar invention.—Decided May* 11, 1876.]

The rights of a prior applicant will not be prejudiced by reason of a patent being issued inadvertently to a subsequent applicant, and the burden of proof rests upon the latter in trial of interference.

It is necessary to obtain the exact date of the earliest steps taken by an inventor in putting his invention into some tangible shape, or in communicating a knowledge of it to others.

An incomplete conception of a device, or merely conceiving that a thing might be done, and showing but partly how it may be done, does not constitute invention as defined either by the courts or the Office.

[*Dickinson & Baldwin*, attorneys for Withington.
Dodge & Son, attorneys for Gordon.]

DOOLITTLE, *Acting Commissioner:*

The matter in interference is concisely set forth in Withington's first claim, as follows:

The reciprocating binding-carriage, carrying the binding-arm and the grain-binding head, in combination with a stationary grain-receiver, substantially as and for the purpose described.

To this may be added the further statement of the general nature of the invention contained in the following paragraph in his specification:

My first improvement consists in a binding-machine constructed and arranged to move up to the grain, gather up the same, move back with and bind the grain into gavels, and deliver the bound gavels from the machine.

150

Withington filed his application March 5, 1874; Gordon filed his May 13, 1874; but by inadvertence a patent was issued to the latter June 30, 1874, before this interference was declared. In accordance with a well-known rule of Office practice Withington is not prejudiced by the issuing of the patent to Gordon, and Gordon being a later applicant, the burden of proof rests upon him.

Both parties attempt to fix the date of their invention by means of certain sketches made to illustrate portions of the device in controversy.

Gordon in his preliminary statement alleges that he conceived his invention "previous to the harvest of 1869." This is a very indefinite allegation, and one that should not be allowed to stand in a preliminary statement. It is just such a loose and indefinite expression as always gives rise to trouble by reason of its elasticity. Thus, when Gordon attempts, as he does in this instance, to show that his conception of this invention occurred in 1868, although subsequent to the harvest of 1868, his position is of course assailed on the ground that his proof should be confined to the neighborhood of the harvest of 1869.

It is always necessary to ascertain the exact date of the earliest steps taken by an inventor in putting his invention into some tangible shape, or in communicating a knowledge of it to others; but that knowledge is only important when it shows that the original expression was a substantial indication of the finally-completed invention.

An incomplete conception of a device, or merely conceiving that a thing might be done, and showing but partly how it may be done, does not constitute invention as defined either by the courts or the Office.

Gordon's original sketch, made in 1868, was drawn with pencil, but he produces a photograph copy of this, as well as of a subsequent sketch, in addition to the original. Originals are the best evidence, and must tell their own story without the aid of photographs in cases of this character.

The sketch first mentioned (Exhibit B) was made, Gordon alleges, to illustrate a plan he then had of a reciprocating frame, carrying a binding mechanism, and it is said that the binding frame or carriage is shown to reciprocate at right angles with the line of the cutter-bar, or in the direction of the length of the grain as it lies on the platform after being cut. But it is clearly apparent that this sketch does not show a stationary receiver, which feature is an important element in the present arrangement, for without a stationary receiver the separation of the constant current of grain remains unprovided for.

Gordon's own admission shows that not only had he no idea of a stationary receiver, but that his actual intention was to sweep the grain onto the binding-carriage by means of an intermitting rake, shown in his patent of 1868.

One of Gordon's witnesses, to whom he refers as having imparted a knowledge of this sketch and the explanation of the same in 1868, admits that the sketch shows but part of Gordon's present plan. Another witness, to whom the same sketch was shown in 1868, now admits that so far as the sketch is concerned he cannot tell what it represents; but he says Gordon told him at that time that it was a reciprocating movement attached to a binder.

I cannot, therefore, regard the fact that Gordon alleges in his testimony that he made the sketch alluded to in 1868 instead of 1869, as set forth in his preliminary statement—a material departure, as such sketch, and the explanations made at the same time, do not adequately represent the invention in controversy.

The same general remarks are applicable to Withington's 1869 sketch. It fails to set forth intelligently the essential parts of the present device.

The next thing done by Gordon was the making of the sketch "Exhibit D," in the early part of 1871. To this sketch may well be applied the remark made by the Examiner of Interferences in regard to Gordon's sketch of 1868, that it is "utterly unintelligible." Gordon testifies that no one was present when he made this sketch, but that he subsequently showed it to the witnesses Eells, Alexander and Donald Ross, and, he thinks, Henry Corkhill.

Eells in his testimony makes no mention of the sketch. Alexander Ross simply says he saw it in the fall of 1871. Donald Ross makes no mention of it. Corkhill, who saw the sketch in the fall of 1871, testifies that he had it explained to him at that time. He does not say who gave the explanation, but it is, of course, inferred that Gordon did; but what that explanation was witness does not say. He proceeds to state that the sketch represents a platform with a binding-arm, having a reciprocating motion, and traveling to and fro, and parallel with the cutter-bar.

When he first acquired the knowledge that this sketch represented these features, and the movements he assigns them, is not apparent.

The few oral explanations made by Gordon up to this time, as set forth in the testimony, are about as vague and unsatisfactory as the sketches described.

The next step taken by Gordon was, he testifies, after the harvest of 1873—the early part of September. About the tenth of that month he commenced to make a machine embodying the present invention, which he says was completed in January, 1874, so that grain could then be bound with it, and which was put in practical successful operation at Plano, Illinois, on or about the sixth day of the following July. This allegation is substantiated by the testimony of numerous witnesses.

After a careful consideration of all the testimony in Gordon's behalf, I am of the opinion that the following paragraph in his preliminary statement sets forth in concise terms the true history and results of his efforts in the line of this invention and its final completion:

Previous to the harvest of 1869 I conceived the idea, and subsequently made sketches thereof, of hanging the binder-arm shaft in or upon a reciprocating frame or carrier; but the parties who afterward became interested with me, and were assisting me pecuniarily, were utterly opposed to my making any new departure until the plan I was then engaged upon should be fully and thoroughly developed; and therefore I did not reduce that idea or conception to a practical experiment until the past season.

The excuse here given for delay is not such a one as the law recognizes as sufficient where the rights of an opposing party are involved.

Turning now to what was accomplished by Withington, I find that about the same time that Gordon was making his second sketch Withington had commenced, if not finished, a model in which the present invention was substantially embodied, and its working clearly illustrated.

The fact that the binding mechanism is here shown as depending from an arm, instead of being fixed upon a frame moving in "ways," is not material, as the arm reciprocates, and performs precisely the same function as the present-described carrying-frame. How long before the completion of this model Withington had conceived the idea does not clearly appear, but, like the early ideas of Gordon, his conception of the invention, if possessed, was not represented in any tangible shape prior to the completion of said model.

In the latter part of 1872 Withington completed a machine more nearly approaching the present form of the invention, and bound grain with the same in a shop at Lewisburg, Pa. In 1873 a new machine was constructed by him, and worked in the harvest of that year.

The defect in those machines, which prevented a continuous successful operation, appears to have had relation to the delivering mechanism, and not to the mechanism for binding, and its reciprocating carriage.

My conclusion therefore is, upon all the testimony adduced, that Withington was the first to practically conceive of this invention, first to reduce it to practice, and, being diligent therein, and in also applying for a patent, priority should be awarded him.

The decision of the Examiners-in-Chief is affirmed.

BUSHA *vs.* PHELPS AND EDMUNDS *et al.*—*Interference; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of interference between the application for letters patent by Joseph Busha and the patents of Phelps and Edmunds and Frederick H. Field.—Decided May* 18, 1876.]

In an interference between an application and a prior patent the latter will be considered as *prima facie* evidence of a completed invention, and no proof is required that it has been put into actual use.

A patent having been granted, the inventor has fulfilled all the requirements of the law, as connected with his application, by imparting a full and complete knowledge of his invention to the public.

A patentee who is the first to conceive an invention, first to make a model, the first to apply for a patent, and the first to obtain the grant, is not required to have put his invention to practical use before obtaining a patent.

[*Johnson & Johnson*, attorneys for Busha.
Varicas & Eils, attorneys for Phelps and Edmunds.]

DOOLITTLE, *Acting Commissioner:*

The subject-matter of invention in this proceeding is an "Improvement in Fire-Alarm Registers." Field took no testimony, and, under the rulings of the Office, is confined to the date of his application as the ascertained date of his invention. This was filed September 26, 1874, and patented April 6, 1875. The contest upon the question of priority is, therefore, between the applicant, Busha, and the patentees, Phelps and Edmunds. Busha filed his application on the 23d of April, 1875; Phelps and Edmunds filed their application June 29, 1874, and were granted a patent March 30, 1875. The admission of counsel in the argument filed on behalf of Busha leaves the subject of priority of invention to be determined solely upon a principle of law, and is as follows:

It is not denied that Phelps and Edmunds were the first to conceive the invention, the first to make a model, the first to apply for a patent, and the first to obtain the grant; but it is denied that they were the first to have perfected the invention, nevertheless.

The doctrine here contended for, if now recognized, would change the established practice of the Office. That practice, founded upon the decisions of the courts, was clearly expressed in the case of *Hammond* vs. *Laird*, (7 OFFICIAL GAZETTE, 170,) where it was stated that—

Ordinarily, where the controversy arises between an applicant and a patentee, the burden of proof is upon the former, to show that he was not only the first to conceive the invention in dispute, but that he was also first to perfect and adapt the same to practical use, or was using reasonable diligence to secure this result.

The evidence offered by the applicant must be such as would in a court of equity be sufficient to invalidate the patent. Were a lower standard adopted by the Office, invalid patents would knowingly be issued, thus perpetrating a fraud upon the public in sending out to the world useless patents, whose only operation is to impede meritorious inventors and promote litigation.

The grant of a patent having once been perfected, the inventor has fulfilled his part of the contract, and the public are put in possession of a full and complete knowledge of the invention; and it matters not whether he has reduced the invention to practice, for the grant itself supplies the place of such embodiment, and in order to enable an applicant to succeed in defeating the title already conferred he must show that he was either the first to conceive of the invention, and was using reasonable diligence in reducing the same to practice, or that he was the first to practically embody the invention; while the patentee, though first to conceive, did not with reasonable diligence either perfect his invention, or apply for and obtain his patent.

The validity of a patent cannot be assailed upon the ground that the invention has never been reduced to practice. It is sufficient if it contain such a description as will enable one skilled in the art to make and use the improvement.

The patent itself is regarded in the courts as *prima facie* evidence that it describes the invention of the patentee; no proof is required that it has been put into use. This was the opinion of the court in the case of *Wheeler* vs. *The Clipper Mower and Reaper Company*, (6 Fisher, 1). Numerous other cases might be cited to the same effect.

In addition to the foregoing, it may be stated that the evidence is not entirely silent upon the subject of use by Edmunds and Phelps of the device in controversy.

Walter C. Hinckley, in answer to a question asked him, states as follows:

I saw said Charles W. Edmunds fitting this apparatus, as described in patent No. 161,544, to engine-house No 8 not later than the month of November, 1872, as I was employed in said engine-house as engineer at that time, and said Edmunds informed me that it was the invention of himself and Phelps.

Under these circumstances, I deem it proper to affirm the decision of the Examiners-in-Chief, and award priority of invention to the said Phelps and Edmunds.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—EASTERN DISTRICT OF NEW YORK.

WM. D. ANDREWS *et al.*, *vs.* THEODORE A. CARMAN.

[*In Equity.—Before* BENEDICT, *J.*:—*Decided April* 24, 1876.]

The process for obtaining water by driving a rod into the ground, without removing the earth upward, and attaching to it a pump, has utility, and is patentable.

This process puts to a practical use the new principle of forcing water, in the water-bearing strata of the earth, from the earth into a well-pit by the use of artificial power applied to create a vacuum in the manner described. This idea or principle, though new, is not by itself patentable. The idea, when made available by a method whereby it is put to practical use, is patentable as a process, and is thus secured to the person who has conceived the idea and invented the process.

There can be no patent for a principle; but for a principle, so far embodied and connected with corporeal substances as to be in a condition to act and to produce effects in any trade, mystery, or manual occupation, there may be a patent.

The elements of a process may be old, but when combined for the purpose of putting to practical use a new idea they constitute a new and useful process within the meaning of the patent law.

If, by an examination of the specification, and applying to the then existing state of the art, we can learn what the invention was, then a claim, which was designed to be a condensed summary of the invention, is to be construed so as to be co-extensive with the invention, if that can be done without doing violence to its language.

A chance operation of a principle unrecognized at the time, and from which no information of its existence and no knowledge of a method of its employment is derived, will not be sufficient to defeat the claim of him who first discovered the principle, and puts it to a practical and intelligent use.

Lapse of time does not, *per se*, constitute abandonment. It may be a circumstance to be considered. The circumstances of the case, other than mere lapse of time, almost always give complexion to delay, and either excuse it or give it conclusive effect. The statute has made contemporaneous public use, with the knowledge and allowance of the inventor, a bar when it exceeds two years; but in the absence of that, and of any other colorable circumstances, we know of no mere period of time which ought, *per se*, to deprive an inventor of his patent.

[*Geo. Gifford, Milo Goodrich, B. F. Tracy*, and *J. O. Clayton*, for complainants.
W. D. Shipman, S. L. Warner, and *S. A. Robinson*, for defendant.]

OPINION OF THE COURT.

BENEDICT, *J.*:

This is a suit in equity brought by the owners of a patent issued to Nelson W. Green, on May 9, 1871, designated as Reissue No. 4,372, against Theodore A. Carman for an injunction and damages, because of an infringement of their patent. The case presents issues belonging to nearly every class known in patent litigations. Of the various questions so elaborately discussed before me, I shall first notice those relating to the construction of the patent.

The patent is for a process of constructing wells. In order to a correct understanding thereof, the state of the art should be first briefly explained.

A well consists of a pit sunk in the earth until a water-bearing stratum of the earth is reached, from which the water therein will flow into the pit, and a supply of water be thus obtained.

Two forms of well have long been known, one the ordinary domestic well, the other the artesian well. In the ordinary well, the well-pit is sunk to a water-bearing stratum of the earth, from which the water will, by reason of the natural forces operating upon it, as it

lies in the earth, ooze or flow from the earth into the bottom of the pit, as a reservoir, in sufficient quantities for the ordinary purposes of domestic use. In the artesian well, the well-pit is sunk in the earth until a water-bearing stratum is reached, where the water lies under the pressure of such a head that, when struck by the well-pit, it will come into the pit so rapidly that a stream of water is produced, flowing by the force of its own current from the earth, into and through the well-pit, to the surface.

These two forms are not different in their method of operation. Both rely upon the natural forces as they are found operating upon the water, in the water-bearing stratum reached by the well-pit, to force the water from the earth into the pit; in both these forms the pit has uniformly been made by loosening the earth or rock and removing it upward and out upon the surface, either by means of the spade or the drill or auger, and the sand-bucket. In this state of the art of obtaining a supply of water from the earth, a new form of well appeared, now know as the driven well, which forms the subject of this controversy.

This well embodies an idea not present in any other form, namely: That the water in the water-bearing strata of the earth may, by the application of artificial power, be forced to flow from the earth into the well-pit with increased rapidity, so that a well-pit only a few inches in diameter, sunk to a moderate depth, will afford an abundant supply of water, and constitute a practical and productive well.

The characteristic difference between the driven well and other forms consists in the practical application of this new idea.

In previous forms, the rapidity with which water flows from the earth into the well-pit is dependent upon the natural forces as they happen to be found operating upon the water lying in the water-bearing stratum to which the well-pit is sunk. The driven well adds artificial power, so applied as to cause a great increase in the rapidity with which the water in the earth will flow from the earth into the well-pit. The foundation of this new form of well is the discovery that if a pipe with an opening at the lower end be driven into the earth, extending down air-tight until it reaches water, and have a pump attached air-tight to its upper end, and a vacuum be created in the pipe so fitted and connected with the water in the earth, water will flow abundantly from the earth into the pipe. The novelty consists in making the well-pit to consist of the tube of a pump connected tightly with the earth. This is accomplished by driving into the earth a tube to be used as the tube of a pump, and at the same time, as the pit of a well. This manner of inserting the tube renders it possible, by means of a pump attached to the tube, to create a vacuum in the pit of the well, and at the same time in the water-bearing stratum of the earth.

This discovery once made, its application to the purpose of obtaining a supply of water from the earth for the use of man was a natural consequence; and it was at once applied to practical use, by substituting in place of the larger excavation ordinarily made to serve as a well-pit, a moderate-sized tube driven tightly into the ground, and having a pump attached.

The advantages secured by this method are manifold. As the force with which the water will flow into the well-pit is greatly increased, a tube of moderate diameter forms a sufficient well-pit, thereby saving much expense and labor in constructing the well-pit. Good water may by this method be reached when the surface-water is bad. The well-pit being air-tight, all water is excluded except that lying in the water-bearing stratum to which the pit is sunk. By this method a quicksand may be overcome, when it would otherwise prove an insurmountable obstacle. By this method, all danger of using water fouled by dirt or noxious matter thrown in from the surface is avoided, and by this method water can in most localities be obtained with cheapness and without delay. To these obvious advantages must be added the noticeable one, apparently demonstrated by the experiment made, that the supply of water thus obtained directly from the water-bearing strata of the earth, by the simple action of an ordinary pump attached to a tube driven tightly into the earth, is measured by the quantity of water lying in the stratum to which the tube is sunk, so that in most instances the supply obtained by this method is constant and inexhaustible, when the reservoir of an ordinary well sunk in the same place would speedily give out. The difference in this respect is remarkable, and apparently of great importance.

It is plain, therefore, to see that the subject under consideration has utility. It seems also plain that it is patentable as a new process. A well is not a machine, but a process. It is a method of obtaining a supply of water from the earth. No change in the qualities of water is effected by a well. The water is subjected to no treatment whereby a better article is produced. No mechanical device is necessary. A pit is sunk under such circumstances that water flows into it from the earth, and thus becomes available for use. What is accomplished by the process is, that water is obtained by the operation of the powers of nature upon the water lying in the earth. The difference between the new process under consideration and the old is that the pressure of the atmosphere, which in the ordinary well operates at the sides and bottom of the well-pit to maintain an equally-distributed atmospheric pressure upon the water, whereby the flow of water into the well is made dependent upon the force of gravity, in the new process is removed from within the well-pit, and ceases there to operate against the inward flow of water, so that the pressure of the atmosphere operates with its full power to force the water in the earth from the earth into the well-pit, and without any opposition caused by meeting in its flow the pressure of the atmosphere at the sides or bottom of the pit. This process involves a new idea, which was put to practical use when the method was devised of fitting tightly in the earth, by the act of driving without removing the earth upward, a tube open at both ends, but otherwise air-tight, and extending down to a water-bearing stratum, to which is attached a pump; a vacuum in the well-pit, and at the same time in the water-bearing stratum of the earth, being necessarily created by the operation of a pump attached to a pipe so driven.

It has been supposed by the counsel for the defense that the invention under consideration must consist of some new instrument, machine, or mechanical device, and they say: "The well, consisting of a vertical shaft with a reservoir of water at the bottom, being known in all its varieties from time immemorial, what was there for any one to invent? Clearly nothing but some new instrument, machine, or mechanical device for sinking the shaft down to the water, or of raising the water to the surface. It is impossible to conceive any other field of invention connected with the subject."

Here is disclosed a clear misapprehension. The novelty of the process under consideration does not lie in a mechanical device for sinking the shaft or raising the water to the surface, but in the method whereby water, by the use of artificial power, is made to move with increased rapidity from the earth into the shaft; whence it results, that a tube but a few inches in diameter driven down tightly to a water-bearing stratum of the earth, affords an abundant supply of water to a pump attached thereto, and constitutes a practical and productive well. Such an invention is without the field of mechanical contrivance. It consists in the new application of a power of nature, by which new application a new and useful result is attained. There is no new product; but an old product—water—is obtained from the earth in a new and advantageous manner.

There can be no patent for a principle; but "for a principle so far embodied and connected with corporeal substances as to be in a condition to act and to produce effects in any trade, mystery, or manual occupation, there may be a patent." The idea or principle of forcing water from the earth into a well-pit by the use of artificial power is new, but is not by itself patentable. The idea, when made available by method whereby it is put to practical use, is patentable as a process, and is thus secured to the person who has conceived the idea and invented the method.

That method, in the present instance, consists in accomplishing the result first conceived by the inventor to be possible, by creating a vacuum in the water bearing stratum of the earth, and at the same time in the well-pit, by means of a tube projected into a water-bearing stratum of the earth, and connected tightly with the earth, to which tube a pump is attached at the upper end.

This constitutes "a combination or arrangement of processes to work out a new and useful result." It is "a process combining instrumentalities before known, but not employed together, to accomplish a new and useful result." The elements of the process may be old, but when combined for the purpose of putting to practical use the new idea of forcing water in this way from the earth into a well-pit, they constitute a new and useful process, within the meaning of the patent laws.

I have now pointed out what, in the light afforded by the history of the art, appear to me to be the patentable features of the structure known as the driven well. These views I conceive to be in harmony with the law upon this subject as declared by the authorities, and to derive support from the following cases: *Roberts* vs. *Dickey*, 4 Fish. Pat. Cas., 535. *McClurg* vs. *Kingsland*, 1 How., 202. *Foote* vs. *Silsby*, 2 Blatch., 260. *Leroy* vs. *Tatham*, 22 How., p. 132–137. *Neilson* vs. *Harford*, 1 Webster's Patent Cases, p. 310. *Tilghman* vs. *Morse*, 9 Blatch., 421. *Crane* vs. *Price*, 1 Webster's Pat. Cases, 375.

I next proceed to examine the language of the patent upon which this action is founded, in order to determine whether the invention I have thus described is secured thereby.

And here I meet one of the many sharp issues of this controversy; for while the eminent counsel for the plaintiffs is clear that the patent does describe and cover such an invention, counsel on the other side, also eminent, contend with great earnestness that the patent describes and covers nothing but the process of making a hole in the ground, and declare that the "pretended invention is a fabrication as discreditable as the patent is absurd."

It is not difficult to agree with counsel that the patent is absurd, if it be true that it describes nothing but the process of making a hole in the ground.

On the other hand it is not easy to understand how a patent for nothing but the process of making a hole in the ground could be the result of the vigorous contest waged before the Examiner, the Examiners-in-Chief, and the Commissioner of Patents, and also, on appeal, before the experienced Judge of the Supreme Court of the District of Columbia, which was supposed to have terminated successfully for the inventor, when it was finally declared, upon appeal, that a patent must issue to Green for the invention described in his "broad claim." It seems natural to suppose that a patent issued under such circumstances was intended to cover something more than the process of making a hole in the ground; and I think it can be shown that the language of the patent, when construed according to the settled rules applicable in such case, does cover something more, and secures the invention I have above endeavored to describe.

The language of the claim may be first considered. It is as follows:

> What I claim as my invention, and desire to secure by letters patent, is: The process of constructing wells by driving or forcing an instrument into the ground until it is projected into the water, without removing the earth upward, as it is in boring, substantially as herein described.

Here the invention is stated to be "a process of constructing wells," not a process of making holes. A well is more than a hole; as has been shown, it is a process of obtaining a supply of water from the earth. The words "a process of constructing wells, substantially as herein described," are therefore equivalent to "the herein-described process of obtaining a supply of water from the earth." Nor is the scope of the claim, as thus understood, limited by the other language of the claim, wherein it is stated that an instrument is to be driven, and driven into the ground, and driven until it is projected into water, and so driven that the earth is packed tightly around it—for that is the necessary result of driving the instrument without removing the earth upward—and when so driven is to remain.

Here is described the characteristic feature of the process of constructing a driven well, but no well is described. Not even a hole in the ground is described, for it is not stated that the instrument driven into the ground is to be withdrawn, or that it is to be hollow. To suppose, therefore, that it was the intention to secure no more than the operation described in the claim, as being a process for constructing a well, is to suppose an absurdity. The operation described in the claim not only will not produce a well, but it is no step in

the operation of constructing any kind of well, except the driven well. The claim points out that an instrument is to be driven to form a well-pit; but how it can be that a well-pit is the result of such an operation is not pointed out in the claim. Plainly, it was not intended by the language of the claim to describe fully the invention intended to be covered by the patent. Necessarily, therefore, and naturally, we are referred by the claim to the specification for the full description of the process which the patent was intended to secure. In the specification, we find stated more clearly the distinguishing feature of the process, wherein it differs from any process before adopted for procuring a supply of water from the earth, for the specification says that an instrument is to be driven into the ground until it reaches water, having the earth packed tightly around it. It is by means of this packing of the earth tightly around the tube that the force developed by the creating of the vacuum in the well-pit is brought to bear directly upon the water lying in the water-bearing stratum, to force it into the well-pit; and this driven tube forms the well-pit of the new invention, for as stated, it is to be a tube made air-tight throughout its length except at its lower end, where are to be perforations for the admission of water, and through and from which the water may be drawn by a pump. The specification also mentions the vacuum, and points out where it is to be created, for a vacuum must of necessity be formed in the well-pit and in the water-bearing stratum by operating a pump attached to such a tube, so driven into the earth.

I find, therefore, in the specification of this patent, either set forth in terms, or by necessary implication, all the elements of the process known as the driven well; and this description is such that no one can perform the operation thus described without obtaining a supply of water by the process under consideration, and by the use of the same idea which it is claimed was first conceived by Green.

Neither is there anything in that part of the specifications stated to be made with reference to the drawings to enable the process to be put to use, which excludes this invention from the patent. It is there said that the tube may be contracted at its lower end, but it is also carefully stated that the contraction must be "slight," and only to insure an easy passage to the place to which the tube is to be "driven or forced," thus maintaining the necessary feature of a tight connection between the tube and the earth, effected by the driving of the tube without removing the earth upward, upon the preservation of which the success of the process depends.

So it is stated that the diameter of the tube to be driven may be "somewhat" smaller than the diameter of the swell; still it is plain that the tube is always to be driven, whence, of necessity, it results that the earth is packed tightly around it.

But it is said the specification covers a flowing well, in which the features of the driven well do not exist. It is true that the patent contains the statement that "in some cases the water will flow out from the tube without the aid of the pump;" but it will be observed that this statement of a fact is not contained in the description proper of the invention. The specification first states in what the invention consists. Then, to enable others to use the invention, a description is given with reference to drawings; and, following this, is the statement under consideration, which can properly be considered to be simply the statement of a circumstance that sometimes occurs in conducting the operation, and which when it does occur obviously renders it unnecessary to go further in the operation by adding the pump, that, plainly, is supposed to be necessary in all cases where such a stream of water is not struck.

It thus appearing that the invention claimed by Green is found described in his specification, inasmuch as no violence will be done to the language of the claim by construing it to cover the invention, it is the clear duty of the court so to construe it.

"If, by an examination of the specification and applying it to the then existing state of the art, we can learn what the invention was, then the claim, which was designed to be a condensed summary of the invention, is to be construed so as to be co-extensive with the invention, if that can be done without doing violence to its language." [*Whipple* vs. *Middlesex Co.*, 4 Fish. Pat. Cas., 42. See also *Waterbury Brass Co.* vs. *N. Y. Brass Co.*, 3 Fish. Pat. Cas., 47. *Leroy* vs. *Tatham*, 14 How., 181. *Haworth* vs. *Hardcastle*, 1 Webster's Patent Cases, 480. *Turrill* vs. *Railroad Co.*, 1 Wall., 491.]

So construed, this patent becomes co-extensive with the discovery, and secures an exclusive right to use the new idea or principle put to practical use by the new process described; for, to use the language of the defendant's counsel, (brief, page 27): "If Green invented a process, it was not in fact dependent on the particular form of the instrument, nor does his specification so claim it."

The right secured by the patent is not, then, the right to certain instruments, nor to a combination of instruments, but it is the right to use his discovery in any method presenting the characteristic features of his method, and accomplishing the same result in substantially the same way.

But it is said the evidence shows no such idea or process was in the mind of Green at the time when he claims to have made his invention. As I view the testimony, the contrary of this is shown; not to mention the testimony which Green now gives, when he describes his invention, there are several witnesses who heard him describe his invention at the time when he claims to have made it, and what they say he then disclosed as his new method of obtaining a supply of water from the earth appears to be a complete description of the invention covered by the patent, as I have construed it. The proofs show that the patentee not only conceived this process and put it in operation, but stated in terms that its success depended upon a vacuum being formed by the pump, and that the tight connection between the earth and the well-pit by the act of driving the tube was necessary to enable the vacuum to produce the sought-for result upon the water lying in the earth.

Furthermore, it may be remarked as bearing, not only upon the language used by Green when he first described his invention, but also upon the language used in the patent, that the statement that a pump is to be attached to a tube forming a well-pit, and driven to a water-bearing stratum without removing the earth upward, involves, by necessary implication, the idea of a vacuum in the earth and in the well-pit, as such a vacuum must result from the operation of the pump, provided the tube be driven tightly in the earth, as described. And this leads to the further remark, that the idea of a pump to be attached to the tube forming the the well-pit seems necessarily to be involved in the idea of using such a tube as is described for the pit of a well. The sole object of the well being to obtain a supply of water, and it being manifest that water could not be procured from such a tube by hand or bucket, the statement that such a tube is to be the well-pit, carries with it the idea of a pump attached thereto, that being the only practical method by which water could be drawn from such a tube.

I therefore understand this patent to be a patent for a process, and that the element of novelty in this process consists in the driving of a tube tightly into the earth, without removing the earth upward, to serve as a well-pit, and attaching thereto a pump, which process puts to practical use the new principle of forcing the water in the water-bearing strata of the earth from the earth into a well-pit, by the use of artificial power applied to create a vacuum in the manner described.

But a somewhat different reading of the patent may be adopted, and supported by authority high in this court upon such a question.

The claim, it will be recollected, states the invention to consist of "a process of constructing wells, substantially as herein described." This language is nearly identical with that which came under the consideration of Mr. Justice Nelson, in *Many* vs. *Jagger*. There the claim was for "the manner of constructing wheels with double convex plates, one convex outward and the other inward, and an undivided hub, the whole cast in one piece, as herein fully set forth." This language was held to secure the thing made by the process described.

There is, it was there said, no claim to the parts of the wheel taken separately and distinct from the perfect wheel, but the claim is for the entire wheel, as they have constructed it, as a new manufacture. There was no novelty in the parts taken separately, but the "instrument"—that is, the wheel produced in the manner described—was held to be secured by the claim. The form was held not to be material, as the wheel was one of those manufactures where the particular form of the thing is not essential to its utility.

In the present case, then, the well may be taken to be a manufacture, and the claim of "a process of constructing wells," like the claim for "a manner of constructing wheels," will cover all wells constructed according to the process described, without regard to form, and whether the parts taken separately be new or old. (See *Many* vs. *Jagger*, 1 Blatch., 273; see, also *Goodyear* vs. *Railroad*, 3 Wall., p. 356)

I have now to speak of a third construction of this patent which has been strenuously contended for. It has been supposed that this patent can be upheld as being for an operation claimed to be new as an operation in the process of making a well, or in its association with other operations of making a well, namely, the making of a well-pit by forcing an instrument into the ground and moving the earth only laterally.

The point of the invention is by this construction made to consist in a new manner of constructing the well-pit—that is, by puncturing instead of excavating.

The great stress which has been laid upon this view of the patent by counsel so learned, the opinion expressed by the expert called by the plaintiffs, and the vigor of the opposition made to such a construction, has led me to pause and consider whether I must not have fallen into error in supposing that the patent can rightfully be held to cover and secure, not a process of sinking a well-pit, but the process of obtaining a supply of water from the earth, which I have found to be detailed in these specifications, and endeavored to describe.

But the view I have expressed is so firmly impressed upon my mind that I shall rest my decision upon it, and leave the more learned judges before whom the patent must shortly come to detect my error, and to uphold or destroy the patent as being for a method of sinking a well-pit by puncturing instead of excavating.

The interpretation I have thus given to the patent renders it unnecessary to pass upon the evidence in the case, given to show that prior to the time when Green claims to have made his invention well-pits had been sunk by puncturing the earth.

Was Green the man entitled to secure the invention which his patent describes? The evidence is convincing that Green first conceived the idea, explained his idea to others, and caused the feasibility of his process to be tested by actual experiment. Comment has been made upon the fact that the particular tools and devices used in constructing the first wells made were not pointed out by Green. But such comment loses its force when it is considered that the tools and devices employed in sinking the shaft form no part of the invention claimed by Green.

The invention consists in the method of putting to a practical use the new idea or principle of increasing the productive capacity of a well by forcing water directly from the earth into the well-pit, artificial power being employed to create, by the operation of a pump attached to a tube driven tightly into the earth, a vacuum within the tube and the water-bearing stratum into which it is projected, whence follows an increased pressure upon the water in the earth toward the well pit, and an abundant supply of water is afforded to the pump. This conception was of such a character that when described there was left nothing to be done but to test its correctness by an experiment so simple, and involving the use of means in such common use, that it could be fully tested by any one upon the mere statement of the idea. In the present instance the process was at the outset put to the test of an experiment conducted near Green's house, in his presence, and under his directions. His idea, and his process of putting it to a practical use, then became part of the property of the public, available for the purposes intended, unless it be secured by the patent in question.

Subsequent experiments are spoken of in the evidence, which may properly be claimed by Green as his experiments, for they were conducted in pursuance of his directions by those acting at the time under his orders.

Furthermore, it should be remarked in this connection, that when Green first stated his idea and described

his process there were two points of doubt, one whether force could be called into operation by the creation of the vacuum sufficient to overcome the resistance of the soil, and afford a supply of water to the pump; the other, whether practically a tube could be driven to a water-bearing stratum of the earth under various conditions of soil, always excluding, of course, rock formations.

The general utility of the invention depended principally upon the result of tests applied to the latter of these points of doubt. A wide range of subsequent experiment might, therefore, well be allowed for such an invention, notwithstanding the circumstance that the first experiment proved that the principle was sound, and could be usefully applied in some circumstances.

Upon this branch of the case the contention has been whether Green was the inventor, or Byron Mudge, the person who, under the direction of Green, conducted the early experiments; and a patent issued to Mudge October 24, 1865, is set up in the answer. The defendant does not, however, claim under Mudge's patent, or under any patent. In fact, there is no patent to Mudge, as his original patent was surrendered, and upon his application for a reissue, a case of interference between him and Green was declared, which, after a severe contest upon a large amount of testimony, and after careful argument, was decided in favor of Green. No patent to Mudge is therefore in this case, nor is Mudge called as a witness.

But the defendant contends, as he may rightfully do, that the evidence shows Mudge to have been the inventor, and not Green. I cannot find upon the evidence that this defense is sustained; on the contrary, it appears quite clearly that the inventor was Green.

A patent to James Suggett is also set up. That, however, is not a patent for a process, but a combination which does not involve the use of Green's process, and to which Green makes no claim.

The whole question of prior use may at this place be disposed of. The answer sets up that Green's process had been long before described in Ure's Dictionary of Arts and Manufactures, as well as in McKenzie's Five Thousand Receipts, and had been used in certain wells, constructed prior to the date of his invention, in the towns of Cortland, Ithaca, Dansville, Naperville, and Dexter, and in the salt-wells at Syracuse. In respect to a well claimed to have been constructed by Stephen R. Hunter, at his planing-mill in Cortland, I am compelled to the conclusion that no such well was made at the time stated. In respect to the other wells, as to which proof is given, a critical examination of the evidence would be here required if the patent under consideration were considered to be a patent for the mere process of making the pit of a well without removing the earth upward. Over these wells there has been an extended controversy as to whether in any of them the well-pit was constructed without removing the earth upward. However this may be, it cannot be successfully contended that the evidence affords room to claim that any one engaged in the construction of these wells had, at that time, conceived the idea of using artificial power to force water directly from the earth into a well-pit as a means of obtaining an increased supply of water, or that any one of these wells presents the characteristic feature of Green's method, whereby the above idea is utilized and made practically available to accomplish that result.

It becomes unnecessary, therefore, for me to determine whether or not the pit of any of the prior wells was constructed by puncturing or by excavating. The remark already made is also applicable to the evidence given in respect to the manner of sinking the salt-wells; plainly the salt-wells do not anticipate the process invented by Green.

Nor is his process described in the printed publications set up in the answer; and, upon the evidence, it must be held that the principle of Green's process was first conceived by him, and by him first made a practical and operative feature in a well.

It is of course true that, prior to Green's invention, water had been pumped from a hole in the ground, and from a small hole. Doubtless, it is also true, that in some such case, where a pump had been inserted in a small hole, for the purpose of raising therefrom the water found therein, the principle of Green's invention may at times have been called into operation. No such case is here proved, but if such fact were proved, Green's right to a patent would not thereby be defeated. A chance operation of a principle unrecognized by any one at the time, and from which no information of its existence, and no knowledge of a method of its employment is derived by any one, if proved to have occurred, will not be sufficient to defeat the claim of him who first discovers the principle, and, by putting it to a practical and intelligent use, first makes it available to man.

As bearing upon the question whether the idea claimed to have been conceived by Green, and to have been put to practical use by him in his process, had before that been known and applied, it should also be noticed that while the advantages of the process claimed by Green are many and obvious, and although since the date claimed for his invention numerous patents have been issued—some 150, I think the evidence shows—for instruments to be used in putting down the tubes of such wells, no application for any such patent appears to have been made before that time; moreover, the invention, when it was announced by Green, was received as a novelty, and since then an extensive business of constructing driven wells has sprung into existence—a business of such importance that the number of driven wells since constructed is computed by hundreds of thousands. In this State alone the number is stated by a witness to be 150,000 and upward. The change in the art of well-making which the evidence discloses, of itself, goes far to prove novelty. Indeed, when it is considered that the methods in use for obtaining a supply of water from the earth are matters of common knowledge, and that a well is a thing of every-day use, everywhere, reference may be made to the common knowledge of mankind to show that it has not always been understood that a supply of water may be obtained in almost any place by simply driving down tight in the earth a tight tube and attaching thereto a pump. Even now, it is doubtless a new thing to many, to be told that if an ordinary well from which the water is drawn by a pump be filled up with dirt, and the dirt packed tightly about the pump, the productiveness of the well will be thereby increased.

My conclusion upon this branch of the case, therefore, is that the invention of Green has not been shown to have been anticipated, and is properly claimed by Green as a new and useful invention made by him.

I come now to consider the question of dedication and abandonment, which is presented by the evidence here, and is a question as important as any raised in the case.

It is contended that Green, at the time of his invention, dedicated it to the public, and also that he abandoned it as not worthy to be patented.

The law pertinent to this branch of the inquiry is the law in force prior to January, 1868. By the patent act of 1870, as well as by the Revised Statutes, all rights previously acquired were preserved. The law governing here is to be found, therefore, in the acts of 1836 and of 1839, as those statutes have been interpreted and applied by the courts. The facts relied upon as showing a dedication of his invention by Green are, that he permitted a well made by his process at the fair grounds in Cortland, where the 76th New York regiment of which he was Colonel was then stationed, to be there publicly used, and that he arranged for providing tubes to be taken with his regiment when it should move, in order to supply it with water when in hostile localities. That these facts do not amount to a dedication, I think is plain. The occasion which called forth this invention was the rumor that the rebels were intending to poison the wells in places where the Union armies might come, and the report that some part of the Union army had been compelled to surrender for want of water. There was supposed to be a necessity for some form of well that would be tight, to prevent the possibility of poison, and that could be constructed quickly, cheaply, and easily, so as to be available for a moving army. Under the pressure of this supposed necessity, Green conceived the idea of his well, and also devised the method by which that idea could be put to practical use.

Once conceived, a very simple experiment would test the soundness of the position he had taken and maintained, in discussions had respecting his plan, that it was possible to force water from the earth into the pit of a well, by using a tube driven tightly into the earth for a well-pit, and creating a vacuum therein by a pump attached.

This experiment, as the evidence shows, was made under the direction of Green, and in pursuance of the directions he had given, at or near his house in Cortland. The first experiment was a success in this, that it proved the possibility of obtaining a supply of water by this process; but of course it could not prove that a tube could be driven down to a water-bearing stratum in all localities with the cheapness and dispatch necessary to render the process one of general utility. It was natural, therefore, to suppose that before the process could be declared to be satisfactory, other experiments in other and different localities should be made. He could, by law, use his invention for this purpose and permit it to be used for two years without forfeiting his right to a patent.

Under such circumstances, it would be going far to say that his act of permitting the use of his process at the camp in Cortland, where his regiment was then in camp, and of providing material wherewith to construct such wells for his regiment when it should move into hostile territory, amounted to a dedication of his invention to public use, and worked a forfeiture of his right to it.

But it is said the patent is invalid under the provision of the act of 1839.

The act of 1839, as has repeatedly been held, has no effect to invalidate a patent, unless there be proof of a use of the invention more than two years prior to the application for the patent, and that such use was with the knowledge and allowance of the inventor. Here there is no evidence of any use or sale of the invention by Green, prior to his application for a patent. Nor is there any direct proof of knowledge on his part of any such use or sale by others, during that period. There is, however, evidence that within two years prior to Green's application, some wells called "driven wells" were sunk in Cortland, and, as it is claimed, under such circumstances of publicity and locality, as to compel the inference that Green knew of the use of his process in their construction.

It cannot be denied that knowledge of the putting down of some of these wells on the part of Green seems highly probable. Still there is no direct evidence of such knowledge, and Green denies the knowledge under oath. Furthermore, two witnesses produced by the defense, who also resided in Cortland, and one of whom was a Justice of the Peace, being asked as to these wells, say that no knowledge of such wells came to them. It seems necessary, therefore, to conclude that the existence of those wells was not so notorious as to compel the inference that they were known to Green.

Here it may be noticed, also, that wells put down by James Suggett were under a patent issued to him March 9, 1864, which patent was for a combination of three instruments—an iron perforated tube, a pointed plug to use as a drill and a pump, (*Haselden* vs. *Ogden*, 3 Fish. Pat. Cas., 378,) and which it is a mistake to suppose necessarily involved the use of the process claimed by Green. It does not therefore follow that knowledge of the fact that Suggett had put down wells in Cortland necessarily amounts to notice that the process of Green was being employed by Suggett. The rule of law being, that "proof of knowledge and acquiescence must be beyond all reasonable doubt, as every presumption is the other way," (*Jones* vs. *Sewall*, 6 Fish. Pat. Cas., 367, Clifford, J.,) I am of the opinion that Green is entitled to the benefit of the doubt raised by his own oath, and the testimony of the two Hunters.

Again, it is contended that the acknowledged fact that Green made no application for a patent till January, 1866, between four and five years after the date of his invention, shows an abandonment of the invention. But, says Woodruff, J., "lapse of time does not, *per se*, constitute abandonment. It may be a circumstance to be considered. The circumstances of the case other than mere lapse of time, almost always give complexion to delay and either excuse it or give it conclusive effect. The statute has made contemporaneous public use, with the knowledge and allowance of the inventor, a bar when it exceeds two years, but in the absence of that and of any other colorable circumstances we know of no mere period of time which ought, *per se*, to deprive an inventor of his patent." (*Russell and Erwin* vs. *Mallory*, 5 Fish. Pat. Cas., 641.)

In the present instance the circumstances attending

the delay are unusual, and as I consider them sufficient to excuse a delay which certainly must be deemed extraordinary, a statement of these circumstances seems necessary.

I premise the statement by repeating that upon the evidence there is no room to doubt the fact that Green at the time of his invention claimed to have made a valuable discovery, and to have invented a new process. Furthermore, that he then declared an intention to secure his process by patent, and expressed his belief that large profits would accrue to him therefrom. At that time, Green, who had been partly educated at West Point, was engaged in organizing a regiment at Cortland, his residence, and was expecting soon to take part in the war of the rebellion. Within a few days after his invention, in the discharge of what seemed to him to be his duty, he felt compelled to shoot one of the Captains of his regiment named McNett. The shot was not mortal, but inflicted serious injury. In the then state of the public mind this occasion gave rise to intense public excitement, out of which sprang a controversy of extraordinary bitterness, involving numerous persons, and continuing for several years. The effect upon Green was disastrous in the extreme. He was suspended from his command, then tried by a Court of Inquiry at Albany, and reinstated in command. His regiment after having, it is said, required the protection of a battery to save it from violence at the hands of evil-disposed people of the county, removed to Washington, where Green was relieved from his command, and then dismissed the service, and subjected to military charges.

He was, in addition, harrassed by civil suits brought to charge him with personal liability for articles used by his regiment. He was also arrested, and then indicted for the shooting of McNett, and after repeated postponements of the trial, effected because of the excited state of the public mind, was tried in 1866, and, the jury having disagreed, was discharged.

During this period he also became involved in church difficulties arising out of the shooting of McNett, was expelled from the church, and compelled to appeal to the Bishop, and also became involved in litigation with the pastor of his church.

His efforts during this period to secure a reversal of the order dismissing him from the service were constant and absorbing, and were attended with such anxiety of mind as to give rise to the charge that he was insane. This state of things continued up to 1866, during which period he was of necessity often absent from Cortland, at Albany and at Washington: and he devoted his entire time to the controversy in which he had become involved, abandoning all other occupation, and exhausting all his means. The pressure of these circumstances was such that he became discouraged and despondent, and was, in fact, driven near to madness. The extraordinary nature of the circumstances in which the man was placed during these years is fully proved by many witnesses of character.

These circumstances certainly give complexion to his omission to secure his invention by patent, and serve to furnish a proper excuse for such omission.

In regard to a man so circumstanced, it would hardly be safe in face of his positive oath to the contrary, to infer an intention to abandon an invention which evidently he always considered of great importance. This conclusion is strengthened by the uncontroverted fact that when in November, 1865, Green saw by an advertisement in the papers that driven wells were being put down, although he was advised by counsel defending him on the indictment not to apply for a patent, as he would thereby increase the number of his enemies, and prejudice him on the trial of the indictment then about to come on, nevertheless he did then, and in opposition to the advice of his counsel, file his application and assert his right to the invention.

I conclude, therefore, that upon the facts of this case, it must be held that the defendant has not produced that full measure of actual proof which is necessary to sustain the defense of abandonment.

I have now disposed of all the issues which have been seriously contested in this important case. There are several objections taken to the patent as a reissue, but they have not been greatly pressed, and I do not find in any of them ground for declaring the reissue void. I have given to these objections all the attention they appear to deserve, but it seems hardly worth while to extend this opinion by a statement of the reasons which have led me to reject them. I content myself with saying that I consider the original patent to have been for a process, as is the reissue, and that the process I find described in the reissue is also to be found described in the original patent.

As to the question of infringement, I do not understand that it is disputed; at any rate, it is clearly proved. There must therefore be a decree for the complainant in accordance with the prayer of the bill.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

WILLIAM EARLE, JR., *et al. vs.* CHARLES F. HARLOW *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided October term*, 1875, *to wit: April* 4, 1876.]

In a sheep-shearing device where power is employed to operate the cutters, it is immaterial what kind of power is employed when the two separate devices are operated in the same way to produce substantially the same effect.

The patent of Fullam, December 23, 1873, is not limited to an engine operated by the expansive force of steam, by any fair construction of the specification or claims. In this patent, as well as in the Hamilton and Harlow patent of September 1, 1864, (employed by defendants,) a power is generated at a source of supply at a desired point, and is transmitted through a flexible tube, so as to be available to actuate an engine in the portable handle, which converts that power at any other point at the will of the operator.

[*George E. Belton*, for complainants.
James E. Maynadier, for defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

The question presented in this case is mainly one of infringement. The complainants are the owners of the patent reissued to them as assignees of Adoniram I. Fullam, December 23, 1873, for a new and useful improvement in devices for shearing sheep.

The object of the invention is described to be, first, to actuate the cutters of a portable device, which is designed for shearing wool or hair, and which is guided and controlled by the hand of an operator, by means of steam or other equivalent elastic agent introduced into an engine, which is mounted upon the support which carries the handle and cutters of the device; second, to provide for conveying the power to the said device through a flexible pipe or hose, which will allow all the required manipulations of the instrument while in operation.

The device of Fullam consists, first, of a handle of convenient size to be grasped by the hand. In one end of this handle is a small engine, which is substantially a miniature high-pressure reciprocating engine, which furnishes motive power for actuating a cutter-bar provided with V-shaped cutters, like the cutters of a harvesting-machine, which work over fixed cutters of a similar form—these cutters placed below the other end of the handle, so as to allow sufficient space for the operator to grasp the handle and conveniently manipulate the device while shearing an animal; secondly, there is a flexible pipe connecting the portable engine and shears with the generator of the required power, the flexible pipe serving as a conduit of the power from the generator to the portable engine, and at the same time, by its flexibility, allowing the cutting device to be conveniently moved over an animal in every direction without restraint; third, a generator or reservoir of power.

The patentee states that if steam be the agent employed for operating the shears it may be generated in a small boiler, and alcohol or coal-oil used as the fuel, the boiler being located at any convenient point remote from the operator. The generator is treated simply as a generator or reservoir of power of steam or other suitable elastic agent.

The claim in the patent is for—

The shearing implement, consisting of the handle and comb-plate extending from its end, the engine supported by said handle, and a moving shearing-cutter, arranged to operate with the comb-plate, and operated by said engine through power supplied from a reservoir situated at any desired point, substantially as described.

The device used by the defendants is the one described in the patent to Hamilton and Harlow, September 1, 1864, No. 154,603, for improvements in shearing animals. This has a portable handle with an engine in the handle for actuating the cutting mechanism at and below the other extremity of the handle. The engine differs from complainants' engine in the fact that the hollow handle is divided at its rear portion into two air-tight chambers by a central flexible partition or diaphragm, operated by the alternate admission and withdrawal, through tubes opening into said chambers, of air, so as to vibrate laterally a lever connected with the diaphragm, which communicates the desired reciprocatory motion to the cutting device.

Considering an engine as a device for converting power into motion, or as a contrivance by which physical power is applied to produce a given physical effect, there is an engine in the hollow portable handle of defendants' contrivance, as well as in the complainants', an engine which operates in substantially the same manner to produce substantially the same effect.

The mistake of defendants' experts is in assuming to construe the patent of Fullam as limited to an engine operated by the expansive force of steam, a limitation not imposed upon the plaintiffs' patent by any fair construction of the specification or claims.

In place of the two flexible tubes which Fullam uses, one for the passage of the steam or compressed air from the generator to the engine, and another for the escape of the exhaust steam, Harlow uses two flexible tubes for conducting the air into and out of, alternately, the two air-tight chambers of the hollow handle, which, with the addition of the flexible diaphragm and connected lever, constitute the engine for actuating the cutter device. These flexible tubes are connected with any suitable device or apparatus for supplying and withdrawing air to and from the handle, the air being first admitted to one of the chambers and withdrawn from the other, and vice versa.

Here, then, we find the same combination of substantially the same elements operating in substantially the same manner to produce the same result in both machines. Each has its shearing implement, consisting of its movable cutting device, an engine inclosed in, and supported by, the portable handle, the shearing-cutter arranged to operate with the comb-plate, and operated by the engine in the handle through power supplied through the flexible tubes from a reservoir or "source of supply" of power situated at any desired point.

Although, in a certain sense, it may be true that the column or current of air which passes through the flexible tubes in the Harlow device operates merely to communicate power from the air-chamber, or "the apparatus or device for supplying and withdrawing air" from the engine in the handle, as a water-pitman operates through a flexible tube, this distinction is one rather verbal and ingenious, as applied in this instance, than real and substantial. The change of name is not in this instance accompanied with any change of function. The same remark applies to the criticism on the word "reservoir" in the complainants' patent, which is used only to designate the location of the source of supply of the power.

In the Fullam machine, the steam or compressed air communicates the power which has been generated by the heat under the boiler, or the manual or other force working the pump to compress the air, from the source of supply through the flexible tubes to the engine.

In the Harlow machine, the power generated by the manual or other force working the piston-rod is transmitted from the source of supply through the flexible tubes to the engine, by means of the alternating supply and withdrawal of the air.

The fact that the air which passes through the Harlow tubes, as compared with the steam or compressed air in the Fullam tubes, is practically inelastic does not change the mode of operation, which is, that in each case, a power generated at a source of supply at a desired point, is transmitted through a flexible tube, so as to be available to actuate an engine in the portable handle, which converts that power at any other point where the will of the operator may from time to time direct it into the desired motion.

Decree for complainants.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date May 30, 1876.]

9,312.—Bass-Relief.—ERASTUS O. FRINK, Indianapolis, Ind. Application filed May 15, 1876. Term of patent 3½ years.

9,313.—Stair-Plates.—WILLIAM B. GOULD, Montrose, N. J. Application filed May 2, 1876. Term of patent 7 years.

9,314.—Match-Safe.—ANTHONY ISKE, Lancaster, Pa. Application filed May 17, 1876. Term of patent 3½ years.

9,315.—Sofa-Frame.—CHARLES TISCH, New York, N. Y. Application filed February 5, 1876. Term of patent 3½ years.

9,316.—Picture-Frame.—HENRY J. BROWN, Troy, N. H. Application filed April 24, 1876. Term of patent 3½ years.

9,317.—Cases for Pencils.—JOHN DICKER, Newark, N. J. Application filed April 26, 1876. Term of patent 7 years.

9,318.—Pan.—JAMES A. MALONEY, Georgetown, D. C. Application filed May 22, 1876. Term of patent 3½ years.

9,319.—Stove.—GEORGE W. ROBERTSON, Peekskill, N. Y., assignor to SOUTHARD, ROBERTSON & CO., New York city. Application filed May 17, 1876. Term of patent 7 years.

9,320.—Parlor-Stove.—WALTER W. STANARD, Buffalo, N. Y., assignor to JEWETT & ROOT, same place. Application filed May 10, 1876. Term of patent 7 years.

9,321 and 9,322.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Applications filed May 23, 1876. Term of patents 3½ years.

9,323.—Vase.—JAMES H. WHITEHOUSE, Brooklyn, N. Y., assignor to TIFFANY & CO., New York city. Application filed May 1, 1876. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 30, 1876.]

3,714.—Whisky.—H. BLOCK & CO., Cincinnati, Ohio; assigned March 14, 1876, to HOFFHEIMER BROTHERS, same place. (Re-registration.) Application filed December 9, 1870.

"words 'Olive Branch.'"

3,715.—Charts and Patterns for Cutting Dresses.—WILLETT CORNWELL, Philadelphia, Pa. (Re-registration.) Application filed February 3, 1873.

"the bust of a female figure, having applied thereto a tape-measure, as in the act of taking measurements."

3,716.—Lunch-Packages.—PATRICK S. DEVLAN and JAMES H. THOMAS, Newark, N. J.; said THOMAS assignor to said DEVLAN. Application filed April 17, 1876.

"letters 'N. T. F. L.' and the word 'NONPAREIL.'"

3,717.—Cotton Batting.—G. M. HAMLIN, Lockport, N. Y. Application filed April 7, 1876.

"the flag of the United States of America."

3,718.—Paints.—J. HOLLINGER & SON, Cleveland, Ohio. Application filed March 27, 1876.

"words 'Gutta Perca Paint,' arranged as shown in the accompanying drawing, above and below a circular picture, representing in the upper portion a grove of Icosandra gutta trees, from which the gum is obtained; underneath which, centrally across the circle, is a view of a seaport town, and beneath which is also a representation of a cottage or house, having men engaged in painting the same, the whole conveying the idea of procuring the material at its native and wild source, conveyed to a civilized country for manufacture, and used for domestic purposes."

3,719.—Whisky.—MILLS, JOHNSON & CO., Cincinnati, Ohio; assigned December 14, 1875, to W. W. JOHNSON, same place. (Re-registration.) Application filed February 27, 1871.

"the title 'T. Williams' and the device of an anchor."

3,720.—Medicinal Wash for Horses, Mules, &c.—JOHN KILLPATRICK, Philadelphia, Pa. Application filed March 3, 1876.

"the picture of a horse."

3,721.—Books and other Printed Matter.—THE NORTH AMERICAN ATTORNEYS' AND TRADESMEN'S PROTECTIVE UNION COMPANY, West Meriden, Conn. Application filed April 5, 1876.

"a picture of a terrestrial globe, showing plainly the continent of North America, with a representation of a linked chain extended across the central line of the territory of the United States."

3,722.—Cotton Goods.—HERMAN WEIL, Philadelphia, Pa. Application filed April 5, 1876.

"word 'Challenge,' and the figure of a stag."

3,723.—Cleaning and Polishing Compound.—THEODORE R. WHITE, Philadelphia, Pa. Application filed June 18, 1875.

"word SANDILENE, and the novel device by which the letters are represented as being linked together with a chain, which is secured with a padlock."

3,724.—Washing-Crystal.—THEODORE K. BATT, Philadelphia, Pa. Application filed May 3, 1876.

"the figure of a flying eagle and the words 'Leidy's Soap Powder.'"

3,725.—Soap.—BUTTERWORTH & WILBUR, Fall River, Mass. Application filed May 4, 1876.

"two cannons, two swords, and a pile of balls, arranged with respect to one another, substantially as shown, the cannons being crossed, one on the other, the swords also being so crossed and over the cannons, and the balls being disposed between the latter."

3,726.—Canned Fish.—H. S. CROCKER & CO., San Francisco, Cal. Application filed June 29, 1875.

"words 'CROWN BRAND.'"

3,727.—Prepared Washing-Soda.—C. H. FISCHER & CO., New York, N. Y. Application filed March 23, 1876.

"the representation of a ball."

3,728.—Medicine.—GEORGE E. FITTON, Boston, Mass. Application filed April 20, 1876.

"word 'HERBALINE.'"

3,729.—Combined Spark-Arresters, Heaters, and Soot-Gatherers.—DANIEL HAWKESWORTH and HENRY COLFORD, Halifax, Canada. Application filed February 15, 1876.

"a figure representing a top-plan of a spark-arrester, in combination with the words 'Spiral Draft.'"

3,730.—Liniment.—ROBERT MCCORMICK and JOHN J. KELLY, Boston, Mass. Application filed April 18, 1876.

"word 'CORN.'"

3,731.—Lotion for the Cure of Sores.—THOMAS E. OWENS, Natchez, Miss. Application filed March 16, 1876.

"words 'wonderful Wash,' in connection with the monogram composed of the letters 'W. S. W.'"

3,732.—Wrought-Iron.—PHILLIPS, NIMICK & CO., Pittsburg, Pa. Application filed April 6, 1876.

"word 'SLIGO.'"

3,733.—Wrought-Iron.—PHILLIPS, NIMICK & CO., Pittsburg, Pa. Application filed April 6, 1876.

"word 'TYRONE.'"

3,734.—Wrought-Iron.—PHILLIPS, NIMICK & CO., Pittsburg, Pa. Application filed April 6, 1876.

"letters 'S. S.'"

3,735.—Paper and Paper Products.—T. SEYMOUR SCOTT & BRO., Philadelphia, Pa. Application filed April 24, 1876.

"a monogram composed of the letters 'T. S. S. & BRO.,' combined substantially as shown in the accompanying fac-simile, together with representations of a barrel, various-sized rolls, bundles, and packages of such products of paper as are dealt in by us, the same being grouped in the manner shown within a square or rectangular bordering about the monogram, which latter is set in relief upon a central circular background, in the manner of a medallion."

3,736.—Sweat-Odor Annihilator.—TOMPKINS & STANDARD, Lewistown, Ill. Application filed January 21, 1876.

"word 'PRE-ODOR-NE.'"

3,737.—Hydrocarbon Oils.—WARDEN & OXNARD, Pittsburg, Pa. Application filed March 18, 1876.

"giving to the body or staves of oil-barrels a yellow color and the heads a blue color, by painting or otherwise."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date May 30, 1876.]

728.—Title: **"Heyt's Dyspepsia Cure."**—STARR H. AMBLER, New York, N. Y. Application filed May 19, 1876.

729.—Title: **"Stripped & Warranted."**—BENSEL & CO., New York, N. Y. Application filed May 19, 1876.

730.—Title: **"Dr. Fisher's Golden Seal."**—JAMES E. BLAKE, New Bedford, Mass. Application filed May 22, 1876.

731.—Title: **"Coles' Celebrated Rheumatic Remedy, Cures Rheumatism, Neuralgia, and Gout."**—D. F. COLES, Rahway, N. J. Application filed May 22, 1876.

732.—Title: **"Soft French Enamel."**—HENRY D. GOLDSMITH, New York, N. Y. Application filed May 18, 1876.

733.—Title: **"Dr. Hogguer's Celebrated Stomach Bitters."**—F. F. W. HOGGUER, Philadelphia, Pa. Application filed May 19, 1876.

734.—Title: **"Emulsion of Magnesia."**—J. E. HUTCHINGS & CO., Brooklyn, N. Y. Application filed May 20, 1876.

735.—Title: **"Chocolat De L'Union France-Americaine."**—HENRY MAILLARD, New York, N. Y. Application filed May 20, 1876.

736.—Title: **"Household Ammonia."**—CHARLES C. PARSONS, New York, N. Y. Application filed May 22, 1876.

737.—Title: **"Centennial Confections."**—DAVID WEIL, New York, N. Y. Application filed May 23, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED MAY 30, 1876.

	Class No.	No. of Patent.
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Alarm burglar, J. H. P. Inslee	24	178,009
Amalgamator, L. Hinckley	3	178,005
Animal weaning bit, McGee, Dye, Hosmer, and Symes	144	178,176
Annunciator, electro magnetic, Axtheim and Pease	24	177,918
Annunciator, electro magnetic, A. S. Wetmore	24	178,216
Auger, earth, C. W. Twigg	51	178,207
Auricle, J. H. Batchelder	156	177,994
Bale tie, J. L. Randolph	7	177,957
Bale tie, J. H. Snyder	7	178,195
Bale ties, wire bending machine for, H. W. Putnam	163	178,027
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Baskets, machinery for making, L. Porter	169	178,026
Battery, galvanic, R. Einbigler	50	177,996
Battery, galvanic, J. E. Watson	50	178,215
Bed bottom, spring, W. I. Winne	62	178,038
Bed dusting rack, J. Foster	62	178,135
Bed frames, adjustment for spring, W. J. Myers	62	177,952
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Bird cage, G. F. J. Colburn	170	177,924
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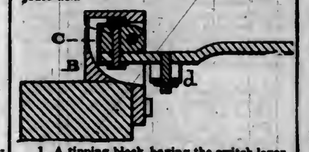
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED MAY 30, 1876.

177,913. RAILROAD-SWITCH STANDS. J. H. Ainsworth, Philadelphia, Pa. [Filed May 6, 1876.]

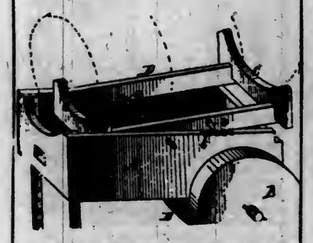
Brief.—A lever for operating a three-throw switch, pivoted to a "tipping-block," so that it can be moved through an angle of one hundred and eighty degrees, and the tipping-block also permits the lever to be thrown over from a vertical position at ninety degrees to a horizontal position, to a plane at right angles to the former plane of motion, where it is locked by the bar in which the tipping-block is journaled.



1. A tipping block having the switch-lever pivoted thereto, and operating to impart lateral movement to the lever on the axis of the block, substantially as and for the purpose set forth.

2. The open-sided box B, with the tipping block C journaled thereto, in combination with the switch-lever, pivoted to the tipping block, substantially as and for the purpose set forth.

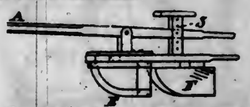
177,914. BARREL-TRUCKS. Silas Allman, Atlantic, Iowa. [Filed Feb. 1, 1876.]



The truck A B B, having a serrated plate or series of notches, *c*, the rack C D, having the pawl *b*, and the rod *a*, arranged and combined substantially as and for the purposes shown and described.

177,915. LAND-MARKERS. J. Augspurger, Trenton, Ohio. [Filed Jan. 27, 1876.]

Brief.—A land-marker with a hinged tongue, the rear end of which acts as a lever to raise or lower the front runner.



In a land-marking machine, the arrangement and combination of the runners B F F, hinged tongue A, and perforated guides B, with the frame, for the purpose specified.

177,916. LAND-MARKERS. J. Augspurger, Trenton, Ohio. [Filed Jan. 27, 1876.]

Brief.—A land-marker with a hinged tongue, to which a runner is attached, both of which are elevated or lowered by a lever.



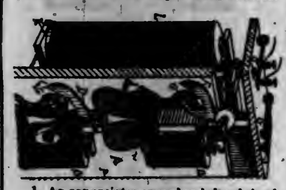
In a land-marking machine, the combination of the fixed runners B F upon the main frame, with vertically-adjustable runner G, hinged tongue H, lever I, and uprights D, arranged as and for the purposes described.

177,917. PROCESSES FOR PRODUCING PULP FROM WOOD. John T. Averill, St. Paul, Minn. [Filed May 17, 1876.]

The within-described process of producing pulp from wood, and preventing its discoloration, which consists in boiling or steaming the wood in small pieces without pressure, substantially as described, and then subjecting it to the ordinary grinding operation, as herein set forth.

177,918. ELECTRO-MAGNETIC ANNUNCIATORS. Ernest Arthelm and Wm. Penes, Pittsburg, Pa. [Filed Mar. 16, 1876.]

Brief.—Closing circuit to release any number-plate automatically restores to its first position any number-plate previously released.



1. An annunciator opened and closed simultaneously by the electric current by means of the magnets C and L, slide N, pins *n n*, armatures D and M; arm J, hooks F and G, swinging number-plate I, or their equivalents, substantially as described.

2. In an electric self opening and closing annunciator, the armature hooks or keepers F and G, or their equivalents, substantially as described, and as and for the purpose set forth.

177,919. RAILWAY-RAIL JOINTS. C. Barker, Yates City, Ill. [Filed Nov. 6, 1875.]

Brief.—A rail-joint in which the ends of the rails are provided with strengthening-pieces extending from head to base of rail, leaving spaces between the web and said blocks, in which are inserted tightening-keys.



1. As a new article of manufacture, a railway-rail, having blocks B at its ends, extending from the head to the base of the rail, so as to leave a keyway, C, between the block and the rail, substantially as and for the purpose specified.

2. The keys D, arranged to operate with and between the rails A, and blocks B, substantially as and for the purpose specified.

177,920. LOOMS. Erastus B. Bigelow, Boston, Mass. [Filed Mar. 1, 1876.]

Brief.—The improvement includes mechanism for counterbalancing the comber-board, mechanism for giving a differential motion to the lay; devices for supporting the wires in weaving pile fabrics, adapted to yield when struck by the shuttle should the latter stop in the shed; and a stop-motion when a wire fails of proper insertion, which acts in combination with the ordinary weft-stop mechanism.

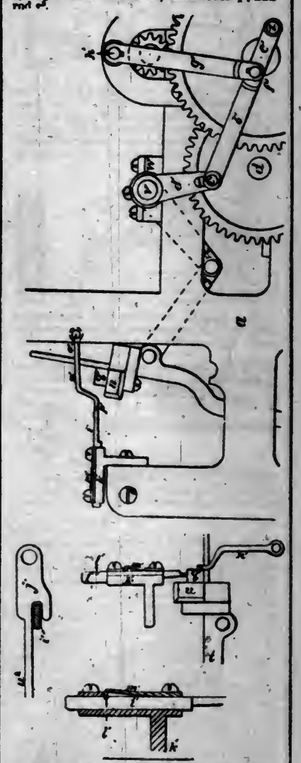
1. In combination with the comber-board e and counterbalance-weight m, the cams n and o, arranged as described, whereby the cam n elevates the comber-board and allows it to descend by the weight of the harness till it retreats from the knots of the harness-cords, when the cam o receives the pressure of the counterbalance-weight m, and raises it to the required position to depress the comber-board to its lowest point, substantially as specified.

2. In combination with the mechanism herein represented and described for imparting a double-beat movement to the lay, consisting of the shaft c, arms x, bars y, and arm d', the combination of mechanism herein represented and described for imparting a differential movement to the lay, consisting of the depending arm *g*' and the connecting-bar, in two parts, b^1 and c^1, co-operating substantially as and for the purpose specified.

3. The combination of mechanism herein represented and described for holding the pile-wires in position, consisting of the stand f^1, holding-bar i^2, and latch-spring m^1, substantially as and for the purposes specified.

4. In combination with the holding-bar i^2, the lever-arm n^1, having its rear end supported by the fixed stud c^1, and its forward end resting on said holding-bar, substantially as and for the purposes specified.

5. In combination with the mechanism herein represented and described for stopping the loom when the filling is unsupplied, the combination of mechanism for stopping the loom when a pile-wire fails of proper insertion, consisting of the stand f^1, sliding bar i^2, latch-spring l^2, arms n^2 and o^2, latch-lever q^2, and rod p^2.



177,921. SHADES FOR GAS-BURNERS. William F. Bonnell, Jr., Boston, Mass., assignor to himself and S. B. Kidder, same place. [Filed May 5, 1876.]

Brief.—A shade-holder adapted to revolve about a gas-burner.

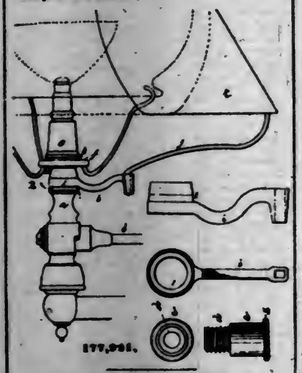
1. The combination, with the gas-burner base, of a shade and a shade-holder adapted to be supported by, and to be turned or moved freely about, the base, all substantially as described.

2. The globe and globe-holder and a burner, in combination with the base and a shade, and a shade-holder arranged below the globe.

HELIOTYPE RELIEF PROCESS, JAMES R. OSGOOD & CO. BOSTON

holder, and adapted to turn freely about the globe and globe-holder, substantially as described.

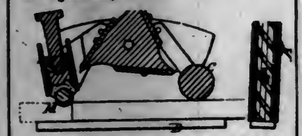
3. A gas-burner base provided with a flange, 2, in combination with a shell provided with a shoulder, to project beyond the surface of the base, to confine a shade-holder, substantially as described.



177,921.

177,922. PRESSURE-ROLLS FOR WOOD-PLANING MACHINES. John P. Burnham, Chicago, Ill., assignor to Thomas Wilce & Co., same place. [Filed Jan. 10, 1876.]

Brief.—Cuts semi-spiral grooves in the bearing-face of the cap, to clean the roll and remove gum, &c.



The cap K, provided with semi-spiral grooves P, in combination with the pressure-roller M, as set forth.

177,923. IRONING-TABLES. Norman Clark Sterling, Ill. [Filed Nov. 23, 1875.]



The table-top L, in combination with stool H, provided with slots H' and h and key or wedge I, ironing board F, and legs G, substantially as and for the purposes set forth.

177,924.



177,925. BIRD-CAGES. Geo. F. J. Colburn, Washington, D. C. [Filed May 1, 1876.]

Brief.—By bringing the body of the cage down it comes in contact with the lever, which forces the hook forward and locks the cage. The perch is formed with a square tenon, which fits in a corresponding socket in the button, and prevents the perch from turning.

1. A bird-cage the body of which is made of reticulated material, as set forth.

2. In combination with the reticulated material, the frame B, for the purpose set forth.

3. The catch E, consisting of the bent lever a, projection d, plate e, constructed and operating in the manner and for the purpose specified.

4. The perch F, consisting of a bar having a rectangular tenon, c, button g, with rectangular socket, and a button, f, as described.

177,926. STEAM-VALVES. Richd. T. Crane, Chicago, Ill. [Filed Nov. 4, 1875.]



The valve a, having recess b, and having the lower portions of the walls beveled and extended downward, as shown, in combination with a raised valve-seat, so fitting the lower part of the walls and the packing, that the space for the passage of steam over the edges of the seat will be less than the space between the seat and the packing, substantially as and for the purpose set forth.

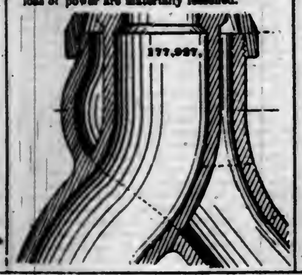
177,926. HAIR-CRIMPERS. W. F. Drew, Boston, Mass. [Filed Mar. 2, 1876.]



The improved hair-crimper, consisting of the part A and elastic braid b, fastened together by means of the piece of metal c, the braid b having the ring f at its free end, whereby it may be secured to the hook d, substantially as above described.

177,927. STEAM-EJECTORS. Wm. Ebbitt, New York, N. Y., assignor to Empire Vacuum Brake Company, same place. [Filed Mar. 21, 1876.]

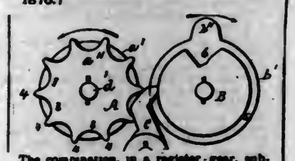
Brief.—The steam-pipe and the air-pipe approach the point where the steam-pipe operates to produce the vacuum by a gentle curve, instead of an angle, whereby the friction and loss of power are materially lessened.



177,927.

The combination, in a steam-ejector, of an air-exhaust pipe and a steam-pipe, diverging by a gentle curve from their point of junction to their respective connections, substantially as and for the purpose herein before described.

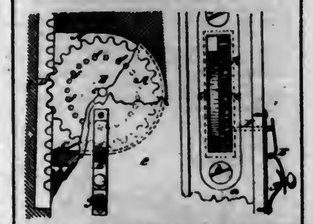
177,928. REGISTERING APPARATUS. Jos. S. Elliott, Philadelphia, Pa. [Filed Apr. 27, 1876.]



The combination, in a register-gear, substantially as described, of the locking lever C with the disks A and B, the said parts being constructed and arranged to operate together, substantially as and for the purpose set forth and described.

177,929. SASH-BALANCES. Jos. W. Fowler and Herman Adam, Jersey City, N. J. [Filed Apr. 12, 1876.]

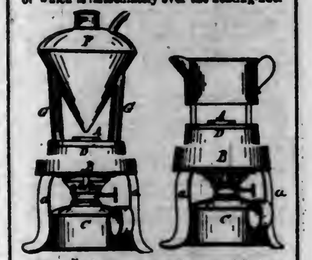
Brief.—A new combination of old devices; the spring pin or detent conveniently arranged on the casing for automatic engagement.



An improved sash-balance, consisting of the metal frame or case A, the cog wheel B, chambered to contain a suitable spring, g, and having on its side a series of lock-holes, f, the rack D, and the tape-spring C, in combination with the spring-fastener E, attached to the outside of the casing, and having a pin or key, F, automatically engaging with the lock-holes of the cog-wheel, all substantially as described and shown, for the purpose specified.

177,930. LAMP STEAM GENERATORS AND BOILERS. Herman Fritz, Cleveland, Ohio. [Filed Mar. 11, 1876.]

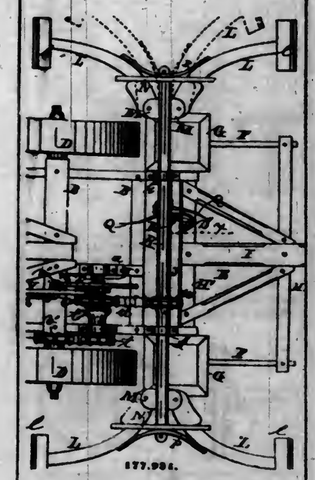
Brief.—The pipes connect the water-space and the steam-chamber, the conical lower end of which is immediately over the heating-flue.



The cylinder A, surrounding vessel B, having legs c c, and heating device C, in combination with the steam-dome F, having a conical bottom, pipes G G, and movable cover D, all constructed substantially as shown.

177,931. CHECK-ROWERS FOR CORN-PLANTERS. J. B. Gale, Elmore, Ill. [Filed Mar. 8, 1876.]

Brief.—Upon a transverse shaft are secured markers, composed of pivoted arms held by yielding springs. In rear of the deflector is a steel secured upon the seed-slide, that is struck by tappets on a revolving shaft for reciprocating the slide. Motion is imparted to the machine by chains and wheels.



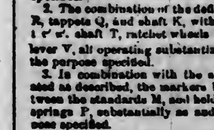
177,924.

1. The deflector S, constructed as described, and arranged to operate with the stud K and tappets Q, substantially as and for the purpose specified.

2. The combination of the deflectors S, stud R, tappets Q, and shaft K, with chain-wheels t t' w', shaft T, ratchet wheels U and r, and lever V, all operating substantially as and for the purpose specified.

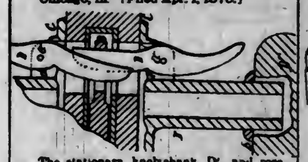
3. In combination with the shaft K, operated as described, the markers L, pivoted between the standards M, and held apart by the springs P, substantially as and for the purpose specified.

177,932. DARTS FOR AIR-GUNS. Albert W. Gifford, Worcester, assignor to A. A. Pope, Boston, Mass. [Filed Mar. 24, 1876.]



The dart shown and described, consisting of the body A, the tubular portion C, with internal spar or spurs c, and the shaft B, substantially as described.

177,933. DOOR-LATCHES. O. H. Gilbert, Chicago, Ill. [Filed Apr. 1, 1876.]



The stationary knob-shank D', and rose-plate C', cast in one piece, and provided with mortise B, in combination with projecting lips and lever D passing through a mortise, H, in the latch-bolt A, and pivoted to said rose-plate, substantially as and for the purposes specified.

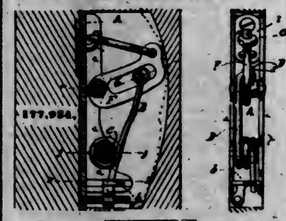
177,934. DOOR-SPRINGS. Jas. K. Gilfillan, Syracuse, N. Y., assignor to Wm. Gilfillan, same place. [Filed Apr. 27, 1876.]

Brief.—As an improvement on Patent No. 174,516, March 7, 1876. A pivoted slotted bar or lever is introduced, in the slot of which works a suitable spring, preferably carrying a friction roller, and secured to a centrally pivoted cylindrical fulcrum, which partially rotates as the spring operates. There is also a confining-plate, having a lug and screw, and adjustable toward and from the main supporting-plate, to adjust the tension of the spring.

1. The combination of the slotted bar F, coiled spring B, cylindrical fulcrum C, and plate A, substantially as shown and described.

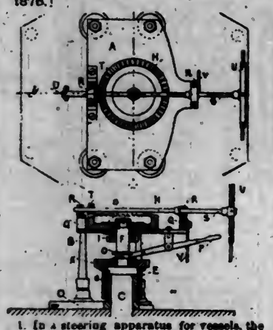
2. The combination of the slotted bar F, coiled spring B, friction-roller D, centrally pivoted cylindrical fulcrum C, and plate A, substantially as shown and described.

3. The combination of the coiled spring B, cylindrical fulcrum C, and the confining-plate b, adjustable toward and from the supporting-plate A, as shown and described.



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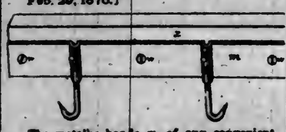
177,935. STEERING APPARATUS. Fayette Gould, Huntington, N. Y. [Filed May 11, 1876.]



1. In a steering apparatus for vessels, the combination of the following elements, namely: A frame, A, properly positioned to support the steering mechanism, a rudder-post, O, provided with a tiller, D, a spindle, F, provided with a cap-piece, E, circular rack H, disk G, intermediate gear-wheel I, and intermediate gear-wheel K.

2. A rider, S, provided with a pinion, T, and hand-wheel U, the gear-wheels J' and L', held upon the spindles M M', and the forked lever P and hooked lever V, when the same shall be constructed and operate substantially as and for the purposes set forth.

177,936. SUSPENSION-HOOK FASTENINGS. William H. Haines, Newark, N. J. [Filed Feb. 20, 1876.]



The metallic bands m, of any convenient length and size, having the indented transverse grooves g, in which the suspension-hooks S are soldered or otherwise firmly held, the band and hooks thus secured together being adapted for attachment by screws or their equivalents to the wooden drying-frames of japanned-cloth factories, and other like uses, all substantially as herein shown and described, for the purposes set forth.

177,937. WINDMILLS. Charles C. Harris, La Fayette, Ill. [Filed Mar. 13, 1876.]

Brief.—A combination of devices for regulating or governing the motion of the wind-wheel, and mounting it on a fixed tubular spindle, through which the rod passes which connects the sail-furling device with the sails.

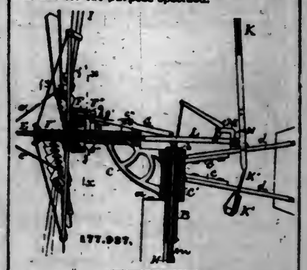
1. The wind-wheel, having the cam-disk F'' operating in combination with the lever G, substantially as and for the purpose specified.

2. The combination of the wind-wheel, disk F'', sliding rod R, rods r', vane K, and weight K', all operating substantially as and for the purpose specified.

3. The combination of the wind-sails I, rods r', sliding rod E, lever M, and rod or chain m, substantially as and for the purpose specified.

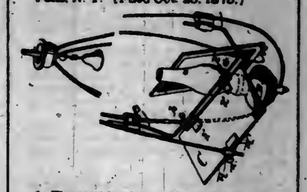
4. The fan-shaped wind-sails I, constructed of a series of slats, i, secured to the zigzag plates J, and united by the arc-shaped bars J', substantially as and for the purpose specified.

5. The bracket C, constructed as described, with the vertical tube C' and the horizontal tubular portion C'', and arranged to operate in combination with the vane D, cylinder B, sliding rod E, and wind-wheel, substantially as and for the purpose specified.



177,937.

177,938. APPARATUS FOR ILLUMINATING BILLIARD-TABLES. Hugh C. Hayt, Seneca Falls, N. Y. [Filed Oct. 23, 1875.]



1. The combination of four or more lamps or gas-jets arranged over a billiard-table, two at each end, with described reflectors, adapted to reflect the light of each lamp downward and toward the opposite end or the middle of the table, substantially as described.

2. In combination with the lamp D or gas-jet, an adjustable inclined reflector, B, arranged on one side of the lamp, and an independently-adjustable reflector, C, arranged on the opposite side of the lamp, said reflectors having their reflecting-surfaces toward each other, substantially as described

177,939. FEATHER DUSTERS. Susan M. Hibbard, Geneva Lake, Wis., assignor to Catharine Nichols, Emeline C. Webster, and F. S. Eastman, Chicago, Ill. [Filed Nov. 13, 1874.]

Brief.—The feathers are split, or part of the stem removed, to render them pliable.

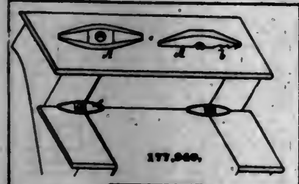


As an improved article of manufacture, a feather duster having the stems of the feathers split longitudinally, and a part thereof severed from the remaining part, substantially as specified.

177,940. STAIR-COVER FASTENINGS. Amos Holbrook, Lynn, Mass. [Filed Mar. 20, 1876.]

Brief.—The ratcheted buttons being intended for use in two series—one row thereof on either side—arranged to clasp the edges of the carpet or other covering, thus dispensing with the use of a stair-rod.

As a new article of manufacture, the herein-described stair-carpet fastener, consisting of the button or piece of metal A, wedge-shaped in transverse section, and provided at or near its middle with the hole e, and at its bottom, and near one end, with a series of teeth, h, all arranged substantially as set forth, such fastening being for use with a screw, in manner as described, in confining a carpet to a stair-case or a riser, and the tread thereof.



177,940.

177,941. WARDROBE-BEDSTEAD. John H. Horsfall, New York, N. Y. [Filed Mar. 6, 1876.]



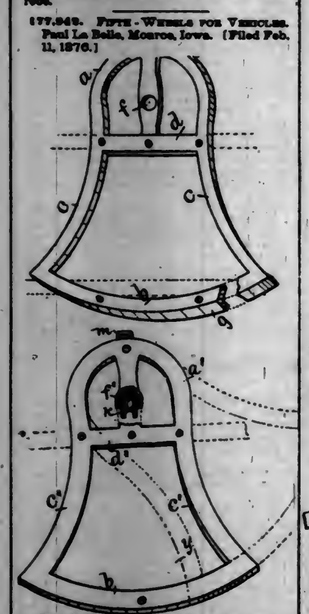
1. The side pieces, having spiral grooves *c*, in combination with a bed or bed support, ceiling and ascending, as and for the purposes herein set forth.

2. The combination, with the bed or bed-support, of flexible chains or sections, with rule-joints, with the foot-support A^3, and with the spiral grooves or guides *c'* of the wardrobe A^1, as and for the purposes herein specified.

3. The combination of the mattress E, flexible strips D^2, rule-jointed sections or chains D, cross-bars D^1, the feet A^3, with each other and with the wardrobe A A^1, having internal grooves *c''* and steps *c'*, all substantially as and for the purposes herein specified.

4. The combination of the mattress E with a flexible jointed support therefor, to which it is permanently attached, and with the wardrobe.

177,942. FIFTH-WHEELS FOR VEHICLES. Paul La Belle, Monroe, Iowa. [Filed Feb. 11, 1876.]



The plate *a b c d*, Fig. 1, having a central perforation, *f*, and a flange, *g*, at its end, in combination with a plate of corresponding form, Fig. 2, having a boss, *h*, and a flange, *m*, substantially as and for the purposes shown and described.

177,943. SAW-MILL DOGS. Dennis Lane, Montpelier, Vt. [Filed Apr. 27, 1876.]

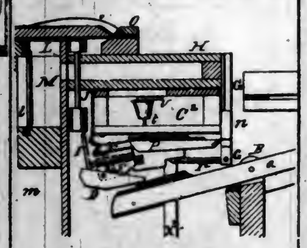
Brief.—When the half-set, by pressure on the boat lever, is released from the screw-thread on the standard, the dog will slide freely in a vertical direction.



The revolving threaded post B, in combination with the dog C, provided with an eye, *c*, and spring half-nut D, substantially as described, for the purpose specified.

177,944. SUB-BASS ATTACHMENTS FOR REED-ORGANS. Raphael B. Lotton, Quincy, Ill. [Filed Mar. 31, 1876.]

Brief.—To hold down a key after the finger has left it.



1. In a sub-bass attachment for organs, &c., the levers *c* and jacks D E, in combination with the standard I, pitman J, and valve L, constructed and arranged to operate substantially as set forth.

2. In a sub-bass attachment for organs, the pedal a^2, provided with the spring a^3, and held beneath by the bar W, in combination with the pendent arm X^1, having the incline *x*, substantially for the purpose set forth.

3. The valve P, provided with the rod *i*, in combination with the valve V, substantially as set forth.

4. The combination of the lever *a*, jacks D E, standard I, pitman J, valve L, and valves P and V, constructed and arranged to operate substantially as described.

5. The lever *a*, jacks D E, standard I, pitman J, and valve L, operating in combination with the pedal a^2, arm X^1, and arm-crank P, when constructed and arranged to operate substantially as specified.

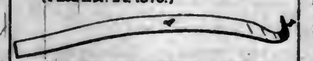
6. The combination of the lever *a*, jacks D E, standard I, pitman J, valves L P V, pedal a^2, arm X^1, and arm-crank P, substantially as set forth.

7. The combination of the lever *a*, jacks D E, arm-crank P, guide-bar T, and valves V P, substantially as described.

8. In a sub-bass attachment for organs, the exhaust-bellows F, having the valve V, constructed in its inner upper surface, and the valve P in its lower surface, substantially as shown and described.

9. The auxiliary exhaust-bellows F, provided with the chamber C', substantially as set forth.

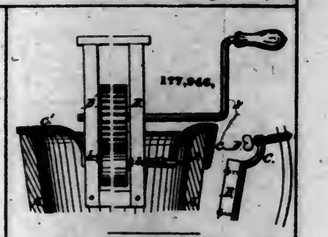
177,945. SPRING-SHANKS FOR BOOTS AND SHOES. Silas P. Littlefield, Lynn, Mass. [Filed Apr. 24, 1876.]



As an improved article of manufacture, the shoe-shank spring A, provided with the fastening and clinching spur B, in one piece with and extended from the said spring, substantially as set forth.

177,946. CLAMPS FOR WASHING-MACHINES. Melvin M. Lovell, Erie, Pa. [Filed Feb. 27, 1876.]

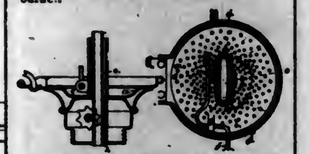
The combination of the parts G G', and frame B B', for attaching or adjusting a washing-machine within a tub, substantially as shown.



177,946.

177,947. LAMP-EXTINGUISHERS. George W. Martin, Chelsea, assignor to himself and J. W. Haskins, Boston, Mass. [Filed Mar. 28, 1876.]

Brief.—The gas-passage in the sleeve is made continuous with that in the base of the burner.



1. The sleeve formed with the gas-receiving passage *c*, and arranged with respect to the gas-tube *b*, (disposed in the base of the burner,) as shown and described, and for the purpose set forth.

2. The sleeve composed of two plates, *d d'*, with the perforated ear *e* formed integral with the plate *d*, the whole being constructed and arranged as shown and described.

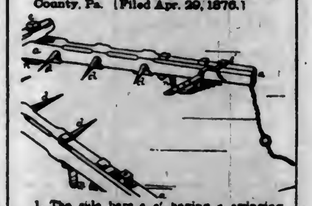
3. The combination of the gas-escape tube *b* (located in the base of the burner, as described) and the sleeve, formed with the gas-passage *c*, and the perforated ear *e*, with the lever *f*, the whole being constructed and arranged as shown and described.

177,948. SEWING-BIRDS. J. W. McDermott, New York, N. Y. [Filed Sept. 26, 1876.]



A sewing-bird composed of body A, plate B, arm C, pivoted toothed plate D, and pin E, all combined, constructed, and arranged substantially as and for the purpose specified.

177,949. HARVESTING-SLEDS. Robert B. McKinney, Foward Township, Allegheny County, Pa. [Filed Apr. 20, 1876.]



1. The side bars *a a'*, having a swinging motion to and from each other, armed with spurs *d* on their inner adjacent faces, and with end connections for holding them in proper position while their load is being moved, substantially as set forth.

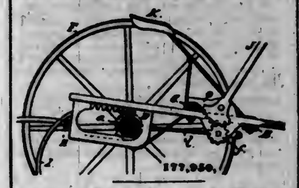
2. In combination with the pivoted bars of a harvesting-sled, the shoes *a*, arranged substantially as and for the purpose set forth.

177,950. HORSE HAY-RAKES. Gilbert M. L. McMillen, Dayton, Ohio. [Filed Mar. 21, 1876.]

1. The circular axis E, with the teeth fastened to it, arranged to slide backward and forward in relation to the thills, and at the same time revolve to elevate the teeth by the action of the pinions *a*, and the racks, secured upon the under side of the thills, in the manner and for the purpose specified.

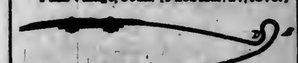
2. The combination and arrangement of the hand-lever J, shaft *g*, with its pinion *f* and crank *i*, and the strip *l*, connecting the crank and axle, in the manner and for the purpose specified.

3. The combination of the thills A, bearing-boxes D, axle E, bar H, and rake-teeth I, when the respective parts are arranged in the manner and for the purpose specified.



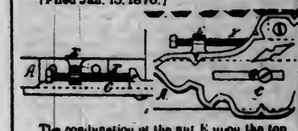
177,950.

177,951. VEHICLE-SPRINGS. Ira W. Mead, Falls Village, Conn. [Filed Mar. 27, 1876.]



A continuous or endless elliptical spring, formed from a single leaf of steel, curved upward at the points B B, the lower portion of the spring having a uniform curve, and the upper portion having the sharp curves D, whereby the inner portion of the sharp curves rests on the lower portion of the spring when depressed, in the manner substantially as and for the purpose specified.

177,952. ADJUSTMENTS FOR SPRING-BED FRAMES. Wm. J. Myers, Hartford, Conn. [Filed Jan. 15, 1876.]



The combination of the nut E upon the top of the bar A, the screw F passing through this nut and the projection *e* upon the sliding corner C, against which the point of the screw presses to extend the web, substantially as herein described.

177,953. MANUFACTURE OF ENAMELED IRON-WARE. Frederick G. Niedringhaus and Wm. F. Niedringhaus, St. Louis, Mo. [Filed Apr. 7, 1876.]

1. The herein-described process of enameling iron-ware, by oxidizing the iron during the process of drying the glaze, substantially as set forth.

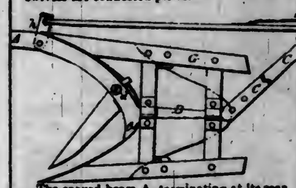
2. A new manufacture of enamel sheet-iron ware, enameled substantially as described.

177,954. COFFEE-POLISHING. C. H. Nichols, Toledo, Ohio. [Filed Oct. 9, 1875.]

The compound for polishing coffee, consisting of arrow-root, milk, wheat or rye flour, sugar of starch, all dissolved in a decoction of coffee in water, in about the proportions described.

177,955. PLOWS. Thomas Parker and Jas. Downing, Menomonee, Wis. [Filed July 17, 1876.]

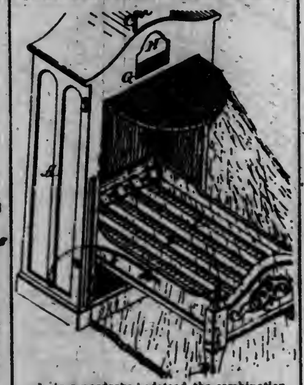
Brief.—The curved beam terminates upon the outer edge of the plow, and forms the upper part of its throat. A horizontal rear arm swivels the connected plows.



The curved beam A, terminating at its rear end in the horizontal bar B, and having the curved extension *a*, in combination with the mold-board of the plow, constructed as described, and for the purpose set forth.

177,956. WARDROBE-BEDSTEADS. John W. Post, New York, N. Y. [Filed Nov. 3, 1875.]

Brief.—The folding bed-frame is connected with a bar-spring, detachably fastened to the wardrobe, and loosely playing in a loop on the side rail of the bed. The hollow top, with its sliding door, is entirely concealed by the pivoted foot board, when the parts are folded.



1. In a wardrobe-bedstead, the combination of the bed-frame B D, pivoted to the frame at a point between the head and foot, and the single bar-spring *b* attached to the frame by a loop at its lower end, and playing loosely in the staple *a*, which is secured to the side rail, as and for the purpose described.

2. An outer frame or case for a wardrobe-bedstead, having a hollow top, G, provided with a sliding door, H, in combination with the folding foot-board D, as and for the purpose described.

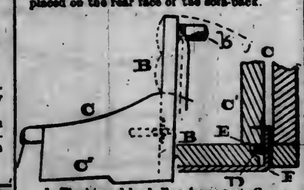
177,957. BALE-TIES. James L. Randolph, Martinsburg, W. Va. [Filed Nov. 9, 1876.]



The rolled and longitudinally-grooved plates, provided with central and side openings, both said plates being used to form a single buckle, substantially as described.

177,958. SOFA-BEDSTEADS. John Reich, Philadelphia, Pa. [Filed Apr. 13, 1876.]

Brief.—Hooks upon the edge of the detachable head-pieces catch upon rods in the main frame, and are held thereon by swiveled rods placed on the rear face of the sofa-back.

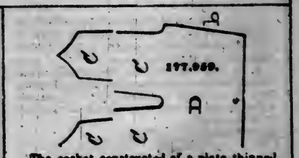


1. The hinged back B and arm-rests C, connected by catches D, in combination with the locking-hooks F, substantially as and for the purpose set forth.

2. The rotating guard-battens *b* and rotating hooks F, in combination with the fastening-catches D of the arm-rests, and hinged back, substantially as and for the purpose set forth.

177,959. BLANKS FOR SOCKETS FOR HAND-TOOLS. Lovell T. Richardson, Auburn, N. Y. [Filed Dec. 20, 1875.]

Brief.—The blank has straps attached, and is tapered in thickness from the body to strap ends. The body is bent into tubular form, the shank of the tool inserted, and the whole welded.

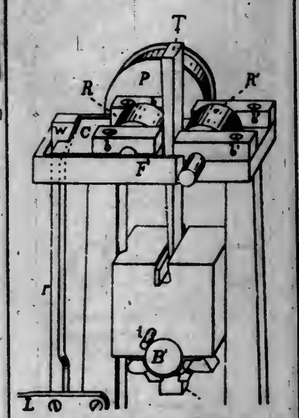


177,959.

The socket constructed of a plate thinned toward one end, and formed with strap-shaped pieces C, a portion, D, having tapering sides *b*, and a thick bottom edge, *c*, whereby the shank may be welded to the socket forming the boss thereof, substantially as and for the purpose set forth.

177,960. DROP-HAMMERS. F. H. Richards, New Britain, assignor of one-half his right to H. B. Smith, New Haven, Conn. [Filed Nov. 16, 1876.]

Brief.—The strap is wedge-shaped, as shown, in virtue of which the hammer is completely under the control of the operator, and may be allowed to fall with greater or less rapidity, and from any desired height.



1. The combination, with the hammer H and friction-rolls R R', of the tapered board T.

2. The combination, with the tapered board T and friction-roll R, supported in carriage O, of the wedge W, or equivalent, and lever L.

177,961. TREATMENT OF PLOW MOLD-BOARDS. John S. Robinson, Canandaigua, N. Y. [Filed Mar. 27, 1876.]



The herein-described process for treating mold-boards of plows and other castings, it consisting in the application to the chilled surface or surfaces of such castings, of a conforming plate of highly-heated material, while the unchilled portion is still in a plastic state, or while the whole is at a red heat, and before it has been removed from the flask or mold in which it was formed, substantially in the manner and for the purpose specified.

177,962. ADJUSTABLE ORGAN-TREADLES. Jas. S. Robinson, North East, Pa. [Filed Nov. 12, 1876.]

Brief.—The bellows-treadles are adjustable as to height, to accommodate short-limbed players.

1. The treadle *a*, secured by hinge to a frame or platform, *b*, hinged at its opposite or rear side to the case A, in combination with a ratcheted sustaining-bar, *c*, substantially as described.

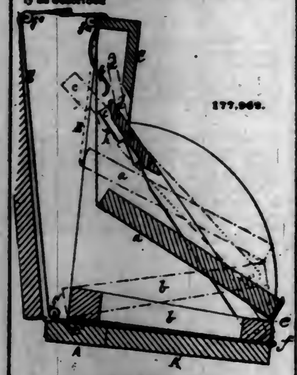
2. In combination with the subject-matter of the preceding clause of claim, the webbing E, attached to the heel of the frame *b*, bellows B, toe of the treadle *a*, by means of loops and pulleys *f f' f''*, one of which latter is secured to said bellows, substantially as set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

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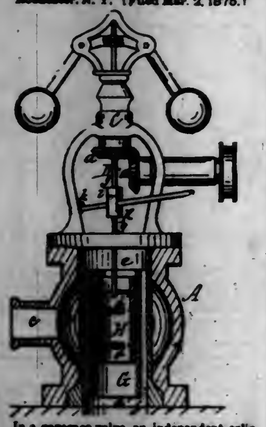
3. The front of an organ case provided with a pedal-port and the sliding curtain-board *d*, all constructed and arranged to operate substantially as set forth.

4. In combination with the treadle, bench-board, bellows, and case of an organ, the webbing E and loops or pulleys *f f' f''*, all constructed and arranged to operate substantially as described



177,963.

177,963. GOVERNOR-VALVE. E. Schiroe, Rochester, N. Y. [Filed Mar. 2, 1876.]



In a governor-valve, an independent cylinder or barrel, G, fitted removably in the casing A, in combination with an open-ended steam-balanced valve, H, resting within the barrel, the barrel and valve having coincident side ports *d d*, and the barrel constructed with vertical ports *f f*, extending longitudinally through its walls, as and for the purpose specified.

177,964. HOT-AIR REGISTERS. Eben Seavey and Charles Storer, Cambridgeport, Mass.; said Storer assignor to said Seavey. [Filed Mar. 10, 1876.]

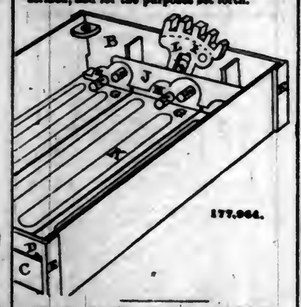
1. The wrought-iron or sheet-metal blank A, having ends C, in combination with a register-frame, substantially as described, as and for the purposes set forth.

2. The holes D, projections E and T in and on the casing B, the pivots or projections a on moving piece J, in combination with the flue and register-frames, substantially as described, and for the purposes set forth.

3. The arch N, in combination with the shoulder Q and casing B, substantially as described, and for the purposes set forth.

4. A sheet-metal blank of the form and configuration described, so that when cut a margin is left down one or both sides, that can be turned up or down at any angle, or folded under, and of such shape at the ends as to allow metal enough round the holes *d E* to give the required strength, and sufficient to be turned up at angles of forty-five degrees, as at dotted lines, Fig. 6, in combination with a register-frame, substantially as described, and for the purposes set forth.

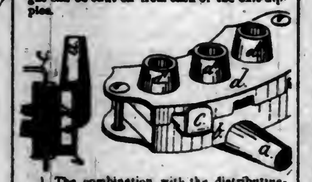
5. The rivet T, in combination with the end H and sliding frame, substantially as described, and for the purposes set forth.



177,964.

177,965. GAS-DISTRIBUTERS. J. R. Shirley, Providence, R. I. [Filed Apr. 26, 1876.]

Brief.—By means of the packed slides the gas can be shut off from each of the exit-nipples.

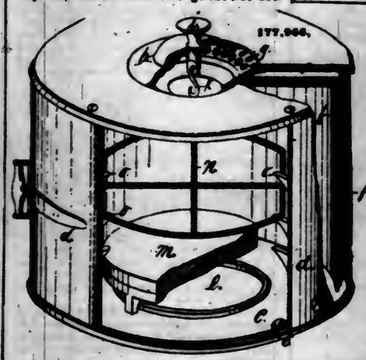


1. The combination, with the distributing-chamber *b*, of the nipple-plate *d*, and the slides *e e*, arranged substantially as and for the purpose described.

2. In a gas-distributer, the combination, with the inlet-pipe *a* and nipple-plate *d*, of the distributing-chamber *b*, and the slides *e e*, arranged to distribute and regulate the gas to any required number of burners or system of burners, substantially as and for the purpose specified.

177,966. OVENS FOR GAS-STOVES. J. R. Shirley, Providence, R. I. [Filed Apr. 26, 1876.]

Brief.—The cover being removed, and a culinary vessel placed over the opening, the circulation is laterally outward through the top flue, and downward through the side flue.



177,966.

1. The combination, with the cylindrical gas-stove oven, of the interior casing *f*, the holes or openings *g g* and *p p*, arranged as described, to insure the circulation of the heat through the space *f*, substantially as and for the purpose specified.

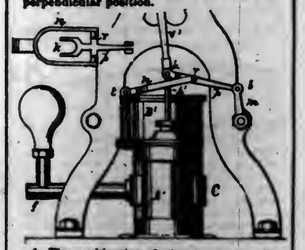
2. The combination, with a cylindrical gas-stove oven, of the hole *l* in the bottom, and a corresponding hole in the top, arranged as described, so that a vessel may be placed in the hole, and the heat, before entering the space *f*, will be utilized by the same, as and for the purpose described.

3. The combination, with the cylindrical gas-stove oven, provided with an opening at its top, of the cover *h*, provided with the hook *k*, arranged to suspend meat therefrom, substantially as for the purpose set forth.

4. The combination, with a cylindrical gas-stove oven, provided with the sliding door *d*, extending from the bottom to the top plate, of the adjustable rack *s* and supports *o o*, formed on the bars, by which the top and bottom plates are secured together, substantially as and for the purpose specified.

177,967. HYDRAULIC ENGINES. W. Smith, Chicago, Ill. [Filed June 26, 1876.]

Brief.—The parts connected with the joint which connects the piston-rod with its crank-arm will keep the piston-rod at all times in a perpendicular position.

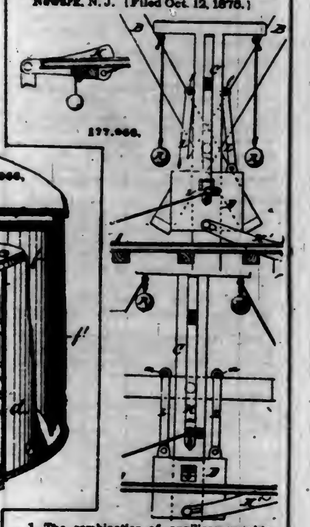


1. The combination of vibrating arm *m*, pivoted to the main frame-rod *p* connecting said arm and the piston-rod, and forked rod *k*, pivoted to *p*, as shown, with the piston-rod, substantially as and for the purpose specified.

2. The combination of the inner chamber, valve-cylinder with water packing, and the piston-cylinders, constructed and arranged substantially as and for the purpose set forth.

3. The chambers C and pipe *f*, in combination with cylinders B B', constructed to form spaces *e e'*, and the valves *b b*, substantially as and for the purpose specified.

177,968. RAILWAY-GATES. Emil P. Spahn, Newark, N. J. [Filed Oct. 12, 1876.]



177,968.

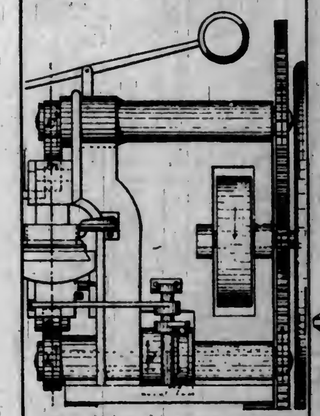
1. The combination of auxiliary weights, and mechanism to actuate the same, with nearly or wholly counterbalanced gates, so that the same or their counter-balances to removal of, or have the weights added to, them, to effect the opening and closing of the gates by them changing the gravity, substantially in the manner and for the purposes described.

2. The combination of gates B, weight D, links L, with rods or pins *m*, and spring-catch K with levers H and H', arranged and operating substantially in the manner and for the purpose specified.

3. The spring-catch K, in combination with suitable cords and connecting mechanism actuated by a moving train, to catch hold of or release weight or lifter D, in the manner and for the purpose substantially as set forth.

177,969. MANUFACTURE OF FLOORING-TILES. George A. Stanbery, Zanesville, Ohio. [Filed Mar. 6, 1876.]

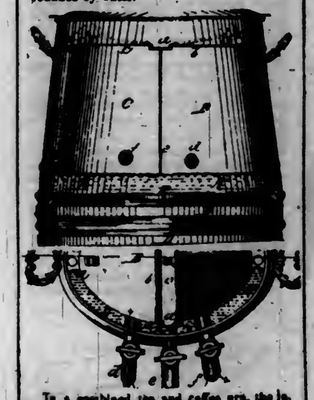
Brief.—The pistes of a hand-pulley geare with an upper and a lower wheel. The shaft of the upper one operates a cam to press the cover of a sliding die; that of the lower operates two cams—one to reciprocate the bed of the die, the other to press the piston upward.



The machine as described, having its platen flat and larger than the opening in the die, and a movable punch or bottom fitting within the die, to which power is applied for compressing the pulverized clay in a dry or semi-dry state, for the purpose of preparing tiles, substantially as set forth.

177,970. TEA AND COFFEE URNS. Anna R. Stapler, Wilmington, Del. [Filed May 10, 1876.]

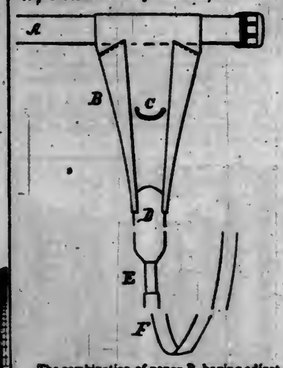
Brief.—A tea and a coffee receptacle surrounded by water.



To a combined tea and coffee urn, the inclosed water-space A, having a hole in the lower part, with the stopper K, the compartments B and C, with hinged lids *b' c'*, the faucets *d. e.* and *f*, and *a* which connects with A, and each of the others with B or C, and all constructed and operating substantially as described.

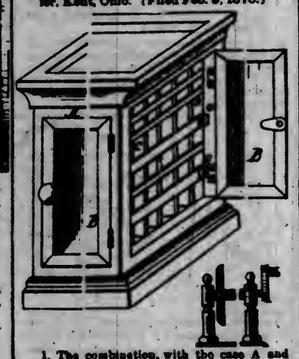
177,971. SPERMATIC TRUSSES. Harvey A. Stephenson, Allegheny, Pa. [Filed Apr. 3, 1876.]

Brief.—A bandage of a peculiar sort is used to prevent involuntary emissions, &c.



The combination of pouch B, having adjustable loop C, pad D, elastic piece E, strap F, and belt A, substantially as and for the purpose described.

177,972. SHOW-CASES. Franklin L. Stouffer, Kent, Ohio. [Filed Feb. 9, 1876.]

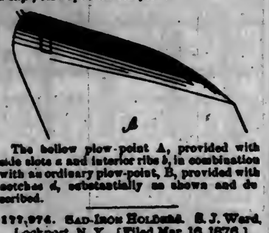


1. The combination, with the case A and faces B, of a series of rolls, attached to a frame hinged at G, to admit of access to the interior of the case, substantially as and for the purpose described.

2. In a show-case for the displaying of fine goods, the windlass F, having guide *f* and loose catch *f'*, as shown and described.

177,973. PLOW-POINTS. Wm. H. Trimler, Cleveland, Ohio. [Filed Apr. 7, 1876.]

Brief.—The construction and fastening of a slip-point upon an old plow.



The hollow plow-point A, provided with side slots *a* and interior ribs *b*, in combination with an ordinary plow-point, B, provided with notches *d*, substantially as shown and described.

177,974. SAD-IRON HOLDERS. S. J. Ward, Lockport, N. Y. [Filed Mar. 16, 1876.]

1. The combination, with a hinged wire frame, of the cloth holder B and the protecting shields D, attached by the perforations *d*, substantially as described, for the use and purpose set forth.

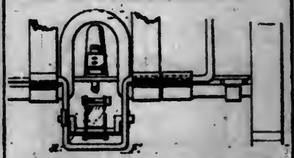
2. The combination, with the shields D, of the curved end wires C, provided with eyes E, engaging with each other to form hinges for the frame, braces F, guards G, and the cloth holder B, the whole when constructed and arranged substantially in the manner and for the use and purpose set forth.



177,974.

177,975. SULKY-PLOWS. Joseph Warwick, Franklin, Ohio, assignee of two-thirds his right to Moses Smith and Perry Lukens. [Filed Oct. 9, 1875.]

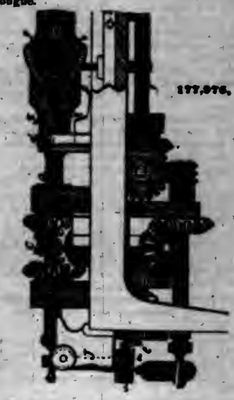
Brief.—Plow-beam upon a second crank, which has vertical play in the main crank; and also allows lateral oscillation.



The slotted hinged frame F, in combination with the inclined self-adjusting yoke *d*, to which the plow is connected, substantially as and for the purpose described.

177,976. MACHINES FOR THREADING SCREWS. Saml. L. Worsley, Providence, R. I., assignor to American Screw Company, same place. [Filed Sept. 16, 1875.]

Brief.—The tongue on the sliding pivoted block, for opening and closing the jaws, coming in contact with the latch, enables the operator, by means of the hand-lever, to remove the finished and supply a new blank. The scroll-rib insures bringing the sliding block into position to properly register with the tongue.



177,976.

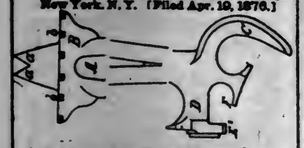
1. The combination, with the griping-jaws of a screw-threading machine, of a laterally-adjustable and longitudinally-yielding tongue-piece, *a*, to engage with the nick in the head of the blank, substantially as described.

2. The combination, substantially as described, of the die-arbor *a*, free to move longitudinally in its bearings, suitable mechanism, as described, for giving a to-and-fro movement to the arbor, and a spring-cam, *a*, interposed between the arbor and the device which advances it forward, whereby the threading-dies can be brought to bear against the end of the blank with a yielding pressure, substantially as specified.

3. The combination of the sliding pivoted block A, provided with a tongue-piece, *a*, the spring-latch *c*, and suitable devices for causing the tongue-piece to depress the latch, substantially as described.

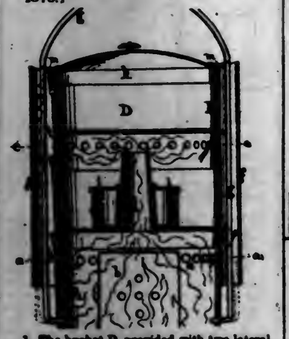
4. The combination of the scroll-guide O, the revolving spindle F, and the devices for loading the jaws, substantially as described.

177,077. COMPOUND TOOLS. Martin Young, New York, N. Y. (Filed Apr. 19, 1876.)



As a new article of manufacture, a combination implement, comprising a carpet-stretcher, B *b*, a tack-holder, *a*, a stove-plate lifter, O, a hammer, H, a bottle-lifter, D, pan-lifter E' F, and handle A, constructed and operating substantially as and for the purposes set forth.

177,078. DINNER BUCKETS AND COOKERS. Florian Zagg, Peoria, Ill. (Filed Apr. 15, 1876.)



1. The basket D, provided with two lateral chimneys *f f*, extending downward to and over the surface of a ship-furnace below for the purpose of carrying gases, which would extinguish the burning-fuel below in the furnace, substantially as and for the purposes described.

2. The combination of the basket D, provided with side chimneys *f f*, with the furnace A, substantially as and for the purposes described.

3. The combination, with the basket D, provided with the chimneys *f f*, of a middle vessel, having a vertical passage for heat from a furnace below to said basket above, substantially as and for the purposes described.

4. The combination of the basket D, provided with lateral chimneys *f f*, the vessel B and furnace A, substantially as and for the purposes described.

5. The combination, with the vessel B, of the perforated vessel C surrounding the flue *d*.

6. The combination and arrangement of the bail *g* with chimneys *f f*, and furnace A, as described.

177,079. PUMP ATTACHMENTS. S. Jarvis Adams, Pittsburg, Pa. (Filed Apr. 21, 1876.)

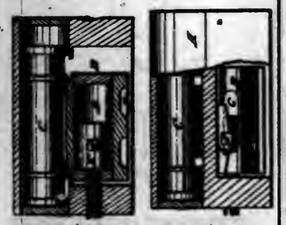
The herein-described pump attachment, consisting of the two plates B and B', united by the hinge C, and provided with the recesses A, as and for the purposes shown and set forth.



177,079.

177,080. STEAM-VALVES. John L. Agnew, Chicago, Ill., assignor to the Crane Brothers Manufacturing Company, same place. (Filed Nov. 30, 1876.)

Brief.—To secure positive action of the valve it is made hollow, and provided with a piston, which is operated by tappets on the main piston-rod.



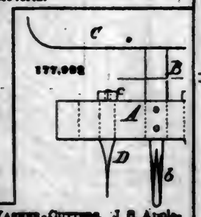
The hollow valve B, provided with a slot, *c*, and a piston, E, in combination with the valve-piston C and steam chest A, substantially as and for the purposes specified.

177,081. CLASPS FOR SUPPORTING GARMENTS. Stephen M. Allen, Boston, Mass. (Filed May 11, 1876.)

1. A garment-supporter to which the loop is combined with overlapping shear-spring jaws, substantially as shown and described.

2. The combination of the overlapping or shear-spring jaws and interposed washer, substantially as set forth.





177,082.

177,082. WASHER-CUTTERS. J. S. Appleton, Burlington, Vt. (Filed Nov. 6, 1876.)

The improved hand-tool for cutting washers, consisting of the slotted tool-holder A, closed at both ends, the rigidly-connected stem B, having a T-shaped handle, C, and a spud, *b*, and the adjustable cutters D D, the shanks of which are fastened, and passed up through the slot of the tool-holder, as shown and described.

177,083. SEWING-MACHINES. Walter G. Barnes, Freeport, Ill. (Filed Mar. 31, 1876.)



The combination of the roller C, with the elevating-chains *b d*, sliding feed adjustable crossbars G, pivoted drag-bars E, and lever-handle D, by which the seed-drills or scatterers and the drag-bars may be raised simultaneously, substantially as and for the purpose herein shown and specified.

177,084. AUGURS. John H. Batchelder, Salem, Mass. (Filed Mar. 28, 1876.)

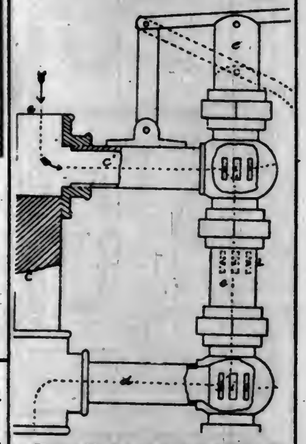
Brief.—A rubber case envelops part of the cam, and is held in place by flanges on the rubber of which it is composed.



The herein-described auricle, consisting of the solid outside *a* and back *b*, the open inside, and the self-sustaining flange *c*, as and for the purpose set forth.

177,085. THROTTLE-VALVES. Leonard H. Beal and William Andrews, Lisbon Falls, Me. (Filed May 1, 1876.)

Brief.—The virtually-adjustable pipe is provided with ports, through which steam is admitted and the supply regulated.



The combination herein described of the pipes *c' d*, part *c*, the sockets on the ends of pipes *c' d*, pipe *c*, with ports *i*, and lever *f*, all to form a valve operating as herein set forth.

177,086. METALLIC COVERINGS FOR BUILDINGS. Jared B. Bell and Fredk. B. Perkins, St. Paul, Minn. (Filed Apr. 19, 1876.)

A metallic covering for wooden structures, composed of the metal sheets B, applied to the surface of the structure in the manner shown, whereby an air-space is left between the metal sheets and the wall or structure at all points, except at the edges of the sheets, substantially as and for the purpose set forth.

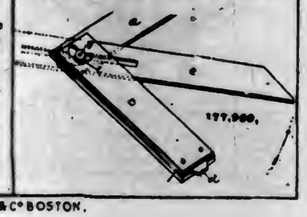
177,087. MORDANTS. Frederick J. Bird, Stroud, England. (Filed Mar. 17, 1876.)

The composition herein described of gallnuts, tannic, alum, tin, and soda, or ingredients possessing similar properties, substantially as set forth.

177,088. EXPLOSIVE COMPOUNDS. Carl G. Bjorkman, Christiana, Norway, assignor of all his right to Charles De Lacy, San Francisco, Cal. (Filed May 23, 1876.)

An explosive composed composed of nitrate of potash, chlorate of potash, cellulose, paraffine, sawdust, and nitrolline, in about the proportions and substantially in the manner specified.

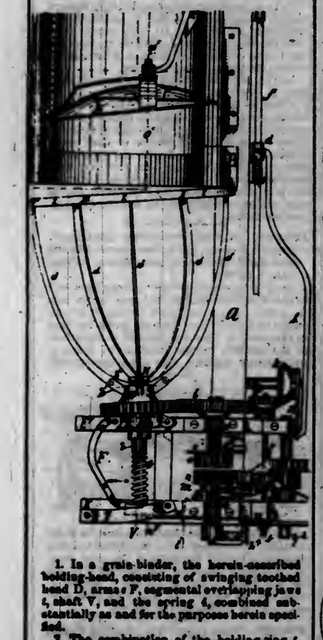
177,089. TRY-SQUARES. Joseph E. Bonin, Williamantic, Conn. (Filed Apr. 20, 1876.)



177,089.

The combination of the fixed blade *c*, handle *e*, formed of two parts, which are separated at their lower ends by a plate that forms a screw-driver, *d*, adjustable bevel *a*, and thumb screw, substantially as set forth.

177,090. GRAIN-BINDERS. HARRY H. Brideenthall, Jr., Westmoreland County, Pa. (Filed Oct. 1, 1875.)



1. In a grain-binder, the herein-described holding-head, consisting of swinging toothed head D, arms *e F*, segmental overlapping jaws *i*, shaft V, and the spring *d*, combined substantially as and for the purposes herein specified.

2. The combination of the holding-ring *i*, receiver O, pinion *h*, and the driving-gear *n k f*, substantially as and for the purposes herein specified.

3. In a grain-binder, the staggered segmental drive-wheel *y*, compressor-gear *n*, and the gavel-rotating gear *v*, these members all constructed and arranged to operate in combination, substantially in the manner and for the purpose herein specified.

4. The combination of the swinging head-box *n'*, cam C, pinion *n*, spring-latch 5, and the drive-wheel *y*, substantially as and for the purposes herein specified.

5. The combination of the head D, gear J, pinion *v*, latch O', and the segmental drive-wheel *y*, substantially as and for the purpose set forth.

6. The combination of the receiver O, pawl *b*, door O', and the spring 16, substantially as and for the purposes set forth.

7. In combination with the open pinion *s*, the convexed revolving disk *p*, substantially as and for the purposes herein specified.

8. In a grain-binder, the combination of the compressor-gear *n* and the bevel-ring and discharging-gear *n*, all mounted within the path of a single segment of the revolving segmental driving-wheel *y*, whereby the former are each alternately engaged and operated by the latter, substantially in the manner and for the purposes herein specified.

177,091. HORSE-BOOTS. Hiram B. Cook, San Francisco, Cal. (Filed Mar. 13, 1876.)

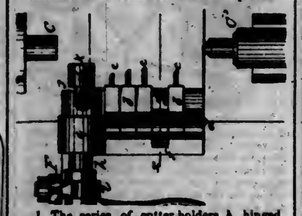


177,091.

As an improved article of manufacture, a horse-boot, composed of the piece of leather A, stitched at *b b*, and provided with side-slips *d d* and a heel strap, *f*, fastened with rivets *e e*, as set forth.

177,092. DEVICES FOR TURNING VALVE-STEMS, &c. Richard T. Crane and John L. Agnew, Chicago, Ill., assignors to the Crane Brothers Manufacturing Company, same place. (Filed Feb. 2, 1876.)

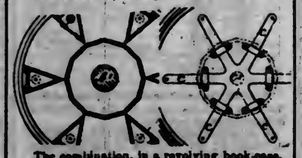
Brief.—A series of cutters adapted to cut at the same time different portions of articles of metal which, when completed, are not of uniform size, and arranged so that any desired number may be brought into use, the remainder being thrown back out of the way; also, a peculiar device for shaping the heads of such articles, adapted to be partially rotated and advanced to the work as required.



1. The series of cutter-holders *b*, hinged upon a single rod or shaft, *c*, in combination with the rest *d*, substantially as and for the purposes specified.

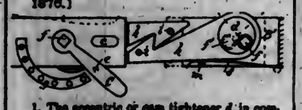
2. The shaft *h*, provided with a head, *k*, carrying one or more cutters, *i*, and adapted to be partially rotated in a bearing, *g*, by means of a lever, F, in combination with cams C and center C', substantially as and for the purposes specified.

177,093. REVOLVING BOOK-CASES. John J. Crandall, Philadelphia, Pa., assignor to Jacobs W. Schnuckers, New York, N. Y. (Filed Jan. 11, 1876.)



The combination, in a revolving book-case, of a top plate, a bottom plate, a series of intermediate hollow posts or casings, a frame or spider secured to the top plate, and a series of vertical tie-bolts, substantially as set forth.

177,094. CAR-COUPLING TIGHTENERS. W. B. Dunning, Geneva, N. Y. (Filed May 6, 1876.)



1. The eccentric or cam tightener *d*, in combination with the link or hook of car-couplings, substantially in the manner shown, and for the purposes set forth.

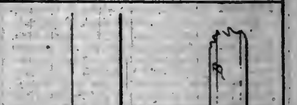
2. In combination with the eccentric or cam tightener *d*, the adjusting-lever C and ratchet or locking-segment *g*, substantially as and for the purposes set forth.

177,095. CAR-COUPLING TIGHTENERS. W. B. Dunning, Geneva, N. Y. (Filed May 6, 1876.)

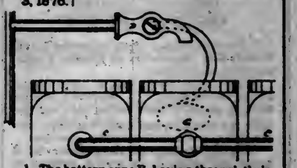
1. In combination with the ratcheted shaft *a*, and chain C, the sliding coupling-jaw or take-up *b*, constructed and arranged to be operated substantially in the manner shown and described, for the purpose of taking up the slack in car-couplings.

2. In combination with the ratcheted shaft *a*, chain C, and spool *c*, the sliding coupling-jaw or take-up *b*, substantially as and for the purposes set forth.

3. In combination with the ordinary open link-and-pin coupling, the take-up *b*, constructed and arranged to be operated substantially in the manner shown and described, and for the purposes set forth.



177,096. GALVANIC BATTERIES. Rudolf Binbigler, New York, N. Y. (Filed Jan. 3, 1876.)

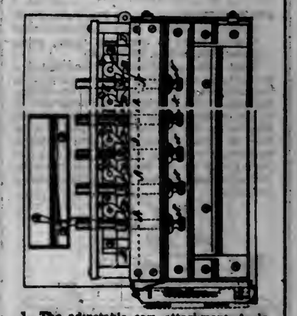


1. The battery-cups B, having through their sides a perforation, as a means of connecting the cups of a battery together by branch service-pipes, as and for the purposes set forth.

2. In combination with the said perforated battery-cups B, the distributer-pipe C, reservoir A, float G, and water-supply cock D, as and for the purposes set forth.

177,097. REED-ORGAN STOP-ACTIONS. Jno. Florey, Allentown, Pa. (Filed Sept. 23, 1875.)

Brief.—Combination-levers are arranged to be operated either by treadle-lever or knee-lever, for throwing out or in the stop-knobs or their connections.

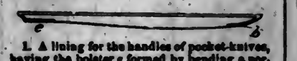


1. The adjustable cam attachment A, in combination with the rack-rod C and the stop draw-handle H, provided with the wedge or cam B, constructed and arranged substantially in the manner and for the purposes set forth.

2. The notched slide D, in combination with the rack or series of rods C and the adjustable cam attachments A, substantially as set forth.

177,098. HANDLES FOR POCKET-KNIVES. Jos. W. Gardner, Shelburne Falls, Mass. (Filed May 6, 1876.)

Brief.—The ends of the thin metal lining are bent over at end, so as to form an overlapping bolster, also form at opposite ends overlapping tip.

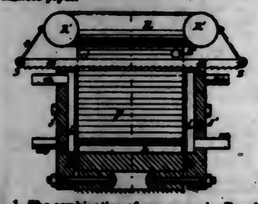


1. A lining for the handles of pocket-knives, having the bolster *c* formed by bending a portion of the lining so as to lap over the ends, substantially as described.

2. The overlapping tip *b*, substantially as shown and described.

177,999. ICE-MACHINES. John F. Gamer, New York, N. Y. (Filed Sept. 10, 1874.)

Brief.—The condensed freezing agent from pump enters depending freezers, and passes out through the superior horizontal gas-chambers. A gang of cans is hooked to the gas-chamber. The water-tank has a U-shaped jacket for steam or hot air or gas to loosen the ice. The other two sides of the tank open on hinges, are pushed when closed, and each contains a chamber for the incoming agent, and conduits for its entrance and exit, fitted to flexible pipes.



1. The combination of gas-reservoirs E and E' with freezing evaporators or freezers F, substantially as described.

2. The combination, with a water-cistern having double walls, of a removable side or sides, J, provided with double walls and an inlet and an outlet, and elastic washers k, substantially as and for the purposes specified.

3. In combination with the gas-reservoir E and E' and freezer F, the cover M working on the guides J J, and provided with a means of being suspended when not in use, substantially as and for the purposes set forth.

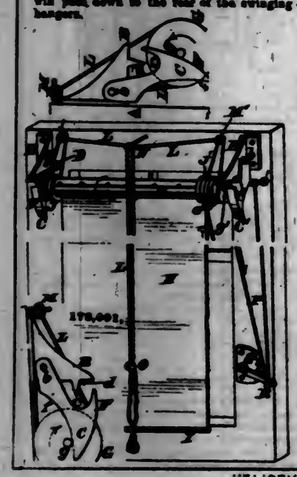
178,000. SCREW-NAILS. Joseph Gobbels, Covington, Ky. (Filed Mar. 16, 1876.)



The described wire screw-nail, formed with a head, a plain cylindrical stem, a screw-threaded fore end, and a tapering point, as shown and set forth.

178,001. WINDOW-SHADE FIXTURES. Daniel Griffin, Cincinnati, Ohio, assignor of one-half his right to Matthias Mohr, same place. (Filed Dec. 20, 1875.)

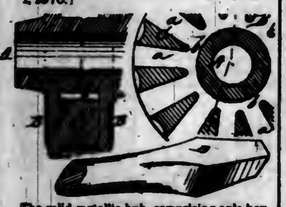
Brief.—To each bracket is suspended a swinging hanger, which receives the end of the roller when it is drawn up by the elevating-cords. The bearings of the roller ride up on the outside of the swinging hanger, and drop down into the recess. When it is desired to lower the roller, the cord is drawn sufficiently to elevate it to the rear of a projecting spur on the bracket, when the roller will pass down to the rear of the swinging hanger.



1. The combination of fixed brackets B b B' b', swinging hangers C c C' c', flanges D D', pawl-arms d d', roller G g g J J', operating-cord L, and eyes M M' N, or their equivalents, for the purpose described.

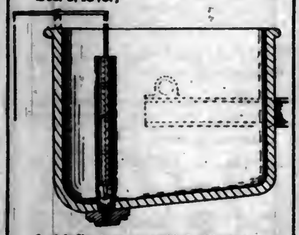
2. In combination with the detachable and adjustable roller G g g J J' and its accessories B b B' b', C c C' c', D D' d d', and L M M' N, the guides B c B' c', groove K, cord P, and tension device E S, for the purpose stated.

178,002. WHEELS FOR VEHICLES. George Hauck, Mechanicsburg, Pa. (Filed May 1, 1876.)



The solid metallic hub, comprising axle-box A, circumferential flange B, and wedge-shaped divisions C, forming annular space b, in combination with spoked D, having inclined tenons, the inner extremity of the spokes not impinging upon the box, the space thereby made allowing for the shrinkage of the tire, as shown and specified.

178,003. STOPPERS FOR POURING-LADLES. William H. Hawn, Johnstown, Pa. (Filed Dec. 6, 1875.)



1. A ladle-stopper provided with screw-connections for attachment to the stopper-rod, substantially as specified.

2. A ladle-stopper provided with a shoulder or recess for the reception of the rod-sleeve, substantially as specified.

178,004. PULLEY-BLOCKS. Carl J. Herwig, Brooklyn, N. Y. (Filed May 15, 1876.)

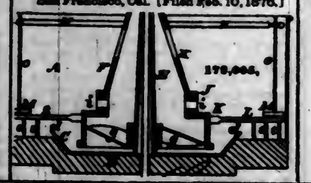
Brief.—A band of wire embraces the block, forms the loop, and also a bearing for the sheave.



1. In a pulley-block, the wire C, arranged as described, to constitute the suspension-loop b, and the axle a in one continuous piece, substantially as specified.

2. The wire C, bent to form the axle a, loop b, and eye d, and having its ends united on a pulley-block, substantially as herein shown and described.

178,005. AMALGAMATORS. L. Hinckley, San Francisco, Cal. (Filed Feb. 10, 1876.)



1. The vessel A, having the central cavity or depression B, surrounded by the inclined copper plate C, the upper edge of which projects above the bottom of the annular trough surrounding the dish or depression, in combination with the muller or conical shell F, with its holes f f and K K, and inclined wings or blades g g, substantially as and for the purpose described.

2. In an amalgamator provided with stirrers a, the conical shell or muller F, provided with the lower set of holes f f, in combination with the ring or collar J, with its corresponding holes, arranged to operate substantially as and for the purpose described.

3. The adjustable hollow muller or conical shell F, provided with spiral wings or blades g g near its lower end, and having the holes f f arranged to be closed when desired by the annular collar or ring J, and also having the upper holes K K, said muller or shell being suspended from a spindle, S, and rotated inside of an amalgamating-pan, provided with angularly-placed amalgamated plates C around and at a short distance from the lower end of said muller, substantially as and for the purpose described.

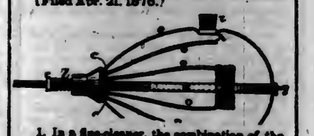
178,006. BOTTLE-STOPPERS. Mathias J. Hindert, Detroit, Mich., assignor to himself and Matthias Kaudel, same place. (Filed Jan. 7, 1876.)

Brief.—An elastic stopper is hung by a bail to the wire band around the neck of the bottle, and is compressed upon the mouth of the bottle by swinging up the bail; and it consists in the peculiar construction and combination of the metallic stopper, cap, and an eccentrically-slotted segment with the swinging bail.



The bottle-stopper described, and, in combination, the stopper D D', the eccentric slot d projecting beyond the sides of the said stopper, the bail U provided with the collar c, and the wire collar B, having an eye, b, turned in each side, all constructed and arranged substantially as described and shown.

178,007. FLUE-CLEANERS. Samuel Hobbs and William M. Johnston, Wilmot, Ohio. (Filed Apr. 21, 1876.)

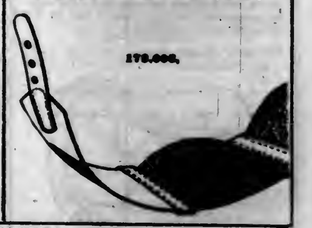


1. In a flue-cleaner, the combination of the springs e and brushes f, the said springs having the recesses k to receive the brushes, whereby the wooden parts of the brushes are prevented from being caught on the ends of the flues, substantially as specified.

2. In a flue-cleaner, the combination of the wires c, block d, and springs e, the said wires being made to project forward between the springs and support the weight of the cleaner, substantially as specified.

3. In a flue-cleaner, the combination of the handle a, nuts c, block d, springs e, brushes f, and screw i, as specified.

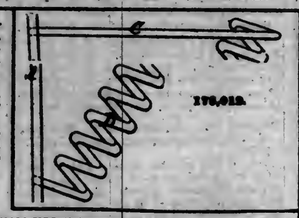
178,008. SUBSOILERS. P. B. Horton, San Francisco, Cal. (Filed Nov. 27, 1875.)

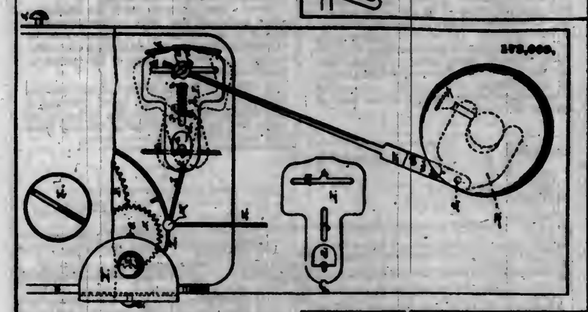


As an improved article of manufacture, rectangle provided with one or more pads formed of a number of layers of felt sewed on the inside of the rectangle, substantially as set forth.

178,009. BURGLAR-ALARMS. Joseph H. P. Ibsen, Mount Vernon, N. Y. (Filed May 20, 1876.)

Brief.—An adjustable yoke attached to the spindle of a door-knob is connected by a rod to an alarm mechanism, so that when the knob is turned the alarm is sounded.





1. The combination of lever I with rod F, when connected by set-screw H, in post G.

2. The combination of lever I with detent-wire J, in notch f, substantially as described.

3. The combination of detent-wires J and K with the escapement, substantially as described.

4. The yoke D, adjustably attached to shank, in combination with rod F, pivoted to said yoke.

5. The combination of lever I with rod F and shifting-post G, the latter sliding in slot h, all as shown and described.

178,010. CAR-COUPLINGS. John W. Jones, Paducah, Ky. (Filed Apr. 7, 1876.)



The draw-head A, provided with ears B B, in combination with rising and falling bar E, pivoted pin P, and pawl D, substantially as described.

178,011. BROOMS. S. M. Kellogg, Alcorcon, and E. B. Bunker, Bronson, Mich. (Filed Apr. 10, 1876.)

Brief.—The handle enters a wooden head, and in this head is held the brushing part of the broom. The head is covered by an outside layer of broom-corn.



The broom, consisting of the parts A, B, C, and D, constructed substantially as described.

178,012. BELLS - BUTT. Emil Lilienthal, New York, N. Y. (Filed Mar. 13, 1876.)

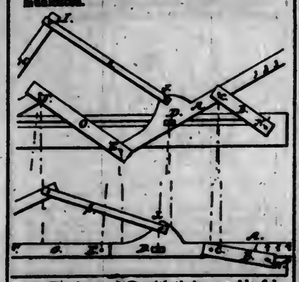


1. The combination of the cheek-piece and mouth-piece with a non or poor conducting material placed between the two, substantially as described.

2. The combination of the mouth-piece, made of hard rubber or other non or poor conducting material or composition where it is joined to the cheek-piece, with the cheek-piece, constructed substantially as shown and described.

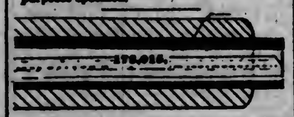
178,013. EXTENSION CONNECTING-RODS. Alba G. Lull, Oshkosh, Wis. (Filed Aug. 10, 1875.)

Brief.—The extension connecting-rod is increased in length without increasing the movement of the lever by which the power is communicated.



1. The levers A F, with their movable fulcrums D G and tie-rods S, connecting-arms O E, and vibrating stay-arm B, substantially as and for the purpose specified.

2. In combination with the series of levers and arms, as shown, the adjustable long arm of the lever A, substantially as and for the purpose specified.



178,014. NON-CONDUCTING COATINGS FOR PIPES, &c. J. McCabe, Fitchburg, Mass., assignor to himself and A. O. Hitchcock, same place. (Filed Apr. 15, 1876.)

A coating or covering for steam and water pipes, and for other similar purposes, composed of cement, clay, lime-masters, asphaltum, tar, and hair, taken in the proportions substantially as above described.

178,016. RECLINING-CHAIRS. James W. McDonough, Chicago, Ill. (Filed May 8, 1876.)



The combination, with the back C hinged to the bars or bottom A, of the spring D and bolt E, substantially as and for the purposes specified.

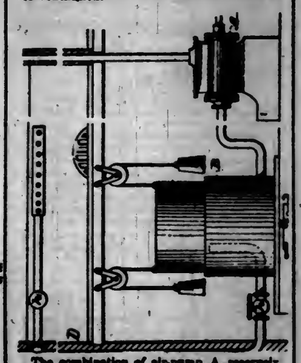
178,017. CAR-AXLE LUBRICATORS. James M. McDonald, San Francisco, Cal. (Filed Nov. 13, 1876.)



In a device for lubricating railway-axles, the plate A, having a central circular opening, F, with its edge curved outwardly, to receive the coiled spring, and having struck-up clips C C, in combination with the absorbent pad B, having a convex upper edge, the wick G, and coiled spring E, all constructed and arranged for the purposes set forth.

178,018. VENTILATING APPARATUS. Wm. H. Mills, Brooklyn, N. Y. (Filed Apr. 5, 1876.)

Brief.—The arrangement and combination of an air-pump, receiving-reservoir, ingress and distributing pipes, and openings for the ingress and egress of the air, for the purpose of ventilation.



The combination of air-pump A, reservoir B, ingress-pipe C, and distributing-pipe D, in an apparatus for ventilation.

178,019. BOTTLE-STOPPERS. Purchas Miles, New York, N. Y. (Filed Dec. 20, 1875.)

Brief.—This device protects the surface of the cork or stopper from injury. The fastening that secures the stopper to the bottle is made in such a manner that the stopper may be disconnected from the bail, to allow the former to be inserted through the filling-tube of the bottling-machine.



178,019.

1. The screw *d*, passing from one end of the cork nearly through the same, to stiffen the cork, and form a bearing for the plunger that forms the stopper to plate, such screw having a flat head of smaller diameter than the cork, as set forth.

2. The combination of the stopper, ball *l*, and cam *d*, having the notch *o* for the ball, as set forth.

3. The locking-washer *n*, in combination with the stem *d*, ball *l*, and stopper, substantially as set forth.

4. The combination, with the ball *l* and stopper, of the bearings *n*, to retain the stopper in an upright position, as specified.

178,020. PURIFYING WATER IN HOUSEHOLD AND OTHER CISTERNS. Samuel B. Mosher, Chillicothe, Ohio. (Filed Oct. 12, 1875.)

Brief.—The filtering material is confined between two dome-shaped walls of brick at the bottom of the cistern.



The combination of the charcoal space, the dome-shaped walls *c* and *b*, the chamber A, and the pump-tube *d*, all relatively arranged as and for the purposes described.

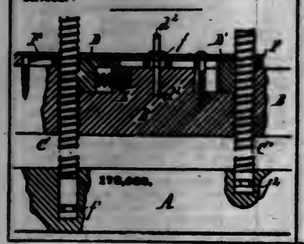
178,021. CAR-STARTERS. Herman Mosenkrantz and Wilhelm Jasper, New York, N. Y. (Filed Nov. 10, 1875.)

Brief.—Both axles operated at once directly by draft. Pawl automatically thrown into and out of connection with ratchets by pull or slackening.



1. In combination with a loose wheel or pulley, B, provided with a pawl, J, having a projecting pin, *o*, the bar R, placed upon the axles of a street-car, arranged and operating in the manner and for the purpose substantially as set forth.

2. The combination of the axle A, ratchet-wheel F, loose pulley B, pawl J, with projecting pin *o*, bar R, spring G, chain C, bar C', with projection *n*, and guide-piece *m*, attached to the body of the car, the whole being arranged and operating in the manner and for the purpose substantially as set forth and described.

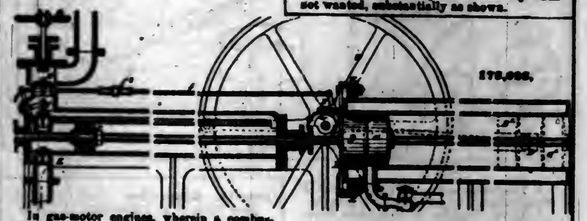


178,022. JOINERS' CLAMPS. Gustav A. Naumann, St. Louis, Mo. (Filed Apr. 11, 1876.)

The turn-key *S*, having arms *d' d'*, the slides D D', having hook-shanks *d d*, the spring E, plate or cover F, having slot *f*, in combination with movable jaw B, right-and-left screws C C', and stationary jaw A, arranged to operate in the manner and for the purpose set forth.

178,023. GAS-MOTOR ENGINES. Nicolaus A. Otto, Deutz, Germany. (Filed Jan. 10, 1876.)

Brief.—The movable cylinder-head is provided with a rod and small piston, which project into a hydraulic cylinder. Said piston is held rigid or released by closing or opening the valve in the passage connecting both ends of said cylinder. The main piston draws the cylinder-head with it until a charge of gas is taken between them. The gas is exploded and the head driven back and held stationary by the hydraulic cylinder, while a vacuum is being formed between the piston and head, to operate the engine.



178,023.

In gas-motor engines, wherein a combustible gaseous mixture is exploded without doing work, and the contraction of the products of combustion due to cooling is utilized for producing motive power—1. The method of alternately arresting and permitting the movement of a piston by regulating the flow of a liquid in a hydraulic cylinder, substantially in the manner and for the purposes herein set forth: 2. The combination of the loose piston B with a piston, *c*, working in a hydraulic cylinder provided with passage *i'* and valve F, operated by a cam, G, substantially as herein described, with reference to the accompanying drawings: 3. The combination of the loose piston B and piston *c*, working in a hydraulic cylinder having passage P and valve F, operated by a cam, G, with the suction-valve E and adjustable discharge-valve H, for the purpose of utilizing part of the motive power for pumping or forcing liquids, substantially as herein described, with reference to the accompanying drawings.

178,024. PLOWS. Gideon J. Overshiner, San Jose, Cal. (Filed Apr. 3, 1876.)

Brief.—Share secured by lugs and corresponding sockets and a hook-clamp.

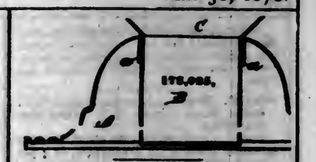


The mold-board *a* and share *b* of a plow, formed as shown, and having the lugs *c* and *c*, and corresponding recesses, in combination with the hook-rod L, entering a hole in the share, and provided with a nut, *o*, at its upper end, by which, when turned down upon the lug *o*, the parts are held together without other fastening, substantially as and for the purposes herein described.

178,025. COMPASSES. Jacob Pfund, La Crosse, Wis. (Filed Apr. 20, 1876.)

1. The bottom-less base A, raised in the center and provided with a central aperture, the flange *c*, or its equivalent, substantially as and for the purposes herein set forth.

2. A compasses formed of a cylindrical body, B, and flaring top or mouth C, in combination with a bottom-less base, A, having a central aperture, through which the body is passed, and resting on the floor, substantially as herein set forth.



178,025.

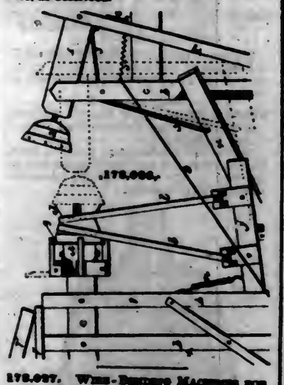
2. The former *d*, having the two hinged parts *c* attached to its end, substantially as shown.

3. The combination of the former *d*, spring-levers *i*, flange *g*, and hinged parts *c*, substantially as specified.

4. The combination of the former *d* with one or more bands, *l*, and foot-lever *j*, substantially as shown and described.

5. The combination of the revolving former *d* with the revolving follower 2, substantially as set forth.

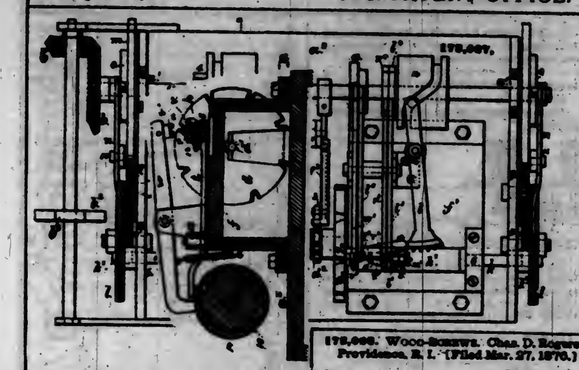
6. The combination of the follower 2, arm 1, strap 3, lever 4, standard *r*, and holding device, as described.



178,026.

178,027. WIRE-BENDING MACHINES FOR BALE-TIES. Henry W. Putnam, Bennington, Vt. (Filed Feb. 28, 1876.)

Brief.—Wire is fed by rollers actuated at suitable intervals by center-wheels, being cut, at the moment the wheels stop, into a length suitable for one tie or band. The cut ends is then carried forward by the partial revolution of a guide-wheel, and laid upon the loop-former, when the ends are caught and carried about a stud by a horizontally-rotating bending-arm, after which, and while in same position, the hook-forming dies act upon one end to form a hook.



178,027.

1. In a machine for bending and twisting wire, the combination of a bending-arm, a stud around which the wire is bent, a holding-jaw, to retain the wire as the two parts lie side by side, and a revolving jaw that twists the wire together, substantially as set forth.

2. In the wire-bending machine, the bending-arm *r*, with a forked end, 13, for bending the wire and holding the two parts of each wire while it is being twisted, in combination with the jaw *h*, and gearing for revolving the same, to form the loop, substantially as set forth.

3. In the wire-twisting machine, the end *a* upon the arm *r*, placed eccentric to the shaft upon which the arm swings, relieving the strain upon the loop as the arm swings, in combination with gearing for turning such arm (thereby bent from the twisted loop, as set forth.

4. The combination, with the arm *r*, of the pinion *s*, spring-pawl 12, retaining-lever *t*, and jaw *h*, substantially as set forth.

5. The shear *f* and bending-rollers *b' b'*, in combination with the segmental gearing *b*, and the holding and twisting jaws, and gearing connecting the parts, substantially as specified, to feed, cut off, and twist the wire, as set forth.

6. The notched guide-wheels *d*, moved progressively by a ratchet and pawl, in combination with the bending and twisting jaws, substantially as specified, for bending the loop and twisting the wire.

7. The combination, in a wire-bending machine, of the guide-wheels *d*, for carrying the wire, with two sets of bending and twisting jaws for simultaneously bending both ends of the wire, and then twisting the wire together, as set forth.

8. The die 22, in combination with the bending-die *r'*, die 23, and loop-forming mechanism, to bend each loop into a book after it has been twisted, as set forth.

9. The three-pronged die *F*, in combination with the sliding die 23 and actuating mechanism, substantially as set forth.

10. The wedge *P* and its actuating-lever *P*, in combination with the sliding die 23, dies 22 and *F*, substantially as set forth.

11. The combination, with the sliding die 23 and stationary die 22, of the die *F* and shoulders 20, that press the die 23 downward to form the curved end of the hook, as set forth.

12. The sliding die 23, with the projection 30, to allow the cams to drop after it is drawn back, in combination with the dies *F* and 22, and bender *r'*, that press the twisted wire toward the point of the hook, as set forth.

13. The combination, with the reversing-jaw *h* and mechanism for twisting the wire, of a stop to hold the twisting-jaw in the position of rest, as described, as set forth.

14. The bending-die *r'*, made as a fork at the end, to draw the wires of the loop together and bend the same, in combination with the die that bends the wire into the hook, substantially as set forth.

15. The holding-die *r'*, made as a fork, to draw the parts of the wire together, in combination with the stationary rest *o*, substantially as set forth.

16. In a wire-bending machine, the combination of two bending and twisting jaws with their actuating devices and adjustable bolts for adapting the machine to different lengths of wires, and simultaneously operating on both ends of wires, as set forth.

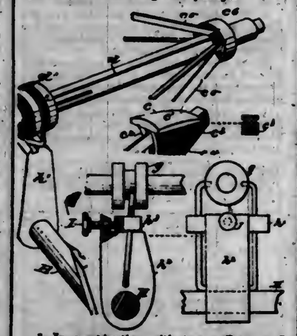
178,028. WOOD-SCREWS. Chas. D. Rogers, Providence, R. I. (Filed Mar. 27, 1876.)



A pointed wood-screw, having the outer periphery of the thread upon its body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the threads brought to an edge of a constant angle without any legs in the paths between the threads, substantially as described.

178,029. REPAIRING-PULLEYS. Francis M. Shahlon, McCleary, and Saml. B. Neptune, Middle Creek, Ohio. (Filed Feb. 11, 1876.)

Brief.—Two cone-pulleys, reversely placed on parallel shafts, have on their surfaces blocks operated by rods and sleeves on the shafts, to slide in grooves converging from the bases of the cones, the blocks forming expanding or contracting band-pulleys.



1. In combination with two pulleys, and mechanism for moving them, mechanism for adjusting one independently of the other, substantially as described.

2. A conical disk fixed to the shaft, and provided with radial guideways, in combination with a sectional pulley adapted to slide upon the disk, substantially as described.

3. The combination of the fixed conical disk, the sectional pulley adapted to slide upon the disk, the rib attached to the sections, and the sliding collar, as described.

4. The combination of the sections *c*, constructed as described, with the rib *c'* and collar *c'*, as described.

5. The combination of the standard H, loose block *h'*, and set-screw I with the finger and loose collar, as described.

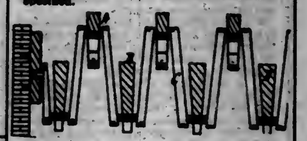
178,030. GRATES FOR FURNACES. William J. Smith, Pittsburg, Pa. (Filed Mar. 31, 1875.)

1. The combination of a single crank-bar, C, and a series of grate-bars, A B, of unequal width, the ends of the grate-bars opposite the crank or operating bar being supported on a fixed horizontal plane, so as to slide freely thereon, substantially as and for the purpose specified.

2. The combination of a series of grate-bars, A B, composed of crank-bar C, and grate-front D, substantially as and for the purpose specified.

3. The combination of a series of grate-bars, A B, composed of crank-bar C, and grate-front D, slotted as at *d*, and the compound crank C, substantially as and for the purpose specified.

4. The combination of a series of grate-bars, A B, operated by one or more compound crank-bars, C, and one or more bridge-bars or abutments, I, substantially as and for the purpose specified.



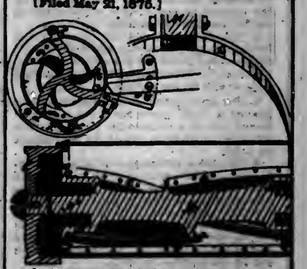
178,030.

178,031. PROCESSES OF MANUFACTURING SHOE-TIPS. John A. Stockwell, Boston, Mass., assignor to the Stockwell Shoe Tip Company, Hartford, Conn. (Filed Apr. 21, 1876.)



The improved process of manufacturing tips for boots and shoes, consisting in partially tanning the hide or skin, as set forth, then coloring it, and finally compressing and compacting it into finished tips, all substantially as specified.

178,032. LAWN-MOWERS. John C. Sturgeon and Carson Jay Sturgeon, Erie, Pa. (Filed May 21, 1876.)



1. A rotary cutter for lawn-mowers and similar machines having cupped or countersunk ends, substantially as and for the purpose specified.

2. In combination with a rotary cutter recessed at the ends, a sleeve or sleeves, inclosing and protecting the shaft of the cutter within the recess or recesses, substantially as specified.

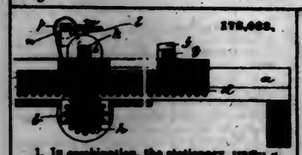
3. In combination with pivoted arms or levers for supporting a fixed cutter, the cutter-blades mounted obliquely to the lateral prominence-plane of the arms, and adjusting devices suitably arranged, whereby the cutter is adapted to be lifted relatively to its plane while being sweep, substantially as described.

4. The combination of a hollow cup-ended cutter, gear-bearing provided with sleeves, which incase the shaft of the rotary cutter, and a fixed cutter pivoted to the gear-bearing, substantially as and for the purpose specified.

178,033. MACHINES FOR PLANING METALLIC ORGAN-STOCK. Samuel C. Symonds, Boston, Mass. (Filed Nov. 22, 1875.)

Brief.—The soft-metal sheet to be planed is drawn between a vertically-adjustable knife and a friction-roller by a sweep and reciprocating bed. A spring lifting device elevates the knife above the sheet upon the reverse movement of the bed.

178,022.

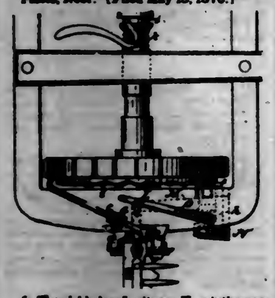


1. In combination, the stationary trunion *a*, the reciprocating sheet-holding clamp *c*, the stationary or rotary bed-plate *e*, and the up- and down-adjustable knife *h*, substantially as and for the purposes set forth.

2. In combination, the frame *a*, clamp *c*, bed *e*, adjustable knife *h*, the pressure-screws *l l*, worm-wheels *n n* and the worm-shaft *o*, with its worms *p p*, and the lifting device *s s l l*, as and for the purposes described.

3. In combination with the driving-shaft *b*, pinion *q*, rack *d*, and clamp *c*, the pulleys *g g* and the belt *r*, or their equivalents, and the connecting mechanism to the pressure-screws *l l*, as and for the purposes set forth and described.

178,024. MOWERS. R. D. Thomson, North Platte, Nebr. [Filed May 13, 1876.]



1. The sickle-bar I, pitmen K, rotating eye L, vibrating lever M, rollers *f f*, sliding head H, adjusted by the lever O, combined with the sustaining cam-wheel *t*, substantially as and for the purposes set forth.

2. The combination of a vertical guide-plate, having a cogged face-section and a sliding bar, an operating device for the sliding bar, with a pivotally-attached finger-bar, having toothed lugs, as and for the purposes set forth.

3. The combination of a vertically-sliding bar and a lever whose short arm is pivoted thereto, and to a fulcrum-bar pivoted to the frame of the machine, as and for the purpose set forth.

4. The sickle consisting of a bar passing under and over the cutter-sections inclosing the head, with suitable fastenings for the sections, substantially as and for the purpose described.

5. The combination, with the frame of the machine, of a sliding head, to which the lever bearing the friction-rollers is hinged, having a cross-slot, as described, with a cam-lever, as and for the purpose set forth.

178,025. MACHINES FOR PUNCHING AND SHEARING METAL. Isaac S. Van Winkle, San Francisco, Cal. [Filed Mar. 13, 1876.]



1. The swinging head-piece A, carrying a punch, C, and cutters *d h*, constructed as described, and operated by the cam-gear *i* J K, substantially as shown, and for the purpose set forth.

2. The weighted handle *p*, in combination with the shaft *o*, cam-gears *i* J K, and swinging head-piece, substantially as specified.

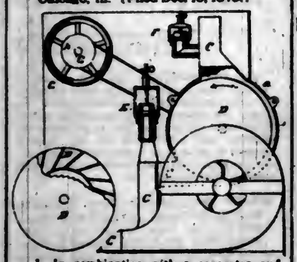
178,026. CAR-COUPLINGS. H. O. Warner, Ansonia, Conn. [Filed Mar. 6, 1876.]

Brief.—Pressure on the spring-bolt releases the dog.



The cage D, attached to the buffers A, provided with a bolt or plunger, J, and suitable spring S, constructed to operate in combination with the draw-bars B B, as described, and for the purpose set forth.

178,027. GRAIN-SEPARATORS. J. J. West, Chicago, Ill. [Filed Dec. 13, 1875.]



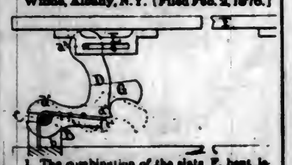
1. In combination with a separator and blower, the air-escape valve E, arranged between the air-inlet of the blower and the place of exit of the air in the separator, substantially as and for the purpose specified.

2. The combination of an air-wheel with the flue which conducts the air-current from the blower into the separator, substantially as and for the purposes specified.

3. In combination with a separator and blower, the air-wheel D, flue C, and valve F, all arranged for operation together, substantially as and for the purposes specified.

4. In combination, the fly-wheel G, shaft G', air-wheel D, connected with the wheel G, the blower, and the separator, substantially as and for the purposes specified.

178,028. SPRING BED-BOTTOMS. Wm. I. Wilson, Albany, N.Y. [Filed Feb. 2, 1876.]



1. The combination of the slats F, bent levers D, and slotted brackets E, with the springs C, provided with the loops *c'*, and bars B, as and for the purpose specified.

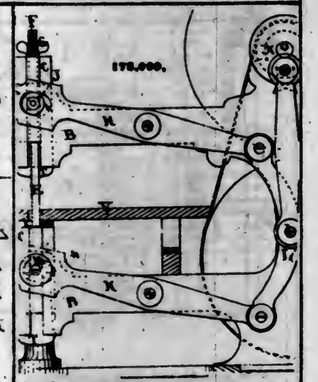
2. The combination of the bent lever D with the lever G, as and for the purpose specified.

178,029. JIG-SAWS. William I. Wilson, Albany, N. Y. [Filed Apr. 10, 1876.]

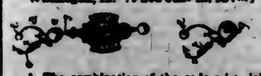
Brief.—The saw is caused to travel constantly in a true vertical line by means of guide-slides provided with wrist-pins and friction-rollers, and working through suitable openings in the outer extremities of arms projecting from the main frame, and two working-beams pivoted to said arms, connected at their inner ends by a link, and having slotted openings in their outer extremities, in which the friction-rollers work.

The combination, with the working-beams B, provided with slotted openings *h*, and link L, of the slides C, provided with wrist-pins D, and friction-rollers J, guided by the openings in the arms B of the frame A, saw E, and tension-screw F, when constructed and arranged to operate as and for the purpose specified.

178,030.



178,030. HAY-RIVES. William P. Yeoman, Waukegan, Ill. [Filed Jan. 31, 1876.]



1. The combination of the rods *a f e*, joint A, sleeve *i*, and plates *d e*, substantially as shown.

2. In an car-rung, a clasp for catching hold of the car, consisting of a rigid and jointed rod, the latter being provided with a device for stiffening the joint while the clasp is attached to the car, substantially as shown and described.

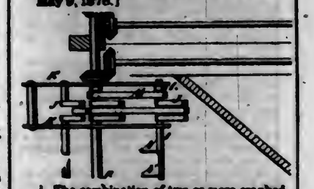
178,031. TIMING ATTACHMENTS FOR WATCHES. Thaddeus Ackley Warren, Ohio. [Filed Apr. 10, 1876.]

Brief.—A catch with radial arms, keyed to the arbor of seconds-hand, engages with a grooved disk, insuring regular movement of seconds-hand. When disengaged by the arc-shaped spring-lever, the movement is instantly stopped.



In a watch for timing races, the combination, with second-hand arbor, of serrated disk, clutch, and coil spring, arranged substantially as shown and described.

178,032. STEAM-PROPELLERS. Playter J. Ashburn, West Union, W. Va. [Filed May 9, 1876.]



1. The combination of two or more cranked vertical paddle-shafts, having one or more paddles hinged transversely to them, with a revolving carrying-frame, E, and a center cranked shaft, B, the center shaft and the paddle-shaft cranks being coupled together, as described.

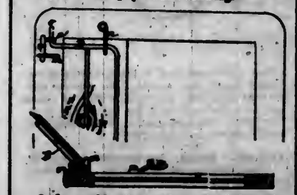
2. The center cranked shaft B, to which the paddle-shafts I are coupled, as described, arranged in turn either way to change the direction in which the paddles act, and having suitable means for so adjusting it, substantially as specified.

3. The combination, with the horizontally-traversing paddle-shafts I and the shaft B, for changing the direction of the paddles, of suitable means for coupling shaft B by the power of the driving-engine, substantially as specified.

4. The combination of a brake with the adjusting-shaft K, or a shaft connected with it, and with the reversing-gear thereof when the latter is arranged to disturb the brake when it connects the adjusting-gear, and allows the brake to act when it connects said gear, substantially as specified.

178,033. SLATE-FRAME ATTACHMENTS. Frederic Arnt, New York, N. Y., assignor of part of his right to Frederick C. A. Arnt, John G. Arnt, and William C. Arnt, same place. [Filed Apr. 27, 1876.]

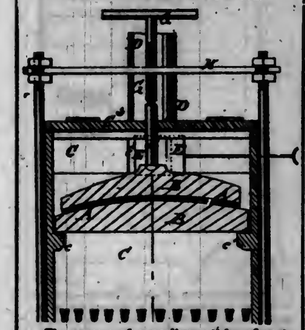
Brief.—A wire frame rests on a desk-lid to hold the eagles against the slate, or as a copy-support for the pupil while drawing.



1. In combination with a school-slate, the wire frame D and hooks *n*, to secure the copy-slate, substantially in the manner and for the purpose described.

2. In combination with a school-slate, provided with a wire frame, D, as described, the projections *o o* and projecting hooks *n n*, arranged substantially as and for the purpose set forth.

178,034. ADJUSTABLE FLOW HOLE-BOARDS. Eli H. Babcock and J. C. Whiting, Queensdown, N. Y. [Filed Feb. 14, 1876.]

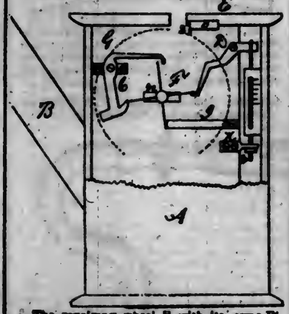


The process of annealing articles of castiron by removing the casting from the mold while at a red heat, and compressing it between hot conforming-dies, the initial temperature being gradually reduced while the casting is still under pressure, substantially as herein set forth.

178,035. GAS-BRAKES. Joseph Hanselman, Le Fever Falls, N. Y. [Filed Apr. 4, 1876.]

The brakes A, connected by rods G with each other, and with the lever H by rods D, shafts E, pulleys F, and rods G, in combination with opposite brakes B, connected together by rods I, and with the lever H by rods *g*, substantially as and for the purpose specified.

178,036. GRAIN-WEIGHERS. Jos. T. Carraway, West Baltimore, Ohio. [Filed Mar. 4, 1876.]



The revolving wheel F, with its arms F', the cam G, the lever C, spring I, and adjusting-lever D, with a spring or weight counterpoise, constructed substantially as and for the purpose set forth.

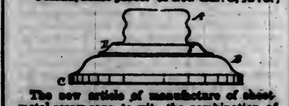
178,037. EVAPORATING-PANS. Sydney S. Conner, Amite City, La. [Filed Feb. 14, 1876.]

Brief.—Steam swept over depressed end of pan by a sweep. Lower part of partition permanently attached to pan, and to it is fixed an angle-iron, which is soldered or riveted to bottom of pan. Upper part of partition is removable. Bottom secured to partitions by bolt and nut.



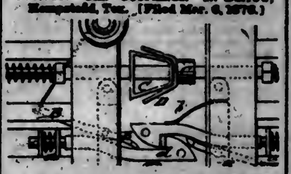
An evaporating-pan having detachable partitions G, provided with the angle-bars J, for the purpose specified.

178,038. SHEET-METAL CAPS. Daniel H. Conway, New York, N. Y., assignor to Benj. Collins, same place. [Filed Mar. 3, 1876.]



The new article of manufacture of sheet-metal screw-caps, to wit: the combination of the open or roller-threaded screw-cap A, having a soldering-ledge, E, at its base, with the concave die-struck cap flange B, having a soldering-ledge, C, at its lower edge, and a soldering-chamber, D, at its central opening, for soldering the screw-cap solidly thereto, substantially as and for the purposes described.

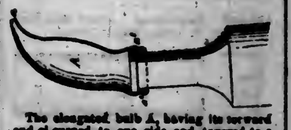
178,039. GAS-COUPLINGS. H. Darrow, Hempstead, Tex. [Filed Mar. 6, 1876.]



The combination, with draw-heads, of spring-latches C C, provided with tapering head and plates D, respectively, the same being arranged on both sides of the couplers, as and for the purpose specified.

178,040. INSECT-POWDER GUNS. Charles B. Dickinson, Brooklyn, N. Y. [Filed May 1, 1876.]

Brief.—The gun consists of an elongated bulb drawn to a point at one end, and curved like a horn. The opposite end is fitted to inclose the neck of a bottle containing the powder, or the bulb may be used without a bottle by inserting a cork after the charge of powder.

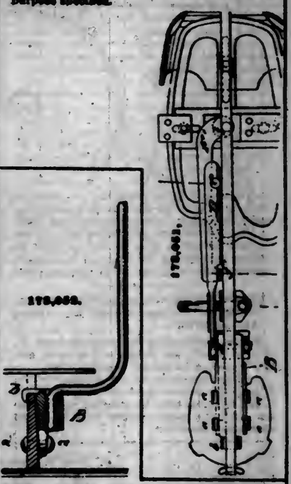


The elongated bulb A, having its rear end *a'* curved to one side and tapered to a point, and having its other end, *a''*, open, inclined, and provided with a bead or collar, substantially as herein shown and described.

178,041. SKATES. Julius Drunkhich, Jersey City Heights, N. J. [Filed Feb. 6, 1876.]

1. The slotted plate B, sliding in guide-lugs *a*, having a nut, *b*, with screw, C, and provided with a bearing, *d*, in combination with swinging lever D, having the pointed edge D', heel-plate having rear lugs D'', and runner having the step-leg *e*, as and for the purpose described.

2. The combination of side clamps F, swinging lever F', having eccentric stud *f*, and a downwardly-bent leg, *f'*, and the heel-lever D, all arranged substantially as and for the purpose specified.



178,042. ANKLE-SUPPORTS FOR SKATES. Julius Drunkhich, Jersey City Heights, N. J. [Filed Mar. 13, 1876.]

An ankle-support for skates, provided with a socket, B, swinging on the pivot *a*, and guided by a top flange, I, as shown and described, for the purpose specified.

178,662. RAIL-FASTENING. Martin H. Frank, Jersey City, N. J., assignor of part of his right to Timothy Mahoney and Edward O'Brien, same place. [Filed Apr. 3, 1876.]

Brief.—The cover-foot is detachably rivveted to the bar.



The combination, with the swivel-jointed cover-foot B, of the bar A and toe B, substantially as and for the purpose herein described.

178,663. VALVE-GEARS. John R. Gilmore, Hookstown, Pa. [Filed Feb. 6, 1876.]



In a double motion for two engines, the combination, with one shaft, of one disk fixed to bear on the other shaft, and the bell-crank of said disk connected to the above I by a yoke, M, free to turn on said sleeve, substantially as specified.

178,664. CARTRIDGES. Albert Hall, New York, N. Y. [Filed May 9, 1876.]

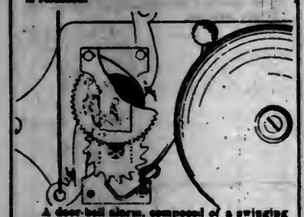


1. As an improvement in cartridge-shells, the diametrical anvil of the shell, being extended by a socket-tube, bent in one piece with the anvil, substantially as specified.

2. The combination of a paper shell and cap with a diametrical anvil and centering socket-tube of one piece, secured by a circumferential end lip or flange, substantially as specified.

178,665. DOOR-BELLS. James M. Hinchey, Philadelphia, Pa. [Filed May 9, 1876.]

Brief.—A swinging lever is mounted upon the winding-shaft of the clock mechanism, and is connected with the bell-pull, so that a pull upon the latter winds the mechanism, and allows an alarm to be sounded when the pull is released.

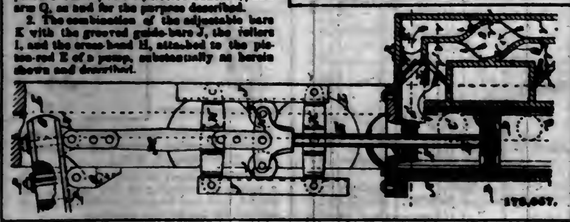


A door-bell alarm, composed of a swinging lever connected to the door-pull, a winding-shaft, a coiled spring, transmitting gear-wheels, and a bell or gong, being so constructed that the bell is rung by the action of the spring as soon as the door-pull is released, substantially as and for the purpose specified.

178,666. DOUBLE-ACTING FORCE-PUMPS. George W. Hooper, Greene, Me. [Filed Apr. 10, 1876.]

1. The combination of the cross-head H, pivoted bar M, bolt N, slotted handle O, and arm Q, as and for the purpose described.

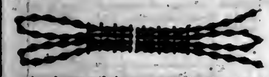
2. The combination of the adjustable bars K with the grooved guide-bars J, the rollers L, and the cross-head H, attached to the piston-rod E of a pump, substantially as herein shown and described.



178,667.

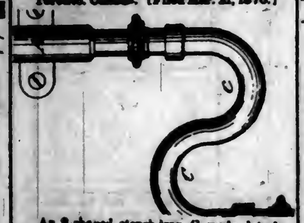
178,668. HOSE GOODS. Henry G. Hubbard, Middletown, Conn., assignor to Russell Manufacturing Company, same place. [Filed Mar. 31, 1876.]

Brief.—By omitting the binding-warps at the selvages, any number of ply-selvages are formed, which are interlapped in forming the seam.



An improved hose goods, having one or more selvages upon one edge, and two or more upon the other edge, to interlap with each other in forming the seam, substantially as herein shown and described.

178,669. STEAM-TRAPS. E. P. Hutchins, Toronto, Canada. [Filed Mar. 21, 1876.]



An S-shaped steam-trap, C, made detachable, and of elastic material, to allow the formation of ice on the inside without fracture, and its ready removal without delay.

178,670. CARPET-STRETCHERS. Joseph S. Ingham, Knoxville, Pa. [Filed Jan. 20, 1876.]



1. The combination, with vertical pin C and bar A, having projection *a'*, of the plate B, bent at an angle at each end, but on opposite sides, one end adapted to be extended under the base-board and the other pinned to the bar A, as and for the purpose specified.

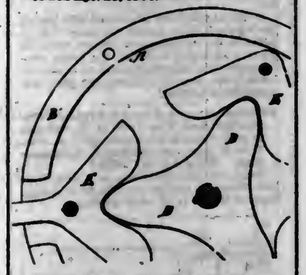
2. The combination of the pivoted cam or locking-plate J with the main bar A and the sliding cross-bar D of the carpet-stretcher, substantially as herein shown and described.

3. An improved carpet-stretcher, formed by the combination of the main bar A, provided with the projecting plate B and screw or pin C, the sliding cross-bar D, provided with the points E, the rope F, the pulley G, the lug or drum H, the lever I, and the cam or locking-plate J, with each other, substantially as herein shown and described.

178,671. CUTTING A RHOMBOID SURFACE FROM POWDERED SLUDGE-OIL. Walter P. Jessup, New York, N. Y. [Filed Apr. 20, 1876.]

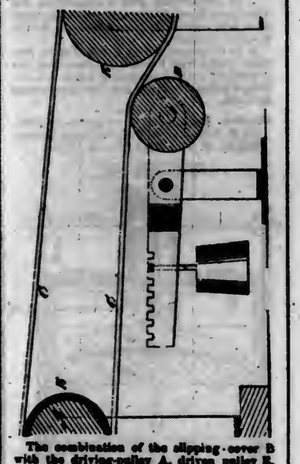
The process herein described for producing from sludge-oil a substance or manufacture possessing the properties or qualities substantially as described, by combining the oxygen of the air with the sludge-oil with the aid and assistance of a moderate degree of heat.

178,672. MECHANICAL MOVEMENTS. John Jordan and Geo. Naylor, Salt Lake City, Utah, assignors to themselves, A. M. Mortimer, and William Naylor, same place. [Filed Apr. 26, 1876.]



The combination of a shaft, C, the three-armed cam D, and one or more notched and pivoted triangular blocks, E, with each other and with the cams A B, for converting a rotary into a vibratory motion, substantially as herein shown and described.

178,673. SPEED-GOVERNORS. James M. King, Walnut Station, Miss. [Filed Apr. 10, 1876.]



The combination of the slipping-cover B with the driving-pulley A, driven pulley E, and the belt C, having a tension-regulator, D, substantially as specified.

178,674. CARPET-STRETCHERS. Melvin W. Knox, Sheridan, assignor of one-half his right to Oliver Lee Swift, Silver Creek, N. Y. [Filed Mar. 24, 1876.]

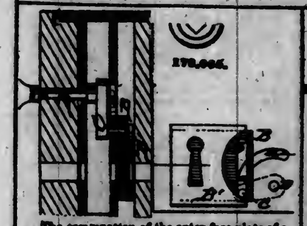


1. The combination of the bent D, and pivoted cross-bar E, arranged forward of the handle F and pawls G H, as and for the purpose specified.

2. The combination of the rack-bar A, pawls G H, handle F, and pivoted cam-bar E, substantially as and for the purposes described.

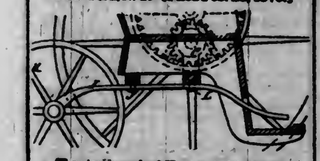
178,675. KEY-HOLE GUARDS. John La Mesa and Xavier St. Pierre, San Francisco, Cal. [Filed Apr. 4, 1876.]

178,676.



The combination of the outer face-plate of a door-lock, having a central recess, a, with a sliding and guided key-hole guard, B, having a straight slot, *b*, and with a crank-pin, C, and shaft D turned from the inside of the lock, substantially as specified.

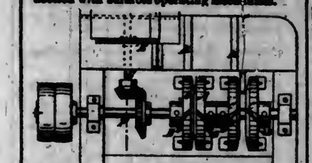
178,677. VELOCIPEDES. R. W. Lawrence, New York, N. Y. [Filed Feb. 28, 1876.]



The steering-wheel K, mounted in the reach or lever I, pivoted to the seat, arranged in the guide L of the axle, and extended to the foot-rest, substantially in the manner described.

178,678. MACHINES FOR MAKING WHEELS. J. Lemarton, Truro, Nova Scotia. [Filed May 20, 1876.]

Brief.—The wedges are cut to the required thickness and taper by two laterally-adjustable revolving cylinders provided with suitable cutters, and having their adjacent sides beveled to correspond with the taper required, and the required width given by feeding the blanks a suitable distance between another pair of cylinders similar to the first pair, the distance being regulated by a stop-gage, in connection with suitable operating mechanism.



The combination of the cylinders A and cutters B for making the taper and thickness, cylinders C and cutters D for making the width, and the saw E for cutting off, substantially as specified.

178,679. UMBRELLAS. Geo. Lieb and Chas. Lieb, New York, N. Y., assignors of three-eighths their right to Richard G. Radway, same place. [Filed Mar. 9, 1876.]

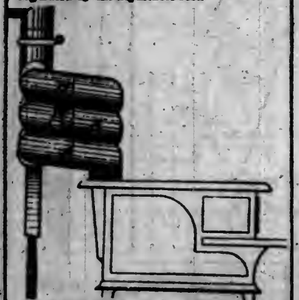


1. The combination of a metallic collar with the stretchers or ribs of an umbrella or parasol, said collar being cast so as to run through the eyes of the stretchers or ribs, and to form pivots, on which said stretchers and ribs swing, substantially as set forth.

2. In a joint between the stretcher and the rib of an umbrella, the combination of a stretcher, having an eye at its end, with a block which is cast on the rib and on the eye of the stretcher, so as to form a pivot extending through the said eye, substantially as described.

178,680. HEATING ATTACHMENTS FOR STOVES. Lars M. Madson, Dannville, Dak. [Filed Apr. 4, 1876.]

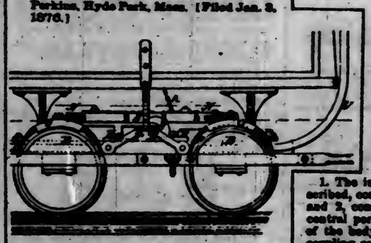
Brief.—The location of the sections is regulated by the adjustable rest.



1. The pipe-sections having projecting rests or bearings at the upper parts for the superposed sections, substantially as specified.

2. The combination of the coil of pipe-sections with adjustable brass-rest pieces of different height, corresponding to the pitch of the pipe-sections, and with a curve post or standard, substantially as specified.

178,681. DUMPING-CARS. David Manuel, Readville, assignor to himself and Ezra G. Perkins, Hyde Park, Mass. [Filed Jan. 3, 1876.]



1. In independent axles, having a ball-and-socket outer bearing, the central inner connecting swivel-yoke, to serve as an inner bearing for the axles, as shown and described.

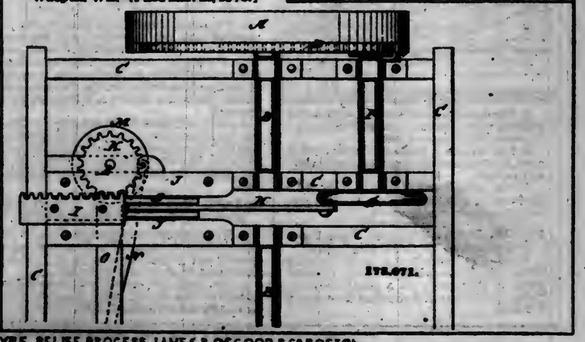
2. The rockers of the car-body, mounted on rocker-beds supported on the perch of the car, and connected to the rockers by links, in the manner described.

3. The combination of swinging brake-bars M with the wheels of a car having independent swinging axles, substantially as specified.

4. The rod-extensions P of the brake-shoes O, in combination with wheels, arranged to swing in the manner described.

5. The brake-bar supports, mounted on pivots R, and having levers S, arranged in combination with brake-lever U, substantially as specified.

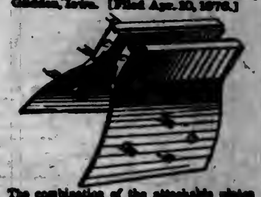
178,682. MOWING-MACHINES. C. B. Martin, Waupun, Wis. [Filed Mar. 21, 1876.]



178,671.

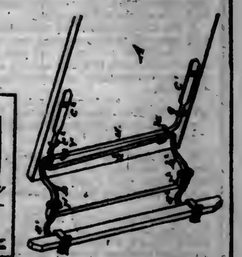
The combination of the sliding rack I, the pair-wheel K, the crank or crank-wheel M, and the connecting-bar N, with the stable O, and the connecting-bar H, and crank or crank-wheel G, driven by the drive-wheel A, substantially as herein shown and described.

178,683. HARNESS-CLASPS. J. McCormick, Glidden, Iowa. [Filed Apr. 10, 1876.]



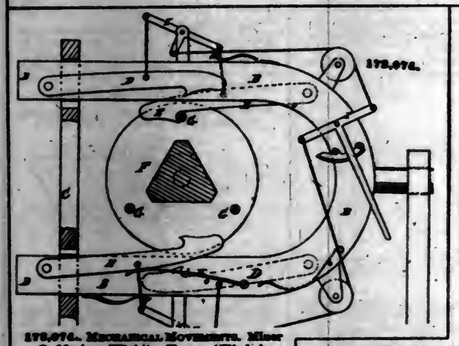
The combination of the attachable plates A, provided with the flanges D E, with the rubber or elastic facing-plates C, and for the purpose set forth.

178,685. WAGON-SPRINGS. Peter Miller, Gloversville, N. Y., assignee of part of his right to Calvin G. Alvord and W. H. Seymour, same place. [Filed Jan. 12, 1876.]



1. The improved vehicle-spring herein described, composed of the spring-bars Nos. 1 and 2, consisting, respectively, of the main central portion *a'* *a'* extended rearward of the end of the body A, and having at one end the coupling or supporting arms *b'* *b'*, standing outward at a right angle therein, and at the opposite end the shank *c'* *c'* standing inward at a right angle, and rigidly attached thereat to the body A, all constructed and combined with a vehicle substantially in the manner described and shown, for the purpose set forth.

2. The combination of the spring-bars Nos. 1 and 2, having the attaching-shanks *c'* and *c'* standing inward and in opposite direction from the outward-turned coupling or supporting arms *b'* *b'*, at the opposite end of the main central portion *a'* *a'*, and at right angles thereto, placed with their straight main central portion *a'* *a'* transversely under the body A, at or near the end thereof, and rigidly attached thereto at the shanks *c'* *c'*, and the stirrups *d'* *d'* standing transversely on the axle or bolster, and parallel with the keel of the vehicle, all constructed, arranged, and combined substantially as and for the purpose specified.



178,076.

178,076. MECHANICAL MOVEMENTS. Miner G. Mosher, Wichita, Kans. (Filed Apr. 20, 1876.)

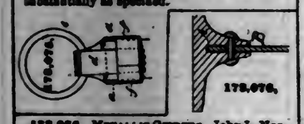
1. The combination of the U bar or fork B, provided with two pairs of hook-pawls, D E, and springs and stops therefor, with the wheel F, provided with bolts G for converting a reciprocating into a rotary motion, substantially as herein shown and described.

2. The combination of the three three-armed or T bars and their connecting rods or chains with the U-bar or fork B, and with the two sets of hook-pawls D E, and springs and stops therefor, substantially as herein shown and described.

178,076. BED-FASTENINGS FOR SUSPENSIONS. John H. Marby, New York, N. Y. (Filed Apr. 22, 1876.)

1. The improved clip for fastening suspension ends, consisting of a metal plate, *g*, with wide lateral parts *f* and narrow lateral parts *e*, combined with a tongue, *d*, substantially as specified.

2. The combination of the clip *e d g f*, and the ring, buckle, or other device *a*, with the end or strap *b*, whether the tongue *d* be permanently fastened to said ring or other device, or arranged to hook on it detachably, substantially as specified.

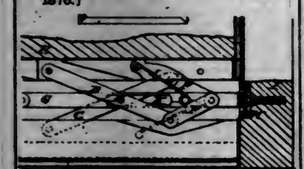


178,076.

178,076. METALLIC GIRDERS. John L. Nostrand, Brooklyn, E. D., N. Y. (Filed Apr. 26, 1876.)

A girder or analogous article formed of heads A A and web B, the latter held in grooves of the former by bolt or rivet, substantially as and for the purpose specified.

178,077. WEATHER-STRIPS. Theodore G. Plate, Hackettstown, N. J. (Filed Apr. 18, 1876.)



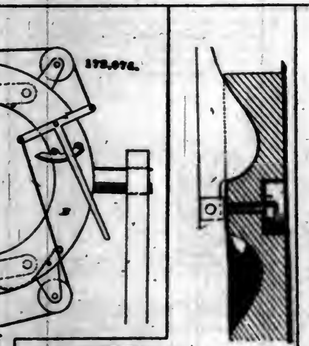
1. The combination of the bars C, D, and F with the door E, strip A, and the striking-rod G, substantially as specified.

2. The springs J, connected to the door E, strip A, and the striking-rod G, substantially as specified.

3. The striking-rod G, having slots K, in combination with the pivot-pins L of the rods C D, substantially as specified.

178,078. BOTTOM-WORKERS. Chas. Plyer, Hazelhead, N. Y. (Filed May 9, 1876.)

Brief.—The butter-worker proper is a flat base, with an annular groove in it, in which works a compresser, on a handle, situated radially, with one end fastened at the center of the base.

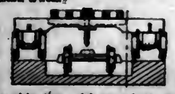


178,078.

A butter-worker made of a round dish with annular concavity or indentation, and of a centrally pivoted and swiveled working-lever, corresponding to the concave part of the dish, to be operated substantially as specified.

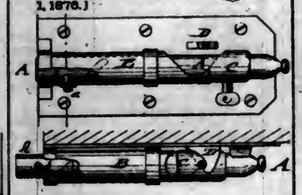
178,079. CAR-TRUCK-SHIFTING APPARATUS. Robert H. Ramsey, Cobourg, Canada. (Filed Feb. 14, 1876.)

Brief.—Side trucks and trucks arranged for temporary support, so as to facilitate changing of main truck.



The combination, with car, of a beam placed under each end thereof, and supported by trucks that roll on tracks outside of and on a higher plane than the main track, substantially as and for the purpose specified.

178,080. BOLTS. Francis Robinson and John H. Ferris, Trenton, N. J. (Filed May 1, 1876.)



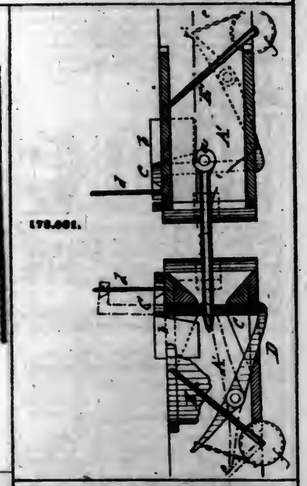
1. The combination, with a guide-barrel, A, provided with the guide-pin *a*, and the rear end cut at a bevel or inclination, of a bolt, A, with a collar or sleeve, C, of corresponding bevel or inclination, to produce the opening or closing of the bolt on turning the same, and having the spiral groove *b*, substantially as specified.

2. The combination of the handle *c* of a turning and sliding bolt with a fixed stop or shoulder, D, that engages the handle when the bolt is thrown into closed position to prevent forcing open of the same, substantially as specified.

178,081. CAR-COUPLINGS. J. F. Roehm, Hiawatha, Kans. (Filed Apr. 4, 1876.)

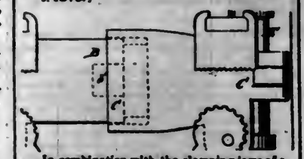
1. The combination, in a car-coupling, of the pin having a right-angled and notched arm, guided and pivoted in a loop, *d*, with the draw-head, as shown and described.

2. The shaft, having handles E' at the sides, combined with chain *c*, pulley *f*, and lever D, as and for the purpose set forth.



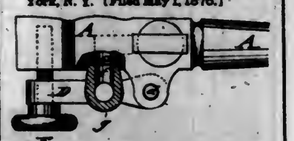
178,081.

178,082. TIRE-UPSETTERS. Ebenezer B. Rose, Goshen, assignor to himself and G. M. Bell, New Baltimore, N. Y. (Filed May 1, 1876.)



In combination with the clamping-jaws of a tire-upsetting machine, the stationary plate B, and the sliding plate C, the latter lapping upon and across the former, and hinged at its opposite end, substantially as described.

178,083. FAUCETS. Patrick Skelly, New York, N. Y. (Filed May 1, 1876.)



1. The combination of the pivoted arm D, having discharge-pipe *f g*, and the adjusting-screw E, with the faucet-barrel A, having a lateral opening, substantially as and for the purpose set forth.

2. The combination of a recess or collar around the opening of a faucet with an intermediate washer, and a short connecting-tube of a detachable coupling-piece, substantially as described.

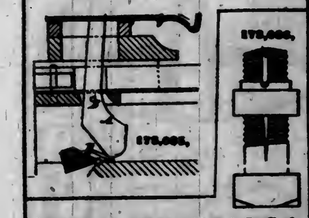
178,084. SPANNER-WRENCHES. A. Frank Skinner, Plattsmouth, Nebr. (Filed Jan. 15, 1876.)



A single-handed nut-wrench, having two equal arms, one of which is rigidly attached to the handle and the other pivoted thereto, the rigid one provided with pushing-point, and the pivoted one with a drag-hook on its end, substantially as and for the purpose specified.

178,085. REED-ORGAN STOP-ACTIONS. Henry Smith, Guernsey, assignor to himself, Joseph George, and Chas. Mee, Kingston, Canada. (Filed Mar. 6, 1876.)

The sub-lever A, pivoted to the key-board at B, the valve D, and the stop-handle E, all constructed and arranged to operate substantially as specified.



178,086.

178,086. LAMP-CHIMNEYS. B. Tolman, Jr., Taunton, Mass. (Filed Apr. 18, 1876.)

Brief.—A chimney having a hole covered by a pivoted plate, for the insertion of a match.



The combination, with the chimney, of the eyelet C, provided with arm E, and the cover having shank G, by which it is pivoted to said arm, as shown and described.

178,087. NUT-LOCKS. Isaac Van Etten, Omaha, Nebr. (Filed Apr. 18, 1876.)

A nut locked to its bolt by a spring-washer, A, over the cavity B of fish-plate C, as and for the purpose specified.

178,088. NUT-LOCKS. Mark A. Spafford, Chicago, Ill., assignor to F. H. Brown and M. A. H. Brown, same place. (Filed Apr. 7, 1876.)

Brief.—An extended portion of the nut is forced into a longitudinal groove in the bolt.

A nut-lock, consisting of a bolt having a longitudinal groove sunken into its screw-threaded part, and of a nut provided with a sub-lateral tongue, arranged substantially as specified, to enter the said groove by being screwed upon, in the manner described.



178,089. 178,090.

178,089. COFFEE-POTS. C. Vanderbeek, Rock Falls, Ill. (Filed Mar. 20, 1876.)

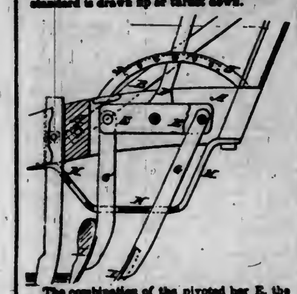
The combination, with the cylinder A, of a lever center strainer, having central pillar or support, with a finer top or inclosing strainer, for the purpose set forth.

178,090. SHOE-FASTENINGS. Wm. J. Vitz, New York, N. Y. (Filed Apr. 18, 1876.)

The combination of tubular clips B, clasp D, and eyelet *c*, all arranged in connection with shoe, as shown and described, to allow the string to be applied, in the manner specified.

178,091. FLOWS. Wm. H. Sutton, Perry, Penn., assignor to himself and Isaac W. Mish, same place. (Filed Apr. 18, 1876.)

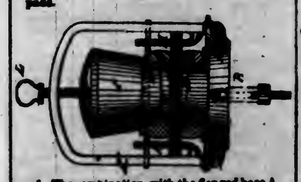
Brief.—Two plow-standards—one in the rear of the other—are pivoted to the ends of a bar, whose center is also pivoted to the plow-beam. By a lever rigid on the bar, either standard is drawn up or thrust down.



The combination, with the pivoted bar E, the lever F, and the supporting-bar H with the plow-standards G and the beam A, substantially as herein shown and described.

178,092. KNIFE-SCOURING MACHINES. H. Symonds, Troy, N. Y. (Filed Mar. 20, 1876.)

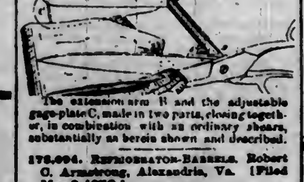
Brief.—The machine is attached to the table by a hinged bracket, which may be swung to one side, so as not to interfere with the knife resting squarely on the table. Leather polishing-pads are held between rubber rings. Powder-box secured above the pads.



1. The combination, with the flanged base A, frame K, and stud-pins M, of the box I, set-screw L, guide-plate J, rubber springs D G, and interposed pads E F, as shown and described.

2. The combination, with the cup-shaped base A, of the pivoted clamp B, as shown and described.

178,093. SCISSORS-GAUGE. Elizabeth Wiggins, Brooklyn, N. Y. (Filed May 1, 1876.)



The extension arm B and the adjustable gage-plate C, made in two parts, closing together, in combination with an ordinary shears, substantially as herein shown and described.

178,094. REFRIGERATOR-BARRELS. Robert C. Armstrong, Alexandria, Va. (Filed May 2, 1876.)

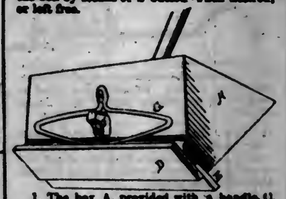
Brief.—The barrels having bars arranged one within the other, and the non-conducting material between them, the inner one is packed with fish and ice, in the usual way, and when full the head is inserted and secured in place. The central portion of the head of the outside barrel is then secured in place, when both may be hoved at one operation for the insertion of the outlet-tube. The remaining space is then filled with the non-conducting material, and the other parts of the head inserted and secured.



A transportation-package for fish, consisting of an inner and outer barrel, intermediate packing, and a single outlet-tube, the whole constructed as described.

178,095. FLOOR-SCRUBBERS. F. A. Balch, Bingham, Wis. (Filed Mar. 16, 1876.)

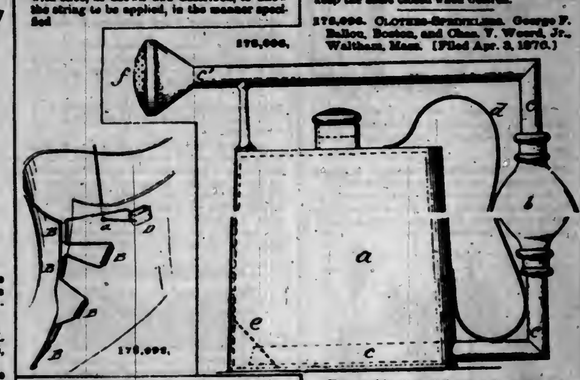
Brief.—The hinged vibrating lid is held to the box by means of a button when desired, or left free.



1. The box A, provided with a handle, C, combined with a hinged lid, D, to which one or more scrubbing-strips of rubber, E, are attached, and the expansion-spring G on the outside of said box, substantially for the purpose set forth.

2. Combined with the box A and the hinged lid D, spring G, and strips E, the button F, closing against the upper edge of said lid, to keep the same closed when desired.

178,096. CLOTHES-SPRINKLERS. George F. Balliet, Boston, and Chas. V. Weard, Jr., Waltham, Mass. (Filed Apr. 3, 1876.)



178,096.

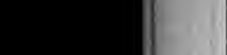
The combination of the watering-pot or can *a* with a handle, formed by an elastic belt, *b*, valve-boxes, and indexible tubes *c d*, with wire-gauze *e* and sprinkler *f*, substantially as above specified.

178,097. HEATING-STOVES. W. D. Bartlett, Amesbury, Mass. (Filed Feb. 29, 1876.)



A heating-stove, consisting of the conical diaphragms A A', connected by the vertical rod B, and hung from the top plate of the stove by the rods C, the removable top plate X, the exit-pipe, the slide E, and the cold-air pipe H, all combined and relatively arranged as and for the purposes described.

178,093. MAGNETIC COMPASSES. S. Bent, St. Louis, Mo. [Filed Mar. 22, 1876.]



1. The combination of the magnetic needle A, provided with the pointer E, the card B, and the nut C, substantially as and for the purpose set forth.

2. The combination of the magnetic needle A, provided with the north and south points E and B, the card B, and the nut C, substantially as and for the purpose set forth.

3. The combination, in a mariner's compass, of a suitable reversing device with a card and needle, the card and needle being relatively adjustable, substantially as and for the purpose shown and described.

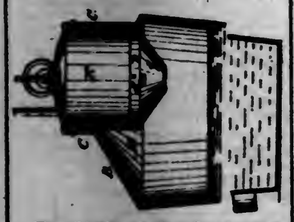
178,094. FIRE-EXTINGUISHER. Benj. Bidgood, Cincinnati, Ohio. [Filed Sept. 21, 1875.]



The herein-described fire-kindler, prepared from a compound consisting of cassolin, kindlin, candelene, fire-clay, asbestus, and meal or sawdust, in the manner and for the purpose specified.

178,095. MEAL-PANS. Malcolm G. Jones, St. Louis, Mo. [Filed Mar. 10, 1876.]

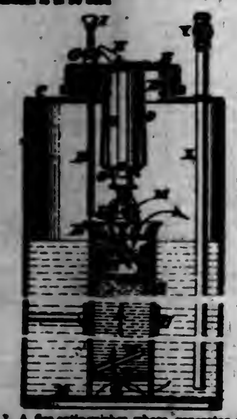
Brief.—The pail has a fixed top, at one side of which is removed a mesh or sieve, through which the milk passes.



The pail having a fixed top, B, with a spout or mesh, C, open one side thereof, constructed to receive a strainer, D, substantially as set forth.

178,096. FIRE-EXTINGUISHERS. J. Hinds, Cincinnati, Ohio. [Filed Apr. 6, 1876.]

Brief.—Separate vessels are provided for the acid and alkali, and the contents of the three receptacles combine only when the apparatus is to be used



2. A fire-extinguisher whose generator or tank A has the acid-vessel F and the alkali-vessel S located within it, said tank being provided with a plunger, H, or other device whereby an external force may be applied to cause the contents of said receptacles F and S to combine with the fluid in the generator, substantially as herein described and set forth.

3. In combination with tank A and its internal receptacles F and S, the plunger H, or its equivalent, for simultaneously opening the delivery end of receptacle F and the receiving end of receptacle S, substantially as described, and for the purpose stated.

4. The internal alkali-chamber S, when provided with the oppositely-opening valves or flaps Q and W, as and for the purposes stated.

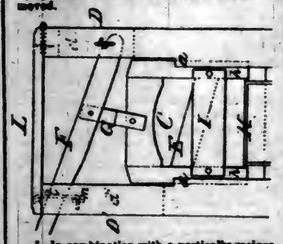
5. In combination with the internal acid-vessel F and alkali-chamber S, the plunger H J K L M, as and for the object stated.

6. The detachable and inverted acid-chamber F, secured to the under side of cap E with spring-clips O, or their equivalents, for the purpose set forth.

7. The combination of tank A B C D, cap E, plunger H J K L M, removable acid-bottle F O, and detachable alkali-receptacle Q E S V W, as herein described and set forth.

178,097. STRAW-CUTTERS. Rufus N. Bowen, Marietta, Mass. [Filed Mar. 11, 1876.]

Brief.—The throat-piece is adjustable. By opening the hinged bar over the top of the uprights, the knife-bearing mesh is readily removed.



1. In combination with a vertically-reciprocating knife, E, and hopper A, the vertically-adjustable guard J and cut-over S, substantially as specified.

2. In combination with the slotted uprights D D', carrying mesh C, the cross piece I, adapted to be thrown up out of the way, as and for the purpose set forth.

178,098. VENTILATORS FOR WINDOWS. T. W. Brasher, New York, N. Y. [Filed Apr. 27, 1876.]

Brief.—A frame which is made of sheet metal or any other suitable material, and in this frame is firmly secured a sheet of textile material, and also a sheet of wire-gauze or perforated sheet metal, so that both sheets are retained securely in the desired position. The sheet of wire-gauze serves to support the textile material, while the frame prevents the latter from shrinking from moisture.



A ventilator for windows, composed of a frame, A, containing a sheet, a, of textile material, and a supporting-sheet, b, of wire-gauze or perforated sheet metal, substantially as shown and described.

178,099. PROTECTORS IN TAPPING BARRELS. Benjamin Brown, Stapleton, N. Y. [Filed Mar. 22, 1876.]

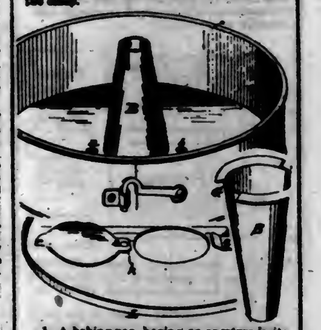
Brief.—A flanged tubular nipple made of rubber or other elastic material, and fitting the tapering shank of a tap, so that in driving the tap into the barrel the face of the protector is pressed up tight to the head of the barrel, to prevent the liquid from escaping.



As a new article of manufacture, a tapping-protector made in the form of a hollow flanged nipple, substantially as shown and described.

178,100. BAKING-PANS. Lewis H. Brown, Cincinnati, Ohio. [Filed May 11, 1876.]

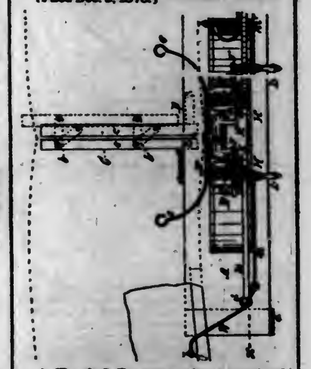
Brief.—The cut-away flange of the pan is inserted under the leg and clasp. When the pan is set in use, the pivoted cover may be swung over the hole and held in position by the clasp.



1. A baking-pan, having an aperture in its bottom, with legs A and clasp I, in combination with the cover B, having the slotted flange G for removing and securing the cover as set forth.

2. A bake-pan, having an aperture in its bottom and a clasp, I, in combination with the pivoted slide E, for operation in connection with the flanged center-flue B, having the slots G, substantially as described, and for the object specified.

178,106. MUSIC-LEAF TURNERS. Cyril P. Brown, Hudson, Mich., assignor of one-half his right to W. G. Fream, Chicago, Ill. [Filed Dec. 9, 1875.]

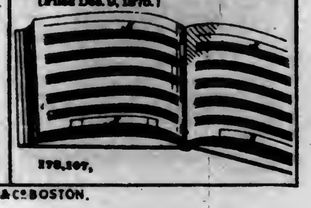


1. The shaft B, carrying the arms *e f* and K K', in combination with the legs J J' and mechanism to operate the same, as and for the purpose specified.

2. The arm E, adapted to pass under the loop on the leaves of the book, in combination with the connecting-rod *m*, arm M, shaft G, and crank-pin L, as specified.

3. In combination with the bed A and mechanism for turning the leaves, as described, the folding book-rest O, as specified.

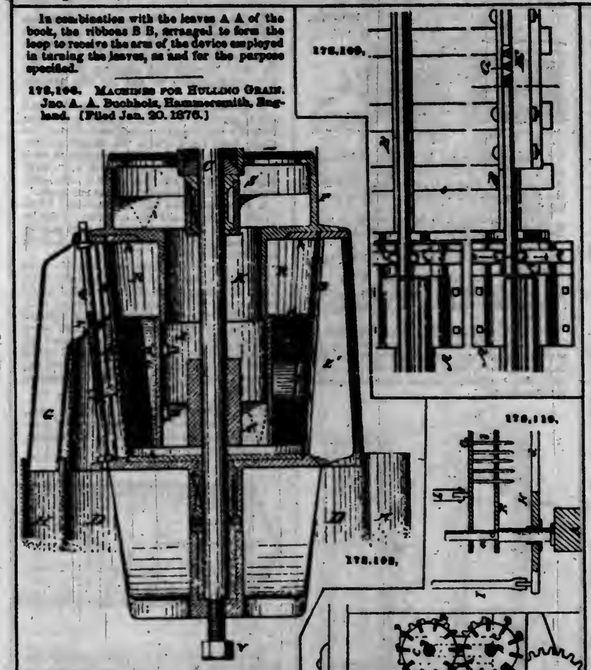
178,107. MUSIC-LEAF TURNERS. Cyril P. Brown, Hudson, Mich., assignor of one-half his right to W. G. Fream, Chicago, Ill. [Filed Dec. 9, 1875.]



178,107.

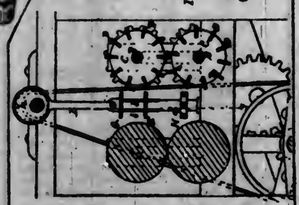
In combination with the leaves A A of the book, the ribbons B B, arranged to form the loop to receive the arm of the device employed in turning the leaves, as and for the purpose specified.

178,108. MACHINES FOR HULLING GRAIN. Jno. A. A. Buchholz, Hammersmith, England. [Filed Jan. 20, 1876.]



178,109.

178,110.



178,108.

1. In a hulling-machine, the combination of an inner drum, A, having a decorticating-surface formed of wire blocks, an outer drum, B, provided partially or wholly with a perforated wall to permit the escape of dust, and a sliding gate, P, arranged to slide in grooves secured to the outer drum, and regulate the apertures N, when all are arranged to operate in connection, substantially as set forth.

2. The adjustable gate P, provided with a lip, T, the screw Q, and outer drum B, having an aperture, N, when combined and arranged to operate as and for the purposes set forth.

3. The segmental blocks, forming decorticating-surfaces, composed of alternate layers or strata of steel wires and packing of some yielding material, substantially as set forth.

4. The combination, in a hulling-machine, of two drums, A and B, wholly or partly conical, the inner provided with a decorticating-surface, and both mounted upon one vertical shaft, C, and arranged to revolve in opposite directions, as set forth.

5. The driving mechanism, consisting of the loose clutch-pulleys W X, clutch *w*, pulleys M and F, and an endless belt, as shown, in combination with the shaft C and drums A B, all arranged substantially as shown.

6. The combination of the inner drum A, outer perforated drum B, fan wings or blades Z', fixed jacket Z', chamber D, and annular chamber H, all arranged to operate substantially as set forth.

178,109. RAILROAD-SWITCHES. James M. Buckley, Kansas City, Mo. [Filed Apr. 15, 1876.]

Brief.—A spring presses against the stationary end of the movable rail, to provide for expansion and contraction, and the space is bridged by a joint-plate, which carries the wheels over the opening. The head chair is slotted to receive lugs on the movable rails, whereby they are held to the fixed rails, and a gap is prevented.

1. The head-chair A, provided with the curved slot *a*, and having a lug, C, bolted on the switch-rail B moving thereon, for the purpose herein set forth.

2. The slotted carrier and fish-plate E, and spring G, in combination with the rails and head chairs, as and for the purpose set forth.

178,110. HEMP AND FLAX BRAKES. Luther R. Burdin, Paris, Ky., assignor of one-half his right to R. M. Kenney, same place. [Filed Apr. 11, 1876.]

Brief.—The hemp or flax is first broken by the blades of the hollow rollers, the hards falling through said rollers, while the list passes on and under a stationary perforated bar, against which it is temporarily held, while a "pin-bar" descends and punctures the list, and removes remaining hards therefrom.

1. In a machine for breaking and cleaning hemp and flax, the hollow breaking-cylinders, composed of the heads C C, secured upon a central shaft, B, and connected by the radially-inserted plates or bars D, in combination with the perforated fixed bar E, and reciprocating pin-bar G, all constructed substantially as and for the purposes herein set forth.

2. The stationary perforated bar E, the reciprocating pin-bar G, and the slotted reciprocating pressure-bar H, in combination with the stock-crushing device of the hemp or flax breaking machine, substantially as and for the purposes herein set forth.

3. The combination of the shaft J, provided with eccentrics *h h* and cranks *f f*, the connecting-bars L L, pin-bar G, pitmen I I, and pressure-bar H, all substantially as and for the purposes herein set forth.

178,111. BED-LOUNGES. William H. Busser, Chillicothe, Ohio. [Filed Jan. 19, 1876.]

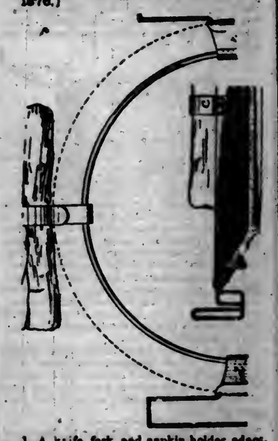


178,111.

1. The hinges E, having the form shown, and connected to the under side of the false bottom C, and to the true bottom of the hollow body A, all as shown and described, whereby the said hinges work out of frictional contact with the contiguous sides of part A, as specified.

2. The combination, with bottom C and its supporting and folding hinges, of the hinged head-piece G, arranged to rest and slide on the bend of part A as said bottom is raised and lowered, as set forth.

178,112. KNIFE RACKS AND RESTS. A. B. Byrkit, Fairfield, Iowa. [Filed Mar. 13, 1876.]

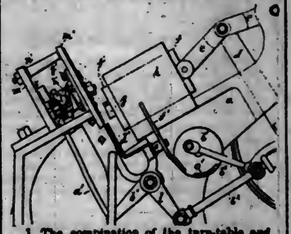


1. A knife, fork, and napkin holder adapted for attachment to plates, constructed with a spring, adapted to encircle the under side of the plate, substantially as and for the purpose described.

2. A knife, fork, and napkin holder adapted for attachment to plates, constructed with a spring encircling the under side of the plate, and combining-clamps engaging with the edge of the plate, substantially as described.

178,113. MACHINES FOR TRIMMING HORSESHOE-NAILS. Alexander H. Caryl, Forge Village, Mass. [Filed Oct. 20, 1875.]

Brief.—An intermittingly-revolving turn-table, which carries a series of nippers for holding (by the heads) the nails to be trimmed, and a pushing device for forcing each nail (to properly position it over the trimming die) against the centering projection formed on each stationary nipper-jaw. Projecting from the back of the turn-table are a series of stops, (one to every pair of nippers,) with each of which a spring-catch engages, and prevents further movement of the table when the nail is over the die, the said catch being tripped after the nail is trimmed, to allow further rotation of the table, by a pin on the rock-bar.



1. The combination of the turn-table and nail-holding mechanism carried by the table, with the plate *w* to support the nail as it is moved to the die, substantially as described.

2. The combination of nippers, arranged to hold the nail, with the pushing-bar to center the nail over the die, substantially as described.

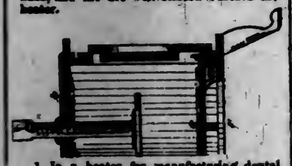
3. The turn-table and the stationary and movable nipper-members *r t*, the former provided with a centering-projection, *v*, in con-

tination with a cam-projection, to engage the projecting end of the movable member *i* to cause it to grasp and hold the nail between itself and the stationary member, substantially as described.

4. The stationary member *i* of the nippers, provided with the centering-projection *i'*, in combination with the pushing device, adapted to operate against the nail opposite the centering-projection, substantially as described.

178,116. Dental Heaters. L. W. Clark, Thornton, Ind. [Filed Apr. 8, 1876.]

Brief.—The platform is covered with water, which it retains by its annular rings or grooves; the flask is then placed upon the same, and the platen followed down upon the lid of the flask, and the fire well started beneath the heater.



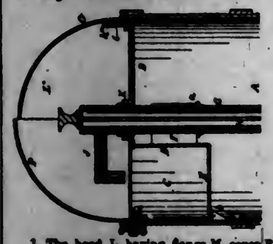
1. In a heater for manufacturing dental plates, the combination, with the cylinder, of a platform of less diameter than the cylinder, forming an annular opening for the introduction of heat between the platform and cylinder, substantially as and for the purpose set forth.

2. A closed heater for dental purposes, constructed with a removable platform, having angular grooves for the retention of water, and notched at its periphery to engage with the tie-rods of the frame, substantially as and for the purpose described.

3. In a heater for manufacturing dental plates, the sill of the door, constructed with a flanged lip to prevent the immediate impact of heat on a thermometer secured to the door of the heater, substantially as and for the purpose set forth.

178,115. Oil-Cans. William H. Clark and William J. Clark, Salem, Ohio. [Filed Apr. 21, 1876.]

Brief.—The head and cover are hinged together at their bases, so that the head, when open, slides over the cover. The horizontal flanges at the base of the cover slide under a horizontal flange at the chine of the can, holding the cover and head to the can. The flange at the base of the head rests upon another flange in the chine when the head is closed. The sink is swiveled on the pump-body, and revolves around it, and is supported by a lug on the inside of the can.



1. The head L, having flange M, cover F, provided with a flange, C, and hinged to said head, as described, in combination with the can A, having a rim, N, and pin *h*, whereby to secure the head to the can, substantially in the manner as set forth, and for the purpose specified.

2. In oil-cans, the revolving sink C, hinged to the pump O, as described, in combination with head H and can A, having a support for said sink, substantially as and for the purpose set forth.

178,118. Door-Hangers. W. O. Collins, Niles, Ohio. [Filed Feb. 5, 1876.]

Brief.—The wheel or rim is provided on its inner side with a continuous projecting rib or tongue, which enters into and engages with the circumferential grooves of a series of interposed friction-rolls, there being also washers combined with the hub, to hold these rolls in place. There is also provided a tin or sheet-metal hood to fit over the frame and wheel, for protection against the weather.



178,116.

1. The wheel or rim G, provided in the center of its inner circle with a continuous projecting rib or tongue, *h*, in combination with the grooved rollers D, for the purposes herein set forth.

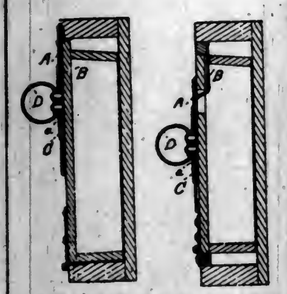
2. The washers *d d*, in combination with the hub C, for the purposes herein set forth.

3. The hood H, in combination with the frame A and wheel G, for the purposes herein set forth

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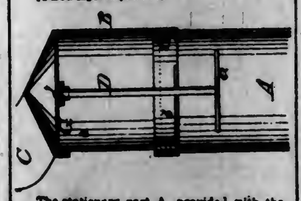
178,117. Tray-Bolts for Trunks. George Crouch, New York, N. Y. [Filed Apr. 1, 1876.]

Brief.—The plate being struck up from a single piece of metal, having a portion of its surface raised and slotted, under which the bolt slides, there being also a small auxiliary plate and a suitable leather loop for operating the device.



The combination of the plate A, struck up from a single plate of metal, and having a portion of its surface raised and slotted, as at *a*, a bolt, B, auxiliary plate of metal C, and loop D, constructed and operating substantially as described and for the purposes set forth.

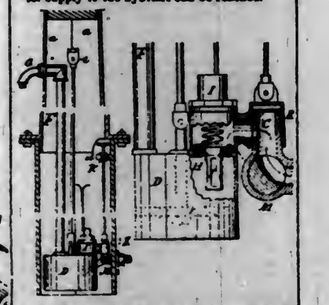
178,119. Cement-Cowls. Philip J. Dambach, Shawnee, Ohio, assignor of one-third his right to H. D. Cain, same place. [Filed Apr. 15, 1876.]



The stationary part A, provided with the spider *a*, and rod D, in combination with the revolving part B, having a flange, *c*, forming a groove at its lower end, closed at its top, and provided with an opening in its side, vane C, and journal-bearing *d*, on plate G, substantially as described, and for the purpose set forth.

178,120. Hydrants. J. T. Davis, Washington, D. C. [Filed Apr. 20, 1876.]

Brief.—By taking off the upper section of casing the mechanism for cutting off the water-supply to the hydrant can be reached.



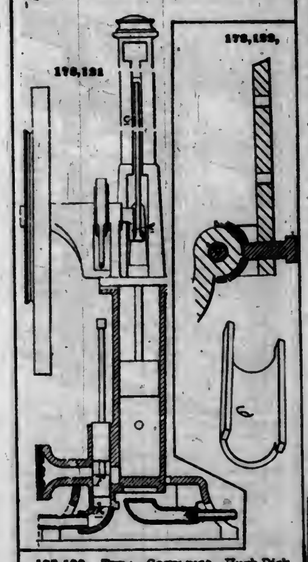
1. The combination of the socket K with the plug C of the service-pipe, located within the hydrant-casing, as shown and described.

2. The screw-rod S and its flanged nut K, the socket K, and hollow plug C, in combination with the hydrant-casing, having arms *d* for embracing the nut, as shown and described.

3. In combination with hydrant-casing, having plug O fixed to the side thereof, the valve mechanism D E H and connected socket K, the discharge-pipe F, and connected nozzle G, all arranged as shown and described, whereby the said mechanism is supported within the casing, as specified.

178,121. Gas-Engines. Alexis de Bisschop, Paris, France. [Filed Mar. 14, 1876.]

The method described of preventing condensation of the gases in an air and gas engine—that is to say, heating the cylinder by means of a gas-jet beneath the latter, preparatory to injecting the explosive mixture, substantially as set forth.



178,121.

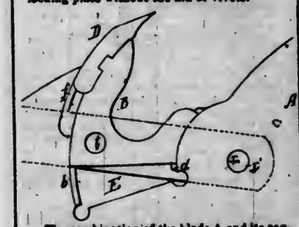
178,122.

178,122. Trip-Couplings. Hugh Dick, Three-Mile Bay, N. Y. [Filed Apr. 1, 1876.]

The semi-cylinder C, having the projecting lugs *e*, screw-threaded perforation *m*, and set-screw D, swiveled to said semi-cylinder, in combination with the shackle B, thill-iron eye G, and bolt *b*, substantially as described, and for the purpose set forth.

178,123. Beamless Saw-Teeth. Thomas S. Disston, Philadelphia, Pa. [Filed Jan. 5, 1876.]

Brief.—A recess in the saw-plate, having its jaws V-shaped in section, holds the tooth and locking-plate without the aid of rivets.



The combination of the blade A and its segmental recess E, having edges *b*, *d*, and *f* made on circular lines having a common center at a point, *s*, in the blade, with the locking-plate B and tooth D adapted to the said recess E, all substantially as set forth.

178,124. Elevators. Marshall B. Dozier and Orion T. Dozier, Atalla, Ala. [Filed Mar. 31, 1876.]

Brief.—Lazy-tongs supporting a platform, have attached to their lower arms ropes wound on a shaft beneath, made to revolve by a rope therefrom wound on another shaft. Ropes wound on the ends of the former shaft lead over pulleys on the top of side posts to near the top of the lazy-tongs, for the purpose of dividing the hoisting-up strain.

1. The combination, with a lazy-tong structure, C C, &c., of the ropes or chains *b b*, rollers *d d*, shaft D, drum E, rope or chain *c*, and windlass G, substantially as and for the purposes herein set forth.

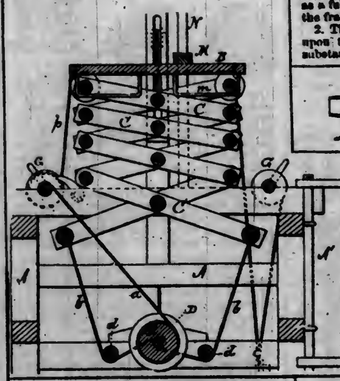
2. The lazy-tong structure C, having at ends of its top bars wheels A, in combination with platform B, provided with grooves and elongated staples *m*, as and for the purposes set forth.

3. The combination of the windlass G, ropes *c*, shaft D, carrying drum E and pulleys *h*, ropes *b h*, ropes *f*, with rings *i*, and the lazy-tong structure C, substantially as and for the purposes set forth.

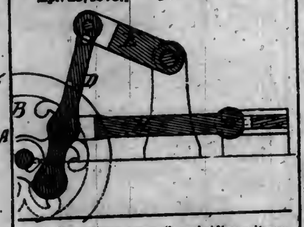
4. The slotted standards J, with cross-setting-bar L, in combination with the lazy-tong structure C C, &c., platform B, and staples, as and for the purposes set forth.

5. The combination, with the lazy-tong structure and platform thereon, of the elevating-ropes *a* and the steadying-ropes *p*, connected to, and operated by, the same windlass or windlasses G, substantially as herein set forth.

6. The sectional standards N and sliding cross-bar M, from which steadying ropes extend to the frame or ground, in combination with the lazy-tong structure and platform, provided with staples, as and for the purposes herein set forth.

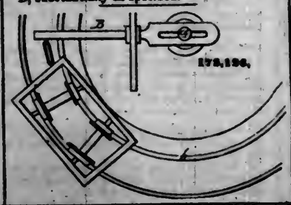


178,125. Steam-Engines. Conrad Dueckser, Tamaroa, Ill., assignor of one-half his right to D. C. Barber, same place. [Filed Apr. 29, 1876.]



1. In a steam-engine, the subsidiary pitman D, pivoted to the crank-arm at one end, and at the other to a vertically-vibrating rocking arm, E, in combination with the pitman H, pivoted to pitman D, substantially as specified.

2. The subsidiary pitman D and rocking arm E, in combination with the actuating-pitman H, cross-head I, crank C, and fly-wheel B, substantially as specified.



178,125.

178,126. Operating the Treenail-Wheels of Clay-Pits. William A. Ellis and Thos. Ellis, Philadelphia, Pa. [Filed May 2, 1876.]

The combination of a clay or other like mill, having a radial arm, B, a circular track, and a locomotive adapted to the track and constructed for attachment to the arm, all substantially as set forth.

178,127. Harvesters. John H. Steward, St. Paul, Minn., assignor to St. Paul Harvester Works, same place. [Filed May 17, 1876.]



1. The main frame of a harvesting-machine, provided with a rack-standard, *d*, or its equivalent, in combination with the removable lever *f*, applied to and using the main driver's seat as a fulcrum for effecting the adjustment of the frame, substantially as described.

2. The rack-standard *d*, made adjustable upon the main frame, for the purpose and substantially as described.

178,128. Station-Indicators. Clarence A. Evans, Upland, Pa. [Filed Jan. 14, 1876.]

Brief.—One frame is so arranged with respect to the other frame that its indicating mechanism may be thrown in gear, either for a backward or forward motion. When it is desired to pass over a road where stations are not indicated upon one apron, the entire "frame" may be removed and replaced by another one, whose indicating-apron bears the names of the stations along the new route. In operating the "indicator," the engineer turns a cock, creating a vacuum in the pipe, thus causing the heads to move forward, actuating levers and shaft, thereby operating the apron to bring a name opposite the opening in the box. The cock is reversed to destroy the vacuum by admission of air.

1. The combination of the siphon D, pipe C, cylinder E, or chamber G, shaft F, levers *f*, and indicator I, substantially as shown and described.



2. In combination with a station-indicator the collapsible chamber G, formed of the tube *g* and rigid heads *g' g''*, the intermediate mechanism, substantially as set forth, whereby the suspension and construction of said chamber communicate motion to the working parts of the indicator, substantially as shown and described.

3. In combination with the case I the interior horizontally-sliding frame *I'*, supporting the hand-rollers *I F*, and the shaft I, provided with changeable gearing *I F*, substantially as shown and described.

178,180. KITCHENETTE. Mary A. Furman, Cleveland, Ohio, executrix of James Furman, deceased. [Filed Apr. 21, 1876.]

Brief.—The valve is placed low down in the ground, and may be easily removed for repairs.

1. The valve-head J, groove *c*, and valves *a* and *a'*, in combination with the thimble I, tube M, and nut L, and coction E, substantially in the manner as described, and for the purpose set forth.

2. The combination of coctions A B, tube or jacket C, nuts D and L, thimble I, vent-pipe P, heliev ing P', and tube M, provided with a groove, E, and hole *e* in the manner substantially as described, and for the purpose specified.



178,180.



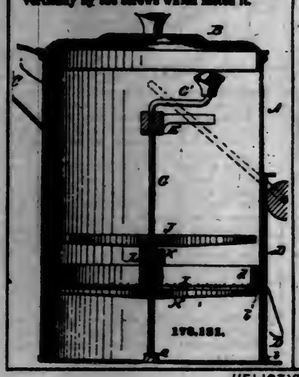
178,180.

178,181. ATTACHING TAGS TO MAIL-BAGS. George H. Pegram, Washington, D. C. [Filed Apr. 18, 1876.]

The combination of a mail-bag with a spring-hook, substantially as herein described, permanently attached thereto, and adapted to receive and securely hold a wooden tag of the form shown, and to allow the same to be easily detached therefrom.

178,182. FLOUR AND MEAL SIFTERS. F. G. Ford, Philadelphia, Pa. [Filed Mar. 30, 1876.]

Brief.—Bottom and spider-supported sieve revolve. Brush is stationary and adjustable vertically by the screws which fasten it.



178,182.

1. In a flour and meal sifter, the combination of a revolving sieve, a stationary brush, and revolving agitators, substantially as and for the purposes herein set forth.

2. The combination of the vertical rotating shaft G, stationary spider E, rotating agitators J, stationary cross-bar K, with adjustable brushes I, rotating sieve I, supported on the spider H, and the flange *d*, all constructed substantially as and for the purposes herein set forth.

3. The combination of the vessel A, provided with spout C at the top, spout D at the bottom, and sliding door D', the shaft G, rotating sieve I, stationary brush I, and rotating agitators J, all constructed substantially as described, whereby, as the flour is fed in through the spout at the top, it is sifted and passed out through the bottom spout, as set forth.

178,183. ASH PAILS AND SIEVES. F. G. Ford, Philadelphia, Pa. [Filed Apr. 7, 1876.]

Brief.—Sieve of woven wire clasped to handle, and immersed in molten zinc to solder it. Has removable shafts. Cover of sifter invertible to become the ash-pan.

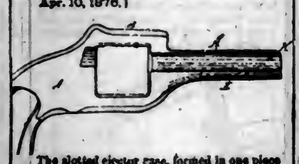


1. An ash sieve formed in the shape of a cylinder, and consisting of a series of longitudinal and circumferential wires, the latter bent over and under the former, and galvanized, so that deposits of metal are made at the points *x* to solder the parts, and the ends of the longitudinal wires passed through perforations in the heads E E', and clinched thereto, as set forth.

2. The combination of the wire cylinder D, head E', with central hole *x*, head E, with hole and slots *y*, and the shaft C, having collar *a* and hub *b*, with flanges or wings *d d*, substantially as and for the purposes herein set forth.

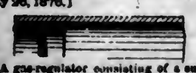
3. The combination of the box A, having handles B, the revolving sieve D E E', constructed as described, with center shaft C, with collar *a* and flanged hub *b*, and the top or pan G, with handles H H, substantially as and for the purposes herein set forth.

178,184. REVOLVERS. Sullivan Forehand, Worcester, Mass., assignor to himself and Henry C. Wadsworth, same place. [Filed Apr. 10, 1876.]



The slotted ejector case, formed in one piece with the parts A, I, and K, substantially as and for the purpose shown and set forth.

178,185. GAS REGULATORS. George W. Hambright, Washington, D. C. [Filed May 26, 1876.]



1. A gas-regulator consisting of a suitable diaphragm, held in a rim or ring, which is adapted to be placed within the ordinary gas-pipe.

2. A gas-regulator consisting of a suitable diaphragm, held in a short section of tube, and adapted to be placed within the ordinary gas-pipe.

3. The gas-regulator composed of an inner and outer tube, with cloth or other suitable material held between them, as set forth.

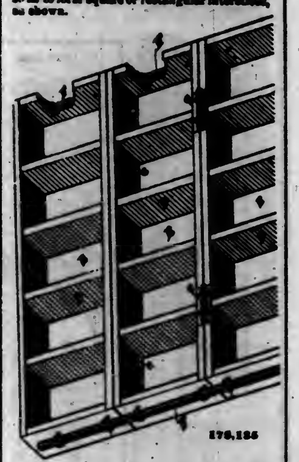
178,186. BED-DUSTING RACKS. J. Foster, Philadelphia, Pa. [Filed Mar. 14, 1876.]

Brief.—A wooden rack formed in hinged sections, and provided with cross bars or stays, and with metallic rods, which serve to render the rack rigid when opened.

1. A bed-dusting rack, composed of folding or hinged sections B B, substantially as shown and described.

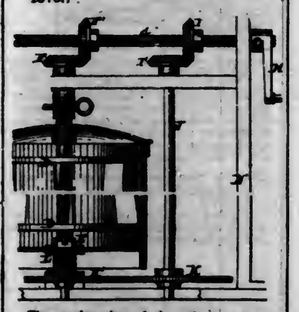
2. In combination with the sections B B, the devices *F F*, for keeping the rack rigid when extended for use, as set forth.

3. A dusting-rack composed of a series of rectangular frames, each consisting of cross-pieces extending from side to side, and transverse bars or braces at right angles thereto, so as to form square or rectangular interstices, as shown.



178,185

178,186. CHURNS. Emil Frank and John Kissling, Rahway, N. J. [Filed Apr. 21, 1876.]



The combination of the tub A and the dasher-stem B, stepped in the bottom of the tub, and made to pass loosely through its lid, the driving-gear *F F'* I I' K K', the shaft G, and counter-stem J, the whole being arranged and adapted to operate substantially as described.

178,187. AIR OR STENCH TRAPS. Charles W. Garland, San Francisco, Cal. [Filed Jan. 27, 1876.]

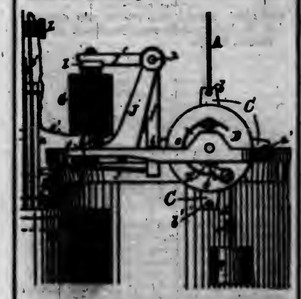
Brief.—The flap-valve seen admits air when a vacuum occurs, thus preventing siphoning.



The combination, with the trap B, of the chamber C, the loose ball-valve A, the exit-pipe D, the vent-pipe E, and valve F, when the several parts are constructed and arranged substantially as described and shown.

178,188. DRAFT-REGULATORS. William H. Gerrish, Boston, assignor of one-half his right to George F. Fay, Fitchburg, Mass. [Filed Apr. 12, 1876.]

Brief.—An electro-magnet, a battery for charging the same, and a thermometer in the space, the temperature of which is to be regulated. The rise and fall of the mercury closes or breaks the electric circuit, and the connection with the damper is such that the closing or breaking of the circuit will cause the damper to be opened or closed, according as the temperature of the room falls below or rises to a given height.



1. In combination with a furnace or other heating apparatus, provided with a damper adapted to control or regulate the draft thereof, an electro-magnet, a battery, suitable connecting-wires, and a thermometer placed in the room to be heated, and within the electric circuit, and adapted to close and break said circuit by the rise and fall of the mercury in its tube, all arranged and connected with the damper, as to cause the closing or breaking of the circuit to cause the damper to be opened or closed, according as the temperature of the room falls below or rises to a given height, substantially as described.

2. The damper A, mounted upon a central shaft in the passage B, the drum or pulley D, weight F suspended therefrom by the cord *f*, and an automatically-operated stop, adapted to momentarily release the drum to allow the weight to descend and rotate it, and to check it again, all combined, arranged, and adapted to operate as and for the purpose described.

3. The combination, in a heat-regulator, of the damper A, mounted upon a central shaft, and adapted to be automatically rotated, the pins *a*, *a'*, *b*, and *b'*, attached to and adapted to rotate with said damper-shaft, but in two different circular paths, as set forth, and the stop-pin *i* attached to or connected with the armature of an electro-magnet, and to be operated thereby to alternately intercept and release the pins *a*, *a'*, *b*, and *b'*, as and for the purposes described.

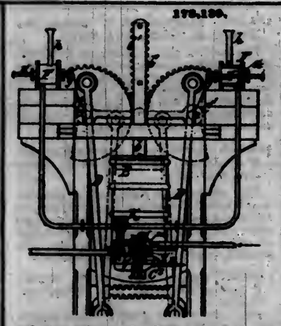
4. In combination with a damper adapted to be opened and closed automatically by a movement about its axis in the same direction, a drum or pulley connected therewith, and adapted to revolve freely in one direction without revolving the damper, and to cause the damper to move therewith and be opened or closed when revolved in the other direction, and a weight connected to said drum by a cord or other flexible connection wound thereon, and adapted to rotate said drum and the damper by its descent, and to be wound up, when run down, by revolving the drum without moving the damper, as and for the purposes described.

5. In combination with the damper of a heating apparatus, an electro-magnet and a battery connected thereto and adapted to control the movements of said damper, a thermometer provided with an adjustable metallic wire or rod inserted in the upper portion of its tube, and adapted to vary the degree of temperature at which the circuit will be closed or broken, as and for the purposes described.

178,189. OXYGEN-PRESSES. S. H. Gibson, New Orleans, La. [Filed May 1, 1876.]

Brief.—The supplemental piston-cylinders, by means of their pistons, facilitate the return of the rack and restore to the position wherein the pistons are farthest apart. The valves are arranged for admitting steam from the compressing-cylinder into the cylinders for reversing the movement of the rack and restore.

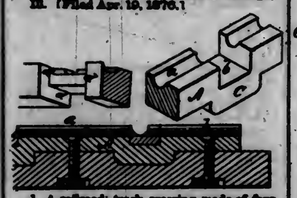
178,189.



1. A supplemental cylinder or cylinders so located that the piston or pistons thereof, actuated by steam or any other power, may move the centers and rock of the press in reversing the movement of the follower, substantially as described.

2. The arrangement of the valves *g'*, *g''*, and *h*, by which the steam is used to work the supplemental cylinder or cylinders F F, substantially as described.

178,190. RAILROAD-TRACK CROSSINGS. J. Gray and Wesley Hollenbeck, Chicago, Ill. [Filed Apr. 19, 1876.]



1. A railroad-track crossing made of four pieces let into each other at the corners, and each piece forming both running-rail and guard, substantially as herein set forth.

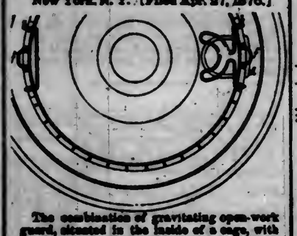
2. The combination of the rails A A, formed with the bottom laps O O and the recesses b, and the rails B B, formed with the chambers *d*, substantially as and for the purposes herein set forth.

178,191. TESSELATED FLOORS. Samuel P. Comstock, New York, N. Y. [Filed Apr. 21, 1876.]



The composite piece or section A, of marquetry-flooring, formed of wooden blocks b, arranged in a suitable design or pattern, and the asphalt backing B, having a tongue-and-groove connection, as shown and described.

178,192. BIRD-CAGES. Gottlob Gunther, New York, N. Y. [Filed Apr. 27, 1876.]



The combination of gravitating open-work guard, situated in the inside of a cage, with the feed-cups of said cage, substantially as and for the purpose described.

178,193. ARTIFICIAL TEETH. Wm. P. Hall, Piqua, Ohio. [Filed Apr. 10, 1876.]

Brief.—The tooth is hollow, and its cavity enlarged at the bottom, and provided with air-chamber. The softened rubber of the plate is forced down into the cavity, and thus secures the tooth in position.

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1. A porcelain tooth having the concave *c*, shoulder-depression *b*, conical space with enlargement at the bottom, air-duct *a*, and depression *f* at either side of the approximate surfaces, as and for the purposes herein set forth.

2. The combination of porcelain teeth, of the form herein described, and porcelain gums, single or in blocks, substantially as set forth.

178,163.



178,164.



178,194. BAKERS' PANS. Wm. H. Herrin, Buffalo, N. Y., assignor to J. W. Bogue & Co., same place. [Filed Jan. 7, 1876.]

The corner-stiffening pieces B B, in combination with the frame A, flanges *a a*, and wires *b b*, as and for the purposes specified.

178,195. PAN-HANDLES. Samuel Hauck, Lebanon, Pa., assignor of one-half his right to A. B. Hauck, same place. [Filed Apr. 20, 1876.]

Brief.—May be adjusted to pans of different sizes.



1. A shield or protector, A, as herein described, provided with clasps D, and having a slot, *s*, cut for the reception of the screw b.

2. In combination with the shield A, the opening E, provided with the door C, screw b, and thumb-nut *b'*, all arranged to operate as herein described.

178,196. ACID-FURNACES AND PROCESSES OF PRODUCING THEM. J. V. Hecker, New York, N. Y., assignor to Geo. V. Hecker & Co., same place. [Filed Apr. 18, 1876.]

1. The above-described process of making an acid-powder, consisting of the treatment of bone-black with sulphuric acid first, and then with hydrochloric acid and chloride of sodium, and leaching and evaporating to dryness, substantially as herein before set forth.

2. The within-described acid-powder, consisting of monocalcic ortho-phosphate, chloride of sodium, and chloride of calcium.

178,197. BOOK-SEWING MACHINES. Wm. O. Hickok and Albert Cooper, Harrisburg, Pa.; said Cooper assignor to said Hickok. [Filed May 10, 1876.]

Brief.—The shank or holder has a groove in the lower end, in which is placed a tempered strip, which is held by screws and spiral springs. The needles and dividing or spacing pieces are grooved, so as to engage with the tongue on the holding-strip. Screw-bolts secure the parts rigidly together.

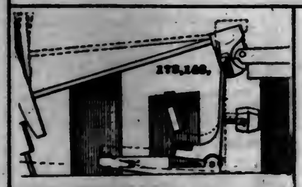


1. The combination, with the grooved or slotted head A, of the needles O *o*, division-plates D, having grooves *a*, as described, the plate or bar G, having tongue or rib *b*, and the set-screws *h*, substantially as and for the purposes herein set forth.

2. The set-screws *d d* and the springs *i i*, in combination with the bar G and recessed head A, substantially as and for the purposes herein set forth.

178,198. PIANO-ACTIONS. J. W. Holmes, Dubuque, Iowa. [Filed Mar. 25, 1876.]

Brief.—An adjustable weight is tapped into the upright of a piano-jack, to dispense with the use of a spring.



178,160.

The adjustable weight D, applied to the jack of a piano-forte key for the purpose of drawing the jack back into position after throwing the hammer, substantially as described.

178,160. CAR-COUPLINGS. Henry Howson, Philadelphia, Pa., assignor to Wm. Wharton, Jr., same place. [Filed Apr. 26, 1876.]



The combination, with a coupling-head, of the pivoted dog B, the pivoted arm D, its projections *c*, and shoulder *d*, the said dog and arm bearing the within-described relation to each other, and operating all substantially as set forth.

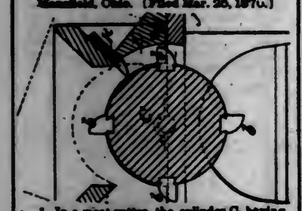
178,160. DEVICES FOR OVERCOMING THE DEAD-CENTERS OF CRANKS. Theodore L. Hubbard, Port Huron, Mich. [Filed Dec. 24, 1875.]

Brief.—The crank-pin is on one end of a leaf-spring, whose other end is attached to the disk at a point that causes the spring, when bent, to lie on a chord of the periphery, the movement of its free end being limited by projecting ears.



The spring and socket legs, secured to the face of a crank-disk, substantially as described, in combination with the wrist on the pitman, journaled in an eye at the free end of said spring, substantially as and for the purpose set forth.

178,161. MEAT-CUTTERS. John Hughes, Mansfield, Ohio. [Filed Mar. 26, 1870.]



1. In a meat-cutter, the cylinder C, having dovetail grooves in it, in combination with removable knives *b*, spacing-blocks *c*, and removable caps G G', substantially as described.

2. The hinged or pivoted hopper J, having attached to it a removable comb-plate, K, in combination with the supporting-guard L and a rotary knife-cylinder, C, substantially as and for the purposes set forth.

3. The cylinder C, provided with dovetail grooves, in combination with the removable knives *b*, spacing-blocks *c*, removable caps G G', hopper J, removable comb-plate K, and guard L, substantially as described, and for the purpose set forth.

178,162. BABBS FOR JAPAN OR VARNISH. W. P. Janney, New York, N. Y. [Filed Apr. 3, 1876.]

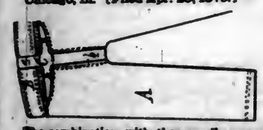
The new resinous compound or manufacture herein described, and possessing the substantial properties herein described, composed of the resinous substance derived from sludge-oil and rubber incorporated together, substantially as herein set forth and described.

178,163. RESINOUS SUBSTANCES. Walter P. Janney, New York, N. Y. [Filed Jan. 6, 1876.]

Brief.—Made from purified oxidized sludge-oil. Is not dissolved by or acted upon by caustic soda, potassa, or ammonia, even when boiled.

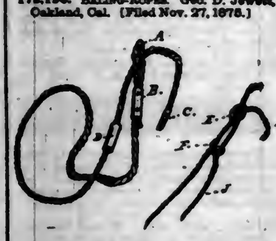
The new manufacture or substance hereinbefore described, derived from sludge-oil by a process of oxygenation, and possessing the substantial properties herein described, among which are that it is a solid substance of greater or less consistency or hardness, has a resinous appearance, and is not acted upon by the specified alkalies.

178,164. OVERALLS. Adolphus B. Jesurich, Chicago, Ill. [Filed Apr. 26, 1876.]

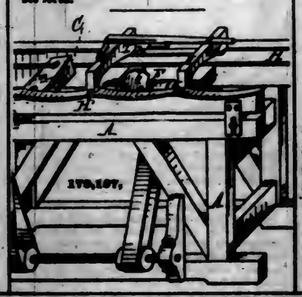


The combination, with the overalls or pantaloons A and waistband B, of the cross-shaped elastic webbing C, consisting of the part *a*, inserted in the middle of the back of the said belt, the part *b*, extending the entire length of the seat-seam, and the arms *c c*, inserted in horizontal cuts below the waistband, all constructed and arranged substantially as described and shown.

178,164. BALING-ROPES. Geo. D. Jewett, Oakland, Cal. [Filed Nov. 27, 1875.]



The bale-band having the loop A, the slip-band D, and the point-band C, or their equivalents, when constructed and arranged substantially in the manner and for the purpose set forth.



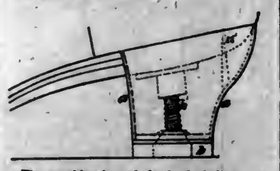
178,167.

178,167. MACHINES FOR SHAPING WOODEN CHAIR-SEATS. Andrew F. Johnson, Chicago, Ill. [Filed Oct. 26, 1875.]

Brief.—Two horizontally-journaled cutter-heads, standing at right angles to each other, shape the blank as it passes above them.

In a machine for shaping chair-seats, the combination, with the frame A, of the curved adjustable guideway E', the straight guideway E, parallel with the guideway E', the cutter-heads O F, journaled at right angles to each other, and the carriage I, all substantially as described and shown.

178,168. HEELS FOR BOOTS AND SHOES. J. W. Jones, Holloway, England. [Filed May 4, 1876.]



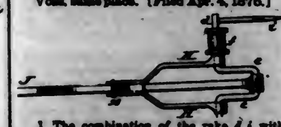
The combination of the heel-shell *a*, provided with attaching-points *a'*, the rotary plate *b*, the screw anchor-plate *c'*, attached to the heel part of the sole of a boot or shoe, substantially as shown, and the screw *b'*, all substantially as and for the purposes herein described.

178,169. GAMS FOR SEWING-MACHINES. Lovin T. Jones, Baltimore, Md. [Filed May 16, 1876.]



The combination of the independently-adjustable heads A B, driving-shaft C, radial set-screws D E, and longitudinal steady pin or pins F, permanently fixed in one head of the cam, and sliding freely through an aperture in the other head, as shown and described.

178,169. RAKE ATTACHMENTS FOR HARVESTERS. Daniel H. Kime, Kendallville, Ind., assignor of one-third his right to F. J. Voss, same place. [Filed Apr. 4, 1876.]



1. The combination of the rake *d i* with crank *c*, the stirrup H, connecting-bar J, arm I, and rocking-shaft C, operated by means of the lever G, substantially as and for the purposes herein set forth.

2. The rake *d i*, crank *c*, stirrup H, bar J, arm I, and rock-shaft C, in combination with the flanged wheels *f f*, and incline *g*, substantially as and for the purposes specified.

178,161. FLAGGED HEDGES. David M. Kirkbride, Bloomington, Ill., assignor to Wesley Young, Columbus, Ohio. [Filed Apr. 3, 1876.]



A planked hedge, consisting of grooved bulge or sleeper *b*, laid over in line with the plane of the fence and secured together by means of a line or lines of wire, *c*, or other flexible fastenings not a part of the grooving bulge, substantially as described.



178,166.

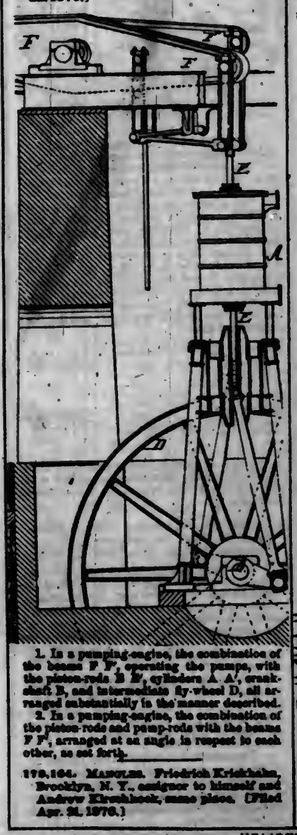
178,166. WRENCHES. Edward H. Knight, Philadelphia, Pa. [Filed Mar. 31, 1876.]

Brief.—A lug on the locking-lever is seated in a notch in the sliding lever, to lock the jaws for operation, and when one stroke or turn of the head has been made, the lever is released and the wrench returned over the corners of the nut, preparatory to another operation or stroke.

1. The sliding bar A, carrying the jaw C, and provided with the nut or step *b*, in combination with the handle B, having shoulder or step *a*, the inwardly-pressing spring H, and controlling-lever J, substantially as and for purpose set forth.

2. The jaw C, secured by the sliding bar A, which is drawn inwardly by the spring H, in combination with the jaw D fitted to said bar A, and provided with the adjusting-screw E, substantially as and for the purpose set forth.

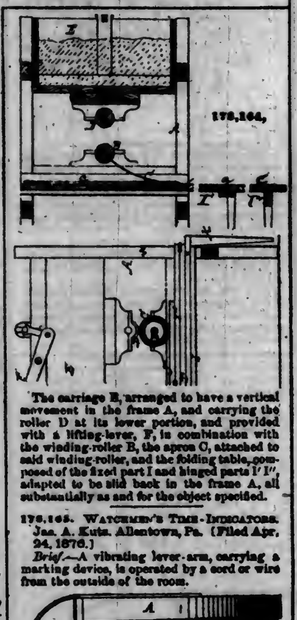
178,165. PUMPING-ENGINES. Friedrich W. Kottgen, Barmen, Prussia. [Filed Apr. 22, 1876.]



1. In a pumping-engine, the combination of the beams F F', operating the pumps, with the piston-rods B B', cylinders A A', crank-shaft E, and intermediate fly-wheel D, all arranged substantially in the manner described.

2. In a pumping-engine, the combination of the piston-rods and pump-rods with the beams F F', arranged at an angle in respect to each other, as set forth.

178,164. MANGLES. Friedrich Krichbaum, Brooklyn, N. Y., assignor to himself and Andrew Kirschbaum, same place. [Filed Apr. 21, 1876.]



The carriage B, arranged to have a vertical movement in the frame A, and carrying the roller D at its lower portion, and provided with a lifting-lever, F, in combination with the winding-roller E, the apron C, attached to said winding-roller, and the folding table, composed of the fixed part I and hinged parts I' I'', adapted to be slid back in the frame A, all substantially as and for the object specified.

178,165. WATCHMEN'S TIME-INDICATORS. Jas. A. Kutz, Allentown, Pa. [Filed Apr. 24, 1876.]

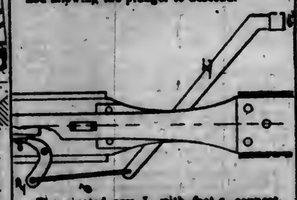
Brief.—A vibrating lever-arm, carrying a marking device, is operated by a cord or wire from the outside of the room.



The combination of the clock A, having stationary dial B and hour-hand arbor *a*, the rotating dial C, the spring arm or lever, provided on its end with the tubular holder G, and the operating-rod *d*, connected to the spring-lever D, all substantially as and for the purposes herein set forth.

178,166. CORN-PLANTERS. Geo. Lambert, Hill Grove, Ohio. [Filed Apr. 3, 1876.]

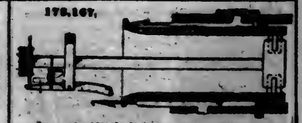
Brief.—By depressing the planter the foot is brought in contact with the ground, forcing the arms up, thereby releasing the trigger, and allowing the plunger to descend.



The pivoted arm I, with foot *a*, connecting-rod *b*, and trigger P, in combination with the handle or operating part of a corn-planter, as and for the purpose set forth.

178,167. ROTARY KNITTING-MACHINES. Thos. Langham, Philadelphia, Pa. [Filed Feb. 10, 1876.]

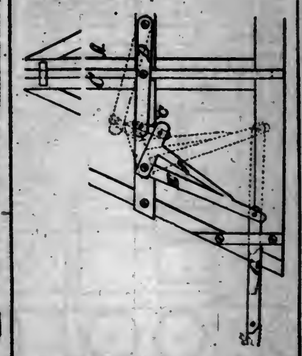
178,167.



In a circular-knitting machine, the combination, with the usual needles for producing a tubular fabric, of a thread guide or guides adapted to rotate with the needle-cylinder, and mechanism for imparting to the said guide or guides a vibrating motion, whereby the loop or loops of another thread or threads are carried by said guide or guides at intervals into the hooks of the said needles, substantially as and for the purpose set forth.

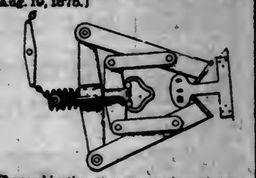
178,168. SAWING-MACHINES. George Lee, Belleville, Wis., assignor of one-third his right to D. S. Smith and one-third to Jos. and Thos. B. Withers, same place. [Filed Apr. 22, 1876.]

Brief.—The saw is operated by a wind-wheel, in connection with a vertically-reciprocating rod working on a vertical central standard of the pillar of the wheel, and a right-angular lever, having its long arm pivoted to the inner end of the saw-pitman, and its short arm connected by a link to a lever pivoted near the middle of its length to said reciprocating rod.



In combination with a wind-wheel pillar, A, the rod C, levers D and E, link *e*, pitman-rod G, and crescent-saw S, substantially as described.

178,169. CAR-COUPLINGS. Wm. R. Leonard, Plano, assignor of four-seventhe of his right to D. G. Graham, L. M. Woodward, and E. H. Evans, same place, and Frank I. Leonard, Hinckley, Ill. [Filed Aug. 19, 1875.]



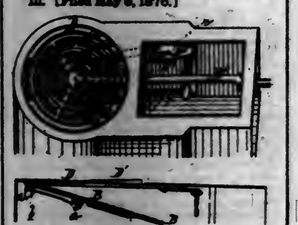
The combination, in a car-coupler, substantially as described, of a pair of hook-arms with beveled heads, cross-bar, and links or toggle-bars.

178,170. METAL TURNING AND PLANING TOOLS. Thomas T. Lingard, Manchester, England. [Filed July 20, 1875.]



The tubular holder B, screw D, and stem C, in combination with the tool A and suitable means for supplying a cooling-liquid or a lubricant, as specified.

178,171. GRATES. Wm. H. Lotz, Chicago, Ill. [Filed May 6, 1876.]

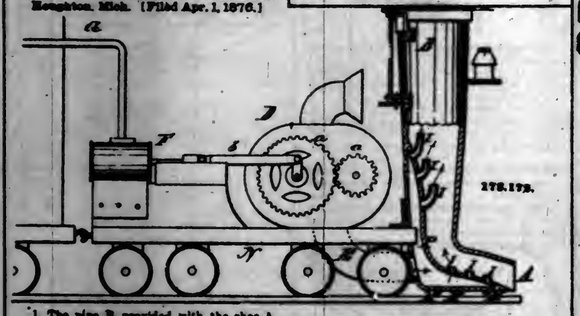


1. The combination, with a grate adapted to be tilted or lowered from its rear edge, of an encircling ring or sector, having fingered projections extending over the front part of said grate, substantially as described.

2. The combination, with a grate adapted to be tilted or lowered from its rear edge, of an encircling ring or sector, having fingered projections extending over the front part of said grate, and normally supported above it, but adapted to be inclined therewith, substantially as described.

3. The combination of the vibratory grate and lever B B', pivoted to the frame C, hung upon a rock-shaft at the rear of the ash-pit, with the ring D, having the fingered projections D', and a means for supporting the front ends of said grate and ring, substantially as described.

178,172. TRACE-CLEARERS. John Mabbs, Houghton, Mich. [Filed Apr. 1, 1876.]



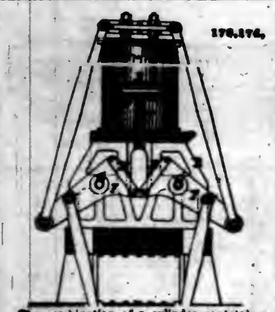
178,173.

1. The pipe B, provided with the shoe A, and diaphragm P, with a series of openings, I I, substantially as and for the purpose set forth.

2. The shoe A, having diaphragm P, with openings I and openings M in its bottom, substantially as and for the purpose set forth.

3. The combination, with the pipe B, having a shoe, A, with openings M in its bottom, and a diaphragm, P, with a series of openings, I, of an air-forcing engine, D, and connecting-pipe E, substantially as and for the purpose set forth.

178,174.

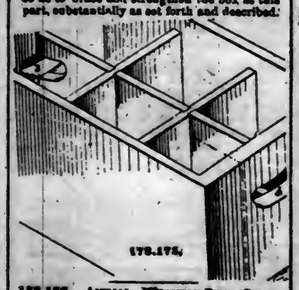


The combination of a cylinder containing two pistons with the follower of a press, the rods of said pistons being made to extend in opposite directions, and being connected to levers or working-beams, which connect with the follower, substantially in the manner herein shown and described.

178,175. BOXES FOR BOTTLES. John Matthews, New York, N. Y. [Filed Dec. 6, 1875.]

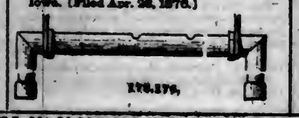
1. A box for transporting bottles, consisting of compartments for each bottle, the sides and divisions being formed by means of curved grooves, and curved pieces to fit the grooves, substantially as set forth.

2. The handle *c* or head-hole *b*, formed by cutting through the ends, and cutting a recess in the partition next the ends, and leaving a part of the partition above the recess, so as to brace and strengthen the box at this part, substantially as set forth and described.



178,175.

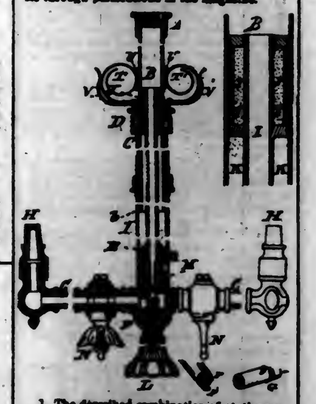
178,176. ANIMAL-WEANING RINGS. Solomon R. McGee, Pearson M. Dye, Nelson Hammer, and Horace Symes, Tama City, Iowa. [Filed Apr. 28, 1876.]



178,176.

178,177. GAS-FIXTURES. John McHenry, Cincinnati, Ohio. [Filed Apr. 1, 1876.]

Brief.—The sewer-valve regulates the flow of gas to all the burners, each having an independent stop-cock. The spring-brakes can be rendered more effective by bending the brass inward. The plumbago escapes by little throughs perforations in the magazine.



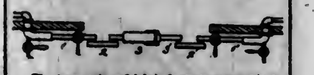
1. The described combination of stationary pipe B, connected by a compound joint, D E, with the pair of sliding pipes G I fastened at their delivery end to a common distributer, in the manner and for the object designated.

2. The plumbago-magazine J J, in combination with a suitable packing or stuffing-box or chamber, K, below the same, substantially as and for the purpose set forth.

3. The gas-body or distributer F, with cast M and cover-valve L, in connection with the stop-cocks N and burners H of one or more arms or branches, G, for the purpose set forth.

4. The pantomatic brake T T' U U' V V' attached to the stuffing-box D, as and for the purpose set forth.

178,178. GAS-HEATING APPARATUS. F. A. Miller, Cincinnati, Ohio. [Filed Apr. 26, 1876.]



The two series of jointed steam-pipes 1 2 3 and 1' 2' 3', with thimble-connections E and the coupling F G *f*, as and for the purpose set forth.

178,179. MILL-FURNISH. John D. Minor, Moffett's Creek, Va., assignor to Wm. L. Toler, same place. [Filed Mar. 20, 1876.]

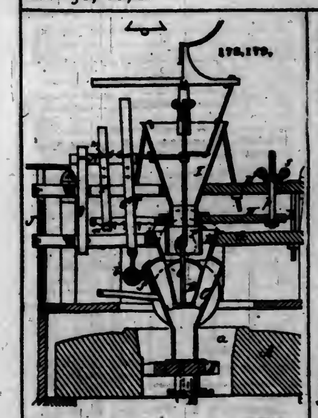
1. The ball-and-socket joint *d*, in combination with the discharge-funnel C and bar C', for operating the signal over the top of the grain-supply spout, as and for the purpose herein set forth.

2. The flexible arm *e*, in combination with the discharge-funnel C and balance-bar B, substantially as and for the purpose herein set forth.

3. The combination, with the tubes E and F, of the beam G, bolts J, cam-shaft J', bars U, U, and P, notched frame N, notched beam R, and keys *n n*, all constructed and arranged substantially as and for the purpose herein set forth.

4. The combination, with the runner-bar A, of the fan-cam and bar K, placed upon the casing surrounding the millstone, counter-shaft L, and the wheel M, arranged in frictional contact with the runner, as and for the purpose set forth.

178,179.



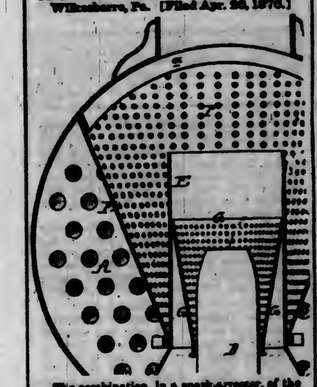
178,180.



178,180. CULTIVATOR-TEETH. J. Mitchell, Rome, N. Y. [Filed Feb. 26, 1876.]

A cultivator-tooth, with a wing or wings, as a, formed or cast thereon at right angles thereto, as and for the purpose specified.

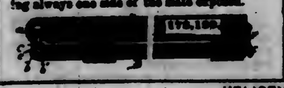
178,181. SPARK-ARRESTERS. A. Mitchell, Williamsburg, Pa. [Filed Apr. 26, 1876.]



The combination, in a spark-arrester, of the exhaust-pipe D, the tube E, the lower end of which extends nearly to the bottom of the smoke-box, with the screen F, arranged outside the tube E, and extending from the lower portion of the same to the top of the smoke-box, and the screen G, interposed between the pipe D and the tube E, all substantially as set forth.

178,182. GRATES. W. J. Montgomery, St. Louis, Mo., assignor of one-half his right to G. H. Stone, same place. [Filed Apr. 7, 1876.]

Brief.—A cover for one side of the slats is pivoted to the frame by a joint and fastening, which admits of complete reversibility, leaving always one side of the slats exposed.



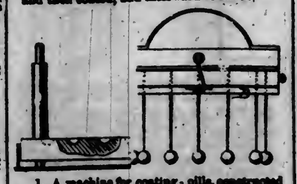
178,182.

1. The combination, with the slats A having reversible covers B, of the fastening F, adapted to lock said cover upon either side of the slats, as and for the purpose set forth.

2. The hinge, consisting of pivoted ear C, having projections *c c*, pivot *b*, and guide-pin *b'*, as and for the purpose set forth.

178,183. PILL-COATING MACHINES. Henry C. Neer, Park Ridge, N. J. [Filed Apr. 26, 1876.]

Brief.—A bed-plate contains hemispherical receptacles for pills, which are confined within a ring. A covering-plate has the same pill cells or receptacles, and a guiding-plate has apertures, through which the needle-plate passes. The pills are forced upon the needles and then coated, and afterward removed.



1. A machine for coating pills, constructed with a bed-plate provided with semi-spherical cells, a covering-plate with corresponding cells, a guide-plate with perforations, and a needle-plate with a series of needles affixed thereto, substantially in the manner and for the purpose described.

2. In a machine for coating pills, a confining ring or band, for the purpose described.

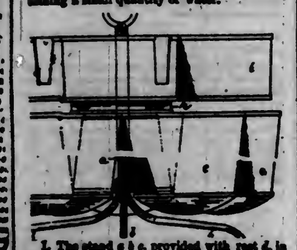
3. In a machine for coating pills, a base-plate with pillars, wherein is fitted and held in position a plate provided with hemispherical indentations, substantially in the manner and for the purpose described.

4. In a machine for coating pills, a heated plate, whereby the parentage in the pills are closed, substantially as described.

5. In a machine for coating pills, fastening devices secured to the needle-plate, whereby the covering and guiding plates are secured, substantially as described.

178,184. CULINARY STEAMERS. C. M. Newell, Boston, Mass. [Filed May 6, 1876.]

Brief.—For use within a close vessel containing a small quantity of water.



1. The stand *a b c*, provided with rest *d*, in combination with the series of connected pans *e*, and all removable together from the stand, substantially as described.

2. The stand and pans *f*, slotted to receive the handles of cups, in combination with the stand, substantially as described.

3. The stand and pans *e*, in combination with a series of pans, *f*, and *g*, hub *h*, to retain the pans *f* above the pans *e*, substantially as described.

178,185. HARVESTERS. Andrew T. Nord, Fremont, Nebr. [Filed Feb. 20, 1876.]

1. The sickle F, divided transversely in two sections, one of which is provided with a screw-stem, and the other with a screw-socket, for the purpose of adapting the sickle to use either upon the harvester or header, as described.

2. The combination, with the main frame A and the sectional sickle and finger-bar, of the reel H, consisting of two sections of radial arms and slats attached to collar *c*, which are detachably fastened to a shaft, *p*, by binding-screws, for the purpose described.

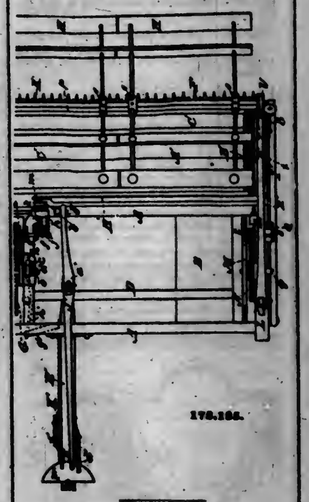
3. The combination, with the shaft *c* and the shaft B, connected by gear-wheels, of the metallic frame G, having the open bearings *r* and the pivoted retaining-hook *s*, as described.

4. The combination of the frame G, having bearings *r* and hook *s*, the shaft B, the loose-jointed connecting-rod *o*, the shaft S, the detachable bearing-plate T, and the reel-shaft connected with shaft S by gear-wheels, as and for the purpose described.

5. The combination of the reel-shaft having a rigidly attached friction disk or spring, *q*, with the gear-wheel U secured thereto by frictional contact through a screw-nut, for the purpose of taking up the momentum of the reel when the machine is suddenly stopped, as described.

6. The combination, with the tongue E', of the bent lever *f'*, the bar K' extended alongside of the tongue, the lever *g'* and the forked lever *h'* embracing the pinions *e e*, substantially as and for the purpose described.

7. The pitman H located at the junction of frames A A' and connected with the wrist-pin of the actuating-shaft at one end and the lever F' at the other, in combination with the sickle and the lever I, located upon the outside of the frame-work and pivoted at one end to frame A, at the other to the sickle, and to the pitman H in the middle, substantially as and for the purpose described.



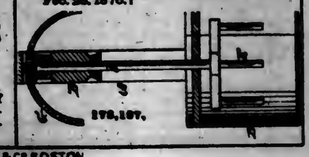
178,186.

178,186. ICE-CREAM FREEZERS. John W. Olmsted, Northport, N. Y. [Filed Nov. 17, 1876.]



In an ice-cream freezer, the combination and arrangement herein shown and described of the central ice-chamber C, open at its top, and having a perforated bottom, with the cream-can B, ice-tub A, and handle E, as and for the purpose herein set forth.

178,187. MECHANICAL MOVEMENTS. Hiram Olcott, Mount Pleasant, Iowa. [Filed Feb. 28, 1876.]

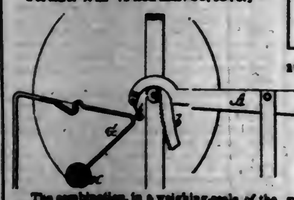


178,187.

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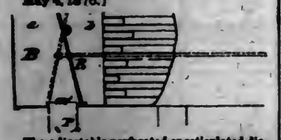
The combination of the stationary serrated segment G, swinging cross-head E, shaft b, and pinion a, substantially as and for the purpose herein set forth.

178,189.—WEIGHING-SCALES. S. L. Plumb, Fortuna, Wis. [Filed Mar. 20, 1876.]



The combination, in a weighing-scale, of the weighing-beam A, provided with the rest-bar b, the angular lever G, suspended at one end, and provided at the other end with a point, H, the link i, connecting the lever G with the beam A, and the platen, shaft, index, and dial, all constructed substantially as and for the purposes herein set forth.

178,190.—DEVICES FOR ARRESTING SPARKS AND SMOKE AT THE DRAFT IN FURNACES. Henry Pinder, New York, N. Y. [Filed May 4, 1876.]



The adjustable perforated or reticulated diaphragm E, dividing the smoke-box E into compartments a and b, either of which may be made to incircle the mouth m of the flue P, according to the adjustment of said diaphragm, substantially as and for the purpose herein described.

178,192.—STEAM-MADIATORS. J. R. Reed, Westfield, Mass. [Filed Mar. 6, 1876.]

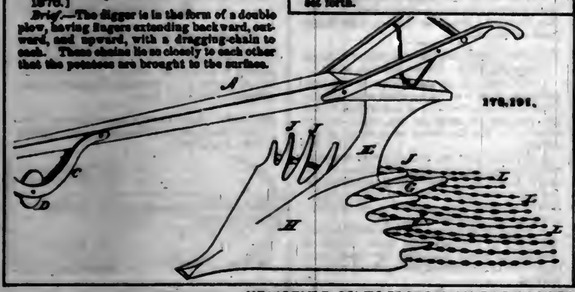


1. In a steam heater or radiator, the combination of the pipe A, having the shoulders b, with the diaphragm B, substantially as shown and described.

2. In a steam heater or radiator, a wrought-iron diaphragm, B, introduced or cast in a pipe or section of a steam-heater, substantially as shown and described.

178,193.—POTATO-DIGGERS. Artemas Rigby, Upper Stillwater, Me. [Filed Apr. 15, 1876.]

Brief.—The digger is in the form of a double plow, having fingers extending backward, outward, and upward, with a dragging-chain to each. These chains lie so closely to each other that the potatoes are brought to the surface.

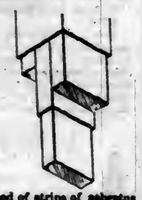


178,194.

The combination, with a plow-beam, A, having adjustable frame C, with gage-wheel D, of the standard E, with rearwardly-extending bar G, plow H, with fingers J, and the chains I, all substantially as and for the purpose.

178,195.—ADJUSTUS PACKINGS. John S. Rosenthal, Philadelphia, Pa. [Filed Apr. 28, 1876.]

178,196.



A packing, composed of strips of asbestus board, made in accordance with the patent granted to me on the 20th day of August, 1872, No. 130,863, the said strips being arranged side by side in lengths, the inner strip or strips being wrapped with fabric or braid, and the whole wrapped with a separate fabric or braid, as set forth.

178,198.—WROUGHT-IRON VESSELS FOR BOOTS, &c. Thomas F. Rowland, Brooklyn, N. Y. [Filed Mar. 21, 1876.]



1. A welded hollow wrought-iron vessel, formed without rivet, bolt, seam, or solder, substantially as and for the purposes described.

2. A welded hollow wrought-iron vessel, formed without rivet, bolt, seam, or solder, having upon its interior or exterior surfaces welded bosses or protuberances, for the purpose of attaching thereto eyebolts or any other needed devices, substantially as and for the purposes described.

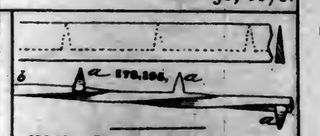
178,194.—FERTILIZERS. Alex. W. Rowland, Wilson, N. C. [Filed Apr. 20, 1876.]

The fertilizing compound herein described, composed of unleached wood-ashes, cotton-seed, rich surface earth, stable-manure or its equivalent, herein before described, sulphate of magnesia, chloride of sodium, sulphate of soda, sulphate of ammonia, nitrate of soda or its equivalent, hereinbefore described, dissolved bone, and ground plaster or its equivalent, hereinbefore described, in or about the proportions herein specified.

178,195.—BARBED-IRON FENCING. Elijah Sims, Aurora, Ill. [Filed Apr. 6, 1876.]

1. The metallic fence-rod b, having plane faces, and provided with barbs a, integral therewith, all projecting from one face, said rod twisted to arrange the barbs spirally around it, as herein set forth.

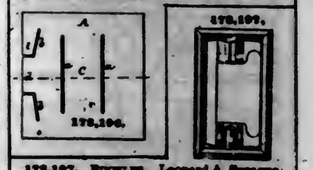
2. A twisted barbed fence-bar, the barbs being at intervals upon one side of a plane-faced bar, tapering or wedge-shaped in its cross-section, and pointed, substantially as herein set forth.



178,196.—BALE-TIES. J. H. Snyder, Richmond, Va. [Filed May 18, 1876.]

The within-described bale-tie, consisting of the plate A, having the parallel slots a a', inclined angular slots b b, tongue d, and lips c c, and stamped, substantially as and for the purpose herein set forth.

178,197.



178,197.—BUCKLES. Leonard A. Sprague, Brooklyn, N. Y. [Filed Mar. 27, 1876.]

1. A lever-buckle, constructed with a stop at the end of the bearings for the reception of lugs formed on the buckle-frame, substantially in the manner and for the purpose described.

2. In a lever-buckle, one or more lugs formed on the lever of the buckle, in combination with a stop formed at the ends of the bearings for the reception of the lugs on the buckle-frame, as and for the purpose described.

178,199.—SASH-FASTENERS. H. Stannard, Westbrook, Conn. [Filed Mar. 20, 1876.]

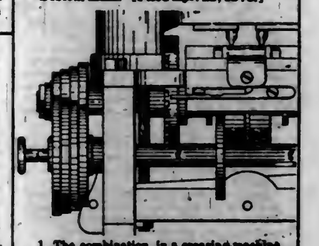
Brief.—A vibrating prop having spurs above and below its pivot, arranged in line with and forming a part of the parting-strip, is provided with a peculiar seat-plate, recessed into the window-frame, and having grooves, with which the spurs engage, to secure the pivot of the prop from undue strain upon it. The seat-plate is also notched at its ends, to hold its place more firmly in the parting-strip groove.



1. The combination, with the vibrating prop D, having spurs e above and below its pivot, and arranged in line with and adapted to form a part of the parting-strip, of the holder or seat-plate E, recessed into the window-frame, in line with said strip, and provided with grooves f, to engage with said spurs, substantially as specified.

2. The combination, with the parting-strip sections and the parting-strip groove, of the sash-holder, consisting of the pivoted prop D and its holder or seat-plate E, notched at the ends, extending into said groove and engaging with said sections, substantially as specified.

178,200.—LEATHER-CORDING MACHINES. Joseph B. Stetson, Lincoln, Me., assignor of one-half his right to Chas. W. Stetson, Boston, Mass. [Filed Apr. 20, 1876.]



1. The combination, in a corading-machine, of two adjustable corading-tools, with mechanism for feeding the strap forward, and movable guides to direct the same in its movement, substantially as specified.

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2. The combination, in a corading-machine, of a feed-wheel and two adjustable guides, with a reciprocating corading mechanism provided with means of adjustment, both laterally and vertically, substantially as and for the purpose specified.

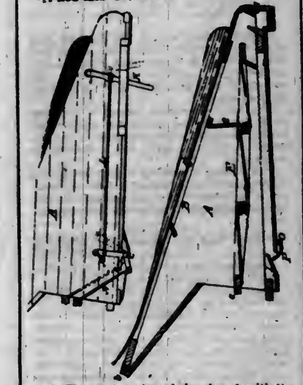
3. The combination of the reciprocating mechanism, the devices for partially rotating the tool-spindle and the pressure mechanism, substantially as and for the purpose specified.

4. The corading-tools herein described, provided with removable points, and constructed and operating substantially as and for the purpose specified.

5. The slotted hollow shaft g, in combination with the sliding rod j and key k, substantially as and for the purposes set forth.

6. A series of driving-wheels of varying sizes, fixed upon a common shaft, in combination with, and giving motion to, an inverse corresponding series loosely mounted and turning at different speeds upon a slotted hollow shaft, within which a rod and key are inserted, adapted to secure to the shaft at any time one wheel only of the loose series, substantially as and for the purpose specified.

178,200.—GRAIN SEPARATORS. J. P. Skett, Bayard, assignor of part of his right to F. Miller and Jacob Walker, Minerva, Ohio. [Filed Mar 20, 1876.]



1. The combination of the shoe A with the swinging sieve frames B and E, pivoted at opposite ends of the shoe at b and e, respectively, substantially as and for the purpose hereinbefore set forth.

2. The combination of the swinging sieve or riddle C with the sieve-frame E, having standards or uprights 2 2, for the support of the upper sieve C, substantially as and for the purpose herein shown and specified.

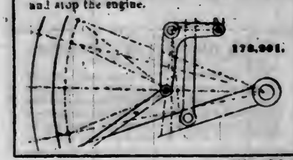
3. The combination of the lever K, rod L, bent lever M, rod N, and frame E, substantially as and for the purpose herein shown and specified.

4. The combination of the lever K, rod L, bent lever M, rod or shaft O, having tongue P, and hinged screen-door I, substantially as and for the purpose herein shown and specified.

5. The combination of the lever K, rod L, bent lever M, shaft O, having tongue P, lever M', rod N', and frame E, by which the screen-door I and frames E and B are operated simultaneously, substantially in the manner and for the purpose hereinbefore set forth.

178,201.—VALVE-GEARS FOR MOTIVE-POWER ENGINES. Henri Sulzer, Albert Sulzer, and Jean R. Ernst, Winterthur, Switzerland. [Filed Mar. 21, 1876.]

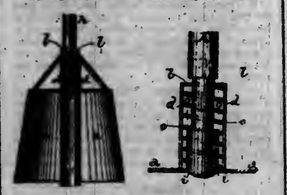
Brief.—The cut-off mechanism and the admission-valve mechanism, by suitable connections, can be operated by a single lever, which serves to reverse cut-off at any point, and start and stop the engine.



178,201.

In combination with the distributing-valve and the cut-off mechanism, the hand-lever or screw connected with the same, and arranged and operating substantially in the manner set forth, both to start, stop, or change the movement of the engine, and to regulate the cut-off, substantially as described.

178,202.—CLOTHES-POUNDERS. R. B. Swan, Aplington, Iowa. [Filed May 5, 1876.]

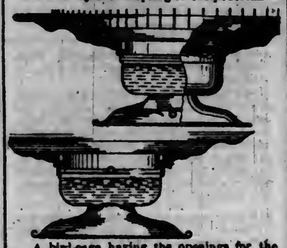


1. In an atmospheric pounder, a cup, c, having an opening in its top, which is opened and closed by the valve j on the end of the handle, substantially as shown.

2. The combination of a cup, c, tube d, and handle h, the lower end of which opens and closes the hole i, with the spring e and flange or stop f, substantially as shown.

178,203.—BIRD-CAGES. Owen W. Taft, New York, N. Y. [Filed May 23, 1876.]

Brief.—The opening is in the bottom, and is closed by bayoneting the bath-tub to the cage. The bath-tub has a removable cover, on which sand is placed. When not in use it is stowed away over a spring in the pedestal.



A bird-cage having the openings for the bath-tub and other cups, and for the ingress and egress of the bird, located in the bottom, and the said tub or cup or its support contrived to fasten in and form the closing device of said opening, substantially as specified.

178,204.—COPYING-PRESSES. Geo. C. Taft, Worcester, Mass., assignor of one-half his right to Jonathan Luther, same place. [Filed Dec. 18, 1875.]

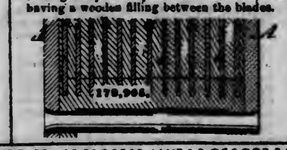


1. A portable copying-press, consisting of upper and lower leaves or plates A A', connected to each other by an adjustable hinge or hinges, and provided with an adjustable pressure-clasp or clamping device, substantially as set forth, and for the purposes stated.

2. The combination, with plates A A', of the screw-and-nut hinges B, hinged clasp C, locking-jaw C^1, and pressure-screw C^2, substantially as shown and described.

178,205.—BED-PLATES FOR PAPER-MILL ENGINES. William H. Taylor, Fulton, N. Y. [Filed July 24, 1876.]

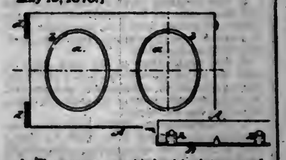
Brief.—The bed-plate is formed of a series of diagonal parallel plates cast in a box, and having a wooden filling between the blades.



178,205.

As a new article of manufacture, a bed plate for paper-pulp engines, consisting of the parallel plates A A, the diagonal cutting-plates a, secured to the base of the box, as described, and the intermediate filling-pieces of wood, all constructed and arranged for the purpose set forth.

178,206.—POCKET PICTURE-EXHIBITORS. C. H. Thompson, Waterbury, Conn. [Filed May 19, 1876.]



1. The case A, provided with slots m, and the removable back cover B with its tongues h, securing a bearing for the roll e, the whole forming a pocket picture-exhibitor, constructed and arranged substantially as described and shown.

2. The combination of case A, with its openings a a, U-shaped slot m, removable back cover B, tongues h, and rolls e e, when arranged substantially as described, and for the purpose set forth.

178,207.—EARTH-AUGERS. Chas. W. Twigg, North Union, Ind. [Filed Apr. 19, 1876.]



1. In a post-hole auger, a slot or slots in the connecting cross-piece at right angles with and in combination with slots in the disks or cutters, as and for the purpose described.

2. The combination, in a post-hole auger, of the cross-piece C, having slots b b, the cutters B, having slots e at right angles thereto, and the square bolts d d, said bolts clamping the cutter and cross-piece in position, as described, to effect the purpose set forth.

178,208.—CHAIN-PUMPS. Elias A. Van Sant, Peoria, Ill. [Filed Apr. 20, 1876.]



1. The combination of the metal cores A B, keeper m, and annulus C, substantially as and for the purposes described.

2. The combination, with the core or valve-holder, and the rubber valve D, of the annulus C, substantially as and for the purpose described.

3. The drip-groove a, placed in the periphery of the upper core B, and continued vertically down to the core A, and outward over the horizontal surface of the latter, substantially as described.

4. The combination, with the chain, of a pump, F, or the bucket A B C D, the independent air-bucket E, substantially as described.

178,209.—MECHANISMS FOR REVERSING THE MOTION OF THE BEDS OF METAL-PLANING MACHINES. Claus Van Haagen, Philadelphia, Pa., assignor to himself and A. Van Haagen, same place. [Filed May 16, 1876.]

Brief.—The feed-screw is propelled slowly when its large friction-wheel is in gear with the driving shaft, and quickly when the small one is in gear. Automatic mechanism for reversing the motion, and hand mechanism (of similar construction, and operated by shafts in the interior of the hollow shafts which operate the reversing mechanism) for starting and stopping. A spring cushioning device to break the shock at each reversal.

1. The combination, in a planing-machine, of the main shaft B, friction-wheels D E, friction-pinions D' E', intervening clutch H, and the reversing-shaft M, operated from the table of the machine, all as specified.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON

2. The casing A' secured in the permanent bearing A of the shaft B, and having bearings for the driving-shaft F, as specified.

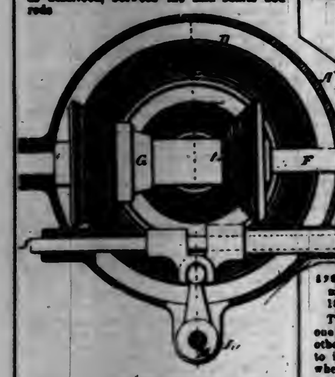
3. The combination of the clutch-wheel O and its elastic cushion with the stud b on the wheel D', and with the clutch H, as set forth.

4. The steel rings s and s', attached one to each of the pistons D' and D', and having teeth adapted to those of the clutch, all as set forth.

5. The reversing-shaft M, its arm N, and the fixed stud w, in combination with the clutch-controlling shaft I, its stop-collars n n', and arm N', and intervening mechanism, substantially as described.

6. The combination of the hand-shaft L, with the clutch-controlling shaft I and intervening mechanism, substantially as described, whereby the movement of the shaft b is transmitted to the said shaft L.

7. The combination of the tubular reversing-shaft M, the internal hand-shaft L, sliding rods K and J, and connections, substantially as described, between the said shafts and rods

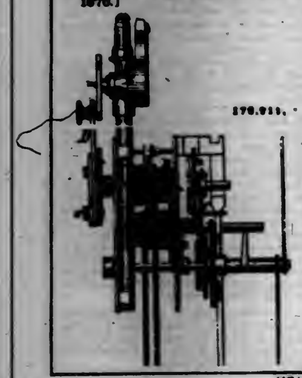


178,910. PROCESSES OF PRODUCING PHOTOCHROMIC PRINTS. Leon Vidal, Marseilles, France. (Filed June 11, 1875.)

Brief.—Stopped-out negatives, corresponding in number to the number of colors required in the finished picture, are employed for transferring, by the direct agency of light, different parts of the selected picture to differently-colored sheets of bichromatized gelatine, the completed photograph in colors being formed by the superposition of such sheets, one upon another.

The process of producing photographic pictures in various colors, by producing a series of partial pictures in single colors by the direct action of light alone, or in conjunction with mechanical means, and mounting such pictures one above another upon a suitable supporting-surface, substantially as described.

178,911. AUTOMATIC GAS-LIGHTERS. Kasimir Vogel, Chelsea, Mass. (Filed Mar. 4, 1876.)



178,911.

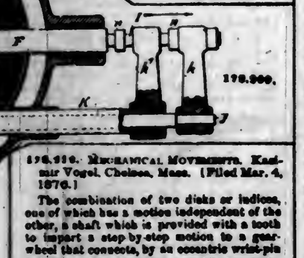
1. The combination, with a gas-burner and its supply-cock, of a cam which controls a mechanism for opening and closing the supply-cock, and also a mechanism for lighting the gas when the supply-cock has been opened, said cam being connected to a clock-movement, so that, by setting the clock, the time for lighting and extinguishing the gas can be adjusted substantially in the manner herein shown and described.

2. The combination, with a gas-burner and its gas supply cock, and with a mechanism for lighting and extinguishing the gas, of a drum, B, disk a, studs p p', lever f, and cam c, said cam being connected to a clock-movement, substantially in the manner herein set forth.

3. The combination, with a gas-cock, E, of a lever, m, and rod D, provided with an oblong slot, q, which engages with an eccentric wrist-pin, c, in a disk to which motion is imparted by a weight or spring, substantially as and for the purpose shown and described.



178,910.



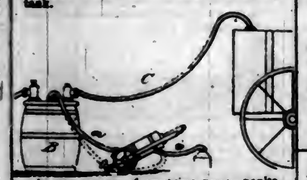
178,909.

178,912. MECHANICAL MOVEMENTS. Kasimir Vogel, Chelsea, Mass. (Filed Mar. 4, 1876.)

The combination of two disks or indices, one of which has a motion independent of the other, a shaft which is provided with a tooth to impart a step by-step motion to a gear-wheel that connects, by an eccentric wrist-pin and pitman rod, with the movable disk or index, either the shaft or the disks or indices being made to revolve, substantially as shown and described.

178,913. APPARATUS FOR CLEANING PRIVY-VAULTS. Charles H. Voute, Philadelphia, Pa. (Filed May 4, 1876.)

Brief.—A double-acting force-pump is used, together with connecting pipes and valves, for the purpose of first drawing the contents of the vault into the primary receiver, after which, by changing the coupling of the pipes to the pump, and reversing the position of valves on the primary receiver, the matter is forced from this receiver into a conveying-tank.

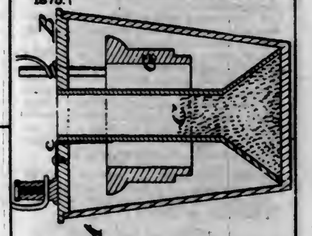


In the process of emptying privy vaults, the conveying pipes or hose C E, a receiver, B, a double acting air-pump, and interchangeable pipes a b, substantially as described.

2. The combination, substantially as described, of the grooved sleeve b, face-ratchet y, and nut W, with the piston D', and feed-screw X, of a rock-drilling machine.

3. The chambered piston D', having projections f, in combination with the sleeve b having corresponding grooves e, made straight throughout the greater portion of their length and spiral at the end, all as and for the purpose set forth.

178,916. GALVANIC BATTERIES. John R. Watson, Louisville, Ky. (Filed Jan. 23, 1876.)



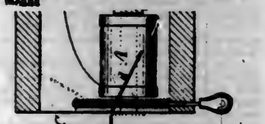
1. In a voltaic battery, the inverted lead funnel C, perforated through the conical portion, as shown, in combination with the copper strip c, and arranged in connection with the jar A, zinc pole, and cover B, substantially as specified.

2. A battery solution formed of zinc sulphate, lead acetate, and water, adapted for use in connection with sulphate of copper, metallic lead, and metallic zinc, substantially as specified.

3. A battery consisting of the jar A, lead funnel C, zinc G, sulphate of copper, and solution of sulphate of zinc and acetate of lead, combined and operating substantially as specified.

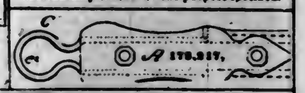
178,915. ELECTRO-MAGNETIC ANNUNCIATORS. A. S. Wetmore, Cleveland, Ohio, assignor of one-half his right to R. Mill, same place. (Filed Oct. 20, 1875.)

Brief.—Number-bearing plate consists of a thin magnetized steel armature poised in an opening in a non-magnetic plate placed in front of the electro-magnet. When the number-plate is drawn down by the electro-magnet, thus bringing into view its number, it is retained in place by its permanent magnetism, until disengaged by any suitable mechanical means



1. The plate C, placed in front of the magnets A as an insulating medium, through which the armature D is actuated, substantially as specified.

2. The combination, with the magnet A and the plate C, of the armature D, having an arm, d, and poised in an opening in the plate C, substantially as and for the purpose specified.



178,917.



178,914.

178,914. ROCK-DRILLING MACHINES. John B. Waring, New York, N. Y., assignor to the Waring Rock-Drill Company, same place. (Filed July 21, 1874.)

1. The within-described drill-chuck, consisting of two parts, or of one part, split throughout the greater portion of its length, and confined by bolts and by a ring, c', adapted to the tapering portion of the holder, all substantially as set forth.

178,917. HARNESS. John L. White, Wakefield, Va. (Filed Apr. 8, 1876.)

The combination of the brace-tag C, having loop c' and outwardly-projecting lug c, the plate A, provided with shoulders c', and the perforated metal strip d, with loop on one end to fit the buckle, when secured together by the bolt and nuts, substantially as described.

178,919. MANUFACTURE OF SPOONS. Le Roy S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. (Filed May 4, 1876.)



The improvement in the art of manufacturing forks and spoons, consisting in cutting out the blank with a lateral swell in the shank, or with the shank of a width greater than is required for the finished article, and subsequently condensing or hardening the metal in the shank by pressure applied in a direction transverse to the plane of the blank, and in the direction of the pressure produced in the rolling of the latter, and of the sheet from which it has been cut, substantially as and for the purpose herein described.

178,918. MEAT-CANS. John A. Wilson, Chicago, Ill. (Filed Apr. 15, 1876.)

Brief.—On one side of the diagonal lap-joint forms a depression for solder.

The joint between the heads and body of the sheet-metal can, consisting of the diagonal three-ply lap a a' b', in conjunction with the shoulder b, forming a groove, D, upon the outside of the can, which is filled with solder, substantially as specified.

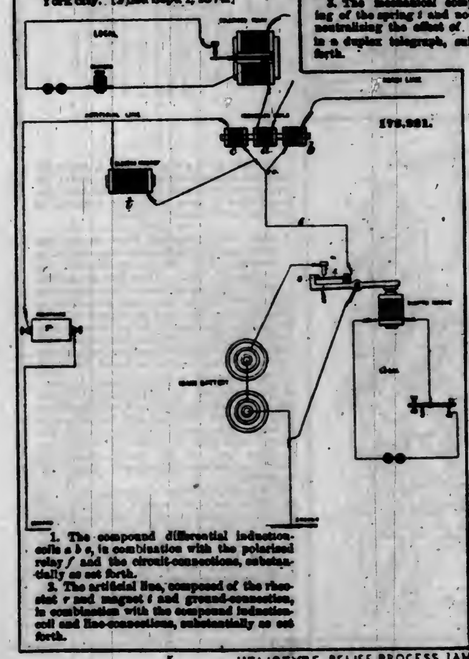


178,919 178,904.

178,920. DOUBLE-BITTED DRILLS. Wm. H. Yarborough, Sherman, Tex. (Filed Oct. 30, 1875.)

A double-bitted drill, consisting of a stem, a, and two curved cutters, b b, pivoted as shown, and operated as and for the purpose herein set forth.

178,921. DUPLEX TELEGRAPH. Thomas A. Edison, Newark, N. J., assignor of one-half his right to George B. Prescott, New York city. (Filed Sept. 1, 1874.)

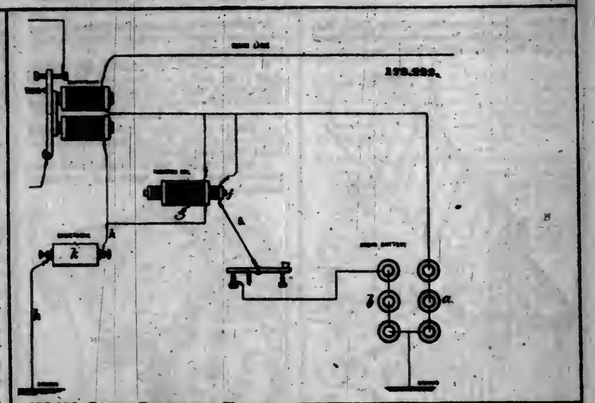


178,921.

1. The compound differential induction-coils a b c, in combination with the polarized relay f and the circuit-connections, substantially as set forth.

2. The artificial line, composed of the rheostat r and magnet t and ground-connection, in combination with the compound induction-coil and line-connections, substantially as set forth.

178,922.



178,922.

178,923. DUPLEX TELEGRAPH. Thomas A. Edison, Newark, N. J., assignor of one-half his right to George B. Prescott, New York city. (Filed Sept. 1, 1874.)

The battery a b in a local circuit, connected to the line, in which is a circuit-breaker, a finger-key, in combination with the magnet l m, branch h, and resistance k, and the induction-coils f g, the parts operating substantially as set forth.

178,926. DUPLEX TELEGRAPH. Thomas A. Edison, Newark, N. J., assignor of one-half his right to George B. Prescott, New York city. (Filed Sept. 1, 1874.)

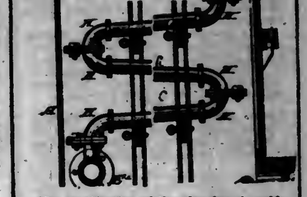
1. The magnets l m, through which the current sent passes to the line, and artificial line, in combination with the armature-lever e, and sliding core, substantially as specified.

2. The electro-magnets c d, in the local circuit containing the circuit-breaker c, in combination with the circuit-closing lever e, notched armature-lever v, spring f, and armature-lever e, substantially as set forth.

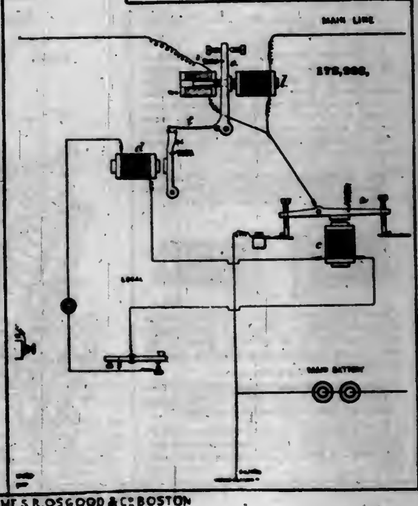
3. The mounted compound coil, consisting of the spring f and notched lever v, for neutralizing the effect of the static charge in a duplex telegraph, substantially as set forth.

REISSUES.

7,180. STEAM-RADIATORS. John C. Cope, Philadelphia, Pa. Patent No. 176,961, dated Mar. 28, 1876. (Filed May 9, 1876.)

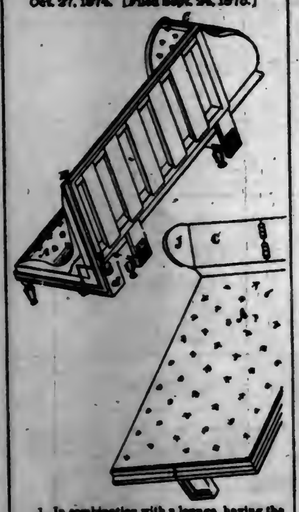


The combination of the chamber A, cold-air pipe C, hot-air pipe D, sectional steam-pipes E F, inclined pipes G, constructed and arranged with bisected return-bends H H, substantially as and for the purpose herein set forth.



178,960.

7,140. BED-LOUNGE. John Hoey, San Francisco, Cal. Patent No. 150,280, dated Oct. 27, 1874. [Filed Sept. 24, 1873.]



1. In combination with a lounge, having the back B arranged to turn down into a horizontal position, the hinged block *d* and hook *e*, substantially as and for the purpose above described.

2. In combination with a lounge, having the back B arranged to turn down into a horizontal position, the stationary face-plate J, in combination with the divided cushion O, which is arranged to turn backward, substantially as and for the purpose described.

7,141. BUCKLES. Al R. Shaw, Medford, Mass., assignor to M. W. Carr and H. W. Brooks. Patent No. 141,720, dated Aug. 12, 1873. [Filed Apr. 26, 1876.]



1. The above-described buckle, consisting of the crimped frame *a a'*, and the bent tongue *b b'*, constructed and arranged substantially as and for the purpose herein before set forth.

2. In a stocking clasp or supporter, the tongue or clasp *b b'*, terminating in ends adapted to be attached to a bar or other support, all substantially as and for the purpose described.

7,142. RAILWAY-CAR WHEELS. R. N. Allen, Rahway, N. Y. Patent No. 128,980, dated July 16, 1872. [Filed Oct. 20, 1875.]



In railway-car wheels, the metallic tire, with an annular flange or web, B, in combination with paper filling or packing, plates D D', and bolt, substantially as and for the purpose set forth.

7,143. BARK-MILLS. Owen Coogan, Pittsfield, Mass. Patent No. 120,240, dated Oct. 24, 1871. [Filed May 13, 1876.]

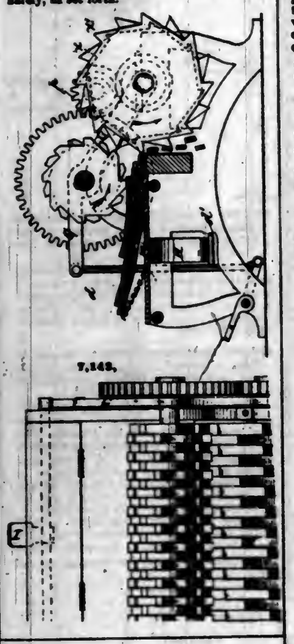
1. In a bark-mill, the weighted lever G, carrying an idle-wheel which communicates motion from the shaft of the cutters to the feed-roller.

2. A feed-roller, connected to pressure levers which are adapted to raise or depress the feed-roller, as set forth.

3. In a bark-mill, the levers G, carrying the shaft of the feeder, and in an arm of one the idle-wheel *p*, said levers being pivoted upon the shaft of the cutting-cylinder and depressed at the opposite ends, as set forth.

4. The levers G, carrying the feeder-rods *d d*, arms *S'*, spring H, and treadle I, all combined to operate as set forth.

5. In a bark-mill, the cutting-cylinder composed of disks having teeth *s s'*, set alternately, as set forth.



7,143.



7,144.

7,144. HARVESTERS. John E. Heward, St. Paul, Minn. Patent No. 141,802, dated Aug. 19, 1873. [Filed Mar. 11, 1876.]

1. The broad continuous elevator-apron, having its forward edge extended forward or in advance of the platform-apron or carrier, and operating in combination therewith, substantially as described.

2. The roller *J'*, in combination with the yielding spring-board *J*, substantially as and for the purpose set forth.

3. The compressor for holding the grain down upon the elevator-apron, suspended in position by springs, as described, in combination with a lifting-cord or its equivalent, whereby the driver is enabled, while the machine is in operation, to relieve the pressure of said cover, for permitting the passage of accumulations of grain, substantially as described.

4. The lifting-roller K, in combination with the spring-board J, substantially as and for the purpose set forth.

5. The lifting-roller K, mounted in pivotal bearings on the cast-support, substantially as and for the purpose set forth.

6. The corrugated stripping-roller D, in combination with the elevator, substantially as and for the purpose set forth.

7. The arrangement of the secondary elevating and discharging apron O', in the described relation to the shield or delivery-board E, substantially as and for the purpose set forth.

7,145. BACK COMB. Julius W. Fleischmann, Williamsburg, N. Y. Design No. 8,997, dated Feb. 15, 1876. [Filed May 8, 1876.]



A design for the head-piece of a comb, the essential characteristic of which is that the head-piece has formed in it one or more picture frames or cases, containing a picture or pictures, substantially as shown.

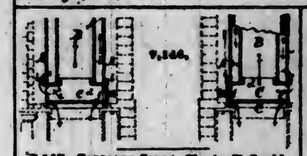
7,146. APPARATUS FOR BURNING AND REVIVIFYING BONE-BLACK. Jos. Gandolfo, Brooklyn, N. Y. Patent No. 165,992, dated July 27, 1875. [Filed Feb. 24, 1876.]

Brief.—The socket supporting the retort and central flue is open above and below, so that the bone-black may be allowed to fall directly into the chamber below without clogging. The flue traversing the socket horizontally permits the furnace products of combustion to enter the central flue of the retort.

1. The revivifying or burning retort A, open at the upper end for the discharge of gases, and at the lower end for the discharge of the bone-black, and combined with the inner pipe B, whose lower part communicates, by the lateral flue *c*, which traverses the retort above its lower open end, with the fire-chamber of the furnace, substantially as herein shown and described.

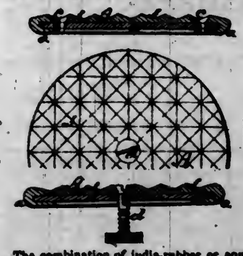
2. The socket C, open on top and bottom to constitute a support for and a continuation of the retort A, and provided with the hollow bridge *d*, which is open on top and supports the flue B, and is closed at the bottom, and with the aperture or smoke-passage *e*, that leads into the hollow bridge, substantially as herein shown and described.

3. The combination of the retort A and pipe B with the socket C, which has the hollow bridge or partition *d*, substantially as herein shown and described.



7,144.

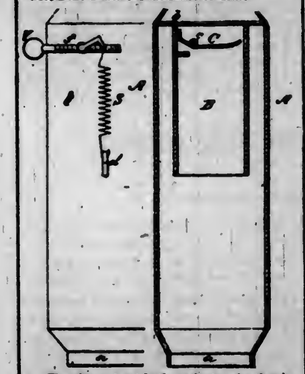
7,147. CARRIAGE-STEPS. Charles H. Gould, Boston, Mass. Patent No. 157,547, dated Apr. 8, 1873. [Filed Feb. 20, 1876.]



The combination of india-rubber or equivalent elastic shield top or surface A with a sheet or disk, B, of a fibrous material, forming a body or back to compose a flexible elastic shield for car, carriage, and other steps, substantially as and for the purpose herein specified.

7,148. STOVE-PIPE DAMPERS. J. H. Rhamy, Antioch, Ind. Patent No. 176,166, dated Mar. 21, 1876. [Filed May 20, 1876.]

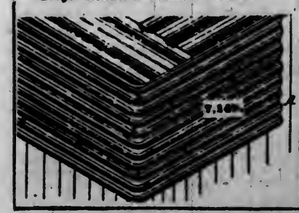
Brief.—The weight can be adjusted to counteract the spring, and render the damper automatic under the influence of draft.



The drum A, at both ends terminating in the collars *a a* of reduced diameter, and provided with ring *b*, for the support of the bar B, in combination with the hinged damper C, perforated rod *c*, having an arm, *c'*, spring S, and weighted adjustable screw-threaded rod, substantially as and for the purpose set forth.

7,149. OCCIPITAL CLAMPS OR PROTECTORS FOR TRUSSES. Edward A. C. Bouistous, Boston, Mass., assignor to M. Gould's Sons. Patent No. 59,456, dated Nov. 6, 1866. [Filed Apr. 22, 1876.]

Brief.—Reissue of Patent No. 59,456.

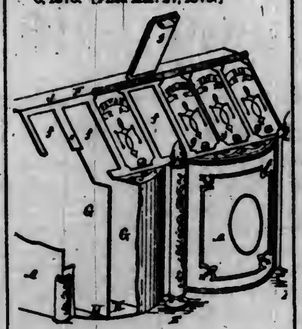


7,149.

1. The combination, in a skate, of laterally-sliding clamps for grasping the sole, a plate or rest for the foot, and mechanism for moving and holding the clamps, substantially as specified.

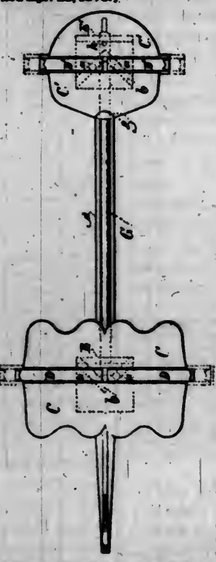
2. The combination, with the clamps for grasping the sole and clamps for grasping the heel, of mechanism acting between said clamps in opposite directions, so that one set of clamps acts as a resistance in closing the other set of clamps, substantially as set forth.

7,150. GARMENTS. William T. Sherw, Chicago, Ill. Patent No. 161,620, dated Apr. 6, 1876. [Filed Mar. 27, 1876.]



The tea-caddy consisting of the case A, provided with partitions G, forming a series of parallel compartments, H, provided with lids *f f*, substantially as specified.

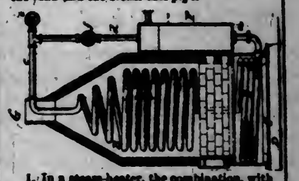
7,151. SEARCH. George B. Terrell, South Orange, N. J., assignee of M. A. Lovett and T. G. Swartwout, executors of John Lovett, deceased. Patent No. 28,495, dated May 29, 1860; reissue No. 3,186, dated Nov. 10, 1868; extended seven years; reissue No. 6,900, dated Apr. 6, 1875. [Filed Apr. 22, 1876.]



1. The combination, in a skate, of laterally-sliding clamps for grasping the sole, a plate or rest for the foot, internally-sliding clamps, mechanism that moves and holds such clamps and transfers a longitudinal motion into a transverse motion, and clamps for grasping the heel, substantially as specified.

7,152. STEAM-HEATERS. Andw. Van Horn, Brooklyn, E. D., N. Y., assignor of one-half interest to Jedediah Wilcox, New Haven, Conn. Patent No. 156,546, dated Jan. 6, 1875. [Filed Apr. 6, 1876.]

Brief.—The steam-circulation may extend to the radiators, or be limited by compelling it to pass through the branch pipe connecting the tank and the steam-exit pipe.

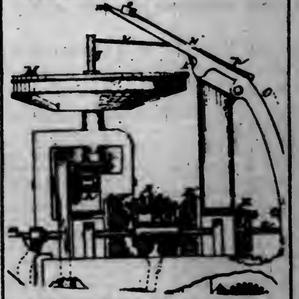


1. In a steam-heater, the combination, with the steam-generating coil B and water-supply tank F, of the branch pipe *d*, having stop-cock *f*, and steam-pipe *c*, having stop-cock *e*, substantially as and for the purpose described.

2. The combination, in a steam-heater, of the generating-coil E, surrounding the fire-box, the secondary or steam coil B above the generating-coil, and connected thereto, the water-supply tank F, connected to said generating-coil, and an exit for the steam from the secondary coil, to convey the steam to the radiating apparatus, and a return to the water-tank, substantially as specified.

7,153. MACHINES FOR TAPPING SCREW-NUTS. Samuel L. Worden, Providence, R. I., assignor to American Screw Company. Patent No. 166,490, dated Aug. 10, 1875. [Filed Mar. 15, 1876.]

Brief.—The column of blanks in the receiving-stock is supported by the tap when at work. When the tap has passed through the blank, it comes in contact with an arm attached to a bell-crank lever, forces it back, and thereby causes the stop to be withdrawn from the mouth of the stock, to allow the previously-tapped blank to fall. When the tap is withdrawn, a spring forces the stop back to its normal position.



1. The combination of the revolving disk M', for containing cut-blanks in a mass, and the vibrating separator N, when the latter is constructed with a shovel end, *n*, a mortise, *s*, and guard *s*, substantially as described.

2. The combination of two vibrating mortised separator N with a stationary receiving-stock and a spring-check, substantially as described.

3. The combination of the threading-tap *a* with the devices, substantially as described, for discharging the nuts one by one.

4. The combination and arrangement of the threading-tap *a* with the stock O and holder O', for the nut-blanks, whereby the said tap, while threading the blank in the column of blanks next above the nut-threaded blank, shall support the whole column of blanks above the tap while the underlying nut is being discharged, substantially as specified.

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COMMISSIONER'S DECISIONS.

J. F. W. DORMAN.—*Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of John F. W. Dorman for letters patent for* "IMPROVEMENTS IN RUBBER BANDS FOR HAND-STAMPS," *filed January* 5, 1876.—*Decided May* 18, 1876.]

In amending original applications it will not be considered as the introduction of new matter, if the subject is embraced either in the model, drawing, or specification, and the amendment can be so made as to conform to that one which does contain the additional feature.

DOOLITTLE, *Acting Commissioner:*

This appeal is taken from the action of the Primary Examiner in refusing to admit certain amendments to the drawing and specification in an application pending before him.

Two issues are raised: First, as to whether the model and drawings can both be amended by what is contained in the original specification; and, second, does the specification in the present case contain such a description of the alleged new matter as would warrant the admission of the proposed new drawing and amended description.

The 32d Rule reads as follows:

All amendments of the model, drawings, or specification, in the case of original applications, which are capable of illustration by drawing or model, must conform to at least one of them as they were at the time of the filing of the application; further changes than this can only be made by filing a new application. If the invention does not admit of illustration by drawing, amendment of the specification may be made upon proof satisfactory to the Commissioner that the proposed amendment is a part of the original invention.

The effect of this rule is to exclude matter that is not substantially embraced in either the model, the drawing, or the specification, and if one of these contains a definite explanation or illustration of matter not indicated in the other two, they may be amended so as to conform to that one which does contain the additional feature.

The reason of the rule, as well as its limitations, are indicated in the case of Carlock, (8 OFFICIAL GAZETTE, p. 191,) in the remark that "it is only those changes that affect the substance or materiality of an invention that are objectionable as new matter."

The rule also makes provision for that class of cases in which no model or drawing is required, by permitting the introduction of new matter into the specification, "upon proof satisfactory to the Commissioner that the proposed amendment is a part of the original invention." This additional section was rendered necessary by the fact that as the rule applicable to cases in which specification, model, and drawings, were filed, allowed an amendment *only* as to matter contained in at least one of them, it followed that if an application consisted of a specification *alone*, no correction could be made.

Dorman, in his specification as originally filed, describes his invention as "an improvement in rubber bands for hand and other stamps," and has relation to that class of stamps in which movable rubber bands containing—

Printing characters or type-expressions are employed with or without a fixed printing-face. * * * * * The stamps alluded to are of two descriptions. In one class the bands are endless, passing over a stationary block, or revolving wheel or spools. In the other class, the bands are not endless, but unwind from one spool-roller, or its equivalent, and wind on another. A hand-stamp of the former description is shown in the patent granted to me June 8, 1875. Since obtaining that patent it has become important to construct a band more durable and less liable to stretch or break than those having their ends joined or cemented together, and the object of my present invention is to obtain those results.

Upon the strength of this description he now seeks to introduce three new figures, illustrative of the stamp patented to him June 8, 1875, together with matter descriptive thereof.

It is evident from the language employed in describing the invention that it was regarded as an improvement upon and forming a part of the hand-stamp patented to him June 8, 1875, and it seems proper that he should be permitted to illustrate in full the construction and means of applying the device for which he is now seeking a patent. The character and scope of the invention are not changed thereby, but are made more manifest.

The amendment proposed seems to come within the operation of the rule and will be admitted.

JOHN C. RICHARDS.—*Appeal.*

[*On appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of John C. Richards for patent for* "RUBBER ERASER."—*Decided May* 17, 1876.]

Where devices shown in references given in the rejection of a case perform the same functions as those contained in the pending application, a mere change of form of the intermediate portions of such device do not change or affect the result produced and claimed.

A rubber eraser, one end being of wedge shape, its opposite end pointed, while the body or central portion of the same is square or polygonal, is fully met by a reference to the similar construction of the opposite ends, connected with a cylindrical body.

[*Thos. D. Stetson*, attorney.]

DOOLITTLE, *Acting Commissioner:*

This invention consists in the peculiar form given to an eraser made entirely of india-rubber. The central portion or body is square or polygonal, and the ends of different configurations, one being a wedge-shape, the opposite end being pointed. This application was rejected by the Examiner in charge, and his action affirmed by the Examiners-in-Chief, upon references to the patents, showing the opposite *ends* of like form to those shown by applicant, while the center or body was in each cylindrical.

The devices upon which this case was rejected perform the same functions as does the device of applicant; and the change of form in the body or central portion of the "rubber eraser" does not change the use and application of the main feature of the invention, and one that goes to the utility of the same in any other or different manner from that shown in the references. Faber's well-known diamond eraser is also a substantial reference.

A change of form of a machine, embodying, however, the principle and substance of a prior invention, and which is only the result of practical experience in the use of such prior invention is not an improvement upon such former invention.—*Tracey* vs. *Torrey*, (2 Blatch., 278).

The above, as well as the general tenor of the decisions of the courts upon the question of change of form in the structure of the device or machine, applies mainly to the results produced by such change. If such results are substantially those that have before been produced by analogous devices or machines, as is the case before me, a patent should not be granted upon such an application.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF RHODE ISLAND.

THE ATTORNEY-GENERAL, UPON THE RELATION OF GEORGE V. HECKER *vs.* THE RUMFORD CHEMICAL WORKS *et al.*

[*In equity.—Before* SHEPLEY and KNOWLES, *JJ.—Decided May* 15, 1876.]

This was a proceeding in equity in the name of "George H. Williams as the Attorney-General, upon relation of Hecker vs. The Rumford Chemical Works *et al.*," the prayer of the bill being to declare void and to cancel and annul certain reissued letters patent, and to enjoin defendants from prosecuting any suit at law or equity for alleged infringements of the same.

A patent for a useful invention is not, under the laws of the United States, a monopoly, in the old sense of the common law. It more nearly resembles a contract which, under the authority conferred by the constitution, Congress authorizes to be entered into between the Government and the inventor, securing to him, for a limited time, the exclusive enjoyment of the practice of his invention in consideration of the disclosure of his secret to the public, and his relinquishment of his invention to the public at the end of the term.

The practice that obtains in England as to the mode or forms of procedure for the cancelation and annulling letters patent by *scire facias* does not obtain in this country.

No statute of the United States confers or recognizes the existence of any such right, nor can any precedent be found for the suing out of a writ of *scire facias*, or the bringing of a bill in equity to repeal or cancel the patent by the Attorney-General, in the name and behalf of the United States, either with or without a relator.

The jurisdiction conferred, by the acts of 1790 and 1793, upon the Federal courts to repeal a patent, and which without express grant it is believed did not inhere in those courts, is nowhere conferred by the acts of 1836 or 1870, or in the Revised Statutes of 1874.

The decisions in the Federal courts sustaining proceedings in equity to vacate letters patent granting lands obtained by fraud, furnish no precedent in case of letters patent for inventions.

"The Attorney-General of the United States, as he is Attorney-General," has no authority as such and in his own name to file an information, or commence proceedings by bill in equity.

If the court has jurisdiction in cases of this character the information should be in the name and behalf of the United States, and should be filed by the attorney of the United States, in the district in which the information is filed.

Any other mode of procedure (unless authority is expressly conferred by statute) is neither authorized by law, sanctioned by any precedent, nor supported by the authority of any judicial decision.

[*Causten Browne* and *Chas. F. Blake*, for the informant.
Wm. M. Evarts, *Clarence A. Seward*, and *Chas. S. Bradley*, for the defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.:*

The information in this case is by "George H. Williams, as he is Attorney-General of the United States of America," at the relation of George V. Hecker, of the city of New York, against the Rumford Chemical Works, a corporation duly organized under the laws of the State of Rhode Island, and a citizen of said State, and domiciled therein, and against George F. Wilson, a citizen of the State of Rhode Island, as president of said corporation and its general manager.

The information showeth that letters patent of the United States were on the 22d day of April, 1856, granted to Eben N. Horsford for a new and improved preparation or substance, being a substitute for a pulverulent acid for use in the manufacture of dry powders and other similar powders when a dry acid is required; that thereafter the letters patent became vested in the Rumford Chemical Works as assignee of Horsford. Two surrenders and reissues of the patent are then set out in the information, the first reissue being dated May 7, 1867, and numbered 2,597, and the second June 9, 1868, and numbered 2,979. The reissue 2,979 is alleged to have been wrongfully and fraudulently obtained, and to be null and void by reason of claiming that which is not described in the original letters patent of Horsford, and that which was not the invention of Horsford as described in his original patent. The third claim of the reissued patent is alleged to be void, not only as claiming an invention not described in the original patent, and not the invention of Horsford at the date thereof, but for want of any such description in either the original or reissued letters patent of the invention therein claimed in such full, clear, and exact terms as to comply in that respect with the requirements of law. The fourth claim is alleged to be void, also, because the subject-matter thereof is not described in the original patent, and because the subject-matter of the claim is not described with sufficient accuracy to enable a person skilled in the art most nearly allied thereto to successfully make and use the same. The information further shows that on the 17th of June, 1868, the Rumford Chemical Works filed a bill in equity in the Circuit Court of the United States for the Southern District of New York, against one John E. Lauer, alleging infringement of Letters Patent No. 2,979; that Lauer was an employe of the relator, George V. Hecker, and his partner, John Hecker; that the alleged acts of infringment were done in the course of said employment, and the defense of the suit was assumed by the Heckers; that after a full hearing before his Honor, Judge Blatchford, one of the judges of said court, it was adjudged and decreed that the first and second claims of said patent were void for want of novelty; that on or about the 13th day of September, 1869, the Rumford Chemical Works filed another bill in equity in the same Court against the Heckers, alleging infringement of said Letters Patent No. 2,979; and that thereupon and after the decree in the suit in equity against Lauer, upon the application of the complainant, the cause against Lauer was reopened and further proofs were taken in the cause. Proofs were also taken in the cause against the Heckers, and by stipulation of the parties the testimony taken in the Lauer case was used in the Hecker case, and after a full hearing it was adjudged and decreed in both cases that the first, second, and third claims of reissued Patent No. 2,979 were void for want of novelty, and that the defendant, George V. Hecker, had infringed the fourth claim of said letters patent.

An allegation is then made that the question of the validity of the fourth claim was not argued or heard in that trial, and that it is invalid for the reasons before stated; that the cause was referred to a master to take account of the profits made by the defendants in infringement of the fourth claim, and it does not appear that such accounting has been completed or any final decree made in the cause. The information sets out the grounds upon which the court adjudged and decreed the first, second, and third claims of the patent to be void for the want of novelty, and also the grounds upon which it is now alleged that the first, second, third, and fourth claims of the reissued patent are void for want of novelty or patentability; and that, before the expiration of the original term for which the letters patent were granted, the same were extended for the term of seven years, and the extended term was duly assigned to the Rumford Chemical Works. The information proceeds to give the requisite notice of prior publications relied upon to prove that Horsford was not the original and first inventor of the inventions described and claimed in the several claims of the patent.

Allegation is then made that, since the filing of the bills against Lauer and Hecker, the Rumford Chemical Works have instituted a large number of suits, in different circuits, against persons charged with infringing reissue No. 2,979, which alleged infringements consist, in some cases, in the resale of packages of flour prepared and sold to them by Hecker, for which preparation and sale the Heckers, and Lauer, their employé, were sued in the aforementioned suits; that all such suits being against customers of the said Heckers, they are obliged to assume the defence, and that thereby they are subjected to great vexation and expense, inasmuch as in those suits the complainant endeavors to maintain the validity of all the claims of the patent. The information further alleges that the Rumford Chemical Works has instituted a suit in equity against George V. Hecker, in the Circuit Court of the United States for the District of New Jersey, for alleged infringement of Reissue 2,979, and threatens to institute other suits against other defendants for using and selling the same flour for the making and using of which the Heckers were sued in the Southern District of New York; that although the fourth claim of the patent was adjudged to be valid, yet the informant believes that the decree was unadvisedly made, and that the judgment of the court sustaining said claim cannot be revised at the private instance of the defendants therein save by the Supreme Court of the United States on appeal from the final decree, which final decree cannot be made until the completion of the accounting, and during the pendency of the accounting the decree is being used for harassing and vexatious litigation under said claim; that there are valid and subsisting patents, granted according to law and now owned by the Heckers, the use of the inventions secured by said patents being greatly impeded and injured by the aforesaid doings of the Rumford Chemical Works, and by the existence of the reissued patents aforesaid. The prayer is that the reissued Patent No. 2,979 should be declared void, and be canceled and annulled, and that the Rumford Chemical Works be enjoined from prosecuting any suit at law or in eqnity, for alleged infringements of the same. The bill is signed by George H. Williams, Attorney-General of the United States, by John A. Gardner, Attorney of the United States in and for the District of Rhode Island. A motion was made and filed to set aside the service of the subpœna, and take the information from the files. The evidence offered under this motion was ordered to be filed and made a part of the record in the cause. Inasmuch as the principal questions presented on the hearing of the motion are raised by the demurrer, the court decided to hear the parties on the bill and demurrer, and further consideration of the motion is unnecessary. Defendants demur to the bill on the grounds briefly stated: first, that informant does not state any case which entitles him to relief against these defendants; second, that the informant had no lawful authority to file this information; third, that the information and this proceeding are not in the name or in behalf of the United States; fourth, that the informant, "as he is Attorney-General of the United States," had no lawful authority to file this information; fifth, that the informant has not signed the

said bill or information, nor has counsel signed the same; sixth, that this court has no jurisdiction under the constitution and laws of the United States to entertain this information and proceed therewith; seventh, that this court has no jurisdiction to entertain the said information, or to proceed therewith, because it appears that the United States are not parties thereto, or petitioners or plaintiffs therein; eighth, that this court has no jurisdiction, because it does not appear that the parties are citizens of different States.

A patent for a useful invention is not, under the laws of the United States, a monopoly in the old sense of the common law. The whole patent system of the United States rests upon the basis of the constitutional provision conferring upon Congress the power to promote the progress of science and the useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries. So long as such writings and discoveries were not communicated to the public, authors and inventors had a possession of, which was equivalent to a property in, their writings and discoveries. When communicated to the public, by the common law, that property was lost. In consideration that an inventor will disclose the secret of his invention, and put it in immediate practice, and afford to the public the opportunity to practice it, when it becomes public property at the expiration of the term of the patent, the government grants to the author of a new and useful invention the exclusive right in that invention for a term of years. This grant is not the exercise of any prerogative to confer upon one or more of the subjects of a government the exclusive property in that which would otherwise belong to the common right. It more nearly resembles a contract which, under the authority conferred by the constitution, Congress authorizes to be entered into between the government and the inventor, securing to him, for a limited time, the exclusive enjoyment of the practice of his invention, in consideration of the disclosure of his secret to the public, and his relinquishment of his invention to the public at the end of the term. To the legislation of Congress, and to this alone, we must resort, under our form of government, for guidance as to the extent, limitations, and conditions of the respective rights of inventors and the public, and as to the forms of remedy and the remedial jurisdiction, as well as the remedy itself, under our system of patent law. So far as any inquiry may relate to the relations between the government and the grantee of letters patent of the United States, but little light can be reflected from the English decisions. Originating, as their system of patent law did, in a supposed right of the king, residing in his royal prerogative to create monopolies, and continued under the authority of the act of Parliament of 21 James I, which, while prohibiting by the Statute of Monopolies the granting of exclusive privileges in trade, excepted letters patent for the sole working or making of any manner of new manufacture within the realm to the first and true inventors of such manufactures, it evidently rests upon a different basis from a system founded solely upon the express grant of power in a written constitution.

As in England the grant of a patent is a matter of grace and favor, the crown may annex any conditions it pleases to the grant. Every English patent contains a proviso, which makes the grant it contains revocable by the queen, or by any six of her privy council, for certain causes, which are mentioned in the proviso. These causes are stated in the proviso to be, if the grant be contrary to law, or prejudicial or inconvenient to her majesty's subjects, or if the invention was not new, or not invented by the patentee. (Hindmarch on Patents, Ch. 10, Sect. 7.) This provision is in affirmance of the law that the queen cannot do anything against the law or against right and justice; hence the maxim that the queen cannot do wrong. Therefore all her letters patent which are contrary to law or common justice, or which are to the prejudice of the commonwealth, or to the general injury of the people are null and void, and every grant from the queen has this condition either expressly or tacitly annexed to it, that it be not a grievance or prejudice to her majesty's subjects, and if a grant be contrary to this condition it is void. (Rutherford Inst. 279; Co. Litt. 90; Chitty on Prerogative, Bac. Ab. h. 4; Shep. Abr. Prerog. 48, Sects. 5 and 7.) The Statute of Monopolies, 21 Jas. I, Ch. 3, Sec. 6, provides also that patents for inventions "shall not be contrary to law, nor mischievous to the state by raising prices of commodities at home, or hurt of trade or generally inconvenient." Letters patent are not demandable in England as matter of right. In practice they are rarely refused, but are granted on application properly made, the reason being that the grant is entirely at the risk of the petitioner for the patent. As the letters patent issued under the Great Seal and the enrolment of every patent remained of record in the Court of Chancery, the Lord Chancellor in the Common Law Court of Chancery, or in the words of Sir Edward Coke in the fourth institute, the "one ordinary *coram domino rege in cancellaria*, wherein the Lord Chancellor or Lord Keeper of the Great Seal proceeds according to the right line of the laws and statutes of the realm *secundum legem et consuetudinem Angliæ*," has power to hold plea of *scire facias* to repeal letters patent under the Great Seal, and to cancel the patent, and also the enrolment of it. (*The King* vs. *Sir Oliver Butler*, 3 Levinz, 221; S. C. 2 Ventris, 344.) The *scire facias* being a judicial writ, and founded upon a record, properly issued form the Court of Chancery, as the patent was a record in chancery. Sir Edward Coke says, 4 Inst. 88, "Our Lord Chancellor of England is called *cancellarius à cancellendo*, i. e., *à digniori parte*, being the highest point of his jurisdiction to cancel the king's letters patent under the Great Seal, and damning the enrolment thereof by drawing strikes through it like a 'lettice.'" The form of a writ of *scire facias*, which issued from the Court of Chancery, commanded the sheriff to give notice to the patentee to appear in chancery and show why the letters patent and enrolment should not be canceled, *and the letters patent restored into chancery, there to be canceled.*

These legal proceedings were in the office called "The Petty Bag," the office of the Court of Chancery, in which all common law proceedings of the court were carried on, all the pleadings and other common law proceedings being entitled "In the Petty Bag Office in Chancery." The action of *scire facias* was not only a remedy provided by law for the crown in behalf of the public, but also for any subject of the crown who could show that a void or illegal patent operated to his prejudice. Thus

in Sir Oliver Butler's case before cited, Lord Chancellor Finch said, "Where a patent is granted to the prejudice of the subject the king *of right* is to permit him upon his petition to use his name for the repeal of it." Every person is presumed to have such an interest in a patent for an invention that if he alleges that it is illegal or void, he is entitled as of right to a *scire facias in the name of the queen* in order to repeal it. *Queen* vs. *Aries*, (10 Mod. 354; 1 P. Williams, 217; Vin. Abr. Prerogative, M. d. 9, pl. 10; V. d., pl. 8.) Such proceedings were always in the name of the crown. "The only means which the law provides for the repealing of letters patent" (for inventions) "is by action of *scire facias* at the suit of the queen," (Hindmarch on Patents, 64,) and, as we have seen, this was a *quasi* common law proceeding with the right of trial by jury. This right and this mode of proceeding was preserved by the express provisions of the modern statutes, which, while providing for a new seal to patents, and for filing the specifications in such office as the new commissioners might designate, also enacted that "the writ of *scire facias* shall lie for the repeal of any letters patent issued under this act in the like case as the same would lie for the repeal of letters patent which may now be issued under the Great Seal." No instance can be found, it is believed, of any other proceeding in England than a *scire facias* to repeal letters patent for an invention. It is contended in the case at bar that the case of the *Attorney-General* vs. *Vernon*, (1 Vernon, 277,) is an authority for the repeal of letters patent by a bill in chancery. But this case was without a precedent, and has never been followed in England, and cannot be claimed to be a precedent for a bill in equity to repeal letters patent for an invention which issue under the Great Seal, and are recorded in chancery. The question related to letters patent which purported to grant to Col. Vernon certain rights and privileges connected with the honor of Sudbury and the manor of Sudbury, and other landed estates. Lord Chief Baron Montague, as to the objection that there was no precedent of any such suit brought into this court, said, "this court creates precedents," and the Lord Chancellor Jeffries in allusion to what had been proved in the case, that Vernon had been a devoted and loyal adherent of the late King Charles I, and had by reason thereof suffered greatly in his person and estate, and been imprisoned in the Tower, answered "that Col. Vernon has been very loyal, and that his services and sufferings for the crown have been considerable, must be admitted;" but he goes on to decree that the patent must be delivered up and canceled upon two grounds, first, that "Col. Vernon had before that time tasted of the king's bounty both in England and Ireland," and also "though Col. Vernon was an honest gentleman and of good quality, the honor of Sudbury is of that vast extent, and so many noblemen hold of it, that it is not fitting for a person of his degree."

Comparing the system of rights and remedies, so far as they refer to the relations between the government and the subject in England and this country, we find these strongly-marked differences:

Letters patent for inventions in England are grants made by the crown *de gratia speciali*, the words "of our especial grace" in the patent importing that the grant proceeds merely from the grace and bounty of the crown, the grantee having no right or title to the grant except through the favor of the crown. (2. Co. Inst. 78; Hindmarch on Patents, 50.) In this country they are issued neither in fact nor by implication by any especial grace or favor, and in no sense "*ex mero motu*," but as a matter of right under the provisions of a statute to the inventor who has complied with the conditions which the statute imposes. In England before the Statutes of 12 and 13 and 15 and 16 Victoria, the letters patent issued under the Great Seal, and were on record in the Court of Chancery. In the United States the record of the patent is in the Patent Office, and under the seal of the Patent Office. In England the patent issues to the applicant as a matter of course on his application, the grant being entirely at the risk of the petitioner. By our statute the letters patent are not issued until the Commissioner of Patents has caused an examination to be made, and until it appears upon such examination that the claimant is justly entitled to a patent under the law, and that the same is sufficiently new and important. From the decision of the Examiner or of the Examiner-in-Chief in charge of the Interferences, an appeal is provided to the Board of Examiners, and from their decision the party dissatisfied may appeal to the Commissioner in person. If such party, except a party to an interference, is dissatisfied with the decision of the Commissioner, he may appeal to the Supreme Court of the District of Columbia, sitting in *banc*. And after all these proceedings, if the patent be refused, the applicant may have a remedy by bill in equity. Also in case of interfering patents the remedy is not by *scire facias* at the instance of the relator, as in England, but the statute provides for a suit in equity brought by the owner or other person interested in the working of the invention against the owner of the interfering patent. In England the law gives to the party aggrieved by the issue of the letters patent his right to his remedy of *scire facias*, brought and conducted at his expense by the attorney-general in the name and in behalf of the queen to repeal the patent. No statute in this country confers or recognizes the existence of any such right, nor can any precedent be found for the suing out of a writ of *scire facias*, or the bringing of a bill in equity to repeal the patent by the Attorney-General in the name and behalf of the United States, either with or without a relator.

Under our system of patent law, where the issue of letters patent is either after a *quasi* judicial decision at the Patent Office, or an actual judicial decision on appeal from the Commissioner's decision, and where the statute so carefully guards the rights of defendants in actions brought by owners of patents, we should entertain no doubt, in the absence of any statute provisions authorizing proceedings by the Attorney General of the United States, either, as in this instance, in his own name "as he is Attorney General," or in the name and behalf of the United States, that no right to institute such a proceeding existed, were it not for the high respect which this court entertains for any suggestion coming from the Supreme Court of the United States, whose decisions are binding upon this court, and whose *dicta* even are entitled to be treated with the respect and consideration due the high authority and profound learning of that court.

The case of *Mowry* vs. *Whitney*, (14 Wall. 434,) was one

of two interfering patents. Mowry having been sued by Whitney for practicing the invention described in Mowry's patent, which Whitney alleged to be an infringement of his (Whitney's) prior existing and extended patent, and Whitney having obtained a decree against Mowry in that suit in chancery, Mowry filed in his own name a bill against Whitney, alleging in substance that Whitney had obtained the extension of his patent by false suggestion, by falsely representing that his profits under the patent had been very small, when, in fact, they had been very large. There was a demurrer to the bill upon the grounds—

First. That the extended patent had expired by its own limitation before the bill was filed.

Second. That the complainant could not in his own right maintain such a suit.

The court did not deem it necessary to decide the first point. In deciding the second, the court, (Mr. Justice Miller,) stating the ancient mode of vacating a patent in the English courts by *scire facias*, states the three cases in which this may be done in those courts:

First. When the king by his letters patent has by different patents granted the same thing to several persons, the first patentee shall have a *scire facias* to repeal the second.

Second. When the king has granted a thing by false suggestion he may by *scire facias* repeal his own grant.

Third. When he has granted that which by law he cannot grant, he, *jure regis*, and for the advancement of justice and right, may have a *scire facias* to repeal his own letters patent.

The learned judge then observing that the sixteenth section of the patent act of 1836 seems to have in view the same distinction made by the common law in regard to annulling of patents, proceeds to decide that the remedy under that section is limited to individuals claiming under conflicting patents, or one whose claim to a patent has been rejected because his invention was covered by a patent already issued to try the conflicting claim in chancery, and authorizes the court to annul or set aside a patent so far as may be found necessary to protect the right, and the suit by individuals is limited to that class of cases, and the general public is left to the protection of the government and its officers. The case decided and only decided that an interfering patentee or an individual could not in his own name, or in his own right, maintain such a bill in equity, to vacate a patent upon the ground of false suggestion or fraud in obtaining the patent. The authority of this decision, or the conclusiveness of the reasoning in support of the decision, has never been doubted. In England when the king had granted letters patent for an invention by false suggestion, the *scire facias* brought by the king's attorney-general to repeal the king's own grant was in the king's name, and on his own behalf and not at the suit of a subject. And here by the act of 1836 it was not intended to confer upon an interfering patentee the right to try such a question by a suit in his own name, which would be conclusive only *inter partes*, and leave the same question open, as the court in that case observes, to innumerable vexatious suits to set aside the patent, since a decree in favor of the patentee in one suit would be no bar to a suit by another party.

It is true that, in deciding this question, the learned judge says, what is unquestionably true, that "the general public is left to the protection of the government and its officers" in cases like the one alleged in *Mowry* vs. *Whitney*, of false suggestion or fraud in the obtaining a patent. The court did decide that "no one but the government, either in its own name or the name of its appropriate officer, or by some form of proceeding which gives official assurance of the sanction of the proper authority, can institute judicial proceedings for the purpose of vacating or rescinding the patent which the government has issued to an individual except in the cases provided for in sec. 16 of the act of July 4, 1836."

The court did not decide, and in that case was not called upon to decide, what protection to the general public, by the government and its officers, had been provided by law; or whether in the absence of any express statute provision, or in addition to such statute provisions as are designed to protect the rights of the general public, any further and additional right exists in any executive department of the government to institute any form of proceeding to repeal the grant, by virtue of any supposed prerogative, or any supposed relation of the government to the general public, like that under which the king *jure regis* may institute proceedings to repeal his own grant, or as *parens patriæ* may intervene in his own name for the benefit of his subjects, at their relation and expense, to repeal a grant supposed to be prejudicial to them. Whether any power had been conferred by statute upon any officer of the government to institute such proceedings, or whether any such right or power existed anywhere in the executive department, in the absence of statute provisions conferring the power and prescribing the mode of proceeding, is a question which the court can only decide "when a case arises in which the United States, or the Attorney-General, shall initiate a suit to have a patent declared null *ab initio*," and the court, in the language last quoted, defers its decision upon the effect of such a proceeding (under a particular state of facts stated in the opinion) to the time when such a case shall arise.

This leads us to the consideration of the protection afforded by the provisions of the patent acts to the rights of the general public, and to the history of the legislation upon that branch of the subject. The fifth section of the act of 1790, the first act of Congress in relation to this subject, (1 Stat. at Large, 111,) provided a form and mode of proceeding to repeal a patent "obtained surreptitiously, by or upon false suggestion," upon complaint made under oath before the judge of the district court where the defendant resided, and motion within a year after the issuing of the patent, but not afterward. The patent issued under this act without any oath of the applicant and any previous examination, and want of novelty and originality are not included in the list of defenses authorized by the sixth section. The act of 1793 extended the time of limitation for commencing proceedings to repeal the patent to three years, and enlarged the defenses in actions for infringement, opening the defence for want of novelty and originality. These provisions clearly show that it was deemed necessary that authority for proceedings to repeal letters patent should be conferred by statute.

In *ex parte* Wood, (9 Wheaton, 609,) the court say, "As the patents are not enrolled in the records of any court, but among the rolls of the Department of State, it was necessary to give some directions as to the character, time, and manner of instituting proceedings to repeal them." These acts of 1790 and 1793, including these provisions conferring jurisdiction upon the Federal courts over proceedings for the repeal of letters patent, were repealed by the act of 1836. That act was substantially re-enacted and codified by the act of 1870 and in the Revised Statutes of 1874. The act of 1836 contained no provision authorizing any proceeding to repeal letters patent upon the ground that they were obtained "surreptitiously, by or upon false suggestion," but the sixteenth section provided a remedy in the case of conflicting patents, and for a repeal of the one which the court should adjudge had been improvidently issued. This takes the place of the remedy to which, in case of conflicting grants, the subject is entitled to as matter of right in England.

For the protection of the general public, in place of the provision for a proceeding in the nature of a *scire facias* to repeal the patent to be instituted within three years, as provided in the act of 1793, it sought to provide safeguards against the issue of letters patent upon false suggestion, and ample security against any injury to the citizen, to whom it opened every possible defense against injury resulting from any mistake or oversight of the commissioner in issuing the patent. In fact, every defense against a patent that can well be imagined was left open to the citizen whose interests were affected by it, excepting only the one which, in *Whitney* vs. *Mowry*, the Supreme Court decided was not open—the question of fraud upon the goverment in obtaining the grant. To guard against such a fraud it provided for the examination by the Examiner and for a Commissioner and the subsequent proceedings hereinbefore stated, it being made the duty of the Examiner and the Commissioner to protect the rights of the public. The jurisdiction conferred by acts of 1790 and 1793 upon the Federal courts to repeal a patent, and which, without express grant, it is believed did not inhere in those courts, is nowhere conferred by the acts of 1836 or 1870, or in the Revised Statues of 1874. It would seem to be a great stretch of power and assumption of jurisdiction for one circuit court, in the absence of any such express authority conferred by act of Congress, to repeal and vacate a patent which may have been originally granted upon the decree of another circuit court, upon appeal from the Commissioner, and adjudged valid, perhaps, in litigation respecting it in still another circuit court in another circuit. The better opinion upon this brief and imperfect review of the legislation of Congress upon this subject would seem to be that Congress had deliberately transferred the jurisdiction over the question of the protection of the rights of the general public to the *quasi* judicial decision of the Examiner and the Commissioner, or the actual judicial decision of the Federal courts upon appeal from the Commissioner, and fully protected the rights of the individuals against whom patents might be sought to be enforced by opening to them every defense essential to the preservation of their rights and the protection of their interests.

The decisions in the Federal courts sustaining proceedings in equity to vacate letters patent granting lands obtained by fraud, furnish no precedent in case of letters patent for inventions. The United States as an owner of lands has equal rights and is entitled to equal remedies with an individual owner. In granting lands the United States conveys that in which it has the fee. In issuing letters patent for inventions, nothing is granted which belonged before to the United States. The issue of the letters patent is in compliance with an act of Congress. The rights and remedies of the parties are dependent solely on the statute enactments, and do not grow out of any previous ownership of the supposed subject of the grant, as in the case of a conveyance of lands.

But if this court has jurisdiction over any proceeding to vacate a patent, and declare it null *ab initio*, upon the ground of false suggestion, or the ground that the Government has undertaken to grant that which by law it cannot grant, it is perfectly clear that "the Attorney-General of the United States, as he is Attorney-General," has no authority as such and in his own name to file an information or commence proceedings by bill in equity. It is undoubtedly in the power of Congress to confer upon any public officer the authority to commence suits in his own name on behalf of the United States. Such authority has been conferred by statute upon the Postmaster-General to institute suits in his own name for the recovery of debts and balances due the general post-office. No such authority to institute suits in his own name has been conferred by statute upon the Attorney-General. In the absence of any such authority, the information (if the court has jurisdiction to entertain it) should be in the name of the United States, and, I think, should be filed by the attorney of the United States, in the district in which the information is filed, "in the name and behalf of the United States." The United States then being a party to the proceedings, it would not abate by the death or resignation of the public officer who filed it. George H. Williams has resigned, and ceased to be Attorney-General; as an individual he cannot maintain his proceeding. The United States is not made a party; the relator is not the party. "The relators are not plaintiffs." (*United States* vs. *Doughty*, 7 Blatchford, 424; *The Attorney-General* vs. *The Mayor*, 1 Molloy, 95; *The Attorney-General* vs. *Wright*, 3 Beavan, 447.) "Relators should know they are not parties to informations, and have no right, of their own authority, to make any application to the court." There is no party plaintiff before the court, unless it be George H. Williams as an individual citizen. "This court can recognize the United States as a plaintiff on the record only when the record shows that the United States appears as plaintiff by the District Attorney of this district." (*The United States* vs. *Doughty*, 7 Blatchford, 425.) In England the *scire facias*, in the common law division, or in the Petty Bag in Chancery, to repeal a patent was always in the name of the sovereign. "The *scire facias*," says Lord Campbell, in *Regina* vs. *Archipelago Company*, (1 E. and B., 351,) "in all cases must be in the name of the king." The form of the writ recites that A. B., "Attorney-General for our said Lady the Queen, who, for our said Lady the Queen, prosecutes in this behalf;" and that this has been the invariable rule in England will appear by an examination of every reported case

in that country in which this jurisdiction to repeal letters patent by *scire facias* has been exercised.

In *Benton* vs. *Woolsey*, (12 Peters, 27,) where no objection was made to an information filed by the District Attorney "in behalf of the United States," the court thought in the absence of any objection, "The United States may be considered the real party, though in form it is the information and complaint of the District Attorney." The usual and proper mode is for the District Attorney to file an information in the *name* and in behalf of the United States, and probably only in that form could one be sustained if objected to. The power (conferred by Sect. 359 of the Revised Statutes of the United States on the Attorney-General) to, in person, conduct and argue any case in any court of the United States in which the United States is interested, or to direct the Solicitor-General or any officer of the Department of Justice to do so, clearly does not authorize him to bring such suit in his own name or authorize the Solicitor-General or any officer of the Department of Justice to do so. If the power given to him, wherever he deems it for the interest of the United States, to conduct and argue any case in any court of the United States in which the United States is interested, confers upon him any authority to commence or institute proceedings except through the district attorneys, who are subject to his orders and supervision, which is at least doubtful, there is no right expressly given or to be implied from any words in this or any other statute to bring the suit in his own name instead of in the name of the real party, the United States.

The conclusion, therefore, follows that this information to repeal letters patent for an invention, being in the name of George H. Williams, as he is Attorney-General of the United States, and not in the name and behalf of the United States, is not authorized by any statute, sanctioned by any precedent, or supported by the authority of any judicial decision, and the demurrer must be sustained and the information dismissed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 6, 1876.]

9,324.—Glassware.—THOMAS B. ATTERBURY, Pittsburg, Pa. Application filed May 26, 1876. Term of patent 3½ years.

9,325.—Carriage-Steps.—EDWARD A. COOPER, Lancaster, assignor to PRATT & LETCHWORTH, Buffalo, N. Y. Application filed March 6, 1876. Term of patent 14 years.

9,326.—Paper-Weights.—FRANK A. FOUTS, Bloomington, Ill. Application filed May 10, 1876. Term of patent 3½ years.

9,327.—Shawl Fabric.—CHARLES H. LANDENBERGER, Philadelphia, Pa., assignor to JOHN LANDENBERGER and GEORGE W. LANDENBERGER, same place. Application filed February 28, 1876. Term of patent 3½ years.

9,328.—Egg-Cups.—CORA L. MERCER, Washington, D. C. Application filed April 25, 1876. Term of patent 7 years.

9,329 and **9,330.—Carpets.**—GEORGE W. PIGGOTT, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed May 24, 1876. Term of patents 3½ years.

9,331.—Stoves.—APOLLOS RICHMOND, Brooklyn, Conn. Application filed May 22, 1876. Term of patent 14 years.

9,332.—Covers of Albums.—ADOLPH LIEBENROTH, College Point, N. Y. Application filed May 20, 1876. Term of patent 7 years.

9,333 and **9,334.—Inkstand-Supports.**—HERMANN J. MÜLLER, New York, N. Y. Applications filed May 23 and 22, 1876. Term of patents 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 6, 1876.]

3,738.—Whisky.—BRYCE & SMITH, New York, N. Y. Application filed May 17, 1876.
"the words 'EMPIRE STATE.'"

3,739.—Ribbons.—CLARKE & RUSSELL, New York, N. Y. Application filed May 15, 1876.
"word 'Lady,' in connection with a picture or vignette representing a female head attired in the head-dress of a nun or lady superior of a convent."

3,740.—Medical Compound.—CLARKE & CO., San Francisco, Cal. Application filed May 15, 1876.
"the word or combination of letters 'DYSPEPTINE.'"

3,741.—Explosive Compound.—CHARLES DE LACY, San Francisco, Cal. Application filed May 26, 1876.
"word 'Vigorit.'"

3,742.—Carriage and Wagon Wood-Work.—HOOPES, BRO. & DARLINGTON, West Chester, Pa. Application filed May 17, 1876.
"the word or symbol 'KEYSTONE' and the figure of a wheel included in the symbol."

3,743.—Medical Preparations.—LUCY E. HOYT, Portsmouth, N. H. Application filed May 15, 1876.
"the words 'LITTLE GIANT,' and figures of the man with the club, and the serpent."

3,744.—Millinery Ornaments.—JOHN G. MARSHALL, New York, N. Y. Application filed May 11, 1876.
"the representation of shield surmounted by a crown."

3,745.—Canned or Preserved Corn.—LOUIS MCMURRAY, Baltimore, Md. Application filed May 10, 1876.
"the word 'MOUNTAIN.'"

3,746.—Canned Goods.—LOUIS MCMURRAY, Baltimore, Md. Application filed May 10, 1876.
"the representation of a deer."

3,747.—Whisky.—J. H. ROTTMANN & Co., St. Louis, Mo. Application filed May 18, 1876.
"words 'Capitol Bourbon Kentucky' and the letters 'A A.'"

3,748.—Whisky.—J. H. ROTTMANN & Co., St. Louis, Mo. Application filed May 18, 1876.
"the letters 'K. Y.' and the words 'MAPLE CREEK BOURBON.'"

3,749.—Preparation for Removing Dandruff.—JOHN STOTT, Providence, R. I. Application filed May 16, 1876.
"the letters 'S. D. P.,' combined with the form of a monogram, and placed upon the field of a shield."

3,750.—Beer.—VAN DEN BERGH & CO., Antwerp, Belgium. Application filed May 19, 1876.
"the representation of a bell."

3,751.—Pens.—THEODORE L. WARRINGTON, Philadelphia, Pa. Application filed April 28, 1876.
"the letters 'W P,' the letter 'W' being composed of the word or name 'Warrington's,' arranged substantially as shown in the drawing at A, to form said letter. The upright of the letter 'P' is formed by the letters composing the name or names of the various styles of pens to which the trade-mark is applied—as, for instance, the name of 'Falcon,' as shown at B, for one style, for which any other name may be substituted for other styles. The loop of the letter 'P' is composed of the word 'pen,' as shown at C."

3,752.—Soap.—J. B. WILLIAMS & Co., Glastonbury, Conn. Application filed May 11, 1876.
"word 'Clipper.'"

3,753.—Soap.—J. B. WILLIAMS & Co., Glastonbury, Conn. Application filed May 11, 1876.
"word 'YANKEE.'"

3,754.—Wood-Screws.—AMERICAN SCREW COMPANY, Providence, R. I. Application filed May 22, 1876.
"an eagle, with its wings spread, just alighting or alighted upon a globe, and bearing in each talon, or with his feet resting each upon, a bundle of screws."

3,755.—Cigars.—J. COHN & Co., Chicago, Ill. Application filed May 20, 1876.
"word 'CLUSTER.'"

3,756.—Paper Collars.—GEORGE HARRINGTON, Springfield, Mass. Application filed May 19, 1876.
"a sheet-tin package, geometrically ornamented, and furnished with a cover and a bail."

3,757.—Woven Cotton, Woolen, and Linen Fabrics.—MINOT, HOOPER & Co., New York, N. Y. Application filed April 29, 1876.
"the combination of words and figures as follows, to wit: Vignettes of all the Presidents of the United States from the first inauguration to the present time, with the names and dates of inauguration; medallions of the 'coats of arms' of all the States of the Union admitted to present time, with name of each."

3,758.—Woolen Goods.—TINGUE, HOUSE & Co., New York, N. Y., and Glenville, Conn. Application filed May 24, 1876.
"word 'HAWTHORNE.'"

3,759.—Lubricating-Oil.—THE BACKUS OIL COMPANY, Cleveland, Ohio. Application filed April 22, 1876.
"words 'OLD DOMINION OIL.'"

3,760.—Fruit Syrups, Brandies, Cordials, and Juices. J. CALVIN SHAFER, Mont Clair, N. J. Application filed May 15, 1876.
"the monogram composed of the letters 'I. C. S.,' arranged as shown in the accompanying fac-simile, and surrounded with scroll-work and bunches of fruit."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 6, 1876.]

738.—Title: **"The Moose Cigar."**—CHARLES M. GATES, Brooklyn, N. Y. Application May 29, 1876.

739.—Title: **"Roses and Myrrh."**—MCKELWAY & BORELL, Philadelphia, Pa. Application filed May 26, 1876.

740.—Title: **"Granulated Lye."**—LEHMAN MYERS, Milwaukee, Wis. Application filed May 25, 1876.

741.—Title: **"Jerusalem Balsam."**—ELIZABETH CHESTIN, (Sister MARY, Superior of the Sisters of Charity,) Salem, Mass. Application filed May 27, 1876.

742.—Title: **"Warranted Stripped—Sample."**—HENRY R. WAY, Hartford, Conn. Application filed May 26, 1876.

743.—Title: **"Dr. White's Compound Dandelion Alterative."**—AHIRA R. WHITE, Indianapolis, Ind. Application filed May 29, 1876.

744.—Title: **"Burke's Family Liniment."**—EDMUND BURKE, Lynn, Mass. Application filed May 31, 1876.

745.—Title: **"E. H. Kellogg's Extra Wool Oil."**—E. H. KELLOGG, New York, N. Y. Application filed May 31, 1876.

746.—Title: **"Anti-Corrosive Axle Oil."**—E. H. KELLOGG, New York, N. Y. Application filed May 31, 1876.

747.—Title: **"List of Syrups at Nash's."**—JESSE S. NASH, Bridgeport, Conn. Application filed May 31, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

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Cock and T-joint, combined stop, E. A. Leland	167	178,312
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Game table, Buckley and Sawyer	143	178,368

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Sadler, H. L., Faucet attachment	178,383
Sanford, F. G., Combined bureau, wardrobe, and washstand	178,470
Sapp, J. R., H. Clay, and W. Frost, Corn planter	178,471
Sawyer and Buckley	178,267, 178,268
Schandevyl, H. A., Combined skirt supporter and corset	178,333
Scheller, T. A., Plastering lath	178,384
Schou, M., Key hole guard	178,334
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Scott, M. H., and J. Davis, Jack spool	178,335
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Sheffield, G. V., Manufacture of boot and shoe soles, &c.	178,385
Sheffield, G. V., Screw threaded rawhide shoe peg	178,386
Sheffield Screw Driving Mach'ne Company, assignee	178,385
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Simpson, De Force, and Hard	178,276
Simpson, G. W., Counter stiffener for boots and shoes	178,387
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Smith, J., Feed mechanism for sewing machines	178,478
Smith, J. J. C., and C. Grasser, Manufacture of rubber articles	178,479
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Spink, W. S., and W. Mason, Floor clamp	178,389
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Stafford, G. W., Apparatus for melting metal and ores	178,252
Stearns, H. A., assignee	178,351
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Steward, J. F., Grain binder	178,349
Stewart, B. F., Car brake	178,481
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Stow, O. W., Paper bag machine	178,344
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Thomas, J. J., Machine for rolling angle iron	178,487
Thurman, B. W., Stump extractor	178,487
Tilley, J., Barrel machine	178,488
Tingley, H. M., Milk pail	178,340
Tower, C. A., Rotary engine	178,349
Trahern, F. B., Machine for boring metallic cylinders	178,350
Universal Lamp and Reflector Company, assignee	178,419
Unkrich, G. A., Oil cabinet	178 489
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Ward, W. P., Manufacturing manganese alloys	178 490
Warren, C. M., Tank for asphaltic cement	178,491
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Wemple, A., Fruit and jelly press	178,495
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Whitehead, W. E., and A. T. Atherton, Beeter for cotton openers, &c., (reissue)	7,159
Whitman, H. L., Cider mill	178,496
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Williams, S., Carpenter's plane	178,256
Williams, T., Tasseling machine	178,497
Willis, C. E., Device for converting motion, (reissue)	7,160
Wissler, A., and B. H. Snavely, Grain separator	178,257
Wood, J. S., Street lamp	178,396
Wood, T. F., Hanging lamp fixtures	178,498
Wuterich, W. F., Animal shears	178,500
Young, M., Paper box machine	178,499

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JUNE 6, 1876

178,226. VALVE. John S. Adams, Elgin, Ill. [Filed Mar. 18, 1876.]

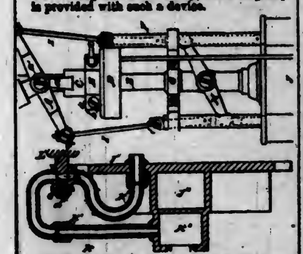


1. In combination a chambered valve, a headed pin entering the chamber in the valve, and a spring arranged between the head of the pin and a shoulder in the valve, substantially as and for the purposes specified.

2. The combination of the open spiral spring D, headed pin or screw B, valve-seat A, sleeve b, and chambered valve C, substantially as and for the purposes specified.

178,225. PUMPS. John S. Adams, Elgin, Ill. [Filed Mar. 18, 1876.]

Brief.—Water passes around the lower valve and returns to the well, for the purpose of emptying the pump to prevent freezing, and for washing out the sand-trap, when the pump is provided with such a device.



1. The combination, substantially as specified, of a pump discharge-pipe made in sections, the pipe coupling and beam L and C adapted to couple two of the sections, and provided with the arms a a, extending laterally and upwardly from the body of the coupling, and the walking-beam A fulcrumed on the said arms, for the purposes set forth.

2. The floor-plate or pipe-clamp E, consisting of the horizontal pieces b and b', each adapted to fit the pipe, and of the vertical webs or flanges c and c', projecting from the inner edges of the pieces b and b', and bent to clamp the pipe, in combination with clamps for tightening the part B upon the pipe, and in connection with the floor or platform D, substantially as and for the purposes specified.

3. The combination of the slotted or mortised beam-rods F F, links or connecting-rods F' and F'', pivoted at their lower ends to the rods F F, guides or clamps G G, beam-rods I I, connected to the upper ends of the links F' F', beam H connected to the upper ends of the links F' F', beam A connected to the upper ends of the beam-rods, and the discharge-pipe, substantially as and for the purposes specified.

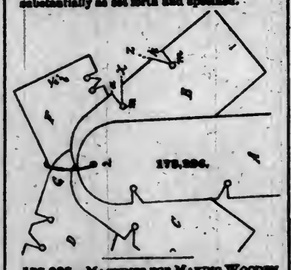
4. The external pipe K', in connection with a pump, and terminating within it at points above and below the valves, respectively, in combination with a spigot, arranged in the said pipe, and a spigot-actuating rod extending above the platform, for the purposes set forth.

5. The external pipe K', in connection with a pump, and terminating within it at points above and below the valves, respectively, in combination with the spigot B, having therein the tapering opening f, and the opening f', substantially as and for the purposes specified.

178,226. PLATING-GAGES. H. W. Atwater, Lawrence, Mass. [Filed Apr. 22, 1876.]

1. The improved plating-gage described, consisting of the plate B, provided with a notch having the vertical side b and inclined side c, and a notch having the vertical side e and inclined side c, the distance between the points d and d being the same as the distance between the sides a b, the whole being constructed and arranged to operate substantially as set forth and specified.

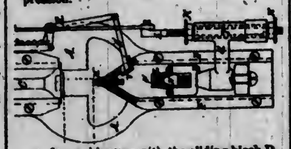
2. A plating-gage provided with notches having the vertical sides a b and inclined sides c c, terminating in a circular recess, m, substantially as set forth and specified.



178,226.

178,227. MACHINES FOR MAKING WOODEN PINS. Franklin T. Baldwin, Baldwinsville, N. Y. [Filed Feb. 21, 1876.]

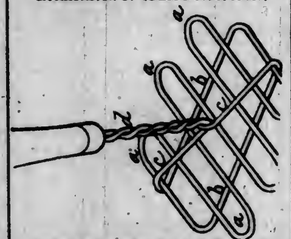
Brief.—Wooden pins are formed from a solid block by forcing the material through cutting-dies, and are pointed simultaneously by compression.



1. In combination with the sliding block D, the arm G, provided with a cylinder or tube, T, with india-rubber or other suitable springs, rod A, and nuts K K, the whole being arranged and combined substantially in the manner and for the purpose set forth.

2. In combination with the cap-piece L, provided with recesses or cavities n, the block M, operated by a spring, m, and provided with projecting pins or points r, passing into the cavities n in the cap L, in the manner and for the purpose substantially as specified.

178,228. POTATO-MACHINE. A. Brown, Rochester, N. Y. [Filed Nov. 6, 1876.]



The potato-masher herein described, consisting of the longitudinal coils a a, transverse length or lengths b, and the twisted shank d, resting in the handle A, the whole being made from a single length of wire, as and for the purpose specified.

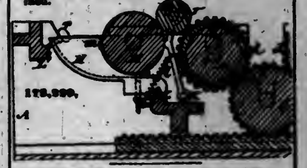
178,229. PRESSES FOR COLOR-PRINTING. John T. Bream and Edwin C. Bream, Brooklyn, N. Y. [Filed Sept. 16, 1876.]

Brief.—The colored rolls receive color from ink-fountains, and carry it to a single applying-roll, which rolls the form on the flat bed. All the rolls are geared together.

1. The combination of the flat reciprocating type-bed, printing chase, or form B, the two or more color-rolls D D, and the single taking or transmitting roll C, which is common to all of said color-rolls and to the reciprocating form B, when said color-rolls, which, with the transmitting-roll and flat reciprocating form, are all positively geared to register perfectly, have their figures so arranged that the different parts of the figure received from each by the transmitting-roll intervene both in the direction of the circumference of the rolls as well as in the direction of the length thereof, substantially as herein described.

2. The color carriers or pattern rings G G', constructed in longitudinal sections, fitted together substantially as described, in combination with the rolls D D which carry them, whereby said rings may be separately attached or detached without disturbing adjacent rings or removing the rolls, essentially as described.

3. The combination of the radially adjustable bars or feathers I, with the rolls D, and independent color carriers or pattern rings carried by said rolls, substantially as specified.



178,230. PUMPS. John Bateman, Milan, Ohio. [Filed Mar. 17, 1876.]

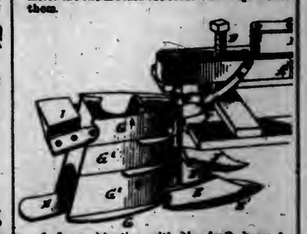


1. The combination of the air-chamber H, having tube I and valve K, with the pump-stock A, provided with spout G and stop-cock or vent N, substantially in the manner and for the purposes set forth.

2. In combination with the air-chamber H and pump-stock A, the basket M, substantially as and for the purpose set forth.

178,231. DITCHERS AND TILE-LAYERS. J. J. Campbell, La Fayette, Ind. (Filed Jan. 21, 1876.)

Brief.—A frame, consisting of runners and a beam, has attached to its rear end a standard or colter, that opens the ground, and behind it is hinged a series of blocks, that condense the earth sufficiently to allow the introduction of tile by means of a curved slide. After the tile are laid the earth closes up above them.



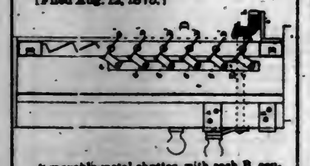
1. In combination with the draft beam A and cutter-beam B, the plow E, carrying on its lower face the share E', for finishing the bottom of the drain, substantially as set forth.

2. In combination with the solid cutter-beam B, opening the ditch by forcing the earth to each side, and drain-plow E, one or more auxiliary plows, F, arranged above the latter to loosen the earth, substantially as set forth.

3. The tile or gravel box, constructed in sections, made adjustable to conform to the depth of the cut, substantially as set forth.

4. In combination with the tile or gravel box, the flaring block I, for keeping the earth from caving in until the tile or gravel has been deposited behind the apron H, substantially as set forth.

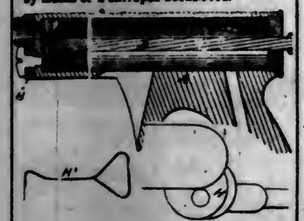
178,922. SHUTTERS. George Campbell, Toronto, Canada, assignor of one-third his right to Thomas McKay, same place. [Filed Aug. 12, 1876.]



A movable metal shutter, with mesh B, constructed as shown and described, the frame thereof being tubular, and having a portion of its interior space fitted with corrugated sheets, representing fixed slats C, and the remaining portion of the said interior space fitted with movable flanged slats D, as also shown and described, and operated as set forth.

178,923. SPRING AIR-PISTOLS. Augustus C. Carey, Malden, assignor to A. A. Pope, Boston, Mass. [Filed Feb. 16, 1876.]

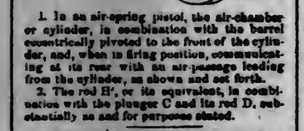
Brief.—The barrel is eccentrically pivoted to the air-chamber, and the spring is retracted by means of a stirrup-hooked rod.



1. In an air-spring pistol, the air-chamber or cylinder, in combination with the barrel eccentrically pivoted to the front of the cylinder, and, when in firing position, communicating at its rear with an air-passage leading from the cylinder, as shown and set forth.

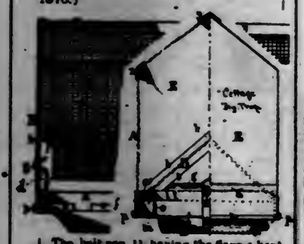
2. The rod H', or its equivalent, in combination with the plunger C and its rod D, substantially as and for purposes stated.

178,924. MIRROR-ADJUSTER. S. M. Clark, Milwaukee, Wis. [Filed Oct. 21, 1875.]



The toothed semicircular plate D and the spring-pawl F, as combined and arranged with the looking-glass A and the supports B B, substantially as specified, and for the purposes set forth.

178,925. FLY-TRAPS. Asa J. Cole and Wm. D. Dickson, Peoria, Ill. [Filed Feb. 20, 1876.]



1. The bait-pan D, having the flaps e bent upward, and provided with the raised rim p, constructed to clasp the edges of the cage, substantially as and for the purpose set forth.

2. The movable screen E, in combination with, and adapted to fit against, the inclined shoulders b b of the end pieces B B, substantially as set forth.

3. The cage A A, having the ends E E, provided with the gable-receiving shoulders b b and the grooves f g to receive the springs d d, attached to the pan D, substantially as set forth.

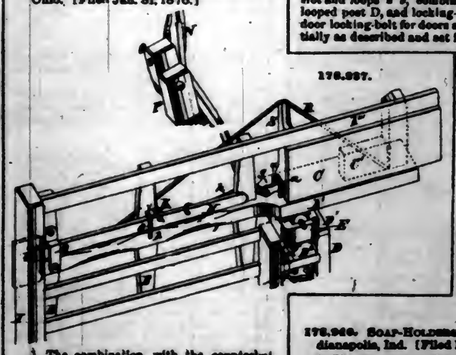
178,926. IRONING-STANDS. S. M. Crutchfield, Lexington, Ky., assignor to Ralph Gevyn, same place. [Filed Mar. 20, 1876.]



The ironing-stand herein described, consisting of post A, having bracket D and hinged ironing-board C, and post A', in combination with the brace B, having hinged frame G, substantially as and for the purpose herein shown and specified.

178,927. GATES. Samuel Ernst, Shaucks, Ohio. [Filed Jan. 31, 1876.]

178,927.

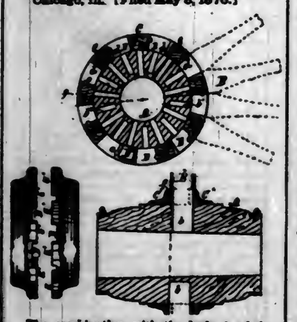


1. The combination, with the counterbalanced gate constructed with wind-wings U, shaft G, and support D, of the bearing-block E, provided with travelers or rollers F, as and for the purpose set forth.

2. The combination of the counterbalanced gate having shaft G, provided with arm g, sliding latch H, retracting-spring K, and connecting cord or chain k, as and for the purpose set forth.

3. The combination, with the lever E, pivoted to block O, turning on the post P, of the guard Q, as and for the purpose set forth.

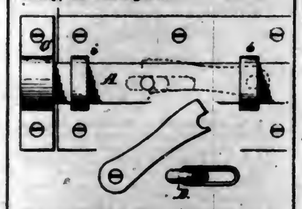
178,928. VEHICLE-WHEELS. P. J. Harvey, Chicago, Ill. [Filed May 8, 1876.]



The combination, with the body A of the hub, of the collars C and C', provided with the flanges d d and e, forming the recesses D to receive the spokes, and the filling f of wood forming the projections F, adjusted to bear against opposite sides of each alternate spoke, substantially as and for the purpose specified.

178,929. DOOR-BOLTS. Thomas Hoesly, New Glarus, Wis. [Filed Dec. 20, 1875.]

Brief.—A looped post attached to the bolt passes through the door, and there is on the outside a suitable dog or locking-catch to engage the same; or, if desired, a padlock may be used for more entire security, the construction serving the several purposes of a handle, a stop, and a sliding bolt.



The sliding bolt A, provided with and riding upon a metallic plate with its longitudinal slot and loops b b, combined with keeper C, looped post D, and locking-catch E, to form a door locking-bolt for doors and gates, substantially as described and set forth.

178,930. SOAP-HOLDERS. H. P. Hood, Indianapolis, Ind. [Filed Feb. 10, 1876.]

1. The soap-receptacle, consisting of the wooden pieces a b and wires c d, when arranged as shown and described.

2. The combination of the hooks i i', legs e e, and a soap-receptacle, when arranged as shown and described, for the purpose set forth.

3. A new article of manufacture, consisting of the soap-receptacle a b, hooks i i', and legs

178,931. SASH-HOLDERS. James P. Jones, Syracuse, N. Y. [Filed Feb. 3, 1876.]

Brief.—A metal spring, with elastic facing, being pressed by a flexible eccentric pivoted lever against the sash, to hold it in desired position.



The improved sash-fastener, consisting of the cam A formed of the two parallel plates a a', united at the ends by the seats b b, and having opening c between them, the rubber or leather strip d, and spring-plate e, placed in said seats, and the pivoted lever f, having the two eccentrics n n, all constructed and arranged substantially as described and shown, for the purpose set forth.

178,932. DOOR-FASTENERS. Cyrus Kinney, Ingersoll, Canada. [Filed Apr. 26, 1876.]

Brief.—A short cylindrical holder, in connected at the side to a flat steel spring, which, in turn, is attached to the face of the jamb, in such manner that when the door is open the spring carries the holder rigidly outward, and when closed presses against the cylinder, and causes it to recede into a recess formed in the jamb, the spring flying back, and holding the door against moderate pressure. There is also a locking-catch pivoted to the door, the projecting head of which engages in a notch or recess of the holder, and firmly locks the device in closed position.



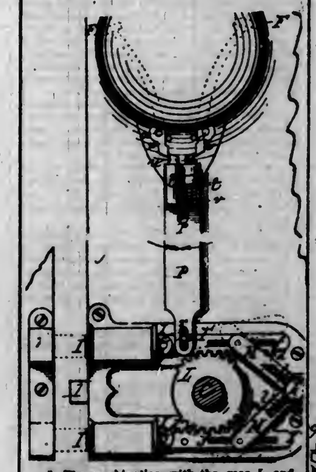
178,933

1. As an improvement in door-fastenings, the holder C, having a spring, D, attached to the face of the jamb, and constructed as one end to side of the holder, all constructed, arranged, and operating substantially as shown and described, for the purpose set forth.

2. In combination with the holder C and spring D, the locking-catch F, constructed, arranged, and operating substantially as shown and described, for the purposes specified.

178,934. BURGLAR-ALARMS. John P. Kingsbury, Rochester, N. Y. [Filed Apr. 6, 1876.]

Brief.—A combination of the ordinary spindle of a door-knob with double-acting bolts, arranged to be connected or disconnected from the said spindle of the knob by means of a sliding screw and clamping-nut. A lever is connected with one of the bolts, and when the latter is moved in either direction the lever is caused to trip a ball-hammer and sound an alarm.



1. The combination, with the gear L and double-acting bolts I I, of the pivoted rack-bars I' I', arranged to be connected with or disconnected from the said gear, as and for the purpose specified.

2. The combination, with the pivoted rack-bars I' I', of the links M M, sliding screw-bolt g, and clamping-nut h, as and for the purpose specified.

3. In combination with the door-bolts I I and the two hammers F F, the rock-arm P, connected with the door-bolts by a slot and pin, and provided at its upper end with the spring-bolt s s, the tops of said spring-bolts being beveled inward to allow them to enter between the hammers, as shown and described, and for the purpose specified.

178,935. CIRCULATING DEVICES FOR STEAM-BOILERS. Benjamin S. Koll, Pittsburg, Pa. [Filed Apr. 1, 1876.]

1. The flanged, jointed, curved bearings E, arranged in a cylinder or flue boiler, substantially as and for the purpose set forth.

2. The circulation-plates a, arranged in a cylinder or flue boiler, with a longitudinal opening between the lower adjacent edges of each plate for a downward current, to supply the upward current between the plates and the shell of the boiler, substantially as set forth.

3. A circulation-plate, a a', arranged in a cylinder or flue boiler, substantially as set forth, whereby a trough-shaped dead-water space, c, is secured, above the bottom of the boiler, and a little out of the line of circulation.

4. The combination of circulation-plates a a', following the curvature of the boiler-shell and deflecting-plates d, attached to the shell, substantially as set forth.

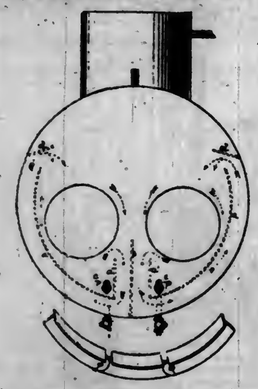
5. The vertical diaphragm c, in combination with a system of circulation plates and passages on either side, substantially as and for the purposes set forth.

6. The plates a a', constructed as described, so as to form dead-water troughs c, in combination with a blow-off pipe, P, arranged therein, substantially as set forth.

7. The combination of blow-off pipes P and steam wash-pipes o o', relatively arranged in the dead-water troughs, substantially as set forth.

8. In a boiler having a system of water-circulation passages, wherein circulation is kept up in such passages by the fire heat or differences of temperature, the arrangement of the feed-water pipe in the line of water-circulation, and discharging in the direction of the flow of the currents, substantially as set forth.

9. A duplicate system of water-feed, water-circulation, and water blow-off, arranged in the opposite halves of a cylinder or flue boiler, and on opposite sides of a vertical longitudinal diaphragm, substantially as set forth.

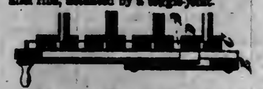


178,936

A hose or pipe coupling consisting of the sections A C, the latter having flanges e e', and the sleeve E, with flanges or lips e e', and grooves d d', in combination with the locking-ring D, substantially as and for the purpose set forth.

178,937. DEVICES FOR DIPPING PENCILS AND PEN-HOLDERS. Emil Lilienthal, New York, N.Y., assignor to Orestes Cleveland, Jersey City, N. J. [Filed Mar. 18, 1876.]

Brief.—For the purpose of dipping lead-pencils in coloring-matter, and holding them until dry, they are clamped in a series of parallel ribs, actuated by a toggle-joint.



1. The combination of one or more pairs of ribs, C D, with means for regulating the depth to which the ends of the articles are to be inserted, and means for actuating the same, substantially as described.

2. The ribs C and D, one or both of which are beveled, substantially as set forth.

3. The combination of the ribs C and D, the frames A and E, and the toggle, substantially as set forth.

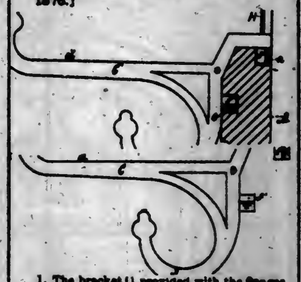
178,938. PIPE-COUPLINGS. William A. Lickley, East Saginaw, Mich. [Filed Apr. 28, 1876.]



178,939

A hose or pipe coupling consisting of the sections A C, the latter having flanges e e', and the sleeve E, with flanges or lips e e', and grooves d d', in combination with the locking-ring D, substantially as and for the purpose set forth.

178,940. HAT AND COAT RACKS. Charles F. Linscott, Jefferson, Ill. [Filed Apr. 20, 1876.]



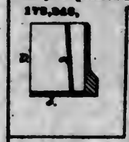
1. The bracket C, provided with the flanges f and f', adapted to enter the grooves c and c, respectively, in the cleat A, substantially as and for the purpose specified.

2. The bracket C', provided with flanges f and f' and upward-projecting flange H, provided with the aperture g, substantially as and for the purpose specified.

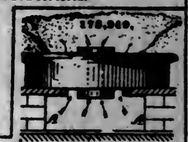
178,941. WAGON-STANDARDS. George W. Mead, Bellona, N. Y. [Filed Mar. 6, 1876.]

The standard-support D, with ribs a on the inner surface, and the base-plate b, substantially as specified and set forth.

178,942.



178,942

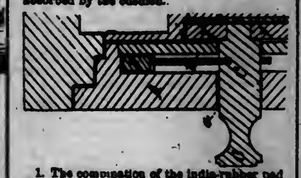


178,943. CONSTRUCTION OF GAS-WORKS-ANNEALING PITS. G. W. Moores, Wilkesbarre, Pa. [Filed Mar. 6, 1876.]

In an annealing-pit, and in combination with the walls A, the removable supporting-plate B, provided with a central opening of a size varying with that of the wheel or other casting to be annealed, substantially as herein described.

178,944. LOCKS FOR SAFES, &c. William L. Potter, Meshanicsville, N. Y. [Filed Oct. 11, 1875.]

Brief.—A rubber pad or cushion is so arranged as to receive any inward thrust of the knob-spindle of a lock, whereby the force of blows applied to the latter is nearly or quite absorbed by the cushion.



1. The combination of the india-rubber pad G and the knob C of a safe-lock, the pad being arranged to receive the inward thrust of the knob, substantially as and for the purpose set forth.

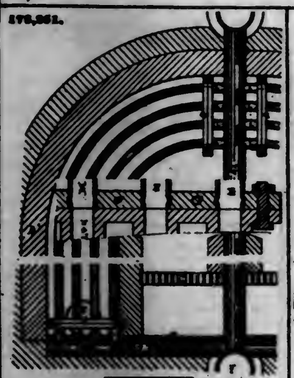
2. The boss F, provided on the inner end of the knob C, the fixed or running pocket a, and the interposed elastic pad G, the whole combined and arranged substantially as and for the purpose set forth.

178,945. SECTIONAL STEAM-GENERATORS. David Beardsley, Colchester, Mass. [Filed Nov. 17, 1876.]

1. The boiler above described, consisting of the lower water-body F J, projected from the heat, the upper water-body M L G, exposed to the heat, with passages M G between them to admit of circulation, all substantially as described.

2. In a sectional boiler made up of cast and wrought iron pipes, the combination of the cast pipe G, flanged branch L, plate Q, and wrought pipe M, one end of the wrought pipe being expanded to fill a groove in the hole through the plate Q, and the plate Q being bolted to the flanged branch L, all as specified.

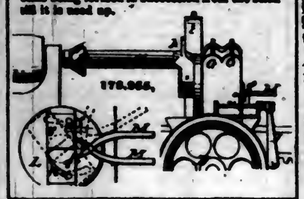
178,852.



178,854.



178,855.



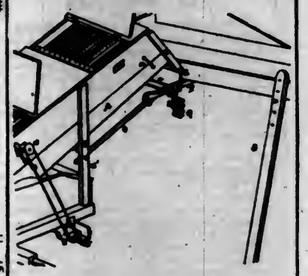
178,856.



The combination, with the crucible and bellows for supplying the blast to the fire beneath the crucible C, of the base A, connected with the bellows, and provided with the blow-pipe B, for supplying the blast into the crucible C, all arranged and operating as and for the purpose set forth.

178,857. GRAIN-SEPARATORS. Aaron Winkler, Brunnerville, and B. H. Snavely, Penn Township, Lancaster county, Pa. [Filed June 10, 1876.]

Brief.—Improvements in the straw-carrier, stacker, and "fanning-mill" of a combined thresher and separator.



1. In combination with the adjustable-jointed supporting-rod O P, the universal-jointed pulley-holder, consisting of the hanging bracket 1 on its pivot-bolt 2, and provided with a slotted socket-like boss, 3, connecting and pivot bolt 4, made adjustable with the pulley-frame 5, all arranged and operating substantially as and for the purpose specified.

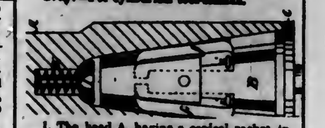
2. In combination with a shaking bottom, A, the adjusting-screw S'', affixed nut or female screw-block 43, and shank-piece 41, operating against the cross-beam 42, in the manner and for the purpose set forth.

3. In combination with the clutch on the pulley V and conveyer-shaft, the connecting-rod 20, valves 13, and weighted arm 12, the whole constructed and operated as herein specified.

4. The sieve, made in two or more sections, 26 and 29, with blank intervening space 28, in combination with the frame *f*, and rear shaft 31, operating in relation to the triangular cross-piece or dividing-ledge 27 and the shoe, in the manner and for the purpose herein mentioned.

178,858. DRILL-SOCKETS. Charles Allen, San Francisco, Cal. [Filed Apr. 18, 1876.]

Brief.—For cylindrical tool-shanks.



1. The head A, having a conical socket, in combination with the slotted thimble B, with its loosely-sliding dogs *f f f*, said dogs having inclined backs and toothed fronts, substantially as and for the purpose described.

2. In combination with the head A, provided with a conical socket, and having a slotted thimble, B, secured on said socket, the loosely-sliding dogs *f f f*, having the projection or shoulder *j*, substantially as and for the purpose described.

3. The conically-socketed head A, with its slotted thimble B, sliding dogs *f f f*, with their shoulders or projections *j*, in combination with the cup-shaped bottom *l* and spring E, all combined and arranged to operate substantially as and for the purpose described.

178,859. LOCKS-TEMPLES. Johns B. Arnold, Salem, Mass. [Filed Apr. 24, 1876.]

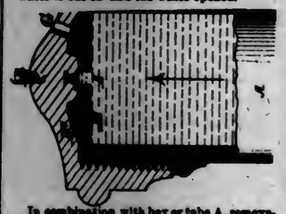
Brief.—The stop to limit the movement of the temple toward the lay is made adjustable by screw-thread and nuts.



The stop D and its adjusting-screw *e* and nuts *e f*, arranged with the breast-beam A, as shown, in combination with the temple B and its elastic supporting-arm C, arranged with the said temple, and fastened to the breast-beam, all being substantially as set forth.

178,860. AUTOMATIC AIR-VALVE FOR WATER-PIPES. John A. Stacy and John W. Carroll, Cincinnati, Ohio. [Filed Mar. 27, 1876.]

Brief.—The valve is attached to a water-service pipe, to admit air to drain it when water is cut off and the waste opened.



In combination with box or tube A, removable perforated cap B C, and centrally-pierced yielding diaphragm H I, supported at its margin and resting against stamp B, the annular recess F, communicating with aperture G of the cap, for the purpose of exposing a large area on the top of diaphragm H for the air to act on, substantially as herein described and set forth.

178,861. DOOR-TRAPS FOR SMELTING-FURNACES. Thomas J. Taylor, Bowden, Nov. [Filed Mar. 20, 1876.]

The combination of the arresting-chamber B, short smoke-pipe D, and final-exit pipe E, the latter provided with the arresting-damper *c*, substantially as and for the purpose described.

1. The method or process of turning balls successively from the free end of a stick by projecting portions of the stick successively through a sliding bearing, then bringing cutters transversely across the stick for partially shaping the balls, and then applying cutters by a turning movement around the end of the stick and the opposite side of the balls, to finish the same, and sever them from the stick, substantially as herein specified.

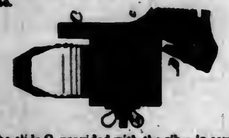
2. The two finishing-cutters K K, arranged on opposite sides of the balls to be turned, and to operate thereon by a turning movement, both longitudinal and transverse to the stick from which the balls are turned, substantially as herein specified.

3. The combination, upon a movable carriage, R, of the stick-bearing A, provided with a center, *l*, rough-shaping cutters G G, and the finishing-cutters K K, all arranged and operating in the manner and for the purpose herein specified.

4. The turn-table L, constructed with the sliding cutter-holders *r r*, and handles M M, substantially as and for the purpose herein specified.

178,862. CARPENTERS' PLANES. Samuel Williams, Columbus, Ohio. [Filed Mar. 15, 1876.]

Brief.—An adjustable bevel-guide is attached removably to either side of a bench-plane.



The slide C, provided with the rib *c*, in combination with the bolt K, bevel-guide D, and plane-stock A, substantially as and for the purpose set forth.

178,862. NUT-LOCKS. John N. Arvin, Valparaiso, Ind., assignor of two-thirds his right to Robt. Learmouth, Alliance, Ohio, and D. H. Simons, Valparaiso, Ind. [Filed Mar. 27, 1876.]



The hinged drop-bar *b*, bent as described, and having the spring-legs *b' b'*, in combination with the nuts D D and bolts O O, substantially as and for the purpose set forth.

178,863. SHIPS' LOGS. John Ellis and Geo. H. Ellis, Brooklyn, N. Y. [Filed Feb. 16, 1876.]

1. The elongated case and gimbaling mechanism, supporting each case near the center of gravity, in combination with the revolving shaft *c*, propeller *b*, and cord or wire *e*, substantially as set forth.

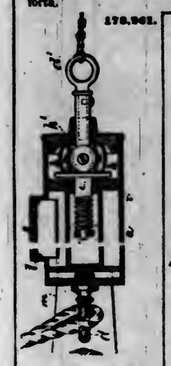
2. The elongated case *a*, with an eye at one end for a safety cord or chain, in combination with the shaft or spindle projecting from the other end, and connected by the wire or rope *e* with the propeller *b*, substantially as set forth.

3. An elongated cylindrical case containing the registering mechanism, with the shaft *c* introduced axially at one end, in combination with the anti-friction rollers *h*, eye *d*, propeller, and connecting cord or wire, substantially as set forth.

4. The horizontal attaching-yoke *m*, in combination with the elongated case *a*, registering mechanism *b*, and shaft *c*, substantially as set forth.

5. The glass *e* and metal frame *f*, curved upon its lower surface to the arc of a circle, in combination with the elongated cylindrical case *a*, and registering mechanism, as set forth.

6. The combination, with the propeller of a ship's log, of a messenger-shield, *r*, constructed substantially as and for the purpose set forth.



178,864. PAINTS. David H. Brenig, Brooklyn, N. Y. [Filed Apr. 26, 1876.]

1. The herein-described material for paints, possessing the qualities of hardness and toughness, and composed of oil, ground zinc-white, and water, combined as and in the proportions substantially as set forth.

2. The process of preparing zinc-white for paint by first grinding in oil, then treating with water, as described, and then regrinding for use, substantially as set forth.

3. The method of preparing the new article of zinc-white by first grinding ordinary zinc-white in oil in a mill heated to the requisite degree, collecting the product in cold water, subjecting the same to the continued action of the water, and subsequently grinding the said product in a mill at a low and normal temperature, substantially as herein set forth.

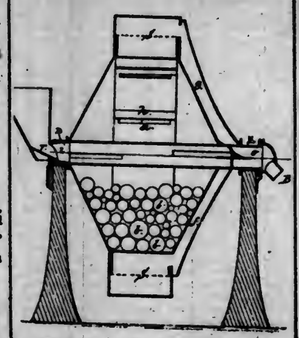
178,865. SKATES. Charles Brewster, Montreal, Canada. [Filed Apr. 15, 1876.]



1. The combination of the spindle *k*, nut *m*, links *b'*, and pivoted clasps *p*, substantially as and for the purposes set forth.

2. The combination of the spindle *k*, nut *m*, links *b'*, and pivoted clasps *p* with the heel-clasp *h*, substantially as and for the purposes set forth.

178,866. ORE-PULVERIZERS. Wm. Brashear, Bonnlon, Germany, assignor of one-half his right to Gottfried Sachsenberg, same place. [Filed Mar. 4, 1876.]



1. A revolving vessel, provided with conveyers *g g*, for conducting the substances to be treated toward the opening *o* and the outlet B, said opening and outlet being constructed at or near the revolving axis *a a*, substantially in the manner and for the purpose described.

2. The combination, with the drum or vessel A, provided with the sleeve S, of the conveyers *f f* and *g g*, and the discharge-opening *o* and the outlet B, substantially in the manner and for the purpose described.

178,867. GAME-TABLES. Chauncey Buckley and Lodowick L. Sawyer, Meriden, Conn. [Filed Nov. 20, 1875.]

Brief.—The table-top is centrally perforated, and fits upon a pin, which projects above the frame to a height just equal to the thickness of the top.



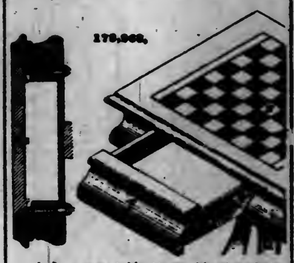
1. In a game-table, the combination of the central spindle B, shoulder *a* at the base of the spindle, the reversible top C, with the central socket D to set upon the said spindle, substantially as described.

2. In a game-table, the combination of the central spindle B, shoulder *a* at the base of the spindle, the reversible top C, with the central socket D to set upon the said spindle, and the stationary apparatus box E beneath the said top, substantially as described.

178,868. GAME-TABLES. Chauncey Buckley and Lodowick L. Sawyer, Meriden, Conn. [Filed Nov. 20, 1875.]

Brief.—The central panel has different game-boards upon either side, and rests upon adjusting-screws to keep it always flush with upper surface of the frame.

178,869.



1. In a game-table, the combination of the stationary frame and the reversible panel E within said frame, substantially as described.

2. In a game-table, the combination of the stationary frame, the reversible panel E within said frame, and screws arranged to adjust the elevation of the panel, substantially as described.

178,870. PROCESSES AND APPARATUS FOR TREATING LARD. Richard Dalrymple, Buffalo, N. Y. [Filed Apr. 17, 1876.]

Brief.—The lard is delivered from the rendering-tank into a vessel, in which it is subjected under pressure to the action of sal-soda and steam. It is then pumped into a second vessel, in which it is subjected to a current of cold air.

1. The process of treating liquid lard with a solution of sal-soda while a current of steam is forced through the liquid, and allowing the mass to settle while at a high temperature, for separating the impurities and water from the lard, substantially as herein before set forth.

2. The combination, with the purifying-vessel A, provided with steam-pipe *d*, of the cooling-vessel B, connecting-pipe *f*, blower A, and air-pipe *i*, substantially as and for the purpose herein before set forth.

3. The combination, with the tight cooling-vessel B, of the blower A, air-pipe *i*, and exhaust *f g*, substantially as and for the purpose herein before set forth.

178,871. FIRE-KINDLERS. John J. K. Boote and George L. Hoehler, Cleveland, Ohio. [Filed Apr. 18, 1876.]

The polygonal fire-kindler set forth and shown, consisting of the pieces of wood A B, the binder C, coating D, of a compound of resin and paraffine, sawdust made to adhere to the same, and which may or may not have been previously treated with paraffine, and with a lighter, F, substantially as described

178,872. GAS-BURNERS. Wm. P. Bonnell, Jr., Boston, Mass., assignor to himself and S. B. Kidder, same place. [Filed May 5, 1876.]

Brief.—Two receptacles for packing, with expansion chamber between.

The base and cage *a b*, and the shell provided with an annular projection and upper chamber, in combination with the packing *d h*, arranged in the cage and chamber, and adapted to check and regulate the flow of gas issuing from the tip, substantially as described.

4. The combination, with the purifying-vessel A and cooling-vessel B, of the connecting-pipe *f*, reversible pump *g*, branch pipe *n*, and clasp-cocks *o' o*, substantially as and for the purpose herein before set forth.

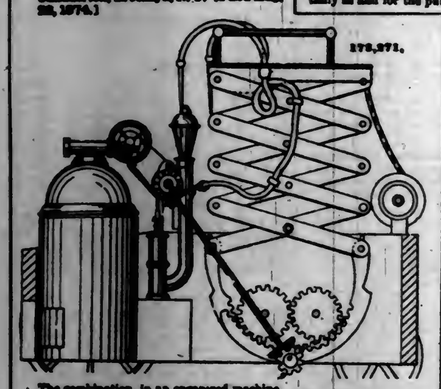
5. The combination, with the cooling-vessel B, blower I, and depending air-pipe *i*, of the dividing plate *h*, substantially as and for the purpose herein before set forth.

178,970. SCREW-CUTTING DIE-PLATES. J. M. Carpenter, Portsmouth, R. I., assignor of one-half his right to D. G. Littlefield, same place. [Filed Feb. 14, 1876.]



The combination, with a solid screw-plate, of a supplemental frame for holding the dies movable-jointed to the plate, and a clamp-screw for holding the frame with its dies in the plate, substantially as described.

178,971. SEWING FUR-SCRAPER. James Chamberlain, Brooklyn, N. Y. [Filed Aug. 28, 1876.]



178,972.

The combination, in an organized machine, of the hay-tongs, fireman's elevating-platform, and a steam-motor connected therewith by suitable gearing to operate the same, said steam-motor being also adapted, by means of a force pump or pumps and hose-connections, to serve as a fire-engine, substantially as described.

178,973. SEWING-METAL CASE. George H. Chimmedt, Brooklyn, N. Y., assignor to L. Richardson, same place. [Filed Apr. 15, 1876.]

Brief.—Soldier upper edge of the soft-metal strip to lid, and bends its lower edge inward against, and above or below, hinge on case. Forms glue or gelatine in the chamber so formed. May solder strip to cover, insert the cement, and clean by bending, or first attach strip to case by bending, insert cement, and solder strip to cover.

1. In a self-opening case, the detachable strip C, soldered at its upper edge to the periphery of the cover B, and at its lower edge turned over the circumferential rib *c* of the body A, the said strip C being constructed with the loose tongue *b*, the whole constructed and arranged substantially as and for the purpose herein set forth.

2. The packing *d'*, of gelatine or equivalent material, provided between the top of the body A and the detachable strip C, united at its upper edge to the circumference of the cover, and turned over or upon the circumferential rib *c* of the body A.

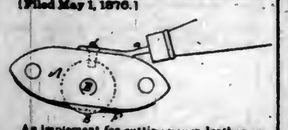
178,974. EXHAUST-PIPES FOR STEAM-HAMMERS. John B. Collin, Altoona, Pa. [Filed Apr. 26, 1876.]

Brief.—To prevent the rocking and trembling of the exhaust-pipe of a steam-hammer, and relieve the piston from back pressure, and the cylinder from water of condensation, an independent pipe is provided, into which exhaust steam is discharged through a short pipe attached to the hammer-frame. A drip-pan receives water of condensation from said independent pipe.

1. The combination, with the exhaust of a steam-hammer, of a short exhaust-pipe and an independent chimney, the combination being and operating substantially as and for the purposes described.

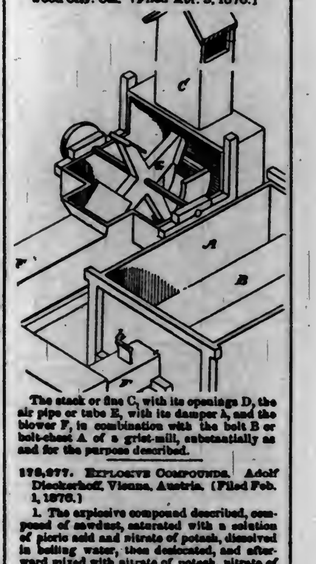
2. The combination of the exhaust-opening, the exhaust-pipe, the independent chimney, and the receiver, substantially as and for the purposes described.

178,975. TOOLS FOR CUTTING LEATHER, &c. Phinehas Osborn, East Walpole, Mass. [Filed May 1, 1876.]



An implement for cutting paper, leather, or other thin substances, the same consisting of the stock A, rotary cutter B, self-adjusting depth-gage F, and handle C, the cutter being journaled within the stock, and the knife switched to the center of the latter, in order to be reversible, and the whole being substantially as and for the purposes stated.

178,976. FLOUR-BOLTS. John H. De Force, Henry H. Hurd, and Geo. Simpson, Redwood City, Cal. [Filed Apr. 3, 1876.]



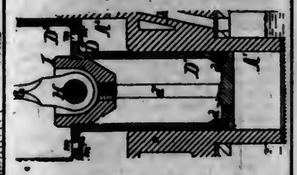
The stack or flue C, with its openings D, the air pipe or tube E, with its damper A, and the blower F, in combination with the bolt B or bolt-chest A, of a grist-mill, substantially as and for the purpose described.

178,977. EXPLOSIVE COMPOUNDS. Adolf Diesterhoff, Vienna, Austria. [Filed Feb. 1, 1876.]

1. The explosive compound described, composed of sawdust, saturated with a solution of picric acid and nitrate of potash, dissolved in boiling water, then desiccated, and afterward mixed with nitrate of potash, nitrate of soda, and sulphur, all as set forth.

2. The described process for granulating or for converting into sticks the compound of sawdust, picric acid, nitrate of potash, nitrate of soda, and sulphur, the same consisting in mixing nitrate of potash, nitrate of soda, and

Brief.—Oil or any other contents of the vacuum-cylinder are discharged through the valve in the bottom thereof. The motion is arrested by an air-cushion sufficient to overcome the force of the vacuum, and arrest the momentum of the liberated mechanism. The noise produced by the escape of air under pressure is suppressed by leading it into an inclosed chamber. The central casting serves as a means for connecting the pistons.



1. In combination with a connection, G, leading to the steam-valve of a steam-engine, the valve-shifting device described, having a piston working in a cylinder, and a self-acting valve opening outward therefrom, the whole adapted to form a vacuum each time the piston is raised, substantially as herein specified.

2. The compound or duplex piston D^1 D^2 and connection G therefrom, in combination with the cylinders A^1 A^2, so arranged that one part of the piston is equipped to serve with a vacuum to induce motion, and the other part to cushion the air to arrest motion, as herein specified.

3. In combination with a large or cushioning piston, D^2, and the connection G, leading therefrom, as above, the air-passage B, leading from the large cylinder D^2 to a capacious chamber, H, and adapted to soften and reduce the sound of the escaping air, as herein specified.

4. The central casting I and pin H, formed with an offset, as shown, in combination with the threaded stem S^2, and with a piston having an offset in its interior adapted to engage therewith, as and for the purposes herein specified.

178,978. EXHAUST-PIPES FOR STEAM-HAMMERS. John B. Collin, Altoona, Pa. [Filed Apr. 26, 1876.]

Brief.—To prevent the rocking and trembling of the exhaust-pipe of a steam-hammer, and relieve the piston from back pressure, and the cylinder from water of condensation, an independent pipe is provided, into which exhaust steam is discharged through a short pipe attached to the hammer-frame. A drip-pan receives water of condensation from said independent pipe.

1. The combination, with the exhaust of a steam-hammer, of a short exhaust-pipe and an independent chimney, the combination being and operating substantially as and for the purposes described.

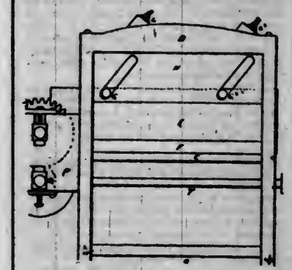
2. The combination of the exhaust-opening, the exhaust-pipe, the independent chimney, and the receiver, substantially as and for the purposes described.

178,979. DAME-POTS. George H. Corliss, Providence, R. I. [Filed Oct. 27, 1876.]

flour or sulphur with sawdust previously saturated with picric acid and nitrate of potash, and while it is in a damp state passing it through sieves for granulating, or through a press to form sticks.

178,979. RECIPROCATING PAPER-CUTTERS. Thomas B. Dooly, Boston, Mass. [Filed Apr. 20, 1876.]

Brief.—The knife is given a draw-cut by studs working in diagonal slots. Eccentric washers on the studs serve to adjust the knife.



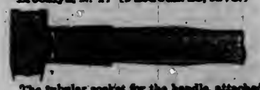
1. The slotted bar H, in combination with the knife F, the pins G G', the standards A A', the braces D and B, and the table C, all when constructed and arranged substantially as described.

2. The pins G G', having eccentric sleeves or collars, in combination with the slotted bar H and the knife F, the standards A A', braces D and B, and table C, all constructed and arranged substantially as described.

3. The buffer-rods K K' and the buffers L L', in combination with the knife F, the slotbar H and its slots, the standards A A', the table C, and the upper brace D, all constructed and arranged substantially as described.

4. The compound gage V V', in combination with the table C and the knife F, the gage sideyoke Z, and the necessary apparatus to support the knife and table and to actuate the knife, all constructed and arranged substantially as described.

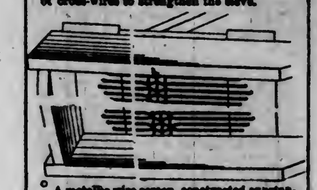
178,980. HAMMERS. Charles W. Dunlop, Brooklyn, N. Y. [Filed Jan. 26, 1876.]



The tubular socket for the handle, attached to the hammer-head by a rivet or its equivalent, as and for the purposes set forth.

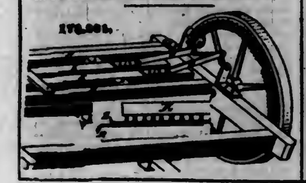
178,981. METALLIC SCREENS. S. W. Flint, Boston, Mass. [Filed May 15, 1876.]

Brief.—Instead of the usual cross-bars under the sieve, interwoven, at intervals, series of cross-wires to strengthen the sieve.



A metallic wire screen, constructed as substantially as herein described—that is, as composed of the main or longitudinal wires and the series of cross-wires employed at intervals, and interweaving the first, essentially as stated, in combination with a suitable frame.

178,982.



178,983. MACHINES FOR SOWING TOBACCO-SEED. Levi B. Forney, Lancaster County, Pa. [Filed Apr. 1, 1876.]

Brief.—Two brushes reciprocate alternately in a seed-box provided with interchangeable slides.

In a hand seed-drill, the combination of the reciprocating brushes K K, with the perforated plates E S, and operating mechanism, substantially as and for the purpose specified.

178,984. SUSPENDER-BELTS. E. J. Fraser, San Francisco, Cal. [Filed July 7, 1876.]



As a new article of manufacture, a common supporter, A, for stocking suspenders, cut bias in a circular or segmental form, and provided with the broad tabs b b, to conform to the shape of the body and hips below the waist, substantially as and for the purpose set forth.

178,985. VAGINAL SYRINGES. A. J. French, Portsmouth, N. H. [Filed Apr. 24, 1876.]

Brief.—Flat springs surround the tube of the syringe, and, after its insertion in the vagina, are expanded outwardly by forcing forward their lower ends. This is done by means of a tubular screw-nut, which works upon the threaded end of the syringe-tube. An exterior case with finger-rings surrounds the outer end of the tube.

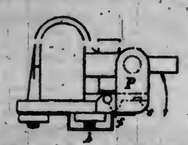


1. The combination of the case N, with the spray-tube B, its screw F, series of springs G, and tubular screw-nut D, all being arranged and applied essentially as shown and described.

2. The combination of the swiveling nipple H with the perforated tube B, screw F, nut D, and series of springs G, all arranged and applied substantially as specified.

3. The combination of the rings E K, case N, nut D, screw F, perforated tube B, and the series of springs G, all being arranged and applied substantially as set forth.

178,986. TRILL-COUPLINGS. H. D. Frost, Jerseyville, Ill. [Filed May 16, 1876.]



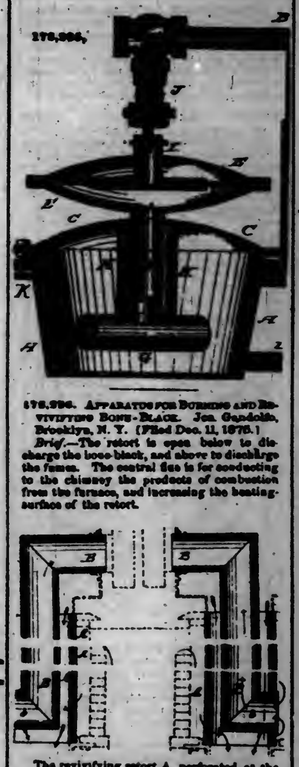
In a thill-coupling, the guard P, adapted to oscillate about the pivot *f*, as a center, in combination with the spring *j* and rubber stop *s*, substantially as and for the purpose described.

178,987. STEAM-TRAPS. Willard M. Fuller, New York, assignor to himself and John Sherry, Brooklyn, N. Y. [Filed May 10, 1876.]

1. As a steam-trap, the combination of the trap A, pipe G, connected with vessel E, shield H, and diaphragm D, substantially as described.

2. The combination of the trap A, case B, with diaphragm D, sealed pipe G, rod I, steam-pipe R, with valve J, and water-pipes K L, substantially as and for the purposes set forth.

178,988.



178,989. APPARATUS FOR BURNING AND REVIVIFYING BONE-BLACK. Jos. Gandolfo, Brooklyn, N. Y. [Filed Dec. 11, 1876.]

Brief.—The retort is open below to discharge the bone-black, and above to discharge the fumes. The central flue is for conducting to the chimney the products of combustion from the furnace, and increasing the heating-surface of the retort.

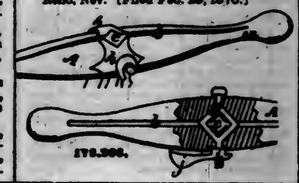
The revivifying retort A, perforated at the side which is turned away from the fire-place, and combined with the central smoke-flue B, which enters at said perforation, substantially as specified.

178,987. PANTALOONS. Redmond Gibbons, San Francisco, Cal. [Filed May 26, 1876.]



In combination with the fly of pantaloons or similar garments, an inelastic bridge or check-piece, arranged across the crotch thereof, substantially as described, whereby the strain at the crotch, when the fly is opened and spread apart, is received by said bridge or check-piece, instead of at the angle of the crotch itself.

178,990. ADZES-HANDLES. G. L. Gibson, Reno, Nev. [Filed Feb. 29, 1876.]

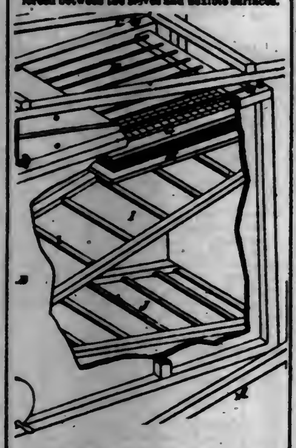


178,990.

The eager-handle A, with its cheek-cocket A, and having the saw-bar or split *b* extending each way from the socket toward the ends of the handles, in combination with the screw-bolt *f* and nut *i*, or equivalent device, for drawing the two parts of the handle together and rendering the socket *h* adjustable, substantially as and for the purpose described.

178,889. ORE-CONCENTRATORS. George Ginn, Belmont, Nev. [Filed Apr. 3, 1876.]

Brief.—The ore falls upon a series of sieves of diminishing mesh, and from them upon a series of inclined flexible surfaces, which are provided with riffle-bars. A blast of air is forced between the sieves and flexible surfaces.



A machine for the dry concentration of gold and valuable substances, consisting of the shaking-screen F G H and alternately-inclined tables I and J, having flexible surfaces, provided at intervals with riffle-bars K, in combination with the swinging box B, air-blast, and frame A, as set forth.

178,890. WHEELS FOR TOYS. George W. Gough, East Hampton, Conn. [Filed Apr. 20, 1876.]

Brief.—The wheels themselves are of bell-metal, and have sounding portions adapted to sound without interference by the rolling contact of its edge with the plane upon which it is drawn.



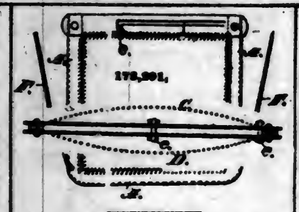
The herein-described wheel for toys, consisting of a hollow shell, formed of resonant metal, arranged upon the axis of the toy, and provided with a ball or hammer within, to sound the bells as the wheels are revolved, substantially as described.

178,891. GARNET ATTACHMENTS FOR POCKETS. Isaac T. Green, Media, Pa. [Filed Nov. 12, 1875.]

1. The frame A, in combination with the lips C and D, constructed and arranged to operate substantially as described.

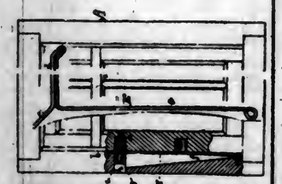
2. In combination with the frame A and spring-lips C and D, the pieces of straight metal E F, constructed and arranged to operate substantially as described.

3. In combination with the lips C and D, the slot and pin, constructed and operating substantially as described.



178,892. HAME-FASTENERS. Elias J. Hale, Foxcroft, Me. [Filed Apr. 24, 1876.]

Brief.—A perforated bolt, the hole bored at or near the middle, is combined with an antirattling-spring, formed from a single piece of bent wire, and having an arm and projecting stud. The spring is fastened at its lower end in a recess of the window-frame, there being also in the frame a bolt-receiving hole, and a series of notches or fastening-holes in the side of the window-sash.



1. As an improved article of manufacture, the perforated bolt D, in combination with the single piece of wire E, bent as represented, so as to form a combined spring, *c*, arm *d*, and stud *e*, and applied to each bolt, as set forth, the two being arranged with the neck and lug supporting-frame, essentially as specified.

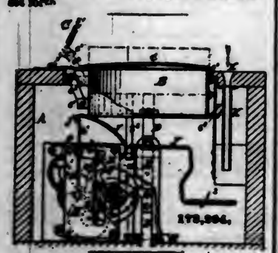
2. The frame A, provided with the bolt-receiving hole *h*, the retainer-receiving chamber *f*, the perforated bolt D, and the wire E, bent as represented, so as to form a combined spring, *c*, arm *d*, and stud *e*, all being arranged and applied substantially as set forth.

178,893. BARREL-CHEESERS. Henry H. Hale and Edwin A. Shaw, Buffalo, N. Y. [Filed May 9, 1876.]



1. A stove for heating barrels, composed of the fuel-receptacle A and draft-cylinder B, provided with annular shield or hood C, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the fuel-receptacle A, provided with inclined ears *c*, of the detachable draft-cylinder B and hood C, substantially as and for the purpose hereinbefore set forth.



178,894. AUTOMATIC TOBACCO-BOXES. W. H. Harris, Brooklyn, N. Y. [Filed Aug. 24, 1875.]

Brief.—The box is automatically raised, opened, and closed by a clock-movement, set in motion by the weight of a penny when dropped into a spout by a person desiring a chew, which causes the tobacco to be exposed for an instant; then the box drops and the cover closes, ready to open again when another penny is dropped in.

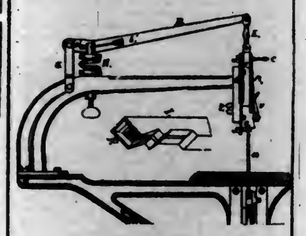
1. The box B, attached to the sliding bar D, provided with the toe *b'*, in combination with the pins *b'* on the disk I of the driving mechanism H, the link *d'*, and cover C, hinged to the stationary box A, substantially as and for the purpose specified.

2. The combination of the spring-catch F with the moving box B and with the stop-lever J, operating on the fly *h'* of the clock-work H, substantially as specified.

3. The spring-catch F, with the projection *f'*, in combination with the projection *b'* on the vertically-reciprocating box B, and the staple *g'* on the lid C, for locking and unlocking the box, substantially as specified.

178,895. SCROLL-SAWING MACHINES. Wm. Hessman, Richmond, Ind. [Filed May 10, 1876.]

Brief.—The upper end of the saw is held by a pawl, made to engage with the teeth by means of a cam-lever, and released by its own elasticity on reversing the lever. A spring under the vibrating arm produces the requisite strain.



1. The combination of the bar I, with its bevel end F, spring *a*, and cam *c*, substantially as and for the purpose set forth.

2. The combination of lever E, connections G and E, and spring H, substantially as and for the purpose set forth.

178,896. HAND-STAMPS. Benjamin R. Hill, Springfield, Mass. [Filed Nov. 12, 1875.]



1. In an improved machine for stamping tickets, the combination, with the stamping-type, of the pivoted or tilting frame A, the swinging platen P hung at one side to said frame, and the rod D having a bearing at the lower end in the fixed base to which the said frame is pivoted, and at the upper end in the said swinging platen, substantially as described.

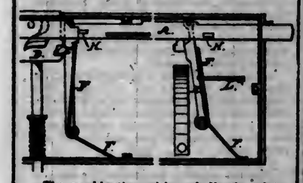
2. In a machine for stamping tickets, the combination of the swinging or tilting frame A, pivoted to a fixed base, the swinging platen P hung to the said tilting frame, the rod D having a bearing at its upper end against said platen, and the stop *f* arranged to be moved up or down to adjust the rod and platen with reference to the printing-type, substantially as set forth.

3. The adjustable guides *b*, provided with the gage *a*, in combination with the frame A, substantially as and for the purpose described.

4. The combination of the printing-type, the platen P, the swinging or tilting frame A, the elastic pad secured in the front face of said frame to enable the operator to press against the frame with sufficient force to make the impression without injury to the hand, and the fixed base C, all substantially as herein described.

178,897. ANNUNCIATORS. Fredk. Hirschy, Henry L. Korte, and Herman F. Achsner, Zanesville, Ohio. [Filed Nov. 22, 1875.]

Brief.—A wire or cord is attached to the retaining-lever, which, when drawn upon, moves the longitudinal bar and rings the bell, and also releases the indicating mechanism. The indicators and retaining-levers may be multiplied to any desired extent, according to the number of rooms; but the levers may all be connected with a single bar.



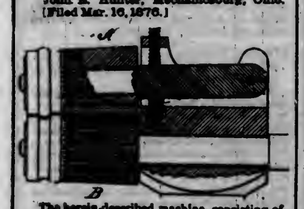
The combination, with an indicating-plate, bolt, or dial-bar, having a suitable catch and spring, as described, of a horizontal bar, A, carrying attachments H, and the pivoted levers E K, with springs F, the spring B, bell-wire C, and bell E, substantially as and for the purpose set forth.

178,898. DUST-BRUSHES. J. W. Howard, Newark, N. J. [Filed Aug. 6, 1875.]



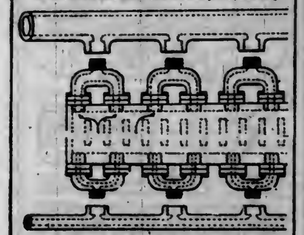
A wool dust-brush center, the spiral wire D and incasing-tube B of which are attached to and in combination with the handle-head, substantially as and for the purposes specified.

178,899. SHEET-METAL-BENDING TOOLS. John B. Hunter, Mechanicsburg, Ohio. [Filed Mar. 16, 1876.]



The herein-described machine, consisting of the taper fluted and beaded rolls A and B, one being secured to a rotating, and the other to a pivoted, shaft or journal, substantially as and for the purpose set forth.

178,900. ICE-MACHINES. Auguste Jas, New Orleans, La. [Filed May 27, 1876.]



A refrigerating-plate, substantially as described, in combination with supply and discharge receivers, and intermediary conduits, whereby the refrigerant can be supplied simultaneously to the several divisions of said plate, substantially as set forth.

178,901. GRAIN-BINDERS. Lewis H. Johnson, Fergus Falls, Minn., assignee to himself, Elijah H. Gammon, and Wm. Deering, Chicago, Ill. [Filed Feb. 26, 1876.]

1. The twisting-wheel *a* and flange *a*, in combination with the cone *d*, substantially as described.

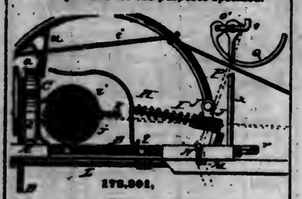
2. The combination of the cutter or knife *b*, rotating with the twister, with the pin *c* on the wheel D, substantially as and for the purpose specified.

3. The combination of the wheel D and pin *c* with the wheel *a a*, cone *d*, and knife *b*, substantially as specified.

4. The combination of the compresser H with the sliding spring-arm I and pivoted socket J, substantially as described.

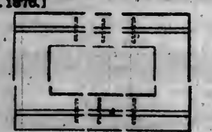
5. The combination of the projection *t* with the spring cam or arm *r* and shaft K, for tilting the platform B, substantially as set forth.

6. The stop O' Q, in combination with the cranks O and N on shaft M, and rod *p*, substantially as and for the purposes specified.



178,901.

178,902. RAILWAY-CAR WINDOWS. Joseph L. Joyce, New Haven, Conn. [Filed Mar. 27, 1876.]



The herein-described improvement in sashes for land and other conveyances, consisting in the sills divided vertically into two parts, combined with an elastic material between the two, and with suitable guides to retain the said two parts in substantially the same relative position, substantially as specified.

178,903. SEWING-MACHINE JOURNALS. J. Kline, Camp Hill, Pa. [Filed Apr. 3, 1876.]

Brief.—The ends of the bearing are conical, the larger bases outward. It is formed of two pieces, one a screw entering the other. On the former are washers, to be separately removed as compensation for wear is required.



1. A sectional compensating-journal composed of two sections, each of which has a conical bearing, whose distance from each other is regulated by a variable quantity of fillers or washers interposed between the said sections, and supported on the set-screw stem, by which the bearings are connected, substantially as set forth.

2. The journal-sections A N and B O, connected together by the screw O O', and incorporating one or more fillers, W, between them, as means to regulate the journal's length, in combination with a hub having the conical seats H H, and with the frame G, these parts being all arranged for operation substantially as set forth.

178,904. CHAMBER-PAIL COVERS. C. Kolb, Newark, N. J. [Filed Mar. 16, 1876.]

Brief.—The cover is placed on the edge of the pail, and it has a flange made to fit inside of the top of the pail, to prevent the cover from slipping, and also fitting closely to prevent the escape of effluvia.



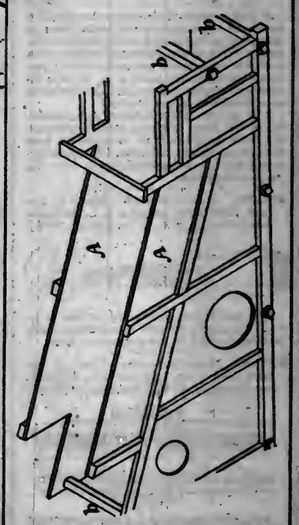
178,904.

The accommodation-cover for a chamber-pail or bucket, as an article of separate manufacture, having the combined seat A, with the flange C, and the cover D, with the flange G, substantially as and for the purposes specified.

178,905. MANUFACTURE OF RAWHIDES. A. C. Krueger, San Francisco, Cal. [Filed Nov. 27, 1875.]

The process above described for converting green hides into rawhides, the same consisting in sweating the hair from the hides, then tanning the hides in a solution of alum and salt, then washing the salt and alum out of the hides, then dipping them in a solution of tanner's oil, glycerine, and bar, substantially as and for the purpose described.

178,906. PACKING THRASHING-MACHINES FOR TRANSPORTATION. Michl. Leufenburg, San Francisco, Cal. [Filed Mar. 24, 1876.]



The improvement in packing thrashing-machines for transportation, the same consisting in dismantling the sides A A of said machines, and connecting them together at a suitable distance apart by means of short girts or binding-rods b, and within the space so formed packing the remaining parts of the machine, substantially as and for the purpose described.

178,907. MANUFACTURE OF ARTIFICIAL STONE. Llewellyn L. Leathers and Felix Chappellet, Oakland, Cal. [Filed Mar. 13, 1876.]

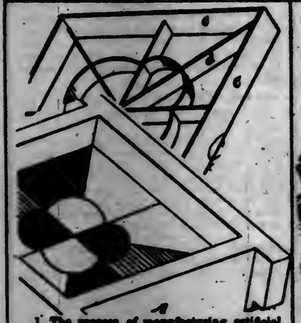
Brief.—Hard-wood ashes and water are used to make a weak lye, and oily or resinous substances added to make a saponaceous solution. A small quantity of alum is dissolved in cold water and added to above solution, which is then complete for moistening the sand and cement.

1. The process above described for making a saponaceous mixture or solution for the purpose specified.

2. An artificial stone composed of sand and cement moistened with a saponaceous mixture or solution, before tamping, in about the proportions herein before named, substantially as and for the purpose above described.

178,908. PROCESSES, PATTERNS, AND MOLDS FOR MANUFACTURING ARTIFICIAL STONE IN IMITATION OF MOSAICS. Llewellyn L. Leathers and Felix Chappellet, Oakland, Cal. [Filed Mar. 13, 1876.]

Brief.—The compartments formed by the pattern and mold are filled with the differently-colored compositions, which are solidified therein by pressure, and at the same time caused to unite, the pattern being gradually raised.



1. The process of manufacturing artificial stone and other equivalent blocks, slabs, or articles in imitation of mosaics, the same consisting in filling the differently-colored materials into the separate compartments of a pattern or compartment mold, so as to unite the contents of the compartments below the mold, substantially as above specified.

2. A pattern or compartment mold, consisting of the frame or rim C, with its intersecting cross partitions *d d*, arranged to form characters, designs, or figures, in combination with a mold, A, substantially as and for the purpose described.

178,809. WOOD-SCREWS. Edwin A. Leland, New York, assignor to L. Richardson, Brooklyn, N.Y. [Filed Feb. 15, 1876.]



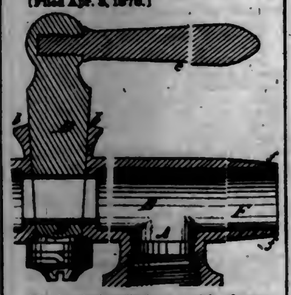
The wood-screw, having the bottom of its nick or groove *c* serrated or corrugated, substantially as and for the purpose set forth.

178,810. HOSE-COUPLINGS. Edwin A. Leland, New York, assignor to L. Richardson Brooklyn, N. Y. [Filed Apr. 3, 1876.]



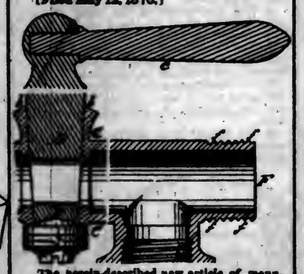
The externally threaded or corrugated thimble B, in combination with the parts D and D and sleeve G, and the ends of the hose-sections A, the whole constructed, combined, and arranged for operation substantially as and for the purpose herein set forth.

178,811. COMBINED STOP-COCKS AND T-JOINTS. Edwin A. Leland, New York, assignor to L. Richardson, Brooklyn, N. Y. [Filed Apr. 3, 1876.]



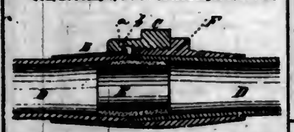
The herein-described new article of manufacture—the combined stop-cock and T-joint—comprising the T joint A B, the stop-cock D *b c*, and the extended ends F, tinned or spoltered and made tapering, as shown at *f*, the same combined, constructed, and arranged substantially as and for the purpose herein set forth.

178,812. CONDENSED STOP-COCKS AND T-JOINTS. Edwin A. Leland, New York, assignor to L. Richardson, Brooklyn, N. Y. [Filed May 12, 1876.]



The herein-described new article of manufacture, comprising the T joint A B, short pipe-section C, stop-cock D *b c*, and the ends F, constructed with the screw-threads *f*, the whole combined, constructed, and arranged substantially as and for the purpose herein set forth.

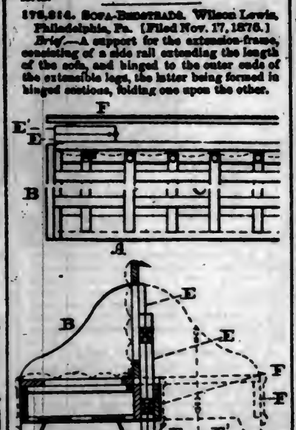
178,813. PIPE-COUPLINGS. Edwin A. Leland, New York, assignor to L. Richardson, Brooklyn, N. Y. [Filed Apr. 3, 1876.]



The packing-sleeve F, tapered from its middle toward its ends, in combination with the internal thimble E, the flared extremities of the pipe-sections D, a tapering external sleeve, B, and the part C F of the coupling, the part F having a tapering bore, the whole constructed, combined, and arranged for operation substantially as and for the purpose herein set forth.

178,814. SOFA-BEDSTEADS. Wilson Lewis, Philadelphia, Pa. [Filed Nov. 17, 1875.]

Brief.—A support for the extension-frame, consisting of a side rail extending the length of the side, and hinged to the outer ends of the extensible legs, the latter being formed in hinged sections, folding one upon the other.



The folding side pieces B B', hinged to each other and to the end-frame A B, in combination with the folding side rail F, hinged to the pieces B', substantially as and for the purpose set forth.

178,815. PREPARING BONE-BLACK. Orazio Lagro, New York, assignor of one-fourth his right to Joseph Gandolfo, Brooklyn, N. Y. [Filed Apr. 26, 1876.]

Brief.—One hundred parts of bone-black are mixed with from one-sixteenth to one part boric acid, and enough water to thoroughly saturate the bone-black, and permit of its being bolted. After bolting, the bone-black is drained, dried, and charred in kilns.

1. The mixture of animal-charcoal or bone-black with boric acid or a salt of boron, substantially as and for the purposes specified.

2. The process herein described of treating sirup or sugar solutions with boric acid or salt of boron in connection with bone-black, substantially as specified.

178,816. CLASPS FOR GLOVES. A. G. Mead, Boston, Mass. [Filed May 4, 1876.]

1. A fastening device for gloves or other articles, consisting of an elastic strap or yoke and a catch, essentially as herein combined, the catch being so formed as to constitute a bass of resistance to the draft upon the fastening, and as a protection against accidental unfastening of the latter, substantially as and for the purposes stated.

2. The spur or catch *c*, as formed upon the plate *F*, and with the legs *f f'*, one of each legs constituting a means of resistance to the draft upon the fastening device, and the other serving to prevent accidental unfastening of the device, substantially as and for the purposes stated.

3. The clasp or yoke A, and the metal cap or plate-hat inclosing the base of the same, in combination with the disk *f'*, having spurs *g g* for confining the same to the material, substantially as set forth.

4. The cam A, constructed with its cam *b b* and depressions *a' a'*, whereby the spurs of the confining-disk *f* are forced between the sides of the eye *f* of the clasp A and partially about such sides, substantially as and for the purposes stated.



178,816.



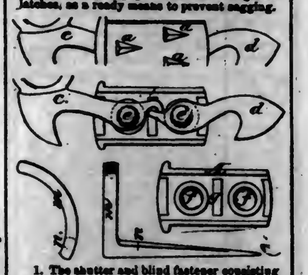
178,817.

178,817. DRAWER-PULLS. J. B. Merriman, West Meriden, Conn. [Filed May 6, 1876.]

A drawer-pull socket, consisting of the ball-socket proper, body, and tubular shank, all struck up from one and the same piece of metal, substantially as described.

178,818. SHUTTER AND BLIND FASTENERS. James M. Mansbach, Jersey City, N. J. [Filed Dec. 2, 1875.]

Brief.—The weighted latches are cast with rounded pivots or journals, and then serve, by use of a suitable core-bar, to form the core. The tubular shell is molded in the usual manner, the core carefully cut, and the whole cast with rounded sockets around the latches and their rounded pivots, clasping with the use of springs and rivets, while insuring strength and durability. There is also an adjustable catch formed with tapering shank and curved arm, which, when driven into the wall or side of the house, engages with the weighted latches, as a ready means to prevent sagging.



1. The shutter and blind fastener consisting of the combination of weighted latches *c* and *d*, having rounded journals or pivots *c c*, secured in a tubular shell or case, formed with sockets *f f*, and cast around the latches and their pivots, all substantially as shown and described, for the purpose set forth.

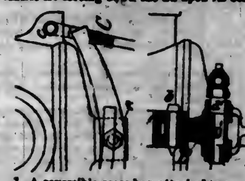
2. The adjustable catch *m n*, consisting of a tapering shank and curved arm arranged to engage with the weighted latch of a shutter and blind fastener in such manner as to be readily adjusted to the sagging of the shutter and blind, as described and shown, for the purpose specified.

178,819. WATER-PROOF COMPOUNDS. H. F. H. Miller, Boston, Mass. [Filed Nov. 27, 1875.]

The water-proof boot and shoe polishing wax, as herein described, composed of paraffine-wax, stearic acid, beeswax, ivory-black, lamp-black, gum dammar, sugar, alcohol, spirits of turpentine, and bar-soap, in or about the proportions specified.

178,820. GAS-RETORT-LID FASTENINGS. H. G. Morris, Philadelphia, Pa., assignor to Henry Morris, same place. [Filed Mar. 6, 1876.]

Brief.—The lid is secured centrally to the cutter-bar, which is pivoted to a hinge-piece, and it is pivoted to a lug on the side of the mouth-piece. A removable pivoted latch fits over the end of the cutter-bar. The pivot-pin of the hinge-joint has eccentrics, and a lever is secured to the top of the pin, whereby a reciprocating motion may be given to the lid upon its seat. The pin at the center of the lid, passing through the cutter-bar, has an eccentric for forcing down the lid upon its seat.



1. A reversible cross-bar, attached to a gas-retort cover, and pivoted to a hinge-piece, B, adapted to be secured to a lug at either side of the mouth of the retort, in combination with a reversible catch, C, whereby the parts can be reversed and be made to open to the right or left, as desired, substantially as described.

2. In combination with the cross-bar attached to the retort-lid, the hinge-piece B, pivoted to the said cross-bar and to a lug at the side of the retort, whereby the lid may be swung entirely out of the way of the mouth of the retort, substantially as described.

3. The combination of a retort mouth-piece, a hinge-piece, and a swinging-catch respectively pivoted thereto, a cross-bar pivoted to the retort-cover, and an eccentric pin and clamping-lever connecting the cover and hinge-piece, substantially as set forth.

178,821. WIRE AND CHAIN FENCES. Joe Nearing, Sherburne, N. Y. [Filed Feb. 28, 1876.]

Brief.—The tray receiving the pressure for pressure is divided into two parts, having separate covers provided with springs, for raising them when relieved from the pressure of the rollers.



178,821.

1. The reciprocating fruit-tray D, having hinged covers *e* and *f*, and arranged to pass between pressure-rollers C and C', in such a manner as to force the said covers *e* and *f* gradually down upon the pressure in the tray and press the juices therefrom, substantially as and for the purpose set forth.

2. The reciprocating tray D and its operating-covers E, with their fixed rests *d*, combined and operated in the manner and for the purpose set forth.

3. The springs F, arranged to open the covers *e* and *f*, substantially as and for the purpose set forth.

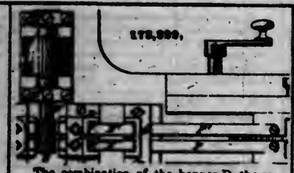
4. The springs F, with their adjustable connections *f'* F, as and for the purposes set forth.

5. The adjustable pressure-rollers C', arranged to press with uniform force and at variable heights upon the moving covers *e f*, as and for the purpose set forth.

178,822. MACHINES FOR FLAKING KNIFE-SCALES. Albert H. North, New Britain, Conn., assignor to Landers, Frary & Clark, same place. [Filed Mar. 2, 1876.]

Brief.—By means of reciprocating plungers the blanks are fed from a hopper to a rotary cutter.

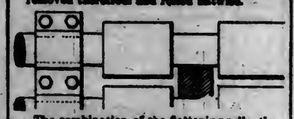
178,823.



The combination of the hopper D, the reciprocating follower F, the revolving cutter B, and pressure-pads *d* and *d'*, substantially as described.

178,824. MACHINES FOR TAPERING RODS FOR BRAIDING AND MOWING MACHINES. Samuel Osborn, Sheffield, England. [Filed Sept. 15, 1875.]

Brief.—A templet having a tapering groove to receive a bar inserted between rolls. Between the passes of the templet, the bar is removed therefrom and rolled flatwise.



The combination of the flattening-rolls, the edging-rolls, and the grooved templet, substantially as described.

178,825. PUMPS. Isaac H. Palmer, Lodi, Wis. [Filed Apr. 28, 1876.]

Brief.—The pump-handle is so connected to the pump-shaft that when the handle is applied to said shafting the shaft is detached from the pitman of the windmill, and the connection with the windmill restored upon the withdrawal of the handle, the object being to operate the pump either by one or the other, as the occasion may require.



1. The handle, pivoted as described, and provided with the rigid fingers *i* and *i'*, as and for the purpose set forth.

2. The spring-bar connecting the pitman to the pump-shaft, in combination with the pin and enlargements on the handle, as set forth.

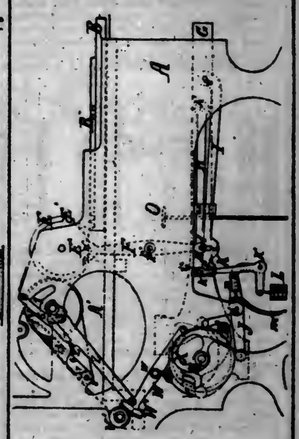
3. The set-screw on the seat, operating as described, in connection with the spring-stop on the pump, as set forth.

178,826. FEED-WATER HEATERS. Henry A. Filip, Brooklyn, N. Y. [Filed Nov. 20, 1876.]

A jacketed cylinder, H F, with top and bottom plates M M', provided with inlet steam-nozzle H and outlet-nozzle I, arranged with a valve, and also provided with inlet and outlet water-nozzles *J D*, and arranged with compartments D' D' D' to F, for the purpose specified, in combination with the plates G', G', and G', arranged with partitions *g*, and connecting nozzles J' J' J' J', and connecting-plate J J', when all constructed and arranged for operation as and for the purposes specified.

178,827. PRINTING-PRESSES. Chas. Potter, Jr., Plainfield, N. J., and Amzen Judson, Brooklyn, N. Y., assignors to Charles Potter, Jr., and J. F. Hubbard, Plainfield, N. J. [Filed Oct. 26, 1876.]

Brief.—A step-cylinder press having improved means for automatically holding stationary the impression-cylinder and fly while the bed moves two or more times under the ink-rollers, and shifting-levers for changing the motion, the fly-tapes passing over pulleys on rocking arms, and extending into grooves in the griper delivery-cylinder.



1. The mechanism for stopping, holding, and starting the impression-cylinder B, consisting of cams D', sliding bar G, hook H, and catch-lever F, combined and arranged substantially as herein described and specified.

2. In combination with the impression-cylinder B, catch-lever F, and engaging-hook H, and its operating means, the cam D', vibrating lever J, and the link K, capable of a lateral movement at its upper end, the slide *n*, arm *m*, the bar I *i*, having the guiding-surface *s'*, and a shoulder, *s*, adapted to operate therewith, as and for the purposes specified.

3. The combination of the movable piece *s*, carried on the vibrating lever J, with the arm *m'*, to transmit the proper lateral movement to the link K, as and for the purposes specified.

4. The lever V, in combination with the cams D' D' and frame S, and lock-plate having notches *s' s' s'*, operating as described.

5. The pawl Y and trip-cam S, in combination with the sliding bar Z, having a catch-notch, *y'*, and the bar W W', and fly-segment V', as and for the purposes specified.

6. The nipper-shaft 16, with its nippers 11, in combination with the grooved delivery-cylinder 1, and with the arms 4, supporting the pulleys 5, carrying the delivery-tapes 6 to the fly V, as and for the purposes herein specified.

178,827. SPRING ARM-PENCILS. Henry M. Quackenbush, Herkimer, N. Y. [Filed Mar. 4, 1876.]



178,827.

1. The combination of the barrel, spring-impelled plunger, and air-magazine, under such an arrangement that the barrel is susceptible of being pushed into the latter, and locking or setting the plunger, substantially as and for the purposes stated.

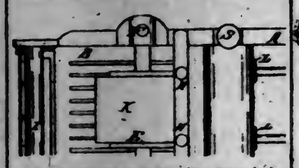
2. The sliding barrel, formed with an orifice in its side, as described, in combination with the tubular barrel-support F, provided with a passage or opening, *g*, substantially as set forth.

3. The tapering exterior bead or valve *h*, upon the rear end of the barrel, in combination with the orifice or valve-seat *i*, substantially as herein shown, whereby escape and loss of air during the advance of the plunger is avoided, essentially as and for the purposes stated.

4. The compound trigger, blocks shown and as placed, consisting of the latch *a*, screw *d*, or its equivalent, and trigger-lever *c*, substantially as and for the purposes stated.

178,880. PRINTING-PRESSES. Albert H. Robinson, Oakland, Cal. [Filed Mar. 22, 1876.]

Brief.—Rollers on the sides of the flat beds travel in curved ways in the inner sides of the frame, rods jointed to the bottoms of the beds sliding in arms on a central revolving shaft. The upper part of the ways is horizontal under the feed-bar and the impression-cylinder. From the slotted bottom of the bed spring-fingers attached to the bed push the lower card onto the form as it passes under the cylinder.



1. The receiving or traveling press beds B, in combination with the sliding self adjusting arms M, the spider or arm holder L, and the curved grooved ways R W, substantially as set forth.

2. The slotted card-rest B, having projections V on its under side, in combination with the card-taker C, having projections O, and being supported on springs D, substantially as specified.

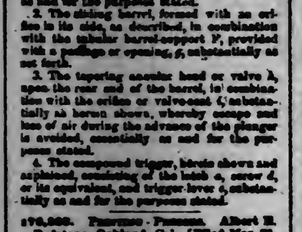
3. The combination of the slotted card-rest B, having projections V on its under side, the card-taker C, supported on springs D, and having projections O, with the three adjustable plates O E M, substantially as described.

178,889. MUCILAGE-BOTTLES. Joseph A. Robbins, Boston, Mass. [Filed Oct. 11, 1875.]



As an improvement in extracting liquids from bottles, the combination, with a bottle, of a cork encircled by a flanged ring, G, and a sponge, the latter passing through the cork and being suspended therefrom, substantially as and for the purpose specified.

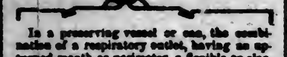
178,890. CRIMPING-FORKS FOR BOOTS AND SHOES. Henry A. Robinson, Akron, Ohio. [Filed Apr. 12, 1876.]



1. The improved crimping board, consisting of the leg B and foot C, the upper edge of the foot from the point of the toe E to the point of juncture D forming the depressed curve F, substantially as and for the purpose described.

2. A crimping-board consisting of a leg, B, and a foot, C, with the points D G H located with respect to each other and with respect to the curve F, that the line of stretch will be in lasting along the line G H, substantially as and for the purpose set forth.

178,891. SEALING CANS. J. A. Robinson, San Francisco, Cal. [Filed Aug. 10, 1876.]



In a preserving vessel or can, the combination of a respiratory outlet, having an upturned mouth or perimeter, a flexible or elastic button covering the outlet, and engaging the upper edge of its perimeter, and a cap inclosing the button, as and for the purpose set forth.

178,892. REMOVING OXIDIZE-COATS. T. B. Rogers, Wethersfield, Conn. [Filed Apr. 6, 1876.]

Brief.—A coop with a padded dark chamber; having an adjustably-suspended fleecy canopy, a light and ventilated chamber, and trough exterior to a rack.



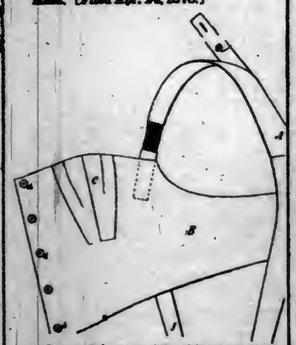
1. The coop-case *a*, containing the chamber *b* with a transparent roof, and the padded dark chamber *c* with the door *h* between, all substantially as described, and for the purpose set forth.

2. The padded dark chamber *c*, containing the free-rising brooding-pad *e*, suspended by adjusting-screws *f* from the cover thereof, all substantially as described, and for the purpose set forth.

3. The dark chamber *c*, the door *h*, provided with orifices *i*, the brooding-pad *e*, and the cover *b*, with its centrally-located ventilating-orifices *o*, all arranged substantially as described.

4. The light chamber *b*, provided with a transparent top, with the feed-rack *f*, the feed-trough *s*, the door *h*, the padded dark chamber *c*, and the free-rising brooding-pad *e*, all arranged substantially as described.

178,893. COMBINED SKIRT-SUSPENDERS AND CORSETS. H. A. Schandevyl, East Bangor, Mass. [Filed Apr. 24, 1876.]



1. The combination of the skirt-suspenders A A, fore straps *a a*, and the gored bust-supporting sections B B, constructed and arranged substantially as set forth.

2. The combination of the skirt-suspenders A A, the fore straps *a a*, gored bust-supporting sections B B, and the auxiliary straps *f f*, all being arranged and applied substantially as specified and represented.

178,894. KEY-HOLE GUARDS. Matthias Sober, Englishtown, N. J., assignor of one-half his right to Thomas West, same place. [Filed May 4, 1876.]

Brief.—A swinging plate carrying a retaining-leg operates in combination with a blind bit, when inserted to a key-hole, both to prevent the insertion of false keys and to cover the key-hole, to prevent persons looking through it.



1. In a key-hole guard, the combination of a swinging plate, carrying a retaining-leg, with a fixed bit, and a locking-spring, substantially as described.

2. The combination of the recessed bit *b m*, stem *a*, plate *c*, hub *e*, leg *d*, spring *g*, and stops *f j*, substantially as and for the purpose specified.

178,895. JACK-SPOOLS. Mathew H. Scott and John Davis, Providence, R. I. [Filed Dec. 27, 1875.]

Brief.—The inner end of the journal or bearing is screw-threaded, and thus fastened or spanned on two opposite sides, so that after the rest is secured in place within the spool, the slotted key can be inserted through the hole in the side of the spool, and the square sides of the slot fitted to the squared sides of the bearing, thereby preventing the latter from turning and unscrewing, the hole in the spool being plugged up to prevent the key falling out.



In a jack-spool, the combination of the bearing *A*, having its end fashioned and threaded, as described, nut G, and slotted key *F*, substantially as and for the purpose specified.

178,896. EXTENSION OR DUCK-LIGHT GARMENTS. John H. Seaman, Brooklyn, N. Y. [Filed Jan. 22, 1876.]



1. The combination, in a garment, of the anti-friction rollers *I I*, with the sliding tube *F*, when the latter derives its sustaining power from a convolute spring, G, substantially as herein specified.

2. The combination of the dogs or clutches K with the revolving tube *b*, stops *c c*, spring G, and drop-light tube F, substantially as herein specified.

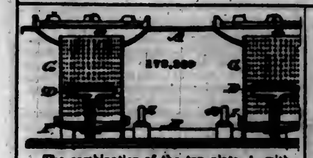
3. The combination of the following elements in an extension light garment: The tube B, supply-tube E, drop-light tube F, spring G, spring-case H, revolving tube A, clutches or dogs K, and stops *c c*, substantially as shown and described.

178,897. GRAIN-MOISTENING APPARATUS. Peter Sellers, near Sporting Hill P. O., Pa. [Filed Mar. 10, 1876.]



The conveyer-box, divided into two sections by a partition, *d*, the exterior section D having a water-tight bottom, the other section D' provided with a perforated draining-bottom, and having beneath both a chamber or trough, G, to carry off the waste water, the whole arranged as and for the purpose specified.

178,898. HYDROCARBON-GAS STOVES. Ira W. Shuler, Brooklyn, N. Y. [Filed May 11, 1876.]



The combination of the top plate A, with funnels *a*, circular burners D, perforated cylinders G, supports *I*, pipes B, and gratings *J*, all constructed substantially as and for the purposes herein set forth.

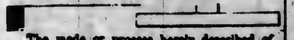
178,899. GAS-BURNERS. Ira W. Shuler, New York, N. Y. [Filed May 6, 1876.]



1. The gas-burner G, provided with tip *a* and side passages *s s*, as and for the purposes set forth.

2. The combination of the shield A, constructed as shown and described, the holder B, with arms *c* and screw-collar C, pipe D, and the burner G, provided with tip *d* and side apertures *s s*, substantially as and for the purpose herein set forth.

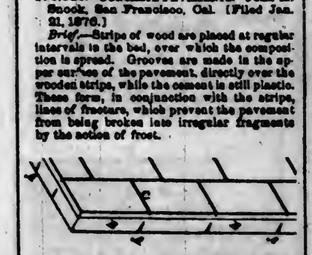
178,900. PROCESSES FOR MAKING ARTIFICIAL STONE. William H. Smith, Philadelphia, Pa. [Filed May 2, 1876.]



The mode or process herein described of manufacturing artificial stone—that is to say, by first moistening granulated or pulverized mineral substances to the extent herein described; and, second, while they are in this condition and in a mold, subjecting them first to comparatively slight pressure or light blows, and then to heavy blows through the medium of a die adapted to the mold, all as set forth.

178,901. CONCRETE PAVEMENTS. John M. Snook, San Francisco, Cal. [Filed Jan. 21, 1876.]

Brief.—Strips of wood are placed at regular intervals in the bed, over which the composition is spread. Grooves are made in the upper surfaces of the pavement, directly over the wooden strips, while the cement is still plastic. These form, in conjunction with the strips, lines of fracture, which prevent the pavement from being broken into irregular fragments by the action of frost.



In combination with a concrete or artificial-stone pavement or other traveled surface laid in a continuous manner upon a foundation, which is provided with grooves, recesses, or indentations A B, the recesses or indentations C C in the surface of the pavement, substantially as and for the purpose described.

178,902. GRAIN-REMOVERS. John F. Steward, Plano, assignor to Elijah H. Gammon and William Deering, Chicago, Ill. [Filed Mar. 10, 1876.]

1. One or more intermittent feed-rollers, arranged to stop or check the flow of grain while the gavel is being bound, substantially as described.

2. The combination of the rollers F F', with the supporting plate *t*, and arm *a'*, substantially as set forth.

3. The movable shaft J, in combination with the wheels H I, when arranged so that the wheels may be disengaged, substantially as set forth.

4. The arm *a'*, shaft *a*, arm *b*, rod *c*, detent *d*, spring-pawl *f*, and ratchet *h*, in combination with the bar *k*, pin or projection *j*, and cam *i*, substantially as and for the purpose described.

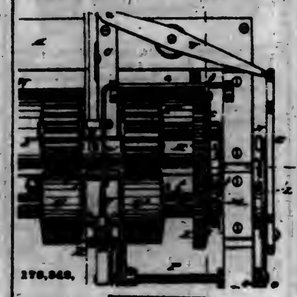
5. The bar *k*, provided with the pin or projection *j*, in combination with the cam *i*, for stopping the feed movement while the bundle is being bound, substantially as described.

6. The ratchet *h* and pawl *f*, in combination with the detent *d*, for continuing the rotation of the feed-wheels until a gavel of proper size has been collected, substantially as specified.

7. The wheel or disk I, provided with the projection or cam *n*, in combination with the lever *p*, and cutter *r*, substantially as and for the purpose specified.

8. The combination of the cutter *r* and blade *s*, with the needle B and twister V, all constructed and operating substantially as specified.

9. The slot or opening *v* of the needle B, in combination with the extension *u* of the bar U, arranged to look the needle at its extreme positions, substantially as specified.



178,903.

178,903. HARROWS. E. M. Stevens, Santa Rosa, Cal. [Filed Sept. 15, 1876.]

Brief.—The harrow is made in sections and hinged together, one in front and two as wings, leaving an open space between them, which is occupied by a riding-seat, to the frame of which all the sections are attached, and furnished with levers and chains for elevating the sections.



A harrow constructed as described, and consisting of two or more semicircular sections connected by means of hinged bars, the central plate D, arms *f f* and *g g*, the bearing-wheels A A, with the connecting-axle and seat B, and the levers T attached to the legs *t*, and connected with a section of the harrow by means of the chains *u*, all arranged to operate substantially as and for the purpose set forth.

178,904. PAPER-BAG MACHINES. Orson W. Stow, Southington, Conn. [Filed Sept. 21, 1875.]

Brief.—As the web of paper is intermittently fed forward, a cut is made in its center first; then the blank is severed by the side cutters. The side folders then operate to form the tube, when its forward end is folded over to form the bottom by the lip of the pivoted paste-hopper and the vibrating folding-blade. A pivoted feed-roll is then brought up to the under side of the bag, which is fed out between the pressure-rolls.

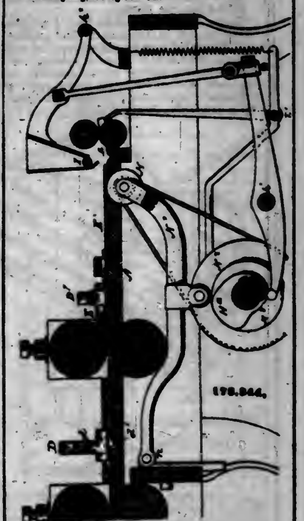
1. In a machine for making paper bags, the combination of the center cutter and two side or waste cutters, the said center cutter arranged distinct from the side cutters, the length of the blank to be cut, and so that the blank is completely formed and separated from the strip of paper before the folding commences, substantially as described.

2. In a machine for making paper bags, the combination of the center cutter and two side or waste cutters, arranged relatively to each other as described, with the edge-pasting devices arranged and operating to skip the surfaces of the side cut or waste, substantially as set forth.

3. In a machine for making paper bags, the combination of the center cutter *d* and two side or waste cutters, D', each cutting or separating a piece from the blank, the principal and auxiliary feeding-rolls, with the stationary plate B', upon which the blank is folded complete, substantially as specified.

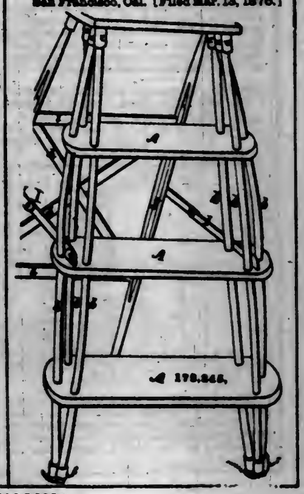
4. The combination of the feed-rolls F F', the plate B' above the bed A, the feed-roll E, hung in a lever, E', and cam F', to intermittently present the said roll E upon the under side of the plate B', to aid in drawing in the blank and discharging the bag, substantially as described.

5. In a hopper for supplying paste, an annularly-grooved roll, combined with springs resting in said grooves, substantially as and for the purpose specified.



178,904.

178,905. BEER-LAGERING. E. A. Stockton, San Francisco, Cal. [Filed Mar. 13, 1876.]



1. A side support for the steps A A A of a step-ladder, consisting of three bars or rods, *b b b*, passing through corresponding holes in the ends of the steps, and having their ends drawn together and secured in the sockets *c c* and triple ferrule *f*, substantially as and for the purpose above described.

2. In combination with a step-ladder, having its side supports composed of bars or rods, bar or rods, h, the rings or ferrules *f* for retaining their lower ends, and permitting the ends of said bars or rods to rest upon the floor, substantially as above specified.

3. The rear brace-bars or legs *g g*, split as described, and having the ends of the cross-braces *h i* entered in the split, substantially as and for the purpose described.

4. The hinged bars I I, having one end fastened in the rear brace-bars or legs *g g*, while the opposite end is attached to a lug, *c*, near the forward edge of the step, so that the rear edge of the step will serve to prevent the bars from buckling downward.

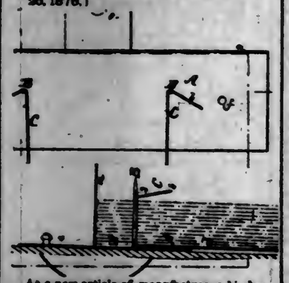
178,846. WRENCHES. James Swinnerton and William O. Swinnerton, Oakland, Cal. [Filed Feb. 29, 1876.]

Brief.—One or more disks having wings or blades secured to their rims at right angles to said disk or disks, and mounted upon the horizontal shaft inside of a case or housing; said case or housing having the end openings and alternate side openings, the latter openings arranged to be closed or opened simultaneously by means of the balanced slides.



A wind-wheel consisting of one or more disks, D, having wings or blades *f f* secured to their rims at right angles to said disk or disks, and mounted upon the horizontal shaft B, inside of a case or housing, A, said case or housing having the end openings B and alternate side openings G, the latter openings arranged to be closed or opened simultaneously by means of the balanced slides L L, all combined and arranged to operate substantially as and for the purpose above described.

178,847. TEMPORARY SUPPORTS. James W. Tallmadge, New York, N. Y. [Filed Apr. 20, 1876.]



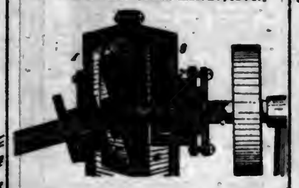
As a new article of manufacture, a binder, consisting of the plate A, made in one piece, with the straight ledge *a*, and suspension-loop *a*, and carrying the straight perforated pins B B, parallel to the ledge *a*, substantially as specified.

178,848. MILK-PAILS. Hugh M. Tingley, New Milford, Pa. [Filed Apr. 1, 1876.]



A milk-pail having a segmental removable breast, with filtering adduction-nozzle, and packed descending flange and attachments, substantially as shown and described.

178,849. ROTARY ENGINES. C. A. Towne, Cleveland, Ohio. [Filed Mar. 20, 1876.]



1. The rotary engine consisting of the drum A, provided with inlet and exit ports 1 2, the shaft B, to which is rigidly attached the conical head C, cylinder D, and the piston F, together with the inlet-ports 2 and the exit-ports 3, 4, 5, &c., or their equivalents, and the inclined slotted disk E, turning upon a shaft, E', substantially as and for the purpose described.

2. The combination of shaft B, carrying with it the conical head C, cylinder D, and piston F, and the slotted disk E, turning upon the inclined shaft E', substantially as described.

3. The combination, with the conical head C, the cylinder D, and inclined disk E, of the steam-space in the drum A, whereby the steam presses the surfaces together along the line *a*, substantially as and for the purpose shown.

4. The combination, with the conical head C and shaft B, of the exit-ports 3, 4, 5, &c., through the said shaft B, substantially as set forth.

5. The combination, with the drum A and the hollow shaft B, through which steam is exhausted, of the ring *f*, packed at 9 and 10, substantially as set forth.

6. The combination, with the conical disk C and shaft B, formed with a steam-passage leading from the face of the disk to openings *i* in the shaft, of a perforated packing-ring or collar and the cylinder-head, the latter constructed with port 8, substantially as and for the purpose specified.

178,850. MACHINES FOR BORING METALLIC CYLINDERS. Franklin B. Trabern, Rockford, Ill. [Filed Jan. 26, 1876.]

Brief.—Centering-chucks with V-shaped prominences, (one of which can be swung back on hinges when a new cylinder is to be inserted,) for holding the article to be bored; automatic (and also hand) devices for feeding the chuck-holding carriage and cylinder slowly along the boring-bar; a weight for counterbalancing that of the carriage, and an automatically-operating belt-shifter, for transferring the belt from the fixed to the loose pulley when the work has been completed.

1. The centering-chuck with central opening, the inner wall of which is fitted with V-form prominences *i*, as shown and described, and for the purpose set forth.

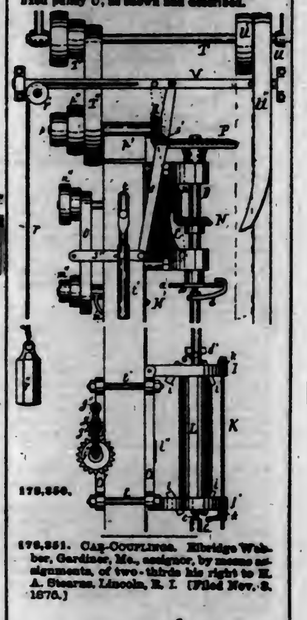
2. In combination with the carriage, as described, the centering-chuck I, constructed as shown and described, hinged to the upper end of the carriage, so as to swing upward, to freely permit of cylinders being placed in the chuck or removed therefrom, as set forth.

3. In combination with the carriage, as described, the centering-chuck I', constructed as described and shown, secured to the lower end of the carriage, to which it is vertically adjustable for the purpose of receiving cylinders differing in lengths, as hereinbefore set forth.

4. In combination with the centering-chucks I and I', constructed and secured to the carriage as described, the clamping-rod K, fitted with gripes *k*, to clamp the chucks on to end of the cylinder L, for the purpose of holding it properly centered and lined, to be operated on by a suitable boring-tool.

5. The carriage, provided with the centering-chucks I and I', and clamping-rod K, to hold the cylinder to be operated upon by the cutting-tool, in combination with the feeding-screw M, for the purpose of feeding the carriage holding the cylinder to the cutting-tool, for the purpose of boring the cylinder, as set forth.

6. The combination of the adjustable rod *t*, tube *t'*, detent *s'*, lever *s*, and shipping-bar V, for the purpose of holding the belt *U'* on fixed pulley U, as shown and described.



178,850.

178,851. CAR-COUPLINGS. Elbridge Webber, Gardiner, Me., assignor, by mesne assignments, of two-thirds his right to E. A. Stearns, Lincoln, R. I. [Filed Nov. 8, 1875.]



The combination of the draw-head *a*, block *b*, having its pawl B, and spring C, having the chain *f*, through a hole therein, connected to the block *b*, substantially as and for the purpose described.

178,852. TOY HOOPS. Geo. Wheeler, New York, N. Y. [Filed Nov. 3, 1875.]

Brief.—The hoop is to be whirled horizontally while sustained from the center of the gyre by the cord.

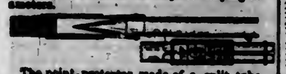


1. The within-described toy, consisting of the hoop A and the suspension-cord C, connected by swivel B, and adapted to serve in the manner and for the purposes specified.

2. The decorative and musical attachments M, in combination with the hoop A, swivel B, and suspending-cord or other means, C, arranged together as and for the purposes herein specified.

178,853. COMBINED CALENDARS, BRAIDER-HOLDERS, AND PENCIL-POINT PROTECTORS. Jos. E. White, New York, N. Y., assignor to Manhattan Brass Company, same place. [Filed July 12, 1875.]

Brief.—The "crank" ring confines the exterior tip, while the "dates" sleeve is finally adjustable with relation to said ring, and also firmly clamps either end of the pencil. The tube, being split longitudinally, thereby admits of pencils and exterior tips of varying diameters.



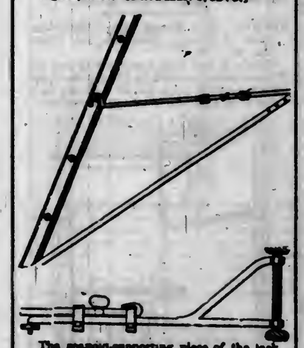
The point-protector made of a split tube, containing at one end a piece of rubber, and surrounded with a cylindrical calendar, the end of the split tube projecting to receive the pencil and form a point-protector, as set forth.

178,854. SPIRIT-LEVELS. M. Wilcox, New Hartford, Conn. [Filed Mar. 9, 1876.]



The combination, in a spirit-level, of the inclined leg *c* on the plane-holder, the correspondingly-inclined adjustable seat *d*, and set-screw *e*, through both leg and seat, substantially as specified.

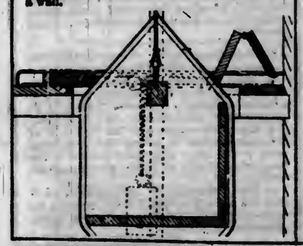
178,855. LADDER-JACKS FOR SUPPORTING SCAFFOLDS. Abraham Bauer, New Washington, Ohio. [Filed Mar. 6, 1876.]



The manner-supporting piece of the jack, provided with a sliding adjustable extension-rod bearing against the wall to form an additional support to the ladder, substantially as set forth.

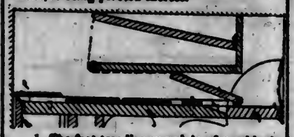
178,856. SHIP-CLOSING HATCHWAYS. S. W. Bell, Burgettstown, Pa. [Filed Apr. 26, 1876.]

Brief.—The hatch is of the kind that is opened laterally by the passage of the car, and closed by weights or springs, and is made to fold up in sections to economize space where the hatchway is inconveniently near to a wall.



178,857. PEDAL ATTACHMENTS FOR CABINET-ORGANS. Basil L. Boomer, Campello, Mass. [Filed Mar. 6, 1876.]

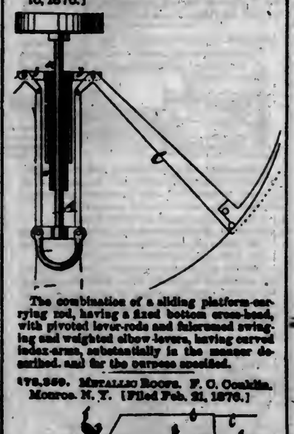
Brief.—The floor of the treadle-box, with its side pieces, turns up to a right angle with its open position, so as to be flush with the front, it being pivoted thereto.



1. The foot treadles or pedals of a cabinet-organ, connected with a folding panel, B, substantially as specified.

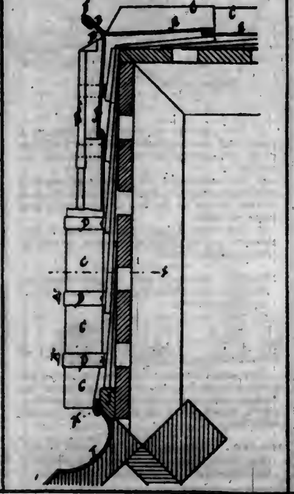
2. The combination of stop-pins H with the folding panel, having the pedals attached to it, said stop-pins being connected to and worked to release the panel by the desk when it is opened.

178,858. WEIGH-SCALES. Alanson Carpenter, Angola, Ind., assignor to himself and Jos. Smith, same place. [Filed May 10, 1876.]



The combination of a sliding platform-carrying rod, having a fixed bottom cross-head, with pivoted lever-rods and fulcrumed swinging and weighted elbow-levers, having curved index-arms, substantially in the manner described, and for the purpose specified.

178,859. METALLIC HOOPS. F. C. Conklin, Monroe, N. Y. [Filed Feb. 21, 1876.]

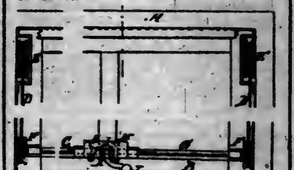


1. The combination, with a shingle roof, of strips A, extending from peak to eaves, having top flanges B, turned at F, and provided with side flanges C, the strips D, nailed at the butt of each row of shingles and hooked over flange at B, and the wood strip G, arranged along the margin and edge of strips A, all constructed and arranged to form a secure covering for an old shingle roof.

2. The wood strip J, arranged along the eaves of roof, and connecting the trough I with strips A by the cams K, as shown, and for the purpose specified.

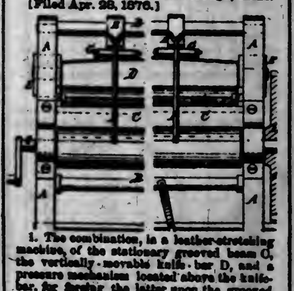
178,860. GAME-BALANCES. Wm. Cooper, Strathroy, Canada. [Filed Apr. 18, 1876.]

Brief.—The essential novelty is the use of metal rods, extending along the meeting-rail of the lower sash, and working in bearings attached to the sash. A bevel-gear, with ratchet and crank-handle near the middle, operates the device.



The combination of the cords D, the pulleys E, the spools F, the shaft G, the bevel-gear wheels H I, the crank J, and the ratchet and pawl K L, with each other, and with the casing and the sashes of a window, substantially as herein shown and described.

178,861. LEATHER-STRETCHING MACHINES. Wm. Coupe, South Attleborough, Mass. [Filed Apr. 26, 1876.]



1. The combination, in a leather-stretching machine, of the stationary grooved beam C, the vertically-movable knife-bar D, and a pressure mechanism located above the knife-bar, for forcing the latter upon the grooved beam, substantially as and for the purpose set forth.

2. The combination of the rollers G and the sliding lever-cams I H with the knife-beam D and a round or bar, H, of the frame, substantially as herein shown and described.

178,862. INHALERS. Geo. L. Crosby, Hannibal, Mo. [Filed Mar. 25, 1876.]

Brief.—The glass stopper holds the acid, and is perforated for admitting air, and for stopper, tube, and valve.



The combination, with tubes G H, of glass stopper A, having acid-receptacle B, air-passages C D, and valve I, and the stopper K, grooved at F, substantially as and for the purpose specified.

178,866. BREECH-LOADING FIRE-ARMS. Ira M. Earle, Guilford Centre, Vt. [Filed Apr. 10, 1876.]

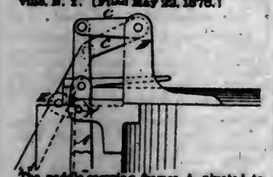
Brief.—The breech-piece carries also as a hammer, and a shoulder on the frame takes up the recoil.



1. The hammer-stem, confined in the recess I by the barrel and walls of chamber D, and fitted at the head to the concentric shoulder H, substantially as shown and described, to sustain the force of recoil, and continually brace the hammer in every position.

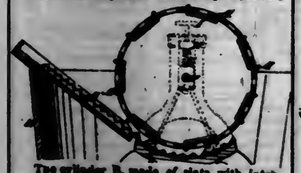
2. The sliding shell-retractor L and the hammer-stem J, made independent of each other, and relatively arranged as shown and described, whereby the extractor is operated by the continuous motion of thumb in cocking the piece.

178,867. VIBRATING PROPELLERS. John Fergie, Sr., and Jno. B. Fergie, Jr., Hicksville, N. Y. [Filed May 22, 1876.]



The paddle-carrying frames A, pivoted to supports D and F at the upper end by links O and G, and connected at the lower end directly to the piston-rod, substantially as specified.

178,868. WASHING-MACHINES. J. Gramlespacher, Jasper, Ind. [Filed Apr. 4, 1876.]



The cylinder B, made of slats with intermediate open spaces, and provided with elastic fingers, in combination with a corresponding stationary rubber, having inclined extension D, the whole adapted to be used in a washtub, as shown and described, for the purpose specified.

178,869. METAL TOYS. Wm. A. Harwood, Brooklyn, N. Y. [Filed Apr. 20, 1876.]



A toy horse, whereof the horse figure proper is mounted on and connected to the axles of the wheels by coiled, arched, or otherwise elevated platform or support, consisting of wire or a strip or strips of sheet metal, substantially as specified.

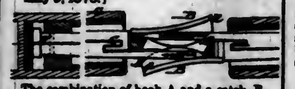
178,870. WEARING-BITS. Philip Heab, Toledo, Iowa. [Filed Apr. 20, 1876.]

The hollow bit A, having a V-bent, a', formed in its middle part, and perforated with a number of holes, C, and provided with the rigid arms B, substantially as herein shown and described.



The combination, with a bottom-depressed shell, A, of the filtering-cup B C, inverted funnel D E, and curb F, arranged substantially as and for the purpose specified.

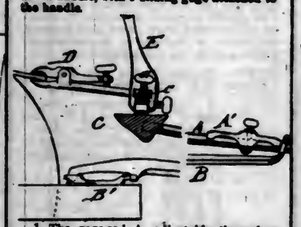
178,872. CAR-COUPLINGS. G. W. Johnson, Princeton, assignor of one-half his right to F. W. Hazen, Gibson County, Ind. [Filed May 9, 1876.]



The combination of hook A and a catch, B, in each draw-head, which are interlocked at G, and constructed and arranged to couple self-actingly, substantially as specified.

178,873. SHARPENING-MACHINES. George W. Ingersoll and Harvey L. Fisher, Toledo, Iowa. [Filed Feb. 21, 1876.]

Brief.—A detachable handle is clamped, by set-screws, to the tool-holder, which is adjustable to and from the stone by a supporting-rod and a handle, with a sliding gage attached to the handle.



1. The gage-rod A, adjustable through a perforated boss and of arm B, by a sliding collar, A', and set-screw, as shown and described.

2. The socket-plate B', rigidly attached to grindstone-frame, and provided with recesses to receive lugs on the end of supporting-arm B, as set forth.

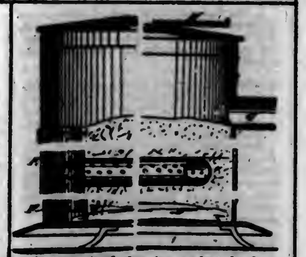
3. The frame C, jaws D, and handle E, constructed and combined with rod A, as and for the purpose specified.

178,874. BARRELS FOR WATCH-SPRINGS. S. D. Johnson, East Haddam, Conn. [Filed Apr. 26, 1876.]



The combination, with barrel A, of the encircling wheel B, guided between collars of the former, and connected therewith by spring-pawls, substantially as and for the purpose specified.

178,875. FURNACES FOR BURNING SAWDUST, TAN-BARK, &c. Frederic T. Kidder, Claremont, N. H. [Filed Jan. 18, 1876.]



An apparatus for burning sawdust, &c., having the draft F, smoke-pipe G, and perforated tubes C, supported in perforated guard D, substantially as and for the purpose specified.

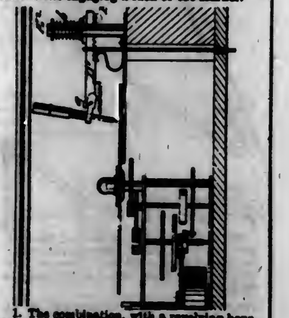
178,876. STOPPERS FOR SEWS' RUNNING-GEAR. John W. Knight, New York, N. Y. [Filed Nov. 30, 1874.]



The combination, with rope B', of the strap F, loosely-hung slotted stopper G, toothed spring H, and rod I, all arranged as shown and described, so that when the nails are to be naturied the rope is released by the depression and swinging out of the spring.

178,877. WATCHMEN'S TIME-DETECTORS. Jacob H. Massey, Allentown, Pa. [Filed May 10, 1876.]

Brief.—A dial with concentric circles for different days is marked by a spring-lever, the marking device being set for each day by a crank-shaft engaging a rack of the marker.



1. The combination, with a revolving hour-dial, having concentric circles, of a swinging and spring-acted marking device, operated by a pull attachment from the outside, substantially as herein shown and described.

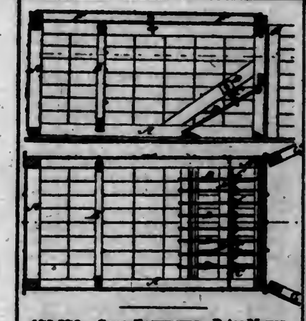
2. The combination of the sliding and toothed marker-bar with the slotted outside guot and top spring, and with a crank-shaft engaging the teeth, to adjust the marker to the circles of the dial, substantially as herein shown and described.

178,878. FISH-TRAPS. James McRoberts, Toledo, Iowa. [Filed Apr. 18, 1876.]

1. The combination of the independent teeth B, the springs C, and the pivoted cross-bar D with the opening in the end of the trap A F, substantially as herein shown and described.

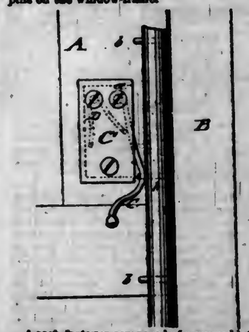
2. The combination, with the trap A F, of the cross-partition E, having its wire-netting made with a larger mesh than the rest of the trap, substantially as herein shown and described.

3. The combination of the hinged wings G with the end of the trap A F in which the inlet-opening is formed, substantially as herein shown and described.



178,879. CAST-FASTENERS. Peter Meyer, Iowa City, Iowa. [Filed May 9, 1876.]

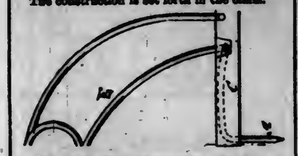
Brief.—As an improvement on Patent No. 164,750, June 22, 1875, the metal case or box is attached to the sash, within which the upper end of the perforated latch is suitably secured, there being also within the case a suitable spring, automatically pressing forward the swinging latch, so that its perforated middle part can pass over and engage locking-pins on the window-frame.



A sash-fastener composed of a curved latch-piece, G, swinging by an eye at the upper end on a suitable pin or screw, a, of a metal case, O', attached to the sash, and being forced outward by a suitable spring, D, of the case against the window-frame, to engage by its curved and perforated middle part over locking-pins b of the window-frame, substantially as specified.

178,877. SELVAGE-GUARDS FOR LOOMS. J. H. Mills, Lisburn, Pa. [Filed Mar. 6, 1876.]

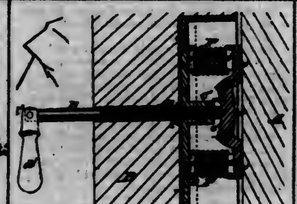
Brief.—The guard is made of wire and is in one piece. The protector enters the warps near the fell, and the weft is drawn around it. The construction is set forth in the claim.



In combination with the plate C, adapted to be attached to a loom-temple, a wire selvage-protector, consisting of the finger A, spring-lever B, and pivot D, whereby said lever is adapted to be pressed back by the reed-frame as the lay beats up, and raise the finger above the selvage, said finger being restored to its proper position by the action of the spring upon the retreat of the lay, as shown and described.

178,878. SASH-HOLDERS. Jos. B. Payson, Chicago, Ill. [Filed Jan. 29, 1876.]

Brief.—A novel combination of the spring-acted pressure or locking plate and a projecting handle-screw, arranged in a peculiar manner to operate the device.



1. The combination of the plate C and the post *c* provided with the screw-hole *c'* with the spring F, and the plate H provided with the recess *d*, substantially as herein shown and described.

2. A window-sash fastener, having a locking-plate, B, with a double-inclined recess formed upon its rear side, and suspended in a central position to a screw-plate, C, and a screw, D, substantially as herein shown and described.

178,879. ARTIFICIAL FLOWERS. Miss F. Pusley, Brooklyn, N. Y. [Filed Apr. 15, 1876.]



Flowers, leaves, and analogous articles, cut out of sheets or layers of rattan-pith, wound in a continuous strand or coil, and connected to a stem, core, or other supporting device, substantially in the manner and for the purpose specified.

178,880. PHOTOGRAPHIC PLATES. Fredk. H. Powell and Philip Lehnen, Auburn, N. Y. [Filed Mar. 13, 1876.]

1. An improved plate for photographs or signs made of water-proof paper, having a coat of paint on the back, and one or more coats of baking japan or varnish on the face, and hardened, as and for the purpose set forth.

2. The process herein described of preparing paper for photograph and sign plates, consisting in first waterproofing the paper, then coating the back with a paint, and baking it in oven till hard, then coating the face with one or more layers of baking japan or varnish, and then baking each final coat to hardness to obtain the required finish, substantially as set forth.

178,881. ASH-SIFTERS. John H. Raymond, Syracuse, N. Y. [Filed Mar. 25, 1876.]

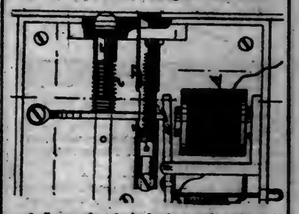
Brief.—The escape of dust is effectually prevented by grooves in the walls of the receptacle, in which slides the arc-shaped cover.



The combination, in an ash-sifter, of a swinging arc-shaped cover, having lateral end flanges, and an outer receptacle, having circular guide-grooves, substantially as and for the purpose specified.

178,882. ELECTRO-MAGNETIC LOCKS. H. L. Roosevelt, New York, N. Y. [Filed Apr. 4, 1876.]

Brief.—A secondary bolt is used, which is thrust backward when the door is shut, compressing its spring, which is of greater tension than the spring of the holding-bolt. When the circuit of the magnet is closed, the armature releases the lever, and the tension of the spring throws it and the locking-bolt back, thus automatically operating the lock.

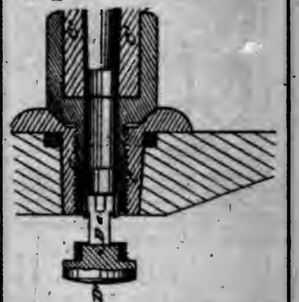


1. In an electric lock, the combination of the detent-armature of an electro-magnet with a swinging lever, connected to two sliding and spring-acted bolts, so as to open the locking-bolt by the spring of second bolt when the armature is attracted, substantially in the manner and for the purpose set forth.

2. In an electric lock, the combination of the locking spring-bolt with a swinging lever and a second bolt and spring that are set by the closing of the door into position to open the lock-bolt on the release of the lever, substantially as described.

3. In an electric lock, a sliding bolt and spring, set by the closing door into position to set on the lever of the locking-bolt when said lever is released from its detent mechanism, substantially as specified.

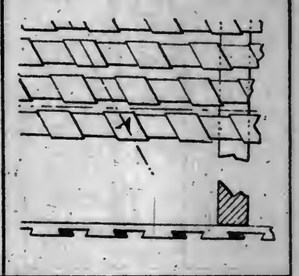
178,883. FAUCET ATTACHMENTS. Hatty L. Sadler, Brooklyn, N. Y. [Filed Nov. 27, 1875.]



1. The wooden plug D', attached to the end of adjustable tube D, and preventing contact of liquid with the metal of faucet attachment, as shown and described.

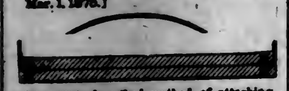
2. A detachable faucet-key, having a threaded tubular part for screwing into bushing, and an outer socket part with wood lining, for retaining the faucet, substantially as specified.

178,884. PLASTERING-LATHS. Theophilus A. Scheller, Marysville, Cal. [Filed May 1, 1876.]



A plastering-lath provided with mortises cut rectangularly or diagonally across the face of the lath, substantially as herein shown and described.

178,886. MANUFACTURE OF BOOT AND SHOE SOLES, &c. Geo. V. Sheffield, New York, N. Y., assignor to Sheffield Screw Driving Machine Company, same place. [Filed Mar. 1, 1876.]



The within-described method of attaching parts of leather or similar material, by forming screw-tapped holes, and inserting therein screw-threaded pegs or fastenings, made from rawhide or other analogous fibrous material, substantially as set forth.

178,886. SCREW-THREADED RAWHIDE SHOE-PEGS. Geo. V. Sheffield, New York, N. Y., assignor to Sheffield Screw Driving Machine Company, same place. [Filed Nov. 23, 1874.]

Brief.—Hides or skins are converted into pegged rawhide, cut into strips of suitable width, compressed, and screw-threaded, for the purpose stated.

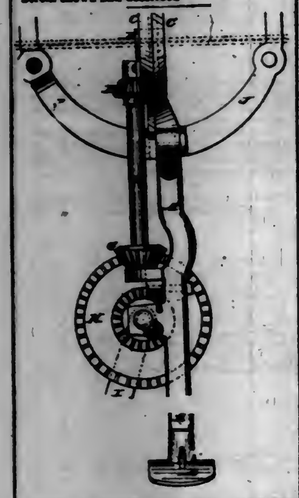


As a new article of manufacture, a screw-threaded shoe fastening or peg made of animal hide, substantially as shown, and for the purpose described.

178,887. COUNTER-STIFFENING FOR BOOTS AND SHOES. George W. Simpson, Fredericksburg, Md. [Filed Apr. 10, 1876.]



The skeleton counter or heel-stay A, made of spring-steel, and consisting of the parallel bars a' and the cross-bars a², having their projecting ends bent inward to adapt it to be applied to boots and shoes, substantially as herein shown and described.



178,888. MANUFACTURE OF BOOT AND SHOE SOLES, &c. Geo. V. Sheffield, New York, N. Y., assignor to Sheffield Screw Driving Machine Company, same place. [Filed Mar. 1, 1876.]



The within-described method of attaching parts of leather or similar material, by forming screw-tapped holes, and inserting therein screw-threaded pegs or fastenings, made from rawhide or other analogous fibrous material, substantially as set forth.

178,889. FLOOR-CLAMPS. W. S. Spink and Wilbur Mason, Providence, R. I. [Filed Mar. 20, 1876.]

Brief.—The detent is locked by throwing the actuating-lever forward upon it. The reverse motion releases it.

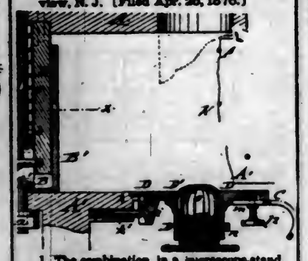


The combination, with a ratchet, D, sliding in a suitable bed, and a detent, B, pivoted to bed-frame, of the lever C, provided with a pushing-pawl, A, having the pin *a*, as and for the purpose specified.

178,890. COMPOUND ENGINE-JACKS. Wm. C. Taylor and Rudolph Vampill, Mullins, S. C. [Filed May 16, 1876.]

The combination of the box A, open at the top and one end, the screw B, the sliding block C, the rollers D, the posts E, and the screws F, provided with the swiveled heads G, with each other, substantially as herein shown and described.

178,891. MICROSCOPES. Geo. Wale, Fairview, N. J. [Filed Apr. 26, 1876.]



1. The combination, in a microscope-stand, of the hollow vertically-guided pillar, supporting the horizontal arm, with a fixed central sleeve or tube of the supporting-bolt or spiral spring and set-screw mechanism, substantially as herein shown and described.

2. The combination of the fixed interior tube or sleeve of the sliding pillar B by a set-screw, centrally pointed, and a connecting-rod, with a cross-pin of the bottom part of the pillar, and with a spiral tube-centering spring, to raise or lower the pillar, as described, substantially as herein shown and described.

3. The combination, with the ring-shaped frame, of the lower arm, having set-screw and spring-bolt, with the detachable ring-frame and socket part of the light-regulating device, having projecting lugs or shoulders to adjust the light-regulating device within the supporting-ring, substantially as herein shown and described.

4. The combination of the interior ring-frame D, having lug *i* and set-screw *P*, with the detachable socket part D', having recesses *l* and handle-hook *m*, substantially as herein shown and described.

5. The light-regulator, composed chiefly of a series of elastic blades, in combination with a socket for causing the blades to converge in the form of a cone when the regulator is suitably adjusted for the purpose, as shown and described.

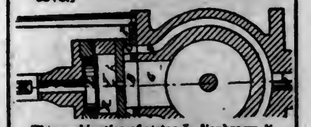
6. The socket part D', having set-screw *n*, in combination with the light-regulator E, having outer screw-threads and intermediate annular recess *n'*, substantially as herein shown and described.

178,892. ANIMAL-TRAPS. Wm. Wallace, Tarrytown, N. Y. [Filed Nov. 12, 1875.]



The combination of the jaws A B, spring D, trip G, catch H, and lever I, substantially as specified.

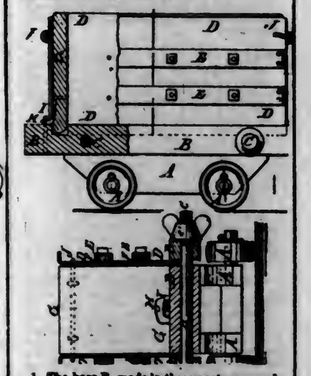
178,893. BALANCED SLIDE-VALVES. John B. Watson, Louisville, Ky. [Filed Apr. 18, 1876.]



The combination of piston L, diaphragm M, and valve A with seat, having port B, steam-passages C C, and steam-channels leading from tube F, all arranged substantially as and for the purpose specified.

178,894. SOAP-FRAMES. Daniel Whitaker, Boston, Mass. [Filed Oct. 16, 1875.]

Brief.—The base of the frame is made into three parts, and secured together by transverse screw bolts or rods, whereby they are adapted to clamp the bottom edges of the sides of the frame. The bottom edges of the end portions of the frame enter grooves in the face of the frame, and are attached thereto by hooks and staples, to permit their convenient detachment. The end portions of the frame have clamping-bars attached, whereby they may be locked to the sides to hold the ends vertical, and form a tight joint between them and the sides. The side portions of the frame are provided with truss-like braces, to prevent buckling, warping, &c.



1. The base B, made in three parts, secured to each other by bolts and nuts C *c*, to adapt them to serve as clamps for securing the lower edges of the side plates D, substantially as herein shown and described.

2. The end boards G, having their lower ends rounded off upon the inner edge, and secured in cross-grooves in the middle part of

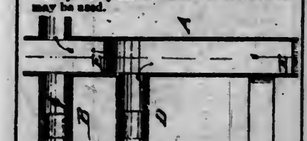
the base B by hooks H and eyes or staples I, substantially as herein shown and described.

3. The combination, with the end boards G and side plates D, having inward flanges formed on their ends, of the clamp-bars J, the same being attached to said end boards by means of keepers, as shown and described.

4. The combination, with side plates D, of metal braces or trusses E, rivoted thereto at their ends, the blocks or filling F, and screw-bolts, having their heads countersunk on the outer side of said plates, all as shown and described.

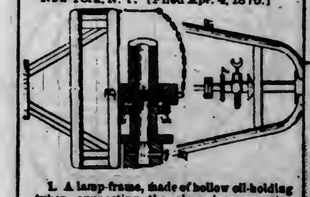
178,895. HEATING-DRUMS. J. B. Wieand, Allentown, Pa. [Filed May 1, 1876.]

Brief.—Any desired number of the sections may be used.



The combination of sections A, pipes B D, and partitions E, constructed and arranged substantially as and for the purpose specified.

178,896. STREET-LAMPS. Joseph S. Wood, New York, N. Y. [Filed Apr. 4, 1876.]



1. A lamp-frame, made of hollow oil-holding tubes, supporting the glass, in connection with an oil-reservoir at the lowermost part of the frame below the burner, substantially as and for the purpose set forth.

2. A glass-supporting frame for street-lamps, made of oil-holding tubes, with horizontal ring-shaped top tubes forming recess for the transparent glass, substantially as described.

3. The combination of the oil-holding glass-supporting tubes, and of the oil-reservoir at the lower part, with an adjustable heating and illuminating burner to generate gas to sustain the oil in the tubes and feed it gradually to the burner, substantially as described.

4. The combination of a lower stationary disk-section of the burner, having a central projecting seat, I, and jet-holes, with a regulating top section screwing thereon, to heat up the gas-generating tube and supply the gas to the illuminating-burner, substantially as and for the purpose specified.

178,897. CAR-COUPLINGS. Charles O. Babcock, Kirkwood, Ill., assignor of part of his right to Thos. D. Gordon and Marshall Schoch, same place. [Filed Mar. 6, 1876.]



The link D, having spring-heads *c* on one end and opening *f* in the other end, and arranged to operate in combination with the draw-heads A, having studs B, and triangular holes *f*, and with the triangular pins C, substantially as and for the purpose specified.

178,898. SANDPAPERING-MACHINES. Paley Barker, Racine, Wis. [Filed Feb. 26, 1876.]

Brief.—A reverse polishing-disk, the arbor of which has a changeable bearing, is used in connection with a supporting-bed, capable of vertical adjustment, and also adjusted at one end by a treadway, which is pivoted so as to swing slightly up or down.

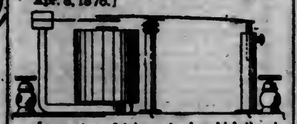
1. In a sandpapering-machine, the combination, with the main frame A, of the adjustable side rails B F, pivoted at one end, and movable up and down at the other end, movable carriage C, and adjustable table D, substantially as and for the purposes herein set forth.

2. The combination of the shaft L with disk O, pivoted lever *m*, perforated movable arm *n*, and arm *p*, with pin *o*, substantially as and for the purposes herein set forth.

3. The combination, with the shaft L and disk O, of the stationary collars *r s*, intermediate collar *m*, lever B', with spring *y*, and shaft *s'*, with eccentric *s''*, substantially as and for the purposes herein set forth.

4. The combination, in a sandpapering-machine, of a movable bed, an adjustable shaft capable of being placed at any angle desired with the bed, and a convex disk secured on said shaft, as and for the purposes herein set forth.

178,899. TELEPHONIC TELEGRAPH-RECEIVERS. Alex. G. Bell, Salem, Mass. [Filed Apr. 6, 1876.]



In a system of telegraphy in which the vibrating receiver operates the circuit-breaker of a local circuit independent of said receiver, as described, a vibratory electric breaker for said local circuit, consisting of a light spring-arm whose free end overlaps the rapid or vibrating portion of the receiver, in combination with a contact tip or point in said circuit with which the spring-arm makes and breaks contact, substantially as set forth.

178,900. WHEAT. Saml. W. Bellas, Orion, Mich. [Filed Nov. 7, 1876.]

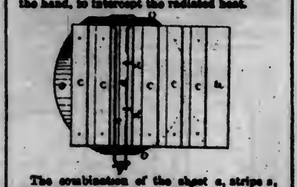
Brief.—By the construction no water can enter the well except at the bottom.



The well described, consisting of a tube pipe B, having a perforated lower end, the cobble-stones C, and the cement covering, all constructed, arranged, and combined as described and shown.

178,901. SAD-IRON HOLDERS. Ole Borreson, La Crosse, Wis. [Filed Mar. 9, 1876.]

Brief.—Strips of wood attached to a sheet of leather or canvas, with a metallic shield for the hand, to intercept the radiated heat.



The combination of the sheet *a*, strips *s*, wire *c*, and guard *c*, substantially as set forth.

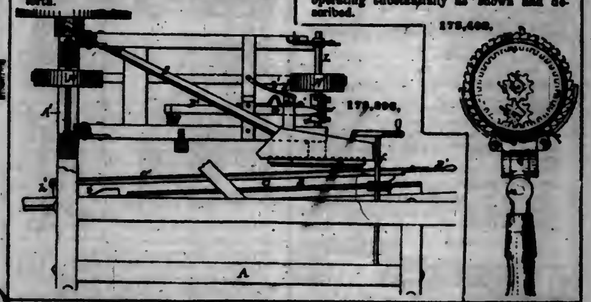
178,902. SEEDING-MACHINES. T. Brokaw, Green Point, N. Y. [Filed Apr. 6, 1876.]

Brief.—Two cutters rotate in opposite directions; they are inclosed in suitable supporting-plates, which are connected with the handle by means of a universal joint.

1. In a machine for clipping hair or wool from animals, the combination of two cutters with suitable gears and with a driving-shaft, whereby said cutters are caused to revolve in opposite directions, substantially as shown and described.

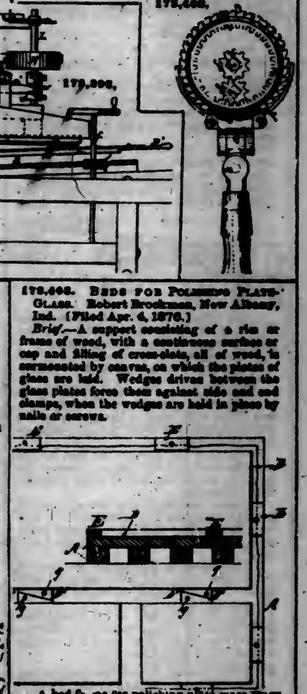
2. The combination of a suitable cutting mechanism, D E, with a supporting-plate, A, and a handle, B, connected to said supporting-plate by a double or universal joint, substantially as set forth.

3. The combination of two cutters, D E, gears *f g h*, driving-shaft C, supporting-plate A, cap H, and handle B, all constructed and operating substantially as shown and described.



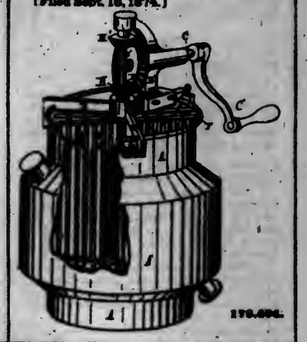
178,903. BEDS FOR POLISHING PLATE-GLASS. Robert Brockman, New Albany, Ind. [Filed Apr. 4, 1876.]

Brief.—A support consisting of a rim or frame of wood, with a continuous surface or cap and filling of cross-slats, all of wood, is surrounded by canvas, on which the plates of glass are laid. Wedges driven between the glass plates force them against side and end clamps, when the wedges are held in place by nails or screws.



A bed-frame for polishing plate-glass when consisting of the frame A, with filling B, and the textile-fabric cover D, in combination with the clamps B and wedges F, substantially as described.

178,904. MACHINES FOR MIXING SPONGE-CAKE. Chas. G. Brommer, Detroit, Mich. [Filed Sept. 16, 1874.]



178,904.

In a coke-mixing machine the combination, with the vessel A, of the spider B, bracket B', shaft C, pinions D H B', shafts E F, cranks F F', and beaters G G', constructed and arranged to operate substantially as described and shown.

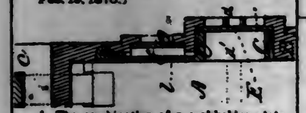
178,406. PLATFORMS FOR RAILWAY-CROSSINGS. George Brown, Newport, Pa., assignor to himself and Josiah R. Dunbar, same place. [Filed May 6, 1876.]

Brief.—A plank platform for railroad-crossings, made removable in sections, for the ready repair of the track.



The construction and combination of the plank platform A, in sections, laid by the cross-brace B B, flat plates C C, screw-bolt G G, with chamfering-blocks H H, as a removable platform for railway or street crossings, as herein described, and for the purposes set forth.

178,407. SEAL-LOCKS. Walter P. Burrow, Norfolk, Va., assignor of one-fourth his right to R. W. Lamb, same place. [Filed Feb. 19, 1876.]



1. The combination of a seal-holder plate B, having a flanged slot, *f*, for the reception of a destination-slip, a vibratory seal-keeper, C, having shank *l* lying across the said slot and confining the slip in place, substantially as specified.

2. In combination with the seal-holder plate having recess *e* upon its under side, and key-hole *d*, and a die-plug, C, having key-hole *h*, a seal interposed between the two, substantially as specified.

3. The plug C, having a key-hole, *h*, with one side out of line with the key-holes of the lock and of the seal-holder plate, substantially as specified.

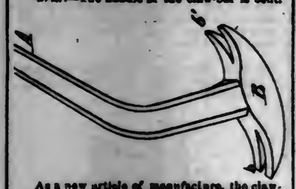
4. In combination, with a lock and arched hasp, the vibrating seal-holder plate B, having enlargement *e* adapted to engage under the arch of the hasp, substantially as specified.

5. The key-holed seal-keeper or die C, in combination with a seal and a key-holed seal-holder plate B, recessed to receive the seal, substantially as specified.

6. The lock A, keeper or die C, and seal-holder plate B, having, respectively, the registering key-hole *d' h d*, combined and arranged substantially as specified.

178,408. CLAW-BARS. Meshach Butts, Shawnee, Ohio. [Filed Jan. 22, 1876.]

Brief.—The handle of the claw-bar is bent.



As a new article of manufacture, the claw-bar herein described, consisting of the bent handle A and head B, curved on its lower face, and provided at each end with claws having tapering slots *b b'*, as specified.

178,409. WRENCHES. Joseph N. Byington, Wynot, Minn. [Filed Apr. 15, 1876.]

1. The right and left screw-threaded shaft F, independent of the stock A, and provided with the groove *f*, in combination with the sliding collar G, having the spline *i*, stock A, jaws B D, and hand-nut E, substantially as described, and for the purpose set forth.

2. The collar I, constructed with notches *m* and beveled edges *n*, and with a prismatic bore, *o*, in combination with the enlargement E and handle C, having projections *r r'*, substantially as described.

178,410. SAD-IRON HEATERS. John B. Christian, Hamburg, Iowa. [Filed Feb. 16, 1876.]

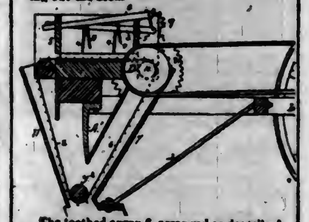
Brief.—The insertion of the iron closes the lids and its withdrawal opens them.



The lids or covers C C, pivoted to the top B, and provided with slots and wings, in combination with the heater A and *a* rod-iron, as and for the purpose set forth.

178,411. COTTON-SEED PLANTERS. John Clarridge, Mount Sterling, Ohio. [Filed Sept. 2, 1875.]

Brief.—Reciprocating pickers work in connection with the endless toothed belt for feeding out the seed.



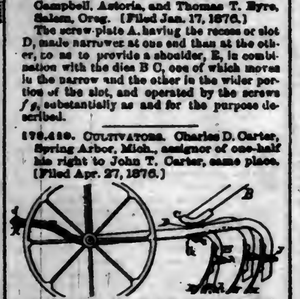
The toothed apron G, arranged as described, in combination with the pickers J, hoppers S, chutes 7 and 11, and standard A', substantially as and for the purpose specified.

178,412. COTTON-PLANTERS. John Clarridge, Mount Sterling, Ohio. [Filed Sept. 2, 1875.]

Brief.—Oscillatory movement of seed-slide by crooked connecting-rod, perforated endless belt admitting of the seed being dropped at either end.

1. The combination and arrangement of the pivoted crank-bearing C, rod *f*, lever or arm *i*, rock-shaft F, and the pendent arms *g*, for opening the dropping device, substantially as and for the purpose specified.

178,413. CULTIVATORS. Charles D. Carter, Spring Arbor, Mich., assignor of one-half his right to John T. Carter, same place. [Filed Apr. 27, 1876.]



1. The slotted curved casting C, bolt *d*, disk D, with concave seat, washer *f*, and nut *e*, in combination with the handle E and beam A, substantially as and for the purposes herein set forth.

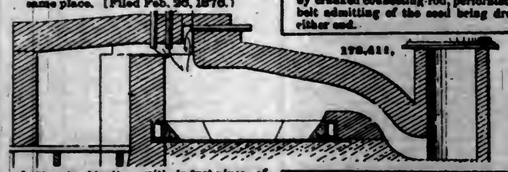
2. In combination with the two arms A A of the cultivator-beam, the auxiliary beam E, the grooved or flanged disk G, disk D, and bolt and nut, substantially as and for the purposes herein set forth.

3. The combination, with a shovel and standard, of the block or casting I, having projections *s*, grooves *y*, and tapering post J, with triangular slot and set-screw, substantially as and for the purposes herein set forth.

4. The combination of the plates L, having bolts *m* for the ends of the arched axle K, bolts *n*, bolt *p*, and castings F, pivoted between the outer ends of the plates, substantially as shown.

5. The rigid whiffletrees S, socket or other holding device E, casting F, and plates L, substantially as described.

178,414. METALLURGIC FURNACES. Alfred F. Cassel, Zanesville, Ohio, assignor of one-fourth his right to Mendal Churchill, same place. [Filed Feb. 26, 1876.]



1. The combination, with inclined pipes, of the transverse air-chamber into which they discharge, situated above and in front of the fire-bridge, and at the juncture of the fire and furnace chamber roofs, substantially as set forth.

2. The metallurgic furnace, constructed as herein before described, with short vertical pipes entering through the flue-chamber roof to the narrow draft-passage above the fire-bridge, a transverse air-chamber in front of said bridge, above and communicating directly with said draft-passage, and short horizontal pipes entering through the furnace-chamber roof to said air-chamber.

2. The combination, with the perforated spoon *l* and pulleys *n*, of the hopper M, and chutes *o*, whereby the grain is deposited in the standard from either end of the spoon, substantially as described.

178,415. HAIR-FASTENERS. Wm. G. Cook, Jersey City, N. J., assignor to A. Rosenfeld, same place. [Filed Oct. 16, 1875.]

Brief.—The essential novelty being the slotted disk, actuated by a thumb-piece, a helix-revolution of which serves to engage or disengage the projecting studs, releasing the mesh or locking it in desired position.



The combination of cone or snare studs, C, on one rack, with a revolving slotted disk, A, on the other rack, said disk having a shank or handle, E, for turning it, and being pivotally arranged to the studs, as specified.

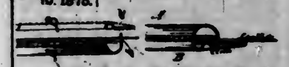
178,416. HORSE-COLLARS. T. H. Cockney, Carthage, Mo. [Filed May 12, 1876.]



1. A horse-collar formed of the two pads A A, with metal plates *a a* inserted therein, and the malleable spar-rims B B, fastened thereto by screws *b b*, substantially as described.

2. The malleable rims B B, formed with the sockets C C, in combination with the pads A A, and strap D, as and for the purposes herein set forth.

178,417. CARRIAGE-CURTAIN LOCKS. G. L. Crandall, Binghamton, N. Y. [Filed Apr. 10, 1876.]

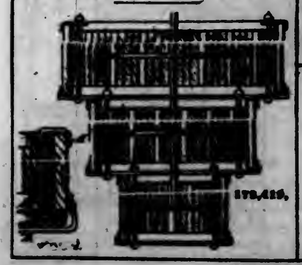


The combination, with the edge-clinching frame A *b*, of the plate B, having perforations *a* to receive the clinches *b*, and extend beyond and form a bearing outside of the joint formed at the clinch-covering edge, as shown, and for the purpose stated.

178,418. BALE-TIES. W. S. Davis, Galveston, Tex. [Filed May 4, 1876.]



The hook B, provided with a flattened shank, C, forming the enlarged head *d*, the said hook being constructed at the forward end with the short bent end or root *h*, and rearwardly-projecting nose *i*, arranged at the back end of the face *g* of the hook for operation in connection with the mortise *b* in the bale-band, substantially as described.



178,419. GLOBES FOR LAMPS AND GAS-FIXTURES. Charles K. Deutsch, New York, N. Y., assignor to the Universal Lamp and Reflector Company. [Filed May 24, 1876.]

1. The removable symmetrical glass rods or pieces, in combination with the upper and lower connected rims, which hold said rods loosely in place, forming a globe for lamps and gas-fixtures, substantially as described.

2. The combination, with a globe constructed of symmetrical glass rods or pieces, loosely held in place by the upper and lower connected rims A and A', of the globe-holder D, substantially as set forth.

178,420. DISTILLING APPARATUS. Henry Doyenne, Toledo, Ohio. [Filed Apr. 7, 1876.]

Brief.—The receivers are placed on opposite sides of a water-tank, and are connected by inclined pipes, which pass through the water. The vapors pass from below upward through the pipes, being delayed and broken up by perforated disks secured upon a rod, and escape into the receivers below the liquid surface, passing from an inner tube at the top, and then from an outer tube at the bottom. The condensed liquid is run off by pipes passing from the middle of the first receiver to the bottom of the next lower one on the opposite side, and thus through the series. Each receiver is drained by a pipe and valve attached to the lower edge.

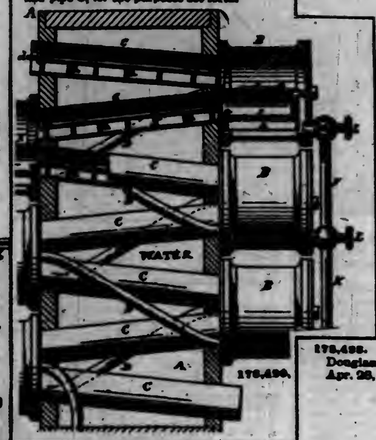
1. The case A, with two series of receivers, B B, set alternately on opposite sides thereof, and connected by the inclined pipes C C passing through the case or reservoir, substantially as and for the purposes herein set forth.

2. The pipes D, passing through the case or reservoir A, and connecting the alternate receivers B on opposite sides thereof, substantially as and for the purposes herein set forth.

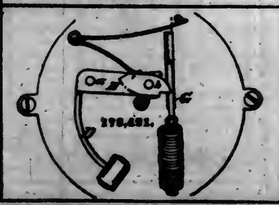
3. The inclined vapor-conducting pipe C, provided at the bottom of its upper end with the shoulder or offset *a*, substantially as and for the purposes herein set forth.

4. A series of alternately-inclined connecting-pipes, C, provided with interior breakers G, set upon rods *d*, in combination with the case A and the receivers B, set alternately on opposite sides thereof, substantially as and for the purposes herein set forth.

5. The concentric cylinders I J, forming a space or chamber, *x*, between them, and formed respectively with the slots *b d*, as shown and described, in combination with the receiver B and pipe C, for the purposes set forth.



178,420.



178,421.

178,422. DOOR-BELLS. Henry A. Dierkes, New York, N. Y. [Filed Apr. 10, 1876.]

The combination of the hammer-arm B, to which is rigidly attached a hammer, D, with a lever, G, arranged to operate directly upon the trip *b*, or free end of the hammer-arm, when the lever or pull is arranged to be operated from the outside, and the inner end of the lever, together with the striking mechanism, is inclosed within the circumference of the bell, as set forth.

178,423. CARVING-MACHINES. William H. Deane and John R. Thomas, Cincinnati, Ohio, assignors to J. A. Fay & Co., same place. [Filed Mar. 11, 1876.]

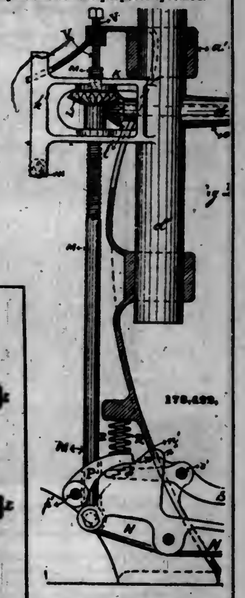
Brief.—The work-table is combined with mechanism for adjusting it vertically by hand and by foot.

1. The combination, substantially as specified, of the work-table, foot-lever F, rod M, adjustably connected with the stock of said table, and set-screw V.

2. The combination, substantially as specified, of the foot-lever F, the screw-threaded lifting-rod M, the set-screw V, and the gearing L P, with the stock of the work-table.

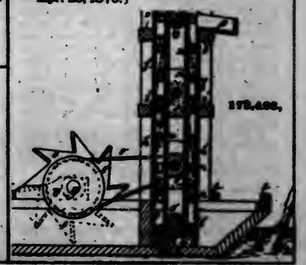
3. The combination, substantially as specified, with lifting-rod M, of foot-lever H, having a ratchet-toothed segment, pawl P, and foot-lever S.

4. The foot-lever H, constructed with a segment, having a series of ratchet-teeth, *v*, blank space *a*, and lug *v''* on its edge, substantially as and for the purposes specified.



178,423.

178,424. WATER-ELEVATORS. Robert H. Douglass, Fort Colville, Wash. [Filed Apr. 28, 1876.]



178,424.

The combination of a pump and undershot water-wheel with a boot or boots so constructed or arranged in relation to each other as to form an inclosed channel on sides and bottom, and such channel provided with a vertically-moving gate for regulating or stopping the flow of the water, in the manner substantially as and for the purpose set forth.

178,494. WAGON-BRAKES. Hannibal Pelt, Sandoval, assignor of one-half his right to George Briscoe, Odin, Ill. [Filed Feb. 19, 1876.]

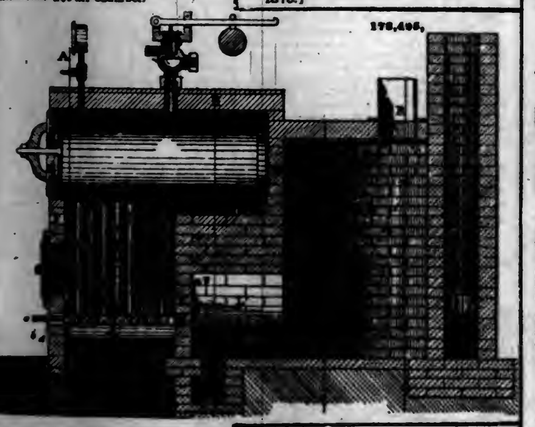


The combination of brake-bar G, crank-shaft M, rod K, pivoted arm J, rock-shaft H, and lever G, and fore axle C, substantially as set forth.

178,495. COMBINED SECTIONAL STEAM-GENERATORS AND HOT AIR FURNACES. Joseph Firmenich and George Firmenich, Buffalo, N. Y., assignors of one-third their right to Frank Firmenich, same place. [Filed Feb. 1, 1876.]

Brief.—Air is supplied for combustion behind the bridge-wall, through ducts leading from the inner hot-air chamber.

178,495.



1. The combination, with a steam-generator, substantially as described, of the air-heating chamber L', having inlets and outlets, substantially as described.

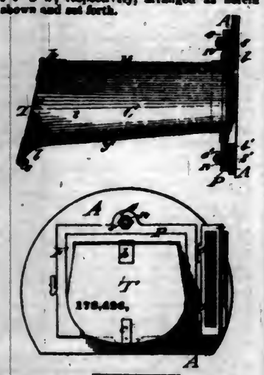
2. The combination, with the chamber L', of the air-ducts U, arranged to establish a communication between the said chamber and the gas-passages behind the fire-bridge wall K, to admit heated air to supply combustion in the rear of said bridge-wall, substantially as described.

3. The combination, with the outer walls of a bridge-setting, of the fire-bridge wall K and the side walls K', K'', said walls being arranged to form passages for the gases of combustion from the furnace to the chimney, in conjunction with the outer walls of a boiler-setting, and an interior hot-air chamber, L', wherein air entering through suitably-arranged ducts is heated by the radiation of said walls, substantially as described, for the purpose set forth.

4. The combination, with a boiler-setting, substantially as described, of the rear chamber O, having partitions Q Q', substantially as described, for the purpose set forth.

178,496. SCREW-FURNACES FOR FURNACES. F. X. Fischer, San Francisco, Cal. (Filed Apr. 24, 1876.)

The outside or receiver C, provided with rounded sides f f, and bottom g, the top v, lip d, drop-door T, with catch q, and plate P, constructed with eyes e e', and projecting flange b b', in combination with the furnace-door plate A A, provided with set-screws and nuts s s' s s', respectively, arranged as herein shown and set forth.

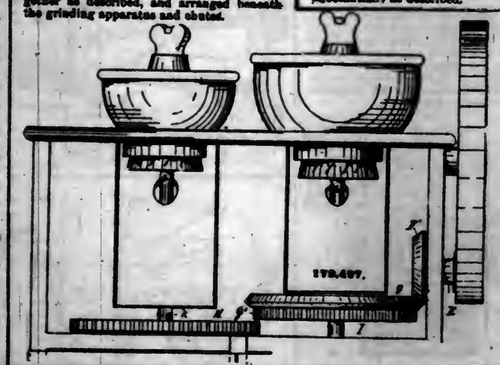


178,496.



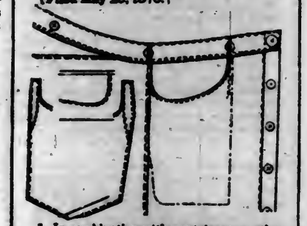
178,497. COFFEE-MILLS. Thomas D. Geddis, Wingo's Station, Ky., assignor of two-thirds his right to W. B. Chaney and T. L. G. Chaney, same place. [Filed Oct. 14, 1875.]

The vertically-adjustable spur-gear N, grate f, and f upon the shaft I of the coffee-mill, pinion F, and shaft B, when combined together as described, and arranged beneath the grinding apparatus and chute.



178,497.

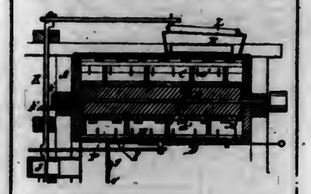
178,498. POCKETS FOR WEARING APPAREL. Redmond Gibbons, San Francisco, Cal. [Filed May 26, 1876.]



1. In combination with pantaloons or other articles of wearing apparel, a pocket, the sides of whose opening are carried upward to the perpendicular, and stitched to the pocket and garment in parallel perpendicular lines extending above and below the mouth of the pocket-opening, whereby the strain to which both the pocket-opening and pocket are subjected in common use is resisted by vertical stitching, substantially as herein described.

2. In combination with a pocket, the sides of which curve to the perpendicular, a line or lines of stitching coinciding and parallel with said sides of the pocket-pattern, and intersecting the upper extremity of the curve of the pocket-rim, substantially as and for the purpose herein specified.

178,499. HULLING-MACHINES. J. F. Gibson Bryansville, Pa. [Filed Apr. 26 1876.]



1. The combination of a rotary shaft, B, having rows of triturators C, with an inclined cylinder, D, having hopper E at the top of upper end, discharge F at the bottom of lower end, representing bottom H, and sliding gate I, all arranged as and for the purpose described.

2. The triturators C, made of three sawblades, the middle one shorter than the outer ones, to adapt them to be fastened to stock in the manner described.

178,500. HEATING-STOVES. John J. Gill, Mexico, Mo. [Filed Apr. 6, 1876.]

1. The combination, in a stove, of the fire-chamber B, vent G, flues H and I', opening i, damper e, and flue J, substantially as set forth.

2. The combination, in a stove, of the chamber B, vent G, opening i, and flues I' and J, substantially as set forth.

3. The combination, in a stove, of the chamber B, flue H, flue I, and vent G, substantially as described.

4. The combination, in a stove, of the chamber B, flue H, damper e, flues I I', vent G, opening i, and flue J, substantially as described.

5. The combination, in a stove, of the chamber B, vent G, opening i, flues I' and J, and door H, substantially as described.

6. The combination, in a stove, of the chamber B, flue H, exit E, and flue I, substantially as described.

7. The combination, in a stove, of the chamber B, flue H, openings e and e', plate O, flange P, exit E, and flue I, substantially as described.

8. The combination, in a stove, of the chamber B, vent G, flue H, exit E, and flue I, substantially as described.

9. The combination, in a stove, of the chamber B, flue H, and flue E, substantially as described.

10. The combination, in a stove, of the chamber B, vent G, guard H, flues L L', &c., and flue J, substantially as described.

11. The combination, in a stove, of the chamber B, vent G, flue I', opening i, flue J, and flues L L', &c., substantially as described.

12. The combination, in a stove, of the chamber B, exit E, flues I I' and L L', &c., and J, substantially as described.

13. The combination, in a stove, of the chamber B, flue H, exit E', flues I I', vent G, and flues L L', &c., and J, substantially as described.

14. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flue I and flue F, substantially as described.

15. The combination in a stove, of the chamber B, vent G, guard H, exit E, flue I, flue I', damper K, opening i, flue J, damper e, and door M, substantially as described.

16. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flue I, flue F, damper K, opening i, flue J, damper e, door M, opening F, grate C, and ash-pit D, substantially as described.

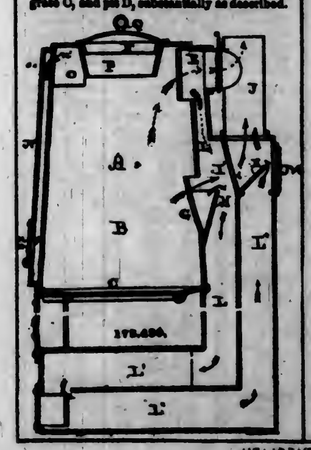
17. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flues I, I', and J, damper K, opening i, damper e, door M, opening F, grate C, pit D, and flues L L', &c., substantially as described.

18. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flues I, I', J, and F, damper K, opening i, damper e, door M, opening F, grate C, and ash-pit D, substantially as described.

19. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flues I, I', J, and M, damper K, openings f F e e', damper e, door M, plate O, flange P, grate C, and pit D, substantially as described.

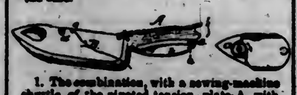
20. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flues I, I', J, and M, damper K, openings f F e e', damper e, door M, plate O, flange P, grate C, and pit D, substantially as described.

21. The combination, in a stove, of the chamber B, vent G, guard H, exit E, flues I I' J M and L L', &c., damper K, openings f F e e', damper e, door M, plate O, flange P, grate C, and pit D, substantially as described.



178,501. SEWING-MACHINE SHUTTLES. J. J. Greif, San Francisco, Cal., assignor of one-half his right to Orin E. Jewell and Andw. Shouvers, same place. [Filed Feb. 24, 1876.]

Brief.—A plate pivoted to the rear end of the shuttle-case covers the face of the shuttle, and is provided with a ledge or flange, on the inner side of which is a spring, which bears upon the side of the case, and gives tension to the thread, which passes between it and the case, the degree of tension being regulated by an eccentric button, which holds the plate in position. Two pins on the inner side of the flange entering corresponding holes in the shuttle-case prevent the thread being caught between the ends of the spring and the case.



1. The combination, with a sewing-machine shuttle, of the pivoted tension-plate A, with its ledge or shield b, having a tension-spring, c, and the eccentric button U on the face of the shuttle, the whole arranged, combined, and operating as and for the purpose described and shown.

2. The combination, with the tension-plate A, its ledge b, and spring c, of the projecting pins on the inner face of the ledge, that engage in holes in the side of the shuttle, in the manner and for the purpose described and shown.

178,502. PROCESSES OF PRODUCING MOLDS AND PATTERNS. Charles Granger, Somerville, Mass. [Filed Jan. 20, 1876.]

Brief.—A reproduction of the selected model is obtained in soft rubber, which becomes the pattern for the plaster or other material mold.



1. In the process of producing soft-rubber patterns, an impervious envelope or coat applied over the mold to prevent any contact between the surface of the mold and the material to be molded of the water employed as the pressure-medium, substantially as set forth.

2. The process of applying pressure through the medium of water or other non-elastic fluid surrounding the mold, and introduced to the interior of the rubber to force it in contact with the mold.

3. The process of making a mold by means of a soft-rubber pattern, provided with a central flange to form the parting surface of each half-mold, substantially as set forth.

4. In the process of making molds of wax, paraffine, or such like substance, from soft-rubber patterns, a coating of glycerine and a salt solution applied to the pattern to prevent its adhesion to the material of the mold.

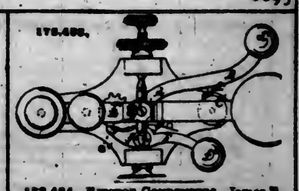
5. The process of producing undercut molds, in plaster or other inelastic material, by the means substantially as described.

178,503. TELEGRAPH-KEYS. C. J. Greene, Huron, Ohio. [Filed Mar. 7, 1876.]

Brief.—Device for holding the switch-lever in contact with the anvil, and preventing its accidental separation therefrom.

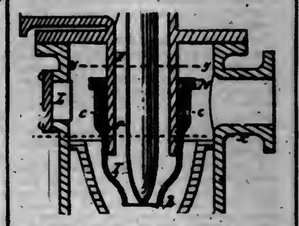
In a telegraph manipulator or key, the combination of the pivoted switch-lever D carrying the platinum point d', and provided with cogs d'', the irregular pinion E, provided with coil-spring e, smooth rim e', and notch e'', together with the pivoted spring-dog F, all arranged to operate as described, and for the purpose specified.

178,504.



178,504. EJECTOR-CONDENSERS. James P. Guthrie, Somerville, Mass. [Filed Feb. 17, 1876.]

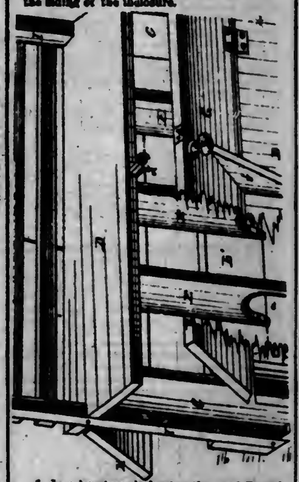
Brief.—The discharging-nozzle is adjusted as to its projection into the combining-chamber by the introduction of a rod, through an opening in the side of the casing, into one of the holes in the periphery of the discharging-nozzle.



In an ejector-condenser, having the head-opening L and condensor-tube F, the adjustable discharge-nozzle I, having the recesses e, by which it is adjusted through the head-opening L, substantially as described.

178,505. HOG-TROUGH. J. Hannan, Cass Township, Jones County, Iowa. [Filed Oct. 11, 1875.]

Brief.—The trough is closed by a door, which serves as a swill-board when open, and the entire device serves to form a portion of the sliding of the inclosure.



1. In a hog-trough, having the roof D and partitions E, with lower end openings e, the hinged door G extending the length of the trough on its exterior side, and provided with a brace, f, and catch d, whereby the said doors, when open, will act as a swill-board, and when closed will exclude the snow, rain, &c., as described.

2. A hog-trough composed of the bottom A, ends C, sides B and B', and roof D, and having the partitions E and doors G and H, when the same is combined with posts I and cross-boards I', whereby the entire structure is adapted to form a part of the pen or inclosure, as described.
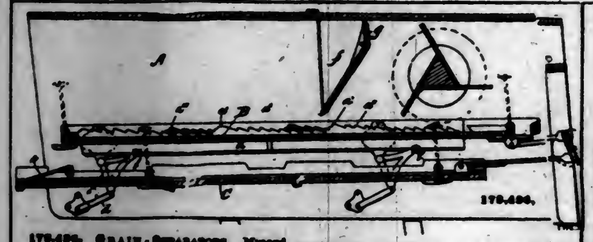


178,436.

178,436. GRAIN-SEPARATOR. Minard Harder, Cobleskill, for himself and Amos Anthony, East Worcester, and Sylvester Dodendorf, Milford, N. Y., administrators to David Anthony, deceased, said administrators assignors to said Harder. [Filed Apr. 26, 1876.]

1. The grated separator, in combination with the lifting-blades, when the said blades are made to have a horizontal motion with the separator, and a vertical motion through the slots, substantially at right angles to the surface of the separator, as and for the purpose set forth.

2. The blades *a*, made with the larger and smaller notches, the smaller being on the inside of the larger, as set forth.

3. The separator, perforated to admit the passage of the grain, and provided with lifting-blades, moving in slots through its surface, said separator operating in its longitudinal movement through the wall-crank to cause the lifting-blades, as and for the purpose described.

4. The ball-crank lever, pivoted at the corner to the standard upon the separator, their horizontal arms *f* supporting the transverse bar of the blades, the vertical arms pivoted to the bar *h*, the bearing of which in the side is made lower than its points of connection with the ball-crank lever, all as and for the purpose set forth.

5. The conveyor, having its elongated end made to project beyond the separator in all their relative positions, and provided with a cover, as and for the purpose set forth.

6. The pivoted board *f*, arranged in the described relation to the feeder and separator, as and for the purpose set forth.

7. The upwardly-bent flange upon the upper edge of the board *f*, in combination therewith and with the feeder, as and for the purpose set forth.

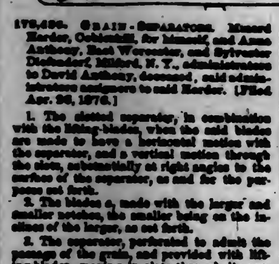
178,437. SNAP-HOOKS. William Heath, Bath, Me. [Filed May 4, 1876.]



The improved snap-hook, substantially as described, having its tongue or spring E confined by the point *b*, as approximately as the bottom or lower part of the shank *a*, all essentially as specified, and having the point bent outward or curved in two directions relatively to the spring, all as shown and described.

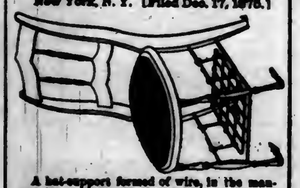
178,438. CONVEYOR PIPES. Chas. B. Hill, Brooklyn, N. Y. [Filed Oct. 6, 1875.]

Brief.—A series of columns, constructed of sections of stone, are secured by iron bolts to the foundation, and held in place at the top by a spider-frame.



178,439.

178,439. MAN-RACES FOR CHAIRS. C. F. P. Hotte, Hoboken, N. J., and E. Koennecke, New York, N. Y. [Filed Dec. 17, 1875.]



A hat-support formed of wire, in the manner shown, and having wire rods secured thereto, said rods being hooked at the ends, to adapt them to be fastened to the frame of a chair, beneath the seat, as and for the purpose set forth.

178,440. CUT-OFF VALVES FOR STEAM-ENGINES. Thomas Hoobler, Syracuse, N. Y. [Filed Oct. 28, 1875.]

Brief.—The cut-offs are operated on the main-valve seat, and are provided with separate plungers, which project through the end of the main valve into its exhaust-cavity. The cut-off valves are separately moved forward by the main valve, to engage with a latch, which holds the cut-off stationary until the valve has moved back to open the steam-port, when said latch is raised, to allow the steam-pressure to move the cut-off and close the port.



1. In combination with any slide-valve, A, the two independent cut-off valves B B, closing upon the same seat as the main valve, and operated by the governor, substantially in the manner described.

2. The combination of the slide-valve, provided with apertures opening into the exhaust-passage, the cut-off valves B B, having plungers F, working in said apertures, and the latches G, substantially as described.

3. The combination of the valve A, provided at its ends with dash-pots D, with the cut-off valves B B, provided with plungers C and guides E, substantially as described.

4. The combination of the latches G, for detaining the cut-off valves B, with the spiral cam K, rotated at the same speed as the engine-shaft, through the connection L, vibrated by the governor, and the arms I, substantially as described.

178,441. CAST-SLIDES. Wm. Hemphrilling, Bridgeport, and Emanuel Shirley, West Stratford, Conn. [Filed Apr. 11, 1876.]

Brief.—The expansion of the two slides is accomplished by means of a curve arranged in a direction transverse to the axis of the pivot.



178,441.

1. The divided slide, consisting of the blocks B' B'', constructed with tapering or elliptical bearing-surfaces, as herein described, in combination with a pivot or stud and a cut-corner, substantially as and for the purpose herein set forth.

2. The concave-convex spring D, in combination with the divided slide, and the pivot and cut-corner, substantially as and for the purpose herein described.

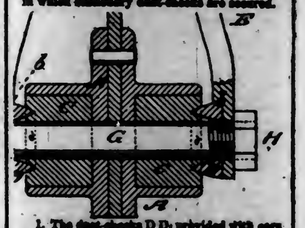
178,442. LASTING-TOOLS FOR BOOTS AND SHOES. William H. Keene and Douglas G. Keene, Geneva, Ohio, assignors of one-third their right to Dennis Wentworth, same place. [Filed Apr. 8, 1876.]



The improved boot-laster, consisting of the handles or levers A B, and jaws C D, the curved and corrugated under lip G, and the combined hammer and claw E *b*, all constructed as and for the purpose set forth.

178,443. ROLLING-COLTERS. D. W. Hughes, St. Louis, Mo. [Filed Mar. 4, 1876.]

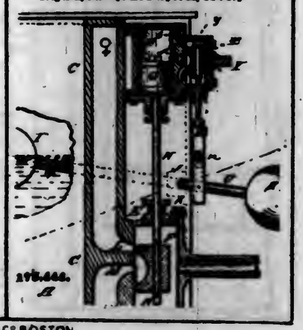
Brief.—A rolling-coulter with a wooden facing, in the outer edges of which are grooves, in which stationary dust-shields are secured.



1. The dust-shields D D, provided with ears or flanges *d d*, in combination with the shoulders *b* on the arms of the yoke H, for the purposes herein set forth.

2. The combination of the outer hub A, interior or lining C, with eccentric grooves *a* at its ends, the dust-shields D, with flanges *d*, yoke H, with shoulders *b*, axle G, and nut H, all substantially as and for the purpose set forth.

178,444. BOILER-FURNACE AND RETURN-STEAM TRAPS. Wm. H. Jenkins, Philadelphia, Pa. [Filed Apr. 11, 1876.]



178,444.

In a feed-water heater, the combination of the feed and its stem, passing through the casing; the valve-seat S and valve T, for admitting steam to the cylinder D; the valve-seat H and valve F in a separate steam-chest, for admitting steam to, and exhausting it from, chamber A, all constructed and arranged substantially as and for the purpose set forth.

178,445. FASTENERS FOR THE MISSING-RAILS OF SAWING. Wm. H. Kester, Philadelphia, Pa. [Filed Mar. 11, 1876.]

Brief.—A new combination and arrangement, more specially in the uniting of two separately old devices.



The cast-locking latch herein described, having the vertical eye *g* at its free end, the hook *e* between said eye and the pivot of the latch, the rectprocating bolt F, its flanged foot *i*, and the supporting-spring S, seated between said eye and said foot, as said bolt, substantially as specified.

178,446. PROCESSES OF PRESERVING FOOD. Kennard Knott, Chicago, Ill. [Filed Mar. 17, 1876.]



1. The mode of preserving articles of food by packing them, when cool or frozen, in a hermetically-sealed case or vessel, and surrounding the said case or vessel by a body of flour contained within an outer case, the packing operation being conducted in an atmosphere whose temperature is the same, or as nearly as practicable the same, as that in which the articles have been cooled or frozen, as set forth.

2. The animal and vegetable food-package, formed of an outer case, B, an inner case, A, contained therein, an interposed filling of flour, and a piece of meat hermetically sealed in the said inner case, as shown and described.

178,447. WATER-PROOF COMPOUNDS FOR LEATHER. P. Kromer, Fairview Township, Erie County, Pa. [Filed Jan. 25, 1876.]

Brief.—Composed of tanner's oil, neat's-foot oil, tallow, bees-wax, and lamp-black.

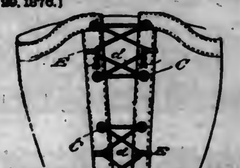
A compound, consisting of the ingredients above named in the proportions set forth, substantially as and for the purpose specified.

178,448. COUNTERSINKER. W. H. Laughlin, Hinckley, Ohio. [Filed Sept. 11, 1876.]



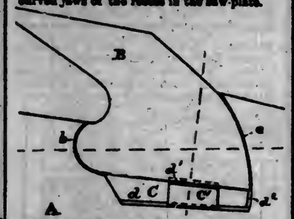
The herein-described countersink-cutting device, consisting of the sleeve B, provided with the detachable cutter D, set-screw C, and stop E, combined and arranged to operate with the boring-bit A, substantially in the manner set forth.

178,449. SHOE-LACINGS. August W. H. Lindemann, Brenham, Tex. [Filed Apr. 20, 1876.]



A shoe-lace, *d*, applied to the meeting edges of a shoe, as described, in combination with eyelets C and hook or button fastenings E, arranged between the eyelets, as set forth.

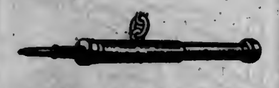
178,450. IRONERS-BOARDS. Geo. L. Miller, South Oil City, Pa. [Filed Mar. 11, 1876.]



1. The board A, constructed as described, with cut-out corners B B, slots C C, arms D D, and center-piece E, having the rubber bar G, as and for the purpose herein set forth.

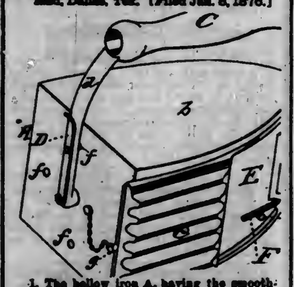
2. The lever H, with bent wire hook I, in combination with the board A, as and for the purpose herein set forth.

178,451. GOVERNED WATCH-CHAIN BARS AND PENCILS. John E. Mabie, Hoboken, N. J. [Filed Mar. 11, 1876.]



A combined watch-chain bar and pencil-case, in which the barrel of the pencil-case is made to constitute the bar, by having the eye for the connection of the chain attached to said barrel at or about midway of its length, and the pencil, when in use, is projected from the pencil-case, and when not in use, is drawn entirely within the case, substantially as herein described.

178,452. FLUTING-IRONS. W. I. McCausland, Dallas, Tex. [Filed Jan. 6, 1876.]



1. The hollow iron A, having the smoothing-faces *b*, detachable hinged side E, provided with the fluting-surface *c*, and rear-end face having the spaced perforations *f* arranged as set forth, in combination with the pivoted handle C and spring-latch D, provided with a spur, *e*, substantially as described, and for the purpose set forth.

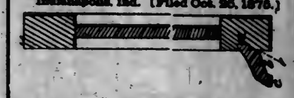
2. In combination with the hollow iron A, the hinged detachable side E, having a fluting-surface, *c*, and pin engaging with the detachable angular bolt F, substantially as described, and for the purpose set forth.

178,453. FLOWS. John H. Monroe, Minneapolis, Minn., assignor to Monitor Plow Works, same place. [Filed Mar. 9, 1876.]



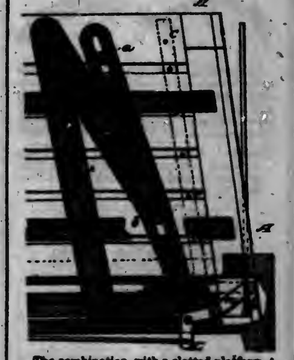
The plow-frame consisting of the front standard B, the rear standard K, with axle and cross-brace connecting the same, all cast in one piece, and curved inward and upward from the land-side, and provided with a perforated lug upon the top of the front standard, to receive the handles, and with a cross-slot on the rear standard to allow lateral adjustment of the beam, substantially as shown and described.

178,454. WEATHER-STRIPS. D. Munson, Indianapolis, Ind. [Filed Oct. 26, 1875.]



The weather strip, having the inclined groove *b*, and dovetailed into the front side of the door to obtain a sealed joint, *c*, therefor, as and for the purpose described.

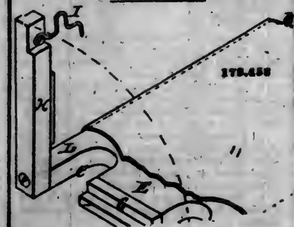
178,455. RAKE ATTACHMENTS FOR HARVESTERS. Fredrick W. Muesing, Kendallville, Ind., assignor to himself and G. A. Brilhart, same place. [Filed Mar. 21, 1876.]



The combination, with a slatted platform A, of the rake-head B, rake C, and the levers D D' D'', constructed, as described, with slots and pins, forming movable fulcrums, and operated by the levers E G, substantially as and for the purposes herein set forth.

178,457. FIRE-ESCAPES. John H. Nevins, Green Bay, assignee of three-eighths of his right to Jas. W. Newkirk, Port Howard, and three-eighths to Geo. B. Coates, Oshkosh, Wis. [Filed Apr. 1, 1876.]

Brief.—A fire-escape composed of suspended staircases and platforms at the several stories, which fold into the cornice or onto the roof. The details claimed are the mechanism for elevating and suspending the staircases, and for carrying the folded parts back into the cornice when not in use; also for controlling the movements of the staircases and platform, and for retaining them in place.



178,456

1. The combination of the sectional suspending-rods C with rails A' D, rods B B' B'', braces G, and struts T, with stairs *a m h*, as and for the purpose set forth.

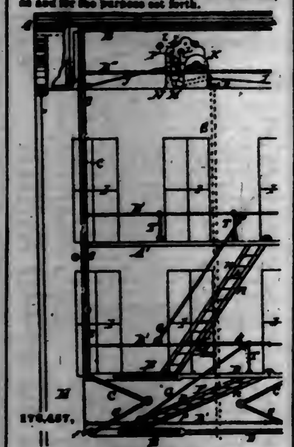
2. The stairs, constructed as set forth, combined with slotted rails D A', and suspending-rods C, as set forth.

2. In a folding fire-escape, the supporting-rods G G B B' with the rails A' D, and suspending-rods C, as described.

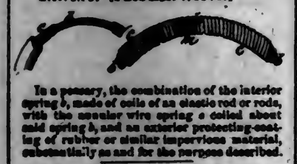
4. The catch *b*, rod *c*, in combination with the rollers *d* *e* and rope *a*, for drawing the folded escape onto a roof, as described and shown.

5. In a fire-escape, the brake, consisting of the drum K, shoe L, springs 30, wedges O N, and lever M, with a suitable pawl and ratchet, as and for the purpose set forth.

178,467.



178,468. PRESSERS. Gustav Otto, Jersey City, N. J. [Filed Apr. 7, 1876.]



In a pessary, the combination of the interior spring *b*, made of coils of an elastic rod or rods, with the annular wire spring *c* coiled about said spring *b*, and an exterior protecting-coating of rubber or similar impervious material, substantially as and for the purpose described.

178,469. TELL-COUPLINGS. Eben Page, Appleton, assignor of one-half his right to Mark English, Green Bay, Wis. [Filed Mar. 17, 1876.]



1. The clip A, provided with a socket, B, having an opening, *c*, in combination with the socket *b*, having an opening, *c*, and the gib *f*, all constructed and operating substantially as and for the purposes set forth.

2. The combination of the clip A, sockets B *b*, having openings *a* *c*, the gib *f*, rubber *g*, and bolt *h*, all constructed and operating substantially as and for the purposes specified.

3. The clip A and sockets B *b*, adapted to receive the shaft-irons C, in combination with such shaft-irons C and the gib *f*, substantially as and for the purposes specified.

178,470. MANUFACTURE OF JAIL-BARS. P. J. Pauly, St. Louis, Mo. [Filed Feb. 2, 1876.]



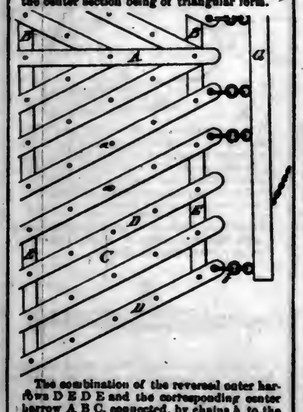
178,470.

1. As a new article of manufacture, a jail-bar constructed in one piece of steel, with hardened edges *a* and annealed center *a'*, as and for the purposes set forth.

2. The dipping apparatus, consisting of jaws B and screws C, adapted to hold the bar and prevent it warping, and suitable operating connections, as and for the purpose set forth.

178,471. HARROWS. John H. Perkinson, Santa Rosa, Cal. [Filed Apr. 22, 1876.]

Brief.—A harrow with three independent sections, all of which are attached to an evener, the center section being of triangular form.



The combination of the reversed center harrows D E D E and the corresponding center harrow A B C, connected, by chains *b*, to the evener G, having the draft applied by a chain, *d*, substantially as described, and for the purpose set forth.

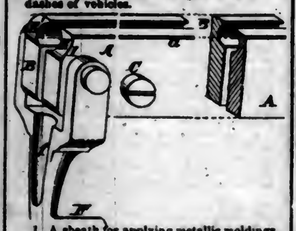
178,472. SHEET-METAL CANS. August Purpente, New York, N. Y., assignor to himself and Max Langguth, Hoboken, N. J. [Filed Mar. 9, 1876.]



A sheet-metal can with a central opening in the top, the depressed sheet-metal cover C adapted to fit the opening, and overlapping the edge of said opening, in combination with the annular strip D of sheet metal, overlapping the edges of the top plate and of the cover, and being soldered to the same, substantially as described.

178,473. TOOLS FOR ATTACHING SHEET-METAL MOLDINGS. George M. Peters, Columbus, Ohio. [Filed Mar. 7, 1876.]

Brief.—Sheet-metal moldings are first inserted into a sheath of corresponding shape, and then drawn over the upper edge of the dashes of vehicles.



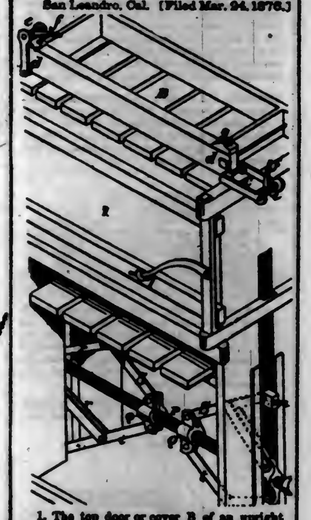
1. A sheath for applying metallic moldings, said sheath being furnished with a stop for advancing the molding, all substantially as and for the purpose specified.

2. The within-described sheath for applying metallic moldings, said sheath being furnished with recesses *f* *f'* and a key, G, or their equivalent otops, as and for the purpose explained.

3. A sheath composed of two grooved bars A E B F bolts or screws C, and washers D, whereby the sheath is rendered capable of adjustment to sustain moldings of different diameters, as herein set forth.

4. The combination of bars A E B F and gathered hook or shackle F *f*, for the object stated.

178,474. MALING-PRESSES. Jacob Price, San Leandro, Cal. [Filed Mar. 24, 1876.]



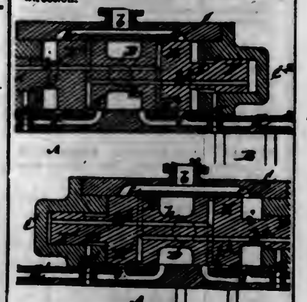
1. The top door or cover B of an upright baling-press, having the transversely-grooved metal plate or shoe *g* secured upon its projecting ends *d* *d*, in combination with the metal loop *c*, with its eccentric roller or cross-bar *e* and lever or handle *f*, substantially as and for the purpose described.

2. The improvement in followers for baling-presses, consisting in constructing the main beam of the follower of three parallel bars or pieces of timber, connected together by an inverted V-shaped bolt, *a*, constructed and applied substantially as and for the purpose described.

3. In combination with the toggle-levers *e* *f*, nuts Q, and followers, the brace-arms *r* *r'* and boxes *s*, arranged to support the outer ends of the screw-shaft and steady the movement of the toggle-levers, substantially as above specified.

178,475. VALVES FOR PERROT-ACTING ENGINES. Edward Purvis, New York, N. Y. [Filed Apr. 4, 1876.]

Brief.—As the main piston reaches the end of its stroke it uncovers a small port, which admits steam to one of the large pistons of the valve, to balance the steam-pressure on the other large piston. The live steam, which has been admitted back of one of the small pistons of the valve through the channel in said piston then moves the valve to admit steam to drive the main piston in the opposite direction.



1. A valve for controlling and reversing the piston of a direct-acting engine, composed of, or provided with, duplicate piston-heads at its opposite ends of different areas, and longitudinal duct, passing through the valve and connecting the intermediate portion of the valve-chest with the opposite ends thereof, in combination with fixed passages in the valve-chest and engine-cylinder, or jointed substantially as described, whereby the valve is automatically thrown in reverse directions alternately by differential pressure of the propelling-fluid on the piston-heads of the valve, subject to the control of the engine-piston, essentially as herein set forth.

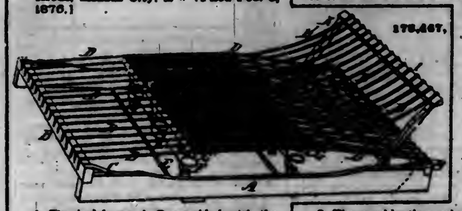
2. The combination, with the engine-cylinder A and its piston B, of the valve-chest C, with its hollow ends or heads C' C', the valve composed of piston-heads E E' and F F' of different areas, as described, the longitudinal valve-ducts F' *h'*, the main induction ports or passages *d* *d'*, the independent passages *g* *g'*, the steam-inlet *b* with its longitudinal branch *c* *c*, and the exhaust duct or outlet D, substantially as specified.

178,476. PROCESSES OF PRODUCING IMITATION GOLD OR SILVER LACE. H. Read, Philadelphia, Pa. [Filed Jan. 29, 1876.]

1. The process herein described for coating a woolen, silk, or cotton fabric with gold or silver, consisting in first laying thereon a foundation of shellac, then applying a coating of oil gold size, and finally laying on the gold or silver leaf, substantially as specified.

2. The process of forming a gilt or silvered fabric, consisting in first laying on a coating of thin varnish to form a foundation, applying thereon a coating of oil gold size, then laying on the gold or silver leaf, brushing off the surplus, and finally applying a coating of varnish after the size has dried, substantially as specified.

178,477. SPRING BED-BOTTOMS. John A. Reeds, Kansas City, Mo. [Filed Feb. 8, 1876.]



178,477.

1. The bed-frame A B, provided with the sheet-metal strips D, secured at each end to the cross-pieces of the frame, in combination with transverse bars E, slats G G', and springs F, substantially as and for the purpose set forth.

2. The sheet-metal strips D', having their lower portions secured to bars G G', for the purpose of strengthening the middle of the bed, and their upper ends secured to an independent cross-piece, I, substantially as and for the purpose set forth.

3. As an article of manufacture, the herein described bed-bottom, consisting of the frame A B, provided with transverse supporting-bars E, metal strips D, running longitudinally of the frame, and secured thereto at each end, supporting-springs F, transverse slats G G', and re-enforcing metal strips D', secured to an adjustable head-piece, substantially as and for the purpose set forth.

178,478. PROCESSES FOR TANNING HIDES OR SKINS. Chas. Richter, Detroit, Mich., assignor to National Leather Company, same place. [Filed May 4, 1876.]

1. In the process or tanning hides or skins, the tan-liquor, consisting of water, sulphuric acid, common salt, wheat middlings, and sugar of lead, in about the proportions described.

2. In the process of tanning hides or skins, the stuffing compound, consisting of clear pure animal oil and glycerine, substantially as described.

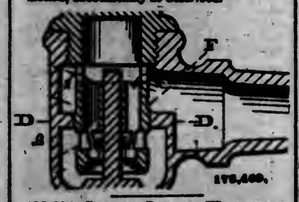
3. In the process of tanning hides or skins, the solution consisting of water, sal-soda, animal oil, and glycerine, when applied to skin sides of hides tanned with the hair on, in about the proportions described.

4. In the manufacture of leather from hides or skins, the application of the tanning solution named, followed by the use of the stuffing compound, composed of the ingredients stated, in about the proportions set forth.

178,479. CHECK-VALVES. Samuel Rue, Philadelphia, Pa. [Filed Feb. 24, 1876.]

1. A check-valve having an interior deflector, whereby the currents of water from the boiler are forced from a rotary action to a perpendicular or horizontal right-line action against the upper or inner face of the valve, substantially as and for the purpose set forth.

2. The cavities D and plug F, in combination with a valve, whereby the rotary motion of the water is changed, and it is directed in a line at right angles to and strikes directly on the valve before it can obtain any lateral motion, substantially as described.



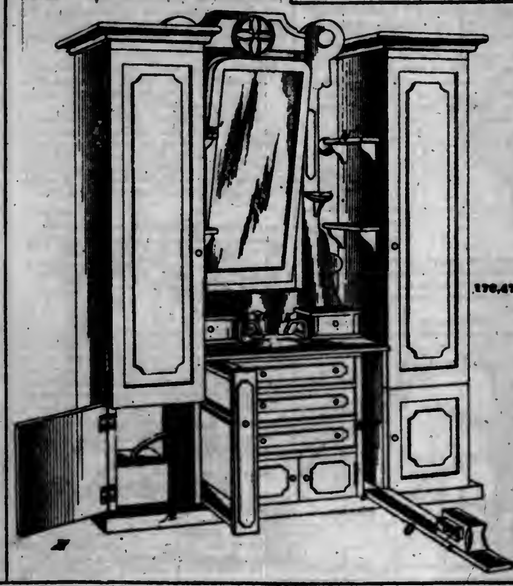
178,479.

178,479. COMBINED BUREAUS, WARDROBES, AND WASH-STANDS. Frank G. Stanford, New York, N. Y. [Filed Dec. 13, 1876.]

1. The toilet-cabinet composed of the combined wash-stand and bureau, the mirror, the wardrobes, the water-reservoir or reservoirs, and appliances for supplying the wash-basin with water from said reservoirs, the parts being arranged relatively substantially as specified.

2. The combination, substantially as specified, with the combined wash-stand and bureau, of the sliding towel-rack, arranged in a recess on one side of the bureau.

3. The combination, substantially as specified, with the combined wash-stand and bureau, of the blacking-box, carried on a swinging door covering a recess on one side of the bureau.



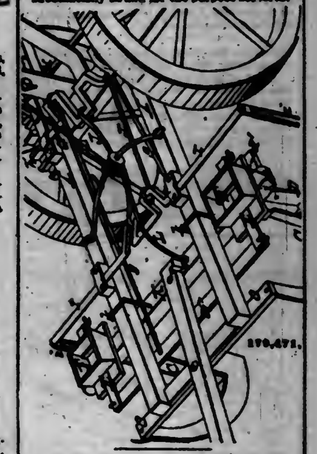
178,479.

178,480. CORN-PLANTERS. Joseph R. Sapp, Danville, Ohio, and Henry Clay and Wm. Frost, Stewart, Iowa. [Filed Mar. 30, 1876.]

Brief.—The rear ends of the seed-slides are turned down to strike the pivoted curved rear part of the opener, to discharge the seed therefrom as they are reciprocated.

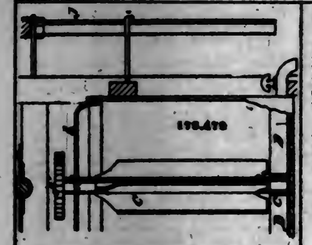
1. The leg or opener C, having the bowed or curved plate or valve D, closing the lower end of said leg by a spring, *d*, and provided at its upper end with an arm, *f*, in combination with and struck by a pendent, *e*, of the seed-slide E, substantially as and for the purpose set forth.

2. The crank-shaft G, rods *g*, and bar *f*, attached to, and in combination with, the seed-slides E, having the pendents *e*, bowed or curved plates D D in the legs or openers C C, and having the arms *d* and springs *d'* *d'*, substantially as and for the purposes set forth.



178,481.

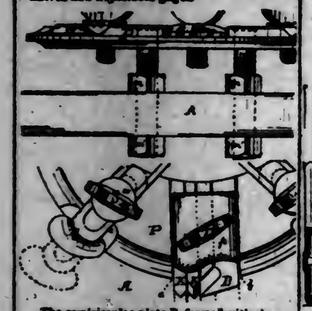
178,481. CHURNS. Frederick Seel, Cincinnati, Ohio. [Filed Apr. 10, 1876.]



The removable strainer D, having the tubes *c* rigidly secured thereto, and adapted to receive the feet J, substantially as described, and for the purposes set forth.

178,472. COOPERS' CROZES. J. P. Stanfield, Shandaney, Ohio. (Filed June 12, 1876.)

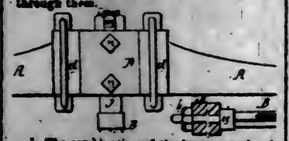
Brief.—The chine in barrels or casks of various diameters can be cut a greater or less distance from the rim or end by means of a semi-chamber plate adjustably connected to the stock, and provided with suitable cutting-knives and adjustable gages.



The semicircular plate P, formed with channels or depressions *a b c*, for the reception of the cutting-knives K K and reuter D, and the gages G, said plate being capable of a vertical adjustment upon the stock A by the bolts and nuts B B' *n n'* *n n'*, substantially as and for the purpose set forth.

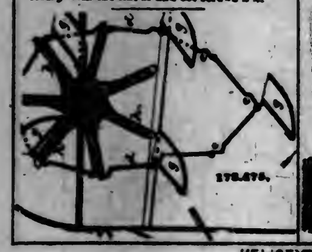
178,474. CAR-BRAKES. Charles C. Smith, Reading, Pa. (Filed Nov. 24, 1875.)

Brief.—Rods secured in blocks fastened on brake-bars by means of yokes, instead of weakening bars by passing rods directly through them.



1. The combination of the beam A and rod B of a car-brake with the block D, connected to the rod, and secured to the beam by bands *d*, which embrace the latter, all substantially as set forth.

2. The combination of the rod B and its stem *j* with the nut *n* and set-screws *s n*.



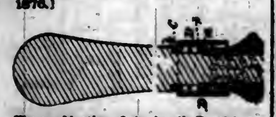
178,475.

178,476. WATER-ELEVATORS. R. J. Smith, Pilot Point, Tex. (Filed Dec. 4, 1875.)

Brief.—An endless chain of buckets with a reel for working them, so contrived that it tilts the bucket, so that they empty and pass the spout without reversing. The buckets enter the water bottom downward, and allow the air to escape when filling.

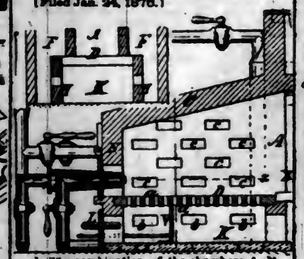
In a water-elevator, the combination of the wheel *c*, having the notched, beet-wardly-inclined arms *b*, the chain *d*, having its links bent at *e*, and the buckets *f*, substantially as shown and described.

178,476. UMBRELLA-TIP REINFORCE. James T. Smith, New York, N. Y. (Filed May 9, 1876.)



The combination of the handle B, stick A, having shoulder *a*, the fixed bushed or ferrule C, with L-shaped slots *c*, and the sliding sleeve or head D, with pins *i*, when said parts are constructed and arranged to operate substantially as and for the purposes hereinbefore set forth.

178,477. HYDROCARBON-FURNACES. A. Smith, Buffalo, N. Y., assignor of one-half his right to E. A. Holbrook, same place. (Filed Jan. 24, 1876.)



1. The combination of the chambers A, F, and K, constructed and communicating, as described, with steam and fluid-fuel pipes, substantially as set forth and shown.

2. The combination of the chambers A, F, and K with steam and fluid-fuel pipes, an air-blast pipe, and a valve, V, substantially as shown and described.

178,478. FEED MECHANISMS FOR SEWING-MACHINES. John Smith, Baltimore, Md., assignor to Levin T. Jones, same place. (Filed Apr. 3, 1876.)

Brief.—The feed-bar is raised by a cam on the same shaft that carries the eccentric, which, by means of its connecting-rod, imparts the forward movement, the backward movement being effected by a spring, and the adjustment of length of throw by a wedge operated by a button on top the cloth-plate.



The combination, with the wedge-shaped regulator N, of the double or dual cams F G on the main shaft S, one cam operating to raise the feed-bar, and the other imparting a longitudinal movement thereto through the medium of the slotted strap-rod I and stud J, substantially as set forth.

178,479. MANUFACTURE OF SUGAR-APPARATUS. John J. C. Smith and Chas. Grosser, Somerville, Mass. (Filed Feb. 10, 1876.)

178,479.



1. The combination, with the sliding bumper-heads D D', having extensions *d d'*, of the sliding draft-rods E, each of which has one end secured rigidly to the extension *d* on one bumper-head, and the other end supported by, and sliding freely in, guides or bearings in the extension *d'* of the opposite bumper-head, and provided with the stops F and springs *e*, all arranged and operating substantially as and for the purpose specified.

2. The combination, with the sliding bumper-heads D D', draft-bars B, springs *e*, and alternate rods or chains M M', of the rods or chain K, lever H, cross-bars F', broken F, and links or chains F', substantially as described.

1. The combination of a metal flask, approximating to the shape of the article to be formed, with a plaster mold, substantially as herein described.

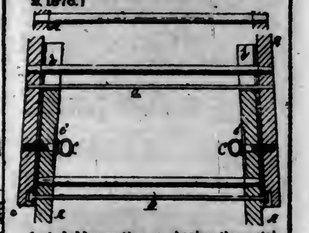
2. In the process of manufacturing rubber articles, the preliminary approximate shaping of the article by application to an internal support, and the subsequent application of an expanding steam-pressure, produced substantially as described, to force the material into contact with the interior of the mold.

3. In combination with a core, the elastic vulcanized-rubber envelope or covering, substantially as described, to prevent the rupture of the raw rubber when pressed into very deep cavities.

4. The combination of the flask F, plaster mold S, thimble B', tube E, and core-pin C', as and for the purpose set forth.

5. The process of applying an internal steam pressure in excess of that on the exterior of the article to be vulcanized, substantially as and for the purposes set forth.

178,480. EXTENSION-LADDERS. Roswell G. Spaulding, Jonesville, Mich. (Filed May 2, 1876.)

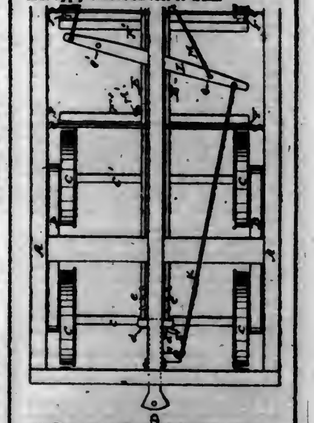


1. A ladder-section, A, having the metal round *a* at the foot, the metal round *b* near the top, and the slotted metal plates S S', as and for the purpose set forth.

2. The screw-bolt C and nut *c'* in the upper part of each ladder-section A, for securing two such sections together, substantially as described.

178,481. CAR-BRAKES. B. F. Stewart, New Philadelphia, Ohio. (Filed Mar. 23, 1876.)

Brief.—Sliding draft-rods, to which brake-levers are attached. Brakes being set on rear car causes draft-rods to move rearward, and thus apply brakes on rest of train.



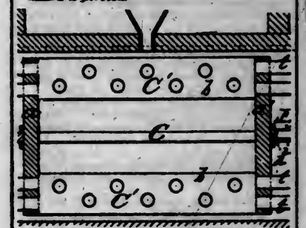
1. The combination, with the sliding bumper-heads D D', draft-bars B, springs *e*, and alternate rods or chains M M', of the rods or chain K, lever H, cross-bars F', broken F, and links or chains F', substantially as described.

2. A pair of bumper-heads, D D', connected adjustably, one with the other, by means of a pair of sliding draft-rods, E, one end of each of which is attached to the extension *d* of the near, while the other end works freely in bearings in the extension *d'* of the opposite, bumper-head, substantially as and for the purpose set forth.

3. The arrangement of the sliding bumpers D D', having the extensions *d d'*, draft-rods E, rods or chains M M', lever L, rods K, and lever H, connected by suitable rods to the brake, whereby, when the speed of the rear car in a train is checked by having its brakes first set, the momentum of each forward car will carry the latter forward with sufficient force to set the brakes thereon, as set forth.

178,482. CHURNS. John A. Stool, Wellsville, Ohio. (Filed Nov. 6, 1875.)

Brief.—The blades of the dasher are held to the heads by the screws upon which the dasher is pivoted.



In a churn, the dasher-blades C C', inserted into heads *a a'*, and the heads and blades clamped together by means substantially as described.

178,483. FIRE-POTS FOR STOVES. David L. Stiles, Rochester, N. Y. (Filed May 20, 1876.)



The combination, with the fire-pot A, provided with the open gratings *a a*, of the screen B, provided with one or more mica lights, *b b*, said screen being made either entire or in sections, and close-fitting to the fire-pot, as and for the purpose specified.

178,484. BOLT-THREADING DIES. Levi W. Stockwell, Bryarus, Ohio, assignor to Stockwell, Brager & Co., same place. (Filed Mar. 2, 1876.)

Brief.—A pin projecting from the collar near the shank, and a pointer projecting to and beyond it, that to the screw-sleeve, are adjusted, and the collar then fixed, so as to permanently indicate the extent of opening of the dies after they have been adjusted; and the shoulder on the front end of the grooved die-holder is intended to aid in the adjustment of the dies.



1. The sliding cam-ring *h*, having the annular shoulder *d* for the pins or projections of the threading-dies to rest on at the outer ends of the grooves *e e e e*, substantially as and for the purpose herein set forth.

2. The collar *h*, having the set-screw *w* and the stop-pin *a*, in combination with the finger *s* on the collar *h*, substantially as and for the purpose herein set forth.

178,485. STENCIL-TRAPS. Peter Summers, Philadelphia, Pa., assignee of one-half his right to John S. Thackray, same place. (Filed Mar. 20, 1876.)

3. The combination, with the sliding bumper-heads D D', draft-bars B, springs *e*, and alternate rods or chains M M', of the rods or chain K, lever H, cross-bars F', broken F, and links or chains F', substantially as described.

4. A pair of bumper-heads, D D', connected adjustably, one with the other, by means of a pair of sliding draft-rods, E, one end of each of which is attached to the extension *d* of the near, while the other end works freely in bearings in the extension *d'* of the opposite, bumper-head, substantially as and for the purpose set forth.

5. The arrangement of the sliding bumpers D D', having the extensions *d d'*, draft-rods E, rods or chains M M', lever L, rods K, and lever H, connected by suitable rods to the brake, whereby, when the speed of the rear car in a train is checked by having its brakes first set, the momentum of each forward car will carry the latter forward with sufficient force to set the brakes thereon, as set forth.

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1. The sliding cam-ring *h*, having the annular shoulder *d* for the pins or projections of the threading-dies to rest on at the outer ends of the grooves *e e e e*, substantially as and for the purpose herein set forth.

2. The collar *h*, having the set-screw *w* and the stop-pin *a*, in combination with the finger *s* on the collar *h*, substantially as and for the purpose herein set forth.

178,485. STENCIL-TRAPS. Peter Summers, Philadelphia, Pa., assignor of one-half his right to John S. Thackray, same place. (Filed Mar. 20, 1876.)



The combination of the casing A, having plain vertical sides, and the horizontal grating B, with the inverted cap D, having steeply-inclined sides *d* and ends *e*, which unite at the top in a narrow strip, secured to the central longitudinal bar of said grating, as set forth.

178,486. MACHINES FOR ROLLING ANGLE-IRON. John J. Thomas, Zanesville, Ohio. (Filed Mar. 24, 1876.)



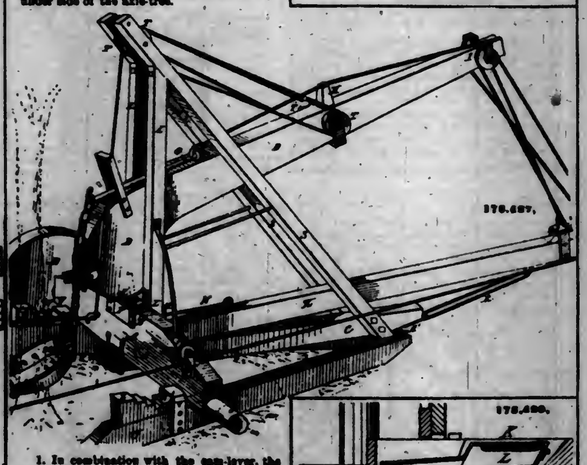
1. The combination of a central double-inclined collar, *f*, similar collars *g g*, one on either side thereof, with their inner faces at right angles with the respectively contiguous sides of said central collar, and a groove, *f*, upon the opposite roll, having sides parallel with the sides of the central collar, and with the outer sides or faces of the collars *g g*, and at right angles with the inner sides or faces of said collars *g g*, substantially as set forth, whereby an angle form and square corners are given the bar.

2. The combination of the groove H and bearing-surfaces *h' h²* upon one roll, and the collar H', the fillets, and the bearing-surfaces upon the other roll, substantially as set forth.

3. The combination of the rolls and the collars L L' M thereon, arranged as shown, two on one of the rolls and one on the other, to form three spaces for the finishing passes of the bar, as set forth.

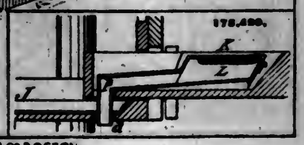
178,487. STUMP-EXTRACTORS. Benjamin W. Thurman, Gordonsville, Va. (Filed May 3, 1876.)

Brief.—A cam-end of a lever is worked between two uprights affixed to a dismounted axle-tree, to which it is fulcrumed. Jaws and a chain attached to the cam being passed around the stump, the other end of the lever is drawn down by pulleys and a rope leading to the end of a horizontal beam affixed to the under side of the axle-tree.



178,487.

1. In combination with the cam-lever, the cylindrical fulcrum-pin, journaled in semi-cylindrical bearings in the axis of the truck, and confined therein by metallic straps, substantially as described.

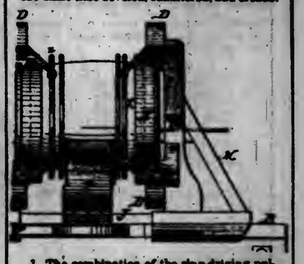


178,488.

2. In combination with the truck which carries the levers and framing, the two supporting-levers adapted to set under the axle, centered thereto by means of stop-block, and united at their forward ends under the forward end of the tongue of the truck, forming a solid base for the same, substantially as described.

178,488. BARREL-MACHINES. John Tilley, West Troy, N. Y. (Filed Feb. 10, 1876.)

Brief.—The barrel, having been set up in the machine, is trussed and smoothed, and at the same time beveled, chamfered, and crozed.



1. The combination of the ring-driving pulleys E, having interior flanges *e*, and the stationary rings X, attached to the cross-heads C by the arms Y, substantially as and for the purposes herein set forth.

2. The combination of the sliding cross-heads C, with grooved segments or arcs D, the rings X, and the ring-driving pulleys E, operated by belts from shafting above, substantially as and for the purposes herein set forth.

3. The combination, with the sliding cross-heads C C, having grooved segments D, the rings X, ring-driving pulleys E, pitmen I I, and turn-table K, with levers L L, as and for the purposes herein set forth.

178,489. OIL-CABINETS. G. A. Unkrich, Fairfield, Iowa. (Filed Mar. 26, 1876.)

Brief.—Draw out the trough until the funnel-spout drops into the hole in bottom of trough. A barrel of oil may then be emptied into oil-tank in cellar below cabinet. Withdraw spout, insert drawer, and drain from funnel passes into oil-tank. In a box in a spring, which straightens up a graduated tape attached to a float resting on oil in tank, to determine height of oil in tank.

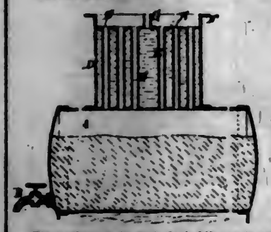
The combination of the drawer K, funnel L, with pipe P, trough J, and pipe *d*, all as and for the purpose set forth.

178,490. PROCESSES OF MANUFACTURING MANGANESE ALLOYS. W. P. Ward, Bartow County, Ga. [Filed Feb. 2, 1876.]

1. The herein-described process of smelting manganese ore, the same consisting in reducing the ore in a blast-furnace by means of a large proportion of fuel and a flux having about the melting-point of the reduced metal, substantially as described.

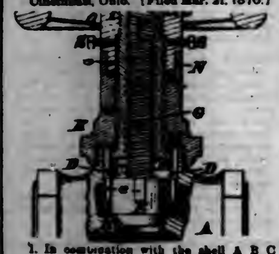
2. In the process of reducing manganese ore in a blast furnace, the combination of said ore with a flux which will melt at the same temperature as the reduced metal, substantially as stated, for the purpose set forth.

178,491. TANKS FOR ASPHALTIC CEMENT. C. M. Warren, Brookline, Mass. [Filed Dec. 2, 1875.]



The tank or package A, for holding or transporting heated asphalt, or other substances, in combination with a condenser, D, provided with upon condensing tubes E, serving also for filling the tank and establishing a communication between the interior of the tank and the external air, substantially as and for the purpose described

178,492. GLOBE-VALVES. Carl Walter, Cincinnati, Ohio. [Filed Mar. 21, 1876.]



1. In combination with the shell A B C and non-rotatable valve E F, the housing J K and tubular nut O, whose interior is provided with a screw-thread engaging a screw-thread, F, upon the rod of valve E, and whose exterior is provided with a screw-thread engaging a female screw in hub O, substantially as and for the purposes described.

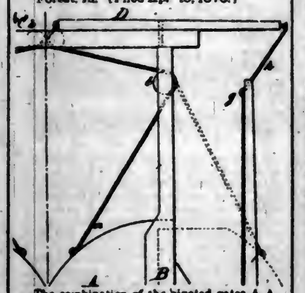
2. In combination with the shell A B C, the non-rotatable valve E, tubular nut O, housing K, hub O, set-screw S, collar R, and packing or washers M T, all substantially as shown and described.

178,493. OYSTER-DREDGING MACHINERY. Hezekiah F. Ward, Tracy's Landing, Md., assignor to himself and W. T. Crandell, same place. [Filed Apr. 10, 1876.]

Brief.—A four-post frame with a vertical central and two side shafts, the former operating the latter by horizontal top gearing, the latter having loose drums made to clutch by foot-levers.

As an improvement in mechanism for dredging oysters, the shafts C, G, H, and H, gear-wheel D, worm-wheel E, worm F, pinions I and I, spools K and K, provided with the studs k and k, that engage with the pins h and h, levers L and L, rollers M and M, and cranks N and N, combined with each other, and with the supporting frame, in the manner and for the purpose substantially as specified.

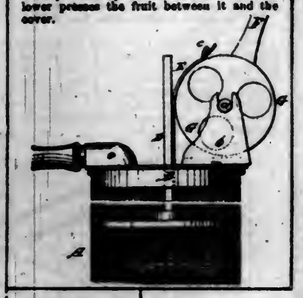
178,494. FARM-GATES. Hiram Watson, Forest, Ill. [Filed Apr 15, 1876.]



The combination of the pivoted gates A A, double posts B, with top beam C, cords or chains a, pulleys b b', lever D, and cords A h, all arranged in the manner described, and for the purpose set forth.

178,495. FRUIT AND JELLY PRESSES. Andrew Wemple, Chicago, Ill., assignor to Jay W. Powers and F. M. Mellek. [Filed May 17, 1876.]

Brief.—The upward movement of the follower presses the fruit between it and the cover.



178,496. CIDER-MILLS. H. L. Whitman, St. Louis, Mo. [Filed May 20, 1876.]



1. In a cider-mill the rollers N N', one having ribs and the other corresponding grooves, in combination with the gears O O', when said gears are cast in one piece, each with its respective roller and shaft, substantially and for the purpose described.

2. The combination of the posts A A, rails G G, tie-bar K, and press-screw beam B, substantially and for the purposes set forth.

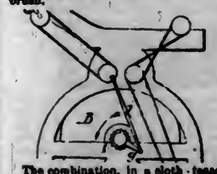
3. The cam-bolt I, with its cam i, in combination with the sliding bearing F, for the purpose of adjusting the distance apart of the two rollers, substantially as specified.

4. The cam-bolt I, with its cam i, in combination with the sliding bearing F, and nut M, substantially and for the purpose set forth.

5. The sliding journal-box F, with its lug J, in combination with the cam-bolt I, with cam i, substantially and for the purposes described.

178,497. TRASHLING-MACHINES. Thomas Willans, Philadelphia, Pa. [Filed Jan. 20, 1876.]

Brief.—By means of a pawled lever and ratchet wheel, actuated from the drawing-roller, the tessel-cylinder is actuated in a backward direction, in contact with a cleaning-brush.

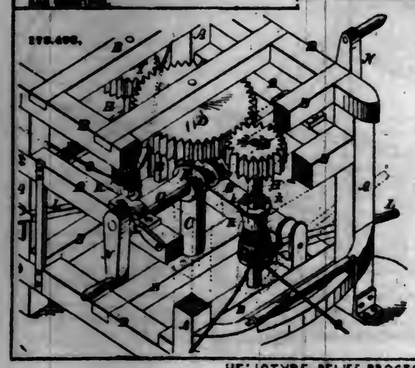


The combination, in a cloth-teasling machine of a teasling cylinder, B, with a cleaning-brush, drawing mechanism and devices, substantially as described, through the medium of which said drawing mechanism is caused to impart a backward movement to the cylinder.

178,498. HANGING-LAMP FIXTURES. T. T. Wood, Vernon, N. J. [Filed May 4, 1876.]

The combination of the pivoted horizontal arm A with the supporting-ring C, as described, and for the purpose specified.

178,499.

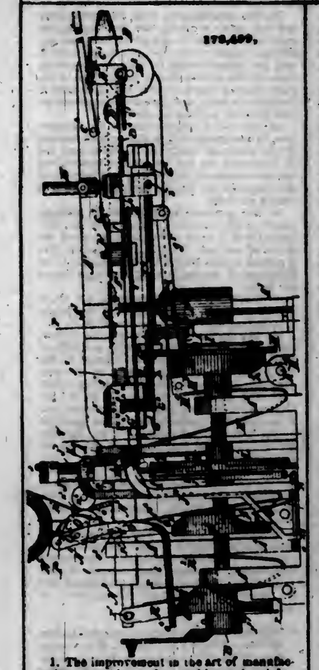


178,499. PASTE-BOX MACHINES. McClintock Young, Frederick, Md. [Filed Apr. 20, 1874.]

Brief.—The strip of paper is fed through the curve-slotted guide to the former, about which it is folded by the flanged rolls, one edge being pasted before passing the final folding-roller. Thence it passes into a heated case, which dries the paste, and which is slotted on its sides to allow the reciprocating clamping-pins to feed the tube intermittently. The tube having been fed a short distance, so as to extend beyond the end of the former, its inside edge is pasted by the laterally and longitudinally moving paster. A second strip of paper is fed into the other end of the machine, from which a piece is cut and inserted into the end of the tube, to form the bottom, by the reciprocating plunger in the reciprocating case. The tube is then fed forward the length of the box, when the knife is vibrated, cutting the paper from the outside toward the inside of the tube in all directions, severing the completed box. The tube may be printed while being formed around the mandrel.

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178,499.



1. The improvement in the art of manufacturing paper boxes by machinery hereinbefore set forth, which consists in forming a tube from a strip or web of paper, pasting together the lapping edges of said tube, pasting the end of the tube, applying a separately-formed bottom piece to the pasted end of said tube, and severing the tube to form a box of proper length, these operations being automatically, successively, and repeatedly carried out by mechanism substantially such as described.

2. The combination of a roller, C, carrying the web of paper, a forming-guide, D, through which the paper passes, a mandrel, D', around which the paper is bent, and a forming-roller, D', the flanges of which overlap the mandrel, these members being constructed and operating in combination, substantially as set forth, whereby the paper is first shaped by the forming-guide, and then acted upon by the forming-roller, as soon as presented to the mandrel.

3. The combination of a mandrel, D', a forming-roller, D', to fold the sides of the paper strip upon the mandrel, a second forming roller, D', to turn one flap of the strip over upon the mandrel, and a paster, E, which pastes the flap previously turned over upon the mandrel, these members being constructed and operating in combination, substantially as set forth.

4. The combination of a mandrel, D', a forming-roller, D', to fold the sides of the paper strip upon the mandrel, a second forming roller, D', to turn one flap of the strip over upon the mandrel, a paster, E, to paste said flap, and a folding-roller, F', which folds the second flap upon the pasted one to complete the tube while on the mandrel, these members being constructed and operating in combination, substantially as set forth.

5. The combination of a mandrel, D', forming or folding rollers D' D' F', which fold the paper strip upon the mandrel, and a supporting-guide, E', which conducts the strip enveloping the mandrel from the second to the final folding-roller, these members being constructed and operating in combination, substantially as set forth.

6. The combination of a mandrel, D', and a long tubular casing, F', between which and the mandrel the paper tube passes, substantially as set forth, whereby the form of the tube is preserved during the manipulations to which it is afterward subjected.

7. The combination of a mandrel, D', a folding-roller, F', which imparts the final fold to the pasted strip, and a casing, F', into which the completed tube passes directly from the folding-roller, substantially as set forth.

8. The combination, substantially as set forth, of a mandrel, D', upon which the paper tube is formed and pasted, a casing, F', through which the pasted tube passes, and a heater-plate, G, whereby the tube is dried while passing between the casing and mandrel, directly after being pasted.

9. The combination, substantially as set forth, of a mandrel, D', upon which the paper tube is formed, and a reciprocating feed-clamp, which intermittently moves the paper tube upon the mandrel twice for every box formed, for the purposes specified.

10. The combination, substantially as set forth, of a mandrel, D', upon which the paper tube is formed, a casing, F', inclosing the mandrel, and a reciprocating feed-clamp, working in a slot in the casing, and acting upon a paper tube interposed between the casing and mandrel.

11. The combination, substantially as set forth, of a mandrel, D', upon which the paper tube is formed, and a printer, F', which prints the paper strip while supported by the mandrel.

12. The combination of a mandrel, D', upon which the paper tube is formed, a feed clamp, which moves said tube intermittently upon the mandrel, a printer, F', acting upon the tube upon the mandrel while the feed is intermitted, and connecting mechanism, substantially such as described, to secure the harmonious co-operation of the feeding and printing mechanisms.

13. An end-paster, J', constructed substantially as described, and adapted to move both transversely to and parallel with the line of movement of a paper tube upon a mandrel on which it is formed, whereby the end of said tube may be pasted and the paster retracted out of the way, as specified.

14. The combination, substantially as set forth, of a mandrel, D', an intermittent feed-clamp to move the tube upon the mandrel, an end-paster, J', and connecting mechanism, substantially such as described, whereby the harmonious co-operation of the tube-feeding and end-pasting devices is attained.

15. A reciprocating plunger-casing, F', constructed substantially as described, having mechanism for feeding the strip from which the end piece of the box is formed mounted upon and moving with it, as specified.

16. The combination of a reciprocating plunger-casing, F', and a reciprocating plunger, N', having a variable movement relative to that of the plunger-casing, substantially as set forth, whereby the bottom piece is severed from the end strip, and applied by the plunger to the pasted end of the paper tube, as specified.

17. The combination of a mandrel, D', upon which the paper tube is formed, feed mechanism to move the tube upon the mandrel, an end-paster, J', mechanism for applying the bottom piece to the pasted end of the tube, and connecting mechanism, whereby the harmonious co-operation of these parts is secured, these members being constructed to operate in combination, substantially as set forth.

18. A cutter, K, constructed to operate substantially as set forth, whereby one portion of the paper tube is severed by a cut in one direction, and the other portion by a reverse cut, as set forth.

19. The combination, substantially as set forth, of a mandrel, D', upon which the paper tube is formed, feed mechanism, which projects the finished tube beyond the end of the mandrel the distance required for the length of the box to be made, a cutter, K, shearing across the end of the mandrel to sever the tube, and connecting mechanism, which insures the harmonious co-operation of these parts.

20. The combination, substantially as set forth, of a mandrel, D', upon which the paper tube is formed, a perforated cutter, through which the tube is fed, and an end-paster, J', which pastes the end of the tube fed through the cutter.

21. The combination of a mandrel, D', upon which the paper tube is formed, feeding mechanism, end-pasting mechanism J', mechanism for applying a bottom piece to the pasted end of the tube, a cutter, K, to sever the completed tube, a cam-shaft, B, parallel with the mandrel, and actuating mechanism, to secure the harmonious co-operation of all the moving parts from a single shaft, substantially as set forth.

178,500. ANIMAL-SHEARS. W. F. Wuterich, Meriden, Conn. [Filed Mar. 22, 1876.]



1. The combination of the clutches D and D', the shifter H, and block B, substantially as and for the purpose set forth.

2. The combination of the shifter H, lever I, spring p, stud u, and wheel d', with its mortise v, substantially as and for the purpose set forth and described.

3. The combination of the wheel d', with its mortise v, the wheel d, eccentrics s and s, and levers F and F, as and for the purpose set forth.

4. The combination of the eccentrics s s, the forked and slotted levers F F, and the studs b b, with their pins working in the slots of the forward ends of the said levers F F, all substantially as and for the purpose set forth.

5. The combination of the blades A and A', handles G and G', block B, and knuckle-joint C, all substantially as shown and described, and for the purpose set forth.

6. The combination of the blades A A' with the guard wire or rib t attached to the blade A', all as shown and described, and for the purpose set forth.

7. The combination of the levers F F, with their slots w and w and w' and w', and the movable fulcrum-pin g, as and for the purpose set forth.

8. The combination, in a table or stand, of the plate A, spindle C, and plate F, all as seen in Figs. 4 and 5 in the accompanying drawings, substantially as and for the purpose set forth.

9. The combination, in a table or stand, of the spindle C, plate F, and plate H, all as shown in Figs. 4 and 5 in the accompanying drawings, substantially as and for the purpose set forth.

10. The combination, in a table or stand, of the plate F, plate H, and the dish-formed top L, all as seen in Figs. 4 and 5 in the accompanying drawings, substantially as and for the purpose set forth.

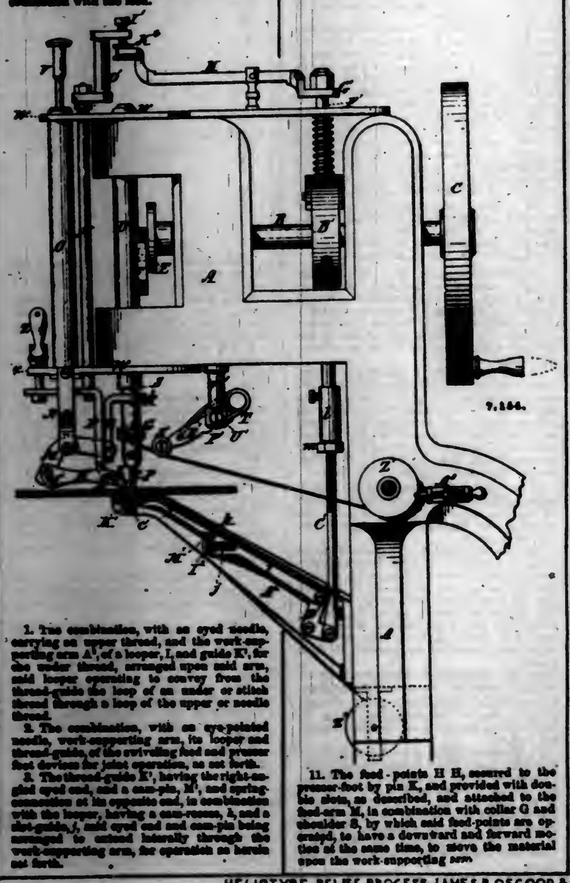
11. The combination, in a table or stand, of the spindle C, plate F, plate H, springs or braces M and N, and top L, as shown in Figs. 4 and 5 of the accompanying drawings, all as and for the purpose set forth and described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

REISSUES.

7,184. SEWING-MACHINE. Ellis Drake, Stoughton, Mass., assignor, by mesne assignments, to the Drake Sewing Machine Company. Patent No. 155,992, dated Oct. 13, 1874. [Filed May 17, 1876.]

Brief.—This machine is adapted to sew with two threads, the upper of which is carried by an eye-pointed needle, while the under or stitch thread is manipulated by a looper attached to a work-supporting horn. The upper thread is first passed through the work in the form of a loop, after which the looper is carried through the same, seizing the under or stitch thread, and carrying it back through said loop in the form of a second loop. The upper thread is then withdrawn, carrying with it the loop of the under or stitch thread, and doubling the same by each operation, leaving thereby four strands of the thread through the work. The looper is operated by a cam on the driving-shaft, and is connected, through suitable mechanism, with the presser-foot, by means of which the throw of the looper is varied, and the length of the loop of the under thread thereby regulated to suit different thicknesses of work. The feeding mechanism, which is operated by the needle-bar and the presser-foot, is pivoted to the head of the machine in such a manner as to be revolved around the needle, to admit of the material being fed in any desired direction around the same. A stitch-divider or creaser is used in connection with the feed.



7,184.

1. The combination, with an eyed needle, carrying an upper thread, and the work-supporting arm A', of a looper, I, and guide K', for the under thread, arranged upon said arm, said looper operating to convey from the thread-guide the loop of an under or stitch thread through a loop of the upper or needle thread.

2. The combination, with an eye-pointed needle, work-supporting arm, its looper and thread-guide, of the reciprocating feed and presser-foot devices for joint operation, as set forth.

3. The thread-guide K', having the right-angled eyed end, and a cam-pin, M', and spring-catch N, at its opposite end, in combination with the looper, having a cam-recess, h, and a thread-guide, j, said eyed end and cam-pin being arranged to extend laterally through the work-supporting arm, for operation as herein set forth.

4. The arms W, pivoted to the frame, in combination with the presser-foot F, its rod F', the feed device H M R, the collar G, and shoulder S of the needle-bar, substantially as and for the purpose herein set forth.

5. The combination, with the presser-foot F', coupled for automatic operation with the looper I, as described, of the needle-bar D, said coupling being arranged in the extendent with the axis of the needle-bar, for the purpose described.

6. The combination of the looper, the thread-guide, and the presser-foot, of connecting mechanism, substantially as described, whereby the length of the stitch is automatically determined to suit the thickness of the work, substantially as specified.

7. In combination with the looper connecting and operating devices, and the needle-bar, the coupling G' R, and the feed and presser-foot devices, for the purpose specified.

8. The combination, with the eye-pointed needle, carrying an upper thread, of the looper, carrying with it the loop of the under or stitch thread, and doubling the same by each operation, leaving thereby four strands of the thread through the work. The looper is operated by a cam on the driving-shaft, and is connected, through suitable mechanism, with the presser-foot, by means of which the throw of the looper is varied, and the length of the loop of the under thread thereby regulated to suit different thicknesses of work. The feeding mechanism, which is operated by the needle-bar and the presser-foot, is pivoted to the head of the machine in such a manner as to be revolved around the needle, to admit of the material being fed in any desired direction around the same. A stitch-divider or creaser is used in connection with the feed.

9. The combination, with the screw-rod O', the cam-yoke B', and the looper I, of the screw-sleeve i and the lock-nut m, whereby the looper-connection is adjusted.

10. The combination of the double cam A', on the driving-shaft B, with the yoke B' and its rod O', connected with and operating the looper, substantially as described.

11. The feed-points H H, secured to the presser-foot by pin K, and provided with double slots, as described, and attached to the feed-arm M, in combination with collar G and shoulder S, by which said feed-points are operated, to have a downward and forward motion at the same time, to move the material upon the work-supporting arm.

12. The combination, with the double-slotted feed points or points, the feed-arm M, pivoted to the frame, as described, and the needle-bar, of the presser-foot F, its guide-pin T, and the presser-spring U, whereby the spring force of the presser-foot is transferred to the feed points or points during the operation of feeding the work, and the use of a separate device for that purpose avoided.

13. The rod N', which carries the presser-foot, in combination with the lever H' and rod F', by means of which the throw of said rod is regulated, for the purpose of controlling the movement of the yoke B, and regulating the length of the loop of the under thread, as herein set forth.

14. The combination of the rod N', cranked coupling O', cut-screw P', and lever H', connected with the rod F', by means of which the throw of said rod F' may be adjusted, to give a greater or less length to the loops than the thickness of the stock being sewed, as herein set forth.

15. The yoke B' and adjustable rod O', in combination with the cam-arm D', and looper I, operating together, as herein set forth.

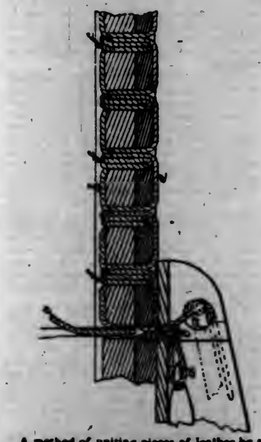
16. The device for taking up the thread, consisting of the lever R', rod S', and adjustable spring T', attached to the hanger V', the roll acting directly on the thread as the needle rises, all substantially as herein described.

17. The marker or creaser B' B', for attachment to the feed-arm M and presser-foot F, as described, and adapted to be operated by the collar G, and shoulder S on the needle-bar, as herein set forth, and for the object specified.

18. The combination, with the presser-foot and the feed-operating mechanism, of a creaser, substantially as described, whereby the work is fed and the spaces between the stitches creased or marked.

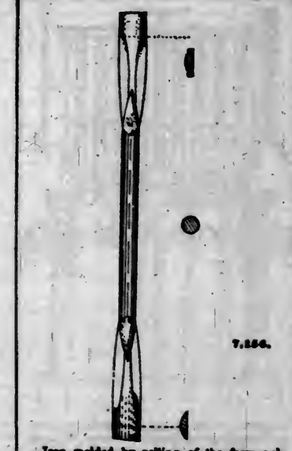
19. The combination, with the work-supporting arm, adapted to enter a boot or shoe, and a reciprocating needle, of a mechanism for doubling and quadruppling an under thread, and for drawing said thread quadrupled into the needle-hole by the needle-thread, substantially as described.

7,185. METHODS OF UNITING THE SOLES AND UPPERS OF BOOTS AND SHOES. Ellis Drake, Stoughton, Mass., assignor, by mesne assignments, to the Drake Sewing Machine Company. Patent No. 155,993, dated Oct. 13, 1874. [Filed May 17, 1876.]



A method of uniting pieces of leather by a stitch completely filling the hole, formed by passing the loop *d* of the under thread *a* through the loop *c* of an upper thread, *b*, first brought down through the work, the loop of the upper thread being then drawn back to the desired position, carrying the quadruppled lower thread with it into the work, substantially as described.

7,186. MANUFACTURE OF STRAW-BOARD. W. J. Lewis and Henry W. Oliver, Jr., Pittsburg, Pa. Patent No. 82,720, dated Oct. 6, 1868. [Filed Apr. 18, 1876.]

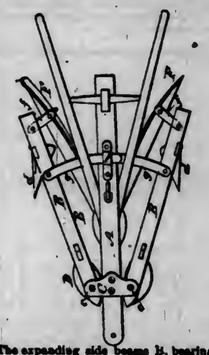


7,184.

Iron molded by rolling, of the form substantially as and for the purpose herein described.

7,187. CORNISH HOES AND POTATO-DIGGERS. R. F. Morris and R. J. Grout, Geneva, N. Y., assignors, by mesne assignments, to T. R. Porter and Geo. A. Porter. Patent No. 69,928, dated Oct. 15, 1867. [Filed Apr. 18, 1876.]

Brief.—Expansible beams carrying plows, and expansible inner wings linked to the beams.



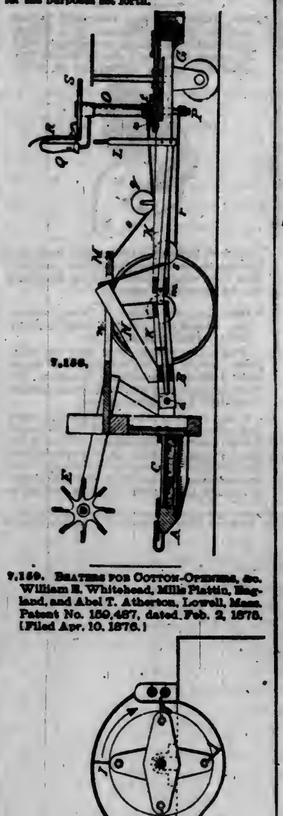
The expanding side beams h, bearing the plows D d, and the expanding wings F, jointed to the shovel-plow E, in combination with the main beam A, constructed, arranged, and operating substantially as herein shown, and for the purpose described.

9,188. HARVESTERS. Thomas Ward, Rochelle, Ill., and Israel W. Ward, Newark, N. J., assignors to Chas. Dunton. Patent No. 80,196, dated July 7, 1868. [Filed Mar. 7, 1876.]

1. The combination, in a header, of a cutter and grain platform, having a hinged connection in its rear to the wheel-frame, and gearing for operating the knives, constructed to permit the cutter-platform to be adjusted in a horizontal position to cut prostrate grain, and so as not to tilt the carrier as one side and spill the grain, substantially as and for the purposes set forth.

2. In a harvester having the cutter-platform and wheel-frame connected by a hinge-joint, the bevel-gear wheels *e*, *h*, *i*, and *k*, rod or pitman *d*, tubes *b*, *g*, and *f*, and lever H, constructed to operate the knives, reel, apron, and carrier, substantially as set forth.

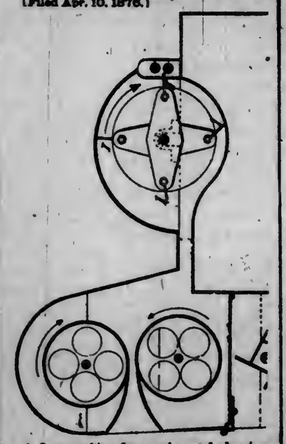
3. The tubes forming pivot-pins for the hinge-joint, in combination with the rod or pitman *d* and shaft of bevel-gear wheel *e*, substantially as set forth.



7,188.

1. In a machine for opening and cleaning cotton and other fibrous material, beaters I I, in combination with the feed-rolls of the machine, the said beaters being constructed and arranged with their beating faces or edges parallel, or nearly parallel, with the feed-rolls, and adapted to yield to bunches or excessive quantities of the material fed thereto, for the purpose of avoiding obstruction or damage, substantially as herein specified.

7,189. BEATERS FOR COTTON-OPENERS, &c. William H. Whitehead, Mills Flattin, England, and Abel T. Atherton, Lowell, Mass. Patent No. 159,467, dated Feb. 2, 1875. [Filed Apr. 10, 1876.]

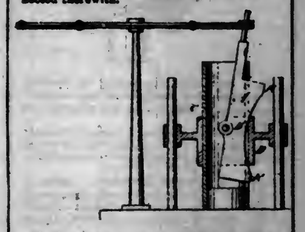


1. In a machine for opening and cleaning cotton and other fibrous material, beaters I I, in combination with the feed-rolls of the machine, the said beaters being constructed and arranged with their beating faces or edges parallel, or nearly parallel, with the feed-rolls, and adapted to yield to bunches or excessive quantities of the material fed thereto, for the purpose of avoiding obstruction or damage, substantially as herein specified.

2. In a machine for opening and cleaning cotton and other fibrous material, beaters I I, in combination with the feed-rolls of the machine, the said beaters being constructed and arranged with their beating faces or edges parallel, or nearly parallel, with the feed-rolls, and adapted to swing or turn in circles, on pivots or arms, at such distances from one another and from the shaft of the reels or spiders on which they are mounted as to be severally independent and unobstructed in their separate swinging motions, and yield inside of the full path-way of their revolution when bunches or an excessive quantity of cotton are fed to them, substantially as and for the purpose herein specified.

7,190. DEVICES FOR CONVENIENT MOTION. Chas. B. Wills, New York, N. Y. Patent No. 175,805, dated Apr. 4, 1876. [Filed May 22, 1876.]

Brief.—The cam is pivoted within and projects through the slotted tubular and revolving support, which is surrounded by a ring reciprocating thereon, and as it comes in contact with the projections on its cam, reciprocate motion is transmitted to the device connected therewith.



1. A working bar or lever for transmitting motion, having its support arranged to revolve about the longitudinal axis of the bar or lever, to allow the lever to work in any direction radial to said axis, substantially as specified.

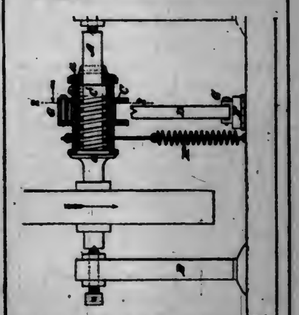
2. A working bar or lever for transmitting motion, having its support arranged to revolve about the longitudinal axis of the bar or lever, in combination with a bar or lever, L, that is free to work in any direction radial to its fulcrum, substantially as specified.

3. The combination of lever-cam A, revolving support C, and reciprocating ring D, substantially as specified.

4. The reciprocating ring D, combined and arranged with double cam A, having two projections, E, substantially as specified.

5. The combination of the parallel-bar frame I and the variable cam A, substantially as specified.

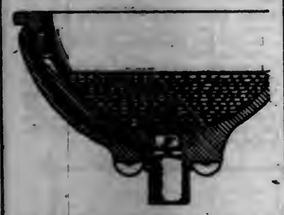
7,191. TREADLE-MOTIONS. Albt. L. Dewey, Westfield, Mass., assignor to Francis A. Burnham, Pawtucket, R. I. Patent No. 47,282, dated Apr. 18, 1865. [Filed May 17, 1876.]



1. The combination, substantially as hereinbefore set forth, in a treadle-motion, of a rotating shaft, a loose-pulley thereon, a coiled spring-clutch connecting the pulley and shaft, and a treadle for actuating the pulley, whereby the shaft is allowed to continue its rotation during the backward movement of the pulley.

2. The combination, substantially as hereinbefore set forth, in a treadle-motion, of a rotating shaft, a loose pulley thereon, a shipper encircling the pulley and shaft, a treadle for rotating the pulley in one direction and a spring acting in opposition to the treadle to return the pulley and treadle to their normal position to commence the next downward movement.

7,166. WASHWAY-STOPPER, Joshua R. Gibson and James Powell, Cincinnati, Ohio, assignors to said Powell. Patent No. 177,402, dated July 25, 1871. [Filed Feb. 29, 1876.]



1. A washway-ring having its bearing-sides constructed wholly of rubber or equivalent yielding material.

2. The elastic packing F, hole G, washers H I, and stem J J, combined and arranged substantially as and for the purposes set forth.

7,166. WASHWAY-STOPPER, Joshua R. Gibson and James Powell, Cincinnati, Ohio, assignors to said Powell. Patent No. 177,402, dated July 25, 1871. [Filed Feb. 29, 1876.]

A washway-ring having its bearing-sides constructed wholly of rubber or equivalent yielding material, in combination with a metallic seat or socket, for the purposes set forth.



7,166.

7,166. TRUSS-CLAMPS. George M. Ballard and Geo. Minchin, Newark, N. J., assignees of Adelia M. Jessup, executrix of Wm. M. Jessup, deceased. Patent No. 89,772, dated May 4, 1869. [Filed Apr. 19, 1876.]

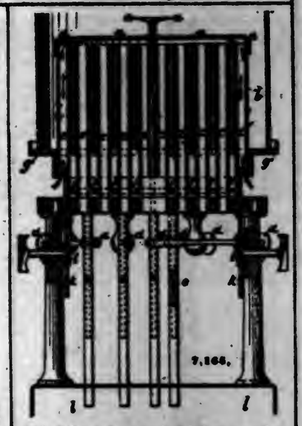


A trunk-clamp composed of two wings, and having a central rounded projection projecting from each wing, substantially as described, and for the purpose specified.

7,166. LAMPS. Henry H. Doty, Norfolk, Va. Patent No. 109,808, dated Nov. 15, 1870. [Filed May 29, 1876.]

Brief.—The flanged ring upon the outer jacket deflects the air inwardly, and the interior deflector in a contrary direction. The whole is adapted to supply air to the burners in an equal and uniform manner.

1. The combination of an outer air-jacket, with a flanged ring resting on it, and turned inward, encircling an annular wick-tube, the ring being raised above the wick-case to force the current of air passing up between it and the wick-case into the flame above the point of ignition and toward the center, and an interior tube, or its equivalent deflector, passing up through the center of the burner, to cause the uprising central current of air to be deflected upon the interior part of the flame, these inner and outer deflectors jointly forming between them a combustion-chamber.



7,166.

2. In a lamp having tubular concentric wicks, with similar adjacent and proportionate air-supplying spaces, the combination of an outer or external air jacket or cylinder, a tube or deflector, located centrally in the inner air-supply space, and the vertically-adjustable chimney bracket, with air passage therethrough, leading to the space between the chimney and the outer cylinder, said air-supply being proportionately smaller than the supply at the side of a wick, substantially as shown and described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO. BOSTON

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COMMISSIONER'S DECISIONS.

H. M. MARTIN *vs.* G. OLNEY *et al.*—*Interference.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the patents granted to H. M. Martin and the applications filed by Geo. Olney, W. H. White, J. W. Bentley, and John Abterdam for* "IMPROVEMENTS IN THE MANUFACTURE OF GAS."—*Decided May* 29, 1876.]

Olney and four other parties were in interference with patents of Martin as well as each other. The Examiner of Interferences dissolved the interference so far as the proceedings affected the patents of Martin. Olney took an appeal to the Commissioner of Patents: *Held*, upon proof, that Olney had assigned all of his interest in his pending case to the "Equitable Gas Light and Construction Company," who are the sole owners of Olney's invention, that the appeal was improperly taken by him.

The Office cannot recognize a merely equitable interest that is contingent upon the issue of letters patent. Such an interest can only be enforced by a court of equity after the patents are granted.

DUELL, *Commissioner:*

On the 4th of May, 1876, the Examiner of Interferences made the following order in this case, to wit:

Upon the recommendation of the Primary Examiner the above-entitled interference is hereby dissolved so far as it relates to the patents of Martin. The interference will continue between the other parties thereto.

Ten days are given within which an appeal may be taken from the above decision to the Commissioner.

Gilmore, Smith & Co., as attorneys for Olney, are the only parties who have appealed from this order; therefore it is presumed that the others acquiesce in the decision of the Examiner.

At the hearing of this appeal an objection was interposed that Gilmore, Smith & Co. were not authorized to act as attorneys in respect to the applications filed by Olney and embraced in these proceedings, inasmuch as the Equitable Gas Light and Construction Company is the sole owner, by assignment, of the said applications and inventions described therein, as appears by the recorded Liber H[19], pages 47 and 48.

A letter signed by the president, assistant secretary, counsel, and attorney of said company was also filed setting forth the fact that said company were sole owners of these applications filed by Olney, and that this appeal was unauthorized by the company, and, further, that said Gilmore, Smith & Co. are not the attorneys for said company.

Gilmore, Smith & Co. exhibited powers of attorney signed by George Olney authorizing them to act in these cases, said powers of attorney having been received and entered by order of the Commissioner. Also, the record of an assignment (Liber W[19], page 190) made by the Equitable Gas Light and Construction Company in favor of Geo. Olney.

These several records have been examined, and the conclusion arrived at is that Olney has no such interest in these applications as will enable him to control in any manner their prosecution. By the assignments first made he parted with all his right, title, and interest in and to these applications and inventions, and requested that the patent be issued to the said company. Subsequently he entered into an agreement with the said company, whereby it was agreed that—

Upon the issue of the two said letters patent of the United States in accordance with the two specifications herein before mentioned that it (the company) will, by valid and binding instruments in writing, convey, assign, sell, and set over unto the said party of the second part (Olney) all its right, title, and interest which it will have in the two said inventions as secured to it by letters patent, so as to issue as hereinbefore set forth, for, to, and in the following-named districts, and in no other place or places.

Then follows a list containing the names of six gas companies.

These assignments operate to vest the entire legal title to the inventions, applications, and patents in the Equitable Gas Light and Construction Company subject to their covenant for future conveyances upon the happening of a certain contingency—*i. e.*, the issue of the patents to said company. (Curtis' Law of Patents, §§ 172 and 173.)

Moreover an assignment dated February 29, 1876, and filed for record May 26, 1876, was exhibited, wherein the said Olney reassigns to the said company all his right,

title, and interests in these inventions and patents as to four of the six companies mentioned in the previous assignment.

The Equitable Gas Light and Construction Company are, therefore, the sole owners of the legal title to the inventions of Olney embraced in these proceedings, whereas Olney has a mere equitable interest, such as the Office cannot recognize, and which can only be enforced in a court of equity after the patents have been granted, and not before. (T. A. Edison, 7 OFFICIAL GAZETTE, 423.) The said company must consequently be regarded as the assignee of the whole of Olney's interest in these inventions, and under the provisions of rules 30, 101, and 120 is to be recognized as the only person authorized to appoint an attorney to prosecute these applications.

The order of December 10, 1876, directing that Gilmore, Smith & Co's. power of attorney should be received and entered is hereby vacated, and the appeal taken by them is dismissed.

Inasmuch as the case was fully argued upon its merits, it may not be amiss to mention here that nothing was brought out in the explanation or argument which leads me to believe that the action of the Examiner in dissolving the interference was erroneous, especially in view of the numerous expressions of opinion made by officers of this department to whom the question has been submitted during the progress of these proceedings; that there is a substantial difference between the inventions of Martin and those of the other parties; and that no interference in fact exists.

C. S. CUSHMAN *vs.* C. PARHAM.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Cyrus S. Cushman, filed December 10, 1874, and the patent granted to Charles Parham, February 4, 1873, subject,* "IMPROVEMENT IN SEWING-MACHINES."—*Decided June 2, 1876.*]

A patent is received in court as *prima facie* evidence that the patentee is the first and original inventor of the subject-matter contained therein, and any inventor claiming a superior or prior right to the invention, assumes the *onus probandi*, and all the presumptions and doubts arising in the case are to be resolved in favor of the patentee.

Although the reduced circumstances and condition of an inventor may not alone warrant a delay in making his application for a patent, it gives color to it, and serves to explain his actions.

Abandonment will not be presumed. This fact must be made clear by testimony of witnesses, or the acts of the party himself, that will allow such a charge to be set up to defeat a claim to a patent.

It is not a presumption of law that a subscribing witness has knowledge of the contents of the document signed by him; he merely attests the signature of the party who executes the deed or instrument of writing. Nor is such subscribing witness estopped from denying the truth of the recitals contained in the instrument so witnessed by him.

[*Alexander* and *Mason*, attorneys for Parham.
J. E. Norris and *J. J. Coombe*, attorneys for Cushman.]

DOOLITTLE, *Acting Commissioner:*

The devices described, illustrated, and claimed by the parties to this controversy, though adapted to produce the same result as a unit, are not deemed to interfere or conflict, except in one particular, which is thus stated by the Primary Examiner:

The combination, with the bed-plate of a sewing-machine, of a movable frame or hanger, adapted to support the whole or a portion of the compound feed movement of the machine and adjusting-screws, whereby the said feed movement may be applied to a machine, leveled and adjusted in place with respect to the said plate, or be entirely removed therefrom, in a manner substantially as described.

Such is the language of Cushman's first claim, evidently drawn in anticipation of this interference. Parham, in claims five and six, covers substantially the same ground.

The Examiner of Interferences decided the question of priority of invention in favor of the appellant, on the ground that Parham had surreptitiously and unjustly obtained a patent for what was, in fact, invented by Cushman, who was using reasonable diligence in adapting and perfecting the same. The Board reversed this decision and awarded priority to Parham.

The patent granted to Parham is receivable in court as *prima facie* evidence that the patentee is the first and original inventor of the subject-matter claimed therein, and Cushman appearing nearly two years after the grant had been perfected, and claiming a superior right, assumes the *onus probandi*, and all the presumptions and doubts are to be resolved in favor of the patentee.

In January, 1871, Cushman had constructed and applied an attachment for a sewing-machine which contained the device claimed, with the exception of the ears and set-screws, which were soon after added.

Whether the attachment, with these parts added, was actually combined with a complete working machine, is not made clear, the testimony on this point being indefinite; but that it was fixed to the bed-plate of a machine there is no doubt, for it was in this condition when taken to Mr. Shaw the second time in February, 1871. At that time a drawing and specification were prepared for the Office, but never filed, and the machine was subsequently lost. Kimball, who made the frames, identifies Exhibit "D" as being like those he made in 1871 for Cushman. The absence of the original is satisfactorily accounted for by Shaw.

The only question now to be determined is whether this attachment amounted to an abandoned experiment, or was followed up by reasonable diligence in fully developing the same and applying for a patent.

It seems that Cushman was during this time in reduced circumstances. While his distress may not have been such as would alone warrant the delay with which he is charged, it gives color to it, and serves to explain his actions.

In the latter part of 1872 Cushman and Parham became interested, as one says, in the invention, and the other the construction and introduction of the fancy stitching attachment patented to the latter. The nature and aim of their becoming jointly engaged upon this matter is a subject of dispute between them, and is made an issue in this case.

Parham admits that Cushman made overtures to him asking for work on sewing-machine attachments, and Cushman alleges that when Parham informed him he had taken out a patent in his own name on the attachment they had been at work together perfecting, he (Cushman) claimed to be joint inventor; but Parham put him off by saying he had adopted none of the suggestions offered.

It was on account of this patent that Cushman left and went to work for N. D. Stoops, whom he endeavored to get to assist him in obtaining a patent, but it was not until the summer of 1873 that he succeeded in prevailing upon Stoops to furnish the means to make an application, and upon his assenting he made a model, Exhibit "F," and in November, 1873, had prepared drawings and specification, Exhibits "G" and "H," of his feed attachment, with some improvements which he had in the meantime invented. This application was not filed, however, as another model embodying new features was prepared and the present application made.

It is a rule of law adopted by the courts generally that abandonment is not to be presumed. It is only where the fact is made clear either by the testimony of witnesses or the actions of the party himself that it can be set up to defeat the inventor's claim to a patent.

There is nothing in this case to warrant the supposition that Cushman abandoned his invention; on the contrary, he was active in its prosecution.

In arriving at this conclusion, after a careful consideration of the testimony, I have given more weight to Cushman's version of the mutual operations than to Parham's, as being the more consistent of the two.

In the first place there is a preponderance of evidence showing that Parham saw and examined Cushman's model at Shaw's office in 1871; then again the fact that Cushman claims to have suggested but a single element—that in dispute—which the proof shows he had previously made and embodied in another machine; and a further circumstance in its favor is the entire absence of corroborating evidence that Parham made the invention before the day on which he signed the oath accompanying his application, or in fact that he made it at all. Not a model, or drawing, or witness is introduced to show the development and embodiment of his ideas. It is hardly possible that he constructed his attachment without premeditation, study, and experiment, yet he offers no evidence, except his own bare statement, to show that he was even engaged in making an improvement of any kind on sewing-machines. Great reliance seems to have been placed upon the fact that Cushman's name is signed as a witness to Parham's specification as estopping him from denying that he assented without objection to Parham's obtaining a patent for the matter in dispute.

It is not a presumption of law that a subscribing witness has a knowledge of the contents of the document to which he attaches his name; he merely attests the signature of the party or execution of the deed.

Cushman in his direct testimony acknowledges that he witnessed Parham's signature to a document at the office of Alderman Quirk, but denies that he was aware of its contents, or was informed thereof. In rebuttal to this Parham swears he explained to him in the presence of Quirk that it was an application for a patent on the attachment; but he has failed to substantiate this assertion by the testimony of Quirk, and it is not shown that any attempt was made to procure such testimony; nor is Cushman's claim to joint invention with Parham in the subject-matter of his patent inconsistent with his present position as sole applicant, for he only pretends to have contributed the one element now in dispute, and that is common to both of their devices.

Even without considering the question of fraud, it is found that Cushman was the first to conceive of the invention, explain it, and reduce it to a definite form, for the attachments made in 1871, 1873, and 1874 were all practical working devices, as appears from the testimony and the exhibits, and, under the circumstances, he may be considered as having used reasonable diligence in filing his application, all of which appearing in his favor, renders him entitled to the patent.

The decision of the Board is accordingly reversed, and priority of invention awarded to Cyrus S. Cushman.

D. M. KIRKBRIDE.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of David M. Kirkbride for an alleged* "IMPROVEMENT IN PLASHED HEDGES," *filed April 3, 1875.—Decided May 20, 1876.*]

Where an appeal is taken to the Examiners-in-Chief from the decision of the Examiner upon the question of novelty, in view of references cited, which references were decided by Examiners-in-Chief as not anticipating the conditions of "the claim," such case being remanded to the Examiner for further consideration by the decision of the Board that such invention was "not of sufficient importance to warrant the grant of a patent:" *Held*, that the Examiner should have considered and reported upon the specific points raised by the Board only, and that the consideration of the case *de novo* by the Examiner and the Board was unauthorized, and that the question of novelty was *res adjudicata*.

[*Hill, Ellsworth*, and *Speer*, attorneys for applicant.]

DOOLITTLE, *Acting Commissioner:*

The appellant in this case claims as his invention:

A plashed hedge consisting of growing twigs or canes *t*, bent over in line with the plane of the fence, and secured together by means of a line or lines of wire, *w*, or other flexible fastening not a part of the growing hedge, substantially as described.

This case has twice been before the Board, and each time decided adversely to the appellant upon different grounds.

At first that tribunal found the references given by the Examiner "showed nothing answering the conditions of the claim;" that it was new and useful "and therefore not so obvious as to have been adopted before this alleged invention." Yet notwithstanding these favorable circumstances they invoke the aid of an objection as unusual as it is unreliable, and find "that the method is not sufficiently important."

After the case had been returned to the Principal Examiner to consider this new objection, and was rejected by him for the reasons previously given—*i. e.*, want of novelty—and again appealed, they find that the additional references are no better than the former ones; but that the invention claimed "may be regarded as but a colorable change in view of the state of the art, not amounting to invention, and therefore not of sufficient importance to warrant the grant of a patent."

When the case was sent back to the Examiner he was instructed to consider the matter of *importance*, in view of the affidavits submitted by the party, as being a point first raised by the Examiners-in-Chief, to be "disposed of, as in the case of an original objection not adjudicated." Also, that, should the Examiner agree with the Board that the invention was not of sufficient importance, an appeal to the Board *on this question* might be taken without an additional fee. The object of the order was to have this objection disposed of as if it had been made by the Examiner in the first instance.

The Examiner in his report upon this matter did not specifically set out the Board's objection—*i. e.*, want of importance—but simply reiterated his former reasons for refusing the patent, and cited new references.

It is to be presumed that the Examiner agreed with the Board upon the question submitted, as the patent was refused and the appeal taken.

This second appeal merely brought up the matter of the importance of the invention, for the other points had all previously been determined favorably to the applicant, and the consideration of the whole case *de novo* by the Examiner and the Board was wholly unauthorized, as the questions of novelty and invention were, as respects any action, that they could make *res adjudicata*.

The only question, therefore, now properly before me is as to whether the invention is "sufficiently important" to warrant the grant of a patent.

The affidavits submitted convince me that the improvement is both useful and valuable, and where these qualities are found combined with novelty and invention, which the Board has decided exists in this case, there appears no sufficient ground for the refusal of a patent, and therefore the decision of the Board of Examiners-in-Chief is reversed.

The attorney for the applicant has signified his willingness to set forth in his specification the state of the art, as illustrated in the references cited by the Examiner, and to describe more fully the improvement which he has made, which amendments he will be permitted to make.

F. L. ELLIS.—*Interlocutory Appeal.*

[*In the matter of the application of Fielding L. Ellis, for letters patent for* "IMPROVEMENT IN PORTABLE LINT-ROOM."—*Decided June 8, 1876.*]

Whether a claim is for a patentable combination is a question going to the merits and not the subject of an interlocutory appeal.

DOOLITTLE, *Assistant Commissioner:*

The only claim appealed upon is the first one. The objection to this is that it does not set forth a patentable combination. This objection goes to the merits of the case.

If insisted upon by the Office applicant has the right to appeal to the Supreme Court of this district, and therefore should take his course of appeal as prescribed by law. This is in accordance with the practice established in the case of Jeremiah H. Keith, 9 OFFICIAL GAZETTE, 744.

The appeal is therefore dismissed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE DISTRICT OF COLUMBIA.

HENRIETTA H. COLE *vs.* JOHN W. KENNEDY AND JOHN E. KENDALL.

[*In Equity, No. 4,605. Docket 15.—Before* WYLIE, *J.*]

The reissued Letters Patent No. 4,349, dated 25th April, 1871, declared good and valid, said patent being for improvements in fluting-machines granted to H. H. Cole.

The "Knox," "Peerless," and "Crown" fluting-machines are infringements of the Cole patent, as reissued.

[*Charles S. Whitman*, for complainant.
R. Ross Perry, for defendants.]

WYLIE, *J.:*

This cause having come to be heard upon the bill of complaint herein, the answer thereto of the defendants, the replication of the complainants to such answer, and the proof taken in said cause—

Now, therefore, on consideration thereof, it is ordered, adjudged, and decreed as follows, viz:

That the Letters Patent No. 4,349, reissued on the 25th day of April, 1871, to H. H. Cole, being the letters patent referred to in the bill of complaint herein, are good and valid in law.

That the said H. H. Cole was the first and original inventor and discoverer of the improvements in fluting-machines as described and claimed in the said letters patent and the specification annexed thereto.

That the said defendants herein have infringed upon the said letters patent, and upon the exclusive rights of the complainant under the same—that is to say, by selling certain fluting-machines known, respectively, as the "Knox" fluting-machine, the "Peerless" fluting-machine, and the "Crown" fluting-machine, as charged in said bill of complaint.

And it is further ordered, adjudged, and decreed that the complainant do recover of the defendants the profits, gains, which are hereby fixed at $10—and advantages which the said defendants have received or made, or which have arisen or accrued to them from the infringment of the said patent to H. H. Cole, since the 25th day of April, A. D. 1871.

And it is further ordered, adjudged, and decreed that the said complainant do recover of the defendants her costs and charges and disbursements in this suit to be taxed.

And it is further ordered, adjudged, and decreed that a perpetual injunction be issued in this suit against the said defendants, restraining them, their agents, clerks, servants, and all claiming or holding under or through them, from making or selling, or in any manner disposing of, fluting-machines embracing the invention or improvements described in said letters patent to H. H. Cole, pursuant to the prayer of the said bill of complaint.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF NEW YORK.

GEORGE S. NEWELL *et al. vs.* GEORGE WEST *et al.*

Where an inventor and patentee entered into a written contract with one of the part owners of the patent, to procure, if possible, an extension of the same, and, under such contract, received a valuable consideration, and, after his death, his wife, as executrix, procured such extension, and conveyed, by assignment, duly recorded, such extended patent to the assignees of said part owner, who was a party to the original contract with the inventor and patentee, it was: *Held* that, upon the resignation of the trust as executrix, and the appointment of an administrator with the will annexed, such administrator could not make a legal assignment of such extended patent so as to vest the same in another and different party than the assignee of the executrix.

[*Marcus P. Norton*, for complainants.
Horace Binney, 3d, for defendants.]

[The complainants having filed their bill for a perpetual injunction, and for an accounting, alleging the infringement by defendants of extended letters patent, in which complainants own the exclusive right for the State of New York, the defendants plead thereto that the Union Paper Bag Machine Company is the owner of the patent in exclusion of the complainants. Complainants having taken issue by replication to the plea, the cause now comes on to be heard upon the pleadings and proofs.]

WALLACE, *J.:*

The material facts extricated from the mass of documentary and oral evidence contained in the proofs, a large portion of which seems utterly unimportant, are few and simple.

The complainants claim title by an assignment from Ingalls as administrator with the will annexed to Benjamin F. Rice, deceased, and the Union Paper Bag Machine Company claim by an assignment, prior in point of time, made by Roxanna Rice while acting as executrix of the estate of Benjamin F. Rice.

Benjamin F. Rice was the inventor of the improvement for which the patent was obtained. Shortly before the term of the patent expired, he entered into a written contract with one Morgan, who was part owner of the patent, whereby Rice agreed to make application for an extension of the patent, and use all honorable means in his power to obtain it, and when obtained to set the same over to Morgan, and to execute an assignment thereof at any time upon demand. Morgan, in consideration of the agreement on the part of Rice, paid Rice $500, and agreed to pay him $1,500 more before the delivery of the assignment, and such sum in addition as Rice might expend in procuring the extension. Rice died without applying for the extension, the original term not having expired. He left a will, in which his wife, Roxanna, and his daughter, were made the sole beneficiaries, and by which he appointed his wife sole executrix. Subsequently the Union Paper Bag Machine Company became the beneficial party in interest in the agreement in the place of Morgan, the latter having assigned his rights. Thereafter Mrs. Rice, as the executrix of the inventor, and acting in the interests of the Union Paper Bag Machine Company, applied and obtained the extension of the patent, and thereafter the latter paid her the $1,500 which Morgan had agreed to pay her husband, and she executed to the company an assignment of the extended letters patent. This assignment was duly recorded. It recited the obtaining of the original patent by Benjamin F. Rice, his death, the extension of the patent, and her appointment as his administratrix, and purported to convey her interest as administratrix in the patent as extended.

After the assignment was recorded she resigned her trust as executrix, and Ingalls was appointed administrator of the estate, with the will annexed, and he, as such administrator, conveyed to the complainants the title upon which they now rely.

It is insisted on behalf of the complainants that the assignment of the Union Paper Bag Machine Company by Mrs. Rice as administratrix, when she was in fact executrix of her husband's estate, did not pass her title as executrix. It is also insisted that if it would have passed such title it was not valid, because her daughter, as a legatee under the will, did not assent to the transfer, and because the sale was not made upon the order of the probate court. If it should be conceded that the assignment to the Union Paper Bag Machine Company was wholly invalid, it does not follow that complainants acquired any title by the assignment to them. They cannot be heard to set up their assignment against the Union Paper Bag Machine Company, because the latter was equitably entitled to a conveyance of the title, and the complainants had notice of such equity when they procured an assignment to themselves. If Rice had lived, and obtained the extended letters patent, Morgan, upon tendering performance of the conditions in the agreement on his part could have enforced specific performance of Rice's covenant to convey. The inchoate right of an inventor to an extension of his patent may be the subject of a contract of sale, *Clunn vs. Brewer*, (J. Curtis, C. C. 506,) and a contract to convey such a right will be enforced by a bill for specific performance, *Wesmith vs. Calvert*, (1 Wood, E. M., 34.) Where an invention is assigned before it is patented, the assignor is estopped upon obtaining the patent, from setting up any adverse title, *Herbert vs. Adams*, (4 Walm, 15,) and the doctrine applies with equal force where he has agreed to assign, because in such cases the purchaser, upon tender of the purchase price, becomes the equitable owner of the patent. *Hartshone et al. vs. Day*, (19 How., 211.)

If Morgan could have required specific performance of Rice, the Union Paper Bag Machine Company, as the party in interest in the place of Morgan, could have required it of Mrs. Rice as executrix. The patent, when obtained by her, devolved upon her as the legal representative of the inventor, "on the same terms and conditions as the same might have been claimed or enjoyed by him in his lifetime." (Sec. 34, Act of July 8, 1870.) The obvious intent of the law is to vest in the legal representatives of a patentee, upon his death, the same rights he would have enjoyed if he had lived. The executrix had no higher rights than Rice would have had; and when she received the $1,500, which was to be paid upon the transfer of the extended letters patent, the Union Paper Bag Machine Company became the owner in equity of the patent. Its rights are the same as though that had been done which ought to have been done, and no one except a *bona fide* purchaser can now assert the contrary in a court of equity.

The recorded assignment was constructive notice to the complainants of the rights of the Union Paper Bag Machine Company. It was notice that the latter claimed to be the assignee of the patent which had belonged to the estate of the testator. It sufficed to direct the attention of a purchaser to the claim of an adverse title in the patent, and to enable the purchaser, by inquiry, to ascertain the extent of the right. Inquiry at proper sources would have revealed that Mrs. Rice, though not the administratrix, was the legal representative of her husband's estate when she executed the instrument, and that the consideration was received by her in her representative capacity, thus indicating the right of the Union Paper Bag Machine Company to a reformation of the instrument by correcting the mistaken description of her representative character.

If these views are correct it is immaterial whether the assignment made by Mrs. Rice to the Union Paper Bag Machine Company was valid to convey the title or not; but in my judgment it was valid to convey the title. It has been held that an advertisement of an executor styling himself an administrator is a legal advertisement of himself as executor sufficient to permit him to set up the running of the statute limitations, *Finney vs. Barnes*, (99, Mass. 401,) and an averment of one as an administrator, who is in fact an executor, does not constitute a variance in a pleading. *Sheldon vs. Smith*, (97 Mass., 34.) The instrument in question clearly indicates the intent of the assignor to convey as the legal representive of a person deceased. It recites the decease of the inventor, and that the patent was extended, "and that she was duly appointed his administratrix." The only effect which can be given to it is

that of a transfer in her representative character, and in view of the authorities which hold that as descriptive terms the words are practically synonymous.

I have no hesitation in giving force to the instrument as a transfer of her title as executrix. The objection that she had no right to dispose of the estate of her husband without the order of the probate court is based on a section of the general statutes of Massachusetts, which enacts that on the application of an administrator or executor, or of any person interested in the estate, the probate court may order any part or all of the personal estate to be sold at public auction or at private sale, and in that event the executor or administrator shall account therefor at the price for which it sells.

No authority is cited to sustain the position that this section precludes a sale without such order, and in the absence of a statutory limitation it is to be assumed that executors in Massachusetts possess the same power that they do at common law.

The reasonable construction is that the section in question was intended for the protection of executors, and to afford the aid of the probate court to them and to others interested in the estate when particular circumstances may require it.

I do not understand that it is claimed that the daughter should have joined in the instrument in order to render the assignment valid at law. If the theory is that she was a *cestui que trust*, whose equitable rights have been disregarded, the sufficient answer is that she had none except in the proper application of the money paid, because the Union Paper Bag Machine Company were the equitable owners of the patent. For these reasons I am of opinion that the defendants must prevail upon their plea.

A decree is ordered dismissing the bill with costs.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

HENRY L. DALTON *et al. vs.* CHARLES NELSON *et al.*

[*In equity.—January 28, 1876.*]

[*Letters patent for an* IMPROVED STEAM-GAGE COCK *were issued to Albert Bisbee, September 18, 1855, were extended for seven years from September 18, 1869, and were reissued on June 14, 1870, to Oscar T. Earle, assignee of Bisbee.*]

The substitution of one material for another, where a new and useful result is effected, or an increase of efficiency or a decided saving in the operation is clearly attained, (and not a matter of mere mechanical judgment,) is a proper subject for letters patent.

Where, by the substitution of one material for another, the same result is produced, and in the same way, and also a new result, differing from the former one materially, the difference between the two cases is one of kind and not of degree; and such an improvement must have been the result of invention, thought, experience, and skill, rather than the result of mere mechanical judgment.

[*S. J. Gordon*, for plaintiffs.
Thos. W. Clarke, for defendants.]

SHIPMAN, *J.*:

This is a bill in equity, in favor of the owners of the reissued letters patent, to restrain the defendants from an alleged infringement, and for an account. Infringement and the novelty of the invention are denied by the answer.

The alleged invention, which is a compression steam-gage cock, was made by Mr. Bisbee in 1853, and consisted, in the language of the specification—

First, in making one of the surfaces that meet to close the water-way or steam-passage, of a piece of vulcanized rubber, which is protected from spreading, or confined in metal in such manner that but little more that its bearing or acting surface is exposed; and—

Secondly, in making the other surface, which is of metal, in the form of a ring, so that the rubber may be compressed, by the same power, more forcibly than if the metal surface were equal in area to that of the rubber.

Prior to this invention, the opposing surfaces of steam-gage cocks had been made of brass or other metal, which was speedily roughened, or worn by the dirt or grit in the water. To remedy this difficulty, one of the surfaces was sometimes faced with leather or lead, but the steam soon destroyed the leather, and corroded or cut away the surface of the lead. The joints leaked, and the cocks soon needed repair, whatever material was employed. The use of vulcanized rubber as one of the bearing-surfaces overcame these difficulties. Its advantages are briefly explained, by one of the defendants' witnesses, to have been that, "being a rubber or elastic substance, it wouldn't wear and grind, as metal surfaces would; by its elasticity it pressed upon the seat and easily made a tight joint; it has always answered just as well in hot water as cold, while metal surfaces and ground joints in stop-cocks will not stand at all in hot water." The Bisbee cock has proved to be of great value. It has superseded the use of pre-existing devices, has met with large sales, and "has answered its purpose perfectly."

The main question in the case is as to the validity of the patent. The defendants have introduced a number of devices, which are claimed to have anticipated the plaintiffs' patent. Of these the valve patented by Albert Fuller was clearly antedated by the Bisbee invention. In neither one of the other prior inventions or prior publications was vulcanized rubber used as one of the surfaces to close the steam-passage. This fact raises the question which was considered by counsel to be the principal one in the case, viz.: Is the substitution of vulcanized rubber for cork, leather, or soft metal, by which substitution a substantially perfect gage cock was first produced, the subject-matter of a valid patent?

The difficulty which was to be overcome by the patentee was to make a steam-gage cock which would not readily leak, and which would resist the action of steam. The result which he attained was the invention of a durable gage-cock, which remained tight under various pressures and different degrees of heat, and which did not get out of repair. This result was accomplished by the discovery of the fact that highly-vulcanized rubber, in consequence of its elasticy, would not be ground and changed by water containing dirt or grit, and in consequence of its durability and non-corrodible properties, would successfully endure and withstand the power of steam. In the year 1853 the peculiar adaptability of hard rubber to the varied mechanical purposes to which it has since been applied was much less understood than it is at the present time. The invention consisted in the practical application of the discovery by such mechanical means that an efficient gage-cock was produced.

An attempt was made to show that this invention had been anticipated by the application of sheets of vulcanized rubber to the edges of the door or plate of man-hole of steam-engines, and also upon the delivery-valves of engines; but the analogy between the edge of a gasket, upon the plate of a man-hole, or upon a delivery-valve, and one of the opposing surfaces of a compression steam-gage cock, which is necessarily opened and closed at frequently-recurring intervals, and which should be so constructed as not to become leaky, from the constant use to which it is subjected, is so remote that a rubber gasket cannot with propriety be considered an anticipation of Bisbee's invention. The remark of Judge Coltman in *Walton* vs. *Potter*, (4 Scott's N. C., 91,) seems to be applicable to this branch of the case:

It appears to me that it (the plaintiff's invention) is a very useful application and adaptation of a substance, the properties and qualities of which, *for the purpose*, had never been known before, and, therefore, that it was properly the subject of a patent.

Again, the Bisbee invention comes within the principle which was enunciated in *Hicks* vs. *Kelsey*, (18 Wall., 673):

The use of one material instead of another in constructing a known machine, is, in more cases, so obviously a matter of mere mechanical judgment, and not of invention, that it cannot be called an invention, unless some new and useful result, an increase of efficiency, or a decided saving in the operation, is clearly attained.

Here the substitution does not merely produce the same result in the same way, but produces a new result, differing from the former one so materially that it might almost be said that the difference is one of kind, and not of degree. The improvement was of such marked character that the inference is that the new device must have been the result of invention, thought, experience, and skill, rather than the result of mere mechanical judgment.

The defendants' device is an imitation of the plaintiffs' gage-cock, except that in lieu of the vulcanized rubber, the defendants use the material which was patented by reissued letters patent issued to Nathaniel Jenkins August 3, 1869; the claim of the patent is for—

An elastic packing composed of at least four-tenths of finely-pulverized refractory earthy or stony material, intimately mingled with and held together by rubber, prepared for vulcanising and then vulcanized, as and for the purpose described.

The defendants have taken the principle or idea of the Bisbee invention, which was the production of a tight steam-gage cock, by the use of vulcanized rubber as one of the bearing-surfaces, and the same material is used in the same form and shape in which it appears in the Bisbee invention. It is true that other materials are intermingled with the vulcanized rubber, forming one compound, but the vulcanized rubber of Bisbee is none the less used, because other materials are fused with it. The infringement is manifest.

Let there be a decree for an injunction and an account.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 13, 1876.]

9,335.—Glassware.—JOHN BRYCE, Pittsburg, Pa. Application filed June 2, 1876. Term of patent 3½ years.

9,336.—Fireman's Cap.—EDWARD CAIRNS, Jersey City, N. J. Application filed May 29, 1876. Term of patent 3½ years.

9,337.—Statue.—WILLIAM L. ELTING, Brooklyn, assignor to E. and H. T. ANTHONY & CO., New York, N. Y. Application filed May 15, 1876. Term of patent 7 years.

9,338.—Bust.—DAVID M. FRENCH, Newburyport, Mass. Application filed May 10, 1876. Term of patent 7 years.

9,339.—Hinges.—OLIVER S. GARRETSON, Buffalo, N. Y. Application filed May 15, 1876. Term of patent 14 years.

9,340.—Gimps.—JOHN GRAHAM, New York, N. Y. Application filed April 10, 1876. Term of patent 14 years.

9,341.—Badge.—WALTER HART, Philadelphia, Pa. Application filed March 10, 1876. Term of patent 7 years.

9,342.—Bar-Ring.—JOSEPH I. KNIGHT, Philadelphia, Pa. Application filed May 22, 1876. Term of patent 3½ years.

9,343.—Cooking-Ranges.—GEORGE A. WELLS and JOHN P. HOGAN, Troy, N. Y., assignors to FULLER, WARREN & CO., same place. Application filed May 25, 1876. Term of patent 7 years.

9,344.—Fork and Spoon Handles.—LE ROY S. WHITE, Waterbury, Conn., assignor to BROWN & BROTHERS, same place. Application filed April 4, 1876. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 13, 1876.]

3,761.—Lacteous Farina.—HENRY CLOTZ, New York, N. Y. Application filed April 15, 1876.

"a mountain scene, in the foreground of which are two cows and a woman, the latter engaged in milking one of the cows, the other cow being represented in the act of feeding."

3,762.—Lubricating-Oil.—EDWARD R. GARDNER, New Bedford, Mass. Application filed May 19, 1876.

"word 'ANIMALINE.'"

3,763.—Mineral Water Known as "Blue-Lick."—HAMILTON GRAY & CO., Maysville, Ky. Application filed April 24, 1876.

"words 'Blue Lick Water' and the picture representing a running or leaping deer."

3,764.—Preparations for the Treatment of the Feet of Horses and other Animals.—CHARLES F. RISLEY, Hackensack, N. J. Application filed May 24, 1876.

"word 'KNICKERBOCKER.'"

3,765.—Badges.—WILLIAM SCULLY and PIERRE A. DUFOUR, St. Paul, Minn. Application filed March 13, 1876.

"word 'Centennial.'"

3,766.—Soap.—CASPER SHULTE, Detroit, Mich. Application filed October 5, 1875.

"word 'CENTENNIAL.'"

3,767.—Boots and Shoes.—ELMER TOWNSEND, Boston, Mass.; assigned, February 5, 1872, to THE AMERICAN CABLE SCREW WIRE COMPANY, same place. (Re-registration.) Application filed December 27, 1870.

"words or phrase 'Cable Screw Wire.'"

3,768.—Boots and Shoes.—HENRY ELMER TOWNSEND, Boston, Mass.; assigned, February 5, 1872, to THE AMERICAN CABLE SCREW WIRE COMPANY, same place. (Re-registration.) Application filed April 24, 1871.

"words or phrase 'Cable Wire,' and the representation of a piece of twisted prismatic wire arranged aside of, or across, or around such words."

3,769.—Boots and Shoes.—HENRY ELMER TOWNSEND, Boston, Mass.; assigned, February 5, 1872, to THE AMERICAN CABLE SCREW WIRE COMPANY, same place. (Re-registration.) Application filed April 24, 1871.

"words and phrase 'Screw Wire,' and the representation of a piece of twisted prismatic wire, arranged inside of, or across, or around such words."

3,770.—Collars and Cuffs.—GEORGE B. CLUETT, BRO. & CO., Troy, N. Y. Application filed May 18, 1876.

"words 'The Link' and the representation of two connected links."

3,771.—Cognac Brandy.—J. DENIS, HENRY MOUNIÉ & CO., Cognac, France. Application filed May 27, 1876.

"the representation of a grape-leaf."

3,772.—Corsets, Skirts, Shields, and Bustles.—JOHN C. DEVIN, New York, N. Y. Application filed May 27, 1876.

"representation of a 'pansy.'"

3,773.—Perfumed Starch-Enamel.—CHARLES W. EVERETT, Boston, Mass. Application filed May 12, 1876.
"words 'Starchene,' 'Perfumed Starch Enamel.'"

3,774.—Combined Reapers and Mowers and Single Mowers.—FREEMAN GRAHAM, Rockford, Ill. Application filed May 25, 1876.
"the words and letters 'The New Manny,' 'F. G.'"

3,775.—Perfumery or Atomizers.—THOMAS J. HOLMES, Boston, Mass. Application filed May 1, 1876.
"the fanciful denomination of 'FAVORITE.'"

3,776.—Paper Bags.—HOWLETT, ONDERDONK & Co., Philadelphia, Pa. Application filed May 22, 1876.
"the representation of the figure of a warrior in armor, grasping a sword, and carrying a shield, upon which are emblazoned the words 'Union Champion.'"

3,777.—Resin and Varnish Made from Resin.—WALTER P. JENNEY, New York, N. Y. Application filed May 27, 1876.
"word 'TUNTOAP.'"

3,778.—Liberia Coffee.—EDWARD S. MORRIS, Philadelphia, Pa. Application filed May 10, 1876.
"the representation of a branch of a coffee-tree having the leaves and clusters of red-ripe berries, and the words 'LIBERIA COFFEE.'"

3,779.—Shirts, Collars, and Cuffs.—NOYES BROTHERS, Boston, Mass. Application filed May 3, 1876.
"words 'The West St.'"

3,780.—Proprietary Medicines.—ROBERTS & GALE, Lacon, Ill. Application filed May 1, 1876.
"the figure of the griffin, surmounted by the head of a sphinx, with the wings spread in the form of a letter C, and the words 'Trade Mark' appearing in white letters in a semicircle near the top of the wings, and the directions for using being printed across and over the whole circular figure."

3,781.—Transfer-Outlines for the Blackboard.—GEORGE H. STRINGER, Boston, Mass. Application filed May 2, 1876.
"the cut of a blackboard, on which are seen the dotted lines of a light-house, Bible, and Cross."

3,782.—Cigars and Tobacco.—EMIL JULIUS SUHRNEL, Philadelphia, Pa. Application filed April 5, 1876.
"words 'El Pacificador de Habana.'"

3,783.—India-Rubber Combs.—THE INDIA RUBBER COMB COMPANY, New York, N. Y. Application filed May 20, 1876.
"word 'IMPERIAL.'"

3,784.—Soap.—J. B. WILLIAMS & Co., Glastonbury, Conn. Application filed May 11, 1876.
"words 'BARBERS' BAR SOAP.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 13, 1876.]

748.—Title: "Chamberlain, Roe & Co., Pure Leaf Lard."—CHAMBERLAIN, ROE & Co., New York, N. Y. Application filed June 3, 1876.

749.—Title: "The Centenary Soap."—ROBERT BROWN CRAIG, Leavenworth, Kansas. Application filed February 24, 1876.

750.—Title: "Paris Green for Killing the Potato Bug and Cotton Worm."—WILLIAM DAVIDSON & Co., Baltimore, Md. Application filed June 3, 1876.

751.—Title: "Aromatic Bitters or Angostura Bitters." WILLIAM H. KROEPFEL, New York, N. Y. Application filed May 27, 1876.

752.—Title: "Standard Quality Machine Twist."—LESSER, WHITMAN & Co., New York, N. Y. Application filed June 3, 1876.

753.—Title: "X. L. C. R. Cigar Label."—D. A. WISE, Allegheny, Pa. Application filed May 22, 1876.

754.—Title: "Geneva Homœopathic Globules."—COVERT & BROWNE, Syracuse N. Y. Application filed May 27, 1876.

755.—Title: "Elmer's Great French Remedy."—GEO. W. ELMER, Northfield, Mass. Application filed June 1, 1876.

756.—Title: "Chesterfield—All Linen.—For Collars and Cuffs."—JAMES L. LIBBY, New York, N. Y. Application filed June 7, 1876.

757.—Title: "Don Pedro—All Linen Collars and Cuffs."—JAMES L. LIBBY, New York, N. Y. Application filed June 7, 1876.

758.—Title: "The Dramatic—For Collars and Cuffs."—JAMES L. LIBBY, New York, N. Y. Application filed June 7, 1876.

759.—Title: "New England Favorite Tobacco, Manufactured by the Merchants Tobacco Co., Boston, Mass."—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed June 6, 1876.

760.—Title: "Complete—For the Blood."—C. OBE RADCLIFF, Rockland, Maine. Application filed May 29, 1876.

761.—Title: "Superior Leaf Lard."—P. H. VAN RIPER & Co., New York, N. Y. Application filed April 26, 1876.

762.—Title: "Raspberry Salt."—KATTENHORN & DE BEVOISE, New York, N. Y. Application filed June 13, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED JUNE 13, 1876.

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Galt, W. J., Remedy for hog cholera	178,756
Garrard, J., Grain binder	178,757
Gerard, P. C., Machine for cutting cloth	178,758
Gerdenier, C. A., Gas cock and valve	178,759
Gill, J. P., Apparatus for heating	178,760
Gimmy, J. G., Refrigerating can	178,761
Goff, M., assignee	178,526
Goldsmith, A. A., Bale tie	178,702
Goldthwait, C., Knob for vessel lids	178,626
Goodchild, J., assignee	178,591, 178,720, 178,721, 178,725
Gordon, J. W., and G. F. Sleeper, Farrier's buttress	178,627
Grandstaff, N. C., and E. C. Washburn, Washing machine	178,763
Graybill, H., Railway gate	178,628
Gridley, J. E., Heater	178,764
Grisell, H. L., Scale beam	178,629
Grove, J. M., Filter for cisterns	178,630
Gunn, L. D., Lamp chimney	178,521
Hadley, F. B., Land roller	178,631
Hamilton, E. C., Pen rack and inkstand	178,632
Hamilton, W. E., Bee feeder	178,765
Hancock, T., and J. H. Leaman, Grain separator, (reissue)	7,168
Hann and Welch	178,820
Hanna, E. S., assignee	178,562
Harding, A. S., Machine for raking and binding grain, (reissue)	7,169
Harley, J. L., Baggage seal	178,766
Harley, J. L., Canceling machine for bonds	178,767
Harris, G. A., Sash fastener	178,522
Harris, S., Machine for driving nails in boots and shoes	178,768
Harrison, I. F., Corn and cotton cutter and scraper	178,769
Hart, J. W., Standard or support for lasts	178,633
Harvey, M., assignee	178,558
Hayes, L., Soldering machine	178,634
Hazelton, M. W., Device for decomposing water for fuel	178,635
Heath, N., Jr., assignee	178,795
Heckenbach, J. A., Breech loading fire arm	178,636
Hegedüs, J., Spring for mattresses and furniture	178,770
Hempstead, B., Bale tie	178,771
Hendry, J. C., Vehicle hub	178,772
Henry, W., Sulky plow	178,523
Henry, W., Sulky plow	178,524
Herr, A. S., Steam washing boiler	178 525
Hess, G., Folding table	178,773
Hicks, M., and T. Smith, Lamp	178,637
Hill, F. H., Coffin	178,526
Hill, W. E., Saw mill	178,638
Hinds and Stadebaker	178,812
Hinrichs, C. F. A., Lamp	178,774
Hite and De Witt	178,742
Hodder, J. H., Writing tablet, (reissue)	7,170
Hoffhein, R., Horse hay rake	178,775
Holeton, L. J., Metallic roofing	178,639
Holman, S., Spring bed bottom	178,776
Holt, J. H., Scraper	178,640
Holtzer, C. W., Electrical annunciator for speaking tubes	178,641
Howe, W. H. I., Soldering machine	178,642
Howell, E., Grubber	178,527
Hueston and Carrell	178,586
Hukill, J. H., assignee	178 612
Hunt, R., Machine Company, assignee	178,589
Hunter, G. W., Lifting jack	178,777
Hurlbut, H. S., Button hook	178,778
Huston, R. W., Button fastening	178,779
Janeway, J. J., Manufacture of printing rolls	178,528
Jarrard, D. H., Wrench	178,780
Jensen, J. T., Track clearer	178 643
Jewett, N., Steam cooker	178,781
Johannesen, L., Water wheel	178,529
Johannigman, J. M., assignee	178,519
Johnson, E. R., Elevator	178,530
Kelley, C., Railway draw head	178,644
Kelley, W. H., Draw bar for railway cars	178,531
Kenyon and Edmonds	178,748
Kessler, G., Dumping wagon	178,782
King, L. B., Jr., Wire fence	178,645
Klein, J., and J. Phillips, Paper clamp	178,532
Knowlton, S. B., assignee	178,768
Koplin, W., Nail plate feeder	178,646
Korf, F., Shirt bosom supporter	178 533
Lafferty, H. W., Screw elevator	178,647
Lamb, T. C., assignee	178,533
Lamprey and Ringwalt	178,674
Lang, A., Chandelier	178,783
Latham, C. W., Wall bracket	178,534
Laurie, W. H., Valve for steam pumps	178,648
Leach, J. D. and S., Navigator's protractor	178,535
Leach, W., assignee	178,796
Leaman and Hancock, (reissue)	7,168
Leaycraft, E. S., Pneumatic parcel dispatch tube	178,784
Lewis, J. E., Corn sheller	178,536
Lewis, L., and N. T. Barnes, Saw table guide	178,830
Little, J. L., Feather duster, (reissue)	7,171
Locke, S. D., assignee, (reissue)	7,169

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Locke, S. D., Grain binder	178,786
Loftus, T., Hose pipe coupling	178,649
Loomis, R., Car coupling	178,787
Lucas and Elliott	178,614
Lugrin, H. A., Stop watch, (reissue)	7,172
MacIntire, G. R., Dice caster	178,537
Mann, E. E., Fog signal	178,788
Manning, W. N., Reed organ	178,650
Marburg, L. H., Tobacco packing case	178,538
Marsh, C. W. and W. W., Raising and lowering device for harvesters	178,539
Marsh, C. W. and W. W., Harvester finger bar	178,540
Marsh, C. W. and W. W., Binder's stand for harvesters	178,541
Martin, S. W., Screw cutting tap	178,651
Martinez, M. de M. C. y, Portable railway track	178,652
Mast, P. P., assignee	178,651
May, H. H., Corset	178,789
McAleer, G., Folding chair	178,791
McAleer, P., Needle board for registering	178,790
McCormick, R. H., and W. R. Baker, Wrench, (reissue)	7,173
McDonald, L. B., Grinding mill	178,653
McFaul, W. H., Valve for direct acting engines	178 792
McKibbin, Orr, and Spradley	178 808
McLain, J., Jar lifter	178,655
McLaughlin, H. A., Machine for digging and separating potatoes	178,542
McLimens, W., Nut lock	178,654
McMillen, H., and W. L. Rydman, Flue cap fastening	178,794
McNinch, S., Sash fastener	178,543
McPherson, J. R., Stock car	178,793
Meinhold, T., Reed board and plate for organs	178,658
Merriam, H. C., Knapsack supporter	178,545
Merrill, J. F., Sheet metal can	178,544
Meyer, H. C., Tank regulator	178,656
Millet, J. W., Machine for making clothes pins	178 546
Miller and Temple	178,657
Mills, C. H., assignee	178,776
Moberly, G. W., assignee	178,523, 178,524
Montell, J. E., Water heater for stoves and ranges	178,547
Moorhead and Shumaker	178,682
Morewood, E., and J. H. Rogers, Apparatus for tinning or coating metal	178,657
Murray, W., Fire shield	178,659
Nelson, N., Baby walker	178,548
Nevins, T. F., and J. W. Smith, Fire alarm and extinguisher	178,660
Newcomb, D. L., Tubing wells	178,549
Nitkey, J., Hand corn planter	178,550
Norcombe, E. S., Sewing machine needle setter and threader	178,661
Norcombe, E. S., Sewing machine needle setter and threader	178,662
Norris, A. H., Damper	178 795
Norris, J. P., assignee	178 777
Noyes, E. P., Corn planter and cultivator	178,551
Olmstead, L. B., and J. W. Wilson, Feed cooker	178,796
O'Neill, H., Tempering glass	178,797
Orendorff, W. J., assignee	178,744
Orr, Spradley, and McKibbin	178,808
Orr, W., Button	178,552
Otis, B. H., Vehicle spring	178,798
Ovenden, W. C., Folding chair	178,663
Owen, C. F., assignee	178,675
Oyster, J. F., assignee	178,750
Packer, H., Windmill	178,664
Palmatier, S., Bale tie	178,665
Palmer, G. W., assignee	178,653
Palmer, N. W., Portable burglar alarm	178,553
Parlin, W., assignee	178,744
Patton, C. W., Churn power	178,799
Patton, W. H., Ore scourer and amalgamator	178,554
Payson, J. R., Sash fastener	178,666
Peck, Stow, and Wilcox Company, assignee, (reissue)	7,167
Perkins, H. H., Fountain pen	178,667
Perrine, A. T., Button fastening	178,555
Pettyjohn, L. B., assignee	178,546
Phillips and Klein	178,532
Pickard, R. F., Vehicle axle and box	178,800
Pickering, J. M., Brush making machine	178,556
Platt and Tracy	178,566
Plenkharp, J., and S. M. Shilling, Table leaf supporter	178,668
Plumb, F. J., assignee	178,803
Politzer, J., assignee	178,770
Pope, A. A., assignee	178,509
Portugues, J. J., Lock and key	178,669
Powers, D. J., Rocking chair	178,557
Price, H., assignee	178,569
Providence Steam and Gas Pipe Company, assignee	178,584
Ralston, J. B., Sulky plow	178,558
Randall, R. B., assignee	178,597
Rankin, S. A., Weather strip	178,670
Reed, J. D., Device for closing gates	178,559
Reed, Shafer, and Young	178,699
Rees, W. P., Spring bed bottom	178,560
Reeves, S. H., Spring bed bottom	178,671
Reid, G. W., Elevator	178,802
Reid, R., Sad iron heater	178,561
Reitz, C., Portable fence	178,801
Remington, E., & Sons, assignees	178,683
Renwick, J., and J. A. Anderson, Fireman's hydraulic lift	178,562
Reynolds, E. B., Rotary pump	178,672
Rhea, R. H. C., Weigh scales	178,673
Ridgway, N. B., assignee	178,507
Ringwalt, L. M., and C. S. Lamprey, Express call	178,674
Roberts and Davis	178,513
Roberts, J. J., Liquid measure	178,803
Rogers and Morewood	178,657
Root, D. N., Earth auger	178,675
Rosenbaum, M., assignee	178,507
Rutherford, R. W., assignee	178,760
Rydman and McMillen	178,794
Saltsgaver, J. D., assignee	178,512
Schilling, F. A., Sr., and F. A., Jr., assignees	178 589
Scofield, L., Straw cutter	178,676
Seidel, C., Truss	178,804
Sexton, J. B., Wagon brake lever	178,805
Shafer, Young, and Reed	178,699
Sharret, J. W., Reefing sails	178,678
Shaw, E., Lap seam gage for sewing machines	178,679
Shaw, G. G., Floor clamp	178,677
Shaw, T., Baby tender	178,680
Shilling and Plenkharp	178,668
Shular, L. H., Burial apparatus	178,681
Shumaker, I. E., and J. S. Moorhead, Bag holder	178,682
Simpson, C. G. C., Skate	178,563
Sinclair, A. G., Recoil check for guns	178,806
Sleeper and Gordon	178,627
Smith, F. H., Crushing mill	178,564
Smith and Hicks	178,637
Smith and Nevins	178,660
Smith, P. T. B., Clod crusher	178,807
Smoot, W. S., Cartridge	178,683
Spradley, N. B., J. McKibbin, and C. A. Orr, Combined cultivator and seed planter	178,808
Stearns, H. A., assignee	178,555, 178,570
Steinway, C. F. T., Piano forte	178,565
Stephenson, J., Street car, (reissue)	7,176
Stephenson, J., Street car, (reissue)	7,177
Stickney, A. B., Road wagon	178,809
Storrs, C. L., Car coupling	178,811
Stoughton, E. T., Horse hay fork	178,810
Strobridge, T., Coffee mill, (reissue)	7,174
Studebaker, J. M., and H. L. Hinds, Furnace for heating tires for wagon wheels	178,812
Suiter, F., Fence post	178,684
Swissheim, J. G., Hot air chamber	178,813
Switzer, J. R., Last	178,685
Taylor, W., Harrow	178,686
Temple, T., and J. H. Miller, Track clearer	178,687
Thomas, J. S., Portable gas apparatus	178,688
Thomas, W. E., Pen rack	178,814
Torrance, W. F., assignee	178,655
Towers, W. M., Plow feet	178,815
Tracy, J. D., and J. F. Platt, Harrow	178,566
Tucker Manufacturing Company, assignee	178,747
Turner, J. L., Spaying instrument	178,816
Union Water Meter Company, assignee	178,829
Ustick, S., Car coupling	178,817
Valentine, J. W., Sweat band for hats and caps	178,689
Van De Water, H., Water wheel	178,567
Waddell, J., Sash balance	178,690
Walker, S., assignee, (reissue)	7,166
Walker, W. L., and B. G. Devoe, Gate hinge	178,568
Walker, W. L., B. G. Devoe, and J. Young, Metallic fence	178,569
Wallace and Allan	178,578, 178,579, 178,580
Waltrath, A., and E. D. Bronson, Broom machine, (reissue)	7,175
Ward, J. C., Music repository	178,691
Waring, E. J., assignee	178,616
Warner, H., Smelling and perfume bottle	178,818
Washburn and Grandstaff	178,763
Webber, E., Mowing machine	178,570
Weber, A. R., Molding bottles	178,819
Welch, J. H., and E. P. Hann, Dress for millstones	178,820
Wenell, F. O., Boiler washing machine	178,571
West, W. A., Washing machine	178,572
Westman, W. D., Scroll saw	178,821
Wheeler, E. G., Ice cream freezer	178,692
White, W. B., Butter package	178,693
Wilcox, W. R., Cover for thrashing machine tumbling rods	178,694
Wilkinson, J. W., Liquid measure	178,573
Williams, E. M., Combined fertilizer distributer and grain sower	178,574
Williams, J. L., assignee	178,502
Williams, M. D., Register	178,575
Williams, S. T., assignee	178,797
Willman, F., Compensating pendulum	178,695
Wilson, C. A., Chill	178,822
Wilson and Olmstead	178,796
Wilson, T. McC., Washing machine	178,696
Winchester Repeating Arms Company, assignee	178,825
Winsor, P., Grain tally	178,823
Winston, F. H., Combined funnel and measure	178,697
Wood, S. W., Cartridge case	178,698
Wood, S. W., Cartridge ejector for revolving fire arms	178,824
Wood, S. W., Machine for heading cartridge shells	178,825
Worster, G. W., Windmill	178,576
Wright, W., Cultivator	178,826
Wuensch, A., Paper vessel	178,827
Yohn, W. L., Car coupling	178,828
Young, J. W., C. A. Reed, and W. H. Shafer, Door plate attachment	178,699
Young, Walker, and Devoe	178,569
Ziegenhelm, C., Bath for treating iron	178,700

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JUNE 13, 1876.

178,501. SHOT-METAL CANS. Alfred A. Chevallier-Appert, Paris, France. [Filed Mar. 11, 1876.]

Brief.—Inwardly and outwardly beading heads, rest, guard, and soft-metal tube on one head. Uses a mandrel having a concave face and central opening—first, to support body while bottom is being soldered to it; next, to support top while the soft-metal tube, supported by an awl, is soldered to the top; and, third, to support the same while the guard is soldered to the under side of the top.

A metallic can provided with convex depressible ends, in one of which is a soft-metal tube and a valve, as and for the purpose specified.



178,501.



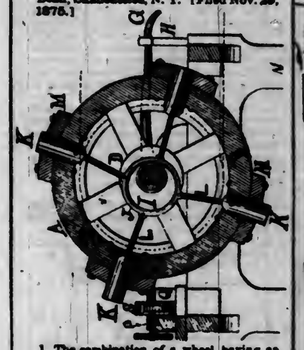
178,502.

178,502. SAW-MANDRELS. JOB T. ROGERS, Bridgeport, Ohio. [Filed May 20, 1875.]

Brief.—The saw can be held to run in a plane perpendicular with the mandrel, or readily changed to different angles therewith, by means of two adjustable collars, the inner collar being provided with a pin extending through a slot in the saw into a corresponding slot in the outer collar, and a graduated plate loosely attached to the outer end of the arbor, and adjustable, as desired, by set-screws passing through it, and pressing against shoulders formed on the outer collar.

The graduating and adjusting plate G and adjusting-screws D D, in combination with the adjustable collars B and C, substantially as and for the purpose specified.

178,503. HORSESHOE-MACHINES. CYRUS D. BEAN, Skaneateles, N. Y. [Filed Nov. 29, 1875.]



1. The combination of a wheel having an apertured rim with one or more advancing and receding formers, an eccentric, and a non-revolving shaft, as and for the purpose described.

2. The combination of a wheel having an apertured rim and hollow journals with a non-revolving shaft, provided with means for projecting and withdrawing one or more formers, as and for the purpose described.

3. The combination of a wheel having an apertured rim and hollow journals with a central shaft, provided with means for operating one or more formers by the revolution of the central shaft, as and for the purpose described.

4. The combination of a wheel having an apertured rim and hollow journals with a central shaft, provided with means for operating one or more formers by the revolution of the wheel, and also with independent means of operating one or more formers by the revolution of the shaft, as and for the purpose described.

5. The combination of revolving cams, having heel narrowing molds on their opposing faces, with one or more formers attached to a revolving perimeter, the cams being actuated by the former or formers, whereby the heeling and the final shaping of the heels, as described, are effected at one operation.

6. The combination of revolving cams, having heel-forming molds on their opposing faces, with one or more advancing and receding formers and a revolving rim, as and for the purpose described.

7. The combination of the wheel A, having apertured rim B, hollow journals D, eccentric I, straps J, arms L, and former or formers K, as and for the purpose described.

8. The combination of wheel A, having apertured rim B, hollow journals D, shaft F, eccentric I, straps J, arms L, former or formers K, and supported lever G, as and for the purpose described.

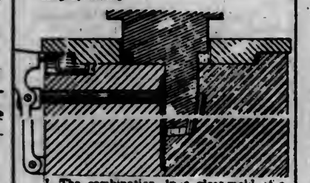
9. Revolving cams, having beading and heel-narrowing molds sunk in opposing portions of their perimeters, whereby a blank is continuously bent and the heels narrowed horizontally, as described.

10. The combination of revolving cams, having beading and heel-narrowing molds sunk in opposing portions of their perimeters, with geared wheels, as and for the purpose described.

11. The combination of revolving cams, having beading and heel-narrowing molds sunk in opposing portions of their perimeters, geared wheels, a lever, and a retractile spring, as and for the purpose described.

12. The combination of the rim B, detachable former K, detachable former block M, and detachable cams S, as and for the purpose described.

178,504. MANUFACTURE OF GLASSWARE. Washington Beck, Pittsburg, Pa. [Filed May 5, 1876.]



1. The combination, in a glass-mold, of a cavity, flat faced in the direction of the plunger-stroke, a cavity concave or hollowing, a plunger and mandrel, substantially as and for the purposes set forth.

2. A mandrel, *b*, operated in one direction by the stroke of the machine, and in the other direction by a counter-weight or equivalent device of like function, substantially as set forth.

3. As a new article of manufacture, a glass receptacle, having a flat side, a pocket, and means of suspension against a wall, substantially as set forth.

4. A glass match-safe, having a flat side, a match receptacle or pocket, means of suspension against a wall, and a roughened match-scratching surface, substantially as set forth.

5. As a means of forming holes through, or nearly through, the walls of hollow or hollowing articles of pressed glassware, a moving mandrel, arranged across the cavity of such wall, in combination with the plunger against which it abuts or works, substantially as set forth.

178,505. CALENDARS AND ADDING-MACHINES. W. Broomhall, Hartford, Ohio. [Filed May 1, 1876.]



1. The disk B, numbered as described, with margin also numbered, the former arranged to turn the disks C and D, which bear on their peripheries the numbers, and move in the cases *e* and *f*, projecting above the case, exposing the figures through openings therein, as set forth.

2. In combination with the wheels B, C, and D, marked and operating as described, the disks C' and D', as and for the purposes set forth.

178,506. ILLUMINATED SIGNS. ALONZO L. BRAINFIELD, Chicago, Ill. [Filed Dec. 28, 1875.]

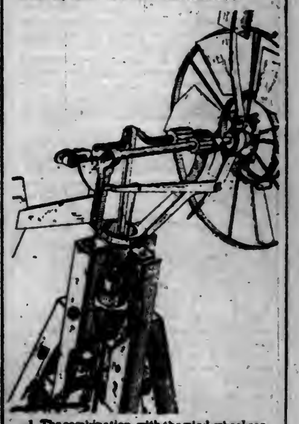


1. In an illuminated sign, the hollow letters A, having one or both faces covered with translucent or translucent materials, and connected one to the other by the tubes *f*, whereby the chambers of the several letters communicate with each other, as and for the purpose specified.

2. In an illuminated sign, the combination of the hollow letters A, connected one to the other by the tubes *f*, supply-pipes B C, and flexible pipe F, substantially as and for the purpose specified.

178,507. WINDMILLS. WM. T. BURROWS, Nashua, Iowa, assignor of one-half his right to N. B. Ridgway and M. Rosenbaum, same place. [Filed Nov. 18, 1875.]

Brief.—The combination, with the wind-wheel connected with a sliding sleeve, which is adapted to move endwise on its shaft, of a governor vane or blade, the arm or lever of which is pivoted to the sleeve of said wheel, and the blade of which is extended above the surface of the wheel, whereby, as the velocity of the wind is increased, it is caused to act upon said governor-vane, and, through its arm or lever, throw the wheel out of action.



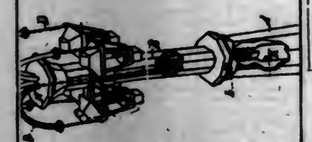
1. The combination, with the wind-wheel connected with the sliding sleeve, which is adapted to move endwise bodily on its shaft, of the governing vane or blade for controlling the movements of said wheel, substantially as described.

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2. The combination, with the sliding sleeve-shaft, having the barrel-pinion mounted thereon, of the crank-shaft which drives the pitman, provided with a similar pinion for operating the pitman, as described.

3. The shaft E', through which the fan-blades are operated, in combination with the adjusting devices, substantially as described, whereby the angle of the blades, or the extent of their throw, is regulated, as set forth.

178,508. LAMPS. George D. Burton, New Ipswich, N. H. [Filed Nov. 9, 1875.]



The combination, with the frame, lantern, and lamp, suspended by means of a chain, D, to the pins A B F, of the grooved weight E, and pin or bolt I, substantially as and for the purpose described.

178,509. SPRING AIR-PISTOLS. Augustus C. Carey, Malden, assignor to A. A. Pope, Boston, Mass. [Filed Feb. 16, 1876.]



The method herein described of hinging the barrel to the stock, by means of the sloping lap-joint and the elastic or semi-elastic packing, substantially as and for purposes stated.

178,510. STOVE-PIPE THIMBLES. Merritt M. Cobb, Stoneham, Mass. [Filed Dec. 10, 1875.]



1. The thimble D, having its under side extended parallel to the axis of the thimble, as and for the purpose described.

2. The thimble D, having the projecting ends c b b and the holes E E, as and for the purpose described.

178,511. EXTENSION PAPER COLLARS. E. O Cohen, Cleveland, Ohio. [Filed Mar. 7, 1876.]

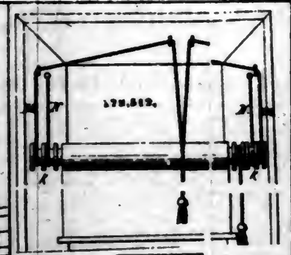
Brief.—The sections are moved along the lapement until the collar is of the desired size, when they are secured by the gummed tags.



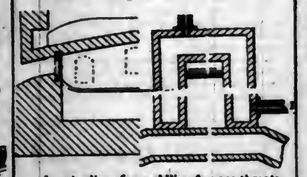
As a new article of manufacture, the herein described adjustable collar, consisting of the sections A B and ligament F, constructed and arranged in combination with each other, substantially as set forth, and for the purpose specified.

178,512. CURTAIN-FIXTURES. Jairus Collins, Fairview, Ohio, assignor to himself and J. D. Salsgiver, same place. [Filed Mar. 13, 1876.]

The double-grooved rod piece E K, in combination with the cords M M and N N, operated in the manner set forth.



178,513. WATER-CELLS FOR PUDDLING-FURNACE THROATS. Thomas Davis and William Roberts, Sharon, Pa. [Filed Nov. 11, 1875.]



A water-liner for puddling-furnace throats, consisting of the hollow rectangular metallic box H, provided with ingress and egress pipes I I', and arranged transversely to and internally encompassing the exit of the puddling-chamber, whereby the destructive widening of the throat is prevented, substantially as and in the manner set forth.

178,514. HAY-PRESSES. Peter K. Dederick, Albany, N. Y. [Filed May 9, 1876.]

Brief.—The spaces between the ribs on the traverser admit the overlapping ends of the hay.

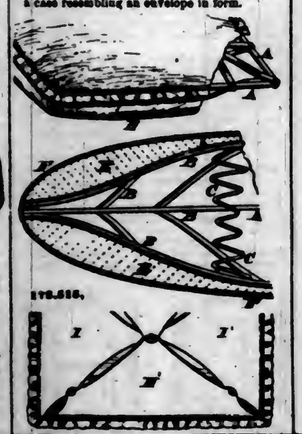


1. The traverser provided with alternate ribs and spaces, for the purpose described.

2. The guards E, in combination with the traverser, provided with ribs or projections D, for the purpose set forth.

178,515. IRRIGATION PILLOWS. August Degenhart, Cincinnati, Ohio. [Filed Mar. 17, 1876.]

Brief.—A skeleton frame is covered by padding and a sack, and the whole is inclosed in a case resembling an envelope in form.



178,516.



A work or imitation pillow, consisting of the skeleton frame A B C, covering E F, and detachable case or coverings G H H' I', as and for the purpose herein described.

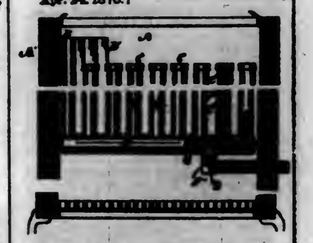
178,517. WATER-TANKS FOR RAILWAYS. Enoch S. Duval, Mitchell, Ind. [Filed Jan. 28, 1876.]

Brief.—The pipe can be moved from a horizontal to a vertical position by means of male and female screw connection.



In combination with a water-tank, A, having a pipe, B, passing through the side of the same, a valve governing the inner open end of the supply-pipe, a suitable mechanism, substantially as described, for controlling said valve, and a pipe, E, connected with the pipe B by male and female connections F and f, all substantially as and for the object herein set forth.

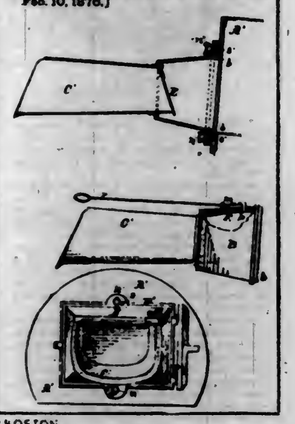
178,518. CIRCULATING TUBULAR BOILERS. O. S. Faulkner, Indianapolis, Ind. [Filed Apr. 24, 1876.]



1. In boilers, the combination of the connecting-pipe B, vertical outside pipes C, caps C', arranged in rows, and united together by means of the lower cross-pipe D, and each row of pipes C connected by the extended pipe B' to the steam-space between the shells A A', in the manner shown, for the purposes set forth and described.

2. In boilers, the water-pipes C, inclosed in the outer pipes or tubes E, and provided with vertical water-tubes F, extending up inside of the outside vertical tubes C, the main supply-pipes F' connecting the pipes C with the main supply-pipe D, in the manner shown, for the purposes set forth and described.

178,519. STRAW-FURNACES FOR FURNACES. F. X. Fischer, San Francisco, Cal. [Filed Feb. 10, 1876.]

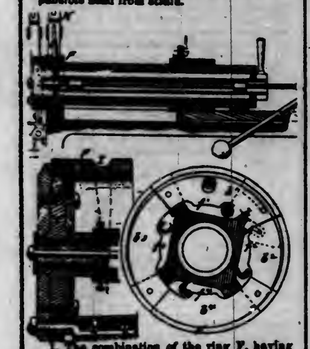


1. The box B, provided with bottom ignition-plate *i*, feeding-mouth O, drop-door R, and face-plate F', fitted with eyes *a' a'* and flange *b' b'*, arranged and constructed in the manner described, in combination with the furnace-floor plate A' A', provided with set-screws *c' c'* and cots *w' w'*, substantially as and for the purposes herein set forth and specified.

2. The adjusting door-catch and rod *m p r*, fitted to the box B, provided with receiving-chamber O, in combination with the drop-door R, substantially as and for the purposes herein set forth and specified.

178,520. STOVE-PIPE-ELBOW MACHINES. Henry Fisher, Cincinnati, Ohio, assignor of one-half his right to J. M. Johannigman, same place. [Filed Oct. 14, 1876.]

Brief.—A pipe is passed over the head of and onto a cylinder, and is clamped to a sliding frame by a cam-lever. An inverted tank is formed on the pipe, at that portion of it covering a semi-circumferentially-grooved ring, by means of a headed clamp. The side seams of the pipe being open, it may be loosened and fed forward by the sliding clamp operated by a ratchet and pawl. The tank is then crimped and folded over by an expansible and partly-oscillating head, operated by a lever, eccentric, and rod, pressing it backward over and onto a former on the grooved ring. A second adjustable clamp relieves the expansible head from strain.



1. The combination of the ring F, having groove I and former K, with clamps H J, substantially as and for the purpose specified.

2. The oscillating expansible head, constructed with cam V, having impinging points *a' a' a'*, connected segments *b' b' b' b'*, runners *d' d' d' d'*, and projections *f' f' f' f'*, with the rim N of the head fitting over the collar F as K, substantially as and for the purpose specified.

178,522. GLOVES. William F. Foster, Chicago, Ill. [Filed Apr. 26, 1876.]

As an improved article of manufacture, the glove with the wrist-opening provided with studs on each side of the same, and a lacing cord or cords secured by one end to one of the studs, and having a ring or ball on the other end, whereby said opening may be laced without the use of eyelets, substantially as shown and described.



178,521.



178,521. LAMP-CHIMNEYS. L. D. Gunn, West Joplin, Mo. [Filed May 8, 1876.]

Brief.—The projections prevent longitudinal movement of the sections.

1. In a longitudinally-bisected lamp-chimney, one or more projections, *a*, formed on one edge of each part, and corresponding recesses *b*, formed in the opposite edge of the other half, for the purposes herein set forth.

2. The combination of the bisected lamp-chimney A A, projection *a*, recesses *b*, and the metallic spring-band B encircling the bottom thereof, for the purposes herein set forth.

178,522. SAGE-FASTENERS. G. A. Harris, Norwich, N. Y. [Filed Apr. 19, 1876.]

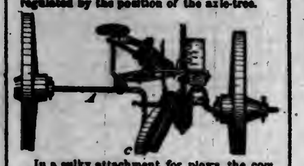
Brief.—A mortised case or holder, with spiral or inclined slot and holding-notch, in which a spring-bolt having a suitable pin is manipulated.



The sash-lock consisting of the mortised case with its tin *a*, adapted to be inserted in a hole in the sash, the spiral or inclined slot *i* and notch *f* therein, the bolt having pin *e*, the spring *c*, and the lever *b*, all constructed and arranged to operate as and for the purpose set forth.

178,523. SULEY-PLOWS. William Henry, Trenton, Mo., assignor of one-half his right to George W. Moberly, same place. [Filed Jan. 13, 1876.]

Brief.—The crank-axle has four double angles of varying lengths, two of which are strengthened by clip-braces. The plow-beam is secured in the longest angle, and a rocking lever, by which the axle-tree is partially rotated, in another. The depth of the plow is regulated by the position of the axle-tree.



In a sulky attachment for plows, the combination of the cranked axle A, strengthening keeps or clutches *c c*, tongue G, and lever I, whereby the pitch of the axle A may be adjusted at the will of the operator, substantially as and for the purpose hereinbefore set forth.

178,524. SULEY-PLOWS. William Henry, Trenton, Mo., assignor of one-half his right to George W. Moberly, same place. [Filed Dec. 27, 1875.]

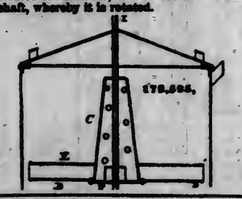
Brief.—The axle-tree is composed of two pieces, one of which is bolted beneath the other, thus dropping one wheel into the furrow. A cast stirrup is bolted to the rear side of the axle-tree, and this stirrup is adjustable, and forms a support for the plow-beam and a steadying-lever. The draft is made directly from the plow-beam.



In a sulky attachment for plows, the combination of the double axle-tree K L, having set-screws *s*, with the downwardly-projecting casting O, having cleats *g*, by which its position relative to axle K L may be adjusted, substantially as and for the purpose hereinbefore set forth.

178,525. STEAM WASHING-BOILERS. A. S. Herr, Glenenburg, Ohio. [Filed Apr. 18, 1876.]

Brief.—Hollow radial arms are connected to a perforated disk, from which rises a perforated central tube, all situated on a vertical shaft, whereby it is rotated.



178,526.

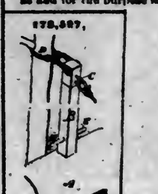
The combination of the four perforated radial chambers E on a perforated disk, D, surrounding a conic central perforated tube, O, closed at the top, and connected by cross-bars F over or across the open end below the disk with a central shaft, I, held and operated or rotated as and for the purpose herein set forth.

178,526. COFFINS. Francis H. Hill, Chicago, Ill., assignor of one-half his right to Mortimer Goff, same place. [Filed Jan. 29, 1876.]

Brief.—The ordinary wooden molding for the bottom of the coffin does not extend over the rounded corners, but is replaced by an ornamental metallic strip, the ends of which rest against the side of the casket and the dovetailed end piece, so as to brace the joint, and at the same time continue the ornamental appearance of the molding.

In a burial casket, the combination of the corner-pieces A, B, and C, dovetailed together, as described, and the metallic molding-strips D, fitted in the gaps at the corners in the ordinary molding, and depressed so that the ends rest against the edges of the pieces A and the sides of the casket, substantially as and for the purpose set forth.

178,527.



178,526.



178,527. GRUBBERS. Evan Howell, West Carlisle, Ohio. [Filed May 4, 1876.]

The combination of the roller A, the lever B, the staple C, the chain D, and the handles E E, substantially as and for the purpose specified.

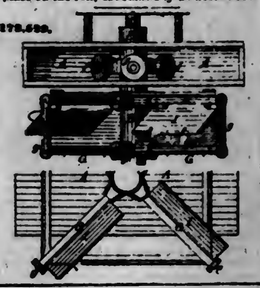
178,528. MANUFACTURE OF PRINTING-ROLLS. Jacob J. Janeway, New Brunswick, N. J. [Filed Feb. 8, 1876.]



1. The process of securing outline plates or pins to the body of printing rolls, herein described, by coating the roll with wax, driving the plates into the wax, coating the whole with water-proof varnish, inclosing the roll thus prepared in a cage, filling the cage with plaster-of-paris, and allowing the same to harden, melting out the wax by heat, and flowing molten material into the annular space made vacant by the melting of the wax, all substantially in the manner above described.

2. A printing-roll, to the body of which are fixed outline plates or pins, having in their bases dovetailed notches or perforations, which, being embedded in the molten metal coating said body, secure the plates or pins in place on the roll, substantially as described.

178,528.



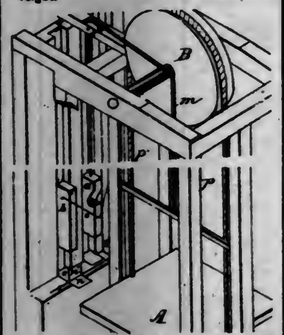
178,580. WATER-WHEELS. Lars Johannesen, Manistee, Mich. (Filed Feb. 3, 1876.)

Brief.—This wheel is immersed under the surface of the water, and propelled by the current or tide. The bent or flat which it rests upon has a flat bottom and no keel. The bottom is perforated in the center, to admit of the passage of the vertical hollow shaft. There is a desk or cover, which is also perforated in the center, to permit of the passage of the shaft.

The combination of the bent A, central axis C, revolving hollow shaft B, disk F, with runners *f*, lateral and parallel arms H and G, cross-pieces *g*, and swinging doors I, all arranged and operating substantially as and for the purpose specified.

178,580. ELEVATORS. Edward R. Johnson, Cortland, N. Y. (Filed Feb. 17, 1876.)

Brief.—Additional weights may be readily attached to the ordinary weight by means of a ball engaging in the notch thereof. Dampers cover or uncover, as desired, the apertures in the lower part of the apparatus, through which the additional weights descend and ascend. When the apertures are covered, said weights are intercepted in their descent, and thereby disengaged from the notched central weight.



1. The movable attachment of different weights to and from the weight *a* by means of the ball *c*, used in combination with the said weight *a*, dampers *n* and *n'*, and the grooves *g*, *g'*, and *c*, all substantially as shown, described, and set forth.

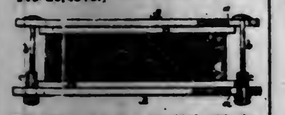
2. The combination and arrangement of the platform A, wheel B, axle *w*, pulley *x*, endless rope *p p' l*, rope *m*, weights *a*, *b*, &c., dampers *n* and *n'*, grooves *g*, *g'*, and *c*, all made and operated substantially in the manner and for the purpose herein described and shown.

178,581. DRAW-BARS FOR RAILWAY-CARS. Wm. H. Kelley, Cleveland, Ohio. (Filed Mar. 14, 1876.)



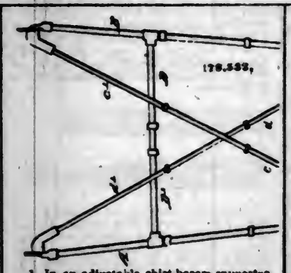
The combination of the sliding thimble H, spring G, cap *e*, spring J, draw rod or bar D, and shell *a*, case A, screwed into or otherwise secured to the logs B C, as and for the purpose specified.

178,582. PAPER-CLAMPS. Jacob Klein and Jos Philipps, St. Louis county, Mo. (Filed Feb. 26, 1876.)



The clamps A A A A, provided with the slots *a a a a*, in combination with the boards B B, bolts *b b b b*, and sleeves *c c c c*, substantially as and for the purpose set forth.

178,583. SHAWL-BOOSOM SUPPORTERS. Fredrech Korf, Chicago, Ill., assignor to T. C. Lamb, same place. (Filed Dec. 13, 1875.)



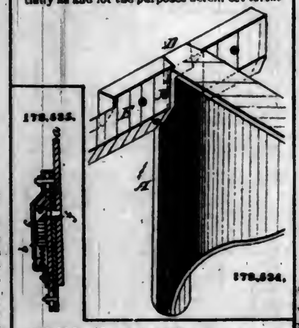
1. In an adjustable shirt-bosom supporter, the side pieces A A' B B', end piece C, and cross-bar D D', constructed and arranged to operate substantially as and for the purposes specified.

2. An adjustable shirt-bosom supporter consisting of the side pieces A A' B B', end piece C, cross-bar D D', and diagonal bars *c c' d d'*, constructed and arranged to operate substantially as and for the purposes specified.

178,584. WALL-BRACKETS. Charles W. Latham, Mystic River, Conn. (Filed Nov. 27, 1875.)

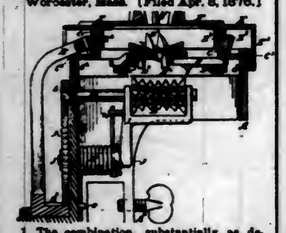
A wall-bracket having its back bar A formed with the incline *a* and sunken part A', and provided with the hook D, to admit of the bracket being hung upon a strip, E, substantially as and for the purposes herein set forth.

178,585. NAVIGATORS' PROTRACTORS. J. D. Leach and Sewall Leach, Penobscot, Me. (Filed Mar. 6, 1876.)



A navigator's protractor, consisting of the card *c*, subdivided and marked as a "compass-card," the rotary holder *c*, and rule *b*, the holder *c* being so pivoted to the center of card *c* at *f* as that one edge of rule *b* shall bisect pivot *f*, and the rule and holder being so constructed and arranged as to allow a final adjustment of the holder and card relatively to the rule, as well as a rotary adjustment of the card relatively thereto, all being constructed and arranged to operate substantially in manner and for the purposes specified.

178,586. CORN-SHELLERS. J. Edwin Lewis, Worcester, Mass. (Filed Apr. 8, 1876.)



1. The combination, substantially as described, of the cap E, formed with slots *c*, eccentric centering-arms F, provided with studs F', projecting pivot-pins F', and pressure-springs G, for the purposes set forth.

2. The combination of the supporting-frame A, ring-gear C, having laterally and downwardly projecting annular flanges C' and C', and cap-piece E, having downwardly projecting annular flange E', substantially as set forth.

3. The shelling-arms D, when constructed with curved convex sides *d*, and studs or projections D', said arms being pivoted directly to the operating ring-gear C, for combined and uniform action, substantially as set forth.

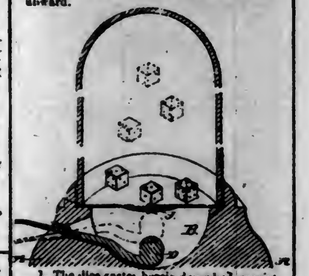
4. The combination and relative arrangement, substantially as set forth, of the shelling-arms D, ring-gear C, pressure-springs D', and bearing-studs *g*, said arms being pivoted directly to the lower side of the ring-gear C C', the springs D' being directly beneath the arms D, coiled around the arm-pivots or bearing-studs, and pressing against the studs *g* on the under side of said arms, as herein described, and for the purposes stated.

5. The combination, with the feeding-rolls H, of the arms I J, journaled in projecting bearings A', pressure-springs N, arranged around said bearings, and pressing against lugs or pins *n* and *o*, and the stop-pins *l*, fixed to the arm-journals and fitted to recesses in the bearings A', said parts being constructed and arranged for operation as shown and described.

6. In combination, substantially as described, the driving-gear K, its hub forming a pinion, B', the intermediate gear K, supported at the exterior of the frame on the arm-journal J, the pinion L, shaft M, supporting-frame A, formed with slot *m*, and feed-roll H, for the purposes set forth.

178,587. DICE-CASTERS. C. R. Macintire, New York, N. Y. (Filed Sept. 28, 1876.)

Brief.—By a downward flip upon the exposed end of a tilt-lever, the elastic floor of a glass chamber (within which the dice rest) is, by the inner end of the lever, suddenly struck upward.



1. The dice-caster herein described, consisting of the base A, having a conical hammer D, a flexible diaphragm, provided with the center disk J and the glass top H, combined and arranged to operate substantially as set forth.

2. In a dice-caster, the combination of the base A, pivoted hammer D, and flexible diaphragm, with the top H, substantially as described.

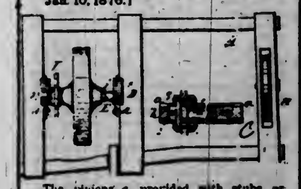
178,588. TOBACCO-PACKING CASES. L. H. Marberg, Baltimore, Md. (Filed May 27, 1876.)

Brief.—This case is made rigid, and covered by a flexible material, to resemble a large bag of tobacco, to serve as a receptacle for small tobacco-bags, and as a sign.



A case for tobacco packages or bags, consisting of a box covered with flexible material, one end or side opening as a door, and another end or side secured by gathers and a ligature, substantially as shown and described.

178,589. RAISING AND LOWERING DEVICES FOR HARVESTERS. Charles W. March and William W. March, Sycamore, Ill. (Filed Jan. 10, 1876.)



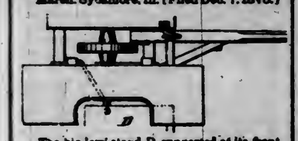
The pinions *a*, provided with stubs or projections A, in combination with a hollow axle, substantially as and for the purpose specified.

178,590. HARVESTER FINGER-BARS. Chas. W. March and William W. March, Sycamore, Ill. (Filed Feb. 21, 1876.)



The finger-bar B, provided with the metallic shield D, bent to support the under side of the guard fingers, and to support the bottom of the platform, substantially as and for the purpose set forth.

178,591. BOTTOM STANDS FOR HARVESTERS. Charles W. March and William W. March, Sycamore, Ill. (Filed Dec. 7, 1875.)



The bolt-lever stand D, supported at its front end upon the tongue, and at its rear end upon the main frame, and vertically adjustable thereon, for varying the distance between the stand and table, substantially as and for the purpose set forth.

178,592. MACHINES FOR DIGGING AND SEPARATING POTATOES. H. A. McLaughlin, Karoo City, Pa. (Filed Feb. 19, 1876.)

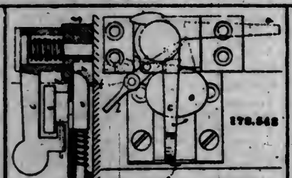
Brief.—A long skeleton wheel supports the rear end of the frame, and the share forms the front end. A roller is placed in rear of the share, its length equaling the width of the machine. At the rear end of the frame is another roller. The separators consist of a series of endless chains, that pass around the rollers and skeleton-wheel, the chains crossing at the upper side of the wheel.



The ground skeleton wheel C and endless chain *b b b b b*, in combination with the frame and share A and rollers *d* and *e*, as and for the purpose specified.

178,593. FASTENERS FOR THE MEETING-RAILS OF SASHES. Samuel McNinch, Boston, Mass. (Filed May 8, 1876.)

Brief.—A spring-actuated locking-arm is provided with a pivoted holder for the same, both arranged on a suitable base-plate attached to the meeting-rail of the upper sash. A spring-bolt and flanged button on a corresponding base-plate of the lower meeting-rail are arranged to operate the holder and release the locking-arm, thereby automatically engaging the parts and locking the sashes together; the construction being such that when the meeting-rails are brought together the beveled end of the spring-bolt will strike and pass the edge of the base, and then strike the end of the holder, turning it on its pivot, thus releasing the locking-arm, which is thrown by its own spring into engagement with the flanged button, until again released from the same.

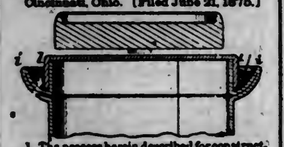


1. A sash-lock, composed of the base *g*, the spring-actuated locking-arm *a*, a pivoted holder, *l*, for the arm, and a flanged button, *c*, and spring-bolt *c*, adapted to be applied to the lower sash and to operate the holder to release the locking-arm, thereby automatically engaging the parts and locking the sashes together, substantially as described.

2. The sash-lock base *g*, provided with the ledge *d*, the flanged button *c*, and spring-bolt *c*, in combination with the locking-arm *a*, adapted to engage the button and retain the forward end of the bolt under the ledge *d*, substantially as described.

3. The spring-bolt *c*, in combination with the base *g* and holder *l*, and adapted to operate the holder and retain it extended across the top of the lower sash, substantially as described.

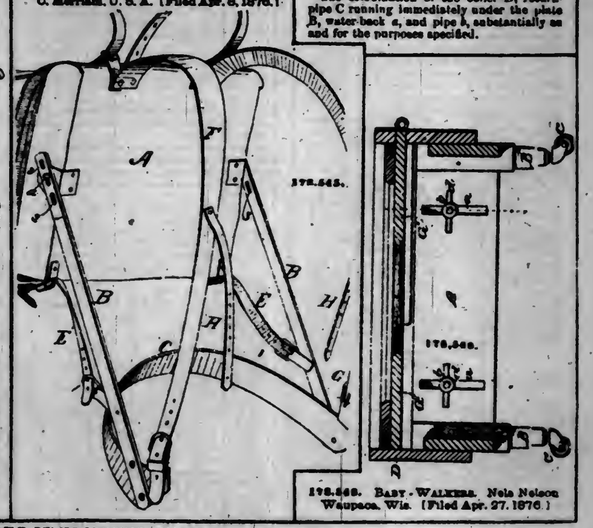
178,594. SHEET-METAL CANS. J. F. Merrill, Cincinnati, Ohio. (Filed June 21, 1875.)



1. The process herein described for constructing a sheet-metal can by passing a suitable sheet of metal through rolls to form an outwardly-projecting bead, placing the sheet around a core, having a support surrounding the sheet with a clamp, having a counter-bore, and striking the upper surface of the bead, as and for the purpose set forth.

2. As a new article of manufacture, and as improvements in the construction of sheet-metal cans, the trough I, exterior to the body, and whose outer wall is constituted of two thicknesses, formed by compression of an outer beige from the body, and has a rim or margin, *i*, having a rounded surface of tinned iron, formed by the bend of said thicknesses, as set forth.

178,595. KNAPSACK-SUPPORTERS. Henry C. Merriam, U. S. A. (Filed Apr. 6, 1876.)



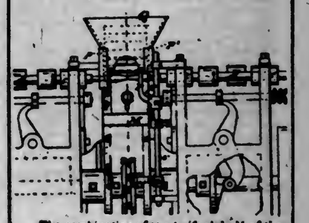
1. The side braces B, provided with elongated slots *a*, combined with the knapsack A, having T-buttons *a* and the waist-belt C, substantially as described, for the purpose specified.

2. The adjusting-straps E, combined with the knapsack A, adjustable side braces B, and waist-belt C, substantially as described, for the purpose specified.

3. The curved shoulder-straps F, provided with straps H, in combination with the knapsack A, waist-belt C, and adjustable side braces B, substantially as described, for the purpose specified.

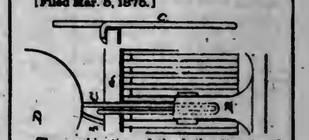
178,596. MACHINES FOR MAKING CLOTHES-PINS. John W. Millet, Johnstown, N. Y., assignor to Louisa B. Pettyjohn, same place. (Filed Sept. 11, 1875.)

Brief.—The pin-blanks are placed in a hopper, from which they descend one by one to the lathe-centers, and are there given the desired form by reciprocating cutters.



The combination of the knife-slide N of the feeding device S, consisting of the finger *r* and rod *r'*, with its other actuating appendages, as described, when used in conjunction with the blank-guides *p p'*, each part arranged with relation to the spindles *d d* and hopper Q, substantially as and for the purpose set forth.

178,597. WATER-HEATERS FOR STOVES AND RANGES. Jas. B. Montell, Baltimore, Md. (Filed Mar. 6, 1876.)



The combination of the boiler D, return-pipe C running immediately under the plate B, water-back *a*, and pipe *b*, substantially as and for the purposes specified.

178,598. BABY-WALKERS. Nels Nelson, Waupaca, Wis. (Filed Apr. 27, 1876.)

The combination of the frame A, having slots *a*, and supported upon the legs B, with casters C, the adjustable frame D, with stationary and movable boards G H, having central aperture, and the adjusting-bolts *b*, with thumb-nuts *d*, all substantially as and for the purposes herein set forth.

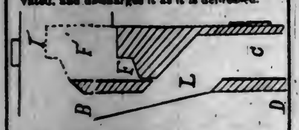
176,529. METHODS OF TUBING WELLS. D. L. Newcomb, Canton, Ohio. [Filed Nov. 22, 1875.]



The method or process of tubing or lining wells, consisting, first, in temporarily suspending in the bore or shaft of a well previously excavated the sections of tile, sewer-pipe, or other lining between two strips of metal, wood, or their equivalent, or a series of such during the process of tubing, and then permanently suspending the column of tubing or other lining in the bore or shaft between said supporting devices, or a series of such, in the manner and for the purposes substantially as described.

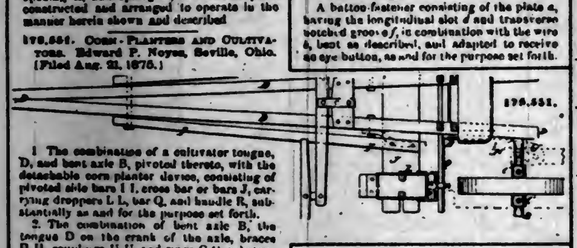
176,530. HAND CORN-PLANTERS. John Mithoy, Minneapolis, Minn. [Filed Nov. 8, 1875.]

Brief.—The loosely-moving plunger is secured to the standard by bands. The standard is provided at the top with an adjustable seed-cup, which receives seed from the hopper secured to the plunger, as the plunger is elevated, and discharges it as it is depressed.



The combination, in a hand corn-planter, of the movable hopper A, measure F F', hollow standard C, having stop K, plunger D, having opening L, and spring E, the several parts constructed and arranged to operate in the manner herein shown and described

176,531. CORN-PLANTERS AND CULTIVATORS. Edward P. Noyes, Seville, Ohio. [Filed Aug. 21, 1876.]



1. The combination of a cultivator tongue, D, and bent axle B, pivoted thereto, with the detachable corn planter device, consisting of pivoted side bars I I, cross bar or bars J, carrying droppers L L, bar Q, and handle R, substantially as and for the purpose set forth.

2. The combination of bent axle B, the tongue D on the crank of the axle, braces R R, couplings U U, and rings C C, substantially as and for the purpose set forth.

176,532. BUTTONS. William Orr, Brooklyn N. Y., assignor of one-half his right to David Bliss same place. [Filed Nov. 10, 1875.]



The combination of the internally corrugated, toothed, or notched eye, the longitudinally split and corrugated, toothed, or notched clamping-tube fitting within said eye, and the locking-pin for securing or holding said tube in its place within the eye to form a button, substantially as specified



176,533. PORTABLE BURGLAR-ALARMS. N. W. Palmer, New York, N. Y. [Filed May 3, 1876.]

The arms *d* and *e*, spring S, nipple *f*, chain *g*, and hasp *h*, when constructed and arranged to operate substantially as set forth.

176,534. ORE SCOURERS AND AMALGAMATORS. William E. Patton, Oakland, Cal. [Filed Feb. 26, 1876.]

Brief.—The pulp is fed into the outer circumferential channel, from whence it passes by overflow over and between the rubbing or scouring shoes. The amalgam remains in the inner channel, while the light tailings continue toward and discharge through the central opening. Riffle-arrests are arranged in the inner channel for retaining the amalgam and quicksilver.

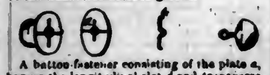


1. The combination of shaft F, carrying the operating-worm O, the pulley E, driving belt G, pulley D, with its attached radial arms O, supporting the annular ring B, connecting-rod P, adjustable, elastic universal joint R, and pan A, substantially as set forth.

2. The ball R, bearings S, springs T, jam nuts U, and rod P, when combined and operated substantially as described.

176,535. BUTTON-FASTENINGS. Alfred T. Perrine, Cedar Grove, assignor to Henry A. Stearns, Pawtucket, R. I. [Filed Nov. 17, 1875.]

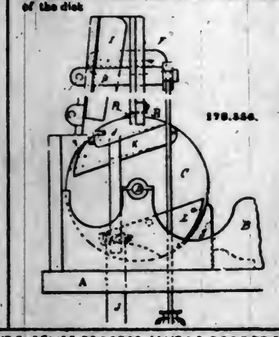
Brief.—The boot-wire fastening is longer than the slot. It is applied by inserting one end first, and after passing it through the eye of a button it is turned around until it falls in the transverse notched groove.



A button-fastener consisting of the plate *a*, having the longitudinal slot *d* and transverse notched groove *e f*, in combination with the wire *b*, bent as described, and adapted to receive an eye button, as and for the purpose set forth.

176,536. BRUSH-MAKING MACHINES. Jos. M. Pickering, Philadelphia, Pa. [Filed Nov. 18, 1875.]

Brief.—The bristles are held upon the vibrating disk by a weight. A hinged separator operates with a slot in the disk, to divide a tuft from the mass at each forward movement of the disk



1. The disk C, having a slot, *f*, and recess *e*, in combination with the hopper F and cut-off plate E, having a projection, *w*, and recess *e*, the plate being operated by any suitable mechanism for dividing the bristles, and inclosing them in the slot *f*, substantially as set forth.

2. The combination of the disk C, plates K and L, connecting-rod J, and spring H, the several parts being constructed and arranged for joint operation, substantially in the manner and for the purpose set forth.

3. The hopper F, having a hinged side, *d*, provided with a closing plate, I, in combination with the disk C, having a tuft-slot, *f*, substantially as and for the purpose set forth.

4. The weighted bar N, in combination with the hopper F, having vertical slots *r* for keeping the bristles compactly together in the hopper while being divided into tufts, substantially as set forth.

5. The combination of the plate L, having a concentric part, *u*, at its outer end, and the spring S, with the disk C, substantially as and for the purpose set forth.

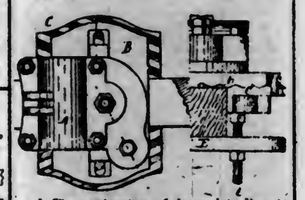
176,537. ROCKING-CHAIRS. D. J. Powers, Chicago, Ill. [Filed Apr. 10, 1876.]



1. The combination, with the platform A and rockers B B, of the rock-shaft F, notched arms G G, and pins *f*, substantially as and for the purpose specified.

2. The combination, with the platform A and rockers B B, of the shaft D, cross-bar D', elastic bands E E, keys *d*, and plates *e*, all arranged substantially as and for the purpose specified.

176,538. SULEY-PLOWS. John B Ralston, Rockford, Ill., assignor to himself and M Harvey, same place. [Filed Dec. 30, 1875.]

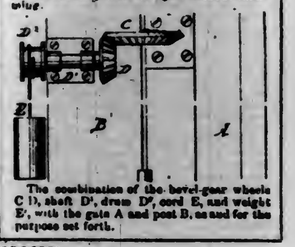


1. The combination of base-plate B and clamping plates C, corrugated, substantially as described, and clamping-bolts *l*, operating to clamp the plow-beam sidewise, and to adapt it to plow beams differing in width and to plow cutting furrows of different widths, substantially as hereinbefore set forth.

2. The base-plate B and side clamping-plates C, corrugated, substantially as described, clamping bolts *l*, and clamping bar E, in combination with the box A, swiveled thereto by king-bolt connection, substantially as and for the purpose hereinbefore set forth.

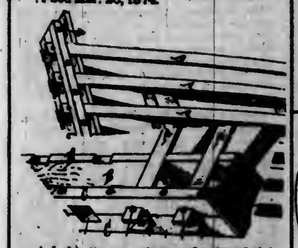
176,539. DEVICES FOR CLOSING GATES. J D Reed, Greencastle, Ind. [Filed May 9, 1876.]

Brief.—A bevel-gear wheel is attached to the gate, and meshes with a similar wheel at right angles thereto on the post, the latter having a shaft and drum with cord and weight, to automatically close the gate without slamming.



The combination of the bevel-gear wheels C D, shaft D', drum D', cord E, and weight E', with the gate A and post B, as and for the purpose set forth.

176,540. SPRING-BOTTOMS FOR BEDS, &c. William P. Rees, Elizabethtown, Ohio. [Filed Mar. 26, 1874.



A bed-bottom, consisting of pairs of slats A A, the common continuous bearing B, and common continuous coupling C, arranged and constructed as and for the purposes specified

176,541. GAS-IRON HEATERS. Robt. Reid, Philadelphia, Pa. [Filed May 11, 1876.]



1. The combination of the bellows and the air reservoir or regulator hinged and connected therewith, substantially as and for the purpose set forth.

2. The air reservoir or regulator, consisting of the base with apertures for ingress and egress of air and the elastic and extensible rubber cover, combined and arranged as shown and set forth.

3. The combination of the bellows and the naphtha tank or carburetor, arranged to be agitated or rocked by the movement of the bellows, substantially as set forth.

4. The combination, substantially as shown and described, of the bellows, the carburetor, the air reservoir or regulator, and the iron.

5. The combination, substantially as shown and described, of the body of the iron, the removable distributing-chamber, and the set or pressure screw, which holds the chamber in place by pressing it against the bottom of the iron, as set forth.

176,542. FURNACE'S HYDRAULIC LIFTS. Jas. Berwick and Jno. A. Anderson, Allegheny, assignors to themselves, John I. Williams, Millvale Borough, and R. S. Haines, Pittsburg, Pa. [Filed Feb. 26, 1876.]

Brief.—A double series of extensible hydraulic pipes, with a water-supply and water-discharge, having a flexible ladder interposed. The pipes are provided with trunnions and attached to a trunk.

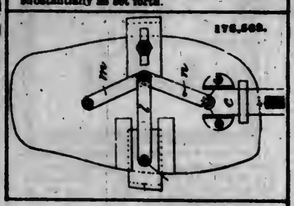


1. A hydraulic lift apparatus, consisting essentially of a double series of extensible hydraulic pipes, a water-supply therein, a water-discharge therefrom, and an interposed flexible ladder, substantially as set forth

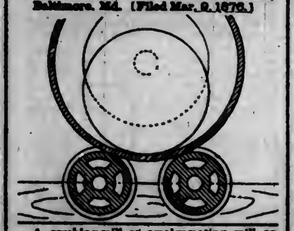
2. A hydraulic lift, consisting of a double series of extensible pipes with suitable seats and connections, whereby the water in one leg or column may be confined, so as to keep the column extended, while the water is free to be forced upward through the other, substantially as set forth.

3. A close water-column, B B', &c., and an open column, B' B', &c., in combination with a supply-hose, D, and a discharge-hose, *c*, substantially as set forth.

176,543.



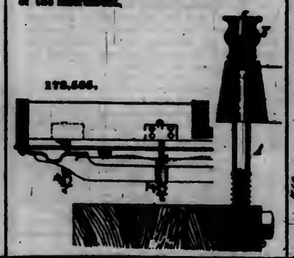
176,544. CRUSHING-MILLS. F. H. Smith, Baltimore, Md. [Filed Mar. 9, 1876.]



A crushing-mill or amalgamating-mill, or a crushing and amalgamating mill, composed of a vertical revolving drum, without internal aids, fastening a flat circular or oblong or polygonal, and practically solid, roller, and revolving and revolving on, or rotating on and revolved by, one or more hand-wheels, and having suitable inlet and outlet apertures in its rim or sides for the introduction and discharge of materials and currents, substantially as set forth.

176,545. PIANO-FORTES. C. F. T. Steinway, New York, N. Y. [Filed May 18, 1876.]

Brief.—Renders the bolt readily replaceable in case of breakage, and readily extractable at any time, without removal of adjoining parts of the instrument.



176,546. SEATS. Charles G. C. Simpson, Montreal, Canada, assignor to Chas. Brewster, same place. [Filed May 4, 1876.]

The combination of the clamp *k*, irons *i*, *m*, and *n*, and bar *o*, substantially as described.

176,547. CROSSING-MILLS. F. H. Smith, Baltimore, Md. [Filed Mar. 9, 1876.]

1. The combination of a removable nut, D, with the nose-bolt A, which serves to unite the metal frame of a piano-forte with the wooden case, substantially as shown and described.

2. The combination and arrangement of a head, *a*, for the reception of a wrench or key, on the upper end of the nose-bolt A, substantially as and for the purpose set forth.

3. The combination of a cup-shaped nut, B, with the nose-bolt A and its head *a*, substantially as shown and described.

176,548. HARROWS. John D. Tracy and James F. Platt, Sheffield, Ill. [Filed Mar. 4, 1876.]



The eyebolt B, by which the harrow-tooth C may be held at any desired angle, in combination with the teeth C and beam A, substantially as described, and for the purpose mentioned.

176,549. WATER-WHEELS. Henry Van De Water, Geneva, N. Y. [Filed June 17, 1876.]

Brief.—Horizontally-moving gates, provided with vertical and horizontal flanges, that overlap the outer edges of the walls, and so arranged that no wear shall come on them in the moving back and forth, as also making tight joints.



1. The horizontally-moving gates *d e*, provided with the vertical flanges *g*, that overlap the outer edges of the walls *c*, the said flanges being so arranged that no wear shall come upon them in the moving back and forth of the gates, substantially as set forth.

2. The horizontally-moving gate *d e*, having the horizontal flanges *f* formed upon their front ends for overlapping the edges of the top plate A, and forming water-tight joints, substantially as shown.

3. The horizontally-moving gates *d e*, having the horizontal flanges *f* for overlapping the top plate A, and vertical flanges *g* for overlapping the ends of the walls *c*, substantially as specified.

176,550. GATE-HINGES. Wm. L. Walker and Benj. G. Dewes, Kenton, Ohio. [Filed Feb. 24, 1876.]

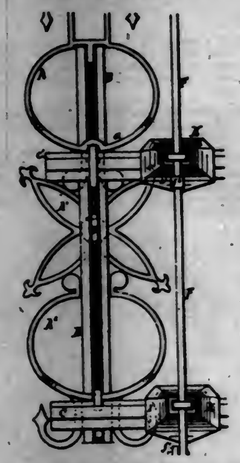
Brief.—The essential novelty is that of casting the wheel or roller at one and the same time with that portion of the hinge carrying the eye-piece, forming with it and the strap or attaching-plate (being interposed between them) practically but a single piece; the construction and combination forming a simple and effective automatic gate-hinge, opening inward or outward, more specially adapted for use with iron fences or railings.



1. The post A^1, in combination with the wheel or roller B, when cast at one and the same time, so as to form practically one piece, substantially as described, and for the purposes specified.

2. An automatic or self-shutting hinge, consisting essentially of the part A, provided with the tubular plate E, carrying the pintle-blank b and pintle b^1, in combination with the part A^1, consisting essentially of the stop c, latch-bolt c^1, the clamp or shouldering-plate C, and the roller or wheel B, having its face bevelled off toward the center of its periphery, cast together, and practically formed of one piece, substantially as described, for the purpose specified.

178,569.—MEDALLIC PERCHES. William L. Walker, Rend. G. Dorrer, and Jos. Young, Kenton, Ohio; said Walker assignor to said Jos. Young and Rend. G. Dorrer, and William H. Young and Henry Price, same place. [Filed Feb. 24, 1876.]



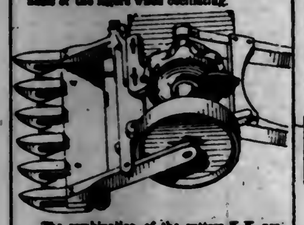
1. In combination with the ornamental part A, provided with a rear brace, d, having a central recessed enlargement formed thereon, of the fastening device H, picket B, and the cross-rail C, substantially as described.

2. The post F, the horizontal arm f^1, the pivoted brace f^2, and the adjusting and fastening link f^3, all combined substantially as described.

3. The combination of the post F and clamp K with the J-shaped cross-rail C, having a projecting rib or flange, c^1, substantially as described, for the purpose specified.

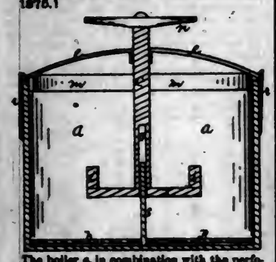
178,570.—MOWING-MACHINES. R. Webster, Gardiner, Me., assignor, by mesne assignments, of two-thirds his right to Henry A. Stearns, Lincoln, R. I. [Filed Nov. 8, 1875.]

Brief.—By means of the assemblage of elements as set forth in claim, points upon the edges of the cutters are drawn toward the heads of the knives when oscillating.



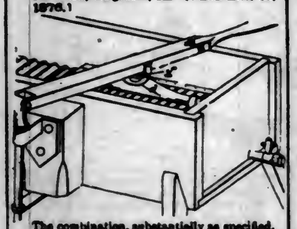
The combination of the cutters K K, provided with a slot, E, and a fixed pin, M, and the reciprocating bar I, to which the rear ends of the knives are pivoted, substantially as and for the purpose set forth.

178,571.—BOILER WASHING-MACHINES. F. O. Wessell, Plainfield, Ill. [Filed Dec. 11, 1875.]



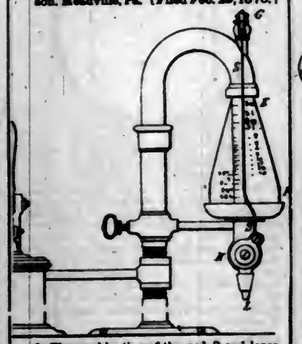
The boiler a, in combination with the perforated false bottom B, center-pin e, agitator c d n, lid m e, and snap-hooks r r, all constructed, operating, and arranged as and for the purposes set forth.

178,572.—WASHING-MACHINES. William A. West, Magnolia, Ill. [Filed Mar. 18, 1876.]



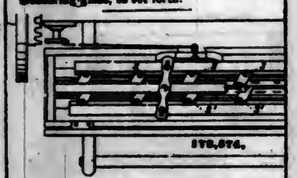
The combination, substantially as specified, of the rubber, the hand-lever, and the intermediate cross-head d and swivel g, connected and operating as stated.

178,573.—LIQUID-MEASURES. J. W. Williamson, Meadville, Pa. [Filed Feb. 29, 1876.]



1. The combination of the rod S and lever M with the valve G and measuring-glass E F, all arranged to operate so that the valve G will open to permit of the escape of air as the measure is being filled, as set forth.

2. The combination of the rod S, lever N, and valve G with the stop-cock K L, arranged to operate so that when the latter is turned to discharge the contents of the measure the valve G will be opened to admit air into the measuring-glass, as set forth.



178,574.

178,574.—COMBINED FERTILIZER-DISTRIBUTERS AND GRAIN-SOWERS. R. M. Williams, Gilead, Mich. [Filed Nov. 20, 1875.

The fertilizer-distributer provided with the two sets of oscillating stirrers $s s^1$ pivoted to fixed and movable bars in the hopper, and adapted to oscillate simultaneously in opposite directions to each other, and to stir the mid-dle and lower portions of the fertilizers or grain, and actuated by mechanism, substantially as described.

178,575.—RESETTERS. Morris D. Williams, Conquest, N. Y. [Filed Oct. 18, 1876.]

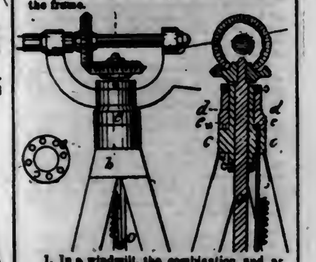


1. The combination of a series of hook-pawls with a series of notched registering rings, constructed and arranged to operate substantially in the manner described.

2. The signal bell located within the rounded leg-rings, and having the hammer operated by one of the rings, substantially as specified.

178,576.—WINDMILLS. Geo. W. Worster, Bangor, Me. [Filed May 1, 1876.]

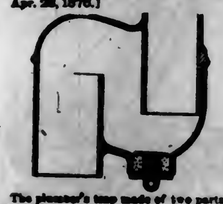
Brief.—The object of this device is to prevent the constant and irregular motion of the frame and wind-wheel relatively to the points of the compass, and to lock the frame in position, and so retain it until a change of wind. By this arrangement of shaft, cap, and hub, the shaft is exempt from friction, strain, or wear caused by the weight or movements of the frame.



1. In a windmill, the combination and arrangement of cap c, cylindrical sleeve d, shaft e, and the wind-wheel hub c, when the whole are so constructed and arranged as that the base of the sleeve serves as the cap of the frame, and the interior and exterior of the sleeve serves as the respective retaining bearings of the shaft and hub, substantially in the manner as described and shown.

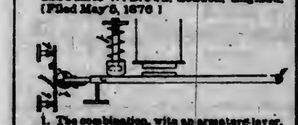
2. In a windmill, a locking mechanism, constructed and arranged to be withdrawn at will to allow the wind-wheel to "come into the wind's eye," and to automatically lock the wind-wheel frame, substantially as and for the purpose specified.

178,577.—PLUMBERS' TRAPS. Fredk. Adee and James Foley, Brooklyn, N. Y. [Filed Apr. 26, 1876.]



The plumber's trap made of two parts, one of which is cup-shaped and cast with a dam in it, and the other is cast with a tubular extension, and the two parts are united by a horizontal or nearly horizontal joint, substantially as set forth.

178,578.—TELEGRAPH-RELAYS. Geo. Allan and James W. Brown, London, England. [Filed May 6, 1876.]



1. The combination, with an armature-lever, of a wheel or segment composed of insulated and conducting sections, pivoted to the lever, and a yielding contact-plate, upon which such wheel impinges to make and break circuit, substantially as set forth.

2. The compound armature $c d^1 d^2$, formed of the lever c and the disk $d d^1$, in combination with the receiver $e f$, operating substantially as and for the purposes set forth.

3. The combination of the parts c and $d d^2$ with the springs f, operating as and for the purposes set forth.

178,579.—TELEGRAPH-RELAYS. Geo. Allan and James W. Brown, London, England. [Filed May 3, 1876.]



1. The compound armature or contact-maker $c c^1$, formed of the lever c and the yoke or piece c^1, operating in combination with the receiver $e e^1$, substantially as and for the purpose set forth.

2. The combination of the parts c, c^1, and f, operating substantially as and for the purpose set forth.

3. The compound armature or contact-maker $b b^1$, formed of the lever b, yoke or piece b^1, and adjusting-spring f^1, in combination with the receiver (f, operating substantially as and for the purposes set forth.

178,580.—TELEGRAPH-RELAYS. Geo. Allan and James W. Brown, London, England. [Filed May 31, 1876.]

1. The combination, in a relay or pantor, of an armature or contact-maker, f, vorting on a fixed center, g, with a movable receiver or contact, $e e^1 d d^1$, vorting in bearings c, and operating substantially as and for the purpose set forth.

2. The arrangement and combination of the armature a and movable contact with the equilibrium springs b, substantially as and for the purpose set forth.

178,581.



178,581.—BARBED FENCE-WIRE. Wm. G. Allen, Nevada, Iowa. [Filed Mar. 8, 1876.]

1. The wire fence barb a, secured in position upon the wire e, provided with the bent portions c by means of the loop c^1, which surrounds the bent portion between the fence-wire and barb, substantially as shown.

2. The combination, with the fence-wire e having the crook or bends c, of the two pieces of pointed wire, $a a^1$, wrapped and interlocked around the bends c, substantially as shown and described.

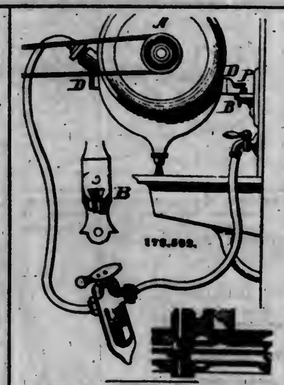
178,582.—REVERSIBLE ROTARY WATER-MOTORS. Oscar J. Beckum, Newark, N. J. [Filed Aug. 20, 1875.]

Brief.—This water motor for sewing machines can be hung and moved from place to place in the room without arresting the belting. It has a swinging dovetailed plate revolving upon a pin, which secures said plate to a stationary bracket, so as to form a part thereof, to support and operate the swinging motor. The wearing of the shaft is counteracted by a compensating spring, which also prevents noise.

1. The bracket H, with pin P and dovetail swinging plate and projections D and D^1 upon the case of the motor A, all arranged and operating in the manner and for the purpose set forth.

2. The compensating-spring s, in lieu of a section of the hub H, arranged and operating substantially as and for the purpose set forth.

178,582.



178,583.—FENCES. Ambrose E. Ballot, Limestoneville, Pa. [Filed Apr. 4, 1876.]
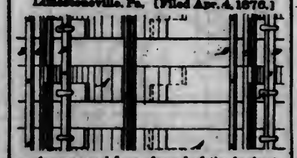


An improved fence, formed of the horizontal boards A, shouldered at their ends, the cross-bars B C D, and the pins E, arranged in connection with each other, substantially as herein shown and described.

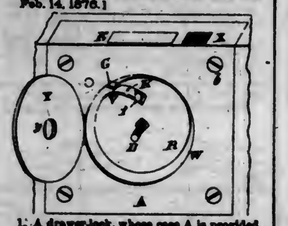
178,584.—OIL-FEEDING APPARATUS FOR GAS-RETORTS. Jas. Barbour, Providence, R. I., assignor to the Providence Steam and Gas Pipe Company, same place. [Filed Mar. 18, 1876.]

Brief.—The outer tube, through which oil is fed to the retort, is large in diameter, to allow gas, when an unusually pressure occurs, to belch up through the oil instead of blowing it out. A draw-off cock is attached to the lower end of the feeding-tube for draining it of oil.



In combination with a petroleum-retort, a feed pipe or passage formed with a trap having the receiving part of larger cross-area than the delivery part, and provided with the drain-cock d, as and for the purpose herein specified.

178,585.—COMBINATION DRAWER-LOCKS. Chas. P. Barth, Cincinnati, Ohio. [Filed Feb. 14, 1876.]



1. A drawer-lock, whose case A is provided with a shuttered opening, W Y, and a slot or aperture, X, which slot is so located as to permit inspection of the gated tumblers, when said shutter is opened, substantially as described.

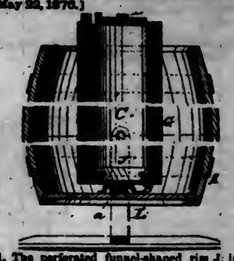
2. The driving wheel or disk B, secured to spindle D, and actuating the tumblers, substantially as described, said disk being provided with an eccentric slot, Y, that is fastened by stud f of stamp F, which latter projects from the reciprocating bolt E, in the manner set forth.

3. The combination of tube O c, spindle D, reciprocating bolt E, stamp F f, retracting-spring O, tumblers H I J K L M N, washers L I P, changing device O e P, and driving-wheel R U V, as and for the purpose stated.

4. The nut T (for maintaining the driving-wheel R, tumblers H K, and washers L I P in position upon tube O, and at the same time securely closing shutter Y y, in the manner explained.

5. The notch e^1 in bolt E, when the latter is fitted in a slotted lock-case, A X, to permit inspection of the gated tumblers, as set forth.

178,586.—FEED-COOKERS. M. H. Beach, New Sharon, Iowa, assignor to himself and Hunston & Carroll, same place. [Filed May 22, 1876.]



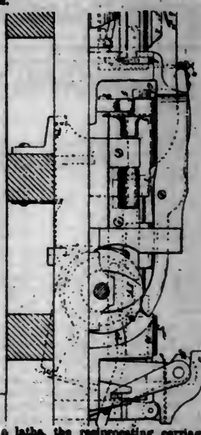
1. The perforated funnel-shaped rim J, in combination with the furnace C and air-flue G, substantially as and for the purpose herein set forth.

2. The combination of the furnace C, with oval button a projecting from its bottom, and the barrel or receptacle A, with slotted raised plate B in the bottom, substantially as and for the purposes herein set forth.

3. The combination of the stand L, the barrel or receptacle A, hung on trunnions therein, the furnace C, and locking device B e, substantially as and for the purposes herein set forth.

178,587.—RAKE-TOOTH LATHES. S. Bisbee, Sumner, Me. [Filed Jan. 7, 1876.]

Brief.—By a succession of automatic mechanical devices a rod is fed to the machine, severed to the proper length, and the pieces turned and tenoned, so as to form complete rake-teeth.



1. In a lathe, the reciprocating carriage provided with cylinders rotating in opposite directions, as and for the purpose described.

2. The longitudinally-grooved cylinder G, combined with feed-plate I, cutting-knife 2, cutter-head 3, set-back 4, saw 5, ejector 6, projection 7, and feed-hook 8, as and for the purpose set forth.

3. A feed-rack for lathes, consisting of bed-plate V, bent rods J', cross-plate 30, having feed-knife, brackets c^1, and brace having figure c^1, as and for the purpose described.

4. The combination, with feed-plate I and hook h, of the disks J, connecting-rod Z, rods P P, and spring O, as and for the purpose set forth.

5. The feed-knife S, composed of a pivoted handle, f', inclined blade e', spring g', pin 14, combined and arranged as described.

6. The clamping-knife e' and spring f', combined and arranged with the cylinder in the manner shown.

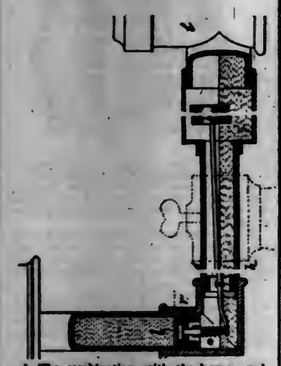
7. The set-hook d', combined with tube d and cylinder H, for the purposes described.

8. The slotted friction-strap A', spring D', and the gripe f', in combination, all for the purposes described.

9. The combination, with cam S', of the gripe f', spring f', and arm g', as and for the purposes set forth.

10. The combination, with cam S', of the crank P' and stationary slot-stud T', as above shown.

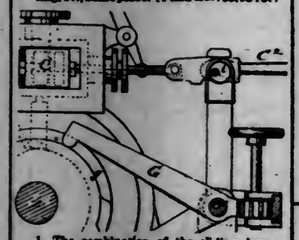
178,589. LAMPS. Chas. G. Bliss, Norwich, Conn. [Filed Dec. 6, 1875.]



1. The combination, with the burner and elevated reservoir, of a float, lever, and valve, all within the tube or off-conduits between the reservoir and burner, substantially as set forth.

2. The valve *l*, stem *e*, lever *h*, and float *f*, in combination with the valve-seat, tube *d*, and burner-socket *b*, substantially as specified.

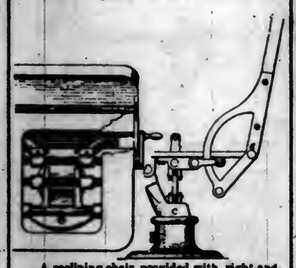
178,590. ROTARY ENGINES. Bruno Bruner, Bremerhaven, Germany, assignor to himself, F. A. Schilling, Sr., and F. A. Schilling, Jr., same place. [Filed Aug. 18, 1876.]



1. The combination of the sliding lever-arms G G, rocking shaft G', and cylinder F, having cams *g g* of different length, with the adjustable slide-valve C, and a connecting and reversing lever mechanism, substantially as shown, for the purpose set forth.

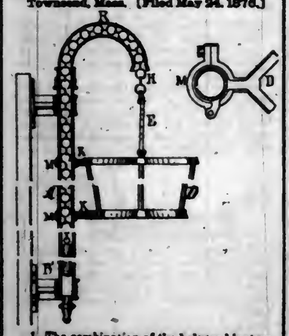
2. The combination of the locking-lever C' and eccentric bearing-pin 6 with the slide-valve C and operating mechanism, as and for the purpose set forth.

178,591. RECLINING-CHAIRS. Thomas M. Brintnall, New York, N. Y., assignor of one-half his right to John Goodchild, same place. [Filed Mar. 16, 1876.]



A reclining-chair provided with right-and-left-hand screws, shank-nuts, and pivoted levers or half-toggles, substantially as set forth, whereby the seat or back, or both, can be operated, substantially as described, and for the purpose specified.

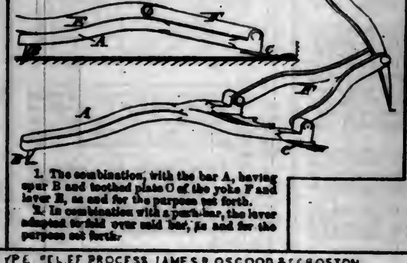
178,592. STREET-LAMPS. J. M. Bruce, West Townsend, Mass. [Filed May 24, 1876.]



1. The combination of the balanced lantern and cage D, chain H, and weight W with the tube-bracket R A B B', substantially as described, and for the purpose set forth.

2. The combination of the cage D and hinged arms K M K M with the bracket-tube A, substantially as described, and for the purpose set forth.

178,593. CARPET-STRETCHERS. Reuiel W. Bullard, Barre, Mass. [Filed May 6, 1876.]



1. The combination, with the bar A, having spur B and toothed plate C of the yoke F and lever E, as and for the purpose set forth.

2. In combination with a portable, the lever adapted to fold over said bar, as and for the purpose set forth.

178,594. BLACKBOARD-RUBBERS. Henry H. Barrington, Providence, R. I. [Filed Oct. 9, 1876.]



1. The base or block B, having the rubbing corners and ends rounded, so there shall be no square or right-angle corners to dent or injure the board or plastering on which it is used.

2. In combination with the base or block, provided with rounded rubbing ends and corners, the handle having rounded ends, substantially as described.

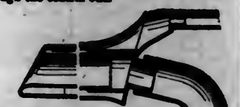
178,595. PROJECTILES FOR ORDNANCE. J. G. Butler, New York, N. Y. [Filed Sept. 11, 1876.]



The combination of a projectile having conical base and threaded smaller portion or extension, with a sabot fitted thereto by an outer tapering part and an inner flange, substantially as and for purpose the set forth.

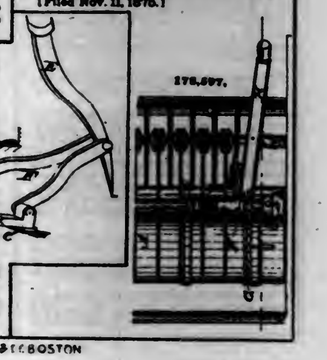
178,596. VAGINAL SYRINGES. James T. Butterick, Newport, R. I. [Filed Sept. 15, 1874.]

Brief.—An annular jet is thrown against the os uteri from the space between concentric tubes, and after use the fluid passes out through the central one.



In a vaginal syringe, the combination of the concentric tubes, and the annular perforated cap uniting the tubes at one end, and arranged for the ejection of fluid through the perforations in said cap from the annular space between the tubes, and to afford an outflow-passage through the central tube, substantially as described.

178,597. TRIMMING MECHANISM FOR PRINTING-PRESSES. Wm. H. H. Clegg, Rochester, N. Y., assignor of two-thirds his right to R. B. Randall and R. R. Andrews. [Filed Nov. 11, 1876.]



1. In a printing-press, the combination of a delivery drum or cylinder of a printing press, a band, C, or its equivalent, applied thereto, and a rotary cutter, F, operating in connection therewith, as shown and described, for the purpose of trimming the edges of the printed sheets accurately in line with the printing.

2. In a printing-press, the combination of a delivery drum or reel, a rotary cutter arranged to trim the edge of the sheet as delivered, and a trough or equivalent device to receive the trimmings and conduct them away.

3. The combination of the drum A, band C, cutter F, and trough H, as shown.

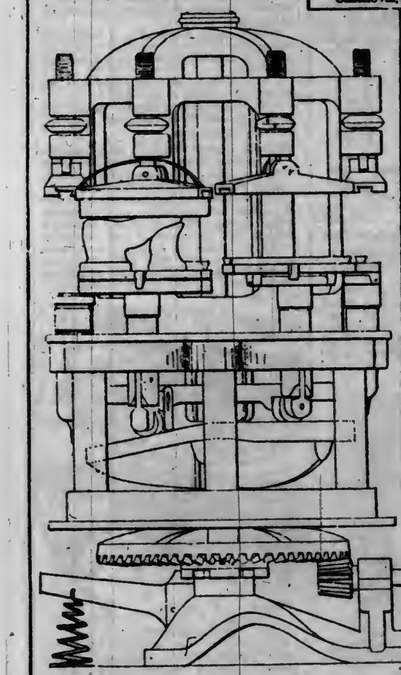
4. The combination of the drum A, having the band C, and the shaft E, provided with the cutter F and pulleys b, substantially as shown.

5. The combination of the cylinder A, the band C, knife F, and trough H, all made adjustable laterally.

6. In combination with the cylinder A, knife F, and trough H, the lip *c*, as and for the purpose set forth.

178,598. MACHINERY FOR THE MANUFACTURE OF BOOTS AND SHOES. O. W. Collyer, Marblehead, Mass. [Filed Feb. 7, 1876.]

Brief.—By means of a stationary cam-faced disk, over which the vertically-reciprocating jack supports travel, the soles of boots and shoes are brought successively to the action of a pressing-die or former.



The frame and reciprocating jack-rods and pivoted jack-plates and molds or dies, in combination with a cam adapted to operate the jack-rods simultaneously two or more, as the frame and cam change position with relation to each other, substantially as described.

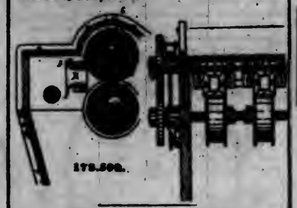
178,599. FULLING-MACHINES. Charles P. Coolidge, Orange, Mass., assignor to Rodney Hunt Machine Company, same place. [Filed Feb. 21, 1876.]

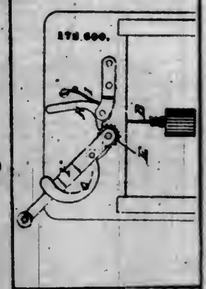
1. The box or frame A, having the slot *c* in each of its sides, and provided with the pair of movable slides *b b'* to each of such slots, such slides being to limit the vertical movements of the upper squeeze-rollers, and prevent them from contact with either the lower squeeze-rollers or the top of the case.

2. Each upper squeeze-roller axial section *e*, provided with the grooved tongue *f* and its dovetailed key *g*, in combination with the wheel *d'*, provided with the dovetailed groove *h*, and the series of projections to each; to operate with said tongue and its key, as set forth.

3. The combination of the pair of stationary horizontal jaws I I and the pair of movable vertical jaws K K, provided with mechanism, as described, for simultaneously moving them either toward or away from each other, and between the stationary jaws, all being substantially as specified.

178,600. MECHANISMS FOR MAKING AND DROPPING WEIGHTS. Joseph F. Crawford, Cassenovia, N. Y. [Filed May 10, 1876.]



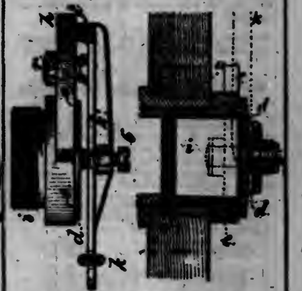


1. The combination of the ratchet-wheel E, vibrating lever F, and the pawl G, pivoted to said lever, and provided with the weighted end, whereby it is caused to release automatically, as shown and described.

2. The combination of the ratchet-wheel E, lever F, and dog or pawl G, constructed as described, with the spring I and pawl H, the latter arranged to be disengaged by the lever, substantially as shown and described.

3. The herein-described apparatus for raising and dropping weights, consisting of the drum C, provided with the weight-sustaining rope B and ratchet-wheel E, the vibrating lever F, provided with the pawl G and the pawl H, combined and arranged to operate in the manner shown and described.

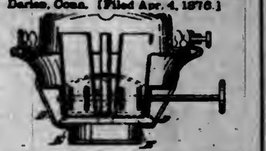
178,601. VALVES FOR VARNISH AND OTHER CANS OR VESSELS. David T. Crosbieatt, New Haven, Conn., assignor to himself and Adee & Delaven, New York, N. Y. [Filed Nov. 13, 1876.]



1. The circular revolving independent plate, forming a valve, *d*, having a central stem entering the cavity in the swinging stop lever-arm *h'*, in combination with the face-plate *c*, that is sufficiently wide to sustain the valve *d* when moved aside to open the faucet, as set forth.

2. The combination, with the circular valve *d*, lever *h'*, and plate *c*, of the screw-socket *a* and rod *k* within the can or vessel, substantially as set forth.

178,602. LAMP-BURNERS. James Curson, Darien, Conn. [Filed Apr. 4, 1876.]



1. The wick-tubes made straight and radial to a common center and operated by ratchet-bars crossing each other to set upon the wicks in pairs, as shown and described, to avoid twist in wick and tube, which causes the former to smoke.

2. The combination, with a series of wick-tubes arranged in crossing planes, of a secondary bottom, D, of the lamp-top, larger than the bottom E, which screws into the lamp, substantially as specified.

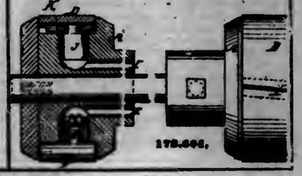
178,603. CHRISTMAS-TREE BRACKETS. A. Dahler, New York, N. Y. [Filed May 22, 1876.]



1. A candle holder or bracket for Christmas-trees, made of a symmetrically-bent central part, with candle supports or handles at the ends, substantially as and for the purpose set forth.

2. A candle holder or bracket for Christmas-trees made of a symmetrically-bent part, with central spring loop or clamp, and balancing candle holders or supports at the ends, substantially as set forth and described.

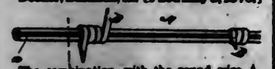
178,604. PACKINGS FOR BALANCED PISTON-VALVES. David Dale, Millerstown, Pa. [Filed Apr. 20, 1876.]



1. The combination of the wedge F and plug H with the packing D and the piston, the latter having an inlet-passage, I, to the plug for live steam, substantially as specified.

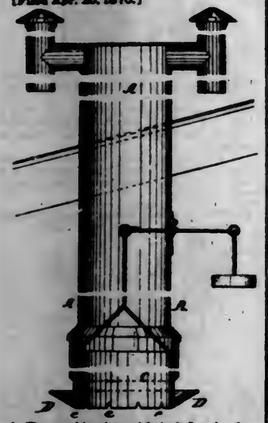
2. The combination of the spring K and plug J with the packing-ring D, piston A, and the plug H and wedge F, substantially as specified.

178,606. BARBED FENCE-WIRE. Alex. C. Decker, Bushnell, Ill. (Filed May 8, 1876.)



The combination, with the round wire A, having one or more longitudinal bends, a, formed thereon, of the wound barbs B, constructed upon said wire in such manner that the bend is crushed down within them, as and for the purpose described.

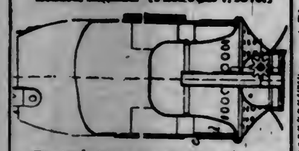
178,607. SHOES-JACKS. John B. Deeds and David A. Bridwell, Terre Haute, Ind. (Filed Apr. 20, 1876.)



1. The combination, with jack-face A, of a head, C, movable up and down thereon, and provided with a flange, b, substantially as and for the purpose described.

2. A head for jack-face, provided with the holes cut the junction of body with the flange D, as and for the purpose specified

178,607. SIGNAL-LANTERNS. H. H. Doty, London, England. (Filed June 7, 1876.)



The lamp-chimney made of metal, with a circular base, and provided with slides d and movable curved plumes, and concave reflectors, in combination with the circular rim c of the burner and the attaching projections c, substantially as specified.

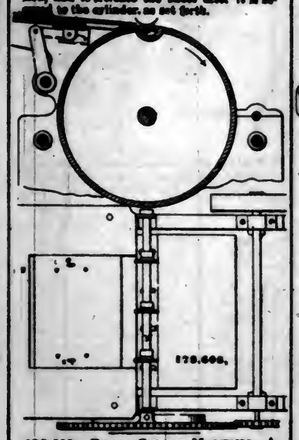
178,608. BRONZING MECHANISM FOR PRINTING-PRESSES. Andrew Dougherty, Brooklyn, N. Y. (Filed Nov. 8, 1875.)

Brief.—The register-points, passing through slots in the feed-board, are jointed to a shaft having an arm, rocked by a cam on the shaft of the impression-cylinder, by which means the sheet impaled on the points is carried forward by them to the grippers on the cylinder at a speed equal to that at which the latter travel, the points being lowered after the grippers take hold of the sheet.

1. The combination, in a cylinder-press, of the retaining cylinder, its fingers for griping the sheet to be printed, the table for holding the sheet and appliances, substantially as described, whereby each sheet is fed from the table to the cylinder with a positive movement, and is introduced beneath the fingers at a speed coinciding with that of the surface of the cylinder, all as set forth.

2. The combination, in a cylinder-press, having griping-fingers for clamping the sheet to the cylinder, of a table and feeding-points, and a cam for actuating the same, the whole operating as described, so that the paper is conveyed to the cylinder by a positive motion, at first slowly, and then at the same speed as the cylinder, is griped by the fingers while held on the points, and the latter are gradually withdrawn as the sheet is carried by the cylinder, all as specified.

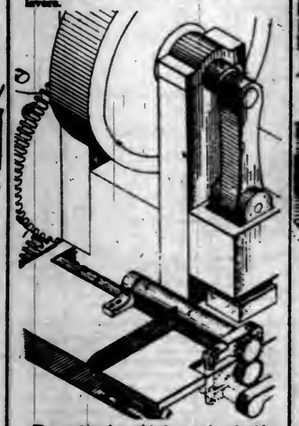
3. The combination, with a cylinder-printing-press, provided with fingers for clasping the sheet, of a reciprocating pointing apparatus, operating to carry on points a sheet of paper toward the cylinder, while the latter is in motion, and to release the sheet after it is secured to the cylinder, as set forth.



178,609.

178,609. PAPER-CUTTING MACHINES. A. Dougherty, Brooklyn, N. Y. (Filed Apr. 6, 1876.)

Brief.—Playing or other cards are with sections severed from the strip upon which they are printed by the reciprocating punch and the intermitting feed-rolls. To introduce or adjust the strip beneath the punch, the upper rolls are first elevated by depressing the levers.



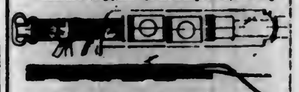
The combination, with the punch and table, of a pair of feed-rolls, *c c'*, arranged at one side of the punch, controlling the movement of the paper below the latter, operating intermittingly, and provided with appliances, substantially as described, whereby the upper roll may be elevated or maintained with a yielding pressure against the lower roll, as set forth.

178,610. COMBINED HEATING AND COOLING MILK-CANS. Michl. Downey, Barre, Mass. (Filed Mar 27, 1876.)



The combination of the cold and hot water or steam pipes L M, the passage G, having its openings *a a b b* controlled by the slide I, the diffusing-flange V, and the pans A and B, all constructed and operating substantially as and for the purposes described

178,611. VOLTAIC BELTS. Alex M. Dye Hibbert City, Ill. (Filed Apr. 20, 1876.)



1. The plates secured to the band *c* by clinching them over the edges of the band, in addition to the bottom fastening, substantially as specified.

2. The magnet, connected by a copper wire arranged in the eyes of the button and along the back of the felt band, substantially as specified

3. The felt band in combination with the plates, substantially as specified.

4. The plate-band *a*, extended through the protecting-band F, in the manner described, for buckling together.

178,612. WATER-WHEELS. Abel Edwards, Summerset, Iowa, assignor of part of his right to John J. Baker and John H. Hutchil, same place. (Filed Dec. 6, 1875.)

Brief.—This wheel has buckets and chutes of peculiar form extending radially from the closed central portion to the rim, in such a manner that the edges of each individual bucket and chute are parallel to each other, but at cross-angles with their contiguous buckets and chutes, and combined with a fixed directing-case or cover and a corresponding adjustable gate.



In a turbine water-wheel, the combined buckets and chutes a b, extending radially from the closed central portion B to the rim C in such a manner that the edges of each individual bucket and chute are parallel to each other, but at cross angles with their continuous buckets and chutes, substantially as and for the purposes shown and described

2. The wheel A B C, having combined buckets and chutes *a b*, as set forth, in combination with the fixed case D having directing-chutes E, and the adjustable dial-form gate G, substantially as and for the purposes shown and described.

178,613. CORNICES FOR UPHOLSTERY OF FURNITURE. Martin Ehert, Boston, Mass. (Filed Apr. 24, 1876.)

The elastic strip or molding *c*, for the frames of upholstered furniture, constructed and applied substantially in the manner and for the purpose described.



178,613

178,614. SAW-SETTER. Chas. H. Elliott and Robert T. Lucas, Alexandria, Va. (Filed May 8, 1876.)



1. The combination of a central brood-chamber and surrounding surplus-honey chambers with a single pyramidal door, substantially as described.

2. The combination of a central removable brood-hive with a series of fixed inclosing honey-chambers, located upon every side of the brood-chamber, as described

3. The adjustable knives K, adapted to regulate the entrance-opening, and also to slide the entire length of the door, as described.

4. The combination, with the removable brood-chamber, of the removable slides, as described.

5. In combination with a pyramidal door, the brood-chamber and surplus honey chambers, located directly over the door, as described.

6. The combination of the inclined supporting-strip with the corresponding supporting-bars of the honey-drawer

178,615. LAMP-BURNERS. Jacob Engle, Jr., Sharon Springs, N. Y. (Filed Apr. 4, 1876.)



1. The combination of wick-tube A, gut-tube B, and outside case C with the case D, having branches E, and supported by standard F, as shown and described.

2. The combination, with the wick-tube, of cap H and case J, the latter packed with cork, as and for the purpose specified.

178,616. VALVES FOR STEAM-PUMPS. H. Epping, Pittsburg, Pa., assignor of two-thirds his right to W. H. Carpenter and R. J. Waring, same place. (Filed Apr. 15, 1876.)



1. The slide-valve C, having recesses at the corners and caps *d d'* on the inner side, adjusted to act as a double valve, in combination with a steam-chest having ports *b b' c c' d d'*, substantially as described and shown.

2. The steam-chest B, having ports *a a' c c'*, and valve-piston D, in combination with steam-chest B', having ports *b b' c c' d d'*, and double slide-valve C, constructed and adjusted substantially as and for the purposes described.

3. The pin *b'* on the slide-valve C, in combination with the steam-chests having openings *b'*, and the valve-piston D, having opening *b'*, substantially as and for the purposes described.

178,617. PIPE-CUTTERS. James M. Svarts, New Haven, Conn., assignor of one-half his right to Oliver F. Case, same place. (Filed May 1, 1876.)



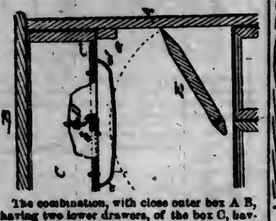
1. The herein-described pipe and round-rod cutter, consisting of the handle C, lever D, connected to the handle C, its short arm provided with a cutter, its longer arm serving as a handle of the tool, the rest F, guided and held on the handle C by the strap E, all the said parts constructed and combined substantially as described.

2. The rest or bearing F, guided and held on the handle C by the strap E, made adjustable by the threaded bolt *a*, the said rest constructed and operating in connection with the lever D and its cutter in the manner described, as set forth.

3. In a pipe and round-rod cutter, the lever D, connected to the handle C, its shorter arm slotted and apertured for a rotary or stationary cutter, its longer arm resting at its end against the end of the handle C to form the handle of the tool, the said lever constructed and operating in conjunction with the adjustable rest F, substantially as set forth.

178,618. AXE-SETTER. Numa J. Fillet, New York, N. Y. (Filed Apr. 18, 1876.)

Brief.—Reciprocate the box, allowing the axhen to strike the swing-gate and slide into one of the bottom boxes; revolve the gate, drop the bottom of the shaker, when the coal strikes the gate and slides into the other bottom box.



The combination, with close outer box A B, having two lower drawers, of the box C, having hinged slide-screen O', guard-wire *d*, and the hinged gate E, arranged substantially as and for the purpose specified.

178,619. COMBS. Julius W. Fleischmann, Williamsburg, N. Y. (Filed May 8, 1876.)

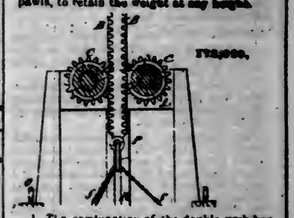


1. The head-piece or back of a comb when provided with one or more picture-frames, substantially as shown and described.

2. The shoulder *g* forming the seat for a medallion or picture, in combination with the back plate *h* riveted or otherwise affixed to the head-piece, substantially as described.

178,620. LEVELING-MACHINES. August Pickel, Ballinglyn, Pa. (Filed May 16, 1876.)

Brief.—A lifting-bar toothed on opposite sides, between guide-ribs, for keeping it in gear with a couple of toothed wheels on a pair of shafts mounted on the top of a frame, and having cranks or levers to work them, and they have ratchet-wheels provided with pawls, to retain the weight at any height.



178,620.

1. The combination of the double rack-bar A, having side ribs B and guide-rail F, with the shaft D, pinions C, and slotted guides E of the frame, as and for the purpose set forth.

2. The combination of the bottom truck-frame with the detachable top frame, supporting the operating devices, as herein set forth

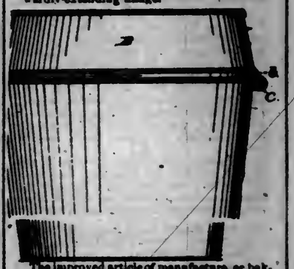
178,621. GRAIN-SEPARATORS. D. H. Fisher, Patterson, Ohio (Filed Jan 15, 1876.)



The differentially-ribbed and eccentrically-mounted revolving cam or block G, combined with the shoe or screen of a hulling-mill, substantially as specified.

178,622. BAKING-PANS. Horace K. Ford, Haverhill, Mass. (Filed May 13, 1876.)

Brief.—The mouth is slightly elongated in one direction, and is set in place by its outwardly-extending flange.

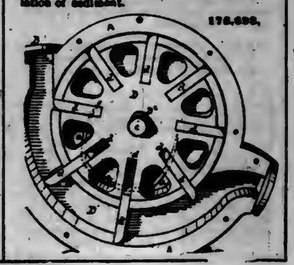


The improved article of manufacture, or baking pan, made substantially as described—viz., with the mouth of its body circular and beaded or flanged, as shown, and with its cover tapering, and having its mouth elongated and beaded, and provided with a groove, all essentially as and for the purpose or purposes as set forth.

178,623. LIQUID-METERS. F. A. Powler, Allegheny, Pa., assignor to himself and A. S. Bell, same place. (Filed Dec. 18, 1876.)

Brief.—A continuous abutment extends from the discharge to the inlet-port, thereby leaving no room for dead water or the accumulation of sediment.

178,623.

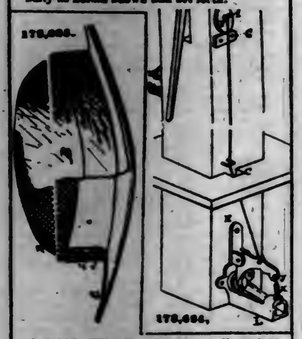


A water-case having an abutment extending from the discharge-port to the inlet-port, and a wheel working freely against such abutment, in combination with removal pistons *d* and eccentric guide-rail *e*, arranged and combined substantially as set forth.

178,626. LEVER-FUSEE. Christian Fox, Gap, assignor of one-half his right to Isaac Anderson, Pequea Township, Pa. [Filed Apr. 12, 1876.]

Brief.—A wire controlled by a cam-faced lever acts directly upon the pivoted valve, thereby opening and closing the discharge-orifice of the lower spout.

The combination of the cam-lever F, fulcrum-plate G, and wire E, attached to a horizontal lever-arm, J, having a vertical valve, M, attached, to act against the opening in a supporting-bracket, K, which also supports an open spout, L, closed above only in front, the whole arranged and operated substantially as herein shown and set forth.



178,626.

178,626.

178,625. WIRE HAT-BODIES. A. Frankfield, New York, N. Y. [Filed Apr. 12, 1876.]

1. In the art of making wire hats, the process described of treating the wire hat-body, by first shaping, next tempering, and finally covering the same, substantially as set forth.

2. The combination of the outer binding-strip *a* with the wire hat-body A, and with the inner binding-strip *b*, the two strips *a* and *b* being united through the apertures of said wire body A, and both inside of the covering B, substantially as herein shown and described.

3. The combination of the covering B with the wire hat-body and inner lining or piece *d*, said covering and inner piece being united through the apertures of the wire, substantially as herein shown and described.

178,627. KNOBS FOR VESSEL-LIDS. Chas. Goldthwait, South Weymouth, Mass. [Filed May 1, 1876.]

Brief.—The tube is soldered to the cover by its flange. The knob is attached to the cover by screws, but does not extend quite to it.



1. The combination, with cover B, of the conducting-tube C and the knob A, having shank shorter than said tube, as and for the purpose specified.

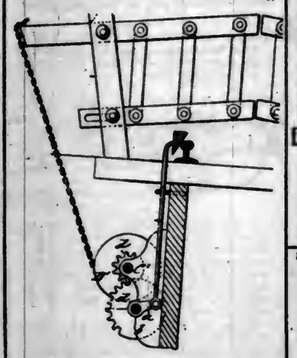
2. The tube, in combination with knob and cover, provided with the flange *c*, as and for the purpose set forth.

178,627. FARMERS' REFRIGERATORS. James W. Gordon and George F. Hooper, Haverhill, Mass. [Filed Jan. 17, 1876.]



The shank E, having at one end an enlargement, E', which is beveled on one side, and provided with a dovetail socket, E'', on the other side, combined with the blade A, having the dovetail end A', adapted to fit into the dovetail recess of the shank, all substantially as described, for the purposes specified.

178,628. RAILROAD-GATES. H. Graybill, Centerville, Wis. [Filed Apr. 26, 1876.]



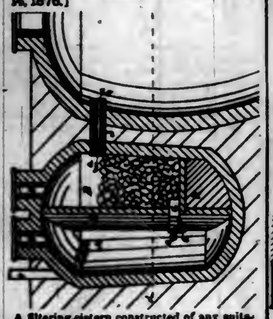
The combination of the bearing-rail, crank-rods, crank-shaft, mutilated pinions, drum-shaft, drum, and chain, with the extended lever end of the top rail of the swinging gate-section, to produce opening and dropping of gate on depression and release of the bearing rail, substantially as specified.

178,629. SCALE-BEAMS. Hiram L. Grinell, Pennville, Ind. [Filed Apr. 18, 1876.]



A scale-beam, having weights B C D and quinaries of figures E F G H I arranged, as shown and described, to adapt it to be used in the manner specified.

178,630. FILTERS FOR CISTERNS. Joseph M. Grove, Indianapolis, Ind. [Filed Mar. 16, 1876.]

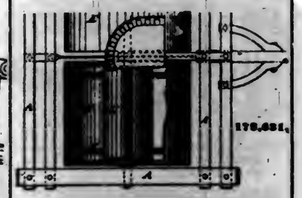


A filtering-cistern constructed of any suitable material, and divided into two compartments, A and B, by a perforated partition, C, said perforations being located at a distance above the bottom of A, and at the bottom of B, in the manner shown, and for the purposes set forth and described.

178,631. LAND-ROLLERS. F. B. Hadley, Monterey, Ill. [Filed Mar. 21, 1876.]

Brief.—A land-roller made hollow and provided with ribs or flanges upon its inner surface, upon which revolves a heavy cylinder.

The combination of the heavy inner cylinder G with the hollow roller A, provided with internal circumferential ribs or ways F, as and for the purpose set forth.

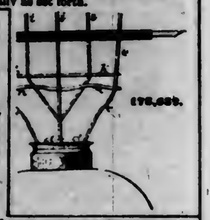


178,631.

178,632. PIPE-RACKS AND IRONSTANDS. H. C. Hamilton, Washington, C. H., Ohio. [Filed Oct. 22, 1875.]

The combination of the stand *c*, collar *e*, rods *f g*, cross-bar *h*, spring *n*, rod *f*, and cover *d*, substantially as set forth.

178,633.



178,633.

178,632. STANDARDS OR SUPPORTS FOR LASTS. John W Hart, Weymouth, Mass. [Filed May 12, 1876.]

The improved clamp-foot A C for heel trimming machines, having its parts constructed and arranged together, as specified.

178,634. SOLDERING-MACHINES. I. Hayes, Philadelphia, Pa. [Filed Feb 23, 1876.]



The soldering implement, consisting of the soldering-iron proper A, provided with the concavity *c'*, in combination with the gooseneck *c*, provided with the adjustable thimble *c''*, the rigid tube C, adjustable cock *c'''*, handle S, and reservoir E, substantially as set forth and described.

178,635. DEVICES FOR DECOMPOSING WATER FOR FUEL. Milton W. Hamilton, Chicago, Ill. [Filed May 16, 1876.]



1. The combination of tight pan A, air-pipe C, water-pipe D, and spraying-pan E, with a fire-grate having conical holes F, substantially as specified.

2. The pan A, having the curved end C, in combination with the air and water pipes, pan B, and the grate having the conical holes F, substantially as specified.

178,636. BREECH-LOADING FIRE-ARMS. J. A. Hockenbeah, Kenosha, Wis. [Filed Apr. 18, 1876.]

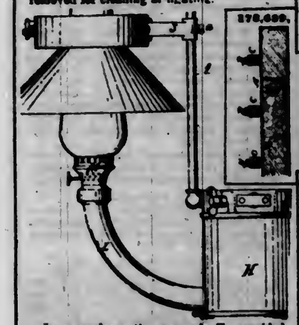
The combination of the detachable and adjustable plate A, and screw B, with the breech-block, barrel, and firing-pin, all constructed and relatively arranged as herein shown, for the purpose set forth.



178,636.

178,637. LAMPS. Michael Hicks and Thos. Smith, New York, N. Y. [Filed Feb. 25, 1876.]

Brief.—The lamps are attached to supporting-arms which depend from the top of the car, in such a manner that it may be easily removed for cleaning or lighting.



178,638.

In a car-lamp the reservoir H, provided with two or more tubes, I, and burners M, in combination with the central frame A, provided with shade-holders, and frame being secured to the ceiling, and the reservoir detachably connected to the frame, whereby the reservoir and burners can be readily detached for filling and cleaning, substantially as set forth.

178,639. METALLIC ROOFING. L. J. Holston, Niles, Ohio. [Filed May 16 1876.]

1. A metallic roof the joints of which are united and secured by eyelets, substantially as and for the purposes above set forth.

2. The combination of the flanged or upturned edges of the metallic sheets A of a roof, the cap B, and the eyelets C, substantially as and for the purposes shown.

178,640. SCRAPERS. Jacob H. Holt, Monmouth, Ill. [Filed May 8, 1876.]

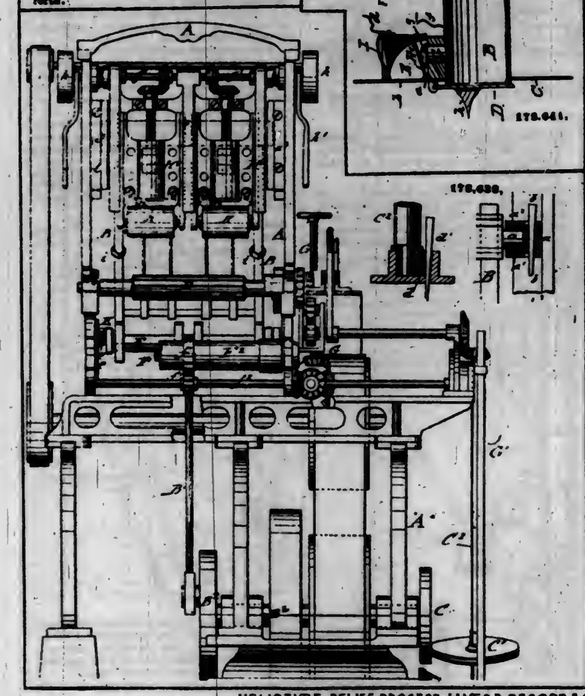


1. The reversible tongue C, in combination with the parallel bars of the frame B B, as and for the purposes specified.

2. A triangular reversible scraper, provided with a tongue so constructed as to be attached at either end of the scraper, as and for the purposes set forth.

178,641. ELECTRICAL ANNUNCIATORS FOR SPEAKING-TUBES. Charles W. Holtzer, Brookline, assignor to Charles B. Fuller, Boston, Mass. [Filed Mar. 24, 1876.]

178,641.



178,639.

1. In an electrical annunciator, the terminus-plate C having an opening, *b*, the speaking-tube H having an opening, G, and a chamber, E, communicating with each other, in combination with an indicator-plate, H, hinged in the chamber E, and over the opening G, and with a spring-finger, I, all substantially as and for the object specified.

2. In an electrical annunciator, the combination of a speaking-tube, H, a hinged indicating-plate, H, a spring-finger, I, and a closing-lid, D, hung in relation to the tube, and having means for throwing back the hinged indicating-plate to break the contact between it and the said finger, after the hinged plate is thrown up by blowing through the tube, to cause an electrical connection with an alarm, substantially as described.

3. The indicating-plate H, arranged in a chamber, E, arc-shaped, as described, to correspond with the arc described by the swing of the plate, for the purpose specified.

178,642. SOLDERING-MACHINES. W. H. I. Howe, North Salem, N. Y. [Filed Apr. 4, 1876.]

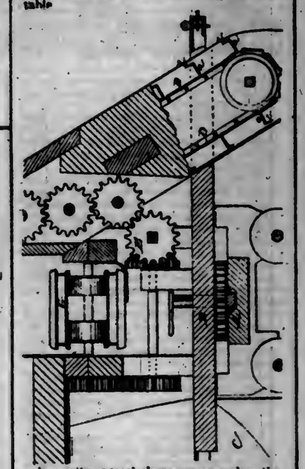
Brief.—The band, by friction, rolls the cans along the trough, their seams meanwhile projecting through slot in bottom of trough, and into the solder-bath, and onto the incline. Bottom fold of band may be beneath cans, and top fold then propels cans.



The combination, in a soldering machine, of the flanged, slotted, and inclined track B, cushion band F, and solder-trough D, substantially as and for the purpose set forth.

178,643. TRACK-CLEANERS. J. T. Jenson, Oskaloosa, Iowa. [Filed Dec. 20, 1875.]

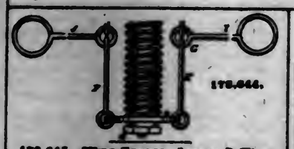
Brief.—Either the elevator or plow can be brought into operation by reversing the turn-table



In a railway-track cleaner or snow-plow, the turn-table B, carrying the plow C, elevator D, and discharger, all mounted upon the track A, substantially as and for the purposes shown and described.

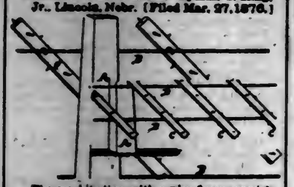
178,644. RAILWAY DRAW-HEADS. Charles Kelley, Warren, Ohio. [Filed Apr. 18, 1876.]

The links E and F and draw-rods I and J, in combination with the cutters B, springs D, and head or bolt A, in the manner substantially as described, and for the purpose set forth.



178,644.

178,645. WIRE FENCES. Lyman B. King, Jr., Lincoln, Nebr. (Filed Mar. 27, 1876.)



The combination, with a wire fence, consisting of the posts A and two or more wires, B, of the diagonally-arranged barbed pickets C, secured thereto substantially as described, for the purpose herein specified.

178,646. NAIL-PLATE FEEDERS. William Kaplin, Newcastle, Pa., assignor to Harry B. Kaplin, same place, and N. B. Brown, Youngstown, Ohio. (Filed Mar. 2, 1876.)

Brief.—A sliding frame, provided with longitudinal arms carrying pivoted levers, the ends of which are shod with rubber or other suitable substance, for biting on the nail-plate and feeding it forward, is advanced and retracted by a cam on the main shaft. Guards advance over the ends of the slippers and support the nail-plate when a cut is to be made. A pinion upon the barrel is formed with two opposite cams, which alternately fit upon the plain or mutilated portion of the driving-gear, and permit the barrel to remain stationary while a nail is being cut from the plate. A device is provided for clearing the scrap from the bed-teeth of the machine.



178,646.

1. In combination with the feeding-barrel of a nail-plate feeder, the automatic spring-nippers *c'* and the adjusting-screws *c²*, substantially as described.

2. The combination of the revolving feeding-barrel with the sliding guards O movable thereon, and suitable mechanism for actuating the guards, substantially as and for the purposes specified.

3. The combination of the feed-barrel, the sliding frame, provided with pivoted fingers, the cams or inclines for actuating the fingers, and suitable mechanism for reciprocating the sliding frame, substantially as and for the purposes specified.

4. In combination with the feed-barrel A, the vertically-sliding forward bearing O, and cam and yoke mechanism E S Y for raising and lowering the same during the revolution of the barrel.

5. In combination with the feed-barrel, a cleaner adapted to work in advance of the barrel and across the bed-teeth, and suitable mechanism for operating the cleaner, substantially as and for the purposes set forth.

6. The combination of the revolving feed-barrel, the pinion attached thereto, and provided with blind teeth, and the mutilated pinion of the driving shaft, substantially as and for the purposes specified.

7. The combination of the feeding-barrel, provided with vertically-movable bearing, the feeding-fingers, provided with a sliding frame, the sliding guard, the cleaner adapted to work in advance of the feed-barrel and across the bed-teeth, and suitable cam mechanism for actuating the several parts specified, substantially as and for the purposes set forth.

178,647. SCREW-ELEVATORS. Hugh W. Lafferty, Gloucester, N. J. (Filed Jan. 7, 1876.)

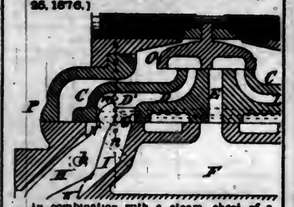
Brief.—The disks, resting with the screw-conveyor and alternately opening and closing spaces between the threads, are to prevent the backward flow of the material to be elevated.



178,647.

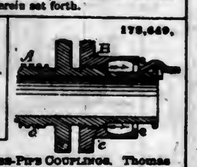
The combination, in a screw-elevator, of a cylindrical case, a screw-conveyor revolving therein, and one or more bolted disks rotating with the screw-conveyor, and alternately opening and closing spaces between the threads thereof, substantially as set forth.

178,648. VALVES FOR STEAM-PUMPS. W. H. Laurie, Montreal, Canada. (Filed Apr. 26, 1876.)



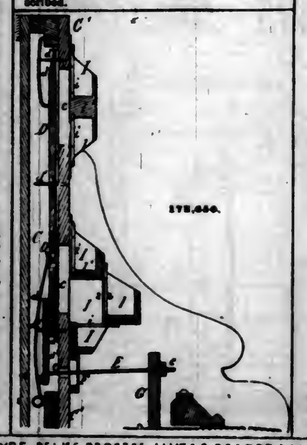
In combination with a steam chest of a direct-acting steam-engine, the combination of the dog H, pivoted in the steam-port, and acting directly in the slide-valve to give it initial motion, with the auxiliary slide-valve N, operating through ports *m*, the piston-valve M, and secondary valve O, to reverse the current of steam, as herein set forth.

178,649.



178,649. HOSE-PIPE COUPLINGS. Thomas Loftus, Sacramento, Cal., assignor of one-half his right to Benj. Bullard, Jr., same place. (Filed Feb. 8, 1876.)

The improved coupling, composed of the long tube A, having screw-threads, central flange, and bands, and the flanged and internally-threaded tubes B² B³, all constructed and arranged to operate as shown and described.



178,650.

178,650. REED-ORGANS. W. N. Manning, Rockport, Mass. (Filed Mar. 8, 1876.)

1. In a reed-organ, the arrangement, upon the front sounding-board of the upright wind-chest, of the reeds, reed-chambers, valves, and trackers, substantially as and for the purpose herein described.

2. The front sounding-board of the upright wind-chest, having the reeds, reed-chambers, valves, and trackers arranged upon it, in combination with the back sounding-board, made free from all the said mechanism and from the bellows, and removable independent of the same, substantially as described.

3. In a reed-organ, the valve or valves D, connected to the key H by the rigid stem G and pulling-tracker E, substantially as described.

4. In a reed-organ, the upright reed-chambers I, opening to the air in opposite directions, formed on the front sounding-board C² of the upright wind-chest, and admitting currents of air through reeds *f f* in opposite directions, which currents cross each other in meeting in the chamber I², outside the upright wind-chest, and pass together into the said wind-chest through a common valve-passage, substantially as described.

5. The combination of the pulling tracker E, stem G, valve D, key H, and sounding-board C², of the upright wind-chest, substantially as described.

178,651. SCREW-CUTTING TAPS. Samuel W. Martin, Springfield, Ohio., assignor of one-half his right to P. P. Mast, same place. (Filed May 16, 1876.)



1. A screw-cutting tap, consisting of a stock or mandrel, A, with the screw-cutting jaws C, pivoted eccentrically thereto, said stock and jaws being constructed to operate substantially as described.

2. In combination with the stock A and the pivoted jaws C, the loose sleeve B, arranged to operate as set forth.

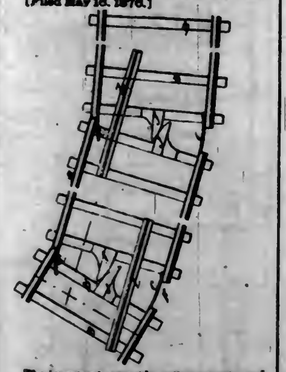
3. In combination with the pivoted jaws C, the adjusting-pins O, or their equivalent, arranged to operate substantially as described.

4. In combination with the stock A and the pivoted jaws C, the cap or end piece I, constructed substantially as set forth.

5. The pivoted screw-cutting jaws C, having the detachable cutting or boring tip *c*, constructed and applied thereto, substantially as shown and described.

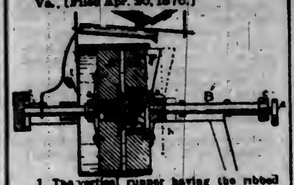
6. In a screw-cutting tap, one or more screw-cutting jaws, pivoted so as to swing laterally on its bearings or pivots, substantially as described.

178,652. PORTABLE RAILROAD-TRACKS. M. de M. G. y Martinez, Havana, Cuba. (Filed May 16, 1876.)



The improved portable railway track, consisting of rails A and ties B, connected together in sections, and provided at each end with a bar, C, block J, and bar L, substantially as herein shown and described.

178,653. GRINDING-MILLS. Lewis R. McDonald, Wythoville, assignor to Geo. W. Palmer, Saltville, and R. E. McDonald, trustee for M. L. McDonald, Wythoville, Va. (Filed Apr. 20, 1876.)



1. The vertical runner having the ribbed cone, provided with a spiral eccentric horn, in combination with the fixed stone having a hollow eye, and the ribbed annulus secured thereto, as shown and described, to operate as specified.

2. The conical ribbed crusher B, having a threaded base, and screwed upon the end of the runner-shaft, whereby it is adapted to be adjusted in the cavity of the runner, as shown and described.

3. The runner A, provided with the ribbed cone B, in combination with a fixed stone, having a ribbed annulus to work in contact with the cone, as shown and described.

4. The stone B, having notched plate or ears, the lateral guides *g*, the shaft B', arms *e*, and screw-rod *d*, passing through said arms, and fixed in the frame of the machine, all combined as shown and described, for the purpose specified.

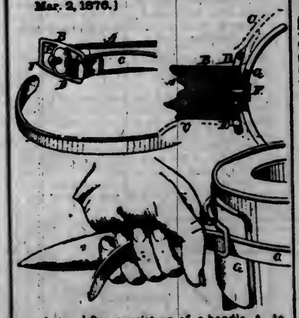
178,654. NUT-LOCKS. William McAlmont, Christiana, Pa. (Filed July 6, 1876.)



1. In a nut-fastening for railroad-rails, the plate C, having bifurcated ends formed by the jaws *c*, running parallel to each other, so as to serve the double purpose of a locking-plate for the nuts *g*, and a wrench for removing said nuts, or tightening them up upon the bolts *f*, substantially as and for the purpose set forth.

2. In a nut-fastening for railroad-rails, the bolts and nuts *f g*, and the plate A, formed with the stud B, and opening *c*, and key *e*, in combination with the plate C, having bifurcated ends to serve the double purpose of a locking plate and wrench, substantially as and for the purpose set forth.

178,655. JAR-LIFTERS. John McLain, St. Mary's, Ohio, assignor of one-half his right to Wm. P. Torrance, same place. (Filed Mar. 2, 1876.)



A jar lifter consisting of a handle, A, to which is attached a screw, F, and a cap, B, the cap being provided with a clasp, D, to one end of which is secured the strap C and guard G, removably fastened to the screw F, all operating as and for the purpose set forth.

178,656. TANK-REGULATORS. H. O. Meyer, New York, N. Y. (Filed Apr. 17, 1876.)

Brief.—A guide-bridge is applied in the water-way, which prevents the valve becoming loose and vibrating.



178,656.

The combination, with the elastic valve, seat, float, valve-seat and outer-walls of the tank-regulator, the cylindrical stem of the valve, and the stationary bridge, substantially as and for the purposes set forth.

178,657. APPARATUS FOR TINNING OR COATING METALS. Edmd. Morewood, Llanelly, and J. H. Rogers, Llangyfelach Park, near Llanelly, England. (Filed Dec. 20, 1875.)

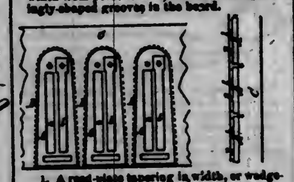
Brief.—The flux-box above the coating-rollers is provided with pairs of rollers, to regulate the motion of the sheet of metal to be coated.



The flux-box A above the pair of coating-rollers B, and made with a narrow mouth, so as to protect the flux from the heat of the melted coating-metal, in combination with one or more pairs of rollers within said flux, for moving the plates to be coated at the required speed, as set forth.

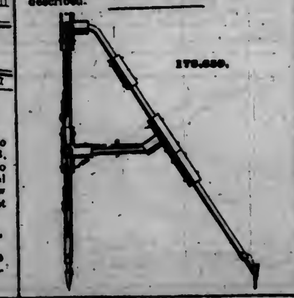
178,658. REED BOARDS AND PLATES FOR ORGANS. Theodore Meinhold, Saalfeldstadt, Germany. (Filed Dec. 1, 1876.)

Brief.—The reed frame or block tapers in width from point to heel, and fits correspondingly-shaped grooves in the board.



1. A reed-plate tapering in width, or wedge-shaped from end to end, substantially as shown and described.

2. The reed-board having the sockets for reception of the reed-plates, made tapering from end to end, or wedge-shaped, substantially as described.



178,659.

178,659. FIRE-SHIELDS. William Murray, Vicksburg, Miss. (Filed May 16, 1876.)

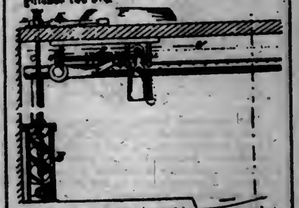
Brief.—A fire-shield formed of gas tubing and couplings, so as to be quickly put together. The certain plates are coupled from center to center instead of being suspended, and any one of them may be turned into a shutter-slot, to allow a nozzle to be inserted.

1. The combination of tubes, couplings, certain and manifold plates, substantially as shown and described.

2. The certain plates, coupled from center to center, as described, for passing the hose-nozzle between them, substantially as specified.

178,660. FIRE-ALARMS AND EXTINGUISHERS. Thos. F. Novian and John W. Smith, Brooklyn, N. Y. (Filed Mar. 13, 1876.)

Brief.—The burning of a cord releases a weight, which opens a stop-cock and permits water to flow through the pipes, by which an alarm is sounded. The water escapes through perforations in one of the pipes and extinguishes the fire.

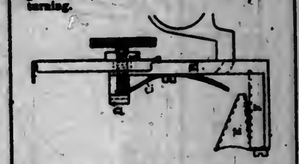


1. The combination, with a [illegible] wheel B, of the shaft C, having cam D, the hammer E, and the bell F, all arranged substantially as and for the purpose specified.

2. The combination, with one water-wheel B, of both a watering and an alarm apparatus, substantially as shown and described, for the purpose set forth.

178,661. GROOVING-MACHINES FOR SCREW-THREADS AND THREADERS. Edmund S. Norcombe, Liverpool, England. (Filed Mar. 13, 1876.)

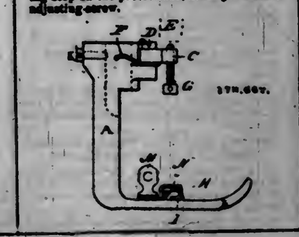
Brief.—A cone to guide the thread to the eye of the needle is attached to a bar adjustably, and the bar is adjustable as to length, to suit different lengths of needles. There is attached to the bar a spring to bear upon the grooved side of the needle, to keep it from turning.



A needle cutter and threader consisting of the frame B, provided with the flat spring C and set-screw J, and the foot-piece F, with the slotted spring-cone E, all constructed to operate substantially as described.

178,662. SEWING-MACHINE NEEDLE SCREWS AND THREADERS. Edmund S. Norcombe, Liverpool, England. (Filed Mar. 13, 1876.)

Brief.—A cone to guide the thread to the eye of the needle is fastened adjustably on top of the presser-foot—a permanent fixture—and the height to which the needle bar is allowed to descend is determined by a swing ing stop on the presser-bar, having a vertical adjusting-screw.



178,662.

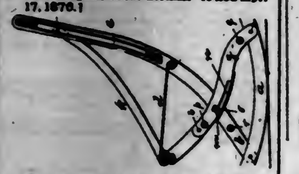
1. The combination of the swinging stop O, secured to the presser-foot bar or other stationary part of the machine, with the needle-bar E, substantially as described, whereby said stop serves to hold the needle-bar at the proper height for casting the needle, as set forth.

2. The combination of the swinging stop O, set-screw G, needle-bar E, and presser-foot bar A, substantially as described.

3. In combination with the presser-foot of a sewing-machine, a needle-threading cone secured to said foot, substantially as described.

4. In combination with the spring-cone I, the additional spring or clamp N, secured upon the presser-foot B by a screw, M, substantially as and for the purpose set forth.

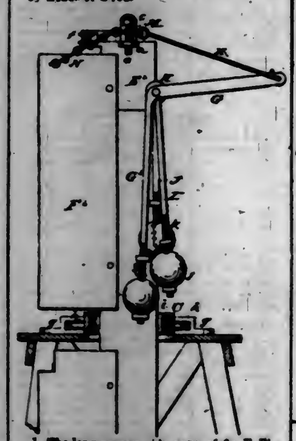
178,666. FOLDING CHAIRS. Wm. C. Overden, Margate, Great Britain. (Filed Apr. 17, 1876.)



The improved folding rocking-chair, consisting of the rockers a a, jointed rear supports d f g g, having slots e e, and recesses o o, in combination with the front supports b b with the rod m, and the arm-pieces h h, and the cross-bar k, substantially as and for the purpose set forth and described.

178,667. WINDMILLS. Harvey Packer, Sandwich, Ill. (Filed Mar. 16, 1876.)

Brief.—The box-shaft is provided with a metal band or top, to which the shaft or arm is attached, the bearing of the wind-wheel, and the arms of the vane-hinge. The bar or arm extends out to a line with the inner end of the vane. On the outer end of this bar the bent bar or bell-crank lever is pivoted, so that it stands at a right angle with the vane when it is in line, and a direct connection is made by means of a rod.



1. The long narrow side vane of the F F', attached directly to the center shaft, substantially as specified.

2. The adjustable bars, of the vane hinge in combination with the fixed arms a b and pin c, substantially as and for the purpose set forth.

3. The combination of the bar H, bent arm G G', and rods I J, with their bails, with the rod K and hinged vane L M, substantially as described.

178,668. BALE-TIES. Stanton Palmatier, Catskill, N. Y. (Filed May 26, 1876.)

The wire bale-tie having the rounded end of the loop a bent upward to freely admit the connecting twisted end b, substantially as and for the purpose set forth.



178,669.



1. An improved sash-lock, in which the locking-arm is pivoted at or nearly at an angle of forty-five degrees with the length of the meeting-rails of the sash, and secured by suitable fastening devices, as shown and described.

2. The combination of the bolt F and the spring G with the barrel or collar d^2 upon the hook d^3 of the locking-arm D, and with the flange f of the plate C, and with the recess f' in the stud or pin c^2 of the plate E, substantially as herein shown and described, for the purpose set forth.

178,670. WHEELED-CURRY. S. A. Rankin, Mulberry, Mo. (Filed May 10, 1876.)

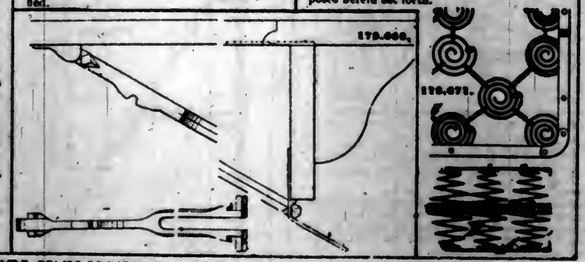


1. The two strips D E, hinged to each other at their forward sides, and correspondingly rabbeted upon their adjacent sides, in combination with the door A, and with the pin or roller F, attached to the door-post B, substantially as herein shown and described.

2. The combination of the hook or eagle iron G with the door A, and with the lower or hinged strip E, substantially as herein shown and described.

178,671. SPRING BED-BOTTOMS. Samuel H. Reeves, Brooklyn, N. Y. (Filed Dec. 10, 1875.)

The spring bed-bottom, composed of a bottom surface or frame-work, consisting of longitudinal slats, tied or united by cross-slats, a number of spiral or helical springs secured to said bottom frame-work, links connecting the top coils of the said springs, and a frame or rim attached to the top coils of the outer rows of said springs, the whole combined and organized substantially as and for the purposes herein set forth.

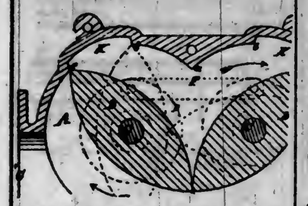


178,666.

178,671.

178,672. ROTARY PUMPS. R. B. Reynolds, Stockport, N. Y. (Filed May 22, 1876.)

Brief.—Two rotary pistons are arranged on parallel axes, both turning in the same direction, so that they have a wiping action on each other.



1. The combination, in a case, A, of two pistons B, whose sides are true arcs of circles, and which are arranged on parallel axes, and geared to run in the same direction.

2. The pistons B, having sides constructed on true arcs or circles, and being mounted on parallel axes, which are coupled by cranks and rods, substantially as herein shown and described.

3. The combination of the pistons B, constructed in the form described, and arranged to run in the same direction with a case, A, having cavities K in the upper chamber, or the one opposite to that having the inlet and discharge passages, substantially as herein shown and described.

178,673. WHOE-SCALES. R. H. C. Rhea, Uniontown, Ky. (Filed Mar. 21, 1876.)

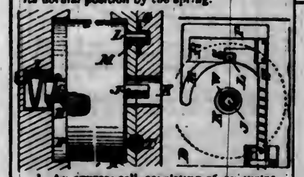


1. The folding and portable scales described, made of a hinged and fulcrumed tray-beam, and a weighing-beam having a flat sliding and guided weight, running in a longitudinal slot of the scale-beam, substantially as and for the purpose set forth.

2. The weighing-beam provided at the outer end with turned-up prongs for attaching small adjusting-weights, substantially as described.

178,674. EXPRESS-CALLS. Lansing M. Ringwalt and Clarence S. Lamprey, Cincinnati, Ohio. (Filed Nov. 6, 1875.)

Brief.—The key is inserted and pressure applied to force the roll into recesses on the opposite side of the housing, and at the same time to withdraw the pin, after which act the key is turned in a direction to bring the superscribed portion of the roll to the front, in which position it is locked by a spring catch arranged in the key side of the housing. When the catch is depressed the roll is returned to its normal position by the spring.



1. An express-call, consisting of an inclosing box, frame, or housing, within which are journaled a series of rollers, suitably inscribed on one side, and capable of rotation, so as to expose or conceal said inscriptions, the rollers, when thus rotated in either direction, being positively locked in position, substantially as herein described and set forth.

2. The combination of housing A B O F D P M, longitudinally shiftable, and rotatable rollers E G J, spiral spring H, and locking devices N S T, as and for the purposes designated.

178,675. EARTH-AUGERS. Dana N. Boot, Parkersburg, Iowa, assignor to Chancey F. Owen, same place. (Filed Feb. 26, 1876.)

Brief.—A pronged bit, provided with a curved shank, is substituted for one of the three sections of the auger-bucket when required to elevate bowlders. The detachable section is connected to the shaft by a beveled shank having steps fitting into notches on the shaft, and secured by slides fitting over it.

178,676.

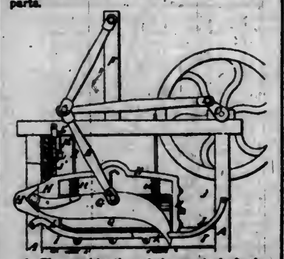


1. The prong-bit D, attached, by a shank, J, to a short bucket section, O, which shank is arranged to support the bit in relation to the bit surrounding it, as described.

2. The detachable bucket section, connected to the shaft by the beveled shank E, having steps F fitted in the crotched shaft, having notches for the steps, and secured by the slides I I', substantially as described.

178,676. STRAW-CUTTERS. Levi Soufield, Grand Haven, Mich. (Filed Sept 27, 1875.)

Brief.—The knife is adjustably pivoted at one end, and operated by the end of a toggle joint lever pivoted to its center. An automatic feed-movement is connected with these parts.



1. The combination of the crank-shaft, the pitman, and the toggle-lever with the pivoted knife, substantially as described, for the purpose specified.

2. The arrangement of the toggle lever upon the frame-support F, connecting with the pitman of the crank-shaft, and with the back of the pivoted knife at the center thereof, substantially as described, for the purposes specified.

3. The pivoted adjustable knife, combined with the lay or straw support, substantially as described, for the purposes specified.

4. The knife-pivot, constructed with a triangular plate, c, at such a point of its length that the end of the pivot shall receive the knife in front of the plate, substantially as described.

5. The combination of the triangular plate c and shoulder p with the vertically-adjustable pivot of the knife, substantially as described, for the purposes specified.

6. The elastic knife-guard I, combined with the frame of the machine and the lower guard K, and constructed with the strengthening and guiding curvature in front of the heel of the knife, corresponding to the curvature of the lower guard in rear of the knife-heel, substantially as described, for the purposes specified.

7. The metal frame H, constructed with the shoulder p, to receive the edge of the triangular plate on the knife-pivot, and with its lower side piece forming the curved inner guard K at the heel of the knife, substantially as described.

8. The combination of the pivoted adjustable knife with the metal frame H, substantially as described, for the purposes specified.

9. The spring-pressure piece Q, operated from the knife, and adapted for adjustment to correspond to the vertical adjustment of the knife, substantially as described, for the purposes specified.

10. The counterbalancing-box Z, in combination with the laterally-adjustable upper feed roller, and guided and held against lateral movement by two end uprights of the main frame, substantially as described, for the purposes specified.

11. The spring-pawl f', vibrating pawl-lever G', and the cam-driving shaft, in combination with the ratchet and toothed wheels J' E', mounted upon the frame of the machine, the toothed wheels B' C' on the end of the feed-rollers, and the single driving-chain D', the various parts being arranged as described with relation to each other, for the purposes specified.

12. The pawl-arm M', connected to the shaft or stud of the wheel J' E' by the arm M', and operated from the driving-shaft by the pivoted bar G', substantially as described, for the purposes specified.

13. The arrangement of the stop O' with respect to the wheel J' E' and the spring-pawl f', substantially as described, for the purposes specified.

14. The adjustable hook-bar Y, having a suitable pivoted support, combined with the loose journal of the upper feed-roller, to adjust the toothed wheel E' against the feed-chain, substantially as described, for the purposes specified.

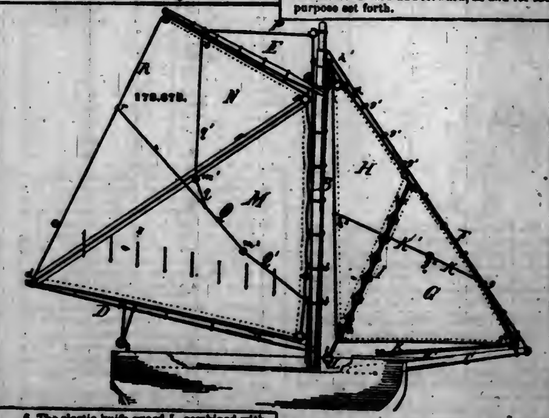
178,677. FLOOR-CLAMPS. George G. Shaw, Biddeford, Me. (Filed Apr. 5, 1876.)

Brief.—The serrated sliding bar, by which the boards are forced into position, and its actuating-pawl, are retained in position by a pivoted elongated pawl arranged in the rear of the actuating pawl.



In a floor-jack, the lever G, pawls E and I, and serrated bar B, constructed as described, so that the pivoted head of the pawl E will pass and repass a line between the fulcrum of the lever and the bar as the lever is alternately thrown backward and forward, as and for the purpose set forth.

178,678. RIPPING SAWS. J. W. Sharrot, Portsmouth, Va. (Filed May 22, 1876.)



1. The mainmast of a vessel provided with a diagonal ridge-band, upon which the gaff is secured in the act of reefing by a bridle of the brail which leads the said sail, operated substantially as described.

2. The mainmast M and the reef N, having eyes *a*' *a*' in them, through which the brails cross each other, substantially as and for the purpose set forth.

3. The brails Q and Q', having branches *q* and *q*', constructed and operating substantially as set forth.

4. The combination of the main portion O of the jib, the bonnet H, the halyards *g* and A, down-haul G', and the brails K K', constructed and operating substantially as set forth.

5. The jib made of two triangular sections, said sections being united together by lacing, and both operated together, or the upper one independently of the lower one, by means substantially as described.

178,679. LAP-SEAM GAGES FOR SEWING-MACHINES. Elijah Shaw, Milwaukee, Wis. [Filed Mar. 22, 1876.]

Brief.—To the throat plate or plate of a sewing-machine is hinged a holder, which carries a lap-seam gage, said gage being provided with means of adjustment, to accommodate different thicknesses of material and different widths of lap.

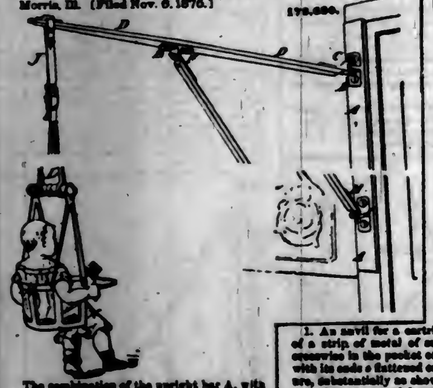


1. In combination with the throat plate of a wax-thread sewing-machine, the hinged gage-holder B and the lap-seam gage, substantially as shown and described.

2. The combination of the center piece F, the lips G and I, and their interposed pivots and springs, substantially as shown and described.

3. The combination of the center piece F, the lip I, and the base B with the adjustable members L and N, substantially as shown and described.

178,680. BABY-TENDERS. Thomas Shaw, Morris, Ill. [Filed Nov. 6, 1876.]

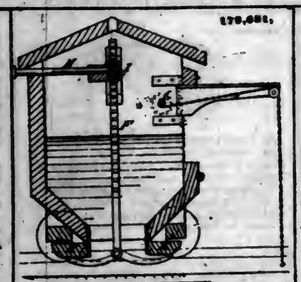


The combination of the upright bar A, with its legs B I, the spring D, with its forked strap E and leg H, the brace G, with its points or dagger F H, the adjustable forked strap J, and the round I, with each other, to adapt the device to receive a child's seat or jacket, substantially as herein shown and described.

178,681. BURIAL APPARATUS. Lewis H. Shuler, Crawfordsville, Ind. [Filed May 1, 1876.]

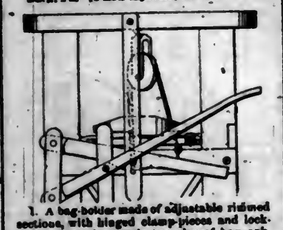
Brief.—The earth removed from the grave is placed in a box mounted on trucks. When it is desired to refill the grave the dumping-bottom is opened.

In a burial apparatus, the combination of crank-shaft H, pinion I, rack-bar F, links G G, and hinged bottom pieces E E, substantially as and for the purpose specified.



178,681.

178,682. BAG-HOLDERS. Isaac B. Shumaker and John S. Moorhead, Kellersburg, Pa. [Filed Apr. 26, 1876.]



1. A bag-holder made of adjustable ribbed sections, with hinged clamp-pieces and lock-pieces, to bind securely top edge of bag, substantially as and for the purpose specified.

2. The combination of the sliding bag-holding frame, adjustable to different heights in the main frame, with a cord, pulley, and double-lever mechanism to jerk and pack coal during filling, substantially as and for the purpose specified.

178,683. CARTRIDGES. William S. Smoot, Ilion, N. Y., assignor of one-half his right to E. Remington & Sons, same place. [Filed May 20, 1876.]

178,683.



178,684.

1. An anvil for a cartridge-shell, composed of a strip of metal of suitable length to fit concavity in the pocket of the cartridge-case, with its ends *a* flattened or depressed by pressure, substantially as shown and described.

2. The process of forming and securing the anvil in the shell—that is to say, by placing the bar or strip *a* transversely in the pocket *b* of the shell, and then pressing down and expanding its ends *a*, substantially as described.

178,684. FENCE-POSTS. Frederick Suiter De Witt, Iowa. [Filed Apr. 10, 1876.]

1. The combination of an exterior metallic casing, A, having a slot or opening, *a*, with a wooden core, B, provided with staples C, projecting through said slot, as and for the purpose set forth.

2. The combination of the outer metallic tube and the interior wooden core-section, having a bottom staple, with a cross-wire or anchor for retaining the core and post in position, substantially as specified.

3. The combination of the outer tube and of the inner wooden core with a protecting-cap, fastening-staple, and binding top wire, substantially as specified.



178,684.

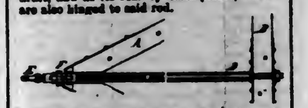
178,685. LASTS. Joseph R. Switzer, Elgin, Ill. [Filed Apr. 26, 1876.]



A last for boots and shoes wherein the outer forward part of the sole lies in the curved line *c c*, extending from or near the arch of the sole to, or nearly to, the part corresponding to the position of the great toe, and wherein the last is highest or thickest from the instep to the part corresponding to the end of the great toe, or along the line *c c*, and is beveled as described, substantially as and for the purposes set forth.

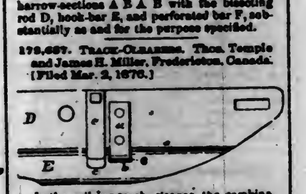
178,686. HARROWS. William Taylor, St. Louisville, Ohio. [Filed Apr. 4, 1876.]

Brief.—A flexible harrow of triangular shape, jointed at its front by a hinge connected with a center rod, which has an adjustable draft, and at its rear by cross-pieces, which are also hinged to said rod.



The combination of the longitudinally-hinged harrow-sections A B A B with the bisecting rod D, hook-bar E, and perforated bar F, substantially as and for the purpose specified.

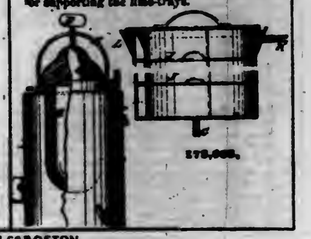
178,687. TRACK-CLEANERS. Thos. Temple and James H. Miller, Fredericton, Canada. [Filed Mar. 2, 1876.]



In the railway-track cleaner, the combination of the blades D and E, the hinges *a c*, and springs *s c*, as shown, for the purpose set forth.

178,688. PORTABLE GAS APPARATUS. John S. Thomas, Maryville, Tenn. [Filed Apr. 4, 1876.]

Brief.—A pot-retort, with a grooved cover, is set in a stove. The odorless gas-pipe has one branch extending down; to convey condensed products into the fire, such branch pipe being bent to form a seal, and one branch extending up, to convey gas to the parlor. Strips having slots cut in them are placed vertically next to the inner wall of the parlor, for supporting the lime-trays.

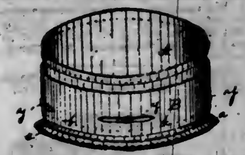


178,688.

The gas-purifier, consisting of the vessel I, having internal stripe M, the perforated plates J, sealed cover L, and pipes G K, as and for the purpose set forth.

178,690. SWEAT-BANDS FOR HATS AND CAPS. Jas. W. Valentine, New Orleans, La. [Filed Aug. 26, 1876.]

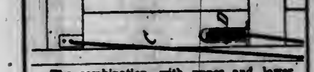
Brief.—The sweat-band is attached to the hat by the fastenings, which protrude through the supplemental band and side crown, at a point on the latter covered by the usual ribbon or band.



As a new article of manufacture, a sweat-band for hats and caps, consisting of the band A, provided at its lower edge with a spring, in the manner described, and the supplemental band or lining B, carrying fastenings *g*, by means of which the sweat-band is attached to the hat, substantially as set forth for the purpose set forth.

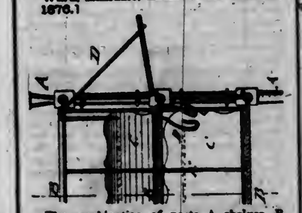
178,691. SASH-BALANCES. Jas. Waddell, Mamaroneck, N. Y. [Filed May 9, 1876.]

Brief.—A fixed pulley located on top of the meeting-rail of the lower sash, combined with cords fastened to the front of the upper sash, and passing over the pulleys, constituting a slight novelty in the arrangement of old and well-known devices.



The combination, with upper and lower window-sashes, of the pulleys D arranged on top of lower sash and the cords C fastened to front of upper sash, and passing over the said pulleys, as and for the purpose specified.

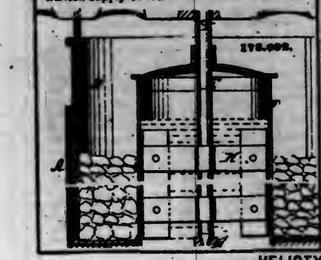
178,692. MUSIC-RESPONSIBLES. Jerome C. Ward, Hillsdale, Mich. [Filed Mar. 20, 1876.]



The combination of posts A, shelves B, hinged leaves C, held by cords D, and the vertical rods E, constructed and arranged substantially as and for the purpose specified.

178,692. ICE-CREAM FREEZERS. Edward G. Wheeler, Mobile, Ala. [Filed May 16, 1876.]

Brief.—The ice-can is suspended to the beater-handles, and has a hole in the bottom, through which the cream-vessel passes. By raising the beater-handle on the beater-shaft, the ice-can is raised, thereby enabling the operator to freeze a vessel full of cream with a limited supply of ice.



178,692.

The ice-can B, having a hole in the bottom for the cream-bucket, and suspended from the handles of the beater-shaft, in combination with the cream-bucket and, as outer one, A, substantially as specified.

178,693. BUTTER-PACKAGES. W. B. White, New Britain, Conn. [Filed Feb. 26, 1876.]



The jar, having the tapering body *a*, ledge *b*, flange *c*, rising above the cover, and flange-sections *d*, in combination with the cover *e*, having flange-sections *f*, flange *g*, overlying the flange-sections, and the annular groove *i*, all substantially as described, and for purposes set forth.

178,694. COVERS FOR TREADING-MACHINE TUMBLING-RODS. W. B. Wilcox, Sterling Centre, Minn. [Filed May 9, 1876.]



1. A cover for the tumbling-rods of treading-machines formed of the half-tubes A, provided with ribs F, and having an enlargement, B, provided with a door, *b*', formed in it to cover the knuckle-joint of the rod, substantially as herein shown and described.

2. The combination of the eyes C, the stakes D, and the set-screws E, with the enlargement B of the cover A, substantially as herein shown and described.

178,695. COMPENSATING-PENDULUMS. F. Willman, La Salle, Ill. [Filed May 9, 1876.]

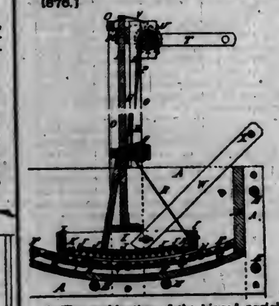
Brief.—The two rods are connected by a lever in such manner that variations in temperature raise and lower the lever and the attached pendulum-ball.



1. The combination of rods A B, of different powers of expansion, lever C, and the pendulum-ball D, substantially as specified.

2. The combination of adjusting-nut E and lever C, rods A and B, and the pendulum-ball D, substantially as specified.

178,696. WASHING-MACHINES. Thomas McC. Wilcox, Venice, Pa. [Filed May 9, 1876.]



1. The combination of the hinged upright I, the pivoted cross-head M, the sliding bars N, and the grooved standards O with the movable rubber I J K and the ends-bar A B C, substantially as herein shown and described.

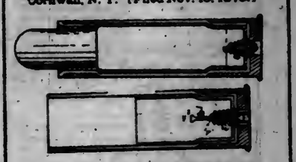
2. The combination of the shaft Q, the cords P R, the crank T, and the ratchet-wheel and pawl U V with the standards O, the sliding bars N, and the movable rubber I J K, substantially as herein shown and described.

178,697. CORRUGATED FUNNELS AND STRAINERS. Frank H. Winston, Evansville, Wis. [Filed Feb. 21, 1876.]



The stepper-rod K, having a crook, H, in combination with rod I, substantially as specified.

178,698. CARTRIDGE-CASES. S. W. Wood, Cornwall, N. Y. [Filed Nov. 16, 1876.]



1. A case for a cartridge, consisting of a cylindrical body folded over at one end, a wad having a centrally opening, with a screw-thread formed therein, and a cup-shaped head having an inwardly and centrally projecting screw, the whole constructed substantially as herein set forth.

2. In a case for a cartridge, an interior reinforce, one end of which is folded over and confined between two wads, substantially as described.

3. In a case for a cartridge, a disk of metal or other like suitable material, in combination with an interior fibrous wad or wads, substantially as herein specified.

4. A case for a cartridge, having a portion of the front or open end reduced and re-inforced, substantially in the manner herein described.

5. In a case for a cartridge, a stationary nipple or anvil provided with an ejecting-rod, constructed and operating substantially as described.

6. A metallic base for cartridge-shells, having an inwardly-projecting tapered screw for securing said base to the cartridge-shells, substantially as herein set forth.

7. In the manufacture of cartridge-cases of paper or other suitable fibrous material, the process, substantially as herein described, of forming the female screw-thread in the base thereof, for the reception of the male screw of the metallic head, consisting in placing a screw-threaded mandrel in the opening, and compressing the wad or base of the case around it, as set forth.

178,699. DOOR-PLATE ATTACHMENTS. John W. Young, C. A. Reed, and W. H. Shafer, Wheeling, W. Va. [Filed Apr. 26, 1876.]

Brief.—A peculiarly-headed bolt fits into a corresponding recess in the edges of the door-plate.



1. The bolt M, having the screw-nut *n*, and the head *n m*', constructed substantially as described.

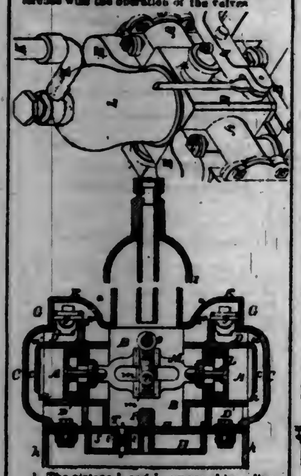
2. The combination of the bolt M *n m*' *n*, with the plate A, having the recess *a*, and countersink *a*, substantially as described.

178,700. BATES FOR TREATING IRON. Christian Ziegenheim, Allegheny, Pa. [Filed Apr. 26, 1876.]

The herein-described compound for the treatment of iron preparatory to uniting it with steel by casting the steel on the iron, consisting of sal-soda, caustic soda, borax, lime, and water, substantially in the proportions herein specified.

178,701. PUMPS. John S. Adams, Elgin, Ill. (Filed May 6, 1876.)

Brief.—Reciprocating pistons are adapted for operation, either by means of a horizontal shaft that has a partial rotary motion in opposite directions, or by means of a horizontal or a vertical shaft arranged to revolve continuously in one direction. Water and sand can be removed from the working chamber and upper portion of the pump without interference with the operation of the valves.



1. The pistons L and L, arranged in a line with each other and connected together by means of the rod M, which is provided with a central longitudinal slot, m, and transverse central groove n', for the reception of the crank-block N, substantially as and for the purpose specified.

2. In combination with the piston-rod M and sliding block M, the shaft P, which is journaled horizontally above, and at a right angle to, said rod, and is provided with a crank, O, that extends downward and engages with the pin n of said sliding block, substantially as and for the purpose shown.

3. In combination with the piston-rod M, provided with the longitudinal central slot m and transverse groove n', and with the crank-block N, arranged to slide within said groove, the shaft P, which passes horizontally through said slot at a right angle to said rod, and is provided with a crank, O, that engages with the pin n of said crank-block, substantially as and for the purpose shown.

4. In combination with the piston-rod M, provided with the central longitudinal slot m and transverse groove n', and with the crank block N, which is arranged to slide within said groove, the shaft P, that passes vertically through said slot at a right angle to said rod, and is provided with a crank, O, which engages with the pin n of said crank-block, substantially as and for the purpose shown and described.

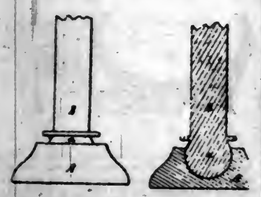
5. The body or casing of the pump, consisting of the cylinders A and A, central chamber B, shaft-bearings b and b, brake C and O, provided each with a passage, c, openings e and e', valve-chambers D and D', recessed covers E and E, passages F and F, bottom or supply pipe H h h h', air-chamber I, and discharge-pipe K, constructed and arranged in the manner and for the purpose substantially as specified.

6. In combination with the valve-seat G, resting upon the upper side of the valve-chamber D, the cover E, fitted upon said chamber, and provided with the recess e, which corresponds to and incloses the flange g of said valve-seat, substantially as and for the purpose shown.

7. In combination with the chamber B and supply-pipe H, the pipe S, extending between the same, and provided between its ends with a transverse cock-plug, T, which is constructed with a transverse port, t, and an axial opening, t', that extends from said port through one end of said plug, substantially as and for the purpose set forth.

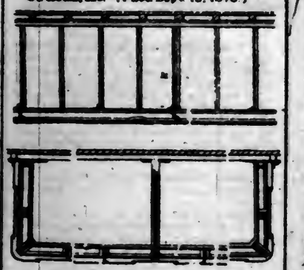
178,702. BALL-AND-SOCKET JOINTS FOR SCREW-JACKS. Wm. B. Alden, Boston Mass., assignor to himself and O. B. Baker, same place. (Filed Oct. 28, 1875.)

Brief.—The base forms a matrix, within which the ball forming an integral part with the shank is cast.



The method described of making the shank B and the ball a, each consisting in casting them in one piece in and by means of a mold having the socket c of the base A a part thereof, and a matrix for the formation of the said ball.

178,703. CONSTRUCTION OF SHIPS. T. Allen, St. Louis, Mo. (Filed Sept. 18, 1876.)



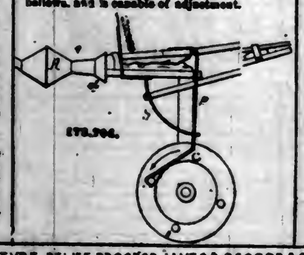
1. The method of constructing the hulls of vessels, substantially as herein before described—that is to say, arranging the iron skin or plating of the vessel below the water line thereof, at a distance from the cross-frames which strengthen and support the longitudinal frames, whereby an uninterrupted flexibility of the skin between the longitudinals is obtained, and such portions permitted to readily yield, for the object set forth.

2. The iron skin of a vessel supported at a distance from the cross-frames by means of the longitudinal frames, substantially as herein before described, whereby an uninterrupted flexibility of the plating is obtained between the longitudinal frames, as and for the object specified.

3. The transverse bulk-heads B, in combination with a sheet of rubber or other elastic or flexible material, connected with the said bulk-heads and to the skin of the vessel, for dividing the hold of the latter into water tight compartments, while permitting said skin to readily yield at such points, substantially as described.

178,704. APPARATUS FOR DISTRIBUTING POWDERED SUBSTANCES. Saml. L. Allen, Philadelphia, Pa. (Filed July 8, 1876.)

Brief.—A bellows is mounted upon wheels, by the rotation of which a blast is obtained. A powder-reservoir, having an inclined delivery spout, is attached to the nozzle of the bellows, and is capable of adjustment.



178,704.

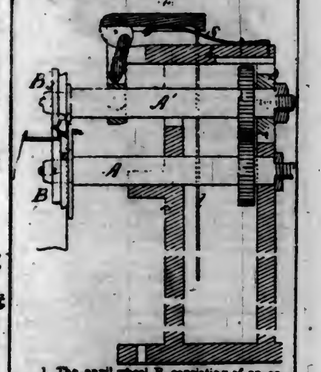
The combination of a reservoir, A, its spout and blowing mechanism, with a friction-wheel or wheels, and appliances for imparting motion from said wheel to the blower, as set forth.

2. The reservoir A divided into compartments by partitions i i, in combination with an annular passage inclined to direct the air to the lower compartments, for the purpose described.

3. The partitions i i, combined with the reservoir A, and having openings j j, arranged as and for the purpose specified.

4. The reservoir A having at one end a fluid spout, a, inclined in respect to the axis of the reservoir, and at the opposite end a funnel, d, adapted to the nozzle of a blower, all as set forth.

178,705. BLOW-MACHINES. C. E. Arnold, Columbus, Ohio. (Filed Apr. 8, 1876.)



1. The cowl wheel B, consisting of an exterior right-cylindrical part, i, and an inner part, r, of the form of a conical frustum, with an larger base next the part i, and of larger diameter than the cones, in combination with the hammer wheel B', consisting of an outer right-cylindrical part, j, and an inner conical part, j', of less diameter, and forming a re-entrant angle with part j, substantially as specified.

2. In a pipe-jointing machine, the combination, with the shafts A A' and wheel B' having the exterior right-cylindrical portion j, the conical portion j', and the re-entering angle between, of the anvil-wheel B, having the exterior cylinder i, the subject part j', and the stop-flange m, arranged in contact with the inner face of the wheel B', and tempered to form a bead on a pipe-edge with an oblique flange, 2, substantially as specified.

3. The combination, with an anvil-wheel applied upon a shaft rotating in fixed bearings, and a hammer-wheel on a shaft having movable bearings, of a pressure-cam, a lever, and a treadle for applying the pressure, substantially as specified.

4. The shaft A loosely applied in its bearing at one end and suspended in a vertically-movable cam at the other, a connecting-rod, a rock-cam, and an actuating-treadle, combined and arranged substantially as specified.

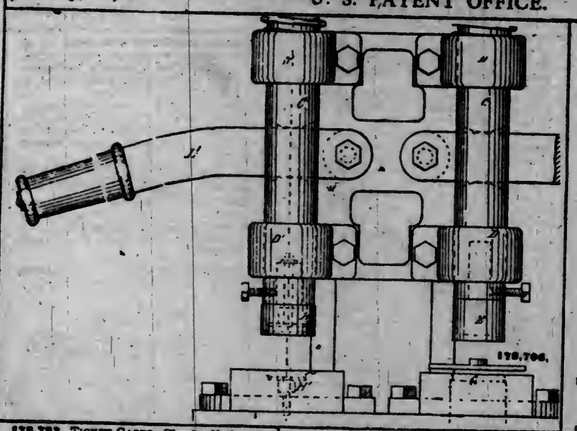
5. The spring S, in combination with a cam, a lever, and a vertically-vibrating shaft, A', having hammer-wheel B', and a shaft, f, having anvil-wheel B, substantially as specified.

178,706. MACHINES FOR MAKING POCKET-PORTRAITS. James B. Appleton, Philadelphia, Pa. (Filed Apr. 26, 1876.)

1. In a machine for the manufacture of pocket-portraits, the cutting-die and punch G E and the cooling-die H' H jointly, the parts being constructed and arranged to be successively operated, substantially as and for the purpose specified.

2. The combination, with the upper die H', having an annular lip, and provided with a yielding central plate, A, of the lower die H, having an annular groove formed at its outer edge, and provided with a yielding central plate, h', substantially as and for the purpose specified.

3. The combination, with the slotted mandrel O', spring K', and lever L', of the dies H H', each of which is provided with yielding plates, substantially as and for the purpose described.

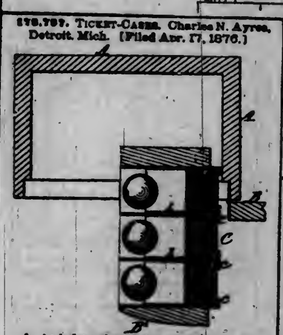


178,706.

4. In a boleting-machine, a tank, I', in combination with two or more cylinders, substantially as and for the purpose herein before set forth.

5. In a hydraulic hoist, the cases S T, links K J, and valves s s, when constructed, arranged, and combined substantially as herein before described.

178,707. TICKET-CASES. Charles N. Ayres, Detroit, Mich. (Filed Apr. 17, 1876.)

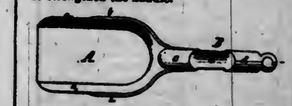


1. An independent ticket-case, C, consisting of the shelves D, partitions b, and guards c for the tickets, hinged to be opened and closed within the closed sides of an independent inclosing-case, A, as and for the purpose stated.

2. An independent ticket-case, C, constructed and hinged as described, having its inner corner B' rounded and combined with the inclosing-case B, as herein set forth, and to obtain the advantages stated.

178,708. PEAT-SHOVELS. Alfred Bardell, Brooklyn, E. D., N. Y. (Filed May 13, 1876.)

Brief.—The handle has a depression, which affords a hold for the thumb, and also serves to strengthen the handle.



1. A fire-shovel the handle B of which is provided with raised portions c d and an intermediate depression, e, substantially as set forth.

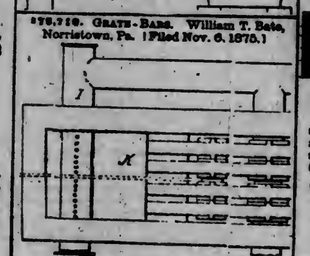
2. The fire-shovel composed of a scoop, A, with a rim, a, and outwardly projecting flange b, and of a handle, B, provided with raised portions c d and an intermediate depression, e, the flange b being made to extend partly up on the edge of the handle, substantially as shown and described.

178,709. VALVES. Horace E. Barker, Lowell, Mass. (Filed Apr. 3, 1876.)

Brief.—An adjustable piece extending from the stuffing-box cap of a valve, to a serrated or notched surface upon the body of the valve proper, to prevent the turning of the said cap.

In a valve provided with a rotary spindle, the combination, with the cap and seat or body of the valve, of an adjustable retaining device, F, substantially as and for the purpose set forth.

178,709.



1. A group of the within described bars, with transverse channel or channels, in combination with a pipe, H, forming a communication between the said channels and the flue or chimney of the furnace.

2. The combination of the transverse channels in the group of bars, the pipe H, and perforated pipe I, situated at or near the bridge-wall K, as and for the purpose described.

178,711. HYDRAULIC ELEVATORS. Henry B. Bathrick, Somerville, Mass. (Filed Sept. 9, 1875.)

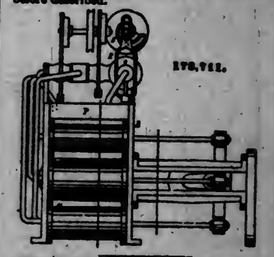
Brief.—Cylinders of various sizes are employed in proportion the consumption of water to the load raised. They are placed parallel to each other and are grouped around the sheaves, and when operating in pairs each two constituting a pair are placed opposite each other, and the central line of draft between them. The piston-rods all connect with a common cross-head, which operates the moving sheaves. The cylinders are so connected with a cross-water tank that the water follows into the cylinders and at work, in the rear of the pistons, so preventing access of air and consequent corrosion.

1. Two or more cylinders of different diameters, and arranged parallel to each other, when used in a hoisting-machine, in combination with two sets of sheaves, substantially as and for the purpose herein before set forth.

2. In a hoisting-machine, one or more pairs of cylinders, in combination with two sets of sheaves, the cylinders of each pair being arranged opposite to each other and in relation to central draft, substantially as herein before described.

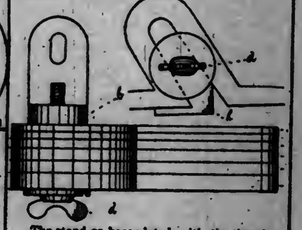
3. The set of sheaves D, in combination with two or more cylinders, when placed between said cylinders, substantially as and for the purpose herein before set forth.

178,712.



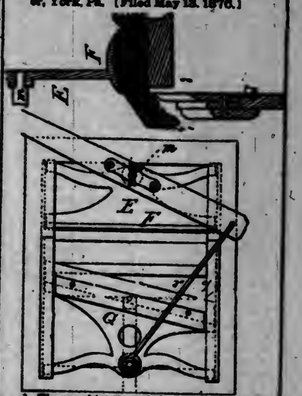
178,712. PRESSING-BARS FOR MOLDING-MACHINES. Henry Bauer, Butler County, Pa. (Filed Apr. 20, 1876.)

Brief.—A series of pressure-bars, self-adjusting, to fit the form of a molding, and fastened in position by a set-screw.



The stand or base-plate b, with the thumb-screws d, in combination with the automatically-adjustable pressing-bars a a a a a a, constructed to operate substantially as and for the purpose specified.

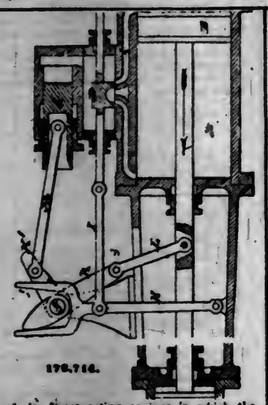
178,713. STRAW-CUTTERS. Leander Bonker, York, Pa. (Filed May 13, 1876.)



1. The combination of the pressure-gate E and knife-frame G, having reciprocating motion toward and from each other, with the lever L, having its fulcrum n on the said gate, and the connecting-rod r, substantially as specified.

2. The pressure-gate E, having a transversely concave pressure-bar F, whereby a double bite is obtained, together with a downward bend of the ends of the feed to be cut off, substantially as specified.

178,714. VALVE-GEARS FOR DIRECT-ACTING ENGINES. H. J. Behrens, New York, N. Y. (Filed Apr. 11, 1876.)



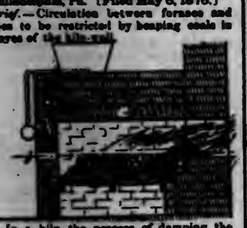
178,715.

1. In direct-acting engines in which the main valve that controls the motion of the engine-piston has combined with it an independent plunger, exposed at its one end to the pressure of the steam, and operating to control said valve, the combination, with such valve, independent plunger, and engine-piston, of valve-gear or mechanism organized to only partially open the valve by the action of the independent plunger, and to subsequently complete the opening of it, and afterward to close the same by the direct or positive action of the engine-piston preparatory to the partial opening of the valve again by the independent plunger to reverse the stroke of the engine-piston, substantially as specified.

2. The combination, with the engine-piston B and its controlling-valve D, of the plunger G, the lever H, the valve-rod I, the lever K K', the link L, the rod M, and the cam N, substantially as and for the purposes herein set forth.

178,716. SMOKE-KILNS. R. W. Bingham, Philadelphia, Pa. [Filed May 6, 1876.]

Brief.—Circulation between furnace and arches to be restricted by heaping coals in the eyes of the kiln-arch.



1. In a kiln, the process of damping the heat in the kiln-arches by heaping the coal at the eyes between the fire and said arches, substantially as specified.

2. The steam-blast opening K, in combination with a kiln-wall, A, having eyes a separated from each other by kiln-wall spaces C, and leading into the kiln-arches, and a furnace inclosing two of said eyes a and the kiln-wall space C, substantially as specified.

3. The fire-chamber D, abutting against the kiln-wall, and inclosing two spaced horizontally-arranged eyes, a, each eye leading into its own separate kiln-arch, and the kiln-wall section C between said eyes forming the back of the fire-chamber, combined and arranged substantially as specified.

4. The rake-holes b, formed in the front of a furnace, in line with the eyes a, leading into the kiln-arches, in combination with a furnace inclosing two of the said kiln-eyes and the kiln-wall space C, intermediate thereto, substantially as specified.

178,717. FOLDING WASH-STANDS. James W. Blakemore, Philadelphia, Pa. [Filed Apr. 7, 1876.]

Brief.—A wash-stand, so arranged as to fold up against a wall, is supported by hinged arms, one of which is hollow, forming a waste-pipe and trap.

1. A wash-stand constructed and arranged so that it may be folded or turned up toward a wall or fixture to which it is secured, substantially for the purposes set forth.

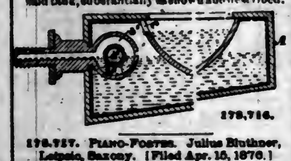
2. A wash-stand supported upon hinged or jointed arms to permit its folding or being turned from a horizontal to a vertical position, substantially as set forth.

3. In combination with a folding wash-stand a hollow supporting-arm, serving as a waste-pipe, substantially as set forth.

4. The water-trap described, formed by the chamber b^2 and inclined opening b^3, leading from the passage b^2 in the stem into said chamber, substantially as shown and described.

5. In combination with the folding wash-stand A, a water-trap, closed both when said stand is turned up and when it is turned down, substantially as set forth.

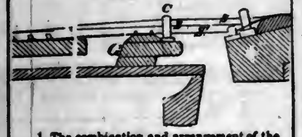
6. In combination with the folding frame or tank A, the basin C, cut away at e for the ejection of the liquid contents of said basin into said tank, substantially as shown and described.



178,716.

178,717. PIANO-FORTES. Julius Blüthner, Leipsic, Saxony. [Filed Apr. 15, 1876.]

Brief.—Auxiliary strings of a shorter vibrating length than the strings which are struck are arranged above the latter, and are damped by same damper. The auxiliary strings are intended to strengthen the most desirable "harmonic" of the under string.

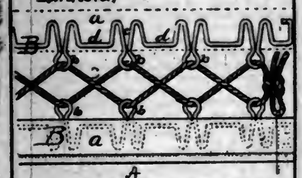


1. The combination and arrangement of the main or principal strings B', and the overtone or harmonic strings B, substantially as and for the purposes herein described.

2. The damper F, constructed and applied to operate on the principal strings, and the corresponding overtone-strings, substantially as described, and for the purposes set forth.

3. The bridge G, constructed as described, and its agraffes C for the overtone-strings arranged on the sound-board, substantially as and for the purposes set forth.

178,718. EYELET-STRINGS FOR CORSETS. George S. Bracher, Chatham, N. J. [Filed Apr. 1, 1876.]



A

1. A continuous eyelet-strip B, composed of the projecting eyelets b, and the intervening flat or straight loops d, substantially as set forth, to transmit the pressure equally along the edge a.

2. The eyelet-strip B, formed with the projecting eyelets b, the backward folds c, and the intervening flat loops d, substantially as set forth.

3. The continuous eyelet-strip B, constructed substantially as described and claimed, combined with a corset, A, as set forth.

178,719. CORSETS. Geo. S. Bracher, Chatham, N. J. [Filed Oct. 26, 1875.]

1. In the manufacture of the corset fabric described, the process of weaving and thus closing the same as successive operations, in the order named.

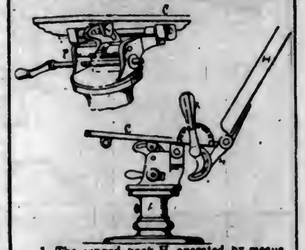
2. A corset composed of woven fabric, provided with tempered spring-wires, arranged longitudinally in the manufactured article, as and for the purposes set forth.

3. The process of shaping and surfacing a corset composed of a sheet of cloth fabric, woven of thrown threads and spring-wires, (previously dampened,) by pressure between hot dies of polished metal, as set forth.



178,719.

178,720. RECLINING-CHAIRS. Thomas M. Brintnall, New York, N. Y., assignor of one-half his right to John Goodchild, same place. [Filed May 3, 1876.]

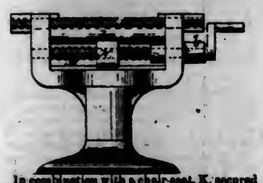


1. The hinged seat B, operated by means of a slotted cam, substantially as and for the purpose specified.

2. A hinged seat, C, in combination with open-faced locking-cam, operated through the means of a screw, substantially as and for the purpose specified.

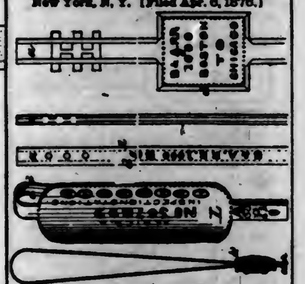
178,721. RECLINING-CHAIRS. Thomas M. Brintnall, New York, N. Y., assignor of one-half his right to John Goodchild, same place. [Filed Feb. 26, 1876.]

Brief.—The inclination of the chair is adjusted by means of a traveling nut operated by a screw, and working in a spiral bearing on the bottom of the chair.



In combination with a chair-seat, K, secured as described, and having on its under surface a spiral bearing, c, a screw, A, and traveling nut N, having a projecting pin or shoulder, k, the whole constructed and arranged to operate substantially as described.

178,722. METALLIC SHELL. B. J. Brooks, New York, N. Y. [Filed Apr. 6, 1876.]



1. The combination of a soft-metal disk, having a single sealing-aperture and a sheet-metal shackle with embossed ends, adapted to be inserted one over or upon the other in the sealing-aperture, substantially as shown.

2. A flat sealing-shackle, of very thin sheet metal, having ends a a, adapted to be inclosed within a soft-metal seal-disk, and constructed with re-enforced longitudinal edges d d, as herein specified, for the purposes set forth.

3. A flat sheet-metal sealing-shackle, having ends a a, adapted to be inclosed within a soft-metal seal-disk, and provided with rough-sealing devices e e at or near its respective extremities, and permanent letters, figures, or devices e in its intermediate portion, adapted to be formed at one and the same stamping operation, substantially as herein shown and described, for the purposes specified.

4. A sheet-metal sealing-shackle, having ends a a, adapted to be inclosed within a soft-metal seal-disk, and an intermediate enlargement, L, to form a labeling-tag in one part with the shackle, as herein illustrated and described, for the purpose set forth.

178,723. CAR-AXLE BOXES. J. M. Brouse, Richmond, Va. [Filed Dec. 6, 1875.]

Brief.—Brasses removable from central double box without separating it from the axles.



1. An extension, F, clamped detachably to the upper section of a car-axle box, as shown and described, to enable the brasses to be easily removed and replaced.

2. The combination of spout G, having incline g, and corresponding excision on the brass, as and for the purpose set forth.

3. The combination, with an axle-box, of the corner standards K, having shoulders k at the same altitude, as and for the purpose specified.

4. The combination of slotted overlapping wedges L L and adjusting-screws M with the axle-box, as and for the purpose set forth.

5. A brass made in one piece, and having a median recess, A', in lower section, combined with both journals, as and for the purpose specified.

178,724. STOP-COCKS. Samuel P. Brower, Glen's Falls, N. Y., assignor of three-fourths his right to F. J. P. Chitty, Isaac J. Davis, and Isaac Crandall, same place. [Filed May 17, 1876.]

Brief.—By means of the differential orifices water can be discharged through one or both of the branches leading from the valve.

1. The self-packing and compensating valve or faucet herein described, having the conical bearing-surface, recessed face, and differential orifices, as and for the purposes set forth.

2. The combination of a valve, constructed as herein described, with a seat provided with a plurality of discharge-orifices, substantially as and for the purposes set forth.

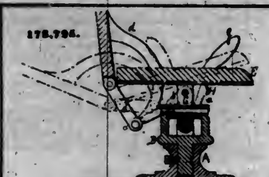
178,725. RECLINING-CHAIRS. Thomas M. Brintnall, New York, N. Y., assignor of one-half his right to John Goodchild, same place. [Filed Apr. 10, 1876.]

1. The combination of the seat E secured on an axle-shaft, and the arms H H secured to a shaft in a manner to secure their simultaneous movement, whereby the seat is operated, as described, through the alternate lowering and elevating of the respective arms, they always providing independent or opposite supports for the seat—one in front and the other at the rear of its bearings—substantially as and for the purpose specified.

2. A chair, constructed and arranged substantially as shown and described, whereby the seat is made to recline by means of the worm F working in the worm-wheel G on a shaft carrying lifting-arms H H, operating the seat E.

3. The combination of the shaft a, lever f, arms b, connecting-bars c c, and side arms d d, substantially as shown and described, for the purpose specified.

178,726.



178,726. STUDS AND BUTTONS. Charles N. Brown, Westchesnokat, R. I. [Filed Oct. 4, 1876.]

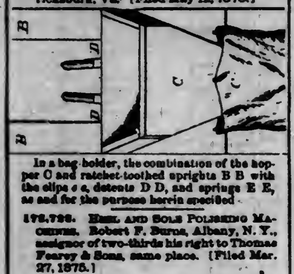


1. The case A, provided with the two springs B B, each bent in semicircular form, with their four ends b bent inward and thence outward from the center of the case, in combination with the disk C, having shank D with shoulder f, substantially as and for the purposes herein set forth.

2. The circular plate G, having a central hole and a series of radial slots cut therein forming a series of spring-tongues, h, in combination with the case A, and springs B, and the disk C, with its shouldered shank, substantially as and for the purposes herein set forth.

3. The combination of the case A, having projected ears a a and springs B B, as described; the circular plate G, with its spring-tongues h, and the disk C, with its shouldered shank D f, all constructed substantially as and for the purposes herein set forth.

178,727. BAG-HOLDERS. John T. Brown, Morrisville, and Jos. W. Colbert, Fredericksburg, Va. [Filed May 12, 1876.]



In a bag-holder, the combination of the hopper C and ratchet-toothed uprights B B with the clips a a, detents D D, and springs E E, as and for the purpose herein specified.

178,728. HEEL AND SOLE POLISHING MACHINES. Robert F. Burns, Albany, N. Y., assignor of two-thirds his right to Thomas Feeney & Sons, same place. [Filed Mar. 27, 1875.]



1. In a machine for polishing the edges, heels, and shanks of boots and shoes, the vertically-adjustable jack-shaft K, provided with the ball-joint L composed of the transversely-slotted cups e e', ball d, and stem a, and the vertically-adjustable jack-shaft K, substantially as and for the purposes set forth.

2. In combination, the jack M, vertically-adjustable shaft K, adjustable sleeve J, platform I, and ways G G and H H, substantially as and for the purposes set forth.

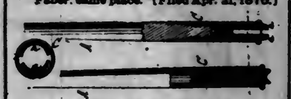
4. The combination, with the recessed tool E, of the heating-block E' made of copper or other good heat-conducting material, and provided with the limb F', heated by a gas or other flame, substantially as and for the purposes set forth.

178,729. MANUFACTURE OF GAS-FITTERS' HOOKS. Wm. A. Butler, New York, N. Y. [Filed Dec. 7, 1875.]



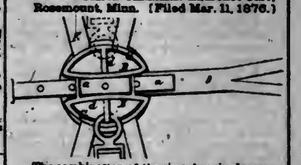
An improvement in the art of manufacturing pipe-hooks, consisting in, first, rolling out a plate to a transverse sectional form corresponding with the side profile of an unbent hook-blank, afterward cutting the said plate transversely into strips to form the blanks, and, finally, bending the cut blanks to form the heads of the hooks, all substantially as herein described.

178,730. PEN-HOLDERS. Alphonse Gantrel, New York, N. Y., assignor to Eberhard Faber, same place. [Filed Apr. 21, 1876.]



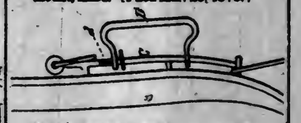
In a pen-holder, the combination of a handle, A, tube B, open at both ends, and provided with two elastic open-ended prongs, a a, and a sleeve, C, which embraces the double-pronged tube B, each of said open-ended prongs being adapted to change its curvature, as set forth, and the whole being constructed and operating substantially as shown and described.

178,731. TRACE-CARRIERS. Lawrence Carr, Rosemount, Minn. [Filed Mar. 11, 1876.]



The combination of the ring A, raised cross-bars B B, with connecting-bars a and center piece b, and the curved bars G G, with tongues or hooks d d, all constructed substantially as and for the purposes herein set forth.

178,732. HAMES. Lawrence Carr, Rosemount, Minn. [Filed Mar. 25, 1876.]



The combination, with a hame and fame plate, of the stationary perforated rod C, adjustable draft-clevis D, and spring-keys d, substantially as and for the purpose set forth.

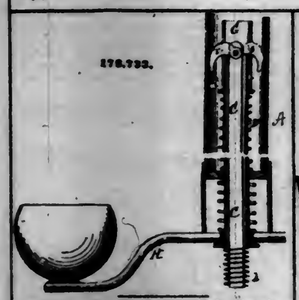
178,733. CHANDELIERS. Charles H. Carter, Brooklyn, N. Y., and James H. Browne, Newark, N. J. [Filed Apr. 26, 1876.]

Brief.—The cams fall away from the inner surface of the tubular pendant when the rod is pressed up. The upward movement of the cams around their pivot is limited by the slotted cap.

1. In an extension-chandelier, the combination of a stationary pendant, A, an inner sliding tube, D, carrying arms or branches H H, and a checking and releasing rod, C, working inside of said tube, and a system of cams or checking-levers, actuated by said rod, all substantially as herein described.

2. The combination, with the checking and releasing rod C, cams or checking-levers B, tube D, of the cap G, for regulating and limiting the motion of said cams all substantially as herein specified.

178,732. HAT-BLEVATORS. E. L. Church, Walworth, Wis. [Filed Sept. 20, 1875.]



The hook B, levers G G', spring-stop e, and link f, in combination with the carriage C, sheave-frame F, the stop-block d under the track-frame, and the suspended track-beam, substantially as described.

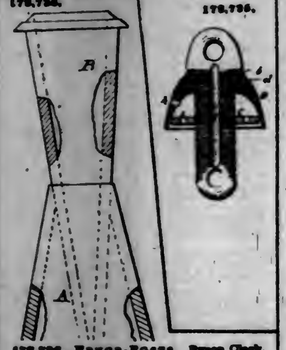
178,733. CHAIN-PUMP BUCKETS. John A. Churchill, Council Bluffs, Iowa. [Filed May 10, 1876.]

1. The combination of the grooved screw bolt or link A, concave-convex rubber D, and interior expanding washer C, substantially as set forth.

2. The concave-convex rubber D, having vent-hole h, and the interior expanding washer C, having vent-holes i i, as and for the purposes herein set forth.

3. The combination of the grooved screw bolt or link A, metal sheave d, washer b, concave-convex rubber D, and interior expanding washer C, all constructed substantially as and for the purposes herein set forth.

178,734. 178,735.



178,736. FENCE-POSTS. Byron Clark, Washington, Pa. [Filed Apr. 24, 1876.]

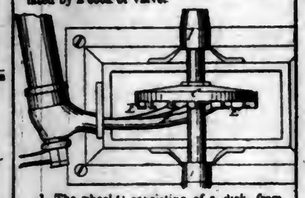
Brief.—A hollow metallic cone inserted in a hollow conical base, and may have a supplemental rod and lateral cone-support.

1. The combination of the hollow base A in the form of a truncated cone and the pyramidal post-supporter B, substantially as and for the purposes herein set forth.

2. The detachable brace C connecting two pyramidal post-supporters, B B', as and for the purposes set forth.

178,737. WATER-MOTORS. Isaac Crandell and Samuel P. Brower, Glen's Falls, N. Y., assignors of one-half their right to F. J. P. Chitty and I. J. Davis, same place. [Filed May 17, 1876.]

Brief.—A vertical wheel having a disk, from one side of which project slightly-curved buckets, with sides so as to partially confine the water. The water is applied to the wheel through one or more pipes, "bashet," and provided with a guide-plate, the flow being regulated by a cock or valve.



1. The wheel C consisting of a disk, from one side of which project the slightly-curved buckets F, having sides so as to partially confine the water, the construction and operation being as described.

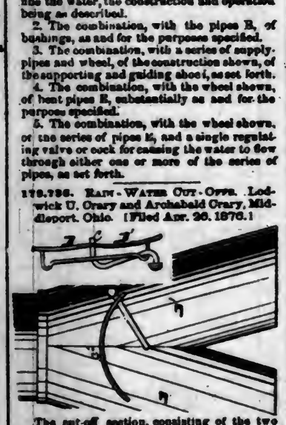
2. The combination, with the pipes E, of bushings, as and for the purposes specified.

3. The combination, with a series of supply-pipes and wheel, of the construction shown, of the supporting and guiding shoes i, as set forth.

4. The combination, with the wheel shown, of bent pipes E, substantially as and for the purpose specified.

5. The combination, with the wheel shown, of the series of pipes E, and a single regulating valve or cock for causing the water to flow through either one or more of the series of pipes, as set forth.

178,738. RAIN-WATER OUT-OFFS. Lodwick U. Orary and Archabald Orary, Middleport, Ohio. [Filed Apr. 26, 1876.]



The cut-off section, consisting of the two converging pipes B B', supply-pipe A, extending within them to form the stop a for the pivoted cut-off C, substantially as shown and described.

178,739. BLIND-STOPS. John L. Crawford, Michigan City, Ind. [Filed Jan. 26, 1876.]

Brief.—A wire hook engaging in a series of holes within the vertical groove of a metal guide-plate, serving in a simple and inexpensive manner to hold the blind slats in desired position.

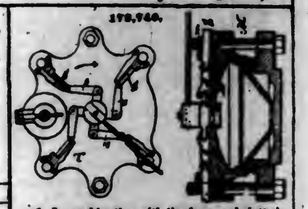


The combination, with the frame A and slats B, of the slat-rod C, pivoted to the center of the said slats, the hooked wire c, hung in the lower end of the said slat-rod, and the central plate D, secured to the frame, and having a vertical groove molded in its face, and the series of holes b, all constructed and arranged substantially as described and shown, for the purpose set forth.

178,740. HAY-PRESSING MACHINES. Mart A. Cumbo, New York, N. Y. [Filed Apr. 4, 1876.]

Brief.—The dome and mold are locked together by means of wedge-like keys, connected to a reciprocally-rotating pivot or spindle, and entering slots in the vertical posts.

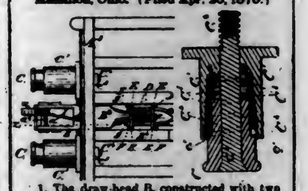
178,740.



1. In combination with the dome and slotted posts or rods of a hay-pressing machine, the sliding bolts or keys B, connecting-links c, and central reciprocally-rotating pivot or spindle H, arranged and operating substantially as and for the purposes herein described.

2. The bolts or keys B, of tapering or wedge-like form, in combination with the dome D and the posts or rods M, having slots m, substantially as and for the purpose herein described.

178,741. CAR-COUPLINGS. Jos. Davenport, Massillon, Ohio. [Filed Apr. 26, 1876.]



1. The draw-head B, constructed with two separate mouths, B' B', provided with coupling gravitating-hooks a b, substantially as and for the purposes described.

2. In combination with the draw-head B, constructed with two separate coupling portions, B' B', the gravitating-hook a, the pivot-bolt c' of which forms the retaining-catch for an opposing hook, and long weighted upwardly-catching hook b b', substantially as and for the purposes described.

3. In combination with the gravitating-hook a and weighted hook b b' the rod H H', extending down around the draw-head and beneath the weighted end of the hook b, and rod I i, for raising or disengaging the gravitating-hooks a b by an upward movement, substantially as described.

4. The combination, with the gravitating-hooks a b, rod H, with yoke H' at its lower end, and rod I, with chain i at its lower end, of the hand-levers J J, substantially as described.

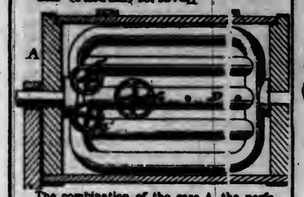
5. The combination and arrangement of coupling-mouths B' B', gravitating-hooks a b, rod H H', and rod I i, all constructed and operating substantially as described, whereby, in the same draw-head, an entirely new means of coupling is secured, but at the same time provision is made to connect with the ordinary draw-head, with its link and pin, and the parts are adapted to couple either automatically or by hand, as desired.

6. The combination, with the draw-head B, the end of which is formed into an extension, B', and cylindrical portion B', of two sliding plates, E E, spiral spring D, and independent draw-rod G, said draw-rod passing from the rear through both sliding plates E E, and so curved by nuts g on the outside of the front plate, thence extending rearward and secured in a similar manner to the end of the coupling-head on the opposite end of the car, all constructed and arranged as described, whereby a yielding and elastic cushion is provided for the draw-head, and, by the draw or connecting rod G, each coupling or draw-head in the train is secured or united together in a continuous line.

7. The buffer consisting of flanged box C' c', cylindrical head C, with shoulder e and smaller cylindrical rear extension C', for receiving the resisting spring, spiral spring C', and conical-headed bolt C', which passes centrally through the head C C', and is seated therein flush with its flange, spiral spring C', box C' c', and front timber A' of the car, behind which it is secured, all constructed and arranged as shown, whereby the head or buffer-disk is securely held and guided in position by the bolt, and the bolt itself receives directly on its head the concussion or shock, sustaining and overcoming it equally with the buffer-disk.

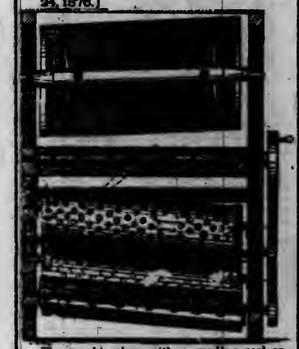
HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

178,742. FEATHER-RENOVATORS. John W. De Witt and Andrew J. Hite, Logansport, Ind. [Filed May 10, 1876.]



The combination of the case A, the perforated central pipe D, having stop-cock G, and the pipes D' D', connected thereto, and provided with stop-cocks G' G', all substantially as and for the purposes herein set forth.

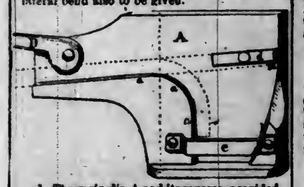
178,743. GRAIN-SEPARATORS. Robert L. Downton, Milwaukee, Wis. [Filed May 24, 1876.]



The combination, with a grading reel or shaker, of a series of indented cylinders or their equivalents, substantially as herein shown and described.

178,744. DIES FOR BENDING CULTIVATOR-BEAMS. Saml. B. Drake, Canton, Ill., assignor of one-half of his right to William Parlin and Wm. J. Orendorff, same place. [Filed May 17, 1876.]

Brief.—The two sections of dies have each a shoulder on their approximate vertical faces of the curvature required for the beam. The bar, lying on the straight shoulder, and abutting against a stop, is struck by the movable die in its descent, and bent, the end of the movable die entering a socket, causing a slight lateral bend also to be given.



1. The main die A and its reverse, provided with the curved table a a, a detent for the inserted beam above the table, the gage d, the incline h, facing the curved part of said table, with guide e, and the striking-die B, for the purpose of conferring on a cultivator-beam at once the proper curve, and also the lateral twist, substantially as described.

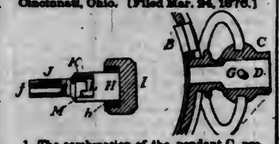
2. The die A and its reverse, combining the table a, gage d m, incline h, guide e, and detent D, in combination with the die B and its table g, adapted to pass down the incline h behind the guide e, substantially as and for the purposes described.

178,745. BOTTLE-STOPPER FASTENERS. Ernest Dreher, Newark, N. J. [Filed Mar. 3, 1876.]

In combination with the stopper, provided with depending bent arms I, the band L incised as shown, forming the tongue c, which may be passed through the aperture d, and secured thereon by bending its end backward, substantially as described.



178,746. WATCH-KEYS. John C. Dueber, Cincinnati, Ohio. [Filed Mar. 24, 1876.]

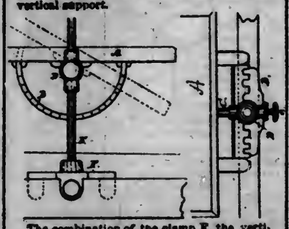


1. The combination of the pendant C, provided with an internal lug or pin, G, the spring B, and the push-piece H, constructed with an external bayonet-groove, K L M, to work in connection with the said internal lug G, in substantially the manner described.

2. The push-piece, constructed with a recessed head, I, and grooved body H, and a key-barrel, J, in combination with the pendant C, constructed with a cylindrical end to fit within the recess h of the head I, and provided with a pin or lug, G, to engage in the external groove K L M on the body H, substantially as set forth.

178,747. BOOK-SUPPORTS OR TABLE ATTACHMENTS FOR BEDSTEADS. Andrew M. Masteson, Schaeyville, assignor to Tucker Manufacturing Company, Boston, Mass. [Filed May 1, 1876.]

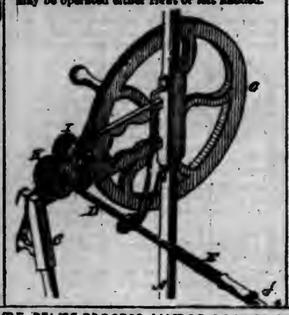
Brief.—The table is held in the desired inclination by the vertical standard entering notches in the segment attached to the table. The spring on the horizontal rod allows the notched segment to be drawn away from the vertical support.



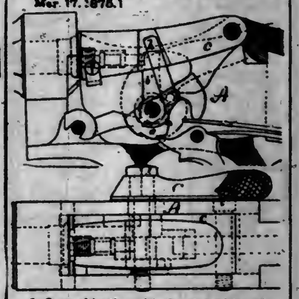
The combination of the clamp F, the vertical supporting-standard E, notched segment B, slider D, rod C, set-screw c, spring H, and table A, substantially as and for the purpose set forth.

178,748. HORSESHOE-CALK SHARPENERS. L. B. Edmonds and C. V. Kenyon, South Glens Falls, N. Y. [Filed Apr. 15, 1876.]

Brief.—The grinder is mounted on the end of a driving-shaft, which has a flexible section. The machine has three legs, one of which may stand with either end down, and the other two united and reversible, so that the machine may be operated either right or left handed.



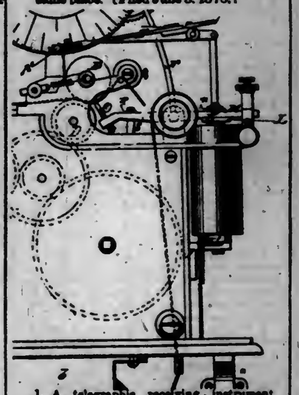
178,749. BREECH-LOADING FIRE-ARMS. Henry Brenner, New York, N. Y. [Filed Mar. 17, 1876.]



1. In combination with the pivoted breech block c, the thumb-lever A, pivoted upon the side of the receiving-chamber forward of the trigger, and projecting backward in such position that the breech-block may be swung downward and backward, the empty shell extracted, and the hammer set at full cock by a single downward movement of the thumb of the right hand, while that hand is clasping the stock in suitable position for the operation of pulling the trigger, substantially as described.

2. The hammer c, in combination with the tongue b, arranged and operating in the manner shown and described.

178,750. ELECTRIC FIRE-ALARM RECORDERS. Henry Ennis, Washington, D. C., assignor of one-half his right to J. F. Oyster, same place. [Filed June 3, 1876.]



1. A telegraphic receiving-instrument adapted to register a message and record the time of its reception, substantially as and for the purpose set forth.

2. A telegraphic receiving-instrument adapted to sound an alarm and record the time, substantially as and for the purpose set forth.

3. A telegraphic receiving instrument adapted to sound an alarm, register a message, and record the time, substantially as and for the purpose set forth.

4. Armature L, in combination with pivoted lever M, hammer-handle N, and perforator O, or its equivalent, substantially as set forth.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

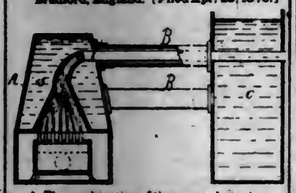
5. Armature L, in combination with pivoted lever M, perforating-point O, or its equivalent, and pencil p^1, substantially as set forth.

6. The combination of hinged arm P, adapted to be thrown back out of the way, with armature L and connecting-pieces, substantially as and for the purpose set forth.

7. The combination of pivoted lever M with vertically-moving trip-rod S, means for operating the feed-rollers, perforator O, and hammer-handle N, substantially as set forth.

8. The combination of pivoted lever M, armature L, perforator O, pencil p^1, feed-rollers D D', means for operating said rollers, and rotating clock-dial, substantially as and for the purpose set forth.

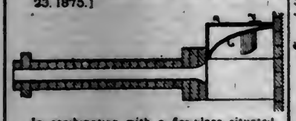
178,751. HEATING APPARATUS. C. Beard, Bradford, England. [Filed Apr. 29, 1876.]



1. The combination of the casing A, containing the combustion-chamber c and surrounding water-chamber a, with two or more water-tubes, B B', one of which incloses the tube i, for the passage of the products of combustion, all substantially as described.

2. The combination of the water-chamber C and heating-chamber a with the connecting-pipes B b' and tube b.

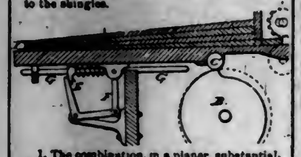
178,752. REVERSIBLE FIRE-PLACES. Allen M. Ferguson, Moscow, Ky. [Filed Dec. 23, 1875.]



In combination with a fire-place situated between two adjoining rooms and open on both sides, the metallic fire-back C D, having its front C curved, and provided with a register-opening, d, on its vertical back D, as and for the purposes herein set forth.

178,753. MACHINES FOR PLANING SHINGLES. Joel Flint, Rochester, N. Y. [Filed May 6, 1870.]

Brief.—The planer-bed is made to rise and fall by a cam, so as to give the desired taper to the shingles.



1. The combination, in a planer, substantially as described, of the vibrating table, the friction-roller C, and the revolving cam B, the latter constructed and arranged to give a direct vibrating motion to the said table, substantially as described.

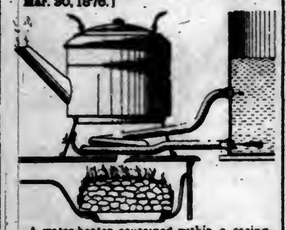
2. The combination of the latch E, spring-rod G, and compound lever F, for the purpose of carrying the shingles forward to the feed-rollers, substantially as described.

178,754. BALE-TIES. Benjamin K. Fowler, New York, N. Y., assignor of one-half his right to Wm. G. Bent, same place. [Filed Feb. 18, 1876.]



In a wire band for bales, the cross-bar B, pivoted in the loop a, provided upon the one end, A, of the band, in combination with the outwardly-turned loop o on the other end, C, of the said band, the same constructed and combined substantially as and for the purpose herein set forth.

178,755. WATER-HEATERS FOR STOVES. John A. Frey, Washington, D. C. [Filed Mar. 30, 1876.]

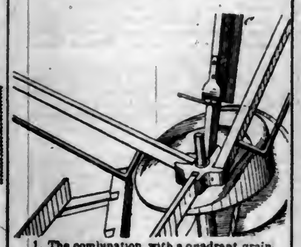


A water-heater contained within a casing, which casing is open at its upper and lower sides, may be placed over the boiler-hole of a stove, and at its upper side is adapted to receive and contain a cooking utensil, substantially as and for the purpose specified.

178,756. REMEDIES FOR HOG-CHOLERA. William J. Galt, Sterling, Ill. [Filed Mar. 18, 1876.]

The compound consisting of sulphur, antimony, sanguinaria, Venetian red, capsicum, and bole Armeniac, in about the proportions set forth.

178,757. GRAIN-BINDERS. Jeptha Garrard, Cincinnati, Ohio, assignor to Excelsior Grain Binder Company, (limited,) New York, N. Y. [Filed Apr. 7, 1876.]



1. The combination, with a quadrant grain-platform, of a sweep-rake having on one or more of its arms plain-surfaced raking devices, arranged to act directly on the butts of the grain, substantially as set forth.

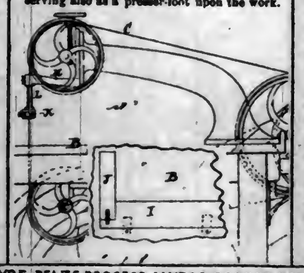
2. The combination of a quadrant grain-platform, a binder-platform, and a sweep-rake, having on one or more of its arms plain-surfaced raking devices, arranged to act directly on the butts of the grain, and deliver it in even condition to the binder, substantially as set forth.

3. A plain-surfaced raking device, C, adjustable on its arm, substantially as set forth.

4. The combination of a sweep-raking device, a quadrant grain-platform, and a binder-platform, whose rear wall trends forward from a line tangential to the rear of the grain-platform and parallel with the cutter-bar.

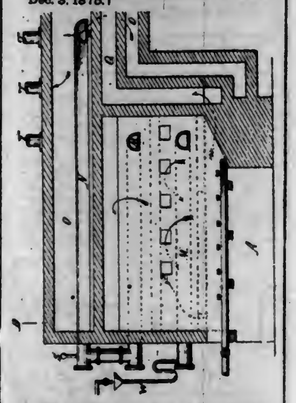
178,758. MACHINES FOR CUTTING CLOTH. Paul Clovis Gerard, Paris, France. [Filed Apr. 11, 1876.]

Brief.—The cutting-belt is controlled by guide-plates set in the table-top, and by an upper guide held in a projecting arm, and serving also as a presser-foot upon the work.



1. The combination of the gas-cock or valve, substantially as hereinbefore set forth, consisting of the combination of the casing, the key turning therein, its actuating-arm working in a recessed portion of the casing, and provided with bearing-surfaces on its free end, and the compensating-spring, whereby the range of movement of the actuating-arm is limited and wear of the key compensated.

178,760. APPARATUS FOR HEATING. Jos. P. Gill, Newark, N. J., assignor to Robert W. Rutherford and Jos. P. Gill, trustees of the Illuminating Gas Apparatus Construction Company of New York. [Filed Dec. 3, 1875.]



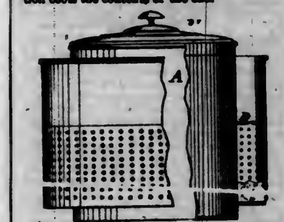
1. The process of warming and ventilating dwellings and public buildings by admitting and diffusing superheated steam at a high temperature into atmospheric air heated in the air-chamber of a furnace, the steam being superheated in a superheater or chamber in the furnace, separate and apart from the boiler or chamber in which the steam is generated, the two chambers being connected by a suitable pipe, and the superheated steam being admitted into the air in the air-chamber of the furnace in fine streams through small holes in the distributing pipe or chamber, thus becoming intimately commingled with the air, and imparting to it its excess of heat, substantially in the manner as herein described, and for the purpose set forth.

2. In a hot-air furnace, a combination of the lower steam-generator surrounding the fire-pot, and a steam superheater placed in the combustion-chamber, and a steam-distributing chamber or pipe, provided with fine perforations, substantially in the manner as herein described, and for the purpose set forth.

3. In an apparatus for heating and ventilating dwellings and public buildings, the combination of ash-pit space A, fire-place B, hydrogen pipe and burners V, flue Q, pipe U, air-chamber O, superheater M, pipe H, pyrometer S, siphon-pipe W, valve X, outlets T, constructed, arranged, and adjusted substantially in the manner herein described, and for the purpose set forth.

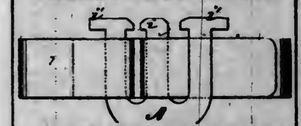
178,761. REFRIGERATING-CANS. John G. Gimmy, Monticello, Cal. [Filed Feb. 29, 1876.]

Brief.—Places water in upper division of the exterior annular chamber, and fibrous material in the lower chamber thereof. Evaporation cools the contents of the can.



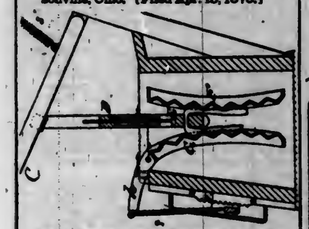
The can A, in combination with the cas rounding casing B, having its lower portion perforated, and the perforated diaphragm D, all constructed as and for the purpose set forth.

178,762. BALE-TIES. Abram A. Goldsmith, Charleston, S. C. [Filed Dec. 11, 1875.]

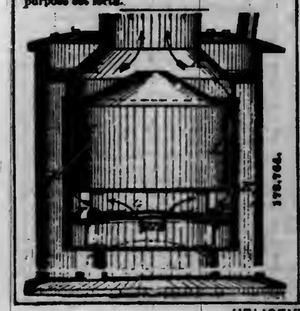


The W-shaped plate A, having leg i and cross-bars i^1, respectively, at its central and end bars, substantially as specified.

178,763. WASHING-MACHINES. Nobel C. Orandoff and Reuben C. Washburn, Wellsonville, Ohio. [Filed Apr. 15, 1876.]



The reciprocating mash D, having adjustable clamping-bar E, rod 4, hook d^1, and lever C, with spring c^1, in combination with the fixed wash-board F, and pivoted wash-board G, provided with the arm A, spring s, lever J, and rack L, substantially as described, and for the purpose set forth.



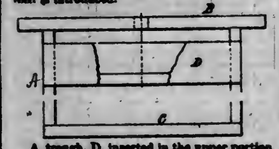
178,764. HEATERS. James B. Gridley, St. Paul, Minn., assignee of one-eighth his right to Frederick W. Frohne, same place. [Filed May 24, 1876.]

Brief.—The air is heated in the flues, and, passing to the reservoir, is deflected around the sides of the drum, and makes its exit through the cap.

The shell A, inclosing the flues D D and reservoir B, and in combination therewith the diaphragm F, the drum I, and the dome-cap K, for forming a heating apparatus, the several parts being constructed substantially as and arranged to operate in the manner set forth.

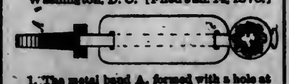
178,765. BEE-FEEDERS. Wm. R. Hamilton, Plum Hollow, Iowa. [Filed May 15, 1876.]

Brief.—A receptacle for the feed is constructed near the top of an ordinary comb-frame, and an entrance-aperture is made in the top bar of said frame, through which the feed is introduced.



A trough, D, inserted in the upper portion of an ordinary comb-frame, A B C, with an aperture, a, above the same in the top bar B of the frame, as and for the purposes herein set forth.

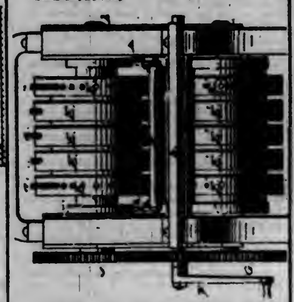
178,766. BAGGAGE-SEALS. Jos. L. Harley, Washington, D. C. [Filed Jan. 14, 1876.]



1. The metal band A, formed with a hole at its lower end, and provided at its upper end with a slot transverse to its length, whereby a loop may be formed at one end, and a soft-metal disk secured to the other, substantially as and for the purposes specified.

2. The flat metal strip, having its opposite ends pierced to form a loop, and be held by the soft-metal disk, provided also at its lower extremity with a transverse V-shaped cut-out, substantially as and for the purposes set forth.

178,767. CANCELING-MACHINES FOR BONDS. Jos. L. Harley, Washington, D. C. [Filed Jan. 18, 1876.]



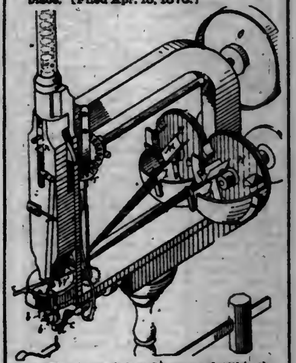
1. In a machine for canceling bonds, &c., a series of die-holders, E E', each provided with removable punches and dies, respectively, as described, in order that the sheet passing between the same may be punched in any given design, as illustrated at Fig. 5, substantially as and for the purposes set forth.

2. In combination with the male or female die carrier or drum and the feed-roll, having a fixed location, the automatically-operating feed-roll N or its equivalent, constructed and operating in substantially the manner herein-before set forth.

3. The hollow feed-roller O, arranged on the main shaft I and connected, by suitable mechanism, to the shaft of the lower rotary drum, whereby the roller O is driven in a reverse direction to that of the shaft I, substantially as and for the purposes set forth.

4. The female dies A, arranged in couplets and secured in position by means of transverse fastening-pins c, substantially as and for the purpose set forth.

178,768. MACHINES FOR DRIVING NAILS IN BOOTS AND SHOES. Sewell Elwin, Boston, Mass., assignor to S. B. Knowlton, same place. [Filed Apr. 15, 1876.]



1. The elevated chute M arranged within the hopper, as shown, the rotating disk H, provided with the lifters K, and the raceway I, all constructed and arranged to operate substantially in the manner and for the purpose set forth.

2. The interchangeable receiving raceway-plate W, in combination with the nail-conductors, substantially as and for the purpose described.

3. The combination of the receiving-plate W and the rotary die g, substantially as set forth.

4. The stationary slotted sleeve e, combined with the rotary die, essentially as specified.

5. The combination of the rotary die g, the extension-guide s, and the yielding-holders b b, as and for the purpose set forth.

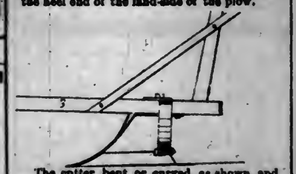
6. The rotary feed-wheel a, in combination with the rotary die and extension-guide s, substantially as described.

7. The combination, with the receiving-plate W, of the detent-pin p, actuated by means of the up-and-down motion of the driver-holder, as described.

8. The adjustable slotted raceway-plate W, as and for the purpose set forth.

178,769. CORN AND COTTON CUTTERS AND SCRAPERS. Isaac P. Harrison, Rodney, Miss. [Filed May 17, 1876.]

Brief.—An adjustable curved cutter is secured to the beam of a common corn or cotton plow, at a point near the rear end of the land-side. The vertical part of the cutter is some six or eight inches from the beam, and by means of a slot can be adjusted to a greater or less distance. The lower end of the cutter curves inward, and nearly forms contact with the heel end of the land-side of the plow.



The cutter, bent or curved, as shown and described, to adapt it for attachment to a plow, and for adjustment laterally, as shown and described.

178,770. SPRINGS FOR MATTRESSES AND FURNITURE. Jacob Hagedus, Philadelphia, Pa., assignor of one-half his right to Jacob Politzer, same place. [Filed Mar. 20, 1876.]

1. The combination, with the frame A, springs B, supporting-hooks C, and coupling-clamps D, of the stiffening-clamps E, having coverings F, substantially as and for the purpose set forth.

2. The guiding-springs G at the upper ends of the springs B, substantially as and for the purpose set forth.

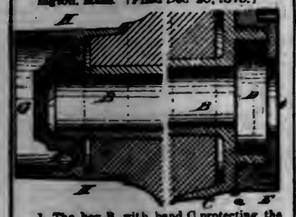
178,771. BALE-TIES. Beall Hempstead, Little Rock, Ark. [Filed May 29, 1876.]



1. The bale-tie fastener consisting of a stiff plate, A, having a transverse slot, D, at one end, and a button, B, at the other, provided with a long extension, *b*, and a short extension, *b'*, as and for the purpose described.

2. The bale-tie consisting of the plate A, having transverse slot D and button B, provided with long extension *b* and short extension *b'*, in combination with the bale-band passed through slot D, and bent around the same at one end, and having a slot, C, at the other, adapted to receive the button, as and for the purpose described.

178,772. VEHICLE-HUBS. John C. Hendry, Boston, assignor of one-half his right to Brigham, Litchfield & Vining, South Abington, Mass. [Filed Dec 20, 1875.]

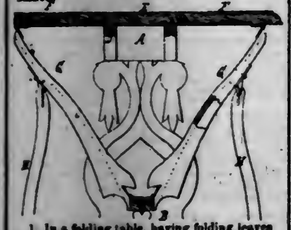


1. The box B, with band C protecting the end and extending over the top of the hub, and the projecting screw-flange D, all formed in one piece, in combination with the hub A, axle, and nut H, provided with the bead *e*, all substantially as and for the purpose herein set forth.

2. The band H, provided with the inner circumferential flange *h* and the nut G, provided with the annular shoulder *d*, in combination with the box B and hub A, as set forth.

178,773. FOLDING TABLES. George Hess, New York, N. Y. [Filed Mar. 22, 1876.]

Brief.—The leaves, when unfolded, are supported by toggle-braces. To the under side of said toggle-braces legs are hinged, which add to the stability of the table when it is unfolded.



1. In a folding table, having folding leaves F F, the combination therewith of the frame A, the fixed top E and legs B, the lower transverse C, extending from leg to leg, and the toggle-braces G G, hinged or pivoted to the traverse C, and connected with the hinged leaves by hinged joists or pivots, substantially as and for the object specified.

2. The combination of hinged legs B, with the toggle-braces G, folding wings F, stationary top E, and traverse C of the frame A, substantially as set forth.

178,774. LAMPS. Charles F. A. Hinrichs, Brooklyn, N. Y. [Filed Apr. 21, 1876.]

Brief.—The parts adjacent the wick are adapted to be raised or lowered, the latter remaining stationary.



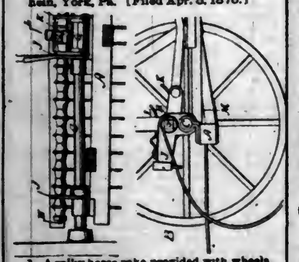
1. The metallic holder of a circular form, made removable from the Argand burner, and receiving the composition mineral wick, substantially as set forth.

2. The auxiliary air-tube *a*, connected to the drip-cup, and adjustable vertically, substantially as set forth.

3. The sleeve *k* and chimney-holder A, in combination with the mineral wick *c* and the inclines *m*, for adjusting the sleeve vertically, as set forth.

4. The sleeve *k* and inclines *m*, in combination with the chimney holder and chimney with a contracted neck, substantially as and for the purposes set forth.

178,775. HORSE HAY-RAKES. Reuben Hoffheim, York, Pa. [Filed Apr. 5, 1876.]



1. A sulky horse-rake provided with wheels fixed to an axle divided at its middle, and connected there by a ratchet, G, constructed with ends having radial ratchet-teeth on their interior surfaces, and provided with corresponding ratchet-disks E, which are mounted upon and revolve with the ends C D of the axle, and a spring, S, to keep said disks in operative position, combined with a hook-rawl, K, or other equivalent device, whereby the rotation of said ratchet may be caused to automatically lift the rake-teeth, as and for the purpose set forth.

2. A sulky horse-rake provided with a tooth-frame jointed to the main frame, and automatically raised by the rotation of the main axle, combined with a main axle divided at its middle, and set inclined downward toward its outer ends, so as to incline the wheel sufficiently to make the lower spokes vertical, or nearly so.

3. The axle C D, combined with a ratchet, G, and pawl K, connected with the tooth-frame rod H and the double-acting spring L, as set forth.

4. The ratchet G, pawl K, and spring L, combined with the adjustable tripper plate M.

5. The angle-plate J, forming parts of and supporting the tooth-frame upon and above the axle C D as a center.

178,776. SPRING BED-BOTTOMS. Sullivan Holman, Detroit, Mich., assignor of one-half his right to C. H. Mills and W. E. Barker, same place. [Filed July 15, 1874.]
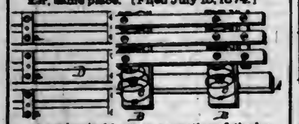


A spring bed-bottom, consisting of the longitudinal slats A, cross-bars B, and springs C, combined with the upper longitudinal slats D, united at the head by the single strap *b*, at the foot by the straps *c c'*, and in other portions of their length in pairs by the straps *a*, substantially as and for the purposes herein specified.

178,777. LIFTING-JACKS. Geo. W. Hunter, Philadelphia, Pa., assignor of part of his right to J. P. Norris, same place, Henry M. Baker, Washington, D. C., and T. L. Chase, Philadelphia, Pa. [Filed May 16, 1876.]



1. A lifting-jack, provided with a sliding bar carrying an adjustable arm, D, substantially as and for the purpose set forth.

2. The combination of the sliding bar of a lifting-jack and a chain secured permanently to the bar, as set forth.

3. The combination of the standard, rigid sliding bar, and base-plate A, having a recess, *e*, through which the bar may be projected below the base, as and for the purpose specified.

4. The double-ended pawl combined with the sliding bar having teeth inclined at both sides, to arrest the movement of the bar in either direction, as specified.

5. The combination of the sliding bar, pawl, operating-lever I, and arm L, whereby the pawl is thrown outward on elevating the lever, substantially as described.

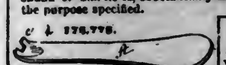
6. The standard, provided with an arm, J, extending at right angles, or thereabout, to the standard below the lever, for the purpose specified.

7. The standard consisting of the side pieces *b b'*, each having flanges *c d*, and parallel ribs *i*, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

178,778. BUTTON-HOOKS. H. S. Hurlbut, Boston, Mass. [Filed Apr. 6, 1876.]

The within-described button-hook, having the bifurcated end and the projections *c c* bent at a right angle, or nearly so, to the shank or handle A, substantially as and for the purpose specified.



178,779.

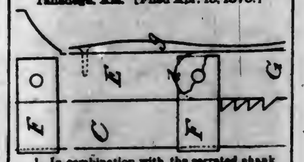


178,779. BUTTON-FASTENINGS. Robert W. Huston, Brooklyn, E. D., N. Y., assignor of one-half his right to J. G. Auld, Washington, D. C. [Filed May 10, 1876.]

1. In a button-fastening, the counter eye *a*, made by bending the ends of the wire or metal past and parallel to each other, substantially as shown and described, and for the purposes set forth.

2. The counter eye *a*, made by bending the ends of the wire or metal past and parallel to each other, as shown, in combination with the arms, at right angles to the plane of the eye, and bent in opposite directions to, but not crossing, each other, said arms *b b'* being flattened or of any other suitable form, and with or without the points *c c'*, substantially as described, and for the purposes set forth.

178,780. WASHERS. David H. Jarrard, Talladega, Ala. [Filed Apr. 15, 1876.]

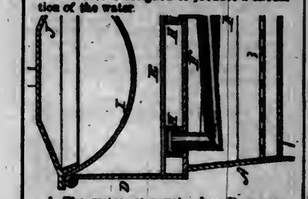


1. In combination with the serrated shank C of the fixed jaw, the shank E of the sliding jaw, and the guide-loops F, the toothed handle G, pivoted to shank E, and fulcrumed in loop F, and spring *g*, arranged across the joint of the shank and handle, substantially as specified.

2. The spring *g*, secured at one end to the shank of the movable jaw, and extending across the joint therewith of the vibrating handle, substantially as specified.

178,781. STEAM-COOKERS. Nathan Jewett, Toledo, Ohio. [Filed Apr. 15, 1876.]

Brief.—The unequal projection of the ends of the tubes is designed to produce a circulation of the water.



1. The rectangular water-box D, as constructed, provided with the pipes F F, and combined with the furnace-box A, as and for the purpose set forth.

2. The troughs H H, covered by slats S S, and covering the alternating pipes F F, the edges of said troughs being formed substantially as and for the purpose set forth.

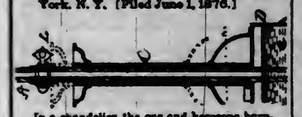
3. The combination of the furnace-box A, water-box D, pipes F, troughs H, slats S, and box I, having lid J, all substantially as and for the purposes herein set forth.

178,782. DUMPING-WAGONS. H. Kessler, Philadelphia, Pa. [Filed Mar. 4, 1876.]



A dumping-wagon, A, having skids F extending rearwardly from the front running-gear, for the support of the front part of the body A, said skids being secured to curved arms G, which descend to the rear axle, and are connected therewith by a slip-joint, the body being fixedly attached to the springs, and the latter in turn firmly fastened to a rotating axle, so that when the body is in its normal position it will be sustained in front by the skids, and that when dumped said body, springs, and hind axle will turn together without changing their relative arrangement, substantially as described.

178,783. CHANDELIERS. Abion Lang, New York, N. Y. [Filed June 1, 1876.]



In a chandelier, the gas and kerosene burners *g h*, combined with a reservoir, D, and a gas-pipe, A, which is perforated at *e*, substantially as described.

178,784. PNEUMATIC PARCEL-DESPATCH TUBES. Edwin S. Leaycraft, Brooklyn, E. D., N. Y. [Filed May 22, 1876.]

Brief.—A compound mitral valve of triangular plates hinged to a bean-plate permits the carrier to pass while retaining the air. A device claimed in the third clause is provided for extracting the carrier in case it should not have momentum enough to pass clear of the tube. The bucket or carrier is inserted in the tube by means of a plunger secured in a tube below the valve and air-tube. A swinging and vertically-adjustable section is provided at intermediate stations, having a straight section of tube combined with a bent portion and valve, for arresting and receiving way-packages. By the vertical adjustment the tube-sections can be raised and reversed, so that parcels can be received from either direction.

1. The compound valve for a pneumatic parcel tube, made of triangular flaps placed together pyramidally, substantially as set forth.

2. The combination, with the compound pyramidal pneumatic valve, of the cord *h*, to arrest the movement of the flaps, as set forth.

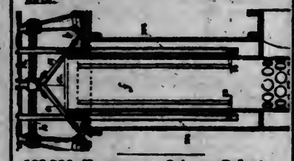
3. The fingers *e*, rods *m*, and ring *o*, in combination with the pyramidal compound valve *a*, substantially as set forth.

4. The combination, with the compound pyramidal valve *a*, of the plunger *b'*, tube *f*, and lateral air-supply pipe P, substantially as and for the purposes set forth.

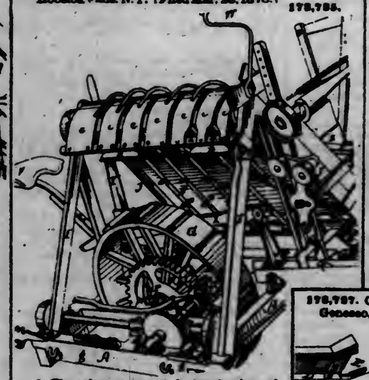
5. The swinging tubular section *r* and plates *s*, in combination with the tube *f*, delivery-tube *f'*, and compound valve *a*, substantially as set forth.

6. The sliding pivot *u*, in combination with the tube *f'*, reversible pneumatic delivery apparatus, tube *r*, and plates *s s'*, substantially as set forth, to allow of receiving the pneumatic bucket from either direction, as set forth.

7. The pneumatic bucket or carrier formed as a tube, open at one end, and provided with a thick disk of felt, or other elastic substance at the closed front end, substantially as set forth.



178,785. HARVESTERS. Sylvanus D. Locke, Hocsick Falls, N. Y. [Filed Mar. 28, 1876.]



1. The enlargement *s* at the terminations of the stripper-slats *e e*, for the purpose set forth.

2. The cutter-support, composed of the angle-plate L and hammer-strap *e*, substantially as and for the purpose described.

3. The segment-rack and groove-plate O for securing and adjusting the height of the axle, prolonged forward sufficiently far to inclose with the collar *b* the end of the main pinion-shaft box, as set forth.

4. The axle *i*, provided with axle-plate *n*, constructed with radial lever-sockets, as set forth.

5. Axle *i*, provided with pinions *k k* and with perforated pin-plate *p*, combined with the wheel G, provided with holes in its hub corresponding with the holes in said plate, substantially as set forth.

6. A harvesting-machine, substantially as described, the frame of which is provided with rails *h h p p* and hooks *c* and pivot-bolt *o*, or their equivalents, for the purpose of attaching a binding-machine or binders' table and foot-board.

7. The binders' foot-board Q, constructed with the braces *t t* extending under and supported by the cross-bars of the frame A, and hung upon the hooks *c*, combined with the receptacle P, jointed to the timbers I I, and supported at its outer side upon folding legs, which rest in sockets in said foot-board, substantially as set forth.

8. A harvesting-machine, substantially as described, provided with the seat-post *b'* in rear of the elevator-seat V, and seat-bar U at the inner side of the elevator-frame.

9. The line-guide W, mounted upon the front end of the elevator-frame and extending upward and backward, and adjustable in relation to the elevator and transferable seat V, for the purpose set forth.

10. The lever hand-plate *y*, provided with two sockets, oblique to each other, for the lever Y, whereby said lever may be placed convenient to the hand of the driver, whether seated at the rear of the elevator-frame or upon the bar U.

178,786. GRAIN-BINDERS. Sylvanus D. Locke, Hocsick Falls, N. Y. [Filed Mar. 28, 1876.]

1. The rotary shaft I, having thereon an operating-lever and a pinion, mounted upon and removable with an automatic adjustable binding-machine, combined with a stationary rack upon the harvester-frame, with which said pinion is in mesh, for the purpose set forth.

2. The shaft I on the binding-frame, having the pinion K at its lower end to engage with rack L, and weighted lever M, provided with a stud, *m*, at its upper end, and the locking-plate provided with notches, as set forth.

3. The foot *a*, having the L-shaped notch to fit the corresponding flange of the rail *g*, provided with the box *i*, for the lower end of the shaft I.

4. The rail *g*, having an L-shaped flange, as and for the purpose set forth, and the rack L, all cast in one piece, in connection with the pinion K and shaft I, to adjust the binding-machine, as set forth.

178,787. CAR-COUPLINGS. Reuben Loomis, Geneseo, N. Y. [Filed May 10, 1876.]

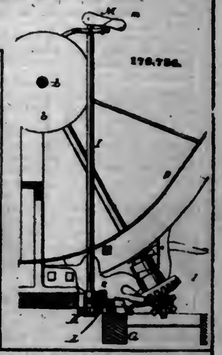


1. The clevis D, connected to the draw-head A by a horizontal bolt, *d*, passing into vertical slots *e e* in the sides of the draw-head, and having the coupling link or loop C, fastened therein by the bolt *b*, as and for the purposes herein set forth.

2. The combination of the draw-head B, having recess *i* and slot *m*, as described, the yoke G, with pin *k*, cranks *p*, and springs *h*, substantially as and for the purposes herein set forth.

3. The combination, in a car-coupling, of the draw-head A, having longitudinal slot *f* and slots *e e*, the clevis D, spring *c*, link or loop C, secured by bolt *b*, and the side springs H H, all constructed substantially as and for the purposes set forth.

178,788. FOG-SIGNALS. Edgar B. Mann, Lawrence, Mass. [Filed June 9, 1876.]



Brief.—As the buoy carrying the tubes rocks from side to side, a blast of air in the tubes forces the column of air above it out through the horn or reed. An adjustable stop on the tongue of the reed regulates the note of the horn.

1. The combination of outside and inside globes E E, for the purpose of preventing the openings to pipes D, as shown.

2. The reed L, having an adjustable device for regulating the sound, in combination with globe or air-chamber E, as set forth.

3. The combination of horn K with protecting cap M and tube P, as set forth.

4. The combination of globes E E, pipes D, having valves B, and pipes I I, as set forth.

5. The combination of the casing S, the inner pipes I and outer pipes D, and the globes E, substantially as set forth.

178,788.



178,789. CORSETS. Harriet H. May, Birmingham, Conn. [Filed Feb. 28, 1876.]



1. The straps B F, attached to the bust, and connected by a buckle, G, or other adjustable fastenings, as and for the purpose set forth.

2. The combination, to form a bust or a corset, and keep it in position, of removable pads C and straps B F, adjustably connected together, all as set forth.

178,790. NEEDLE-BOARDS FOR REGISTERING. Philip McAleer, Washington, D. C. [Filed Dec. 10, 1875.]

Brief.—Metallic boxes which are readily adjustable at required distance apart upon a board or table, within which box the register-ing-needles are firmly clamped by the split check or follower.

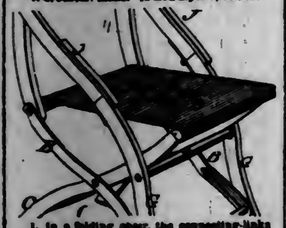


1. The metallic box, provided with the top square flange and depending threaded stem, in combination with a suitable washer, and the clamping-nut B, substantially as and for the purpose set forth.

2. The metallic box, provided with a central bore, and threaded externally and internally near the bottom, in combination with the split cone G, follower H, and clamping-nut B, substantially as and for the purposes set forth.

3. The plug or follower H, having its top extremity convex, in combination with the split cone, substantially as and for the purpose set forth.

178,791. FOLDING CHAIRS. Geo. McAleer, Worcester, Mass. [Filed Apr. 6, 1876.]



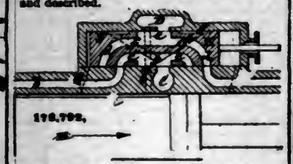
1. In a folding chair, the connecting-links or radius-bars B B, forming a connection between the back and the front legs, as shown and described.

2. The arm-rests J J, hinged at and forming a connection between the back and the front legs, as shown and described.

3. The combination of the back A, connecting-links or radius-bars B B, rear legs C C, and D, front legs G G, and arm-rest J J, constructed substantially as and for the purpose set forth.

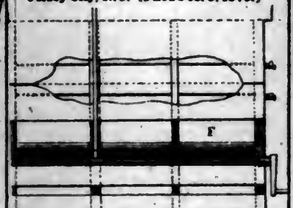
178,792. VALVES FOR DIRECT-ACTING ENGINES. Wm. H. McFaul, New York, N. Y. [Filed Nov. 10, 1876.]

The piston-like slide-valve B, constructed with a steam receiving and distributing cavity, c, and an outer isolated exhaust-passage d, having a back outlet, e, in combination with the counterbalancing back steam-spaces g, the connecting steam-passages f, the back main exhaust D, the face steam-inlet C, and the engine-passages b b, substantially as shown and described.



178,793.

178,793. STOCK-CARS. J. R. McPherson, Jersey City, N. J. [Filed Feb. 9, 1876.]



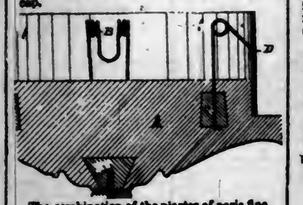
1. A car for the transportation of live stock, having food-receptacles formed wholly within the vertical walls thereof, said receptacles being divided into compartments arranged one above the other, substantially as and for the purpose set forth.

2. The combination, in a car for the transportation of live stock, of a series of food-receptacles, which are located wholly within the vertical walls thereof, and are arranged one above the other, and a trough or troughs for the reception of food and water, substantially as and for the purpose set forth.

3. In a car for the transportation of live stock, the combination of two series of food-receptacles arranged one above the other, and located in the sides thereof, and troughs, into which the food from both of the series of receptacles can be deposited, substantially as and for the purpose set forth.

178,794. FLUE-CAP FASTENINGS. Henry McMillen and William L. Rydman, Lima, Ohio. [Filed May 11, 1876.]

Brief.—The springs are secured to the blocks, which are formed of wood or other suitable material, and embedded in the flue-cap.



The combination of the plaster-of-paris flue cap body A, embedded blocks B C, and springs E E with the flue-thimble D, substantially as and for the purpose specified.

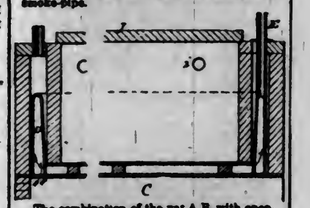
178,795. DAMPERS. Albt. H. Norris, Washington, D. C., assignor to Noble Heath, Jr., New York, N. Y. [Filed May 24, 1876.]



A damper for chimneys, smoke-stacks, &c., in which is combined a series of segmental sections, connected together as described, and mounted upon axes arranged at or about right angles to each other, and an operating-handle for simultaneously moving the segmental sections on their axes, substantially as and for the purpose set forth.

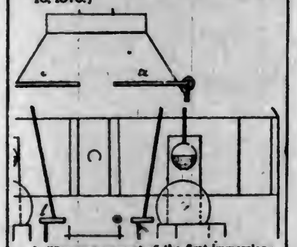
178,796. JUMP-COOLERS. Ira B. Olmstead and John W. Wilson, Ashmore, Ill. [Filed May 18, 1876.]

Brief.—The opening at the rear end of the furnace, in the bottom of the vat, leads into the floe, which runs continuously around the vat, thus allowing the products of combustion to pass around the floe, and utilize the heat which would otherwise pass out through the smoke-pipe.



The combination of the vat A B, with openings a a in the bottom, furnace C, floe D, with passages d and smoke-pipe E, interior vat G, with steam-openings f, and the lid J, all constructed substantially as and for the purposes herein set forth.

178,797. PROCESSES OF TEMPERING GLASS. Hugh O'Neill, Jersey City, N. J., assignor of one-third his right to Saml. T. Williams, Prince George's County, Md. [Filed Feb. 16, 1876.]



1. The arrangement of the first immersion-tanks in relation to the glory-hole, substantially as described.

2. The arrangement of the first and second tanks in relation to the glory-hole, substantially as described.

3. The arrangement of the operator's chairs in relation to the glory-hole and the first series of immersion-tanks, substantially as described.

4. The arrangement of the suspended basket in relation to the furnace and surrounding tanks, substantially as described.

5. The arrangement of the covers in relation to the glory-hole and surrounding tanks, substantially as described.

6. Immersing in a bath of carbolic acid glass that has been first immersed in a heated bath.

178,798. VEHICLE-SPRINGS. Benj. H. Otis, Nora, Ill., assignor of two-thirds his right to Wm. Leach and Oliver O. Davis, same place. [Filed May 10, 1876.]



1. The combination of the brackets C and the center and main springs A B with adjustable bearing-caps E for the main springs, substantially as herein set forth.

2. The adjustable bearing-caps E, provided each with a central cross-groove, f, in combination with the rounded tongues f of the bracket, as and for the purposes set forth.

3. The combination, with the springs A B and the adjustable bearing-caps E, of the bracket-yokes F, whereby the caps and the springs are retained in place laterally.

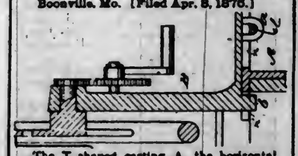
4. The bearing-brackets C, provided with the bearing-tongues f, in combination with the bolts f, as described.

5. The saddle-bearing D, in combination with the clips a and the center spring B, whereby to relieve the clip or its bolt from direct bearing upon the spring.

6. The clip-saddle bearing D, provided with a bottom recess, in combination with the stud c on the center spring, whereby the latter is locked against end movement, and securely confined in its end bearing-recesses.

7. The leaf-springs provided with shouldered ends a, in combination with the main-springs A, the clips a, and the yoke-brackets, whereby the leaf-springs are held in place both laterally and endwise without fastenings.

178,799. CHURN-POWERS. C. W. Patton, Boonville, Mo. [Filed Apr. 8, 1876.]



The T-shaped casting A, the horizontal arms of which are provided with the grooves a a', in combination with the L-shaped standard B, carrying the churn-power, and provided with the grooved lug b, and staple c, and key d, substantially as described, and for the purpose set forth.

178,800. VEHICLE-AXLES AND BOXES. R. F. Pickard, Tonawanda, N. Y., assignor of one-half his right to H. H. Pickard, same place. [Filed Nov. 12, 1875.]



The combination, with the axle A, of the collars E and F and the sleeve D, arranged to revolve between said collars, when the collar E is provided with a passage, E', and the sleeve with a recess or recesses, D'', registering with said passage E', for the insertion of a bolt or key, to facilitate the attachment or detachment of the hub B and axle A, substantially as described.

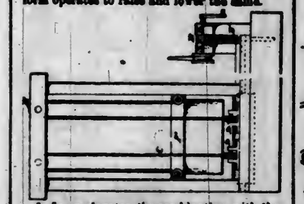
178,801. PORTABLE FENCES. Christn. Reits, Colets, Ill. [Filed Jan. 19, 1876.]
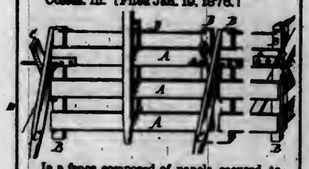


In a fence composed of panels secured together at their ends, the corner connection described, consisting of the panels A B (the bolt a secured to the top board of one, the plate a' secured to the top board of the other panel) and the crossed braces C, all constructed, arranged, and combined substantially as described and shown.

178,802. ELEVATORS. George W. Reid, Cleveland, Ohio, assignor to himself and Henry R. Dickerman, same place. [Filed May 15, 1876.]

Brief.—A single drum underneath the platform operates to raise and lower the same.

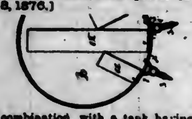


1. In an elevator, the combination, with the cage or movable floor F, of the single drum A, located beneath said cage, and connected thereto by means of cords or chains, which lead from the drum in opposite directions, and pass around suitable intermediate pulleys to change the line of force, substantially as and for the purpose specified.

2. The combination, with the single drum, located immediately beneath the cage or floor F, of the cords or chains G G' and the pulleys D E, substantially as and for the purpose specified.

3. The combination, with the single drum, located immediately beneath the cage or floor F, of the drum-shaft having cog-gearing attached thereto, and a windlass engaging with said gear-wheel, substantially as and for the purpose specified.

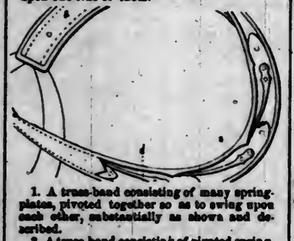
178,803. LIQUID-MEASURES. J. J. Roberts, Geddes, N. Y., assignor of one-half his right to F. J. Plumb, same place. [Filed Apr. 8, 1876.]



The combination, with a tank having the inclined bottom b, and with one or more measuring-chambers, c, placed on said bottom, of one or more three-way cocks, (one for each measuring-chamber,) having one branch connected with the tank, one with a chamber, and one for delivering, and having the vent of the plug so arranged that the passage between the tank and measuring-chamber shall normally remain open, and the delivery normally closed, substantially as and for the purpose set forth.

178,804. TRUSSES. Carl Seidel, Hanover, Prussia. [Filed May 16, 1876.]

Brief.—The usual body-spring is band made up of short lengths of overlapping plates of spring metal, which turn upon the rivets which unite them. Auxiliary springs to prevent the plates turning too far are placed upon one side of them.

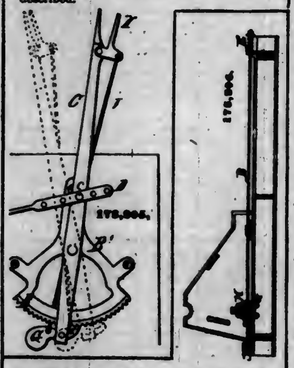


1. A truss-band consisting of many spring-plates, pivoted together so as to swing upon each other, substantially as shown and described.

2. A truss-band consisting of pivoted spring-plates a and auxiliary springs d, substantially as shown and described.

178,805. WAGON-BRAKE LEVERS. Jas. B. Sexton, Falls, Iowa. [Filed Apr. 8, 1876.]

The segmental bracket B B', having teeth on its lower edge, in combination with the gravitating-pawl G, rod J, levers C N, and brake-rod D, all arranged substantially as described.

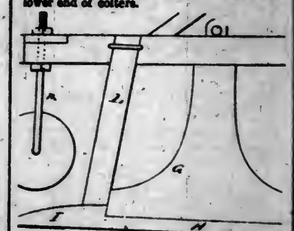


178,806. RECOIL-CHECKS FOR GUNS. A. G. Sinclair, Brooklyn, N. Y. [Filed Feb. 9, 1876.]

The guided sliding friction-rail B, having the spring E, in combination with the box-clamp G, and friction-plate H, said box-clamp being secured upon the carriage which moves on the chassis-rails, all constructed and arranged to operate substantially as described.

178,807. CLOD-CRUSHERS. P. T. B. Smith, Bellefonte, Pa. [Filed May 13, 1875.]

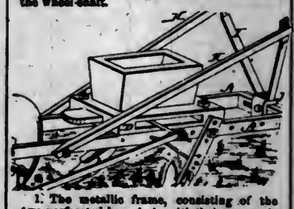
Brief.—Vertical side colters and an inclined transverse center blade, adjustable near the lower end of colters.



The combination of the land-sides H H and shares I I, attached to the plow-feet G G, the side cutters L L, and the inclined center cutter J, as and for the purpose set forth.

178,808. COMBINED CULTIVATORS AND SEED-PLANTERS. Napoleon B. Spradley, James McKibbin, and Christian A. Orr, Oxford, Ala. [Filed Feb. 28, 1876.]

Brief.—The frame is made of iron and perforated for the longitudinal adjustment of the shares. The share-standards are also adjustable in a vertical direction, and the frame is adjustable widthwise. A pilot-wheel is mounted in the forward end of the frame, and the seed-box is mounted about the middle of the frame, and the seed-slide is worked by a crank on the wheel-shaft.



1. The metallic frame, consisting of the two perforated bars A A, with their rear ends bent inward, slotted, and connected together by a bolt and nut, and their front ends curved toward each other, and forming jaws, between which is secured the adjustable shovel-beam L, substantially as and for the purposes herein set forth.

2. The wheel M, toothed upon its periphery and upon its sides, in combination with the seed-box F, with its slot B and slides O O, as and for the purpose specified.

3. The combination of the frame-bars A A, having their rear ends bent at right angles and slotted, the handle-stay I, formed of one piece of metal, the handles H H, and the clip J, connecting the handle-stay and the bolts A A, as set forth.

178,809. ROAD-WAGONS. A. B. Stickney, St. Paul, Minn. [Filed Jan. 8, 1876.]

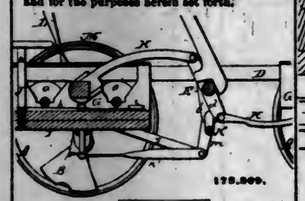
Brief.—Operates by pushing axles. Cams for locking wheels, so as to revolve in one direction only.

1. In a traction-engine or road-wagon, two trucks supporting the wagon bed or frame, and connected by pitmen with a rocking shaft between them, in combination with suitable clutch devices attached to the main wheels, whereby the trucks are alternately moved, and the wagon bed or frame receives a continuous motion in one direction, substantially as set forth.

2. In a traction-engine or road-wagon, the wagon bed or frame sliding upon two separate and independent trucks, supported upon the axles of the main wheels, in combination with two pitmen of an ordinary engine applied to the axles or centers of the wheels, for the purposes herein set forth.

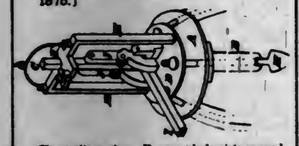
3. The combination of the main frame D, carriages G, with friction-wheels e, axles C, main wheels A, with dogs B, pitmen H, and rocking shaft E, with arms d, all substantially as and for the purposes herein set forth.

4. The combination, with the wheels A, of the dogs or clutches B, connecting-rods a a', rocking shaft K, with arms m, rods e, lever L, and notched segment M, all substantially as and for the purposes herein set forth.



178,809.

178,810. HORSE HAY-FORKS. R. T. Stoughton, San Francisco, Cal. [Filed Oct. 20, 1875.]



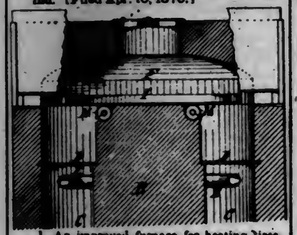
The hollow tines B, provided with curved slotted legs H, in combination with the internal rods G, plate A, movable slotted plate D, standard C, links J, lever I, and yoke E F, all constructed, arranged, and operated as described.

178,811. CAR-COUPLINGS. C. L. Storrs, Grand Haven, Mich. [Filed May 10, 1876.]



The link E, provided with beveled projection e, aperture f, and slot g, in combination with the draw-head A, having beveled flange a, substantially as and for the purpose specified.

178,812. FURNACES FOR HEATING TIRES FOR WAGON-WHEELS. John M. Studebaker and Hugh L. Hinds, South Bend, Ind. [Filed Apr. 10, 1876.]



1. An improved furnace for heating tires, having a central solid pillar adapted to support the tire-sustaining tubes H H, and interior edge of annular grate D, and also having an annular heating-chamber and grate, arranged as described, whereby the heat generated from the burning coals is hoarded by the pillar and otherwise economized, as herein before set forth.

2. In combination with the central pillar B and annular grate D, the perforated blast-pipe E, substantially as and for the purposes set forth.

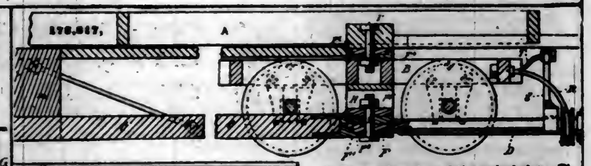
3. In combination with the annular heating-chamber, the hollow supporting-pipes H, adapted to receive a current of air or water, substantially as and for the purposes set forth.

4. The combination of the heating-chamber F, hollow bars H, fuel-chamber C, central pillar B, grate D, and blast-pipe E, substantially as and for the purposes herein before set forth.

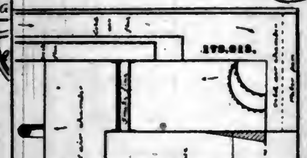
178,813. HOT-AIR CHAMBERS. Jane Grey Swisshelm, Pittsburg, Pa. [Filed Feb. 26, 1876.]

Brief.—Designed to permit free circulation inwardly, and restrict it outwardly.

178,817.



178,818.

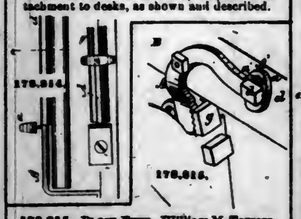


The combination, with a heating apparatus, of a foraminous plate perforated in the manner described—that is to say, with the larger end of the perforations toward the side from which the air is to be received, and the smaller pointed or borred end toward the hot-air chamber in which the air is to be warmed, or toward the apartment into which it is to be discharged after having been warmed.

178,814. PEN-RACKS. William B. Thomas, Ford's Store, Md., assignor to himself and John B. Emery, same place. [Filed Apr. 29, 1876.]

1. The combined pen-rack and open safe-desk attachment, formed of the rests a, the swinging tube provided with sleeve d, and the bent rod A, as shown and described.

2. The combination of the hinged open-ended tube and the bent rod, adapted for attachment to desks, as shown and described.



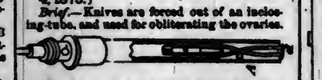
178,815. PLOW-FEET. William M. Towers, Rome, Ga. [Filed Apr. 19, 1876.]

1. In combination with the plow-foot A, having a forked upper portion pivoted to or upon the beam B, and at each end A' of said forked portion provided with a slot, c, and a grooved outer face, the bolt D, passing through said slots and said beam, and having the inner face of its head d grooved, the washer d'', provided upon its inner face with grooves, and the nut D', placed over the threaded end of said bolt, substantially as and for the purpose specified.

2. In combination with the shovel F and with the foot A, provided with the vertical slot a'' and horizontal grooves a''', the bolt G, passing through said slot and provided with a head, g, that is grooved to engage with the front of said foot, and is provided with a rabbet, g', which embraces the upper end of said shovel, substantially as and for the purpose shown.

178,816. SPAYING-INSTRUMENTS. Joseph L. Turner, Plainsburg, Col. [Filed Aug. 4, 1875.]

Brief.—Knives are forced out of an incising-tube, and used for obliterating the ovaries.



The lancet d, standing at right angles with the sheath A, and having the elastic retracting arms or shanks c, in combination with the operating-block e and the rod f, substantially as and for the purpose herein described.

178,817. CAR-COUPLINGS. Stephen Ustick, Philadelphia, Pa. [Filed Nov. 13, 1876.]

1. The longitudinal beam C, having the swivel-plates F' at its ends, in combination with the truck-frames B, having swivel-plates F' centrally arranged with their under sides, and bold in connection with the said swivel-plates F' by means of king-bolts I, substantially in the manner and for the purpose set forth.

2. The combination of the swivel-plates F' and F' and king-bolts I' with the car-frame A and truck-frames B, having rabbeted ways k k, whereby the trucks have a positive lateral connection with the car-frame, but are free to move at their upper sides in the longitudinal direction thereof, substantially in the manner and for the purpose set forth.

3. The combination of the longitudinal beam C, having one or more uprights, m, with the frame A, with which the upper end of the said upright or uprights have a positive connection in the longitudinal direction of the frame, but are free to move in lateral direction, substantially in the manner described and for the purpose set forth.

4. The draw-bars D, having swivel-plates F on their inner ends, in combination with the longitudinal beam C, having swivel-plates F' and F', substantially in the manner and for the purpose set forth.

5. The combination of the bent rod R with the truck-frame B and draw-bar D, for supporting the latter, substantially as set forth.

6. The combination of the weighted bar S, draw-bar D, supporting-rod T, and truck-frame B, substantially as and for the purpose set forth.

7. The oscillating draw-bar D, having a draw-head with the bottling end, flat and at right angles to the draw-bar, substantially in the manner and for the purpose set forth.

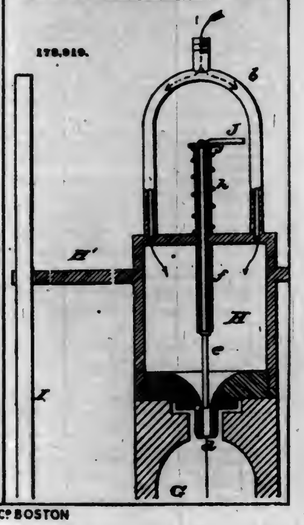
178,818. SHELLING AND PERFUME BOTTLES. Henry Warner, Boston, Mass. [Filed Apr. 24, 1876.]



1. The combination, with the body A, provided with the ring B, of the screw-cap C, formed with the valve-stem opening f and the orifice m, the valve D, provided with the stem e and shank g, and the spring d, the whole being arranged to operate substantially as set forth.

2. The duplex bottle, as described, the same consisting of two separate receptacles, A A, constructed as specified, and connected by means of the ring E and connect, as set forth.

178,819.



178,819. MOLDING BOTTLES. A. B. Weber, Pittsburg, Pa. [Filed Apr. 22, 1876.]

1. The combination of the air-cylinder H, branch-pipe b, removable base having the blower d, arms H' H', and guides I I, substantially as described, and for the purpose set forth.

2. The air-cylinder H, constructed as set forth, and provided with the blower d, in combination with the removable rod e, substantially as described, and for the purpose set forth.

3. The combination of the rod e, air-cylinder H with nozzle d, the slotted and notched tube f, handle J, and spring k, as herein set forth.

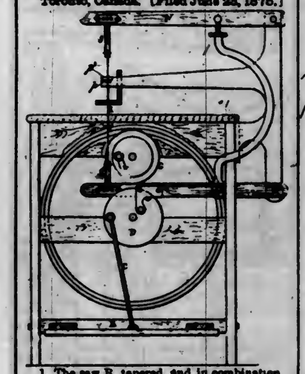
178,820. DRESS FOR MILLSTONES. James H. Welch and Edmund P. Hann, Georgetown, D. C., assignors of part of their right to R. W. Welch and E. P. Welch, same place. [Filed May 24, 1876.]



1. A millstone having that portion of its face upon which the grain is ground after it has been crushed at the center composed of a series of lands the faces of which shall stand at different heights, substantially as and for the purpose set forth.

2. The combination, in a millstone, of the higher lands e and the lower or depressed lands e, substantially as set forth.

178,821. SCROLL-SAWS. W. D. Westman, Toronto, Canada. [Filed June 23, 1876.]



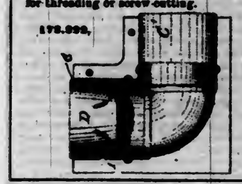
1. The saw E, tapered, and in combination with the steel guides p p' and wooden guides p' p', as and for the purposes set forth.

2. The buckles S S', in combination with the steel guides p p', wooden guides p' p', adjustable for three positions of the saw, as shown and described.

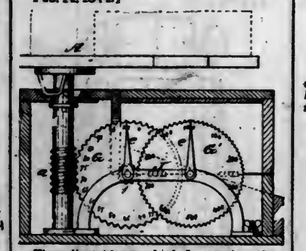
3. In a rip and scroll saw, constructed with steel guides p p', wooden guides p' p', buckles S S', for three positions of the saw, saw-shaft H, pitman K, treadle B, rod C, and axle E, the combination of a main driving-wheel, F, hung upon the saw-shaft pulley G, as shown and described, and for the purposes set forth.

178,822. OGELLS. Charles A. Wilson, Cincinnati, Ohio. [Filed Jan. 6, 1876.]

Brief.—Ogill may be hinged on one side and doweled on the other. Hardens external surface of pipe, but leaves inside of ends soft for threading or screw-cutting.



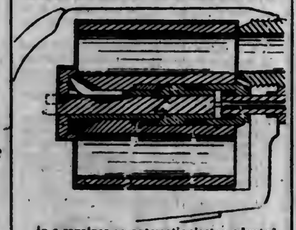
178,823. GRAIN-TALLIES. Peter Winsor, St. Peter, assignor of one-half his right to Ebor Durham, Owatonna, Minn. [Filed Feb. 14, 1874.]



The adjustable standard J, carrying the registering-wheels G G', and pointers a, in combination with the worm e on the spindle of carrier A, as described.

178,824. UMBRELLA-EJECTORS FOR REVOLVING FIRE-ARMS. Stephen W. Wood, Cornwall, N. Y. [Filed June 5, 1876.]

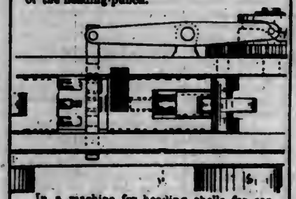
Brief.—The ejector is in the pin or axis of the cylinder, and is moved backward and forward by the revolution of the cylinder. When the spring is pressed down the ejector operates to throw out the shell with considerable force.



In a revolver, an automatic ejector, adapted to be operated by the rotation of the cylinder independently of the firing mechanism, substantially as herein set forth and described.

178,825. MACHINES FOR HEADING CARTRIDGE-SHELLS. Stephen W. Wood, Cornwall, N. Y., assignor to Winchester Repeating Arms Company, New Haven, Conn. [Filed June 5, 1876.]

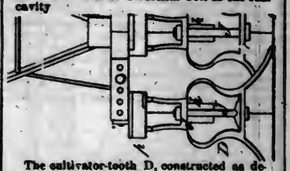
Brief.—Two dies in which to head the shells, located in a horizontally-reciprocating cross-bar, and upon the one side a cross-head working at right angles to the bar, which carries a shouldered mandrel and two discharging-pins, and on the other side another cross-head, that carries a heading-punch. The shells are conducted into the machine by a chute, the lowermost one placing itself in the path of the heading-punch.



In a machine for heading shells for cartridges and other purposes, the combination of two or more reciprocating dies, a mandrel, a header, and discharging device, whereby shells may be headed alternately, first in one die and then in another, by a single punch and upon a single mandrel, substantially as described.

178,826. CULTIVATORS. William Wright, Lockport, N. Y. [Filed Nov. 20, 1875.]

Brief.—The teeth made in two parts, having a beveled socket and tenon, and a web upon each, that receives a vertical bolt in the rear cavity



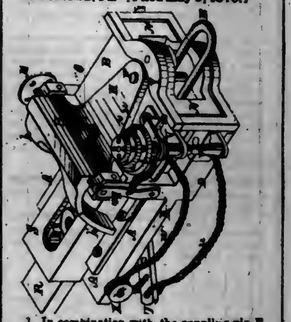
The cultivator-tooth D, constructed as described, in combination with the tapered tenon h on the standard, the web d, and the bolt J, substantially as described.

178,827. PAPER VESSELS. A. Wuensch, New York, N. Y. [Filed Feb. 9, 1876.]



A box having its bottom made of pasteboard or paper, consisting of two disks of different diameters, united by means of an intermediate layer of paper or pasteboard, the larger disk being placed under the others, so as to form a combined bottom with a grooved periphery, into which the body enters, and the edge resting on the projecting edge of the lower disk, substantially as and for the object specified.

178,828. CAR-COUPLINGS. Wm. L. Yohn, Allentown, Pa. [Filed May 9, 1876.]



1. In combination with the coupling-pin F, the plate H, pivoted to or between the standards G and G, and provided with an opening, h', for the reception of said pin, the lever I attached to one of the bearings of said plate, the journaled sleeve L, and the chain K, which extends between said sleeve and lever, substantially as and for the purpose specified.

2. In combination with the link E and with the opening C, of the housing B, the block P, provided with the link-openings p and p, and pivoted within said opening C by means of the vertical bearing Q, substantially as and for the purpose set forth.

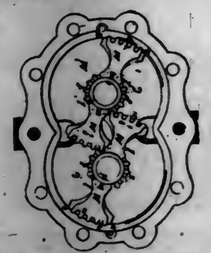
3. In combination with the block P, pivoted within the opening C and provided with the rearward-extending arm p'' and loop p', the frame Y, pivoted to or upon the buffer N and provided with the plate y and tongue y', that engages with said loop, substantially as and for the purpose shown and described.

4. In combination with the link E, contained within an opening, p, of the block P, the push-bar or buffer B, contained within the housing S, held with a yielding pressure against the rear end of said block by the springs T and T, and moved longitudinally by means of the lever U, sleeve V, shaft W, and chains a and a', substantially as and for the purpose specified.

5. In combination with the plate or lever H, constructed as shown, the tongue O pivoted within the lower side of the same, and arranged to operate as a guide for the coupling-pin F, substantially as and for the purpose set forth.

178,000. WATER-METERS. Benaiah Fitts, Worcester, Mass., assignor to Union Water Meter Company, same place. [Filed May 18, 1876.]

Brief.—A combination of two sets of pistons with gears so arranged as not only to confine them to their proper relative positions with regard to each other, but to prevent interference between the pinions of each set as they are made to revolve by the pressure of the water. The outer end of hub forms the shaft on which the gear is made fast. A pin, spindle, and crank give motion to registering apparatus.



1. The combination of two eccentric gears, M and M', with two rotary pistons, I I', each consisting of two or more radial piston-blades having a curved outer end, *c*, and of a hub, O, provided with two or more curved portions, P P, substantially as and for the purposes set forth.

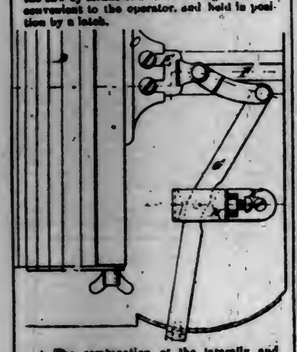
2. The combination of two pistons, I I', constructed and arranged substantially as described, with two gear-plates, J J', each carrying four concentric segmental gears, *r r* and *r s*, in the manner and for the purposes set forth.

3. The combination of a rotary piston provided with two or more radial piston blades and a hollow hub, with a stud formed on or otherwise rigidly secured to the bottom plate *h* of the casing, in the manner substantially as and for the purposes set forth.

4. In combination, with the two rotary pistons and gears of a meter, the pin *t*, spindle *v*, and its crank *g*, as a means of imparting motion to the mechanism of a registering apparatus, substantially as described.

178,001. SAW-TABLE GUIDES. Lafty Lewis and Noble T. Barnes, Oswego, N.Y. [Filed Mar. 13, 1876.]

Brief.—The guide is adjusted to and from the saw by means of a lever having its handle convenient to the operator, and held in position by a latch.



1. The combination of the laterally and vertically adjustable guide D, slotted saddle O, guide E, with the lever G, pivoted to an adjustable fulcrum, H, substantially as and for the purpose set forth.

2. The combination, with the lever G and adjustable fulcrum-block, H, of the segmental rack I and the weighted latch J, substantially as and for the purpose specified.

3. The combination, with the guide D, slotted saddle O, and guide E, of the lever G, adjustable fulcrum-block H, and a link connecting the lever to the guide, substantially as and for the purpose specified.

REISSUES.

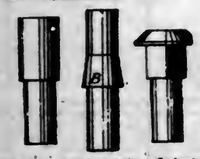
7,164. APPARATUS FOR DRYING WEARING APPAREL. Joseph Braun, Rochester, Pa., assignor, by mesne assignments, to Syrvenus Walker, Boston, Mass. Patent No. 60,771, dated Sept. 24, 1867. [Filed Jan. 14, 1876.]



1. An expansible core or former for drying, shaping, and pressing wearing apparel stretched upon the same, and adapted to be the same to be stretched and dried into the desired shape by the admission of steam to its interior, as and for the purposes set forth.

2. A hollow expansible metallic core, formed in sections or parts, and connected together by springs, pins, and pipes, which allow said parts to be expanded or adjusted so as to fit various sizes of wearing apparel, and permit steam to circulate, substantially as and for the purposes set forth.

7,167. MANUFACTURE OF CARRIAGE-BOLTS. James B. Clark, Plainsville, assignor, by mesne assignments, to Peck, Stow & Wilcox Company, Southington, Conn. Patent No. 96,506, dated Nov. 2, 1869 [Filed May 10, 1876.]



The improvement in the manufacture of carriage bolts, which consists in first forming on the blank, by upsetting, an enlarged portion, B, larger than either end of said blank, and then forming the same into a square-neck round-headed bolt, the upper end of the square neck being formed by upsetting the metal in the act of heading, substantially as described.

7,166. GRAIN-SEPARATORS. Thomas Hancock and John H. Leaman, Richmond, Va., assignors, by mesne assignments, to E. P. Allis, Milwaukee, Wis. Patent No. 73,803, dated Jan. 28, 1868. [Filed June 3, 1876.]

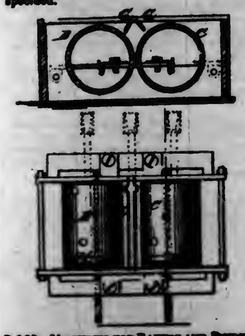
1. A revolving cylinder or cylinders, formed from a single thickness of metal, and having holes, cavities, or indentations, formed upon their interior surfaces, substantially as and for purpose specified.

2. The combination, with a revolving cylinder or cylinders, formed from a single thickness of metal, and having holes, cavities, or indentations upon their interior surfaces, of a stationary bar or plate and spout, arranged therein substantially as and for the purpose specified.

3. One or more cylinders for separating cockle and other foreign substances from wheat or other grain, having holes, cavities, or indentations formed both upon the interior and exterior surfaces thereof, substantially as and for the purpose specified.

4. The combination of the guard-plates or bar G with the exterior of the cylinders B and C, substantially as and for the purpose specified.

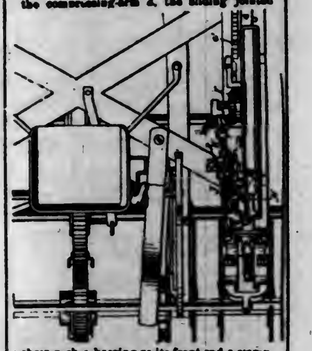
5. The separating-cylinders B and C, having shallow grooves H formed around their lower ends, substantially as and for the purpose specified.



7,169. MACHINES FOR BAILING AND BINDING GRAIN. Abner S. Harding, Goshen, N.Y., assignor, by mesne assignments, to S. D. Locke. Patent No. 94,909, dated Apr. 16, 1869. [Filed May 18, 1876.]

1. Combined with the automatic mechanism for gathering and compressing a bundle of grain, and conveying the band around the same, a revolving hook, adapted to enter, and in its revolutions to twist together, the ends of the band.

2. Combined with the side bars *f* and the compressing-arm *e*, the sliding jointed



chain-rack *s*, bearing at its front end a clasp, to seize and hold the end of the band, for the purpose set forth.

3. Combined with the rotary shaft B, bearing at its front end a twister-hook, the pinions *i* and *l* and the reciprocating rack *s'*, which goes out of engagement with said pinions during a portion of its reciprocation, for the purpose of imparting an intermittent rotation to said shaft, as set forth.

4. Combined with the rotating shaft B, to the front end of which the twister-hook is hinged, the rod J, the loose cam K, provided with a notch, *l*, and spring, and the stop-stud *k*, to prevent a rotation of said cam in one direction, for the purpose of producing an extension and retraction of the twisting-hook, in the manner shown.

5. Combined with the rotating shaft, bearing the twisting-hook at its front end, and the rod and cam for extending and retracting the same, the finger H on the reciprocating joint rod or chain *s*, and collar F on the rod H, for the purpose of projecting said hook forward to seize the ends of the band, as set forth.

6. Combined with the automatic mechanism for gathering and compressing a bundle of grain, and for conveying a band around said bundle and securing the ends of the same, a clutch, whereby said binding mechanism may be connected or disconnected from its driving mechanism, for the purpose of making the bundles, as will

7,170. WRITING-TABLETS. John H. Hodder, Aurora, Ill. Patent No. 178,006, dated Feb. 1, 1876. [Filed May 27, 1876.]



As a new article of manufacture, a writing-tablet or memorandum-block, provided with a cover or outer leaf composed of absorbent or blotting paper, substantially as and for the purpose specified.

7,171. FEATHER DUSTERS. John L. Little, Muncie, Ind. Patent No. 147,346, dated Feb. 3, 1874. [Filed Feb. 23, 1876.]



A duster or brush constructed by securing the dusting material to a flexible material, and fastening the same to the handle, substantially as and for the purposes herein set forth.

7,172. STOP-WATCHES. Ernst A. Leierin, New York, N.Y. Patent No. 176,231, dated Apr. 18, 1876. [Filed May 22, 1876.]



1. The quarter-second hand and its dial, located on the top of the watch-movement, substantially as specified.

2. The minute-hand Q and sectional dial R, located on the top of the watch-movement, and relatively arranged with the quarter-second hand, substantially as specified.

3. The quarter-second hand, mounted on the short center-post E, and geared with the second-wheel G of the watch-train, substantially as specified.

4. The combination, in a stop-watch, of a second-hand attached by friction devices to a post which is geared with the train, as herein described, and a friction stop-lever and friction-wheel, substantially as specified.

5. The adjusting-lever O, arranged in relation to the quarter-second and minute hands, whereby it adjusts both at the same time, substantially as specified.

6. The hand A, connected to the post B by tube C and spring D, substantially as specified.

7,173. WRENCHES. Robert H. McCormick and William R. Baker, Chicago, Ill.; said Baker assignor to said McCormick. Patent No. 166,020, dated July 27 1875. [Filed May 31, 1876.]

1. The combination, substantially as hereinbefore set forth, of the main portion of the wrench provided with a jaw, guideways, and a screw, with a movable portion provided with corresponding interlocking guides, and a nut inclosing the two.

2. The improved wrench, hereinbefore set forth, consisting of the combination of the main portion provided with a jaw, guide-flanges, a longitudinal guide-groove, and a screw, a movable portion provided with a jaw, guide-flanges interlocking with the main portion, and a tongue working in the guide-groove, and a screw-nut working on the main portion, and over the sliding portion, for the purposes specified.

7,174. COFFEE-MILLS. Turner Strobridge, New Brighton, Pa. Patent No. 169,467, dated Feb. 2, 1876. [Filed May 24, 1876.]



1. In coffee and spice mills, the combination of the box, having a top, with the hopper, suspended therein by means of a projecting flange or lugs, which rest upon or take into the top, substantially as described.

2. The combination of the box, having a top, with the hopper, suspended therein by means of a projecting flange or lugs, which rest upon or take into the top, and a cover, substantially as described.

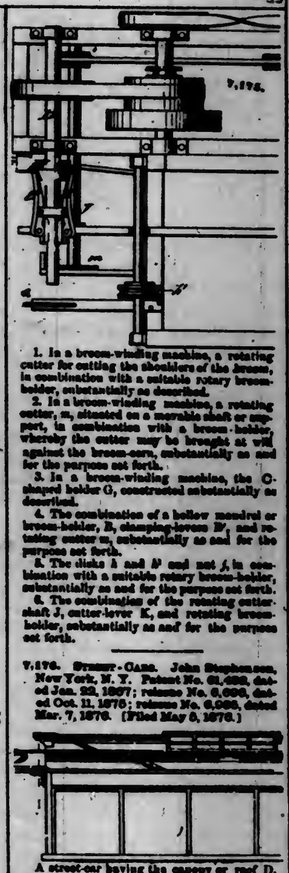
3. The combination of cover B and grinding-shell or hopper D, the latter provided with lugs or a flange, so that the two parts may be secured to the box by a single set of screws, substantially as specified.

4. The hopper and grinding-shell D, provided with points or projections *e* on its outer surface, in combination with cover E, projecting so as to rest upon the top of the box, and bind upon the upper edge of the hopper, substantially as and for the purpose specified.

5. The combination of the hopper and grinding-shell D, grinding-nut G, having shank H, and cover E, having a sliding gate or door, F, substantially as and for the purpose specified.

7,175. BROOM-MACHINES. Alphonso Walrath and Edward D. Brosnan, Amsterdam, N.Y. Patent No. 174,088, dated Feb. 22, 1876. [Filed June 9, 1876.]

Brief.—The broom is held by clamps and rotated, and the wire brought to it over a tension-spool. A cutter can be brought up at will to cut the shoulder.



1. In a broom-winding machine, a rotating cutter for cutting the shoulders of the broom, in combination with a suitable rotary broom-holder, substantially as described.

2. In a broom-winding machine, a rotating cutter, *n*, situated on a movable shaft or support, in combination with a broom-holder, whereby the cutter may be brought at will against the broom-corn, substantially as and for the purpose set forth.

3. In a broom-winding machine, the C-shaped holder C, constructed substantially as described.

4. The combination of a hollow mandrel or broom-holder, B, clamping-levers D', and rotating cutter *n*, substantially as and for the purpose set forth.

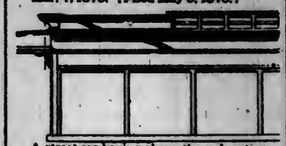
5. The clicks *h* and *h'* and nut *f*, in combination with a suitable rotary broom-holder, substantially as and for the purpose set forth.

6. The combination of the rotating cutter-shaft J, cutter-lever K, and rotating broom-holder, substantially as and for the purpose set forth.

7,176. STREET-CARS. John Stephenson, New York, N.Y. Patent No. 61,622, dated Jan. 22, 1867; reissue No. 6,093, dated Oct. 11, 1870; reissue No. 6,093, dated Mar. 7, 1876. [Filed May 6, 1876.]

A street-car having the canopy or roof D, which shelters the platform, made or arranged in a plane lower than the plane of the ridge of the main roof which covers the car-body, substantially as set forth.

7,177. STREET-CARS. John Stephenson, New York, N.Y. Patent No. 61,622, dated Jan. 22, 1867; reissue No. 6,093, dated Oct. 11, 1870; reissue No. 6,987, dated Mar. 7, 1876. [Filed May 5, 1876.]



A street-car having above the end sections of the roof an opening for ventilation, or glass or other device for light or signal, or other purpose, and in combination therewith a frontlet or projecting part of the ridge roof, which frontlet or protection forms a screen, shelter, or projection to the end ventilators, as and for the purposes set forth.

7,178. FLAG. William A. Duff, Philadelphia, Pa. Design No. 3,672, dated Dec. 28, 1875. [Filed May 4, 1876.]

The design for a tag composed of the flags, in one, of the United States of America, England, France, and other nations, substantially as above described.

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COMMISSIONER'S DECISIONS.

W. H. HANSCOM *vs.* O. B. LATHAM.—*Interference; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of W. H. Hanscom and O. B. Latham, for* "IMPROVEMENTS IN NUT-LOCKS."—*Decided June* 10, 1876.]

An applicant for patent, after his case has been twice rejected, should proceed with diligence in having the adverse decision of the Office set aside upon appeal if any error has been committed.

The acquiescence of an applicant for a patent in the decision of the Office rejecting his case for a series of years, and his failure to avail himself of his right to an appeal within the time limited, affords strong presumptive evidence of an abandonment of his claim.

Abandoned experiments do not reach the grade of complete invention.

To constitute complete invention it must be shown that the device has been used, or that reasonable diligence has been employed in applying it to this last and surest test.

[*Evans & Co.*, for Hanscom.
Donn and McPherson, for Latham.]

DUELL, *Commissioner:*

The status of the parties, as regards the question of priority of invention may be briefly stated, as there is no controversy as to the facts. Latham conceived the invention in the summer of 1872, and explained it to others. By December, 1874, he had completed a bolt and nut embodying the invention in dispute, and on the 9th of January, 1875, filed the same with an application. Having improved upon the device as originally constructed he abandoned the first application in favor of his present application, which was filed February 10, 1875. In March he applied his invention upon the rails of the Auburn branch of the N. Y. C. & H. R. R.

On the 28th of March, 1870, Hanscom filed an application, which was the second time rejected by the Primary Examiner, April 6, 1870. With this application was filed a bolt and nut exhibiting the construction of the subject-matter claimed.

Pursuant to an order of the Commissioner, since abrogated, Hanscom was notified of Latham's claims, and March 30, 1875, filed a new application, whereupon this interference was instituted April 6, 1875. Latham took testimony to establish his claims, whereas Hanscom rested his case upon the evidences of invention contained in his application filed in 1870, consisting of the specification, drawing, and a complete bolt and nut exhibiting the invention. Upon this state of facts the Examiner of Interferences and Examiners-in-Chief found priority to be with Hanscom.

It is to be remarked that there exists no connection between Hanscom's first and second applications, but the latter stands alone as if it were the only one he had filed, and the former serves merely as record evidence of the matters contained within it. It has been determined that a rejected application, unaccompanied by proof that the invention was perfected or brought into actual use is not evidence of complete invention. (*Broion* vs. *Guild*, 6 OFFICIAL GAZETTE, 392; *The North Western Fire-Extinguishing Co.* vs. *The Philadelphia Fire-Extinguishing Co.*, 6 OFFICIAL GAZETTE, 34.)

In the present case it is contended that the model accompanying this rejected application was the complete device ready for use. This is undoubtedly true, and such being the case it remains to be seen whether an invention in that condition is complete in the eye of the law, so as to vest an indefeasible property. As far as the evidence shows, no effort has been made to use the device, and thus ascertain its efficacy and value for accomplishing the desired result.

Hanscom is to be regarded as negligent in the prosecution of his case, nor can he derive any benefit from his having filed the present application. It does not evidence activity and diligence, but rather shows that until his mind was refreshed by the notice he received

from the Office he slept upon his rights. No excuse is offered or pretended for this delay of five years in renewing his claims before the Office. After his first repulse he was put upon his guard, and if he considered the invention of value it was his place to proceed with diligence in having the adverse decision set aside upon appeal. This means of obtaining redress is especially provided by statute. (*Goodyear* and *Bacon* vs. *Hills*, 3 Fisher, 134.) His acquiescence in the decision of the Examiner, and his failure to press his case or employ the invention in any way affords strong presumptive evidence that he from that time abandoned his claim to the invention, and dismissed the subject from his mind. (*L. Dederick* vol. 3, p. 421, Book of Appeals, and *Wickersham* vs. *Singer*; same volume.)

I am aware that the courts have several times held that delays caused by the erroneous rejection of an application by the Office could not operate to the disadvantage of the applicant; but in all these cases the question under consideration was that of abandonment to the public, and there was evidence that the parties had in the interval between the filing of the first and second applications asserted their right and continued their claim.

Thus in *Adams* vs. *Jones*, (1 Fisher, 527,) it was said:

> By the application filed in the Patent Office, the inventor makes a full disclosure of his invention, and gives the public notice of his claim for a patent. It is conclusive evidence that the inventor does not intend to abandon it to the public. The delay afterward interposed either by the mistakes of the public officers or the delays of the courts, *where gross laches* cannot be *imputed to the applicant*, cannot affect his right. The statute forfeits the right of an inventor to a patent only where the invention has been in public use more than two years before the application. A man might justly be treated as having abandoned his application if it be not prosecuted with reasonable diligence. But voluntary delays not caused by the laches of the applicant should not work a forfeiture of his rights.

But the pending question does not come under that rule. It is simply whether under the circumstances the bolt made by Hanscom in 1870 can be considered as amounting to more than an abandoned experiment, his laches (for his delay unexplained amounts to that) being a circumstance to be considered. This I think affords a proper solution to the question of priority, for it is settled that abandoned experiments do not reach the grade of complete invention.

All that Hanscom is proved to have done is to file an application and make a single device which was never used or duplicated. These were filed in the Office. A patent was refused. Instead of pressing his claim and filing an appeal he let the matter drop and took no further action; nor as far as the record shows did he recur again to the matter until he was notified that Latham had filed an application, in which was claimed the same invention; and even when he presented this second application he did not furnish a new model, but had the old one applied. In the meantime Latham had developed the invention, tested it, and diligently applied for a patent, and put it into public use. It has been urged that the equities are with Hanscom; that if he had not been wrongly rejected he would have obtained his patent before Latham appeared upon the field. An error may or may not have been committed in rejecting him in the first instance, but inasmuch as he acquiesced in such action it cannot be regarded as being at variance with his own views, and if he was displeased with the judgment he had a method provided for having it set aside.

No reason is assigned why he could not have done this. No hardship was committed if he, without dissent, accepted the action of the Office. It may be said with as much force that Latham's rights have been endangered because a patent was not issued to him while he was the only applicant before the Office without notifying Hanscom to appear to contest the matter of priority, a proceeding which has since been decided to be without authority of law. The burden of proof is upon Hanscom, and had he shown that his delay was unavoidable, and that during this interval of five years he had taken any measures to test his invention and give the public the benefit of its use, then the presumption that the single untried specimen which he made, which passed from his possession without any effort on his part to recover it, which was never tried to ascertain its value, and which, as far as there is any evidence in the case, was forgotten until his memory was refreshed by the official letter calling his attention to the fact,—it was an incomplete invention. All these circumstances taken together are conclusive in my mind that it was a mere abandoned experiment. The failure of Hanscom to test his invention is of considerable importance, as showing that it was regarded as a mere experiment.

In *Bedford* vs. *Hunt*, 1 Mason, 302; *Cahoon* vs. *King*, 1 Fisher, 397; *Murphy* vs. *Eastman*, 2 OFFICIAL GAZETTE, 61; *Seymour and Morgan* vs. *Marsh*, 2 OFFICIAL GAZETTE, 675, and *Parkhurst* vs. *Kinsman*, 1 Blatch. 488, it was said that, in order to establish priority, it was necessary that the machine should have been used for the purpose intended. While the law upon this point is not to be regarded as settled, but varies somewhat with the circumstances of the case, I am of the opinion that to constitute complete invention the party must show that the device has been used, or that he has used reasonable diligence in applying it to this last and surest test. This Hanscom is not shown to have done, and the burden of proof is upon him. Viewed in the light of the circumstances his efforts culminated in an abandoned experiment, from which the public could derive no advantage, whereas Latham is the only one to produce evidence of complete invention, and must be regarded as the first inventor.

The decision of the Board is reversed, and priority of invention awarded to Latham.

J. BARNES *vs.* E. H. CLINTON.—*Interference; appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of John Barnes and Edward H. Clinton for* "IMPROVEMENTS IN HARVESTER-RAKES."—*Decided June* 12, 1876.]

An inventor cannot safely let his invention rest in an incomplete state simply because he meets difficulties at the outset; he is not thereby excused from using all reasonable diligence in his endeavors to surmount such impediments and perfect the invention.

Where a model is destroyed and the inventor proceeds to experiment in and perfect other devices for producing the same results, it affords very strong presumptive evidence of an abandonment of the invention shown in such model.

Unless it is conclusively proven that an invention is a joint one the Office will not take notice of an allegation made to that effect. A mere suspicion will not warrant the Office in rejecting a sole applicant under such an allegation.

[*W. D. Baldwin* and *M. S. Hopkins*, for Barnes.
E. S. Renwick and *E. Wetmore*, for Clinton.]

DUELL, *Commissioner:*

The two tribunals who have passed upon this case agree upon all questions of law and fact arising therein, and in awarding priority of invention to Clinton.

In accordance with the practice heretofore announced their unanimous finding will not be disturbed, except for manifest error.

The case is now presented for my consideration by the appellant Barnes without specific allegations of error in the decisions already rendered, but upon the broad assertion that the Board erred in awarding priority to Clinton and in not awarding it to Barnes, and "in deciding said E. H. Clinton to be a sole inventor and not a joint inventor with Rutledge."

Clinton's application was filed November 17, 1874, and Barnes' four days later.

The testimony shows that Barnes made a model of the invention in the early part of 1872, which was subsequently destroyed. In the summer of 1874 he witnessed the operation of a machine constructed under Clinton's instructions and embodying the features now in controversy. He seems to have recognized the similarity between the model which he had made in 1872 and Clinton's machine, and soon afterward took steps to file an application for a patent. I do not understand that counsel for Barnes seriously contends that this model was a reduction to practice of the invention; such a doctrine is not countenanced by the Office or the courts. Clinton is the first and only one who has actually perfected the invention. There is no evidence that Barnes ever has attempted to do so. The only ground upon which Barnes can prevail in this proceeding is that of reasonable diligence in adapting and perfecting an invention which he was first to conceive; otherwise Clinton must be declared the prior inventor.

I agree with the Examiners-in-Chief that he has signally failed in his proof on this point.

When a man, after making a model destroys it, leaves the subject, and proceeds to experiment and perfect other devices for producing the same result, does not again recur to the matter, experiment, or in any manner indicate ownership and a desire to perfect the improvement, until, after a lapse of more than two years, he sees another engaged upon the same invention, demonstrating its practical utility and value, the presumption is very strong that such model was an abandoned experiment, or at least that he was culpably negligent in adapting and perfecting the invention, and this presumption cannot be overcome simply by showing that he was in debt, or that he had bound himself not to obtain patents on devices of this character without consulting with his employers and giving them the first choice of purchase and an interest in the patent, upon which terms they were to pay for the application, and that it was to avoid the effects of this agreement that he delayed completing it or asking their assistance.

Barnes says that at the time of making the model in 1872 he had a number of devices for effecting the same purpose. He filed applications for three of these before the present one, and built an experimental machine in September, 1874, in accordance with one of those plans.

Emerson & Co. provided the funds for these applications and experiments, and stood ready to adopt his invention and obtain patents therefore, but he never explained it to them. Ralph Emerson frankly admits that he was incited to adopt this improvement of Barnes' and obtain a patent therefor by the making of Clinton's machine; and Barnes says that they did not take hold of it before because they were not aware of it.

While it may be a fact that Barnes was in debt, it is equally true that his credit was such as to enable him to borrow large sums of money, and he was receiving a considerable income from his patents and scroll-saw business. It does not appear that his expenses were extraordinary, or that any of his income was applied to the extinguishment of his debts. He was at work during this time upon improvements in harvesters, but there are no indications that he ever gave thought or time to the present invention.

His election to proceed with certain inventions to the prejudice of others is an act for which he alone is responsible, and he cannot for such reason be allowed to deprive an original and independent inventor of the rights which his proceedings in reducing the invention to practice and giving the public a knowledge of it have secured to him.

An inventor cannot safely let his invention rest in an incomplete and embryonic state simply because he meets difficulties at the outset. He is not thereby excused from using all reasonable diligence in his endeavors to surmount such impediments and perfect the invention. He delays at his peril.

As regards the matter of joint invention, it is not conclusively proved that Rutledge was a joint inventor, or acted in a capacity other than as skilled workman. A mere suspicion is not enough to warrant the Office in rejecting Clinton's application, especially when the supposed joint inventor makes no claim as such, but permits the patent to be issued to Clinton alone.

This issue is one between the Office and the applicant, and is not germane to that of priority of invention, the only one arising in an interference.

It is much the best policy to let the parties remain in the position in which they choose to place themselves, for it is reasonable to suppose they have done so after due deliberation, and I do not feel disposed to disturb them, except where it clearly appears that they are not what they pretend to be.

After due deliberation I have come to the conclusion that Clinton is, in law, to be regarded as the prior inventor, and accordingly affirm the decision of the Board.

W. D. BENNAGE *vs.* PHILLIPPI *et al.*—*Interference.*

[*Appeal from the Examiner of Interferences in the matter of the interference between the applications of William D. Bennage, Jr., Amos Phillippi, and Edward Stewart, for* "DESIGN PATENT."—*Decided June* 5, 1876.]

In an interference proceeding, the question of novelty should first be disposed of, and when that question is raised it controls the matter of jurisdiction of the Commissioner of Patents in adjudicating upon the rights of the parties.

In an application for a design patent, the arbitrary selection of the form of a now well-known and celebrated building to be applied to toys, inkstands, paper weights, &c., does not evince the slightest exercise of invention, industry, genius, or expense.

An alleged design, consisting of a mere imitation of an existing form, or configuration, which any artisan has the right to apply to any object his fancy may dictate, is not properly the subject of a patent.

If neither the article produced, nor the appearance of it, is original, there is no evidence that the law contemplates originality, genius, or invention.

The same degree of originality is required in both design and functional patents—that is, the claim must not be for a copy or imitation of what is already in existence.

[*Wiedersheim*, attorney for Bennage.
Gilmore & Co., attorneys for Stewart.
Connolly & Bros., attorneys for Phillippi.]

DOOLITTLE, *Assistant Commissioner:*

This is an appeal from the Examiner of Interferences refusing to dissolve the interference between these applications.

All the applicants claim, as a new design, the figure of the Memorial Hall at the Centennial Exposition, in imitation of which they have shaped articles of manufacture. Phillippi works the design into a "metallic casting for toy banks, inkstands," &c. Stewart makes a paper-weight of that form, and Bennage an inkstand.

The motion to dissolve is based upon the ground that the design is intended in each case for different articles of manufacture, and that the law gives protection to any design that may be placed for the first time upon a particular article of manufacture, notwithstanding the fact that the same design may have been used upon other articles of manufacture; that the article in each case was not for an analogous purpose, and that, therefore, the further objection of double use of the design does not apply.

As the question of patentability, when raised in an interference case, controls the matter of jurisdiction of the Commissioner in adjudicating the rights of the parties, it becomes necessary that that question should be first disposed of. It is impossible to determine whether this interference should continue without first considering the grounds on which it was declared.

The Primary Examiner originally rejected each of these cases for the reasons that no one of them contained patentable subject-matter; that the proposed design was not original with any of the applicants; that its adoption in these articles was not the result of invention, and therefore not entitled to the protection of the patent laws. Upon appeal this decision was reversed by the Board of Examiners-in-Chief.

Section 4929 provides that—

Any person who, by his own industry, genius, efforts, and expense, has invented and produced any new and original design for a manufacture, bust, statue, alto-relievo, or bass-relief; any new and original design for the printing of woolen, silk, cotton, or other fabrics; any new and original impression, ornament, pattern, print, or picture to be printed, painted, cast, or otherwise placed on, or worked into any article of manufacture; or any new, useful, and original shape or configuration of any article of manufacture, the same not having been known or used by others before his invention or production thereof, or patented or described in any printed publication, may, upon payment of the fee prescribed, and other due proceedings had the same as in cases of inventions or discoveries, obtain a patent therefor.

Section 4933 provides that—

All the regulations and provisions which apply to obtaining or protecting patents for inventions or discoveries not inconsistent with the provisions of this title, shall apply to patents for designs.

The articles in question are probably included within the phrase, "any new, useful, and original shape or configuration of any article of manufacture."

Comparatively few adjudications of design patents have been had by the United States Courts in which a construction of the law has been given. The first decision which I have been able to find setting forth the purpose of the design patent act, is that of *Wooster* vs. *Crane*, (2 Fish., 583). In that case the patent had been granted the complainant for a design and configuration of a reel in the shape of a rhombus. The statute relied on by complainant was the act of March 2, 1861, sec. 11, which, in its provisions as to patentability, is substantially the same as the present law. The Court there held:

In this case the reel itself, as an article of manufacture, is conceded to be old and not the subject of a patent. The shape applied to it by the complainant is also an old and well-known mathematical figure. Now, although it does not appear that any person ever before applied this particular shape to this particular article, I cannot think that the act quoted above was intended to secure to the complainant an exclusive right to use this well-known figure in the manufacture of reels. The act, although it does not require utility in order to secure the benefit of its provisions, does require that the shape produced shall be the result of industry, effort, genius or expense, and must also, I think, be held to require that the shape or configuration sought to be secured shall, at least, be new and original as applied to articles of manufacture. But here the shape is a common one in many articles of manufacture, and its application to a reel cannot fairly be said to be the result of industry, genius, effort and expense.

No advantage whatever is pretended to be derived from the adoption of the form selected by the complainant, except the incidental one of using it as a trade-mark. Its selection can hardly be said to be the result of effort even; it was simply an arbitrary chance selection of one of many well-known shapes, all equally well adapted for the purpose. To hold that such an application of a common form can be secured by letters patent, would be giving the act of 1861 a construction broader than I am willing to give it.

I have quoted this decision thus fully for the reason that by substituting therein the present design for the one there mentioned, the reasoning and conclusions would be precisely the same; and also because the doctrine in that case has never been reversed or departed from by the courts.

The arbitrary chance selection of the form of a now well-known and celebrated building, to be applied to toys, inkstands, paper-weights, &c., does not, in my opinion, evince the slightest exercise of invention, industry, effort, genius, or expense. It is a mere *imitation* which any artisan has the right to apply to any object his fancy may dictate. And as the objects of fancy are innumerable, so the number of patents for this design might also be innumerable if the government were foolish enough to grant them.

It is true that the Supreme Court, in the Gorham Manufacturing Company Case (14 Wall, 511) speak of the value of manufactured articles being enhanced by giving them new and beautiful appearances, and that the object of the law was to protect the producers of such appearances in the right to use them, but at the same time they distinctly allude to such appearances as having been "invented or produced," and add that the law "proposes to secure for a limited time to the *ingenious* producer of those appearances the advantages flowing from them."

They describe these original designs as the "finished products of *invention*." The mere abstract idea or impression is not patentable, but becomes so when it has been or is to be applied to some particular article. If neither the article nor the appearance given it is original, wherein consists the originality, genius, or invention of the "finished product?" It is not like a patentable combination in mechanics, where two or more old elements may be combined to produce a new result, but the element here called the appearance, must, in all cases, be a new and original one.

Say the Supreme Court of this District, in the late case of Niedringhaus, (8 OFFICIAL GAZETTE, 279):

The appellants contend in their brief that "it matters not if the design has been previously used, if now combined with an 'object' with which it has not been hitherto combined; and if, as a result of such association, a new and distinctive aspect is given to such object, the law is complied with," and refers to former decisions by the Commissioner of Patents as cases in point. We cannot concur in this view. The thing provided for in the law is in express language—"any new and original design for the manufacture;" "any new and original design for printing;" "any new and original impression;" "any new, useful, and original shape;" "the same not having been known or used by others before his invention or production thereof." The use of an old design upon an old object is clearly excluded by the statute, and mere changes or "double use" cannot receive its protection.

Besides, it is now well understood that the same degree of originality is required in both design and functional patents. That is, the claim must not be for a copy or imitation of what is already in existence.

And, in alluding to the Gorham case, they add:

I am aware that the Supreme Court of the United States, in *Gorham Co.* vs. *White*, (14 Wall., 524,) have said in regard to design patents, that "they contemplate not so much utility as appearance, and that not an abstract impression, but an aspect given to those objects mentioned in the acts."

That was an action brought for the infringement of a design patent for the handles of table-spoons and forks. The design consisted in the configuration of the spoon and the ornamentation of the handle. The outline and all the details of the design were new, and invariable in each spoon alike. No question was discussed as to the originality of the patent, for it had never been known before, and the court decided that the article manufactured and sold by the defendant did not differ substantially from plaintiff's, and that it was therefore an infringement. But the whole tenor of the decision is to the effect that the appearance or aspect of the object must be of a design that is new and original. Indeed, no other view is admissible, for such is the express requirement of the law.

The acts of Congress "were plainly intended," as the United States Supreme Court said, "to give encouragement to the decorative arts," but the authority for their enactment is the same provision of the Constitution that authorizes the grant of patents generally, and which provides for securing, for limited times to inventors, the exclusive right to their discoveries.

This provision has never been regarded by Congress, or the courts as offering protection to servile imitators either in mechanics or the fine arts, but to encourage and protect the products of inventive genius.

This interference is, therefore, not only dissolved, but the applications will stand rejected.

A. C. MCKNIGHT *vs.* A. VAN WAGENEN.—*Interference; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Alexander C. McKnight, filed July 26, 1875, and the patent of Albert Van Wagenen, No. 161,842, granted April 6, 1875, for* "IMPROVEMENT IN SCREW-THREADED WIRES FOR USE IN THE MANUFACTURE OF BOOTS AND SHOES."—*Decided May 31, 1876.*]

It is a general rule that the patentee is estopped from denying the validity of his own patent. This rule of estoppel does not control the Government, and the Patent Office is at liberty, upon a proper occasion, to subsequently question the novelty of the subject-matter of patents granted by it.

Evidence of the adoption or incorporation in a combination of less than the whole number of the essential features not sufficient to establish the fact of its invention.

In a proceeding in interference the party upon whom the burden of proof rests must show that he had reduced his invention to a complete form prior to the invention of the same by the patentee, and this, too, beyond all doubt.

The only cases wherein a modification of this rule is allowable is where both applications are pending at the same time in the Office and one goes to patent before the question of priority is determined.

[*Johnson & Johnson & Hill*, attorneys for Van Wagenen.
Munn & Co., attorneys for McKnight.]

DOOLITTLE, *Acting Commissioner:*

The subject-matter involved in this interference is thus defined by the Primary Examiner:

Screw-threaded wire, made in long lengths, having a thread of slight pitch and considerable depth, for use in machinery for uniting the soles and uppers of boots and shoes.

After the declaration of the interference strenuous efforts were made by the patentee to have the same dissolved on account of lack of novelty of the subject-matter. The motion, however, was denied by the Examiner of Interferences, for the reason that both the Primary Examiners, who had considered the case, reiterated their opinions as to the patentability of the combination in question.

It is a general rule that the patentee is estopped from denying the validity of his own patent; but this rule of estoppel does not control the Government; and the Office, of course, is at liberty, upon a proper occasion, to subsequently question the novelty of the subject-matter of patents granted by it.

All doubts, however, should be resolved in favor of a patent, and where the opposition comes entirely from the patentee in a case of this kind I am not disposed to scrutinize the matter of novelty very closely, particularly in this instance, after the decided stand taken by the Primary Examiner in favor of the patent. It is absolutely necessary, however, in arriving at a correct conclusion upon the issue made in an interference case, that the tribunals before whom the same is heard should be clearly and correctly informed as to the state of the art at the time of the declaration of the interference, in order to intelligently comprehend the history of the case and the various steps taken by the contesting parties toward the completion of their invention. Oftentimes the invention consists solely in the addition of one or two novel features in an old combination or machine, and it is simply necessary to ascertain when such particular feature or features were added to the old device to fix the date of invention.

Such is the case here: In the patent of Thomas H. Dodge, granted July 30, 1872, for "Improvement in Boots and Shoes," metal pegs are described as cut from a coil of wire which has a fine burr, or spiral thread with a slight pitch raised upon its outer surface. The wire is represented as being made and put up into coils of suitable size, convenient for use upon machines for cutting and driving it into the soles of boots and shoes.

It will be seen that Dodge thus describes a wire having all the characteristics ascribed to the one in controversy by the Examiner's declaration of the issue, except as to that very indefinite particular "considerable depth."

The respective parties herein add another feature to this one, in their specifications, but not in their claims, viz: "with the spaces between the spiral folds, wider than the thread is thick." The latter expression is declared by counsel for McKnight as being "the chief feature of the novel construction." It would appear, then, that it should have been incorporated in the claims.

Dodge represents that it not practicable to screw his wire into the work, "owing to the fineness of the burr-thread and the degree of pitch given it," while the present parties allege that the feature of "considerable depth" of their screw-thread gives to it that very ad-

vantage of allowing the wire to be screwed in, instead of being driven. It is seen, then, that all that is meant by the term "considerable depth" is that the thread must simply be of such depth to allow the wire to be screwed into the work, be that depth more or less. The advantage claimed of having the spaces between the spiral folds wider than the thread is thick is to give the wire greater holding power.

Numerous references show wire having the spaces between the threads of considerable depth, and they and the evidence in this case also show that wire made long before that in dispute could have been screwed into leather. A number of screws and other similar references show the spaces between the spiral folds wider than the thread is thick; but perhaps these parties were the first to combine and adopt all these features in a screw-threaded wire. Each feature, however, is essential to this combination, and evidence of the adoption or incorporation of a less number than the whole will not be sufficient to establish the invention of the present device.

Van Wagenen filed his application February 11, 1875, and a patent was granted to him April 6, 1875. McKnight's application was not filed until July 27, 1875.

The burden of proof is upon the latter, and he must show that he had reduced this invention to a completed form prior to the invention of the same by the patentee, and this, too, beyond all doubt.

The only cases wherein a modification of this rule is allowable is where both applications are pending at the same time in the Office and one goes to patent before the question of priority is determined.

The testimony in behalf of McKnight shows that in the early part of the spring of 1873, at their manufactory, in Philadelphia, his company was using the American cable-screw machine in making boots and shoes. In this machine the thread was formed on the wire by twisting it, which was then driven by a blow into the shoe.

About this time the Government made a bid for army shoes, and William McKnight, the head of the company, told his son, Alexander, that the Government would not accept shoes made by the wire of the cable-screw machine, but that it required that the wire should be screwed into the shoes, and not driven, and that if he (Alexander) could get up a screw-fastening with a deep thread he thought they could get a contract for army shoes. To this suggestion it appears that Alexander McKnight added his own idea of cutting the thread and coiling the wire, on a separate machine, and then subsequently using the wire thus formed on an inserting-machine.

So far nothing new in the state of the art had been conceived, as has already been stated.

Alexander McKnight then went to work, first, to get up such a wire, and, second, a machine for inserting it.

It is alleged in his behalf that he made strips of wire in the spring of 1873, precisely like that of Warnock, Exhibit No. 1, a piece of wire showing all the features of the device in controversy; but this particular piece appears to have been made about the time of this examination.

McKnight was continually experimenting, in 1873 and 1874, in producing this article, but he preserved none of his samples, and Warnock admits that on the piece of wire shown him by McKnight in May, 1873, (in answer to the question as to how great was the pitch,) the thread was finer, closer, and not cut so deep as in the above-named exhibit. The lack of depth in the 1873 wire was mentioned, Warnock says, as an objection to it at that time. Not a word is said by McKnight, or any of his witnesses, about the screw-wire made by him as possessing the feature of the spaces between the spiral folds wider than the thread is thick. Yet this is contended by McKnight's counsel as being the chief feature of the device.

As an excuse for the omission of all allusion to this feature counsel for McKnight contend that this phrase is the language of an expert. This is true; but what better expert can be had than the inventor himself, who experimented, his counsel assert, continuously for a long time to perfect the device, as regards this very feature?

Neither in the testimony in his behalf, nor in the patent procured by McKnight in 1875 for his inserting-machine, is there anything to indicate that prior to the date of Van Wagenen's patent he had even a mental conception of anything more than a screw-threaded continuous wire of slight pitch, with the spaces between the threads of considerable depth.

A wire of this kind was made before 1873 on the Lemercier machine, patented in this country December 16, 1862, and March 10, 1863, No. 37,886, as the evidence in the case shows. Counsel for McKnight also admit that "the idea of spacing the thread is foreshadowed in the Lemercier machine."

It appears that McKnight was not acquainted with the Dodge patent at the time of his 1873 or 1874 experiments, and only slightly with the Mundell or Lemercier patents, and I am of opinion, from the testimony, that he was simply striving during those years to get up a wire already anticipated by those inventors.

On the part of Van Wagenen, it is freely admitted by him and his witnesses that this wire, made by him in November, 1874, does not differ at all from the screw-wire made on the Lemercier machine or the Tyson machine of March 24, 1874, except in finish, the former being more perfect than the latter.

But, without discussing this point, I have arrived at the conclusion that McKnight, by reason of the poverty of his proof, has failed to establish priority.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE COURTS.

U. S CIRCUIT COURT—WESTERN DISTRICT OF PENNSYLVANIA.

SHOUP *et al. vs.* HENRICI AND LENZ.

[*In equity, No.* 15.—*May term*, 1872.]

In a proceeding for infringement of a pump patented and designed for use in oil-wells, the defendants proved the existence of a pump used in a salt-water well, consisting of the identical combinations claimed by complainants, and the results produced by the latter pump were the same: *Held*, that, although subsequently the whole combination in the latter pump was not used, it was not such an abandoned experiment as would allow the complainants to recover.

Where, in a defense to an action for infringement of a patent, the defense proved the existence of the same combinations in a device used for analogous purposes, and in which no change of mechanism was needed, and the operation of such device was successful, it was: *Held*, that the patent upon which the suit was brought could not be sustained, although the use of the device shown in defense was altogether discontinued.

This would only leave it open to the public to use it. No subsequent inventor could take it up and appropriate it exclusively.

[*George Harding* and *Weir & Gibson*, for complainant.
Henry Baldwin, Jr., and *C. S. Fetterman*, for defendants.]

MCKENNAN, *C. J.*:

The complainant's patent is for a combination of a pump-tube, an outer or larger tube or casing, and a seed-bag outside of the latter. It is designed for use in oil-wells, which are usually of great depth and small caliber, and its object and operation are to allow the escape of gas from the bottom of the well through the space between the pump-tube and the outer tube or casing, so that it will not necessarily pass through the valves of the pump chamber and obstruct the operation of the pump.

The defendants admit that they have used the combination described in the patent, and justify such use upon the ground that the patentee was not the first and original inventor of the combination claimed by him, but that it was known to and used by others before the date of his alleged invention.

I am satisfied that this defense has been maintained; but I do not propose to state at length the reasons upon which this conclusion is founded, or to advert in detail to all or any of the proofs in the cause which have induced it.

It will suffice to refer to one instance of its public and notorious use before the date of the alleged invention of it by the patentee. This occurred at what is designated as the Donelly well, and years before the patentee ever conceived the idea of his invention. It was a well of small caliber, and sunk to a considerable depth to obtain salt water. The devices used in it for that purpose consisted of an outer tube or casing, with a seed-bag outside of it and next to the wall of the well, and a pump-tube inside of the casing, with a space between them. A large volume of gas was evolved in the well, and it escaped freely in the interval between the casing and the pump-tube, without passing through the pump-valves. It is hardly disputable that these devices and the patentee's invention were substantially identical in their construction and arrangement, and that they operated alike in furnishing a vent for the gas.

But in the Donelly well the double casing was found so to contract its caliber as to greatly diminish the supply of salt water, and for that reason it was abandoned after a brief period of use, and the single tubing was restored. It is therefore claimed to have been an unsuccessful and abandoned experiment.

It was said before that the combination in both cases consisted of the same elements, and that they were arranged and operated in substantially the same way. But was the purpose for which the patentee's invention is intended to be used effectuated by the devices employed in the Donelly well? There is no doubt about this. The useful result contemplated by the invention in question is the avoidance of the effect of the gas upon the pump-valves by supplying an avenue of escape for it between the pump-tube and the casing. The Donelly devices furnish the same means for the escape of the gas and the relief of the pump valves, and they were used sufficiently to illustrate and test their complete efficiency in that direction. What more was required to demonstrate the completeness of the device as a means of accomplishing the result contemplated by the patentee? No change in mechanism was needed, and it was successful in operation. This is all that is required to take it out of the category of abandoned experiments. Its use might be altogether discontinued; but this would only leave it open to the public to use it. Certainly no subsequent inventor could take it up and appropriate it exclusively. What was said by the Chief Justice in *Galor* vs. *Wilder*, 10 How., 477, is decisive on this point:

We do not understand the circuit court to have said that the omission of Conner to try the value of his safe by proper tests would deprive it of its priority, nor his omission to bring it into public use. He might have omitted both, and also abandoned its use and been ignorant of its value; yet, if it was the same as Fitzgerald's, the latter would not, upon such ground, be entitled to a patent, provided Conner's safe and its mode of construction were still in the memory of Conner before they were recalled by Fitzgerald's patent.

The bill must be dismissed with costs.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

GEORGE B. TURRELL *vs.* EDWARD SPAETH AND CHARLES GUELICKER.

[*In equity.—Before* NIXON, *J.—May* 15, 1876.]

Where a bill in equity was filed, in case of infringement of reissued letters patent, to which answer was made by respondents, and complainant closed his *prima facie* case by taking proofs, it was: *Held*, that such complainant would be allowed to file a subsequent bill for infringement of the letters patent after the *filing* of the first bill of complaint.

In such proceedings the testimony taken in the first proceeding, so far as relevant, should be allowed to be used and considered in the subsequent proceedings.

NIXON, *J.*:

A bill of complaint was filed in this district July 3, 1875, by George B. Turrell against Edward Spaeth and Charles Guelicker, alleging the infringement of reissued Letters Patent No. 6,369, from the date of said reissue, to wit: April 6, 1875. And answer was duly put in, and the complainant closed his *prima facie* case in taking the testimony. A second suit in equity was then commenced, November 22, 1875, in the same court, between the same parties, for an alleged infringement of the same reissued patent since the filing of the first complaint.

A motion is now made by the solicitor of the defendants for an order of the court requiring the complainant, within twenty days after service upon him of a copy of such order, to notify the defendants' solicitor which of said suits he elects to prosecute, and authorizing the defendants to enter a rule discontinuing the other suit in the payment of costs to the defendants to be taxed—asking the court, in the mean time, for an order staying all proceedings in both suits until such election has been made, notification given, and costs paid in the discontinued suit.

There is no doubt that authority exists in the court to make such an order when the rules of equity and the circumstances of the case demand it, and I should not hesitate to exercise such authority where the sec-

ond suit seemed vexatious and oppressive, and gave to the complainant no relief, which could not be obtained in the first suit.

This is not inconsistent with the principle laid down in *Wheeler* vs. *McCormick*, (8 Blatch., C., 267,) on which the counsel for complainant relies; for there the proceedings were in different districts, although pending between the same parties and for infringing the same patents, and Judge Woodruff overruled the plea in abatement because they were in different jurisdictions, and because it did not appear that the complainant could have as complete and effectual remedy in the first as in the second suit.

But facts have already appeared in the progress of the first case which render it probable that if the complainant is entitled to relief at all he will not be able to receive that full measure which he deems indispensable for his complete protection without instituting new proceedings, and this does not necessarily involve the abandonment of the original suit.

The patent, the infringement of which is alleged, is for a combination. Cannot a case be imagined where the patentee of a combination—learning that unauthorized parties are engaged in manufacturing some of the parts or elements of the combination, and are entering into contracts for the subsequent delivery of the completed article—is entitled to file his bill, in the nature of a bill *quia timet*, for an injunction to restrain such parties against apprehended violation of his patent rights? And afterward, when he ascertains that the infringement has become complete by the use of all the constituents of the combination, may he not commence a new suit for an account and damages in consequence of the said infringement.

Without intending now to determine these questions, I think the substantial interest of both parties can be best promoted by refusing this motion, and at the same time requiring the solicitor of the complainant to enter into a stipulation, if the solicitor of the defendants shall ask it, that the testimony taken in the one case, so far as it is relevant, be used in the other, and that both cases be set down for hearing at the same time, thus avoiding, so far as practicable, vexation and multiplication of costs, and it is ordered accordingly.

The question of costs in both suits is reserved until the final hearing.

U. S. CIRCUIT COURT—WESTERN DISTRICT OF PENNSYLVANIA.

WILLIAM B. SCAIFE *vs.* A. FULTON'S SONS & CO.

WILLIAM B. SCAIFE *vs.* SHERRIFFS & LOUGHREY.

[*Before* MCKENNAN, *J.—March* 11, 1876.]

A steam-pump which operates by means of a vacuum produced by a jet of steam passing over the open upper end of a pipe to raise and discharge water is different in principle of operation from a pump which raises water by the propulsive force of a jet of steam entering the lower end of the pipe below the surface of the water.

STATEMENT OF THE CASE.

[These were bills in equity to enjoin respondents from an alleged infringement of Letters Patent No. 92,718, granted to complainant, assignee of William Glass, on July 20, 1869, for an Improvement in Ejectors.

The patented device consisted of a vertical discharge-pipe having a coniform lower end immersed in the water, and a steam or air pipe entering the lower end and discharging a jet of steam or air into the discharge-pipe under the surface of the water, whereby the latter was raised and ejected from the pipe. Respondents' device consisted of the vertical water-pipe provided with a T or globe head at the upper end, through which a jet of steam passed across the upper end of the water-pipe, exhausting the air therein and causing a vacuum, which permitted the water to rise and be discharged.

The claims of the patent are—

1. The combination of the pipes *b* and *c*, so arranged as to be used for the purpose of forcing, blowing, or ejecting liquids from wells, ships, or other place, as herein described and set forth.

2. The ejector, composed of the pipes *b* and *c*, the lower end of pipe *b* entering within the coniformed mouth of the pipe *c*, substantially as herein described.

3. The construction and combination for immersing in oil or water, in wells or other place, the lower end of pipes arranged so that, by the use of steam or air forced down one pipe, liquids will be forced up the other, substantially upon the principle as herein described and set forth.]

[*George Shiras, Jr.*, and *J. J. Johnson*, for complainant.
William Bakewell and *T. B. Kerr*, for respondents.]

OPINION OF THE COURT.

MCKENNAN, *J.*:

The novelty of the invention claimed by the complainant here is contested, but I do not feel called upon to say whether successfully or not, because the bill must be dismissed on another ground.

Whatever may be the capabilities of the invention described in the patent, its character and scope are so circumscribed by the specification and claims that the respondents cannot be adjudged to be infringers.

The complainant's and the respondents' structures are operated by the application of different forces, and are of different construction, and are, therefore, not substantially identical.

I deem it only necessary to make this general statement to indicate the reason for which the decree is made.

Bills dismissed at cost of complainant.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 20, 1876.]

9,345.—Medal.—WILLIAM CONN, Philadelphia, Pa. Application filed May 8, 1876. Term of patent 3½ years.

9,346.—Heating-Stove.—JAMES A. LAWSON, Troy, N. Y. Application filed June 7, 1876. Term of patent 7 years.

9,347.—Stoves.—APOLLOS RICHMOND, Brooklyn, Conn. Application filed May 22, 1876. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 20, 1876.]

3,785.—Cook-Stoves.—CHARLES H. BUCK, St. Louis, Mo. Application filed May 5, 1876.
"word 'GUARANTEE.'"

3,786.—Cook-Stoves.—CHARLES H. BUCK, St. Louis, Mo. Application filed May 5, 1876.
"word 'BRILLIANT.'"

3,787.—Malt-Liquors.—H. CLAUSEN & SON, New York, N. Y. Application filed June 1, 1876.
"the word 'Phœnix,' and the representation of a phœnix."

3,788.—Dental Rubber.—EUGENE DONNATT, Brooklyn, N. Y. Application filed June 5, 1876.
"the pictured lion and man, with the words 'Samson Rubber.'"

3,789.—Cologne.—B. W. DOWS & Co., Lowell, Mass. Application filed January 19, 1876.
"words 'EAST END,' and the figure representing a three-cornered vial."

3,790.—Corsets.—FARCY & OPPENHEIM, Paris, France. Application filed May 20, 1876.
"letters 'C. P.'"

3,791.—Homeopathic Globules.—A. J. FRANTZ, Geneva, N. Y. Application filed May 8, 1876.
"words 'Page's Homœopathic Globules,' together with the words 'Page's Trade-Mark,' printed within three links."

3,792.—Preparation of Food.—ALEXANDER E. GARCHAU, Boston, Mass. Application filed May 13, 1876.
"A strap or similar article is represented as buckled, thus forming a circle. Upon the strap are inscribed the words 'For Infants and Invalids.' Within the strap is a representation of a sheep or lamb, and above all are the words 'Peptonated Food.'"

3,793.—Liniment.—JOHN HALLOWAY, Wadsworth, Nev. Application filed April 3, 1876.
"letters 'J H' combined in the form of a monogram."

3,794.—Flour.—ARTHUR A. HAWLEY, Mankato, Minn. Application filed May 19, 1876.
"words 'Red Jacket.'"

3,795.—Double Aprons for Medical Purposes.—WILLIAM G. HEANEY, Camden, N. J. Application filed May 29, 1876.
"letters 'D A B D.'"

3,796.—Match-Receptacles.—L. OTTO P. MEYER, Newtown, Conn. Application filed June 3, 1876.
"the figure of a lion and a mouse or rat."

3,797.—Chewing and Smoking Tobacco.—JULES P. SARRAZIN, New Orleans, La. Application filed May 29, 1876.
"a barrel-shaped symbol and of the word 'Barrel,' and the ornamental border shown."

3,798.—Copied Pictures.—SPRAGUE, HATHAWAY & Co., Boston, Mass. Application filed May 29, 1876.
"word 'NONPAREIL,' and the monogram composed of the letters S. H."

3,799.—Boots and Shoes.—JOSEPH H. WALKER, Worcester, Mass. (Re-registration.) Application filed April 29, 1871.
"word 'WALKER' in plain capital letters, and directly beneath it the word 'BOOT' in similar letters, while beneath the center of the latter word is set a star with an open center."

3,800.—Baking-Powder.—A. H. WAGGENER & Co., Chicago, Ill. Application filed June 3, 1876.
"words 'Pure Crystal' and the letters 'A. H. W. & Co.'"

3,801.—Medical Compound.—PHILIP G. WEAVER, New York, N. Y. Application filed May 11, 1876.
"the designation 'Lion,' whether expressed pictorially, or by the written or printed word 'Lion.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 20, 1876.]

763.—Title: **"Natural Friedrichshall Bitter Water."**—BOUCHÉ FILS & Co., New York, N. Y. Application filed June 12, 1876.

764.—Title: **"Standard Liniment and Pain Destroyer."** H. J. HATHEWAY, Houlton, Maine. Application filed June 3, 1876.

765.—Title: **"Monopol Lager Beer."**—CHARLES HOLDER, Baltimore, Md. Application filed June 12, 1876.

766.—Title: **"Hambro' Tea."**—A. KESSNER, Paradise Valley, Pa. Application filed June 10, 1876.

767.—Title: **"Bull's Blood Mixture."**—A. C. MEYER & Co., Baltimore, Md. Application filed June 12, 1876.

768.—Title: **"Schiedam 'Holland Schnapps."**—PARIS, ALLEN & Co., New York, N. Y. Application filed June 13, 1876.

769.—Title: **"Van Buskirk's Tonic Ginger Invigorant."**—RICHARD VAN BUSKIRK, New York, N. Y. Application filed June 13, 1876.

TO CORRESPONDENTS.

Persons ordering drawings of patents, or making inquiries in regard to patents, must always state the name of the inventor, subject-matter, and date. In making inquiries in regard to applications for patents letters must state the name of the applicant, subject-matter, and date of filing.

REMITTANCES.

All money sent by mail, either to or from the Patent Office, will be at the risk of the owner. In no case should money be sent inclosed with models. All payments to or by the Office must be paid in specie, Treasury notes, national bank-notes, certificates of deposit, or post-office money-orders.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 21st day of January, 1854, antedated to January 9d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED JUNE 20, 1876.

	Class No.	No. of Patent.
Alarm, burglar, H. F. Green	24	178,922
Alarm, burglar, A. P. Norman	24	178,875
Alarm, burglar, W. H. Reiff	24	179,060
Atomizer, D. J. Tapley	98	179,079
Bag holder, L. H. Bristol	57	178,903
Bands, cords, and ropes, manufacture of, L. Binns	127	178,987
Barrel making machine, Hodgen and Yelton	40	178,928
Basins, valve for, Doyle and Bayles	8	179,003
Bed bottom, spring, G. H. Evans	62	179,007
Beds, book support or table attachment for, G. B. Norgrave	62	179,048
Bedstead, cabinet, D. A. Green	62	179,013
Bee hive, H. H. Roush	9	178,950
Blackboard rubber, J. Haggerty	146	178,847
Boiler, agricultural, W. K. Stevens	59	178,974
Boiler, rotary steam, C. W. Pierce, (reissue)	148	7,184
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Bolt heading die, F. Mutimer	14	179,044
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Can, sheet metal, E. A. Leland	136	179,034
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Carriage top setter, W. H. Nogle	31	179,047
Caster, furniture, S. Kons	24	178,857
Chair back, W. W. Marshall	62	179,038
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Harvester rake, J. Garrard	74	179,010
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Hose coupling, C. L. Martin	81	178,939
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Stevens, W. H., assignee	179,045
Stevens, W. K., Agricultural boiler	178,974
Stewart, J. T., Carbureter	178,973
Stewart, R., Liquid filter	178,972
Stewart, W. H., Treadle for sewing machines, (reissue)	7,185
Stiles, E. W., Temporary binder for paper files	178,975
Swarbrick, R., Mechanical movement	179,078
Swett, E. E., Oil well torpedo	179,077
Swift, J. H., Door check	178,976
Tandy, L., Combined truck and bag holder	178,886
Tapley, D. J., Atomizer	179,079
Taylor, R. L., Wire splicing tool	178,884
Taylor, W. H., Sash fastener	178,885
Thacher, J. E., assignee	178,976
Thayer, B. D., Windlass	178,887
Thomas, E. T., Hammer for sewing machines	179,081
Thomas, J. J., Apparatus for separating ammoniacal liquor from gas tar	178,889
Thompson, J. P., Sleigh draft bar	178,888
Thompson, S., Carpet stretcher	179,080
Thomson, G. and J., Land skimmer for plows	178,978
Thonger, C., Device for heating air for furnaces	178,977
Utter and Clarke	178,909
Van Hoevenbergh, H., Dial telegraph	179,082
Vestal, H. L., Washing machine	178,890
Vetter, C. F., Spinning top	178,979
Walker, G. S., Washing machine	178,980
Walker, G. S., Wringer	178,981
Walker, J., & Co., assignees	178,850
Walker and O'Donnell	178,946
Waring, G. E., Jr., Waste and overflow pipe of wash bowls, sinks, &c	179,083
Wheeler and Wilson Manufacturing Company, assignee	179,022
Whitcomb, S. P., Domestic oven	178,983
White, R., Cartridge ejector for revolvers	179,084
Whiting, S. J., Paving block	178,982
Williamson, J., assignee	179,013
Wilson, J., assignee	178,973
Wood, E. M., assignee, (reissue)	7,179
Wormwood, O. O., assignee	178,968
Wright, G. R., Wash board	179,085
Yelton and Hodgen	178,988
Zeis, V., Gas burner	178,984

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JUNE 20, 1876.

178,881. HARTH-SCRAPERS. E. Atkinson, Woodstown, N. J. [Filed May 2, 1876.]

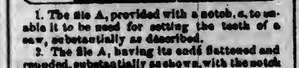
Brief.—The scraper is provided with two scraper-blades, each of which may be operated independently of the other. The caster-wheels supporting the main frame are attached thereto by means of universal joints, in connection with suitable devices for operating the main frame with reference to the casters.



1. The combination of the pintles b' b' of the caster-wheels B B with the L-levers F F, connecting-bars f' f', levers 4 and 5, and frame A, substantially as described.

2. The flat, oblong, plate-metal scraper-plates C C', constructed in two lengths, with the respective inclined or forward-projecting edges 6 6, and suspended from the beam or frame A by the fixed bars 7 7, substantially as described, in combination with the respective hand-levers 2 and 3, and their retaining spring-catches 8 8, and foot-levers 10 10 on the frame A.

178,882. COMBINED SAW FILES AND SETS. Eben M. Boynton, Newburyport, Mass. [Filed Mar 20, 1876.]



1. The file A, provided with a notch, c, to enable it to be used for setting the teeth of a saw, substantially as described.

2. The file A, having its ends flattened and rounded, substantially as shown, with the notch c, as set forth.

178,883. WRENCHES. Walter Britton, Elmore, Ill. [Filed Feb. 1, 1876.]

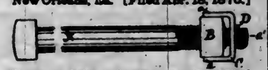
Brief.—The spring attached to pawl pivoted to the jaw, and bearing in a slot of the jaw, holds the pawl to its engagement with the ratchet. Disengage the pawl by hand and adjust the jaw.



1. The sliding jaw D, having perforation d and slot c, in combination with pawl E, having a butt narrower than the depth of slot c, and pivoted to head of jaw D, spring F, attached to pawl E, and ratchet-shank A, carrying jaw B, as and for the purpose set forth.

2. The combination of pawl E, having spring F attached to its under side and toward its engaging-point, with sliding jaw D, the pawl and jaw being directly pivoted together, and ratchet-shank A, as and for the purpose set forth.

178,884. NUT-LOCKS. Alfred R. Brown, New Orleans, La. [Filed Apr. 18, 1876.]

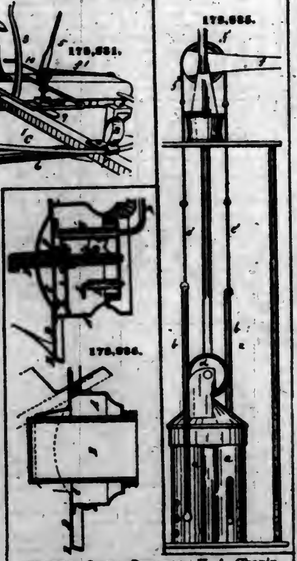


The screw-bolt A, having one or more reduced flattened surfaces at one end, and provided with a perforation, d, set B, cap C, provided with flanges a a, and pin D, the whole constructed and arranged to operate substantially as described.

178,885. DOUBLE-ACTING PUMPS. James L. Carr, Sauk Centre, Minn. [Filed May 22, 1876.]

1. The combination, with the frames b b, of the flexible band or chain c, and pulley d, secured to the top of the barrels a a, substantially as specified.

2. The combination, with the frames b b, rods or chains c' c', and lever f, provided with the round pulley-head f', of the pulley d, and flexible bands or chains c and f', as and for the purpose set forth.



178,886. LAMP-BURNERS. H. A. Chapin, New York, N. Y. [Filed Jan. 26, 1876.]

1. The combination, with the body and hinged top of a lamp burner, of an extinguisher and a catch for fastening or locking the burner to its oil-reservoir, whereby the extinguisher must be applied to the flame before the burner can be removed from the said reservoir.

2. The combination, with the body and hinged top of a lamp-burner, both provided with slots or loops, of a rod adapted to engage with said slots or loops and form a positive catch, substantially as herein set forth.

3. The combination, with the body and hinged top of a lamp-burner, of a filling chamber or tube and a cover, substantially as herein described, whereby the means employed to secure the hinged top will keep the cover of the filling-tube closed.

4. The combination of the body of the burner, its hinged top, and an extinguisher, consisting of a sleeve adapted to fit snugly around the upper part of the wick-tube, and attached to the said hinged top, substantially as shown and described, whereby the act of swinging back the hinged top effects the extinction of the flame.

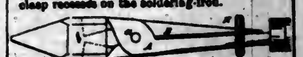
5. The combination, with a filling-tube in the body of a lamp-burner, of a ventilating-tube, arranged therein substantially as herein set forth.

6. The combination, with a ventilating-tube in a lamp-burner, of an indicator-rod to be attached to a float to indicate the quantity of oil in an opaque reservoir, substantially as herein set forth.

7. The combination of the body A of a lamp-burner, wick-tube B, and wick-adjusting mechanism b, hinged top C D E, positive catch F, extinguisher E, ventilating-tube I M, indicator-rod J, and catch L, substantially as and for the purpose herein set forth.

178,887. SOLDERING-IRONS. William H. Clark and William J. Clark, Salem, Ohio. [Filed Apr. 1, 1876.]

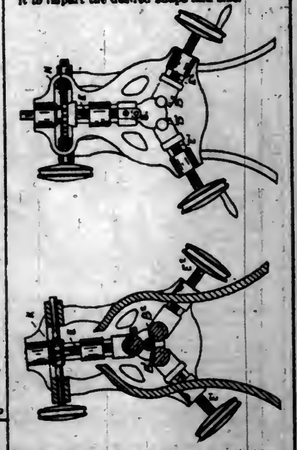
Brief.—Dovetail projections on the jaws clasp recesses on the soldering-iron.



In tinners' soldering-irons, the jointed sections A B, provided with one or more wedge-shaped or dovetailed jaws, D E, in combination with the copper C, having therein gains F F', corresponding with said jaws, substantially as and for the purpose described.

178,888. MACHINES FOR ROLLING AXLES. Gilbert K. Dearborn, Somerville, Mass. [Filed Nov. 9, 1875.]

Brief.—The axle is inserted endwise between the rolls, which are closed down upon it to impart the desired shape and size.



In a machine for rolling axles, the combination of the three rolls B B' B², formed as shown, with the adjusting-screws E E' F', the worm K, and the gears H H', all connected so as to operate substantially as described, and for the purpose set forth.

178,889. REMEDIES FOR FEVER AND AGUE. Archibald McIntyre De Witt, Pittston, Pa. [Filed Apr. 17, 1876.]

A medicine for the cure of fever and ague, dyspepsia, &c., consisting of whisky, quinine, Peruvian bark, essence of cinnamon, laudanum, and respective spirits of camphor and turpentine, in the parts and proportions substantially as set forth.

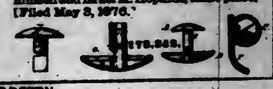
178,890. REMEDIES FOR COLDS, &c. Archibald McIntyre De Witt, Pittston, Pa. [Filed Apr. 17, 1876.]

A medicine for the cure of colds, bronchial affections, &c., consisting of spirits of camphor, paregoric, castor-oil, and the respective syrups of honey and brown sugar, in the parts and proportions substantially as herein described.

178,891. ANTI-FRICTION METALS FOR JOURNAL-BEARINGS, &c. Samuel Doubleday, Baltimore, Md. [Filed June 10, 1876.]

An anti-friction metal, consisting of cast-iron, copper, glass, antimony, tin, spelter, and lead, substantially as described.

178,892. STUDS OR BUTTONS. William R. Dutemple, Providence, R. I., assignor to himself and Israel M. Hopkins, same place. [Filed May 3, 1876.]

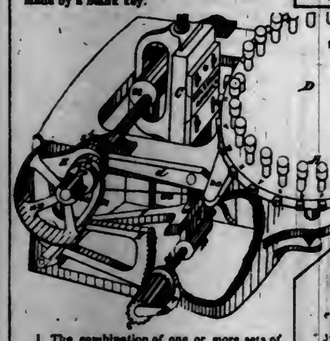


The improved stud or button herein described, consisting of the front disk A, having the notched and fastened post D, and the back disk B, provided with the tube C, spring *r*, and semicircular piece *s*, the said parts adapted to be united in the manner and for the purpose specified.

178,842. STEREOTYPING-MACHINES. Saml. V. Resick, Alliance, Ohio. [Filed Nov. 22, 1875.]

Brief.—The desired key being depressed, its end drops into the notched lever, which moves the cam-pointed lever, and allows the bolt in the clutch to take into the drive-wheel, thereby rotating the eccentric, and moving the plate against the die. The cam-pin strikes a lever and throws the key out of the notch, thereby allowing the cam-pointed lever to fall into the grooved wheel and disengage the bolt. The plate is fed the space of one letter by means of the eccentric, segment-lever, ratchet, and screw. When the line is complete the drop raises the pawl, and the plate is moved into position to commence another line by the screw rods. Spaces between the words are made by a blank key.

178,843.



1. The combination of one or more sets of alphabet and point dies G with the plate C and cam or eccentric *e e*.

2. The combination of one or more sets of alphabet and point dies G with the plate C, the plates *r* and *o*, and the eccentric *e e*.

3. The combination of the keys H, the lever *n n*, the cam-pointed lever M, the clutch *v v r r*, and the wheel M M.

4. The combination of the segment N, the cog-wheel *g*, the pawl P, the collar E, and the eccentric *e*.

5. The combination of the segment N, the cog-wheel *g*, the collar E, the eccentric *e*, the pawl P, the screw *s s*, and the drop F.

6. The combination of the disk D, the letter, point, and figure dies G, the keys H, the lever *n n*, the cam-pointed lever M, the clutch *v v r r*, and the wheel M M.

7. The combination of the disk D, the letter, figure, and point dies G, the keys H, the plates C, *r*, and *o*, the screw *s s*, the levers *n n* and M, the wheels *r r* and M M, the bolt *v v*, the eccentric *e e*, the lever *d*, the pin *i*, the eccentric *e*, the collar E, the segment N, the wheel *g*, the pawl P, the screw *s s*, and the drop F, all arranged and operating as and for the purpose set forth.

178,844. BUGGY-TOPS. Geo. Gabriel, Sr. Pittsburg, Pa. [Filed Feb. 19, 1876.]

The combination of the braces *a b*, pivoted at the top to the folding sections *f g*, and at the bottom to bearing *c*, and back brace *d*, pivoted at the top to the center of brace *b*, and at the bottom to the rear of the seat, to give an equal distribution of strain upon said seat, substantially as described and set forth.

178,844.



178,845.



178,845. APPARATUS FOR CUTTING AND EMBOSSING LEATHER STRAPS. Conrad Gehr, Newark, N. J. [Filed Dec. 10, 1875.]

1. The combined cutting, raising, and creasing tool, composed of the block A and knives B B, the surface of the block having the creasing-rib *a* and the raising-groove *d* between the knives, substantially as specified.

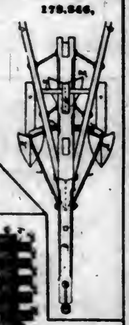
2. The combination of the shaping-block A, which carries the knives B B, with the removable embossing-section A, substantially as specified.

178,846. CULTIVATORS. Joseph Glidden, Liberty, Me. [Filed Feb. 7, 1876.]

Brief.—A center beam carries two plows, the forward one narrow and the rear one wide. On either side is pivoted a plow-standard capable of lateral adjustment. A pair of handles are supported from a central standard from the main beam.

The described improved cultivator, composed of the handles C, bar D, support-piece *d*, heel and toe spades F F, differing in widths as described, and the lateral adjustable spades A A, having their stocks pivoted to a rock-shaft, B, and furnished with support-rods *b b* and perforated curved braces *f f*, all being arranged and applied substantially as specified.

178,846.



178,847. BLACKBOARD-RUBBERS. J. Haggerty, Corry, Pa., assignor of one-half his right to V. G. Curtis, same place. [Filed Feb. 18, 1876.]

Brief.—The felt layers can be reversed in the handle to use their unworn edges.

1. The frame *a*, having the slots *g* and flanges 3, in combination with the block *c* and strips of erasive material, substantially as shown.

2. The frame *a*, having the flanges 3, for catching in the slits *i* in the ends of the strips *d*, substantially as described.

178,847.



178,848.



178,848. ORNAMENTAL WALL-BRACKETS. Miles A. Hale, Rockford, Ill. [Filed Feb. 14, 1876.]

Brief.—Leaves and stems in one piece, made from stiff paper or card board, are applied to the supporting-frame.

As a new article of manufacture, a wall-bracket, or equivalent device, ornamented with artificial leaves, vines, or flowers, when the same are made from paper-board, substantially as described.

178,849. PEN-HOLDERS. C. C. Hart, New York, N. Y. [Filed Nov. 13, 1875.]

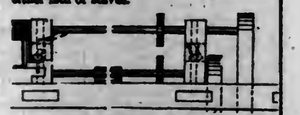
Brief.—The pivoted rest-plate, by reason of its reaction-spring, relieves the pen from excessive pressure, and also rests the hand.



The combination of the sliding tube D and the elastic gage E with a pen and pen-holder, A E, substantially as herein shown and described.

178,850. MACHINES FOR SAWING STAVES AND LATHS. George W. Herring, Bangor, Me., assignor to Jos. Walker & Co., same place. [Filed Nov. 13, 1875.]

Brief.—By a vertical adjustment of the feed-rolls, the machine is adapted to sawing either lath or staves.

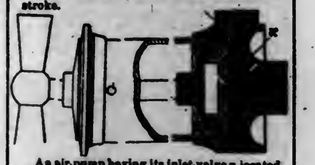


1. In a sawing-machine, substantially of the within-described construction, the vertically-adjustable feed-rolls, provided with independent driving mechanism, whereby said machine may be used interchangeably as a lath or stave machine, substantially as and for the purpose set forth.

2. In a sawing-machine, substantially of the within-described construction, the combination of the adjustable feed-rolls, provided with independent driving mechanism and the adjustable gage, substantially as set forth, for the purposes described.

178,851. AIR-PUMPS. B. E. Holbrook, Lebanon, Ohio. [Filed Mar. 15, 1876.]

Brief.—The pump has an inlet-valve in the bottom of cylinder, with a solid-faced piston fitting closely over it, and excluding all air from bottom of cylinder at the end of the stroke.



An air-pump having its inlet-valve located upon the inside of the cylinder bottom, with a solid-faced piston of a configuration to fit closely upon the bottom of the cylinder and the valve therein, for the purpose of excluding all air from under the piston at the end of its stroke, as set forth.

178,852. FIRE-PROOF CONSTRUCTION. L. Hornblower, Liverpool, England. [Filed Dec. 10, 1873.]

Brief.—Iron girders and plates, earthenware hollow cores, concrete filling, and woven wire are combined in an improved manner, to form the walls, floors, and ceilings of fire-proof buildings.



1. A composite girder, made up of iron or steel joists and fire-clay or earthenware cores, rigidly connected together, and combined substantially as and for the purposes set forth.

2. In combination with the rigidly-connected joists *a* and cores *c*, the interposed tubes *d* and concrete filling, substantially as set forth.

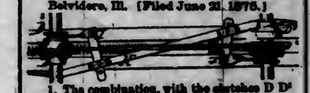
3. The combination of girder *h*, earthenware tubes *i*, concrete *j*, and carriers *k*, substantially as set forth.

4. The combination of column *l*, surrounding earthenware tubes *m* and concrete *n*, substantially as set forth.

5. The U-shaped pieces *c*, connected back to back by bolts *b*, in combination with wire-work *a*, secured to the flanges of the pieces *c*, substantially as set forth.

6. The U-shaped pieces *c*, connected back to back by bolts *b*, in combination with hollow tubes *e*, interposed between the pieces *c* and concrete filling, substantially as set forth, with reference to Figs. 26—29.

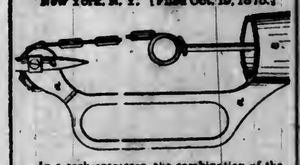
178,853. OAR-STANDARDS. Fredk. A. Hull, Belvidere, Ill. [Filed June 21, 1875.]



1. The combination, with the clutches D D' D² D³, spring F, and cord F', of the cushion bolt E, all arranged and operating substantially as described.

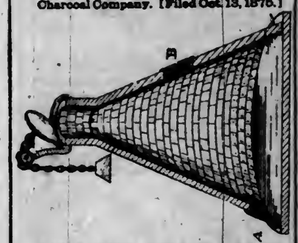
2. The combination, with the clutch shifters I I', of the connecting-bar H and its actuating levers H' H², whereby either of the two friction-clutches D² D³ may be thrown into or out of engagement with its axle from either end of the car, substantially as described.

178,854. CORK-EXTRACTORS. J. L. Hyde, New York, N. Y. [Filed Oct. 19, 1875.]



In a cork-extractor, the combination of the frame *a b c*, the flexible attachment *d*, and the windlass *e*, all operating together for the purpose set forth.

178,855. CHARCOAL-KILNS. Bart Kane, Cincinnati, Ohio, assignor to Cincinnati Charcoal Company. [Filed Oct. 13, 1876.]



A kiln for making charcoal, of conical shape, with air-tight top, doors A and B, and the holes around its base, substantially as and for the purpose described.

178,856. LAMP-LIGHTING DEVICES. Rufus S. King, Brooklyn, N. Y. [Filed May 4, 1876.]

Brief.—The match is ignited by a knife-edge carried by a spring.



The combination of the slotted tube D, provided with the spring-blade E, and the burner A, substantially as and for the purpose described.

178,857. FURNITURE-CASTERS. Sebastian Kons, Louisville, Ky., assignor of part of his right to Philip Mendel and Jaff. Brown, same place. [Filed Nov. 27, 1876.]

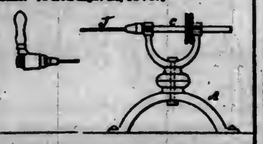
Brief.—The invention is confined, mainly, to details of construction, an adjusting-screw bearing on the interior stem "setting-up" or adjusting the friction-supports and roller in the desired relative position.

178,857.



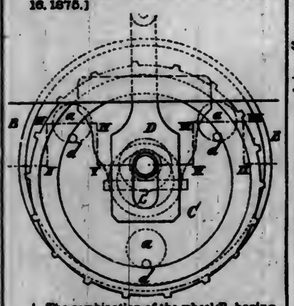
In the above-described caster, the combination of the ball A, casing B, adjusting-screw D, concave friction-supports F F', base E, and roller G, constructed and arranged substantially as shown.

178,858. BOOT AND SHOE SOLE EDGE SETTING MACHINES. Charles A. Lake, Lynn, Mass. [Filed Apr. 21, 1876.]



In a machine for setting sole-edges, the standard A, carrying a rotary arbor, C, a tool-stock carrying a rotary setting-tool, and a flexible transmitter, J, for communicating the rotations of the driving arbor to the setting-tool, substantially as and for the purpose described.

178,859. TRACTION-WHEELS. William H. Lambach, Philadelphia, Pa. [Filed Nov. 16, 1875.]



1. The combination of the wheel B, having the apertures *a a a*, and the wheel C, having the studs *d d d*, adapted to revolve together, the one to roll upon the rail and sustain the car, or the other to roll upon the ground or pavement, and sustain the car instead, as occasion may require, substantially as described and set forth.

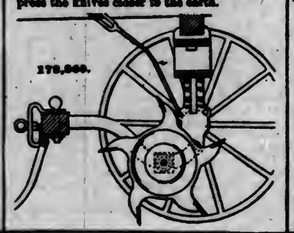
2. The adjustable bearing D, having the journal or boss D', and slot S, and the wheel C, substantially as and for the purpose described.

3. The combination of the wheel B, axle E, and bearing D, having the boss D', substantially as described, for the purpose set forth.

178,860. STALK-CUTTING MACHINES. E. H. Leach, Cedar Rapids, Iowa. [Filed Feb. 17, 1876.]

Brief.—The cutting-cylinder is mounted on an oscillating frame, in such position that the forward movement of the machine tends to press the knives closer to the earth.

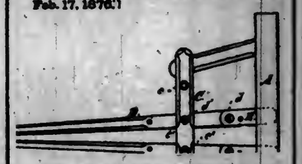
178,860.



1. The combination, substantially as described, of a vibrating cutter-frame, to which the draft is attached, a revolving cutter supported thereon, and a device by means of which the draft may be adjusted vertically, for the purpose set forth.

2. A vibrating frame, carrying the cutter and the other devices pertaining to a stalk-cutting machine, and hinged to the wheel-frame by detachable joints, whereby the entire stalk-cutting apparatus may be removed from the main frame, and the latter left free for the attachment of other mechanism.

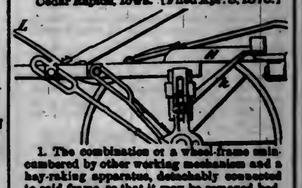
178,861. THILL AND POLE ATTACHMENTS. E. H. Leach, Cedar Rapids, Iowa. [Filed Feb. 17, 1876.]



1. A combined thill and pole attachment, the thills being permanently attached to a supporting-frame by means of pivoted plates E swinging in horizontal planes, but otherwise detachable and adjustable, so as to be brought together and fastened to form a pole, substantially as described.

2. The combination, substantially as described, of the thills D, provided with two sets of holes, *d d'*, the swinging plates E, bar A, and cross-bar C, provided with holes *e e'*, for the purpose set forth.

178,862. HORSE HAY-RAKES. E. H. Leach, Cedar Rapids, Iowa. [Filed Apr. 3, 1876.]

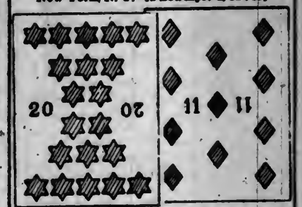


1. The combination of a wheel-frame encumbered by other working mechanism and a hay-raking apparatus, detachably connected to said frame, so that it may be removed bodily therefrom, and leave the frame entirely free for the attachment of other devices, substantially as described.

2. The combination of the carriage-frame, detachable arms H H', detachable braces I, and a rake, K, substantially as described.

3. The combination of a raking apparatus, connected to the carrying-frame by detachable arms and braces, and the lever L, also detachable from the frame, substantially as and for the purpose set forth.

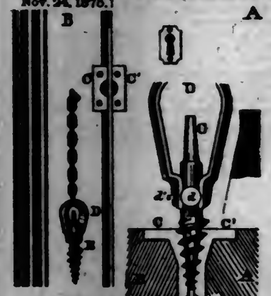
178,863. PLAYING-CARDS. Isaac Levy, New York, N. Y. [Filed Apr. 4, 1876.]



1. A pack of playing-cards, having three cards of each suit imprinted on their faces respectively, with eleven, twelve, and thirteen spots or suit pips, and designed to take the place of the customary picture-cards known as the knave, queen, and king, substantially as shown and described.

2. A pack of playing-cards, consisting of fifty-two or more cards, having three cards of each suit imprinted on their faces respectively, with a number of spots or suit pips—seven ten—designed to take the place of the customary picture-cards known as the knave, queen, and king, and having also other cards imprinted with spots or suit pips, graded up to any desired number, either consecutively or otherwise, substantially as shown, and for the purpose described.

178,864. DOOR-SECURERS. G. M. Lindsey, Tonawanda, assignor of one-half his right to William Azcough, Buffalo, N. Y. [Filed Nov. 24, 1875.]



1. The combination, with the spring-bow D, having its jaw D' provided with the gutters d', intersecting each other at right angles, of the spindle E, pivoted within the jaw D', and having the transverse d centrally, and a very coarse and tapering screw-thread on its extremity, and the two-part nut C C', secured to the door A and jamb B, substantially as described, for the use and purpose set forth.

2. The within-described combined portable door-fastener and watch-hasp, consisting of the spring-bow D, having its jaw D' provided with the gutters d', and the reversible spindle E, pivoted within the jaw D', and having the transverse d centrally, and a very coarse and tapering screw-thread on one end, and a watch-hasp, O, on its other extremity, substantially as described, as a new article of manufacture.

178,865. CAR-JACKETS. J. G. Low, Chelsea, Mass. [Filed May 20, 1876.]

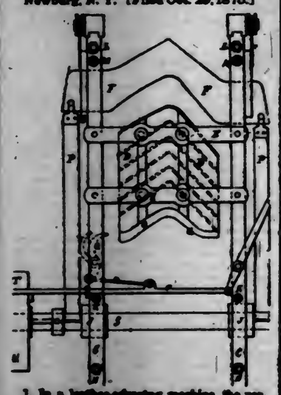
Brief.—Metal-bound edges for jacket; abutting edges united by soldering the bindings, or riveting an inside or an outside, or an inside and outside, plate to the edges of the jacket.



1. A pasteboard car-jacket, having its exposed edges protected by a continuous metallic binding, substantially as described.

2. A car-jacket, substantially as described, having its abutting edges united by a plate or plates of metal riveted to the jacket or to each other, or united by solder, substantially as described.

178,866. CHEESE-MACHINES. L. P. Lane, Newburg, N. Y. [Filed Oct. 29, 1875.]

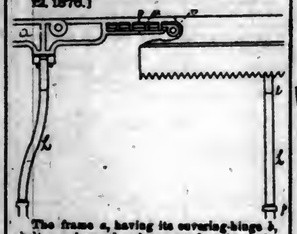


1. In a leather-stamping machine, the vertical stationary posts A A, made of wood, iron, or any other suitable material, in combination with the adjustable posts C C, bolts L R, and cut-screws M K, substantially as and for the purposes specified.

2. The former F, suspended on cords r r by counter-weights W W, in combination with the belts P P, shaft S, and guide-posts A C, substantially as and for the purposes specified.

3. The lever Q, connection e, and shifting-rod r T, in combination with the former F and pulley U, all substantially and for the purposes described.

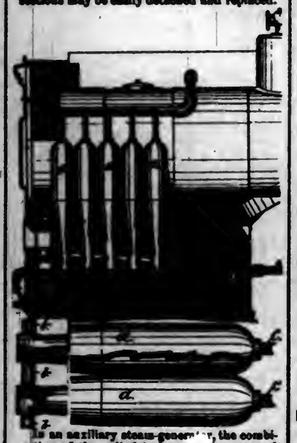
178,867. HORSE-PROTECTORS. William S. Marsh, New Gloucester, Me. [Filed May 12, 1876.]



The frame a, having its covering-hinge b, belt c, and eyes d, and supported on the shafts of the carriage by the supports h attached to the shafts, as described, connected to the frame, as set forth, and capable of being lengthened or shortened, as specified.

178,868. STEAM-GENERATORS. J. A. Miller, Providence, R. I. [Filed Apr. 13, 1876.]

Brief.—The auxiliary steam-generators are provided with bosses at their lower ends, whereby, by the means of the taper, the pipe-sections may be easily detached and replaced.



In an auxiliary steam-generator, the combination of the cylindrical vertically-arranged pipes a a, their lower part diminishing in diameter, and constructed with bosses to receive the pipes or couplings b b, and the upper connecting-pipes c c, said pipes a a being arranged at the sides of the furnace, and connected with the water and steam space of the boiler or boilers, as and for the purpose described.

178,869. MACHINES FOR MANUFACTURING COUNTER-STIFFENERS FOR BOOTS AND SHOES. John R. Moffitt, Chelsea, Mass. [Filed May 26, 1876.]

1. The improved process of shaping counters above described, consisting in first giving the proper curves by a revolving former, substantially as described, and afterward giving the exact shape by forming the counter over a male mold, all as set forth.

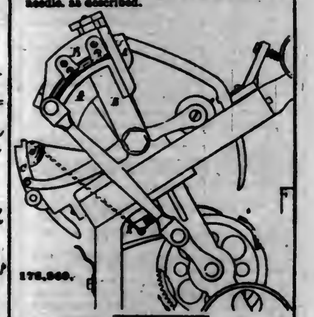
2. The male mold e, formed with its side surfaces curved as described, in combination with a pressure-surface arranged to move over it in the arc of a circle, and thereby form the bottom of a counter as a curve, all as set forth.

3. The mode of giving a more permanent set to the curves by running the groover-roll b at a greater speed than the former a, as and for the purpose described.

4. In combination with the male mold e, the heads A and B.

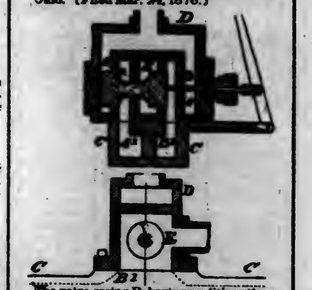
5. The guide C, in combination with the male mold e and mechanism for shaping the counter over that mold, substantially as described.

6. The needle h, in combination with the male mold e and mechanism for operating the needle, as described.



178,869.

178,870. REVERSIBLE VALVES FOR STEAM-ENGINES. Frank Murgatroyd, Cleveland, Ohio. [Filed Mar. 24, 1876.]



The valve-casing D, having partitions therein, forming the inlet-chamber S, chambers A B, and exhaust-chamber E, intercommunicating by means of openings O, and combined with the valve V, working in said openings, the passages A' B', double pipe C, and steam-chests of two engines, substantially as and for the purpose described.

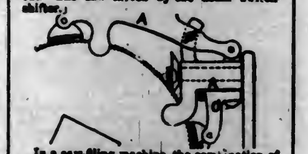
178,871. HORSESHOES. Edward Murraine, Rochelle, Ill. [Filed Mar. 20, 1876.]



The combination, with a horseshoe provided with pointed pins, adapted to enter the lower surface of the hoof, of the clasp C, adjusted to encircle the front of the hoof, and secured at one end to the shoe, by being screwed thereto, and at the other end by the bolt f, substantially as specified.

178,872. SAW-FILING MACHINES. William S. Newton, Norwich, Conn. [Filed Aug. 19, 1874.]

Brief.—A sliding gage-arm is attached to the under side of the frame, parallel with the rotary file-journal, to regulate the depth of cut. The saw is fed by the usual switch-shifter.

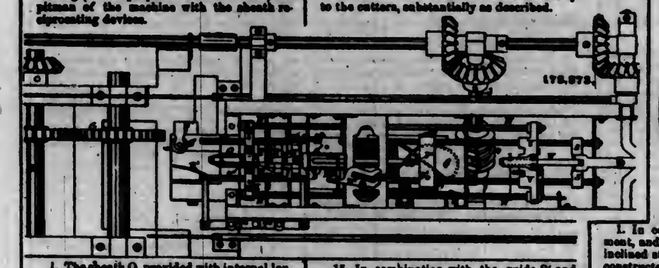


In a saw-filing machine, the combination of the frame A, the gage C, attached thereto and adapted to be adjusted back and forth in relation to the saw, with the pivoted bearing e, for bearing against the teeth, substantially as shown and described.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

178,873. NAIL-PLATE FEEDERS. J. Norvell, Detroit, Mich. [Filed Dec. 28, 1875.]

Brief.—The invention comprises a magazine for receiving a pile of plates; a device for forcing the lowermost plate from the pile, dropping it upon the floor of the magazine; a feeding-rod, operated by a screw-shaft, for pushing the plate forward; an intermittingly-revolving sheath or plate-holder, for receiving the plate and presenting it to the cutters (caused to rotate on the screw-head to which it is attached reciprocates) by the lugs upon its periphery entering spiral slots cut in a series of stationary disks); a mechanism for closing the said spiral slots, causing the lugs upon the sheath to travel backward in a straight slot, and allow the sheath to remain at rest when a new plate is to be inserted; and a mechanism for connecting and disconnecting (at the proper intervals of time) the pitman of the machine with the sheath reciprocating device.



178,873.

1. The sheath Q, provided with internal longitudinal grooves to guide the nail-plates, and a central opening for the admission of the feed-rod, in combination with outside lugs f, and a grooved collar, e, to guide it in its longitudinal and rotatory motions, substantially as described.

2. In a nail-plate-feeding machine, in combination with a sheath carrying the plate, a spring, l, acting on the edge or side of the remnant of the plate after the opposite edge or side passes out from the sheath, for the purpose of snapping it away, substantially as described.

3. In combination with the sheath Q and lugs f, the hub of the disks Y, having angular grooves g, so formed and combined with latches h as to give to the sheath one-half of a revolution between each cut of the knives, substantially as shown and described.

4. In combination with the sheath Q and lugs f, the hub of the disks Y, having grooves f parallel with the axis of the machine, to retain said sheath at rest while introducing a new nail-plate, substantially as described.

5. In combination with the sheath Q and grooved hub of the disks Y, the two equal levers T, connected to the front and rear end of said hub by means of the rods N', so as to give a uniform slope to the cut nails, substantially as described.

6. In combination with the sheath Q, guiding-grooves g and f, and latches h, the latch-opening-and-closing mechanism, composed of levers T', operated by the lug X', substantially as and for the purpose described.

7. In combination with the sheath Q, revolved in the manner as specified, and operated lengthwise by means of the rods W, the bell-crank slevis c, to connect or disconnect the sheath-moving cross-head Y from the pitman U of the machine, substantially as described and represented.

8. In combination with the feed-rod H', connected to the cross-head P' by a V-shaped spring-dog, the screw-shaft 6, when revolved by means of a worm-wheel, substantially as and in the manner specified.

9. In combination with the sheath Q, and spring l, the two slides r r of the feed-rod, constructed and operated substantially as shown and described.

10. In combination with the sheath Q, and feed-rod operated by the screw 6 of a nail-plate-feeding machine, the guide or roller 8, to guide the nail-plate while being fed up to the cutters, substantially as described.

11. In combination with the magazine that holds the nail-plates and entrances B', the sliding sleeve F' and lever W', operated substantially as and for the purposes described.

12. In a nail-plate-feeding machine, in combination with a magazine for containing a pile of nail-plates, a mechanism for transferring them automatically in succession to the feeding mechanism, and a feeding mechanism moving the plate forward, sidewise, and turning it, a guide, S', for limiting the lateral movement of the nail-plate, whereby that edge of the plate which is to furnish the head is adjusted to the same place each time, so as to give uniformity of size to the heads, substantially as described.

13. In a nail-plate-feeding machine, in combination with a magazine for containing a pile of nail-plates, which are transferred automatically in succession to the feeding mechanism, a mechanism for turning, directing, and presenting the plate to the action of the knives, and a guide, S', a feed-rod, H', operating to carry the plate past from the magazine to the feeding mechanism, substantially as described.

14. In combination with the guide S', the sheath, and the feed-rod, the magazine for containing a pile of nail-plates, from which the under one is removed and fed automatically to the cutters, substantially as described.

15. In combination with the guide S' and the sheath for guiding and turning over the nail-plate, and the feed-rod, constructed as specified, the switch-pin k, and screw-shaft 6, substantially as set forth.

16. In a nail-plate-feeding machine, in combination with a magazine for containing a pile of nail-plates, which are transferred automatically in succession to the feeding mechanism, a mechanism for turning and carrying the plate between the knives, and a guide, S', a feed-rod, operating to feed the plate forward in the jaws of the sheath, which insert it between the knives, substantially as set forth.

17. In a nail-plate-feeding machine, in combination with a magazine for containing a pile of nail-plates to be transferred automatically in succession to the feeding mechanism, an entrance, B', in connection with two others, or more, to support the bottom plate of the pile of plates in proper position for removal from the pile, substantially as described.

18. In a nail-plate-feeding machine, in combination with a magazine for containing a pile of nail-plates to be transferred automatically in succession to the feeding mechanism, a mechanism for turning and feeding the plate to the knives, and a guide, S', the screw-shaft 6, made to revolve in unison with the feeding mechanism by connected gearing, operating with the switch-pin k to move the feed-rod.

19. In combination with a magazine for containing a pile of plates, a mechanism for transferring them automatically in succession to the feeding mechanism, and a guide, S', the jaws of the sheath, which communicate to the plate a longitudinal, rectilinear, reciprocating movement in one direction to present it to the action of the knives, and in the other to withdraw it from interference with the bed-knife and its frame while turning.

178,874. GUNEY-COUCHS. Gervais Nolin, West Waterville, Me. [Filed May 12, 1876.]

Brief.—The clearing-plates are provided with elongated slots, which allows them, by a quick lateral shake, to be shifted from one side to the other, thus clearing both sides of the double-faced comb.



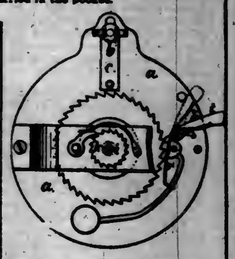
1. The combination of the series of movable clearers C with the series of dentated plates A and the handle B, arranged and connected substantially as specified, the said series of clearers being disposed between the dentated plates, and to operate therewith essentially as explained.

2. Mesh clearer C, as composed of the two elongated and slotted plates f f and the connecting-tube e, arranged as represented.

3. The combination of the series of clearers C and their connection-rods f f, arranged as set forth.

178,875. BURGLAR-ALARMS. J. P. Norman, New York, N. Y. [Filed Apr. 27, 1876.]

Brief.—The device is attached to the door-frame in such close proximity to the door that in opening the latter it will trip the detent-lever and release the alarm mechanism, whereby an alarm is sounded. When not in use the curved spring draws the screw back, so that its point will be flush with the under side of the plate, thus adapting it to be conveniently carried in the pocket.



1. In combination with the bell, escapement, and hammer, the spring-trip i, pivot 3, inclined stud 4, and spring n, the parts being constructed and operating as set forth.

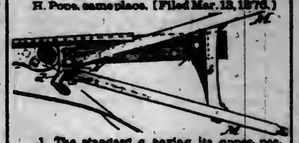
2. The gimlet-pointed screw b and curved spring c, in combination with the base-plate a and burglar-alarm, for the purposes, and as set forth.

178,876. DOOR-LATCHES. S. Oppenheimer, Newark, N. J. [Filed Nov. 15, 1875.]



The means employed for locking in place the latch A a e, consisting of the lever C, provided with the recess a and bearing f, the cam-block E, having the transient o and curved arm d and stud e'', the spring F, and the leg G, provided with the recesses g and g, said parts being combined to operate in the manner and for the purpose substantially as specified.

178,877. PLOWS. S. W. Pope, Louisville, Ky., assignor of one-fourth his right to C. H. Pope, same place. [Filed Mar. 13, 1876.]



1. The standard a, having its upper portion tubular, its middle forming the upper face surface of the land-side, and its lower portion flanged to form seats for the land-side, mold-board, and share of a turn-plow, substantially as described.

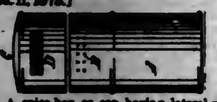
2. The combination of the straight handles M M' and the supporting-piece d, extending from the land-side to the mold-board, and to which both handles are attached at their lower ends at a point intermediate between the land-side and mold-board, and remote from the land-side, substantially as and for the purpose set forth.

3. The combination of the handles M M' and brace d, provided with a lug or projection, N, and the bolt O, as and for the purpose set forth.

4. The combination of the beam B, brace b, and straight handles M M', connected by the brace b only, all constructed without motion or tenon, and connected together and secured to the plow by screw-bolts only, substantially as and for the purpose set forth.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co. BOSTON.

178,876. SOAP-BOXES. Geo. W. Putnam, Salem, assignor of one-half his right to Charles A. Glover, Salem, Mass. [Filed Dec. 11, 1875.]



1. A spice box or can having lateral perforations through which the contents may be dredged or sifted, and provided with a cover so constructed and arranged to operate that the perforations may be closed by manipulating the cover, substantially as and for the purpose set forth and specified.

2. A spice box or can having the body A, provided with the perforations B, and the cover C, provided with the opening D, combined to operate substantially as and for the purpose set forth and specified.

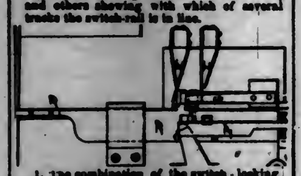
178,878. WASHING-MACHINES. Edward J. Robinson, Schenectady, N. Y. [Filed Aug. 30, 1875.]



The nut E, washer O, and sliding shaft K, in combination with the gear-wheel or pinion J in a washing-machine, as and for the purpose described.

178,880. ELECTRIC SIGNALING ATTACHMENTS TO RAILROAD-SWITCH LOCKS. D. Rousseau and Wm. C. Smith, New York, N. Y., assignors to William P. Smith and Samuel Simmons, same place. [Filed Apr. 17, 1876.]

Brief.—Circuit-closers for electric magnetic signals, one showing whether switch is locked, and others showing with which of several tracks the switch-rail is in line.



1. The combination of the switch-locking lever F and sliding switch-rod D with the signal-transmitting device G, all arranged so that a signal will be given whenever said lever does not lock the switch-rod D, substantially as herein shown and described.

2. In combination with the switch-rod D, which carries the leg b, the independent signal-transmitting devices H and I, to be alternately offered and moved by said leg at the two extremes of the position of the switch, substantially as specified.

178,881. CARP-SPOOLS. Lorenzo Stanton, Jersey City, N. J. [Filed Mar. 3, 1876.]



1. The seat-supporting arms D, arranged in the head E, and constructed with the tenon a, in combination with the vertically-adjustable tubular supporting-bar A and hinged legs B, substantially as described.

2. The head E, having the pin b, in combination with the seat-supporting arms and tubular supporting-bar A, having the socket c, constructed with the circular groove i, into which the pin b on the head E extends, as and for the object specified.

3. The seat-supporting arms D, pivoted to the head E, and constructed with the tenon a, extending rearwardly beyond the pivots, in combination with the telescopic tubular supporting-bar A, having the rim c, and hinged legs B, substantially as described.

4. The combination, with the head E and hinged arms D, of a spring, e, and disk f, bearing against shoulders g on the arms D, substantially as and for the purpose shown and described.

178,882. CONBINED REACH-HOLDING AND PENCIL-POINT PROTECTORS. C. B. Sheldon, New York, N. Y. [Filed Apr. 22, 1876.]

Brief.—The point-protecting tube is provided at its upper end with a socket or thimble, into which the erasive material is placed and firmly held. The thimble and erasive plug may be withdrawn from the tube, reversed, and again inserted in the latter, so as to prevent the erasive plug from becoming soiled when not in use.



1. The combination, with the slitted pencil-point protecting and eraser-holding tube, and with the eraser, of a socket, D, detachably and reversibly connected to said tube, substantially as herein shown and described.

2. The pencil-point protecting and eraser-holding tube, composed of two slitted sections, A B, and a middle unslitted portion, C, and having an offset in said unslitted portion, substantially as herein shown and described.

178,883. SOAP-HOLDERS. J. L. Stackhouse, Philadelphia, Pa. [Filed Mar. 30, 1876.]



The combination, with a cake or bar of soap, of a frame or holder inclosed within it, and a handle or attachment of the inclosed frame projecting out from its surface, so that the soap may be attached to a nail or hook, or suspended by a chain, substantially as described.

178,884. WIRE-SPLICING TOOLS. Reuben L. Taylor, Manchester, Iowa. [Filed Apr. 13, 1876.]

Brief.—The wires to be spliced are laid parallel and held with pinchers, with their ends turned up at right angles. The hole of the tool is placed over one of the projecting ends, the wire lying in the recess and resting on the shoulder of the tool. The tool is then moved ahead the wire held by the pinchers, so as to wind the bent-off end about it, when the tool is removed, placed over the other bent-off end, and similarly operated.



1. The above-described tool for splicing wire, having an apertured recess, B, with shoulders C and D, as and for the purpose described.

2. The combination of the apertured recess B, having shoulders C and D, with the recess H, as and for the purpose set forth.

178,885. FASTENERS FOR THE MEETING-RAILS OF SASHES. W. H. Taylor, Stamford, Conn. [Filed May 17, 1876.]

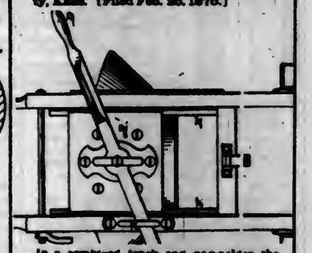
Brief.—A tubular post projecting upward from a suitable base-plate on one of the meeting-rails carries a swinging locking arm or lever pivoted thereon, having a hook end, which clasps around a suitable stud on a corresponding base-plate attached to the opposite meeting-rail; and there is a spring-actuated reciprocating shaft or spindle, which works vertically inside the tubular post, and is provided with a wing or projection, which engages with corresponding inside notches—the construction being such that the automatic elevation of the spindle causes the locking of the swinging arm to the post, while slight pressure on the knob of the spindle depressing the same serves to release the arm, and leaves it free to turn a partial revolution, thus securely fastening the swinging arm either in locked or unlocked position.



1. The combination, in a sash-lock, of the tubular post B, the locking-looking arm or lever A, pivoted upon said post, and having no vertical movement, and the shaft or spindle fitting in the tubular post constantly engaging therewith, moving vertically only, and adapted to be engaged with, and disengaged from, the lever, substantially as herein before set forth.

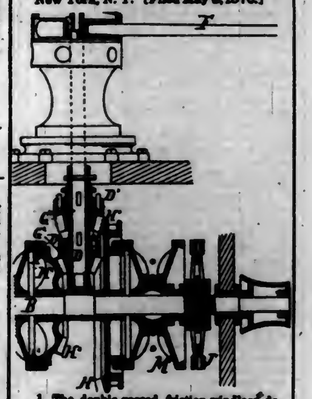
2. The combination, substantially as herein before set forth, of the tubular post B, adapted for attachment to a sash-rail, the locking arm or lever A, pivoted upon said post, and having notches a b in its base, the shaft or spindle E, moving vertically in the tubular post, its wing c, and the spring C, whereby the lever is automatically thrown into the locked or unlocked position by the engagement of the spindle-wing c with its notches a, and is left free to turn a partial revolution by the depression of the shaft or spindle, as set forth.

178,886. COMBINED TROUGH AND RAG-HOLDERS. Lewis Tandy, Cherokee County, Kans. [Filed Feb. 26, 1876.]



In a combined trunk and rag-holder, the combination of the hopper A with the movable block A', running upon ways F on the inside of the trunk-frame, and actuated by the lever D fastened by a screw at its center to the block A', and working at its short end in the slot B.

178,887. WHEELBARROW. Barton D. Thayer, New York, N. Y. [Filed May 6, 1876.]



1. The double-geared friction-windlass described, having one or more loose sprocket-wheels or wild-cams coupled frictionally to the main shaft B, in combination with the operating-shaft D, wheels G^1 G^2, the corresponding wheels H^1 H^2, and the hand-wheels J^1 J^2 and hook *j*, adapted to give different degrees of purchase.

2. The wild-cats M^1 M^2, coupled frictionally and controlled by the hand-wheels J^1 J^2 and hook *j*, and adapted to not only draw the wheels into the desired frictional contact, but also to forcibly draw the wild-cats out of contact, as and for the purposes herein specified.

178,888. REMOV DRAFT-BARS. James P. Thompson, Milwaukee, Wis. [Filed Feb. 21, 1876.]



In adjustable draft-bars for cutters, the combination of the tubular bar B, provided with the borelubebefore-described slots F and G, the sliding bar H, provided with the two shaft-coupling-hooks D and D', which are joined to the shaft H by means of shanks I and I', and the set-screw C, substantially as and for the purposes described.

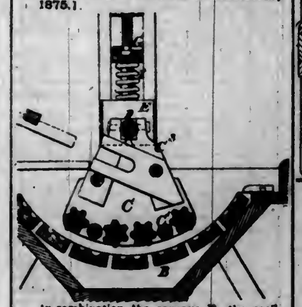
178,889. APPARATUS FOR SEPARATING AMMONIACAL LIQUOR FROM GAS-TAR. John J. Thomas, Philadelphia, Pa., assignor of one-half of his right to Henry Bower, same place. [Filed Mar. 15, 1876.]

Brief.—The division-plates arranged at different heights break up the current of tar and liquor, causing the heavy tar to subside, and permitting the light ammoniacal liquor, which rises to the surface on the ingression side of the deep bridge-plate, to flow off through lateral passages. The plates are adjustable and removable. The tar flows from the end of the tank near the bottom.



The combination, in an apparatus for separating commingled liquids having different specific gravities, of a tank or chest, an inlet-pipe, a series of vertical dividing-plates, a lower transverse dam, and upper and lower delivery-pipes, substantially as set forth.

178,890. WASHING-MACHINES. Henry L. Vestal, Knightstown, Ind. [Filed Nov. 16, 1875.]



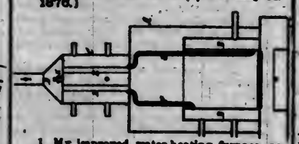
In combination, the concave B, the oscillating rubber C, and fluted rolls, and shaft D, suspended boxes E, and adjustable cross-head G, whereby the pressure of the rubber may be adjusted, and at the same time allowed to rise independently, substantially as set forth.

178,891. SOLDERING-IRON FURNACES. B. G. Adams, Cohoes, N. Y. [Filed May 16, 1876.]



The combination, with a charcoal-furnace having inlets I for the metal, of a hood, E, and flue F, centrally arranged to form an open space under the hood and mouth of the flue for the reception of the metal, substantially as shown and described.

178,892. STOVES OR FURNACES. Dana N Allen, Concord, N. H. [Filed May 12, 1876.]

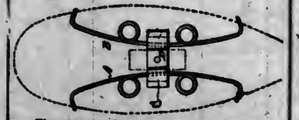


1. My improved water-heating furnace, as described, composed of the stove A, smoke-receiving and discharging dome D, two water-heaters, B C, one or more smoke-discharge flues, E, and the connection-pipes F G, all arranged and combined as set forth.

2. In combination with the dome D, water-heaters B C, stove A, flue E, and the connection-pipes F G, arranged as described, the safety-valve K, as arranged and applied to discharge into said dome the waste steam that may issue from the educt of said valve.

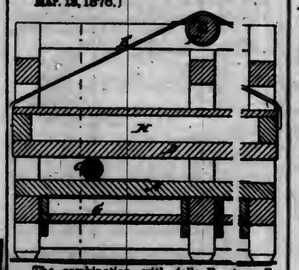
178,893. CUTTLE-FISH HOLDERS. Andrew H. Alverson, New Haven, Conn. [Filed May 6, 1876.]

Brief.—The holder is placed on the inside of a cage, so that its cross-bar rests against two vertical wires of the cage, and is then fastened on.



The combination of the vertical springs A B, constructed with a hook at each end, and connecting-bar C, with the turn-button D, substantially as and for the purpose described.

178,894. IRONING APPARATUS. James Ashton and Rheuben H. Mote, Kent, Ill. [Filed Mar. 13, 1876.]



The combination, with folls B, strap E, drum F, and guide-rolls K, of the table A, having heating-chambers G, and the rolling-plate D, having heating-chamber H, all constructed and arranged substantially as and for the purpose specified.

178,895. STATION-INDICATORS. J. Robinson Baisley, Connellsville, Pa. [Filed May 1, 1876.]



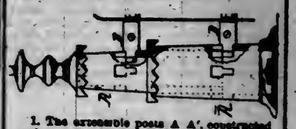
The combination, with roller B and ratchet P, of cords L, lever M, reversible pawl H, spring O, and lever E, substantially as and for the purpose specified.

178,896. RUBBER BOOTS. James A. Bates, South Abington, Mass. [Filed Mar. 13, 1876.]



A rubber boot provided with a leather counter at the inside of the hind quarter, substantially as specified.

178,897. FENCES. Ormus D. Beebe, Elmira, N. Y. [Filed Mar. 23, 1876.]



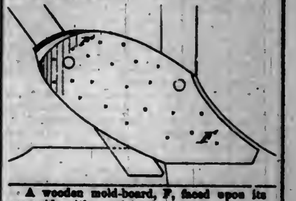
1. The arrowpoint posts A A', constructed and operating in the manner and for the purpose substantially as described.

2. The short connecting-pieces B, provided with the shouldered tenons, in combination with the slotted or mortised post, substantially as and for the purpose described.

3. The hand-iron pickets made in the arched or double form, in combination with the notched or mortised rails, permitting the adjustment of the latter thereon, as described.

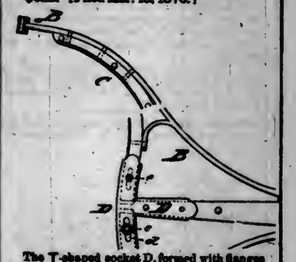
178,898. PLOWS. Francis R. Bell, Marshall, Tex. [Filed Apr. 20, 1876.]

Brief.—A wood mold-board with a metal back, having within a recess to contain oil, and numerous perforations, to allow the oil to circulate through the wood and lubricate the wearing-surface.



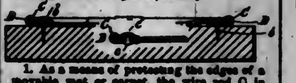
A wooden mold-board, F, fixed upon its rear side with metal, having a recess or chamber between it and said metallic facing, and perforated with numerous small holes, substantially as herein shown, and for the purpose described.

178,899. ADJUSTABLE CARRIAGE OR SLEIGH POLES. Fredk. W. Bishop, West Haven, Conn. [Filed Mar. 13, 1876.]



The T-shaped socket D, formed with flanges b b' and elongated slots d, in combination with the pole A, pivoted stays or braces B, and the arms C, the latter being adjustable within the socket D by bolts and nuts c, substantially as and for the purpose specified.

178,900. PROTECTORS FOR MATS, CARPETS, &c. George E. Bliss, West Stockbridge, Mass. [Filed Sept. 20, 1875.]



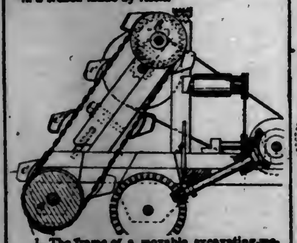
1. As a means of protecting the edges of a movable mat or carpet, the wire rod C, in combination with the narrow sheet-metal straps D, wrapped around said wire and secured to the edge of the mat or carpet by rivets c, which pass through both ends of the

strip and the mat or carpet, substantially as described.

2. As a means of protecting the edges of a mat or carpet and securing the same to the floor, the wire rod C, in combination with the thin sheet-metal straps D, wrapped around said rod, and secured to the edge of the mat or carpet and to the floor by means of nails or screws *b*, which pass through both ends of the straps and the mat or carpet, and enter the floor, substantially as shown and described.

178,901. EXCAVATORS. John P. Bonnell, Elizabeth, N. J. [Filed May 16, 1876.]

Brief.—The frame of the excavator is mounted on a pair of traction-wheels, hoisted, as a fulcrum to elevate or depress the bucket-chain, between the center-wheel and bucket-chain. The buckets of the endless-chain elevator extend outward or laterally beyond the housings, in order to enable the machine to work in a trench made by itself.



1. The frame of a movable excavating-machine, mounted in a pair of traction-wheels as a fulcrum, between the point of digging and the adjusting-center, and provided with a wheel, C, and mechanism for adjusting the frame up and down on said wheel to adjust the excavator for levels or inclines or grades, substantially as specified.

2. The buckets of the endless elevators of my movable excavating-machine, extending outward or laterally beyond the housings F, in order to enable the machine to work in a trench made by itself, substantially as specified.

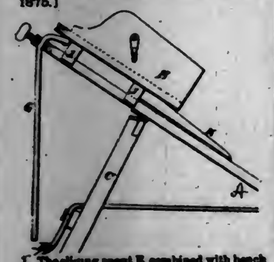
178,902. PIPE-WRENCHES. Thomas Booth, Toronto, Canada. [Filed Feb. 26, 1876.]



1. The pivot-pin B, provided with the flat-ted faces B', in combination with the lever A', provided with the slot C and notches *a*, arranged and operating substantially as described.

2. The jaw A', provided with the face *a*, between the forked ends *a' a'*, finished parallel with the faces B' of the pin B, substantially as described.

178,903. BAG-HOLDERS. Lealand H. Bristol, Lawrenceville, N. Y. [Filed Dec. 4, 1875.]



1. The sliding spout E, combined with bench A, stop C, and screw H, as and for the purpose set forth.

2. The combination with sliding spout E, of the wedge-shaped rest K, as and for the purpose specified.

178,904. GLASS PANELS. Jos. Budd, New York, N. Y. [Filed Apr. 1, 1876.]

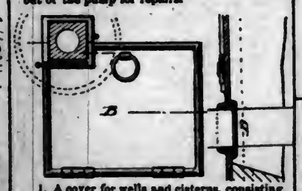
178,904.

1. The process of manufacturing ornamental glass panels, consisting of, first, coating the back of the glass with shellac varnish; second, applying the design thereon in oil-colors; third, again coating the whole with shellac; fourth, applying a coat of coloring; and, finally, backing the whole with thick shellac varnish and plaster-of-paris, substantially as and for the purposes set forth.

2. As an improved article of manufacture, a glass panel having on its back a coating of shellac varnish, a design in oil-color, a second coat of shellac, a coat of coloring, and a backing of thick shellac varnish and plaster-of-paris, substantially as and for the purposes set forth.

178,905. WELL AND CISTERN TOPS. John M. Bull, Sidney, Ohio. [Filed May 9, 1876.]

Brief.—A platform for wells or cisterns, which is made of iron, wood, or other material. The platform is provided with a door which is hinged, and may be raised and lowered by a handle. By opening the door light is thrown into the well, to admit the taking out of the pump for repairs.

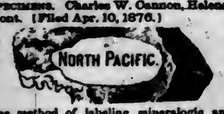


1. A cover for wells and cisterns, consisting of a platform with hinged door, the platform and door being recessed at one corner of the door for the pump seated thereon, substantially in the manner and for the purposes specified.

2. The combination of the guard-rod D, with the door B, having a recess at one corner, as and for the purpose set forth.

3. A sediment-pot for wells or cistern bottoms of concave shape, and central aperture, substantially as specified.

178,906. METHODS OF LABELING MINERAL SPECIMENS. Charles W. Cannon, Helena, Mont. [Filed Apr. 10, 1876.]



The method of labeling mineralogic and other specimens by means of an artificial smooth surface formed upon a portion of the specimen, and composed of plaster-of-paris cement, or some of its compounds, substantially as and for the purpose set forth.

178,907. OIL AND LIQUOR PUMPS. William N. Carlson, Chicago, Ill. [Filed Feb. 24, 1876.]

Brief.—To move liquid from the barrel into the tank, attach the hose to the stop-cock opening, opening the same, thus making a passage through the tube into the reservoir, the valve on the suction-pipe being closed by means of a rod connected therewith. To move liquid from the tank into the barrel, the stop-cock is closed, the hose attached to the spout, and let into the barrel, suction-pipe valve being opened, thereby making a passage through the suction-pipe into the reservoir.

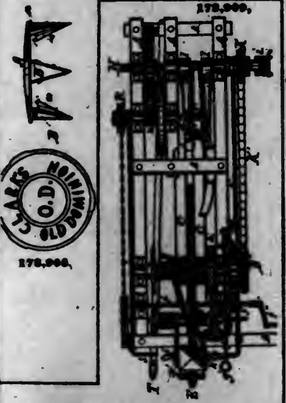


1. The combination of hose A, having stop-cock A, through which the liquid passes from the barrel into the tank, with reservoir H, tube J, and suction-pipe M, having valve N, operated by rod *n*.

2. Combination of pipe M, controlled by valve N, with the pump having pipes J and *f*, as and for the purposes specified.

178,908. TAGS. Chas. H. Clark, New York, N. Y. [Filed Apr. 19, 1876.]

As a new article of manufacture, a tag formed of the disk A, the same being formed of one piece of metal, having teeth or prongs B, the edges of which are curved inward, the upper part of which is cut away, leaving the narrow space *a*, for the purposes as shown and described.



178,909. ROCK-DRILLING MACHINES. Orlando Clarke and Isaac Utter, Rockford, Ill. [Filed Apr. 6, 1876.]

1. The combination, in a well-drilling machine, of the mast B fitted with sheaves *a*, *b*, and *c*, operating lever C fitted with sheave *d*, and rope E from the spool D, passing over and under the sheaves *a*, *b*, *c*, and *d*, as described, for the purpose of imparting a churning motion to a drill attached to the free end of the rope E by means of a down-and-up movement of the free end of the lever C, as hereinbefore set forth.

2. The mast B fitted with sheaves *a*, *b*, and *c*, lever C fitted with sheaves *d*, and rope E, employed as described, in combination with lever-arms I secured to shaft H, for the purpose of operating the lever C, to impart a churning motion to a drill attached to the free end of the rope E, as and for the purpose hereinbefore set forth.

3. The weighted shipping-rod *h'* and pivoted yoke *h*, in combination with the sprocket-wheel K, with clutch-formed hub, for the purpose of shipping and unshipping the cloth, and holding it in or out of gear, substantially as hereinbefore set forth.

4. The combinations of the pall *g*, operating-rod *g'* extending to the front end of the machine, and gear-wheel *D'* on the shaft of spool D, to hold the spool, to prevent the unwinding of rope E, as hereinbefore set forth.

5. The friction-band *h'* looped on shaft *f*, in combination with spool D and hand-wheel *h''* operating as a friction-brake on both the shaft *f* and spool D, for the purpose of lowering the drill when attached to the free end of the rope E, as hereinbefore set forth.

6. The combination of the sleeve E, friction-cone *p*, chain-belt P, spool F, and shipping-rod *s*, for the purpose of operating a bucket attached to the free end of rope F, substantially as and for the purpose hereinbefore set forth.

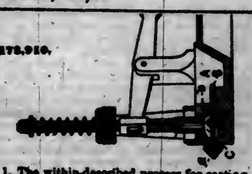
7. The step L, shipping-rods *h'*, *s*, and *g'*, hand-wheel *h''*, and winch *f''*, these parts constructed, arranged, and operating, substantially as hereinbefore set forth, for the purpose of changing the machine to perform its different and separate functions without stopping or interfering with the continuous motion of the prime mover employed to operate the machine.

8. In a well-drilling machine, substantially as described, the sheave *a* in mast B, all arranged as described, for the purpose of lessening the lateral angle of the rope when wound toward the ends of the spool, as and for the purpose set forth.

178,910. TYPE-CASTING MACHINES. James M. Conner, Greenville, N. J. [Filed Mar. 25, 1876.]

Brief.—The well and chamber for the molten metal are formed from one and the same piece of metal, and the molten metal for the type is forced in a direct line through the nipple into the mold.

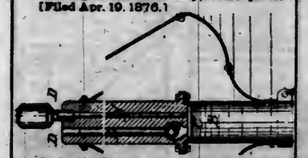
178,910.



1. The within-described process for casting metal types, in which the metal is forced directly, or in a direct line, from the well, and through the nipple into the mold, substantially as and for the purpose set forth.

2. The well and chamber A, formed from one solid the same metal, the chamber forming the bottom of the well, in combination with the pump C G, nipple *a*, grooved plate *b*, and horizontal valve B, the same being constructed and operating substantially as described, and for the purpose set forth.

178,911. AUTOMATIC SIGNAL-BUOYS. John M. Courtenay, Cornwall on the Hudson, assignor of one-third his right to James Bigler, Newburg, N. Y., and two-thirds to Margaret J. Courtenay, same place. [Filed Apr. 19, 1876.]



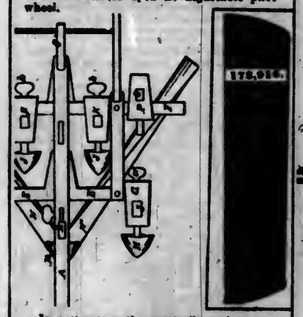
1. A signal-buoy, having a central downwardly-extending tube with a diaphragm at mean water-level, said diaphragm having an opening communicating by an air-entrance tube with bottom-valve, and an air-exit tube with the upper end of the buoy, substantially as shown and described.

2. The signal-buoy, with central downwardly-extending tube attached to an anchoring-cable at a point below the buoy, and having a rudder or steadying plate extending from the base of the buoy to the bottom tube, substantially as specified.

3. The combination of water-tube B, diaphragm C, valved air-inlet tube D, and air-exit tube D', the latter provided with a suitable whistling attachment, as and for the purpose specified.

178,912. CULTIVATORS. John M. Crabtree, Wellington, Ohio. [Filed Feb. 21, 1876.]

Brief.—There are two sets of shares and two mold-boards, which extend the whole length of the machine in diverging lines. The shares are adjustable both horizontally and vertically. The forward end of the center beam is mounted upon an adjustable pilot-wheel.



In cultivators, the vertically and horizontally adjustable mold-boards N N, in combination with the vertically and horizontally adjustable shares J J and adjustable pilot-wheel Q, substantially as and for the purpose set forth.

178,913. COMPOSITIONS OR CEMENTS FOR PRESERVING FRUIT, &c. Chas. A. Dards, New York, N. Y. [Filed May 1, 1876.]

Brief.—The fruit or other article is first wrapped up in paper, and then coated with the composition claimed, and finally packed in boxes filled with sawdust, cork shavings, &c.

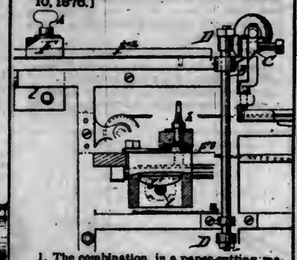
A composition or cement for preserving fruit, vegetables, and other articles, consisting of starch, a suitable fat or oil, salt, carbonate of ammonia, a suitable vermifuge, alum, citric acid, and water, in about the proportions specified, substantially as described.

178,914. FOUNTAIN-PENS. Robt. Douglass, Bactouche, Canada. [Filed Mar. 21, 1876.]



The combination of a pen, D, ink-receiver C, and bands E, substantially as and for the purpose specified.

178,915. PAPER-CUTTING MACHINES. John P. Dunwald, New York, N. Y. [Filed Apr. 10, 1876.]



1. The combination, in a paper-cutting machine, of the curved pivoted arm O and the swinging and balanced cutting-knife O, having a friction-roller, *b*, with the vertically-sliding paper-clamping frame D and link *a*, as and for the purpose set forth.

2. The combination of the swinging cut-off gage with a lock-spring at the side standard, to be released for use of wider gage, as specified.

3. In paper-cutting machines, the combination of a sliding and adjustable gage-piece, guided centrally and at the side with a set-plate and clamping mechanism applied to guide-rod, substantially as specified.

4. The combination of a lateral gage-piece, F', clamp-screw *h*, and pin *h'*, with the sliding set-plate F', having rear slot and clamp-screw, as and for the purpose set forth.

178,916. METHODS OF PRESERVING SHRIMPS AND OTHER SHELL-FISH. Geo. W. Dunbar, Geo. H. Dunbar, and Francis E. Dunbar, New Orleans, La. [Filed Feb. 1, 1876.]

The herein-described method of preserving shrimps, &c., preventing their discoloration, which consists in placing textile fabric between the can and its contents, and then sealing the can and subjecting the same to a boiling process, substantially as and for the purpose specified.

178,917. STOVE-PLATFORMS. J. W. Elliot, Toronto, Canada. [Filed Mar. 13, 1876.]



The centrally-perforated base-plate C, shaped as described, and provided with an elevated deflector, E, and foot-sockets G, as and for the purpose specified.

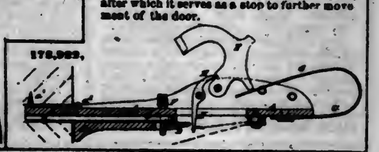
178,918. CUTTER-HEADS. Philander G. Finn, Erie, Pa. [Filed Mar. 22, 1876.]

Brief.—A series of segmental knives provided with curved slots, and having their cutting-edges at right angles to their shanks, are longitudinally adjustable upon the disk which supports them by means of eccentric projections formed upon the periphery of the hub of the cutter-head.

178,918.



178,922.



1. A cutter-head, having a hub, *c*, disk *a*, and with raised eccentrics *b*, projecting from the hub, and against which eccentrics and upon which disk the cutters are adjusted, substantially as shown and described.

2. The segmental knife A, having its cutting-edge substantially at right angles with its shank, and having a curved slot in the shank, which, when the knife is attached to the head, is parallel to the face of the eccentrics, against which the knife rests.

178,919. PROCESSES FOR TREATING TANNIN JUICES. James Foley, Montreal, Canada. [Filed Mar. 20, 1876.]

The process for bleaching tanning juices and preventing their souring, which consists in the incorporation with tannin juices aqueous solutions of tannin and concentrated tanning extracts obtained from hemlock or other bark of the chemically combined form of sulphites of the bases sodium, calcium, potassium, aluminum, and ammonium, separately or combined, either in the form of solid salt or solution, as and for the purposes herein set forth.

178,920. SMOKE-BELLS FOR GASALIERS. John Fox, New York, N. Y. [Filed Dec. 11, 1875.]

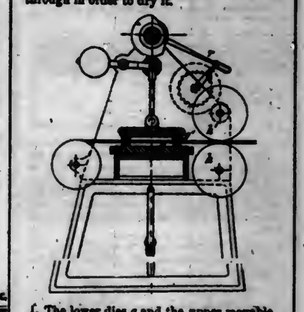


1. A smoke-bell for gasaliers, provided with radiating-tubes at the upper part for carrying off the heat, substantially in the manner and for the purpose set forth.

2. In smoke-bells for gasaliers, the stem or the shank of the bell, cemented, by any material being a non-conductor of heat, into a socket or casing suspended by a hook, to insulate the stem from the parts of the gasalier above the same, substantially as set forth.

178,921. APPARATUS FOR DYEING WOVEN OR POROUS FABRICS. George C. Gibbs, Brentford, England. [Filed Feb. 28, 1876.]

Brief.—The dye is forced by means of pump through the fabric, a portion of which is stopped out by pressure applied to a pair of dies, between which the fabric is held. By reversing the pumps the dye is drawn back through the fabric, and then air is sucked through in order to dry it.



1. The lower dies *g* and the upper movable perforated dies *g'* in combination with the pumps *a a'*, and the pipes *c c'*, substantially as and for the purposes described.

2. The combination, with the dies *g g'* and the pumps and pipes *a a' c c'*, of the feeding-rollers *b b'* and driving-gear *r*, all actuated from the driving-shaft *a*, substantially as and for the purposes explained.

178,922. BURGLAR-ALARMS. H. F. Green, Chetopa, Kans. [Filed Apr. 10, 1875.]

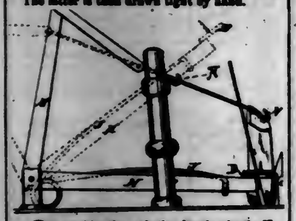
Brief.—The piece which rests against the door slides far enough to spring the trigger, after which it serves as a stop to further movement of the door.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

The combination of the plate A, provided with the points or jaw a^1 and the stop a^2, the two pivoted plates B C, the hammer E, the cup-tube F, the spring G, and the trigger H, substantially as herein shown and described.

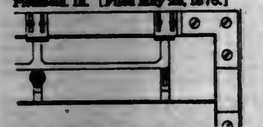
178,926. CARPET-RAG LOOPER. Charles F. Greenslet, Genoa, Ill., assignor to himself and Lewis Grabow, same place. [Filed Apr. 4, 1876.]

Brief.—When the plate has been depressed and locked by the catch, the outer end of the loose strip is carried over the looping-hook, and then the plate is released. The spring-hook draws the end of the strip through the hole in the knife, and the plate carries the slitted ends over the knife and looped end. The latter is then drawn tight by hand.



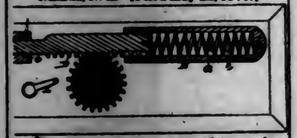
The combination of the looping-hook H, supporting-plate D, elbow-lever E M, spring J, and the stationary knife A, having the opening O, substantially as specified.

178,924. PRINTERS' GALLEYS. E. B. Mason, Pittsfield, Ill. [Filed May 22, 1876.]



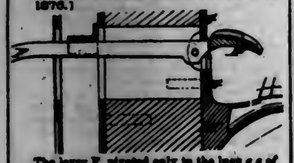
The combination, with a printer's galley, of an adjustable locking-bar, applied by a hinge or movable jointed frame to be folded out of the way or opened to lock the type, substantially as and for the purpose described.

178,925. REPLOGLE'S ENGINE. C. Hardy, Nashua, N. H. [Filed May 22, 1876.]



The explosive engine, substantially as described, composed of a common fire-arm or gun-barrel, A, the piston or plunger C, rack D, gear E, ratchet-wheel I, pawl L, and the spring G, arranged in the carrier or stationary barrel L, all being applied essentially as set forth.

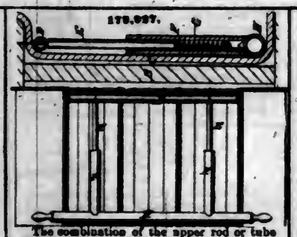
178,926. TRUSS-LATCHES FOR DOORS. H. C. Hill, Norristown, Pa. [Filed Mar. 13, 1876.]



The lever F, pivoted only to the lugs g g of the fulcrum-piece G, in combination with handle E, partly secured by said piece, substantially as shown and described.

178,927. STAIR-RODS. George W. Hill, Brooklyn, N. Y. [Filed June 6, 1876.]

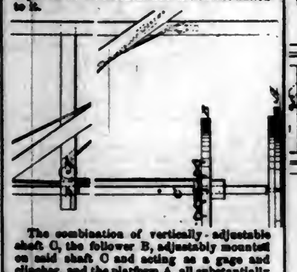
Brief.—Upright pointed rods, telescoped in suitable tubes with springs, are interposed between the stair-rod proper and a supplementary rod, pierced for the points of these uprights, the whole constituting a sort of frame-work, adjustable by the springs, adapted to hold the lower rod firmly in place, and to slightly stretch and secure the carpet.



The combination of the upper rod or tube D, the pointed rods E, the tubes F, the coiled springs G, and the lower rod or tube H, with each other, to adapt the device for securing stair-carpets to stairs, substantially as herein shown and described.

178,928. MACHINES FOR MAKING BARRELS. Samuel P. Hodgen and John W. Yelton, Neosho, Mo. [Filed May 1, 1876.]

Brief.—The head of the barrel or hogshead is placed in the machine and the staves nailed to it.



The combination of vertically-adjustable shaft C, the follower B, adjustably mounted on said shaft C and acting as a gage and clincher, and the platform A, all substantially as shown and described

178,929. FIRE-ESCAPES. H. L. Holmes, Providence, R. I. [Filed Mar. 16, 1876.]



1. The combination, with the frame A, supported on the wheeled carriage, as described, of the standards d d, the adjustable transition-bearings, and the screws e e, for supporting and adjusting the trunnions, substantially as and for the purpose set forth.

2. The combination, with the swinging and vertically-adjustable tower b, of the telescopic extensions h h, provided with the nuts or female screws i i, arranged to be successively raised, substantially as and for the purpose specified.

3. The combination, with the square tower b, provided with ladders, substantially as described, and supported on the adjustable trunnions e e, of the hinged screw-spindle f, the tubular nut f', and hand-wheel g, the whole operating together substantially as and for the purpose specified.

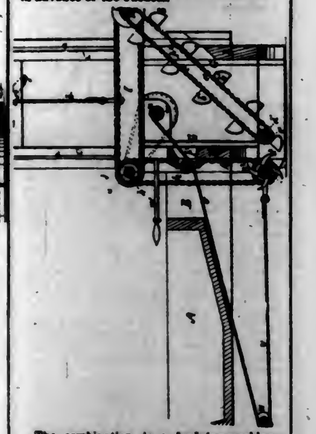
4. The combination, with the screw-spindle h, connected by gearing with the crank m, of the telescopic extension-sections h h, provided with the nuts i i, and arranged to be successively raised or lowered by one central screw, substantially as and for the purpose set forth.

5. The combination, with the telescopic tower, substantially as described, of the adjustable platform o, arranged so as to be placed at any required angle by the screw p, as and for the purpose described.

6. The combination, with the telescopic tower, supported on adjustable trunnions, and raised or lowered by a screw-spindle, substantially as described, of the extension-frames q q, the pins r r r r, and steps s s s, the whole forming a fire-escape and tower, substantially as and for the purpose specified.

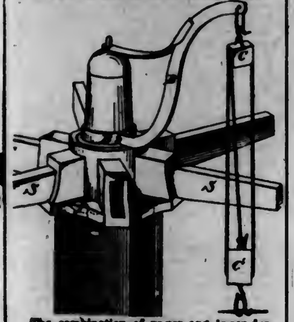
178,930. DREDGING-MACHINES. Jas. Howe, Jr., East Boston, Mass. [Filed Mar. 18, 1876.]

Brief.—A dredging-machine having a vertically-adjustable sliding bucket-frame and inclined buckets, and a breaker on the lower part of the sliding frame, independent of and in advance of the buckets.



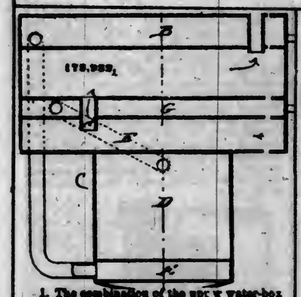
The combination, in a dredging-machine, with the vertically-adjustable sliding bucket-frame, of the inclined buckets, and the breaker mounted on the lower part of the sliding frame independently of and in advance of the buckets, said parts being constructed and arranged for operation as herein shown and described.

178,931. STOCK-GALLOWS. W. G. Ryder, Fitzwell, Mich. [Filed Feb. 24, 1876.]



The combination of upper and lower derricks B B, with tackle-blocks C C, rope, and gambrel-hooks, as and for the purpose set forth and described.

178,932. FIRE-WATER HEATERS AND FILTERS. George F. Jasper, Frostburg, Ill. [Filed Jan. 22, 1876.]



1. The combination of the upper water-box B, connecting-pipe C, mud chamber and receptacle D, return-pipe F, and lower water-box of heating-tank, substantially as and for the purpose set forth.

2. In a feed-water heater and filter, a heating-tank provided with a water-box at the uppermost part thereof, and with a second water-box below the same, on which the exhaust steam is allowed to act at bottom and top sides, while acting only on the bottom of the upper box, so as to impart a higher temperature to the water in the lower box than in the upper, substantially as and for the purpose described.

178,933. TRUSS-LATCHES. G. S. Jennings, New Haven, Conn., assignor to Thomas Kennedy and Charles Bilyeau, New York, N. Y. [Filed May 6, 1876.]

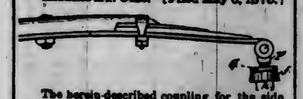


1. The combination, in a latch-handle, of the thumb-lever C D, and transverse lever E F, substantially as described.

2. The combination, in a latch-handle, of the thumb-lever C D, the transverse lever E F, and a fulcrum at each side of the thumb-lever for the adjustment of the transverse lever, substantially as described.

3. In a sliding thumb-latch, the bolt, constructed with a transverse projection, *c*, through the case at the rear end, so as to form bearing *f* for the latch-lever, substantially as described

178,934. VEHICLE-SPRINGS. J. Kauffman, Miamisburg, Ohio. [Filed May 6, 1876.]



The herein-described coupling for the side and end springs of vehicles, composed of the bearing-bolt F, constructed as described, and arranged in the countersunk orifice in the spring G, the rubber disk *f*, and nut h, substantially as and for the purpose specified.

178,935. REMEDIES FOR HOG-CHOLERA. C. B. Lake, Indianola, Iowa. [Filed May 3, 1876.]

A medicine for the cure of hog-cholera, composed of capsicum, muriate of ammonia, water, tincture muriate of iron, in or about the proportions specified.

178,936. BRIDLE-BITS. Josiah Letchworth, Buffalo, N. Y. [Filed May 9, 1876.]



A bridle-bit having the mouth-piece D attached to the headstall by the rings *d*, and provided with independent loose loops E E, to which the reins are connected, so that the pull of the reins is applied directly to the solid portions of the mouth-piece between its end supports, substantially as and for the purpose hereinbefore set forth.

178,937. MACHINES FOR PUNCTURING PAPER. Alexander N. Lewis, Brooklyn, N. Y. [Filed Apr. 22, 1876.]

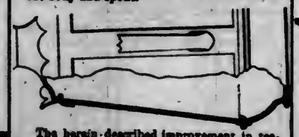


1. The combination, with a puncturing-rod, H, of the adjustable cylinder D, whereby varying thicknesses of material may be perforated, all substantially as shown and described.

2. In combination, the puncturing-rod H, supported substantially as shown, spring L, adjustable cylinder D, knife N, and slotted base P, all substantially as and for the purpose set forth.

178,938. TEA AND COFFEE POTS. Edward B. Manning, New Haven, Conn. [Filed May 6, 1876.]

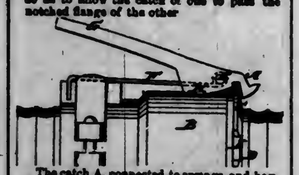
Brief.—The body is encircled at top and bottom with hoops or bands with vertical connections, to which are attached handle and spout. A packed connection is made between the body and spout.



The herein-described improvement in teapots, consisting of the body with annular bands and vertical connections, combined with handle and spout, or handles, as the case may be, substantially as set forth.

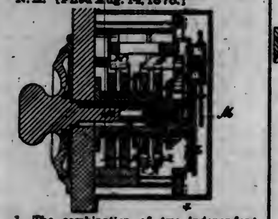
178,939. HOSE-COUPLINGS. O. L. Martin, Portland, Me. [Filed Apr. 26, 1876.]

Brief.—The locking device shown obviates the disadvantages of twisting the sections, so as to allow the catch of one to pass the notched flange of the other



The catch A, connected to springs, and having a lever, G, and a rocker-fulcrum, H, in combination with the sections B D of a hose-coupling, substantially as specified

178,940. COMBINED TIME AND COMBINATION LOCKS. Franklin McDuffee, Rochester, N. H. [Filed Aug. 14, 1876.]



1. The combination of two independent latches with two divisions of a set of tumblers arranged on the same spindle, substantially as specified.

2. The combination of the revolving disk B with two divisions of a set of tumblers on the same shaft, substantially as specified.

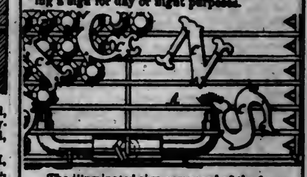
3. The combination of tumblers D and a latch, H, with a chronometer-movement, hook M, latch G, and tumblers C, of a lock, substantially as specified.

4. The combination of the two divisions of tumblers C D, latches G H, hook M, and the arm L of the bolt, substantially as specified.

5. In a lock having two divisions of tumblers and latches, one of said divisions having holes B for a setting-key in combination with a holding-plate, S, for the key, substantially as specified.

178,941. ILLUMINATED SIGNS. F. McLoughlin, New York, N. Y. [Filed Nov. 18, 1875.]

Brief.—Ready-formed letters attached to a background of glass crystals or prisms, forming a sign for day or night purposes.



The illuminated sign composed of the frame A, of the crystals B B, which constitute the background, and of the ready-formed letter or letters C, placed against said background, substantially as specified.

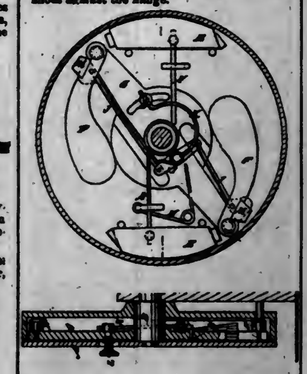
178,942. SOLE-PROTECTORS FOR BOOTS AND SHOES. Stephen Y. McNair, Brooklyn, N. Y. [Filed Nov. 29, 1875.]



The removable sole-protector, made of the rims *a b*, connected by the bars *c* and bent to conform to the sole, and provided with means for holding the protector in place, or allowing of its removal, substantially as specified

178,943. SPEED-REGULATORS. N. U. Metz, Worthsville, Pa. [Filed Feb. 28, 1876.]

Brief.—A disk on a shaft passing through the center of a fixed disk, having a flange around it, has connected to it by a spring a bar centrally pivoted on the shaft. The bar has at each end a pivoted weight, which, in proportion to the increasing velocity of the shaft, gives by rods increasing pressure to shoes against the flange.

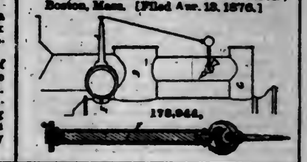


1. In speed regulators, the bar G, having the pivoted weights at each end, connected with the revolving disk A by a spring, H, and placed loosely on shaft, as and for the purpose specified.

2. The spring K, adjusting-rod L, rock-lever J, and rods J, in combination with the centrifugal levers F and bar G, substantially as specified.

3. The combination of brakes E and rods N with the bar G, centrifugal levers F, stationary disk D C, and the revolving disk A, substantially as specified.

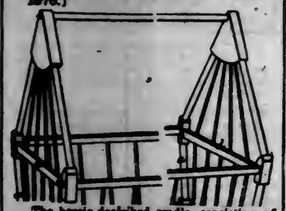
178,944. DAMPER-REGULATORS FOR FURNACES AND STOVES. Alvin C. Norcross, Boston, Mass. [Filed Nov. 18, 1876.]



178,944.

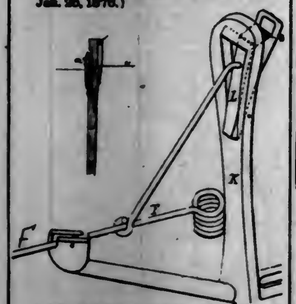
in combination with a stove or furnace and an automatic heat-regulator, F, applied thereto, a pipe or conduit, G, leading out of the ash-chamber or space under the grate and communicating with the smoke-discharge pipe or flue D of the said stove or furnace, and provided with a damper, H, and mechanism applied thereto, or connecting such and the heat-regulator, to cause or enable the valve or damper to be automatically moved or operated by such heat-regulator, under variations of temperature, all being substantially as set forth.

178,945. CHILDREN'S CARRIAGE. Henry Ogden, North Indianapolis, Ind. [Filed May 18, 1876.]



The herein-described cradle, consisting of the Gothic end pieces and top braces, side rails, and bottom bars, constructed, fitted together, and arranged as shown and set forth.

178,946. STOP-MOTIONS FOR COTTON-SPINNING MACHINERY. Timothy O'Donnell and Edward K. Walker, Exeter, N. H. [Filed Jan. 20, 1876.]

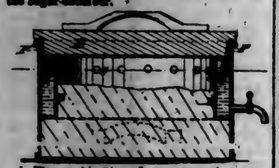


1. The combination, with lever F and slotted post K, of the latch L, pivoted to the slotted post and connected with the lever, for operation in connection with the fliers and draft-rolls of cotton-spinning machinery, substantially as herein shown and set forth.

2. As a means of griping and arresting the roving c, the latch L operating in connection with the upper boundary of the slot a^5, substantially as and for the purpose stated.

178,947. SUGAR-HAPER. Lewis C. Parker, Robinson, Kans. [Filed Apr. 18, 1876.]

Brief.—Vapor from the water passes into the sugar-chamber.



1. The combination of an evaporating pan or chamber, B, with a can, A, substantially as specified.

2. The combination of a cover having flexible packings F and an evaporating-pan, B, with a can, A, substantially as specified.

178,948. ROAD-SCRAPERS. William Patterson, Salem, N. J. [Filed May 19, 1876.]

1. The reversible plate A, having one of its long edges provided with a series of pointed projecting teeth, H H, and its opposite edge left plain and straight to the shearing-point h^1, substantially as described, for the respective purposes specified.

2. The combination, with the rear or convex side of the reversible scraper-plate A, of the adjustable reversible hand-lever h^1, substantially as and for the purpose set forth.

3. In combination with the rear side of a reversible scraper-plate of a road or earth scraper, the double or two pairs of the journals f f and d d, for the purposes specified.



178,949.

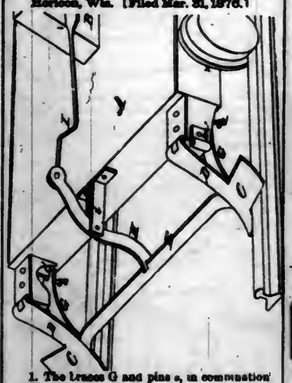
178,949. RATTAN VENEERS. S. H. Pomley, Brooklyn, N. Y. [Filed Feb. 24, 1876.]

Brief.—Rattan pith or reed is attached by adhesive material to a fibrous or textile backing.



The new article of manufacture herein described, consisting of rattan reeds or pith secured together by adhesive material to a backing of textile or fibrous material.

178,950. TRACK-CLEARERS. Miles Finch, Horicon, Wis. [Filed Mar. 31, 1876.]



1. The braces G and pins e, in combination with the plows C, substantially as described and shown.

2. The combination, with the truck or headcar A, having the box or frame B, provided with the retaining-bracket n, of the perforated arm I, pin i, lever H, bracket i, transverse bar E, hinged adjustable plows C, notched braces G, and pins e, substantially as shown and described.

178,951. WRITING-PENS. Louisa A. Pratt, Washington, D. C., administratrix of H. D. J. Pratt, deceased. [Filed Apr. 5, 1876.]



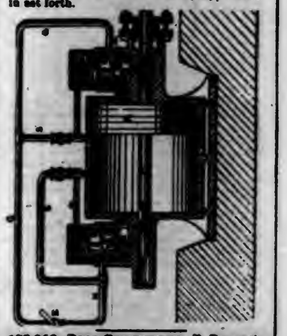
As a new article of manufacture, a pen, the tips varying somewhat in length and width, turned to the right or left, according to the necessity of the writer, constructed and operated substantially as described.

178,952. PNEUMATIC SWITCH-LOCKS, &c. Wm. B. Prall, Washington, D. C., assignor to the Prall Railway Signal and Telegraph Company, New York city. [Filed Apr. 17, 1876.]

Brief.—Compressed air is admitted to either end of the cylinder through a stop-cock at the intersection of the branch pipes. The locking-piston is raised out of the recess in the piston-rod. The air is admitted through a valve into the main cylinder, and the piston is forced to the opposite end, when the locking piston or rod fit that end and drops into its recess in the piston-rod and locks it.

1. Pipes G and H, conducting air to opposite ends of a pneumatic piston, combined with intersecting branch pipes S S^1, fitted with check-valves and controlled by the piston, so as to allow a flow of air from the one pipe, G or H, to the other when the piston has completed its stroke, but not otherwise, substantially as and for the purpose herein set forth.

2. A locking-latch, M, engaging and locking the rod of a pneumatic piston, A, and operated by a plunger, K, arranged to be lifted by an admission of air from the air-main, and to open thereby a passage for the air into the piston-cylinder, and combined, also, with a branch pipe, W, admitting a return of air from the piston-cylinder to the upper side of the plunger, to equalize the pressure thereon as soon as the piston has moved, all substantially in the manner and for the purpose herein set forth.



178,953. DECOY-CHANTICLEERS. R. Prescott, Keystone, Ohio. [Filed Apr. 20, 1876.]

The combination, with stationary gas pipe A, interior top-closed and bottom-open tube B, and the pipe G of the slide-rod C, coil tube E, and the spiral spring D inclosed by said tube, all arranged substantially as and for the purpose specified.



178,953.



178,954.

178,954. WIRE-FENCE-BARB TOOLS. H. W. Priddis, Port Dodge, Iowa. [Filed May 16, 1876.]

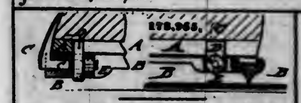
Brief.—The barb-wire is laid across the fence-wire, one end being held by pinchers. The hook of the tool is placed over the free end of the barb, the fence-wire resting in its notch. The tool is then revolved about the fence-wire, when the barb is securely fastened thereto.

The tool A, for forming barbs upon fence-wires, having its lower end bent over the one side to form a hook, a^1, and having a slot or notch, a^2, formed in its edge, close to its lower end, to adapt it for use, substantially as herein shown and described.

178,955. HORSESHOES. Charles D. Battray and Alexander Robertson, New York. N. Y. [Filed May 22, 1876.]

Brief.—The toe bears against binding-pieces, which abut against the heads of both the upper and the lower shoe.

As an improved attachment or toe-shoe for horses, the combination, with the shoe A, of a detachable toe-shoe, B, fitting over the calks of the former, and being attached by screwed outer heel and shoe-binding pieces C, inner retaining-pieces D, and fastening screw-nuts E, substantially in the manner set forth.



178,956.

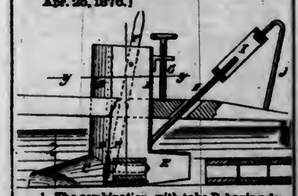
178,956. CUTTLE-FISH HOLDERS. Charles H. Reade, New Haven, Conn. [Filed Mar. 27, 1876.]

Brief.—The cuttle-fish is placed so that its edges rest in the loops, and is held in place by the spring branches.



The herein-described cuttle-fish holder, consisting of the securing hook or loop a, the side loops d, the bottom loops c, the said loops forming a grasping device to receive and hold the fish, all substantially as described.

178,957. TILE-LAYING MOLE-PLOWS. S. H. Reynolds, Hillsborough, Ind. [Filed Apr. 26, 1876.]



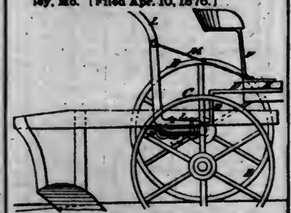
1. The combination, with tube B, having delivery-tube B, of the lever F, bent laterally at its lower end, and pivoted between the side and partition of said tube B, as shown and described.

2. The combination, with the tube B B, of the vertical screw G and inclined screw H, nut I, and standard J, whereby the tube may be adjusted vertically and also at an angle to the beam, to regulate the depth of furrow and pitch of the tube, as shown and described.



178,958.

178,958. SULKY-PLOWS AND CULTIVATORS. Eli W. Russell and John N. Russell, Ashley, Mo. [Filed Apr. 10, 1876.]

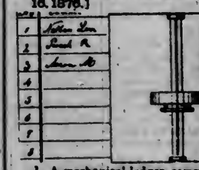


1. The combination of the axle A, bent six times at right angles, (twice at one end and four times at the other,) the wheels B C, the eye-bars D, and the board E, with each other, to form the frame-work of the machine, substantially as herein shown and described.

2. The combination, with the axle and the plow-beam, of the casting or bearing K, provided with a hook-shaped flange, k', and the adjustable collar or clamp N, as shown and described.

3. The combination of the lever L and chain M with the bent axle A, the bars D, and the board E, substantially as herein shown and described.

178,959. MECHANICAL LEDGERS. Otto Sallback, Pittsburg, Pa., assignor to himself and Chas. Rube, same place. [Filed May 16, 1876.]



1. A mechanical ledger, composed of an adjustable friction-wheel and spindle, in connection with a series of endless revolving account-strips, substantially in the manner and for the purpose described.

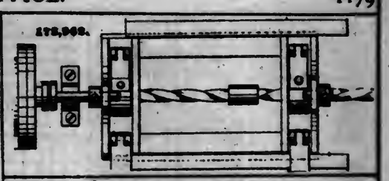
2. The combination of the spindle of the friction-wheel, turning in sliding bearings, with keys, having lugs to engage spindle and set or release friction-wheel from contact with account-strips, substantially as described and specified.

178,960. MECHANICAL MOVEMENTS. Chas. Sandermann, Elizabethport, N. J. [Filed May 22, 1876.]

Brief.—A nut at each end of a reciprocating frame operates to rotate a shaft with a spiral thread running reversely from its center. One of a pair of hinged stops allows each nut to rotate in one direction only, the other giving reverse action.

1. A mechanical movement for changing reciprocating rectilinear into continuous rotary motion, consisting of a guided reciprocating carriage having hinged stop-plates at both sides and cross-pieces, in combination with traversing cam-rollers and shaft-sections, being spirally twisted or grooved in opposite direction, substantially in the manner and for the purpose specified.

2. The combination of the hinged stop-plates at both sides of the reciprocating carriage with the traversing cam-rollers and spirally twisted shaft to produce by the alternate contact of stop-plates at one side of the shaft, or of those at the other side, the reversing of the shaft, substantially as specified.



178,960.

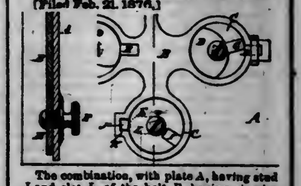
178,962. CUP-HOLDERS. Joseph Scherer, Buffalo, N. Y. [Filed Apr. 20, 1876.]



1. As a new article of manufacture, a cup-holder, consisting of a handle, G, band B, and a series of clamps, C, constructed to operate substantially as described, for the use and purpose stated.

2. The combination, with the band B, of the clamps C, as described.

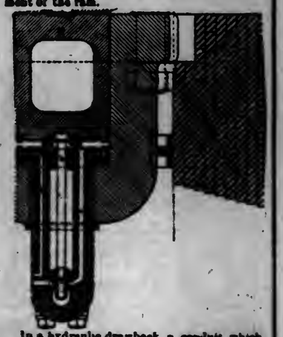
178,964. COMBINATION-LOCKS. Thomas McC. Seaton, Paterson, Essex, assignor to himself and John Adams, same place. [Filed Feb. 21, 1876.]



The combination, with plate A, having stud J and slot L, of the bolt B, having circular openings C and notches H and K, the knob-spindle F, having tumblers D D E working in said openings, the tumblers D being provided with projections G, and the tumbler E with notch I, all constructed and arranged substantially as and for the purpose specified.

178,965. HYDRAULIC DRAW-BACKS. Coleman Sellers, Philadelphia, Pa., assignor to William Sellers, same place. [Filed Dec. 7, 1875.]

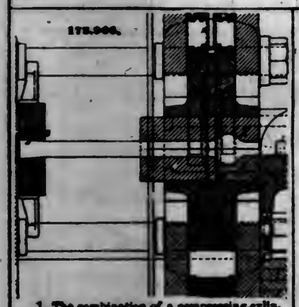
Brief.—Arrangement of conduits by which equal pressure on both sides of the draw-back piston is exerted during the forward movement of the ram.



In a hydraulic draw-back, a conduit which connects the inner end of the main cylinder with the outer end of the draw-back-cylinder, in combination with a conduit which connects the inner end of the draw-back-cylinder with the accumulator or pump, substantially as and for the purpose set forth.

178,966. MACHINES FOR WELDING, UPSETTING, AND SHAPING IRON. George H. Sellers, Wilmington, Del., assignor to Wm. Sellers and John Sellers, Jr., Philadelphia, Pa. [Filed Dec. 7, 1874.]

178,966.



1. The combination of a compressing-cylinder with a compressing-die and an upsetting-ram, substantially as and for the purposes set forth.

2. The combination of a compressing-cylinder, a compressing-die, an upsetting-ram, and a locking cheek-valve, substantially as and for the purposes set forth.

3. The combination of a compressing-cylinder, a compressing-die, an upsetting-ram, a balanced induction-valve, and a balanced edaction-valve, substantially as and for the purposes set forth.

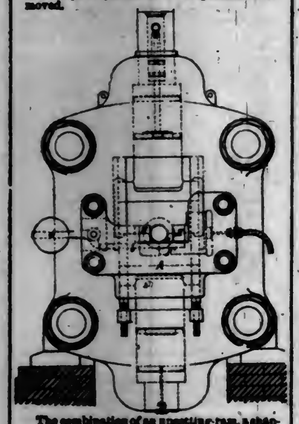
4. The combination of a compressing-cylinder, a compressing-die, an upsetting-ram, a balanced induction-valve, a balanced edaction-valve, and a drawback, substantially as described.

5. The combination of a compressing-cylinder, a compressing-die, an upsetting ram, a locking cheek-valve, a balanced induction-valve, and a balanced edaction-valve, substantially as and for the purposes set forth.

6. The combination of the compressing-cylinder, the compressing-die, the keys m m, and wedge-bars n n to limit the vertical movement of the lower compressing-die, and facilitate the removal of the compressing-die, substantially as described.

178,967. HYDRAULIC APPARATUS FOR HOLDING BARS OF IRON AGAINST THE PRESSURE EMPLOYED TO UPSET THEM. Wm. Sellers, Philadelphia, Pa. [Filed Dec. 7, 1874.]

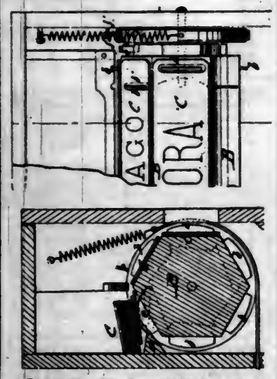
Brief.—The holder, when not operated by hydraulic pressure, is adjusted as line with the die for working on the metal, serving as a guide thereto. The piston of the clamp is provided with an extended portion, which penetrates the bed, and against the end of which the toe of the weighted lever rests, for replacing the piston when the pressure is removed.



The combination of an upsetting-ram, a stapling-die, a holder, and a hydraulic clamp, the combination being and operating substantially as described.

178,968. STATION-INDICATORS. Charles M. Stanton, Aurora, Ill., assignor to himself and Orlando O. Wormwood, same place. [Filed Mar. 26, 1876.]

Brief.—The indicating-boards are provided with a transverse slot at each end, and arranged independent of each other, oscillating upon a shelf or bracket, from which they are fed off by the lugged roll to the inspection-window, and from thence precipitated and deposited to the bottom of the case. A guard-bar elevated above the roll, and in front of the bracket, insures the regular feeding of but one board at a time.



The combination, in a station-indicator, of the polygonal roller B, having lugs *b*, arranged as shown, with the independent name-plates C, having slots *b'*, all constructed and relatively arranged as herein shown, to operate in the manner set forth.

178,969. TURBINE WATER-WHEELS. Isaac Sherck, Bellevue, Ohio, assignor to himself, Isaac Kern, Edward Kern, and W. H. Kern, same place. [Filed Apr. 20, 1876.]

Brief.—The chutes are closed at top and bottom, and extend in rear of the ports or passage-ways through the casing, whereby a current tangential to the periphery of the wheel is formed without the casing of the wheel; also, certain details of construction of buckets and gate.

1. The chutes of a turbine water-wheel, constructed with close top and bottom, and extended in rear of the ports or passage-ways through the wheel-casing, substantially as and for the purpose described.

2. The chutes of a turbine water-wheel, constructed with close top and bottom, and the bottom formed on an angle toward the crown of the wheel, substantially as and for the purpose specified.

3. The chutes of a turbine water-wheel, constructed with close top and bottom, and attached to the casing in a vertically-adjustable manner, substantially as and for the purpose set forth.

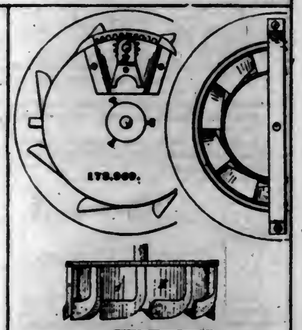
4. The combination, with the wheel and the casing, of an interposed cylindrical gate, having closable formed in its inner and outer surfaces adjacent to the ports or passage-ways, whereby the current may flow in line with the periphery of the wheel, substantially as and for the purpose specified.

5. The combination, with the cylindrical gate, of a segmental rack having its bearing on the periphery of the casing, and a pinion secured to a shaft located on top of the wheel-casing, substantially as and for the purpose specified.

6. The combination, with the crown and head of the wheel, of buckets formed with a blade arranged tangential to the periphery of the wheel, and the outer or side of the bucket facing outwardly from said blade, substantially as and for the purpose set forth.

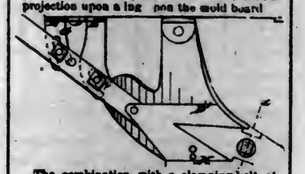
7. The buckets concurred of a vertical portion extending about one-third the depth of the band, and then curved inwardly to the lower edge of the band, the curved portion gradually increasing in width from the throat of the bucket to its discharge-opening, substantially as and for the purpose set forth.

8. The combination, with the band provided with openings, of the buckets attached to the band, substantially as described, whereby a passage-way is formed in rear of the buckets through the band to the center of the wheel, substantially as and for the purpose set forth.



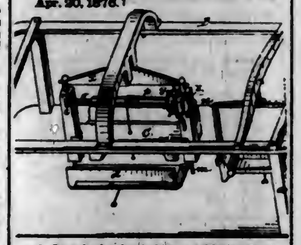
178,970. PLOWS. Joseph Shickel, Bridgewater, Va. [Filed Mar. 26, 1876.]

Brief.—The plow-point is adjustable to four positions, and is held in its seat by a staple bolt, has a countersink on each side to receive the bolt-head, and at the same time a projection upon a lug upon the mold board.



The combination, with a clamping-bolt, of the plow-point, having countersinks on both sides, and the mold-board having corresponding projections to fit said countersinks, substantially as and for the purpose specified.

178,971. SWINGING BERTHS FOR VESSELS. Henry C. Smith, New Haven, Conn. [Filed Apr. 20, 1876.]



1. In a device for holding oscillating furniture, the sleeve *p*, provided with the wheel *y*, ratchet *x*, pawl attached to the post *s*, also provided with a line attached, extending through the table O and platform *d*, where it branches to stepson in the floor, turning on the spindle *o*, substantially as described.

2. In a device for holding oscillating furniture, the spindle *o*, having the crank *n*, also having lines attached, extending through the hollow posts *s s* to the pins *m m*, substantially as and for the purpose described.

178,972. LIQUID-FILTERS. Robert Stewart, Brooklyn, N. Y. [Filed May 16, 1876.]

Brief.—The flexible diaphragm carries the valve mechanism, which regulates the flow of the liquid according to the pressure. The double diaphragm below serves to pack the filtering material, and its action depends upon the upper one, varying as the pressure.

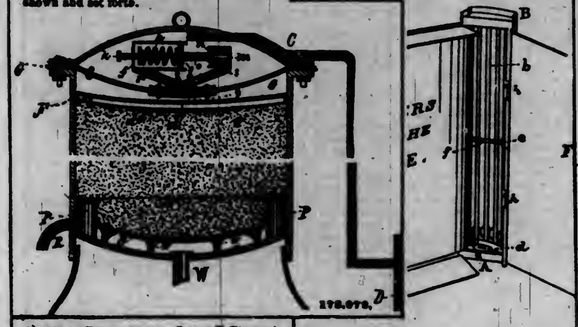
1. In an apparatus arranged for filtering liquids under pressure, the combination of the following elements: an air-tight and hermetically-sealed vessel, containing suitable filtering material; a suitable forcing apparatus; an induction-pipe for introducing the liquid, and adjustable foraminated diaphragm; a fixed flexible diaphragm, carrying an automatic spring-valve, operating by pressure of the liquid; and an edaction-pipe for the exit of the liquid, the whole arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

2. In a filtering apparatus arranged to operate under pressure, the combination of the following elements: an air-tight or hermetically-sealed vessel, containing filtering material; a suitable forcing apparatus; an induction-pipe for introducing the liquid; a flexible diaphragm, carrying an automatic spring-valve, operating by pressure of the liquid; a double adjustable diaphragm; a foraminated base diaphragm; and an edaction-pipe, through which the liquid exits, the whole arranged and operating substantially as herein shown and set forth.

3. The combination of the following elements: a filtering-vessel, A, hermetically sealed, containing filtering material V, forcing apparatus D, induction-pipe C, flexible diaphragm G, perforated base diaphragm S, adjustable diaphragm F, chamber P, with foraminated top, discharge-pipe R, and edaction-pipe W, the whole arranged and operating as and for the purposes herein shown and set forth.

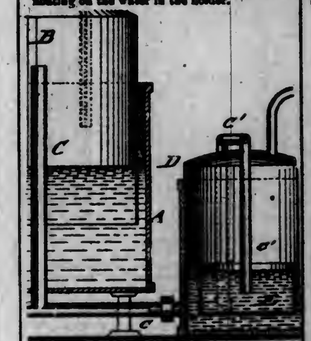
4. In a filter arranged to operate under pressure, in combination with an air-tight vessel containing filtering material, and provided with the usual induction and edaction pipes, receivers and distributers, deflectors and diaphragms, and a forcing apparatus, the chamber F, having foraminated top, arranged and operating substantially as and for the purposes herein shown and set forth.

5. In a filter arranged to operate under pressure, in combination with an air-tight or hermetically-sealed vessel, containing filtering material, and provided with suitable induction and edaction pipes, the double adjustable diaphragm F, flexible diaphragm G, provided with cylinder *f*, pressure-gage *g*, valve *o*, pipe *m*, pipes *r* and *s*, and tube *t*, the whole arranged and operating as and for the purposes as herein shown and set forth.



178,973. GARDENERS. James T. Stewart, Los Angeles, Cal., assignor to himself and James Wilson, same place. [Filed Feb. 21, 1876.]

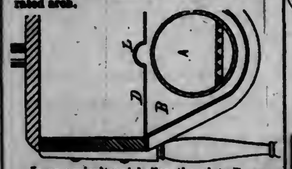
Brief.—Air is blown, by the rising and falling blower, through a pipe into a pan of oil floating on the water in the holder.



The combination of bottom-open air-drum B, movable up and down in the water of chamber A, and a gasoline-pan, E, floating in liquid and under the gas of reservoir D, the said drum and pan being connected by piping O O', substantially as and for the purpose specified.

178,974. AGRICULTURAL BOILERS. William K. Stevens, Mansfield, Ohio, assignor of part of his right to Henry B. Niman, Calvin Doty, John B. Niman, and James A. Niman, same place. [Filed Feb. 16, 1876.]

Brief.—The boiler-plate supports a wooden box. Steam is admitted through the perforated arch.



In an agricultural boiler, the plate D, covering the area of the device, and provided with the perforated arch I, in combination with the water tank or chamber B, having the furnace A extending throughout its entire length and suspended in the tank, substantially as set forth.

178,975. TEMPORARY BINDERS FOR PAPERS. Elizabeth W. Stiles, Philadelphia, Pa. [Filed Oct. 30, 1875.]

Brief.—The rods beneath which the papers are passed and held in position are hinged to one end of the back piece on its concave or inner side, and detachably held in place at the other end of said back piece by a hinged clamp operated by a key. The covers are detachable from the back piece by means of slip-hinges.

1. In combination with the rods *b*, pivoted or hinged at one end, in a paper-file case, A, the adjustable end C, constructed to hold in place the other ends of the rods, substantially as described.

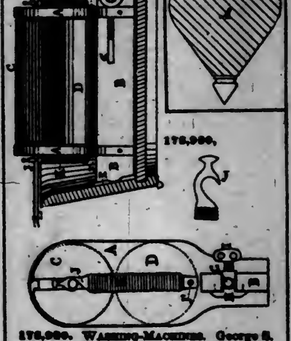
2. In combination with a paper-file case, A, the removable lids E F, attached to the case by means of slip-hinges, substantially as described.

3. In combination with the case A, having a recess, *d'*, and rods *b*, pivoted in the case at the end B, the hinged end C, having flange *d* and locking-bolt *e'*, substantially as and for the purposes described.

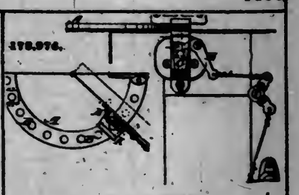
178,976. DOOR-CHECKS. James H. Swift, Evansville, Ind. [Filed Apr. 18, 1876.]

Brief.—A curved bar, pierced with a series of bolt-holes, is attached to the frame above the door in such manner as to pass through a suitable slot in a bolt-case secured near the top of the door. A spring-bolt working within the case is connected, by wires and crank-lever attachments, to the knob or handle of the door, the turning of which serves to operate the device holding the door in desired position.

In door-checks, the curved or arc bar A, attached to door-frame, having a series of bolt-holes, B, at intervals, and passing through a slot, K, of bolt-case D, as shown and described.



178,977. DEVICES FOR HEATING AIR FOR FURNACES. Charles Thonger, Courtright, Canada. [Filed May 9, 1876.]



The multitubular smoke-pipe G, return-tubes D, and casings H, I, E, K, and L, combined with a boiler, substantially as herein shown and described.

178,978. LAND-SKIMMERS FOR PLOWS. Geo. Thomson and John Thomson, Woodstock, Canada, assignors of one-third their right to John B. Thacher, same place. [Filed Apr. 4, 1876.]

Brief.—A "jointer" or "skimmer" and a weed-turner adjustable on the colter.



The combination, substantially as specified, of the colter, the land-skimmer, and the antichoker *g*.

178,979. SPINNING-TOPS. Chas. F. Vester, New York, N. Y., assignor of one-half his right to Anton Bamsperger, same place. [Filed May 24, 1876.]

As a new article of manufacture, a spinning-top, A, having a glass plate, C, attached to its head, substantially in the manner and for the purpose described.

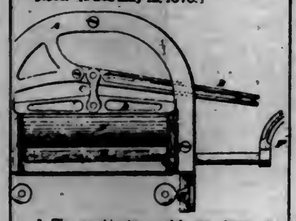
178,980. WASHING-MACHINES. George S. Walker, Erie, Pa. [Filed Feb. 19, 1876.]

1. In combination with a vertical head-board of a washing-machine, the adjustable rod G, clamping device H, and thumb-screw I, the whole constructed and arranged to operate substantially as described.

2. The screw-plugs J J', made to fit the bore of the spring K, and provided with a thread or grain, as and for the purposes described, in combination with said spring K, as specified.

3. The combination of the vertical bed piece B with adjustable attaching apparatus G H, upright A, rollers C and D, shaft L, and springs K K, provided with screw-plugs J and J', said parts being arranged and operating together substantially as and for the purposes mentioned.

178,981. WRINGERS. George S. Walker, Erie, Pa., assignor to F. P. Adams, same place. [Filed May 12, 1876.]



1. The combination, with the frame A, made in two sections, as shown, of the lever B, link C, and yoke D, substantially as and for the purpose shown.

2. The combination, with the frame A, made in sections, as described, of the lever B, link C, yoke D, and elastic roller D', substantially as and for the purpose shown.

3. The combination of the frame, constructed as shown, lever B, link C, yoke D, rollers D' and E, and handle F, substantially as and for the purpose shown.

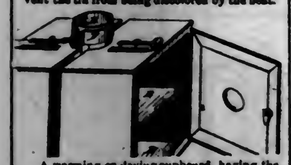
178,982. PAVING-BLOCKS. S. J. Whiting, Philadelphia, Pa. [Filed Dec. 6, 1875.]

Brief.—The blocks are composed of eighty-five per cent. of granulated granite, two and a half per cent. of sand, two and a half per cent. of rosin-oil, or the residuum of petroleum, two and a half per cent. of rosin, and eight per cent. of crude bitumen. The granite and sand are heated to expel the moisture. The bitumen and rosin are then added in a pulverized state, and while being mixed the oil is gradually poured in. The mass is then run into molds, the inner surface of which has been whitewashed to prevent adhesion.

Roadway-blocks formed of compressed masses of granulated granite, sharp sand, oil, black rosin, and natural bitumen, combined as herein set forth, and for the purpose specified.

178,983. DOMESTIC OVENS. S. P. Whitcomb, Hornellsville, N. Y. [Filed May 13, 1876.]

Brief.—The flanges are riveted to the oven, and interpose between it and the pipe, and prevent the tin from being discolored by the heat.



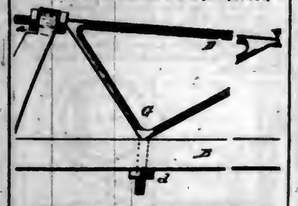
A warming or drying cupboard, having the ventilator C, shelves E, and clamps or collars F, in combination with projecting flanges, whereby it may be closely and securely attached to the pipe of a stove, all arranged substantially as described, and for the purpose specified.

178,984. GAS-BURNERS. Victor Zeis, New York, N. Y. [Filed Jan. 7, 1876.]



The bell-mouthed tube E, extending below the perforations in burner-tube C, and the mouth of gas-supply tube B of bobbin A, all combined as shown and described, to operate as and for the purpose specified.

178,985. SAW-FRAMES. Elias C. Atkins, Indianapolis, Ind. [Filed July 24, 1876.]



The combination of the triangular frame D G, provided with a screw-tenon at each point of the angle, with the end pieces A A, cross-bar B, and nuts a a d, all constructed to operate as shown and described, and for the purpose set forth.

178,986. CAR-COUPLINGS. Jos. W. Bates and Jos. W. Bates, Jr., Minneapolis, Minn., and Rudolph Borgwardt and Charles O. Borgwardt, Philadelphia, Pa. [Filed Dec. 28, 1875.]

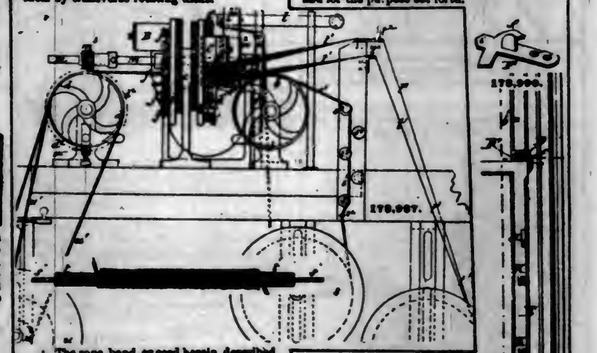


1. The combination of the draw-head A, provided with the interior rounded jaws a a, and the coupling-bar D, provided with the spear-shaped heads b, having concave shoulders s, substantially as and for the purpose herein set forth.

2. The L-shaped tripper G, hinged within the draw-head, and having an arm which extends through an opening in the side of the draw-bar, and operating in combination with the coupling-bar D, constructed as described, all substantially as and for the purposes herein set forth.

178,987. MANUFACTURE OF BANDS, CORDS, AND ROPES. Leadham Binns, Oakenshaw, near Bradford, England. [Filed Feb. 8, 1876.]

Brief.—The cord consists of a central core, a number of parallel strands, and binding strands wound round all in opposite directions. The core and parallel strands are unwound from bobbins over tension devices, and through a central guide, which lays them in their required relative positions, the binding-strands being carried, guided, and wound about them by transverse rotating disks.



1. The rope, band, or cord herein described, consisting of a core, *c'*, colored strands *f*, and two or more binding threads or cords of any desired color or material wound thereon in contrary directions, as and for the purpose set forth.

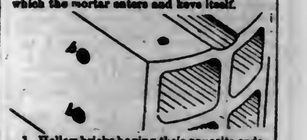
2. The combination of the guide-wheels *b d*, bobbins or reels *e i n*, guides *f' f' f' f' f'*, wheels *f h*, bobbins or reels B C, guides *f' h'*, tension-hooks *f' h'*, and guides *f' h'*, all working together substantially in the manner and for the purpose described.

3. The guide-wheel *d*, in combination with guides *v*, the band *w'*, pulley *w'*, and bobbin or beam *u*, arranged and operating in manner substantially as and for the purposes set forth.

4. The combination, with bobbins *e i*, tension-knobs *s'*, guides *f'*, and guide-plate *s'*, of the receiving-bobbin *u*, having pulley *w'*, band *w'*, pulley *d*, and guides *v*, substantially as and for the purpose set forth.

178,988. HOLLOW PARTITION-BRICKS. Jules Borie, Oakland, Cal. [Filed May 9, 1876.]

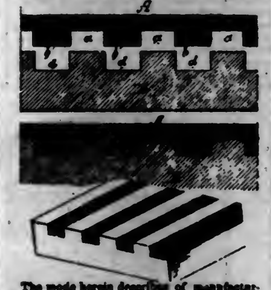
Brief.—Hollow bricks provided with concave and convex ends to interlock each other. Perforations are arranged in the sides, into which the mortar enters and keys itself.



1. Hollow bricks having their opposite ends constructed to interlock, substantially as and for the purposes described.

2. Hollow bricks provided with perforations *b b b*, substantially as and for the purpose described.

178,989. PROCESSES OF MANUFACTURING MARQUETRY. William B. Brock, Philadelphia, Pa. [Filed Feb. 10, 1876.]



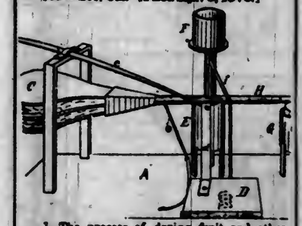
The mode herein described of manufacturing striped lumber or marquetry—that is to say, by uniting face to face, under pressure, two or more woods, A B, having corresponding tongues and grooves, and then severing each compound lumber at the points of junction, as and for the purpose set forth.

178,990. HAME-FASTENERS. Stephen Brown, Washington, D. C. [Filed Apr. 12, 1876.]

Brief.—The projecting end of the button passing through the parting-strip into and engaging with a series of notches in the upper rail, thus locking both rails by the single button, and facilitating ventilation.

The lock or button F, constructed with separate projections *f f*, which engage with separate exposed notches in the upper rail and in the parting-strip, respectively, when the said lock or button is fastened by a pivot-screw to the top of the lower rail, as specified.

178,991. PROCESSES AND APPARATUS FOR DRYING FRUIT, &c. William Brown, San Francisco, Cal. [Filed Apr. 6, 1876.]

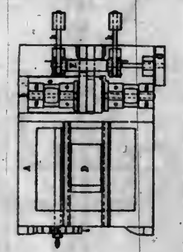


1. The process of drying fruit and other substances, consisting in conveying alcoholic vapors into a chamber containing the substance to be dried, in the manner substantially as described.

2. The apparatus herein described, consisting, essentially, of the drying-oven, furnaces E G, pipe H, coil *g*, bellows C, and reservoir F, as set forth and specified.

178,992. SHINGLE-MACHINES. Peter D. Dargher, Deep Creek, Va. [Filed Apr. 12, 1876.]

Brief.—The sappy and unsawn ends of shingles can be cut off and the shingles reduced to certain widths, governed by the widths of the shingles in a rough state, by means of two circular saws hung upon independent arbors—one mounted in a stationary, and the other in a laterally-adjustable, frame; a longitudinally-sliding table, upon which the shingles are presented to the saws; an upper and a lower feed-roller, for continuing the motion of the shingles toward or from the saws, the lower roller extending outside of the main frame, and having a pulley keyed to the end of such extended part; and suitable operating mechanism.



In a machine for edging shingles or lumber, a fixed and a laterally adjustable circular saw, mounted upon independent shafts, combined with a sliding table for bringing the shingle or lumber in contact with the saws, and rollers for continuing the motion of the shingle or lumber toward and from said saws, substantially as herein specified.

178,993. GRAIN-BINDERS. John E. Burton, Owatonna, Minn. [Filed Apr. 24, 1876.]

1. In combination with an inclined slotted platform, A, located under the delivery end of a harvester using aprons or belts to elevate the cut grain, and a reciprocating frame, E, having a wire-carrier, H', the reciprocating and revolving cut-off operating intermittently, substantially as and for the purposes described.

2. The combination of the twister-pinion, the rubber pulley, and the arm or knocker on the rotating shaft for operating the pinion intermittently, substantially as set forth.

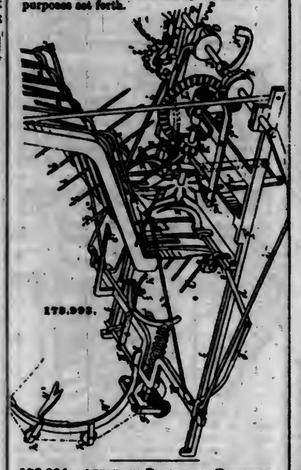
3. In combination with a griping device to hold the wire and nippers to cut it, the twisting-wheel K, constructed with indentations and serrations to receive the wire and hold it while it is twisted, substantially as set forth.

4. The twister-wheel K, provided with indentations and serrations, as described, and adapted to operate substantially as set forth.

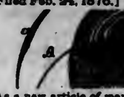
5. In combination with a reciprocating frame carrying a hook, *o'*, to engage with an arm, O', attached to a platform for receiving and supporting the grain while it is bound, the pivoted and balanced platform C, operated substantially as described.

6. In combination with a reciprocating frame and a wire-carrier, operated substantially as described, the nippers *p*, having hook *p'* upon one jaw, to receive the binding-wire and hold it, substantially in the manner and for the purpose set forth.

7. In combination with platform C, supported by springs *o'*, the vibrating bent arms D and spring-compressor D', operated by reciprocating frame E, substantially as and for the purpose set forth.

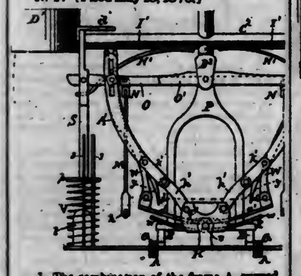


178,994. ABRASIVE PAPER FOR FINISHING THE HEELS AND EDGES OF BOOTS AND SHOES. John G. Bussell, Lynn, Mass. [Filed Feb. 24, 1876.]



As a new article of manufacture, a strip of flexible material coated upon its outer face with abrasive substance, and having said face made convex transversely and longitudinally, substantially as and for the purpose specified.

178,995. MECHANISMS FOR PROPELLING VEHICLES. H. W. F. Carstens, Breslau, N. Y. [Filed May 18, 1876.]



1. The combination of the frame A, curved springs D D, slotted as described, the side bars E E, platform H, guards G G, and rubber cushions *b b*, substantially as and for the purposes herein set forth.

2. The combination of the shafts *f f'*, pulleys J J', with belts *a a*, wrist-pins *i i'*, and connecting-bars *k* A, the wheel K, belt *k*, and pulley L on the hind axle B, substantially as and for the purposes herein set forth.

3. The combination, with the bars *k k*, of the bars M, links N, walking-beams O O', and a mechanism for rocking said beams, as and for the purposes set forth.

4. The combination of the walking-beam O', plunger-rod S, with disk *p*, rods *q*, and spring V, as and for the purposes herein set forth.

5. The combination of the rocking-shaft *v*, springs *w w'*, feet *b'*, slotted arm W, and pin *s'* on the pulley J, as and for the purposes herein set forth.

6. The combination of the plunger-rods S, with projecting pieces *d'* and the arms W connected to the feet *b'*, as and for the purposes herein set forth.

7. The combination of the shaft *v*, plate *f'*, with arms *h'*, links *k'*, slotted bars A', with spurs *m'*, and the arms *n* connecting the walking-beams O O', as and for the purposes herein set forth.

8. The combination of the tube C', mercury-reservoirs D', spring H', and the plunger-rods S, as and for the purposes herein set forth.

9. The mercury-reservoir C', pivoted to the arm E', projecting from the tube C', for the purposes herein set forth.

178,996. CREMET-METAL CANS. George R. Chinnock, Brooklyn, N. Y., assignor to Leonard Richardson, same place. [Filed Apr. 15, 1876.]

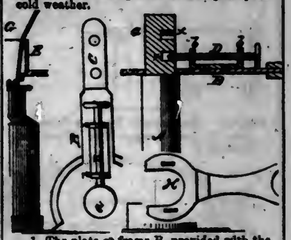
Brief.—Places the wire in a cut or swaged thin portion of the rim or top of the cover.



In combination with the ripping-wire, provided to the body A, the cover B, grooved or thinned in a line coincident with the position of the ripping-wire *f*, whereby the rupturing action of the ripping-wire in opening the can is greatly facilitated without in any wise practically affecting the strength of the cover by the strength of its connection between the cover and the body of the can, substantially as set forth.

178,997. FUNNEL-TONGS. Geo. B. Clarke, Leonardsville, N. Y. [Filed Apr. 15, 1876.]

Brief.—A device for holding funnels while pouring into a jug or other receptacle; and, also, in combining with such funnel a heating-iron, for the purpose of making viscid substances pass through the funnel quickly in cold weather.



1. The plate or frame B, provided with the handle C, sliding bolt D, and socket or jaw, E, in combination with the standard A, provided with perforated tenon *a*, substantially as and for the purposes herein set forth.

2. The heating-iron H, with handle I, in combination with the funnel-tongs herein described, for the purposes set forth.

178,998. PROCESSES FOR EXTRACTING ZINC FROM ITS ORES. Frank L. Clerc, Bethlehem, Pa. [Filed Mar. 29, 1876.]

Brief.—The zinc vapors and furnace-gases pass from the body of the furnace, beneath the arch of the surmounting dome, into the annular jacket-chamber, wherein the zinc condenses, and from which it is tapped. The gases continue to a washer and collector. By reason of the construction of the feeding-shaft and the manner of charging, a layer of carbonaceous fuel is always maintained by its natural rise above the body of the charge, whereby the escaping zinc vapors and carbonic-acid gas are thoroughly deoxidized just prior to their entry into the jacket-chamber.

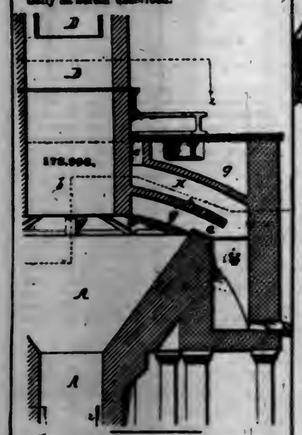
1. The mode or process herein described of extracting metallic zinc from its ores and oxide—that is to say, by injecting a blast of superheated air into and through a charge of calcined ore, fuel, and silex, causing the gases evolved to pass through heated charcoal or soft coke, and, finally, condensing the zinc vapor at a temperature above the melting-point of zinc, all substantially as set forth.

2. The herein-described process of preventing the oxidation of the distilling zinc vapors, and securing the consolidation of the carbonic-acid gas, which consists in charging the furnace in such manner that a hot layer of superposed carbonaceous fuel is always presented to the outgoing gases and vapors at the time of their exit from under the furnace-dome, substantially as herein described.

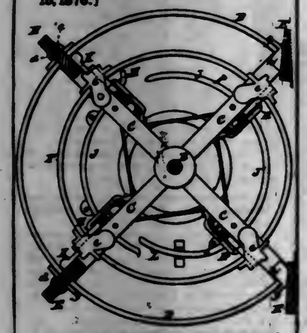
3. The combination of the inlet-pipe J, downtake I, and water-reservoir A, with the water-seal tank Z, having the inclined sides m, whereby the escaping zinc-dust is precipitated and readily collected, substantially as herein set forth.

4. A zinc-furnace in which are combined the following elements, namely, a hearth, A', a furnace proper, A, made in the form of an inverted frustum of a cone, the dome a, central feeder B, and passages and flues, all substantially as set forth.

5. The combination of the vertical feeding-shaft B and its hopper B', with the inner concentric shaft D, whereby the charge and fuel are distributed in the furnace in such manner as to present a hot superposed layer of fuel to the outgoing gases and vapors, substantially as herein described.



178,000. FEATHERED PADDLE-WHEELS. John H. Clow, Oconge, Wis. [Filed May 10, 1876.]

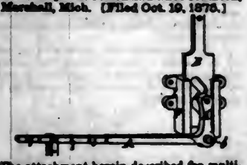


1. The paddles B, pivoted eccentrically to the main wheel, and having a catch, K, in combination with the central smaller wheel F, the locking-bolts H, levers G, and cams J J', as and for the purpose described.

2. The combination, with the paddles B, the radial arms C, and rims D, of the bearings d, having extensions g g fitting the rim, and projections i i bolted to the arms, substantially as and for the purpose described.

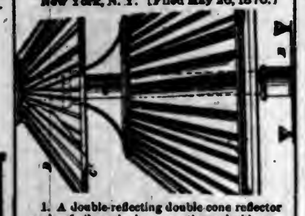
3. The combination, with the cams J J', of the pivoted cranks L and lever M, as and for the purpose described.

179,000. DEVICES FOR MULTIPLYING MOTION. Elijah L. Corbell and Giles Cranston, Marshall, Mich. [Filed Oct. 19, 1876.]



The attachment herein described for multiplying motion, consisting of a reciprocating slide, B, provided with a zigzag channel, f, and working in grooves or guides in the box F, in combination with a pivoted lever, A A', provided with a projection, d', fitting into the channel f, when constructed and arranged to operate in the manner substantially as and for the purpose specified.

179,001. REFLECTORS. Charles Cothren, New York, N. Y. [Filed May 26, 1876.]

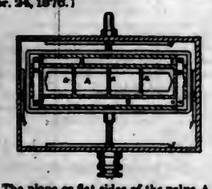


1. A double-reflecting double-cone reflector made of silvered glass, or other suitable material, substantially as herein set forth.

2. A cone-reflector made of a series of glass tubes corrugated on one or both sides, and forming both an outer and inner reflecting-surface, substantially as herein set forth.

3. In a double-cone reflector the upper reflector formed with a series of narrow open spaces or fissures, substantially as for the purposes herein set forth.

179,002. BALANCED SLIDE-VALVES. John J. De Lancey, Binghamton, N. Y. [Filed Apr. 24, 1876.]



1. The plane or flat sides of the valve A, to allow a ready removal from the steam-chest, in combination with the square packing-bar B, provided with central lug d working in slot c, and connected by lap-joint e, slot g, in the end of springs C, and safety-pins h, substantially as described.

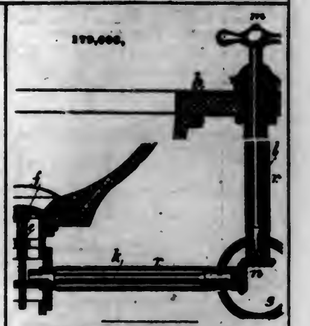
2. The face or balancing plate D, fitting closely in the steam-chest, with openings i in corners, lugs E, for supporting the plate in position, adjusting-bars F, having projection j, fitting into notches k in the face-plate, oil-recess in the face-plate, channels o p to oil-holes r, and set-screws l m, all constructed and arranged substantially as herein described, for the purpose set forth.

179,003. VALVES FOR RAMMS. John Doyle, Hoboken, N. J., and Stephen Bayles, New York, N. Y. [Filed Apr. 10, 1876.]

Brief.—The discharge-valve is operated by a bascule that connects from the slab at the side of the basin down to the valve at the center of the basin, where the plug is usually employed.

1. The combination, with the basin and the valve thereof in the bottom, of the crank-pin and connection from the same to a handle above the basin-slab, substantially as set forth.

2. The shafts h and l, united by the miter-gears and constructed in the bearings r s, in combination with the handle m, the crank-pin i, the valve f, and the basin a, substantially as set forth.

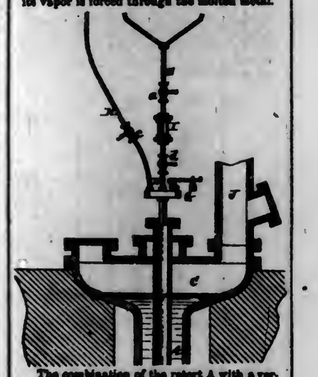


179,004. PAINT COMPOSITIONS. G. Dubois, Marseilles, France. [Filed Apr. 21, 1876.]

The composition in ships' paint of sulphocyanide of copper and phenic acid, substantially as and for the purpose specified.

179,005. APPARATUS FOR THE MANUFACTURE OF GAS. Armand Duchesne, Seraing, Belgium. [Filed Oct. 23, 1876.]

Brief.—A vertical tube extends from the top to near the bottom of the pot-retort, through a mass of molten metal, and is provided with openings near its lower end. The pipe connecting its upper end with the supply-reservoir has attached to it a safety-valve. Oil or its vapor is forced through the molten metal.



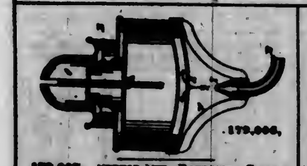
The combination of the retort A with a vertical tubular-shaped bottom for containing molten metal, and the vertical tube F, in which the hydrocarbon vapors are generated, communicating with a supply-tank, D, and extending downward to near the bottom of the retort, to distribute the vapors generated through the body of the molten metal, and insure thorough destructive distillation, substantially as described.

179,006. LAMPS. Cornelius Godfrey, Huntington, N. Y. [Filed Apr. 20, 1876.]

Brief.—The current of air from the nozzle carries a volume of the surrounding air into the base of the lamp.

1. In combination with a lamp having an opening in the lower part thereof, which connects with an interior air-passage leading to the flame, a nipple or nozzle of any suitable construction, through which air is forced under pressure, the said nozzle being located at some distance below the said opening, substantially as herein shown and described, for the purpose of drawing into the lamp a column or columns of air from the atmosphere surrounding the lamp, together with the jet of air emitted from the nozzle, as herein set forth.

2. In combination with a lamp having an air-passage which leads to the flame, and connects with an opening at the lower part of the lamp, the air-pipe B and a conical nozzle, I, the said nozzle being secured to the said pipe B, and placed at some distance below the said opening, substantially as herein shown and described, for the purposes set forth.



179,007. MINING MID-BOTTOMS. George H. Evans, Philadelphia, Pa., assignor of one-half his right to John Moffitt, Jr., same place. [Filed Oct. 20, 1876.]



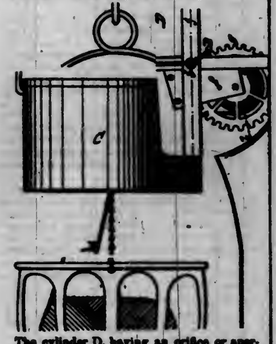
The combination of the series of spring-pins A, each entering a beveled opening, a, in a strip B, with the network of flexible strips f secured at the edges and to the top of each pin, all as set forth.

179,008. SHADE-CORD RETAINERS. Robert W. Fitzell, Philadelphia, Pa. [Filed Apr. 10, 1876.]



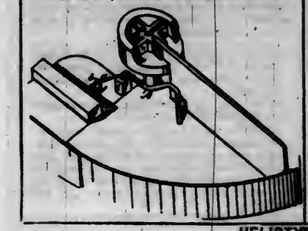
The combination of the pin b, attached to the window-frame, with the plate B, having a zigzag slot, a, formed by fingers m, each projecting into the recess between adjoining fingers on the opposite side of the slot, substantially as shown and described.

179,009. TWINE-HOLDERS. Geo. Gardner, Brooklyn, N. Y., and Jonathan Hill, Glen Gardner, N. J.; said Hill assignor to said Gardner. [Filed Apr. 15, 1876.]



The cylinder D, having an orifice or aperture, k, in combination with the cylinder C, having an orifice, l, and perforated guide-bar i j, a spring, h, and cord B, the latter passing through the orifices of the cylinder and bar, and around the cylinder D, substantially as and for the purpose set forth.

179,010. HARVESTER-RAKES. Jeptha Garrard, Cincinnati, Ohio, assignor to Excelsior Grain Binder Company, (limited,) New York, N. Y. [Filed Apr. 10, 1876.]



1. The combination of a smooth-surfaced raking device and a gavel-closer, moving with said raking device, substantially as shown.

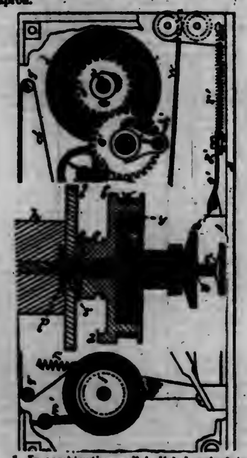
2. The combination of a sweep-raking device, a sector raking-platform, and a gavel-closer, A, substantially as shown.

3. The combination of a sweep-raking device, a sector-shaped raking-platform, a binder-platform, and a gavel-closer, substantially as shown.

4. The gavaler A, constructed with one or more arms, to operate substantially as and for the purposes set forth.

179,011. STATION-INDICATORS. A. Burnet Goddard and John I. Hutchinson, Rome, and George M. Clark and Seldon G. North, Higganum, Conn. [Filed Mar. 9, 1876.]

Brief.—The indicating-apron is fed off from one roll onto another by pulling strap W, wound around a clutch-pulley, which meshes with a companion clutch of a roll interposed between the apron-rollers, and geared with one wheel. The clutch mechanism may be thrown either in or out of gear by the carrier. To rewind the apron upon the roll it was last fed off of, the roll bearing the apron is first thrown out of gear with its companions. An alarm is sounded at each movement of the apron.



1. In combination, roll A, disk i, embodying friction-clutch half r, shaft m, friction-clutch half p on sleeve n, and screw o', all substantially as and for the purpose set forth.

2. In combination, roll A, shaft m, friction clutch r p, clutch o s, sleeve n, and drum t, all substantially as and for the purpose set forth.

3. In combination, roll A, gear t, loose side-playing pinion o', with its rod h' and fork i', gear f, and roll f, all substantially as and for the purpose set forth.

4. In combination, roll h, clutch o c, drum t, levers and rods b' o' g' c' f', ball-hammer x', and tumbler o', all substantially as and for the purpose set forth.

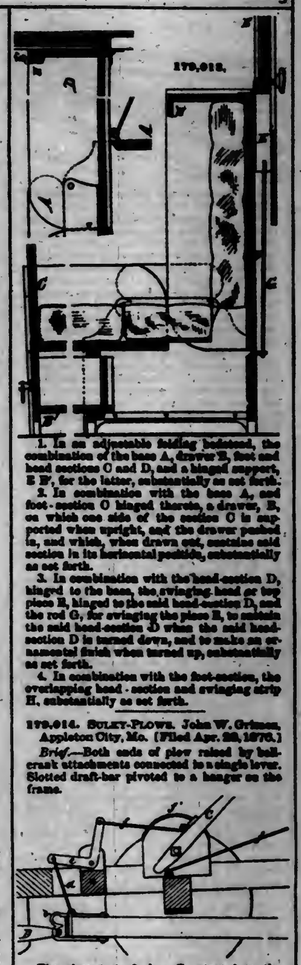
5. In combination, a, roll h, clutch o s, drum t, levers and rods b' o' g' f', brake b', and roll f, all substantially as and for the purpose set forth.

179,012. CAMP-STOOLS. Wm. A. Graham, Carlisle, Pa. [Filed Apr. 7, 1876.]



A portable camp-stool, in which the pillar or cane is made in two parts, the one part carrying the seat, and the other the legs or support, so that they may be readily detached from each other to increase their portability, as set forth.

179,013. CANNERY-BENCHES. David A. Green, Rushville, Ind., assignor of part of his right to W. P. Green and J. Williamson, same place. [Filed Jan. 6, 1876.]



1. In an adjustable folding bedstead, the combination of the base A, drawer B, foot and head sections C and D, and a hinged support, E F, for the latter, substantially as set forth.

2. In combination with the base A, and foot-section C hinged thereto, a drawer, B, on which one side of the section C is supported when upright, and the drawer pushed in, and which, when drawn out, sustains said section in its horizontal position, substantially as set forth.

3. In combination with the head-section D, hinged to the base, the swinging head or top piece E, hinged to the said head-section D, and the rod G, for swinging the piece E, to sustain the said head-section D when the said head-section D is turned down, and to make an ornamental finish when turned up, substantially as set forth.

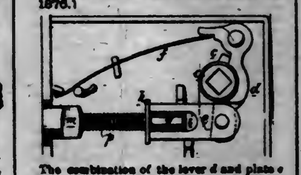
4. In combination with the foot-section, the overlapping head-section and swinging strip H, substantially as set forth.

179,014. SULKY-PLOWS. John W. Grimes, Appleton City, Mo. [Filed Apr. 28, 1876.]

Brief.—Both ends of plow raised by bell-crank attachments connected to a single lever. Slotted draft-bar pivoted to a hanger on the frame.

The slotted draft-bar D, pivoted to the pendant k of the frame B, in combination with the plow-beam c, and mechanism a d o f C, for adjusting the same vertically, as shown and described.

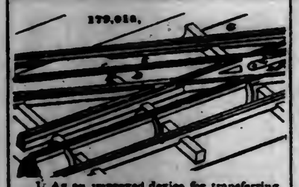
179,015. REVERSIBLE KNOB-LATCHES. W. M. Grissom, Reading, Pa. [Filed May 26, 1876.]



The combination of the lever d and plate e with the latch m and its spring p, carried by said plate e, but so arranged that the latch is capable of moving inwardly independently of the plate, as set forth.

179,016. BOILERS TRACTION-RAILWAYS. Andrew B. Halliday, San Francisco, Cal. [Filed Apr. 3, 1876.]

179,016.

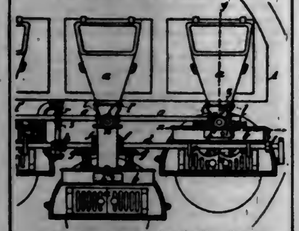


L. As an improved device for transferring cars which are propelled by an endless rope moving in an underground tube from one track to another, and in which the rope and car are connected by a griping device, which is permanently attached to the car, the diagonal or angular tube D arranged to connect the rope-containing tubes B B, said diagonal tube having a longitudinal slot, *e*, which is arranged to connect with the longitudinal slots of the tubes B B, all combined and arranged to operate substantially as and for the purpose described.

2. The improvement in mounting the propelling-rope inside of the tubes B B, with reference to the longitudinal slots in the same, the same consisting in mounting the rope upon the same side of the slot in each tube, substantially as and for the purpose above described.

3. The pivoted switch-rail L and spring Z, substantially as and for the purpose described.

179,017. FURNACE-FEEDING MECHANISM. Thomas Henderson, Liverpool, England, assignor to Dilwyn Smith, Burlington, N. J. [Filed Jan. 20, 1876.]



L. In an apparatus for feeding furnaces, the combination of the shaft *d*, extending across or partially across the front of the furnace, and the friction-wheels on said shaft, with rotating feeders resting on and driven by said friction-wheels, all as set forth.

2. In an apparatus for supplying fuel to furnaces, the fuel-crushing device, consisting of the toothed roller *h* and plate *i* and its adjusting-screw, all combined and operating substantially as above set forth.

3. In combination with the disks *o'*, the shaft *o*, carrying the crushing-rollers *h*, and geared with the shaft *d* by the worms and worm-wheels *p q r s*, as herein set forth, and for the purpose specified.

4. In combination with the rotating feeder, the hopper *a*, supported on or above the case *b*, and provided with the crushing-roller *k* and adjustable plate *l*, in combination with the flap or door *t*, for regulating the passage of the fuel through the hopper, substantially as herein set forth and for the purpose specified.

5. The fuel-supply apparatus applied to the front of a boiler, and consisting of the horizontal shaft *d*, the feeders above said shaft, and the feeder or feeders below the same, arranged in combination with the hoppers *a* and crushing devices *h i*, and operated by frictional or other wheels geared with the said shaft, substantially as herein set forth.

6. The combination of the folding doors *u*, having apertures *v'*, with the self-closing covers *v'*, as and for the purpose set forth.

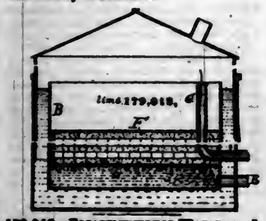
179,018. PROCESSES AND APPARATUS FOR MANUFACTURING HYDROGEN GAS. Jos. M. Hirsh, Chicago, Ill. [Filed Apr. 12, 1876.]

1. In producing hydrogen gas by electrolysis of water by a large number of minute galvanic cells, the process of concentrating and condensing the active of the battery and the evolution of gas, the same consisting in forcing through the battery a current of steam, or aqueous vapor, or air, substantially as described.

2. The process of regenerating the battery by reducing the decomposed metal to the metallic state, the same consisting in passing through or over its particles, while heated, a current of hydrocarbon vapor, substantially as described.

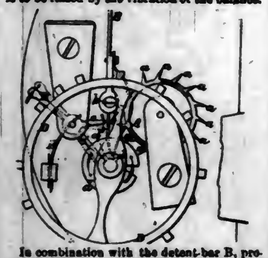
3. The process of vitalizing the heavy hydrocarbon left after regenerating the battery, as described, which consists in passing hydrogen through the battery while the same is still heated, whereby the hydrogen will be carbureted, substantially as set forth.

4. The combination of the tank B, steam-pipe E, and battery of contiguous elements, substantially as described.



179,019. ESCAPEMENTS FOR WATCHES. J. R. Hopkins, Washington, D. C., assignor to William E. Fowle, Auburndale, Mass. [Filed May 25, 1876.

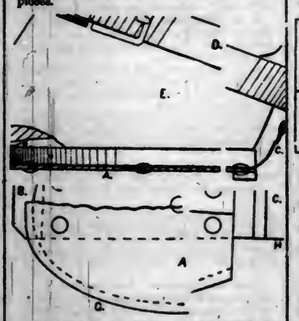
Brief.—A locking-bar engages with and locks the detent-lever, except when the latter is to be raised by the vibration of the balance.



In combination with the detent-bar B, provided with the opening or slot *b'*, the pivoted locking-bar E, having the arms *c* and *c'*, and arranged so that said arm *c* shall engage with said detent-bar, and said arm *c'* shall engage with and be tripped by a spur, *d''*, upon the collet *d'* of the balance-wheel, substantially as and for the purpose specified.

179,020. HORSESHOE-PADS. D. W. Horne, Lowell, Mass. [Filed May 29, 1876.]

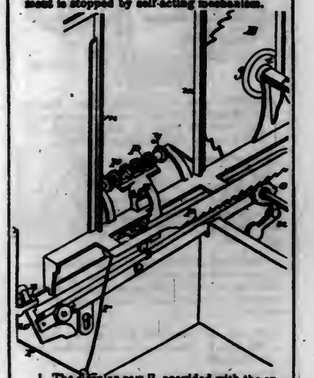
Brief.—The pad is supported at the front by a lug resting on the horseshoe. The bar, lug, and strap may be of one or separate pieces.



A hoof-pad support consisting of the plate A, the bar C, having lug B, and the strap D, substantially as and for the purpose described.

179,021. MACHINES FOR SAWING SHINGLES. Frank A. Huntington, San Francisco, Cal. [Filed Apr. 15, 1876.]

Brief.—The collar on the arbor is flush with the inside face of the saw. The carriage is automatically advanced and retracted until the bolt is sawed up, when its further movement is stopped by self-acting mechanism.



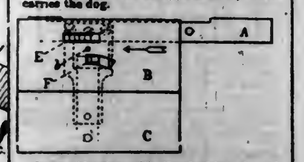
1. The circular saw B, provided with the enlarged hole *id* its center, in combination with the disk or collar *F*, with its projecting hub *g*, which is arranged to fit in the hole in the saw, the same being countersunk on its inner face, so as to receive the flange *e* of the saw-arbor, substantially as and for the purpose described.

2. The pivoted bar Q, arranged to support one end of the shaft *u* at the extremity of its short arm, and provided with the pulley *t* at the extremity of its long arm, in combination with the rack-bar P of the carriage, automatic latch-levers *v w*, and weighted cord *r*, beneath said pulley, all combined and arranged to operate substantially as and for the purpose described.

3. In combination with the series of sparger feeders *y* the pivoted bent bar Z, having one or more fingers, *p*, which lie between the feeder-gears, and arranged to stop the motion of the carriage by striking a projection, *q*, on the bed-frame when the pressure is removed from the fingers, substantially as above specified.

179,022. FEED DEVICES FOR SEWING-MACHINES. Thos. S. Huntington, New York, N. Y., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. [Filed Feb. 24, 1876.]

Brief.—A secondary feed lever and dog is pivoted at its outer end to the under side of the cloth-plate, and at its middle to the ordinary feed-bar, its motion being communicated from the feed-bar. The pivot which connects the secondary lever to the cloth-plate is adjustable in a slot, to alter the amount of throw of its opposite end, which carries the dog.



In combination with the feed-bar A and feed-points E of a sewing-machine, the feed-plate frame D, operating-lever G, auxiliary feed-points F, and regulating-pin H, all constructed and operating substantially as and for the purposes specified.

179,023. PICTURE-PUZZLES. C. M. Hyatt and E. C. Fruyn, Albany, N. Y., assignor to the Embossing Company. [Filed Apr. 27, 1876.]

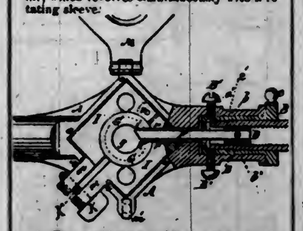
Brief.—The key-title to the puzzle is printed upon the back of the pieces.

A puzzle consisting of pieces of wood or other material, each piece having on one side a part of a picture, and on the opposite side part or the whole of a letter, numeral, word, or sentence, so that each side forms a key for the other, substantially as shown and described.



179,024. PIPE-CUTTERS. George P. Jacobs and Jacob James, Brooklyn, N. Y. [Filed Mar. 7, 1876.]

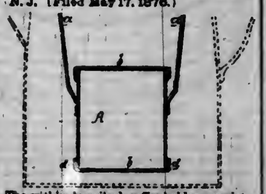
Brief.—The square holder is slotted at one of its corners, to permit the cutter to pass through; is removable by withdrawing the cutter from this slot; is hinged in two portions, and, when removed from its socket, unclamped by a thumb-screw, to admit of different-sized pipe-rests. The slot in the square rest, through which the cutter passes, serves both as a guide and to prevent the cutter from turning as its handle is revolved. The square holder may be replaced by screw-threading dies. The cutter is brought to the pipe by a feeding-nut in a hollow screw-threaded handle, which revolves simultaneously with a rotating sleeve.



1. The combination, with the square-socketed stock A, of the rotating sleeve B, the feeding-screw in the handle C, the feeding-nut D, the cutter F, the guide-slot *d'*, and the circular rest G, the whole constructed and arranged for joint operation, substantially as and for the purposes herein set forth.

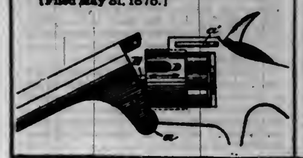
2. The combination, with the square-socketed stock A and the adjustable cutter F, of the square-socketed holder I, provided with slot *d*, made in two sections, pivoted together at one side, and connected at the opposite side by the screw K working through the lugs *w*, the whole constructed and arranged for operation substantially as and for the purpose herein set forth.

179,025. COFFEE-HOLDERS FOR COFFEE-POTS. Samuel C. Johnson, Flemington, N. J. [Filed May 17, 1876.]



The within-described coffee-holder, consisting of the casing A, its supporting-arms *c*, covers *b*, of textile fabric, and retaining-rings *d*, all combined substantially in the manner described.

179,026. CARTRIDGE-EXTRACTORS FOR REVOLVERS. Owen Jones, Philadelphia, Pa. [Filed May 31, 1876.]



1. The combination of a fixed center-pin, a relatively fixed extractor, and a sliding cylinder with a tilting barrel and mechanism for connecting the barrel to the cylinder, the construction being such that the cylinder is adapted to slide upon the center-pin, but is held from removal from it, substantially as described.

2. In combination with a tilting barrel and a cylinder sliding upon a center-pin, intermediate connecting devices, uniting the two parts together, so that the movement of the former is communicated to the latter without lost motion, substantially as described.

3. The combination of the following elements: a fixed center-pin, a cylinder adapted to slide upon the center-pin, and a lever-barrel adapted to actuate the cylinder, substantially as described.

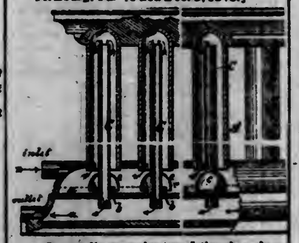
4. In combination with the center-pin, the sliding cylinder, the longitudinally-moving extractor, and the stop-collar, the barrel adapted to actuate the cylinder, as described.

5. In combination with the grooved cylinder, the slotted and flanged sleeve-link, as described.

6. The combination of the center-pin and sleeve-link with the barrel and cylinder, as described, the former being adapted to hold the latter concentric in line, as set forth.

7. The combination of the locking-catch with the hammer-head, the former being held from accidental movement by the latter, substantially as described.

179,027. STEAM-RADIATORS. J. T. Kelly, Pittsburg, Pa. [Filed Dec. 9, 1875.]

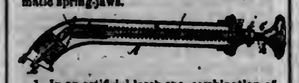


1. In a radiator or heater of the class described, the water-tuted steam-traps, consisting substantially of the flanges *b* and caps *c* around the openings between the chambers, substantially as shown and specified.

2. In combination with the pipes A of a radiator, the interior pipes C, open at both ends, and adjustable therein, substantially as described, so as to be free to move, as specified.

179,028. ARTIFICIAL LEECHES. Friedrich Klee, Brooklyn, N. Y. [Filed June 5, 1876.]

Brief.—A spring-rod, working in a curved glass tube with a bell-mouth, carries an air-tight piston and a puncturing-point. When the plunger is forced forward by its spring it cuts into the flesh, and upon the withdrawal of the rod and piston the latter is held in position at the inner end of the tube by automatic spring-jaws.



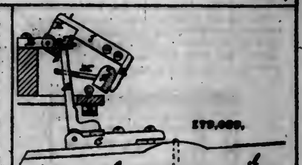
1. In an artificial leech the combination of a curved bell-shaped tube, a plunger fitting said tube, a jointed piston-rod to allow the plunger to follow the curvature of the tube, and a latch for retaining the plunger against the pressure of the atmosphere, all constructed and operating substantially as shown and described.

2. The combination, with the curved bell-mouth tube A, of a plunger, D, prick E, jointed sectional rod C, cap *c*, spring *g*, removable head B, and adjusting-nut *i*, all constructed and operating substantially in the manner set forth.

179,029. UPRIGHT-PIANO ACTIONS. Fredk. Köth, New York, N. Y. [Filed Nov. 22, 1875.]

Brief.—Dispenses with cords or springs.

In an action for upright pianos, the weighted lever J, with arm or projection L, attached to the hammer-butt H, and the cushion N, with screw-rod M, attached to the fly B, when constructed, combined, and arranged to operate in the manner and for the purpose set forth.



179,030. MANUFACTURING SHOES. Carl H. Krippendorf, Cincinnati, Ohio. [Filed May 22, 1876.]

The process of attaching the soles of boots and shoes to the uppers by stitches from outside to inside through holes whose greatest diameter is transverse to the line of the seam, substantially as set forth.

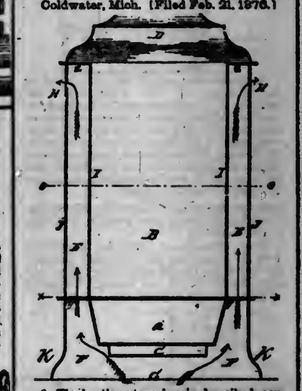
179,031. CAKE-PANS. Anton Lang, Pittsburg, Pa., assignee of two-thirds his right to Jno. Schmidt and Frank Henkel. [Filed Nov. 1, 1875.]

Brief.—Either the funnel, the sieve, or an imperforate plate may be secured in the recess at the bottom of the sections



The combination of the sieve D and culinary funnel E with the hinged sections A, the several parts being arranged to operate substantially as and for the purpose described.

179,032. HEATING-STOVES. A. T. Lanphere, Coldwater, Mich. [Filed Feb. 21, 1876.]



1. The heating-stove herein described, consisting of the base-wall K, open below, the fire-pot having the slotted flange V supported on said base-wall, the cylindrical outer wall J, having the perforations R, the fire-wall I, connected to said outer wall at top by the annular plate *s*, at bottom by the flange V, and in front by its bent edges *t*, and the dome-top D spanning the fire-chamber and the annular top plate *s*, as specified.

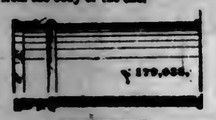
2. The combination, with the slotted fire-pot flange V, the cylinder J, and the dome-top D, of the partial cylinder I within said cylinder, its bent vertical edges *t* connecting therewith on each side of the door, and the annular plate *s* connecting the cylinder and partial cylinder at top below said dome, as specified.

179,033. SEWER-METAL CANS. Edwin A. Leland, New York, assignor to Leonard Richardson, Brooklyn, N. Y. [Filed Apr. 15, 1876.]

Brief.—The solder clings less to the one part than to the tinned part of the can.

In a hermetically-sealed can, the combination of a galvanized-iron cover and a sheet-tin body, or of a sheet-tin cover and a galvanized iron body, with the soldered joint *a*, the parts being constructed and arranged with a space be-

tween the top of the body and the inner side of the cover, as substantially in the manner set forth, whereby provision is made for the ready fracture of the joint and the separation of the cover from the body of the can.


179,026.

179,026. SHEET-METAL CANS. Edwin A. Leland, New York, assignor to Leonard Richardson, Brooklyn, N. Y. [Filed Apr. 10, 1876.]

Brief.—Cover detached from body by force applied to cover. Rim of cover inclined toward body of can.



In a sheet-metal can of the class herein described, the cover B, constructed with the rim *a*, arranged at an oblique angle to the sides *b* of the can, the said rim being united to the said sides by a frangible seam or joint, and there being a space between the upper edge of the body and the under side of the top of the can, substantially in the manner herein described, for the purposes set forth

179,027. SHEET-METAL CANS AND BOXES. Henry O Leland, Hartford Conn. [Filed Apr. 12, 1876.]

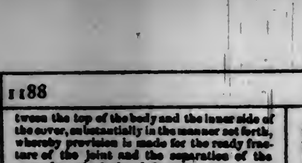
Brief.—Cover detached by direct and right or tortional force applied to the cover Cover secured to can by an amalgam, say tin and quicksilver.



A hermetically-sealed sheet metal can or box in which the cover is attached to the body by an amalgam joint, the amalgam being made of such strength and consistency as to retain and seal the cover in place under conditions of ordinary usage, and yet capable of fracture, without rupture from a moderate degree of force exerted with that object upon the cover of the can, substantially as and for the purpose herein set forth.

179,028. RUFFLERS FOR SEWING-MACHINES. Arthur M. Leslie, New York, N. Y. [Filed Dec. 1, 1876.]

Brief.—The special presser-foot is provided with an edge-turner and adjustable gatherer or ruffler, for the purpose of regulating and changing the length and amount of material to be used in the ruffling.



1. The special presser-foot F, provided with an edge-turner E, and having a flat sole and parallel sides, in combination with an adjustable gathering part, G, applied thereto, substantially as herein described, for the purpose set forth.

2. In combination with the special presser-foot F and an adjustable gathering part G, the edge-turner E, composed of the guide plate or tongue *a*, constructed with extended straight edge *a'*, and the spring *c*, constructed with turning-finger *c'* attached to the special presser-foot, and arranged partially within accommodating recesses *y c* therein, as herein above and described, for the purpose specified.

2. In combination with a special presser-foot, F, and a gathering part, G, adjustable thereto, the longitudinal series of ratchet-teeth *n*, and the spring-pawl *i*, arranged and operating as specified, for holding the gathering part in different positions relatively to the needle and feed, as set forth.

4. The gathering part G, constructed with the feed-block or abutment-plate *r*, and the thin sole-plate *n* terminating at the same point beneath the presser-foot, as herein shown and described, for the purpose specified.

5. The edge-turner E on the presser-foot, having a tension, *v v'*, and guide *n n'*, for the band, in combination with the finger *p* on the gatherer G for guiding the ruffling-strip beneath the presser-foot, as set forth.

6. The combination of the edge-turner, tension, and band-guide E on the presser-foot, and the guide-finger *p* and elastic sole-plate *n* on the gatherer, as specified.

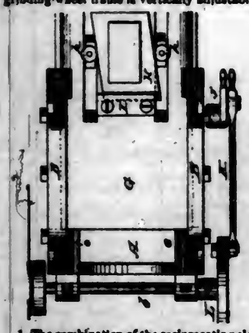
7. The combination of the edge-turner, tension, and band-guide E on the presser-foot, and the adjustable gatherer G, having the guide-finger *p* and elastic sole-plate *n*, and the abutment-plate or feed-block *r* above the latter, as set forth.

8. The combination of the pair of guide-fingers *p p'* separated from each other and from the body of the gatherer by gage-spaces *o o'*, and the thin sole-plate *n* extending from the inner finger above the feed-dog, as set forth, for the purpose specified.

9. The adjustable gathering part G, constructed with the pair of guide-fingers *p p'*, the gage-spaces *o o'*, the thin sole-plate *n*, and the abutment-plate *r*, in combination with the feed and presser-foot, as herein illustrated and described, for the purpose set forth.

179,027. GRINDING-MACHINES. Charles Major, Brooklyn, N. Y., assignor to E. J. Holden and Bertrand Clover, same place. [Filed May 1, 1876.]

Brief.—The supporting-bed is composed of two parts, and while one is moved back and forth, by means of a crank-wheel and pitman, the other is moved from side to side by means of its inclined edges and friction-rollers. The grinding-wheel frame is vertically adjustable.



1. The combination of the reciprocating slotted bed-plate G, stationary studs *i i*, with rollers *k k*, the diagonal sliding plate H, and the end guides I I, all substantially as and for the purposes herein set forth.

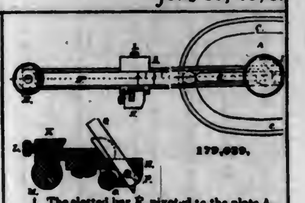
2. The combination, with the rocking shaft *m*, operating the bed-plate G, of the lever or arm J, with stud *p*, the pitman K, adjustable wrist-pin *s*, and radially-slotted disk L on the counter-shaft *b*, substantially as and for the purposes herein set forth.

179,028. CHAIR-BACKS. Warren W. Marshall, South Shaftsbury, Vt. [Filed Mar. 11, 1876.]



The combination, with the wood pieces A B and dowel-pins C C, of the splice D, inserted in a groove made across the joint, and entering one or more of the dowel pins, substantially as and for the purposes herein set forth.

179,030. MACHINES FOR CUTTING OVALS. Hugh McAdams, Toronto, Canada. [Filed Apr. 18, 1876.]

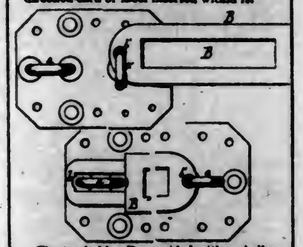

179,029.

1. The slotted bar F, pivoted to the plate A, and provided with a stud-pin, I, and roller J, in combination with the plate provided with groove G, as and for the purpose specified.

2. The carriage-head K, fitted to the bar F, and provided with a roller, M, in combination with a pivoted head, N, provided with a knife, Q, arranged as and for the purpose specified.

179,030. TAG-HOLDERS FOR MAIL-POUCHES. Julius Metz and Egbert Eisman, Denver, Colo. [Filed May 10, 1876.]

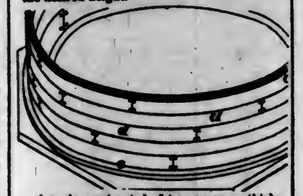
Brief.—The holder can be reversed by lifting it off the staple and turning it upon the swivel, thereby exhibiting either side of the direction-card or label inserted within it.



The tag-holder B, provided with a hollow center or card-receptacle, B', which extends longitudinally nearly the length of the plate, and vertically through the eaves, bearings *e e'*, slot *b*, hole *b'*, springs C, and mouth C', in combination with swivel *a'* and staple *a*, substantially as and for the purpose described.

179,031. CONSTRUCTION OF WOODEN TANKS. Edgar M. Morgan, San Francisco, Cal., assignor of one-half his right to J. F. Agur, same place. [Filed May 13, 1876.]

Brief.—The tank is formed of two or more thicknesses of boards, arranged to overlap each other at the joints, and then built up to the desired height.



A tank constructed of two or more thicknesses of boards, *d*, which are arranged to overlap each other at the end and edge joints, and built upward to the desired height, substantially as and for the purpose described.

179,032. FURNACES FOR STEAM-BOILERS. Geo. Morrison, Philadelphia, Pa., assignor to himself, H. C. Carey, Abram Hart, and Elizabeth S. Risk, (administratrix of J. T. Risk,) same place. [Filed Nov. 30, 1876.]

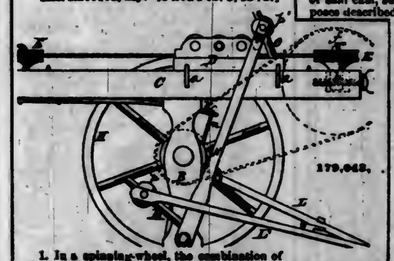
1. The combination, with a furnace, of inner perforated walls H H, the roof M, composed of inclined slabs abutting against the main walls, bearing on the said walls H H, and extending with the latter to the bridge-wall, and the space *m*, between the ends of the walls H H and roof and front of the furnace, all substantially as set forth.

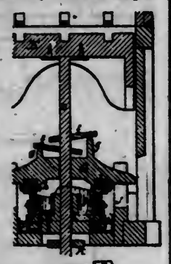
2. The combination, in a furnace of the supplementary perforated side walls H H, the air-spaces *a a*, between the latter and the main walls, and the roof M, composed of inclined slabs bearing on the said supplementary walls and abutting against the main walls, all substantially as set forth.

3. The combination, in a furnace, of a partition or roof, M, extending to the bridge-wall, the space *m*, between the front end of the said roof and the front of the furnace, and the grate extending beneath the said space, all substantially as and for the purpose herein specified.


179,042.

179,042. SPINNING-WHEELS. J. W. Mullins, Raccoon, Ky. [Filed Feb. 6, 1876.]


179,042.

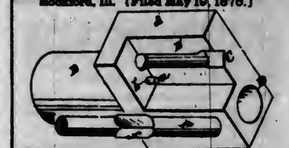


1. In a spinning-wheel, the combination of the treadle I, cord *q*, clutch J, springs K *m*, and the wheel H, as and for the purpose herein set forth.

2. The combination of the wheel H, operated as described, the endless cord *d*, stationary pulley E, adjustable pulley E, carriage D, grooved rollers G and G' G', and the spinning-spindle A, all substantially as and for the purpose herein set forth.

3. The combination of the lever I', lever E, with arm M, swiveled sockets or pieces *p p'*, and carriage D, with arm O, as shown and described.

179,044. BOLT-HEADING DIES. F. Mutimer, Rockford, Ill. [Filed May 19, 1876.]



1. The hereinbefore-described method of forming carriage-bolts, by first upsetting the central portion of a round blank, so as to produce a square enlargement, *f*, that forms the principal portion of the squared shank, and then completing said shank, and producing the head *f'* by the upsetting of the end of said blank, substantially as specified.

2. The movable die A, provided with the opening C and depression D, and having a portion, A', removable upon a line with the axial center of said opening, substantially as and for the purpose set forth.

3. The movable or swaging die A A', provided with the opening C and depression D, in combination with the combined stationary and holding die E E, having the openings C and D', substantially as and for the purpose shown and described.

179,045. HAY AND COTTON PRESSES. F. M. Nash, Canal Fulton, Ohio, assignor to himself and Wm. H. Stevens, Winona, Minn. [Filed June 8, 1876.]

Brief.—The pawls grips the rod carrying the follower, and are raised by the yoke riding on the cam-wheel.

1. In combination with the plates of a press, and its carrying and sustaining rod, the gripping-pawls *f*, operated by a yoke, G, substantially as and for the purposes described.

2. In combination with the rod *e*, yoke G, and pawl *f*, the vertical projections *g* of unequal height to operate the pawls, one above the other, substantially as described.

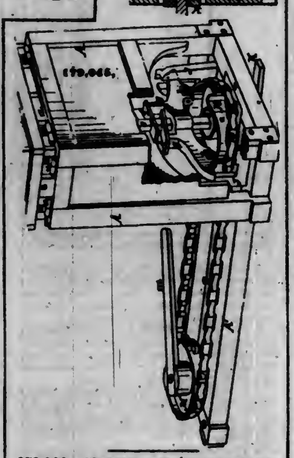
3. In combination with the rod *e* and yoke G, having friction-rollers A, the sprocket-wheel H, having two inclined planes formed upon the edge to lift the yoke, substantially as described.

4. In combination with the cam-wheel H and rod *e*, the central collar-bearing I, and friction-rollers *i*, located in the same vertical plane as the rollers A, substantially as set forth.

5. In combination with the cam-wheel H, operating substantially as described, the power-wheel M, and chain L, located in the same horizontal plane as the cam-wheel H, substantially as and for the purposes set forth.

6. In combination with the rod *e* and lifting-pawls *f*, operated by the yoke G, the retaining-pawl K, constructed and operating substantially as described.

7. In combination with the yoke G, carrying the lifting-pawls *f* and the cam-wheel H, the friction-rollers A, traveling upon the edge of said cam, substantially as and for the purposes described


179,046.

179,046. METHODS AND APPARATUS FOR LAYING OUT COAT-PATTERNS. James H. Nichols, Boston, Mass. [Filed Mar. 26, 1876.]



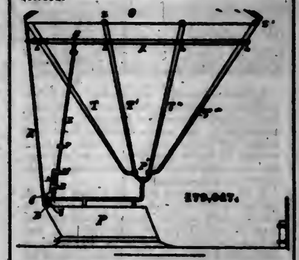
The method herein described of laying out coats for cutting, by means of a rectangular square provided with interchangeable scale-strips, graduated in the manner as described.

179,047. CARRIAGE-TOP SETTERS. William H. Nagle, Knightstown, Ind. [Filed Dec. 13, 1875.]

1. The piece A, formed so as to clamp on the stud U, and provided with lugs B B', in which the screw-rod E operates, substantially as set forth, and for the purpose described.

2. In combination with the stud U, the piece A, screw-rod E, swivel H, and bar K, constructed to operate substantially as set forth and described.

3. The bar K, pivoted to the swivel H, and operated in connection with the bows T T' T'', screw-rod E, clamp A, and stud U, to adjust and hold rigidly the bows while being trimmed, substantially as set forth and described.


179,047.

179,048. BOOK-SUPPORTS OR TABLE ATTACHMENTS FOR BEDS. C. B. Norgeus, Philadelphia, Pa. [Filed May 4, 1876.]



1. In combination with the standard D, the beveled foot-block C, formed with the shoulder *c*, and adapted for insertion in the clamp B, substantially as shown and described.

2. In combination with the standard D, the leaf E, diagonal bracket F, sleeve *f*, and sliding collar G, having a set-screw, *g*, substantially as shown and described.

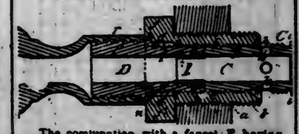
3. The supplemental leaf H, having pins A and jointed brace I attachable to, and detachable from, the main leaf E, substantially as shown and described.

4. In combination with leaf E, having rack K, the supplemental detachable leaf H, having pins A A and jointed brace I, substantially as shown and described.

179,049. LAMP-WICKS. George E. Osborn, Brooklyn, N. Y., assignor, by mesne assignments, to Chas. F. A. Hinrichs, same place. [Filed Mar. 17, 1876.]

A rigid molded lamp-wick, formed from a composition of plaster-of-paris, asbestus, and sugar, in about the proportions specified, and treated substantially in the manner set forth.

179,050. BEER-FAUCETS. Thos. C. Perkins, Brighton, Cal. [Filed May 11, 1876.]

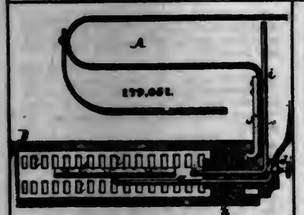


The combination, with a faucet, F, having the threaded end *r*, of the threaded bushing B having the tapered chamber *q*, and the beveled marginal valve-seats *s s* at the ends of its bore, and the interlocking plugs C D, respectively provided with the rear enlargement *n* and the threaded front enlargement *p*, having beveled shoulders *v v'*, said plugs being adapted to independent faucets, substantially as specified.

179,051. SAD-IRONS. Francois Perrier, New York, N. Y. [Filed May 20, 1876.]

Brief.—One pipe supplies oil to the burner, the other air to the reservoir above the oil.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & Co BOSTON.

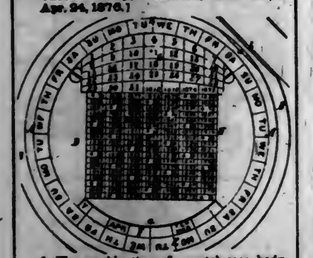


179,661.

1. The combination, in a sad-iron, of a hollow handle, A, forming a reservoir for burning-fluid, a hollow base, B, a burner, C, which is connected to the hollow handle and situated within the hollow base, and a pipe, *i*, for admitting air to the interior of the hollow handle, the whole constructed and arranged substantially as described.

2. In combination with the hollow base B, the hollow handle A, forming a reservoir for burning-fluid, and the burner C, the grooved stem E, and U-shaped catch-plate h, and spring-catch *f*, or equivalent device, the whole constructed and arranged substantially as described.

179,662. CALENDARS FOR WATCH-CASES. Chas. K. Percy, Worcester, Mass. [Filed Apr. 24, 1876.]



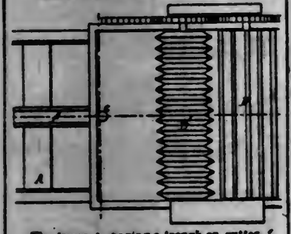
1. The combination of a watch-case body and the rotary disk of a calendar, as described, applied to the inner cap or back of said case, substantially as specified.

2. The combination of a watch-case body, its inner cap or back, its outer cap or cover, and the rotary disk of a calendar, as described, applied to said inner cap or back, substantially as specified.

3. The combination of a watch-case and the calendar, as described, provided with a rotary disk pivoted to the body or inner cap of the case, as set forth.

4. The rotary disk D, notched, and provided with the tablets G and H, as described, in combination with the stationary annular plate or cap A, provided with the day and month circles E F, all being as and arranged as set forth.

179,663. BUTTER-WORKERS. E. M. Pike, McDonough, N. Y. [Filed Apr. 24, 1876.]



The frame A, having a trough or gutter, *f*, in combination with a reciprocating tank having an eduction-pipe, *e*, substantially as specified.

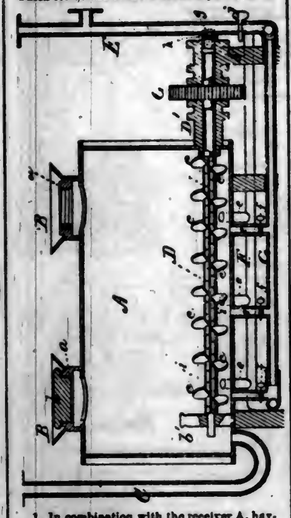
179,664. PROJECTILES. James M. Pollard, New Orleans, La. [Filed Dec. 10, 1875.]

1. A double-conical or double-paraboloidal projectile, having a raised burr on its rear end of less diameter than the center of the projectile, as and for the purpose described.

2. A double-conical or double-paraboloidal projectile, having a central cylindrical portion and a raised burr on the rear end, of less diameter than said cylindrical portion, as and for the purpose described.

179,665. DREDGING APPARATUS. Franklin C. Priscilla, Philadelphia, assignor of one-half his right to Franklin B. Colton, Darby, Pa. [Filed May 11, 1876.]

Brief.—A hermetically-closed mud-receiver provided with two systems of induction-passages for air and water, and one eduction-pipe for the earth, reduced to a semi-fluid condition by means of the feeding and agitating blades, and air and water forced through the perforations of the hollow rotating shaft, which forms one of the induction passages.



1. In combination with the receiver A, having an eduction-pipe, C, and an air and water induction-pipe, E, the rotating shaft D, having feeding and agitating blades *e*, substantially as specified.

2. The hollow shaft D, having perforations and agitating-blades *e*, in combination with the receiver A, having an educt, C, and a water and air induction pipe, E, connected to the said shaft, substantially as specified.

3. A receiver for dredged material, having hoppers for the admission of the same, and provided with detachable closing-plates forming an air-tight joint therewith, substantially as specified.

4. In combination with the mud-receiver A, having educt C and air and water induct E, the pipes F G H connected with the induct and communicating with the receiver by spaced distributing-pipes *i*, substantially as specified.

5. The process herein described of conveying dredged material to a place of deposit, consisting of placing the said material in an air-tight vessel or receiver, agitating and reducing it to a semi-fluid condition, and forcing it out of the vessel by hydro-pneumatic pressure, substantially as specified.

179,666. STONE AND GLASS POLISHING MACHINES. E. B. Purdy and Dennis S. Blue, Fremont, Ohio. [Filed Apr. 24, 1876.]

Brief.—The vertical shaft, which carries the polishing-wheel, is composed of sections, and can be lengthened and shortened while the machine is in operation, by means of a hand-wheel, which operates a telescopic screw-sleeve. Feeds sand by means of a worm-screw. Uses two water-tanks, a pump, and water-pipe.

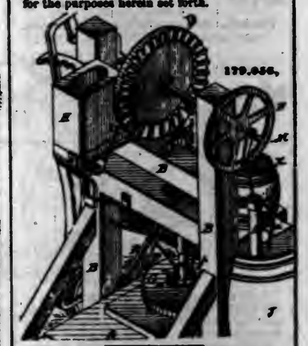
1. The combination of the rubber-wheel G, with the cup m, having slotted sides, the shaft a, pin p, and keys a a, substantially as and for the purposes herein set forth.

2. The combination of the sand-box H, worm I, spout *r*, pipe *s*, and cap m on the rubber-wheel G, substantially as and for the purposes herein set forth.

3. The combination of the tank or reservoir J, pump L, operated from the main shaft C, the barrel or receptacle K, pipe *w*, with faucet *v*, and cap m on the rubber-wheel G, substantially as and for the purposes herein set forth.

4. The combination, with the rubber-wheel G and shaft *s*, of the hollow screw *f*, with wheel R, nut h, pinion b, and cog-wheel D on the main shaft C, all as and for the purposes herein set forth.

5. The combination of the carriage O, provided with perforated end plates *o'*, the stationary guide-rod *s'*, rollers *b'*, rack-bar *f'*, and pinion *f*, on the shaft *b'*, substantially as and for the purposes herein set forth.

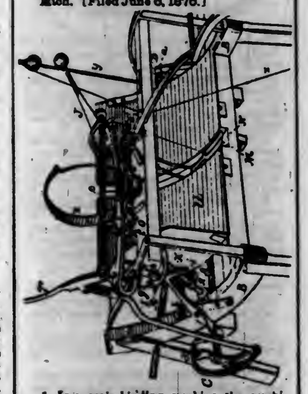


179,667. MEANS FOR RAISING AND LOWERING SCREW-PROPELLERS. Ephraim Ralph, Titusville, Pa. [Filed Dec. 17, 1875.]



The combination of the inclined shaft D, wheel G, auxiliary shaft H, for holding wheel G firmly in position or changing its position, and hollow arch F in the bottom of the boat, substantially as shown and described.

179,668. GRAIN-BINDERS. Frank W. Randall and William L. Raymont, Burlington, Mich. [Filed June 6, 1876.]



1. In a grain-binding machine, the combination of the main driving-shaft A, provided with crank-cam C, U-shaped cam D, moving bar E, cam F, and miter-gears G and *i*, with the inclined shaft H, slotted pitman I, gathering-arm J, segmental swing-bar K, pivoted arm L, forked support M, platform O, lug-cam P and U-shaped cam Q, hook-bar R and spring-bar S, platform O and U-shaped arm W, the several parts being constructed, arranged, and combined to operate the knotting mechanism, substantially as and for the purposes described.

2. The gathering-arm J, U-shaped arm W, and grabber *m*, in combination with the knotter *p*, substantially as and for the purpose described.

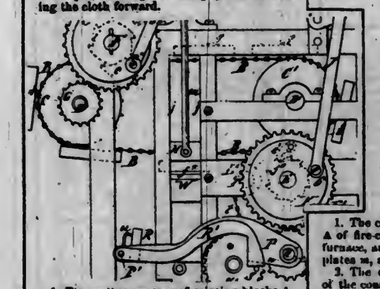
3. The hereinbefore-described knot-tier, consisting of the horned head and pin, hook *q*, operated by the cam C, segmental swing-bar K, lug-cam P, and hook-bar R, substantially as described.

4. The standard *y*, provided with a compressing-cord, U-shaped arm W, having a forked head of peculiar construction, in combination with the fork *x* and supporting-fork M, substantially as and for the purpose described.

5. The spring *z* and grabber *m*, in combination with the rod U, pivoted lever *t*, and the shears S'.

179,669. MACHINES FOR PRINTING OIL-CLOTHS. Lewis M. Randall, Salem, N. J., and H. A. Moore, Brooklyn, N. Y. [Filed Sept. 3, 1875.]

Brief.—The series of printing-blocks, and the troughs carrying the particular color for each block, are operated in unison by connections from the main shaft, from which the plunger is reciprocated. The grippers are opened and lifted, to grasp the cloth, by a crank-pin, the weight of the gripper-arms feeding the cloth forward.



1. The endless system of printing-blocks A, the endless system of color-troughs M, carrying color-feed rollers N, the plunger H, and the vibrating griping cloth-feed, comprising the rock-shaft P' and bar R, the whole combined and arranged for use by means of suitable connecting mechanism, substantially as and for the purpose set forth.

2. The arms P and lever E', in combination with the bar R and rock-shaft P', having claws *u*, the aforesaid arms and lever being actuated in unison with the printing-blocks A and color-troughs M by means of the crank S, substantially as and for the purpose set forth.

3. The driving-shaft E, rod *b*, pin *a''*, pawl and ratchet h i, rod *r*, elbow-lever J, rod J, crank-pin *b''*, pawl *o'*, ratchet *f''*, and spur-wheels F' G', the whole arranged to give motion to the endless system of color-troughs in unison with the movements of the printing-blocks, substantially as and for the purpose set forth.

179,670. BURGLAR-ALARMS. W. H. Reiff, Philadelphia, Pa. [Filed May 25, 1876.]



The combination of the pivoted link *d*, the block A, recessed for the reception of a cartridge, and slotted for the reception of the link, and the plate B, also slotted for the reception of the link, and forming both a spring and a hammer for striking the cartridge, as set forth.

179,671. LAMP-LIGHTERS. Friedrich W. Reutemeh, Chamois, Mo., assignor of one-half his right to Will J. Knott, same place. [Filed May 4, 1876.]

Brief.—Depressing the valve-handle opens the valve, and causes the turn-plate to make a partial rotation, carrying the shield away from the mouth of the case, and bringing the lamp around so that its wick is in line with the hydrogen-jet.



179,661.

1. In combination with a hydrogen-lamp, the turn-plate I, carrying a lamp, K, and operated by connection with the valve-handle E, substantially as set forth.

2. The turn-plate I, carrying a shield or cover, L, in combination with a valve-handle, E, and platinum-sponge chamber or case G of a hydrogen-lamp, substantially as set forth.

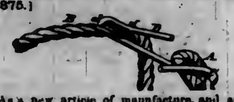
179,672. HEATING-FURNACES. J. Reynolds, Philadelphia, Pa. [Filed Apr. 23, 1874.]



1. The combination of the slab or slabs A A of fire-clay with the inclined plate *b* of a furnace, and with the ledge h and retaining-plates *m*, as set forth.

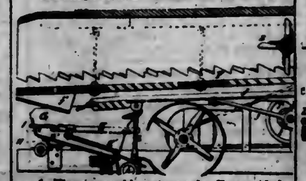
2. The combination of the metallic casing of the combustion chamber of a furnace with a slab or slabs, A, of fire clay, having a series of openings, *n*, as and for the purpose specified.

179,673. TIES FOR GRAIN-SHEAVES. Richard Richeson, Ewing, Ill. [Filed June 21, 1875.]



As a new article of manufacture, and an improved fastening for the cords of grain-sheaves, the wire tie provided with hooked ends C D, substantially as herein shown and described, the hook C adapted to receive one end, A, of the cord and be marked thereon, and the acute hook D adapted to receive, hold, and tightly nip the free end B of the cord at any part of the latter.

179,674. GRAIN-SEPARATORS. L. C. Royer, Indianapolis, Ind. [Filed June 9, 1876.]



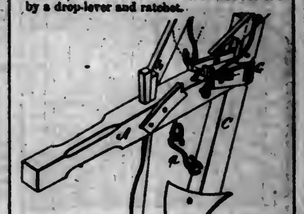
1. The removable rotary rake E, provided with straight teeth, rounded on their beating-edges, substantially as and for the purpose set forth.

2. The riddle-box G, provided with the openings *o o'*, in combination with the riddles *g g'*, provided with the guides 1 and fingers 2, substantially as and for the purpose set forth.

3. The riddles *g g'*, with a riddle-box, G, having the openings *o o'*, and provided with the fingers 2, in combination with the stirrup *s*, connected with the riddles, rod *n''*, and vertical shaft *n*, provided with the arms *n' n'*, substantially as set forth.

179,675. SHOVEL-PLOWS. M. Schlessman, Columbia City, Ind. [Filed Mar. 11, 1876.]

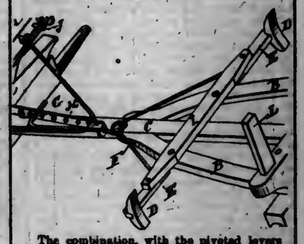
Brief.—The standard rotates in a loop or sockets, and is held to throw the dirt in or out by a drop-lever and ratchet.



The combination, with the plow-beam A, of the clevis C, secured to its rear end, the standard C, held by said clevis and provided with the arm *b*, hinged in a mortise above the beam, and the notched segmental bar *d*, secured on top of the beam, all constructed substantially as and for the purposes herein set forth.

179,676. WAGON-BRAKES. M. Schlessman, Columbia City, Ind. [Filed Mar. 30, 1876.]

Brief.—The brake-rod can be longitudinally adjusted with the reach.



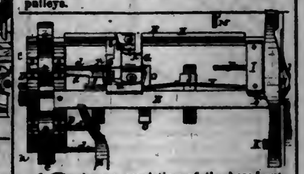
The combination, with the pivoted levers E E carrying the brake-blocks D D, of the rods F F, coupling-hook G, perforated metal strap H, crank-shaft J with lever K, and ratchet-bar P, all constructed substantially as and for the purposes herein set forth.

179,677. DETONATING COMPOUNDS. John D. Schooley and Wm. C. Schooley, Braddock's Field, Pa. [Filed Jan. 11, 1876.]

The composition for a detonating-powder, substantially as herein described, composed of chlorate of potash, three parts; sulphur, one part: and broken glass, one part.

179,678. MACHINES FOR TURNING HANDLES. Thomas Seely and John N. Chilcote, Edgerton, Ohio. [Filed Oct. 19, 1875.]

Brief.—A series of lathes are arranged within a revolving frame, each one carrying its own cutters, the lathe-mandrels being rotated by a single belt, which passes around their pulleys.



1. The dogs n, consisting of the bored-out cylinder 1, pins or plates 2, and filling of metal 3, substantially as specified.

2. The combination of the revolving disks D D and D', guides E E, connected thereto, and the knife-block G, movable on said guides, substantially as and for the purpose set forth.

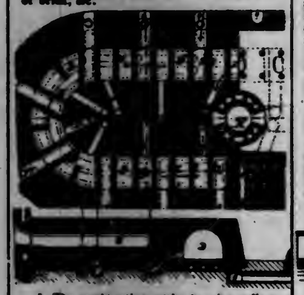
3. The combination, with the movable knife-block O, of the knife *f*, feed-ring *h*, finishing-knives *i*, frame *k*, and spring *m*, substantially as and for the purpose herein set forth.

4. The combination of the rests B S, with springs *s'*, rod *v*, with hook *w*, and incline L, with notch *y*, for the purpose herein set forth.

5. The L-shaped lever or center rest P, with spring *s*, in combination with the knife-block G, for the purposes herein set forth.

179,069. GAS-KILNS FOR BURNING BRICKS. Hermann Seger and Helmuth, Duesberg, Berlin, Prussia. [Filed Apr. 21, 1876.]

Brief.—A depted to use gas in the burning of brick, &c.

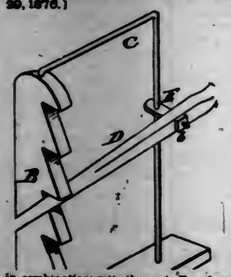


1. The combination, with a burning-gallery, D, either continuous or limited in length and divided into sections, of a suitable gas-generator, and of a flue, C, which communicates with the several sections of the burning-gallery through suitable valves for admitting the gas successively to said sections, substantially in the manner shown and described.

2. In a kiln for burning bricks, pottery-ware, and other similar articles with carbonic oxide or other combustible gas, a burning-gallery, D, which is divided into sections and provided with suitable openings or doorways for the admission of atmospheric air, constructed with division-walls E, each having flues *u* for the admission of gas, and having perforations *o* for the passage of atmospheric air, the whole being adapted to operate substantially as described.

3. In a kiln for burning bricks, pottery-ware, and other similar articles with carbonic oxide or other combustible gas, the combination of a burning-gallery, D, divided into sections and provided with suitable openings or doorways for the admission of atmospheric air, and its division-walls E, having flues *u* in addition to perforations *o*, and a gas-supply flue, C, having suitable branches for supplying the different sections of the gallery, substantially as described.

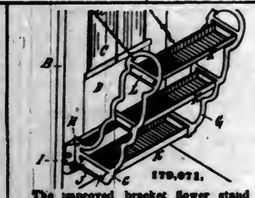
179,070. LIFTING-JACKS. Horace H. Sherwood, Fredericktown, Ohio. [Filed Apr. 29, 1876.]



In combination with the rack B and angular rod C, the lever D and swivel E, substantially as described.

179,071. BRACKET FLOWER-STANDS. W. H. Shirley, Danvers, Mass. [Filed Apr. 28, 1876.]

Brief.—Bracket flower-stand with troughs arranged on an angle one above the other, and a curtain attached to a roller at the lower end of the brackets, which curtain can be used to protect the plants.

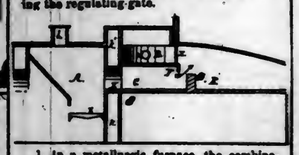


179,071.

The improved bracket flower stand described, consisting of the side pieces G, troughs K, legs I, rollers H, and curtain D, constructed and arranged to operate substantially as set forth and specified.

179,072. METALLURGIC FURNACES. Wm. Silvester and Henry Kirk, Pittsburg, Pa., assignors of one-third their right to Jas. T. McHugh, same place. [Filed Mar. 26, 1876.]

Brief.—Air passes through the flues in the sides of the fuel-chamber, forward to the base of the stack, returning in the passages in the furnace sides to the upper transverse flue, whence it discharges into the air-chamber having the regulating-gate.



1. In a metallurgic furnace, the combination of the induct-flues *i i*, the chamber *k*, the duct *s*, the return side flues *h h*, and air-chamber D, with the fire-chamber and working-chamber, substantially as described.

2. In a metallurgic furnace, the combination of the fire-chamber A, flue B, gas-chamber C, bridge-walls F and G, and hot-air chamber D, with the working-chamber, substantially as described.

3. The combination of the fire-chamber A, flue B, gas-chamber C, with the air-chamber D, substantially as described.

179,073. SEAL-LOCKS. Thomas A. Black and Jos. G. Fisher, Toledo, Ohio. [Filed Feb. 10, 1876.]

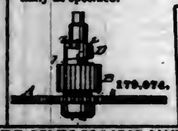


1. In combination with the detachable key G, provided with the head *g*, and arranged to pass through the opening *c'* of the hasp C, and to engage with the latch K upon the inner face of the door B, the seal M having an opening, *m*, to enable it to be passed over the body of said key, and be contained between said head *g* and the outer face of said hasp, substantially as and for the purpose shown.

2. The hasp C, provided with the openings *s* and *c'*, the staple D, the pin E, the plate F provided with the projection *f* and opening *f'*, the key G having the head *g* and lip *g'*, the latch K pivoted upon the inner side of the door B, and the seal M, all constructed and combined to operate in the manner and for the purpose substantially as set forth.

179,074. SAFETY-PINIONS FOR WATCHES. Martin C. Smith, Hartville, Ill. [Filed July 17, 1875.]

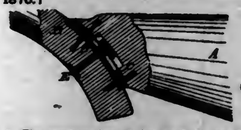
1. The combination, with the center-wheel and its perforated post, of the locking-pinion B, cam-collar D, having inclined planes on both edges, and the locking-pin *a*, substantially as specified.



179,074.

2. The combination, with the center wheel and its post, having stop *s*, of the pinion B, cam-collar D, engaging therewith by suitable inclines, and the contracting-spring *s*, substantially as specified.

179,075. STOCKS FOR FIRE-ARMS. George Smith, South Bend, Ind. [Filed Apr. 4, 1876.]

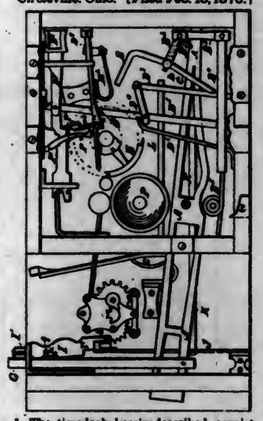


1. The combination of the stock B and the butt-piece A, when the said butt-piece is adapted to be adjusted bodily upon the said stock, substantially as described and shown.

2. The combination, with the butt A and grip B, of the slotted plate C, the plate D, the sliding block *b*, and screw E, substantially as described and shown.

3. The combination, with the butt piece A, adjustably secured to the grip B, of the plate C, having the stud *d*, and the plate D, having the sockets *f*, substantially as described and shown.

179,076. JUMB-LOCKS. Thos. W. Spencer, Circleville, Ohio. [Filed Feb. 16, 1876.]



1. The time-lock herein described, consisting essentially of the bolt A, the spring B', the arm C, the trip D, in connection with the time-wheel, the bar D', the stop F', and the locking lever I, with the intermediate mechanism, substantially as described, for operating the same, substantially as set forth.

2. In combination with the bolt of a time-lock, the upright bar D', detent-bar D', stop-piece F', and intermediate mechanism, whereby the time movement releases said bolt, substantially as and for the purpose described.

3. The combination, with the bolt A, of the upright bar G, with its projections G' G', together with the sliding bracket H and lever I, provided with the notch I' and shoulder I', substantially as described.

4. The combination, with the bracket H, the bar G, and lever I, of the spring J, and rod K, substantially as and for the purpose described.

5. The spring-pressed sliding bracket, for throwing in relative engagement the wheel N' and time-wheel E while the clock-movement is being set for any appointed hour, substantially as and for the purpose described.

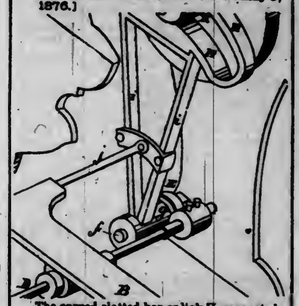
179,077. OIL-WELL TORPEDOES. Edwd. B. Swett, Knox, Pa. [Filed May 21, 1876.]



1. The combination of the double conical shell A^1 A^2, the central tube B, and the plate or bar *h*, whereby the torpedo is rendered self-tamping, and the explosive substance is so disposed as to exert the greatest force in a lateral direction, substantially as herein described.

2. The combination of the slotted tubes G, containing the caps or fulminate-holders J, the hammers H, sliding in said tubes, and the weighted rod C, provided with the head *c*, whereby the torpedo is rendered self-exploding, substantially as described.

179,078. MECHANICAL MOVEMENTS. Robt. Swarbrick, Oakland, Cal. [Filed May 9, 1876.]



The curved slotted bar or link H, connected with the fixed shaft D by the loosely-attached crank-arm E, and connected with the treadle B by means of the pitman *f*, in combination with the driving-shaft C with its india-rubber ferrule or casing *k*, substantially as and for the purpose described.

179,079. ATOMIZERS. Daniel J. Tapley, Brooklyn, N. Y., assignor to Theo. Hickeocker, New York city. [Filed May 5, 1876.]

Brief.—The rubber bulb of the atomizer is concealed in the hollow under the base of a bell-shaped liquid-receptacle.



The combination, in an atomizer or vaporizer, of a liquid-vessel provided with liquid-tube *b*, air-tube *c*, and curved recess C in its base, and the collapsible air-bulb D, inserted in said recess, arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

179,080. CARPET-STRETCHERS. S. Thompson, Byron, N. Y. [Filed Apr. 17, 1876.]



179,081. BRACKET FLOWER-STANDS. W. H. Shirley, Danvers, Mass. [Filed Apr. 28, 1876.]

1. A dial provided with characters or marks to denote, on inspection, that the circuit is to be opened or closed at that point, in combination with a pointer, an electro-magnet, and pallets, substantially as set forth.

2. The stationary dial *a*, with an opening, 1, in it, in combination with a hand, *c*, and a second dial, *m*, revolving behind the opening, and revolved by the shaft of the hand *c*, substantially as set forth.

3. The dial *a*, with opening 1, in combination with the shifting cover *m* and dial *l*, substantially as set forth.

4. The bell *t*, mounted upon an arm, and movable therewith, in combination with the swinging armature and hammer, substantially as set forth.

179,082. WASTE AND OVERFLOW PIPES OF WASH-BOWLS, SINKS, &c. G. E. Waring, Jr., Newport, R. I. [Filed Apr. 12, 1876.]

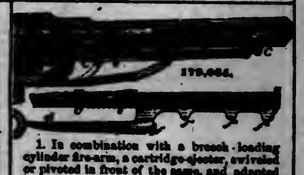
Brief.—The object is to prevent the escape of sewer-gas from the overflow-openings of the bowl.



The combination of a stop-cock, faucet, or other stopper with the overflow-pipe of a wash-bowl or other article of a similar nature, and with the stop-cock or faucet of the supply-pipe, said stop-cocks being connected, so that they open and close simultaneously, substantially as set forth.

179,083. CARTRIDGE-EJECTORS FOR REVOLVERS. Hollis White, Lowell, Mass. [Filed May 23, 1876.]

Brief.—Ejector follows revolving motion of cylinder.



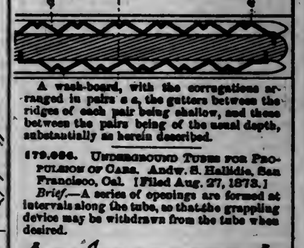
179,083.

1. In combination with a breech-loading cylinder fire-arm, a cartridge-ejector, swiveled or pivoted in front of the same, and adapted to rotate the cylinder while it is ejecting the cartridge, or be rotated by such cylinder, substantially as described.

2. In combination with a cartridge-ejector having a shoulder, *c*, an incline, E, upon the pistol, substantially as and for the purposes set forth.

3. In combination with a cartridge-ejector and the rod C, the spring *s*, secured at one end to such rod and at the other end to the ejector, by which the tensional force of the spring is exerted to partially rotate the ejector-stem when it is withdrawn from the chamber for the purpose of returning it to its normal position.

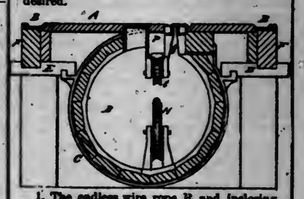
179,085. WASH-BOARDS. Geo. B. Wright, Benton Harbor, Mich. [Filed Mar. 31, 1876.]



A wash-board, with the corrugations arranged in pairs *a a*, the gutters between the ridges of each pair being shallow, and those between the pairs being of the usual depth, substantially as herein described.

179,086. UNDERGROUND TUBES FOR PROPULSION OF CARS. Andw. S. Hallidie, San Francisco, Cal. [Filed Aug. 27, 1873.]

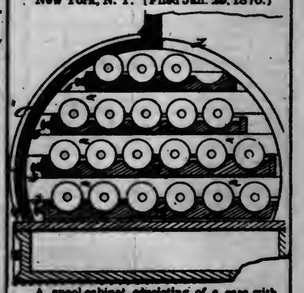
Brief.—A series of openings are formed at intervals along the tube, so that the grappling device may be withdrawn from the tube when desired.



1. The endless wire rope E and inclosing slotted tube D, in combination with the supporting-pulleys *t* H, the openings P, all constructed and arranged to operate substantially as described.

2. The depending pulley *t* for sustaining the upward thrust of the rope inside of the tube D, at the bottom of the inclines, substantially as and for the purpose described.

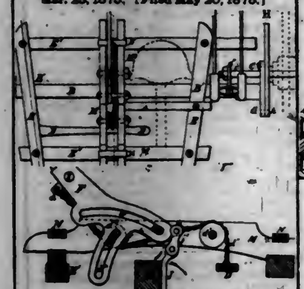
179,087. SPOOL-CABINETS. S. Schmittner, New York, N. Y. [Filed Jan. 20, 1876.]



A spool-cabinet, consisting of a case with sliding spool-trays and an arc-shaped movable glass front sliding in guide-grooves of the case, substantially in the manner and for the purpose set forth.

REISSUES.

7,179. HORSE HAY-RAKE. Wm. S. Archer, Dayton, Ohio, assignor of three-fourths of his right to C. B. Clegg, B. M. Wood, and G. A. Archer. Patent No. 160,993, dated Mar. 23, 1875. [Filed May 20, 1876.]



1. In a horse hay-rake, a vertically-adjustable and swinging rake-head, hinged at its rear side to the shafts of the machine, it being arranged with reference to the wheel-spindles, substantially as shown, whereby the position of the outer ends of the rake-teeth can be regulated with reference to the ground, and whereby the resistance offered by the material to be gathered is made to aid in swinging the head to a position below the spindles, for the purpose of facilitating the discharge of the load, substantially as set forth.

2. The slotted curved lever F, in combination with the connecting-links *f* and *f'* and rake-head B, substantially as and for the purpose described.

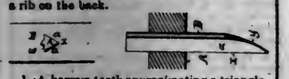
3. The slotted plate G and plate H, combined with the spindle C, slotted plate I, and rake-head B, substantially as and for the purpose described.

4. The combination of the slotted lever F, pins *b c*, link *f'*, chain *d''*, treadle D, and rake-head B, for the purpose described.

5. The guard-plate P, when constructed as shown, and combined with the teeth-holders L L', whereby it is made to act as a support for two rake-teeth against side pressure, as well as to prevent the clogging of the hay around the upper ends of the teeth.

7,180. HARROW-TEETH. Henry B. Fargo, Fond du Lac, Wis. Patent No. 158,430, dated July 28, 1874. [Filed June 9, 1876.]

Brief.—Triangular harrow-tooth with straight edge and inclined back, and having a rib on the back.

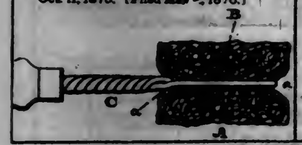


1. A harrow-tooth approximating a triangle in cross-section, having inclined faces *a a*, meeting and forming a straight edge, *x*, and inclined from the wide toward the narrow edge, forming a beveled face, *y*, substantially as set forth.

2. A harrow-tooth approximating an equilateral triangle in cross-section, and pointed by being beveled from the wide side downward to the opposite and longest edge *x*, as set forth.

3. The tooth A, of triangular form, as shown, and having a narrow V-shaped tongue or ridge, B, raised on the center of the face *a*, running lengthwise of the tooth down to where it commences to point, substantially as and for the purposes set forth.

7,181. SPOKE ENGINE. Hugh S. Kerr, Philadelphia, Pa. Patent No. 126,309, dated May 7, 1872; reissue No. 6,602, dated Oct. 11, 1875. [Filed May 4, 1876.]

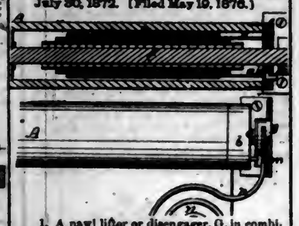


1. The brush having a head, A, of sponge, with a circumferential groove, *a*, for the encircling loop of the handle, substantially as and for the purpose set forth.

2. The sponge-head holder, consisting of the loop B and the double-and-twisted shank C, continuous thereof, and formed of a single piece of wire, substantially as and for the purpose set forth.

3. The sponge head A, with circumferential groove *a*, in combination with the wire loop B and shank C, continuous of each other, substantially as and for the purpose set forth.

7,182. CURTAIN-FIXTURES. A. H. Knapp, Newton, Mass. Patent No. 129,893, dated July 30, 1872. [Filed May 19, 1876.]



1. A pawl lifter or disengager, G, in combination with a spring-actuated curtain-roller, provided with a ratchet-and-pawl shade-retaining device, so arranged that a lateral movement of the shade from its vertical or hanging position lifts or disengages the pawl from the ratchet and allows the shade to rise, and the return of the shade to its vertical position allows the pawl again to engage with the ratchet, substantially as herein specified.

2. In combination with the spindle of a spring-actuated curtain-roller, a clutch, which upon the removal of the spindle from its bracket is caused by centrifugal force to engage with the roller, so as to prevent further unwinding of the spring, substantially as herein specified.

3. An enlarged bearing or bearings, *c*, for a spring-actuated curtain-roller, A, made of soft metal, in combination with a pivot-projection of the bracket, which supports the end of the roller, substantially as and for the purpose herein specified.

4. A tubular bearing, extending inward between the coils or layers of a reduplicated-layer spring, substantially as and for the purpose herein specified.

7,183. BUCKET-HARS. John G. Krichbaum, Youngstown, assignor to Barrett, Waters & Lewis, Cincinnati, Ohio. Patent No. 89,666, dated May 4, 1869. [Filed May 22, 1876.]

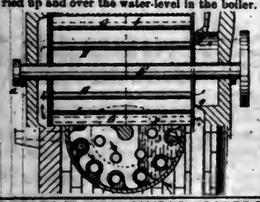


1. A bail-ear consisting of a single strip of material, the ends of which are bent at an angle to the body of the ear to form two prongs, located one above the other, and the upper portion of the ear formed into a loop for the attachment of the bail, substantially as set forth.

2. A bail-ear constructed with two prongs located one above the other, and a loop, and formed of a single piece of material, substantially as and for the purpose set forth.

7,184. ROTARY STEAM-BOILERS. Charles W. Pierce, New York, N. Y., assignor to the Pierce Rotary Tubular Boiler Company, same place. Patent No. 166,807, dated Aug. 17, 1875; reissue No. 6,750, dated Nov. 16, 1875. [Filed May 1, 1876.]

Brief.—Water-buckets encircle each of the center series of tubes, by which water is carried up and over the water-level in the boiler.

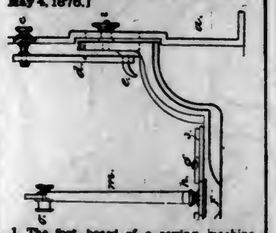


1. Two sets of tubes or flues passing through the heads of the boiler and concentric with each other, in combination with the annular flange *g* and chamber *h*, whereby the products of combustion are caused to pass through the outer series and return through the inner series, substantially as herein shown and described.

2. The annular flange *g* and chamber *h*, in combination with the tubes G and H, substantially as herein shown and described.

3. The combination of the shell D, buckets *b*, flues G and H, chamber *h*, flange *g*, and chimney A', constructed and operating substantially as herein shown and described.

7,185. TREADLES FOR SEWING-MACHINES. Wm. H. Stewart, Brooklyn, N. Y. Patent No. 144,906, dated Nov. 4, 1873. [Filed May 4, 1876.]



1. The foot-board of a sewing-machine treadle, adjustable horizontally backward and forward upon its supports, in combination with a bell-cranked rod or yoke, for the purpose of bringing the ankle-joints of the operator up to a plane vertical to the axis of the treadle, substantially as described and set forth.

2. The treadle rod or yoke F, suspended by the links *d*, and swinging upon the pivot-pins *i*, that are adjustable vertically in the slots of the yoke and frame *a*, substantially as and for the purposes set forth.

3. The foot-pieces *g*, adjustable horizontally upon the treadle-yoke F, in combination with the adjustable pivots and treadle, substantially as and for the purposes set forth.

4. The arm *m* and adjustable connections for the pitman to the sewing-machine crank, in combination with the swinging sewing-machine treadle yoke and foot-piece, substantially as and for the purposes set forth.

7,186. WHEELS FOR VEHICLES. Lathrop Dorman, Willimantic, Conn., assignor, by mesne assignments, to Chas. W. Fillmore, John R. Miner, Thos. Hoopes, Jr., and S. P. Darlington. Patent No. 64,955, dated May 21, 1867; reissue No. 5,509, dated July 29, 1873. [Filed June 12, 1876.]



1. The combination, with a grooved wooden core, of a mortised metallic shell, constructed and combined with the core, and operating in combination therewith, substantially as described.

2. The combination of a grooved wooden core, a mortised metallic shell, and spokes, the inner ends of which fill the groove in the core, and form a belt therein, substantially as and for the purposes described.

3. The combination of a mortised metallic shell, a wooden core with a dovetailed groove therein, the split spokes, and the wedges in the spokes, substantially as and for the purposes described.

4. The combination of a metallic mortised shell, a grooved wooden center or core, and the spokes, forming a continuous belt below or within the mortises, and a continuous belt above or around the mortises, substantially as described.

5. The combination, in a metallic shell, of the bars *b'* and flanges *b²*, for supporting the spokes, substantially as described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

OFFICIAL GAZETTE
OF THE
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COMMISSIONER'S DECISIONS.

J. STEPHENSON *vs.* A. C. GOODELL.—*Interference; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of John Stephenson, filed March 2, 1875, and the patent granted to A. C. Goodell, Jr., August 18, 1874, for* IMPROVEMENT IN STREET CARS. *Application filed May 4, 1874.—Decided June 3, 1876.*]

The proper signification of the term "reduction to practice" can only be determined by reference to the idea which it is intended to convey.

Complete invention amounts to demonstration. It has passed the region of experiment—of possible or probable failure—and has arrived at certainty by being embodied in the form intended, capable of producing the desired results.

The concurrent opinions of the courts and this Office sustain this view, that reduction to practice can only be effected by the material embodiment of the invention in the form in which it is ultimately designed for use.

A model alone, no matter how complete in details of construction, does not come within the operation of such a rule, and does not afford such evidence of complete invention as will defeat a patent on the ground of want of novelty.

[*P. Hannay*, attorney for Stephenson.
T. W. Clarke, attorney for Goodell.]

DUELL, *Commissioner:*

The only question that arises in the present case is as to which of the parties was first to reduce the invention to practice, such as the law requires as evidence of complete invention. The questions of fact are not controverted, and it is admitted, on the part of Goodell, that his conception of the invention was not earlier than the fore part of 1874, and that he made a model and applied for a patent in May, which was granted in August, 1874, and that he subsequently used the improvement on cars in Salem, Massachusetts. On the other hand, it is shown that Stephenson conceived of the invention in 1872, made a model thereof in March, 1873, and filed his application two years later.

The parties recognize the existence and application of the familiar rule of law, that he is the prior inventor and entitled to a patent who first reduces the invention to practice, unless another who was first to conceive was using reasonable diligence in adapting and perfecting his invention. It is contended, however, on the part of Goodell, that the model made by Stephenson in 1873 was not a reduction to practice in intendment of law, and the Examiner of Interferences and one member of the Board were also of this opinion; whereas Stephenson insists that the model exhibiting a complete structure and illustrating the operation of all the parts is a complete embodiment of the invention, such as secures to him the right to a patent; and this view was taken by the majority of the Board. It is not pretended that he has ever made and applied the device to a street-car, or that he has exercised that degree of diligence in so doing which the law demands of one who is endeavoring to defeat a patent on the ground that the patentee is not the first and original inventor, which is the position of the applicant in this case.

The issue resolves itself down to the single proposition: Does the making of a model constitute what the courts term a reduction to practice of the invention?

The proper signification of the term "reduction to practice" can only be determined by reference to the idea which it is intended to convey.

Complete invention amounts to demonstration. It has passed the region of experiment—of possible or probable failure—and has arrived at certainty, by being embodied in the form intended, capable of producing the desired results. As was said by Judge McKennan in *The Northwestern Fire-Extinguisher Co.* vs. *The Philadelphia Fire-Extinguisher Co.*, (6 OFFICIAL GAZETTE, 34:)

An experiment may be a trial, either of an incomplete mechanical structure to ascertain what changes or additions may be necessary to make it accomplish the design of its projector, or of a complete machine to illustrate or test its practical efficiency. Obviously, in the first case, the incompleteness of the inventor's efforts, if they were then abandoned, would have no effect upon the rights of a subsequent inventor. But if the experiment

proves the capacity of the machine to effect what its inventor proposed, the law assigns to him the merit of having produced a complete invention.

By carefully examining the great number of decisions on this point it will be found that most, if not all, of them sustain this view, and determine that reduction to practice can only be effected by the material embodiment of the invention in the form in which it is ultimately designed for use.

It may be stated as a legal proposition of general application, deducible from the decisions of the courts and the Office, that complete invention is arrived at when the ideas, theories, and speculations of the inventor have been put into such form, capable of operation, that a public use or sale of the device so constructed, (not simply an experimental use,) if made more than two years before the filing of an application, would constitute a bar to the grant of the patent. That a model, no matter how complete in details of construction, does not come within the operation of such a rule is evident; and it has been repeatedly decided that the prior construction of a model does not afford such evidence of complete invention as will defeat a patent on the ground of want of novelty. (*Johnson* vs. *McCullough*, 4 Fisher, 170. *Parkhurst* vs *Kinsman*, 1 Blatch., 488. *Cahoon* vs. *Ring*, 1 Fisher, 397. *Stillwell and Bierce Manufacturing Company* vs. *Cincinnati Gas Company*, 7 OFFICIAL GAZETTE, 829. *Stamthorp* vs. *Humiston*, 4 Fisher, 107. *Crane* vs. *Whitehead and Atherton*, 7 OFFICIAL GAZETTE, 219. *Northwestern Fire-Extinguisher Company* vs. *Philadelphia Fire-Extinguisher Company*, 6 OFFICIAL GAZETTE, 34. *Brown* vs. *Guild*, 6 OFFICIAL GAZETTE, 392. *Pattee* vs. *Russell*, 3 OFFICIAL GAZETTE, 181. *Hammond* vs. *Laird*, 7 OFFICIAL GAZETTE, 170. *Dana* vs. *Greenleaf and Adams*, 9 OFFICIAL GAZETTE, 198.)

Stephenson has therefore failed to make out such a case as would, in court, establish his right to the invention as against Goodell, who, though second to conceive of the invention and make a model, was first to reduce the invention to practice, apply for and obtain a patent, whereas Stephenson was negligent in all these, and has, in fact, never completed the invention.

The decision of the Board of Examiners-in-Chief is overruled, and priority of invention awarded to Goodell.

J. L. MASON.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of John L. Mason for reissue of Letters Patent No. 19,786, and extended March 30, 1858, for* "IMPROVEMENT IN LATHE-CHUCK."—*Decided June 14, 1876.*]

An applicant for reissue not permitted to establish priority as against a patentee whose patent has expired.

The Patent Office has no power to receive testimony on the question of priority in other than an interference proceeding.

Congress alone has the power to invest an individual with an invention after the same has become public property.

DOOLITTLE, *Acting Commissioner:*

This appeal is based upon the matter of the first and fourth claims in the application, which are for a screw-chuck for spinning caps of thin sheet metal, provided with a rounded thread, and made tapering toward its outer end.

Under the statutory power to revise and restrict reissue applications in the same manner as original applications are restricted and revised, the Examiner cited as a reference to these claims a patent granted to John K. Chase, October 27, 1857. The reference fully meets the claims, and this is not seriously contested by the applicant. He insists, however, that he invented this device prior to the filing of Chase's application, the date of which was June 15, 1857.

Applicant contends that the testimony taken by him in his extension proceedings showed that he invented this device prior to the date named, and that therefore he should now be considered the first and original inventor, if such testimony can be received in establishing such fact.

I am of opinion that the Office has no power to receive testimony upon the question of priority in any other manner, or in any other proceeding, than that expressly prescribed by law.

The only provision of law made since the adoption of the Constitution, authorizing the hearing and determining of the question of priority within the Office, is the one that establishes the proceeding called an "interference."

The general requirement of law that a patent should be granted to the first and original inventor is the basis of an interference proceeding, and presupposes a contesting party, and such party should be allowed the privilege of sustaining his oath by proof. In this instance, Chase's patent having expired, an interference cannot be declared. His invention has passed into the hands of the public, and the public is the real party in interest as opposed to the present applicant. But the public, even if it were possible for it to be made a party, should be allowed an opportunity to contest this matter, and not be confined to the *prima facie* case made by the filing of Chase's application. In that case Mason would be compelled to show, beyond all doubt, that he was not only the first and original inventor as against said Chase, but as to all others. This he has not done, nor attempted to do. He simply proposes to produce proof of the fact that he made this invention prior to the filing of Chase's application, which by no means is sufficient to establish priority in himself.

There is nothing in this proceeding which compels the Office or the public to rest upon the date of Chase's application as the date of his invention. Further, the public having been put into possession of this invention by express statutory enactment, Congress alone has the power to provide for its repossession by any particular person. The Office does not propose to usurp such power, and give to the present applicant what is now public property. For these reasons this application for reissue must be refused.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF CONNECTICUT.

THOMAS A. WESTON *vs.* WILLIAM H. WHITE *et al.*

An American patent will expire at the same time with the foreign patent granted to the same party or parties, but will not exceed the term of seventeen years.

The date of publication of the foreign patent is to be the date from which to determine the life of an American patent.

The fact that a patent has been issued does not of itself prove the introduction into common use without the necessity of other testimony.

[*E. Wetmore*, for plaintiff.
John S. Beach and *S. W. Kellogg*, for defendant.]

MOTION FOR PRELIMINARY INJUNCTION.

SHIPMAN, *J.:*

The facts which are disclosed by the record are that English letters patent were issued to Weston for the same invention described in the letters patent on which this suit is brought, bearing date April 25, 1859, and published October 22, 1859. Letters patent for substantially the same invention were granted by the United States to J. J. Doyle, bearing date January 8, 1861. The patent in suit bears date August 6, 1867, and was granted in pursuance of an application dated October 3, 1866, and received at the Patent Office December 1, 1866.

The main question which is thus presented is, did the plaintiff's American patent expire at the end of fourteen years from the date of the publication of his English patent?

In my opinion, the sixteenth and seventeenth sections of the act of 1861 were intended to change all pre-existing statutory provisions by which American patents were limited to fourteen years, and to provide thereafter a term of seventeen years, without extension. This being the intent of the legislature, the proviso of the sixth section of the act of 1839, that when a foreign patent had been granted to the patentee, prior to his American patent, the latter patent should be limited to the term of fourteen years from the date of such foreign letters patent, was, by the operation of the the sixteenth section of the act of 1861, necessarily amended, so that American patents subsequently issued, and embraced within such proviso, should extend for the new term of seventeen years from the date of the foreign patent.

The proviso was not based upon the idea that American patents should expire at the same time with the foreign patent. It is true that when an English patent had been taken out such would be the practical result; but it would not be the result when a patent had been granted by the government of a foreign nation whose laws provided a term of five, ten, or fifteen years.

The intent of the sixth section of the act of 1839 was, that in case a foreign patent had been issued while the American patent was to be issued for the term of fourteen years, which had been previously provided as the duration of the life of all American patents, subject to extension, the American patent should be considered, for the purposes of the duration of the term, as antedated to the commencement of the term of the foreign patent. The act of 1861 made no alteration in this general system of legislature; but having altered the term of American patents to seventeen years, and having provided for a repeal of all laws inconsistent therewith, the sixth section of the act of 1839 was changed accordingly by force of the new provision of the statute of 1861. The act of 1870 introduced a new principle, and provided that the American patent should expire at the same time with the foreign patent, but should not exceed a term of seventeen years.

The plaintiff's patent will not, therefore, expire until October 22, 1876.

The mere fact that letters patent of the United States were issued to J. J. Doyle, in 1861, for substantially the same invention which was patented to Weston, does not show that the invention had been introduced into public and common use in the United States prior to Weston's application. It may have been thus introduced; but the fact that a patent had been issued does not of itself prove the introduction into common use, without the necessity of other testimony.

The parties will proceed, and be heard in regard to the questions of fact which arise upon the motion of the plaintiff.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date June 27, 1876.]

9,348.—Carpets.—FRANK E. ALLEN, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed May 25, 1876. Term of patent 3½ years.

9,349 and **9,350.—Embroidery-Pattern.**—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Applications May 8 and June 14, 1876. Term of patents 3½ years.

9,351.—Carpets.—EUGÈNE DANIEL, Paris, France, assignor to THE ROXBURY CARPET COMPANY, Boston, Mass. Application filed June 8, 1876. Term of patent 3½ years.

9,352.—Fountains and Statuary.—JOSEPH W. FISKE, New York, N. Y. Application filed June 8, 1876. Term of patent 7 years.

9,353.—Fountains.—JOSEPH W. FISKE, New York, N. Y. Application filed June 8, 1876. Term of patent 7 years.

9,354.—Coffin-Hook.—GAYLORD S. GRAVES, Bainbridge, N. Y. Application filed May 10, 1876. Term of patent 7 years.

9,355.—Carpets.—JOHN HAMER, Dutchess county, assignor to SEAMLESS CLOTHING MANUFACTURING COMPANY, Matteawan, N. Y. Application filed June 1, 1876. Term of patent 3½ years.

9,356.—Flower-Stands.—JOSEPH KINTZ, West Meriden, Conn., assignor to himself and PATRICK J. CLARK, same place. Application filed May 22, 1876. Term of patent 7 years.

9,357.—Bracket for Printers' Composing-Stands.—SAMUEL SIMONS, Chicago, Ill. Application filed May 4, 1876. Term of patent 7 years.

9,358.—Needle-and-Thread Stand.—ELIZA C. L. SWINDLER, Magnolia, Ill. Application filed May 29, 1866. Term of patent 7 years.

9,359.—Photographic Mount.—ISAIAH W. TABER and THOMAS H. BOYD, San Francisco, Cal. Application filed February 23, 1876. Term of patent 3½ years.

9,360.—Fan.—BESSIE WALKER, Niagara Falls, N. Y. Application filed April 17, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 27, 1876.]

3,802.—Dental Compounds.—COLTON DENTAL ASSOCIATION, New York, N. Y. Application filed May 22, 1876. "word-symbol 'DENTONIC.'"

3,803.—Brushes for Toilet Purposes.—DESCHAMPS, MAUREY & Co., Paris, France. Application filed May 31, 1876. "the figure of a phenix and the representation of a star under each of its wings."

3,804.—Brushes for Toilet Purposes.—DESCHAMPS, MAUREY & Co., Paris, France. Application filed May 31, 1876. "the figure of a griffin represented with a paw resting on a ball, the latter being provided with two stars."

3,805.—Dry-Goods.—FIELD, LEITER & Co., Chicago, Ill. Application filed February 9, 1876.

"a shield or escutcheon, bearing upon its field a chevron and several sheaves of grain."

3,806.—Dry-Goods.—FIELD, LEITER & Co., Chicago, Ill. Application filed February 9, 1876.

"a shield bearing upon its field a chevron and sheaves of grain, surmounted by a single sheaf of grain."

3,807.—Dry-Goods.—FIELD, LEITER & Co., Chicago, Ill. Application filed February 9, 1876.

"a shield bearing upon its field a chevron and sheaves of grain, and surmounted by a crest, consisting of a hand and fore-arm thrust upward from surrounding flame, and bearing a dart."

3,808.—Notions or Fancy Goods.—FIELD, LEITER & Co., Chicago, Ill. Application filed May 8, 1876.

"a shield bearing upon its field a chevron and sheaves of grain, and surmounted by a crest consisting of a hand and fore-arm thrust upward from surrounding flame, and bearing a dart."

3,809.—Worsted Goods.—HALL & TURNER, Jamestown, N. Y. Application filed April 12, 1876.

"the following words, together with the following-described design: The words are 'Jamestown Alpaca Mills, Jamestown, New York,' and the design is a pastoral scene or view. In the background is shown an undulating pasture with young pine or fir trees scattered over its surface; in the foreground, a figure of a lady sitting upon a seat or bench feeding an Angora goat with pine boughs from a wicker basket upon her right arm. Resting against the seat or bench is a sickle or hook she is supposed to have used in the procuring of the boughs she is feeding to the goat."

3,810.—Flower and Garden Seeds and Seed-Grains.—HARVEY BROTHERS, Buffalo, N. Y. Application filed April 1, 1876.

"words 'The Buffalo Seed Ware-house' and a figure of a buffalo-head."

3,811.—Natural Mineral-Spring Water.—A. HAWLEY HEATH, New York, N. Y. Application filed March 8, 1876.

"word 'ASAHEL.'"

3,812.—Hames, Chains, Traces, Single and Double Trees, Rings, and Clips.—KREIN & OLIVER, St. Louis, Mo. Application filed May 19, 1876.

"the representation, design, picture, or print of an elephant secured as a draft-animal, by means of hames, traces, single-tree, and chains, &c., to a tree in an open field. On the body of the elephant are represented the initial letters of the firm-name—viz., 'K. & O.' The surrounding border consists of a chain, the ends whereof, united, show a swivel and hook or ring."

3,813.—Medical Compound.—DANIEL LANGELL, Apple Creek, Ohio. Application filed June 20, 1876.

"the representation of a man in a sitting posture and leaning forward while he is inhaling ascending smoke of my said compound burning on a plate."

3,814.—Soap.—LAUTZ BROS. & Co., Buffalo, N. Y. Application filed July 8, 1875.

"words 'ERIN GO BRAGH, SHAMROCK.'"

3,815.—Sewing-Silk and Twist.—LESHER, WHITMAN & Co., New York, N. Y. Application filed June 3, 1876.

"word 'Crown' and the figure of a crown."

3,816.—Photograph-Albums.—LIEBENROTH, VAN AUW & Co., New York, N. Y. Application filed May 27, 1876.

"the representation of an American eagle with spread wings, and with a shield with the stars and stripes on his breast, perched upon an open book or album."

3,817.—Medicinal Candy.—ROBERT J. MURRAY, New York, N. Y. Application filed May 26, 1876.

"word and figures 'Buchu, 1876,' inclosed within a circle, and the words 'Murray's Candy.'"

3,818.—Inks and Blacking for Boots and Shoes.—THOMAS W. POPE, Brockton, Mass. Application filed March 23, 1876.

"the figure of a star."

3,819.—Ink.—HENRY C. STEPHENS, London, England. Application filed May 18, 1876.

"The trade-mark consists, substantially, of the label, as shown in the accompanying fac-simile. Its essential features are, first, the shape and configuration of the label; second, the complex figures and designs forming the borders and the remaining portions not designated as tablets or spaces; third, the shape and arrangement of the tablets or spaces and their actual and relative positions in the label; fourth, the arrangement or dispensation of the words in the fac-simile which accompanies this specification; fifth, the arrangement or disposition of color."

3,820.—Writing-Fluid.—HENRY C. STEPHENS, London, England. Application filed May 18, 1876.

"word 'AEILYTON.'"

3,821.—Ink.—HENRY C. STEPHENS, London, England. Application filed May 18, 1876.

"The trade-mark consists, substantially, of the label, as shown in the accompanying fac-simile. Its essential features are, first, the figures, patterns, and designs forming the borders, and the other portions not designated as tablets; second, the shape and arrangement of these tablets, and their actual and relative positions in the label; third, the arrangement or disposition of the words, and of the color, as shown in the accompanying fac-simile."

3,822.—Ink.—HENRY C. STEPHENS, London, England. Application filed May 18, 1876.

"The trade-mark consists, substantially, of the label as shown in the accompanying fac simile. Its essential features are, first, the complex figures, patterns, and designs forming the borders and the remaining portions not designated as tablets; second, the shape and arrangement of these tablets, and their actual and relative positions in the label; third, the arrangement or disposition of the words and colors, as shown in the accompanying fac-simile."

3,823.—Cigars.—SIMMONS & STAIGER, Leavenworth, Kansas. Application filed June 7, 1876.

"word 'SULTANA' and a picture representing a female richly clad in Turkish costume reclining, half seated, on a divan."

3,824.—Printing-Ink.—W. D. WILSON & Co., New York, N. Y. Application filed May 27, 1876.

"the representation within a circle, on black or other background, of a quill pen and pencil-holder crossing each other in the center, with a hand represented grasping scattering forks of lightning above, and a printing-press, together with the words 'E tenebris lux' below the said crossed pen and pencil-holder."

3,825.—Horse-Powers.—THE AULTMAN & TAYLOR COMPANY, Mansfield, Ohio. Application filed May 18, 1876.

"the words 'AFTER A FULL DAY'S WORK IN AN AULTMAN-TAYLOR HORSE-POWER.'"

3,826.—Flour.—SAVIER & Co., Portland, Oregon. Application filed May 31, 1871.

"the word-symbol 'Imperial.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date June 27, 1876.]

770.—Title: **"Lord's Malaria and Liver Pills."**—WALTER H. BEADLE, Brooklyn, N. Y. Application filed June 16, 1876.

771.—Title: **"Cedron."**—SARAH J. NIXDORF, Lancaster, Pa. Application filed June 17, 1876.

772.—Title: **"Grand-ma Nixon's Infallible Diarrhœa Cure."**—E. SMITH, Brooklyn, N. Y. Application filed June 20, 1875.

773.—Title: **"C. W. Snow & Co.'s Concentrated Liquid Annatto."**—C. W. SNOW & Co., Syracuse, N. Y. Application filed June 13, 1876.

774.—Title: **"Saxon's Prize Baking Powder."**—STEELE & PRICE, Chicago, Ill. Application filed June 16, 1876.

775.—Title: **"Pearline, the Parisian Starch Gloss."**—JULIUS M. SWAIN, Boston, Mass. Application filed June 17, 1876.

776.—Title: **Calman's Cough Balsam."**—W. W. WHIPPLE & Co., Portland, Me. Application filed June 19, 1876.

777.—Title: **"Peptonic Pills."**—JOHN WYETH & BROTHER, Philadelphia, Pa. Application filed June 15, 1876.

THE OFFICIAL GAZETTE.

The OFFICIAL GAZETTE of the United States Patent Office is published weekly by the Patent Office. It is printed by authority of an act of Congress, which provides for its gratuitous distribution to libraries at the rate of eight for each congressional district.

The GAZETTE contains the decisions of the Commissioner of Patents, and such decisions of the courts in patent causes as are believed to possess general interest to inventors and patentees.

The claims of all patents granted are printed in the GAZETTE, bearing the same date as the issue of the patent, accompanied by a brief synopsis of the invention and a portion of the drawing.

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Finally, any matter believed to be of interest to inventors in their official intercourse with the Office, will receive in the GAZETTE the attention the subject warrants.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter-Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

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TITLES, DRAWINGS AND CLAIMS

OF

PATENTS GRANTED JUNE 27, 1876.

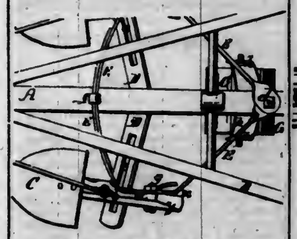
179,088. NEEDLE BARS AND CYLINDERS OF KNITTING-MACHINES. William H. Abel, Bridgewater, N. H. [Filed Mar. 22, 1876.]

Brief.—The needle bar or cylinder is made smooth upon its working-surface, and then grooves or channels are cut therein for the reception of the metal filets or ribs, which are rigidly secured within their respective channels.



A needle bar or cylinder for knitting-looms having independently and separately constructed filets or ribs, which are rigidly secured thereto, for the purposes stated.

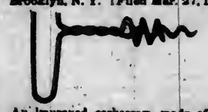
179,089. CULTIVATORS. Dewitt C. Baker, Fulton, N. Y. [Filed Apr. 21, 1876.]



1. The combination of the shovel-standards *e e*, having inclined sides *x x* and right-angled sides *y y*, the adjusting wing-irons E E, and the slotted bent bar D, substantially as and for the purpose herein specified.

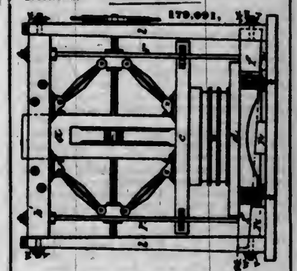
2. A cultivator constructed with a central beam, A, as set forth, and with shovels C C, arranged as described, and provided with a roller, G, attached thereto by means of a spring, H, substantially as and for the purpose herein specified.

179,090. CORKSCREWS. Joshua Barnes, Brooklyn, N. Y. [Filed Mar. 27, 1876.]



An improved corkscrew, made of one or more pieces of iron, steel, or brass wire, or of other suitable material, and with two or more coils or spirals, and thus adapted for drawing corks of all sizes, substantially as shown and described.

179,091. PRESSES. Geo. B. Boomer, Syracuse, N. Y. [Filed Feb. 24, 1876.]



Brief.—The follower, guided on rods, is worked by a screw and toggle-joints. The platform is a carriage on a wheel-track, to pass the load from under the press on either side. Before pressure a removable wedge is slid on its blocks beneath the carriage.

1. The arrangement, with the press-bed *b* and platform *d*, of the tracks *t t*, attached to the platform such distance apart that their contact with the press-bed will limit the movement of the platform, so as to bring the cheese of pomace on the corresponding end of the platform, directly under the follower, and the rails or tracks *s s* terminated at the sides of the press-bed, and allowing the same to settle to its foundation below the tracks, all constructed and arranged to operate substantially as and for the purpose specified and shown.

2. The combination, with the movable platform *d*, mounted on tracks *t t*, and the tracks *s s*, of the blocks *n n*, arranged in sets transversely to the tracks, and at opposite sides of the press-bed *b* and the key *f*, substantially in the manner and for the purpose specified.

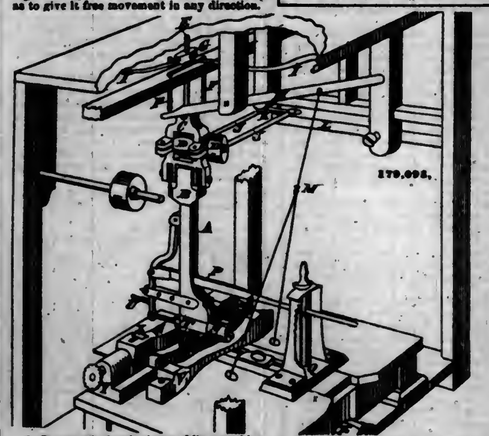
179,092. FAUCETS. William S. Booth and Thomas H. Hall, Baton Rouge, La. [Filed Apr. 5, 1876.]



As a faucet device for drawing beer or liquor from casks, &c., the bung part A, having the hollow cylinder *a*, with lateral perforations at *a'*, and spring-plunger *a''*, with screw-head *a'''*, adapted to abut on spindle *c'*, and outer female screw-opening *a'''*, and having socket *a''*, together with the tap part B, having stop-cock *b*, flange *b'*, pipe *b''*, carrying-post *b'''*, and having perforations *b'* and male screw-thread *b''*, all combined and arranged to operate as and for the purpose specified.

179,093. MOLDING-MACHINES. H. Buckter, Louisville, Ky. [Filed Mar. 31, 1876.]

Brief.—A variety-molding machine having its cutter-head on the extremity of a swinging arm suspended from above in such a way as to give it free movement in any direction.

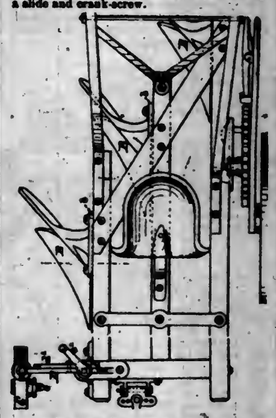


1. In a vertical swinging molding-machine, partly hung on springs and partly resting on the curved way below, the combination of the lever A, curved bar O, and lever P, with its stand Q, brace R, tool or cutter spindle and pulley S, sheave T, and handle U, when arranged, constructed, and operated substantially as and for the purpose herein set forth.

2. In combination with the vertical swinging lever A, above described, the head-piece B and cleris C, with its pulleys D D, spindle E, pins F F, collar G, lever H, springs I I, bars J J and K, springs L, and cord M, when arranged, constructed, and operated substantially as and for the purpose herein set forth.

179,094. GANG-PLOWS. Amos T. Button and Samuel J. Lundy, Uxbridge, Canada. [Filed Mar. 7, 1876.]

Brief.—The beam thrown to the land side of the plow; a yielding clevis; a furrow-wheel swiveled upon an arm vertically adjustable by a slide and crank-screw.



1. In a plow, the shares B, having the arms *b* and *b'*, the former extending upward perpendicularly from and on a line with, and directly over the land-side of the share, and the latter extending laterally from the base of the former on the land-side of the share, whereby when the beam A is secured in the seat thus constituted on the share, the land-side of the share will be on a line with the furrow side of the beam, as described, and for the purpose specified

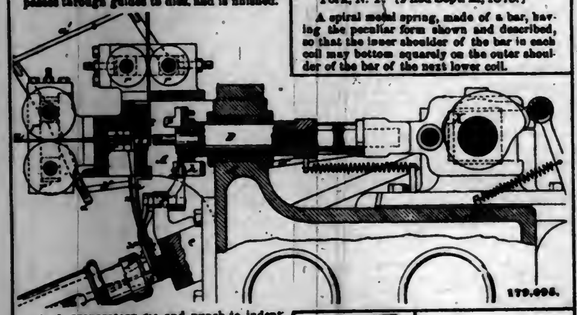
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2. In a gang-plow, the combination of the guide-wheel C on axle c, carried by swivel-arm c', the bar D, with its female screw d', the slotted upright bracket F, male screw d', crank d', and cam-lever d', all arranged to operate as and for the purpose specified.

3. In a gang-plow, the slip draw-clevis F, having the key f, with its rearward-opening slot f', the chain f', bolt f', and nut f', arranged to operate as and for the purpose specified.

179,095. MACHINES FOR MAKING NAILS OF SEPARATE HEADS AND SHANKS. L. Frederic Curtis and Edmond F. Bonaventure, New York, N. Y.; said Bonaventure assignor to said Curtis. (Filed Feb. 20, 1875.)

Brief.—The nail-shank is made from a rod which is fed into the forming-dies by rolls, and while therein held is fitted with a head-blank by the die; the strip from which the head-blank is cut having been fed into the machine by rolls, and having been submitted to the action of the die and punch, whose function is to make an indentation to receive the shank. The nail-blank thus formed passes through guides to dies, and is finished.



179,095.

1. A preparatory die and punch to indent the head-blank, combined with a die and punch to sever the head-blank, head the blank, and rivet it fast to the head-blank, substantially as described.

2. A machine fitted with a combination of dies and punches, arranged to operate substantially as described, by which a nail is made of two pieces of metal in a single machine automatically substantially as described.

3. The rollers r r, combined and operating in combination with the dies s s and punch u, in the manner described, for the purpose of feeding at proper intervals the metal to the machine of which the nail-heads are made, as set forth.

4. The rollers r' r', combined and operated in combination with the rollers r r, the slides Y, and the ram D, and with their respective motors, as described, for the purpose of feeding at proper intervals the iron or metal to the machine out of which the nail-shank or rivet is made, as set forth, at the same time and in combination with the metal for the head-blank.

5. The transfer-guide m, by which the blank or unfinished nail is transferred with the head-blank on a horizontal or oblique plane from the preparatory dies s to the finishing-dies h, in combination with said preparatory and finishing dies.

6. The cam h, in combination with the head of the ram D and the plier-heads g g, for the purpose of operating the said pliers, as set forth.

7. The pinion l i, in combination with the guide m, to aid in transferring the unfinished nail from the preparatory dies to the finishing-dies.

8. The pliers, in combination with the ram F and die J, for the purpose of transferring the nail-blank from the dies s s to said ram and die, and for the purpose of adjusting it in the punch and over the die, as set forth.

9. The combination, in the said machine, of the die and ram for making and cutting the blank shank and head of the nail, with the die and ram for swaging or finishing the head of the nail, substantially as set forth.

10. In combination with the guide and pliers by which the unfinished nail is transferred from the preparatory to the finishing dies, a stop, o, to stop the fall of the unfinished nail after it is discharged from the heading-die, and keep it from falling through the pliers to the swaging or finishing dies before the pliers are ready to transfer it.

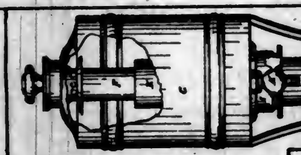
179,096. FLUID-MEASURES AND PUMPS COMBINED. Wm. H. Clark and Wm. J. Clark, Salem, Ohio. (Filed May 3, 1876.)

1. A pump barrel or tube, A F, when made in two or more parts telescopically arranged, for the purpose set forth, and in the manner substantially as described.

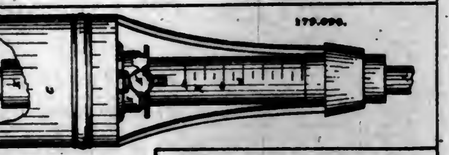
2. In combination with a receiver or elevated vessel, G, an adjustable gage-tube, K, substantially as described, and for the purpose specified.

179,097. CAR-SPRINGS. Edward Cliff, New York, N. Y. (Filed Sept. 21, 1875.)

A spiral metal sprag, made of a bar, having the peculiar form shown and described, so that the inner shoulder of the bar in each coil may bottom squarely on the outer shoulder of the bar of the next lower coil.



179,097.



179,098.

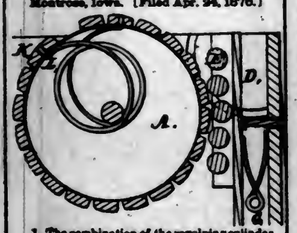
179,098. BURIAL-CASES. Francis W. Colby, Streator, and Joseph Drew, Wenona, Ill. (Filed Nov. 11, 1876.)

Brief.—A metal frame has an interior body, and panels of cement and wire, and eyes are firmly embedded for long removable handles.

1. The combination of the metal frame F E H G with the cement and wire case A B C D, as described and shown.

2. The combination of the eyes a and removable handle-rods d with the case, constructed as described.

179,099. WASHING-MACHINES. E. Cooper, Montrose, Iowa. (Filed Apr. 24, 1876.)

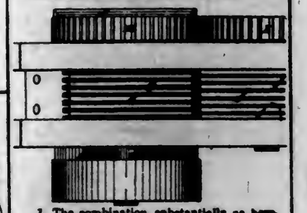


1. The combination of the revolving cylinder A, the follower-board D, with rollers B and spring G, with the movable rubbing-slat K, with clamping-springs L, arranged to catch and hold the clothes, to allow the cylinder to be reveived and reversed to wash them, substantially as set forth.

2. The combination of the guide-arm H with the follower D and wheel A, substantially as set forth.

3. The follower D, having the combination of the arm H, the springs, the projections in its ends, and the channels in the box, arranged to give it a certain motion and latitude of movement, guided substantially as set forth.

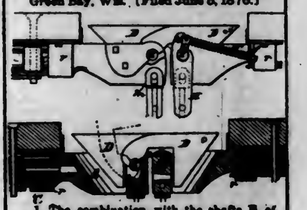
179,100. MACHINES FOR MAKING OATEN GRITS. Geo. H. Cormack, Rockford, Ill., assignor to Andrew M. Johnston & Co., same place. (Filed May 27, 1876.)



1. The combination, substantially as hereinbefore set forth, of the feed-wheel having annular grooves in which the grains lie lengthwise, and the correspondingly grooved toothed cutting-wheel, both wheels revolving at a uniform speed and in opposite directions, the teeth working in the grooves of the feed-wheel to cut or pinch the grain transversely.

2. The machine for preparing oaten grits, hereinbefore described, consisting of the combination of the hopper, the annularly-grooved feed-wheel revolving beneath the opening therein, the annularly-grooved toothed cutter-wheel, revolving in the opposite direction in the grooved wheel and at the same rate of speed, the scrapers for cleaning the grooves of the wheels, and the driving-gearing, these members being constructed and operating in combination, substantially as herein before set forth.

179,101. CAR-COUPLINGS. G. J. Orbelair, Green Bay, Wis. (Filed June 5, 1876.)



1. The combination, with the shafts B, of the hooks D, joined to the upper side of the shafts, and cast in one piece therewith, and the arms or shafts f, projecting laterally from the hooks, as shown and described.

2. The combination, with the draw-head having the socket a formed solid with the front wall, of the hook-shafts B, whereby said sockets constitute a part of the traction device, and also serve as protectors for the shafts in the coupling operation, as shown and described.

3. The combination, with the frame B, having vertical sides, of the central pivot-block and the bottom friction-plate connected therewith, and the cushions C, as shown and described, to operate as specified.

4. The swinging tongue connected to the draw-head by slotted arms, as shown and described.

5. The combination, with the hook-shaft E, of the boat lever H, mounted loosely thereon, and adapted to engage with a radial projection of the same, as shown and described.

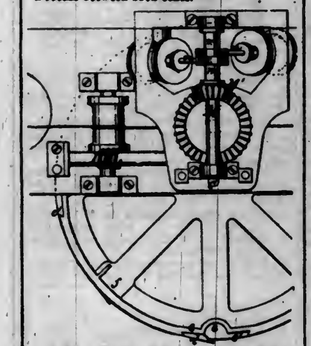
6. The combination of the lever H, spring-rod, and arms e f with the hook D and shaft E, as shown and described.

7. The combination of spring F, rod G, and arms e f with the hook D and shaft E, as shown and described, for the purpose specified.

8. The combination, with the draw-head cut away on one side, and the coupling-hook and shaft, of the removable plate p, having a bearing for the shaft, whereby it is adapted to prevent lateral movement of the same, and to sustain part of the tractive strain, as specified.

179,102. COAL-MINING MACHINES. Alex. Crombie, Braidwood, Ill. (Filed May 20, 1876.)

Brief.—A cutting-wheel of large diameter revolves beneath a frame on track-wheels, the gearing and engines lying compactly on, and being supported by, the frame in a lateral line. The periphery has tool-seats adapted to receive the tool in either direction, there being a recess between each seats.



1. The mining-machine herein described, wherein the shaft carrying the revolving, planing, or cutting wheel is contained within the main frame by supports entirely above the wheel, and receives its motion from engines by means of gears and shafts supported by, upon, and within, the main frame, substantially as and for the purpose set forth.

2. The revolving planing or cutting wheel, provided with right and left seats for planes or knives, between which seats a recess is formed, substantially as and for the purpose set forth.

179,103. PROCESSES FOR MANUFACTURING PAPER-PULP FROM WOOD. E. H. Furbish, Yarmouth, Me. (Filed Nov. 11, 1876.)

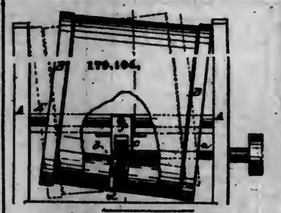
1. In the reduction of wood to pulp for paper manufacture, as herein described, wherein the chips are saturated with an alkaline solution previous to cooking, the process of preventing discoloration of the fiber while being subjected to heat, and of rendering bleaching easier and quicker, which consists in introducing into the vessel in which the chips are placed, after saturation has taken place and before heat is applied to the chips, a small quantity of water, as herein set forth.

2. The process of treating wood, in the reduction of it to pulp for paper manufacture, which consists of the following steps: Cutting off from the periphery of the log, and in a direction with the grain of the wood, thin veneer-chips; subjecting these chips to a thorough saturation in an alkaline solution, either with or without a cold pressure; drawing off the unabsorbed and surrounding part of the solution from the chips; placing a small quantity of water with the chips, and then submitting the chips to the action of steam or other heat, without contact of the steam with the same; and then discharging the mass into a percolating-tank, as and for the purposes set forth.

3. In the reduction of wood to pulp, the process of saving the fiber carried away by the steam in blowing off, which consists in condensing the steam into a vessel of water, whereby, also, the water is heated for subsequent use, substantially as described.

179,104. HARVESTERS. Elijah H. Gammon, Chicago, Ill. (Filed Mar. 17, 1876.)

The frame A, in combination with the shifting elevating belt-frame B, for changing the point of delivery of the grain to the receiver, substantially as and for the purpose set forth.



179,105.

179,105. CLIPPING-MACHINES. Albert W. Gavit, Philadelphia, Pa., assignor to himself and George E. Buckley, same place. (Filed Apr. 10, 1876.)

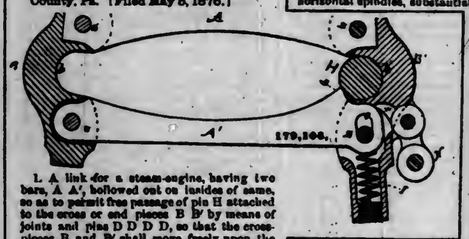
Brief.—A reciprocal motion is given to the cutter by means of a rack fixed on the end of the vibrating handle, through a gear-wheel attached to the cutter.



1. The combination, in a clipping-machine, of two levers, I and K, pivoted together, L, one having at its extremity a comb-plate, and the other a curved rack, M, gearing into a curved gear, C, which operates a serrated, toothed, vibratory cutting-plate, substantially as described.

2. The combination, in a clipping-machine, of two levers, pivoted together, L, one of said levers having at its extremity a comb-plate, all in combination with a serrated, toothed, rotary, vibratory cutter, operated by said levers and intermediate gearing, substantially as described.

179,106. LINKS FOR STEAM-ENGINES. W. H. Gilman, Donegal Township, Butler County, Pa. (Filed May 5, 1876.)



179,106.

1. A link for a steam-engine, having two bars, A A', hollowed out on insides of same, so as to permit free passage of pin H attached to the cross or end pieces B B' by means of joints and pins D D D D, so that the cross-pieces B and B' shall move freely upon the pins D D D D, when constructed substantially as and for the purpose described.

2. A link for a steam-engine formed of two bars, A A', connected by cross-pieces B B', so as to form the link, one of which bars is made movable, and having a shoulder, L, on one end of each bar, when constructed as and for the purpose set forth.

3. A link for a steam-engine having one of the bars or sides of the link movable when constructed as and for the purpose set forth.

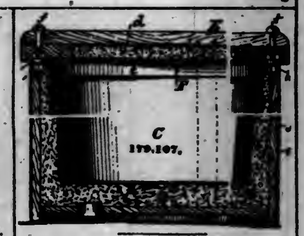
4. In combination with the cross-pieces B B', attached to the eccentric-rods of a steam-engine, the connecting-bars A A', the pin H, the lever N, and the spring I, and constructed substantially as and for the purpose set forth.

179,107. BUTTER PACKAGES OR TUBS. C. W. Granniss, Gowanda, N. Y. (Filed Dec. 8, 1876.)

Brief.—Butter-tub having flanged cover, and both cover and body having interior packing-space. Cover is screwed to body by permanent screw-fastening.

1. A butter package or tub, consisting of an exterior wooden casing, A, and an interior tapering receptacle, C, with an intermediate packing-space, D, in combination with the cover E, having the flanged plate F and internal packing-space d, substantially as shown and described.

2. The cover of a butter-tub, provided with permanent screw-fastenings, engaging with nuts in the tub, substantially as described.



179,107.

179,108. WINDMILLS. Daniel Halladay, Batavia, Ill. (Filed Mar. 13, 1876.)

Brief.—As the force of the wind increases the wheel will be thrown more and more around, until finally it is turned out of the wind altogether, and is brought against the brake; but as soon as the wind dies down, the weight of the wheel brings it back into position again, on account of the inclined position of the axis.

1. A wind-wheel mounted upon a bearing pivoted to the turn-table upon an inclined axis, so that the weight of the wheel tends to keep it always in the wind, substantially as described.

2. The combination of a wind-wheel, mounted upon a bearing pivoted to the turn-table, and a side vane, h, as and for the purposes set forth.

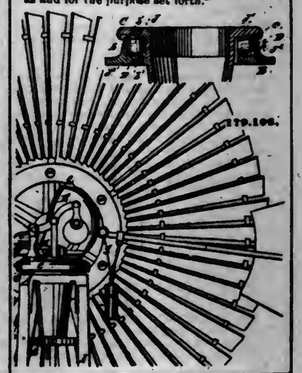
3. The combination of the wind-wheel, mounted in the bearing hinged to the turn-table, the side vane h, the cord g, and weight g', substantially as described.

4. The tubular bearing of the driving-shaft, made in two pieces, hinged together, substantially as described.

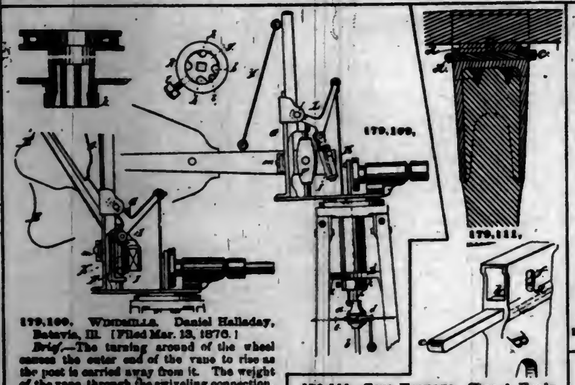
5. The combination of the tubular bearing, made in two parts, hinged together, and the driving-shaft F, also made in two parts, united by a universal joint, substantially as described.

6. The ring D, constructed as described, and carrying two sets of anti-friction rollers, one set turning on vertical and the other on horizontal spindles, substantially as set forth.

7. The combination of the plate B, constructed with a flange, b, the loose ring D, provided with two sets of anti-friction rollers, as described, and the turn-table C, substantially as and for the purpose set forth.



179,108.



179,109.

179,111.

179,109. WINDMILLS. Daniel Halladay, Batavia, Ill. [Filed Mar. 13, 1876.]

Brief.—The turning around of the wheel causes the outer end of the vane to rise as the post is carried away from it. The weight of the vane, through the swiveling connection, operates to bring the wheel back into the wind.

1. The combination of a turn-table, having a wind-wheel mounted thereon, a vane attached to the turn-table by a swiveling joint, and mechanism which raises the outer end of the vane when the wheel is turned out of the wind, so that the weight of the vane will operate to bring the wheel into the wind again, substantially as described.

2. The combination of the vane E, pivoted to the turn table, the post G, and the rod H, substantially as described.

3. The combination of the turn-table and the vane E, attached thereto by a swivel-connection, to admit of the horizontal movement of the turn-table, and the raising of the outer end of the vane, substantially as described.

4. The combination of the vane E, the yoke F, and post G, the vane being pivoted to the yoke and the turn-table, substantially as shown and described.

5. The combination of the vane E and angular lever L, attached to the forward end of the vane by a swiveling connection, and to the post G by a sliding connection, substantially as described.

6. The combination of the angular lever L, the pin K, and yoke I, pivoted to the forward end of the vane, substantially as described.

7. The guide *g*, grooved as described, and inserted in the tubular portion of the turn-table, as and for the purposes specified.

8. The combination of the guide *g*, the ring *h*, set-screw *l*, and the tubular portion of the turn-table, substantially as described.

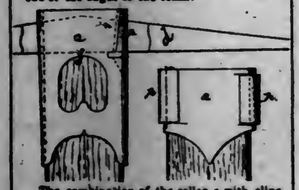
9. The combination of grooved slide *a*, connecting-rod *b*, the forked piece *d*, and extended cross-bar *c*, substantially as and for the purposes described.

10. The combination of a wind-wheel and vane, the latter arranged out of line with the drive-shaft, but hinged to the turn-table by a pivot in line with the axis of said shaft, so as to make the wheel self-regulating.

11. The combination of the hinged vane E and adjustable stop *m*, substantially as described.

179,110. TOOL-HANDLES. Chas. A. Hardy and Augustus B. Stayner, Sheffield, England; said Stayner assignor to said Hardy. [Filed Feb. 16, 1876.]

Brief.—The pick is attached to the handle by means of a metallic collar passed over the handle, and upon which the pick is placed and secured in position by a key or clip upon one of the edges of the collar.



The combination of the collar *a* with clips or keys *p*, the pick *d*, and handle *b*, all constructed, arranged, and operating substantially in the manner and for the purpose specified.

179,111. TOOL-HANDLES. Chas. A. Hardy and Augustus B. Stayner, Sheffield, England; said Stayner assignor to said Hardy. [Filed Mar. 4, 1876.]

Brief.—The pick is attached to the handle by a socket, through which it is passed and secured in position by a cushion and wedge working in the socket. The cushion is provided with a pin in its center, and the wedge with a pin through its end, to prevent them from falling out of the socket.

1. The socket B for the reception of both handle and pick, provided with slot *f* and groove *e*, substantially as herein specified.

2. The socket B, in combination with blade *g*, cushion *b* provided with pin *d*, and key *c* provided with pin *d'*, substantially as specified.

179,112. MANUFACTURE OF WATCH-CHAIN SWIVELS. John P. Harris, North Attleborough, Mass., assignor to E. H. Bottomley, same place. [Filed May 11, 1876.]

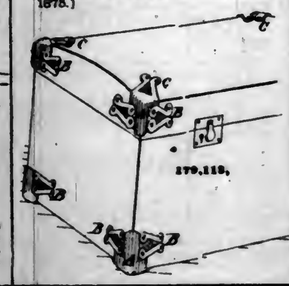
Brief.—The piece formed by the pinchers is severed from the bar, drilled axially to receive the spring, transversely to receive the latch-pivot, and is slotted for the reception of the latch-piece. The arm of a yoke-shaped piece of metal, which is formed with a lateral enlargement for the spring in the axial cavity to bear against, is inserted in the latch-channel, and secured therein by a pivot. The opposite arm of the yoke-piece is then sprung into the other side of the channel and soldered rigidly in place, when, an oblique cut being made through the yoke, the snap portion of the swivel is formed.



1. The method of manufacturing swivels, substantially as herein stated.

2. The instrument for fashioning or turning from the rod the body of the swivel, such instrument consisting of the pinchers B, with the female semi-dies U U, substantially as and for purposes stated.

179,113. TRUNK-CORNER CLAMPS. John W. C. Haskell, Chicago, Ill. [Filed July 2, 1875.]

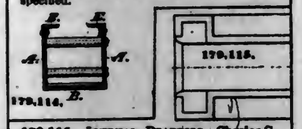


179,113.

As an improved article of manufacture, the cast-metal trunk-corner, consisting of the corner A, the two side wings B B, at right angles to each other, and the intermediate wing C, at right angles, or nearly so, to the side wings, the part A being made thicker than the wings, and rounded upon its outer surface, so as to project laterally and vertically beyond the plane of the wings for the purpose of protecting them and three sides of the trunk, substantially as described.

179,114. COMPOUND GIRDERS. Adam Hay, Newark, N. J. [Filed May 10, 1876.]

In the compound girder having the cast-iron base B and wrought-iron sides A, the combination of the angle-iron strips E therewith, substantially as and for the purpose specified.



179,114.

179,115.

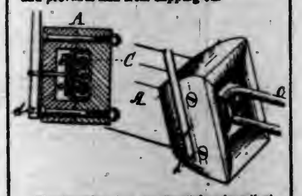
179,115. JOURNAL-BEARINGS. Charles C. Hoyt, St. Louis, Mo. [Filed Apr. 7, 1876.]

1. A journal-box provided with a solid bearing-surface of mica, as and for the purposes set forth.

2. The bearing-surface of mica with relation to Babbitt metal as its seat, as and for the purposes set forth.

179,116. CAR-COUPLINGS. W. N. Hutchinson, South Bay City, Mich., assignor to himself and W. P. Lapham, same place. [Filed Nov. 23, 1875.]

Brief.—Leaf-spring presses down upon stop, and prevents link from slipping off.



The draw-bar A *a*, constructed as described, the combination therewith of the buffer-spring B, leaf-spring C, yoke *e*, lever D, and staple *d*, in the manner and for the purpose set forth.

179,117. CARPET-LININGS. John L. Kendall, Foxborough, Mass., assignor of one-half his right to Richard H. Trested, New York city. [Filed Aug. 24, 1875.]

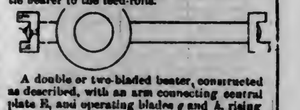
Brief.—One of the sheets of paper is corrugated, and the groove is filled with cotton or other suitable material. It is then applied to the plain sheet and secured by pasting or sewing.



A carpet-lining composed of a continuous corrugated sheet, *a*, having its corrugations *b* filled with cotton or other material, and of a continuous sheet, *b*, which is secured against and closes the filled corrugations *b* of sheet *a*, all substantially as described.

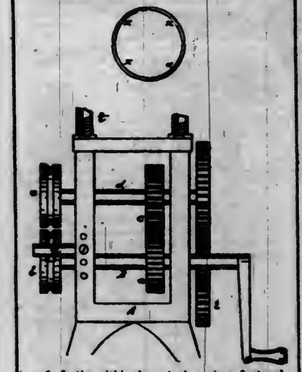
179,118. BEATERS FOR COTTON OPENERS AND PICKERS. Richard Kitson, Lowell, Mass. [Filed Jan. 5, 1876.]

Brief.—The beater-blade is formed of a central plate, from the opposite edge of which rise two flanges, (one shorter than the other,) which successively beat the cotton, the shorter operating-blade striking it first, and then the longer blade strikes the cotton a little nearer to the feed-rolls.



A double or two-bladed beater, constructed as described, with an arm connecting central plate E, and operating blades *g* and *h*, rising from its opposite edges, substantially as described.

179,119. SOLDER-WIRE MACHINE. R. M. Long, Portland, Me. [Filed Nov. 6, 1874.]



1. In the within-described machine for bending and cutting solder-wire, the combination of feed and guide wheels *b* and *c* with the automatic cutter-rod *l*, guide *g*, and adjustable guide *e*, substantially as and for the purpose set forth.

2. As a new article of manufacture, the curved segments, of solder-wire, two or more of which are adapted to form a nearly complete ring, substantially as and for the purposes set forth.

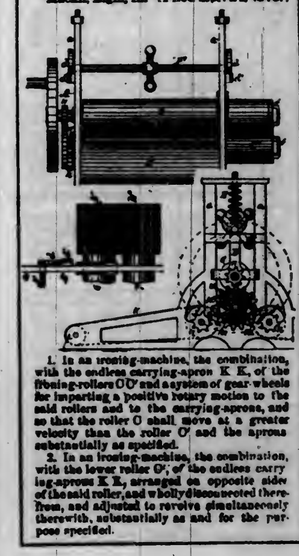
179,120. SHANK-BURNISHERS FOR BOOTS AND SHOES. William A. Mack, Norwalk, Ohio. [Filed Feb. 14 1876.]



1. A hand-burnisher made hollow or tubular, as described, so that it may be heated, in the manner substantially as and for the purpose specified.

2. The hollow hand-burnisher A, having projecting ends *b b*, in combination with elastic tubing B B, adapted to heat the burnisher, substantially as and for the purpose specified.

179,121. INCRUSTING APPARATUS. Charles Mackh, Elgin, Ill. [Filed Apr. 24, 1876.]



1. In an ironing-machine, the combination, with the endless carrying-apron K K, of the fluting-rollers O O' and a system of gear-wheels for imparting a positive rotary motion to the said rollers and to the carrying-aprons, and so that the roller O shall move at a greater velocity than the roller O' and the aprons substantially as specified.

2. In an ironing-machine, the combination, with the lower roller O', of the endless carrying-aprons K K, arranged on opposite sides of the said roller, and wholly disconnected therefrom, and adjusted to receive simultaneously therewith, substantially as and for the purpose specified.

3. The combination, with the uprights B B supporting the upper roller O, of the shaft F, eccentrics *d d*, and bars *d' d'*, substantially as and for the purpose specified.

4. The combination, with the uprights B B and eccentric shaft F, of the springs E E, substantially as and for the purpose specified.

5. In an ironing-machine, the combination, with the ironing-rollers O O' rotating at different velocity, of the fluting-rollers N N', the roller N being secured to the roller O so as to revolve with it, and the roller N' being secured to the roller O' so as to revolve therewith, substantially as and for the purpose specified.

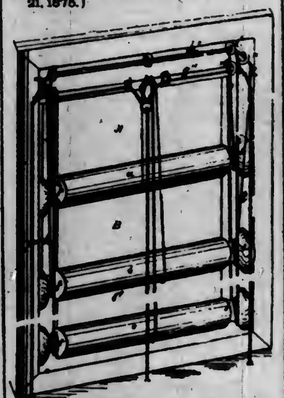
179,122. PLOW SHIELDS AND CLEANERS. Asa T. Martin, Jr., Butler County, Iowa. [Filed Aug. 12, 1875.]

Brief.—A revolving fender, concave and with serrated edges, attached to an arm or slide, which gravitates in the box-clamp attached to the plow-beam.



As a feeder attachment for plows, the combination of the gravitating toothed wheel A, hub B, stud *b*, plate C, and stirrup D, with guides *d*, all constructed substantially as and for the purposes herein set forth.

179,123. SECTIONAL WINDOW-SHADES. O. W. McGill, Salineville, Ohio. [Filed Oct. 21, 1875.]



As an improvement in window-shades, the sections A, B, and C, covering respectively the upper, middle, and lower portions of the window, the sections B and C, respectively, being hung on rods *d d'*, suspended by fixed cords *e e'* from the top of the window-frame, whereby, by means of rollers *a*, *b*, and *c*, and their attached operating and draw cords, the said sections may be rolled or unrolled independently, and light admitted or excluded from the upper, central, or lower portion of the window as described.

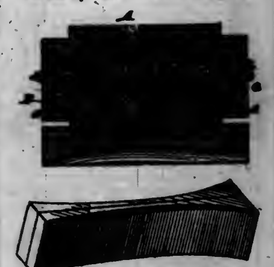
179,124. INTERMEDIATING-PANE. Thos. McQuiston, Morning Sun, Ohio. [Filed Mar 27, 1876.]



1. One or more intermediate non-boiling compartments, D, insulated from the furnace heat by non-conducting portion K, and communicating with the boiling-compartments both in front and rear of it, substantially as and for the purpose explained.

2. In combination with the insulated compartment D and partition having opening L, the bar or impediment *d*, for the purpose designated.

179,125. GEAR-MOLDS. Fredk. C. Miller, Cincinnati, Ohio. [Filed July 2, 1875.]



1. The lower mold B, consisting essentially of the series of division-parts *b* and connecting-strips *a a*, which limit the downward movement of the sliding pressers C, all constructed as set forth.

2. The lower mold B, consisting of the series of division-pieces *b* and the connecting-strips *a a*, in combination with a series of independent sliding pressers C, having projecting ends and a suitable upper half-mold A, as set forth.

3. The upper half-mold A, provided with the rib E, as and for the purpose specified.

179,126. BLOCK-FRAMES. J. W. Norcross, Boston, Mass. [Filed Mar. 18, 1876.]



1. In a cast-metal block-frame, the frame *a* proper, having the rounded edge *b*, forming a rounded corner on the outside and a recess on the inside of the frame, as and for the purpose set forth.

2. The combination, with the frames *a a*, provided with the rounded edges, of the pins E E, cast onto one part of the frame, and riveted to the other, substantially as and for the purpose set forth.

3. The method, substantially as herein described, of casting the outer frame onto the inner frame or to the other outer frame, and around the projecting pins, as and for the purpose set forth, so as to produce a complete single or double block-frame without riveting.

179,127. BOAT-HOOKS. J. W. Norcross, Boston, Mass. [Filed Mar. 18, 1876.]



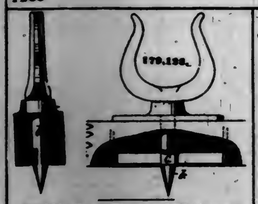
1. As a new article of manufacture, the cast-metal boat-hook of cross-shape section, so as to combine strength with lightness, provided with the slightly-tapering socket *b*, arranged to receive the end of the staff, and the straps *c c*, substantially as and for the purpose described.

2. The combination, with the cap *a*, provided with the feeder-knob *f*, of the indicator *g*, arranged substantially as described, and secured to the staff *d*, at the end opposite to the hook, as and for the purpose set forth.

179,128. ROWLOCKS. J. W. Norcross, Boston, Mass. [Filed Apr. 3, 1876.]

Brief.—The spindle is clamped on its flat surface by the springs when in working position. By turning it one-fourth around, the springs are pressed back and the spindle is released.

The combination, with the rowlock *a*, provided with the spindle *b*, of the flattened surface *c*, or surfaces *c c*, against which the spring or springs are arranged to press, so as to maintain the rowlock in its proper posture, substantially as and for the purpose set forth.



179,120. BRAIDING-PINS. J. W. NORWOOD, Boston, Mass. [Filed Mar. 18, 1876.]



1. As a new article of manufacture, the hollow braiding or cloth pin, substantially as described, having such shape as to produce a pin of uniform, or nearly uniform, thickness of metal throughout, as and for the purpose set forth.

2. The hollow cast-metal braiding-pin, provided with the pings *d* and E, substantially as and for the purpose specified.

179,180. PIPE-BENDING MANDRELS. Morris L. Oram, Philadelphia, Pa. [Filed June 1, 1876.]

Brief.—A flexible hollow mandrel is formed with a head-piece and key having a shank, whereby the mandrel can be removed from a bent pipe. A flexible core inside the mandrel relieves the latter from strain and injury, and a check-piece and rod assist in withdrawing the mandrel.



1. The combination, with a flexible mandrel for bending metal pipe, of a head-piece or ping secured thereto, to enable the mandrel to be turned for removal from the pipe after being bent, substantially as set forth.

2. The combination, with a flexible mandrel for bending metal pipe, of a key fitting one of the ends of the mandrel, and having a shank extending longitudinally therefrom, so as to enable power to be applied for removing the mandrel while within the pipe, substantially as set forth.

3. The combination of a flexible mandrel for bending metal pipe and an inner flexible core, the outside diameter of which is less than the inside diameter of the mandrel, substantially as set forth.

4. The combination of a flexible mandrel for bending metal pipe, a transverse check-piece, pinned without and at one end thereof, and a wire rope or chain, connecting the check-piece with the opposite end of the mandrel, substantially as set forth.

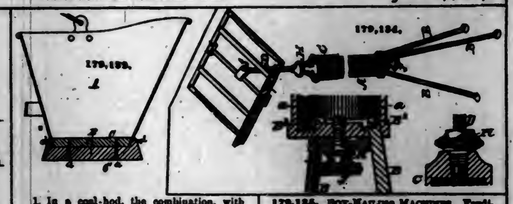
179,181. PLASTIC ROOFINGS. Lewis Pearce, Salem, Mass., assignor of one-half his right to Charles A. Farnam, same place. [Filed May 4, 1876.]

Brief.—Pitch, five hundred pounds; pine tar, two hundred and fifty pounds. Melt the pitch, and having warmed the tar, add it slowly until they are thoroughly mixed. Then add tallow, ten pounds; rosin, seventy-five pounds; charcoal, pulverized, eight quarts; plaster-of-paris, pulverized, four quarts; coal-ashes, finely sifted, four quarts. With this compound saturate the fabric, and immediately apply powdered steatite. Use two layers of the prepared cloth, breaking joints. Then apply a compound composed of coal-tar, forty gallons, boiled six hours, to which is added of the previously-described compound, ten gallons; of charcoal, eight quarts; plaster-of-paris, four quarts; and of coal-ashes, finely sifted, four quarts.

The roofing composed of the materials specified, combined and applied substantially as set forth.

179,182. COAL-HODS. William S. Potwin, Chicago, Ill. [Filed June 1, 1876.]

Brief.—The wooden bottom is attached to the base by screws.



179,182. 179,184.

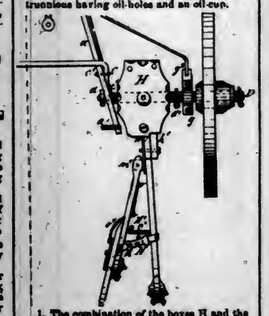
1. In a coal-hod, the combination, with the body A, of the wood bottom B, consisting of the parts C and C', the part C' being provided with the annular rim *d*, beveled on its inner side to fit the outer surface of the base of the body, and the part C beveled to fit the inner surface of the body, substantially as and for the purpose specified.

2. In a coal-hod, the combination, with the body A, of the wood bottom B, consisting of the parts C and C', the part C being beveled to fit the inner surface of the base of the body, and connected to the part C', substantially as specified.

3. In a coal-hod, the combination of the body A, having an annular base, with the wood bottom B, consisting of the parts C and C', substantially as specified.

179,183. CULTIVATORS. Stephen Purdy, Kewanee, Ill. [Filed Aug. 30, 1875.]

Brief.—The cultivator-beams are pivoted together, and adjustable both vertically and horizontally. The journal-boxes, connecting the beams to the axle-tree, are provided with trunnions having oil-holes and an oil-cup.



1. The combination of the boxes H and the pivot-block I, formed in two parts, each having a trunnion, *i*, and provided with suitable oil passages *P P'*, with the axles D, constructed to operate substantially as and for the purpose specified.

2. The combination, with a pair of cultivator plow-beams, pivoted together substantially as described, of the standards *h'* m of the plow-beams and journal boxes, and the adjustable or extensible links N N', constituting, essentially, of two metallic plates having a series of bolt-holes formed therein and provided with ears or projections at their extremities, which, when bent over, clasp the two plates together, as described, all arranged and constructed to admit of a vertical and lateral adjustment of the plows, substantially as and for the purposes set forth.

179,184. MORSE-STANDS. Joseph A. Rand, Bridgeport, Conn., assignor to Charles A. Alvord, same place. [Filed Feb. 3, 1876.]

1. The case A, provided with longitudinal guide grooves *a a a*, for the traverse of the legs B, as herein before described.

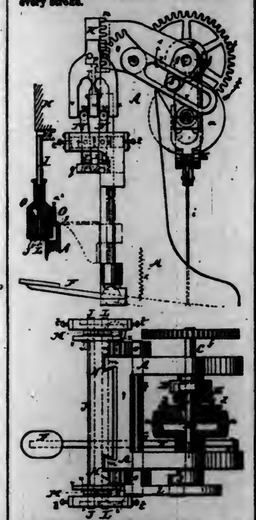
2. The case A, in combination with the cap C, split thumb-screw E, and stem D, for the purpose hereinbefore set forth.

3. The combination, within the case A, of the legs B and the ring B', in the manner described for the purpose hereinbefore set forth.

4. The combination of the thumb-screw J and washer K with an interposed coiled spring, whereby the said washer is operated, for the purpose set forth.

179,185. BOX-NAILING MACHINES. Ferdinand Rochow, Brooklyn, N. Y. [Filed Apr. 11, 1876.]

Brief.—By means of an automatic shipping device, the action of the cross-head, on which the plungers are adjusted, is arrested after every stroke.



1. The combination of the shipping-lever E, which actuates the clutch *b*, with the notched wheel D, which serves to automatically stop the machine, substantially as specified.

2. In combination with the notched wheel D, friction-roller *f*, and lever E, the rod or pin *i*, treadle or handle F, and spring S, all arranged to operate substantially as herein shown and described.

3. The combination of the operating cross-head H of a box-nailing machine, provided with racks *s s*, and operating the nailing-plungers I, with the segments *e e*, and rock-shaft G, substantially as herein shown and described.

4. The combination of the vertically-reciprocating cross-head H, which has the horizontal groove *p*, with the plunger I, having a head resting in said groove and adjustable therein, substantially as specified.

5. The construction of the frame A of a box-nailing machine, and legs *g*, with the laterally-adjustable cross-bars J and L, which are supported and adjustable on said legs, and form between them a continuous nail-passage, and also constitute the nail-holder, as specified.

6. The combination of the cross-bars J L with the levers M and F, and the reciprocating cross-head H, which actuates said levers, substantially as herein shown and described.

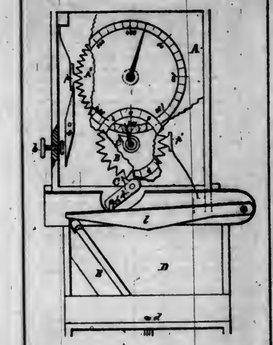
7. The cross-head H, provided with the arms *v*, *w*, and *x*, and combined with the levers M and F, and bars J and L, to actuate the same, substantially as herein shown and described.

8. The tubular nail-guide O, supported on the rail *y*, and combined with the reciprocating plunger I, and adjustable bars J and L, substantially in the manner herein shown and described.

9. In combination with the nail-guide O, the sliding block *b' c'*, and cross-bars J and L, substantially as specified.

10. The adjustable boxes *r s*, combined with the levers M N, and cross-bars J L, substantially as herein shown and described.

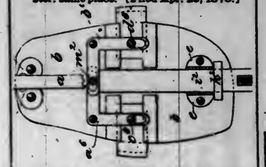
179,186. GRAIN-REGISTERS. Michael Shawver, Clarke County, Ohio. [Filed Oct. 22, 1875.]



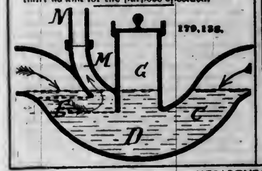
1. In combination, in a grain-register or tallying-machine, having a case, A, provided with two graduated dials and wheels, A' and B, having teeth with equal angles, (the latter with its single-toothed wheel C', mounted on the same shaft,) and their respective retaining-pawls *p* and *p'*, constructed as specified, the rebounding single-toothed wheel C and its connecting-lever *c'*, crank-lever *b*, latch *i*, switch-gate E, and spout D, as and for the purpose hereinbefore set forth.

2. In a tallying machine having a case, A, provided with a single spout, D, and a switch-gate, E, therein, the auxiliary connections *b*, *i*, and *c'*, for operating wheels C, B, C', and A', having teeth whose faces are of equal angles, and, through the adaptation of their respective pawls *p* and *p'*, of like shape, allowing said wheels to be turned backward, after registering their full tally, to the place of beginning, when released by lever *e* and stud *b*, substantially as hereinbefore set forth.

179,187. SKATES. Charles G. C. Simpson, Montreal, Canada, assignor to Chas. Brewster, same place. [Filed Apr. 20, 1876.]



The clamps *p* and bell-cranks *s' b'*, in combination with pins *s' c' c''*, bar *c''*, and screw-rod *c'*, all constructed and arranged substantially as and for the purpose specified.



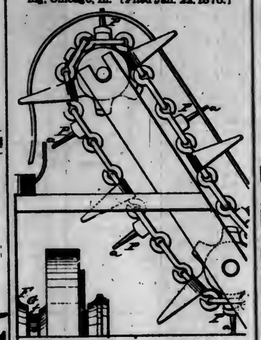
179,188.

1. The combination of the bar *f* with the brace-bars *b b'*, support *e*, reel-shaft H, and sliding head *e*, substantially as specified.

2. The link *k* on lever I, for engaging with the notches *l*, in combination with the frame J, for adjusting the reel, and preventing it from falling over, substantially as specified.

3. The arm *m*, provided with the head *n*, and sliding plate *o* provided with the anti-friction wheel *p p'*, in combination with the reel *g* and reel-shaft H, substantially as and for the purpose specified.

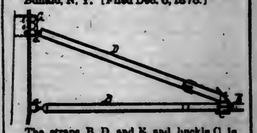
179,189. HARVESTERS. John F. Steward and Frank J. Goddington, Piano, assignors to Elijah H. Gammon and William Deering, Chicago, Ill. [Filed Jan. 22, 1876.]



1. The plates *d* on the chains *c*, for permanently attaching the bars P to the elevator, substantially as specified.

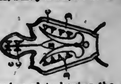
2. The hook or lock *e*, constructed as described, in combination with the wheel C, having openings *f*, the supports F, and the axle, all adapted to operate substantially as and for the purpose specified.

179,190. HARNESS. James H. Van Sice, Buffalo, N. Y. [Filed Dec. 6, 1875.]



The straps B, D, and E, and buckle C, in combination with a hame having loop *a* and holder G, the latter provided with divisions *e e*, substantially as herein shown and described.

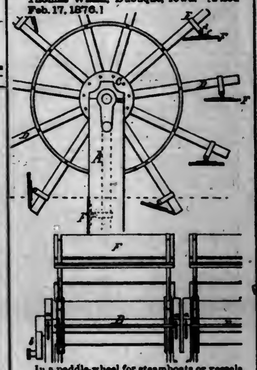
179,191. CLAMPS. Rigourney Wales, New York, assignor of one-half his right to N. H. Furness, Tarrytown, N. Y. [Filed Oct. 7, 1874.]



1. A clamping-plate having the points C C, the openings D D, the rib E, and the slot H, substantially as and for the purpose hereinbefore set forth.

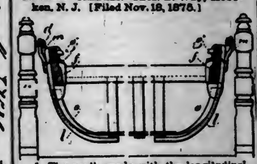
2. The clamping-plate having the points C C, the openings D D, the rib E, and the slot H, in combination with a ring having T-shaped arms, substantially as and for the purpose specified.

179,192. FEATHERING PADDLE-WHEELS. Thomas Walsh, Dubuque, Iowa. [Filed Feb. 17, 1876.]



In a paddle-wheel for steamboats or vessels, the combination of the arms D with the brackets E, pivots *d*, and the floats F, substantially as and for the purpose set forth.

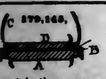
179,193. CRADLES. Thos. B. Way, Hoboken, N. J. [Filed Nov. 18, 1876.]



1. The cradle made with the longitudinal bands *l*, extending from the surface of the end pieces *f* to the bottom of the cradle, and to which longitudinal bands the metallic loops *m* are connected, substantially as set forth.

2. The corner pieces or posts *p*, each made with a diagonal slot, into which is secured the band *o*, that extends to the bottom of the cradle, as and for the purposes set forth.

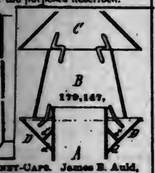
179,194. MANUFACTURE OF SHOES. John B. Wheeler, Lynn, Mass. [Filed Apr. 24, 1876.]



The improvement in the process of manufacture of boots and shoes, consisting, first, in uniting the welt, welt-sole, half-sole, or vamper B to the outsole A, and then fastening them, as then prepared, to the upper and insole, substantially as and for the purpose set forth.

179,166. CORSET-STEMS. Chas. F. York, Richmond, assignor of one-half his right to Dexter Smith, Litchfield, Me. [Filed Jan. 21, 1876.]

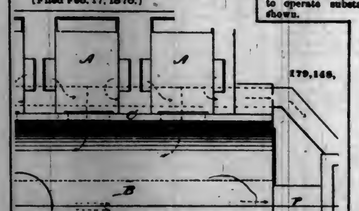
As an improvement in corset-fastenings composed of two blades or busks, one being made to cover the other when connected, the headed studs *a b e* and corresponding eyelets *a b e*, constructed as described, so as to give play to the studs *a c* at the ends of the busks when connected, and having the flanges or washers 1 1 1, for the purposes described.



179,167. CEMENT-CAPS. James E. Auld, Buffalo, N. Y., assignor of one-half his right to William F. Morgan, same place. [Filed Apr. 24, 1876.]

1. The combination, with the fuse A, sleeve B, and cap C, of the inverted conical collar D, provided with openings *d* and guards *F*, substantially as and for the purpose hereinbefore set forth.

179,168. COMBINED METALLURGIC FURNACES AND STEAM-BOILERS. Thomas Ash and Zechariah Walker, Trenton, N. J. [Filed Feb. 17, 1876.]



The combination of the boiler B, having the independent fires L L, the fires M, the furnaces A, the space O, and the flue P, all arranged and operating substantially as and for the purposes specified.

179,169. SEEDING-MACHINES. Walter G. Barnes, Freeport, Ill. [Filed Mar. 31, 1876.]

Brief.—The screw-propellers are all adjustably secured to a longitudinal shaft, each working within a cylindrical rotating delivery-cap, within which the propellers are adjusted, for graduating the amount to be sown.



1. A screw-feed for grain-drills or seeding-machines, consisting essentially of the revolving screw-propeller E, laterally adjustable upon the driving-shaft D, and provided with a cylindrical rotating delivery-cap, F, mounted within the cap or case B C, so that the screw may be adjusted laterally within said case and cap F for the purpose of regulating the feed, the whole being constructed and combined to operate substantially as herein shown and specified.

2. The combination of the laterally adjustable and revolving screw-propeller E, with the rotating cylindrical delivery-cap F, through which the grain is fed into the spouts or scatterers, substantially as and for the purpose herein before set forth.

3. The combination of the laterally adjustable and revolving screw-propeller E, and rotating cylindrical delivery-cap F, with the hopper B and case C, so as to feed the grain from the hopper through the cap F, and discharge from the side of the cap or case C, substantially as and for the purpose herein shown and specified.

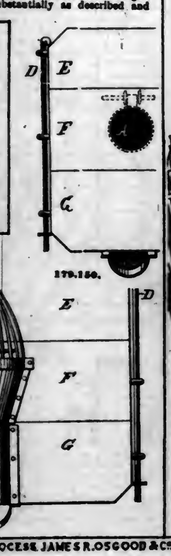
4. In combination with the cap or case C, the rotating hollow delivery-cylinder F, fitting tightly within said cap or case, so as to prevent the seed from being forced in between it and the inside of its surrounding stationary case, substantially as and for the purpose hereinbefore set forth.

5. In a force-feed for grain-drills or seeding-machines, a seed cup or hopper, B, in combination with a vertically-rotating and laterally-adjustable feed wheel or propeller, E, fitting tightly within a cylindrical lateral elongation, C, of said seed cup or hopper, and projecting into the cylindrical rotating delivery-cap F, mounted within a similar lateral cylindrical elongation of the hopper B opposite to that in which the force-feed E is mounted, substantially as and for the purpose hereinbefore set forth.

179,170. BASE-BALL TARGETS. Jackson O. Belknap, Mobile, Ala. [Filed June 1, 1876.]

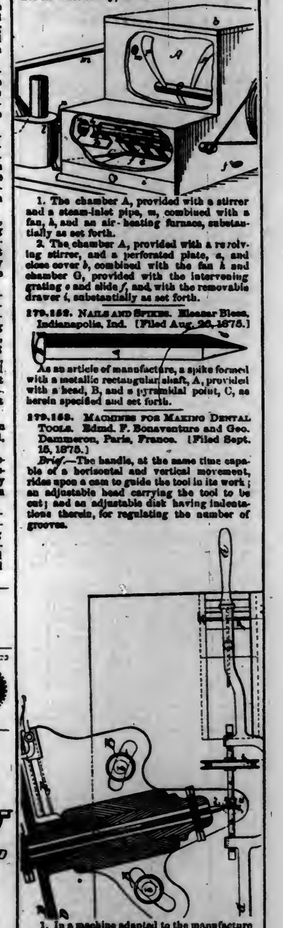
Brief.—To practice throwing base-ball at, being target with an opening through the bull's-eye, to allow the ball a passage when properly thrown, and having a conduit for the return of the ball to the thrower.

The improved base-ball target herein described, consisting of the pieces E F G, center opening or openings, and door A, covering the same, the pocket B, conductor C, and connecting-rods D, all constructed and arranged to operate substantially as described and shown.



179,171. FEATHER-RENOVATORS. William Biggar and Geo. Murwin, Fulton, Wis. [Filed Apr. 5, 1876.]

Brief.—Steam is used to renovate, and a hot-air blast to dry, the feathers.



1. The chamber A, provided with a stirrer and a steam-inlet pipe, m, combined with a fan, h, and an air-heating furnace, substantially as set forth.

2. The chamber A, provided with a revolving stirrer, and a perforated plate, *a*, and close cover *b*, combined with the fan h and chamber G, provided with the intervening grating *e* and slide *f*, and with the removable drawer *i*, substantially as set forth.

179,172. NAILS AND SPIKES. Eleazar Bless, Indianapolis, Ind. [Filed Aug. 26, 1875.]



As an article of manufacture, a spike formed with a metallic rectangular shaft, A, provided with a head, B, and a pyramidal point, C, as herein specified and set forth.

179,173. MACHINES FOR MAKING DENTAL TOOLS. Edmd. F. Bonaventure and Geo. Dammeron, Paris, France. [Filed Sept. 16, 1875.]

Brief.—The handle, at the same time capable of a horizontal and vertical movement, rides upon a cam to guide the tool in its work; an adjustable head carrying the tool to be cut; and an adjustable disk having indentations therein, for regulating the number of grooves.

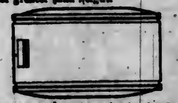
1. In a machine adapted to the manufacture of dental tools, the lever G, or handle, fitted with the cutter, combined with the cam that guides it, and the spindle that carries the tool to be cut, arranged in relation to each other substantially as described, for the purpose specified.

2. The adjustable head B, in combination with said lever or beam, for the purpose of bringing the tool to be cut under the cutter upon the angle it is desired to cut the groove.

3. The adjustable disk D, in combination with the spindle O and the lever G, for the purpose of bringing the tool to be cut in right relation to the cutter, and to regulate the number of grooves to be cut in the tool.

179,156. CANS FOR PACKING MEAT. George Brougham, Chicago, Ill. [Filed Dec. 31, 1875.]

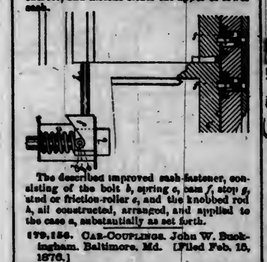
Brief.—Inwardly and outwardly bending heads, bent and grooved on side of case. Diameter greater than height.



The preserved-meat can, having heads with an outward bulge, capable of becoming an inward bulge, while the heads are secured to the sides, and having straight sides, the height of the can being not greater than the diameter of the heads, or of the larger of unequal heads, whereby sufficient metal is allowed in the heads to accommodate the collapse produced by atmospheric pressure, and the strength and substantial form of the sides is preserved, substantially as specified.

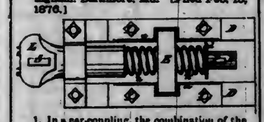
179,157. BASH-FASTENERS. W. G. BROWN, Monmouth, Me. [Filed June 5, 1876.]

Brief.—A bolt, spring, cam, stop, and friction-roll are so arranged within a suitable shell or case that a push movement of the rod or handle projects the bolt at right angles thereto, and fastens either the upper or lower sash.



The described improved sash-fastener, consisting of the bolt *b*, spring *c*, cam *f*, stop *g*, and or friction-roller *e*, and the knobbed rod A, all constructed, arranged, and applied to the case *a*, substantially as set forth.

179,158. CAR-COUPLINGS. John W. Buckingham, Baltimore, Md. [Filed Feb. 16, 1876.]

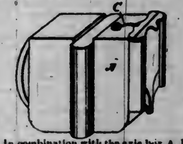


1. In a car-coupling, the combination of the wooden parts D and the wrought metallic sheathing *a*, forming the cross-head guides, substantially as set forth.

2. The combination of the cross-head E with the springs *n n'*, coupling-head L, cotter *d*, key P, and guides D, lined with wrought metal, all constructed and arranged as shown and described.

179,159. CAR-AXLE BOXES. T. L. Buckley, Mankato, Minn. [Filed Apr. 28, 1876.]

Brief.—An independent lid with double wedge-shaped faces.



1. In combination with the axle-box A, having the parts *x y* inclined laterally and longitudinally, the lid B having the parts *x' y'* similarly inclined, the lid being shut upon the box by a double-wedging action, as described.

2. The combination of the wedging-lid B with the overhanging flange *d*, as set forth.

3. The combination of the wedging-lid B, the overhanging flange *d*, and the rotating securing spring C, as described.

179,160. CURTAIN-CORD TIGHTENERS. A. Burbank, Rochester, N. Y. [Filed Mar. 20, 1876.]



The curtain-cord fastener consisting of the rubber strap A, provided with the hook a at the top, and the bearing C, provided with an eye, through which the rubber is drawn to increase its tension, as and for the purpose specified.

179,150. SUBSTRUCTURE OF STREETS. M. A. Burnham, New York, N. Y. [Filed June 12, 1876.]



1. The combination, in a street or roadway, of a foundation, a sewer resting thereon, and two or more vertical walls, arched at top and supporting the curbing and pavement of the wagon-way, substantially as set forth.

2. The combination, in a street or roadway, of a foundation, vertical walls supporting the pavement of the wagon-way, and pneumatic transit-tubes resting upon arches or girders supported on the vertical walls, substantially as set forth.

3. The combination, in a street or roadway, of a foundation, a sewer resting thereon, vertical walls supporting the pavement of the wagon-way and inclosing a central tunnel, and arch-ways connecting the basements of houses with the central tunnel and sewer, substantially as set forth.

179,161. REELS FOR PAPER. Wm. Conquest, London, England. [Filed Feb. 19, 1876.]



1. The combination, with the hollow core B, of the removable disks or non-flanged heads C C, on the peripheries of which the reel may be rolled on the ground without damaging the paper, as herein set forth.

2. The combination, with the hollow core B and removable heads C C, of the central lifting-rod E, lifting hook or eye *e*, as and for the purposes herein set forth.

3. The combination, with the removable heads C C, of the recessed sockets D D, provided with squared projecting pieces *f f*, which enter corresponding holes in the ends of the hollow core B, as and for the purposes herein set forth.

4. In combination with the screw-rod, the detachable head provided with a mortise adapted to receive a nut, *d*, and prevent the same from turning in securing the parts together, substantially as described.

5. The combination of the hollow core B, having a polygonal socket, with removable heads, carrying polygonal tenons *f*, whereby circular movement of one upon the other is prevented, substantially as described.

6. In combination with a reel, consisting of a spindle carrying heads at its opposite ends, and adapted for holding paper and similar fabrics, a lifting hook or eye, *e*, substantially as described.



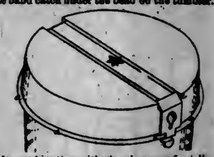
179,162. APPARATUS FOR STEAMING FOOD FOR STOCK. Romain Dalley, Quincy, Mich. [Filed Apr. 29, 1876.]

1. The auxiliary steam heating-boxes H H, having the removable false bottoms I and pipes J, in combination with a main heater, K, substantially as shown and described.

2. The auxiliary steam-heaters H I H I, in combination with the heater A B C D E F G, constructed, arranged, and operating substantially as shown and described.

179,163. JELLY-GLASS TOPS. Jas. Dalzell, Pittsburg, Pa. [Filed Apr. 24, 1876.]

Brief.—The lugs on the end of the metallic band are bent under the cap, and the ends of the band catch under the bead on the tumbler.



In combination with the glass cap for jelly-glasses, the metallic spring-band secured to the cap by lugs bent under the cap, the ends of the band forming spring-catches, which take over a bead upon the tumbler, substantially as and for the purpose specified.

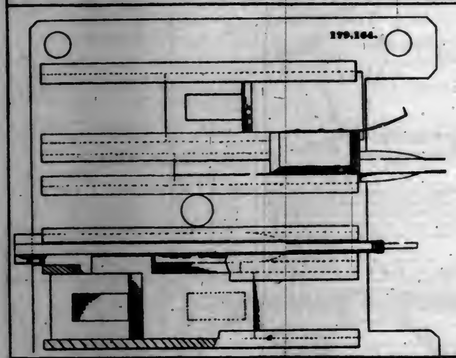
179,164. BRICK-MACHINES. James Dalzell, Pittsburg, Pa. [Filed May 1, 1876.]

Brief.—Lugs on the cut-off engage with lugs on the slide, the intervening way being slotted therefor.

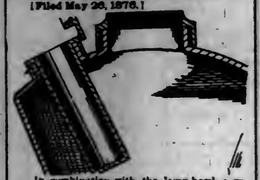
1. In a brick or similar machine, the combination of the cut-off, the arm for feeding forward the mold, and the slide for actuating the cut-off and arm, the slide being constructed substantially as described, so as to actuate the cut-off during a part only of each stroke, and the mold during one stroke only of its reciprocation.

2. In a brick or similar machine, the combination of the cut-off and the reciprocating slide, constructed substantially as described, so as to actuate the cut-off for a part only of each stroke.

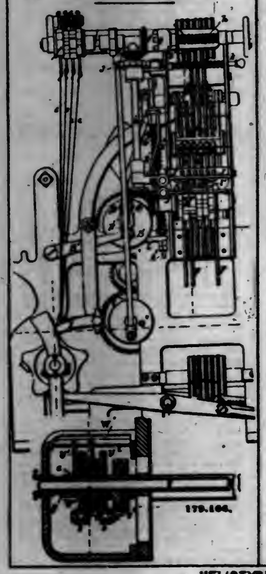
179,164.



179,165. MATCH-BOX ATTACHMENTS FOR LAMPS. James Dalzell, Pittsburg, Pa. [Filed May 26, 1876.]



In combination with the lamp-bowl, a receptacle or match box sunk within the bowl, substantially as and for the purpose specified.



179,166.

179,166. LOOMS. Hiles D. Davis, North Andover, Mass., assignor to George L. Davis, John A. Wiley, Joseph M. Stone, Geo. O. Davis, Jos. H. Stone, and Jas. H. Davis, same place. [Filed Dec. 27, 1875.]

Brief.—The improvement relates to the shedding mechanism and the shuttle-box motion. In lieu of engaging and disengaging the locks by the direct action of the pattern-cylinder, locking-arms provided with pivoted latches are substituted, and these latches are operated by the pattern-cylinder, whereby they are adapted to engage with separate lifters and depressors, which are connected with a separate driving mechanism. The lifter and depressor of the jacks have a variable motion. Frictional disks are provided, which, in combination with axial adjusting devices, are adapted to hold the star-cams at rest when the ratchets are not operated by the pawls. A clutch is interposed between the two pattern mechanisms, for disconnecting the one from the other. The pawls which work the ratchets of the star-cams are positively put into engagement therewith.

1. The method of engaging and disengaging the jacks which work the heddles from the mechanism that operates them, under the control of a pattern-chain or its equivalent, by means of devices which have a positive motion which is separate from that of the pattern-chain, substantially as described.

2. The combination, with the latches which engage and disengage the jack with and from the lifter and depressor, which actuate it and the selecting mechanism, of a separate mechanism for operating the said latches, as described, which has a movement independent of the movements of either the pattern-chain or of the main jacks, substantially as described.

3. The combination of the crank E, short connecting-rod E', wrist S, and idle lever S', and reel-jointed rod G' with the rocking shaft G', which operates the lifter and depressor, as a device for imparting a variable movement to the lifter and depressor, substantially as described.

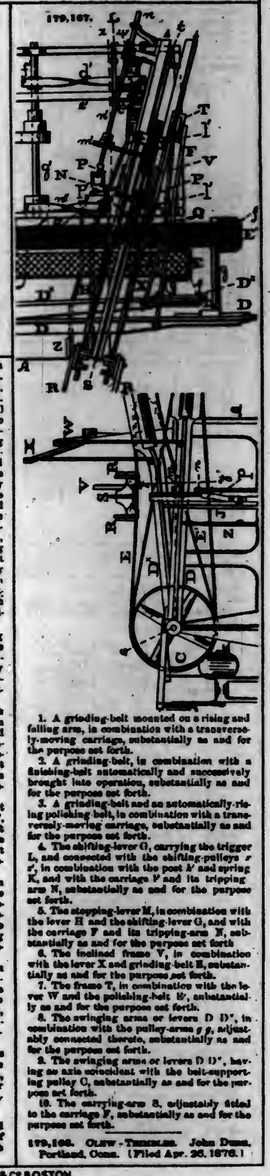
4. The stationary frictional disks W W, in combination with the frictional surfaces of the cams U, and the means, substantially as described, for applying pressure to said frictional surfaces in an axial direction, and the frame provided with the recesses for holding the disks for turning, substantially as described.

5. The combination of the pattern-chain that controls the heddles and the pattern-chain that controls the shuttle-boxes with one driving mechanism and a clutch adapted to disconnect the two chains from each other, whereby they may be moved separately to adjust them to their work, substantially as described.

6. The combination of the pawl which works the ratchet of the shuttle-box mechanism, the spring which raises the pawl from the ratchet, the link or connection, and the pattern-lever which works upon the pattern-chain, substantially as described.

179,167. POLISHING-MACHINES. Howard M. De Bois, Philadelphia, Pa., assignor of two-thirds his right to John G. Davis & Son, same place. [Filed July 31, 1876.]

179,167.



1. A grinding-belt mounted on a rising and falling arm, in combination with a transversely-moving carriage, substantially as and for the purposes set forth.

2. A grinding-belt, in combination with a finishing-belt automatically and successively brought into operation, substantially as and for the purposes set forth.

3. A grinding-belt and an automatically-rising polishing-belt, in combination with a transversely-moving carriage, substantially as and for the purposes set forth.

4. The shifting-lever G, carrying the trigger L, and connected with the shifting-pulleys *r r'*, in combination with the post *h'* and spring K, and with the carriage F and its tripping-arm N, substantially as and for the purpose set forth.

5. The stopping-lever M, in combination with the lever H and the shifting-lever G, and with the carriage F and its tripping-arm F, substantially as and for the purpose set forth.

6. The inclined frame V, in combination with the lever X and grinding-belt E, substantially as and for the purpose set forth.

7. The frame T, in combination with the lever W and the polishing-belt E', substantially as and for the purpose set forth.

8. The swinging arms or levers D D', in combination with the pulley-arms *g g*, adjustably connected thereto, substantially as and for the purpose set forth.

9. The swinging arms or levers D D', having an axis coincident with the belt-supporting pulley C, substantially as and for the purpose set forth.

10. The carrying-arm S, adjustably fitted to the carriage F, substantially as and for the purpose set forth.

179,168. OIL-W-TERMLES. John Dunn, Portland, Conn. [Filed Apr. 26, 1876.]

As an article of manufacture, the herein-described sleeve-thimble, constructed with the opening *a*, and filled above the opening, substantially as set forth.

179,169.



179,169. CLOTHES-PIN. Geo. C. Eastman, Lewiston, Me. [Filed Apr. 20, 1876.]

My improved wire clothes-pin, made as set forth—viz., with the elastic eye *a* at its prongs, and having each of the latter bent upward and inward, and formed with the holding-recess *c*, and arranged with such eye, all as shown and described.

179,170. OVERALLS. Geo. R. Hager, Newton, Mass. [Filed Apr. 12, 1876.]



A pair of overalls or other garment provided with a hollow waistband and a cord or strap, *c*, and with a clamp consisting of a pair of eccentrically-pivoted friction-rolls, *e e'*, arranged to operate substantially as and for the purpose set forth.

179,171. OVERALLS. Geo. R. Hager, Newton, Mass. [Filed Apr. 12, 1876.]



A pair of overalls or other garment, provided with a hollow waistband, and a cord or strap, *c*, and with a spring-clasp, constructed and arranged to operate substantially as shown and described, and for the purpose set forth.

179,172. OVERALLS. Geo. R. Hager, Newton, Mass. [Filed Apr. 17, 1876.]



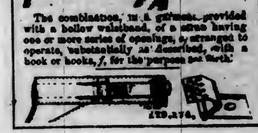
An overall or other garment provided with a hollow waistband, and with a cord or strap and cloth-hook, *d*, constructed substantially as and for the purpose set forth.

179,173. OVERALLS. Geo. R. Hager, Newton, Mass. [Filed Apr. 17, 1876.]



The combination, in a garment provided with a hollow waistband, of a strap having one or more series of openings, *b*, arranged to operate, substantially as described, with a hook or hooks, *f*, for the purpose set forth.

179,174.



179,174. OVERALLS AND OTHER GARMENTS. Geo. R. Hager, Boston, Mass. [Filed Apr. 20, 1876.]

In combination with the waistband of a garment provided with a strap, an automatic detent-clamp, the movable clamp-plate of which is armed with teeth on its under side, in the manner substantially as and for the purpose set forth.

179,175. OVERALLS. Geo. R. Hager, Boston, Mass. [Filed Apr. 20, 1876.]



The combination of a cam-clamp, substantially as described, with a hollow waistband and adjusting strap of a garment, for the purpose set forth.

179,176. CAR-BRAKE SHOES. O. F. Eckert, Cincinnati, Ohio. [Filed Apr. 20, 1876.]



1. The shoe *a*, provided with the cast *d e* on its side, substantially as and for the purpose described.

2. The detachable reversible rubber, provided with flange *f* and laterally projecting flange *i*, in combination with the shoe *a*, as and for the purpose described.

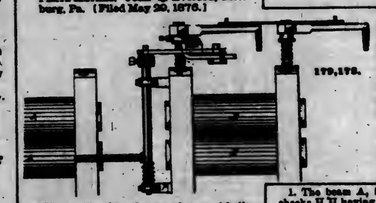
179,177. FLAMEBRAUE. James English and Emil Lease, Geddes, N. Y.; said English assignor to said Lease. [Filed June 9, 1876.]



1. The combination and arrangement of the oil-reservoir *a*, formed of the lower portion of the main tube or stem of the flambeau, and having on top the upward-projecting wick-tube *d* and the lycopodium-chamber *c*, either loosely or rigidly attached to the top of the oil-reservoir, substantially in the manner described, for the purpose set forth.

2. The combination, with the lycopodium-chamber *c* and wick-tube *d*, constructed and arranged as described and shown, of the sliding sleeve *f* and the wick-tube extension *r* carried by the sleeve, substantially as and for the purpose specified.

179,178. MACHINES FOR ROLLING SHEET OR PLATE METALS. John Q. Evenson, Pittsburg, Pa. [Filed May 20, 1876.]



The combination of a guard-arm with the tightening-down mechanism of sheet or plate trains, and intermediate mechanism for actuating the guard-arm from the tightening-down mechanism, substantially as and for the purpose set forth.

179,179. WATCH-CASE SPRINGS. Charles O. Parclot, San Francisco, Cal., assignor to Jos. Britton, same place. [Filed Apr. 4, 1876.]



The combination of the curved bar or body A with V-shaped shoulder *d* and the spring B, formed with the V-shaped notch *b*, and adjusted by means of the screw *i*, substantially as and for the purposes herein set forth.

179,180. COMPOSITIONS FOR PREVENTING THE FOULING OF SHIPS' BOTTOMS. Wm. D. Phipps, Calcutta, East Indies, assignor of part of his right to John H. Dillon, London, England, Fletcher Westray, Alfred H. Gibbs, and Jno. J. Westray, New York city, and H. H. Hemlin, Norwich, Conn. [Filed May 27, 1876.]

A compound, consisting of sea-weed ashes, carbolic acid, and iodine, with or without coal-dust or coal ashes as a body therefor, substantially as and for the purpose herein set forth.

179,181. HEAVATORS AND GARDENS. Henry W. Fouts, Bellefonte, Pa. [Filed May 31, 1876.]

Brief.—The check-pieces, having projections to catch the top of the pulley block, bear against the beam, and are held thereby in position in carrying. When brought to the point for lowering, said pieces pass into the recesses on the beam and release the pulley-block.

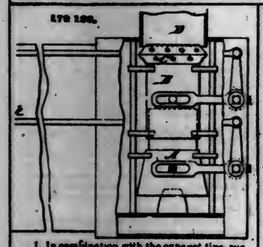


1. The beam A, having recesses *b b*, and cheeks H H having projections *h h*, in combination with the pulley-block J, having wedge-shaped head *j*, as and for the purpose set forth.

2. The beam A, provided with step *a* and latch F, in combination with the carriage E, having rod I, as and for the purpose set forth.

179,182. LOCOMOTIVE DRAFT-REGULATORS. Jas. M. Penn, St. Albans, Vt. [Filed May 26, 1874.]

179,185.



1. In combination with the exhaust-pipe, surrounded by a tight plate or the smoke-arch and with the smoke-pipe D, the pipes A and B, sliding one within the other, as described, and capable of independent movement from the cab, substantially as and for the purposes set forth.

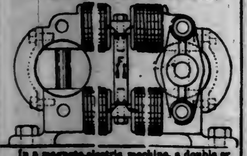
2. The upper movable pipe B, provided with the perforated annulus C, for the escape of the steam of smoke accumulated when the direct draft is closed, substantially as and for the purposes set forth.

179,186. MACHINERY FOR MAKING HOSE-PIPE. Geo. M. Fuller, Holyoke, Mass., assignor to the Asphalt Pipe Company (limited) of New York. [Filed Oct. 9, 1875.]



The combination of the roller B, arranged in fixed bearings, the roller C, having movable bearings h, the pivoted weighted levers f, suspended from the pulleys b to move said bearings, the roller D, having bearings in the weighted levers e, suspended from the said pulleys, the pulleys b, and the winding-shaft I, and cord attached thereto, the whole constituting an improved machine for making pipe, substantially as described.

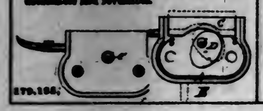
179,187. MAGNETO-ELECTRIC MACHINE. Jim Billings Fuller, New York, assignor, by mesne assignments, to Henry Kip, Brooklyn, N. Y. [Filed Jan. 14, 1876.]



In a magneto-electric machine, a double or duplex electro-magnet, connected together by a bridge or plate, F, so as to constitute two independent sets of magnetic poles, the said bridge forming the neutral magnetic point in both sets of magnets, substantially as and for the purposes set forth.

179,188. GAME-BOARDS. James Gallaher, Cantoon, Iowa, assignor of one-half his right to Reuben G. Baldwin, same place. [Filed May 27, 1875.]

Brief.—A very simple form of the case-lever is fitted in a suitable shell or case, and combined with a slide latch or bolt, that is both detachable and reversible.

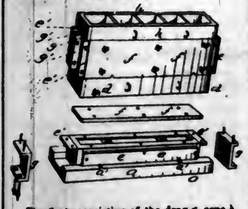


179,188.

In combination with the case A, having shoulders *b b* and cam-lever D E, the removable and reversible slide latch or bolt C, substantially as and for the purpose shown and specified.

179,189. MOLDS FOR PILLARS. Francis W. Gibby and L. O. Goldsmith, Boston, Mass. [Filed Mar. 27, 1876.]

Brief.—One cast or pattern used for the four sides of a square pillar, by making one side of the mold at a time, and afterward setting them up to form a complete mold. The cheeks have attaching flanges, so that when the inner edges of the molds contained by the cheeks are placed on or adjacent to the corners contained by the drag, they will be supported or stayed, so that the fourth side of the mold, contained by the cope, may be placed in its proper position.



The flask consisting of the drag *a*, cope *b*, and cheeks *c*, said cheeks being provided with plates *f* and ends *g*, bolting to the projections *e*, all sides of the molds in said flask having been formed upon the single mold-board *s*, as and for the purposes hereinbefore set forth.

179,190. BURGLAR-ALARMS. J. F. Gilliland, Cincinnati, Ohio. [Filed May 13, 1876.]

Brief.—A pocket burglar-alarm which may be secured to a door-jamb by a hook.

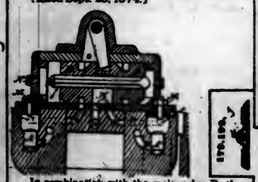


1. In a burglar-alarm the case A, provided with detachable screw-connecting retaining-hook B *b*, constructed, connected, and operating substantially as and for the purpose specified.

2. In a burglar-alarm the case A *a a'*, hook B *b*, hanger C, and table E, the whole connected and operating substantially as described.

3. In combination with the burglar-alarm case A *a a'* B, and hammer C, the spring-plate D, connected and operating substantially as and for the purpose specified.

179,192. VALVES FOR DIRECT-ACTING ENGINES. John Goose, John B. Rogers, and George Goose, Smethwick, Great Britain. [Filed Sept. 23, 1874.]

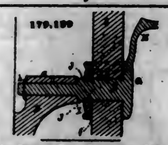


In combination with the main valve D, the auxiliary valves A A' B and stops M N, as described.

179,193. MEANS FOR HANGING GRIDIRONS. David B. Hall, Cleveland, Ohio. [Filed May 26, 1876.]

The combination of bracket D, provided with means for attachment to a suitable support, and having a sleeve, C, spindle B, having lugs J, head and crank G H, and collar I, having inclined or tit faces, with the stove A, substantially as and for the purpose set forth.

179,199



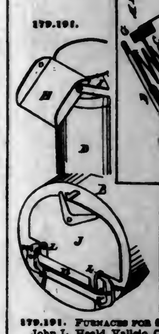
179,199. SPRING RUN-BOTTOMS. Wm. B. Hatch, Elmira, N. Y. [Filed Dec. 1, 1875.]

1. In a spring bed-bottom, having a divided frame, A A', the hinges B B, formed with the shoulders *a a*, and projections *b b*, substantially as and for the purposes herein set forth.

2. The combination, with the divided frame A A', of the rocking bar G, cleats *d d*, and ratchets H H, substantially as and for the purposes herein set forth.

3. In combination with the coiled springs G, and the longitudinal slats B' supported upon the same, the coiled springs D, arranged between the slats, as and for the purposes herein set forth.

179,191



179,190.



179,191. FURNACES FOR STEAM-BOILERS. John L. Heald, Vallejo, Cal. [Filed Apr. 12, 1876.]

1. In a straw-burning furnace, the grate G, large flue B, return-flues *s s*, and chimney B, in combination with the deflector H, adjustably hinged or attached, so as to cause an upward draft of air in the chimney by changing the current of air as it passes across, substantially as and for the purpose described.

2. The door J, turning upon the hinges K or L, said hinges being arranged in pairs, so that, changing from one pair of hinges to the other, the opening of the door will disclose a larger or smaller space for firing, substantially as herein described.

3. The lever-arms *m*, centrally pivoted, and carrying the plates or hinges K and L at either end, so that, by turning on their points of support, one pair of plates will be thrown into their sockets to support the door, and the other pair released, as herein described.

4. The door J, with its two sets of hinges K and L, and having its lower edge formed into a semicircle, with the center L as a center, so that when the smallest fuel-opening is disclosed, the semicircle will prevent the entrance of air to the furnace below the axis of motion of the door, substantially as described.

179,192. BIRD-CAGES. Andrew B. Hendryx, Ansonia, Conn., assignor to Hendryx & Bartholomew, same place. [Filed June 14, 1876.]

The horse-described stay the bird-cages, and other wire-work, consisting of two parts, one of which is formed with transverse indentations corresponding to the position of the wires to be introduced, the other and broader part constructed with notches in each edge corresponding to the said depressions in the first part, and clamp thereon, substantially as described.

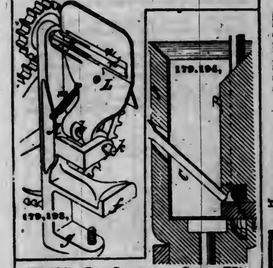
179,195. MAKING POTATO CHELLS. Abagamander Herring, Grand Point, N. Y. [Filed May 13, 1876.]

1. The combination of the fork B and a slicing-knife back, I, turning upon a pivot, *h*, as described, for the purpose set forth.

2. A coil formed of a continuous strip or ribbon shaved off from the body of the potato previous to cooking, substantially as described.

3. The process of making coils of continuous strips cut or shaved from the periphery or sides of a potato, substantially as described.

Witness my hand in matter of my application for a patent for a machine for reducing potatoes to the form of a ribbon preparatory to cooking the same.



179,194.

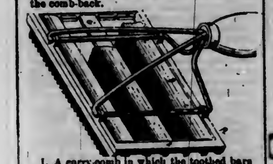
179,193.

179,194. CAR-COUPLINGS. George Ellis and Wm. H. Provost, Scranton, Pa. [Filed Feb. 1, 1876.]

The draw-head A, formed with a central rib or block, B, with a recess in rear thereof to receive the link, and retain it in position, in combination with the swinging pin C, resting in recess in block B, and with the lifting device E, when the same is arranged to lift or lock the link in the manner shown, the lifting device being operated by a lever, as and for the purpose set forth.

179,195. CURRY-COMBS. C. B. L. Holmes, New York, N. Y. [Filed Mar. 15, 1876.]

Brief.—The tooth-bars extend through from the back of the comb, and rest upon the back of the frame. They are held in place by rods, which pass from the handle through lugs over the comb-back.



1. A curry-comb in which the toothed bars extend through and are secured permanently to bearings at the back of the comb-frame, substantially as set forth.

2. A curry-comb in which the comb-plates extend through and rest with portions of their inner faces upon the frame, and are permanently secured thereto, substantially as specified.

3. A curry-comb in which the toothed bars rest upon the frame, and are secured thereto by means of the rods or bars *c*.

4. The frame A, provided with cross-bars, upon which the inner faces of the comb-plates rest, and to which they are confined permanently, substantially as set forth.

5. The toothed bars having their bearings upon the back faces of cross-bars *c'*, and supported solely by the latter, as set forth.

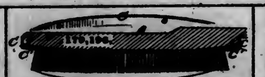
6. The frame A, having slots for the reception of the toothed portions of flanged comb-plates, substantially as and for the purpose specified.

7. A curry-comb in which portions of flanged comb-plates are confined between the back of the frame and a covering-plate, as described.

179,196. BRUSHES. John H. Howard and C. H. Howard, Reading, Mass. [Filed May 20, 1876.]

Brief.—A metallic ring is secured to the outer edge of a brush or mirror back, a right-angle flange on which holds the brushing material or mirror in place against the face of the backing.

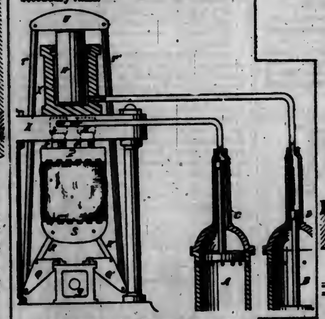
179,196.



The combination of the flanged rim C with the back A and facing B, substantially as described, for the purposes specified.

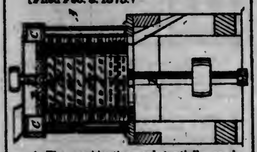
179,197. HYDRAULIC COTTON-PRESSES. S. Hughes, Charleston, S. C. [Filed Oct. 26, 1875.]

Brief.—Combines with a compound progressive-lever and toggle press, in which said levers and toggles are operated by a hydraulic cylinder and ram, and what is commonly the stationary platen is made adjustable, and capable of giving the final pressure; also, by cylinders and rams, steam-cylinders, and press-pumps, operating said primary and secondary rams.



In combination with the lever power-press P Q R S T U, cylinders I, M, and X, and pistons Y O W, constructed and arranged as described, the two steam-cylinders A B with water-cylinders C D, constructed and arranged as described, to give the initial and final pressure to the platens P S of the press, for the purposes specified.

179,198. GRAIN-CLEANERS. William W. Ingraham, Chicago, Ill., assignor of one-half his right to Edwd. Beard, same place. [Filed Feb. 3, 1875.]



1. The combination, substantially as described, of an upright cylinder, provided with inclined corrugated beaters F, and a suitable casing, A, so that the beaters will lift and detain the grain as it passes down inside the casing, and the operation of the scourers will be gradually increased by the increasing weight of grain above.

2. The combination, with the cylinder for scouring, of the rings G, provided with the straight arms or polishers H, constructed and arranged substantially as specified.

3. The combination of the rings E, provided with inclined corrugated beaters F, and rings G, provided with straight arms or polishers H, as and for the purposes specified.

4. The combination of the rings D, rings E, provided with corrugated inclined beaters F, and rings G, provided with upright arms or polishers H, arranged and operating substantially as specified.

179,199.

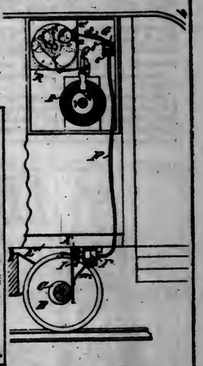


179,200. LUBRICATORS. David Junkins, Pittsburg, Pa. [Filed May 12, 1876.]

1. In combination with the valve of an oil-cup, an arm or pendulum hinged to the valve, and pivoted at a point off the valve, said arm being free to vibrate, so as to lift the valve from its seat at intervals, substantially as and for the purpose specified.

2. The combination of the oil-cup, its valve, the oscillating arm or pendulum hinged to, and pivoted off of, the valve, and the set-screw to regulate the vibration of the arm or pendulum, substantially as and for the purpose specified.

179,200. STATION-INDICATORS AND SPEED-RECORDERS. James F. Kattell, Worcester, Mass. [Filed Dec. 22, 1875.]



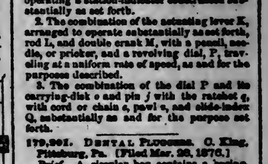
1. The combination of the axle A of a car or other vehicle, cam B, lever I, spring *n*, piston or diaphragm *s*, and compressing-vessel D, with tube F, expanding-vessel G, verge *f*, and escapement-wheel J, of a train of gears operating a station-indicator constructed substantially as set forth.

2. The combination of the actuating lever K, arranged to operate substantially as set forth, rod L, and double crank M, with a pencil, needle, or pricker, and a revolving dial, P, traveling at a uniform rate of speed, as and for the purposes described.

3. The combination of the dial P and its carrying-disk *o* and pin *f* with the ratchet *q*, with cord or chain *s*, pawl *e*, and slide-index Q, substantially as and for the purpose set forth.

179,201. DENTAL PLUGGERS. C. King, Pittsburg, Pa. [Filed Mar. 28, 1876.]

Brief.—A circular box contains a spring-tooth working in an oscillating cylinder, and arranged to lift the inclosed hammer through a lever-connection operated by a forward movement of the finger. Three tubes depend from the box—one of which contains the plugging-tool, one the finger-lever slide, and one a catch for holding the tool.



1. The lifting-bolt H', slotted cylinder H'' lever H, springs *i* and J', slide F, arm J', and finger-bolt *f*, in combination with the hammer D and coil-spring C, as and for the purposes substantially as described.

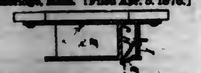
2. The coil-spring C, adjustable post C', lever K, in combination with the hammer D, as and for the purposes substantially as described.

3. A dental plugger having one or more slotted stems or rods, either solid or tubular,

running parallel with the plugging-instrument and distinct from it, substantially as described.

4. In a dental plugger, the rod or slide F, running parallel with (but distinct from) the plugging-instrument, operated by the finger in the direction of the point of the instrument, as and for the purpose described and shown.

179,903. MARKING-SAFES. Henry Klasing, Cambridge, Minn. [Filed Apr. 5, 1876.]



The improved match-safe, described, consisting of the body B having the frictional surface C, and provided with the receptacle J, having the hinged bottom L, and spring-door D, constructed and arranged to operate substantially as set forth and specified.

179,904. TOY MORTAR-BANKS. William M. Kirchner, Pittsburg, Pa. [Filed Dec. 27, 1875.]

Brief.—The wood bottom has dovetail-grooved projections, by which to slide it onto similar-shaped tenons upon the lower edge of the sides of the structure, where it is secured in place by cross keys or bronze.



1. As a new article of manufacture, a toy money-box or savings-bank, having glass walls and cover made in one piece, and with a hole therein for the reception of deposits, substantially as set forth.

2. In a toy money-box made of glass, as described, the recess *a*, for the removal of deposits, substantially as set forth.

3. The combination of glass body A B, bottom D, of wood or other material, with tongues and grooves, and transverse keys *d d*, substantially as set forth.

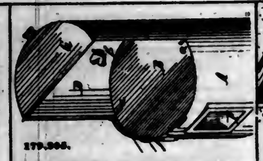
179,905. NURSING-BOTTLE VALVES. Albert M. Kinney and Moses Kinney, Providence, R. I. [Filed Mar. 26, 1875.]

Brief.—A centrally-perforated soft-rubber cap depends from the cork of the liquid-receptacle. The fluid-tube passes through both. A vent is made in the cork, and small lineal divisions in the rubber cap outside of the fluid-tube admit air to the interior of the bottle.



The soft-rubber cap, with the lineal divisions *c c* placed in connection with the cork or stopper *a a*, and the vent *d* surrounding the tube *b b*, as shown in Fig. 4 of accompanying drawing, and in connection with nursing-bottles, as herein described, and for the purpose set forth.

179,906. AERIAL-TRAPS. John H. Kramer and Friedrich Lemke, New York, N. Y. [Filed June 10, 1876.]

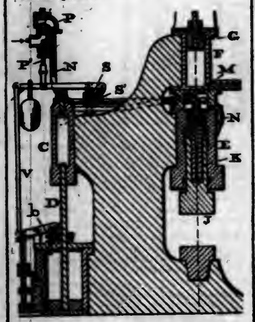


179,906.

The water-tank A, constructed with the eight F and semi-cylindrical raised top D, having the hinged top G and bait-hook H secured near the top of said raised top, in combination with the solid tilting platform E, the whole being constructed and arranged as and for the purpose specified.

179,907. HYDRAULIC POWER-HAMMERS. William B. Leachman, Leeds, England, assignor of one-half his right to George H. Massey, same place. [Filed May 19, 1876.]

Brief.—The piston-rod of the steam-cylinder carries as a plunger to a hydraulic cylinder over it. The pressure is transmitted to the second or working cylinder, the piston of which forms the ram. The upper part of the ram is hollow, and receives a hollow plunger, forming a telescopic arrangement. The pressure is increased as the ram descends, both pistons acting at the end of the stroke. The ram or hammer is raised by a second steam cylinder placed directly over the working hydraulic cylinder.



1. The piston-rod D of the steam-cylinder attended into the hydraulic cylinder C, in combination with the two-part ram J K, substantially as and for the purpose set forth.

2. The piston-rod D of the steam-cylinder B, extended into the hydraulic cylinder C, and the ram in the hydraulic cylinder E, in combination with the pipe M, communicating with said hydraulic cylinder C and the bore of said ram, substantially as and for the purpose set forth.

3. The ram, in combination with a hydraulic cylinder and pipes, whereby it first receives a partial motion, and then a full-power-exerting motion, substantially as and for the purpose set forth.

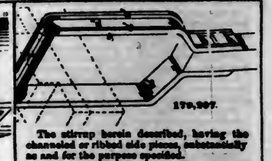
4. The ram formed of parts J K, fitted to each other telescopically, in combination with the hydraulic cylinder E, substantially as and for the purpose set forth.

5. The ram J with the hydraulic cylinder E and the communicating pipe M, in combination with the ram K, projecting into the ram J and the pipe M, substantially as and for the purpose set forth.

6. The ram of the hydraulic cylinder E, in combination with the piston G of the steam-cylinder F, and the connecting bar or rod H, substantially as and for the purpose set forth.

7. The hydraulic cylinder C and the hydraulic cylinder E with its ram, in combination with the pipes M N, valves P S, lever T, and connection K, substantially as and for the purpose set forth.

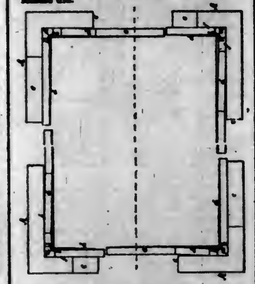
179,907. STIRRUPS FOR OIL-WELLS. Wm. J. Lewis, Pittsburg, Pa. [Filed June 10, 1876.]



The stirrup herein described, having the channeled or ribbed side pieces, substantially as and for the purpose specified.

179,908. DIES FOR STAMPING. H. Martyn, East Medford, Mass. [Filed Apr. 6, 1876.]

Brief.—The sections of the female die have scarf-joints, with projection on one passing into a slot under the other. The sections thereafter, when pressed apart, do not make vertical grooves in the body of the bar. Removable bars, backed by springs, enable bores of differing sizes to be made with the same female die.



1. For the purpose set forth—viz., the making of boxes or pans—a sectional female die, having each of its sections scarfed upon those next to it.

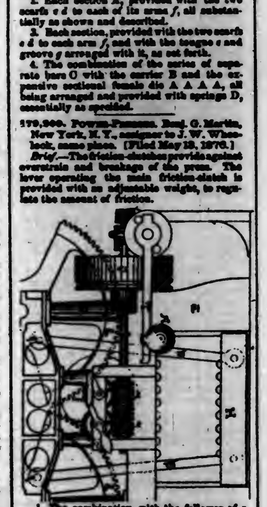
2. Each section A, provided with the two scarfs *c d* to each of its arms *f*, all substantially as shown and described.

3. Each section, provided with the two scarfs *c d* to each arm *f*, and with the tongue *e* and groove *g* arranged with it, as set forth.

4. The combination of the series of separate bars C with the carrier B and the successive sectional female die A A A A, all being arranged and provided with springs D, essentially as specified.

179,909. POWER-PRESSES. Benj. G. Martin, New York, N. Y., assignor to J. W. Wheelock, same place. [Filed May 18, 1876.]

Brief.—The friction-clutches providing against overstrain and breakage of the press. The lever operating the main friction-clutch is provided with an adjustable weight, to regulate the amount of friction.

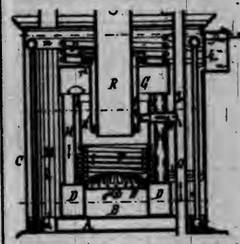


1. The combination, with the follower of a press, and with segments F and pinion G, attached to the crank-wrist-pins secured to said segments, of intermediate pinions *f f*, shafts *d d*, worm-wheels *g g*, right and left hand worms *h h'*, and driving-shaft I, all constructed and operating substantially as shown and described.

2. The combination of a friction-pulley, J, and weighted lever L with the segments F, pinion G, worm-wheels *g g*, right and left hand worms *h h'*, and follower H, all constructed and operating substantially as set forth.

3. The combination of friction-clutch c with the worm-wheels *g g*, worms *h h'*, pinions *f f*, segments F F, and follower H, all constructed and operating substantially as shown and described.

179,910. HEATING-FURNACES. P. Martin, Buffalo, N. Y. [Filed May 3, 1876.]



1. The combination, with the ash-pit B, of the surrounding chamber D, provided with openings *b* and doors *b'*, for permitting the fine ashes and dust to be carried off, substantially as hereinbefore set forth.

2. The combination, with the fire-pot F and coil or coils of water-pipes *f*, of the radiator M, receiving the water heated in the coil *f*, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the fire-pot F and coil or coils of water-pipe *f*, of the radiator M, tank L, and connecting-pipes, forming a complete circuit for the water, substantially as hereinbefore set forth.

4. In a heating-furnace, the coil of water-pipe F, provided with perforations on upper side, and arranged within the warm-air space, in combination with the water-tank L, so that the vapors generated in the coil can commingle with the heated air, substantially as and for the purpose hereinbefore set forth.

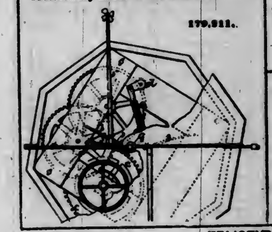
5. The combination, with the fuel-magazine and inclosing case or jacket, forming an air-space around the magazine, of draft-passages admitting the external air to the lower portion of said air-space, and connecting the upper portion thereof with the smoke-flue, so as to effect a continuous ventilation and prevent the overheating of the magazine, substantially as herein before set forth.

6. The combination, with the ventilating-flue Q and magazine R, of the jacket E', passage W, dampers *q t*, and pipe T, substantially as and for the purpose hereinbefore set forth.

7. The combination, with the combustion-chamber G, of the magazine R, provided with flanges *r r'*, and surrounding jacket E', provided with flanges *r' r''*, substantially as and for the purpose hereinbefore set forth.

8. The combination, with the flue Q, magazine R, jacket E', and combustion-chamber G, of the tube U, provided with flange *u* and collar *u'*, and secured in place by a pin, *u''*, substantially as shown and described.

179,911.



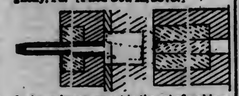
179,911. AUTOMATIC FANS. Aaron Mattox, South Bloomingville, Ohio. [Filed May 2, 1876.]

1. In an automatic fan, a flexible connecting-rod, *e*, consisting of two separate and distinct rods secured together by a coiled spring, substantially as shown.

2. The combination of the flexible connecting rod, as claimed above, with a reciprocating rotary shaft, *g*, a crank, *d*, and an operating mechanism, substantially as set forth.

3. The shaft *g*, provided with the step 2, in combination with the spring 3, substantially as specified.

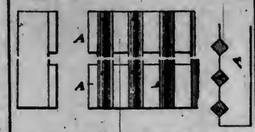
179,912. MANUFACTURE OF MALLEABLE INGOTS AND PLATES. Hugh McDonald, Allegheny, Pa. [Filed Oct. 12, 1875.]



1. As an improvement in the art of making compound malleable plates, casting the softer quality of malleable metal within or between the previously cast and yet hot exterior malleable plates of a harder quality, substantially as set forth.

2. As an improvement in the art of making compound malleable plates, the process consisting of the following steps: first, casting the exterior or surface part or parts of the harder quality of malleable metal; second, casting therein while still hot the interior core or center of a softer quality of malleable metal; and, third, bringing the same to a sheet or plate form by known operations of hammering or rolling, substantially in the manner and for the purposes set forth.

179,913. GAS-PURIFYING TRAYS. Thos. P. McGarvie, Milwaukee, Wis. [Filed Nov. 3, 1875.]



A gas-purifying tray, consisting of supporting-bars A, having peculiar notches in their upper edges, and of the cross-bars D of like configuration in cross-section, secured on the supporting-bars and within their notches, as and for the purpose described

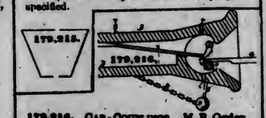
179,914. MANUFACTURE OF FLOUR. Jonathan Mills, Milwaukee, Wis., assignor of two-thirds his right to Edward P. Allis & Co., same place. [Filed Apr. 15, 1876.]

The herein-described method of disintegrating middlings—that is to say, by heating them and passing them while in the heated condition to stones, rolls, or equivalent disintegrating mechanism.

179,915. BRICKS FOR WALLING WELLS. Amariah Moore, Shelbyburg, Iowa. [Filed Mar. 6, 1876.]

As a new article of manufacture, the brick for walling wells, constructed with straight and parallel sides and straight and parallel edges, and with ends beveled in opposite directions from one of said sides to the other, as shown, substantially as and for the purpose specified.

179,915.



179,916.

179,916. GAS-COUPLINGS. M. B. Ogden, Joliet, Ill. [Filed Aug. 31, 1874.]

The car-coupling described, having the bolow bumper B, carrying the spring *z*, cam *s*, square roller *c*, (having attached to it the lever *s*, ball D, and chain *t*,) and the flat link *a*, all arranged as and for the purposes described.

179,917. DRAIN-HOPPERS. Jos. D. Pierce, Milwaukee, Wis., assignor of one-half his right to John B. Smith, same place. [Filed Nov. 27, 1875.]

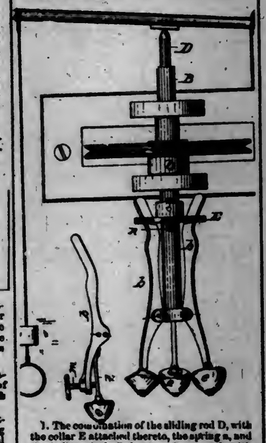
Brief.—The device consists, substantially, of two parts hinged together. The basin, together with the movable pan, forms a trap.



A drain-hopper constructed with an upper and under part, A and B, with the slotted receptacle C secured to the upper part B, all in combination, substantially as and for the purpose set forth.

179,918. BOTTLE-CAPPING MACHINES. William Pitt, Baltimore, Md., assignor of two-thirds his right to Charles A. Vogeler and A. C. Meyer, same place. [Filed June 12, 1876.]

Brief.—A series of arms carrying rollers, one of which is of hard material, are pivoted upon a revolving shaft, and are provided with means for imparting to said arms and their rollers a positive converging movement for securing tin-foil on bottles.



1. The combination of the sliding rod D, with the collar E attached thereto, the spring *n*, and the hollow shaft B, having the arms *b*, with rollers *c* thereon, pivoted to said shaft, all constructed and arranged to operate substantially as described.

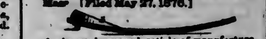
2. The rollers *c*, composed of rubber, for use in a bottle-capping machine, as set forth.

3. In a bottle-capping machine, the combination of elastic and non-elastic rollers, to set upon the foil and form the same down in place, substantially as shown and described.

4. In combination with the pivoted arms *b*, arranged and operating substantially as shown, the spring-arms *e*, having rollers *c* attached, and the adjusting-screws *m*, as shown.

5. In combination with the pivoted arms, having the rollers mounted thereon, the sliding collar embracing the ends of the arms, and serving to throw the rollers both outward and inward with a positive motion, insuring a uniform adjustment of all the rollers, and rendering the machine capable of operation without dependence upon springs.

179,919. HORSE-TAPS AND TIPS FOR BOOTS AND SHOES. Wm. F. Prusha and Horatio Cook, Marlborough, assignors to themselves and W. B. Brigham & Co., Hudson, Mass. [Filed May 27, 1876.]



1. As an improved article of manufacture, a shoe-tip made of horn, as set forth.

2. A combined sole and shoe-tip, made of horn, as set forth.

179,220. CULTIVATORS. Geo. W. Rhodes, Elma, N. Y. [Filed June 14, 1876.]

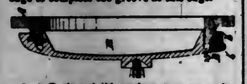
Brief.—By detaching the brace from the pin on the lever, the resistance of the front teeth, operating in connection with the draft of the beam, will cause the cultivator to tilt forward upon the wheels.



In a cultivator, the arrangement of the different parts, consisting of the frame A B, the tongue F, having the roller H, the wheels K, lever D, and notched brace E, constructed and operating substantially as described, and for the purpose set forth.

179,221. LID AND MOUTH-PIECE FOR GARMENTS. Jos. Richards, Glasgow, Scotland. [Filed Mar. 2, 1876.]

Brief.—The lid and mouth-piece are D-shaped in form, the curved part of each being the arc of a circle, so that they may be turned in a lathe. The mouth-piece has a projecting rib, and the lid has a deep groove. The lid is made in two parts—a main D part, and a straight-edge part, secured to its under edge to complete the groove at this edge.

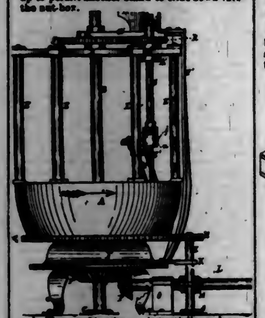


1. A D-shaped lid, made in two parts, the main part B, provided with a D-shaped projection, *b*, the curved part of which is circular in form, and the straight part *B'*, screwed to the under edge of the main part, as and for the purpose described.

2. A D-shaped lid, made in two parts, the main part B provided with a D-shaped projection, *b*, the curved part of which is circular in form, and the straight part *B'*, screwed to the under edge of the main part, in combination with the D-shaped mouth-piece A, having a D-shaped projection, *a*, the curved part of which is circular in form, substantially as set forth.

179,222. MACHINERY FOR TAPPING NUTS. Chas. H. Robbins, Cleveland, Ohio. [Filed Nov. 20, 1876.]

Brief.—The tap-spindles, spliced to their pinions, have each a recessed collar on the upper end, which, after the nut has been tapped and pushed upon the shank of the tap, engage curved and inclined ledges on the elevator, by which they are gradually lifted up to permit another blank to slide down into the nut-box.



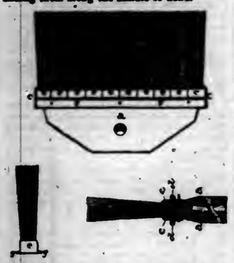
1. The combination, substantially as herein shown and described, of the series of spindles or bars E, mounted on the revolving bevel A, and carrying the hoppers G', the series of inclined ways H', the series of set-screws I', and the series of rotating tap-spindles B, all arranged to revolve with the bevel around the central shaft B, as and for the purposes set forth.

2. The thimble *K'*, socket *J'*, catch *a'*, rubber or spring *b'*, in combination with the spindle *B'* and tap *C'*, in the manner substantially as described, and for the purpose specified.

3. The tap-holder *B'*, consisting of the thimble *K'*, socket *J'*, catch *a'*, and rubber block or spring *b'*, all constructed and arranged to operate substantially in the manner as described, and for the purpose set forth.

179,223. BRUSHES. Henry Rosenthal, New York, N. Y. [Filed May 29, 1876.]

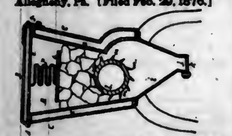
Brief.—The tufts are secured in removable frames upon the handle, so that any number of these may be added or removed at will by sliding them along the handle or head.



1. The metallic frames *a*, provided with the flanges *g*, so that they may be rigidly or removably attached to the handle, as shown.

2. The combination of the handle *c* and strips *a*, for holding the frames *a* in position.

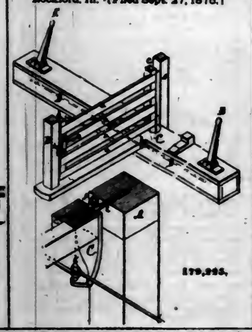
179,224. ICE-SHAVING APPARATUS. Wm. G. Salmon, Steubenville, Ohio, assignor of one-half his right to Langtitt & Hamilton, Allegheny, Pa. [Filed Feb. 29, 1876.]



1. The spring *g* and press-board *c*, in combination with the cover D and rotary cutter *i*, substantially as described.

2. As a new article of manufacture, the combined ice-box and ice cutter, herein described, consisting of the box A, having hollow walls B C, the hollow cover D, provided with the spring *g*, to which is attached the presser-board *c*, the spout or conductor *f*, provided with a valve, *h*, and the rotary cutter *i*, substantially as described.

179,225. AUTOMATIC GATES. Peter Samse, Rockford, Ill. [Filed Sept. 27, 1876.]



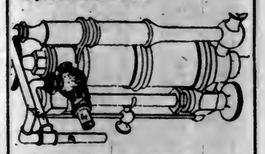
179,225.

1. The head-lever E, connecting-rods D, lever arm or crank G, in combination with the gate A', with its lever hinge formed by the hook *e* and eye *f*, substantially as and for the purposes described.

2. In a self-closing gate, where the outer end has to rise to release the latch, or fall to engage the latch with the catch, the combination of the hook *e*, an oblong eye, *f*, that is oblique to its shank, with the swinging gate A', constructed and operating substantially as described.

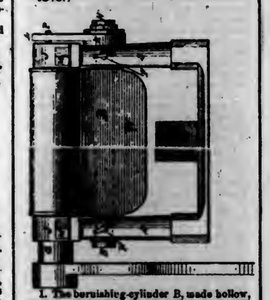
179,226. LUBRICATORS. Nicholas Seibert, San Francisco, Cal. [Filed Jan. 3, 1876.]

Brief.—When steam is admitted through the pipe, there is equal pressure throughout the device and its pipes; consequently the oil is enabled to flow intermediately; but when the steam is cut off from the pipe, the pressure in the auxiliary pipe holds down the valve to prevent the flow of oil.



In combination with a lubricator, the auxiliary pipe *B'*, substantially as and for the purpose set forth.

179,227. PHOTOGRAPH-BURNISHERS. L. D. B. Shaw, Boston, Mass. [Filed Nov. 17, 1876.]



1. The burnishing-cylinder *B*, made hollow, and provided with wings W W and heads H H, as and for the purpose described.

2. The combination, with the journal of the burnisher B, of the adjustable collar K, having the set-screw T and slotted arm L, the latter receiving and being operated by the pin P, set eccentrically in the end of journal G' of the roller R, all in the manner and for the purpose set forth.

3. The combination of the draw-filed roller R with the oscillating burnisher B, when the latter is made to vibrate in the line of the path of the picture passing through the instrument, as stated.

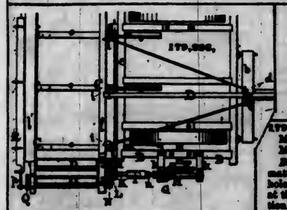
4. The hollow cylindrical burnisher B, adapted to receive water, and provided with one or more steam tight removable heads, H, in combination with a lamp or other heater, for converting water into steam within the burnisher, as and for the purpose indicated.

5. The combination, with the vibrating cylindrical burnisher B, of the wings W W, to confine the flame of the lamp or heater, and protect the card from injury by its action, as specified.

6. The combination of the journals of the burnisher B with boxes D, screws E and F, stanchions S S, and feather *f*, in the manner and for the purpose designated.

7. The combination of a burnisher, made hollow and steam-tight, and supplied with water, with a lamp, for the purpose indicated.

179,228. HARVESTERS. Benjamin Shoop, Pekin, assignor of one-half his right to A. J. Hodges, Peoria, Ill. [Filed Nov. 16, 1876.]



179,229.

1. The horizontal platform-operating lever D, with its pivotal post *i* rising from the ranging-platform, and its second pivotal post, *d*, rising from the tongue A or its cross-piece *b*, substantially as and for the purposes described.

2. The combination, with the platform C, of the pivotal post *i*, lever D, pivotal post *d*, attached to the tongue A or its cross-bar *b*, said lever being provided with detent *s* upon the tongue A, substantially as and for the purpose described.

3. The harvesting-machine provided with bevel-wheel F, shaft H, pinion G, cut-wheel *e*, socketed shaft I, pinion-shaft K, pinion L, and apron-roller pinions M N, crank O, and connecting-rod *p* to sickle, arranged and operating substantially as and for the purposes described.

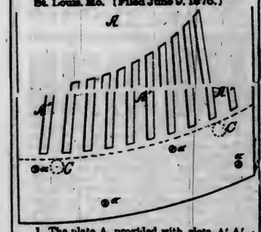
179,230. SCRAPER. David G. Smith, Coxbondale, and John B. Smith, Dunmore, Pa. [Filed May 22, 1876.]

Brief.—By combining the longest sides with the largest angles, ensures the greatest toss and the least "balling" of the material to be screened.



A pentagonal prismatic revolving screen, whose adjacent sides meet each at angle of about one hundred and eight degrees, so as to insure the broadest sides accessible with their meeting at obtuse angles, and the largest effective screening-surface, combined with adequate stirring and spreading of the material, substantially as described.

179,231. PATTERNS FOR LAYING OUT PURPOSES IN MILLWORK. George T. Smith, St. Louis, Mo. [Filed June 9, 1876.]



1. The plate A, provided with slots A' A', substantially as set forth.

2. In combination with the slotted plate A, the guide-piece B, or the pins C C, substantially as set forth.

179,232. FRUIT-JARS. David H. Stevens, Newark, Ohio. [Filed Apr. 3, 1876.]

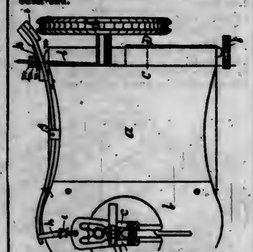
The combination with the jar A, having a shoulder below the neck of the jar, and convex-faced lugs formed on said neck, of the cover, having convex-faced lugs secured to its inner surface and the gasket, the latter engaged by the outwardly-flaring lower edge of the cover, substantially as and for the purpose described.



179,232.

179,233. ATTACHMENTS FOR BUTTON-HOLE MACHINES. John J. Sullivan, Ipswich, Mass. [Filed Apr. 6, 1876.]

Brief.—The mechanism is adapted to automatically stop the machine when the button-hole is completed. The clamps are provided at their outer end with an adjustable projection; this strikes against the lower end of the brake-lever as soon as a button-hole is finished. The brake is provided with an arm having a hole, through which extends an adjustable rod having at its lower end a wedge-piece adapted to trip the hook-lever of the shipping-bar. The bar is operated by a bell-crank lever connected by a cord with the treadle, which is thrown up by a spring. The shipping-bar is thrust by pushing in the handle attached to its outer end.

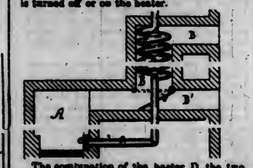


1. In combination, with the clamps *c c* of a button-hole machine, the adjustable projection *e*, lever *f*, with its projection *h*, brake *i*, and driving or balance wheel *d*, as and for the purpose set forth and described.

2. In combination, the clamps *c c*, adjustable projection *e*, lever *f*, projection *h*, rod *l*, wedge *n*, lever *o*, shipper *q r*, the knee-lever *s*, and link or connection *r* to the treadle mechanism, substantially as and for the purpose set forth and described.

179,234. REGULATING APPARATUS. Geo. Upton, Peabody, Mass. [Filed Mar. 6, 1876.]

Brief.—By means of the damper the heat is turned off or on the heater.



The combination of the heater D, the two flues B and B', and damper D with the fire-box A of the furnace, as and for the purposes specified.



179,235.

179,235. CONVERTIBLE CHAIRS. Charles Vendegna, Louisville, Ky. [Filed Nov. 20, 1876.]

The improved convertible chair consisting of the seat B, with its hinged extension-section B', having pivoted legs C C, the single arm-piece A, and the adjustable back D, with its toothed latch-bar E, all as and for the purpose set forth.

179,236. PAINT-OILS. William H. Very, De Witt, Iowa. [Filed Mar. 4, 1876.]

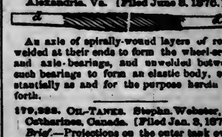
The within-described compound, consisting of lime, water, sulphate of zinc, and linseed-oil, mixed with paints, substantially as and for the purpose set forth.

179,237. SELF-CLOSING HATS FOR GRAIN, &c. Maurice J. Walsh, New York, N. Y. [Filed Sept. 20, 1876.]



The elastic band B, with its fastening *c d*, in combination with the bars *a* around the mouth of the bag, provided with openings *b b*, substantially as herein described.

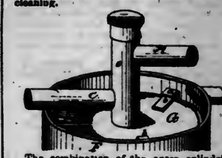
179,238. CARRIAGE-AXLES. W. H. Ward, Alexandria, Va. [Filed June 9, 1876.]



An axle of spirally-wound layers of rods, welded at their ends to form the wheel-ends and axle-bearings, and unwelded between such bearings to form an elastic body, substantially as and for the purpose herein set forth.

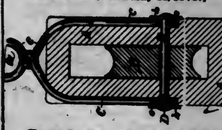
179,239. OIL-TANKS. Stephen Webster, St. Catharines, Canada. [Filed Jan. 3, 1876.]

Brief.—Projections on the outer tank overlap projections on the top of the inner tank, thereby retaining the latter in place, and rendering it easily removable for the purpose of cleaning.



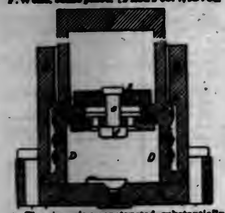
The combination of the outer cylindrical tank F, having lugs *a*, projecting at right angles from its inner wall, with the inside cylindrical and bottomless tank G, having a series of perforations, *i*, near its lower edge, and lugs *b*, projecting at right angles from its rear or cover, substantially as and for the purpose herein shown and described.

179,240. PULLEY-BLOCKS. John Weir, New York, N. Y. [Filed May 31, 1876.]



The combination of the wire bail C, bent at the center to form a suspension-loop, *a*, and at the intervention to form eyes *b b*, the wooden block A, grooved on its outer faces to receive the arms of the bail, bored to receive the axle D, and recessed around the axle-bore to receive the eyes of the bail, the sheave B, the axle D, and burrs or washers *c c*, all constructed and arranged to operate as herein set forth

179,840. AXE-STRINGS. Webster Wells, Boston, Mass., assignor to himself and T. F. Wells, same place. [Filed Feb. 7, 1876.]



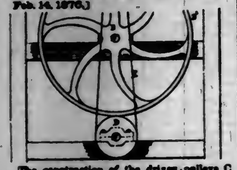
1. The air-spring constructed, substantially as described, viz., of the sleeve or flexible tubular and flange packing D, the plunger C, base A, and the hollow cylinder or case B, all arranged and combined essentially as specified.

2. The combination of the plunger C, tubular and flange packing D, and the base A, arranged substantially as set forth.

3. The plunger C and the packing D, chambered and opening into each other, as explained.

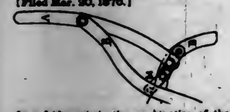
4. The combination of one or more hoops or rings, F, circumscribing the tubular packing D, with said packing and the case B surrounding it, as shown.

179,841. MECHANICAL MOVEMENTS. Wm. D. Wadsworth, Toronto, Canada. [Filed Feb. 14, 1876.]



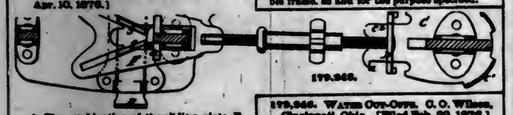
The construction of the driven-pulleys C and D, with their faces wider than the face of the driving-wheel B, so that a belt, K, may be placed on the said driven-pulleys C and D, compressing both, and passing on one or on each side of the driving-wheel B, for the purpose of holding the faces of the driven-pulleys C and D in contact with the rim of the driving-wheel B, the said driven-pulleys C and D, one assisting the other, all as shown and described, and for the purposes set forth.

179,842. FOLDING CHAIRS. Benjamin R. Wetherbee, South Ashburnham, Mass. [Filed Mar. 20, 1876.]



In a folding chair, the combination of the back-piece A, the rear leg D, and the bracket and link-connection E H with the front leg B, all operating together as described, and for the purpose set forth.

179,843. SKATES. J. A. Whipley, Greenwich, assignor to Hercules Skate Company, St. John, New Brunswick, Canada. [Filed Apr. 10, 1876.]



1. The combination of the sliding plate F, having V-shaped slots, with the runner irons or bars, adjustable toe-clamps b, and adjustable stud c for adjusting the skate transversely on the foot, substantially as described.

2. The adjustable stud d, in combination with the key d, for adjusting the skate transversely on the boot, substantially as set forth.

3. The combination of the sliding bed-clamp D, having the brace f formed integral therewith, and provided with an opening, with the heel-plate C, having guide-extension e and stop a, substantially as herein set forth.

179,844. CHILDREN'S CARRIAGES. Francis W. Whitney, Leominster, Mass., assignor to F. A. Whitney Carriage Company, same place. [Filed Feb. 14, 1876.]

Brief.—To allow occupant to lie down when drawn out.

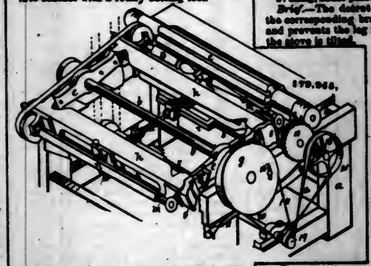


1. In combination with the extension-drawer having continuous sides D² beveled off at the rear end, the tilting seat of children's carriages, constructed and operated substantially as and for the purposes described.

2. In combination with the tilting seat of children's carriages, operated by the beveled end of the sides of the extension-drawer, the stops b, located or formed on said beveled end, to retain the extension drawer in position, as described.

179,845. DOUBLE REVERSIBLE LATHES. J. H. Wilson, Boston, Mass. [Filed Sept. 27, 1875.]

Brief.—Two sets of head and tail blocks are attached to a revolving frame, which, by its rotation, brings the article to be turned into contact with a rotary cutting-tool.



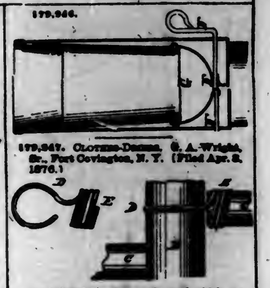
1. The combination, in a turning-lathe, of a rotating and reversible frame, composed of the side pieces c c and slotted pieces h h, and mounted on the shaft b, and having the chucks a arranged on the outer sides of the said frame, the whole being constructed substantially as described, so that while the cutters are operating upon the article to be molded at one side of the frame, a blank may be fixed in the opposite side, as and for the object specified.

2. The combination of the rotating reversible frame, the back-rest g, bar f, incline r, rod s, spring t, sliding bar k, and cam-wheel p, the whole being constructed and arranged substantially as described, whereby the reversible frame can be retained on its axis without interrupting the running of the machine, as and for the purpose specified.

3. In combination with the reversible frame, the endless belt 2 and the system of pulleys 3 4 5 6 7 8, arranged and operating as and for the purpose set forth.

4. The adjustable spring-bolt o on the cam-wheel p, in combination with the sliding spring-bar g and incline or cam-piece r on the reversible frame, as and for the purpose specified.

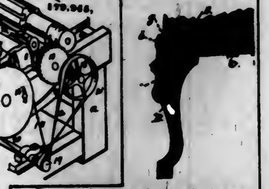
179,846. CLOTHES-DRIERS. G. A. Wright, Sr., Port Covington, N. Y. [Filed Apr. 8, 1876.]



A clothes-drier, the sections of which are connected together by a wire, D, one end thereof being bent around the vertical post D, and at right angles thereto, and the other end bent around in coils to form a center, E, into which is inserted and secured the free ends of the horizontal cross-bars C, substantially as and for the purpose set forth.

179,847. STOVE-LEG FASTENERS. John Ziegler, Dayton, Ohio, assignor to Reuben J. King, same place. [Filed June 7, 1876.]

Brief.—The desire on the rotate fits into the corresponding bracket in the stove-plate, and prevents the leg from dropping out when the stove is tilted.



The stove-bottom A, having the beveled brackets b and c, in combination with a stove-leg, B, so which is pivoted a rosette or catch, f, whose top is formed into a detent, g, to fit over and clasp the bracket b, to prevent the detachment of the leg, substantially as and for the purpose specified.

179,848. FIRE-POT LININGS. John Ziegler, Dayton, Ohio, assignor to Reuben J. King, same place. [Filed May 20, 1876.]

Brief.—The part of the lining liable to the greatest heat made removable.



1. A fire-pot lining of double thickness at and on each side of its center, with the front portion removable and reversible, substantially as and for the purposes specified.

2. The herein-described lining for fire-pots, consisting of the plate A, with a central concavity facing the pot, and a reversible slide, B, secured thereto with its outer surface to line with the surface of the plate A, the whole constructed and united substantially as and for the purpose specified.

179,849. CORN-SHELLERS. John Q. Adams, Marcellus, Ill. [Filed Feb. 10, 1876.]

1. The combination of the yielding under presser-plate A, attached to the machine, as set forth, and having a loop at its lower end, with the holding-spring E, substantially as described.

2. The combination of the presser-plates A, attached to the covering-plate, substantially as described, and lugs F, on the lower end of said covering-plate, which serve as stops to limit the lateral motion of the presser-plates, as specified.

179,850. WATER CUT-OFFS. C. O. Wilson, Cincinnati, Ohio. [Filed Feb. 20, 1876.]

Brief.—The chain is shifted from one opening to the other by the pivoted guide and handle.

The cap D, in combination with the crank F F', so applied to the cut-off pipe as to bring the mouth of the pipe squarely over the outlet, and make the communication and non-communication with the outlets perfect.

3. The combination of the cob-shoe G, and the raised transverse rib S, arranged at the rear of the shoe, substantially as and for the purpose set forth.

4. The screen for a cob-shoe, composed of inclined slats T and intermediate rods O, the slats being arranged to project above the rods, substantially as described.

5. The fan-case A, provided with bearings for the fan, and the flange, by means of which it is secured to the frame of the machine and made detachable, substantially as shown and described.

6. The wind-throat I, having an upper and lower pivoted plate, m and n, connected by a rod, o, in combination with the supporting-lever p, by which its direction is adjusted, substantially as described.

7. The combination of the fully A, having groove c, the tire B, having rib b and beveled flange c c, and the elastic band D, substantially as described.

179,850. GRAIN-SEPARATORS. William H. Asbury, Victory, Wis. [Filed Mar. 27, 1876.]

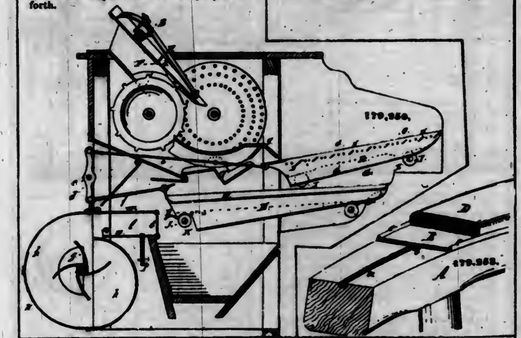
1. The shoe H, pivoted at its rear end, and suspended at the feed end by the hooks d, substantially as and for the purposes herein set forth.

2. The shoe H, pivoted at its rear end, suspended at its feed end by the hooks d, and provided with the alternately inclined sieves I I', as and for the purposes herein set forth.

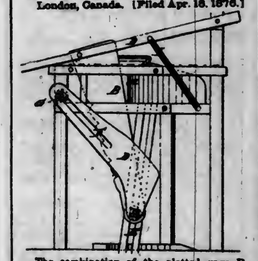
179,852. WHEEL-TIRES. Wm. H. Bailey, New York, N. Y. [Filed May 15, 1876.]

1. The inwardly-beveled flanges c c, arranged upon the outer periphery of the tire, to retain and support the elastic band, as set forth.

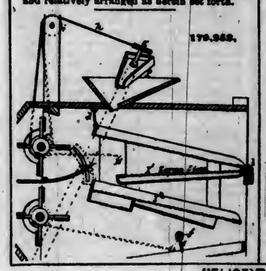
2. The combination of the felly A, having groove c, the tire B, having rib b and beveled flange c c, and the elastic band D, substantially as described.



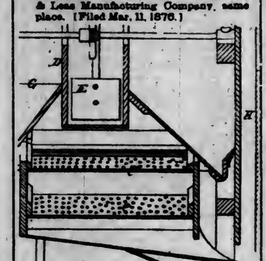
179,851. STRAW-CUTTERS. A. Anderson, London, Canada. [Filed Apr. 18, 1876.]



The combination of the slotted gage D, guide-stud G, and slotted guide E, with the cutting-knife B and feed-bar A, all constructed and relatively arranged as herein set forth.



179,853. GRAIN-SEPARATORS. Herman A. Barnard, Moline, Ill., assignor to Barnard & Leas Manufacturing Company, same place. [Filed Mar. 11, 1876.]



The combination, with the shoe containing the screens C C, of the fan E, the two screenings-chambers G G', vertical air-trunks I H, connected by passages with the screenings-chambers, the hopper J, and slide L, all substantially as and for the purposes herein set forth.

179,854. RAZORS. Conrad Beck, Des Moines, Iowa. [Filed Dec. 4, 1876.]

Brief.—Various sorts of thumb and finger rests are located on the shank of the razor, and the handle is conserved at its back edge.

1. As an improved article of manufacture, a razor having the pivotal thumb and finger rests Nos. 2 and 3 at right angles to the rest No. 1, substantially as and for the purposes shown and described.

2. A razor-handle having a concave, c c, in its back, as and for the special purpose set forth.

3. The combination of the finger-rests 1 2, 3 upon the razor blade A B, with the concaved recess c c in the back of the handle C, all arranged as and for the purposes described.

179,855. LUBRICATING COMPOUNDS. E. W. Billington, Jersey City, N. J. [Filed June 6, 1876.]

Brief.—Animal grease, water, and caustic soda lye are heated by steam, and made into soap. Lemon oil (resin-oil, first run) and paraffine-oil are added.

A lubricating compound consisting of saponified grease or soap, Lemon oil, and paraffine-oil, combined in about the proportions and in the manner substantially as herein specified.

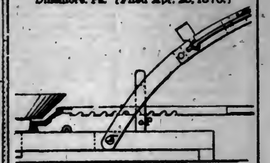
179,857. BED-BOTTOMS. Lewis Birt, Owasco, N. Y., assignor of one-half his right to George D. Gebauer, same place. [Filed Mar. 6, 1876.]



1. In a spring bed-bottom, the combination of the corner volute spring B, supported by rods e, and the intermediate short springs D, held by loose rods b, as described, for the purpose of compensating for different weights and still preserving the desired springy resistance, as set forth.

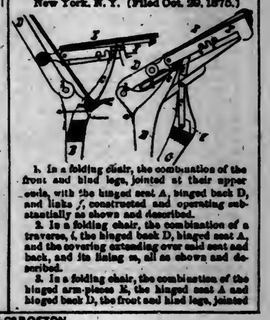
2. The combination, with the volute springs, the central connecting-rods, and the base-frame C, of the interior supporting and bracing cords c, for the base-coils of said springs, as described.

179,858. SHEARING-CHAIRS. Jas. A. Boals, Dinsmore, Pa. [Filed Apr. 26, 1876.]



A shearing-chair, provided with a seat that revolves and slides adjustably, as shown and described.

179,859. FOLDING CHAIRS. Peter Born, New York, N. Y. [Filed Oct. 20, 1876.]



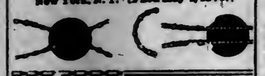
1. In a folding chair, the combination of the front and hind legs, jointed at their upper ends, with the hinged seat A, hinged back D, and links f, constructed and operating substantially as shown and described.

2. In a folding chair, the combination of a traverse, f, the hinged back D, hinged seat A, and the covering extending over said seat and back, and its lining e, all as shown and described.

3. In a folding chair, the combination of the hinged arm-pieces E, the hinged seat A and hinged back D, the front and hind legs, jointed

as their upper ends, and provided with the guide-shoes *j*, and the gravitating latches F, all constructed and operating substantially as described.

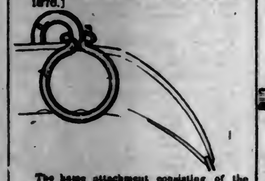
179,960. METALLIC SEALS. R. J. Brooks, New York, N. Y. (Filed May 4, 1876.)



1. As a new article of manufacture, a shackle-wire for lead and wire seals, constructed of hard metal, with permanent transverse indentations formed therein, as herein illustrated and described.

2. The single-wire sealing-shackle of hard metal, having permanent transverse indentations, in combination with the seal-disk of soft metal, adapted to be pressed into said indentations, and around the indented ends, so as to unite and retain the latter, in the manner herein set forth, for the purpose specified.

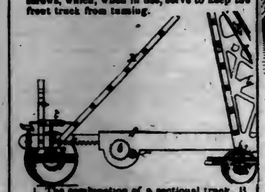
179,961. HAMES FOR HARNESS. Lewis P. Brown, Cleveland, Ohio. (Filed Apr. 15, 1876.)



The hame attachment consisting of the ring A and eye B, at or near a right angle to each other, and connected by the neck *c*, substantially as and for the purpose described.

179,962. FIREMEN'S EXTENSION-LADDERS. Henry Bonerin, Milwaukee, Wis. (Filed Feb. 24, 1876.)

Brief.—The ladder is pivoted to the front axle of an extension-truck, the side rails of one section of said truck being tubular, and forming guides and sockets for the sliding side rails of the other section. The sliding rails are provided with rack-teeth, which mesh into pinions mounted on a shaft, having its bearings in journal-boxes attached to the tubular guide-rails. To the bolster of the rear axle is secured a brace, the upper or inner end of which is attached to the ladder. When the truck is contracted by means of the racks and pinions, the brace serves to elevate the ladders. Through the bolster on the front axle pass set-screws, which, when in use, serve to keep the front truck from turning.



1. The combination of a sectional truck, H O, having sliding rails *b*, and tubular guide-rails *c*, provided with the rack and pinion for extending and contracting the truck, with the ladder-supporting frame D hinged to the bolster A of the truck-section O, and with the brace H hinged at one end to the bolster a of the truck-section B, and at the opposite end to the frame D, the whole being constructed and operating substantially as shown and described.

2. The combination with the sectional truck B O, its front axle G, and bolster A, of set-screws *f*, and friction-plates *h*, substantially as described, for securing the front axle in position when required.

3. The combination with the ladders E F, of racks *e'*, and pinions *d'*, substantially as and for the purpose described.

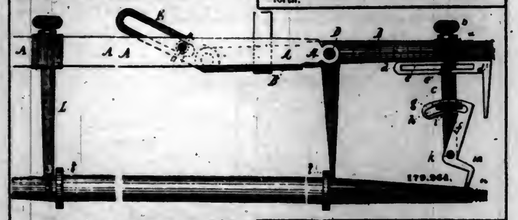
179,963. BALL-VALVES. Cortland Carlton and J. B. Jones, Kalamazoo, Mich. (Filed Apr. 4, 1876.)



As an improvement in ball-valve for wooden pump-tubes, a metallic seat, made with a downward-extending tube fitting the pump-tube, a top plate or ring with outer wood-biting flange, and a raised interior rim and seat, substantially in the manner shown and described.

179,964. AXLE SETS AND GAUGES. William C. Carlton, Boise City, Idaho. (Filed Apr. 20, 1876.)

Brief.—The instrument may be adjusted to gage the dish and gather of the wheel, and the taper of the spindle.



1. In an apparatus for gaging and setting axles, the combination of the bar A, provided with adjustable standard I, bar B, provided with fixed standard K, and adjustable slotted arm E, the two pivoted together by pin D, and the adjustable taper-taking device, consisting of a sliding gage, *d d'*, depending arm *e*, and rotating gage *f*, having arms *g* and *m*, the whole arranged and operating substantially as and for the purposes herein shown and set forth.

2. The taper-taking device, consisting of slide *c*, depending arm *e*, sliding gage *d d'*, and rotating gage *f*, having adjusting-arm *g* at its apex, and indicating-arm *a* at its base, the whole arranged for taking the diameter of the axle-spindle at both base and point, indicating the taper thereof, as and for the purposes as herein shown and set forth.

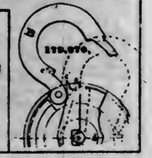
179,965. HARNESS. David S. Carrick, Cincinnati, Ohio. (Filed Dec. 11, 1875.)



The leather strip A, provided at each end with means for attachment to the saddle-flaps, in combination with a harness-saddle, whereby the saddle is permitted to move freely back and forth upon and over the strip, for the purpose described.

179,966. PROPELLING CANAL-BOATS. Hosten L. Chapman, Portland, Oreg., assignor of one-half his right to George H. Case and J. R. Roth, Fairfield, Iowa. (Filed June 9, 1876.)





1. In canal-boat, constructed substantially as described, the combination of the funnel-shaped bows A, provided with the detachable perforated fender F, the pipes B and C, and the double rotary pump P, substantially as and for the purposes set forth.

2. In combination with the pipe C, connected with the rotary pump P, the cylindrical rudder E, encircling the nozzle of the pipe C, all constructed and operating substantially as and for the purposes described.

179,967. NOZZLES FOR CANS. George H. Chinnock, Brooklyn, N. Y. (Filed Feb. 7, 1876.)

The nozzle for cans, boxes, and packages, constructed with the solid top C, in combination with a swiveled and apertured leaf or section attached to the top or upper part thereof, substantially as and for the purposes set forth.

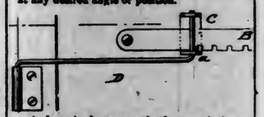


179,968. BARBED FENCE-WIRE. N. Clark, Sterling, Ill. (Filed May 31, 1876.)

The fence-wire barbs described, having thickened edges and integral barbs, formed out of the metal contained between said thickened edges, substantially in the manner and for the purpose specified.

179,969. DOOR-CHECKS. Wm. J. Clarke, Trenton, Canada. (Filed May 22, 1876.)

Brief.—The notched latch-bar is combined with a hinged swinging lever, and is locked by a slide with suitable stop-pin, the construction permitting the ready locking of the door at any desired angle or position.



A door-check composed of a notched or toothed latch-bar, B, in combination with a slide-piece, C, having a stop pin or lug, *a*, and with a swinging slide carrying lever-arm D, hinged to the door-frame, substantially in the manner and for the purpose set forth.

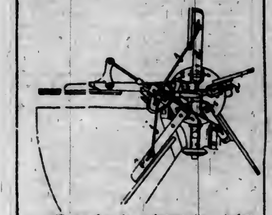
179,970. COMBINATION-PADLOCKS. Henry Clarke, Baltimore, Md. (Filed May 17, 1876.)

1. In a lock-case, having a stem and fixed bolt, the dial-plate stem, combined with a movable device engaging directly with said stem, and secured within the lock-case, which device, when the lock is opened, can be disengaged from said stem, permitting the dial-plate and stem to be withdrawn for the purpose and from the purpose set forth.

2. A swinging bar within the lock-case, and extending therefrom through an opening therein at the shackle-hinge, combined and engaging with the dial-plate stem, and adapted to be disengaged therefrom when the shackle is raised, substantially as herein specified.

3. A swinging bar engaging with the dial-plate stem, and having a finger-point extending from the lock-case, combined with a shackle, having a cavity as the bent of the hinged part thereof, which cavity covers the said finger-point when the shackle is locked, substantially as herein specified.

179,971. SELF-RAKING MECHANISMS FOR REAPING-MACHINES. Edward H. Clinton, Iowa City, Iowa, assignor to William A. Knowlton, Rockford, Ill. (Filed Nov. 17, 1874.)

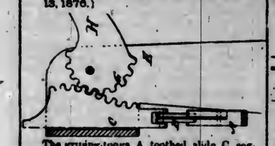


1. The combination, substantially as before set forth, of the radial rake, the revolving carrier, the fixed crank-standard, the reciprocating slide, and the cam for moving the rake relatively to the wrist of the fixed crank-standard.

2. The arrangement, substantially as before set forth, of the radial rod-rib, the radial rake, the revolving carrier, the reciprocating slide for the rake, and the cam, in connection with one fixed crank-standard.

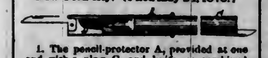
3. The combination, substantially as before set forth, of the fixed crank-standard and the rake-cam, with the adjusting arms and belt, which are arranged below the revolving carrier, that revolves upon said standard, and which enable said cam and standard to be secured in different positions.

179,972. SPIKE-DRAWERS. Andw. J. Conway, Salina, Ohio, assignor to himself and Edgar Michael, same place. (Filed Mar. 13, 1876.)



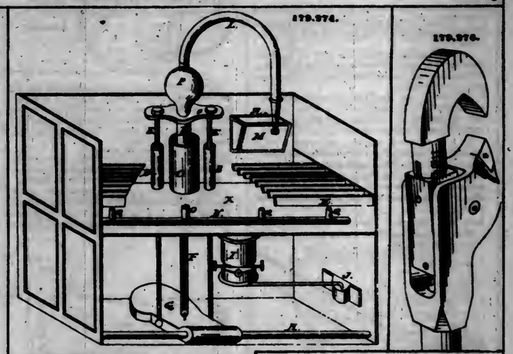
The gripping-tongs A, toothed slide C, segmental lever I G, and stand E, substantially as specified.

179,973. COMBINED PENCIL-PROTECTORS AND KNIVES. Frank A. Coombs, Brooklyn, N. Y., assignor to Eberhard Faber, New York city. (Filed May 24, 1876.)



1. The pencil-protector A, provided at one end with a plug, C, and knife, so combined that the plug forms an abutment or cushion to the point of the pencil, and the knife-blade closes and opens in a slot in the protector, substantially as described.

2. The grooved plug C, combined with a knife-blade, as described, and a slotted pencil-protector, in such a manner that the groove D of the plug limits the descent of the blade in the protector, substantially as described.



179,974.

179,975.

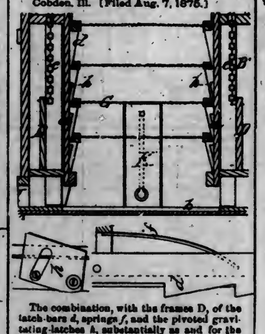
179,976. DISH AND BOTTLE WASHERS. W. N. Cosgrove, Faribault, Minn., assignor of one-half his right to John S. Jordan, same place. (Filed Feb. 14, 1876.)

1. In a dish-washing machine, the sink X, having upright tubes E, the cylinder G, and piston-rod E, having cross-head D, the connecting-rods E, passing downward through the said tubes, the treadle G, and spring F, substantially as specified.

2. In combination with a sink having a forcing-pump, with flexible hose L, the distributing-pipe N, provided with a nipple, O, for the reception of the said hose and nozzles Q, substantially as specified.

3. The sink X, having ledges *a*, supporting a removable dish-rack, and a pipe, N, with nipple O and nozzles Q, substantially as specified.

179,976. DRYING-HOUSES. S. W. Craven, Cobden, Ill. (Filed Aug. 7, 1875.)



The combination, with the frame D, of the latch-bars *d*, springs *f*, and the pivoted gravitating-latches *b*, substantially as and for the purpose set forth.

179,976. FIRE-WRENCHES. G. H. Crosby, East Somerville, Mass. (Filed Mar. 25, 1876.)

1. The hook-jaw carried by and adjustable in the pivoted center block, substantially as set forth.

2. The combination of the pivoted center block, that carries the adjustable hook-jaw, with the strap or slotted dog-jaw extension, substantially as set forth.

3. In combination, the pivoted center block, the hook-jaw, with hollow shank fitting a socket in said block, and the adjusting-screw carried by said block, and engaging said shank, substantially as shown and set forth.

4. The dog-jaw, slotted dog-jaw extension, and handle, in combination with the pivoted center block, adjustable hook-jaw, and adjusting-screw, these parts being arranged together for joint operation, substantially as described.

179,976. STOVE-POLISH. Chas. H. Curtis and Alfred Hall, Pinkedale, Mass. (Filed May 27, 1876.)

The compound of plumbago, nitrate of silver, salt, and cream-tartar, substantially in the proportions stated, and for the purpose specified.

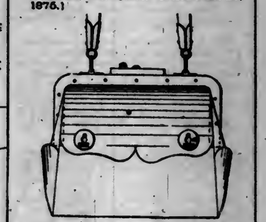
179,978. TABLE-HINGES. Fred. H. Cutler, Buffalo, N. Y. (Filed May 27, 1876.)

Brief.—A very simple adaptation of the double right-angle hinge leaves, to allow the top and leaf of a table to be flush when extended, and at the same time to permit the leaf, when down, to hang immediately under the top, and flush with the edge thereof, dispensing with the usual edge and groove in the manufacture of the table.



A hinge having one of its plates, A, bent twice at right angles, and the other plate, B, bent once at right angles, and jointed together, substantially as herein shown and described, to adapt it for use, as set forth.

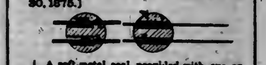
179,979. TRAVELING-BAGS. Theodore A. Dennis, Newark, N. J., assignor to Thos. Simerson, same place. (Filed Nov. 27, 1876.)



1. As a new article of manufacture, a flexible traveling-bag, consisting of a body or coating of rubber, applied to, and strengthened by, a fabric which forms the inner lining of the bag, as set forth.

2. The combination, in a traveling-bag, of the oilskin pocket and an elastic flap, A', and a fastening device, as described.

179,980. METALLIC SEALS. Melville W. De Wolf, New York, N. Y. (Filed July 20, 1875.)



1. A soft-metal seal, provided with one or more orifices of varying diameters, substantially as and for the purposes described.

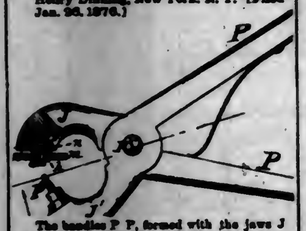
2. The bow or shackle, having knots formed thereon, substantially as and for the purpose described.

3. In a sealing device, the bow or shackle formed with knots, in combination with the soft-metal seal, substantially as and for the purpose described.

4. A wire and lead seal, constructed substantially as described, with a wire bow or shackle, separable from the lead disk and carrying its own fastening device, as specified.

5. A wire bow or shackle, constructed with one or more fastening protuberances, in combination with a soft-metal disk constructed with cavities, within which the said protuberance or protuberances of the shackle may be slipped in applying the seal, substantially as set forth.

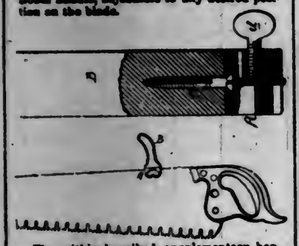
179,881.—HYDRAULIC-RIVETING INSTRUMENTS. Henry Dinsdag, New York, N. Y. [Filed Jan. 26, 1876.]



The handles F F, formed with the jaws J J, the one having the anvil F', and the other formed with a cavity, *r*, in its lower edge, in combination with the gage-plate *p*, formed with the notch *n* in its rear end, and arranged over the cavity *r* formed in the jaw J, all as herein shown and described.

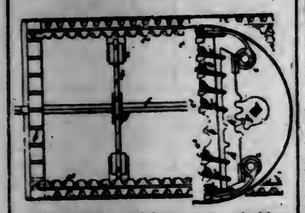
179,882.—CROSSCUT-SAW HANDLES. Henry Disston, Philadelphia, Pa. [Filed Apr. 20, 1876.]

Brief.—The saw is provided with an additional handle, adjustable to any desired position on the blade.



The withie described supplementary handle, consisting of the gripe B, clamp A, and set-screws *d*, all combined and adapted to the blade of a saw, substantially as set forth.

179,883.—GRATES FOR FURNACES. John Dodge and Thos. S. Coles, London, England, assignors to Chas. M. Steer and T. B. Coles, same place. [Filed May 6, 1876.]



The shaft *f* and pinions *g*, arranged either in the center or at the side of the furnace, and the agitators A, constructed as herein described, and supported in rather-bearings *i*, whose brackets are fixed on the side bars, in combination with furnace-bars whose ends are fitted to rock or turn in suitable bearings, substantially as herein set forth, and for the purpose specified.

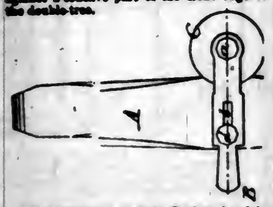
179,884.—BOOKEY-HARE. Jos. F. Deakin, Grayson, Cal. [Filed Mar. 24, 1876.]



As a new article of manufacture, an ear for buckets and other vessels made of a single piece of metal bent to form the perforated loop B, with its clasping-jaws *d*, and provided with the extended wings *e e* for riveting, substantially as described.

179,885.—SPRING-CLEVISES. J. M. Eaton, Doylestown, Ohio, administratrix of L. C. Eaton, deceased. [Filed May 6, 1876.]

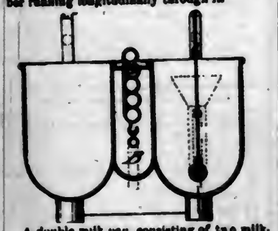
Brief.—A bolt passes through the slotted clevis and the double-tree. A rubber cylinder attached to the end of the clevis presses against a concave part of the front edge of the double-tree.



A double-tree, A, a clevis, B, slotted at *b b*, in combination with a spring, C, substantially as described.

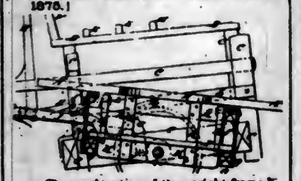
179,886.—MILK-COOLERS. William Eaton and J. A. Randall, Norwich, N. Y. [Filed Jan. 29, 1876.]

Brief.—A milk-pan composed of two compartments has an intermediate cooling-chamber running longitudinally through it.



A double milk-pan, consisting of two milk-compartments, separated by an intermediate cooling-chamber, extended longitudinally between them, as shown and described.

179,887.—HARVESTERS. Richard Emerson, Sycamore, Ill., assignor to himself and H. M. Mason, same place. [Filed Oct. 16, 1876.]



1. The combination of the upright frame K and the braces J L, with the harvester-frame C and the tongue G, substantially as herein shown and described.

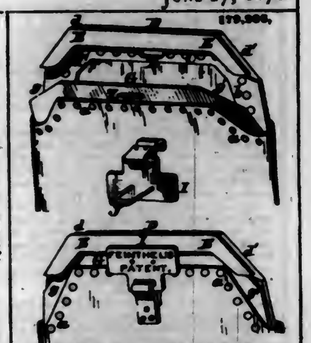
2. The combination of the hinged binders' table M N with the upright frame K, the braces J L, the frame C, and the tongue G, substantially as herein shown and described.

3. The combination of the hinged binders' platform O P with the upright frame K, the braces J L, the frame C, and the tongue G, substantially as herein shown and described.

4. The combination of the pivoted braces or legs R with the hinged table M N, hinged platform O P, pivoted connecting-bars Q, and upright frame K, substantially as herein shown and described.

5. The combination of upright frame K, the curved brace J, and tongue G, substantially as herein shown.

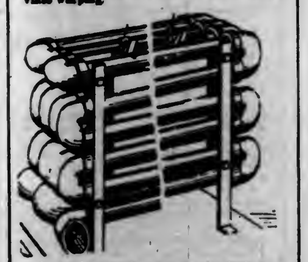
179,888.—MAIL-BAGS. Frederic J. Fotsthof, Cincinnati, Ohio. [Filed May 22, 1876.]



A mail-bag fastening, consisting of the metallic frame C D E, provided with a pocket, F, into which latter the upper edge of tongue G is inserted and securely retained therein by the locking device I J, whose staple J traverses the slots X and Z of said frame and tongue, substantially as herein described, and for the purpose set forth.

179,889.—DRYING APPARATUS FOR PAPER-BOARD. Benjamin F. Field, Fond du Lac, Wis. [Filed May 5, 1876.]

Brief.—Designed to dry uniformly and obviate warping.



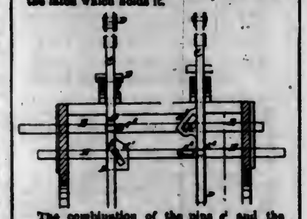
1. An improved apparatus for drying paper-boards, consisting of a series of coils of metal pipe, arranged for the passage of steam, hot air, or any other suitable heating medium, with vertically-arranged spaces between the coils sufficient to admit the sheets, and with suitable suspending devices arranged above for supporting the sheets, as set forth.

2. The movable clamp shown to hold the sheet and rest upon the top of the coil, in order to allow for the shrinkage of the sheet, as set forth.

3. An improved process for drying paper-boards, consisting in suspending each board in a vertical position between heated surfaces, as and for the purpose set forth.

179,890.—SWITCH AND SIGNAL LOCKING DEVICES. Smith H. Finch, New York, N. Y., and Henry Moore, Orange, N. J. [Filed May 1, 1876.]

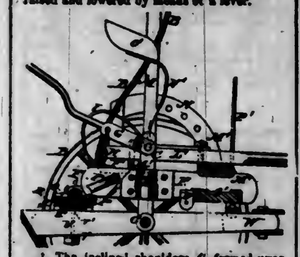
Brief.—The act of setting the signal locks the switch lever or levers, so that they cannot be moved until the signal-lever is brought back to its normal position, and secured by the latch which holds it.



The combination of the pins *c* and the hooks *d* of the sliding bars E, with the slotted legs *B* and the holes *d'* of the detents D, substantially as herein shown and described.

179,891.—COMBINED PLOWS AND CULTIVATORS. Chas. Frank, Freeburg, Ill. [Filed Mar. 6, 1876.]

Brief.—Adjustable frame and lifting-bar, to which are attached plow-beams, which are raised and lowered by means of a lever.



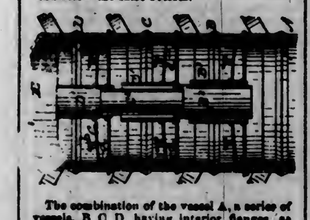
1. The inclined shoulders *f'*, formed upon the outer sides of the rear parts of the side bars of the frame F, to receive the arms of the lifting-bar P, substantially as herein shown and described.

2. The combination of the hook-bolts M' with the tongue L' and the cross-bars of the frame F, for securing the said tongue to said frame adjustably, substantially as herein shown and described.

3. The combination of the hook-lever B' and the flanged pulley or roller A' with the frame F and with the lifting-bar P, with which the plow-beams are connected, substantially as herein shown and described.

179,892.—STEAM-COOKERS. H. S. Fuller, Tama City, Iowa. [Filed May 20, 1876.]

Brief.—The tubes convey steam both above and below the false bottom.

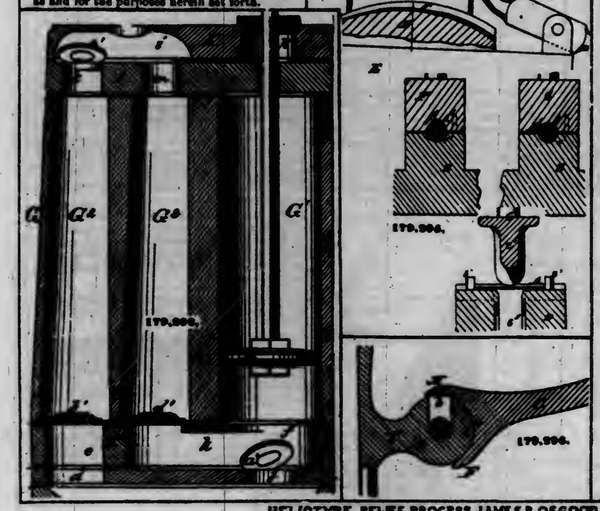


The combination of the vessel A, a series of vessels, B C D, having interior flanges, as shown, perforated pipe B^1, interior tube B^2, tubes C^1 C^2 of smaller diameter, central perforated tube D^1, and the convex perforated false bottom G, all constructed substantially as and for the purpose herein set forth.

179,893.—GUNS FOR GUN-STOCKS. J. Gilbert, Newark, N. J. [Filed May 22, 1876.]

Brief.—A gun-stock blank is bent into trough shape between two dies, the lower one slotted to permit the trough shape to fall through. The shape is then placed upon a pivoted former attached to a die with corresponding groove, and by bringing a second die upon the former the trough is bent to overlap its edges. The second die is provided with a notch and shoulder in its groove, to receive the overlapping edge. A finishing-die applied to the former then clamps the edges together.

The combination of the series of dies B C E F G with the former D, the die-faces having a longitudinal curve corresponding to that of the former, substantially as and for the purpose specified.



179,894.—FORCE-PUMPS. Theo. Gardner, Horseheads, N. Y. [Filed May 6, 1876.]

Brief.—A three-barreled cylinder has a piston working in one barrel. The other two barrels serve as supply and discharge pipes. The cylinders are fitted with heads at each end, in which are fixed the valves.

The three-barreled cylinder G, with the piston M, operating in the barrel G^1, in combination with the head-block H, with openings *e f h*, valves *e' f' i'*, and head-blocks I K, provided with openings, passages, and valves, as described, all constructed, arranged, and operating substantially as and for the purpose set forth.

179,895.—GRAIN-BINDERS. Japtha Garrard, Cincinnati, Ohio, assignor to Excelsior Grain Binder Company, (limited,) New York, N. Y. [Filed Apr. 22, 1876.]



1. The arm of a twister, constructed to bevel from the front to the rear edge, operating in combination with holding or bearing surfaces *b*, substantially as described, and set forth.

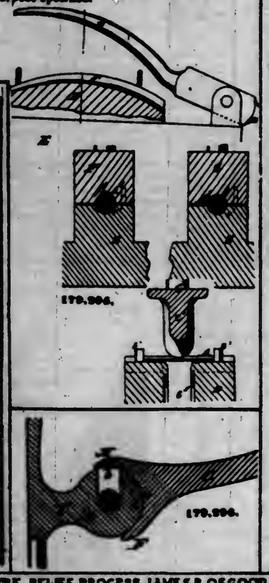
2. A sleeve of eccentric pins or holding-surfaces, beveling from a highest point in all directions, excepting on the side toward the twister-axis, substantially as described.

3. The combination of twister arms and sleeve, constructed substantially as described and set forth.

179,896.—DIES FOR GAS-SPOUTS. J. Gilbert, Newark, N. J. [Filed May 22, 1876.]

Brief.—A gun-spout blank is bent into trough shape between two dies, the lower one slotted to permit the trough shape to fall through. The shape is then placed upon a pivoted former attached to a die with corresponding groove, and by bringing a second die upon the former the trough is bent to overlap its edges. The second die is provided with a notch and shoulder in its groove, to receive the overlapping edge. A finishing-die applied to the former then clamps the edges together.

The combination of the series of dies B C E F G with the former D, the die-faces having a longitudinal curve corresponding to that of the former, substantially as and for the purpose specified.



179,897.—TREE-PROTECTORS. G. W. Grider, Marblehead, Mass. [Filed June 7, 1876.]

Brief.—Constructed of woven fabric in circular form, with ribs of wicking or other suitable material, at the top of which is a receptacle for oil, with the net-work for the percolation of the same.



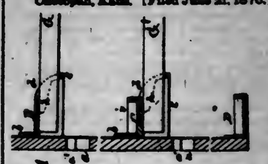
1. The metallic spiral springs combined with a tree-protecting band, in manner substantially as and for the purpose set forth.

3. In a tree-protector, the combination, the insertion sides O G and the discharging-bottom H, constructed to operate substantially as and for the purpose set forth.

3. In a tree-protector, the corrugated surface of capillary material, adapted to operate substantially as herein set forth.

4. The combination of the inner web J, of insanitary material, and the outer web B, of capillary material, arranged to operate as a tree-protector, substantially as and for the purposes set forth.

179,898.—CLOTHES-DRIERS. H. F. Green, Chetopah, Kans. [Filed June 21, 1876.]

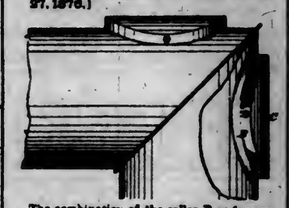


1. A clothes-rest, composed of the board or back A, the castings B, C, and D fastened thereto, and the two sets of arms G G and G' G', all constructed substantially as and for the purposes herein set forth.

2. The casting B, constructed, as described, of a semicircular plate with flange *b*, arms *d*, rim *e*, and strengthening-ribs *h*, substantially as and for the purposes herein set forth.

3. The castings C, having rim *e*, arms *d*, flange *b*, and flange *i*, the latter surrounding the casting C, and the whole being cast in one piece, substantially as herein set forth.

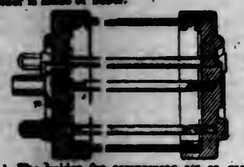
179,899.—STOVE-PIPE ELBOWS. A. Greenleaf, Brooklyn, E. D., N. Y. [Filed May 27, 1876.]



The combination of the collar B and cover C with an opening formed in the one part of the elbow, directly opposite the cavity of the other part, substantially as herein shown and described

179,800. COMPRESSED-AIR HOLDERS FOR THE ENGINES OF STREET-CARS. John Grissom, New York, N.Y. (Filed Dec. 6, 1875.)

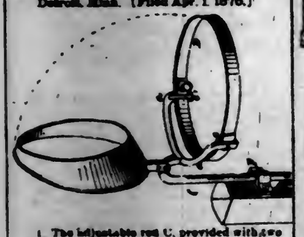
Brief.—The object is to lessen the weight of the holder; also, to sustain the bands independently of the cylinder, so that there will not be any strain at the joints. The holder is made of paper.



1. The holder for compressed air or gas, constructed of a cylinder of paper with heads connected together by tie-bolts with cap-shaped nuts, substantially as set forth.

2. The combination, with the paper cylinder and heads, constructed as specified, of the tie-bolt passing from one head to the other, and the coupling-flange *r*, inclosing the nut of the tie-bolt, as set forth.

179,801. RAG-HOLDERS. Benj. B. Gurley, Detroit, Mich. (Filed Apr. 1, 1876.)



1. The adjustable rod C, provided with arc arms, *a a*, and loops *a' a'*, in combination with the expanding band D, as and for the purpose specified.

2. The rod C, provided with the pin *i*, in combination with the notched plate upon the post B, as and for the purpose specified.

3. The combination of the adjustable rod C, having arms *a a* and loops *a' a'*, the expanding band D, and the hinged hopper E, all as and for the purposes herein set forth.

179,802. TUBE-CUTTERS. William Haddenbrock, Hoboken, N. J. (Filed May 22, 1876.)

Brief.—The construction allows the device to hang suspended near the end of the cord, after the knife-blade severs the portion used, until the ball of twine is exhausted.



The blocks A, made with the hole *a'*, the recess *a''*, and the slot or notch *a'''*, and provided with a spring and wire, C *c'*, and a blade, D, to adapt it to be suspended from a cord, and used substantially as herein shown and described.

179,803. VENTILATION OF CARS. J. A. Hall, Damariscotta, Me., and J. M. Leonardor, Boston, Mass. (Filed Mar. 20, 1876.)

1. An improved car-ventilator, consisting of a brush or equivalent device, arranged to revolve in a recess containing water, with pipes admitting the air over the revolving brush, to remove the impurities therefrom, as set forth.

2. The car-ventilator described, consisting of the tank to contain the water, revolving brush, pipe to admit air over and against the brush, and distributing-pipe leading to the apartment and regulating-valve, as set forth.

3. The arrangement of pipe, brush, and tank, as described, the admission-pipe being joined to the tank, so as to drive the brush by motion of the admitted air, as set forth.

4. The centrally-arranged tank and pipe leading each way, with flaring openings, the valves in the pipes near the ends, and the orifices with their valves to admit the air into the car alternately, as set forth.

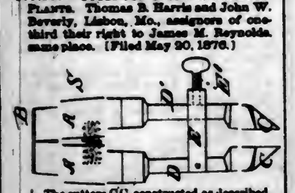
179,804. VALVES FOR DIRECT-ACTING ENGINES. Jas. Hare, Brooklyn, N. Y. (Filed Feb. 17, 1876.)



1. Substantially as hereinbefore set forth, the cam formed by a portion of a spiral, terminated at either end by a tooth, *b b'*, said teeth to act in combination with the spiral, and give a motion at right angles to that produced by it.

2. The combination, substantially as hereinbefore set forth, of the above-described cam with a suitably-formed valve, having projections *h h'* on the back, to engage with the acting surfaces of the cam, which serves to give the said valve its transverse motion, and its longitudinal motion, so far as may be necessary.

179,805. TOOLS FOR TREATING TOBACCO-PLANTS. Thomas B. Harris and John W. Beverly, Lisbon, Mo., assignors of one-third their right to James M. Reynolds, same place. (Filed May 20, 1876.)



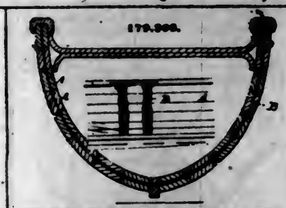
1. The cutters CC, constructed as described, and applied to handles A A, in combination with the guide E, substantially as described.

2. In a tobacco-trimmer, substantially as described, the springs B and B, in combination with the guide E, and shanks D D of the cutters, substantially as described.

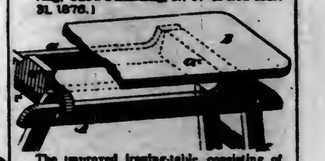
179,806. CONSTRUCTION OF SHIPS, &c. J. A. d'Hemecourt, New Orleans, La. (Filed Apr. 26, 1876.)

The tongued and grooved planking A, secured on a ship or boat by wires B, substantially as and for the purpose specified.

179,808.



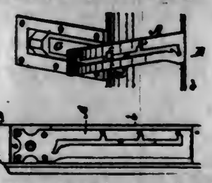
179,807. IRONING-TABLES. Rudd. N. Herriner, Chew's Landing, N. J. (Filed Mar. 31, 1876.)



The improved ironing-table, consisting of the rectangular frame A, comprising side bars *a a*, and cross-bars *a' a''*, the parallel leg C C, pivoted to the bars *a*, and abutting at their upper ends against the outer surfaces of the cross-bars *a' a''*, and the board B hinged on its under side to the cross-piece *a'*, all substantially as shown, and for the purpose described.

179,808. DOOR-CHECKER. Thos. Hill, Portland, Me. (Filed Mar. 10, 1876.)

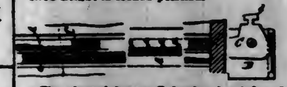
Brief.—The essential novelty is that of suspending the slotted and notched plate that, when disengaged, it will swing downward and fit into a recess of the door-jamb; the construction being such that the sliding headed bolt, when in engagement with the notches of the slotted plate, serves to securely fasten the door at the desired angle without closing it.



The plate A, pivoted in a recess, *b*, of the door-jamb B, as and for the purpose specified, and provided with the notched slot *a*, to adapt it for connection with the sliding headed door-bolt C, as shown and described.

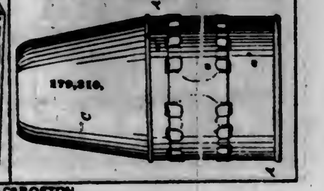
179,809. GLASS-FASTENERS. Thomas Hill, Portland, Me. (Filed May 20, 1876.)

Brief.—A slotted and notched plate is secured to the side bar of the upper sash, and a T-headed button or catch pivoted to the top of the lower sash is so arranged as to work in and engage therewith, holding in the series of notches, and securing the sashes at the desired height in locked position.

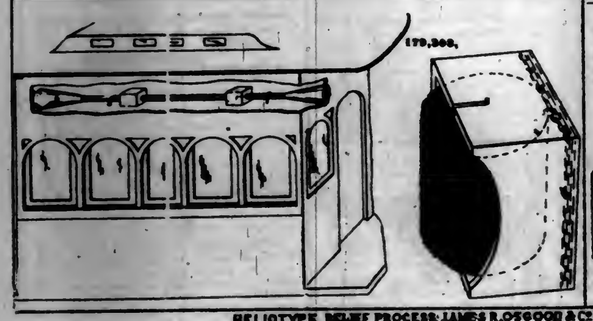


The pivoted button C, having head *d*, and the slotted and notched plate A, secured, respectively, to the top of the lower sash, and to the side bar of the upper sash, substantially as shown and described, to operate as and for the purpose specified.

179,810. LAMP-CHIMNEYS. H. Rosenjeager, Watertown, Wis. (Filed June 6, 1876.)



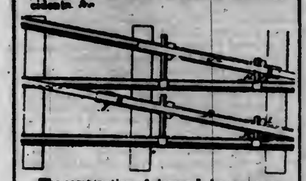
179,809.



An improved lamp-chimney, formed of the bent frame A, having the inner edges of its top, bottom, and side strips scalloped, the sheet B of mica, and the top piece C, constructed and combined substantially as herein shown and described.

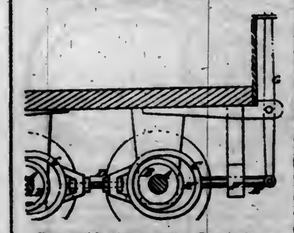
179,811. CAR-REPLACERS. Henry C. Rosier and John L. Wolfskin, Sugar Notch, Pa. (Filed May 18, 1876.)

Brief.—A car-replacer with rails having arms and clamps, which engage with notches in the rails to keep them in place, can be adjustably connected to the rails in case of accidents, &c.



The combination of clamps I, having arms, and the bar B, notched to receive said arms, as and for the purpose specified.

179,812. CAR-BRAKES. Peter Hughes, New York, N. Y. (Filed Mar. 21, 1876.)



The combination of yokes C, rods E, and levers O with friction-wheels F on the car-axles A, substantially as specified.

179,813. FRUIT-DRIERS. H. G. Hulbard, Placerville, Cal. (Filed Jan. 31, 1876.)

Brief.—The revolving chamber is divided, by vertical partitions, into numerous compartments, forming flues for passage of the heated air.



In a fruit-drying machine, the combination of a central heating apparatus, B B, provided with openings I I at the top, with a surrounding revolving drying-chamber, J, provided with the opening *k* at its bottom to produce a downward draft through said drying-chamber, substantially as set forth.

179,814. FEED-RACKS. A. W. Humphrey, Hiramsburg, Ohio. (Filed Apr. 20, 1876.)
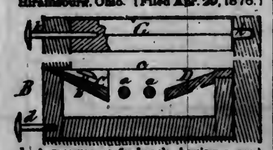
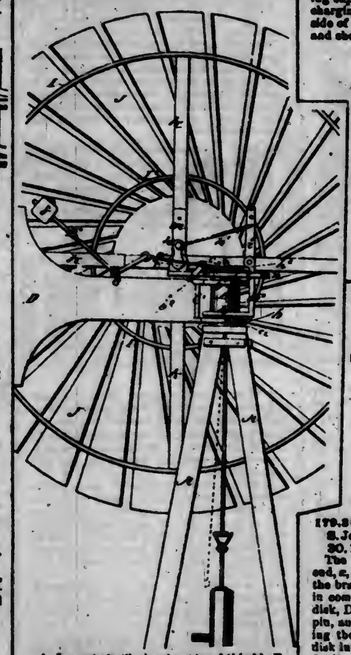


1. A manger or feed-rack, having a seed-saving drawer, E, provided with ledges in its end walls, and a feeding-top consisting of central grate-bars *c*, and sloping feed-boards C D, whereof one is fixed and the other removable, resting on said ledges, substantially as specified.

2. The combination, with a feed-rack or manger, of the transverse prismatic roller G, seated in bearings near the top of its wall, and adapted to bind the hay with its angular edges, substantially as specified.

179,815. WINDMILLS. Thos. J. Ingels and Millard F. Ingels, Atchison, Kans. (Filed May 6, 1876.)

Brief.—A shouldered thimble, which is rigidly fixed to the upper end of the tower of the mill, in combination with rings or bands, which are connected to a shank having rigidly secured to it a rudder-vane, said rings allowing the vane to articulate freely about the said thimble, on which they are placed.



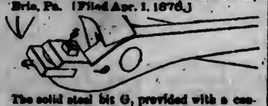
1. In a windmill, the shouldered thimble B, rigidly secured to the tower A, in combination with rings or bands *b b'* formed on a shank, C, to which is secured the rudder-vane D, and an elevation, *b''*, carrying a pulley, over which a rope, *q*, passes, which is connected to the short end of a lever on the rudder-vane D, substantially as described.

2. The angular bracket F, formed of bands *b b'*, which play about the thimble B; also, with an arm, *a*, which is connected by means of a rod, *a'*, to the short arm of the loaded lever E, in combination with a wind-wheel, the shaft of which is journaled on said bracket, and connected by a crank-end lever to the actuating pump, as set forth.

179,816. PROCESSES OF PREPARING AND PRODUCING COLORED PHOTOGRAPHS ON GLASS. Benjamin T. Irish, New Bedford, Mass. (Filed May 15, 1876.)

The process of preparing and producing colored photographs on glass, by first mounting the photograph on glass, face downward, then grinding it thin from the back, and then treating it with paraffine or its equivalent, as specified, for the after reception of oil colors, applied directly to the back of the picture, or to a second glass, to be applied as a backing, substantially as herein described.

179,817. PIPE-TONGS. Albert H. Jarecki, Erie, Pa. (Filed Apr. 1, 1876.)



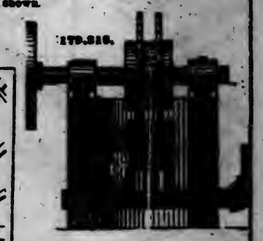
The solid steel bit G, provided with a central circular recess, *x*, on each side, in combination with the slotted jaw D and set-screw *b*, substantially as herein set forth.

179,818. CIRCULAR-SAW MILLS. Orrin L. Joslin, Port Huron, Mich. (Filed Aug. 28, 1876.)

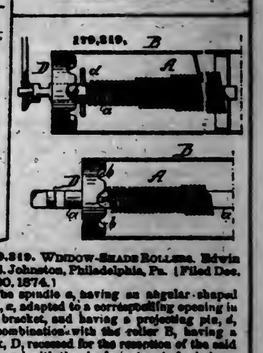
Brief.—Small jets of water are continuously discharged, through a series of perforated tubes, upon the surfaces of circular saws arranged in a gang, for the purpose of preventing the saws from heating.

In combination with circular saws arranged in a gang, a series of tubes provided with perforations near their upper ends, and a connecting supply water-pipe, for the purpose of discharging jets of water continuously upon each side of each saw, substantially as described and shown.

179,816.



179,819.



179,819. WINDOW-SHADE ROLLERS. Edwin S. Johnston, Philadelphia, Pa. (Filed Dec. 30, 1874.)

The spindle *a*, having an angular-shaped end, *a'*, adapted to a corresponding opening in the bracket, and having a projecting pin, *d*, in combination with the roller B, having a disk, D, recessed for the reception of the said pin, and with the single spring *A*, for balancing the shade and moving the said pin and disk into gear, all as and for the purpose set forth.

179,820. REVOLVING HARROW AND PULVERIZER. Thos. A. Kershner, Seymour, assignor to himself and Alexander Carr, Medora, Ind. (Filed Jan. 15, 1876.)

Brief.—The hinged frame, that carries the digging-cylinder, is connected by a long hinge, to the end that in raising the digging-cylinder from the ground, the driving-gears will be detached.

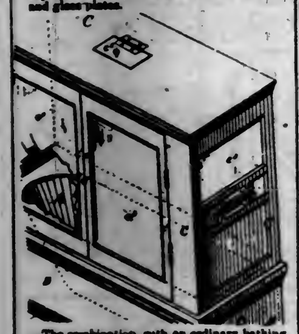


1. The teeth E, made with curved forward edges, concaved rear edges, and broad bands pointed to the rearward, in combination with the cylinder C, substantially as herein shown and described.

2. The combination, with axle B and frame C, of the hinged frame E and pendent hinges F, arranged substantially as and for the purposes specified.

179,892. BATH-TUB ATTACHMENTS FOR STEAM, HOT-AIR, OR VAPOR BATHING. W. G. Kinney and A. H. Kinney, New York. N. Y. [Filed Dec. 21, 1876.]

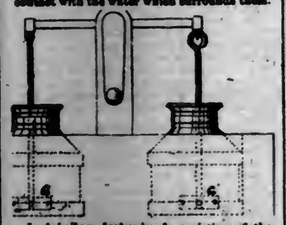
Brief.—An ordinary bathing apparatus with superposed case, having doors, ventilators, and glass plates.



The combination, with an ordinary bathing apparatus, A B, of the superposed case C, having doors *c'*, ventilators *c²*, and glass plates *c³*, as shown and described, to allow a steam, vapor, or hot-air bath to be taken.

179,893. MILK-COOLERS. Thomas King, Middletown, N. Y., assignor to the Orange County Milk Association. [Filed June 7, 1876.]

Brief.—The dasher-head is a hollow cylinder with apertures above and below, and at the sides valves are arranged to slide on wires parallel to the axis of the cylinder, which close the holes in the top and bottom as the up and down strokes are made, and the milk is forced through the side apertures against the sides of the case, which are kept cool by contact with the water which surrounds them.



1. A hollow dasher-head consisting of the pieces *d f g*, with apertures *h* and valves *i*, substantially as and for the purpose set forth.

2. The dasher-head G, consisting of the pieces *b f g*, with apertures *h* and valves *i*, connected by the rundles F with suitable operating mechanism, for the purpose set forth and described.

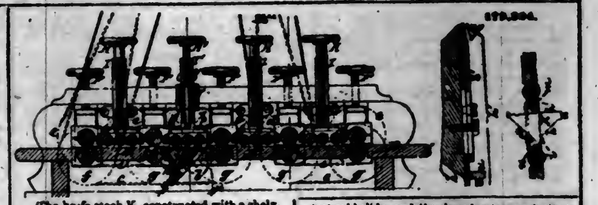
179,894. TOBACCO-EXTRACTS. Stephen Kruckenberg, Hoboken, N.J. [Filed May 6, 1876.]

Brief.—The stems are evaporated, and to some degree fermented, and then the nicotine is expelled, by steam, when, by the increase of steam-pressure, the distillation is obtained. The residuum is then fermented and treated with cold water, with or without alcohol, the liquid is boiled down, the nicotinine is removed, and the extract is produced.

The within-described process for preparing an extract from tobacco-stems, by first extracting the nicotinine, then allowing the residue to ferment, and producing from the fermented matter an extract which is boiled down and finally mixed with a suitable quantity of nicotinine, substantially as set forth.

179,895. WOOD-PLANING MACHINES. Wm. Louden and Josiah B. Titus, New York. N. Y. [Filed Mar. 6, 1876.]

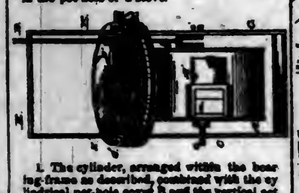
Brief.—In a wood-planing machine having a stationary knife, the knife-stock is made removable without detaching any other part.



The knife-stock K, constructed with a shelving or reduced front, *b'*, and with a back ledge or upper shoulder, *i*, and corresponding front upper shoulder, in combination with the bed B having an opening, *f'*, to receive the stock, and shouldered bearings *a a*, to support the latter when in place, substantially as and for the purpose specified.

179,896. COFFEE-ROASTERS. Nils Ljungberg, Rockford, Ill., assignee of two-thirds of his right to Lewis P. Rose and William T. Brown, same place. [Filed Apr. 21, 1876.]

Brief.—A coffee-roaster to be inserted within the pot-hole of a stove.

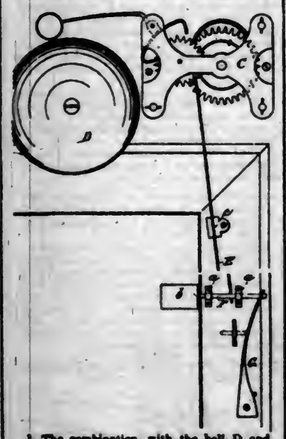


1. The cylinder, arranged within the bearing-frame as described, combined with the cylindrical pot-hole cover B and the vertical actuating-rod D, the revolving cylinder being arranged for use within the fire-place of a cooking-stove, substantially as and for the purposes set forth.

2. The revolving cylinder A, made as described, and adapted to be placed within the fire-chamber of a cooking-stove, in combination with the pot-hole cover B, having the elongated slot D', frames E' and C, craft *d*, and actuating-rod D, all these parts arranged and operating substantially as described, and for the purpose set forth.

3. In combination with the top plate B, frames C and E' of the removable hand E', constructed substantially as described, and for the purpose set forth.

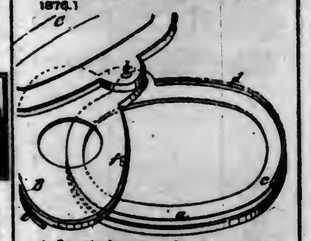
179,896. BURGLAR-ALARMS. J. S. Mace, Chillicothe, Ohio. [Filed May 17, 1876.]



1. The combination, with the bell D and alarm mechanism C, of the rod E, pivoted to the door-frame, and adapted to engage with the alarm mechanism above, the slide F, having beveled end, and loosely attached to the pivot-rod below, the spring G, arranged to project said slide, and the door having projection *b*, adapted to abut against the spring-pressed slide, as and for the purpose described.

2. The combination, with the alarm mechanism, the spring G, slide F, and rod E, of the key H, swiveling in the door-frame upon its shank, and adapted to lock the slide or not according to the position which it is made to assume, substantially as described.

179,897. COVERS FOR STOVES. John A. Marvin, Milwaukee, Wis. [Filed Apr. 24, 1876.]

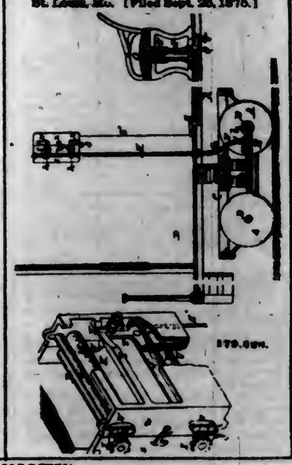


1. In swinging covers for stoves, the top-plate A, having upon most of its contact-surface a shoulder, *a*, and for the rest a raised lip, *d*, the said shoulder and lip being in combination substantially as described, with a lip, *c*, of the pan-top B, coincident with said shoulder *a*, and the rear edge of said pan-top being coincident with raised lip *d*, for the purpose of producing a smoke-tight joint, and one which will not interfere with the easy swinging of the pan or cover.

2. In swinging tops or pans for stoves, the combination of the top A, constructed with the shoulder *a* on a portion of its surface, with the pan-top B, having the lip *c* on a portion of its edge, coincident with said top-shoulder.

3. The combination of top A, constructed with shoulder *a* and raised lip *d*, swing pan-top B, with lip *c*, and top C, for the purposes herein set forth and described.

179,898. FASTENING-ENVELOPES APPARATUS. F. R. Mathiesen and C. Mathiesen, St. Louis, Mo. [Filed Sept. 26, 1876.]



179,899.

1. The combination of chest or roll K, having proportional movement with the axis B, and marker W, having movement parallel with the plane of the chest and proportional to the vertical movement of the seat to indicate the weight of the sitter, substantially as and for the purpose set forth.

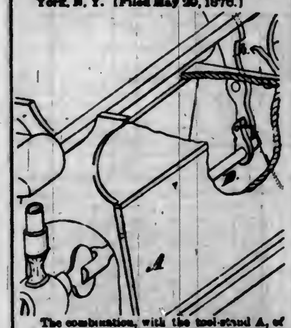
2. The combination of spring-seat G, bell-cranks Q S, rods R S', lever T, spring-marker W *w*, inclined bar I, and pin X, bearing against said inclined bar, substantially as set forth.

179,899. CORRUGATED PORTMANTEAUS AND SHAWL-STRAPS. D. S. Mathews, Adrian, Mich. [Filed May 1, 1876.]



The flexible case A, provided with straps B D, and the buckles C, arranged substantially as and for the purpose specified.

179,900. GAS-SAVING ATTACHMENTS FOR HEATING TOOLS. Thomas McKee, New York. N. Y. [Filed May 29, 1876.]



The combination, with the tool-stand A, of the lever A and shaft D, constructed and operating substantially as described, to raise and lower the gas from a burner by turning the cock *c*, when a tool is placed on and removed from the stand, substantially as described.

179,901. TAG-FASTENERS. Wm. B. Mills, Chicago, Ill. [Filed Apr. 4, 1876.]



1. A detachable tab, consisting of a ticket, B, and metallic holders A, provided with suitable griping-hooks *b*, substantially as and for the purpose set forth.

2. The combination of the metallic strips A, pointed and bent, as described, and the ticket B, fastened to the strips by folding over the edge *a*, to form a clamp, substantially as set forth.

179,902. PUMPS. Robert H. Mills, Rockford, Ill., assignor to Miles L. Woodruff, Samuel N. Jones, and Watson T. Pierpont, same place. [Filed Aug. 28, 1876.]

Brief.—The rod is connected with the brake by a cylindrical tube. The plunger has a sediment-chamber.



179,902.

1. The combination, with the discharging-section C' of the pump-stock, of the perforated cap-plate *e* and perforated cover C', for guiding the movements of the pump-rod, and permitting the priming of the pump, substantially as described.

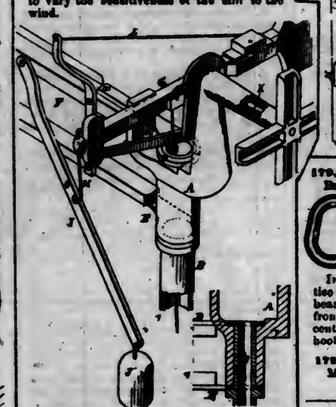
2. The tubular coupling-piece D, surrounding the upper end of the pump-rod *d*, and united thereto by the set-screw, substantially as described.

3. The plunger F having its top edge *f* inwardly inclined, and its lower end provided with a recess, F', in combination with the raised valve-seat G, as and for the purpose described.

4. The plunger F having the radial arms, and the seat *f* formed at the intersection of said arms to receive the plunger-rod, its sides extending above the radial arms, in combination with the raised and movable valve-seat G, as and for the purpose described.

179,903. WINDMILLS. Christian H. Miller, Northville, Ill. [Filed May 15, 1876.]

Brief.—A heavy wind pressing against the side vane tends to swing it and the wind-wheel around parallel with the rudder, and the weight, by the operation of the rods, tends to return it to its natural position. The weight is intended to be moved along the rod, to vary the sensitiveness of the mill to the wind.



1. The side vane G, rigidly secured to the frame on a horizontal line with the center of the wind-wheel, when the said side vane shall be in rear of said center on both sides of the pivotal point of the mill, substantially as herein set forth.

2. The combination of the rudder F, provided with hinges D B, the hollow post B, provided with a shoulder on which rests the hinge E, and the frame A, provided with a shoulder upon which rests the hinge D, all substantially as and for the purposes herein set forth.

3. The combination of the rudder F, the stationary vane-arm G, and the rod I, pivoted to the rudder, provided with the weight J, and connected to the vane-arm by the rod H, all substantially as and for the purposes herein set forth.

179,904. LOCKS. Augustus H. Miller, Philadelphia, Pa., assignor to Annie H. Taylor, Harry Taylor, and Jas. Phipps, same place. [Filed Mar. 28, 1876.]

Brief.—The needle-bar is provided with hooked needles, whereby they are adapted to be inserted under the warp-threads, and raise them to the desired position, where they are held until the bar is shifted laterally by the hand-lever, and the weft has been inserted between the crossed warps. The bar is then lowered, the hooks disengaging themselves from the warps, and the previous operation is repeated. By the combination of this device with the ordinary shedding mechanism, a fabric consisting of plain weaving and network may be produced.

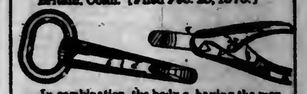
The needle-bar A, hooked needles *b b b*, &c., bar C, pins *n* and *n'*, rack L, pinion K, lever M, guides E and E', cords or wires G, G', and G², levers H, H', and H², rocking beam D, and treadle J, in combination with the lay or batten of a loom, substantially as and for the purpose shown and described.

179,905.

1. In combination with the rods D and D', the bars A and A, provided within their lower edges with alternate openings *a* and hooks *a'*, substantially as and for the purpose specified.

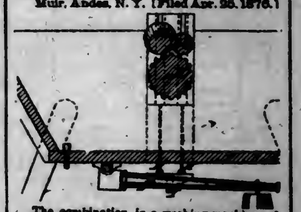
2. The frame-bars A and A, secured within the posts B and B, in combination with the base C, provided with the openings *c* for the reception of the lower ends of said posts, and with grooves *c'* for the reception of the lower edges of said bars, substantially as and for the purpose shown.

179,906. SNAP-HOOKS. G. D. Mosher, New Britain, Conn. [Filed Feb. 26, 1876.]



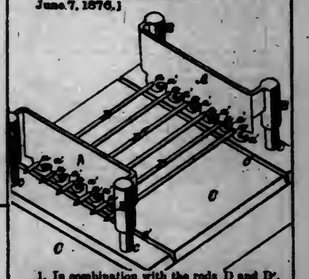
In combination, the body *a*, having the mortise *b*, the pivoted tongue having hook *f* and bearing *g*, and the spring *e*, bearing at its front end on the bottom of the mortise, at its center on projection *g*, and at its rear end in hook *f*, substantially as described.

179,907. WASHING-MACHINES. Thomas Muir, Andes, N. Y. [Filed Apr. 26, 1876.]



The combination, in a washing-machine, of the vertically-adjustable-conical rollers B with the fluted bottom roller B, substantially as and for the purpose set forth.

179,907. PLASTERS-MACHINES. Richard B. Normant, Jr., Westminster, Md. [Filed June 7, 1876.]



1. In combination with the rods D and D', the bars A and A, provided within their lower edges with alternate openings *a* and hooks *a'*, substantially as and for the purpose specified.

2. The frame-bars A and A, secured within the posts B and B, in combination with the base C, provided with the openings *c* for the reception of the lower ends of said posts, and with grooves *c'* for the reception of the lower edges of said bars, substantially as and for the purpose shown.

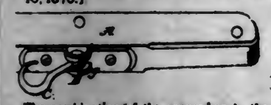
179,838. STALE-CUTTERS. Thos. W. Page and Martin Hoffman, Canton, Ill., assignors of one-fourth of their right to William Bohnsack, Sr., same place. [Filed Feb. 23, 1876.]

Brief.—The frame that supports the cutter-roller is secured to the axle-tree by one end. An elevated frame supports the tongue, and a cam-lever receives a chain, which is attached to the frame by means of a bail, for the purpose of lifting the cutter from the ground. A pair of hooks serve to straighten the stalks.



The cutter-frame B, having bail M, arranged to operate in combination with rock-shaft J, curved arm L, ratchet *n*', lever H, and with the wheel-frame A B, substantially as and for the purpose specified.

179,839. DOUBLE-TREE HOOKS. Josiah Parker, Belvidere, assignor to himself and Thomas B. Silvius, Plora, Ill. [Filed Jan. 10, 1876.]



The combination of the evener-bar A, the socket B, having the slot *g*, and the rigid hook C, provided with the round or ball-shaped head, all arranged and operating as described.

179,840. GLASS-BOTTLE MOLDS. Jacob Penn and Abraham Teeter, Brooklyn, N. Y. [Filed May 1, 1876.]



1. The combination, with the movable sides A B, of a rising and falling bottom, D, connected with said sides, so as to effect the automatic operation of the bottom by the sides of the mold, substantially as set forth.

2. The combination of the movable bottom and the rock-arms F G with the opening and closing sides of a glass-bottle mold, substantially as specified.

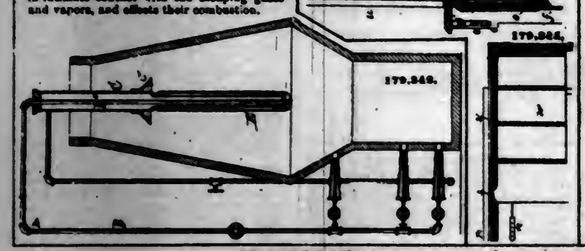
179,841. MARKING-INSTRUMENTS. Joseph Perkins, San Francisco, Cal. [Filed Apr. 10, 1876.]



The elastic wedge-shaped marking or writing tip *a*, formed of one or more pieces, and provided with an ink-duct through its interior, substantially as and for the purpose described.

179,842. BLAST-FURNACES. Chas. Piepgr, New York, N. Y. [Filed Oct. 7, 1875.]

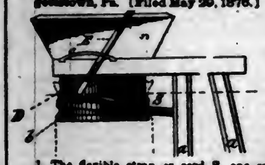
Brief.—A hydrocarbon-pipe, with encompassing air-blast jacket, passes in at the furnace-throat, and discharges at the "bosh." A cowl, O', deflects the highly-heated air-blast on emerging into the stack, so that it comes in intimate contact with the escaping gases and vapors, and effects their combustion.



179,843.

The combination, with a blast-furnace, of a pipe, B', entering through the top of the furnace, and projecting down into the reducing-zone thereof, and the blast-tube C, jacket E, and deflector C', all constructed and operating substantially as described.

179,844. BAG-HOLDERS. S. C. Fyler, Burgettstown, Pa. [Filed May 29, 1876.]

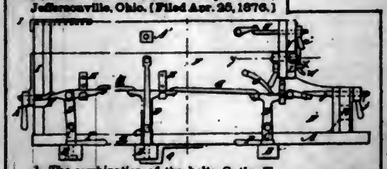


1. The flexible strap or cord S, one end fixed to the frame *a*, and the other passed around the chute and provided with suitable means of attachment to a lever, substantially as described.

2. The combination of a strap, S, and a beaded chute, D, substantially as described.

3. The combination of rack *a*, hooked lever E, flexible strap S, and beaded chute D, arranged and operating substantially as described.

179,845. WAGON-BODIES. Benj. Rankin, Jeffersonville, Ohio. [Filed Apr. 26, 1876.]



1. The combination of the bolts C, the T-bars D, having the lower side of one arm inclined, the hook-bars E, the connecting-rods G, the hook bolts H J, and lever-nuts *b' f'* with the bottom boards A, the cross-bars B, the side boards F, and the end boards I K, substantially as herein shown and described.

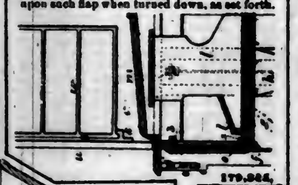
2. The combination of the pawls O with the ratchet-teeth formed upon the top of the rear T-bar D, substantially as herein shown and described.

179,846. DESKS. Gustav Bange, New York, N. Y. [Filed Aug. 2, 1876.]

Brief.—The vertically-moving platform is held in a depressed or elevated position by means of ledges on the inside of the door of the desk. The half-cubical covers of the upper cases are hinged to the stationary vertical back.

1. The vertically-moving platform *g*, counterpoised and guided within the frame in the desk, in combination with the door *o*, and ledges 2 and 3, substantially as set forth.

2. The stationary vertical back *r*, and half-cubical covers, hinged at *s s* to said back, in combination with the swinging flap *n* of the desk, the parts being constructed as set forth, so as to inclo either the flap when turned back against the back *r*, or articles resting upon each flap when turned down, as set forth.



179,844.

179,846.

179,847. LAMP-WICK ATTACHMENTS. H. Ramsbottom, Cornwall, Canada. [Filed May 22, 1876.]

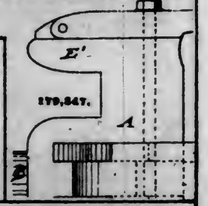


The clamp C, formed of the two plates hinged to each other at one end, and provided with teeth upon their alternate side edges, to adapt it to connect and hold the adjacent ends of two wicks, substantially as herein shown and described.

179,847. CAR-MOVERS. John W. Raynor, Moberly, Mo. [Filed May 27, 1876.]

1. A car-moving implement, made of a solid block, A, with forward extending and curved side jaw B, front block D', adjustable flange, binding-gage E, and lever-handle B, substantially in the manner and for the purpose set forth.

2. A car-moving implement, made of a solid lever-acted block with curved and forward-extending side jaw, a pivoted tap-dog, a forward-extending binding-block or catch, and an adjustable flange-binding gage piece, substantially as and for the purpose described.



179,847.

179,848. FURNACE-GRATES. J. Reynolds, Philadelphia, Pa. [Filed May 24, 1876.]





1. The combination, in a grate, of rock-shafts H, provided with bars h, having ribs *i i*, said bars being so arranged on the shafts as to form teeth for crushing and grinding the cinders, as the said shafts are rocked simultaneously and in the same direction, all substantially as set forth.

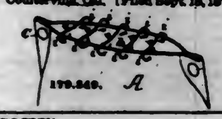
2. The combination of the bars h and their ribs *i* with rock-shafts H, elongated as specified.

3. The combination of the series of rock-shafts H and their bars with the frame G, G^1, G^2, and G^3, formed in two sections joined together, substantially as described.

4. The combination of the frame and its rock-shafts with the supporting-rollers *n*, to permit the withdrawal of said frame, as described.

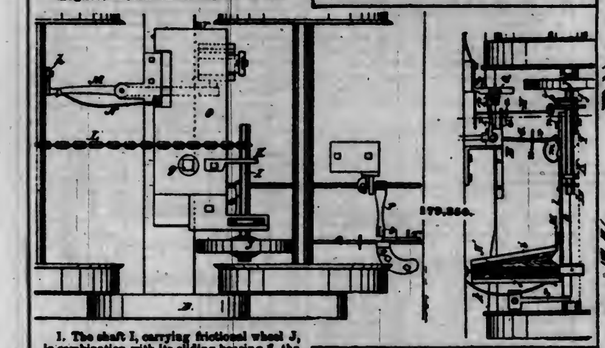
5. The combination of the frame and its rock-shafts with the ledges *p* on the sides and rear of the fire-place, as and for the purpose set forth.

179,849. BAG-FASTENERS. Antone Ribe, Coultersville, Cal. [Filed Sept. 18, 1876.]



179,849.

179,850. CAR-BRAKES. Ira Robbins, Hughesville, Pa. [Filed Apr. 7, 1876.]



1. The shaft I, carrying friction-wheel J, in combination with its sliding bearing *i*, the toggle-arms *b b'*, and the brake with suitable connecting mechanism, for the purpose described.

2. The mechanism for automatically releasing the brakes, consisting of a bellows filled with air by the movement of the cars, and provided with a tripping device, which releases the brakes through the collapsing of the bellows when the cars stop, substantially as described.

3. The combination of the hand-lever F, rock-shaft E, having arms G G', the rod H, having collar *o*, the toggle-arms *b b'*, the catch *o*, latch *p*, plate *f*, and shaft I, carrying the friction-wheel, as and for the purpose described.

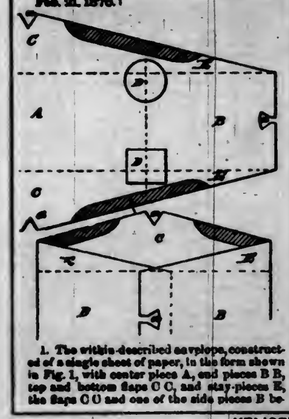
4. The combination of the friction-wheel J upon the axle, the vibrating lever M, spring N, and compressed bellows N', as and for the purpose described.

5. The combination of the bellows N', having tripping-rod l, spring-seated arm *u*, shaft *s*, and latch *p*, substantially as and for the purpose described.

6. The plate O, carrying the operating devices, pivoted to the truck-frame at *g*, and having a spring, *r*, as and for the purpose described.

7. The combination, with rock-shaft E, having arm F, of the slide Q, spring S, and pivoted plate T, carrying cam *t*, for automatically applying the brakes, as described.

179,851. ENVELOPES. James Rogers, Byron, Ill., assignor of one-half his right to Francis Hickman, Reading, Pa. [Filed Feb. 21, 1876.]



1. The within-described envelope, constructed of a single sheet of paper, in the form shown in Fig. 1, with center piece A, end pieces B B, top and bottom flaps C C, and stay-pieces E, the flaps C C and one of the side pieces B be-

ing provided with the apertures *a* in their edges, substantially in the manner and for the purpose herein set forth.

2. The strengthening-pieces D or D', attached to the inside of an envelope, for the purposes herein set forth.

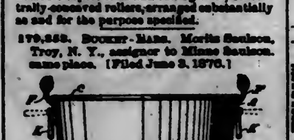
179,852. LOG-TRACER. Jewett N. Russell, Augusta, Wis. [Filed May 1, 1876.]

Brief.—A series of concave rollers on parallel sleepers form a continuous track for logs.

179,850.

The combination, with longitudinal connected sleepers A A and rolling D D, of centrally-concaved rollers, arranged substantially as and for the purpose specified.

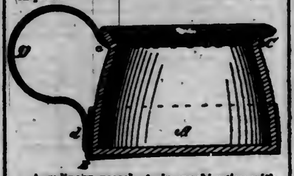
179,853. BOOMET-HARP. Morris Steelson, Troy, N. Y., assignor to Minne Steelson, same place. [Filed June 3, 1876.]



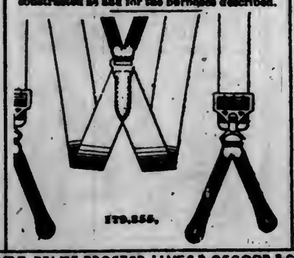
The combined ball-ear and handle-socket having the fastening-plate A, ball-ear F extended beyond the fastening-plate, and the socket I with the projecting stop-bearings *l l* for holding the swinging lifting-handle K, all constructed, arranged, and combined as set forth.

179,854. CULTIVATOR WHEELS. F. Schlitterle, St. Louis, Mo. [Filed May 4, 1876.]

Brief.—The bottom band has a flange, which is turned under and holds a metallic bottom in place.



A cultivator-wheel, A, in combination with the band B, band or wire C, and handle D, constructed as and for the purposes described.

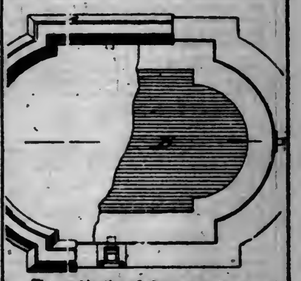


179,850.

179,855. SCRUBBING-BRUSH. S. Schirmer and Jacob Rotte, New York, N. Y. [Filed Apr. 15, 1876.]

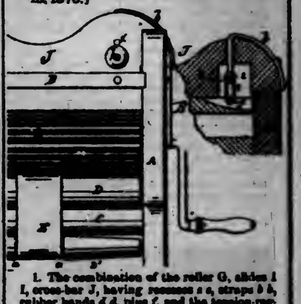
A suspender-end made of a single piece of woven braid fastened, and provided with a button-hole at one end, all being constructed in the manner and for the purpose as described.

179,856. TABLES. Conrad Schmid, New York, N. Y. [Filed Apr. 3, 1876.]



The combination of the surrounding frame of a table with a swinging and leaking top section or leaf and a joint-covering molding, substantially as and for the purpose specified.

179,857. WASHING-MACHINES. James B. Hurst, Hornellsville, N. Y. [Filed May 19, 1876.]



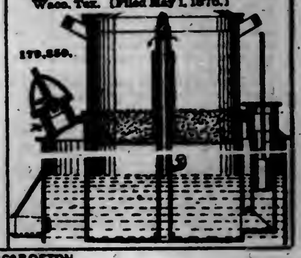
1. The combination of the roller G, slides I I, cross-bar J, having recesses *s s*, straps *b b*, rubber bands *d d*, pins *f*, and the tension-regulating pins *h h*, substantially as and for the purposes herein set forth.

2. The combination of the frame A B C, rollers D D and D', with cushion-apron E, corrugated roller G, slides I, recessed cross-bar J, straps *b*, rubber bands *d*, pins *f*, and regulating-pins *h*, all constructed and arranged to operate substantially as and for the purpose herein set forth.

179,858. LINIMENTS FOR RHEUMATISM. C. Shane and Jas. Kearney, San Francisco, Cal. [Filed May 1, 1876.]

A medical compound or liniment for the cure of rheumatic complaints, composed of alcohol, turpentine, spirits of camphor, saltpeter, blue vitriol, spirits of hartshorn, tincture of myrrh, and oil of hemlock, in the proportions specified.

179,859. COFFEE-POTS. W. H. Sherwood, Waco, Tex. [Filed May 1, 1876.]

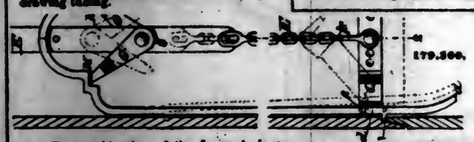


179,850.

The combination, with dripping-cup, of the water-vessel A, provided with valved filling-tube H and a receiver, B D, having automatic gage I, substantially as and for the purpose specified.

179,860. APPARATUS FOR INSERTING AND EXTRACTING WELL-TUBES. J. T. Sherfey, St. Louis, Mo. [Filed Dec. 3, 1875.]

Brief.—The catches on the suspension-rod receive the weight of the frame and the tubing in lowering into the well. When the casing is in position, the further descent of the rod relieves the catches, and the frame may be withdrawn, the toggle retracting the legs. The toggles are reversibly attached for withdrawing tubing.



1. The combination of the frame A, legs B, toggle-bars C, suspension-rod H, and hinged catches G, operating substantially as described.

2. The combination, with the frame A, of a toggle-brace, C, constructed with hooks d, and hinged reversibly to the frame, so as to adapt it to construct or expand the frame at will by an upward pressure, substantially as described.

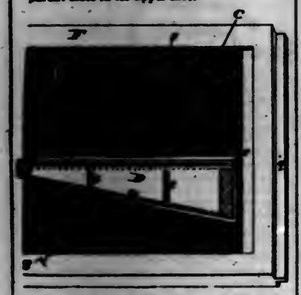
179,861. PROCESSES OF RESTORING CRAPE, LACES, &c. Aaron J. Shriver, Baltimore, Md., assignor to Sarah M. Shriver, same place. [Filed Apr. 27, 1876.]

Brief.—Immerses crape, laces, &c., in a solution of alcohol, a dye-stuff, and a stiffening-gum, and then subjects them to the action of steam, to crimp them and drive off the alcohol.

The herein-described process of restoring the color and texture of crape, laces, &c., by first immersing them in a solution consisting of alcohol, a dye-stuff, and a stiffening-gum, in about the proportions specified, and then subjecting them to the action of steam, substantially as and for the purpose described.

179,862. DRAWING-SLATES. C. L. Sinde, New York, N. Y. [Filed May 20, 1876.]

Brief.—A desk-shaped box has a reversible slate, composed of an ordinary and a transparent slate in its upper face.



1. A reversible frame, F, in combination with a transparent slate or tablet, A, and an opaque slate or tablet, B, at its respective faces, and copy-sheets C held between the slates, substantially as herein described and shown, for the purpose set forth.

2. A copy-sheet, C, having a copy, *s*, on one side for a transparent slate, and a copy, *g*, on the other side at one edge for an opaque slate, as herein shown and described, for the purpose specified.

3. The combination of a reversible frame, F, provided with slates and copies, and a desk-base, D, having grooves to receive two of the edges of said frame, the latter with the slates and copy-sheets forming a sliding cover, substantially as herein specified, for the purpose set forth.

179,863. RAIL-JOINTS. Joseph D. Evans, Rockford, Ill. [Filed June 3, 1876.]

Brief.—One of the plates is provided with elongated bolt-holes and exterior ribs. The ribs are brought up against the nuts to lock them in position.

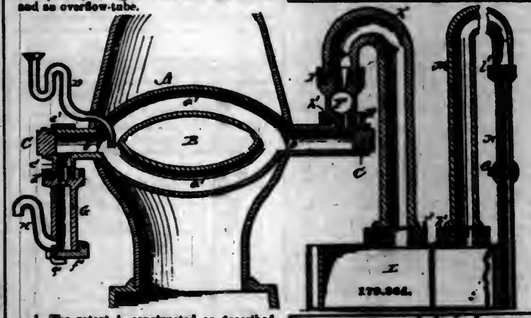


1. The fish-bar D, provided with elongated bolt-holes *a* and ribs *b*, in combination with the rails A, bolts C, and nuts E, substantially as and for the purposes herein set forth.

2. The combination of the rails A, bolts C, nuts E, fish-bar D, with elongated bolt-holes *a* and ribs *b*, and the keys G, all substantially as and for the purposes herein set forth.

179,864. GAS APPARATUS. Wm. Smith and Roland H. Smith, Pittsburg, Pa. [Filed Nov. 15, 1876.]

Brief.—The retorts are formed of two hollow arcs, meeting at their ends, between which extends a solid web of metal. The protruding ends of the retorts are closed by screw-plugs, and are connected with the stand-pipes by seal-cups. The neck of each retort has connected to it, by a seal-cup joint and strap, a drip-tube, having at its lower end a door and an overflow-tube.



1. The retort A, constructed as described, with the arcs *a' a'*, and provided with the branch *d'*, seal E, and screw-plugs C C, substantially as and for the purposes herein set forth.

2. The drip G, having the seals *d* and H, and provided with the trap-door *f'*, substantially as and for the purposes herein set forth.

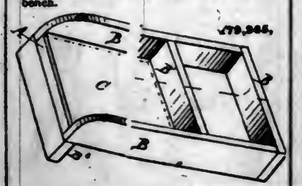
3. The combination of the retort A, drip G, and shoe *d'*, substantially as and for the purposes herein set forth.

4. The connecting-pipe F, provided with branches *b'* and seal I, in combination with the seals E of the retorts, substantially as and for the purposes herein set forth.

5. The pipes K and M, constructed as shown and described, in combination with the washer L, pipe N, connecting-pipe F, and retort A, substantially as and for the purposes herein set forth.

179,865. KNIFE-SCOURING MACHINES. R. G. Spaulding, Jonesville, Mich. [Filed Apr. 5, 1876.]

Brief.—A glass polishing-surface contained by a box provided with a compartment for the polishing-powder, and a supporting-ledge to hold one end at an angle with table or bench.



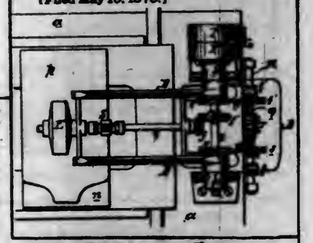
1. In a board for cleaning cutlery, the polishing-surface consisting of a sheet of glass, substantially as set forth.

2. The board for cleaning cutlery described, consisting of the board A, flanges B, partition B', ledge B'', and glass C, constructed, arranged, and combined substantially as described and shown.

179,866. SOAP COMPOUNDS. T. H. Sturtevant, Tiffin, Ohio. [Filed Oct. 4, 1876.]

The hereinbefore-described soap compound, consisting of rain-water, pearlash, alum, aqua-ammonia, chemical soap, as herein specified, borax, and sal-soda, mixed in the proportions substantially as set forth and described.

179,867. IRONING APPARATUS. Leopold Sternberger and Daniel M. Fluete, Philadelphia, Pa., assignors to said Sternberger. [Filed May 10, 1876.]





1. The combination, in an ironing, polishing, or starching machine, of a vertically-adjustable rotating or reciprocating iron, with a longitudinally and laterally adjustable table for receiving the fabric to be operated upon.

2. The frame B, consisting of two bell-crank levers, D D, connected together and arranged as shown and described.

3. The combination of the shaft *e* and its bevel-pinion *f''* with the shaft *e*, carried by the frame B, having a bevel-wheel, *f*, and carrying a rotating iron, al. substantially as set forth.

4. The combination of the hollow perforated shaft *e* with the hollow iron E and its partition *w*, as described.

5. The combination of the hollow iron E with the hollow shaft *e* and its hollow arms *g*, as set forth.

6. The combination of the lower end of the frame B with the treadle H and pivoted arms I and J, as shown.

7. The combination of the traveling bed A, adapted to transverse ways on the table a, with the sliding carriage n, adapted to longitudinal tracks on the said bed A, as set forth.

8. The combination of the carriage n, on which the fabrics may be ironed, with the detachable leaf *p*, hinged to the carriage at one end, as set forth.

9. The combination of the shaft m, its pinion *j*, and worm-wheel *g*, with the bed A and its rack *i*, and with mechanism, substantially as described, by which a movement in opposite directions is imparted to said shaft, as set forth.

10. The combination of the hollow perforated shaft *e* with the casing *e*, its groove *e*, and stuffing-boxes, as set forth.

179,868. SAW-MILLS. W. A. Stolts, Sedge Garden, N. C. [Filed Apr. 29, 1876.]

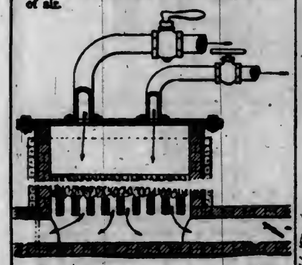
Brief.—The pawl which operates the ratchet feeding-wheel receives motion from a vibrating lever, which is, in turn, moved by a cam upon the crank-shaft.



The combination of the shaft B, with eccentric track *y*, the lever I, with roller *f*, the spar J, ratchet-wheel K, and roller L, all substantially as and for the purpose set forth.

179,869. PROCESSES FOR MANUFACTURING GAS. Myron H. Strong, Brooklyn, N. Y. [Filed Nov. 22, 1876.]

Brief.—Air and oil are admitted at the top of the retort above a mass of fire-brick, where the oil is lighted. The products pass through the brick and off through a pipe having a valve. When the brick becomes highly heated, the air is shut off, and oil only is passed into the retort, where it is decomposed, and the resultant gas is passed to a holder. The oil cools the retort, which is reheated by a blast of air.



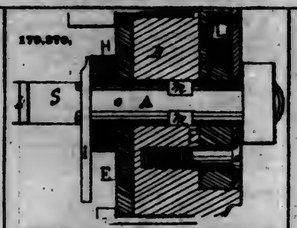
The process herein described of alternately producing gas and heating the retort by first admitting petroleum or other hydrocarbon into a retort among pieces of fire-brick or other similar material in a highly-heated condition, and conveying the gas away to a receiver, and subsequently rebeating the retort (after the the supply of hydrocarbon has been stopped) by admitting atmospheric air or oxygen to consume the carbon deposited in the retort, do as to obtain the temperature necessary for then restarting the gas-making operation, substantially as set forth.

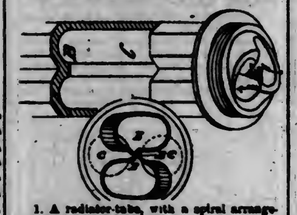
179,870. SEAL-LOCKS. John Sweeney, New Haven, Conn. [Filed Aug. 4, 1876.]

1. The bolt A, constructed with the flat and perforated head B, square part S, and round part *c*, provided with the notches *m m*, and made to operate in connection with the hasp H and catch L in the manner described, substantially as shown and set forth.

2. The bolt A, constructed with the flat and perforated head B, square part S, and round part *c*, provided with the notches *m m*, in combination with the catch L, face-plate E, hasp H, and seal I, of frangible material, interposed between the bolt-head and hasp, substantially as and for the purpose described.

179,871. STEAM-RADIATORS. William P. Thompson and Robt. P. Thompson, Philadelphia, Pa. [Filed Aug. 12, 1876.]

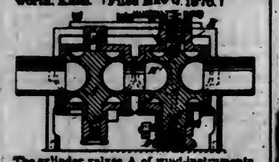




1. A radiator-tube, with a spiral arrangement of channels, O O, forming the sugar-like aperture B, as herein before set forth.

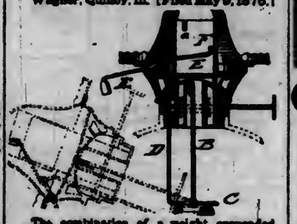
2. A radiator-tube, with indentations *a*, forming channels, O O, and communicating chamber B, made as and for the purpose set forth and shown.

179,872. VALVES FOR BRASS MUSICAL INSTRUMENTS. W. A. Tischendorf, Leavenworth, Kans. [Filed May 9, 1876.]



The cylinder-valves A of wind-instruments, fitted on centers D E, which are adjustable, and regulated by spring-pressure, substantially as specified.

179,873. LAMP-EXTINGUISHERS. Michael Wagner, Quincy, Ill. [Filed May 9, 1876.]



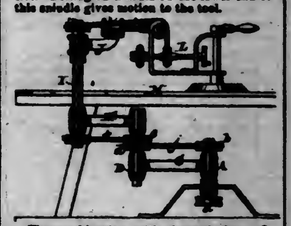
The combination of a weight suspended from a fixed rod, B, with a ring, C, rod D, bent-lever E, and sliding tube F, all connected, and arranged substantially as and for the purpose specified.

179,874. BUCKWHEAT-CLEANERS. Barker B. Ward, Lewiston, Pa. [Filed Mar. 29, 1876.]

The combination of the horizontal concave A and cylinder B, armed, respectively, with strips of card-clothing, arranged spirally thereon, substantially as and for the purpose specified.

179,875. MECHANICAL MOVEMENTS. Alden Worth, Singleton, N. Y. [Filed May 24, 1876.]

Brief.—To admit of the movement of a reeving tool in various horizontal directions, a vertical spindle is a frame extending over the length of a table receives, by belting on a drum on its upper end, motion, which is transmits, by a drum and belting on its lower end, through a jointed arm, to another vertical spindle, traversing a curved or straight slot. Belting on a drum on the lower end of this spindle gives motion to the tool.



The combination, with the swivel-arm J, which carries a working-machine, I, of a shaft, I, which is guided by a bar, H, and which connects by links B C with the driving-shaft A; from which motion is transmitted to the working-machine by means of suitable belts and pulleys, all constructed and operating substantially as herein shown and described.

179,876. BRUSHES. Alex. Wattles, Battle Creek, Mich. [Filed Feb. 21, 1876.]

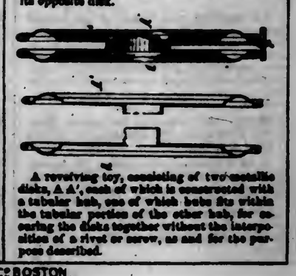
Brief.—The fiber is clamped by a strap passing around the center of the bench, and held by a ferrule in a side handle.



The brush described, consisting of the handle A, the concave metal strap B, brush-fibers C, and ferrule *a*, all combined substantially as described and shown.

179,877. HANDLE-BAR TOYS. C. Weber, West Meriden, Conn. [Filed Apr. 21, 1876.]

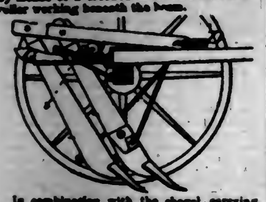
Brief.—The two disks connect by tubular action, one fitting within the other, and the two secured by spinning or expanding the projecting mouth of the longer tube against its opposite disk.



A revolving toy, consisting of two metallic disks, A A', each of which is constructed with a tubular hub, one of which hubs fits within the tubular portion of the other hub, for securing the disks together without the interposition of a rivet or screw, as and for the purpose described.

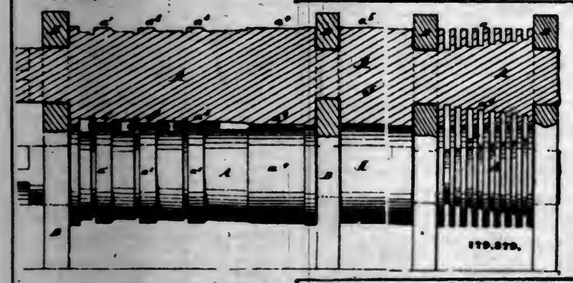
179,878. SUBSOIL-PLOWS. Levi Wortenberger, Lebanon, Ind. [Filed Apr. 1, 1876.]

Brief.—The cultivator-beams are hinged to the forward part of the frame, and are raised by means of a crooked lever and a friction-roller working beneath the beam.



In combination with the shovel-carrying beams of a subsoil-plow, angular levers J, constructed and applied as described.

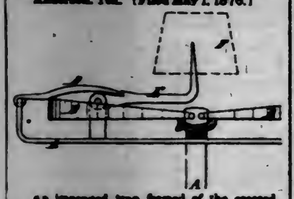
179,879. MACHINERY FOR REPOINTING RAILROAD-RAILS TO THE FORM OF PLASTIC. Jas. M. Whitman, Pembroke, Me. [Filed May 16, 1876.]



1. The method of rolling a railroad-rail to the form of a plastic of homogeneous texture by first passing the web portion of rail between collars a^1 a^1, and reducing the head and flange by adjacent portions of the rolls, which spread the metal into the open spaces on each side, then reducing to uniform thickness by passing them between plain portions a^2 of the rolls, then passing them transversely between two plain portions, a^3, and finally edge-ing through the ring-grooved portions a^4, all substantially as set forth.

2. The combination of two rolls, A A, having the collars a^1 a^1 a^3 a^4, and the reducing-surfaces forming open spaces on each side of said collars, substantially as and for the purpose specified.

179,880. HAWK-TRAPS. Joseph White, Anderson, Tex. [Filed May 1, 1876.]

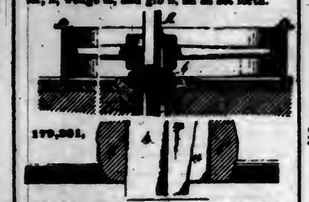


An improved trap formed of the ground horn A, provided with the downwardly-projecting ends, the jaws B, the spring C, the catch-bar D, the trigger E, having its free end bent upward, and the perch-block F, constructed and arranged in connection with each other, substantially as herein shown and described.

179,881. METAL-BORING MACHINES. John W. Wilbraham, Philadelphia, Pa. [Filed Dec. 4, 1875.]

1. In a metal-boring machine, the boring-bar A, its usual bearings, and a third or supplementary bearing for the above G, revolved by the bar which can slide in the sleeve, in combination with a cutting-head, I, secured to the bar between one of the usual bearings and the supplementary bearing, all as set forth.

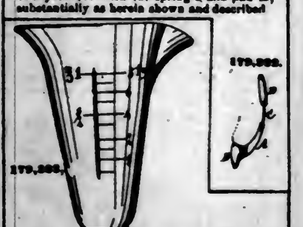
2. The combination of a boring-bar, having a slot, the opposite ends of which are at right angles to the center line of a bar, with a cutter, I, wedge m, and gib n, all as set forth.



179,882. ARTIFICIAL TEETH. Thomas Williams, Bergin-ville, North Adams, Mass. [Filed May 22, 1876.]

Brief.—A small steel spring extends upward from a plate grooved at both edges. This spring has a pad, which rests upon the roof of the mouth. The side grooves of the plate catch over the natural teeth upon either side.

The plate A and teeth B, having grooves or channels along the sides of the outer teeth, and provided with the spring C and pad D, substantially as herein shown and described



179,883. DRUGGISTS' GRADUATED MEASURES. Edward L. White, White Mills, Pa. [Filed Feb. 14, 1876.]

A druggist's graduate or measuring-vessel, having the scale or graduation burned into the glass in black or other color to be clearly and readily distinguishable, substantially as specified.

179,884. ARTESIAN-WELL BORERS. John A. Woodhouse, Anaheim, Cal. [Filed Apr. 10, 1876.]

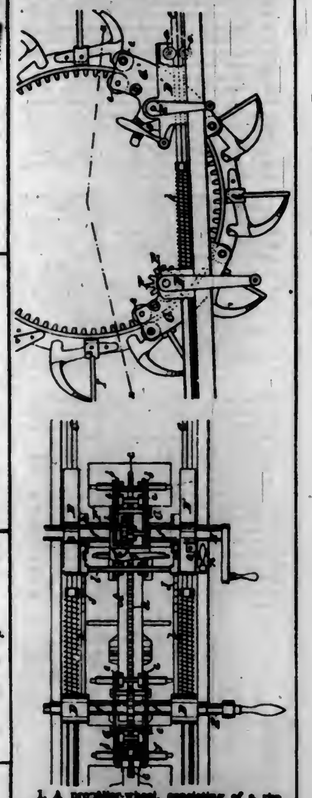


1. An Artesian-well drill, constructed with a main center drill, and with side drills, or side drills and chisels, moving conjointly with said main drill, and arranged to project from, and contract within, a recessed cylinder, substantially as and for the purpose specified.

2. In an Artesian-well drill, the main center drill A, mortised to a cylinder, h, having the several compartments h^1, and provided with the detachably-connected drills and chisels f g, substantially as specified.

3. The guide n upon the lower end of the shank, in combination with the upper coupling and connecting devices of the drill, consisting of a bolt, i, and disk k, supported by studs, substantially as specified.

179,885. PROPELLING-WHEELS. William S. Wootton, Scottsburg, Va. [Filed June 18, 1876.]



1. A propeller-wheel, consisting of a rim with an internal cog-gear, in combination with two eccentric shafts carrying pinions, one of which shafts is stationary and forms the drive-shaft, and the other of which is movable, for the purposes of adjustment, as described.

2. The combination, with the wheel A, having a cog-gearing and flanges or guideways, of a shaft, B, carrying a pinion, and a frame, C, carrying friction-wheels and journaled concentrically with shaft B, as and for the purpose described.

179,886. WINDOW-SCREENS. Henry W. Yates, Detroit, Mich., assignor of one-half his right to James Andrews, same place. [Filed Apr. 19, 1876.]



The frames for window-screens described, consisting of the three-sided frames A A', each having the stile B set back from the ends of the top and bottom rails, substantially as described and shown.

179,887. PROCESSES OF ENAMELING WROUGHT-IRON. Joseph C. Whiting, St. Louis, Mo. [Filed June 7, 1876.]

1. The process of enameling wrought-iron, so as to imitate gray and dark veined stones, by washing the surface in a solution of ferridcyanide of potassium, and then applying the enamel, substantially as set forth.

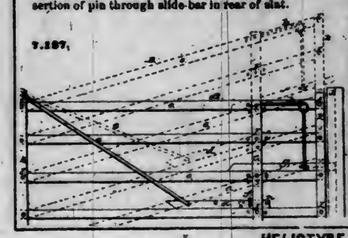
2. In the process of ornamenting wrought-iron, as above described, the combination of carbonate of ammonia with the enamel employed, substantially as and for the purposes set forth.

REISSUES.

7,187. FARM GATES. Amos Brinkerhoff, Golden Corners, Ohio. Patent No. 170,517, dated Nov. 30, 1875. [Filed Feb. 11, 1876.]

Brief.—The front end of this gate is secured in an elevated position by inserting a pin in front of slat, through one of the perforations in the slide-head, or may be latched to the latch-post, when in ordinary situation, by insertion of pin through slide-bar in rear of slat.

7,187.



6. The combination, with the wheel and the movable bearings D', of the bars J, having ratchet-teeth, and the pawl mechanism m n o, substantially as and for the purposes described.

7. The combination, with a propeller-wheel, of spring-seated grappling-arms, substantially as and for the purpose described.

8. The combination, with the wheel, having flange a, of grappling-arms H, having projections j j, as and for the purpose described.

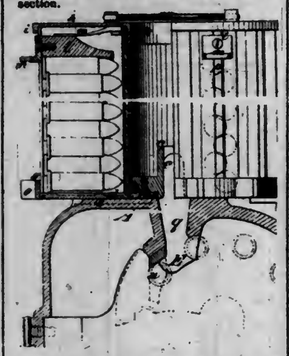
9. The combination, with the wheel having flange a, of the paddles I, and the bifurcated grappling-arms, having projections j j, fastened back by the same bolt that secures the paddles, and bearing at the tip of their flukes against the paddles, as and for the purpose described.

10. The propeller-wheel, consisting, essentially, of a T-shaped rim, having flanges b b c, and an internal gear, substantially as and for the purpose described.

The combination of the sliding bar d, girt-brace e, sliding-bar pins f and n, and pivoted vertical slots o and bars o, substantially as set forth.

7,188. FEEDERS FOR REPEATING FIRE-ARMS. Lewis W. Broadwell, Hietzing, near Vienna, Austria. Patent No. 110,336, dated Dec. 20, 1870. [Filed Nov. 27, 1875.]

Brief.—Cartridge-feeders for machine-guns, having tubes V-shaped, or nearly so, in cross-section.



1. A cartridge-feeding case, made straight in direction of its length, but with its sides internally contracted and arranged, to provide for the close packing of the cartridges in the case, and their straight or proper delivery through the outlet of the latter, substantially as described.

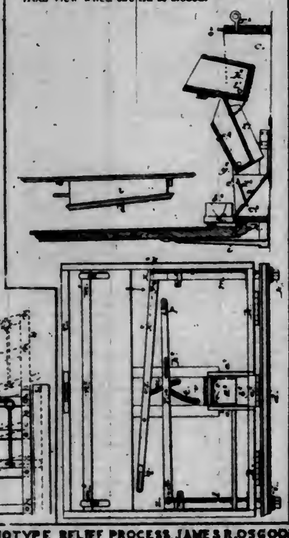
2. The revolving feeding-cylinder, constructed and operated substantially as described, and for the purpose herein set forth.

3. The table or, support A, in combination with the revolving feeding-cylinder, essentially as shown and described.

4. The under projection or dip E, as shown, and for the object specified

7,189. WALL-DESKS. Thomas Cogswell, Boston, Mass. Patent No. 132,632, dated Oct. 29, 1872. [Filed Mar. 20, 1876.]

Brief.—The desk is provided with arms for supporting the lid when it is opened, and they are connected with the lid in such a manner that the movement of the lid automatically throws them into position when the lid is opened, and withdraws and conceals them from view when the lid is closed.



7,189.



1. A wall-desk constructed and adapted to hang against a wall, substantially in the manner and for the purpose set forth.

2. In a wall-desk, as substantially as described, the combination, with the hinged lid thereof, of automatically-operated supporting-arms, constructed and arranged substantially as set forth, whereby they are adapted to be lowered and swung into position to support the lid when it is lowered, and to be returned to their original position when the lid is closed.

3. The arms d k, shafts l m, slide-levers n o, slide-plate s, having the inclined slots t u, and pins r s, combined and relatively arranged, and operating, substantially as shown and described.

4. The combination, with the lid of a desk, of the connecting plate or link w, grooved plate v, levers n o, with their pins r s, shafts l m, and supporting-arms d k, adapted to be operated by the lid, substantially in the manner and for the purpose set forth.

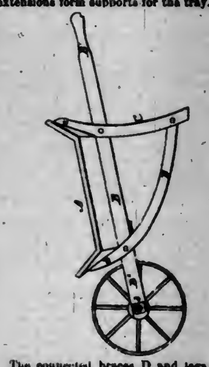
5. In combination with the hinged lid of a desk, an inkstand so arranged with relation thereto as to be lowered and brought forward when the desk is opened, and carried back into the desk when the lid is closed, and at the same time remain in a horizontal position, substantially as described.

6. In combination with an inkstand automatically moved by the lid of a desk, an inkstand cover automatically opened by means of pins arranged as described, and closed by gravity when the lid of the desk is closed.

7. The combination, with the case of a desk, of one or more boxes or receptacles, constructed to tip outward as the case is opened, and to be shut within the case as the same is closed, substantially as described and set forth.

7,190. WHEELBARROWS. John A. Garver, Bryan, Ohio. Patent No. 149,737, dated Apr. 14, 1874. [Filed June 9, 1876.]

Brief.—The legs and braces are locked to each other and to the rails, and their upward extensions form supports for the tray.



Two connected braces D and legs C, combined with the rails B, and having the extensions d and e above the rails, for receiving, holding, and supporting the tray A, substantially as described.

7,191. SEEDING-MACHINES. M. L. Gorham, Rockford, Ill. Patent No. 32,992, dated Aug. 6, 1861. [Filed Mar. 8, 1876.]

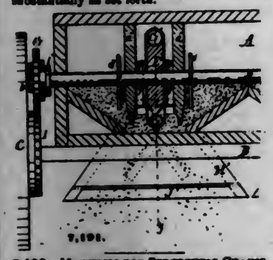
1. In combination with the wheels E and troughs g, arranged as shown, the inclined surface or places e placed at the bottom of the hopper A, and in the described relation with the partitions e' thereof, to operate as and for the purpose set forth.

2. The spouts H' provided with the partitions I' and scattering-bars J', in combination with the seed-distributing wheels E, partitions e', and troughs f, all arranged as and for the purpose set forth.

3. The transverse vertical partitions e' in main seed-box A, forming inclosures for the reception of seed-distributing wheels, and constructed to admit the seed from the main seed-box to the seed-distributing wheels in the inclosures formed by the partitions, substantially as described and shown.

4. The mirrors d, in combination with the inclined planes c and partitions e', for the purpose of agitating the seed to prevent it from clogging on its passage from the main seed-box A to the seed-distributing wheels in the inclosures formed by the partitions e', substantially as set forth.

5. The double inclines c, transverse vertical partitions e', and seed-distributing wheels, fitted to revolve in the inclosures formed by the partitions, these parts constructed and arranged in the main seed-box of a seeding-machine, and combined for joint action, for the purpose of discharging the seed from the main seed-box as the machine is drawn along, substantially as set forth.



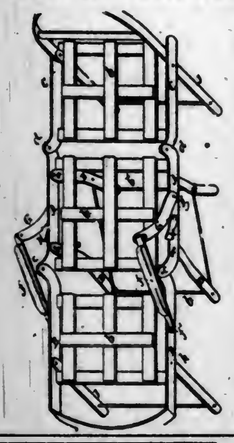
7,191.

7,192. BUTTON-FASTENINGS. D. Heaton, Providence, R. I. Patent No. 153,220, dated July 21, 1874. [Filed Aug. 26, 1875.]

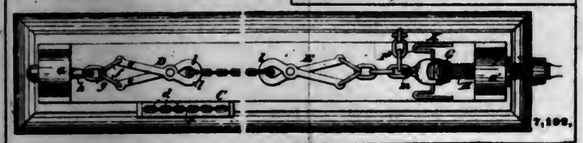


A button-fastener constructed as hereinbefore described, having the wings T T, staples S, and prongs I I I', thinned to a sharp edge at their points, all arranged to operate substantially in the manner described and shown.

7,193. CONVERTIBLE CHAIRS. William McGregor, Chicago, Ill. Patent No. 103,066, dated May 17, 1870. [Filed Apr. 12, 1876.]



7,194. MACHINES FOR STRETCHING CHAINS. Charles Hall, New York, N. Y., assignor to the Yale Lock Manufacturing Company. Patent No. 43,967, dated Aug. 30, 1864. [Filed May 18, 1876.]



7,194.

1. The process of making pitch or gage chains, as hereinbefore set forth, which consists in forming and uniting their links, and subsequently stretching them by any suitable apparatus until they conform to a desired pitch or gage.

2. The combination, substantially as set forth, of an apparatus for stretching chains, and a gage for measuring the pitch thereof.

3. In a machine for stretching chains, the combination, substantially as set forth, of the devices for holding the chain to be stretched, and mechanism adapted to subject that portion of the chain between the said devices to tension.

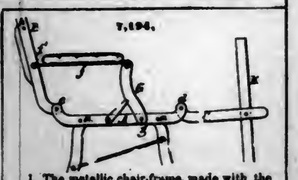
4. In a machine for stretching chains, the combination, substantially as set forth, of the devices for holding the chain to be stretched, and apparatus for applying tension thereto, and a gage for measuring the pitch of the chain.

5. In a machine for stretching chains, the combination, substantially as set forth, of the devices for holding the chain to be stretched, the mechanism for applying tension thereto, and the links interposed between said mechanism and said devices for readily varying the longitudinal distance separating said devices from one another.

6. The employment or use of the two pairs of tongs, D E, or other suitable clamps, in connection with the screw H, or its equivalent, arranged substantially as and for the purpose specified.

7. The chain F, or its equivalent, in connection with the swivel G, for conveniently connecting the tongs E to the screw H, as set forth.

8. The gage C, when used in combination with the tongs D E and screw H, or its equivalent, for the purpose specified.



7,194.

1. The metallic chair-frame, made with the ends of the bars A of the seat-frame turned upward, and receiving the pivots of the folding frame C, substantially as and for the purpose set forth.

2. The metallic chair-frame, made with the ends of the bars A of the seat-frame turned upward, and receiving the pivots of the folding frame B of the back of the chair, substantially as set forth.

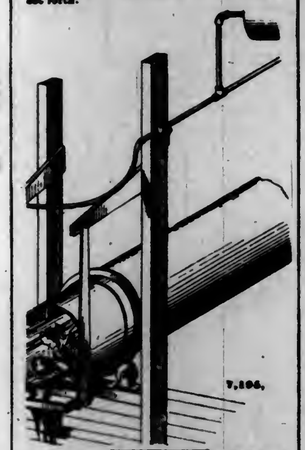
3. The combination, with the metallic seat-frame A, and hinged back-frame B, of the arm-pieces f and G, hinged together, and also hinged at their respective ends directly to the seat-frame and back, and the pawls H, between the seat-frame and the arm-piece f, for the purposes and as set forth.

4. The seat-frame A and frame C, hinged together, in combination with the folding frame E, substantially as set forth.

7,195. DISTRIBUTING LIQUID THROUGH TOBACCO. Jonathan Smith and C. E. Messinger, Toledo, Ohio. Patent No. 172,066, dated Jan. 26, 1876. [Filed June 14, 1876.]

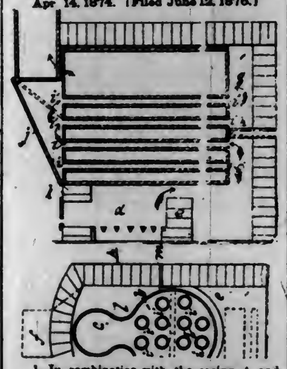
1. The method of distributing liquid material through chewing or smoking tobacco by the employment of compressed air, substantially in the manner set forth.

2. The described combination of the compressed-air sprayer and the tobacco feeder for presenting successive portions of the tobacco to the action of the sprayer, substantially as set forth.



7,196.

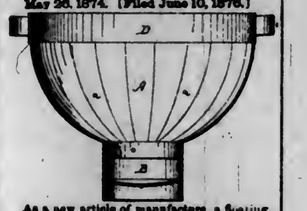
7,196. STEAM-BOILERS. Daniel Sullivan, Bangor, Me. Patent No. 149,616, dated Apr. 14, 1874. [Filed June 12, 1876.]



1. In combination with the casing A and boiler b, having the space g between them at one end, the tubes i and i', stop h, supplemental head j, and passages l, substantially as set forth and shown.

2. In combination with the casing A and boiler b, the steam-dome c and passages l on each side thereof, said passages communicating at one end with the fire-box and at the other with the flue, substantially as set forth and shown.

7,197. BEER-COOLERS. Wm. Woerle, Milwaukee, Wis. Patent No. 151,261, dated May 26, 1874. [Filed June 10, 1876.]



As a new article of manufacture, a floating beer-cooler, having converging vertical strips a a, and projecting bottom B, substantially as set forth.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & Co. BOSTON.

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OF THE

COMMISSIONER OF PATENTS

AND

DECISIONS OF UNITED STATES COURTS

IN THE MATTER OF

PATENTS AND TRADE-MARKS, &c.

OFFICIAL GAZETTE.—January—June, 1876.

DIGEST OF DECISIONS.

[The names of court cases are designated by an asterisk, (*).]

ABANDONMENT.

1. Abandonment of the *invention* has always been a question of *fact*, to be proven by indubitable evidence.

[Stephen Hull, 1.

2. An applicant for a patent is not barred from prosecuting his application by reason of a previous application made by him for the same invention, and abandoned under the operation of the second proviso of the 35th sec. of the act of 1870.

[G. Crompton, 5.

3. The effect of that section was only to sever all connection between the original and new application, so that the original application could not be relied on to sustain the patent in the event of two years public use prior to the new application.

[Ibid., 5.

4. The omission of section 35 of the law of 1870, in relation to patents, in the Revised Statutes of the United States, does not revive the applications which had become abandoned under that section.

[Davies *vs.* Hartman, 351.

5. Abandoned applications (under the statute) affect in no way the rights of subsequent, and independent, applicants, and patents are issued to the latter class of persons without regard to such old applications.

[Ibid., 351.

6. Whatever rights attached to applications filed prior to the passage of the act of 1870, under the second proviso of that act, expired six months after the passage of that act.

[Ibid., 351.

7. An application coming within the provisions of the act of 1870 has no legal status in the Office after the limitations referred to in such act.

[Ibid., 351.

8. The only remedy of such applicant is by filing a new application.

[Ibid., 351.

9. An application filed in 1857 was rejected, and a new application was filed January, 1859, renewing the first, whereupon a patent issued: *Held*, that the date of the application for the patent is to be the date of the first application, which was rejected, and not the date of the renewed application, on which letters patent issued.

[*Henry *vs.* Francestown Soap-Stone Stove Company, 406.

10. Mere forbearance to apply for a patent during the process of experiments, and until the party has perfected his invention, and tested its value by actual practice, affords no just grounds for any presumption of abandonment or dedication to the public.

[*Ibid., 406.

11. Lapse of time does not, *per se*, constitute abandonment. It may be a circumstance to be considered. The circumstances of the case, other than mere lapse of time, almost always give complexion to delay, and either excuse it or give it conclusive effect.

[*Andrews *et al. vs.* Carman, 1011.

12. Abandonment will not be presumed. This fact must be made clear by testimony of witnesses, or the acts of the party himself, that will allow such a charge to be set up to defeat a claim to a patent.

[Cushman *vs.* Parham, 1106.

13. The acquiescence of an applicant for a patent, in the decision of the Office rejecting his case for a series of years, and his failure to avail himself of his right to an appeal within the time limited, affords strong presumptive evidence of an abandonment of his claim.

[Hanscom *vs.* Latham, 1157.

(See Abandoned Experiments.)

ABANDONED EXPERIMENTS.

Abandoned experiments do not reach the grade of complete invention.

[Hanscom *vs.* Latham, 1157.

(See Evidence, 12; Experimental Use; Infringement, 18.)

ADMINISTRATOR.

(See Assignment and License, 6.)

AGREEMENT.

(See Assignment and License.)

AMENDMENTS.

(See Practice in Patent Office, 11, 13.)

ANNULLING PATENTS.

1. The practice that obtains in England as to the mode or forms of procedure for the cancellation and annulling letters patent by *scire facias* does not obtain in this country.

[*The Attorney-General upon the relation of George V. Hecker *vs.* The Rumford Chemical Works *et al.*, 1062.

2. No statute of the United States confers or recognizes the existence of any such right, nor can any precedent be found for the suing out of a writ of *scire facias*, or the bringing of a bill in equity to repeal or cancel the patent by the Attorney-General, in the name and behalf of the United States, either with or without a relator.

[*Ibid., 1062.

3. The jurisdiction conferred, by the acts of 1790 and 1793, upon the Federal courts to repeal a patent, and which without express grant it is believed did not inhere in those courts, is nowhere conferred by the acts of 1836 or 1870, or in the Revised Statutes of 1874.

[*Ibid., 1062.

4. The decisions in the Federal courts sustaining proceedings in equity to vacate letters patent granting lands obtained by fraud, furnish no precedent in case of letters patent for inventions.

[*Ibid., 1062.

5. "The Attorney-General of the United States, as he is Attorney-General," has no authority as such and in his own name to file an information, or commence proceedings by bill in equity.

[*Ibid., 1062.

6. If the court has jurisdiction in cases of this character the information should be in the name and behalf of the United States, and should be filed by the attorney of the United States, in the district in which the information is filed.

[*Ibid., 1062.

7. Any other mode of procedure (unless authority is expressly conferred by statute) is neither authorized by law, sanctioned by any precedent, nor supported by the authority of any judicial decision.

[*Ibid., 1062.

APPEALS.

(See Practice in Patent Office, 9, 10, 14, 16, 17.)

ASSIGNMENTS AND LICENSE.

1. S. and E., patentees, executed an agreement, sale, and grant to B. of "the said invention and letters patent or extensions to be hereafter obtained on account of said invention," and containing certain covenants and agreements of quiet enjoyment of all rights under the patent so assigned, and not to make or sell, or cause to be made or sold, any other machine for the purposes to which such patented machine is applicable.

[*Emmons *et al. vs.* Sinddin *et al.*, 332.

2. Subsequently S. and L. took out a patent and obtained a reissue thereof for inventions of the same character and purpose of that described in the sale or assignment to E., and brought suit against the plaintiffs herein, who are the purchasers and assignees of B's. interest: *Held*, that the title of S. and L. must be held to be only in trust for B. and his assigns, so far as the letters patent of the United States embraced any inventions made by S. before

the conveyance to B., and incorporated in the invention described in the agreement of sale and grant to B. by S. and K.

[*Ibid., 368.

3. It is not a fair construction of the assignment of a patent that the assignee shall first assign the entire right for a particular territory, and get its whole value from his vendee, and after having thus received all the benefit he was entitled to under the transfer sell single machines to be used in the same territory during the extended term.

[*The Union Paper-Bag Machine Company *vs.* Nixon & Co., 691.

4. An assignee of a patent, by granting and transferring the exclusive right to manufacture or use an invention within such State, exhausts his whole power of disposition under and by virtue of the assignment to him; and such assignee has no right to flood the country with machines to be used after the expiration of the term of the original patent, thus defeating the interest of the patentee in the extension.

[*Ibid., 691.

5. The right to use a machine after the expiration of the term of the patent is an incident to the primal right to use it during the original term; if that fails on account of fraud the incident falls with it.

[*Ibid., 691.

6. Where an inventor and patentee entered into a written contract with one of the part owners of the patent, to procure, if possible, an extension of the same, and, under such contract, received a valuable consideration, and, after his death, his wife, as executrix, procured such extension, and conveyed, by assignment, duly recorded, such extended patent to the assignees of said part owner, who was a party to the original contract with the inventor and patentee, it was: *Held*, that, upon the resignation of the trust as executrix, and the appointment of an administrator with the will annexed, such administrator could not make a legal assignment of such extended patent so as to vest the same in another and different party than the assignee of the executrix.

[*Nowell *et al. vs.* West *et al.*, 1110.

ATTORNEY-GENERAL.

(See Annulling Patents.)

CANCELLATION OF PATENT.

(See Annulling Patents.)

CAVEAT.

(See Practice in Patent Office, 7.)

CHANGE OF MATERIAL.

(See Double Use.)

CLAIMS.

1. Parties being the first to adopt the feature of yielding rollers between which the "former" passed, and a special adaptation of some sort being necessary for their use, a claim simply covering the new feature in its new connection held not to be too broad.

[Farnsworth *vs.* Andrews, 195.

2. A feature essential to the operation of a device should be included in the claim therefor.

[Ibid., 195.

3. The claim of "the combination of the window-sash and the rubber strip, arranged as described," is a proper one, and the decision of the Commissioner in case of Eubens & Co., C. D., 1869, p. 107, does not apply in this case. The only question involved is one of novelty.

[I. S. McIntire, 306.

4. Claims for the means, and not for the results, are not functional, although the operation and construction of the means are set forth therein.

[L. Keith, 744.

(See Construction of Claims; Joinder of Inventions, 1, 2; Reissue, 3.)

COMBINATIONS.

1. The rule laid down in the case of Jones *vs.* Popling (5, O. G., p. 172,) will be considered of general application upon the subject of combinations, and is as follows: "When the devices are used in connection to subserve a common end, or adapted to each other, all co-operating to produce a given result, and the use of each device, or its equivalent, is necessary to that result, although each device, when considered by itself, may amount to a new invention, yet, when so combined, they constitute an exception to the general rule, that separate inventions should form the subject of separate applications."

[Clinton and Knowlton, 949.

2. A new combination, producing new and useful results, and not merely an aggregation of the results, due to the independent action of the several parts, is a patentable invention.

[*Bussey and McLeod *vs.* Wager, 300; *Bussey and McLeod *vs.* Hicks and Wolfe, 300.

3. Although improvements may be made in the separate devices constituting a combination, which improvements may be the proper subject of a patent, yet if the combinations made by the defendants embrace and show the elements of the plaintiff's invention, operating substantially in the same manner to produce the same results, it must be treated as an infringement.

[Hartshorn *vs.* Shorey *et al.*, 985.

4. A combination should be regarded as an entirety, and it is hardly a proper answer to the same that some of its features have been used to perform their separate functions in other positions and arrangements.

[J. Reynolds, 744.

5. Evidence of the adoption or incorporation in a combination of less than the whole number of the essential features not sufficient to establish the fact of its invention.

[McKnight *vs.* Van Wagenen, 1161.

(See Claims, 3; Patentability, 7.)

CONSTRUCTION OF CLAIMS.

1. The first claim of plaintiffs is for a composition for coating the exterior of steam-boilers, pipes, or other heated surfaces, composed of asbestos and lime putty, charcoal and pumice-stone, or their equivalents, and is infringed upon by the defendants in their use of an inner coating of a mixture of clay and asbestos, crushed or ground, with the addition of a little hair and some other fibrous substance, with a coating composed of a mixture of clay and charred fiber, or cocoa-nut, or cane sawdust, ground-wood, or shoddy.

[*The United States and Foreign Salamander Felting Company *vs.* *The Merrimack Manufacturing Company, 208; *The United States and Foreign Salamander Felting Company *vs.* *The Lawrence Manufacturing Company, 208.

2. The second claim is for a composition for the same purpose, of asbestos and lime putty. This claim is infringed by defendants in their use of asbestos and whitewash, (which is the same as lime putty in this composition,) and clay, which is also proved in this composition of matter to be a well-known equivalent for lime putty.

[*Ibid., 202.

3. The first claim, to "an ornamental chain for necklaces, &c., formed of alternate closed links A and open spiral links B, substantially as shown and described," is not a claim for an ornamental chain, composed of alternate closed links, without reference to the material of which the spiral link is made; but it is a claim for a chain composed of alternate closed links and open spiral links formed of one or more coils of gold tubing, as shown and described.

[*Meiford *et al. vs.* Pearce *et al.*, 294.

4. The words "substantially as described" in the specification and claims must necessarily be implied, and involve a reference to the specification and drawing, to prevent any misunderstanding of the scope and meaning of the claims.

[*Westinghouse *vs.* The Gardner and Ramsey Air Brake Company, 538.

5. If, by an examination of the specification, and applying to the then existing state of the art, we can learn what the invention was, then a claim, which was designed to be a condensed summary of the invention, is to be construed so as to be co-extensive with the invention, if that can be done without doing violence to its language.

[*Andrews *et al. vs.* Carman, 1011.

(See Claims.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

1. When the inventor says in his specification "I recommend the following method," he does not thereby constitute such method a portion of his patent.

[*Sewell, administrator of Clark *vs.* Jones *et al.*, 47.

2. The courts have determined that the construction to be given plaintiff's patent was India-rubber "and the compounds commonly employed therewith reduced to a soft plastic state, capable of vulcanization, and subsequently vulcanized."

[*Goodyear Dental Vulcanite Company *et al. vs.* Flagg, 153.

3. In the process described by defendant he does not use india-rubber, or any substance capable of vulcanization. The substance used by him is rendered plastic, and not hardened by heat.

[*Ibid., 153.

4. Every patent, as to novelty or utility, depends on the state of the art at the time of the claim made or patent issued.

[*Ibid., 253.

5. Liberal construction should be accorded to patents, so as, if possible, to secure to an inventor what is really his invention.

[*Bussey and McLeod *vs.* Wager, 300; *Bussey and McLeod *vs.* Hicks and Wolfe, 300.

6. The description and drawings in an original patent may be looked to, to disclose the real invention of a patentee, when the original claims are defective, or the reissue claims obscure.

[*Bussey and McLeod *vs.* Wager, 300; *Bussey and McLeod *vs.* Hicks and Wolfe, 300.

7. Irwin was the first inventor of a device for securing a blast of fresh air to the burner of a lamp, by means of an inverted funnel or bell, and one or more tubes, by which the air heated by the flame of the lamp is caused to rise into the tube, and be thence conducted into a close reservoir below the flame, and from thence supplied freely to the flame, so as to sustain combustion; in other words, the combination of the bell, tube, air-chamber, and burner, as shown by his first patent, was original with him, and all who use a bell and tube or tubes, substantially as and for the purposes Irwin used them, infringe his first patent. So all who use a globe in combination with the bell and tube infringe the second patent; and all who use the bell, tube, globe, and perforated plate E at the bottom of the globe, infringe the third patent.

[*Irwin *vs.* Dane *et al.*, 642.

8. That the reissue by which Gerber, as assignee of the Smith patent, was allowed to amend his specifications so as to secure the joint M as an element of his device or in the Smith device, and to cover the idea of jointing between the evener and the neck-yoke as a specific element in his invention, is a valid reissue under the patent law as it then stood; and that having obtained the reissue, and covering now the ground occupied by the defendants, the complainants are entitled to recover.

[*Calkins *vs.* Bertrand *et al.*, 795.

9. A clause contained in a specification stating that "we do not wish to confine ourselves exclusively to the V-shaped projection, as any form that will prevent the core from turning independently of the bush will produce the same result;" the patentees could not have in view every method whereby the core or wrench could be mechanically prevented from turning independently of the bushing. It is not any form of wrench or core, but any form of *projection*, that is meant, suited to engage with any corresponding notch in the bushing.

[*Cornell *vs.* Littlejohn, 837.

10. The Cornell reissued Patents Nos. 5,026 and 5,027 of August 6, 1872, the one being for a bung-bush, and the other for a wrench for operating such bush by direct positive engagement, are not infringed by the use of a bush and a wrench in which the engagement is effected by frictional contact, and in which the bush is so constructed that the patented wrench cannot be used with it.

[*Cornell *vs.* Littlejohn, 922.

11. In a sheep-shearing device, where power is employed to operate the cutters, it is immaterial what kind of power is employed, when the two separate devices are operated in the same way to produce substantially the same effect.

[*Earle, Jr., *et al. vs.* Harlow *et al.*, 1018.

12. The patent of Fullan, December 23, 1873, is not limited to an engine operated by the expansive force of steam, by any fair construction of the specification or claims. In this patent, as well as in the Hamilton and Harlow patent of September 1 1864, (employed by defendants,) a power is generated at a source of supply at a desired point, and is transmitted through a flexible tube, so as to be available to actuate an engine in the portable handle, which converts that power at any other point at the will of the operator.

[*Ibid., 1018.

13. The reissued Letters Patent No. 4,349, dated 25th April, 1871, declared good and valid, said patent being for improvements in fluting-machines granted to H. H. Cole.

[Cole *vs.* Kennedy and Kendall, 1110.

14. The "Knox," "Peerless," and "Crown" fluting-machines are infringements of the Cole patent, as reissued.

[Ibid., 1110.

(See Construction of Claims, 4, 5; Infringement, 13, 14, 15.)

CONSTRUCTION OF STATUTES.

(See Abandonment, 2, 3, 4, 6, 7; Annulling Patents, 3; Practice in Patent Office, 11; Reissues, 2, 12; Trade-Marks, 5, 6.)

CONTRACTS.

1. Where a covenant goes only to a part of the consideration on both sides, and a breach of it may be paid for in damages, it is an independent covenant, and an action can be maintained for a breach of the covenant, on the part of the defendant, without averring performance in the declaration.

[*Coe *vs.* Bradley, 541.

2. Where the plaintiff's covenants, which form the consideration, be dependent, yet if part of the consideration be accepted and enjoyed by the defendant, and the plaintiff have no other remedy than on the covenant, and the breach on the part of the plaintiff can be compensated for in damages, the plaintiff may recover without alleging performance of the residue.

[*Ibid., 541.

3. Courts of equity are still more liberal in their interpretations of contracts, allowing a specific performance of a contract, sometimes to be enforced at the suit of a party who has not punctually performed the contract on his own part, but has been in default, where the default on his part is such as admits of compensation.

[*Ibid., 541.

(See Assignment and License, 6.)

COPYRIGHT.

In an action for infringement of a copyright the question to be decided is whether the defendants have used the plan arrangements, and illustrations of the complainant as the model of their own book, with colorable alterations and variations only to disguise the use thereof, or whether the work is the result of their own labor, skill, and use of common materials, and common sources of knowledge and the resemblances are either accidental or arising from the nature of the subject.

[*Lawrence *vs.* Cupples *et al.*, 254.

DAMAGES.

1. The terms *profits* and *damages* as used in the Patent Act are not convertible.

[*The Goodyear Dental Vulcanite Company *vs.* Van Antwerp, 497.

2. Damages are to be awarded "*in addition*" to the former. Profits, doubtless, refer to what the *defendant* has gained by the unlawful use of the patented invention, and damages to what the *complainant* has lost.

[*Ibid., 497.

3. In equity under the existing laws a complainant can recover both profits and damages.

[*Ibid., 497.

4. The amount of license fee fixed by the complainant is usually considered a proper compensation in damages, except in those cases where the evidence warrants an allowance of exemplary or punitive damages, by reason of a wanton infringement.

[*Ibid., 497.

(See Contracts, 1.)

DESIGNS.

1. In an application for a design patent, the arbitrary selection of the form of a now well-known and celebrated building to be applied to toys, inkstands, paper-weights, &c., does not evince the slightest exercise of invention, industry, genius, or expense.

[Bennage *vs.* Phillippi *et al.*, 1159.

2. An alleged design, consisting of a mere imitation of an existing form, or configuration, which any artisan has the right to apply to any object his fancy may dictate, is not properly the subject of a patent.

[Ibid., 1159.

3. The same degree of originality is required in both design and functional patents—that is, the claim must not be for a copy or imitation of what is already in existence.

[Ibid., 1159.

DILIGENCE.

1. Although the reduced circumstances and condition of an inventor may not alone warrant a delay in making his application for a patent, it gives color to it, and serves to explain his actions.

[Cushman *vs.* Parham, 1108.

2. An applicant for a patent after his case has been twice rejected should proceed with diligence in having the adverse decision of the Office set aside, upon appeal, if any error has been committed.

[Hanscom *vs.* Latham, 1157.

3. An inventor cannot safely let his invention rest in an incomplete state simply because he meets difficulties at the outset; he is not thereby excused from using all reasonable diligence in

his endeavors to surmount such impediments and perfect the invention.

[Barnes *vs.* Clinton, 1158.

(See Priority of Invention, 1, 2, 5.)

DIVISION OF APPLICATIONS.

(See Joinder of Inventions.)

DOUBLE USE.

1. A composition having been described in a prior patent, one who applies it to a new use cannot claim the composition as his invention.

[*United States and Foreign Salamander Felting Company *vs.* Haven, 253.

2. The substitution of one material for another, where a new and useful result is effected, or an increase of efficiency or a decided saving in the operation is clearly attained, (and not a matter of mere mechanical judgment,) is a proper subject for letters patent.

[*Dalton *et al. vs.* Nelson *et al.*, 1112.

3. Where, by the substitution of one material for another, the same result is produced, and in the same way, and also a new result, differing from the former one materially, the difference between the two cases is one of kind and not of degree; and such an improvement must have been the result of invention, thought, experience, and skill, rather than the result of mere mechanical judgment.

[*Ibid., 1112.

4. Where, in a defense to an action for infringement of a patent, the defense proved the existence of the same combinations in a device used for analogous purposes, and in which no change of mechanism was needed, and the operation of such device was successful, it was: *Held*, that the patent upon which the suit was brought could not be sustained, although the use of the device shown in defense was altogether discontinued.

[*Sloup *et al. vs.* Henrici and Lenz, 1162.

(See Construction of Specifications and Patents, 11; Invention, 1; Patentability, 1, 5; Process, 1.)

DRAWINGS.

(See Construction of Specifications and Patents, 6; Evidence, 2; Practice in Patent Office, 13; Experimental Use, 2; Reissue, 10, 12.)

EMPLOYER AND EMPLOYEE.

1. Where an inventor has developed his invention so far as to make a model or article showing clearly the subject-matter of his invention, and exhibits the same to one more skilled than himself, and the latter invents a machine to produce the same product, he will be considered as a skilled mechanic who uses the knowledge imparted to him by another, and not as the inventor of the product.

[Chase *vs.* Witter, 593.

2. The merits of an improvement belong to the one who conceived and gave practical form and effect to the ingenious arrangement which constituted the described improvement.

[De Sanno *vs.* Ritchel, 792.

3. A workman, without knowledge of his employer's previous experiments, conceived and completed an invention, while his employer failed in his experiments to complete the same invention. Under these circumstances the workman or employé should be deemed to be the first inventor.

EQUITABLE INTEREST.

(See Practice in Patent Office, 15.)

EQUIVALENTS.

(See Infringement, 10; Invention, 2; Patentability, 5.

ESTOPPEL.

1. There is nothing in the nature of the proceedings in cases of interferences, or in the character of the rights determined, that precludes the application of the now well-established doctrine of estoppel.

[Berry *vs.* Stockwell, 404.

2. It is a general rule that the patentee is estopped from denying the validity of his own patent. This rule of estoppel does not control the Government, and the Patent Office is at liberty, upon a proper occasion, to subsequently question the novelty of the subject-matter of patents granted by it.

[McKnight *vs.* Van Wagenen, 1161.

(See Evidence, 10.)

EVIDENCE.

1. The ordinary rules of evidence in the United States courts will be followed and adopted in proceedings in interference cases.

[Berry *vs.* Stockwell, 404.

2. A drawing accompanying an application for letters patent may be used as evidence to show the nature of the original invention.

[C. W. Baldwin, 639.

3. The issue in cases of interference is defined by law to be solely that of priority of invention, and the testimony taken in such cases should pertain directly or indirectly to such issue.

[Smith *vs.* Perry *et al.*, 688.

4. If the testimony is not pertinent to the issue of priority, it may be stricken out.

[Ibid., 688.

5. Testimony taken by parties to an interference, simply to destroy the right of either party to a patent, and not to determine the question of priority of invention, is not taken in accordance with any provision of law.

[Ibid., 688.

6. Merely oral testimony, advanced after an opponent has successfully made the invention, introduced the same into public use, and obtained a patent, is not sufficient to establish priority unless it is of the clearest and most undoubted character.

[Lagowitz *vs.* Topham, 742.

7. The decisions of an inferior court and a dissenting opinion in the court above in a proceeding where the patent was not vacated, together with numerous affidavits, including one from an Examiner in the Patent Office, showing clearly the belief of applicant that he had incorporated the invention in his patent, regarded as sufficient evidence in showing that the omission was by inadvertence, accident, or mistake, &c.

[Winslow, Isaac, 795.

8. The rights of a prior applicant will not be prejudiced by reason of a patent being issued inadvertently to a subsequent applicant, and the burden of proof rests upon the latter in trial of interference.

[Gordon *vs.* Withington, 1009.

9. In an interference between an application and a prior patent the latter will be considered as *prima facie* evidence of a completed invention, and no proof is required that it has been put into actual use.

[Busha *vs.* Phelps *et al.*, 1010.

10. It is not a presumption of law that a subscribing witness has knowledge of the contents of the document signed by him; he merely attests the signature of the party who executes the deed or instrument of writing. Nor is such subscribing witness estopped from denying the truth of the recitals contained in the instrument so witnessed by him.

[Cushman *vs.* Parham, 1108.

11. A patent is received in court as *prima facie* evidence that the patentee is the first and original inventor of the subject-matter contained therein, and any inventor claiming a superior or prior right to the invention assumes the *onus probandi*, and all the presumptions and doubts arising in the case are to be resolved in favor of the patentee.

[Ibid., 1108.

12. Where a model is destroyed, and the inventor proceeds to experiment in and perfect other devices for producing the same results, it affords very strong presumptive evidence of an abandonment of the invention shown in such model.

[Barnes *vs.* Clinton, 1158.

13. In a proceeding in interference the party upon whom the burden of proof rests must show that he had reduced his invention to a complete form prior to the invention of the same by the patentee, and this, too, beyond all doubt.

[McKnight *vs.* Van Wagenen, 1161.

14. The only cases wherein a modification of this rule is allowable is where both applications are pending at the same time in the Office and one goes to patent before the question of priority is determined.

[Ibid., 1161.

15. The Patent Office has no power to receive testimony on the question of priority in other than an interference proceeding.

[Mason, I. L., 1196.

(See Combinations, 5; Experimental Use, 2; Joint Invention, 1, 2, 5; Pleading and Practice, 2, 8, 10; Public Use, 4.)

EXPERIMENTAL USE.

1. If an adaptation to use, or even use itself, is merely experimental, the invention is not perfected.

(Lagowitz *vs.* Topham, 742.

2. A few unsuccessful experiments made with an imperfect machine, the first and only one constructed, are not regarded in the courts of any greater value than similar experiments made by models, or of greater weight than written descriptions and drawings.

[Freeborn *vs.* Foye, 884.

(See Double Use, 4; Public Use, 1, 2.)

EXTENDED PATENT.

(See Assignment and License.)

FOREIGN PATENTS.

1. An English patent taken out surreptitiously by any person, who, without the knowledge of the American inventor, and without authority from him, endeavored to appropriate the benefits of his invention, would not thereby deprive the real inventor of any of his rights.

[*Kendrick *vs.* Emmons, 201.

2. An English patent held to be a sufficient anticipation of an application where the description of the invention was sufficiently full, in view of the state of the art, to enable a skilled mechanic to construct the same.

[McCloskey, J., 299.

3. In determining the date of a foreign patent this Office will be guided in its decision thereupon by the date upon which the completed specifications were filed and patent sealed.

[Ibid., 299.

(See Patents, 6.)

FRAUD.

(See Annulling Patents, 4; Assignments and License, 5.)

FUNCTIONAL CLAIMS.

(See Claims, 4.)

HYPOTHETICAL CASE.

(See Practice in Patent Office, 3.)

IMPROVEMENTS.

(See Combination, 3; Employer and Employee, 2; Infringement, 16.)

INCOMPLETE INVENTION.

(See Invention, 4; Patentability, 2; Priority of Invention, 1.)

INFRINGEMENT.

1. To entitle a plaintiff to recover for the violation of a patent he must be the original inventor, not only in relation to the United States, but to other parts of the world. Even if the plaintiff did not know that the discovery had been made before, still he cannot recover if it has been in use, or described in public prints, and if he be not in truth the original inventor.

[*Sewell, administrator of Clark, *vs.* Jones *et al.*, 47.

2. To constitute an infringement the thing used by the defendant must be such as to substantially embody the patentee's mode of operation, and thereby to obtain the same kind of result as was reached by his invention.

[*Ibid., 47.

3. It is not necessary that the defendant should employ the plaintiff's invention to as good advantage as he employed it, or that the result should be the same in degree, but it must be the same in kind.

[*Ibid., 47.

4. To infringe a patent it is not necessary that the thing patented should be adopted in every particular. If the patent is adopted substantially by the defendants they are guilty of infringement.

[*Ibid., 47.

5. In an action for infringement the first question is whether the machine used by the defendant is substantially in its principle and mode of operation like the plaintiff's. If so it is an infringement of it.

[*Ibid., 47.

6. If he has taken the same plan, and applied it to the same purpose, notwithstanding he may have varied the process of the application, his manufacture will be substantially identical with that of the patentee.

[*Ibid., 47.

7. The question of infringement depends upon whether the plan which the defendant has employed is in substance the same as the plaintiff's, and whether all the differences which have been introduced are not differences in circumstance, not material, and whether it is not in substance and effect a colorable evasion of plaintiff's patent.

[*Ibid., 47.

8. When a party has invented some mode of carrying into effect a law of natural science, or a rule of practice, it is the application of that law or rule which constitutes the peculiar feature of the invention. He is entitled to protect himself from all other modes of making the same application, and every question of infringement will present the question whether the different mode, be it better or worse, is in substance an application of the same principle.

[*Ibid., 47.

9. The question to be determined in a suit for infringement of letters patent is, whether under a variation of form, or by the use of a thing which bears a different name, the defendant accomplishes by his machine the same purpose or effect as that accomplished by the patentee, or whether there is a real change of structure or purpose.

[*Converse *et al. vs.* Cannon *et al.*, 105.

10. If the device or devices of defendant constitute mechanical equivalents of the means used by the patentee, and if, besides being an equivalent, they accomplish something useful beyond the effect or purpose accomplished by patentee, it will be still an infringement, as respects what is covered by the patent, although the further advantage of defendant's devices may be a patentable subject, as an improvement on the invention infringed.

[*Ibid., 105.

11. The question is not whether the same elements of motion, or the same component parts, are used, but whether the given effect is produced substantially by the same mode of operation, and the same combination of powers in both machines.

[*Ibid., 106.

12. The rule is, and so it has been settled, that if two machines be substantially the same, and operate in the same manner, though they may differ in form, proportion, and utility, they are the same in principle.

[*Ibid., 106.

13. The defendant's mechanism does not infringe the first or third claims of the patent. The defendant's take-up is materially unlike the corresponding parts of the plaintiff's machine, and their needle-bar is not in combination with the sectional rollers or wheels which are described in the plaintiff's patent.

[*Carstaedt *vs.* United States Corset Company, 151.

14. The take-up which is mentioned in plaintiff's second claim does not mean every kind of take-up, or the take-up in every kind of loom, but refers only to take-ups which are designed for, or adapted to, the weaving of irregular fabrics.

[*Ibid., 151.

15. The plaintiff's needle-bar is placed in such relation to the cloth, and to the take-up, and by means of such position it is enabled to accomplish a result which had previously been unattained in corset-weaving.

[*Ibid., 151.

16. In an action of infringement where the defendant shows that devices claimed by him are valuable improvements upon the apparatus shown, and secured to plaintiffs by patents, which facts are not disputed, it is: *Held*, that if defendant used, in addition to such improvements of his own, the devices and apparatus of the plaintiff he is guilty of infringement, and that such improvements will not justify the defendant in appropriating that which has been patented to others.

[*Westinghouse *vs.* The Gardner and Ranson Air Brake Company, 538.

17. Where the defendant in an action for infringement uses substantially the same devices as plaintiff, and produces the same result and certain other results differing from those produced by plaintiff, it will still be considered that the patent of plaintiff has been infringed, and that defendant appropriates the invention of complainant.

[*New York Rubber Company *vs.* Chaskell *et al.*, 923.

18. In a proceeding for infringement of a pump, patented and

designed for use in oil-wells, the defendants proved the existence of a pump, used in a salt-water well, consisting of the identical combinations claimed by complainants, and the result produced by the latter pump were the same: *Held*, that, although subsequently the whole combination in the latter pump was not used, it was not such an abandoned experiment as would allow the complainants to recover.

19. A steam-pump which operates by means of a vacuum produced by a jet of steam passing over the open upper end of a pipe to raise and discharge water is different in principle of operation from a pump which raises water by the propulsive force of a jet of steam entering the lower end of the pipe below the surface of the water.

[*Scaife *vs.* Fulton's Sons & Co., 1164; *Scaife *vs.* Sheriffs and Loughrey, 1164.

(See Combination, 3; Construction of Claims, 12; Construction of Specifications and Patents, 7, 10; Copyright.)

INJUNCTION.

1. In an application for preliminary injunction where issues of fact are presented, supported on one side by affidavits, and contradicted by affidavits upon the other side, which thus neutralize each other, a motion for the allowance of such an injunction will be denied.

[*Beam *vs.* Orr *et al.*, 235.

2. It is a matter of discretion always with the court to issue an injunction or not upon a case made in a trade-mark suit.

[*Tucker Manufacturing Company *vs.* Boyington, 455.

3. A decision on a preliminary application for an injunction is not of controlling right in another circuit, as was held in the *Sargent Manufacturing Company* vs. *Woodruff*, (5 Bissell, 444.)

[*Cornell *vs.* Littlejohn, 837.

4. A decision on a preliminary application for an injunction is not of controlling weight in another circuit.

[*Ibid., 922.

INTERFERENCES.

1. The issue in interference cases is which party first made the invention. Such invention must be patentable, and something perfected and adapted to use.

[Dana *vs.* Greenleaf and Adams, 198.

2. An application for reissue can be properly put in interference with a patent granted prior to the filing of the original application.

[Carroll *vs.* Morse, 453.

3. An interference in trade-mark cases can properly be declared, and proceedings had in the Patent Office, in accordance with the usual practice governing interference cases between applications for patents.

[Lauts Brothers & Co. *vs.* Shultz & Co., 791.

4. In an interference proceeding, where parties are allowed in their preliminary statements to fix and determine the date of their invention or conception thereof, it is proper that they should be restricted to a substantial adherence thereto.

[Walpuski *vs.* Jacobsen and Faber, 964.

5. In an interference proceeding, the question of novelty should first be disposed of, and when that question is raised it controls the matter of jurisdiction of the Commissioner of Patents in adjudicating upon the rights of the parties.

[Bennage *vs.* Phillippi *et al.*, 1159.

(See Estoppel; Evidence, 1, 3, 5, 8, 13, 14; Practice in Patent Office, 2, 4, 5; Priority of Invention; Reduction to Practice.)

INVENTION.

1. Mere change of material used in the construction of devices is not invention; it is only the exercise of mechanical judgment, and hardly adds enough to the domain of knowledge to raise the person to the dignity of an inventor who first thought of making such a change.

[*Putnam *vs.* Yerrington, 689.

2. The mere carrying forward of an original conception patented — a new and more extended application of it—involving change only of form, proportions, or degree, the substitution of equivalents doing the same thing as did the original invention, by substantially the same means, with better effects, is not such invention as will sustain a patent.

[*Ibid., 689.

3. It is the invention of what is new, and not the arrival at comparative superiority, or greater excellence in that which was already known, which the law protects as exclusive property, and which it secures by patent.

[*Ibid., 689..

4. An incomplete conception of a device or merely conceiving that a thing might be done, and showing but partly how it may be done does not constitute invention, as defined by either the courts or the Office.

[Gordon *vs.* Withington, 1009.

5. It is necessary to obtain the exact date of the earliest steps taken by an inventor in putting his invention into some tangible shape, or in communicating a knowledge of it to others.

[Ibid., 1009.

6. Congress alone has the power to invest an individual with an invention after the same has become public property.

[Mason, I. L., 1196.

(See Claims, 1; Designs, 1; Employer and Employee; Reduction to Practice, 3.)

JOINDER OF INVENTIONS.

1. If the devices embraced in the claims relate to the improvement of the whole machine in which they are used, enhancing its value and increasing the demand for it, all being confined to one machine, they should be allowed in one application.

[Clinton and Knowlton, 249.

2. In an application for a patent for a process or composition of matter, it is not proper to make separate claims including less or more than the composition described.

[Loeser, S. and L., 837.

3. Where one ingredient of the composition is omitted in one of the claims, the composition is so changed as to become the subject of a separate application.

[Ibid., 837.

4. It is competent for the applicant to embrace in one application two or more improvements on the same machine, when such improvements contribute to the general result to be accomplished.

[H. C. Sargeant, 963.

5. The question to be considered is whether the machine, as a whole, has been improved by the particular device or combination of devices that aid in a better manner to produce the results for which the machine, as a whole, is designed.

[Ibid., 963.

6. If it is denied that such improvement has been made, the objection goes to the merits, and an appeal may be taken to the Examiners-in-Chief.

[Ibid., 963.

(See Combination, 1.)

JOINT INVENTION.

1. A person having sworn that he was a joint inventor with others in an invention for which an application for a patent had been filed must show very clearly and conclusively to the Office that he was in error and misled when he made such oath, and by other testimony than his own oath.

[Shaw *vs.* Keith, Shaw and Videto, 641.

2. The presumption is against a party filing a second application as sole inventor who had joined with others in filing a joint application.

[Ibid., 641.

3. In a joint invention, the result of mutual suggestions, counsel, and effort, all the parties are entitled to share, and the Office will not divide the invention and parcel it out to and between the several parties who have been employed upon it.

[Ibid., 641.

4. Where a patent has issued to joint inventors, and more than two years have elapsed since the issue of such patent and the filing by one of the joint inventors of a separate application for a patent, and claiming to be the sole inventor of the device claimed and described in the joint patent: *Held*, that the public use and sale of such invention by the joint patentee with the knowledge and consent of the alleged sole inventor, will preclude him from obtaining a patent upon his sole application.

[Barsaloux, J., 883.

5. Unless it is conclusively proven that an invention is a joint one the Office will not take notice of an allegation made to that effect. A mere suspicion will not warrant the Office in rejecting a sole applicant under such an allegation.

[Barnes *vs.* Clinton, 1158.

JURISDICTION.

(See Annulling Patents, 6; Interferences, 5; Statute of Limitation.)

LABELS.

1. A print made up of a combination of colors, figures, and words, adapted in their use to any goods or merchandise can be properly registered as a label.

[Schumacher *vs.* Ettlinger, 594.

2. The fact that such prints are sold to others who may apply them to articles of manufacture should not deprive the applicants of the right to the exclusive manufacture of the prints produced by them.

[Ibid., 594.

LACHES.

(See Diligence.)

MASTER'S REPORT.

(See Pleading and Practice.)

MECHANICAL SKILL.

(See Employer and Employee; Invention, 1.)

MODEL.

(See Evidence, 12; Experimental Use, 2; Practice in Patent Office, 13; Priority of Invention, 1; Reduction to Practice, 3; Reissue, 10, 12.)

NEW APPLICATION.

(See Abandonment, 8.)

NEW MATTER.

1. By new matter is not meant merely the introduction of a new ingredient, in a patented composition, but any change in the original specification and claim, whereby a new and substantially different composition and results are secured.

[*United States and Foreign Salamander Felting Company *vs.* N. A. Haven, 253.

2. New matter is such an enlargement of the original specification or claims as to include combinations or results which did not necessarily flow from the invention, as originally stated and described.

[*Putnam *vs.* Yorrington, 689.

3. An inventor is entitled to all the uses to which his patent may be applied, and to all the beneficial results which legitimately follow the use of his instrumentalities, as shown by the statement of his invention, and the figures used to illustrate it; and such uses and results may be stated and described in an application for reissue by the inventor, without subjecting himself to the imputation of incorporating new matter.

[*Ibid , 689.

4. A reissued patent must be for the same invention as the original, containing no new matter.

[*Ibid., 689.

5. It is not meant by this that no new or different language should be employed.

[*Ibid., 689.

(See Practice in Patent Office, 9, 11, 13; Reissues, 2, 4.)

NOVELTY.

1. Where devices shown in references given in the rejection of a case perform the same function as those contained in the pending application, a mere change of form of the intermediate portions of such device do not change or affect the result produced and claimed.

[Richards, I. C., 1062.

2. A rubber eraser, one end being of wedge shape, its opposite end pointed, while the body or central portion of the same is square or polygonal, is fully met by a reference to the similar construction of the opposite ends, connected with a cylindrical body.

[Ibid., 1062.

(See Double Use; Estoppel, 2; Infringement; Interferences, 5.)

PATENTABILITY.

1. Mechanism taken from a wringing-machine and applied to a leather-crimping machine, with a change in adaptation or construction fitting it for a new function is patentable.

[Farnsworth *vs.* Andrews, 195.

2. An imperfect and incomplete invention, resting in theory on an intellectual notion, or in uncertain experiments, and not actually reduced to practice, and embodied in some distinct machinery, apparatus, manufacture, or composition of matter, is not patentable.

[Lay *vs.* Ward, 349.

3. Where device claimed, though similar in form to a reference, is of more simple construction, less expensive material, dispenses with a feature essential to the reference cited, and differs in its mode of attachment: *Held*, that a patentable difference exists.

[C. H. Davis, 537.

4. In a lamp-chimney and globe the change may not be great, compared with old forms; but if such change tends to produce a new result, it is patentable.

[T. B. Atterbury, 640.

5. Where the simpler means consist in the substitution of one mechanical equivalent for another, the difference is not patentable.

[Bouscay, E., Jr., 743.

6. Where a new and better result is accomplished by a change in the position of old elements, and in the formation of some of them, or if the result is the same, and the means improved, the improvement in either case is patentable.

[Ibid., 743.

7. Mere change of location is not patentable; but where change of location brings into existence a new combination of devices, operating by reason of such new combination to produce a new and useful result, such new combination is patentable.

[*The Gilbert and Barker Manufacturing Company *vs.* The Walworth Manufacturing Company, 746.

8. A business-card cut in the shape of an article of merchandise, such as a hat, gloves, boots, &c., with the name of the dealer in such articles printed upon it is anticipated by business-cards printed in public newspapers, as well as in the form of tablets of like configuration, and is not the proper subject of a patent.

[Lavees, G. W., *et al.*, 921.

(See Interferences, 1; Principle; Process, 4, 5, 6.)

PATENTS.

1. Two *valid* patents for the same invention cannot be granted to the same party. It has been determined by the courts that the one last granted is void.

[Cottrell, C. B., 495.

2. A patent having been granted, the inventor has fulfilled all the requirements of the law, as connected with his application, by imparting a full and complete knowledge of his invention to the public.

[Busha *vs.* Phelps and Edmunds *et al.*, 1010.

3. A patent for a useful invention is not, under the laws of the United States a monopoly, in the old sense of the common law.

[*The Attorney-General upon the relation of George V. Hecker *vs.* The Rumford Chemical Works *et al.*, 1062.

4. It more nearly resembles a contract which, under the authority conferred by the constitution, Congress authorizes to be entered into between the Government and the inventor, securing to him, for a limited time, the exclusive enjoyment of the practice of his invention in consideration of the disclosure of his secret to the public, and his relinquishment of his invention to the public at the end of the term.

[*Ibid., 1062.

5. An American patent will expire at the same time with the foreign patent granted to the same party, or parties, but will not exceed the term of seventeen years.

[*Weston *vs.* White *et al.*, 1196.

6. The date of publication of the foreign patent is to be the date from which to determine the life of an American patent.

[*Ibid., 1196.

PLEADINGS AND PRACTICE.

1. In this case the question of infringement had been settled in favor of plaintiffs, and reference to a master to report the amount of damages sustained by plaintiffs for the use by the defendants of their invention. The master in his report bases his opinion upon the productive capacity of the machines employed: *Held*, that the calculations should have been made on the *actual production* of such machines of the article manufactured.

[*Webster *et al.* *vs.* The New Brunswick Carpet Company, 203.

2. The court cannot take notice of what was not set up in answer as against plaintiff's patent.
[*United States and Foreign Salamander Felting Company *vs.* N. A. Haven, 253.

3. A rehearing may be granted at any time before final decree.
[*Reeves *vs.* Keystone Bridge Company, 885.

4. The practice to ask for a rehearing is by petition to court for leave to file a supplemental bill, setting forth the newly-discovered evidence, and for a rehearing of the cause at the time when the supplemental bill may be ready for hearing.
[*Ibid., 885.

5. The defendants must satisfy the court that the omission to produce the evidence is not due to any negligence on their part.
[*Ibid., 885.

6. The new evidence must be material.
[*Ibid., 885.

7. A plea alleging that the defendants had a license to practice complainant's invention unless established by the proofs will not be sustained.
[*Tilghman *vs.* Hartel and Letchworth, 886.

8. In a proceeding in equity where the answer to the bill is filed and sworn to by defendants, and replication filed by complainants, and proofs taken and closed upon the issues raised: *Held*, that a motion to amend answer by interposing one or more new defences will be denied.
[*Webster Loom Company *vs.* Higgins *et al.*, 965.

9. Where a bill in equity was filed, in case of infringement of reissued letters patent, to which answer was made by respondents, and complainant closed his *prima facie* case by taking proofs, it was: *Held*, that such complainant would be allowed to file a subsequent bill, for infringement of the letters patent after the *filing* of the first bill of complaint.
[*Turrell *vs.* Spaeth and Gaelicker, 1163.

10. In such proceedings the testimony taken in the first proceeding, so far as relevant, should be allowed to be used and considered in the subsequent proceedings.
[*Ibid., 1163.

(See Annulling Patents; Contracts; Damages; Injunctions; Statutes of Limitation.)

PRACTICE IN PATENT OFFICE.

1. The order of the Commissioner suspending action upon the case is not a final adjudication of the same, but on the contrary implies further action.
[Stephen Hull, 1.

2. The Examiner of Interferences is the tribunal before whom an interfetence is originally to be heard, whether the issue is defined by the Primary Examiner in charge of the class, or by the Commissioner in person.
[Farnsworth *vs.* Andrews, 195.

3. The matter in dispute between the parties being determinable upon the issue as at first declared, and the testimony then taken, the hypothetical case and testimony taken thereon is ignored.
[Ibid., 195.

4. The general tenor of decisions in the Patent Office do not show one rule of practice for the Office and another rule for the courts in interference cases when founded upon the same law, and the same class of questions that may arise.
[Dana *vs.* Greenleaf and Adams, 198.

5. Great weight is attached to the concurring opinion of the Examiners-in-Chief and the Examiner of Interferences when the issues are solely questions of fact.
[Berry *vs.* Stockwell, 404.

6. The relations of these tribunals to the Commissioner of Patents are analogous to those existing between courts, where each is judge both of the law and the facts.
[Ibid., 404.

7. Where a caveat and an application for a patent were filed upon the same day, and for the same invention, by different parties, the Office will presume that they were filed simultaneously, and the caveator notified under the provisions of the law.
[I. Essex, 497.

8. It is the duty of the Commissioner to refuse to issue a patent when it is within his knowledge that any statutory bar exists to such issue, or that the patent would be invalid if issued.
[Smith *vs.* Perry *et al.*, 688.

9. Objections, as to new matter in a reissue, and to the character of a combination, relate to the merits, and are not proper subjects of interlocutory appeal.
[Keith, I., 744.

10. *Reasons* given by the Examiner that go to the merits of the case for his rejection cannot be brought before the Commissioner of Patents on interlocutory appeal. The remedy is by appeal to the Examiners-in-Chief.
[David Edward, 794.

11. Under the last clause of section 4916 R. S., in application for reissue, the proof there required should be submitted to the Commissioner in person. If the proof is satisfactory the amendment will then be examined in the usual manner.
[Isaac Winslow, 795.

12. It has become the established practice of the Office, when both of the lower tribunals have agreed upon a statement of facts, not to overthrow their decisions thereon unless such decisions are clearly at variance with the testimony.
[Walpuski *vs.* Jacobsen and Faber, 964.

13. In amending original applications it will not be considered as the introduction of new matter, if the subject is embraced either in the model, drawing, or specification, and the amendment can be so made as to conform to that one which does contain the additional feature.
[I. F. W. Dorman, 1061.

14. Olney and four other parties were in interference with patents of Martin as well as each other. The Examiner of Interferences dissolved the interference so far as the proceedings affected the patents of Martin. Olney took an appeal to the Commissioner of Patents: *Held*, upon proof, that Olney had assigned all of his interests in his pending case to the "Equitable Gas Light and Construction Company," who are the sole owners of Olney's invention, that the appeal was improperly taken by him.
[Martin *vs.* Olney *et al.*, 1107.

15. The Office cannot recognize a merely equitable interest that is contingent upon the issue of letters patent. Such an interest can only be enforced by a court of equity after the patents are granted.
[Ibid., 1107.

16. Where an appeal is taken to the Examiners-in-Chief from the decision of the Examiner upon the question of novelty, in view of references cited, which references were decided by Examiners-in-Chief as not anticipating the conditions of "the claim," such case being remanded to the Examiner for further consideration by the decision of the Board that such invention was "not of sufficient importance to warrant the grant of a patent: "*Held*, that the Examiner should have considered and reported upon the specific points raised by the Board only, and that the consideration of the case *de novo* by the Examiner and the Board was unauthorized, and that the question of novelty was *res adjudicata*.
[D. M. Kirkbride, 1109.

17. Whether a claim is for a patentable combination is a question going to the merits and not to the subject of an interlocutory appeal.
[F. L. Ellis, 1110.

(See Abandonment; Claims; Combinations; Designs; Employer and Employee; Estoppel; Evidence; Foreign Patents; Interferences; Invention; Joinder of Invention; Joint Invention; Labels; Novelty; Patentability; Patents; Printed Publication; Priority of Invention; Process; Reduction to Practice; Reissues; Renewed Application.)

PRELIMINARY STATEMENT.

(See Interferences, 4.)

PRINCIPLE.

1. There can be no patent for a principle; but for a principle so far embodied and connected with corporeal substances as to be in a condition to act and to produce effects in any trade, mystery, or manual occupation, there may be a patent.
[*Andrews *vs.* Carman, 1011.

2. A chance operation of a principle unrecognized at the time, and from which no information of its existence and no knowledge of a method of its employment is derived, will not be sufficient to defeat the claim of him who first discovered the principle, and puts it to a practical and intelligent use.
[*Ibid., 1011.

(See Process, 5.)

PRINTED PUBLICATION.

1. A pattern-book, without any descriptive matter contained in it, cannot be regarded as a printed publication such as is contemplated in the Revised Statutes, as being a bar to the issue of a patent.
[Atterbury, T. B., 640.

2. There must be a *description*, in some *public work*, of the device sought to be patented, to warrant a rejection upon it, not leaving to mere inference to determine whether such a reference is a public work, or a private publication merely for private circulation.
[Ibid., 640.

(See Foreign Patents, 2; Infringement, 1; Use in Foreign Country.)

PRIORITY OF INVENTION.

1. Where the testimony shows that a model of the alleged invention was made in 1872, but not produced or preserved, it is: *Held*, that an application for a patent, made by parties in July, 1874, for a similar invention, and in a form capable of use, would defeat an application filed two weeks later, and that the last applicant was guilty of neglect in the prosecution of his case before the Office.
[Dana *vs.* Greenleaf and Adams, 198.

2. No doctrine is better settled than that the subsequent inventor who perfects his invention and adapts it to use, while one prior to conceive is unreasonably delaying, is in contemplation of law the original and first inventor, and entitled to a patent for the invention.
[Lay *vs.* Ward, 349.

3. In determining the issue of priority the only question is who was the first to conceive the device and embody it in a complete form, capable of producing the result sought to be accomplished.
[Lagowitz *vs.* Topham, 742.

4. An incomplete invention is not in itself sufficient to establish priority as against a patent either in the courts or the Patent Office.
[Freeborn *vs.* Foye, 884.

5. A patentee if first to conceive the invention, and first to apply for and obtain a patent, if diligent, entitled to priority as against one later to conceive but first to reduce the invention to practice.
[Ibid., 884.

(See Evidence, 4, 5, 6, 15; Use in Foreign Country)

PROCESS.

1. The application of an old process of preserving articles of food to an article which it is not shown has ever before been so treated is not a proper subject for a patent.
[Howell, W. H., 921.

2. Where such a process has always been regarded of general application to vegetable and animal substances, it has by virtue of its publicity become public property.
[Ibid., 921.

3. It was never the design of the patent law to grant a separate patent to every possible application of a process. To do so would be a fraud upon inventors and the public alike.
[Ibid., 921.

4. The process for obtaining water by driving a rod into the ground, without removing the earth upward, and attaching to it a pump, has utility, and is patentable.
[*Andrews *vs.* Carman, 1011.

5. This process puts to a practical use the new principle of forcing water, in the water-bearing strata of the earth, from the earth into a well-pit by the use of artificial power applied to create a vacuum in the manner described. This idea or principle, though new, is not by itself patentable. The idea, when made available by a method whereby it is put to a practical use, is patentable as a process, and is thus secured to the person who has conceived the idea and invented the process.
[*Ibid., 1011.

6. The elements of a process may be old, but when combined for the purpose of putting to practical use a new idea they constitute a new and useful process within the meaning of the patent law.
[*Ibid., 1011.

(See Joinder of Inventions.)

PROFITS.

(See Damages.)

PUBLIC USE.

1. Public use, in good faith, for experimental purposes while the inventor is perfecting his invention, and for a reasonable period even before the beginning of the two years of limitation, cannot affect the rights of the inventor.
[*Henry *vs.* Francistown Soap-Stone Stove Company, 406.

2. A patent may be defeated by showing that the thing secured by the patent had been invented and put into actual public use prior to the discovery of the patentee, however limited such use (other than experimental) or knowledge of the prior discovery may have been.
[*Boston Elastic Fabric Company *vs.* East Hampton Rubber Thread Company, 745.

3. The statute has made contemporaneous public use, with the knowledge and allowance of the inventor, a bar when it exceeds two years; but in the absence of that, and of any other colorable circumstances, we know of no mere period of time which ought, *per se*, to deprive an inventor of his patent.
[*Andrews *et al. vs.* Carman, 1011.

4. The fact that a patent has been issued does not of itself prove the introduction into common use without the necessity of other testimony.
[*Weston *vs.* White *et al.*, 1196.

(See Infringement, 1; Joint Invention, 4; Renewed Applications.)

REDUCTION TO PRACTICE.

1. A patentee who is the first to conceive an invention, first to make a model, the first to apply for a patent, and the first to obtain the grant, is not required to have put his invention to practical use before obtaining a patent.
[Busha *vs* Phelps and Edmunds, 1010.

2. Complete invention amounts to demonstration. It has passed the region of experiment, of possible or probable failure, and has arrived at certainty by being embodied in the form intended, capable of producing the desired results.
[Stephenson *vs.* Goodell, 1195.

3. A model alone, no matter how complete in details of construction, does not come within the operation of such a rule, (reduction to practice,) and does not afford such evidence of complete invention as will defeat a patent on the ground of want of novelty.
[Ibid., 1195.

4. The proper signification of the term "reduction to practice" can only be determined by reference to the idea which it is intended to convey.
[Ibid., 1195.

5. The concurrent opinions of the courts and this Office sustain this view, that reduction to practice can only be effected by the material embodiment of the invention in the form in which it is ultimately designed for use.
[Ibid., 1195.

(See Evidence, 9; Patentability, 2; Priority of Invention, 5.)

REHEARING.

(See Pleading and Practice, 3, 4, 5.)

REISSUES.

1. The legal rule is, that *prima facie* a reissue is for the same invention as that originally patented.
[*United States and Foreign Salamander Felting Company *vs.* Haven, 253.

2. Section 4916 of the Revised Statutes of the United States prohibits in a reissue not only the introduction of new matter, but also the enlargement of the original claim growing out of the subsequent advancement of the art. This rule controls both the Patent Office and the courts.
[*Ibid., 253.

3. The rule governing the Office in cases of reissue is the same as adopted by the courts, whether the application for reissue is for the same invention as the original patent disclosed; and it is for the Office to determine, by comparison of the patent and the application, if an attempt is made in the latter to enlarge the scope of the original invention.
[Aldrich *vs.* Evans, 407.

4. Where the nature of the invention described in the patent "is to produce perfectly true grooves or twists in auger or bit-blanks by means of adjustable traveling clamps or formers, which are moved in a direction with the length of a blank or twisted shaft during the rotation thereof, as will be hereinafter explained," the addition thereto in an application for a reissue of such patent that "it also has for its object to form or shape the cutting end or lips" is a separate and distinct invention, and "new matter" not proper to be introduced.
[Ibid., 407.

5. An application for reissue should not be examined in the light of the state of the art as it existed subsequent to the filing of the original application.
[Carroll *vs.* Morse, 453.

6. There are no decisions that would relieve this class of applications from the revision and restriction to which they would have

been subjected had the claims presented in the application for reissue been made in the original application.
[Ibid., 453.

7. When the invention, or any material part of it, is sufficiently described in the specification, but is not claimed, so as to be protected by the original grant, the proper remedy is to reissue the defective patent.
[C. B. Cottrell, 495.

8. It is a legitimate and important function of a reissue to modify or change the claims of the original patent, so as to cover the invention set forth therein.
[*Westinghouse *vs.* Gardner and Ranson Air Brake Company, 538.

9. Where letters patent issued, and the drawings attached to the patent did not include a figure or drawing filed with the original application—upon an application for reissue of such patent, claims can be based upon the figures or drawings originally filed, even if such figures or drawings had been canceled before the issue of such patent.
[Baldwin, C. W., 639.

10. The model might be a basis for reissue, although forming no part of the patent, and a drawing may as clearly show the invention as a model, and is as little liable to be tampered with.
[Ibid., 639.

11. The general tenor of the decisions of the courts is to the effect that an applicant for reissue should be entitled to make the corrections which he might properly have made after filing his original application.
[Ibid., 639.

12. The law of 1836 has been construed to authorize a patentee to claim on a reissue whatever shall clearly appear to have been a part of his original invention, as described or shown in his original specifications, drawings, or models.
[*Calkins *vs.* Bertrand *et al.*, 795.

(See Construction of Specifications and Patents, 6, 8, 10, 13; Evidence, 7; Interferences, 2; New Matter; Practice in Patent Office, 9, 11.)

RENEWED APPLICATIONS.

When a renewed application is filed for the same invention, the time of the two years prior use and sale is to be reckoned from the filing of the first application.
[*Heany *vs.* Francistown Soap-Stone Stove Company, 408.

(See Abandonment, 9.)

REPEAL OF PATENTS.

(See Annulling Patents.)

SCIRE FACIAS.

(See Annulling Patents.)

SPECIFIC PERFORMANCE.

(See Contracts, 3.)

STATUTES OF LIMITATION.

1. Although in ordinary actions at common law brought in United States courts, the statutes of limitation of the State where the suit is brought may be pleaded in bar, under the provisions of the judiciary act, such pleadings will not apply to an action for the infringement of a patent, where the right of action is exclusively under the constitution and laws of the United States, and when the form of the remedy is prescribed by the acts of Congress, and when the circuit courts of the United States are clothed by statute with exclusive jurisdiction over the whole subject-matter.
[*Anthony *et al. vs.* Carroll, 199.

2. Should the legislature of a State pass an act in express terms limiting the time for bringing an action in the Federal courts for the infringement of patent rights, there can be no reasonable doubt that such a statute would be unconstitutional and void.
[*Ibid., 199.

STATUTORY BAR.

(See Practice in Patent Office, 8.)

TERM OF PATENT.

(See Patents, 5.)

TRADE-MARKS.

1. Galvanized hoops placed on a liquor-barrel of dark color, to be used as a trade-mark, is not an original appropriation, and not sufficiently distinctive.
[Kane, E., & Co., 105.

2. The words imprinted upon a patented article of manufacture are common property from the date of the expiration of the patent.
[*Tucker Manufacturing Company *vs.* Boyington, 455.

3. When a trade-mark consists of a combination of words, letters, monograms, and pictures, it is not infringed unless the whole combination is used.
[*Ibid., 455.

4. The act of 1870 provides (as also the Revised Statutes) that any lawful trade-mark rightfully in use on the 8th day of July, 1870, might be registered.
[Rowe and Post, 496.

5. The courts in construing that act allowed the registration of the words "India Rubber Comb Co." as an exception to the general rule that prohibits the registration of the mere name of a person, firm, corporation, place, or article, or a word or words indicating kind or quality.
[Ibid., 496.

6. The original appropriation of such words, and the exclusive use of them for a long time upon a certain class of goods, had become known and recognized by the public and the trade.
[Ibid., 496.

7. The same state of facts do not exist in this application to register the words "New York Cutlery Co." as a trade-mark, and the general rule governing such cases is to be applied.
[Ibid., 496.

8. A word that is merely descriptive, and used in its ordinary signification cannot be registered as a trade-mark.
[Dundas Dick & Co., 538.

9. An exclusive use can never be successfully claimed of words in common use previously applicable to similar articles.
[Ibid., 538.

10. No property can be acquired in words, marks, or devices that denote only the nature, kind, or quality of the articles to which they are applied.
[Ibid., 538.

11. The word "star" and the well-known "figure" of a star are viewed in the light of a "trade-mark," substantially the same.
[American Lubricating Oil Company, 687.

12. If both the word and figure of a "star" were registered as a trade-mark the public would be misled by their use.
[Ibid., 687.

13. There is not between them such a sufficient distinctive individuality as to prevent the word and figure from signifying substantially the same thing when applied to any article upon which they are placed of analogous character, and would result in that deception which general resemblance is calculated to produce.
[Ibid., 687.

14. The law governing trade-marks, being engrafted upon the patent law in force at the time of its enactment, constitutes "statutes in *pari materia*," that may be regarded as one system.
[Lantz Brothers & Co. *vs.* Shultz & Co., 791.

(See Injunction, 2; Interferences, 3.)

USE IN FOREIGN COUNTRY.

An American patent cannot be avoided by previous knowledge and use of the same invention in a foreign country, unless it is proven that such invention had been patented in such foreign country, or had been described in some public work, anterior to the discovery thereof by the patentee in this country.
[Chambers and Mendham *vs.* Duncan, Wilson, and Lauder, *et al.*, 742.

OFFICIAL GAZETTE

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UNITED STATES PATENT OFFICE.

VOLUME X.

JULY 4 TO DECEMBER 27, INCLUSIVE,

1876.

WASHINGTON:
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ANNOUNCEMENTS—VOLUME X.

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DIGEST OF DECISIONS OF THE COMMISSIONER OF PATENTS AND OF U. S. COURTS IN PATENTS, TRADE-MARKS, AND LABELS.

ERRATA.

By a mistake of paging, the number of pages of the illustrations and claims were made to run consecutively with the last number of Vol. IX. Instead of pages "1245–75," read pages 9–40.

On page 1268, July 4, No. **179,593,** in title, for "reaping" read *harvesting.*
On page 1272, July 4, No. **179,633,** first claim, fourth line, for "above" read *alone.*
On page 50, No. **179,617,** first claim, after "such" insert comma (,) and strike out parentheses.
On page 51, No. **179,656,** in title, for "wheel" read *wheeled.*
On page 84, No. **179,886,** in title, for "fasteners" read *supporters.*
On page 94, No. **179,970,** assignee's name, for "Edison" read *Eidson.*
On page 101, No. **180,026,** in title, for "plaiting" read *platting;* and in first claim for "plai'ed" read *platted.*
On page 171, No. **180,412,** in title, for "sewing-machines" read *sawing-machines.*
On page 183, No. **180,517,** second claim, third and seventh lines, for "narrowest" read *narrowed.*
On page 184, No. **180,532,** assignee's name, for "Matchett" read *Machett.*
On page 226, No. **180,844,** assignee's name, for "Edwards" read *Eduardo.*
On page 266, No. **181,103,** in title, after "waters" insert *&c.*
On page 269, No. **181,126,** inventor's name, for "Adolph" read *Adolpf.*
On page 323, No. **181,459,** inventor's residence, for "Pultney" read *Pulteney.*
On page 353, No. **181,612,** in title, for "cover" read *corner.*
On page 367, No. **181,728,** inventor's name, for "Schon" read *Schou.*
On page 386, No. **181,802,** second claim, for "adjustable collar *c*" read *socket C.*
On page 400, No. **181,929,** assignee's name, for Joseph T." read *Joseph F.*
On page 409, No. **181,990,** in title, for "winches" read *wrenches.*
On page 434, No. **182,075,** inventor's name, for "Jayna" read *Jaqua.*
On page 453, No. **182,211,** in title, for "regenerative" read *regenerator.*
On page 481, No. **182,333,** after fifth claim, insert—
6. *In combination with the air-compressing chamber A B, the tubes I and K, journal-box C, airway in journal-box, exit-pipe N, and double-seated valve J, all arranged and operating substantially as described and set forth.*

Number sixth claim 7.
On page 492, No. **182,430,** in title, for "straw-cutters" read *slicing-machines.*
On page 522, No. **182,586,** in title, for "rakes" read *rakers.*
On page 552, No. **182,748,** second claim, fifth line, for "talcky" read *tacky.*
On page 593, No. **182,989,** inventor's name, for "Millvion" read *Milliron.*
On page 615, No. **183,163,** inventor's name, for "Hagerty" read *Hegerty.*
On page 622, No. **183,211,** first claim, third line, for "or" read *n.*
On page 625, No. **7,338,** (reissue,) erase claims and insert the following:
1. *The combination of elastic packing and double tongues and grooves in the seam between the door and jamb, for the purposes specified.*
2. *The combination of the packing and tongues and grooves with a door swung on hinge-connections allowing of two motions, for the purposes specified.*
3. *The combination, with the safe-door, two motion hinge-connections, and lever or leverage, of a bar or shaft, K, and mechanism connecting it with the door, for the purposes specified.*
4. *In combination, the safe-door, the packing, the lever or leverage specified, and two-motion hinge connections.*
5. *In combination, the lever or leverage specified, two-motion hinge-connections, and tongue-and-grooved safe-door and jamb.*
6. *In combination, the lever or leverage specified, two-motion hinge-connections, packing, and tongue-and-grooved safe-door and jamb.*
7. *The combination, with the safe-door, two-motion hinge-connections, bar or shaft K, and lever or leverage, of means for holding the front edge of the door closed, substantially as set forth.*

On page 653, No. **183,121,** inventor's residence, for "Bridgeport" read *Bridport.*
On page 680, No. **183,592,** inventor's name, for "Prott" read *Pratt.*
On page 689, No. **183,663,** assignee's name, for "Wegoforth" read *Wegefarth*
On page 716, No. **183,798,** first claim, first line, for "Q" read *R;* second line, strike out "in a rotary direction."
On page 732, No. **183,919,** first claim, second line, for "jacks" read *tacks;* fourth claim, second line, for "or" read *of;* eighteenth claim, sixth line, for "are" read *is.*
On page 801, No. **184,268,** fourth claim, third line, for "reversibly" read *reversely.*

On page 811, No. **184,356,** number present claim 1, and insert after claim 1 the following:
2. *The flat coil of steam pipes B, supported at an inclination above the sand-floor b and drip-pipe c, for the purpose of supporting a series of flasks, and heating the chill contained in the drag-frame of each flask, substantially as described and shown.*

On page 816, No. **184,397,** in heading, for "half" read *fourth.*
On page 840, No. **184,516,** inventor's name, for "Flatau" read *Flatau.*
On page 895, Nos. **184,874,** and **184,875,** inventor's name, for "Kleinan" read *Kleinan.*
On page 955, No. **185,210,** inventor's name, for "Carricaburn" read *Carricaburn.*
On page 958, No. **185,238,** in title, for "Racks" read *Boxes.*
On page 977, No. **7,423,** (reissue,) inventor's residence, for "State Hill" read *Slate Hill.*
On page 979, the following: Correction.—In the Acting Commissioner's decision in the case of Carmichael, p. 864 of OFFICIAL GAZETTE of this volume, in citing the opinion of the United States Supreme Court in the case of *Jacobs* vs. *Baker* (7 Wall., 295,) it was stated that the patents of Jacobs were sustained. This was a mistake. Although the patentability of the subject-matter was assumed, it was held upon the evidence that Jacobs was not the original inventor of those improvements.
On page 987, No. **185,381,** in title, before "book" insert *revolving.*
On page 1016, No. **185,613,** assignee's name, for "Wood" read *Hood.*
On page 1034, No. **185,712,** in title, after "bricks" insert *&c.*
On page 1036, No. **185,725,** in heading, after "Illinois" insert *Leroy C. Chambers, administrator.*
On page 1039, No. **185,749,** inventor's name, for "Laurence" read *Lawrence.*
On page 1048, No. **7,448.** (reissue,) in title, after "silver" strike out "and;" second claim, strike out "metallic lead ore," and after "silver" insert *from argentiferous lead ores.*

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OFFICIAL GAZETTE

OF THE

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JULY—DECEMBER—1876.

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[By a mistake of paging, the numbers of pages of the illustrations and claims were made to run consecutively with the last number of Vol. IX. Instead of pp. 1245–75, read pp. 9–40.]

COMMISSIONER'S DECISIONS.

P. G. WEAVER.—*Trade-Mark.—Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Philip G. Weaver for registration of a Trade-Mark for Medicines.—Decided June* 6, 1876.]

The designation "Lion," whether expressed pictorially or by the written or printed word "lion" is a proper subject for a trade-mark, and should be treated as one trade-mark.

[*James A. Whitney*, attorney for Weaver.]

DUELL, *Commissioner:*

The Examiner has refused to register applicant's trade-mark because of its indefiniteness, and insists that the specification should describe *a fixed invariable symbol.*

The trade-mark sought to be registered is said to consist of the designation "Lion," whether expressed pictorially or by the written or printed word "lion," used as a trade-mark for medicines, for the cure or alleviation of fever and ague and other diseases of like or analogous character.

This my trade-mark, I arrange as shown in the accompanying drawing. The word "lion" placed above the pictorial representation of a lion, and the words "fever and ague cure" beneath the figure.

He afterward states that either the word "lion" or pictorial representation of the lion may be used alone or both together to constitute the trade-mark, which latter is the preferred manner of representing it; that the trade-mark consists in the term or designation "Lion," as applied to the class of remedies specified.

From the language employed it would seem that the applicant designs registering a "term or designation," whether expressed in either of these ways.

The statute prohibits the receiving and recording of any proposed trade mark which is not and cannot become a lawful trade-mark, and the question here presented is whether the applicant has described a lawful trade-mark.

In the case of *Morrison et al.* vs. *Case et al.*, (2 OFFICIAL GAZETTE, 544,) Judge Shipman passed upon and sustained a trade-mark which was received and registered in this Office in precisely the same form as the present.

In that case the trade-mark "The Star Shirt" was expressed in words alone, or accompanied by a star, or by substituting the figure of a star for the word, and the court determined that they constituted one and the same lawful trade mark.

No difference in principle is discernible between that and the case now before me. If the one was a lawful trade-mark as registered no reason is seen why the other should not be so considered.

The Examiner's decision is accordingly reversed.

J. S. WARREN.—*Interlocutory Appeal.*

[*In the matter of the application of John S. Warren for reissue of Letters Patent No.* 154,733, *for* "IMPROVEMENT IN PAPER-PULP SCREENS."—*Decided June* 15, 1876.]

A claim in the original patent (suggested by the Office by mistake) descriptive of a feature not shown in the drawing or model, and inconsistent with the specification, cannot be allowed in a reissue.

The right to open the case of a reissue application to new parol testimony is not admissible, except in special cases referred to in section 4916 Revised Statutes.

[*W. H. Oliford*, for appellant.]

DOOLITTLE, *Assistant Commissioner:*

In the origioal patent the claim is as follows:

The revolving cylinder Q, formed of segment-plate of a larger circle than the completed cylinder, united at their edges and working in connection with the screen K L P, which revolves in a contrary direction, thus producing a pulsating current, the whole operating in the vat A, substantially as described.

The language in this claim alleging that "the screen K L P revolves in a contrary direction to the revolving cylinder," is descriptive of a feature which the Examiner objects to. That the cylinder and screen re-

volve in opposite directions is admitted by the attorney as not being shown either by the model or drawing, and not alluded to in the specification. The claim, however, was suggested by the Examiner in charge of the class, to which this invention belongs, at the time the patent was granted.

At the hearing I intimated that the fact of the Office having suggested such a claim was *prima facie* evidence of its being consistent with the balance of the application; and, that if, upon investigation I found such to be the case, this application would be allowed. Upon making this investigation I find that the operation above mentioned of the cylinder Q and the screen K L P revolving in contrary directions, is entirely inconsistent with the model and drawing, and with the description given of the same in the body of the specification.

The model and drawing show the cylinder and screen revolving in the same direction, and the arrangement of the gearing and other mechanism admits of no other motion. Besides, the Examiner who had charge of the case at the time admits that the suggestion of such a claim was an inadvertence on his part, and ought not to have been allowed; that there could have been no possible ground for allowing the same upon the specification, model, and drawing presented; and he is of opinion that he intended to suggest the phrase "revolving with different velocities" instead of the phrase "revolves in a contrary direction." That the cylinder and screen do revolve with different velocities is quite apparent from the description given in the specification and by the operation of the model.

The only inadvertence, then, in this patent that should be corrected, is the error committed by the Office; and to render the patent a valid one, the matter in question should be stricken out of the claim instead of now being allowed and enlarged upon.

The applicant should disclaim the feature alluded to, and perhaps the same can be made the subject of a separate application. If as important as the applicant contends, there is certainly a patentable difference between the operation of the devices shown in the original specification, drawing, and model and that which is now attempted to be embraced by this reissue.

Affidavits are submitted to show that the machine, as made before the filing of the application, was the same in construction and operation as set forth in the claim.

But it has been held by the highest authority that the right to open the case of a reissue application to new parol testimony is not admissible, except in certain special cases, now mentioned in the last clause of section 4916 Revised Statutes. *Seymour* vs. *Osborne*, (11 Wall., 516.)

The decision of the Examiner is affirmed.

I. L. PULVERMACHER.—*Interlocutory Appeal.*

[*In the matter of the application of Isaac L. Pulvermacher for reissue of Letters Patent No.* 120,772, *for* "IMPROVEMENT IN ELECTRO-GALVANIC CHAINS."—*Decided June* 17, 1876.]

Where a patent is made up of several distinct inventions, subjects of several foreign patents, two of which have expired, the devices covered thereby may be eliminated from the American patent either by reissue or disclaimer.

Doubted whether the applicant is compelled in his reissue or disclaimer to discard the subject of the English patent forfeited by the non-payment of an English tax.

In the absence of any controlling authorities on this point applicant permitted to exercise his pleasure in regard to the same.

[*Dodge & Son*, for applt.]

DOOLITTLE, *Assistant Commissioner:*

In this case the American patent was made up of separate and distinct inventions, each of which was the subject of an English patent. It appears that one of these English patents has expired by limitation of law, and another by reason of forfeiture in consequence of non payment of an English tax.

The applicant now asks that his patent may be reissued in divisions, omitting the devices covered by the expired and forfeited foreign patents.

The Examiner's position is as follows:

I have taken the ground that there can be no partial expiration of a patent grant—*i. e.*, that there can be no such thing as one part of a patent expiring, and another, or other portions, remaining alive. Circumstances may show that a part is invalid while the remainder is valid, but such circumstances never affect the period of the grant; that is a distinct unit, determined by the law. If this view is correct, then Pulvermacher's patent expired in 1875 and there can now be no reissue thereof.

The question involved is a new one in Office practice, but it does not appear to me difficult of solution.

Our patent law, by express provision, preserves to an inventor that part of his invention which is truly and justly his own, although portions of what he originally claims as his invention may belong to others, and the patent embracing such invention be therefore defective, inoperative, or invalid, in part. Two modes are prescribed by law by which a patentee is enabled to correct his patent, and to protect himself in that to which he has a just and perfect title.

The first remedy is by reissue. This remedy proceeds upon the ground that the application for the reissue of the patent can be corrected, revised, and restricted in the same manner as the original application therefor; so that upon examination, if the Office or the patentee finds that there is included in the patent matter which constitutes a separate and distinct part of the original subject, and which is found to have been old at the time the original application was filed, but by inadvertence was allowed to be claimed by the patentee, such matter can be stricken from the patent and the inventor be granted a new patent for that which legitimately belongs to him.

The second remedy is that of disclaimer. When a patentee finds that he has claimed more than that of which he was the original and first inventor or discoverer, or that for other reasons he has no right to claim, or to hold a certain device by virtue of his patent, he may file a disclaimer of such part, and his patent will be valid for that which remains, provided the same is a material or substantial part of the thing patented.

These remedies are set forth at length in sections 4916 and 4917 Revised Statutes, and either remedy may be adopted in this case as applicant may elect. If he desires to reissue and divide his patent, the English expired patents may be considered in the light of references which meet those distinct and separate parts which were the subjects of said patents.

Or, the patentee, setting forth the fact of such English expired patents, may disclaim the subject-matter thereof as being that for which he does not choose to longer claim or to hold by virtue of his original patent.

In view of these provisions, I am of the opinion that the Examiner's position, that there can be no partial expiration of a patent, is incorrect.

I am not prepared to say that the applicant is compelled in his reissue, or disclaimer, to discard the subject of that English patent which has been forfeited by the non-payment of the tax required by the English law. The provision of our statute which declares that every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with a foreign patent, appears to alone create a limitation as to the full prescribed term, without regard to local laws upon which matters may arise after such term has commenced to run, affecting (temporarily, perhaps) its continuance.

In the absence of any controlling authorities upon this point, the applicant will be permitted to exercise his pleasure in regard to the same.

The decision of the Examiner is reversed.

C. O. SOBINSKI.—*Interlocutory Appeal.*

[*In the matter of the application of Carl O. Sobinski, for letters patent for* "CRADLES AND FAN ATTACHMENTS FOR SAME."—*Decided July* 7, 1876.]

DIVISION OF APPLICATIONS.

DOOLITTLE, *Acting Commissioner:*

The application in question embraces an improved fan attachment for cradles, and also an improved locking device for holding the cradle stationary.

Each device is made the subject of a separate claim, and neither is described or claimed in combination or as co-operating, or specially adapted to each other.

Each device, therefore, is an independent invention, separably applicable to all cradles, and performing no joint improvement or result when used together.

The recent decisions of the Office upon the question of division of applications, do not go to the extent that separate devices or combinations of devices, that have no community of operation in effecting a common result, may be incorporated in the same application. *Clinton* vs. *Knowlton*, (9 OFFICIAL GAZETTE, 249.)

This question is generally one of difficulty, but, in this instance, it appears perfectly clear to me that a division should be required.

The decision of the Examiner is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

HUGO CARSTAEDT *vs.* THE UNITED STATES CORSET COMPANY.

[This is a supplementary proceeding to the former decision in same case that was printed in the OFFICIAL GAZETTE, January 25, 1876, p. 151.]

The defendants, having made certain changes in the construction of devices that infringed the rights of plaintiff, seek to avoid the force and effect of an injunction.

The court gives its construction of the new devices employed, and that they are "ingenious attempts to escape from the second claim of the patent," upon which suit is brought.

[*J. Van Santvoord*, for plaintiff.
Geo. Gifford, for defendant.]

MOTION FOR ATTACHMENT FOR CONTEMPT.

SHIPMAN, *J.:*

This court passed a decree, on September 10, 1875, enjoining the United States Corset Company from further infringement of the second claim of reissued letters patent granted to the plaintiff on November 19, 1872, for "an improvement in the take-up mechanism for looms for weaving irregular fabrics."

The plaintiff has now brought a motion for an attachment against James Lyall, one of the officers of said company, for violating the injunction which was issued upon said decree.

The portion of the patented improvement which is referred to in the second claim, consisted, as stated in the specification—

In a series of needles or points arranged upon a stationary bar in such relation to the take-up rollers that the fabric is continually carried across said needles, to be received by their points, and to be arrested when a reverse motion of any part of the fabric is commenced.

The mechanism is thus described:

K is a cross bar immediately behind the roller C, and provided with a series of needles, *k k*, in its lower edge, which catch in the goods and prevent its being drawn backward, under any circumstances, when the take-up mechanism releases it.

The second claim is for—

The needles or points, *k k*, fixed in a stationary bar, and arranged as specified, so that the fabric being drawn by the take-up proper is continually carried across the needles to be received by their points, and to be arrested when a reverse movement of any part of said fabric is commenced, substantially as herein set forth.

The result of this improvement, which, it is said, in the opinion of the court upon the final hearing, was "the arresting of the fabric when it is released from the tension of the take-up, and so holding the cloth that it is prevented from doubling up in the center," was previously unattained in corset-weaving.

The defendants have modified their needle-bar since the injunction was issued, so that it now consists of a number of small independent needle-rollers mounted upon a fixed shaft, which runs across the width of the cloth in the same position and relation to the take up which the shaft had before.

Each of these rollers rotates forward toward the take-up, or in the direction of the cloth when the cloth is being moved forward and taken up by the take-up mechanism, but the rollers are prevented from moving backward when the reed recedes and the tension of the take-up is relaxed by a ratchet and pawl applied to each roller. Each roller then becomes stationary, arrests the fabric when a reverse movement has commenced, and prevents the cloth from being drawn back when the take-up mechanism has released it. When the reed moves forward and delivers its blow, the cloth is easily pulled over the rotating roller by the take up; when the reed goes backward the rollers are fastened by the ratchet and pawl, become stationary, catch the cloth upon the needle-points, and hold it so that it will not double up.

It is contended that such a needle-bar is not a stationary bar, and therefore it is not embraced within the second claim of the patent. It is a rotary bar when a stationary bar is not needed, but when one is needed,

it is the same stationary bar which was previously upon both plaintiff's and defendant's machines, and accomplished the same practical result.

The needle-points of the former needle-bar were inclined toward the take-up, so that when the cloth was moving forward it was carried across the needles, and when it was released from the take-up the cloth was arrested upon the needle points. The new roller of the defendants, when it is rotating in one direction, permits the cloth to go forward without detention; but when a reverse action commences, the roller immediately becomes stationary, and the needle-points catch and hold the cloth precisely as the old stationary bar accomplished the result.

Neither bar assists the take-up mechanism in pulling forward or taking up the cloth in any material degree, and the roller of the defendant becomes a stationary bar whenever stability is required.

The rotating character of the new needle-bar is said to be an improvement upon the plaintiff's fixed bar. I think that this is true, and that the revolution of the roller with the forward movement of the cloth avoids any danger of the cloth being caught upon the needle-points as it is drawn forward. But the fact that the new bar is a better one than the plaintiff's, or even performs a service which the plaintiff's bar does not perform, does not prevent the new device from being an infringement; it performs the same office which the old device performed by the same mechanical means. An infringing device is not protected by the fact that, although the device "was an equivalent of patented device in all its functions, and in its construction and mode of operation, yet by other or additional features it possessed other and further useful functions. Such a device would, perhaps, be an improvement upon the patented device, but must be, nevertheless, deemed an appropriation of the former. *Sarven* vs. *Hall*, (9 Blatchford, C. C. R.. 524.)

My conclusion is, that the new needle-bar is an ingenious attempt to escape from the second claim of the patent, and that the motion of the plaintiff must be granted. As the defendant acted under competent advice, and had no intention of disobeying the order of the court, no fine is imposed, but he is ordered to pay the costs of the application and of the affidavits.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

DAVID H. SWEETSER, TRUSTEE, *vs.* CHARLES H. HELMS *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided October term*, 1875, *to wit: April* 4, 1876.]

The patents of Elias S. Ingalls, May 8, 1860, B. Q. Budding, August 8, 1863, and B. Q. Budding, May 3, 1864, for improvement in machines for polishing and varnishing heels of boots and shoes, are not infringed by the Helms machine. In the latter "the shoe-holding mechanism is dispensed with," so that the arrangement and combinations of these opposing machines are dissimilar in their mode of operation.

[*Thomas L. Livermore*, for complainant.
James E. Maynadier, for defendants.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

The bill in this case charges infringements of three patents—one to Elias S. Ingalls, dated May 8, 1860, for "improvements in machines for burnishing the edge of the sole and heel of boots and shoes," one to Benjamin Q. Budding, dated August 8, 1863, for "improved heel-polishing machine," and one to Benjamin Q. Budding, dated May 3, 1864, for "improved machine for polishing the heels of boots and shoes." These patents all relate to a class of machines for polishing the edges of the heels and soles of boots and shoes, in which there is a combination of certain mechanism for holding the sole or heel (or both) to be polished with the mechanism of the polishing-tool, under such conditions of mechanical combination that either the holding mechanism, with the material held, can be so moved as to bring the surface to be polished in proper relations to the polishing-tool, or the polishing-tool can be so operated as to bring it into proper relations with the surface to be polished of the material held by the holding mechanism.

The Helms machine, alleged to be an infringement, differs from these machines in this essential feature. There is no attempt in the Helms machine to so combine a shoe-holding mechanism with the polishing-tool and its mechanism that the two will operate properly together. On the contrary, in the Helms machine the shoe-holding mechanism is dispensed with, and the operator puts the shoe into proper relations with the polishing-tool, and holds and keeps and guides it there, by and with his own muscular strength and will. There is no shoe-holding mechanism which is made to travel in a fixed path in relation to the polishing-tool, nor any polishing tool made to travel in any fixed path in combination with or in any relation to a shoe-holding mechanism.

This radical difference between the two classes of machines is fatal to the claim of infringement, and renders unnecessary a consideration of the other questions presented at the argument of the case.

Bill dismissed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 4, 1876.]

9,361.—Casket Screw-Plates.—RUSSELL H. BURR, West Meriden, Conn., assignor to C. ROGERS & BROTHERS, same place. Application filed June 22, 1876. Term of patent 7 years.

9,362.—Clock-Cases.—LUCIUS L. CULVER, WILLIAM W. CULVER, and HENRY H. CULVER, St. Louis, Mo. Application filed June 24, 1876. Term of patent 3½ years.

9,363.—Eaves-Trough.—DANIEL M. CUMMINGS, Enfield, N. H. Application filed June 22, 1876. Term of patent 14 years.

9,364.—Fountains.—JOSEPH W. FISKE, New York, N. Y. Application filed June 22, 1876. Term of patent 7 years.

9,365.—Brackets.—CHARLES H. HAIGHT and EDWARD A. TURNER, Quincy, Mich. Application filed May 27, 1876. Term of patent 14 years.

9,366.—Carpets.—JOHN HAMER, Dutchess county, assignor to SEAMLESS CLOTHING MANUFACTURING COMPANY, Matteawan, N. Y. Application filed June 20, 1876. Term of patent 3½ years.

9,367 to 9,370, inclusive.—**Center-Piece.**—SAMUEL KELLEY, San Francisco, Cal. Applications filed March 13, 1876. Term of patents 14 years.

9,371 to 9,373, inclusive.—**Carpets.**—JOSEPH C. G. LIBERT, Paris, France, assignor to JOHN A. PRAY, WILLIAM H. PRAY, and IVERS W. ADAMS, Boston, Mass. Applications filed June 26, 1876. Term of patents 3½ years.

9,374.—Drop-Handles.—WILLIAM R. MCCOMAS, Cincinnati, Ohio, assignor to CRANE, BREED & CO., same place. Application filed June 17, 1876. Term of patent 7 years.

9,375 and 9,376.—Carpets.—DAVID MCNAIR, Boston, Mass., assignor to THE ROXBURY CARPET COMPANY, same place. Applications filed June 26, 1876. Term of patents 3½ years.

9,377 to 9,381, inclusive.—**Oil-Cloth.**—CHARLES T. METER and VICTOR E. METER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York. Applications filed June 20, 1876. Term of patents 3½ years.

9,382.—Textile Fabrics.—JOHN MICHNA, New York, N. Y. Application filed March 31, 1876. Term of patent 3½ years.

9,383.—Inkstands.—FREDERICK R. SEIDENSTICKER, West Meriden, Conn., assignor to THE BRADLEY & HUBBARD MANUFACTURING COMPANY, same place. Application filed June 22, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 4, 1876.]

3,827.—Legal-Cap Writing-Paper.—BAY STATE PAPER COMPANY, Springfield, Mass. Application filed June 20, 1876.

"a pair of scales or balances, with an upright sword placed across the beam of the balances."

3,828.—Water-Closet Paper.—BAY STATE PAPER COMPANY, Springfield, Mass. Application filed June 20, 1876.

"word 'BOUDOIR.'"

3,829.—Writing-Paper and Envelopes.—BAY STATE PAPER COMPANY, Springfield, Mass. Application filed June 20, 1876.

"word-symbol 'STANDARD.'"

3,830.—Flour.—CHARLES HECKER, Brooklyn, N. Y. Application filed June 16, 1876.

"words 'GOLDEN STAR,' and the particular arrangement of the design."

3,831.—Flour.—HOUCK, MCCAGUE & CO., Pittsburg, Pa. Application filed June 15, 1876.

"word 'AMAZON.'"

3,832.—Cured Hams and Bacon.—T. ROBERT JENKINS & SON, Baltimore, Md. Application filed June 12, 1876.

"a pictorial representation of the arms of the State of Virginia and the words 'VIRGINIA BRAND.'"

3,833.—Cooking-Stoves.—JEWETT & ROOT, Buffalo, N. Y. Application filed June 14, 1876.

"words 'CROWNING GLORY.'"

3,834.—Cigars.—KERBS & SPIESS, New York, N. Y. Application filed June 20, 1876.

'word 'CERES.'"

3,835.—Soap.—JAMES S. KIRK & Co., Chicago, Ill. Application filed May 11, 1876.

"word 'CALENDAR.'"

3,836.—Tobacco and Cigarettes.—COMPAGNIE LEFERME, St. Petersburg, Russia. Application filed June 14, 1876.

"word 'Laferme' in connection with the representation of a Griffin."

3,837.—Cigar-Boxes.—SULLIVAN & BURK, Detroit, Mich. Application filed June 10, 1876.

"the figure of an Indian, and the words 'Red Jacket Regalia.'"

3,838.—Manufactured Tobacco.—S. W. VENABLE & Co., Petersburg, Va. Application filed June 8, 1876.

"word 'ECLIPSE.'"

3,839.—Smoking-Tobacco.—H. WILKINS & Co., Baltimore, Md. Application filed June 12, 1876.

"words 'Seal of Virginia Smoking Tobacco,' the monogram 'E. L. W.,' and the words 'Manufactured by H. Wilkins & Co. Baltimore.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 4, 1876.]

778.—Title: "The Maid's Delight, or Flowing, Magical Soap."—ANTON FRIEDRICH, Chicago, Ill. Application filed June 22, 1876.

779.—Title: "Green Hoof and Healing Ointment."—FRANK M. GILHAM, San Francisco, Cal. Application filed June 22, 1876.

780.—Title: "Buyrn's Sulpho Oxygenated Match."—HEWITT & BUYRN, Portsmouth, Va. Application filed June 22, 1876.

781.—Title: "Homer's Alpine Beer."—JOSEPH HOMER, Providence, R. I. Application filed June 23, 1876.

782.—Title: "Anglo American Engine and Spindle Oil."—EDWARD H. KELLOGG, New York, N. Y. Application filed June 26, 1876.

783.—Title: "Sachet Powders."—THEODORE METCALF & Co., Boston, Mass. Application filed June 23, 1876.

784.—Title: "Scott's Emulsion of Cod Liver Oil."—SCOTT & BOWNE, New York, N. Y. Application filed June 23, 1876.

785.—Title: "The 'Cant be Beat' Furniture Polish." H. E. TAYLOR & Co., New York, N. Y. Application filed June 22, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *May* 18, 1876.

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 2d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

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Danforth Locomotive Machine Company, assignee	179,510
Davenport, W., Paddle propeller	179,528
Davison, E. H., and W. Chapman, Putting unfinished work on knitting machines	179,403
Davison, T., Ornamenting skirts, &c	179,529
Deden, H. L., Keyed violins, cellos, &c	179,530
Delph, J., and W. A. Bradford, School seat and desk	179,472
Deming, P., Key board for type writers	179,531
Derrig, J., Dash board	179,532
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Dickens, J., Machine for boring fence posts	179 534
Dinkelspiel, J., assignee	179 506
Dixon, A., Gage cock	179 535
Dixon, J. W., Apparatus for saving soda ash	179,536
Dodge, C. K., Locomotive watering device	179,473
Doremus, W. T., Chair	179,537
Douglas, J. W., Construction of pump gearing, (reissue)	7,199
Douglass, T. M., Machine for jointing staves	179,404
Dressel, A., Locomotive signal head light	179,406
Dryfoos, L., assignee	179,529
Dulin, W., Instrument for aiding animals in giving birth	179,538
Dunn, A. W., Muzzle for horses	179,405
Eastman, W. H., Gage pin for printing presses	179,539
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Ebert, J., and E. R. Wehrle, Magazine stove	179,541
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Elder and Miller	179,422
Elliott, J., Harrow	179,543
Ellwood, R., Door hanger	179,408
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Enholm, A. H., Mail bag fastening	179,449
Ericson, J. V., Horse detaching device	179,544
Evans, H. W., Pipe cutter	179 546
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Gardner, G., Chair seat, (reissue)	7,203
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Gould, A. C., Portable fountain	179,451
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Hamilton, R., Earth pulverizer	179,553
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Harsha, M. S., Barbed fence wire	179,555
Hartman, L. R., Baking pan	179,556
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Helm, J. H., Heating stove	179 557
Henderson, W. T., assignee	179,523
Herrick, W. I., Potato digger	179,452
Hetherington, J. E., assignee, (reissue) 7,207, 7,208, 7,209	7,210
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High, E. B., Oil cup	179,558
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Hollister, E., administrator	179,559
Hopkins and Dickinson Manufacturing Company, assignee	179,499
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Humphrey, A. S., Staining compound for leather, paper, &c	179,560
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Jones, G. L., Compound metal working machine	179,566
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Kelly, D., Compressed air bath apparatus	179,414
Kelly, G. R., assignee	179,534
Kemp, T. P., Conformator	179,415
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Kidder, E. P., Machine for sawing shingles	179,568
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Knapp, S. M., Clothes line supporter	179,638
Knauss, F. T., Lamp bracket for sewing machine tables	179,571
Koechling, B. H., Opera chair	179,481
Kunz, P. P., Whiffletree hook	179,572
Lafferty, E. S., Horse collar fastening	179,573
Lake, D. P., Stencil plate	179,574
Lamb, J. and R., Preparing fabrics to be cut into ornamental shapes	179,575
Latham and Eaton	179,540
Latham, O. B., Nut lock	179,577
Latham, W. D., Cement	179,576
Lee and Ballou	179,503
Leigh, J. S., assignee	179,502
Leonard, J. B. H., Table cutlery	179,482
Lewis, W. H., Checkers	179,483
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Luce, R. C., assignee	179,585
Ludlow, R. C., Bale tie	179,578
Lugo, O., Treating and revivifying bone black or animal charcoal	179,579
Luther, B. G., Grinding machine	179,417
Lyman, W. C., Trap for exhaust steam pipes	179,581
Lynahan, D., Peg float	179,457
Lynch, M. W., Snap hook	179,418
Lyon, W., Machine for laying out paper for bordering	179,580
Madsen, C. W., Coffee roaster	179,419
Marr, L. M., Overalls	179,458
Marsh, P. C., Fair runner for sails	179,459
Massey, J. G., Feather renovator	179,582
Matthews, J., Fountain for containing aerated beverages	179,583
Matthews, J., Apparatus for dispensing soda water, &c	179,584
Manger, V. E., assignee	179,580
McCarty, C. C., assignee	179,393
McCloskey, J., Metallic seam	179,484
McCoy, E., Steam cylinder lubricator	179,585
McCullow, J., assignee	179,406
McDonald, S. J., Machine for punching and shearing metals	179,586
McFarlen, W. H., Washing machine	179,587
McGill, W. C., Fare register and recorder	179,588
McMillen, G. M. L., Grain drill	179,420
McNamee, M., Lamp	179,589
Meany, E. F., Bottle holder	179,460
Merrick, S., Chimney top	179,421
Miller, H. C. and M., Machine for sawing wood	179,592
Miller, J., Harvester	179,591
Miller, P. R., and C. D. Elder, Feather renovator	179,422
Miller, T., Feed bag for animals	179,590
Mills, L., Reaping machine	179,593
Millspaugh, T. and J. H., assignees	179,598
Milnor, W. P., assignee	179,521
Mixter, J. W., Saw gummer	179,594
Moline Plow Company, assignee	179,545
Monahan, C., Apparatus for applying the lining to the insoles of boots and shoes	179,595
Moorman, R. B., assignee	179,486, 179,487
Morrison, J. B., Draft equaliser	179,485
Mortimer and Blauvelt	179,510
New York Silk Manufacturing Company, assignee	179,567
Noble, L. H., & Son, assignees	179,472
Noé, C. L., Bobbin winder for sewing machines, (reissue)	7,205
Nolin, E. J., Portemonnaie	179,461
Obermiller, M., Fascet	179,596
O'Neill, A., Preparation of copper, &c., for the manufacture of culinary vessels and other articles	179,462
Osgood, S. C., Oscillating chair	179,597
Ovechiser, D. K., Cutter head	179,599
Pack, G. J., Dental gold	179,423
Parrish, G. W., Horse power	179,486
Parrish, G. W., Belt tightening device	179,487
Parsons, W. B., Land roller	179,599
Perry, G. W., Plow	179,600
Perry, W. C., Machine for binding and wiring hat frames	179,601
Perry, W. G., Device for adjusting spindles	179,463
Pfeffer, P., Lumber drier, (reissue)	7,206
Pfeifer, A. F., Trunk	179,424
Potter, T. B., assignee	179,609
Power and Rasines, (reissue)	7,211
Pratt and Barker, (reissue)	7,198
Prosser, T. T., Coal mining machine	179,464
Prouty, H. W., Flour sieve	179,425
Pulvermacher, I. L., Electro galvanic chain, band, &c., (reissue)	7,207
Pulvermacher, I. L., Electro galvanic chain, band, &c., (reissue)	7,208
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Pulvermacher, I. L., Electro galvanic chain, band, &c., (reissue)	7,210
Quackenbush, J. H., Car spittoon	179,603
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Rankin, T. L., Pipe connection for ice machines	179,605
Rasines, A., and T. E. D. Power, Button hook, (reissue)	7,211
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Rich, E. S., Basin faucet	179,608
Richards J. C., Breech loading fire arm	179,609
Richardson, W. C. B., Journal box and wheel	179,426
Robinson, A. S., Clothes drier	179,610
Roemer, J., Meat tenderer	179,611
Root, G. R., Crusher for coke, &c	179,612
Root, J., Churn	179,469
Rosenstock, G. T., Sr., assignee	179,589
Rouse, J., Spring bed bottom	179,613
Rouse, T., Rotary harrow	179,427
Sampson, W. S., Furnace or kiln	179,614
Sander L., Fishing net float	179,490
Sargent & Co., assignees	179,493
Scaaland, J. W., Butter tub	179,428
Schiller, C. J., Lard press	179,615
Schoenberg, G. L., Journal box	179,616
Schooley, J. C., assignee	179,467
Searle, J. Q. C., Base burning stove, (reissue)	7,212
Sellers and Fowler	179,411
Seymour, F. J., Making sheet metal kettles	179,491
Shugart, E. A., Gate	179,617
Sibley and Appleton	179,440
Simpson, C. G. C., Skate	179,465
Slade, J., Feed water regulator	179,618
Smith, T., Ice elevator	179,619
Spencer, C. F., Lamp	179,620
Springer, A. C., Cock and faucet	179,492
Squire, W. J., Wooden hoop fastening	179,621
Stanton, J. W., Ironing board	179,429
Stark, A., Portable cooking apparatus	179,430
Stewart, J. A., Middlings separator	179,622
Studebaker, J. M., and H. L. Hinds, Wagon brake lever	179,639
Sturdy, E. W., Heating apparatus	179,623
Suter, C. R., Steering apparatus	179,624
Swan, J. A., Barb former	179,625
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Tanner, A. B., Spring hammer for bells	179,493
Temple, J., Automatic raking device for harvesters	179,627
Terry, A., & Co., assignees	179,455
Timken and Jones	179,565
Tower, C. B., Apparatus for burning hydrocarbons	179,431
Tower, J. J., Bench plane	179,494
Townsend, G., Horse detacher	179,466
Trumpp, H., Hat guard	179,432
Twitchell, O., Tooth powder box	179,433
Underwood, J. B., Combined sash fastener and burglar alarm	179,629
Underwood, J. E., Wrench	179,628
Upton, E., Corn cultivator	179,434
Valpey, J. H., assignee	179,595
Van Pappelendam, C. G., Ventilating cars	179,630
Van Wagenen, A., Manufacture of tips for boots and shoes	179,631
Von Beust, M., Soap cutting machine	179,435
Waldron, C. W., assignee	179,539
Warner, G., Extensible gas fixture	179,437
Warner, M. P. and J. F., Lamp reflector	179,632
Warren, C. H., Molding machine	179,436
Wehrle and Ebert	179,541
White, O. C., Dentist's chair, (reissue)	7,215
White, R., Revolving fire arm	179,633
White, R., Cartridge	179,634
Whitehead, W. A., assignee	179,629
Whiting, J. L., Brush	179,438
Whitney, F. A., Carriage Company, assignee, (reissue)	7,216
Whitney, F. W., Child's carriage, (reissue)	7,216
Wickwire, F., Press for circular knitting machines	179,637
Wilhelm, A., Carpet stretching machine	179,439
Willcox, C. H., Sewing machine, (reissue)	7,213
Willcox, C. H., and C. Carleton, Sewing machine, (reissue)	7,214
Willcox and Gibbs Sewing Machine Company, assignee, (reissue)	7,213, 7,214
Wilson, J. A. H., Gate	179,635
Woodruff, G. S., assignee	179,585
Woods, T., Stone drill	179,636
Worley, J., Time lock	179,495
Wrigley, T., Driving the spindles of spinning machines	179,496

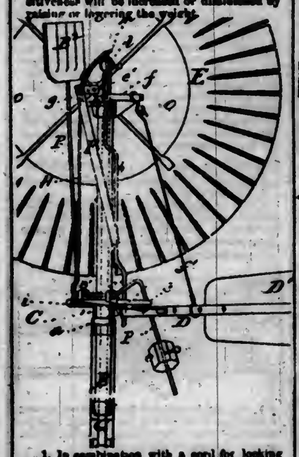
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JULY 4, 1876.

179,393. WINDMILLS AND GOVERNORS. L. D. Abrams, Tuscola, Ill. [Filed Dec. 11, 1875.]

Brief.—A rope or chain is attached to the rudder-arm, from which it extends to an arm on the collar; passing through which it then extends upward to a covered guard-plate at the upper part of bearing-plate. It is then passed through an opening in the free end of the said plate, down through the tubular actuating-rod, within reach of a person on the ground. By drawing on this rope or chain, the rudder will be thrown with its flat surface exposed to the wind, and will be so held by fastening the rope to a belaying-pin or cleat or upright. The center of the wheel being open, the wind will have free access to the blade, making it more sensitive, and this sensitiveness will be increased or diminished by raising or lowering the weight.

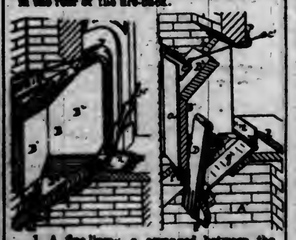


1. In combination with a cord for locking the main rudder D', the collar C having arm f, the guard-plate m, and the tubular actuating-rod G, substantially as specified.

2. In combination with wind-wheel B, operating crank-pin g, and pitman F, the vertically-reciprocating rod A, cross-head I, and tubular operating shaft U, guided in tube B, substantially as specified.

179,394. FIRE-PLACES. James Adair, Kirkpatrick Town-ship, Allegheny County, Pa. [Filed May 31, 1876.]

Brief.—Ashes are discharged at the rear of an inclined grate. There is a dampered flue in the rear of the fire-back.



1. A fire-lining, a, arranged between the back wall and the back tile of the fire-chamber, and supporting the deeper and back tile, substantially as set forth.

2. The rear sloping bottom tile D, in combination with a grate, arranged at its rear lower end, substantially as and for the purposes set forth.

3. A low-down fire-grate, arranged at the rear lower corner of the fire-basket, in combination with a close bottom under the whole or the greater part of the fire-space, and an air and dust flue, and damper in the rear, substantially as set forth.

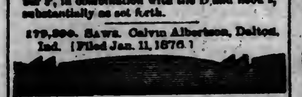
4. The combination of a movable bottom tile, D, and movable grate a, in combination with ash-pit, air and dust flue, and damper, substantially as set forth.

5. The hinged fender-plate E, arranged substantially as and for the purposes set forth.

6. As a means of operating the sliding tile D, an eye, S, thereon, and a fixed eye, r, in the throat with, arranged for use with a double-hooked lever or tongs, substantially as set forth.

7. The plate g, having a slot, g', and crumber s', in combination with tile D, and hook s, substantially as set forth.

179,395. SAWS. Calvin Albertson, Dalton, Ind. [Filed Jan. 11, 1876.]



A hand-saw having its teeth set in sets of two each, said sets being from two to eight inches apart, and the portions of the blade between the sets of teeth made convex or rounding, all substantially as shown and described, and for the purposes herein set forth.

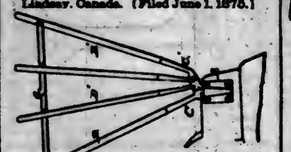
179,396. DOORS AND ALARMS. J. Allen, Indianapolis, Ind. [Filed Jan. 26, 1876.]

Brief.—Alarm serves to door-jamb, and trigger is sprung by opening the door.



The combination of the curved hammer B, nipple c, spring U, and bracket trigger D, swiveled to the bed-plate K of the alarm, and adapted to be operated by the opening of the door or window, in the manner set forth.

179,397. BUGGY-TOPS. Farley J. Ayres, Lindsay, Canada. [Filed June 1, 1876.]



1. The bows D D', made in two parts, and centrally united by the ferrules E E, substantially as and for the purpose set forth.

2. The frame composed of the bows D D', provided with the rigid bow-socket C, pivoted bow-sockets C', and tapering extremity or pin b, in combination with the socket B, substantially as herein shown and described.

179,398. PROCESSES OF MAKING STEEL. Stephen Barker, Knoxville, Tenn., assignor of nine-tenths of his right to J. P. Harger, Pontiac, Mich., and O. C. McCarty, Knoxville, Tenn. [Filed June 26, 1876.]

1. The improved process herein described for producing puddled steel from pig-iron, consisting in melting cold-blast pig-iron of the grades named with magnetic oxide of iron, and then introducing a compound of manganese, alkaline salts, and lime-salts, substantially in the manner and proportions as set forth.

2. The process herein described for refining and finishing puddled steel, consisting in reducing it to billets and melting in a crucible with manganese, oxide, common salt, and oyster-shells, substantially in the manner and proportions set forth.

179,399. POWER-CHURNS. Samuel Best, Montgomery, Mich. [Filed Feb. 14, 1876.]

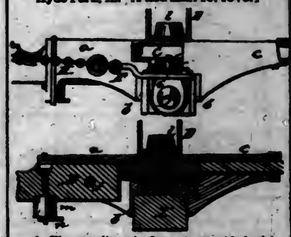
Brief.—The frame has a wire guide, in which the pendulum-rod swings.

179,400. STOVE-BOARDS. John S. Brooks, Brooklyn, N. Y. [Filed Dec. 10, 1875.]



The foundation for a stove-board, made from a piece or pieces of wood, bent as specified, and covered with metal, substantially as shown.

179,401. LUMBER-WAGONS. M. Burns, Hyde Park, Ill. [Filed Mar. 10, 1876.]



1. The coupling-platform A; provided with a pole-socket, c, axle-clasp b, nut-chamber d, and socket or opening for the reach, substantially as and for the purposes set forth.

2. The bolster-clasp D, provided with a nut, i, to receive the coupling-pin, substantially as and for the purposes specified.

3. The platform A, having a chamber, d, in combination with the nut g, cover h, coupling-pin k, and bolster-clasp D, substantially as specified.

179,402. PIANO-FORTE ACTIONS. Theodore P. Carr, Yellow Springs, Ohio. [Filed Nov. 17, 1876.]



1. The back-catch M n, rigidly secured to pivoted bearing F d of key O, which bearing is operated by toe P of jack O, substantially as described.

2. The combination of key O, pivoted bearing F / d, stem H h N, lever I, spring L, jack O P Q, and adjusting devices J K n, as and for the object stated.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

179,399. LOCOMOTIVE-BOILERS. Carlos A. Clark, Bloomfield, Iowa. [Filed Sept. 20, 1875.]



The combination of the boiler A A, division-plates B, a a, and b, casing D D, and fire-chamber C, to form and connect the semi-annular chambers Nos. 1 and 2, as and for the purposes shown and described.

179,400. WRINGER-ROLLS. Geo. P. Clark, Windsor Locks, Conn. [Filed Apr. 5, 1876.]



1. A roller for wringing-machines, composed of sectional rings articulated together and combined with the shaft, substantially as described.

2. A roller composed of elastic sectional rings, articulated together by means of intermediate metallic vertebræ, and mounted on a shaft, provided with end flanges for compressing the elastic rings, substantially as described.

179,401. SPRING-SEATS. Zenas Cobb, Chicago, Ill. [Filed July 3, 1872.]



1. An upholstered or cushioned spring-seat, having its springs secured to the seat-frame in sections, which are separately adapted for application and removal from the frame without disturbing the upholstering, substantially as described.

2. The spring-sections, consisting of the divided slat E, having the raised end pieces f, the springs C, clamped between the two divisions of the slat, and the webbing H, stretched over the tops of the springs from one raised end piece to the other, substantially as described.

3. The webbing or other strip H, combined with the springs of a seat-slat, and stretched from end to end of the latter over the springs, so as to compress them and form an arc or curved elastic surface, upon which the upholstering is uniformly supported, substantially as described, for the purposes specified.

4. The combination of the springs C, webbing-strip H, clamps D I, and divided slat E, substantially as described, for the purposes specified.

5. The combination of springs C, webbing-strip H, clamps D I, and divided slat E, with the seat-frame A and its upholstering or cushion B, substantially as described, for the purposes specified.



179,402. GRINDERS FOR BAND-MILLS. Owen Corsan, Pittsfield, Mass. [Filed Feb. 21, 1876.]

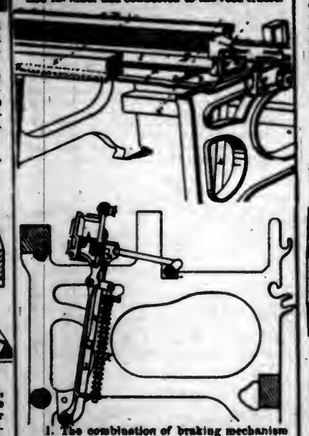
1. The blade B, made with the dovetail-shaped recesses along its edge, and combined with the detachable teeth c c, which are held in place by the washers U O, substantially as herein shown and described.

2. The rotary grinding-drum arc oblique on the shaft A, substantially as and for the purpose herein shown and described.

3. The combination of the fastened shaft A with the plates D E, having inclined inner faces, and with the cutting-blade B B', &c., and washers O O', &c., substantially as here in shown and described.

179,403. LOOMS. James D. Cottrell, Pawtucket, R. I., assignor of one-half his right to Stephen A. Jenks, same place. [Filed May 26, 1876.]

Brief.—The reed is mounted on a frame supported by arms, whose lower ends are pivoted to the lay-swords, and with its frame is held up to the lay by spring-pressure. A swell finger-lever locks the frame and lay so soon as a shuttle bores. When it fails to box, a dagger attached to the frame, with capability of yielding, strikes the protector-lever, and at once ships the belt and actuates a friction-brake. The shuttle-box, which is attached to the lay, has its back hinged at its outer end, and its inner end connected to the reed-frame.



1. The combination of braking mechanism with a reed-frame, which is pivoted to the lay of a loom, and held against the lay-bed by means of a spring, and a dagger or protector-pin, which is connected to the reed-frame, substantially as described, and for the purposes specified.

2. The combination, with a dagger, arranged to yield and recline through the action of a spring, of a friction-brake, substantially as described, and for the purposes specified.

3. The combination, with a friction-drum, connected with a driving or crank shaft of a loom, of a bell-crank lever linked to a shipper or protector-bar, a roller, mounted on said lever, and a friction-strap, attached to said roller and to a stationary stud, and arranged to engage with the periphery of the friction-drum, and to be compressed between the drum and roller, substantially as described, and for the purposes specified.

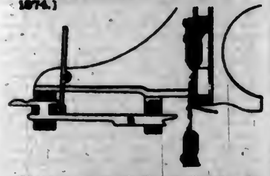
4. The combination, with a lay and a reed-frame, mounted on standards, which are pivoted below the lay-bed, of one or more bell-crank levers, mounted on the lay-standards, and retaining-springs, arranged to operate on the levers, and through them to hold the reed-frame against the lay-bed, substantially as described.

5. The combination, with a lay, a spring reed-frame, and a dagger attached thereto, of a protector-bar, a friction-brake, and a shuttle-box lever, which is arranged to lock the reed-frame to the lay, and render the dagger inoperative when a shuttle occupies a box, and to leave the reed-frame disconnected from the lay, and to operate the friction-brake through the dagger when a shuttle remains in the shed, substantially as described.

6. The combination, with a lay and a spring reed-frame, of a shuttle-box, having its rear side pivoted at its outer end to the lay-bed, and at its inner end connected with the spring reed-frame, substantially as described.

7. A shuttle-box, having its rear side attached to the lay-bed by a pivot, which is laterally adjustable on the lay-bed, substantially as described.

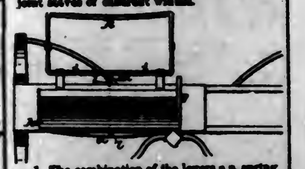
179,404. METHODS OF PUTTING UNFINISHED WORK ON KNITTING-MACHINES. Edwd. H. Davison and William Chapman, New Britain, Conn., assignors to American Hosiery Company, same place. [Filed Dec. 28, 1874.]



That improvement in the art of putting the salvage of knit fabrics upon the needles of flat-knitting looms, consisting in placing a series of salvage loops or stitches upon a series of grooved points, secured to a portable bar, placing the bar over the bearded needles with the beards resting in the grooves of the points, and then, by aid of the sinkers, transferring the loops or stitches from the points to the needles, all substantially as described, and for the purposes set forth.

179,405. MACHINES FOR JOINING STAVES. Thomas M. Douglass, Harpersfield, N. Y. [Filed May 22, 1876.]

Brief.—A spring-guide is attached to the carriage in such a manner as to admit of adjustment to different curvatures, in order to joint staves of different widths.



1. The combination of the levers a n, spring o, and bars l, for forcing the carriage back toward the cutter after it has been moved by the spring d, substantially as set forth.

2. The combination of the handle m bar h, rocking-lever i, lever l, and spring d, whereby the spring is bared, so as to form a guide for the carriage c as it slides past the center-head, substantially as shown.

3. In combination with the concave surface f, the dog h, lever g, and spring 3, for throwing the stave from the concave surface when released, substantially as set forth.

4. The bars l, having friction-rollers on their ends, in combination with the rods n, spring o, carriage c, spring d, rocking lever i, and operating-lever l, substantially as specified.

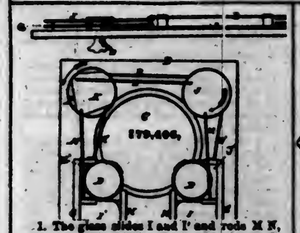
179,406. MUSKETS FOR HORSES. Alfred W. Dunn, Newark, N. J. [Filed Dec. 16, 1876.]



A horse-muzzle, made of wire cloth, or woven or braided wire, provided with the protecting plate or button D, substantially as and for the purpose herein before set forth.

179,407. LOCOMOTIVE SIGNAL HEAD-LIGHTS. Andw. Dressel, Cleveland, Ohio, assignee of one-half his right to J. McCollester, same place. [Filed May 12, 1876.]

Brief.—A locomotive head-light combining three different-colored lights, arranged and operated in such a manner as to obviate the necessity for using the usual track-lights or lanterns, which are placed upon the locomotive.



1. The glass slides I and I' and rods M N, as arranged in relation to the signal-eyes D D, and in combination with the wheels J K, link L, door B, and finger-piece O, in the manner substantially as described, and for the purpose specified.

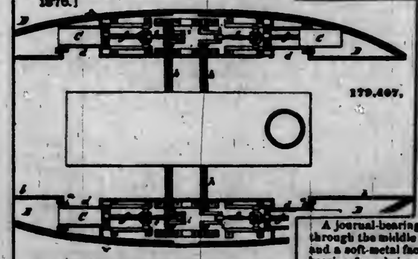
2. The glass slides H' and J', and rods A' and B', as arranged in relation to the signal-eyes D D, and in combination with the wheels F and Q, link R, door B, and finger-piece O', for operating the same, in the manner substantially as set forth, and for the purpose specified.

3. The door B, slides I F and slides H' J', rods M N and rods A' B', wheels J K and F Q, links R L, and signal-eyes D D, arranged to operate substantially as described, and in relation to and in combination with a head-light or lantern, A, substantially as herein described, and for the purpose set forth.

4. The reflectors E and F F and signal-eyes D D, arranged with interchangeably colored lights between said reflectors F F and signal-eyes D D, substantially in the manner as described, and for the purpose set forth.

5. In combination with a head-light and signal-eyes D D, colored lights operated by mechanism to reflect different lights for signal purposes, substantially as and for the purpose set forth.

179,407. PROPULSION OF VESSELS. Jacob Bokhardt, St. Louis, Mo. [Filed June 20, 1876.]



1. In a vessel constructed substantially as described, the combination of the triangular boxes or casings B B, formed within the hull A, and the plungers O O, working horizontally therein, substantially as and for the purpose set forth.

2. The combination of the hull A, boxes B, plungers C, and the sliding doors D, arranged and operated substantially as and for the purposes herein set forth.

179,408. DOOR-HANGERS. Reuben Ellwood, Sycamore, Ill. [Filed Mar. 25, 1876.]

Brief.—Two conical wheels, in reverse position toward each other, are journaled in an elongated cap-piece; the construction adapting the two wheels to operate without binding, and tending to prevent jumping the track when the device is operated.



The shank or bar A B, and elongated cap C, in combination with the two conical wheels E F, journaled therein in reversed position, substantially as and for the purpose specified.

179,409. HINGES. William A. Hopkins, Darlington, N. J., assignor to Hopkins & Dickinson Manufacturing Company, New York, N. Y. [Filed May 26, 1876.]

Brief.—Two bushings and a washer are inserted at each end of the knuckles or pintle-eye.



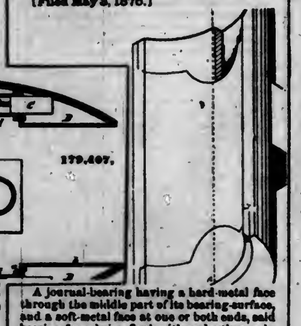
A hinge or butt, having two thimbles or bushings, and one or more disks or washers at each knuckle-joint, so arranged that no wear of the material of which the hinge or butt is made is possible.

179,410. APPARATUS FOR BURNING PETROLEUM. William Furness, Titusville, Pa. [Filed Mar. 29, 1876.]



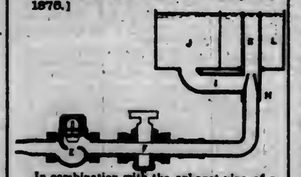
The arrangement and combination of the cylinder a, having a longitudinal slot, c, along the bottom, with the trough d and perforated pipes e and f, substantially as described, and for the purposes set forth.

179,411. JOURNAL-BEARINGS. Harvey W. Fowler and Morris Sellers, Chicago, Ill. [Filed May 8, 1876.]



A journal-bearing having a hard-metal face through the middle part of its bearing-surface, and a soft-metal face at one or both ends, said bearing-faces being flush with each other, substantially as and for the uses set forth.

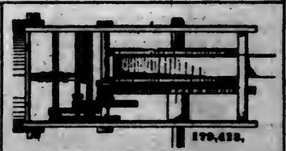
179,412. LOCOMOTIVE-HEATERS. (Wm. H. Howell, Thorold, Canada. [Filed Apr. 15, 1876.]



In combination with the exhaust-pipe of a locomotive-engine, said pipe being provided with valves E F, the tank constructed with chambers J and L, and provided with pipes I and K, by means of which the water is forced up from the cold-water tank into the heater K and tank L by the exhaust steam, as and for the purpose set forth.

179,413. BLOWERS FOR LAMPS. George A. Jones, Bristol, Conn. [Filed June 2, 1876.]

The combination, with the winding-arbor, of a blower for lamps, of a winding-drum, and a thin metallic ribbon, constructed for the attachment of a weight to its outer or free end, substantially as and for the purpose specified.



179,413.

179,414. COMPRESSED-AIR BATH APPARATUS. Daniel Kelly, Chicago, Ill. [Filed Nov. 24, 1875.]

Brief.—The trap seen on the casing of the bath is for communication between the inside and outside, at the same time preventing the escape of the air.



The combination of the chamber A, in a compressed-air bath apparatus, with the box B, doors a' and b', pipe f, with its valve g, and the escape-cock h, as described, and for the purpose specified.

179,415. CONFORMATORS. Thos. P. Kemp, Lawrence, Mass. [Filed Jan. 29, 1876.]

Brief.—A sheet of paper is attached to the flat form by springs at the corners thereof, and the frame subsequently adjusted upon the head to be measured by the measuring devices. A carrier centrally pivoted within the area of the frame, and to which is attached a spring-yielding scribe-arm, carrying a pencil, marks out the size and contour of the head upon the paper on the flat form.



1. In a conformator, constructed as herein described, the combination of the frame A with the board B, the carrier C, and the clamps K K, in a manner and for the purpose substantially as herein set forth.

2. The combination of the carrier C with the scribe-arm G, its shaft D, the springs F and H, and pulley F, in a manner substantially as and for the purpose herein described and set forth.

3. The combination of the frame A, the board B, the carrier C, the shaft D, the spring E, the wheel F, the scribe-arm G, the spring H, the point I, the clamps K K, the screws L L, and the springs M M M M, in a manner substantially as and for the purpose herein described and set forth.

179,416. NURSING-BOTTLES. William Kenrick, New Brunswick, N. J. [Filed Apr. 3, 1876.]

Brief.—The bottom of bottle in the shape of a hemisphere. A rubber perforated cover simulates the flesh of the natural breast. The glass tube has a weight solid therewith.

1. The nursing-bottle A, with its bottom in form of a semi-sphere, carrying inward at the top, and furnished with a flange over which the india-rubber cover is drawn.

2. In combination with the flanged neck of a bottle, A, the perforated rubber cover D, as shown.

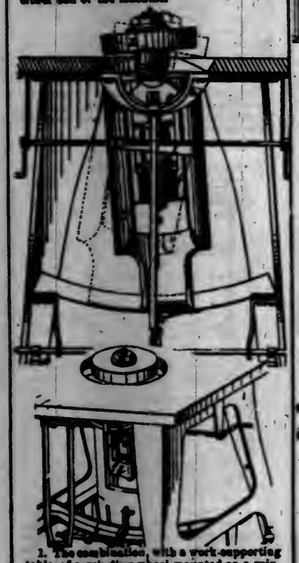
3. In combination with a milk-receptacle with a cone-spherical base, the glass tube G, furnished with the weight W, of the form shown.



179,416.

179,417. GRINDING-MACHINE. Benjamin G. Luther, Providence, assignor to the American Twist Drill Company, Woonsocket, R. I. [Filed May 26, 1876.]

Brief.—The grinding-wheel is adjusted at an angle with the plane of the table by a spindle-frame sliding vertically in a frame, which swings laterally on concave bearings in convex boxes. The spindle-frame is adjusted vertically by a lifting-rod pivoted to it, and in turn pivoted to a lever and treadle. The adjustment is regulated by a pawl and ratchet. The laterally-swinging frame is adjusted by a screw and sleeve-nut, the latter swiveled to a link, which, in turn, is pivoted to the frame. All of the adjustments can be executed at either end of the machine.



1. The combination, with a work-supporting table, of a grinding-wheel mounted on a spindle, which is journaled in a pivoted and laterally-adjustable frame, substantially as described, whereby the grinding-wheel may be operated with its working-face at any desired angle with relation to the work-supporting surface of the table, as set forth.

2. The combination, with the grinding-wheel and its spindle, of a pivoted frame and an adjusting-screw, substantially as described, whereby the wheel may be readily adjusted at any desired angle, as set forth.

3. The combination, with a grinding-wheel, its spindle, and a journal-box frame mounted in slide-bearings, of a treadle-lifting rod, cranked bar, and pawl, substantially as described, whereby the grinding-wheel may be raised or lowered and maintained at any desired elevation, as set forth.

4. The combination, with a grinding-wheel and spindle, mounted in a sliding journal-box frame, and an angularly-adjustable frame, of a treadle-bar, connected with the box-frame by means of a centrally-pivoted rod, substantially as described, whereby the box-frame, grinding-wheel, and shaft may be readily raised or lowered, regardless of the angle at which the grinding-wheel spindle is adjusted, as set forth.

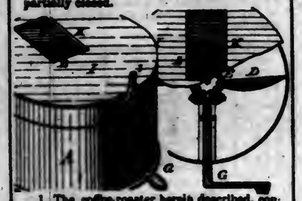
179,418. SNAP-HOOKS. M. W. Lynch, Madison, Wis. [Filed May 24, 1876.]



The snap-hook, having the outwardly-opening catch or tongue, provided with the rigid stud I upon the hook, the loop U at the end of the shank, and the loop H at the back of the hook, substantially as described, for the purposes specified.

179,419. COFFEE-ROASTERS. Carl W. Madsen, Chicago, Ill. [Filed Apr. 21, 1876.]

Brief.—The opening in the top of the device may be closed partly by the pans and partly by the plate, or entirely by the latter sliding under the pans; or the opening may be only partially closed.



1. The coffee-roaster herein described, consisting of the pan A, having upright axis B, shovel-shaped stirrers D D, and operated by the crank G, in combination with the closely-fitting cover I, having opening K, glass pane k, and sliding plate L, all combined and operated substantially as and for the purpose here in set forth.

2. In a coffee roaster, the cover I, having an opening, K, partly covered by a glass pane, k, in combination with the sliding plate L, combined and operated substantially as and for the purpose hereinbefore set forth.

179,420. GRAIN-DRILLS. G. M. L. McMillen, Dayton, Ohio. [Filed Feb. 28, 1876.]

Brief.—The cylinder and feed-wheel are adjustable upon their shaft independently of each other, so as to allow varying quantities of seed to be deposited from different cups.

The herein-described attachment for grain-drills, consisting substantially of the chamber A, cylinder B, feed-wheel C, disk D, saddle-piece F, sleeve e, by which the feed-wheel is adjustable upon the shifting shaft E, for allowing irregular quantities to be drilled from certain boxes, substantially in the manner and for the purpose specified.

179,421. CHIMNEY-TOPS. Silas Merrick, New Brighton, Pa. [Filed Dec. 3, 1875.]



A chimney-cap consisting of a series of cone-like plates, having central openings, diminishing in size toward the top plate, the opening in which is smaller than that of the chimney, the whole being arranged as described, to deflect the side currents directly through the said upper opening, for the purpose set forth.

179,422. FEATHER-RENOVATORS. Philip R. Miller and Cornelius D. Miller, Gibson, Ill. [Filed Apr. 20, 1876.]

Brief.—The cover is composed of pieces attached removably to the hinged sides, which can be folded down for transportation. The swivel-doors and the flap-door being open, the feathers can be blown out of the machine.

1. In a feather-renovator, the swivel doors G G, in combination with the perforated screen f, and the sides F F, substantially as and for the purposes described.

2. In a feather-renovator, a recess, d, above the sliding door, at the bottom, to catch coarse dirt, in combination with the usual door, combined with an attached perforated screen, e, substantially as and for the purpose described.

3. In a feather-renovator, a longitudinal, divisional, hollow wall, I, (between two revolving stirrers,) for the purpose of receiving steam and furnishing extra drying-surface, in combination with the steam-space below the metal bottom N, substantially as and for the purposes described.

4. The pipe R, for inducting steam to the hollow central wall I, and in combination therewith, as and for the purposes described.

5. The combination, with the flaps F, of openings, covered with sliding door O and screens f, as and for the purposes described.

6. The server, composed of the hinged pieces E D, attachable to the side flaps F by the hasps r, as described.

7. In combination with the hinged covers E D, a door, D' T, with a movable, perforated screen, N', as described.

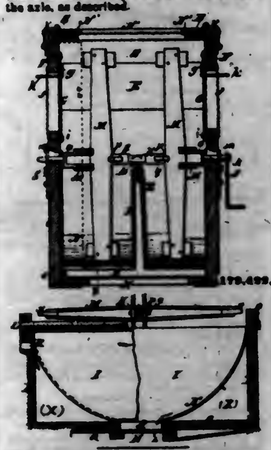
8. The combination of the box A B C and combined door and screen E, with central hollow wall or division I, provided with steam-passage R, substantially as and for the purposes described.

9. In combination with the box A B C, the hinged side flaps F F, provided with side drafts or doors and screens f G, as described.

10. The combination, with the hinged covers E D and box A B C, of the hinged flap P, pivoted at the upper corners in the flaps F F, and provided with the outer screens r r, and inner sliding doors r' r', and chocks s, as described.

11. The combination, with the box A B C, and the feather-discharge opening and flap-door P, of the bag or tick retainer O, as described.

12. The stirrers M, as constructed, with gibs p, keys q, and clamps o, so as to be loosened and laid horizontally without removal from the axle, as described.



179,423.

179,424. DENTAL GOLD. George J. Peck, New York, N. Y. [Filed June 29, 1875.]

Gold for dentists' use, composed of longitudinal strips or ribbons of plain gold, wound or covered with corrugated or shrunk gold-foil, substantially as described, and for the purposes set forth.

179,425. TROUSER. August F. Pfeifer, Newark, N. J. [Filed May 24, 1876.]

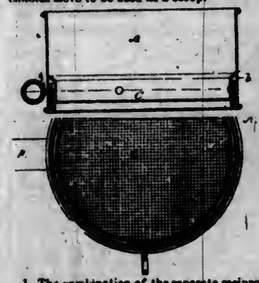
The combination, with the body and lid of a trunk, of arms a b, jointed together, the arm b having a stop, whereby the arm a is prevented from assuming a position in line with the arm b, and with a spring whereby the arm a is maintained in contact with the stop until the application of pressure to the lid, substantially as set forth.



179,426.

179,426. FLOUR-SIFTER. Henry W. Prouty, Boston, Mass. [Filed Mar. 26, 1876.]

Brief.—Sieve-body held by one hand and bottom vibrated with other hand. An inner band, with studs supporting the vibratory sieve-bottom, is inclined at the top, and soldered to the inner side of the sieve-body; hence operating devices are not clogged, and no part of the sieve is obstructed. Vibratory motion is limited by the slot in which the handle rides, causing concussions. Fixed handle enables sieve to be used as a scoop.



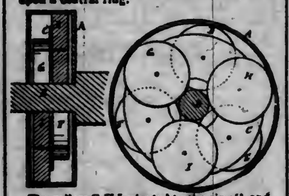
1. The combination of the separate reciprocating meshed bottom C, with the body A, having a handle, B, rigidly applied thereto, in manner and for the purpose set forth.

2. In a flour or meal sieve, having a stationary body, A, and a vibratory reciprocating meshed bottom, C, and means for reciprocating the latter, as described, the bottom C suspended by devices entirely at its perimeter, as and for the purpose set forth.

3. In a flour or meal sieve, the combination, with the body A, provided with the chamber b, of the reciprocating meshed bottom C, suspended at its perimeter, as described, and having its upper edge disposed within the said chamber, as and for the purposes set forth.

179,427. JOURNAL-BOXES AND WHEELS. Wm. C. B. Richardson, Cleveland, Ohio. [Filed Mar. 27, 1876.]

Brief.—Series of anti-friction rollers pivoted upon a central ring.



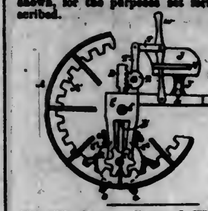
The rollers G H I, pivoted to the ring C, and arranged, in relation to the rollers D E F, in like manner, pivoted to said ring, and in combination therewith and the wheel A, substantially in the manner as described, and for the purpose specified.

179,428. ROTARY HARROWS. Thos. Rouse, Indianapolis, Ind. [Filed Jan. 21, 1876.]

Brief.—The harrow-cylinder is composed of heads, to which is secured a series of bars armed with teeth. The cylinder is mounted in sliding boxes, which move up and down in hangers, operated by means of a rock and plates. Rotation is given to the cylinder by means of cog-gears on one of the wheels, and a pinion on one end of the cylinder-shaft.

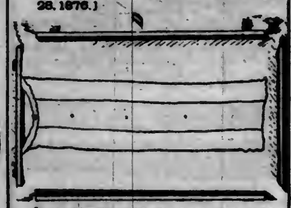
1. In a rotary harrow, the combination of the master-wheels A', pinions B', shaft B', harrow-heads E E, and harrow-bars F, arranged to be revolved in the adjustable boxes B', secured in the hangers C C C in the manner shown, for the purposes set forth and described.

2. In combination with the adjustable boxes B' and hangers C the lifting-rods D D, provided at their upper ends with a rack which engages with the pinions B B that are operated by means of the lever m, in the manner shown, for the purposes set forth and described.



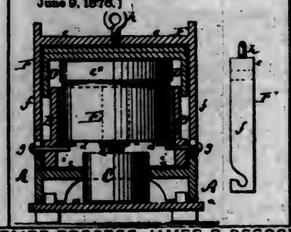
179,427.

179,429. IRONING-BOARDS. Jos. W. Stanton, West Springfield, Mass. [Filed Apr. 28, 1876.]

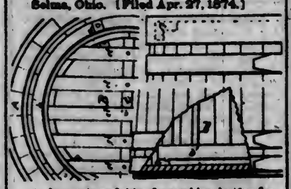


In combination with the ironing-board B, the spring slat holders b and slats D, conforming to the sides of the board, when all arranged and constructed substantially as set forth.

179,430. PORTABLE COOKING APPARATUS. Adalbert Stark, Munich, Germany. [Filed June 9, 1876.]



179,431. BUTTER-TUBS. J. W. Scanland, Selma, Ohio. [Filed Apr. 27, 1874.]



1. In a tub or firkin, for packing butter for transportation in the original roll, an inner slatted cylindrical crate, B, longitudinally divided into the two sections a' a', and held together by the hoops b' b' with slatted top and bottom pieces b, adapted for being placed between an outer tub, A, and for being readily separated into parts, for cleansing the same, substantially as hereinbefore set forth.

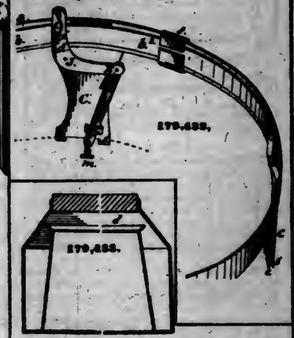
2. In combination with the longitudinally-divisible crate B, constructed substantially as specified, the tub A and blocks C, with a filling of brine surrounding said crate, for keeping the butter therein in good merchantable condition, as hereinbefore set forth.

3. In a firkin or tub for packing butter for transportation a divided sectional crate, constructed as shown and specified, supported centrally within an outer tub by blocks, so as to leave an open space for brine or other liquid entirely surrounding said crate and contents, substantially as and for the purpose hereinbefore set forth.

179,432. HAT-GUARDS. Henry Trumpp, Newark, N. J. [Filed June 20, 1876.]

Brief.—Is constructed of a flexible and expansible metallic band, to which (at equal distances apart) are attached feet, operated simultaneously by a semicircular band, through the medium of a bell-crank lever. The device is to be inserted between the sweat-band and side crown of the hat.

The combination, in a hat-guard, substantially as described, of the thin metallic flexible exterior ring a, the flexible connecting-piece b, holders c, levers d, and feet e, as and for the purpose specified and shown.

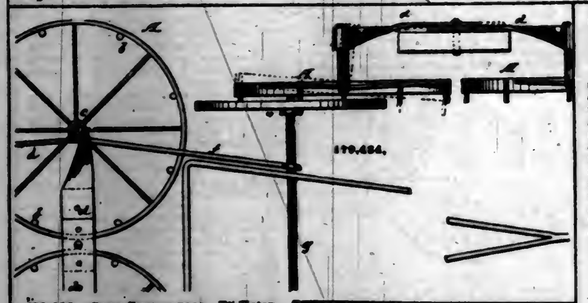


179,433.

179,433. TOOTH-POWDER BOXES. Oscar Twitchell, Philadelphia, Pa. [Filed Apr. 22, 1876.]

Brief.—The tooth-powder box is in the intervening space, and by tipping the box upside down, and quickly turning it back, a small quantity of the powder is deposited on the shelf, from which it may be easily applied to the tooth-brush.

In a tooth-powder box, the shelf or table d, in combination with an outer case, A, leaving a space or spaces around the shelf, substantially as and for the purpose set forth



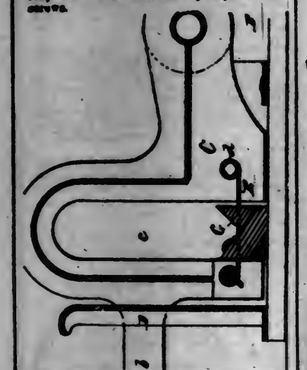
179,434. CORN-CULTIVATORS. Eli Upton, Morrison, Ill. [Filed Jan. 3, 1876.]

Brief.—A pair of wheels support an axle-tree and tongue. To the axle-tree are attached by draw-bars two horizontally-rotating harrows, that are laterally adjustable, so as to increase or diminish the space between them. In use as a cultivator, the harrows move upon both sides of the row of plants. Handles extend backward, by which the cultivator is manipulated.

The combination of the wheels A A, respectively, with the draft-rods *f f*, cross-beam *d*, axle *g*, and handles *h h*, whereby the said wheels may be readily raised, depressed, or moved laterally, all substantially as described, and for the purpose mentioned.

179,435. SOAP-CUTTING MACHINES. Max Von Bonst, New Albany, Ind. [Filed Feb. 2, 1876.]

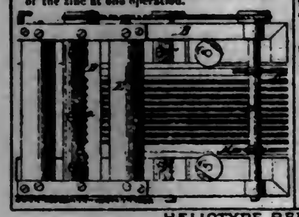
Brief.—Bar of soap placed in trough and piece to be cut off gaged. The wire at bottom of arched lever is pressed down through the soap bar. Wire tautened by keys or set-screws.



The arched lever C, with handles *b*, key *d*, screw *e*, and wire E, in combination with the trough G, provided with slot *g* and gage H, the guide D, standard B, and bed-plate A, substantially as and for the purpose set forth.

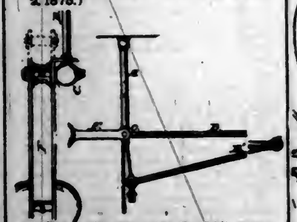
179,436. MOLDING-MACHINES. Charles H. Warren, Toledo, Ohio. [Filed Dec. 2, 1875.]

Brief.—Lumber in the rough is planed on both sides, corrugated, dressed on its edges, and has the grooves made to receive the edges of the zinc at one operation.



The combination of the cutter head D, having corrugated knife *a* and smooth knife *b*, the cutter-head C having one or more smooth knives, the shaping-heads G G, and the shaft D, having cams H H, all constructed and arranged with respect to the frame B, and operated by the gears and belts, whereby the lumber in the rough is passed through and formed into wash-boards at one operation, as set forth.

179,437. REVERSIBLE GAS-FIXTURES. Geo. Warner, Des Moines, Iowa. [Filed Nov. 2, 1875.]



1. The combination, with the folding gas-tube connection, substantially as described, of a weighted lever to support and balance the weight of said folding tube, as and for the purpose set forth.

2. In combination with the weighted lever F, the center-piece C', the inlet-tube A, and the folding tube B B', substantially as and for the purpose specified.

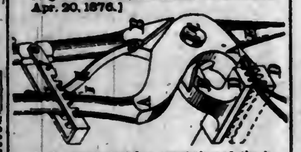
179,438. BRUSHES. John L. Whiting, Boston, Mass. [Filed Aug. 24, 1875.]

Brief.—The compacted bristles and the handle shot, and a ferrule or coil embraces both. All three are then pressed from a cylindrical to a flattened form.



A brush the ferrule or wrapping, as well as a part of the handle, of which has been pressed out of a circle subsequent to its application to the said brush, substantially as and for the purpose set forth and described

179,439. CARPET-STRETCHING MACHINES. August Wilhelm, Cincinnati, Ohio. [Filed Apr. 20, 1876.]

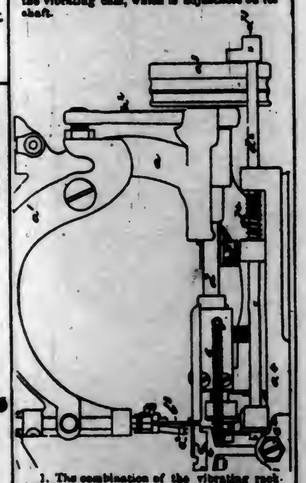


1. A carpet-stretcher consisting of the levers A B, pivoted upon a common center, and having the arms A' B' and jaws D D, the lever B being also formed with the pointed projection E, substantially as described.

2. The pivoted ratchet-frame J, pin I, and spring G, in combination with a carpet-stretcher, substantially as described.

179,440. SEWING-MACHINES FOR UNITING LOOPED FABRICS. Charles J. Appleton, Elizabeth, N. J., and John J. Sibley, New York, N. Y. [Filed Mar. 1, 1876.

Brief.—The bar which carries the points upon which the fabric is held while being operated upon is pivoted to a bracket attached to the frame of the machine, and is vibrated away from and toward the main body of the machine by a cam on the end of a shaft, under the cloth-plate, one vibration being given to each stitch in ordinary sewing, and one to every two stitches (so that the needle at each alternate descent shall pass outside the fabric) in overseaming, the number of vibrations to a stitch being determined by the position of the vibrating cam, which is adjustable on its shaft.



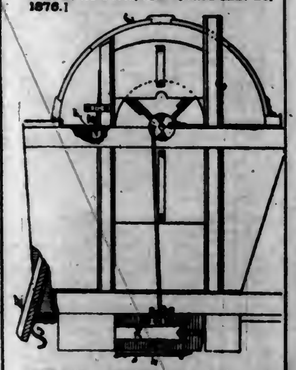
1. The combination of the vibrating rock-bar holder, and rock-bar, with cam *c'* and cam-pin *d'*.

2. The combination of the vibrating rock-bar holder, and rock-bar, with cam *c'* and cam-pin *d'*.

3. The combination of the rock-bar with spring-catch *g'*, stop-motion block *d'*, and shaft *d'*, operating together substantially as described.

4. The combination of vibrating loop-holder *f*, vibrating set-up points *d'*, and vibrating presser-foot *f'*, operating together substantially as and for the purposes described.

179,441. GRAIN-SEPARATORS. Henry H. Benton, La Porte, Ind. [Filed Mar. 20, 1876.]



1. The fan-casing C, inclosing the fan, and hinged at its bottom to the frame-work of the mill, combined with a latch, E, engaging with a keeper, F, substantially as and for the purpose specified.

2. The feed-hopper slide H, combined with a friction-spring, J, permanently attached to the outside of the frame of the machine, and its upper end bent over outward, so as to be accessible to the hand, and bearing with a uniform pressure against said slide.

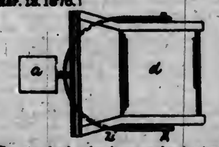
3. The combination, with the shoe and screws, of the hinged flap H, locking all of the screws, substantially as specified.

179,442. SWINGING BUNTER FOR VESSELS. William G. Blair, Hampden, Me. [Filed Mar. 13, 1876.]



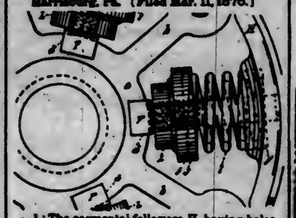
The combination of the frame *a*, suspended from pivots *d d*, sliding on tracks *b b*, with berths *c* and *i*, rigidly attached to each other by hangers *h*, said berth *c* being pivoted to said frame *a* at the center of its length, as herein set forth, for the purposes specified.

179,443. SWINGING CHAIRS FOR VESSELS. William G. Blair, Hampden, Me. [Filed Mar. 13, 1876.]



The standard *a*, having a yoke, *b*, pivoted thereto, as shown, in combination with the chair *d*, pivoted between the arms of said yoke, and provided with a receptacle, *f*, for the reception of ballast, substantially as and for the purpose set forth.

179,444. PITCH-FORKS. W. A. Boyden, Harrisburg, Pa. [Filed Mar. 11, 1876.]



1. The segmental followers H, having holes *a* and pockets *f'*, in combination with the ring D, radial bolts F, and springs I, substantially in the manner and for the purpose set forth.

2. The teeth nuts J, having pockets *f*, in combination with the radial bolts F and springs I, substantially as and for the purpose set forth.

3. The combination of the radial bolts F, nuts J and L, segmental followers H, and springs I with the hub *a* and ring D, substantially in the manner and for the purpose set forth.

179,445. FLY-TRAPS. Thomas W. Brown, Belmont, Mass. [Filed June 12, 1876.]



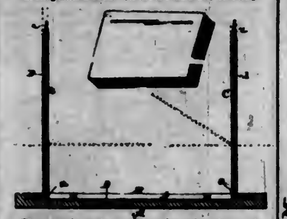
The improved fly-trap, consisting of the frustocone or woven-wire portion, or tapering case A, open at its apex, and the funnel-cone or woven-wire tapering parts C D arranged and applied essentially as set forth, the said portion D being provided with a funnel-cone cap or cover at its upper or larger end, as represented.

179,446. BELOTEES ANNUNCIATORS. Nelson A. Beall, Cleveland, Ohio. [Filed Dec. 18, 1875.]



The herein-described electric annunciator, consisting of the electro-magnet B, the armature C, attached by hinge or spring E to the frame of magnet B; said armature carrying the sliding number-plate F, said plate being held up by hook G, and released to fall by action of the armature, and arranged to be lifted again by the rock-shaft H carrying the arm J, all substantially as and for the purpose specified.

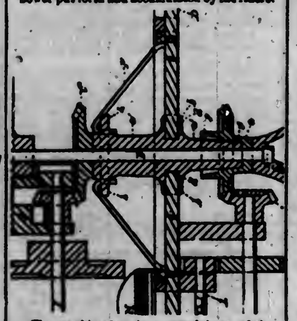
179,447. BELL-FILES. Percy C. Clarke, Memphis, Tenn. [Filed June 14, 1876.]



The combination, with a board or base, A, of the plate B, having one or more screw-holes, *a*, at each end, and the longitudinal slot *b*, the wire D, and the pointed screw-tubes C C, substantially as and for the purposes herein set forth.

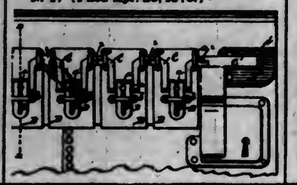
179,448. ROUNDABOUTS. John C. Cline, Philadelphia, Pa., assignor of one-half his right to P. S. Cline, same place. [Filed Dec. 6, 1875.]

Brief.—Arrangement is made to utilize the power put forth and accumulated by the riders.



The combination, in a roundabout, of the rotating wheel D, having a crank-shaft, L, and seat M, with the stationary shaft B and driving-shaft I, the several parts being constructed and arranged and geared together, substantially in the manner and for the purpose set forth.

179,449. MAIL-BAG FASTENINGS. Azel H. Baldwin, Mahopac, assignor of one-third his right to George K. Chase, New York, N. Y. [Filed Apr. 26, 1876.]



1. A series of tongues, D, pivoted to flexible cranks C, and adapted to be rotatively moved, simultaneously in and out of the fastening-staples, substantially as and for the purposes described.

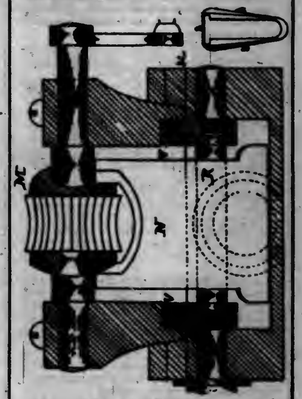
2. A series of jointed flexible cranks, C, in combination with the pivoted slotted tongues D, and fastening-staples *b*, substantially as and for the purposes described.

3. The tongues D having slots *d*, in combination with bolts *a*, cranks C, and staples *b*, substantially as and for the purposes described.

4. The mail-bag fastening mechanism, constructed substantially as described, adapted to be operated by the locking-loop in opening and closing the bag, substantially as set forth.

179,450. MACHINE-GUNS. De Witt C. Farrington, Lowell, Mass. [Filed Apr. 20, 1876.]

Brief.—The barrels are pivoted in front to permit horizontal, and hinged for vertical, movement. The traverse movement can be regulated to any limit between the extremes. The feeding-case has a mouth-piece shaped like a cartridge.



1. A machine-gun with barrels lifting up at the rear independently of the breech mechanism, substantially as and for the purposes set forth.

2. The combination of the barrels A B C, the frame G, the hinge D, and the hook H, substantially as and for the purposes set forth.

3. The combination of the pivoted barrels A B C with the frame G, substantially as and for the purposes set forth.

4. The combination, with the barrels or frame carrying the barrels of a machine-gun, of the saddle N and the bevel-faced pinion M, as described.

5. The combination of the saddle N with the bottoms S S, substantially as and for the purposes set forth.

6. The combination of the saddle N, the casing or frame, the bevel pinion M, and bottoms S S, as and for the purposes specified.

7. The combination of the adjustable saddle N and the frame or casing, substantially as set forth.

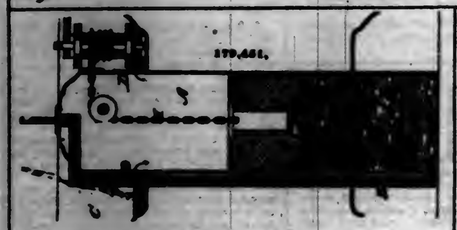
8. The combination of the bottoms S S and the frame or casing, as set forth.

9. The combination of the saddle N, the frame or casing, and the bottoms S S, as set forth.

10. In combination with a feed-case for machine-guns, a mouth-piece, a longitudinal cross-section of the interior of which is substantially of the form and size of a central longitudinal cross-section of the cartridge to be used therein, as set forth.

179,451. PORTABLE FOUNTAINS. Arthur C. Gould, Brookline, Mass. [Filed June 17, 1876.]

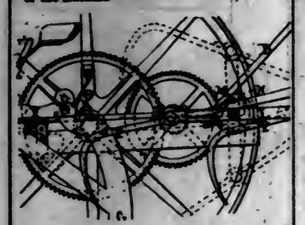
The combination of the vertical cylinder A, basin C, connected to the cylinder by open legs D D, pipe E, communicating with the bottom of the cylinder and extending to the basin, and having a suitable jet-tube connected therewith, weighted piston P, opening in the same, valve G, and device for raising the piston, constructed and operating substantially as and for the purpose set forth.





179,482. POTATO-DIGGERS. William I. Hertell, Gabriel Leiding, N. Y. (Filed Nov. 20, 1876.)

Brief.—The shares is adjustably mounted upon a pair of wheels, furnished with gears for giving motion to a pair of rakes. The rakes are operated by a double crank, connecting about the middle portion of the rods, the rear end being suspended upon long links depending from an adjustable bar. The rakes are put in motion by the forward movement of the machine.



1. The combination, with the plow, of a potato-digger, and two or more toothed rakes co-operating therewith to separate and remove the potatoes from the soil, of a cutter for cutting and separating the ground as it is raised and delivered over the surface of the plow.

2. The combination, with the cutter G, of the toothed rakes F, co-operating therewith to remove the potato-vines, in the manner and for the purpose herein specified.

179,483. GARTER-SUSPENDER. J. Hinkley, Norwalk, Ohio. (Filed Jan. 28, 1876.)

Brief.—The wheels that roll on the carpet are forced outwardly, by springs arranged at the inner ends of their shafts, against the wheels connected with the brush-shafts, thereby rotating the brush by friction of the parts. The brush-holding pan slides up into the main frame from the outer side.

1. The auto-pressure wheels E E E E and F F, in combination with the shafts E' E' E' E' and F' F', springs X X, and brush B, when used in the manner and for the purpose as set forth and specified.

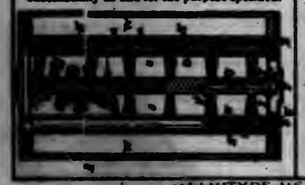
2. The self-adjusting brush-pan G, in combination with the brush E, and box A, when operating together as and for the purpose specified.

3. The ribs Z Z and leather facing U U, in combination with the loose pan G, carrying the brush E, substantially as set forth and specified.

4. The pan G, when composed of the heads J J, sides S S, bottom Q Q, and circular pieces T T, in combination, substantially as set forth and specified.

5. The brush E, leather cushers V V, heads J J, having opening L, and circular pieces T T, in combination, substantially as set forth and specified.

6. The box A, handle C, wheels E E E E and F F, pan G, and brush E, in combination, substantially as and for the purpose specified.



179,484. DEVICES FOR OPERATING FOOT-POWER. George M. Hoag, Providence, R. I. (Filed Apr. 19, 1876.)

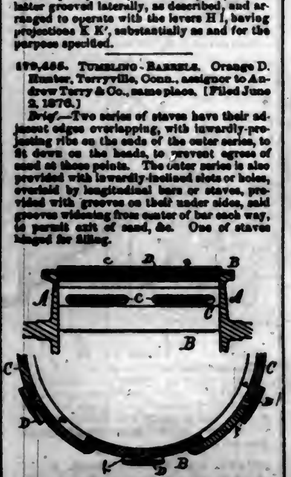
Brief.—On each side of a pulley affixed to a shaft, a loose pulley carries an arm, which has pivoted to it by one end a shaper, which, extending across the disk and being beat partially around the shaft, clamps at its other end a peripheral flange of the fixed pulley in one direction only. Motion received from a treadle and belts.



In combination with the shaft B, the loose double pulleys C D, and fixed pulley E, the latter grooved laterally, as described, and arranged to operate with the levers H I, having projections K K', substantially as and for the purpose specified.

179,485. TUMBLING-BARRELS. Orange D. Hunter, Terryville, Conn., assignor to Andrew Terry & Co., same place. (Filed June 2, 1875.)

Brief.—Two series of staves have their adjacent edges overlapping, with inwardly-projecting ribs on the ends of the outer series, to fit down on the heads, to prevent egress of sand at those points. The outer series is also provided with inwardly-inclined slots or holes, overlaid by longitudinal bars or staves, provided with grooves on their under sides, said grooves widening from center of bar each way, to permit exit of sand, &c. One of staves hinged for filling.

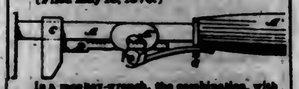


1. A tumbling-barrel composed of two circular heads, A A, two series of concentric staves, B C, placed on different circles and overlapping each other, substantially as described.

2. The alternate staves B and C, the latter provided with transverse ribs a a of less length than the width of said staves, and of a radial thickness equal to that of the staves B, in combination with the heads A A, substantially as described, and for the purpose set forth.

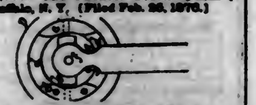
3. The staves of a tumbling-barrel, having the sand-openings e formed in the body thereof, in combination with the transversely-fitted cap D, placed in front of said openings, substantially as and for the purpose specified.

179,486. WRENCHES. Luther M. Johnson, La Grange, Ohio, assignor of one-half his right to George D. Johnson, same place. (Filed May 18, 1876.)



In a monkey-wrench, the combination, with the fixed arm A, of the movable jaw C, having the rack-bar D rigidly secured thereto, and a cam-headed lever journaled in a separate support, and a catch-bar, G, at the end of the handle connect the jaws, as set forth, whereby the cam, resting on the back of the rack-bar, operates to lock the movable jaw at any desired point, without interference with the grasping of the handle, substantially as and for the purpose described.

179,487. PEN-PLIERS. Daniel Lenahan, Buffalo, N. Y. (Filed Feb. 26, 1876.)



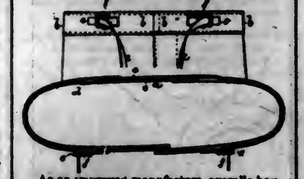
1. In a peg-float head, B, the chilled iron or steel ring c set therein, forming a seat for the cutter a, as and for the purpose specified.

2. In combination with the cutter a, the crown-ring D, having the lugs e e and recesses d d, with the cross-bar b carrying in the lugs, and the cutter-rod C attached thereto, substantially as and for the purpose specified.

3. In combination with the cross-ring D and cutter a, the rod C constructed with the cars f f and recesses g g, so as to operate the cutter at any angle, substantially as specified.

4. In a peg-float, the rest d, in combination with the frame A and rod C, substantially as and for the purpose specified.

179,488. OVERALLS. Llewellyn M. Mott, Boston, Mass. (Filed Apr. 24, 1876.)



As an improved manufacture, overalls having the back opening a, the tubular and slotted waistbands b b, and the two straps c c, (or straps c c and buckles f f,) all arranged and applied as set forth.

179,489. FAN-BUTTERS FOR SAWS. P. G. Marsh, Northampton, Mass. (Filed Oct. 16, 1875.)



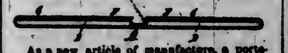
The combination, with the nail and the hooge embracing the mast, of the fair-runners constructed in two parts, secured together by one or more set-screws, substantially as described.

179,490. BOTTLE-HOLDERS. R. F. Money, Boston, Mass. (Filed May 31, 1876.)



The above-described apparatus for holding bottles, consisting of the fixed shelf C, spring S, movable shelf D, and collared shaft B, in combination with a suitable frame-work, as described.

179,491. PORTEMONNAIES. Ernest J. Nolin, Chicago, Ill. (Filed June 1, 1876.)



As a new article of manufacture, a portemonnaie consisting of the back A and front parts C C, connected together to form one or more pockets, D D, and provided with one or more laps, F F, secured to the back, substantially as and for the purpose specified.

179,492. PREPARATION OF COPPER, &c., FOR THE MANUFACTURE OF CULINARY VESSELS AND OTHER ARTICLES. Andrew O'Neill, Baltimore, Md. (Filed Dec. 16, 1875.)



1. The process herein described of preparing sheets of copper, or of an alloy containing copper, by cold-rolling, polishing, nickel-plating, and subsequent buffing or polishing, substantially as set forth.

2. The process of preparing and protecting sheet metal by cold-rolling, polishing, nickel plating, buffing, and coating with an enamel, substantially as herein described.

3. The buffing apparatus constructed with two rollers placed one above, but not directly over, the other, as and for the purpose set forth.

4. As a new article of manufacture, the machine-planished, nickel-plated, polished, and enameled sheet of copper, brass, or yellow metal, herein described.

179,493. DEVICES FOR ADJUSTING SPINDLES. William C. Perry, Manchester, N. H. (Filed Feb. 16, 1876.)

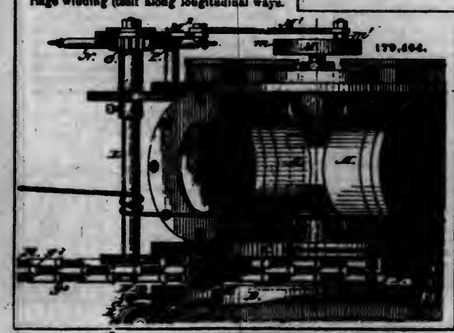
Brief.—By means of the serrated joint the bolster is turned either way, (being secured by the screw,) and the point of the spindle adjusted to any angle required, so that the yarn, either in the form of a cop or on a bobbin, may be run off onto a reel or a spool, as desired.



The bolster-stand a and bolster C, united by the serrated joint d and screw e, in combination with the spindle f, as and for the purposes hereinbefore set forth.

179,494. COAL-MINING MACHINES. T. T. Prosser, Chicago, Ill. (Filed Apr. 5, 1876.)

Brief.—Two pairs of pistons, at right angles, operate a central vertical shaft with a sprocket-wheel below, working cutters on an endless chain stretched on an arm extending from one side, all on a circular track surmounting a carriage wheeling itself along longitudinal ways.





1. The combination, substantially as specified, of the carriage, the engine, the cutting apparatus, and the means for adjusting the engine and cutting apparatus.

2. The combination, substantially as specified, of the carriage provided with the circular track, and the engine and cutting apparatus, adapted to be turned on said track.

3. The combination, substantially as specified, of the circular track of the carriage, with the engine and cutter apparatus, and means for locking the engine and cutting apparatus to the said circular track.

4. The endless cutter-chain, composed of pairs of cogged links, and intermediate blank links, all the links being provided with bits, substantially as specified.

5. The flanged driving-wheel, in combination with the ribbed cutter-bar, provided with a protruding rotating disk at its extreme outer end, substantially as specified.

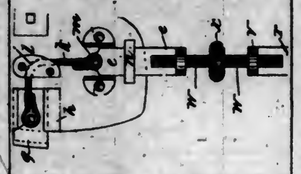
6. The cutter bar or arm H, having a yielding end, H', substantially as and for the purpose specified.

7. The combination, with each track-wheel of the carriage, of a separate brake, substantially as and for the purposes specified.

8. The combination, substantially as specified, of the pawl, the pistn flattened on one side, the piston, and the spring.

9. The combination, substantially as specified, of the carriage, the four-cylinder engine, mounted thereon for circular adjustment, the central crank shaft, the driving-wheel, and the endless chain of the cutting apparatus.

179,495. SEATS. Charles G. C. Simpson, Montreal Canada, assignor to Chas. Brewster, same place. (Filed May 12, 1876.)



1. The combination of clasp g, cable k, and friction-block l, substantially as and for the purposes set forth.

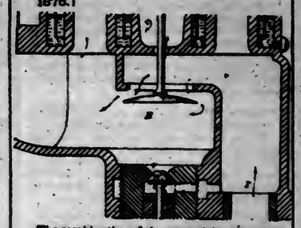
2. The combination of the clamp g, cable k, friction-block l, bars s and r, and screw-spindle w, substantially as and for the purposes set forth.

179,496. HORSE-DETACHERS. Geo. Townsend, Greenville Centre, N. Y. (Filed Dec. 9, 1875.)

1. The combination of the pulley K, operated by the cord S, provided with a sleeve, I, having the upper end squared to fit on a similarly-shaped opening in the pulley F, and the cords c, for operating the rods G, substantially as herein described.

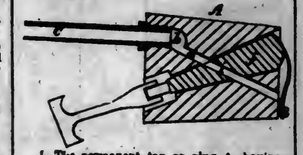
2. The combination of the cord S, block and pulley T, the cord U, and pulley W, for operating the pulley K, substantially as herein set forth.

179,497. GAS-REGULATORS. John D. Averell, New York, N. Y., assignor to John C. Schooley, same place. (Filed June 7, 1876.)



The combination of the automatic drip-valve W with the discharge chamber E of the pressure-governor and its inlet I, substantially as and for the purpose herein set forth.

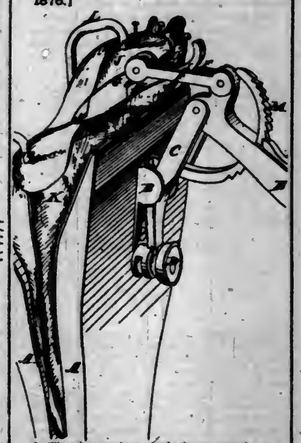
179,498. BARREL TAPS AND FAUCETS. H. T. Barlow, San Francisco, Cal. (Filed Apr. 27, 1876.)



1. The permanent tap or plug A, having the angular hole or passage e arranged to connect the interior of the barrel or cask with the faucet C, in combination with the conical valve or plug f, with its hole or passage i arranged to cross said passage e transversely, substantially as and for the purpose described.

2. In combination with the tap or plug A, provided with the angular passage e, and transverse conical plug f, with its passage i, the spring o, for keeping the plug in place and pressing it to its seat, substantially as specified.

179,499. LASTING-MACHINES. Wm. Bayhouse, Boise City, Idaho. (Filed Feb. 29, 1876.)



1. The clamps A A, with their curved beveled edges, and provided with the arms L for holding the last, in combination with a device for stretching or lasting the upper-leather, substantially as herein described.

2. The knee-lever E, with the links F, connected with the arm G of a forceps or pinchers, and acting upon the arm H by means of the pin I, which rests upon the links, so that the action of the lever will close the pinchers, substantially as herein described.

3. The lever E, for operating the pinchers

and hasting the latter, in combination with the adjustable fulcrum-arm C, substantially as herein described.

4. The arm G, supported as above, and having one end formed into a fulcrum for the lever E, while the opposite end is moved and adjusted by the screw D, substantially as herein described.

5. In combination with the fulcrum-arm G and the operating-lever E, the curved rack M and the pawl n, substantially as and for the purpose herein described.

179,470. STRAP-HINGE. A. C. Buffington, Cambria, Cal. [Filed June 2, 1876.]

Brief.—The ordinary strap-hinge is provided with a copper or other soft-metal pintle, and also with soft-metal washers, intermediately placed between the knuckles, the construction furnishing an inexpensive non-corroding hinge for butter-boxes and the like uses.

In a strap or other hinge, the leaves A, made of hard metal, in combination with a soft-metal pintle, C, and intervening soft-metal washers *d d*, as described, and for the purpose set forth.

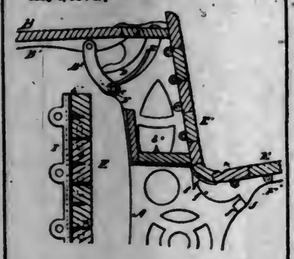


179,471. BRACKETS FOR HOLDING LAMPS. E. Campbell, San Francisco, Cal. [Filed Dec. 28, 1875.]

1. The improved bracket described, consisting of the body A, provided with the screw J, standard C, and screw D, in combination with the arm F provided with pintle *d*, and clamps G H, constructed and arranged to operate substantially as set forth.

2. In a bracket, substantially such as described, the arm F provided with the elastic clamps G H, constructed and arranged to operate substantially as set forth and specified.

179,472. SCHOOL SEATS AND DESKS. Josiah Dolph and William A. Bradford, Goshen, Ind., assignors of one-half their right to L. H. Noble & Son, same place. [Filed May 1, 1874.]



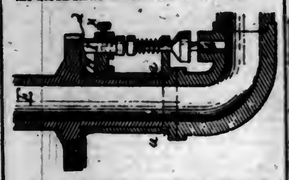
1. The pivoted guide E, arranged within the channel D, its lower end projecting over the notch F, in combination with the pivoted brace B' and hinged leaf B, substantially as shown and described.

2. In combination with the side castings A and the tilting seat E, pivoted thereto through the shoulder-plates F', the stops f' f', located on opposite sides, respectively, of the seat-pivot, and serving to distribute the strain imposed by unequal seat weight or the falling of the seat, substantially as described.

3. The combination, with the transversely-grooved slats and frame-castings, of the bent sheet-metal plates I, having plain corners, and secured to the slats and castings by means of screws or rivets, as shown and described.

179,473. LOCOMOTIVE WATERING DEVICES. Caleb E. Dodge, Niles, Mich. [Filed Apr. 10, 1876.]

Brief.—As the revolving steam-pipe is turned so as to supply the locomotive, one of the cams soon impinges on the valve-stem, thereby preventing waste. The waste-valve in warm weather may be held to its seat by the set screw. The perforations in the supporting-jacket of the revolving pipe prevent the accumulation of ice between the two.

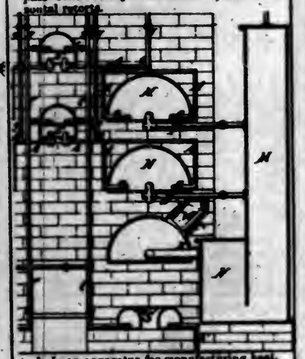


1. The combination of the seated flange O, with its surrounding recess or chamber, and discharge-openings *a a a*, as and for the purpose set forth.

2. The combination of the rotating pipe B, cams *d d*, jointed elastic valve-stem I, spring S, valve O, and discharge-opening A, substantially as set forth.

179,474. MANUFACTURE OF GAS FOR ILLUMINATING AND HEATING. Joseph P. Gill, Newark, N. J. [Filed June 6, 1876.]

Brief.—The gas and vapors are forced to pass continuously downward through heated metal reports.



1. In an apparatus for manufacturing heating or illuminating gases, an improved means for superheating steam by passing it in a downward direction through incandescent material, a retort (horizontal, or approximately horizontal,) with an inlet in its upper chamber, and an outlet in close proximity to its bottom, substantially as shown and described.

2. An apparatus for the manufacture of heating-gas, in which the superheated steam and hydrocarbon vapors are passed downward through retorts containing incandescent metallic or mineral substances, the product of said vapors and steam being discharged by pipes opening in close proximity to the bottom, as and for the purposes set forth.

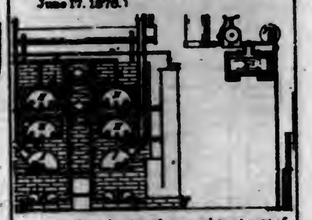
3. An apparatus for manufacturing illuminating-gas, in which the superheated steam, mixed with hydrocarbon vapors, is passed downward through retorts containing incandescent metallic or mineral substances, and the hydrogen issuing therefrom is passed downward into a vaporizer, and thence downward and upward through a retort, as set forth.

4. An apparatus for manufacturing illuminating gas, consisting of the superheater, retorts for holding incandescent metal or mineral substances, pipes leading from the superheater, and from a vaporizer, downward into said retorts, other pipes leading from the lower part of said retorts to a second vaporizer, which vaporizer discharges downward and upward through a retort in which the illuminating-gas is fixed, as set forth.

5. An apparatus for manufacturing illuminating-gas, consisting of the lower superheater S, upper superheater S', hydrogen-retorts E H, and their descending pipes, vaporizer M N, and fixing-retort, the whole apparatus being connected by suitable pipes, and regulated by valves, as set forth.

6. The process of manufacturing heating gas, which consists in passing the steam and hydrocarbon-vapors in mixture downward through their respective retorts, substantially by the means and in the manner set forth.

179,475. TREATMENT OF MINERALS. Chas. &c. Joseph P. Gill, Newark, N.J. [Filed June 17, 1876.]



1. In the reduction of ores and treatment of molten metals, the direct application of hydrogen gas, either pure or with a small admixture (less than ten per cent.) of carbonic oxide, and without the presence of any other fuel or purifying agent, said hydrogen gas being applied at the beginning of the process with a supply of atmospheric air to produce full combustion of the hydrogen, but subsequently with an excess of hydrogen, as and for the purpose set forth.

2. The direct application of hydrogen gas in succession, the hydrogen being applied first in order, in connection with hydrocarbon vapors or carbureted-hydrogen gas, and either with or without carbonic-acid gas and superheated steam, in the manufacture of steel and cast iron or malleable cast-iron from iron, or in the process of giving a steel surface to articles of wrought iron, substantially in the manner as herein described, and for the purpose set forth.

3. A gas-regulator, substantially such as is described, interposed between the gas-holders and the blast or other furnaces or forges, as set forth.

4. The direct application of hydrogen gas, either pure or with a small admixture (less than ten per cent.) of carbonic oxide, and with a small percentage of carbonic acid, and with or without superheated steam, to articles of cast iron, said articles having their surfaces wholly exposed in a heated chamber, as and for the purpose set forth.

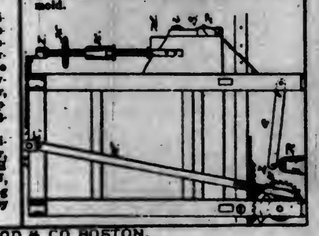
179,476. LABEL-HOLDERS. J. Hertzogen, Allentown, Pa. [Filed Dec. 6, 1875.]



The within-described plate-marker, struck up or otherwise formed of a single piece of sheet metal, with the tines or prongs B and C, and the handle A, with lips or hooks *a*, substantially as and for the purposes herein set forth.

179,477. BEER-MACHINES. A. V. Heyden, Milwaukee, Wis. [Filed Oct. 14, 1876.]

Brief.—The follower is provided with a perforated pressure-plate, loosely attached, having a guard surrounding the follower, and protecting the same from clay falling upon it. The door yields to great pressure, to prevent breaking in case of stone getting into the mold.



Presser-box T, follower M, plate N, stone-door P, and guard O, in combination with pitman I, H, and K, substantially as set forth.

179,478. HOSE-NOZZLES. John C. Hull, Bridgeport, Conn. [Filed Feb. 26, 1876.]

Brief.—The size of the stream is regulated by the inner nozzle. By drawing back the base of the inner nozzle to its seat, and removing the outer casing, a series of jets is obtained.



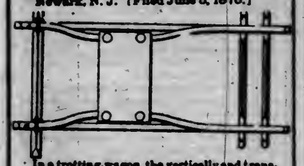
1. The combination, substantially as herein-before set forth, of the supply-tube and the nozzles of different sizes, adjustable relatively to each other, as set forth, whereby streams of different sizes may be thrown from a common supply-tube.

2. The combination of the supply-tube, the shell or casing adjustably secured thereto, the chambered outer casing or cap provided with a nozzle, and the inner nozzle, the water-way or passage of which communicates with the chamber in the outer casing, substantially as and for the purpose set forth.

3. The combination, substantially as herein-before set forth, of the supply-tube, the shell or casing adjustably secured thereto, and provided with jet-openings at its outer end, and the valve on the end of the supply-tube, for the purpose specified.

4. The hose-nozzle herein-before set forth, consisting of a supply-tube, a shell or casing adjustable thereon, and provided with a series of perforations at its outer end, a nozzle detachably secured to the supply-tube, and an outer casing or cap provided with a nozzle, and detachably secured to the inner shell or casing, these parts being constructed and operating substantially as herein-before set forth, to adapt the nozzle to throw solid streams of different sizes, or a spray.

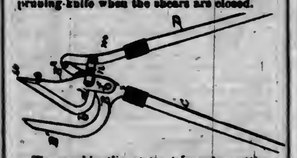
179,479. TROTTING-WAGONS. P. Jones, Newark, N. J. [Filed June 6, 1876.]



In a trotting-wagon, the vertically and transversely curved bars A, rigidly attached to the frame at their forward and rear ends, combined with a seat arranged on the said bars, all substantially as specified.

179,480. PRUNING-SHEARS. John S. Ketterman, Shannon, Ill. [Filed Mar. 30, 1876.]

Brief.—The cutting-blade is a pair of pruning-shears is nearly triangular with inside cutting-edge, from point to heel. The other blade is a plate nearly U-shaped, and its projecting arm is pivoted to the opposite shank, a connecting-link being also used; the construction giving powerful leverage, while a back cutting-edge enables the point to be used as a pruning-knife when the shears are closed.



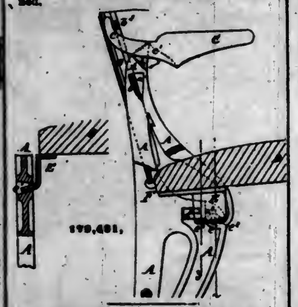
The combination of the triangular cutting-blade A, having cutting-edges *a b d* and back cutting-edge from *a* to *c*, the U-shaped plate B B' B², with handle C, the handle D, and shank *n*, with connecting-link *n*, substantially as and for the purposes herein set forth.

179,481. OPERA-CHAIRS. B. H. Koechling, New York, N. Y. [Filed July 24, 1875.]

1. The side frames A, having wedge-shaped upper ends a^2, in combination with the arms C, having wedge-shaped recesses *c'* in their lower sides, as and for the purpose described.

2. The back B, having wedge-shaped pivots b^1 upon its side edges, in combination with side frames A, having V-shaped holes a^1 in their upper parts, as and for the purpose set forth.

3. The angular plates E, attached to seat D, having the downwardly-inclined pivots c^1, and provided with stops c^2, in combination with the frames A, having flaring holes, and the shoulders a^3, as and for the purpose specified.



179,482. TABLE-CUTLERY. J. B. H. Loomar., New Britain, assignor to the Frary Cutlery Company, Bridgeport, Conn. [Filed Mar. 9, 1876.]

Brief.—The flat tang has a screw cut upon its edges, and this screw takes into the sides of the circular recess bored longitudinally in the end of the handle. The space on each side of the screw-tang is filled with soft metal.



The herein-described method of attaching handles to cutlery, consisting of the flat threaded tang screwed into the cavity in the handle, combined with a filling in the said cavity on the side of the tang, substantially as set forth.

179,483. CHECKERS. William H. Lewis, Green Point, N. Y. [Filed Apr. 3, 1876.]

Brief.—The checker-men have each a rib, upon which the corresponding groove of another "man" fits when a king is crowned in the game of draffs.



The checkers, each made with an annular rib on its upper side or surface, and in its under surface a corresponding annular groove, substantially as specified.

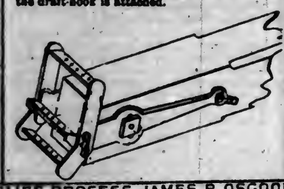
179,484. METALLIC SEAMS. J. McCloskey, New York, N. Y. [Filed Nov. 12, 1875.]



The metallic seam made up of overlapping staples, arranged obliquely to each other, and clenched separately, forming a continuous seam, substantially as herein described.

179,485. DRAFT-EQUALIZERS. Joseph B. Morrison, Fort Madison, Iowa. [Filed May 20, 1876.]

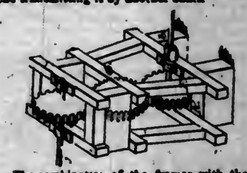
Brief.—Two curved upright arms are connected by perforated cross-pieces, to which the draft-hook is attached.



A three-horse draft-equalizer, consisting essentially of upright bars, adapted to be pivoted to the front end of a plow-beam, the said bars being connected by perforated arcus-bars, whereby the land and depth of the plow may be regulated as desired, all constructed substantially as and for the purpose set forth.

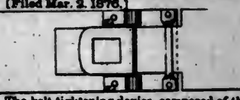
179,486. HORSE-POWERS. G. W. Parrish, Salem, assignor of one-third of his right to R. B. Moorman, Big Lick, Va. [Filed Mar. 4, 1876.]

Brief.—A frame interposed between the power and thrash-box has three wheels in a vertical plane—the lower one worked by a shaft extending from the power, the upper one transmitting it by another shaft.



The combination of the frames with their gearing and connections, whereby accelerated motion is produced, and the working capacity is increased, substantially as herein shown and described.

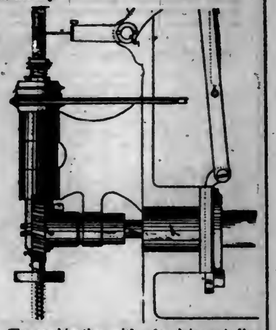
179,487. BELT-TIGHTENING DEVICES. G. W. Parrish, Salem, assignor of one-half his right to R. B. Moorman, Big Lick, Va. [Filed Mar. 2, 1876.]



The belt-tightening device, composed of the skeleton-frame and the brace riveted to the band, and the detaining-flap connected to the said frame, the whole constructed as and for the purpose set forth.

179,488. COP-WINDERS. Wm. Reid, Glasgow, Great Britain. [Filed Apr. 10, 1876.]

Brief.—On the end of the spindle next the pulley, tension or holding disks, controlled by spring, are placed, which retain the inner end of the cop.

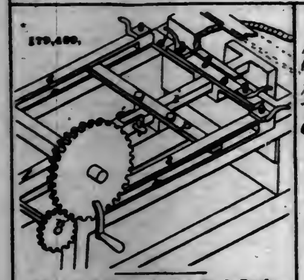


The combination, with a revolving spindle for winding a cylindrical cop, of a holder upon the spindle beyond the portion that receives the cop, substantially as specified, whereby the inner end of the thread is caused to project from the inside of the cop, substantially as set forth.

179,489. CHURNS. Jas. Root, Woodland, Cal. [Filed Apr. 27, 1876.]

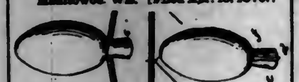
Brief.—The churn-box is held by clamps upon the frame, and is removable. The dasher can be thrown up and backward out of the churn, and is operative is guided at the sides of the frame.

A churn constructed with a removable box and pivoted dasher-rod, and having the removable bar *e* and swinging bars *e e*, arranged to be locked down by means of screw-nuts, as shown, and the pivoted dasher-rod, provided with cross-guide *p*, and also working in cross-bar *d*, substantially as specified.



179,490.

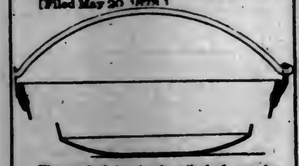
179,490. FISHING-NET FLOATS. L. Sander, Manitowoc, Wis. [Filed Apr. 15, 1876.]



1. A float for fishing-nets, constructed of wood or other suitable material, and provided with the attaching-slot *d f*, for securing the same to the net, substantially as described.

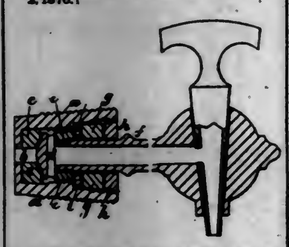
2. A fishing-net float, provided with the tapered neck *e*, having slot *d f*, substantially as and for the purpose described.

179,491. MAKING SHEET-METAL KETTLES. Fredk. J. Seymour, Wolcottville, Conn. [Filed May 20, 1876.]



The method herein described of manufacturing bream kettles, consisting in shaping the sides and reducing the thickness of the metal toward the top, and then finishing the bottom by the final spinning operation that renders the same convex and hardens the metal, as set forth.

179,492. LOCKS AND FAUCETS. Amos C. Springer, San Francisco, Cal. [Filed June 2, 1876.]

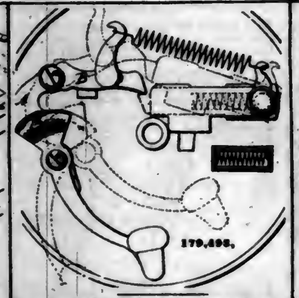


1. The outer socket *c*, with its seat *e*, in combination with the valve *d*, attached to the interior socket *c*, as shown, said socket having the right and left screws, and constructed to be operated by the faucet *f*, substantially as herein described.

2. In combination with the socket *c*, having the valve *d*, secured to and operated by the interior socket *c*, and the faucet *f*, as shown, the packing-disk *g*, for making a tight joint around the faucet, with the cap *h*, substantially as herein described.

179,493. SPRING-HAMMERS FOR BELLS. A. B. Tanner, New Haven, Conn., assignor to Sargent & Co., same place. [Filed June 22, 1876.]

In a gong bell, the hammer-arm pivoted to the hammer-lever, and provided with an independent spring between the hammer-lever and the hammer-arm, substantially as and for the purpose described.



179,493.

179,493. BENCH-PLANES. John J. Tower, Brooklyn, N. Y. [Filed May 29, 1876.]

Brief.—A hollow cast-metal plane-handle is provided with a cross-bar, cast with the handle, for the purpose of strengthening the lower part of the handle, and preventing it from being bent.



The metallic plane-handle cast hollow, with a cross-bar, *c*, and dovetail lips *e* extending a part of the distance along the inner portion of the base, in combination with the dovetail block *f* upon the stock of the plane, substantially as set forth.

179,494. TIME-LOCKS. J. Worley, Cleveland, Ohio. [Filed May 20, 1876.]



1. In combination, with the bolt-works of a lock, an hour-glass provided with a sliding gage, having graded openings or intercommunications, whereby the flow of sand in said hour-glass may be hastened or retarded, so that the same shall perform its function within a given and predetermined time, substantially as and for the purpose shown.

2. In a chronometric lock, the combination, with the chambers A and B of the hour-glass, of followers D, arms E, and the bolt-works of a lock, substantially as and for the purpose shown.

179,495. MEANS FOR DRIVING THE SPINDLES OF SPINNING-MACHINES. Thos. Wrigley, Paterson, N. J. [Filed Feb. 28, 1876.]

Brief.—The tubular socket which supports the spindle is at the end of a yielding or spring arm, thereby insuring proper contact between the frictional surfaces of the beveled wheel and pinion.

The yielding arm *v*, tubular socket *f*, bearings *i i*, and spindle *c* in combination with the beveled friction-wheel *b* and beveled pinion *d*, substantially as set forth.

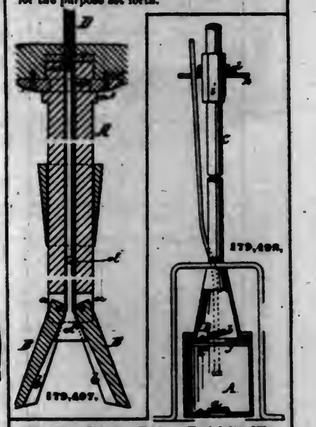
179,496. BEARINGS. Evan K. Adair, Oasis, Iowa. [Filed May 20, 1876.]

1. The lever C, provided with an interior screw-threaded surface, in combination with a screw-threaded rod, D, having a separating wedge-extension, *d*, and hollow shaft A, and expansible jaws B B, substantially as and for the purpose set forth.

2. In a reamer for enlarging drilled holes, a hollow shaft, A, adapted to guide an endwise movable rod, and which is provided with ratchet *a*^{2} on its upper end, substantially as and for the purpose set forth.

3. The combination of a ratchet, *a*^{2}, on shaft A with pawl *c*^{2} on handle C, and lifting-pin *a*^{3}, substantially as set forth.

4. In combination with the screw-threaded rod D, handle C, shaft A, and the adjusting and sustaining washer E, substantially as and for the purpose set forth.



179,497.

179,498.

179,498. PUMPS. Eugene F. Adsitt, Watertown, N. Y., assignor of one-half his right to William H. Burton, same place. [Filed May 3, 1876.]

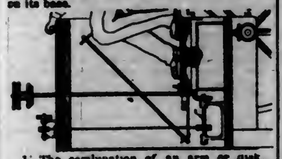
Brief.—An opening in the stationary piston permits the water in the stand-pipe to pass into, and by its weight lowers the bucket until the opening near its top is uncovered, thereby allowing the water to pass into the well. A prismatic sleeve forms a continuous connection between the stand-pipe and the foundation-plate of the pump.

1. In combination with the bucket A of a lift and force pump, having an opening, *h*, located as specified, the stationary piston provided with a waste-water opening, *j*, as and for the purpose described.

2. In combination with the elevating-pipe C of a pump, and the prismatic sleeve *l* formed on or securely connected to it, the adjustable supporting-collar *k*, having a corresponding polygonal central opening, substantially as and for the purpose described.

179,499. TREADLE-MOVEMENTS. Arthur M. Allen, New York, N. Y., assignor to J. L. M. Allen, same place. [Filed Dec. 28, 1875.]

Brief.—A horizontal disk rotated by the foot (placed flat on its upper surface) of a person sitting or standing, the movement of the leg describing the surface of a cone resting on its base.

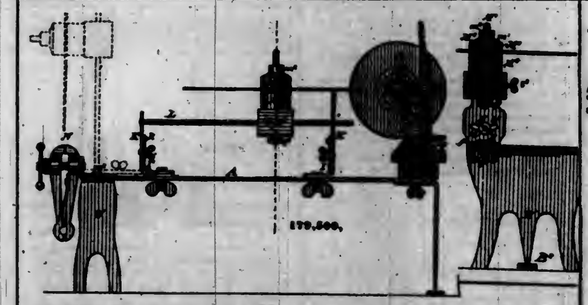


1. The combination of an arm or disk, mounted on a vertical or inclined shaft, with a pedal connected by a pivot and a socket in the arm or disk, substantially as and for the purpose shown and described.

2. The combination of a universal joint, *d*, with the pivot *c*, pedal B, and arm or disk A, all constructed and operating substantially as set forth.

179,500. SAW-SHARPENING MACHINES. E. Andrews, Williamsport, Pa. [Filed Feb. 19, 1876.]

Brief.—The saw-supporting apparatus is hinged to the supporting-table, so as to turn from a horizontal to a vertical position, and present the teeth of the saw to a jointing-file held by a vise, which slides to and fro on an angle of the supporting-table. The table has one end pivoted to the floor, to regulate the emery-wheel shaft to the driving-shaft.



179,500.

1. In a machine for grinding circular saws, the main frame pivoted at one end to the floor of the shop by a leg, B^1, resting in a socket, B^2, secured to the floor, substantially as described and shown.

2. The combination of the main frame, pivoted at one end to the floor of the shop, and the emery-wheel-carrying frame, adapted to turn upon the said frame, substantially as described and shown.

3. In combination, the sliding bed M, the rod M^1, the blocks M^2 M^3, the downwardly-projecting central block M^4, sliding freely upon said rod M^1, and the nuts P *n*^{2}, constructed and arranged substantially as described and shown.

4. The combination, with the table A, of the standards I I', the pivoted plates K K', and supporting guide-rods L L', constructed and arranged substantially as described and shown.

5. The combination, with the table A, of the standards I I', the pivoted plates K K', guide-rods L L', sliding bed M, and a saw-securing device, substantially as described and shown.

6. In a saw-grinding machine, the combination, with the table A A', of the vise N sliding thereon, and the sliding bed M, to which the saw is secured, adapted to be swung from a horizontal to a vertical position, substantially as described and shown.

7. The combination, with the hinged standard I', guide-rods L L', and sliding bed M, of the adjustable vise N, constructed and arranged substantially as described and shown.

8. In a saw-sharpening machine, and in combination therewith, an emery wheel secured upon a screw-threaded shaft, and secured thereon by a series of metal disks of gradually-decreasing size, with interposed rubber rings, substantially as and for the purpose set forth.

179,501. SPOUT-FORMERS. Louis Aye, Winona, Minn. [Filed Apr. 8, 1876.]

Brief.—A rectangular block provided with the counter-die is adjustable in a shell. An engaging-pin and recess in the dies retain the blank in place in the act of forming.



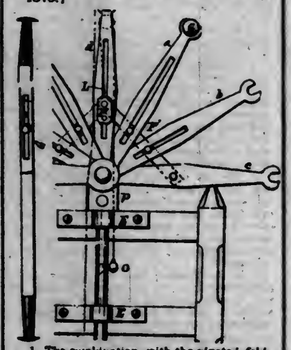
1. In combination with the rectangular shell A of the removable rectangular block B, having formed therein a counter-die, *c*, which corresponds to the shape of the spout to be made, substantially as described.

2. The combination of the counter-die *c*, having perforation *e*, and die J, having retaining-pin *e*', substantially as and for the purpose set forth.

179,502. COMPOUNDS FOR MANUFACTURING CRUCIBLES. Henry Baggeley, Pelham, assignor to John S. Leigh, London, England. [Filed May 6, 1876.]

In a compound for the manufacture of crucibles, retorts, and other similar vessels, the combination of Cornwall or china stone, coke, bone-dust, and fire-clay, substantially as set forth.

179,503. MOSQUITO NETS AND CANOPIES. Lydia K. Ballou, Watervliet, and George G. Lee, Paw Paw, Mich. [Filed May 27, 1875.]



1. The combination, with the pivoted folding frames, of adjusting-bars F, substantially as shown and described.

2. The combination of clamp-nut F and screw E' with vertical rigid arm *d*, movable arms *a b c*, and bars F', provided with studs working in slots of arms *a b*, as shown and described.

3. The combination, with the arms *a b c d*, having notches in their outer ends, of bars G, having heads with contiguous flat and cylindrical portions, as shown and described.

4. The combination, with notched arms, of the bars G made in two parts, respectively provided with slot and clamp-screw, as shown and described.

179,504. LAMP-WICK TRIMMERS. John Beamby, Hempstead, assignor to himself and Wm. Lorenz, Brooklyn, N. Y. [Filed June 12, 1876.]

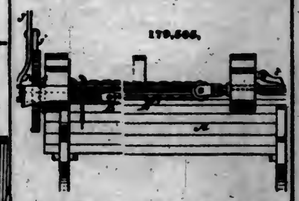
Brief.—Bow-shaped cutters are pivoted at their outer ends, and worked by spring-levers attached at their centers with the fulcrum beyond the bows. A ring under the cutters rests upon the lamp outside the wick-tube, and serves as a rest and guide.



1. The bow-shaped cutters A, having angle edges, and being pivoted together at the ends, in combination with levers D pivoted to them at the middle, and also pivoted to a fulcrum, E, substantially as specified.

2. The ring-base C, in combination with cutters A and levers D, substantially as specified.

179,505. CHEESE-PRESSES. Arad d. Beach, Groton, N. Y. [Filed June 6, 1876.]



179,505.

1. A cheese-press adapted to receive and press a series of cheeses end to end, and having its holder-frame composed of or provided with a receptacle for the proper collection and discharge of all the expressed liquid, substantially as set forth.

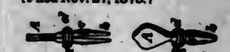
2. In combination with a frame, or frame-work and suitable platens, between which to compress the interposed gang of cheeses, two or more drawing screw-shafts, or their equivalents, the whole arranged to operate substantially as set forth.

3. In combination with a press adapted to press a series of cheeses, with the hoops arranged end to end, one or more sliding holder-boards, I, or their equivalents, and means for holding said board or boards in place vertically, all substantially as and for the purpose described.

4. In combination with the box or body A of the press, suitable ways *o n*, or their equivalents, upon which to rest and slide the hoops in the operations of putting in, pressing, and removing the cheese.

5. The combination, with a system of gears for operating a series of press screw-shafts, of a hand lever and reversible pawl or finger, *i*, or its equivalent, the whole arranged to operate substantially as described, for the purpose set forth.

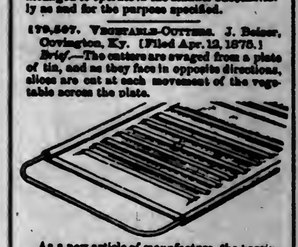
179,506. ADJUSTABLE WATCH-KEYS. H. Bernstein, San Francisco, Cal., assignor to S. Farjeon and J. Diamtstein, same place. [Filed Nov. 27, 1876.]



A watch-key having the flat thumb-piece or handle A and stem b, made in two halves, and riveted together, forming an elastic self-opening stem, the stem made tapering, with an enlargement at *c*, in combination with the sliding adjusting-ring *d*, all constructed and arranged to operate in the manner substantially as and for the purpose specified.

179,507. VEGETABLE-CUTTERS. J. Beiser, Covington, Ky. [Filed Apr. 12, 1876.]

Brief.—The cutters are swaged from a plate of tin, and as they face in opposite directions, slices are cut at each movement of the vegetable across the plate.



As a new article of manufacture, the herein described vegetable-cutter, having knives facing in opposite directions, substantially as specified.

179,508. ARTIFICIAL TEETH. M. Bemis, New London, Conn. [Filed June 20, 1876.]

Brief.—A lower set is composed entirely of double teeth, and is used by placing it directly over either the stumps of front teeth, or on front teeth themselves when they are very short.



Artificial teeth in which the plates A are formed to fit over the remaining natural teeth, with the teeth B arranged with the meeting side inward, and being all, or only in part, molar teeth, substantially as herein shown and described.

179,509. COFFEE-MILLS. Johannes H. Berg, St. Olof, Minn. [Filed Mar. 11, 1876.]



The combination, in a coffee-mill, of the box A, having flaring mouth or feed-funnel C, removable plate or cover B, and projecting grinding plate H, with the reciprocating grooved and ribbed grinding-disk F, having lever or handle b, all constructed and arranged to operate substantially in the manner and for the purpose set forth.

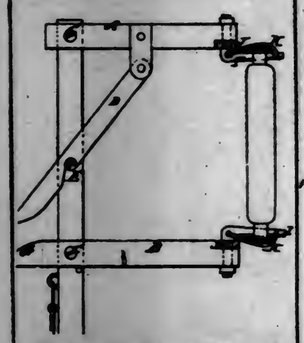
179,510. BOBBINS. Jacob T. Blauvelt and Reed Mortimer, Paterson, N. J., assignors to the Danforth Locomotive and Machine Company, same place. [Filed Feb. 16, 1876.]



As a new article of manufacture, the herein-described bobbin, formed of metal cast in one piece, recessed, and perforated, as shown, for the purpose set forth.

179,511. MAIL-BAG CHAINS. J. A. Boals, Dinsmore, Pa. [Filed Apr. 20, 1876.]

Brief.—When the bag is caught, the arms all fall close to the post out of the way.



1. The pivoted arm B, having extension C, in combination with pivoted notched extension-brace D, standing on a stud, E, for the purpose specified.

2. The springs J, combined with the turning pins I, substantially as specified.

3. The combination of springs J with the turning pins I and the keepers K, substantially as specified.

179,512. COAL-HODS. John S. Brooks, Brooklyn, N. Y. [Filed Feb. 17, 1876.]



1. A folding or wardrobe bedstead, containing a flexible and elastic bed-bottom, supported within the case by its ends only, leaving sufficient unobstructed space beneath the mattress for the elastic requirements of the bed when spread for use, and permitting the bed-bottom and the bedding thereon to occupy such unobstructed spaces within the case when folded, substantially as specified.

2. The combination, with a flexible bed-bottom and a jointed frame, of one or more springs interposed between the cross-rails of said frame and the flexible body, whereby when folded the springs are relieved of all tension except that caused by the weight of material suspended from them, substantially as specified.

3. In combination with the base D and elastic bed-bottom A the pivoted sections B and C, provided with the means herein described to prevent their premature folding, substantially as specified.

179,513. SLOP-HOPPERS. Charles H. Burr, Chicago, Ill., assignee of one-half his right to Geo. W. Burr, same place. [Filed Mar. 18, 1876.]

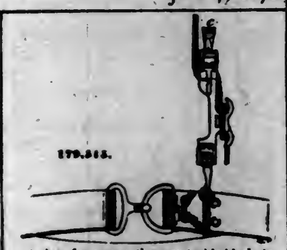


1. A movable slop-pail, constructed with receptacle H, strainer I, removable cover O, bail P, and side handle N, all in combination, substantially as set forth.

2. The trap Q, with dam L, flange D, surface-drain G, and openings A and E, substantially as described, and for the purpose set forth.

3. The combination of pail H, having bail P, cover O, side handle N, strainer I, with trap Q, having dam L, flange D, surface-drain G, and openings A and E, substantially as specified.

179,514. FIRE-ESCAPES. Robert Rankin, St. John, New Brunswick, Canada. [Filed May 18, 1876.]



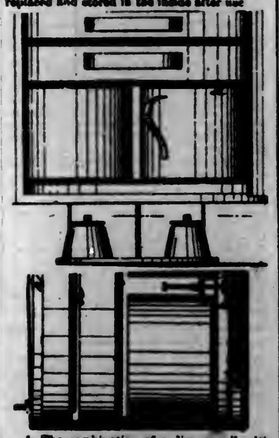
1. In a fire-escape, the open tackle-block, to be used in connection with a rope, the snap-hook, and a belt, adapted to be secured to the body of the person to be lowered, substantially as described.

2. In combination with the open tackle-block, to operate in connection with a rope, the snap-hook C, attached to said block for the purpose of supporting the apparatus when the operator descends to lower another person, and for guiding the apparatus down an auxiliary rope, substantially as described.

3. In combination with the open tackle-block, to operate in connection with a rope, the extension or shank and cleat thereon, substantially as described.

179,515. DINNER-PAILS. Otto Cæsar, New York, N. Y. [Filed June 6, 1876.]

Brief.—A dinner-pail with a recessed bottom and a heating attachment, that may be lowered to form a support for the pail, and replaced and stored in the inside after use.



1. The combination of a dinner-pail with a heating attachment that is secured to the bottom and adapted to be stored within the pail when carried, and lowered to support the same for heating, substantially in the manner and for the purpose specified.

2. The combination of the bottom of the dinner-pail, having openings for the heating-lamps, with a lamp-tray sliding and turning on a center pillar or post, substantially as described.

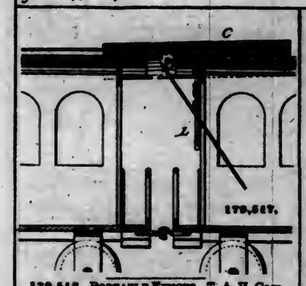
3. The movable lamp-tray of a dinner-pail, provided with hinged and spring-acted supports that fold on the tray when carried up to the bottom of the same, but swing up to support the pail when the tray is lowered, substantially as specified.

4. The combination of the movable lamp-tray, having a leg, with the bottom recessed, and the locking device of the pail, substantially as specified.

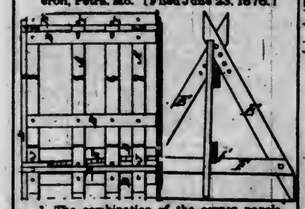
179,517. CAR-PLATFORM PROTECTORS. J. F. Calloway, Louisville, Ky. [Filed May 8, 1876.]

1. The rollers D and E, arranged, respectively, at the edges and underneath the sliding protector C, as and for the purpose set forth.

2. The bolt I, in combination with the car and sliding protector, as and for the purpose herein set forth.



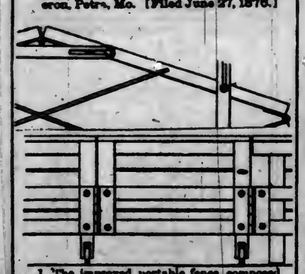
179,518. PORTABLE FENCES. T. A. H. Cameron, Petra, Mo. [Filed June 23, 1876.]



1. The combination of the corner panels, one having the vertical bar H attached to the shouldered projecting portions *b* *c* of the top and bottom boards, and the other having the ends of its several boards projecting, the upper and lower ends being shouldered at *d* *e*, as described, to interlock with parts *b* *c*, as specified.

2. The improved post for a panel fence, composed of the braces E E, having their lower ends beveled and connected by a cross-piece, and provided with the series of holes *a* at the point of their intersection, and a pin or bolt for locking said braces together, as and for the purpose specified.

179,519. PORTABLE FENCES. T. A. H. Cameron, Petra, Mo. [Filed June 27, 1876.]



1. The improved portable fence, composed of panels, hinged together and provided with caster-wheels and adjustable braces, as shown and described.

2. The rods for supporting the awning to different panels, so that they may adjust themselves with the panels, as shown and described.

179,520. STEP-LADDER CHAIRS. Saverio Carbone, Dayton, Ohio. [Filed May 27, 1876.]

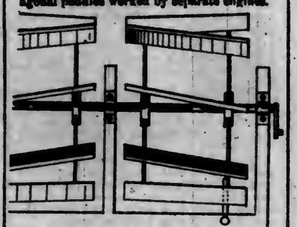
Brief.—The space within the frame of the chair is provided with drawers.



The combined chair, step-ladder, and series of drawers is a single piece of furniture, substantially as and for the purposes herein before set forth.

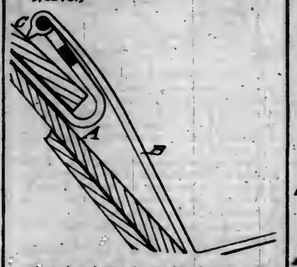
179,521. PADDLE-WHEELS. Richard D. Cantburn, Waverly, Mo., assignor to himself and W. P. Milner, same place. [Filed Mar. 13, 1876.]

Brief.—Independent stern-wheels with diagonal paddles worked by separate engines.



A paddle stern-wheel, made of two sections with separately-revolving shafts, and buckets or paddles, placed at an angle of inclination symmetrical to the axis of the vessel, to produce by the separate working of the sections the turning about of the vessel without the rudder, substantially in the manner and for the purpose set forth.

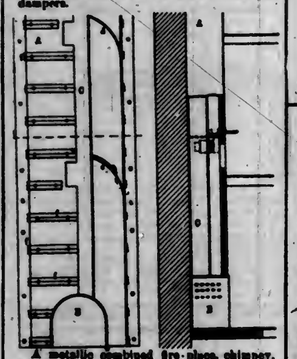
179,522. SHINGLING-BRACKETS. Stephen N. Chapman, Moodus, Conn. [Filed Feb. 9, 1876.]



A spring-clamp, A, combined with a pivoted spur-arm, B C, having rear angle-arm, to form a stay for the staging, as shown and described.

179,523. FIRE-PLACES AND CHIMNEYS. D. Claridge, Baltimore, Md., assignor of one-half his right to Wm. T. Henderson, same place. [Filed Apr. 20, 1876.]

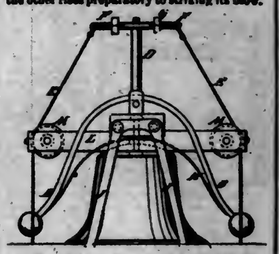
Brief.—Heated air is discharged into the different rooms or stories by the use of the dampers.



A metallic combined fire-place, chimney, and hot-air distributer, consisting of a box, A, having a fire-place, B, a central chimney, C, and hot-air chambers surrounding said chimney, separated from each other by perforated partitions *d*, supplied with dampers, substantially as herein described.

179,524. BELL-RINGING APPARATUS. Jas. W. Coffey, Bloomington, Ind. [Filed May 22, 1876.]

Brief.—A double bell-hammer suspended on an axis, with a hammer on each side of the bell, so that when one is pulled down to strike, the other rises preparatory to striking its blow.



1. The double bell-hammer B, pivoted over the bell, and arranged to strike it alternately on opposite sides, substantially as specified.

2. The lever D, rods F, ropes E, and guide-pulleys M, combined with the double bell-hammer B, substantially as specified.

179,525. FIRE-ESCAPES. A. W. Crockett, New York, N. Y. [Filed June 12, 1876.]

Brief.—The mouth of the escape-chute is held open by a semicircular iron loop, and supported by iron bars, to which are secured the ropes for fastening the device in the window. The bottom of the device is provided with ropes and pulleys and an adjustable round, so as to make the lower end of the chute flexible, and to break the shock of descending bodies.

1. The combination of the bars A B C F, the ropes D E G, the rope ladder H I, the chute J, and the canvas L with each other, substantially as herein shown and described.

2. The combination of the cords K with the closed lower end of the chute J, the sliding round, the loose round, and the stationary round of the lower part of the ladder H I, substantially as herein shown and described.

179,526. TOY PISTOLS. Carlos B. Curtiss, Bridgeport, Conn. [Filed Apr. 24, 1876.]

Brief.—The spring is retracted by the stock, which, being hinged to the forward portion, is provided with a tongue that engages with the spring-rod.

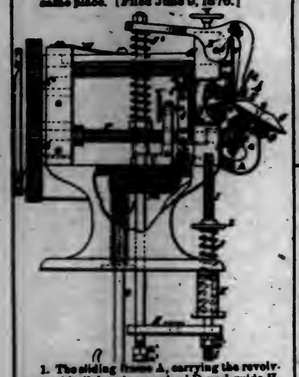
1. In a toy gun, consisting of a stationary barrel provided with one or more springs, the butt C, hinged to the frame at the rear of the barrel, and forming a lever for pulling back the spring, substantially as herein set forth.

2. The combination, with the stationary barrel and butt C, hinged to the frame in rear of the said barrel, and forming a lever of the rod D, slotted or flanged at its rear end, as described, the head-piece *b*, and spring *a*, as and for the purposes herein set forth.

3. The combination, with the barrel A, having rod D, spring *a*, operating-lever C, and head-piece *b*, of the secondary spring *b*, arranged in front of the head-piece for catching the blow of the mainspring and forming a cushion for the same, as set forth.

4. The tube E, with pistons G and rod *d*, in combination with the barrel, spring *a*, and rod D of a spring toy gun, for the purposes herein set forth.

179,527. MACHINES FOR CHANNELING AND BEVELING THE SOLES OF BOOTS AND SHOES. John Costlan, Philadelphia, Pa., assignor to Costlan Sliver Sewing Machine Company, same place. [Filed June 9, 1876.]



1. The sliding frame A, carrying the revolving table C, bevel-gear wheel D, and guide H, arranged to move vertically and horizontally, as and for the purpose shown and described.

2. The combination of the sliding frame A, shaft F, pivoted box G, bevel-gear wheels D D, and revolving table C, substantially as and for the purpose shown and described.

3. The combination of the sliding frame A, guide H, rod I, spring J, set-screw L, bar S, and jam-nuts n and n', substantially as and for the purpose shown and described.

4. The combination of the frame A, guide H, projection N, lever M, rod O, and spring J', substantially as and for the purpose shown and described.

5. The combination of the curved lever P, carrying the channeling-knife Q, open jaws R and R', rod I, spring J', and bar S, substantially as and for the purpose shown and described.

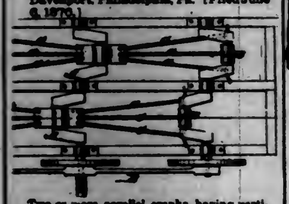
6. The combination of the sliding frame A, rod I, spring J, lever J', set-screw c, and frictional roller f, substantially as and for the purpose shown and described.

7. The combination of the sliding box G' and set-screw V, for depressing or elevating the feed-wheel T, to increase or diminish the depth of the channel and shoulder, and also to remove more or less of the leather in forming the bevel, as set forth and shown.

8. The combination of the knife-supporting plate X, segmental guide f, lever Y, and knives k and k', substantially as and for the purpose shown and described.

9. The combination, in a channeling and beveling machine for boot and shoe soles, of a revolving table, C, feed-wheel T, and three knives, Q, k, and k', for, cutting the channel, shoulder, and bevel, two of which (the shoulder and bevel cutting knives) are made with straight blades, to facilitate the cutting and sharpening operation.

179,528. PADDLE-PROPELLERS. William Davenport, Philadelphia, Pa. [Filed June 9, 1876.]



Two or more parallel cranks, having vertical paddles B suspended from one shaft and braced from the other, substantially in the manner described.

179,529. PROCESSES OF ORNAMENTING SKINS, &c. Theo. Davison, Brooklyn, N. Y., assignor to Louis Dreyfous, New York city. [Filed May 20, 1876.]

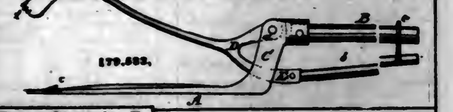
The improvement in the art of ornamenting skins, which consists in applying to or on the body of the skin a strip or strips of different-colored fabric, and then printing or embossing in color the skin and attached strip, with a pattern which extends along over and on each side of the seam or line of union between the two fabrics, substantially as and for the purposes set forth.



179,530.

179,532. PLUMBERS' GRAPPLES. Wm. H. Dewar, New York, N. Y. [Filed June 6, 1876.]

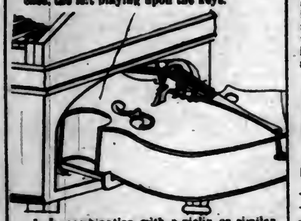
The combination of jaw A, attached to rod B, having offset at C, and provided with spur c, movable jaw D, having teeth d, pivoted at e, and having a short arm, E, and the pivoted rod b, the rod and pipe being held by rings a, all as shown and described.



179,532.

179,530. KETED VIOLINS, CELLOS, &c. H. L. Dodge, Charleston, S. C. [Filed Nov. 20, 1876.]

Brief.—The cello is in a horizontal position, and nearly inclosed by a box or case, which supports the keys and mechanism for pinching the strings. The bow B drawn across the strings by the right hand at the end of the case, the left playing upon the keys.



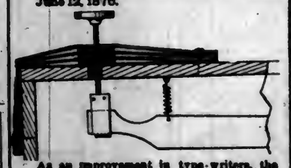
1. In combination with a violin or similar stringed instrument, a holding-case adapted to receive and partly inclose the same, and provided with keys and stop mechanism, to operate upon the strings of said instrument at different points, substantially as and for the purposes described.

2. The combination, with a violoncello or other similar instrument, of an exterior case, in which the instrument is held, a key-board, an intermediate actuating mechanism, and a mechanism on the finger-board of the violoncello for operating on the strings thereof when the keys are struck.

3. The combination, with a violoncello, of a mechanism secured on the finger-board, operated by means of keys, and constructed to act like pinchers, or to grasp the strings on opposite sides, substantially as and for the purposes herein set forth.

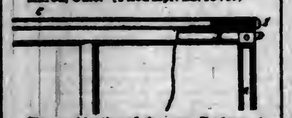
4. The combination, with a violoncello or other similar instrument, of a movable mute, operated by a pedal or an equivalent, substantially as and for the purposes herein set forth.

179,531. KEY-BOARDS FOR TYPE-WRITERS. Philander Deming, Albany, N. Y. [Filed June 12, 1876.



As an improvement in type-writers, the combination of the key-board and keys with perforated layers of soft fabrics and intermediate washers fitted tightly on the stems of the keys, substantially in the manner and for the purpose specified.

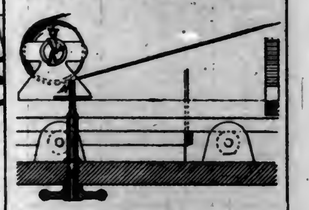
179,533. DASH-BOARDS. James Derrig, Akron, Ohio. [Filed Apr. 22, 1876.]



The combination of the cape, D, frame A, molding C, and screws S, substantially as and for the purpose herein before set forth.

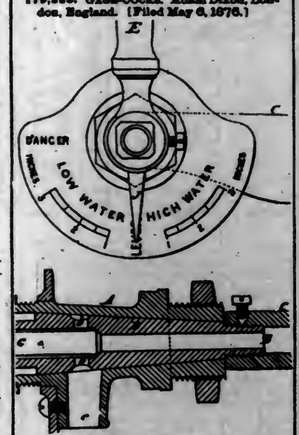
179,534. MACHINES FOR BORING FENCE-POSTS. John Dickson, Kingston, N. J., assignor to himself and George B. Kelly, same place. [Filed Apr. 26, 1876.]

Brief.—The post is supported, while being bored, upon a longitudinally-adjustable carriage, which is secured in the desired position by a clamping-bar provided upon its under side with pointed projections, fitting in holes in the upper surface of the carriage, and vertically adjustable in guide-plates attached to the upper part of the main frame by a screw passing through the center of the clamping-bar, and swiveled in said part of said frame.



The carriage adjusted to the table of a boring-machine by a clamping-bar, L, swiveled screw M, and pins O O, arranged substantially as shown and described.

179,535. GAGE-COCKS. Adam Dixon, London, England. [Filed May 6, 1876.]

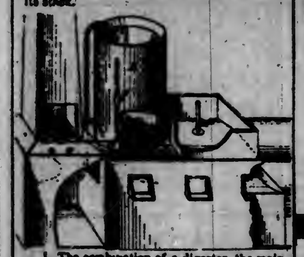


1. In a gage-cock for steam-boilers, the combination, with the body A, of the hollow plug B, the radial tube C, the handle E, the screw-valve G, and the discharge-nozzle c, constructed and arranged substantially as described and shown.

2. The gage-cock for steam-boilers described consisting of the body A, the hollow plug B, turning in the said body, the holes b in the said plug, the discharge-nozzle c, the radial tube C secured to the end of the said plug, the handle E, the screw-valve G, and the dial plate and pointer, all combined, constructed, and arranged as described and shown.

179,536. APPARATUS FOR SAVING SODA-ASH. John W Dixon, West Manchester, Pa. [Filed Mar. 28, 1876.]

Brief.—The spent liquor is forced by steam directly from the digester to the main evaporation chamber, where it is partially evaporated by the heat of the furnace, and by a steam coil placed in the bottom of the chamber. The liquor is then run into the auxiliary chamber, where it is reduced to a pasty consistency, and is then dropped down through an opening in the bottom of said chamber upon the incinerating hearth, from which, after burning, the soda-ash is removed through suitable openings in the side of the furnace, to be mixed with lime and again rendered caustic. The steam coil may be superheated by a convolution of pipe placed in a heating-chamber between the end of the furnace and its stack.



1. The combination of a digester, the main evaporation-chamber, a pipe from one to the other to connect the two together, the auxiliary evaporation pan or chamber, and the incinerating-hearth, substantially as described.

2. The combination, with a paper-pulp digester, of a main evaporation-chamber, a steam-coil within the latter to heat it, an auxiliary evaporation pan or chamber, an incinerating-hearth, and a pipe connecting the main evaporation chamber directly with the interior of the digester, substantially as described.

179,537. CHAIRS. Wm. T. Doremus, New York, N. Y. [Filed Mar. 25, 1876.]

Brief.—A detachable panel is arranged between the side posts and back brace, so as to conceal the operating parts, for tilting the chair, from view.



1. The combination, with seat B, of the side posts I', brace C, and panels H, all constructed substantially as and for the purpose specified.

2. The combination of a detachable panel, H, with posts F, having downwardly-projecting ends, and braces G, attached to the seat, as and for the purpose specified.

179,538. INSTRUMENTS FOR ADMINISTERING ANIMALS BY GIVING BREFF. William Dolle, Big Grove, Iowa. [Filed Dec. 14, 1876.]

Brief.—The wire handle of one part passes through the wooden roller of the other part, instead of at the side of it, as in applicant's former patent.

The combination, with the spoon-shaped wire A and handle B, of the bow C, bent around the sides of the wire A, and its ends passed through perforations in the handle B, and fastened to the handle D, substantially as and for the purposes herein set forth.



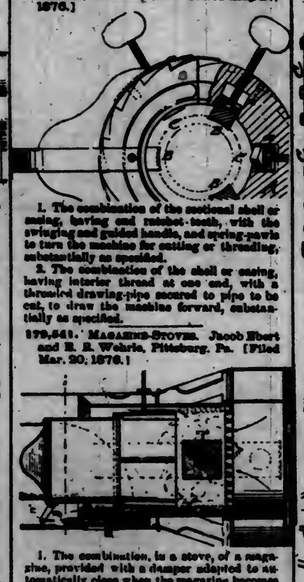
179,539. GAGE-PINS FOR PRINTING-PRESSES. Wellington E. Bostwick, Auburn, assignor of one-half his right to C. W. Waldron, Lewiston, Me. [Filed May 13, 1876.]

Brief.—The gage-pin is composed of two parts, one part sliding within the other. On the outer ends of each part are connected inwardly-projecting hooks, which engage with the paper or covering of the platen. A rubber band passing lengthwise around the device serves to hold the pins in their place, and prevent the parts from operating too far.

1. A gage-pin or feed gage for printing-presses, provided with two sets of points, extending inward toward each other, as and for the purpose set forth.

2. An adjustable sliding gage-pin or feed-gage for printing-presses, provided with inwardly-projecting points, and an elastic band passing longitudinally around the same, as and for the purpose set forth.

179,540. MACHINES FOR THREADING AND CUTTING PIPE. Jos. B. Eaton and Charles Latham, Shamokin, Pa. [Filed May 27, 1876.]



1. The combination of the sectional shell or casing, having end ratchet-teeth, with the swinging and guided handle, and spring-pawls to turn the machine for cutting or threading, substantially as specified.

2. The combination of the shell or casing, having interior thread at one end, with a threaded drawing-pipe secured to pipe to be cut, to draw the machine forward, substantially as specified.

179,541. MAGAZINE-STOVES. Jacob Ehert and E. B. Wehrle, Pittsburg, Pa. [Filed Mar. 20, 1876.]

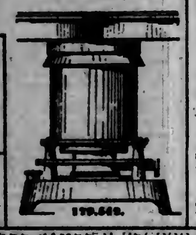
1. The combination, in a stove, of a magazine, provided with a damper adapted to automatically close when the magazine becomes empty, for shutting off the direct draft through the magazine, substantially as described.

2. In combination with the damper and lever to which it is pivoted, the weighted slide D, for operating the damper, substantially as described.

3. In combination with the magazine and fire-pot, the choker located within the fire-pot, and the annular draft-passage between the two, forming a continuation of the annular draft-passage surrounding the magazine, substantially as described.

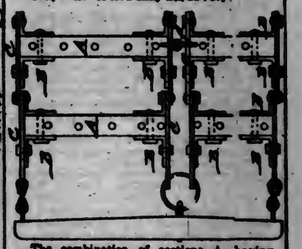
179,542. OIL-STOVES. Oliver Edwards, Florence, Mass. [Filed May 20, 1876.]

Brief.—For use either in heating or cooking.



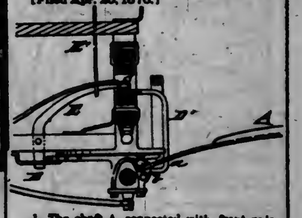
179,542.

179,543. HARROWS. James Elliott, Jefferson, Wis. [Filed May 20, 1876.]



The combination of sections A, having clod-breaking teeth, the angular braces H, pivoted slotted strips C, and the clamp-bolts, to adapt the harrow to be used with a single tree, in the manner specified.

179,544. HORSE-DETACHING DEVICES. J. V. Briggs, Bangor, Mich., assignor to himself and George English, same place. [Filed Apr. 26, 1876.]

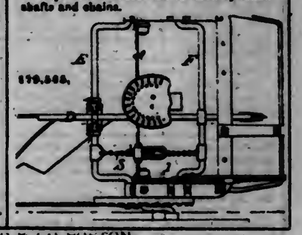


1. The shaft A, connected with front axle by a bar having end links c, and clips having shoulders b', in combination with a pivot rod, D, yoke D', pin d, the spring arm E, and the rod B', substantially as and for the purpose specified.

2. The combination of the operating chain or rod, pivoted and spring-acted pin arm, and toothed bearing-rail of fifth-wheel, to produce straight motion of carriage when the horses are detached, substantially as specified.

179,545. WHEEL-PLOWS. William Evans, Moline, Ill., assignor to the Moline Plow Company, same place. [Filed Apr 15 1876.]

Brief.—Plow raised and lowered by crank shafts and chains.



179,545.

The combination, in a sulky-plow, of the two crank shafts E and F, with the pulleys e and e and the chain S, or its equivalent, all arranged to operate substantially as and for the purpose set forth.

179,546. PIPE-CUTTERS. H. W. Evans, Philadelphia Pa. [Filed Mar. 31, 1876.]

1. The stock A, having hooked jaw a, rack a^1, and tubular support a^2, substantially as shown and described.

2. The sliding jaw B, having groove b, flanges b^1, recess b^2, slot b^3, and threaded opening b^4, substantially as shown and described.

3. The tool-holder C, having barf C^1 and projecting point or stud C^2, serving as a support for the bit, substantially as shown and described.

4. A longitudinally-reversible and laterally-invertible pipe-cutter bit, composed of a rectangular oblong bar or plate, D, having sharp cutting-angles on its four corners, combined with a holder, C, substantially as described, so as to permit it to be inverted and reversed, in order to utilize successively its four cutting-corners without having recourse to grinding, as set forth.

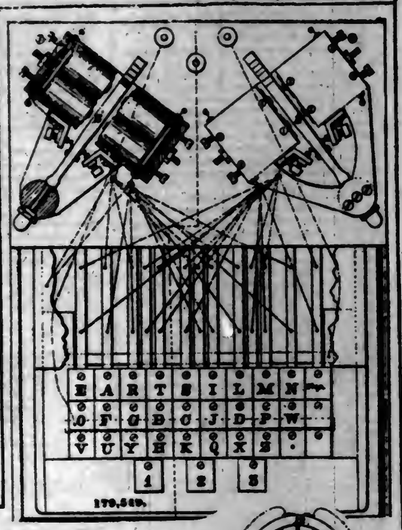
5. In combination with a holding-carrier, C, the rectangular oblong reversible and invertible bit D, and adjusting devices d^1 d^2, to permit the adjustment of said bit in said holder after grinding, substantially as described.

6. The combination of stock A, sliding jaw B, tool-holder C, bit D, feeding-spindle F, and nut G, the several parts being constructed and combined for operation, substantially as shown and described.

7. In combination with the hooked jaw a, the reversible supplemental jaw H, substantially as shown and described.



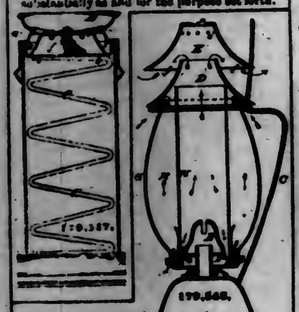
179,546.



179,549.

179,547. GANG-PLOWS. James M. Foltz, Brooklyn, N. Y. [Filed June 10, 1876.]

In a combination of the class described, the socket E, constructed with the chamber f below its annular top or bearing-surface, in combination with the shoulder a of the cap D, substantially as and for the purpose set forth.

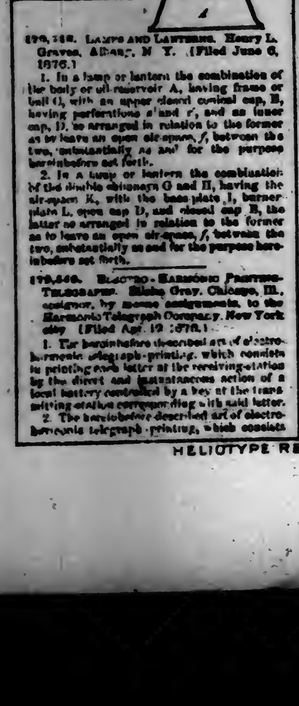


179,548.

179,548. LAMPS AND LANTERNS. Henry L. Graves, Albany, N. Y. [Filed June 6, 1876.]

1. In a lamp or lantern the combination of the body or oil-reservoir A, having frame or bail C, with an upper closed conical cap, E, having perforations e^1 and e^2, and an inner cap, D, so arranged in relation to the former as to leave an open air-space, f, between the two, substantially as and for the purpose hereinbefore set forth.

2. In a lamp or lantern the combination of the double chimneys G and H, having the air-space K, with the base plate I, burner-plate L, cone cap D, and closed cap E, the latter so arranged in relation to the former as to leave an open air-space, f, between the two, substantially as and for the purpose hereinbefore set forth.



179,548.

179,549. ELECTRO-HARMONIC PRINTING-TELEGRAPH. Elisha Gray, Chicago, Ill., assignor, by mesne assignments, to the Harmonic Telegraph Company, New York city. [Filed Apr. 19, 1876.]

1. The hereinbefore-described art of electro-harmonic telegraph-printing, which consists in printing each letter at the receiving-station by the direct and instantaneous action of a local battery controlled by a key at the transmitting-station corresponding with said letter.

2. The hereinbefore-described art of electro-harmonic telegraph-printing, which consists in printing a message on a letter-sheet, type-writer fashion, by the direct operation of keys at the transmitting-station controlling local batteries actuating the printing mechanism.

3. The hereinbefore-described art of electro-harmonic telegraph-printing, which consists in transmitting tones of different pitch through an electric circuit by means of corresponding keys, and reproducing said tones at the receiving-station as a means of actuating local batteries controlling printing mechanism, which prints a letter corresponding with that of the key controlling the particular tone which throws the local battery into operation.

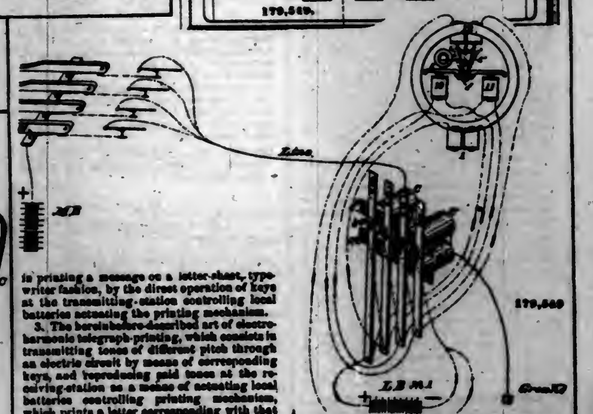
4. The hereinbefore-described art of electro-harmonic telegraph-printing, which consists in determining in advance, through the action of one local battery, which one of a series of letters, numbers, or characters shall be printed by mechanism actuated by another local battery.

5. The improved art of electro-harmonic telegraph-printing, which consists in determining in advance, by means of one local battery, the point at which the printing of the message, by another local battery, shall begin.

6. The hereinbefore-described art of electro-harmonic telegraph-printing, which consists in throwing forward a particular type to be printed by one local battery, and making an impression by that particular type by another local battery automatically thrown into action by the movement of the type.

7. The hereinbefore-described art of electro-harmonic telegraph-printing, which consists in feeding forward the paper upon which the message is printed by mechanism thrown into operation by a local battery controlled by the printing of the preceding letter.

8. The hereinbefore-described art of electro-harmonic telegraph-printing, which consists in touching a key which transmits a particular tone, by which one local battery determines in advance what particular letter shall be printed; carries forward the type selected, which, in turn, actuates another local battery which makes the impression and controls the feeding mechanism.



179,549.

2. The combination, substantially as hereinbefore set forth, of a reciprocating type moved in one direction by the armature of the electro-magnet, and in the other by a spring.

10. The combination, substantially as hereinbefore set forth, of the armature of the magnet, the endwise-moving frame, the type pivoted thereon, and the retracting-spring attached directly to the type.

11. The combination, substantially as hereinbefore set forth, of a series of type, movable radially relatively to a common center, a chipper acting upon one of the series, and a series of electro-magnets, which control the action of the chipper.

12. The combination, substantially as hereinbefore set forth, of a series of type, a carrier or shifter bar acting upon either one of said type, a series of electro-magnets which control the selection of the type to be acted upon, and a second electro-magnet which actuates the type selected.

13. The combination, substantially as hereinbefore set forth, of a series of type, a shifting-carrier acting upon one of the types of the series, a series of electro-magnets which select the type to be acted upon, a second electro-magnet which selects the type selected, and a third electro-magnet which actuates the printing-hammer, to make an impression of the selected type.

14. The combination, substantially as hereinbefore set forth, of an electro-magnet for actuating the printer-hammer, and an electro-magnet for actuating the paper-feeding mechanism.

15. The combination, substantially as hereinbefore set forth, in an electric circuit, of a vibrating reed producing a musical tone, or a definite number of vibrations per unit of time, a key controlling said vibrations, a corresponding reed at the receiving end of the line, a local battery controlled by said vibrating reed or circuit-breaker, and an electro-magnet, the armature of which carries a type, for the purpose specified.

16. The combination, substantially as hereinbefore set forth, in an electric circuit, of a series of circuit-breakers capable of producing tones of different pitch, a series of corresponding receivers, a series of keys controlling the transmission of said tones, a series of local batteries controlled by the vibrating receivers, and a series of type controlled directly by the electro-magnets of the local batteries.

17. The combination, substantially as hereinbefore set forth, in an electric circuit, of a series of transmitting-keys, printing mechanism controlled by said keys, and a shifting-key for determining in advance which letter of a series, marked on each key, shall be printed.

18. The combination, substantially as hereinbefore set forth, in an electric circuit, of printing mechanism, keys controlling said printing mechanism, and a trip-key, which determines the point at which the printing of the message begins.

19. The combination, substantially as hereinbefore set forth, in an electric circuit, of printing mechanism, keys for controlling the printing mechanism, keys for determining which one of a series of type shall be printed, and a trip-key which determines the point on the paper at which the printing shall begin.

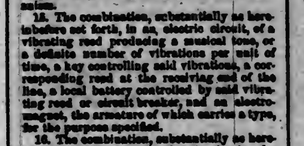
20. The combination, in an electric circuit, substantially as hereinbefore set forth, of apparatus for transmitting tones of different pitch, keys controlling said apparatus, receivers which analyze and reproduce said tones, and independently-movable type, each controlled by its particular tone.

21. The combination, substantially as hereinbefore set forth, of a paper-carrier, a spring for moving it in one direction, a feed-bar, and a gear-wheel mounted on the armature of the electro-magnet, and adapted to be thrown into or out of gear with the feed-bar by the movement of the armature.

22. The combination of the paper-carrying mechanism, a feed-bar, a gear-wheel actuating said bar mounted on the armature of one electro-magnet, and a feed-pawl mounted on the armature of another electro-magnet.

23. The analyzing-receiver herein before described, consisting of the combination of two or more magnets, with their like poles united by connecting-bars, constituting in fact one magnet, and a series of tuned receiving-springs vibrating near said bars, so that each shall receive its proper tone from said magnet.

179,550. BOX-HOLDERS. Henri Guilbeault, New York, N. Y. [Filed May 27, 1876.]



1. The combination of the tongs A, cup B, and ring D, as shown and described.

2. The combination of the button c, tongs A, cup B, and ring D, as shown and described.

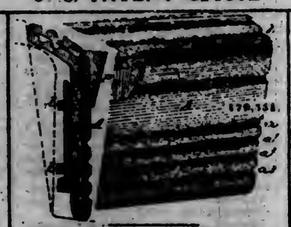
179,551. FIRE-BACKS FOR STOVES. John D. Haley, Waveland, Ind. [Filed June 13, 1876.]

Brief.—An adjustable fire-back to fit the length and depth of different sizes of fire-pots.

1. In combination with the main section A of the fire-back, provided with grooves a a^1, &c., the adjustable section B, similarly grooved, as and for the purposes explained.

2. The lugs f and key k, combined with the two sections A and B, and arranged substantially as shown.

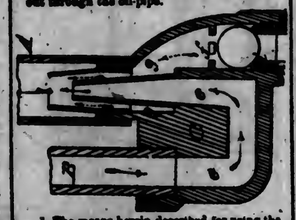
3. In combination with a fire-back, provided with horizontal grooves or corrugations, a horizontally-adjustable section, B, or its described equivalent, as and for the purpose described.



179,551.

179,552. RESTORING OIL-WELLS. Enos W. Hall, Titusville, Pa. [Filed Oct. 17, 1874.]

Brief.—The air from the reservoir is forced through the head or chamber, down the air-pipe, into the ejector, causing the oil to flow out through the oil-pipe.

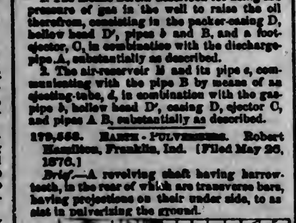


1. The means herein described for using the pressure of gas in the well to raise the oil therefrom, consisting in the packer-casing D, hollow head D^1, pipes b and B, and a foot-ejector, C, in combination with the discharge-pipe A, substantially as described.

2. The air-reservoir M and its pipe c, communicating with the pipe B by means of an ejecting-tube, d, in combination with the gas-pipe b, hollow head D^1, casing D, ejector C, and pipes A B, substantially as described.

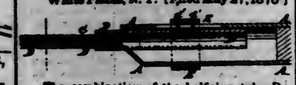
179,553. RAISIN-PULVERIZERS. Robert Hamilton, Franklin, Ind. [Filed May 26, 1876.]

Brief.—A revolving shaft having harrow-teeth, in the rear of which are transverse bars, having projections on their under side, to assist in pulverizing the ground.



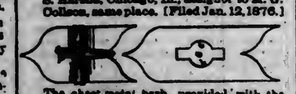
The combination of the frame A, revolving shaft C, with teeth a e, pulverizing-bars E E, formed with alternating V-shaped projections and depressions, and the triangular scraping-bar G, all constructed substantially as and for the purposes herein set forth.

179,554. FOUNTAIN-PENS. H. N. Hamilton, White Plains, N. Y. [Filed May 27, 1876.]



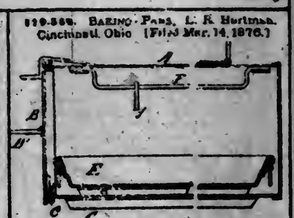
The combination of the half-ring tube D, the pins d^1, and the ring E, with the slotted tube A, the pen C, and the tongue B, substantially as herein shown and described.

179,555. BARBED FENCE-WIRE. Mortimer S. Harsha, Chicago, Ill., assignor to M. G. Collom, same place. [Filed Jan. 12, 1876.]



The sheet-metal barb, provided with the longitudinal slot $e e^1$, bent as described, so that it may embrace the fence-wire and be secured thereon by a key inserted behind or under the wire and through the ends of the slot, substantially as specified.

179,556. BAKING-PANS. L. K. Hartman, Cincinnati, Ohio. [Filed Mar. 14, 1876.]



1. The improved baking and roasting apparatus for ovens, consisting of and comprising the sheet-metal case A, provided with the external insulating bottom flanges C to elevate it from contact with the oven, the hinged door B at one end, and the handles D D^1, the removable baking-pan E, located within the case A, and provided also with insulating-flanges e, elevating it from contact with the case, and the longitudinal suspension-rack F, holding the sliding hooks f, all as described and shown, and for the purpose set forth.

2. The combination, with the baking-case A for stoves, of the longitudinal suspension-rack F, holding the sliding hooks f, and attached to the upper interior portion of the case, as shown.

179,557. HEATING-STOVES. J. H. Helm, Allegheny, Pa. [Filed Nov. 8, 1875.]

In a cylindrical or circular stove, a register having air-passages, the channels of which are arranged obliquely to the inner walls of the stove, and between two horizontal planes, substantially as hereinbefore described, and for the purpose set forth.



179,557.



179,558.

179,558. OIL-CUPS. Ezra B. High, Reading, Pa. [Filed June 12, 1876.]

An improved oil-cup, formed of the reservoir A, provided with a bottom, a^1, and a hollow stem, a^2, closed with a screw-plug, C, the distributing-chamber D, provided with a hollow screw-stem, d^2, and the air hole or vent F, and the three tubes E E C, said parts being constructed and arranged to operate in connection with each other, substantially as herein shown and described.

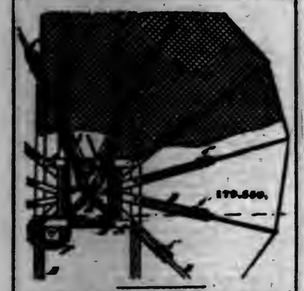
179,559. QUBOULO-CATCHERS. Brice T. Hull and Edward Hollister, Alton, Ill., administrators of Edwin S. Hull, deceased. [Filed May 16, 1876.]

Brief.—Circular, expansive, flexible frame, covered with cloth, the same to be suspended from the shoulders of the operator.

1. The combination of the cross-bars A, the jointed and slotted adjustable arms B, the cloth cover C, provided with a loose flap, c^1, the waist-strip D, the supporting-straps E, and the pockets F with each other, substantially as herein shown and described.

2. The cross-bars A of the catcher, made in two parts, hinged to each other to adapt the catcher to be folded together in the middle, substantially as herein shown and described.

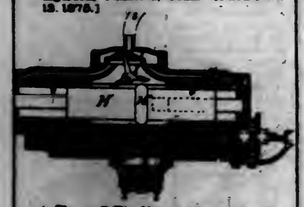
3. The arms B of the catcher, made in two parts, slotted and jointed to each other, substantially as herein shown and described, to enable them to be extended to tighten the cover C, and to be slipped together for convenience in packing, as set forth.



179,559. STAINING COMPOUNDS FOR LEATHER, PAPER, &c. A. S. Humphrey, Poughkeepsie, N. Y. [Filed Dec. 29, 1875.]

A staining compound for leather, paper, and other similar materials, made of aniline color, alcohol, sulphate of iron, or mordated tincture of iron, and oil, with or without water, and amber, substantially in the manner herein set forth.

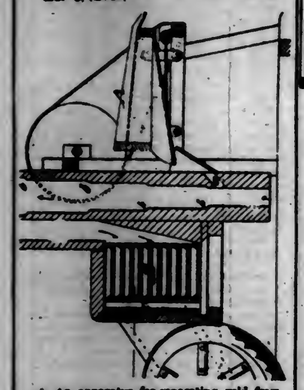
179,561. ROCK-DRILLING MACHINERY. S. Ingersoll, Stamford, Conn. [Filed Nov. 13, 1875.]



1. The swell B', of larger diameter than the central part of the piston B, and extending around the same, in combination with the partial bushings p p, arranged at a distance apart, as shown, and with the cylinder C, as specified.

2. The plug E A, having the head E fitted steam-tight, in combination with the piston B B', and with the rock H a, spring a', spring a, and levers L l 2 c, as herein specified.

179,560. AMALGAMATING APPARATUS. T. W. Irvin, Fort Madison, Wash. [Filed Mar 6, 1876.]



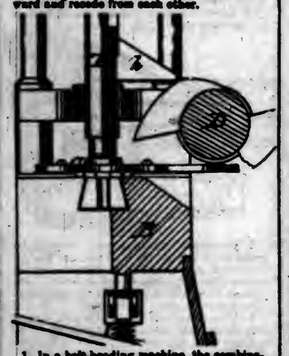
1. An apparatus for separating gold from sand and other impurities, consisting of a reciprocating feeding-screen, a vertical upward and downward extending suction-tube, a series of amalgamating-pans, communicating side ducts, a suction-fan, and a curved and fluted amalgamating-pan at the bottom and mouth of the fan-casing, all arranged and operating substantially in the manner and for the purpose set forth.

2. The combination of the vertical suction-tube and downward-extending tube, having inclined bottom, with a series of amalgamating-pans placed one above the other, to pass the gold sand in close proximity to the quicksilver for extracting the finer particles by amalgamation, substantially as specified.

3. The combination, with the suction-fan, of a curved and fluted amalgamating-pan at the bottom and mouth of the fan-casing, for extracting the finer gold particles carried along by the current, substantially as set forth.

179,562. MACHINES FOR HEADING BOLTS. Ambrose F. Jackson, Minneapolis, Minn. [Filed June 24, 1876.]

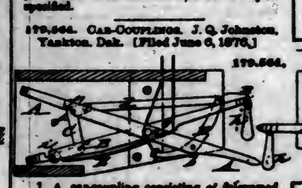
Brief.—A vertically-reciprocating hammer for upsetting the end of the blank, and two pivoted vibrating levers, each carrying two head-shaping dies, which, as the said levers vibrate, are caused to alternately approach toward and recede from each other.



1. In a bolt-heading machine, the combination, with the power-shaft and its cams, of the vibrating levers, carrying the side hammers e, and the reciprocating trip T, substantially as specified.

2. In a bolt-heading machine, the levers G, in combination with the alternately-acting pairs of radial side hammers e, substantially as specified.

179,563. CAR-COUPLINGS. J. Q. Johnston, Yankton, Dak. [Filed June 6, 1876.]



179,564.

1. A car-coupling consisting of falcrumed outer and inner link-bars A and B, in connection with a swinging front lever falcrumed to the front part of the outer link-bar, and a double-elbow lever falcrumed to the rear part of the inner link-bar, and connected by a longitudinal operating-rod, substantially in the manner described.

2. The combination of outer link-bar A, inner link-bar B, front lever D, connecting-rod d, rear elbow lever C, with cords and other operating mechanism applied to lever ends of front and rear levers, to open or close link-bars for coupling or uncoupling, substantially as specified.

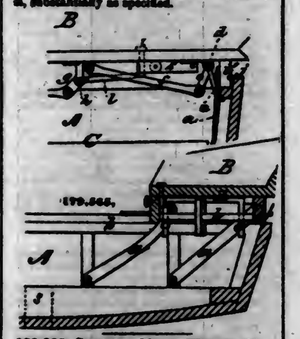
3. The combination of the rear elbow-lever, having projecting side pins, with notches or shoulders of the outer link-bar, to support the same in open position, substantially as described.

4. The combination of the outer link-bar, swinging front lever, and inner link-bar, having pendent pin at front end, with the notching link, to couple the same by carrying back pin and front lever, and closing jaws, substantially as specified.

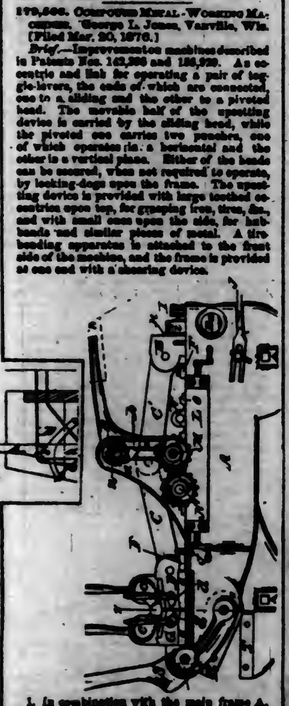
179,564. VEHICLE-SEATS. Ethan A. Jones and Henry Timken, St. Louis, Mo. [Filed Nov. 27, 1875.]

1. In combination with the operating-lever I of the locking mechanism of a jump-seat, a snap-spring, S, for holding the said lever in position, substantially as specified.

2. In combination with a vehicle-body, A, having interior strips b, and a jump-seat, B, having supporting-rails f, adapted to rest upon the strips b, a detachable upper sliding panel, a, substantially as specified.



179,565.



179,566. COMPOUND METAL-WORKING MACHINE. George L. Jones, Vanville, Wis. [Filed Mar. 20, 1876.]

Brief.—Improvements on machines described in Patents Nos. 142,288 and 158,282. An eccentric and link for operating a pair of toggle-levers, the ends of which are connected one to a sliding and the other to a pivoted head. The movable half of the upsetting device is carried by the sliding head, while the pivoted one carries two punches, one of which operates in a horizontal and the other in a vertical plane. Either of the heads can be removed, when not required to operate, by locking-dogs upon the frame. The upsetting device is provided with large toothed eccentrics upon top, for grasping iron, tires, &c., and with small ones upon the side, for bolt-heads and similar pieces of metal. A fire-bending apparatus is attached to the front side of the machine, and the frame is provided at one end with a shearing device.

1. In combination with the main frame A, the movable heads D and E, and toggle-levers O O', the locking-dogs F, connected on the main frame, as and for the purpose described.

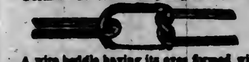
2. The combination, in a compound metal-working machine, of the knee-levers O O', connected at one end to the sliding upsetting-head D, and at the other to the pivoted head E, the latter provided with the horizontal punch H, sliding through the rigid guide f, and entering the steel post I, and also with the vertical punch J, entering the die K, as shown.

3. As an improvement in the machines described in the patents hereinbefore referred to, the arrangement of the sliding upsetting-heads, mounted on top of the frame over one

end, and clamping over its exterior, and the shear-blades E and T at the extremity of the frame, underneath said heads, or nearly so, substantially as shown and described.

4. The compound metal-working machine, consisting of the main frame A, provided with the levers O O', eccentric B, punch-head H, punches D' and J, upsetting-heads D and G, shear E T, eccentric S, and upsetting devices M N O P, all combined and arranged to operate in one machine, as shown and described.

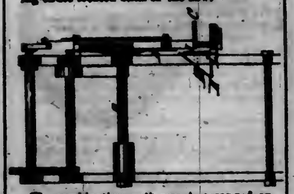
179,567. HARNESS FOR LOOMS. Charles I. Knox, Milford, Conn., assignor to New York Silk Manufacturing Company, New York, N. Y. [Filed May 29, 1874.]



A wire heddle having its eyes formed with a half-knot, presenting a broad bearing-surface for the yarn, and otherwise constructed as herein described.

179,568. MACHINES FOR SAWING SHINGLES. Reuben P. Kinney, New Almond, N. Y. [Filed May 9, 1876.]

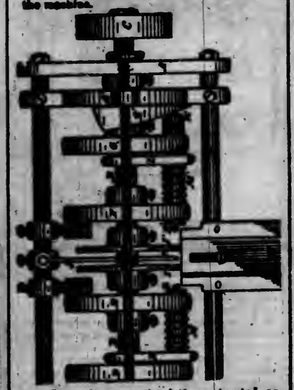
Brief.—The shingle-bolt is fed upward to the saw by means of a vertically-reciprocating carriage. The thickness and taper of the shingle are regulated by a tilting gage pivoted to the center of the lower part of the carriage-frame. The shingles, as they are cut from the bolt, are thrown off by a sloping discharging-chute located back of the saw.



The combination, with saw A, arranged on the mandrel B, as shown and described, of the centrally-pivoted gage J and the carriage C, connected with screw-head D by vertically-sliding bars B, as and for the purpose set forth.

179,569. SPOOL-PRINTING MACHINES. T. B. Kline, Reedsville, Conn. [Filed May 6, 1876.]

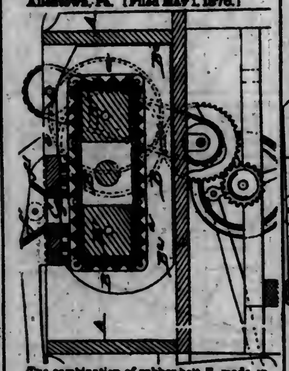
Brief.—The spools are taken up by the reciving carrier, and held thereon by a spring-arm attached to the frame, until advancing spindles enter the hole in the spool ends, when the stamping-spindles strike the ends of the spool. The first-named spindles move within the stamping-spindles, both being thrown forward and released by cams on the frame of the machine.



1. The reciving carrier I I', constructed, as described, in combination with the feeding-trough H and a fixed spring, J, attached to the frame, substantially as herein set forth.

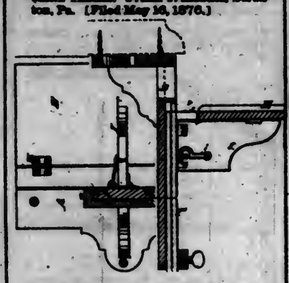
2. The combination of the spindles K K', the spindles B B', and carriers I I', arranged to move conjointly in the manner described, and to stamp the ends of the spool while moving through the machine, substantially as herein set forth.

179,570. WASHING-MACHINES. Jos. Klein, Allentown, Pa. [Filed May 1, 1876.]



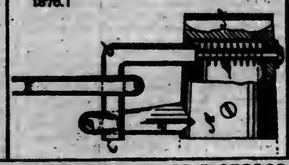
The combination of rubber belt B, made in grooved sections and arranged on square blocks B', with the ribbed rubber C, having slot f and hopper f', arranged substantially as and for the purpose specified.

179,571. LAMP-BRACKETS FOR SEWING-MACHINE TABLES. Frank T. Kinnan, Scranton, Pa. [Filed May 10, 1876.]



The improved lamp-holding attachment for sewing-machines, consisting of the bracket A B, having a vertical groove and a clamp-screw, and the folding table B, folding brace I, and the vertical piece F, the latter being fitted in the groove of the bracket, and all combined and arranged substantially as specified.

179,572. WRIST-STRETCHERS-HOOKS. Peter P. Kuhn, Florence, Iowa. [Filed Apr. 10, 1876.]



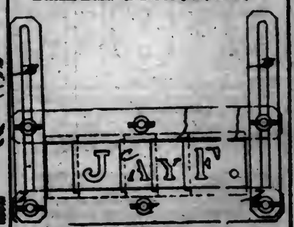
The ferrule A, cast with its outer end solid, with a transverse hole formed through its outer part, and a hook-arm, B, formed upon the forward side of its inner end, the sliding right-angled bar C, and the spiral spring D, constructed and arranged to operate in connection with each other, substantially as herein shown and described.

179,573. HORSE-COLLAR FASTENINGS. H. S. Lafferty, Salisburg, Pa. [Filed May 4, 1876.]



An adjustable horse-collar fastening, consisting of a series of links, B b, lever D, fulcrumed and bent to fit in the groove of the collar, hasp-plate C, and hasp f f', all constructed and combined substantially as set forth.

179,574. STENCIL-FRAMES. David F. Lake, Helena, Mont. [Filed May 10, 1876.]



An improved stencil-frame, composed of lateral double plates, pivoted and slotted side gable-plates, and suitable clamp-screws, to secure any number, size, and arrangement of stencil-letters, substantially as specified.

179,575. METHODS OF PREPARING PAPER TO BE CUT INTO ORNAMENTAL SHAPES. Jos. Lamb and Richd. Lamb, New York, N. Y. [Filed Feb. 26, 1876.]



The within-described process of preparing cloth or paper for sewing into ornamental shapes, consisting of compressing a number of lamine, A, between boards B C, and gluing or cementing the edges of the whole with a strong fabric, D, substantially as herein specified.

179,576. CEMENT. William D. Latham, Angelica, N. Y. [Filed Apr. 22, 1876.]

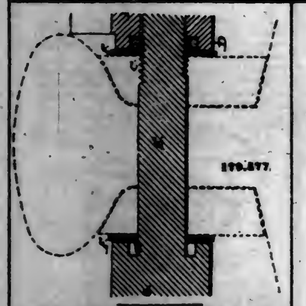
The herein-before described cement, composed of gutta-percha, india-rubber, and chloroform, in the proportions substantially as and for the purpose specified.

179,577. NUT-LOCKS. O. B. Latham, Seneca Falls, N. Y. [Filed Feb. 10, 1876.]

Brief.—The beaver side of the bolt and of the nut is cut upward, each on the opposite side of a vertical plane through the axes of the bolt. As nuts vibrate, the beads gradually talk, and mutually lock bolt and nut. Recesses in beads for lubricating material.

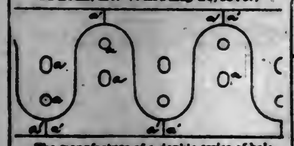
1. The combination of the gravitating nut H with the gravitating-head G and bolt E, substantially as and for the purpose hereinbefore described and set forth.

2. The nut H or head G, having a gravitating extension, as described, in combination with an annular groove, O, which reduces the frictional surface of the head and nut, and also forms a recess for a lubricant, substantially as herein-before described and set forth.



179,577.

179,578. BALE-TIES. Richard C. Ludlow, St. Louis, Mo. (Filed May 20, 1876.)



The manufacture of a double series of bale-ties from a single strip of sheet metal of a given width, without waste of material, as shown, said bale-ties having outwardly projecting extensions *a' a'*, for the purpose set forth.

179,579. TREATING AND REVIVIFYING BONE-BLACK OR ANIMAL CHARCOAL. O. Lilge, Jersey City, N. J. (Filed June 26, 1876.)

The process herein described for revivifying bone-black, consisting in subjecting it to the action of a current of steam in a heated retort or kiln, and then removing the calcic nitre by washing, substantially as set forth.

179,580. MACHINES FOR LAYING OUT PAPER FOR BOXMAKING. William Lyon, Glasgow, Scotland, assignor to Victor E. Mauger, New York, N. Y. (Filed May 2, 1876.)

Brief.—The paper or envelopes are placed against the angular guide-frame, which is then raised and the board moved the required distance to receive the next sheet.

1. The combination of the lever 7 and pawl 8 with the feed-wheel 9, rollers 3 and 4, apron 2, and board 10, all arranged to operate substantially as herein shown and described.

2. The set-frame 11, jointed to the table 1, and combined with the movable board 10 of a bordering machine, substantially as herein shown and described.

3. The combination of the operating-lever 7 with the cord 14 and pivoted set-frame 11, substantially as herein shown and described.

4. In combination with the pivoted set-frame 11 and lever 7, the cord 14 and the perforated quadrant 18, having the adjustable stop-pin 17, substantially as specified.

5. The set-frame 11, made cross-shaped to form a diagonal gage for the paper to be bordered, substantially as specified.

6. In combination with the angular set-frame 11, the vertically adjustable plate or plates 22, substantially as specified.

7. The combination of the spring 24 and pin 25 with the perforated quadrant 18, pin 17, lever 7, and frame 11, substantially as specified.

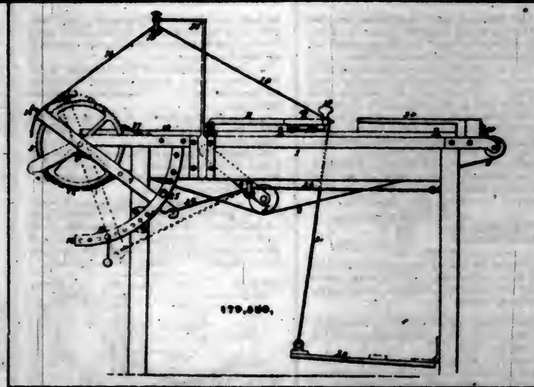
8. The combination of the pivoted frame 11 with the board 10, and with moving mechanism, substantially as specified, all arranged to move the board whenever the frame 11 is swung off said board.

9. In combination with the set-frame 11, the inclined wire or guide 31, substantially as and for the purpose specified.

10. The combination of the set-frame 11 with the cross-bar which carries the spring-pawl, substantially as specified.

11. The combination of the set-frame 11 and its pivot-pin 12 with a hinge, which allows the set-frame to be swung aside, as specified.

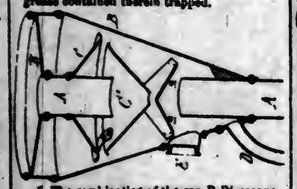
12. The combination of a brake-strap, 30, with the pawl-lever 7, so as to tighten against the wheel and stop its motion as the lever reaches the end of its stroke, as hereinbefore described.



179,580.

179,581. TRAP FOR EXHAUST-STEAM PIPES. Wilfred O. Lyman, Chicago, Ill. (Filed June 1, 1876.)

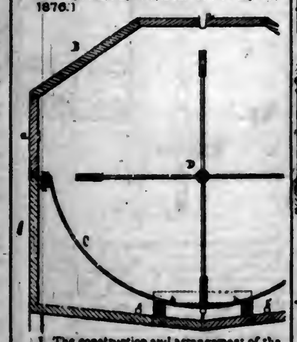
Brief.—Exhaust steam is condensed, and grease contained therein trapped.



1. The combination of the cap B B', escape-pipe A', deflectors C C', and conduits c D, said deflectors and conduits provided with curved outer rims or edges, with the exhaust-pipe of a non-condensing engine, substantially as and for the purpose set forth.

2. The combination of the cap B B', escape-pipe A', deflectors C C', conduits c D, and hand-hole E, with the exhaust-pipe A' of a non-condensing steam-engine, substantially as and for the purpose set forth.

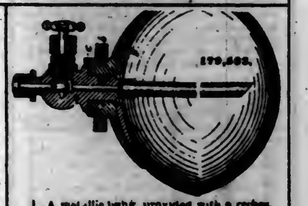
179,582. FEATHER RENOVATORS. John G. Massey, La Fayette, Ind. (Filed Apr 5, 1876.)



1. The construction and arrangement of the outer chest A, the rectangular frame d, and the removable inner chest C, provided with the inward flanges a, to form the inclosed spaces e and f, substantially as and for the purposes specified.

2. The steam-branch pipes s and s', in combination with the said inclosed spaces e and f, the holes h, the rotating fan D, and the common cover B, provided with the doors b and a, substantially as and for the purposes specified.

179,583. FOUNTAINS FOR CONTAINING AERATED BEVERAGES. John Matthews, New York, N. Y. (Filed May 2, 1876.)



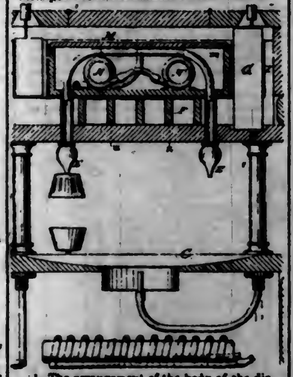
179,583.

1. A metallic lining, provided with a recess, a, in combination with a cock c d, substantially as described.

2. In a fountain, a lining carried over the inner face of a metallic bung, and soldered thereto, substantially as shown, so as to protect the bung against corrosion, as set forth.

179,584. APPARATUS FOR DISPENSING SODA-WATER, &c. John Matthews, New York, N. Y. (Filed May 15, 1876.)

Brief.—The main dispensing apparatus is arranged above the counter for convenience.



1. The arrangement of the body of the dispensing apparatus for aerated beverages above the counter or table, in the manner described, so as to secure economy of space, substantially as described.

2. In apparatus for dispensing soda-water and other beverages the combination and arrangement of the draft-faucets, syrup-cocks, tumbler-washers, and other like parts used in dispensing the beverages, either wholly or in part beneath a case elevated above a counter or platform, substantially as set forth.

3. The combination of a tumbler-carrier, provided with elevating mechanism, with a draft-faucet, so as to draw the liquid into the tumbler under pressure, substantially as described.

4. The arrangement of the tumbler-washer below the cooling-chamber, so as to allow working space between the two, as set forth.

5. In a soda-water apparatus the cooler herein described, composed of one or more reservoirs, N, surrounded by a coiled pipe, and placed in a cooling medium, substantially as described.

6. The ice-chamber, composed of a non-absorbent and non-conducting lining placed within a metallic case, and the whole surrounded by a casing containing the several parts of a soda-water apparatus, as described.

7. In combination with the cooling-chamber of a soda-water apparatus a thermometer, having its bulb inside the cooling-chamber, and its stem or index outside to a protecting casing, so as to be easily read by the attendant, as set forth.

8. In combination with the soda fountain one or more pressure-gages, arranged so as to indicate the pressure of the gas within the fountain and detect any leakage, as set forth.

9. The hollow columns E, connecting the apparatus and counter or base, so as to serve as receptacles for the pipes for liquids and gas, and as supports for the body of the apparatus, as set forth.

10. The tumbler-washer J arranged in the top of the base and beneath the cooler, so as to receive the ice-water, as set forth.

11. The portable syrup-tanks O O, with or without the horizontal tanks F F, arranged around the cooler, as set forth.

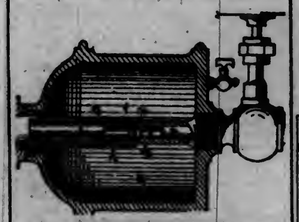
12. The combination, in a box or chest of a soda-water apparatus, of the cases M with coolers N and syrup-fountains F G, as set forth.

13. One or more dash-pots, L, arranged under the covers of the ice-chamber, so as to prevent breakage, substantially as set forth.

14. The combination of treadle I, tumbler-holder H, and head A, as set forth.

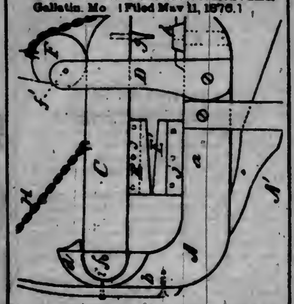
15. The combination of the tumbler-washer J, tubes W, and ice-chamber M, as set forth.

179,585. STEAM-CYLINDER LUBRICATORS. Elijah McCoy, Ionia, assignor to Ransom O. Loss and George S. Woodruff, Grand Rapids, Mich. (Filed June 2, 1876.)



The combination of the oil-cup D, central tube A, with enlargement B, perforated regulating screw-tube C, reduced in diameter at its lower end, and forming the oil-chamber *b*, the valve-seats *c b*, the double valve *d*, having stem *e* with vertical oil-passage *n* from the upper end downward to below the valve, and open at *n*, all constructed substantially as and for the purposes herein set forth.

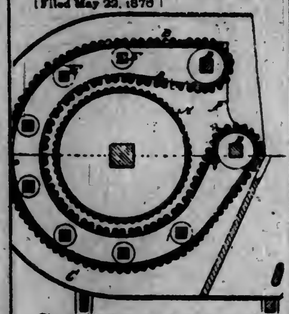
179,586. MACHINES FOR PUNCHING AND SHEARING METALS. Samuel J. McDonald, Gallatin, Mo. (Filed May 11, 1876.)



1. The angular bed-piece A and the vertically vibrating punch-lever C, socketed thereto in, in combination with the upright guides D, embracing the said lever, the cam F, having its bearings in the said guides, and the operating-arm β, substantially as specified.

2. In combination with the bed-piece A, lever C, and guides D, the spring S, secured to the bed-piece upon its outside, and the connecting-chain H, substantially as specified.

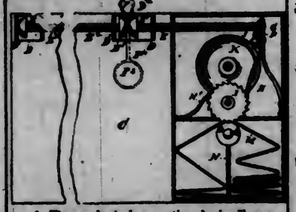
179,587. WASHING-MACHINES. William H. McFarlan, Dysart, Iowa, assignor to himself and O. Aschenbrenner, same place. (Filed May 22, 1876.)



The combination, with the corrugated drum A, of the endless carrier B, supported upon drums D and friction-rollers F, and arranged to encircle the drum A, except at F, where space is left for introduction and removal of the clothes to be washed, as shown and described.

179,588. FARE REGISTERS AND RECORDERS. Wm. C. McGill, Washington, D. C. (Filed June 7, 1876.)

Brief.—A series of rods so arranged that the conductor may, from any locality in the car, cause a registry of fare received, by means of a wedge-shaped device; also, a roller is pressed against the teeth of the ratchet-wheel. Between it and the wheel a strip of paper is carried, upon which every fare is recorded by the ratchet-teeth indenting the paper.



1. The conductor's operating device F, constructed as described, for the purpose specified.

2. The combination of rod E, spring G, and guide-support D, with the operating device F, the whole arranged to operate substantially as shown and described.

3. In combination, roller L, scroll M, pawl H, ratchet-wheel I, arranged so that the teeth of said ratchet-wheel marks the scroll M, in the manner and for the purpose herein shown and described.

4. In combination, belt K, scroll M, roller L, dial-hand on shaft P, pawl H, and ratchet-wheel I, arranged substantially in the manner and for the purpose herein set forth.

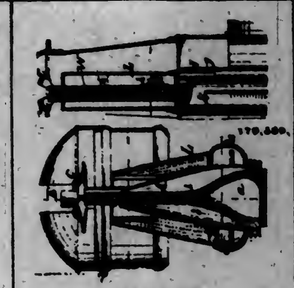
179,589. LAMPS. Michael McNamee, Baltimore, Md., assignor of one-half his right to George T. Rosenstiel, Sr., same place. (Filed June 3, 1876.)

1. The convoluted conducting-throat *a*, for folding the wick in small compass in passing through the neck and expanding it to its full breadth at the flame.

2. The combination of the reservoir-socket J, elliptical neck I, and spring-catches for connecting and disconnecting the lamp-burner and reservoir, as required.

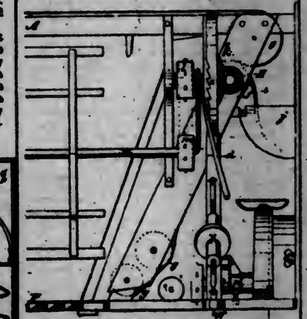
3. The sliding wick-holder L, index-point *n*, slots *m*, and scale *m'*, for regulating the automatic extinguishment of the lamp, as explained.

179,590. FEED-BAGS FOR ANIMALS. Thos. Miller, Jersey City, N. J. (Filed June 6 1876.)



The combination of the inner bag B, outer bag A, and the spring or springs D in a feeding-bag, substantially as specified.

179,591. HARVESTERS. Jos. Miller, South Bend, Ind. (Filed Mar. 27, 1876.)



1. The combination of the parallel channel-cranked rake-bars, the idle-pulleys, located at the corners of the grain-platform and upper angles of the frame A, the supplementary driving-shaft, provided with toothed hubs, and the parallel rods *f*, forming the bottom of the platform and the elevator, all arranged in the manner shown and described, to operate as specified.

2. The combination of the cross-head, carrying the gears *p p* and the tubular shaft, the driving-wheel, having the extended hollow hub, the clamp-screw, and driving-shaft, as shown and described.

3. The cutter-plates having their rear corners beveled, and provided with engaging-shoulders, as shown, in combination with the cable and pulley, as described.

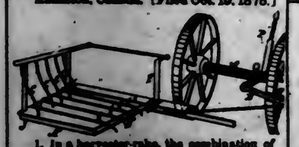
179,592. MACHINES FOR SAWING WOOD. Henry C. Miller and Moses Miller, Newark, N. J. (Filed Jan. 6, 1876.)

1. In a machine for sawing wood, the combination, with the saw-horse A and frame-work B, of the saw C, slotted bar D, bar E, lever F, and spring *d*, when constructed, combined, and arranged to operate substantially as and for the purposes set forth.

2. The combination of the saw C, pitman G, crank H, pulley *f*, driving-wheel K, and spring *e*, when combined and arranged to operate substantially as and for the purposes set forth.

3. The combination, with the saw-horse A, of the adjustable auxiliary rest or support M, for the purpose set forth.

179,592.



179,592. REAPING-MACHINES. Isaac Mills, Hamilton, Canada. [Filed Oct. 19, 1875.]

1. In a harvester-rake, the combination of the rake-table A', the L-shaped reciprocating rake, consisting of the handle H, bent as shown, and the loose rake-head U, pivoted within the same, substantially as described.

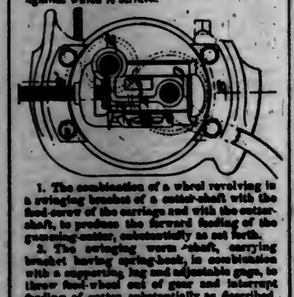
2. In a harvester-rake, the combination of the bar or case L, containing a groove, G, and guards K K', with the bar J, containing groove c, and the handle H, constructed to operate in said groove, substantially as described.

3. In combination with the gearing for transmitting motion to the reciprocating rake, the lever F, for throwing the wheel O in and out of gear, for the purpose of moving or stopping the rake, substantially as described.

4. In combination with the rake-head U, pivoted in the handle H and provided with a lug or tooth, B', the bar N, for tripping said rake-head when at the end of its forward stroke, substantially as described.

5. In combination with the rake-head U, pivoted in handle H and provided with the tooth B', the lug or projection L on the cross-bar X, for tripping the rake at the end of its back-ward stroke, substantially as described.

179,593.



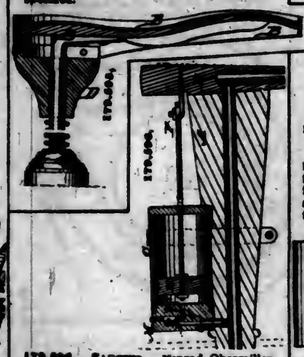
179,593. SAW-GUMMERS. J. W. Mixter, Templeton, Mass. [Filed Feb. 21, 1876.]

Brief.—A disk-shaped way, which can be moved in guide-flanges of the frame, so as to present the cutter at the desired angle to the teeth, is adapted to receive the sliding carriage, and is secured, when turned to the position required, by set-screws. A screw operated by a worm-wheel feeds the cutter-carriage forward. The worm-wheel turns in bearings formed in a swinging bracket, which is sleeved upon the cutter-shaft. A spring-bolt locks the bracket, and then keeps the worm wheel in gear with the worm on the feed-screw, until the bolt is caused to be detached (which may be at the point desired) by an adjustable gage, against which it strikes.

1. The combination of a wheel revolving in a swinging bracket of a cutter-shaft with the feed-screw of the carriage and with the cutter-shaft, to produce the forward feeding of the grooving-cutter, substantially as set forth.

2. The swinging worm-shaft, carrying bracket having spring-bolt, in combination with a supporting leg and adjustable gage, to throw feed-wheel out of gear and interrupt feeding of cutter, substantially as described.

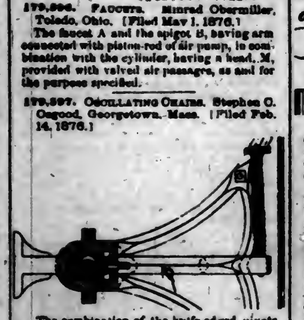
179,594.



179,594. APPARATUS FOR APPLYING THE LINING TO THE INSOLES OF BOOTS AND SHOES. Charles Monahen, St. John, New Brunswick, Canada, assignee of one-half his right to Joseph E. Valpey, same place. [Filed Mar. 31, 1876.]

A guard and support for the toes or boot C, surrounding a rigid lining-plate, B, and resting upon a spring-bold support, D, as shown and described, and for the purpose specified.

179,595.



179,595. FAUCETS. Konrad Obermiller, Toledo, Ohio. [Filed May 1, 1876.]

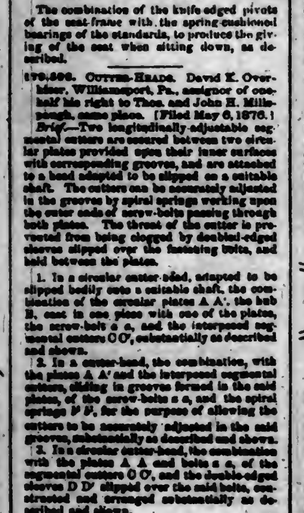
The faucet A and the spigot B, having arm connected with piston-rod of air pump, in combination with the cylinder, having a head, M, provided with valved air passages, as and for the purpose specified.

179,596.

179,596. OSCILLATING CHAIRS. Stephen C. Osgood, Georgetown, Mass. [Filed Feb. 14, 1876.]

The combination of the knife-edged pivots of the seat-frame with the spring-cushioned bearings of the standards, to produce the giving of the seat when sitting down, as described.

179,597.



179,597. CUTTER-HEADS. David K. Overhiser, Williamsport, Pa., assignor of one-half his right to Thos. and John H. Millspaugh, same place. [Filed May 6, 1876.]

Brief.—Two longitudinally-adjustable segmental cutters are secured between two circular plates provided upon their inner surfaces with corresponding grooves, and are attached to a head adapted to be slipped on a suitable shaft. The cutters can be accurately adjusted in the grooves by spiral springs working upon the outer ends of screw-bolts passing through both plates. The thrust of the cutter is prevented from being clogged by double-edged sleeves slipped over the fastening bolts, and held between the plates.

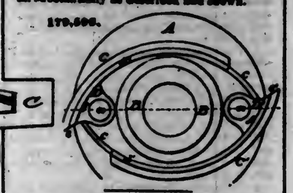
1. In a circular cutter-head, adapted to be slipped bodily onto a suitable shaft, the combination of the circular plates A A', the hub B, cast in one piece with one of the plates, the screw-bolt a a, and the interposed segmental cutters C C', substantially as described and shown.

2. In a circular cutter-head, the combination with the plates A A' and the interposed segmental cutters, sliding in grooves formed in the said plates, of the screw-bolts a a, and the spiral springs *b b*, for the purpose of allowing the cutters to be accurately adjusted in the said grooves, substantially as described and shown.

3. In a circular cutter-head, the combination with the plates A A and bolts a a, of the segmental cutters C C', and the double-edged sleeves D D' slipped over the said bolts, constructed and arranged substantially as described and shown.

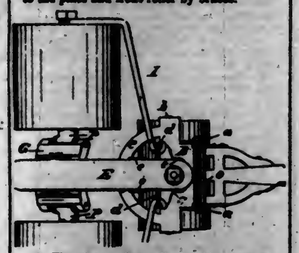
4. In a circular cutter-head, the combination with the plates A A', having the circular grooves *c c*, of the circular cutters C C', the sleeves D D', the bolts a, and the springs *b*, all substantially as described and shown.

179,598.



179,598. LAND-ROLLERS. Wm. B. Persons, Wanda Station, N. Y. [Filed May 8, 1876.]

Brief.—Constructed in three sections—one being adjusted in front of the other two, the front roller being mounted in a movable frame, in which it is journaled. The rear rollers are adjusted to one another by a hinged axle, and to the plate and front roller by braces.



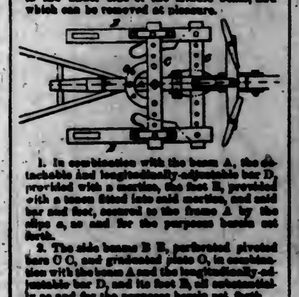
1. The plate or frame B, provided with the segment c, the pendent arms *b* for securing the roller, and the ears *a*, for securing the tongue, constructed substantially as shown and described.

2. The plate C, with the perforated ears d, for hinging the brace-rods I, and lugs e, for holding it in place on the bar B, substantially as described.

3. The plate U, provided with the ears a, in combination with the roller-journals P, provided with the ears r, both constructed and arranged to operate substantially as shown and described.

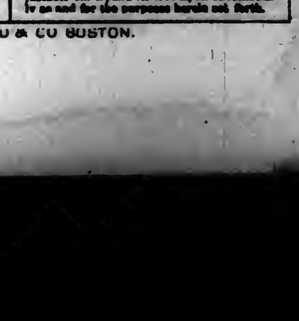
4. The journals P P, hinged so as to permit the rollers to move in a vertical plane at their outer ends, in combination with the angular rigid brace-rods I, and end of said rods being secured to the outer ends of said journals, and their other ends being hinged to the frame in front, substantially as shown and described.

179,599.



179,599. PLOWS. George W. Perry, Booneville, Miss. [Filed Apr. 10, 1876.]

Brief.—The frame consists of a compound beam, to which the tongue is attached, two side beams, and two cross-beams. These beams and cross-pieces are pivoted together in such a manner that, by pushing one forward and the other backward, the distance between them is increased or diminished. The outside beams carry each a share. An adjustable hand-block, carrying another share, is secured to the under side of the middle beam, and which can be removed at pleasure.

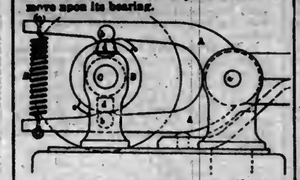


1. In combination with the beam A, the detachable and longitudinally-adjustable bar D, provided with a mortise, the foot E, provided with a tenon fitted into said mortise, and said bar and foot, secured to the frame A by the clips a, as and for the purposes herein set forth.

2. The side beams B B, perforated pivoted bars C C, and graduated plate O, in combination with the beam A and the longitudinally-adjustable bar D, and its foot E, all substantially as and for the purposes herein set forth.

179,601. MACHINES FOR BINDING AND WIRING HAT-FRAMES. Wm. C. Petty, Baltimore, Md. [Filed Jan. 14, 1876.]

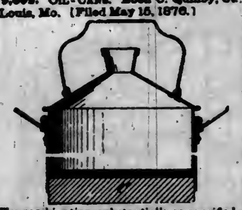
Brief.—By the interposition of cam, the levers or jaws have an alternate distention and contraction and vibratory motions. Thus the binding and wire are grasped and fed along through the folding-gage. The stand-ard to which the levers are pivoted is free to move upon its bearing.



1. In a binding and wiring machine, the combination of the crossed levers A, having the pins *b* and *d* projecting therefrom, and the cam B, provided with the toes *c*, and irregularly-shaped groove F, and spiral spring E, substantially as specified.

2. The levers A, pivoted to a movable stand, in combination with the projecting strip I and arm H, substantially as set forth.

179,602.



179,602. OIL-CANS. Eben C. Quinby, St. Louis, Mo. [Filed May 15, 1876.]

The combination, substantially as specified, of a containing-can having an indent, and a tilting ring and ear within the indent, and an exterior movable guard-case or jacket of sheet metal, or sheet metal and wood, the metal sides of which may be plain or worked up and stiffened vertically, and bound laterally.

179,603.

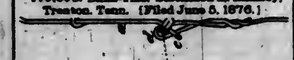


179,603. CAR-SPITTOONS. Jas. H. Quackenbush, Kalkaska, Mich. [Filed May 27, 1876.]

1. A spittoon for railroad-cars, made of an outer longer tube, an interior shorter tube, and an intermediate layer or shell of paper or other fabric, closing the bottom of the interior tube, substantially in the manner and for the purpose set forth.

2. A spittoon made of tubular outer and interior sections and an intermediate shell, and provided with a top rim of inverted conical shape, substantially as and for the purpose described.

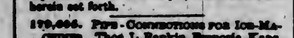
179,604.



179,604. BALE-TIES. Blackmon A. Ramsey, Trenton, Tenn. [Filed June 5, 1876.]

A wire bale-tie, consisting of the apset loop *a f* and the loop *d*, in combination with the adjustable bow or bent key *c*, substantially as herein set forth.

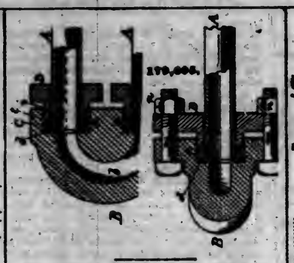
179,605.



179,605. PIPE-CONNECTIONS FOR ICE-MACHINES. Thos. L. Rankin, Emporia, Kans. [Filed May 26, 1876.]

The combination of the pipes A A, with screw-collars C C, the coupling B, provided with passage *b* and recesses *a a*, packing-rings *f e*, plates D, with tube *i*, and bolts m, with nuts n, all substantially as and for the purposes herein set forth.

179,606.



179,606. SASH-FASTENERS. G. H. Beck, Bethlehem, Pa. [Filed Mar. 6, 1876.]

Brief.—A spring-pressed or friction-plate works in an inclined box or case, and is provided with a wedge-handle and spring. A locking-bolt is so combined and constructed as to be thrown out of action by the act of unlocking it and raising the sash, there being also a drop-piece, which drops when the sash is raised, and interposes a projection thereon in front of the shoulder of the locking-bolt, and holds it against the spring, the construction forming a complex, but very effective, combined friction-holder and positive fastener.



1. The combination of locking-bolt A, having shoulders *b*, drop-piece F, having projection *c*, stop G, lever C, spring D, pressed B, inclined case H, wedge-handle J, and spring K, combined and arranged substantially as specified.

2. The pressed B, inclined case H, wedge-handle J, and spring K, combined and arranged substantially as specified.

3. The combination of the sash holding pressed B and a locking-bolt, A, having a drop-piece, F, substantially as specified.

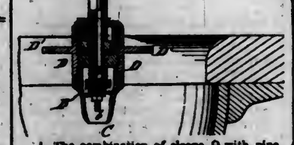
179,607.



179,607. COAL-HODS. Henry S. Reynolds, Green Point, assignor to E. W. Bliss, Brooklyn, N. Y. [Filed May 13, 1876.]

Brief.—The joint formed by the body and rim, folded as described, constitutes a shelf for the bottom to rest upon.

179,608.



179,608. BASIN-FAUCETS. Edwin S. Rich, New York, N. Y. [Filed May 22, 1876.]

1. The combination of sleeve D with pipe A, having collar K, the sleeve being drawn in at the top about the pipe and above its collar B, as and for the purpose specified.

2. The combination of the sleeve D, constructed as described, the nozzle C, and valve E, substantially as and for the purpose specified.

179,609.



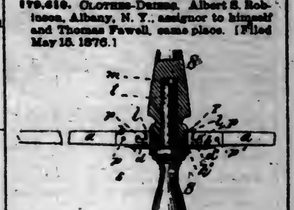
179,609. BREECH-LOADING FIRE-ARMS. J. C. Richards, Phillipsburg, Pa., assignor to himself and Thos. B. Potter, same place. [Filed May 31, 1876.]

1. The breech block C, provided with the rigid bent arm *b* and the pivoted slotted arm *d*, in combination with the barrel A and lever D, substantially as herein set forth.

2. The swinging locking-pin G, in combination with the breech-block C and lever D, substantially as and for the purpose herein set forth.

3. The combination of the barrel A, breech-block C, lever D, and swinging locking-pin G, with arm H, all constructed substantially as and for the purposes herein set forth.

179,610.

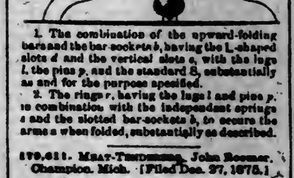


179,610. CLOTHES-DRIERS. Albert S. Robinson, Albany, N. Y., assignor to himself and Thomas Fewell, same place. [Filed May 15, 1876.]

1. The combination of the upward-folding bars and the bar-sockets *b*, having the L-shaped slots *d* and the vertical slots *a*, with the legs *l*, the pins *p*, and the standard S, substantially as and for the purpose specified.

2. The rings *r*, having the legs *l* and pins *p*, in combination with the independent springs *s* and the slotted bar-sockets *b*, to secure the arms a when folded, substantially as described.

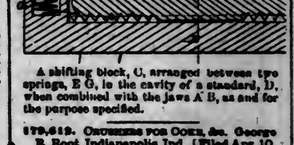
179,611.



179,611. MEAT-TENDERERS. John Roomer, Champion, Mich. [Filed Dec. 27, 1875.]

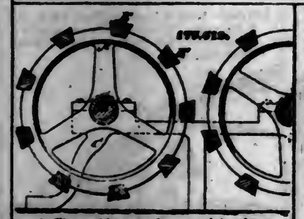
A shifting block, C, arranged between two springs, E G, in the cavity of a standard, D, when combined with the jaws A B, as and for the purpose specified.

179,612.



179,612. OVENS FOR COKE, &c. George B. Root, Indianapolis, Ind. [Filed Apr. 10, 1876.]

Brief.—The coke is fed between the drums, and is crushed by the bars, the crushed coke falling into the drum through the intervals between the bars. Inside of each drum is a conical core, to deliver the crushed coke at one side of the machine.



1. The combination of two revolving drums, whose peripheries consist of intervaled bars, arranged alternately in the two drums, and made to taper from the outer to the inner side, as shown and described, for the purpose specified.

2. The combination, with a crushing-drum, A B, of a conical cone, F, substantially as specified.

179,615. SPRING BED-BOTTOMS. J. ROSSE, Dowagiac, Mich. [Filed Apr. 4, 1876.]



An improved spring bed-bottom, formed by the combination of the bow-shaped stretchers C C, the head and foot bars E E, and the rope F, constructed and arranged to operate substantially as specified.

179,616. FURNACES OR KILNS. William S. Sampson, New York, N. Y. [Filed Apr. 26, 1876.]

Brief.—Abutting plates and tie-rods of iron, and an iron lining between the fire-brick and the non-conducting packing.

1. A furnace or kiln adapted for burning lime, cement, or plaster, roasting ores, smelting metals, and for other kindred purposes, constructed in three sections: first, a masonry foundation or base having centrally therein a self-acting draw, and provided with suitable draw-doors; second, a furnace-section, constructed of a series of exterior walls in form of reverse or concave arches, interior circular wall of fire-brick or stone, and provided with a series of fire-chambers and ash-pits, the whole secured vertically by tuned plates at both apex and base, and tie-rods, and laterally by a series of perpendicular Y shaped abutting plates and horizontal tie-rods; third, an upper section or tower, constructed of a series of exterior brick walls laid in reverse arches, the bases of which rest in a series of vertical Y shaped abutting plates, and an interior circular wall of fire brick or stone, the whole rigidly secured together in place by a series of horizontal tie-rods attached to the abutting plates, the entire structure arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

2. In a furnace, kiln, or oven adapted for the burning of lime, cement, or plaster, roasting of ores fusing of metals, and other similar purposes, a series of outer masonry walls, constructed in the form of reverse or concave arches, in combination with a series of vertical metal abutting plates or seats, and a series of horizontal tie-rods provided with adjusting and retaining nuts, arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

3. In a furnace, kiln, or oven adapted for the purposes herein specified, the combination of a series of outer masonry walls laid in reverse arches, a series of vertical metal abutting plates provided with horizontal tie-rods having adjusting and retaining nuts, and a horizontal bond-plate at both apex and base of walls, provided with perpendicular tie-rods and adjusting and retaining nuts, the whole applied and operating substantially as and for the purposes as herein shown and set forth.

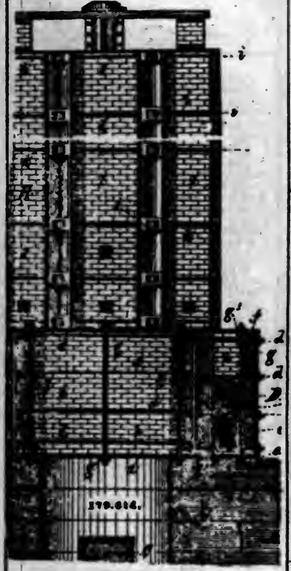
4. In a furnace or kiln, the combination of a series of vertical walls, f f, laid in the form of reverse arches, Y-shaped metal abutting plates or seats H, tie-rods i i, and retaining-nuts n, arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

5. In a furnace or kiln, the combination of the circular fire-brick or stone wall L, metal jacket O, non-conducting packing P, arched exterior walls I I, Y-shaped abutting plates H, and tie-rods i i, the whole arranged and operating as and for the purposes as herein shown and set forth.

6. In a furnace or kiln, the combination of a series of vertical walls of masonry, b b, laid in the form of reverse arches, parallel walls c c, Y-shaped abutting plates D, and cord-rods d d, provided with adjusting-nuts d', arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

7. In a furnace or kiln, the combination of a series of vertical walls of masonry, b b, laid in the form of reverse arches, parallel walls c c, Y-shaped abutting plates D, horizontal tie-rods d d, having adjusting-nuts d', bond-plates e and f, and vertical tie-rods g g, having adjusting-nuts g', the whole arranged, applied, and operating substantially as and for the purposes herein set forth.

8. In a furnace or kiln, the combination of the circular fire-brick or stone wall E, lateral walls F, forming the sides and top of the fire-chambers and ash-pits, arched exterior walls b b, parallel walls c c, Y-shaped abutting plates D, horizontal tie-rods d d, having adjusting-nuts, bond-plates a and f, and vertical tie-rods g g, the whole arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.



179,616.

179,617. LAND-PROPELLER. Chas. J. Bohliter, Baltimore, Md. [Filed Apr. 6, 1876.]

Brief.—The horizontal hand-wheel may be used alone when desired. When greater force is required, the worm-shaft is used. Its play endwise in bearings admits of its engagement and disengagement. The projections on the under side of the follower become inclosed in the pommee and facilitate its removal.

1. The combination of the hand-wheel G, worm-wheel B, gib I, clamp U, and screw H, as set forth.

2. In combination with screw H and wheel B, keyed as shown, the worm-shaft F, having the worm A thereon, and provided with hand-wheel G, as shown.

3. In a press, the combination of wheel B and the worm-shaft in the bearings D and F, said shaft being provided with hand-wheel G, pad ratchet and lever L, as specified.

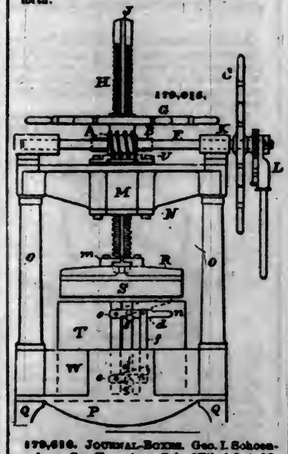
4. The pressing-screw H, provided with the keyway J, in combination with the wheels G and B and gib I, as described.

5. The screw H and press-plate E, the latter being coupled to the screw, as shown, and provided with the projections r, as set forth.

6. The basket T of the press, the two parts being hinged and coupled together, provided with the removable perforated plate s, as shown.

7. The press-basket T, the two parts being hinged together, and also provided with the fastening worked by the handle a and connecting-piece f, as shown and described.

8. In a press, the combination of the basket T, made in two parts, coupled together, and provided with plate s, the grate bars b, and the fountain W, as shown, for the purpose set forth.

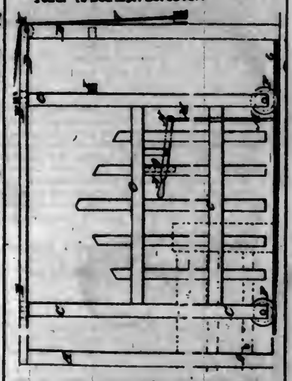


179,616.

179,618. JOURNAL-BOXES. Geo. I. Schoenberg, San Francisco, Cal. [Filed Oct. 20, 1875.]

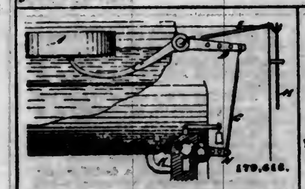
A journal-box for railway-cars, composed of copper, tin, and zinc, in proportions herein set forth, substantially as and for the purpose described.

179,619. GATES. E. A. Shugart, Athens Texas. [Filed Apr. 26, 1876.]



An improved sliding gate, formed by the combination with each other of the posts A B, the parallel top bars D, the track C, the sliding panel G, and the closing and latching devices, substantially as described.

179,620. FEED-WATER REGULATOR. John Slade, Bay City, Mich. [Filed Mar. 25, 1876.]



179,616.

1. The lever-arm D of float A, the rod N, rigidly attached thereto, and the suspended graduated plate M, working vertically in a guide or keeper, all combined and arranged to operate as shown and described.

2. The combination of plug I, float A, levers D H, provided with perforations, as specified, and the adjustable rod O, all as shown and described, for the purpose specified.

179,619. ICE-ELEVATORS. Thomas Smith, Green Island, N. Y. [Filed May 26, 1876.]

Brief.—A floating track is hinged to a land section, which is also hinged at its other end. A carriage, being drawn up behind the ice, raises at the float hinge a switch, which, on falling, permits the descent of the carriage along an upper track to its extremity, where it falls through to the lower track.



1. The float A, hinged to, and in combination with, the hinged vibrating lower section B of the inclined elevator, substantially as and for the purpose described.

2. The hinged water-section or float A, provided with the upper and lower tracks A' A', in combination with the elevating-track, operating substantially as described.

3. The switch-bars D D, mounted and vibrating on the pivots of the hinges which connect the water section or float A of the elevator with the lower inclined elevator, as described.

4. The combination, with the elevator and the float, having the double track, as described, of the four-wheeled truck H, adapted to be moved outward by its own gravity, and to maintain itself in position on the tracks, as explained.

5. The combination, with the sections of the jointed elevator, of the elastic tracks or ways e, for bridging the joints of the elevator, as described.

6. The friction-roller G, arranged at or near the joint between the float and the lower inclined section, for deflecting the elevating-rope and giving a direct, or nearly direct, pull of the same upon the track, as described.

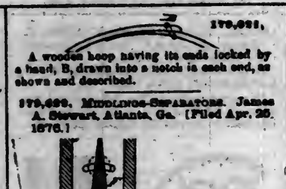
179,620. LAMPS. Chas. F. Spoffor, Rochester, N. Y. [Filed May 18, 1876.]



In combination with the horizontal reservoir, the annular filling-cap and cap, the latter adapted to slide upon the supporting-rod for the purpose of removal, in order to allow the lamp to be filled when desired, substantially as described.

179,621. WOODEN-HOOP FASTENINGS. W. J. Squire, East Haddam, Conn. [Filed May 1, 1876.]

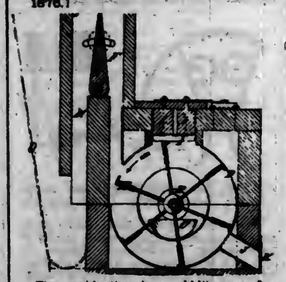
Brief.—The overlapped ends of wooden hoops are secured together by means of a metallic loop fitting in notches formed in said ends.



179,621.

A wooden hoop having its ends locked by a band, B, drawn into a notch in each end, as shown and described.

179,622. MIDDLINGS-SEPARATORS. James A. Stewart, Atlanta, Ga. [Filed Apr. 26, 1876.]



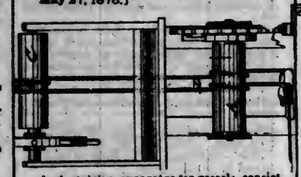
The combination, in a middlings purifier, with a fan, E, having conveyers I, and a feeder, A B C, of the case D, provided with upward dust-discharge F G H, and the downward discharge J, for the middlings, all constructed and arranged substantially as and for the purpose specified.

179,623. HEATING APPARATUS. Edward W. Sturdy, Providence, R. I. [Filed Apr. 15, 1876.]



As a new article of manufacture, the herein-before-described furnace A, having a draft-opening, b, at the base, and the outwardly-flaring serrated edges c at the top to equalize the even distribution of heat upon the rounded sides of a culinary vessel, substantially as described and shown.

179,624. STEERING APPARATUS. Charles R. Suter, St. Louis, Mo., assignor to himself and E. R. Furney, same place. [Filed May 27, 1876.]

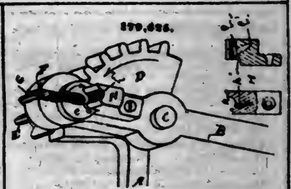


1. A steering apparatus for vessels, consisting of the combination of the tiller-ropes with the barrel of the steering-wheel, and with one or more rotating drums, around which the tiller-ropes are coiled, so that the slack is taken up by the barrel of the steering-wheel, while the motion of the rudder is accomplished by the rotating drums, substantially as set forth.

2. The combination of the tiller-ropes with the barrel of the steering-wheels, and with one or more rotating drums, having ratchet wheel and pawl mechanism to allow the instant change from power to head steering on the stoppage of the drum-driving machinery, substantially as and for the purpose set forth.

179,625. HARD-FORMING. James A. Swan, Joliet, Ill. [Filed June 16, 1876.]

Brief.—A straight double pointed barb-wire is placed with one point resting in an oblique orifice of a stationary socket, so that the other point projects into the slot of a rotating collar. The fence-wire having been previously placed in the slot of the rotating pinion, by closing the tool-handles, the slotted pinion is caused to revolve, thus twining the barb-wire completely about the fence-wire.



179,625.

1. The wire barb implement, consisting essentially of the slotted pinion B e e', journaled within the similarly slotted head F, carrying the socket-piece H A A', and having the handle B, and being pivoted at O to cogged segment D, which gears to said pinion and has a handle, A, the whole being combined and adapted to co-operate, as set forth.

2. In combination with the stationary oblique barb-socket H A A', the slotted rotary pinion E e e for the purpose set forth.

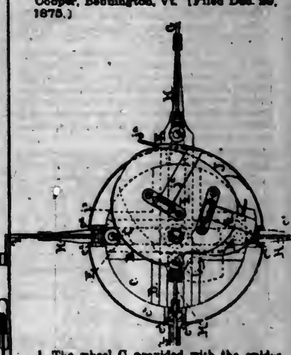
179,626. BILLIARD-TABLE LEVELERS. R. H. L. Swindler, Ottawa, Ill. [Filed June 9, 1876.]

Brief.—The wrench is always in place and ready for use.



The hinged lever D, in combination with the plate A, having the holes F F F, substantially as and for the purpose described.

179,627. AUTOMATIC RAKING DEVICES FOR HARVESTERS. John Temple Albany, N. Y., assignor of one-half his right to Chas Cooper, Bennington, Vt. [Filed Dec. 29, 1875.]



1. The wheel C, provided with the guides D extending across the surface of the wheel in combination with the slides E, provided with the rollers e', and having two rake-arms, G connected to, and co-operating with, each of said slides, and the cam I, when arranged to operate substantially in the manner and for the purpose specified.

2. The slides E, provided with two rollers, e', and having the legs e' at each end for connecting thereto the links U, in the manner and for the purpose specified.

3. The slides E, having two rake-arms, G, connected and co-operating therewith, substantially in the manner and for the purpose specified.

4. The combination, with the wheel C and cam I, of the slides E, having two rake-arms, G connected to, and co-operating with, each of said slides, in the manner and for the purpose herein specified.

5. The cam I, having a projecting cam-shaped flange, f, in combination with the eccentrical cams J and K, as and for the purpose specified.

6. The cam I, having two retaining surfaces, arranged one above the other, as herein described, in combination with the slides E, provided with the vertically-adjustable rollers e', and having two rake-arms, G, connected to each slide when arranged to op-

erate substantially as and for the purposes specified.

7. The inclined face-plate L, when arranged in the manner herein described, and for the purpose specified.

8. The combination of the wheel C, slides E, rake-arms G, and links H, with the cam I and inclined face-plate L, as and for the purpose specified.

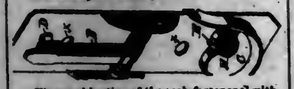
179,628. WRENCHES. Jas. E. Underwood, Brooklyn, N. Y. [Filed May 31, 1876.]

Brief.—The hinged head of the screw-bolt drops into a recess in one of the jaws.



The combination of the arms a and a', and the jaws c c', with the screw d, made with a head and toggle or elbow joint, d, all in connection with the shank A, substantially in the form, and as and for the purposes herein set forth.

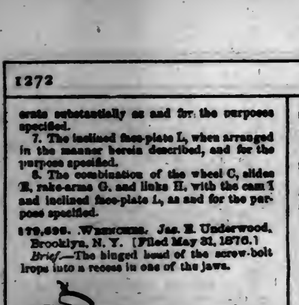
179,629. COMBINED RAKE-FASTENERS AND BUNDLER-ALARMS. Jos. B. Underwood, Fayetteville, N. C., assignor of one-half his right to W. A. Whitehead, same place. [Filed May 19, 1876.]



The combination of the cash-fastener O with the hammer B, substantially as and for the purpose set forth.

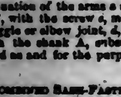
179,630. VENTILATING CARS. Cornelius G. Van Pappelendam, Charleston, Iowa. [Filed Apr. 18, 1876.]

Brief.—A system of pipes in the upper portion of the car, to take out the vitiated air by the draft caused by the motion of the car, and also of pipes with hoods for catching and conducting the air down along a heater (in cold weather) to a conductor along the floor and below it, the floor being perforated to allow the air to rise into the car.



The combination of pipes A, open at the ends and under side, the pipes C, passing through side-open tops, the corner pipes E, and the air-chamber F, all arranged in connection with the perforated floor of a car, substantially as and for the purpose specified.

179,631. MANUFACTURING TIPS FOR BOOTS AND SHOES. Albert Van Wagenen, Boston, Mass. [Filed June 24, 1876.]

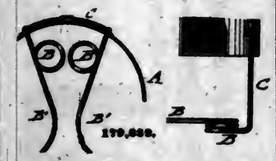


The improved process of manufacturing shoe-tips from hides or skins, consisting of first treating the material with the tanning-solution named, then blacking the grain side, then cutting it into blanks and blackening their edges in the manner set forth, and, when partially dry, compressing the blanks into form by means of heated dies.

179,632. LAMP-REFLECTORS. Martin P. Warner and Jabez F. Warner, Morrison, Ill. [Filed May 9, 1876.]

Brief.—Adapted to be attached to a burner near its junction with a lamp.

The combination of the reflector and the clamps B B' C, adapted to be attached substantially as and for the purpose specified.



179,633. REVOLVING FIRE-ARMS. Rollin White, Lowell, Mass. [Filed Apr. 12, 1876.]

Brief.—The weapon is discharged by pressure of the hammer on the cartridge instead of by concussion. The shells may be drawn out by a hook on the hammer, which is operated by pulling the trigger, or by a forward movement of the cylinder.



1. In a fire-arm or piece of ordnance, a firing mechanism consisting of a lever and a plunger or firing-pin attached to the same, and adapted to operate by pressure above, substantially as described.

2. In a cylinder fire-arm, in combination with the firing-lever the pivoted cam and the pawl, substantially as described, for revolving the cylinder and discharging the fire-arm at the same time.

3. The cartridge-extractor, with hook-shaped head and rounded point, substantially as described.

4. The cartridge-extractor K', in combination with the lever for firing, each constructed and arranged substantially as described.

5. The wedge-shaped pivoted extractor N, constructed and arranged to operate substantially as described.

6. In combination with the base-pin, the tube P, substantially as and for the purposes set forth.

7. In combination, the spring T and lever F, substantially as and for the purposes set forth.

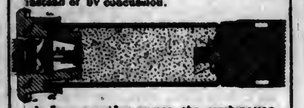
8. The fin s on the lever Q, in combination with a recess in the tube or base-pin, to fasten it to the barrel, substantially as set forth.

9. The spring l, in combination with the extractor K K', substantially as set forth.

10. The spring p in the base-pin, in combination with the extractor, substantially as described.

179,634. CARTRIDGES. Rollin White, Lowell, Mass. [Filed Mar. 20, 1876.]

Brief.—Cartridges to be fired by pressure instead of by concussion.



1. In a cartridge-primer, the combination of an outer cup and an inner cup, with a space within the walls of the two cups, one or both of the adjacent walls being roughened, substantially as and for the purposes described.

2. In a cartridge-primer, as described, a separate wad or plate interposed between the cups, substantially as and for the purposes set forth.

3. A cartridge-primer with a cut or seam through the face, so that the portion of the metal included in the cut or seam may be bent and produce a vent, which may be enlarged or diminished as the metal is more or less bent, substantially as described.

4. A cartridge-primer with openings in the face of the inner cup leading out of separate arched recesses, substantially as and for the purposes set forth.

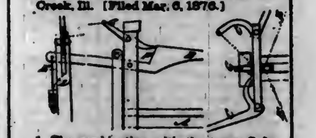
5. In combination with a primer, a cartridge provided with converging flanges adapted to compress the primer passing between them, substantially as and for the purposes described.

6. A cartridge with a vent in its base, having converging flanges, substantially as described

7. A cartridge with a hooked flange to its base, to assist in the ready extraction of the same, substantially as described.

8. In combination with a cartridge-body adapted to be discharged, and having a cleat forward end, the projectile F, having the stem b secured to the forward end of the cartridge-body, substantially as and for the purposes described.

179,635. GATES. John A. H. Wilson, Deer Creek, Ill. [Filed Mar. 6, 1876.]



1. The combination, with the levers C for raising the tilting beam B, and the chains E for depressing it, of the beam I, as and for the purpose specified.

2. The lever G, combined with the gate A and the tilting rail B, having the self-locking notch F, substantially as specified.

179,636. STONE-DRILLS. Thomas Woods, Nicholasville, Ky. [Filed Jan. 22, 1876.]

Brief.—A horse-power wheel gears with a pinion on a horizontal shaft, that, at its other end, has a cam-wheel, that winds and drops the drill-chain in its revolution

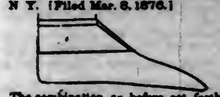


1. For a stone-drill or analogous use, the revolving convexo-sloping cam and grooved pulley O e G H H' H'' H''', constructed, connected, and operating substantially as and for the purpose specified.

2. In combination with pulley C, constructed as described, and pulley e, and chain F of a stone-drill, the swiveling socket-link f, substantially as and for the purpose specified.

3. In combination with pulley e and drum e' on horse-power, the idler pulley f, connected and operating substantially in the manner and for the purpose specified.

179,637. PRESSERS FOR CIRCULAR-KNITTING MACHINES. Frank Wickwire, Troy, N. Y. [Filed Mar. 6, 1876.]



The combination, as before set forth, of a glass presser for circular-knitting machines, and a holder, into which the glass is fixed, and by which the presser is secured to the machine.

179,638. CLOTHES-LINE SUPPORTERS. S. M. Knapp, Hoboken, N. J. [Filed May 1876.]



The crane formed of the triangular hinged frame D, provided with a hook, d', or with a pulley-block, and the hooks d'' d'', the bar E, and the pivoted brace G, substantially as herein shown and described, to adapt it to be applied to a window, as set forth.

179,639. WAGON-BRAKE LEVERS. John M. Studebaker and Hugh L. Hinds, South Bend, Ind. [Filed June 5, 1876.]

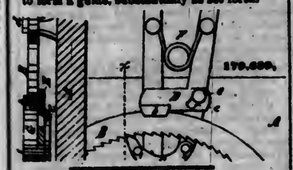
Brief.—The pawl-lever arm is pivoted in an oblique slot, and provided with a distending-spring, which causes the pawl to engage with the ratchet.

1. In combination with the ratchet B and lever C, the curved lever E, adapted to ride vertically upon the lever C, substantially as and for the purposes set forth.

2. In combination with the curved lever E, provided with a distending-spring, and a guide-pin, c, the arm D, provided with an oblique slot, c, whereby the vibration of the lever E causes it to also move vertically, substantially as and for the purposes hereinbefore set forth.

3. The combination of the ratchet B, lever C, and curved lever E, with its pawl end and guide-pin c, the guide-arm D with its oblique slot c, and the spring F, all arranged to operate substantially in the manner described.

4. The rigid arm D, provided with a lip, b, to form a guide, substantially as set forth.



REISSUES.

9,102. ROLLED SHEET METAL. Silas Barber and Henry S. Pratt, Hartford, Conn.; said Pratt assignor to said Barber. Patent No. 107,702, dated Sept. 27, 1870. [Filed Dec. 11, 1875.]

As a new article of manufacture, sheet metal, the surfaces of which are correspondingly raised and indented, substantially in the manner, and for the purposes set forth.



9,102. CONSTRUCTION OF PUMP-GEARING. Joseph W. Douglas, Middletown, Conn., assignor to W. & B. Douglas. Patent No. 101,354, dated May 26, 1874. [Filed Jan. 26, 1876.]

1. The combination of the pump-gearing with an outside fastening.

2. The mutual combination of the gland d and gland-box c, as an outside fastening of pump-gear, as described.

9,103. SEWING-SEATS. Luther W. Filbrown, Jr., Wayne, Me., assignor to H. B. Cobb. Patent No. 94,200, dated July 10, 1869. [Filed June 17, 1875.]



1. A spring seat or cushion having its springs adapted for application to and removal from the seat or cushion frame without disturbing the covering or upholstering.

2. The springs of a seat or cushion adapted for application to and removal from the seat or cushion frame, through the bottom of the latter, without disturbing the covering or upholstering.

3. A series of springs for spring seats or cushions, each spring having the general form of an ellipse, mounted transversely upon a wooden or other support, which is adapted for application to the seat or cushion frame, for the purposes specified.

4. The combination of a series of springs having the general form of an ellipse, with the frame of a seat or cushion and the covering or upholstering, for the purposes specified.

5. In a covered or upholstered spring seat or cushion, limiting the expansion of the springs by means of the covering or upholstering, independently of the seat or cushion frame, for the purpose specified.

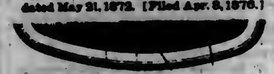
6. A spring seat or cushion, having its springs adapted for vertical adjustment within the seat or cushion frame, for the purpose of taking up the slack of the covering or upholstering when the springs have become sagged.

9,091. MACHINES FOR SEPARATING BOBBIN-PLATES. Ebenezer Fisher, Kingsclear, Canada. Patent No. 171,653, dated Jan. 4, 1876. [Filed May 13, 1875.]



The combination of movable cutter A, obliquely arranged or inclined toward the stationary cutter B, and the edge of the stationary cutter B, at an angle so inclined to the movable cutter A as to cause a bevel edge to be cut thereby, and, at the same time, to have stationary cutter B lie in a horizontal position, so that the plate or bar to be clipped lies flat or horizontally on cutter B, as shown, and for the purpose herein specified.

7,092. CHAIR-SEATS. George Gardner, Brooklyn, N. Y., assignor, by mesne assignments, to himself, Wm. Gardner, and Jane E. Gardner. Patent No. 127,044, dated May 21, 1872. [Filed Apr. 8, 1876.]



1. An improved bottom for a seat, consisting of two or more layers of veneers of wood, with their grains crossing each other or diversified, in combination with one or more layers of textile or fibrous material, secured together by an adhesive material, substantially as described.

2. An improved bottom for a seat, consisting of two or more layers of veneers of wood, with the grains crossing each other or diversified, in combination with one or more layers of textile or fibrous material, secured together by an adhesive substance, and having perforations formed therein, for the purpose of ventilation or ornamentation, substantially as described

3. The combination of a seat-bottom, constructed of two or more veneers or thin layers of wood, having the grain of each layer laid crosswise of the other, and one or more layers of canvas or other textile or fibrous material interposed between any two or more of the adjoining veneers, and the whole secured together by an adhesive substance in the manner described, with the frame of a seat, substantially as set forth.

4. The combination of a seat-bottom, constructed of two or more veneers or thin layers of wood having the grain of each layer laid crosswise of the other, and one or more layers of canvas or other textile or fibrous material interposed between any two or more of the adjoining veneers, and the whole secured together by an adhesive material, and provided with perforations, with the frame of a seat, in the manner substantially as and for the purposes set forth.

5. As a new article of manufacture, a bottom for a seat, consisting of two or more layers of wood, with one or more layers of canvas or other textile or fibrous material interposed between any two or more of said veneers, and the whole secured together by an adhesive material, and provided with perforations, and with a curved or concave upper surface, in the manner and for the purposes set forth

7,093. CHAIR-SEATS. George Gardner, Brooklyn, N. Y., assignor, by mesne assignments, to himself, Wm. Gardner, and Jane E. Gardner. Patent No. 127,045, dated May 21, 1872. [Filed Apr. 8, 1876.]

1. As a new article of manufacture, a bottom for a seat, constructed of two or more veneers or thin layers of wood, with the grain of the one layer crossing that of the other, and the whole secured together with an adhesive substance, substantially as set forth.

2. As a new article of manufacture, a bottom for a seat-frame, constructed of two or more veneers or thin layers of wood, with the grain of the one layer crossing that of the other, said layers being secured together by an adhesive substance, and having perforations formed therein for the purpose of ventilation or ornamentation, substantially as set forth.

3. The combination of a seat-bottom, constructed of two or more veneers or thin layers of wood, with the grain of the one layer crossing that of the other, and the whole secured together by an adhesive substance, with the frame of the seat, substantially as set forth.

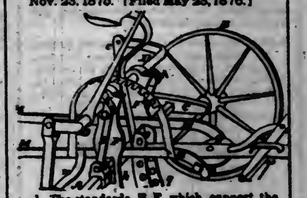
4. The combination of a seat-bottom, constructed of two or more veneers or thin layers of wood, the grain of the one layer crossing that of the other, and the whole secured together by an adhesive substance, and provided with perforations for the purpose of ventilation or ornamentation, with the frame of a seat, substantially as set forth.

5. As a new article of manufacture, a wooden bottom for seats, provided with perforations for the purpose of ventilation or ornamentation.

6. As a new article of manufacture, a seat-bottom constructed of two or more veneers or thin layers of wood, the grain of the one layer crossing that of the other, and secured together by an adhesive substance, said bottom thus formed having a curved or concave configuration on its upper side, substantially as set forth.



7,094. GANG-PLOWS. Frank A. Hill, San Leandro, Cal. Patent No. 170,262, dated Nov. 23, 1875. [Filed May 28, 1876.]



1. The standards F F, which support the shaft D, and to which the beams M M are secured, having the slots h, through which the axle A passes, in combination with the cranks K K, connecting-bars I I, shaft D, and lever L, substantially as and for the purpose set forth.

2. The lever L, crank-shaft D, link q, and crank-axle A a' a, in combination with the slotted standards F F, cranks K, links I, and plow-beams M M, all constructed and arranged substantially as and for the purpose described.

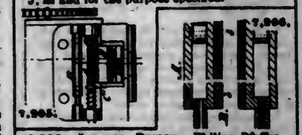
3. The vertically-grooved block or casting P, perforated as described, and arranged to be adjusted laterally between the beams M M, in combination with the pole O and journaled plate N, substantially as and for the purposes described.

7,095. BOBBIN-WINDERS FOR SEWING-MACHINES. Chas. L. Noe, Bergen Point, N. J. Patent No. 174,429, dated Mar. 7, 1876. [Filed May 1, 1876.]

Brief.—A hinged guide on one side of the bobbin, over which the thread is passed, and on the other side a roll for smoothly laying the wound layers, said roll being in a hinged frame, and pressed forward by a spring.

1. The combination, with the bobbin-centers B B, of a plain guide, D, mounted on a hinged or pivoted support, and arranged parallel to them, substantially as specified.

2. The combination, with hinged guide D, of presser-roll H, having spring I and hinge J, as and for the purpose specified.



7,096. LUMBER-DRIERS. Philipp Pfeffer, New York, N. Y. Patent No. 163,403, dated May 18, 1875. [Filed June 24, 1876.]

Brief.—A board or other piece of wood is pressed between heated plates, having vent-passages in their faces for the escape of moisture.

1. In an apparatus for drying lumber, press-plates adapted to be heated, and having vents opening upon their opposing faces, for the escape of the vaporized moisture of the wood, substantially as described.

2. In an apparatus for drying lumber, roller press-plates adapted to be heated by steam, and having vents opening upon their opposing faces, for the escape of the vaporized moisture of the wood, substantially as described.

3. In an apparatus for drying lumber, the combination of the heated press-plates with face or lining plates having perforations and connecting-channels, for the escape of the vaporized moisture of the wood, substantially as described.

4. In an apparatus for drying lumber, the combination of hollow steam-heated press-plates A and face or lining plates B, having perforations and connecting-channels between press-plate and lining, for the escape of the vaporized moisture of the wood, substantially as herein shown and described.

7,907. ELECTRO-GALVANIC CHAINS, BANDS, &c. Isaac Louis Pulvermacher, London, England, assignor to John R. Hetherington, Cincinnati, Ohio. Patent No. 120,772, dated Nov. 7, 1871.—[Filed Apr. 26, 1876.]

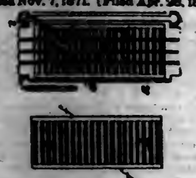


1. A galvano-electric chain or band, constructed and operating substantially as herein described.

2. The combination of the dotted plates e and the plates f with the insulating fabric or threads, all arranged to operate substantially as shown and described.

3. The cylinder Y, mounted in the trough, substantially as described, for charging the bands or chains, as set forth.

7,908. ELECTRO-GALVANIC CHAINS, BANDS, &c. Isaac Louis Pulvermacher, London, England, assignor to John R. Hetherington, Cincinnati, Ohio. Patent No. 120,772, dated Nov. 7, 1871. [Filed Apr. 26, 1876.]



1. The plates e and f, having lips struck up or punched out of the metal thereof, substantially as and for the purpose set forth.

2. The plates e, having notches c formed in its ends for reception of the insulating and fastening cords or bands, as set forth.

3. The plate e, constructed as described, with the tubes d formed on its edges for the insertion of the hinge or connecting wires, as set forth.

4. The combination of the plates e and f with the insulating-cords c and the fastening-cords g, all arranged to operate substantially as described.

5. A galvano-electric chain or band, constructed substantially as shown and described.

7,909. ELECTRO-GALVANIC CHAINS, BANDS, &c. Isaac Louis Pulvermacher, London, England, assignor to John R. Hetherington, Cincinnati, Ohio. Patent No. 120,772, dated Nov. 7, 1871. [Filed Apr. 26, 1876.]



1. The plates A and B, constructed substantially as described, for forming the elements of a galvanic electric belt or chain.

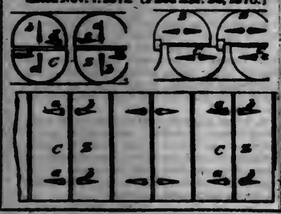
2. The combination of the plates A and B with the ribbons or cords c or f, substantially as shown and described, for the formation of a galvano-electric belt or chain.

3. A galvano-electric apparatus, constructed as shown in Figs. 9, 10, 11, and 12, as herein described.

4. The apparatus herein shown and described for charging the bands, chains, garments, or articles of dress, as set forth.

5. In combination with a galvano electric belt or chain, the employment of insoluble salts or chemicals applied thereto, substantially as described.

7,910. ELECTRO-GALVANIC CHAINS, BANDS, &c. Isaac Louis Pulvermacher, London, England, assignor to John R. Hetherington, Cincinnati, Ohio. Patent No. 120,772, dated Nov. 7, 1871. [Filed Apr. 26, 1876.]



1. The construction and combination of plates or other pieces of metal for forming chains, bands, garments, or other articles, as herein described, for application to the human body, as and for the purposes set forth.

2. The fasteners for said belts, chains, bands, &c., constructed to operate as set forth.

3. The trough-shaped batteries, constructed substantially as shown and described.

4. The metal plates having the lips formed thereon, for securing them to the fabric in the construction of belts, chains, &c., substantially as set forth.

5. The flat metal strips, bent in spiral form, and arranged upon a fabric, in the manner and for the purpose described.

6. The employment of steel plates, arranged in groups or elements on a fabric, for the purpose of applying portable magnetism to the body, as set forth.

7. The bands composed of spirally-wound wire, in which channels are formed for holding and retaining absorbent material, substantially as described.

8. A chain or band composed of a series of tubes, constructed and combined substantially as shown in Figs. 23 and 24.

9. A galvano-electric band, chain, or garment, provided with an adhesive coating for securing or attaching it to the body, substantially as described.

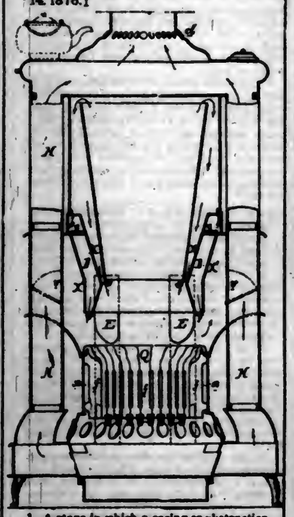
7,911. BUTTON-HOOKS. Antonio Restrea and Thomas B. D. Power, New York, N. Y. Patent No. 167,937, dated Sept. 21, 1875. [Filed June 12, 1876.]



1. As a new article of manufacture, a button-hook adapted to be moved in and out of a case or cylinder, substantially as described.

2. The screw-extension case made with the transverse slot b, in combination with the traverser d and button-hook c, as and for the purpose set forth.

7,912. BASE-BURNING STOVES. John Q. C. Searle, Cincinnati, Ohio. Patent No. 136,772, dated Mar. 11, 1873. [Filed June 14, 1876.]



1. A stove in which a casing or obstruction extends below and forms the lower end of the magazine, and in conjunction therewith forms a passage, c', substantially as described, through which the gases may pass through the fuel above the said lower end.

2. A stove in which an obstruction, for preventing the passage of the products of combustion to the upper part of the magazine, extends below and forms the lower end of the said magazine, substantially as described.

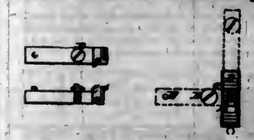
3. A stove in which a casing or obstruction, preventing the passage of the products of combustion to the upper part of the magazine, extends below and forms the lower end of the magazine, substantially as described, in combination with a register above the lower end of said obstruction, and serving to regulate the admission of air to the fuel, as set forth.

4. The combination, in a stove, of a flue or flues, H, connecting chambers at the top and base of the stove, and one or more flues, E, communicating with the lower chamber and with the combustion-chamber, with an obstruction surrounding the lower end of the magazine and preventing the upward passage of the products of combustion, as set forth.

5. The deflectors K interposed between the descending-draft flues E, and the casing or obstruction which prevents the upward passage of the products of combustion from the combustion-chamber.

7,913. SEWING-MACHINES. G. H. Wilcox, New York, N. Y., assignor, by mesne assignments, to the Wilcox & Gibbs Sewing Machine Company. Patent No. 44,401, dated Sept. 27, 1864. [Filed May 8, 1876.]

Brief.—A four-motion flat under-feed surface, operating on all four sides of the needle, in conjunction with a presser-foot having a flat smooth under surface. A needle-hole piece is connected to the cloth-plate, and projects through the center of the feed-dog, being made of such form as to facilitate the throwing out of the loop on the side of the needle next to the looper, to be properly taken up thereby, and acting also as a cloth-supporting surface between the needle and the feed-dog.

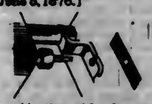


1. The needle-hole piece, formed of a separate piece of metal, secured to the cloth-plate, as herein before described, and constructed and arranged in relation to the needle-path substantially as described, whereby the loop is thrown out on the side of the needle in the path of the looper or stitch-forming device.

2. In combination with a flat cloth-supporting surface, and acting against a presser-foot having an under surface smooth, flat, or parallel with the cloth-plate, a flat four-motion under-feed surface, constructed and operating in conjunction with the latter on all four sides of the needle-hole in said cloth-plate, substantially as described.

3. The combination of the flat four-motion feed-surface, operating on all four sides of the needle-hole, and against a presser-foot having an under surface smooth, flat, or parallel with the cloth-plate, as described, with a stationary goods-supporting surface intermediate between the feed-surface and the needle-hole, substantially as described.

7,914. SEWING-MACHINES. G. H. Wilcox, New York, and Cyrus Carleton, Brooklyn, N. Y., assignors to Wilcox & Gibbs Sewing Machine Company, New York. Patent No. 116,022, dated June 27, 1871. [Filed June 8, 1876.]



1. The combination, with a four-motion feed proper and a smooth presser foot or pad, of a cloth-plate having that part of its surface which lies under and in front of the presser-foot serrated, substantially as shown and described, so that the cloth may be prevented from receding from under the beveled end of the pad when the fold releases its hold thereon, as set forth.

2. A four-motion feed working in four separate elongated feed-slots arranged on four sides of the needle—namely, one in front, one in rear, and one on each side of the needle—but all parallel with the permanent line of feed, substantially as set forth.

3. A feeder composed of three parallel elongated feed-surfaces, the middle one of which is divided and arranged in relation to the cloth supporting table and the needle-hole therein, substantially as described, so as to admit, when operating, of the passage of the needle between the two divisions, as shown and set forth.

HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & CO BOSTON.

7,915. DRESSERS' CHAIRS. Otis C. White, Hopkinton, Mass. Patent No. 62,704, dated Mar. 12, 1867. [Filed Mar. 21, 1876.]



7,915.

1. A head-rest adjustable vertically, laterally, and longitudinally on its support relatively to the back of the chair, substantially as herein before set forth.

2. The combination, substantially as herein before set forth, of a head-rest, its slotted supporting-clamp, and a set-screw passing through the slotted clamp, whereby the head-rest may be adjusted and held in any desired position upon its support.

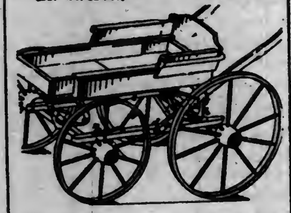
3. The combination, substantially as herein before set forth, of an adjustable supporting-bar and an adjustable head-rest connected therewith by a universal clamp-joint.

4. The combination, substantially as herein before set forth, of the head-rest, universal clamp-joint, and a vertically and laterally adjustable supporting rod or bar mounted upon the chair.

5. The combination, substantially as herein before set forth, of an adjustable head-rest, a supporting-bar united with it by a universal clamp-joint, and a second clamp, through which the supporting-bar moves endwise.

6. The combination, in a head-rest, substantially as herein before set forth, of a supporting-rod, a ball, a clamp through which both the rod and ball pass, and a single clamp screw which locks the parts together.

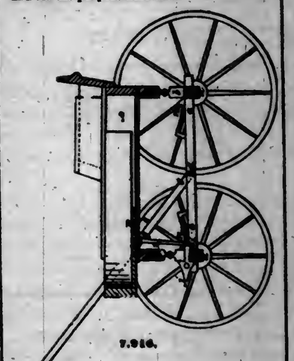
7,916. CHILDREN'S CARRIAGES. Francis W. Whitney, Leominster, Mass., assignor to F. A. Whitney Carriage Company. Patent No. 166,227, dated Aug. 3, 1875. [Filed Nov 27, 1876.]



1. In combination with the body of a child's carriage, the extension-drawer, having a bottom, front, and continuous sides, for the purpose of elongating said body and forming a continuous receptacle, substantially as described.

2. In combination with the reversible handles c, the bar A, pivoted to said handles, and the latch f, hinged to said bar, so as to latch said handles at or to either end of the carriage, substantially as described and represented.

3. In combination with the pivoted or swinging handles c and bar A, the holes or eyes m, or bends or angles in the bar, and the hooks a a on the runners or axles, for locking the handles to the carriage, so that the latter may be raised up and let down by the former, as and for the purpose described.



7,916.

HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & CO BOSTON.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

THE CELLULOID MANUFACTURING COMPANY *vs.* THE GOODYEAR DENTAL VULCANITE COMPANY.

[*In equity.—Before* HUNT, *J.—Decided June*, 1876.]

Actions under the patent laws can only be sustained for the purpose of protecting the right of the patentee to exclude others from the sale or manufacture of the patented article.

No action can be sustained by a junior private patentee, who alleges that his patent does not conflict with the prior patent, and who asks the court to so adjudge.

Such an action is a suit to limit the effect of a patent, and can only be sustained by the Attorney General in the name and on behalf of the United States.

One receiving letters patent from the United States receives thereby a *prima facie* right to maintain an action against every infringer of the right given by such letters.

The statute respecting interfering patents (section 4918 Rev. Stat.) cannot be invoked unless it is asserted that the two patents are substantially for the same invention; that the patentee, in whose behalf the statute is pleaded, is the real discoverer of the invention therein set forth, and that the defendant has wrongfully appropriated the fruits of his invention.

The act of March 3, 1875, in relation to the jurisdiction of the circuit courts of the United States alters the rule laid down by the act of 1789, which made the jurisdiction of the circuit courts dependent upon the character of the parties, by giving to that court jurisdiction in all cases in law and equity arising under the laws and constitution of the United States.

[*William B. Shipman, Clarence A. Seward*, and *E. Luther Hamilton*, for complainant.

E. N. Dickerson, B. F. Lee & Turner, Lee and *McClure*, for defendant.]

HUNT, *J.*:

This case comes before the court in a double aspect. It is presented, first, in the form of a motion for a preliminary injunction, which is based upon the bill of complaint, and upon affidavits and documents furnished by the respective parties.

It is presented, secondly, upon a demurrer to the complaint.

The question upon the equity of the bill has been fully argued, as has also the propriety of issuing a preliminary injunction upon the case made by the additional evidence.

The allegations of the bill are in substance as follows:

1. That on the 7th of June, 1864, letters patent were issued to John A. Cummings for "an improvement in artificial gums and palates;" that such letters were reissued on the 10th day of January, 1865, again on the 21st day of March, 1865, and that by assignment the same are now the property of the defendant. A copy of the specification of the last reissue is annexed.

2. That after becoming such owner the defendant commenced a great number of suits against dentists in the various courts of the United States for alleged infringement of the said letters patent, and which suits are still pending and undetermined in the circuit courts of the United States.

3. On the 12th day of June, 1870, Letters Patent No. 105,338 were issued to John W. and Isaiah S. Hyatt for "an Improvement in Treating and Molding Pyroxyline." The same were surrendered and reissued June 23, 1874, as No. 5,928. Specification is annexed.

4. This substance is useful, among other purposes, as a holder for sets of artificial teeth.

5. On the 28th of March, 1871, Letters Patent 113,055 were issued to the Albany Dental Plate Company, as assignee of Hyatts & Perkins, for "an Improvement in Dental Plates from Pyroxyline."

6. The plaintiff is the holder, by assignment, of said Letters Nos. 5,928 and 113,055.

8. The plaintiff is largely engaged in manufacturing blanks, to be used as holders for teeth, under said patents. The substance produced under the patents the plaintiff denominates "celluloid," and the plaintiff is selling large quantities of such holders throughout the United States, together with licenses to use the same.

9. The said rights were of great advantage to the plaintiff until interfered with and infringed by the defendant; and its rights have been acquiesced in and recognized by the public generally, and the plaintiff has invested a large amount of capital in the business, which will become valueless unless its exclusive character can be sustained.

11. That of the great number of suits brought as afore-

said by the defendants for alleged infringement of their patent the great majority have not been defended; but the defendants therein have allowed decrees *pro confesso* to be taken against them, and the same are still pending before masters under the usual order of reference.

15. In none of said suits has the defendant averred in its bills that the use of celluloid, as a substitute for a vulcanite plate, is an infringement of the Cummings letters patent, nor, except in two instances, have the defendants in such suits ever pleaded that the use of celluloid was not such infringement; nor has such fact, or the question of law involved therein, ever been presented for legal decision, except as hereinafter stated.

16. In a suit against one Wolf, commenced in 1872, in an affidavit and answer filed in opposition to a motion for an injunction, Wolf alleged that he used metal or celluloid bases, and that the same were not an infringement of the plaintiff's patent. The court made an order that the defendant be restrained from the use of vulcanite artificial gums and palates, and that the plaintiff have leave to amend its bill. No amendment was ever made, but, as unamended, the bill was on the 13th day of July, 1875, taken as confessed.

17. In July, 1875, the defendant and one Josiah Bacon commenced an action against one Eben M Flagg upon a printed bill in substance like that against Wolf and the other suits referred to, containing no allegation that the use of celluloid blanks was an infringement of the Cummings patent. Annexed to the bill was a copy specification 113,055, various affidavits, and a copy of the deposition of Henry J. Fisk, given in a suit of *Goodyear Dental Vulcanite Co.* and *Josiah Bacon* vs. *Preterre*, and sets of celluloid teeth and of vulcanite teeth. There was also upon all of these papers a notice of motion for preliminary injunction. Flagg had purchased his celluloid blanks of the plaintiff and was using them in his business. The plaintiff assumed the defense of Flagg's suit to the knowledge of the defendant. The motion was heard upon the issue presented by the letters patent of the plaintiff and defendant in this suit, and on the 7th of December, 1875, Judge Blatchford made an order denying the motion on the ground that it was not sufficiently clear that the defendant's process was embraced in the plaintiff's claim to warrant the granting of an injunction until one shall be granted as the result of a final hearing of the case. Certain allegations are said to have been made by the present defendant on the application that proofs in a suit against Wm. H. Dwinelle were on file, and that they were identical with the proofs taken in a suit against Daniel H. Smith, and that the record against Smith constituted a part of the proofs on that motion; and that the question of the conflict between the patents now in question would thus be presented as a question of law, and plaintiff supposed the suit against Flagg would be proceeded in, and the question now at issue would thus be presented for decision; but that on the 23d of December, 1875, the plaintiff discontinued that suit by an order reciting as reasons that Flagg had demurred to the bill on account of the misjoinder of Bacon as a plaintiff therein, and also the great pressure of business and delay of hearing in this circuit court.

18. That such discontinuance was not made for the reasons mentioned, but was illusory, and to prevent the entry of an order on Judge Blatchford's decision to prevent a final hearing, and to enable the defendant to initiate a new means of harassing the dentists who purchased under the plaintiff's patent, and to restrict and impair the plaintiff's income therefrom.

19. Since Judge Blatchford's decision the defendant has caused notice to be given to the dentists using the celluloid blanks not to use the same; that such use was an infringement of the Cummings patent, and if persisted in such persons would be prosecuted as infringers. Such notice was given to dentists residing in various States and circuits, who communicated the same to the plaintiff, asking protection against such claim, and this plaintiff has agreed to afford such protection. To do this would involve the plaintiff in a multitude of suits in various circuits, would subject it to great expense and annoyance, and would practically involve such enormous costs as would render the plaintiff's patents valueless.

20. Since Judge Blatchford's decision the defendants have moved in the circuit courts in Maryland, Pennsylvania, and Michigan for references to masters, and commenced the taking of accounts in suits in which the defendants have suffered the bill to be taken *pro confesso;* that such defendants are not of sufficient ability to defend such suits, but yield a ready assent to any request that may be made of them, the infringement being ostensibly proved and admissions procured in evidence of the Preterre suit and also of the Smith suit in Massachusetts.

In a suit brought by defendant and Bacon against Jared Kibbee, the master made his report, which is set forth, which contains among other things an admission of the printed record in the Preterre case referred to, and containing also a report of damages to the amount of $240.

The plaintiff had no knowledge of the Kibbee suit. Kibbee was not represented by counsel, was ignorant of his rights, and plaintiff avers that the evidence by the said records and also of the celluloid blanks which he had used was illegal and incompetent; that the only question referred to the master was whether Kibbee had sold vulcanite dental plates in infringement of the Cummings patent, and that the question whether the use of celluloid blanks was an infringement of the Cummings patent was not passed upon prior to the order of reference, and was not referred to the master; and that whether the use of celluloid did constitute such infringement, could only be passed upon at the final hearing in a suit brought for that purpose.

21. That in another suit brought by the same parties against one Hoopes, in Maryland, he allowed a decree to go against him for the use of vulcanite dental plates; that he had been, and so far as plaintiff knows, was, at the time of instituting said suit, an agent of the defendant and stockholder in its company; that Hoopes was summoned to appear before the master; that the plaintiff's counsel attended at the day appointed and found that Hoopes had, on the previous day, consented to the admission of the record in the Preterre and Smith case; that plaintiff's counsel then stated to the master the position of the case, whereupon the said Bacon, who was present, stated that they would make no claim against the defendant for the use of celluloid blanks, and an entry to that effect was made in the proceedings.

22. That the Preterre suit was commenced in December, 1874, for his having manufactured, used, and sold vulcanite dental plates. Preterre was defended by counsel not of plaintiff's employment, who were not acquainted with its rights, nor with the facts in relation to celluloid, as hereinbefore stated, and who made defense solely on the ground of the invalidity of the Cummings patent; and they did not bring in issue the question between celluloid plates and vulcanite plates. Fisk was examined as a witness. Preterre endeavored to establish that the plates he used, which were testified to be vulcanite, were in truth celluloid, and on this point Fisk was examined as a witness. Preterre afterward abandoned his attempt to prove a similarity between the two substances, and in June, 1875, he requested Hyatt to appear as a witness in his behalf. Renwick was afterward examined as a witness against Preterre, and this plaintiff requested its counsel, Mr. Baldwin, to appear and cross-examine him; and this plaintiff made no other appearance in that case than that one of its counsel conducted such cross-examination; that Preterre did not assume to present the right under this plaintiff's letters patent, nor the state of the art. The defendant's counsel in that case was also induced to admit in evidence the record in the Smith case.

23. The production of the Preterre record before the master is for the purpose of establishing an identity between the vulcanite and the celluloid plates, and that the introduction of the same under the pretense that this plaintiff was a privy to the same, is a fraud and an attempt to create a belief that that record is a full presentation of this plaintiff's case, and an attempt to gain an unjust advantage.

24. That this defendant caused the record in the Kibbee case, after Kibbee had consented, as aforesaid, to be printed continuously with the Preterre case, and to be served upon Mr. Baldwin, this plaintiff's counsel, for the purpose of binding this plaintiff thereby, and that similar proceedings have been taken in other cases.

26. That the legal rights of the plaintiff, as herein averred, have not been properly presented to any tribunal save in the Flagg case, and that an attempt to create the impression that they have been before the court is unfounded; that this plaintiff has offered to waive the misjoinder of Flagg, and has requested this defendant to proceed in that suit, which it refuses to do.

27. That by other suits plaintiff is needlessly subjected to great loss in conducting the same, and in loss of revenue; that by reason thereof many dentists are deterred from purchasing celluloid blanks; and that thereby this defendant obstructs and retards the plaintiff in the legal use of its exclusive privilege.

28. The defendant claims that the celluloid blanks are an infringement of its patent, and that it has a legal right to arrest the manufacture of the same. The plaintiff avers and insists that such claim is unfounded.

29. That the plaintiff is lawfully engaged in prosecuting the said business, and its right is invaded and infringed by the written and verbal threats of the defendant to prosecute those who make purchase of said blanks, and by its illegal prosecution of such multiplicity of suits and by giving notice of its intention to hold responsible those who use the celluloid blanks by reason whereof the plaintiff is injured in its business.

30. And that the Cummings patent is void for the various reasons set forth.

31. The rights of the parties are solely under the patents referred to, and depend upon whether the Cumming's patent is valid, and if so whether the same interferes with the letters patent of the plaintiff; that such questions should properly be decided in a suit between the owners of the respective patents.

Wherefore the plaintiff prays:

1. That this court will entertain jurisdiction of this suit to determine whether the Cummings patent is valid, and if it is whether the defendant is entitled to interfere with the celluloid dental blanks as an infringement thereof.

2. That in case it shall be held that celluloid is not an infringement of the Cummings patent that a final decree be entered enjoining the defendant from commencing or prosecuting any actions against this plaintiff or any dentists purchasing celluloid blanks from it.

3. That in the event of such decree an account may be taken of the profits it has made by such obstruction and interference with the plaintiff's business and of the profits it has made by the sale of vulcanite plates to those who had theretofore been the customers of the plaintiff in the use of celluloid blanks, and of the profits which the defendant has made and the plaintiff has lost by means of the acts aforesaid.

4. That a preliminary injunction may issue restraining the defendant and its agents, during the pendency of this suit, from making threats of prosecution for using celluloid blanks, or sending letters or circulars cautioning against the use of celluloid blanks, and from proceeding in any suit now pending for the use of celluloid.

5 For costs and such other or different relief as to the court may seem meet.

6. For a subpœna in the usual form, and for a preliminary injunction during the pendency of this action, as hereinbefore prayed for.

The demurrer to the jurisdiction of the court sets forth the following causes:

1. That the bill is filed by a citizen of New York against a citizen of the same State.

2. That the United States are not parties, plaintiff or petitioners.

3. The suit does not arise under the Constitution or laws of the United States.

4. The bill is not brought in the name of the United States or its Attorney-General.

5. The bill contains no equity whereon relief can be given.

6. The plaintiff has an adequate remedy at law if the facts stated in the bill constitute any cause of action.

The question that presents itself first in the natural order of things is upon the sufficiency of the complaint; in other words is the demurrer well taken?

The plaintiff alleges itself to be the owner of a useful invention, in the manufacture of plates for holding artificial teeth. By the general laws of the land, State as well as national, it has the right to sell that improvement to all who think it of sufficient value to induce them to purchase it, subject only to restraint from some party having a conflicting patent. So far as its

own use or manufacture is concerned, it needs no act of Congress to enable it to make, use, and vend the article, and it obtains no such right from Congress.

The benefit of the patent laws is that the plaintiff may prevent others from making, using, or vending its invention; to itself, to its own right to make, use, or vend, no right or authority is added by those statutes. When a stranger shall thus make, use, or vend its manufacture, the patent laws enable it to restrain such use and to recover damages therefor.

Do the subjects of complaint in the bill set forth fall within this right of action given by the patent laws? Are not the injuries complained of injuries to the trade, the profits and the business of the plaintiff as carried on by itself, for which it has and needs no patent authority, rather than injuries to the right of the patentee to exclude others from such sale or manufacture? It is to this latter class only that the patent laws apply, and for injury to those rights only that actions under the patent laws can be sustained. (See 4 Hun's R., 149, 150, *Hawks* vs. *Swett*,) where this principle is fully set forth.

The bill contains a prayer that the defendant's patent may be adjudged to be void and of no effect. On the argument it was, however, conceded that for the purpose of the present proceedings that patent must be held to be valid. It has been adjudged to be valid in numerous cases in the circuit court, tried before different judges, and, until held otherwise by the Supreme Court, must be taken to be a valid patent.

The plaintiff is the owner of certain other patents issued to the Hyatts and to Perkins for "an Improvement in Dental Plates from Pyroxyline." These are commonly called celluloid plates. In the 28th section of the bill of complaint it is averred that the defendant claims that the use of the celluloid blanks is an infringement of the Cummings letters patent. This claim it is alleged has no lawful foundation, and it is averred that the true construction of the Cummings patent does not support the same, or give to the defendant any right to interfere with or arrest proceedings under it. Notwithstanding this allegation, the plaintiff insists, and such is the object of its bill, that the court shall decide whether, if the plaintiff or those who hold its licenses shall make or vend its articles patented, it would amount to an infringement of the defendant's patent.

In my judgment such an action cannot be sustained. No case has been cited to me, nor do I think any can be found sustaining an action by a junior private patentee, who alleges that his patent does not conflict with the prior patent, and who asks the court so to adjudge.

It is in substance a suit to limit the effect of a patent, to declare that it does not extend to a certain class of cases, and *pro tanto* to have it adjudged to be void and of no force. Such an action can only be sustained by the Attorney-General in the name and on behalf of the United States, (*Mowry* vs. *Whitney*, 14 Wall., 434.)

To allow the action is to reverse the proper position of the parties. Whoever receives letters patent from the United States receives thereby a *prima facie* right to maintain an action against every infringer of the right given by such letters. While it is true that such right is *prima facie* only, and that the holder must be prepared to maintain it in the courts when attacked, it is still a right on his part to sue such alleged violators. The present action would convert the right to sue into a liability to be sued, which is quite a different thing.

The defendant holds the Cummings patent. It finds that the patent is infringed and its rights injured by A, B, & C in the State of New York, and E, D, & F in the State of New Jersey, and so on through the alphabet. The defendant has a right of action against each one of these individuals. It has the right to sue the whole of them. It has the right to sue any one of them, and to allow the others to go undisturbed. While it would not be a high-minded theory, I know of no principle that, as matter of law, would prevent its seeking the feebleat of them all, the one least able to defend himself, and to make a victim of him. If that individual shall appear to have infringed upon this defendant's patent he is liable to the damages, although he may be poor, unable to defend himself, although others have offended in a greater degree, and although we may condemn the spirit which selected him as the particular defendant.

On principle this cannot be doubted. But the plaintiff seeks to reverse this action by making the elder patentee a defendant at the suit of a particular offender, and to compel him, whether he chooses or does not choose, to assert his rights as against him.

Again, such a suit gives no practical result in the settlement of the question. Suppose it to be decided in this suit that the celluloid preparation is not an infringement of the Cummings patent. Nothing is settled except as between the two parties present as litigants. If the defendant should afterward sue a dentist in Michigan for infringing its patent, the judgment in the present case would be no evidence against it to show that there was no infringement. It would be *inter alios acta* and not competent; and so if the judgment should be the other way the defendant could not have the benefit of the decision as against another alleged infringer. Each plaintiff and each defendant can litigate his own case, and is not bound by decisions in other cases to which he was not a party, and which he had no opportunity to litigate. Such is the rule of law, and its necessity to avoid collusive judgments and fraudulent combinations is too obvious to need defense.

The case of *Axmann* vs. *Lund* (L. R., 18 Eq. 330) and *Rollins* vs. *Hinks* (L. R., 13 Eq., 355) give countenance to the suggestion that the bill in this case may be sustained to prevent the publication of libels injurious to the plaintiff's business. The case of *The Prudential Life Ins. Co.* vs. *Knott* (L. R., 10 Ch'y. Appeals, 143) is a subsequent case, and is to the contrary. It is to be said, further, in answer to these cases: 1. They were based upon the theory that the defendants made their claim and published their injurious circulars, but refused to bring suits to sustain them. The record here shows that numerous suits have been brought, and that in at least four suits—to wit, those against Silliman, Kibbee, Hoopes, and Greene—it was specifically proved by the evidence, in the first two of which the defendant has obtained decrees, that the celluloid is an infringement of the Cummings patent, and in the other two the proceedings are still pending before the masters. 2. No such action at law or in equity can be maintained unless it is established that the publication is malicious and for the purpose of injuring the other party. If made to advance the publisher's own sales, and upon a reasonable claim that he has the right which he asserts, the action must fail. (*Wren* vs. *Wield*, L. R., 4 Queen's Bench, p. 370.)

Upon the same point is the case of *Hovey* vs. *Rubber Tip Pencil Co.*, (57 N. Y., 119,) which was an action to restrain defendant from publishing notices injurious to the plaintiff's business. It was a case of alleged conflicting patents, in which defendant cautioned all persons against using the plaintiff's invention, alleging his intention to prosecute all infringements. The court held, first, that the questions presented arose directly upon the patent laws of the United States, and hence were not within the jurisdiction of the State courts, citing *Dudley* vs. *Mayhew*, (3 Com., 9.) and *Middlebrook* vs. *Broadbent*, (47 N. Y., 443;) considering also *Gibson* vs. *Woodworth*, (8 Paige, 132;) *Burrall* vs. *Jewett*, (2 Id., 134;) second, that to justify the action as a slander of title, the proceedings must appear to have been unfounded not only, and the statements false, but malicious. If the defendant believed its statements to be correct it merely discharged a moral obligation and satisfied the demands of fair dealing in making the publication.

It is contended, also, that ground for filing the bill is found in section 4918 of the Revised Statutes in relation to interfering patents. That section is as follows, viz:

> Whenever there are interfering patents, any person interested in any one of them, or in the working of the invention claimed under either of them, may have relief against the interfering patentee, and all parties interested under him, by a suit in equity against the owners of the interfering patent; and the court, on notice to adverse parties and other due proceedings had according to the course of equity, may adjudge and declare either of the patents void, in whole or in part, or inoperative or invalid in any particular part of the United States, according to the interest of the parties in the patent or the invention patented, but no such judgment or adjudication shall affect the right of any person except the parties to the suit, and those deriving title under them subsequent to the rendition of such judgment.

The sixteenth section of the act of 1836 and the act of 1870 make corresponding provision on this subject. To give the plaintiff the benefit of this statute it must abandon the allegation of its bill that the celluloid is not an infringement of, or interfence with, the Cummings patent. It must assume the ground there imputed to the defendant that these two patents do conflict and interfere and though unqualifiedly denied by the plaintiff, and must assume the position there imputed to defendant of the identity of celluloid or collodion dental plates with the subject of the defendant's patent. The argument of the defendant is that celluloid or collodion was a well known agent when plaintiff's patent was obtained; known as an equivalent for vulcanite in the manufacture of dental plates; and that there could, therefore, be no patent lawfully issued for the application of collodion to dental plates. The Cummings patent is upheld upon the theory that the vulcanite possessed qualities not found in any other material used for that purpose, and that the mode of manufacture was different from that in which any other artificial set of teeth had been made. The Hyatt dental patent, it is argued, exhibits no novelty in the quality of the result produced or in the mode of manufacture.

Until the plaintiff shall be prepared to assert that the two patents are substantially for the same invention; that its patentee is the real discoverer of the invention therein set forth, and that the defendant has wrongfully and improperly appropriated the fruits of his invention, I do not see how the statute respecting interfering patents can be invoked. (See Curtis on Patents, last chapter.)

In reaching this conclusion I do not assume either that the plaintiff's patent is void or that it is an infringement of the Cummings patent. No opinion is intended to be intimated upon these points. Under this branch of the case the suggestion is simply that a case of interference is not presented where the plaintiff avers that there is no interference. An averment that the defendant claims an interference and a denial of such claim by the plaintiff cannot authorize the plaintiff to ask a settlement as for an interference. The prayers and the relief to be afforded to the plaintiff must be upon the facts as it claims them to exist, not as the defendant claims and which the plaintiff denies.

It is said, lastly, that jurisdiction to sustain the present controversy is found in the act of March 3, 1875, which is as follows:

> The circuit courts of the United States shall have original cognizance, concurrent with the courts of the several States, of all suits of a civil nature at common law or in equity, where the matter in dispute exceeds, exclusive of costs, the sum or value of five hundred dollars, and arising under the Constitution or laws of the United States, or treaties made, or which shall be made, under their authority, or in which the United States are plaintiffs or petitioners, or in which there shall be a controversy between citizens of different States, or a controversy between citizens of the same States claiming lands under grants of different States, or a controversy between citizens of a State and foreign States, citizens, or subjects.

The jurisdiction of the federal courts under the constitution and laws of the United States depends upon two points: First, as arising from the subject-matter of the controversy; and, second, as dependent upon the character of the parties. (*Cohens* vs. *Virginia*, 6 Wheat., 378; see *Matthews* vs. *McStea*, 20 Wall., 646; *Littlefield* vs. *Perry*, 21 Wall., 222.)

The act of 1789 made the jurisdiction of the circuit courts dependent upon the character of the parties. The act of 1875 has altered this rule, and gives to that court jurisdiction in all cases in law and equity arising under the laws and Constitution of the United States. It cannot be doubted that controversies arising upon conflicting claims to or under patents issued under the laws of the United States are cases arising under the laws of the United States. It is upon this theory that the circuit courts have from the foundation of the government entertained jurisdiction of patent cases.

This principle has been assumed in the previous parts of this opinion, and its existence does not relieve from the difficulty now pressing upon us. The objection is not that in its subject-matter the case does not present one of federal jurisdiction, to wit, the adjustment of conflicting claims under the patent laws of the United States or the awarding of damages for an infringement of such patents, but whether in the form in which the facts are presented the plaintiff can sustain his bill or is entitled to an injunction. The act of 1875 does not touch this point.

Upon the principles already laid down I am of the opinion that this action cannot be sustained, and that the demurrer must be upheld. It follows that the motion for the injunction must be denied.

A preliminary injunction cannot be granted when it is conceded that the plaintiff must finally fail in his action.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 11, 1876.]

9,384.—Scarf-Boxes.—JACOB H. FLEISCH, New York, N. Y. Application filed April 17, 1876. Term of patent 3½ years.

9,385.—Handles for Tea-Sets.—EDWIN HAVILAND, Brooklyn, N. Y. Application filed May 16, 1876. Term of patent 3½ years.

9,386.—Cylinder for Revolvers.—WILLIAM A. HULBERT, Brooklyn, assignor to MERWIN, HULBERT & Co., New York, N. Y. Application filed June 27, 1876. Term of patent 14 years.

9,387.—Combined Calendar and Card-Receptacle.—DARIUS C. NEWELL, Yonkers, N. Y. Application filed May 13, 1876. Term of patent 14 years.

9,388.—Coffin-Handle Sockets.—WILLIAM M. SMITH, West Meriden, Conn., assignor to himself and THE MERIDEN BRITANNIA COMPANY, same place. Application filed April 26, 1876. Term of patent 7 years.

9,389.—Drawer-Pull.—PATRICK J. CLARK and JOSEPH KINTZ, West Meriden, Conn. Application filed June 20, 1876. Term of patent 7 years.

9,390 to 9,392, inclusive.**—Center-Piece.**—SAMUEL KELLETT, San Francisco, Cal. Applications filed June 26, 1876. Term of patents 14 years.

9,393.—Casket-Handle Lugs.—W. MAX REID, Amsterdam, N. Y. Application filed June 19, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 11, 1876.]

3,840.—Brandy and Wine.—JULES BELLOT & Co., Cognac, France. Application filed May 18, 1876.

"the central figure of the Goddess of Liberty mounted on a base or pedestal, and the female figures at the right and left of the same."

3,841.—Smoking-Tobacco.—JOHN BLAKELY, Jersey City, N. J. Application filed June 8, 1876.

"the word-symbol 'MARGARITA.'"

3,842.—Soap.—BOWEN & KINNEAR, Leavenworth, Kansas. Application filed June 12, 1876.

"the word-symbol 'CHINESE.'"

3,843.—Flour.—WILLIAM F. CAHILL & Co., Minneapolis, Minn. Application filed April 27, 1876.

"words 'GOLD DUST.'"

3,844.—Soap.—JAMES S. KIRK & Co., Chicago, Ill. Application filed May 11, 1876.

"the representation of a calendar."

3,845.—Flour.—THE UNITED STATES ATTRITION COMPANY, (limited,) New York, N. Y. Application filed June 20, 1876.

"word 'Hemolina.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 11, 1876.]

786.—Title: **"The Electric; or Chinese Toys."**—JAMES C. BRYAN, Philadelphia, Pa. Application filed June 30, 1876.

787.—Title: **"'That' Liniment."**—WILLIAM A. GARDEN and O. E. MINOR, Belmont, Wis. Application filed July 1, 1876.

788.—Title: **"Patent Compound."**—J. JONES & Co., New York, N. Y. Application filed June 30, 1876.

789.—Title: **"Forum Fine Cut Tobacco."**—LOVELL & BUFFINGTON, Covington, Ky. Application filed June 29, 1876.

790.—Title: **"Gilson's Pearline."**—ALONZO P. GILSON, Boston, Mass. Application filed July 3, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE, WASHINGTON, D. C., *May 18, 1876.*

On the petition of HARVEY LULL, of Hoboken, New Jersey, praying for the extension of a patent granted to him on the 31st day of January, 1854, antedated to January 3d, 1854, and extended for seven years on the 31st day of December, 1867, for an *Improvement in Shutter Hinges*, this application having been authorized by act of Congress, approved April 29, 1876;

It is ordered that the testimony in the case be closed on the 10th day of July next; that the time for filing arguments and the Examiner's report be limited to the 20th day of July next, and that said petition be heard on the 25th day of July next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

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Bed bottom, spring, W. Crich	62	179,770
Bed bottom, spring, E. Seeley	62	179,819
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Hallidie, A. S., Railway tube and car	179,786
Harper, A. J., Mail bag discharger	179,787
Hayden, J. J., Animal trap	179,788
Hayden, W. B., Bale tie	179,654
Heckendorn, J., Plow	179,699
Hedges, I. A., Corn mill	179,789
Heeley, J. L., Ornamental chain link	179,790
Heilmann, E., Washing machine	179,792
Helm, E. B., and G. S. Clements, Device for lighting street lamps	179,791
Hemingway and Chase	179,681
Hildebrandt, F., Petroleum cooking stove	179,701
Hodges, A. J., assignee	179,646
Hogeland, I., Manufacture of buckets	179,655
Holland, J., assignee	179,743
Hollowell, J. G., Sewing machines	179,702
Holt, J. H., Wheeled scraper	179,656
Hoeriet, L., Lamp extinguisher	179,657
How, W. S., Dividers	179,793
Hyde, F. S., Pitman connection	179,794
Jones, H., Piping attachment for sewing machines	179,795
Jordan, M. S., Hook for web drawing	179,703
Kaufmann, A. F., Car starter	179,796
Keane, M. J. A., Mustache guard	179,797
Keith, N. S., Apparatus for removing tin from scraps, &c., by electricity	179,658
King, J. C., Car axle lubricator	179,798
Kitson Machine Company, assignee	179,659
Kitson, R., Machine for opening cotton, &c	179,659
Klopfleisch, F. E., Grain scourer	179,704
Laidler, W. H., Sheet metal gage	179,799
Lange, G., and H. Seckmann, Dutch harness collar	179,800
La Roche, T. H., Lubricating compound	179,801
Laskey, S., Shirt bosom, (reissue)	7,220
Lathrop, A. A., Fastening for chair cushions	179,660
Law, L. P., Potato peeler	179,705
Lee, F. H., Under garment	179,661
Lemaartson, G., and L. G. Bergstrom, Miter planing machine	179,662
Leslie, F. A., Hog trap	179,802
Lester, M. W. and F., assignees	179,705
Lincoln, G. E., assignee	179,746
Linden, J., and G. Giessler, Compound for artificial stone	179,706
Lochman, C. L., Paper barrel	179,707
Long, S. N., Carriage curtain fastening	179,708
Loring, S. H., Hose coupling, (reissue)	7,221
Luecht, M., and F. Neunsinger, Vehicle wheel	179,803
Maris, C., Sewing machine for embroidering	179,709
Marlatt, Z. C., and J. I. Cook, Oil can	179,710
Marsh, G., Bag holder	179,712
Martin, B. G., Clutch for pulleys	179,804
Martin, E., E. N. Davis, and C. E. Thornton, Tire tightener	179,711
Massey Compound Engine Company, assignee	179,713
Massey, G. B., Compound steam engine	179,713
McDermott and Bunker	179,766
McDonald, J. W. and T. A., Shoe lace fastener	179,806
McDonald, T. A., Manure spreader	179,805
McGrath, J., Clearing pad for calender rolls	179,807
McInturf, W., Tire upsetter	179,663
McKentyre, W. A., Composition for filling respirators	179,664
McLellan, R. G., Tailor's measure	179,808
McWhorter, E., Pitman connection	179,714
Meister, C., Lard cooler	179,809
Mendelsohn, M., Revolving music stand	179,810
Merritt, J. C., Ironing board	179,715
Metz, J., Wagon standard	179,716
Meyer, H. C., Self closing faucet	179,717
Miller, C. G., Combined picture hanger and carpet stretcher	179,718
Miller, J. H., Composition rubber for millstones	179,719
Miller, W. H., and F. Fuller, Pedal action for piano fortes	179,811
Morsell, J. W., Sash fastener	179,720
Moseley, J. B., assignee	179,835
Motley, G., Mill stone	179,835
Myers, W. J., Bed bottom frame	179,812
Neunsinger and Luecht	179,803
Northup, L. L., and T. Corsaden, Shutter fastener	179,665
O'Connor, D. J., Silk cleaning implement	179,813
O'Day, W., Manufacturing coffins	179,814
Ohmer, M., Chair	179,721
Ohnmacht, H., and R. Weiss, Faucet	179,722
O'Neal, H. S., Seed planter	179,723
O'Neill, A., Pipe joint	179,815
Orme, C., assignee	179,655
Palmer, G. H., Device for joining webbing or straps	179,724
Pascoe, J., Pipe tongs	179,816
Patterson, J., Ore stamping machine	179,725
Pein, H. R., Lubricator	179,666
Phillips, T. E., assignee	179,655
Place, C. C., Gas regulator	179,726
Platt, H., Water wheel	179,727
Preston, J., and C. W. Tennis, Plow for laying off land for tobacco	179,728
Price and Billings	179,758
Quinn, T. H. and J. E., Piston packing	179,817
Rameden and Taylor	179,741
Reynolds, G. H., Feeding and turning device for rock drills	179,818
Robie, J. C., Molding celluloid dental plates	179,667
Robinson, G. H., assignee	179,818
Rogers, C. H., Scissors and shears	179,730
Rogers, G. W., Stove pipe thimble	179,729
Rosenthal, L., assignee	179,709
Ruthven, J. A., assignee	179,640
Sabbaton, F. A., Hydraulic mains for gas works	179,668
Sackmann and Lange	179,800
Sandee, R. G., Anchor tripper	179,731
Saunders, C., Fanning mill	179,732
Schuh and Weigand	179,832
Sealey, E., Spring bed bottom	179,819
Selle, A., Apparatus for making coffee	179,820
Shaver, W. J., Fence	179,733
Shelly, J., Saw clamp	179,734
Shinn, R. F., Grain separator	179,821
Shorey, J., Window shade roller	179,735
Sibley, S., assignee, (reissue)	7,220
Simmons, A., Stove polish	179,736
Sloan, P. E., Newspaper file	179,822
Smith, A. B., Gearing	179,737
Smith, E. D., Under skirt	179,738
Smith, F. C., and C. E., Soldering clamp	179,823
Smith, H. R., and N. K. Wade, Pipe molding	179,669
Smith and Wright	179,752, 179,834
Sprague, W., Ironing apparatus	179,739
Stanton, J. C., Billiard table leveler	179,740
Starkweather, J. B., Door spring	179,824
Stevens, W. H., assignee	179,824
Tallmage, C., assignee	179,736
Taylor, J. L., and R. Ramsden, Spinning and doubling machinery	179,741
Tennis and Preston	179,728
Thornton, Martin, and Davie	179,711
Tindall, G. P., Pen holder and fountain pen	179,670
Todd, W., Hydrant	179,742
Tyrrell, E., Pencil case	179,743
Ulsh, J. M., Automatic attachment for molasses gates	179,825
Upper, J. G., Lubricating compound	179,744
Vale Blake, E., Satchel	179,745
Van Patten and Clapp	179,826
Wade and Smith	179,669
Wales, W. A., Pulley	179,746
Walk, F., Horseshoe calk	179,827
Wallis, B., Apparatus for the manufacture of gas from petroleum, &c	179,826
Walton, J., Rail car for pails, (reissue)	7,222
Ward, W. H., Vehicle axle	179,747
Warren, C. M., Roofing material	179,828
Warren, C. M., Roofing material	179,829
Warren, C. M., Roofing material	179,830
Warren, C. M., Concrete pavement	179,831
Waters Patent Heater Company, assignee	179,676
Weaver, T., Vehicle wheel	179,671
Weed, W. A., Indelible ink apparatus	179,748
Weigand, P., and P. Schuh, Boy's sled	179,833
Weiss, F. F., Pocket book fastening	179,749
Weiss and Ohnmacht	179,722
Westbrook, A. D., Cheese hoop	179,833
White, O. C., Dentist's chair, (reissue)	7,223
Wiborg, G., Saw filing machine	179,750
Wilhelmi, D., Picture frame for florists	179,751
Woodward, L. M., assignee	179,798
Wright, J., and J. C. Smith, Jr., Cotton picker	179,752
Wright, J., and J. C. Smith, Jr., Attachment for carding engines	179,834
Zwicker, J., Shoe	179,753

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JULY 11, 1876.

179,666. MANUFACTURE OF DOOR-KNOBS. John P. Adams, Brooklyn, assignor of one-half his right to James A. Buttven, New York, N. Y. [Filed Aug. 4, 1874.]



1. The combination, substantially as before set forth, of the ball and a shank of fusible metal, a divergent portion of which is locked in a convergent socket of the ball.

2. The combination, substantially as before set forth, of the ball, the metal cover therefor, and the fusible-metal shank, locked fast to said ball and cover by the interlocking of a portion of the shank in a convergent socket of the ball.

3. The combination, substantially as before set forth, of the ball, the metal shank locked fast to said ball by the engagement of the shank in the convergent socket of the ball, and the metal cover, made in one piece surrounding the ball, and connected with the shank at its junction with the ball.

4. The combination, substantially as before set forth, of the fusible-metal knob-shank and the hard sheet-metal lining extended into the portion thereof which sets as a neck for the knob.

5. The combination, substantially as before set forth, of the knob-ball, the fusible-metal knob-shank, the sheet-metal lining for the said shank, and the continuous metal covering for the ball.

6. The improvement in the art of manufacturing knobs, substantially as before set forth, consisting of, first, the formation of the ball (without a neck or shank) with a convergent socket, and, secondly, of the simultaneous formation of the shank and the union of it with the ball by casting said shank partially into the convergent center of the ball.

7. The improvement in the art of manufacturing knobs, substantially as before set forth, consisting of, first, the formation of a ball without a shank or neck; secondly, the covering of the shankless ball with metal; and, thirdly, the formation of the shank and the union of it with the ball and cover by casting said shank fast to said ball and cover.

179,641. COMBINED PENCIL CASES AND SHARPENERS. Ambrai G. Batchelder, Lowell, Mass. [Filed May 12, 1876.]

Brief.—A metallic tube, which is sufficiently long to embrace one end of the pencil, is provided with a pencil-sharpener at its upper end, said sharpener being elongated at its upper portion into a flanged tube, on which is secured a rubber eraser.



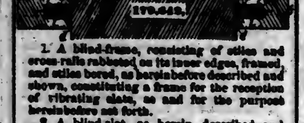
1. The pencil-sharpener A, provided with the shoulder h, and the flanged tube f, arranged with its mouth, as set forth.

2. The pencil-sharpener, provided with the tube f, shoulder h, and tubular eraser C, arranged with each other and the mouth of said sharpener, as represented.

3. The combination of the pencil-sharpener A with the eraser C and its supporter f, arranged at the pencil-receiving mouth of said sharpener, and with the pencil-case B, arranged to project beyond the other end of said sharpener, all being substantially as represented.

179,668. WINDOW-BLINDS. Joseph Bobst, Rockford, and Wilbur F. Bobst, Chicago, Ill. [Filed May 27, 1876.]

Brief.—The sides of the slat-frame are rabbeted, and the slats are provided with offsets, so as to fit snugly on the sides and into the rabbeted portion. Metallic-shod rubber cylinders are inserted in the holes at the ends of the central slats to serve as stops.



1. A blind-frame, consisting of stiles and cross-rails rabbeted on its inner edges, framed, and stiles bored, as herein before described and shown, constituting a frame for the reception of vibrating slats, as and for the purpose hereinbefore set forth.

2. A blind-slat, as herein described and shown, provided with tenons f on both ends, and shoulders g on both sides of the tenon in the same plane, the slat above the point h reduced in length at both ends about equal to the depth of the rabbet on the inner edge of the stiles, forming a double-shouldered slat, as shown and described, and for the purpose set forth.

3. The combination of the rabbeted blind-frame and the double-shouldered blind-slats pivoted thereto, substantially as and for the purpose herein before set forth.

4. In combination with the rabbeted blind-frame and double-shouldered blind-slats pivoted thereto, the blind-rod B hinged to the blind slats, operating as described, for the purpose of adjusting the slats and locking them in a closed position by forcing the end of the rod outward on the upper edge of the lower end intermediate cross-rails.

5. The metallic-capped rubber spring, in combination with a pivoted blind-slat, for the purpose of holding the slats in adjusted position to control the admission of light, substantially as herein before set forth.

6. The metallic-capped rubber spring here in described, as an article of manufacture.

179,642. REED-ORGAN ATTACHMENTS. J. N. Brown, Jamestown, N. Y. [Filed Nov. 24, 1875.]

Brief.—Upon drawing the stop-knob the metronome, which is in plain view of the performer, is thereby set in motion.



The combination, in a reed-organ, or similar musical instrument, of a metronome, B, and operating-stop C, substantially as and for the purpose set forth.

179,644. PISTONS. Benjamin Goodhart, St. Joseph, Mo. [Filed July 6, 1876.]

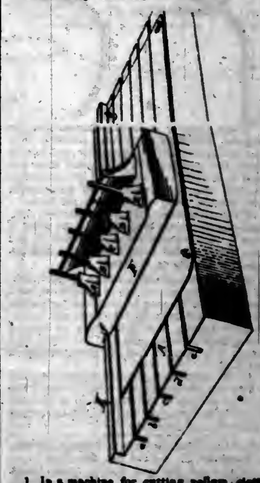
Brief.—A packing-fence formed of similar panels, and adapted for erection in a straight line or as a worm-fence, the latter being effected by lapping the joints farther, and inserting a key between the enlarged end of the lapping rail of one panel and the adjacent standard of the other.



1. The combination, in a fence, of the rails e, secured at their ends to the uprights a a, the parallel rails e' projecting beyond the upright a, secured at their opposite ends to the upright a, and the steps e B, arranged upon the projecting ends of the rails e', substantially as set forth.

2. The combination of the uprights a a a, rails e, secured to the uprights a a, rails e' secured to uprights a a, and projecting beyond the latter and furnished with steps, and the filling-pieces p, arranged as set forth.

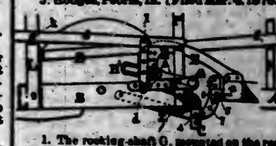
179,645. MACHINES FOR CUTTING LEATHER, &c. Peter A. Cassiday, Washington, D. C. [Filed May 6, 1876.]



1. In a machine for cutting vellum-cloth, leather, or other similar materials, the combination of a cutter-holder, F, carrying a number of knives, A B O D E, and having a guide-groove, f, with a bed, A, having grooves a b c d e, corresponding with the cutters, a guide-strip, K, and holding-pins h i m, all to operate in the manner and for the purpose described.

2. The cutters A B O D E, having two cutting-edges, and wedge-shaped in vertical cross-section, in combination with the cutter-holder F, having tapering sockets, into which the wedge-shaped cutters fit, and a guide-groove, f, operating upon a bed, A, having grooves a b c d e, corresponding with cutters, guide-strip K, and holding-pins h i m, all to operate in the manner and for the purpose described.

179,646. HARVESTERS. Charles Deaton, Pekin, assignor of one-fifth his right to A. J. Hodges, Peoria, Ill. [Filed Mar. 4, 1876.]



1. The rocking-shaft G, mounted on the rear of the wheel-frame, and provided with an arm or arms, H', having a slotted or sliding connection with a stationary arm, H, on the tongue A, or its cross-head, and a second arm or arms, H² H², having adjustable connections with a link or links, I I, of the reel-bar or bars J J, substantially as described.

2. The combination, with the frame B, of the pivoted bars E Z, the jaws O C, and bars E E adjustably adapted for connection to the

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pivotal blocks S S of the cross-head s of the tongue A, substantially as and for the purposes described.

179,647. MANUFACTURE OF GLASS LAMPS. Hiram Dillaway, Sandwich, Mass. [Filed June 5, 1876.]



1. As a new or improved manufacture, the molded article or lamp-bowl, provided with the sectional waste-oil interceptor, and having each (the neck and the receptacle) formed in part by a mold, and the lower or cylindrical portion subsequently contracted and closed, and fixed to a peg or foot, all as set forth.

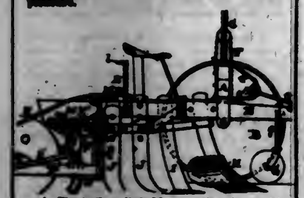
2. The mold, as basically as described, composed of the series of sections D, the parts E and I, the tubular cylindrical portion F, and the plunger G, all formed, arranged, and applied essentially as specified.

3. The process, substantially as described, of making the said article or lamp-bowl, such consisting in forming its neck and body parts in a mold and open, as described, and subsequently heating and contracting or closing the cylindrical open part d of the blank, and fixing it to a peg or foot, all substantially as set forth.

4. The combination of the projections p and q with the plunger G, the parts E and I, the tubular portion F, and the series of sections D, all being arranged and applied essentially as shown and described.

179,648. CORN-PLANTER. Stephen Dixson, Rossville, Ill. [Filed Feb. 26, 1876.]

Brief.—An ordinary double mold-board plow is mounted on a pair of wheels. A small furrowing-plow is secured in its rear, and behind this two ridging-plows. Behind all these is mounted, by means of a king-bolt, a seeding frame and roller. This latter device can be elevated and secured in that position at pleasure.



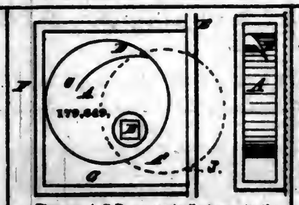
1. The bail or link M, operating in combination with the bracket B', having hooked end a, brackets S S B B', and bolt Q, substantially as and for the purposes specified.

2. The pivoted bracket I, having hooked end i, operating in combination with the bracket B', brackets S S B B', and bolt Q, substantially as and for the purposes specified.

3. The combination of the frame E, having pieces H I J J, with the frame P, having rollers O and small box N, the two frames being connected together and provided with the link M and pivoted bracket I, substantially as and for the purposes set forth.

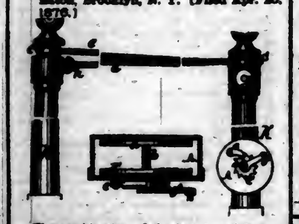
179,649. CAM-BOLTS FOR FASTENING DOORS. I. T. Dyer, Streator, Ill. [Filed Dec. 16, 1876.]

Brief.—A gravitating cam-bolt is held automatically in either of its two normal positions, the device being more specially designed for refrigerators, ice-house doors, and the like uses.



The cam A O D, eccentrically hung to the spindle B, and combined with the cam E F G, having a stop at J on the face-plate E and against the inside of plate F, and held in either position against such stops by its gravity, as and for the purposes set forth.

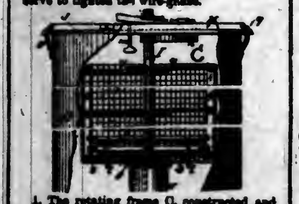
179,650. CLOTHES-LINE SUPPORTERS. Wm. Eaton, Brooklyn, N. Y. [Filed Apr. 26, 1876.]



The combination of the box A and its attachments of shaft b, crank f, disks d and S, pawl e, and ratchet c', with the posts K, provided with the pulleys B and C, hook h, and pins or guards g, and line a.

179,651. HOISTING-APPARATUS. J. Emerson, St. George, Kans. [Filed Apr. 26, 1876.]

Brief.—The cranks are placed upon a floor, which rests upon springs inside of a rectangular centrifugal machine. The rotating box is given a slight vertical and horizontal reciprocating motion, and the cranks are thus made to slightly grate upon the wire-gauze sides of the box, whereby the coils are opened and the sweep liberated. Suitable nuts upon the frame serve to tighten the wire-gauze.



1. The rotating frame C, constructed and arranged to operate substantially as described, whereby there is imparted to the same a rotating and at the same time a vertically and also a horizontally-reciprocating motion, as and for the purposes set forth.

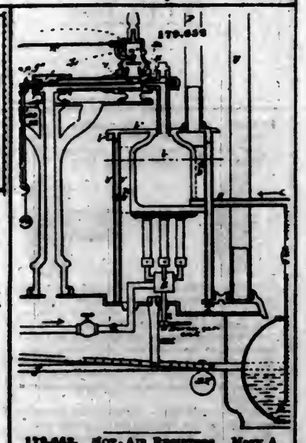
2. The comb-supporting bars d, supported on springs e, substantially as shown and described.

3. The rotating frame C, having its arms a provided with screw-threads, and nuts n, for adjusting the uprights b and tightening the wire-gauze C', as set forth.

179,652. GAS-MACHINE. Thos. B. Fogarty, New York, N. Y. [Filed Jan. 29, 1876.]

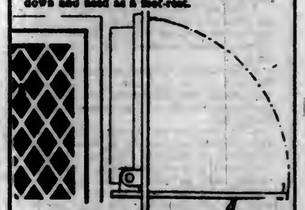
Brief.—The stove, containing the retort and the heating apparatus, has double walls, and the joints are made air-tight. A flange extending horizontally from the top of the retort has, at its periphery, a flange extending down into the space between the double walls. The inlet air-pipe and the exit-pipe for the products of combustion are connected to the stove by air-tight joints, and extend to the outside of the building. The object of this construction is to prevent explosion of gases that may escape from any part of the apparatus. (See brief of Patent No. 171,697, December 26, 1875.)

In automatically-varying gas-machines, a stove, O, fitted with joints impervious to flame, and in combination with the pipes P and U and the flue T, substantially as described.



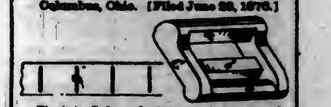
179,653. HOT-AIR REGISTERS. Mary A. Goodwin, Fort Chester, N. Y. [Filed May 2, 1876.]

Brief.—The rotimbated front can be let down and used as a foot-rest.

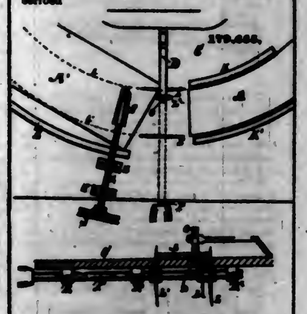


In combination with a side-wall register frame, the rotimbated front plate, hinged at the bottom, and adapted to be operated in the manner and for the purposes specified.

179,654. RAIL-TIES. William B. Hayden, Columbus, Ohio. [Filed June 28, 1876.]



The loop C, formed with cross-bars a, b, and c, constructed and arranged as described, in combination with the bind or hoop provided with transverse strengthening and retaining ribs on its under surface, substantially as described.



179,655. MANUFACTURE OF BUCKETS. Israel Hayward, Indianapolis, assignor to himself, Thomas B. Fullilove, same place, and Oberlin Orme, Marion County, Ind. [Filed Mar. 7, 1876.]

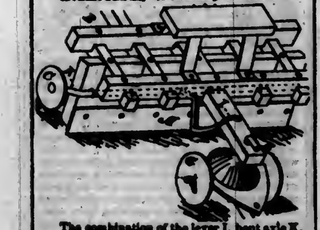
Brief.—The stave-blank is forced between segmental guides arranged upon the top of a slotted table by a cone-shaped rubber roller secured to the end of a shaft mounted in bearings on the table, and a small frictional roller embedded in the table, held down while the crozes is formed by a small dished saw projecting through the table, by a pressure-roller journaled on the end of a bar passing over one of the edging-saws, and cut to the required shape by two outside dished saws projecting through the table, and suitable operating mechanism. The crozing and edging saws are mounted upon the same arbor.

1. In a machine for the manufacture of buckets, &c., the combination of the saws L L', mandrel P, feed-roller F, mandrel G, boxes H H', and curved guides E K K', in the manner shown, for the purposes set forth and described.

2. The feed-roller F, formed cone-shaped, and provided with a rubber tube, in the manner shown, and arranged to operate in the boxes H H, the rear box being elevated, so as to allow the lower edge of the cone feed-roller F to lie parallel with the table, for the purposes set forth and described.

3. In a bucket-machine, the combination of the pressure-bar D and roller C, arranged and adapted to be operated in connection with the stave A and small roller S, in the manner shown, for the purposes set forth and described.

179,656. WIRE-SCRAPERS. Jacob H. Holt, Monmouth, Ill. [Filed May 6, 1876.]



The combination of the lever I, boot axle K, wheels C, with frame B, scraper A, king-bolt E, and caster-wheels G, constructed and arranged in the manner set forth, and for the purposes specified.

179,657. LAMP-REGULATORS. Lester Hewlett, San Jose, Cal. [Filed Jan. 14, 1876.]

Brief.—The weight of the ball holds the cap away from the burner while it rests in the loop; but should the lamp be overturned, and the ball be thrown out of the loop, its weight, acting on another arm of the lever, will throw the cap over the burner, and thus extinguish the light.



The arm A, having eye B, arm B, having rest G, lever C, having elbow D, the link F, cap J, and ball, all combined substantially as and for the purpose described.

179,658. APPARATUS FOR REMOVING TIN FROM SCRAPS, &c., BY ELECTRICITY. W. S. Keith, Brooklyn, N. Y. [Filed Jan. 11, 1876.]

Brief.—The scraps are hung on metallic rods connecting the cranks. Slow motion is given to the shaft, and the strips are carried down through the boiling liquid in the iron tank, on one side of the metallic partition, and up on the other. The insulated pulleys and chains are connected with the + pole, and the tank with the − pole. On passing the current the tin is removed and falls to the bottom.

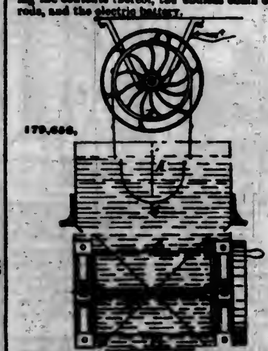
1. The improvement in the art of recovering tin from scrap tin-plate, consisting in the treatment of the same, substantially as before set forth, in a separated condition, and progressively, in an electrolyzing-bath, by the agency of electricity.

2. The improvement in the art of recovering tin from scrap tin-plate, consisting of the treatment of the same, substantially as before set forth, in a separated condition, by the joint agencies of electricity and heat.

3. The combination, substantially as before set forth, of the vat, the endless chain of rods, and the electric battery.

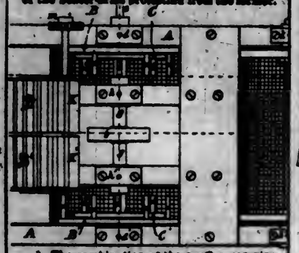
4. The combination, substantially as before set forth, of the vat, the endless chain of rods, the supplementary cathode, arranged within said chain of rods, and the electric battery.

5. The combination, substantially as before set forth, of the vat, the means of heating the contents thereof, the endless chain of rods, and the electric battery.



179,659. MACHINES FOR OPENING COTTON, &c. Bishop Kitson, Lowell, Mass., assignor to Kitson Machine Company. [Filed May 17, 1875.]

Brief.—An improvement on the machine patented to Samuel Fay, January 23, 1867, No. 61,411, consisting, principally, in a new method of hanging the beater-disks, one pair being secured at the opposite ends of a hollow shaft clamped upon an interior shaft, the ends of which project beyond the hollow shaft, each end being provided with a beater-disk arranged face to face with the beater-disks on the hollow shaft, which latter disks are smaller than the former, and revolve within the circle of the beater-arms projecting from the former.



1. The combination of the shaft c, carrying the pair of beater-disks attached to it between its bearings, with the hollow shaft p surrounding the shaft c, and carrying the second pair of beater-disks attached to it, substantially as described.

2. The combination of the pair of beater-disks B C, with the screen-cylinder E, and the horizontally expanding cotton delivery trunk L, substantially as described.

3. The combination of two pairs of beater-disks, B C and B' C', with the screen-cylinder E, and the bifurcated cotton-delivery trunk L L', substantially as described.

4. The combination, with the pair of beater-disks B C and their surrounding case, of the hopper H, for delivering the cotton uniformly to the beater-disks, substantially as described.

5. The hopper H, provided with perforated walls, as described, to admit the passage of air-currents.

6. The combination of the receiving delivery or feed table D D', with the beater-disks B C, and the hopper H, substantially as described.

7. The shaft p, provided at its opposite ends with the beater-disks C C, in combination with the disks B B' and their supporting-shaft, the said disks being arranged face to face, substantially as described.

179,660. FASTENINGS FOR CHAIR-CUSHIONS. Adelbert A. Lathrop, Chicago, Ill. [Filed Oct. 23, 1875.]

Brief.—The cushion is placed on the chair seat or bottom, and is held in place by elastic attached thereto and secured to the chair.



One or more elastic fastening straps, B, in combination with the cushion A, substantially as and for the purpose specified.

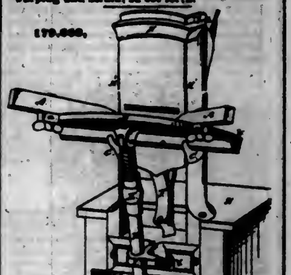
179,661. UNDER-GARMENTS. Philo H. Lee, Binghamton, N. Y. [Filed Jan. 6, 1876.]



1. In a skin under-garment, the combination of apertures B, such as are described, with coverings for the apertures, the coverings being made of a material more porous than such skin, and being firmly secured to such skin, near to and completely about the several apertures, for the purpose described.

2. In a skin under-garment, constructed as above described and claimed, the additional apertures E, covered by more porous material, and interposed between the skin portions throughout the longitudinal seams of the body or of the blanks of the garment, as described and shown, whereby the person is protected from cold and abrasion, and the garment is ventilative and relieved from warping and strain, as set forth.

179,662. MITER-PLANING MACHINES. Gustavus Lennartson and Lars G. Bergstrom, Erie, Pa., said Bergstrom assignor to said Lennartson. [Filed Jan. 31, 1876.]



Brief.—Adjusts the table, which rests on the supporting-brackets, by means of the brass, fastened by means of the thumb-screw, and more finely adjusted by means of the set.

which threads open both the right and left screw ends of the divided brass.

1. In combination with a vertical-acting plane, an adjustable table, B, provided with grooves U U', guides A A, having slots J J, and stamps a a, substantially as and for the purposes specified.

2. In combination with vertical uprights H' H', having brackets O O, the table B, brace R, having adjusting-nut F', and stamp I, the whole constructed and arranged to operate substantially as set forth.

179,665. TIRE-UPSETTERS. Wm. Mollstorf Alexithan, Mo. [Filed May 12, 1876.]

Brief.—Both the rod connecting the blocks and the chain connecting the latter are brought into requisition to fix the latter in the tire, the chain being disposed by the foot. The chain is removed, and the operator shrinks with one hand and sans his hammer with the other.



1. The combination of the movable block B', rod E, stationary block B, chain d, and roller G, with hook c, and lever H, all as and for the purposes herein set forth.

2. In a tire-upsetter, the pivotal latches D D, having arms b b, and directly connected with chain d, in combination with movable block B', roller G, hook c, chain d, lever H, rod E, and stationary block B, all constructed and arranged substantially as and for the purpose set forth.

179,666. COMPOSITIONS FOR FILLING IMPRESSIONS. Wm. A. McCaskey, Chicago, Ill., assignee of one-fourth his right to J. B. Blaney, same place. [Filed Oct. 16, 1876.]

Brief.—The composition is to be placed in any suitable apparatus, through which the air to be breathed is drawn.

A compound consisting of charcoal, glycerine, water, and a caustic alkali or an alkaline earth, or both together, substantially as and for the purposes specified.

179,667. SHUTTER-FASTENERS. Louis L. Northrop, Johnston, and Thos. Carwardine, Providence, R. I. [Filed Dec. 12, 1876.]

Brief.—As an improvement on a rotating shutter-fastener, heretofore patented, the shaft or frame is cast on a single piece, screwed and closely fitting to the rotating catch, its cylindrical ends constituting end bearing for the spindle. There is also at end a novel combination of flange projections and spiral grooves to prevent turning, and stops on the spindle to about the toe great rotation of the catch when in position.



1. The frame or bearing D D B E, with or without its tips G G, when such frame or bearing is cast in a single piece, with its cylindrical ends D D constituting end forming bearings for the cylindrical spindle B of the rotating catch A B C, substantially as shown, and for the purpose described.

2. The frame or bearing D D B E, provided on one end with the flange H and projections J J, and on the opposite end with the spiral groove I, in combination with the collar K, said collar having upon its inner edge the projections L L, engaging with the spiral groove I, and having its outer edge formed into points M, substantially as shown, and for the purpose set forth.

3. The stops F and O on the spindle B, substantially as shown, and for the purpose set forth.

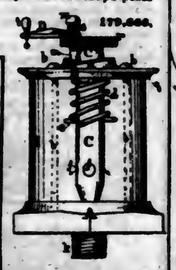
179,668. LUBRICATORS. Hermann R. Pein, Peoria, Ill. [Filed May 1, 1876.]

1. The rotary oil-inducting tube C, when provided with a spring, d, swivel-cover, D, and adjusting-screw a, in combination with the cup A E B, the top B being provided with a spiral leading, a, substantially as and for the purposes described.

2. The combination of the tube C, provided with spring d, cover D, and screw a with the leading a of the top B, the base A, and the cylinder E, substantially as and for the purposes described.

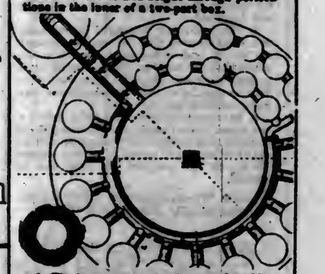
3. The combination with the tube C or its rim r, or its screw a, the swivel-cover D, and spring s, substantially as and for the purposes described.

179,669.



179,670. PIPE-MOLDINGS. Herbert R. Smith and Nicholas K. Wade, Cohoes, N. Y. [Filed Apr. 6, 1876.]

Brief.—A casting-pit composed of two parts, (one for flasks and molds, and the other for core-drying hoses,) both parts supplied with heated air from a common furnace by main and branch pipes, each branch supplied with a valve to admit or exclude air at will. Flasks not disturbed during the operation of forming mold, blacking, coring, and pouring. Economizes by making the work continuous. Hollow brush to black-wash cores. Heat admitted to core at mid-height through perforations in the inner of a two-part box.



1. The improvement in the art of molding and casting pipe, herein before described, which consists in forming the molds in a series of movable flasks arranged in a pit, blacking the molds, drying them by heated air from a common supply, inserting previously-dried cores therein, and casting, by successive steps, without moving the flasks or their bottoms, substantially in the manner and by the means set forth, whereby, as fast as ready, any one or more of the flasks may be removed, stripped, and returned to the pit, without interfering with work upon those in position, for a repetition of the above-described steps, thus rendering the work continuous.

2. The combination, substantially as herein before set forth, of a supply-pipe or passage-way, through which a current of heated air passes, a series of flask-bottoms and valves or dampers in said pipes, whereby the heated air may be admitted to any one or more of the flask bottoms from a common supply, to dry the molds in the flasks.

3. The combination, substantially as herein before set forth, of the pit, the hot-air furnace, the supply-pipe communicating therewith, the flasks, the connecting-pipes by which the heated air is admitted to the flasks from the supply-pipe, and valves in the connecting-pipes.

4. The hollow casting-plate or flask bottom herein before set forth, having a side opening to admit heated air to its interior, and a central opening for the escape of the heated air to the inside of the mold.

5. The combination, substantially as herein before set forth, of the flask bottom, its side opening, and the sectional pipe passing through said opening.

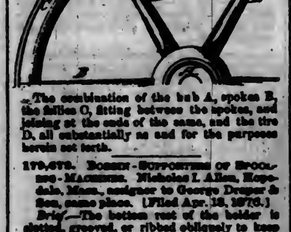
6. The improvement in the art of molding pipe, herein before described, which consists in drying the cores in a series of drying-boxes, connected, independently of each other, with a common heated-air-supply pipe.

7. The combination, substantially as herein before set forth, of a supply-pipe or passage-way, through which a current of heated air passes, and a series of vertical core-drying boxes, to which the heated air is admitted, and confined or allowed to escape, at will.

8. The combination, substantially as herein before set forth, with the pit, of the core-drying heated air pipes, the mold-drying heated-air pipe, and a common connection between them and the hot-air-supplying furnace.

9. The combination of the flask and the hollow casting-plate or flask bottom, having a side opening, a central opening in its top, and a cast for the head-ring surrounding said central opening, located wholly inside that portion of the casting plate upon which the flask is supported, as described, whereby the head-ring may be adjusted in position while the flask is in place upon its bottom, by means of the side opening, as set forth.

179,671. WHEELS-WHEEL-A. T. Weaver, Lillard's Mills, Tenn. [Filed May 8, 1876.]



The combination of the hub A, spokes B, the fellies C, fitting between the spokes, and joining at the ends of the same, and the tire D, all substantially as and for the purposes herein set forth.

179,672. BOBBIN-SUPPORTERS OF SPOOLING-MACHINES. Nicholas I. Allen, Hopedale, Mass., assignor to George Draper & Son, same place. [Filed Apr. 12, 1876.]

Brief.—The bottom rest of the holder is slotted, grooved, or ribbed obliquely to keep the bobbin in against the back rest.



As my improvement in the spooling-machine bobbin-supporters, the bobbin-rest therein of as made or provided with slots, ribs, or grooves, arranged obliquely with respect to its upper surface, all substantially as and for the purpose or objects specified.

179,673. MANUFACTURE OF HOLLOW PRESSED GLASSWARE. Washington Beck, Pittsburg, Pa. [Filed June 9, 1876.]

10. The combination, substantially as herein before set forth, of a hot-air-supply pipe, the stand or support for the drier projecting therefrom, and the drier detachably covered upon the stand.

11. The drying-box, constructed substantially as herein before set forth, with an outer and an inner section, having a heated-air space between them, into which the heated air is admitted at the bottom, and from which it passes at the top to the inner section.

12. The combination of the box, the stationary section of the drier covered therein, and the removable inner section of the drier, substantially as set forth.

13. The combination of the core-bar, and the guide or guard adapted to be entered upon and detached from the end of the bar, as and for the purposes set forth.

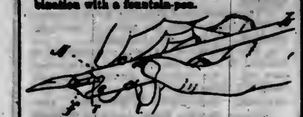
14. The hinged sectional annular brush-frame, adapted to be locked together, provided with internally-projecting bristles, and having a central opening for the passage of the core.

15. The combination of the annular brush-frame, its centrally-open bristles, and the centrally-open pan or black-wash reservoir, as and for the purpose set forth.

16. The combination, substantially as herein before set forth, with the drier, of the annular centrally-open brush and the black-wash pan, whereby the core may be black-washed as it is lowered in or withdrawn from the drier.

179,674. PEN-HOLDERS AND FOUNTAIN-PENS. George P. Tisdell, Tyrrhenia, Mich. [Filed Nov. 6, 1876.]

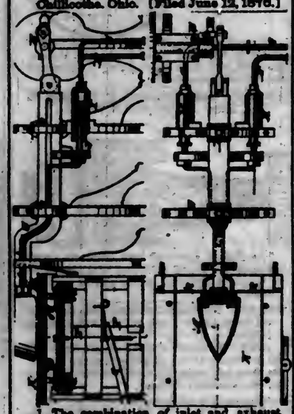
Brief.—Pen-holder so constructed as to give the fingers and thumb a better grips, in combination with a fountain-pen.



1. In combination with a pen-holder, A, having a projecting lip, *f*, forming, with the holding portion of the holder, a recess, *r*, of a detachable ink-fountain, adapted to be inserted into the said recess, substantially as specified.

2. A pen-holder, having a split plug, *i*, recessed into its lower end, and a lip, *f*, upon its lower end, projecting beyond the upper part of the holder, substantially as specified.

179,675. IRONING APPARATUS. D. Bennett, Chillicothe, Ohio. [Filed June 12, 1876.]



1. The combination of inlet and exhaust pipes F G, having an extension-joint, H I J, with a reciprocating iron, A, substantially as specified.

2. The combination of the laterally and vertically adjustable table K with an iron mounted on and operated by the reciprocating bar O, substantially as specified.

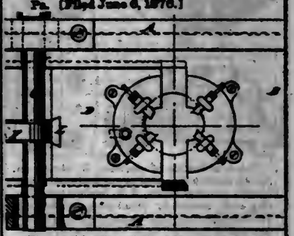
3. The combination of the spring-holder B with the vertically-adjustable table K and the reciprocating iron A, substantially as specified.

179,676. FEED-WATER HEATERS. Tobias F. Blackwell, New Haven, Conn., assignor to the Western Patent Heater Company, same place. [Filed Mar. 2, 1876.]



In a feed-water heater the combination of the outer casing A, constructed with water inlet and exit, and a series of hollow disks, arranged one above another, and so as to leave a space between them, and each disk connected with the next at a point diametrically opposite its connection with the preceding disc, and with steam inlet and exit, respectively, to the two extreme disks, substantially as described.

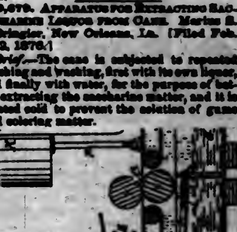
179,677. SCREW-CUTTING DIE-GRINDER. John G. Born and Geo. J. Born, Pittsburg, Pa. [Filed June 6, 1876.]



The combination of the independently-sliding die-plates B and D, supporting-plate A, shaft G, and eccentric F, substantially as specified.

179,678. CHIMNEY AND VENTILATING FLUES. Amos H. Bonnes, Fort Scott, Kans. [Filed May 22, 1876.]

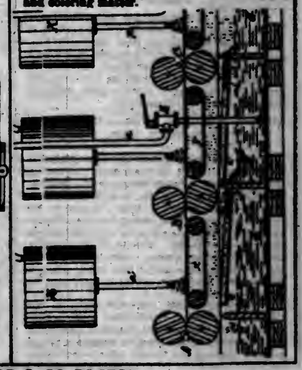
Brief.—A chimney and ventilating flue constructed of plastic material, the smoke-flue of clay pipe, and the outer casing of cement.



The combination, with clay pipe A, having grooves E, of the cement case C, built on cores that form flues D, and provided with ribs H F, substantially as and for the purpose specified.

179,679. APPARATUS FOR EXTRACTING SACCHARINE LIQUOR FROM CANE. Marius S. Delagrin, New Orleans, La. [Filed Feb. 19, 1876.]

Brief.—The cane is subjected to repeated crushing and washing, first with its own liquor, and finally with water, for the purpose of better extracting the saccharine matter, and it is treated cold to prevent the solution of gums and coloring matter.

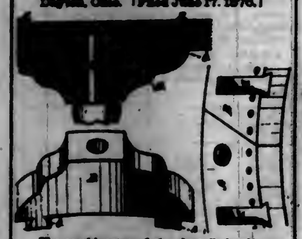


HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & CO BOSTON.

1. An apparatus for extracting saccharine juice from cane, consisting of two or more sets of crushing-rollers, A B, carriers a y, cisterns H E, tanks or reservoirs E F, and pump or other appliance I, for elevating the juice, the whole combined and arranged substantially as shown, whereby the bagasse in its passage through the apparatus shall be subjected to a shower of cool saccharine liquid, substantially as described.

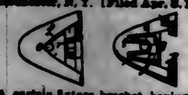
2. The combination of a series of crushing-rollers, A B C, carriers a y p, pumps or other liquid-elevators I, I, tanks E F G, cisterns or reservoirs H E, pipes a e p, arranged substantially as shown, whereby the bagasse in its passage shall first be subjected to a shower of cool saccharine liquid, and finally to a shower of water, as and for the purpose specified.

179,680. CRAMP.—Richard P. Burkhardt, Dayton, Ohio. [Filed June 17, 1876.]



The combination of the cleat D, having on its top surface the parallel dovetailed tongues b, with the sash-frame A B, having its abutting ends united by dovel-pins, and having on its under side the transverse and parallel dovetailed mortises C, in which the tongues b fit, and the leg, whose tenon E passes through the cleat into the frame to interlock the parts, substantially as and for the purpose specified.

179,681. BRACKETS FOR CURTAIN-FIXTURES. Jos. Chase and E. W. Hemingway, Rochester, N. Y. [Filed Apr. 6, 1876.]



A curtain-fixture bracket, having its foot-plate f provided with an offset, r, whereby the bracket may be formed with a screw-hole, s, without drilling, substantially in the manner and for the purposes set forth.

179,682. TELL-COUPLERS. Emerson D. Clapp and Frederick Von Fetten, Auburn, N. Y. [Filed June 6, 1876.]



A cushion of india-rubber or other elastic or yielding material, provided with cutters, to prevent the divided eye from coming in contact with the ears of the clip part, and with a groove, to enable it to be placed, removed, or replaced upon the bolt without removing the latter from the ears of the clip part, substantially as shown and described.

179,683. CIR-CLAMP. William H. Chatfield and Wm. J. Clark, Salem, Ohio. [Filed Apr. 10, 1876.]

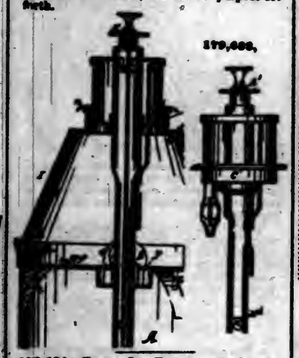
Brief.—Pump passes through eccentric holes in the steppin and in the base of the recess for the steppin. Pump having been removed by removing dowel steppin, the cork filling over the lower eccentric hole. Driftways on opposite sides of these eccentric holes are covered by rotating pump to bring nibs on its body over the holes. Handle of stopper is a hook. To fasten pump, rotate it till a knob on its body passes under this hook, when a dowel pivoted to top of hook falls and locates the hook.

1. In combination, with the body A, the detachable head I, constructed with a ring or rim, k, and dependent flange M, provided with a notch, n, adapted to engage a pin, f, substantially as and for the purpose set forth.

2. The combination of a detachable or permanent head of an oil-can, the screw-stopple F, having an orifice for the reception of a pump, and the pump, operated in the manner substantially as and for the purposes set forth.

3. In combination with a pump provided with a nib, F, the catch b', detent d', screw-stopple F', and can A, substantially in the manner as described, and for the purpose set forth.

179,684. FRUIT-JAR FILLERS AND JELLY-STRAINERS. Robert B. Clark, Boonville, N. Y. [Filed Mar. 29, 1876.]



In combination with the jar-filler formed of the parts A, B, and C, the perforated plate E, provided with the clasping ring b, as and for the purposes described.

179,685. LAMP-BURNERS. F. Dameke, St. Paul, Minn. [Filed June 8, 1876.]



The dial B, provided with the stem c and spring-jaws d d, and combined with the burner A, substantially as herein shown and described.

179,686. UNIVERSAL STENCIL-PLATES. Jos. A. David, New York, N. Y. [Filed May 1, 1876.]

Brief.—By means of the perforations or cuts all the letters of the alphabet and the numerals may be formed, the side strips allowing for the necessary spacing.

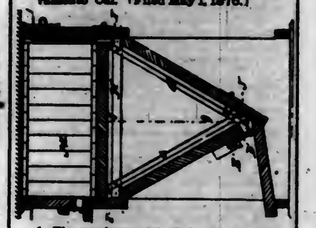


1. A universal stencil-plate having the letters of the alphabet and the numerals cut therein, and arranged in the manner described, and for the purpose set forth.

2. The universal stencil-plate above described, having side strips or sections for spacing the letters or numerals, substantially as described.

3. A universal stencil-plate provided with top and bottom guide-strips extending over the side space-strips, substantially as specified.

179,687. RIM-RIVER. Orson A. Davis, Sacramento Cal. [Filed May 1, 1876.]



1. The regulating-slide B for the passages A, having notches C and perforated sections D, and arranged in the dotheadable way B, substantially as specified.

2. The extensions I of the lower comb-frames supporting the honey-board, substantially as specified.

3. The extensions J of the lower comb-frames, in combination with the sides of the lower chamber, substantially as specified.

4. The surplus-honey box, constructed in sections, of which the upper and lower cross-bars join in the middle of the side bars, substantially as specified.

179,688. EXPLOSIVE COMPOUNDS. Uert Dittmar, Boston, Mass., assignor to Maria Dittmar, same place. [Filed June 26, 1876.]

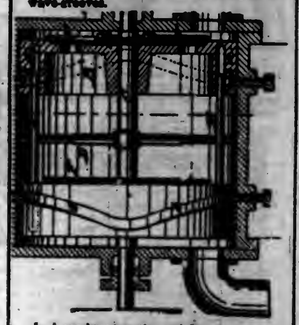
Brief.—The masses or grains are parchmented by treatment with sulphuric acid previous to the ordinary gun-cotton process.

1. The mode or process, substantially as described, of making an explosive matter or compound, such consisting in reducing to pulp, to suitable grains or masses, a vegetable material or materials, as set forth, and subsequently parchmenting such by sulphuric acid, and afterward treating the whole by a bath of nitric and sulphuric acids, all essentially as specified.

2. As a new or improved manufacture, an explosive matter or compound, substantially as specified, having its grains or masses parchmented, essentially as explained.

179,689. PUMPS. Henry Deere, New York, N. Y. [Filed Nov. 10, 1876.]

Brief.—The pistons revolve with the main shaft, and are caused to reciprocate by the action of the stationary guide-pins upon the wave-grooves.



1. A combined suction and force pump, provided with two pistons, simultaneously rotating and reciprocating in the manner and for the purpose specified.

2. In a rotary pump, the combination of the revolving shaft, having a diametrically-extending rod or post, with longitudinal carrier-pipes, engaging socket-holes of the pistons, for revolving the same with the shaft, substantially as specified.

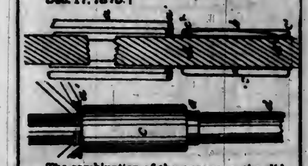
2. The combination of the sliding pistons, having wave-grooves at their circumferences, with guide-pins of the casing, that project at diametrically opposite points into the wave-grooves to produce the reciprocating motion of the pistons, substantially as specified.

179,690. PIANO-LEG PROTECTORS. William B. Evans, Orrville, Ohio. [Filed May 24, 1876.]



As a new article of manufacture, a piano-leg protector, consisting of frame A with net-work a, elastic bands b and c, and eye d, and hook e, substantially as described.

179,691. AUTOMATIC UMBRELLA-SUPPORTS. Wm. P. Ferguson, Brooklyn, N. Y. [Filed Dec. 17, 1875.]



The combination of the runner c, the sliding cane e, provided with the two wedge-shaped projections f and f', and spring h, with the notched stick d, constructed and arranged to operate substantially as hereinbefore set forth

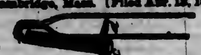
179,692. MACHINERY-OLOTCHES. Fredk. W. Flagg, Middletown, Conn. [Filed Nov. 16, 1876.]

Brief.—A ring, divided at one point, is, by a wedge operated by an entering arm, made to open its divided point, and cause it to bind against the inner periphery.



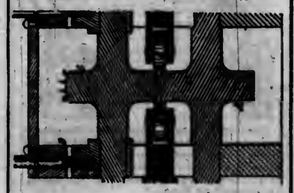
The combination of the pulley A, the divided ring D within, but independent of, the flange of the said pulley, the radial wedge B, the collar F, and arm G, the said arm G and wedge constructed as described, so that the longitudinal movement of the said arm, both toward and from the pulley, imparts a corresponding positive movement to said wedge, to cause respectively the expansion and contraction of the ring, all substantially as specified

179,693. HAIR-CRIMPERS. Daniel Fobes, Cambridge, Mass. [Filed Apr. 12, 1876.]



A hair crimper, consisting of a hair-pin or fork, to the closed end of which is attached a spiral spring, said spring being provided with a knob, e, and clasp, d, substantially as and for the purpose herein set forth.

179,694. MACHINES FOR ROLLING HORSE-SHOE-NAIL PLATES. Daniel Fraser, New London, Conn. [Filed May 13, 1876.]



The combination of the cylindrical bed-roll A and the two swaging-rolls B B, with the reducing-roll C, having to its periphery the head and shank tapers a b, disposed on each side of the middle thereof, as set forth, all being arranged and to operate essentially in manner and for the purpose specified.

179,695. SCREW-DRIVERS. John Frearson, Birmingham, England. [Filed Mar. 29, 1876.]

Brief.—A screw-driver constructed for use with the style of screws for which a patent was issued to this inventor December 9, 1873.



A screw-driver having two or more radial branches extending from the center or axis, and describing a cone in revolving, all the serving sides of the said radial branches converging toward an axial point, substantially as and for the purpose described, and as illustrated in the accompanying drawings.

179,696. WATER-WHEELS. R. M. Goddy, Nichols, S. C. [Filed May 17, 1876.]

Brief.—The wheel is made in half or semi-spherical shape, hollow, and cut with a series of spiral slots or openings, running from near the upper edge to near the center of the bottom of the wheel, so as to leave, as it were, a solid top rim and a solid center disk, with a series of spiral fan-shaped pieces between and connecting said rim and disk.

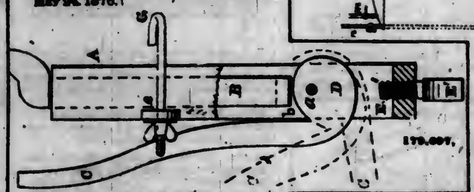


1. A water-wheel made hollow in semi-spherical form, and provided with interior buckets, substantially as herein set forth.

2. The water-wheel D, made hollow in semi-spherical form, with spiral slots b, and spiral interior buckets D' D', substantially as and for the purposes herein set forth.

3. The shaft A, provided with spiral flanges d, in combination with the wheel D, as and for the purposes set forth

179,697. TIRE-TIGHTENERS AND JACKS. William H. Gibbs, Lyons, Iowa. [Filed May 24, 1876.]

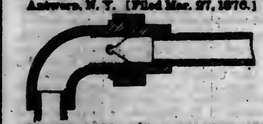


179,697.

1. The hollow standard A, having slot b and adjusting-screw B, in combination with the follower E and adjustable cam or eccentric D, provided with a lever, C, substantially as and for the purposes described.

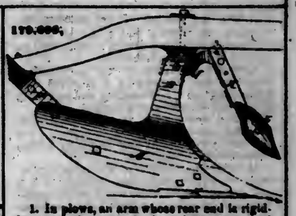
2. The tire-tightener consisting of the hollow standard A, having slot b, follower E, having arms b' adjusting-screw B, having base B', adjustable cam or eccentric D, having lever C, and spoke-brace G, substantially as and for the purposes described.

179,698. COMBINATION UNIONS FOR WROUGHT-IRON PIPES. Benj. B. Hagar, Antwerp, N. Y. [Filed Mar. 27, 1876.]



The elbows, T's, or their equivalents, constructed with one or more of their branches enlarged and screw-threaded, in combination with the sections B and flanged tube C, as herein substantially described.

179,699. PLOWS. Jacob Hockenbury, Ann Arbor, Mich. [Filed Apr. 10, 1876.]

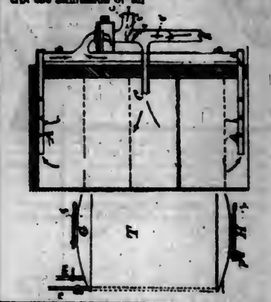


1. In plows, an arm whose rear end is rigidly attached to standard, and the front end adapted to receive a skiver, colter, or jointer adjustably, as shown and described.

2. The skiver I, connected with standard B by shank K and arm J, the former adjustable on the latter, and both constructed as shown and described.

179,700. GERMINATING OR GROWING GRAIN OR SEEDS FOR MALTING OR OTHER PURPOSES. Rudolph D'Heureuse, New York, N. Y. [Filed Oct. 18, 1876.]

Brief.—The first part of the invention consists in subjecting the grain in the steep tank to water holding mineral matter, such as phosphates, ammoniates, calcium compounds, &c. Said tank is subjected to an increased or reduced air-pressure, that the grain may be permeated thoroughly. Chlorine is also used for bleaching purposes. The second part of the invention relates to the germinating process carried on in the sprouting-room, and to the devices connected with said room to control the admission of air



1. The process herein described for accelerating the germination of grain for malting and seeds, the same consisting in the application of mineral and organic substances, such as named, either during the steeping or germinating process, as set forth.

2. The process herein described of impregnating grain for malting and seeds with steep-water, the same consisting in subjecting the grains or seeds, in a close tank containing the steep-water, to varying pressure, substantially as described.

3. The process herein described of brightening grain for malting and seeds, the same consisting in treating them with chlorine or ozone, substantially as described.

4. The tank T, provided with pipe or pipes for the admission of air and water into the tank, and for withdrawing air from the same, and with an opening or openings for charging and discharging the tank, substantially as described.

5. The process herein described of accelerating the germination of grain and seeds in malting, the same consisting in subjecting the grain and seeds, in a sprouting-room, to controllable currents of air, substantially as set forth.

6. The combination of the germinating-chamber, the pipes A C b e g, and device D, substantially as and for the purpose described.

7. The combination of the germinating-chamber, the pipes U and g, and an air impelling or exhausting device, substantially as and for the purpose described.

8. The combination of the germinating-chamber, pipe C, and pipe g, provided with valve c, and an air exhausting and impelling device, substantially as described.

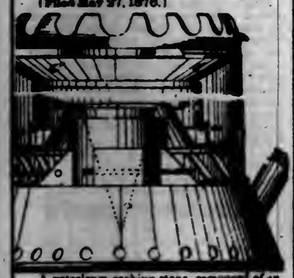
9. The combination of the germinating-chamber, one or more pipes, A, pipes C g b c, and an air exhausting and impelling device, substantially as described.

10. The combination of the germinating-chamber, one or more pipes, A, pipes C, b, c, and g, provided with valves c c', an air-impelling and an air-exhausting device, substantially as described.

11. The combination of the germinating-chamber, one or more pipes, A, pipes C, b, and g, provided with valve c', and device D, substantially as described.

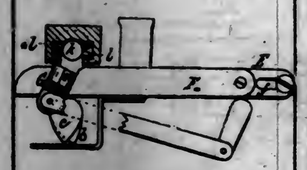
12. The combination of pipes C, b, g, and c, provided with valves c, c', and c², device D, one or more pipes, A, and the germinating-chamber, substantially as described.

179,701. PETROLEUM COOKING-STOVE. Frederic Hildebrandt, New York, N. Y. (Filed May 27, 1876.)



A petroleum cooking-stove, composed of an outer perforated body and of an interior chimney, conical top-diaphragm, and interior base cone or diaphragm, substantially in the manner and for the purpose set forth.

179,702. SEWING-MACHINES. James G. Hollowell, Penn Yan, N. Y. (Filed Apr. 12, 1876.)



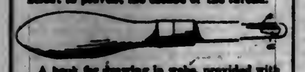
1. The combination, with the feed-bars E F, of the fixed eccentric b and adjusting eccentric c, whereby motion may be imparted to said feed-bars by the revolution of the eccentrics in either direction, as described.

2. The combination, with the feed-bars E F, (the latter being provided with the pin e,) of the plate G, changeable to engage in opposite directions, and having the slot m to give the longitudinal motion to the feed, as shown and described.

3. The combination, with the slotted plate G, of the shoulder o thereon, and the adjustable gage I, provided with the angular edges f g, for gaging the length of stitch, as shown and described.

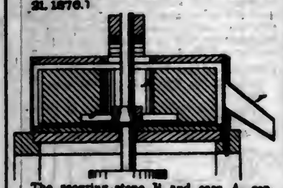
179,703. HOOKS FOR WIRE-DRAWING. Mary S. Jordan, Bristol, N. H. (Filed Dec. 16, 1875.)

Brief.—The slit in the hook for admitting the thread is guarded by a slender spring, sufficient to prevent the escape of the thread.



A hook for drawing in wire, provided with a slot for retaining threads, as shown at a, and with the spring c, combined and adjusted as and for the purposes described.

179,704. GRAIN-SCOURERS. Frederick E. Kloppstech, Milwaukee, Wis. (Filed Feb. 21, 1876.)



The scouring-stone B and case A, constructed and arranged to feed the grain into the space between them at the bottom, and having a vertically-sliding discharge-spout, F, for discharging it above the bottom and varying the height of the discharge, substantially as specified.

179,705. POTATO-PEELERS. Llewellyn P. Law, Chicago, Ill., assignor to Moses W. Lester and Franklin Lester, same place. (Filed Aug. 7, 1874.)



1. The combination of the perforated sheet-metal cylinder and the head-supporting wheels C, made with spokes c, and rim provided with projections m and the transverse e, substantially as specified.

2. The combination of the cylinder A, casing or trough, and the inlet-pipe K and plug L, for keeping the casing full of running water, as specified.

179,706. COMPOUNDS FOR ARTIFICIAL STONE. John Linden and Gustav Giessler, Chicago, Ill. (Filed Jan. 6, 1876.)

A composition of sand and cement mixed with a solution of sulphuric acid, alicate of soda, alum, borax, and water, substantially as and for the purpose set forth.

179,707. PAPER BARRELS. C. L. Lockman, Allentown, Pa. (Filed May 2, 1876.)



1. A paper barrel or package of a cylindrical form, having wooden heads with beveled rabbets on the periphery, in combination with beveled hoops, substantially as and for the purpose specified.

2. A head for a paper barrel having a beveled rabbeted periphery, and a recess, E, near its edge, substantially as described.

179,708. CARRIAGE-CURTAIN FASTENINGS. Samuel N. Long, Harwich, Mass. (Filed Mar. 4, 1876.)



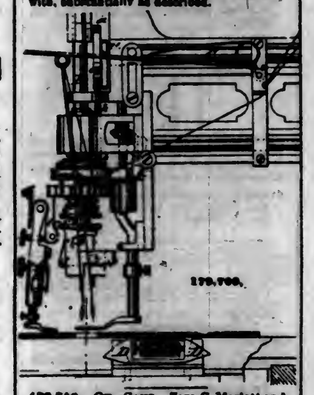
As a new article of manufacture, a fastening for carriage-curtains constructed with a slotted stud, b, having a lever, d, provided with a cam-shaped end, d', pivoted on a bearing or rivet, c, arranged eccentrically in the stud b, the whole being constructed to operate substantially as shown and described.

179,709. SEWING-MACHINES FOR EMBROIDERING. Charles Merle, Newark, N. J., assignor to himself and Isidore Rosenthal, New York, N. Y. (Filed Apr. 1, 1876.)

Brief.—One of the two needles may be moved toward and from the other, while the machine is in operation, by means of a rod connected to it, a bell-crank attached thereto, and a long bar attached to the bell-crank, which bar extends up through the needle-bar, and is operated by a pin and spiral-groove arrangement at the top.

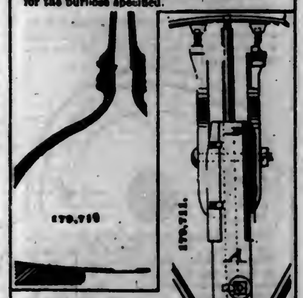
1. An embroidery-machine, consisting essentially of a needle-bar, with adjustable needles, a presser-foot, a rotating and pivoted partial feeder, and an endwise-moving shuttle, substantially in the manner and for the purpose set forth.

2. The combination of the sliding hollow needle-bar, the interior needle-adjusting rod, having spiral top grooves, and the revolving sleeve, connecting by collar and grooves therewith, substantially as described.



179,710. OIL-CANS. Zara C. Mariatt and John I. Cook, Pittsburg, Pa. (Filed Dec. 9, 1876.)

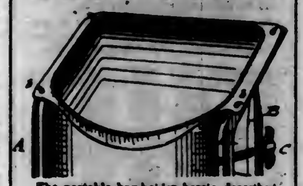
An oil-can whose body is made of tempered glass, provided with a metallic nozzle and a metallic spring-bottom, protected by an annular glass bottom connected thereto, as and for the purpose specified.



179,711. TIRE-TIGHTENERS. Henry Martin, Edward N. Davis, and Chas. B. Thurston, Rockford, Mich. (Filed Apr. 10, 1876.)

The combination, with a main post, having toothed and slotted side plates of adjustable tire-tightening arms, provided with outer lifting-caps, substantially as and for the purpose set forth.

179,712. BAG-HOLDERS. Gideon Marsh, Greensburg, N. Y. (Filed May 29, 1876.)



The portable bag-holder herein described, consisting of the standard A, having teeth or spurs a, the fastening strip B, and clamping-screw C, to adapt the device for attachment to a suitable support, substantially as and for the purpose set forth.



179,713. COMPOUND STEAM-ENGINE. G. B. Massey, New York, N. Y., assignor to the Massey Compound Engine Company, same place. (Filed Nov. 13, 1876.)

Brief.—The steam drives the end pistons past the shoulders of the end cylinders, escapes past said pistons, and continues to operate on the large pistons.

1. The combination of a single cylinder, A, connected end pistons B, and middle piston D with the driving-shaft having cranks H K K, all arranged substantially as shown, so as to cause the steam to pass directly from the small pistons onto the large one without returning through the ports at the ends of the cylinder, and to permit the steam to exhaust from the large and small pistons independently, and at different points of the revolution, as described.

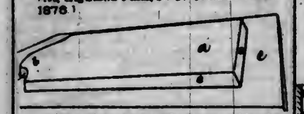
2. In a cylinder having two end pistons and a middle one, the two end pistons connected by rods I, working through the middle piston, and the rod of the middle piston working through the tubular rod of the end pistons, substantially as specified.

179,714. PITMEN-CONNECTIONS. Ellis Mc-Whorter, Sterling, Ill. (Filed Feb 9, 1876.)
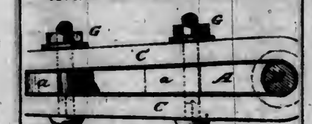


The wedge-shaped pitman A, having concave end, and provided with the elongated slots a a, in combination with the flexible bent bar or eye C, bolts D, and nuts G, substantially as and for the purposes herein set forth.

179,715. IRONING-BOARDS. James C. Merritt, Highland Falls, N. Y. (Filed Feb. 21, 1876.)



A bosom board, consisting of a combination of raised panel, a, provided with neck-projection b, also beveled edge c, with a removable frame, d, entirely surrounding said panel a, and held in place solely by the beveled edge c of the panel a, as shown and described.

179,716. WAGON-STANDARDS. Jacob Metz, Vernon, Ill. (Filed June 12, 1876.)

Brief.—The standard is attached to the bolster by a tongue and groove, and held in place by a spring-bolt.

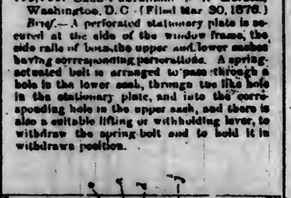


The castings B, bolted to the bolster, and the base C, connected with the castings B by tongues and grooves, and with the bolster by a spring-bolt, E F G, substantially as herein shown and described.

179,717. SELF-CLOSING FAUCETS. Henry C. Meyer, New York, N. Y. (Filed Apr. 17, 1876.)

The combination, in a self-closing faucet, of the spindle m, gland n, crank-pin i, valve-stem e, guided at l, and having a transverse groove for the pin i, elastic valve d, spring k, and guides f, substantially as and for the purposes set forth.

179,718. COMBINED PICTURE-HANGERS AND CARPET-STRETCHERS. Charles G. Miller, New Britain, Conn., assignor to P. & F. Corbin, same place. (Filed Apr. 6, 1876.)



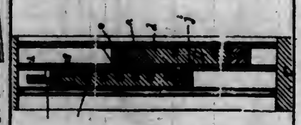
The combined picture-hanger and carpet-stretcher, constructed with the horns d, extending from the back of the carpet-stretcher bar b c, substantially as set forth.

179,719. COMPOSITION RUBBERS FOR MILL-STONES. John H. Miller, Mount Union, Pa. (Filed June 12, 1876.)

The combination of fire-clay, silex sand, and ground emery, substantially in the proportions and manner stated.

179,720. SASH-FASTENERS. J. W. Morsell, Washington, D. C. (Filed Mar. 30, 1876.)

Brief.—A perforated stationary plate is secured at the side of the window-frame, the side rails of both the upper and lower sashes having corresponding perforations. A spring-actuated bolt is arranged to pass through a hole in the lower sash, through the like hole in the stationary plate, and into the corresponding hole in the upper sash, and there is also a suitable lifting or withholding lever, to withdraw the spring-bolt and to hold it in withdrawn position.



1. In combination with the upper and lower sashes, each perforated in its side rail, a perforated plate, A, secured at the side of the window-frame, and held firmly throughout its length, all substantially as and for the purpose set forth.

2. In combination with a spring, c, provided with an attached bolt, c, adapted to enter perforations in both sashes of a window, the lifting-lever e, applied as described, and serving not only to withdraw the bolt, but also to hold it withdrawn, substantially as shown and described.

3. The combination of the perforated plate A, fixed to the frame of the window between the sashes, the perforated plate f on the upper sash, the spring-bolt c d upon said sash, and working through the lower sash, and through the plate A into the upper sash, and the lifting and withholding lever e, all substantially as and for the purpose set forth.



179,721. CHAIRS. Michael Ohmer, Dayton, Ohio. (Filed May 20, 1876.)

The combination and arrangement, with a chair, of the brace E, top A, and ranges or hangers C, when connected substantially in the manner and for the purpose specified.

179,722. FAUCETS. Elbar Chenneault and Robert Weiss, New Orleans, La. (Filed May 22, 1876.)



The turn-plug C and fixed plug E, constructed and combined with bush, substantially as and for the purposes specified.

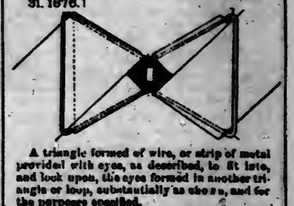
179,723. SEED-PLANTERS. Henry S. O'Neal, Concord, Tenn. (Filed Mar. 21, 1876.)

Brief.—Upon one of the journals of the bearing-wheel is attached a crank, to which is pivoted the forward end of a rod, used to turn the wheel when starting in to plant a new row.



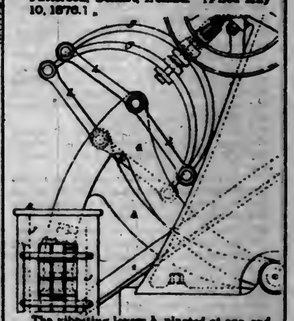
The combination, with the journal that operates the dropping device, of the crank A', and the rod B', arranged substantially as and for the purpose specified.

179,724. DEVICES FOR JOINING WIRE OR STRAPS. George H. Palmer, Walpole, assignor of one-half his right to George E. Dunbar, New Bedford, Mass. (Filed Mar. 31, 1876.)



A triangle formed of wire, or strip of metal provided with eyes, as described, to fit into, and look upon, the eyes formed in another triangle or loop, substantially as shown, and for the purposes specified.

179,725. GRAIN-STRIPPING MACHINES. John Patterson, Belfast, Ireland. (Filed May 10, 1876.)



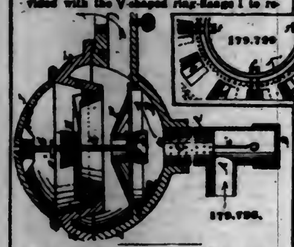
The vibrating levers h, pivoted at one end, and carrying stamps a at the other, in combination with the links h, springs f, connection f, and crank-shaft e, substantially as and for the purpose described.

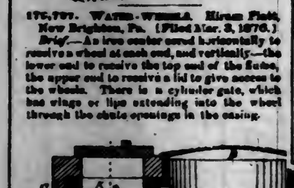
179,726. GAS-REGULATORS. Chas. C. Place, Somerville, Mass. (Filed June 12, 1876.)

1. The combination of the T-pipe A, provided with the cap B, and the filtering-box containing the quicksilver, the cap J, the plate F, the weighted plate H F', and the valve K, and its adjusting-rod G, substantially as herein shown and described.

C, with the lower part D of a gas-regulator, for purifying the gas introduced into said regulator, substantially as herein shown and described.

2. The gas-regulator, formed by the combination with each other of the part D, provided with the shoulder d', the part L, provided with the V-shaped ring-flange l to re-


179,726.


179,727.

ceive the upper end of the part D, and the ring M, provided with the lugs m, substantially as and for the purpose set forth.

179,728. STOVE-PIPE THIMBLE. George W. Rogers, Lake City, Minn. (Filed Nov. 18, 1876.)


179,728.

Brief.—The plate A, provided with opening a, disk D, having the opening d', and secured to the plate by fingers c, in combination with shafts B B' and rims F F', all constructed and arranged as described.

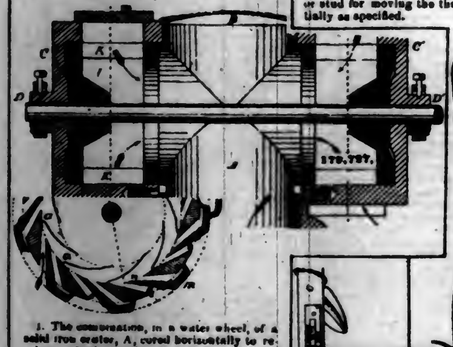
179,729. SCISSORS AND SHEARS. Clara A. Rogers, New Orleans, La. (Filed June 6, 1876.)

Brief.—Several tools for use upon a sewing-machine are combined with a pair of ordinary scissors.

1. The combination of scissors, wrench, needle-straightener, throat-plate mover, measure, and screw-driver, in one tool, substantially as specified.

2. The scissors-handle, having a recessed and slotted extension for serving as wrench and needle-straightener, substantially as specified.

3. The scissors-handle, provided with a pin or stud for moving the throat-plate, substantially as specified.


179,730.

1. The combination, in a water-wheel, of a solid iron center, A, cored horizontally to receive a wheel at each end, and vertically, the lower end to receive the toy end of the flume, the upper end to receive a lid, B, to give access to the wheels, casings C C', chutes a a, and bearing D, constructed substantially as shown in Figs. 3 and 4.

2. A wheel, having wrought iron or steel buckets, as shown at a a y y, Fig. 4, having one-fifth only of their radial depth a concave surface, the balance being a graduated convex curves or true inches from the points a a to their inside extremity y y.

3. A cylinder-gate, having rings or rips, as shown at n, Fig. 4, extending into the wheel through the chute-openings a a a in the casing.

4. The combination of two tangential wheels on the same shaft, receiving the water on the face of their peripheries, and discharging it toward each other into the iron center A.

179,730. PLOWS FOR LAYING OFF LAND FOR TOBACCO. John Preston and C. W. Tomlin, Milford, Ky. (Filed May 9, 1876.)

Brief.—The wheel is provided with diamond-shaped blocks for marking off the ground. The forward part of the beam is provided with a sliding head, that has guides for the reception of the opening-plow beam.

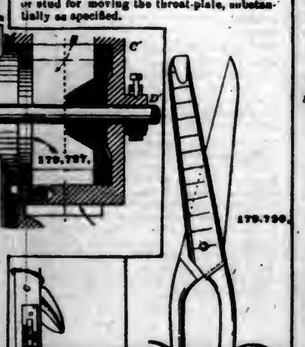


1. The wheel I, having diamond-shaped blocks J attached to its face, in combination with the beam or frame A, and the plow B C, substantially as herein shown and described.

2. The combination of the guide-arms E, the sliding head F, and adjusting-lever G, with the beam or frame A, and the plow B C, substantially as herein shown and described.

179,729. STOVE-PIPE THIMBLES. George W. Rogers, Lake City, Minn. (Filed Nov. 18, 1876.)

179,729.

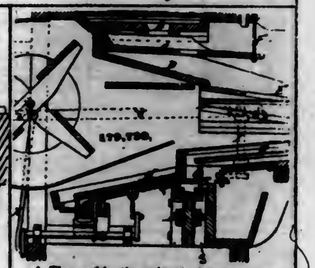

179,731.

179,731. ANCHOR-TRIPPERS. R. G. Sanders, Chicago, Ill. (Filed Mar. 3, 1876.)

The combination, with the rail C and cat head D, each provided with a mortise to admit the catches E and F of the anchor-supporting chains, of the double bolt A A, provided with the knob G, and secured to the plates B B, so as to admit of a longitudinal movement, whereby the ends of said bolts are adjusted within the said catches or disengaged therefrom, substantially as specified.

179,732. FEEDING-MILLS. Chas. Saunders, Cape Vincent, N. Y. (Filed May 23, 1876.)

Brief.—Arranges the shelling, screening, and separating cones independently of each other. Makes the attachment of each to the belt-crank in such manner as to counteract the thrust of the reciprocation. Supports the shoes on adjustable levers or cross-bars.


179,733.

1. The combination, with the hopper A, having passage B, of the shoe C, connected at the upper end to the vibrating chafing-shoe, and suspended adjustably at the lower end by the cord F, substantially as specified.

2. The combination of the vertical crank-shaft I, between crank-shaft M, connecting-rod E, and pitmen W with the independent shaking-screens E G H and the fan-shaft, as and for the purposes set forth.

3. The combination of the sliding posts S U, carrying rollers T V, and the levers K L, with the screen-shoes G I, as and for the purpose set forth.

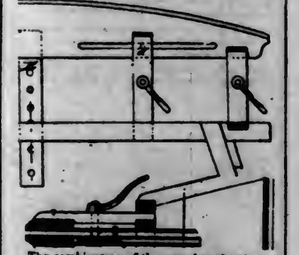
179,733. FENCES. W. J. Shaver, Dryden N. Y. (Filed May 24, 1876.)
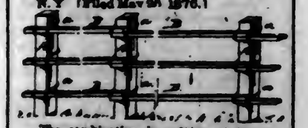

179,733.

The combination, in a fence, of the wire-loop gripe-fastener a with the posts A and rails B, substantially as and for the purposes above described.

179,734. SAW CLAMPS. Joseph Skelly, Mariposa, Cal. (Filed Mar. 21, 1876.)

Brief.—The clamp has a central support for circular saws, consisting of two bars—one grooved, in which slides an adjustable spring-pin, and the other with holes to admit the pin. The saw, resting on the centrally-supporting pin, is held by jaws operated by horizontally-sliding clamps. By clamping and unclamping the latter said revolving the saw, its teeth may be successively adjusted for sharpening. Straight saws are held firmly at any desired point by the sliding clamps.


179,734.

The combination of the saw-clamping jaws, with downward-extending guide-bars, and an adjustable spring-pin locking into perforations of the bars for supporting and turning circular saws placed into the jaws, substantially as specified.

179,735. WINDOW-SHADE ROLLERS. John Shorey, Lowell, Mass., assignor of one-half his right to Oliver C. Shorey, same place. (Filed Dec. 16, 1875.)

1. A torsion-spring for window-shade rollers, constructed with its coils of different diameters, as described, whereby the tension of the spring is strengthened through a portion of its length, substantially as and for the purpose herein specified.

2. In a spring curtain fixture, the combination, with a hub or head, f, provided with notches e e, of the spindle g, spring s, socket m, and shaft c, provided with an arm or projection, s, substantially as and for the purpose herein specified.


179,736.

179,736. STOVE-POLISH. Albert Simmons, Buffalo, N. Y., assignor of one-half his right to Charles Tallmage, same place. (Filed Apr. 10, 1876.)

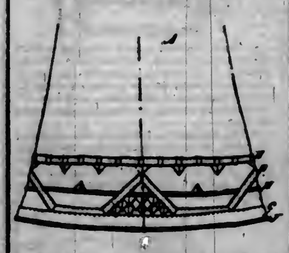
The herein-described stove-polish, having a paste-like consistency, compounded of plumbago, soap, lamp-black, and glycerine, substantially as hereinbefore stated.

179,737. CHARMS. Anselmo B. Smith, Denver, Colo. (Filed June 24, 1876.)


179,737.

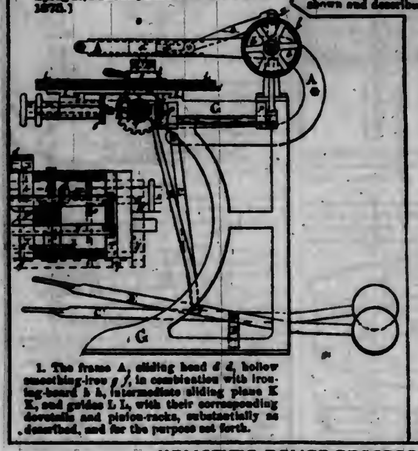
The two peculiarly double or zigzig cams, engaged, depressed, and otherwise formed as shown and described, the depressions being furnished with springs to prevent backlash, the whole as substantially described.

179,738. DYEING-SKEINS. Edwin D. Smith, New York, N. Y. (Filed Apr. 18, 1876.)


179,738.

The combination of frames C, rollers G, and bands H, all woven with margins and cord, substantially as shown and described, for the purpose specified.

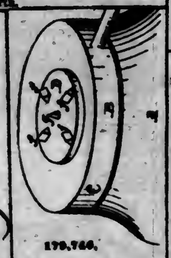
179,739. INCENSE APPARATUS. William Sprague, Philadelphia, Pa. (Filed Dec. 17, 1875.)


179,739.

1. The frame A, sliding head d d, hollow smoking-iron g f, in combination with ironing-board b b, intermediate sliding plate K K, and guides L L, with their corresponding dovetails and pinion-racks, substantially as described, and for the purpose set forth.

2. In combination with the top b b, intermediate plate K K, and pinion-racks i i and k', the knob N, shaft n, beveled wheels X X, gear-head V, and knob M and wheel e, substantially as described, and for the purpose set forth.

3. In combination with frame A A, friction-disk a a, and pulley b, the arm T, rock-shaft J, lever T, rod B, and treadle B' as above described and set forth.


179,740.

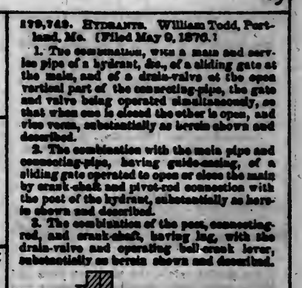
179,740. BILLIARD-TABLE LEVELERS. J. Clark Stanton, Establebrook, assignor of one-half his right to Freeman Hall, Hall Valley, Colo. (Filed Apr. 20, 1876.)

The combination, in a billiard-table leveler, of the base A, provided with spade b b, the capstan-head B, with screw V and recessed upper face, and the circular piece D, fitting said recessed face, and having spade f f, all combined and arranged to operate as described.

179,741. SPINNING AND DOUBLING MACHINERY. John L. Taylor and Robt. Ramsden, Bolton, England. (Filed June 7, 1876.)

The combination of a bobbin, which is carried round by the spindle, with an inverted filer, which is carried round by the yarn as started, the requisite drag being obtained by the friction of a flannel or other washer, as shown and described.


179,741.


179,742.

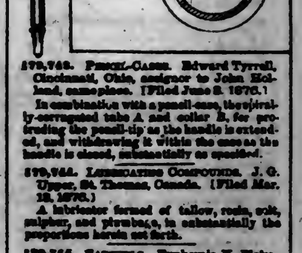
179,742. PENCIL-CASES. Edward Tyrrell, Cincinnati, Ohio, assignor to John Holland, same place. (Filed June 8, 1876.)

In combination with a pencil-case, the spirally-corrugated tube A and collar B, for protecting the pencil-nip as the handle is extended, and withdrawing it within the case as the handle is closed, substantially as specified.

179,743. LUBRICATING COMPOUNDS. J. G. Upper, St. Thomas, Canada. (Filed Mar. 13, 1876.)

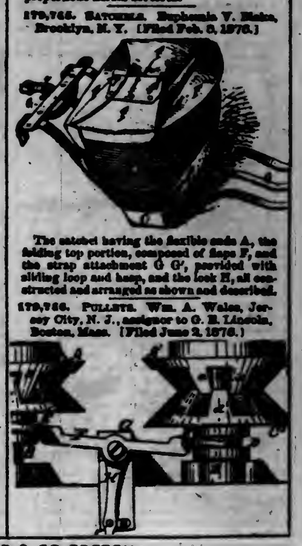
A lubricator formed of tallow, resin, oil, sulphur, and plumbago, in substantially the proportions herein set forth.

179,744. HATCHES. Benjamin V. Hoier, Brooklyn, N. Y. (Filed Feb. 5, 1876.)


179,744.

The catch-bar having the flexible ends A, the folding top portion, composed of flaps F, and the strap attachment G G', provided with sliding loop and hasp, and the lock H, all constructed and arranged as shown and described.

179,745. PULLEYS. Wm. A. Wales, Jersey City, N. J., assignor to O. B. Lincoln, Boston, Mass. (Filed June 2, 1876.)


179,745.

An extensible grooved pulley, for the purpose described, consisting of the fixed slotted and grooved central section A', in combination with the movable slotted and flanged sections C', shaft B, collars D, yokes E, levers F, standard G, lever H, and a slotted index, as set forth.

179,747. WHEELS-AXLES. Wm. H. Ward, Alexandria, Va. [Filed Dec. 16, 1876.]

Brief.—Outside and inside sections twisted in opposite directions, central sections being straight.

A twist-axle formed by the twisted core-rods a, the parallel rods b, and the outer layer of rods c, wound upon the parallel rods in a direction opposite to that of the core-rods, as shown, and for the purpose described.

179,748. INDELIBLE-INK APPARATUS. Wm. A. Wood, Chicago, Ill. [Filed Apr. 10, 1876.]

The package of indelible-ink apparatus consisting of the rectangular bevoled tablet having cavities to receive the writing utensils, and furnished with the removable band, which serves to hold the utensils in place, and also when the device is in use to secure the fabric upon the table, substantially as specified.

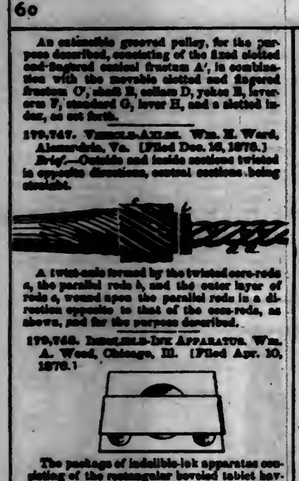
179,749. POCKET-BOOK FASTENINGS. F. F. Wolz, Jersey City Heights, N.J. [Filed Mar. 21, 1876.]



A pocket-book lock consisting of two plates and an intermediate spring, the lower plate having slot a, flange b, and rear stops a' a', while the upper plate is pivoted in front to the lower, has slots d, and bent prongs b' at the rear, all substantially as shown and described.

179,750. SAW-FILING MACHINES. Gershom Wilson, Manistee, Mich. [Filed May 22, 1876.]

Brief.—Frame adjustable at each side of its pivot, to adapt file for the top of saw-teeth; also one side of frame adjustable to set file for bevel of side of teeth.

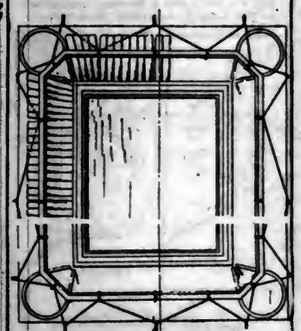


1. The head A, having the bifurcated extension A' A', blading-screw B, adjusting guide-holder C, and guide D, substantially as herein shown and described.

2. The file-rod-holding frame G, connected to head A by the adjustable pivot-bolt J, substantially as herein shown and described.

3. The file-rod-holding frame G, having an adjusting-arm, K, and being coupled to head A by the adjustable pivot J, substantially as herein shown and described.

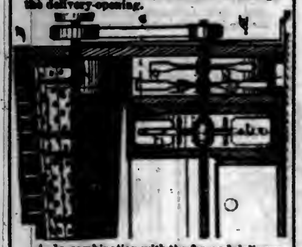
179,751. PICTURE-FRAMES FOR FLORISTS. D. Wilhelmi, New York, N. Y. [Filed June 12, 1876.]



A picture-frame for florists, made of a picture-surrounding base-frame, in connection with a raised retaining-frame for holding the flowers arranged thereon; substantially in the manner and for the purpose set forth.

179,752. COTTON-PICKERS. James Wright and Jacob C. Smith, Jr., Jackson, Tenn. [Filed May 1, 1876.]

Brief.—The cotton is fed into the machine through an opening in one end of the hinged cover, and is carried toward the other end by the spirally-arranged arms on the shaft. The dust and dirt escape through openings in the top and bottom of the case, and are collected in a receptacle in the bottom of the case. A set of beaters arranged on the same shaft with the fan take the cotton from an opening in the end of the case, and force it through the delivery-opening.



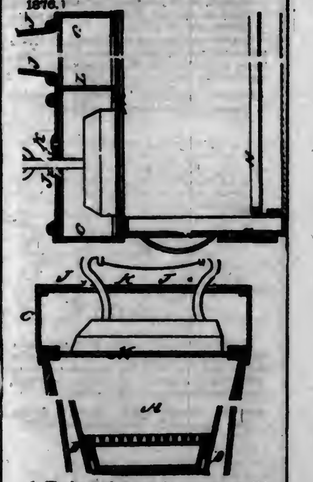
1. In combination with the fan and delivery beaters, the partition c, and the case K, having opening f, as and for the purposes herein set forth.

2. The top B and frame A, hinged as described, in combination with the fan and delivery-beaters, partition c, case K, having opening f, substantially as and for the purpose set forth.

179,753.



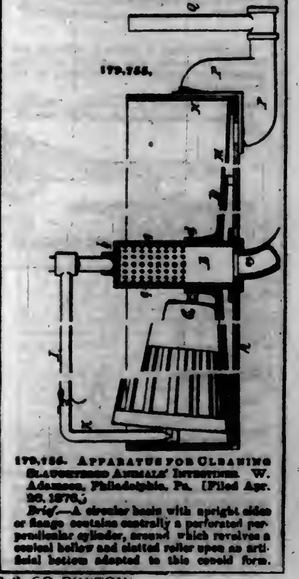
179,754. FLAT-IRON HEATERS. James S. Adams, Olathe, Kans. [Filed Mar 4, 1876.]



1. The bottomless case C, arranged to slide on top of the furnace, and provided with the partition L, in combination with the hinged doors J, having openings e, slotted slides K, having openings in their sides, and ears K', substantially as and for the purposes herein set forth.

2. The furnace A, provided with a sliding top plate, in combination with a bottomless case, C, arranged to slide on top of said furnace, and provided with the partition L, hinged door J, slotted slides K, and ears K', substantially as described.

179,755.



179,756. APPARATUS FOR CLEANING SLAUGHTERED ANIMALS' INTESTINES. W. Adamson, Philadelphia, Pa. [Filed Apr. 26, 1876.]

Brief.—A circular basin with upright sides or flange contains centrally a perforated perpendicular cylinder, around which revolves a conical hollow and slotted roller upon an artificial bottom adapted to this conoid form.

As the roller moves to knead the matters to be washed, spray is forced from the perforated column, making its exit as the periphery through an adjustable outlet.

1. The combination of the tank A, central perforated standard B, tapering roller G, and receiver P.

2. The combination of the tapering roller with the inclined bottom D of the tank and its perforated outlets.

3. The combination of the tank, the receiver P, and adjustable discharge-pipe Q.

179,758. WEATHER-STRIPS. Jos. Arkins, Chicago, Ill. [Filed June 17, 1876.]



In combination with weather strip or strips, a parting-strip grooved on one side in its upper part, and on the other side in its lower part, and provided with a cross-groove opposite the meeting-rail, substantially as and for the purpose set forth.

179,757. LARD-PRESSES AND SAUSAGE-STUFFERS. John G. Baker, Philadelphia, Pa., assignor to Enterprise Manufacturing Company, same place. [Filed June 3, 1876.]



1. The combination of the vessel A of a lard-press or sausage-stuffing machine with a frame carrying the piston F and mechanism for operating the same, the said frame being hinged at one end to one side of the vessel, and having a slotted flange at the other end adapted to a stud, p, on the opposite side of the vessel, all substantially as set forth.

2. The combination of the frame H, having an inclined bearing, g, for the spindle s with the guided rack and piston, and with the said spindle, its scroll K, and handle t, all substantially as described.

179,758. DIE-STOCKS. Charles H. Billings, Hartford, and John B. Price, Thompsonville, Conn. [Filed Mar. 2, 1876.]



1. The hinged levers B B', arranged in a groove in the die-stock, for holding and releasing the dies, substantially in the manner herein described.

2. The hinged levers B B', in combination with the screw G, for securing the dies in the stock, substantially as herein described.

3. The pin F, in combination with the levers B B', for releasing the dies, substantially as herein described.

179,759. WARMING COMPOSITIONS. Ray. Blakiston and Wm. C. Blakiston, Quebec, Canada. [Filed May 2, 1876.]

Brief.—Dissolve the resin and wax together in an ordinary kettle on a stove or furnace, and, when dissolved, add thereto gradually the palm-oil in a crude state.

A compound consisting of bees-wax, resin, and palm-oil, in the proportions above stated, substantially as and for the purpose specified.

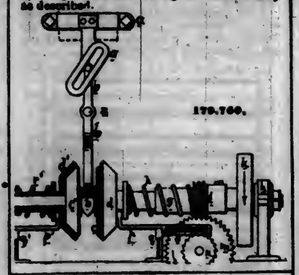
179,760. GOVERNORS. Johann G. Bodemer, Zschopau, Saxony. [Filed June 15, 1876.]

1. The combination of the pulley b, connected to the part d of the friction-clutch, with the portion c of the clutch controlled by the governor and arranged to slide on but turn with the shaft a, by which the valve is operated, substantially in the manner described.

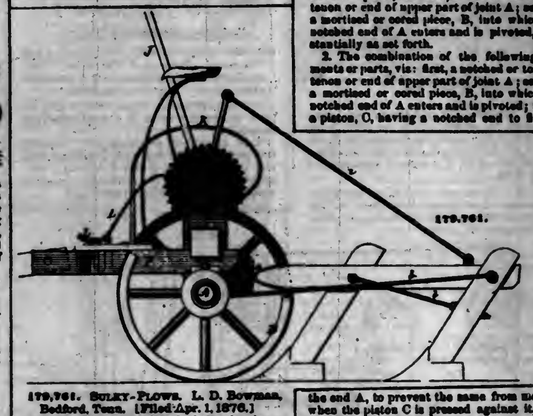
2. The combination of the part d of the friction-clutch and the spring r with the arm p, its spring ratchet-bar s, and the ratchet-wheel n, as and for the purpose set forth.

3. The combination of the pulley b, worm f, wheel m, and ratchet-wheel n, with the spring ratchet-bar s and arm p, connected to the part d of the friction-clutch, all as set forth.

4. The combination of the friction-disk c with the lever h, its pin, and the arm o', controlled by the governor and having an inclined slot, as described.



179,760.



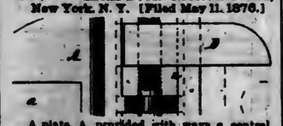
179,761.

179,761. SULKY-PLOWS. L. D. Bowman, Bedford, Tenn. [Filed Apr. 1, 1876.]

Brief.—The forward end of the plow-beam is adjustably attached to the axle-tree. The rear end is connected to the arm of a rock-shaft by a rigid bar. The rock-shaft is provided with a double ratchet and foot-pawl, by means of which the plow can be vertically adjusted and held in place.

In a gang-plow, an apparatus for elevating or depressing the plows, consisting of the combination of the rock-shaft e, hand-lever J, notched rim K, link i, ratchet-wheel H, and pawl L i, substantially as described.

179,762. LATHE-DOGS. Robert B. Brown, New York, N. Y. [Filed May 11, 1876.]



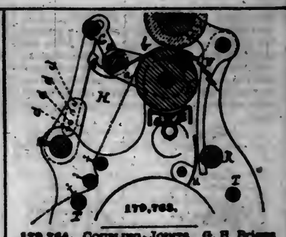
A plate, A, provided with ways a, central lug m, and right and left handed screw O, in combination with jaws D, when said plate A is arranged to be attached to the face-plate outside of the center, and the jaws to project toward the center-pin, and project on each side of the same, substantially in the manner and for the purpose described.

179,763. PLAITING-MACHINES. John H. Brown, New York, N. Y. [Filed Apr. 21, 1876.]

1. In a plaiting-machine, the adjustable eccentric D, for operating the feed mechanism, substantially as described.

2. The combination of the detaching-levers V V, springs U U, and shaft M, substantially as described.

3. The rock-shaft J, passing through the roller X, in combination with the arms e e and blade-shaft H.



179,764.

179,764. COUPLING-JOINTS. G. H. Briggs and Joseph T. Clarkson, Amesbury, Mass. [Filed Feb. 4, 1876.]



1. The combination of the following elements or parts, viz: first, a notched or toothed tenon or end of upper part of joint A; second, a mortised or cored piece, B, into which the notched end of A enters and is pivoted, substantially as set forth.

2. The combination of the following elements or parts, viz: first, a notched or toothed tenon or end of upper part of joint A; second, a mortised or cored piece, B, into which the notched end of A enters and is pivoted; third, a piston, C, having a notched end to fit into the end A, to prevent the same from moving when the piston C is pressed against it, substantially as set forth.

3. The combination of the following elements or parts, viz: first, a disk, D, attached to the lower part of the piston C, and having around its lower face a notched surface, fitting a corresponding notched surface attached to the lower end of the joint B, for the purpose of preventing any lateral motion of the upper end of joint A when being held at a desired angle; second, a coupling or sleeve, F, having a right and left thread upon its inner circumference, and applied to the end of the mortised or cored piece B and the upper end of piece E, by which the whole mechanism is worked, substantially as set forth.

4. The combination of the following elements or parts, viz: first, a notched or toothed tenon or end of upper part of joint A; second, a mortised or cored piece, B, into which the notched end of A enters and is pivoted; third, a piston, C, having a notched or toothed end to fit into the end A, to prevent the same from moving when the piston C is pressed against it; fourth, a disk, D, attached to the lower end of piston C, and having around its lower face a notched surface, fitting a corresponding surface attached to the upper end of piece E, for the purpose of preventing any lateral motion of the upper end of the joint A when being held at a desired angle, substantially as described.

5. A coupling or sleeve, F, having a right and left thread upon its lower circumference, applied to the lower end of the mortised or cored piece B and the upper end of piece E, by which the mechanism is worked and governed, the combination being substantially as herein before set forth and specified.

179,765. WARDROBE-HOOKS. J. R. Bryan, Humboldt, Kans. [Filed Apr. 20, 1876.]

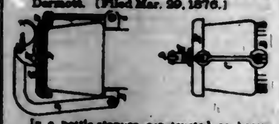
Brief.—The vertical bar or stand is provided with two or more outwardly-extending horizontal arms, the free ends of which curve

downward. Above each of these suspending-bars is pivoted or hinged a clamping-presser-bar formed with upwardly-curved ends, and actuated by a suitable spring; the construction being such that the garment is clamped down to prevent stretching or tearing, but can be readily withdrawn by slight lateral movement without lifting to free it from the usual hook.



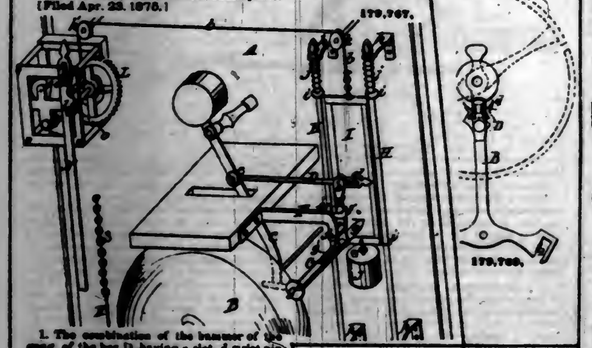
The combination, with the suspending-bar A, of the hinged spring clamp-bar C, the ends of the same being curved, respectively, downward and upward, as shown and described, for the purpose specified.

179,766. BOTTLE-STOPPERS. Augustus S. Bunker and J. J. McDermott, Lawrence, Mass.; said Bunker, assignor to said McDermott. [Filed Mar. 20, 1876.]



In a bottle-stopper, constructed as herein described, the combination of the collar B, the wire link C, the cap E, the rubber disk F, the lugs G, the lever-arm H, (pivoted to the clamp D,) and clamp D, in a manner substantially as set forth.

179,767. REGISTERS FOR ELECTRIC FIRE-ALARMS. Jos. Busha, Pittsburg, Pa., assignor to Margaret H. Busha, same place. [Filed Apr. 23, 1875.]



1. The combination of the hammer of the gong, of the bar D, having a slot, *d*, wrist-pin *e*, lever E, and the pencil with the moving sheet, as described.

2. The combination, with the hammer of a gong, of the bar D, slot *d*, pin *e*, lever E, and the pencil of the sheet I, slots *h*, and winding mechanism L, as set forth.

3. The winding mechanism L, in combination with the bar N, having a clutch, *c*, the shaft L, lever P, having arm *p* and a hammer and the slots *l*, and slot *h* with the bar N, constructed as described, and a gong-hammer.

4. The combination of the winding mechanism L, slot *h*, and plate I with the bar N, constructed as described, and a gong-hammer.

5. The combination, with a gong and hammer, of a bar, D, lever E, and a pencil, the plate I, and a winding mechanism operated automatically by the stroke of the hammer.

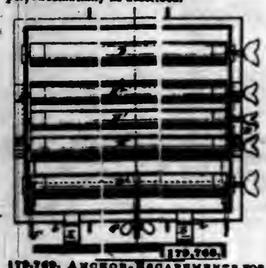
6. The combination, with the bar D, the pivoted lever E, and the pencil which it carries, of the stops *f f'*, whereby to limit the registering stroke of the pencil, as set forth.

179,768. PAPER-HANGING MACHINES. Robt. Dunn, St. John, New Brunswick, Canada. [Filed May 12, 1876.]

1. In combination with the paste box or receptacle, the distributing-roller C, guide-rollers D D', and carrying-rollers H E' E'', arranged between the guide-roller D' and the paper-roll, and journaled upon tenoned screws, for the purpose of keeping the paper stretched over the distributing-roller, substantially as described.

2. In combination with the distributing-guide and carrying-rollers, the adjustable screw-centers, forming the journals of said rollers at one end, for the purpose of regulating the tension of the paper, and permitting the removal of the journals, substantially as described.

3. In combination with the paste-receptacle and its distributing-roller, the separate adjustable trough for containing the roll of paper, substantially as described.



179,769. ANCHOR-ESCAPEMENTS FOR WATCHES. Francois L. Champod, Geneva, Switzerland, assignor to J. J. Badollet, same place. [Filed May 22, 1876.]

1. The combination of the lever B with the pieces K, having arms *d d* and steadying-flanges *f f*.

2. In an anchor-escapement for watches, the combination of the lever B and arms *d d* with the table-roller or disk A, having a horizontal slot, to which the rectangular ruby-pin is attached, substantially as described.

179,767.

179,769.

179,770. SPRING BED-BOTTOMS. William Orick, Hornellsville, N. Y. [Filed Apr. 24, 1876.]



1. A bed-bottom composed of longitudinal bars A A, and cross-slats B B, and the hinged frame C, constructed and arranged substantially as set forth.

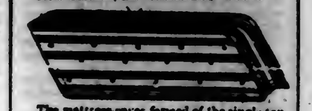
2. The springs D D, having head or enlargement in their upper coil, and connected together, as and for the purpose set forth.

3. The combination of the two frames, with the springs, as constructed and arranged and connected, as and for the purpose specified.

179,771. OATMEAT FOR-UNITING PIECES OF LEATHER. William Dippert, Des Moines, Iowa. [Filed Mar. 11, 1876.]

A cement, composed of English coal, isinglass, linseed-oil, glue, and white lead, adapted to cement together pieces of leather or other similar material, substantially as and for the purpose set forth.

179,772. MATTRESS-TICKS. J. J. Donahoe, New Orleans, La. [Filed Dec 7, 1875.



The mattress-cover formed of the single top and bottom piece and side piece, joined by a continuous cord, as shown and described.

179,773. LIME-FASTENERS. W. D. Doremus, Warrick, N. Y. [Filed June 15, 1876.]



1. The lever B, pivoted as described, and carrying one or more rollers, C, in combination with a sliding bed-plate, for the purpose specified.

2. The bed-plate D, made wedge-shaped in longitudinal section, in combination with lever B and roller C, substantially as described, for the purpose specified.

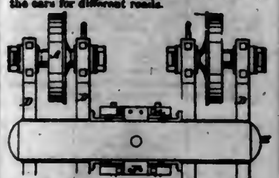
3. The lever B, having the perforated projection *b* at its outer end for the passage of the cords, and so arranged that the operator, by grasping the cords and pulling them to one side, can raise the lever, and thus release the cords from the clamping parts, substantially as described.

4. The roller C, located in the inner end of the lever B, and having grooves for guiding and separating the cords, and preventing their becoming entangled with each other, in combination with the roughened plate D, substantially as described.

5. The bed-plate D, provided with the slotted lugs *d d*, in combination with the bracket A and the lever B, carrying the roller C, substantially as described.

179,774. RAILROAD-CAR TRUCKS. George O. Easton, Warren, Me. [Filed May 24, 1876.]

Brief.—Changeable-gage trucks to adapt the cars for different roads.



1. The combination, with the wheeled frames supported upon short independent axles, of the central cross-timber E, the said frames being adjustable thereon, and connected and braced thereby, substantially as shown and described.

2. The combination, with the flanged plates, the pairs of rigidly-connected wheeled frames D, and the central cross-timber, of a coupling-bar adapted to form an adjustable connection between the frames, substantially as shown and described, for the purpose specified.

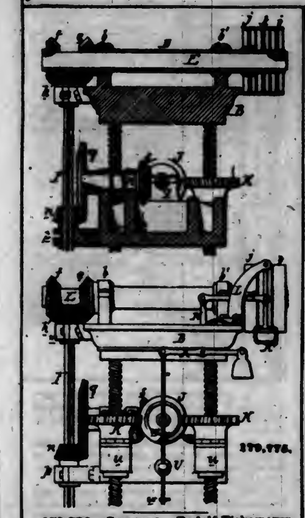
179,775. FENDERS. James Easton, Philadelphia, Pa., assignor of one-half his right to Saml. Easton, Jr., Baltimore, Md. [Filed June 26, 1876.]

Brief.—The movement of the platen causes the belt to be shifted to the loose pulley, when the said platen has reached a given altitude, and also when it has descended to a certain desired point.

1. The combination, in a carpet-press, of a platen, G, with a driving-shaft, F, confined vertically in the entablature of the press, and arranged to slide in and turn a pinion, *a*, which is confined vertically to the platen, and carries, with other gearing, as a medium for operating the said platen, all substantially as set forth.

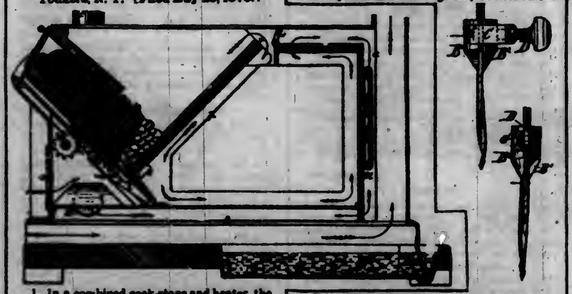
2. The combination of the said shaft F with the entablature E of the press, the tubular shaft D, shaft B, pulleys *f g* C, and bevel-gears *e f h*.

3. The platen of the press, the notched arm or cam V on the entablature, and mechanism by which the platen is caused to operate the said arm or cam, in combination with the spring W and the belt-shifter K, all substantially as set forth.



179,776.

179,776. STOVES. Rudolf Hohmeyer, Yonkers, N. Y. [Filed May 26, 1876.]



1. In a combined cook-stove and heater, the combination of a fire-pot and an oven, with an air-heating chamber, two independent ducts, which communicate with each other, with the fire-pot, and with the smoke-pipe by independent passages, and have dampers for controlling the entrance to said ducts at the fire-pot, and the exit from one of said ducts to the smoke-pipe, substantially as described, whereby the products of combustion may be conducted from the fire-pot to the smoke-pipe by way of one of said ducts, or both of them, as and for the purpose set forth.

2. In a cook-stove, the combination with a fire-pot and an oven, of an exterior and interior duct communicating with each other and with the fire-pot and smoke-pipe, of a water-heating coil or chamber located in the exterior duct, substantially as described, whereby the absorption of heat by the coil will neither affect the fire nor the oven, as set forth.

3. A fire-pot having a V-shaped fire-bed, with a solid back, and having an inclined grate in front, which can be moved to and from the bottom edge of the solid back, substantially as described, and for the purpose specified.

4. A solid grate-plate, provided with grate-bars which extend longitudinally from the plate, in combination with a fire-pot, and arranged to be moved across the lower end of the fire pot, substantially as described, whereby any desired degree of grate-surface may be employed, or the bottom of the fire-pot wholly closed, as set forth.

5. The combination, with a crank arranged to operate a sliding grate-plate, of a dial-plate, substantially as described, for enabling the ready and accurate adjustment of the grate surface, as set forth.

6. The combination, with an inclined sliding-grate, and a crank for operating the same, of a stop-pawl arranged to hold the crank and grate in any desired position, substantially as described.

7. The combination, with the air-heating chamber in a cooking and air-heating stove, of a vapor-pan, provided with a water-feeding aperture, and a recess in the bottom, guarded by a trap-plate which extends downward into the recess to a point below the water portion of the bottom of the pan, substantially as described, whereby the pan is readily supplied with water, and the fumes of the kitchen prevented from entering the air-chamber.

179,777. DAMPERS FOR RETURN TUBULAR BOILERS. Joseph Enright, San Jose, Cal. [Filed May 29, 1876.]

Brief.—When the damper is held in an open position it forms a support for the furnace-door when open.



In a return tubular boiler, the combination of the hinged damper C, the support D, and the latch *e*, whereby the furnace-door is supported in an open position, substantially as described and shown.

179,778. COUNTERSINKERS. Wm. H. Hutton, New York, N. Y. [Filed Apr. 28, 1876.]

Brief.—To avoid side pressure and strain upon the bit, two countersinking-cutters, the outer faces of each forming a portion of a cone, are adjustably attached to bits of various sizes by a suitable holding-strap and set-screw.

The adjustable duplex countersinking device B' B'', having each a groove, in combination with the holding-strap C and compressing device D, all constructed to operate as shown and described, and for the purpose specified.

179,779. BUTTON-GAITERS. P. Fleshor, New York, N. Y. [Filed Mar. 15, 1876.]



As an improved article of manufacture, a button-gaiter, the quarter, the vamp, the leg, and the button-piece of which are made out of one piece, said button-piece being formed from that portion of the material opposite the vamp, so that the finished shoe has but a single seam, situated on the opposite side to that occupied by the button-piece, as shown and described.

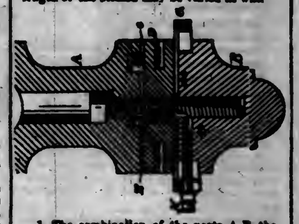
179,780. SPECTACLES' LAP-JOINTS. John A. Fricker, Indianapolis, Ind., assignor of one-half his right to J. A. Duncan. [Filed May 20, 1876.]



As an improved article of manufacture, a lap-joint provided with the flues *a* and grooves B O B', as set forth.

179,781. POWER PUNCHING-PRESSES. E. L. Gaylord, Bridgeport, Conn., assignor to John S. Follansbee, same place. [Filed Feb. 10, 1876.]

Brief.—The two sections of the pitman or punch-stock, held together by a screw-bolt, are separated by a disk fastened to the bolt, by which the latter may be turned, and by a wedge actuated by a screw. Thus, by the co-operation of the screw-bolt and wedge, the length of the pitman may be varied at will.

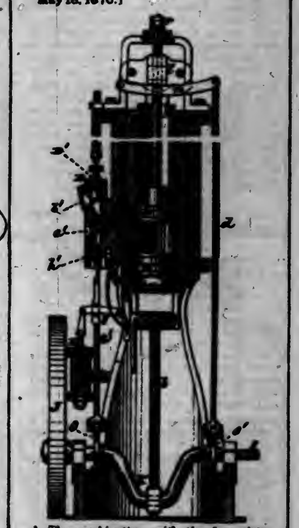


1. The combination of the parts A B, the vertical headed connecting-screw C, and the slotted wedge G, provided with adjusting-screw H, all substantially as and for the purposes herein set forth.

2. The combination of the pitman A B, made in two parts, as described, the screw C, feathered wheel D, the wedge G, with regulating-screw H, and the inclined shoulders *n n* and tenon *m*, formed on the part B of the pitman, all substantially as and for the purposes herein set forth.

3. The combination of the loose pin *h*, inserted in the part A of the pitman, the slotted washer E, and wheel D, as and for the purposes herein set forth.

179,782. GAS-REGULATORS. Friedrich W. Gelen, Kalk, near Cologne, Germany. [Filed May 12, 1876.]



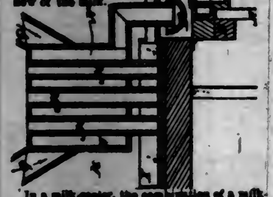
1. The combination, with the free piston L of the engine and its rod *c*, of the clamp or clamps *l*, the lever *m*, controlled by the cam or eccentric O' of the engine, and the

inclined springs s, arranged to bear the charges against the rod c, to hold the pistons L from moving inward, excepting when the charges are specially released for the purpose, but admitting of the free movement of said rod in the outward stroke of said pistons, essentially as described.

3. The combination, with the gas-valve D', of the pump B, the pump-operating lever g, controlled by stops on the valve-rod s', and the cam O, by which motion is communicated to both the valve and the pump, substantially as and for the purposes herein set forth.

179,785. MILK-COOLERS. J. H. Goldhart, Sherman, N. Y. (Filed June 3, 1876.)

Brief.—The milk-receptacle has tubes, which pass through the water-vat. The bottom of the receptacle is lined with cloth to retard the flow of the milk.



In a milk-cooler, the combination of a milk-receptacle, K, provided with tubes M, with water-jacket B, basin I, and lining i i of said basin, substantially as and for the purpose set forth.

179,786. VENTILATING APPARATUS. Francis Greaves, Brooklyn, N. Y. (Filed Sept. 13, 1875.)

Brief.—A chamber is located in the ventilation tube, and is provided with a coil of steam-pipe, by means of which air contained in said chamber is highly and uniformly heated, and then caused to ascend through the top of said chamber. By this means the tube is prevented from becoming hot, while the air contained therein is uniformly warmed.



179,794.

The combination of the outer tube A and inner tube B with the steam-heater or gas or lamp burner, arranged within the same, for the purpose of inducing an upward current of air through the ventilator, substantially as described.

179,788. CORN-PLANTERS. Elmer L. Hall, St. Louis, Mo. (Filed June 10, 1876.)

Brief.—In place of the ordinary seed-slide, movable seed-boxes are employed, connected to the seed-hoppers by flexible tubes, and operated by means of the ordinary hand-lever. The perforated slide is vibrated continuously through the beam to insure the discharge of the seed.



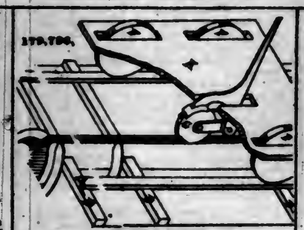
1. The seed-slide F, in combination with sliding seed-box B, constructed to operate substantially as set forth.

2. The seed-slide E, pinion F, crank f, bevel pinion and wheel G H, in combination with movable seed-boxes B B, operated by hand-lever D, with flexible connection to hoppers A, substantially as set forth.

179,789. RAILWAY TURNS AND CARS. A. S. Halliday, San Francisco, Cal. (Filed May 1, 1876.)

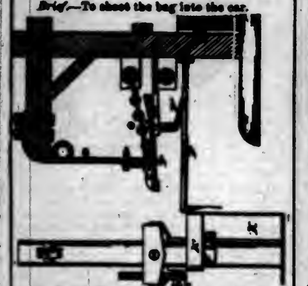
1. In combination with the slotted rope-carrying tube B and plain tracks E E, the car K, provided with plain-faced wheels F F and one or more guiding wheels or plates, G, which are arranged to move in the slot, substantially as and for the purpose described.

2. The combination, with a car, K, of one or more guiding wheels or plates, G, which are also arranged to serve as brakes, substantially as above specified.



179,787. MAIL-BAG DISCHARGERS. Alex. J. Harper, Harpersfield, Ohio. (Filed May 9, 1876.)

Brief.—To shoot the bag into the car.



1. The mail-bag discharger, consisting of the combination, with a mail-bag support, G, of a spring, D, and mechanism for retracting the said spring, and releasing mechanism, whereby a projection from the passing train may release the said spring and impel the mail-bag into the car, substantially as described.

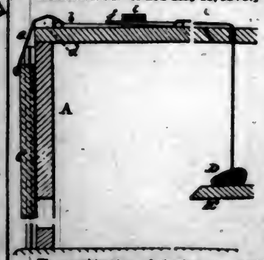
2. The mail-bag discharger, consisting of the combination, with the platform G and spring D, of catch E and trip-rod F, substantially as and for the purposes described.

3. The combination, in a mail-bag discharger, of a mail-bag support and spring for impelling the mail-bag into the car, and mechanism G H for recoiling the said spring, substantially as described.

4. The combination, with the upright adjusted to turn upon its axis, of the support K and removable wedge L, substantially as and for the purpose described.

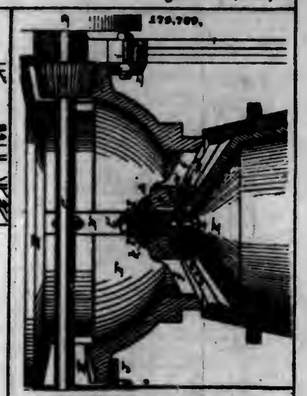
5. The combination of the catch E and trip-rod F with the shooter S and trip J, substantially as and for the purpose described.

179,790. ANIMAL-TRAPS. Jos. J. Hayden, Smithfield, Pa. (Filed May 16, 1876.)



The combination of the box A, provided with the vertically-sliding door C and interior shelf E, the blocks d e, wedges b f, strings a i, and bait D, all arranged substantially as and for the purposes herein set forth.

179,792. CORN-MILLS. Isaac A. Hodges, St. Louis, Mo. (Filed Feb. 6, 1876.)



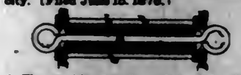
1. The combination of cone K, rotating part of hopper F, toothed pin H, and driving-wheel D, constructed and combined substantially as set forth.

2. The combination, with the cone K and hopper-bottom F, firmly attached together, of the bearing-wheel and blocks I and J, substantially as set forth.

3. The combination, with the cone K and hopper-bottom F, firmly attached together, of the annular bearing m', substantially as set forth.

4. The combination of the fixed part H and rotating part F of the hopper and the agitating-bar F, substantially as set forth.

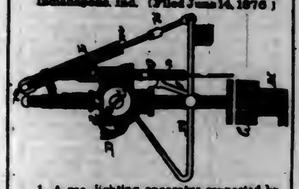
179,793. ORNAMENTAL CHAIN-LINKS. Jos. L. Hosley, North Attleborough, Mass., assignor to Davidson Brothers, New York city. (Filed June 15, 1876.)



1. The combination, in a chain-link, of a central bar, D, which is looped at each end, two or more parallel rings, C, and two or more hooks, B, for holding the rings in position, the whole constructed and connected together substantially as described.

2. The combination, in a chain-link, of a central bar, D, which is looped at each end, two or more parallel rings, C, and two or more hooks, B, and a supporting-piece, F, the whole constructed and connected together substantially as described.

179,791. DEVICES FOR LIGHTING STREET-LAMPS. E. B. Haim and C. S. Clements, Indianapolis, Ind. (Filed June 14, 1876.)



1. A gas-lighting apparatus connected by pipes with compressed-air reservoir provided with inlet and exhaust cocks, whereby the compressed air may be admitted into the pipes and exhausted therefrom, for operating the apparatus, as set forth.

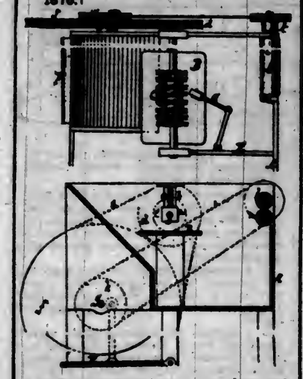
2. The combination of the vertical pipe H, connected with a compressed-air reservoir, the weighted barrel or cylinder G, and rod or pitman connecting the same with the gas-lighting apparatus, as and for the purposes herein set forth.

3. The combination of the barrel G, operated by compressed air, as described, the rod f, dust E, cam D, gas-cock C, and the pawls and ratchets b c and d e, all substantially as and for the purposes herein set forth.

4. The combination of the revolving cam D, pivoted arm K, bent as described, link h, plunger m, and tube l, with flanges o, substantially as and for the purposes herein set forth.

3. The combination, with the tube I, of the side tube N, pellet-chamber O, and plunger P, with spring p, substantially as and for the purposes herein set forth.

179,799. WASHING-MACHINES. Rose Hellmann, New York, N. Y. (Filed June 23, 1876.)



The tool or instrument herein described, consisting of split and screw-pivoted shanks, combined with sliding legs, substantially as and for the purposes set forth.

179,795. PITMAN-CONNECTIONS. Frank S. Hyde, Rutherford Station, Tenn. (Filed May 11, 1876.)

1. In a pitman-connection, the combination of a bearing-plate, B, having cylindrical rabbet c, and with the base-plate A, having corresponding recess a, and a pivot-bolt, C, having a rectangular body, c', a head, d, countersunk into plate B, and a collar, e, substantially as specified.

2. The tubular bearing D, having transverse rib f, rounded upon its under side, and the bolt C, having a rounded bend, d, tangential to the said rib, in combination with the rotating bearing plate or socket B, pivot l, bolt C, and base-plate A, substantially as specified.

3. The oscillating bearing D, having rib f, in combination with bolt C, having a rounded or convex bend tangential to the said rib, substantially as specified.

4. In combination, the rocking bearing D, having enlargements a at each side, and the socket-plate B, having vertical recesses p, adapted to receive the said enlargements, and recessed out at their upper ends to allow them to oscillate, substantially as specified.

5. In combination, the lower section h of a bearing, D, having a raised end wall, E, with wings g and screw-threaded enlargements n, and the upper section b', having edge flanges r, provided with perforated enlargements u, overlapping flanges v, and the screw-bolts o, substantially as specified.

6. The lower section h of a bearing, D, having end wall E, with docking wings q, the screw-threaded vertical enlargements n, and the lower tubular transverse rib f, all cast in one piece, substantially as specified.

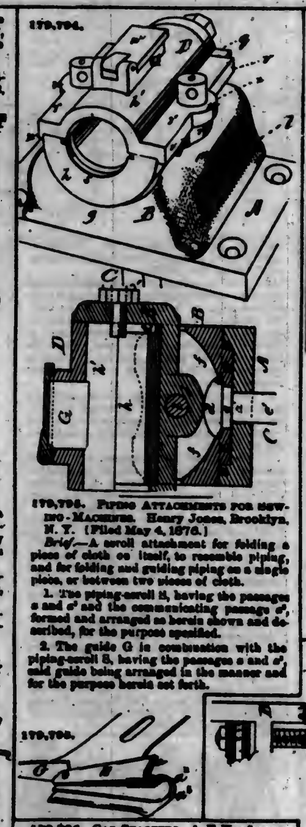
7. The bearing-socket B, having a plane lower face, with rubber c, a concave spherical recess, f, expansive end walls g, and vertical side recesses p, cast in one piece, substantially as specified.

179,796. PIPING ATTACHMENTS FOR SEWING-MACHINES. Henry Jones, Brooklyn, N. Y. (Filed May 4, 1876.)

Brief.—A scroll attachment for folding a piece of cloth on itself, to resemble piping, and for folding and guiding piping on a single piece, or between two pieces of cloth.

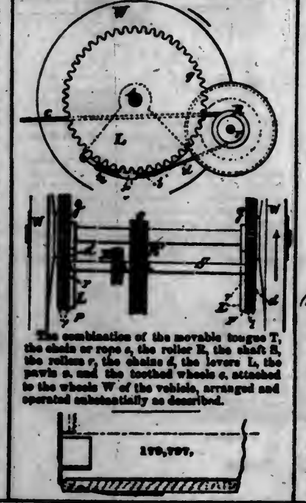
1. The piping-scroll S, having the passages a and a' and the communicating passage a', formed and arranged as herein shown and described, for the purpose specified.

2. The guide G in combination with the piping-scroll S, having the passages a and a', said guide being arranged in the manner and for the purpose herein set forth.



179,797.

179,798. CAR-STARTERS. A. F. Kaufmann, Hamburg, Germany. (Filed Apr. 4, 1876.)



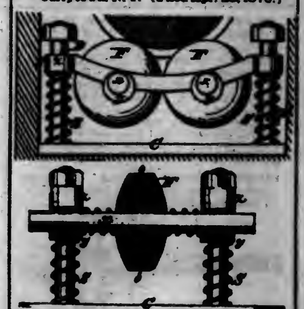
The combination of the movable tongue T, the chain or rope c, the roller R, the shaft S, the rollers r, the chains d, the levers L, the pawls s, and the toothed wheels e, attached to the wheels W of the vehicle, arranged and operated substantially as described.

179,797.

179,797. MUSTACHE-GUARDS. Michael J. A. Keane, New York, N. Y. (Filed Apr. 24, 1876.)

The mustache-protector, formed of a flat plate, adapted to resting upon the edge of the drinking-vessel, having a rim or fingers extending from its edge down outside such vessel, and spring-fingers for clamping against the inside, to hold the protector in place, as set forth.

179,792. CAR-AXLE LUBRICATORS. John C. King, Brooklyn, E. D., assignor of one-half his right to Louisa M. Woodward, Tarrytown, N. Y. (Filed Apr. 28, 1876.)



1. The improved rotary feeders F, one or more, constructed in parts, forming together annular oil-cavities e and radial perforations h, and united by the feeder-shafts S, as herein shown and described, for the purpose specified.

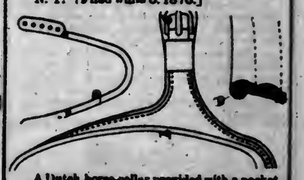
2. The horizontal springs S', in combination with the shoulderless feeder-shafts S, one or more, and their bearings y, arranged and operating as specified, for the purpose set forth.

179,793. SHEET-METAL GAGES. Wm. H. Laidler, Bow Common, England. (Filed Apr. 26, 1876.)

1. The combination, with the body B and the screw F, of the arm A, and reversed finger F, the total width of such arm and finger, measured together externally and transversely, being less than the width of the body B, substantially as and for the purpose specified.

2. The combination of the body B, provided with one or more scales, x^1 x^2, the arm A, finger F, screw F, and sliding blocks C, substantially as herein described.

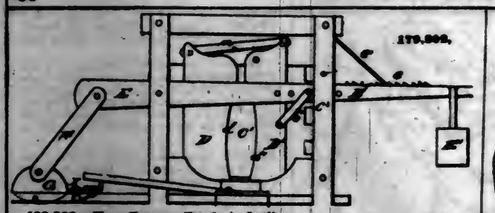
179,800. DUTCH HARNESS-COLLARS. Geo. Lang and Hinrich Seckmann, New York, N. Y. (Filed June 6, 1876.)



A Dutch horse-collar provided with a pocket around its outer edge, formed by a double lining, and adapted to receive the stiffening-rib D, substantially as described.

179,801. LUBRICATING COMPOUNDS. Thos. H. La Rocke, Lockport, N. Y. (Filed June 27, 1876.)

The herein-described lubricating compound, composed of kerosene-oil, crude petroleum, or other mineral or lubricating oil, bees-wax, japan-wax, myrtle-wax, or paraffine, water, carbonate of potassa, carbonate of soda, or other alkaline carbonate, and crude glycerine under the condition named, substantially as and for the purposes specified.



179,802.

179,802. HOE-TRAPS. Frank A. Leslie, Elizabeth, N. J. [Filed May 27, 1876.]

1. In a hog-trap, the jaws D D' hung at opposite ends, connected at their upper ends, and operated automatically by a weighted lever acting thereon, substantially as set forth.

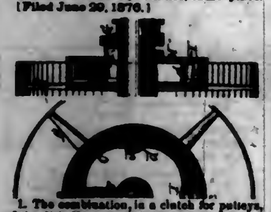
2. The combination, with the jaws D D' arranged as described, of the weighted lever E, connecting bar or bars b', bar F, pivoted notched eccentric G, spring-latch I, hinged platform L, and trigger J, all constructed, substantially as and for the purposes set forth.

179,803. VEHICLE-WHEELS. M. Leacht and Frederick Messinger, Hoboken, N. J. [Filed June 15, 1876.]



A wheel-hub, A, which is provided with holes or sockets d on its circumference for the reception of the inner ends of the spokes F, in combination with rings H H, to prevent lateral movement of the spokes, substantially as described.

179,804. CLOTHES FOR PULLEYS. Benj. G. Martin, New York, N. Y., assignor to himself and Henry Curtiss, same place. [Filed June 29, 1876.]



1. The combination, in a clutch for pulleys, of the disk H, expansible friction-ring C, and wedge B, arranged between the ends of the said ring, the slide F, and collar G, the whole being constructed and adapted to operate substantially as described.

2. The combination of a pin, l, and radial slot s with the expansible friction-ring C and disk H, substantially as and for the purpose described.

3. The combination of angular pins J and corresponding notches d with the expansible friction-ring C and disk H, substantially as and for the purpose described.

4. The combination of the disk H and an expansible friction-ring, C, made in two or more parts, two or more wedges, B, a slide, F, connected by a dovetail, and collar G, the whole constructed and adapted to operate substantially as described.

179,802.

In a carding machine, the combination of the arm D and rolls e g, with the hinged plate h, with its clearing-pads f f, substantially as described, and for the purposes set forth.



179,806.

179,805. MACHINE-SPINDLES. Thomas A. McDonald, Durham, Nova Scotia, Canada. [Filed Apr. 1876.]

Brief.—The endless apron is made of metal strips connected by hooks, and prevented from displacement by being bent up at the ends. The clutch mechanism is forced in contact by springs, and cast by pivoted levers hinged to the side of the frame. The rear end of the box is provided with a gate for graduating the amount to be sewn, and is worked by the pivoted levers.

1. The endless traveling-apron, composed of metal strips or plates connected by hook-joints, and having their ends bent up to prevent displacement and disconnection, as shown and described.

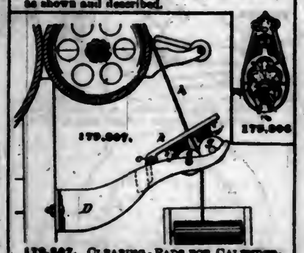
2. The endless apron, composed of jointed plates e, the polygonal rollers C C', intermediate shaft B, axle C', chains I, chain-pulleys C' D G H, the axle-wheels, and clutch mechanism, combined as shown and described.

3. The combination of foot-lever O, levers M M', and connecting devices, with the yielding clutch-plate L, as shown and described.

4. The combination of swinging end board S, its hook f, the swinging levers M M', and devices for operating them, the clutch mechanism, axle, and traveling-apron, as shown and described.

179,806. SHOE-LACE FASTENERS. Jas. W. McDonald, Campbellton, New Brunswick, and Thomas A. McDonald, Durham, Nova Scotia, Canada. [Filed May 6, 1876.]

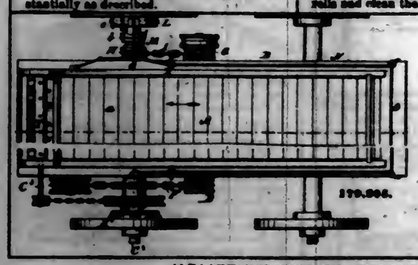
A boot or shoe lace fastener, consisting of plates A B, connected by stud C, and having, respectively, holes a c, b b', the plate B being also provided with projection P, substantially as shown and described.



179,807. 179,806

179,807. CLEARING-PADS FOR CALENDER-ROLLS. John McGrath, Fall River, Mass. [Filed May 9, 1876.]

Brief.—A hinged plate, with an opening through it for the passage of the web, is arranged above and in close proximity to the calender-rolls of a carding-engine—pads of suitable material, and faced with cloth or other substance, being arranged upon the under side of said plate, to bear upon the calender-rolls and clean them.



179,806.

179,808. TAILORS' MEASURES. Robert G. McLellan, Woodstock, Ontario, Canada. [Filed Jan. 31, 1876.]

1. The flexible band A, having studs B, C, D, E, F, and G, and straps H I, and provided with an adjustable transverse bar, J, flexible by clamp-screw and nut K L, having studs M, for use in the manner and for the purpose set forth.

2. A measuring-square having a scale, O, and notches P R S, and provided with a pivoted arm, N, having a slot, Q, and sliding button, for use as and for the purpose described.

3. A drafting-chart having studs correspondingly located thereon to the band A, and a rectangular intersection corresponding to the bar J, and diagonal lines A' B' A' C', and scale D' E' F', and geometrical tables for sleeve-measurements and proportions of bodies, to be used in the manner as and for the purposes set forth.

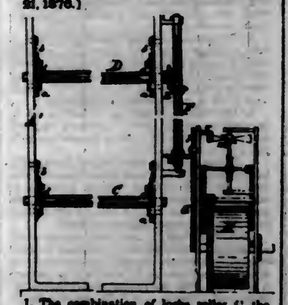
179,809. LAND-COOLERS. Chas. Meister, Baltimore, Md. [Filed Apr. 6, 1876.]



1. The circular tank, having the passage A and A', forming the water-chamber, and provided with the perforated pipe B, the pipe C, and pipe D, constructed as shown, for the purposes described.

2. In the mixing apparatus the mirrors J in combination with the adjustable guards K, constructed as shown, for the purposes set forth.

179,810. REVOLVING MUSIC-STANDS. Max Mendelsohn, New York, N. Y. [Filed Apr. 21, 1876.]

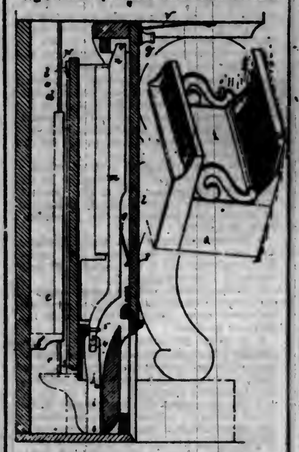


1. The combination of locks roller C, the endless roll or paper band having the music printed thereon, the roller D, gearing K, shaft F, wheel G, and suitable clock-work H, in the manner and for the purpose substantially as described.

2. The two fixed rollers a a and the roller d, attached to a lever, b, hinged to the frame, in combination with the bearings of the shafts C and D, in the manner described, and for the purpose substantially as specified.

179,811. PEDAL-ACTIONS FOR PIANO-FORTES. Walter H. Miller and Francis Fuller, Boston, Mass., assignors to H. F. Miller, same place. [Filed June 3, 1876.]

Brief.—The pedal-frame, being hinged to the case, may, when not desired for use, be folded up toward the front, the lower face then forming the lower portion of the front of the case.



1. The combination, with the frame of an upright piano, of a pivoted pedal key-board, adapted, when closed, to form the piano front, and when opened, to serve as the support for, and to prevent the pedal-keys, substantially as described.

2. The pedal key-board, in combination with the pedal-keys and pedal-levers, all pivoted on, and movable with, the pedal key-board, substantially as described.

3. The pivoted pedal key-board and pedal-keys and pedal-levers, in combination with the secondary panel movable with the pedal key-board, substantially as described.

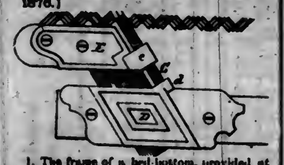
4. The pivoted pedal key-board, pedal-keys and pedal levers, in combination with the lifters or key rods e and keys a, substantially as described.

5. The pivoted pedal key board and pedal-keys and pedal levers, in combination with the shouldered key-rods and guide-board, all substantially as described.

6. The secondary panel, in combination with the pedal key-board, and with devices to control the position of the panel, substantially as described.

7. The combination, with the pivoted pedal key board, of the adjustible knobs or feet, to place the pedal-levers and pedal key board in proper position with relation to the key-rods or lifters, substantially as described.

179,812. BED-BOTTOM FRAMES. William J. Myers, Hartford, Conn. [Filed Mar. 20, 1876.]



1. The frame of a bed-bottom, provided at its corners with inclined slots or mortises, in combination with adjustable supports for the flexible web, said supports being furnished with inclined tenons adapted to be removed in the slots of the frame by screws working in lines parallel with said slots, as and for the purposes herein set forth.

2. The combination of the plate D, with its inclined slot, the plate E, with its tenon F, and the screw G, with the end and side bars of a bed-frame, substantially as herein described.

179,813. SELF-CLEARING IMPLEMENTS. D. J. O'Connor, Paterson, N. J. [Filed Mar. 20, 1876.]

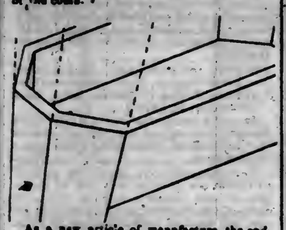
Brief.—In this implement a piled surface is arranged to move within folds, and over the face of silk goods, in the direction of the row of piles, the spaces between which widen outwardly when applied in use.



The improved duster and cleaner for dresses and other articles of wearing-apparel made of silk, the same consisting of a piece of fabric, A, having a pile face and flexible back, and provided with loops, as shown and described.

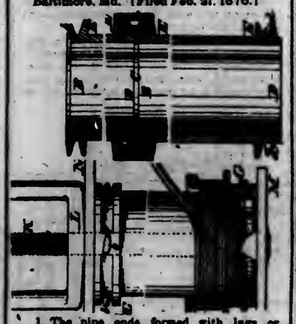
179,814. MANUFACTURING COFFINS. Wm. O'Day, San Francisco, Cal. [Filed Apr. 15, 1876.]

Brief.—The end pieces of wooden coffins are made in long corrugated sections of any desired length, and cut into short lengths, to form either end pieces after being fitted to the body of the coffin.



As a new article of manufacture, the end piece B, prepared in long sections, to be applied to coffins in sections, as set forth.

179,815. PIPE-JOINTS. Andrew O'Neill, Baltimore, Md. [Filed Feb. 21, 1876.]

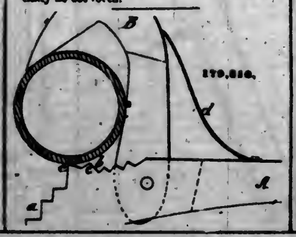


1. The pipe ends formed with lugs or flanges, in combination with the collar, provided with corresponding flanges or lugs, for drawing the two ends of the pipe together, substantially as set forth.

2. The pipe end formed with lugs or flanges for the reception of the collar, and with a bead behind said lugs or flanges, to receive a jack for pressing the pipe ends together, as explained.

3. The combination of the recessed pipe end, the spigot end, and a suitable gasket, C, pressed between them, in the manner explained.

4. The jack K L M N, constructed and employed for pressing coupling-lugs on the ends of cast or common pipes, in manner substantially as set forth.



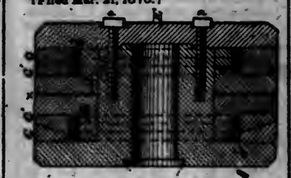
179,815.

179,816. PIPE-TONGS. Joseph Passano, Georgetown, D. C. [Filed Apr. 4, 1876.]

Brief.—The retreating gripping-surface at the end of the jaw is for smaller sizes of pipes, the inner gripping-surfaces for the larger.

The combination, with the short pivoted and hooked jaw B and spring d, of the handled jaw A, having a gripping-surface in line with its lower side, provided with teeth c, and having an angular retreating gripping-surface bearing the teeth c, as and for the purposes set forth.

179,817. PISTON-PACKINGS. Thomas H. Quinn and James B. Quinn, Racine, Wis. [Filed Mar. 21, 1876.]

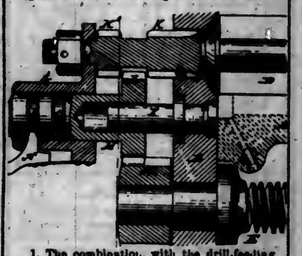


1. The combination of the packing-rings C C, cut with beveling adjoining surfaces, and made in sections, with inclined overlapping joints, the joints of the two rings running in opposite directions, the wire springs b b placed on the interior of the rings, and the dowel-pin i projecting from one ring into a recess in the other, all substantially as and for the purposes herein set forth.

2. The combination of the head A, hub B, with flanges, as described, the L-shaped rings D D, sectional bevried packing-rings G G', with springs b b, and cap E, all substantially as and for the purposes herein set forth.

179,818. FEEDING AND TURNING DEVICES FOR ROCK-DRILLS. George H. Reynolds, New York, N. Y., assignor of one-half his right to C. H. Delamater and G. H. Robinson, same place. [Filed Mar. 16, 1876.]

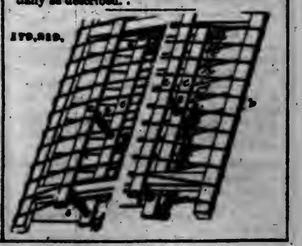
Brief.—The operating machine is capable of rotating or feeding, or both, and can feed forward or backward, and is operated by simply adjustment of, and turning of, the hand-shaft.



1. The combination, with the drill-feeding screw E, and the drill-turning device D, of the intermediately-arranged longitudinally-sliding or adjustable and rotating hand-shaft H, having a fast pinion, L, the duplicated or separated pinions K K' on the drill-turning device D, and the pinion M on the feeding-screw E, substantially as shown and described, and for the purposes herein set forth.

2. The combination of the catch N, with the longitudinally-adjustable and rotating hand-shaft H, having an attached pinion, L, the pinions K K' on the drill-turning device, and the pinion M of the drill-feeding screw, essentially as described.

179,819.



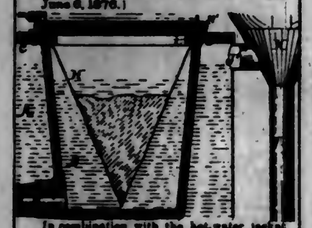
179,919. SPRING BED-BOTTOMS. R. Seeley, Scranton, Pa. [Filed May 29, 1876.]

1. The bed-bottom composed of a frame over which a wire is wound to form an elastic support, as set forth.

2. The bed-bottom composed of a frame over which a wire is wound to form an elastic bottom, in combination with trusses, by which the wires are separated and put under tension, as set forth.

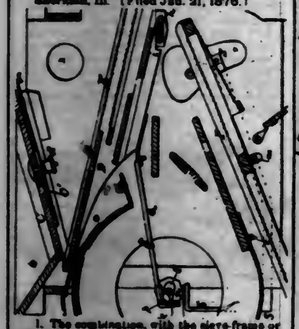
3. The described bed-bottom, composed of a frame, wires wound thereon, truss composed of the upper and lower bars, pins, and springs, all constructed and arranged as set forth.

179,920. APPARATUS FOR MAKING COFFEE. Alfred Salle, New York, N. Y., administrator of Hugh Salle, deceased. [Filed June 6, 1876.]



In combination with the hot-water jacket A and the coffee-pot B within the jacket, the vertical steam-tube J, connected both to the upper and to the lower parts of the jacket, and having a funnel-shaped mouth, K, for the reception of a tea-pot, substantially as described.

179,921. GRAIN-SEPARATORS. R. F. Shinn, Sheridan, Ill. [Filed Jan. 21, 1876.]

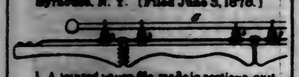


1. The combination, with the sieve-frame or shoe D, of the connecting-arms G, elliptic cams a on the fan-shaft A, and the spring I, all constructed substantially as and for the purposes herein set forth.

2. The adjustable bumpers h, in combination with the sieve-frame or shoe D, having shoulders i, and the spring I, substantially as and for the purposes herein set forth.

3. The combination of the discharging screen F, having adjustable fulcrums V, levers S, and polygonal cams a, substantially as and for the purposes herein set forth.

179,922. HEDGE-ARM-FILES. F. E. Sloan, Syracuse, N. Y. [Filed June 3, 1876.]



1. A jointed paper-file, made in sections, united by suitable hinges or joints of flexibility, constructed and arranged substantially as and for the purposes herein described.

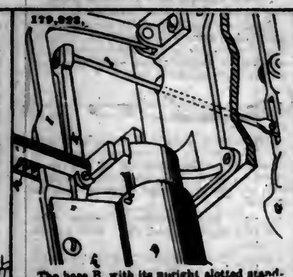
2. In combination with a jointed paper-file, as described, the ring-screws c, as and for the purposes specified.

3. The rod G, in combination with the jointed paper-file, substantially as and for the purposes herein set forth.

179,923. SOLDERING-CLAMPS. Ferdinand C. Smith and Charles E. Smith, Portland, Oreg. [Filed May 10, 1876.]

Brief.—The former is removable. The clamping blocks to hold down by a spiral spring

179,923.



The base B, with its upright slotted standard C, in combination with the detachable former D and hinged arm I, with its clamping blade or bit F, operated by the treadle O, connecting-rod l, and lever K, and the spiral spring h, all combined and arranged to operate substantially as and for the purposes described.

179,924. DOOR-SPRINGS. John B. Starkweather, Winona, Minn., assignor to himself and William H. Stevens, same place. [Filed June 15, 1876.]

Brief.—A crotched lever-arm is used with a straight torsion-spring over the door, instead of with the usual ribbon spring coiled upon a rotating shaft.

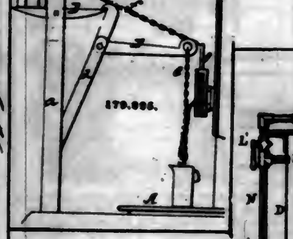
The torsion-spring A, having the head A' on its free end, provided with pins or projections a'', and combined with rod C, having crotched end or arms d, and adapted to be applied and used, all substantially as set forth.

179,925. AUTOMATIC ATTACHMENTS FOR MOLASSES-GATES. James M. Ulah, Pfout's Valley, Pa. [Filed May 10, 1876.]

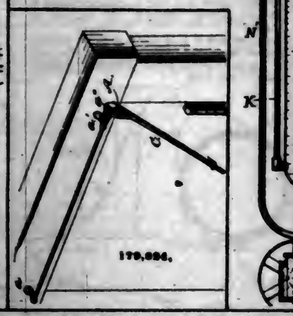
Brief.—A device for closing automatically the faucet of a cask when a desired amount of liquid has been drawn.

The scales A, having the upright a, provided with the tilting bar B and trip-lever D, in combination with the weight C, connected to the gate g, and lodged upon the tilting bar, all arranged to act conjointly, substantially as set forth.

179,926.



179,924.



179,926. APPARATUS FOR THE MANUFACTURE OF GAS FROM PETROLEUM, &c. Benj. Wallis, Baltimore, Md. [Filed Oct. 26, 1875.]

Brief.—The tubular steam-generator is placed concentrically within the oil-gas generator. A coil of pipe within the oil surrounds the steam boiler and communicates with it. Oil vapor and steam are conveyed together in a pipe to be burned, and supply a burner under the generator. A pump supplies water and oil to the steam and gas generators. A condenser is connected to the steam-coil and to the pump for condensing waste-steam.

1. A steam-generator, having its heating capacity increased by exterior coiled tubing F, which extends below the surface of the hydrocarbon or other liquid in the surrounding gas-generator, in combination with said gas-generator E, substantially as and for the purpose specified.

2. The coiled tubing F, through which a circulation is induced by attachment to the steam-pipe of the pump Q or condenser G, combined with a central steam-generator, and an inclosing gas-generator or still, E, substantially as specified.

3. In combination with a steam-generator and a gas-generator, the pipes L N N', burner N'', furaminous pipe O, and cocks L' M', substantially as herein specified.

4. In combination with the gas-generator E, the internal steam-generator C, having a conical steam space, substantially as and for the purposes specified.

5. A steam-generator, having a furnace, heating-tubes, and chimney or pipe for the escape of the products of combustion, combined with a surrounding gas-generator, substantially as herein specified.

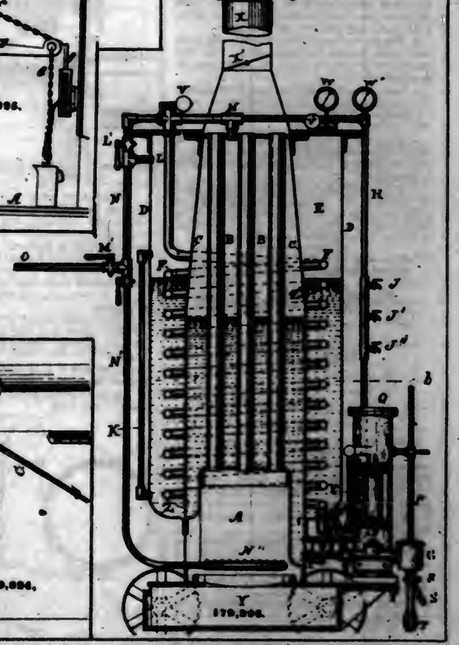
6. The condenser G, gas-generator E, and coiled tubing F, combined in a machine for the manufacture of gas from hydrocarbons, substantially as specified.

7. The condenser G, steam-pump Q, coiled tubing F, and gas-generator E, combined substantially as and for the purpose described.

8. In combination with a steam-generator and a gas-generator, the feed-pump Q, condenser G, two-way cocks R and R', pipes S S' and T T', substantially as herein described.

9. In combination with a steam-generator, and a gas-generator, the residuum-cock U and steam-connection between the generators, whereby the gas generator may be cleaned by steam-pressure, as specified.

179,926.



179,927. ROSENMOS-GALEN. Fredk. Walter, Philadelphia, Pa. [Filed Jan. 10, 1876.]

Brief.—The overlapping portion of the toe-calk protects the adjustable parts from injury, and the recessed and jointed parts firmly secure the calk in place. By removing the calks, the horse may be rough or smooth shod.



1. The combination of the body A of the shoe and its recess a with the detachable toe-plate B and its slotted projection b, and the toe-calk D and its tongue f, adapted to and secured within the slotted projection b, all substantially as set forth.

2. The combination of the shoe and its slotted and recessed plate B with the toe-calk D, its tongue f, and projection i, as set forth.

179,928. ROOFING MATERIAL. Cyrus M. Warren, Brookline, Mass. [Filed Jan. 11, 1876.]

1. A roofing material composed of native bitumen or asphaltum and the heavy oil or residuum of petroleum or coaltar mixed together, substantially as specified.

2. A roofing material made of paper or felt saturated with a non-volatile oil, such as the heavy oil or the residuum of petroleum or coaltar, or any mixture of the same, substantially as described.

179,929. ROOFING MATERIAL. Cyrus M. Warren, Brookline, Mass. [Filed Jan. 11, 1876.]

1. A roofing material composed of resin (or pitch containing resin) and the heavy oil or residuum of petroleum or coaltar, mixed together, substantially as specified.

2. A roofing material made of paper or felt saturated or coated, or both, with a compound made of resin (or pitch containing resin) and the heavy oil or residuum of petroleum or coaltar, substantially as described.

179,930. ROOFING MATERIAL. Cyrus M. Warren, Brookline, Mass. [Filed Dec. 9th, 1876.]

A roofing material composed of felt or paper saturated with tar, and provided with a surface-coating of non-proof pitch or asphaltum, substantially as described.

179,931. CONCRETE PAVEMENTS. Cyrus M. Warren, Brookline, Mass. [Filed Jan. 11, 1876.]

A pavement composed of a foundation of concrete containing coal-tar or coal-tar pitch and a protecting layer of native bitumen, or of a cement made of native bitumen or resin, and of the heavy oil or residuum of petroleum or coaltar, or of a concrete containing one or more of these ingredients, substantially as set forth.

179,932. BOOT-GUARD. Philipp Weigand and Philip Schuck, West Chester, N. Y. [Filed May 10, 1876.]

Brief.—The main pair of runners formed in one in either direction, and having a third reversible runner provided with a steering-wheel and rocker-brace.

1. The combination, with the rest A and main runners B B, having both of their ends turned up or bowed, of the reversible guide-runner C, with its attached steering-wheel E, substantially as specified.

2. The reversible guide-runner C, with its frame D and attached steering-wheel E, arranged in relation with the rest A, in combination with the chamber trunk-bearing G, on which the guide-runner frame rests, substantially as described.

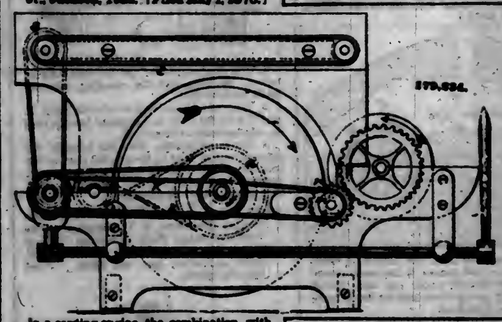
3. The combination of the rocker-brake H, and its operating-lever and spring-stop I, c, A, and i, with the steering-wheel E, the guide-runner C, and the rest A, substantially as specified.

179,933. GUARD-HOOPS. A. D. Westbrook, Lambertville, N. J. [Filed June 6, 1876.]



The guide-pawls resting upon A, as arranged in relation to a chain-hoop and its fellower, substantially as and for the purposes herein shown and described.

179,934. ATTACHMENTS FOR CARRIAGE-SEATS. James Wright and Jacob C. Babbit, Jr., Jacksonville, Texas. [Filed May 1, 1876.]

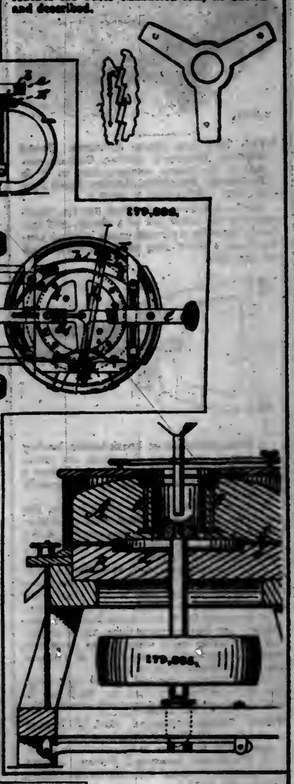


In a carding-engine, the combination, with the system of lashing and gearing herein described, of a single clutch-pulley and rest-plank, with arm and lever, whereby the various parts of the machine may be started and stopped simultaneously by simply shifting the lever without stopping or interfering with the motion of the main cylinder, substantially as and for the purposes set forth.

179,935. MILLSTONES. Chr. Motley, Rochester, N. Y., assignee of one-half his right to Jacob B. Moseley, same place. [Filed Jan. 17, 1876.]

The combination, with the runner A B, provided with the cavity c and exterior rim d, of the metallic bed plate d, set into the bottom of the cavity of the lower stone, for the purpose of preventing attrition upon the grain till it reaches the outer channeled rim, as shown and described.

179,936.



179,934.

REISSUES.

9,217. LUBRICANT PACKINGS FOR AXLE-BOXES. James B. Boone, Attleboro, Mass. Patent No. 176,033, dated Mar. 24, 1876. [Filed June 6, 1876.]

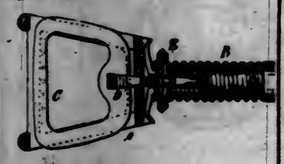
As an article of manufacture, fiber bundled in packages, having the ends of the fibers exposed, the said packages or bundles, forming a lubricant packing for axle-boxes, substantially as hereinbefore set forth.



7,817.

7,818. MOP AND BRUSH HOLDER. David Ellwood, Montreal, Quebec, Canada, assignor, by mesne assignments, to E. & F. Curtis, Petersboro, N.Y., dated July 4, 1871. [Filed Feb. 7, 1870.]

Brief.—A hollow ophthalmic handle, terminating in the lower jaw of a clamp, and ophthalmic shield for a pivoted upper jaw and auxiliary jaw, a screw-ring on the exterior binding said jaws.



1. The mop-fabric or brush holder, having the jaw A and shank B cast in one piece, and the jaw C upon a lever-arm that enters a slot or mortise in the shank B, substantially as set forth.

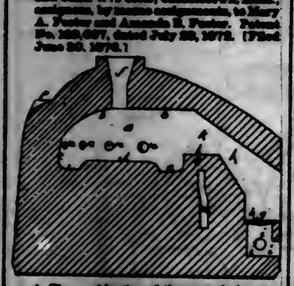
2. In a mop-fabric and brush holder, the fixed jaw A, cast in one piece with the screw-shank B, a lever swinging in a mortise in the shank B, and a ring-nut to move said lever, substantially as set forth.

3. In a mop-fabric and brush holder, the jaw A, made in an open frame, for receiving the mop-fabric, and cast in one piece with the screw-shank B, substantially as set forth.

4. In a mop-fabric and brush holder, a stationary jaw having projections, and a swinging jaw having teeth, whereby the parts are adapted to grasping a mop-fabric or a brush-stock, substantially as set forth.

5. The lever D, ring-nut E, and clamping-jaw C, in combination with the fixed jaw A and screw-socket B, substantially as set forth.

7,819. GLASS-FURNACE. Geo. W. Foster and Chas. W. Foster, Charlestown, Mass., assignors, by mesne assignments, to Mary A. Foster and Amanda M. Foster. Patent No. 179,697, dated July 25, 1872. [Filed June 20, 1876.]



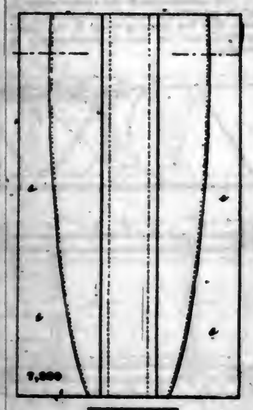
1. The combination of the tunnel *d*, partition *i*, tank *a*, and tunnel *f*, the said tunnel being placed directly under the said tunnel, substantially as specified, and for the purpose hereinbefore described.

2. The combination of the cooling-space *m*, partition *i*, tank *a*, and fire-pot *p*, substantially as and for the purpose above specified.

7,820. SEWER-BRANCH. Stephen Loring, Boston, Mass., assignor to himself and Solomon Sibley. Patent No. 159,944, dated Feb. 23, 1874. [Filed June 23, 1876.]

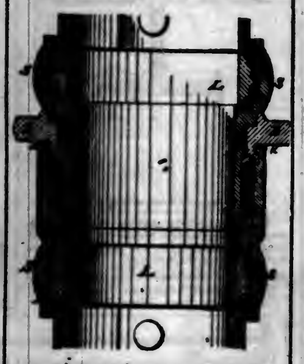
1. A shield-shaped plated shirt-bosom, the side plates of which are formed by folding the cloth in such manner that the outer edge of the fold of each of said plates shall run from top to bottom in a line inclined toward the central plait, substantially as set forth.

2. A shield-shaped plated shirt-bosom, the side plates of which are, respectively, folded on their outer edge in a line inclined toward the central plait, and are provided with a margin, *a*, for the purposes set forth.



7,820.

7,821. HOSE-COUPLING. Silas H. Loring, Lawrence, Mass. Patent No. 56,250, dated Oct. 16, 1866. [Filed Feb. 2, 1876.]



1. The combination of the int-rnal ring or tube I, the hose, and the coupling, substantially as described.

2. The combination of the interior parts M and O with the hose and internal tube or ring I, substantially as described.

3. The combination, with the hose, of the internal ring or tube I, the jointed part of the coupling B, provided with the projecting rod, metal to unite it to the other part of the coupling, substantially as described.

7,822. RAIL-ROAD FOR FARM. Jonathan Walton, Brooklyn, N. Y., assignor to the Double Pointed Tack Company of New York. Patent No. 77,926, dated May 12, 1868; antedated Apr. 30, 1868. [Filed June 14, 1876.]



1. As a new article of manufacture, a hollow rail for paths, made of wire bent to form a loop, and having two prongs, that are clinched substantially as set forth.

2. The combination of the staple with the hollow rail or A, substantially as set forth.

3. A hollow rail made of wire, and having an eye for the bail between the two prongs, substantially as set forth.

7,823. DENTIST'S CHAIR. Otis G. White, Eggleston, Mass., assignor to S. S. White, Philadelphia, Pa. Patent No. 180,088, dated July 30, 1872. [Filed Mar. 25, 1876.]





1. The combination, substantially as hereinbefore set forth, of the base, the internally-threaded sanitary tube, and the step or plate upon which it is mounted.

2. The combination, substantially as hereinbefore set forth, of the base, the internally-threaded tube, and the lifting screw or spindle, whereby the screw is protected through out its entire length.

3. The combination, substantially as hereinbefore set forth, of the internally-threaded tube, the screw-shaft rotating therein, and the sliding sleeve encompassing both the tube and shaft.

4. The combination, substantially as hereinbefore set forth, of the base, the internally-threaded tube, the sliding sleeve upon which the chair is mounted, enveloping the tube, and the supporting-collar in the base through which the sleeve passes to steady it.

5. The combination, substantially as hereinbefore set forth, of the base, the internally-threaded tube, the sliding sleeve inclosing the tube, and a clamp which locks them in position.

6. The combination, substantially as hereinbefore set forth, of the sliding sleeve, its inclined screw-spindle, and the clamp-ring, screw, and arm resting upon the sliding sleeve.

7. The combination, substantially as hereinbefore set forth, of the sliding chair-frame, the cant-plunger thereon, and its adjusting-bar and stop, whereby the cant may be adjusted independently of the chair-frame.

8. The combination, substantially as hereinbefore set forth, of the chair-frame, its pendent arms, the adjustable foot-rest frame, moving in guides in said pendent arms, the adjusting-screws, and its back-connections.

9. The dentist-chair hereinbefore described, consisting of the combination of a base, a central tube, an elevating-screw, an enveloping sliding sleeve, a sliding cant-frame, and an adjustable foot-rest.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

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DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

JOSEPH RECKENDORFER, APPELLANT, *vs.* EBERHARD FABER.

[*Appeal from the Circuit Court of the United States for the Southern District of New York.*]

No one is entitled to a patent unless (1) he has discovered or invented an art, machine, or manufacture, (2) which art, machine, or manufacture is new, (3) which is also useful, (4) which is not known or patented. It is not sufficient that it is alleged or supposed, or even adjudged by some officer to possess these requisites. It must in fact possess them, and that it does possess them the claimant must be prepared to establish, in the mode in which all other claims are established, to wit, before the judicial tribunals of the country.

The decision of the Commissioner of Patents is not conclusive as to the extent of the utility, importance, or novelty of the subject-matter of invention.

When a patent is sought to be enforced in a court of law, all of the questions decided by the Commissioner of Patents are open to judicial examination.

The mere substitution of one well-known material for another is not patentable.

The combination of a piece of rubber with a lead-pencil is not a patentable invention.

A combination to be patentable must produce a different force, effect, or result in the combined forces or processes from that given by their separate parts.

PATENT ERASER PENCILS.

Mr. Justice HUNT delivered the opinion of the court.

This is an appeal from a decree of the United States Circuit Court for the Southern District of New York, dismissing the bill of complaint which was filed to restrain the infringement by the respondent of certain letters patent, and for an accounting and damages.

These patents relate to the manufacture of combined pencils and erasers.

1. The first was granted to Hymen L. Lipman, March 30, 1858, and was extended for a further term of seven years, from the 30th of March, 1872.

The material parts of the specification are as follows:

I make a lead-pencil in the usual manner, reserving about one-fourth of the length, in which I make a groove of suitable size, A, and insert in this groove a piece of prepared india-rubber (or other erasive substance) secured to said pencil by being glued at one edge; the pencil is then finished in the usual manner, so that on cutting one end thereof you have the lead B, and on cutting one end you expose a small piece of india-rubber, C, ready for use, and particularly valuable for removing or erasing lines, figures, &c., and not subject to be soiled, or mislaid on the table or desk.

In making mathematical, architectural, and many other kinds of drawings, in which the lines are very near each other, the eraser is particularly useful, as it may be sharpened to a point to erase any marks between the lines; and should the point of the rubber become soiled or inoperative from any cause, such cause is easily removed by a renewed sharpening, as in the ordinary lead-pencil.

The claim is as follows:

I do not claim the use of a lead-pencil with a piece of india-rubber or other erasing material, attached at one end for the purpose of erasing marks; but what I do claim as my invention, and desire to secure by letters patent, is the combination of the lead and india-rubber, or other erasing substance, in the holder of a drawing-pencil, the whole being constructed and arranged substantially in the manner and for the purposes set forth.

The drawings forming part of the specification exhibit a continuous sheath of uniform size, with interior grooves of different sizes, the eraser-groove being larger than the lead-groove.

2. The second patent is for an improvement upon the invention of Lipman, and was granted to Joseph Reckendorfer, the complainant, the 4th of November, 1862, and reissued on the 1st of March, 1872.

The material parts of the specification are as follows:

My invention is intended to provide a means whereby articles of a greater size or diameter than the lead may be securely held in the head of a pencil of otherwise ordinary or suitable construction without making the body of the pencil cumbrous or inconvenient. To this end my invention consists:

First, of a pencil composed of a wooden sheath and lead core, having one end of the sheath enlarged and recessed to constitute a receptacle for an eraser or other similar article, as hereinafter stated.

Second, of a pencil the wooden case of which gradually tapers from the enlarged and recessed head toward its opposite end for the whole or a portion of the length, as hereinafter set forth.

The receptacle for the eraser or other article is formed in the head, without too much weakening the wood, owing to the form of the sheath, while for the same reason the end of the pencil which contains the ordinary lead is not cumbrous nor clumsy, but can be readily held between the fingers, just as an ordinary pencil is.

Having thus described his invention, Reckendorfer claims—

1. A pencil composed of a wooden sheath and lead-core, having one end of the sheath enlarged and recessed to constitute a receptacle for an eraser, or other similar article, as shown and set forth.

2. A pencil the wooden case of which gradually tapers from its enlarged and recessed head toward its opposite end, for the whole or a portion of its length, substantially as shown and described.

HOW THE PATENTABILITY OF AN INVENTION IS DETERMINED.

The points we propose here to discuss are two:

First. Is the article patented by the plaintiff and his assignor, and for the infringement of which patents this action is brought, a patentable invention within the laws of the United States?

Second. Is it within the power of the courts to examine and determine this question, or is the decision of the Commissioner of Patents, when, by issuing a patent, he decides that the invention is patentable, final, and conclusive on the point?

The plaintiff contends that the decision of the Commissioner is conclusive upon the point of invention, and that the question, as distinct from that of want of novelty, is one not open to the judgment of the court. In the natural order of things this question is the first one to be examined. For if it shall appear that the contention of the plaintiff is correct in this respect, the question in regard to the patentability of the instrument now before us will not arise. The point will have been decided for us, and by a controlling authority.

The "act to revise, consolidate, and amend the statutes relating to patents and copyrights," passed July 4, 1836, (5 U. S. Stats., 118,) is the act regulating this case.

By the 6th section thereof it is enacted—

That any person having invented or devised any new and useful art, machine, manufacture, or composition of matter not known or used by others before his invention or discovery thereof, and not at the time of his application for a patent in public use, or on sale with his consent or allowance as the inventor or discoverer, and shall desire to obtain an exclusive property therein, may make application in writing to the Commissioner expressing such desire, and the Commissioner, on due proceedings had, may grant a patent therefor. * * He shall make oath that he believes himself to be the first inventor or discoverer thereof, and that he does not know or believe that the same has ever before been used.

Looking at this section alone it may be safely said no one is entitled to a patent unless (1) he has discovered or invented an art, machine, or manufacture, (2) which art, machine, or manufacture is new, (3) which is also useful, (4) which is not known or patented as therein mentioned. It is not sufficient that it is alleged, or supposed, or even adjudged by some officer to possess these requisites. It must in fact possess them, and that it does possess them the claimant must be prepared to establish, in the mode in which all other claims are established, to wit, before the judicial tribunals of the country.

The 7th section of the act (p. 120) provides that on the filing of any such application, &c., and the payment of the duty required by law, the Commissioner shall make, or cause to be made, an examination of the alleged new invention or discovery, and if on such an examination it shall not appear to the Commissioner that the same has been invented or discovered by any other person in this country prior to the alleged discovery, or patented or described in any foreign publication, or been in public use or on sale with the consent of the applicant, and if he shall be of the opinion that the same is sufficiently useful and important, the Commissioner shall issue a patent therefor.

Before the Commissioner is authorized to issue a patent, it must appear to him that the claimant is justly entitled to a patent—that is, that his art, machine, or manufacture possesses all the qualities before mentioned. The Commissioner must also be satisfied that if it possesses these qualities it is sufficiently useful and sufficiently important to justify him in investing it with the *prima facie* respect arising from the governmental approval. These restrictions are wise and prudent, are intended to secure at least a probable advantage to those who deal with the favorites of the government, for they may justly be so termed who receive the exclusive right of making or using, or vending, particular arts or improvements.

THE JUDGMENT OF THE COMMISSIONER OF PATENTS NOT CONCLUSIVE.

It is nowhere declared in the statute that the decision of the Commissioner as to the extent of the utility or importance of the improvement shall be conclusive upon that point, but in the section just quoted it is placed in the same category with the want of novelty and the other requisites of the statute, and it is expressly conceded by the appellant that the judgment of the Commissioner on the question of novelty is not conclusive, but that that point is open to examination. On that subject the practice of the courts is uniform in holding it to be subject to inquiry.

The plaintiff's counsel, in his brief, puts his argument in this form: "The Commissioner, then, passes on these questions:

"1. Did the applicant himself make the invention? This question is settled by his oath." This is true to the extent and for the purpose of issuing a patent, and to this extent only. When the patentee seeks to enforce his patent, he is liable to be defeated by proof that he did not make the invention. The judgment of the Commissioner does not protect him against the effect of such evidence.

"2. The counsel says: Was the invention new? This question is solved by the examination required by the act." To the same extent only. The defence of want of novelty is set up every day in the courts, and is determined by the court or the jury as a question of fact upon the evidence adduced, and not upon the certificate of the Commissioner.

"3. The counsel says again: Is the invention sufficiently useful and important? This the Commissioner settles for himself by the use of his own judgment. It is a question of official judgment." These questions are all questions of official judgment, and are all settled by the judgment of the Commissioner. His judgment goes to the same extent upon each question. He determines and decides for the purpose of issuing or refusing a patent. When the patent is sought to be inforced, the questions, and each of them, are open to judicial examination. We see many reasons why all the questions of invention, novelty, and prior use, should be open to examination in each case, and such we believe to be the course of the authorities and practice of the courts.

A reference to some of the most recent cases, and to those decided by this court, will be sufficient. A review of all the cases in this court, and the various circuit courts where this question has been alluded to, will not be profitable.

THE MERE SUBSTITUTION OF ONE WELL-KNOWN MATERIAL FOR ANOTHER IS NOT PATENTABLE.

In *Hotchkiss* vs. *Greenwood*, (11 How., 248,) a patent has been granted for "a new and useful improvement in making door and other knobs, of all kinds of clay used in pottery and of porcelain," by having the cavity in which the screw or shank is inserted, by which they are fastened, largest at the bottom of its depth in form of a dovetail, and a screw formed therein by pouring in metal in a fused state. The precise question argued in this court and decided, was of the patentability of this invention, and it was held not to be patentable. The only thing claimed as new was the substitution of a knob made of clay or porcelain for one made of wood. This, it was said, might be cheaper or better, but it was not the subject of a patent. The counsel for the defendants, in their points, there say: "The court now is called upon to decide whether this patent can be sustained for applying a well-known material to a use to which it had not before been applied, without any new mode of using the material, or any new mode of manufacturing the article sought to be covered by the patent." Mr. Justice Nelson delivered the opinion of the court to the effect already stated. Mr. Justice Woodbury dissented, not upon the question of the power of the court to pass upon the validity of the patent, but rather in regard to the manner in which the facts were submitted to the jury.

In *Stimpson* vs. *Hardman*, (10 Wall., 117,) it was decided that the engraving or stamping of the figure upon the surface of the roller for pebbling leather by pressure, where the use previously had been of a smooth roller, required no invention, that it was a change involving mechanical skill merely, and not patentable. Mr. Justice Clifford dissented from the majority of the court, but expressly says that the question of patentability is for the decision of the jury and not for the court, upon a bill of exceptions. The majority of the court held that the question could be considered upon a bill of exceptions, and no one claimed that the decision of the Commissioner concluded the question.

In *Hailes* vs. *Van Wormer*, (20 Wall., 353,) the question of the patentability of certain improvements in stoves was largely discussed in this court upon appeal from the Circuit Court for the Northern District of New York. It was held that, if a new combination produces new and useful results, it is patentable, though all the constituents of the combination were known and in use previous to the combination. But the results must be the product of the combination, not a mere aggregate of several results, each the complete product of one of the combined elements. It was held that the facts there present did not create a compliance with the principle, and the judgment, that the plaintiff's bill be dismissed, was affirmed.

In *Rubber-Tip Pencil Co.* vs. *Howard*, (20 Wall, 498), the same principle was affirmed. In delivering the opinion, the Chief Justice says: "The question which naturally presents itself for consideration at the outset of this inquiry is whether the new article of manufacture, claimed as an invention, was patentable, as such. If not, there is an end of the case, and we need not go further." He makes a careful examination of the claim, and concludes that there is nothing patentable in the character of the invention.

In *Smith* vs. *Nichols* (21 Wall., 115), an elaborate opinion to this same effect was delivered by Mr. Justice Swayne, and concurred in unanimously by the court. The only question discussed is the patentability of the invention.

Hicks vs. *Kelsey*, (18 Wall., 670), is a similar case. To this rule the case of *Lyman* vs. *Osborne*, (11 Wall., 516), cited by the defendant, is no exception. The remarks there made are chiefly upon the subject of reissues, and are in accordance with the principles above set forth. Even as to reissues, their conclusiveness is limited to questions of fact, and is accompanied by the statement that they are re-examinable in court when it is apparent upon the face of the patent that the Commissioner has exceeded his authority, or there is such a repugnance between the old and the new patent that it must be held as a matter of legal construction that the new patent is not for the same invention as that embraced and secured in the original patent. (p. 543–4).

We do not attach much significance to the fact that the 15th section of the act of 1836 allows the defendant to plead the general issue, and to give in evidence, upon thirty days' notice, special matter tending to prove the various matters therein referred to. The statute in that respect was intended to create an easy system of pleading, and to relieve from any doubt the admissibility in that form of the defenses specified. The argument that, because permission is given to prove under the general issue that the specification does not contain the whole truth, or that it intentionally and deceitfully contains too much, or that the patentee was not the first discoverer, or that it had been in prior use, it follows that proof that there is no invention or discovery at all, or that the invention has no importance, cannot be made, is quite unsound. Proof that there is no invention or discovery strikes at the root of the whole claim. The patent is based on an affirmative fact, of which this is the direct negative. It needed no statute to aid or justify this defense. It is provable when it exists under any general denial, like the fact of not guilty or non-assumpsit in cases where guilt or a promise is first to be established.

Upon the proposition that the decision of the Commissioner on the question of invention, its utility and importance, is conclusive, and that the same is not open to examination in the courts, we are unanimously of the opinion that the proposition is unsound. His decision in the allowance and issuance of a patent creates a *prima facie* right only; and upon all the questions involved therein, the validity of the patent is subject to an examination by the courts.

THE COMBINATION OF A PIECE OF RUBBER WITH A LEAD-PENCIL NOT A PATENTABLE INVENTION.

2. We come, then to the question: Does the article patented by Lipman, and improved by Reckendorfer, involve an invention, or is it a product of mechanical skill or a construction of convenience only?

The article presented is for the performance of mechanical operations, to produce mechanical results, and is a mechanical instrument as much as a brush, a pen, a stamp, a knife, a file, or a screw. Whether it is styled a manufacture, a tool, or a machine, it is an instrument intended to produce a useful mechanical result, and the question presents itself: Does it embody any new device, or any combination of devices producing a new result?

In the first place, what is not claimed by the specification of Lipman is to be observed. "I do not claim (he says) the use of a lead-pencil with a piece of rubber attached to one end." Of course he does not claim a lead-pencil as his invention, nor the use of a strip of india-rubber for erasure. Each of these articles had been in long and general use. But he claims as his invention "the combination of the lead and india-rubber in the holder of a drawing-pencil," in the manner set forth. The claim is simply of the combination of the lead and india-rubber in the holder of a drawing-pencil; in other words, the use of an ordinary lead-pencil, in one end of which, and for about one-fourth of its lenth, is inserted a strip of india-rubber, glued to one side of the pencil. The pencil is to be made in the "usual manner"—that is, he takes an ordinary lead-pencil, and in this he makes a groove of "suitable size," giving no idea of what he deems a suitable size, and in this groove he inserts a piece of prepared india-rubber, which is glued to one edge of the pencil. "The pencil is then finished in the usual manner, so that in cutting one end thereof you have the lead B, and on cutting the other end you expose a small piece of india-rubber, C, ready for use." It is evident that this manner of making or applying the instrument gives no aid to the patent. It must rest where the patentee claims to place it—that is, on the combination.

This combination consists only of the application of a piece of rubber to one end of the same piece of wood which makes a lead-pencil. It is as if a patent should be granted for an article or a manufacture, as the patentee prefers to term it, consisting of a stick twelve inches long, on one end of which is an ordinary hammer, and on the other end is a screw-driver or a tack-drawer, or, what you will see in use in every retail shop, a lead-pencil, on one end of which is a steel-pen. It is the case of a garden-rake, on the handle end of which should be placed a hoe, or on the other side of the same end of which should be placed a hoe. In all these cases there might be the advantage of carrying about one instrument instead of two, or of avoiding the liability to loss or misplacing of separate tools. The instruments placed upon the same rod might be more convenient for use than when used separately. Each, however, continues to perform its own duty and nothing else. No effect is produced. No result follows from the joint use of the two.

A handle in common, a joint handle, doe not creates a new or combined operation. The handle of the pencil does not create or aid the handle for the eraser. The handle for the eraser does not create or aid the handle for the pencil. Each has and each requires a handle the same as it had and required, without reference to what is at the other end of the instrument, and the operation of the handle of and for each is precisely the same whether the new article is or is not at the other end of it. In this and the cases supposed, you have but

a rake, a hoe, a hammer, a pencil, or an eraser, when you are done. The law requires more than a change of form, or juxtaposition of parts, or of the external arrangement of things, or of the order in which they are used, to give patentability. (Curtis on patents §50; *Hailes* vs. *Van Wormer*, 20 Wall., 353.) A double use is not patentable, nor does its cheapness make it so. Curtis § 56, 73.) An instrument or manufacture which is the result of mechanical skill merely is not patentable. Mechanical skill is one thing. Invention is a different thing. Perfection of workmanship, however much it may increase the convenience, extend the use, or diminish expense, is not patentable. The distinction between mechanical skill, with its conveniences and advantages, and inventive genius is recognized in all the cases. *Rubber Tip P. Co.* vs. *Howard*, and other cases, sup.; (Curtis, § 72, b.)

WHAT CONSTITUTES A PATENTABLE COMBINATION.

The combination to be patentable must produce a different force or effect, or result in the combined forces or processes from that given by their separate parts. There must be a new result produced by their union. If not so, it is only an aggregation of separate elements. An instance and illustration are found in the discovery that by the use of sulphur mixed with india-rubber the rubber could be vulcanized, and that without this agent the rubber could not be vulcanized. The combination of the two produced a result or an article entirely different from that before in use. Another illustration may be found in the frame in a sawmill, which advances the log regularly to meet the saw, and the saw which saws the log. The two co-operate, and are simultaneous in their joint action of sawing through the whole log; or in the sewing-machine, where one part advances the cloth and another part forms the stitches, the action being simultaneous in carrying on a continuous sewing. A stem-winding watch-key is another instance. The office of the stem is to hold the watch or hang the chain to the watch. The office of the key is to wind it. When the stem is made the key, the joint duty of holding the chain and winding the watch is performed by the same instrument. A double effect is produced or a double duty performed by the combined result. In these and numerous like cases the parts co-operate in producing the final effect, sometimes simultaneously, sometimes successively. The result comes from the combined effect of the several parts, not simply from the separate action of each, and is, therefore, patentable.

In the case we are considering the parts claimed to make a combination are distinct and disconnected. There is not only no new result, but there is no joint operation. When the lead is used, it performs the same operation and in the same manner as it would do if there were no rubber at the other end of the pencil. When the rubber is used it is in the same manner and performs the same duty as if the lead were not in the same pencil. A pencil is laid down and a rubber is taken up, the one to write, the other to erase; a pencil is turned over to erase with, or an eraser is turned over to write with. The principle is the same in both instances. It may be more convenient to have the two instruments on one rod than on two. There may be a security against the absence of the tools of an artist or mechanic from the fact that the greater the number the greater the danger of loss. It may be more convenient to turn over the different ends of the same stick than to lay down one stick and take up another. This, however, is not invention within the patent law, as the authorities cited fully show. There is no relation between the instruments in the performance of their several functions, and no reciprocal action, no parts used in common.

We are of the opinion that for the reasons given neither the patent of Lipman nor the improvement of Reckendorfer can be sustained, and that the judgment of the circuit court dismissing the bill must be affirmed.

STRONG, *J.*—I dissent from so much of the opinion of the majority of the court as holds that the instrument or manufacture described in the patents exhibits no sufficient invention to warrant the grant of a patent for it.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 18, 1876.]

9,394.—Font of Printing-Types.—JAMES M. CONNER, Greenville, N. J. Application filed May 22, 1876. Term of patent 7 years.

9,395.—Carpets.—EUGENE DANIEL, Paris, France, assignor to ROXBURY CARPET COMPANY, Boston, Mass. Application filed July 5, 1876. Term of patent 3½ years.

9,396.—Statue.—JOSEPH W. FISKE, New York, N. Y. Application filed June 8, 1876. Term of patent 7 years.

9,397.—Carpets.—JOHN HAMER, Dutchess county, assignor to SEAMLESS CLOTHING MANUFACTURING COMPANY, Matteawan, N. Y. Application filed July 6, 1876. Term of patent 3½ years.

9,398 to 9,400, inclusive.—Font of Printing-Types.—HERMAN IHLENBURG, Philadelphia, Pa., assignor to MACKELLAR, SMITHS & JORDAN, same place. Applications filed May 23 and 31, 1876. Term of patents 14 years.

9,401.—Font of Printing-Types.—ANDREW LITTLE, New York, N. Y. Application filed May 22, 1876. Term of patent 7 years.

9,402.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed July 3, 1876. Term of patent 3½ years.

9,403 and 9,404.—Embroidery-Pattern.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Applications filed July 3, 1876. Term of patents 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 18, 1876.]

3,846.—Cigarettes.—J. BASCH & Co., New York, N. Y. Application filed June 20, 1876.

"the words 'Cadet,' 'Fine Cigarettes,' and the figures of a bee-hive and American eagle."

3,847.—Homeopathic Cocoa.—BEATSON J. BELL, Brooklyn, N. Y. Application filed June 23, 1876.

"A belt, circular in form, with the words 'Bell's Homeopathic Cocoa' printed upon it, forms the border. Within this border is represented a bell with the initial letter 'B.' upon it. Rays of light deviate at different angles from this bell, and below it, and within the circle formed by the belt is a row of stars, which form nearly a half-circle, and just without the circumference of this border is the word 'Trade-Mark.'"

3,848.—Medical Compound.—D. E. BENT & Co., Eau Claire, Wis. Application filed June 29, 1876.

"the words and letters 'Doctor Mathews Great Idaho Indian Compound,' and the figure of an Indian represented as standing and holding in his right hand a round box."

3,849.—Healing-Balsam.—NEWTON M. BLACKMAN, Danbury, Conn. Application filed June 19, 1876.

"first, the name of my medicine, viz., 'Dr. Blackman Original Healing Balsam;' second, the design and symbol of a dove, holding in its beak a twig; third, the certificate of J. Blackman in manner, form, and words, as set forth; fourth, the fac-simile autograph of J. Blackman."

3,850.—Lamp-Burners.—HENRY A. CHAPIN, New York, N. Y. Application filed June 20, 1876.

"word 'ULTIMATUM.'"

3,851.—Whiskies.—FRIEBERG & WORKUM, Cincinnati, Ohio. Application filed June 29, 1876.

"word 'ZENITH.'"

3,852.—Soap.—CHARLES C. HABLISTON, Baltimore, Md. Application filed June 26, 1876.

"words 'Monumental Bouquet.'"

3,853.—Scotch Whisky.—SAMUEL HANSON, SON, EVISON & BAXTER, London, England. Application filed June 22, 1876.

"word 'Peatmoor.'"

3,854.—Fever-and-Ague and Liver Pad.—WILLIAM F. KIDDER & Co., New York, N. Y. Application filed June 26, 1876.

"the bust or figure of a man, with the said 'Holman's Fever-and-Ague and Liver Pad' represented as suspended from the neck just over the pit of the stomach, and fastened around the chest next to the skin, immediately below and between the nipples, by strings, and being oval in form, with the words 'Holman's Fever and Ague and Liver Pad' inscribed or printed on the outside or front thereof."

3,855.—White Glycerine.—M. F. SHAW, Jersey City, N. J. Application filed June 9, 1876.

"the letter G, having within the lines forming the same the words 'White Glycerine,' with the words 'Trade-Mark' and two stars, one at each end of said words, and also two stars on the arm of the top of the letter G, and one on the arm of the bottom of said letter."

3,856.—Knitting-Cotton.—TUCKER & COOK, Conway, Mass. Application filed June 3, 1876.

"words 'Tucker & Cook's Knitting Cotton' and the vignette of RICHARD TUCKER."

3,857.—Soap and Candles.—M. WERK & Co., Cincinnati, Ohio. Application filed June 22, 1876.

"the symbol described as follows: A representation of a lighted candle, supported in an upright position by bars of soap, of which two are placed crosswise upon two others, and one or more of them bear the word 'SOAP.'"

3,858.—Liquid Vehicle for Taking Quinine.—BAKER & BROTHER, Brooklyn, N. Y. Application filed July 1, 1876.

"word-symbol 'QUINELIXIR.'"

3,859.—Cigars.—BORNIO & BROTHER, New Orleans, La. Application July 5, 1876.

"portrait of the Hon. Samuel J. Tilden and the words 'Samuel J. Tilden.'"

3,860.—Cigars.—JOSE GENER, New York, N. Y. Application July 1, 1876.

"words 'Vuelta,' 'Abajo,' and 'Habana,' together with the monogram composed of the letters 'J. Y. G.'"

3,861.—Cloth-Faced and Paper Collars and Cuffs.—HENRY A. MANN, Jr., Ballston Spa, N. Y. Application filed July 3, 1876.

"the word-symbol 'Remington.'"

3,862.—Cloth-Faced and Paper Collars and Cuffs.—HENRY A. MANN, Jr., Ballston Spa, N. Y. Application filed July 3, 1876.

"the word-symbol 'Canton.'"

3,863.—Cloth-Faced and Paper Collars and Cuffs.—HENRY A. MANN, Jr., Ballston Spa, N. Y. Application filed July 8, 1876.

"the word-symbol 'Western Union.'"

3,864.—Meat-Fibrine Dog Cakes or Biscuits.—"SPRATT'S PATENT," Southwark, England. Application filed July 5, 1876.

"a square interspersed with punctures, with a St. Andrew's cross between the words 'Spratt's Patent,' impressed in the center of the square."

3,865.—Writing and Other Papers.—BAY STATE PAPER COMPANY, Springfield, Mass. Application filed June 20, 1876.

"a shield having thereon a representation of the American flag covering the face of the shield, and upon the flag the cross of St. George, the arms of which divide the shield into four nearly equal parts, one of which is filled with the stars of the flag. Above the shield is a crest, consisting of an upright arm, with the hand grasping an uplifted sword."

3,866.—Burlaps and Other Wrapping-Goods Made in Whole or in Part from Jute.—JAMES KEY CAIRD, Dundee, Scotland. Application filed June 20, 1876.

"the numeral figure '5' inclosed in a circle."

3,867.—Writing and Other Paper.—CRANE & Co., Dalton, Mass. Application filed June 21, 1876.

"word 'FLAXINE.'"

3,868.—Cigars.—EDUARDO H. GATO, Key West, Fla. Application filed June 20, 1876.

"a monogram formed of the letters 'E. H. G.' and words 'La Flor de E. H. Gato.' The monogram is inclosed in an oval figure, and the words 'La Flor de E. H. Gato' are printed around or on one side of the figure."

3,869.—Fertilizing Products.—UNITED STATES FERTILIZING AND CHEMICAL COMPANY, Philadelphia, Pa. Application filed June 14, 1876.

"the word-symbol 'NATIONAL.'"

3,870.—Prepared Paints.—WADSWORTH, MARTINEZ & LONGMAN, Brooklyn and New York, N. Y. Application filed May 29, 1876.

"the figure of the dog guarding a can of paint and the words and letters 'Wadsworth, Martinez & Longman; Pure Paints; Prepared for immediate use.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 18, 1876.]

791.—Title: **"John Dwight & Co.'s Soda."**—JOHN DWIGHT & Co., New York, N. Y. Application filed July 11, 1876.

792.—Title: **"Independence Fine Cut Tobacco."**—RUTLEDGE & FURNAS, Milton, Ohio. Application filed July 10, 1876.

793.—Title: **"Cock of the Walk Cigar."**—JEROME I. STANTON, Painted Post, N. Y. Application filed July 7, 1876.

794.—Title: **"English Breakfast Coffee."**—MASON & Co., Boston, Mass. Application filed July 12, 1876.

REMITTANCES.

All money sent by mail, either to or from the Patent Office, will be at the risk of the owner. In no case should money be sent inclosed with models. All payments to or by the Office must be paid in specie, Treasury notes, national bank-notes, certificates of deposit, or post-office money-orders.

TO CORRESPONDENTS.

Persons ordering drawings of patents, or making inquiries in regard to patents, must always state the name of the inventor, subject-matter, and date. In making inquiries in regard to applications for patents letters must state the name of the applicant, subject-matter, and date of filing.

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Ramsdell, D. P., Machine for making wood shoes	179,954
Range, H. N., Wool and cotton lapping machine	180,063
Raschke, A., and A. H. Jones, Coal oil stove	179,865
Rebasz, L. A., Nut	180,064
Reese, H., Self closing hatchway	180,065
Reese, H., Treadle	180,066
Reitze, A., Sharpening machine	180,067
Reynolds, T., Weather boarding	179,955
Rice, A., Chair	179,956
Rickard, W. H., Grain separator	180,068
Rider, G. E., Coupling for tumbling shafts	179,957
Rivoire, J., Billiard register	179,866
Roach, T., Milk cooler	179,958
Robinson, G. H., assignee, (reissue)	7,226
Robinson, J. S., Reed organ stop action	179,959
Rock, A., Production and treatment of resin	179,960
Rodney, W., Canal bank	179,867
Rogers Upright Piano Company, assignee	179,903
Rooney, H. L., and R. Newdasher, Tube expander	179,868
Root, W. A., Folding table	179,961
Ross, G. W., assignee	179,892
Ryan, J. C., Carding machine	179,962
Samford, B., Friction clutch	179,869
Savage, W. G., Wagon seat	179,870
Sawyer, C. E., Sample envelope	179,871
Saxby, F. E., Condenser for steam pumps	180,069
Sayre, J. W., Slate frame	180,070
Scharf, S. R., assignee	179,893
Schepp, L., Dessert composition	179,963
Schroll, K., Grain drier	180,071
Scott, L., Lattice pier for timber truss bridges	179,964
Segar, C. T., Spring bed bottom	180,072
Seibel, C., Churn	179,965
Seymour, J. M., Buckle for cotton bale ties	179 872
Sheehy, R. J., Electric clock	179,873
Sheehy, R. J., Electro magnetic time and date printer	179,874
Sheehy, R. J., Printing telegraph	179,875
Sheldon, H. N., assignee	179,984
Shoaff, S. A., Feed water heater and filter	179,966
Singer, E. C., assignee	179,848, 179,849
Sipe, C. A., Apparatus for depositing coffins, (reissue)	7,227
Skinner, S. A., Folding chair	180,073
Skinner, S. A., Folding chair	180 074
Slaughter, P. W., Four horse evener	179,876
Slichter, J. B., Paint composition	179,967
Smith, B. S., Corset	179,968
Smith, G. T., assignee	179,958
Smitten, T. W. F., Sleeve button	179,969
Southern Gas Machine Company, assignee	180,061
Spencer, E., Carpet beating machine	180,075
Spencer, W. F., School seat	179,877
Square, J. R. M., assignee	179,984
Stacey, H., Gas regulator	179,878
Starliper, W. M., Corn or land marker	179,879
Stead, J. C., Feed water heater for steam boilers, (reissue)	7,228
Steen, R. L., Inhaler	179,970
Steinson, Tuck, and Dorn	179 976
Stevens, J. B., Glove tree	179,971
Studebaker, J. M., and H. L. Hinds, Wagon bolster	180,076
Sweet, A. O., assignee	179 984
Swett and Lamont	179,925
Taliaferro, J. W., assignee	180,016
Tapley and Chapman	179,894
Taylor, A., Apparatus for loading wagons	179,972
Taylor, G. W., Blacking box holder	180,077
Thayer, C. T., assignee	179,881
Thompson, Perley, and Waite, assignees	179,851
Thornton, T., Tubing clutch	179,973
Todd, W., Wash board	179,974
Trembley, D. G., Hose attachment to wash basin connections	179,975
Trinks, G., Ornamental chain	180,078
Tuck, G. E., H. Dorn, and J. Steinson, Stack cover	179,976
Turrettini, T., Fountain	179,977
Ufford, H. F., Pigeon hole safe	179,880
Underwood, B. F., Sewer gas trap	179 881
Underwood, F. J., Seed planter	180,079
Vaill, E. W., assignee	179,890, 179,979, 179,980, 179,981, 179,982, 179,983
Vaill, E. W., Folding chair	179,978
Van Deusen and Hetherington	180,027
Van Dreser, L., Lamp chimney cleaner	180,080
Vorster, E., assignee	179,960
Wakefield, J. E., Folding chair	179,979
Wakefield, J. E., Folding rocking chair	179,980
Wakefield, J. E., Folding chair	179,981
Wakefield, J. E., Folding chair	179,982
Wakefield, J. E., Folding chair	179,983
Walker, G. A., Spring air pistol	179,984
Warren, C. M., Composition roofing	180,081
Wale, W., Egg box	179,985
Weston, E., Magneto electric machine	180,082
Williams, H. H., assignee	179,974
Williams, J. W., Lock work attachment for clocks	179,986
Williamson, G. W., Car link adjuster	180,083
Williamson, G. W., Railway tie	180,084
Wilmot, S., Fish hatching apparatus	180,085
Wilson, S., Cheese hoop, (reissue)	7,229
Wilson, W., Jr., Stop hinge	179,987
Wiswell, H. D., Churn	180,086
Wyman, H., and A. A. Gordon, Jacquard for looms	179,882
York and Cooke	180,005
Yundt, J. H., assignee	179,950

TITLES, DRAWINGS, AND CLAIMS

OF

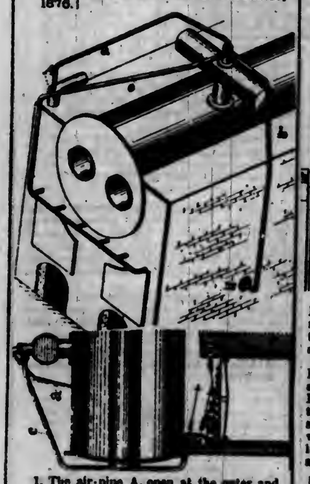
PATENTS GRANTED JULY 18, 1876.

179,826. ROTARY ENGINE. Archibald Allan, Bartlett, N. H., assignor of one-half his right to George G. Locy, same place. [Filed May 8, 1876.]



In combination with the cylinder *a*, the shaft *b*, with its flanges *c*, the stationary hollow shaft *e*, with its ports and abutment, the cylinder *f*, with its pinion *h*, its ports and shaft *m*, the sleeve *r*, with its ports *s*, *t*, and *t'*, as herein described.

179,827. STEAM-BOILER FURNACES. David P. Beard, Cincinnati, Ohio. [Filed Jan. 11, 1876.]



1. The air-pipe A, open at the outer and closed at the inner end, passing across the front of the furnace above the doors, and perforated on its side facing the fire, through which perforations air is forced by steam from the boiler passing through pipe *a*, in combination with a series of steam-nipples arranged above perforated part of said pipe A, and just below the boiler-plates, as and for the purpose substantially as set forth.

2. The air-pipe B, located in the upper part of the bridge-wall and steam-pipe *b*, for forcing air through perforations in the fire side of said pipe B, in combination with a series of steam-nipples arranged in the fire-lining across the front of the furnace, and just below the boiler plates, substantially as described.

3. The combination, substantially as herein described, of air-pipes A and B, steam-pipes *a* and *b*, and steam-pipe *c*, having branch pipes or nipples passing through the front of the furnace just below the boiler-plates, the whole being arranged to operate in the manner described.

179,828. PUMP-BUCKETS. W. Beauchamp, Evansville, Ind. [Filed May 3, 1876.]



1. The combination of the flange-headed bolt D, eyes B B, screw-threads E E, corresponding nut G, and projecting ring A on nut G, when constructed and combined as herein described and set forth.

2. The rubber bucket F, having the slit K fitted between the flange-head of bolt D and flanged nut C by means of the projecting ring A in the face of nut G, and the corresponding ring H in the bucket, as herein described, and for the purposes set forth.

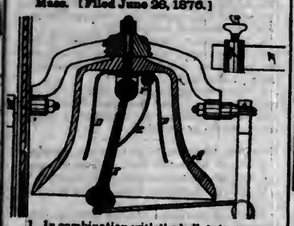
179,829. CARPET-LINING. G. J. Bidwell, Boston, Mass. [Filed May 5, 1876.]

Brief.—Will not admit dust and dirt to its interior.



As a new article of manufacture, a carpet-lining composed of one or more covering-sheets made as a tube, and a fibrous bat stitched to one side only of the cover, and provided with strengthening-stripe *g* within the cover, the stitches entering only the stripe, the bat, and one side of the cover, substantially as described.

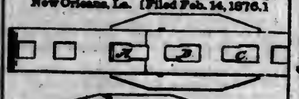
179,830. BELLS. Wm. S. Blake, Boston, Mass. [Filed June 26, 1876.]



1. In combination with the bell A, its tongue B, and main springs D D, the auxiliary chime-rope balance-spring E, disconnected from the tongue, and fixed to the bell, all being substantially as described.

2. In combination with the bell A, its tongue B, and main springs D D, arranged as represented, and with the chime-rope balance-spring E fixed to the bell and disconnected from the tongue, as set forth, the adjustable fulcrum-slide F, applied to each spring, and provided with a clamp-screw, G, or means of fixing it in place on the spring, all being substantially as specified.

179,831. BALE-TIES. Richard De Gray, New Orleans, La. [Filed Feb. 14, 1876.]

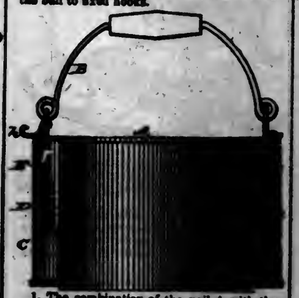


1. The buckle-plate made with the guard tooth or lip A, and slot or opening D E, in combination with the band or hoop, substantially as described.

2. The buckle-plate made with the slot or opening D E, holding teeth or lips B and C, and guard lip or tooth A, in combination with the band or hoop having holes through it, substantially as described.

179,832. WEIGHING-BUCKETS. P. Deland, Little Cooley, Pa. [Filed May 8, 1876.]

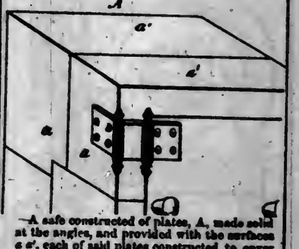
Brief.—A bucket adapted for use as a weighing-bucket, by attaching the bail to spring-scales, or for ordinary carrying by attaching the bail to fixed hooks.



1. The combination of the pail A with the vertical side casings C C, hooks *h h*, springs D D, scale-bars E E, and the bail B, substantially as and for the purposes herein set forth.

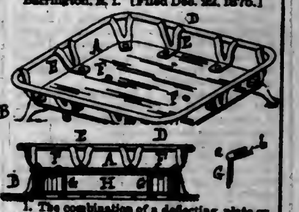
2. The hooks *h h*, in combination with the springs, scale-bars E E, and the cases surrounding the same, for the purposes herein set forth.

179,833. BURGLAR-PROOF SAFES. Carl Diebold, Canton, Ohio. [Filed Mar. 17, 1876.]



A safe constructed of plates, A, made solid at the angles, and provided with the surfaces *a a'*, each of said plates constructed to cover one-fourth of the outer surface of the substructure upon which it is laid, substantially as and for the purpose described.

179,834. HEAT-DEFLECTORS. A. J. Doane, Barrington, R. I. [Filed Dec. 22, 1875.]



1. The combination of a deflecting plate or surface, A, legs B B, and adjustable steadying-pins G G, as and for the purpose specified.

2. The steadying-pins G G, adjustable by means of the slotted head *a b*, and bolts and nuts F F, in combination with a heat-deflector, A B, substantially as described and specified.

3. The combination of a heat-deflecting plate, A, with a foot-rest, D, substantially as described.

4. The heat-deflecting apparatus herein particularly described, consisting of a deflecting-plate, A, legs B B, foot-rest D, brace E E, bolts and nuts F F, steadying-pins G G, with or without the protecting-plate H, substantially as and for the purpose specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

179,846. COMPRESSION-VALVES AND OIL-STEAM-COCKS FOR STEAM-ENGINES. Frank Douglas, Chicago, Ill. [Filed Feb. 2, 1876.]

Brief.—As a compression-valve it works automatically, allowing any condensed water which may be in the cylinder to pass off while the piston is working. As a cylinder-cock the valve is held from its seat by the plug-valve, thus allowing steam to pass through the cylinder, for the purpose of heating the cylinder before starting. The cock can be closed entirely by the plug-valve, then preventing any action of the valve.

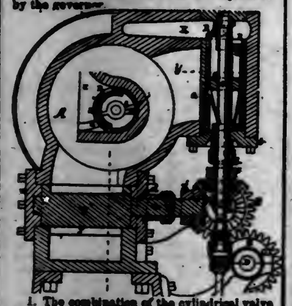


1. The cup-valve C C, in combination with spring K around valve-stem H, the guide I, and seat B B, substantially as and for the purpose specified.

2. The valve C C, provided with a stem, H, in combination with the eccentric depression of plug-valve L, spring K, and opening n, substantially as and for the purpose herein specified.

179,846. VALVE-GEARS FOR STEAM-ENGINES. Frank Douglas, Chicago, Ill. [Filed Feb. 2, 1876.]

Brief.—The steam and exhaust valves are at right angles to each other, and are operated from the same shaft. The steam-valve is rotated by a yoke, which engages in a groove on the inside of said valve, to allow it a free movement to be pressed to its seat. A cut-off on the inside of the steam-valve is operated by the reverser.



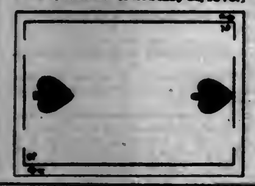
1. The combination of the cylindrical valve P, having longitudinal groove, and the driving-yoke f of stem b, for the purpose of operating the valve, substantially as herein specified.

2. The combination of the valve P, having longitudinal driving-groove, the driving-stem b, steam r, with dog s, for the purpose of driving cut-off valve R, and the rock-shaft e, with connections to governor-screw W, substantially as herein specified.

3. The gears H, I, I', F, and E, in combination with shaft D and the valves F, E, and U, said valves being placed at right angles to each other, as herein specified.

4. The circular chamfer for valves P, E, and U, placed at right angles with each other, when used in combination with cylinder A and driving-gears I I', substantially as herein specified.

179,847. PLAYING-CARDS. A. Dougherty, Brooklyn, N. Y. [Filed May 22, 1876.]



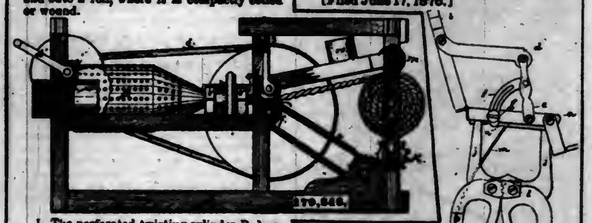
1. A playing-card, having on its face, and near one or more of the corners or edges, two different emblems or devices, which indicate, in modes employed by two different nations, a card of the same suit and value, substantially as set forth.

2. A playing-card, having, in combination with the conventional suit-emblems on its face, emblems near one or more of its corners or edges, indicating, in modes employed by two different nations, a card of the same suit and value, substantially as set forth.

3. The combination, in a playing-card, of the usual face common to English cards, the broken lines and figures common to Spanish cards, and other emblems arranged at the corners, indicative of suit and value, as specified.

179,848. APPARATUS FOR PACKING AND BALING COTTON. James A. Drake, New Orleans, La., assignor of one-sixth of his right to R. C. Singer, Houston, Tex. [Filed Apr. 17, 1873.]

Brief.—The cotton, on its way from the gin, is driven into a revolving perforated cylinder, which has a conical end with an aperture therein, through which latter the cotton passes, and between pressure-rolls after having received a slight twist through the rotation of the said cylinder. The loosely-twisted cotton or rope is then carried under a pressure and onto a roll, where it is compactly coiled or wound.



179,848.

1. The perforated twisting cylinder B, having its forward section conically contracted and terminating in a narrow delivery-tube, the whole constructed and arranged to operate, substantially as described.

2. The twisting perforated cylinder B, and the grooved-feed rollers *f f'*, the same being combined and arranged to operate substantially as described.

3. The twisting cylinder B, rollers *f f'*, corrugated roller K, and weighted frame h, the whole being combined and arranged to operate substantially as described.

179,849. METHODS OF BALING AND PACKING COTTON. James A. Drake, New Orleans, La., assignor of one-sixth of his right to R. C. Singer, Houston, Tex. [Filed Apr. 17, 1873.]

Brief.—The cotton is formed into a loosely-twisted rope, and then coiled or wound, under pressure, on a suitable axle.



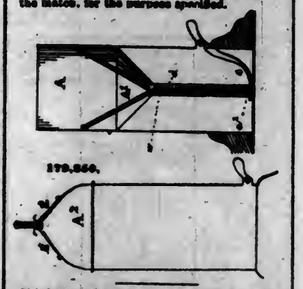
1. As a new article of manufacture, a bale of cotton formed from a continuous strand or strands of loosely-twisted cotton wound or coiled around a shaft or axle, substantially as described.

2. The method herein described of baling and packing cotton, which consists in loosely twisting the cotton to secure a continuity of its fibers, and in then winding or coiling the same around an axle or shaft, substantially as described.

179,850. MATCH-SAFES. Chas. Frankish, Topeka, Kans., assignor of one-half his right to William Glasgow, Chicago, Ill. [Filed Dec. 10, 1875.]

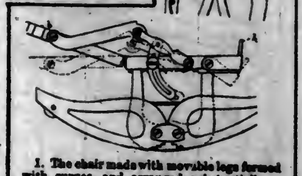
1. A portable match-safe having a funnel-shaped top, A', removable, and a similar-shaped bottom, A², with an aperture in the top for the exit of the match, the wire lifter a, spiral spring d, and thumb-lever e e, arranged as and for the purpose specified.

2. In a match-safe having a thumb-lever, such as described, to raise or eject the match, the combination, with the funnel-shaped top A', of the two springs *g g*, secured thereto on opposite sides of the aperture for the exit of the match, for the purpose specified.



179,850.

179,851. NURSERY-CHAIRS. Reuben S. French, Templeton, assignor to Thompson, Farley & Wabbe, Baldwinsville, Mass. [Filed June 17, 1876.]



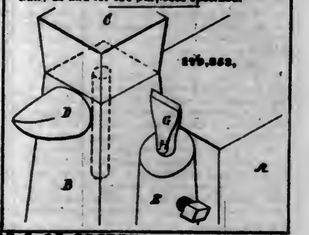
1. The chair made with movable legs formed with curves, and arranged substantially as described, so that by changes in position of the legs, they support the chair-seat upon their ends, making a fixed chair, or upon their curved edges, making a rocking-chair, as set forth.

2. The combination, with the chair-seat, arranged to stand fixedly or upon rockers, as set forth, of the pivoted and adjustable back b and foot-rest A, for the purpose specified.

179,852. ARGAND GAS-BURNERS. Elliott P. Gleason, Brooklyn, N. Y. [Filed Jan. 5, 1876.]



In Argand gas-burners, in which the supply of gas is regulated by a movable valve actuated by a lever, F, a spring, G, having a bearing upon the inner side of the chamber A, in combination with said lever F, substantially as and for the purposes specified.

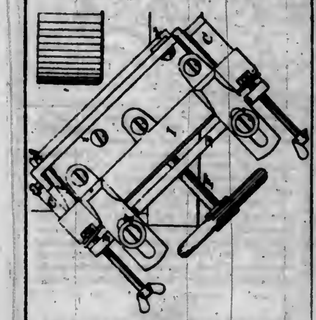


179,852.

179,853. MECHANISM' COMBINATION IMPLEMENTS. D. Goodnow, Jr., Boston, Mass. [Filed May 1, 1876.]

The improved implement described, consisting of the block A, post B, a detachable cast-metal block or cast, C, having a shank on its under face which fits in a recess in the top of the post B, the column E to receive a detachable chisel-cutter, G, the stem H of which fits in the pocket made in the top of the column E, and the bore D projecting laterally from the upper part of the post B, the said post, block, and column formed of one piece of metal, or other suitable material, substantially as and for the purpose described.

179,854. GRINDING-MACHINES. M. Gregg, Rochester, N. Y. [Filed June 20, 1876.]

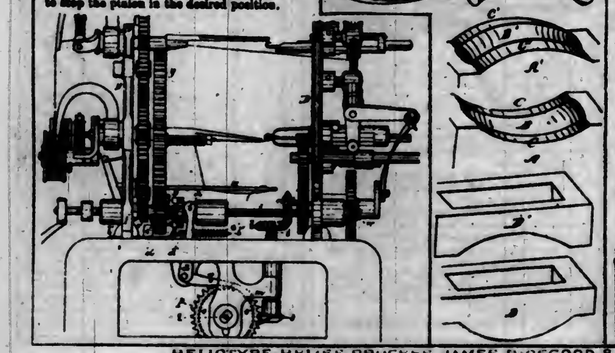


1. In a machine for grinding planer-knives and others of that class, the tool-carriage, having during the operation of grinding the knife a longitudinally-reciprocating motion on a bed-plate at an angle of forty-five degrees to the axis of the grindstone, to present the face of the knife in the tool-holder to the corner of the stone throughout its entire length, as and for the purpose set forth.

2. The bed-plate D C, capable of angular adjustment to the axis of the stone, and provided with the rack-gear S, in combination with the tool-carriage F, having a lateral movement, and the inverted way I, adjustable to and from the stone, said carriage being operated by means of the wheel F and pinion, substantially as and for the purpose set forth.

179,855. MACHINES FOR KNITTING FABRIC-LOOP HEELS. William A. Hodgkins, Lawrence, Mass. [Filed May 13, 1876.]

Brief.—The rip-bands are knit continuously by a machine of ordinary construction, while the knitting of the heddles proceeds intermittingly. The large wheel is driven by a pinion loose upon the driving-shaft, but intermittingly connected thereto by a clutch controlled by a pattern-wheel. The latter is provided with a series of holes, into which pins are inserted according to any desired arrangement. The pins raise the outer arm of the clutch-lever, thereby moving the clutch into engagement with the stud upon the pinion. A spring retracts the clutch when the arm is not raised by the pins. A rod carrying a catch is operated by the clutch-lever, so as to stop the pinion in the desired position.



1. In combination with a harness-knitting machine, D, mechanism, substantially as described, for intermittingly arresting the operations of the part of such machine by which the heddles are made, such mechanism, consisting of the bevel-gears a b, shaft c, worm e, pattern-gear p, having holes and pins, as described, forwarded lever d, clutch q, tooth g, and spring s, all arranged and applied essentially as specified.

2. The heddle driving-gear stopping mechanism B, substantially as described, in combination with the loom-harness knitting-machine D, and mechanism, essentially as specified, for intermittingly arresting the operations of the part of such machine by which the heddles are made.

3. The heddle driving-gear stopping mechanism B, substantially as described, in combination with mechanism, essentially as specified, for intermittingly arresting the operations of that part of a harness knitting-machine by which the heddles are knit or formed.

179,856. MANUFACTURE OF COILED METALLIC PIPES. Erwin C. Hubbard, Marshfield, Mo. [Filed June 20, 1876.]

Brief.—The middle portion of the hub, around which the pipe is coiled, is made in sections, which are held in place by a bolt. The bolt is removed and the sections therefore loosened, when the last coil is to be taken off.

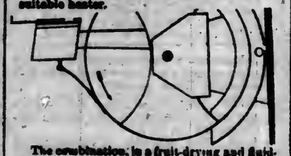


1. A coil-bending machine, consisting of the base-plate A, grooved sectional hub D, with its removable sections B and fastening-bolt S, all as shown and described.

2. The right and left double flat coiled metal pipe, as shown and described.

179,857. FRUIT-DRIERS. Hampton Kelly, Multnomah County, Oreg. [Filed Feb. 29, 1876.]

Brief.—The pulpy matter, after falling from the reservoir, comes in contact with the distributer, which spreads it evenly upon the surface of the cylinder, which is warmed by any suitable heater.



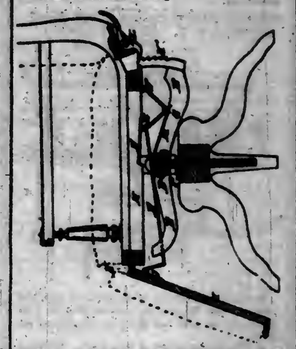
The combination, in a fruit-drying and fluid-condensing machine, of a revolving hollow cylinder with a reservoir, distributer, and heating apparatus, substantially as described.

179,858. DIES FOR MAKING ELBOWS. Oscar Knapp, New York, N. Y. [Filed Oct. 4, 1875.]

Brief.—The former that produces the flanges also serves as a holder when the internal former is applied.

The combination of dies A A', having working-faces B B' C C', with the duplex punches D G D' G', having working-faces corresponding to the dies, substantially as and for the purposes set forth.

179,859. RAILWAY CHAIRS. Oswald Kirkbride and J. F. Minshaw, Chicago, Ill. [Filed Nov. 10, 1875.]



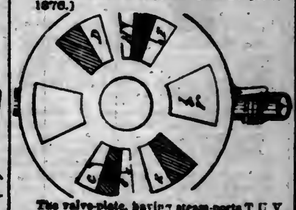
The combination of the pivoted stand E B B B, having the incline M and rack K', the seat-frame, having the incline N and the catch L, the foot-board I, and the bar D, jointed at E G, and hinged to the seat-frame and foot-rest, substantially as and for the purpose set forth.

179,860. ATTACHMENTS FOR THE CORES OF STREET-LAMPS. Abel Lockar, New York, N. Y., assignor to E. P. Gleason Manufacturing Company, same place. [Filed June 2, 1876.]



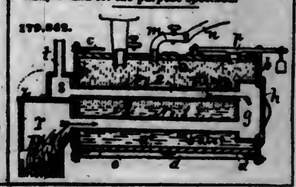
The attachment for cocks of street-lamps, consisting of the plate D, provided with the jaws E, elongation or stop F, and lever G, constructed and operating substantially as and for the purposes set forth.

179,861. ROTARY STEAM-VALVES. Thomas Malcolmson, Oil City, Pa. [Filed Apr. 7, 1876.]



The valve-plate, having steam-ports T U V and exhaust-ports W W, operating in combination with the valve-seat, having cylinder-ports G H, exhaust-ports E F, and steam-ports C and D, and chamber I communicating with the latter, and the cap having ports corresponding with those in the seat, substantially as and for the purpose specified.

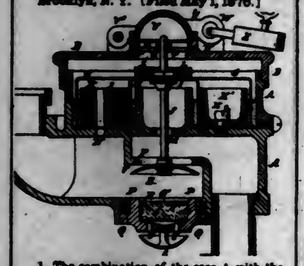
179,862.



179,860. FEED-STEAMERS. J. B. McNab, Montour, Iowa. [Filed Mar. 17, 1876.]

In the construction of a feed-steaming apparatus, the boiler A, having the series of tubes Nos. 1 and 2 and the clearing-chamber *g*, and the detachable furnace B, having chambers *r* and *s*, all arranged and combined substantially as and for the purposes shown and described.

179,861. GAS-GOVERNORS. Louis Moritz, Brooklyn, N. Y. [Filed May 1, 1876.]



1. The combination of the case A with the ring or cap Q and the porous ring E, substantially as and for the purpose herein set forth.

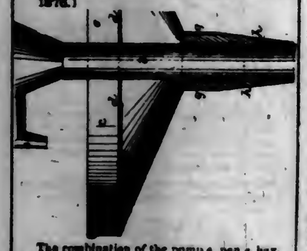
2. The combination of the case A, the ring E and waste-cap S, and openings S' S', for self-discharge of the condensation of the gas, substantially as herein described and shown.

3. The combination of the lock X, the case A, the cap V, substantially as and for the purposes herein mentioned.

4. The combination of the cap B, with the loose guide-plate U and cap V, and the valve-rod J, substantially as herein stated.

5. The combination of the valve E, the loose guide-plate U, the cap B, and case A, substantially as and for the purposes herein stated.

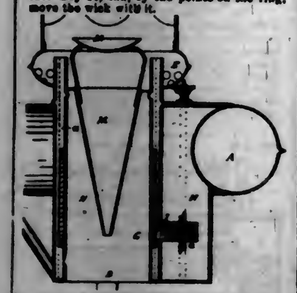
179,862. OIL AND LIQUID PUMPS. Hugh M. Parshall, Tidioute, Pa. [Filed June 3, 1876.]



The combination of the pump *a*, pan *c*, having the two vertical flanges *e f*, bung *i*, having its upper end held between the said flanges, and support *d*, the parts being arranged for operation as shown.

179,863. COAL-OIL STOVES. A. Raschke and A. E. Jones, Cleveland, Ohio. [Filed June 12, 1876.]

Brief.—By turning the screw the arm and ring will be drawn up or downward, as the case may be, and, by the points on the ring, move the wick with it.



179,864. CANAL-BANKS. William Rodney, New York, N. Y. [Filed Feb. 8, 1876.]



A canal wall or bank constructed with the concave portion *a a*, as shown and described, and for the purpose specified.

179,865. TUBE-EXPANDERS. H. L. Rooney and Robert Newdasher, Galveston, Tex. [Filed May 27, 1876.]

Brief.—The expander is composed of springs secured at one end by a ferrule, and at the other to a slotted cap. Grooved recesses at one end of the springs are provided with detachable rollers, loosely set thereon, which are pressed outward by a tapering mandrel. The cap is slotted to permit lateral play of the spring ends and rollers, and the mandrel is adapted for use as a screw-driver to put the parts together.



1. The combination, with the springs A, rigidly secured to the ferrule or collar B, of the slotted cap C, substantially as and for the purpose specified.

2. The combination, with the springs A, of the detachable rollers F, substantially as and for the purpose specified.

3. The combination, with the ferrule B, formed with recesses *a'*, of the springs A, provided with projections *a*, and secured to said ferrule by screws *b*, substantially as and for the purpose specified.

4. The combination, with the cap C, formed with radial slots *c*, of the springs A, washers F, and screws G, substantially as and for the purpose set forth.

5. The combination, with the springs A, cap C, and rollers E, of the tapering mandrel H, substantially as and for the purpose specified.

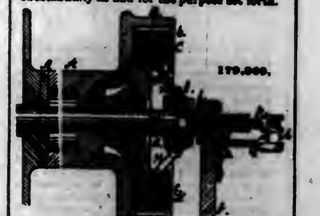
6. The tapering mandrel H, having its tip formed as a screw-driver, substantially as and for the purpose specified.

179,866. FRICTION-CLUTCHES. B. Sanford, Newark, N. J. [Filed May 27, 1876.]

1. In combination with the wheelless or pulley A, having the flange B, the recessed wheel C, carrying the dovetailed segments E and dovetailed friction-blocks *b*, operated by the arms H and knuckle I, sliding on the shaft *a*, and the plunger *p* and lever L, substantially as and for the purposes specified.

2. The dovetailed segments E, with the head *c*, and the dovetailed blocks *b*, held in position by the bolt *d*, substantially as specified, and for the purposes set forth.

3. The recessed wheel C and the dovetailed segments E, holding the blocks *b* lying therein, and the said segments being kept in position laterally by the projection G, extending through the inner edge of the wheel C, in combination with the arms H and flange B, substantially as and for the purpose set forth.



179,867. CANAL-BANKS. William Rodney, New York, N. Y. [Filed Feb. 8, 1876.]

A canal wall or bank constructed with the concave portion *a a*, as shown and described, and for the purpose specified.

179,868. TUBE-EXPANDERS. H. L. Rooney and Robert Newdasher, Galveston, Tex. [Filed May 27, 1876.]

Brief.—The expander is composed of springs secured at one end by a ferrule, and at the other to a slotted cap. Grooved recesses at one end of the springs are provided with detachable rollers, loosely set thereon, which are pressed outward by a tapering mandrel. The cap is slotted to permit lateral play of the spring ends and rollers, and the mandrel is adapted for use as a screw-driver to put the parts together.

1. The combination, with the springs A, rigidly secured to the ferrule or collar B, of the slotted cap C, substantially as and for the purpose specified.

2. The combination, with the springs A, of the detachable rollers F, substantially as and for the purpose specified.

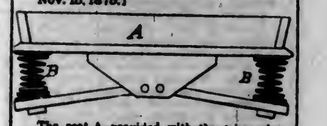
3. The combination, with the ferrule B, formed with recesses *a'*, of the springs A, provided with projections *a*, and secured to said ferrule by screws *b*, substantially as and for the purpose specified.

4. The combination, with the cap C, formed with radial slots *c*, of the springs A, washers F, and screws G, substantially as and for the purpose set forth.

5. The combination, with the springs A, cap C, and rollers E, of the tapering mandrel H, substantially as and for the purpose specified.

6. The tapering mandrel H, having its tip formed as a screw-driver, substantially as and for the purpose specified.

179,869. WAGON-SEATS. Wm. G. Savage, Clinton, Ill., assignor of one-half his right to Fenton H. Rogar, same place. [Filed Nov. 16, 1875.]



The seat A, provided with the triangular brackets, in combination with the brace-boards, independently or separately pivoted thereto, and the springs B, having substantially the construction and combination as specified and shown.

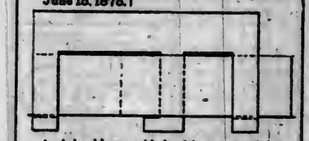
179,870. WAGON-SEATS. Wm. G. Savage, Clinton, Ill., assignor of one-half his right to Fenton H. Rogar, same place. [Filed Nov. 16, 1875.]

The seat A, provided with the triangular brackets, in combination with the brace-boards, independently or separately pivoted thereto, and the springs B, having substantially the construction and combination as specified and shown.

179,871. SAMPLE-ENVELOPES. C. F. Sawyer, Boston, Mass. [Filed Jan. 2, 1875.]

As a new article of manufacture, a sample-envelope as made of paper, having its sides and end secured together and strengthened by means of an outer adhesive binding, extending around its corners without being cut, substantially as and for the purposes specified.

179,872. BUCKLES FOR COTTON-BALE TIES. James M. Seymour, Newark, N. J. [Filed June 15, 1876.]



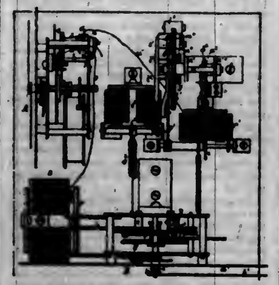
1. A buckle provided with two straining-bars, a lever-arm, and a fastening-bar, constructed and arranged to operate substantially as and for the purposes described.

2. A buckle provided with two straining-bars and a lever-arm, constructed and arranged to operate substantially as and for the purpose set forth.

3. A buckle provided with two straining-bars and a lever-arm, when one or both of the straining-bars are provided with projections to retain the band in position upon the bar or bars, substantially as set forth.

179,873. ELECTRIC CLOCKS. Robert J. Sheehy, Boston, Mass. [Filed Mar. 20, 1876.]

Brief.—Relates to the actuating pawls and levers of the secondary clock, and to the means for closing the circuit in the primary clock.



1. In combination with a dial, *a'*, and a train, *b'*, substantially as described, (to indicate hours, minutes, seconds, and fractions of seconds,) the ratchet-wheel *c*, the two pawls *e e*, their carrying-levers *f f*, the armature-lever *e*, spring *e*, armature *r*, and electro-magnet *p*, all arranged substantially as set forth.

2. The combination of the ratchet-wheel, carrying levers *f f*, two pawls, *e e*, the armature-lever *e*, spring *e*, armature *r*, and electro-magnet *p*, all arranged essentially as specified.

3. In the clock, the separate escapement-pallets *c d*, having separate circuit-wires *g h*, and connected with each other and their arbor *d'* by an insulator, *e*, affixed to the latter, the pallets in each case being electrically insulated from each other and the arbor.

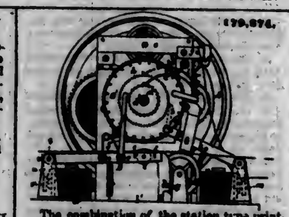
4. The separate escapement-pallets *c d*, provided with separate circuit-wires *g h*, and connected with the escapement-arbor *d'* by the insulator *e*, as described, in combination with the escapement-wheel *c*, connected with its own arbor *b* by an insulator, *f*, and provided with the circuit-spring *m* and wire *o*, all as set forth.

5. The combination of the magnet *r'*, its two armatures *q' d'*, their two levers *p' b'*, pawls *e' f'*, ratchet-wheels *c' c'*, two type-wheels *f f*, and their arbors *m' r'*, all arranged and applied essentially as set forth.

179,874. ELECTRO-MAGNETIC TIME AND DATE PRINTERS. Robert J. Sheehy, Boston, Mass. [Filed Feb. 21, 1876.]

Brief.—Combines with a time and date printer a type-wheel bearing the numbers of the stations to be visited by a watchman. Said type-wheel is revolved one step at each movement of the printing-lever, the circuit to whose magnet is to be closed at the stations.

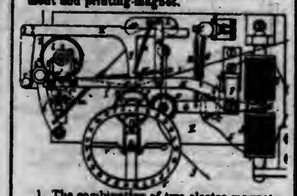
179,875.



The combination of the station type printing-wheel G', and its ratchet-wheel C' and drum-pawl *f'*, with the clock or time-piece A, its rotary time-printing wheel B or wheels B C, the paper-supporter D, and an electro-magnet, *n*, and armature *r*, for effecting the movements of the paper-supporter relative to the type printing-wheels, as specified.

179,876. PRINTING-TELEGRAPHS. Robert J. Sheehy, Boston, Mass. [Filed Feb. 7, 1876.]

Brief.—Relates to devices for printing, and to circuit-shifter, and connections of escapement and printing-magnet.

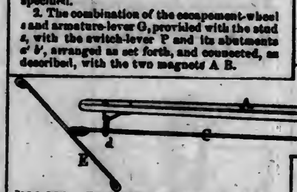


1. The combination of two electro-magnets, A B, two armatures, O D, the switch F, the abutments *a' b'*, and mechanisms, substantially as described, for revolving the type-wheel *g*, feeding the strip I of paper, and moving it up to and away from the said type-wheel, these latter mechanisms being the escapement-wheel *c* and arm G, the arm H, its pawls *h i*, springs *m' n*, ratchet-wheel *k*, feed-drum *l*, presser-wheel *k'*, bent lever K, rocker-lever L, studs *u v*, connection M, and spring *e*, all applied and arranged essentially as specified.

2. The combination of the escapement-wheel *c* and armature-lever G, provided with the stud *d*, with the switch-lever P and its abutments *a' b'*, arranged as set forth, and connected, as described, with the two magnets A B.

179,877. SCHOOL-SEATS. Wm. F. Spencer, Richmond, Ind. [Filed Nov. 20, 1875.]

Brief.—The seat-arm is pivoted on a conical metallic block, which is fitted on a rectangular bolt passing through the standard. Sudden shocks are prevented by projections, which are brought into sliding contact with a block on the standard, when the seat approaches the limit of its motion in either direction.



179,878. FOUR-HORSE EVENERS. Philip W. Slaughter, Canton, Ill. [Filed Mar. 22, 1876.]

The combination of the extension-rod C, double-tree E, loop or ring *d*, pivotal lever D, pole A, and double-tree D, substantially as and for the purpose set forth.

179,879. CORN-PLANTERS. Wm. M. Starliper, Henry, Ill. [Filed Mar. 6, 1876.]

Brief.—To the main frame is pivoted a rearwardly-extending frame, carrying a marking-wheel, that is limited in its lateral movement by a notch cut in the rear cross-beam and a horizontal slot formed by a bar attached to said rear bar.

1. The pivoted marking-frame D D, its recess *e*, and slot *g*, substantially as and for the purposes described.

2. The horizontal slot *g* in the rear of the frame A, for the retention of the swinging or pivoted trailing marking-frame D D, substantially as and for the purposes described.

179,880. PIGEON-HOLE SAFES. Henry F. Ufford, Lewistown, Ill. [Filed Feb. 9, 1876.]

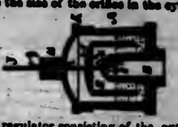
1. In a pigeon-hole safe, in which the doors are contiguous and slide upward in rows over open compartments, an upper terminal chamber, having a bar arranged to pass over the tops of said doors and lock them simultaneously, substantially as described.

2. The bar *g*, pivoted to board C, and provided with button *i*, and connected in a suitable manner with bar *f*, in combination with a lock, H, and the sliding doors E of the case, substantially as set forth.

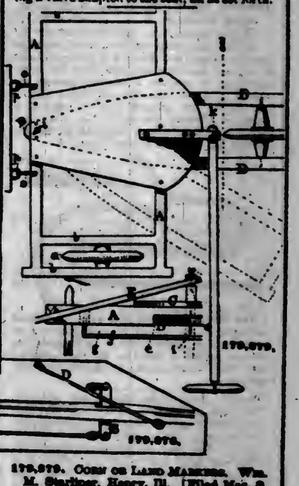
3. The pigeon-hole safe, having the ceiling of each compartment provided with a supporting-button, *o*, in combination with the doors E, arranged to slide upward in rows over said compartments, substantially as described.

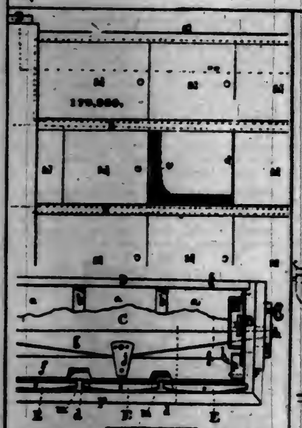
179,881. REGULATORS. Henry Stacey, Indianapolis, Ind. [Filed May 27, 1876.]

Brief.—An increased pressure of gas tends to raise the float, and causes the valve to decrease the size of the orifice in the cylinder.



The regulator consisting of the outer case A, its central cylindrical tube B, contracted at the top to form a valve-seat, the float E, and stem J, passing through and guided by the tube H, attached to the float, and carrying a valve adapted to the seat, all as set forth.





179,880.

179,881. SEWER-GAS TRAPS. B. F. Underwood, Brooklyn, N. Y., assignor to C. T. Thayer, same place. [Filed Feb. 12, 1876.]

Brief.—This trap has a descending pipe making a short curve, and ascending an inch or more of the same diameter, then obliquely enlarging to produce a slightly greater diameter upward. The trap is fitted with a ball-valve, the oblique portion forming a seat, and allowing the ball to rise above the opening, thus providing an outlet for the escape of the contents of said pipes.



The combination of a pipe with an oblique enlargement, an upward extension having an oval opening placed within and above the oblique portion of the pipe for the outlet of said trap, substantially as shown and described.

179,882. JACQUARDS FOR LOOMS. Horace Wyman and Albert A. Gordon, Worcester, Mass., assignors to George Crompton, same place. [Filed May 6, 1876.]

Brief.—The shaft of the Jacquard-cylinder is mounted upon sliding rods, to which it is connected by universal joints, to order that the shaft may yield at one end or the other in case any obstruction occurs.

1. A Jacquard barrel and its shaft, in combination with the arms *f* and pivoted or turning bearings, substantially as and for the purpose described.

2. The Jacquard barrel-shaft and its bearings, in combination with a collar and screws, to adjust the shaft laterally and bearings and shaft vertically, substantially as described.

179,883. PROCESSES AND APPARATUS FOR RENDERING FATS. Wm. B. Andrew, New York, N. Y. [Filed June 22, 1876.]

1. The jacket-bottle A A', the part B B' extending inward under the same, and the projection *b*, in combination with a hinged bottom, as and for the purposes described.

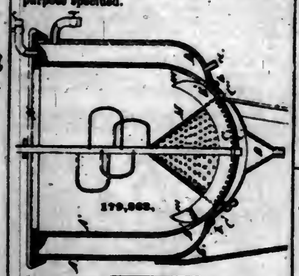
2. The hinged bottom, consisting of the perforated portion C, the receiver D, the outlet *d*, and the leak-chamber C', in combination with a jacketed bottle and suitable fastenings thereto, as specified.

3. The agitator E E', having the twisted leaves *e*, convex on their lower surfaces, to correspond with the concave upper surface of the jacketed kettle, in combination with said jacketed kettle A A' B B', and a hinged bottom, substantially as specified.

4. The revolving strainer M, in combination with a jacketed kettle, having a perforated bottom, as specified.

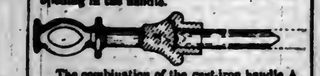
5. The metal brush, convex, to correspond with the concave surface of the perforated bottom, in combination with shaft E, strainer M, bottom C, and jacketed kettle, as specified.

6. The within-described process of dry-rendering, consisting in subjecting animal fat to heat radiated from a jacketed kettle, agitating the same while being rendered, automatically preventing the gravitation of membrane, and clogging of the outlet, and conveying the oil away as fast as rendered, as and for the purpose specified.



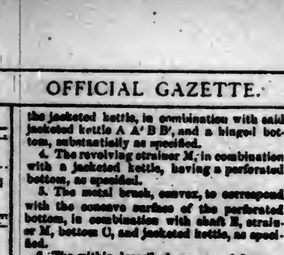
179,884. FORKS. Calvin Adams and S. Jarvis Adams, Pittsburg, Pa. [Filed Dec. 20, 1876.]

Brief.—When the bar is cut from the continuous blank its point is formed and a "recess" for the next one. The branches formed by the recess are forced into the branched opening in the handle.



The combination of the cast-iron handle A, provided with the branched opening, and the bar or blank *d*, recessed at one end and pointed at the other, as shown and described, and for the purpose set forth.

179,885. COFFEE AND SPICE MILLS. Calvin Adams, Pittsburg, Pa. [Filed Dec. 20, 1875.]

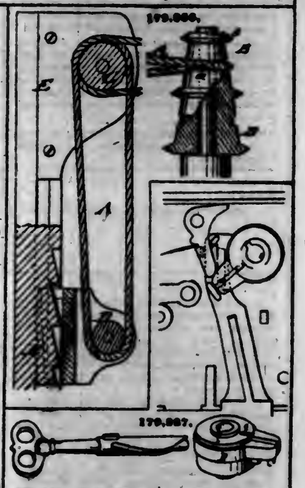


1. The box or receptacle B, provided with the upper grooved edges and bar, and the projection C', in combination with the square or oblong base or lid G of the hopper D, and the curved and slotted catch F, the whole constructed and operated as described, and for the purpose set forth.

2. The combination of the square-shaped opening of the handle, with its countersunk upper edge, with the inverted hollow cone or thimble shaped ring C and the thumb-nut A, fitted to the shaft and handle of a coffee or spice mill, as shown and described, and for the purpose set forth.

179,886. CLOTHES-LINE FASTENERS. Geo. Almond, Jersey City, N. J. [Filed June 26, 1876.]

The combination of the vertical roller B, stationary horizontal roller C, and vertically-adjustable roller D with the endless rope A and suitable supporting devices, substantially as specified.



179,886.

179,887. LOCKS FOR DOORS, &c. Horace L. Arnold, Grand Rapids, Mich. [Filed Aug. 19, 1876.]

1. In a circular-tumbler lock, the combination of a tumbler-chamber capable of axial movement, and circular tumblers, severally gated at their peripheries, with a stamp, and a groove engaging with the stamp, substantially as described, whereby, when the tumbler-chamber is rocked or rotated, the stamp will be caused to enter and leave the gating, and also whereby, when the gating is closed, the chamber will be held against endwise movement.

2. The combination, with circular-disk tumblers, a stamp, and a groove or slot for automatically actuating the stamp, of a rocking or rotating tumbler-chamber, provided with an arm for actuating a bolt, substantially as described.

3. The combination of circular tumblers, a stamp, and a bolt provided with a slot or groove for actuating the stamp with a rocking tumbler-chamber, provided with a slotted arm, which guides the stamp and actuates the bolt, substantially as described.

4. A rotatively-mounted tumbler-case, provided with a talon-arm, which is slotted for receiving and guiding a stamp, substantially as described.

5. A rotative tumbler-case, having one detachable head, an axial key-space in each head, and key-slots in each head adjacent to the axial key-spaces, substantially as described, whereby the tumblers are readily assemblable, the power from the key applied axially to the tumbler-case for rotating it, and the case rotated by the engagement of the key with either head, as set forth.

6. The combination, with a bolt having talon-lugs, of a tumbler-case axially mounted, and provided with a talon-arm, which engages with the talon-lugs when moving the bolt, and a spring-lever pivoted to the case of the lock, arranged to frictionally engage with the talon-arm, and, when the bolt is thrown forward, is arranged to force and hold the end of the talon-arm against the front bolt-leg, substantially as described.

7. The combination, with a rotative tumbler-case, assemblable to the key from both of its sides, and provided with heads, both of which are arranged to rotatively engage with the key, of circular tumblers having legs, which project into a central opening forming the key-chamber, and which, when the gating is opened, have their said legs arranged consecutively in a continuous line, bisected by a plane containing the axial line of the key-chamber at a point midway between the ends of the chamber formed by the tumblers, and divided into two parts, similar and equal, but reversed in direction from said point, substantially as described, whereby, although said tumblers have but one gating each, the several gatings may be placed in coincidence and admit a stamp, when controlled by the same key, entered from either end of the chamber, as set forth.

8. In a key for a circular-tumbler lock, the assembling-groove, with sides which diverge from each other, substantially as described.

9. In a key for a circular-tumbler lock, the gating-groove, having a uniform width, substantially as described.

10. In a key for a circular-tumbler lock, the combination of the assembling-groove with diverging sides and gating-groove of a uniform width, substantially as described.

11. In a key for a circular-tumbler lock, the combination of the assembling-groove with diverging sides, gating-groove of a uniform width, and deranging-groove, substantially as described.

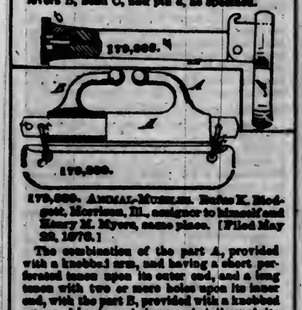
12. In a key for a circular-tumbler lock, a gating-groove of a uniform width, which bisects a plane containing the axial line of the key at a point midway between the ends of the operative portion of said groove, substantially as described.

13. In a key for locks embodying circular tumblers and an axially-mounted tumbler-chamber, the combination, with the gating-groove of a uniform width, of a stud, substantially as described.

179,888. CARTRIDGE-LOADING IMPLEMENTS. Wm. W. Arnold, Bushville, Ind. [Filed June 22, 1876.]

1. A cartridge-manipulator, consisting of a ring with hooks attached, and a lever carrying a bent for capping, and a head for loading, and a pin for uncapping, made and operated substantially as shown and described.

2. The combination of the ring A, hooks *a*, lever B, head C, and pin *d*, as specified.



179,888.

179,889. ANIMAL-MUSEUMS. Burton K. Blodgett, Morrison, Ill., assignor to himself and Henry M. Myers, same place. [Filed May 23, 1876.]

The combination of the part A, provided with a knobbed arm, and having a short perforated tenon upon its outer end, and a long tenon with two or more holes upon its inner end, with the part B, provided with a knobbed arm, and having a hole or socket through its head, the open rings or links C, and the plate D, having its upper edge turned over, substantially as herein shown and described.

179,890. ANIMAL-MUSEUMS. Burton K. Blodgett, Morrison, Ill. [Filed Jan. 7, 1876.]



The quick-acting or self-catching attachment herein described, consisting of the wire spring-clamp C and the plate A, pivoted to the horizontal rod of the clamp C by loops B, as and for the purpose set forth.

179,891. SHOES. Marshall Bodkin, Jersey City, N. J. [Filed Mar. 6, 1876.]



A shoe having a front tongue, provided with a row of buttons and with reversible flaps having corresponding button-holes, substantially as specified.

179,892. MUCILAGE-HOLDERS. Joseph V. Browne, New York, N. Y., assignor to himself and G. W. Rose, Magog, Canada. [Filed May 16, 1876.]

Brief.—The cork has a large core with a small perforation in its inner end, and is provided with a shoulder, to prevent its being forced into the bottle. A cap with a small perforation in its end is combined with the cork sponge, and, by closing the vent and forcing down the cap, air is compressed in the bottle, and when the vent is opened the mucilage will enter the sponge with the air.

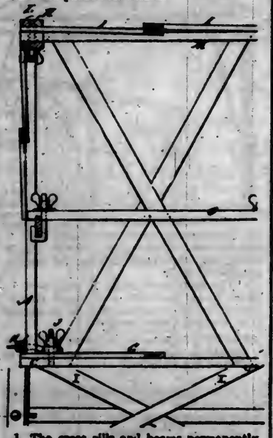


179,892.

A bottle-cork having hole B C, in combination with a sponge, D, and apertured cap E F, arranged in connection with a mucilage-bottle, substantially as and for the purpose specified.

179,893. CRATES FOR SEWING-MACHINES. Andrew J. Callahan, Palmyra, Ill. [Filed Apr. 4, 1876.]

Brief.—A crate for shipping sewing-machines, having braces and binding-screws, to maintain it in the shape for containing the machine, and constructed so as to be taken apart and packed for return.



1. The cross sills and beams permanently connected to the posts, and the longitudinal braces and sills pivoted to them, in combination with the longitudinal sill and beam of one side, having a slotted end to receive and let go the tenons of the posts for opening and closing the crate, substantially as specified.

2. The brace G and screws J K, combined with the posts and braces and sills connected to open and close at one corner, substantially as specified.

3. The cross-bars H, diagonal braces I, and bolts L, combined with the frame constructed to open at one corner, in the manner described.

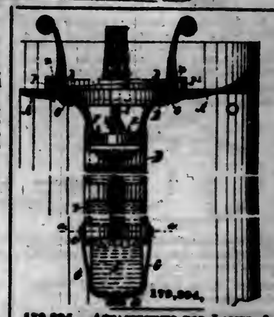
179,894. CHEMICAL FIRE-EXTINGUISHERS. Jeremiah R. Chapman, Danvers, Mass., and Daniel J. Tapley, Brooklyn, N. Y., assignors to said Tapley. [Filed Dec. 30, 1876.]

Brief.—The plug which closes the opening in the cap-plate has on its upper surface the mechanism operating to crush the acid-bottle. The plug engages with the cutter in such a manner as to protect the screw-threads from the action of the chemical solution. As soon, the acid-bottle may be readily removed and renewed.

1. The projections P and P', cast as a part of, or otherwise formed and adapted to, the neck O, or to the shell A of a fire-extinguisher, said projections provided on their inner sides with a groove or recess, *a a*, arranged and adapted for the reception of a section of a male screw-thread, substantially as and for the purposes as herein shown and set forth.

2. In a chemical fire-extinguisher, the plug or head R, provided with a section of a male screw-thread, *c*, projecting from its periphery, and extending beyond the packing-rings, and arranged and operating in combination with the recess or grooves *a a*, formed in the neck O, substantially as and for the purpose as herein shown and set forth.

3. In a chemical fire-extinguisher, the ball G, attached to the base of the cage D, and swinging on the pins or studs *c c*, and arranged and operating to retain the acid-cartridge in the said cage, substantially as and for the purpose as herein shown and set forth.



179,894.

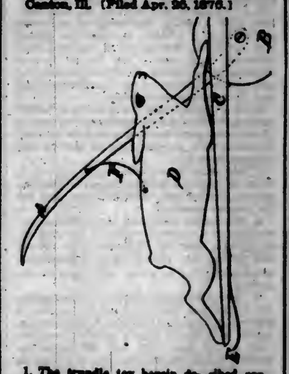
179,895. ATTACHMENTS FOR LAMPS, &c. Ebon S. Chase, Eau Claire, Wis. [Filed Jan. 27, 1876.]

Brief.—An absorbent pad to be placed around the neck of a bottle or lamp to absorb the drip or overflow.



An absorbing-pad for lamps or bottles, formed from a sheet of felt or equivalent absorbent material, with a central hole, and in other respects adapted to fit around the neck of a bottle or lamp, whether the same be covered or not by a metal case.

179,896. TROUBLE TOYS. Gideon W. Cole, Canton, Ill. [Filed Apr. 26, 1876.]



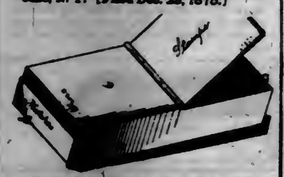
1. The trundle toy herein described, consisting of the handle A, wheel B, and the animal figure, supported by drag-bar C, pivoted eccentrically to said wheel at one end, and

fice at the other, substantially as and for the purpose described.

2. In combination with the subject-matter of the preceding claim, the spring B, substantially as and for the purpose specified.

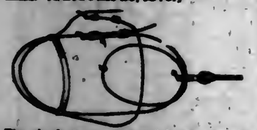
3. The cord F, connecting the handle A and animal figure D, substantially as described, for the purpose of preventing an elevation of said animal figure above the natural leaping motion.

179,897. COMBINED MATCH-SAFES, PIN-CUSHIONS, &c. Irving C. Cowles, Syracuse, N. Y. [Filed Dec. 28, 1875.]



An article for the pocket, consisting of the match-safe A B C, having on half of one of its sides a pin-cushion, D, and on the other half of the same side a receptacle for postage-stamps, F, substantially as described.

179,898. HALSERS. John Orcutt, Boston, Mass. [Filed June 20, 1876.]



The check-straps arranged in the ring B, and forming the nose-loop O of the halter, substantially as specified.

179,899. FARM-REGISTERS. Benj. Davies, Cincinnati, Ohio. [Filed Apr. 3, 1876.]



1. A fire-alarm and registering device, consisting of actuating mechanism, in combination with bevel-gearing, said latter working at a constant relative angle and operating a register-hand, substantially as and for the purpose specified.

2. In an alarm fire-register, the combination, with the casing, consisting of two close chambers, of the alarm mechanism and the registering mechanism, the same separated by a central partition, and connected to each other and actuated by a common spindle, I, substantially as and for the purpose specified.

3. In an alarm fire-register, the combination, with a casing, consisting of two close chambers, of a spindle, to which the alarm and registering mechanism is attached, and actuated, of an alarm-bell located in one chamber of the casing, and having a hammer arranged within the same substantially as and for the purpose set forth.

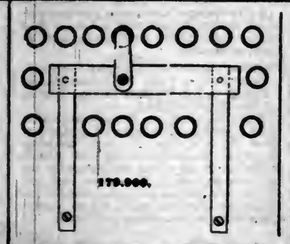
4. In a register, the combination of bevel-gearing, inclined at a constant angle by means of universal-joint connection and an exterior supporting-arm, substantially as and for the purpose described.

5. The cams A, provided with a sleeve, *i*, the same forming a bearing for the bell, ratchet, spindle, and springs, substantially as and for the purpose specified.

6. The combination, with the bevel-gearing, working at a constant angle, of the support-ing-spindle, operating the arm which throws said gearing into close relative engagement, substantially as and for the purpose described.

7. The combination, with the angularly-gearing mechanism and the actuating-spindle, of the two separate and independent registering-hands, said hands rigidly attached respectively to the gear-work and the actuating-spindle, substantially as and for the purpose described.

179,900. KEY-BOARDS FOR TYPE-WRITERS. Philander Deming, Albany, N. Y. [Filed May 9, 1876.]



In a type-writing machine, the combination, with the key-board, of a divisor-bar that is independent of the working mechanism of the machine, located as described, and connected with the stenotypic key, substantially as and for the purpose specified.

179,901. STABLES. Frank M. Dixon, Jefferson City, Mo. [Filed Apr. 4, 1876.]

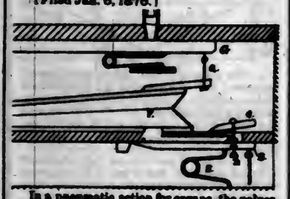
Brief.—Ropes are stretched along the space above the stable, to which are attached the halter and the cord that holds the spring-door, so that when the ropes are turned off, the horse is freed and the door thrown open. An alarm-bell is also attached to one of the ropes



1. The combination of the hitching-cord A and door-cord C, arranged as shown, with a spring-door, B, substantially as and for the purpose set forth.

2. The combination of the hitching-cord A, halter B, and door-cord C, with the door E and alarm-bell J, substantially as herein set forth, for the purpose specified.

179,902. PNEUMATIC ACTIONS FOR PIPE-ORGANS. John Egan, Milwaukee, Wis. [Filed Jan. 6, 1876.]



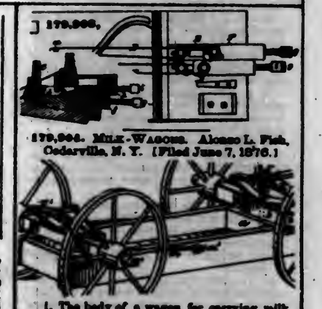
In a pneumatic action for organs, the valves B, C, and G, the spring E, and bellows F, combined and arranged to operate substantially as and for the purpose described.

179,903. TENSION DEVICES FOR PIANO-FORTE STRINGS. Jos. D. Elliot, Newton, assignor to Rogers Upright Piano Company, Boston, Mass. [Filed May 22, 1876.]

1. In a pair of sticks provided with straining-screws and wire fastening-pins, as described, the straining-screw *f* of the upper stick F, applied to screw or work against the lower stick E or a projection, *l*, therefrom, in combination with the screw *g* of said lower stick, arranged to impinge or screw against the support-bar S or a projection therefrom, all being substantially as set forth.

2. In the piano-forte string-straining mechanism, as described, either or each wire-straining stick of the pair E F, as provided with the ear *f* or *h* extended down its rear end, and having its moving screw *g* or *i* screwed through such ear, as represented.

179,904. MILK-WAGONS. Alonzo L. Fish, Cedarville, N. Y. [Filed June 7, 1876.]



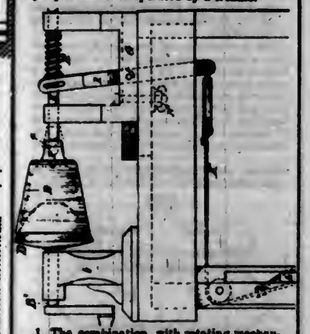
1. The body of a wagon for carrying milk and for other purposes, suspended under both the front and rear axles from springs located upon said axles by bolts or rods pivoted over the longitudinal central line of the wagon, to allow it to swing sidewise, substantially in the manner shown and described.

2. In a milk-wagon having its body suspended under both the front and rear axles from springs and bolts located over its central line, the guide-plate *b*, attached to the front axle to retain the king-bolt D, and allow it to oscillate transversely with the wagon, as and for the purpose described.

3. In a milk-wagon having its body suspended under both the front and rear axles, the transverse diagonal rods *t*, suspended centrally from the top of the spring E, and the longitudinal rods *u*, to connect the rear axle with the said body, and allow it to oscillate substantially as and for the purpose specified.

179,905. PAINTED FLOWER-POTS. Julius Fiske, West Sterling, Mass. [Filed Jan. 17, 1876.]

Brief.—The open end of the foot is held by a conoidal block, the butt-end by a block swiveling on a bar, which is held to its work by a spring, and is withdrawn from its hold by a pivoted lever operated by a treadle.



1. The combination, with rotating mechanism for supporting the large end of a flower-pot, of a yielding pressure-bar, provided with a loose or swiveled head or cap, for pressing against the bottom of the pot to retain it in position, substantially as set forth.

2. The combination, with a rotating conoidal head-block, of a yielding pressure, adapted to support a flower-pot against the conoidal surface of the rotating head, and mechanism for drawing back and releasing said pressure, substantially as herein set forth

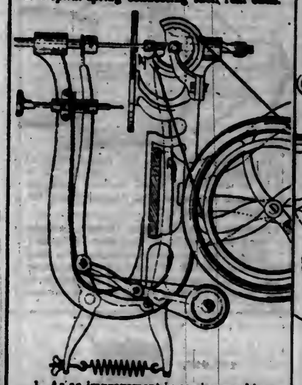
3. The combination, with the rotating conoidal head-block B, of the pressure-bar H, provided with its swiveled cap F, spring H, lever I, and strap and treadle K L, all constructed and arranged for joint operation substantially as described, and for the purpose set forth.

179,906. MANUFACTURE OF GLASS. Wm. Fox, Wheeling, W. Va. [Filed June 16, 1876.]

The herein-described process of treating the ingredients of which glass is composed in an open top crucible or pot by direct contact with the heat, flames, and gases resulting from the combustion of petroleum or other hydro-carbon, substantially as and for the purpose specified.

179,907. SCROLL-SAWS. Peter G. Giroud, Brooklyn, N. Y., assignor to himself and Theodore L. Justice, same place. [Filed May 27, 1876.]

Brief.—The saw is strained by two vibrating arms connected with its ends, which produce the requisite tension through the agency of a spiral spring connecting their rear ends.

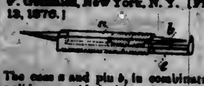


1. As an improvement in sawing-machines, the combination of the reciprocating saw-guiding rods with fulcrumed lever-arms and an adjustable spiral spring, applied to the rear ends to impart steady tension to the saw independent of the driving-power, substantially in the manner and for the purpose specified.

2. In scroll saws, the combination of the recessed saw-guiding rods, having entrance holes, with clamping side-block, encircling collar or head, retaining and fastening screws, substantially as specified.

3. A saw-blade attached to guide-rods by end holes *d*, block *c*, having notch *g* fitting the side recess of rods, collar *f*, and set-screws *f'*, *f''*, as shown and described.

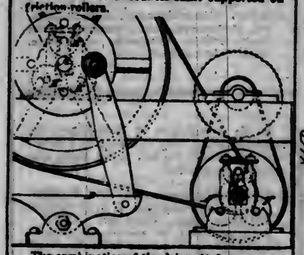
179,908. REMAKING-FASTENINGS. Ramon F. Guzman, New York, N. Y. [Filed May 13, 1876.]



The cam *a* and pin *b*, in combination with the slide *c*, provided with a pin or penetrating point at one end and a guard at the other end, and the spring *f*, bearing upon said slide, substantially as and for the purposes set forth.

179,909. MOTIVE POWERS. Adam Gruner, New Orleans, La. [Filed May 27, 1876.]

Brief.—Belting from a wheel operated by a treadle rotates a counter-shaft supported on friction-rollers.



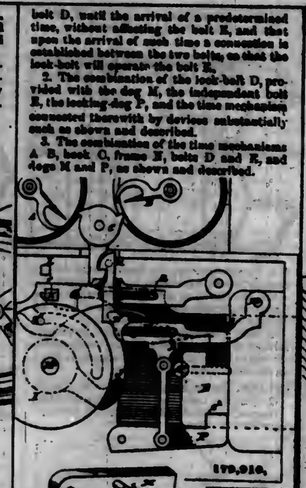
The combination of the drive shaft, counter-shaft, and saw shaft with a roll, H, arranged substantially as and for the purpose specified.

179,910. TIRE-LOCK ATTACHMENTS. Henry Gross, Cincinnati, Ohio, assignor to the Halls Safe and Lock Company, same place. [Filed Mar. 16, 1876.]

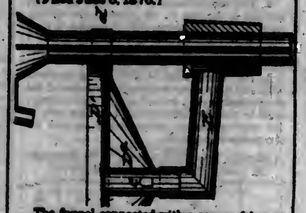
1. The combination of the bolt D of a permutation-lock, an independent locking-bolt, E, a clock-work or time mechanism, and intermediate devices, substantially as herein shown and described, whereby the permutation-lock is left free to lock and unlock and move its bolt D, until the arrival of a predetermined time, without affecting the bolt E, and that upon the arrival of such time a connection is established between the two bolts, so that the lock-bolt will operate the bolt E.

2. The combination of the lock-bolt D, provided with the dog M, the independent bolt E, the locking-dog P, and the time mechanism connected therewith by devices substantially such as shown and described.

3. The combination of the time mechanisms A B, bent C, frame E, bolts D and E, and dogs M and P, as shown and described.

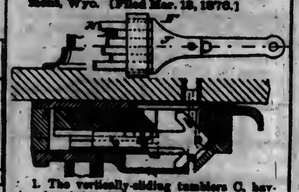


179,911. COMBINED LIQUID-PUMPS AND FUNNELS. Henry A. Gelgeon, Corry, Pa. [Filed June 6, 1876.]



The funnel connected with a recessed bung by an elbow-pipe, B, and with pump by a head, *d*, to enable it to be supported, as shown and described.

179,912. DOOR-LOCKS. Chas. Guild, Piedmont, Wyo. [Filed Mar. 13, 1876.]



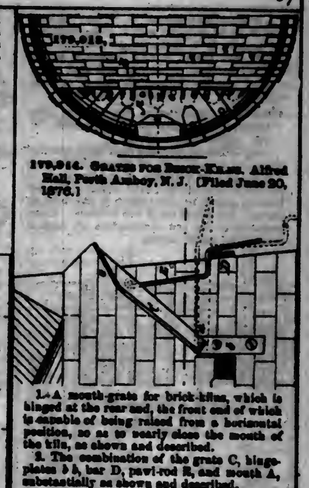
1. The vertically-sliding tumblers C, having bevried ends G, for being operated by a horizontally-working key, substantially as specified.

2. The removable interchangeable wards H, in combination with the key-chamt F, the clamp-piece J, and spring-catch K, as shown and described.

179,913. COAL-BASKETS. Charles Enger, Watertown, assignor to Alba H. Bullard, Lewis, N. Y. [Filed June 6, 1876.]

As a new article of manufacture, a coal-basket of which the body portion is made of splints, B, and the ends of sheet metal, A, substantially as specified.

179,914. GRATES FOR BRICK-KILNS. Alfred Hall, Perth Amboy, N. J. [Filed June 20, 1876.]



1. A mouth-grate for brick-kilns, which is hinged at the rear end, the front end of which is capable of being raised from a horizontal position, so as to nearly close the mouth of the kiln, as shown and described.

2. The combination of the grate C, bloc-plates *b b*, bar D, pawl-rod E, and mouth A, substantially as shown and described.

179,915. RIDING-HARROWS. I. N. Harris and Wm. H. Bowne, Pavilion, Ill. [Filed May 10, 1876.]

An improved riding-harrow, formed of the wheels A, long axle B, frame C, harrow-frame E, clevises F I, and cross-bar H, constructed and combined with each other substantially as herein shown and described.

179,916. CARVING-FORKS. George L. Hart, Bridgeport, assignor of one-half his right to James D. Peary, New Britain, Conn. [Filed July 1, 1876.]



In a carving-fork, the guard D and rest E, arranged upon independent pivots in the shank of the fork, the nose of the rest extending upward to act upon said guard to engage with the guard, and combined with a spring to hold the two in their engaged or in their closed position, substantially as described.

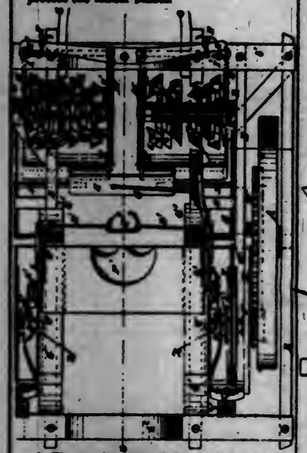
179,917. SAW-DUCES. Layton Hawkins, Washington Township, Hendricks County, Ind. [Filed Feb. 18, 1876.]



A counterbalanced bank, J, formed with an arm, K, to be operated with a continuing-rod and treadle, D O, and also provided with an arm, G, and weight H, and pivoted as shown at F, all arranged to operate and hold wood or other articles while in the act of sawing, substantially as set forth and described.

179,918. OBLIVATOR-PLOWS AND HARROWS. Jacob Rhynsburger, Hunterstown, W Va. [Filed May 1, 1876.]

Brief.—The frame of the machine is mounted upon two wheels, both of which are driving-wheels, and by a system of cog-gears put in motion a large pulley, over which a driving-band is passed to give motion to the rotating plows. The plows are in two sections. Upon each side of the rear shed-fenders are used to protect the tender plants.



1. The combination of the stationary rod D, the chains F, the connecting-rod G, and the lever H, with the main frame B, and with the frame E, that carries the plows I J K L, substantially as herein shown and described.

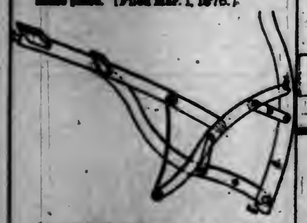
2. The pivoted frames X, and spring-catch bars Y, in combination with the journals of drive-wheels A, frame E, and rotary plows L, substantially as and for the purposes specified.

179,919. LOCKS FOR DOORS, &c. Theodore Hendrickin, New York, assignor to himself and Wm. B. Price, Brooklyn, N. Y. [Filed May 16, 1876.]



A tubular bolt provided with a split or double spring, K, having hook ends of different length to engage with a catch-plate, as shown and described.

179,920. FOLDING CHAIRS. R. C. Holton, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Mar. 1, 1876.]



In combination with the legs of a folding chair, the rockers a, pivoted at t to the front legs, and the links c, connecting the back legs and rockers, and placed in a diagonal position by being pivoted at their upper ends to the back legs, and at their lower ends to the rockers, at a point in front of the rest u, substantially as set forth.

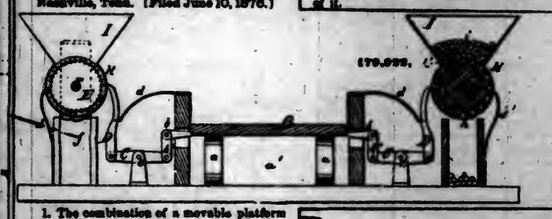
179,921. FRUIT-DRIERS. Samuel W. Hope, Dover, Del. [Filed May 1, 1876.]



1. In a fruit-drier, the combination of two compartments, a partition, D, having openings c, and the elevators arranged side in each compartment, substantially as shown and described, to operate as specified.

2. The elevators or hoisting apparatus formed of the sections I J, each connected to the other by a detachable hook-and-eye joint, as shown and described.

179,922. REGISTERING APPARATUS. Joseph C. Jenkins, Lebanon, and Cannon Jenkins, Nashville, Tenn. [Filed June 10, 1876.]



1. The combination of a movable platform of a toll-gate with a tallying-drum and tallying-balls or other bodies for counting the number and degree of weighing or gaging done upon the said platform, in the manner substantially as set forth.

2. The combination of the platform B, the springs a, the link b', the lever C, the spring-pawl D, the ratchet-wheel E, the drum G having notches g, the cover H having openings h h', the hopper I, and the balls i, substantially as and for the purpose set forth.

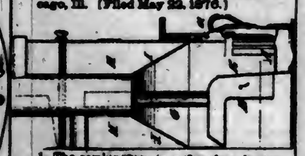
3. The combination of a weighing-platform with two tallying or counting apparatus of the above description, and of which one is accessible to the toll-gatherer and the other only to the superintendent, substantially as and for the purpose set forth.

179,923. HOSE-COUPLINGS. J. W. Kennedy, St. Louis, Mo. [Filed June 15, 1876.]



The combination of the rims A, sleeves C, and right and left hand screw-threaded tube-section D with the hose B, substantially as set forth.

179,924. FIRE-PLACES. M. B. King, Chicago, Ill. [Filed May 22, 1876.]

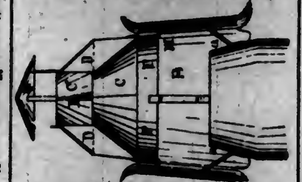


1. The combination, in a fire-place heater, of the hollow back plate E, having air-inlet, the pipes G, the air-chamber H, and the funnel I, all constructed and arranged substantially as and for the purposes specified.

2. The combination, with fire-flue having enameled front, of a blower having air-inlet, to prevent the blaze from striking the enamel, as set forth.

179,925. VENTILATING-COWLS. John G. Lamont and Greenleaf L. Swett, Boston, Mass. [Filed June 26, 1876.]

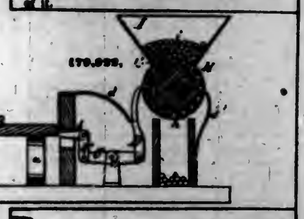
Brief.—The currents of air deflected upward through the radial inclined passages cause a draft in the pipe. To the lower extremity of the cone having vertical divisions is attached a rim, to act as a snow and rain guard.



In a ventilator-cowl, the combination of the wind-shield B with the cowls C C' D D D D, by which the radial inclined passages are formed, substantially as described, and for the purpose set forth.

179,926. CUTTER-HEADS. John Lawrence, New York, N. Y. [Filed Mar. 17, 1876.]

Brief.—The cutters are attached to a backing-piece secured to the body of the cutter-head, each cutter being partly supported by the backing-piece or cutter-stock in advance of it.



A cutter-stock, bolted upon the cutter-head and receiving upon it a cutter, in combination with a cutter, bolted to the cutter-head and supported at one edge by the cutter-stock projecting over the edge of the cutter, substantially as set forth.

179,927. TABLE-CUTLERY. J. B. H. Leonard, Bridgeport, Conn., assignor to the Frary Cutlery Company, same place. [Filed July 1, 1876.]



In the manufacture of table-cutlery, the herein-described tang, consisting of a nicked screw attached to the heel of the blade, substantially as specified.

179,928. MACHINES FOR SCOURING, SETTING, AND GLASSING LEATHER. F. A. Lockwood, Fall River, Mass. [Filed May 1, 1876.]

1. In machinery for scouring, setting, or glassing leather or beaming hides, the combination, with the table A, of the upright trunk, carrying an overhanging beam, which bears the tool-operating mechanism, said trunk being located at one side of the table, and arranged to travel to and fro of said table, as and for the purposes set forth

2. In machinery for scouring, setting, or glassing leather or beaming hides, the combination, with the skin-supporting table, of a rigid horizontal beam, supported at one end, and susceptible of variable or adjustable movements in right lines horizontally, or both horizontally and vertically, bearing a tool-carriage, substantially as and for the purposes stated.

3. In machinery for scouring, setting, or glassing leather or beaming hides, the combination, with a stationary skin-supporting table, of a horizontal rigidly-attached beam overhanging the table, and an upright trunk disposed to one side of the latter, the beam carrying the tool-carriage, and being supported by and sliding vertically upon the trunk, and the latter susceptible of traversing to and fro of the table, upon suitable rails or ways, substantially as and for the purposes stated.

4. The combination, with the tool-carriage, of feed mechanism, substantially as described, adapted to operate the carriage to travel over the table in any desired direction, and at equal or variable speeds, substantially in the manner shown and set forth.

5. The combination, with the tool-carriage and the feed mechanism which operates said carriage, as described, of mechanism which automatically stops the movement of the carriage at the times and in the manner set forth.

6. The combination, with the table A and its supporting-frame or stage, of adjusting-screws, whereby the stage is adapted to be inclined or irregular floors or foundations, and the table is adjustable with respect to the plane in which the tools move, essentially as and for the purposes stated.

7. The combination, with the beam E and truck K, of the eccentric f, operated substantially as described, to effect the vertical adjustment of the tools with respect to the table.

8. The combination of active and idle pulleys i, j^2, s^2, j^3, b^2, s^3, s^4, and P, substantially as shown, whereby the tools may be operated in different positions with respect to the table with one belt, in addition to the belt of the driving-pulley s^4, essentially as and for purposes stated.

9. The combination of the pulleys s^4 and s^2 with the standards or columns b^2 and s^3, substantially as herein shown, whereby the positions or angles of such pulleys are readily adjusted, and they become interchangeable with respect to each other and to the machine, essentially as and for purposes stated.

10. The combination, with the tools or tool-holders, of an annular cam, arranged and operating to oscillate or alternately elevate and depress the tools, substantially as shown and set forth.

11. The combination, with each dressing-tool and its stock, or both, of a scraper, operating automatically to remove from the working edge of the tool accumulations of foreign matter, substantially as and for purposes stated.

12. In machinery of the class hereinbefore mentioned, the combination, with the tool-carriage, and cradle and mechanism for operating said carriage, of air-cylinders and pistons, substantially as shown and set forth, whereby the thrusts and strains consequent upon the crank passing its dead-center are cushioned and lessened, and the machine is relieved from their effects.

13. The combination, with the tool-supporting carriage and the annular frame or plate k^2, of the double latch, composed of the latch-bar i^3 and catch i^4, supported upon the arm f^1, and operating with the notched plate q^1, essentially as and for purposes stated.

14. The combination, with the tools and beam or device which alternately raises and lowers the same, of the cam f^3, formed substantially as shown and set forth, to confine or hold the opposite tools rigidly and powerfully in their respective positions, as described.

15. The combination, with the truck and tool carrier, of the sleeves by which the traverses of the same are effected, and the rods q^1 q^2 and governor wheel or disk s, substantially as set forth.

16. The mechanism for effecting the traverse of the truck and its adjuncts to and fro of the table, consisting of the rack V, pinion W, shaft X, gear a, pulleys b k, gears $c c'$, pinions $f f'$ and $s s'$, in combination with the intermediate sleeves o and o^2, shipper rods q q^1, and governor hand-wheel s, substantially as and for the purposes stated.

17. As a means of arresting automatically the travel of the truck and tool-carriage, the curved levers o^3 o^4 and rods f^4 f^5, in combination with the governor wheel s, to throw the shippers q^1 q^2 and disengage the clutch-sleeves o o^2 from the pinion with which it is engaged, substantially as and for purposes stated.

18. The double latch, constructed substantially as described, in combination with a notched plate carried by the tool-carriage, in order to lock the latter in any given position, substantially as and for purposes stated.

19. As a means of automatically arresting the travel of the tool-carriage upon the beam E, the bent lever f^5, in combination with the rods s^5 and s^6, substantially as stated, such movement of the lever having the effect of disengaging the clutch by which the carriage is coupled to the mechanism which drives it, essentially as and for purposes stated.

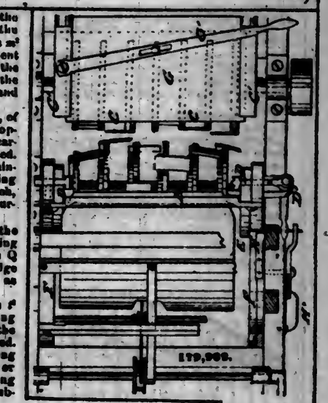
20. The combination, with the bolts n^1, of the rods f^6, by which such bolts may be operated from opposite sides of the tool-carriage, substantially as and for purposes stated.

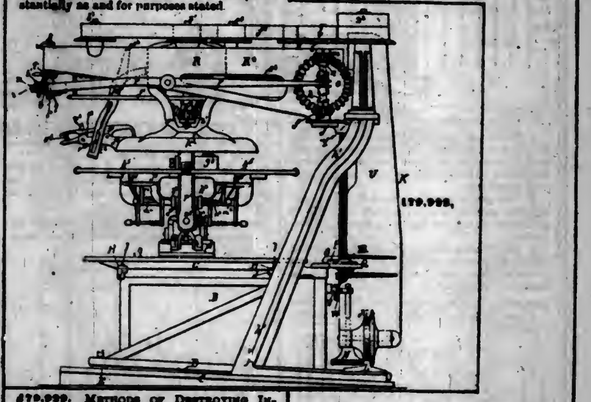
21. The means herein described for maintaining the elevation of the brush, consisting in the point of the cam f^3 entering a notch, s^7, in the bar r^2, substantially as and for purposes stated.

22. The truck K, in combination with the trundles M and guide-rollers N, operating upon the rail L, as stated, and the rollers Q and hooked studs O, operating upon the ledge P, as stated, the whole being substantially as and for purposes stated.

23. The combination, of the wiper-cams f^1 and notched lifting-bar s^8, for maintaining the elevation of the brush, or lowering the same, substantially as and for purposes stated.

24. The combination, with the oscillating beam b^1, of cam-sleeves s^7, for elevating or lowering the tools p out of or into working position while the machine is in motion, substantially as and for purposes stated.

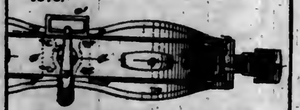




179,929. METHODS OF DESTROYING INSECTS. S. Lesser and I. Lesser, of Trier, Prussia. [Filed Jan. 18, 1876.]

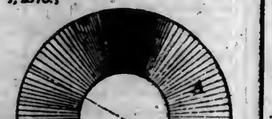
The method herein described of destroying insects and vermin by the combustion, within a closed apartment, of a compound of sulphur, nitre, and iodine, in a metallic vessel coated with indigo, substantially as set forth.

179,930. HARNESS-PADS. M. V. Longsworth, Delphos, Ohio. [Filed May 27, 1876.]



The combination, with terrets G and screws H, of the upwardly-flanged plates, having oval loops forming a part thereof, substantially as and for the purpose specified.

179,931. NUT-LOCKS. K. H. Loomis, New York, assignor of one-half his right to J. A. Lighthall, Syracuse, N. Y. [Filed Jan. 7, 1876.]



A nut-locking washer, made in circular form, with a series of radial corrugations inclined toward the center, and all diametrical surface-lines crossing the same central point, substantially as and for the purposes herein set forth.

179,932. MACHINES FOR DRESSING STAVES. A. Lockhaupt, Columbus, Ohio. [Filed June 20, 1876.]

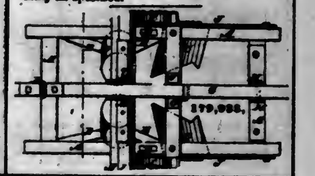
Brief.—The staves are firmly clamped and held in a weighted and swinging frame, working in arc-shaped guides while being dressed by two series of cutters, mounted to shafts revolving in opposite direction, and adjustable to cut staves of the desired shape.

1. A machine for making staves, composed of two sets of cutting-knives, applied to shafts revolving in opposite direction, in combination with a swinging stave-clamping frame, substantially in the manner and for the purpose specified.

2. The combination of the swinging frame E, having stave-clamping jaws, with a sliding table or guard-plate, G, entering between the jaws and cutters to admit ready fastening of the wood, substantially as specified.

3. The combination of the swinging and weighted stave-frame E, having side slots, with the arc-shaped guides approaching nearer to the center at the lower parts, to produce sliding of the frame simultaneously with the swinging motion, for the purpose specified.

4. The combination of the swinging stave-frame E and guides F with a spring-locking device, H, and releasing-treadle H', substantially as specified.



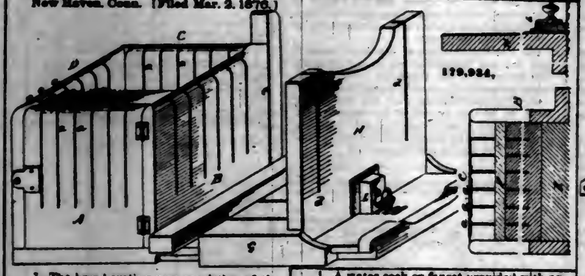
179,923. RIDGE-FORMING MACHINE. A. D. Martin, Abbeville, La. [Filed May 22, 1876.]

Brief.—Plows for throwing the dirt inward, to be pressed by inclined rollers into a ridge. The plows and rollers are raised from the ground by depending arms carrying bearing-wheels.

1. The combination of the plows B U and the two inclined rollers D with each other, and with the frame A, substantially as herein shown and described.

2. The combination of the wheels I, the draw-bars J, the standards E, the cross-bar L, and the lever F, with the frame A, to which the plows B U and the inclined rollers D are attached, substantially as herein shown and described.

179,924. BREAD-CUTTERS. N. W. Marvin, New Haven, Conn. [Filed Mar. 2, 1876.]

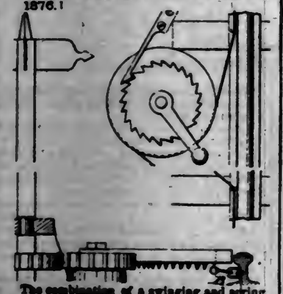


1. The bread-cutting case consisting of the four sides A B C D, two of which are hinged to open the case, and each provided with vertical slits, substantially as and for the purpose described.

2. The stationary slitted end B and the adjustable correspondingly-slitted end H as guides for sizing the loaf, substantially as described.

3. The combination of the stationary slitted end B, adjustable slitted end H, the slide G, provided with slots *f*, and the guide *h*, substantially as described.

179,925. RAILWAY-SIGNALS. Jas. B. McCarty, Cold Spring, N. Y. [Filed June 20, 1876.]



The combination of a swinging and spring lever-arm carrying a torpedo or other detonating device, and of a common signaling-post, worked in connection therewith, with a wire running along the track, and suitable operating mechanism, at some distance from the same, that sets or releases the signals as required, substantially as and for the purpose described.

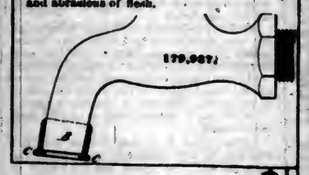
179,926. HAWSER-CLAMPS. W. H. McGill and F. Bowen, Angelica, Pa. [Filed May 1, 1876.]



A rope-socket composed of the socket A tapering rope-clamping piece C, fastening wedge-keys D, and pins D', substantially as specified.

179,927. ELASTIC THIMBLES FOR FAUCET-NOZZLES. Samuel McKee, Louisville, Ky. [Filed Apr. 29, 1876.]

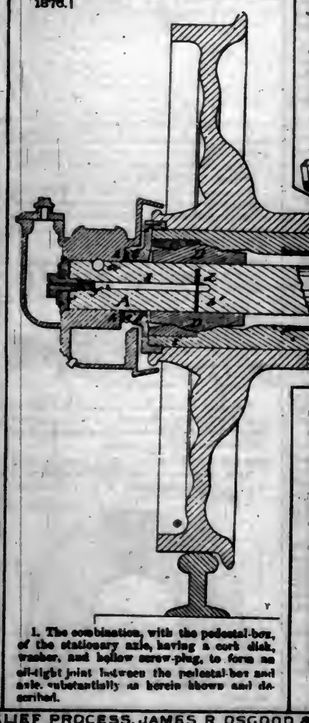
Brief.—An elastic thimble surrounds the discharge-nozzle of a water cock or faucet, to prevent the chipping of glass and china ware, and abrasions of flesh.



1. A water cock or faucet provided with an elastic thimble surrounding the discharge-nozzle, as and for the purposes specified.

2. The elastic thimble B, provided with a ring enlargement, C, in combination with the discharge-nozzle of a water cock or faucet, as and for the purposes specified.

179,928. CAR-AXLE BOXES. George W. Miltimore, Janesville, Wis. [Filed May 1, 1876.]



1. The combination, with the pedestal-box, of the stationary axle, having a cork disk, washer, and hollow screw-plug, to form an oil-tight joint between the pedestal-box and axle, substantially as herein shown and described.

2. The combination of the closing screw and cap of the outer revolving axle or sleeve, said cap having an outer rim or head, with a drip-oil chamber below the stationary axle, substantially as herein shown and described.

3. The combination of the revolving journal-box, having a convex annular part and tapering ends with the annular concaved and inclined revolving sleeve, and intermediate ring, to provide for the oscillating motion of the journal-box, substantially as herein shown and described.

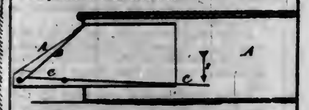
4. The outer axle or sleeve, made of a lateral wrought-iron section, and cast-iron end sections, substantially as herein shown and described.

179,929. BLUE DYES. G. Holt, Millbury, Mass. [Filed Feb. 19, 1876.]

The blue dye described, composed of indigo, oxalate, ammonia, coal ammoniac, and potash or soda-ash, in the proportions substantially as above set forth.

179,930. ANIMAL-TRAPS. John H. Morris, Seward, Nebr. [Filed June 6, 1876.]

Brief.—The door is always open until the animal attempts egress. His weight upon the platform then closes it.



1. The combination of the hinged gate B and the tilting platform C with the end or ends of the passage A, substantially as herein shown and described.

2. The combination of the passage D, the box E, and the drop-gate F with the passage A, provided at one or both ends with a hinged gate, B, and a tilting platform, C, substantially as herein shown and described.

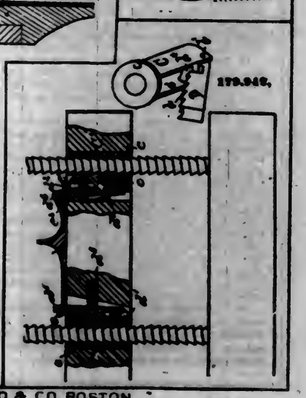
179,931. TOY PISTOLS. H. Moeller, F. A. Kornmeyer, and J. Gross, Decatur, Ill. [Filed May 10, 1876.]

1. A toy pistol and burglar-alarm, when constructed with the body A, plate B, hammer H, spring I, screw E, and projection *c*, and combined as shown and described.

2. The projection *c*, in combination with the screw E, body A, and plate B, as shown and described.

3. The hammer H, when constructed with a plane inner surface and beveled at *h*, as and for the purpose set forth.

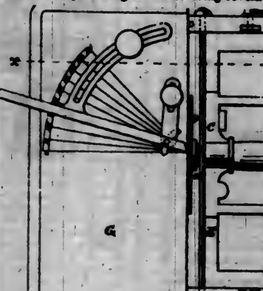
179,932. CAR-COUPLINGS. W. L. Murdock, Melville, Mo. [Filed May 22, 1876.]



The combination of a swinging arm, D, having threads *d*, pivoted to a sleeve, C, having slot *e* and shoulder *f*, in combination with a head-screw of a joiner's clamp, to operate as set forth.

179,933. KEY-FASTENERS. W. Nerscher, Cleveland, Ohio. [Filed June 22, 1876.]

Brief.—A spring-bolt is arranged so as to automatically engage with a notched projection on a key, for the purpose of preventing the key from being turned.



The case E, slide or bolt F, spring G, and finger-piece H, in combination with the key D, notched leg I, and door A, substantially in the manner as described, and for the purpose specified.

179,934. MITERING-MACHINES. Albert T. Nichols, Williamsport, Pa. [Filed Dec. 9, 1875.]

Brief.—The saw-arbor has its bearings in a sliding carriage, which is advanced to the work by means of a foot-lever, and is also raised and lowered by means of a rack and pinion. The top of the saw-table is in two sections, removably attached to the frame by means of a dovetail groove, and held at any point by a rod and thumb-nut. On each section is an adjustable guide for securing bevels.

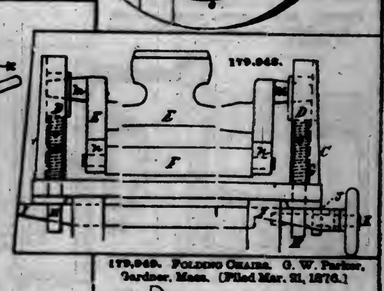
1. The independently-sliding table-tops G G, each connected to the frame A by dovetails on the same level, in combination with the rod E and thumb-nut *d*, substantially as and for the purposes herein set forth.

2. The combination of the table-top G, having graduations *e f* and curved slot A, with the guide H, having its inner end beveled to a point, and provided with the pin *i*, the slotted arm K, connected to the guide H at its inner end, and the slotted and curved arm I, connected near the outer end of the guide H, and the set-screws J I, all substantially as and for the purposes herein set forth.

3. The traversing saw D, connected to the carriage C, movable on the trays B, in combination with the ranks N, pinions O, and shaft P, substantially as and for the purposes herein set forth.

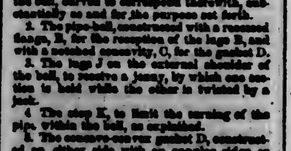
179,935. FELLOES TENON. R. Noble, Brunswick, Ga. [Filed May 27, 1876.]

Brief.—A metal cap covers the ordinary tenon, and has pendent prongs integral with it, to be forced into the inserted filling while it is yet soft.



The metal cap C, having pins on under side integral therewith, substantially as shown and described.

179,936. CAR-COUPLINGS. W. L. Murdock, Melville, Mo. [Filed May 22, 1876.]



The combination of the spring E and lever F with the lower side of the bumper-head A, substantially as herein shown and described.

179,937. MODES OF CONSTRUCTING AND LAYING MAIN AND SERVICE PIPES FOR WATER, GAS, &c. A. O'Neill, Baltimore, Md. [Filed Dec. 27, 1876.]

1. The chilled collar *h*, formed on the spigot end of the pipe, with lugs projecting therefrom, as set forth.

2. The dead end B, constructed, as herein described, with a conical bearing-face *h*, and convex lugs, B, adapted to the bell end, above described, and with lugs for the application of a jack, for twisting in the said dead end, as explained.

3. The ferrule P, constructed with a tapering end surrounded by a thimble, *n*, of other metal, to form a close joint when driven into an aperture in the main, as explained.

10. The outlet O of the Y or connection of the main, constructed with a conical seat and inclines, formed as described, for the optional reception of a cone, E, or a cervice T.

11. The annular cup H, employed to close the outlet O by means of a suitable gasket, or to receive a wrought-iron or other service-pipe.

179,938. LEATHER-SPLITTING MACHINES. E. F. Osborne, Newark, N. J. [Filed May 31, 1876.]

The combination of the cutting-frame E, roll F, springs O, and boxes D D above the plate A, with the connected wedges I I and screw K below the plate, and rods H H, for transmitting the motion from the wedges through plate A, in the manner described.

179,939. FOLDING CHAIRS. G. W. Parker, Gardner, Mass. [Filed Mar. 31, 1876.]

1. The chilled convex pipe and constructed, substantially as herein described, with lateral lugs formed with faces convex in both directions, in combination with bearings within the bell, curved to correspond therewith, substantially as and for the purposes set forth.

2. The pipe-bell, constructed with a recessed flange, B, for the reception of the lugs B, and with a notched concavity, C, for the gasket D.

3. The lugs J on the external shoulder of the bell, to receive a jimmy, by which one section is held while the other is twisted by a jack.

4. The stop K, to limit the turning of the pipe within the bell, as explained.

5. The concave-convex gasket D, constructed on either side with an annular ridge or feather edge, and with external lugs *d'*, substantially as and for the purposes set forth.

6. The combination of a central pipe-end with holding-lugs or their equivalent B, a bell and flanged end recessed to receive said lugs, and a compressible gasket, to form a tight flexible joint, substantially as herein set forth.

1. The combination of the pivoted or hinged standards C, whether parallel or crossed, with the posts A B and the hinged seat D of a chair, substantially as herein shown and described.

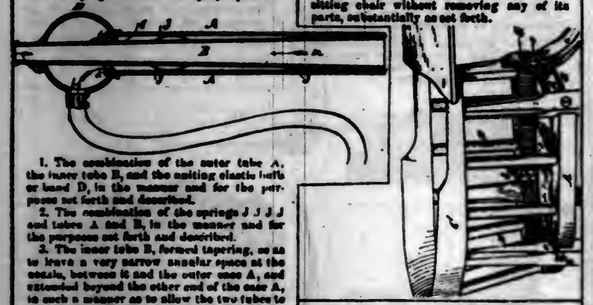
2. The rockers F, held to lower end of posts A by mortise, tenon, and hinge, as set forth.

3. The combination of the pivoted or hinged arms I with the posts A B, the pivoted or hinged standards C, and the hinged seat D of a chair, substantially as herein shown and described.

4. The combination, with seat D, hinged to posts B, of the arms *f*, arranged substantially as and for the purpose set forth.

179,950. STRAINER. J. G. Parsons, Indianapolis, Ind., assignor to himself and J. H. Trusty, same place. [Filed June 14, 1876.]

Brief.—The mentioned fluid is injected through a pipe, which inclosed a second pipe, through which the fluid runs out from the vagina. A rubber collar connects the two at the outer end, and springs between the two aid in keeping the inner one in proper position.

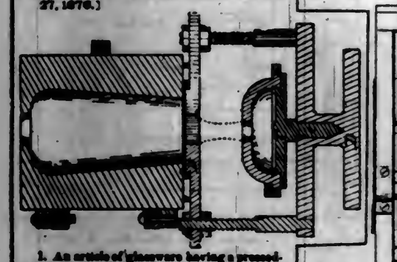


1. The combination of the outer tube A, the inner tube B, and the canting elastic bulb or band D, in the manner and for the purposes set forth and described.

2. The combination of the springs J J J J and tubes A and B, in the manner and for the purposes set forth and described.

3. The inner tube B, formed tapering, so as to leave a very narrow annular space at the nozzle, between it and the outer case A, and extended beyond the other end of the case A, in such a manner as to allow the two tubes to be united by the band D and to allow fluids to pass out of the syringe at the nozzle C, and to return and fluids through the interior of the inner tube B, in the manner set forth and described.

179,951. MANUFACTURE OF GLASSWARE. T. G. Peare, Pittsburg, Pa. [Filed June 27, 1876.]



1. An article of glassware having a pressed-glass foot, or foot and stem, and a seamless blown bowl, substantially as herein described.

2. As an improvement in the manufacture of footed or footed and stemmed glassware, wherein a pressed foot is united to a blown bowl, causing the interior of the foot and bowl intimately to the mold, or the rotation of the mold relatively to the foot and bowl during the time the bowl is being blown, substantially as and for the purpose specified.

179,952. ELASTIC FROG-PAD. George W. Phillips, Rochester, assignor of part of his right to W. B. Moor, same place, and C. A. Phillips, Sterling, N. Y. [Filed Jan. 10, 1876.]



An elastic frog-pad, consisting of the oblong leathern rubber and cloth pad F, having the flat tapered wings b, and with or without the nipples a applied in the manner and for the purposes substantially as shown and described.

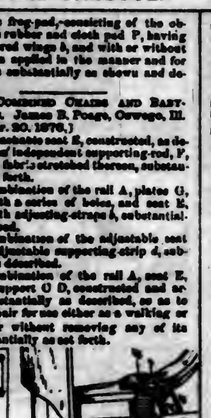
179,953. COMBINED CRADLE AND BABY-WALKER. James B. Poage, Oswego, Ill. [Filed Mar. 20, 1876.]

1. The detachable seat E, constructed, as described, of an independent supporting-rod, F, and suitable fabric stretched thereon, substantially as set forth.

2. The combination of the rail A, plates G, provided with a series of holes, and seat E, provided with adjusting-straps b, substantially as described.

3. The combination of the adjustable seat E and the adjustable supporting-strip d, substantially as described.

4. The combination of the rail A, seat E, and upper support C D, constructed and arranged substantially as described, so as to adapt the chair for use either as a walking or sitting chair without removing any of its parts, substantially as set forth.



179,954. MACHINES FOR MAKING WOOD SCREWS. Daniel P. Ramsdell, New Haven, Conn., assignor of one-half his right to C. B. Payne, Brooklyn, N. Y. [Filed June 6, 1876.]

Brief.—The shoe is attached to a vertical slide moving upon a horizontal one; the position of the slides, and, consequently, the position of the shoe, with relation to the boring-tool, which excavates its interior, being controlled by two rotating formers, which act upon the slides as they are advanced toward the boring tool.

The combination of the vertical and transverse slides, the shoe-blank holder, arranged upon one of the said slides, and a revolving former-cam, actuating each slide independent of the other, whereby a combined vertical and transverse movement is imparted to the said holder, and a longitudinal feeding device for the said two slides, with the revolving cutter, all constructed and arranged substantially as specified.

179,955. WEATHER-BOARDING. Thomas Reynolds, East New York, N. Y., assignor to himself and J. W. Brewer, same place. [Filed Jan. 22, 1876.]



Clapboard, siding, and roofing tongue-and-groove-jointed in the laps C, substantially as specified.

179,956. CHAIR. Aaron Rice, Fitchburg, Mass., assignor to Walter Heywood Chair Company, same place. [Filed June 12, 1876.]

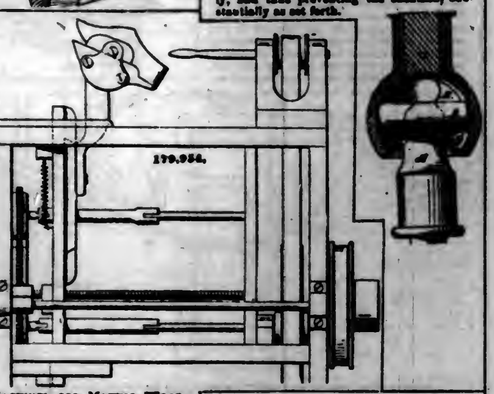


An improved chair, in which the upper ends of the back-posts D are connected with the ends of the back-top E with a tongue-and-groove joint, substantially as herein shown and described.

179,957. COUPLINGS FOR TURNING-SHAFTS. G. E. Elder, Martin's Ferry, Ohio. [Filed Apr. 20, 1875.]

Brief.—The head is made of elongated and oval shape, to allow the wide lateral bearing-surfaces to have close contact with those of the shell.

The elongated and oval head A, closely fitting between the flanges or wearing-surfaces D of the shell, for the purpose of allowing a complete joint, and yet holding the head closely, and thus preventing the backlash, substantially as set forth.



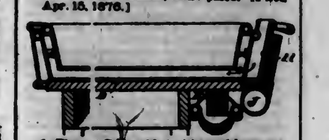
179,954.

179,958. MACHINES FOR MAKING WOOD SCREWS. Daniel P. Ramsdell, New Haven, Conn., assignor of one-half his right to C. B. Payne, Brooklyn, N. Y. [Filed June 6, 1876.]

Brief.—The shoe is attached to a vertical slide moving upon a horizontal one; the position of the slides, and, consequently, the position of the shoe, with relation to the boring-tool, which excavates its interior, being controlled by two rotating formers, which act upon the slides as they are advanced toward the boring tool.

The combination of the vertical and transverse slides, the shoe-blank holder, arranged upon one of the said slides, and a revolving former-cam, actuating each slide independent of the other, whereby a combined vertical and transverse movement is imparted to the said holder, and a longitudinal feeding device for the said two slides, with the revolving cutter, all constructed and arranged substantially as specified.

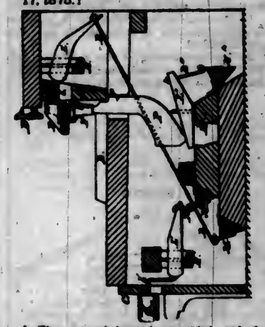
179,959. MILK-COOLERS. Thomas Roach, Hoyelton, N. Y., assignor of one-half his right to O. T. Smith, same place. [Filed Apr. 10, 1876.]



1. The vat B, provided with partition a, extending up both ends of the vat, and side partitions b b, extending up one of the ends of the vat, and leaving a passage, *b' b'*, between the other end of the vat and the end of the partition, and two water-inlets, *c c*, one on each side of the central partition, and outlets *x x*, substantially in the manner and for the purposes herein set forth.

2. In combination with the vat B, having a partition, a, extending up both ends of the vat, and side partitions b b, extending up one of the ends of the vat, and leaving a passage, *b' b'*, between the other end of the vat and the end of the partition, and two series of outlet-openings, *x x*, barrels or chambers H H, and plugs I I, substantially in the manner and for the purposes herein set forth.

179,960. REED-ORGAN STOP-ACTIONS. J. S. Robinson, North East, Pa. [Filed Aug. 17, 1876.]

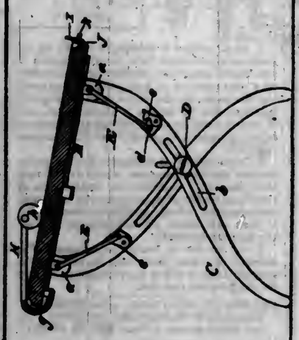


1. The pivoted lever L, provided with the finger-key K, arranged to project through the name-board, the rod R, and stop M, all constructed and arranged to operate substantially as and for the purposes mentioned.

2. The pivoted lever *L'*, provided with the finger-key G, arranged to project through the key-slip, the rod R', and stop M, all constructed and arranged to operate substantially as and for the purpose set forth.

3. The combination of the key F, vertical plunger P', lever *L'*, rod R", and stop M", the said parts being constructed and arranged to operate substantially as and for the purposes set forth.

179,961. FOLDING TABLES. W. A. Root, Ilion, N. Y. [Filed June 6, 1876.]



1. In combination with the top A, the transverse plates B hinged thereto, and the slotted and crossed legs C, pivoted to the plates B, and provided with a clamping-screw, D, substantially as shown and described.

2. The laterally-swinging braces E, provided with the enlarged heads, in combination with the folding legs C, provided with the recesses *d* and the hooks *a*, constructed and arranged as shown, whereby the heads of the braces are caused to lock edgewise into the legs and held thereby by the hooks.

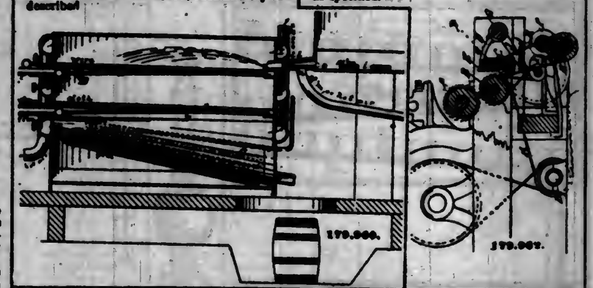
3. In combination with the pivoted crossed legs, adjustable on their pivots, as described, the folding braces E, hinged at points in line with the pivots of the legs, as and for the purpose described.

4. In combination with the pivoted crossed legs C, provided with the slots *b*, and racks *l*, the pivots *m*, mounted and arranged to operate substantially as shown.

5. In combination with the tilting table-top A, the shelf H, provided with the slotted arm *g*, and eccentrics *h*, as shown.

6. In combination with the table-top A, the guard-plate I, and the disks J, provided with the eccentric pins K.

7. In combination with the hinged plates B, having the legs C pivoted thereto, the studs or lugs *f*, or their equivalents, to retain the legs in place when folded.



179,962. CARDING-MACHINES. J. C. Ryan, Amesbury, Mass. [Filed Apr. 18, 1876.]

Brief.—The device consists of a pair of intermittent feed-rollers, a knife for holding back the yarn or silver, and a wipe-roll, by which the yarn is supplied to the doffer of a carding-machine, and there combined with the stock forming the ground-work of the yarn, for the purpose of giving the latter a mottled appearance.

1. The combination of the knife R, automatically-rotating feed-rolls C D, and the wipe-roll B with the doffer of a carding-machine, substantially as specified.

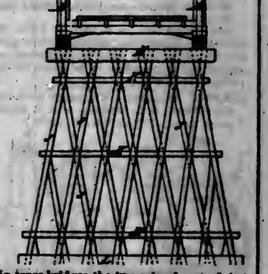
2. The cam I, slotted disk O, rock-shaft G, arm J, pawl M, ratchet N, knife R, and feed-roller C, combined and arranged substantially as specified.

179,963. DESSERT COMPOSITIONS. Leopold Schepp, New York, N. Y. [Filed May 9, 1876.]

Brief.—The composition is to be added to other compositions commonly employed in the manufacture of cocoa-nut articles.

A preserve composition for cocoa-nut articles, composed, mainly, of purified or rhizomized cocoa-nut and purified cocoa-nut oil, substantially as and for the purpose specified.

179,964. LATTICE-FRAMES FOR TREES TRUSS-BRIDGES. Lewis Scott, Brighton, Mich. [Filed Apr. 18, 1876.]



In truss-bridges the two sets of posts J, inclined reversely and on opposite sides of the girth K, all the posts sustained upon a common base, L, connected with an upper beam, M, and supporting each other, substantially as shown and described.

179,965. CHURNS. Conrad Seifert, St. Louis, Mo. [Filed Apr. 3, 1876.]

Brief.—The dasher is spherical in form, and has a hinged section opening to its interior. The dasher and its shaft can be turned back out of and away from the churn when desired.



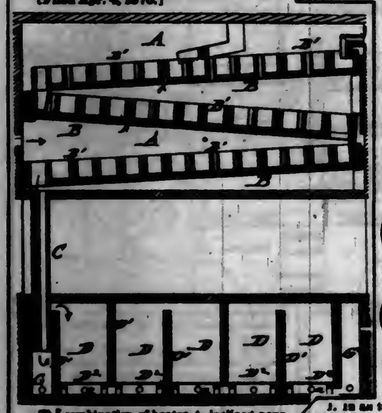
HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & CO. BOSTON.

1. The duckers D' C, the latter being hinged at *b* and fastened at *b'*, as and for the purpose set forth.

2. The duckers C D', central shaft D, its pinion *f*, in combination with hinged frame E, carrying bevel-wheel F and power-shaft, as shown in the manner and for the purpose set forth.

3. The combination of the globe-chamber, consisting of the halves B' B', the central shaft D, carrying buckets C, pinion *f*, the hinged frame E, its bevel-wheel F, driving-shaft *f*, and frame A, all constructed to operate in the manner and for the purpose set forth.

170,969. FEED-WATER HEATERS AND FILTERS. Samuel A. Shoaff, Perryville, Ind. [Filed Apr. 4, 1876.]

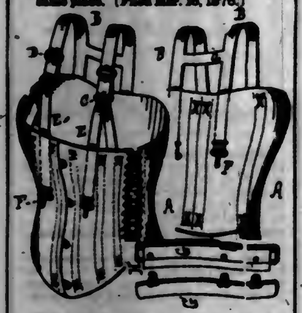


The combination of heater A, inclined pans B B', and tube C with the filtering-receptacle D, having compartments C and raised screens D', all constructed and arranged substantially as and for the purpose specified.

170,967. PAINT COMPOSITION. Jacob H. Shuster, Kalamazoo, Mich. [Filed Aug. 20, 1875.]

The composition, as a base for paint, consisting of linseed-oil, naphtha, water-glass, chloride of calcium, resin, gum-dammar, and asphaltum or pumilion, in or about the proportions specified.

170,968. CORSET. Bernardo S. Smith, Providence, R. I., assignor to S. L. Smith, same place. [Filed Mar. 16, 1876.]

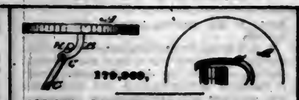


1. The shoulder-straps M, adjustable by means of the slides O, buckles D, and straps E, and provided with skirt-supporting hooks or pins F, in combination with a corset, A, and applied thereto, substantially as and for the purpose specified.

2. The clasp-protector H, in combination with the clasp G, fastened thereto substantially as specified, and used for the purpose described.

170,969. SLEEVE-BOTTOMS. Thomas W. P. Gaston, Brooklyn, N. Y. [Filed Apr. 10, 1876.]

A sleeve-bottom, consisting of disk A, bent about B, and pivoted hook C, having the toe H, substantially as shown and described.



170,970. INHALERS. Robert L. Stone, Topeka, Kans., assignor of one-fourth of his right to himself and three-fourths to A. M. Billson, same place. [Filed June 16, 1876.]

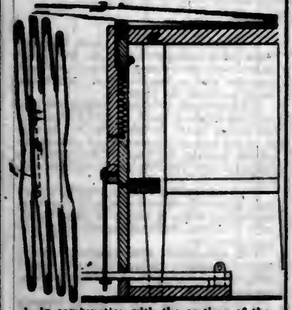
Brief.—The chambers for acid and ammonia lie on the same direct line, and the connecting, as well as induction and ejection, tubes are inserted to such a distance that the series of chambers may be carried in the pocket without the contents becoming intermingled.

1. In an inhaler or fumigator having an induction and ejection tube, the combination of two liquid receptacles or chambers, connected by a tube common to both, said tube extending into each chamber for a distance slightly less than half the length of the chamber, and in opposite ends to the induction and ejection tubes, substantially as and for the purpose specified.

2. In an inhaler or fumigator having an induction and ejection tube, which extend into their respective chambers, the combination of two liquid-receptacles, connected by a straight tube common to both, said tube extending into each receptacle, substantially as and for the purpose specified.

3. An inhaler or fumigator composed of a series of globular chambers, connected by a straight tube or tubes, *a*, substantially as and for the purpose specified.

170,971. GLOVE-TRIER. John S. Stevens, Littleton, N. H., assignor to Nelson Farrar, same place. [Filed Apr. 10, 1876.]



1. In combination with the sections of the tree, the spring F, arranged in a recess and forming the means of connecting one section to the other, as shown.

2. The horizontal table G and the vertically-sliding hook-clamp, adapted to catch upon the edge thereof, and working in vertical guides, and the spring-treadle, all combined and arranged as shown and described, to operate as specified.

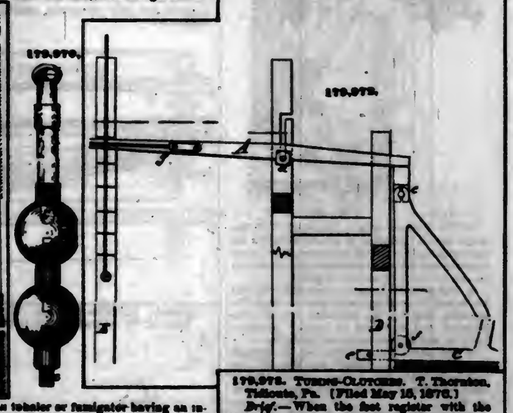
3. The tree constructed, as described, to duplicate form at each end, and in different sizes for tracing gloves of different sizes, substantially as specified.

170,972. APPARATUS FOR LOADING WAGONS. Anderson Taylor, Fairville, Mo. [Filed June 20, 1876.]

Brief.—Heavy articles for loading wagons are raised by means of the platform and lever.

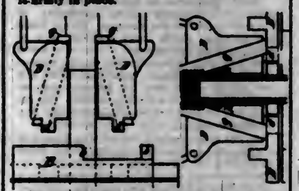
1. The combination of the lever A, platform C, and ratchet-bar E, substantially as shown and described.

2. The combination of the guides *e e*, rollers *f f*, platform C, and standards D D, substantially as shown and described.



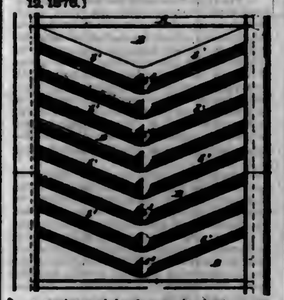
170,973. TUBING-CLOTHES. T. Thornton, Tillonia, Pa. [Filed May 15, 1876.]

Brief.—When the foot register with the holes in the cap, the cloth drops till its weight and the weight of the tubing rest on the bottom of the jaws, thus forcing them up against the collar of the tubing, and holding it firmly in place.



The cloth D, provided with the feet *d d* and jaws *f g*, in combination with the casing cap B, substantially as and for the purpose set forth.

170,974. WASH-BOARDS. Wesley Todd, Wauseon, Ohio, assignor to himself and H. H. Williams, same place. [Filed June 12, 1876.]



A wash-board having on its back a zinc facing, B, provided with the parallel corrugations *b'*, beginning at each side and meeting at an angle in the middle, a groove being arranged at said angle, as and for the purpose specified.

170,975. HOSE ATTACHMENTS TO WASH-BASIN CONNECTIONS. Daniel G. Tremblay, Brooklyn, N. Y. [Filed May 16, 1876.]

Brief.—When a fire breaks out in the room, a hose may be readily attached to the supplementary pipe shown.



A wash-basin faucet having a branch pipe, C, provided with a cock, E, and a screw-head, D, for attaching a hose, substantially as specified.

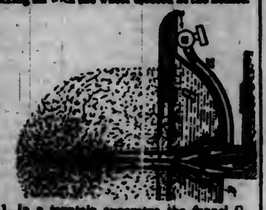
170,976. SEAGE-COVERS. George H. Task, Herbert Dorn, and James Steinson, Ridgway, Iowa. [Filed Mar. 21, 1876.]



A stack-cover, of conical form, and having a lift-ring, D, at the apex thereof, substantially as and for the purpose specified.

170,977. FOUNTAINS. T. Turrettini, Geneva, Switzerland. [Filed Mar. 21, 1876.]

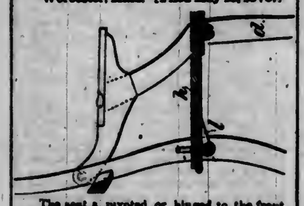
Brief.—The pressure exerted upon the water in the supply elevator and discharges a portion of the water contained in the basin. The display of the water at the jet is increased by mixing air with the water ejected at the nozzle.



1. In a fountain apparatus, the funnel C, extending below the level of the water in the basin A, and arranged concentrically about the nozzle *a*, the mouth of said nozzle being placed somewhat below the water-level in said basin, whereby water discharged under pressure through the nozzle a will act to carry upward and eject with it, through the funnel C, a portion of the water in the basin A, the whole returning again to the basin, as and for the purpose specified.

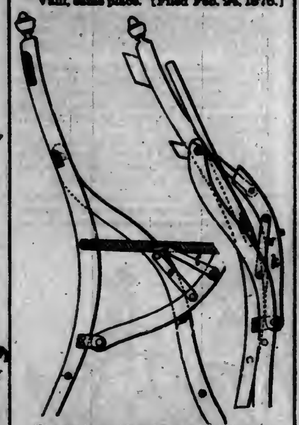
2. In a fountain apparatus, the combination of the devices herein described for forcing upward, through the nozzle *a*, water from the fountain-basin by the action of the water ejected under pressure with the tube D, arranged concentrically about the said nozzle within the funnel C, and provided with the air-pipe *d*, the narrow mouth of said tube D being extended somewhat above the tip of the said nozzle *a*, whereby water discharged through the said nozzle under pressure will act to draw into and through the tube D the external air, and mingle it with the ejected water, as specified.

170,978. FOLDING CHAIRS. Edward W. Vaill, Worcester, Mass. [Filed May 12, 1876.]



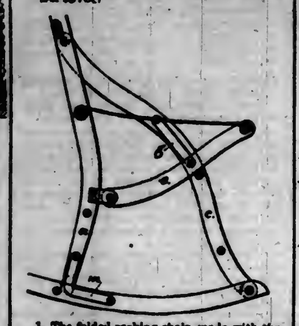
The seat A, pivoted or hinged to the front legs or cross-bar, and the links *l*, uniting the seat to the back legs, in combination with the front legs, extending above the seat, and connected to the back legs, substantially as set forth.

170,979. FOLDING CHAIRS. John R. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Feb. 24, 1876.]



The rigid seat hinged to the back-frame, in combination with the front legs and the swinging seat-frame hinged to the back-frame, the links connecting the front legs and seat-frame, and the links connecting the seat and seat-frame, substantially as set forth.

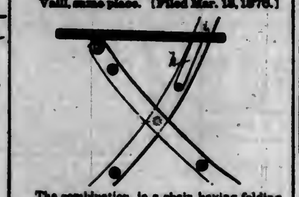
170,980. FOLDING ROCKING-CHAIRS. John R. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Feb. 24, 1876.]



1. The folded rocking-chair, made with the back-frame and legs connected to the rockers by the links *n*, the front legs *e* pivoted to the rockers and to the back, the seat-frame *c* pivoted to the back legs, and the links *g* connecting the seat-frame to the front legs, substantially as set forth.

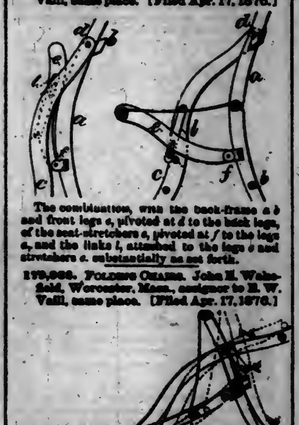
2. The L-shaped links, in combination with the back legs and rockers of the folding chair, substantially as set forth.

170,981. FOLDING CHAIRS. John R. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Mar. 13, 1876.]



The combination, in a chair having folding X-legs and back, of a seat of a width to pass between the side pieces of the back, pivoted at the upper front ends of the back legs, united by links *k* to the front legs, and provided with stops *i*, to limit the movement of the seat, substantially as set forth.

170,982. FOLDING CHAIRS. John R. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Apr. 17, 1876.]



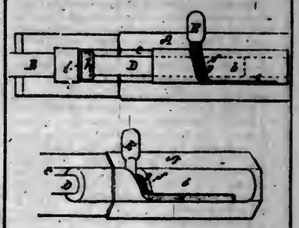
The combination, with the back-frame *a b* and front legs *c*, pivoted at *d* to the back legs, of the seat-stretchers *e*, pivoted at *f* to the legs *c*, and the links *l*, attached to the legs *c* and stretchers *e*, substantially as set forth.

170,983. FOLDING CHAIRS. John R. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Apr. 17, 1876.]



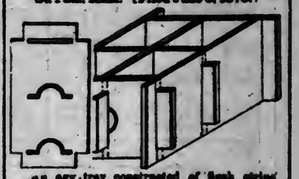
In a folding chair having a back frame hinged at its lower end to the back legs, the seat between the upper ends of the front legs, and a rail in the back-frame, and the front legs united at their upper ends to the back-frame, the links A, placed between the front and the back legs, and pivoted at their ends directly to such legs, substantially as specified, whereby the cross-rail is dispensed with, and the proper strain upon the flexible seat insured, as set forth.

170,984. SPRING AIR-PISTOLS. George A. Walker, Boston, Mass., assignor to A. O. Sweet, E. N. Sheldon, and J. E. M. Square, same place. [Filed Mar. 13, 1876.]



In air-pistols, the combination, with the barrel B and air-chamber C, of the bolt D, handle E, and irregular slot or channel *c*, the bolt being provided at its front end with a suitable packing, and the whole arranged to operate substantially as and for purposes stated.

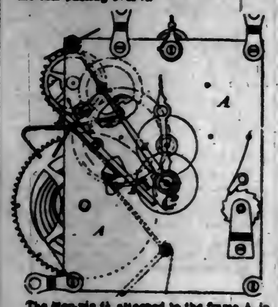
170,985. EGG-BOXES. Wendelin Wels, St. Paul, Minn. [Filed June 6, 1876.]



An egg-tray constructed of flank strips locked by segmental tongues, and engaging slots interchangeably formed on each side strip, in combination with partition-strips centrally secured by the tongue and slot of the one partition engaging, respectively, with the slot and tongue of the crossing partitions, substantially as and for the purpose described.

179,896. LOCK-WORK ATTACHMENTS FOR CLOSETS. John W. Williams, New York, N. Y. (Filed June 6, 1876.)

Brief.—The stop-pin prevents the lever from falling upon the post when pressed inward by the cam passing over it.



The stop-pin G, screwed to the frame A, in combination with the lever E, and the cam D *f*, substantially as herein shown and described.

179,897. STOP-HINGES. Wm. Wilcox, Jr., Waterbury, Conn., assignor to the Beebe, Bissell & Burnham Manufacturing Company, same place. (Filed July 1, 1876.)

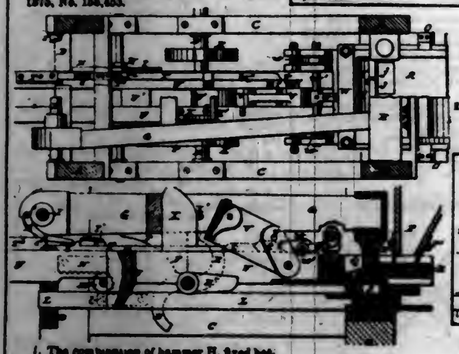
Brief.—The stop, being formed by angular projections on a perforated disk at either or both ends of the hinge, engaging with shoulders formed by a recess at the center and around the pintle.



The herein-described improvement in butt-hinges, consisting in a recess formed centrally between the two parts, combined with a perforated disk, *d*, in said recess, constructed with angular projections *i*, to take bearing on the shoulders *a b*, formed by the said recess, substantially as described.

179,898. BRICK-MACHINES. H. F. Andrews, St. Louis, Mo. (Filed June 3, 1876.)

Brief.—The mold is fixed and has a sliding bottom. The feeder is supplied from the hopper with clay, which the hammer forces into the mold when brought in place. The hammer also drives the plunger in forcing out the pressed brick. The device is an improvement on invention patented to applicant January 6, 1875, No. 158,453.



1. The combination of hammer H, fixed bottom mold J, sliding mold-bottom K, same F, and cam-blocks V and U, substantially as set forth.

2. The combination of hammer H, fixed mold J, sliding bottom K, feeder Q, and hopper P, substantially as set forth.

3. The combination of hammer H, fixed mold J, sliding bottom K, feeder Q, frame L U, pinions M, and racks N I, substantially as set forth.

4. The combination of the hammer-helve G, cross-bar X', and plate or standard X, secured to the feeder-frame U, as and for the purpose set forth.

5. The combination of mold J, sliding bottom K, feeder Q, rising frame L U, pinions M, and racks N I, substantially as set forth.

6. The feeder Q, formed with hatch Q', in combination with the guard Q', and mold J, substantially as set forth.

7. The combination of sliding block *t*, having its forward end *f* inclined, in combination with the cam-block V, cam F, hammer H, and mold J, as and for the purpose set forth.

179,899. TOY BELLS. Charles A. Bailey, Cobalt, assignor to the Gong Bell Manufacturing Company, East Hampton, Conn. (Filed Feb. 10, 1876.)



The combination of the two segmental frames A A, with rockers B B, and central connecting-rod D, having the bell E depending therefrom, as and for the purposes herein set forth.

179,900. COMPOSITIONS FOR PAINT. Gustave Barret and Alexandre d'Adhemar, Pointe-a-Pitre, Island of Guadeloupe. (Filed Apr. 24, 1876.)

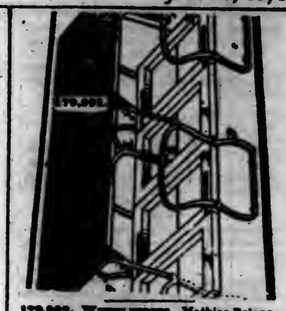
The composition consisting of the natural sulpho aluminate of iron, (*croute a calori,*) an artificial sulphide of iron, and a vulcanized vehicle, substantially as set forth.

179,901. SLEEPING-CARS. R. H. Bennett, Detroit, Mich. (Filed Nov. 23, 1875.)

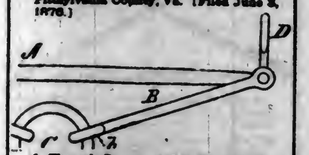
Brief.—Hinged back sections form upper berths; hinged seat-sections lower berths.

1. In a railway passenger-car, the combination of the standards D D' with the stationary upholstered seat E, the upholstered seat F, hinged to the said stationary seat, the upholstered back F, connected by the slotted arms G to the standards, the upholstered back F', hinged to said back F, and the slotted arms G, all forming a car-seat adapted to be changed into sleeping-berths, substantially as described and shown.

2. The combination, with the seat-standards and slotted arms G, of the pivot *e* and socket *e* below such pivot, constructed and arranged substantially as and for the purposes set forth



179,902. WHIFFLETREES. Mathias Bolton, Pittsylvania County, Va. (Filed June 3, 1876.)



1. The rods B, connected to the clevis-ring C by means of eyes *b*, and the draft-hooks D, interposed between the lapped ends of rods B and spreader A, and confined in place by a bolt passing through registering eyes in the rods, the spreader, and the draft-hooks, substantially as specified.

2. The draft-hooks D, pivoted between the rabbeted ends of the spreader A and rods B, substantially as specified.

3. The whiffletree, consisting of the metallic spreader A, the independent connecting-rods B, the ring C, and the draft-hooks D, pivoted between the rabbeted ends of the spreader and rods, substantially as specified.

179,903. APPARATUS FOR EMPTYING PRIVY-VAULTS, SEWER-TRAPS, &c. J. Bradley, Washington, D. C. (Filed June 20, 1876.)

Brief.—Air is exhausted from the barrel which it is desired to fill with matter by a double-acting air-pump. The foul air exhausted by the pump passes from it into a deodorizer, where it is burned. A valve in the exhaust-pipe of the barrel is raised by a float, to close the pipe when the barrel is full.

1. In combination, in a machine for cleaning privy-vaults, an air-pump, a suitable flexible pipe, connecting said air-pump with the top of a barrel intermediate between said pump and the vault to be cleaned, a float-valve in the air-exhaust pipe, and a suitable flexible pipe to lead from said barrel into said vault, the pump and barrel being independently movable relatively to each other and to the vault, substantially as and for the purposes set forth.

2. In combination, in a machine for cleaning privy-vaults, a barrel for receiving foul matter, with its lower end always closed, and having an opening in its top, through which, by exhaustion of air in the barrel, foul matter is forced to flow into said barrel, and a float-valve arranged in the air-exhaust pipe, substantially as and for the purposes set forth

179,903.



179,904. NUT-LOCKS. P. Breiller, Johnstown, Pa. (Filed June 12, 1876.)

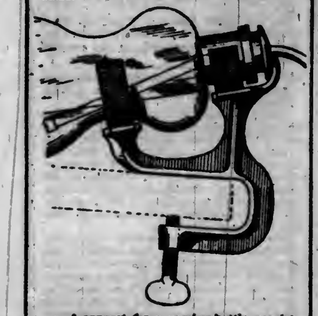
The combination of a nut, having an apertured recess, a resilient-pointed key resting in the recess with a guide and handle projecting through the aperture of the recess, a spring acting against the key and the opposing side of the recess, and a vertically-grooved bolt, as and for the purposes specified.

179,905.



179,905. NURSING-BOTTLE SUPPORTS. Jno. W. Bray, Middletown, Conn. (Filed June 10, 1876.)

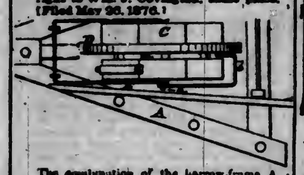
Brief.—The nursing-bottle is supported upon a clamp that is secured to a crib or bedstead.



1. A support for a nursing-bottle, consisting of a bracket provided with a seat on its top for holding the bottle, and with a jaw and clamping-screw below, by means of which it can be attached to a suitable support, and held in any desired position, substantially as described.

2. In combination with the bracket, provided with a jaw and screw-clamp for attaching it to a support, the arms attached to said bracket, and adapted to the front of the same for confining the bottle-stopper in place, substantially as described.

179,906. COTTON-PLANTING ATTACHMENTS FOR HARROWS. Jas. A. Brent, Jr., Crystal Springs, Miss., assignor of one-third his right to Wm. J. Covington, same place. (Filed May 20, 1876.)



The combination of the harrow-frame A, tooth C, with notched interior braces G, flange D, and opening m, hinged bail E, and the regulator *b*, formed upon one prong of the bail, all constructed and arranged substantially as and for the purposes set forth.

179,907. HORSESHOE-MACHINES. Charles Briggs, Covington, Ky. (Filed June 2, 1876.)

Brief.—The bar, of suitable length, is shaped into a horseshoe blank by passing sidewise between a pair of rollers, which flatten, concave, crease, and punch, then automatically discharged upon an inclined table, upon which it slides into guides, which present it to the bending dies on the periphery of the revolving disk.

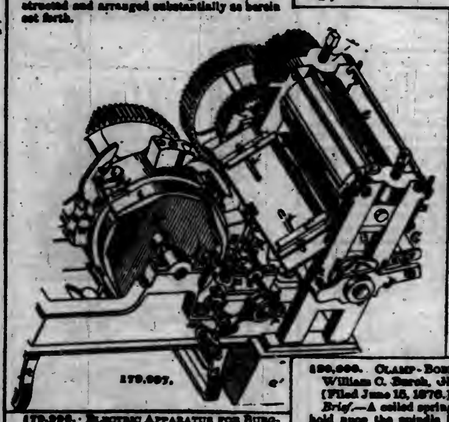
1. The rollers C D, with congress and groove, adapted to receive a bar of iron flat-wise, and shape the same into a blank for a horseshoe, substantially as described.

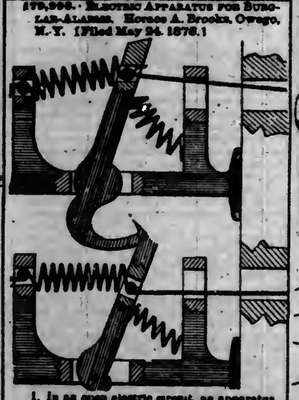
2. Rollers C D, adapted to receive a heated bar of iron sidewise, with ribs and grooves for shaping the blank ready for bending, substantially as described.

3. Rollers C D, adapted to receive a heated bar of iron flatwise, with device for flattening, creasing, and cutting the blank as it passes through the rollers, substantially as described.

4. The feeding mechanism, composed substantially of the clamping-bar h, slotted lever J, and cams I, in combination with rollers C D, substantially as described.

179,908. ELECTRIC APPARATUS FOR BURGLAR-ALARMS. Horace A. Brooks, Oswego, N. Y. (Filed May 24, 1876.)





1. In an open electric circuit, an apparatus interposed between the battery and end of circuit, held open by tension of the electric wires of the long circuit, and arranged to close and short-circuit the long circuit by relieving the tension on one or more of the wires, as set forth.

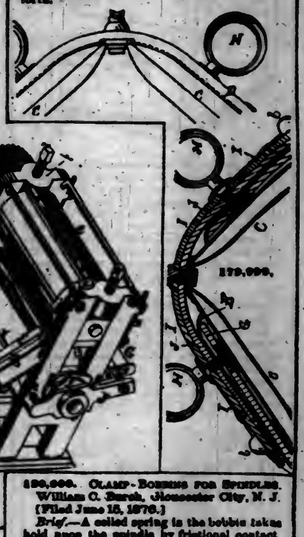
2. In an open electric circuit, the closing and short-circuiting of the circuit by means of a spring or springs attached to the wire between the battery and the end of the circuit, and by means of relief of tension from one or more of the wires of the circuit.

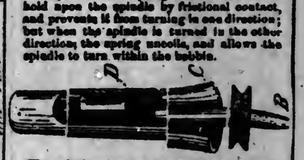
179,909. HARNESS-PADS. Wm. H. Bulkley, Bloomington, Ill. (Filed May 20, 1876.)

1. In combination with the metal foundation A, having a recess or chamber on each side, and herein B, the detachable skirts C inserted in said chambers, and provided with the permanently-attached bars *a*, all substantially as and for the purposes herein set forth.

179,910. CLAMP-BOBBINS FOR SPINDLES. William C. Burch, Gloucester City, N. J. (Filed June 15, 1876.)

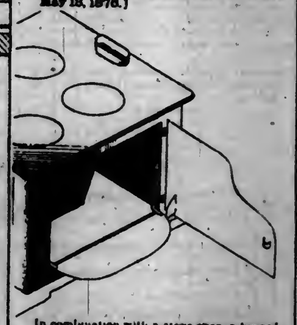
Brief.—A coiled spring in the bobbin takes hold upon the spindle by frictional contact, and prevents it from turning in one direction; but when the spindle is turned in the other direction the spring uncoils, and allows the spindle to turn within the bobbin.





The spiral spring D, seated within the bobbin C, adapted to allow the spindle B to turn to the right therein, and to prevent its turning to the left, substantially as and for the purpose described.

180,001. COOKING-STOVES. Hook Bussey, Troy, N. Y., assignor of one-half his right to Charles A. McLeod, same place. (Filed May 18, 1876.)



In combination with a stove-oven, a hinged shelf, fitted to fall outward and down automatically when the oven-door is opened, and to be raised up by closing the oven-door, adapted to operate upon it for that purpose, substantially in the manner and for the purposes herein set forth.

180,002. TOY MONEY-BOXES. W. Chrysler, Lockport, N. Y. [Filed Jan. 22, 1876.]

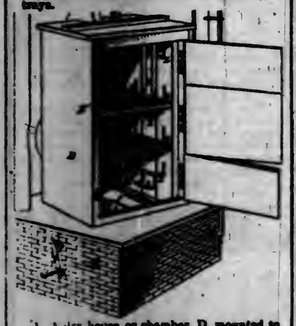


1. A toy safe or savings-bank, having the floor sides A A and feet a a cut or constructed of a single or continuous piece of sheet metal, and having the opening *b* in the bottom with the cover C, as and for the purpose specified.

2. The flanged opening *b c* in the bottom of the safe, having the cover C setting over it, with the leg or hinge *d* at one end, and the other end or leg, *d'*, arranged to be fastened to the bottom B, as and for the purpose specified.

180,003. FRUIT-DRIERS. David R. Colman, Washington, D. C. [Filed July 10, 1876.]

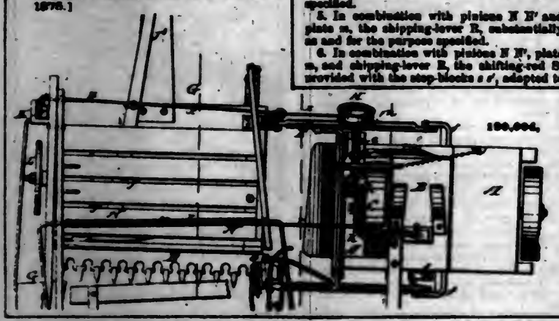
Brief.—The drying-chamber revolves. When the sliding sash rises its brackets lift the trays from the wall-brackets, and as they ascend they fold the wall-brackets above, which fall outward again as the trays pass. When the sash descends, its brackets are folded to as they come in contact with the trays.



1. A dry house or chamber, D, mounted to revolve over a heating-chamber, A, substantially for the purpose set forth.

2. A dry house or chamber, D, provided with self-adjusting brackets L, substantially as described, combined with a sliding sash, K, provided with similar self-adjusting brackets *k*, for the purpose of elevating all the inclosed trays E one stage by a single movement, as set forth.

180,004. REAPERS AND MOWERS. Andrew J. Cook, Wichita, Kans. [Filed Oct. 16, 1875.]



1. The combination, with the rake J, of the gears *b i*, shaft *c*, lever *m*, treadle K, drum H, with cam *n*, cords *o p*, and weight E, all constructed and arranged to operate substantially as and for the purposes herein set forth.

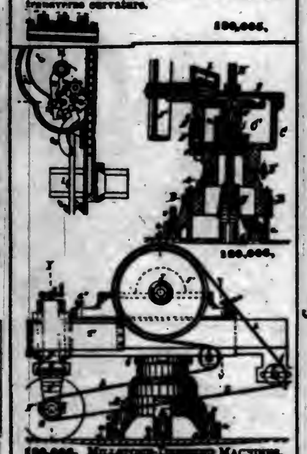
2. The combination of the cut-off H, connecting-rods *p p*, rod *r*, and treadle *s*, substantially as and for the purposes herein set forth.

3. The shield O hinged to the gear-frame A, for the purposes herein set forth.

180,005. MANUFACTURE OF SECTIONS OF IRON COLUMNS. Wells Cooke and Levi D. York, Paterson, N. J. [Filed June 9, 1876.]

The method herein described of forming sections of iron columns—namely, forming a pile, in the manner substantially as shown, welding said pile by rolling to them produce a plate with two or more longitudinal ribs, and then passing said plate between the bending-rolls, as described, to impart to it the proper transverse curvature.

180,006.



180,006. MILLSTONE-DRESSING MACHINES. William Coplin, Lockport, Mich. [Filed Feb. 15, 1876.]

1. The combination of the gear-wheels I and H with the system of feeding-gears B, E', D, C, and C', carrier E'', and double cross-head F, whereby a reciprocating movement is imparted to the cutter-wheel simultaneously with a rotary movement of the same, substantially as and for the purpose herein set forth.

2. The arm E, as constructed with projecting flanges *e e*, and provided with an inside carrier, E', and rack E', supported by and acting between said projecting flanges or guides, substantially as and for the purpose specified.

3. In combination with wheel J', pulley K', drum K'', and carrier E', the take-up pulley K, substantially as and for the purpose specified.

4. In combination with rack E', the pinion F F', pinion P, wheel C, and pinion C', acting in conjunction to impart a reciprocating movement to each by a rotary movement of the cutter shaft H, as and for the purpose specified.

5. In combination with pinions F F' and plate *m*, the shipping-lever R, substantially as and for the purpose specified.

6. In combination with pinions F F', plate *m*, and shipping-lever R, the shifting-rod S, provided with the stop-blocks *s s'*, adapted to be operated upon by upright *r* of the cross-head, substantially as and for the purpose specified.

7. In combination with plate *m*, carrying the pinions F F', the adjusting-spring F', substantially as and for the purpose specified.

8. In combination with arm E and carrier E'', the cross-head F, carrying the cutter F', and arranged to admit of both vertical and lateral adjustment of the cutter to the furrow, substantially as specified.

9. In combination with the turn-table C, carrying the gear-wheel, the cover D, arranged to tightly close the chamber containing gear, and providing a top journal for shaft H, substantially as specified.

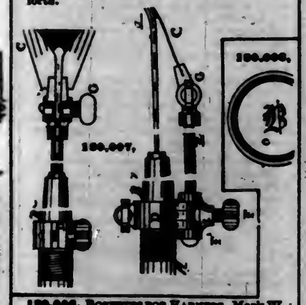
10. The apron T, in combination with arm R, substantially as and for the purpose specified.

11. The hollow extension of the turn-table, inclosing its gears and working parts from dust and grit, substantially in the manner shown and specified.

180,007. LAWN-SPRINKLERS. Geo. H. Copping, Toronto, Ontario, Canada. [Filed Mar. 4, 1876.]

Brief.—An adjustable sprinkler, consisting of hose and tripod-stand, by which the said hose is held up from the ground. The stand is provided with a movable socket, which can be raised or lowered, or turned to any required position. There is a projection on the socket, to which the hose-holder is attached, which allows it to be placed at any angle vertically, so as to afford a sufficient range of action to the sprinkler.

In a lawn-sprinkler, constructed with a spray-distributer, C, as shown and described, the combination therewith of the socket F', rod E, screws F and G, stand H, sliding socket I, hose-holder K, and clamp K', or its equivalent for carrying hose A, and nozzle B, all as shown and described, and for the purposes set forth.



180,008. ROSETTES FOR HARNESS. Mark W. Crum, Boston, Mass. [Filed May 3, 1876.]

A harness-rosette consisting of the plate *a*, flange *a'*, loop *b*, glass disk *c*, and an interposed disk, *c*, arranged substantially as and for the purpose shown and described.

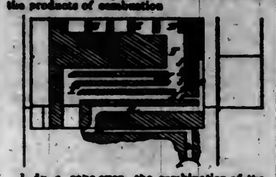
180,009. STEAM-COOKERS. Henry D. Dunn, Oshkosh, Wis., assignor to himself and C. C. Paige, same place. [Filed Apr. 1, 1876.]



The combination of the vessel A, having a pan, B, at its bottom, which surrounds the walls of the vessel, and provided with openings *a* and flange *b* with the vessels C C, and the removable cylinder D, open at its bottom, and resting on the pan B, all substantially as and for the purposes herein set forth.

180,010. COKE-OVENS. Samuel Diamber, Pittsburg, Pa. [Filed June 12, 1876.]

Brief.—Gas passes from the top of the oven down to horizontal combustion-flues, where it is met by currents of heated air, the air being heated by flues under the oven. The gas is burned in the combustion-flues, to assist in heating the oven. Immediately beneath the floor of the oven pass the odorless flues for the products of combustion



1. In a coke-oven, the combination of the chamber A, gas-passages B, leading from its top, downwardly-descending combustion-flues F F', and air-passages *d*, substantially as set forth.

2. In a coke-oven, the air-flues *a* A chamber *c*, air-passages *d e f*, and combustion-flues F', substantially as shown.

180,011. VARIABLE REDUCTIONS FOR STEAM-ENGINES. Henry D. Dunbar, North Hartland, and James M. Foss, St. Albans, Vt., assignors to themselves and D. M. Mussey. [Filed Apr. 29, 1876.]



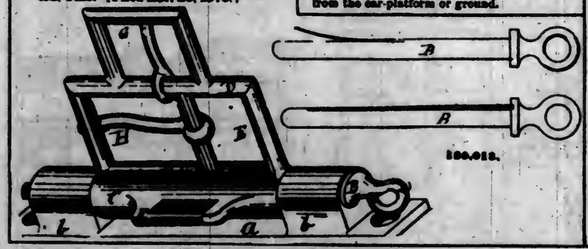
1. The combination, with the cylinder and valve-chest B, of the vertically-moving plates F, the conical head F', a series of plates, F, moving in a vertical direction, and the conical cap E, having a vibrating rotary movement upon the head to move said plates up or down, substantially as herein described.

2. The combination of the conical head F', the vertically-moving plates F, the conical operating-cap E, and the exhaust-nozzle I, substantially as described.

180,012. REMEDIES FOR H. C. - CHOLERA. Allen May Dunn, Ogawaw, Ill. [Filed June 6, 1876.]

The within-described composition, consisting of Venetian red, potash, sunflower, sulphur, and water, in substantially the proportions described, and for the purpose specified.

180,013. HORSE ATTACHING AND DETACHING APPARATUS. August Eberle, Hamilton, Ohio. [Filed Apr. 20, 1876.]



1. The combination of the conical head F, a series of plates, F, moving in a vertical direction, and the conical cap E, having a vibrating rotary movement upon the head to move said plates up or down, substantially as herein described.

2. The combination of the conical head F, the vertically-moving plates F, the conical operating-cap E, and the exhaust-nozzle I, substantially as described.

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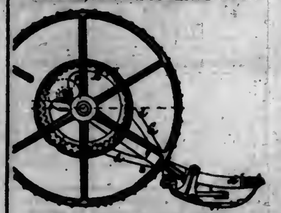
1. The combination, with a driving-gear of a mowing-machine or harvester, of a non-rotating gear, eccentrically mounted with relation to the driving-gear, upon a crank-pin which is parallel with the axis of the drive-gear, substantially as described, whereby the rotation of the drive-gear imparts to the non-rotative gear a reciprocating movement toward and away from the peripherical line of the drive-gear, as set forth.

2. The combination, with the drive-gear of a mowing-machine or harvester, the non-rotating gear, and its crank, of a balance-wheel on the crank-shaft, substantially as described, whereby the non-rotating gear is assisted in passing its crank-centers, as set forth.

3. The combination, in a mowing-machine or harvester, with the non-rotating gear and its crank, of a longitudinally-reciprocating connecting-rod, rigidly secured to the gear, substantially as described.

4. The combination, in a mowing-machine, with the non-rotating gear and its crank, of a connecting-rod having two arms, which are rigidly united to said gear at diametrically-opposite points, substantially as described.

180,014. HARVESTERS. Rudolf Blakemoyer, Yonkers, N. Y. [Filed Apr. 8, 1876.]



In a bolt-and-rod cutter, the plate A, having its upper side provided with vertical longitudinal guide-flanges B, and chisel C, one chisel being recessed to receive a spring, H, pivoted cap G, and rivets, the chisel, substantially as and for the purpose set forth.

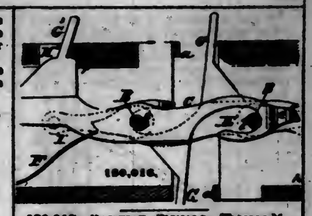
180,015. CAR-COUPLINGS. Carl A. Fuesser, Augusta, Ga., assignor of one-half his rights to John W. Teichmoyer, same place. [Filed June 9, 1876.]

1. The rotary and vertically-sliding shaft B, having a catch, C, provided with a tapered head adapted to pass over or under its opposing catch.

2. The combination of the catch C, shaft B, crank-handle I, and spring F, the catch being rigidly attached to the shaft, as and for the purpose set forth.

3. The construction of the catch C and its shaft B, with crank-handle I and arms G G', to adapt the catch to be operated optionally from the car-platform or ground.

180,016.



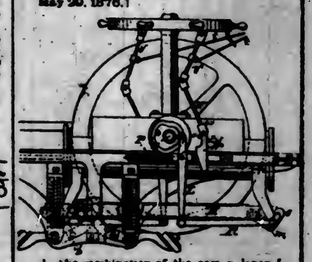
180,017. RAILWAY-SIGNALS. Thomas M Fish and Otto Miller, Chicago, Ill. [Filed June 16, 1876.]

Brief.—The signal-ball may be expanded and collapsed on its staff like an umbrella.



A hand railroad-signal, consisting of the staff A, the collar *c*, rigidly attached thereto near the top, the series of spring-rods *b*, covered with a colored cloth attached to the collar *c* and to the movable collar *d* at the bottom, and the spring-catch *e* on the staff, all constructed and used substantially as set forth

180,018. LEATHER-DRESSING MACHINERY. E Pitsberry, Somerville, Mass. [Filed May 20, 1876.]



1. The combination of the cam *p*, lever L, connecting-bar E, crank *e*, bar H with links *t*, slide G, and arm A, connected to the rocking tool-holder, substantially as and for the purposes herein set forth.

2. The combination of the lever L, fulcrum bar or bolt I', wedge W, levers V, and rod *t*, substantially as and for the purposes herein set forth

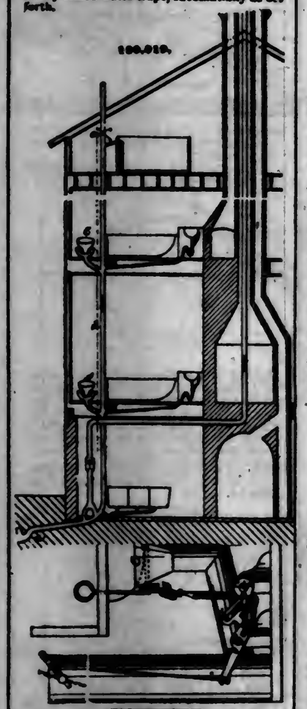
180,019. HOUSE-VENTILATION. William B. Fiedler, Newport, R. I. [Filed Apr. 11, 1876.]

Brief.—The soil or waste pipe is ventilated by means of a flue or shaft arranged or provided with apparatus to produce an upward movement of the air therein, communicating with the soil or waste pipe at or near the bottom of the same, which operates to induce a permanent current of air downward through the length of the said pipe, and thence upward through said ventilating-shaft. There is a damper arrangement in the soil-pipe, connected with and operated by the water-closet levers.

1. The method of ventilating the soil or waste pipe or pipes of dwellings and other houses or buildings, by the use of a ventilating flue or shaft, arranged or provided with means to produce an upward movement of the air therein, commencing with the soil pipe or other waste-pipe at or near the bottom of the same, and operating to induce a permanent current of air downward through the length of the said pipe, and thence upward through said ventilating shaft, substantially as set forth.

2. The combination of the soil pipe, the ventilating-shaft, and the damper in the soil-pipe, connected with and operated by the water-closet levers, or their equivalents, at the times and in the manner substantially as set forth.

3. The combination, with the soil-pipe or other waste-pipe and the ventilating-shaft, arranged and operating to induce a permanent downward air-current in the said pipe, as described, of water-closets without permanently-sealed water-traps, substantially as set forth.



180,020. PEGGING-MACHINE. Alpheus C. Gallahue, Morrisania, N. Y. (Filed Mar. 16, 1876.)

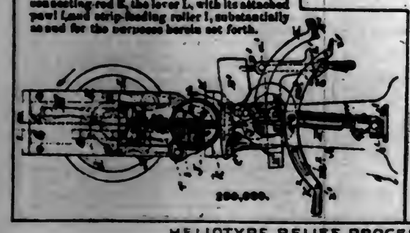
1. The combination, with the swinging cleek or boot and shoe holder B' J' and its pendent toe and heel rests C' D', of the compound levers K' K', arranged for operation substantially as specified, whereby the boot or shoe may be similarly tipped from opposite sides or ends of the jack without accelerating or retarding the feed of the jack and its boot or shoe.

2. The locking-bar M', in combination with the compound levers K' K' of the jack, essentially as and for the purposes herein set forth.

3. The connecting-rod B, formed with a hook or lip, D, in combination with the awl and hammer slides C and G, the revolving wrist-pin c, and the lifting pin or stud e of the slide G, substantially as specified.

4. The combination, with the lever H, of the attached pawl r, which operates the shoe-feeder M, and the attached knife J, which divides the strip into pegs, essentially as described.

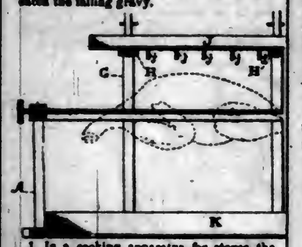
5. The cam D, with its attached wrist-pin c, in combination with the hook or lip formed on connecting-rod E, the lever L, with its attached pawl t and strip-leading roller l, substantially as and for the purposes herein set forth.



180,020.

180,021. COOKING APPARATUS. Mrs. John M. Goldsmith, Grass Mills, Md. (Filed June 9, 1876.)

Brief.—The food is heated by the drippings from the upper pan, the lower one serving to catch the falling gravy.



1. In a cooking apparatus for stoves, the frame A, provided with bearings for suits or other cooking utensils, in combination with the uprights O G, transverse bars H H, and dripping-pans J J, substantially as and for the purposes herein specified.

2. In a cooking apparatus for stoves, the dripping-pans J J, provided with small holes in their bottoms, and combined with the tubes *j j*, frame A, and drip-pan K below the material to be cooked, substantially as and for the purpose herein specified.

180,022. APPARATUS FOR WARMING RAILWAY-CARRIAGES, &c. Pierre Grandjean and Jean B. D. Cassinelli, Paris, France. (Filed June 22, 1876.)

Brief.—The fire-box is removable. It is lined with a wire-work mat, thus adapting it to burn artificial fuel.

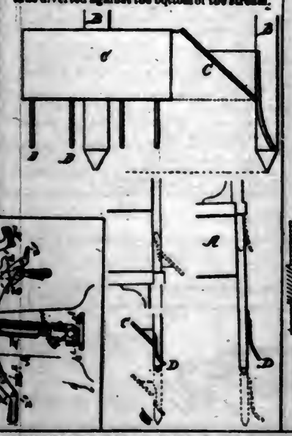


1. The combination, in an apparatus for heating, of the upper chamber C, and lower chamber D, each provided with orifices *f i* at one or both ends thereof, with the fire-box F, the whole constructed and adapted to operate substantially as described.

2. The fire-box F, having holes *b* in its sides, and provided with a wire-mat, G, substantially as and for the purpose described.

180,023. DREDGING APPARATUS. J. Grant, Mobile, Ala. (Filed June 26, 1876.)

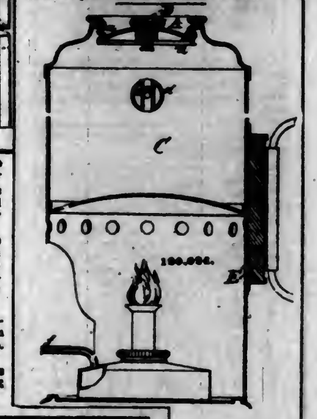
Brief.—Inclined deflectors, furnished at bottom with teeth, are arranged upon vertically-adjustable shafts, located upon the sides of a movable hull, so that the bar may be gradually cut away by the action of the current thus diverted against the bottom of the stream.



1. The dredging apparatus described, consisting of the hull A, and vertically-adjustable piles B B, carrying deflecting-plates C C, and teeth D D, for the purpose of dredging by the natural force of the current, substantially as specified.

2. The inclined and vertical deflecting-plates combined, substantially as and for the purpose described.

3. The curved raking-teeth, in combination with the deflecting-plates, and vertically-adjustable piles, for the purpose set forth.



180,024. INHALING AND DISINFECTING APPARATUS. John B. Harper, Cheltenham, England. (Filed May 4, 1876.)

Brief.—The handle has a wooden connection to prevent its becoming heated. The ejection-spout has a ball-and-socket joint. The valve is fitted to the vessel with a open screw-thread.

1. The safety-valve B, in combination with the cover A, fitted to the vessel with a open screw-thread, *a*, substantially as and for the purpose specified.

2. The jet-pipe *b*, in combination with the pipe *c*, passing entirely through the air-pipe *d*, substantially as and for the purpose specified.

3. The universal joint D, composed of the semi-spherical parts *d'''*, *d''''*, and *d'''''*, in combination with the spring *e*, attached to the air-pipe *d'*, for clamping and holding the said universal joint, substantially as and for the purpose specified.

4. The attachment of the handle E to the boiler C by means of an interposed piece, *d'*, of non-conducting material inserted in a socket attached to said boiler, substantially as and for the purpose specified.

180,025. FLAME-TUBE CLEANERS FOR STEAM-BOILERS. William Harper, New Haven, Conn., assignor of one-half his right to W. T. Porter, same place. (Filed May 20, 1876.)



In combination with the hollow head A, or curved to and communicating with the tube B, the hollow perforated tube E, carrying the disk D, the whole adapted to be secured in the head A, so as to leave an annular outlet for the same, substantially as described.



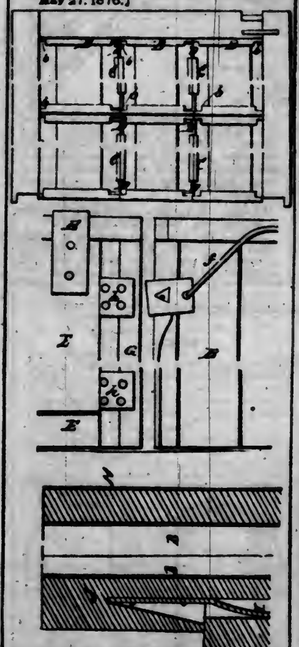
180,026. ATTACHMENTS FOR WHIP-PLAITING MACHINES. Chas. S. Hartwell, Westfield, Mass. (Filed Feb. 26, 1876.)

Brief.—A carriage supporting spring-jaws slides in vertical ways. At the upper end of its reciprocation a stud on the carriage releases a catch, which liberates a spring, which opens the jaws. The finished whip may then be removed, and another to be plaited be inserted.

1. The guides A and the carriage B, provided with jaws *a a'*, closed by a spring and moving in said guides, in combination with a spring-presser, *c*, and spring-catch I, whereby a whip, when being plaited, is automatically released from the attachment as soon as the plaiting is completed, substantially as described.

2. The combination of the spring-presser *c*, the spring-catch I, and the lever G, pivoted to said presser, whereby the carriage B is released from its elevated position and permitted to drop after the whip-butt is inserted in the jaws, substantially as described.

180,027. BEE-HIVES. John B. Hetherington, James Hetherington, and Charles C. Van Deusen, Sprout Brook, N. Y. (Filed May 27, 1876.)



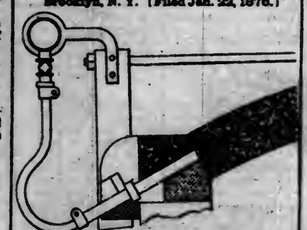
1. The division-board C, having saw-kerfs set in its ends, and the metallic strips D inserted and fastened therein, and formed with the points *d* at the ends, as set forth.

2. The clamp B, provided with the movable side piece G, elastic joints *h h*, and elastic cord *f*, as and for the purposes herein set forth.

3. The clamp H, provided with the movable side piece J and spring I, as and for the purpose set forth.

4. The division-board C, provided with plates D having points *d*, in combination with top and bottom pieces B B, having plane surfaces, substantially as set forth.

180,028. FURNACES. Alexander L. Holley, Brooklyn, N. Y. (Filed Jan. 22, 1876.)



The combination, with a furnace wall or roof, of a structure for containing said wall or roof, constituting a water, air, or spray conduit for cooling the same, substantially as described.

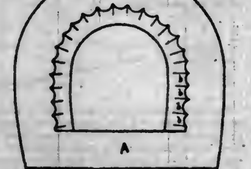
180,029. ATOMIZERS. Thomas J. Holmes, Boston, Mass. (Filed June 7, 1875.)



1. The combination of an inlet-tube having a head or flange at both ends thereof, an open annular nut screwing upon one of said heads, so as to pinch the rubber between itself and the opposite head, and a valve at either end of said tube, opening and closing the inlet to the bulb, substantially as set forth.

2. The combination of an elastic bulb and a valve with an inlet-tube, provided upon its inner end with a head or flange, and having an annular nut screwing upon its outer end, substantially as set forth.

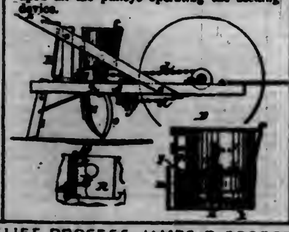
180,030. DIES FOR COMPRESSING THE HEELS OF BOOTS AND SHOES. George Houghton, Hudson, Mass. (Filed June 10, 1874.)



The heel-die A, provided with corrugations *b b*, substantially as described, and for the purpose set forth.

180,031. CORN-PLANTERS. Wm. W. Hubbard, Edinburg, Ind., assignor of one-half his right to Joseph Beeny, same place. (Filed June 28, 1876.)

Brief.—Near the rear end of the frame is a pivoted plate, carrying two pulleys, with planters of unequal size, for changing the speed of the feed mechanism. The axle has two pulleys—one rigidly and the other loosely attached. A fixed pulley is on the under side of the frame, and an endless chain works upon all the pulleys operating the seeding device.



1. The combination, in a corn-planter with the driving-wheel D and its axle *a*, of the fast pulley *b*, loose pulley *b'*, chain *d*, one or more pulleys, *h h*, and the retaining-pulley *f*, all substantially as and for the purposes herein set forth.

2. In a corn-planter, two pinions of unequal size, in combination with a movable plate or frame, and gearing on the bottom of the hopper, so that either pinion may be thrown in gear with the dropping mechanism for operating the same fast or slow, as herein set forth.

3. The combination of the pivoted plate G with spindle *e a*, the pinions *i i* of unequal size, chain *d*, the handle H, and notched cross-bar *l*, substantially as and for the purposes herein set forth.

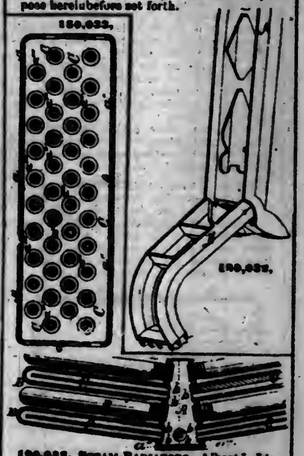
4. The combination of the hopper J, rotating bottom K, with internal cog-gear *k* on its under side, the central screw *p*, disk L, with vertical grooves *x*, and a fastening device, substantially as and for the purposes herein set forth.

5. The combination of the rotating bottom K, grooved disk L, slides *i*, and cam W, as and for the purposes herein set forth.

6. The combination of the slotted box R, L-shaped cut-off *a'*, rod *b'*, and spring *d'*, as and for the purposes herein set forth.

180,032. CARPET-STRETCHERS. G. D. Hansmann, Alton, Ill. (Filed Mar. 28, 1876.)

The combination of the lever A with the hold fast B, substantially as and for the purpose hereinbefore set forth.

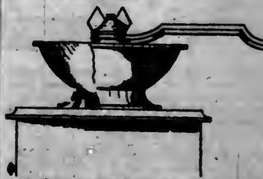


180,033. STEAM-RADIATORS. Albert L. Ide, Springfield, Ill. (Filed Feb. 20, 1876.)

1. A steam-radiator composed of a chamber, A, provided at one or both sides with free-end tubes B and B, which extend laterally outward and upward, substantially as and for the purpose shown.

2. In a steam-radiator, the combination of a chamber, A, provided at one or both sides with laterally-extending free-end tubes B and B, which are each provided with a longitudinal circulating diaphragm, C, substantially as and for the purpose set forth.

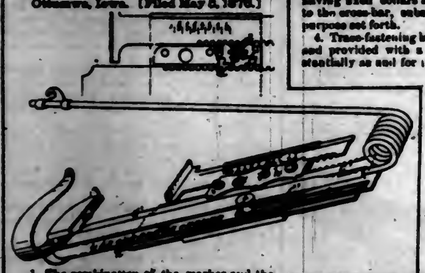
180,034. COFFEE-MILLS. T. Johnson, Pittsburg, Pa., assignor to Jacobus & Nimick Manufacturing Company, same place. (Filed May 1, 1876.)



1. In combination with the hopper and grinding-shell of a coffee or spice mill, the detachable sheet-metal ring, inclosing the grinding-shell, and forming a base or finish for the hopper, substantially as specified.

2. In a coffee or similar mill, a sheet-metal hood-ring provided with a flange, extending between the hopper and the grinding-shell, said ring being secured between the box and hopper by means of screws, as described.

180,035. TOOL-MARKING ATTACHMENTS FOR SEWING-MACHINES. Allen Johnston, Ottumwa, Iowa. [Filed May 8, 1876.]



1. The combination of the marker and the gage and intermediary pinions or toothed wheels engaging said parts and transmitting movement from one to the other, substantially in the manner shown and described.

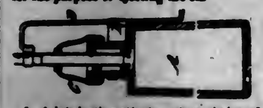
2. The marker, consisting of a supporting-plate formed to engage a toothed wheel or pinion, and a marker proper, carried by and adjustable on said supporting-plate, substantially as shown and set forth.

3. The gage and the toothed wheels or pinions, proportioned as described, in combination with the marker proper, carried by, but adjusted independently of, said plate, substantially as set forth.

4. The base-plate, pinions, and covering-plate, in combination with the marker and the gage, under the arrangement and for operation as shown and described.

180,036. LUBRICATING ATTACHMENTS FOR OIL-BOTTLES. Charles Jones, New York, N. Y. [Filed Mar. 16, 1876.]

Brief.—A discharge-tube has a piston working in the neck of the bottle. An elastic air-tight connection between the tube and the bottle permits the depression of the former, for the purpose of ejecting the oil.



1. A lubricating attachment consisting of a movable discharge-tube, provided with a piston fitting the opening in the neck of a vessel, and an annular elastic cap, for the purpose set forth.

2. The combination of the vessel A, tube B, having pistons *a a*, elastic cap C, and operating-handle D, connected and arranged substantially as shown and described.

180,037. REVOLVING FIRE-ARMS. Benj. F. Joslyn, Worcester, Mass., assignor to R. P. Bruff, New York city. [Filed Sept. 27, 1875.]



The combination of the movable barrel D, adapted to be locked and released from the frame B by being turned, on the stationary breech-pin, with the lever C, for starting the cartridges, and adapted to notches in both barrel and frame, as set forth.

180,038. WHIFFLETREES. William Kimble, Allianee, Ohio, assignor of one-half his right to M. A. Driesbach, same place. [Filed June 17, 1876.]

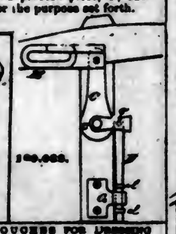
Brief.—The trace-hooks are attached to arms pivoted to the cross-bar by the shafts, and connected by a sliding rod.

1. The combination of rod D, arms C C, and brace-fastening devices, substantially as and for the purposes set forth.

2. The combination of rod D, having fixed collars *d d*, with arms C C, having cars *c c*, substantially as and for the purposes set forth.

3. The combination of arms C C, rod D, having fixed collars *d d*, and stop G, secured to the cross-bar, substantially as and for the purposes set forth.

4. Three-fastening hook E, pivoted as shown, and provided with a pivoted piece, F, substantially as and for the purposes set forth.



180,039. CARTOUCHES FOR DRESSING WOUNDS. Leon Elge, Brussels, Belgium. [Filed June 9, 1876.]

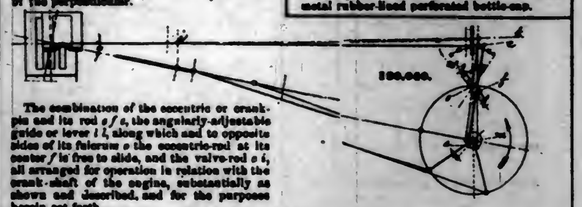
Brief.—Various articles for immediate use by the wounded person are formed into a cartouch with paper ends, which may be broken with ease and the articles then liberated.



A cartouch for dressing wounds, consisting of the tubular case *c*, the bandage *b*, and plate *p*, with the inclosed pins, the camelco-roll *a*, and waxed threads *t*, and the roll of tapes *l* and the gummed-paper inclosing-disks, the whole constructed and arranged substantially as described.

180,040. VALVE-MOTIONS FOR STEAM-ENGINES. George Klug, Hamburg, Germany. [Filed Apr. 11, 1876.]

Brief.—The fulcrum of the rock-shaft is pivoted to a block which slides on an angularly-adjustable guide. The direction in which the engine is to run is determined by the position of the guide to the one side or the other of the perpendicular.



The combination of the eccentric or crank-pin and its rod *e f*, the angularly-adjustable guide or lever *i i*, along which and to opposite sides of its fulcrum *o* the eccentric-rod at its center *f* is free to slide, and the valve-rod *o k*, all arranged for operation in relation with the crank-shaft of the engine, substantially as shown and described, and for the purposes herein set forth.

The combination of the movable barrel D, adapted to be locked and released from the frame B by being turned, on the stationary breech-pin, with the lever C, for starting the cartridges, and adapted to notches in both barrel and frame, as set forth.

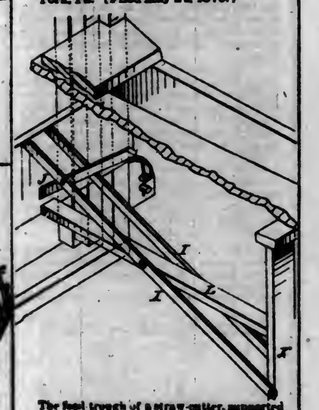
180,041. HAT AND MANTUA FORMS. Wm. H. Ernstinger, Fort Madison, Iowa. [Filed July 13, 1876.]

The process herein set forth of producing a four or more pronged barb-fork from a blank sheet of metal, consisting in first making the fastening *a a* in the blank, and drawing the cut pieces to form the shank B; then splitting the other end of the pattern into four or more parts, as seen at A, making one middle cut shorter than the others to form the base-head B, and then turning and drawing the prongs, substantially as described, and for the purpose set forth.

180,042.



180,043. STRAW-CUTTERS. John Laughlin, York, Pa. [Filed May 24, 1876.]



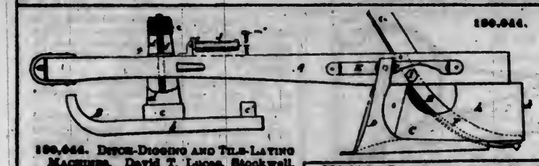
The feed trough of a straw-cutter, supported at its rear end by the single upright K, and braced to the frame-work and trough by the horizontal bar L, the two inclined braces I I, and the short brace J, all constructed and arranged substantially as and for the purposes set forth.

180,044. IRRIGATING. Jeremiah S. Letts, Ripon, Wis. [Filed Mar. 4, 1876.]

Brief.—The exact arrangement of bottles cited in the claim, with a valve to prevent escaping of contents of bottles, and with metal rubber-lined perforated bottle-cap.



The bottle C, connected with the bottle B by means of the tube *a*, arranged so it will be above the liquid in the bottle C and below the surface in bottle B, in combination with the bottle A, valve A, and tube *a*, connecting the bottles A and B, arranged to contain cotton to hold iodine, said bottles A, B, and C being fitted with perforated metal and rubber caps, all constructed, operating, and arranged as and for the purposes set forth.



180,045. DITCH-DIGGING AND TILE-LAYING MACHINES. David T. Lucas, Stockwell, Ind. [Filed May 10, 1876.]

Brief.—The plowing device is attached to the rear end of a deflected beam, the forward end of which is supported upon a sled with vertical adjustment. One side of the chute for the tile forms a spring, which is pressed upon by an adjusting-screw, whereby the chute may be adapted to conform to the width of the tile used. A supplemental chute is also employed, which may be detached when desired.

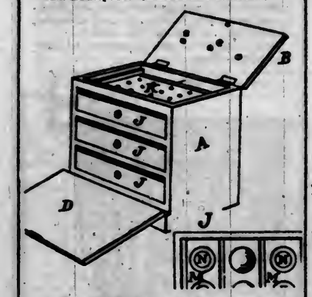
1. The plow U, consisting of parallel plates *h h'*, beveled at *i*, and arranged inclinedly, as described, in combination with point *j*, cutter-blade D, brace H, and beam A, substantially as and for the purposes described.

2. The combination, with the plow having chute F, of the spring H and binding-screw I, substantially as and for the purposes described.

3. The combination, with the beam A, deflected at its rear extremity, of the plow C, arranged as described, the cutter D, brace H, and sled B, adjustably attached to and supporting the forward end of the beam, substantially as and for the purposes described.

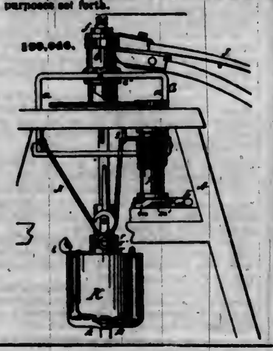
4. The combination, with the plow having chute F, of the detachable trough G, composed of a piece of metal bent longitudinally, and adapted to be used substantially as described.

180,046. EGG-BOXES. Andrew H. Lucas, St. Louis, Mo. [Filed June 6, 1876.]

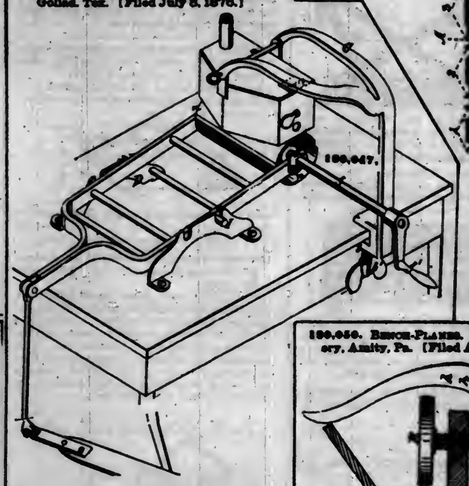


1. The case A, having the hinged and perforated top B *a a a*, and hinged and perforated front D E *f f f*, in combination with the series of drawers J, having perforated stationary strips M N with intervals of space between them, substantially as and for the purposes set forth.

2. The drawer J, having the perforated stationary strips M N placed therein, so as to have spaces between them provided with the groove L, in combination with the perforated card-board K O, substantially as and for the purposes set forth.



180,047. IRONING APPARATUS. J. Maith, Golind, Tex. [Filed July 3, 1876.]



1. The combination of a smoothing-iron, the front of which diverges from a central point to the side ends of the iron, and a rotary and vertically adjustable ironing bed, substantially as herein described.

2. A rotary ironing-bed applied in a frame, which is adjustable horizontally back and forth under a smoothing-iron, substantially as and for the purpose described.

3. The combination of a swinging frame, adapted to be worked by a foot-treadle, and carrying a rotary ironing-bed, provided with a hand-crank for turning it, a standard for supporting the said frame and its ironing-bed, and a portable bracket carrying a smoothing-iron, substantially as described.

4. The rotary ironing-bed, constructed substantially as described, and having its outer cloth covering or surface fastened by expanding cast rings, for the purpose set forth.

5. The adjustable clamps for holding the rotary ironing-bed in place, in combination with the half-bearings of the shaft of the ironing-bed, and an ironing-bed formed as described, all for the purpose set forth.

180,048. CASTING CAR-WHEELS. James McAllister, Gold Hill, Nev. [Filed Sept. 27, 1875.]

Brief.—A wheel having a hub of soft cast metal, with a hexagonal and beveled perimeter, the rest of the wheel cast about the hub from harder metal. Thus avoids chilling the rim.



The improved car-wheel, formed of the hub or center piece B, having a hexagonal body, tapered each way from the center, and the hardened rim or body A, fitting said tapered portion of the hub, as shown and described.

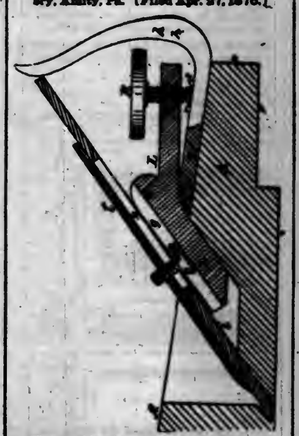
180,049. ROLLS FOR REWORKING RAILROAD-RAILS. Jos. McCaffrey, Pittsburg, Pa. [Filed June 10, 1876.]

Brief.—As the grooves for the head and flanges change in shape, the plain space between increases in width, reducing at each pass a portion of the head and flange, and adding it to the web.

The pair of rolls A B, having the series of graduated grooves in sections 1 2 3, and the plain surfaces in section 4, as shown and described, for the purpose of reducing a T-rail to a flat bar, as specified.

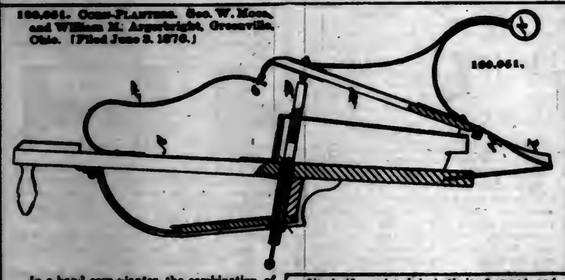


180,050. BENCH-PLANES. Wm. Montgomery, Amity, Pa. [Filed Apr. 27, 1876.]



The combination of the stock A, having projection p, with the pivoted lever L, provided with a dovetail groove in its face, adjusting-screw E, notched saddle S, bed-plate and handle B A, and cover c, all constructed to operate as shown and described, and for the purpose specified.

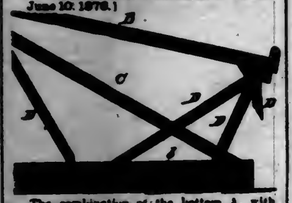
180,051. CORN-PLANTER. Geo. W. Moon, and William M. Augerbright, Greenville, Ohio. (Filed June 3, 1876.)



180,051.

In a hand corn-planter, the combination of the staff A, bow-spring F, pivoted arm E, provided with the loop *e*, slide D, jaw H, having flanges *h h*, and pivoted flaring jaw I, substantially as described, and for the purpose set forth.

180,052. BOOK-SUPPORTS OR DESKS. Geo. B. Sears Northrop, Newark, N. J. (Filed June 10, 1876.)



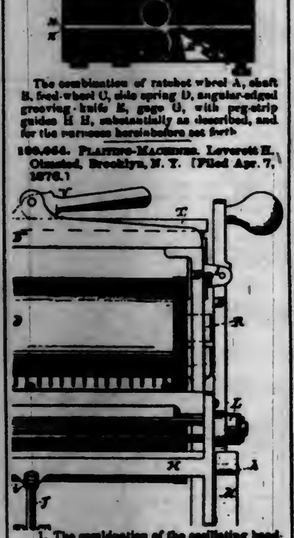
The combination of the bottom A, with ratchet-teeth *b*, the top B, hinged connecting-leaf C, and the pawls or arms D, all constructed substantially as and for the purposes herein set forth.

180,053. MACHINES FOR MAKING DOVETAILED SHOE-PEGS. James H. Oliver, Baltimore, Md. (Filed Dec. 1, 1876.)



The combination of ratchet-wheel A, shaft B, feed-wheel C, slide-spring D, angular-edged grooving-knife E, gage G, with peg-strip guides H H, substantially as described, and for the purposes hereinbefore set forth.

180,054. PLAITING-MACHINES. Leverett H. Olmsted, Brooklyn, N. Y. (Filed Apr. 7, 1876.)



1. The combination of the oscillating hand-lever E, the ratchet *e*', and pawl *f*, for operating the rollers, the knife-carrying frame H, and the bar I, connecting the said frame with the said lever by a slotted connection, and the spring or springs M, substantially as herein described.

2. A plaiting-machine, having the operation of its knife assisted, in both its forward and backward motion, by means of a double-acting spring or springs, substantially as herein described.

3. In a plaiting-machine, the combination, with the hollow roller, of the friction-roller bearings, arranged as shown and described, for the purpose specified.

4. The combination, with the upper roller D and its journal-boxes, of the lifting-springs *s s*, the sliding rods S S, the elastic presser-bar T, and the cam-lever V, all substantially as herein described.

5. In a plaiting-machine, the combination, with the oscillating lever E for operating the rollers and plaiting-knife, of stops for regulating the amount of travel of said lever, substantially as herein described.

180,055. CATCHES FOR COVERS TO SPEAKING-TUBES. William R. Ostrander, New York, N. Y. (Filed July 1, 1876.)

Brief.—The hinged gravitating-catch fastened to the cover, which fastens automatically.



In combination with cover C and mouthpiece D, the pivoted catch F, having bent lip *f* and handle *f'*, substantially as set forth.

180,056. CANAL LOCKS AND DAMS. George W. Parsons, Oneida, W. Va. (Filed Apr. 29, 1876.)

Brief.—The lock gates are in two parts, hinged, rising vertically in the center, and are operated by hydraulic power, by means of a piston and cylinder located beneath the gate. Water is admitted to either side of the piston, as desired, by means of passages controlled by adjustable valves, and similar passages and valves also control the admission and expulsion of water under the boat.



1. In a lock, the combination, with the hinged two-part gates, of induction and eduction passages and sliding pistons connected with said gates, and acted on by the water, to raise and lower them in the manner described.

2. In a lock, the combination, with the gates and pistons, of the wickets or valves located in the induction and eduction passages, and the rods connecting the same, whereby the wickets are alternately opened and closed, as set forth, for the purpose specified.

3. The combination, with the bulk-head, of passages a breadth *k*, and the lateral passages *c* opening immediately below it, and the wickets for controlling admission of water, as shown and described.

180,057. GRAIN-PUMP BUCKETS. William Packham, Poplar Ridge, N. Y., assignor of one-half his right to Jonathan P. Freed, same place. (Filed May 27, 1876.)

1. A chain-pump bucket composed of a metallic shackle combined with an elastic India-rubber disk, provided with escape-valves, which are automatically opened by a downward movement of said bucket, substantially as set forth.

2. A chain-pump bucket composed of a metallic shackle, A, having the convex disk *c* and neck *b*, combined with an elastic disk, D, provided with holes *d d*, substantially as set forth.

3. A chain-pump packing-disk, D, constructed with ribs *c*, and combined with a metallic shackle, A, substantially as set forth.

4. A chain-pump packing disk, provided with peripheral notches *a*, penetrating the lower surface, so as not to permit the escape of water downward, substantially as set forth.

5. A chain-pump bucket composed of a metallic shackle, A, provided with a convex disk, *c*, and neck *b*, combined with a packing-disk, D, having radial ribs *e* and perforations *d*, said perforations acting, in connection with disk *c*, as escape-valves, in the manner set forth.



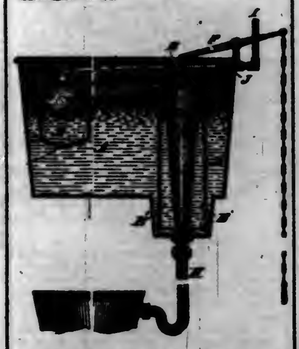
180,057.

180,058. PURIFYING AND AMALGAMATING GOLD AND SILVER BEARING SANDS, &c. Benj. F. Pennington, San Francisco, Cal. (Filed Feb. 29, 1876.)

The herein-described process for treating and amalgamating auriferous or argentiferous sands, gravel, earth, &c., which consists in mixing them with caustic soda, soda-ash, nitrate soda, and borax, substantially in the manner and proportions specified, and then amalgamating in the usual way, substantially as herein set forth.

180,059. WATER-CLOSET TANKS, &c. Stewart Peters and William Donald, Glasgow, Scotland. (Filed May 18, 1876.)

Brief.—After the pull is released an after-flush takes place.



1. The combination, with the tank A and trapped service-pipe H, of the tube D, cup E, and lever F, all constructed, arranged, and operating substantially in the manner and for the purpose described.

2. The combination, with the tank A and trapped service-pipe H, of the tubes D and G, cup E, and lever F, all constructed, arranged, and operating substantially as and for the purpose specified.

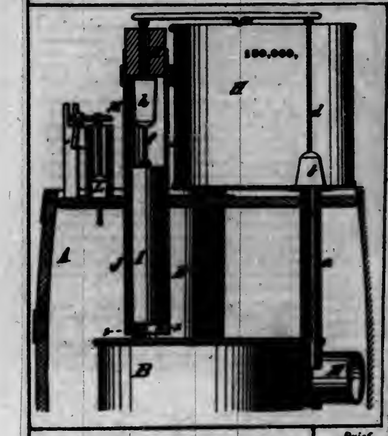
3. The combination, with the tank A, of the supply-pipe I, cock J, lever L, ball K, and perforated ball-chamber B, all constructed, arranged, and operating substantially in the manner and for the purposes set forth.

180,060. FUEL-STEAMERS. Warren Pierce, Cedar Falls, Iowa. (Filed May 20, 1876.)

1. In a fuel-steamer, the combination of the barrel A, reservoir H, tube *a*, valve *b*, rocking lever B, rods *d f*, and float I in the tube J, as and for the purpose set forth.

2. In a fuel-steamer, the combination of the tube J, provided with apertures *s s* near its lower end, with plug K, rod *f*, and valve *b*, as and for the purpose set forth.

3. In a fuel-steamer, the combination of the barrel A, fire-box B, having tubes G, reservoir H, float I, and valves *b b* L, substantially as described, and for the purposes set forth.



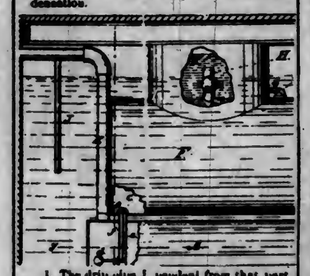
180,060.



180,062.

180,061. CARBURETTERS. James M. Pollard, New Orleans, La., and Wallace B. Barton, Galveston, Tex., assignors to the Southern Gas Machine Company, New Orleans, La. (Filed Jan. 3, 1876.)

Brief.—The oil-reservoir and carbureting-chambers are immersed in water in a tank, the cover of which has a dependent flange, which dips in a water-seal. A water-box is placed on top of the reservoir; it has a draw-off cock, and is supplied with water, to cover the oil-feed pipe. The flow of oil from the reservoir to the carburetor is regulated by a float and valve. The sides of the carburetor-chambers have asbestos packing. The eduction-pipe for gas has a drip-pipe extending down into the water, for collecting the condensation.



1. The drip-pipe J, pendent from that part of the gas-conducting pipe E which is above the body of water in the tank, and extending down into the water, as shown and described, for the purpose specified.

2. The combination, with the hydrocarbon-reservoir, provided with the filling-tube H, of the cylinder, containing the liquid seal, and provided with a cock for discharging the liquid, as set forth and described.

180,062. GAS-REGULATORS. Thos. R. Perrin, Greenbush, N. Y. (Filed Mar. 23, 1876.)



The combination of the switch-rail E, the chair R, provided upon one side with the hook *a*, and upon the opposite side with the perforated ear C, and the key D, all constructed and operating substantially as herein described.

180,063. WOOL AND COTTON LAPPING MACHINES. Hercules M. Range, Battle Creek, Mich., assignor of one-half his right to J. W. Corder and A. B. Kocher, same place. (Filed Apr. 7, 1876.)

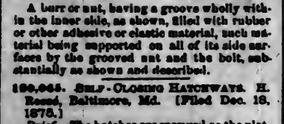
Brief.—As the "roving" leaves the "doffer" of the carding-engine it is received upon the apron of the reciprocating truck, the movement of which causes the material to be laid in folds. Intermittent motion is imparted to said apron by a pawl and ratchet, the action of which can be regulated to regulate the speed with which the material is wound upon the lap-roller.

1. The combination of the apron D, lap-roller G, and the rollers I I, arranged in an oscillating frame, J, substantially as and for the purpose herein set forth.

2. The combination of aprons B and D, rollers I I, and lap-roller G, all substantially as and for the purposes herein set forth.

3. The combination of the oscillating frame J, provided with rollers I I, apron D, the lap-roller G, and the reciprocating truck B, all substantially as and for the purposes herein set forth.

180,064. NUTS. Lyman A. Reben, Lockport, N. Y. (Filed June 17, 1876.)



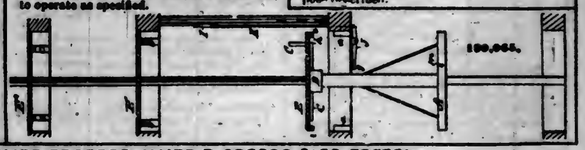
A burr or nut, having a groove wholly within the inner side, as shown, filled with rubber or other adhesive or elastic material, such material being supported on all of its side surfaces by the grooved nut and the bolt, substantially as shown and described.

180,065. SELF-CLOSING HATCHWAYS. H. Reed, Baltimore, Md. (Filed Dec. 16, 1875.)

Brief.—The hatches are reserved as the platform rises on two bars, the ends of which are bent upward at right angles to enter corresponding openings in the several hatches, thus centering and retaining them in position. Vertically-sliding gates or guards are also provided to protect the several openings, being raised by hand when required, and released by the passage of the platform acting on a spring-catch and lever.

1. The combination, with the platform-frame and the series of hatches E E' E'', having coincident openings A, of two or more horizontal bars, C, secured to, and extending laterally from, the cross-beam D, and bent upward at one end, so as to receive and penetrate the several hatches, all as shown and described, to operate as specified.

2. The combination, with the platform provided with stud *n* and the vertically-sliding gates G, of the spring-catch I, the rod K, and jointed trip-lever J, as shown and described, to operate as specified.



180,065.

180,066. TREADLES. H. Reese, Baltimore, Md. (Filed Mar. 20, 1876.)

Brief.—On the pivoted treadle proper are two raised supports, with curved tops for the hollow portion of the foot; also, a modification in which the curved top is pivoted.

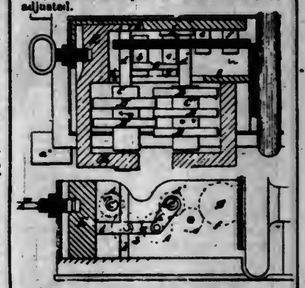


1. The combination, with the main treadle-plate, of elevated curved-front foot-rests A, adapted to operate as pivots beneath the shank or instep of the shoe, as described.

2. The independent treadle A', having the center of gravity below the pivot, in combination with the support B of the main treadle, upon which it is pivoted, as and for the purpose described.

180,067. SHARPENING-MACHINES. August Reitze, Hanover, Germany. (Filed May 27, 1876.)

Brief.—One set of rollers is fixed, the other is adjustable in a sliding frame. Two intermediate gear-wheels operating upon the roller-shafts are linked together, and one is also linked to the shaft of the fixed rollers, while the other is linked to the sliding frame, so that the gearing mechanism is always in position, however far apart the sets of rollers are adjusted.



In combination with the shafts C and C', the wheel *b*, supported on the arm *i*, attached to the movable frame F, and the wheel *c*, supported by the arms *g* and *h*, arranged in the manner and for the purpose substantially as set forth and described.

180,068. GRAIN-SEPARATORS. William M. Rickard, Redland, Md. (Filed May 31, 1876.)

Brief.—Takes up backlash by means of the adjustable "set" of the drive-wheel between the pinions. Attaches a compensating-link to the eccentric crank-disk, to pass the connecting-rods. Operates knocker from the eccentric, provides the striking end of the knocker with two bearing-surfaces, and opens the bottom screen to allow the knocker to strike the second. Constructs a horseshoe-shaped guard-block around the opening of the said screen, to prevent the passing grain from dropping through.

1. The combination of the rods I' F, bell-cranks I I, link *h'*, and crank-disk H, all substantially as and for the purpose described.

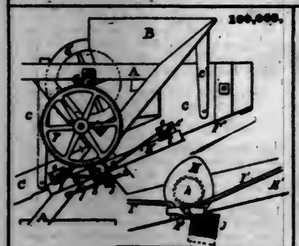
2. The screens E, supported in the grooves of the shoe by the double beveled cleats *e' e'*, substantially as and for the purpose described.

3. The jarring-lever J, with the striking end, having two bearing-surfaces, constructed substantially as and for the purpose described.

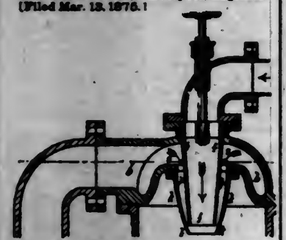
4. The jarring-lever, having an adjustable screw, *a*, in one of its striking-surfaces, for the purpose as described.

5. Guard-block *a*, attached to the screen around the opening, constructed substantially as and for the purpose described.

6. The grain-board D, divided by the stationary separating-strips, each being bent at an angle, substantially as and for the purpose described.



180,069. CONDENSERS FOR STEAM-PUMPS. Frederick E. Saxby, Liverpool, England. [Filed Mar. 13, 1875.]



In a condenser for steam-pumps, the flexible or elastic india-rubber valve or pipe *k*, leading from the upper chamber *b* of the condenser, and communicating with the water suction or inlet pipe, and in combination with the internal pipe *f*, leading from the exhaust-steam pipe of the steam-pump, substantially as specified.

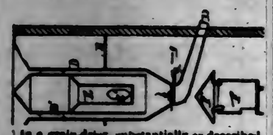
180,070. SLATE-FRAMES. John W. Sayre, Martin's Creek, Pa. [Filed Dec. 11, 1875.]



The within-described slate-frame fastening, consisting of a wire passed diagonally through the corner of a frame, and having its ends bent inward and sunk into the adjoining bars, all substantially as described.

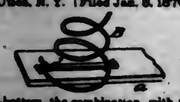
180,071. GRAIN-DRIERS. Karl Schroll, Chicago, Ill. [Filed June 1, 1876.]

Brief.—The products of combustion pass from the chamber below the diaphragm to the one above, through perforations in the cylinders and through the grain.



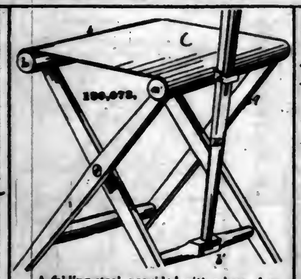
In a grain-drier, substantially as described, the combination, with the chamber A, having an open bracket, F, at the bottom, of the perforated concentric cylinders D D', fitted with the spout D', valve *a*, fans E' E, and the diaphragm B, substantially as and for the purpose set forth.

180,072. SPRING SEAT-BOTTOMS. Charles T. Sager, Utica, N. Y. [Filed Jan. 3, 1876.]



In a bed-bottom, the combination, with the strip *a*, of the spiral spring B, staples *c*, and rod *d*, substantially as described, and for the purpose set forth.

180,073. FOLDING CHAIRS. S. A. Skinner, Hoosick Falls, N. Y. [Filed Apr. 17, 1876.]

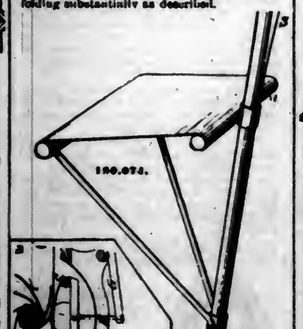


A folding stool, provided with a loop, *d*, on the back round of the seat combined with a staff, E, passing through said loops and secured to the round *b'*, and a bolding-latch, substantially as and for the purpose set forth.

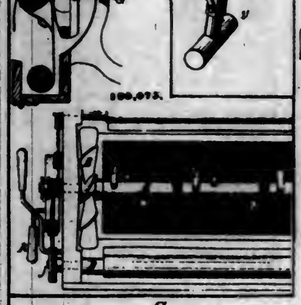
180,074. FOLDING CHAIRS. S. A. Skinner, Hoosick Falls, N. Y. [Filed Apr. 17, 1876.]

1. A folding stool composed of a staff, S, with a permanently-fixed cross-piece, *t*, and a movable cross-piece or round, *g*, attached to said staff by pivoted braces *p p*, and a seat, R, of canvas or other suitable material.

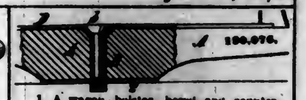
2. A staff, S, provided with a cross-head, U, forming a mallet, combined with a seat, R, folding substantially as described.



180,075.



180,076.

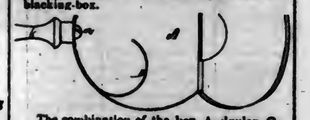


1. A wagon-bolster, bored and countersunk, and provided with a top plate bored to admit the passage of the king-bolt, and having the surrounding metal forced or turned down into the countersink of the bolster, thus forming a firm and long bearing for the bolt-head with a comparatively thin plate, substantially as hereinbefore set forth.

2. In combination with a wagon-bolster, bored and countersunk, the top plate D, countersunk as described, and the bottom plate C, whereby the king-bolt is maintained in a vertical position, and the head received so as to lie in the same plane with the top surface of the plate D, substantially as and for the purpose set forth.

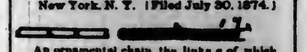
180,077. BLACKING-BOX HOLDERS. George W. Taylor, Boston, Mass. [Filed Dec. 9, 1875.]

Brief.—The holder has a handle at one side and a cover, and fastened inside is a circular spring with free ends, which clasp around the blacking-box.



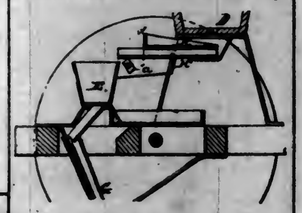
The combination of the box A, duplex C-spring D, handle B, and screw *c*, all arranged as set forth.

180,078. ORNAMENTAL CHAINS. G. Trinks, New York, N. Y. [Filed July 30, 1874.]



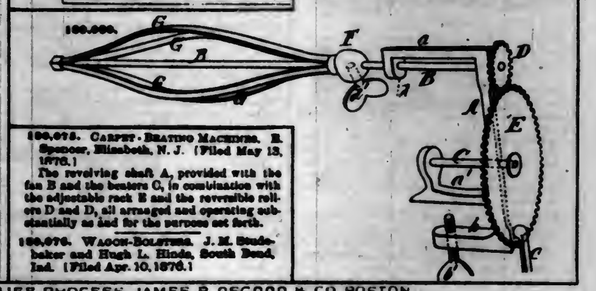
An ornamental chain, the links a of which are formed of round wire with flattened sides and convex edges, and connected substantially in the manner shown and described.

180,079. SEED-PLANTERS. Flavius J. Underwood, North Springfield, Mo. [Filed Feb. 3, 1876.]



The combination, in a seed-sower, of the seed-boxes D and E, the intermediate separating-screens H H', a knocking or shaking mechanism, and the conductors G under the box E, whereby the seed is separated between two hoppers and carried to the earth through the conductors, substantially as and for the purposes herein set forth.

180,080. LAMP-CHIMNEY CLEANERS. L. Von Dresser, Grand Haven, Mich., assignor of one-half his right to S. R. Von Dresser, same place. [Filed June 8, 1876.]



180,081. CARPET-BEATING MACHINES. R. Spencer, Elizabeth, N. J. [Filed May 13, 1876.]

The receiving shaft A, provided with the fan B and the beaters C, in combination with the adjustable rack E and the reversible rollers D and D, all arranged and operating substantially as and for the purposes set forth.

180,082. WAGON-BOLSTERS. J. M. Studebaker and Hugh L. Hinds, South Bend, Ind. [Filed Apr. 10, 1876.]

1. The rotary lamp-chimney cleaner, consisting of the expansible strips G, a rotating shaft, to one end of which the said strips are secured, a sliding collar on the said shaft, to which the remaining ends of the strips are secured, and a set-screw for holding the said collar in position, substantially as specified.

2. The expansible cleaner-strips G and shaft R, in combination with pinion D and gear-wheel E, substantially as specified.

3. In combination, the shaft B, gear-wheel E, pinion D, shaft C, adjustable collar F, and flexible strips G, arranged and operating substantially as set forth.

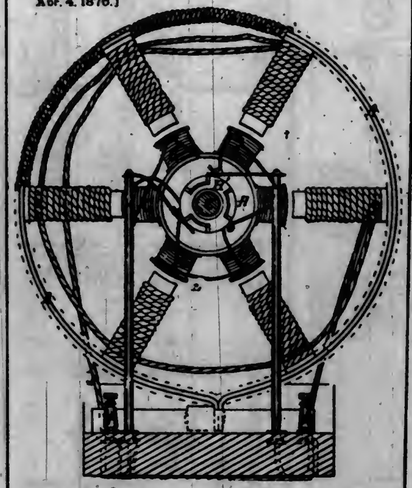
180,083. COMPOSITION ROOFING. Cyrus M. Warren, Brookline, Mass. [Filed Mar. 22, 1876.]

Brief.—First, a compound of (1) native bitumen, (2) vegetable or mineral tar or oil, (3) petroleum-residuum, (optional ingredient.) Second, felt or paper saturated with the above compound, to form a roof.

1. A roofing material composed of native bitumen, or mixture of bituminous and pine or wood tar, or other equivalent material, substantially as set forth.

2. A roofing material composed of paper or felt saturated or coated, or both, with a compound of native bitumen, or mixture of bituminous and pine or wood tar, or other equivalent material, substantially as set forth.

180,084. MAGNETO-ELECTRIC MACHINES. Edward Weston, Newark, N. J. [Filed Apr. 4, 1876.]



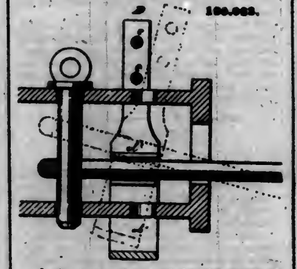
1. In a magneto-electric machine, a ring of iron or other magnetic material, wrapped or unwrapped, having radially-projecting magnets attached to or forming a part of each ring.

2. In a magneto-electric machine having but one circuit, the combination of a ring of iron or other magnetic material, wrapped or unwrapped, and having a series of radially-projecting magnets attached to or forming a part of each ring, with a hub or center of iron or other material, having projecting from it a series of wrapped armatures attached to or forming a part of such hub.

3. A magneto-electric machine with radially-projecting electro-magnets and radially-projecting armatures, when arranged so that the current generated in all the armatures is passed around the radially-projecting electro-magnets, substantially as and for the purposes set forth.

4. The commutator H H', made in two parts, as described, placed upon the shaft C, the clamping-ring *d*, and nut K, all constructed substantially as and for the purposes set forth.

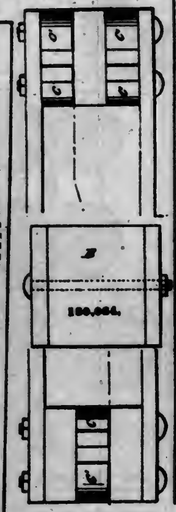
180,085. CAR-LINK ADJUSTERS. George W. Williamson, Pittston, Pa., assignor of one-fourth his right to Girard Hillers, same place. [Filed June 9, 1876.]



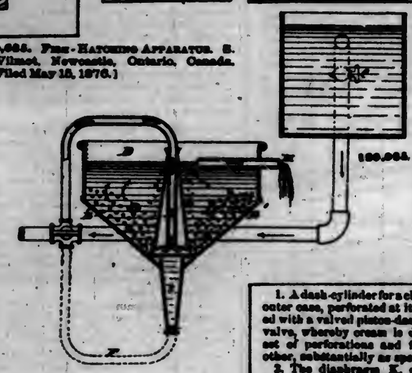
Link-adjuster D, provided with hinged side arms *d' d'* and dogged grappling-plates *d² d²*, substantially as and for the purposes set forth.

180,086. RAILROAD-TIES. George W. Williamson, Pittston, Pa., assignor of one-fourth his right to Girard Hillers, same place. [Filed May 29, 1876.]

Jaws C C', combined with spacing-blocks B and a box cross-tie, constructed substantially as described.



180,087. FISH-HATCHING APPARATUS. S. Wilmot, Newcastle, Ontario, Canada. [Filed May 18, 1876.]



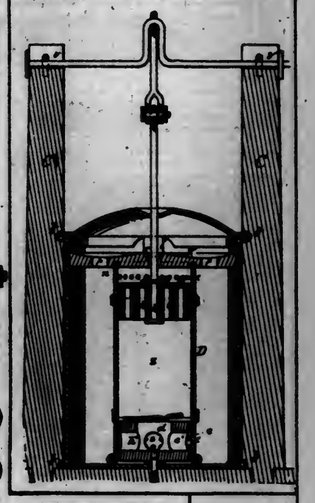
1. In the art of fish-hatching, the process of cleansing ova and separating the imperfect from the sound and perfect eggs, consisting essentially in placing said ova in a suitably formed basin or other receptacle, causing an upward flow of water therein sufficiently strong to keep said ova slightly in motion, and removing sediment and the lighter or defective eggs by means of the overflow, substantially as described, and for the purpose set forth.

2. A fish-hatching apparatus, having one or more funnel-shaped or rounded-bottom basins, D, a central induction-pipe, E, for discharging water downwardly therein, and an overflow-pipe, H, for carrying off the sediment and defective ova with the waste water, as set forth.

3. A fish-hatching apparatus, having one or more funnel-shaped or rounded-bottom basins, D, an induction-pipe, E, for discharging water downwardly into the same, an inclined jacket, L, for digressing the inflow, and a waste-outlet pipe, H, substantially as and for the purpose set forth.

180,088. CHURNS. Henry D. Wiswell, Belle Plaine, Iowa, assignor of part of his right to Oliver B. Cone, Wm. L. Hess, and F. A. Fenska, same place. [Filed Apr. 20, 1876.]

Brief.—The churn-cylinder has at its upper and lower ends perforations, through which the milk or cream is caused to pass by a reciprocating valved dasher.



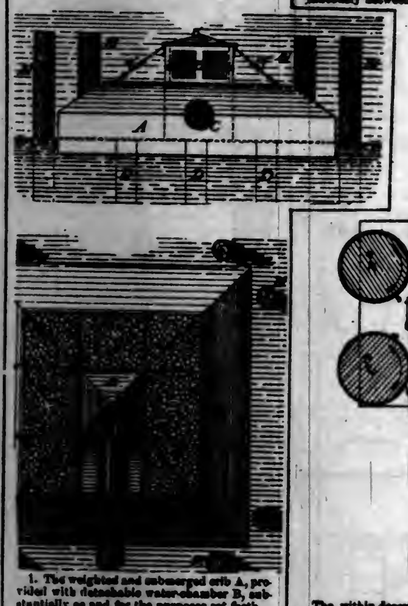
1. A dash-cylinder for a churn, arranged in an outer case, perforated at its ends, and provided with a valved piston-dash and an induction-valve, whereby cream is drawn through one set of perforations and forced through the other, substantially as specified.

2. The diaphragm K, constructed as described, and fitting snugly into the churn-case, in combination with the cylinder D, substantially as and for the purposes specified.

3. The valve-block B, having concave seat-walls, and passages *c* leading into its hollow center *d*, in combination with the cylinder D, perforated at its upper and lower edges, and the valved plunger C, working therein between the said perforated parts, substantially as specified.

166,087. CRIBS FOR LAKE WATER-WORKS. John A. Cole, Chicago, Ill. [Filed July 1, 1876.]

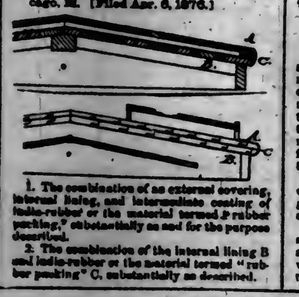
Brief.—A foundation of piles is driven and cut off level with the lake-bed, upon which is placed a metallic box or case of large area, provided in the center with a well communicating with the aqueduct below. This box is loaded with stones, and upon it is located a detachable water-chamber, surrounded with perforated gratings or wire-gauze protectors. Around the base of the box piles are driven to protect the same from displacement, and their tops are cut off at such a level as not to impede navigation, and at the same time to protect the water-chamber.



1. The weighted and submerged crib A, provided with detachable water-chamber B, substantially as and for the purposes set forth.

2. A crib for the entrance of lake waterworks, consisting of a substructure of piles, cut off at or near the level of the bottom of the lake, a metallic case loaded and anchored as described, a water-inlet chamber with perforated protectors securely secured to the top of the case, and the protecting-piles E E, cut off below the water-surface, as described, all combined, substantially as and for the purposes specified.

166,088. CAR-ROOFS. John M. Ayer, Chicago, Ill. [Filed Apr. 6, 1876.]



1. The combination of an external covering, internal lining, and intermediate coating of India-rubber or the material termed "rubber packing," substantially as and for the purpose described.

2. The combination of the internal lining B and India-rubber or the material termed "rubber packing" C, substantially as described.

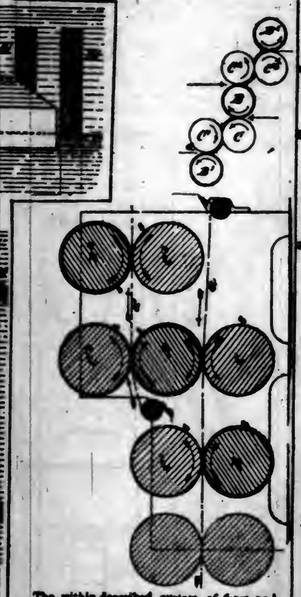
3. The combination of the India-rubber or rubber packing C and the outer covering A, substantially as described.

4. The combination of an outer covering, internal lining, water-proof non-condensing material, and an air-chamber, such air-chamber lying between the outer covering and water-proof material, and having openings, the whole being constructed in the manner and for the purpose described.

REISSUES.

7,224. PRINTING-PRESSES. Joseph L. Firm, New York, N. Y., assignor of one-half interest to C. B. Cottrell and Nathan Babcock, Westerly, R. I. Patent No. 169,705, dated Nov. 9, 1875. [Filed Dec. 21, 1876.]

Brief.—Three type and four impression cylinders are so arranged as to print upon both sides of two webs of paper passing simultaneously between them.



The within-described system of form and impression cylinders or rollers, the same consisting of a combination of two pairs of cylinders or rollers, one pair of which is composed of one form-cylinder, F, and an impression-cylinder, O', while the other pair is composed of one form-cylinder, F', and an impression-cylinder, O, and an interposed series of cylinders, consisting of two impression-cylinders, C O', and one intermediate form-cylinder, E, for operation as two independent webs, substantially as specified.

7,225. SHORT-THREAD SEWING-MACHINES. John S. Hall, San Francisco, Cal., assignor to J. L. Boone. Patent No. 168,627, dated Oct. 11, 1875. [Filed Feb. 16, 1876.]

Brief.—An independent needle, moving in suitable guides, having a reciprocating movement across the line of movement of the work, is operated by pinches in such a manner that the needle, in passing in one direction, is carried through the edge of the material operated on, and on its return movement is carried around the edge of the same, forming thereby an overseam-stitch similar to that formed by hand.

1. In an overseaming sewing-machine, the combination of a loose needle, an inclosing-guide, and pinches to drive said needle, substantially for the purpose set forth.

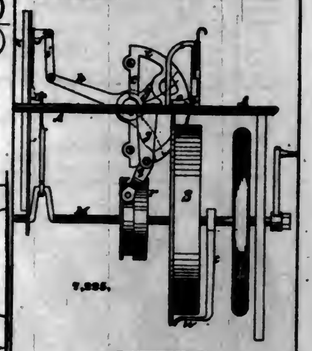
2. The independent needle V and pinches a b, in combination with the frame C, having a needle-guide and operating mechanism whereby a reciprocating motion is imparted to said frame, substantially as described.

3. The combination, with the frame C, having the recess *e* opposite the cloth-plate, and provided with a needle-guide or containing-groove, X, along its edge, constructed and arranged substantially as described, of operating mechanism for imparting to said frame a reciprocating movement whereby the needle is passing across the recess will in one direction only pass through the goods to be sewed, as set forth.

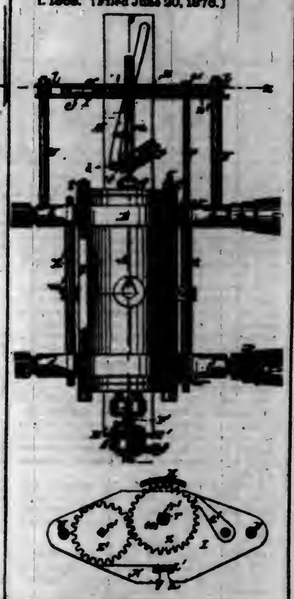
4. The reciprocating frame C, with its recess *e*, and having the opposite ways or grooves X, in combination with the arms *f f*, with their pinches a, and the independent needle V, substantially as and for the purposes above described.

5. The cam-wheel *r* and pivoted lever *q*, in combination with the reciprocating needle-frame C, substantially as and for the purposes above described.

6. The stationary vertical wheel S and revolving arm *t* with its beaked end *u* bent, as described, in combination with the independent needle V, pinches *a u*, and reciprocating frame C, substantially as and for the purposes above described.



7,226. ROCK-DRILLS. Geo. Phillips, Cadet, Mo., assignor to George H. Robinson, New York city. Patent No. 84,576, dated Dec. 1, 1868. [Filed June 20, 1876.]



1. The combination, with the valve guide-rod L and the plates N I, which contain between them the gearing for feeding the drill, of lugs *g h* on the said plates, forming guides for the said rod, substantially as herein described.

2. The combination, with the cylinder, in which works the piston of a drill-carrying piston-rod, of the re-enforcing connections or bolts *e*, substantially as shown and described.

7,227. APPARATUS FOR DISCOVERING COPPER. Conrad A. Sipe, Wells Tannery, Pa. Patent No. 167,550, dated Dec. 6, 1874. [Filed June 27, 1876.]

1. The slide-bar H, with its oblique slot *c*, and the lever V, with its slotted head F, in combination with the stud *a*, for the purpose of operating the valve of a drilling-machine by the piston-rod of the same, substantially as shown and described.

2. The ratchet-plates O, in combination with the ratchet-rod M, slide-bar H, lever V, and piston-rod F, of a drilling-machine, all operating substantially as shown and described, to rotate the drill C of a drilling-machine, in the manner set forth.

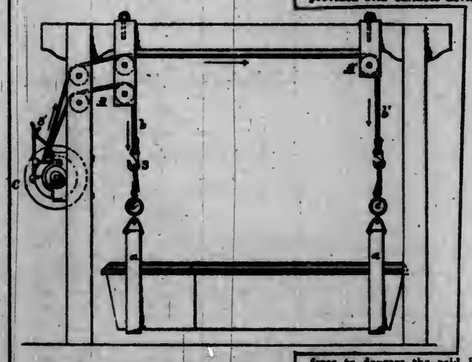
3. The combination, with the valve guide-rod L and the plates N I, which contain between them the gearing for feeding the drill, of lugs *g h* on the said plates, forming guides for the said rod, substantially as herein described.

4. The combination, with the cylinder, in which works the piston of a drill-carrying piston-rod, of the re-enforcing connections or bolts *e*, substantially as shown and described.

7,228. FLOATING-MACHINES. H. R. Adams, New York, N. Y. Patent No. 59,502, dated Nov. 6, 1866. [Filed Nov. 13, 1874.]

1. In a fasting-machine, having the upper roller *a* in fixed bearings, and the lower roller *c* in movable bearings, a separate frame or yoke, carrying the said movable bearings, the whole mounted in a frame, the upright or standard of which, at one end of the roller only, is continuous between their bearings, provided with suitable devices for applying





force to depress the said lower roller, and thereby separate it from the upper roller, all combined to operate as and for the purpose described.

2. The lower movable roller *c*, hung in a sliding yoke or frame, *d*, and the double-ended lever *g* and strap, combined and arranged to operate as and for the purpose specified.

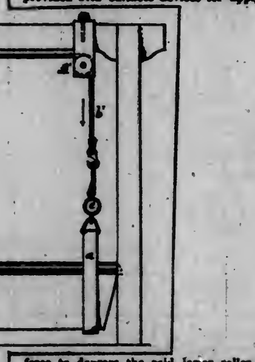
The combination, to an adjustable coffin-depositor, of the adjustable pulley-blocks A A', portable frame F, hose *b b'*, adjustably attached to drum D, and spring L, all as set forth.

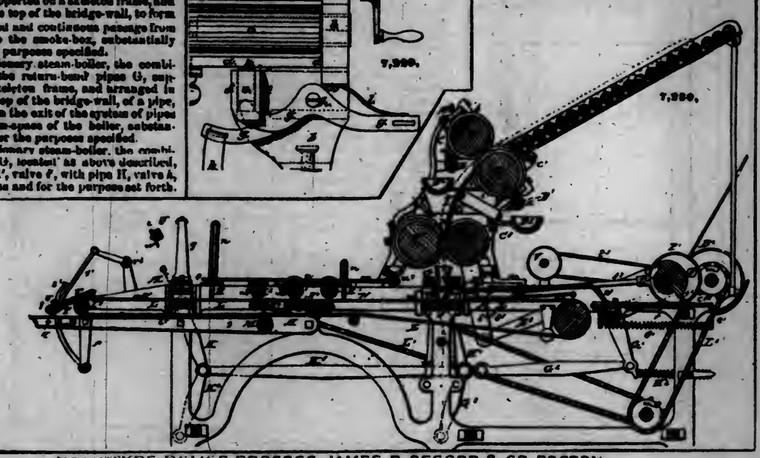
7,229. FEED-WATER HEATERS FOR STEAM-BOILERS. James C. Reed, Green Point, N. Y. Patent No. 170,193, dated Mar. 21, 1876. [Filed May 26, 1876.]

1. In a stationary steam-boiler, the combination of return-bend pipes G with the bridge-wall and rear wall of the furnace, the said pipes being supported on a skeleton frame, and in line with the top of the bridge-wall, to form an unobstructed and continuous passage from the fire-box to the smoke-box, substantially as and for the purposes specified.

2. In a stationary steam-boiler, the combination, with the return-bend pipes G, supported on a skeleton frame, and arranged in line with the top of the bridge-wall, of a pipe, H, leading from the exit of the system of pipes G to the steam-space of the boiler, substantially as and for the purposes specified.

3. In a stationary steam-boiler, the combination of bolt G, tension-nut as above described, valve *g*, pipe I', valve *f*, with pipe H, valve A, substantially as and for the purposes set forth.





7,230. CRACKER-MACHINES. Joseph Fox, Lansingburg, N. Y. Patent No. 22,702, dated Feb. 1, 1859; reissue No. 3,415, dated May 4, 1869; extended seven years. [Filed Apr. 3, 1876.]

1. The inclined fixed bed of free rollers A', in combination with the rollers, substantially as and for the purpose set forth.

2. The grooved rollers, provided with the depressions in the bearings, substantially as and for the purpose set forth.

3. In combination with a pair of transversely-grooved rollers, arranged to form strips from a sheet of dough, devices for giving to the rollers a regular intermittent or step-by-step motion, substantially as described, so that the strips may be severed into short sections while at rest.

4. The combination of a pair of transversely-grooved rollers, capable of producing strips of dough from a sheet thereof, and having a regular intermittent movement, a guide-bar for supporting the strips of dough, and a knife having an intermittent motion for severing the strips of dough into short sections.

5. The ways or guides E, in combination with grooved rollers, substantially as and for the purpose set forth.

6. The perforated bar G, in combination with the ways or guides E, substantially as and for the purpose herein set forth.

7. A pair of transversely-grooved rollers, ways, or guides, E, perforated bar G, and knife H, all combined and operated substantially as herein set forth.

8. The combination of the knife H and clamp-bars I I, as herein described, whereby sections of the strips of dough are cut off and held as the strips are fed through the bar G, as specified.

9. The combination, substantially as described, of the clearer K with the knife H, against which the short sections of dough are pressed endwise.

10. The straight-edge E', for straightening the rows of crackers before rolling, in combination with the aprons and rollers, substantially as described.

11. The endless apron I, inclined plane T, follower U, and second endless apron S, all combined and operated substantially in the manner and for the purpose herein described and specified.

12. The docker O, in combination with the plate P and apron L, substantially as and for the purposes set forth.

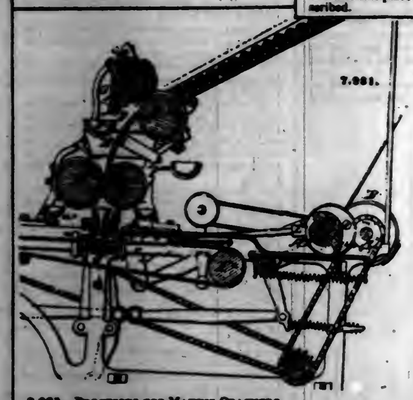
13. The docker O, apron L, and plate P, in combination with the movable plate Q, substantially as and for the purpose set forth.

14. The combination of the knife H and press-bar J, substantially as and for the purpose set forth.

15. The press-bar J, in combination with the apron L and docker O, for the purpose set forth.

16. The grooved rollers and the press-bar J, in combination with the apron L and docker O, substantially as and for the purpose set forth.

17. The inclined plane T, in combination with an apron or carrier, L, in a cracker-machine, substantially as and for the purpose set forth.



7,921.

7,921. PROCESSES FOR MAKING CRACKERS. Joseph Fuz, Lansingburg, N. Y. Patent No. 22,766, dated Feb. 1, 1859; reissue No. 3,423, dated May 4, 1869; extended seven years. [Filed Apr. 8, 1876.]

The process of turning dicks or crackers by passing the dough between grooved rollers to form the same into strips, cutting the strips into sections by an automatic knife, and pressing the sections endwise by automatic means, substantially as and for the purpose set forth.

7,922. CHEESE-HOOPS. S. Wilson, Watertown, N. Y. Patent No. 107,315, dated Sept. 13, 1870. [Filed June 3, 1876.]

Brief.—A split hoop surrounds the bandage, which turns outward at top and horizontally inward at bottom, a cup with perforated bottom fitting over the split hoop at bottom, and a deep cup or cylinder with large opening in its rim at top.



1. A cheese-hoop composed of two or more tubular parts, arranged to slide telescopically, substantially as and for the purposes described.

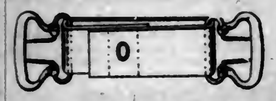
2. The sliding or movable top tube or portion, formed or provided with a narrow inwardly-projecting flange at its top edge, substantially as and for the purposes described.

3. The combination, with top and bottom covers or holder-rims, of a split body-hoop, *b*, substantially in the manner and for the purposes set forth.

4. In combination with the body or main portion of a cheese-hoop, a removable and perforated bottom, as and for the purposes set forth.

5. The expansible tube or cylinder, in combination with a bandage, substantially in the manner set forth, whereby the adjustment and retention of the bandage within the hoop in which it is placed are readily effected, as described.

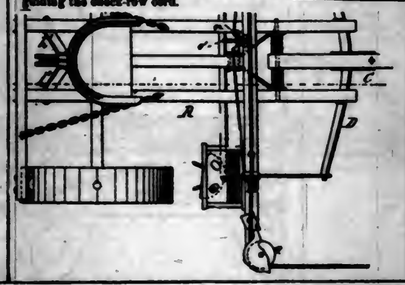
7,923. ADJUSTABLE ELASTIC STRAPS FOR GARMENTS. Redmond Gibbons, San Francisco, Cal. Patent No. 54,142, dated Apr. 24, 1866. [Filed June 15, 1876.]



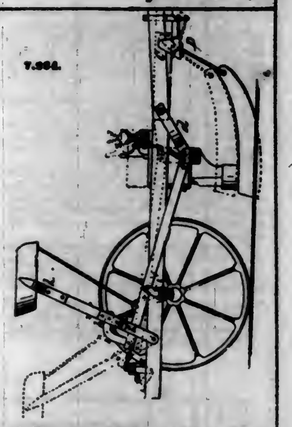
A new article of manufacture consisting of an elastic strap having a buckle at each end, or dash equivalent thereto, as adapts the strap for adjustability to the right and left tags of vests, pantaloons, or other garments, constructed for application to such garments, substantially in the manner and for the purposes described.

7,924. COMB-PLANTERS. Geo. D. Haworth, Decatur, Ill. Patent No. 134,747, dated Jan. 14, 1873. [Filed June 27, 1876.]

Brief.—The seed-spoons are kept in a horizontal position, and are raised and lowered by connection with the pivoted seat-standard. Novel devices for dropping the seed and for guiding the check-row cord.



7,924.



7,924.

1. The rocking bar D, pivoted to the horizontal bars A A, and the arms or links *d d*, also pivoted to said bars, in combination with the vibrating seeding attachment, for maintaining the horizontal position of the latter, as described.

2. The vibrating seat-standard H, lever D, and connecting bar or link *i*, in combination with the seeding attachment, substantially as described.

3. The shaft *k*, provided with the cushions *k'*, arranged within the seeding tube or chute and *p*, and operating relatively to the discharge outlet *p*, substantially as described.

4. The combination of the shaft *k* and slide N, or equivalent devices, for producing the upper and lower drop of the grain, as described, with the actuating check-row cord through the connecting devices, substantially as described, whereby a positive movement in both directions is given to said dropping devices, substantially as and for the purpose set forth.

5. The oval-revolving pulley-holder, substantially as described, and for the purpose set forth.

7,925. CORN-PLANTERS. Geo. D. Haworth, Decatur, Ill. Patent No. 134,747, dated Jan. 14, 1873. [Filed June 27, 1876.]

1. A check-row cord composed of short sections, provided with the open hooks B, having the projecting spurs or points *o o'*, arranged and operating substantially as and for the purpose described.

2. The open hooks B, provided with the open shanks *b*, adapted to be closed around and united to the ends of the cord, as described.

3. The hooks B, provided with the open shanks *b*, and retaining-spurs *b'*, substantially as and for the purpose set forth.

4. The combination, with the sections A of a check-row cord, of the open hooks B, provided with the spurs or hooks *o o'*, and shanks *b*, having the retaining-points *b*, substantially as and for the purpose set forth.

7,924.



7,925.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

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OF THE

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COMMISSIONER'S DECISIONS.

RUBBER CLOTHING COMPANY.—*Trade-Mark.*—*Appeal.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of the Rubber Clothing Company for the registration of a Trade-Mark.—Decided June* 28, 1876.]

While the statute, sec. 4939, prohibits the Commissioner from receiving for registration unlawful trade-marks and those consisting alone of the name of a person, firm, or corporation, it excepts, by a special proviso, all lawful trade-marks rightfully in use on the 8th of July, 1870, the time of the passage of the act.

The definition of a "lawful trade-mark" is not given by the statute, but is left to be determined upon common law principles. The courts have determined that under certain conditions names of persons, firms, and corporations may become lawful trade-marks. If those conditions had been fulfilled and such names were lawful trade-marks rightfully in use on the 8th of July, 1870, the Commissioner is authorized to receive them for registration.

The Commissioner may adopt such modes of establishing those facts as he shall deem necessary, and will require, in addition to the applicant's own statement, the affidavits of disinterested parties who have a knowledge of the facts, setting forth the length of time the mark has been in notorious use, whether or not it has obtained a commercial value, and is considered by the trade as an indication of the origin and ownership of the articles to which it is affixed.

DUELL, *Commissioner:*

Applicants seek to register the name "Rubber Clothing Company" as a trade-mark. Upon being referred to the provisions of sec. 4939, Revised Statutes, which directs the Commissioner not to receive for registration "the name of a person, firm, or corporation unaccompanied by a mark sufficient to distinguish it from the same name when used by other persons," the applicants claimed the right to register under the concluding clause of said section, "but this section shall not prevent the registry of any lawful trade-mark rightfully in use on the 8th day of July, 1870."

The question which is now presented for consideration is as to what character of proof the office will recognize as establishing the right to registration under this latter clause.

It is evident from the language employed in the statute that the Commissioner is absolutely prohibited from receiving for registration "that which is not and cannot become a lawful trade-mark."

In addition to and as contra-distinguished from such unlawful trade-mark he is directed to refuse registration for "the name of any person, firm, or corporation," unless it should appear that it was "a lawful trade-mark rightfully in use on the 8th of July, 1870."

The statute contains no definition of a lawful trade-mark, but leaves that to be determined upon common law principles.

As was said by the Commissioner in The India Rubber Comb Company, (8 OFFICIAL GAZETTE, 905,) "to better protect these common law interests in the courts of the United States, and to extend its privileges to citizens of those foreign countries which afford the same protection to citizens of our country, constitute the principal objects of the present law of trade-marks."

The courts have in a number of instances granted protection to the use of the names of persons, firms, and corporations where they have by long and uninterrupted use become lawful trade marks. The registration of such names is not prohibited by the first clause of sec. 4939 having reference to unlawful trade-marks, but is made the subject of a separate clause.

That the statute recognized the existence, at the time of its passage, of a class of lawful trade-marks, which might be excluded from the benefits of registration by the retroactive effect of its general terms, is evident from the fact that a special proviso was made covering such cases.

It being admitted that there may be a lawful trade-mark, which, under the general provisions of the statute, cannot be registered unless it appears that it was a lawful trade-mark rightfully in use on the 8th of July, 1870, it remains to be determined by what means this fact may be established.

That the Office may consider this case, was fully explained in the case heretofore cited. The doctrine was then stated as follows:

Now, if the Commissioner is convinced by unquestionable proof—such, for instance, as the final adjudication of a court of competent jurisdiction—that such a name was first adopted by the party seeking to record it as a trade-mark; that it has been used as such for many years; that it has come to denote to all the world the origin and ownership of the particular articles to which it has been applied; that no one else can use that name *for* the same purpose without perpetrating a fraud, and that parties making such an attempt have been restrained by the courts on the ground that they were unlawfully using another's trade-mark, then the reason of the rule falls in the particular instance.

In that case it was decided by the court that the trade-mark was lawful, having been used for twenty-three years.

But does it necessarily follow that every applicant who claims the right to registration under the last clause of sec. 4939, shall be compelled to produce the decision of a court sustaining his trade-mark? I think not. It would be both unjust and unreasonable to establish such a rule.

The Office is perfectly competent to pass upon the legality of a trade-mark when the circumstances are made known, and, being a matter within the judgment of the Commissioner, he is at liberty to require that kind of proof which he may deem necessary.

As the only available method of proving these matters seems to be by affidavits of disinterested parties, I see no reason why they should not be made the basis of official action. They should be made by persons who have knowledge of the facts, setting forth the length of time the mark has been in notorious use, whether or not it has obtained a commercial value and is considered by the trade as an indication of the origin and ownership of the articles to which it is affixed.

But such affidavits will only be received for the purpose of proving that the trade-mark was a lawful one rightfully in use on the 8th day of July, 1870. I deem it advisable that these affidavits should be filed rather than to depend wholly upon the statement made and filed with the application, which, coming from the party most in interest, does not, uncorroborated, afford sufficient evidence for the Office to act upon.

Until satisfactory proofs of the character indicated above are furnished, registration will be refused, and, with this qualification, the Examiner's action is affirmed.

WM. S. HICKS.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Wm. S. Hicks for an* "IMPROVEMENT IN CHARM-PENCILS," *filed January 26, 1876.—Decided July 25, 1876.*]

The design of a pencil-case being old, it required no invention to substitute a different, but not novel "movement," for projecting the pencil.

Invention or discovery is the necessary constituent of every patentable subject-matter.

Although an article may, as a merchantable commodity, be superior to others, it does not necessarily follow that it required the exercise of the inventive faculties to produce it.

[*Dodge & Son*, attorneys.]

DOOLITTLE, *Acting Commissioner:*

Applicant claims—

As a new article of manufacture the herein-described pencil, consisting of a magic movement inclosed in the case A, made in the form of a cannon, substantially as set forth.

The "magic movement" referred to is old and well known, and a pencil-case made in the form of a cannon is also old, being the subject of a design patent to J. H. Knapp, January 6, 1857.

No special adaptation was required to substitute the "magic movement" for the operative parts of Knapp's pencil; and, although the article so produced might, as a merchantable commodity, be superior to others, it does not necessarily follow that it required the exercise of the inventive faculty in producing it.

Articles of manufacture may be new in a commercial sense when they are not new in the sense of the patent law. New articles of commerce are not patentable as new manufactures, unless it appears in the given case that the production of the new article involved the exercise of invention or discovery beyond what was necessary to construct the apparatus for its manufacture or production. (*The Union Paper Collar Company* vs. *Van Deusen et al.*, 7 OFFICIAL GAZETTE, 919.)

Invention or discovery is the necessary constituent of every patentable subject-matter. Ibid.

The present case comes clearly within the reasoning in *Lloyd* vs. *Engeman*, (2 OFFICIAL GAZETTE, 674,)—

There was no new conception necessary, no obstacle to overcome, no invention required to accomplish this, and, therefore, they have not, in the sense contemplated by the law, produced a new article of manufacture.

As a mechanism it is old, as an article it is deficient in invention, and under either denomination not patentable.

The decision of the Board refusing a patent is accordingly affirmed.

HARVEY LULL.—*Extension.*

In the matter of the application of Harvey Lull, for the extension of Letters Patent of January 2, 1854, No. 10,477, for "IMPROVEMENT IN SHUTTER-HINGES."—*Decided July 27, 1876.*

DOOLITTLE, *Acting Commissioner:*

This application for the extension of the above-named patent was made under the authority of the Act of Congress, approved April 29, 1876. It was once extended for seven years, from the 2d day of January, 1868, which term expired the 2d day of January, 1875.

From the *Congressional Record*, in which the proceedings relating to the act above cited were printed, it is shown that this case was very fully discussed in both Houses of Congress. No opposition was made there, or has been made before this Office, since these proceedings commenced. Over sixty prominent manufacturers in various large cities signed the petition that applicant made to Congress.

The invention consists in the construction of a shutter-hinge with projections and bevels, so that it may lock itself automatically when opened.

The Examiner reports the invention to be novel at the time of the grant of the original patent, and proof shows that no self-locking hinge made at an earlier date has been introduced into the market to any considerable extent. Nor does it appear that any similar invention patented since that time has superseded it. The proof also shows that the invention is valuable and important to the public to the extent of many hundreds of thousands of dollars, that less than $10,000 profit has been realized by the inventor from the sales of the article, and that nearly all of that has been consumed in litigation.

The Examiner reports, and the proof substantiates his statement, that these hinges have been sold in quantities sufficient to fit 2,160,000 windows; and it is estimated that the public has been saved in breakage, wear and tear, and extra fastening, to the amount of $540,000. The inventor is now very old and poverty-stricken, with a wife and several children depending upon him for support.

It is also shown by numerous affidavits and other evidence that the effect of the proposed extension upon the public interest will be good, inasmuch as it will prevent the manufacture of cheap, lightly-constructed wares, and will continue the manufacture of a valuable hinge in the hands of those who will construct it in proper shape and of durable material.

The applicant has fully complied with all the requirements of the law and Office practice entitling him to the extension of his patent. Very rarely has a more meritorious case been presented, and it is without hesitation that the extension applied for is granted.

A. L. BOGART.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of A. L. Bogart for an* "IMPROVEMENT IN ELECTRIC GAS-LIGHTING APPARATUS."—*Decided July 13, 1876.*]

Modifications or equivalents cannot be made the subjects of claims. If they are simply modifications or equivalents of the original device, they must necessarily be embraced in the claim thereto, but if they vary in such a material degree as not to be included within the terms of such claims, they are not truly modifications, but different and distinct inventions.

DOOLITTLE, *Acting Commissioner:*

The matter here at issue is the novelty of applicant's third claim.

The apparatus consists of two curved platinum-tipped arms, one fixed and the other pivoted, insulated from each other and supported by the burner.

The points are brought together to produce a spark by pulling a cord or chain attached to the pivoted arm, which is kept in a retracted position by a spring.

The claim reads as follows:

As an improvement in electric gas-lighting apparatus, the insulated fixed arm A, the pivoted arm C, and the chain or cord G, secured to and depending from the latter, in combination with each other and with the burner B, substantially as and for the purpose set forth.

This claim was presented by special amendment as a substitute for one which the Board had refused, and the main objection made by the Examiner, and concurred in by the Board in their second decision, was that the amended claim was substantially the same as the original, which was as follows:

In combination with the vibrating arm C, that is pivoted upon the burner B, and is capable of being moved until its point *c* impinges upon the point *a* of the fixed insulated arm A, the chain G depending from the lower end of said vibrating arm so as to be easily grasped, substantially as and for the purpose set forth.

This claim, which, by its terms, is for the combination of the arm C and chain G only, was rejected because, as the Examiners-in-Chief say in their decision—

It is a common and obvious expedient to attach a cord or like device to various contrivances, for the purpose of moving them. * * * * * This appears to be the extent of appellant's alleged combination.

When the amended claim came before them they held it to be substantially the same as that they had before passed upon and was objectionable for the same reasons, and it is from this decision that the present appeal is taken.

It is apparent to my mind that the amended claim embraces more than the *attachment of the cord to a device for the purpose of moving it*, and is not substantially the same as that for which it was substituted, but recites a clear and well-defined combination of four elements, such as is not found in any of the references presented.

The decision of the Board is therefore reversed.

I cannot overlook what I regard as an error on the part of the Examiner in permitting applicant to include in one application the two devices described and claimed in this.

While it may be admissible in some cases to describe modifications, I do not understand that each can be properly made the subject of a claim, for if they are simply modifications or equivalents of the original device, they must be included in the claim thereto, but if they vary in such a material degree as not to come within the terms of the claim to the device of which they are alleged to be equivalents, they are not truly modifications, but different and distinct inventions.

In this case applicant describes his invention as consisting—

In the peculiar construction of the operative mechanism, by means of which the points of the movable and fixed arms *are brought into and held in contact by the forward motion only of the plug of the stop-cock* and released, &c.

The first five figures illustrate this construction, and claims 1 and 2 refer exclusively thereto, but in figures 6 and 7 and claim 3, under cover of the term modification, applicant has introduced a device which does not even come within the general description of the invention, but operates in an entirely different manner.

A division of the application will, therefore, be required before a patent can issue.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF OHIO.

HENRY F. MANN *vs.* EDWIN BAYLISS.*

[*In Chancery.—Before* EMMONS, *C. J.—April term*, 1876.]

[*Geo. H. Christy* and *Wm. Bakewell*, for complainant.
S. A. Goodwin, for defendant.]

EMMONS, *J.:*

In this cause complainant's bill recites that he is owner of Letters Patent of the United States, dated February 28, 1871, being a reissue and extension of Letters Patent No. 15,044, dated June 3, 1856, said reissued Letters Patent being numbered 4,281, for an Improvement in Harvesters, complainant having been one of the original patentees, and having acquired the interest of his co-patentee, Jacob J. Mann, by an assignment from said Jacob's administrator.

The improvement consists, in brief terms, in having an elevated side delivery of the cut grain in the straw, by means of an endless apron, whereby the grain is discharged into a stationary receiver, of concave form,

from whence, by means of a revolving rake, the teeth of which describe a circle nearly coincident with the circle of which the concave receiver forms a segment, the grain is gathered into gavels of suitable size for binding into sheaves or bundles. The bill prays answer, account of profits and damages, and injunction in the usual form.

The answer denies originality and novelty of the invention, as also infringement, in that whereas by complainant's device the grain is discharged into a receiver which is "concave" in form, the machines constructed by defendant discharge their grain into a receiver which is "flat and horizontal," from which it is taken by the binder without the use of the revolving rake.

On the hearing, the question turned mainly upon the 4th claim of complainant's patent, which is in these words:

4. The stationary concave receiver I, having a continuous surface, arranged as described at the side of a harvesting-machine, having an elevated side delivery so as to receive the cut grain from the elevating and delivery apparatus, and collect the same into gavels preparatory to their being discharged from the machine.

Held, that the device employed by the defendant is essentially different in form from that employed by complainant, as described in said 4th claim, and does not constitute an infringement as charged in the bill.

Complainant's bill dismissed with costs. Notice of appeal to the Supreme Court.

*The opinion of the court in this case was delivered orally, and was not reduced to writing, and this report is made by the clerk.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date July 25, 1876.]

9,405.—Tea-Sets.—WILLIAM C. BEATTIE, Taunton, Mass., assignor to REED & BARTON, same place. Application filed July 3, 1876. Term of patent 7 years.

9,406.—Hinges for Burial-Caskets.—RUSSELL H. BURR, West Meriden, Conn., assignor to C. ROGERS & BROTHERS, same place. Application filed July 10, 1876. Term of patent 7 years.

9,407.—Chandeliers.—PATRICK J. CLARK and JOSEPH KNITZ, West Meriden, Conn. Application filed July 1, 1876. Term of patent 7 years.

9,408.—Carpets.—JOHN HAMER, Dutchess county, assignor to SEAMLESS CLOTHING MANUFACTURING COMPANY, Matteawan, N. Y. Application filed July 12, 1876. Term of patent 3½ years.

9,409.—Carriage-Clips.—MOSES SEWARD, New Haven, Conn. Application filed June 22, 1876. Term of patent 14 years.

9,410.—Trimming.—LUDWIG SUTRO, New York, N. Y. Application filed June 8, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 25, 1876.]

3,871.—Horse Medicines.—COMBS & HATFIELD, Philadelphia, Pa. Application filed July 5, 1876.

"letters 'C and H,' in connection with the figure of a horse."

3,872.—Cigars.—FREDERICK DE BARY & Co., New York, N. Y. Application filed July 10, 1876.

"words 'CRÈME DE LA CRÈME.'"

3,873.—Cigars.—FREDERICK DE BARY & Co., New York, N. Y. Application filed July 10, 1876.

"the heraldic design shown in the accompanying fac-simile. The base of the design is a blue scroll, above which, chained upon either side of the frame of an oval center-piece, is a dragon couchant regardant, with its head turned toward the center-piece. Above the center-piece is a crown, which rests at the top of the frame, and in the foreground within the frame, and resting upon the base, is a representation of a bottle of champagne wine, with leaves and bunches of grapes to the right and left of the said bottle."

3,874.—Paper Collars.—JAMES H. HOFFMAN, New York, N. Y. Application filed July 10, 1876.

"word-symbol 'CALENDAR.'"

3,875.—Books.—HENRY E. NEWTON, Minneapolis, Minn. Application filed February 21, 1876.

"word symbol 'CENTENNIAL.'"

3,876.—India-Rubber Hose.—NEW YORK BELTING AND PACKING COMPANY, Newton, Conn., and New York, N. Y. Application filed July 11, 1876.

"word-symbol 'TEST.'"

3,877.—Cigars.—EUGENE A. ROBINSON, Maysville, Ky. Application filed July 15, 1876.

"words 'THE LIMESTONE.'"

3,878.—Cigars.—JUAN B. ROMERO, Key West, Fla. Application filed July 11, 1876.

"words 'La Espanole,' together with the letters 'M. P. H.'"

3,879.—Bitters and other Medical Compounds.—QUINCY A. SCOTT, Pittsburg, Pa. Application filed July 15, 1876.

"word-symbol 'MONONGAHELA.'"

3,880.—Soap.—STEPHEN STRUNZ, Pittsburg, Pa. Application filed June 28, 1876.

"word-symbol 'GIFT.'"

3,881.—Ball Knitting-Cotton.—TUCKER & COOK, Conway, Mass. Application filed July 8, 1876.

"words 'Riddle's Knitting Cotton' and the vignette of W. B. Riddle."

3,882.—Medical Preparation.—MOSES N. WISEWELL, Chicago, Ill. Application filed July 11, 1876.

"word-symbol 'EUPRON.'"

3,883.—Hats.—TOPPING, MAYNARD & HOBRON, New York, N. Y. Application filed July 21, 1876.

"a shield within which is the representation of a lion, and on the outside of the same is a representation of two battle-axes, two muskets, and a vine, and under this shield is a scroll on which the words 'Dieu et mon droit' appear; also, below the shield and scroll are the figures '145' and words 'Regent Street, London,' while above the shield appears the word 'Melville.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date July 25, 1876.]

795.—Title: "**Century Soap.**"—THOMAS W. BURLINGAME, Providence, R. I. Application filed July 13, 1876.

796.—Title: "**Dr. Boerhaave's Balsam of Blood-Root.**" J. TYLER JACKSON & Co., Baltimore, Md. Application filed July 17, 1876.

797.—Title: "**Jackson's Celebrated Indian Remedy for Pain.**"—SAMUEL JACKSON, Liberty, Ind. Application filed July 5, 1876.

798.—Title: "**C. O. D. 5ct. Cigar.**"—ISAAC ROBINSON, Chicago, Ill. Application filed July 3, 1876.

799.—Title: "**The Most Popular Shirt in America.**"—VICTOR HENRY ROTHSCHILD, New York, N. Y. Application filed June 26, 1876.

800.—Title: "**Rubber Paint.**"—RUBBER PAINT COMPANY, Cleveland, Ohio. Application filed June 28, 1876.

801.—Title: "**Madame Jaques Pearl Cream.**"—STRONG & SMITH, Ashtabula, Ohio. Application filed July 15, 1876.

802.—Title: "**Treasury Wax.**"—WILLY WALLACH, New York, N. Y. Application filed July 17, 1876.

803.—Title: "**Dr. Holt's Compound Elixir of Peruvian Bark.**"—HOLT & WHITNEY, Portland, Me. Application filed July 14, 1876.

804.—Title: "**Steam Fire Engine Antiseptic Test Hose.**"—THE GUTTA PERCHA AND RUBBER MANUFACTURING COMPANY, New York, N. Y. Application filed July 25, 1876.

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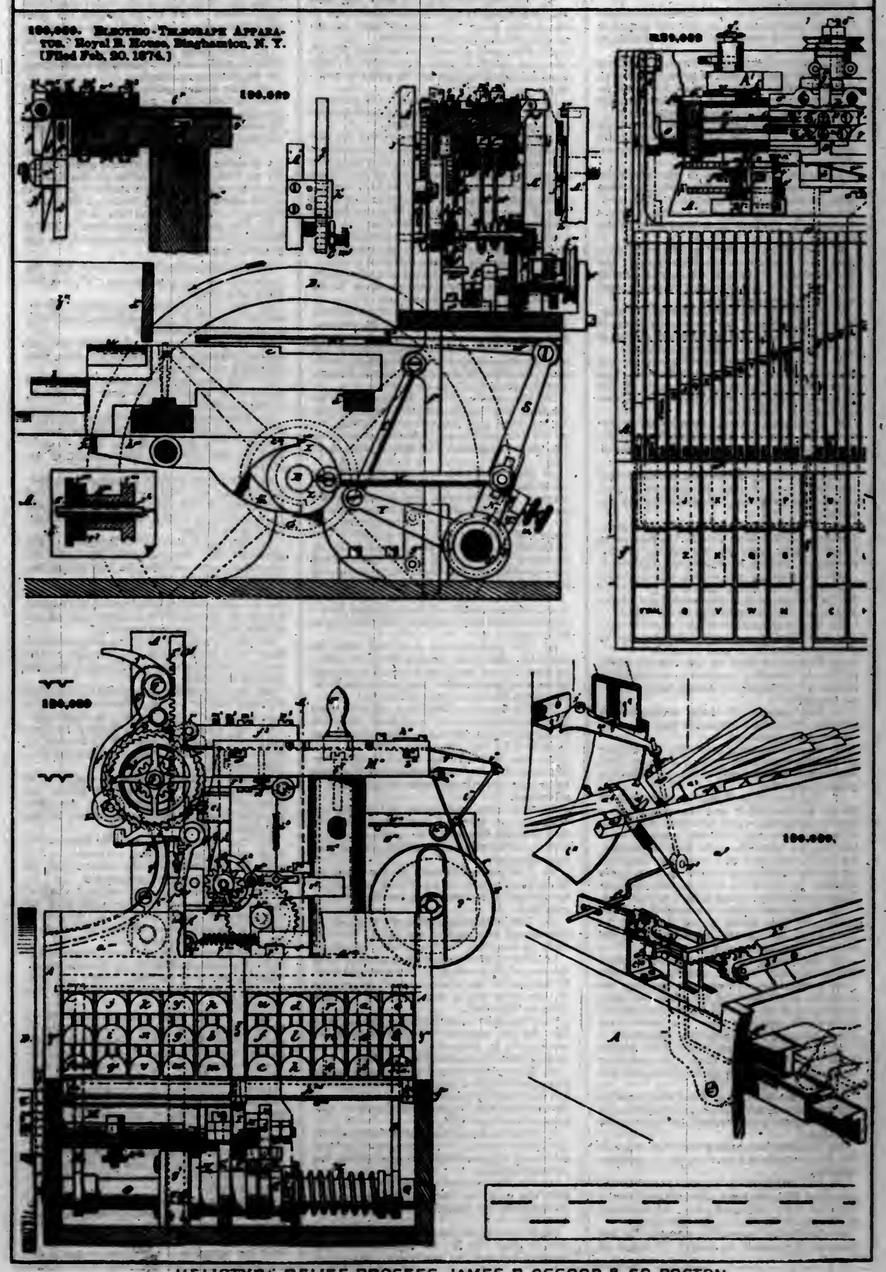
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White, L. S., Spoon and fork	180,403
White, W. B., Fastening attachment for horses' feet	180,295
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Whitney, E. R., Grain binder	180,402
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Willis, W. H., Washing machine	180,299
Wilson, F. T., and E. J. Bartlett, Barb former	180,405
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Zamboni, I. and C., Tool for capping and uncapping cartridges	180,305

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED JULY 25, 1876.



1 HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO BOSTON.

1. The record of a telegraph-message, consisting of a narrow fillet of paper, in which are cut two parallel rows of slits, arranged to be read alternately from one row to the other, and indicating by their length the letters of the alphabet and other message-symbols, substantially as described.

2. The record prepared for transmittal, having two parallel tracks or grooves formed in the line of the message-slits, substantially as described.

3. A series of graduated finger-keys, whose depression causes a fillet of paper to be moved intermittingly over two knives, which act alternately projected through it to form the record-slits, substantially as described.

4. A motor independent of the finger-keys, for moving the paper and reciprocating the knives when the keys are operated, substantially as described.

5. Controlling the slits in the paper by means of stops on the finger keys, so that each slit shall indicate a letter or other symbol corresponding to that of the key which is operated to produce it, substantially as described.

6. Controlling the distance between the beginning of one slit in the fillet of paper and the beginning of the next slit in the adjoining row, by means of stops on the finger-keys, substantially as described.

7. Controlling the operation of the slitting-knives, by means of an escapement adapted to be put in motion through the movements of the finger-keys, for the purpose specified.

8. The combination of two alternately reciprocating slitting-knives, adapted to puncture a strip of paper in two parallel rows, for the purpose of recording telegraph-messages, substantially as described.

9. The slitting-knives, whose operations are controlled from the finger-keys through the medium of the reciprocating rack-bar and sliding stop bar, substantially as described.

10. The feeding mechanism, operated from the finger-keys through the medium of a reciprocating rack-bar, substantially as described.

11. The combination of a differential rack-bar and a sliding stop-bar with the graduated finger-keys for operating the feeding and recording mechanism, substantially as described.

12. The rack-bar and sliding stop bar, having each a differential throw, to govern the feed of the paper and the movement of the slitting-knives, substantially as described.

13. The combination of the rack-bar with the graduated finger-keys, substantially as described, for the purpose specified.

14. The combination of the feeding mechanism and recording mechanism to operate in unison for producing the record, substantially as described.

15. The escapement of the slitting-knives combined with the differential rack-bar, substantially as described.

16. The combination of the sliding stop-bar C″ and the rock-shaft O with the main driving-shaft B, substantially as described, for the purpose specified.

17. The main shaft B and the rock-shaft O, united to each other and the stop bar by a spring-connection which is sufficiently strong to oscillate the rock-shaft and throw forward the stop-bar when the main shaft is rotated, but which will yield to permit the complete rotation of the driving-shaft if the stop-bar is arrested by the finger-keys before reaching its maximum throw, substantially as described.

18. The combination of the shaft B and friction-sleeve R, by which power is applied for driving the main shaft, substantially as described, for the purposes specified.

19. The driving-sleeve R, adapted to grasp the main shaft B with sufficient frictional force to overcome the spring-connection between the shaft and stop-bar when the latter is arrested in its forward movement, and to continue its rotation when the main shaft ceases to move, substantially as described.

20. The friction-sleeve, adapted for adjustment to grasp the main shaft with greater or less force, substantially as described, for the purpose specified.

21. The combination of the sliding stop-bar with the graduated finger-keys and detent-lever, substantially as described, for the purpose specified.

22. The stop bar, having its throw adjustable, substantially as described, for the purpose specified.

23. The coiled spring W upon the rock-shaft, combined with the lower sleeve O′ and one of the arms of the sliding stop-bar, substantially as described, for the purpose specified.

24. The coiled spring W, adapted for adjustment to regulate its tension by means of the collar *a*, upon the sleeve O′, substantially as described.

25. The combination of the forked detent-lever K^{vv} with the finger-keys and driving-shaft, substantially as described, for the purpose specified.

26. The combination of the cams I Z with the driving-shaft B, and the forked end of the detent-lever K^{vv}, substantially as described, for the purpose specified.

27. The combination of the rack-bar f^{v} with the rock-shaft O and main shaft B, substantially as described, for the purpose specified.

28. The rack-bar f^{v}, connected to the rock-shaft O by means of the arm V, and pivoted rod *i*, substantially as described.

29. The arm N, connected to the driving-shaft, combined with the arm V, connected to the rack-bar, for the purpose of moving the latter downward in proportion to the throw of the stop-bar, substantially as described.

30. The combination of the arm T with the arm N and its connections to move up the rack-bar, substantially as described.

31. The connecting-rod M, adapted for adjustment within the arm N, substantially as described, for the purpose specified.

32. The arms T N, adapted for adjustment to and from each other, substantially as described, for the purpose specified.

33. The rack-bar, having its throw adjustable, substantially as described, for the purpose specified.

34. The combination of the sliding stop-bar and the reciprocating rack-bar with the rock-shaft, the main driving shaft, and the friction-sleeve, substantially as described.

35. The combination of the graduated finger-keys, the detent-lever K^{vv}, the stop bar, the rack-bar, and the rock-shaft O, with the main driving-shaft, and its friction-sleeve, substantially as described, for the purposes specified.

36. The arrangement of the alphabet and other message-symbols upon the graduated steps of the finger-keys, so that the stop-bar and rack-bar will move the shortest distance for the most frequently-occurring letter, the length of their strokes being gradually and uniformly increased in proportion to the decrease in the occurrence of the letters used, substantially as described, for the purpose specified.

37. The key-board of the instrument, composed of three banks of keys, divided into a right and left hand section, substantially as described.

38. The guide-boards, combined with the keys, for guiding the fingers of the operator, so that he can look up to read a message while manipulating the keys, substantially as described, for the purpose specified.

39. The keys, provided with suitable stops to arrest the stop-bar at graduated distances in its forward movements, substantially as described, for the purpose specified.

40. The graduated keys, having the stop-letters of designation duplicated in the same order upon their finger-ends, substantially as described.

41. The horizontal guide-bed M^{vv}, for the fillet of paper, mounted upon the spindle P^{v} in rear of the finger keys so as to swing laterally, substantially as described, for the purpose specified.

42. The guide-bed held in line with the feeding mechanism by a flexible connection, substantially as described, for the purpose specified.

43. The connecting-spring p^{v}, adapted for adjustment by means of the pin q^{v}, substantially as described, for the purpose specified.

44. The adjustable stop r^{v}, combined with the case of the instrument, and arranged within the path of the sleeve-arm o^{v}, to regulate the lateral swing of the guide-bed, substantially as described.

45. The paper-reel, combined with the guide-bed, for the purpose of conforming to its movements in presenting the paper to the feeding devices, substantially as described.

46. The paper-reel and feeding mechanism, arranged to deliver the paper upon the guide-bed over the slitting-knives in proportion to the length of the message-slits required, substantially as described.

47. The combination of the spring-lever f^{vv} and friction-brake y^{vv}, with the paper-reel and guide-bed, substantially as described for the purpose specified.

48. The intermediate guide s^{vv}, combined with the guide-bed, and the guide-loop v^{vv}, substantially as described, for the purpose specified.

49. The guide bed, constructed with the adjustable gage side b^{v}, the adjustable spring-pressure bar, and the transverse arms o^{v} o^{v} substantially as described, for the purposes specified.

50. The hinged cover of the guide-bed, arranged to throw back the guide-arms o^{v} o^{v}, when opened, substantially as described, for the purpose specified.

51. The outer edge of the cover formed with the recesses f^{vv} h^{vv} f^{vv}, to prevent the outer edge of the paper from folding up as it passes over the guide-bed, substantially as described.

52. The slotted guide-blocks r^{v}, combined with the guide-bed, substantially as described, for the purposes specified.

53. The slotted guide-blocks r^{v}, combined with the cover of the guide-bed, and adapted for adjustment with respect to the guide-blocks r^{v}, substantially as described, for the purpose specified.

54. The combination of the embossing-rollers or styles t^{v}, with the slotted guide-blocks r^{v}, to form parallel grooves in the fillet of paper by pressing it down under the weight of the cover within the grooves of the guide-blocks r^{v}, substantially as described.

55. The pivoting cavils, combined with the guide-blocks r^{v}, substantially as described, for the purpose specified.

56. The slitting-knives combined with the guide-bed and the guide-blocks r^{v} r^{v}, substantially as described.

57. The slitting-knives supported by the eccentric bars from the escapement-shaft e^{vv}, substantially as described.

58. The slitting-knives adapted for reversal and adjustment upon the eccentric bars, substantially as described.

59. The eccentric bars guided within the blocks r^{v} by means of the slots and pins s^{v}, substantially as described.

60. The escapement consisting of the shaft e^{vv}, to which the power is applied, the detent-pins e^{vvv} b^{vvv}, and the forked lever b^{v}, operated by the rack-bar, substantially as described.

61. The forked lever of the escapement having its inner end held upward to engage the upper tooth of with the upper-most detent-pin, by means of the adjustable spring β, substantially as described.

62. The stop F, attached to the sleeve of the guide-bed, and combined with the forked escapement-lever, to limit its upward throw, substantially as described.

63. The forked lever of the escapement having its lower arm extended within the path of a stop on the rack-bar, substantially as described, for the purpose specified.

64. The arrangement of the escapement to throw up a knife at each reciprocation of the rack-bar, substantially as described, for the purpose specified.

65. The eccentric or escapement-shaft driven from the shaft e^{vv}, through the medium of the gearing n^{vv} n^{vv}, substantially as described.

66. The combination of a driving friction-collar with the driving-shaft e^{vv} of the escapement, substantially as described, for the purpose specified.

67. The combination, with the shaft e^{vv}, of the friction-collar r^{vv}, the lever above, the drum r^{vvv}, the coiled spring, and the gear-wheel n^{vv}, substantially as described, for the purpose specified.

68. The toothed fixed-cylinder constructed with parallel grooves, and arranged in line with the recording devices, substantially as described, for the purpose specified.

69. The combination of the ratchet-wheel o^{v}, the lever pinion, and moving pawl with the rack-bar and fixed-cylinder, for the purpose of rotating the latter when the rack-bar is moved up, substantially as described.

70. The combination of the spring-pawl o with the ratchet-wheel o^{v}, to prevent backward movement of the fixed-cylinder when the moving-pawl comes to set, substantially as described.

71. A locking mechanism adapted to be thrown into operation at the termination of each upward throw of the rack-bar, for the purpose of preventing the fixed-cylinder from being carried too far by its momentum, substantially as described.

72. The combination of the ratchet-wheel p^{v} and negative contact lever σ, with the rack-bar and fixed-cylinder, substantially as described, for the purpose specified.

73. The combination, with the negative toothed lever σ, of a spring, σ^{v}, to restore the action of an adjustable stop, σ^{v}, to the rack-bar, substantially as described, for the purpose specified.

74. The combination of a stop, f^{v}, with the spring of the toothed locking-lever, substantially as described, for the purpose specified.

75. The combination of the curved guide t^{v} with the uprights of the frame, to guide the paper out of the instrument, substantially as described.

76. A rack-bar holding a series of telegraph-messages, connected by suitable mechanism with one of the finger-keys of the receiving-instrument, so that the operation of each key shall successively expose the messages to view and then move them to one side out of the way, substantially as described.

77. The combination of the inclined message-rack with the case of the recording-instrument, substantially as described.

78. The combination of the sliding bars d^{v} b^{v} with the inclined bed a^{v}, each bars being united by a removable connection, substantially as described.

79. The sliding bar b^{v}, constructed with teeth, to receive the action of the pinion b^{v}, for feeding forward the messages, substantially as described.

80. The pivoted hand lever b^{v}, forming one of the bearings of the pinion-shaft b^{v}, for the purpose of connecting and disconnecting the pinion and rack-bar b^{v}, substantially as described.

81. The reversed ratchet-wheels on the pinion-shaft b^{v}, in combination with the pawls upon the hand arm of the finger-key, for rotating the feeding-pinion, substantially as described.

82. The message-holding fingers a^{v}, pivoted to the upper edge of the sliding bar a^{v}, so as to hold the messages folded upon each other and resting on the inclined table, substantially as described.

83. The message-holding fingers a^{v}, provided each with a point, a^{v}, which, when the message-bar is fed along the table strikes against a stop, a^{vv}, and turns the finger over so as to move the uppermost message out of the way and expose the one next under it to the view of the operator, substantially as described.

84. The message-fingers adapted for operation from a finger-key by suitable intervening mechanism, substantially as described.

85. The sliding message-bar a^{v}, adapted for removal from the inclined table, substantially as described, for the purpose specified.

86. The combination of a pair of shears with the recording mechanism, for cutting off the recorded messages from the fillet of paper, substantially as described.

87. The shears, adapted for operation from one of the finger keys of the recording-instrument, substantially as described.

88. The fixed blade g^{v} of the shears, arranged under the loop f^{v} of the curved paper-guide, so that its cutting-edge shall lie under behind the plane of the guide, substantially as described, for the purpose specified.

89. The pivoted cutting-blade g^{v}, pivoted to one of the uprights of the frame, so as to swing over the fixed blade g^{v}, substantially as described.

90. The combination of the pivoted crank-lever with the pivoted shear-blade and the upturned end of the operating finger-key, substantially as described, for the purpose specified.

91. The combination of the coiled spring g^{vv} with the pivoted shear-blade and the crank-lever, to hold such blade down upon the fixed blade, substantially as described, for the purpose specified.

100,000. ELECTRO-TELEGRAPH APPARATUS. Royal B. House, Binghamton, N. Y. [Filed Feb. 20, 1874.]

1. In electric telegraphs, the system of communicating message-symbols by means of straight slits in a fillet of paper arranged alternately in two parallel lines, each slit representing a symbol distinguishable by its length from the other symbols.

2. The mode or method of automatically transmitting electric telegraph-symbols by means of a moving fillet of paper containing two parallel rows of message-slits, which vibrate a local circuit-changer, to send alternate reversed currents on the main wire, substantially as described.

3. The automatic transmission of telegraph-symbols by alternate lodged electric currents, caused to pass on the main wire by a moving fillet of paper containing two parallel rows of message-slits, through which two track-fingers alternately drop as the paper moves to operate a local vibratory circuit-changer, substantially as described.

4. The mode or method of automatically reproducing electric telegraph-symbols by the alternate reciprocations of two slitting-knives through a fillet of paper moving over them, the length of the slits corresponding with the period of the each knife is in turn held through the paper, and the motion of the respective throws continuing until the track-fingers change at the transmitting-station, so that the slits reproduced in the fillet of paper at the receiving-station shall be the counterparts of those forming the record at the transmitting-stations, substantially as described.

5. Controlling the electric currents induced in the main line through the medium of the moving record and vibratory circuit-changer by the length of the message-slits in the record, so that the length of time between each current will exactly correspond to the distance between the beginning of one slit and the beginning of the next adjoining slit in the opposite row, substantially as described.

6. The transmitting and reproducing mechanism of an automatic telegraph apparatus, operated from the same driving-shaft by two fillets of paper moving at equal speed, substantially as described, for the purpose specified.

7. The feeding mechanism for the transmitting and reproducing devices, mounted upon the same driving-shaft, substantially as described, for the purpose specified.

8. The toothed feed-cylinders D E, each constructed with two parallel peripheral grooves, the grooves in one being the same distance apart as those in the other, substantially as described, for the purpose specified.

9. The driving-shaft B, having its bearings upon the friction-wheels mounted upon a counter-shaft beneath it, substantially as described, for the purpose specified.

10. The shaft B, driven by two friction-collars, or other surfaces mounted thereon, so as to clamp the hub of the driving-wheel or other motor between them, and transmit its motion to the shaft, substantially as described.

11. The combination of a governor with the friction-collars, for the purpose of controlling the speed of the shaft by regulating the frictional contact of the collars with the hub of the driving-wheel, substantially as described.

12. The governor, consisting of the crossed ball-levers G, pivoted to the driving-shaft, the bent springs H, and the adjusting-springs J J, substantially as described.

13. The governor, connected to the friction-collar P by means of the links L L, the connecting-rod M and the pin Q, the links and connecting-rod extending longitudinally within the hollow driving-shaft, substantially as described.

14. The toggle-joint, formed by the combination of the connecting rod and links L with the governor-levers, substantially as described.

15. The combination of the ring P^{v} and pivoted pins R, with the friction-collar P, to prevent the guide-pin Q from binding within the slot of the driving-shaft when the collar P is moved by the governor, substantially as described.

16. The combination of the cork washers g g, with the friction-collars P *i* on the hub of the driving-wheel, substantially as described, for the purpose specified.

17. The friction-collar *i*, held upon the end of the driving-shaft so as to bear against the outer end of the driving-wheel hub, substantially as described.

18. The friction-collar *i*, adapted for adjustment to regulate the pressure of the wheel-hub against the friction-collar P, substantially as described, for the purpose specified.

19. The combination of the bent springs H with the governor, to counterbalance the centrifugal force of the balls when in motion, until the driving-shaft has reached or nearly reached the speed required for feeding the fillets of paper to transmitting and reproducing a message, substantially as described.

20. The bent springs H of the governor, adapted for adjustment by suitable means to regulate the centrifugal force necessary for throwing out the governor-balls, and thereby determining the required speed of the driving-shaft to feed the paper, substantially as described.

21. The auxiliary springs J J, combined with the bent springs of the governor, and adapted for adjustment to determine the force required in excess of the bent springs, to counterbalance the centrifugal force of the governor-balls, which is necessary for disconnecting the friction-collars from the driving-wheel hub, substantially as described.

22. The governor-levers, having an equalized movement upon opposite sides of the driving-shaft, for the purpose specified.

23. The combination of the racks N N and pinion K^{v} with the governor-levers and driving-shaft, for equalizing the movements of the governor-levers, substantially as described.

24. The arms H^{v}, combined with the driving-shaft, to limit the outward throw of the governor-levers, substantially as described.

25. The combination of the positioning rock-shaft of the electro-magnet D^{vvv} with the driving-wheel of the shaft B, substantially as described, for the purpose specified.

26. The magnet D^{vvv}, having its covers constructed, as described, to permit a long oscillation of the permanent magnets *e* between them, for the purpose specified.

27. The electric circuit, consisting of the grooved wheels and half-bands b b^{v} a^{v}, mounted upon the insulated sleeve *e* of the driving-wheel hub, combined with the conducting-rollers a^{v} a^{v} a^{v}, having electric connection with the battery and the coils of the magnet D^{vvv}, substantially as described.

28. The grooved half-bands a^{v} *c*, supported from each other upon the sleeve of the wheel hub, and joined, one to the whole-band *b*, the other to the whole band b^{v}, substantially as described, for the purposes specified.

29. The conducting-rollers a^{v} a^{v} a^{v}, supported upon the joints n^{v} n^{v} n^{v} by the upright arms p^{v}, so as to hold the rollers a^{v} within the grooves of the bands a^{v} *c* upon one side of the hub, and the rollers a^{v} a^{v} within the grooves of the bands *b c* upon the opposite side of the hub, substantially as described, for the purposes specified.

30. The insulating-sleeves s^{vv}, combined with the upright arms p^{v}, to connect each pair upon opposite sides of the wheel-hub, substantially as described.

31. The combination of the spring s^{vv} with the insulating-sleeves, to draw the upright arms toward the wheel-hub, for the purpose of holding the conducting-rollers with equal force within the grooved bands, substantially as described.

32. The combination of an electric governor with the driving wheel, for the purpose of equalizing and regulating the speed of the driving-shaft to feed the fillets of paper to transmitting and reproducing a message, substantially as described.

33. The combination of an oscillating electric governor with the driving-wheel, substantially as described.

34. The combination of a resistance-coil with the electric governor, to prevent unnecessary waste of the battery-force required to operate the driving-shaft, substantially as described.

35. The arrangement of the resistance-coil upon the driving-wheel, substantially as described, for the purpose specified.

36. The electric governor consisting of the ring s^{v}, provided with two governor-balls and the supporting-arms s^{v} s^{v}, forming a rock-shaft, substantially as described, for the purpose specified.

37. The electric governor, mounted upon the face of the driving-wheel by means of its insulated rock-shaft, substantially as described.

38. The electric governor mounted upon the face of the driving-wheel, so as to stand at an angle therewith when at rest, substantially as described, for the purpose specified.

39. The combination of the insulated conducting-springs s s^{v} with the driving-wheel, substantially as described.

40. The combination of the roller s^{v} with one of the balls of the oscillating governor, substantially as described.

41. The combination of the oscillating electric governor with the driving-wheel and resistance-coil thereon, to throw the latter into and out of the circuit through the driving-magnet D^{vvv}, for the purpose of maintaining the driving-wheel at a uniform velocity without exceeding the maximum quantity of battery-force required for operating the driving-shaft, substantially as described.

42. The combination of the inner spring s with the whole and half-bands on the hub of the driving-wheel, and with the governor-ring, for the purpose of forming a circuit from the battery to the driving-magnet when the driving-wheel is moving at such low speed as to carry the governor-roller s^{v} in contact with the spring, substantially as described.

43. The combination of the resistance-coil and outer spring s^{v} with the inner spring and its connections, to send the current through the resistance-coil when the driving-wheel is moving at such high speed as to carry the governor-roller s^{v} in contact with the spring s^{v}, substantially as described, for the purpose specified.

44. The combination of the spring s^{v} with the driving-wheel and electric governor, substantially as described, for the purpose specified.

45. The holder s^{v}, pivoted to the driving-wheel, to press the governor-roller outward in

contact with the inner spring *e*, and thus close the circuit from the battery to the magnet, for the purpose of starting the driving-wheel in motion, substantially as described.

46. The holder e^{10}, adapted to be automatically turned back from the go-ervor-roller by means of a trip or stop, e^{11}, with which it comes in contact when the wheel rotates, substantially as described.

47. The trip or stop e^{11}, pivoted to a short upright, e^{12}, of the frame, and weighted at one end so as to hold it out of operation until moved into the path of the holder by the operator, substantially as described.

48. In the transmitting-instrument, the combination, with a circuit-changer, C^{v}, of a circuit-breaker, f^{iv}, having electric connection with the local battery, so that when the paper is moving over the circuit-breaker a current from the battery will be sent through the reproducing-magnet, the calling-in magnet, and the primary helices of the induction-coil, to indeed alternate reversed message-currents in the main wire, substantially as described.

b8. The combination of track-fingers or other devices for vibrating the circuit-changer to reverse the currents in the main line, while the fillet of paper is drawn over the guide-bed of the transmitting-instrument, substantially as described.

51. The circuit-changer C^{v}, combined with the guide-bed of the transmitting instrument, substantially as described, for the purpose specified.

52. The circuit-changer, articulated to the under side of the guide-bed, and formed with a rock-bar, b^{xxx}, across its lobe, to receive the alternate action of the track-fingers, substantially as described, for the purpose specified.

53. The combination of the circuit-changer C^{v} with the two anvils g^{xxx} g^{xxx}, which are separately connected to the local battery of a station by wires l^{v} l^{vi} passing through the reproducing and calling-in magnets, and the primary helices of the induction coil, substantially as described.

54. The two anvils g^{xxx} g^{xxx}, supported by the pendent arm b^{xx} upon opposite sides of the circuit-changer, substantially as described.

55. The two anvils g^{xxx} g^{xxx}, adapted for adjustment upon the pendent arm b^{xx}, substantially as described.

56. The anvils g^{xxx} g^{xxx}, having electric connection with the sleeve of the eccentric anvil on the reproducing-magnet, substantially as described.

57. The combination of the permanent magnetic bar g^{xx} with the soft-iron ring which forms the lower termination of the circuit-changer C^{v}, for the purpose of preventing the recoil or rebound of the latter when it is thrown in contact with its anvils by the track-fingers, substantially as described.

58. The magnetic bar g^{xx}, supported within the soft-iron ring of the circuit-changer C^{v} by means of the arm b^{xx} on the under side of the guide-bed, substantially as described.

59. The guide-beds O^{v} and P, untroiled or pivoted to the frame of the instrument so as to have a lateral swing controlled by a yielding connection for the purpose of compensating for irregularities in the movements of the paper fillets to the feed-cylinder, substantially as described.

60. The supports for the guide-beds, consisting of the tubular bearings fitting over upright shafts mounted upon, but insulated from, the frame of the instrument, substantially as described.

61. The yielding connection between the guide-beds and main frame, adapted for adjustment to regulate the lateral swing of the beds, substantially as described.

62. The combination of an adjustable gage side and an adjustable spring pressure-bar with the guide-beds O^{v} and P, substantially as described, for the purposes specified.

63. The adjustable gage sides of the guide-beds, formed with recesses along their inner edges, for the purpose of preventing the edges of the paper fillets from wrinkling or curling up as they are drawn over the beds, substantially as described.

64. The spring pressure-bars, each provided with two shouldered cross-pieces adapted to fit within deep transverse grooves of the guide-beds, so that their shoulders shall bear against one edge of the moving paper, and hold it up to the gage side, substantially as described.

65. The stop-pins inserted in each of the guide-beds to limit the forward movement of the pressure-bar after the fillet of paper has passed out of the bed, substantially as described.

66. The guide-beds O^{v} P, each provided with a hinged cover or pressure piece, to hold down the paper fillets as they pass over the beds, substantially as described.

67. The covers of the guide-beds O^{v} P, adapted for adjustment to regulate the pressure upon the paper fillets by means of set-screws, which support the covers upon their points after passing up through the guide-beds, substantially as described.

68. The covers of the guide-beds O^{v} P, adapted to be held down upon the screws by a weight or spring, substantially as described, for the purposes specified.

69. The combination of the shouldered cross-bars with the cover-hinges of the guide-beds, for moving back the spring pressure-bars when the covers are swung open to prepare the beds for receiving the paper fillets, substantially as described.

70. The flat spring n^{i}, adjustable holder n^{ii}, and front projection n^{iii}, for connecting the cover of the guide-bed O^{v} to one of the uprights of the frame, substantially as described.

71. The guide-bed O^{v} of the transmitting-instrument, formed with parallel grooves n n' to receive the embossed tracks in the fillet of paper, substantially as described, for the purpose specified.

72. The guide-bed and feed-cylinder of the transmitting-instrument, formed with corresponding parallel grooves to receive the embossed tracks in the fillet of paper containing the record to be transmitted, substantially as described, for the purpose specified.

73. The combination of two parallel V shaped ribs with the under side of the cover n^{v}, to fit into the grooves of the guide-bed O^{v}, for the purpose of properly guiding the fillet of paper and preserving the form of its embossed tracks therein as it is fed over the bed, substantially as described.

74. The combination of two spring track-fingers with the cover of the guide-bed O^{v}, so that their points shall project down through the V shaped ribs therein, substantially as described.

75. The spring track-fingers having an independent articulation upon the cover of the guide-bed O^{v} by mounting their hubs o^{xx} o^{xx} separately upon the short cross-shaft h^{xx}, substantially as described.

76. The combination, with the track-fingers, of the set-screws b^{i} and their bolding-arms, for the purpose of adjusting the lateral position of the track-fingers within the embossed tracks of the fillet of paper passing over the guide-bed, substantially as described.

77. The combination of the slotted guide-block f with the cover n^{v}, for the purpose of guiding the points of the track-fingers within the tracks of the paper passing over the bed, substantially as described.

78. The combination of a pivoted handle with the cover of the guide-bed O^{v}, to raise the points of the track-fingers from contact with the fillet of paper without raising the cover, substantially as described, for the purpose specified.

79. The handle f^{v}, pivoted to the top of the cover n^{v} in rear of the track-fingers, and provided with a weighted extension, f^{vi}, to hold it in an upright position, substantially as described.

80. The handle provided at its front with a right-angular arm, f^{vii} f^{viii}, to limit the forward movement of the handle and bear down the rear ends of the track-fingers, for the purpose specified.

81. The combination of the grooved guide-blocks b^{i} with the guide-bed P of the reproducing mechanism, substantially as described.

82. The combination of a grooved feed-cylinder with the nagrooved guide-bed of the reproducing mechanism, to draw the fillet of paper over the reproducing-knives, substantially as described.

83. The combination of an automatic pressure-roller with the feed-cylinder of the reproducing mechanism, substantially as described, for the purpose specified.

84. The combination, with the guide-bed P, of two reciprocating knives, operated by a magnet, substantially as described.

85. The shaft o^{i}, adapted for vertical adjustment upon the sleeve of the guide-bed P, to regulate the position of the reproducing-knives with respect to the upper surface of the bed, substantially as described.

86. The shaft o^{i}, combined with the flat spring o^{ii}, to connect the sleeve of the guide-bed P with an adjustable holder upon one of the uprights of the frame, substantially as described.

87. The shaft o^{i}, combined with the sleeve of the guide-bed P, to support the reproducing-magnet, substantially as described.

88. An electro-magnet provided with a rock-shaft to alternately reciprocate two pointed knives through the grooved blocks b^{i} of the guide-bed when the polarity of such magnet is changed to oscillate the shaft, substantially as described.

89. The pointed slitting-knives b^{i} b^{i}, supported upon the vibrating needles of the reproducing-magnet by means of the upright arms o^{iv}, substantially as described, for the purpose specified.

90. The slitting-knives of the reproducing-magnet, guided vertically within the grooved blocks by means of the guide-pins b^{ii}, and the supporting-arms o^{iv}, substantially as described, for the purpose specified.

91. The combination of the embossing rollers or styles b^{v} with the guide-bed P and its cover, substantially as described, for the purpose specified.

92. The India-rubber blocks c^{i}, combined with the guide-blocks b^{i}, to bear down upon the points of the slitting-knives, substantially as described, for the purpose specified.

93. The grooved guide-blocks b^{i}, secured to the front of the cover, for the purpose of supporting the embossing-rollers, substantially as described.

94. The grooved guide-blocks b^{i}, adapted for adjustment to register their grooves with the grooves in the lower guide-blocks b^{i} of the bed, substantially as described, for the purpose specified.

95. The combination, at a telegraph-station, of a calling-in magnet, a reproducing-magnet, a receiving magnet, and their electric connections, substantially as described, for the purpose specified.

96. The combination, at a telegraph-station, of a receiving-magnet, a calling-in magnet, a reproducing-magnet, and an induction-coil interposed in the main wire, substantially as described.

97. The combination, at a telegraph station, of a receiving magnet, a calling-in magnet, a reproducing-magnet, an induction-coil, and two primary helices within the induction-coil, substantially as described.

98. A compound receiving-magnet composed of two soft-iron cores inclosing two helices wound in the same direction, one within the other, and interposed in the main telegraphic line at each station by connecting to the wire thereof the inner end of the inner helix, and the outer end of the outer helix, substantially as described.

99. The receiving-magnet, provided with a series of parallel magnetic needles mounted between the covers upon a transverse rock-shaft, so as to oscillate, when the covers are magnetized and demagnetized, by the passage through the helices of the alternately reversed message-currents of the main line, substantially as described.

100. The parallel magnetic needles of the receiving-magnet, provided with an upright arm carrying two platina hammers, which, when the needles tip, are alternately thrown in contact with two platina-faced anvils supported upon, but insulated from, the covers of the magnet, substantially as described.

101. The reciprocating hammers of the receiving-magnet, having electric connection with the local battery for the purpose of operating the parts of the reproducing and calling-in magnets by the direct current from the battery, while the polarity of the magnet is changed to reciprocate the hammers by the alternate reversal of the message-currents in the main line, substantially as described

102. Maintaining the contact between the hammers and anvils of the receiving-magnet at the receiving-station, by means of the track-fingers at the transmitting-station extending through the slits of the moving record to hold the circuit-changer in contact with one or the other of its anvils, substantially as described.

103. The anvils mounted upon the cover of the receiving-magnet, and insulated therefrom by means of the flanged insulating-tubes f^{iv}, combined with the stems d^{i} of the anvils, and the hollow upright shafts d^{i}, substantially as described.

104. The platina-faced anvils of the receiving-magnet, adjust eccentrically to their supporting-stems, for the purpose of adjustment, substantially as described.

105. The compound reproducing-magnet D^{iv}, provided with two vertically-reciprocating slitting-knives, substantially as described.

106. The compound calling-in magnet D^{iv}, provided with two inclined laterally-vibrating plates, substantially as described.

107. The combination of an induction-coil and a double helix with one battery, to equalize the force of the main-line currents, for the purpose of securing the automatic formation of the message-symbols of the reproduction relative since throughout the whole line, and to prevent like message-symbols from differing in length when formed by the passage of the current through either helix, substantially as described.

108. The combination, with the induction-coil, of an adjustable compound magnet connecting the local battery of a station with the calling-in magnet, substantially as described, for the purposes specified.

109. The induction-coil combined with the double helices wound therein, one within the other, around an adjustable core of soft iron, substantially as described, for the purposes specified.

110. The core of the primary helices D^{i} D^{i}, made in several sections, which are adapted for adjustment by the holding-screws d^{i}, for the purpose of regulating the time required to magnetize and demagnetize them, substantially as described.

111. The receiving-magnet, the calling-in magnet, the reproducing magnet, and the primary helices of the induction-coil, having their corresponding helices wound in the same direction at a station, so that the currents from the local battery shall each move through the circuit of like helices in the same direction, substantially as described.

112. The receiving-magnet, the calling-in magnet, the reproducing-magnet, and the primary helices of the induction coil, having their corresponding helices wound in the same direction at all the stations of the telegraph-line, for the purpose of maintaining the same direction for each current throughout the line, substantially as described.

113. The platina-faced anvils of the receiving-magnet, having separate electric connections with the reproducing-magnet, substantially as described, for the purpose specified.

114. The mode or method of calling a station into communication with a transmitting-station to receive a message, by means of a calling-in magnet at the receiving-station, which is operated by the transmitted signal to set the reproducing devices in operation, substantially as described.

115. The mode or method of throwing a receiving-station out of communication with a transmitting-station, after the message has been sent, by means of a calling-in magnet, which is operated by the transmitted signal to throw the reproducing devices out of operation, substantially as described.

116. The mode or method of operating the calling-in magnet to call in the receiving-station, and throw it out of communication with the transmitting-station, by means of signal-slits cut in the fillet of paper in advance of, and following, the message-slits, substantially as described.

117. A calling-in frame at the receiving-station, adapted to be set in motion by the vibrating-plates of the calling-in magnet to operate the mechanism by which a fillet of paper is drawn over the reciprocating reproducing-knives, substantially as described.

118. A throwing-out frame at the receiving-station, adapted to be set in motion by the vibrating-plates of the calling-in magnet, to throw out of operation the mechanism by which a fillet of paper is drawn over the reproducing-knives, substantially as described.

119. The combination of a registering-wheel with the calling-in frame, the throwing-out frame, and the vibrating plates of the calling-in magnet, substantially as described, for the purpose specified.

120. The calling-in and throwing-out frames, mounted upon opposite sides of the registering-pin wheel, and constructed to engage and move with the pins, when the latter are properly set by the vibrations of the setting-plates, substantially as described, for the purpose specified.

121. The calling-in and throwing-out frames, mounted upon sleeves of the shaft E^{iv}, and connected by suitable mechanism, so as to move forward with the registering-wheel at different times, and move back against its revolution, one after the other, substantially as described, for the purpose specified.

122. The calling-in and throwing-out frames, connected by suitable intervening mechanism, so that when the former is moving forward with the wheel the latter is rising back against its revolution, and vice versa, substantially as described, for the purpose specified.

123. The combination of the working-beam and connecting-rods with the sleeves of the calling-in and throwing-out frames, for the purpose of moving them in opposite directions, substantially as described.

124. The combination of a spring-lever with the working-beam, to sharpen and quicken its movements, substantially as described.

125. The calling-in and throwing-out frames, each constructed of a slotted segmental registering-joints, supported from the sleeves of the shaft E^{iv}, so that the registering-wheel shall project through the slots, substantially as described.

126. The calling-in and throwing-out frames, having their outing edges configured to correspond with the signals which represent a station—that is to say, having outlines the same as those described by the pins of the registering-wheel under the impulses of the reciprocating plates a^{v}, when the pins are set by the proper signals from the transmitting-station, substantially as described.

127. The calling in frame, adapted to cause the pressure-roller to be thrown in contact with the cylinder, to feed the paper over the reproducing-knives when moved forward by the registering-wheel, substantially as described.

128. The throwing-out frame, adapted to remove the pressure-roller from contact with the cylinder D, to stop the feed of the paper over the reproducing-knives when moved forward by the registering-wheel, substantially as described.

129. The pivoted lever g^{i}, combined with the pressure-roller V and the cam e^{ix}, on the sleeve of the calling-in frame, substantially as described, for the purpose specified.

130. The combination of the springs n^{i} with the calling-in and throwing-out frames, to draw them toward the shaft E^{xx} for the purpose of engaging the ends of the pins in the registering-wheel, when such pins are properly set, substantially as described.

131. The registering-wheel constructed with peripheral flanges containing the parallel setting-pins, substantially as described.

132. The combination of the holding-hand n^{i} with the registering-wheel and its setting-pins, substantially as described, for the purpose specified.

133. The combination of the tightening-pulley and spring with the holding-hand n^{i}, substantially as described, for the purpose specified.

134. The bevel uprights g^{i}, combined with the registering-wheel, to restore the alignment of the setting-pins, substantially as described.

135. The bevel uprights g^{i}, combined with the registering-wheel, to correct any excess in the throw of the pins when set by the reciprocating plates, substantially as described.

136. The combination of the sliding horizontal rods g^{i} and the upright cams with the calling and throwing frames, for the purpose of disconnecting them from the pins of the registering-wheel when they have reached the limit of their forward throw, substantially as described.

137. The combination of the automatic locking-levers g^{i} and g^{i} with the calling-in and throwing-out frames, substantially as described, for the purpose specified.

138. The automatic locking-levers g^{i} and g^{i}, adapted for adjustment, substantially as described, for the purpose specified.

139. The shaft E^{xx} of the registering-wheel, provided with friction-wheels a, by which it is driven from the upper shaft B, substantially as described, for the purpose specified.

140. The mode or method herein described of automatically joining the two helices of the receiving-magnet when a message is being received at a station, for the purpose of increasing the power of the magnet when receiving a message by the decrease of conducting-resistance in the receiving-magnets of all the other stations within reach of the current.

141. The mode or method herein described of automatically disconnecting the two helices of the receiving-magnet, and joining them separately to the main line when their station is not receiving a message, for the purpose of offering less resistance to the passage of the line-current through them.

142. The insulated levers E^{i} E^{ii} E^{iii}, having electric connection with the outer helix of the receiving-magnet, and the main wire joining such helix, combined with the insulated anvils E^{i} E^{ii} E^{iii}, having electric connection with the inner helix and its main wire, substantially as described, for the purpose specified.

143. The combination of the calling-in frame with the insulated conducting levers and anvils E^{i} E^{ii} E^{iii}, substantially as described, for the purpose specified.

144. The combination of the throwing-out frame with the insulated conducting levers and anvils E^{i} E^{ii} E^{iii}, substantially as described, for the purpose specified.

145. The insulated cams e^{ix}, combined with the sleeve of the calling-in frame, for the purpose of connecting and disconnecting the levers E^{i} E^{ii} E^{iii} and their anvils, substantially as described, for the purpose specified.

146. A circuit-breaker, interposed in the local wire of the receiving-station, and operated by the movements of the calling-in frame to make and break the home-circuit of such station one or more times in rapid succession, for the purpose of inducing a return current in the main line which shall oscillate the arms of the receiving-magnet back at the transmitting-station, and thus notify the operator there that the receiving station is called in ready to receive a message, substantially as described.

147. The local circuit-breaker, consisting of the insulated hammer-lever and anvil E^{v}, interposed in the local wire, and operated by one of the cams e^{ix} on the sleeve of the calling-in frame, substantially as described.

148. The hammer-lever E^{v} of the local circuit-breaker, having its rear end notched, for the action of the cam e^{ix}, substantially as described, for the purpose specified.

149. The mode or method of providing a standard measure of time at each station of a telegraph-line by means of a pendulum, whose vibrations reciprocate the slitting-knives of the several reproducing-magnets through a moving fillet of paper, a given number of times for each vibration, substantially as described.

150. The mode or method of establishing a uniform movement of the paper fillets at all the stations of a telegraph line by means of the several driving-shafts, whose speed is adjusted to the measure of time furnished by the pendulum at each station, substantially as described.

151. A pendulum for opening and closing the circuit of the reproducing-magnet, to alternately reciprocate the slitting-knives in a given time, for the purpose of cutting slits in a moving fillet of paper, and thereby enabling the operator to determine the speed of the driving-shaft by measuring the length of the slits, substantially as described.

152. The combination of the pendulum f^{i} g^{i}, with a circuit-changer, for sending alternate currents from the local battery to the reproducing-magnet of a station, substantially as described.

153. The local circuit-changer, consisting of the pivoted trip-plate g^{i}, and its upright arm g^{i}, arranged within the path of the pendulum, so that the lower end thereof shall strike the upright points of the plate, and throw the arm alternately in contact with stop-pins g^{i}, the trip-plate having electric connection with the local battery, and the stop-pins with the reproducing-magnet, substantially as described.

154. The combination of a spring, g^{i}, with the upright arm of the trip-plate, to prevent the recoil of the arm when thrown in contact with the stop-pins, substantially as described.

155. The stop-pins g^{i}, and the trip-plate and arm, supported upon the main frame of the instrument by the upright bar f^{i}, the trip-plate and arm being insulated from the bar, and the latter being insulated from the frame, substantially as described, for the purpose specified.

156. The bar f^{i}, adapted for lateral adjustment, for the purpose of equalizing the throws of the tripping-arm g^{i} from its center of oscillation, and thereby insuring uniformity in the length of the slits, by which the speed of the paper and driving-shaft is determined, substantially as described.

157. The weighted finger-piece l^{i}, arranged in the local line, to send the current either to the crescent trip-plate of the pendulum, or to the oscillating shaft of the receiving-magnet, substantially as described, for the purpose specified.

158. The curved guides g^{xi} d^{i}, secured to the uprights of the frame beneath the feed-cylinders for directing the paper records out of the instrument, substantially as described.

159. The combination of the shears with the guide d^{i}, substantially as described, for the purpose specified.

160. The shears, consisting of the lower blade o^{i} attached to an upright of the frame, so as to lie against a shoulder formed in the curved guide d^{i}, and of the upper swinging blade o^{i} attached to the upright turning-rod p, substantially as described.

161. The combination of a coiled spring, p^{i}, with the upright turning-rod p, for the purpose of pressing one blade of the shears against the other when in the act of cutting.

and to throw open such blinds when the cutting cutter ceases, substantially as described.

182. The lightning-arresters D', interposed in opposite ends of the main line at a station, to conduct a strong atmospheric current along the main line past a station without entering the receiving-instrument, and to divert the weaker induced message-currents into the receiving-magnet and prevent them from passing the station, substantially as described, for the purpose specified.

183. The lightning-arresters D', each composed of two grooved half-cylinders of metal crossed upon a fine insulated wire, D', placed in the main line, substantially as described.

184. The mode or method of joining the two lightning-arresters to the main line at a station by means of the wires D' and helices D', substantially as described.

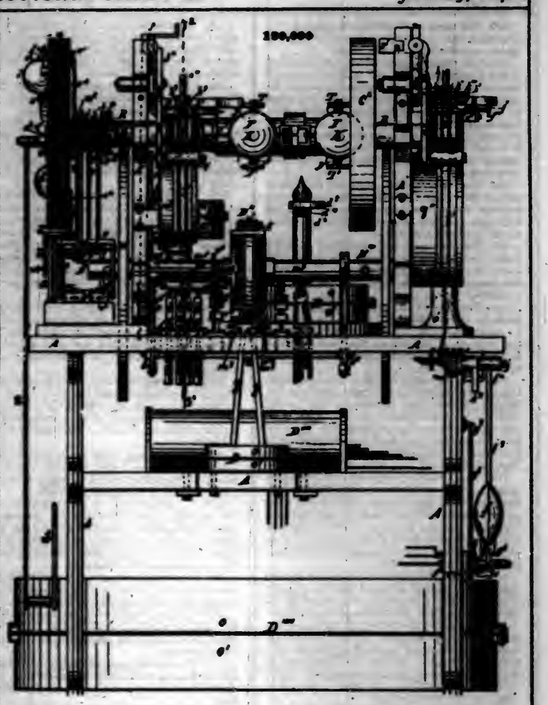
185. The index-finger F and its dial-plate, combined with the helices of the lightning-arresters, substantially as described, for the purpose specified.

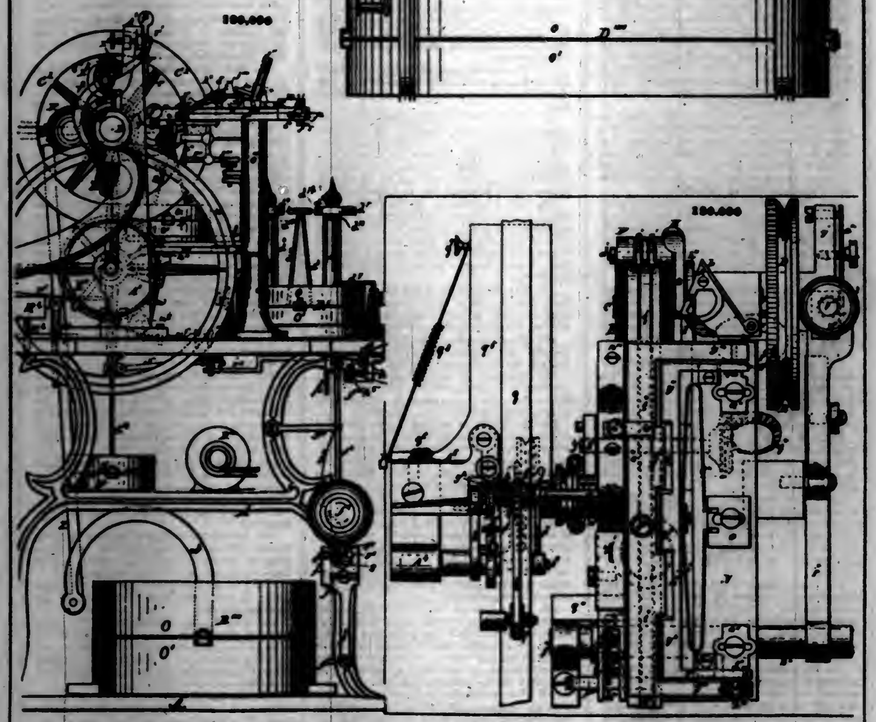
186. The combination of the switches F with the connecting-wires F' of the lightning-arresters, substantially as described, for the purpose specified.

187. The combination of an index and dial with the graduating resistance-coil, to register the amount of resistance to the passage of the battery-current, substantially as described.

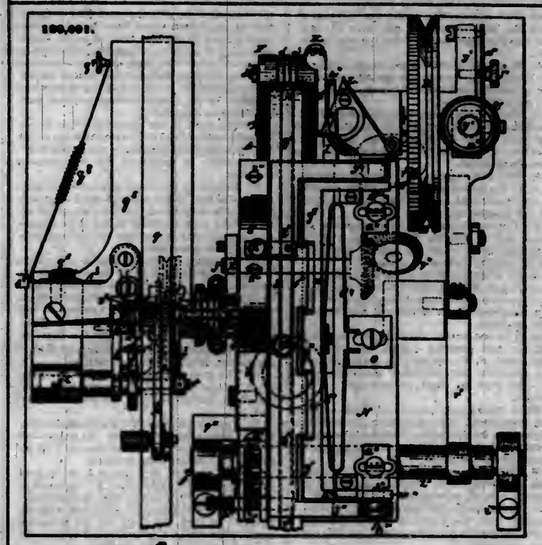
188. The combination of a graduating resistance-coil and a galvanometer, to equalize and determine the power of the battery, substantially as described.

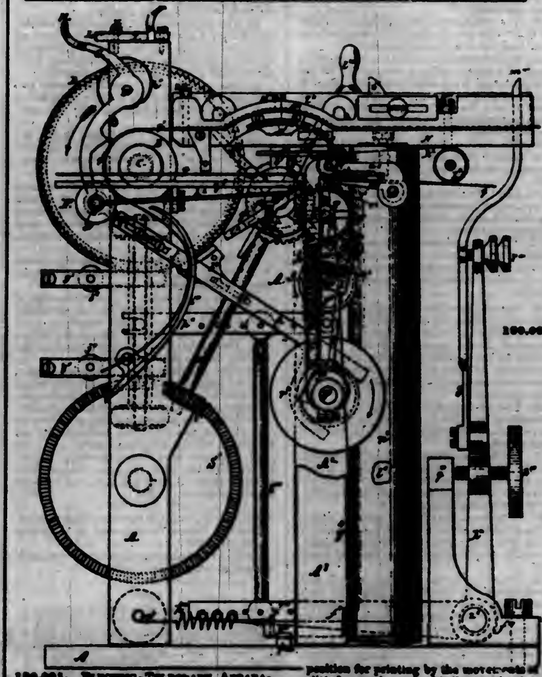
189. The pivoted switch F', in combination with the wire of the induction-coil, substantially as described, for the purpose specified.





HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO. BOSTON.





190,001. ELECTRO-TELEGRAPH APPARATUS. Royal R. House, Binghamton, N.Y. [Filed Feb. 20, 1876.]

1. A telegraph-instrument for automatically printing a telegraph-message in ordinary typography from a slitted paper message-record, consisting essentially of the following mechanism, to wit: first, mechanism for feeding the slitted record through the instrument; secondly, mechanism which sets the type in position for printing by the movements of the slitted record; and, thirdly, mechanism for printing upon a plain slip of paper after the type have been set.

2. An oscillating type-wheel, having the type arranged upon it in the order of the frequency of their occurrence in telegraph-messages, and adapted to be set from and returned to the same point for every letter or sign of the message to be printed, substantially as described.

3. An oscillating type-wheel, adapted to be automatically set from an initial point for every message-sign by means of slits in a moving fillet of paper, which slits, by their length, or by the distance between the rear end of one and the rear end of that next adjoining, designate the message-signs, and correspond to the message-signs on the type-wheel, substantially as described.

4. An oscillating type-wheel, adapted to be set from an initial point for every message-sign by a slitted message-record, the length of its oscillations to bring the required type in position for printing being governed by the length of the message-slits in the record-fillet, substantially as described.

5. Setting the type-wheel by the message-slits in the record-fillet, through the medium of gage-fingers, substantially as described.

6. The combination of the feed mechanism with the slitted record-fillet, the gage-fingers, and the type-wheel, to operate together substantially as described, for the purpose specified.

7. Mechanism by which the slitted record-fillet is adapted to be automatically stopped while an impression is being taken from the type-wheel upon a plain message-fillet, and to be automatically set in motion again after the impression is completed, substantially as described.

8. The combination of a brake with the feeding mechanism, to automatically stop the feed of the slitted record-fillet while an impression is being made by the type-wheel upon a plain message-fillet, substantially as described.

9. The combination of the brake with the cam-driving shaft of the printing devices, for the purpose of automatically releasing the feed of the slitted record-fillet, to set the latter in motion after the impression has been made by the type-wheel upon the plain message-fillet, substantially as described.

10. The feed mechanism for the slitted record-fillet, consisting essentially of the toothed feed-cylinder and the grooved pressure-roller, substantially as described.

11. The beveled spring-latch l, combined with the arm of the pressure-roller, to lock it out of contact with the feed-cylinder, substantially as described.

12. The arched guide-bed, combined with the feed mechanism, substantially as described, for the purpose specified.

13. The gage-fingers, combined with the arched guide-bed, substantially as described, for the purpose specified.

14. The combination of the gage-fingers, the arched guide-bed, and the feed mechanism for the slitted fillet, substantially as described, for the purpose specified.

15. The pierced guide-bed, constructed with a slotted arch for the passage of the gage-fingers, and with parallel ribs or rails in front and rear of the arch, in line with the slots, to receive the grooves or tracks of the slitted record-fillet, substantially as described.

16. The cover of the guide-bed, constructed with a closed concavity to fit down upon the arch, and with parallel grooves in line with the slots of the concavity, to fit down upon the ribs, substantially as described, for the purpose specified.

17. The construction of the cover and guide-bed to form the deepest space between them at the rear end, for the passage of the paper fillet to the ribs and grooves when two fillets are pasted together at the ends, substantially as described.

18. The combination of the gage-side and pressure-bar with the guide-bed and its cover, for the purpose of guiding the slitted fillet upon the ribs of the bed and over the points of the gage-fingers, substantially as described.

19. The cover adapted for adjustment to regulate the pressure with which it holds the slitted record down upon the ribs of the guide-bed, substantially as described, for the purpose specified.

20. The gage-side of the guide-bed, adapted for adjustment with respect to the arch and ribs, substantially as described, for the purpose specified.

21. The pressure-bar, held up to or against the arch of the guide-bed, so that its projections shall bear against the slitted fillet by means of the adjustable springs, substantially as described.

22. The pressure-bar and cover, having a series of projections and spaces, so arranged that the projections upon one shall enter the spaces of the other when the cover is shut down upon the slitted fillet, for the purpose of preventing the latter from wrinkling or curling up at the edge, substantially as described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO BOSTON.

22. The combination of the cams or pins f^{6} on the hinge-arms of the cover with the guide-loops a^{6} on the ends of the pressure-bar, for the purpose of retracting the pressure-bar from the fillet of paper when the cover is swung open, substantially as described.

24. The pinion-blocks a^{7} of the cover-hinges and the spring-block O of the pressure-bar, adapted for adjustment with respect to each other, substantially as described, for the purpose specified.

25. The gage-fingers, mounted upon the shaft f beneath the arch of the guide-bed, so as to move through the slits in the arch, with their points projecting slightly above the same, substantially as described, for the purpose specified.

26. The gage-fingers, having a frictional connection with their supporting-shaft f, independently of each other, by means of the friction-sleeves f^{5}, substantially as described, for the purpose specified.

27. The combination of the arm a^{5} and set-screw f^{7} with the gage-points, substantially as described, for the purpose specified.

28. The friction-sleeves of the gage-fingers, adapted for adjustment upon the shaft f, to grasp the same with a force proportioned to the resisting strength of the paper fillet at the rear ends of the message-slits, for the purpose of preventing the gage-fingers from tearing the paper when thrown back within the slits, substantially as described.

29. The locus-segmental gear, mounted upon the shaft f between the gage-fingers, to engage with a pinion, n', on the shaft n of the type-wheel, substantially as described.

30. The cross-bar f^{1}, combined with the segmental gear and gage-fingers, for the purpose of moving the gear back to turn the pinion n' and set the type-wheel when the gage-fingers are thrown back within the slits of the moving record, substantially as described.

31. The cross-bar f^{1}, held up to the gage-fingers by means of a spring, or by a weight suspended from the shaft of the type-wheel, for the purpose of returning the segmental gear with the gage-fingers, and for returning the type-wheel to its normal position after having been set, substantially as described.

32. The shaft f of the gage-fingers, driven from a grooved pulley upon the shaft of the feed-cylinder, through the medium of the cog-gearing and the adjustable friction-gearing, substantially as described.

33. The gear-wheel S', having its shaft-bearings in the main frame of the instrument, beneath the driving-pulley, and connected with a pinion, o', on the end of the shaft f by means of the knitted shaft o and its pinion, substantially as described.

34. Connecting the motion of the driving-pulley to the beveled gear-wheel S' by means of two friction-wheels, f, mounted upon a vertical shaft, V', so as to bear against the faces of the pulley and gear-wheel between their respective shafts, substantially as described.

35. The friction-wheels f, held up to the faces of the pulley and gear-wheel with an adjustable yielding pressure, substantially as described, for the purpose specified.

36. The friction-wheels f, adapted for vertical adjustment upon the faces of the driving-pulley and gear-wheel between the shafts thereof, substantially as described, for the purpose specified.

37. The driving-pulley and gear-wheel S', having their faces corrugated, notched, or otherwise roughened in radial lines, to prevent the friction-wheels from slipping, substantially as described, for the purpose specified.

38. The friction-wheels f, composed of leather, vulcanized rubber, or other yielding substance, to prevent them from slipping upon the roughened faces of the driving-pulley and gear-wheel S', substantially as described.

39. The shaft of the friction-wheels f, working within a long tubular bearing, W^{5}, which is squared upon the outside, and fitted within suitable recesses in the parallel arms f', to prevent it from turning with the shaft, substantially as described.

40. The adjustable springs f^{10}, combined with the vertical arms f', to hold the tubular bearing W^{5} within the recesses of the arms, substantially as described.

41. The locking-ratchet f' and pawl S, in combination with the pressing-cylinder, substantially as described, for the purpose specified.

42. The combination of the locking-ratchet f' and pawl S, the feeding-ratchet f' and pawl S', and the pressing-cylinder, substantially as described, for the purpose specified.

43. The combination of the spring-stop S with the feeding-ratchet and arm S', substantially as described, for the purpose specified.

44. The pressing mechanism, suspended from the frame of the instrument immediately over the type-wheel, substantially as described, for the purpose specified.

45. The pressing mechanism, suspended from the frame of the instrument immediately over the type-wheel by means of an adjustable bracket, substantially as described, for the purpose specified.

46. The combination of a correcting-tooth, n', with the lateral adjusting-teeth on the side of the type-wheel, substantially as described.

47. The correcting-teeth n', arranged on the under side of the arm n^{2}, to engage with the adjusting teeth n' on the side of the type-wheel, substantially as described.

48. In a telegraph printing apparatus, the combination of a pressing-cylinder, a driving-shaft, and a spring-connection between the two, substantially as described, for the purpose specified.

49. The connection between the pressing-cylinder and pressing-piston, consisting of the socket f', the adjustable spring l^{3}, and the eccentric rod and head mounted upon the cam f^{3} of the shaft, substantially as described.

50. A spring-pawl combined with a time and escapement shaft, to release the pressing mechanism for operation when the type-wheel is set to print the required message-sign, substantially as described.

51. The spring-pawl a^{3}, supported from the time and escapement shaft by means of an upright arm, l^{2}, substantially as described.

52. The stops o^{3} o^{4} of the time-shaft, in connection with the detent-arm o^{5} of the cam-shaft, substantially as described, for the purpose specified.

53. The combination of the adjustable stop-plate X^{2} with the time-shaft, substantially as described, for the purpose specified.

54. The combination, with the cam-driving shaft, of a spring which is compressed by the driving force of the shaft when the latter is held at rest by a detent, and which exerts its force to turn the shaft when the detent is released, substantially as described, for the purpose specified.

55. The spring driving-pulley r^{5}, combined with the cam-shaft and its friction-sleeve, substantially as described, for the purpose specified.

56. The time-shaft and cam-shaft, and their attachments, in combination with the printing mechanism, substantially as described, for the purpose specified.

57. The time and cam shafts, together with their attachments, in combination with the printing mechanism and the feeding devices for the slitted record-fillet, substantially as described.

58. The feeding-cylinder for the record-fillet, driven by a frictional connection between it and a motor or prime mover, substantially as described, for the purpose specified.

59. In a telegraph printing apparatus, the combination of a pressing-cylinder, a driving-shaft, and a spring-connection between the two, substantially as described, for the purpose specified.

60. The time-shaft, driven by a frictional connection between it and a motor or prime mover, substantially as described, for the purpose specified.

61. The feeding-cylinder for the record-fillet, the time-shaft, and the cam-shaft, each driven by a frictional connection between it and a motor or prime mover, substantially as described, for the purpose specified.

62. The several frictional connections, adapted for adjustment to regulate the force with which they grasp their shafts or supports, substantially as described, for the purpose specified.

63. The stop S for the pressure-roller P, and the brake b^{3} for the feed-cylinder B, both mounted upon the same arm, and operated by the cam n^{3} on the driving-shaft, substantially as described, for the purpose specified.

64. The stop S and brake b^{3}, adapted for adjustment upon their supporting-arm, substantially as described, for the purpose specified.

65. In a printing-telegraph instrument, the combination of an oscillating type-wheel, a cam and cam-shaft, a cam-driving shaft, a pressing piston-cylinder, mechanism for feeding a slitted record-fillet over a guide-bed, and a brake for stopping the motion of said feeding mechanism, all operating automatically, so that at each oscillation of the time-shaft, and each corresponding revolution of the cam-shaft, the type-wheel is set, the movement of the slitted record-fillet stopped, and an impression taken from the type-wheel upon a plain or printing fillet of paper, simultaneously or in rapid succession, the pressing piston-cylinder lifted from the type-wheel, the printing fillet fed forward, the slitted record-fillet again set in motion, and the type-wheel returned to its normal or first position, substantially as described.

66. The shaft f, the speed of which is adjusted to correspond with any variation in the standard length of the slits in the record fillet, substantially as described, for the purpose specified.

67. Adjusting the speed of the shaft f relative to the feed of the slitted record by means of the slits themselves, for the purpose of securing the proper throw of the gage-fingers within each slits to set the type-wheel, substantially as described.

68. Two gage-points, adapted to enter a slit in the record-fillet, so as to bear against its opposite ends, and, through suitable intervening mechanism, adjust the friction-wheels f upon the grooved driving-pulley D and gear-wheel S', for the purpose of gaging the speed of the shaft f relative to the speed of the driving-pulley, and the consequent feed of the record, substantially as described.

69. The gage-point n^{10}, adapted for adjustment within a slit of the record-fillet, substantially as described, for the purpose specified.

70. The combination of the adjustable stop-bar b^{10} and rock-shaft o^{7} with the gage-point n^{10} and friction-wheels f, substantially as described, for the purpose specified.

71. The stop-bar b^{10}, adapted for adjustment to and from the upright f^{10} by means of the set-screw f^{11}, substantially as described.

72. The coiled spring f^{12}, combined with the shaft f^{9}, to hold the point of the set-screw against the upright f^{10}, substantially as described, for the purpose specified.

73. The gage-point n^{10}, supported from the stop-bar b^{9} a spring, to prevent the back of the point from tearing the paper of the slitted record, when the stop-bar is adjusted out from the upright f^{10}, substantially as described.

74. The set-screw r^{10}, combined with the stop-bar and spring-support of the gage-point n^{10}, substantially as described, for the purpose specified.

75. The rock-shaft r^{9}, connected to the tubular bearing of the friction-wheels f by means of the parallel arms f' r^{11}, and the connecting-rod l^{10}, substantially as described.

76. The connecting-rod l^{10}, made adjustable on the parallel arms f' r^{11} to increase or diminish the movement of the friction-wheels f, when operated by the gage-points, substantially as described, for the purpose specified.

77. The combination of the spring-shears with the printing mechanism, substantially as described, for the purposes specified.

78. The combination of the guide-table g' with the printing mechanism, substantially as described, for the purpose specified.

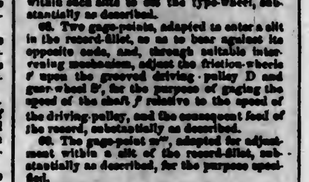
79. The combination of the spring-shears with the guide-table g', substantially as described, for the purpose specified.

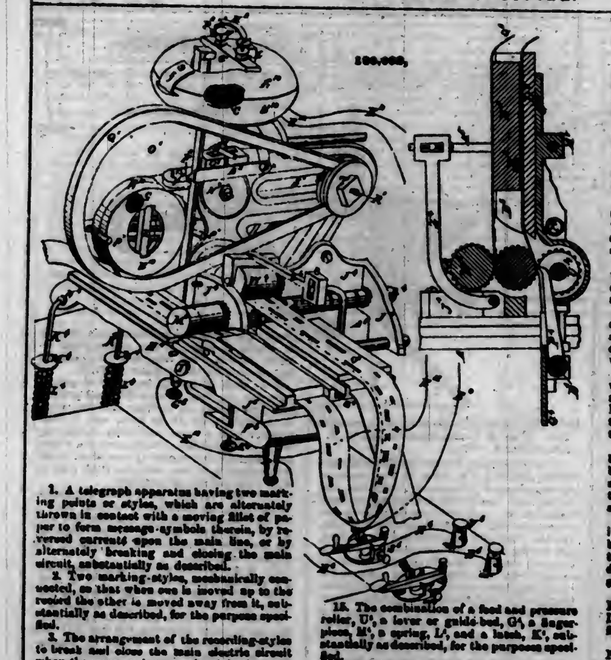
80. The combination of the gage-fingers and the pressure-roller P, connected by suitable intervening mechanism, by which the roller, when moved out from the feed-cylinder, shall return the gage-fingers to the front of the arch in the guide-bed, substantially as described, for the purpose specified.

81. The bent lever f and connecting-rod l^{2}, in combination with the gage-fingers and pressure-roller P, substantially as described, for the purpose specified.

180,000. HELIOTYPE-MACHINES. Royal B. House, Binghamton, N. Y. (Filed July 1, 1876.)

Brief.—For repeating in patentee's peculiar system of telegraphy.





180,000.

1. A telegraph apparatus having two marking points or styles, which are alternately thrown in contact with a moving fillet of paper to form message-symbols therein, by reversed currents upon the main line, or by alternately breaking and closing the main circuit, substantially as described.

2. Two marking-styles, mechanically connected, so that when one is moved up to the record the other is moved away from it, substantially as described, for the purpose specified.

3. The arrangement of the recording-styles to break and close the main electric circuit when the same is transmitted, in the same order in which it was broken and closed so as to make the record of the telegraphed message, for the purpose of producing at a receiving-station a fac-simile of the record at the transmitting-station, substantially as described.

4. A transmitting-instrument, consisting essentially of two transmitting-arms, which are operated by the message-signs in a moving fillet of paper, to reverse the electric current of the main line, or to alternately break and close the main circuit, for the purpose of telegraphing such signs from one station to another, substantially as described.

5. Two transmitting-arms so connected that when one is moved up to the message-fillet the other is moved away from it, for the purpose specified.

6. The combination of adjustable stops I^{2} with the upright vibratory arm F^{2}, substantially as described.

7. The standard J', mounted upon the guide-bed G', to carry the adjustable stops I^{2}, substantially as described.

8. The combination of the two style-arms O' P^{2} with the shaft of the upright arm F^{2} and the guide-bed G', substantially as described, for the purpose specified.

9. The combination of the pinion S^{2} and rocks R^{2} with the style-arms, substantially as described, for the purpose specified.

10. The combination of the styles with the lower grooved feed or pressure roller U^{2}, substantially as described, for the purpose specified.

11. The feed mechanism of the recording-instrument, consisting of the upper and lower adjustable feed-rollers W^{2} U^{2} and the non-adjustable intermediate or middle feed-roller V^{2} substantially as described.

12. The middle feed-roller, constructed with parallel circumferential matrices, into which the fillet of paper is pressed by the styles to form embossments, substantially as described, for the purposes specified.

13. The lower feed and pressure roller U^{2}, constructed with a feed surface between the grooves and at each end outside the grooves, substantially as described, for the purposes specified.

14. The middle feed-roller V^{2}, constructed with a feed surface, Y', between the two sets of matrices, and at each end outside the matrices, substantially as described, for the purposes specified.

15. The combination of a feed and pressure roller, U^{2}, a lever or guide-bed, G', a finger-piece, M^{2}, a spring, L^{2}, and a latch, K^{2}, substantially as described, for the purposes specified.

16. The combination of the upper feed-roller W^{2}, pivoted bar E', upright rod A^{2}, and the guide-bed G', substantially as described, for the purposes specified.

17. The upper and lower feed-rollers W^{2} U^{2}, adapted to be thrown out of operation or out of gear with the middle roller V^{2}, by depressing the end of the guide-bed G', substantially as described, for the purposes specified.

18. The combination of a paper-guiding and tension device, with the feed-rollers of the recording-instrument, substantially as described.

19. The paper-guiding and tension devices, mounted upon the guide-frame G^{4} of the recording-instrument, substantially as described.

20. The paper-guiding tension device of the recording-instrument, consisting of the open box D^{3}, and the pressure-block B^{3}, substantially as described.

21. In transmitting a telegraph-message, the embossments of the record adapted by suitable mechanism for making automatic electrical changes in the main-line circuit, that shall correspond to the electrical changes which were produced in making the embossments, substantially as described.

22. The feeding mechanism for the transmitting-instrument, consisting of the feed-roller W^{2}, and grooved roller F^{3}, substantially as described, for the purposes specified.

23. The feed-roller M^{2}, mounted upon the same shaft that carries the middle feed-roller V^{2} of the recording-instrument, substantially as described, for the purposes specified.

24. The transmitting-arms P^{2} and E^{2}, combined with the feed-rollers M^{2} and N^{2}, substantially as described, for the purposes specified.

25. The transmitting-arms P^{2} and E^{2}, and the feed-rollers M^{2} and N^{2}, in combination with the guide-bed E', substantially as described, for the purposes specified.

26. The transmitting guide-bed H', interposed in or forming a part of the telegraph-line, substantially as described, for the purposes specified.

27. In transmitting a telegraph-message, one or more transmitting-arms, combined with embossments in a fillet of paper, for making the necessary electrical changes in the main line, substantially as described.

28. The combination of a circuit-breaker with the transmitting guide-frame, substantially as described, for the purposes specified.

29. The combination of an atmospheric circuit-breaker with the transmitting guide-bed, substantially as described.

30. The combination, with the transmitting-arms, of the vertical side strips A' and the cross-bar B^{3}, pivoted centrally to the under side of the guide-bed H', substantially as described, for the purposes specified.

31. The combination of an atmospheric circuit-breaker with a transmitting-instrument, substantially as described.

32. The atmospheric circuit-breaker, combined with the guide-bed H' of the transmitting-instrument, substantially as described.

33. The valve T', combined with the transmitting-arm B^{2}, to work over the face of the valve-chest D' upon a thin stratum of air, substantially as described, for the purposes specified.

34. Counterbalancing the weight of the valve T' and transmitting-arm B^{2} by means of the adjustable spring D', substantially as described.

35. The valve T', vibrated across the face of the valve-chest by the raised or depressed side of the embossments in a fillet of paper operating through suitable mechanism intervening between the valve and embossments.

36. The combination of the bent spring F' with the piston-rod X', to hold the latter normally out of contact with the adjusting-screw K', and the piston W', midway between the two valve-ports of the cylinder V', substantially as described, for the purposes specified.

37. The division of a telegraph-line into two branches, one of which is broken and closed by shifting the motions of the transmitting-arms, and the other by the action of the piston W' and piston-rod X', substantially as described, for the purposes specified.

38. A tension-guide for the record-fillet, having one or more grooves to prevent the embossments in the record-fillet from being flattened down in their passage to the feeding devices of the transmitting mechanism, substantially as described.

39. The combination of the lower feed-roller F', the guide-bed H', finger-piece M', spring L', and latch K', substantially as described, for the purposes specified.

40. The combination of the lower feed-roller F', the guide-bed H', finger-piece M', spring L', and latch K', substantially as described, for the purposes specified.

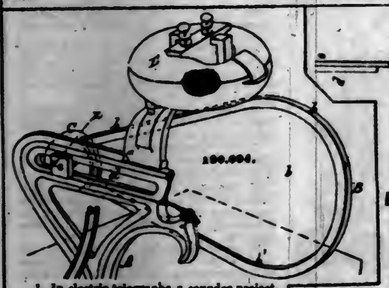
180,000. RELIEVO-MACHINES. Royal B. House, Binghamton, N. Y. (Filed July 1, 1876.)



1. The two bellows, the pole projections, the needle, and the iron cover, combined substantially as described, for the purposes set forth.

2. The divided and hinged iron cover, having the projecting pin a, combined with the bellows, pole projections, needle, and wires, substantially as and for the purposes set forth.

180,004. TELEGRAPH-SOUNDERS. Royal B. House, Binghamton, N. Y. (Filed July 1, 1876.)



1. In electric telegraphs, a sounder projecting from the receiving-instrument to or near the ear of the operator, and arranged in such relation to the table that he can conveniently hold his ear close to the sounder while writing upon the table, substantially as described.

2. In electric telegraphs, a sounder combined with a less sonorous material, for instantly arresting the vibrations thereof, substantially as described.

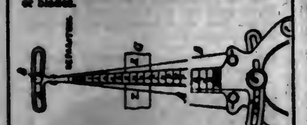
3. In electric telegraphs, a sounder adjustable substantially as and for the purposes set forth.

4. In electric telegraphs, the combination of the plate b with the surrounding frame b', substantially as and for the purposes set forth.

5. In electric telegraphs, the combination of a glass plate or easel with a surrounding frame of wood, substantially as described, for the purposes set forth.

180,006. CALIPERS FOR MEASURING TELEGRAPHIC SYMBOLS. Royal E. House, Binghamton, N. Y. (Filed July 1, 1876.)

Brief.—Inventor's system symbols differ in length only. This device is for determining what any symbol represents by means of a scale which is engraved on adjustable arms or blades.



1. A measuring-instrument adapted to measure the length of telegraphic letter-symbols, and having an indicating device which successively indicates to the eye the precise letter denoted by each symbol that is measured.

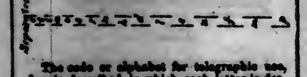
2. A tapering blade having its taper adjustable, combined with an indicating device which indicates to the eye the letters of the alphabet corresponding to telegraphic symbols, which extends in length with the width of the blade at different points, substantially as described.

3. In a combined measuring and indicating instrument for telegraphic purposes, as described, the combination of two pivoted planes, A B, capable of being clamped immovably together, so that their edges can be adjusted to any taper, as may be required.

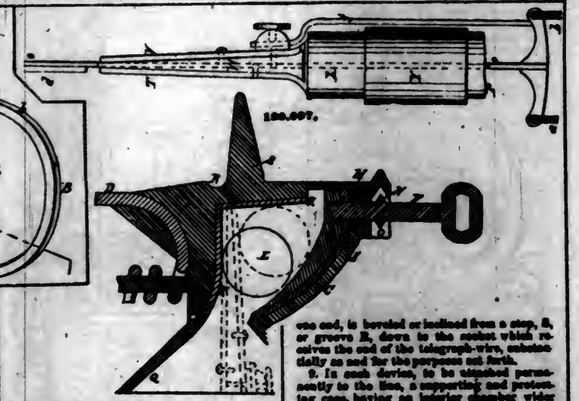
4. The combination of the bar-lines a c with the pivoted planes A B, capable of being adjusted and clamped, substantially as described.

5. The tapering planes A B, adjustably connected together by clamping-screws a' a' at both ends, and having the part between the screws graduated and provided with indicating-marks, as and for the purposes set forth.

180,005. TELEGRAPHIC CODES OR ALPHABETS. Royal E. House, Binghamton, N. Y. (Filed July 1, 1876.)



The code or alphabet for telegraphic use, herein described, in which each letter is designated by a symbol of arbitrary length, and is distinguished from all the other letters by the lesser distance intervening, or time elapsing between the beginning and the beginning of the next succeeding symbol, or the end and the end of the next preceding symbol, each symbol being indicated by a time or space different in extent from that of any other symbol, substantially as and for the purposes above set forth.



180,007. ELECTRO-TELEGRAPH APPARATUS. Royal E. House, Binghamton, N. Y. (Filed May 3, 1871.)

1. In telegraphy, the combination of the following elements, viz: First, an instrument or device arranged permanently in the line, and having two electrically-conducting surfaces insulated from each other, one being in electric connection with one end of the telegraph-wire, and the other with the other end of said wire, and having, also, a movable conductor, which normally forms an electric communication directly between the two insulated surfaces, but can be displaced to break said communication temporarily; and, secondly, a portable instrument adapted to be elevated and connected to the permanent device aforesaid, to displace said movable conductor, break said direct electric connection between the ends of said wires, and turn the electric currents down to and through a receiving, testing, or transmitting instrument at the ground below, substantially as and for the purposes set forth.

2. In each device, to be attached permanently to the line, a hollow case, C, having interior unoxidizable surfaces, closed on its sides and top to protect said surfaces, and adapted to be attached to, and form the supporting connection between, the ends of the telegraph-wires, substantially as and for the purposes set forth.

3. In each device, to be attached permanently to the line, a hollow case, C, closed at the sides and top, and having an internal cavity, larger at its upper than at its lower end, for the purpose of containing the movable electric conductor, substantially as set forth.

4. In each device, to be attached permanently to the line, the hollow case C, having the inclined platinum surfaces G K in its interior chamber, the one communicating electrically with the rod F, and the other with the wire D, substantially as and for the purposes set forth.

5. In each device, to be attached permanently to the line, the hollow case C, having the flaring mouth Q on its under side, through which access can be had to the insulated surfaces connected with the two ends of the wire, substantially as and for the purposes set forth.

6. In each device, to be attached permanently to the line, the protecting and supporting case, having the groove R arranged in such relation to the working parts and to the portable instrument that, when the supporting cord or arm of the latter lies in said groove, the fixed and portable parts of the apparatus will be in the proper relative positions for sliding easily into connection, substantially as and for the purposes set forth.

7. In each device, to be attached permanently to the line, the protecting and supporting case having a stop, S, arranged in such relation to the working parts, and to the portable instrument, that when the supporting cord or arm of the latter lies adjacent to the same of the loop, the fixed and portable parts of the apparatus will be in the proper relative positions for sliding easily into connection, substantially as and for the purposes described.

8. In each device, to be attached permanently to the line, a supporting and protecting case, the upper side of which at, at least, one end, is hooked or inclined from a stop, S, or groove R, down to the contact which receives the end of the telegraph-wire, substantially as and for the purposes set forth.

9. In each device, to be attached permanently to the line, a supporting and protecting case, having an interior chamber wider at its upper than at its lower end, in connection with a loose electrically-conducting block, disk, or series of disks, arranged within said chamber, and operating to make or break the continuity of the currents from wire to wire, substantially as described.

10. In the portable part of an apparatus, for the purpose aforesaid, the key T V W, combined with the arm d, and lifting-cord g, substantially as and for the purposes described.

11. In the portable part of an apparatus, for the purpose aforesaid, the key T V W, combined with the pole-contact Y, substantially as and for the purposes set forth.

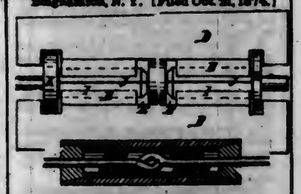
12. In the portable part of an apparatus, for the purpose aforesaid, the key T V W, combined with the insulated wires a b, connected respectively to the insulated surfaces T V, and of sufficient length to extend to a sending or receiving instrument on the ground, substantially as and for the purposes specified.

13. In the portable part of an apparatus, for the purpose aforesaid, a key, T V W, in which the interposed insulating material W projects vertically above, and laterally beyond, the conducting-surfaces T V, substantially as and for the purposes set forth.

14. In the portable part of an apparatus, for the purpose aforesaid, a key, T V W, in which the interposed insulating material W projects vertically above, and laterally beyond, the conducting-surfaces T V, substantially as and for the purposes set forth.

15. In an apparatus, for the purposes aforesaid, consisting of a fixed part attached to the line, and a portable part connected with the sending, receiving, or testing instrument, I claim the fixed part arranged on the wires of the line at a distance from the telegraph-posts or supports, so as to be beyond the reach of a person climbing thereon.

180,008. BRAKE AND APPARATUS FOR JOINING TELEGRAPH-WIRES. Royal E. House, Binghamton, N. Y. (Filed Oct. 21, 1874.)



1. A metal or other suitable protecting-case, adapted to inclose the joint of a telegraph-wire, to prevent it from oxidation, substantially as described.

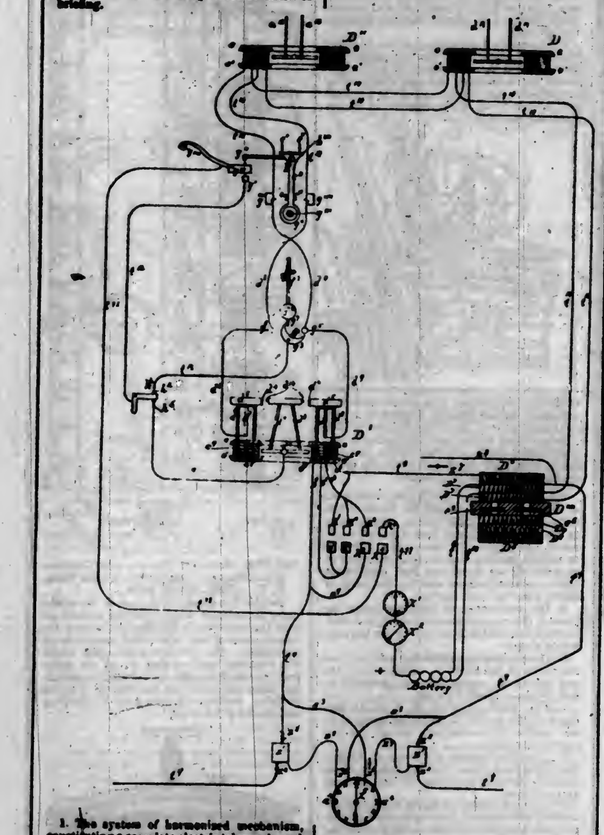
2. The metal or other suitable protecting-tube inclosing the joint of a telegraph-wire, and closed at the ends by suitable plugs or stoppers, which form water-tight joints with the tube and around the wires, substantially as described, for the purpose specified.

3. The mode or method of applying the protecting-case to the joints of telegraph-wires, substantially as described, for the purpose specified.

4. The machine or instrument for applying the protecting-case to the joints of telegraph-wires, consisting of the slotted frame D, the slotted die-holders H H, the divided dies J J, and the slotted wedges K K, substantially as described.

180,009. ELECTRO TELEGRAPH. Royal E. House, Binghamton, N. Y. (Filed Mar. 10, 1876.)

Brief.—Uses an alphabet consisting of dashes alone, their relative lengths determining the letters or signals. The message is perforated in a slip of paper, the perforations being slits corresponding in length to the length of dash required the latters. The prepared slit is fed through a transmitter, so controlled by the slits as to send currents to a receiving-instrument, operating to reproduce a slitted fac-simile of the message. The latter is then used in a printing apparatus, in which the throw of an oscillating type-wheel, and consequent position of type for printing and the printing mechanism, are operated by the slits, and the message is printed in ordinary characters. The details of this and the other cases are too complicated to admit of briefing.



1. The system of harmonized mechanism, constituting a complete electric telegraph, and composed of an instrument by which the written messages received at a station are recorded in a fillet of paper to be used as the medium for automatically transmitting the messages from one station to another, the batteries and insulated wires constituting the line or lines; a sending-instrument adapted, in connection with the record-fillet, to automatically transmit to the receiving-station message-signals corresponding to the record-signs of the fillet; a receiving-instrument adapted to receive such electric signals, and thereby automatically produce at the receiving-station an exact fac-simile of the original record-fillet at the sending-station; and mechanism adapted to receive such reproduced record fillet, and therefrom automatically produce a dispatch for delivery printed in ordinary typographic characters.

2. The combination of two or more telegraph-lines, having harmonized automatic sending, receiving, and reproducing instruments, substantially as described, whereby either an original record-fillet or a reproduced record-fillet of one line can be used equally well to automatically operate any other line.

3. The mode or process of transmitting intelligence to a distance over a succession of telegraph-lines, substantially as herein described—that is to say, by, first, producing at the sending-station a record of the dispatch to be transmitted; second, automatically transmitting electric impulses along the line to the receiving-station by means of the message fillet or record produced as aforesaid; third, automatically reproducing at the receiving-station of a line, by means of said electric impulses, a fac-simile of the record at the receiving-station; fourth, using at the proper receiving-stations the successively reproduced records, to automatically transmit the message over each succeeding line, until the final or delivery station is reached; and, fifth, using the reproduced record at each station to automatically print the message in ordinary typographic characters for delivery.

180,010. ELECTRO-MAGNETS AND RELAYS. Royal E. House, Binghamton, N. Y. (Filed June 17, 1870.)

1. An electro-magnet composed of a helix, soft-iron electro-magnetic poles, and a deflective magnetized needle, which is arranged with one side of each of its poles opposite to one of the soft-iron electro-magnetic poles, substantially as described, for the purposes specified.

2. The combination of a soft-iron cover with a helix, and one or more deflective magnetized needles, substantially as described, for the purposes specified.

3. The inclosing case for the helix, consisting of two grooved semicircular covers, E^{10} E^{10}, of soft iron connected together by suitable means, substantially as described, for the purpose specified.

4. The soft-iron covers E^{10} E^{10} of the magnet, having their inner edges projecting into the central aperture over the ends of the magnetized needles, to form the magnetic poles of the covering, substantially as described.

5. The magnetized needles, mounted in an oscillating rock-shaft, arranged diametrically between the soft-iron covers of the magnet, substantially as described.

6. The rock-shaft of the magnetized needles held to its bearings in the covers of the magnet by means of the pointed pins K, substantially as described.

7. The pointed pins K, supported upon the covers of the magnet by means of the upright frames I, substantially as described.

8. The pointed pins K, provided with collars a between the arms of the upright frames I, to prevent the pins from falling out of the frames when the upper half of the magnet-cover is swung open, substantially as described.

9. The pointed pins K, adapted for adjustment to regulate their pressure upon the needle-shaft, substantially as described.

10. The combination of the platinum anvils I', and hammers J', with the magnet and its deflective needles, substantially as described.

11. The anvils and hammers of the magnet arranged between the poles of the magnet and the rock-shaft of the needles, substantially as described, for the purpose specified.

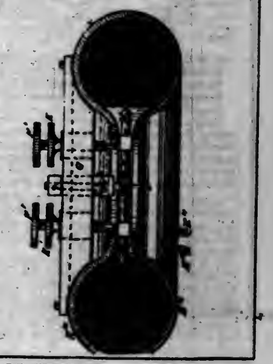
12. The helix of a local magnet divided into two parts by an electrical connection with its central layer or coil, substantially as described, for the purpose specified.

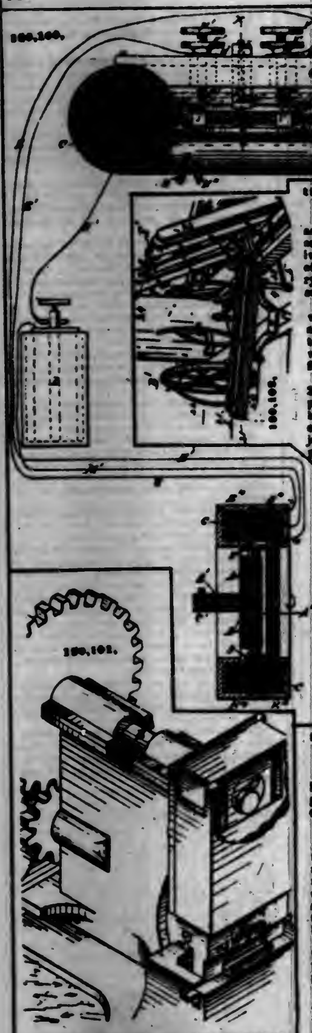
13. A local magnet formed by the combination of a soft-iron cover with a divided helix and deflective magnetized needles, substantially as described.

14. The combination of a branched local circuit, and a single battery, with a receiving-magnet having two sets of hammers and anvils, substantially as described, for the purpose specified.

15. The combination of the local magnet, the branched local circuits, and a single battery, with a receiving-magnet, and its two sets of hammers and anvils, substantially as described, for the purpose specified.

16. A helix constructed in sections of helical wire of such relative length and thickness that when a current of electricity is passed through the helix the conducting-resistance of each section shall nearly or quite correspond to the relative amount of magnetic force which emanates from each section, and is made available at the axial aperture of the helix, substantially as described, for the purpose specified.





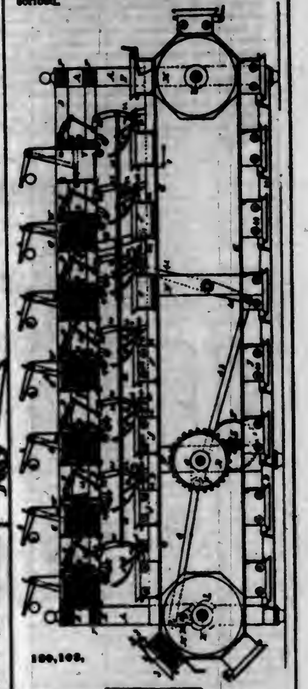
180,100.

180,101.

180,102.



180,103.



180,104.

180,100. COBN-HARVESTERS. R. Atkinson, Woodstown, N. J. [Filed May 2, 1876.]

1. The combination, in a corn-stalk cutting and shocking machine, substantially as described, of the arms H H', and their respective slides 13 14, and their respective series of hooks or pins 16 16, operated by the carrying-wheels B and D, with the cutter G and supplementary platform A.

2. The reciprocating platform *a*", provided with the inclined hooks or teeth, and operating substantially as described, in combination with the inclined board *a*" and the elevating-handle F F, for the purpose hereinbefore set forth.

3. The cradle I, consisting of the base-bar 20, parallel rollers 21 21, geared together and provided with the curved arms 22, and crank-handle 23, as set forth, the said cradle being supported on the pivoted bar 19 by a hinged joint, substantially in the manner and for the purpose described.

180,101. MACHINES FOR MANUFACTURING HOOP-SKIRTS. Edward B. Archer and Jas. Turner, Richmond, Va., assignors to the Tredegar Company, same place. [Filed Dec. 11, 1876.]

Brief.—Attached to the front of a reciprocating plunger is a punching, creasing, and forming die, and a cutter for operating on a straight blank, which blank, after being bent by any known means, is fastened by a confirming-die on one side of the same plunger.

1. The combination, substantially as hereinbefore set forth, of the stationary forming-die, the reciprocating plunger, the creasing and punching die, carried thereby, and the cutter, also carried by the plunger.

2. A machine for making horse and mule shoes, constructed, as herein before described, with a base, provided with the stationary forming and confirming dies, and a reciprocating plunger, carrying the movable forming and confirming dies, whereby a blank is formed and a shoe is shaped to fit the hoof at each descent of the plunger.

180,102. MACHINES FOR GATHERING THE SIGNATURES OF BOOKS. Elliott D. Averell, Brooklyn, N. Y. [Filed Oct. 26, 1876.]

Brief.—The sheets are automatically delivered from their separate boxes, and are gathered in their regular order in the boxes or receptacles traveling beneath.

1. The combination, with the receptacles or boxes containing the several kinds of signatures for books, of a device, substantially as described, for picking each signature separately, and a gathering-band, chain travelers or carriers passing said receptacles, to collect successively the signatures from said receptacles, substantially as and for the purpose herein described and shown.

2. The combination of the boxes O with the boxes J, the transferrers or levers 21, and feed-levers 8, substantially as and for the purpose herein stated.

3. The combination of the boxes O with the feed-levers 8, and slides W, and the rollers 14, and device for registering, substantially as and for the purpose set forth.

4. The combination of the head G and boxes J, the drums H, the ratchet-wheel L, and cranks P, substantially as and for the purpose set forth.

5. The combination of boxes J, having hinged forward sides, with the fingers 37, to operate substantially as and for the purpose herein stated.

6. The combination of boxes O, having adjustable bottoms and yielding rear sides, with the pads 9, to operate substantially as and for the purpose herein shown and described.

7. The combination of the bottom of the box O with the roller 14, and the fingers 29 and 30 and the feed-lever 8, substantially as and for the purpose herein mentioned.

8. The combination of the boxes O, the slide W, the levers 8, with the pads 9, the levers 11 and 21, the studs 38, and rollers 14, and fingers 29 and 30, substantially as and for the purpose herein set forth.

9. The combination of the cranks P, the levers 41, and levers 39, the links 42 and 43, and rods 38, the levers 21, links 34, levers 11, and feed-levers 8, and slides W, substantially as and for the purpose herein stated.

10. The combination of the head G with the boxes O, the feed-levers 8, and transferrers 21, substantially as herein set forth.

11. The combination of the boxes O, the feed-levers 8, and carriers J, substantially as herein stated, and for the purpose set forth.

12. The combination of the pad 9, feed-lever 8, and box J, substantially as herein set forth.

13. The combination of the feed-levers 8 and friction-pads 9 with the slides W and the roller 14, to operate upon the signatures, substantially as and for the purpose herein described.

180,103.

180,104. CAPS OR COVERS FOR CLOSING GAS-BURNERS. John Balmers, New York, N. Y. [Filed Jan. 12, 1876.]

Brief.—The frame which carries the retort-cover is provided with embracing-lugs, to enable the operator to readily slide it onto the mouth-piece of the retort and secure it by set-screws. The projecting lip, upon which the shearing right-angled rim of the cover rests, is beveled upon the outside, to prevent its being smeared with tar, and to prevent its being battered by tools used in charging and drawing the retort.



A frame to receive and support a retort cap or cover, provided with angular legs, formed to embrace the flanges on the mouth-piece, whereby it may be attached thereto, as shown and described.

3. A frame for supporting the retort cap or cover, having a lip with its outer surface bevel-ed, in combination with the cover having a right right-angled shearing rim, so that when

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the cover is closed the angle of the rim shall first its bearing on the sloping side of the lip, as described.

3. A frame for supporting a retort cap or cover, provided with embracing-legs to secure it to the mouth-piece, and with a lip having its outer surface beveled, in combination with a cap or cover, provided with a rim having its lower edge at a right angle, so that when the cover is closed the angle of the rim shall find its bearing on the sloping side of the lip, as described.

180,105. YARN-SPOOLING MACHINERY. J. B. Bancroft, Hopedale, Mass. [Filed Feb. 21, 1876.]

Brief.—The bobbin-rest is made separate from the whirl, and is provided with a sleeve to encompass the spindle, and extend down from the said rest to the bolster, whereby the hitherto-exposed portion of the spindle above the bolster is protected from the accumulation of waste. The lower portion of the bolster is provided with a cylindrical groove, into which the oil-cup extends.



1. The bobbin-supporter C separate from the whirl E, and arranged with it on the live-spindle A, and provided with the sleeve D, all as set forth, in combination with the bolster B, arranged between the said whirl and bobbin-supporter, and furnished with the oil-trough *b*, and with the neck *a* extended above the said oil-trough *b*, and within the sleeve D, all being substantially as shown and described.

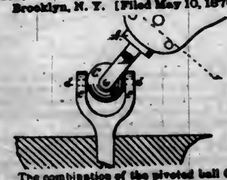
2. The spooling-machine, live-spindle A, the oil-cup F, and the whirl E and separate bobbin-supporter C, arranged with and fixed to the said spindle, as represented, in combination with the bolster B, having the oil-trough *b*, and arranged between the said whirl and bobbin-supporter, and extended up within the latter, and provided with an annular chamber, C, to receive the cup F, all being essentially as shown and described.

180,106. COPY-HOLDERS. C. R. Brainard, Boston, Mass. [Filed Dec. 30, 1875.]



As a new article of manufacture a copy-holder, consisting of the standard B, provided with a sliding block, C, having the spur D, as set forth.

180,107. DOOR-BLOCKS. Frederick S. Burr, Brooklyn, N. Y. [Filed May 10, 1876.]



The combination of the pivoted ball C with four studs *d*, working in lower and upper jaws *a* B, each furnished with holes for the said studs to work in, and the upper jaw provided with a swivel set in the strap A, substantially as described, and for the purpose specified.

180,108. DEVICES FOR SUSPENDING CURTAINS. D. Calhoun, Chicago, Ill. [Filed May 20, 1876.]

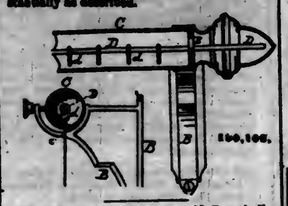
Brief.—A tube slotted at the bottom, and containing a rod, on which the hooks supporting the curtain slide. Disks are arranged in the ends of the tubes to keep the rod in the center. The tube, having end caps, is held in supporting-brackets by means of set-screws.

1. The device for hanging drapery consisting of a tube, slotted at the bottom, and the rod and hooks from which the drapery is suspended, said hooks being supported by and sliding upon said rod, and both rod and hooks being inclosed within such tube, substantially as specified.

2. The combination of the slotted tube C with the rod D and the disks B, the latter placed within the tube and supporting the rod, substantially as set forth.

3. The combination of the rod D with the tube and its cross F, said rod being of such length that it will be prevented by said cross from sliding, substantially as set forth.

4. The combination of the tube C and cap F with the set-screw *e* and the bracket B, substantially as described.



180,108.

180,109. CURTAIN-FIXTURES. N. Campbell, Rochester, N. Y. [Filed Dec. 22, 1875.]



1. The ratchet C, constructed with four plain sides, *a a a a*, and hooked teeth *b b b b*, in combination with the lever B, operating in the manner and for the purpose specified.

2. The elongated lever B, constructed with flat pawl *f* and stop *n*, either with or without the shield A, and extending outside of and around the ratchet C, in combination with a bracket having bearing *d*, in the manner and for the purpose specified.

180,110. BASE-BALLS. William B. Carr, Brooklyn, N. Y. [Filed June 17, 1876.]



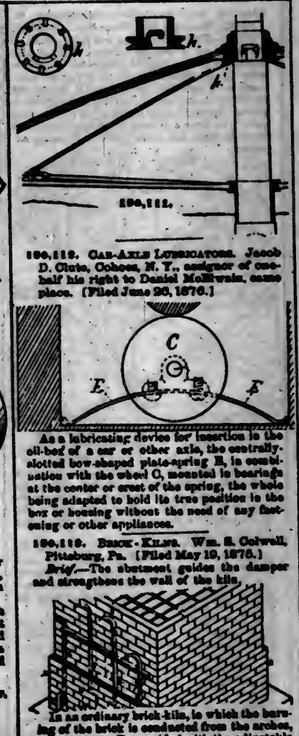
1. The ball filling composed of alternate layers or thicknesses of hard and of soft wool, the layers of soft wool being rendered elastic by an admixture of hair, substantially as specified.

2. The base-ball covering B, made with lapels *g g*, that are of equal width throughout, substantially as herein shown and described.

180,111. CANE-UMBRELLAS. C. W. Carson, Brooklyn, N. Y. [Filed Nov. 22, 1875.]

1. The hollow tapering umbrella-cane, made in the form of a cane or stick, and with the parallel portion *a* adapted to receive the runner *m*, and to form a narrow shoulder at *i*, for such runner when the umbrella is opened, and with the ferrule at the end of such stick, adapted to pass through and be secured to the crown *b* of the umbrella, as set forth.

2. The crown *b*, notched on the edge and toward one side, and plain at the side that comes next to the cover, in combination with the wire passing through the holes at the ends of the ribs, and around the crown, for the purposes set forth.



180,112.

180,112. CAR-AXLE LUBRICATORS. Jacob D. Clute, Cohoes, N. Y., assignor of one-half his right to Daniel McElwain, same place. [Filed June 26, 1876.]

As a lubricating device for insertion in the oil-box of a car or other axle, the centrally-slotted bow-shaped plate-spring B, in combination with the wheel C, mounted in bearings at the center or crest of the spring, the whole being adapted to hold its true position in the box or housing without the need of any fastening or other appliances.

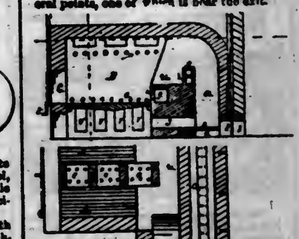
180,113. BRICK-KILNS. Wm. S. Colwell, Pittsburg, Pa. [Filed May 19, 1875.]

Brief.—The abutment guides the damper and strengthens the wall of the kiln.

In an ordinary brick-kiln, in which the bearing of the brick is conducted from the arches, the abutment D, provided with the adjustable damper C, in combination with the walls and fire-arches of the kiln, substantially as and for the purpose hereinbefore described and set forth.

180,114. FURNACES FOR BRICK-KILNS. W. S. Colwell, Pittsburg, Pa. [Filed Sept. 20, 1875.]

Brief.—Air is supplied to the flame at several points, one of which is near the exit.



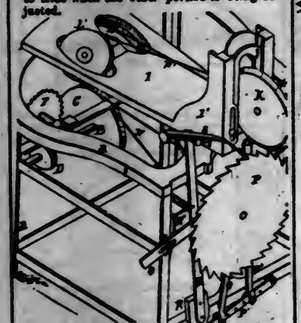
1. The furnace A, divided by a hollow partition-wall, B, furnished with apertures D *e*, in combination with the chambers *a a*, the latter having a perforated bottom, *c*, through which jets of air are supplied to the chamber *a* from the air-chamber *i*, substantially as and for the purpose herein before described and set forth.

2. The combination and arrangement of the double furnace A, spreading-chambers *a*, the combustion-chamber *a*, having perforated bottom *c*, and air-flues *f h*, the perforated bridge-wall *f*, having double air-flues, and the perforated bridge-wall *g*, provided with an air-flue, and the fire-arches *i*, provided with the dampers *k*, all combined, arranged, and operating substantially as herein before described and set forth.

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180,115. SAW-SHARPENING MACHINE. M. Corvi, Chicago, Ill. [Filed Apr. 20, 1876.]

Brief.—The emery-wheel has a revolving, a vertical, and a lateral motion during the sharpening of each tooth. Saw fed automatically by an adjustable pawl acting on saw-teeth as a rachet. Emery-wheel frame set at different angles by moving laterally on a pivot. Special bed-bar for straight saws. Gage-pin is to have a lateral rocking motion, and to slide when the other portion is being adjusted.



1. The arm or lever B, provided on its upper end with a push-pawl or feeder, and on its lower end with a guide or former, in combination with a vibrating lever connected to the sliding emery-wheel gate, substantially as and for the purposes specified.

2. The combination of the crank-shaft E, pitman Q, lever P', swivel-jointed connecting-arm P'', the vertically-sliding gate, carrying the emery-wheel or sharpener, and the laterally-swinging gate-carrier, substantially as and for the purposes specified.

3. The angular slot *b'* in the gate-frame, in combination with the pin *b* on the vertically-sliding gate, substantially as and for the purposes specified.

4. The combination of the laterally-swinging gate-carrier or top piece, saddle L, brace M, pins *c c*, pulleys U' U, the sharpening-wheel, and the driving-belts, all adapted for operation together, for the purposes set forth.

5. The guide or former *k'*, pivoted to the feed-lever B, and having therein the slot *f*, in combination with the fastening-pin *f'*, and the sharpener actuating lever P'', substantially as and for the purposes specified.

6. In combination, the beveled arm O, beveled, removable, and shouldered jacket T, removable head pieces U U, link- or clasps V' V', and tightening-screws V'' V'', substantially as and for the purposes specified.

180,116. HOT-BLAST OVENS. Wm. Crossley, Greenacre House, Dalton in Furness, England. [Filed Feb 28, 1876.]



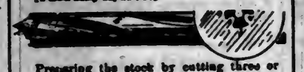
The described combination with the chamber A, provided with perforations or passages in its crown or dome, and inclosing the vertically-arranged zig-zag pipes *a*, inclined toward each at their top, of the chamber B, directly surrounding the chamber A and inclosing the series of pipes *d*, inclined toward each other at their top, the heat from A passing up between the rows of pipes in B, the whole operating as and for the purposes set forth.

180,117. DRILL-CHUCKS. G. B. Cubberly, Milwaukee, Wis., assignor to J. P. Thompson, same place. [Filed Apr. 20, 1876.]



The spindle A, having the centering recess or hole K, in combination with the spring-jaws B B, having threaded cheek-heads C C, and with the bar D, substantially as and for the purpose specified.

180,118. MANUFACTURE OF TWIST-DRILLS. Jas. G. B. Cubberly, Milwaukee, Wis., assignor to J. P. Thompson, same place. [Filed May 11, 1876.]



Preparing the stock by cutting three or more longitudinal grooves in it of the form and of a depth relative to the diameter of the stock, substantially as described, and then forcing the same into or through a die-block whose orifice is in shape the counterpart in cross-section of that of the grooved stock, but of which the flanges and grooves are spirally directed, as set forth.

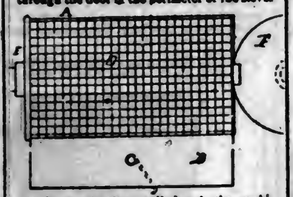
180,119. GAS-BRACE HOLDERS. Wilson P. Dodson and Wm. S. Macqueen, Philadelphia, Pa. [Filed Dec. 8, 1875.]



The combination of the socket D, provided with arms B, B', B'', and B''', said arms being provided with hooks or notches C, C', C'', and C''' at their outer ends, substantially in the manner and for the purpose herein shown and described.

180,120. ASH-SIFTERS. Jas. R. Hatfield, Philadelphia, Pa. [Filed May 9, 1876.]

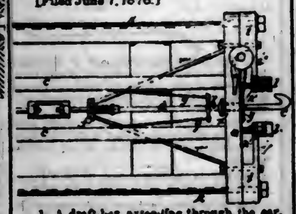
Brief.—The screened coal may be withdrawn through the end door, or be dumped through the door in the perimeter of the sieve.



1. In an ash-sifting cylinder, A, the combination of the sleeve C, filling-door D, and hinged head F, as shown and described.

2. The ash sifting cylinder A, composed of the sieve C, filling-door D, and the fast and hinged heads E F, in combination with an ash box or bobber, b, substantially as and for the purpose shown and described.

180,121. RAILWAY DRAW-BARS AND BUFFERS. Noyes B. Eccleston, Oxford, N. Y. [Filed June 7, 1876.]



1. A draft-bar, extending through the car, with couplings on the outer ends, with the intermediate swivel-connection, and with the yoke connected to the car-frame, and springs held between the yoke and nuts on the bars, as and for the purposes set forth.

2. The draft-bar, extending through the car, with intermediate swivel-connection, made both to slide longitudinally, and to turn, and provided on the outer ends with hooks, as and for the purposes set forth.

3. The draft-bar made to slide and turn, in combination with the sleeve in the end sill, having rotary movement, and also lateral movement in the slot, as set forth.

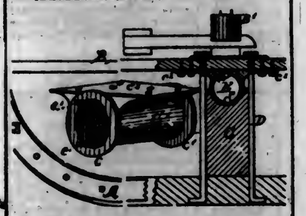
4. In combination with the draft-bar, made to slide or rotate, the yoke A and springs connected thereto, as and for the purpose set forth.

5. In combination with the yoke, which sustains, through the springs and draft-bar, the resistance of the car, the rods m attached to the end sills, as and for the purpose set forth.

6. The spring-buffers, composed of the blocks i i, recessed on one end, and fixed to the end sill at the other, as set forth.

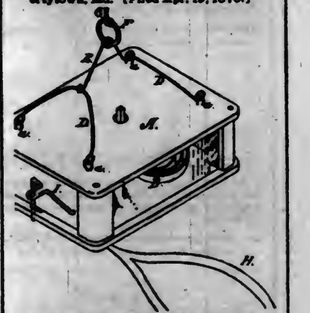
7. The spring-buffers, composed of the blocks i i, metal bands recessed to receive the springs, and the bolts extending back to the face-plates, as set forth.

180,122. SLIDERS. Charles A. Brisbane and Andrew Newstrom, Red Wing, Minn. [Filed Dec. 13, 1875.]



The tubular stein or box C, provided with the flanges *c' c'* and ears *c'' c''*, in combination with the knee-post C, having a circular seat, and fitting between the flanges *c c'*, the axle B, plate F, bolts *c c'*, the runner A, rave B, and bolts D D, all constructed and combined substantially as set forth.

180,123. AUTOMATIC FANS. Benjamin G. Pittsburgh and Francis C. Renner, Frederick County, assignors to Francis C. Renner, New Medway, and W. J. Hines, Libertytown, Md. [Filed Apr. 19, 1876.]



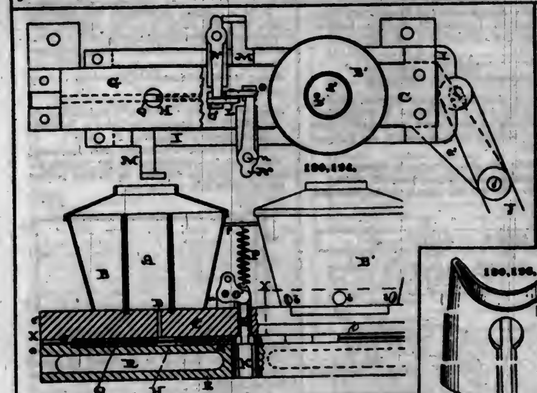
1. In an automatic fan, the hooks *a*, bails D D E, cord G, and loop F, all constructed and arranged to suspend the fan and its clock-work from above, substantially as and for the purposes set forth and shown.

2. The step, consisting of bent wire I, pivoted to one end of the case A, made to project directly downward through a slot in the edge of the case, and of such length as to project across the path of the fan-arms and prevent their revolution, as described and shown.

3. The automatic fly-fan herein described, consisting of case and clock-work A B, fans H h, adapted to be turned in their sockets, suspension devices a D D E F G, and stop I, the whole constructed and arranged to operate in the manner and for the purposes set forth and shown.

180,124. MACHINERY FOR MAKING CAR-SEALS. Herman Goehl, St. Louis, Mo. [Filed May 6, 1876.]

Brief.—A passage from the furnace leads the molten metal to a mold in a reciprocating slide, each slide working in a slot in the base, and serving as a cut-off to the passage, and by its movement withdrawing the cars from the seal, and carrying the latter over an opening in the base, through which it is automatically ejected.



1. The combination of the furnace A, part C, having the passage D, base E, and slide G, having the opening or mold H, substantially as described.

2. The combination of the part C, base E, slide G, yoke I, and lever J, substantially as described.

3. The combination of the lever K, lever O, part C, and plunger L, substantially as described.

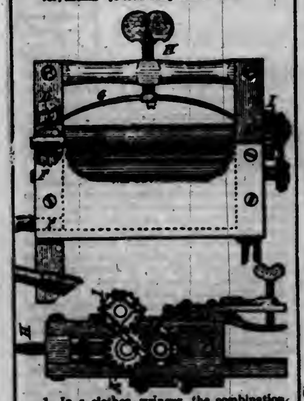
4. The combination of the yoke I, stop M, levers K and O, part C, and plunger L, substantially as described.

5. The combination of the slide G and core Q, having the forks *g'' g''* operating substantially as described.

6. The combination of the core Q, having the flanges *g* and *g'*, projection *e*, and slide G, substantially as described.

7. The combination of the core Q, having the flanges *g* and *g'*, forks *g'' g''*, projection *e*, and slide G, having the mold H, substantially as described.

180,125. WRENCHES. J. W. Hall, Worcester, Mass. [Filed May 24, 1876.]



1. In a clothes-wringer, the combination, with the screw H, spring G, and the journal-boxes of the upper roll, of the retainers D, fitting over the ends of the said spring, as and for the purpose set forth.

2. In combination with the gear K, attached to the upper roll, the pinion I, placed on a level with or a little above the axis of said roll, and having cogs to catch with the gear K, and chain-gearing to receive the motion of the lower roll, as and for the purpose set forth.

3. The jaw B, in combination with the screw T, and the loosely-pivoted curved pad E, as and for the purpose set forth.

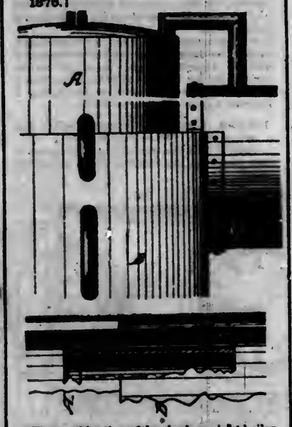
4. In combination with the journal-boxes of the upper roll to a wringing-machine, the retainers D and the pins F, all as and for the purpose described.

180,126. SOCKETS FOR TOOL-HANDLES. C. A. Hardy, Philadelphia, Pa. [Filed June 9, 1876.]

Brief.—An expansive and adjustable metallic socket for attaching eyed tools to their handles.

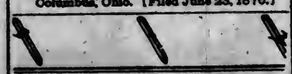
The expansive and adjustable metallic socket, substantially as and for the purpose described.

180,127. STEAM-GENERATORS. William B. Haxtun, Kewanee, Ill. [Filed Feb. 21, 1876.]



The combination of the single upright boiler A, water-jacket or boiler B, and horizontal boiler E, connected directly with the boiler B, so as to provide a free water-communication between them, all constructed and operating substantially as and for the purposes set forth.

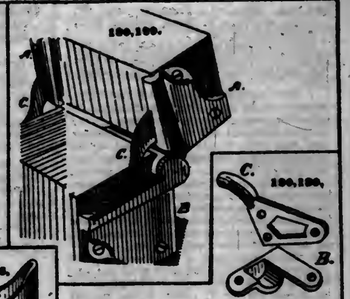
180,128. BALE-HOOP IRON. W. B. Hayden, Columbus, Ohio. [Filed June 23, 1876.]



The within-described bale-hoop iron, formed with transverse ribs by swaging the metal of the hoop-iron as one of its faces, the said hoop-iron having a continuous untendented surface on its outer face, substantially as described.

180,129. TRUNK-HINGES. John Heiser, Milwaukee, Wis. [Filed Apr. 1, 1876.]

The trunk-hinge consisting of the leaves A and B, the leaf A provided with a brace, C, forming an integral part thereof, adapted to enter a slot in the leaf B, all substantially as and for the purpose shown and described.



180,130. CORNER-HINGES FOR TRUNK-TRAYS. John Heiser, Milwaukee, Wis. [Filed Apr. 1, 1876.]

The angle-iron B, adapted to strengthen the corners of a trunk, and provided with an indentation to receive the journal C, which forms hinges for the tray, substantially as described.

180,131. LAWN-RAKES. Christn. Hartwig, Cleveland, Ohio. [Filed June 22, 1876.]

Brief.—The teeth are curved so that their points will be elevated above the ground when in operation.



1. In a rake, the combination of the handle and curved teeth B, the points of the latter constructed to be elevated above the surface of the ground when the rake is in operation, substantially as and for the purpose described.

2. The combination of the curved teeth, curved prong, and handle, the points of the teeth being elevated above the surface of the ground when the rake is in operation, substantially as and for the purpose specified.

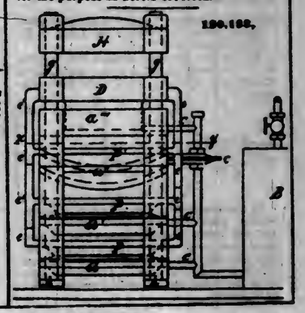
180,132. BOTTLE ATTACHMENTS. Benj. F. Hoard and Andrew J. Bastine, New York, N. Y. [Filed Jan. 12, 1876.]

Brief.—A box attachment to a bottle, formed by having, when the bottle is cast or molded, a flange, groove, or way cast at each edge or side of a concave indenture or panel of the bottle, running parallel, each flange, groove, or way to incline in opposite directions. A slide or lop matches with the grooves, thus forming a receptacle for solids independent of the fluids.



The construction of an attachment or box in combination with a bottle, jug, or jar, made of glass or other material, in the manner and for the purpose as herein set forth.

180,133.



180,125. HYDRAULIC PRESSES. John W. Hyatt and Thos. S. Crane, Newark, N. J. [Filed July 22, 1876.]

Brief.—Pressure is exerted upon all the diaphragms simultaneously. The plates receive the pressure from all the diaphragms combined.

1. The intermediate chamber or tank B, located between the boiler B' and compound hydraulic press, and connected to both, for the purpose described, and operating in combination with both, to prevent the heat of the steam from communicating to the press, substantially in the manner shown and described.

2. In a compound hydraulic press, the pressure-plates P, with projections *o* and *o'*, constructed and operating in combination with pressure-chambers contained in diaphragms *n* or bags G upon the plates D, substantially in the manner shown and described.

3. The arrangement of diaphragms *n*, two or more operating on the same axial line, operating in combination with diaphragm-plates A, pressure-plates F, plates D, cap H, and connections *f g*, from plate A to cap H.

4. The hydraulic press consisting of a bag, G, operating in combination with the plate A, pressure-plate F or plates D, cap H, and connections *f g*, from plate A to cap H.

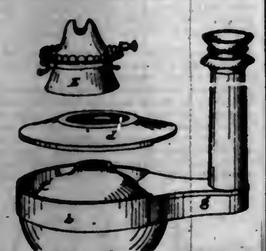
5. The pipe-connection to bag G, formed by compressing the sides of the bag, or a convenient thereto, against a perforated washer, *k*, substantially in the manner described, to be used to a hydraulic press, as claimed.

6. In combination with bag G, the curved supporting-plate D and pressure-plate F, for supporting and transmitting the pressure in the bag with the least expenditure of metal.

7. The studs *i i*, connecting the pressure-plates F and F', for transmitting and adding the pressure of one to the other, through or past the intervening supporting-plate, substantially as described.

8. The pressure-plate F', furnished with studs *i i i i*, operating in combination with pressure-plate F, bag G, and bag-supporting plate A'', for transmitting the pressure of the bag G from one plate to the other through the plates A'', substantially in the manner shown and described.

180,126. LAMPS. John H. Irwin, Philadelphia, Pa. [Filed Apr. 10, 1876.]

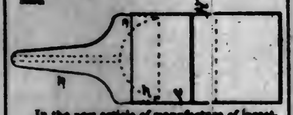


1. A tubular lamp, substantially as described, provided with a removable plate, *d*, for covering the entire air-chamber, so that access may be had to the interior of said chamber, for the purpose set forth.

2. The removable cover *d* for the air-chamber C, combined with burner provided with a gasket, E, whereby said cover *d* may be kept in place, as set forth.

180,127. INSECT-POWDER GUNS OR INJECTORS. Chas. T. Jewett, New York, N. Y. [Filed June 13, 1876.]

Brief.—The powder-magazine has a valve in its bottom, the powder being ejected by a sliding tube, which fits closely over the magazine.



In the new article of manufacture of insect-powder guns, the adjustable stopper, constructed with a centrally-shaped base, D, nozzle E, and concave lower side F, in combination with the magazine A, having a solid bottom with a valve, C, therein, and sliding tube H, all arranged and operating substantially as described.

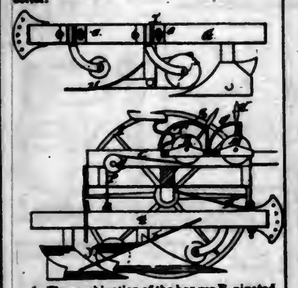
180,128. APPARATUS FOR VIGNETTING PHOTOGRAPHS. Lorenzo D. Judkins, Indianapolis, Ind. [Filed Mar. 24, 1876.]



In an apparatus for vignetting photographs, the combination of the frame A, transparent or semi-transparent plates *b* and *d*, and opaque screen *c*, substantially as and for the purpose set forth.

180,129. GANG-PLOWS. S. Kirkpatrick, Watertown, Ill. [Filed May 20, 1875.]

Brief.—Devices for adjusting the plow and colter.



1. The combination of the hanger F, pivoted to the tongue-frame, and provided with an adjusting-slot, tightening-bolt for fastening the hanger, and plow-beam G, supported in the hanger, all constructed and operating as described, for the purpose of adjusting the rear end of the plow-beam laterally, substantially as set forth.

2. The combination of the plow-beam G, pivoted colter-plate E, and curved colter-standard, all constructed and operating as described, for the purpose of holding the colter-standard to the plow-beam, and adjusting it thereto, substantially as set forth.

180,130. CLOCKS. Florence Kroeber, Hoboken, N. J. [Filed July 3, 1876.]

Brief.—A device permitting easy access to the pendulum, for starting or arresting the same.



The transparent drop-gate C, constructed of the glass plate *b* and of the border *d*, which forms the shoulders *s s*, substantially as specified.

180,131. OIL-HEART STEAMERS. Louisa C. Light, Lebanon, Pa., assignor to Louis S. Light, same place. [Filed June 9, 1876.]

Brief.—The perforated net-work constitutes a holder of food for steaming, or, if inverted, a cover for the vessel.

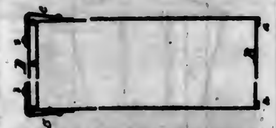


1. The combined culinary implement herein described, consisting of a perforated receptacle secured to the lower edge of the body-plate A, in combination with the outer tinned flange C and horizontal handles D, extending well out on either side of same, substantially as and for the purpose described.

2. In a culinary implement, the combination, with the concave-convex metallic net-work and supporting-plate extended out from same, of the vertical flange, forming with said plate a free fall chamber provided with a close fitting cover, substantially as and for the purpose described.

180,132. MEAT-CANS. J. Lundgren, New York, N. Y., assignor to Rohe & Brother, same place. [Filed May 27, 1876.]

Brief.—Bottom set loosely into the body, which has no projections on its interior periphery. Can be emptied by forcing bottom out of the mouth of the can.

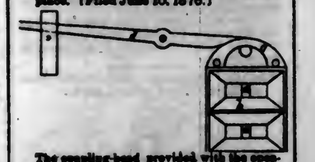


1. A can for packing meats provided with flanges *a a* at its lower edges, and with a movable or loose bottom, B, arranged as herein shown and described, to operate in the manner set forth.

2. The flange or projection *c*, on the under side of the lid, in combination with the catch, consisting of the wire loop C and the leg *b*, the said loop being hinged to the body of the can, and the said leg being formed upon or secured to the upper surface of the lid D, as herein shown and described.

3. The combination and arrangement, herein shown and described, of the can A, movable bottom B, bent wire loop C, leg *b*, and lid D, provided with the flange or projection *c*, as and for the purposes herein set forth.

180,133. CAR-COUPLINGS. Joseph Maloy, Pontiac, Mich., assignor of one-half his right to Junius Ten Eyck, same place, and said Maloy and Ten Eyck assignors of one-sixth of their right to H. W. Lord, same place. [Filed June 10, 1876.]



The coupling-head provided with the openings *b*, in combination with the frame *c*, sliding therein and having the pivoted tongues *a*, all substantially as described.

180,134. PROCESSES OF TREATING ORES AND ALLOYS OF NICKEL. Josiah Mason, Erdington, near Birmingham, and Alex. Parkes, Granville Hill, near Birmingham, England. [Filed June 6, 1876.]

1. The process of obtaining alloys of nickel and copper from oxidized ores of nickel by heating said ores with oxide of copper, carbon, and fluxes, and purifying, when necessary, said alloys by a second fusion with oxide of copper, carbon, and fluxes, and also further treating the nickeliferous alloy, when necessary, with chlorine, or substances yielding chlorine, to separate the last portions of iron, substantially as set forth.

2. The process of treating oxidized ores of nickel, by first heating them with chloride of sodium or chloride of calcium, for the purpose of separating the iron contained in the ores, and then obtaining metallic nickel, or alloy of nickel, from the purified ores, substantially as described.

3. The process of treating oxidized ores of nickel by heating them with sulphur, or with sulphate of lime, or other sulphates, and carbon, or with sulphuret of nickel, of copper, or of lead, or with arsenical pyrites or other arsenical compounds.

4. The process of obtaining soluble chlorides of nickel by calcining sulphurets or arsenurets of nickel, and roasting them with chlorides of sodium, or other substances which will convert the nickel into a soluble chloride, which is recovered by treatment with water.

5. The process of converting the nickel contained in sulphur compounds of nickel into a soluble sulphate by calcining said compounds with bisulphate of potash, or other substance capable of yielding sulphuric acid, substantially as set forth.

180,135. RING SPINNING MACHINERY. Thos. Mayor, Providence, R. I. [Filed Sept. 4, 1874.]



1. The combination, in a ring spinning-frame, provided with a stationary ring-rail, of the non-reciprocating live spindle with a reciprocating live-spindle tube, arranged to support the cop or bobbin, substantially as and for the purpose described.

2. The combination, in a ring spinning-frame, of a fixed and stationary ring-rail with a reciprocating bolster-rail, a non-reciprocating live spindle, and one reciprocating live-spindle tube, arranged to impart reciprocating motion to the cop or bobbin without changing the position of the whirl, by which they are rotated, substantially as and for the purpose set forth.

3. The combination of the reciprocating bolster-tube *b* and whirl-tube C with the reciprocating live-spindle tube E and non-reciprocating live spindle *a*, substantially as described.

4. In a ring spinning-frame, the combination of a stationary ring and ring-rail, a stationary step and step-rail, a reciprocating bolster-rail, a non-reciprocating live spindle, and a reciprocating live-spindle tube, the whole operating together, substantially as and for the purpose set forth.

180,136. RING SPINNING-FRAMES AND TWISTERS. Thomas Mayor, Providence, R. I. [Filed Sept. 20, 1874.]

Brief.—The reciprocating spindle is provided with two exterior longitudinal grooves, and passes through a non-reciprocating whirl with a sleeve attached, the latter having notches, which enter the aforesaid grooves in the spindle, so that on motion being applied to the whirl the spindle is revolved.

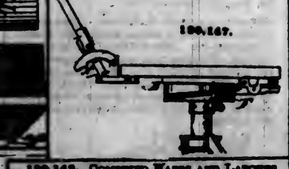


1. The combination of the stationary adjustable and hinged ring-guard C, supporting the spinning-ring, with the reciprocating live spindle *a*, arranged to support the cop or bobbin and the non-reciprocating whirl, substantially as and for the purpose set forth.

2. The combination, with the reciprocating live spindle *a*, of the non-reciprocating whirl E, provided with the sleeve I and the bolster F, arranged to support the whirl, substantially as and for the purpose described.

180,137. ADJUSTABLE STOOLS. T. Miller, Boston, Mass. [Filed Aug. 8, 1876.]

The bed-piece E, having the inclined plane or bearing-surface on its under side, in combination with the seat-supporter F, formed with its inclined plane or bearing-surfaces on its upper side, substantially as and for the purpose set forth.

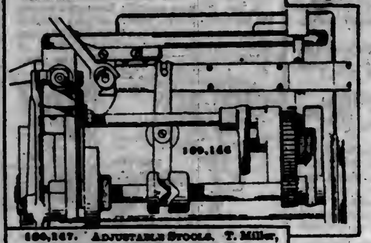


180,138. RIVET SPRINGS. Thomas Mayor, Providence, R. I. [Filed Sept. 20, 1874.]

1. The stationary cutter and yielding self-support and punch, in combination with a movable strip-bar, whereby the strip is held while the strip-bar is moved back far enough to measure off a new nail, and with mechanism to move the strip-bar forward to push the severed nail into a carrier, substantially as described.

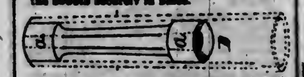
2. A vibrating strip-bar, adapted to carry two or more strips of different widths, in combination with mechanism to raise or lower the forward end of the strip-bar, to permit the use of nails of different lengths, substantially as described.

3. The carrier provided with projections *c*, in combination with a stop, and with a friction-pinion, and an arm for moving the pinion, and adapted to operate substantially as described.



180,139. BOBBINS. Thomas Mayor, Providence, R. I. [Filed July 13, 1876.]

Brief.—The bobbin is provided with a spindle-bushing, which is slitted longitudinally between its upper and lower ends, whereby the sleeve thus formed acts as springs, yielding to the spindle on its entrance, and afterward pressing firmly against it, thus keeping the bobbin accurately in place.



The combination, with the cylindrical shell B, of the bushing *a*, provided with the spindle-hole of the form described, and divided by slits into separate staves or springs, whereby the bushing may yield to the spindle on its entrance, and press against the same, as and for the purpose described.

180,140. MACHINES FOR UNITING THE UPPERS AND SOLES OF BOOTS AND SHOES. Gordon McKay, Cambridge, Mass. [Filed May 15, 1876.]

1. In a nailing-machine, the combination, with a punch and cutter, substantially as described, of a vibrating strip-box and a carrier to form tapering nails from a strip, and place them into position, with heads or largest ends uppermost, to be driven by the driver, substantially as described.

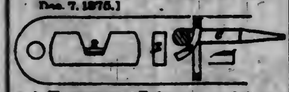
2. The stationary cutter and yielding self-support and punch, in combination with a movable strip-box, whereby the strip is held while the strip-box is moved back far enough to measure off a new nail, and with mechanism to move the strip-box forward to push the severed nail into a carrier, substantially as described.

3. A vibrating strip-box, adapted to carry two or more strips of different widths, in combination with mechanism to raise or lower the forward end of the strip-box, to permit the use of nails of different lengths, substantially as described.

4. The carrier provided with projections *c*, in combination with a stop, and with a friction-pinion, and an arm for moving the pinion, and adapted to operate substantially as described.

180,141. CAR-COUPLINGS. Joseph Maloy, Pontiac, Mich., assignor of one-half his right to Junius Ten Eyck, same place, and said Maloy and Ten Eyck assignors of one-sixth of their right to H. W. Lord, same place. [Filed June 10, 1876.]

180,142. CORRUGATED MAPS AND LATCHES. Nathan S. Mission, Meadville, Pa. [Filed Dec. 7, 1875.]



1. The curved rest R, for screw or bolt, as a substitute for a staple, to uphold the hasp horizontally.

2. The tongue B, bent outwardly from the staple-mortise to a loop, by which it slides up over the staple C till it emerges in the staple, thus making a hasp and latch combined.

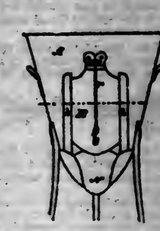
180,143. GRINDING-MILLS. John A. Moore, Providence, R. I. [Filed July 10, 1876.]



1. In a grinding-mill operating by percussion and centrifugal force, the horizontal case C, divided by the partitions E E into compartments, in combination with the shaft S and beaters *a a*, one set to each compartment, substantially as and for the purpose set forth.

2. In combination with the case C, divided into compartments by the rings or partitions F E, the corrugated hard-metal lining *d*, substantially as described.

180,144. MEASURING BAG-HOLDERS. Jehiel Holden, Chicago, Ill. [Filed Mar. 30, 1876.]



A measuring bag-holder composed of the hopper A, provided with an exterior vertical slide, B, to close the outlet, and a suspending-rod, *r*, to support the bag, combined with a bottom chute, H, and supporting-legs, substantially as set forth.

180,145. WASHING-MACHINES. Bennett J. Murray, Honey Creek, Ill. [Filed Mar. 20, 1876.]



1. The [illegible], provided with the journal-rod, bearing-arms, and triangular contact, as described.

2. The combination of the casing having the socket *c'*, with the legs, as described.

3. In combination with the casing C, having the dependent leg *c'*, the tub A, with corresponding recess, as described.

180,146. CLOTHES-PINS. C. W. Newhagen, Bridgeton, Me. [Filed Apr. 22, 1876.]



As a new article of manufacture, a clothes-pin made of twisted wires, looped at A A', so as to form a spring at B, and having clasping fingers made of the naked strands D C, substantially as set forth.

180,164. CLEANER. George W. Patterson and Martin L. Williams, Rockford, Ill. (Filed May 4, 1876.)

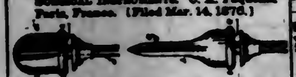
Brief.—Lazy-tongs are connected to the dasher, and operated by a system of gears.



1. The combination and arrangement of the lazy-tongs, gear-wheels A A' A², for propelling the churn-dasher, substantially as described.

2. The combination of clamp or coupling c, lazy-tongs B, gear-wheels A A' A², dog or lever b, and upright O', all arranged and operating as described.

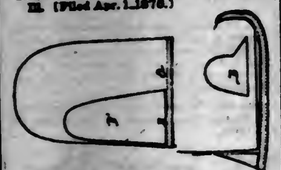
180,165. CONDENSED VAPOR-BURNERS AND SURGICAL INSTRUMENTS. C. A. Perrin, Paris, France. (Filed Mar. 14, 1876.)



1. The burner composed of the chamber c, perforated bottom a tube e, and filling b, to operate substantially as herein shown and described.

2. The combination of the burner a with the knife, lancet, or device f, to constitute a surgical instrument, substantially as specified.

180,166. GLOVER. James Peters, Chicago, Ill. (Filed Apr. 1, 1876.)



In a glove or mitten, the aperture B, cut straight upon the top to receive the thumb, substantially as and for the purpose specified and described.

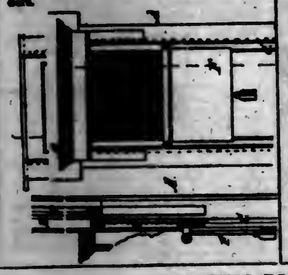
180,167. HAND CORN-HUSKER. James Peters, Chicago, Ill. (Filed Apr. 1, 1876.)



In a corn-husker, the plate B, having the notched or forked end a, and the spring B', having projection on its outer end, substantially as and for the purpose specified and described.

180,168. GAS-WINDOW. A. R. Pullman, Chicago, Ill. (Filed Sept. 20, 1875.)

Brief.—Admits air, but protects from storm.



1. The combination, substantially as specified, of the window-casement A, recess B, recess B, and curtain F, attached to the lower end of the screen.

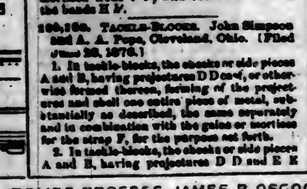
2. The combination, substantially as described, of the window-casement A, recess B, upper sash D, and curtain F, having the curtain F attached to its lower end.

3. The combination, substantially as described, of the window-casement A, the recess B, and the upper and lower sashes C D, so constructed and arranged that the upper sash can be raised into the recess, but the lower one cannot.

180,169. FENCE-POST. Hiram Reynolds, Des Moines, assignor of one-half his right to Wm. Remsby, Marshall County, Iowa. (Filed Jan. 6, 1876.)

1. As an improved article of manufacture, the W-form metallic fence-post provided with the tapering end n and the wire h, substantially as and for the purpose set forth.

2. The W-form metallic fence-post having the tapering end n, wire h, and the integral fence-wire catches 1 2 3, substantially as and for the purpose shown and described.



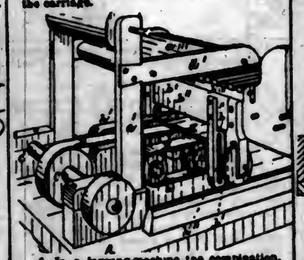
180,170. SASH-FASTENING. C. W. Reinden, Washington, D. C. (Filed May 2, 1876.)

Brief.—Limiting the play of the hook-shaped catch and its gravitating-handle constitutes the essential novelty.

In a sash-fastener, the fixed plate A, projecting stud C, hook and bearing-catch F, and handle E, united to the hub O', in combination with the projecting stud or stop B, and limiting the play thereof, the whole constructed and arranged to operate substantially as and for the purpose described.

180,171. LAPPING-MACHINE. Chas. Schofield and Robert Wilde, Manayunk, Philadelphia, Pa. (Filed Mar. 17, 1876.)

Brief.—Reciprocating motion is imparted to the carriage or truck of a lapping-machine by means of pins projecting from bands, driven by a system of drums or pulleys, which pins work in slots in downward-projecting arms on the carriage.



1. In a lapping-machine, the combination, substantially as described, of the pulleys C and E, their connecting-band D, the fast pulleys on the shafts G and G', and their two bands, H and H', provided with the respective projecting arms H² H², rigidly fixed thereon, with the platform A of the machine.

2. In a lapping-machine, the combination, substantially as described, of the reciprocating carriage B, having the downward-projecting slotted irons V V, with the arms I² I² of the bands H H'.

180,172. TACKLE-BLOCKS. John Simpson and A. A. Pope, Cleveland, Ohio. (Filed June 20, 1876.)

1. In tackle-blocks, the cheeks or side pieces A and B, having projectors D D and C, or other-wise formed thereon, forming of the projectors and shell one entire piece of metal, substantially as described, the same separately and in combination with the gains or mortises for the strap F, for the purpose set forth.

2. In tackle-blocks, the cheeks or side pieces A and B, having projectors D D and E E cast or otherwise formed thereon, making of the projectors and shell one entire piece of metal, and divider-plate I, substantially as and for the purpose specified.

3. The divider-plate I, having projectors I' on one or both sides thereof, made or cast of one piece, in combination with the sides A and B, to form division between the sheaves in tackle-block, substantially as herein described.



180,173.



180,174. FILLET-PLANER. Rodnal Gaston, Ridgewood, N. J. (Filed Mar. 10, 1876.)



A filly-plate, A, constructed with its central part thick, and with gradually-decreasing thickness toward each edge, combined with the filly B B, the ends whereof are fitted to the lower surface of said filly-plate, and secured thereto by dro-bolts C C, whereby the filly-joint is made stiff and rigid, and the filly-plate is prevented from moving laterally.

180,175. PAIL AND TUB BAND. George W. Stark, Athens, assignor to himself and D. G. Arnold, Wessen, Mich. (Filed Dec. 14, 1876.)

Brief.—The screw passing through threaded end of outer clamp, and through the sleeve for the bail, presses against an inclined in the opposite end of the other clamp, and presses the barbs into the wooden body of the pail.



The tub or pail ear, consisting of the pivoted sections A A, having hinge F and barbs D, one having a screw-threaded orifice near its upper end, and of the screw B and sleeve E, substantially as described.

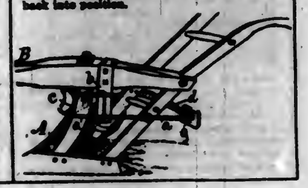
180,176. REGISTER. John A. Stenberg, Chicago, Ill. (Filed Nov. 29, 1875.)



The register, consisting of a train or series of inclined overlying toothed disks and pinions, the bearings or shafts of which consist of the elongated pinions projecting into a frame-plate, as described and shown.

180,177. ATTACHMENTS FOR CLEANING PLOWS. James H. Storm, Mechanicsville, Iowa. (Filed May 8, 1876.)

Brief.—The rod having cleaning device is provided with a treadle, which connects with a spring secured to the handle. By pressing the foot upon the treadle, the rod is thrown forward and clears the plow. When the pressure is removed, the spring will draw the rod back into position.



The reciprocating shaft a, doubled at its front end, to form a cross-cutting device, c, and carrying the treadle-block g at its rear end, in combination with the hanger h, carried by the plow-beam, and the spring d, carried by the plow-handle, substantially as and for the purposes shown and described.

180,197. GRINDING-MILL. F. Stahlecnig, Blumberth, Austria. (Filed May 8, 1876.)



1. The combination of the crushing-ring A, crushing-plate a, and slide-rest S, essentially as described, and for the purpose set forth.

2. In a grinding or crushing device, the segmental fixed crushing plate or block m, having its upper face-edge beveled, so as to form an enlargement or throat between said crushing-block and the revolving stone, for the purpose of feeding the material to be ground between the two, substantially as described.

3. The vertically-revolving grinding-wheel and the adjustable fixed segment or block, having its upper face-edge beveled, as described, in combination with a feed-hopper or other feeding device, substantially as described, for the purpose set forth.

180,198. BATTENED HOOPS. C. W. Bytam, Amherst, Mass. (Filed May 12, 1876.)



1. In combination with the boards D D, the bottom H, having their projecting lower sides provided with the inverted gutters h h, and their lower outside edges forming cavets, removed by an interval from the boards below, as shown and described.

2. The batten H, having its cavets formed to extend below the level of its seam, while yet removed from contact with the boards below, as shown and described.

180,199. EXPANDING MANDRELS. Stephen F. M. Tasker, Philadelphia, Pa. (Filed June 26, 1876.)



1. An expanding mandrel having tapered longitudinal sections, held together at their edges by means of male and female dovetails, or other equivalent device, to admit of the longitudinal movement of the sections for the expansion and contraction of the diameter of the mandrel, substantially as set forth.

2. The combination of the sections A and A', having screws or pins b b' in their ends, with the flanges B and B', having radial slots d d', substantially as and for the purpose set forth.

3. The combination of the rod C and tube or socket D with the flanges B and B' and sections A and A', the rod being operated by means of the nut f or other suitable device, substantially as set forth.

180,200. BOUQUET-HOLDER. George W. Tasker, Waterbury, Conn. (Filed June 19, 1876.)



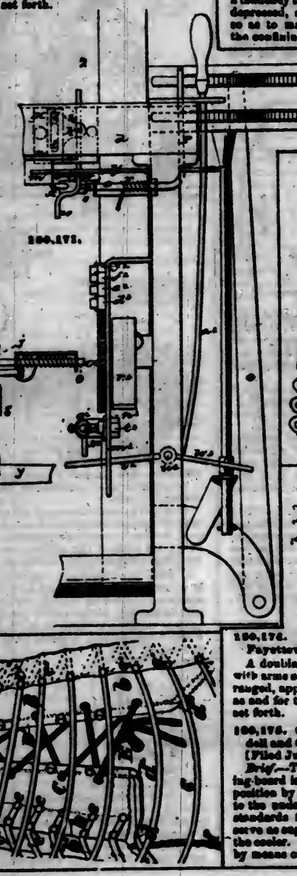
The bouquet-holder having a ring, b, supported by the weighted base a, and extended in the form of metallic spring-clips, for receiving and holding cards, substantially as set forth.

180,171. LOOMS. Samuel T. Thorpe, Boston, Mass. (Filed Mar. 11, 1876.)

Brief.—The invention relates to an improved stop-motion, and includes mechanism for varying the take-up when fine and coarse weft-threads are used. The stopping device consists of a vertical weft-feeler, pivoted to a slide that is attached to the front of the lay. The slide is actuated by a cam-piece affixed to the upper surface of a bar which is attached to the breast-beam. The cam throws the feeler up into the shuttle-race, and the loop of weft-thread swings the projecting end of the feeler down into the race, thereby carrying the lower end out of the way of the latch formed upon a bar that is pivoted to a lever connected with the shipping device. Should the weft-thread break, or the shuttle not leave its box, the feeler is not tilted, and its lower end accordingly catches in the latch, thereby stopping the loom as the lay beats back. The rod that lifts the shuttle-boxes is connected with a device which regulates the throw of the pawl in the take-up.

1. In combination with the shuttle-binder and weft-feeler g, pivoted upon the front of the lathe, the arm p and the fork r s, pivoted rod e, the hook e, provided with bent pin e, and the pivoted bar y, all constructed to operate as shown and described, whereby the loom is stopped in the backward movement of the lathe.

2. In combination with the lathe and the shuttle-box rod, the shaft s², provided with the arms s' s', rod s², collar f', arm s', and pawl-lever f, by which means the throw of the take-up pawls is limited, as and for the purposes set forth.



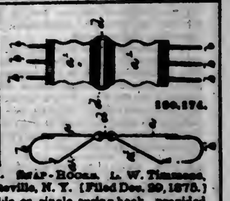
180,171.



180,173.



180,174.



180,175. BRAP-HOOKS. L. W. Timmons, Fayetteville, N. Y. (Filed Dec. 20, 1875.)

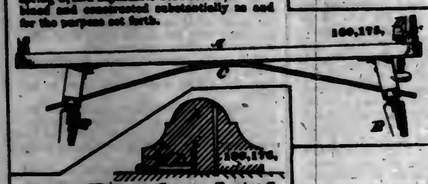
A double or single spring-hook, provided with arms a and a', link d, and hooks b b, rearranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

180,176. COOKING-COOLERS. Alonzo Truesdell and Geo. T. Townsend, Warren, Ohio. (Filed June 6, 1876.)

Brief.—The sake-bottom or perforated cooling-board is supported on folding legs, held in position by means of a notched spring secured to the under side of the cooling-board. The standards fitted into the end of the frame serves as supports for the covering placed over the cooler. The head-rest is raised or lowered by means of an adjusting-screw.

'A corpse-cooler consisting of the perforated cooling-board A, folding legs B, retaining spring C, and adjustable head-rest D, all combined and constructed substantially as and for the purpose set forth.

No. 180,176.



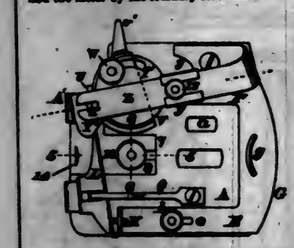
180,176. WEATHER-STRIPS. Reuben C. Underwood, Boston, Mass. [Filed Dec. 30, 1875.]

Brief.—The recess in the molding, beneath the bead-piece of rubber, allows it room to adjust itself in a manner favorable to durability.

The sheet-described weather-strip, consisting of a molding rabbeted as described, from the surface of which rabbet projects an elastic cushion destined to receive equal wear upon the entire exposed surface, and fastened into parallel longitudinal grooves cut into the surface of the rabbet, all arranged and constructed substantially as and for the purpose described.

180,177. SEWING-MACHINE RUFFLER. John Van Leuman, Covington, Ky. [Filed Nov. 6, 1876.]

Brief.—The edge-turners are held apart to suit different thicknesses of cloth, and the hook guide is adjustable toward or from them, for different widths of binding, the first being accomplished by a elevator upright cam, and the latter by the ordinary screw and slot.



1. In combination with the bed-plate A and its attached edge-turners A' and T, the shiftable frame E e E A F f f f I G, carrying the scroll L I O P and the regulating helical cam U v V v W X e, as and for the purpose specified.

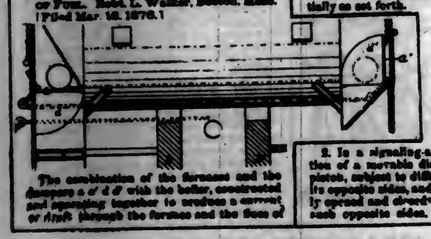
2. The combination of scroll L M N O P, tongue T, stud i, and the helical cam U V, provided with the slot e, as and for the objects set forth.

3. In combination with the fixed bed-plate A and its attached blades Q f Q' f, the adjustable scroll L M n n' N e e' O P for guiding the fabric and tension tongue T, all constructed and arranged substantially as herein described and set forth.

4. The combination of spring-bar S d 12 13 and adjustable edge-turners I I' p, as stated.

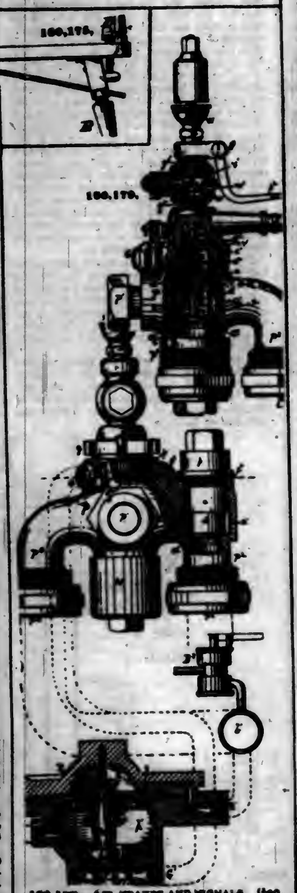
5. In a sewing-machine binding attachment, the combination of edge-turners to turn the edges of the binding, with a connected folder and hook-guide for the binding, said folder and hook-guide being adapted to slide toward and from the edge-turners for parallel adjustment, substantially as described.

180,178. FURNACES FOR THE COMBUSTION OF FUEL. Robt. L. Walker, Boston, Mass. [Filed Mar. 16, 1876.]



The combination of the furnace and the dampers a a' d d' with the boiler, constructed and operating together to produce a current or draft through the furnace and the flues of the boiler, first in one direction, and then in the opposite direction, all substantially as described.

No. 180,179.



180,179. AIR BRAKES AND SIGNALS. Geo. Westinghouse, Jr., Pittsburg, Pa. [Filed Mar. 17, 1876.]

Brief.—The same column of air which operates the brakes, under the control of the engineer, is made to communicate signals from any car in the train to the engineer without interfering with the brake mechanism.

1. The mode of operating signals by means of an artificially-created fluid-pressure acting simultaneously on the opposite sides of a movable diaphragm, or equivalent piston, and capable of variation at pleasure in the force with which it acts on each opposite side, substantially as set forth.

2. In a signaling-apparatus, the combination of a movable diaphragm, or equivalent piston, subject to differences of air-pressure on its opposite sides, and having an automatically opened and closed communication between each opposite side, an operating-valve for regulating or changing such pressure, a reservoir or chamber as a magazine for the operative fluid-pressure, and a signal operated by such difference of pressure, substantially as set forth.

3. In combination with the operating-cock of a railway fluid-pressure brake, a signal-whistle arranged thereon, with a system of ports and passages for the supply of fluid-pressure to the whistle, by means of an escape-cock or valve accessible to the conductor or other employé, without regard to the position of the operating-cock, substantially as set forth.

4. In combination with a signal-whistle and three-way cock, an intermediate air-escape valve, arranged so as to be capable of being opened by the engineer at the same time and by the same motion as is occupied and employed in the manipulation of the cock in ordinary braking, substantially as set forth.

5. In combination with a continuously charged brake-pipe, signaling-valve, signaling-reservoir, and signal, an escape-valve, P^5, arranged on each of any desired number of cars, with a branch connection from the brake-pipe, substantially as set forth.

6. A signaling-reservoir, signaling-valve, and signal, in combination with the brake-pipe, brake-cylinders, and auxiliary reservoirs of an automatic air-brake, substantially as set forth, whereby the brakes may be applied and released and signals given by the use of a single column of air.

7. In combination with the port or barrel P^2 of the operating-cock of a railway fluid pressure brake, a double valve arranged therein, and opened by different degrees or amounts of fluid-pressure, substantially as set forth.

8. A hollow piston-valve, *d*, having an air-port, *d*, of comparatively small area, arranged in and combined with the port or barrel P^2 of the operating-cock of a railway fluid-pressure brake, substantially as set forth.

9. The hollow piston-valve *d*, having a perforated head, *d'*, for the balancing of such valve during the ordinary running of the train, in combination with escape-ports for destroying such balance when such valve is to be thrown wide open, substantially as set forth.

10. The stem *r'*, made with a flattened part, or equivalent part, along or opposite to its lower end, in combination with the bore in the piston-head *d'* in which it plays, and in combination with the piston-valve itself, and cock, port, or barrel P^2, in which all are arranged, whereby, on the upward stroke of the valve *d*, the escape into the chamber *d'* will be cut off while the reservoirs are being recharged, substantially as described.

11. The combination of the ports *d*, *d'*, *f*, *f'*, *f''*, and *f'*, substantially as and for the purposes set forth.

12. The combination of the sleeve *e*, piston-valve *d*, stemmed valve *c*, bored piston-head *d'*, springs *r'* *b'*, stem *r'*, and port *e*, substantially as set forth.

180,180. WEATHER-STRIPS. W. F. Widdifield, Elcom, Ontario, Canada. [Filed May 22, 1876.]

Brief.—The same column of air which operates the brakes, under the control of the engineer, is made to communicate signals from any car in the train to the engineer without interfering with the brake mechanism.

1. In combination with the elastic apron B, metallic plate H, and cross-bar G, the spring J, bent at opposite right angles J^1 J^2 at each end, one end secured in the door and one end between the apron B and bar G, as and for the purposes described.

2. In combination with the bar G and apron B, the sheet-metal plate H, as and for the purposes specified.

3. In combination with the elastic apron B, plate H, bar G, and spring J, the roller I secured to the jamb of the door on the inside thereof, for holding the weather-strip down close in position when the door is closed, as described.

4. The weather-strip for the lower part of doors, composed of elastic apron B, metallic clamp F, metal plate H, bar G, and spring J J^1 J^2, all constructed and arranged as and for the purposes shown and described.



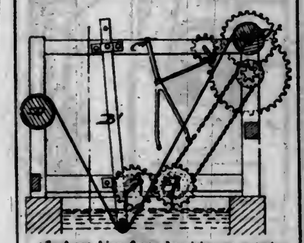
180,181.

180,181. HORSESHOE-NAILS. P. Wineman, Rock Island, Ill. [Filed Feb. 6, 1876.]

A horseshoe-nail, made as described, oval in its cross-section, and with its edges thinned off, substantially as and for the purpose specified.

180,182. GALVANIZING-MACHINES. George B. Ashmead, Philadelphia, Pa. [Filed May 26, 1876.]

Brief.—The wire-cloth passes from a roll down through paint or other liquid in a trough, and under a submerged roll, which is adjustable at any depth. It is then wound up on a roll, which is horizontally divisible, to allow the roll of cloth to be removed. On each side of the cloth, where it emerges from the paint, are revolving skimmers, to prevent the scum from gathering on the cloth, and above these are arranged rods, which strike alternately on each side of the cloth to remove surplus paint from the meshes.



1. A machine for galvanizing or painting wire-cloth, consisting of rollers for guiding, tightening, and winding up the wire-cloth, in connection with reciprocating beaters and skimmers arranged at each side of the wire-cloth, substantially in the manner described, and for the purpose specified.

2. The winding-up roller D^3, made in two diagonal sections, connected by interior recesses, fixed nuts, and threaded end of roller-shaft, as shown and described.

3. In a galvanizing machine, the swinging reciprocating beaters, striking alternately each side of the wire-cloth to remove the surplus liquid, substantially as specified.

4. In a galvanizing-machine, the pendent revolving skimmers, entering the liquid at both sides of the wire-cloth, to keep the same clear of scum, substantially as described.

180,183. PHOTOGRAPHIC-PICTURE CASES. Thos. F. Adams, New York, N. Y. [Filed May 1, 1876.]



1. A photograph-picture exhibitor, consisting of a case provided with a series of hinged frames attached to and swinging outward with the door, substantially as shown and described, for the purpose specified.

2. The combination of the outer case with a hinged supporting-board and a spring-bolt or locking device to lock the board in open position, substantially as specified.

180,184. BEZELED-BIT ATTACHMENTS. T. M. Allen, Augusta, Ky. [Filed Feb. 26, 1876.]

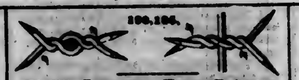


The combination, with the bit-pulleys B B, of the driving-lines A, having their ends fastened to the shafts, then passing up through the loops D, next through pulleys E, and then back through the loops to the vehicle, as shown and described.

180,185. BARBED FENCE-WIRE. Geo. W. Allen, Creston, Ill. [Filed June 26, 1876.]

In combination with a fence-wire the feed-arb B, formed of two short pieces of wire placed parallel with each other upon the opposite sides of, and at right angles with, the fence-wire, and having their end parts twisted together, leaving their points projecting, substantially as herein shown and described.

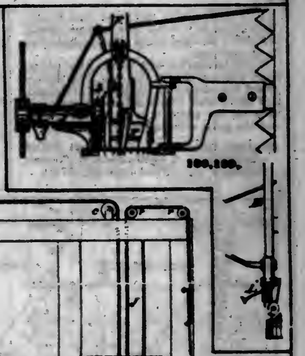
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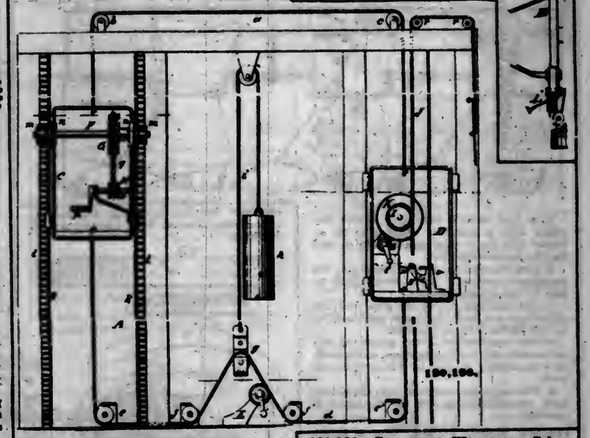


180,186. ELEVATORS. Thomas K. Auten, New York, N. Y. [Filed June 12, 1876.]

Brief.—Counterbalanced elevators operated by an endless rope on a winch in a chamber below, the rope kept taut by being passed through a weighted snatch-block.

No. 180,189.





180,189.

The combination, with an elevator, of a common capstan or winch and a snatch-block, the latter having a weight attached to its tail, and a supporting-pulley overhead, whereby the power transmitted through the winch may act on the rope of elevator without the necessity of a second person to hold it and take up the slack.

180,187.



180,187. COMBINATION PUTTY-KNIVES AND SCREW-DRIVERS. Charles C. Bartlett, Medford, Mass. [Filed Feb. 28, 1876.]

1. The combination of a putty-knife with a screw-driver, to form one tool, substantially in the manner described.

2. The combination of the handle, having a dovetailed socket-recess, narrower at one end, with a tapering shank of a putty-knife, and with a fastening cross-pin to secure the shank rigidly, but detachably, to the handle, substantially as specified.

3. The combination of the hollow handle of a putty-knife with a sliding spring-actuated screw-driver, and locking spring-catch, substantially as specified.

180,188. WASH-BASINS. Henry Berkste, New York, N. Y. [Filed Apr. 26, 1876.]



1. The combination, with the wash-basin A, suspended on bearings in the receptacle B, of a spring-catch, whereby the basin is locked in position when hanging level on its bearings, and readily unlocked at pleasure, as and for the purpose described.

2. The combination, with the basin G, provided with a groove, *a*, of the sectional band *c* and the journal-pieces *b b'*, as and for the purpose specified.

180,190. BRAKES FOR WINDMILLS. Solomon L. Bignall, Chicago, and Thomas B. Whittlesey and Frank M. Goodhue, St. Charles, Ill. [Filed May 8, 1876.]

Brief.—To the turn-table is attached a metal-band brake, which is brought over the crank-wheel, and extended through the arm of the upright vane. The outer end of this band is provided with a lug, so that when the upright vane is brought over, it will clamp the brake-band to the crank-wheel, and thus stop the rotation of the wind-wheel, which gives motion to the wheel by means of a shaft connecting the two wheels, in the ordinary manner.

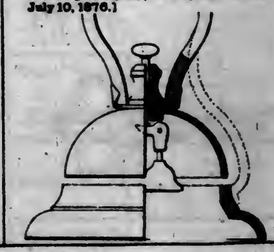
The band I_2, combined with a wheel on shaft J, and rotating upright vane E, as and for the purpose specified.

180,190. PITCHER-PUMPS. Solomon L. Bignall, Chicago, Ill. [Filed May 8, 1876.]



The head-plate C, placed between the revolving cap A and the spout-section B, substantially as and for the purpose set forth.

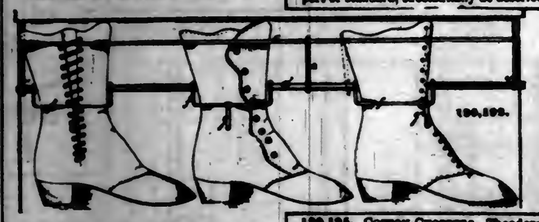
180,191. CALL-BELLS. Nathl. L. Bradley and Henry Stratton, West Meriden, Conn., assignors to Bradley & Hubbard Manufacturing Company, same place. [Filed July 10, 1876.]



1. In combination with that class of call-bells known as "piston-bells," a guard extending above the head of the piston, substantially as described.

2. In combination with the gong and piston-base and piston of a call-bell, the yoke or guard extending over the head of the piston, and constructed with a collar as a means for securing the guard between the piston-base and the gong, substantially as described.

190,192. DEVICES FOR EXTINGUISHING BOOTS AND SHOES. T. B. Brown and L. O. Frazier, Pittsburg, Pa. [Filed June 27, 1876.]



190,192.

1. A boot or shoe exhibiting device, provided with a guard-rod adapted to be attached to a box or case, substantially as and for the purpose specified.

2. The combination of the guard-rod, the suspension-rod, and hook, substantially as and for the purpose specified.

3. The combination of the guard-rod, the suspension-rod, and the brace, substantially as and for the purpose specified.

4. The combination of the guard-rod, the suspension-rod, the sliding brace, and a hook, all substantially as and for the purpose set forth.

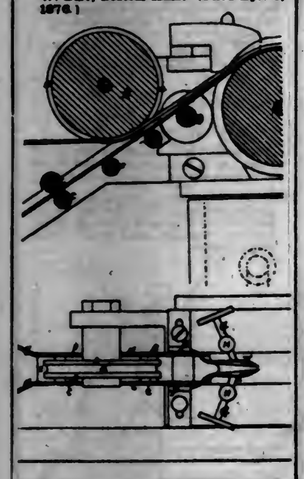
5. The loop-hook, provided with the sliding hook, substantially as and for the purpose specified.

190,193. DENTAL PLASTER. Wm. H. Beebman Easton, Pa. [Filed May 27, 1876.]



A dental flask consisting of four half-rings, A, having shouldered and projecting lugs *a'*, the pins B, and the plates C, having lugs *c'* and flanges *c''*, all substantially as and for the purpose specified.

190,194. MACHINES FOR COVERING WIRE WITH RUBBER FOR WEATHER-ROLLS. E. W. Burr, Boston, Mass. [Filed Apr. 8, 1876.]



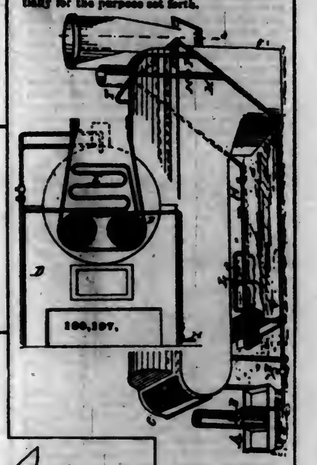
1. The combination, with guides for the wire and the plastic strip, of a folding-wheel, constructed and operating substantially as described.

2. The combination of the folding-wheel and the lateral pressing-springs, co-operating together, substantially as described.

3. The combination of the wire-guiding wheel and the strip-guiding channel, arranged to operate substantially as described.

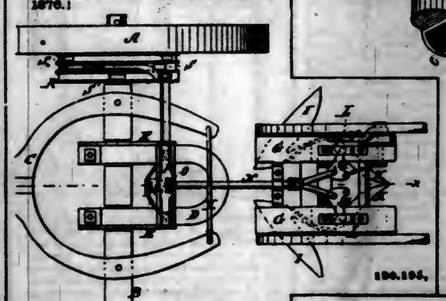
4. The combination, with mechanism for guiding the wire and the strip, and for folding the strip upon the wire, of an adjustable support or standard, substantially as described.

2. The pipe E, provided with the pipe M, which enters the steam-space of the boiler, and is furnished with valve F, in combination with pipe P, provided with valve R, substantially for the purpose set forth.



190,197.

190,195. COTTON-CHOPPERS. Theodore C. Burnham, Barnet, Vt. [Filed Mar. 28 1876.]

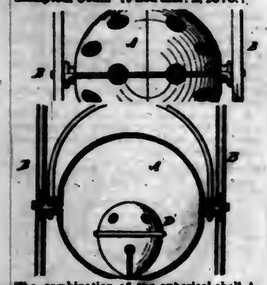


190,195.

1. The combination of the lever U with the rock-shaft L, rod H, spring-arm O, rock-shaft P, arm Q, and the cam K, substantially as specified.

2. The combination of the U-shaped frame D and vertical frame E with the axle B, chopper-operating devices, and pivoted reach F, as and for the purpose set forth.

190,196. TOY BELLS. Levi D. Butler, East Hampton, Conn. [Filed Mar. 2, 1876.]



The combination of the spherical shell A, the wheels B rigidly attached together, and the spherical ball D loose within the shell, substantially as described.

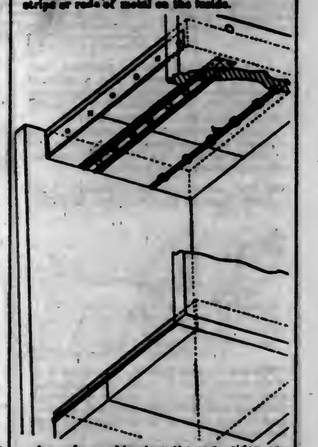
190,197. FEED-WATER HEATERS AND PURIFIERS. Milton Cabbell, Quincy, Ill., assignor to himself, John M. Cabbell, William M. Mead, and Robert Hanna, same place. [Filed June 8, 1876.]

1. The pipe B, having the coils C and E and valves F H F', auxiliary pipe I, and valve L, substantially as and for the uses specified.

2. The pipe B, provided with the valve H and coils C E, in combination with the pipe P, valve R, and tank T, as set forth.

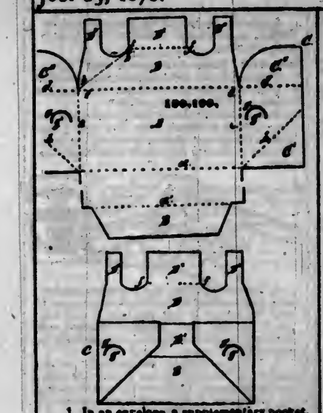
190,198. PACKING-BOXES. S. C. Gary, Roselle, N. J. [Filed Apr. 11, 1876.]

Brief.—The sides of a box may be formed of several pieces, secured firmly to each other by strips or rods of metal on the inside.



A wooden packing-box, the cases, sides, or top and bottom of which are constructed with iron strips or bars, applied as described, so that when the box is complete said strip rods or bars are in its interior, or not externally exposed, substantially as specified.

190,199. ENVELOPES. Joseph Chapman, Dubuque, Iowa. [Filed Nov. 22, 1875.]



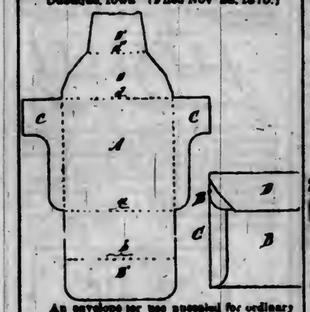
190,199.

1. In an envelope, a supplementary pocket, formed by the folds of the blank without cutting, in combination with the tongue of the flap inserted therein in fastening the envelope.

2. An envelope-fastening, consisting of a pocket, substantially as described, and a tongue bent back within the pocket, as and for the purposes set forth.

3. An envelope, consisting of a front, A, back B, provided with a supplementary strip, B', and pieces C, having folded corners C' and projections C'', and flap D, provided with a tongue, D', all folded on the lines *a a' b c d e f*, as described, and either with or without the supplementary tongues D'' and pockets *g*.

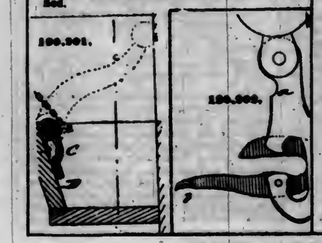
190,200. ENVELOPES. Joseph Chapman, Dubuque, Iowa. [Filed Nov 22, 1875.]



An envelope for use especially for ordinary business packages, consisting of the front A, back B, provided with a supplementary fold, B', and pieces C, and flap D, having a supplementary strip or fold, D', these parts being folded on lines *a, b, c, d*, and *d'*, substantially as described.

190,201. RELEASING DEVICES FOR STABLES. Arthur Chapman, Doylestown, Pa. [Filed June 6, 1876.]

The combination, with the manger of a stable, of rotary rod A, held by lower hooks *a*, and the hooks C, having rings D, substantially as shown and described, for the purpose specified.



190,201.

190,202.

190,202. BIRD-CAGES. Geo. F. J. Colburn, Washington, D. C. [Filed June 10, 1876.]



1. A bird-cage provided with a band, *a*, of generally imperforate material, having glazed apertures *c*, provided with guards *f* and frame *g*, with intervening spaces having perforations *d*, substantially as and for the purposes specified.

2. A bird-cage provided with a band or frame, *a*, of generally imperforate material having glazed windows *c*, provided with guard wires *f* and frame *g*, air-openings *d*, and apertures for door and feed-cups, substantially as and for the purposes set forth.

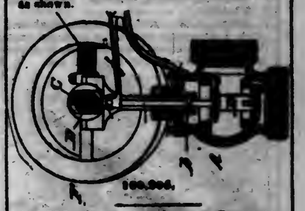
3. In combination with a body, dome, or perch of a bird-cage, a mirror, B, constructed with a frame, G, combined with a hook or eye attachment or support, J, substantially as and for the purposes set forth.

4. A spring-catch or fastening, *h*, having a projection or lip, *i*, handle *m*, spring-shank *n*, spring-coil, *o*, attaching post or rivet *q*, constructed and applied in the manner and for the purpose specified.

190,203. VALVE-REGULATORS FOR STEAM-ENGINES. Henry S. Cole, Milwaukee, Wis. [Filed Apr. 10, 1876.]

1. In combination with the sliding cam U, mounted on the shaft D, and arranged to operate the valve B, the governor-wheel F and the connecting-bar G, seated in the groove in the shaft, and connected in one end to the cam, and at the other, by a pin and slot, with the governor wheel, as shown.

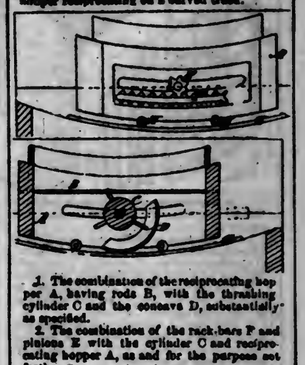
2. The combination of the body A, provided with the two valve-throats and the cylinder *b*, and the valve B, provided with the balancing-pistons *c* and closing-pistons *c*, substantially as shown.



190,204.

190,204. COTTON PICKERS AND CLEANERS FOR COTTON-GINS. George F. Colquitt, Brunswick, Tex. [Filed May 9, 1876.]

Brief.—The seed-cotton is thrashed and cleaned by a revolving toothed cylinder, whose teeth project through the slotted bottom of a hopper resp resenting on a curved track.



1. The combination of the reciprocating hopper A, having rods B, with the thrashing cylinder C and the concave D, substantially as specified.

2. The combination of the rack-bars F and pinions E with the cylinder C and reciprocating hopper A, as and for the purpose set forth.

190,207. BURIAL-CASES. Taylor R. Deakin, Detroit, Mich. [Filed July 16, 1876.]

Brief.—An interior strengthening-frame of iron has eyes in its ends for receiving screws that secure the handles. The cement of which the case is made is grained to represent wood.



1. The artificial-marble coffin, provided with a metal strengthening frame, C, having eyes or holes *a* to receive the screws or bolts which secure the handles in place, as shown and described, whereby the strain of the handles is thrown upon the frame, and the fracture of the wall prevented.

2. An artificial-marble coffin, composed of hydraulic cement, painted and grained on its exterior in imitation of wood, as a new article of manufacture.

3. The artificial-marble coffin, provided with a metal frame or edging, having the series of points or lips *b*, to receive and secure the lining or upholstering in place.

190,208. MACHINES FOR SHAPING GRAIN-CRADLE FINGERS. Andrew Dempsey, Berkey, Ohio. [Filed May 9, 1876.]

Brief.—The cutter consists of a disk provided with a peripheral groove and cutters secured in radial slots.



A cutter-head for dressing the fingers of picker-spindles; consisting of disk A, grooved at B, having cutter-notches C, lugs D, cutters E, and screws F, constructed and arranged substantially as and for the purposes specified.

180,909. FIRE-ESCAPES. Michel Durand, Montreal, Quebec, Canada. [Filed Oct. 27, 1876.]

Brief.—A fire-alarm apparatus combined with a fire-escape ladder, so arranged that both can be operated simultaneously from the street and the ladder let down for use.



1. In combination with the chain ladder C, the folding steps R, sustained by the short chains S.

2. In combination with the fire ladder C, suspended by the side of a building, as shown, the folding platform U, mounted in the building, and arranged to engage with the ladder.

3. The combination of the drum-head H, provided with the tooth *p* and the brake-shoe *q*, link *t*, and spring *o*, as shown.

4. The brake I, composed of the brake-handle *m*, the rack-bar *n*, the shoe *q*, and mortised block *t*, in combination with a fire-ladder, C, substantially as described.

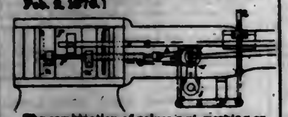
5. The extra rounds or starting-steps R, the chains S S, and the connecting-chain T, in combination with a fire-ladder, C, substantially as described.

180,910. CLOTHES-POUNDERS. C. A. Dodge, Chicago, Ill. [Filed May 26, 1876.]



In a clothes-pounder, the combination of the ferrule C and bosses D D with the basin A A and the cap B B, substantially in the manner and for the purposes set forth.

180,911. CUT-OFF GEAR FOR STEAM-ENGINES. Frank Donahue, Chicago, Ill. [Filed Feb. 2, 1876.]

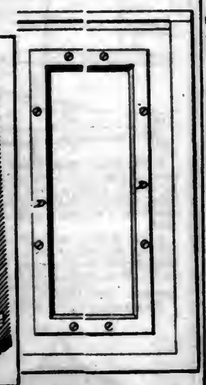


The combination of valves *n n'*, working on top of valve F, stem *m*, disk K, an rock-grit I, with lever *u*, and governor-screw E, substantially as herein specified.

180,912. GAS-WORKS. John W. Hearsten, San Francisco, Cal., assignor of one-half his right to Andrew Johnson, same place. [Filed May 29, 1876.]



180,913. WINDOWS. Wm. L. Everth, New Haven, Conn. [Filed Apr. 6, 1876.]



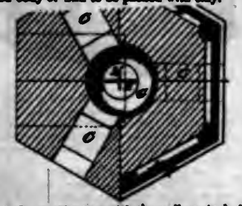
1. The herein-described sash, constructed with a rabbet upon its inner edge, combined with an overlapping strip, D, secured to the sash, and, with the said rabbet, forming a groove for the glass, and with an elastic packing, *c*, in the said groove around the edge of the glass, substantially as described.

2. In windows of hand carriages a groove, *f*, in the edge of the lower rail of the sash, and a corresponding rib on the sill, onto which the said groove will set when the sash is raised, substantially as described.

3. The spring *n*, arranged between the stile of the sash and the outer side of the groove in the jamb, substantially as and for the purpose described.

180,914. LIGHTNING. Daniel J. Farrell and Andrew T. Lien, Mason City, Iowa, assignors to Farrell, White & Lien, same place. [Filed May 27, 1876.]

Brief.—Timbers at the corners, over which is secured a casing. Space between casing and body of kiln to be packed with clay.



1. In combination with the wall or shell A B of the kiln, the casing D E and the filling of clay, as and for the purpose specified.

2. The combination of the rotating and vibrating rod H, provided with one or more cross-bars, *b'*, and the sliding plate I, with the cast-iron draw-hopper G of the kiln A B C, substantially as herein shown and described.

180,915. TURNSTILES. Gilbert H. Finger, New York, N. Y. [Filed May 1, 1876.]



A thimble, having its top concaved and indented, as shown and described, for the purpose specified.

180,916. BREECH-LOADING FIRE-ARMS. Charles Foehl, Philadelphia, Pa., assignor of one-half his right to Isaac J. Clark, same place. [Filed May 13, 1876.]

Brief.—By depressing the thumb-catch the breech-block is forced down by a spring and strikes the ejector, so as to throw out the shell. The act of closing the breech-block cocks the piece.



1. The combination, in a breech-loading fire-arm, substantially as described, of the lever C and its plunger D with the lever G and trigger F, the said parts being constructed and arranged to operate together substantially as set forth.

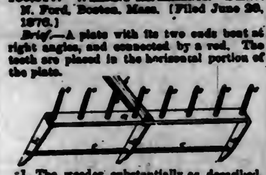
2. The combination, substantially as described, of the bow-spring *d'* with the plunger D and recess in the lever C, lever G, spring H, and trigger F, arranged to operate as and for the purposes described.

3. The thumb-spring lever I, provided with its catch in the recess *a'* of A, and the two fixed detents *d''* on the side of the lever C, the said parts being constructed and arranged to operate together substantially as and for the purposes set forth.

4. The swinging block K, provided with the rigid arm *b'*, yielding arm *b''*, and transverse edge *b'''*, in combination with the spring L and the recess in the rear end of the barrel B, substantially as and for the purposes hereinbefore set forth and described.

180,917. WEEDING IMPLEMENTS. Daniel M. Ford, Boston, Mass. [Filed June 30, 1876.]

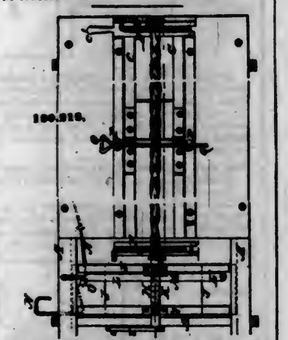
Brief.—A plate with its two ends bent at right angles, and connected by a rod. The teeth are placed in the horizontal portion of the plate.



1. The weeder, substantially as described, consisting of the head *a*, the rod *c*, and their connections *d*, arranged and provided with a socket-piece or shank, *b*, all as explained.

2. The combined rake and weeder, substantially as described, consisting of the series of teeth *a*, the head *a*, rod *c*, connections *d*, and socket-piece or shank *b*, arranged essentially as set forth.

180,918.



180,918. MACHINERY FOR TWISTING HAY AND STRAW FOR FUEL. Jas. B. Fisher, Yankton, Dak. [Filed May 1, 1876.]

Brief.—A bar consisting of stationary and movable sections, hinged together end to end, the outer end of the moving section carrying a head and spring-clamp. A head-piece with similar clamp, crank, and shaft, hung in a yielding frame, and holding-levers and catches are connected with the outer end of the fixed section. Over the hinge a rod held in eyes

permits the strand to be doubled. Upon removing it the doubled strand twists itself.

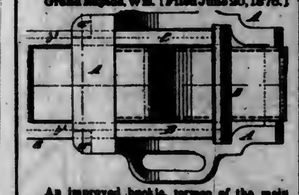
1. The combination of the bar C, made in two halves, one stationary and the other loose, hinged to each other, the two heads D F and their clamps E G, the crank-shaft H I, the sliding frame J, and the spiral spring K, with each other and the main frame A, substantially as herein shown and described.

2. The combination of the catch-lever L and the notched disk M with the sliding frame J and the crank-shaft H, substantially as herein shown and described.

3. The combination of the spring-catch N and the catch-pin O with the sliding frame J and the main frame A, substantially as herein shown and described.

4. The combination of the hooks P and the rod Q with the hinged frame C and table B or frame A, substantially as herein shown and described.

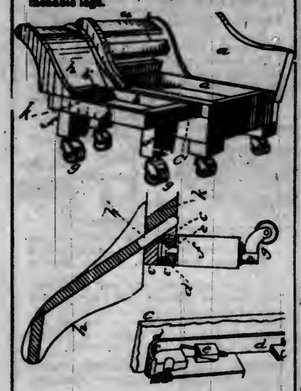
180,919. HARness-BUCKLES. B. F. Frazier, Grand Rapids, Wis. [Filed June 20, 1876.]



An improved buckle, formed of the main frame A, having its side bars *a'* grooved or rabbeted upon their inner edges, and its rear cross-bar made wide and inclined upon its inner side, and the sliding, or clamping frame B, having its side bars *b'* rabbeted or lapped upon their outer edges, its central cross-bar *b''* made wide and inclined upon its inner side, and with the ends of its forward cross-bar projecting to overlap the side bars of the frame A, substantially as herein shown and described.

180,920. SOFA-BEDSTEADS. Sami. Greaves, Weymouth, Mass. [Filed Mar. 27, 1876.]

Brief.—The extension-frame is hinged to and folds within the main frame. It is provided with a detachable head-cushion and detachable legs.



1. In combination with the bed-lounge shown in the drawing, the beveled plank and *c*, provided with slot *d*, and combined with the bolt *e* in the leg *f*, said leg being furnished with a cutter, *g*, as and for the purposes herein set forth.

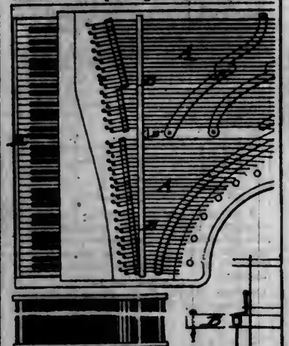
2. In combination with the false head A, and diagonally-inclined supports *b'* of said bed-lounge, the plank and *c* and cross-piece *h*, as and for the purposes herein before set forth.

180,921. COMPOSITIONS OF MATTER FOR MANUFACTURING ILLUMINATING-GAS. G. Green, Los Angeles, Cal. [Filed May 10, 1876.]

A composition to be used in the manufacture of illuminating-gas, consisting of asphaltum, sawdust, and miscellaneous animal and vegetable matter, in the proportion substantially as herein specified.

180,922. VIOLIN-FRAMES. George Greiner, Sacramento, Cal. [Filed Apr. 26, 1876.]

Brief.—A bow-frame, having as many bands of horse-hair as the instrument has strings, received a slow reciprocating motion by a treadle. Each band of hair passes between two or at the side of the strings, without contact therewith until a key is pressed, when the band is deflected thereby, so as to have a frictional contact with the string, which is sounded. Other pedals give harmonic sounds.



1. The bows B, vertically movable, connected together in a steel frame, and provided with fastenings that stretch the bows, as shown and described.

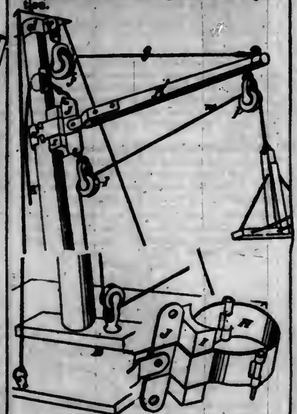
2. The combination, with key-board, of upright jaws fastened to keys, two rocker, the moving bows, and the strings, all arranged as and for the purpose set forth.

3. The wooden bows, in combination with the bass-strings, as specified.

4. The grooved screw-pins between bridge and tuning-pins, as set forth.

180,923. FIELD-DRESSERS. J. Q. Grinnell, Stockton, Cal. [Filed May 29, 1876.]

Brief.—As the stack increases in height the hoop is elevated accordingly, assisting to maintain the boom in the proper relative position.



1. The hoop H, when formed in two parts, which are hinged together on one side of the mast, and fastened together by a removable fastening on the opposite side, in combination with the mast A and hoops H', substantially as and for the purposes described.

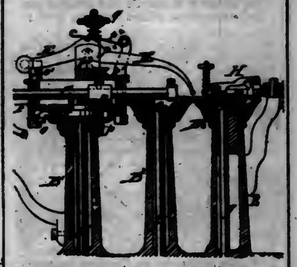
2. The hoop H, with its shoe I and upright plate J, in combination with the hoops H', which is connected with the plate J by a hinge-joint, substantially as above specified.

3. In combination with the shoe I and hoop H of a derrick-boom, the upright plate J, having the hoisting-rope K secured to its upper end, and the pulley I secured to its lower end, substantially as and for the purpose described.

180,924. DRY-YEAST COMPOUNDS. C. W. Cockwind, Egg Harbor City, N. J. [Filed May 6, 1876.]

A dry-yeast compound, consisting of boiled hops, malted wheat-flour, malt, sugar, ginger, rice-flour, and middlings, in about the proportions specified.

180,925. GLOVE-SEWING MACHINES. P. H. Gulbransen and J. C. Bentzinger, Copenhagen, Denmark. [Filed Jan. 24, 1876.]

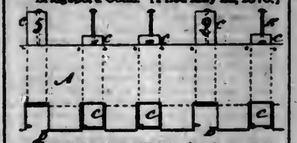


1. The machine for sewing gloves herein described, consisting, essentially, of a horizontally-reciprocating needle-bar, C, a rotating hook, D, with bobbin-tension, a cross-stitching lever, E, and the glove or fabric feeding cups B' B', all constructed and relatively arranged substantially as herein shown, to operate in the manner set forth.

2. The combination of the vibrating arm *a a'*, movable angular plate *p*, and forked bearing *p'* with the double cam G and cross-stitching lever E, as and for the purpose set forth.

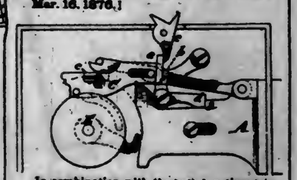
3. The combination of the horizontally-rotating hook D, bobbin D', and tension device H with the feeding-cup B', front pillar B', horizontally-reciprocating needle-bar C, cross-stitching lever E, and revolving feeding-cup B', as and for the purpose set forth.

180,926. TOY MARBLE-RAKES. Alfred Gurney, Robert H. Piper, and Henry H. Waite, Bridgeport, Conn. [Filed May 29, 1876.]



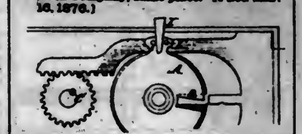
The improved marble-rake, herein set forth, consisting of the plate A, having notches B and spring-tablets C D, arranged to be disengaged by the impact of the marble, and display their numbers, substantially as described.

180,927. TIRE ATTACHMENTS FOR LOCKS. Joseph L. Hall, Cincinnati, Ohio. [Filed Mar. 16, 1876.]



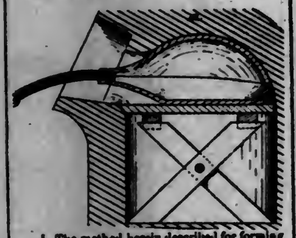
In combination with the bent A *a*, time-trigger *c*, and projection *b* on the angle-bar, the bell-crank *c f d*, arranged and operating substantially as and for the purposes specified.

180,928. TIRE ATTACHMENTS FOR LOCKS. Joseph L. Hall and Henry Green, Cincinnati, Ohio, assignors to the Hall Safe and Lock Company, same place. [Filed Mar. 16, 1876.]



In combination with a permutation-lock, an auxiliary independent notched plate or tumbler, A *a*, mounted by the side of and constructed to act in the same manner as the usual lock-tumblers, and a finger or device, I, of a time mechanism arranged to operate said plate, either directly or through intermediate devices, substantially as shown and described.

180,220. MANUFACTURE OF GLASS-MELTING POTS. Andrew Harcums, Pittsburg, Pa., assignor to himself and Peter Kunzler, same place. [Filed June 22, 1876.]



1. The method herein described for forming the crown of glass-melting pots, the same consisting in forming the crown upon a collapsible arch-piece arranged within the pot, and removable through the mouth of the pot substantially as specified.

2. The collapsible core or arch-piece for forming the crown of glass-melting pots, substantially as specified.

180,230. WASHING-MACHINE. John H. Harnly and Jacob H. Harnly, Penn Township, Lancaster County, Pa. [Filed May 27, 1876.]



1. The combination of the upper rubber M, with its raised side pieces N, cross-pieces and slotted posts O P, rack-levers Q Q', fulcrum-block V on the hinged lid U, the whole arranged substantially as and for the purpose specified.

2. The combination of the rubbers M and H, both provided with rounded, inwardly-inclined serrated ridges *a* at each end, the intermediate space having rounded ridges *a*, separated by a flat space, which spaces have oblong openings, the whole arranged and operated substantially as and for the purpose mentioned.

180,231. RUBBER BOOTS. Daniel H. Hayward and H. H. Barlingame, Williamsport, Pa. [Filed Apr 6, 1876.]



As an improved article of manufacture, a rubber boot provided with a strong canvas foundation, the said canvas passing over the top of the foot at or near the instep and doubling around the heel, stiffening and strengthening the same, substantially as described.



180,232.

180,233. BIRD-CAGES. Adam Heinz, Buffalo, N. Y., assignor to Heinz, Pierce & Munschauer, same place. [Filed June 12, 1876.]

Brief.—Sets up the vertical wires on each side of the perforated horizontal wires or bands.

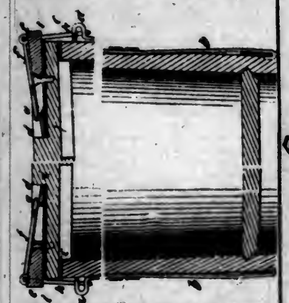
In a bird or similar cage, the fastening for the horizontal bands, consisting, in combination with the perforated horizontal bands and filling-wires, of distortions above and below said horizontal bands, formed without bending said filling-wires, substantially as described, for the use and purpose stated.

180,235. SCHOOL-DESKS. Chas. J. Higgins, Indianapolis, Ind. [Filed Sept. 25, 1875.]



A school-desk standard formed of a desk-supporting bracket, J, and standard C, constructed substantially as described, and united together by mortices K' and tenons K, substantially as set forth, and for the purposes described.

180,254. BUTTER-TUBS. James B. Higgins, Holland City, Mich. [Filed June 20, 1876.]

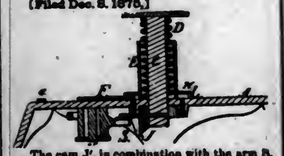


1. The cover herein described for fastening covers to pails, and other similar packages, by means of a jointed hasp attached to the cover, which shuts over a staple in the pail, and a wedge placed between the hasp or loop and cover, substantially as herein shown and described.

2. The combination of the hasp A, loop *f*, wedge *e*, and staple *a*, as shown and described.

3. The combination of the hasp A, staple *a*, hook *h*, and the ordinary lower hoop of a pail, substantially as shown and described.

180,255. GAME-COUNTERS. Austin D. Hoffman, Chicago, Ill., assignor of one-third his right to Samuel A. Ross, same place. [Filed Dec. 8, 1875.]



The cam J', in combination with the arm B, plunger C, toothed collar L, provided with the arm F, sleeve E, springs D and N, and arm I, arranged with reference to the numbered disk A, as specified.

180,256. GRAIN-SEPARATORS. Wm. Holliday, Elstrown, Iowa. [Filed Jan. 4, 1876.]

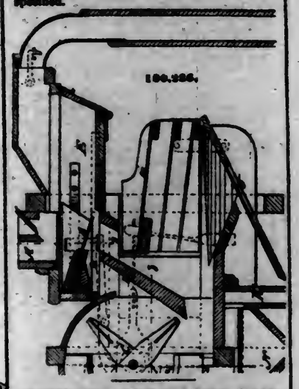
1. The re-presenting rake H, arranged in the throat of the hopper, in connection with air-passage D and settling-chamber E, to separate the straws, dust, and other light matters before the grain passes onto the sieves, substantially as specified.

2. The combination of the conductor-spout F, settling chamber E, and fan C, substantially as specified.

3. The adjustable gate H, in combination with sieves G and reciprocating rake B, substantially as specified.

4. The spout K, having an open lower end and passages in its sides near the bottom and at the top, in combination with the hopper M, fan C, and spouts J, all arranged substantially as set forth.

5. The springs Q and R, combined with rake B and connecting-rod P, substantially as specified.



180,256.

180,257. STREET-RAILROAD RAILS. Casper T. Hopkins, San Francisco, Cal. [Filed June 2, 1876.]

Brief.—The curved depressions are for the purpose of enabling wheeled vehicles to cross the track diagonally.



As a new article of manufacture, a railroad-rail having curved depressions at intervals cut diagonally into its outer upper edges, substantially as set forth.

180,258. WHIFFLETREE-CONNECTIONS. G. W. Ingersoll and Harvey L. Fisher, Toledo, Iowa. [Filed Apr. 10, 1876.]

The inclined coupling or connection, formed of the two unequal bars B and the eye-bar C, pivoted to each other, for connecting a whiffletree with its double-tree or cross-bar, substantially as herein shown and described.

180,259.



180,260. KNOB-LATCHES. Charles S. Jennings, New Haven, Conn., assignor to T. Kennedy, New York. [Filed May 19 1876.]

In combination with the rose of a door-knob, the knob arranged upon one side, with a disk, F, upon the opposite side, the two connected, so as to secure both to the rose, and the disk provided with fingers *a a*, substantially as and for the purpose described.

180,260. HOLLOW-TILE ARCHES. Francis J. Kennedy, Brooklyn, N. Y. [Filed Jan. 11, 1876.]



An arch composed of hollow tiles, the openings in a portion of which run transversely, and in another portion parallel, to the beams, substantially as shown and described.

180,261. HOSE-CONNECTIONS. Heinrich Kessler, Oberlahnstein, Prussia. [Filed Jan. 20, 1876.]

Brief.—The clamps, being held to the tail-pieces by screw-threads, are not liable to get lost.



180,241.

The connecting-pipe *a*, having screw-threads and the conical part *x*, in combination with the threaded collar *b*.

180,243. SELF-WATERING DEVICES FOR FLOWER-STANDS, BASKETS, &c. John B. Knisel, Buffalo, N. Y. [Filed June 12, 1876.]

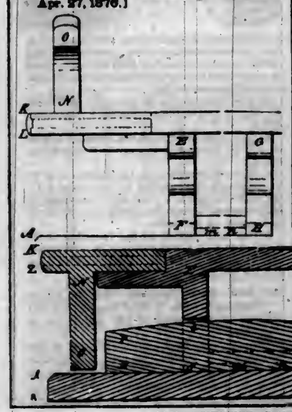


1. The hereinbefore-described automatically-acting watering device for flower-stands, vases, and baskets, consisting of a water-reservoir provided with a water-outlet in its base, and hermetically sealed above, and a shallow pan, within which said reservoir is placed a suitable distance from its bottom, whereby the supply of water is controlled automatically, substantially as described.

2. The hereinbefore-described flower-stand and automatic water-supply arrangement, consisting of a suitable support, a series of shallow pans or saucers connected by pipes to a central pan, and a water-supply reservoir, the whole being constructed and arranged in the manner and for the use and purpose stated.

3. The combination, with the hermetically-sealed tank A, provided with the valve B in its outlet-passage in the bottom of the pan D, central projection F', and the projections F, substantially as described, for the use and purpose stated.

180,245. IRONING-BOARDS. Charles H. F. Kruse, Fishkill Landing, N. Y. [Filed Apr. 27, 1876.]



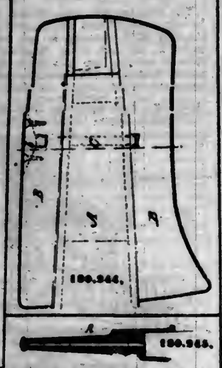
1. In combination with the board K L M, the detachable reversible support or ironing-board N O, the two being connected substantially as shown and described.

2. As a new article of manufacture, the pantaloon-board P Q R S, having the form shown and described.

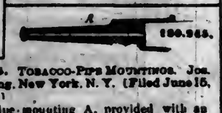
3. The ironing-table K L M, having the supports E F G H, provided with slots to receive the pantaloon-board, as shown and described.

180,244. APPARATUS FOR SHAPING PANTALOONS. Chas. H. F. Kruse, Fishkill Landing, N. Y. [Filed Apr. 27, 1876.]

The improved stretcher and former for pantaloons, composed of the grooved and slotted wedge A, the ribbed pieces B B attached thereto, and the bar C, all combined and connected as shown and described.



180,244.



180,245.

180,248. TOBACCO-PIPE MOUTHPIECE. Jos. J. Lang, New York, N. Y. [Filed June 15, 1876.]

The pipe-mounting A, provided with an elastic socket and with a strengthening-bead, said elastic socket being made in one piece with the bit, or mouth-piece, substantially as herein shown and described.

180,247. CAR-WHEELS. Amzee S. Lovake, San Francisco, Cal. [Filed May 5, 1876.]



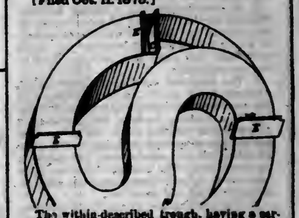
A wheel composed of an inner and outer part, C and D, having grooves made in their meeting-faces, which are filled with suitable metal, so as to form a flange, *c*, about which the rim can move, but which will prevent the parts from separating, substantially as herein described.

180,248. FIRE-KINDLERS. Rollin C. Lewis, Dayton, Ohio, assignor of one-half his right to Edward C. Boyer, same place. [Filed May 15, 1876.]



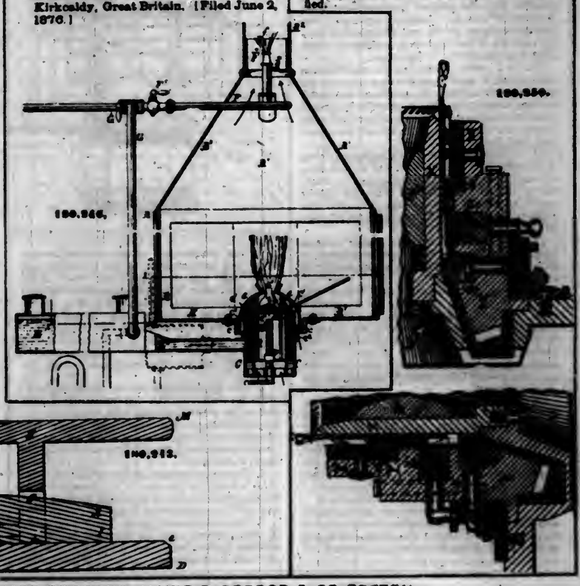
The herein-described fire-kindler, consisting of the wire conoid A, the cap B, containing asbestos or any incombustible absorbent material, and the handle C, the parts being arranged and united substantially as and for the purpose specified.

180,249. TROUGHS FOR FEED-WATER HEATERS. Daniel W. Marmon, Richmond, Ind. [Filed Oct. 11, 1875.]



The within-described trough, having a serpentine water-way outlet, C, and brackets E, as shown and described, for the purpose specified.

180,250. BLAST-LAMPS. Robert Lavender, Kirkcaldy, Great Britain. [Filed June 2, 1876.]



180,250.

180,246.

180,252.

180,849. KNITTING-MACHINE. Moses Marshall, Lowell, Mass. [Filed Jan. 27, 1876.]

Brief.—The needles are acted upon by sliding metallic bits of proper size and form to fit into the needle-grooves, and are, in turn, acted upon by special cams, the object of the bits being to move the needles into the path of the operating-cams.

1. In combination with the stationary standard A and the knitting-machine C, having a stationary needle-cylinder, the vertical non-rotating compression-rod D, having its lower end secured rigidly to the dial-plate S, and its upper end sustained in the standard by means of the thumb-nut Q, as shown, whereby the dial-plate is held from rotating without obstructing the interior of the needle-cylinder, and rendered capable of a vertical adjustment by simply turning the nut.

2. In combination with the rigid rod F, having the dial-plate S attached, the rotating sleeve H surrounding said rod, and provided with the cam-plate R, bobbin-carriers G, and take-up E, substantially as shown and described.

3. In combination with the rotating sleeve H, having the thread-guiding arms o and take-up M attached thereto, the stationary plate J, and mechanism for operating the take-up, said parts being constructed and arranged to operate substantially as shown and described.

4. The combination, in a take-up mechanism, of a grooved plate, J, provided with a stud or shoulder, s', and a vibratory arm, K, provided with a pivoted fly, s, substantially as shown and described.

5. The take-up mechanism, consisting of the stationary grooved plate J, provided with the stud s', and the rotating plate I, provided with the arm H, disk L, and lever or arm K, having the pivoted fly s thereon.

6. In combination with a sliding knitting-machine needle, a sliding bit mounted by the side thereof and resting thereon, substantially as shown and described, whereby the needle is brought into position to be acted upon by the operating-cams.

7. The long and short needle-bits c and c', constructed as shown, in combination with the needles of a knitting-machine, as set forth.

8. In a knitting-machine, the combination of a series of needles and a cam or cams, to operate the same when knitting, with a series of sliding bits and special cams, for operating the same to set the needles in position to be acted upon by such operating-cams, substantially as shown and described.

9. The combination, in a knitting-machine, of a series of needles, all operated, when in action, by the same cam or cams, with two or more series of needle-bits for moving the needles into the path of the operating-cams, and special cams for operating each set of bits, substantially as shown and described, whereby each set of bits and their needles are operated independently of the others.

10. In a knitting-machine, the combination of a series of needles and a cam or cams for operating them when in action, with needle-setting bits for bringing the needles into position for action, and special adjustable cams for operating said bits, substantially as shown and described.

11. In combination with the adjustable ring a, connected with the cams d and e, as shown, the cam f, attached to said ring, and connected by the rod h and lever i with the cams j and k, as shown, whereby the turning of the ring serves to shift all four cams, substantially as described.

12. In combination with the sliding needles and the bits resting thereon, spring presser-foot 12, bearing on the bits, substantially as shown and described.

13. In combination with the vertical and horizontal needles, operating in connection with each other, the plate R, provided with the horizontal cam-groove, having the widened or concentric portions g', for permitting the horizontal needles to pause in their inward movement until the adjoining vertical needles have completed their descent, as and for the purposes stated.

14. The combination, in a knitting-machine, of the vertical and the horizontal needles and operating mechanism, substantially such as described and shown, whereby the horizontal needles are permitted to pause in their inward movement until the vertical needles have descended past them, in order that the vertical needles may take the thread for both sets of needles, as and for the purposes described.

15. In combination with the base-plate S and the vertically-adjustable needle-cylinder N, the screws 1 and 2, the former drawing downward, and the latter bearing upward, on the cylinder, as shown.

16. The needle-cylinder X, having its inner edge and the inner edges of the jacks beveled, as shown.

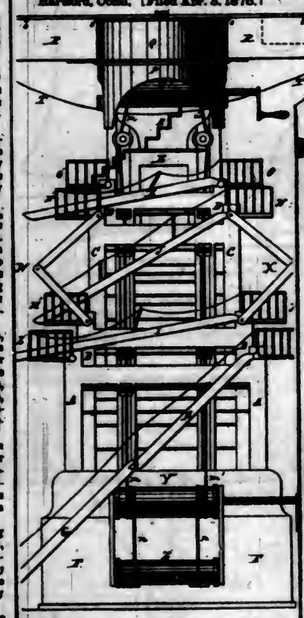
17. The needle-cylinder X, provided with the jacks having their upper ends beveled on the inner or rear side to a point forward of the rear side of the needles, as shown and described, whereby the tension applied to the web is thrown directly and wholly upon the stitches held by the needles.

180,851. BILLIARD-TABLE LEVELLERS. Samuel May, Toronto, Ontario, Canada. [Filed May 9, 1876.]



The combination, with billiard-table leg having socket B and the flanged cap C, of the long nut E, screwing on bolt up into the socket B, the bolt being extended entirely through and into the body of the table, and having the head F, substantially as shown and described, for the purpose specified.

180,852. FIRE-ESCAPES. Thos. McGinnis, Hartford, Conn. [Filed Apr. 3, 1876.]



1. The combination of the several frames with and balconies across the structure and rigid side stairways, provided with hand-rails, said stairways being jointed at the ends of the balconies at the top and sliding at the bottom, so as to fold up when the frames are closed together, substantially as described.

2. The jointed braces W X, in combination with a series of telescopics frames, substantially as and for the purposes herein described.

3. The combination of the cords m, &c., with the drums at the top and bottom of a telescopic fire-escape, and with pulleys at the top and bottom of each story or frame, substantially in the manner described, so that the whole structure is extended by shortening the cord, as specified.

4. The combination of the cords m, &c., with a drum at the top of a telescopic fire-escape, whereby it is raised from the top, substantially as herein described.

5. The combination of a continuous cord, m, &c., passing over the top and under the bottom, and on both sides of each frame, so as to lift it equally, with a series of telescopic frames, arranged as a fire-escape, and with a drum at the bottom, for the purpose of extending the said frames upward, substantially as described.

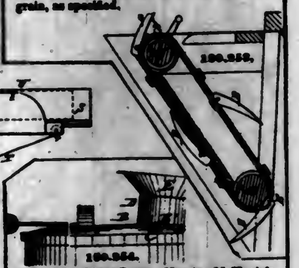
6. The combination of the lever g with the top of the frame B, whereby the pendents and hooks are re-engaged automatically as the frames close, and are left in a proper position to act when the frames are extended, substantially as described.

7. The carriage U, in combination with the automatic gangway B of a telescopic fire-escape, substantially as described.

180,853. GRAIN-ELEVATORS FOR HARVESTERS. Mercenary McFadden, Sparta, Ill. [Filed Apr. 12, 1876.]

1. In an elevator for grain, the teeth B, arranged as B behind the pivots, in combination with a tripping device, whereby they will be forced to pass the pivots continuously in their upward passage, as set forth.

2. In a grain-elevator, having teeth with extensions B, the upper roll H, grooved to allow the teeth to loosen their hold upon the grain, as specified.



180,854. MILK-PANS. Newton McKusick, Shilwaker, Minn. [Filed Apr. 26, 1876.]

The combination of cover B, a strainer, C, closing the aperture of said cover, the socket-tube D around strainer, the funnel E, and the lower strainer E', all as shown and described, so that said cover may be readily removed and applied to any pail of proper size, and allow the pail to be used for any other purpose.

180,855. LATCH-LOCKS. Daniel K. Miller, Philadelphia, Pa. [Filed Dec. 11, 1876.]

Brief.—A bolt provided with an adjustable combination, for adapting it to doors of different thickness. A sliding bolt is arranged to pass through an opening in the key, (when the tumbler-cylinder is revolved,) so as to partly close the key-hole.



1. The combination of the cylinder D with one or more sliding bolts, r, carried by the cylinder, and so operated that when the same is rotated the key-hole will be obstructed, substantially as set forth.

2. The combination of the cylinder D and its sliding bolt or bolts r with the perforated key l.

3. The combination of the cylinder D and its sliding bolt r with the sleeve E and its recess p.

4. The combination of the sliding dog H and sliding bolt r, carried by the cylinder D, with the recesses o, o', and p in the sleeve E, said recesses being arranged, in respect to each other, as set forth.

5. The combination of the face-plate A of the lock and its tubular projection a with the slotted sleeve E and its suspending-ring f, as and for the purposes set forth.

180,856. BELT-HOLDERS. Jos. W. Miller, Washington, Pa. [Filed Nov. 27, 1876.]

Brief.—The tension of the spring can be regulated.

The axial spindle C, adjustably fitted to the bracket C', in combination with the movable jaw B, bearings E F, and spring G, substantially as and for the purpose set forth.



180,857. GRINDING-MILLS. Enoch Moore and David Moore, Mooreville, Iowa. [Filed Apr. 10, 1876.]



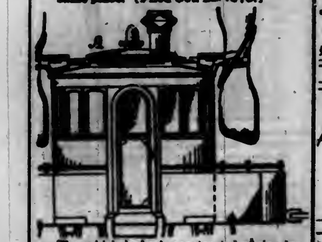
The combination of the stationary and rocking supporting-plate D, having pivots F, with the cross-beams B', the rocking plate A, and the rocking bed-stone, as and for the purpose set forth.

180,858. MINERS' LAMPS. James C. Moore, Saltsburg, Pa. [Filed Mar. 11, 1876.]



A miner's lamp, with a spring-lid holding device, substantially as described, as a new article of manufacture.

180,859. VEHICLE-PROPELLERS. Thomas E. Neal, Philadelphia, Pa., assignor of one-half his right to Marcus F. Richardson, same place. [Filed Oct. 28, 1875.]



The vehicle-body A, constructed of circular form, in combination with two air-propellers of uniform construction, and mechanically operated, one of said air-propellers being located in front of the body, and the other air-propeller at the rear thereof, the whole arranged and operating as herein set forth, and for the purpose described.

180,860. STEAM-STILLS. Adolphus F. W. Meynaber, New York, N. Y. [Filed Nov. 22, 1875.]

Brief.—Steam heat over and out of contact with the whisky, and first applied near the whisky-inlet. Whisky streamed into longitudinal divisions of the inclined bed

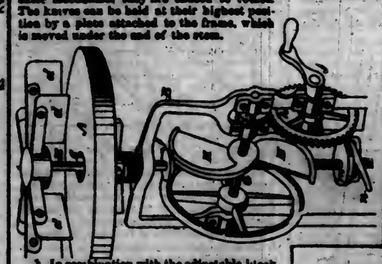


1. The combination of distilling-chamber A, having one or more liquor-outlets, E, and a liquor-inlet, the steam-pipe D in the upper part of the chamber, and above the surface of the liquor in the chamber, and having an inlet near the liquor outlet or outlets, whereby only surface-distillation is effected, as set forth.

2. The combination of chamber A, having liquor-outlet and longitudinal divisions, with perforated liquor-inlet and inclined steam-pipe D above the surface of liquor in the still, substantially as and for the purpose described.

180,861. MEAT-CHOPPERS. Nils A. Olsson, San Francisco, Cal. [Filed Apr. 15, 1876.]

Brief.—The knives are raised by a cam working against the bottom of a tappet so caused to the knife-bearing stem, and by the same mechanism they are caused to rotate. The knives can be held at their highest position by a plate attached to the frame, which is moved under the end of the stem.



1. In a time-lock, the combination of the screw I, armed nut H G, releaser F, and movable lever-stop D B, or its equivalent, with the bracket C and bolt A, substantially as specified.

2. In a time-lock, the combination of the screw I, armed nut H G, graduated scale M, releaser F, and movable lever-stop D B with the bolt A, substantially as specified.

3. In a time-lock, the screw I, provided with the thumb-disk Q, and connected with the post J of the time-movement by means of the friction-clutch O P, tube E, cranks S T, and pin V, in combination with the armed nut H G, graduated scale M, and releaser F, substantially as specified.

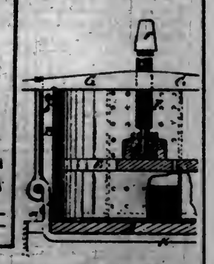
180,862. GEARING-RINGS. Harvey Prather, Sandwich, Ill. [Filed Apr. 26, 1876.]



1. A grinding-ring having a series of grinding-ridges cut away upon the under side, so as to be hooked in form and present cutting edges, as shown by a and b in the drawings substantially as and for the purpose specified.

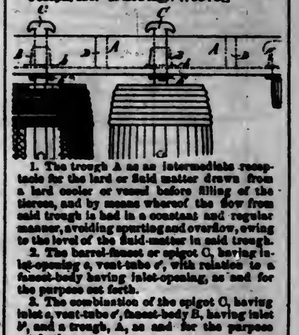
2. A grinding-ring having a series of grinding-ridges cut away on the under side, so as to be hooked in form, in combination with a second series of similar but shorter ridges, b, and a series of smaller ridges, c, substantially as and for the purpose described.

180,863. LARD-PRESSES. Penny Pemberton, Newark, Del. [Filed July 1, 1876.]



An improved lard-press formed by the combination of the follower E provided with a stop, s', the screw F, the cross-bar G, the hinged clevises I, the bolts J, and the bar K having its ends bent upward at right angles with each other, and with the platform A, and the can B provided with the spout C, recess s', and slide s'', substantially as herein shown and described.

180,864. APPARATUS FOR DRAWING LARD, &c., FROM COOLERS. David Pinger, St. Joseph, Mo. [Filed Apr. 7, 1876.]



1. The trough A as an intermediate receptacle for the lard or fluid matter drawn from a lard cooler or vessel before filling of the tierces, and by means whereof the flow from said trough is had in a constant and regular manner, avoiding spurting and overflow, owing to the level of the fluid-matter in said trough.

2. The barrel-faucet or spigot C, having inlet-opening c, vent-tube c', with relation to a faucet-body having inlet-opening, as and for the purpose set forth.

3. The combination of the spigot C, having inlet c, vent-tube c', faucet-body E, having inlet b', and a trough, A, as and for the purpose set forth.

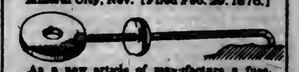
4. An improved faucet, of the character herein shown and described, with relation to a trough and lard-cooler or cooling-vessel, to operate in the manner and for the purpose set forth.

180,865. CAR-COUPLINGS. Hiram Pitcher, Fond du Lac, Wis. [Filed Feb. 14, 1876.]



In a car-coupling, the combination, with a draw-bar having a T-head, of pivoted hooks united at the end, and hooking over the outside of draw-bar, as and for the purpose specified.

180,867. FUSE-LIGHTERS. John W. Platt, Mineral City, Nev. [Filed Feb. 29, 1876.]



As a new article of manufacture, a fuse-lighter made of inflammable material, and punctured in the center to receive the fuse, as set forth.

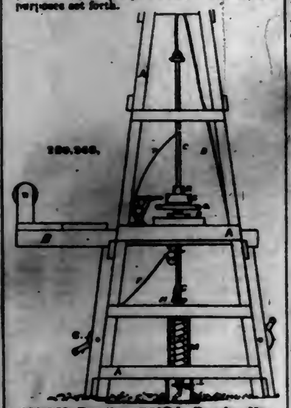
180,868. BARTE-BORING MACHINES. Geo. C. Price and Thomas D. Morgan, Santa Rosa, Cal. [Filed Apr. 18, 1876.]

1. The well-boring machine, composed of the frame A, having the platform B, the drums E and G, and the hollow boring-shaft C, having the supply-port I and the discharge-port T, when operated in connection with and by means of the adjustable boring-screw O and

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female screw X, and the hand-wheel G, pulleys B and S, the pump V and hose T, the sliding anger J, and the adjustable jointed boring bit L, the whole being operated as and for the purposes set forth.

2. The pump V and hose T, in combination with the hollow boring-shaft C, for the purpose of supplying air or water, as and for the purposes set forth.



180,269.

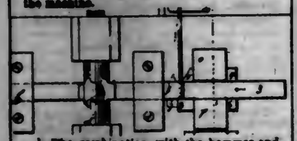
180,269. BED-BOTTOMS. John Reardon, New York, N. Y., assignor to Orville D. Lovell and Frank E. Lovell, same place. [Filed May 9, 1876.]



A bed-bottom spring formed of the rabbeted U-frame A, the flanged cross-head B, the guide-pin C, and the spiral spring D, constructed and arranged to operate in connection with each other, substantially as herein shown and described.

180,270. MACHINES FOR WELDING STEEL HEADS ON HATCHETS, &c. Henry C. Reynolds, Manchester, N. H. [Filed May 8, 1876.]

Brief.—The iron is clamped between jaws faced by a cutter and a gage, respectively. The steel strikes against the gage, and rests against the cutter at the point at which it is to be cut off, until the welding is done by the hammer operated by a tappet-shaft, when, on relieving the jaws partially, the hammer cuts the steel in forcing the welded blank from the machine.



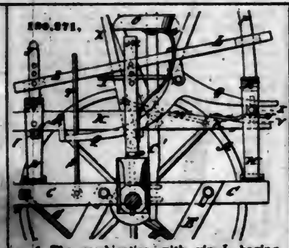
1. The combination, with the hammer and jaws, of the faces 6 6, provided with head 8 and a cutting-edge, to hold the iron and sever the steel when welded, substantially as described.

2. The jaws, and mechanism for actuating them, in combination with the faces 6 6, the former provided with head 8, to serve as a gage for the end of the bar of steel, and the latter with a cutting-edge to sever the steel after welding, substantially as described.

3. The retainer and its operative mechanism, in combination with the hammer and jaws P, provided with faces 6 6, cutting-edge, and head, all substantially as described.

180,271. WEEDER-CULTIVATORS. William N. Biddle, Caddo Grove, Tex. [Filed Apr. 26, 1876.]

Brief.—The cultivator-beams are suspended beneath the raised axle-tree by arched connections and pivoted bar, the height being regulated by lever and spring attachment to tongue.



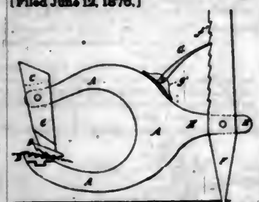
180,271.

1. The combination with pin I, having loop V, of the spring U, arranged to hold the plows down to their work, but yielding sufficiently to allow them to move, as shown and described, for the purpose specified.

2. The combination of the bows H, the pins I, the arms J P, and the lever L, with the plow-beams O, the tongue K, and the uprights M, attached to the axle B, substantially as herein shown and described.

3. The combination of the bent lever Q with the lever L, pivoted to the uprights M, and with the pin f of the rear bow H, substantially as herein shown and described.

180,272. CARPET-STRETCHERS. Lewis W. Rivers, Salt Lake City, Utah, assignor to himself and Hanson J. Rivers, same place. [Filed June 12, 1876.]



An improved carpet-stretcher, formed of the U bar A, the stationary jaw B, the swinging arm and jaw C D, the arm or leg E, the lever F, provided with a sharp lower end and with ratchet-teeth f', and the spring-pawl G f', constructed and operating substantially as herein shown and described.

180,273. RAG-HOLDERS. George M. Robinson and John Robinson, New Wilmington, Pa. [Filed May 29, 1876.]



1. In a bag-holder, the elliptic ring C, having the slide or handle c', in combination with the shank B, post F, and screw E, substantially as described.

2. In a bag-holder, the screw E, in combination with the ring C, shank B, post F, and bolt b, substantially as described.

3. The ring C, having the handle or slide c', shank B, post F, in combination substantially as described, and as and for the purpose set forth.

180,274. GAS-BURNING METALLURGIC FURNACES. Richard S. Robertson, Jr., Pittsburg, Pa. [Filed Apr. 20, 1876.]



1. A flue, O', over the roof of the furnace, and the diving and uptake flues o d arranged relatively to the bridge-wall, substantially as set forth, in combination with a gas-supply furnished at or near the level of the bridge-wall.

2. The gas-supply pipes s s', arranged up and down the bridge-wall, and uptake gas-flues t, in combination with air-heating supply-flues, substantially as set forth.

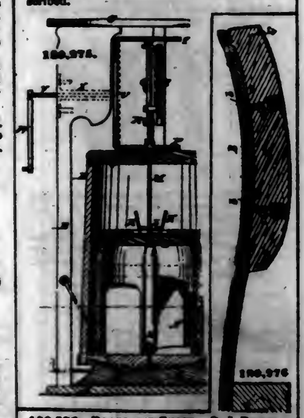
3. The expansion gas-chamber and flue t, in combination with pipes s s', and air-flues s d, substantially as set forth.

180,275. CHURNS. Sylvanus B. Robison, Allenville, Mo. [Filed June 6, 1876.]

Brief.—A vertical churn and dasher-shaft operated in different ways by the gearing above, the interior of the churn-body carrying wings, making a current counter to that of the central shaft.

1. The combination of the block E, provided with the hinge F, and the latch G H, with the platform A and posts B, substantially as herein shown and described.

2. The combination of the stationary dasher I J, provided with the bolts K and spring L, and the rotating dasher M N, with the churn-body D and the driving mechanism P T U V W, substantially as herein shown and described.



180,275. 180,276

180,276. BOOTS AND SHOES. D. J. Rogers, Bardstown, Ky. [Filed Jan. 31, 1876.]

The combination of the wood sole E, the leather insole B, to which the upper is attached on the last, the metal middle sole B, nuts b, and two central screws, d d, all constructed and arranged substantially as shown and described.

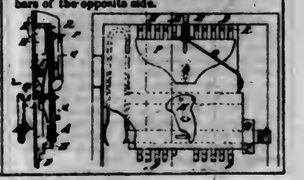
180,277. GARBAGE-RECEPTACLES. Andrew Schmitt, Williamsburg, N. Y. [Filed July 3, 1876.]



The receiver B, with projections b b and lid C, in combination with the receptacle A, with the handles a a, all substantially arranged as and for the purpose set forth.

180,278. COMBINATION-LOCKS. I. D. Sibley, Hazlewille, Ala. [Filed June 19, 1876.]

Brief.—Two systems of bars and springs are arranged one on each side of a guard-bolt, to slide toward and from it, and are so contrived that the bars of one side, when adjusted against the bolt, lock it, and when in that position are unlocked by sliding up the bars of the opposite side.



One or more sliding bars, D, having a spring, E, and incline G, arranged on one side of the guard-bolt A, having projections C, in combination with one or more knob-slides, H, having a spring, I, and a cam, J, and being arranged on the opposite side of the bolt A, substantially as specified.

180,279. STOVES. Chas. M. Sipes, Arkansas City, Kans. [Filed June 6, 1876.]

Brief.—When the direct draft is employed the damper is held in horizontal position by means of the weighted edge and pin or stop.

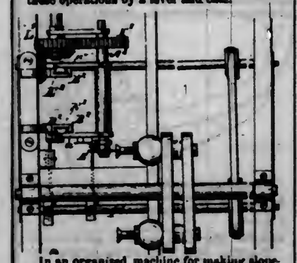


1. The combination, with stove having smoke-outlet above center and saddle O at top, of the pipe B and smoke-outlet a, connected by a flue, b, having damper therein, substantially as shown and described.

2. The combination, with a smoke-flue at the highest point of the stove, of a damper weighted at the upper part, and having a projecting pin at the lower part, substantially as set forth.

180,280. MACHINES FOR CUTTING SLOPED NICKS IN WOOD-SCREWS. Thos. J. Sloan, New York, N. Y. [Filed Feb. 29, 1876.]

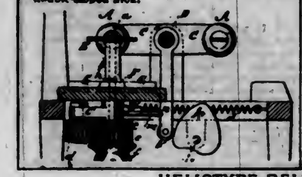
Brief.—The shaft of the nicking-saw is journaled in bearings formed in swinging standards, the lower ends of which are pivoted to sliding blocks that are capable of a vertical movement in upright guides, and is rotated by a peculiar system of gearing. Attached to one of the sliding blocks is a rod, connected at its lower end with a lever, the longer arm of which rests upon a cam of the configuration necessary to raise the said lever and rod, and thereby tilt forward the saw-shaft standards, to cause the saw to cut first one slope, then the shallow portion, (for the ordinary driver,) and finally the other slope of the nick, the saw being raised to permit these operations by a lever and cam.



In an organized machine for making slope-necked screws, the combination, with a blank holder, fixed as concerns rotation on its own axis, of a nicking tool or cutter, constructed and arranged to cut the sloped nick of the head of the blank directly across, from one side to the other, without turning the blank, substantially as set forth.

180,281. MACHINES FOR CUTTING SLOPED NICKS IN WOOD-SCREWS. Thos. J. Sloan, New York, N. Y. [Filed May 8, 1876.]

Brief.—The invention comprises mechanism for automatically turning the dick, in the slot of which the saw-holding slide is adjusted, alternately in opposite directions, so as to cause the nicking-saw to cut both halves of the double-sloped nick.



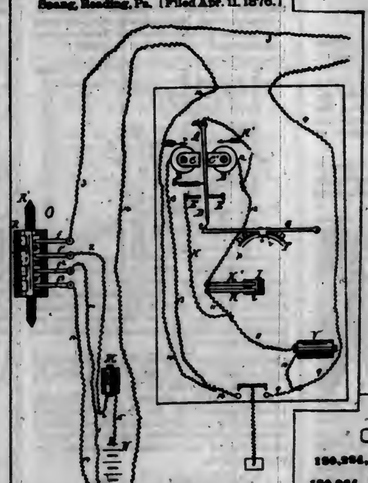
1. The nicking-saw, combined in relation with the jaws which hold the screw during the nicking operation, and with the cam k and spring J, arranged to give the movement herein described to the nicking-saw in the operation of nicking the head of the screw or blank, substantially as and for the purpose herein set forth.

2. The holder I F G, carrying the nicking-saw, in combination with the holding-jaws A, the part G of said holder having its axial movement nearly or quite coincident with the center of the head of the screw or blank to be nicked, substantially as and for the purpose herein set forth.

3. The holder comprising the parts I F G, adjustable with reference to each other, in combination with the nicking-saw E, carried by the said holder, and the jaws holding the screw or blank during the operation of nicking, all substantially as and for the purpose herein set forth.

4. The combination of the holder I F G, made adjustable, as described, and carrying the nicking-saw E, with the jaws A, which hold the screw during the nicking operation, and suitable mechanism for operating the saw, all substantially as and for the purpose herein set forth.

180,282. FIRE-ALARM TELEGRAPHS. H. W. Seang, Reading, Pa. [Filed Apr. 11, 1876.]



1. In a fire-alarm-telegraph circuit, the combination of a polarized electro-magnet, or its equivalent, in each signal-box, with a circuit-reverser, arranged to reverse the direction of the electric current while an alarm is being given, substantially as and for the purpose set forth.

2. In a fire-alarm-telegraph circuit, the combination of a polarized electro-magnet, or its equivalent, in each signal-box, the armature-lever of which, except that of the box first pulled or set in operation, are arranged to absent all the break-circuit wheels out of the main circuit during an alarm, with a circuit-reverser, arranged to reverse the direction of the current while an alarm is being given, substantially as and for the purpose set forth.

3. In a fire-alarm signal-box, the combination of the armature-lever of a polarized electro-magnet, arranged to be operated by a reversed current of electricity, with a device or devices for locking said lever in the position it is in when a box is pulled, substantially as and for the purpose set forth.

4. The combination of lever D of polarized electro-magnet A with hooked locking-lever G, substantially as described.

5. The combination of lever D of polarized electro-magnet A, metallic screw or post H, wires H H', wires 11 12 of the break-wheel circuit, and locking-lever G, substantially as shown, and for the purpose set forth.

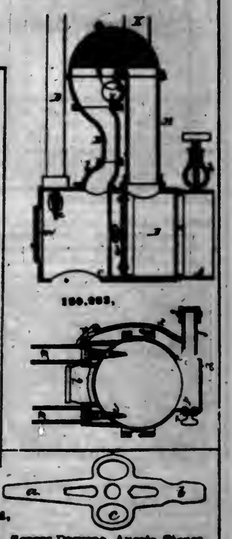
180,283. SPARK-ARRESTERS FOR STEAM-BOILERS. Frank M. Stevens, Concord, N. H. [Filed Apr. 24, 1876.]

1. The combination of the elbow-pipe G, its partition j, the two branch ejects K K, and the conduit E, all constructed and arranged substantially in manner and for use with a chimney and spark-receiver, as set forth.

2. The steam-jet tube A, in two sections, coupled as described, and provided with a stop-cock, k, in combination with the boiler A and the spark-receiver C, hinged together and provided with the educt f, all being substantially as set forth.

3. The spark-receiver C, provided with a receiving-mouth, i, (separate from the conduit E, for the discharge of sparks into such receiver,) and hinged or applied to the open end of the smoke-box B, so as to be removable therefrom, and the conduit E, all essentially as set forth, such open end of the smoke-box being provided or not with a head, as specified.

4. The combination of the spark-receiver C and its discharge chimney or chimneys D with the smoke-box B, the chimney H, the elbow-pipe G, and its three ejects E K K, all being arranged and to operate as set forth.



180,283.

180,284. SCREW-DRIVERS. Augus. Stoner, Jersey City, N. J. [Filed May 11, 1876.]

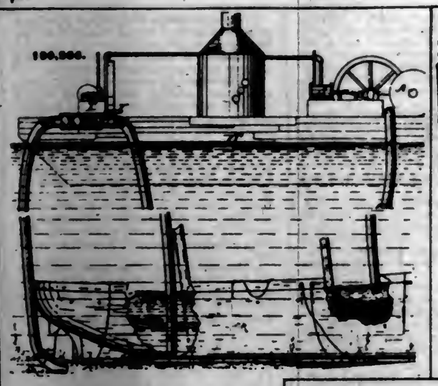
Brief.—A double-ended screw-driver and handle is made from a flat plate of metal, the handle being formed by an increased width of the metal about midway between the ends of the driver.

As a new article of manufacture, the double-ended screw-driver and handle, made of a flat metal plate, the central portion of which is of a width sufficient to form said handle, as set forth.

180,285. MANUFACTURE OF NUTS. Jacob Sutter, Pittsburg, Pa. [Filed Dec. 10, 1875.]



The method herein described for manufacturing nuts, consisting of the following steps: first, forming a bar of iron, the cross-section of which corresponds to, and is slightly less than, that of the nut to be produced; secondly, dividing said bar into sections of suitable size; thirdly, inclosing the blank thus formed in a close die-box; and, finally, forming the eye of the nut, while supported in the die-box, by means of a punch, which increases in size from the entering end, substantially as and for the purpose specified.



180,806.



180,806.



180,807. LOCKS AND LATCHES. Henry R. Towne, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed May 12, 1876.



1. The combination, substantially as set forth, of the bolt, the slide or plate moving at a right angle thereto, and the pivotal links for guiding said slide, the combination being such that vertical motion of the slide shall cause a simultaneous horizontal motion of the bolt.

2. In a mortise-lock, the mechanism of which is to be operated upon by the key is contained within one or two separate tumbler-cases or escutcheons, adapted to be secured to the lock-case after the latter has been mortised into the door, a cut or slide contained within said lock-cases, and controllable only when the door is open, which cut or slide is adapted to suitably engage with either one or both of said escutcheons inserted through either or both sides of the door, and to prevent the withdrawal of said escutcheons from the lock case.

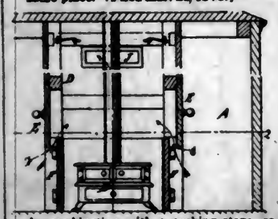
3. The combination, substantially as set forth, of the slide M, adapted to engage with one or more escutcheons or tumbler-cases, and to prevent the withdrawal of the latter from the lock-case, and the operating-screw J, inaccessible when the door on which the lock is used is closed.

4. The slide, or cut H, provided with two wings or projections, h h, and adapted to engage, as described, with either one or two escutcheons or tumbler cases inserted from one or both sides of the case of a mortise-lock.

180,808. FASTENINGS FOR KNOB-SPINDLES. Henry W. Trefethen, Hickory, Mo. [Filed June 2, 1876.

The rose-bead *l*, bearing-plate P, with opening *b*, and opening *a*, with lip *f*, in combination with the locking-plate O, having opening *f*, of the form described, encircling the knob-spindle *a*, and the transverse sliding stop *g*, constructed to operate as and for the purpose specified.

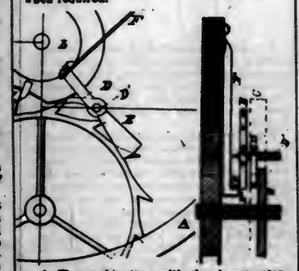
180,809. STOVE-COVERINGS. Andrew J. Vandeventer, Martinsburg, Mo., assignor to himself and Archibald M. Vandeventer, same place. [Filed Mar. 21, 1876.]



In combination with a cooking stove or range, a casing having the doors E F made in two parts, and with their adjacent edges overlapping each other, and at such a distance apart as to leave spaces G between them for the entrance of cold air, substantially as herein shown and described.

180,810. CHRONOMETER-ESCAPEMENTS FOR WATCHES. F. Hartman Voigt, Buffalo, N. Y. [Filed May 18, 1876.]

Brief.—A spring arranged on the balance-wheel engages with the chronometer-lever, thus locking the detent when the balance is traveling in one direction, and releasing it to permit the detent to liberate the escape-wheel when required.

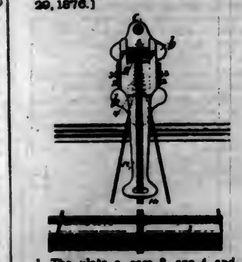


1. The combination, with the chronometer-lever E, of the spring F or its equivalent, for operating said chronometer, substantially as described, for the purpose stated.

2. The combination, with the balance A, of the spring F and the chronometer-lever E, said spring and chronometer being provided with means, substantially as described, for engagement and disengagement, as stated.

3. The combination, with the spring F, having the projection F', or their equivalent, of the chronometer-lever E, provided with the cam D' or its equivalent, said spring being arranged to engage the chronometer in its forward movement, and to avoid the same in its return stroke, substantially as described, for the use and purpose mentioned.

180,811. CURTAIN-FIXTURES. Frederic A. Vredenburgh, Carmel, N. Y. [Filed May 20, 1876.]



1. The plate *a*, ears 2, eye 4, and spring clamping-tongue *b*, made of one piece of sheet metal, in combination with the lever *c*, with the eye 10 for the cord, substantially as set forth.

2. The cord-holder for a window-shade, made of the swinging lever *c*, having an eye, 10, the spring-clamp *b*, and a guide-eye, 4, substantially as set forth.

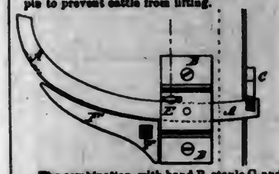
180,812. FOLDING CHAIRS. J. E. Wakefield, Worcester, Mass., assignor to E. W. Vaill, same place. [Filed Feb. 24, 1876.]



The combination of the links *m m* with the folding seat-frame *f*, front legs *d*, stops *e*, and back legs and frame, substantially as set forth.

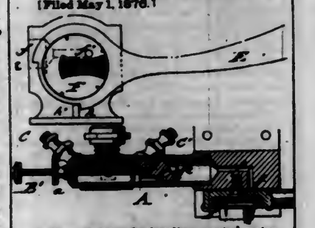
180,813. GATE-LATCHES. Cirby J. Wallis, Troy Station, Tenn. [Filed Apr. 18, 1876.]

Brief.—A pivoted bevel-based curved latch is operated by a curved lever, and has a guard-pin to prevent cattle from lifting.



The combination, with hand B, staple C, and guard E, of the curved latch A, knob F, and lever F', substantially as and for the purpose specified.

180,814. MACHINES FOR BOTTLING AERATED WATERS. Geo. Wenker, St. Joseph, Mo. [Filed May 1, 1876.]



1. In a machine for bottling aerated water, the supply-barrel, having a three-way cock for opening and closing the syrup and aerated-water pipes, in combination with an adjustable regulating-piston, having exit channel and valve, substantially as herein set forth and described.

2. In a machine for bottling aerated water, the combination, with the exit-channel *f*, of a swinging and perforated lever, E, and elastic disk F fitted to closing device of bottle, to

produce the simultaneous opening and closing of channel *f*, with the opening and closing of bottle-closing device, substantially as specified.

180,815. FASTENING ATTACHMENTS FOR HORSES' FEET. Wm. B. White, Boston, Mass. [Filed June 6, 1876.]



In combination with the hook *d d'*, the strap *c*, arranged in the manner and position shown, and provided with a double loop by means of the dividing-loop *g*, for the purpose of holding in place a horse's or other animal's boot, hand, or other foot attachment, as herein set forth.

180,816. BRIDGES. John S. White, Portland, Me. [Filed May 1, 1876.]

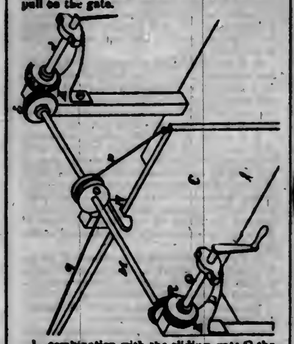
Brief.—The straight rows of wedges permit the bristles to be clamped when the tapering handle is driven in.



The combination of the tapering handle *c*, head *a*, provided with rows of straight wedges *b*, and the ferrule *d*, substantially as herein described.

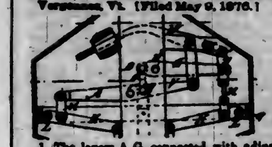
180,817. FARM-GATES. Richard Whitlock, Pacheco, Cal. [Filed Jan. 4, 1876.]

Brief.—One cord has one end attached to the double pulley, the other to the rear end of the gate. This latter cord has one end secured to the front end of the gate, the other passing around the pulley in a separate groove from the other cord, so that when the shaft is rotated, one cord is being wound while the other is unwinding, thus securing a positive pull on the gate.



1. The combination, with the sliding gate O the transverse shaft M, with its double pulley O, and the separate cords *p q*, operated by the transverse crank-shafts Q and bevel-gears E S, substantially as and for the purpose described.

180,818. WRINGING-SCALES. H. Willard, Vergennes, Vt. [Filed May 9, 1876.]

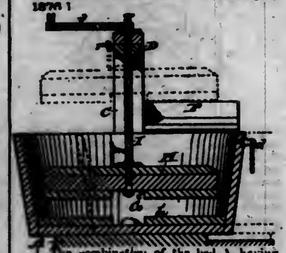


1. The levers A G, connected with adjusting-lever W on opposite sides of its fulcrum, substantially as and for the purpose specified.

2. The forked beam-lever N, pivoted to the adjusting-bar Q, as described, in combination with intermediate levers K, substantially as specified.

3. The weight-hook pivot S, connected adjustably to the beam-lever, and provided with a shifting-screw to set the scale for net or gross weight, substantially as specified.

180,819. WASHING-MACHINES. William H. Wills, Forest City, Mo. [Filed May 8, 1876.]



1. The combination of the bed A, having transverse grooves *c c*, and the tub G, provided with the cleats *b b*, the rubber H, crank-shaft J, bar D, hinged bail *m*, and hook *r*, substantially as and for the purposes herein set forth.

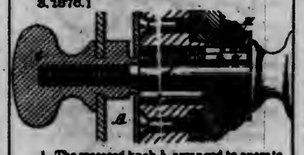
2. The combination of the rubber H, crank-shaft *f*, bar D, hinged bail *m*, and hook *r*, substantially as and for the purposes herein set forth.

180,820. CLOTHES-DRIERS. Randolph A. Winters and Franklin D. Winters, Bloomville, Ohio. [Filed May 24, 1876.]



The rest-head consisting of the arms A, provided with the projecting point M, which fits into the grooved recess *n*, secured in position by the top and lower plates B and E and the bolts D, in combination with the lever F, segment H, secured and adjusted by the pin I on the bolt G to the post K, as described, and for the purpose set forth.

180,821. COMBINATION-LOCKS. John H. Woodrum, Portland, Oreg. [Filed Apr. 3, 1876.]



1. The recessed knob *b*, arranged to operate the bolt of lock A, in combination with the adjustable knob-spindle *d* and the combination-rings G H, whereby the spindle is capable of being either connected to the recessed knob, so as to operate the bolt, or of disconnection therefrom, and being itself locked by means of the combination-rings, substantially as set forth.

2. The stationary plate *f* and sleeve *e*, carrying the combination-rings G H, in combination with the adjustable spindle *d*, provided with projecting pins *p* and the recessed knob *b*, substantially as specified.

180,822.



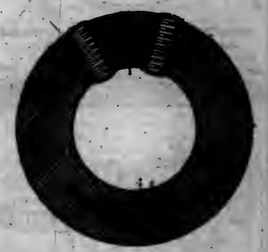
180,822. STREET-LAMPS. John S. Woods, Brookline, Mass. [Filed Jan. 20, 1876.]

The oil-holder A and burners F, located on the plate C, and connected by channel D, and the reflectors supported on the oil-holder, all substantially as specified.

180,823. REMEDIES FOR HOG-CHOLERA. William J. Woods, Elmwood, Ill. [Filed Mar. 4, 1876.]

The medicine for the prevention and cure of hog-cholera, composed of copperas, black pepper, golden seal, sal-soda, alum, hyposulphite of soda, yellow-dock root, sanguinaria, sal-niter, poke-root, carbolic acid, and tincture of iodine, in about the proportions and for the purposes herein before set forth and described.

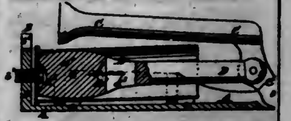
180,824. DIVIDED COLLARS FOR SHAFT-COUPLINGS. James Tocom, Jr., Philadelphia, Pa. [Filed July 12, 1876.]



1. The combination, in a divided collar for shafting, &c., of two sections connected by interlocking hinge-pieces, united to the sections in the operation of casting the latter, and formed of a metal of greater strength than that of which the sections are composed, substantially as set forth.

2. The combination, in a divided collar for shafting, &c., of two sections, interlocking hinge-pieces, and a set screw or screws passing through the hinge-pieces and sections, substantially as set forth.

180,825. TOOLS FOR CAPPING AND UNCAPPING CARTRIDGES. Isidore Rambosi and Carlo Rambosi, Owatonna, Minn. [Filed May 27, 1876.]



The device formed of the semi-cylindrical plate A, provided with the ribs *a' a'*, the disk B, provided with the screw *b'*, the pins *b'*, and the notch *b'*, the bent lever C and the slotted stem D, provided with the pivoted block *d'*, having recesses *d'* formed in its ends, and having a needle, *d'*, attached to one of said recessed ends, substantially as herein shown and described.

180,826. MACHINES FOR FORMING METAL-RING BLANKS. John Ash, New Haven, Conn., assignor to the Crawford Manufacturing Company, Pittsburg, Pa. [Filed Jan. 17, 1876.]

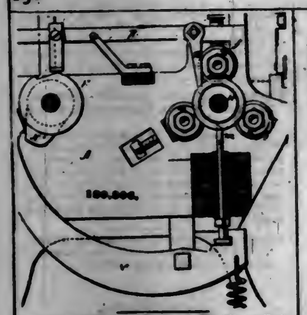
Brief.—A divided former, coiling-rolls, a cutter to sever a complete single coil, a trip to secure its discharge, a clamp to arrest feed of wire, and a pressure-follower to cause the upper roll to bite.

1. The combination of the divided former H I, the rolls *n*, and the cutter *m*, for separating successive coils to form the blanks, substantially as specified.

2. The combination of the divided former I, H, the rolls *n*, the cutter *m*, and the trip R, substantially as set forth.

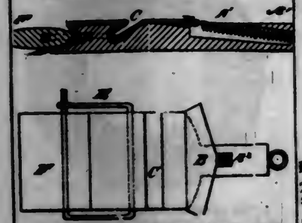
3. The combination of the former H, the rolls *n*, and the clamp *t*, substantially as described.

4. The combination of the former H, the rolls *n*, the loose gear E, with intermediate gearing to connect the said rolls, the principal gear D', and an automatic clutch, which will engage and disengage the said principal gear, to cause or stop the revolution of the rolls, substantially as described



180,807.

180,807.—Ironing-Boards.—Eli Albert, Red Oak, Iowa. [Filed June 24, 1876.]



1. Shoulder-support B, in combination with handle A' of the ironing-board and spring A', substantially as set forth.

2. The combination of clamping-cam F and clip E, or its equivalent, substantially as set forth.

3. Ironing-board A, grooved at C and recessed at D, substantially as set forth.

4. The combination of shoulder-support B, spring A', clamping-cam F, and clip E, with holder A, having handle A', groove C, and recess D, substantially as and for the purpose set forth.

180,808.—Cooking Utensils.—Amedee Artzdanes, Philadelphia, Pa. [Filed June 10, 1876.]

Brief.—The legs can be folded over the pan and both covered away in the dish. It is adapted to bake light food, such as paper, shavings, &c.



1. A cooking utensil formed of two concave or saucer-shaped disks, held together by their edges, and forming a shallow and nearly air-tight vessel, substantially as shown and described.

2. The body A of a cooking utensil, having its middle or center of thinner metal than its borders, to permit the speedy transmission of heat to the interior of the vessel, in combination with the heater or pan D, substantially as set forth.

3. The pan D, having perforated bottom d, and hinged flaring legs E, substantially as illustrated, for the purpose mentioned.

4. The combination of the vessel composed of the dish-sections A B, with the pan D, having flaring hinged legs, said legs sustaining the vessel when in use, and being adapted to be folded and placed therein, substantially as shown and described.

180,809.—Combined Perforating and Clamping Stamps.—Charles Armstrong, Chicago, Ill. [Filed Dec. 20, 1876.]



1. In a hand cementing-stamp, the combination, with the yielding post-marking die C, of the rigid perforating-die B, the latter formed solid, with its working-face provided with perforators, and arranged relatively to the yielding die, that the lower faces of the duplex die shall be practically on the same plane, substantially as and for the purpose set forth.

2. The combination, with the solid perforating-die B, provided with a screw-threaded shank, of the annular yielding-die C, ferrule F, and handle A, substantially as and for the purpose specified.

180,810.—Car-Couplings.—Lewis P. Bailey, Helena, Ark. [Filed June 24, 1876.]

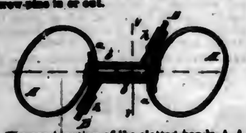


1. A draw-bar, constructed with a space, a, and a chamber, c, constructed with a narrow floor and two shoulders, d, in combination with a coupling-ball, C, substantially as described.

2. In combination with a coupling-ball, C, the bar D, hooked, pointed, and curved as shown.

180,811.—Hand-Shackles.—A. F. Baldwin, Newark, N. J. [Filed June 7, 1876.]

Brief.—The shackles are slotted, and may be increased or reduced in size by moving the screw-pins in or out.



The combination of the slotted bands A A, sleeves b b, swivel-pin d, and screws B B, all constructed and arranged substantially as and for the purposes herein set forth.

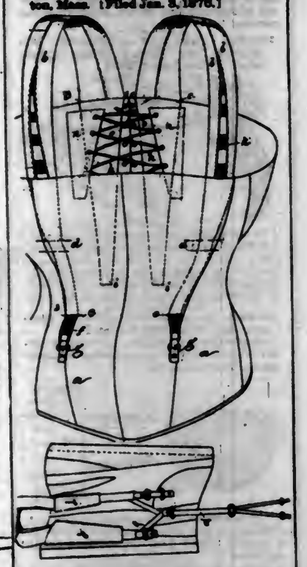
180,812.—Clothes-Dryers.—Charles E. Ball, Philadelphia, Pa., assignor to A. E. Christ, same place. [Filed June 21, 1876.]



1. The bracket A, having screws a, semi-circular rings a' a', ribs a', and head C, substantially as shown and described.

2. In combination with the bracket A, having the rib or head C on its under side, the arms D, beveled as shown at f, and provided with clips E, forming elongated passages d, for the passage of the ring a', and grooved to form a lip, g, for engagement with the head C, substantially as shown and described.

180,813.—Corsets.—Julia D. Canfield, Boston, Mass. [Filed Jan. 9, 1876.]



1. A corset, in combination with shoulder-straps connected with the back of the corset, and provided at their free ends in front of the corset with suitable devices to connect with and hold the skirts, substantially as described.

2. The combination, with a corset provided with loop or pocket between the extends of the bust or gore pieces and the sides of the corset, adapted to extend under the arm, of a shoulder-strap, extended over to the front of the corset and through the loop or pocket, to sustain garments, and operate in connection with the bust portion and bust, substantially as set forth.

3. A shoulder-strap connected at the back, and extended over to the front of the corset at or near the waist, and provided with elastic end pieces, in combination with skirt engaging and holding devices to support skirts or garments, substantially as described.

4. A corset and shoulder-straps connected with the back of, and adapted to extend over to the front of, the corset, and skirt engaging and holding devices attached at the free ends of each straps, in combination with straps attached to the back of the corset and provided with skirt engaging and holding devices to support the skirts at the front and back of the waist by such straps, substantially as described.

5. The shoulder-straps, composed of strips h, shaped and united by a seam, as at j, and separated and provided with elastic portions adapted to yield in the direction of the width of the strap, to adapt the strap to the shoulder, substantially as described.

6. A shoulder-strap provided with elastic portions to yield in the direction of the width of the strap, in combination with elastic portions to yield in the direction of the length of the strap, and with garment-supporting attachments, to operate substantially as set forth.

7. Shoulder-straps adapted to extend over the shoulders and to terminate at or near the waist at back and front, and provided with skirt engaging and holding devices, in combination with stocking-supporters, sustained through the shoulder-straps, substantially as set forth.

8. A corset, provided with slits s at the lower portion of the gored pieces, and of their outer sides, and shoulder-straps, connected with the back of the corset, adapted to extend through such slits to the outside of the corset, in combination with hooked fastenings adapted to grasp and hold skirt-bindings, to sustain skirts entirely from the shoulder, substantially as described.

3. A corset and shoulder-straps, provided at their free ends with skirt engaging and holding devices, and connected only with the back of the corset, and extended to or near the waist at back and front, in combination with stocking supporters and stocking-engaging attachments supported by the free ends of the shoulder-straps, substantially as described

180,814.—Hinges.—Abel Barker, Wyoming, Pa. [Filed July 20, 1876.]

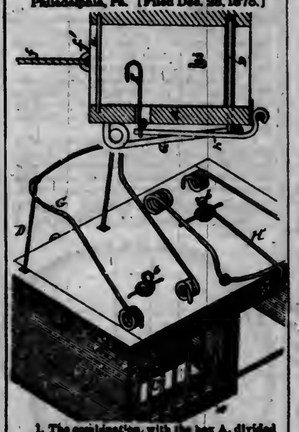
Brief.—The eccentric leg serving as a guide, and greatly facilitating the ready engagement of the two parts of the hinges in the hanging of doors, blinds, &c.



180,814.

As a new article of manufacture, a hinge or butt provided near the end of one of its sections with a concentric leg, which embraces the inner edge of the opposite section, and operates as a guide for the latter when said sections are moved into engagement with each other, substantially as and for the purpose specified

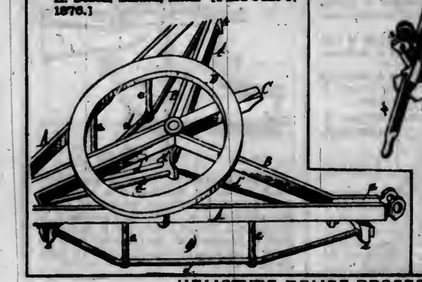
180,815.—Animal-Traps.—Joseph W. Eaton, Minneapolis, Minn., and B. Burgerrode Philadelphia, Pa. [Filed Dec. 22, 1875.]



1. The combination, with the box A, divided into two compartments, and having entrances at opposite ends, of the gratings a a at opposite ends, decoy-bait boxes C C, bait-hooks E E, with loops or rings b b, springs G G, bails D D, and rods H H, all substantially as and for the purposes herein set forth.

2. An animal-trap having the swivel f or its equivalent, the rings f', the grating a at its upper end, open at its lower end, and provided with interior decoy-bait hook i and hook E, for springing the trap, all substantially as herein set forth.

180,816.—Fifth-Wheel Platforms.—Alex. H. Beach, Linden, Mich. [Filed June 6, 1876.]



The combination with the futchels A B B bent in the form described, the tie-rods d d', the posts c, strut c', and brackets e, all constructed and arranged substantially as set forth and shown.

180,817.—Oil-Tanks.—James M. Bean, Watertown, Mass. [Filed Jan. 13, 1876.]

1. The combination of the tank-body A, having a covered sectional extension, B', as a rigid part thereof, with the sectional tank-cover B, having a sloping top and a side which is a portion of a cylinder with its base in the same horizontal plane with the body of the extension B', said covering revolving horizontally over and from said extension, as and for the purposes set forth.

180,817.

2. In an oil-tank, A, the combination and arrangement of the circular floor C C', the truncated cone G, having within it a spring, f, and a bar, h, the inclined pump D having hooks a a', the brace E and its semicircular sheath E', substantially as shown and described.

180,818.—Process of Preserving Fruit.—Lyman Bradley, Buffalo, N. Y. [Filed Nov. 20, 1874.]

The process of treating the various fruits and vegetables above enumerated, for the purpose of preserving them in a raw or uncooked state, by first impregnating them with sulphurous-acid gas, and then filling the barrels or other vessels in which they are afterward placed with cold water, so as to submerge the articles therein, substantially as and for the purpose hereinbefore set forth.

180,819.—Sulky-Cultivators.—Samuel A. Buchanan, Jefferson, Wis. [Filed Apr. 15, 1876.]

Brief.—The combined beam-couplings and sway-bar, the lifting devices and the standard-plates allowing the tooth to slip.

1. The adjustable hinge and coupling, consisting of the tongued post G', hub d, with arm G, and leg a, and the adjustable pivoted casting I, in combination with the drag-bar H and sway-bar J, as and for the purposes herein set forth.

2. The hinge and coupling, consisting of the leg h, shaft m, with eye n, and forked pivoted arm L, in combination with the drag-bar H and lever K, as and for the purposes herein set forth.

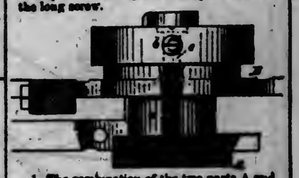
3. The combination of the pivoted plate B, carrying the plow-standard, and having its free end inclined, and the slotted plate S having inclined shoulder s and lip p, substantially as and for the purposes herein set forth.



180,819.

180,820.—Cutter-Heads.—Martin Buck, Lebanon, N. H. [Filed July 19, 1876.]

Brief.—The cutter-head is adjustable or expansible for cutting grooves, slots, or mortises of different widths, by means of a long screw passing through the bolt of one part or section of the head, and entering a suitable hole or nut tapped in the other, and held in position by a set-screw placed at right angles to the long screw.

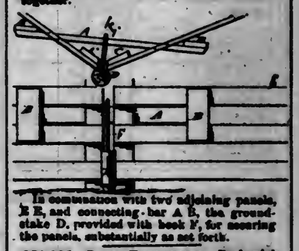


1. The combination of the two parts A and and B with the longitudinally-moving adjusting-screw c, substantially as and for the purpose specified.

2. The combination of the part A, having the tubular spindle a, with the part B, having the bolt C, the adjusting-screw c, and the setting device for the screw c, substantially as and for the purpose specified.

180,821.—Portable Fences.—B. F. Bean, Walkerville, Iowa. [Filed Jan. 27, 1876.]

Brief.—The ground-stake is placed on the outside of the angle at the junction of two panels, the hook attached thereto extending horizontally through the space between the ends of the panels, and grasping the locking-brace, and binding the locked panels firmly together.



In combination with two adjoining panels, E E, and connecting-bar A B, the ground-stake D, provided with hook F, for securing the panels, substantially as set forth.

180,822.—Stump-Extractors.—Sephenish Burroughs and Aaron B. Story, Epworth, Iowa. [Filed Feb. 26, 1876.]

Brief.—A windlass-frame is propped in front and anchored at both ends. The bearings of both pinion and drum shafts admit of the journals dropping down the slant of the frame into their places, for the purpose of ready detachment of the windlass. The work is accomplished by blocks and tackle.

1. The bed-irons L L, having the hooked projections l l and slots f f, for detachably connecting the windlass mechanism, substantially as set forth.

2. In combination with the bed-irons L L, having the hooked projections l l and slots f f, the windlass mechanism B B A and frame A, substantially as and for the purpose set forth.

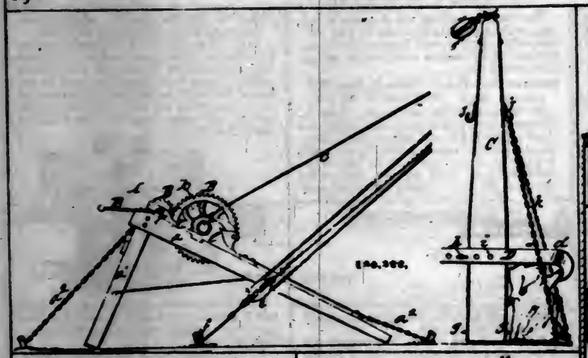
3. The frame A and windlass mechanism B B A, in combination with the tackle and blocks c d e, lever C, hooked bar D, and key A, substantially as and for the purpose set forth.

180,823.—Ranges.—Thomas A. Carrington, Baltimore, Md. [Filed May 10, 1876.]

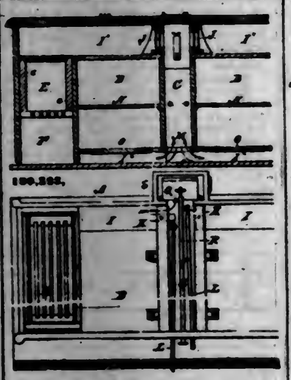
Brief.—The register extends from front to rear of the stove, and admits smoke to the central flue. A damper admits smoke from the rear chamber to the central flue, and another closes an opening into the vertical escape-flue.

1. The cooking-range having the central furnace fire C, with ovens B B arranged on each side of the same, supported from the outer casing by chambers I I P, and the furnaces E E, located between the ovens and the outer casing, and combined therewith, substantially as and for the purpose described.

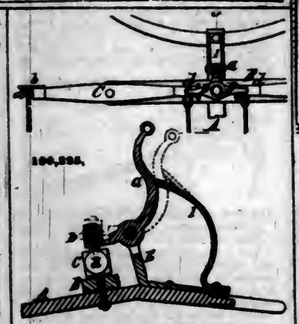
2. The combination, with the range having ovens B B, furnaces E E, and central flue C, arranged as described, of the registers J, dampers K, having operating-rods L, and the damper Q, having operating-rods M, substantially as and for the purpose described.



180,202.



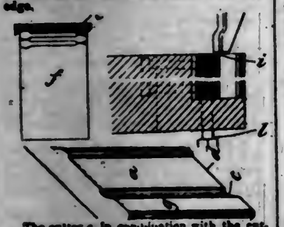
180,202.



180,235.

180,204. MAIL-PLATE CUTTERS. George F. Clapp, Montreal, Quebec, Canada, assignor to John A. Fillow and Randolph Harvey, same place. [Filed June 19, 1876.]

Brief.—The invention consists in the peculiar form of the cutters, as indicated, the movable cutter being shaped to correspond to the bed-cutter when the latter is placed on edge.



The cutter *a*, in combination with the cutter *b*, having corresponding configuration, substantially as and for the purposes described.

180,205. DRAUGHTING HOUSES. J. K. Craig, Black Jack Grove, Tex. [Filed May 20, 1876.]

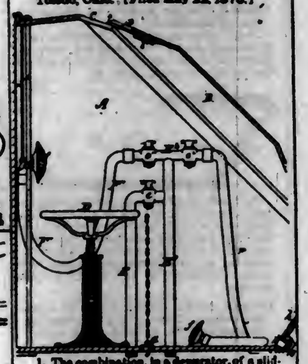
Brief.—The inner traces having been released by the operation of the lever, the outer ends of the single-trees swing forward, and the outer traces are released.

1. The combination of the single-trees C C, having their inner ends slotted and perforated, as described, the yoke-bolts D D, shoulder G, and spring I, substantially as and for the purposes set forth.

2. The hook pins *a* and springs *b*, attached to the outer ends of the single-trees C C, in combination with the yoke-bolts D D and lever O, substantially as and for the purposes set forth.

The combination, with the portable hitching-weight, consisting of weight or case H, having inclosed within it the shaft C, latter, and spring, of the ratchet F and pawl G, the said pawl constructed to be governable at the will of the operator, substantially as described.

180,206. DEFLEGATOR-BATHS. Wm. Curtis, Toledo, Ohio. [Filed May 22, 1876.]



1. The combination, in a deflegator, of a sliding hose-pipe, F', adapted to be controlled from within or without the vessel A, substantially as and for the purposes set forth.

2. The deflegator vessel or chamber A, constructed so that its face part *b'* is made to slant inward to the bottom, and having an opening, *b'*, substantially as and for the purpose set forth.

3. The pipes E F' F, with stop-cocks *e f d*, distributing-hose F, sliding hose F', adjustable lid B', hand-orifice O, in combination with the vessel A, having opening *b'*, all constructed and combined as and for the purpose set forth.

180,208. ELEVATOR-BUCKETS. Henry A. Dun, Jr., Charleston, S. C. [Filed Jan. 5 1876.]



The process of forming an elevator-bucket of a piece of sheet metal by passing it through dies to form flanges, and then cutting, notching, and bending the same, as shown and described.

180,209. HORSE' FOREMS. D. Bühlinghaus, Sundewig, Prussia. [Filed June 2, 1876.]



The combination, with the wind-box or chamber E, the convex hearth-plate A, and blast-pipe O, the former having the curved extension and door D, of the movable tongue E in the tuyere *b*, the rod I, lever K H, and rock-shaft O, for operating the tongue from the exterior of the wind-box, all constructed to operate substantially as shown and described.

180,266. BEDSTEADS. Hugh B. Coyle, Philadelphia, Pa. [Filed Apr. 7, 1876.]



1. The clamps B, having sockets or sleeves *c c*, and arms *b b*, substantially as shown and described.

2. In combination with the clamps B and plate D, the hooked thumb-screw F, substantially as shown and described.

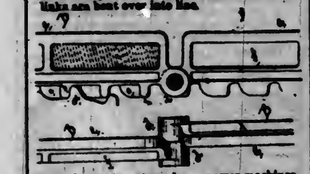
3. The combination of the posts A, end rails B, chain D, and clamps B, having screws F *f*, substantially as shown and described.

180,267. HYDRANT DRYERS. William S. Orahood and Chas. D. Gaylord, Cleveland, Ohio. [Filed May 16, 1876.]



180,221. ENDLESS-CHAIN HORSE-POWER MACHINES. John Ellis and N. Hoffman, East Coventry, Pa. [Filed Apr. 26, 1876.]

Brief.—The lugs at the ends of the links form both joints and teeth. The tops of said links are bent over into line.



1. In endless-chain horse-power machines, a gear-wheel in which the teeth are inclined, substantially as set forth.

2. An endless-chain horse-power machine, in which the links of the chain are connected together by joints arranged in the same horizontal plane as the teeth of the links, and so constructed that each joint forms a tooth, all substantially as described.

3. The combination, in an endless-chain horse-power machine, of a series of narrow foot-boards with links B B', each having openings *f f'*, to each of which the end of a separate foot-board is adapted, substantially as described.

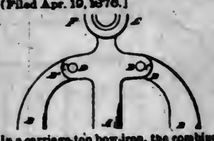
4. The combination of links B B', &c., having lugs *d* arranged in the same vertical plane as the bottom bars of their respective links, with the yokes *e* so bent that when the links are coupled the top bars *e* of the yokes will be in line longitudinally, as set forth.

5. The links B, having teeth *b* and ribs *c*, forming skeleton teeth, as described.

6. The combination of the chain and its rollers D with the way F and its recess or recesses *m*.

7. In horse-power machines, the combination of the jointed links B' and the wheels D at the joints with an endless track, the connecting rods of which are made on a curve of elliptical form, as and for the purpose set forth.

180,229. CARRIAGE-TOP BOW-IRONS. Geo. H. Ely, Elyria, Ohio, assignor of one-half his right to John A. Topliff, same place. [Filed Apr. 19, 1876.]

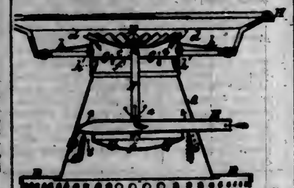


In a carriage-top bow-iron, the combination, with the central bow-iron, formed with eye E and jaws C C, of the side bow-irons B, constructed with tongues B' and pintles or rivets D, all constructed and arranged substantially as and for the purpose specified

The combination of the spring-frame A B, centering-point *a*, mandrel C, cones D D', guide and straight-edge *d e*, and adjustable gage-arm J, as and for the purpose set forth.

180,224. GAS-STOVES. John A. Frey, New York, N. Y. [Filed July 6, 1876.]

Brief.—The corrugated plate covering the mixing-chamber, contains channels to conduct the gas to the burning-point. The centrally-placed guard-plate forms within the case an annular air-inlet, that does not interfere with the regular inflow of gas.



1. The casing A, perforated diaphragm C, and radially-corrugated concave cap D, substantially as and for the purpose specified.

2. In combination with the casing A and gas-supply pipe E, the plate G, placed centrally within said casing, immediately below the orifice *e* of said pipe, substantially as and for the purpose shown.

3. The casing A, cap D, pipe E, and cylinder *b'*, supporting the ring H, constructed as shown, and combined with each other by means of the bolt *f f'* and nut *f''*, substantially as and for the purpose set forth.

180,225. DEVICES FOR SUPPLYING LOCOMOTIVE-TENDERS WITH COAL. Sidney T. Fuller and Charles A. Merriam, Philadelphia, Pa. [Filed June 9, 1876.]

Brief.—The weights on the levers balance the weight of the chute.

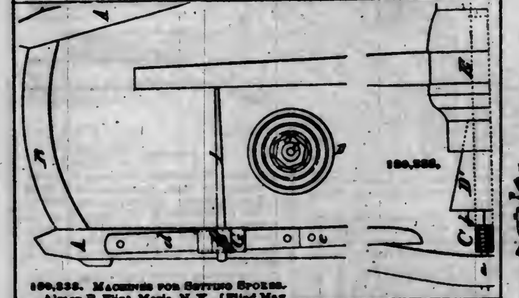


In a device for supplying locomotive-tenders with coal, the combination of the elevated platform A, shaft *b*, weighted levers B, and chute D, all substantially as set forth.

180,226. ARGAND GAS-BURNERS. Moses F. Gale, Brooklyn, E. D., N. Y. [Filed May 5, 1876.]

Brief.—The exit of the gas is regulated by moving the lever to the right or left.

1. In an Argand gas-burner, the combination of the valve A, the plug-stem F, and the spring H, substantially as described.



180,236.

180,236.

2. The combination of the plug-stem F and spring H with the convex valve and concave seat, substantially as described.

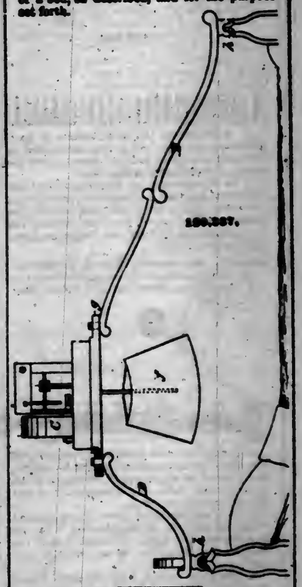
180,227. AUTOMATIC FANS. L. B. Hauck, St. Louis, Mo. [Filed Apr. 4, 1876.]

The box B, having sockets, and carrying a spring with gear-wheels operating a fan, in combination with the supporting-legs D, having tenons at their upper ends, fitting in the sockets of the box, and forked feet below.

180,236. MACHINES FOR SETTING SPOKES. Almon P. Flint, Moria, N. Y. [Filed May 27, 1876.]

Brief.—The hub is firmly held between two cones of unequal size, which are attached to two curved spring-arms, connected at their upper ends by a cross-bar, while the length of the spoke and the dish of the wheel are determined. Three concentric circular grooves are formed and spaced off on the outer end of the larger cone, and provided with depressions for gaging the proper points for mortising hubs of different sizes.

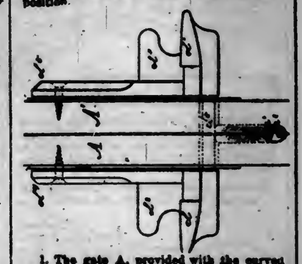
adapted to rest upon the head and foot board of a bed, as described, and for the purpose set forth.



180,237.

180,238. GATE-LATCHES. Swan O. Hall, Osceola, Iowa. [Filed May 27, 1876.]

Brief.—A gate is provided with a double latch, whereby it is held in the closed or open position.



1. The gate A, provided with the curved guide-slot *a*, recess *a'*, and spring *c*, in combination with double latch D, having catches *d d'* and handles *d'' d'''*, substantially as described, and for the purpose set forth.

2. The gate-post B, provided with shoulder *b'*, obliquely cut away at *b*, in combination with the gate A, having slot *a*, recess *a'*, spring *a'*, and a swinging latch, having a catch, *d'*, handle *d''*, and guide-rod *d'''*, substantially as described, and for the purpose set forth.

180,239. ICE IMPLEMENTS. A. B. Hanford, Shawangunk, N. Y. [Filed Nov. 13, 1875.]

Brief.—An ice-spade, shovel, pry-bar, and cutter.



An ice-cutter constructed with a head, A, having two similarly-formed shovel-faces, *a' a'*, terminating at one end against the sides of a sharpened steel cutting-blade, B, in the end of the head A, and at the upper end having tapering shoulders A^2, terminating in a bearing, D, formed with a socket for the end of a handle, C, the whole being constructed substantially as shown and described.

180,240. HEEL-STIFFENERS FOR BOOTS AND SHOES. James L. Hatch, Rochester, N. Y. [Filed Jan. 20, 1876.]

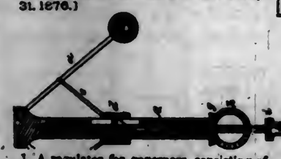
190,240.



1. A blank for the manufacture of heel-stiffeners, toe-caps, or box-toes, corrugated at its lower edge prior to being bent to form the flange, substantially as described.

2. In the process of manufacturing heel-stiffeners, box-toes, and shoe-tips, corrugating the lower edge of the blank, then bending the blank into heel or toe form, and turning the corrugated edge to form the flange, substantially as described.

190,241. GOVERNORS. Wm. A. Hathaway, Wickford, assignor of one-half his right to John Magione, Belleville, R. I. (Filed May 31, 1876.)

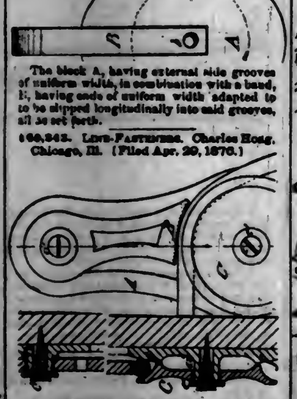


1. A regulator for governors, consisting of the arms G, arranged relatively as shown, and pivoted weighted rods D, connected to the governor and valve-rod, substantially as and for the purpose set forth.

2. In a regulator, the arms C and pivoted weighted rods D, in combination with the gear-wheel a and rod f, with teeth b upon the valve-rod, substantially as and for the purpose specified.

3. The combination, with the arms C and pivoted weighted rods D, of the regulator-rod r and sweep-cords s, substantially as and for the purpose described.

190,242. PULLEY-BLOCKS. John Herweg and Carl J. Herweg, New York, N. Y. (Filed Oct. 31, 1874.)



The block A, having external side grooves of uniform width, in combination with a band, B, having ends of uniform width adapted to to be slipped longitudinally into said grooves, all as set forth.

190,243. LINE-FASTENERS. Charles Hoag, Chicago, Ill. (Filed Apr. 29, 1876.)

In a clothes-line holder, the plate A, having the annular elevation f and tubular bearings e e', in combination with the serrated dog B and half rotary sleeve C, all constructed and operating in the manner and for the purpose set forth.

190,244. STONE-SAWING MACHINES. Wm. C. Huffman, Toledo, Ohio. (Filed June 24, 1876.)

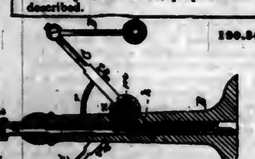
In combination with the saws O, the bars P and P, each provided with a vertical and a horizontal groove, p and p', respectively, and a slot, p'', at one end of said groove p', the blocks Q, inserted within said grooves p, between and upon each side of said saws, and the tightening-wedge e, fitted into said slot, substantially as and for the purpose specified.

2. In combination with the rails L of the saw-frame, provided each upon its lower side with a V-shaped bar, P, the blocks D, arranged to slide vertically within the opening c within the main frame, and having upon its inner face a journaled roller, K, that has a V-shaped peripheral groove, and the lug d''', which projects over said rail, substantially as and for the purpose shown.

3. In combination with the saw-frame, the vertically-moving blocks D, having the horizontal spool d'', the nut E, fitted into said space, the vertical screws G, the shafts H and I, and the miter-gears h, h', g, i, and i, substantially as and for the purpose set forth.

4. In combination with the raising and lowering mechanism described, the gear-wheels E and E', the pinions S and V, the bar T, provided with the stud t, the stud U, the cone-pulley V', the bar W, having the hooked projections w, and the pin or stud w, secured within, and projecting from, the main frame, all constructed and arranged to operate substantially as and for the purpose shown and described.

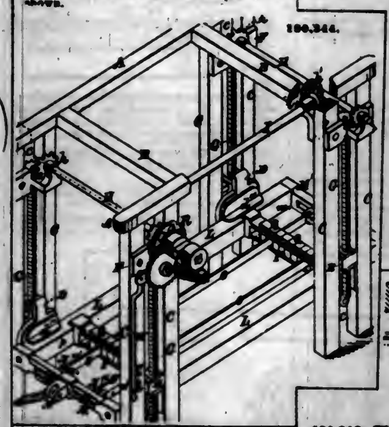
190,245.



5. In combination with the raising and lowering mechanism described, the pulleys X, journaled upon the shaft H, and the clutch Y, secured upon said shaft between said pulleys, substantially as and for the purpose specified.

6. The hereinbefore-described machine, constructed and arranged to operate in the manner and for the purpose substantially as shown.

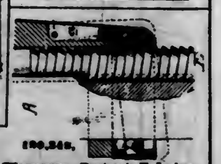
190,246.



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190,248.



190,247. CAR-COUPLINGS. W. N. Hutchinson, South Bay City, Mich. (Filed Jan. 7, 1876.)



1. The combination, with the solid draw-head A, of the rubber buffer E in the mouth of the same, adapted to press the link forward against the coupling-pin, constructed and arranged substantially as described and shown.

2. The combination, with the solid draw-head A, of the vertically-presented link, the horizontally moving spring-pin B, and the rubber buffer E, all constructed, arranged, and operating substantially as described and shown.

190,248. CULINARY APPARATUS. James W. Johnson, Candor, N. Y. (Filed Apr. 20, 1876.)

1. The combination of a water-tank and oven, composed of the cylindrical body A, and chambers B C, the chamber C having valve D at its base, and a door, G, substantially as described.

2. In the culinary vessel herein described, the hinged cover H, provided with a condenser, I, containing a valve, f, for the purpose explained.

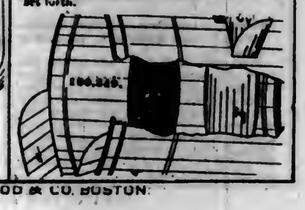
190,249. CONDENSERS FOR LOCOMOTIVES. Henry Hughes, Leicester, England. (Filed Apr. 20, 1876.)

Brief.—The end of the exhaust-pipe is provided with a valve, which, as it is raised by the escaping steam, opens a second valve, to allow water to come in contact with the steam.

190,250. WRENCHES. Benjamin F. Jostyn, Worcester, Mass., assignor to R. P. Bruff, New York city. (Filed Feb. 26, 1876.)

The combination of the straps A of the wrench, the movable jaw D, and the spring yoke U, pivoted to said movable jaw, and having teeth adapted to the screw E, all as set forth.

190,251.



190,252. CORRUGATED SPOOLS AND SLEEVES. Louisa Kahn, Urbana, Ill. (Filed June 20, 1876.)

As a new article of manufacture, a sleeve, consisting of the cylinder A, provided with the side opening c, gauze diaphragm B, and solid diaphragm E, as described.

190,253. MANUFACTURE OF CYLINDRICAL PAPER BOXES. Henry Kellogg, Milford, Conn. (Filed Nov. 10, 1876.)



1. The method of making the body of a can or package by forming it of two or more thicknesses of paper or other fibrous material, (with or without the addition of a lining of metallic foil,) each coated on one or both sides with a substance that is heated and becomes adhesive at the moment the thicknesses are brought into contact, then uniting them together, substantially as and for the purposes set forth.

2. The method of uniting the end with the body of the can by contracting the end piece with the thicknesses of paper or fibrous material which form the body, and bending or forcing the same into the edge or periphery of the end piece, substantially as set forth.

3. In the manufacture of cans or packages of paper or other fibrous material, the method of obtaining pressure of the bottom outwardly against the sides of the finished can by maintaining the bottom or end piece concave while holding the can-body around said end, whereby, when the can is taken from the mandrel, the end piece will tend to become flat, and thus press outward against the sides equally in all directions.

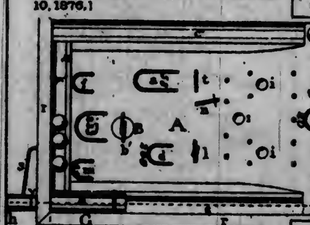
190,254. WIRE-FENCE-BARB FIXTURES. Charles Kennedy, Hinckley, Ill. (Filed July 6, 1876.)

Brief.—The edge of the hole being beveled, the base of the barb is revealed as it is clamped to the fence-wire, and thus renders the barb-points less liable to break off.



A pair of pinchers, provided with the circular opening b and beveled sides c c, for applying barbs to fence-wire, substantially as described.

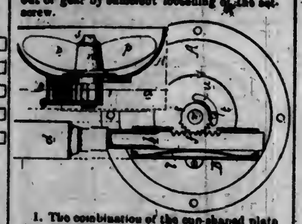
190,255. PARLOR SHOOTING-GALLERIES. Henry J. Klein, Greece, N. Y. (Filed Jan. 10, 1876.)



The improved parlor shooting-gallery, consisting of an inclined and raised-edge plat, A, having chutes e e, keeps k, and preferred numbers planted on its face, and provided with sleeves x o d f j m, structures r s l k, cavities t, pegs p, and bell U; the arched head D, having the curve u; the gun barrel e, having the piston p, actuated by means of the spring s, with the handle h and rubber ring v, all arranged to operate in the manner substantially as shown and described, and for the purposes specified.

190,256. DOOR-BOLTS. Ferdinand L. Kleyensteuber, Philadelphia, Pa. (Filed June 22, 1876.)

Brief.—A cup-shaped plate, having casing attached, carries a catable bolt, which is operated by a toothed rack and spindle, the wings or projecting handles fitting within the cup. There is also a segmental slot in the plate, with which a pin on the hub of the toothed spindle engages, and a set-screw for adjustment, which prevents the hub from being turned too far, unless purposely thrown out of gear by sufficient loosening of the set-screw.

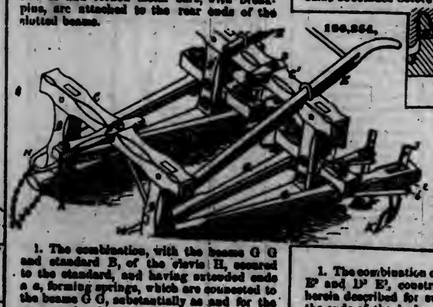


1. The combination of the cup-shaped plate A and its casing B with the bolt d and the operating-spindle m, with its hub n and wings p, as set forth.

2. The combination of the plate A and its segmental slot u with the spindle m, hub n, set-screw s, and pin l, as described.

190,257. CULTIVATORS. Oliver Kugler, Flemington, N. J., assignor of part of his right to J. D. McCulley and Matilda Van Fleet. (Filed June 7, 1876.)

Brief.—The clevis will spring slightly to allow the lateral adjustment of the beams upon the slotted cross-piece. Perforated shanks and forked metal bars, with break-pins, are attached to the rear ends of the slotted beams.



1. The combination, with the beams G G and standard B, of the clevis H, secured to the standard, and having extended ends a a, forming springs, which are connected to the beams G G, substantially as and for the purposes herein set forth.

2. The combination of the standards B B', the terms G G, connected to the springs a a of the clevis, and the cross-bar I, provided with curved slots a a, and the adjusting bolts and nuts b d, all substantially as and for the purposes herein set forth.

3. The combination of the standard B', adjustable slotted beams G G, perforated shanks J J', with plows K K', forked bars L and M N, with their pivot and break-pins, all as and for the purposes herein set forth.

190,258. HEATING-STOVES. Ezekiel C. Little and David H. Nation, St. Louis, Mo. (Filed June 27, 1876.)

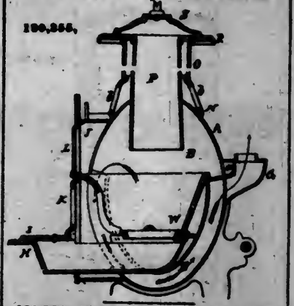
1. In a Todd stove, a magazine or feed-pipe, P, in combination with the casing O, swing-top S, saddle N, and coal-fixtures W, substantially as and for the purposes herein set forth.

2. The illuminated saddle N, in combination with the body A, casing O, and top R S, substantially as herein set forth.

3. The hearth H, extending the entire length of the stove from end to end, and provided with the swinging hearth-plate I, in combination with the doors K L and frame J, substantially as herein set forth.

4. In a Todd stove, the frame J, with top and bottom doors L K, in combination with the body A, hearth H, magazine P, and coal-fixtures W, substantially as herein set forth.

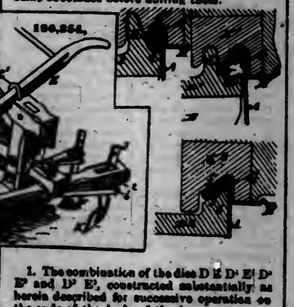
190,259.



190,259. MAKING METALLIC CANS. Felix Marquet, Bist Morbihan, France. (Filed June 23, 1876.)

Brief.—By series of dies joins cover and body, and inclosses a rubber strip saturated with glue treated with acetic or pyroligneous acid. Dips the edges of body and ends in same substance before uniting them.

190,260.



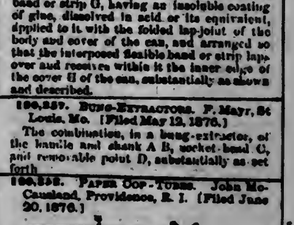
1. The combination of the dies D E D' E' D' F' and D' E', constructed substantially as herein described for successive operation on the ends of the body of the box or can, and on the edges of the covers fitting the same, to close the ends of the can by direct pressure of said dies on said ends and edges, essentially as specified.

2. The combination of the soft or flexible band or strip G, having an insoluble coating of glue, dissolved in acid or its equivalent, applied to it with the folded lap-joint of the body and cover of the can, and arranged so that the interposed flexible band or strip lapsover and receives within it the inner edge of the cover U of the can, substantially as shown and described.

190,261. DUNG-EXTRACTORS. F. Mayr, St. Louis, Mo. (Filed May 12, 1876.)

The combination, in a dung-extractor, of the handle and shank A B, socket-head C, and removable point D, substantially as set forth.

190,262. PAPER COP-TUBES. John McCausland, Providence, R. I. (Filed June 20, 1876.)

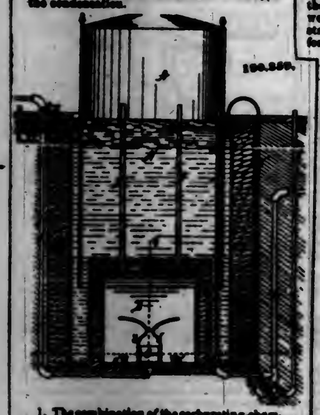


As a new article of manufacture, a paper cop-tube, A, of uniform transverse dimensions, having a wooden bushing, a, located directly in the end of the tube, and flush with the edges of the same, for the purpose described.

190,263. CARBURETTERS. Andrew McMillen and Hammell Minor, Pittsburg, Pa. (Filed Dec. 9, 1875.)

Brief.—The carburetter is placed in the bottom of the wall of the gas-holder. It has a flutter-wheel in its bottom, inclosed in a separate chamber, open at top, and having its

olden perforated near the bottom. The air-induction pipe opens below the flutter-wheel, admitting a blast of air, which turns the wheel, thus keeping up a circulation and agitation of the oil. By a branch pipe oil is admitted into the air-induction pipe, from which it enters the carburetor. A flexible line of pipe connects with the T-connection of the gas-education pipe, for pumping or blowing off the condensation.



190,859.

1. The combination of the carbureting-chamber B and the inclined flutter-wheel C, arranged at the bottom of the carbureting-chamber and over the air-induction pipe *e*, substantially as and for the purpose specified.

2. In combination with the carbureting-chamber and flutter-wheel the curved perforated partitions *b b*, which divide up the carbureting-chamber and inclose the flutter-wheel, substantially as and for the purpose specified.

3. In combination with the carrier-pipe of a gas apparatus the T-connection H, and a double line of tubing, I I', connecting with the same, in the manner and for the purpose specified.

4. The combination of the carbureting-chamber B, divided into a series of compartments by perforated partitions *b b*, the flutter-wheel, and the air-induction pipe and series of blast-nozzles *e e e*, substantially as and for the purpose specified.

190,860. PAVING-BLOCKS. H. B. Merrill, Akron, Ohio. [Filed July 3, 1876.]

Brief.—The blocks are made of tempered clay, eight inches square by ten inches deep, and perforated lengthwise with a series of parallel holes, and subsequently dried, burned, and vitrified. These blocks are placed on a properly-prepared foundation, and the interstices between the blocks, as well as the holes in the blocks, are filled with sand



A paving-block of burned and vitrified earth, pierced in one direction with a series of holes, substantially as and for the purposes herein before set forth

190,861. PASSENGER-ELEVATORS. Charles H. Mitchell, Chicago, Ill. [Filed Sep. 21, 1876.]

Brief.—The hoisting-rope is kept taut by the lever weighted pulley. Bells are added to the platform or cabin thereform to regulate the weight, as desired. The brake mechanism operates to clasp the hoisting-rope against the platform, except when relieved through the pedal.

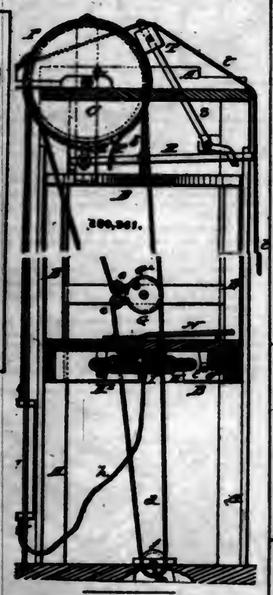
1. In a passenger-elevator, the combination of the sheave D on top of elevator, endless rope *d*, the crank-sheave O, and one or more idle pulleys *s*, on the car, and the weighted pulley *f* at the foot of elevator, all substantially as and for the purposes herein set forth.

2. The tubes H H', connected by a pivot-joint, I, under the car of a passenger-elevator, and the tube H' adjusted up and down, as described, and provided with sliders, as described, substantially for the purposes set forth.

3. The box L, and inclines *K*, provided with sliders, as described, in combination with the tubes H H', under the car B, for the purposes herein set forth.

4. The combination, with the car B and rope *d*, of the brake-lever M, spring *t*, pedal N, and elbow-lever O, substantially as and for the purposes herein set forth.

5. The combination, with the sheave D, of the metal band P, elbow-lever E E', and weighted locking-lever S, all constructed substantially as and for the purposes herein set forth



190,862. COMBINED ROTTING, BOILING, AND PAPER-CUTTING. T. L. Montgomery, Little Rock, Ark. [Filed May 30, 1876.]



As a new article of manufacture, the device as described, consisting of the plate A, having angular projecting flanges B C, of such length as to allow the device to stand level, the head-piece D, plate E, secured as described, as and for the purposes set forth.

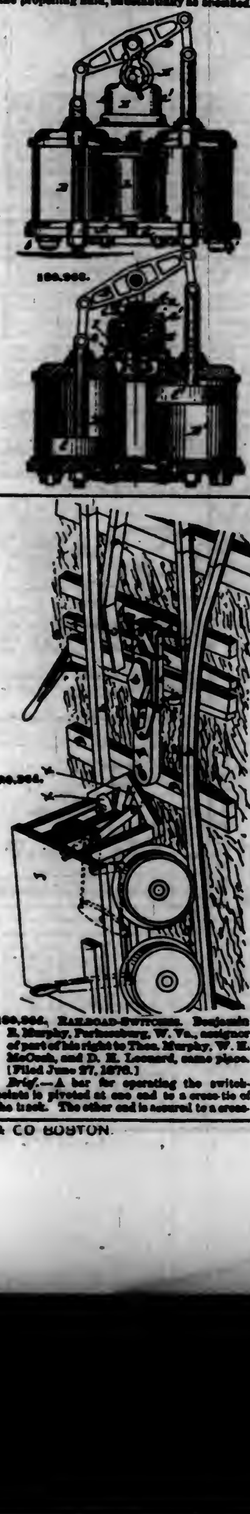
190,863. HYDRAULIC ENGINES FOR COMPRESSING AIR. Charles Meiers, New York, N. Y. [Filed Dec. 18, 1876.]

Brief.—The combination, with one or more air-compressing cylinders and their pistons, of a hollow relief-valve, constructed to control an upper air-vent and lower exhaust-port, for the purpose of automatically relieving the engine of any excessive accumulation of water leaking past the pistons, and whereby the pistons may be fitted to work perfectly free or loose, and all packing dispensed with; also, a peculiarly-constructed primary valve, having a constant exposure to the extent, whereby outside leakage is prevented, and the valve is balanced; also, a combination of primary and secondary valves, for controlling the motion of the pistons of the engine or hydraulic air-compressor.

1. The combination, with one or more air-compressing cylinders and their pistons, of the hollow relief-valve L and its chamber K, the pipe or inlet *r*, and the upper air-vent *v* and lower water-escape *s*, substantially as and for the purposes herein set forth.

2. The oscillating valve G, constructed with a receiving-cavity, *n*, and opposite connected balancing-cavity *n'*, also with exhaust-groove *s s*, extending throughout the length of the valve, in combination with the ports *t t*, the inlet-passage *h*, the exhaust-passage *i*, in communication with the exhaust-outlet *F* from the valve-chamber, and the valve-cylinder or chamber H, essentially as described.

3. The combination, with the primary valve of the engine, its upright cylinders B B', pistons C C', and the passages *h h'*, of the double-headed piston-valves *f f'* and the inlet *l*, by which the valves *f f'* are supplied with the propelling fluid, substantially as specified.



190,864.

190,865. RAILROAD-SWITCHES. Benjamin R. Murphy, Parkersburg, W. Va., assignor of part of his right to Thos. Murphy, W. H. McCuch, and D. H. Leonard, same place. [Filed June 27, 1876.]

Brief.—A bar for operating the switch-points is pivoted at one end to a cross-tie of the track. The other end is secured to a cross-

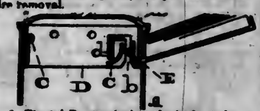
bar, on which the switch-points are fastened. Hooked locking-bars are secured at one edge to the operating-bar, and are raised or released from their locked position by wedge-shaped projections, which are operated upon by adjustable wedges on the engine. After the unlocking operation is performed, the switch-points are moved to the right or left by the adjustable wedges of the engine coming in contact with a double wedge-shaped projection on the operating-bar.

1. The bar E, pivoted as described, and provided with the double wedge G and the wedges *a a* and bars *c c*, as and for the purposes set forth.

2. The combination of an engine or car, having the adjustable wedges K K connected to levers, of the bar E with wedges *a a*, hooked bars *c c*, plate I, block G, and the guide-tongues O U of a switch-rail, all constructed and arranged substantially as and for the purposes set forth.

190,866. COCKING UMBRELLA. Felix Myers, Philadelphia, Pa., assignor of one-half his right to John Forrestel, same place. [Filed July 12, 1876.]

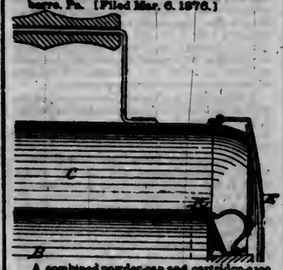
Brief.—The locking-connection allows the lid to slide partially out, but prevents its entire removal.



1. The lid B, attached to the body A by a locking connection which permits the lid to open to a limited extent, and prevents detachment from the body, substantially as and for the purpose set forth.

2. The rim D, with slots E for engagement with studs C of the body A, substantially as and for the purpose set forth.

190,867. COMBINED POWDER-CASE AND CARTRIDGE-CASE. P. A. Oliver, Wilkesbarre, Pa. [Filed Mar. 6, 1876.]



A combined powder-can and cartridge-case, consisting of the outer case A, having the hinged cover B at one end, and the side handle D and the inner case E, which is held in position by the metal strips H, substantially in the manner and for the purposes specified.

190,868. MACHINERY FOR PLANING AND MATCHING LUMBER. Willis H. Parcher, Whitefield, N. H. [Filed Mar. 27, 1876.]

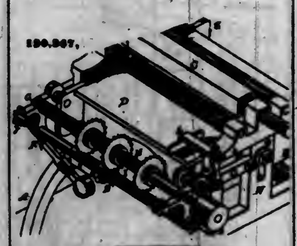
Brief.—For planing lumber of various thicknesses, the planer-bed can be adjusted at any desired elevation relatively to the planing-cylinder by means of a frame provided with downwardly-projecting tongues, working in corresponding grooves in central vertical slotted bars upon the main frame, screw-bolts passing through slots in the bars. The saws with their arbor are independently adjustable with relation to the bed, so that they can be dropped below the level of the table when the machine is used for surfacing only.

1. The planing-cylinder C, in combination with the vertically-adjustable bed and independently-adjustable saws, as and for the purpose set forth.

2. The vertically-adjustable frame H, in combination with the side bars G, connecting-rod I, bearing-roll J, and saw-arbor H, as specified.

3. The stationary saw upon the arbor H, in combination with the adjustable guide L, its standard M, and the side bars G, as specified.

4. The combination of the adjustable saws upon the arbor H, sliding cleats N', latch *g*, and weighted lever K, as and for the purpose set forth.



190,869.

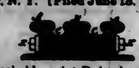
190,869. PUMPING-ENGINE. Daniel D. Paul and J. G. Ramer, Philadelphia, Pa. (Filed Mar. 4, 1876.)

Brief.—A rod formed of one piece, attached to the steamer-disk, bent so as to form a handle at the top and flaring legs at the bottom.



As a new article of manufacture, the funnel-filter herein described, consisting of the wire-gauze disk B, central washer C, and rod D, bent to form the handle *d*, and flaring legs *d' d'*, constructed and arranged for operation, substantially as shown and described.

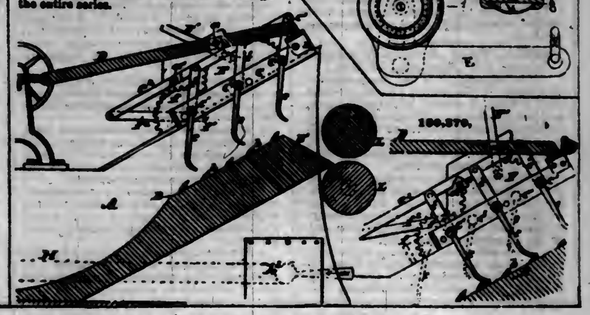
190,870. RAILROAD-FROGS. D. W. Payne, Corning, N. Y. (Filed June 12, 1876.)



The detachable point D, having a dovetail base, in combination with the separate removable filling-pieces C C, provided with a recess to receive and support the same, and the bolts E, for securing pieces C C together, and thereby clamping the point between them, as shown and described.

190,870. WOOL-WASHING MACHINES. F. F. Pendleton and J. K. Proctor, Philadelphia, Pa. (Filed Apr. 12, 1876.)

Brief.—The injection-pipe opens through a grating into the tank, and grating being covered by a flexible apron. The stock is carried from the bowl up a chute, to the squeezing-rollers, by a reciprocating carrier. The teeth pivoted to the latter extend above their pivotal points, and are connected to a rod which has a crank-bar pivoted to one end, and attached to a large gear-wheel journaled in the frame of the carrier. As the carrier moves up the chute, a bar rigidly fastened to this gear-wheel strikes a stop on the side of the bowl, causing a partial revolution of the wheel, throwing the crank-rod forward, and causing thereby a movement of the teeth upon their pivots, turning them back and away from the chute. As the carrier descends, this operation is reversed, and the teeth are again brought in position to engage with the stock. After passing through the squeezing-rolls, the wool is carried between a series of aprons extending from the top to the bottom of the drying-chamber. These aprons are pierced with holes, and a current of air is drawn through the entire series.



190,870.

1. In combination with a reciprocating carrier, provided with pivoted teeth, an automatic tripping device, connected with said teeth, and adapted to turn them upon their pivots to bring their points close to the chute when on the upward stroke, and to swing them backward and draw their points away from the chute on the downward stroke, as described.

2. In a reciprocating carrier, the teeth-shafts O', bent to form or provided with wrists *o'*, connected by a bar, *o''*, to cause all the teeth to move simultaneously, substantially as and for the purpose set forth.

3. In combination with the teeth *o*, depending from shafts O', connected by a bar, *o''*, mechanism, substantially as described, for changing the positions of said teeth, so that they will move up the chute at one inclination and down at another, as set forth and specified.

4. In combination with the teeth-shafts O', connected by a bar, *o''*, the wheels F *f*, pitman *f'*, lever F', and plate or steps *a a'*, for varying the inclination of the teeth *o*, substantially as shown and described.

5. In combination with a water-pipe H, and steam injector-pipe *h'*, the opening I, grating *h'*, and flexible flap apron *h''*, said grating operating to prevent the collapse of said apron, substantially as described.

6. In combination with the squeeze-rolls L L of a wool-washer, the apron M N, for carrying the stock received from said rolls to the upper part of the drying-chamber K, substantially as set forth.

7. The apron N, passing vertically to the upper part of chamber K, and then horizontally across said chamber, substantially as shown and described.

8. The aprons O, projecting alternately at each end, so as to drop the stock from one to another, and turn over the same, substantially as shown and described.

9. The combination and arrangement of aprons M, N, O, and P, substantially as shown and described.

10. A drying-chamber, K, having a suction-fan and hot-air apparatus, provided with a series of traversing-aprons, by which the stock to be dried will be caused to traverse the chamber, and be turned over and over again while being dried, substantially as shown and described.

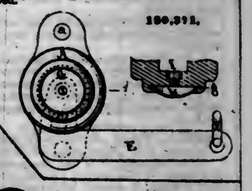
11. In combination with a wool-washing machine, a drying-chamber, provided with a fan, air apparatus, and traversing-aprons, so as to provide a continuous and compact mechanism for washing and drying wool without interruption, substantially as shown and described.

190,871. SEAL-LOCKS. George B. Phillips, Bath-on-the-Hudson, assignor of one-half his right to Patrick J. Shevlin, Albany, N. Y. (Filed Mar. 16, 1876.)

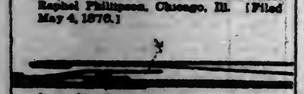
1. In a seal-lock, the combination of the casing A, provided with a chamber, G, and groove *f*, for holding the sealing-disk H over the keyhole I, with the spring-bolt B and detachable loop E, when constructed and arranged to operate in the manner and for the purpose herein described.

2. The cup-shaped metallic sealing disk H, in combination with the seal-holding recess of a seal-lock, as and for the purpose herein specified.

190,872.

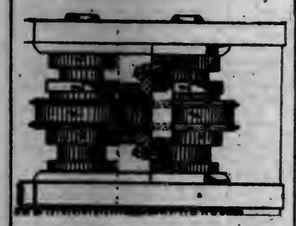


180,872. SAFETY-POCKETS FOR GARMENTS. Raphel Philipsson, Chicago, Ill. [Filed May 4, 1876.]



In combination with a safety-pocket secured within the ordinary pocket of the garment, the flap A, for covering and concealing the fastening devices of the safety-pocket, substantially as described.

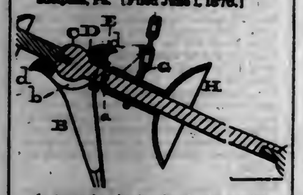
180,873. MACHINES FOR SLITTING RAIL-ROAD-RAILS. Jacob Reese, Pittsburg, Pa. [Filed May 20, 1876.]



1. In a machine for slitting railroad-rails, the combination of the two slitting-rolls with the rail-guide, substantially as and for the purpose specified.

2. In a machine for slitting railroad-rails, the combination of the two slitting-rolls with the rail-guide, substantially as and for the purpose specified.

180,874. ANCHORS. R. M. Robinson, Philadelphia, Pa. [Filed June 1, 1876.]



1. An anchor having its shank and fluke-arms constructed with a ball-and-socket joint, substantially as and for the purpose set forth.

2. The loose, free, or detachable and self-adjusting shank A, substantially as and for the purpose set forth.

3. The fluke-arms, in combination with the crown, having groove D and opening b, substantially as and for the purpose set forth.

4. The mushroom-head J, in combination with a fluke-anchor, substantially as and for the purpose set forth.

5. Mechanism E, for retaining the head in the socket, substantially as and for the purpose set forth.

6. A sliding connection between the shank and chain, substantially as and for the purpose set forth.

7. The sliding connection of the shank and chain, in combination with a stop therefor, substantially as and for the purpose set forth.

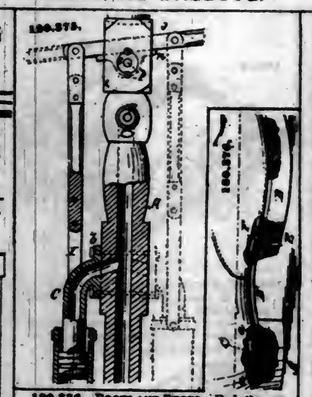
8. The scrop H, in combination with a fluke-anchor, substantially as and for the purpose set forth.

180,875. PUMPS. Sylvanus S. Robinson, Holden, Mo. [Filed June 20, 1876.]

The combination of the pump-stock A with spout B, the curved pipe C, provided with a flange, b, secured to the pump-stock, and having a stationary plunger, D, at its end, and the vertically-reciprocating cam-and-cylinder E, having a ball-valve, A, in its bottom, all constructed and arranged substantially as and for the purposes set forth.

2. The plunger D, constructed as described, with leather packing f, water-packing at f', and ball-valve d, and attached to the stationary pipe C, in combination with a vertically-reciprocating cylinder, substantially as and for the purposes herein set forth.

3. The combination, in a pump, of the pertinent stock A, with metal brace s s, handle J, with metal box a, and pin p, all substantially as and for the purposes herein set forth.

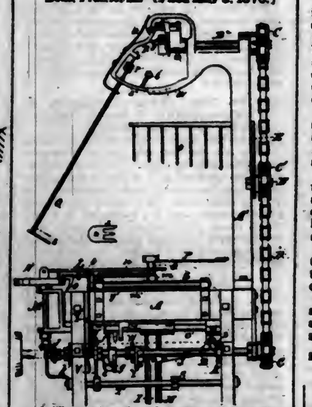


180,876. BOOTS AND SHOES. D. J. Rogers, Bardstown, Ky. [Filed May 11, 1876.]

1. The combination, with the wooden heel A, of the countersunk heel-plate C, applied upon the upper side of the inner sole of the shoe, and the screws a entering the heel, as shown and described, for the purpose specified.

2. The nuts F, having flange e and the washers or plates f applied to the upper side of insole, and having a central hole conforming to the irregular body of the nut, the countersunk screws B, and wooden nails D, all combined as shown and described, to operate as specified.

180,877. GRAIN-BINDERS. J. O. Schuster, Long Prairie, Ill. [Filed May 3, 1876.]



1. The combination of a horizontally-rotating arm, L, carrying griping attachment for securing the wisp, with a pair of clamps, F F', for compressing the gavel, a twister, Q, for twisting the ends of the binder, and a horizontally-oscillating and vertically-reciprocating tucker, P, substantially as and for the purpose described.

2. The combination, with the clamps F F', of the adjustable spring-seated plate G, forming a bundle-adjuster, substantially as and for the purpose described.

3. The bundle-adjuster, consisting of a plate, G, provided with a stem and spring, in combination with the containing-barrel H, rod I, lever J, arm t, and cam K, substantially as described, and for the purpose set forth.

4. The shafts e e', geared together, and carrying the clamps F F', in combination with the counter-balance a, for opening, and the tappet f and the cam g for closing, the clamps, as described.

5. The arm L, having the slide-rod l spring n, griping-fingers m m', and projection o, in combination with the rotating shaft M, and the cam N, substantially as described.

6. The tucker P, consisting of a horizontal arm with curved offset, as described, in combination with the shaft O, arranged to oscillate horizontally, and move longitudinally in vertical direction with said tucker, substantially as and for the purpose described.

7. The combination of tucker P, shaft O, connection Z', pitman Z, frame W, spring X, and cam Y, for the purpose described.

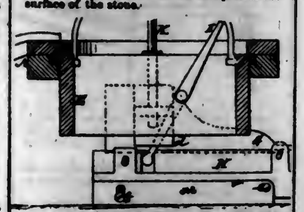
8. The combination of tucker P, shaft O, lever S, spring s, rock-shaft T, arm V, and cam U, for the purpose set forth.

9. The shaft B', having cam s and rag-wheel C', operated by a chain, in combination with the pivoted arm E, carrying cut-off b, as and for the purpose described.

10. The combination of the twister-carrying plates r with the pivoted frame R, carrying roller t and stud y, and the shaft B', carrying segmental crown-wheel s', cam w, and groove z, as and for the purpose described.

180,878. APPARATUS FOR STAFFING AND DRESSING MILLSTONES. Delos Sewell and Wm. O. Corwin, Hillsdale, Mich. [Filed June 6, 1876.]

Brief.—The chair is provided with a rotating cylinder, adapted to be raised or lowered. Said cylinder carries the staff, which can be set in or out, to admit of its sweep over the surface of the stone.



1. In an apparatus for staffing and dressing mill burrs or stones, a supporting tram chair or stool provided with feet arranged to rest on the verge or skirt of the burr, in combination with a central rotating cylinder or spindle carried by said chair, and constructed or provided with means for carrying the staff or dressing-tool in true relation with the feet of said chair, substantially as specified.

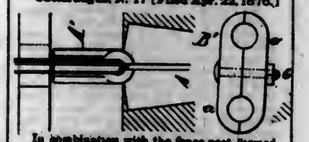
2. The rotating cylinder E, which carries the staff or dressing-tool, constructed with a flange, b, in combination with the annular track-body A of the tram chair or stool, essentially as described.

3. The arm G of the cylinder E, which carries the staff or dressing-tool, provided with a slide, d, and means for adjusting said arm up or down, in combination with the rotating cylinder E and tram chair or stool, substantially as specified.

4. The staff D, fitted to slide in or out along the arm G by means of a lever, I, in combination with the rotating cylinder E and tram chair or stool, essentially as described.

5. The combination of the supplementary and angularly-adjustable staff M, with the main staff D arranged to rotate over the stone, substantially as specified.

180,879. PIERCE-POSTS. Ira L. Sherman, Cattaraugus, N. Y. [Filed Apr. 22, 1876.]



In combination with the flume-post formed of parallel rods secured to a spike-shaped base, A, the divided clamp-supports B' and set-bolts b, substantially as described.

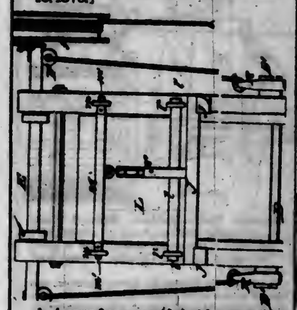
180,880. HANGINGS FOR SLEIGHS AND SWINGING GATES. Wm. Shoppell, Floris, Iowa. [Filed May 1, 1876.]



1. In combination with the bracket B, a swivel-iron, having the side openings c^2, slots c^3, and a removable roller, whose diameter is less than the diameter of said side openings, as and for the purpose specified.

2. The longitudinally-slotted swivel-iron O c^2, provided with a roller, in combination with a gate-bar, the latter being inclosed by the swivel-iron, and guided in its movement over the roller, as described.

180,881. HORSE-POWER PERSONS. Zachariah B. Sims, Bonham, Tex. [Filed June 10, 1876.]



1. A press-frame, provided with a reversible brace-bar, adapted to support either end of said press-frame, substantially as and for the purpose set forth.

2. The combination of bolts T, extension U, notched at s^2, brace-bar V, and bolt W, substantially as and for the purpose set forth.

3. In a cotton or hay press, the eyebolt W, adapted to serve both as a fastening for brace-bar V, and as a guide for rope H, substantially as set forth.

4. Follower D, provided with rigid slide O and angular flanged plate P, substantially as and for the purpose set forth.

5. In a press for hay or cotton, slides Q Q, adapted to close at all times the gateway between the main standard, though allowing the vertical movement of the follower in pressing, substantially as set forth.

6. The combination of slides Q Q, plate Q', recesses or grooves q q, and long staples q^2 q^2, substantially as set forth.

7. In a hay or cotton press, two removable windlass-ropes, looped to removable stirrups bolted to extended ends of follower D, and operated through eyes of the shaft E, in combination with the shaft E and follower D, substantially as and for the purpose described.

180,882. SATURATED FELTED OIL-CLOTH. Carl A. Stister, Ellmingen, Bavaria, assignor of one-half his right to C. T. Meyer, Jersey City Heights, N. J. [Filed Jan. 14, 1876.]

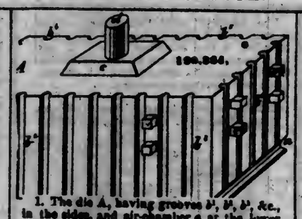
Felted oil-cloth, which is saturated with oil-paint, and thereupon directly printed upon, so that the printed matter will come in contact with the body of the felted fabric, substantially as specified.

180,883. MILE-CARS. James Smiley, Baltimore, Md. [Filed May 5, 1876.]



In combination with the hollow frustum-shaped breast, having a rounded edge, the hollow cover, provided with a frustum-shaped projection adapted to fit within the neck of the can, and with a depending hollow edge, adapted to fit over the exterior of the breast, the annular recess between the projection and the hollow edge of the cover being rounded so as to fit the rounded edge of the neck of the can, substantially as herein described.

180,884. DIES AND MOLDS FOR MOLDING PLASTIC MATERIAL. W. Harrold Smith, Philadelphia, Pa. [Filed Nov. 20, 1875.]



1. The die A, having grooves b^1, b^2, b^3, &c., in the sides, and air-chamber c at the lower edge, in combination with the passage formed by trimming off the edges of the lower face of the die, as set forth.

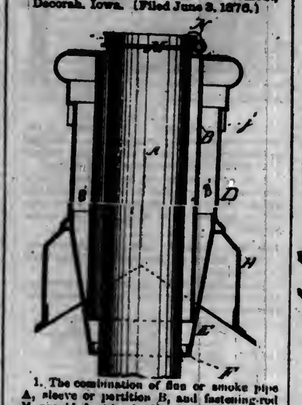
2. The combination of the die A and the operating hammer with the pin d, of soft metal, interposed between the two to receive the percussive force of the blow, as set forth.

180,885. RANGE-HEATERS. Chas. A. Smith, Philadelphia, Pa., assignor of one-half his right to R. H. Driver, same place. [Filed June 10, 1876.]



In combination with the chamber C, the deflected wall b, enlarging the capacity of the hot-air flue, substantially as shown and described.

180,886. METALLIC ORNAMENTS. P. H. Smout, Decorah, Iowa. [Filed June 3, 1876.]



1. The combination of flue or smoke pipe A, sleeve or partition B, and fastening-rod M, provided with wire N, substantially as set forth.

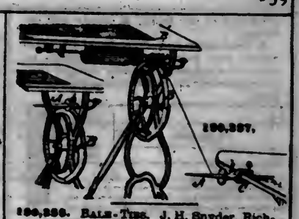
2. The combination of chimney-body D, converging bottom-extension E, flanged bottom plate F, and base H, substantially as set forth.

3. In a metal chimney, the fastening-bolt M, provided with wire N, substantially as and for the purpose set forth.

180,887. SPINNING ATTACHMENTS FOR SEWING-MACHINES. Julia B. Snapp, Georgetown, Ill. [Filed Dec. 9, 1876.]

Brief.—A spindle attached to the spooler-spindle of a sewing-machine, for the purpose of spinning. When the spindle is full it can be removed and, by means of a clamp, attached to an adjoining table, and a reel placed on the spooler-spindle of the sewing-machine, and the yarn wound from the spindle to the reel.

In combination with the pitman, fly-wheel, and spooler-spindle a of a sewing-machine, the spindle A or reel B', provided with socket on its end, and held to said shaft by the set-screw b, as and for the purposes herein set forth.

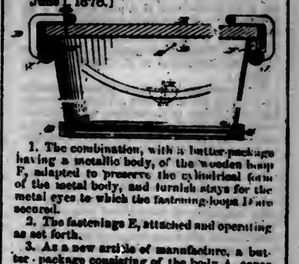


180,888. BALE-TIES. J. H. Snyder, Richmond, Va. [Filed July 11, 1876.]

1. The bale-tie herein described, consisting of the plate A, formed with the raised part B, and the raised tongues C D, of unequal length, substantially as and for the purposes herein set forth.

2. The plate A, formed with the raised part B, the long raised tongue C, having incline or curve a b on its inner edge, and the short raised tongue D, substantially as and for the purposes herein set forth.

180,889. BUTTER-PACKAGES. Mark W. Spaulding, Rensselaer Falls, N. Y. [Filed June 1, 1876.]



1. The combination, with a butter-package having a metallic body, of the wooden hoop F, adapted to preserve the cylindrical form of the metal body, and furnish stays for the metal eyes to which the fastening-loops I are secured.

2. The fastenings E, attached and operating as set forth.

3. As a new article of manufacture, a butter-package consisting of the body A, cover B, bottom C, fastenings D and E, and hoops F and C, as and for the purposes set forth.

180,890. SOAP. Stephen Struns, Pittsburg, Pa. [Filed June 26, 1876.]



1. As a new article of manufacture, a cake of soap constructed with a depression, recess, or pocket, for the reception of a prize or gift, substantially as described.

2. The combination, with a cake of soap constructed with a depression, recess, or pocket, of a prize or gift, said prize or gift being isolated from contact with the soap by a tin-foil wrapper, substantially as described.

180,891. FIRE-BRICKS. John R. Thomas, Youngstown, Ohio. [Filed May 19, 1876.]

A compound of liquid of lime, plaster of paris, soft fire-clay, quartz pebbles, ground fire-brick, sand-rock, and hard fire-clay, from which to make fire-bricks.

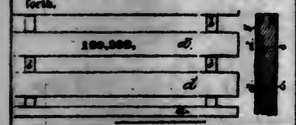
180,892. SPRING BED-BOTTOMS. Joshua Turner, Cambridgeport, Mass., assignor to Benj. A. Pettingill and Isaac S. Pear, same place. [Filed June 23, 1876.]

1. The improved spring bed-bottom, as described, the same consisting of the bars a a and b b, (the bars b being formed with the gains c and channels f_1,) the slats d d, &c., and rods g g, the whole being constructed, combined, and arranged in manner as shown and described.

2. In a spring bed-bottom, the mode of suspending the ends of the slats—viz., upon the rods g g, extending through channels in the

cross-bars of the frame, as shown and described.

3. The combination of a series of slats constructed over guides, or their equivalents, by means of wires or rods passing through each of the slats near their ends, substantially as set forth.



180,892. WASHING-MACHINE. William H. Tutt, Danville, Ky., assignor of one-half his right to Samuel S. Broughton, same place. [Filed Mar. 11, 1876.]



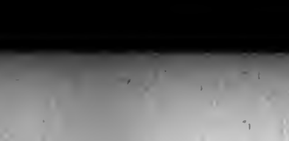
The loops *a a*, attached to or formed on the endless cords *b b*, in combination with the rollers C D, wash-board H *d*, and springs I, all substantially as and for the purposes herein set forth.

180,893. POSTAGE-STAMPS. P. H. Vander Weyde, Brooklyn, N. Y. [Filed July 29, 1876.]

1. The process of preparing postage-stamps by printing the same with a pigment consisting of bi-iodide of potassium, or equivalent substance hereinbefore named, rubefiable at a temperature of 300° Fahrenheit, substantially as described, and for the purpose set forth.

2. The process of producing postage-stamps consisting of printing them with two different inks—one being the ordinary printing-ink, or other ink indestructible by heat, and the other consisting of bi-iodide of potassium, or other equivalent substance hereinbefore named, rubefiable at a temperature of 300° Fahrenheit, substantially as and for the purpose set forth.

180,894. RAILROAD-FROGS. T. R. Vickers, Sheffield, England. [Filed Aug. 5, 1876.]

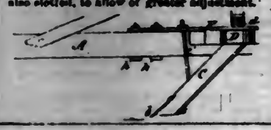


1. In a railway frog, switch, or crossing, the combination of a wrought-metal center or point with cast-metal feathers or distance-rods, when united together by casting, as described.

2. In a railway-frog, the combination of wrought-metal wings with a wrought-metal point, cast-metal feathers or distance-rods, when the same are united by the process of casting, as described.

180,895. CULTIVATORS. Daniel F. Vickery, Oxford, Ala., assignor to himself, G. F. Matthews, and A. D. Stevens, same place. [Filed May 6, 1876.]

Brief.—A beam is provided with a slotted cross-bar, which is bolted to its rear end, and secured at any desired angle by curved slotted braces. The central portion of the beam is also slotted, to allow of greater adjustment.



The improved cultivator, formed of the slotted beam A, curved braces E E, pivoted cross-bar D, and share-standards C C, said parts being slotted in the manner shown and described, and the clamp-bolts *c d* A, all combined and arranged as specified.

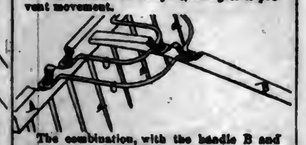
180,897. GAS-FAUCETS. Wm. A. Wales, Jersey City, N. J. [Filed May 26, 1876.]



The burner A and globe-valve handle C, in combination with a spring, *b*, and disk *a*, substantially as described.

180,898. RAKES. Rufus P. Walker, Dansville, Mich. [Filed July 31, 1876.]

Brief.—The head and tail are made of wood, and the bows and braces of iron wire. Where these braces pass through the head and tail, the wire is bent at nearly right angles to prevent movement.



The combination, with the handle B and head A of a rake, of the braces O U, arranged, bent, and secured as described.

180,899. CASTING TYRES. N. Washburn, Hartford, Conn. [Filed Aug. 30, 1875.]

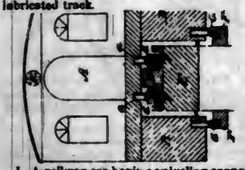


1. The combination of base-plate *a*, exterior ring *b*, interior ring-sections *c*, wedges *g*, mortised rods A, clamp-plates *f*, and wedges *i*, all substantially as shown and described.

2. In combination, the matrix-case *b c d g*, the conduits *s* provided with gates *f*, and the annular follower *m*, serving as an adjustable bottom for the matrix, all substantially as described.

180,900. SLEIGHS CARS FOR RAILWAYS. John Westcott, Tocol, Fla. [Filed May 17, 1876.]

Brief.—The car is supported on swiveled pedals arranged to slide in a grooved and lubricated track.



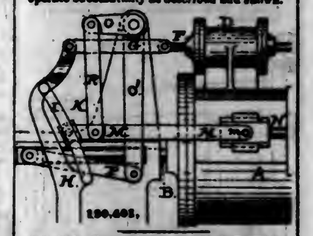
1. A railway car having swiveling supporting-pedals, in combination with a track having grooved or channeled rails, substantially as and for the purpose described.

2. The combination, with the car A, having swiveling supporting pedals, adapted to move in channeled rails, of a second set of swiveling pedals located in the convient side extension of the car, and adapted to move upon lower supplemental rails, for the purpose of guiding and steadying the car, substantially as described.

180,901. VALVE-MOTIONS FOR STEAM-ENGINES. Saml. H. Wheeler, San Francisco, Cal. [Filed June 14, 1876.]

1. The combination of the following parts: the radius-bar M, attached at one end to the valve-stem of the main engine-valve, the link or guide I, moved by connecting with the piston-rod of a supplementary engine, for giving a horizontal motion to the said radius-bar, and the link E, operated from the main piston-rod, for imparting a vertical motion to the said radius-bar, substantially as described and shown.

2. The combination, with the main piston-rod B and the piston-rod F of a supplementary engine, of the radius-bar M, lever H, link or guide I, link G, bell-crank arms O O', link E, and link P, all constructed and arranged to operate substantially as described and shown.



180,902. GRAIN-BINDERS. Edwin R. Whitney, Magog, Quebec, assignor of one-third his right to Thomas Ousant, East Whitby Township, Ontario, Canada. [Filed Apr. 7, 1876.]

1. In a grain-binder an apron-elevator, one end of which is attached to and wound upon an intermittently rotating drum, and retracted by means of springs, substantially as herein set forth.

2. The combination of the drum G, apron E, with teeth *a*, cords *b*, pulleys H, shaft I, and one or more springs, *d*, substantially as and for the purposes herein set forth.

3. The rod *s* attached to the apron E and the guide-rods *f f*, in combination with the drum and retracting-spring, substantially as and for the purposes herein set forth.

4. The combination of the scoop J, shaft *h*, with pinion *i*, and the cogged segment *k* on the main wheel, for intermittently rotating the scoop, substantially as herein set forth.

5. The combination of the drum G, the pinion *m*, secured upon one of the journals thereof, and the cogged segment F secured on the main shaft M, substantially as and for the purposes herein set forth.

6. The hinged spring-cover O, in combination with the rotating scoop J, as and for the purposes herein set forth.

7. In combination with the hinged spring scoop-cover O, having track *n*, the roller P, arms R R, shaft *p*, with spring *s*, lever T, with spring *t*, wire *v*, pulley V, shaft *x*, with pinion *y*, and the cogged segment W on the main shaft M, all substantially as and for the purposes herein set forth.

8. The stationary scoop K, provided with the yielding spring-teeth *o*, substantially as and for the purposes herein set forth.

9. The combination of the fork X, shaft Y, feathered collar Z, rotating vertical shaft A', and stationary inclined track B', substantially as and for the purposes herein set forth.

10. The combination of the pivoted fork X, provided with the lug *s*, the spring-bolt *h'*, rod *k'*, lever *m'*, and the lip *n'* on the track B', substantially as and for the purposes herein set forth.

11. In combination with the pinion *i* on the rotating scoop-shaft *h*, the forked lever *p'*, spring *o'*, arm *t'*, and the flange *v'* on the main wheel L, substantially as and for the purposes herein set forth.

12. In combination with the scoop-cover O, the spring ratchet O' with arm *w'*, flanged sleeve *y'* with cam *x'*, and single cog, as described, and the cogged segment *S'* on the main wheel L, substantially as and for the purposes herein set forth.

13. The combination of the slotted needle E', pin *b'*, disk D' with wrist *f'*, shaft *h'*, gears *f'*, shaft *k'*, with pinion *o'*, and the cogged segments *l'* on the wheel L, substantially as and for the purposes herein set forth.

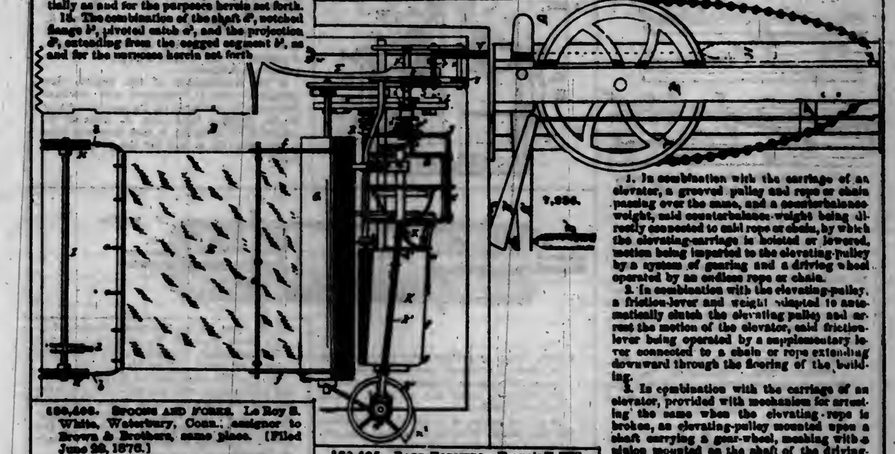
14. The combination of the hook G', knife E', rack-bar I', and pinion *m'* on the shaft *k'*, substantially as and for the purposes herein set forth.

15. The combination of the forked catch K', springs *s'*, and pin *r'* on the needle-shaft *h'*, substantially as and for the purposes herein set forth.

16. The thread-retainer U with hooks *o'*, in combination with the rod *s'* and flanged sleeve *y'*, substantially as and for the purposes herein set forth.

17. The combination of the hinged bell M', with slotted pivoted arm O', the scoop J, thread-retainer U, raised track M', crank-shaft *w'*, and wheel L, with pin *x'*, all substantially as and for the purposes herein set forth.

18. The combination of the shaft *d'*, notched flange *b'*, pivoted catch *c'*, and the projection *f'*, extending from the cogged segment *b'*, as and for the purposes herein set forth.



180,903. STOCKS AND FORKS. Le Roy S. White, Waterbury, Conn., assignor to Brown & Brothers, same place. [Filed June 28, 1876.]

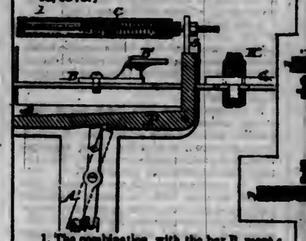
Brief.—Cuts a blank of uniform thickness; serrates; rolls to thin the ends; cuts into shape of the utensil; compresses the shank horizontally—i. e., against its edges; bends to desired curvature of utensil; finally compresses shank vertically—i. e., against its broader sides—to restore its substance.



1. The improvement in the art of manufacturing forks, spoons, and other like articles of table use, by condensing the metal in its shank by pressure in a direction perpendicular to the face of the fork, spoon, or blank after the latter has been bent, substantially as specified.

2. The method, herein described, of condensing or hardening the metal in the shank of a fork, spoon, or other like article of table use, by first applying pressure to the shank in a direction transverse to the plane or face of the blank before bending, and subsequently condensing the metal in the shank after bending, by pressure applied in a direction perpendicular to the face of the blank, essentially as and for the purpose or purposes herein set forth.

180,904. STOP-MOTIONS FOR KNITTING-MACHINES. Clarence B. Williams and John B. Ivens, Utica, N. Y., assignors to Clarence B. Williams, same place. [Filed Nov. 16, 1875.]



1. The combination, with the bar B, piece *c*, and spring C, of the spring O and frame A, substantially as described, whereby the said piece *c* is held in contact with the fabric, and when a defect in the same is presented to the piece *c* it is tripped, and the bar B moved toward the fabric, as and for the purpose set forth.

2. The combination, with the bar B, piece *c*, springs C and G, and lever P, of a shipper and mechanism, substantially as described, whereby when a defect in the fabric is presented to the piece *c* the same is tripped, and the machine thereby stopped, as and for the purposes set forth.

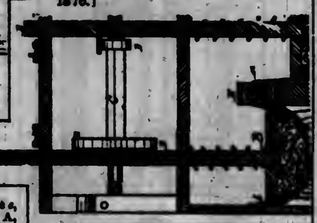
180,905. BARB-FORMERS. Francis T. Wilson and Hans J. Bartlett, Ames, Iowa. [Filed Mar. 20, 1876.]

Brief.—The heads are adjustable to adapt them to different-sized wires, by means of a pivot moving in a slot, and held in place by a wedge. One lever of the tool is provided with holes, by which it is strapped to the operator's arm. The head of the other is unslipped, and has a slot to form a hand-hold. A staple is placed about the fence-wire, which passes through the slotted head of the lever which is strapped, and while a grooved lip of the strapped lever holds one arm of the staple in place, a grooved lip of the other lever holds the other arm of the staple about the fence-wire.



The head D, having vertical slot *a*, grooved lip *b*, and horizontal oblong slot *a'*, in combination with the head C, having corresponding slot *a* and lip *b'*, the two being adjustably pivoted together by the rivet or bolt *n* and wedge *g*, and having operating arms formed therewith, all substantially as and for the purposes herein set forth.

180,906. WASHING-MACHINES. Alfred B. Wroth, Winterset, Iowa. [Filed June 20, 1876.]



In a washing-machine provided with alternate boxes B B', the partition E, pulley *a*, and cord *b*, substantially as and for the purpose set forth.

REISSUES.

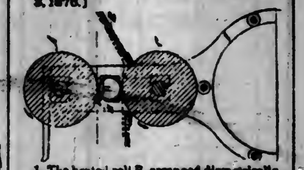
7,896. HOISTING-MACHINES. James Bates, Baltimore, Md. Patent No. 113,886, dated Apr. 18, 1871. [Filed July 10, 1876.]

1. In combination with the carriage of an elevator, a grooved pulley and rope or chain passing over the same, and a counterbalance-weight, said counterbalance-weight being directly connected to said rope or chain, by which the elevating-carriage is hoisted or lowered, motion being imparted to the elevating-pulley by a system of gearing and a driving-wheel operated by an endless rope or chain.

2. In combination with the elevating-pulley, a friction-lever and weight adapted to automatically clutch the elevating-pulley and arrest the motion of the elevator, said friction-lever being operated by a supplementary lever connected to a chain or rope extending downward through the flooring of the building.

3. In combination with the carriage of an elevator, provided with mechanism for arresting the same when the elevating-rope is broken, an elevating-pulley mounted upon a shaft carrying a gear-wheel, meshing with a pinion mounted on the shaft of the driving-wheel, the whole arranged to operate as described.

7,897. ROOFING APPARATUS. Richard H. Gardner, Troy, N. Y., assignee of one-half interest to J. Wright Gardner. Patent No. 109,280, dated Oct. 26, 1876. [Filed June 3, 1876.]

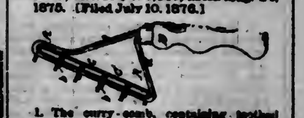


1. The heated roll R, arranged diametrically between the rolls A C, to iron both sides of the fabric, in the manner described.

2. The combination, with three rolls, A B C, of the rear inclined plane, by which the fabric is led back to the machine after being ironed on one side.

3. The combination of the shelf or table D, the rolls A, B, and C, and the inclined table E, all arranged to operate substantially as described.

7,898. COMBY COMBS. William B. Lawrence, New York, N. Y., assignor to the Lawrence Comby Comb Company, same place. Patent No. 150,206, dated May 5, 1874; reissue No. 6,606, dated Aug. 24, 1875. [Filed July 10, 1876.]



1. The comby-comb, containing toothed plates and continuous plates without teeth to strengthen the toothed plates, substantially as specified.

2. A comb bar or plate for a comby-comb, made in a trough shape, with teeth upon the wider flange *a*, and the other flange *b* plain, substantially as specified.

3. The combination, in a comby-comb, of a series of U-shaped comb-bars and rods passing through the flanges of the comb-bars, and unwrecting the latter to each other and to the handle, substantially as set forth.

4. A comby-comb, provided with a handle, B, and with a central grasp and support for the hand above the back of the comb, and in line with said handle, substantially as set forth.

5. A comby-comb in which the handle is braced by a bar extending from the end of the handle to the front portion of the comb, substantially as set forth.

7,939. SPRING BED-BOTTOMS. Benjamin H. Cole, Nora, Ill. Patent No. 140,149, dated Mar. 31, 1874. [Filed June 7, 1876.]
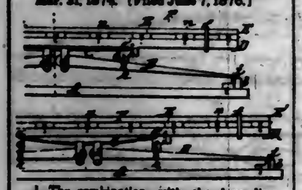
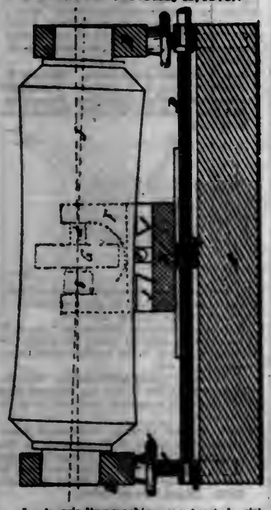


1. The combination, with the depending bearing-brackets *c* and the main springs B B, of the center straight spring C and the connecting-rods *d d*, substantially as herein set forth.

2. The bearing-brackets *c c*, provided with bearing and holding recesses *e e*, in combination with the straight center spring C and the main springs, as described.

3. The slats E, provided with the elongated slots *r* and holes *s*, in combination with the rod F, rubber band *f*, and bars D, provided with pins *n*, substantially as and for the purpose set forth.

7,940. MACHINES FOR GRINDING ROLLERS. J. Morton Poole, Wilmington, Del., assignor to himself, William T. Porter, and Thos. S. Poole. Patent No. 104,492, dated June 21, 1870. [Filed May 15, 1876.]



1. A grinding-machine constructed with suitable bearings for supporting a revolving roller to be operated upon, and provided with a longitudinally-traversing grinding mechanism, said roller being arranged at an angle with the path of the grinding surface, so that its axis will be at a greater distance from said path at each extremity of the roller than at any intermediate point, for the purpose of producing a roller with a gradually-diminishing diameter from its ends to its middle portion, as shown.

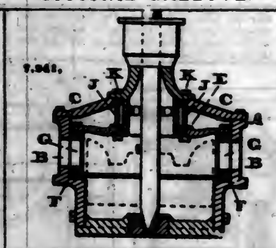
2. A grinding-machine constructed with adjustable bearings for supporting a revolving roller to be operated upon, and provided with a longitudinally-traversing grinding mechanism, for the purpose specified.

7,941. WATER-WHEELS. Thos. J. Alcott, Mount Holly, N. J. Patent No. 130,267, dated Nov. 26, 1872. [Filed May 27, 1876.]

1. The water-wheel case having under its crown-plate a depending sleeve, forming a central bearing for the hub of the inner register or sheet, substantially as and for the purpose set forth.

2. The water-wheel case having an inner register or sheet vertically adjustable therein, for the purpose set forth.

7,942.



7,942. FEED AND PRESSURE ROLLERS FOR PLANING-MACHINES. Saml. N. Brown and Henry W. Meyer, Dayton, Ohio. Patent No. 156,071, dated Jan. 12, 1875. [Filed June 28, 1876.]

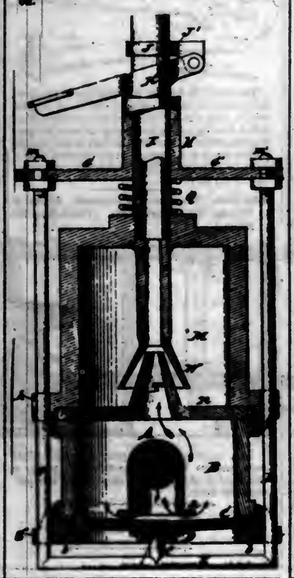
Brief.—A series of disks of elastic material are placed firmly upon a shaft and covered by a series of metallic rings.

What we do claim as new, and what we desire to secure by Letters Patent, is as follows:

In a planing-machine, the feed or pressure roller, composed of the shaft A, the elastic packing-disks B, and outer metallic covering-rings C, held to prevent lateral displacement by the permanent head D and the adjustable head E, in the manner and for the purpose specified.

7,943. HYDRANTS. Charles S. Clover, administrator, Bay City, Mich., and Jos. H. Strahl and Jos. Kleren, Cincinnati, Ohio, assignees, by mesne assignments, of one-half interest of Harvey H. Clover, deceased. Patent No. 160,261, dated Apr. 20, 1875. [Filed May 13, 1876.]

Brief.—When the valve is closed the water runs back from the discharge-pipe to the vacuum chamber, from which it is discharged by the ejecter when the water is again turned on.



1. A hydrant having in combination a valve-governed supply-pipe, a vacuum chamber, an ejecter to create the vacuum, and a discharge-pipe, substantially as and for the purpose specified.

2. The combination of the inlet-pipe A, flexible diaphragmic valve C, disk D, frame *f f' f'' G G'* H, spring Q, lever K, water-chamber B, and a discharge-pipe I, for the purpose mentioned.

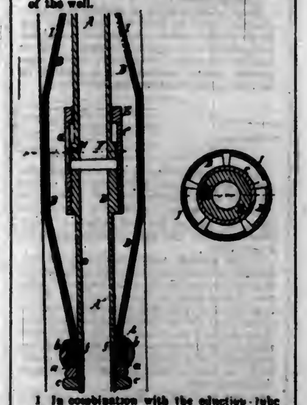
3. The combination of the flexible diaphragmic valve C, combined with mechanism whereby it will cut off the supply of water to the hydrant, inlet-pipe A, chamber B, ejecter T W, chamber M, and discharge-pipe I, substantially as and for the purposes set forth.

7,944.



7,944. DEEP-WELL PACKING. Francis Martin, New York, N. Y., assignor to Henry H. Doubleday. Patent No. 40,908, dated Sept. 12, 1860. [Filed May 13, 1876.]

Brief.—The upper part of the flexible packing is connected with the well-tube, the lower part of the packing being firmly supported against downward thrust, whereby the weight of the tubing presses upon the packing, and serves to distend it laterally against the side of the well.



1. In combination with the ejection-tube of an Artesian well, a yielding or elastic packing, supported from below against downward pressure, and forced against the wall of the well by the weight of the superincumbent tubing, substantially as set forth.

2. In combination with the ejection tube of an Artesian well, an elastic or flexible packing, supported from below against downward pressure, and a screw-threaded ring attached to the ejection-tube, and engaging with the upper part of the packing, substantially as set forth.

3. In combination with the ejection tube of an Artesian well, an elastic or yielding packing, and a sleeve or collar of greater diameter than the ejection-tube, arranged within the packing and surrounding the ejection-tube, substantially as set forth.

4. In combination with the ejection tube of an Artesian well, an elastic or flexible packing, a rim or shoulder upon the ejection tube, and a corresponding rim upon the packer-support, whereby, when the ejection tube is removed from the well, the rim or shoulders shall engage with each other, and withdraw the packer-support, substantially as set forth.

5. In an Artesian well, the combination of the sections A' A' of the ejection-tube, a sliding joint connecting those sections, a flexible packing surrounding the sliding joint, and an opening in the ejection-tube, whereby the liquid may flow from the tube into the packer, substantially as set forth.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

OFFICIAL GAZETTE

OF THE

United States Patent Office.

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PRACTICE UNDER RULES 45, 50, AND 60.

The interpretation heretofore given to Rules 45, 50, and 60 is so modified by a recent decision in the case of *Withington* vs. *Locke*, June 23, 1876, that hereafter cases are to be considered "pending" before the Examiners-in-Chief and Examiner of Interferences until a regular appeal has been entered or the limit of appeal expired.

These tribunals are to be regarded as quasi judicial, and their mode of procedure should be made to assimilate as nearly as practicable with that of the courts in like cases.

This was the purpose and design of the rules of practice as established by the Commissioner, and they are susceptible of the construction now put upon them, which is in accordance with the uniform practice in the courts. Besides expediting the decision of these motions by presenting them before that tribunal which is best acquainted with the facts, and thus most competent to judge of their merits, it gives the Commissioner the benefit of the opinion of such tribunal upon the law and facts, should the case come before him on appeal.

This change in the practice cannot, however, operate to affect the status of cases which were decided under the rules as formerly construed by the Office.

R. H. DUELL, *Commissioner.*

UNITED STATES PATENT ASSOCIATION.

A meeting of this Society will be held at the Hall of the Franklin Institute, in the city of Philadelphia, on Thursday, September 7, at 11 o'clock, A. M.

The special questions for consideration at that time will be the improvement of our own patent system, and the formation of an international association having reference to a greater uniformity among the patent systems of the world.

Inventors, owners of patents, manufacturers of patented articles, and all who are interested in the subject, are invited to be present and co-operate in this movement.

Visitors from abroad are specially invited to take part in the proceedings.

COMMISSIONER'S DECISIONS.

LAWRENCE & CO.—*Trade-Mark.—Appeal.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the applications of Lawrence & Co., for registration of Trade-Marks.—Decided June 20, 1876.*]

A trade-mark must be distinctive in its original signification, pointing to the origin of the article, or it must have become such by association.

No one can claim protection for the exclusive use of a trade-mark or trade-name which would practically give him a monopoly in the sale of any goods other than those produced or made by himself.

A generic name, or a name merely descriptive of an article of trade, of its qualities, ingredients, or characteristics, cannot be employed as a legal trade-mark.

The general rule is against appropriating mere words as a trade-mark. The exception is of those indicating ownership or origin, having no reference to quality or use.

[*A. H. Evans & Co.*, attorneys.]

DUELL, *Commissioner:*

Two cases are appealed involving substantially the same principles, and will, therefore, be treated together.

Applicants seek to register, as trade marks, the German words "Für Familien Gebrauch," signifying "For Family Use," and "Lawrence Feiner Familien Flannel," meaning "Lawrence Fine Family Flannel," both to be applied to flannel goods.

Registration was refused on the grounds that these phrases are "composed of ordinary words used in an ordinary manner; that they are in no sense arbitrarily chosen, and that, finally, they fail to indicate origin and ownership, essential characteristics of a lawful trade-mark."

Mr. Justice Strong in delivering the opinion of the United States Supreme Court in the *Delaware and Hudson Canal Company* vs. *Clark*, (1 OFFICIAL GAZETTE, 279,) illustrated the true character of a trade-mark in the following language:

The trade-mark must, therefore, be distinctive in its original signification, pointing to the origin of the article; or it must have become such by association; and these are two rules which are not to be overlooked. No one can claim protection for the exclusive use of a trade-mark or trade-name which would practically give him a monopoly in the sale of any goods other than those produced or made by himself. If he could, the public would be injured rather than protected, for competition would be destroyed. Nor can a generic name, or *a name merely descriptive of an article of trade, of its qualities, ingredients, or characteristics* be employed as a legal trade-mark, and the exclusive use of it be entitled to legal protection.

Quoting from the case of *Amoskeag Manufacturing Company* vs. *Spear*, (2 Sandf., S. C. 599,) he says:

The owner of an original trade-mark has an undoubted right to be protected in the exclusive use of all the marks, forms, or symbols that were appropriated as designating the true origin or ownership of the article or fabric to which they are affixed; but he has no right to the exclusive use of any words, letters, figures, or symbols which have no relation to the origin or ownership of the goods, but are only meant to indicate their names or quality. He has no right to appropriate a sign or symbol which, from the nature of the fact it is used to signify, others may employ with equal truth, and therefore have an equal right to employ for the same purpose.

In *Corwin* vs. *Daly*, (7 Bos., 222,) it was stated that—

If the trade-mark consists of words they must indicate ownership and origin, and not merely other attributes, such as quality, kind, texture, composition, utility, destined use, or class of consumers. * * * * The general rule is against appropriating mere words as a trade-mark. The exception is of those indicating ownership or origin, having no reference to quality or use.

So, too, in *Falkinburg* vs. *Lucy*, (35 Cal., 52,)—

He will not be protected in the use of figures or symbols, or combinations of words which serve merely to indicate the name, kind, or quality of the goods to which they are attached. * * * The ordinary words of the language, merely as words or names, expressing the kind or quality of the articles to which they are applied, and which may be common to different articles, are not the subject of property.

The Office, in its practice, has recognized the general rule enunciated in the cases quoted, and those referred to therein, and Commissioner Leggett, in *Dawes and Fanning*, (1 OFFICIAL GAZETTE, 27,) in summing up the statutory limitations and doctrines upon the subject as promulgated by the courts, and constituting a guide for the Office in distinguishing between lawful and unlawful trade-marks, announces the third rule, as follows:

It must not consist merely of words or characters descriptive of the quality of the article to which it is attached, nor such as are generic in their signification. Such words and characters are common property, and may be used for the same purpose by any person engaged in manufacturing or selling a similar article.

We must look at the alleged trade-marks now sought to be registered, and test their validity by the rules above set forth.

"For Family Use," when applied to an article, indicates, as plainly as words can, the use for which it is intended. It does not designate the "true origin or ownership of the article," but may "from the nature of the fact it is used to signify" be employed with equal truth by other manufacturers of flannels.

The same is true of "Fine Family Flannel." It is the designation of an article descriptive of its quality and destined use, and therefore forms part of our language.

The word "family" as applied to cloths has acquired a special signification, and indicates that it has such qualities as will adapt it for domestic use.

The attorney in his brief has referred to a number of registered trade-marks as being equivalents of the ones now presented, and argues that because they were registered his must be. This proposition is not agreed to. If mistakes have been made in the practice of the Office it is high time they should be corrected. But, upon examining the cases referred to, it is found that in the majority, and probably in all, of them there is something in addition to the words quoted that goes to make up the trade-mark: Thus "Zell's Tobacco Fertilizer," "Zell's Ammoniated Bone Super-Phosphate," and "Capital Yeast Cakes," are each accompanied by a symbol or picture forming part of the trade-mark. The letters "D D" are purely arbitrary as applied to medicines.

I am convinced that these phrases are not lawful trade-marks, and, under the provisions of sec. 4939, must refuse to record them.

The decision of the Examiner is affirmed.

I. BUSH & CO.—*Trade-Mark; Appeal.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Isidor Bush & Co., for the registration of a Trade-Mark.—Decided June 21, 1876.*]

It is not a safe practice to permit the registration of a compound trade-mark, one of whose distinguishing features has already been appropriated and registered by another, as applied to the same class of merchandise; the policy of the law is to discountenance such a proceeding.

DUELL, *Commissioner:*

Applicant's proposed trade-mark is thus described:

The words "Centennial, Isidor Bush & Co., St. Louis, Mo.," in combination with our registered trade-mark and the obverse and reverse of the centennial medal.

The Examiner objects that this is but a combination of three distinct trade-marks, each of which has already been registered as applied to the same class of goods, and he refers to the following registrations:

Frank Boehm & Co., October 5, 1875, No. 3,013, for the word "Centennial," and A. J. Cohen, October 5, 1875, No. 3,009, for a symbol representing obverse and reverse of centennial medal.

These three component parts being essential elements, it was further objected that as a trade-mark it—

So nearly resembles a mark belonging to another person, and appropriated to the same class of merchandise, as to be calculated to deceive the public—

and that its registration is inhibited by the statute.

It is denied, however, by the applicants that the word "Centennial," as registered by Frank Boehm & Co, covers the class of merchandise to which they claim the right to apply it, *i. e*, sparkling wines, but is confined to those wines of which alcoholic spirits is an ingredient.

Frank Boehm & Co. set forth that their trade-mark is applied to that class of merchandise containing alcoholic spirits, and they include wines in the enumeration of the particular goods comprising such class. All wines contain alcohol, and as they have not expressly limited themselves to such as are compounded with alcoholic spirits, it seems not inconsistent with their registration to say that they really include all such wines as contain alcohol.

I do not, however, think it a safe practice to permit the registration of a compound trade-mark, one of whose distinguishing features has already been appropriated and registered by another as applied to the same class of merchandise.

The tendency would be to mislead purchasers as to the true origin of the article sold under such mark, and the policy of the law is to discountenance such a proceeding. The doctrine announced in *Coggin, Kidder & Co.*, (C. D., vol. 16, p. 342,) is applicable to the present case, and should govern in the treatment thereof.

The decision of the Examiner is affirmed.

W. R. WALTON.—*Interlocutory Appeal.*

[*Interlocutory appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of William R. Walton, for* "IMPROVEMENTS IN BUTTER-MACHINES."—*Decided July 11, 1876.*]

The use of the words "or equivalent devices" in a claim is not objectionable when this meaning is clear and unequivocal, especially if they refer specifically to devices which are described in the specification as modifications or equivalents.

DOOLITTLE, *Acting Commissioner:*

The Examiner objects to the use of the words "or equivalent devices" as employed in the second claim, which is as follows:

A rack-bar, provided with a series of rollers or equivalent devices for allowing movement of the breaker-bar in a longitudinal direction, in combination with the breaker-bar, substantially as described.

Following the practice as announced in the case of D. F. HAASZ, (4 OFFICIAL GAZETTE, 610,) the Examiner's action was correct, providing the words "or their equivalents," as here employed, have an equivocal signification.

I do not regard them as open to that objection, however, as from the specification it is clear what is meant by equivalents, for applicant has illustrated two forms of rack bars, which are described as modifications of the rack-bar with rollers.

To obviate any difficulty on this score, the attorney for applicant has signified his willingness to insert the words "as described" after the word "devices," which would render the claim unobjectionable in form.

GUEST *vs.* FINCH.—*Interference; Appeal.*

[*Interlocutory appeal from the decision of the Examiner of Interferences in the matter of the interference between the application of John H. Guest and the patent of Lewis Finch, for an* "IMPROVEMENT IN CIRCUIT-CONTROLLERS FOR BURGLAR-ALARM TELEGRAPHS."—*Decided June 11, 1876.*]

Ignorance of an applicant as to the practice of the Office and the carelessness of his attorney, not sufficient grounds for allowing an amendment of the preliminary statement after testimony has been taken.

The practice of requiring preliminary statements discussed.

DOOLITTLE, *Acting Commissioner:*

This is a motion on the part of the patentee to amend his preliminary statement in the matter of dates, and re-open the case, in order that he may take testimony in accordance with the proposed amendment.

On April 17 the time was fixed for taking testimony, and I understand that, on the part of the applicant, it has already been taken.

The ground of this motion is substantially that the patentee was uninformed in regard to the requirements of the Office as to preliminary statements and the precise matters which they should contain, and that he was not instructed by his attorney what was proper or necessary thereto; and that in consequence of this ignorance on his part, and carelessness on the part of his attorney, he omitted to give in his statement, the correct date of his conception of the subject-matter in controversy, and of the making of certain models and drawings.

The practice requiring preliminary statements was instituted, as Commissioner Fisher says in *Schenck* vs. *Rider*, (C. D., 1870,) to put a stop to the practice which prevailed previous to that time, to too great an extent, of striving on each side to learn the opponent's date of invention, in order to manufacture such proof as might be necessary to fix an earlier time. These statements have always been regarded as a sort of pleading, in which each party sets forth what he intends to prove, and to which, in matters of substance, he is held in all the subsequent proceedings. But they differ from pleadings in this respect, that the issue having been already defined and declared by the Office, no cause of action remains to be made, but the parties have only to state the essential facts they intend to rely upon in support of the issue—the date of conception, time of completion, &c.

Now it is quite apparent that to allow amendments of statements in respect to those essential matters after testimony has been taken, or after each has learned the other's dates, would be to destroy their value altogether.

Amendments of preliminary statements are now allowed only before the statement of the opposite party is disclosed to the one making the amendment, or upon requirement of the Commissioner, when the same are indefinite, before testimony is taken.

As pleadings in court under the present liberal practice are frequently allowed to be amended so as to permit the parties to take new or additional evidence upon the issue between them, and are not used to arbitrarily restrict the parties to the precise facts originally set up, so it may seem an unnecessary departure from the analogous practice in courts to establish an arbitrary rule in the Patent Office controlling absolutely, and in advance, the line of proof to be followed by contesting parties.

Amendments to indictments, declarations, answers, bills in equity, &c., in matters of substance, are now continually allowed by the courts upon proper and adequate representation, so that the substantial rights of the parties may be determined.

It would be better, it is contended, to allow all attempts at fraud and perjury in the taking of testimony to be met and checked in the same manner that the common law prescribes by cross-examination, by opposing testimony, and by other means which are open always to skillful counsel and intelligent courts. The fear of punishment, too, for the crime of perjury would, here as elsewhere, act as a preventive.

The rule in question, it is said, does not accomplish the object for which it was established, while it often hampers the development of the truth.

On the other hand it has been said that no more salutary rule has ever been adopted by the Office.

Each party being required in advance to make a statement of those facts peculiarly within his own knowledge, prevarication and perjury are prevented in the majority of cases, and a clear and certain line of proof is laid down which aids the respective parties in the orderly development of their proof, and which also greatly aids the tribunals before whom interferences are adjudicated in this Office in arriving with celerity to a clear determination of the rights of the contesting parties.

But were I disposed to favor the abrogation of this practice, I do not regard the circumstances of this case sufficient ground therefor.

DISCLAIMERS FILED.

173,970.—Improvement in Processes and Means for Evaporation of Sirups.—JAMES CLEGG, Almond, Ala.—Patent granted February 8, 1876.—Disclaimer filed August 3, 1876.—Disclaims:

"The combination, with the partitions having an increasing height in regular gradations from the front to the rear of the pan, of the side passages whereby the varying depths of the partitions co operate with the side spaces to obtain the advantages set forth."

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 1, 1876.]

9,411.—Torches.—GEORGE F. HOLLIS, Boston, Mass. Application filed July 21, 1876. Term of patent 3½ years.

9,412.—Window-Shades.—BRAINARD G. LATIMER, Brooklyn, N. Y. Application filed July 12, 1876. Term of patent 7 years.

9,413.—Cross.—WILLIAM B. MENAGE, Providence, R. I. Application filed May 11, 1876. Term of patent 3½ years.

9,414.—Carriage Clip-Bar.—WILLIAM S. WARD, Plantsville, Conn., assignor to H. D. SMITH & Co., same place. Application filed May 19, 1876. Term of patent 14 years.

9,415.—Inkstands.—WILLIAM D. BENNAGE, Jr., Philadelphia, Pa. Application filed March 20, 1876. Term of patent 3½ years.

9,416.—Ornamental Chain-Links.—OSCAR M. DRAPER, North Attleborough, Mass. Application filed April 24, 1876. Term of patent 14 years.

9,417.—Citrate-of-Magnesia Bottles.—BENJAMIN W. FETTERS, Philadelphia, Pa. Application filed July 8, 1876. Term of patent 7 years.

9,418.—Charm, Medal, or Badge.—EDWARD H. HART, Philadelphia, and JAMES C. ANDERSON, Pittsburg, Pa. Application filed June 26, 1876. Terms of patent 3½ years.

9,419.—Badge.—ANDREW POWELL, New York, N. Y. Application filed June 12, 1876. Term of patent 3½ years.

9,420.—Spoon and Fork Handles.—GEORGE WILKINSON, Providence, R. I., assignor to GORHAM MANUFACTURING COMPANY, same place. Application filed July 11, 1876. Term of patent 7 years.

9,421.—Cigar-Light.—GEORGE A. WOODS, Meriden, assignor to EDWARD MILLER & Co., West Meriden, Conn. Application filed July 24, 1876. Term of patent 3½ years.

9,422 and 9,423.—Coffin Ornaments.—RUSSELL H. BURR, West Meriden, Conn., assignor to C. ROGERS & BROTHERS, same place. Applications filed July 24, 1876. Term of patents 7 years.

9,424.—Woolen Fabrics.—DAVID L. EINSTEIN, New York, N. Y. Application filed June 30, 1876. Term of patent 3½ years.

9,425.—Water-Proof Fabrics.—DAVID L. EINSTEIN, New York, N. Y. Application filed July 1, 1876. Term of patent 7 years.

9,426 to 9,431, inclusive.—Oil-Cloths.—CHARLES T. MEYER and VICTOR E. MEYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed July 22, 1876. Term of patents 3½ years.

9,432.—Badge.—ALBERT V. MOORE, Hackensack, N. J. Application filed April 10, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 1, 1876.]

3,884.—Baking-Soda, Saleratus, and Baking-Powder.—JOHN DWIGHT & Co., New York, N. Y. Application filed July 11, 1876.

"the representation of a cow."

3,885.—Wearing-Apparel.—ISIDOR & HEIN, New York, N. Y. Application filed July 10, 1876.

"words 'HARD MONEY' and the representation of a United States coin."

3,886.—Starch.—T. KINGSFORD & SON, Oswego, N. Y. Application filed July 17, 1876.

"the representation of an eagle with spread wings, as in the act of flying."

3,887.—Plug Tobacco.—P. LORILLARD & Co., New York, N. Y. Application filed June 1, 1876.

"a bright metallic tag, preferably of circular form, firmly fixed to one of the sides or faces of the plug of tobacco."

3,888.—Paper Bags.—BLAKE, ROBBINS & Co., San Francisco, Cal. Application filed July 22, 1876.

"the figure of a bear, represented as walking across a railroad-track."

3,889.—Various Parts of Thrashing-Machines and Horse-Powers.—JAMES BRAYLEY, Buffalo, N. Y. Application filed June 28, 1876.

"a monogram composed of the letters 'B. P.'"

3,890.—Illuminating-Oils.—CORRIGAN & Co., Cleveland, Ohio. Application filed May 13, 1876.

"the word-symbol 'mineral-seal.'"

3,891.—Cigars.—WILLIAM R. FORTIER, New York, N. Y. Application filed July 22, 1876.

"words 'LA CRUZ DE MALTA.'"

3,892.—Gloves and Hosiery.—THE FIRM OF HEINRICH GULDEN, Chemnitz, Germany. Application filed June 17, 1876.

"a boat's head, with an anchor and arrow crossed underneath it."

3,893.—Chemical Compound for Making Lemonade.—THATCHER C. HATCH, New Bedford, Mass. Application filed July 8, 1876.

"word 'BEVERAGINE.'"

3,894.—Medical Compound.—BERNHARD O. HOLTERMANN, Sydney, New South Wales. Application filed May 24, 1876.

"words 'Life Drops.'"

3,895.—Medical Compound.—GEORGE HOUSEL, Williamsport, Pa. Application filed July 17, 1876.

"a large capital letter 'O,' in the center of which, extending from the top of the inside of said letter to the bottom, in a vertical line, are the capital letters 'B W G,' and upon the shading of said letter 'O,' on the left hand, is the word 'TRADE,' in capital letters, and upon the shading of said letter 'O,' on the right hand, is the word 'MARK,' in capital letters."

3,896.—Cooking-Stoves.—WILLIAM J. KEEP, Troy, N. Y. Application filed July 17, 1876.

"word-symbol 'RUBICON.'"

3,897.—Umbrellas and Parasols.—A. M. & R. DAVIES, New York, N. Y. Application filed July 26, 1876.

"word-symbol 'Rain-Bow.'"

3,898.—Wines.—LAVERY & Co., Reims, France, and London, England. Application filed April 19, 1876.

"A label with the words 'Dom Perignon, Reims,' about the middle thereof, and above the words a gold disk, containing round it on the inner margin the words 'Dom Perignon, Reims,' and in the middle the drawing of the head of a monk, with a beard, and a cowl on his head, and just outside the said disk the words 'Brand on Cork,' and toward the lower part of the label on which are the said words and devices appears a monogram, consisting of the letters 'P,' 'D,' 'H,' and 'L,' and in the left corner of the said label the words 'Extra Quality,' and in the right corner the words 'Rue d'Avenay.'"

3,899.—Ointment for Sweaty Feet.—JOHN LITTLE & Co., Piedmont, West Va. Application filed June 30, 1876.

"words 'Little's Original Ointment for Sweaty Feet,' together with a scene representing a man afflicted with sweaty feet seated upon a chair in a room, in his shirt-sleeves, withdrawing his boots, while his wife and child are represented as being driven back by the unpleasant consequences attending the act, and stand manifesting their disgust by holding their nostrils."

3,900.—Oysters.—JESSE C. LUDINGTON, Baltimore, Md. Application filed June 21, 1876.

"a symbol, described as follows: A central arrow-shaped spear-head, fixed upon a square bar tapering toward either end, two sides of which, near the arrow-shaped spear-head, are oval. The greatest diameter of the bar or rod is situated semi-distant from either end, and a short distance therefrom, toward the arrow-shaped spear head, is pierced transversely by a U-shaped bar or rod of rounded material, the points of which are turned in the same direction, and parallel with the broad surface of the arrow-shaped spear-head, the ends of each being armed with a single barb on the interior side next the central rod, and whose extreme points are equidistant from the arrow-shaped spear-head and the center, and whose broad surfaces lie in the same plane. Through the other end of the said bar is inserted a ring resting upon the upper side of said bar or rod, to which said ring is attached a rope, coiled a short distance around said bar toward its center."

3,901.—Sewing-Machine Attachments.—THE AMERICAN ATTACHMENT COMPANY, New York, N. Y. Application filed July 19, 1876.

"the figure of an owl wearing glasses or spectacles and the words 'No sewing-machine perfect without it.'"

3,902.—Sewing-Machine Attachments.—EDWIN J. TOOF, New Haven, Conn. Application filed May 6, 1876.

"two lines crossing each other."

3,903.—Meat-Juice and a Compound of Meat-Juice and Glycerine.—MANN S. VALENTINE, Richmond, Va. Application filed July 6, 1876.

"the letter 'V' and the bird's nest resting thereon containing eggs."

3,904.—Liquid for Dispelling Insects from Plants, &c.—SAMUEL W. WATTS, Franklinton, N. C. Application filed July 20, 1876.

"word-symbol 'INSECT-ENEMY.'"

3,905.—Cigarettes.—ABRAHAM WEINGARTEN, New York, N. Y. Application filed February 14, 1876.

"a device representing a lion smoking a cigarette, and a serpent reaching up its head, and in its mouth an ignited match, which is applied to the end of the cigarette, as in the act of lighting the same. The lion is represented as struggling with the serpent, compelling the lighting of his cigarette by the serpent, who is holding the ignited match in his mouth."

3,906.—Bitters.—EMIL F. WITTE, Brooklyn, N. Y. Application filed July 1, 1876.

"word-symbol 'PALM.'"

3,907.—Pencils.—WILLY WALLICH, New York, N. Y. Application filed July 29, 1876.

"the arbitrarily-selected words 'TILDEN—DEMOCRATIC PENCIL—HENDRICKS.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 1, 1876.]

805.—Title: "Dr. C. Delery's Indian Vegetable Febrifuge."—EDGAR DELERY, Bay St. Louis, Miss. Application filed July 24, 1876.

806.—Title: "Harrison's Hog and Chicken Cholera Cure."—R. G. HARRISON, Olathe, Kansas. Application filed July 24, 1876.

807.—Title: "Dr. I. H. Hughey & Co.'s Great Female Remedy."—I. H. HUGHEY & Co., Memphis, Tenn. Application filed July 18, 1876.

808.—Title: "Bread of Life."—H. W. MUNSON, Providence, R. I. Application filed July 26, 1876.

809.—Title: "Lautz Bro.'s & Co.'s Master Soap."—LAUTZ BROTHERS & Co., Buffalo, N. Y. Application filed May 15, 1876.

INDEX OF INVENTIONS PATENTED AUGUST 1, 1876.

	Class No.	No. of Patent.
Air brakes, relief valve for, C. Chadwick	122	180,460
Air compressor, D. Wood	2	180,443
Alarms, circuit closer or opener for burglar, W. J. Phillips	24	180,497
Awning, A. Hessels	102	180,580
Bed and cushion, air, W. Boggett	62	180,598
Bed bottom, spring, W. R. Cunningham	62	180,555
Bedstead, sofa, H. York	62	180,694
Bee hive, C. M. Jones	9	180,596
Belt, W. Roemer	38	180,500
Bending machine Scott and Schultz	136	180,436
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Greenman, A. J., Corn planter	180,473
Gulliford, A., Lamp stove	180 474
Gunsalus, T., Ice creeper	180,578
Hamer and Metcalfe	180,488
Hawley, W., Horse collar	180,425
Harley, W. and J., assignees	180,628
Harrison, H., Furnace	180,475
Harrison, W. H., Dissected map	180,476
Hasenritter, R. H., Oil can nozzle	180,426
Hawkins, M. C., and C. T. Higginbotham, Watch regulator	180,579
Heath, R. F. S., assignee	180,538
Helling, F., Furniture caster	180,477
Hessels, A., Awning	180,580
Heywood Brothers & Co., assignees	180,581, 180,582
Heywood, L., Settee	180,581
Heywood, L., Settee	180,582
Higginbotham and Hawkins	180,579
Higinbotham, R. S., Gate closing device	180,583
Hill, W. N., Heating gas for motive power	180,478
Hinkle, P., Hydraulic jack, (reissue)	7,247
Hipwell, T., Glass grinding machine	180,584
Hoffman, D., assignee	180,429
Hollis, G. F., Torch	180,585
Hood, S., Cigar box	180,586
Hough and Wiard	180,511
Hubbell, A. F., and K. Ruff, Carriage seat	180,427
Hufeland, P., and W. W. Batchelder, Lighting attachment for lamps	180,587
Hufeland, P., and W. W. Batchelder, Lighting attachment for gas burners	180,588
Hughes, R. K., Paper bag machine	180,589
Hull, M. L., assignee	180,474
Hundt, J. O., assignee	180,653
Hunter, J., Meal bin	180,590
Huttner, H. J., Feeding and discharging hopper	180,591
Ingraham, W. W., Grain separator	180,498
Jenkins, P. O., Heating stove	180,592
Jenkinson, J., Bustle	180,593
Johnson, S., Alarm clock	180,594
Jones, C. M., Bee hive	180,596
Jones, E. W., Mail bag catcher	180,595
Kaehni, W., Straw cutter	180,597
Kayser, M., Shirt	180,598
Keeler and Peck	180,630
Kerr, H. S., assignee	180,515
Keys, E. C., Insertible saw tooth	180,429
Klein, A. J., Vent bung	180,479
Klobassa, V., Wardrobe	180,490
Knowles, L. J., Harness frame	180,599
Kopp, J., Nursery chair, (reissue)	7,246
Krumscheid, P., Beer pump	180,600

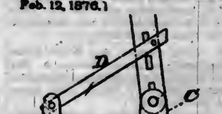
	Patent No.
Lambert, G. A., Clothes pin	180,430
Lambert, G. A., Clothes pin holder	180,431
Lang, W. C., Circulating apparatus for steam boilers	180,601
Lass, E., and C. Glarner, Child's chair	180,602
Leach, D. R., Windmill	180,603
Lees, J. S., Pump governor	180,604
Lee, E. R. and G. W., Show case	180,605
Lee, H., assignee	180,429
Leopold, W. F., Rotary engine	180,606
Lindsay, W. A., assignee	180,438
Loeser, L., Shoe tip	180,607
Lohmann, A., Wash boiler	180,608
Lohr, P., assignee	180,456
Lombard, N. C., assignee	180,424
Long, J. P., Combined seeder, cultivator, harrow, and crusher	180,609
Lungren, C. M., Camp stool	180,610
Lynch, E. P., and E. A. Wright, Cultivator, (reissue)	7,250
Lyon, W. A., Fur set box	180,481
Lyon, W. H., Lamp wick	180,482
Mabie, D. K., Railway gate	180,483
Magee, W. H., Spinning ring	180,611
Magnus, G., Composition for billiard balls and process of manufacturing the same	180,484
Manning, E. B., Bottom for tea and coffee pots	180,485
Martin, S. G., Water wheel	180,612
Mason and Smith	180,664
Machett, R. M., assignee	180,532
Maxheimer, J., Bird cage hook	180,432
Maxwell, J. R., Valve for steam engines	180,433
Mayer and Goodwin	180,573
Mayher, J., Steam pump	180,434
McCabe, R. and W., Reclining chair	180,435
McConnell, J., Oil stove	180,436
McCutchins, E. C., Doll supporter	180,613
McDonald, C., Folding table	180,437
McGregor, J. and T., Machine for shearing boiler plates	180,614
Meeks, N. H., Corn planter	180,615
Merahon, G. B., Grate	180,616
Merwin and Watson	180,445
Metcalfe, J., E. Hamer, and R. Metcalfe, Locomotive and other engines	180,488
Meyer, G., assignee	180,502
Miles, F. B., Steam hammer, (reissue)	7,248
Miller, C. H., Curtain fixture	180,489
Milligan, J., Plate printing press	180,490
Moody, G., Draw bridge	180,491
Moore, G. F., Machine for forming counter stiffeners for boots and shoes	180,492
Moore, J., Inside divider for harvesters	180,618
Moore, S. H. and E. Y., Roller for barn doors, &c	180,619
Moore, W. C., Harrow	180,617
Morgan, A. W., Earth boring machine	180,493
Morgan, W. H., assignee	180,630
Motte, F., Crushing machine	180,620
Museum Manufacturing Company, assignee	180,492
Moyer, S. S., Ornamenting buttons	180,621
Murphy, P. L., Self dumping scow	180,622
Neames, C., Diffusion apparatus	180,623
Nelson, R. W., Car axle	180,494
Newman, W. B., and T. J. Wilkinson, Plow	180,624
New York Watch Company, assignee	180,579
Nichols, B. S., assignee	180,444
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Osborne, E. F., Testameter	180,625
Outcalt, J., Hominy knife	180,626
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Parsons, W., Ornamenting hosiery and other knit fabrics	180,628
Patterson, J. A., Car coupling	180,629
Peck, G. S., and W. Keeler, Mowing machine	180,630
Perkins, J., Hydraulic elevator	180,495
Perkins and Braffett	180,532
Phillips, R. C., Gas meter	180,631
Phillips, W. A., Key fastener	180,496
Phillips, W. J., Circuit closer or opener for burglar alarms	180,497
Plunkett, F. T., assignee	180,517
Porter, F. W. and L., Door spring	180,632
Potter, J., Leather cutting gage	180,633
Pounder, G. H., Harrow	180,498
Powers, J. F., assignee	180,561
Preston, A. A., Plow	180,634
Proctor, R. P., Fender for car windows	180,635
Pryibil, P., Feed motion for saw mills	180,636
Quincy, J. W., assignee	180,649
Quinlan, W. J., assignee	180,569
Randall, F. D., Ladder	180,637
Randall, H. R., and O. F. Boomer, Apparatus for automatically regulating the temperature of carburetors	180,638
Rees, T. W., Replacing worn out faucets on water pipes	180,639
Reynolds, J. W., assignee	180,438
Rider, A. K., Chill for casting	180,641
Rider, Wooster & Co., assignees	180,641
Ridler, G., Churn	180,640
Robinson, E. B., Music leaf turner	180,499
Robinson, S. L., Book and cover	180,642
Roemer, W., Belt	180,500
Root, J. B., Machine for straightening round bars and tubes	180,643
Ruff and Hubbell	180,427
Sabin, C. T., Door spring	180,644
Saladee, C. W., Stamp canceler	180,501
Saladee, C. W., Parlor skate	180,646
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Sale, J. H., Automatic vehicle brake	180,645
Salvatelli, Grasiani, and Carrera	180,544
Sanders, G. N., Machine for making spikes	180,648
Sanford, G., Combined pipe cutter and screw threader	180,649
Scheel, E., Cuff and collar box	180,650
Schilling, W. J., Attaching locks to drawers, &c	180,651
Schilling, W. J., Inkstand	180,652
Schneider, G. F., assignee	180,627
Schönherr, L., Sizing yarn	180,653
Schultz and Scott	180,436
Schumacher, F., Preparing cereal grain	180,654
Scott, C. A., and M. Schultz, Bending machine	180,436
Scott, S. M., Corn planting attachment for sod plows	180,655
Scutt, H. B., Barbed fence wire	180,656
Secor, C. F., Amalgamating ores	180,657
Sewell, H. R., assignee	180,674
Shaler, I. W., Torch	180,659
Shank, J. M., Signal lantern	180,658
Shearer and Winder	180,692
Shreve, S. H., Elevated railway	180,660
Sidey, G., Package for paint, &c	180,661
Sillman, W., Sr., and W., Rotary engine	180,662
Simpson, V., assignee	180,521
Sipp, J. P., Lock for doors	180,663
Smith, A. T., Apparatus for lighting gas by electricity, (reissue)	7,249
Smith, C. E., Breastpin joint or tongue	180,437
Smith, E. J., and B. Mason, Jr., Steam engine	180,664
Smith, H. D., & Co., assignees	180,509
Smith, J., Tool for shaving leather	180,667
Smith, J. A., assignee	180,629
Smith, J. D., Corn planter	180,665
Smith, J. R., Machine for crushing and washing sand, (reissue)	7,245
Smith, S., and I. S. Collins, Lubricator	180,666
Snyder, C., assignee, (reissue)	7,245
Sonnenberg, C., Game apparatus	180,502
Sorrinson, E., Winch	180 668
Southard, G., Self closing telegraph key	180,669
Spencer, R., Harness saddle	180,670
Squires, J. A., assignee	180,622
Stalcup, W. P., Cultivator	180,438
Steinway, C. F. T., Piano sound board	180,671
Stevens, J. H., Water closet	180,439
Stimpson, E. B., Apparatus for cutting and ornamenting shoe uppers	180,672
Swan, G. W., Box nailing machine	180,503
Sweanor, G., Fog signal	180,674
Swintz, H., End gate	180,673
Syverson, A., Machine for boarding stove pipes	180,440
Talcott, W. A., assignee	180,665
Taylor, G. H., Shears and scissors	180,675
Teas, A., Harness saddle tree	180,676
Thompson, J. P., assignee	180,554
Thompson, Perley, and Waite, assignees, (reissue)	7,246
Thompson, R., Padlock	180,504
Thorp and Bell	180,596
Towers, W. M., and J. M. Bowie, Portable furnace for evaporators	180,677
Trout, A., assignee	180,472
Tyne, E. D., Thermoscopic lubricator	180,505
Underwood, H. M., Wind wheel	180,678
Vanpelt, A. M., Wind wheel	180,679
Van Skelline, T., Clasp for butter dishes	180 506
Van Wie, E., assignee	180,678
Very, T. S., assignee	180,442
Voigt, F., Toy furniture	180,680
Voss, C., assignee	180,608
Walker, W. L., and B. G. Devoe, Iron fence	180,507
Ward, A., Machine for cutting threads on bolts	180,681
Ward, W. S., Carriage slat iron	180,509
Washburn, J. S., Wash board	180,682
Watkins, W., Weather strip	180,683
Watson, J. T., and J. B. Merwin, Straw cutter	180,445
Waudby, H., Caster bottle	180,508
Weaver, J. E., Evaporating apparatus	180,441
Wegefarth, C., assignee	180,603
Weir, W. S., Harrow	180,684
Welsh, N. B., and G. W. Evans, Cartridge	180,510
Wheeler, J. E., assignee	180,419
Whitaker, D., Soap remelter	180,688
White, C. H., Railway switch	180 685
White, W. W., Lamp extinguisher	180,687
Whitemore, A. S., Clothes drier	180,686
Wiard, G., and C. W. Hough, Plow	180,511
Wilcox, M. H., Horseshoe	180,442
Wilder, E. F., Oil tank	180,512
Wilkinson and Newman	180,624
Wilson, J. M., Urinal	180,689
Winans, T., Construction of sailing vessels	180,690
Winans, T., Construction of sail boats, &c	180,690
Winder, W. A., and M. M. Shearer, Composition beverage	180,691
Wiseman, P., Cylinder for pump stocks	180,692
Wolcott, H. G., Implement for removing cartridge primers	180,513
Wood, D., Air compressor	180,693
Woodard, A., Churn	180,443
Wright and Lynch, (reissue)	180,514
Woodbury, L. S., Fire hydrant	7 250
Yale Lock Manufacturing Company, assignee	180,444
York, H., Sofa bedstead	180,663
Zellers, R. E., Corn planter	180,694
	180,695

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED AUGUST 1 1876

180,407. FLOOD-FENCES. Lewis C. Acker and Wm. Ball, New Vienna, Ohio. [Filed Feb. 12, 1876.]



In a flood-fence, the combination, with the pivoted fence-sections A and pivoted braces D, of the transverse mud-sills B, having side recesses expanding in dovetail form downward and outward, and the sill-posts E C, having similar double-dovetail form at their bases, seated in said recesses from below, and projecting upward above the sill to receive the pivots, substantially as specified.

180,408. MANUFACTURE OF SCISSORS. Jas. Adair, Killbuck Township, Allegheny County, Pa. [Filed May 17, 1876.]

Brief.—The blade, shank, and eye are integral, cut out of sheet-steel, and swaged so that each section named shall be longitudinally concave on one side, and correspondingly convex on the other.

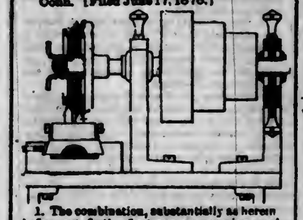


1. The method of making scissors and shears by cutting the blanks for each blade, shank, and eye from sheet metal, stamping or swaging the blanks, bolloweing on their inner and convex on their outer faces, and tempering, grinding, and riveting, substantially as set forth.

2. As a new article of manufacture, a pair of scissors or shears having hollow blades, shanks, and eyes, united by riveting, substantially as set forth.

3. In combination with hollow shear-blades, the bearing-pieces inserted in the hollow or concave seats of the blades, and having flat bearing-surfaces in the plane of cut, substantially as set forth.

180,409. MACHINES FOR GROOVING METAL PULLEYS. Joseph D. Alvord, Bridgeport, Conn. [Filed June 17, 1876.]



1. The combination, substantially as herein before set forth, of a traversing carriage and a series of cutters of gradually increasing lengths moving tangentially across the axis of rotation of the wheel to be grooved.

2. The combination of the traversing cutter carriage or frame, the holder or socket for the cutters, and a series of independently adjustable cutters of successively increasing lengths secured in the socket, substantially as and for the purposes specified.

3. The combination, substantially as hereinbefore set forth, of the reciprocating carriage, the holder, and the parallel gauge of independently-adjustable cutters of successively-increasing lengths secured in the holder.

180,410. SHEEP-SHEARS. Robt. H. Austin, Plainsburg, Cal. [Filed May 16, 1876.]

Brief.—The cutting-blades of a pair of shears, for shearing sheep or other purposes, are loosely pivoted together, and to a peculiar saw, which forms a support or frame therefor.

The blades are operated by a pair of handles loosely pivoted—one direct to one of the blades, and the other to the jaw—the handles being likewise pivoted together, the whole acting as a compound toggle-joint; the construction giving an increased leverage, and also permitting the ready removal and replacing of any of the detachable parts which may become worn or injured.



The jaw C, in combination with the blades D E, and loosely-pivoted handles A B, substantially as and for the purpose specified.

180,411. MACHINES FOR MOLDING METALS. Wm. Barker, Baltimore, Md. [Filed June 6, 1876.]

Brief.—A reciprocating plate, perforated for the molds, slides between a lower and upper bed, acting as a cut-off of the molten metal. A corresponding reciprocating plate at the opposite end of the machine carries the wires that form the cores for the molds.

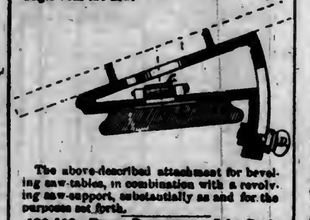


1. In a machine for molding metals, the combination of the sliding tables B and C, wires D, and bottom and gate plates, represented, respectively, by *g* and A, substantially as and for the purpose specified.

2. In a machine for molding metals, the sliding tables B and C, having the racks *b* and *i*, in combination with the reversible gear-wheels *s* and *u*, substantially as and for the purpose described.

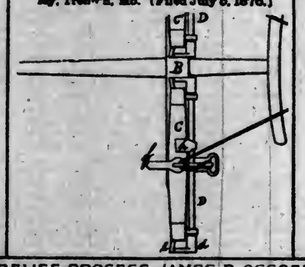
180,412. TABLES FOR SEWING-MACHINES. Frank J. Botts, Long Island City, N. Y. [Filed Jan. 22, 1876.]

Brief.—A hinged support for scroll-saw tables, whereby the table can be held at any angle with the saw.



The above-described attachment for bevel-ing saw-tables, in combination with a revolving saw-support, substantially as and for the purpose set forth.

180,413. TRACK-DISLODGERS. John Buckley, Trenton, Mo. [Filed July 6, 1876.]



1. In a borse-detacher, the whiffletree C, provided with the bent draw-pins *e e*, in combination with the rod D, the quadrant *d*, and the arm *c*, substantially as described, and for the purposes set forth.

2. The whiffletree C, provided with the bent draw-pins *e e*, in combination with the clip *f*, the bolt *b*, rod D, provided with the quadrants *d d*, and the arm *c*, and spring *k*, substantially as described and shown, and for the purposes set forth.

180,414. NUT-LOCKS. Alphens A. Bushong and Jas. S. Fitzpatrick, Columbiana, Ohio [Filed Jan. 15, 1876.]



1. In combination with the fish plate D, having a lower inwardly beveled edge *e'*, the washer E, having an extended bent part, *e*, adapted to be bent inwardly against the beveled edge of the fish-plate, and to rest against the flange of the rail, substantially as specified.

2. In combination with a bolt, B, fish plate D', with lower beveled edge *e'*, prismatic nut *c*, and the flange of a railroad rail, the washer E, having rectangular loop *b* adapted to be bent up over the nut and an extended bent part, *e*, adapted to be bent into the lower beveled edge of the fish-plate, and to bear against the flange of the rail, substantially as specified.

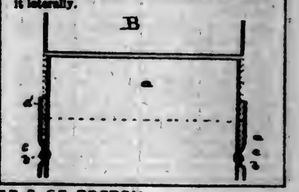
180,415. RODS OR AGITATORS FOR PRODUCING OR OTHER DESIGN. Alfred Clarke, Leicester, England, and Levi B. Curtis, North Weymouth, Mass. [Filed June 3, 1876.]



In combination with the drum or cylinder *a* and its metallic shaft *e*, one or more independent arms or agitators, *g g g*, provided with parallel faces *h h h*, for the purpose of agitating the material during the rotation of the shaft *e*, and having inclined banks *i i i*, for the purpose of forcing the material out through the cylinder *a* when the rotation of the shaft is reversed, substantially as herein set forth and described.

180,416. STOVE-PIPE COUPLINGS. Lewis H. Glow, St. Louis, Mo., assignor to the Excelsior Manufacturing Company, same place. [Filed June 15, 1876.]

Brief.—The pipe is kept in place by the corrugations or rivets, and the outer band stiffens it laterally.



1. The combination of the inner band *a*, outer band *a'*, and the rivets *b b*, &c., substantially as described.

2. The herein-described stove-pipe coupling *A*, consisting of the tube *a*, tube *a'*, and corrugation *c*, combined and operating substantially as described.

3. The combination of the coupling A, and the cylindrical joint B, substantially as and for the purposes described.

190,417. SCREW-WRENCHES. F. L. Ooss, Worcester, Mass. [Filed June 9, 1876.]



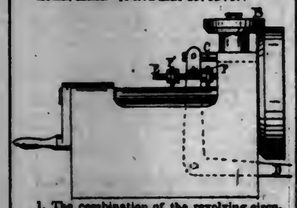
1. The combination, with the ferrule supporting-nut C and wood handle D in a screw-wrench, of projections or studs F, substantially as and for the purpose set forth.

2. The combination, substantially as set forth, of the ferrule B, provided with projections F', supporting ring or nut C, provided with projections F, wood handle D, bar A, and tip-nut E, for the purposes stated.

190,418. REMEDIES FOR CONSTIPATION, &c. George S. Coleman, Dallas, Tex. [Filed Dec. 18, 1875.]

A composition of matter, consisting of sulphate of magnesia, sulphate of soda, chloride of soda, dilute sulphuric acid, and water, in about the proportions set forth.

190,419. MACHINES FOR CHAMFERING THE SOLES OF BOOTS AND SHOES. James Dargan, Boston, assignor to John B. Wheeler, Lynn, Mass. [Filed May 19, 1876.]



1. The combination of the revolving circular guide B, with the rod C and lever D, when arranged to operate the guide to and from the feed-rolls, substantially as and for the purpose described.

2. The adjustable stops F F', when arranged upon the rod E, to determine the limits of the movement of the guide B to and from the cutting and grooving mechanism, thereby regulating the location of the channel relative to the sole-edge, substantially as set forth.

190,420. LOCK-HINGE. Patrick J. Dinn, Boston, Mass. [Filed May 1, 1876.]

Brief.—The locking-bolt being formed with a head and reduced shank, and the construction such that the bolt is prevented from entirely freeing itself from the hinge, either in opening or closing.



The bolt *c*, formed with a head, *d*, and reduced shank *d'*, swiveled to the separate pivoted latch *e*, and working and held in the passage *b b'* in the part F of the hinge, as described, in combination with the part E of the hinge, provided with pockets or holes *h*, as set forth.

190,421. ICE-CREAM FREEZERS. J. Dooling, Boston, Mass. [Filed Apr. 3, 1876.]

1. The combination of the spindle M, mounted by its middle in the bearing F, and provided with a socket at its lower end to engage with the beater-shaft, the gear J, mounted upon the upper end of said spindle, the driving-gear K, the gear L, mounted, and revolving freely upon said spindle below the bearing F, and provided at the lower end of its hub with a coupling-socket, and a central hub, on the cream-holder cover, fitted to engage with, and be revolved by, the socket of the gear L, all arranged and adapted to operate as and for the purposes described.

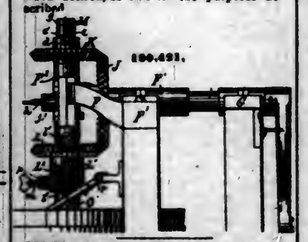
2. The combination of the spindle M, mounted by its middle in the bearing F, the gear-wheel L, mounted, and adapted to revolve freely upon the lower end of said spindle, and to be coupled to the cream-holder, the gear-wheel K, fitted to, and adapted to revolve freely upon, the upper end of said spindle, or to be firmly secured thereon, as the will of the operator, and the gear J, arranged to engage with the gear-wheels K and L, and impart motion thereto in opposite directions, substantially as described.

3. The pin *a*, provided with the one-sided head *a'* and secondary pin *a''*, in combination with the spindle M, provided with the holes *f* and *g*, and the gear-wheel K, having slot *d* formed in one side of the upper end of its hub, all adapted to operate as and for the purposes described.

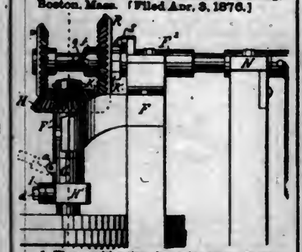
4. In combination, the gear-wheels J, K, and L, and the spindle M, mounted in a single bearing located between the gears K and L, the screw-pin *h*, set in the cap of the spindle-bearing, to engage with the hole *i* in the spindle M, and lock it, to prevent its revolution, as and for the purposes described.

5. As a means of coupling the cream-holder to the operating mechanism, a socket having a cylindrical inner perimeter, and made in two parts, hinged together, and provided with a removable pin to secure the parts together, and a screw locking-pin, *m*, in combination with a cam-cover, having a cylindrical hub to fit said socket, and provided with a locking-hole to engage with said locking-pin *m*, as and for the purposes described.

6. The leg *c*, upon the upper surface of the cream-holder cover, in combination with the pawl P, adapted to engage therewith, to prevent a revolution of the cream-holder, when desired, as and for the purposes described.



190,422. ICE-CREAM FREEZERS. J. Dooling, Boston, Mass. [Filed Apr. 3, 1876.]



1. The combination, in an ice-cream freezer, of the bevel-gear wheels H, K, F, and R, bearing F, located below the gears, the spindle J, and the sleeve-shaft G, provided at its lower end with a socket made in two parts, hinged together, and adapted to engage with the hub on the cream-holder cover without vertical movement of the cream-holder or the sleeve-shaft, as and for the purposes described.

2. The sleeve-shaft G, having formed on its lower end a square or flat sided socket, with one side open, and provided with a latch, I, pivoted thereto by one end, and having a slot, *e*, in its other end, to engage with a headed pin to close and form one side of the socket, as and for the purposes described.

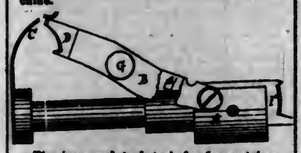
3. The sleeve-shaft G, having formed in its lower end a square or flat sided socket, with one side open, and having fitted to said open side the gate H', pivoted to said sleeve by an axial pin placed at right angles to the axis of the socket, but in a different plane, and swinging outward from the axis of the socket and upward to open said socket, in combination with the latch I, to lock said gate in position, substantially as described.

4. The bevel-gear wheel R, fitted loosely upon the shaft M, and provided with one or more teeth or shoulders, *f*, formed upon the end of its hub, in combination with the removable pin *g*, and in the shaft M in a position to engage with said teeth or shoulder *f*, as and for the purposes described.

5. The gear R, provided with the teeth *f* and ratchet R', and fitted loosely upon the shaft M, in combination with the pin *g* and the pawl S, to engage with said ratchet, as and for the purposes described.

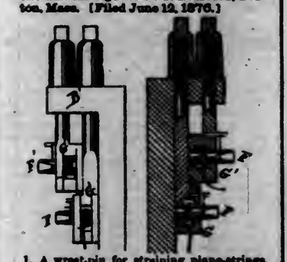
190,423. TOOL-STOCKS FOR SOLE-EDGE-BURNISHING MACHINES. George A. Fullerton, Boston, Mass., assignor of one-half his right to Geo. H. P. Flagg, same place. [Filed Mar. 10, 1876.]

Brief.—The tool-stock is adapted to two burnishing devices, either of which may be brought into use without stopping the machine.



The improved tool-stock for forepart burnishing-machines above described, consisting of the two stocks A and B, tools D and F, and catches C and *c*, constructed substantially as set forth.

190,424. STRINGING AND TUNING PIANOS. Moses N. Gage, Hyde Park, assignor of one-half his right to N. C. Lombard, Boston, Mass. [Filed June 12, 1876.]



1. A wrest-pin for straining piano-strings, set in a forked or slotted carrier, and having two bearings therein, with the string wound thereon between said bearings, as and for the purposes described.

2. The carrier C or C', having set therein the wrest-pin F or F', and provided with a threaded bolt or shank, in combination with the cylindrical cap-nut H and flange B', all arranged and adapted to operate as and for the purposes described.

3. The wrest-pins F and F', placed one above the other, or at different heights from the surface of the string-plate and provided with holes made transversely through their shanks to receive and hold the ends of the strings, the hole in the pin F being made just above its lower bearing, and the hole in the pin F' just below its upper bearing, all arranged and adapted to operate as and for the purposes described.

190,425. HORSE-COLLARS. Wm. Hamley, Ripon, Wis. [Filed May 24, 1876.]



1. In a horse-collar, the wide serrated top and contracted B B, to afford an easy and smooth bearing on the neck of the animal, substantially as described.

2. The horse-collar herein described, having the large ovolls C C', to prevent the hames-tugs from coming in contact with the animal, and the concaves B to give freedom to the shoulders, substantially as described.

3. In the manufacture of horse-collars, the mode of stuffing the collar by filling the narrow part at the throat with long straw, made to extend through the throat, and the body with short straw, or like flexible material, whereby the throat is strengthened, and the other parts made soft, as set forth.

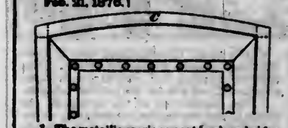
4. The top leather or cap H, having its grain side toward the animal, and its edges rolled up before and behind, and provided with the loop *e* and filler and buckle *e' e''*, substantially as described, for the purpose specified.

190,426. OIL-CAN NOZZLES. Robert H. Hasseritter, Hermann, Mo. [Filed June 20, 1876.]



The combination of the cylinder A, with perforated flange *a* at the bottom and cap D on top, and the nozzle-tube C, with piston *b*, spiral spring *d*, and flange *b*, all substantially as and for the purposes herein set forth.

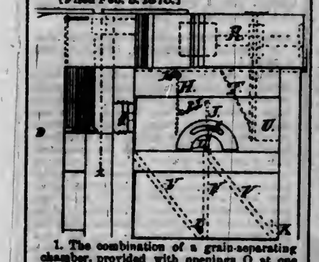
190,427. CARRIAGE-SEATS. A. F. Hubbell and Charles Ruf, Sandusky, Ohio. [Filed Feb. 21, 1876.]



1. The metallic carriage seat back and sides, constructed with square corners between the back and the sides, and provided with the flange at the top, extending from the extremity of one side around the back to the extremity of the other side, substantially as set forth and shown.

2. In combination with a square-cornered sheet-metal seat, having a flat top-stiffening flange, C, the filling-piece, for filling the spaces in the flange at the corners of the seat, said filling-piece being firmly secured to the adjacent portions of the flange C, substantially as described, and for the purposes set forth.

190,428. GRAIN-SEPARATORS. William W. Ingraham, Chicago, Ill., assignor of one-half his right to Edwd. Beard, same place. [Filed Feb. 3, 1876.]



1. The combination of a grain-separating chamber, provided with openings O at one end, a suction-fan arranged at the other end of said chamber, and a suction-pipe, B, entering the chamber at a point between the fan and the openings, substantially as and for the purpose set forth.

2. The combination of the valve H, pivoted at its upper edge, the valve J, pivoted at its lower edge, connected together by the rod N, and the crank-shaft L, by which they are adjusted, as and for the purposes specified.

190,429. INSERTIBLE SAW-TEETH. Rees C. Kaye, Allegheny, Pa. [Filed June 10, 1876.]

Brief.—Detachable saw-teeth are provided at their base with longitudinal openings, for giving them flexibility with relation to their bearings, and for impinging upon the detachable cutting-points.



A saw-tooth constructed and secured in the saw-blade, substantially as herein described.

190,430. CLOTHES-PINS. Geo. A. Lambert, Worcester, Mass. [Filed July 3, 1876.]



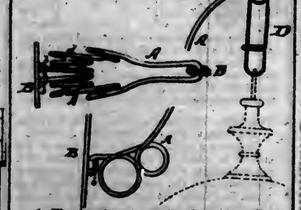
The within-described clothes-pin A, made from a piece of wire, bent and arranged to form the spring-head *c*, expanded hand-bars *b b*, interlocked loops *d d*, angular points *e e*, and inclined guides *f f*, all substantially as and for the purpose set forth.

190,431. CLOTHES-PIN HOLDERS. Geo. A. Lambert, Worcester, Mass. [Filed June 20, 1876.]



The wire holder or clothes-pin support, consisting of the arm-ring B' and support-ring B'', arranged for opening at one side, with a hook, F, and eye D, substantially as and for the purpose set forth.

190,432. BIRD-CAGE HOOKS. J. Manheimer, Brooklyn, N. Y. [Filed May 26, 1876.]



1. The bracket A, made of one length of wire, doubled back, the two portions running parallel to each other, and their ends formed into two parallel hooks, and combined with the bracket-plate B, which has two projecting eyes, *b b*, side by side, substantially as herein shown and described.

2. The safety-hook D, combined with the bracket A, and constructed of one piece of wire, substantially as herein shown and described.

190,433. VALVES FOR STEAM-ENGINES. J. R. Maxwell, Cincinnati, Ohio. [Filed Feb. 12, 1876.]

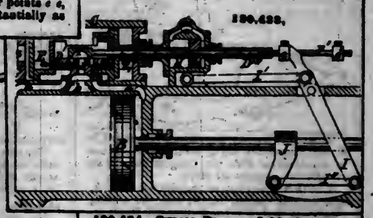
1. The combination, in a valve-movement, of a cylinder receiving motion coincident with the stroke of the main piston and a steam-moved piston, or the piston may be moved by the main piston, and the cylinder by steam-pressure, whereby the main valve is moved by the main piston to cut off steam, and moved by steam-pressure to open the other port, substantially as shown and described.

2. As a new means of operating the valves of direct-acting engines, the combination of a valve-moving cylinder and piston, moving in opposite directions at the same time, each to the right and left alternately, one at a constant velocity, and the other at a velocity which may vary, actuating the main valve, so that it becomes a regulating and cut-off valve, substantially as shown and described.

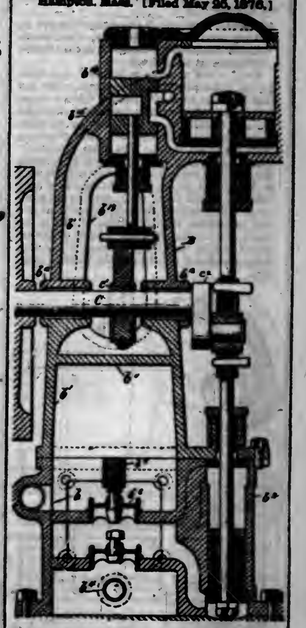
3. The combination of the auxiliary valve F, the valve-moving cylinder H, the valve-moving piston D', the main piston B, and lever I, whereby the main valve is actuated by the combined motions of the main and valve-moving pistons, automatically varying the distribution of steam to the main cylinder according to the load, substantially as shown and described.

4. The combination of the auxiliary valve F, the valve-moving cylinder H, the valve-moving piston D', the main slide-valve D, and the lever, rod, or rock-shaft and finger I I' K, when the ports leading to the valve-moving cylinder are opened and closed by the valve-moving piston moving under the auxiliary valve, substantially as shown and described.

5. The movable cataract-cylinder H and piston G, in combination with the valve-moving cylinder and valve-moving piston, arranged to control and regulate the action of the main valve, substantially as shown and described.



190,434. STEAM-PUMPS. J. Mayher, East Hampton, Mass. [Filed May 26, 1876.]



1. In combination with a tubular column having an overhanging steam-cylinder projecting from its upper extremity, a valve-chest cast in the turn of the column, the latter serving as a brace to give strength and rigidity to the weakest portion, substantially as described.

2. A tapering tubular column having an overhanging cylinder projecting from its upper extremity, and oval openings so located in its sides that the throat, subject to strain by the movement of the piston in the cylinder, is left entire, as and for the purpose described.

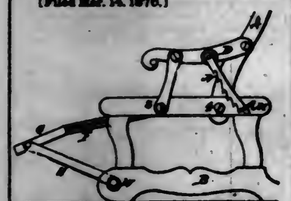
3. A tapering tubular column having a steam-cylinder projecting from its upper extremity, a valve-chest cast in its turn, and elongated side openings, in combination with the valve and pump operating mechanisms, substantially as described.

4. The column B, having the division-plate b^{10}, adapted to form an air-chamber, and provided with the openings b^{12} above the partition, as shown.

5. The combination of the part *b*, having the water-chamber, with the part *b*¹, having the air-chamber and co-operated openings, as described.

6. The combination of the bar *b*¹, stud *b*², and bar *b*³ with the valve-seat *b*⁴, as described.

180,426. RECLINING-CHAIRS. Robert McCabe and William McCabe, Meadville, Pa. [Filed Mar. 14, 1876.]

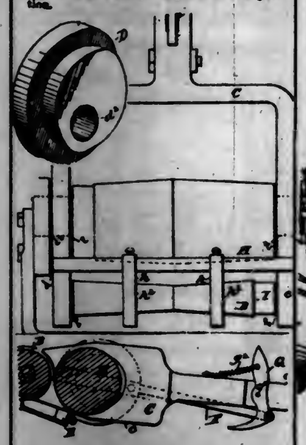


1. A chair having the sliding foot-board F G, and supporting-bar H, arranged to operate in combination with the rung or rail W, as and for the purpose set forth.

2. The combination of the pivoted back A, arm D, and ratchet-bar E, with the sliding foot-board F G, and supporting-bar H, all arranged to form a reclining-chair, in the manner specified.

180,427. BENDING-MACHINES. Charles A. Scott and Michael Schuler, Cincinnati, Ohio; said Schuler assignor to said Scott. [Filed Aug. 17, 1874.]

Brief.—The machine is fastened to a table by the fixed roller. The movable roller has cam-bearings moving in slots. When a crank-lever connected to the cam-bearings is brought up and hooked to a catch on top of main frame, the adjustable roller is brought down upon the fixed roller. The plate previously placed between the rollers is bent by rotating the movable roller-frame downward till with or below the plane of the table, the axis or bearings of the fixed roller serving as a fulcrum. The rollers are each recessed at one end, to provide for the overlap or fold in the sheet, and are tapering and largest at the recessed end, to bend the plate more at one end. Square contacted stops keep the sheet in position.



1. The combination of the fixed bending-cylinder and the movable bending-cylinder with the eccentric clamping mechanism, the movable cylinder when actuated by the clamping mechanism, being adapted to pass over the fixed bending-cylinder, substantially as described.

2. The combination of the fixed and movable bending-cylinders with the frame C, eccentric collars D D, and bar F, as described.

3. The combination of the bar F and catch-lever G, as described.

4. The combination of the angular bar H with the adjustable stops, having the angular contacts to prevent revolution.

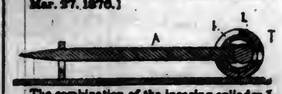
5. In combination with the fixed bending-surface B, having a depressed central portion and a recessed end, as described, a surface, E, having a corresponding projection, and also a recessed end, the construction being such that more pressure is given to the single thickness of plate acted upon than to the double portion, for the purpose of securing uniformity of curvature, as described.

6. The bending-surfaces provided with recesses, as and for the purposes described.

7. The tapering bending-surfaces, adapted to make the plates narrower at one end than the other, as described.

8. The bending-surfaces provided with the tapering surfaces, the depressed and projecting portion, and the recesses, as described.

180,428. BEVELLED JOINTS ON TONGUES. Chas. H. Smith, Charleston, S. C. [Filed Mar. 27, 1876.]



The combination of the incasing-cylinder I, with the barrel L, to which is attached the tongue A by means of the rivet T, substantially as and for the purpose set forth.

180,429. CULTIVATORS. Wm. P Stalcup, Brookville, Ind., assignor to William A. Lindsey and J. W. Reynolds, same place. [Filed June 15, 1876.]

Brief.—The cheer axles are hinged at their inner ends to the arch of the frame. The ends of the arched cross-bars are made adjustable in blocks secured to the outer end of the axle, and by shortening the arched bar on one side the hinged axle permits the wheel to be raised.



1. The combination of the hinged axles and rods D D with the blocks E, as described.

2. The combination of an axle, hinged at its inner end to a fixed support, with a supporting-socket at its outer end, adapted to permit vertical adjustment, substantially as described.

180,430. WATER-CLOSETS. J. H. Stevens, Cambridge, Mass. [Filed May 1, 1876.]

Brief.—An arrangement of the door of the cabinet in which the commode is located with the mechanism which controls the discharge of the contents of the bowl, and the admission of water for rinsing the bowl and filling the trap, whereby the movement of the door, either in opening or closing, will empty the bowl and put in motion the water-supply.

1. The combination, with the common mechanism for operating a water-commode, of a system of lever-connections, substantially as described, by means of which the closet can be worked by the door of the cabinet without interfering with the working of the closet by hand in the ordinary way, substantially as specified.

2. In combination with the door of the cabinet and lever-connections, substantially as described, for working the water-commode, an arranging the crank J or equivalent device for counteracting motion to the said lever-connections that the door of the cabinet, both in opening and in closing, will cause the mechanism which operates the commode to be fully worked, substantially as specified.

3. The combination, with the tilting-pan and rocking-shaft of a water-commode, of a variably compensating counter-balance weight connected therewith, substantially as described.

180,431. MACHINES FOR BENDING STOVE-PIPES. Andreas Syverson, Chicago, Ill. [Filed Mar. 15, 1876.]

Brief.—Pipe is set on slanting holder, and secured between the holders. Former is advanced into the pipe and against one side thereof, and is revolved, whereupon the pipe is bended and trimmed.



1. The former G, constructed with a forming-flange, *i*, and a trimming-flange, *i'*, raised upon its periphery, and parallel to each other, substantially as and for the purpose set forth.

2. The combination of the former G, the chuck F, and mechanism, substantially as described, for attaching the former to the chuck, so that the former may be moved back and forth on the chuck, as set forth.

3. The combination of the chuck F, having its face slotted, the sliding plate *g*, provided with a stop, *g'*, on one side, former G, attached to the opposite side of the plate, spring *f*, and sliding pin *d*, substantially as described.

4. The combination of the sliding clamping-plates *e*, having grooved circular recesses, and the adjustable former G, provided with the flanges *i i'*, constructed and operating substantially as set forth.

5. The slides G G', the lower one adjustable vertically, and the upper one sliding freely, in combination with springs *c'*, to hold the slides apart, substantially as set forth.

6. The sliding block H, provided with an inclined post, A, upon which to support the pipe, substantially as described.

180,432. EVAPORATING APPARATUS. Jas. H. Weaver, Pittsburg, Pa. [Filed Jan. 24, 1876.]

Brief.—Several furnaces send their products through the same annular flue, around which is the brine-heating chamber. Thence the brine passes at the top through a pipe into the top of a spiral trough, descending over a spiral vapor-chamber around the brine-heating chamber. In this trough the concentration of the brine is aided by upward currents of hot air. Thence brine passes to a boiler and to a granulating-pan. Vapor is exhausted from boiler and forced through the upper central spiral and downward on the outside of the furnace into the heating-chamber under the granulating-pan. The vapor from the brine in the annular heating-chamber rises into a drum, passes thence downward on the outside of the furnace, up through the under central coil, into and downward through the spiral chamber, around the brine-heating chamber, and into the coil in, and finally into, the heating-chamber under the boiler.

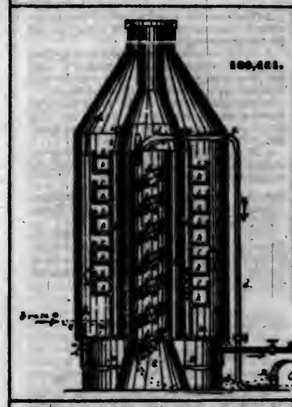
1. In an apparatus for manufacturing salt or sugar, a heater having a series of fire-chambers communicating with one stack, around which is a liquid chamber, and a spiral channel for the liquid to flow over, and a spiral steam-chamber, and within the stack a chamber for heating the steam in its passage through coils of pipe, substantially as herein described, and for the purpose set forth.

2. The combination of a heater, constructed substantially as hereinbefore described, with the boiling-pan P, cone-flue D, and pipes *p d*, and chamber *h* of the granulating-vat, substantially as herein described, and for the purpose set forth.

3. The combination of liquid-chamber *f*, circular steam-drum *i*, with pipes *o*, spiral steam-chamber *k*, pipe *n*, and boiling-pan F, substantially as herein described, and for the purpose set forth.

4. The liquid-chamber *f*, in combination with the pipe *e*, channel *f* pan *e*, and pipe *o*, substantially as herein described, and for the purpose set forth.

180,433.



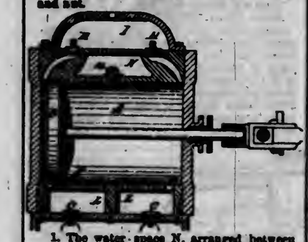
180,433. HORSESHOES. Myron H. Wilcox, Chillicothe, Mo., assignor of part of his right to J. J. Cribbs and J. S. Funk, same place. [Filed June 23, 1876.]



In a horseshoe, the combination of the two parts *a b*, pivoted together at the toe, spring *c*, which conforms to the shape of the foot, flange *g*, and calk *h*, substantially as shown.

180,434. AIR-COMPRESSORS. De Volson Wood, Hoboken, N. J. [Filed May 20, 1876.]

Brief.—There is a water-space between the cylinder and air-chamber, from which water is admitted to the cylinder through a valve, for the purpose of cooling the compressed air; the valve with rubber flap, valve-stem, spring, and nut.

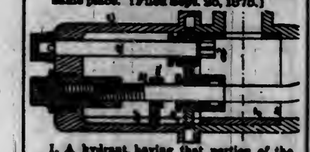


1. The water-space N, arranged between the cylinder A and air-chamber I, and from which water is admitted into the cylinder A, substantially as described.

2. The combination of the valve *c*, rubber flap *d*, valve-stem *h i*, and the springs and nut, as set forth.

3. An air-compressor composed of the water-space N, valve M, cylinder A, piston B, chambers L L, valves C C, and openings F F, all operating in connection with the other parts, as set forth.

180,435. FIRE-HYDRANTS. L. S. Woodbury, Burlington, Vt., assignor of two-thirds his right to B. S. Michels and F. G. Coggin, same place. [Filed Sept. 20, 1875.]



1. A hydrant, having that portion of the barrel through which the discharge-openings pass bored out, or otherwise made smooth, thus forming a seat upon which the valve may be operated within the hydrant, so as to close either of the discharge-openings independently of the others, or of the bottom valve, substantially as herein described, and for the purpose herein set forth.

2. A combination of the stem *a*, pinion *d*, valve E, and stops *g g*, operated substantially as herein described, and for the purpose herein set forth.

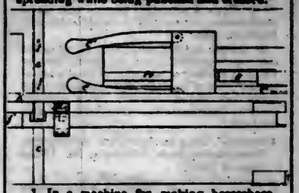
180,436. STRAW-CUTTERS. Jos. T. Watson and Jas. B. Marvin, St. Louis, Mo. [Filed July 14, 1876.]

1. In a straw-cutter, substantially such as described, the pivoted feed-box, adapted to assume a position at right angles to the knife, or a position parallel therewith, for the purposes specified.

2. The combination, substantially as specified, of the knife, swinging upon a single pivot, the link, and the spring which antagonizes the endwise movement of the knife on the downstroke.

180,437. MACHINES FOR MAKING HORSE-SHOES. Hazen J. Batchelder, Fitchburg, assignor to T. S. Very and H. K. Fingler, Boston, Mass. [Filed Mar. 20, 1876.]

Brief.—The heated rod is introduced into the reaming and guiding recess, and a blank cut therefrom while the machine is in operation, the severed portion being afterward automatically raised to a plane on a level with the benders. The crosser-carrier is provided with "hammers," which fit around the bent blank upon the former, and prevent the same from spreading while being punched and crossed.



1. In a machine for making horseshoes, the recess *c'* in the bed of the machine, extended in both directions from the cutter, along and through which to feed the bar to the cutter, and thence to the bending-levers, but at a lower plane, and the device for elevating the blank out of the recess and into the plane of the benders, all operating substantially as described.

2. The combination, with the recess *c'*, formed in the bed, as described, of the movable cutter or shear, arranged to reciprocate in a recess or groove, *f*, (made in the said bed at a right angle to the recess *c'*, so as to enable the cutter to sever the bar from edge to edge,) and the device for raising the blank after severance out of the recess *c'*, and into the plane of the benders, all operating substantially as set forth.

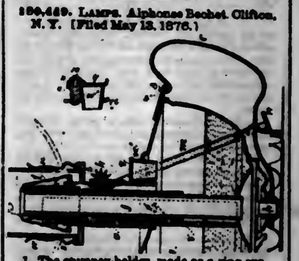
3. The combination of the anvil H, carrying the former D, and provided with the series of holes *s s*, and the block I, provided with the series of punches *s s*, with the creasing and punching dies *c c*, and the hammers M M, substantially as and for the purpose set forth.

180,438.

180,438. MACHINES FOR MAKING NETTING. Thomas Hall, Jr., Nottingham, England. [Filed Mar. 20, 1876.]

The improved method or process of forming the foot of a machine-knit stocking by first narrowing in a knitting-machine the foot part *a*, while knitting it, to the utmost extent required, where the extremity of the foot is to be, and then correspondingly widening it, thereby at once shaping the foot without subsequent trimming, substantially as herein specified.

180,439. LAMPS. Alphonse Beebet, Clifton, N. Y. [Filed May 13, 1876.]



1. The chimney-holder made as a ring surrounding the wick-tube, in combination with the Argand wick-tubes and the screw-thread, by means of which the chimney is raised or lowered, substantially as set forth.

2. The external conical sleeve surrounding the wick-tube, and made with a series of concave depressions, that produces a movement in the ascending current of air to cause it to impinge upon the flame, substantially as specified.

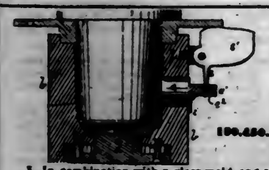
3. The sleeve *i* and supplemental wick-tube *a*, made of one piece of metal, for the purpose set forth.

4. The combination of the supplemental wick-tube with the capillary standing wick and movable Argand wick, substantially as set forth.

5. The removable handle *c*, made as a plate of spring metal, in combination with the loop *d* upon the reservoir, and the socket *b*, for the support of the reservoir, as set forth.

6. The filling-tube *a'*, in combination with the swinging cover B and the stationary disk *n*, between which the cover swings, as set forth.

180,440. GLASS-MOLDS. Washington Beck, Pittsburg, Pa. [Filed June 23, 1876.]

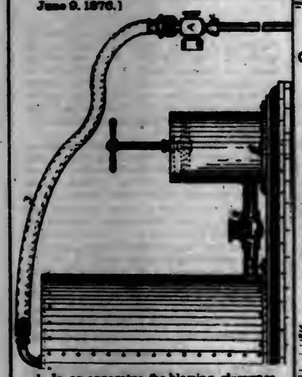


180,450.

1. In combination with a glass-mold and a moving die passing through its side walls toward and from the axial line of its cavity, a weighted bent lever to effect the movement of the die, and a suitable stop to limit its inward motion, substantially as and for the purposes set forth.

2. A die, *c*, having a stop, *f*, arranged in the side wall of a mold, *b*, and a weighted bent lever, *e e'*, suitably arranged to engage a top or bottom plate of the mold while the pressing is being done, the combination being substantially as described with reference to the uses set forth.

180,451. GLASS-BLOWING APPARATUS. Washington Bank, Pittsburg, Pa. (Filed June 9, 1876.)



1. In an apparatus for blowing glassware, an air-pump, air-receiver, interposed check-valves, a flexible hose for conveying the air to any desired place for blowing, and a cock connected with such hose, with a packed surface suitable for the convenient placement and removal of the blow-pipe, substantially as set forth.

2. In combination with a glass-blower's blow-pipe, a receiver, flexible hose, and cock, substantially as set forth.

3. In combination with the flexible hose B, a cock, A, having a port, *c*, leading therefrom, a valve, V, operated one way by mechanical pressure, and in the reverse direction by the operator, a port, *c'*, leading to a packed socket, *e*, substantially as and for the purposes set forth.

180,452. PRESSED-GLASS BUCKETS. Washington Bank, Pittsburg, Pa. (Filed May 17, 1876.)



1. A pressed-glass pail or bucket, with pressed-bail attachments, substantially as described, as a new article of manufacture.

2. A pressed-glass pail or bucket, with pressed bail and cover attachments, substantially as described.

180,453. VENEER-HOOK. Wm. P. Bolton, Knoxville, Va. (Filed Feb. 23, 1876.)

1. As a new article of manufacture, a bob for veneers used in one piece, and having on each side of the shorter projections for holding in place wooden lugs, substantially as and for the purpose specified.

2. In combination with a cast metallic hub, the edges of the sides of the mortises of which have projections B, the wooden keys U, substantially as and for the purpose set forth.



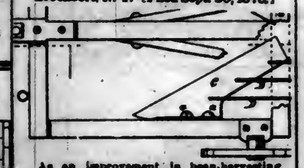
180,454. 180,454.

180,455. MITER-BOXES. George C. Bowen, Warwick, R. I. (Filed June 26, 1876.)

Brief.—The sides and bottom of the box are secured to a series of metal clamps, formed of a horizontal bar and an upright standard at each end.

As a new article of manufacture, a metal frame or clamp for a miter-box, constructed as herein shown and described.

180,456. BEAN-HARVESTERS. W. Bradford, Brookport, N. Y. (Filed Sept. 30, 1875.)



As an improvement in bean-harvesting machines, the cutter-blades C, made vertically adjustable upon the frame, and sloping backward toward each other, leaving a space between their inner ends, as shown and described, and provided with fingers D, fixed therein in a slightly-inclined position, all the parts being constructed and arranged to operate conjointly, in the manner and for the purposes set forth.

180,457. PASSENGER AND STATION INDICATORS. Franklin W. Brooks, New York, N. Y. (Filed June 3, 1876.)

Brief.—A jacket or shield, through which are displayed the names of the stations or streets, inclosee the passenger-registering apparatus, thereby preventing the same being tampered with.



1. A longitudinal shield or jacket, as herein specified in combination with the actuating device of a passenger-indicator, for protecting or masking said actuating device, in the manner set forth.

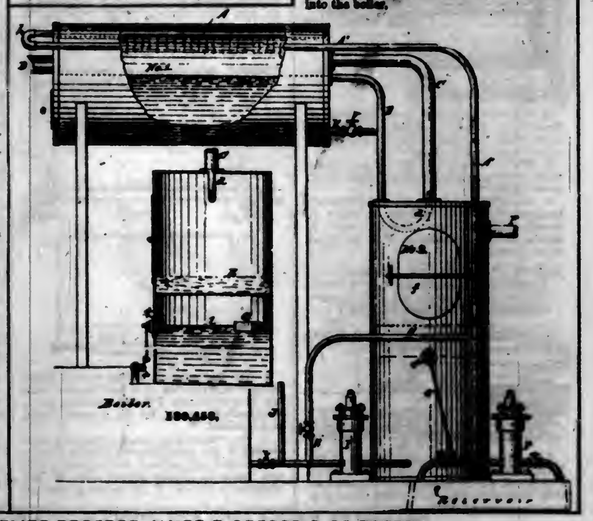
2. The combination of a shield or jacket for the actuating device of a passenger-indicator, and an endless belt or its equivalent, carrying the names of stations or streets, the former inclosing the latter, and provided with an aperture or apertures, through which the names are successively exposed or exhibited, substantially as herein shown and set forth.

3. The pinion P, adapted to be actuated by a key, and arranged within a lateral opening in the shield or jacket J, in combination with the intermeshing longitudinal rack R within the shield or jacket, substantially as shown and described, for the purpose specified.

4. In combination with an inclosed actuating device for passenger-indicators, as herein illustrated and described, the pinion P, constructed with an axial socket, *d*, and the key-guide *g*, arranged with reference to said socket as specified, for the purposes set forth.

180,458. FEED-WATER HEATING AND FILTERING FOR STEAM-ENGINES. T. B. Dutton, Milan, Ohio. (Filed June 12, 1876.)

Brief.—The feed-water and the exhaust-steam are brought into contact twice. The steam each time is subjected to a showering spray of water, by which an intimate mixture of the two elements is produced, whereby the steam is condensed and the water heated. The latter passes through a filtering material, by which it is purified before being introduced into the boiler.



Boiler. 180,459.

1. The screw-threaded barrel *c*, having eccentric chamber provided with a plug, as and for the purpose specified.

2. In a draw-cock, substantially as described, the plate *c*, which serves as a washer to hold the plug in place, and also controls the flow of liquid, as and for the purpose set forth.

3. The combination of the screw-threaded barrel *c*, having eccentric chamber, the plug *b*, and plate *c*, as and for the purpose specified.

4. The screw-threaded barrel *c*, having eccentric chamber and perforated diaphragm, as and for the purpose specified.

1. The combination, in a feed-water heater and filter, of the cold-water pipe A' A², the perforated pipe A, and the overflow-pipe D, having nozzle *d*, as described.

2. The combination of vessel No. 1, the perforated pipe A, exhaust-pipe B, and exhaust-steam pipe C, for carrying off the exhaust steam from vessel No. 1, and overflow-pipe D, bent up at the lower end, for the purpose as shown and set forth.

3. The combination of the two vessels, No. 1 and No. 2, with the cold-water pipe A' A², the exhaust-pipe B and C, the overflow-pipe, and the filtering material, in the manner and for the purpose set forth.

4. The combination of vessel No. 2, the filtering-rack, the float, and the cold-water pump, and their connections, substantially as described.

5. The combination of the cold-water pipe A' A², the pipes H H stand-pipe J, cock *i*, and hot-water pump I, for the purpose and in the manner substantially as set forth and described.

6. The combination in a feed-water heater, filter, and condenser, the two vessels, the cold-water supply-pipe, the perforated pipe, the exhaust-pipes, the waste-steam pipe, the filtering material and rack, the float and hot-water pipes, and either or both the pumps, and the pipe J, substantially in the manner and for the purpose set forth.

7. The combination of the perforated pipe, the exhaust-pipes B and C, the subsidiary pipe K, and perforated nozzle, with the two vessels, substantially as set forth and described.

180,459. GAS-WASHERS. E. S. Cathein, Montreal, Quebec, Canada. (Filed Mar. 26, 1876.)

Brief.—The inflowing gas is directed against a vertical plate, which is serrated on its lower edge, and dips into the wash-liquor, by which means it is evenly distributed in passing under the plate, and more thoroughly washed. The inverted troughs, extending at right angles from this plate below the water, are also serrated on their lower edges for the same purpose.



1. In a gas-washer, the combination, substantially as specified, of the vessel and the curtain, arranged directly in front of the gas-inlet opening, and extending from one end or side to the other, so that the inflowing gas will meet the curtain, and will be thereby deflected downward in a thin sheet.

2. In a gas-washer, the combination, substantially as specified, of the vessel and the curtain, arranged directly in front of the gas-inlet opening, so as to extend from one end or side to the other, and having its lower edge serrated, giving a series of uneven dips or seals.

3. The combination, with a gas-washer, of the curtain B, giving unequal dips or seals, and the inverted V-shaped troughs with serrated or uneven edges, as and for the purposes herein set forth.

4. In an apparatus for the purification of gas, the combination of two or more compartments, A A', &c., each successive compartment being set at a higher level than the preceding one, and communicating therewith through opening H, as and for the purposes herein set forth.

180,460. RELIEF-VALVES FOR AIR-BRAKES. Chas. Chadwick, Hannibal, Mo., assignor of part of his right to Richard Deane and George A. Coe, same place. (Filed June 3, 1876.)

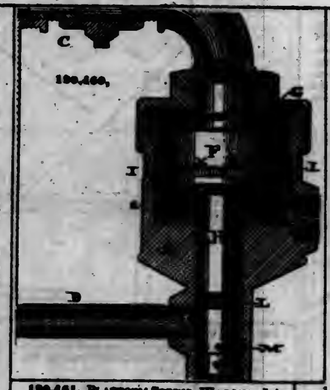
1. The combination of the extension Q, tube D, stem H, groove L, and passages L L', &c., T M M, &c., substantially as described.

2. The combination of the extension Q, seat N, stem H, head R, and valve O, substantially as set forth.

3. The combination of the chest *a*, depression I, valve F, groove J, passages K K', &c., and passage E, substantially as described.

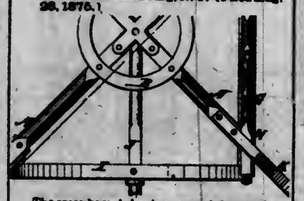
4. The combination, in a relief-valve, of the chest *a*, valve F, and spring G, substantially as described.

5. The combination of the cylinder B, tubes C and D, chest *a*, and extension Q, valve F, spring O, stem H, groove L, passages L L', &c., T and M M, &c., substantially as described.



180,460.

180,461. PLATFORM SPRING-WAGONS. Job G. Clark, Trumansburg, N. Y. (Filed Aug. 28, 1876.)



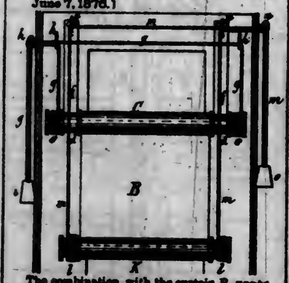
The cross-bars A, having secured thereto the uncle B, and to its under side the bars E by bolts C and studs D F, in combination with the side springs I, cross-spring H, and cross-bar G, all arranged and connected together substantially as and for the purpose specified.

180,462. HAMES. Eli D. Collins, Claremont, N. H. (Filed Mar. 26, 1876.)



The combination of a winged thimble, with a bolt or staple hame, to a harness, substantially as described in the foregoing specification.

180,463. CURTAIN-FIXTURES. George W. Cornell, Clarence Centre, N. Y. (Filed June 7, 1876.)

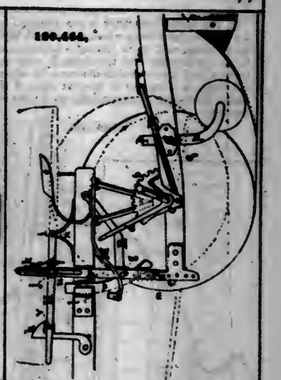


The combination, with the curtain B, upper roller C, provided with pulleys *d d c c*, and lower roller K, provided with pulleys *l l*, of the supporting-bands *f f*, cords *g g* to *m*, and weights *l o*, arranged and operating substantially as shown and described.

180,464. GANG-PLOWS. Marshall S. Curtiss and Edgar W. Curtiss, Bradford, Ill., assignors of one-third their right to J. B. Doyle, same place. (Filed Dec. 20, 1875.)

Brief.—Coupling attachments of the plow beam and frame, and lifting and locking devices.

180,466. 180,466.



1. The lifting-link F, provided with the pivot-pin *p*, connection with the arc-headed bar E and slot *s*, connection with the pin *f* of the lever H, in combination with the arc-headed lever E and the lifting-lever H, substantially as and for the purpose described.

2. The lifting-link F, provided with slot *s* and pivot *p*, the arc-headed bar E, its bearing-slot *i*, and the lifting-lever H and its detent-jaw *h*, substantially arranged as described.

3. The plow-beam K, provided with the loop *t*, in combination with the lifting-bar D, and with the slotted link F, arc-headed bar E, keeper *l*, lever H, pins *f*, and with the frame, substantially as shown and described.

4. The combination, with the colter-stem P and its staple, of the set-screw *g*, as and for the purposes described.

180,465. CHAIN-PUMP BUCKETS. Jacob P. Dougherty, Quincy, Ill. (Filed July 6, 1876.)

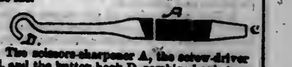


1. The combination of the swivel H, loop F, cone E, and dome A, with its aperture B, as expressed.

2. The combination of the dome A, aperture B, cone E, swivel H, loop F, plate M, and loop N, arranged substantially as and for the purpose described.

180,466. COMBINED SCISSORS-SHARPENER, SCREW-DRIVER, AND BUTTON-HOOK. O. D. Dean, Newark, N. J. (Filed July 14, 1876.)

Brief.—Rock may be flat and be a coarse or fine file.



The scissors-sharpener A, the screw-driver C, and the button-hook D, combined substantially as and for the purpose specified.

180,467. PURIFYING SPIRITS OF TURPENTINE. Louis Jos. Durour, Paris, France. (Filed May 31, 1876.)

The described process of purifying spirits of turpentine, the same consisting in mixing the same with powdered alum, or with alum-water, in the proportions substantially as stated, and either in a hot or cold state, then agitating the same, and allowing the mixture to settle, and drawing off or separating the purified spirits, all substantially as set forth.

180,468. SEED-PLANTERS. W. T. Rockaday, Watsonville, Cal. (Filed June 2, 1876.)

Brief.—A double alternating carrier takes the seed from the hopper, and conveys it to the discharge-spout. Motion is imparted to the carrier by a rod and pivoted lever, that is struck by pins on the traveling wheel as it revolves.

1. The slides M, moving in a guide beneath the hopper G, and united by cords passing over pulleys H, and having pockets *i*, for receiving the seed from the hopper and carrying it to the delivery-spout by the alternate movements of the slides, substantially as herein specified.

2. The lever J, operated in one direction by a pin upon the driving-wheel, and drawn back by a spring, said lever having a hooked rod, L, in combination with the slides B, with the holes n, and the reversible incline o, by which the hook m is caused to operate each of the slides alternately, substantially as herein described.

190,469.

190,469. COVERS FOR COFFEE-POTS, TEA-KETTLES, &c. Karl Eberle, Newark, N. J., assignor to L. G. Dalby, Brooklyn, N. Y. [Filed Nov. 18, 1874.]

A new article of manufacture, consisting in a cover of sheet metal, constructed, as described, with a shoulder and rim to fit the mouth of the vessel, and a knob or handle for lifting, simply undercut to facilitate handling, the whole complete in one piece, substantially as described.

190,470. PROCESSES OF DISINTEGRATING MOLTEN GEOGRAPHOUS SUBSTANCES. A. D. Elbers, Hoboken, N. J. [Filed May 10, 1876.]



1. The method herein described of forming exothermous substances into mineral wool by exposing the same in a fluid state to the action of a rotary paddle-wheel, substantially as herein shown and described.

2. The combination of the rotary paddle-wheel A with the conduit B and receptacle C, all constructed for action on molten exothermous substances, substantially as herein shown and described.

190,471. BALING-PRESSES. Edward Falen, Lancaster, Mo. [Filed Mar. 9, 1876.]

Brief.—The box and follower-arm are horizontal, the latter worked by a lever operating a pawl on each side of a central rack; the box-lid hinged and counterbalanced, and drawn down by a rope and windlass; also, peculiar clamps for drawing together the ends of the bands.

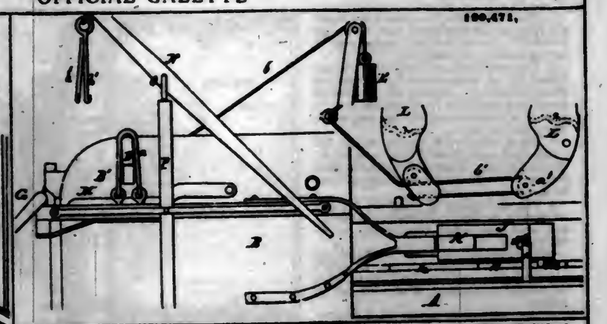
1. In a baling-press, the top C, pivoted in the sides of the box, and provided with the cord b and counter-balance B, in combination with the cord f f, pins e e, and windlass G, as and for the purposes set forth.

2. The combination of the follower U, horizontal bars I I, having alternate recess i and teeth k on their edges, the arms J J, with pins m m, and connecting-spring p, and the operating lever K, all constructed as and for the purposes set forth.

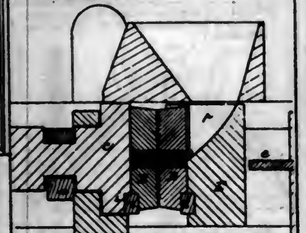
3. In a baling-press, the combination of the lever K, chain r, double hook s, bars I, provided with recesses i, and follower H, substantially as described, and for the purposes set forth.

4. The combination of the two pivoted clamps, b L, having heads Z, the pulleys a', cord b', and windlass G, as and for the purposes herein set forth.

190,471.



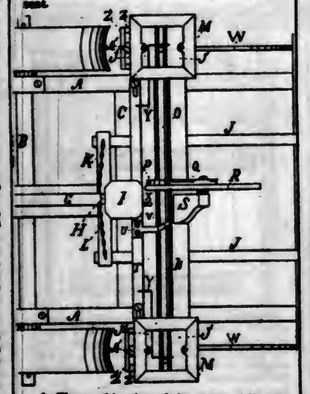
190,472. CHOPPING-MILLS. David Gartman, York, assignor of one-half his right to Adam Trout, Springfield Township, Pa. [Filed June 19, 1876.]



In a chopping-mill, the adjustable beam E, provided with the recess p, and the stationary burr D, provided with the central opening c, in combination with the burr B, provided with the projections n, and the head o, having the radial depressions l l, all constructed to operate substantially as and for the purpose set forth.

190,473. CORN-PLANTERS. A. J. Greenman, Monticello, Ind., assignor of one-half his right to Ransselaer Greenman, same place. [Filed Aug. 30, 1876.]

Brief.—Transverse seed-shaft, cock and hanging seed-holes on opposite sides, and oscillated by a segment-gearing. In rear of the shaft a bar carrying stirrers for agitating the seed receives a vibratory motion by a pin working in a spiral groove in the shaft. A bar held by clamp and spring supports the dropper's seat.



1. The combination of the segment Q, pinion P, shaft O, with the groove V, the sliding bar T, pawl U, fingers T T, upright shafts A' A', and the rubber cushions J' J' J' J', as herein described.

2. The spring S' and clasp O', operating in combination with the bar H, seat I, and bar K, substantially as herein set forth.

190,474. LAMP-STOVES. Alden Gulliford, Cleveland, Ohio, assignor to M. L. Hall, same place. [Filed Apr. 10, 1876.]



1. In a coal-oil stove, the combination with the reservoir, having a ventilated bottom and a central flue, c', of an outer wick-tube, the outer wall of which is cut away to allow the wicking to extend outward on the bottom of the oil-reservoir, substantially as and for the purpose set forth.

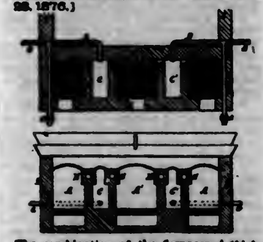
2. The combination of the cylinders D D', cover F, and reservoir A, substantially as shown.

3. The combination of the cylinders D D', legs E, or their equivalent, and the can-cylinder G, substantially as and for the purpose shown.

4. The combination, with the wick-tube, of the legs E or their equivalent and the can-cylinder G, substantially as and for the purpose shown.

5. The combination of the perforated flange G', perforated partition H', and crown-plate H, substantially as and for the purpose shown.

190,475. FURNACES. Herbert Harrison, Goderich, Ontario, Canada. [Filed June 23, 1876.]



The combination of the furnaces A 'A' A with the chambers C C', having communications, as described, and the air-inducts D D, steam-pipes G G, cocks d d, and the eduction-flues H H, &c., the whole being constructed and arranged substantially in manner, and so as to operate as set forth.

190,476. DISSECTED MAPS. WM. H. Harrison, Darby Township, Delaware County, Pa. [Filed May 1, 1876.]

Brief.—The blocks are the ordinary parts of a dissected map, each, however, being in outline some political or geographical division of the earth, and after putting the parts together, the names are to be written or marked in by the pupil upon the dotted surface of the same.

A dissected geographical map or puzzle, each piece or block whereof has the form in line of a political or natural subdivision of the earth, and is provided upon one of its faces with a plain slated surface, substantially as and for the purpose described.

190,476.

190,477. FURNITURE-CASTERS. F. Rolling, Berlin, Germany. [Filed Apr. 27, 1876.]

Brief.—A series of india-rubber rings, or other suitable springs, arranged around the rod or spindle, and interposed between the plate of the caster and the spindle-socket, serve to give the desired spring or elasticity, and provide an inexpensive substitute for stuffed coats and the like appliances.

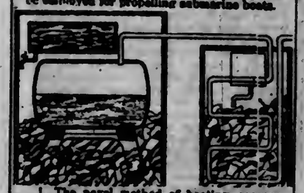


1. In combination with furniture-casters, the arrangement of any suitable springs between the roller or knob of the caster and the socket which is attached to the leg of the furniture, in the manner and for the purpose substantially as described.

2. The india-rubber rings F, arranged around the arbor of the roller or knob of furniture-casters, situated between the roller or knob and their socket B, substantially as set forth.

190,478. METHODS OF HEATING GAS FOR MOTIVE POWER. Walter N. Hill, Newport, R. I. [Filed Dec. 6, 1875.]

Brief.—The gas-retort is placed in a vessel containing lime, or other chemical, which, by uniting with water or otherwise passing through chemical action, evolves heat. An increased expansion is thus given to the gas to be employed for propelling submarine boats.



1. The novel method of heating gaseous matters to be employed in motors, which consists in exposing a retort containing said matters to the action of heat evolved from quicklime or other suitable non-combustible matter, substantially as described, whereby smoke is obviated and the heating effected without the aid of atmospheric air, as set forth.

2. The combination, with a retort for containing liquid gaseous matters to be employed in connection with a motor, of an inclosing-chamber, arranged to receive quicklime or other matters from which heat may be evolved during their exposure to chemical action or decomposition, substantially as described.

3. The combination, with a retort for containing gaseous matters and its inclosing-chamber, of a water-chamber, arranged to deliver its contents intermittently or continuously upon the material to be chemically acted upon or decomposed, substantially as described, whereby heat may be evolved for the expansion of the gaseous matters, as set forth.

4. The combination, with the retort and its inclosing-chamber, of an auxiliary chamber for containing material to be chemically acted upon or decomposed, and a conducting-pipe connected with the gas-retort, and passing through said auxiliary chamber and its decomposing material, substantially as described, whereby the gas is subjected to additional heat in passing from the retort to the motor.

190,479. VENT-BUNGS. Alois J. Klein, Cincinnati, Ohio. [Filed May 22, 1876.]

1. A barrel-bung provided with a channel, within which is fitted a sliding plug that is shifted or dislodged from said channel for the purpose of admitting air to the liquor-receptacle by a force applied externally with reference to said receptacle, substantially as herein described.

2. A barrel-bung provided with bore B b, seat C, sliding plug D, and channel E, which latter communicates with said bore B, substantially as herein described.

3. The detachable air-tube K and automatically-operating valve N, for application to the bung B of a vent-bung, substantially as herein described.

4. The combination of air-tube K k, cylinder L l M m O, valve N, retracting device R, and adjustable cap F p, as and for the purposes specified.

190,479.



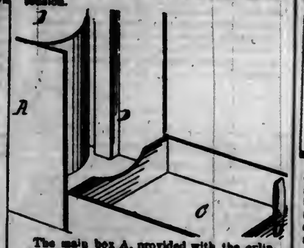
190,480. WARDROBES. Victor Klobasa, Washington, D. C. [Filed June 6, 1876.]



The improved wardrobe, consisting of framework constructed of bars, rods or tubes A and A', the sliding bar C, with covering or curtain B, catch a, hooks c, shelving D, all constructed substantially as described.

190,481. FUR-SET BOXES. Wm. A. Lyon, New York, N. Y., assignor of one-half his right to Robt. D. Brower, Bloomfield, N. J. [Filed Dec. 17, 1875.]

Brief.—A main compartment having a cylinder for the muff, and a tray to hold the other parts of the set, hinged at its outer angle to an extension of said main compartment, in such manner as to fold within and be surrounded by the sides and bottom of said extension.



The main box A, provided with the cylindrical muff-box B, and with the strengthening-ribs and stops D, in combination with the collar box or tray C, hinged to and folding within the open side or end of the box A, against the stops D, all arranged and operating substantially as and for the purpose set forth.

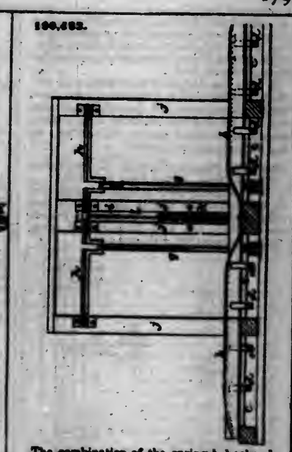
190,482. LAMP-WICKS. William H. Lyon, Troy, N. Y. [Filed June 27, 1876.]



A wick made of asbestus or other vaporizable material, in combination with a tube having one or more openings to admit the oil or fluid, and the metal hooks b b, to keep the asbestus properly in place.

190,483. RAILROAD-GATES. D. K. Mabie, Brewster Station, N. Y. [Filed June 24, 1876.]

190,483.



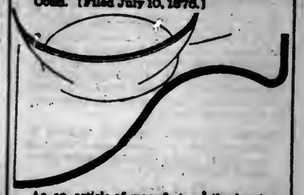
The combination of the spring h, hooks d, shaft e, weight c, connecting-rod f, cranked shaft b, arm i, gate k, props o, and frame j, substantially as shown.

190,484. COMPOSITIONS FOR BILLIARD-BALLS AND PROCESSES OF MANUFACTURING THE SAME. Gustav Magnus, Berlin, Germany. [Filed Mar. 6, 1876.]

1. The composition for billiard-balls consisting, essentially, of India-rubber, sulphur, sulphate of baryta, and coloring matter, substantially as set forth.

2. The process of manufacturing billiard-balls, of the above-claimed composition, consisting, essentially, of inclosing them in strong metallic molds of the required form, then submitting them to a slowly-increasing heat for a period of ten hours or more, and, finally, turning and finishing them, substantially as specified.

190,485. BOTTOMS FOR TEA AND COFFEE POTS. Edward B. Manning, New Haven, Conn. [Filed July 10, 1876.]



As an article of manufacture, the herein-described bottom for tea and coffee pots, and similar vessels, consisting of the hard-metal base, externally coated with a vitreous material to near the upper edge, the remaining surface prepared for soldering, substantially as set forth.

190,486. OIL-STOVES. John McConnell, Cleveland, Ohio. [Filed May 3, 1876.]

Brief.—The disk-shaped wick-tube carrier or cover is designed for water. The rib on the flange secures a space between the bottom of the cover and the top of the reservoir.



1. In an oil-stove, the combination, with the oil-reservoir B, formed with an upper flange, of a hinged dish-shaped cover, C, carrying wick-tubes, the cover fitting within the flange of the oil-reservoir, substantially as and for the purpose described.

2. The combination, with an oil-reservoir provided with an annular rib on a flange projecting from its upper edge, of a hinged dish-shaped cover, substantially as and for the purpose set forth.

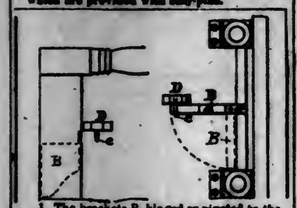
3. The combination, with an supporting-frame.

of a removable oil-stove, the same consisting of an oil-reservoir formed with a dish-shaped top, and a dish-shaped cover carrying wick-tubes hinged thereto, substantially as and for the purpose set forth.

4. As a new article of manufacture, an oil-stove consisting of a supporting-frame having a tool-box connected therewith, and a removable oil-reservoir provided with a dish-shaped cover hinged thereto, substantially as and for the purpose specified.

190,487. FOLDING TABLES. O. McDonald, Byron, Ohio. [Filed June 14, 1876.]

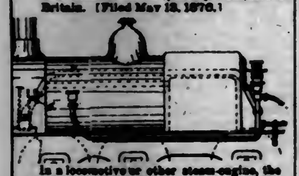
Brief.—The supporting-brackets are pivoted to the rails of the folding legs, and are provided with springs, which automatically open the brackets and hold them against stops, which are provided with stay-pins.



1. The brackets B, hinged or pivoted to the rails of the folding table, and provided with springs to automatically open the brackets, and hold them against the stops, substantially as and for the purposes described.

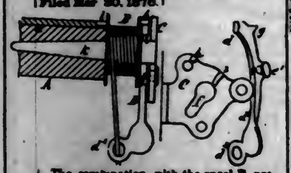
2. The hinged or pivoted brackets B, provided with springs *b*, in combination with stops D, having stay-pins *c*, substantially as and for the purposes described.

190,488. LOCOMOTIVES AND OTHER ENGINES. James Metcalfe, Edward Hamer, and Richard Metcalfe, Aberyswith, Great Britain. [Filed May 18, 1876.]



In a locomotive or other steam-engine, the combination, with the exhaust-pipe and the injector, of a return steam-pipe, having a bell-mouthed or inverted cone-shaped receiver, and provided with suitable catch and back-pressure valves, substantially as described, for the purpose specified.

190,489. CURTAIN-FIXTURE. Charles H. Miller, Buffalo, N. Y., assignee of one-half his right to Hiram Chambers, same place. [Filed Mar 30, 1876.]

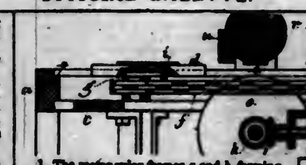


1. The combination, with the spool B, provided with internally-projecting teeth *b*, and bracket C, provided with stops *f* and *h*, of the detent-pawl and depending lever D, pivoted to the bracket so as to swing between the stops *f* and *h*, substantially as shown and described.

2. The combination, with the curtain-roller A, provided with groove *a*, of the spool B, formed with the long *b* and stop *i*, substantially as and for the purpose hereinbefore set forth.

190,490. PLATE-FEEDERS FOR PRESSES. James Milligan, Brooklyn, N. Y. [Filed Apr. 27, 1876.]

Brief.—The beds travel around the frame on the inside, stopping at the corners, to allow for the inking, polishing, laying-on, and taking-off operations, to be performed simultaneously by four workmen. A transparent shield is placed before the press-roll, to prevent the hand being drawn into the machine.

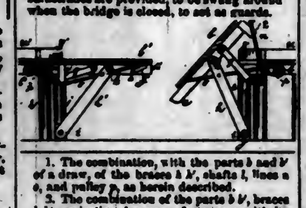


1. The rectangular frames *a* and *b*, forming a square slide, in which the square plate-bed *d* is moved, in combination with the chain or belt *f*, rollers *g*, impression-roller *r*, and gearing connecting the shaft *h* and roller *g*, substantially as set forth.

2. The combination, with the impression-roller and bed in a plate-printing press, of the shield *n*, made of glass, and mounted at the side of the impression-roller where the plate and paper enter, and above each plate, for the purposes set forth.

190,491. DRAW-BRIDGE. Glendy Moody, Falmouth, Me. [Filed Jan. 20, 1876.]

Brief.—The draw-sections are supported upon links, and are drawn asunder by rapes and arms operated by cranks. The ends are secured, where they abut together, by a looped shaft at one, which embraces the ends of the supporting-timbers of the other. Pivoted balustrades are provided, to be swung around when the bridge is closed, to act as guards.



1. The combination, with the parts *b* and *b'* of a draw, of the braces *h h'*, shafts *l*, lines *n o*, and pulley *p*, as herein described.

2. The combination of the parts *b b'*, braces *h h'*, projecting beams *c*, fastener *q*, with its loops *f* and crank *g*, as herein described.

3. The combination, with the parts *b b'*, of the braces *h h'*, shafts *l*, lines *n o*, guide-braces *k*, and pulley *p*, as herein described.

4. In combination with the parts *b b'*, the projections *t t'* and lines or chains *o*, for the purpose herein described.

5. The balustrade or railing *s s'*, to operate as herein described, in combination with the parts *b b'*, as herein described.

190,492. MACHINES FOR FORMING COUNTER-STIFFENERS FOR BOOTS AND SHOES. George F. Moore, South Sudbury, Mass., assignor to Mousam Manufacturing Company, Kennebunk, Me. [Filed June 26, 1876.]

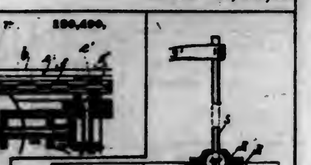


1. In combination with the concave counter mold A, mechanism adapted to automatically press and retain a blank therein, and so travel or move against such blank as to press and stretch it into form, all substantially as set forth.

2. The combination of the counter-mold A with the two formers B C, provided with mechanism for depressing or forcing them upon a blank when in the mold, and for moving such formers in opposite directions upon the said blank, so as to press and strain or stretch it into contact with the surface of the matrix, and thereby mold the said blank or impart to it the necessary form, all being substantially as specified.

190,493. HARTH-BORING MACHINES. Alex. W. Morgan, Indianapolis, Ind. [Filed July 10, 1876.]

Brief.—The adjustable cross-head of the boring-shaft is provided with a casting having shaft-supporting boxes for the gearing-shafts. A ball-and-socket journal supports the shaft having the swap upon it. The boring-shaft is provided with an outer tube, perforated near its top with a slot for a stop-pin, and has below two pointed augers with a lifter-rod to admit air. A spacing attachment of a bifurcated hinged piece is provided at its rear end with a slot, in which is arranged a roller that passes into the last hole, and a covering disk to prevent the animal's stepping into the hole



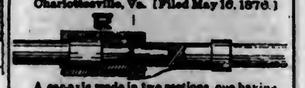
1. The adjustable cross-head F, provided with shaft-supporting boxes G^1, G^2, G^3, and G', in the manner and for the purposes set forth and described.

2. A post-hole boring device, consisting of the adjustable cross-head F, castings G and G_1 provided with shaft-boxes G^1, G^2, G^3, and G', crank-shaft H, sleeve P^1, miter-wheel P, bottom shaft U, pinion N, spur-wheel O, pinion P^2, shaft S, and ball and socket T R W, arranged to operate substantially as set forth.

3. The boring-shaft, consisting of the outer tube U, perforated with a slot, *v'*, near the top, and provided with two diamond-pointed augers, *w w'*, at the bottom, and the rod U' connected with the lifter *v*, and having a twisted bit *b* at its lower end, the upper edge of the twisted bit making connection with notches or clutch in the bottom of the tube U, so as to revolve with the tube in boring, as set forth and described.

4. In combination with a post-hole boring machine, the spacing attachment, consisting of the hinged extension-piece W, provided with slot *h* and disk *a*, roller *m* and stud *i*, all arranged to operate and space off distances between holes, substantially as set forth and described.

190,494. CAR-AXLES. Rogers W. Nelson, Charlottesville, Va. [Filed May 16, 1876.]



A car-axle made in two sections, one having a conical socket that receives the journal of the other, and affords it a bearing along its whole surface, as shown and described.

190,495. HYDRAULIC ELEVATORS. Joseph Perkins, San Francisco, Cal. [Filed May 9, 1876.]

Brief.—The supplemental cylinders serve by their actions and connections to modify the operations of the main pistons, and to regulate the speed under varying loads.

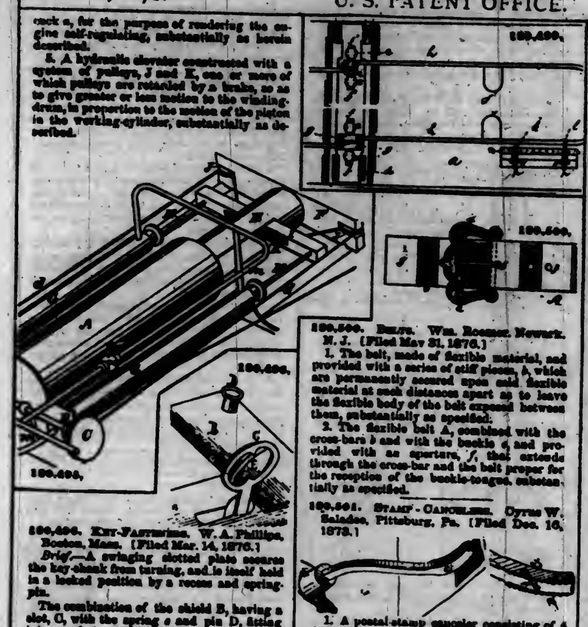
1. The operating-cylinder A, with its piston and rod, in combination with the supplemental cylinders G, having their piston-rods H so connected with the rod E of the operating-cylinder as to serve as regulators, and adjust its speed and power to the load, substantially as herein described.

2. The cylinder A, with its piston-rod E and cross-head F, in combination with the cylinders G, with their piston-rods H and uniting cross-head I, pulleys J and K, and ropes *d*, for obtaining a differential motion of the two sets of pistons, substantially as herein described.

3. The cylinders A and G, with their piston rods, cross-heads, and pulleys, as shown, together with the pulleys D upon the shaft B, and the ropes *d*, substantially as and for the purposes herein described.

4. The pipes *m*, for connecting the opposite ends of the cylinders G, and the regulating cock *n*, for the purpose of rendering the engine self-regulating, substantially as herein described.

5. A hydraulic elevator constructed with a system of pulleys, J and K, one or more of which pulleys are retarded by a brake, so as to give greater or less motion to the winding-drum, in proportion to the motion of the piston in the working-cylinder, substantially as described.



190,496. KNIT-FASTENING. W. A. Phillips, Boston, Mass. [Filed Mar. 14, 1876.]

Brief.—A swinging slotted plate secures the key-shank from turning, and is itself held in a locked position by a recess and spring-pin.

The combination of the shield B, having a slot, C, with the spring *e* and pin D, fitting into a socket, *a*, substantially as described.

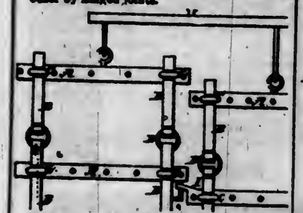
190,497. CHECK CLOSURE OR OPENER FOR BUNSEN ALARMS. William J. Phillips, Philadelphia, Pa. [Filed Jan. 6, 1876.]



The combination, with a suitable base, having contact-point *a*, of a spring located thereon, and provided with contact-point *c* and roller F, substantially as and for the purpose set forth.

190,498. HARROWS. George H. Pounder, Fort Atkinson, Wis. [Filed Apr. 1, 1876.]

Brief.—Harrow in two sections, with transverse adjustable tooth-bars, which are limited in their vibrations by stops, connected to each other by hinged joints.



1. In a harrow the bars A, united at their top by a hinge-joint, as described, in combination with stop-braces H G, substantially as described, and for the purpose specified.

2. Coupling-plates E, and links D, in combination with bolt *a*, substantially as described, for the purpose specified.

190,499. MUSIC-LEAF TURNERS. Edward B. Robinson, Deering, Me. [Filed Apr. 1, 1876.]

1. The wire frames A, having the disks and the coiled springs, in combination with the shafts *f f'* and holders *b l*, having the finger-plates and springs, as herein set forth.

2. The removable plate *b*, the standards *c*, shafts *f f'*, the disks *g*, wire frames A, sleeves *i*, in combination with the holders *b l*, or *r*, as herein described.

190,500. BELTS. Wm. Rogers, Newark, N. J. [Filed May 31, 1876.]

1. The belt, made of flexible material, and provided with a series of stiff pieces, A, which are permanently secured upon said flexible material at such distances apart as to leave the flexible body of the belt exposed between them, substantially as specified.

2. The flexible belt A, combined with the cross-bars *b* and with the buckle *c* and provided with an apertured, *f*, that extends through the cross-bar and the belt proper for the reception of the buckle-tongue, substantially as specified.

190,501. STAMP-CANCELLERS. Cyrus W. Saladee, Pittsburg, Pa. [Filed Dec. 16, 1873.]

1. A postal-stamp canceler consisting of a foot, G, having one or more rows of ratchet-teeth parallel with the foot, sides *a*, gage-spaces, *c*, or spaces on the surface thereof, and a handle, H, forming a hand-tool for exerting the stamp by blows made by a push movement over the stamp, and without injury to the contacts of the latter.

2. The foot G, provided with a row or rows of ratchet-teeth, D, formed on the face thereof, in combination with a gage-space, *c*, and a rising handle shank, as shown and described.

190,502. GAME APPARATUS. Charles Sonnenberg, Hannibal, Mo. [Filed May 27, 1876.]

1. The V-shaped pockets *b*, in combination with the series of pins *c c*, and the cups *a* and *a'*, substantially as set forth.

2. The lever, D, in combination with the stops F, having the head or knob above the rim A, and the slide-rod I, provided with the spring *j*, for the purpose of tripping the ball G, substantially as set forth.



190,503. BOX-NAILING MACHINES. George W. Swan, San Francisco, Cal. [Filed May 9, 1876.]

Brief.—Nails thrown promiscuously into the receiving-trough are automatically fed to the work, and presented in a suitable vertical position, to be driven by the reciprocating plunger.

1. The table B, moving upon vertical guides G, and operated, both for primary adjustment and automatically to raise and lower the parts to be nailed, by means of the screws E, which are turned alternately in opposite directions by mechanism, substantially as herein described.

2. The shaft F, with its pulleys I and J, turning in opposite directions, as shown, and the clutches L and M, with their levers N, connecting-rods *l'*, and cams Q Q', for driving the shaft F, and through it the screws E, alternately in opposite directions, substantially as herein described.

3. The lever-arms *a a'*, secured to the clutch-lever shaft, and the spring catches or pawls *n n'*, when used to retain the clutches L M in contact with the pulleys I and J after they have been thrown in by the arms Q Q', substantially as herein described.

4. The arm *c*, loosely attached to the cross-bar D, and having an arm extending beneath the latch *m*, so that when the table raises the bar or other article until it strikes the arm, the latch *m* will be lifted, and the clutch L will be automatically thrown out of contact with the pulley, substantially as described.

5. The rod *o*, with its adjustable nut *v*, and the lever *o* beneath the latch *m'*, in combination with an arm from the table B, so that the descent of the table will release the clutch M and arrest the descent of the table, substantially as herein described.

6. The plates *d*, shaft *e*, and cam Q, in combination with the interior plate *c*, working in slots 3 on guides *d*, as and for the purpose described.

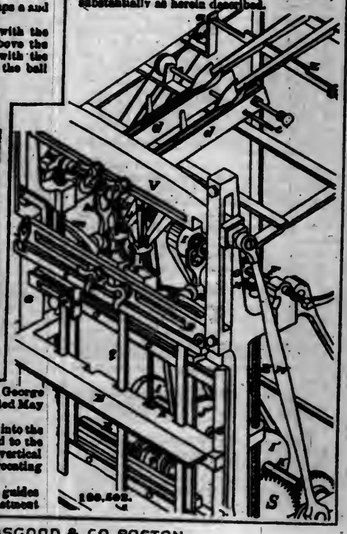
7. The bar *f*, having the diagonally-inclined vertical slots *i* opposite to each feeder, as shown, and provided with an arm, *g*, in combination with the bolts *h* upon the cross-head V, for the purpose of moving the slots *i* across the front of the feeders, so that they will each receive one nail at each movement, and deliver it to the discharge-spout, substantially as herein described.

8. The bar *f*, made in two parts, the lower part having a projection, *t'*, which forms one side of the diagonal slot *i*, and is made movable, so as to adjust the size of the slot to the nails to be used, substantially as herein described.

9. The slides and straps *k*, in combination with the feeders, for the purpose of stopping the nails in one or more of them, substantially as herein described.

10. The combination of the V-shaped receiving-troughs Y, the parallel feeders A, the transversely-moving slotted bar *f*, and the flat-bottomed inclined spouts *j*, so constructed as to receive the nails in any position and deliver them into the nail-holders T in the proper position to be driven, substantially as herein described.

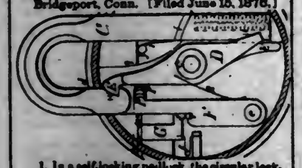
11. The inclined guiding-slot *h* upon the cross-head V, for operating the bar *f*, having one side made elastic for relieving the strain if the bar should be stopped in its movements, substantially as herein described.



190,504.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

180,504. PADLOCKS. Roswell Thompson, Bridgeport, Conn. [Filed June 15, 1876.]



1. In a self-locking padlock, the circular lock-case A and circular removable plate B, secured together by means of the screw b at the center of the inner face of said plate, screwed into the central stud c in the lock-case, for the object set forth.

2. In combination with the circular removable plate B, the flange e, located near the outer edge of the inner face of said plate, substantially as shown, and provided with the openings *h h* for the reception of the hasp C, and with the opening n for the reception of a properly-fitted key, and fitting into the groove d in the rim of the lock-case, when said plate is screwed onto said case, for the purposes set forth.

3. In combination with the circular lock-case A, circular removable plate B, and hasp C, the series of two or more dogs, D and E, pivoted to the central stud c in said lock-case, one of the free ends of the dogs D engaging with and securing the long arm of said hasp, and one of the free ends of the dogs E engaging with and securing the short arm of said hasp, substantially as shown, and for the object set forth.

4. In combination with the circular lock-case A, circular removable plate B, and dogs D and E, the series of two or more tumblers, F, pivoted at one end to the stud c in said lock-case, and provided with the notches r at the sides of the same for the reception of one end of the sliding bolt G, and the free ends which actuate said dogs with projections P of various lengths, substantially as shown, and for the object set forth.

5. In combination with the circular lock-case A, circular removable plate B, and series of tumblers F, the sliding bolt G, fitted to slide freely in a groove in said lock-case, one end of the same entering the aperture m in the case, the opposite end in position to be forced into the notches r in said tumblers, and preventing the movement of the same, when an unslotted key is thrust into said aperture against the tumblers, substantially as shown, and for the object set forth.

6. In combination with the circular lock-case A, circular removable plate B, hasp C, flange a, openings *k k*, and aperture m, the opening s, made in such a position in the flange with respect to the openings *k k* as to cause said flange to partially close the aperture m, when the plate is turned to its extreme right, substantially as shown, and for the object set forth.

7. In combination with the circular lock-case A, circular removable plate B, dogs D and E, and flange a, the hasp C, constructed with notches *u u'* in the long and short arms of the same, for the reception of one of the free ends of the dogs when pushed down, and provided with the groove *l* in the long arm of the same, in such a position as to allow said flange to pass through when said latch is raised to its highest point, substantially as shown, and for the object set forth.

8. The combination of the circular lock-case A, circular removable plate B, flange a, hasp C, series of two or more dogs, D and E, series of tumblers F, sliding bolt G, all constructed and arranged to operate substantially as shown and specified, and for the object set forth.

180,505. THERMOSCOPIC LUBRICATORS. B. D. Tyne, San Francisco, Cal. [Filed Apr. 3, 1876.]

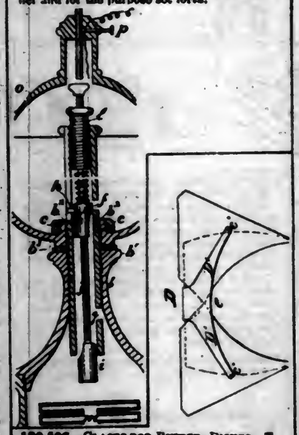
1. In a device for regulating the flow of oil from an oil-cup to the journals or machinery to be lubricated, the tube *d*, provided with inlet and outlet orifices *f g*, and also an opening at its lower end, in combination with the valves *h' i*, secured upon rod *j*, substantially as described, and operating in the manner set forth.

2. The screw-sleeve *l*, in combination with the rod *f*, valve *h'*, and tube *d*, provided with inlet and outlet orifices, substantially as set forth.

3. The expansive bellows m, in combination with valve-rod *j*, carrying valves for establishing the flow of oil, and operating within a tube, provided with inlet and outlet orifices, substantially in the manner and for the purpose specified.

4. In combination with a lubricating device, constructed substantially as described, an electric or other alarm, operated by the expansion of the herein-described expansive bellows or thermoscope, substantially as specified.

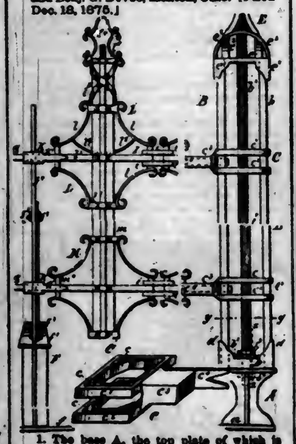
5. The insulated set-screw *p*, or equivalent device, connected with an alarm apparatus, in combination with the rod *j*, and expansive bellows m, operated substantially in the manner and for the purpose set forth.



180,506. CLASPS FOR BUTTER-DISHES. T. Van Sicklinz, Brooklyn, E. D., N.Y. [Filed July 11, 1876.]

The clasp herein described, consisting of the arms D' D' forming an obtuse angle with curve *c* on the inner side, and projecting lip D on the outer side, substantially as and for the purposes herein set forth.

180,507. IRON FENCES. William L. Walker and Benj. G. Devoe, Kenton, Ohio. [Filed Dec. 18, 1876.]



1. The base A, the top plate of which is provided with an offset, in combination with the angle-irons *b*, band D, plates *b' b''*, the connecting-rod *b'*, the cap E, and nut *b'*, all constructed to operate substantially as and for the purpose specified.

2. The combination, with the angle-irons of the end post B and the cross-rails G, of the bands C, consisting of parts *c' c''*, connected together by a casing or box, *c'*, provided with the grasping-lugs *c''*, said bands having inner corner-braces, forming slots to receive the fastening-wedges, all constructed to operate substantially as described.

3. The base F, consisting of a base-plate, *f*, top plate *f'*, and a slotted adjusting-cap, *f''*, in combination with the slotted upright or post *f'*, the horizontal arm *f''*, and the adjustable brace *f'''*, and a wedge or key, *f''*, all constructed to operate substantially as described, for the purpose specified.

4. The ornamental part L, provided with a recessed segmental adjusting-brace, F, substantially as described, in combination with a picket, and a cross-rail or stringer of a fence, for the purpose of supporting said ornament and picket upon the cross-rail, and for adjusting them to any surface of ground, substantially as set forth.

5. The ornamental part L and cap *f'*, the grasping-leg F, and the recessed segmental brace F, in combination with a picket and cross-rail or stringer of a fence, all constructed to operate substantially as described, for the purpose specified.

6. The ornamental part M, having grasping legs *m'*, and the supporting-stirrups *m''*, to support and grasp the picket H, in combination with said picket and a cross-rail, substantially as described.

7. In a metallic fence, the combination, with the clasp K, consisting of a slotted casing having laterally-projecting clamping-legs *k'*, of the cross-rail, panel-post, and ornaments, substantially as described, for the purpose set forth.

8. In a metallic fence, the combination, with the clamping device I, consisting of the U-shaped arms provided with laterally-projecting grasping-legs *i*, of the cross-rail, picket, and ornaments, substantially as described, for the purpose set forth.

180,508. CASTER-BOTTLES. Henry Waudby, Toronto, Ontario, Canada. [Filed Apr. 18, 1874.]

Brief.—A ketchup-bottle having a flexible bottom, with a cross-bar placed above to limit the upward pressure on said bottom.

1. The combination, with a flexible non-metallic bottom, B, applied to a caster-bottle, of a cross-bar, *b*, arranged substantially as and for the purpose herein specified.

2. The combination, with a caster-bottle, A, and flexible non-metallic bottom, B, of a screw cap or ring, *a*, substantially as and for the purpose herein specified.

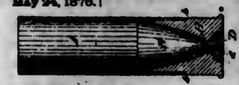


180,509. CARRIAGE SLAT-IRONS. William S. Ward, Plantsville, Conn., assignor to H. D. Smith & Co., same place. [Filed May 19, 1876.]

Brief.—The end of the bow fits into a pocket formed by flanges on the iron.

Carriage slat-irons constructed with a gauge upon each side to form an open cavity, *f*, on one surface, the external surface of the said flanges cylindrical to correspond to the portion of the bow in the carriage, substantially as set forth.

180,510. CARTRIDGES. Napoleon B. Welsh and Geo. W. Evans, Baltimore, Md. [Filed May 24, 1876.]



The combination of an open cartridge shell or tube, A, with the cylindrical base-block or plug B, having internal tapering powder-chamber *b'*, annular shoulder or offset *b*, and bottom rim or flange *a*, substantially as and for the purpose herein shown and specified.

180,511. PLOWS. Geo. Wiard and Charles W. Hough, East Avon, N. Y. [Filed Mar. 2, 1876.]

Brief.—A toothed plate, to regulate the position of the clevis, is attached to the front end of the beam. The colter has its arm divided by an oblique joint, for the purpose of lateral adjustment, the parts being held together by a bolt.

1. The combination, with a wooden plow-beam, A, and clevis E, provided with teeth *g g*, bolt-holes *c'*, of the metallic plate F, provided with notches *f f*, flange *h*, and pin *h'*, substantially as and for the purpose herein before set forth.

2. The combination, with the wheel D and standard *l*, of the arbor *J*, provided with shank *j'*, arranged at an angle to the arbor, substantially as and for the purpose hereinbefore set forth.

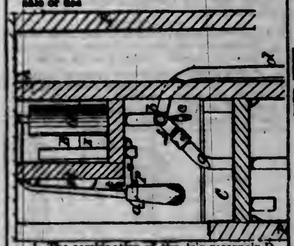
3. The combination, with the wheel-standard *l*, provided with double tapering socket *l'*, of the arbor *J*, provided with angular collar *j'*, and flattened shank *j*, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the jointer C, of a standard composed of two parts, L L', constructed with inclined or tapering contiguous ends for rendering the jointer laterally adjustable, substantially as and for the purpose hereinbefore set forth.



180,512. OIL-TANKS. Eli F. Wilder, Lowell, Mass. [Filed June 2, 1874.]

Brief.—Uses three tanks—one for storing, one for dripping, and one to contain oil for sale or use



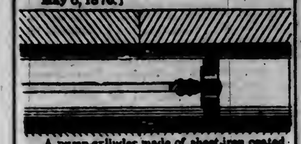
1. The combination of the drip-reservoir D with the tank A, standing fountain B, and tank C, substantially as and for the purpose herein specified.

2. The combination of the measuring-chamber E with the standing fountain B, connecting-passages *r s*, and spigot *s*, substantially as and for the purpose herein specified.

3. The partition separating the tank A and standing fountain B, and provided with the passage *k*, substantially as and for the purpose herein specified.

4. The combination of the tank A with the standing fountain B, the former arranged to extend upward back of, or opposite to, the latter, so that when the tank is filled the oil will gravitate to the standing fountain, and vice versa, substantially as and for the purpose herein specified.

180,513. OIL-CUPS FOR PUMP-STOCKS. Parker Wineman, Rock Island, Ill. [Filed May 6, 1876.]



A pump-cylinder made of sheet-iron coated on both or all sides with vitreous material, substantially as and for the purpose specified.

180,514. OILING. Anson Woodard, Vinton, Iowa. [Filed May 12, 1876.]

Brief.—In the bottom of the churn is a vertical stationary division-board, against which the cream is forced upon opposite sides by the two wings of the dasher as it is oscillated.

The cylindrical churn-vessel A B, having a bowed top opening and a movable cover, E, and a fixed division-board, G, the duplex oscillating dasher H, having mortises *d* in its ends, and the forked elastic handle *e e*, carrying the sliding loop *g*, all arranged and combined substantially as and for the purposes shown and described.



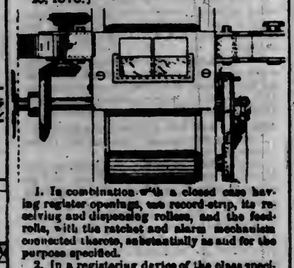
180,515.

180,515. CARPET FABRICS. Jas Allison, Philadelphia, Pa., assignor of one-half his right to Hugh S. Kerr, same place. [Filed June 14, 1876.]

Brief.—The figure is formed by both warps and wefts of large threads, floats being prevented by the use of fine warps and wefts, acting as binders.

A carpet fabric in which parts of the pattern are formed by the figuring warp-threads, twilled, as if the other parts on the same face are formed by carrying the figuring warp-threads to the opposite face, and bringing up the figuring weft threads woven plain, substantially as and for the purpose set forth.

180,516. RECORDING APPARATUS. Andrew A. Anderson, Pittsburg, Pa. [Filed June 16, 1876.]



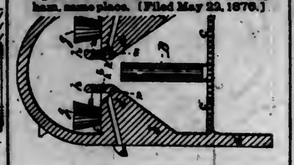
1. In combination with a closed case having register openings, one record-strip, its receiving and dispensing rollers, and the feed-rolls, with the ratchet and alarm mechanism connected thereto, substantially as and for the purpose specified.

2. In a registering device of the class specified, the combination of the record-strip and the check-strip, the feed-rollers of the check-strip being arranged to draw said strip across the face of the record-strip, substantially as and for the purpose specified.

3. The combination of the closed case, having a register-opening, the record-strip, with its dispensing and receiving rollers, and the feed-rolls, having the alarm mechanism connected thereto, the receiving-rolls being driven from the feed-rolls by friction-gearing, substantially as and for the purpose specified.

4. The combination of the closed case, having a register opening partially closed by glass, the record-strip, with its dispensing and receiving rollers, and the feed-rolls, with the alarm mechanism connected thereto, substantially as and for the purpose specified.

180,517. GLASS-FURNACES. Philip Arbogast, Pittsburg, Pa., assignor of part of his right to F. T. Fiembott and D. O. Cunningham, same place. [Filed May 23, 1876.]

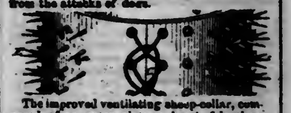


1. In combination with the heater B, consisting of a perforated structure located within the furnace and above the grate, the dampers *b'* and *c*, either or both, substantially as set forth.

2. The furnace constructed with a central air-heater rising from the grate-bars to the narrowest flue, and inclosed within and between the furnace-walls, said heater being provided with means of regulating the supply of air, and delivering the heated air only at the narrowest flue, substantially as described.

180,518. SHEEP-COLLARS. Jas. A. Armentrout, Staunton, Va., assignor to Martha E. Armentrout, same place. [Filed Feb. 7, 1876.]

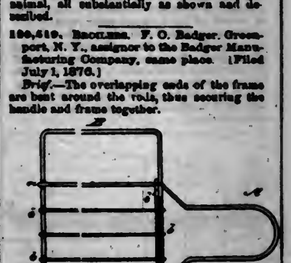
Brief.—Especially designed to protect sheep from the attacks of dogs.



The improved ventilating sheep-collar, composed of an outer plate or band of leather, provided with projecting spikes or teeth, and an inner band for protecting the neck of the animal, all substantially as shown and described.

180,519. RECLINERS. F. O. Badger, Greenport, N. Y., assignor to the Badger Manufacturing Company, same place. [Filed July 1, 1876.]

Brief.—The overlapping ends of the frame are bent around the rods, thus securing the handle and frame together.



The rectangular frame B, screw-threaded at *a a* and *b b*, and having loops *b' b'* at its ends, in combination with the handle A, passing through the loops *b' b'*, and provided with loops at its ends to engage around the screw-threads *c c*, substantially as and for the purposes set forth.

180,520. POTATO-PLOWS. Tubal C. Baxter, Monticello, Kans. [Filed May 27, 1876.]

Brief.—Constructed with a forked beam, having a land-side and cutter attached to each branch of the fork; between which is a shovel plow with rods of suitable length, extending from its rear, to separate the earth from the potatoes.



1. The combination of branched beam A D, land-sides B B, cutters C, plow E, and rods F G, all constructed and arranged substantially as and for the purpose specified.

2. The feeder-rods G, combined with cutters C and standards H, substantially as specified.

180,521. COMBINED IMPLEMENTS. Lester Beach, Derby, Conn., assignor to Victoria Gleason, New York, N. Y. [Filed Apr. 4, 1876.]

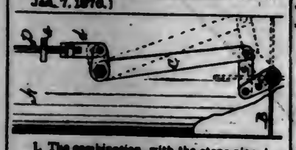
Brief.—The implement consisting of the various parts, as shown in the claim and drawing.



180,521.

A tool formed of parallel bars H H, connected by cross-bars, and provided with screw-driver A, hammer B, ice-pick C, tack-puller E, pot-lifter F, sharpener D, and wrench G, placed as shown and described.

180,502. DAMPER-REGULATORS. George Reaco, Windsor, Ontario, Canada. [Filed Jan. 7, 1876.]



1. The combination, with the stove-pipe A, the damper, and a system of levers, of the screw-threaded rod D to adjust such damper, substantially as described and shown.

2. The combination, with the stove-pipe A of the damper B, crank a, link c, lever C, and rod D, the several parts being constructed, arranged, and operated substantially as described and shown.

180,503. FILE-SAWS. David Bean, Le Sueur, Minn. [Filed Apr. 10, 1876.]

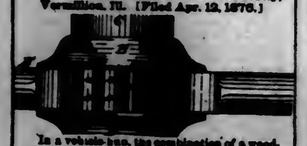
Brief.—A standard is secured to the pile to be moved off by a sharp-corner, and is provided at its upper end with a pivoted arm, upon which the saw-frame pivotates in cutting off the pile. The arm has notches, by which the saw-frame is adjusted laterally, and it is held in the position desired by a spring-dog. The saw is bent into the frame on a circular arc, which conforms in curvature to the radius of oscillation.



1. The standard B, having clamps D E F, and O, and vertically-adjustable pivot-arm H, in combination with the saw-frame and saw, substantially as specified.

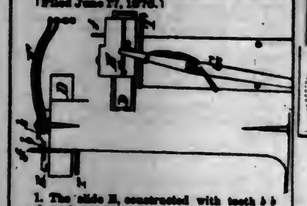
2. The arm H, having notches K, in combination with saw-frame, having spring-dog L, substantially as specified.

180,504. VEHICLE-HUBS. Thornton Beatty, Vermillion, Ill. [Filed Apr. 12, 1876.]



In a vehicle-hub, the combination of a wooden core, C, having mortises c, with the stationary sleeve A, having vertical flange or shoulder D and slots a, and removable collar B, having flange or shoulder B', the latter placed upon and secured to the sleeve A, substantially in the manner and for the purpose shown and described.

180,505. MUSIC-LEAF TURNERS. Thomas J. Beebe and Louisa M. Beebe, Piano, Ill. [Filed June 17, 1876.]



1. The slide E, constructed with teeth b b and rubber-teeth r, arranged as described, in combination with the guide D, the vibrating leaf-turners F, and the lever G, substantially as described.

2. The lever G, actuated as described, and provided with a finger, p, and a spring-lever, T, in combination with toothed slide E, and vibrating arms or leaf-turners F, substantially as described.

180,506. APPARATUS FOR LIGHTING AND EXTINGUISHING GAS AUTOMATICALLY. A. P. Ball, Manchester, and Thomas Thorp, Whitefield, near Manchester, England. [Filed June 7, 1876.]

1. The combination, in an automatic lamp-lighter and extinguisher, of the mercury-vessel b, communicating with the gas main, center-piece c, main burner-tube f, jet-burner e, igniting burner g, platinum wire h, hollow cylinder d, and platinum wire d', connected with the main burner-tip f', all constructed and relatively arranged, as herein set forth, for the purpose specified.

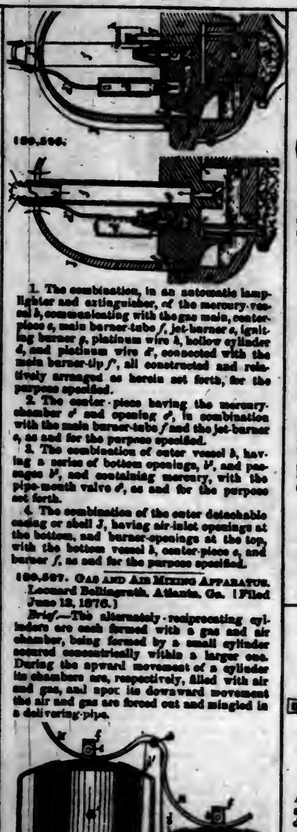
2. The center-piece having the mercury-chamber c' and opening c', in combination with the main burner-tube f and the jet-burner e, as and for the purpose specified.

3. The combination of outer vessel b, having a series of bottom openings, b', and passages b', and containing mercury, with the pipe-mouth valve c', as and for the purpose set forth.

4. The combination of the outer detachable casing or shell J, having air-inlet openings at the bottom, and burner-openings at the top, with the bottom vessel b, center-piece c, and burner f, as and for the purpose specified.

180,507. GAS AND AIR MIXING APPARATUS. Leonard Bollingrath, Atlanta, Ga. [Filed June 12, 1876.]

Brief.—The alternately-reciprocating cylinders are each formed with a gas and air chamber, being formed by a small cylinder secured concentrically within a larger one. During the upward movement of a cylinder its chambers are, respectively, filled with air and gas, and upon its downward movement the air and gas are forced out and mingled in a delivering-pipe.



1. The combination of the boxers t t', with frames f f, rollers r r, and rocking shaft d, with curved arms H H, substantially as and for the purpose herein set forth.

2. The combination of the double holders G G', pipes m h k n and m' h' k' n', and the valves I J K L, all constructed and arranged substantially as and for the purpose herein set forth.

3. The combination, with the system of valves, as herein described, of the fork M, spring-rod P, arm R, chains r s, and arm S on the shaft d, from which the holders are balanced, substantially as and for the purposes herein set forth.

180,508. AIR BEDS AND CUSHIONS. Wm. Baggott, Chelsea, England. [Filed July 6, 1876.]



An air bed or cushion having its upper and lower or opposite surfaces united at regular or irregular distances by means of eyelets, substantially as specified.

180,509. SPINNING RINGS. John Booth, Central Falls, R. I. [Filed Apr. 8, 1876.]

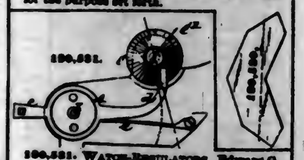


1. A spinning-ring, composed of a flat annular piece of metal, and furnished with a dovetail recess concentric with the periphery of the ring, substantially as described.

2. The combination of an expansible or contractible ring-holder constructed with an overhanging lip, d, in combination with a spinning-ring formed with an annular recess or groove, as described, whereby the ring can be locked with the holder and held in place, as specified.

180,510. CUTTING HEEL-STIFFENERS FOR BOOTS AND SHOES. O. Boivin, Montreal, Quebec, Canada. [Filed Apr. 20, 1876.]

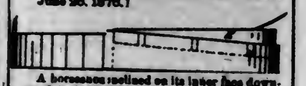
A heel-stiffener cut from a piece of leather or other material, in the shape shown and described, the outline of which is entirely composed of straight lines, substantially as and for the purpose set forth.



180,511. WATCH-REGULATORS. Edward G. Boysen, Jersey City, N. J. [Filed July 15, 1876.]

The construction, with the regulating-lever A, of the screw C, having a conical head, C, and the spring c, substantially as shown and described.

180,512. ELASTIC HORSESHOES. Volney E. Bradbury and Samuel B. Perkins, Indianapolis, Ind., assignors to themselves and Robert M. Maxfield, same place. [Filed June 26, 1876.]



A horseshoe inclined on its inner face downward in both directions from the center, and provided with elastic pads E, arranged at each side near the heel, so as to permit the hoof to bear directly on the shoe at the front and on the pads at the rear, as set forth.

180,513. FEEDERS FOR CARDING-MACHINES. &c. William C. Brunnell, Terre Haute, Ind., assignor to himself and Edwin Hills, same place. [Filed Jan. 20, 1876.]

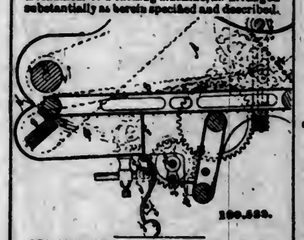
Brief.—The device feeds automatically by the weight of the thrown material, instead of the belt, a given quantity deposited by the elevating-apron on the scale-pan overcoming the weight, and emptying itself on the feed-apron below, while at the same time the toothed elevating-apron is automatically stopped, to be released and again set in motion by the return of the scale-pan and weight to their original positions.

1. In combination with a scale for weighing wool, and mechanism for delivering the same to the scale, a grooved pulley, lever L, lever T having pins t 2, and bar M, substantially as shown and described, whereby the motion of said mechanism is arrested when the scale is tilted.

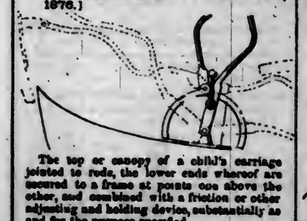
2. The combination of the weighted arm f, the tilting scale, the beads or arms d', and cross-rod f', with the arm M, lever L, spring-lever T, having pins t 2, the grooved pulley P, and feed-apron, as shown and described, whereby the fall of the weighted arm releases the clutch, and sets the apron again in motion.

3. The combination, with the apron E, of the revolving scraper W pivoted loosely to arms of the rotating shaft V, and mechanism for operating the same, as shown and described.

4. A feeding apparatus for carding-engines of any kind, having an automatically-operating weighing-scale arranged so as to deposit its stock at regular intervals, and shut off the supply when balanced, and readjust itself when emptied of its contents, with a case for containing the stock to be fed, having a bottom composed of rods of iron of suitable shape, set at an angle with an intermittingly-revolving toothed apron, an equalizer, and the feed mechanism of a carding machine, all arranged substantially as herein specified and described.



180,514. CHILDREN'S CARRIAGES. Rodney G. Britton, Springfield, Vt. [Filed Jan. 8, 1876.]



The top or canopy of a child's carriage jointed to rods, the lower ends whereof are secured to a frame at points one above the other, and combined with a friction or other adjusting and holding device, substantially as and for the purpose specified.

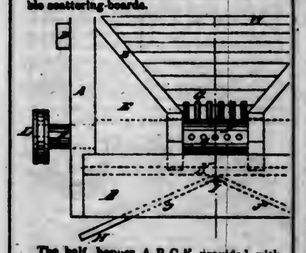
180,515. BLANKET-KORNER. Rodney G. Britton, Springfield, Vt. [Filed June 29, 1876.]



In a sleigh or sled, posts from which are bent braces in different planes, substantially as and for the purposes described.

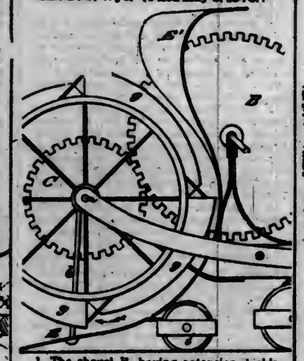
180,516. FIRE-ESCAPE-DESTRUCTORS. David C. Brown, Log Town, La. [Filed July 1, 1876.]

Brief.—Hopper removably attached to the rear end of a wagon by bars, and has spiked cylinder, inclined sides, and hinged adjustable scattering-boards.



The half hopper A B C K, provided with the bars D; the shaft F, provided with the radial arms G, and the pulleys I, and the inclined boards H, hinged together and supported adjustably by the pins J J, constructed and combined with each other, substantially as herein shown and described, to adapt the device to be attached to the rear end of a wagon body, as set forth.

180,517. SNOW-PLOWS. Erik Brown, Medicine Bow, Wyo. [Filed May 6, 1876.]

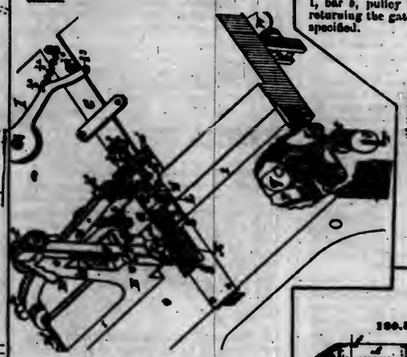


1. The shovel B, having extension-shields B', in combination with the curved flanged frame C and gear-wheels D C, all arranged, constructed, and operated in the manner and for the purpose set forth.

2. The combination, in a snow-plow, of the curved shovel B, extending backward, upward, and rearward, and terminating in the extensions B', and concentric with the flanged frame C, operating substantially as described, and for the purpose set forth.

180,518. MACHINES FOR SEWING STRAW BRAID. Seymour O. Brown, Philadelphia, Pa., assignor of two-thirds his right to R. F. S. Heath and S. S. Corbin, same place. [Filed Dec. 8, 1876.]

Brief.—Improvements on the machine patented to Hiram Pinsmore, No. 79,856, July 14, 1868, which consist in the construction and arrangement of the details mentioned in the claims.



1. The adjustable and removable gage or guard G, in combination with, and attached to, the presser-arm F, substantially as shown and described.

2. The combination of the plunger-arm H and lifter I, made in separate parts, and having independent fulcrums, but moving simultaneously, substantially as shown and set forth.

3. The take-up I, pivoted on the table A at i, and operated by the needle-bar C through the medium of a spring, s, in combination with the limiting-screw or stud s', substantially as shown and described.

4. The combination, with the feed-carrier K', of the lever P, cloth Q, having cam q and spring t, crank-arm S, hooked rod T, rock-shaft V, arms V' and U, fastening-screw W, and bar X, having an enlarged opening or loop for the eccentric B' on the shaft B, these several parts being constructed and combined for operation substantially as shown and set forth.

5. The combination, with the shaft V, crank-arm S, and notched crank S, of the adjustable hooked rod T, cam q, striker P, and feed-carrier K', substantially as described.

180,519. RAILROAD-SWITCHES. William Buchanan, Yonkers, N. Y. [Filed June 26, 1876.]

Brief.—The switch is shifted by one hand-lever, while the other is for locking the same in position by means of the T-shaped locking bolt co-operating with the slotted bar.



1. The combination of the pivoted bolt G, carrying a locking cross-piece, with the slotted or recessed cross-bar g of a railway-switch, substantially as herein shown and described.

2. The combination of the switch-lever D with the locking-lever E, rod F, and T-shaped bolt G, all arranged so that the relative positions of said levers will indicate the locked or unlocked condition of the switch, substantially as specified.

3. In combination with the vibrating bolt G, which serves to lock the railway-switch, the stops t t applied to limit the motion of said bolt, substantially as set forth.

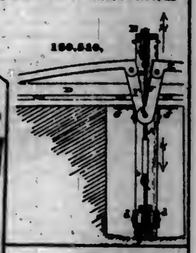
4. The vertically-adjustable plate J, placed near the rail, and combined with the switch-locking mechanism in such manner that said plate is raised whenever the switch is unlocked, substantially as herein shown and described.

5. The combination of the plate J, which has the V-shaped slots n, with the pins m and sliding plate J, substantially as herein shown and described.

180,520. RAILWAY-GATES. D. H. Bucher, Wooster, Ohio. [Filed Feb. 29, 1876.]

1. In combination with the gate, held to its elevated position and adapted to slide vertically, as described, the hinged levers parallel with the rails, the hinged arms, one end hinged to said levers, the opposite ends hinged to the cross-rod of the gate, the parts being constructed to operate as specified.

2. The combination of the spring-pulley I, bar b, pulley B, and cords g and h, for returning the gate to its elevated position, as specified.

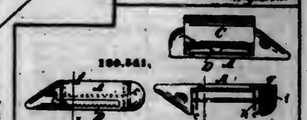


180,521. SEWING-MACHINE SHUTTLES. Jos. Butcher, New York, N. Y., assignor to himself and Geo. Butcher, same place. [Filed Apr. 22, 1876.]

1. A sewing-machine shuttle having a fixed nose and heel, or two noses, and cut away between them to form a bobbin-cavity, having only a vertical wall, A, next the needle, and a removable semi-tubular cover for the said cavity, so that the bobbin is entirely inclosed, as shown and specified.

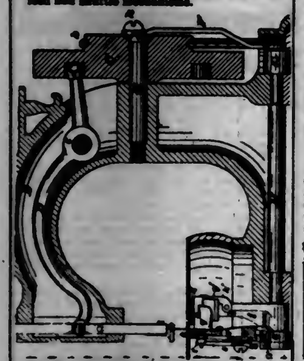
2. The elastic semi-tubular cover C, provided with spurs or hooks c c on its edges, in combination with the wall A of the shuttle-body, provided with suitable corresponding apertures f f, to form a spring-catch for retaining the cover in place on the shuttle, substantially as set forth.

3. The tension device consisting of a strip of spring-metal, D, notched at the lower edge, and secured by one end to the back wall of the shuttle, arranged substantially as described, whereby the degree of tension may be regulated by causing the thread to engage any desired notch, as set forth.



180,542. SEWING-MACHINE. Jos. Butcher, New York, N. Y., assignor to himself and George Butcher, same place. [Filed Apr. 22, 1876.]

Brief.—The machine is driven by a cam having on one side a cam-groove to drive the needle-arm, and a crank-pin on the other side to rock the feed and shuttle carrying shaft. The machine makes two stitches to each revolution of this cam, the needle-bar and feed mechanism acting twice, and the shuttle passing the loop on both its backward and forward oscillations; also, special construction of feed and shuttle mechanisms.



1. The cam-wheel C, having a cam-groove constructed as described, in combination with the needle-arm D, oscillating shaft H, and link or rod F, all arranged to operate substantially as set forth.

2. The combination of the cam-wheel C, grooved as described, the needle-arm D, oscillating shaft H, and the feeding mechanism, constructed as herein set forth.

3. The combination of the feed-bar *b*, cams *p*, *q*, and *r*, lifter *c*, bell-crank *s*, or its equivalent, and spring *u*, to form a feeding device for a sewing-machine, when constructed and arranged to operate substantially as herein shown and specified.

4. The described combination of the shuttle-bed *g'*, hinged cover *h'*, having a squared shoulder, *f'*, the spring *i'*, and the catch *k'*, pivoted at *l*, and habitually pressed forward by a spring, all arranged as and for the purposes herein set forth.

180,543. SNOW-SHOVELS. Eugene Campbell, South Westerlo, N. Y. [Filed May 22, 1876.]



A snow-shovel provided with face-plate D, extending beyond the edge of plate A, and having on the under side of its front end, and in one piece therewith, the runners E, constructed and arranged substantially as and for the purpose specified.

180,544. DOORS. Julius C. Carrera, John Salvatelli, and Alex. Granland, St. Louis, Mo. [Filed May 16, 1876.]

Brief.—In doors in which retractile bolts are used, as a double pair of hinges, a bar is placed across from one handle to the other, so arranged that when one set of bolts is withdrawn the other cannot be operated, thus avoiding the chance of throwing down the door by the simultaneous passage of two persons from opposite sides.

The horizontal bar K, in combination with the cross-bars G, bolts E F, handle I, and door D, substantially as and for the purpose set forth.

180,544.



180,545. TAPES FOR HOOP-SKIRTS, &c. T. C. Chemidy, New York, N. Y. [Filed June 24, 1876.]

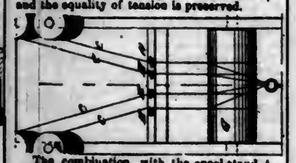
1. As a new article of manufacture, a tape for hoop-skirts, bustles, and similar articles, formed of two ordinary tapes, stitched together as described, so that the hoops can be inserted and supported at various spaces between the main tape and the supplemental tape, substantially as set forth.

2. The method of supporting the hoops of hoop-skirts, bustles, and the like, at various spaces on the tapes, by means of a supplemental tape stitched to a main tape, and having the hoops passed through the stitching between the tapes, and secured or not to the tapes by stitching or clasps, or both, substantially as set forth.

3. A hoop-skirt, bustle, or similar article, having the hoops supported by tapes formed of two ordinary tapes stitched together, the hoops being passed between them at any desired distance apart, substantially as set forth.

180,546. TENSION DEVICES FOR TWISTING-MACHINES. F. A. Chadbourne, Williamstown, Mass. [Filed June 12, 1876.]

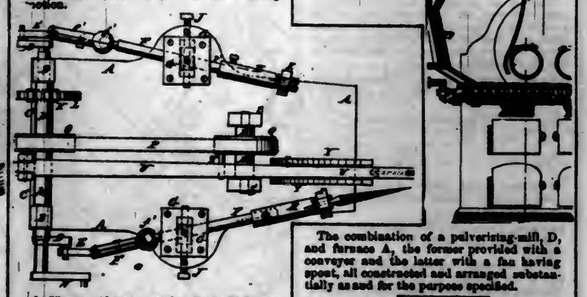
Brief.—The threads are passed from the spools through separate guides, and thence around a roller, which may have a sanded or roughened surface to prevent slipping. As the threads are drawn off, the roller revolves, and the equality of tension is preserved.



The combination, with the spool-stand A, of the tension-roller G, and an independent guide, H, for each thread, substantially as specified.

180,547. GUM-SAW FILERS. Frank Charter, Little Rock, Ark. [Filed July 1, 1876.]

Brief.—The bearing for the shank of the file is adjustable laterally by means of a screw, to change the angle of the file with the saw. Spiral groove to give the file a rolling motion.



1. The combination of the shafts M C, the gear-wheels L K, the cranks N D, the connecting-rods E, the sliding rods F, provided with a ball-and-socket joint and a spiral groove, the adjustable bearings G J, provided with a pin or feather, and the file-holders H I, with each other and the standards B and the bed-plate A, substantially as herein shown and described.

2. The combination of the pulleys and band O Q P, the pin T, the pivoted bar U, the pawl W, and the guide-loop X with the shaft M, that drives the files, substantially as herein shown and described.

180,548. TILTING CHAIRS. F. Chichester, Poughkeepsie, N.Y. [Filed Feb. 26, 1876.]

1. A chair having an adjustable supplemental back-support, in combination with a fixed back and a tilting seat, substantially as and for the purpose described.

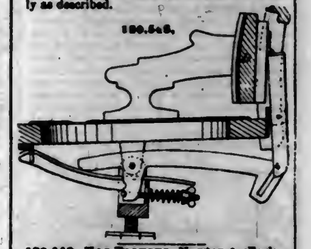
2. In a tilting chair, an adjustable back-support, combined with a lever affixed by a yielding joint to the back of the chair-seat, substantially as and for the purpose described.

3. In a tilting chair, a spring-catch combined with a fixed portion of the supporting-spider, substantially as and for the purpose described.

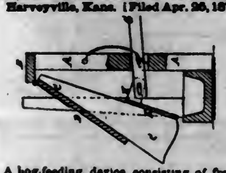
4. In a tilting chair, a lever hinged to the rear of the seat, and with its lower end secured to a lever or an arm of the supporting-spider, with an adjustable joint, substantially as and for the purpose described.

5. A chair having an adjustable supplemental back and a seat hung on bearings, and combined with a spring, so as to render said seat capable of being tilted, substantially as described.

180,548.

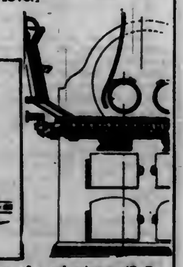


180,549. HOG-TROUGHS. Newton A. Clark, Harveyville, Kans. [Filed Apr. 26, 1876.]



A hog-feeding device, consisting of frame A B, ribs C, hinged boards D, rib-boards E, and lever G, all connected, constructed, and arranged substantially as and for the purpose specified.

180,550. FEEDING PULVERIZED FUEL TO FURNACES. Allin Cockrell, Lamar, Mo. [Filed Mar. 6, 1876.]



The combination of a pulverizing-mill, D, and furnace A, the former provided with a conveyor and the latter with a fan having spout, all constructed and arranged substantially as and for the purpose specified.

180,551. BOTTLE-STOPPERS. Jos. Conner, New York, N. Y. [Filed Nov. 24, 1875.]

Brief.—The stopper has an extended top of a bridge-like formation, over which the key is passed, the bridge part of the stopper passing up through the slot in the key, exposing a part of the bridge above the key, enabling the yoke to be passed through the opening between the bridge and the key, the neck-wire attaching the yoke to the bottle.



1. A yoke, C, with stopper B attached thereto, in combination with a sliding key, D, substantially as and for the purpose described.

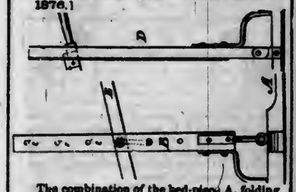
2. The bottle-stopper key D, constructed with a slot in it, substantially as and for the purpose described.

3. A bottle-stopper key constructed with unequal thicknesses, as at *d* and *d'*, substantially as and for the purpose described.

4. The bottle-stopper key D, constructed with an angular form, substantially as and for the purpose described.

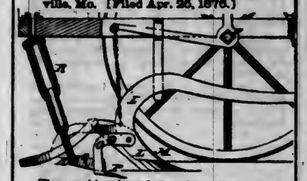
5. The bottle-stopper key D, constructed to turn and slide, in combination with a yoke and stopper, substantially as and for the purpose herein described

180,552. LIFTING-JACKS. Thomas J. Corn, Sni Mills, Mo., assignor to himself and J. M. Faulk, same place. [Filed June 26, 1876.]



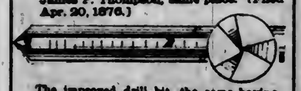
The combination of the bed-piece A, folding standards B and D, and lever E, substantially as shown and described.

180,553. COMBINED LISTING-PLOWS AND SEED-DRILLS. Alonzo M. Coston, Maryville, Mo. [Filed Apr. 26, 1876.]



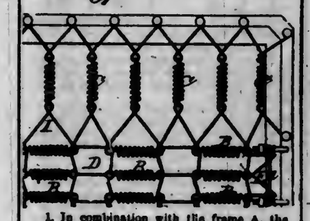
The combination of the pivoted telescopic delivery-spout R and the arms Q with the subsoil plow OP and vertically-adjustable furrowing-plow L M, as and for the purpose set forth.

180,554. METAL-DRILL BITS. Garrett B. Oubberley, Milwaukee, Wis., assignor to James P. Thompson, same place. [Filed Apr. 20, 1876.]



The improved drill-bit, the same having three longitudinal angular grooves converging toward and separated by a slender central core of stock, and whose sides or walls are—viewed in cross-section—in equi-angular planes, substantially as described and shown.

180,555. SPRING BED-BOTTOMS. William E. Cunningham, Clyde, Ohio. [Filed Dec. 18, 1875.]



1. In combination with the frame A, the longitudinally-arranged connected helical springs B and the transverse springs C, locked to each other and to the central springs, substantially as described.

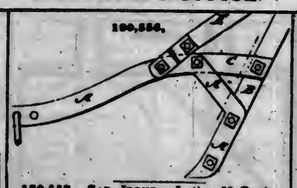
2. In combination with the springs B C, arranged at right angles to each other, the zigzag connections H I, substantially as described.

180,556. PLOW-STOCKS. Leonard H. Davis and Irvin Aycock, Morgan, Ga. [Filed May 27, 1876.]

Brief.—The beam is bent downward and bolted to the standard forming part of same. The standard is split at its upper end to connect the handles.

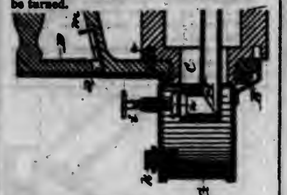
The combination of the curved beam A, branched bar B, and rear bar C with the handle E, all constructed and relatively arranged as herein set forth.

180,556.



180,557. SAD-IRONS. Luther M. Davis, Joplin, Mo. [Filed July 7, 1876.]

Brief.—The spring-pin is disengaged by means of the finger-slide when the iron is to be turned.



1. The combination of the revolving sad-iron A with screw-collar C, the handle D, nut or washer E, spring *d*, with pin *e*, and the finger-slide *m*, substantially as and for the purposes herein set forth.

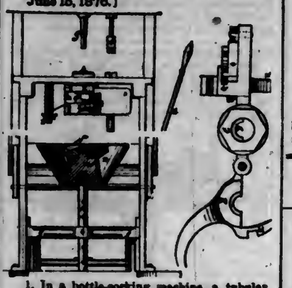
2. The combination, with a revolving sad and fluting iron, of the lamp-reservoir G, provided with an aperture and stopper, K, L-shaped tube H, provided with a valve, *h*, in the top of the vertical arm, as shown, and regulated by a set-screw, *i*, as and for the purposes hereinbefore set forth.

180,558. ANIMAL-TRAPS. Homer S. Davis, Camp Brown, Wyo. [Filed July 1, 1876.]



In combination with an animal-trap made of double springs, jaws, and trigger, a clamp-piece attached by a connecting-chain to the trap-chain, all constructed and arranged to operate substantially in the manner and for the purpose set forth.

180,559. BOTTLE-CORKING MACHINES. J. A. De Mestre, Bordeaux, France. [Filed June 15, 1876.]



1. In a bottle-corking machine, a tubular cork-receiver, constructed of the fixed part D, and a movable or hinged part, E, in combination with a locking-bolt, *o*, for fastening the said movable or hinged part E, and a reciprocating plunger, *p*, the whole being adapted to operate substantially as described.

2. In combination with a tubular cork-receiver, constructed of the fixed part D and movable or hinged part E, with the locking-bolt O and reciprocating plunger *p*, the pivoted arm R and hammer *b* for actuating the locking-bolt, substantially in the manner described.

3. In a bottle-corking machine, a bottle-support, composed of a plate, *p*, which is swiveled on the upper end of a rod, *o*, substantially as described.

4. In combination with the swiveled supporting-plate *p*, the cup *n*, to prevent the loss of liquid, substantially as described.

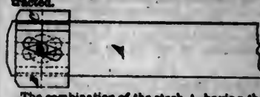
180,560. FAUCETS. Leon Dreyfus, New Orleans, La. [Filed June 6, 1876.]



A faucet, consisting of an outer casing, A, provided with an opening, D, and lugs E, an interior flexible tube or lining, B, the lever F and roller G, the whole constructed and arranged substantially as described.

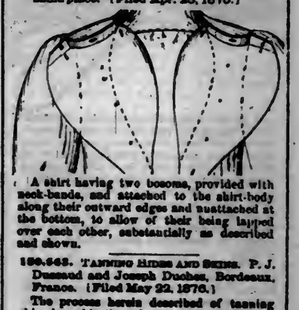
180,561. EXPANDING METAL-DRILLS. Patrick Duffy, New Bedford, Mass., assignor to himself and Jas. F. Powers, same place. [Filed July 11, 1876.]

Brief.—Each cutter is formed with a cam-slot, through which end a straight slot in the holder a bolt passes. By moving this bolt down the cutters are expanded, and by moving it in the reverse direction they are retracted.



The combination of the stock A, having the grooves a and slot *b*, cutters B C, having the reversely-inclined slots *d*, and the fastening and adjusting bolt D, substantially as specified.

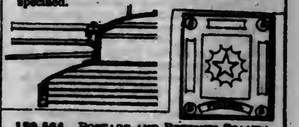
180,562. SHIRTS. Ezekeih S. Durfee, New York, N. Y. (Wm. C. Holbrook, as committee of the person and estate of said Durfee, a lunatic,) assignor to Geo. Meyer, same place. [Filed Apr. 23, 1875.]



A shirt having two bosoms, provided with neck-bands, and attached to the shirt-body along their outward edges and unattached at the bottom, to allow of their being lapped over each other, substantially as described and shown.

180,563. TANNING HIDES AND SKINS. P. J. Dussaud and Joseph Duches, Bordeaux, France. [Filed May 22, 1876.]

The process herein described of tanning skins by subjecting alternate layers of skins and inert material to the influence of a tanning solution, then replacing the inert material by layers of bark containing tannin, and again applying the solution, substantially as specified.



180,564. POSTAGE AND REVENUE STAMPS. Louis H. G. Eberhardt, Philadelphia, Pa., assignor of one-half his right to J. R. Carpenter, same place. [Filed Apr. 15, 1876.]

A postage or revenue stamp, printed upon paper previously treated with a mixture composed, essentially, of gum-tragacanth, starch, and acetate of alumina or other soluble size, removable by moisture and friction, substantially as and for the purposes herein before set forth.

180,565. LIFE-BOAT AUTOMATIC FIRE-EXTINGUISHERS. Fielding L. Ellis, Greenville, Ala. [Filed Mar. 6, 1876.]



The combination, with the flat-room, of the perforated ceiling I, water-tank G, valve H, air-vent J, and hinged leaf K, connected with valve H, and operated simultaneously therewith, for the purpose set forth.

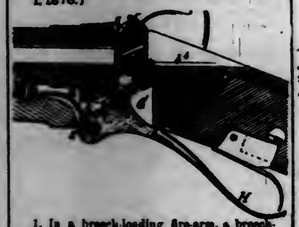
190,566. CAR-AXLE WASHERS. Walter H. Fitz Gerald, Brooklyn, N. Y. (Filed Jan. 14, 1876.)

Brief.—Protected by metal casing, independent of the box.



The combination of the divided washer with the springs a, the cross-piece connecting them, and the independent protecting metal cases, provided with guides for said springs, substantially as and for the purpose specified.

190,567. BREECH-LOADING FIRE-ARMS. F. W. Freund, Cheyenne, Wyo. (Filed June 1, 1876.)



1. In a breech-loading fire-arm, a breech-block, having a reduced upper part and parallel front and back sides, the upper and lower parts having a connecting-surface adapted to wedge the said breech-block first, into its normal position, substantially as described.

2. In a breech-loading fire-arm, a breech-block, which is moved vertically into or out of the range of explosive, and in a curved direction and inclined position beyond the said range, by mechanism substantially as described.

3. The breech-block G, having an inclined offset, g', and a vertically-mortised breech-frame, B, having a corresponding inclined offset, b, constructed and operating substantially as set forth.

4. The retractor J, having a retracting arm or wing, j, a lever, j', and an eccentric check, j^2, constructed and operating substantially as set forth.

5. The combination of the breech-block G, having an inclined groove, g^2, and being rounded at the top, the spring K, the trigger-guard H, and the link I, whereby the cartridge may be forced over the said breech-block into the gun-barrel, and whereby the cartridge is prevented from falling accidentally off of the gun-barrel before the breech is closed, substantially as set forth.

6. The combination of the breech-block G, having a groove, g^3, and the breech-frame B, having a guide pin or lug, b', substantially as and for the purpose set forth.

7. The combination of the breech-block G, the spring K, and the trigger-guard H, having a horizontal surface, h^1, a friction-roller, h^2, and a check or heel, h^3, substantially as and for the purpose set forth.

8. The combination of the breech-block G, having a guideway, g^4, and the breech-frame B, having a lug, b^2, substantially as and for the purpose set forth.

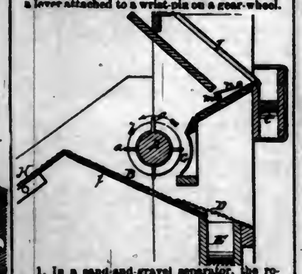
9. The gas-trap F, formed partly on the rib F of the sliding block I, and partly in the bottom of the groove g^2 in the breech-block G, substantially as set forth.

190,568. KNEADING-MACHINES. Paul Freyburger, Stuttgart, Germany. (Filed Apr. 11, 1876.)

The combination of a trough, A, having a bottom formed as described, with two elliptical disks, blades, or shovels, B and C, fitted and acting substantially in the manner described.

190,569. SAND AND GRAVEL SEPARATORS. Samuel Friend, Decatur, Ill., assignor of one-half his right to Wm. B. Chambers and Wm. J. Quinlan, same place. (Filed June 13, 1876.)

Brief.—A beater and distributer at bottom of upper screen. A beater under the next lower screen, and operated by being struck by a lever attached to a wrist-pin on a gear-wheel.



1. In a sand-and-gravel separator, the rotating, spreading, and feeding square or polygonal shaped roller m, and the hinged plate n, having its free edge resting on said roller, as and for the purposes set forth.

2. The combination of the rod-screen or screens I, sheets C, hinged plate n, and square or polygonal rotating roller, substantially as and for the purposes herein set forth.

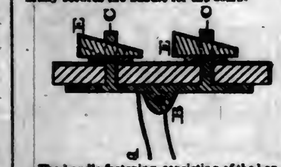
3. The rotating cylinder A, provided with the teeth a and flanges b, in combination with the guide G and screens B H, substantially as and for the purposes herein set forth.

4. The combination of the screen B having rods i i, the beater d, arm f, and crank-pinion h, substantially as and for the purpose herein set forth.

5. The combination of the screens B, H, and D, and box E, with the rotating cylinder A, having teeth a and flanges b, all substantially as and for the purpose herein set forth.

190,570. COFFIN-HANDLES. F. X. Gartland, Philadelphia, Pa. (Filed Mar. 6, 1876.)

Brief.—The handle-plates have securing-lugs cast solid therewith, and a wedge passes through slots formed in the legs, and thus firmly secures the handle for the coffin.



The handle-fastening, consisting of the handle A and brackets B, in combination with slotted pins C, cast in one with the brackets, and the wedging-keys E, all as set forth, and forming a new article of manufacture.

190,571. PAPER-BAG FASTENINGS. Henry S. Gillette, New Preston, Conn. (Filed Mar. 14, 1874.)



The combination of paper bag A, string B, and paper strip C, all constructed, arranged, and applied as and for the purpose specified.

190,572. LACE-CURTAIN STRETCHERS. Jas. Gilray, Toronto, Ontario, Canada. (Filed May 1, 1876.)
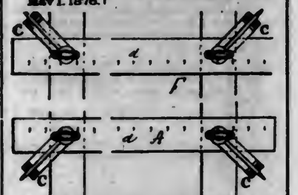


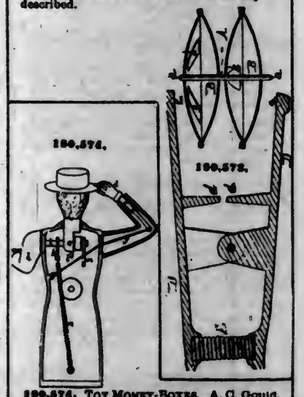
In a stretching-frame, F, constructed with plain cross-bars B B, as shown and described, the combination and arrangement therewith of the longitudinal bars A A, pins d d, and clamps C C C C, as shown and described, and for the purposes set forth.

190,573. HUMMING-TOPS. Wallace Goodwin and H. Mayer, Detroit, Mich. (Filed May 26, 1876.)

Brief.—The double top sounds two accordant tones while spinning, and may be released to spin upon either end of the spindle, and also to roll upon the edges of the disks.

1. The hollow double convex shells B B, of equal diameter, axially mounted on the spindle A, to form a spinning-top, substantially as described.

2. The levers D D, pivoted together, and provided with the spring E, cups e e, and stops d d, all combined to operate substantially as described.



190,574. TOY MONEY-BOXES. A. C. Gould, Brookline, Mass. (Filed June 26, 1876.)

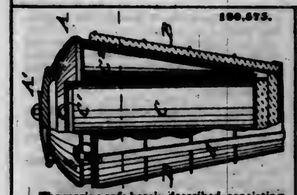
Brief.—The figure, upon receiving a penny on the presented plate, delivers it to the safe orifice with a bow and removal of the hat from the head.

1. The android or automaton, provided with the movable plate-holding arm h and the movable hat-holding hand d, and with mechanism, substantially as described, to cause raising of the hand and hat to take place while the arm h may be in the act of being depressed, and reverse movements of the said arm, hand, and hat to follow on the removal from the arm of the article or piece used in effecting its depression, such mechanism consisting of the lever f, cord g, string n, shaft i, and arms k m, all being applied and arranged essentially as set forth.

2. The android or automaton, provided with the movable plate-holding arm, head, and hat-holding hand, and with mechanism, substantially as described, to cause the hat to be raised and the head to bow while the arm may be in the act of being depressed, and reverse movements of the said arm, head, movable hand, and hat to follow on the force used in depressing the arm being removed from it or its plate, such mechanism consisting of the lever f, cord g, spring n, shaft i, its three arms k l m, and the projection o, all being arranged and applied essentially as set forth.

190,575. MARINE SAFES. Jean L. Gouley, New Orleans, La. (Filed May 27, 1876.)

190,575.



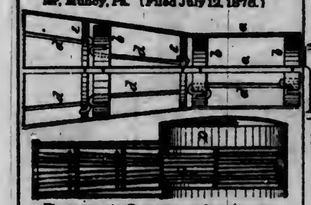
The marine safe herein described, consisting of an outer tapering shell, A, having a cover, A', and protecting cork or rubber sheathing B, the inner storage-cylinder C, and surrounding series of independent air-compartments D, all constructed and relatively arranged as herein set forth.

190,576. MIDDLINGS-SEPARATORS. Jefferson Graham, Aldea, Minn. (Filed May 27, 1876.)



The vertically-reciprocating shoe D, having screens O I M, each clothed with finer and coarser numbers of bolting-cloth, and a series of chutes, one set for delivering the purified middlings out of the machine, and the other for delivering the imperfectly-separated matters upon the screen below, in combination with the blast-fan Q, substantially as herein shown and described.

190,577. SPARE-ARRESTERS. W. F. Gramler, Muncy, Pa. (Filed July 12, 1876.)



The open tube C, constructed, as described, of the rods a, rings b c, and rods or wires d, and of the same diameter from the lower end upward to about the middle, and then gradually increasing in diameter to the upper end, substantially as and for the purposes herein set forth.

190,578. ICE-CREEPERS. Thos. Gunsalus, West Troy, N. Y. (Filed Jan. 4, 1876.)

The ice-creeper herein described, consisting of body A, screw B, concave arms a, having sharp edges b, and central spur c, the latter projecting beyond the edges b, constructed and arranged substantially as and for the purpose shown and described.

190,579. WATCH-REGULATORS. Moses G. Hawkins, Edinborough, Pa., and Charles T. Higginbotham, Springfield, assignors to the New York Watch Company, Springfield, Mass. (Filed Dec. 6, 1875.)

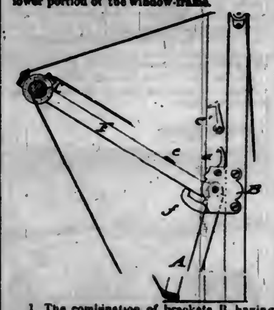


1. A disk, D, having a series of concentric grooves, made concentric with the pivot upon which the disk rotates, in combination with the elastic regulator C, provided with a projection to operate or move in said grooves, substantially as described.

2. A watch-regulating disk, D, having its rotating pivot f split longitudinally, and its parts spread open, so that when inserted in its bearing the parts of said pivot will spring outward and cause the pivot to fit its bearing closely and prevent side stroke, substantially as set forth.

190,580. AWNINGS. Anthony Hamain, New York, N. Y. (Filed June 6, 1876.)

Brief.—The awning is constructed with two frames, that are pivoted to a bracket, which is attached to the window-casing, and may be adjusted at any point, either at the top or lower portion of the window-frame.

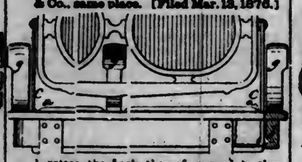


1. The combination of brackets B, having pawls a, pivoted frames A F, ratchet b, and top roll C, as and for the purpose described.

2. A frame, F, having the cross-bar e, and adapted to be locked by hook e', as and for the purpose set forth.

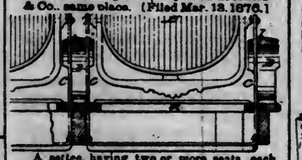
3. The combination, with frame F, of pulley, cord, and rigid arms f, as and for the purpose specified.

190,581. SETTEES. Levi Heywood, Gardner, Mass., assignor to Heywood Brothers & Co., same place. (Filed Mar. 13, 1876.)



A settee, the back thereof secured to the seat by swinging arms C, working in slots a in said seat, whereby the back is rendered reversible, in combination with a seat having two or more fixed and stationary arm-rests, g, substantially as shown and described.

190,582. SETTEES. Levi Heywood, Gardner, Mass., assignor to Heywood Brothers & Co., same place. (Filed Mar. 13, 1876.)



A settee, having two or more seats, each having an independent reversible back in combination with the reversing arms C, slotted fixed arms D, and slotted seats a, constructed and operating substantially as specified.

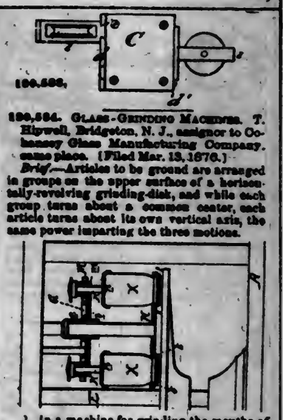
190,583. GATE-CLOSING DEVICES. Robert S. Higinbotham, Charleston, Ill. (Filed May 18, 1876.)

Brief.—A plate of iron has two of its sides turned up at right angles, forming flanges, and upon one side or flange two dovetails are cut to receive a suitably-formed shank of a pulley-block. To the other flange a pulley is permanently secured. When the plate is reversed, the dovetailed pulley-block may be changed, so that the rope may be in the same relation to the two sheaves.

A reversible flanged bracket, C, having a removable pulley carrying arm, i, applied to its notched flange d, and a pulley carrying arm, i, applied to its flange d', in combination with the rope D and a weight, G, substantially as set forth.

190,584. GLASS-GRINDING MACHINES. T. Hipwell, Bridgeton, N. J., assignor to Cohansey Glass Manufacturing Company, same place. (Filed Mar. 13, 1876.)

Brief.—Articles to be ground are arranged in groups on the upper surface of a horizontally-revolving grinding-disk, and while each group turns about a common center, each article turns about its own vertical axis, the same power imparting the three motions.

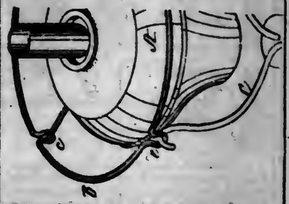


1. In a machine for grinding the mouths of vessels, the combination of a grinding-disk with a plate, N, having openings for receiving the necks of the vessels, and with caps n n' of spindles K, through the medium of which, and suitable gearing, each vessel is caused to revolve on its own axis while it is carried around in a circle with the plate N, all substantially as set forth.

2. The combination of the shaft F, and stationary cog-wheel G, the spindles K, caps n, and pinions M, carried by the arms m on the said shaft, and the plate N with its openings, all substantially as set forth.

3. The combination of the plate N and its openings, with lips i projecting from the edge of each opening, as set forth.

190,585. TORCHES. George F. Hollis, Boston, Mass. (Filed July 21, 1876.)



The wire ring B, with its eyes or loops c c, pivoted upon the wire support C, in combination with the oil-receptacle A, pivoted within the wire ring B, all constructed and operating substantially as and for the purpose set forth.

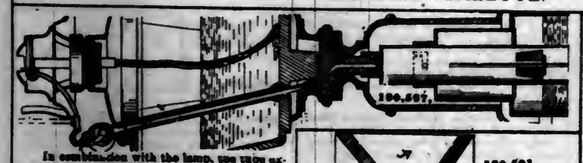
190,586. CIGAR-BOXES. Simon Hood, New York, N. Y. (Filed June 6, 1876.)



1. A cigar-box made of a body cut tapering or diagonally from front to rear, and provided with hinged and folding side and front sections and top lid, substantially in the manner and for the purpose set forth.

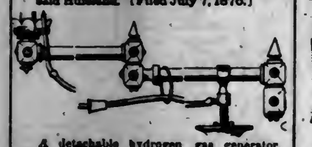
2. A cigar-box made of a shape tapering diagonally from front to rear, and having horizontal shelves of different height and lengths, and corresponding guard-strips in front and above each shelf, substantially as set forth.

190,587. LIGHTING ATTACHMENTS FOR LAMPS. Philip Hufsland, West Mount Vernon, and Wm. W. Batchelder, New York, N. Y.; said Batchelder assignor to said Hufsland. (Filed July 7, 1876.)



In combination with the lamp, the tube extending down through the lamp-body, or a portion of the same, with a hydrogen-generator, and connected at its top with a pipe leading to a hydrogen-jet situated close to the wick of the burner, and co-operating with a platinum sponge, substantially as described.

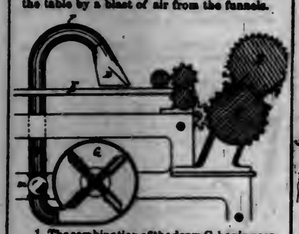
190,589. LIGHTING ATTACHMENTS FOR GAS-BURNERS. Philip Hufsland, West Mount Vernon, and Wm. W. Batchelder, New York, N. Y.; said Batchelder assignor to said Hufsland. [Filed July 7, 1876.]



A detachable hydrogen gas generator, adapted to be secured to a gas bracket or chandelier, in combination with a hydrogen-gas jet and platinum sponge, secured to the burner or other portion of the gas-fixture, the generator being connected with the hydrogen-jet by means of a flexible tube, substantially as set forth.

190,590. PAPER-BAG MACHINES. Ellen H. Hughes, Erie, Pa., administratrix of R. K. Hughes, deceased. [Filed Jan. 20, 1875.]

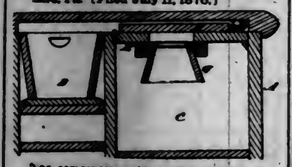
Brief.—The cutting-cylinders are set at an angle. The paper tube is held in position on the table by a blast of air from the funnels.



1. The combination of the drum C, having serrated blade *a*, cavity *b*, and knives *c*, with the drum E, having projecting knife *e* and grooves *f*, all substantially as and for the purposes set forth.

2. The combination, to a paper-bag machine, of the fan G and the pipes F F, extending upward, and bent forward over the table of the machine, and having the funnel D D′ at their ends, and provided with stop-cocks *m m*, all substantially as and for the purposes set forth.

190,592. MEAL-BINS. John Hunter, Ashland, Pa. [Filed July 11, 1876.]



The combination, in a flour-chest, A, of a flour-bin, C, cover H, sieve G, kneading-trough B, and kneading-board H, substantially as specified.

190,593. FEEDING AND DISCHARGING HOPPERS. Henry J. Buttner, New Almaden, Cal. [Filed Apr. 27, 1876.]

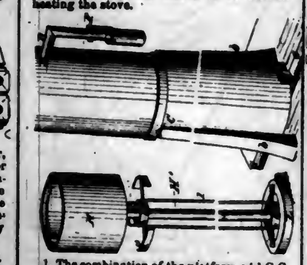
The combination, with the closing hopper A having a similar discharging-mouth, of the moving horizontal apron C, supported under the said hopper, whereby the material passing from the hopper may be caused to fall from either side of the said apron, substantially as described and shown.

190,591.



190,592. HEATING-STOVES. F. O. Jenkins, Gilman, Ill. [Filed June 28, 1876.]

Brief.—Anhydrous lime is to be used in heating the stove.



1. The combination of the platform *a b b* G G with the stove-cylinder, pivoted and adapted to operate substantially as shown and described.

2. The combination, with the body of the stove, of the pipe D and bucket F.

3. The combination, with the outer containing-cylinder, of the interior bucket H, perforated tube H′, and protecting-rods I.

190,595. BUSTLES. Jas. Jenkinson, Green Point, N. Y. [Filed June 28, 1876.]

Brief.—The bustle may be opened in the back for the purpose of withdrawing the hoops.

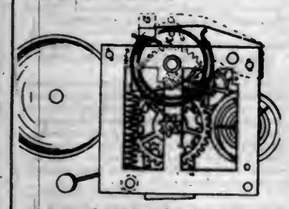


1. A pannier, the back of which is divided into two or more parts, A A, provided with pockets for the reception of the steels, and which are laced or otherwise held together, substantially in the manner described and specified.

2. The combination of the pieces A A, steels *b b*, and lacing *c c*, substantially as described and specified.

190,594. ALARM-CLOCKS. Sander Johnson, Minneapolis, Minn., assignor of one-half his right to J. N. Berg, same place. [Filed May 31, 1876.]

Brief.—The time mechanism is arranged on an independent pivoted frame, which, by the action of a cam and pin, is moved automatically to throw the alarm-escapement in gear with the alarm mechanism.

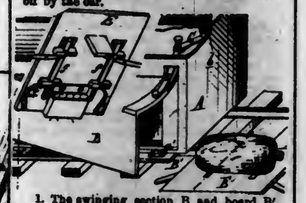


1. In an alarm-clock, the pivoted frame O, holding the time mechanism and the alarm-escapement, and provided with the pin K, in combination with the cam D and gear mechanism, substantially as and for the purpose set forth.

2. In an alarm-clock, time mechanism, and alarm mechanism, which are alternately and automatically thrown in and out of gear with one another, substantially as and for the purpose set forth.

190,596. MAIL-BAG CATCHERS. B. Wellington Jones, Newburg, Mich., assignor of one-half his right to Wm. B. Eddy, same place. [Filed June 2, 1876.]

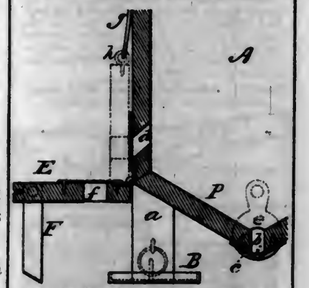
Brief.—The springs hold the bag until taken off by the car.



1. The swinging section B and board B′, hinged at the opening in the side of a mail-car, and in combination therewith the arm C, link D, and stud *d*, for operating them; substantially as described.

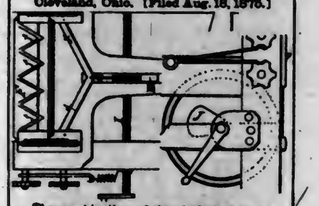
2. The combination of the table E, mounted at one side of the rail-track on about the level of the floor of a car, and spring-clips *f f′* for holding a mail-bag in position to be taken aboard a passing car by a deflector, substantially as described and shown.

190,598. BEE-HIVES. Charles M. Jones, West Fork, Ky. [Filed Dec. 18, 1875.]



In a bee-hive, the combination, with the bee-entrance *d*, of the hinged vertically-vibrating ledge E, having game-covered opening *f*, registering with the said entrance, substantially as specified.

190,597. STRAW-CUTTERS. Wm. Kashni, Cleveland, Ohio. [Filed Aug. 16, 1875.]



The combination of the shaft I, provided with the cams J and *k*, the lever H for operating the cutting-frame *x* and horizontal knife F, the angular lever *l*, spring-contained ratchets and wheels *o o* on the journals of the feed-rollers, all substantially as and for the purposes herein set forth.

190,599. SLEIGH, Max Kayser, New York, N. Y. [Filed May 24, 1876.]



The rivet F, provided with a flange, C, and combined with the neck-tie or scarf C and bosom-fold E, as described, and also provided at its inner end with a button, H, arranged to pass through the button-hole in the inner fold J of the shirt-bosom, substantially as described.

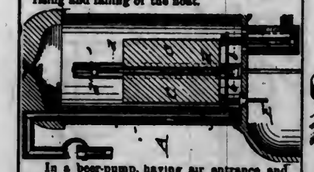
190,600. HARNESS-FRAMES. L. J. Knowles, Worcester, Mass. [Filed Oct. 11, 1875.]



The combination, substantially as set forth, of the hook-bolts, formed as specified, the heddle-bars, and the harness-frame end pieces, formed to receive the hooks and the ends of the bars, as shown and described, whereby the points of the hooks are brought within the compass of the frame, the hooks are supported on their edges and on one side, and the heddle-bars are also supported and prevented from turning.

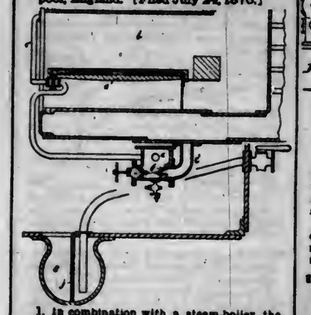
190,602. BEER-PUMPS. Philip Krumscheid, Boston, Mass., assignor to himself, J. Krumscheid, and John B. Foley, same place. [Filed June 6, 1876.]

Brief.—The air is compressed by hydraulic pressure. The valves for the admission and discharge of the water are controlled by the rising and falling of the float.



In a beer-pump, having air entrance and exit pipes and check-valves, the combination of water supply and discharge valves F and E, at the bottom of the air-chamber A, by a valve-connecting plate or support, *b*, a vertical rod, *d*, and collar, *d′*, with the float C, to interrupt and re-establish the water-supply and the action of the pump, substantially in the manner and for the purpose set forth.

190,601. CIRCULATING APPARATUS FOR STEAM-BOILERS. William C. Lang, Liverpool, England. [Filed July 24, 1876.]



1. In combination with a steam-boiler, the water-box *a*, communicating with the lowest portion of the boiler, and provided with the baffle-plate, the circulation-pipe, and suitable means for establishing and maintaining the circulation of the water in the boiler, substantially as specified.

2. In combination with a steam-boiler, the box *a*, substantially as herein described, provided with the cock *g*, connected with the boiler by the circulation-pipes *c c′*, the pipe *c* being controlled by the valve *f* arranged within the box, substantially as and for the purpose specified.

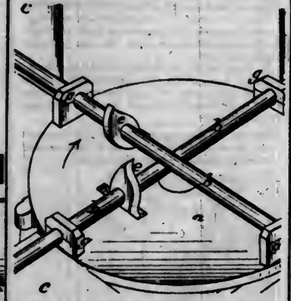
190,603. CHILDREN'S CHAIRS. Emil Lass and Charles Glarner, New York, N. Y. [Filed Dec. 9, 1876.]

1. The combination, with a child's chair, A, of the table B, slotted swinging arms C C, one or more, the pins *c c*, and the slotted plate E, substantially as herein set forth.

2. A fastening device composed of the slotted plate E, slotted arms C C, and pins *c c*, in combination with the table B, substantially as described.

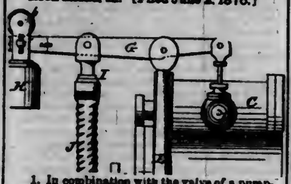
190,605. WINDMILLS. Danl. B. Leach, Pike, N. Y., assignor of one-third his right to Conrad Wagenbrith, Meadville, Pa. [Filed July 14, 1876.]

Brief.—A feathering wheel rotating edgewise to the wind, with circular disk provided on its face with boxes, in which are mounted transverse journaled rock-shafts, each of which is provided with blocks, to limit its movement, and with two blades or sails at right angles to each other.



The wind-wheel consisting of the circular disk *a*, provided with the boxes *g*, and the rock-shafts *b*, provided with the wrists *i* and stops *q*, and having the blades *c* attached thereto, so as to project from both sides thereof, substantially as shown and described, and for the purposes set forth.

190,604. PUMP-GOVERNORS. J. Silas Lane, Rock Island, Ill. [Filed June 2, 1876.]

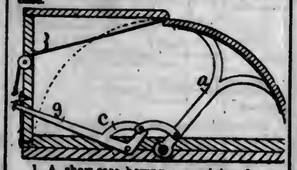


1. In combination with the valve of a pumping-engine, the pivoted beam G, operated by the varying pressure in the mains, and the movable weight H, with roller *b*, substantially as and for the purposes herein set forth.

2. The flexible and compressible tube or cylinder J, in combination with the pipe K, rod I, and beam G, substantially as and for the purposes herein set forth.

190,606. SHOW-CASES. Edwin B. Lee and Geo. W. Lee, Webster City, Iowa. [Filed Mar. 2, 1876.]

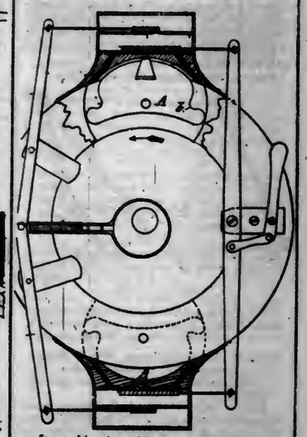
Brief.—A show-case having a revolving front, which is operated from the rear of the case.



1. A show-case having a revolving front, operated from the rear of the case by a lever or levers, substantially as and for the purpose set forth.

2. A show-case having a revolving front fulcrumed therein upon arms *a* connected to a bell-crank or segmental lever, *e g*, by which the said front is moved in the arc of a circle, opening and closing the case, substantially as and for the purpose set forth.

190,607. ROTARY ENGINES. William F. Leopold, St. Joseph, Mo. [Filed Dec. 27, 1875.]



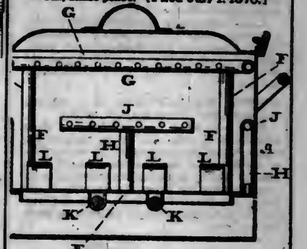
In combination with the rocking abutment A, constructed with the pockets *b b*, exhaust-pipes arranged so as to be opened and closed by the side of the abutment during its movements, all as shown and described.

190,608. SHOE-TIPS. Lazarus Loeser, Brooklyn, N. Y. [Filed June 5, 1876.]



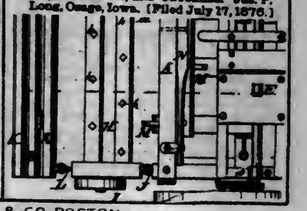
A boot or shoe tip, of leather or other suitable material, provided with a pocket around its edge, adapted to receive a cord or wire, substantially as and for the purpose described.

190,609. WASH-BOILERS. August Lohmann, Philadelphia, Pa., assignor of part of his right to Charles Brens and Charles Voss, same place. [Filed July 1, 1876.]



The wash-boiler, with the removable pipes F H and G J, and the removable false-bottom plate E, with valves K and guards L, as arranged, and for the purpose set forth.

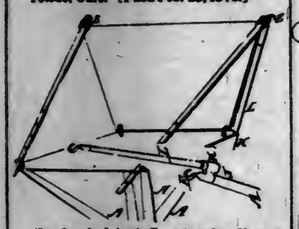
190,610. COMBINED SEEDERS, CULTIVATORS, HARROWS, AND CRADDERS. Jas. P. Long, Osage, Iowa. [Filed July 17, 1876.]



1. The self-adjusting crusher, consisting of two or more parallel bars, K K, beveled upward, and hinged together at bottom, as and for the purposes set forth.

2. The combination of a sender, a cultivator or harrow, and the herein-described self-adjusting crusher, substantially as and for the purposes herein set forth.

180,610. CAMP-STOOLS. Chas. M. Langren, Toledo, Ohio. [Filed Feb. 26, 1876.]



The ferrule J, hook E, and socket K, cast in one piece, and combined with the legs A and back support L, substantially as specified.

180,611. SPINNING-RINGS. Wm. B. Magee, Woonsocket, R. I., assignor to Geo. Draper & Son, Milford, Mass. [Filed May 26 1876.]

Brief.—The race on which the traveler runs is inclined outward to such a degree that the traveler, as it moves around on the race, is thrown out by centrifugal force, and both ends of said traveler bear upon the ways of the race.



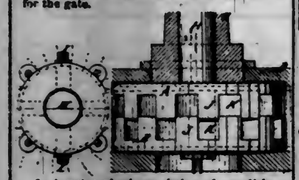
1. A spinning-ring, provided with an outwardly-inclined race, shaped at its inner side substantially as set forth, and with its outer edge lower than the inner edge, substantially as described.

2. A ring, provided with a race outwardly inclined, substantially as shown and described, in combination with a traveler adapted, owing to the action of centrifugal force, to bear on and move with both ends against the race, substantially as described.

3. As a new article of manufacture, a spinning-ring provided with an outwardly-inclined circular race, the interior diameter of which is greater than the smallest interior diameter of the body of the ring, substantially as described.

180,612. WATER-WHEELS. S. O. Martin, Clarion, Pa. [Filed May 22, 1876.]

Brief.—A wheel composed of two disks, placed side by side, each having buckets and lessees, which are so adjusted that the buckets of one fit in the lessees of the other, in such manner that by adjusting one of the disks toward or from the other the capacity of the lessees may be raised to any extent, and may also be closed altogether, if required, to serve for the gate.

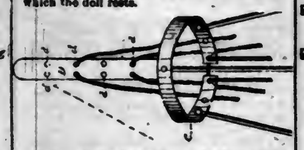


1. A water wheel, consisting of two disks, A B, each having buckets J and lessees K, which intersect, as described, and one of said disks being adjustable toward and from the other, to increase at will the capacity of the lessees, substantially as specified.

2. The combination of disks A B, having buckets and lessees, as described, tubular shaft C, suspended from the adjustable bridge-tree, and the main shaft H, all substantially as specified.

180,613. DOLL-SUPPORTERS. Emma C. McCutchins, Washington, D. C. [Filed June 15, 1876.]

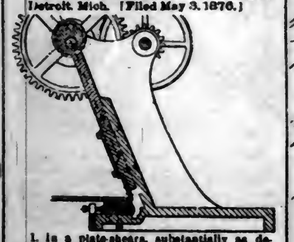
Brief.—Consists of an adjustable ring for the waist of the doll, to be applied under the clothing, and attached to said ring are three wires flaring downward, upon the ends of which the doll rests.



1. In a device for holding dolls, the metallic waist band or girdle C, provided with holes c c near its ends, for attachment of a string or securing pin, and combined with the legs B B, substantially as and for the purpose herein set forth.

2. In a device for holding dolls, the back pieces or supports D, provided with the holes d d, and combined with the girdle C and legs B B, substantially as and for the purpose herein set forth.

180,614. MACHINES FOR SHEARING BOILER-PLATES. J. McGregor and T. McGregor, Detroit, Mich. [Filed May 3, 1876.]



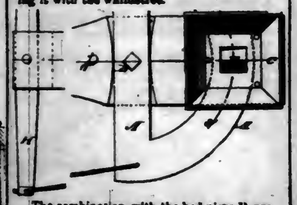
1. In a plate-shears, substantially as described, the combination, with the horizontal bed-plate and its inclined standards, of the driving and counter shafts, the pinion, spur-wheel, and clutch-box, for reciprocating the cutting-blade through an eccentric on said counter-shaft and the connecting-rod, substantially as set forth.

2. The stationary shear-blade block, adjustably secured to the bed-plate, and provided with a means for inclining it in either direction with relation to the moving shear-blade, substantially as and for the purpose set forth.

3. In a plate-shearing machine, the combination of the inclined reciprocating knife, the adjustable stationary shear-block, the bolts for adjusting such block, and the gage, all constructed and arranged substantially as described and shown.

180,615. CORN-PLANTERS. N. H. Meeks, Salado, Tex. [Filed Feb. 5, 1876.]

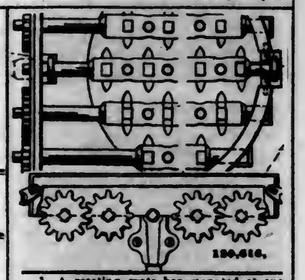
Brief.—To the plow-beam is attached a hopper, through the bottom of which a circular seed-slide vibrates, by means of rods connecting it with the whiffletree.



The combination, with the bed-piece D, provided with discharge-openings O O, of the curved or arc-shaped dropper-slide A, having inclined passages F E F E and the whiffletree H and rods T, all as shown and described.

180,616. GRATES. Geo. B. Mershon, Philadelphia, Pa. [Filed July 1, 1876.]

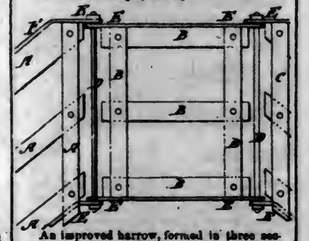
Brief.—The removable plate is provided with semicircular notches, which embrace the upper half of the grate-bar journals. The removable bearing and the swinging hanger furnish means for dropping one end of the bar supported by them.



1. A rotating grate bar mounted at one end on a swinging hanger, and at the other end on a removable bearing, substantially as and for the purpose set forth.

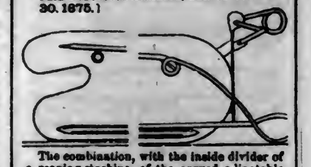
2. Rotating grate-bars, in combination with a removable plate or lock, E, substantially as and for the purpose set forth.

180,617. HARROWS. Wm. C. Moore, Cairo, Pa. [Filed July 1, 1876.]



An improved harrow, formed in three sections, A B C, hinged to each other by bolts and straps D E, the middle section being made rectangular and the side sections oblique, having their forward corners beveled off, and shoes F attached to the forward sides of their front cross-bars, substantially as herein shown and described.

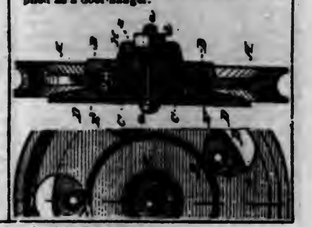
180,618. INSIDE DIVIDERS FOR HARVESTERS. James Moore, Pescadero, Cal. [Filed Dec. 30, 1875.]



The combination, with the inside divider of a reaping-machine, of the curved adjustable guide, constructed and arranged substantially as described and shown.

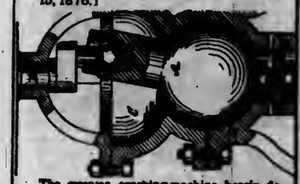
180,619. BOLLERS FOR BARN-DOORS, &c. Samuel H. Moore and Edward Y. Moore, Chicago, Ill. [Filed July 12, 1876.]

Brief.—As an improvement on Patent No. 177,854, May 23, 1876, the wheel is cast with a suitable recess and hub, and there is also a circular back plate for attachment to the door, provided with a suitable flange and hub, intermediate between which work a series of iron rollers, the whole secured together by a screw-threaded bolt, washer or cap-piece, and nut; or, by the substituting of a suitable strap for the circular back plate, the device may be applied as a door-hanger.



The combination of the wheel A, provided with recess B and hub C, the plate D, or its equivalent, provided with flange E and hub G, the rollers *b b*, screw *c*, washer H, and nut *d*, all substantially as and for the purposes herein set forth.

180,620. CRUSHING-MACHINES. Fidele Motte, Dampremy, Belgium. [Filed May 15, 1876.]



The eccentric crushing-machine herein described, composed of the hopper C, oscillating pestle-shaped crusher A, shaft B, driving-pin *f*, pivot or support D, and crushing-chamber E, with opening *b*, all arranged, constructed, and operating substantially as and for the purpose set forth.

180,621. ORNAMENTING BUTTONS. Samuel S. Moyer, Berlin, Ontario, Canada. [Filed June 6, 1876.]



The method or process of ornamenting buttons, consisting, first, in printing the figures or characters upon the face-surface of the button by means of dies or type coated with an impermeable composition, then applying the dye or coloring matter, after which the composition is removed by polishing or otherwise, all substantially as set forth.

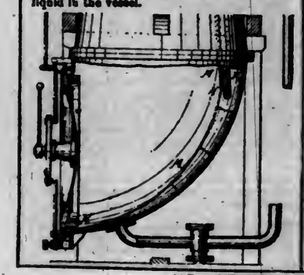
180,622. SELF-DUMPING SCOWS. Philetus L. Murphy, New York, N. Y., assignor to himself and John A. Squires, same place. [Filed July 15, 1876.]



A scow made in two parts, having the plane of division passing longitudinally through its center, having the deck inclined from the outer sides to the line of division, and connected with each other at one end by one or more hinges, C, and at the other end by a rope or chain, D, substantially as herein shown and described.

180,623. DIFFUSION APPARATUS. Charles Neanee, New Orleans, La. [Filed May 16, 1876.]

Brief.—The diffusion-vessel increases in diameter from top to bottom, and has a door at the bottom, whereby the refuse is readily discharged. Steam heating-pipes extend into the vessel between a partition-plate and the side of the vessel. The lower part of the partition-plate is perforated for the purpose of straining the liquid. A circulating-wheel is provided for keeping up a circulation of the liquid in the vessel.



1. In a diffusion apparatus, a diffusion-vessel gradually increasing in size from its top or inlet opening to its bottom or outlet opening, substantially as herein shown and described.

2. The division-plate M, extending from the top to the bottom of a diffusion-vessel to form the heating-chamber, and having its lower part perforated with numerous small holes to serve as a strainer, substantially as herein shown and described.

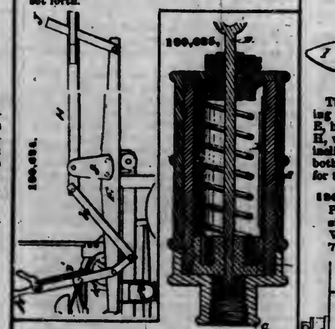
3. The combination of circulating-wheel with heating-pipes K L, placed within the diffusion-vessels of a diffusion apparatus, substantially as herein shown and described.

4. The combination of the circulating-wheel and its pipe with the diffusion-vessel of a diffusion apparatus, substantially as herein shown and described.

180,624. PLOWS. William B. Newman and Tilden J. Wilkinson, Warrensburg, Mo. [Filed May 13, 1876.]

Brief.—A supplemental plow-beam is pivoted to standards rising from the middle of the beam. The rear end of this supplemental beam is connected to the rear end of the plow-beam by links and pawl and ratchet. A tilting-lever, with a rack-bar for holding it in place, sets the plow more or less to land.

The combination of the plow-beam E with standards *f f* and guide-loop J, the pivoted tongue H, straps *h h*, forked lever K, and ratchet and pawl *k i*, as and for the purpose set forth.



180,625. TESTAMETERS. E. F. Osborne, St. Paul, Minn. [Filed July 8, 1876.]

Brief.—A device for testing the accuracy of gages, having been filled with liquid, is secured to a gage to be tested. The pressure being applied by screwing down the outside casing, this transmits, through a spring of known resistance and a piston, a pressure upon the liquid, such pressure being shown on the piston-rod, and should, in the case of the gage being tested, be the same.

1. The case A, having a screw-thread upon its inner surface, provided with a piston and graduated piston-rod, in combination with the cylinder B, having a screw-thread upon its exterior surface, substantially as described.

2. The graduated piston-rod D and piston E, in combination with the inner and outer cylinders, the whole arranged to operate as described.

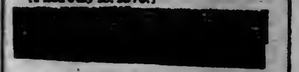
3. The cylinder-head C, in combination with the inner and outer cylinders and pistons and graduated piston-rods, substantially as described.

180,626. HOMINY-KNIVES. John Ormsbee, Spotswood, N. J. [Filed June 26, 1876.]



Improved knives or hullers for hominy-mills, made with their blades C curved with a constantly-increasing curvature from their forward to their rear ends, made wider toward their rear ends, made inclined upon their upper sides, and flat or inclined upon their lower sides, and provided with rasp-teeth upon their upper sides, and file or rasp teeth upon their lower sides, substantially as herein shown and described.

180,627. PROCESSES OF PRESERVING MEAT. Joseph Parent, Philadelphia, Pa., assignor to himself and C. F. Schneider, same place. [Filed July 15, 1876.]



The within-described process for preserving meat, consisting of soaking the same in cold water, then in a pickle of water, salt, saltpeter, cloves, cinnamon, chloride of lime, spice, and bicarbonate of soda, and then cooking it and pressing it into molds or cans, substantially as herein set forth.

180,628. PROCESSES OF ORNAMENTING MOSQUITO AND OTHER KNIT FABRICS. William Parsons, Lowell, Mass., assignor of part of his right to William and James Harley, same place. [Filed July 24, 1876.]

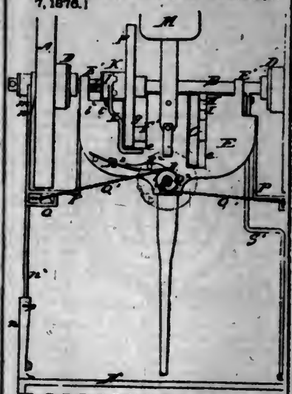
The process of producing ornamentation upon hosiery and other knit goods, which consists in dyeing the same thereon, substantially as described.

180,629. CAR-COUPLINGS. Joseph A. Patterson, Marshfield, Mo., assignor of one-third his right to Joseph A. Smith, same place. [Filed Apr. 22, 1876.]



The combination, with a draw-head, B, having interior chamber C, of the pin D, spring E, bar G, with foot G', and the coupling-bar H, with hook I at each end, said hooks being inclined at top and bottom, and beveled on both sides, all constructed substantially as and for the purpose set forth.

180,630. MOWING-MACHINES. George B. Peck and Wm. Keeler, Towanda, Pa., assignors to themselves, George E. Fox, and Wm. H. Mosher, same place. [Filed Apr. 7, 1876.]



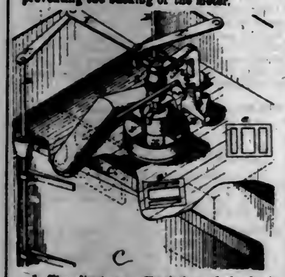
1. In a mowing-machine, having the cutting apparatus located in front of the driving-wheels, the collars *m* supported upon the shaft B outside of the wheels A A, and formed with projections or arms, to which are attached the connecting-bars *n*² of the cutting apparatus and the outer bars of the frames F, substantially as described.

2. The horizontal frames P, supporting the pulleys Q on their forward ends, embracing the wheels A A, and having their outer portions attached to the collars *m*, and their inner portions attached to the main frame, substantially as described and shown.

3. In combination with the finger-bar N, connected to the machine by the pivoted bars *n*¹, the chains Q¹, pulleys Q, drum Q², shaft Q³, and pawl and ratchet E¹ K¹, substantially as described.

180,631. GAS-METERS. Robert C. Phillips, Cincinnati, Ohio. [Filed June 8, 1876.]

Brief.—The diaphragm is wedge-shaped, with leather attached to the outer frame, and having a spindle secured to the back edge. The valve is rotary, with a carrier, and with valve-cover provided with stops, whereby the valve is caused to seal itself upon reversing the direction of supply and discharge of gas, preventing the backing of the meter.



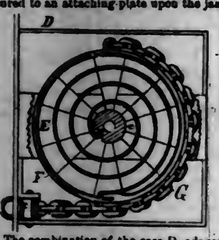
1. The diaphragm consisting of the back plate C, the bands C', the leather portion L, the outer frame C'', and the spindle D, these parts being combined for joint operation, as shown and set forth.

2. The diaphragms constructed as herein described, in combination with the valve or valves, the counter or register, and the described intermediate mechanism connecting the diaphragms with said parts, for operation as set forth.

3. In combination with the carrier H, the rotary valve A and the valve-cover B, provided with stops, substantially as set forth, whereby the valve is caused to seal itself and stop the passage of gas upon reversing the direction of supply and discharge, thus preventing the backing of the meter.

180,632. DOOR-SPRINGS. F. W. Porter and Isaac Porter, New Britain, Conn. [Filed Feb. 9, 1876.]

Brief.—An incased flat coiled spring carries upon its surrounding barrel a chain, which, as it passes out of the case, runs over a vertical friction-roller, which is itself a part of the case. The whole is furnished with a face-plate like a lock, and is mortised into the edge of a door. The outer end of the chain is secured to an attaching-plate upon the jamb.



The combination of the case D, adapted to be mortised and concealed within a thin door, the spring E, the rotating barrel F surrounding said spring, the chain G, the friction-roller *e* hung on a vertical axle within the main case D, and the plate C, with its depression and hook *a b*, all substantially as described, and for the purpose set forth.

180,633. LEATHER-CUTTING GAGES. James Potter, Chicago, Ill. [Filed June 6, 1876.]



1. In a gage for cutting leather, the combination of the sliding gage-bar and a lever actuating a cam, for the purpose of holding the said bar at any point, substantially as described and shown.

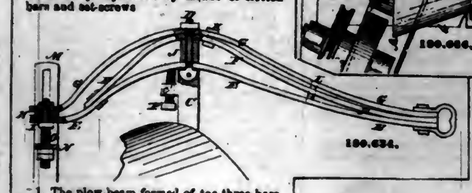
2. In a gage for cutting leather, the combination, with the sliding gage-bar, of a cam bearing upon one side of the same, and another cam, actuated by a lever, bearing against the other side of the said bar, substantially as described and shown.

3. The combination, with the handle, of the lever E and the screw *b*, for the purpose of adjusting the size of the said handle, substantially as described and shown.

4. In a gage for cutting leather, the combination of the lever *b* for operating the cams, adapted to be inserted in the handle, and the spring *b'* for retaining the said lever therein, substantially as described and shown.

180,634. PLOWS. Alva A. Preston, New Troy, Mich. [Filed May 9, 1876.]

Brief.—The beam is composed of three flat bars of iron secured by bolts and rivets. The rear end of the beam is made vertically and horizontally adjustable by means of slotted bars and set-screws



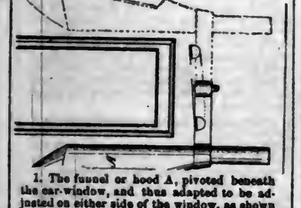
1. The plow-beam formed of the three bars E F G, connected together by the bolts D K L and their washers, substantially as herein shown and described.

2. The combination of the plow-beam E F G, the pivoted bolt D, the slotted cross-bar H, the bolt I, the slotted uprights M, the cross-bar N, and the swiveled screws O with each other, and with the standard C, substantially as herein shown and described.

3. The combination of the set-screw P with the lug *c'*, formed upon the rear side of the standard C, and with the beam E F G, substantially as herein shown and described.

180,635. FENDERS FOR CAR-WINDOWS. R. P. Proctor, Edinburg, Va. [Filed Mar. 16, 1876.]

Brief.—The open side of the funnel is turned outward or from the window, whether it be on one side or the other thereof. It will always be in the direction the train is moving, so as to catch and arrest the dust, cinders, &c., which pass close alongside the car, and would otherwise be drawn into the window when open.



1. The funnel or hood A, pivoted beneath the car-window, and thus adapted to be adjusted on either side of the window, as shown and described.

2. The funnel or hood A, having the tubular lower portion *e*, as and for the purpose specified.

3. The combination, with the hood or funnel adapted to swing from side to side of the window, of the catch or locking device, pivoted as described, so as to swing in a vertical plane, as set forth

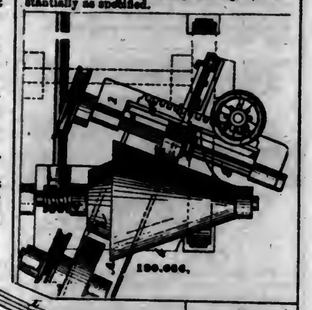
180,636. FEED-MOTIONS FOR SAW-MILLS. Paul Pryibil, New York, N. Y. [Filed June 23, 1876.]

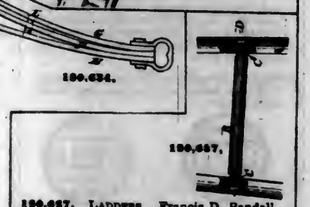
Brief.—The speed of the log-carriage is varied by means of an adjustable friction-wheel traveling in contact with a revolving cone.

1. The combination of the conical friction feeding-drum A and friction-wheel E with the main or counter driving-shaft S and the feed-shaft B, substantially as specified.

2. The combination of the conical friction feeding-drum A and friction-wheel E with the slotted or feathered shaft *g*, the sliding bar or rack M, or its equivalent, the main or counter driving-shaft S, and the feed-shaft B, essentially as described.

3. The combination of a reversely-conical friction feeding-drum, A, the reverse friction-wheels E J, and the sliding carriage I, substantially as specified.

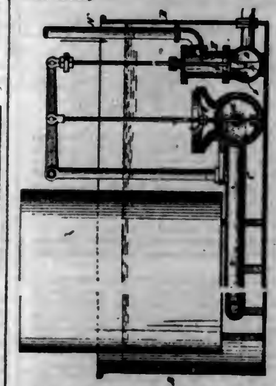




180,637. LADDERS. Francis D. Randall, Waupaca, Wis. [Filed May 2, 1876.]

The combination of the rounds B, having right and left screw-threads C formed at each end, and the side rails A, provided with similar screw-threaded sockets D, substantially as described

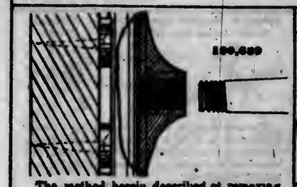
180,638. APPARATUS FOR AUTOMATICALLY REGULATING THE TEMPERATURE OF CAR-BURETERS. Henry R. Randall and Oscar F. Boomer, New York, N. Y. [Filed Apr. 19, 1876.]



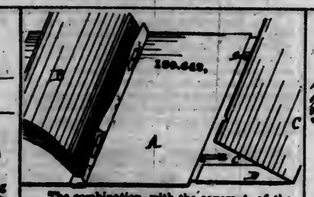
1. In combination with the carbureter and the water-tank surrounding the same, the thermostat C, consisting of a coiled tube and chamber, *d*, containing any suitable volatile substance, the said chamber being provided with a flexible diaphragm, *e*, which operates the valves for automatically admitting the water to the tank, and discharging the same therefrom by the expansion and contraction of the volatile substance, as set forth.

2. In combination with the water-tank B, in which the carbureter is located, a thermostat, C, connected with valves K, the valve-box D, and cylinders E F, with their induction and eduction apertures, and the pipe N, leading from the water-supply, substantially as described.

180,639. MODES OF REPLACING WORN-OUT FAUCETS ON WATER-PIPES. T. W. Ross, Philadelphia, Pa. [Filed Feb. 14, 1876.]



The method herein described of removing worn-out faucets from water-pipes and replacing them by new ones, consisting in sawing off the old faucet near the barrel end, tapping the remaining socket-piece, and screwing in the new faucet, substantially as and for the purpose set forth.



The combination, with the covers A of the removable book B, of thin paper and the folding pad C, faced with impression copying-paper, substantially as described.

180,640. MACHINES FOR STRAIGHTENING ROUND RODS AND TUBES. John B. Root, New York, N. Y. [Filed June 6, 1876.]

180,641. CELLS FOR CASTING. Alexander K. Rider, Walden, N. Y., assignor to Rider, Wooster & Co., same place. [Filed Apr. 11, 1876.]

Brief.—Casts more than one piece at once. Prevents formation of flaw by shouldered plates, and by inclined projections.

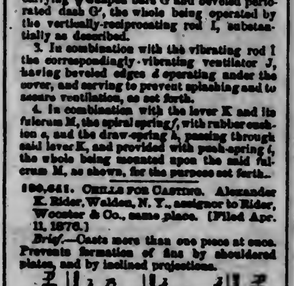


1. The interposed perforated plates B, in combination with a series of superposed chills, substantially as and for the purpose specified.

2. The chill A, having the lower portion of the hole *a* made tapering, as at *a'*, substantially as and for the purpose specified.

180,642. BOOKS AND COVERS. S. L. Robinson, Chicago, Ill. [Filed June 6, 1876.]

Brief.—A manifold writing-book consisting of a cover, to which is removably attached a book of tissue or manifold paper, said cover having attached to one edge a folding pad faced with impression-paper.

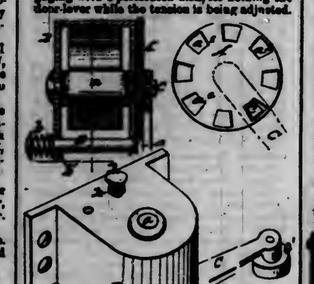


1. The oscillating dasher, consisting of the lever E, V-shaped bars G G, and beveled and perforated bar G', combined with and rocking upon the screw-axis D, located centrally over the stationary dasher B, as for the purpose set forth.

2. The combination of the stationary dash B, carrying the cross-bar C, with its screw D D and keys *a a*, and the rocking dasher E, carrying V-shaped bars G and beveled perforated dash G', the whole being operated by the vertically-reciprocating rod I, substantially as described.

3. In combination with the vibrating rod I the correspondingly-vibrating ventilator J, having beveled edges *d* operating under the cover, and serving to prevent splashing and to secure ventilation, as set forth.

4. In combination with the lever K and its fulcrum M, the spiral spring *f*, with rubber cushion *e*, and the draw-spring *h*, passing through said lever K, and provided with push-spring *i*, the whole being mounted upon the said fulcrum M, as shown, for the purpose set forth.



1. The concave rolls A hung in bearings *a*, adjustable angularly in a vertical plane, and combined with bearings D adjustable horizontally, and carrying the bearings *a*, whereby said rolls are adapted to operate upon tubes of different diameters, and with varying areas of surface contact therewith, all constructed substantially as shown and described.

2. The combination of the adjustable rolls A with their driving mechanism, constructed and arranged substantially as herein shown and described.

180,644. DOOR-SPRINGS. Charles T. Sabin, Montpelier, Vt. [Filed Mar. 25, 1876.]

Brief.—A spring-actuated detent or pin engaging with a perforated disk, for holding the door-lever while the tension is being adjusted.

The detent or pin D, provided with the retracting-spring *b*, in combination with the case B, disk A, having perforations, and lever C, substantially as and for the purpose set forth.

180,645. AUTOMATIC VEHICLE-BRAKES. J. H. Sale, Dillsborough, Ind. [Filed May 4, 1876.]

The combination of the slide-bars J J', connected to the shafts or tongue by slots K K' and pins L L', the centrally-hinged levers F F', the rubbers I I', arranged to slide on the curved plates H H' of levers F F', and the tugs O O, and hold-backs N N, to impart a positive motion to the brakes by the movement of the team in either direction, as set forth.





180,646. PARLOR-SKATES. C. W. Spindler, Washington, D. C. [Filed June 14, 1876.]

1. The combination, in a skate, of horizontally-swiveling rollers and a foot-piece, having an independent tilting movement above said rollers, substantially as and for the purpose set forth.

2. The combination, in a parlor-skate, of a tilting foot-piece, pivoted to fixed bearings P, an elastic medium arranged to limit the tilting motion, and devices for regulating the tension of said medium, substantially as set forth.

3. The combination of the tilting foot piece, pivoted to the roller-supports, the elastic material N, and screws S S, substantially as and for the purpose set forth.

4. The frame R, constructed as described, with a socket for the vertical stud Q at one end, and with its projecting horizontally in the opposite direction, having bearings at their ends for the detachable roller-axle, as set forth.

5. The roller consisting of the circular block H, bushing I, having shoulders *f f'*, and plates C C', confined to the block and to said shoulders by rivets, substantially as specified.

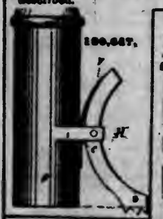
180,647. STAMP-CANCELLERS. C. W. Scheidee, Pittsburg, Pa. [Filed Feb. 6, 1874.]

Brief.—The stamp is canceled by the scarifying-tool simultaneously with the post-marking of the letter.

1. A post-office mailing-stamp, provided with the pivoted scarifying-tool or cutter C, substantially as and for the purpose set forth.

2. The combination, with a post-office mailing-stamp, of a scarifying device, D, carried at the side of the stamp B, and from which it has a movement when brought in contact with the postage-stamp to cancel it, as described.

3. The combination, with a post-office mailing-stamp, of a pivoted scarifying device, D, having a movement toward and from the stamp, and a spring, F, as and for the purpose described.

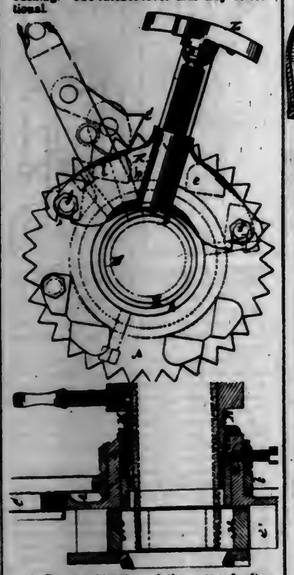


180,648. MACHINES FOR MAKING SPIKES. Geo. N. Sanders, New York, N. Y. [Filed Jan. 3, 1876.]

The combination of the rolls A B, carrying the preparatory dies *a b*, with the dies C D, shaped, as described, so as to compress and finish the spike, both body and point, and hold it while being headed, substantially as and for the purpose set forth.

190,649. COMBINED PIPE-CUTTERS AND SCREW-THREADERS. Celeston Stanford, Shrewsbury, assignee of one-half his right to J. W. Quincy, New York, N. Y. [Filed June 28, 1876.]

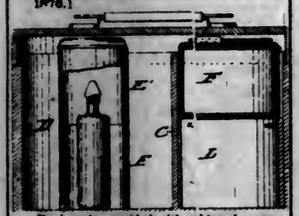
Brief.—The cutter adjusting screw has arms at its head, against which the ratchet-lever strikes, thus feeding the cutter and working the ratchet at one operation; or the cutter may be fed by hand. To obtain a firmer bite for a screw-threading die, a sleeve is employed, engaging by a screw-thread with a bush. This sleeve is clamped to the pipe by a set-screw, but may be released when a sufficient bite has been obtained, and then serves as a bushing. The ratchet-lever arm may be sectional.



1. The combination of the cutter-feeding screw K and its operating-wheel L with the rotating ratchet A and the vibrating lever D, with its attached pawl C, by which the ratchet and cutter are rotated and the cutter advanced, essentially as described.

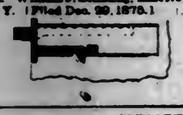
2. The leading nut or screw-sleeve H, in combination with the rotating ratchet A and screw die or disc M, carried by the latter, essentially as specified.

190,650. CUFF AND COLLAR BOXES. Ernest Schoel, New York, N. Y. [Filed May 1, 1876.]



The box A, provided with a hinged cover, a partition, C, a pillar, E, having a sliding cover, E', and a shoulder, e, to receive box F, all arranged substantially as and for the purpose specified.

190,651. ATTACHING LOCKS TO DRAWERS, &c. William J. Schilling, East New York, N. Y. [Filed Dec. 29, 1875.]



1. In combination with a lock-case of ordinary form, or provided with extension-wings, either plain or having serrated fins, the anchor G, arranged, applied, and operating as and for the purposes as herein shown and set forth.

2. The anchor G, provided with a slotted head, and with angular spur or foot projecting from its base, arranged, applied, and operating as and for the purposes as herein shown and set forth.

190,652. INKSTANDS. William J. Schilling, New York, N. Y. [Filed Apr. 1, 1876.]



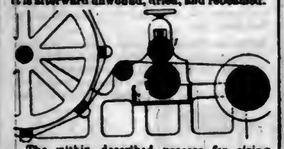
1. In a mucilage or ink stand, the combination of a base or stand provided with trunnions projecting on its interior, and an adjustable tilting liquid-vessel provided with a ratchet or serrations on its front or rear, arranged, applied, and operating as and for the purposes substantially as herein shown and described.

2. The combination of the recessed base or stand A, provided with trunnions *a a*, and liquid-vessel D, having angular recesses *d d* in its base and sides, and provided on its front or rear with serrations or ratchet-teeth *f*, arranged and operating substantially as and for the purposes as herein shown and set forth.

3. In combination with the recessed stand A and liquid-vessel D, having serrations or ratchet-teeth *f* on its front or rear, the adjusting-spring *g*, provided with a spur or catch, *h*, arranged and operating substantially as and for the purposes as herein shown and set forth.

190,653. SEIZING YARNS. Lodje Schonherr, Chemnitz, Germany, assignor to himself and J. O. Hundt, New York city. [Filed Apr. 21, 1876.]

Brief.—The warp being beamed directly from the sizing-roller, the size becomes uniformly diffused throughout the mass of yarn. It is afterward unwound, dried, and rebeamed.



The within-described process for sizing woolen or other warps by passing them, in the same width in which they have been shorn or beamed, over or through between sizing-rollers, and then winding the same while wet or moist, without changing their width, on a beam or drum, substantially as set forth.

190,654. PROCESSES OF PREPARING CEREAL GRAIN. Ferdinand Schumacher, Akron, Ohio. [Filed May 1, 1876.]

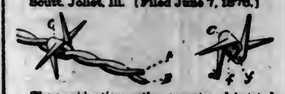
The process of preparing pearled wheat, barley, &c., for domestic use, the same consisting in kiln-drying the pearled grain, and, finally, crushing, cracking, or cutting the same, substantially as and for the purpose described.

190,655. CORN-PLANTING ATTACHMENTS FOR SOD-PLOWS. Sanford M. Scott, Stockbridge, Wis. [Filed May 22, 1876.]



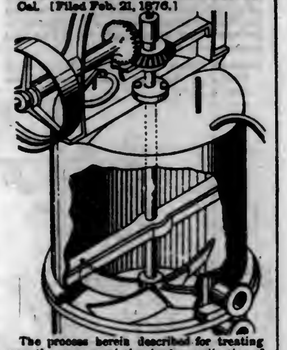
The combination, with a sod plow, of a corn-planter having a spout arranged to drop the seed at the edge of a furrow, as shown and described, whereby the corn is planted, covered, and allowed to come up through the crack between two furrow-slices.

190,656. BARBED FENCE-WIRE. Hiram B. Scutt, Joliet, Ill. [Filed June 7, 1876.]



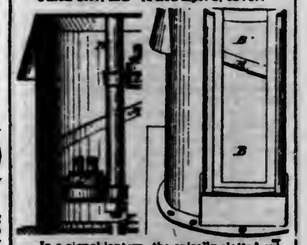
The combination, with a two-strand twisted fence-wire, A B, of a sheet-metal barb-plate, C, having side depressions *f f* for receiving the wires and securing the barb-points in the manner specified.

190,657. PROCESSES OF AMALGAMATING ORES. Charles F. Scott, San Francisco, Cal. [Filed Feb. 21, 1876.]



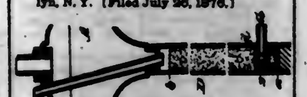
The process herein described for treating ores, the same consisting in the application of steam under pressure in a closed vessel for disintegrating ores, and to assist in their amalgamation, substantially as herein described.

190,658. SIGNAL-LANTERNS. J. M. Shank, Union City, Ind. [Filed Apr. 3, 1876.]



In a signal-lantern, the spirally-slotted cylinder, revolving by suitable means around its axis, in combination with the outer vertically-slotted fixed cylinder, all constructed and operating substantially as and for the purpose set forth.

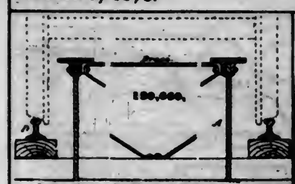
190,659. TORCHES. Ira W. Shaler, Brooklyn, N. Y. [Filed July 26, 1876.]



The combination of the lamp A with small tube C passing through the same, the handle-tube D having diaphragms *c b*, and the space between them filled with sawdust saturated with light hydrocarbon oil, the perforated tube *d*, and adjustable mouth-piece G, all constructed substantially as and for the purposes herein set forth.

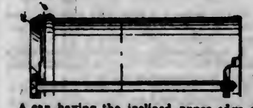
190,660. ELEVATED RAILWAYS. Samuel H. Shreve, Tom's River, N. J. [Filed Apr. 29, 1876.]

Brief.—The supporting-girders are placed near the wheels laterally, so as to prevent derailment, and their upper surfaces come near the axles vertically, so that in case of breakage of the wheels the train may be supported on the axles, and slide along the girders without any serious fall.



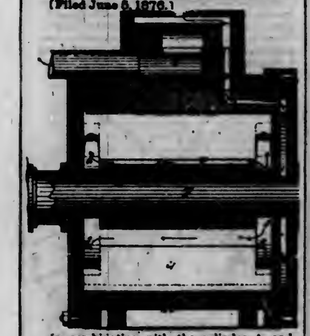
In an elevated railway, the arrangement described of the supporting-girders, laterally in respect to the wheels of the cars, and vertically in respect to the axles, so that in case the car leaves the track, or a wheel breaks, the axles will bear on the girders, as specified.

190,661. PACKAGES FOR PAINTS, &c. Geo. Sidey, Brooklyn, N. Y. [Filed June 6, 1876.]



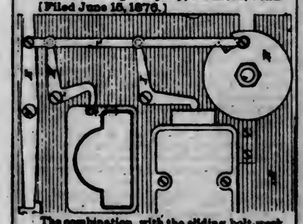
A can having the inclined upper edge of body bearing in the groove *a* of cover, and against the center of strip *b*, and a flat-headed screw working in a nut in the bottom of the can, to form a close joint, as shown and described.

190,662. ROTARY ENGINES. Mary Sillman, (administratrix of Wm. Sillman, Sr., deceased,) and Wm. Sillman, Brooklyn, N. Y. [Filed June 6, 1876.]



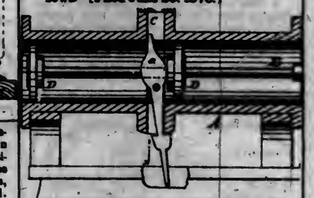
In combination with the cylinder A and piston-wheel E, the filling-piece O, provided with the passage *s* leading from the steam-chest, the disk K, adapted to be held against the end of the wheel E by the pressure of steam in chamber M, to form a steam-space within said wheel communicating with the recesses behind the sliding pistons of the same, substantially as described.

190,663. LOCKS FOR DOORS. John P. Sipp, Brooklyn, N. Y., assignor to the Yale Lock Manufacturing Company, Stamford, Conn. [Filed June 16, 1876.]



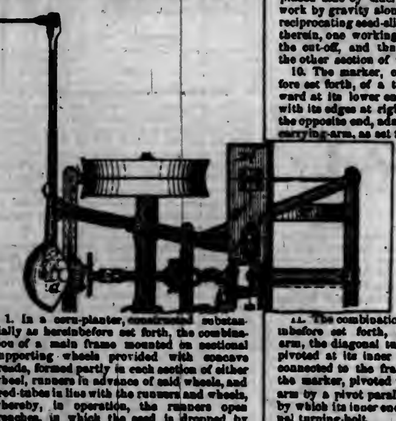
The combination, with the sliding bolt-work of a safe or vault door, of one or more locks, the oscillating stops E E pivoted to said door, and engaging with the bolt-work, and the ball-cranks F F, engaging at one end with the bolting devices of the locks, and suitably connected at the other end with said stops, whereby retractive pressure applied to the bolt-work is wholly resisted by the stops, and can in no way be transmitted to the lock or locks.

190,664. STEAM-ENGINES. Eli James Smith and Beniah Mason, Jr., North English, Iowa. [Filed June 20, 1876.]



The combination of cylinder A, having median partition C, the pivoted valve *a*, and the two pistons D D, on the same rod E, as and for the purpose specified.

190,665. CORN-PLANTERS. Jos. D. Smith, Rockford, Ill., assignor of one-half his right to Ralph Emerson and Wm. A. Talcott, same place. [Filed Mar. 10, 1876.]



1. In a corn-planter, constructed substantially as hereinbefore set forth, the combination of a main frame mounted on sectional supporting-wheels provided with concave treads, formed partly in each section of either wheel, runners in advance of said wheels, and seed-tubes in line with the runners and wheels, whereby, in operation, the runners open trenches, in which the seed is dropped by the tubes, and the trenches are closed, and the seed covered by the wheels bearing the weight of the main frames without liability of their becoming clogged, as set forth.

2. The combination, substantially as hereinbefore set forth, of the frame of the machine, its axle, its supporting-wheels, scrapers carried by the frame, and a lever for moving the axle and wheels backward and forward independently of the frame, to bring the wheels up to or away from the stationary scrapers.

3. The combination of the main frame, the supplementary runner-frame, the hinge centrally connecting the adjacent ends of said frames, and allowing the runner-frame to rock both longitudinally and laterally, the tongue rigidly secured to the supplementary frame, and extending rearwardly therefrom parallel with and beneath the pivot upon which the hinge rocks transversely, and the lifting-lever linked at its front end to the tongue-extension, and provided with a rest for the driver's feet at its rear end, these members being constructed and operating substantially as and for the purposes set forth.

4. The combination of the main frame, the runner-frame hinged thereto, and capable of rocking both longitudinally and laterally independently thereof, the lifting-lever, its link, connection with the runner-frame, the stop adjustable back and forth upon the lever, and the pawl acting directly upon the stop, and swinging over and parallel with the lever, these members being constructed and operating substantially as and for the purposes set forth.

5. The combination of the supplementary frame, its trench-opening runners, and the hooked threaded bolts and their nuts, for connecting the diagonal bars and front cross-bar of the frame, and securing the front ends of the runners thereto, as set forth, whereby a single bolt and nut unites the front end of a diagonal bar to the cross-bar, and secures the front of the runner in place.

6. The combination, substantially as herein before set forth, of the seed-slide plate, having a slot therein shouldered on one side, and terminating at one end in a narrow slot of half the width of the main portion of the slot, and the adjustable slide shaped to correspond with the slot in the seed-slide plate, fitting wholly therein within the hopper, and extending beneath the raised portion of the seed-slide plate outside the hopper, for the purpose specified.

7. A self-adjusting or gravity cut-off, constructed, substantially as hereinbefore set forth, with upwardly-turned rounded ends and a central opening, and adapted to rest directly upon the seed-slide, and be held down to its work simply by its own weight aided by the pressure of the grain.

8. The combination, substantially as herein before set forth, of a self-adjusting cut-off, having turned-up ends and a central opening, shoulders on the upper surface thereof, and a retaining-bar crossing the hopper and fitting between the shoulders, to limit the upward movement of the cut-off and prevent longitudinal displacement.

9. The combination, substantially as herein before set forth, of the self-adjusting cut-off, composed of independently-moving sections placed side by side, and held down to their work by gravity alone, their retainer, and the reciprocating seed-slide, having two seed-cells therein, one working beneath one section of the cut-off, and the other working beneath the other section of the cut-off, as set forth.

10. The marker, constructed, as herein before set forth, of a twisted plate turned outward at its lower end to form the point C', with its edges at right angles to the edges of the opposite end, adapted to be pivoted to the carrying-arm, as set forth.

11. The combination, substantially as herein before set forth, of the marker-carrying arm, the diagonal turning-bolt, to which it is pivoted at its inner end, and by which it is connected to the frame of the machine, and the marker, pivoted to the outer end of said arm by a pivot parallel, or nearly so, to that by which its inner end is jointed to the diagonal turning-bolt.

12. The combination of the swinging marker-arm, the diagonal double joint, by which it is connected to the frame of the machine, the bolding-hooks on the frame, the loop on the arm, and the cord extending from the arm to the driver's seat, substantially as set forth.

190,666. LUBRICATORS. Simeon Smith and Isaac S. Collins, Manch Chunk, Pa. [Filed May 27, 1876.]

Brief.—The oscillatory motion of the rod to be lubricated causes the movement of a pin in a tube immersed in the oil-chamber. Recesses in the pin, reaching intermittently the outlet-doors, discharge their contents received from the chamber.

A feeding device for lubricators, consisting of a horizontally-sliding pin or disk, having recesses, holes, or grooves, with a guide-sleeve or casing, having oil-supply holes, and with the feed-tube, substantially in the manner and for the purpose set forth.



190,667. TOOLS FOR SHAVING LEATHER. James Smith, Boston, assignor of one-half his right to Chas. C. Foster, Boston, Mass. [Filed May 26, 1876.]

1. In combination, the handle A, hinged arm B, two-edged knife *a*, and thumb-screw *f*, all substantially as and for the purpose set forth.

2. In combination, the handle A, hinged knife *a*, gage *b*, and spring *c*, all arranged and operating substantially as described.

180,669. WINCHES. Elias Sorrinson, West De Pere, Wis. [Filed May 29, 1876.]

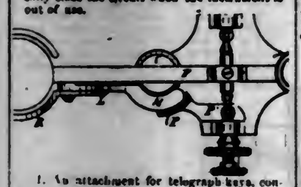


1. The combination of windlass A, having crank shaft B, with pinion D', the barrel C, and the pawiess f, all arranged substantially as shown and described.

2. The two rubber rolls E E, one connecting with gear of barrel C, and the other attached adjustably to support F, substantially as and for the purpose specified.

180,669. SELF-CLOSING TELEGRAPH-KEYS. Geo. Southard, Indianapolis, Ind. [Filed Jan. 3, 1876.]

Brief.—Adapted to be attached to the ordinary form of telegraph-key, and automatically close the circuit when the instrument is out of use.



1. An attachment for telegraph keys, consisting of a lever having an insulated end, R, and beveled end N, adapted to be hung to the lever of the instrument, and the plate P', having a projection, P, and adapted to be secured to the base of the instrument, as and for the purpose described.

2. The combination of the lever F, lever R L N, hung to the side of the lever F, and plate P', having a projection, P, and secured to the base-plate, as set forth.

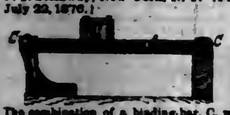
180,670. HARNESS-SADDLES. R. Spencer, Brooklyn, N. Y. [Filed Jan. 10, 1876.]



1. The combination, with the tree-plate, of an under-bearing or pad of wood made wider than the tree-plate, for attaching the flap and jockey to the margins of the face or outside portions of the pad, as shown and described.

2. The harness saddle tree, formed of the parts A B stench up from sheet metal, in one piece, and having a transverse ridge or depression, c, at the junction of the wings with the central portion, as shown and described.

180,671. PIANO SOUND-BOARDS. Christian F. T. Steinway, New York, N. Y. [Filed July 22, 1876.]



The combination of a bleeding-bar, C, with the oblique edge of the sounding-board of a piano-forte, substantially in the manner and for the purpose herein shown and described.

180,672. APPARATUS FOR CUTTING AND ORNAMENTING SHOE-UPPERS. H. B. Stimpson, Brooklyn, N. Y. [Filed June 20, 1876.]

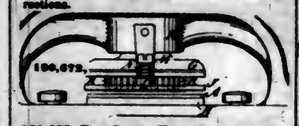
Brief.—By means of reciprocating cutting-dies and punches, the stock is cut and ornamented at the same time.

1. The steel die-plate A, in combination with and attached to a similarly-perforated iron supporting-plate, H, substantially as specified.

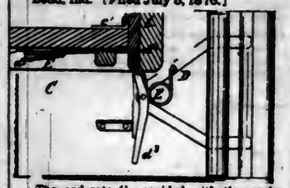
2. The stripper J, suspended from the press-head K by springs, and arranged to work up and down on guides, in combination with punches O R, bed-die A, and the punch-head G, substantially as specified.

3. The marking-plate O, attached to the stripper-plate J, in combination with punch-head G, and bed-die A, substantially as specified.

4. The punches O, having a concave face and projecting points, *a*, substantially as described, for shearing the goods in opposite directions.



180,673. END-GATES. Henry Swintz, South Bend, Ind. [Filed July 5, 1876.]



The end-gate C, provided with the angle-irons *c c'*, arranged, respectively, on the outer and inner sides and at opposite ends thereof, and having the sliding bolt D, with its lever *d'*, and the actuating-spring E, secured to the outer side of, and on the end on which is the inner angle-iron *c'*, all arranged so that the angle-irons and sliding bolt will engage with the recesses in the cleats and side-board B, and automatically lock the gate in the wagon-box, substantially as set forth.

180,674. FOG-SIGNALS. George Swenson, Sherbrooke, Quebec, assignor of two-thirds his right to H. R. Sewell, Province of Quebec, Canada. [Filed May 15, 1876.]

Brief.—A winding mechanism so constructed as to operate intermittently a piston in an air-chamber, to which a trumpet or whistle is attached.



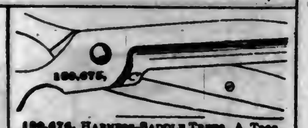
1. In fog-alarms, an air-cylinder, S, having a piston, O, and piston-rod N, operated by winding mechanism, giving a fast and a slow motion to the piston, for intermittently sounding a trumpet or whistle connected to the cylinder, as set forth.

2. The combination, with a winding-drum and wheels, of the friction-wheel G, having an irregular eccentrical periphery, and laterally a cam-groove, I, the arm J, rock-shaft K, lever M, piston-rod N, and piston O, operating in an air-chamber, S, for sounding a trumpet or whistle attached thereto automatically and at intervals, the whole operating as set forth.

180,675. SHEARS AND SCISSORS. George H. Taylor, New York, N. Y. [Filed May 8, 1876.]

Brief.—A curved shoulder or extension is formed at the rear end of the cutting-edge of the blades of the scissors, to adapt them for use in ripping.

Shears or scissors having the cutting-edges of their blades provided with the curved extensions C, to form a ripping-cutter, as shown and described.



180,676. HARNESS-SADDLE TREES. A. Tees, Newark, N. J. [Filed May 31, 1876.]



1. The flange *a*, constructed with the hood *b* to constitute a combined flange and nut-box, to operate substantially as set forth.

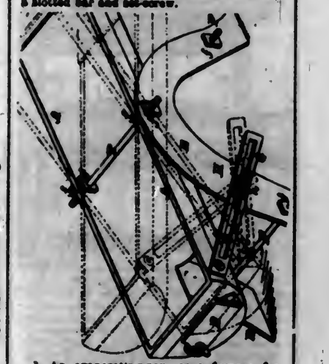
2. In combination with the combined flange and nut-box, a block piece, *c c c*, substantially as and for the purpose set forth.

3. The combined flange and nut-box *a b*, in combination with the pivoted piece *c*, substantially as and for the purposes set forth.

4. The seat A, provided with grooved projection W, in combination with the cantle-back B, provided with projection *e*, substantially as and for the purposes set forth.

180,677. PORTABLE FURNACES FOR EVAPORATORS. William M. Towers and John M. Bowie, Rome, Ga. [Filed June 14, 1876.]

Brief.—The pan or furnace is pivoted at its longitudinal center, at its upper edges, to allow it to be readily tilted in either direction. Either end of the pan may be raised or lowered, and secured in any desired position by a slotted bar and set-screw.



1. An evaporating-pan, or a furnace for supporting the same, suspended at its longitudinal center and upper side upon a pivotal bearing, and capable of being oscillated thereon, substantially as and for the purpose specified.

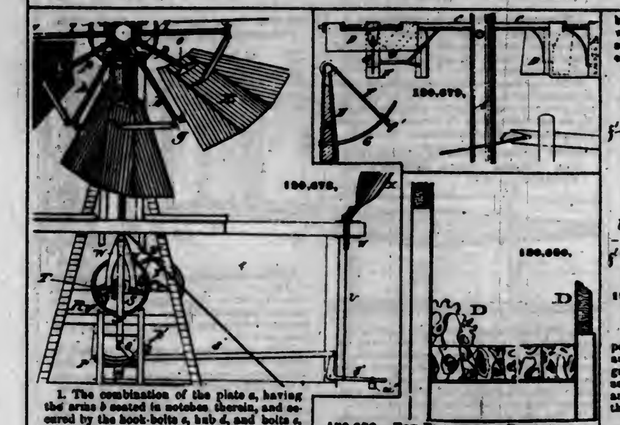
2. In combination with the pan A, the arched bars F and E, rods B, and nuts *f*, substantially as and for the purpose shown.

3. In combination with the centrally-pivoted pan A, the bar G, provided with a longitudinal slot, *g*, and pivoted at one end to or upon said pan, and the set-screw H, passing through said slot, and engaging with the frame-bar E, substantially as and for the purpose set forth.

4. The pan A, frame-bars E, rods F, nuts *f*, slotted bars G *g*, and set-screws H, all constructed and combined in the manner and for the purpose substantially as shown and described.

180,678. WIND-WHEELS. Henry M. Underwood, Kenosha, Wis., assignor of one-half his right to Enoch Van Wie, same place. [Filed Apr. 4, 1876.]

Brief.—This invention consists in improvements in reactive wind-wheels, and a peculiar arrangement of devices for transmitting motion from the crank to a rotary shaft below, and in a novel combination of devices whereby the stroke of the pump-rod, driven by the wheel, is automatically lengthened and shortened, according to the speed of the wheel.



1. The combination of the plate *a*, having the arms *b* seated in notches therein, and secured by the hook-bolts *c*, hub *d*, and bolts *e*, as shown.

2. In combination with the shaft B, provided with the pin *f*, the plate *a*, notched to receive the ends of the pin, and the hub or collar *d*, holding the pin in place, as shown and described.

3. The mills E, each consisting of the bars *i* and *k*, rods *l*, and the wooden sheet or surface applied thereto, as shown.

4. A wind-wheel sail, E, twisted or curled from its inner to its outer end, as described and shown, so as to have an increasing divergence from the wind toward its outer end.

5. The collar F, consisting of the front plate or ring, provided with cams, and the segmental plates *s*, secured thereto, in combination with the sliding block H, provided with the grooved neck or journal, as shown.

6. In combination with the wind-wheel shaft B, the hollow sliding block H, mounted thereon, as shown, and serving both as a lubricator for the shaft and as a connection between the self-controlling arms and the counter-weight.

7. In combination with the sliding block H, as and for the purpose described, the lever G, encircling the shaft B, and provided with two links, *t*, connected to opposite sides of the block, as shown.

8. In combination with the sliding block H, the yoke or stirrup *w*, and the link *x'*, connected to a fixed support, as shown, whereby the block is prevented from rotating.

9. The crank, consisting of the blocks *x* and *x'*, wrist-pin *x''*, and yoke bolt *y'*, as shown.

10. In combination with the shaft B, block *x'*, and wrist-pin *x''*, the pin *y'*, as and for the purpose shown.

11. The pitman L, consisting of the parallel rods having the blocks *h'* and *i'* applied to their ends, and secured in the manner shown.

12. In combination with the pitman L, having its lower head constructed as shown, the tube M, having a spherical head connected to the pitman, as shown.

13. The combination of the tube M, rod N, block O, and pin *m*, with the bolts K', as shown.

14. The tare-post C, having a grooved neck, in combination with the bearing K, consisting of the two parts inserted in grooves in the frame, so as to encircle said neck and enter the groove therein, as shown and described.

15. A wind-wheel provided with a crank, I, and pitman L, in combination with a vertically-reciprocating rod, N, links W, arms T, pawls U, and wheel S, as shown and described.

16. The combination of the reciprocating rod N, rod X, yoke *y'*, and link *x'*, with the weighted lever *v* and vane or sail *z'*, said parts being connected and arranged to operate substantially as shown and described.

180,679. WIND-WHEELS. A. M. Vanpelt, Capioma, Kans. [Filed June 12, 1876.]

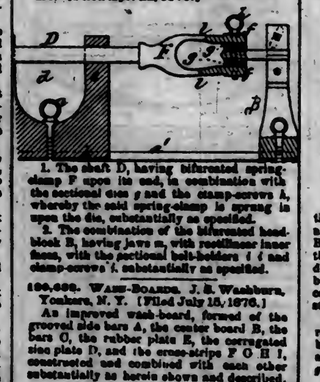
Brief.—A combination of suspended weights, adjustable bars, and the curved screw-rods and tiller bars, with the radial arms and the fans of a wind-wheel.

The combination of the suspended weights R, the adjustable bars F, and the curved screw-rods U, and their nuts *g'*, with the radial arms C and the fans D of a wind-wheel, substantially as herein shown and described.

180,680. TOY FURNITURE. Frank Voigt, Philadelphia, Pa., assignor to himself, H. N. Green, and Edgar K. Fidler, same place. [Filed June 9, 1876.]

As a new article of manufacture, toy furniture constructed wholly or in part of cut shells, substantially as and for the purpose set forth.

180,681. MACHINES FOR CUTTING THREADS ON BOLTS. Alonzo Ward, Brunswick, Me. [Filed Apr. 22, 1876.]

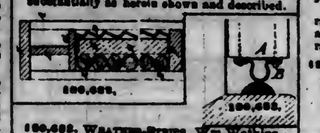


1. The shaft D, having bifurcated spring-clamp F upon its end, in combination with the eccentric cam *g* and the stamp-screw *h*, whereby the said spring-clamp is sprung in upon the die, substantially as specified.

2. The combination of the bifurcated head-block E, having jaws *m*, with rectilinear inner faces, with the sectional bolt-holders *i i* and clamp-screws *l*, substantially as specified.

180,682. WASH-BOARDS. J. S. Washburn, Yonkers, N. Y. [Filed July 15, 1876.]

An improved wash-board, formed of the grooved side bars A, the center board B, the bars C, the rubber plate E, the corrugated zinc plate D, and the cross-stripe F G H I, constructed and combined with each other substantially as herein shown and described.



180,683. WEATHER-STRIPS. Wm. Watkins, West Joplin, Mo. [Filed Feb. 21, 1876.]

An improved weather-strip, formed of the metallic plate A, having its edges bent over upon themselves to form grooves to receive the edges of the strip B, of flexible material, said strip B being made wider than the said plate A, to give its middle part a semi-tubular or U form, substantially as herein shown and described.

180,684. HARROWS. Wm. S. Weir, Monmouth, Ill. [Filed May 24, 1876.]

Brief.—The connecting-rod is bent so as to form a loop, the ends of which pass transversely through the harrow-beams, and are secured by nuts, the same being looped in vertical loops on the center section.

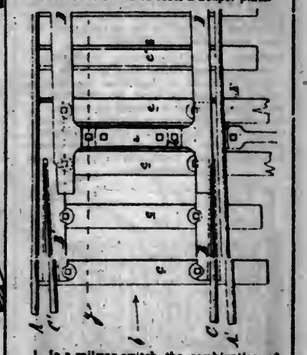
1. The bar F', having central part F'' and end parts *f f* extending across the harrow-section, combined with the sections A A' A'' and eye-hooks D, substantially as and for the purpose specified.

2. The vertically-arranged eye-hooks D, having small openings *e*, arranged to operate with flat rods F'' and sections A A' A'', substantially as described, and for the purpose specified.



180,685. RAILROAD-SWITCHES. Charles H. White, Detroit, Mich. [Filed Jan. 26, 1876.]

Brief.—A railroad-switch having stationary point-rails, which are inserted in a frog-plate, and movable guard rails having inclined and grooved free ends, which are notched to lie using against the point-rails. The guard rails are secured to the shifting rod by lugs, over the inner ends of which rests a keeper plate.

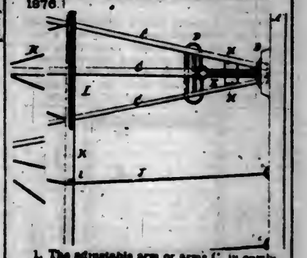


1. In a railway-switch the combination of the stationary rails A A', the latter forming a part of the siding, the stationary frog-bolts B B', having the tapered dovetail grooves *d*, the stationary frog points C C', having the dovetail flanges *e* embedded in the said frog-beds, and the movable guide-rails D D, all constructed, arranged, and operating substantially as described and shown.

2. The combination of the movable guide-rails D D, fitted to the sides of the frog-points, having their free ends sloped to a flat point, and provided with the flanges *f* and grooves *g*, substantially as described and shown.

3. The combination, with the movable guide-rails D D and switch-rod E, of the plate A, and keeper-plate *i*, all constructed and arranged substantially as described and shown.

180,686. CLOTHES-DRIERS. A. S. Whittemore, Willimantic, Conn. [Filed May 20, 1876.]



1. The adjustable arm or arms C, in combination with the socket B and hook F, substantially as and for the purpose herein described.

2. The taps or wedges H, in combination with the arms C and socket B, arranged as herein shown and described.

3. The combination, with the arms C and board A, of one or more cords, J, and hooks i, as shown and described, for the purpose specified.

4. The spreader K, provided with the yoke M, teeth or projections l, and support L, adapted to be used in connection with the clothes-rack, constructed as described, or to be suspended independently of said rack, substantially as and for the purpose set forth.

190,667. LAMP-EXTINGUISHERS. Wallace W White, Au Sable Forks, N. Y., assignor of one-half his right to Henry D. Graves, same place. [Filed Mar. 8, 1876.]



1. The combination of the burner a, sliding tube d, weight e, and spring f, substantially as shown and described.

2. The combination of the burner a, tube c, sliding tube d, weight e, spring f, projections c, and lever g, whereby the flame can be extinguished by hand or by tipping over the lamp, substantially as specified.

190,668. SOAP-RENDERERS. D. Whitaker, Boston, Mass. [Filed June 21, 1876.]

Brief.—Scraps of soap from the frames, which are partially dried, are rendered by steam heat, applied in a vessel by coils and as free steam. By these means the soap scraps are moistened and melted without scorching or other injury. The object is to run the soap-scrap into a mass, which may be cut into bars.



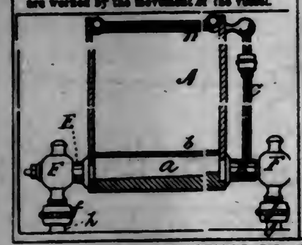
1. A vessel for melting soap, having an open bottom and an internal support, which retains the soap when in a solid form, but allows it to pass through when melted, substantially as described.

2. The combination, with the containing-vessel, provided with heating apparatus, and having an open bottom, of a perforated diaphragm, substantially as and for the purpose described.

3. The combination, with the case A and the open diaphragm F, of the steam heating-coils D D', substantially as and for the purpose described.

190,669. URINALS. Jos. M. Wilson, Philadelphia, Pa., assignor of one-half his right to W. P. Ogelsby, same place. [Filed Apr. 22, 1876.]

Brief.—A vessel having tubular journals and fixed feed and waste cocks, with a perforated bottom, connected with waste, and having a wash-pipe provided with a slot running around the top of vessel, is folded up against the wall when not in use. The cocks are worked by the movement of the vessel.



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1. The combination of a vibrating vessel, A, having tubular journals E B, with perforations e and the stationary feed and waste cocks F, the former having duct d, substantially as specified.

2. The combination, with the stationary cock F, journal-induct B, and the pipe C, opening into the said induct, of the vibratory vessel A, having rising-pipe D around its upper edge, substantially as specified.

190,696. CONSTRUCTION OF SAILING-VESSELS. Thomas Winans, Baltimore, Md. [Filed July 17, 1876.]

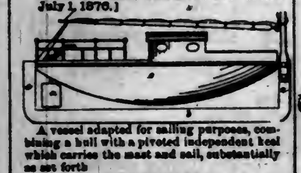


1. The combination, with the hull of a sailing-vessel, of an independent keel hung on the hull, or on bearings formed thereon, at two or more points intermediate between the ends of the same, so as to be capable of lateral vibration independently of said hull, substantially as and for the purposes set forth.

2. The combination of the hull, the independent keel proper, the vertical connecting-bars, and the annular straps, or their specified equivalents, encircling the body of the hull, or bearings thereon, substantially as set forth.

3. An independent keel, carrying the masts and sails, capable of lateral vibration independently of the hull, and vertically adjustable nearer to or farther from the hull, substantially as and for the purposes set forth.

190,697. CONSTRUCTION OF SAIL-BOATS, &c. Thomas Winans, Baltimore, Md. [Filed July 1, 1876.]



A vessel adapted for sailing purposes, combining a hull with a pivoted independent keel which carries the mast and sail, substantially as set forth

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190,698. COMPOSITION BEVERAGE. Wm. A. Winder and Melville M. Shearer, San Diego, Cal. [Filed May 9, 1876.]

A composition beverage, consisting of the following ingredients, viz: tincture or fluid extract orange-peel, tincture or fluid extract cardamom-seed, tincture or fluid extract damiana, whisky or proof spirits, and water, substantially as described.

190,699. IMPLEMENTS FOR REMOVING CARTRIDGE-PRIMERS. H. Goodrich Wolcott, Fishkill-on-the-Hudson, N. Y. [Filed July 19, 1876.]



1. In an implement for removing primers from cartridge-shells, the combination of a central yielding or depressible guide-pin and an eccentric ejecting-pin, for joint operation, substantially as set forth.

2. The combination of the guide-standard, the yielding or depressible central guide-pin, and the eccentric ejector-pin, the combination being and acting as set forth.

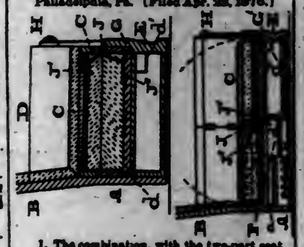
3. The removable central depressible guide-pin, in combination with the contracted supporting-standard, substantially as set forth.

4. The combination, with the guide-standard, of a removable sleeve or sleeves, by which the diameter of the standard may be varied to conform to the caliber of the cartridge-shell operated on.

5. An implement for removing primers from cartridge-shells, in which the standard or stud around which the shell fits is provided with an eccentric ejector-pin, and with removable and interchangeable center-pins, which are depressible or not, according as they act as guides or as ejectors, substantially as set forth

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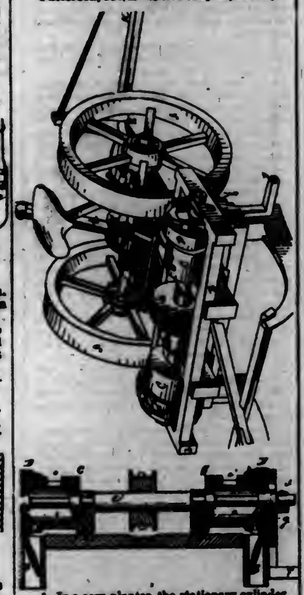
190,694. SOFA-BEDSTEADS. Henry York, Philadelphia, Pa. [Filed Apr. 28, 1876.]



1. The combination, with the two-part seat C of a convertible sofa, of the hinges J, formed with angular or bent butts J' J'', which are secured within the frames of the two parts, substantially in the manner and for the purpose set forth.

2. The sofa-frame A, having a fixed back, B, and an extensible seat, C, in combination with the extension-frame E and slides F, connected to each other and to the frame A by tongue-and-groove joints, and with the supporting-slide G between the frame E and seat C, substantially as and for the purpose set forth.

190,695. CORN-PLANTERS. R. H. Sellers, Patterson, Iowa. [Filed May 31, 1876.]



1. In a corn-planter, the stationary cylinder C, provided with the openings c' c'' and cap D, in combination with the cylinder d and valve B, substantially as and for the purpose set forth.

2. The cap D, provided with the cam-groove d'', in combination with the valve B, substantially as described.

3. The cap D, provided with the oval cam-groove g, in combination with the plunger F, substantially as and for the purpose set forth.

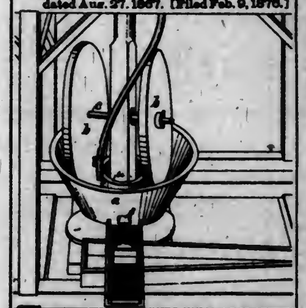
4. The cylinders C and d, cap D, shaft e, and wheel G, in combination with the endless chain G' and wheel G'', substantially as and for the purpose set forth.

5. The wheel G'', having an elongated hub, h, provided with a shoulder, i', in combination with the conical bearing i, lever H, spring j, endless chain G', and cylinder C, substantially as and for the purpose set forth.

6. The marker K, constructed as described, in combination with the cords m n, latches M, shaft N, and lever p, substantially as and for the purpose set forth.

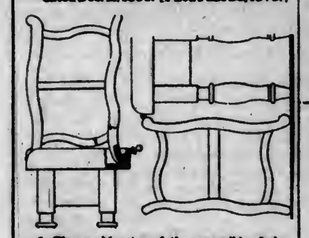
REISSUES.

7,945. MACHINES FOR CRUSHING AND WASHING SAND. John B. Smith, Connellsville, Pa., assignor to himself, W. H. Donaldson, and Christn. Snyder. Patent No. 66,240, dated Aug. 27, 1867. [Filed Feb. 9, 1876.]



The pan a, having a normally-open discharge, b, at the lower edge of the side wall, in combination with the shaft c and rollers d d, and the means for admitting a stream of water into the pan, to flow around with the rollers, and escape continuously at the open outlet, carrying the ground sand with it, substantially as and for the purposes set forth.

7,946. NURSERY-CHAIRS. John Kopp, Bridgeport, Conn., assignor, by mesne assignments, to Thompson, Perley & Waite, Baldwinsville, Mass. Patent No. 60,269, dated Dec. 11, 1866. [Filed June 26, 1876.]



1. The combination of the reversible chair with the table, whereby the chair may be used either as a high or low chair, substantially as herein set forth.

2. A child's chair combined with and secured to a table or stand by means of hinged joints, whereby the same may be used either as a high or low chair, substantially as described.

7,947. HYDRAULIC JACKS. Philip Hinkle, San Francisco, Cal. Patent No. 104,900, dated June 8, 1870. [Filed Apr. 15, 1876.]

Brief.—On the drum-shaft are two pulleys of different diameters, the rope to be wound on the larger or smaller, according to the weight of the load. On the descent of the carriage the escape-water operates an injector, which raises a part of it to a tank. The carriage opens the doors at the landings.

1. The pulleys F and G, of different sizes, secured side by side upon the same shaft, the pulley F having a lip, m, in combination with the shipping mechanism, by which the rope can be run upon either one of the pulleys, substantially as and for the purpose set forth.

2. The lever J, having its fulcrum upon an arm of the pulley F, and attached to the pin I, together with the lever K and central pin L, for operating the lever J and shifting the rope H from one pulley to the other, substantially as herein described.

3. The combination of the said main valve and regulating-valve, a lever for operating the same, and devices whereby the connections of the lever with the said valves may be adjusted, and the relative positions of the valves altered, all substantially as specified.

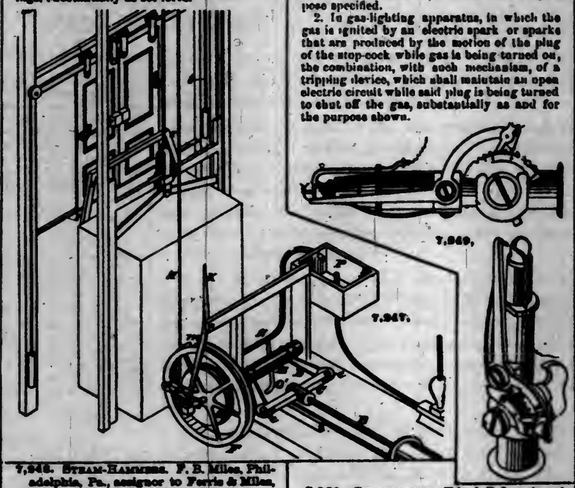
4. The combination of the valves, the treadle or lever T, for operating the same, and the stops t t.

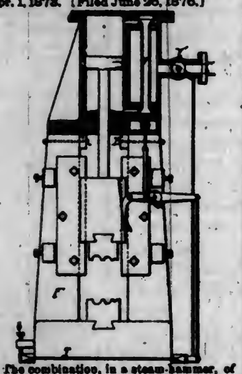
5. The device consisting of the inclined planes or arms r r, secured to the cage, and the pulleys or rollers s s' upon the sliding doors, together with the cords t, and the weight or springs for opening and closing the doors as the cage arrives opposite to them, and departs, substantially as herein described.

6. The roller c, mounted upon a vibrating shaft, and the arm W, and ball-catch lever e, so constructed as to operate as a latch, which is operated by the arm r, substantially as herein described.

7. A means for operating the doors at the different landings, the same consisting of a mechanism attached to the cage, whereby the doors are, by a positive motion from the cage, opened as the cage approaches the landings, substantially as set forth.

7,948. STEAM-HAMMERS. F. B. Miles, Philadelphia, Pa., assignor to Ferris & Miles, same place. Patent No. 137,813, dated Apr. 1, 1873. [Filed June 26, 1876.]





1. The combination, in a steam-hammer, of a main valve and regulating or shut-off valve, with devices by which the within-described simultaneous and co-operative action of the two valves is insured, all substantially as set forth.

2. The combination, in a steam-hammer, of a main valve, V, and a regulating or shut-off valve, V', with a lever or treadle, T, connected to both valves, for the simultaneous operation of the same, substantially as herein set forth.

3. The combination of the said main valve and regulating-valve, a lever for operating the same, and devices whereby the connections of the lever with the said valves may be adjusted, and the relative positions of the valves altered, all substantially as specified.

4. The combination of the valves, the treadle or lever T, for operating the same, and the stops t t.

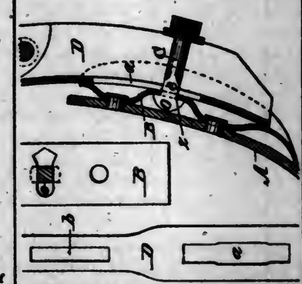
7,949. APPARATUS FOR LIGHTING GAS BY ELECTRICITY. Adolph T. Smith, New York, N. Y., assignor to A. L. Bogart. Patent No. 146,963, dated Jan. 27, 1874. [Filed May 19, 1876.]

1. In a gas-lighting apparatus, containing a fixed and a pivoted arm, which are insulated from each other, and by being brought into and removed from contact, close and open an electric circuit and produce an electric spark, the combination of said pivoted arm and the plug of the cock by mechanism which will cause the former to vibrate upon its pivotal bearing, and to impinge upon said fixed arm whenever said plug is turned so as to permit the escape of gas, said vibrations corresponding in number to that of the teeth operating said arm, substantially as and for the purpose specified.

2. In gas-lighting apparatus, in which the gas is ignited by an electric spark or sparks that are produced by the motion of the plug of the stop-cock while gas is being turned on, the combination, with such mechanism, of a tripping device, which shall maintain an open electric circuit while said plug is being turned to shut off the gas, substantially as and for the purpose shown.

7,950. CULTIVATORS. Edwd. P. Lynch and B. A. Wright, Davenport, Iowa. Patent No. 175,721, dated Apr. 4, 1876. [Filed June 26, 1876.]

Brief.—Slot in shank to prevent wedging in of earth. Square bolt with T-head. Transverse slot in shovel-block, with enlargement for removing bolt.



1. The shank D, having a slot, b, formed therein opposite the front of the beam, substantially as and for the purpose set forth.

2. The shank D, provided with the slot a, in combination with the shovel A, having the block B, provided with the transverse slot a and the T-headed bolt C, all constructed to operate substantially as described.

3. The block B, secured to the shovel A, and provided with the slot a, of a width corresponding to the square shank of the T-headed bolt C, and having an enlargement at one end, in which said bolt can be turned, substantially as and for the purpose set forth.

4. In combination with the block B, having the slot x, the bolt C, provided with T-shaped head c and the square shank a, said parts being constructed to operate substantially as set forth.

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UNITED STATES PATENT ASSOCIATION.

A meeting of this Society will be held at the Hall of the Franklin Institute, in the city of Philadelphia, on Thursday, September 7, at 11 o'clock, A. M.

The special questions for consideration at that time will be the improvement of our own patent system, and the formation of an international association having reference to a greater uniformity among the patent systems of the world.

Inventors, owners of patents, manufacturers of patented articles, and all who are interested in the subject, are invited to be present and co-operate in this movement.

Visitors from abroad are specially invited to take part in the proceedings.

COMMISSIONER'S DECISIONS.

J. C. GOULD.—*Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of John C. Gould, for letters patent filed May 22, 1876, for* "IMPROVEMENTS IN NAIL-PLATE FEEDERS."—*Decided July 20, 1876.*]

The statement of invention should in all cases be made to correspond in subject-matter with the claims.

Ambiguous and equivocal language should in no case be permitted in an application. The statute expressly provides that the specification shall contain a full, clear, concise, and exact description of the invention, and it is the duty of the Examiners to see that this provision of the statute has been complied with.

If there is doubt as to the propriety of using a particular term, to indicate a part, operation, or condition which is susceptible of being expressed in clearer and less objectionable language, the latter should be employed.

[*Wm. Kemble Hall*, attorney.]

DOOLITTLE, *Acting Commissioner:*

The Primary Examiner requires certain amendments to the specification before considering the case upon its merits, which amendments the attorney refuses to make, denying that they are necessary.

The first objection is to the statement of invention, which it is said "consists in the several parts shown in the drawings." The objection that this is "manifestly erroneous as most of the devices there shown are in common use," is a denial of the novelty of the inventions thus specified, and has relation to the merits, and is not an interlocutory matter.

There is, however, another objection which it is proper for me to consider, and which does not seem to have been made before, which is that the statement of invention does not agree with the claims presented, but is far broader and more comprehensive, tending to obscure the exact limits of the invention and render them indefinite.

The second objection is as to the correctness of certain statements relative to the operation of the feed.

From the very fact that the terms employed are susceptible of two interpretations it is apparent that they are objectionable.

Without going into a discussion of the differences, I will simply state that to my mind the description is ambiguous. It is one of the most important duties of an Examiner to insist upon a strict compliance with the provisions of the statute, that the specification shall contain a full, clear, concise, and exact description of the invention, and where the meaning of certain terms is obscure or ambiguous, the applicant should be required to amend so as to remove that objection.

If there is doubt as to the propriety of using a particular term to indicate a part, operation, or condition which is susceptible of being expressed in clearer and less objectionable language, the latter should be employed.

In this case the attorney has demonstrated in his argument that the operation of the device can be more clearly described than it is in the specification, and as it cannot possibly operate to his disadvantage to have the invention set forth in the most unequivocal terms he will be required to amend the specification in those parts pointed out by the Examiner.

As to the additional drawing and description of the nipping or fork device required by the Examiner, I do not see the necessity for it, no claim being made thereto; and, as the Examiner admits, its construction and operation would be understood by those skilled in the art. This, under the circumstances, is all that the law requires.

The Examiner's action is affirmed as to the first two objections, and reversed as to the third.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

GEORGE C. ROBERTS, APPELLANT, *vs.* WILLIAM F. DYER.

[*Appeal from the Circuit Court of the United States for the Southern District of New York.—No. 21.—October Term, 1875.*]

It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not.

The mere carrying forward, or new or more extended application of the original thought, a change only in forms, proportions, or degree, doing substantially the same thing in the same way, by substantially the same means, with better results, is not such an invention as will sustain a patent.

Mr. Chief Justice WAITE delivered the opinion of the court:

In order that we may proceed intelligently in our inquiries as to the validity of the patent presented for our consideration in this case, it is important to ascertain at the outset what it is that has been patented.

Looking to the original patent issued November 13, 1855, we find the invention is there described as consisting—

Of an improvement in refrigerators, whereby the whole of the contained air is kept in continual rotation, purification, desiccation, and refrigeration, and with economy of ice.

And that the inventor claimed and obtained a patent for—

The arrangement set forth for causing the perpetual rotation of the whole of the air contained within the refrigerating apartments, said arrangement consisting, when the refrigerator is closed, of an endless passage or chamber, the walls, shelves, and ice-receptacle of which are so placed and constructed that the air is compelled to circulate through the entire apartment or apartments, and from which the water of the melting ice is discharged immediately from the refrigerator instead of flowing between its walls.

Mention is nowhere made in the specifications attached to this patent of any advantage which the descending current of air has over the ascending. The whole apparent object of the inventor was to produce a circulation of the confined air without the introduction of external air. The drawings exhibit shelves perforated so as to permit the passage of the air in its downward and upward progress, but the shelves seem only to be alluded to in the specifications for the purpose of indicating the necessity of their perforation, or of some equivalent arrangement, so as to allow the free transit of the air. They appear as part of the refrigerator to be improved, and are in no respect necessary for the accomplishment of the object the inventor had in view. Being in the refrigerator, they are perforated or otherwise so arranged as to permit the circulation which the inventor is attempting by his device to create. But for this they would prevent, or at least interfere with, the accomplishment of his object. The shelves themselves form no part of his improvement, but their perforation, or its equivalent, when they are used, does.

In the reissued patent the invention is described precisely the same as in the old, and then the following is added:

It is well known that mold will not generate in a current of air, and it is known that when once formed it propagates itself and spreads with rapidity; therefore, if any one part of the refrigerator be out of the direct course of the circulation the air will stagnate there and will develop mold, which will contaminate the whole apartment. The apartment D may vary in width, and it may be * * * so narrow as to serve merely as a passage for the ascending current of air, the greatest benefit being always derived from the downward current in apartment C.

This last paragraph certainly has much the appearance of an expansion of the original invention.

The claim, however, as made in the reissue, is materially changed from that in the old. It is capable of division into three parts, and may be stated as follows:

1. The employment of an open-bottom ice-box, or its equivalent, in combination with a dividing partition, open above and below, so placed that by means of self-operating internal circulation the whole of the contained air shall be kept in motion and caused to revolve around the partition in currents, moving downward only on one side of this partition and upward only on the other side, when the same is combined with a chamber for the refrigeration of food, &c., placed directly under the ice-box.

2. Placing shelves or fixtures for holding articles to be refrigerated, or the articles themselves, in the descending current directly under an open-bottom ice-box, in combination with a dividing partition open above and below.

3. The construction of the open-bottom ice-box, in combination with the shelves or fixtures in such manner that the air may pass freely down through the same and fall directly from the ice upon the articles to be refrigerated, while at the same time the drip of the water is prevented.

The patent is, therefore, for a combination of three elements, to wit: 1. An open-bottom ice-box, or its equivalent, so constructed that the air may pass freely down through it, while at the same time the drip of the water from the melting ice is prevented by collecting the water and taking it in an escape-pipe outside of the refrigerator. 2. A dividing partition open above and below, separating the refrigerator into two apartments; and 3, a chamber directly under the open-bottom ice-box, in which articles to be refrigerated may be placed in such manner as to receive the descending current of air from the ice-box directly upon them.

There is no doubt of the utility of this combination. If the patentee was its original and first inventor the device was patentable to him.

It will be observed that no particular form of the opening in the bottom of the ice-box is essential. In fact an equivalent may be used. It is so expressly stated. Any device which will allow of the passage of the cooled air out from among the ice, or cooling surfaces, into the chamber below will come within the specifications. Hence the bottom may be in the form of a grate, or it may be constructed of bars running longitudinally only, or it may have one or many open spaces of any form. In this respect all is left to the judgment of the builder. He may adopt any arrangement which he considers the best suited to the accomplishment of the object to be attained, which is the cooling of the air by the ice and its discharge into the chamber below. Neither is there any special requirement as to the manner in which the water from the melted ice is to be collected and conducted outside the refrigerator. It is said in the specifications that the bottom of the ice-box was made funnel-shaped, but this was so that the water might be conducted to the central discharge and from thence fall into the escape-pipe. This particular shape, however, is not made an essential ingredient. Any device that will collect the water in the discharge-pipe and prevent the drip will meet this requirement of the invention. So, too, of the escape-pipe. It may be of any desirable form. As little space as possible should be occupied, so that it may not obstruct the downward passage of the air, but even this is left as a matter of judgment alone.

Neither is any particular form of partition made essential. It need not even be vertical. All that is required is that it shall be open at the top and bottom and divide the refrigerator into two apartments. There are no specifications as to the size of the openings or their form, or as to the comparative size or form of the two apartments. It is said that the apartment for the ascending current may be so narrow that it will serve only as a passage for the air; but there is nothing to prevent that for the descending current being narrow also, if the purposes of the refrigerator are such as to make that desirable. As the greatest benefit is generally to be derived from the use of the descending current, it is probable that this chamber will ordinarily be made as large as is consistent with a steady and continuous flow of the air; but if a rapid descent is considered essential for any of the purposes of refrigeration, there is nothing to prevent a suitable contrivance for that purpose. If that can be accomplished by a larger chamber above leading into a smaller one below for the purpose of concentrating the cold air current as it descends, a proper structure may be employed. If in any place the air descending from the ice-box can strike directly upon the articles to be refrigerated, the structure will be within the limits of the patent. It may be desirable to preserve the temperature at a lower degree until it strikes the article than it would be if permitted to remain in a chamber extending the whole size of the ice-box to the bottom of the refrigerator. In such case a proper contrivance for that purpose may be employed. Shelves or other fixtures for holding the articles to be refrigerated are not necessary, as the articles themselves may be placed in the descending current without the aid of any fixtures. But if they were, their particular form is not specified. A nail driven into the wall of the chamber would be a fixture within the meaning of this call of the specifications. All the specifications do require is that, if shelves or fixtures are used, they shall be so constructed or placed as to interfere as little as possible with the free passage of the air.

Such being the patent, we now proceed to consider the defense, which is, that the invention patented had been anticipated by Asel S. Lyman and others. Sandford, the patentee, does not carry his invention back of the summer of 1855, when, it perhaps sufficiently appears, his application was filed.

On the 21st of September, 1854, Lyman filed his application for a patent for "a new and improved mode of cooling, drying, and disinfecting air for ventilators and refrigerators." His improvement in refrigerators consisted—

In so arranging them that as fast as the air became warm and moist, and impure by contact with the meat, it is drawn off and passed through the material, where it is cooled, dried, and disinfected, and then returned to use again in the refrigerator, collecting moisture and impurities, which it deposits in the receptacle intended for that purpose, thus keeping up a full circulation and thoroughly ventilating the refrigerator with dry, pure, cold air.

His device consisted of a receptacle for ice, with a grate for its bottom, on which the ice rested. This receptacle was placed in the upper part of the refrigerator and on one side. Below it was a cold-air chamber into which the air flowed from the ice through the grate. The water from the melting ice was collected in this chamber and conducted by a pipe to the outside of the refrigerator. From the cold-air chamber was a conduit leading downward, but which did not extend to the bottom of the refrigerator. At the top of the ice-receptacle, and on its side, was an opening into the refrigerator.

The operation Lyman described to be as follows:

The receptacle being filled with fragments of ice the air among this ice will be cooled, and becoming more dense will settle down through the grate into the cold-air chamber; thence down the conduit, and so long as the air in the ice is colder and heavier than that in the refrigerator it will continue to fall down the conduit, mingling with the lower strata and forcing the upper strata or warmest air through the opening into the ice-receptacle. When the air comes in contact with the cold surfaces of the ice its capacity for moisture is lessened and the moisture is deposited on the ice. By this arrangement of the ice-receptacle in the upper part of the refrigerator, with an opening for receiving air in its upper part, and a grate in the lower part on which the ice rests, a cold-air chamber below the grate, and a descending conduit from this cold-air chamber, or with an arrangement of parts substantially the same, so that the air shall be caused to circulate rapidly from bottom to top in the refrigerating-chamber, and from top to bottom in the separate combinations as described, the air is not only cooled, but it is, by being frequently passed through the interstices of the ice, thoroughly dried, and it is washed as by a hail storm, a decided improvement in its smell is effected, and the apparatus becomes not only cooling and drying, but to some extent a disinfecting apparatus.

He then claimed as his invention—

The combination of the reservoir of cooling, drying, and disinfecting material with the descending tube or conduit, so that the cold and condensed air in this conduit shall, on account of its increased weight, cause the warmer air to pass more rapidly through the material where it is cooled, dried, and disinfected, and in its turn fall down the conduit, being by its sides kept separate from the other air until it mingles with the lower strata, substantially as described for the purposes aforesaid.

There was, therefore, in this invention of Lyman, the open-bottom ice-box, and the partition open above and below, dividing the refrigerator into two apartments, in one of which the air passed downward only, and in the other upward only. This constituted all there was of the "endless passage or chamber" in the original Sandford patent, "so constructed that the air is compelled to circulate through the entire apartment or apartments." True, the partition was not vertical, and the apartments need not be of equal, or of any particular proportionate size. Neither was this necessary, as has been seen in the Sandford patent. Each, however called for the circulation of air, and each obtained it substantially by the same device. They each passed the air cooled in the ice-box, through convenient openings, downward in one apartment and upward through the other. In each device the cooled air passed through the opening in the bottom of the partition, and the warmed air through that in the top. All this was done in both cases for the purpose of cooling, desiccating, and purifying the confined air, and to prepare it for the purposes of refrigeration. There was, therefore, one common object to be accomplished by both the inventors, and they each devised substantially the same plan for that purpose.

Undoubtedly, Lyman expected to use the ascending air principally for the purposes of refrigeration, and he, therefore, supposed the greatest benefit would be derived from that current, but there was nothing in his specifications to prevent the use of the descending air, or from so constructing his refrigerator as to make that available. If it should be thought advisable to extend the size of the chamber for the descending air, there was nothing to prevent it. It would still operate as a conduit in which the cold air would fall down and be kept separate by the sides from the other air until it mingled with the lower strata.

It being then certain that Lyman contrived a machine which would produce the desired circulation, and could be used for refrigeration in the ascending current, it remains only to consider whether, if one desired to make use of the descending current for the same purpose, he could claim such use as a new invention.

It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to

the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not.

Lyman had the descending current. True, he concentrated the air as it fell, and sent it downward through a space smaller than that which would be contained in a chamber extending the full size of the bottom of the ice-box to the bottom of the refrigerator, but he did have a space large enough to expose in it some articles to the effect of that current. If it should be found desirable to utilize that current to a greater extent than was at first contemplated, all that need be done is to enlarge the conduit. If the circulation is kept up, the device will be within the specifications. In fact, the proof is abundant, that in his experiments while perfecting his invention, Lyman did, in more cases than one, utilize the descending current. With both the inventors the circulation, by means of an ascending and descending current, was the principal object to be obtained. One considered the greatest benefit for the purposes of refrigeration was to be derived from the use of the descending current, while the other had his attention directed more particularly to the advantages of the ascending. They each had both and could utilize both. It is no invention, therefore, to make use of one rather than the other.

Lyman had conceived the idea of his invention as early as August 19, 1852, for he then filed his caveat in the Patent Office. His ideas were at that time undoubtedly crude, but it is clear that he kept steadily at his work. He built many refrigerators upon his general plan, and in some, at least, the descending current was made use of. A part had shelves arranged in such a manner as to expose the articles in that current, and in some the articles were placed on the bottom of the refrigerator immediately under the outlet of the conduit. In some the conduit was large, and in others it was small. The size was made in all cases to depend upon the judgment of the builder, and the purposes to which the machine, when completed, was to be applied.

As has been seen, Lyman, after having, as he thought, perfected his invention, applied for his patent, September 21, 1854. Technical objections were made, and on the 19th April, 1854, he withdrew the application. He, however, still kept up his correspondence with the department, vigorously pushing his claim. On the 28th November, 1855, only thirteen days after the grant of the patent to Sandford, he filed a new application, and in doing so distinctly connected it with the first. There certainly is no material difference between the old and the new. On the 25th March, 1856, a patent was in due form issued to him.

Down to this time it is impossible to discover any material difference between the two patented inventions. Clearly Lyman was the oldest inventor, and his patent was consequently the best, although that of Sandford antedated his. His last application was rejected December 5, because it had been anticipated by Sandford, but afterward the subject was reconsidered and a patent issued to him.

After this grant of a patent to Lyman, Sandford surrendered his original patent, and obtained his reissue upon the amended specifications and claim. These have already been stated. All that can possibly be claimed for this amendment is a combination of the use of the descending current with the device for the circulation. There was no change in the machine. It was only put to a new use. If there was any change of construction suggested, it was only to increase its capacity for usefulness. It was "a mere carrying forward or new or more extended application of the original thought; a change only in form, proportions, or degree, doing substantially the same thing in the same way, by substantially the same means, with better results." This is not such an invention as will sustain a patent. We so decided no longer ago than the last term, in *Smith* vs. *Nichols*, (21 Wall., 112.) Clearly, we think, therefore, the invention of Sandford was anticipated by Lyman, and his patent is, on that account, void.

We have been cited to the case of *Roberts* vs. *Harnden*, (2 Cliff. 500,) decided by Mr. Justice Clifford, upon the circuit, as an authority against the view we have taken. In that case the same construction substantially was given to the patent that we give to it here. We place our decision upon the facts shown to us. We think the evidence establishes, beyond all question, that Lyman, and not Sandford, was the original and first inventor of all there is of this improvement. In that case the court said, "that the respondent had not introduced any satisfactory evidence tending to show that the patentee (Sandford) is not the original and first inventor of the improvement." What was submitted to that court, we do not know. The report of the case does not contain the evidence, or any intimation of what it was.

Upon the evidence submitted to us, we think a clear case is made in favor of the defendants, and that the bill was properly dismissed.

The decree of the circuit court is affirmed.

GEORGE C. ROBERTS *vs.* JOSEPH BUCK, Jr.

[*Appeal from the Circuit Court of the United States for the District of Massachusetts.—No.* 46.]

The decree of the circuit court in this case is affirmed for the reasons stated in the opinion just read. The questions presented in the two cases are substantially the same.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 8, 1876.]

9,433.—Font of Printing-Types.—JAMES M. CONNER, Greenville, N. J. Application filed May 22, 1876. Term of patent 7 years.

9,434.—Bracelets.—IGNATIUS RICE, New York, N. Y. Application filed July 20, 1876. Term of patent 3½ years.

9,435.—Ash-Boxes.—ANDREW SCHMITT, Williamsburg, N. Y. Application filed July 3, 1876. Term of patent 3½ years.

9,436.—Finger-Ring.—ALBERT V. MOORE, Hackensack, N. J. Application filed April 10, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 8, 1876.]

3,908.—Champagne Wine.—KUNKELMANN & Co., Rheims, France. Application filed July 21, 1876.
"words and letters 'H. PIPER & Co.'"

3,909.—Liniment.—PATTERSON & POTTS, Brooklyn, N. Y. Application filed June 29, 1876.
"words 'EAGLE LINIMENT,' the eagle, and the combination of letters and symbol 'P. & P.'"

3,910.—Spool Cotton and Thread.—SAMUEL SEMPLE & SONS, Mount Holly, N. J. Application filed July 24, 1876.
"the representation of an anchor."

3,911.—Overalls, Drawers, Pantaloons, Blouses, and Overshirts.—GEORGE R. EAGER, Boston, Mass. Application filed July 12, 1876.
"words 'THE IRON CLADS.'"

3,912.—Spool-Cotton.—GEORGE F. FOSTER, Brooklyn, N. Y. Application filed July 22, 1876.
"the initial letters 'U. S.'"

3,913.—Overalls.—RODMOND GIBBONS, San Francisco, Cal. Application filed June 24, 1876.
"the word-symbol 'CHAMPION.'"

3,914.—Particular Kind of Pocket.—RODMOND GIBBONS, San Francisco, Cal. Application filed June 24, 1876.
"the word-symbol 'CHAMPION.'"

3,915.—Pocket and Crotch Stay.—RODMOND GIBBONS, San Francisco, Cal. Application filed June 24, 1876.
"the word-symbol 'CHAMPION.'"

3,916.—Gilling and other Thread.—WILLIAM E. HOOPER & SONS, Baltimore, Md. Application filed July 13, 1876.
"figure of the hand and scales, with the words 'Woodberry Gilling, True Number.'"

3,917.—Axes.—GEORGE T. LANE and ALFRED DE F. GALE, Troy, N. Y. Application filed July 25, 1876.
"words 'HURD's' and 'RAZOR BLADE.'"

3,918.—Medicinal Pads or Girdles.—NOE & FORBES, Cincinnati, Ohio. Application filed July 15, 1876.
"the figure of a shield."

3,919.—Remedy for the Piles.—ANTONIO PELLETIER, Washington, D. C. Application filed July 19, 1876.
"the monogram or compound letters 'A. P.' within a circular border."

3,920.—Writing-Paper.—MARCUS WARD & Co., London, England, and Belfast, Ireland. Application filed July 13, 1876.
"the British coat of arms and the words 'Royal Irish Linen Paper.'"

3,921.—Writing-Paper.—MARCUS WARD & Co., London, England, and Belfast, Ireland. Application filed July 13, 1876.
"the words 'Pure Irish Linen,' and the shamrock with the letters M. W. & Co., printed thereon."

3,922.—Writing-Paper.—MARCUS WARD & Co., London, England, and Belfast, Ireland. Application filed July 13, 1876.
"the words 'ROYAL IRISH LINEN.'"

3,923.—Lager-Beer.—WILLIAMSBURGH BREWING COMPANY, (limited,) Brooklyn, E. D., N. Y. Application filed July 1, 1876.
"a red ball upon a black ground, the lower part of which ball is partly shaded."

3,924.—Candy.—PHILIP WUNDERLE, Philadelphia, Pa. Application filed July 1, 1876.
"vignettes of the candidates for President and Vice President of the United States, as shown."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 8, 1876.]

810.—Title: "**Bradwell's Portable Lemonade, (Concentrated.)**"—J. CLARKE BRADWELL, Boston, Mass. Application filed July 29, 1876.

811.—Title: "**Beach's Improved Buffalo Sticky Fly Paper.**"—ELIAS W. BEACH, Buffalo, N. Y. Application filed July 28, 1876.

812.—Title: "**The Queen's Imperial Toilet-Bath.**"—THOMAS P. THORPE, New York, N. Y. Application filed August 2, 1876.

INDEX OF INVENTIONS PATENTED AUGUST 8, 1876.

	Class No.	No. of Patent.
Acid, apparatus for manufacture of hydrated sulphurous, W. Maynard	35	180,901
Aerometer, C. Godfrey	101	180,760
Air compressing machine, J. Sturgeon	12	180,958
Animals, weaning bit for, Ingersoll and Fisher	144	180,885
Anvil vise, J. Bolt	100	180,834
Auger, earth, C. D. Pierce	51	180,787
Auger, earth, W. Poole	51	180,990
Bag holder, E. G. Bates	57	180,826
Bale tie, W. S. Davis, (reissue)	7	7,252
Bale tie, D. C. Lowber	7	180,897
Bale tie lock, D. Olmsted	7	180,910
Bale tying attachment for baling presses, S. D. Purdy	7	180,786
Ball and socket support, H. Howson	87	180,881
Bank guard protector, V. E. Campbell	24	180,843
Barrels, machine for making, T. M. Healey	40	180,815
Bed bottom, spring, J. R. Newman	62	180,909
Bedstead, extension, R. Rigi	62	180,927
Bedstead, invalid, F. E. Sawyer	62	180,935
Bedstead, sofa, J. A. Bigger	62	180,899
Bending machine, P. A. Whitney	136	180,810
Beveling circular plates, machine for, Pedder and Abel	119	180,915
Binder, temporary, F. Guichetteau	15	180,871
Binder, temporary, E. M. Phillips	15	180,727
Bit stock, W. F. Curtis	29	180,850
Blooms and puddlers' balls, machine for compressing, W. Sellers	85	180,798
Boat coupling, automatic ferry, T. D. and G. E. Husband	137	180,883
Boats, &c., Propelling, N. P. Ingalls	139	180,884
Boiler, flue and tubular, A. J. Stevens	148	180,956
Boiler, steam, Galloway and Holt	148	180,863
Boilers, feed water heater for steam, M. W. Haselton	148	180,876
Boot and shoe sole channeling machine, S. Henshall	16	180,714
Boot and shoe upper, J. Mohan	16	180,779
Boots and shoes, instep supporter for, R. Ames	16	180,819
Boots and shoes, machinery for forming counter stiffeners for, W. C. Wise	16	180,978
Boring machine, P. H. Wilms	29	180,976
Bottle washer, W. Scherenberg	1	180,937
Brick machine, Seymour and Davis	20	180,941
Brush and mop handle, S. J. Mather	22	180,794
Brush and mop handle, combined, S. J. Mather	22	180,723
Brush holding rubber stopple, F. A. Reichardt	1	180,936
Building block, F. Schaffer	4	180,794
Burner, lamp, H. A. Chapin	90	180,753
Car axle lubricator, W. H. Wright	123	180,980
Car brake, S. G. Smith	122	180,802
Car coupling, J. Raddin	122	180,728
Car door, grain, R. Brydon	121	180,699
Car seat, J. Bryant	121	180,751
Car starter, E. Salomon	123	180,732
Car ventilator and dust deflector, A. B. Childs	106	180,844
Car wheel, W. McConway	122	180,725
Cars, engine frame for tramway, W. D. Scott-Moncrieff	94	180,906
Cartridge, H. C. Bull	32	180,840
Cartridge machines, dial feed for, G. E. Bradley	32	180,746
Casting, mold and core for, H. and F. Tank	33	180,807
Cattle, food for, J. Spratt	50	180,953
Chain, drive, E. M. Morgan	67	180,907
Chain swivels, clamp for the manufacture of, V. Draper	86	180,835
Chandelier, drop light, Thaekara and Blaisse	64	180,961
Cheese cutter, H. S. Jones	88	180,888
Churn dasher, M. L. Traver	45	180,963
Churn power, S. Weaver	45	180,737
Clay retorts, carriage for, W. D. Cliff	115	180,845
Clocks, lock work attachment for, Marcy and Klesam	36	180,899
Cloth finishing machine, C. S. Davis	37	180,785
Clothes stick, D. B. Pond	91	180,919
Coal, machinery for mining, P. Sheldon	124	180,799
Coal screen, P. Shannon	170	180,943
Collars and neck ties, sample card for, A. Hellenberg	54	180,879
Corn drill, D. R. Groves	133	180,870
Corpse cooler, C. A. Breta	39	180,835
Corset spring, T. M. Hass	80	180,763
Cotton duck, &c., preservation of, W. Lewis	35	180,722
Cotton gin saw, C. F. Scattergood	41	180,793
Cracker machine, G. W. Baker	6	180,697
Cracker machine, R. Darling	6	180,851
Cradles and chairs, rocker and track for, D. Rupp	62	180,933
Curry comb, C. B. Bristol	144	180,749
Cutlery, handle for table, A. Gottschalk	44	180,711
Doors, mechanism for operating sliding, W. F. Dillaby	30	180,706
Doors, water fender for, E. L. Valentine	30	180,967
Draft regulator and spark arrester, D. Allard	94	180,696
Drill chuck, rock, Roe and Tallman	194	180,730
Duster, wool, E. C. Patterson	22	180,913
Ear ring, L. P. Jeanne	96	180,887
Earth boring machine, S. R. Owen	51	180,913
Eaves trough hanger, Abbott and Trissler	126	180,817
Egg box, A. H. Bryant, (reissue)	116	7,257
Elevator bucket, G. Whittaker	79	180,809
Elevator, rotary water, J. C. and A. P. Garretson	118	180,864
Engines, stuffing box for steam, C. T. Sleeper	151	180,948
Envelope, Magruder and Walsh	146	180,773
Eyeglass, H. Fowler	157	180,708
Faucet S. Kraushaar	167	180,891
Faucet, J. O. Waddell	167	180,968
Feather renovator, W. R. Laughead	48	180,893
Feed cutter and grinder, H. G. Frits	59	180,802
Fifth wheel, E. J. Lucey	31	180,772
Filter, H. K. Cruit	167	180,848
Fire arm, breech loading, A. Spellerberg	18	180,803
Fire extinguisher, A. A. Murphy	118	180,782
Fire extinguisher, A. A. Murphy	118	180,783
Fire proof building, M. A. Burnham	4	180,752
Fork, fodder, W. M. Scotten	77	180,940
Furnace for blanks, J. W. Bonta	60	180,696
Furnace for generating steam, D. N. Melvin, (reissue)	149	7,258
Furnace for generating steam, D. N. Melvin, (reissue)	149	7,259
Furnace, hot air, O. N. Hart, (reissue)	154	7,254
Furnace, laundry, G. W. Robertson	91	180,791
Furnace, roasting ore, H. H. Eames	99	180,856

	Class No.	No. of Patent.
Furnaces, composition for lining puddling and other, M. E. P. Audouin	85	180,823
Gas generating apparatus, L. N. Stanley	66	180 955
Gas generator, carbonic acid, O. Zwietnsch	1	180,982
Gas globe with prisms, F. S. Shirley	90	180,800
Gas lighting apparatus, electric, A. L. Bogart	64	180,833
Gas lighting attachment, electric, A. L. Bogart	64	180,832
Gas trap, sewer, J. M. Falk	8	180,859
Gate, farm, D. C. Bacon	52	180,823
Gate, farm, W. W. Gift	52	180,866
Glass furnace, W. Pountney	68	180,923
Glassware, manufacture of, L. Wagner	68	180,970
Grain drill, J. D. Jones, (reissue)	133	7,255
Grain grits, machine for making, F. Schumacher	57	180,797
Grain, machine for drying, A. W. Roper	46	180,931
Grave cover, G. W. Arnold	54	180,821
Hammock stand, Richardson and Fuller	62	180,729
Harvester, E. H. Gammon	74	180,739
Harvester, H. L. Strock	74	180,805
Hat binding, Starr and Whiting	76	180 954
Hay loader, J. L. Mathews	77	180,900
Heater, feed water, W. Wickersham	148	180,813
Heater for steam boilers, feed water, M. W. Hazelton	148	180,876
Heater, soldering iron, J. H. Whiting	136	180,811
Hogs, apparatus for moving and cooling, P. L. Groot	25	180,712
Hoof parer, C. Rogers	60	180 731
Horse detacher, A. M. Barker	31	180,825
Horse power, R. W. Benedict	159	180,828
Horseshoe, G. Smith	60	180 950
Hose coupling, W. A. Caswell, (reissue)	81	7,251
Hose nozzle, fire, J. V. Reed	81	180,790
Houses, portable, West and Smalley	30	180,975
Hydrant, C. H. Moore	167	180,780
Hydrant, fire, J. Birkinbine	167	180 830
Jewelry, articles of, Hayward and Carpenter	96	180,764
Knitting machines, latch needle for, J. Pepper	99	180,795
Ladder, W. Small, Jr	30	180,733
Ladder, fireman's, J. A. Groshon	30	180,761
Ladle, &c., C. P. Housum	154	180,766
Lamp extinguisher, M. Wagner, (reissue)	90	7,256
Latch, gate, C. S. Currie	93	180,754
Latch, mortise, A. H. Leach	93	180,894
Lath machine, E. H. Hancock	29	180,872
Leather, manufacturing, J. A. J. Shults	98	180,947
Life preserving cap and cape, combined, McCarthy and Wilbur	138	180,903
Lock, combination, N. Friedman	93	180,758
Lock, door, M. C. Hawkins	93	180 874
Lock, seal, S. J. Tucker	93	180,965
Locomotive draft pipe, T. Diffenbaugh	94	180,853
Loom harness, J. G. Weeks	95	180,808
Lubricator, J. W. Reed	87	180,925
Map rack, G. E. Mann	146	180,898
Marble polishing machine, K. J. Ensminger	153	180,707
Mat, wood, S. Lewis	56	180,771
Molding flask, J. J. Lebeau	33	180,791
Mosquito bar, M. J. Waldron	62	180,974
Mosquito bar canopy frame and support, B. Schapker	62	180 732
Motor, E. Popple	67	180,786
Mower, lawn, R. Hughes	75	180,768
Music stand, J. E. Schonacker	62	180,795
Music stand, J. E. Schonacker	62	180,796
Nail plate feeder, W. H. Rittenhouse	103	180,928
Nut lock, A. J. Potter	14	180,922
Oleaginous seeds, machine for crushing, A. B. Lawther	96	180,770
Padlock, M. C. Hawkins	93	180,875
Pail and lantern, dinner, D. T. Platt	65	180,918
Paper folding machine, R. M. Hoe	117	180,880
Paper pulp, machine for making pails from, E. Hubbard	109	180,892
Peg float, J. and R. Popham	16	180,921
Pen and pencil case, J. Holland	146	180,715
Pencil, adding, M. M. Smith	49	180,949
Photographic apparatus, J. B. David	111	180,704
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Photographic camera stand, M. Striegel	111	180,806
Piano action, upright, Gibson and Fuller	112	180,865
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Pipe coupling, G. C. Morgan	167	180,781
Piston, J. Wood, Jr	151	180,979
Plane, bench, J. Gorham	29	180,867
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Plow, W. N. Ball	114	180,742
Plow, H. Gale, (reissue)	114	7,253
Plow, reversible, J. Hartmann	114	180,713
Plows, furrow gage for, Nourse and Howe	114	180,726
Pocket book fastening, E. Schnepp	146	180,938
Potato masher, A. Huffer	88	180,787
Press, cotton, L. Lewis	7	180,896
Press, cotton and hay, Z. S. Freeman	7	180,861
Presses, bale tying attachment for baling, S. D. Purdy	7	180,788
Printing, autographic, T. A. Edison	146	180 857
Printing presses, cutting cylinder for, S. D. Tucker	117	180,966
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Pump, W. S. and E., Blunt, Jr	118	180,831
Pump, Mayer and Wirts	118	180,774
Pump, ship's, Eells and Loud	118	180,757
Pump, steam, Cepe, Maxwell, and Paddock	118	180,701
Punching machines, feed device for, L. Prahar	119	180,924
Quilting frame, F. McKenna	39	180,905
Radiator, Curtis and Thompson	147	180,755
Radiator, steam, J. K. Abbott	147	180,816
Radiator, steam, Crane and Abbott	147	180,703
Railway rail joint, Waddell and Finger	120	180,969
Railway switch, J. C. Middleton	120	180,777
Railway switch, F. C. Weir	120	180,974
Railway track broom, M. C. Isaacs	122	180,717
Rivet, M. Bray	14	180,747
Rivet, M. Bray	14	180,748
Rolling sucker rod joints, L. Rogers	125	180,930
Safe, provision, G. McIntyre	66	180,904
Salt, apparatus for manufacturing solar, T. R. Timby	129	180,962
Sash fastener, J. S. Heacock	94	180,877
Sash fastener, F. J. Hoyt	94	180,716
Sash fastener, T. Thorn	94	180,950
Saw set, C. Holmes	131	180,878
Sawing machine, A. McCreight	130	180 902
Scarf pin, A. Komp	88	180,890
Scholar's companion, J. S. Smith	146	180 901
School furniture, Babee and Haendel	62	180 824
Screw threading device, Green and Thomson	171	180,869
Seed drills, fertilizer distributer attachment for, L. W. Shepard	133	180,945
Separator, cranberry, E. Busby	63	180 838
Separator, grain, J. M. Williams	159	180,738
Sewer excavator, D. Keating	51	180,716
Sewer gas trap, J. M. Falk	8	180 859
Sewing books, H. R. Heyl	15	180,765
Sewing machine button hole attachment, E. S. Spaulding	134	180,952
Sheet metal elbow, A. Syverson	136	180,736
Ships' rigging, fair leader for, J. Sampson	138	180,934
Shoe, J. E. Beasley	16	180,741
Silks, &c., apparatus for boiling and dyeing, L. Leigh	11	180,895
Silver ore, treating, F. Dibben	85	180,756
Skirt protector, G. Schwab	38	180,939
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Spirometer, W. H. Burt	156	180,842
Steam, apparatus for condensing, W. Walker	148	180 973
Stitch machine, imitation, E. Brown	92	180,836
Stone sawing machine, J. Pepler	153	180,916
Stove, coal oil, N. H. Sherbarne	65	180,946
Stove pipe thimble and register, combined, C. Pettit	154	180,917
Suspenders, F. C. Wright	38	180,981
Suspenders, button strap for, J. B. Sharp	38	180,942
Table, chair, and walking stool, combined, W. C. McGill	62	180,775
Table, ironing, N. Nelson	91	180,906
Table leaf support, J. D. Alvord	62	180,740
Telegraph, duplex, T. A. Edison	158	180,858
Telegraph key, J. O. Byrne	50	180,839
Telegraph, printing, J. H. Bunnell	50	180 700
Tobacco machine, J. F. Quesada	160	180,789
Tobacco, machine for stemming and cutting, J. P. Smothers	160	180,951
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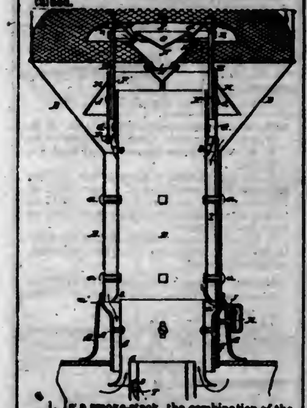
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED AUGUST 8, 1876.

180,696. DRAFT-REGULATORS AND SPARK-ARRESTERS. Derrick Allard, St. Albans, Vt. [Filed July 22, 1876.]

Brief.—A ring surrounds the cone beneath the deflector, which assists in breaking the sparks. The spiral strips between the concentric tubes accelerate the motion of ascending sparks. Said tubes are made adjustable to regulate draft at the point of their location. The annular space between the inner tube and the adjustable draft-regulator forms a passage for the deflected sparks to return to the draft, and an escape for exhaust steam when the draft is shut off. To the adjustable draft-regulator is attached an indicator, by means of which the amount of draft exerted is ascertained.



1. In a smoke-stack, the combination of the tube D, inverted cones N N O, and deflector P, substantially as specified.

2. The combination of the tube D, cone or cones N, ring R, and deflector P, substantially as set forth.

3. The combination of the tube D and adjustable draft-regulator F, provided with flange H, having the perforations *d*, as specified.

4. The combination of the tube D, adjustable draft-regulator F, and annular space F', substantially as described.

5. The combination of the tube D, adjustable draft-regulator F, having perforated flange H, deflector P, cone O, and annular space O', as and for the purpose specified.

6. In combination with the tube D, the series of concentric tubes S S S, made adjustable, as and for the purpose described.

7. In a smoke-stack, the series of concentric tubes S, having spiral strips between them, in combination with an inner tube, as described.

8. The base-piece A, having drip A', beveled at *a'*, as and for the purpose described.

9. The combination of the tube D, cones N N O, deflector P, and tubes S S S, substantially as specified.

10. In a smoke-stack, the combination of an adjustable draft-regulator with an indicating device, substantially as specified.

11. The combination of the sleeve V, graduated as described, the lever and W, the rod M, having the worms at each end, the pinions J and K, and rod I, attached to the regulator F, all arranged and operating as set forth.

180,697. CRACKER-MACHINES. George W. Baker, Wilmington, Del. (Filed Mar. 30, 1876.)

1. The cutting rollers *a a'*, both provided with two or more sets of cutters, *d*, of corresponding grooves and dividing annular cutters, grouped together, and the several sets separated by intervals *c*, and having, respectively, collars and shoulders, for engagement with each other, to guide the dough and prevent waste, substantially as specified.

2. The combination, with the lower forwarding-roll *g'*, of the upper forwarding-roll, made of light material, and of smaller diameter than the lower roll, to prevent undue pressure on the dough, substantially as specified.

3. The combination, with the cutting-rolls *a a'*, having series of sets of grooves and cutters, of the spreading-plate and sets of pins, corresponding to said sets of grooves and cutters, and the forwarding-rolls *g g'*, substantially as specified.

4. The combination, with the roller *a* and bar *a'*, having their upper surfaces level, and the beveled apron supported thereby, of the transverse bridge-carrying bar *n*, raised above this level apron, and having its lower surface parallel therewith, substantially as specified.

5. The reciprocating head, having the bending-slide *t* and the slide-knife *v*, rigidly connected together, said knife being arranged at a higher level than the bending-slide, to cut off the ends of the dough strips after bending, and to recede with the bending-slide, substantially as specified.

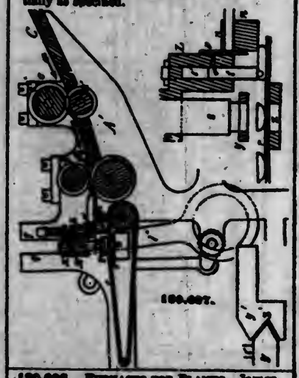
6. The combination, with the reciprocating head and the bending-slide *t*, moving therein, of the knife *v*, connected to said bending-slide by rigid arms *s'*, to move therewith, and arranged with its cutting-edge above the level of the face of said slide, substantially as specified.

7. The combination, with the recessed reciprocating presser-head, of the spring-slide *r*, the knife *v*, and the frame-stops *r''*, adapted to bring the presser-face of said slide level with that of the head, and simultaneously to raise the knife above said level, substantially as specified.

8. The combination, with the reciprocating head, of the bending-slide and its connected knife, the cross-head *v''*, screw *w*, and spring *r'*, arranged about said screw, to bear on the cross-head, substantially as specified.

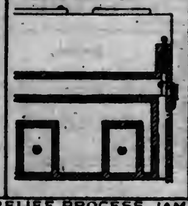
9. The combination, with a level plate having beveled ends, and rods connecting it to a reciprocating head, of the beveled and notched stops of the frame, adapted to bring it into the level position, and to retain it when the head rises to clear the dockers, substantially as specified.

10. The combination, with the reciprocating head, the spring *r'*, and the cross-head *v''*, of the bending-slide and the knife *v*, connected thereto and moving therewith, substantially as specified.

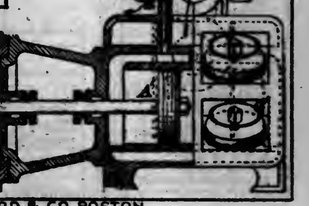


180,697.

180,698. FURNACES FOR BLAKING. James W. Boote, New Brighton, Pa. (Filed Jan. 22, 1876.)



180,701. STEAM-PUMPS. Hare Cope and James R. Maxwell, Hamilton, Ohio, and James R. Paddock, Chicago, Ill. (Filed Sept. 24, 1875.)



180,701.

1. A closed ash pit and a blast-pipe for the supply of air, in combination with a lateral heating-chamber, having outlets in its bottom or floor for the discharge of the accompanied products of combustion in a downward direction, substantially as described.

2. In combination with the opening and inside door of a heating-chamber, the deflecting-shield, for the purpose of laterally deflecting the hot air pulled out of the opening when the door is opened.

180,699. GRAIN-CAR DOORS. Robert Brydon, Newbury, Ontario, Canada. (Filed Feb. 20, 1876.)



1. In railroad cars used for carrying grain in bulk the door E, placed within a frame formed by the bars D D', horizontal bar G, block H, and top bar I, in combination with the side O of the car, substantially as described, and for the purpose specified.

2. The bolts *c c*, attached to the door E, in combination with the bar G, substantially as described, and for the purpose specified.

180,700. PRINTING-TELEGRAPHS. James H. Bunnell, New York, N. Y. (Filed Dec. 6, 1875.)

Brief.—One of the component pallets movable independently of the other, and withdrawn by one electro-magnet when the type-wheel is to revolve around to unison.



The combination, with the type-wheel of a printing-telegraph and its revolving mechanism, of an escapement and two pallets, one of which is movable independent of the other, and an electro-magnet for moving each pallet, and a unison-stop, substantially as set forth.

1. The combination of a pump-cylinder, A, with suction, discharge, vacuum, and valve chambers, when constructed in one and the same piece, as and for the purpose specified.

2. The combination of a pump-cylinder, A, with the partitions J J', which separate the valve-chambers, and upon which the valves or seats are seated, and the valve-cap face K, when said partitions J J' and face K are placed at an angle to the base-line of the pump, substantially as described.

3. The combination of a pump, with air-passages *c* and *c'*, and the air-feeding attachment L, substantially as described.

4. The combination of a pump, with air-passages *c* and *c'*, the air-feeding attachment L, and the air-relief check-valve M', substantially as described.

190,702. Corn-Planters. L. J. Corbin, Winnebago, Ill. [Filed Aug. 21, 1874.]

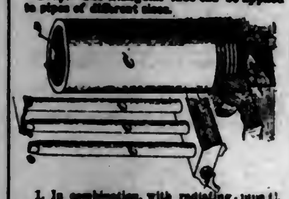
Brief.—The pivoted jaw is provided with side pieces, that form the sides of the pocket, to prevent lateral displacement.



In a corn-planter adapted to grasp and retain one kernel of seed in each grasping-jaw, the check-pieces *f* attached to spring-jaws, as described, whereby, when open, a pocket is formed, for the prevention of lateral displacement, substantially as described, and for the purpose set forth.

190,703. Steam-Radiators. Martin H. Orme and Joshua K. Abbott, Cincinnati, Ohio, assignors to Orme, Bruhl & Co., same place. [Filed July 11, 1876.]

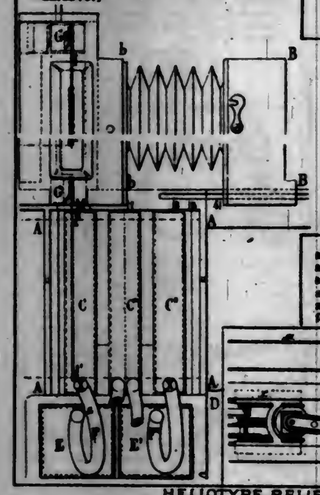
Brief.—The triangular tube can be applied to pipes of different sizes.



1. In combination, with radiating-pipe C, the flexible triangular tube D, constructed and applied, substantially as and for the purpose specified.

2. A radiator-pipe, having flattened welded end *c* to serve the double function of hermetically sealing the pipe, and forming a bend for a wrench, substantially as and for the purpose specified.

190,704. Photographic Apparatus. Jean Baptiste David, Paris, France. [Filed Nov. 28, 1876.]



The vertical slides B B, the rails C D, the slides *c c* and *d d*, the weights E E and F F, and the series of latches *e f g* h and inclined surfaces G H, the whole arranged and operating together, substantially as and by a suitable arrangement of shafts, lever, and chains, for the purposes specified.

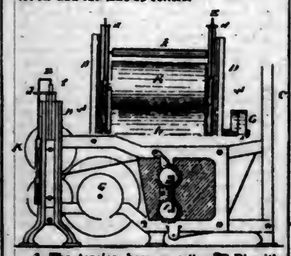
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1. The combination of the camera-obscura B, laboratory A, and receiver D, constructed and arranged substantially as and for the purpose set forth.

2. The combination, substantially as described, of the basins O O O with the receivers B D, for the purpose specified.

190,705. Cloth-Finishing Machines. C. S. Davis, Manayunk, Philadelphia, Pa. [Filed Apr. 26, 1876.]

Brief.—Slotted rollers, through which the fabric is passed, are connected, so as to move in unison and be held by pawls. Deflecting the cloth from the vertical increases the contact of the cloth with the emery and brush rollers. Tension devices are applied to the let-off and the take-up rollers.



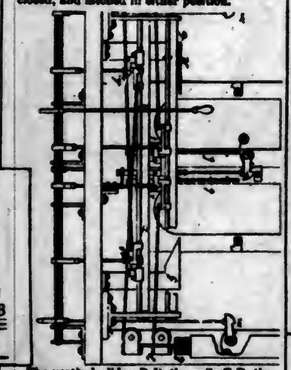
1. The tension bars or rollers E E', with their ratchets H I and coupling *a*, in combination with the emery and brush rollers 1', 2', 3', and 4', arranged in the manner and for the purpose substantially as herein specified.

2. The elevated frame B C, when provided with slotted cross-bars *m n*, adjusting-clamps *r*, and traction-roller O, the whole combined and arranged substantially in the manner shown, for the purpose set forth.

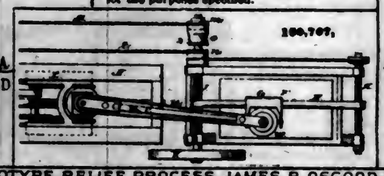
3. In combination with the bearings of the cloth-roll K over the bearings of the calender-rolls in D, the weighted rod E and slide-plate *f*, arranged substantially as and for the purpose mentioned.

190,706. Mechanisms for Operating Sliding Doors. Wm. F. Dilleby, Providence, R. I. [Filed June 6, 1876.]

Brief.—By means of weights and counter-weights, sliding doors are readily opened and closed, and latched in either position.



The vertical slides B B, the rails C D, the slides *c c* and *d d*, the weights E E and F F, and the series of latches *e f g* h and inclined surfaces G H, the whole arranged and operating together, substantially as and by a suitable arrangement of shafts, lever, and chains, for the purposes specified.



190,707.

190,707. Marble-Polishing Machines. Kenneth J. Bennington, Portland, Ind., assignor of one-half his right to John J. Winters, same place. [Filed June 2, 1876.]

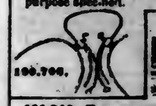
Brief.—The polisher has three motions imparted to it—to wit, a back-and-forth, from side to side, and a rotary motion. The shaft D regulates the position of the back-and-forth motion. Fig. 3 shows a reversing-clutch.

1. The sliding frame L, with its operating parts, connecting-arm *v*, rubber-cone *w*, band *s* about suitable pulleys, shaft Z, and adjusting-rod *d*, the whole combined to produce a rotary and reciprocating movement, in the manner substantially as and for the purpose set forth.

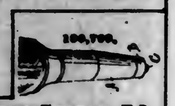
2. The combination of the traversing rod U, the shafts J and E, the armed guide G, rubber-cone *w*, and 3, clutch *v*, and pulleys *m* and *n*, substantially as set forth, to give an alternate lateral movement to the said rubber-cone, for the use specified.

190,708. Stove-Lifters. Harvey Fowler, Washington, D. C. [Filed July 6, 1876.]

The hinged flexible braces or supporters *a a*, connected with the stems *c c*, as and for the purpose specified.



190,708.



190,709.

190,709. Ferrules for Umbrellas. H. B. Frost, Webstertown, Conn., assignor to A. N. Woolson, same place. [Filed Sept. 17, 1875.]

1. As a new article of manufacture, the ferrule described, consisting of a main shell or thimble, A, and auxiliary cap B, so united as to make the surfaces flush with each other, as described and shown.

2. In combination with the shell A the rivet C, having the projecting head, as and for the purpose described.

190,710. Umbrella-Runners. H. S. Frost, Webstertown, Conn. [Filed Jan. 14, 1876.]



1. In combination with the runner, the sliding wedge-piece, and interior spring-plate, substantially as described.

2. The runner described, having the longitudinal slot *a*, interior cylindrical spring-plate B, and sliding wedge-piece C, as described.

3. A runner, provided with mechanism for clamping the stick, and also an interior plate for protecting its surface, substantially as described.

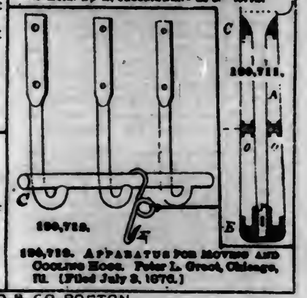
4. The sliding wedge-piece C, in combination with a slotted runner, as described.

190,711. Handles for Table-Cutlery. Andrew Gottschalk, Milwaukee, Wis. [Filed May 4, 1876.]

Brief.—The handle is of porcelain and in two sections, held together by a metal band cast around them.

1. A tubular porcelain, earthenware, or glass handle, made in two or more sections in respect to its length, each section being tubular in form, and the sections secured firmly together and to the tang by molten metal, all as and for the purposes set forth.

2. In combination with said handle, the metal connection O, the metal bolster U, and the metal tip E, substantially as set forth.



190,711.

190,712.

190,712. Apparatus for Moving and Cooling Eggs. Peter L. Groot, Chicago, Ill. [Filed July 3, 1876.]

Two rod A, supported by the curved pendants B C, as and for the purpose set forth.

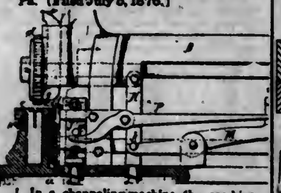
190,713. Reversible Plows. Julius Hartmann, Louisville, Ky., assignor of two-fifths his right to Anton Lonze, same place. [Filed Dec. 1, 1875.]

Brief.—The frame to which the land-side is attached, and of which it forms a part, depends from the rear end of the beam, and the reversible share is pivoted by means of a spindle to the center of this frame. A locking-pin, worked by a lever resting conveniently to the handles, locks the share in place at the bottom of the frame.



The standard or frame B, having the land-side L formed therewith, in combination with the reversible share or mold-board E F G, the reversing-spindle, and the share-locking mechanism substantially as shown and described.

190,714. Boot and Shoe Sole Channeling Machines. Saml. Rosebull, Philadelphia, Pa. [Filed July 5, 1876.]



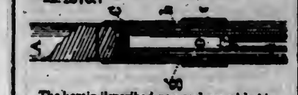
1. In a channeling-machine, the combination of the arm carrying the feed-wheel with the channeling-knife, arranged to be adjusted vertically independently of the said feed-wheel during the operation of the machine, as set forth.

2. The combination of the arm D, carrying the feed-wheel *d*, with the spring sliding bar I, carrying the channeling-knife.

3. The combination of the lever M and spring sliding bar J with the intermediate lever P.

4. The combination of the levers M and P with the adjusting-screw *n*, as set forth.

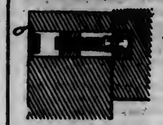
190,715. Pen and Pencil Cases. John Holland, Cincinnati, Ohio. [Filed Apr. 22, 1876.]



The herein-described pen and pencil holder, composed of the solid handle A, the exterior case C, and the following elements, all combined and constructible within the case C proper—that is to say, the sliding pen-holder *i*, the spirally-slotted tube *p*, rigidly connected to the lower end of the handle, the collared and longitudinally-slotted tube *e*, rigidly connected to the lower end of the case, and the pencil-holder J, provided with a stud, *i*, which engages both the longitudinal and spiral slots in the encircling-tubes *e* and *g*.

190,716. Fastenings for the Meeting-Rails of Sashes. Frederick J. Hoyt, Batavia, N. Y. [Filed Apr. 20, 1876.]

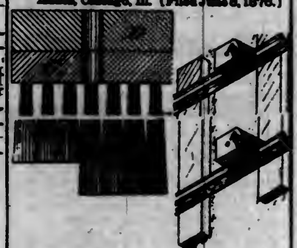
Brief.—A barrel recessed into the meeting-rail carries a movable head or wheel and a slotted end-threaded bolt. A recessed slot in the movable head is adapted for a detachable slotted key of the like construction, which, passing through it, engages with a corresponding slot in the end of the threaded bolt, and, by rotating the same, projects it forward into a chamber or barrel of the opposite meeting-rail, the construction being adapted to fasten the two sashes together when closed, or other sash at different heights, while the loosely-fitting movable wheel or head prevents tampering with the device without the removable key adapted to the same.





An improved window-sash lock or fastening, consisting of a threaded bolt, D, to lock or fasten the two window-sashes, or either of them, to the casing, said slotted and bolt being operated by a removable key, F, passing through a peculiar slot in a movable head or wheel, E, located in a barrel or chamber, C', said form of key and slot to be varied in form to increase security, all constructed, arranged, and operating substantially as shown and described, for the purposes set forth.

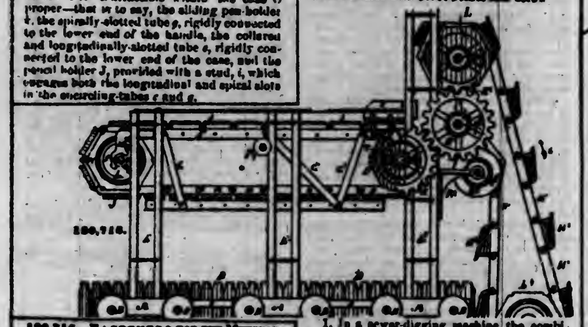
190,717. Railway-Track Brooms. M. O. Inman, Chicago, Ill. [Filed June 6, 1876.]



A railway-track broom, constructed with a brush of uneven face—that is, with one portion of the brush longer than the other, substantially as and for the purpose set forth.

190,718. Sewer-Excavators. D. Keating, Indianapolis, Ind. [Filed Mar. 14, 1876.]

Brief.—A sewer-digging machine provided with adjustable standards upon movable platforms on each side of the trench. Horizontal conveyors and chain-wheels on the standards carry the material to the rear. The conveyors are provided with friction-wheels, which travel upon an upper fixed and lower suspended tramway. The conveyor-buckets, formed of serrated bars clamped together, are attached to an endless chain, and carry the material to the horizontal conveyors. The sheathing in the sewers is supported by adjustable composed shafts with pivot-points and screw



190,718.

1. In a sewer-digging machine, the combination of adjustable standards E E'' and movable platforms A B, arranged to operate on each side of the sewer, in the manner shown, and for the purposes set forth.

2. In combination with adjustable standards E and E'', the shafts P P', arranged to extend across the sewer and to support the conveyor chain-wheels L L', in the manner shown, and for the purposes set forth.

3. In combination with the shafts P P' and additional shafts P', the tramway F, supported on the shaft P P' by bearings M M and the tramway F', supported to the tramway F by the stay-braces, G G' G', in the manner shown, for the purposes specified and set forth.

4. In combination with the tramway F and support M', the earth-guides N N, arranged as shown, for the purposes specified.

5. In combination with the front standards E'', the brackets F' F' F', shafts P' P'' P'' and P'', arranged as shown, for the purposes set forth.

6. In combination with the chain-wheels L L' and tramways F F', the conveyor-buckets J and chain H, arranged to convey the earth deposited from the elevator chain-buckets H' in a line parallel with the ditch at the rear, and in said ditch, as shown, for the purposes set forth.

7. In combination with the chain-wheel L', arranged near the top of the front standard E'', the elevator-chain H' and buckets H', formed of bars, or solid, with serrated cutting-edges at the front upper edge, in the manner shown, for the purposes set forth.

8. The chain-wheel L', arranged to be used at any desired position in the ditch by means of the compound shaft U U' U'', in the manner shown, for the purposes set forth.

9. In combination the chain-wheel L', the compound shaft U U' U'', chain H, and chain-wheel L', arranged to operate as shown, for the purposes set forth.

10. In combination with the sheeting D D of the sewer, the compound shaft U U' U'' and chain-wheel L', arranged to operate in the manner shown, for the purposes set forth.

11. The compound shaft, formed of the socket U', provided with a pivot-point, *d*, and extension-pin *s*, the main shaft U'', and the jack-screw U, also provided with a pivot-point, *d*, and lever *c*, in the manner shown, for the purposes set forth and described.

190,719. Umbrellas. George B. Kirkham, New York, N. Y. [Filed Jan. 22, 1876.]

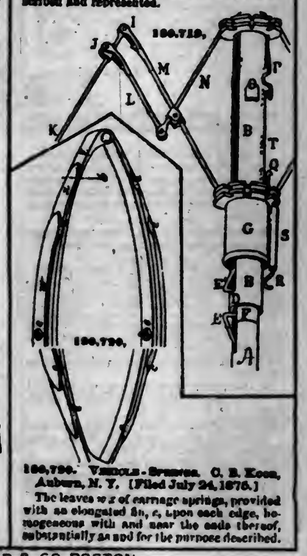
1. The spring E E' and ferrule F, combined and arranged substantially as described and represented.

2. The combination of the spring P, wire Q, and ferrule or handle F A, substantially as described and represented.

3. The spring R and thumb-piece S, combined and arranged substantially as described and represented.

4. The joints I J and ribs K, L, and M, combined and arranged substantially as described and represented.

5. The combination of the slotted tube B C, plate D, and spring E E', substantially as described and represented.



190,719.

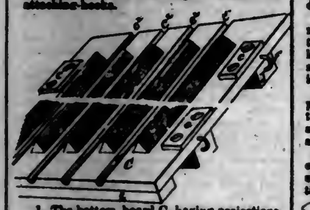
190,720. Vehicle-Springs. C. B. Koon, Auburn, N. Y. [Filed July 24, 1876.]

The leaves *a a'* of carriage springs, provided with an elongated slot, *c*, upon each edge, homogeneous with and near the ends thereof, substantially as and for the purpose described.

190,720.

180,721. MOLDING-FLASKS. J. J. Lobaugh, Cincinnati, Ohio. [Filed Apr. 20, 1876.]

Brief.—The peaked sand is supported by ribs partially embedded, to obviate repeated trials in getting a uniform support, and to permit the use of ventilating-grooves *d*. A spring is used to counteract gravitation in the standing-hooks.



1. The bottom board C, having projections *d*, substantially as and for the purpose specified.

2. The bottom board C, having the grooves *d*, substantially as and for the purpose specified.

3. In a molding-flask, the combination of bottom board C *d*, bearing-plates *e*, and drag B, substantially as and for the purpose specified.

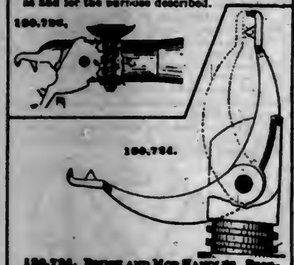
4. The combination of hooks E, screws G, cam H, and springs I, substantially as and for the purpose specified.

180,722. PRESERVATION OF COTTON DUCK, &c. William Lewis, Newark, N. J. [Filed May 11, 1876.]

A preservative composition for textile fabrics, consisting of lime and coal or wood-tar or resin-oil, with or without benzine or other suitable solvent, substantially as described.

180,723. COMBINED BROOM AND MOP HANDLE. Spencer J. Mather, Detroit, Mich. [Filed July 28, 1876.]

In a mop or brush holder, the combination, with a pivoted jaw, R, having gear-teeth *g*, of a worm, O, arranged at right angles to the handle, for operating said jaw, substantially as and for the purpose described.



180,724. BROOM AND MOP HANDLES. Spencer J. Mather, Detroit, Mich. [Filed July 7, 1876.]

A mop or brush holder, having two movable or pivoted jaws, operated upon by a screw-threaded sleeve traversing the screw-threads upon the socket or shank to clamp the jaws together, substantially as and for the purpose set forth.

180,725. CAR-WHEELS. Wm. McConway, Pittsburg, Pa. [Filed Apr. 20, 1876.]



1. The combination, in a car-wheel, of a cast-iron hub, a cast malleable-iron body, and a tire composed wholly or in part of steel, made separately and secured thereon, substantially as set forth.

2. The combination of a cast iron hub and a cast malleable body, substantially as set forth.

180,726. FURROW-GAGES FOR PLOWS. Joel Nourse, Boston, and Jas. A. Howe, Ayer, Mass. [Filed Nov. 2, 1875.]

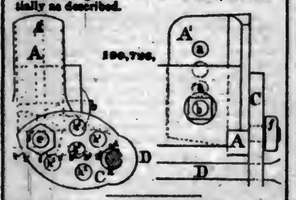
Brief.—The plowman swings the draft-rod from side to side by depressing the handles, thereby raising the beam, giving it at the same time a lateral movement.

1. The combination of the draft-rod D, swinging substantially from side to side, the swinging or oscillating connection from the draft-rod to the plow-beam, and the stop-rest on the plow-beam, whereby the draft-rod shall be held in position on either side by the downward strain alone of the beam upon the draft-rod, resulting from the draft of the plow, but being left free to reverse whenever the draft is removed, substantially as described.

2. The combination of the swinging draft-rod D, with the vertically-swinging plate C, through which the draft-rod passes, and the laterally-extended plate on the plow-beam, against which the draft-rod rests while the plow is in operation, substantially as described.

3. The combination of the bent-piece A, pivot-bolt *a*, rocking-plate C, provided with two or more holes, B, and the draft-rod D, substantially as described, and for the purpose set forth.

4. The rocking-plate C, provided with various recesses *b*, for adjusting the amount of side motion given to the draft-rod D, substantially as described.



180,727. TEMPORARY BINDERS. Edward M. Phillips, Little Rock, Ark. [Filed Sept. 11, 1876.]



1. In combination with the cover A B, the strip C, each formed of a single piece, and each provided with the two joints *a b*, substantially as and for the purpose set forth.

2. In combination with the cover A B, the strips C, each formed of a single piece, and each provided with the two joints *a b*, and stiffening *d*, and wires G, having loop *f* and point *h*, substantially as and for the purpose described.

180,728. CAR-COUPLINGS. John Reddin, Lynn, Mass. [Filed May 17, 1876.]

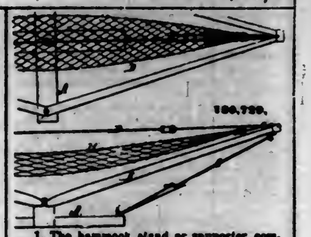


1. In combination with the draw-heads A and A, each provided with an outer and inner chamber, B and B', for the reception of the link C, the spring-chambers D and D', cast solid upon said draw-heads, the former occupying a vertical position, and the latter placed immediately in its rear, and inclining rearward and upward at an angle of about thirty degrees, in the manner and for the purpose substantially as shown and set forth.

2. The combination of the draw-heads A and A, the spring-chambers D and D', the link-pins E and E, and restraining-pins F and F, each of said pins being provided with a coil-spring and shoulder near its lower end, and constructed and arranged so that the point of the restraining-pin F is caused to impinge upon the link-pin E constantly, in the manner and for the purpose substantially as shown and described.

3. In combination with the link C, one end of which is elongated, and provided with wedge-shaped grooves upon each side at each end, the draw-heads A and A, provided with outer chambers B and B and inner chambers B' and B', that correspond in size and shape with said link C, constructed and arranged in the manner and for the purpose substantially as shown and described.

180,729. HAMMOCK-STANDS. Alfah B. Richardson and Daniel Fuller, Topsfield, Mass., assignors to themselves, Henry H. Potter, and Chas. W. Gould, same place. [Filed July 12, 1876.]

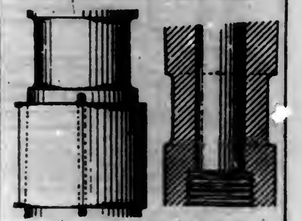


1. The hammock stand or supporter, composed of the cross A, the two sets of braces or struts B B, and the line or guy D, arranged and applied substantially as set forth.

2. The combination of the cross A, the two pairs of struts B B, and the three adjustable tent-guys C C D, arranged and applied essentially in manner and for the purpose as represented.

180,730. ROCK-DRILL CHUCKS. George G. Rae and Wm. P. Tallman, Mineville, assignees of part of their right to George H. Reynolds, New York, Walter Tuttle, Mineville, and Aaron Mull and O. S. Pendergrass, Chesterv, N. Y. [Filed Apr. 20, 1876.]

Brief.—The momentum of each stroke causes the plain bend to tighten on the spring-jaws and hold the drill. The end of the drill abuts against the end of piston secured by a screw-thread within the chuck.



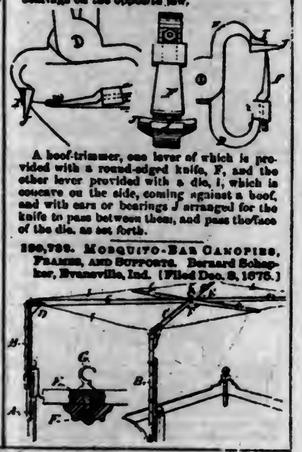
1. In a chuck for mining-drills, the combination, with the springing jaws, of a plain compressing-band, for the purposes set forth.

2. A chuck for mining drills, constructed as described, having a cylindrical bore extending clear through it, so that the end of the drill-shank abuts against the end of the piston-rod.

3. A drill-chuck having its outer end tapered and slotted, and its inner end solid and threaded, and provided with a plain binding-ring, substantially as described.

180,731. HOOF-PARERS. Oaher Rogers, Green Bay, Wis. [Filed June 15, 1876.]

Brief.—The knife passes between ears or bearings on the opposite jaw.



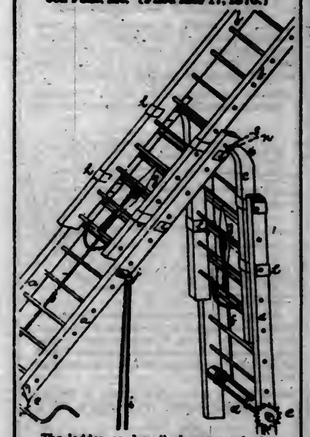
A hoof-trimmer, one lever of which is provided with a round-edged knife, F, and the other lever provided with a die, I, which is concave on the side, coming against a hoof, and with ears or bearings J arranged for the knife to pass between them, and pass the face of the die, as set forth.

180,732. MOSQUITO-BAR CANOPIES, FRAMES, AND SUPPORTS. Bernard Schaepher, Evansville, Ind. [Filed Dec. 8, 1876.]

1. The square bars A attached to the bedstead, in the manner described, in combination with the notched adjustable rods B, substantially as and for the purpose set forth.

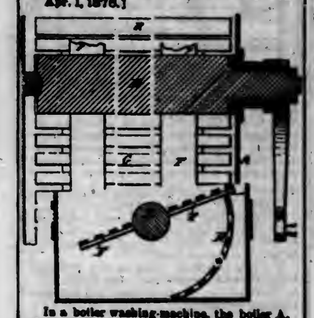
2. The canopy-frame, consisting of the ribs C, dish H, knob F, and screw-hook G, constructed and arranged substantially as described, in combination with the supporting-rods, substantially as and for the purpose set forth.

180,733. LADDERS. Wm. Small, Jr., Lisbon Falls, Me. [Filed Mar 17, 1876.]



The ladder, as described, composed of the four parts *a b c d*, and having the guides *h*, windlasses *d*, cords *f*, blocks *g*, ratchets and pawls *e*, step supports *i*, spring-hooks *k l m*, double metal straps on the upper end of *d*, forming the eyes for the key-bolt *o n*, bolt *o n*, the whole arranged and operating as herein set forth.

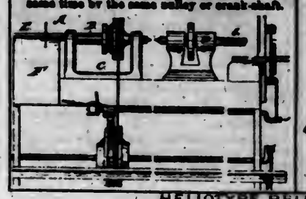
180,734. BOILER WASHING-MACHINES. G. A. Starkweather, Weymart, Pa. [Filed Apr. 1, 1876.]



In a boiler washing-machine, the boiler A, the shaft E, having arms F F, and plate G, in combination with the curved wash-board E, as and for the purposes specified.

180,735. UNIVERSAL JOINTING. R. Strange, R. C. Strange, and R. W. Strange, Taunton, Mass. [Filed Apr. 20, 1874.]

Brief.—A turning-lathe, circular saw, and reciprocating saw are so arranged upon the same frame that they can be operated at the same time by the same belley or crank-shaft.

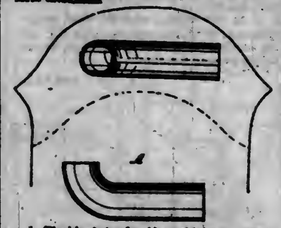


1. In combination with a turning-lathe having a rotary spindle, B, extended beyond the rear of the head-stock, a circular saw, A, fastened to the rear end of the rotating spindle, with the table B adapted to the saw, so that the lathe may be used for sawing and turning at one and the same time.

2. A turning-lathe bench, with head and tail stocks C and D, in combination with a circular saw, A, on the rear end of the lathe-spindle B, with saw-table B on the lathe-bench, and a jig or reciprocating saw, G, and table on the rear end of the lathe-bench, the whole constructed and arranged substantially as shown and described, to operate at the same time by the same pulley or crank-shaft.

180,736. SHEET-METAL ELBOWS. Andrew Syverson, Chicago, Ill., assignee of one-half his right to Joseph S. Dennis, same place. [Filed Dec. 9, 1875.]

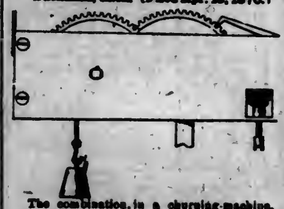
Brief.—The blank is adapted to form an elbow with one seam, and that in the length of the shortest curve, and with metal of a uniform thickness.



1. The blank A, of uniform thickness, adapted to form the elbow by being constructed substantially as specified.

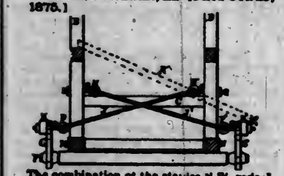
2. The sheet-metal elbow, made of a single blank of sheet iron of uniform thickness, having a single longitudinal seam, the elbow being formed without crimping or cutting, and presenting a smooth surface throughout when finished, substantially as shown and described.

180,737. GRAIN-POWERS. Saml. Weaver, Buchanan, Mich. [Filed Apr. 10, 1876.]



The combination, in a churning-machine, substantially as described, of a hanger, or its equivalent, by which the churning-machine is elevated, with a weight from which is derived the power or driving mechanism.

180,738. GRAIN-SEPARATORS. John M. Williams, Seachwine, Ill. [Filed Oct. 20, 1875.]



The combination of the staples S S', rods J J', short rods S S, clamping-blocks K, wheels G G', and frame B B, as and for the purpose set forth.

180,739. STEM WINDING AND SETTING ATTACHMENTS FOR WATCHES. Henry Abbott, Newark, N. J. [Filed June 6, 1876.]



1. The lever A, hung to the barrel-arbor B, and having the annular flange *e* and recess *d*, in combination with the ratchet *c* and click *c*, substantially as and for the purposes specified.

2. The ratchet *c*, having the annular groove *e*, made to turn on the annular flange *e* of the lever A and its bolt *c'*, in combination with arbor B and click *c*, substantially as and for the purposes specified.

3. The lever A, having the semicircular *f* and M, in combination with the click I and bridge A, having its periphery O substantially as set forth, and for the purposes specified.

4. The bridge A, with its periphery O and recess L, in combination with the lever A and plate *h*, substantially as and for the purposes set forth.

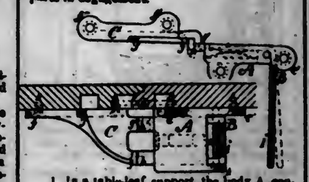
5. The tube I, having the notches S and wheel 2, in combination with the cannon-pinion 1, arbor 3, and plates *h* and *a*, and spring 7, substantially as and for the purposes set forth.

6. The arbor 3, with its track and flattened side, in combination with the tube I and pin 4, substantially as and for the purposes set forth.

7. The spring 7, secured to the plate *h*, with its flattened side and beveled end, in combination with the tube I, substantially as and for the purpose specified.

180,740. TABLE-LEAF SUPPORTS. Joseph D. Alvord, Bridgeport, Conn. [Filed July 17, 1876.]

Brief.—The catch-plate attached to the leaf is provided with two projections—one of which impinges with, and the other hooks over, similar projections on a lever-arm pivoted to the plate attached to the table when the leaf is raised. A spring is arranged between the lever-arm and plate, to hold the parts in engagement.



1 In a table-leaf support, the body A, constructed with the vertical opening for the reception of the lever B, cams *f* and *k* to receive the lever-rivet *a*, recess *e* for the reception of the spring A, and cams *s* and *t* to secure the same to the leaf of a table, substantially as shown, in combination with the lever B and catch C, arranged as specified, for the object set forth.

2. In combination with the body A and catch C, the lever B, pivoted to the cams *t* and *k* on said body, and constructed with the handle *i* for operating the same, and with the projections *h* and *h'*, for the purpose of uniting with the projections *g g'* on said catch, when the leaf of the table is raised to its highest point, and supporting and locking said leaf, substantially as shown and set forth.

3. In combination with the body A and lever B, the catch C, constructed with the projections *g g'*, to unite with the projections *h h'* on said lever, when the leaf of the table is raised to its highest point, substantially as shown, and with the beveled portion *l*, to facilitate the passing of the projection *h* over the corner of the catch when the leaf of the table is raised, and with the ears *f* and *f'*, to secure said catch to the under side of a table, substantially as shown and set forth.

4. In combination with the body A, lever B, and catch C, the spring A, inserted between the body and lever, substantially as shown, for the purpose of retaining said lever in its proper position when the leaf of the table is raised to its highest point, and for pressing said lever against the body of said catch when the leaf is lowered, to prevent the same from shaking and rattling when moved about, as set forth.

5. In a table-leaf support, the combination of the body A, lever B, catch C, and spring A, all constructed and arranged to operate substantially as shown, and for the object set forth.

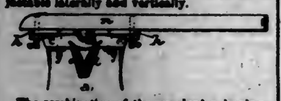
180,741. SNOWS. John H. Beasley, Lebanon, Ind. [Filed Apr. 12, 1876.]



The shoe-tongue A, formed of a single piece of leather, with the lateral leaves a a and the intermediate leaves b b, and crimped in the direction of its length to conform to the shape of the instep, and adapted to be secured to an ordinary shoe, and to be folded over the instep, substantially as and for the purpose described

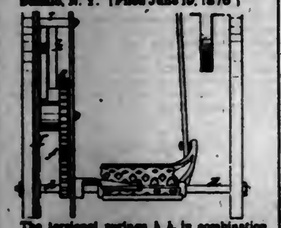
180,742. PLOWS. William M. Bell, Montpelier, Ohio. [Filed June 10, 1876.]

Brief.—The top piece is slotted transversely for the reception of the fastening-bolts. A bend is formed on its under side and fits in a groove upon the standard. The beam is adjustable laterally and vertically.



The combination of the standard a, having curved top and a groove, b, top piece A, slots f, bolts f e, and beam n, substantially as described.

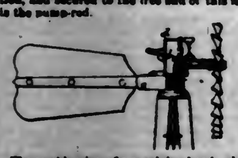
180,743. TREADLES. Manley A. Benjamin, Buffalo, N. Y. [Filed June 10, 1876.]



The torsional springs h h, in combination with the cams g g', cog-wheel c, and toothed arc or segment f, upon the treadle-axis e, substantially as and for the purpose set forth.

180,744. WHEELS. H. W. Rolander, Orangeville, Ill. [Filed June 13, 1876.]

Brief.—Extending outward from one side of the hood is an arm, to the outer end of which is pivoted the slotted lever On the end of the wheel-shaft is placed a disk having a crank-pin, which passes through the slot in the lever, so as to give it a reciprocating motion, and secured to the free end of this lever is the pump-rod.



The combination of a revolving head, which carries the wind-wheel, a brace or arm, d, and a connecting-rod that is jointed at each end, substantially as shown.

180,745. WIRE-EDGING MACHINES. R. I. Braddock, Mountpon, assignor to Samuel Orrell, Jr., same place, and O. A. Marden, Lowell, Mass. [Filed July 6, 1876.]

Brief.—The edges of woven wire-work are hemmed (or displacement prevented) by securing a marginal wire thereto, by first placing the wood-wire in a groove of a bending-machine, and then placing the marginal wire in a transverse groove, so that said marginal wire is upon and near the end of the wood-wire, which is bent upward over, and partially embedded in, the marginal wire. Bending is done by a revolving die.

1. A partially-revolving jaw, for the purpose of bending and clinching the ends of wires over a cross or marginal wire, substantially as described.

2. In combination with a partially-revolving jaw, a cam or holder, containing such jaw, and slotted for the reception of the wires, arranged at right angles to each other, substantially as and for the purposes set forth.

3. In combination with a radially-slotted wheel, a jaw, formed upon the axis of such wheel, and partaking of its revolution, substantially as and for the purpose set forth.

4. In combination with the partially-revolving jaw, the adjustable guide g', to regulate the length of the ends of the wires to be bent over, substantially as and for the purpose set forth.

5. The combination of the bending and clinching devices X X, or either of them, and the movable cross-bar G, substantially as and for the purpose described.

6. The combination of the bending and clinching devices X X and the movable cross-bar G, substantially as and for the purpose described.

7. The combination of the bending and clinching devices X X and the projecting fingers m m and n n, substantially as and for the purpose described.

8. The combination of the levers V V, the cross-bar S, and the cam-grooved wheels N N, for the purpose of raising and lowering the bending and clinching devices X X, substantially as and for the purpose described.

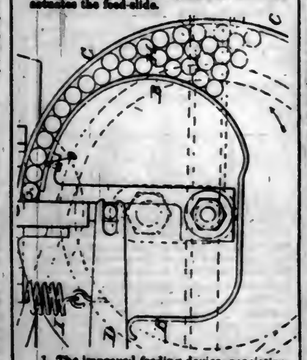
9. The combination of the levers U U, the cross-bar G, and the cams O O, for the purpose of lifting the rods h h, substantially as and for the purpose described.

10. The combination of the bending and clinching devices X X and the adjustable hangers Y Y, substantially as and for the purpose described.

11. In combination with the fixed hollow standards W W, the movable tubes T T, and the movable pieces E E, substantially as and for the purpose described.

180,746. DIAL-FEEDS FOR GARMENTS-MACHINES. George B. Bradley, New Haven, Conn., assignor to Winchester Repeating Arms Company, same place. [Filed July 20, 1876.]

Brief.—One of the guiding-walls in this case is an elastic strip of metal, fastened at one end near the point where the shells emerge from the guideway; and its other end free, but exerting a spring-pressure against the lever that actuates the feed-slide.



1. The improved feeding device, consisting of the rotating dial or plate A, with the guides B and C, one or both of which are made to move substantially as described, to prevent the clogging of the shells or articles being fed, as set forth.

2. In combination with the feed plate or dial A and stationary guide C, the spring-guide B, arranged to operate substantially as described, whereby an intermittent vibratory motion is imparted to the latter, as and for the purpose set forth.

180,747. RIVETS. Mellen Bray, Newton, Mass. [Filed Jan. 12, 1876.]

Brief.—Improvement on the invention patented to applicant November 24, 1874.



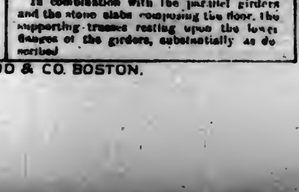
1. As a new article of manufacture, a rivet having a solid head, and a shank made tubular its entire length to its head, and having its inner corner at the end beveled or chamfered, as and for the purposes described.

2. As a means of securing together two or more pieces of leather, or other flexible material, a tubular rivet driven through one or more thicknesses of said material, and having its end split and deflected to clinch the same while being driven, and before passing through the last piece of material, substantially as described.

180,748. RIVETS. Mellen Bray, Newton, Mass. [Filed Jan. 12, 1876.]

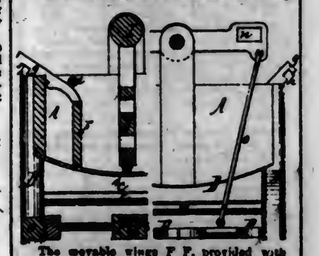
As a new article of manufacture, a rivet having a portion of the length of its shank made tubular, and of nearly even thickness, and the remaining portion next its head made solid, as and for the purpose described.

180,749. CURRY-COMBS. Chas. B. Bristol, New Haven, Conn. [Filed July 24, 1876.]



As an article of manufacture, the curry-comb, consisting of a substantially-rectangular cast-metal frame, with teeth formed upon the under side of the two sides, combined with an intermediate flanged bar, substantially as set forth.

180,750. WASHING-MACHINES. G. Brooks, Elston Station, Mo. [Filed Jan. 31, 1874.]

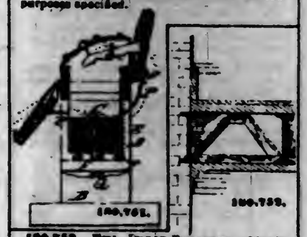


The movable wings F F, provided with brackets g g, formed with notches h h, and held to the tub with pins or bottons i i, in combination with the lath A, dasher B, main shaft L, walking-beam M, and treadles P P, the whole being constructed and operating substantially as shown and described.

180,751. CAR-SEATS. James Bryant, Covington, Ind. [Filed May 27, 1876.]

1. The sliding plate E, provided with the guide-bolts K, and supported on springs O, in combination with the slotted end pieces H, substantially as set forth.

2. The king-bolt G, in combination with the slide-plate and the slotted seat-bed B and pins I, substantially in the manner and for the purpose specified.

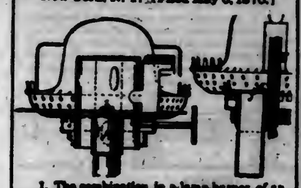


180,751. 180,752.

180,752. FIRE-PROOF BUILDINGS. Manly A. Burnham, New York, N. Y. [Filed July 6, 1876.]

In combination with the parallel girders and the stone slabs composing the floor, the supporting-trusses resting upon the lower flanges of the girders, substantially as described.

180,752. LAMP-BURNERS. H. A. Chapin, New York, N. Y. [Filed May 6, 1876.]



1. The combination, in a lamp-burner, of an extinguisher adapted to move across the tip of the wick and a vertically-arranged telescopic filling-tube, one section of which is a fixture in the burner and another adapted to be elevated above the former and provided with a filling-orifice in its side, substantially as and for the purpose herein set forth.

2. The combination, with a lamp-burner, of a vertically-extensible telescopic filling-tube, provided with a filling mouth or orifice in its upper section, substantially as and for the purpose herein set forth.

3. The combination, with a fixed section of a filling-tube, of an upwardly-extensible section, having a filling orifice in its side, a foraminated or reticulated bottom, and a vent at the top, substantially as herein described, whereby the filling-tube is made to serve the purpose of a gas-tube.

4. The combination, with the wick-tube of a lamp-burner and an upwardly-extensible section of a filling-tube, of a cable, substantially as described, whereby the said section may be supported on the tip of the wick-tube while the lamp is replenished.

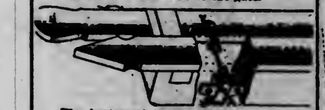
5. The combination, with an upwardly-extensible section of a filling-tube, of a handle, whereby it may be conveniently manipulated, substantially as set forth.

6. The combination, with an extinguisher capable of being moved across and off the tip of the wick, of a conoidal deflector, provided with hoods or extensions, substantially as herein set forth.

7. A conoidal deflector, provided with hoods or extensions adapted to occupy positions opposite the corners of the wick-tube, substantially as and for the purposes herein set forth.

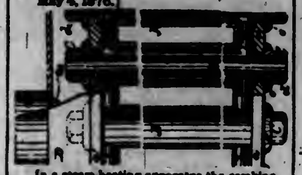
180,754. GATE-LATCHES. Chas. S. Corris, Caldwell, Ohio. [Filed July 24, 1876.]

Brief.—A small casting carries a horizontal latch pivoted at one end, and forced out by a spring, and furnished at the other end with a link-connection to an operating-lever arranged vertically upon the frame of the gate.



The horizontal latch E, bearing a loop at one end, to receive the link D, and pivoted at the other end to the keeper F, and pressed by the spring S, in combination with the link D and lever L, whether the lever be pivoted at the lower end, as in Fig. 2, or near the center, as in Fig. 6, all of which are attached to the gate, substantially as set forth in the drawings and specification.

180,753. RADIATORS. George Curtis and W. Thompson, Bridgeport, Conn. [Filed May 4, 1876.]



In a steam-heating apparatus the combination of the steam-pipes A, arranged vertically on the base a, and connected together at b, and provided with the top a', together with the air-tubes B located centrally within and extending longitudinally through the pipes A, the said air-tubes being being held in place and joined to the top and base to the side openings a by the nuts C fitted upon threads c, and having posts d' and flanges d', as described, and for the purpose specified.

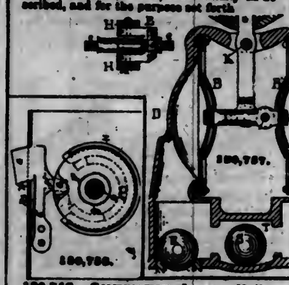
180,755. PROCESSES FOR TREATING SILVER ORE. Frank Dibbin, New York, N. Y. [Filed Sept. 9, 1875.]

Brief.—Prevents loss of mercury by "blanching" in amalgamation, by treatment with HCl, which is said to convert the salts of mercury, insoluble in water, (calomel, &c.,) into protochloride. Subsequently reduced by means of zinc.

The process of treating the tailings of silver ores, which process consists of the following steps: first, the digestion of the tailings with hot diluted hydrochloric acid or chlorine; second, the agitation of the digested acid mass with powdered zinc, substantially as described.

180,757. SHOES' PUNCH. Albert F. Hollis and Henri. C. Loud, Boston, Mass. [Filed July 6, 1876.]

The combination of the operating-lever H, the yoke-link E, and the rod G, with the die-plunger D and D', all operating together with the valves B, B', and S, substantially as described, and for the purpose set forth



180,756.

180,758. COMBINATION-LOCKS. Nathan Friedan, Chicago, Ill., assignor to Caroline Friedman, same place. [Filed May 24, 1876.]

The combination, with the tumblers F, G, and G', the tumbler F having the pin h adjusted to pass through the annular mortises h in the tumblers G and G', and the open wrenches J J arranged between the tumblers, as described, of the spindle O journaled within sleeve c, and provided with the collar f, corrugated externally, and adjusted within the corrugated aperture formed centrally through tumbler F, substantially as and for the purpose specified.

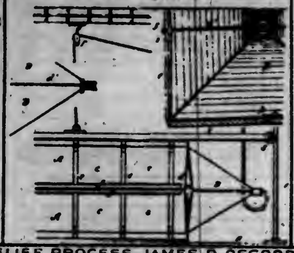
180,759. HARVESTERS. Elijah H. Gammon, Oskaloosa, Ill. [Filed Mar. 17, 1876.]



In a shifting grain-delivering attachment for a harvester, the shifting frame D, provided with the frame H, and elevator-canvas H, constructed and operating substantially as specified.

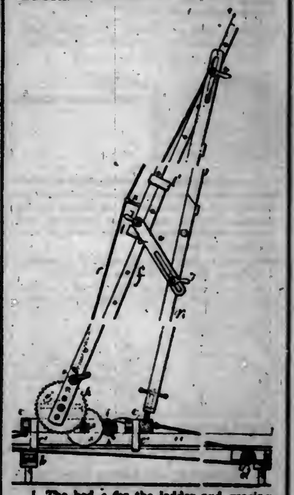
180,760. AMMONIATORS. Cornelius Godfrey, Washington, N. Y. [Filed Apr. 20, 1876.]

Brief.—When the top is raised air rushes through the valve and fills the interior of the apparatus, and the air is discharged through a pipe into a conducting-pipe provided with a stop-cock. The top is weighted to impart the desired amount of pressure.



180,761. FASTENER'S LADDERS. John A. Grosbeck, New York, N. Y., assignor to himself and Jno. D. Beckhout, same place. [Filed Jan. 31, 1876.]

Brief.—The ladder is mounted on a frame, which slides on the main supporting-frame, and is capable of being drawn closer to or further from the building. Extensible props are attached to the rear and middle of the ladder. The ladder is raised into a perpendicular or slanting position by means of a support and gearing, and each section of the ladder has attached thereto water-pipes, which are connected to each other by flexible hose and nuts.



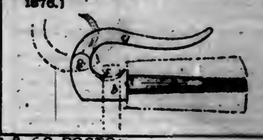
1. The bed i for the ladder and gearing, mounted upon the beams a of the main frame, in combination with the winch d, the chains or ropes passing in opposite directions, and the pulley c, as and for the purposes set forth.

2. The combination, with the extension-ladders, of the inclined braces e and the slotted diagonal braces e and the clamping-screws f f f f, substantially as and for the purposes set forth.

3. The combination, with the extension-ladder, of the metal bars c, ropes or chains r, hooks 9, and revolving rung 10, substantially as set forth.

4. The combination, with the extension-ladder f, actuating-segment h, and gearing, of the water-tubes t, attached to the lengths f and n of the ladder, and united by a flexible coupling-tube, substantially as set forth.

180,762. TRACE-FASTENINGS. La Fayette Harlson, Wyoming, Iowa. [Filed May 2, 1876.]



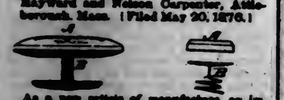
In a trace-hook, the combination of the shank *a*, having its outer end *b* slotted, as shown, in combination with the hook *g*, having the bearing *f*, and a flange *i* to enter the said slot to receive the pivot-pin, the said hook being provided with neither spring nor shoulder, so that it can be swung entirely around to throw off the trace, as specified.

190,762. CORSET-STRETCHER. Theo. M. Hess, New York, N. Y. [Filed Jan. 26, 1876.]



A wire corset clasp or brace, A, in combination with fastenings B, when constructed, combined, and arranged to operate substantially as and for the purposes set forth and described.

190,763. ARTICLES OF JEWELRY. Henry L. Hayward and Nelson Carpenter, Attleborough, Mass. [Filed May 20, 1876.]



As a new article of manufacture, an improved button or stud, composed of a face, A, of precious metal, and a mold and back, B, of base metal cased externally with same, and united to the face by means of fusible solder, substantially as set forth.

190,764. SEWING BOXES. Henry B. Hayl, Philadelphia, Pa. [Filed Oct. 14, 1875.]



A book covered with independent wire staples *c*, driven from the inside outward through the fold of the sheets or signatures *a*, and through flexible connecting bands *b*, and clinched on the outside of said bands, all substantially as described.

190,765. LADLES, &c. Charles F. Hosmer, Decatur, Ill. [Filed June 26, 1876.]

Brief.—The handle can be secured at a right or any intermediate angle by the thumb-screw.



1. The pivoted and adjustable handle B, arranged as shown, so as to be secured in a line at a right or any other intermediate angle to the spout of the bowl, as and for the purpose set forth.

2. The bowl A, with bearing *a*, and handle B, with bearing *b*, with or without the corrugations, as and for the purposes set forth.

3. The thumb-screw C, in combination with the bearings *a b* on the handle B and bowl A, as and for the purposes set forth.

190,767. PUDDLE-MACHINE. A. Heller, Hagerstown, Md. [Filed Feb. 8, 1876.]

Brief.—A potato-masher made of a single piece of wire, with its shank so twisted as to form openings, the shank operating as a stirrer.

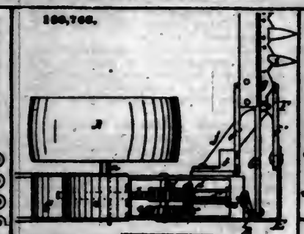


A vegetable stirrer and masher, consisting of the base *a*, shank having the opening *c* through it, the base and shank being formed from a single piece of wire, substantially as shown and described.

190,768. LAWN-MOWERS. Mobd. Hughes, Morris, Ill. [Filed May 4, 1876.]

In a lawn-mower, the tread-removal single driving-wheel A, axle *a*, gear-wheel *b*, pinion *b'*, spur-gear wheel *c*, miter-pinion *c'*, short shaft *d*, sleeve *d'*, casing C, with its lid *e*, crank E, geared angle-arm E, hinged knife-bar F, carrying-truck *g*, rod G, and support-brace *f*, as described.

190,769.



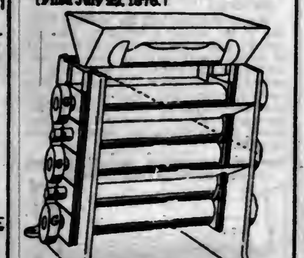
190,770. WAGONS FOR DELIVERING COAL. Anthony Iehn, Lancaster, Pa. [Filed June 6, 1876.]

Brief.—By the elevation of the forward end of the bed, the coal is discharged through a telescopic chute attached by chains to the end-gate.



In combination with the wagon-bed, hinged to side pieces B, the hoisting apparatus D E F G, arranged and operating substantially as shown, and the telescopic chute, attached by chains to the rear of said bed, and having its first section hinged to the second section, as and for the purpose set forth.

190,770. MACHINES FOR CRUSHING OLEAGINOUS SEEDS. A. B. Lawther, Chicago, Ill. [Filed July 22, 1876.]

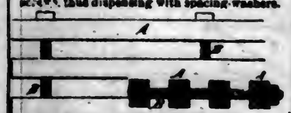


1. An improved machine for crushing oleaginous seeds, composed of an odd or uneven number of rollers, adjusted with relation to each other, and operated by power and friction, to ensure the complete and uniform individual crushing of the seeds, substantially in the manner and for the purpose above described and set forth.

2. An improved process of subjecting oleaginous seeds to the action of an odd or uneven number of crushing-rollers, arranged and adjusted, as above set forth, for the purpose of ensuring the complete and uniform individual crushing of the seeds, for the purpose of obtaining a greater yield of oil therefrom, when properly moistened and subjected to the press, as described in the specifications of my Letters Patent above referred to for moistening and treating oleaginous seeds.

190,771. WOOD MATS. S. Lewis, Brooklyn, E. D., N. Y. [Filed Jan. 22, 1876.]

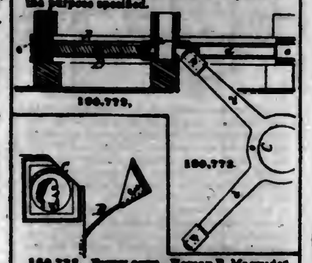
Brief.—The parallel rods are held together at equal distances apart by transverse metal screws, thus dispensing with spacing-washers.



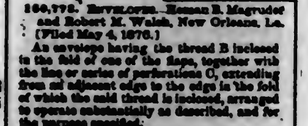
A matting made of slats A, united and held in position apart from each other by rods B screwed through them, the said slats forming seats upon the rods B, substantially as herein before set forth.

190,772. PIPE-WRENCH. Edwd. J. Lacey, Boone, Iowa. [Filed Feb. 14, 1876.]

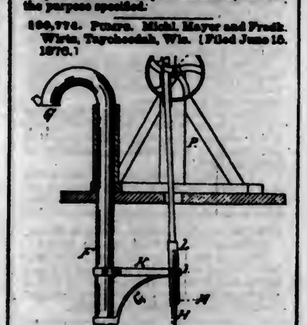
In a fifth-wheel for vehicles, the combination of the spider C, having the collar *a*, radiating arms *d*, and their friction-rollers *e*, with the upper and lower wheels A B, when constructed and arranged to operate as described, and for the purposes specified.



190,772.



190,773.



190,773. BRIDLE-BITS. Hannah B. Magruder and Robert M. Walsh, New Orleans, La. [Filed May 4, 1876.]

An envelope having the thread B inclosed in the fold of one of the flaps, together with the line or series of perforations C, extending from an adjacent edge to the edge in the fold of which the said thread is inclosed, arranged to operate substantially as described, and for the purpose specified.

190,774. PUMPS. Michl. Mayer and Fredk. Wirtz, Taychedah, Wis. [Filed June 16, 1876.]

1. The combination and arrangement of rod E, pipe F, guide I, guide-brace S, for steadying the stem B changed round pipe F, substantially as described.

2. Piston D, rod H, guide I, rod K, with its crotched end L and bar M, in combination with crank N, and shaft O, substantially as described.

190,775. COMBINED TABLES, CHAIRS, AND WALKING-STOOLS. William C. McGill, Washington, D. C. [Filed Feb. 10, 1876.]



1. The vibrating pivoted support C, provided with an opening, D, for the reception of a rabbit, substantially as and for the purpose described.

2. The reversible combined seat and table-top B, substantially as described.

3. The combination, with the frame A, and the vibrating support C, of the levers G, and combined seat and table-top B, substantially as set forth.

4. The combination, with the frame A, links I, support C, and levers F, of the levers G, and combined seat and table-top B, substantially as and for the purposes described.

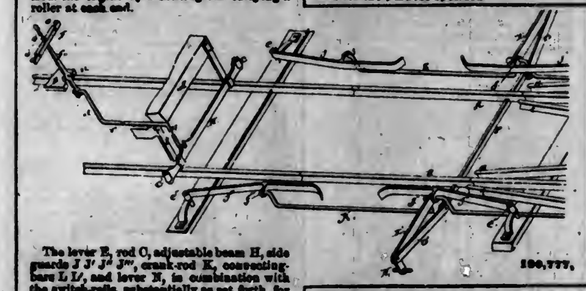
190,776. PHOTOGRAPHIC CAMERA-LENSES. Henry B. Mead, Jersey City, N. J. [Filed May 8, 1876.]



The combination of the meniscous lens *a* and plano-concave lens *b* with the meniscous lens E, substantially as described, and for the purpose specified.

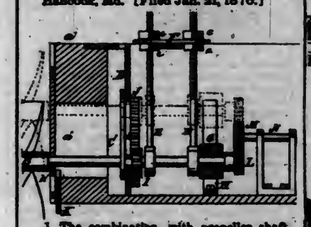
190,777. RAILROAD-SWITCHES. Joseph C. Middleton, Morristown, Pa., assignor of one-half his right to W. P. Cuthbertson, same place. [Filed June 7, 1876.]

Brief.—Operating-bars are pivoted to the cross-ties on both sides of the track above the level of the rails, and on both sides of the switch being connected to crank-rods, which are, in turn, connected by links direct to the movable rails. The side bars are operated from the engine by a shifting-bar carrying a roller at each end.



The lever E, rod C, adjustable beam H, side guards J J' J'' J''', crank-rod K, connecting-bars L L', and lever F, in combination with the switch-rails, substantially as set forth, for the purpose specified.

190,778. MECHANISMS FOR RAISING AND LOWERING PROPELLERS. Benj. Mitchell, Hancock, Md. [Filed Jan. 21, 1876.]



1. The combination, with propeller-shaft, of plates O O', hangers B B, and guide G, arranged as and for the purpose described.

2. The auxiliary plate K, having stud *h*, in combination with a slotted slide-plate, O', as and for the purpose set forth.

3. The slide-plate O', provided with pinion I, combined with the slotted fixed plate D *d*, having the rigidly-attached rack J, as and for the purpose specified.

4. The combination, with drive-wheel O, and vertically-adjustable propeller-shaft, having pinion L, of the slide-shaft M, having pinion M, as and for the purpose described.

190,779. UPPERS FOR BOOTS AND SHOES. James Mohan, St. Louis, Mo. [Filed June 12, 1876.]

The herein described and shown pattern A, having the side cuts *a a'*, toe-cut *a''*, ankle-cuts *a''' a''''*, counter-cut *a⁵*, as and for the purposes set forth.

190,779.



190,780. HYDRANTS. Charles H. Moore, Westfield, Mass. [Filed Jan. 15, 1876.]

Brief.—By the arrangement seen, the piston may be kept elevated so as to cover the waste-port, and yet not interfere with the lower valve.



1. The combination of rod N, valve-rod G, having slot I I, with plunger E.

2. The combination of the valve-spindle G with hollow nut or it, and slot I I, with the rotary hollow plunger E, and swivel-valve O, as shown.

3. The hollow adjustable plunger E, with holes P P in the side, substantially as shown, and for the purpose specified.

190,777.

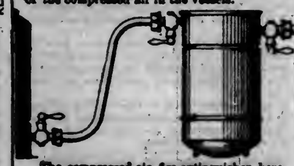
190,781. PIPE-COUPLINGS. G. C. Morgan, Chicago, Ill. [Filed June 20, 1876.]



The connecting-piece C, bolts *c*, and clamping-bars D, in combination with the pipes A B, substantially as specified.

190,782. FIRE-EXTINGUISHERS. Alexander A. Murphy, Montreal Quebec, Canada. [Filed June 1, 1876.]

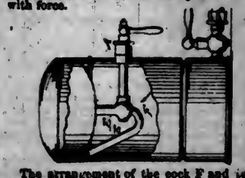
Brief.—The water is expelled by the force of the compressed air in the vessels.



The compressed-air fire-extinguisher hereinbefore described, consisting of two or more reversible vessels, connected by flexible tubes or hose and stop-cocks on each side of said vessels, as arranged that water may be forced into said vessels to compress the air therein.

190,783. FIRE-EXTINGUISHERS. Alexander A. Murphy, Montreal, Quebec, Canada, assignor of part of his right to John Taylor and Wm. Edward Hayward, same place. [Filed Feb. 15, 1876.]

Brief.—When water is forced into the lower compartment, air is compressed in the upper, where it is secured by turning the cock in the connecting-pipe. The lower compartment is emptied of air and water; then water is again forced into it until half full. The cock of the connecting-pipe is opened again, and water is made to fill the lower space. The double charge of compressed air will eject the water with force.



The arrangement of the cock F and tubes E E, whereby the stuffing-box at the handle A with the air-valve B are all placed below the water, and the machine thereby made perfectly air-tight, as hereinbefore set forth.

190,784. WASH-BENCHES. Hollis C. Paine and Fredd L. Paine, Lynn, Mass. [Filed May 9, 1876.]



In a folding bench or table, the combination of the hinged box *a a*, having the grooves *f*, notches h, crossed legs *c*, and rod *e*, substantially as shown and described.

190,785. LATCH-NEEDLES FOR KNITTING-MACHINES. John Pepper, Lake Village, N. H. [Filed June 7, 1876.]

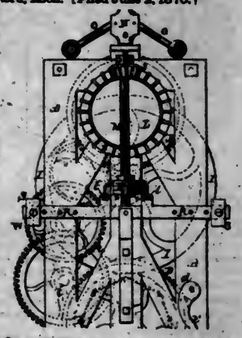
Brief.—The construction described is for allowing the stitches to be shifted from the needles to the point-shifters and back again to other needles without closing the latches.



1. A latch knitting-needle having the swaged eye or mouth *c* between the latch-pivot *b* and hook *a*, to readily receive the pointed extremity of a point-shifter, constructed and operating, substantially as described.

2. In a knitting-machine, a point-shifter, D, having an eye or opening, *e*, near its point, extending entirely through, in combination with a needle having its eye or mouth between the latch-pivot and the hook, substantially as described, and for the purpose set forth.

190,786. MORTARS. Edmund Pepple, Hartford, Mich. [Filed June 9, 1876.]



In a power operated by a weighted chain, the combination of the vertical shaft H, with head N and governor-arms O O at its upper end, the cam-wheel F, formed with the corrugations *a a* and secured on said shaft, and the walking-beam E, with friction-rollers *f f*, substantially as and for the purposes herein set forth.

180,787. EARTH-AUGERS. Chas. D. Pierce, La Salle, Ill. [Filed Sept. 20, 1876.]



1. In an earth-auger, the arm B, having a curved extension, *g*, at its bottom, and carrying the open-ended loops *b c* and dowel-pins *f*, in combination with the hinged arm B', having a curved extension, *g*, at its bottom, as and for the purposes set forth.

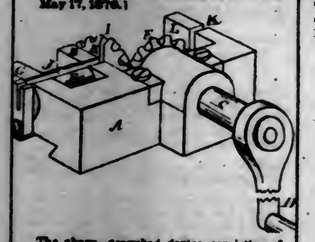
2. The movable sides C C, having their lower pointed ends bent outward, in combination with the extended cutters D, to increase the diameter of the basket at its bottom, substantially as and for the purposes shown and described.

3. The curved-arm extensions *g g*, substantially as and for the purposes shown and described.

4. The cross-bar E, carrying the hinged valves G G and spring *k*, substantially as and for the purposes shown and described.

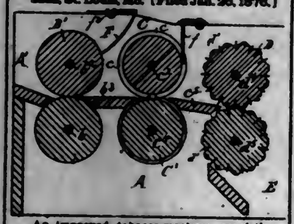
5. The combination of the rods *m*, upward-turning valves G, and downward-pressing spring *l*, substantially as and for the purposes shown and described.

180,788. BALE-TYING ATTACHMENTS FOR BALING-PRESSES. Stacy D. Purdy, Cleveland, Ohio, assignor of one-half his right to H. S. Adams & Co., same place. [Filed May 17, 1876.]



The above-described device, consisting of the frame A, having arms O H L, the shaft F, having the groove J, connected with the plate K and the bevel-gears E I, the shaft C, and crank D, all constructed, combined, and operating substantially as and for the purpose specified.

180,789. TOBACCO-MACHINES. J. F. Quesada, St. Louis, Mo. [Filed Jan. 20, 1876.]



An improved tobacco-machine, consisting of the rollers B B' C', roll-cutters C D D', arranged with relation to each other, and to feed and discharge attachments A' E, the guard F, comb *f*, and driving-gear, all said parts being combined and constructed as shown and described, to operate in the manner and for the purpose set forth.

180,790. FIRE-HOSE NOZZLES. John Van Dusen Hood, New York, N. Y. [Filed July 22, 1876.]



A nozzle for hose, designed for the discharge of water, that is fabricated of cotton, linen, or other analogous fibrous material, woven into the form of a conical or tapering tube, and without a seam, as and for the purpose described.

180,791. LAUNDRY-FURNACES. George W. Robertson, Peekskill, N. Y., assignor to Scottard, Robertson & Co., New York city. [Filed May 20, 1876.]



1. The concave automatic hood or shield, constructed and operating substantially as described.

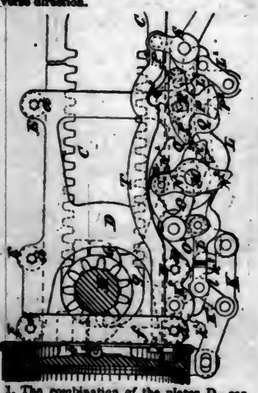
2. The combination of the curved lip of the concave hood, and the slot in the stove-plate, substantially as and for the purpose described.

3. The concave automatic hood, provided with the central slot or opening for the handle of the sad-iron, substantially as shown and described.

4. The concave automatic hood, provided with the upturned lips at the base of the central slot, to facilitate the entrance of the sad-iron, substantially as described.

180,792. CAR-STARTERS. Etienne Salomon, Montreal, Quebec, Canada. [Filed Apr. 25, 1876.]

Brief.—To stop the car, the rack is thrown into gear with pinion on the axle, which moves the piston and compresses air in the cylinder. The force of the compressed air starts the car, when the rack is changed to move in reverse direction.



1. The combination of the plates D, carrying the rack-bar C, distance-pieces F, and guides *f*, all working in the pillow-blocks G, or any part of the frame of a cylinder, as and for the purposes set forth.

2. The combination of the cam N, cam O, link O', sliding bar L, toggle-arms K' K' L', the whole being operated by the action of the brake, for the purpose of raising and lowering the plates D, substantially as set forth.

3. The combination of the cam N, cam P, bent arm S, and bar T, the whole receiving motion from the brake, and operating the rack-bar C, substantially as and for the purpose described.

4. The combination of the cam N and cam Q with the bar T, the whole actuated by the brake, and operating the rack-bar C, as and for the purposes set forth.

180,793. COTTON-GIN SAWS. Charles F. Easterwood, Albany, N. Y. [Filed Sept. 26, 1875.]



A cotton-gin saw having teeth set or staggered, substantially as and for the purpose described.

180,794. BUILDING-BLOCKS. F. Schaffer, Buffalo, N. Y. [Filed July 10, 1876.]

Brief.—An artificial building-block consisting of a metal skeleton-frame, with the front side solid and ornamented, filled with concrete. The front side is secured by an inner ledge, and all the corners have projecting ledges to retain the filling. The rear side is provided with a wooden block to secure the lathing to. Legs in the corners, with recesses, also assist in holding the filling in place.



1. As a new article of manufacture, metal casings for artificial stones, composed of the facing B', and the rim or ledge B'', and the skeleton C, substantially as described.

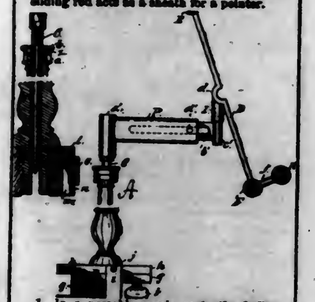
2. The combination, with an artificial stone, of a metallic face, B, secured to said stone by the ledge B'' and the projecting edge B''', substantially as described.

3. The combination, with an artificial stone, A, of a wooden filling-block, F, as described, for the uses and purposes stated.

4. The combination, with the metallic casing of an artificial stone, of the legs D and the recesses E, substantially as described.

180,795. MUSIC-STANDS. J. B. Schoenacker, Dayton, Ohio. [Filed Feb. 8, 1876.]

Brief.—The hollow stan.ard is provided with a ferrule and cap-nut at its top, for spreading the rubber washer that holds the hollow sliding rod in position, and at its bottom with a screw, that actuates the clamp that holds the rack to a piano or other article. Said clamp is composed of a base, a clamping-piece, a guide-strip, and a thumb-screw. The hollow sliding rod acts as a sheath for a pointer.



1. In a portable music-rack, the hollow standard A, having a screw at its bottom for actuating a clamp, and a ferrule and cap-nut, *b*, upon its top, for spreading the washer *s* that holds the rod C in position, substantially as described.

2. In combination with the hollow standard A, the hollow rod C, held at any required point by the rubber washer *s*, as and for the purpose specified.

3. In combination with a portable music-rack, the pointer *c*, sheathed in the hollow rod C, as and for the purpose specified.

4. The clamp B, composed of the base *f*, clamping-piece A, guide-strip *t*, and thumb-screw *h*, when actuated by the screw upon the standard A, in the manner and for the purpose specified.

5. The herein described portable and adjustable music-rack, consisting of the hollow standard A, hollow rod C, pointer *c*, clamp B, adjustable attachment P, and rack constructed of the metal strip D, and bars E, F, G, and H, when the whole are arranged and united, substantially as described, for connection to a piano, desk, or table, as and for the purpose specified.

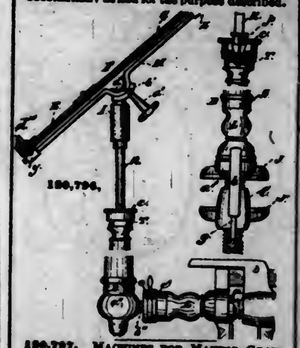
180,796. MUSIC-STANDS. J. B. Schoenacker, Dayton, Ohio. [Filed June 16, 1876.]

1. In a portable and adjustable music-stand, the hinged rack constructed of the pieces *d'* E F G and the metallic strip M, swaged at its center, and slotted to receive the adjustable clamping device upon the cap I, substantially as and for the purpose specified.

2. The combination, with a music-stand, of the cap I, whose top consists of the head *k*, piece *g*, screw *b'*, and milled head-cap *a'*, when the respective parts are constructed and united substantially as and for the purpose specified.

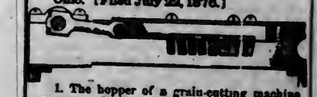
3. In combination with the divided standard A, the right-angled coupling, consisting of the part *a''*, screw *b''*, cap *c''*, disk *d''*, and lock-nut *e''*, when constructed and united substantially as described.

4. The herein-described portable and adjustable music-stand, consisting of the adjustable rack, constructed as set forth, the divided standard A, the right-angled coupling, consisting of the part *a''*, screw *b''*, cap *c''*, disk *d''*, and lock-nut *e''*, and the clamp G, when the respective parts are united as described, for connection to a piano, desk, table, or chair, substantially as and for the purpose described.



180,796.

180,797. MACHINES FOR MAKING GRAIN GATES. Ferdinand Schumacher, Akron, Ohio. [Filed July 22, 1876.]



1. The hopper of a grain-cutting machine constructed with end discharges, substantially as and for the purpose described.

2. In a grain-cutting machine, the combination, with the bottom plate of the hopper, of the frame extended out from either end of same, substantially as and for the purpose described.

3. In a grain-cutting machine, the combination, with the hopper, of knives presenting their cutting-edges reversely from the center of the knife-frame, substantially as and for the purpose described.

180,798. MACHINES FOR COMPRESSING BLOOMS AND PUDDLING' BALLS. William Sellers, Philadelphia, Pa., assignor of one-half his right to John Sellers, Jr., same place. [Filed July 3, 1876.]

Brief.—Rolls for converting the bloom or ball into a billet; a hollow swaging-cylinder resting on a hydraulic ram in front of the rolls; a hydraulic ram for compressing the billet endwise while in the cylinder, and a hydraulic ram for ejecting the billet. The swaging-cylinder, with billet in it, having been brought to the proper position, the compressing-ram enters it, and upsets and condenses the billet, after which the cylinder is elevated, and the ejecting-ram enters and expels the billet, and at the same time a stirrup attached to the ejecting-ram falls over and contracts another billet lying in the roll-table, and on the backward movement of the ram draws it into the swaging-cylinder, to be in turn compressed and ejected.

1. The hereinbefore-described process of refining and condensing iron or of condensing steel by alternately extending the mass by lateral compression, and condensing it in a chamber by longitudinal compression, the area of its cross-section being alternately reduced and enlarged at each stage of the process, substantially as and for the purposes set forth.

2. The combination, with a roll-train and its table, of a condensing-chamber, substantially as and for the purposes set forth.

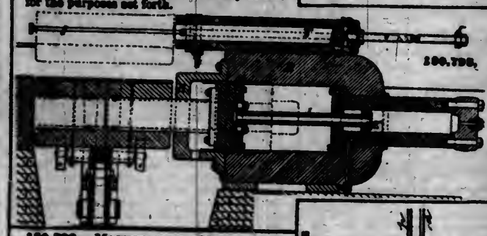
3. The combination, with the roll-train, the table, and the condensing-chamber, of a device for raising and lowering the condensing-chamber, substantially as and for the purposes set forth.

4. The combination of the upsetting-plunger, the upsetting-block, and the raising and lowering condensing-chamber, substantially as described.

5. The combination, with the condensing-chamber, of a charging and discharging apparatus, substantially as described.

6. The combination, with the charging and discharging apparatus, of the swab and cleaner.

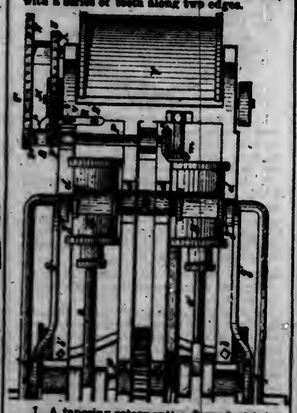
7. The combination of the condensing-chamber and carrying-rollers, substantially as and for the purposes set forth.



180,799.

180,799. MACHINERY FOR MINING COAL. Porter Sheldon, Jamestown, N. Y. [Filed Mar. 27, 1876.]

Brief.—A flat tapering rotary cutter-blade, with a series of teeth along two edges.



1. A tapering rotary cutter, formed with its opposite sides grooved or flattened, substantially as and for the purposes set forth.

2. The combination, with a mining rotary cutter, having flattened faces, as described, of a series of cutters secured within wedge-shaped grooves formed in the curved faces of the cutter, substantially as and for the purpose specified.

3. The combination, in a coal-mining machine, of a rear stationary axle and a forward main axle centrally pivoted to the frame, substantially as and for the purpose specified.

4. In a coal-mining machine, the combination, with the winding-drum and a counter-shaft, of spur-wheels, a double clutch, and endless chains, to impart a slow or rapid movement to the machine, substantially as and for the purposes set forth.

5. In a coal-mining machine, the combination, with the spur-wheels P' P'', W, and X, and endless chains T U, of the double clutch Q, shifting-bar R, and operating-lever S, substantially as and for the purposes set forth.

180,800. GAS-GLOBES WITH PRISMS. F. C. Shirley, New Bedford, Mass. [Filed Nov. 24, 1875.]



The globe B, having the pendent prisms C suspended to the globe by the metal links *b*, hooked into the openings *c*, formed in the lower edge of the globe, as described.

180,801. SCHOLARS' COMPANIONS. James H. Smith, Middletown, Conn. [Filed May 4, 1876.]

A school-implement composed of the tube A, divided laterally, by the elastic partition *a'*, into the greater chamber *a* and the lesser chamber *a'*, the eraser-stopper B, closing the chamber *a*, and stopper C, carrying sponge *c*, closing chamber *a'*, the said stoppers having flange-caps *b*, and eye-handles *c'*, as described.



180,801.

180,802. CAR-BRAKES. Silas G. Smith, Hollis, assignor to Samuel W. Leques, Biddeford, Me. [Filed Oct. 2, 1876.]

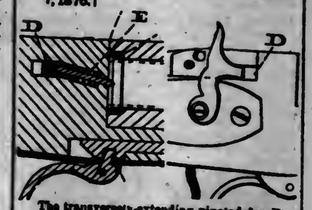
Brief.—Brakes operated by connection of sliding-rods. Ropes arranged to raise one of each pair out of the way, and so at will prevent braking throughout the train.

1. The combination of the arm *a*, spring *b*, arm *c*, vertical pivoted lever *d*, rods *f h*, and shoes *g i*, as herein described, and for the purposes set forth.

2. The combination of the brake *m*, chain *l*, arm *c*, and pivoted lever *d*, substantially as herein described, and for the purposes set forth.

3. The combination of the chain *i*, operating as herein described, with the cord or chain *p*, to operate the chain simultaneously in a number of cars in the rear of the one where the brake *m* is applied, as herein set forth.

180,803. BREECH-LOADING FIRE-ARMS. A. Spellerberg, Beverly, N. J. [Filed June 7, 1876.]

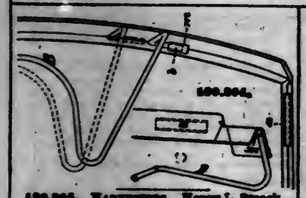


The transversely-extending pivoted dog D, projecting at the side of the breech-block, and operating the central firing-pin E by the hammer C, also at the side of the breech-block, substantially as and for the purpose set forth.

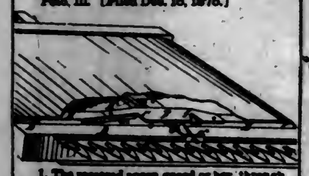
180,804. CHILDREN'S TRAYS. J. W. Stichter, Newark, N. J., assignor to Walter M. Conger, same place. [Filed Feb. 1, 1876.]

A table-tray having the sockets *m m*, in combination with the double-ended spring B *b b*, adapted to serve therewith, as and for the purposes herein specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.



180,806. HARVESTERS. Henry L. Strock, Polo, Ill. [Filed Dec. 16, 1870.]



1. The recessed apron guard or bar, through which the forward end of the sickle-lever passes, provided with the inclines *d' d'*, in combination with the notched bridge or plate F, constructed and operating substantially as described.

2. The combination, with the sickle-lever, of the tapering double-beveled or convex cutting-point O', connecting said lever with the sickle-bar, and operating substantially as and for the purposes specified.

3. The combination, with the sickle-lever C, of the recessed guard-bar E, provided with the inclines *d' d'*, the notched bridge F, and the tapering cutting-point O', all arranged and operating substantially as described.

180,806. PHOTOGRAPHERS' CAMERA-STANDS. Mathias Steingut, Toledo, Ohio. [Filed Nov. 10, 1875.]

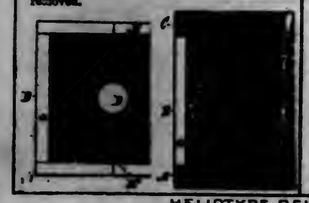


1. The combination, substantially as hereinbefore set forth, of the base or frame, the rack-bar or upright carrying the camera-platform passing therethrough, the worm-wheel mounted on said frame, and a pinion-wheel intermediate between the rack-bar and worm-wheel, by the revolution of which the camera is raised or lowered.

2. The improved camera-stand hereinbefore described, consisting of the combination of the base or frame, the tables thereof, the pinion and worm wheel mounted thereon, the pinion-moving rack-bar, and the screw working in a suitably slotted plate of the platform, to vary its inclination, these members being constructed to operate, as and for the purposes set forth.

180,807. MOLDS AND CORES FOR CASTINGS. Henry Taub and Friedrich Taub, Chicago, Ill. [Filed Jan. 20, 1876.]

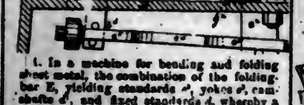
Brief.—Sets up the cheeks or middle portion of the flask, with the sectional pattern in proper place inside thereof, and packs the sand for the mold and core at the same time. Parting-plates are not closely in the line of division of both cheeks and pattern, steadying pattern and parting the sections of mold when cheeks and sections of pattern are laterally removed.



In a flask for casting metal pipe, the combination of the drag A and cope C with the cheeks B, made in two parts, *a a'*, and the parting-plates B B, adjusted to receive the pattern between them, substantially as specified.

180,808. LOOM-HARNESS. Jos. G. Weston, Lawrence, Mass. [Filed May 18, 1876.]

Brief.—The device is intended to prevent the drawing of the heddles out of their proper position, arising from the deflection of the rig-hand where it passes the shanks of the eyebolts. The support-bars are provided with notches opposite the points where the eyebolts are secured to said bars, and said notches are made of sufficient depth to compensate for the deflection of the rig-head.



In a loom-harness, each of its support-bars B B', as provided with a compensating-notch, *b*, as described, arranged at the junction of the bar and each eye O thereof, and being for reception, as set forth, of the heddles extending from that part of the back-band which, in passing by the shank of the eye, becomes curved or deflected thereby out of a straight line, all being essentially as specified.

180,809. BUCKETS FOR ELEVATORS. George Whittaker, Brooklyn, N. Y. [Filed June 28, 1876.]

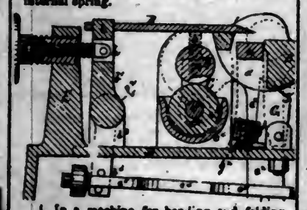


1. An elevator-bucket made of a single piece of metal by means of dies, and having a greater bulge or projection at the center of its front than at the sides, substantially as and for the purposes set forth.

2. An elevator-bucket forming approximately an apex of a three-sided pyramid, having a triangular back and two triangular sides extending from the side edges of the back, and meeting opposite the middle of the back, and having a sharp nose, substantially as and for the purposes set forth.

180,810. BENDING-MACHINES. Pardon A. Whitney, Southington, Conn. [Filed May 4, 1876.]

Brief.—Folding-bar has close bearings in standards geared to the cam-shafts, and preserving a uniform distance between the two. Folding-blade and folding-bar mutually adjustable by thumb-screws, pivoted to rocking tenon-arms supporting folding-blade, and extending to rods connected to the bottoms of folding-bar standards, the latter extending through slots in bed-plate. The folding-blade is screwed to hangers, bearing a shaft beneath it, carrying friction-rollers, abutting against cams revolved by revolving the folding-bar. When the latter is farthest away from the folding-plate, indentations of the cams permit the friction-rollers and the plates to be lifted to insert or remove the plate to be bent. The sliding part of the gage is of two parts, spread apart and against the stationary parts by an internal spring.



1. In a machine for bending and folding sheet metal, the combination of the folding-bar E, yielding standards *e'*, yokes *e²*, cam-shafts *d'*, and fixed standards *d*, whereby a uniform distance is at all times preserved between the folding-bar and the cam-shafts, as described, and for the purpose specified.

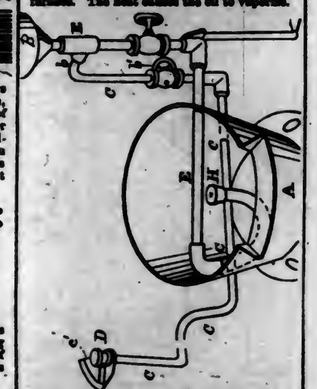
2. The combination of the slotted folding-blade B, tenon-arms *b'*, rock-shafts *b²*, thumb-screws H, hinged at *h* to said tenon-arms, and working in standards *b'*, whereby the said folding-blade is adjustable to the folding-bar, as described, and for the purpose specified.

3. The combination of the folding-blade B, screws *a*, arms C, friction-rollers *f*, shaft *d'*, having slotted bearings *g'*, standards *d*, cams D on shafts *d'*, segmental pinions *d²*, racks *d³*, having slots *d⁴* working on pins *d⁵*, cranks *d⁶* on shaft *d*, as described, and for the purpose specified.

4. The combination, with the blade B, of the slide K, carrying bars *k*, ways *k'*, rib *k²*, pieces *k³*, and tension-spring *k⁴*, together with the thumb-screw M, and nut *m'*, as described, and for the purposes specified.

180,811. SOLDERING-IRON HEATERS. John H. Whitting, Salem, Ohio. [Filed Apr. 27, 1876.]

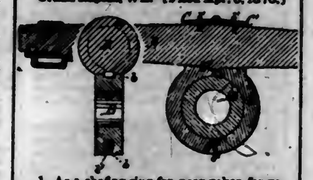
Brief.—The pipe that connects the reservoir and illuminating-burner passes through the furnace. The heat causes the oil to vaporize.



1. In combination with the soldering fire-pot A, having a heating-burner, H, the illuminating-burner D on pipe C, adjusted substantially as and for the purposes described.

2. The pipe C, having valve *b'*, and burner D, in combination with fire-pot A, reservoir B, pipe E, and burner H, substantially as and for the purposes described.

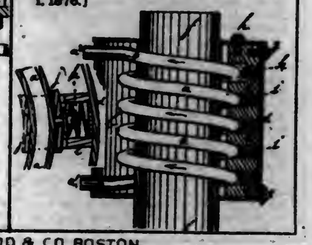
180,812. NECK-YOKES. O. F. Whipple, Grand Rapids, Wis. [Filed Apr. 5, 1876.]



1. As a chafing-ring for neck-yokes for vehicle-poles the solid cast-rubber ring B, having the deep exterior circumferential groove *b*, arranged to operate as described.

2. In a neck-yoke for vehicle-poles the combination, with the solid cast india-rubber ring B, having the exterior deep circumferential groove *b*, of the rings C C', fastened to the yoke at *b'*, each carrying a semicircular clamp, *b³*, sunk or embedded in the said groove *b*, and fastened together at *b³*, as described, and for the purpose specified.

180,813. FEED-WATER HEATERS. William Wickersham, Boston, Mass. [Filed May 1, 1876.]



1. In a feed-water heater for locomotives, the standards *e e e* within the heating-chamber, as shown, having spaces for the coils of the supply-pipes to rest in and move in freely, as the coil may be expanded by heat, in combination with the said coil, as and for the purpose set forth.

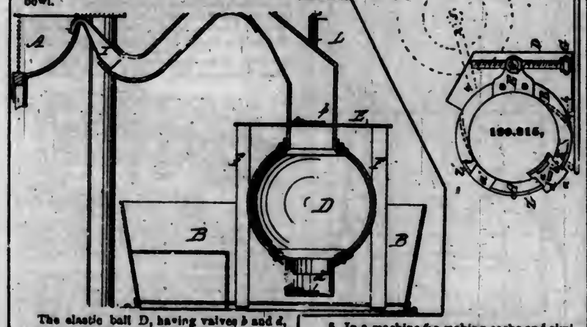
2. Separate and independent springs *i i* for each place in the standard supporting the coils of the supply-pipe, in combination with the coil of supply-pipe *a* and the standard *e*, as and for the purpose set forth.

3. The box *f* around the coil *a*, in combination with the screw *k* and the standard *e*, having a space for the said box to slide in, as and for the purpose set forth.

4. The standard *e*, with recesses deeper and largely outside of the recesses for the coil *a* to rest and expand in, in combination with the spring *i*, as and for the purpose set forth.

180,814. WASH-STANDS. William H. Zinn, Boston, Mass. [Filed Mar. 31, 1876.]

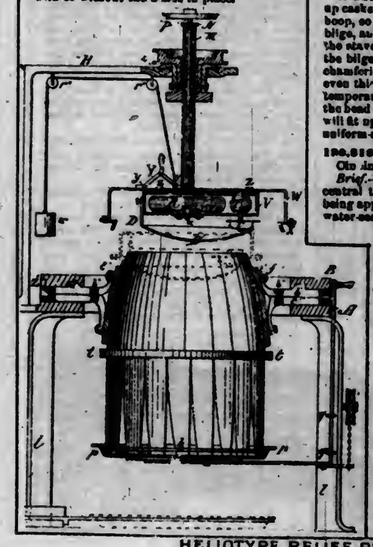
Brief.—A wash-stand combining a wash-bowl and a water-tank, with apparatus for pumping the water from the tank into the bowl.



The elastic ball D, having valves *b* and *d*, and operating-frame I, in combination with a water-tank, B, and a wash-bowl, A, substantially as described, for the purpose specified.

180,815. MACHINES FOR MAKING BARRELS. Thomas M. Healey, Washington, D. C. [Filed May 24, 1876.]

Brief.—The staves are set up in a rigid central truss-hoop, of uniform size at the bilge. They are then placed in an expanding and contracting eccentric compressing-chuck, trussed, compressed, if necessary, to a uniform size at the chime, "corked off," and hooped, either with or without the heads in place.

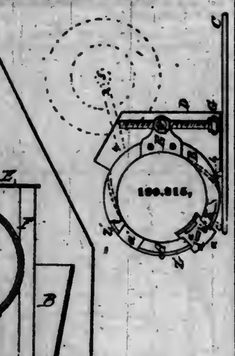


1. In a machine for setting up staves in a cask, the combination of the base *d a*, center disk *a*, and elastic pressure-band *r*, and rigid outer bilge-hoop *c*, as and for the purpose substantially as described.

2. In a machine for making casks from staves, the combination of an eccentric compressing-chuck, A B, movable cask-support *f g*, and chamfering and crozing device, constructed and operating substantially as described.

3. In a machine for making casks from staves, the combination of the lifting device L and the compressing-chuck, above described, to overcome the irregularities in the width of the staves, to form casks of a uniform size and shape at the chime, substantially as described.

4. In a chuck for compressing casks, such as above described, the combination of the plate *a'*, plate *b'*, bolts *b²*, with the plates *a'*, as and for the purposes described.



180,816.

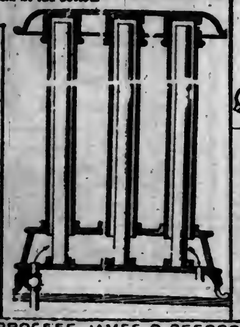
5. In a machine for making casks and similar articles from staves, the combination of the rings A and B, dogs *e'*, swivel bearing G, swivel-nut F, and screw D, constructed and operating substantially as described.

6. In a machine for making casks from staves, the device for leveling, chamfering, and crozing, composed of the combination of the vertical shaft P, sleeve M, collar J, pulley I, support Q, frictional plate O, pulleys R and T, cutter-head U, guide-bar W', guide-hoop X, and cam Y, constructed and operating substantially as described.

7. The process herein described for setting up casks from staves, in a rigid central truss-hoop, so as to be of uniform diameter at the bilge, and then compressing the outer ends of the staves to form a regular curve from near the bilge to the chime, crozing, leveling, and chamfering or working off the staves to an even thickness, and putting on permanent or temporary end hoops, either with or without the head in place, whereby hoops made in sets will fit upon the cask and hold the staves upon uniform-sized heads, substantially as set forth.

180,817. STEAM-RADIATORS. J. K. Abbott, Cincinnati, Ohio. [Filed Mar. 27, 1876.]

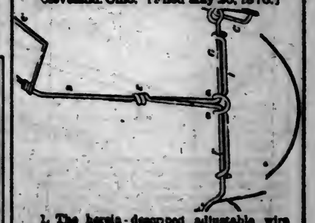
Brief.—Air is first caused to pass into the central tubes. On sufficient steam-pressure being applied, it will be forced out through the water-seal at the bottom



1. A steam-radiator provided with air-retaining receptacles, substantially as described, for the purpose of avoiding the necessity of the discharge of the interior air, and permitting its removal from the exterior walls of the radiator.

2. The combination, in a steam-radiator, of a steam-pressure-regulating device and radiating-pipes having one or more retaining-receptacles for air, substantially as described, for the purpose of enabling the radiating-surface to be graduated in any proportion to the full extent thereof by the regulation of the pressure of the steam.

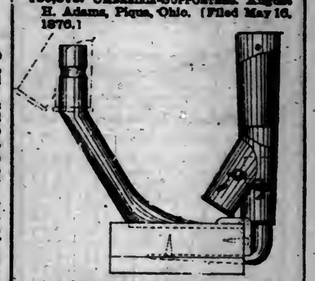
180,817. HAYRE-THOUGH HANGERS. Jonathan P. Abbott and Henry W. Trissler, Cleveland, Ohio. [Filed May 26, 1876.]



1. The herein-described adjustable wire hanger, consisting of the stem D, bifurcated at a point in line or nearly so with the top of the trough, forming sides F and G of the brace, and having at the end of one section thereof a hook, A, for clasping the bead, and the other section formed with a pendent clamp, C, for securing the inner side of the trough to the hanger, in the manner substantially as herein described.

2. In combination with an eaves-trough hanger the clamping-brace I, as and for the purpose specified.

180,818. UMBRELLA-SUPPORTERS. August H. Adams, Piqua, Ohio. [Filed May 16, 1876.]



A socket attachment for wagon-umbrellas, made with a socket for the umbrella-handle at one end and two or more sockets at the other end, at suitable angles to each other, substantially in the manner and for the purpose specified.

180,819. INSTEP-SUPPORTERS FOR BOOTS AND SHOES. Reginald Ames, London, Great Britain. [Filed Jan. 20, 1876.]

Brief.—The supporter is applied inside of a boot or shoe, but has no rigid connection therewith.

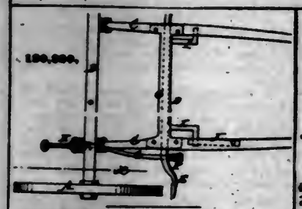


As a new article of manufacture, a reversible instep-supporter of metal or other suitable elastic material, constructed as described, and adapted to be applied in a boot or shoe beneath the arch of the foot, substantially as specified.

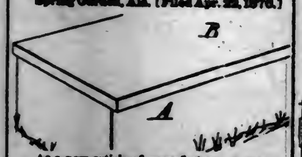
180,820. BRAKES FOR LIGHT VEHICLES. C. H. Appel and J. S. Rothenberger, Shimerville, Pa. [Filed June 6, 1876.]

The brake-lever E, pivoted to the front axle B, the rock-shaft D, having brake-arms E and arms I and F projecting at points contiguous to the shaft C, all combined as shown and described, for the purpose specified.

190,880.



190,881. GRAVE-COVERS. Geo. W. Arnold, Spring Garden, Ala. [Filed Apr. 22, 1876.]

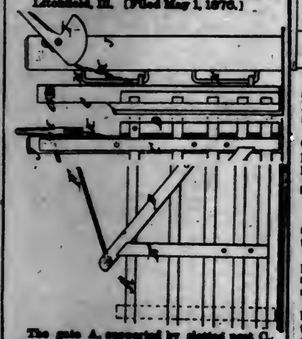


As a new article of manufacture, a grave-cover, consisting of the rectangular body A and slab B, both composed of artificial stone, Portland cement, and sand, the cover, as a whole, being adapted to be easily set up or removed, and transported from place to place, substantially as set forth.

190,882. CONFECTIONERS FOR LINING PUDDINGS AND OTHER PURPOSES. Marie Eugene Paul Ambroise, Paris, France. [Filed May 5, 1876.]

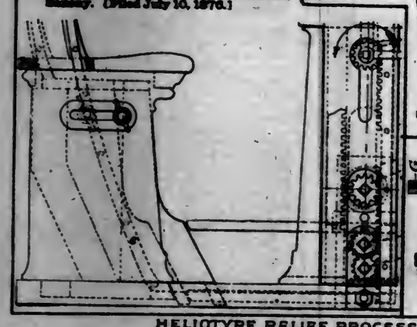
A refractory material for fire-surfaces, consisting essentially of oxide of chromium, prepared in the manner and for the purpose substantially as described.

190,883. FARM-GATES. Dennis O. Beach, Litchfield, Ill. [Filed May 1, 1876.]



The gate A, supported by slotted post C, slotted brace D, and adjusting-rod F, in combination with the post J, provided with the elongated staples H, and the cam-lever I, having flexible connection with gate, all substantially as shown and described.

190,884. SCHOOL-FURNITURE. Martin F. Bates and Paul R. Hazard, Chemnitz, Saxony. [Filed July 10, 1876.]



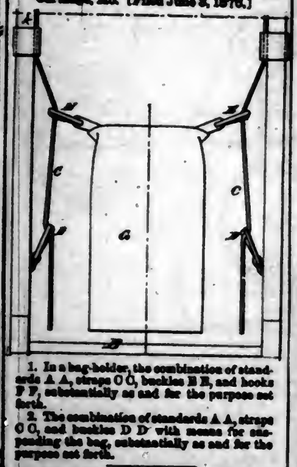
The combination of the desk, seat, and foot-board, with seating, whereby they are simultaneously and proportionately adjusted to suit various heights of persons, according to the general proportions of the human form, substantially as and for the purpose set forth.

190,885. HORSE-DISCARDERS. A. M. Barker, Macon, Miss. [Filed May 9, 1876.]



In combination with the whiffletree A, the two-pronged trace-hook B, pivoted thereto, as above, and the rock-shaft C, provided with the head d, for entering the space between the ends of the prongs of the hook, as and for the purpose specified.

190,886. BAG-HOLDERS. Edward G. Bates, Carthage, Mo. [Filed June 8, 1876.]



1. In a bag-holder, the combination of standards A A, straps C C, buckles B B, and hooks D D, substantially as and for the purpose set forth.

2. The combination of standards A A, straps C C, and buckles D D with means for suspending the bag, substantially as and for the purpose set forth.

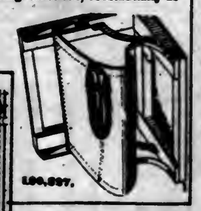
190,887. SPRING-PILLOWS. Jacob Beamer, Manor Station, Pa. [Filed Mar 27, 1876.]

1. A pillow made of wire-cloth, stretched and supported on side head-springs, substantially as specified.

2. A pillow made of wire-cloth, covered with perforated felt or other fabric, and supported and stretched on side springs, substantially as specified.

3. The combination of a wire spring-pillow, having lateral top rod, with supporting-rocks, to raise or lower the pillow, substantially as specified.

4. A wire spring-pillow, having a lateral spring-connecting brace-rod, substantially as specified.

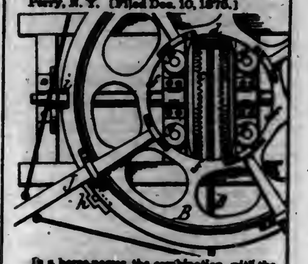


190,887.



190,888.

190,888. HORSE-POWERS. R. W. Benedict, Perry, N. Y. [Filed Dec. 10, 1875.]



In a horse-power, the combination, with the master-wheel B, provided with the cog f, of the center-rollers g g g g bearing against the inner periphery, the quarter-rollers h h h h bearing under the rim, and the intermediate rollers i i embracing the rim in line with the pinions b b, as and for the purpose specified.

190,889. SOFA-BEDSTEADS. J. A. Bigger, San Francisco, Cal. [Filed Apr. 8, 1876.]



1. In combination with a seat-lounge having an adjustable back, B, the reversible and divided pillow-frame C, substantially as set forth and described.

2. In combination with a divided pillow-frame, the double pulley a b, operated by an elastic cord, c, and a non-elastic cord, d, when held in position by the ratchet-wheel k, pawl and spring i i', substantially in the manner as set forth and specified.

3. The supporting-arm or pawl E, operated by the elastic cord m, in combination with the rack o, substantially as and for the purpose specified.

4. The supporting-arm F, operated by the elastic cord e, in the manner substantially as shown.

190,890. FIRE-HYDRANTS. J. Birkinbine, Philadelphia, Pa. [Filed May 8, 1876.]

1. The combination of a base, A, constructed substantially as shown and described, two or more hydrants, B, seated thereon, a top plate, C, bearing upon the hydrants, and holding them in their proper relative positions, and one or more rods or bolts, D, extending from the top plate to the base, and holding the parts together, substantially as shown and described.

2. The base A, provided with a mouth or mouths, a, two or more seats, b, and one or more hollow internal posts, c, as and for the purpose described and shown.

3. The plate B, arranged to bear upon and hold the hydrants, as shown, provided with the arms g, having the valve-operating screws G mounted therein, as shown.

4. The combination of the base A, hydrants B, plate B, rod D, and nut F, as shown.

5. The combination of the screws G, having the lateral recesses made in their lower ends, with the valve-stems m, having their upper ends provided with heads, and inserted into the recesses in the screws, as shown.

6. The combination of the stand-pipes or hydrants B and the plate B, held by one or more rods, D, and provided with screws f, bearing upon the hydrants, as shown.

190,890.

190,891. PUMPS. Wm. S. Blunt and Edmd. Blunt, Jr., New York, N. Y.; said Edmd. Blunt assignor to said William S. Blunt. [Filed June 2, 1876.]

Brief.—By changing the valve the pump can be converted into a lifting or force pump. The pump-handle is connected with the air-chamber by a separate bearing-bracket. The air-chamber is so arranged that the handle may be placed at any desired angle with the discharge-nozzle.



1. The combination, with the pump-barrel a, of the air-chamber k and the valve l, arranged so as to be pressed against its seat by the pressure in the air-chamber, substantially as and for the purpose described.

2. The combination of the pump-barrel a, the air-chamber k, valve l, and cap m, substantially as and for the purpose specified.

3. The combination of the pump-barrel a, the air-chamber k, provided with the adjustable valve l, the pump-levers E and E, arranged substantially as described, with the curved clamping-rings n n, arranged to secure the air-chamber to the pump-barrel, substantially as and for the purpose set forth.

4. The combination, with the pump-barrel a, the air-chamber k, and valve l, of the separate and detachable bearing-block t, arranged to support the rocking shaft, substantially as and for the purposes described.

190,892. ELECTRIC GAS-LIGHTING ATTACHMENTS. Abraham L. Bogart, New York, N. Y. [Filed July 21, 1876.]

As an improvement in electric gas-lighting apparatus, the insulated fixed arm A, the pivoted arm C, and the chain or cord D, secured to and depending from the latter, in combination with each other and with the burner B, substantially as and for the purpose specified.



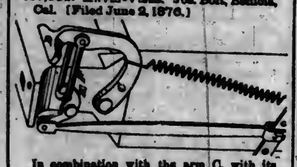
190,892.

190,893. ELECTRIC GAS-LIGHTING APPARATUS. Abraham L. Bogart, New York, N. Y. [Filed Mar. 4, 1876.]

1. The means employed for operating the vibrating arm C, consisting of the cam e attached to and revolving with the plug B, and provided with the tip f, which engages alternately with the outer and inner sides of a stud, f', that is secured within and projects horizontally rearward from the lower end of said arm, said parts being combined in the manner and for the purpose substantially as specified.

2. In combination with the vibrating arm C, which is pivoted to or upon the burner B, the spring D attached at one end to said burner, and at its opposite end to said arm, and operating to retain the latter in position when moved therefrom in either direction, substantially as and for the purpose shown.

190,894. ANVIL-VISES. Jos. Bolt, Benicia, Cal. [Filed June 2, 1876.]



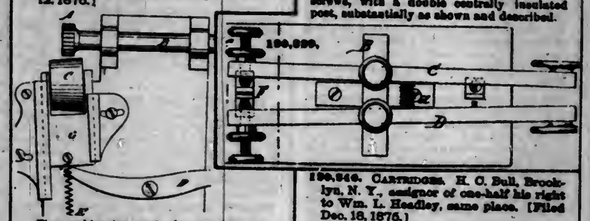
In combination with the arm C, with its jaw D and the lever E, the detachable connecting-link F, so adjusted that the jaw D may be thrown out of the way, substantially as herein described.

190,895. CORPSE-COOLERS. Chas. A. Brotz, St. Clair, Pa. [Filed June 26, 1876.]



In a corpse-preserver, the slotted bottom C, metal case B, and exterior metal-lined box A, having ventilators f g, in combination with chamber d, formed in the preserver, bottom support h, guard k, and pipe l, all constructed and arranged as and for the purpose set forth.

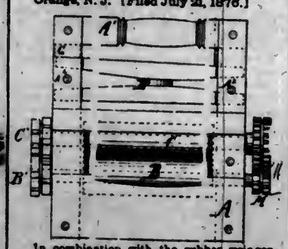
190,896. IMITATION-STITCH MACHINES. B. Brown, Georgetown, Mass. [Filed June 12, 1876.]



190,896.

The combination, with the milled roller A, of the carrying-roller C, mounted on a support, G, sliding toward and from it, also being adjustable for inclining its face relatively to the roller A, and also being provided with the lever D and spring E, substantially as specified.

190,897. WRINGERS. Ross C. Browning, Orange, N. J. [Filed July 21, 1876.]

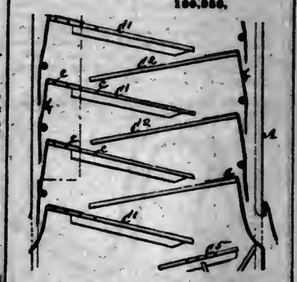


In combination with the rubber wringer-rolls B C and the supporting-framing A, the gears B' C' on one end of the rolls, and the purchase-gears M M' on the other end of the rolls, arranged for joint operation, as herein specified.

190,898. CRANBERRY-SEPARATORS. Edwd. Busby, Shamong, N. J. [Filed Jan. 11, 1876.]

Brief.—A cranberry-separator constructed with adjustable chutes arranged transversely one above the other, with their lower ends partially overlapping each other, and their upper ends stopping short of the sides of the box or case in which they are inclosed.

190,898.



1. In a cranberry-separator, the combination, with the case or box A, of the reversely-inclined planes or chutes C' C', arranged transversely one above the other in such manner that they partially overlap one another, and stop short at their upper ends of the sides of the box or case, substantially as described.

2. In a cranberry-separator the reversely-inclined planes or chutes, arranged transversely one above the other, and adjustable in relation to each other from opposite sides of the case A, substantially as and for the purpose described.

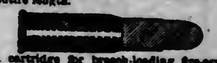
190,899. TELEGRAPH-KEYS. J. O. Byrne, Jersey City, N. J. [Filed May 22, 1876.]

1. A duplex telegraph-key made of horizontally-swinging and spring-acted lever-keys, that close the circuit alternately, substantially in the manner and for the purpose set forth.

2. The combination of two horizontally-swinging and spring-acted keys, by rear set-screws, with a double centrally insulated post, substantially as shown and described.

190,900. CARTRIDGES. H. C. Bull, Brooklyn, N. Y., assignor of one-half his right to Wm. L. Headley, same place. [Filed Dec. 15, 1875.]

Brief.—The fire from the fulminate passes through the holes or slots in the tube, and the charge is simultaneously ignited throughout its entire length.



A cartridge for breech-loading fire-arms, having an inclosing case or shell; and an interior or central perforated or slotted tube extending to the base of the projectile, and provided with a percussion-cap or fulminate at the rear end, substantially as herein described.

190,901. VENTILATING BUILDINGS. Manly A. Burnham, New York, N. Y. [Filed July 8, 1876.]

Brief.—This apparatus consists of means for conducting the external air into the rooms of a building, and discharging the foul air through the spaces between the girders or beams which support the flooring, taking it in at one end through an opening in the walls of the building, and discharging it at the opposite end into the room through a suitable opening, the spaces being arranged to alternately communicate on opposite sides with the external air and the interior of the room or building.



1. The spaces or flues B', between the girders of the building, opening at one end to the external air, and at the other into the room above, for the purpose of conducting fresh air into the room, substantially as described.

2. In combination with the spaces or flues between the girders which support the flooring and ceilings of a building, the apertures communicating alternately on opposite sides with the external air, and the flues or apertures opening into the rooms of the building, substantially as described.

180,643. STEREOSCOPES. William H. Burt, Chicago, Ill. [Filed Jan. 20, 1876.]



The improved spirometer, consisting of a bulb, A, flexible tube B, mouth-piece C, and the sealed tube D, combined and arranged substantially as specified.

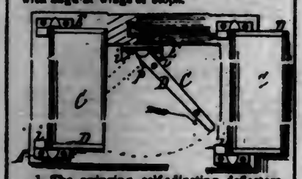
180,644. BARK-GUARD PROTECTORS. V. B. Campbell, Brewerton, N. Y. [Filed Apr. 5, 1876.]



The shot and fire proof berth A, consisting of the solid lower section a, the upper section b, provided with perforations or loopholes for taking observations, and apertures or ports c, for using weapons from the interior, and the entrance e, provided with a removable or adjustable approach, constructed and arranged as described and shown, for the purpose set forth.

180,644. CAR-VENTILATORS AND DUST-DEFLECTORS. Augustus B. Childs, London, England, assignor to Edwards B. Blyth, Rochester, N. Y. [Filed May 16, 1876.]

Brief.—This deflector is attached to each side of the window or door of the car, for the purpose of deflecting the current of air produced by the motion of the car, thereby preventing the dust and cinders from entering. It is swinging and self-adjusting, and constructed with metallic edge-plates provided with angular wings or stops.



1. The swinging self-adjusting deflectors C C, constructed with the metallic edge-plates D D, in combination with the bearings E E, provided with the angular wings or stops *i i*, as shown and described, and for the purpose specified.

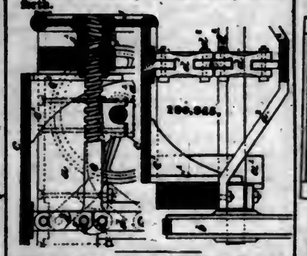
2. The bearings E, constructed with the angular wings or stops *i i*, for gaging the throw of the deflectors in opposite directions, and with the bores h, for receiving the pivots of the deflectors, as herein shown and described.

3. The metallic edge-plates D D, made concave, to receive and hold the ends of the deflectors, and provided with the cutoff pivots *f g*, as shown and described, and for the purpose specified.

180,645. CARRIAGES FOR CLAY RETORTS. Wm. D. Cox, Worsley, near Leeds, England. [Filed May 26, 1876.]

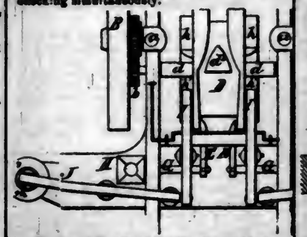
Brief.—The bed of the carriage is raised and lowered by means of a toggle-joint operated by a hand-screw.

The combination, in carriages for receiving and transporting heavy articles, of the vertically-moving top *c*, working in guides running in grooves in the frame, said top being supported by the girder *c'*, and raised or lowered from its center by the toggle-levers *d*, actuated by the screw-shaft *e*, all substantially as set forth.



180,646. CHECK-ROWERS FOR CORN-PLANTERS. J. B. Coon, Hackney, Ohio. [Filed Mar. 26, 1876.]

Brief.—The operating-wheel is provided with a gradually-contracting circumferential groove and a centrally-located triangular block. This wheel has also circular side flanges with openings, so that as the triangular block forces the arms of the seed-slides apart to drop the seed, the pivoted ends of the indicator-arms fall, thus dropping and checking simultaneously.



The wheel D, provided with the gradually-contracting circumferential groove *d'*, triangular block *d''*, and circular side flanges *h*, with openings *h'*, in combination with levers E, dropping-slides G, levers I I J J, rods *m*, and shoes *n*, all constructed and arranged to operate in the manner and for the purpose set forth.

180,647. WHEEL-TIRES. George Cornwall, Garden City, N. Y. [Filed Feb. 28, 1876.]



1. A carriage-wheel having a rawhide tire, C, constructed substantially as described, for the purpose specified.

2. The combination of the rawhide tire C and the metal band B, substantially as specified.

3. The combination of the rawhide tire C, metal band B, and rubber cushion D, substantially as specified.

180,648. FILTERS. Henry K. Crult, Washington, D. C. [Filed June 28, 1876.]



1. The reversible filtering-cylinder B B' B'', provided with the bars *b b*, in combination with the filters *a a*, intermediate strainer *d*, and inclosing-case A, constructed and arranged substantially as and for the purpose described.

2. The combination, with the case A, of the three-part cylinder B B' B'', filters *a a'*, and strainers *d d'*, all arranged and operating as described.

180,649. WASHING-MACHINES. Jesse M. Curtice, Edgeville, Ind. [Filed June 8, 1876.]



1. The combination of detachable spring K with adjusting-screw *f'*, roller-supporting plate F, and guide-rods *f'' f''*, substantially as and for the purpose set forth.

2. In a washing-machine, the roller E, provided with the alternating deep grooves *e' e'* and shallow concave grooves *e'' e''*, substantially as and for the purpose set forth.

3. The double-grooved main roller E, in combination with the longitudinally-grooved roller G, substantially as and for the purpose set forth.

4. The combination of the double-grooved main roller E with the longitudinally-grooved roller G and the roller H, provided with double helical grooves, substantially as set forth.

5. The combination of the double-grooved roller E with smooth roller I and grooved rollers G G H H, substantially as set forth.

180,650. BIT-STOCKS. William F. Curtis, Miller's Falls, Mass. [Filed Apr. 11, 1876.]

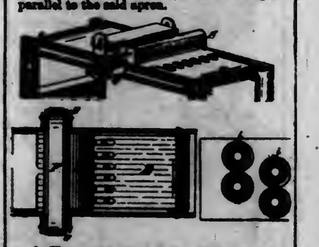
Brief.—The spring-jaws are moved out and in by a clamping-shell or nut, the interior of which is bent away inward at its front part.

1. The spring-jaws *d*, having the flanges *e* on their inner ends, substantially as shown.

2. The combination of the threaded stock *c*, having the grooves *c*, spring-jaws *d*, nut *g*, and recess *c*, substantially as set forth.

180,651. CRACKER-MACHINES. Riley Dartlet, East Greenwich, R. I. [Filed June 16, 1876.]

Brief.—The cutters are constructed in rows lengthwise of the machine, and have cutting-lips formed on their outer sides. The scrap-apron travels across the machine, and the dough is fed to it by a rough roller arranged parallel to the said apron.

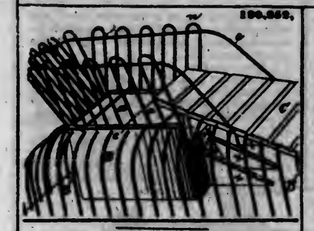


1. The arrangement of the cutters in separate rows running lengthwise of the main apron, and separated by continuous spaces between the rows, the outside cutters being made with the cutting-lips *i i i*, substantially as shown and described, and for the purpose specified.

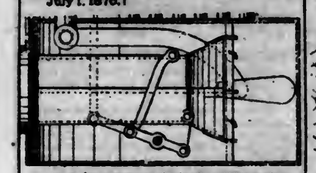
2. In a crusher-machine, the combination of the cross-apron F with the roll S and guard-fingers *s s s*, substantially as and for the purpose specified.

180,652. ANIMAL-TRAPS. David Davis and Thomas Davis, Scranton, Pa. [Filed June 24, 1876.]

In an animal-trap, the inner box B, provided with tilting platforms *a a*, and door *c*, in combination with the outer space B', inclosed by the wire grating *d*, the inclined way C, and wire guard *e e*, all constructed and arranged substantially as for the purpose set forth.



180,653. DRAFT-PIPES FOR LOCOMOTIVES. Thomas D'Shaughnessy, Danville, Ill. [Filed July 1, 1876.]



As an improvement in draft or lifting pipes of locomotive and other engines, the combination of the exhaust-pipes with sliding and adjustable sections of the draft-pipe, operated by crank and lever mechanism, to set the draft-pipe to a width corresponding to the length of stroke, and to increase or diminish the draft, as the case may require, substantially in the manner and for the purpose set forth.

180,654. WAGON-SPRING ATTACHMENTS. Reuben Doty and Joseph Doty, Wolfville, N. Y. [Filed Mar. 6, 1876.]

Brief.—To avoid perforating the cross-bar.

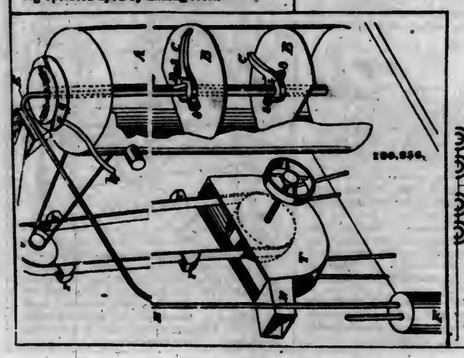
An improved device for attaching springs to wagon-body, composed of a top plate, a cross-bar, encircling clip or band, and downward-extending lugs, to form shackles for springs, the whole made in one piece, substantially as specified.



180,655. CLAMPS FOR THE MANUFACTURE OF CHAIN-SWIVELS. Virgil Draper, North Attleborough, Mass., assignor to Oscar M. Draper, same place. [Filed Mar. 17, 1876.]

Brief.—A series of clamping devices to which successively a number of blanks of wire are clamped, to be subjected to the action of filing or other shaping tools.

For use in the manufacture of chain-swivels, a series of clamps, forms, or dies, substantially as described, for clamping and holding the chain-swivel blanks in proper positions for being operated upon by milling-tools.



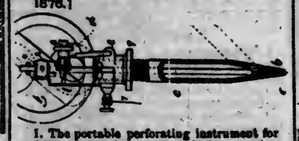
180,656. ROASTING ORE FURNACES. Henry H. Barnes, Oakland, Cal., assignor to C. S. Barnes, same place. [Filed Feb. 10, 1876.]

1. In combination with the hollow shaft D, supplied with a constant stream of water, and provided with the projecting nozzle *g*, the hollow arms *c c*, substantially as and for the purpose described.

2. The furnace A, having the shelves B B, in combination with the hollow shaft D, with its arms or sweeps C C, pump F, water-pipe E, dish *g*, and waste-pipe *h*, all combined and arranged to operate, substantially as above specified.

3. The arms or sweeps C C, having the two parts or sections *i i*, arranged to be secured in place by means of the groove O, lugs *k k*, and bolts or rivets, substantially as and for the purpose described.

180,657. AUTOGRAPHIC PRINTING. Thomas A. Edison, Newark, N. J. [Filed Mar. 13, 1876.]



1. The portable perforating instrument for writing or drawing, composed of a tapering tubular stock, adapted to be held and moved by hand, and provided with a perforating-needle and its reciprocating mechanism, substantially as specified.

2. The method herein specified of printing in permanent semi-fluid ink by puncturing a sheet of paper, or similar material, with numerous small holes, filling such holes with a semi-liquid ink, and pressing the same upon the surface to be printed, substantially as set forth.

3. The swinging frame s and paper-holding clamps 13, in combination with the bed t, for receiving and holding the sheet of perforated paper, and the sheet to be printed, substantially as set forth.

4. The combination with the revolving magnetic motor, pen-holder c, and puncturing-needle c, of the cam *c'*, having three or more points, substantially as set forth.

5. The combination, with the portable hand-perforating instrument having an electro-magnetic motor, of a flexible conductor and a battery, substantially as set forth.

6. The portable galvanic battery composed of cells in a stand, with a pole-supporting rod, latch, and cross-head, in combination with flexible conductors, a magnetic motor, and a perforating-pen, substantially as set forth.

180,658. DUPLEX TELEGRAPHS. Thomas A. Edison, Newark, N. J., assignor of one-half his right to G. B. Prescott, New York city. [Filed Sept. 1, 1874.]

1. The local equating-battery *l*, and rheostat *r*, connected to the line *a*, and to the receiving-magnet *b*, in combination with the batteries *c d*, shunt *i*, and lever *h*, substantially as and for the purposes set forth.

2. The magnets *g* and *f*, and induction-coils *n o*, in combination with the magnet *b*, batteries *c d*, and shunt-circuits, substantially as set forth.

180,659. SEWER-GAS TRAPS. John M. Falk, New York, N. Y. [Filed May 22, 1876.]

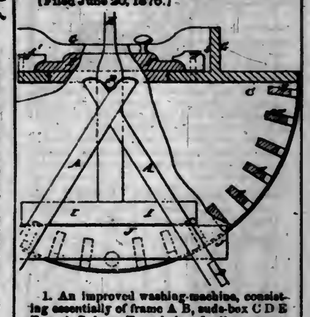
Brief.—The two traps have an intermediate escape-pipe for the sewer-gas.



1. A waste-pipe, B, provided with two connected traps, A D, as shown, and for the purpose specified.

2. The combination, with a waste-pipe, B, of an escape-pipe, C, for gas, located between traps A and B in said pipe, substantially as specified.

180,660. WASHING-MACHINES. Allen D. Ferris and Abr. N. Ferris, Berkeley, Minn. [Filed June 20, 1876.]



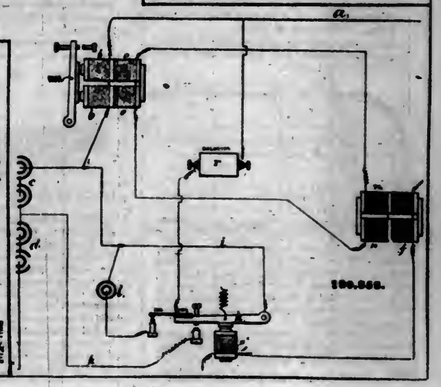
1. An improved washing-machine, consisting essentially of frame A B, suds-box C D E F, earb G, lever H, and cleat I, all constructed and arranged as and for the purpose specified.

2. The combination of the stationary cleat I and the detachable stop-bar J with the pivoted suds-box C, and with the frame A B, substantially as herein shown and described.

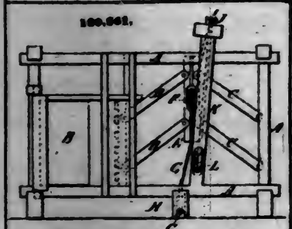
180,661. COTTON AND HAY PRESSES. Zechariah S. Freeman, Humboldt, Tenn. [Filed Apr. 26, 1876.]

Brief.—One rope is used to elevate the center-piece and the other to depress it, the one electrowing as the other retracts said piece.

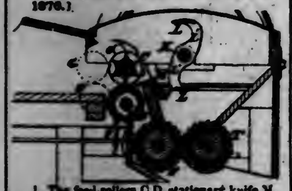
In combination with the center-piece B, the toggle-levers C D, pulleys F H, and rope G, of the pulleys J I, arranged in the frame, and the windlass-rope I, connected with the center-piece, whereby both the drawing and releasing ropes of the follower operate said center-piece.



180,861.



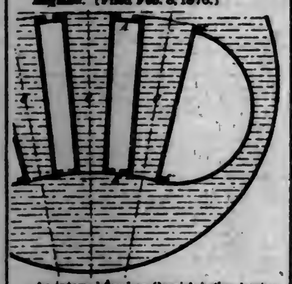
180,862. FEED-CUTTERS AND GRINDERS. H. G. Fritz, Lebanon, Pa. [Filed Apr. 10, 1876.]



1. The feed-rollers C D, stationary knife M, vertically adjustable by set-screw N, revolving cutters L, and sectional grinding-rollers S T, all arranged as herein set forth.

2. The rollers S T, the grinding-surfaces of which are constructed in sections, having legs *f*, united and held together by recessed heads W, as set forth.

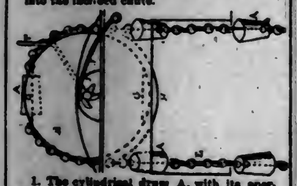
180,863. STEAM-BOILERS. Charles J. Galloway and Charles H. Holt, Manchester, England. [Filed Feb. 8, 1876.]



An internal-fired or Cornish boiler, having the upper and lower sides of its flue curved to one and the same center, external to the flue, in combination with transverse water-tubes radiating from the same center from which the curved upper and lower sides are struck.

180,864. ROTARY WATER-ELEVATORS. Joel C. Garretson and A. P. Garretson, Salem, Iowa. [Filed Jan. 11, 1876.]

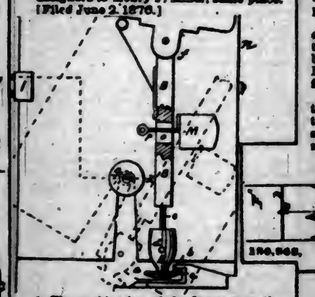
Brief.—A revolving cylinder carries the endless chain; receives and empties the buckets into the inclined chute.



1. The cylindrical drum A, with its apertures B B, for receiving and emptying the buckets O O, revolving the endless chain D, and receiving the water and discharging it upon the chute E below, when constructed and operating as herein described, for the purposes set forth.

2. The bucket C, having its bottom entered between the eyes D D of the endless chain, as constructed and operating as herein set forth.

180,865. UPRIGHT-PIANO ACTIONS. Jos. H. Gibson and F. Lincoln Fuller, Boston, Mass., assignors to Henry F. Miller, same place. [Filed June 2, 1876.]



1. The combination of the flange *s* on the operating-rod B of a piano-action, and of the lip *b* on a piano-key, constructed and arranged to operate substantially as herein described, for the purpose specified.

2. The bead D, secured by screw-pin *c* to the operating-rod B of a piano-action, herein described, whereby said bead can be turned to adjust and regulate the action, substantially as described.

3. The stationary rail M, in combination with the lifter or operating rod B, the two being arranged together substantially as and for the purposes described.

180,866. FARE-GATES. William W. Gill, Huntington, Ind. [Filed Jan. 6, 1876.]

Brief.—The gate may be swung horizontally or lifted upon a tall rod, which, with eyes upon the post and upon the rear uprights of the gate, by means of a central perpendicular brace, with a pivot at top, enters a longitudinal slot in a lifting-bar, having its fulcrum at the top of the rear post, and inclining to the base of the front post.

In combination with the vertically-movable swinging gate O and rod B, the vertically-vibrating lever D, having slot *a*, and pivoted to the upper end of the post A', and to the upper bifurcated end of a vertical brace, *d*, substantially as specified.

180,867. BENCH-PLANES. Jackson Gorham, Crawfordville, Ga., assignor to himself and Charles H. Smith, same place. [Filed July 11, 1876.]

Brief.—A smoothing-plane is provided with a stud upon its top surface near the heel of the stock.



The plane-stock A, having the stud B, constructed in the form represented at *a*, and located relatively to the heel of the stock, substantially as specified.

180,868. APPARATUS FOR VENTILATING BUILDINGS. Francis Greaves, Brooklyn, N. Y. [Filed May 10, 1876.]

Brief.—This invention has for its object the more perfect ventilation of apartments in buildings, by means of induced currents drawn from such apartments through openings into ventilating-flues by exhausting currents of warm air in such flues.

1. The combination of the lower flue F, one or more upper flues, F' F'', of larger capacity, and the short intervening flues *f*, substantially as and for the purpose specified.

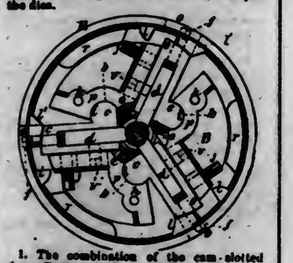
2. The combination of the lower flue F, one or more upper flues, F' F'', and the short intervening flues *f f'*, the flues *f* being placed between the flues *f* and the main flues F F' F'', substantially as and for the purpose specified.

3. The hinged valves *v* in combination with the flues *f*, placed between the flues *f*, and the flues F F' F'', and opening downward and away from the openings W, substantially as and for the purpose specified.



180,869. DEVICES FOR CUTTING SCREW-THREADS. Eugene W. Green and John Thomson, Portsmouth, Ohio. [Filed July 6, 1876.]

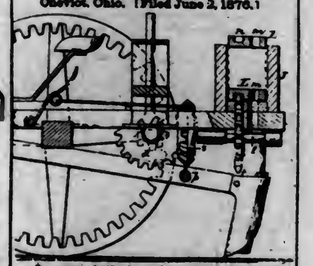
Brief.—A cam-slotted sleeve slides upon a longitudinally-slotted spindle, which carries at one end the disk upon which the dies are arranged. A bar surrounding the die-carrying disk at the end of the spindle is provided with screws, which enter the cam-slots of the sleeve, and carries lugs for opening and closing the dies. A gage-bar for determining the length of thread to be cut abuts against a pin, which passes through the sleeve and spindle, and, when struck by the end of the bolt being threaded, pushes back the sleeve, which, by virtue of its cam-slots, causes the box to be rotated, and its lugs to impinge against the ends of the pivoted die-carriers, and open the dies.



1. The combination of the cam-slotted sleeve D, the spindle A, the die-carrying disk B, the box E, having the lugs *i* F, for actuating the die-carriers *c*, the pin *h*, and the screws *m*, substantially as and for the purpose described.

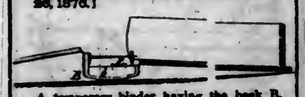
2. The combination of the sliding gage-bar G with the cam-slotted sleeve D, the slotted spindle A, the die-carrying disk B, the box E, having the lugs *i* F, for moving the die-carriers *c* to and away from the work, the pin *h*, and the screws *m*, substantially as and for the purpose described.

180,870. CORN-DRILLS. David R. Groves, Oheviot, Ohio. [Filed June 2, 1876.]



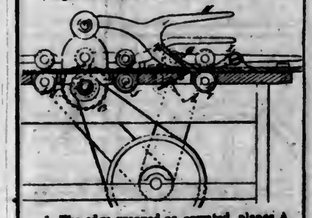
In a corn-drill, the endless chain, composed of a series of metallic plates, L L, each plate provided with the dropping-hole *m*, and recesses *n*, and each having a tongue, *h*, and corresponding notch at the opposite side, and pivoted together, substantially as herein set forth.

180,871. TEMPORARY BINDERS. Ferdinand Guichetaer, Brooklyn, N. Y. [Filed June 26, 1876.]



A temporary binder, having the book B, block *b*, and elongated end pieces *i i'*, combined and arranged substantially as and for the purpose specified.

180,872. LATH-MACHINES. H. H. Hancock, Augusta, Ga. [Filed Dec. 27, 1875.]



1. The edge grooved or serrated planes A B, arranged in advance of the saw C, to cut out grooves D, in the manner set forth.

2. An upper grooving-plane attached to a pivoted shoe, F, having the handle H, as and for the purpose specified.

3. The combination, with rollers I, having collar *j*, of spiral-grooved feed-rolls K, having the groove on the side next to the collars right-angled, as and for the purpose specified.

180,873. PACKING AND STRAINING OIL-WELLS. Michael Harold, Richland Township, Clarion County, Pa. [Filed Apr. 16, 1876.]

Brief.—The packing surrounds the tubing, and rests upon a shoulder formed in the wall for that purpose, thus making a tight joint, and shutting off any water which may enter above the packing

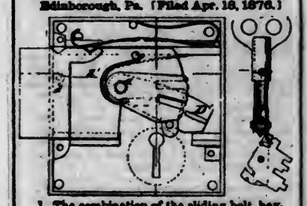


1. A packer for oil-wells resting upon a seat or shoulder formed in the well, substantially as and for the purpose specified.

2. The packer herein described, composed of the disk perforated for the passage of the pumping-tube, and the packing disk or ring, adapted for use in connection with a shoulder in the well, substantially as and for the purpose specified.

3. The combination of the packer D, the pumping-tube, the shoulder *p*, and the detachable tube F, adapted to form a joint with the shoulder *p*, substantially as and for the purpose specified.

180,874. DOOR-LOCKS. Moses C. Hawkins, Edinborough, Pa. [Filed Apr. 18, 1876.]



1. The combination of the sliding bolt, having pivoted intermediate tumblers and a projecting screw-pin, with casing having apertures, through which the screw-pin may be detented and replaced, to admit sliding out of the bolt and changing of tumblers without removing entire lock, substantially as and for the purpose set forth.

2. The combination, in a lock, of a sliding and notched bolt, having notched tumblers pivoted thereto, with a swinging fence-plate and guard-bar entering notches of bolt and tumblers to admit opening of lock, as specified.

3. An extension-key with reversible bit, to be used from either side of lock, substantially as set forth.

4. The combination, with the slotted stock of a key and suitable locking devices, of a pivoted reversible bit, substantially as shown and described.

180,875. PADLOCKS. Moses C. Hawkins, Edinborough, Pa. [Filed Jan. 29, 1876.]



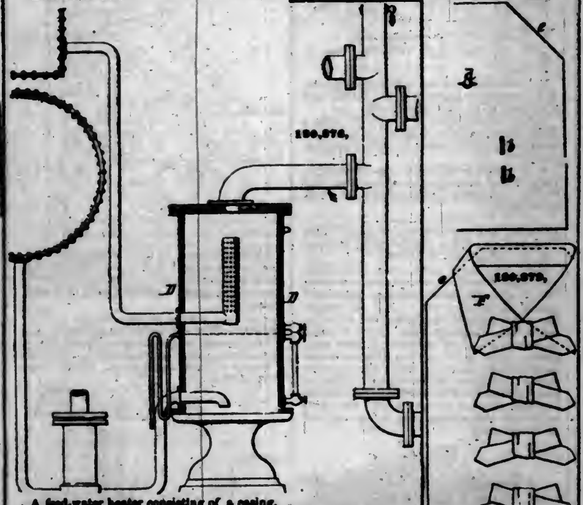
1. A lock-body in one piece, with one portion of hasp jointed to the other portion, and centrally locked by the revolving shell or outer case, as shown and described.

2. The bolt C, cam E, and tumblers D, combined with part B and the case A, having notches H G, and arranged to turn on part B, substantially as specified.

3. The springs I and bar L, combined with tumblers D and bolt C, substantially as specified.

4. A key consisting of a series of plates, each provided with a central opening, whereby the rotation of the plates, when hung on a key-ring, may be changed by passing one plate through the opening of another, substantially as described.

180,876. FEED-WATER HEATERS FOR STEAM-BOILERS. Milton W. Hamilton, Chicago, Ill., assignor of one-half his right to J. A. Woodbury, Boston, Mass. [Filed Dec. 30, 1875.]



A feed-water heater consisting of a casing, D, receiving a portion only of the exhaust-steam, and provided with an upright perforated tube, located centrally within the casing, and communicating with the water-supply, all substantially as set forth.

180,877. FASTENERS FOR THE MEETING-RAILS OF SASHES. J. Stone Hancock, Buffalo, N. Y. [Filed Feb. 2, 1876.]

Brief.—The mere addition of a suitably-notched spring, on which the locking-lever rides up until it catches; the spring being detachable, and readily applied to, and used with, the ordinary swinging-arm fastener, without alteration or modifying the same.

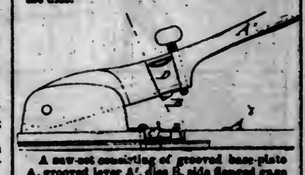
A single spring, secured directly to the rail of the sash, and provided with a rectangular slot, into which the lever-arm automatically locks itself against movement in either direction, substantially as described and shown, for the purpose set forth.

180,877.



180,878. SAW-SETS. Christopher Heinen, Fort Laramie, Wyo. [Filed May 9, 1876.]

Brief.—Die-blocks have on their approximate faces each a series of sloping projections or anvils—those on the bed-plate to bend every alternate tooth of a series upward, and those on the lever to similarly bend the series of intervening teeth downward. The set-screw determines the extent of bend or set, and the gage governs the presentment of the saw to the dies.



A saw-set consisting of grooved base-plate A, grooved lever A', dies E, side-flanged gage C, and guard-plates D, all constructed and arranged substantially as and for the purpose specified.

180,879. SAMPLE-CARDS FOR COLLARS AND NECK-TIES. A. Hellenberg, New York, N. Y. [Filed July 14, 1876.]

A sample-card for collars and neck-ties, provided with chamfered edges *c c*, with a hole for receiving a button, *d*, and with slits *b*, the whole arranged substantially as herein before set forth.

180,879.

180,880. PAPER-FOLDING MACHINES. Richard M. Hoe, New York, N. Y. [Filed Mar. 28, 1876.]

1. The combination of a reservoir, emitting a blast of air to impinge upon the sheet along the line of the desired fold, and receiving devices, substantially as described, between which the sheet is doubled by said blast.

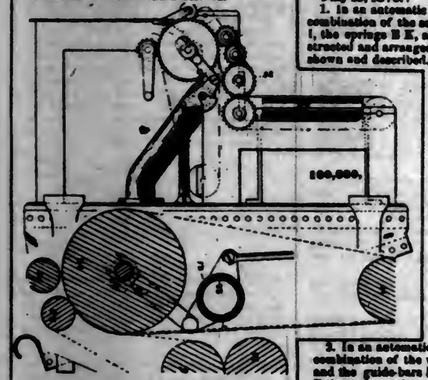
2. The combination of an air-blast folding apparatus with an air-reservoir and controlling-valve, substantially as set forth.

3. The combination of a sheet-conveying mechanism, an intermitting air-blast for doubling the sheet, and a sheet-receiving mechanism, substantially as set forth

4. The combination of a sheet-conveying mechanism, an intermitting air-blast for doubling the sheet, and sheet-folding rollers, substantially as set forth.

5. The combination of the stationary chamber or pipe 21, having eduction-openings 1, with the oscillating pipe or valve 22, an air-supplying apparatus, and sheet-receiving folding mechanism, substantially as set forth.

6. The combination, with the folding-rollers, of the automatically-operated air-blast-controlling apparatus and an air-pump, substantially as shown and described.



190,880.

190,881. BALL-AND-SOCKET SUPPORTS. H. Howson, Philadelphia, Pa., assignor to T. A. Weston, same place. [Filed July 17, 1876.]



1. The combination, in a ball-and-socket joint, of a recess or recesses, *m*, in the socket, with the stem *d* of the ball, as set forth.

2. The combination of a ball, D, with a socket composed of two parts, *b b*, on arms *h h*, forming part of a stand, all substantially as specified.

3. The stand or support A', composed of two parts, united substantially as described, and having at each end a socket adapted to a ball, as set forth.

190,882. MACHINES FOR MAKING PAILS FROM PAPER-PULP. G. Hubbard, Medina, N. Y. [Filed Mar. 15, 1876.]

Brief.—An inner mold of two detachable, perforated, wire-cloth-covered cones, removable in opposite directions, the upper and smaller one forming the crown of the bucket. The space between the cones and movable, perforated, wire-cloth-lined staves is filled with pulp, the cover is fastened down upon the top of the mold, and the rings surrounding said staves are forced down, thereby pressing the pulp against the inner mold. After the pressure is removed the staves are forced back, and held in place by springs, and the inner mold, with the pulp upon it, is removed and set away to dry



190,883.

1. The inner conical form B, with the detachable flaring ring G placed thereon, and forming the shoulder *d* at the junction, for the purpose herein set forth.

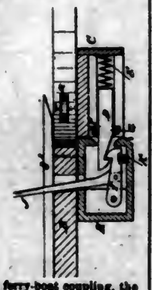
2. The combination of the conical form B with detachable flaring ring G and a series of annular compressible staves, E, as and for the purpose set forth.

3. The combination of the compressible staves E and the retracting-springs *b* connected thereto, for the purposes set forth.

4. The combination of the bed A with post H, staves B, rings C, inner former H G, cover J, and key *l*, all constructed substantially as and for the purposes herein set forth.

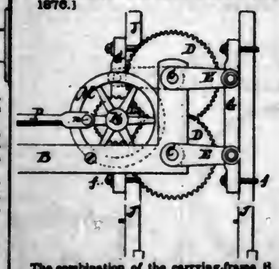
190,883. AUTOMATIC FERRY-BOAT COUPLINGS. Thomas D. Husband and George R. Husband, Green Point, N. Y. [Filed July 15, 1876.]

1. In an automatic ferry-boat coupling, the combination of the sockets O H, the hooks D I, the springs B E, and the levers J, all constructed and arranged substantially as herein shown and described.



2. In an automatic ferry-boat coupling, the combination of the wheels *o'*, the recesses *p'*, and the guide-bars *b'*, for guiding the hooks D into the sockets H to interlock with the hooks I, substantially as herein shown and described.

190,884. PROPELLING BOATS, &c. Nathal. P. Ingalls, St. Paul, Minn. [Filed Jan. 26, 1876.]



The combination of the carrying-frame S, driving gear-wheels L D D, operated by the crank P, the cranks E F, holder G, and adjustable paddle-stocks J, substantially as herein described.

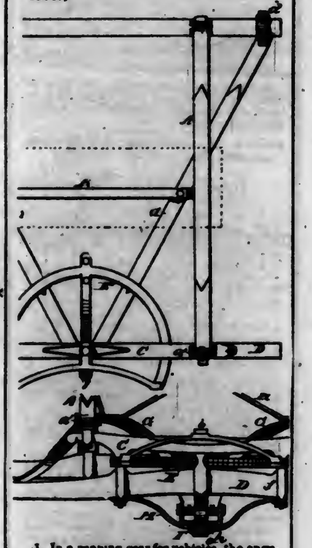
190,885. WEANING-BITS FOR ANIMALS. G. W. Ingersoll and Harvey L. Fisher, Toledo, Iowa, assignors to Jacob L. Neff and Henry Giebert, same place. [Filed May 16, 1876.]



1. In a weaning or anti-sucking bit, the combination of the outer tube A and inner rotary tube A', both open at their ends, and each provided with central openings, and adapted by the rotation of the latter to admit the air when the animal attempts to suck, but excluding the air when eating or drinking, all substantially as set forth.

2. The combination of the outer fixed tube with an inner tube, adapted to be rotated or turned by means of the weighted ends, all substantially as shown and described.

190,886. VEHICLE RUNNING-GEAR. Moses T. Jackson, Montrose, Pa. [Filed Mar. 22, 1876.]



1. In a running-gear for vehicles, the angular or diagonal springs G G, running from below the center of the front axle to the ends of the hind axle, and suspended under the same by jacks *d d*, substantially as herein set forth.

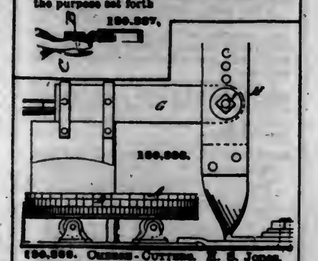
2. The combination of the parallel top springs A A, the diagonal bottom springs G G, and center stay K, substantially as and for the purposes herein set forth.

3. The combination of the diagonal springs G G, swivel-jack h, and braces H I, all constructed substantially as and for the purposes herein set forth

190,887. HAY-RINGS. Leon F. Jeanne, New York, N. Y. [Filed May 22, 1876.]

The improvement is car-rings, consisting of the bottom B, for pressing the front of the car, in combination with the spring-lever hook C, to pass through the car and bear against the rear of the same, substantially as and for the purpose set forth

190,887.

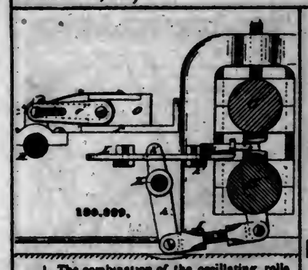


190,888. CHEESE-CUTTERS. E. S. Jones, Vincennes, Ind. [Filed May 22, 1876.]

The combination, with a cutter-lever, G, and table A, of the standard H, adjustable horizontally, and allowing the lever-fulcrum to be adjusted vertically with respect to table, as and for the purpose specified.

190,889. MACHINES FOR FORMING THE RIMS OF PUCKS. John C. Klein and Louis Gerber, Pittsburg, Pa. [Filed July 19, 1876.]

Brief.—Two oscillating dies, to which the pick, with a mandrel in its eye, is presented. The mandrel has a collar, that governs the position of the pick upon it, and is attached to a bar that is reciprocated by devices connecting it with a crank-disk in the axis of one of the rolls. Other devices are for forcing the pick on the mandrel, or for removing it therefrom.



190,889.

1. The combination of the oscillating rolls C C', connecting-rod I, levers *h h'*, and sliding bar L, substantially as and for the object specified.

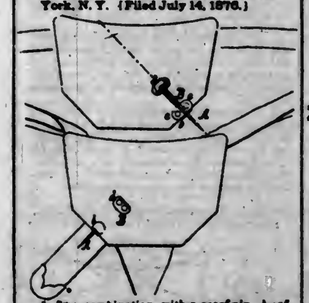
2. The combination of a shaft, H, crank M, rocking lever N, levers *o o'*, and sliding block O, with pin *q'*, arranged and operating substantially as herein described.

3. The combination of oscillating rolls C C', connecting-rods *o o'*, cross-head R, connecting-rod F, with pivoted lever *l*, pin *s*, crank G, and shaft H, substantially as shown, and for the purpose herein described.

4. The combination of sliding block O, slotted levers *o o'*, with crank M, pins *s'*, and pivoted lever *o'*, as and for the purpose described.

5. The combination of a sliding block, O, having pin *q'*, dies *r r*, and support *p'*, with a mandrel, P, as and for the purpose set forth.

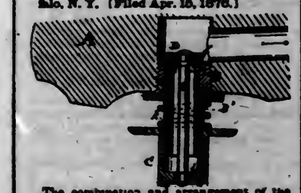
190,890. SCARF-PINS. Albert Kemp, New York, N. Y. [Filed July 14, 1876.]



1. The combination, with a scarf-pin, A, of a supporting-plate, B, provided with a lip, *b*, adapted to be bent under the edge of the shield, to which the pin is to be fastened, substantially as shown and described.

2. The combination, with a scarf-pin, A, of a supporting-plate, B, provided with a shoulder, *c*, lip *b*, legs *e*, and lip *d*, substantially as set forth.

190,891. FAUCETS. Saml. Kranshaar, Buffalo, N. Y. [Filed Apr. 10, 1876.]



The combination and arrangement of the outside movable sleeve C, outside spring *b*, the valve D, and stem *h* with the tube B' and valve-seat B, substantially as and for the purpose specified.

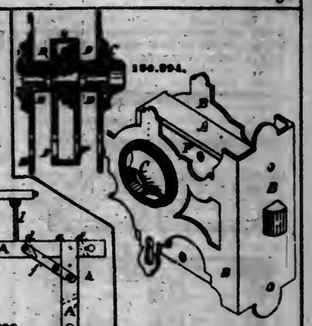
190,892. CLOTHES WASH-BOILERS AND INCLINED-TABLES. Wm. J. Lake, Oswego, N. Y. [Filed Apr. 27, 1876.]

1. The hinged frames A A A' A' and hinged supports B B B' B', having, respectively, steps *d* and rounds *e*, the said frames and supports being provided with clasps *f f* and connecting-pins, substantially as herein specified, and constituting the parts necessary to the formation of the ladder and washbench, as described.

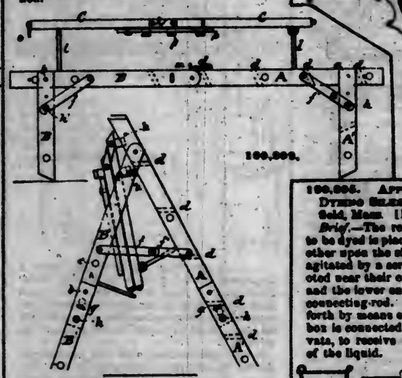
2. In combination with the frames A A A' A' and supports B B B' B', hinged together and provided with steps and rounds, as specified, the jointed ironing-table C C' and supports *l l'*, substantially as herein described.

3. The levers C C' of the ironing-table, having beveled ends, combined with the link-connections *k*, substantially as described.

4. The hinged levers C C' of the ironing-table, combined with the brass *p* and clamping-pieces *p'*, substantially as herein specified.

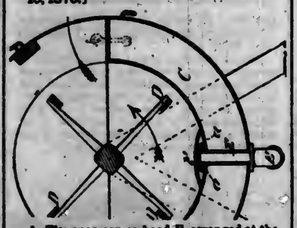


190,894.



190,893.

190,893. FEATHER-RENOVATORS. William R. Longhead, Hamilton, Ohio. [Filed July 10, 1876.]



1. The open cap or head F, arranged at the bottom of the casing, which forms the drying-chamber C, in combination with the steam-pipe E, having its open end entering the bottom of the fixed renovating-chamber beneath said head, and the beaters D, revolving over said head, as and for the purpose herein set forth.

2. The combination, with the renovating and drying chambers, and the steam-pipe E, arranged as described, of the clamp-nut *c* and the packing *e*, as and for the purpose herein set forth.

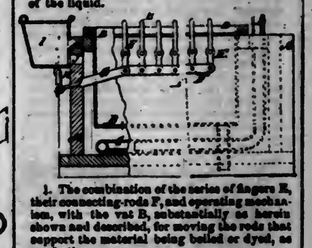
190,894. MORTISE-LATCHES. A. H. Leach, Chicago, Ill., (David L. Democrest, administrator.) [Filed July 22, 1870.]

1. In combination with a mortise lock or latch, A, that is designed for use in doors that are constructed of wood, a metallic case or shield, B, fastened to, and covered upon, that end of a mortise lock or latch through which the sliding bolt or bolts project, and which is caused to pass around in such a manner as to clasp each side of said door, and cover that part or portion that is mortised to receive said lock, in the manner and for the purpose substantially as shown and described.

2. In combination with a mortise lock or latch, A, and metallic case or shield B, designed for doors that are constructed of wood, two collars or flanges, C and C, each having a projecting hub upon its inner side, the ends of which hubs are provided with screw-threads that extend a short distance outward toward the flange itself, which threads correspond with and match other threads that are provided in the side plates F F of a mortise lock or latch, so that when said collars or flanges C and C are firmly screwed into said side plates F and F they will cause the side plates of the case or shield B to be tightly clasped to the door, in the manner and for the purpose substantially as shown and described.

190,895. APPARATUS FOR BOILING AND DYEING SILKS, &c. Lewis Leigh, Pittsfield, Mass. [Filed May 26, 1876.]

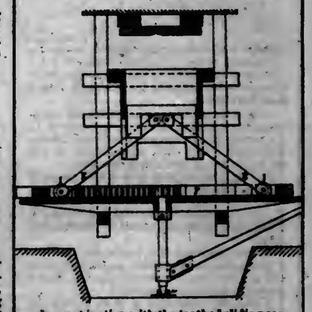
Brief.—The rods upon which the material to be dyed is placed are laid parallel with each other upon the side edges of the vat, and are agitated by a series of fingers, which are pivoted near their centers to the ends of the vat, and the lower ends of which are pivoted to a connecting-rod. This rod is moved back and forth by means of a crank and short bar. A box is connected with the space between the vats, to receive the wash from the ebullition of the liquid.



1. The combination of the series of fingers E, their connecting-rods F, and operating mechanism, with the vat B, substantially as herein shown and described, for moving the rods that support the material being boiled or dyed, as set forth.

2. In an apparatus for boiling and dyeing silk, the combination, with the outer and inner vats A B, of an expansion-chamber, I, attached to the outer vat, communicating therewith, extending above it, and having a closed top, as shown and described, to operate as specified.

190,896. COTTON-PRESSES. Lewis Lewis, Vicksburg, Miss. [Filed June 15, 1876.]



In combination with the toothed sliding carriages F, operated as described, the rollers I, and the pins on which they revolve, the said pins serving also as the connections between the levers E and said carriages, substantially as herein specified.

190,897. BALE-TIES. Daniel C. Lowber, Liverpool, England. [Filed July 17, 1876.]

1. A soldered-wire bale-tie formed with the eye A A' A' soldered, as and for the purposes herein specified.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO. BOSTON.

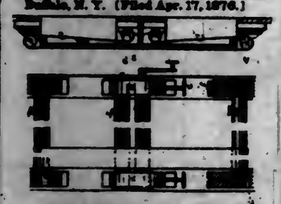
HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & CO BOSTON.

2. The process herein described of forming a loop and securing the same, consisting in folding the hide-in back upon itself, and dipping in solder, substantially as specified.



180,897.

180,898. MAP-RACKS. George R. Mann, Buffalo, N. Y. [Filed Apr. 17, 1876.]

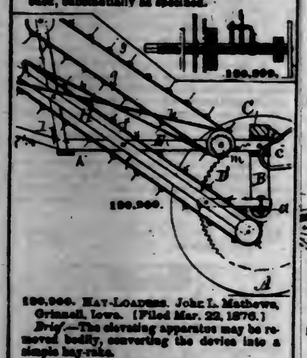


1. In a map-rack, the map-rollers B B operated by cog or friction wheels a a' at the ends of said rollers, and in combination with the upper and lower rollers D E, as and for the purposes specified.

2. In a map-rack, the lower or compensating roller E, working antomatically in slides or slots c c, and in combination with the operating-rollers B E, all constructed and arranged to operate substantially as described.

180,899. LOCK-WORK ATTACHMENTS FOR CLOCKS. John J. Mercy and Daniel W. Kissam, Bridgeport, Conn., assignors to Bridgeport Brass Company, same place. [Filed July 20, 1876.]

In a striking-clock, the spring lifting pin or device on the center shaft, constructed to swivel for the purpose of passing the lifting-hook when the hands of the clock are turned back, substantially as specified.



180,899.

180,900. HAY-LOADERS. John L. Mathews, Grinnell, Iowa. [Filed Mar. 22, 1876.]

Brief.—The elevating apparatus may be removed bodily, converting the device into a simple hay-rake.

1. In a hay gathering and elevating apparatus, the parallel carriers and elevators *f f g*, arranged and combined with the detachable frame E G H I K, substantially as and for the purposes shown and described.

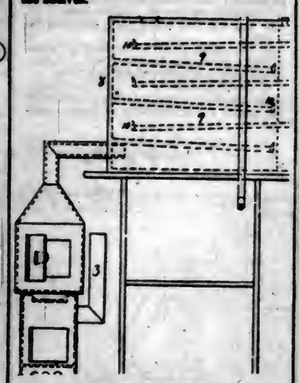
2. The elevator-frame E G H I K, supporting the carriers *f f* and *g g*, arranged and combined with the rake-carriage A B C, by means of the branches or beams *c d* and the pivoted braces I, substantially as and for the purposes specified.

3. The rake-frame B C, having the branches *c d*, adapted to alternately secure the thills and the elevator, substantially as and for the purposes shown and described.

4. The rake-carriage A B C, having the driving-wheels D D and branches *c d*, in combination with the detachable frame E G H, carrying the elevators *f f g*, pinions m, and cross-bars *c n*, substantially as and for the purposes shown and described.

180,901. APPARATUS FOR THE MANUFACTURE OF HYDRATED SULPHURIC ACID. William Maynard, Salem, Mass. [Filed Feb. 28, 1876.]

Brief.—The inclined shelves are provided with cleats, which have saw-teeth down to the shelves, through which water runs. A comparatively quiet surface of water is kept on the shelves.



1. In an apparatus for hydrating gases a condenser, S, having an inlet for the water above, and an inlet for the gas below, and having also inclined imperforate shelves 9, arranged alternately in the same, provided with ledges or cleats 10, substantially as and for the purpose described.

2. The combination, with the imperforate shelves 9, arranged alternately in the condenser, of the cleats 10, having notches 15 and slits or recess 16 curved down therefrom to level with the upper surface of the shelf, substantially as and for the purpose described.

180,902. SAWING-MACHINES. Alexander McCreight, Tranquility, Ohio. [Filed June 20, 1876.]

Brief.—The inner end of the saw-pitman is connected to a pivoted lever passing through a slot in a spring attached to the forward part of a triangular frame, and supported in a bow having its lower ends attached to the main frame, by means of which the saw can be operated in one direction by the weight of the operator, and in the other by the spring.



The frame A, the spring E, the lever D, and bow F, constructed and arranged substantially as set forth, in combination with a saw for cutting wood in the manner described.

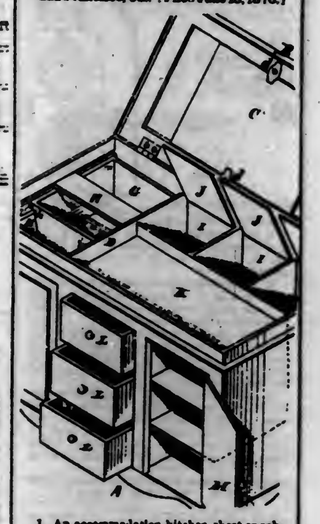
180,903. LIFE-PRESERVING CAPS AND CAPES COMBINED. Edmund J. McCarthy, Red Hook, and Gaston Wilbur, Saugerties, N. Y. [Filed June 12, 1876.]

A combined cap and cape, made from materials which are impervious to water or air, each having an inflatable space, arranged substantially as shown and described.



180,903.

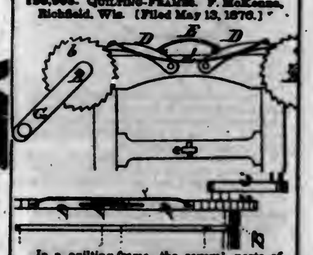
180,904. PROVISION-SAFES. G. McIntyre, San Francisco, Cal. [Filed June 13, 1876.]



1. An accommodation kitchen chest or cabinet A, having the top or cover B recessed on its under side, and having the bottoms *d*, so as to provide a receptacle for the kneading-board C, substantially as and for the purposes described.

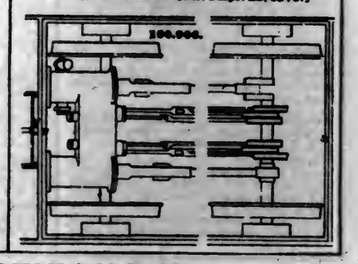
2. A kitchen chest or cabinet, A, having the recessed top or cover B, and kneading-board C, flour-bin E, with its ledges *f f*, sliding dough-box G, and covering-board H, small bins I I, table-bottom K, drawers L L L, and cupboard M, all combined and arranged substantially as and for the purposes described.

180,905. QUILTING-FRAMES. F. McKenna, Richfield, Wis. [Filed May 13, 1876.]



In a quilting-frame, the several parts of which are detachable, as described, rollers B B, carrying ratchet-wheels *b*, and a removable crank-arm, C, in combination with a holding-down spring, E, and the two pawls D D, substantially as described.

180,906. ENGINE-FRAMES FOR TRAMWAY-CARS. William D. Scott-Moncrieff, Glasgow, Scotland. [Filed Apr. 22, 1876.]



180,906.

The combination of the frame-work of the car with the detachable frame 31, carrying the wheels and the engine, the latter being bolted to one end of said frame, as set forth.

180,907. DRIVE-CHAINS. Silas M. Morgan, Belleville, Ill., assignor of one-half his right to Henry Rentchler, same place. [Filed Jan. 8, 1876.]



A link for drive-chains, constructed with the bearings *a a* at the free ends of the side bars, and the end bar provided with a T-shaped coupling attachment, adapted to be united to an adjacent link, substantially in the manner and for the purpose specified.

180,908. IRONING-TABLES. Nels Nelson, Waupaca, Wis. [Filed July 6, 1876.]



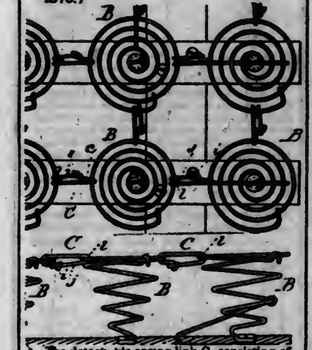
180,908.

1. An extension ironing-board, H I, hinged together, and arranged to fold and slide into an ordinary table, substantially as herein set forth.

2. The combination, with the table-top A and frame B, of the bars D D, boards H I, hinged together, and the hinged foot or standard J, all arranged substantially as and for the purposes herein set forth.

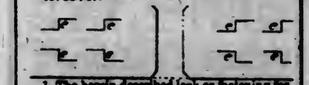
3. The cam-lever A, in combination with the table A B and sliding board H, for the purpose herein set forth.

180,909. SPRING BED-BOTTOMS. Jared B. Newman, Franklin, Pa. [Filed July 1, 1876.]



The detachable spring-link C, consisting of a hook, *c*, catch *i*, coil *l*, and latch *j*, in combination with the spiral springs B, and a spring-bed frame, substantially as specified.

180,910. LOCKS FOR BALE-TIES. David Olmsted, Minneapolis, Minn. [Filed July 10, 1876.]

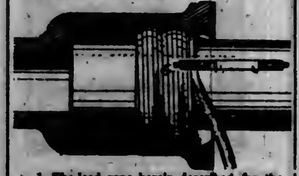


1. The herein described lock or fastening for bands, bale-ties, &c., consisting of one or more angular slits and tongues *c*, formed in each end of the band, substantially as shown and described.

2. A band having the angular slits and tongues *c*, formed by cutting or punching the slits in the solid body of the band at each end, as set forth.

3. The herein described mode or method of locking or fastening the ends of bands by means of the tongues *c*, and the angular slits where-by the tongues of both parts are made to engage against the solid metal at their ends, as set forth.

180,911. PIPE-CONNECTIONS. A. O'Neill, Baltimore, Md. [Filed Feb. 28, 1876.]

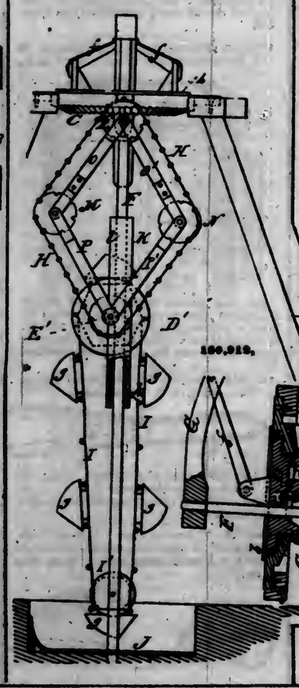


1. The lead rope herein described, for the cold caulking or packing of pipe-joints in the manner explained.

2. The joint or packing constructed, as herein described, of the pipe-end bell and the cold-lead rope caulking, applied, in the manner explained, to fill the joint between them.

3. The combination of the end gasket, the bolt, the pipe end, and the annular cold-lead caulking, applied in the manner described.

4. The gasket, constructed with a body of expansible material and a projecting-eyelet of lead or other suitable material, as and for the purposes set forth.



180,912.

180,912. BARREL-BOUNDING MACHINES. Silas R. Owen, St. Joseph, Mo. [Filed July 15, 1876.]

Brief.—A beveled master-wheel fixed to the auger-frame is rabbeted on its upper face to receive a rotating disk held in place by a ring. The disk supports the elevator-bucket chain, which is operated by a pinion meshing with the master-wheel. An adjustable frame on the shaft carries the drums for the elevators, and toggle-levers with wheels in their joints, and a chain to regulate the tension. The auger has a disk below, with cutting-edges and a vertical scraper, and has an opening in it to allow the buckets to pass through and scoop up the earth.

1. In combination with the beveled master-wheel C, fixed to the auger-frame, and annularly rabbeted upon its upper face, the rotating disk D and holding-ring *b*, substantially as specified.

2. The combination, with the fixed beveled master-wheel C, of the disk D, rotating therein, radial shaft *d*, having beveled gear *d'* and rag-wheel E, respectively, at its outer and inner ends, rag-wheel E', chain-belt H, drums D' F, an elevator-belt, I, scoops *g*, and an auger, substantially as specified.

3. In combination with the rag-wheel E and the boring shaft of a well-boring apparatus, the vertically-adjustable frame K, applied on the said shaft, and carrying drum D' and rag-wheel E', the endless chain-belt I, the vertically-vibrating toggle-jointed rods O O' P P', tension rag-wheels M M, and an elevator mechanism, substantially as specified.

4. In combination with the rag-wheel E and endless chain-belt I, the vertically-vibrating arms O O', carrying tension rag-wheels M M in their lower ends, the vertically-adjustable frame K, carrying drum D and rag-wheel E', and the vibrating arms P P', pivoted at one end to arms O O', and at the other to the shaft of the drum, substantially as specified.

5. The auger P, consisting of a disk, m, having edges *o o*, bounding an angular opening in the perimeter, a down-turned lip or planer-bit, *p*, formed on one of the edges of the said opening, and an angular vertical projecting scraper, *q*, substantially as specified.

6. In combination with an auger having an angular opening in its perimeter, the endless belt I and buckets *g*, adapted to be successively brought with their scooping-edges in close proximity to one of the edges of the said opening, substantially as specified.

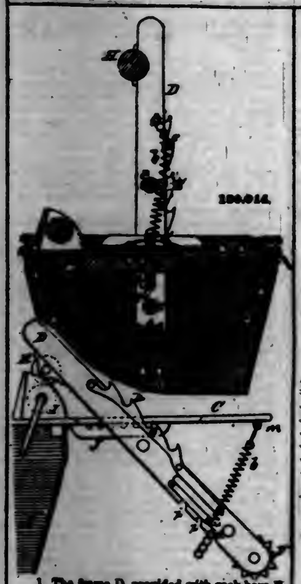
180,913. WOOL DUSTERS. R. C. Patterson, Rochester, N. Y. [Filed June 6, 1876.]

The combination, in a wool dust-brush, of a handle, A, having a projecting wood sheank, C, and a strip of skin, B, retaining its hair, one end of the strip being secured closely to the extremity of the shank, and the skin being wound spirally on the shank, and secured thereto along its entire inner edge by tacking, as set forth.



180,913.

180,914. CORNERED WASHING AND WRINGING MACHINES. Theodorus H. Price, Peoria, Ill. [Filed June 20, 1876.]



1. The frame D, provided with rack-bars E upon one edge, and notches *i* upon the other, and with the roller F upon its lower end, in combination with the warming-cylinder and the spring *k*, as and for the purposes set forth.

2. The frame D, as constructed, with its roller H, in combination with the cover O and its roller J, and notched bar J, and the spring *k*, and plate *e d*, as and for the purposes specified.

3. The combination of the frame D and cover O, as constructed, with the wash-box A, the cylinder B, the valves *a c*, and the openings *a a*, as and for the purposes set forth.

190,915. MACHINES FOR BEVELING OBLIQUE-ANGLED PLATES. John Fielder and Geo. Abel, Denver City, Pa. (Filed July 26, 1876.)



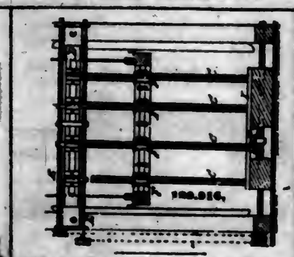
The combination of the blank-holder, having a fixed center, with the beveling-dies, arranged to operate in line parallel to the axis of the blank-holder, substantially as and for the purposes specified.

190,916. STONE-SAWING MACHINES. Jas. Fuller, Green Point, N. Y. (Filed July 1, 1876.)

Brief.—The horizontal screws connected to the adjustable supports in slideways, and defleet the saws against the flanged rollers on the vertical shafts, so as to cause them to run diagonally through the block. The shield in front of the shafts and rollers prevents the sand and water from getting on the shafts.

1. The combination of the screws E, chains *c*, supports *d*, ways D, shafts G, and rollers F, substantially as shown and described.

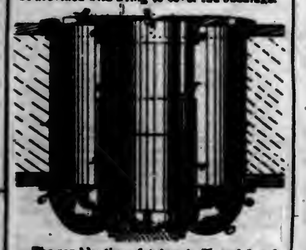
2. The combination, in a stone-sawing machine, of the shield H, roller F, and shaft G, as set forth.



190,916.

190,917. COMBINED STOVE-PIPE THIMBLE AND REGISTER. Charles Petitt, Brieville, N. Y., assignor to himself and L. P. Greenwood, same place. (Filed June 12, 1876.)

Brief.—The top and bottom plates are provided with openings to allow the air to pass. The bottom has a register, and the top may be provided with a ring to cover the openings.



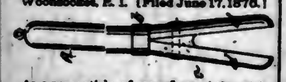
The combination of tubes A, H, and *I* and plates C D, when arranged with the air-space J closed at the bottom, and either open or closed at the top, and with passages in the plates to the space between plates A H, with a register, K, in the lower plate C, for opening and closing them, substantially as specified.

190,918. DINNER-PAIL AND LANTERN. D. T. Platt, Greenwich, Conn. (Filed May 1, 1876.)



The combination, with lamp and double-chambered dinner-pail having transparent front, of a detachable cooking-can, E, adapted to be supported within either of the two compartments, as and for the purpose specified.

190,919. CLOTHES-STICKS. Daniel B. Pond, Woonsocket, R. I. (Filed June 17, 1876.)



As a new article of manufacture, the stick A, forked and provided with a groove, *c*, and a head, *b*, in the manner and for the purpose described.

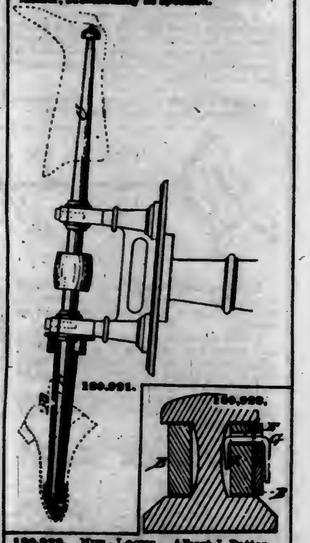
190,920. EARTH-AUGERS. William Poole, Hiram, N. Y., assignor of one-half his right to J. S. Minard, same place. (Filed July 3, 1876.)



An earth-auger having conoidal blade G, downwardly-extending lip *e*, and cheek B, which is curved, so as to be connected to said blade by its lower part, while its upper part *b* is in the line of the axis of said blade, substantially as set forth.

190,921. PIPE-FLOATS. Jos. Popham and Henry Popham, Montreal, Quebec, Canada. (Filed May 22, 1876.)

The combination of the receiving shell, having a grooved pyramidal center, with an housing-horn and guard, having center aperture at upper side, to protect handle and rubber, substantially as specified.



190,921.

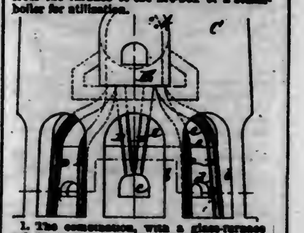
190,922.

190,922. NUT-LOCKS. Albert J. Potter, Omaha, Nebr. (Filed Sept. 20, 1875.)

The combination of the detachable U-shaped staple G with the fish-plate B and nut-locking plate E, having coincident slots, all constructed and arranged as shown and described, whereby said staple is adapted to be inserted through and withdrawn from the slots, and to maintain a vertical position by the operation of gravity, and then hold the parts B E connected, as specified.

190,923. GLASS-FURNACES. W. Pountney, Port Jervis, N. Y. (Filed June 26, 1876.)

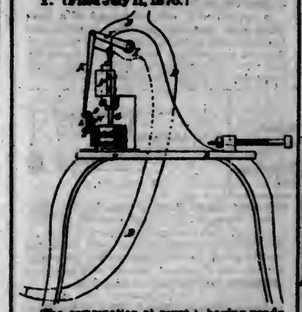
Brief.—The heated gases are conducted from the furnace to the fire-box of a steam-boiler for utilization.



1. The combination, with a glass-furnace and the fire-box or chamber of a steam-boiler, of the ducts or flues D, constructed and arranged in relation with the vent-holes *d*, and with said fire-box or chamber, substantially as described, whereby the ducts D of at least a series of the vent-holes are connected at their outlets in the fire-box or chamber of the steam-boiler.

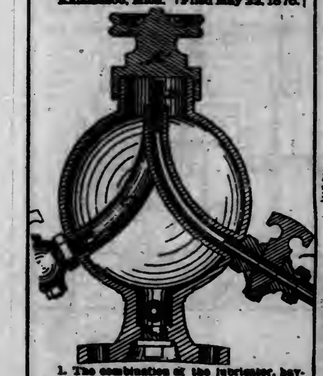
2. The combination, with a glass-furnace and its stack or chimney, C, of the boiler G, arranged within the boiler, and the ducts or flues D of said furnace, made to communicate at their outlets within the fire-box E of the boiler, essentially as described.

190,924. FEED DEVICES FOR PUNCHING-MACHINES. Louis Freher, New York, N. Y. (Filed July 11, 1876.)



The combination of pivot *i*, having pendulous D and arm J, with the pivoted rod E, the crank I, having spring-pawl N, and the gear-wheels P, as shown and described, to form an improved mechanism for operating the feed-rolls of a punching-machine.

190,925. LUBRICATORS. Joseph W. Reed, Kalamazoo, Mich. (Filed May 22, 1876.)



1. The combination of the interior feed-pipes with adjustable top nozzles and the cap of the lubricator, to regulate oil-supply, substantially as herein shown and described.

2. A lubricator having the feed-pipes cast in one piece with the body of the cup, substantially as herein shown and described.

3. The combination of the interior feed-pipes with adjustable top nozzles and the cap of the lubricator, to regulate oil-supply, substantially as herein shown and described.

190,926. HAND-HOLDING BURNER STOPPER. Ferdinand A. Reichardt, New York, N. Y. (Filed July 11, 1876.)



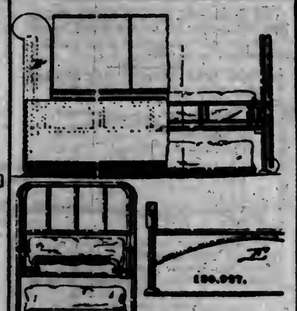
A tapering rubber stopper, A, having its inner end perforated with a tapering hole, *a'*, to receive and hold a brush-handle, substantially as herein shown and described.

190,927. BUFFERING-BEDSTEADS. Rudolf Hild, Dobling, near Vienna, assignor to F. X. Reichelt, Vienna, Austria. (Filed Apr. 12, 1876.)

1. The combination of the main rear sliding sections of the sofa-bed, telescoping within each other, with an inclosing cover and end bolsters, substantially as specified.

2. The combination of the sliding interior bed-section with a detachable foot-support, E, to form a separate bed when detached, substantially as and for the purpose specified.

3. The main and sliding sections, having side guide-rails to support mattress, substantially as and for the purposes specified.



190,928.

190,928. MAIL-PLATE FENDERS. Wm. H. Mitzenbourg, Norristown, Pa. (Filed Apr. 12, 1876.)

Brief.—The mechanism for intermittingly turning the zipper-barrel continuously in the same direction can be connected and disconnected, when desired, with the lever for operating the bander by means of a latch, which engages with a pin on the inner side of the said lever. The barrel is slotted longitudinally, and carries within it the zipper, which is fed to the centers by a cord and weight, and is peculiarly connected to a ring, *o*, pin projecting from which enters the slot in the barrel, and causes the ring and zipper to be rotated with said barrel.



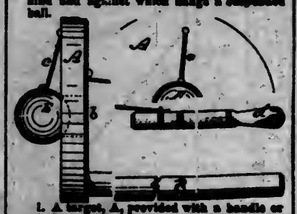
1. The pin E, spring W, ring S, and collar V, combined with the zipper-head T, revolving barrel A, and weighted cord U, substantially as specified.

2. The pin E, having incline X, in combination with spring W and lodge Y, substantially as specified.

3. The ratchet-ring R, bolt F, oscillating shaft G, wheels H I, and count-shaft J, coupled to the bander-lever, and combined with the revolving barrel, substantially as specified.

190,929. TOY TARGETS. G. Robinson, Cambridgeport, Mass. (Filed Jan. 12, 1876.)

Brief.—The target is secured to the end of a rod or handle, at right angles to the rod, and near its edge has a perforate bull's-eye, behind and against which hangs a suspended ball.



1. A target, A, provided with a handle or rod, B, extending forward from the target, for the purposes herein specified.

2. A target, A, provided with a ball or bull's-eye, B, suspended by a cord, *a*, behind a central aperture, *b*, therein, substantially as herein specified.

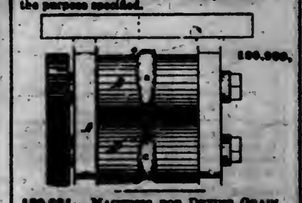
190,930. ROLLING SOCKER-RED JOINTS. Lewis Rogers, Pittsburg, Pa., assignor to R. G. Dillon, Jr. (Filed June 22, 1876.)

1. The pair of rolls, one having the tapering groove, and the other the elliptical tongue, substantially as and for the purpose specified.

2. The combination of the rolls B F, one having the elliptical and rectangular groove, and the other the elliptical tongue, substantially as and for the purposes specified.

3. The rolls B F, provided with the elliptical and rectangular groove *a a*, the tongue *c*, and the cutters *f f*, substantially as and for the purpose specified.

4. The combination, herein described, composed of a series of rectangular and concave-convex portions, corresponding to blanks for socket-rod joints, substantially as and for the purpose specified.



190,930.

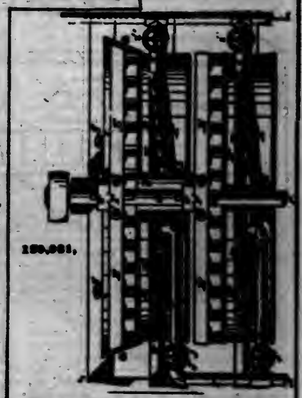
190,931. MACHINES FOR DRYING GRAIN. Alfred W. Roper, St. Louis, assignor of one-half his right to Jos D. Kosbaugh, Glasgow, Mo. (Filed July 1, 1876.)

Brief.—Each rake is hinged to its bob, so as to allow a vertical movement. The removable sections of the pan afford access to the rakes and pan-floor.

1. The combination of the drying-pan B and B', rake F H, and steam-coil H, as and for the purpose set forth.

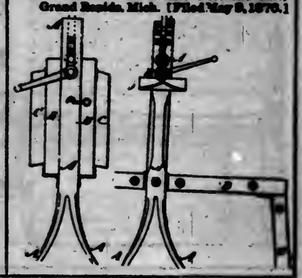
2. The rakes H, hinged at *e f* to the bob F, in combination with the shaft C and pan B or B', substantially as and for the purpose set forth.

3. The sectional removable ring *g*, in combination with the fixed drying-pan H and rake B F, as and for the purpose set forth.



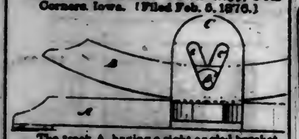
190,931.

190,932. WASH-BOILERS. Peter H. Bridel, Grand Rapids, Mich. (Filed May 8, 1876.)



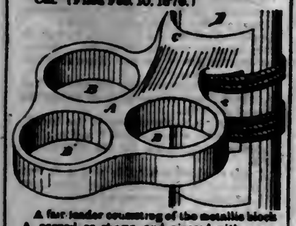
The combination, with the central self-supporting standard A, of the frames B O B O, hinged to opposite sides thereof, and thus adapted to fold against the standard, as shown and described.

180,923. ROCKERS AND TRACKS FOR CRADLES AND CHAIRS. Daniel Nopp, Four Corners, Iowa. [Filed Feb. 9, 1876.]



The track A, having a right angled bracket, C, with a V-shaped slot, *c'*, in combination with the cradle-rocker B, provided with a pin, *b'*, as and for the purpose set forth.

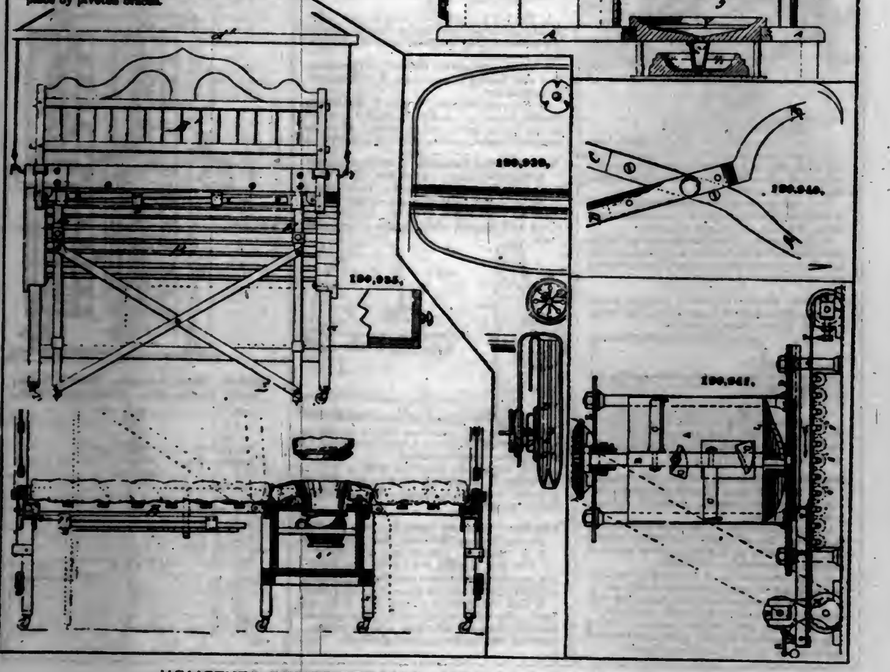
180,924. FEED-LEARNERS FOR SEWING MACHINES. James Sampson, San Francisco, Cal. [Filed Feb. 10, 1876.]



A fine leader consisting of the metallic block A, curved as shown, and pierced with openings B B B, and provided with the sleeve or plate C, perforated or slotted at *c*, to receive the locking which secures it to the shroud D, substantially as herein described.

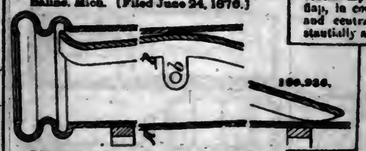
180,926. INVALID-BEDSTEADS. Franklin B. Sawyer, Hyde Park, Vt. [Filed Mar. 6, 1876.]

Brief.—The adjustable head and foot sections are supported on folding legs, held in place by pivoted braces.



The hinged end sections, having folding legs, with sliding and pivoted lateral braces that secure legs in vertical or folded position, substantially as set forth.

180,936. WHIP-SOCKETS. J. J. Schairer, Saline, Mich. [Filed June 24, 1876.]



The whip-socket herein described, consisting of the bent lever B, provided with perforated ears *b b*, all made in one piece, and pivoted to the tube A, substantially as described, and for the purpose set forth.

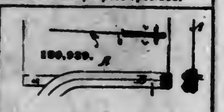
180,937. BOTTLE-WASHERS. Wm. Schoenberg, New York, N. Y. [Filed May 27, 1876.]

1. The frame D, provided with the detachable holding-plate G, and the plate I and pad or stoppers H, in combination with the shafts J S F, the wheel and band L M, the pear-wheels P Q, and the connecting-rod R, or equivalent gearing, to give a rotary and an oscillating motion to the frame D at the same time, substantially as herein shown and described.

2. The combination of the trough or box U, the funnels X, the cords V, and the weights W, with the frame D that holds the bottles, substantially as herein shown and described.

180,939. POCKET-BOOK FASTENINGS. Ernst Schnopp, East New York, N. Y. [Filed June 30, 1876.]

A pocket-book lock, composed of a face-plate with swinging operating-handle, and central tapering bolt on the under side of flap, in combination with a radially slotted and centrally perforated spring-plate, substantially as and for the purpose specified.

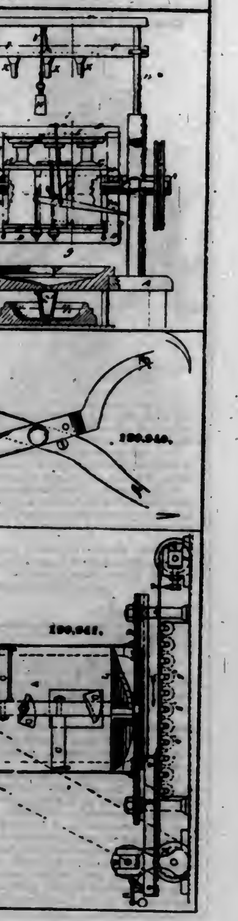


180,939. SKIRT-PROTECTORS. G. Schwab, New York, N. Y. [Filed June 29, 1876.]

A skirt-protector made of the main body A, the binder a placed thereon with concealed stitching *c c*, in combination with a lower projecting rim, B, affixed thereto with adhesive substance, substantially as described.

180,940. FODDER-FORKS. Wm. M. Scotton, Hall, Ind. [Filed May 9, 1876.]

The fork formed of the slightly curved prong A and the hook-prong B, pivoted to each other, and provided with the half-round handles C D, substantially as herein shown and described.



180,941. BRICK-MACHINES. Joseph O. Seymour and Emil. G. Davis, Baltimore, Md., assignors of one-third of their right to J. W. Lancaster, Jr., same place. [Filed June 16, 1876.]

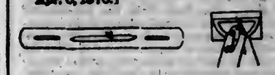
Brief.—In a cylinder a vertical disintegrating and spiral blade-shaft is operated by belting from a drum, which latter works also an endless belt carrying a mold-box.

1. The clay-cylinder A, shaft B, cutters C, and spiral wings L, combined with the perforated bed-plate D, endless bands F, molds *f*, and rolls G, substantially as herein specified.

2. The combination of the endless bands F, pulleys *d*, system of supporting-rollers *g'*, and adjusting set-screws h, substantially as herein described.

3. In combination, with the endless bands F and molds *f*, the rolls G, and the stands supporting the same, knives M, and weighted levers N, substantially as described.

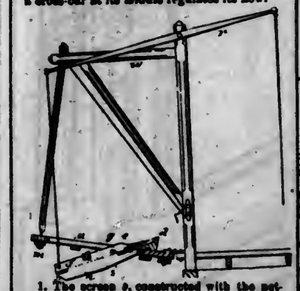
180,943. BUTTON-STRAPS FOR SUSPENDERS. James B. Sharp, New York, N. Y. [Filed Apr. 6, 1876.]



A button-strap for suspenders, provided at or near the middle of its length with the elongated slot *a*, for engagement with a permanent or cast-off buckle-connection, substantially as described and shown, and for the purpose set forth.

180,942. COAL-SCREENS. Patrick Shannon, Ithaca, N. Y. [Filed June 10, 1876.]

Brief.—The hinged screen is the hinged platform has a dust-pocket, having an exit-orifice at the hinged end. An apron linked to the head of the screen receives the coal, and a cross-bar at its middle regulates its flow.



1. The screen *a*, constructed with the netting *f*, and the dust-pocket *i* beneath the netting, having an orifice or exit at or near the hinged end of the screen, and emptied by raising the screen out its hinges, substantially as set forth.

2. The cross or regulating bar *g*, in combination with the screen *b* and pocket *i*, for the purpose of producing an even or regular sliding of the coal over the screen, and a more complete separation of the coal-dust, as set forth.

3. The screen *b*, with pocket *i* closed save at its exit or orifice, at its hinged end, in combination with the spring-pole *r*, or other suitable device for raising and lowering the same in emptying the pocket, as set forth.

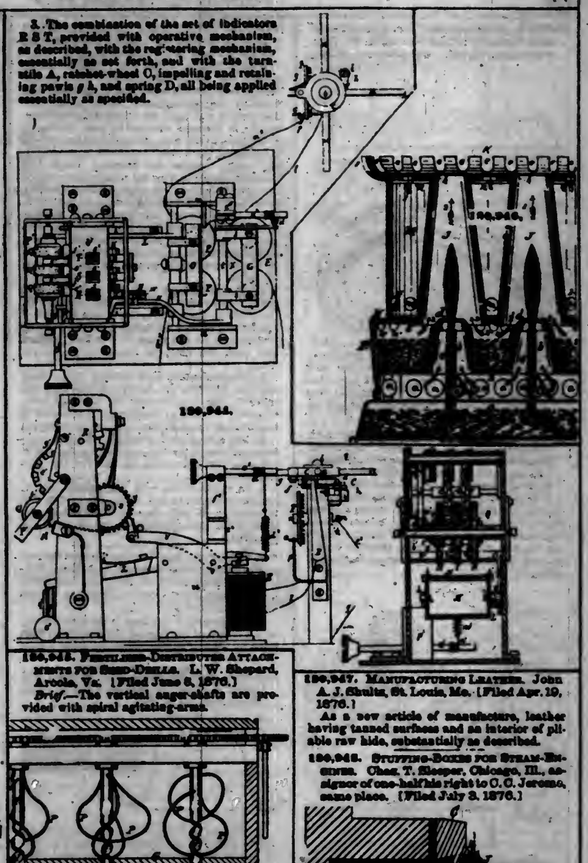
4. The link or chain *s*, in combination with the screen *b*, pocket *i*, and apron *d*, for holding the apron *d* in a fixed position to the screen and pocket, as set forth.

180,944. ELECTRO-RECIPROCATING-TOOL-OPERATOR. Robert J. Shinsky, Boston, Mass. [Filed May 23, 1876.]

1. The combination of the armature A, ratchet-wheel C, impelling and retaining pawls *g h*, and spring D, with a registering mechanism, substantially as described, consisting essentially of the electro-magnet E, its armature G, armature-lever X, impelling-pawl *w*, ratchet-wheel *a*, cams *y d*, and the series of type-wheels H I K, and their operative gears *e f* and pins *e' d'*, the lever L, roller M, armature O, and electro-magnet P, all arranged and applied as set forth.

2. The combination of the tooth *w*, toothed wheel F, stud *e*, and spring *p*, with the turnstile A, ratchet-wheel C, impelling and retaining pawls *g h*, spring D, and the registering mechanism, substantially as described.

3. The combination of the set of indicators R S T, provided with operative mechanism, as described, with the registering mechanism, essentially as set forth, and with the turnstile A, ratchet-wheel C, impelling and retaining pawls *g h*, and spring D, all being applied essentially as specified.



180,945. FERTILIZER-DISTRIBUTER ATTACHMENTS FOR SEED-DRILLS. L. W. Shepard, Arcola, Va. [Filed June 6, 1876.]

Brief.—The vertical auger-shafts are provided with spiral agitating-arms.



In a fertilizer distributer for seed-drills, the vertical auger-shafts provided with arms P, substantially as shown and described, for agitating and feeding the fertilizer through the openings in the bottom of the hopper, as set forth

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180,946. COAL-OIL STOVES. Norman H. Sherburne, Chicago, Ill., assignor of one-half his right to Nelson C. Gridley, same place. [Filed June 21, 1876.]

Brief.—The steam generated in the reservoir is discharged into the chimney of the burner. The jacket is provided at its base with openings for the admission of air, which is heated and passes out through openings in the top of the perforated cap against the vessel shrouds.

1. The water-reservoir F, located above the oil-pot, and provided with the deflecting-cones *d d*, surrounding the wick-tubes, respectively, and arranged to form the air-space G between said reservoir and the oil-pot, and the air-spaces *b* between the wick-tubes and the inner surfaces of the cones, substantially as and for the purposes specified.

2. The combination, with the water-reservoir F, provided with the deflecting-cones *d d*, surrounding the wick-tubes, as described, and with the ventilating-perforations *n'*, of the cover H, adapted to receive the lower end of the chimneys, substantially as specified.

3. The combination, with the cover H, cap K, and jacket K', of the chimneys J J, secured within the cap and cover by the flanges *k k*, substantially as and for the purposes specified.

180,947. MANUFACTURING LEATHER. John A. J. Shultz, St. Louis, Mo. [Filed Apr. 19, 1876.]

As a new article of manufacture, leather having tanned surfaces and an interior of pliable raw hide, substantially as described.

180,948. STUFFING-BOXES FOR STEAM-ENGINES. Chas. T. Sleeper, Chicago, Ill., assignor of one-half his right to C. C. Jerome, same place. [Filed July 3, 1876.]

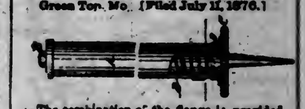


1. The tubular sleeve E, provided with the conical cap F, adjusted to extend through and admit of a radial movement within the plate C, substantially as and for the purpose specified.

2. The combination, with the plate C, sleeve E, provided with the conical cap F and collar H, of the ring G, fitted around the said sleeve between the collar and the plate, substantially as and for the purpose specified.

3. The combination, with the cap F and plates C and J, of the springs K, substantially as and for the purpose specified.

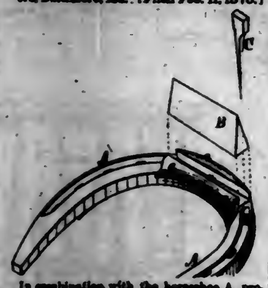
180,949. ADDING-PENCILS. M. M. Smith, Green Top, Mo. [Filed July 17, 1876.]



The combination of the flange D, provided with the nine digits and zero, and the milled flange C, provided with the letters, with each other, and with the sleeve A and the grooved cylinder B, substantially as herein shown and described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

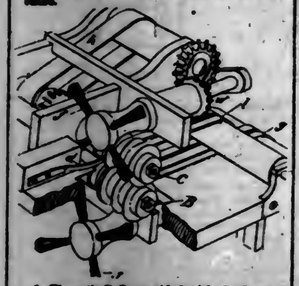
190,850. HORSESHOES. Geo. Smith, Rockdale, assignor to himself and H. W. Rogers, Baltimore, Md. [Filed Feb. 11, 1876.]



In combination with the horseshoe A, provided with the tapering dovetailed groove *c*, the detachable toe-calk B, fitted within said groove, and secured in place therein by means of the nail U, employed for attaching said shoe to the foot of a horse, substantially as and for the purpose specified.

190,851. MACHINES FOR STEMMING AND CUTTING TOBACCO. James P. Smothers, Wentworth, N. C., assignor of two-thirds his right to T. W. Patterson, D. Settle, and Thos. Settle, N. C. [Filed Apr. 29, 1876.]

Brief.—An automatic machine to simultaneously cut the stems from the leaves and the leaves into strips by circular knives on entwirving rollers, transverse rollers carrying brushes at their ends to smooth, brush, and fan the leaves while passing into the machine.



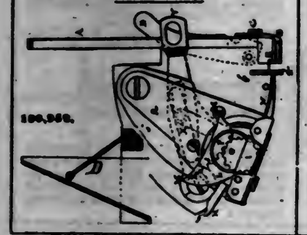
1. The rolls B C, provided with the fingers *r* and the circular cutters *a* and *c*, all constructed and arranged to operate substantially as described.

2. In combination with the circular cutters *a* and *c*, the spring *d*, arranged to operate substantially as and for the purpose set forth.

3. In combination with the cutters *a* and *c*, the combined scraper and guide *b*, constructed and arranged to operate substantially as shown and described.

4. The combination, in a tobacco-machine, of the rolls B C, provided with one or more pairs of cutters, and the rotating brushes *f*, all constructed and arranged to operate substantially as and for the purpose set forth.

5. In combination with the rolls B C, provided with the stemming-cutters *a c*, the slitting-cutters *e*, arranged to operate in connection therewith, whereby the stem may be removed and the leaf cut into strips simultaneously, as set forth.



190,852. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Edwd. S. Spaulding, New York, N. Y. [Filed Jan. 11, 1876.]

Brief.—The device is rigidly attached to the presser-bar, which has a movable foot, the operative movements being communicated to a lever by the reciprocation of the needle-bar. The thread is caught up by a hook, while the needle is through the work, from the far or under side, which hook, being oscillated around the shuttle, (to which the needle is attached, and which carries the bobbin,) loops the thread around and over the pointed rear end of the shuttle, whence the loop passes entirely over the shuttle and needle back to the work.

1. In combination with the plate V, shuttle-carrier R, and rack J, the lever Y and connecting mechanism, as described, whereby a pendulous movement is imparted to said shuttle-carrier and rack, as and for the purposes set forth.

2. In combination with the shuttle I, and plate V, provided with the cam-surface W, the plate P, lever T, provided with the cam *f* and sliding plate *a*, for clamping and releasing the shuttle as the same is vibrated toward and from the material operated on, as set forth.

3. In combination with the rack J, provided with the cam-slot F, and lever Y carrying the roller Z, the loop-carrier H, and plate I, whereby the proper oscillatory movement is imparted to the said loop-carrier, as set forth.

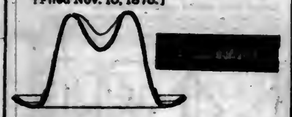
4. The arm-guide *b*, provided with the aperture and slot in its top, and having the guide-pin *d* on its under side, as and for the purpose described.

5. In combination with the presser-bar A, and the adjustable foot B, provided with the throat-plate E and open-top aperture G, the lever D, for raising and lowering said foot, as specified.

190,853. FOOD FOR CATTLE. James Spratt, Horsted Keynes, assignor to Edward Wyham, Charles John Wyham, and George B. Batchelor, Surry County, England. [Filed May 16, 1876.]

As a new article of food, a cake consisting of a mixture of the fruit of the date-palm with flour or other farinaceous substances, as set forth.

190,854. HAT-BINDINGS. Alfred Starr and Henry A. Whiting, Mount Vernon, N. Y. [Filed Nov. 10, 1875.]



A binding for hats and other articles, coated on one side with a composition of gutta-percha, or gutta-percha and india-rubber, and gum-shellac, to render the binding adhesive and water-proof, substantially as described.

190,855. GAS-CARBURATING APPARATUS. Ira N. Stanley, Brooklyn, N. Y., assignor to himself and Edwd. D. White, same place. [Filed May 8, 1876.]

Brief.—Air is heated before being supplied to the fuel on the grate-bars, thus utilizing waste heat and aiding the combustion. The products of combustion are made to travel back and forth through flues for better heating the retort and utilizing all the heat. Saddle-flues are provided under the *retorts*, for supporting them and preventing sagging under intense heat.

1. The tortuous air-heating flues *d d* and lateral passages *d' d'*, leading into the space below the grate C, as specified.

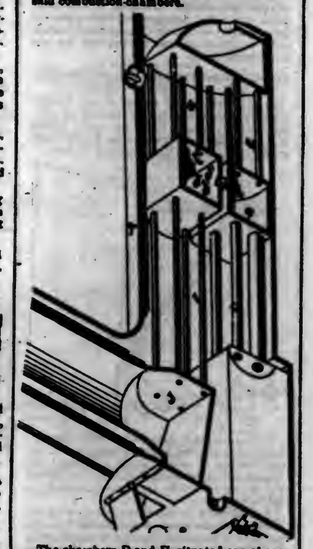
2. The flues *e e'*, combined with the fire-chamber, and adapted to conduct the heated products of combustion above and around the retorts, and above the air-inlet flues *d d*, as substantially as specified.

3. The flues *e e'*, leading from the furnace to the escape-flues, in combination with the tortuous air-inlet flues *d d* leading from the external air to the space below the grate, for the purpose of heating the air previous to its admission to the furnace, as specified.

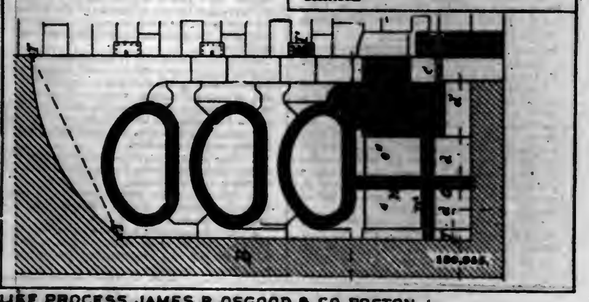
4. In combination with the retorts, supported front and rear, as described, the saddle-tiles located slightly below the retorts, for the purpose of allowing for the expansion and contraction of the material, and supporting the retorts when sagged or bent from high heating, as herein set forth.

190,856. FLUE AND TUBULAR BOILERS. A. J. Sturgeon, Sacramento, Cal. [Filed June 21, 1876.]

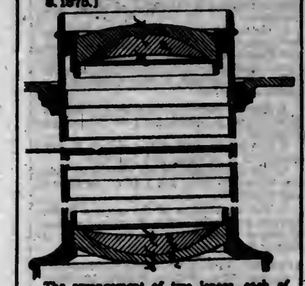
Brief.—The flame from the fire-chamber passes into an intermediate combustion-chamber; thence into a secondary combustion-chamber located above the former, and in which the cooler unconsumed gases are ignited. Expansion and contraction of the tubes is provided for by the tube-heads forming the sides of said combustion-chambers.



The chambers D and H, situated one above the other at a point between the ends of the boiler, and united by the tubes I, said chambers serving to increase the combustion and heating-surface, and providing elastic supports for the ends of the tubes, in combination with the boiler A and tubes C E G I, substantially as and for the purposes herein described.



190,857. PHOTOGRAPHIC-CAMERA LENSES. Adolph Steinheil and Edward Steinheil, Munich, Bavaria, Germany. [Filed Feb. 8, 1875.]



The arrangement of two lenses, each of which consists of two parts cemented together, but which are not formed or ground symmetrically, the surfaces F and F' having curves of equal or nearly equal radius, while the curve E' is of shorter radius than that of E, substantially as shown and described.

190,858. AIR-CONDENSING MACHINES. J. Sturgeon, Bolton-le-Moors, Great Britain. [Filed Jan. 10, 1876.]

Brief.—The lower cylinder-head is hollow, and serves as an air-reservoir. The air-valves are actuated by a friction-collar attached to the piston-rod of the engine. The speed of the engine is regulated by these valves. The inlet-valve fits around the piston-rod. The head has springs to allow air to pass into cylinder. The spring delivery-valves are placed in a circle in the hollow head.

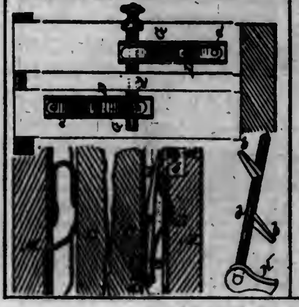


1. The combination of the piston-rod h, inlet-valve *i*, carrying the guiding-box i^3, head i^2, containing openings *j j*, through which the outer air passes into the cylinder, and the collar i^3.

2. The spring delivery-valves k k', placed in the hollow *f* in a circle surrounding the central inlet-valve *i*, in combination with the guides k^2.

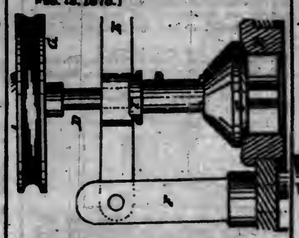
190,859. SASH-FASTENERS. Theo. Thorn, St. Clair, Pa. [Filed June 26, 1876.]

Brief.—A latch-bar carrying a pin or projection at its upper end is fitted in a suitable box or case, and operated by a horizontal shaft having two arms, which alternately force the lower end of the latch-bar outward, drawing back the upper end, and vice versa. The end of the bar is forced outward by means of a suitable spring, and the edge of the catch has recesses corresponding to the shape of the pin or projection on the latch-bar.



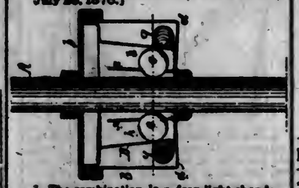
The combination of the bar D, the shaft *d*, having arms *b b'*, the latch-bar C, having pin *a*, the spring E, and the recesses *c c'* in the edge of the grooved cam, for the purposes herein set forth.

190,860. SAFETY-VALVES. Charles Homer Thompson, St. Petersburg, Pa. [Filed Feb. 12, 1876.]



The combination of valve C, stem D, provided with loose collar I and pulley G, lever B, and fulcrum F, all constructed and arranged to operate as and for the purpose specified.

190,861. DROP-LIGHT CHANDELIERS. Benj. Thacker and George F. Blaine, Philadelphia, Pa., assignors to said Thacker, W. J. Buck, J. H. Southworth, C. Thacker, and Byron H. Buck, same place. [Filed July 28, 1876.]



1. The combination, in a drop-light chandelier, of a sliding tube, A, and balls *c c*, with inclined springs *h*, and a base on which the balls can bear, all substantially as set forth.

2. The combination of the counter-slotted casing D and spring *g*, surrounding the same, with the balls *c c* and sliding tube A.

190,862. APPARATUS FOR MANUFACTURING SOLAR SALT. Theo. E. Tinsley, Terrytown, N. Y. [Filed June 20, 1876.]

Brief.—The top of the cover is given a dark or black surface, whereby it will better absorb solar heat, and above this is placed a glass top, with an air-chamber between them, to assist the absorption of heat. An opening in the upper cover admits hot air to the surface of the brine. The top of the cover is slightly inclined, to shed the rain, and its sides are inclined and overlap the sides of the vat, to deflect the wind and dust from the brine.



1. A vat-cover having a slightly-inclined top or upper surface of dark color, to deflect the rain and absorb solar heat, and inclined overlapping sides, to deflect the wind and dust away from the surface of the brine, substantially as herein illustrated and described.

2. A vat-cover having an upper surface of dark color to absorb solar heat, and a transparent top and close sides for confining the air in immediate contact with said dark surface, substantially as herein described.

3. A combined hot cover and rain-guard, substantially as herein illustrated and set forth, the same having an upper surface of dark color to absorb solar heat, and sufficient inclination to shed water.

4. A vat-cover having overlapping sides, in combination with posts supporting it slightly above the bored sides of the vat, whereby air is allowed to enter and impinge obliquely upon the lower surface of the hot cover, by which it is deflected upon the surface of the brine, substantially as set forth.

190,863. CHURN-DASHERS. Mary L. Tower, Detroit, Mich. [Filed July 3, 1876.]



In an agitator or dasher, the cross-cut diamond-shaped spokes *c c*, in combination with the staff B, provided with rectangular grooves *d d*, substantially as described.

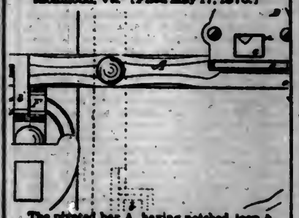
190,864. MOLE-TRAPS. Edward T. Tremont, Humboldt, Tenn. [Filed July 10, 1876.]



1. The combination, with the lift and drop spike-block bars D F, the latter having the shoulder *s* and the notch *g*, and the former the pin *d*, and both passing through the guide-strap I, of the double-notched bar J *a b* and the trigger K, having its support upon the cross-bar, substantially as and for the purpose herein set forth.

2. The combination, with the box-frame B, the gallows-frame G E, and the guide-strap I, carried by said frame, of the bars D F, the spike-block A, and the tripping device J K, all constructed and combined for use as shown and described.

190,865. SEAL-LOCKS. Sylvester J. Tucker, Richmond, Va. [Filed May 17, 1876.]



The pivoted bar A, having notched loop *b*, carrying a glass plate, and the perforated bar *i*, in combination with the casing D, the pivoted catch C, and staple F, substantially as shown and described, to operate as specified.

190,866. CUTTING-CYLINDERS FOR PRINTING-PRESSES. Stephen D. Tucker, New York, N. Y. [Filed Nov. 27, 1875.]

1. The combination of a cutter-blade with a carrying-cylinder, a rocking-shaft, operating directly upon the cutter-bar and stationary actuating-cam, substantially as shown and described.

2. A revolving carrying-cylinder, a cutting-blade, a rocking-shaft operating directly upon the cutter-bar, and an actuating-cam, combined, substantially as shown and described.

3. A cutter-driving rock-shaft mounted in a revolving carrier, and having a crowned end, combined with and running in a centrically grooved cam, whereby the cutter is projected without and drawn within the periphery of the carrier, substantially as shown and described.

4. In combination with the cutter, a rock-shaft provided with an abutment for driving said cutter in one direction, and with projections engaging with the cutter-bar to draw it in a contrary direction, substantially as shown and described.

5. The combination of the shaft-abutments 20, teeth or projections 19, and slotted cutter-bar, substantially as shown and described.

6. The combination of a cutter-actuating shaft with its cutter by means of the teeth 19 and slots 17, substantially as shown and described.

7. A cutter, operated directly from a rock-shaft without the intervention of rods, levers, springs, or other connecting media, substantially as shown and described.

8. A cutter-actuating shaft, provided with the abutment 20, teeth 19, and removed face, as at 18, Fig. 7, substantially as shown and described.

9. Wooden bearings and guideway for the cutter and cutter-bar, substantially as shown and described.

10. The combination of two blocks or cushions of rubber and a separating-plate, forming a cutter-groove for co-operation with a cutting-blade, substantially as described

11. The combination of a longitudinally-divided case or box, 7, blocks 31 of elastic material, and separating-plate 32, substantially as shown and described.

12. In combination with the cushion-blocks 31, and the sides of their holding-box 7, the ribs, shoulders, or projections 30, substantially as shown and described.

13. The combination of beam or cases 7, which support the movable main or female cutting devices, with the revolving carrier, the construction being such that the said beam or cases are removable from the carrier, substantially as shown and described.

14. The combination of the box-sections, cushions 31, and separating-plate 32, the said parts being constructed so as to be removable from the cylinder while adjusted in their relative operative positions, substantially as shown and described.

15. The combination of a cutter or cutters, cutter-bar, and actuating rock-shaft, the said parts being removable, while attached together, from their bearings and guiding-groove in the revolving carrier, substantially as shown and described.

16. A cam, provided with an aperture to permit the passage of the cutter-shaft it actuates when said shaft is removed bodily from the machine, in combination with said shaft, substantially as shown and described.

17. The stationary grooved cam, apertured at 28, in combination with the cranked shaft and cutter, substantially as shown and described.

18. The combination of an apertured cam and a closing-block, with the cutter-shaft, substantially as shown and described.

19. A block for closing the aperture through a grooved cam, which is so constructed that its inner surface shall form part of the cam-groove, in combination with the cutter-shaft, substantially as shown and described.

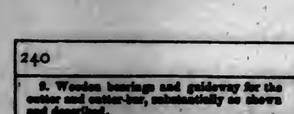
20. The combination of a stationary grooved cam, a reciprocating cutter-shaft, and a revolving carrier, the cam-groove being shaped to force the cutter out quickly and return it slowly, substantially as shown and described.

21. The combination, with the cutting-cylinders, of the rigid conductors extending into the grooves in the said cylinders, the construction and arrangement being such that the conductors shall clear the cutting-blade when it is projected in the act of cutting, substantially as shown and described.

22. The combination of the rigid sheet-conductors, the slotted cutter, and the grooved cylinder, substantially as shown and described.

23. The combination, with a cutting-blade, of the cylinder, constructed of independent sections hung upon their shaft, so as to form an intervening space between them, which space constitutes the conductor-grooves, substantially as shown and described.

24. The combination of a reciprocating cutter, whose edge is entire, a grooved cylinder and conductors, the combination being such that the inner ends of said conductors are supported outside of the line of motion of said cutter when drawn into the cylinder, substantially as shown and described.



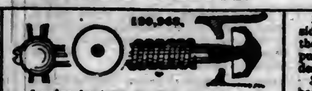
189,968.

189,967. WATER-PROOFING FOR DOORS. R. L. Valentine, Oakalla, Ill. [Filed June 12, 1876.]



A weather-strip consisting of the trough A, having capped ends, lip d, the back higher than the front, and the edge turned at b, as shown and described, for the purpose specified.

189,968. FAUCETS. James O. Waddell, Newark, N. J. [Filed Dec. 13, 1875.]



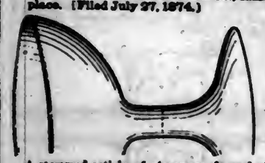
A valve having a recess around the spindle, provided with soft metal, when valve and spindle are constructed of one continuous piece of metal, as and for the purpose set forth.

189,969. RAILROAD-RAIL JOINTS. Duncan C. Waddell and John F. Finger, Marion, S. C. [Filed July 11, 1876.]



A railroad-joint consisting of a chair having a central bearing-piece between the rails and a split key, which is driven through a mortise in the bearing-piece, and clamps the end of the rails against the side of the chair, said key being held in place by a wedge driven in the split, substantially as specified.

189,970. MANUFACTURE OF GLASSWARE. Louis Wagner, Wheeling, W. Va., assignor to J. H. Hobbs, Brockunier & Co., same place. [Filed July 27, 1874.]



A stemmed article of glassware, formed of two pieces, the upper consisting of the bowl and a portion of the stem, and the lower of the foot and a portion of the stem, when joined together at a point in the stem between the bowl and foot.

189,971. APPARATUS FOR APPLYING TOOLS TO BE GROUND OR POLISHED. C. Walker and Henry B. Northrup, Sandy Hill, N. Y. [Filed May 4, 1876.]



The adjustable tool-holder consisting of adjustable pivoted toothed bar F, catch E, arms D D, and bar A, provided with suitable means for supporting the tool to be ground, as and for the purpose set forth

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189,972. MOSQUITO-BARS. M. J. Waldron, Memphis, Tenn. [Filed June 26, 1876.]



1. As a new article of manufacture, a mosquito-canopy stretched upon a rigid frame, provided with angle-plates H, adapted to engage with flanged rolls on the frame of the bedstead, and having the valance G, all as and for the purpose set forth.

2. The canopy, provided with the hinged side and the counter-weights, connected to the same by means of cords *e* passing over pulleys attached to the frame, as shown and described.

3. The combination of the canopy and the bed-frame, provided with rollers, as shown and described, whereby the former may be moved laterally to enlarge the available space at the side of the bed, or other article of furniture, as specified.

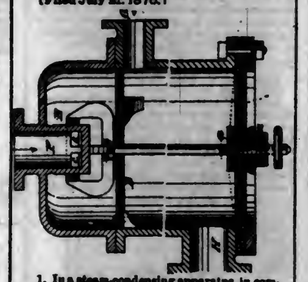
4. The combination of the canopy *J*, weights A, and frame D, substantially as shown and described.

5. The combination of the curtain H and sections A B, as shown and described.

6. The combination of the valance G, with the sections B B' B'' and C C' C'', as shown and described.

7. The combination of the sections B' B'', the end-section C', section E, and end-section C, hinged together and forming a series of folding doors, substantially as specified.

189,973. APPARATUS FOR CONDENSING STEAM. Wm. Walker, Manchester, England, assignee of one-half his right to Edward and Alfred Bevis, Wilmington, Del. [Filed July 21, 1876.]



1. In a steam-condensing apparatus, in combination with a pipe communicating with a water source or supply, a regulator-valve, and adapted to be operated by atmospheric pressure, and a flexible diaphragm connected with said valve, substantially as shown and described, to operate as specified.

2. In a steam condensing apparatus, the vessel A, provided with a flexible diaphragm, the exhaust-steam induction-pipe G, and the water induction and eduction pipes F H, all arranged as shown and described, whereby the diaphragm is acted upon by the atmosphere without, and the vacuum within, said vessel, as set forth.

189,974. RAILROAD-SWITCHES. F. C. Weir, Cincinnati, Ohio. [Filed Jan. 19, 1876.]

Brief.—The movable rails travel longitudinally, instead of laterally, as usual, and are provided with beaked guides, which take into angular chairs fixed upon the ties, by which the said rails are guided against or away from the fixed rails, as desired, and are at the same time secured in position. The rear portions of the rails move through chairs which admit of a slight lateral motion.

189,975.

1. [illegible] moving switch-rails O D, operated either independently or simultaneously, substantially as and for the purpose specified.

2. In combination with the guiding-chair H, the lap-joint *c*, between the main and sliding switch-rails, substantially as and for the purpose specified.

3. The side switch-rail D and laterally forcing and holding device F G, operating substantially as described.

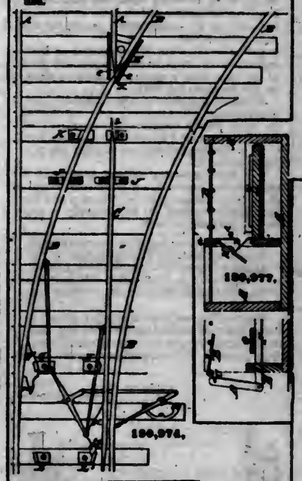
4. The main switch-rail C, in combination with the laterally forcing and holding device H I, substantially as described.

5. The sliding chairs J, to permit the lateral movement of the switch-rails, substantially as described.

6. The combination of sliding chairs J and laterally forcing or holding devices F G or H I, substantially as described.

7. The combination of rails O D, and switch-lever N, and intermediate mechanism, by which the said rails are moved simultaneously, substantially as and for the purpose specified.

8. The hook-guide B or B' on the switch-rails, in connection with the stationary angular chair L or L', secured to the ground-line, to secure either of the switch-rails when out of use.



189,976.

189,976. PORTABLE HOUSES. Francis M West, Des Moines, and A. S. Smalley Snyder, Iowa. [Filed July 11, 1876.]



1. A portable house, constructed of sectional tongue-headed log walls, with detachable door and window casings, detachable joints and floor-sections, and of dovetailed rafters, with pinned roof-sections, substantially in the manner and for the purpose set forth.

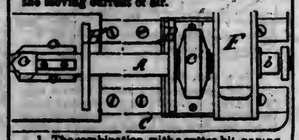
2. In portable structures, the combination of a sectional log wall, connected by tongue-and-groove joints, with the door and window casings locked by tongues and grooves and fastening-bolts, substantially as set forth.

3. The combination of the floor-joists, dovetailed into the log walls, and having projecting pins, with the floor-sections, provided with recessed bottom strips, substantially as described.

4. The combination of the rafters, secured to shoes of the log walls, and transverse bearing-plate, with the roof-sections and fastening-battens, having central lock-strips, substantially as specified.

189,978. BOBBIN-MACHINES. P. H. Wilms, Holland, Mich. [Filed May 23, 1876.]

Brief.—The paper is placed at the end of a metallic tube, in which a partial vacuum is produced by means of revolving fans, causing the chips, as they are cut by the angers, to be sucked into the tube, from which they pass to the fan, and from which they are carried by the moving current of air.



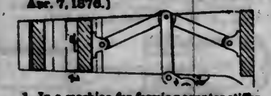
1. The combination, with a cutter-bit, having a tubular exhausting-shank, A, of a suction-fan, J, and its casing F, for clearing the angers-bit of cuttings by suction, substantially as specified.

2. The combination of a cutting-bit, its tubular exhaust-shank A, a suction-fan, J, and casing F, having chute *f*, substantially as set forth.

189,977. ANIMAL-TRAPS. J. W. Wilson, Summerford, Ohio. [Filed July 11, 1876.]

The improved animal-trap formed by the combination of the swinging gate B, the crank C, the connecting-rods D, the weighted platform F, and the bent arm I, with the box A *a'* of the trap, and with the gate H, hung in the opening *a''* through the partition *a'* of said box, substantially as herein shown and described.

189,978. MACHINERY FOR FORMING COUNTER-STIFFENERS FOR BOOTS AND SHOES. William C. Wise, Chelsea, Mass. [Filed Apr. 7, 1876.]



1. In a machine for forming counter-stiffeners for boots and shoes, the combination of the heated bed-plate and platen and molds and toggle-arms with a rock-shaft, sector, and worm-gear, and shaft to move the center and rock-shaft, substantially as described.

2. The steam-heated platen and rib *x*, in combination with the mold *i*, grooved to embrace the rib to permit the attachment and removal of the molds, substantially as described.

189,979. PENCOM. John Wood, Jr., Conshohocken, Pa. [Filed June 6, 1876.]



The combination, with the core of segmental block C, and the arms F, of the split ring or rings A, and conical plug D, arranged substantially as and for the purpose specified.

189,980. CAR-AXLE LUBRICATORS. Wm. H. Wright, North Tarrytown, N. Y. [Filed June 12, 1876.]

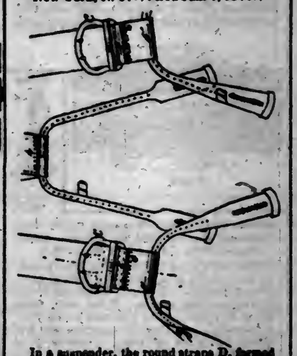


1. The sectional platform A A', the parts being capable of separate insertion in the housing H, and therein joined together, and adapted for supporting the operating parts of a wheel or roller lubricator, substantially as and for the purpose set forth.

2. The combination, with a platform provided with vertical ways C and bearings D, having elastic vertical supporting-springs *c c*, of the oiling roller or wheel B attached to shaft *a*, having elastic end bearing-springs *a a*, substantially as and for the purpose set forth.

3. The combination, with the sectional platform A A', capable of being separated in its parts, and joined together within the housing H, of the pivoted legs E E capable of being folded up against the lower sides of the section of said platform, and being thrown down to support the same, substantially as and for the purpose set forth.

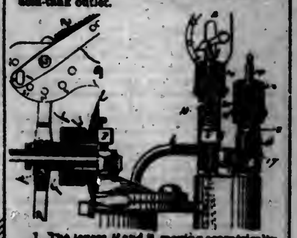
189,981. SUSPENDERS. Frank C. Wright, New York, N. Y. [Filed Jan. 7, 1876.]



In a suspender, the round straps D, formed of a piece of webbing folded or rolled upon itself, and stitched at *g*, to constitute the body of the strap, and with flat ends carrying the button-holes, as described, whereby a round strap is constituted, which will not expose, through wear, a surface which will soil the linen of the wearer.

189,982. CARBONIC-ACID-GAS GENERATORS. Otto Swietasch, Milwaukee, Wis. [Filed June 10, 1876.]

Brief.—By distending the coiled spring shown on one of the levers, pressure is applied to the generator-diaphragm controlling the acid-tank outlet.



1. The levers F and S, moving concentrically to each other, in combination with a connecting double coiled spring and a perforated plate, T, substantially as described.

2. In a pressure-equalizer, the combination of a downward-opening channel, 17, a stirrup-valve, 21, and a plate, 18, with a coiled spring, 20, around its rod, substantially as described.

3. In combination with a carbonic-acid-gas generator, the internally-arranged acid-chamber *a*, provided with the central opening *a*, and traversed with an alkali-channel, F, as and for the purposes described.

4. The safety-valve and gage contained, consisting of the barrel 7, with opening 12, screw-cap 14, piston 8, spring 10, rod 9, head 11, and dial 13, all constructed and operating as set forth.

REISSUES.

9,261. HOSE-COUPLINGS. Wm. A. Carvell, Chicago, Ill., assignee of one-half interest to E. J. Prentice. Patent No. 169,970, dated Oct. 19, 1875. [Filed Apr. 18, 1876.]

Brief.—The swivel is formed by spinning the contracted end of sheet-metal portion over the shoulder of the outer sleeve.

1. The method, herein described, of connecting the swivel in a hose-coupling by expanding the retaining-shoulder *c* into interlocking position with the shoulder *d* in the swivel, as specified.

2. The male part of a hose-coupling, composed of a tail-piece, or its equivalent, and a screw-threaded sleeve, secured upon the tail-piece by the shoulder *f* expanded against the end of the sleeve, substantially as specified.

3. In a hose-coupling the tail-pieces A A', contracted at their ends, and adapted to be expanded to form the retaining-shoulders *c* and *f*, substantially as and for the purpose specified.

4. The combination of the packing-ring B with the tail-pieces A A', provided with the shoulders e and f, sleeve D, and swivel C, substantially as and for the purpose specified.



7,962.

7,963. BALE-TIES. Waters S. Davis, Galveston, Tex. Patent No. 178,418, dated June 6, 1876. (Filed July 22, 1876.)

The single hook B, having its face g constructed to dip or incline downwardly or in an inward direction relative to the planes of the overlapping end portions of the band, from the end i of the nose of said hook to the root h thereof, for operation in connection with the mortises b in the bale band, substantially as described.

7,964. PLOWS. Horatio Gale Albion, Mich., assignor to the Gale Manufacturing Company. Patent No. 159,174, dated Jan 26, 1876. (Filed July 25, 1876.)

Brief.—A block pivoted to the beam, and to which the handles are secured, and a serrated and grooved block to adjust and secure the colter on the standard.



1. In center-draft plows, and in combination with the standard and colter, the block C, interposed between the said standard and colter, for the purposes specified.

2. The horizontally-recessed and serrated colter block C, in combination with a serrated plow standard, substantially as described.

3. The triangular washer E, combined with the standard-shank and handles of a plow, substantially as and for the purpose set forth.

7,965. HOT AIR FURNACES. Orange N. Hart, Wyoma Mines assignor to George T Flint, same place. Patent No. 92,922, dated July 20, 1869. (Filed June 3, 1876.)

Brief.—The gas burner or air feeding device can be placed at various distances from the fire. The deflector spreads the smoke in the ash-box, which is wider than the fire-box.



1. The combination of drums C, E, E, and B', having division-partition D, and connecting-rod arranged as described, with the fire-chamber of a furnace or heater, substantially in the manner and for the purposes set forth.

2. In the furnace A, the adjustable fire-burner M, combined with the fire-box and plates J J' and air-duct T, substantially as and for the purposes set forth.

3. In combination with a drum and furnace, substantially as described, the deflector L, arranged in the ash-box W, as and for the purposes set forth.

7,965. GRAIN-DRILLS. James D. Jones, Columbiana, Ohio, assignor, by mesne assignments, to W. W. Wallace, Pittsburg, Pa. Patent No. 40,262, dated Sept. 12, 1863. (Filed May 22, 1876.)



7,965.

1. In a grain-drill, the combination of the agitators g, gage-plates f, cut-off plates m, connecting-rods e, pivoted bar p, adjustable bearings q, and seed-hopper H, substantially as herein described, and for the purpose set forth.

2. In a grain-drill, the reversible chutes or conductors, in combination with the seed-hopper and adjustable drill-teeth adapted to be straggled, substantially as herein described, and for the purpose set forth.

3. In a grain-drill, adjustable teeth adapted to be straggled independently, substantially as hereinbefore described, and for the purpose set forth.

4. In a grain drill, adjustable teeth, each one of which is adapted to be moved forward and back by means of an adjustable drag-bar, for the purpose of arranging said teeth in parallel rows, so that each tooth of the series may be made to occupy a position independently of any other, substantially as hereinbefore described, and for the purpose set forth.

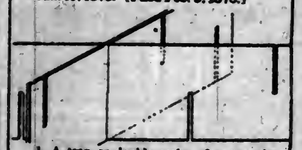
5. In a grain-drill, the combination of the adjustable bearings q, pivoted bar p, and chains i with the drill-teeth, substantially as hereinbefore described, and for the purpose set forth

7,966. LAMP-EXTINGUISHER. M. Wagner, Quincy Ill. Patent No. 179,873, dated June 2, 1876. (Filed Aug. 2, 1876.)



The combination of a weight suspended from a fixed rod, B, with a ring, C, rod D, hook-lever E, and sliding tube F, all constructed and arranged substantially as and for the purpose specified.

7,967. SOD-BOXES. Abner H. Bryant, Chicago, Ill., assignor, by mesne assignments, to Henry P. Billings and Chas. H. Osborn, same place. Patent No. 158,226, dated Jan. 19, 1876. (Filed Feb. 9, 1876.)



1. A tray or double series of rectangular bottomless pockets, constructed of flexible material, in separate strips, interwoven and permanently interlocked, beyond danger of separation, by means of straight slits or slots cut in opposite edges thereof, substantially as and for the purpose set forth.

2. A tray or double series of rectangular bottomless pockets, constructed of suitable flexible material, in two intersecting series of separate strips, each series of strips being provided with slots or slits cut in opposite edges of each strip, whereby the respective series are interwoven and permanently interlocked beyond danger of separation, substantially as and for the purpose set forth.

3. A tray or double series of rectangular bottomless pockets, constructed of suitable flexible material, in two intersecting series of separate strips, each series of strips being provided with slots or slits cut alternately in opposite edges of each strip, whereby the respective series are interwoven and permanently interlocked beyond danger of separation, substantially as and for the purpose set forth.

7,968. FURNACES FOR GENERATING STEAM. David N. Melvin, Lincolnville, N. Y., assignor, by mesne assignments, to H. L. Furnas and A. C. Bradley. Patent No. 76,039, dated Mar. 3, 1868. (Filed July 24, 1876.)

Brief.—The furnace-door swings inwardly from the top, and is provided with counter-poise-weights, so that the door will remain in any desired position. The door-sill and grates are downwardly inclined for the more ready reception of the fuel.



1. A furnace-door horizontally hung in its frame, so as to swing open and shut at its base, in combination with an inwardly-inclined bed-plate or sill, substantially as and for the purpose described.

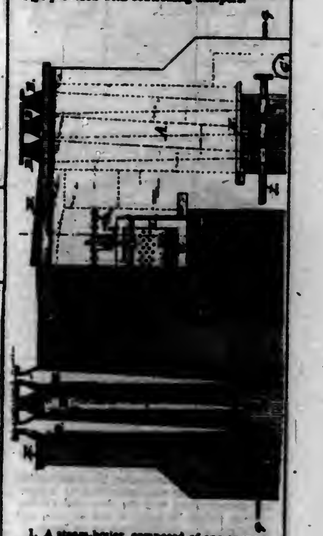
2. The combination of a furnace-door horizontally hung, so as to swing open and shut at its base, with a counterbalancing-weight, for the purpose set forth.

3. The combination of a furnace-door horizontally hung, so as to swing open and shut at its base, with a counterbalancing-weight or counterpoise, and a downwardly-inclined bed-plate or sill, substantially as and for the purpose set forth.

4. A furnace having inclined grates and a similarly-inclined bridge or partial diaphragm, K, in combination with the fines m n and the combustion-chamber D, substantially as and for the purpose set forth.

7,969. FURNACES FOR GENERATING STEAM. David N. Melvin, Lincolnville, N. Y., assignor, by mesne assignments, to H. L. Furnas and A. C. Bradley. Patent No. 76,039, dated Mar. 3, 1868. (Filed July 24, 1876.)

Brief.—The boiler is composed of one or more inverted conical water-tubes and their containing-plates, located in combustion-chambers provided with controlling-dampers.



1. A steam-boiler, composed of one or more inverted conical water-tubes, substantially as set forth.

2. The combination of the vertical water-tubes B with their metallic containing-plates E E, substantially as and for the purpose specified.

3. The combination of the chamber C with the flues p p, the inverted conical water-tubes B, and containing-plates E E, substantially as and for the purpose set forth.

4. The flue G, series of dampers q q, and heating-chamber C, in combination with the tubes B and flue-apertures p p, substantially as specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

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NOTICE.

PRACTICE IN REGARD TO INTERFERENCES WITH REISSUE APPLICATIONS.

The former practice of declaring interferences with all applications for reissue of patents in proper cases has been resumed. See decision in case of *Sargent* vs. *Burge*, rendered August 12, 1876, which will appear in the next issue of the GAZETTE.

COMMISSIONER'S DECISIONS.

JACOB DUNTON, THOMAS J. YOUNG, AND J. A. MCFERRAN.—*Interlocutory Appeal.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the application of Jacob Dunton, filed January 11, 1876, and the patents of Thomas J. Young, No. 156,398, October 27, 1874, and J. A. McFerran, No. 152,666, June 30, 1874.*—"MACHINE FOR MAKING PILLS."—*Decided August 1, 1876.*]

Where references are given in rejection of an application subsequently put in interference with patents previously granted, showing, but not claiming, the same device, and other pertinent references are also afterward found anticipating such application, it is proper to dissolve the interference.

A broad claim for mechanism that has elsewhere performed precisely the same result, except in the nature of material operated upon, should not be allowed.

A mere transfer of a combination of elements to a new structure, where it operates in the same way to produce the same result, not patentable.

[*Munn & Co.*, attorneys for Dunton.
J. S. Bell, attorney for Young.
Howson & Son, attorneys for McFerran.]

DOOLITTLE, *Acting Commissioner:*

This is an appeal from the Examiner of Interferences denying a motion to dissolve. The issue, as declared by the Primary Examiner, is in the language of the first claim of Dunton, and is as follows:

In a machine for making compressed pills, a frame forming a compression-chamber, and an upper movable die operating as a plunger, in combination with a lower movable die fitting closely the opening in which it moves, and having a subjacent lifting device, and operating alternately as a passive die and an active lifting-ejector, substantially as described.

The patentees show and claim this mechanism in combination with other devices, but do not claim it broadly. The ground for asking that the interference be dissolved is that the claim of Dunton should not be allowed in view of the state of the art, as shown by numerous references.

The case was referred to the Primary Examiner for report upon the arguments and references submitted by counsel.

The Examiner still adheres to the position originally taken by him, claiming that the references cited do not meet Dunton's case, and that a proper interference exists between the respective parties.

The claim originally made by Dunton is as follows:

The pill-machine, consisting of a suitable frame forming a compression-chamber, in combination with two movable dies, one of which constitutes the plunger, and the other the ejector, substantially as described, and for the purpose set forth.

The Examiner in his first action upon this case rejected applicant, and stated that—

Brockenden, in his patent No. 9,977, of 1843, uses dies for making compressed pills. To add to this die a clearing plunger-die, which throws out the compressed material, is a common feature in analogous dies. Because this old device is used for a pill does not make it patentable.

This was followed by the citation of numerous references. In conclusion the Examiner said—

No such claim as applicant's could have been allowed any one since 1843.

I do not see that the applicant has changed the principle of his invention in his amended claim. He indicates therein with more particularity the fact that the lower movable die fits closely the opening in which it moves, and that the lower die operates alternately as a passive die and an active lifting-ejector.

This would have been construed as the extent and limit of his claim originally, regard being had to the description contained in his specification. It is the principle or mode of operation of the machine which is in controversy, and not the fact that the applicant, Dunton, is first to adopt this principle of mechanism in the making of pills.

As stated by the Examiner, Brockenden, in his Eng-

lish patent, No. 9,977, made pills by compressing the dry material between upper and lower dies, the only difference being that no subjacent ejector was used to throw the pill out of the lower mold.

It will be seen, therefore, in view of the state of the art, that if Dunton has made an improvement it is confined to the addition of certain mechanism to an old instrument, and, in accordance with the doctrine laid down by Judge Story in *Barrett et al. vs. Hall*, (1 Mason, 447,) he should be confined in his application to the specific improvement which he has made, the judge there remarking, "if it (the patent) covers more than the *improvement* it is void, for another reason, that it is broader than the invention." But this improvement in itself is shown to be old, and, in fact, the entire combination of mechanism, by several references which have been subsequently called to my attention, the only difference being that in the references cited the machines are applied to other purposes, such as making brick, pressing cigar-bunches, making bullets and knobs. But this double use of well-known mechanism does not constitute a patentable distinction. So well settled is this doctrine that it is unnecessary to cite the numerous decisions in its favor.

In the patent of G. Pierce, of January 14, 1873, for "Pressing Cigar-Bunches," the cigar is pressed into form, before receiving the wrapper, in a sectional die, both sections being movable in the same plane of motion, the lower following the upper at an interval in its rise, both within a frame, out of which the bunch is thrown by the lower die, the upper die cushioned by a spring above.

The patent of Thomas J. Sloan, for "Improvement in Machines for Making Porcelain Knobs," granted April 25, 1871, shows and describes a claim for a combination, in a suitable frame, of upper and lower dies and plunger, the lower die operating to lift the molded article out of the die-case, and to retain a yielding pressure on said article while being so lifted. In these cases, and in many others, including brick-machines, the lower die is raised by subjacent ejectors. Applicant does not restrict himself to any particular mechanism for operating the upper or raising the lower die, and claims that he may use any other suitable devices for those purposes.

The form of the cavities in separate plungers is also old in bullet and other pill machines, and the fact of fitting one plunger to the other closely is a matter of mere mechanical skill and judgment, requiring no use of the inventive faculties whatever; and, besides, some of the references show the die fitting as closely as applicant's.

The allegation of the Examiner cannot be denied that some of the machines mentioned will not make a pill. It is true that some changes in construction are necessary in those machines, in order that pills may be made thereon; but the simple question is whether such changes in construction are patentable, in view of the fact that the combination of the mechanical features in question in those machines, and the principle of their operation, are precisely the same as Dunton's.

If we were to take the same combination of mechanical elements as is here represented, increase the strength of their parts, and add a more powerful ejector for a lower die, it might be possible to make a pill as large as a cannon-ball, and as solid, and yet the adaptation and construction of a larger and stronger apparatus would not evince the exercise of invention.

Applicant, in the old English patent of Brockenden, might have seen pills made by compressing the material between two dies, the lower one of which, however, was immovable; but had he asked himself how could pills be thrown out of the lower die he would have found in the references cited not only the subjacent ejector, but the entire combination ready at hand. The product was old, the devices were old, and the different parts of old machines which he had put together performed precisely the same functions they always had in combination in other machines.

I am constrained to hold in regard to the claim that Dunton now makes as the Examiner did in regard to the claim first presented by him, that no such claim could have been allowed since 1843, and I think that a thorough investigation might show that an earlier date than this might properly have been given.

The Examiner in conclusion relies upon the swage-block case decided by the United States Supreme Court. This case is that of *Turrill vs. Railroad Company*, (1 Wall. 491.) There the patent was for "a new and useful improvement in the common anvil or swage-block, for the purpose of welding up and reforming the ends of railroad-rails."

The court gave the claim there made, in connection with explanations contained in the specification, a most restricted construction, limiting the patentee to the "special devices described and arranged in a particular manner, and operated only in a special and peculiar way for a special purpose, and to effect a special result." And then instead of passing upon the references that had been cited in opposition to the patent in the court below, the supreme court took no notice of them for the reason that the court below erred in not submitting the same to the jury. So that, after all, that case cannot be cited as a precedent here, for we have seen that the claimant here does not set forth and claim any shape or peculiar mechanism accomplishing a special and peculiar result, but makes a broad claim for mechanism that has performed precisely the same result, except in the nature of material operated upon, as shown in other cases.

For these reasons the interference is dissolved and the application of Dunton must stand rejected in its present form.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

GEORGE H. WOOSTER *vs.* GUSTAVUS SEIDENBERG *et al.*

A license limiting the right to use a patented invention, only upon the payment of a specific sum, on each machine upon which invention is used, will not include other machines where the same invention is used, unless the same is paid for in accordance with the terms of the license.

A license is a mere right to use the invention, and is neither an assignment or grant within the meaning of sec. 4926 of the statutes.

A party seeking the protection of the sec. 4928 must be a purchaser of the patented article, or protected by some agreement of sale, which the owner of the original patent could rightfully make. A mere license to use such invention would not include the extended term of the patent.

A patentee, when he himself has constructed a machine, and sold it without any conditions, or authorized another to construct, sell, and deliver it, or construct and use and operate it without any conditions, and the consideration has been paid to him for the thing patented, the rule is well established that the patentee must be understood to have parted to that extent with all his exclusive right, and that he ceases to have any interest whatever in the patented machine so sold and delivered, or authorized to be constructed and operated. When such circumstances appear the owner of the machine, whether he built it or purchased, if he has also acquired the right to use and operate it during the lifetime of the patent, may continue to use it until it is worn out, in spite of any and every extension subsequently obtained by the patentee or his assigns.

[*Frederic H. Betts* and *Wm. D. Shipman*, for complainant.
S. J. Gordon, for defendants.]

SHIPMAN, *J.*:

This is bill in equity praying for an injunction and an account, and is founded upon letters patent for a folding-guide for sewing-machines. The patent was issued to Alexander Douglas on October 5, 1858, and was extended for seven years from October 5, 1872. In August, 1863, said Douglas conveyed an undivided half of said patent to Samuel S. Sherwood; Douglas and Sherwood conveyed the patent to Nathl. Wheeler and William Whiley, partners by the name of Wheeler & Whiley, on May 5, 1864, and said Whiley conveyed his interest therein to said Wheeler on May 29, 1868. The assignments to Sherwood and to Wheeler & Co. were respectively for the unexpired portion of the original term of the patent. In September, 1872, Mr. Douglas, the patentee, assigned all his interest in the invention and letters patent to the complainant, to whom, as assignee, the patent was reissued on December 10, 1872. The answer of the defendants admits the grant, extension, and reissue of the patent, denies the novelty of the alleged invention, and further alleges that at the time the bill was filed the defendants "had in use fifty binders, substantially such as are described in the reissue, and no more, all of which binders they had in lawful use at the expiration of the original term of said patent, which lawful use they acquired in three independent ways"—*first*, by a license, in 1863, from Douglas and Sherwood to Gustavus Seidenberg; *second*, by a free license from Nathaniel Wheeler to all users of Wheeler & Wilson's sewing machines; *third*, by a dedication of the patent to the public by Douglas, the patentee.

Upon the trial the validity of the patent was admitted, and the defendants solely relied upon the right which they had obtained by the two licenses to continue the use of their binders, which were in use at the expiration of the original term of the patent.

The defendants commenced business as manufacturers of ladies' linen collars and similar articles about January 1, 1863. On October 5, 1863, Gustavus Seidenberg obtained a license from Douglas and Sherwood to use the folding-guides for which Douglas had obtained a patent.

By the provisions of the license the licensee agreed to pay, in addition to his original payment of fifty dollars, the sum of five dollars for each guide which he should use, and if he used at any time any guides without having first paid said five dollars as an additional compensation for the right to use the same, the license should be null and void, and the licensee should also be deemed guilty of infringing said patent.

Gustavus Seidenberg paid Douglas and Sherwood fifty-five dollars on or about October 5, 1863; nothing more was paid to them or their assignee by either of the defendants. On October 5, 1872, the defendants were using in their factory fifty-six Douglas guides, of which number forty-six had been made by William Pries, an employé of the Wheeler & Wilson Manufacturing Company, and ten had been made by Wm. Brockman, an employé of the defendants. The guides which Brockman made were destroyed in a few days after the date of reissue.

Prior to 1861 Nathaniel Wheeler was president of the Wheeler & Wilson Manufacturing Company, a corporation for the manufacture of sewing-machines, and in May, 1864, the firm of Wheeler & Co., of which he was a member, became the owners of the Douglas patent. During his ownership of the patent he authorized all persons who used the Wheeler & Wilson machine to use the Douglas guide, whenever they had occasion to do so, without compensation. The patent was apparently held by Wheeler & Co. for the benefit of the Wheeler & Wilson Company, and to promote its interests, and with that object in view Mr. Wheeler gave a parol and general authority to all users of the Wheeler & Wilson machines to procure, use, and continue to use, the Douglas attachments, if they chose to do so.

The complainant urged, upon the trial, that this permission of Mr. Wheeler was limited to a permission to the owners of Wheeler & Wilson machines to obtain, without royalty, the Douglas guides from some one of the employés of the company. It is true that, upon cross-examination, in reply to the following question:

You say, in your direct examination, that you authorized those using the Wheeler & Wilson machine to use said patent, whenever they had occasion to do so, without compensation; can you name any person to whom you gave such permission? If so, name all you can remember—

Mr. Wheeler said:

I gave permission to the employés of our company to make the binders on their own account for such customers using our machines as might require them; I cannot call to mind the name of any of such customers at this time.

I do not understand from this portion of Mr. Wheeler's testimony that he intended to say that he confined the use of the patent to those customers only who shall procure the guides from the employés of the Wheeler & Wilson Company.

He had previously said that all those who used the machine had authority to use the guides, and upon being requested to give the names of all persons he had given such permission to, he replied that he could not recall the names of the customers, but he did remember that he specifically permitted the employés of the company to make binders for all such customers as might require them. The witness did not intend to restrict the comprehensive character of the language which he had previously used.

The defendants owned and were using in their business prior to October 5, 1872, about one hundred and twenty-five Wheeler & Wilson sewing-machines.

The material question which arises upon the foregoing facts is, Have the defendants a right, by virtue of the authority conferred by Mr. Wheeler, to continue the use of the guides, which were in use at the expiration of the original term of the patent?

The license of Douglas and Sherwood affords the defendants no protection. By the terms of that license they had a right to use only such guides as had been previously paid for, and in respect to the use of all other guides had declared themselves to be infringers. They had paid Douglas and Sherwood for one binder only, and were in the lawful use under these licenses of no binders except the one for which they had paid, "The right to use additional binders never existed."—(*Steam Cutter Company* vs. *Sheldon*, 5 Fisher, 488; 15 Blatchf., C. C. R. 1.)

But the right of the defendant, which was obtained through Mr. Wheeler, is of a different character.

He had publicly authorized all purchasers of the sewing-machines, in the sale of which he was interested to use these guides without compensation. The consideration which moved him to give this permission was one with which he was satisfied. Prior to the date of the expiration of the original term he would not have been allowed to prevent the defendants from the use of the binders, which they had theretofore purchased. Probably all the guides which they then had in their possession were made after the assignment to Wheeler & Co., and if a few were in existence prior to that date the use of these few, which was originally unlawful, had become lawful by the license of Mr. Wheeler, the assignee.

But it is said that, admitting that Mr. Wheeler could not have stopped the use of these fifty-six binders, it does not follow that the defendants have the right to the continuing use after the expiration of the original term of the patent, for the following reasons:

The statutes (sec. 4928 of the Revised Statutes of the United States) provides that "the benefit of the extension of a patent shall extend to the assignees and grantees of the right to use the thing patented, to the extent of their interest therein," and the right granted by Mr. Wheeler was a mere license, and neither an assignment nor a grant within the meaning of this section, nor a sale of the binders, and a party seeking the protection of the act must be a purchaser of the patented article, or be protected by some sort of agreement of sale, which the owner of the original patent had a right to make, who in this case has not a right to license the use of the binders during the extended term.

The Supreme Court had occasion, in *Mitchell* vs. *Hawley*, (16 Wall., 544.) to consider this clause of the patent act, and to point out the distinction between the grant and the right to make and vend a patented machine, and the grant of the right to use it.

A patentee, when he has himself constructed a machine and sold it without any conditions, or authorized another to construct, sell, and deliver it, or construct and use and operate it, without any conditions and the consideration has been paid to him for the thing patented, the rule is well established that the patentee must be understood to have parted to that extent with all his exclusive right, and that he ceases to have any interest whatever in the patented machine so sold and delivered or authorized to be constructed and operated. When such circumstances appear, the owner of the machine, whether he built it or purchased it, if he has also acquired the right to use and operate it during the lifetime of the patent, may continue to use it until it is worn out, in spite of any and every extension subsequently obtained by the patentee or his assigns.

Mr. Wheeler had authorized these defendants, being customers of the Wheeler & Wilson Company, to construct and use and operate, without any conditions, fifty-six binders. The consideration for this grant was paid to the owner of the patent by the purchase of Wheeler & Wilson's sewing-machines.

The defendants then became owners of the guides which they used, and by such ownership, and the right which they acquired from Mr. Wheeler, they acquired the right to use and operate the machines until they were worn out. They were not simply licensees of the right to use a machine of which they are not the owners, "but the machines had become their private individual property."

Complete title to the implement or machine purchased became vested in the vender by the sale and purchase, but he acquires no portion of the franchise, as the machine, when it rightfully passes from the patentee to the purchaser, ceases to be within the limits of the monopoly. (*Mitchell* vs. *Hawley*, 16 Wall., 549.)

I perceive no substantial difference between the case of the defendants and the case of the complainant against Gilmour, which was an application for a temporary injunction against the use of certain Douglas guides, and was decided by Judge Blatchford April 29, 1873. Gilmour, prior to the expiration of the original term, was in the use of four Douglas guides upon as many Wheeler & Wilson sewing-machines. It is true that Mr. Wheeler's affidavit, in the Gilmour case, contained a more detailed statement of the character and extent of the license than was given in his deposition in this case, but the facts which he stated are the same in each case. In the Gilmore affidavit he says:

I intended that all patrons of the Wheeler & Wilson Manufacturing Company should be at liberty to make and use Douglas binders whenever and wherever they wished without charge or liability of any kind to anybody. * * * All parties were told to make their own binders. I permitted the employés of the company, for the convenience of parties using Wheeler & Wilson machines, to make Douglas binders for them and retain to themselves the price paid. Full liberty and license was given all persons using Wheeler & Wilson machines to use in their business, without charge, all the Douglas binders they had in use when I became an owner in the Douglas patent before named, and to procure where they pleased, and continue to use until worn out, all additional Douglas binders that their business required.

Upon these facts Judge Blatchford held that—

Within the principles laid down in *Wyeth* vs. *Stone*, (1 Story, 273,) it is quite clear that, as against Wheeler, who was the sole owner of the Douglas patent for more than four years before it expired, the defendant was in the lawful use, before and at the time the first term of the patent expired, of the four binders he was using. When such first term expired Wheeler could not have been allowed to stop the defendant from the use of such four binders. The defendant was within the meaning of the sixty-seventh section of the act of July 8, 1870, (16 U. S. Stat. at Large, 209,) a grantee of the right to use such four binders, and therefore has a right to use, until they are worn out, the identical four binders which he was using when the first term of the patent expired. As to all other binders the injunction is granted.

After the reissue, and before the filing of the bill, the defendants caused to be made and used in their business from fifteen to eighteen "two-line" binders, which were supposed not to have been included in the reissue. Upon ascertaining that these binders were Douglas binders, the defendants caused them to be destroyed in March or April, 1873. For the use of these binders the defendants are liable.

Let there be a decree, without costs, for an account of damages and profits for the use of these last-named binders prior to their destruction, and an injunction against the use of binders described in the reissued patent, other than the identical fifty-six binders which are now in lawful use.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 15, 1876.]

9,437.—Umbrella.—GEORG BOCKSTALLER and JULIUS STERNER, St. Louis, Mo. Application filed July 25, 1876. Term of patent 7 years.

9,438.—Skirt-Borders.—GEORGE BOWMAN, New York, N. Y. Application filed July 1, 1876. Term of patent 3½ years.

9,439.—Embroidery-Pattern.—EMIL CRIBAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed July 24, 1876. Term of patent 3½ years.

9,440 to 9,443, inclusive.—Center-Piece.—SAMUEL KELLETT, San Francisco, Cal. Applications filed July 3, 1876. Term of patents 14 years.

9,444.—Flower-Boxes.—JOHN ROGERS, New York, N. Y. Application filed April 22, 1876. Term of patent 14 years.

9,445.—Heating-Stove.—ELIHU SMITH, Albany, N. Y., assignor to SAMUEL H. RANSOM, trustee. Applications filed April 5, 1875. Term of patent 14 years.

9,446.—Looking-Glass Frame.—RICHARD W. MYERS, New York, N. Y. Application filed May 9, 1876. Term of patent 7 years.

9,447.—Fork and Spoon Handles.—CHARLES OSBORNE, New York, N. Y., assignor to WHITING MANUFACTURING COMPANY. Application filed July 8, 1876. Term of patent 14 years.

9,448.—Fan.—JOSEPH T. ROWAND, Jr., Camden, N. J. Application filed March 14, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 15, 1876.]

3,925.—Cigars.—AMERICAN CIGAR COMPANY, Westfield, Mass. Application filed July 31, 1876.
"words 'The Winner.'"

3,926.—Table-Sauce.—JOHN ANNEAR, Philadelphia, Pa. Application filed August 3, 1876.
"representation of the coat of arms of the State of Pennsylvania, and directly above the same the words 'Pennsylvania Sauce.'"

3,927.—Perfumery.—BUCK & RAYNER, Chicago, Ill. Application filed July 31, 1876.
"word-symbol 'MARS.'"

3,928.—Perfume Known as "Florida Water."—BYRNE BROTHERS & Co., New York, N. Y. Application filed May 26, 1876.
"the representation of a fountain which projects from a bank of flowers, on which two female figures are represented in reclining attitude."

3,929.—Hose.—COMBINATION RUBBER COMPANY, New York, N. Y. Application filed July 31, 1876.
"the representation of a triangle."

3,930.—Soap.—JOHN G. HAAS & Co., St. Louis, Mo. Application filed November 27, 1875.
"words 'AMERICAN STAR.'"

3,931.—Lanterns.—HURRICANE PATENT LANTERN COMPANY, New York, N. Y., and Jersey City, N. J. Application filed July 26, 1876.
"the word-symbol 'HURRICANE.'"

3,932.—Dressing for Boots and Shoes.—MORITZ MAYER, New York, N. Y. Application filed July 31, 1876.
"word 'EXCELSIOR.'"

3,933.—Clothes-Wringers.—METROPOLITAN WASHING-MACHINE COMPANY, New York, N. Y. Application filed August 3, 1876.
"the word-symbol 'CLIMAX.'"

3,934.—Whisky.—CHARLES REBSTOCK & Co., St. Louis, Mo. Application filed May 5, 1874.
"the word-symbol 'Snow Hill.'"

3,935.—Cutlery.—ROWE & POST, New York, N. Y. Application filed October 8, 1875.
"words 'NEW YORK CUTLERY CO.'"

3,936.—Insect-Powder.—SHOLES & MORSE, Rochester, N. Y. Application filed July 29, 1876.
"the letters S. E. I. E., (the initials of 'Sholes' Excelsior Insect Exterminator,') embodied in a monogram, in which the letter 'S.' is the center, intersected vertically by the letter 'I.' projecting some distance above and below, and with the two letters 'E. E.' having their base upon the center letter I, and projecting respectively to the right and left, a bar crossing centrally to complete the center of the two letters 'E. E.'"

3,937.—Chewing-Tobacco.—SPAULDING & MERRICK, Chicago, Ill. Application filed August 5, 1876.
"words 'PAUL PRY.'"

3,938.—Whisky.—WALSH & KELLOGG, Cincinnati, Ohio, and Covington, Ky. Application filed July 22, 1876.
"the word-symbol 'WELL HOUSE' and the initial letters 'W. & K.,' inclosed within a diamond-shaped figure."

3,939.—Smoking-Tobacco.—WESLEY A. WRIGHT, Brook Neal, Va. Application filed July 22, 1876.
"the representation of a bull's head, in combination with the word 'Durham.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 15, 1876.]

813.—Title: "A New Design, The Most Perfect System for Cutting Ladies' and Children's Waists, &c."—Mrs. R. S. BAILEY, Nashville, Tenn. Application filed July 10, 1876.

814.—Title: "Oleine Lubricating Oil."—CAMDEN CONSOLIDATED OIL COMPANY, Parkersburg, West Va. Application filed August 7, 1876.

815.—Title: "Dr. Goodman's Vegetable Compound Ague Specific."—CHARLES H. GOODMAN, Terre Haute, Ind. Application filed August 5, 1876.

816.—Title: "Smith's Washing Compound."—M. W. SMITH, Worcester, Mass. Application filed August 7, 1876.

817.—Title: "Copper Distillery Whiskey."—GEORGE W. SWEARINGEN, Louisville, Ky. Application filed May 5, 1876.

REMITTANCES.

All money sent by mail, either to or from the Patent Office, will be at the risk of the owner. In no case should money be sent inclosed with models. All payments to or by the Office must be paid in specie, Treasury notes, national bank-notes, certificates of deposit, or post-office money-orders.

TO CORRESPONDENTS.

Persons ordering drawings of patents, or making inquiries in regard to patents, must always state the name of the inventor, subject-matter, and date. In making inquiries in regard to applications for patents letters must state the name of the applicant, subject-matter, and date of filing.

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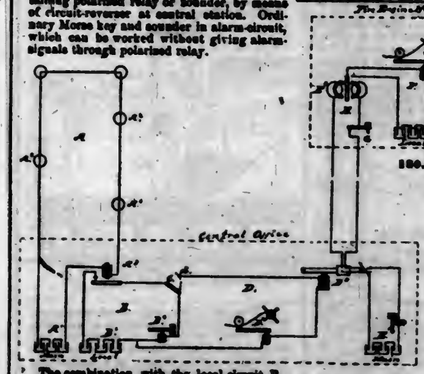
TITLES, DRAWINGS, AND CLAIMS

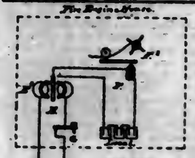
OF

PATENTS GRANTED AUGUST 15, 1876.

180,988. FIRE-ALARM-TELEGRAPH CIRCUITS. John P. Barrett, Chicago, Ill., assignor of two-thirds his right to L. B. Firman, same place. [Filed Feb. 11, 1876.]

Brief.—Alarm sent over alarm-circuit, containing polarized relay or sounder, by means of circuit-reverser at central station. Ordinary Morse key and sounder in alarm-circuit, which can be worked without giving alarm-signals through polarized relay.





180,988.

The combination, with the local circuit B, operated by a relay, A^1, in the fire-alarm circuit, of the switch O and loop D, register D^1, and pole-changer D^2, the latter operating to reverse the currents of a circuit, or lines containing one or more polarized relays, E^1, substantially as specified.

180,989. CASES FOR CIGARETTE-PAPERS. Henry Beebe and Edgard Canonge, New Orleans, La. [Filed Mar. 18, 1876.]



1. The case A, hinged end piece B, which also, as shown, forms the removable section of the cover, spring D, of a form that will provide a bearing at the opposite ends of the plate *f*, and the plate *f*, having a flange, *d*, at its rear end, which prevents its slipping off of the spring, the whole combined and arranged to operate substantially as described.

2. A cigarette-paper case, consisting of the case A, hinged end piece B, which also forms the removable section of the cover, the latter constructed, and of such dimensions, as to leave, when closed, a narrow opening, *g*, across the case, between the hinged piece B and the permanently-attached section of the cover, spring D, and plate *f*, having flange *d*, the whole constructed, combined, and arranged substantially as described, so and for the purpose specified.

180,990. COMBINED BRUSHES AND SPRINKLERS. George Bieverstein, Providence, R. I. [Filed Apr. 17, 1876.]

Brief.—The water is discharged upon the surface to be washed to rinse the same.



The combined brush and sprinkler herein described, composed of the tubular handle A, brush C, and perforated tube D, surrounding the brush, and arranged for receiving water from the tubular handle and discharging the same upon the surface to be washed, substantially as shown and described.

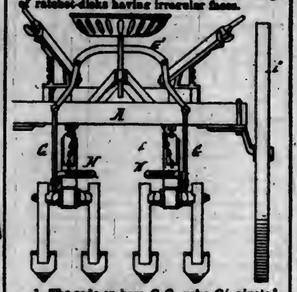
Brief.—The saw is provided with clearer-teeth, having both edges beveled on both sides, so as to bring the cutting-edge at the center of the vertical line of the tooth.



The clearer-teeth C, beveled on both sides, on each of their clearing-edges, substantially as shown and described.

180,991. CORN-CULTIVATORS. G. Bradley, Rockford, Ill., assignor to C. B. Chandler, same place. [Filed Feb. 14, 1876.]

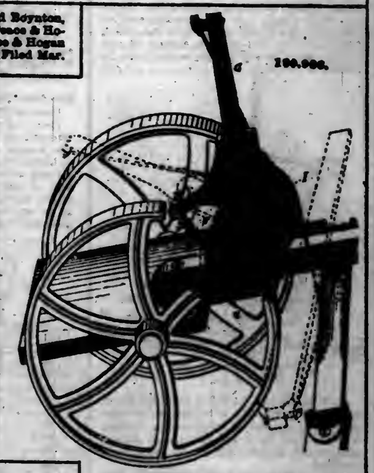
Brief.—The sectional pivoted arch for connecting plow-beams, the standard-fastening of ratchet-disks having irregular faces.



1. The rods or bars G G, yoke G', pivoted to each other and to the axle A, as described, in combination with the loop H and shovel-beams, for controlling said shovel and permitting their free lateral movement, substantially as described.

2. The concave and convex ribbed plates *f*, in combination with the shovel beams and standards, for adjusting the angle of the shovels, substantially as described.

180,992. SPRING-LEVERS FOR HARVESTERS. Thomas S. Brown, Poughkeepsie, N. Y., assignor of one-half his right to J. F. Adriance, same place. [Filed May 19, 1876.]



180,992.

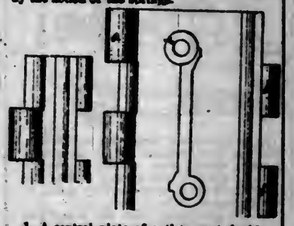
1. In a harvester, a lever having a spring interposed as one of its parts, to transmit force between the handle of the lever and the working part of the same.

2. In a harvester, the lever G, spring P, and quadrant-piece I, as combined and arranged that any force applied to the lever is transmitted through the spring to the quadrant-piece, to lift the finger-bar.

3. A spring-lever device for harvesters, consisting of a ratchet-cut supporting-piece, a hand-lever provided with a spring thumb-pawl, a quadrant-piece or lever carrying a cord or chain, and a spring, combined and operating substantially in the manner and for the purpose herein before stated.

180,993. SPRING-HINGE. Ira Buckman, Brooklyn, E. D., N. Y. [Filed Jan. 12, 1876.]

Brief.—The central plate of a three-part double-acting hinge, re-enforced at its edges, and furnished with an unequal number of knuckles on its opposite sides, serves, by alternating its position in a series of the attached hinges, to regulate or adjust the torsion of the connecting-spring; the power of the spring being so transmitted from the knuckle of the center plate of the middle hinge to the knuckles of the top and bottom leaves of the upper and lower hinge that all the leaves are rigidly held to the center plates by the action of the springs.



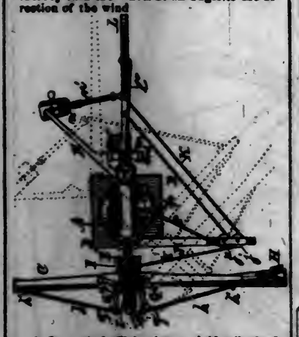
1. A central plate of a three-part double-acting hinge, furnished upon alternate opposite edges with the curved re-enforcement, concentric, or nearly so, with the knuckles, substantially as and for the purposes herein set forth.

2. In a series of double-acting spring-hinges, the central plates with an unequal number of knuckles upon their sides for the purpose of adjustment of the torsion-springs connecting said plates, all as and for the purposes herein set forth.

HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & CO BOSTON.

180,990. WINDMILLS. Matthew T. Chapman and Mark C. Chapman, Galva, Ill. [Filed May 24, 1876.]

Brief.—Any increased velocity of the wind will, by centrifugal force, throw the weights of the wind-wheel outward, and, through the bell-crank levers, press the disk outward, and thereby draw the pulley against the hub of the wind-wheel, and by frictional contact therewith rotate said pulley with the wheel, and wind the cord thereon, shorten it, and thereby turn the wheel at an angle to the direction of the wind



1. In a windmill having a rigid-sail wheel and a flexible tail-vane or rudder, one or more centrifugal weights, H, combined to operate with the wind-wheel and tail-vane or rudder, substantially as described, and for the purpose specified.

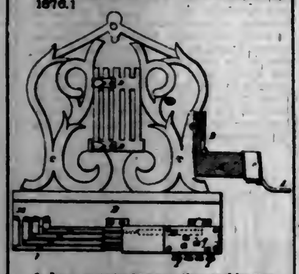
2. The spring I, arranged to operate with the disk E, bell-crank levers G, rods h, weights H, and wheel C, substantially as and for the purpose specified.

3. The friction-pulley F, arranged to operate with the wind-wheel C, cord K, and flexible tail-vane or rudder L, substantially as and for the purpose specified.

4. The friction-pulley F, arranged to operate with the disks E E', rods e, bell-cranks G, rods h, weights H, wind-wheel C, cord K, and flexible tail-vane L, substantially as and for the purpose specified.

5. In a windmill having a rigid-sail wheel and flexible tail-vane or rudder, the weighted rod e', combined to operate with one or more centrifugal weights, H, and with the wheel and tail-vane, substantially as and for the purpose specified.

180,991. MUSIC-LEAF TURNERS. Orson W. Clark, Appleton, Wis. [Filed Apr. 21, 1876.]



1. In a music-leaf turner, the combination, with the hinged sections B C, of the series of metallic springs, each of which is provided with a nipper, M, and suitable locking and releasing mechanism, substantially as and for the purpose set forth.

2. The combination, with the hinged sections B C and metallic springs, each of which is provided with a nipper, M, of the keys I, substantially as and for the purpose set forth.

3. The combination, with the hinged sections B C, of the metallic springs, provided with lugs i and spring-pressed keys I, substantially as and for the purpose described.

180,992. BUCKLES. John A. Clinton and Marshall L. Bennett, New Haven, assignors to G. M. Rotchkiss and W. Parmelee, West Haven, Conn. [Filed May 20, 1876.]



180,992.

A buckle composed of the frame B and the part A, with teeth a, elongated slot b, and lips or flanges d, by which the two are connected together, substantially as shown and described.

180,993. TOILET-CABINETS. David Daggett, Schenectady, N. Y. [Filed Feb 3, 1876.]

Brief.—A wash-basin, clean-water tank, and waste-water tank are arranged in the case, also several drawers and a sliding platform to black shoes on. When the end doors are opened, towel-racks are automatically thrown out. A mirror is attached to the under side of the cover, so that when the cover is held in an upright position the mirror will be in an inclined position.



1. The combination of the sliding platform l and standard o with the nibs m and jaw-catches n, applied to the cabinet, for the purposes set forth, and substantially as specified.

2. The rod and socket arm and loop, and thumb-piece, connected with the cover M, and looking-glass N, for holding the cover M in a perpendicular position, and pushing out the bottom of the looking-glass N to a proper position for use, both at the same time, and with one motion, as set forth.

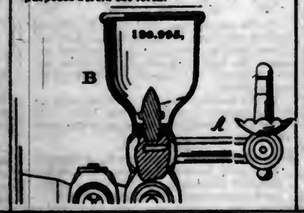
3. The doors O, hinged to blocks in the main frame, in combination with the pivoted towel-racks j, connected by a finger to the rear edge of said door as and for the purpose set forth.

4. The improved toilet-case, consisting of the bureau, having compartments, as shown, the brush and box holder, the end doors O O, and the automatic towel-racks, as and for the purpose shown.

180,994. RAILROAD-RAIL JOINTS. John De Pew, Whartonsburg, assignor of one-half his right to Hiram P. Marshall, Wyandot County, Ohio. [Filed July 31, 1876.]



The combination, with the adjoining ends of two railroad-rails, of the base A, provided with two dovetailed grooves, a a, tapering in opposite directions, and the dovetailed tapering keys C C, substantially as and for the purposes herein set forth.



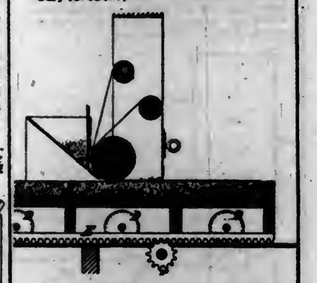
180,995.

180,995. MATCH-HOLDERS. William Ferguson, Philadelphia, Pa., assignor of one-half his right to Thomas T. Holme, same place. [Filed Sept. 17, 1876.]

Brief.—The holder is fastened to the joist by the ordinary knob.

The match safe or holder B, in combination with the fixture A, substantially as and for the purpose set forth.

180,996. MACHINES FOR MAKING COMPOSITION ROOFING. Charles L. Fowler, Philadelphia, Pa., assignor of one-half his right to Edward H. Twining, same place. [Filed July 15, 1876.]

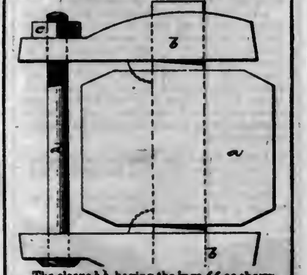


1. The combination, with a sand-trough, containing a compacted surface-layer of wet sand, which forms a spreading and drying bed, and adapted to be longitudinally reciprocated beneath a transverse hopper, of a compacting weight-roller, adjusted to bear down upon and press one or more layers of cloth and paper, which, unwinding from spools, pass beneath it, as specified, at the same time together and into a heated liquid composition, and a layer of dry sand, the composition flowing from the hopper upon the layer of dry sand in immediate advance of the roller, and the dry sand being previously spread by a scraper upon the wet-sand bed, the whole forming an apparatus for automatically, and from the under surface, spreading, coating, compacting, and drying composition-roofing, substantially as described.

2. In combination with a reciprocating sand-trough, an adjustable scraper, substantially for the purpose specified.

180,997. CLASPS FOR FASTENING DRAG-TEETH. Jos. Gmeiner, Dale, Wis. [Filed Sept. 17, 1876.]

Brief.—A metal clasp, with an opening for the tooth and another for a bolt, is placed upon each side of the beam, the tooth inserted through both clasps and beam, and secured with a bolt outside the beam.



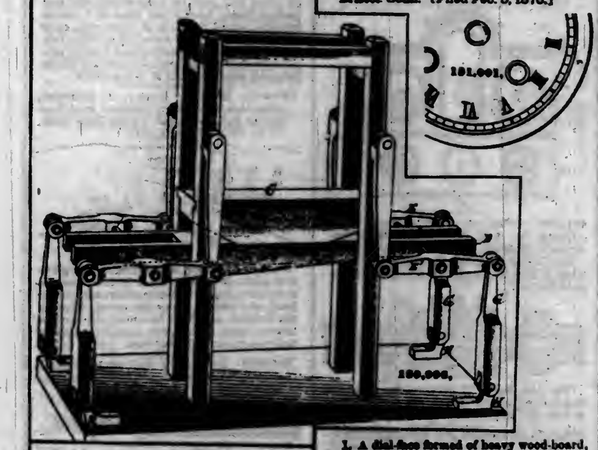
The clasps b b, having the lugs f f, as shown, in combination with the teeth c and beams e, and held in place by the bolt d, as shown and described.

180,998. COTTON-PRESSES. Wm. Golding, New Orleans, La. [Filed Mar. 27, 1876.]

Brief.—The wedge is suspended by the shafts passing centrally through the beams attached to the links. It moves with little friction horizontally in the direction of its length.

The combination, substantially as specified, of the wedge, the beams or levers centrally connected therewith, and the arms or links for supporting the levers or beams, respectively, from above and from below.

181,001. CLOCK-DIALS. H. F. Henderson, Bristol, Conn. [Filed Feb. 5, 1876.]



181,001.

180,999.

1. A dial-face formed of heavy wood-board, straw-board, or other equivalent paper-stock, substantially as and for the purpose described.

2. As a new article of manufacture, a clock-dial having a dial-face formed of heavy paper-stock, and the same bordered by a metallic matting or scalp, substantially as described and shown.

181,002. FILTERS FOR SPINNING MACHINERY. Frank P. Holt, Lowell, N. H. [Filed Feb. 21, 1876.]



A filter, A, provided with a loose ring, B, to either or each of its arms, such ring being applied to the said arm substantially in manner and for use as specified.

181,003. PROCESSES AND APPARATUS FOR REDUCING ORES. Matthew Laflin, Chicago, Ill. [Filed Feb. 8, 1876.]



1. The process of treating ore, which consists in boiling the same, in form of a fine powder, in a solution of caustic alkali, until it is thoroughly permeated, substantially as described.

2. The process of treating ore, which consists in boiling the same, in form of a fine powder, in a solution of caustic alkali, until it is thoroughly permeated, and the materials boiled down or dried and covered, to prevent oxidation and volatilization, substantially as and for the purpose set forth.

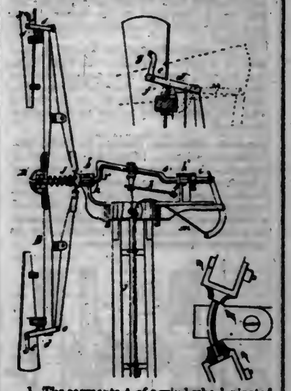
3. The process of treating ore by boiling the same, in form of a fine powder, in a solution of caustic alkali, until it is thoroughly permeated, the materials dried and covered, to prevent oxidation and volatilization, and the materials then agitated until the alkali has neutralized all foreign substances that admit of an alkaline neutralization, substantially as and for the purpose set forth.

4. The lid D, provided with teeth or projections, in combination with the kettle C, containing molten lead, substantially as and for the purpose specified.

5. The pan A, in combination with the lid B, provided with a pipe or tube connected with a water-bath, for holding any metals that may be vaporized, substantially as described.

181,004. WINDMILLS. William W. March, Sycamore, Ill. [Filed May 23, 1876.]

Brief.—This invention consists in pivoting the several segments of the wind-wheel upon the outer ends of the main supporting-bars, in such a manner that they assist in regulating the motion of the mill; also, in special devices for opening and closing the segments, and in a modification of the form of the graduating-crank, and in the use of a set-collar on the rear end of the crank, for the purpose of adjusting and fixing its position in order to regulate the length of the stroke.



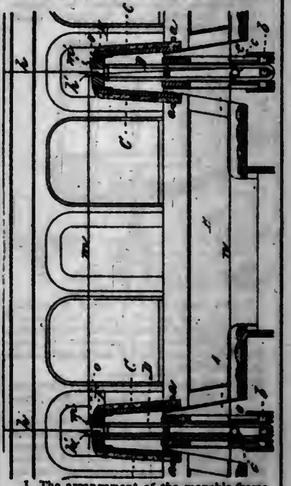
1. The segments A of a wind-wheel, pivoted upon supporting bars B, said bars B being secured to the hub B', substantially as specified.

2. The slotted iron D, in combination with the iron E, supporting-bars B, and segments A of the wind-wheel, for the purpose of pivoting the segments and adjusting their position, substantially as and for the purposes specified.

3. The iron d, provided with stops f g, in combination with the segments A, substantially as and for the purposes described.

4. In a wind-mill, the set-collar i, in combination with a graduated crank, substantially as and for the purpose set forth.

181,005. SLEEPING-CARS. Wm. H. Paige, Springfield, Mass. [Filed Feb. 11, 1876.]



1. The arrangement of the movable frame D, located between each two adjacent seats of a car, with the roll b and the rail B, provided with an opening, c, the same operating as a support for the upper berth of a sleeping-car, substantially as described.

2. The combination of the rolls *c* and *b*, the movable frame D, the rail E, and the webs *n* and *o*, all arranged and operating as a means of adjusting the upper and lower berths of a sleeping-car, substantially as set forth.

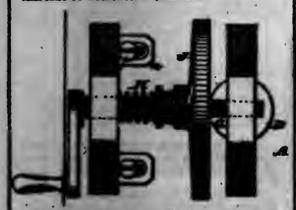
3. The combination of the rail E, provided with an opening, *q*, the hinged cover *c*, fastenings *n'*, and web *m*, to close said opening securely when the car is used as a day-car, substantially as set forth.

4. The combination of the roll *o*, the webs *n* and *o*, and the curtains A, secured at one end to the car, and to the web *n* at the other end, whereby both the said webs and the curtains may be stretched to the desired degree by one movement of said roll, substantially as described.

5. The combination of the top rail E, movable in a vertical direction, the rigid-frame seat-backs C, arranged to be entirely removed from said rail, and the hook-fastenings *q*, by which said rigid-frame backs are secured to said rail, substantially as and for the purpose described.

181,006. CHURNS. Reuben K. Parthemer, Ottawa, Iowa. [Filed Apr. 19, 1876.]

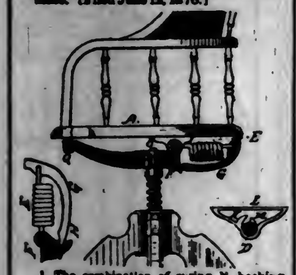
Brief.—The dasher is rotated by means of a friction-wheel attached thereto, and another friction-wheel fastened on its shaft, pressure being given by a spring wound on the shaft of the second wheel. The spring abuts against an adjustable upright standard, to allow an increase or decrease of pressure.



1. The combination, with the vertical dasher-shaft B, of the friction-wheel D secured thereon, the friction-wheel J, feathered on the horizontal shaft G, and the spring K, pressing the wheel J against the wheel D, substantially as and for the purposes herein set forth.

2. The standard H, provided with the slotted foot *a*, and adjustably secured to the lid A, in combination with the shaft G, spring K, and friction-gears J D, substantially as and for the purposes herein set forth.

181,007. TILTING CHAIRS. HENRY RUTT, Milwaukee, Wis., assignor to Empire Chair Manufacturing Company, same place. [Filed June 19, 1876.]



1. The combination of spring K, hooking into ear F, and lever G, having its inner end resting in socket H, substantially as described.

2. The combination of chair-seat A, crossbar D, ear I, and stops K and M, substantially as described.

181,008. FRAMES FOR FAMILY RECORDS. Lemi. Patterson, Parker City, Pa. [Filed June 6, 1876.]

1. As a new article of manufacture, a frame for exhibiting family record and pictures, consisting of two or more detachable sections, united edge to edge by means of grooves, mortises, and tenons, substantially as described and shown.

2. The frame A, provided with openings B C, strips *f*, rabbeted bars D E, and mortises *i*, in combination with one or more detachable sections, A', having strips *f'*, rabbeted bars D' E', and tenons *h*, substantially as set forth.



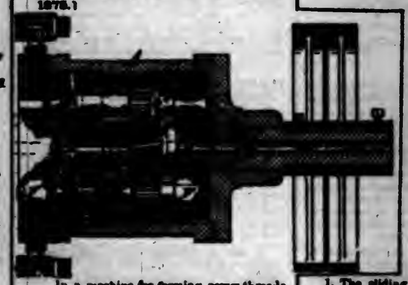
181,009. TOOLS FOR THE MANUFACTURE OF GLOVES, &c. I. M. Potter and J. M. Bullivan, Providence, R. I. [Filed Aug. 4, 1875.]

Brief.—The lip is turned inward, while the blank is held in a chuck, by a proper tool applied thereto.



The cam-tool *q*, in combination with the clutch H, substantially as shown and described, and for the purpose set forth.

181,010. MACHINES FOR ROLLING SCREW-THREADS ON BOLTS AND RODS. Treat T. Prosser, Chicago, Ill. [Filed Dec. 30, 1875.]



In a machine for forming screw-threads on bolts and rods by cross-rolling, the combination, substantially as specified, of the threading-rolls, their shafts, and means for adjusting the shafts to change the relative obliquity of the threading-rolls, and thereby regulate the pitch of the thread to be formed.

2. In a machine for forming screw-threads on bolts and rods by cross-rolling, the peripheral threading-rolls carried on shafts which have a converging position when the rolls are at work, so that the several threads upon the rolls shall successively increase the depth of cut, substantially as and for the purposes specified.

3. In a machine for forming screw-threads on bolts and rods by cross-rolling, the combination, substantially as specified, of the shafts of the threading-rolls, the tubular driving-shaft, arranged centrally between them, and the intermediate gear-wheels.

4. In a machine for forming screw-threads on bolts and rods by cross-rolling, the combination, substantially as specified, of the threading-rolls their shafts, the globe-like journal-boxes, and the circularly-adjustable disk, carrying the journal-boxes, in which the said shafts turn at one end.

5. The combination, substantially as specified, of the threading-rolls, their shafts, the globe-like journal-boxes, the centrally-arranged driving-shaft, the gear-wheels for rotating the threading-rolls, and the circularly-adjustable disk, carrying the journal-boxes, in which the roll-shafts turn at one end.

6. The combination, substantially as specified, of the threading-rolls, their shafts, the right and left screw-spindles, and the racks and pinions for simultaneously turning said spindles, to force the threading-rolls toward each other.

7. The combination, substantially as specified, of the tubular driving-shaft, the cross-bar affording a bearing for the inner end of said shaft, the guide in front of the said cross-bar, and the threading-rolls.

8. In a machine for forming screw-threads on bolts and rods by cross-rolling, the supporting-frame, having the form of a hollow cylinder, closed by heads at both ends, so as to form a reservoir for water, oil, or other substance used for lubricating and cooling purposes, as well as a protecting-cover for all the principal working parts of the machine

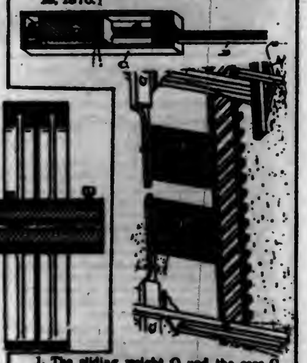
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181,011. GLOVES. John L. H. Bannisper, Altenburgh, Saxony, assignor to Albert Herts and Siegmund Herrin, New York, N. Y. [Filed July 10, 1876.]



As a new article of manufacture, a glove with a slit or opening made to commence on and extend along the outer side or edge of the hand, and thence along the wrist, whereby the buttons or other fastening devices are thrown more or less out of sight, substantially as shown and described.

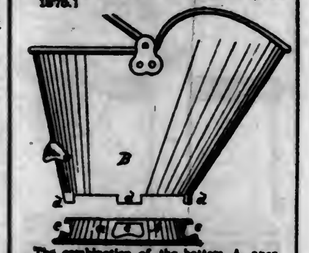
181,012. AUTOMATIC RAILROAD-SIGNALS. Jno. H. Rose, Fowtucket, R. I. [Filed Mar. 28, 1876.]



1. The sliding weight Q, and the cam C, combined and operating together in the manner and for the purposes specified.

2. The combination of the spring-board G and H and levers F, and the pulleys N M L K, the whole arranged and operating together for the purposes of communicating motion to the weight Q.

181,013. BOTTOMS FOR COAL-HODS. Geo. F. Sawyer, Albion, N. Y. [Filed Dec. 21, 1876.]



The combination of the bottom A, apertures *e e e*, lips *d d d*, and body B.

181,014. SQUARES CASE. John H. Scott, New Orleans, La. [Filed May 1, 1876.]



The square can A, having a nozzle, C, and tilting-handle D, the latter being attached to that half of the can which is determined by a vertical section, and in which the nozzle is situated, whereby the can may be held in such position that, while the contents are being poured out, air may enter through the nozzle or discharge-opening, substantially as described.

181,015. MILLSTONE-DRESS. J. K. Snavely, Middletown, Pa. [Filed June 6, 1876.]



The millstone-dress having the leading or main furrows O widest at the periphery or skirt of the stone, and tapering narrower at the eye D, in combination with the triangular furrower E, they being about the same width at the skirt or periphery of the stone as that of the leading or main furrows O, and tapering to a point at about one-half or two-thirds of the distance from the periphery or skirt to eye D of the stone, substantially as and for the purpose herein set forth.

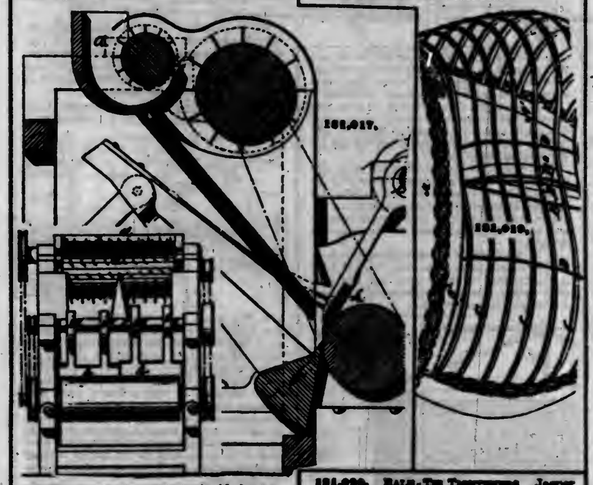
181,016. BUTCHERS'. John S. Spencer, New York, N. Y. [Filed Oct. 10, 1876.]



The combination, with the bow-spring *c*, carried below its point of attachment to the knee-frame on each side, of the separate nose-springs *d d*, fastened thereto at the lower ends, substantially as and for the purpose set forth.

181,017. COTTON-GIN. Henry A. Stearns, Pawtucket, R. I. [Filed Jan. 10, 1876.]

Brief.—Seed-cotton is opened by a revolving toothed cylinder, and delivered to a roller-gin, which has two beater-knives secured to eccentrics set at different angles on the same driving-shaft.



1. The combination, with the double beater-knives A A, of the eccentrics secured to the shaft at different angles, and arranged to reciprocate the beater-knives alternately, substantially as described.

2. The combination of the cotton-cylinder, consisting of the concave shell *c*, the knife-edge *c*, perceptive-roll *b*, and beater-drum *d* with a roller cotton-gin, substantially as described.

181,018. SKIRT-ELEVATORS. A. W. Thomas, Philadelphia, Pa. [Filed Jan. 20, 1876.]



As a new article of manufacture, the skirt-elevator herein described, consisting of the waistband A, curved guiding-tubes B B, drawing-cords C C, and pendants D D, of unequal length, terminating in attaching-pins *d*, the several parts being constructed and combined substantially as shown and described.

181,019. BOSOM-PUFFER. A. W. Thomas, Philadelphia, Pa. [Filed Oct. 26, 1875.]

The support B, composed of the part B', resting against the breast of the wearer, and the bow B" containing the wires C C, substantially as shown and described.

181,020. BALE-TIE TIGHTENERS. Jasper Thayer, New Orleans, La., assignor of one-half his right to C. H. Chase, same place. [Filed May 22, 1876.]

1. In bale-band-tightening machines, the combination, with the hand-lever and pushing-bar, of a pulling-bar, provided with a hook or claw adapted to engage the buckle, said pulling-bar being connected to said pushing-bar by a movable joint, substantially as set forth.

2. In bale-band-tightening machines, the combination of the pushing-bar with a guide-piece or guiding-edge of the plates, suitably arranged to direct and steady the pushing-bar while the strain is being applied by the operators, substantially as set forth.

3. The combination, with the hand-lever, of a spring supported by a cross-bar, said spring serving to keep the hand-lever elevated in proper position to apply the band to the clamp on the end of said hand-lever preparatory to applying the strain, substantially as set forth.

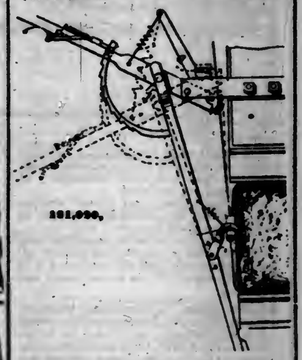
4. In band-tightening machines, the arrangement of the strain-developing parts, whereby both ends of the band are made to receive the tightening force, and both ends yield to such force in substantially an equal degree, substantially as and for the purpose described.

5. The combination, with the pushing-bar and jointed pulling claw-bar, of a spring to elevate the claw-bar, substantially as and for the purpose described.

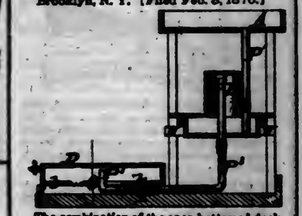
6. The combination, with the pushing-bar and lever, of a segment of a circle, notched on its outer edge, used, in connection with the lock and catch, for the purpose of holding all the strain that may be exerted upon the loop or band by the downward pressure upon the lever at the point attained, relieving the operator, and allowing him free use of himself to adjust and drive the wedge into the buckle, thereby securing the ends of the band, substantially as set forth.

7. The combination of the slot or mortise in the lever, which is a guide for the free end of the segmental strip, also the manner of attaching the segmental strip to the pushing-bar, substantially as set forth.

8. The combination devices, as shown and described, consisting of the pushing-bar and pulling-bar, in connection with the guide strip, claws, and griping device, springs for lifting the lever and pulling-bar, the notched segmental strip, the manner of attaching to pushing-bar, the slot in lever-guide for free end of segmental strip, the catching device, together with spiral spring and trigger, for compressing cotton, substantially as and for the purpose described.



181,021. FLOATING DOCKS. T. J. Wheeden, Brooklyn, N. Y. [Filed Feb. 3, 1876.]



The combination of the open-bottomed dock D, the tank or reservoir A, the intermediate air-compression chamber B, the pipes P^1 and P^2, and the waste-outlet P^3, substantially as and for the purposes herein described.

181,022. BUCKLES. Alonzo B. Woodard, Hornellsville, N. Y. [Filed Jan. 26, 1876.]

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

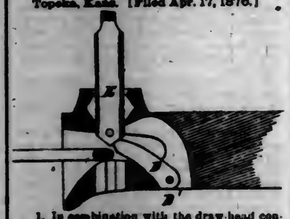
HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON



181,029.

A buckle, consisting of the parts A M, the part A having the slots P S, and the thumb-latch D, and the part M, having the cross-bar B, stud O, shoulder T, and lug E, adapted to operate substantially as described.

181,032. CAR-COUPLINGS. Emanuel Zorger, Topeka, Kans. [Filed Apr. 17, 1876.]



1. In combination with the draw-head constructed with the Y-formed recesses F, the pin B, having studs B' to enter the recesses and support the link in an inclined position, substantially as set forth.

2. The pin B, in combination with the gravitation-latch D and Y-formed recess F in the sides of the draw-head, whereby the pin may be supported upon the coming together of the cars in an inclined position, or made to rest on the gravitation-latch, so as to fall when the link enters the draw-head.

181,034. COMPOSITION OF BORATED COTTON FOR PRESERVING. Charles O. Am Ende, Hoboken, N. J. [Filed Apr. 17, 1876.]

The borated cotton, being cotton fiber which is saturated with boracic acid and glycerine, substantially as herein shown and described.

181,035. DESKS. Chas. A. Atkinson, New York, N. Y. [Filed June 26, 1876.]



181,035.

1. A desk, having end sections or compartments adapted to be connected with or disconnected from said desk, substantially as herein shown and described.

2. A desk, having outer pivoted sections closing against the outside ends of desk, as and for the purpose specified.

3. The combination of the brackets C, provided with arms c^1 and pivots c^2 at their upper and lower ends, with the sections A B of the desk, substantially as herein shown and described.

181,036. CORK-FASTENERS FOR BOTTLES. Walter D. Balcom, Providence, R. I. [Filed Feb. 14, 1876.]

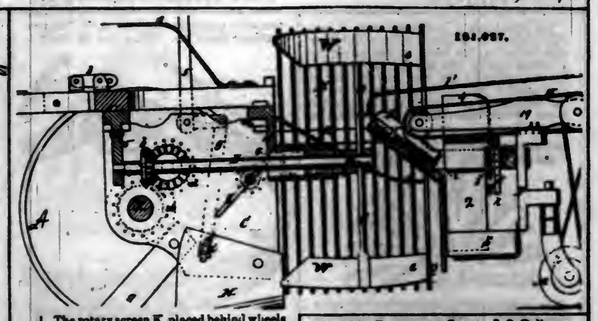
Brief.—The forked lever allows the cork-plunger to be withdrawn easily, without disturbing said lever when in a horizontal position.



The cork-fastening device described, composed of the cock collar A, side straps E E, and clasp B, open at one end, and terminating at the other in a lever or thumb-piece, D, the whole constructed and operating substantially as set forth.

181,037. POTATO-DIGGERS. Edward Bartlett, Rochester, Ontario, Canada. [Filed Apr. 26, 1876.]

Brief.—The digging-share is supported upon two wheels. A separating-cylinder is placed a little behind the wheels, the interior being provided with spiral flanges for lifting the potatoes to the carrying-box. The tail end of the machine is supported by an adjustable caster-wheel.



181,027.

1. The rotary screen K, placed behind wheels A, to allow enlargement of ordinary screen without increasing distance between wheels.

2. The wire spout N, combined with the screen, substantially as herein shown and described.

3. The adjustable spout 4, lever J, and swinging board Z, combined and arranged substantially as herein shown and described.

4. The carrier 18, arranged as shown, in connection with the spout N, to carry off the vines and weeds, as set forth.

5. The rods F, arranged over and in connection with the carrier 18, as and for the purpose set forth.

181,028. CHAIN-BELTS. Jacob Bekel, Rockford, Ill. [Filed Dec. 27, 1875.]



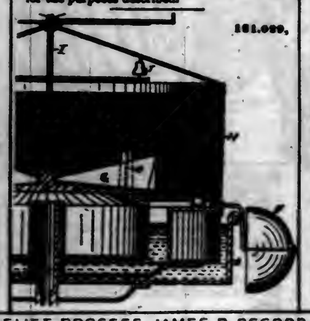
181,028.

1. A chain-belt link, having one of its end bars grooved, as at *a*, and the other constructed with a coupling-hook, C, having lip *b*, substantially as and for the purpose described.

2. A chain-belt link, grooved, as at *a*, constructed with coupling-hooks C, having lips *b*, and one or more intermediate bars, A', connecting the end bars, substantially as and for the purpose described.

3. A chain-belt link, constructed with one or more intermediate bars, A', connecting the end bars D and C, provided with grooves and lips, the hook portion of bar C entering between the intermediate and outside bars A' and A, substantially as and for the purpose described.

4. A removable link of rectangular form for chain-belts, having the longitudinal bars A A', fastened on their faces and provided with holes *c* or studs *f*, substantially as and for the purposes described.



181,029.

181,030. REVOLVING SIGNS. J. O. Belknap, Mobile, Ala. [Filed June 24, 1876.]

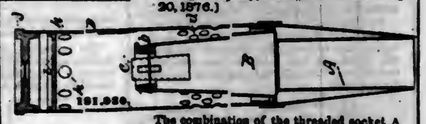
1. One or more floats sustained upon liquid, and capable of being revolved by the force and power of the wind, substantially as shown and described.

2. A vertical shaft connected with a series of wind-sails resting in a metal or glass socket or base, arranged to revolve by the power of the wind, and ring a bell or bells, substantially as shown and described.

3. The combination of two or more floats in a basin of liquid, arranged to revolve in opposite directions at one and the same time by the force and power of the wind, substantially as shown and described.

4. The combination of the basin A, floats B and C, burners or lamps D lenses, globes, or prisms E, wind-sails F and G, wire covering H, shaft and wind-sails I, and bell or bells J, constructed and arranged to operate substantially as and for purposes set forth.

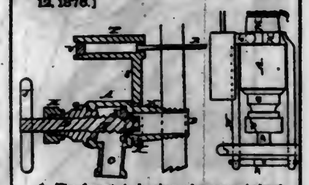
181,030. TORCHERE FOR LIGHTING STREET-LAMPS. Francis Billingham, New York, N. Y., assignor to H. P. Gleason Manufacturing Company, same place. [Filed July 20, 1876.]



181,030.

The combination of the threaded socket A, lamp B, wick-tube C, threaded tube D, provided with the perforations *d* and *h*, and opening *e*, and sliding plate *f*, and disk *i*, and cap J, constructed and operating substantially as and for the purposes specified.

181,031. FAUCET-LOCKING DEVICES. Leopold Bleier, Brooklyn, N. Y. [Filed May 12, 1876.]



1. The faucet A, having a hexagonal shoulder, L, and blank space M, constructed thereon intermediate of the barrel A and screw-tap B, substantially as described, and for the purposes set forth.

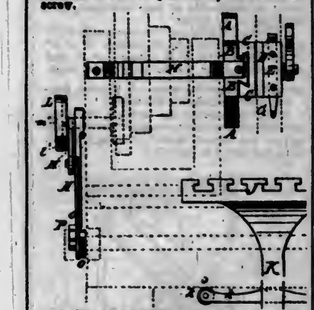
2. The collar K, arms F, wheel J, and links P, in combination with a faucet when constructed with a hexagonal shoulder, L, and blank space M adjoining each other, and intermediate of the barrel A and screw-tap B, as a means of locking and unlocking the valve-plug E from its seat in the faucet, without separating the collar K therefrom, as hereinbefore described.

3. In combination with the collar K, the case T, and auxiliary screw-tap R, substantially as described, and for the purposes set forth.

4. In combination with the auxiliary screw-tap R and case T, the sealing screw-plug U, and any suitable plaster or plastic sealing material as an external coating or facing to the plug U, to receive the impression of the stamp or initials of the inspecting revenue officials.

181,022. SHAPING ATTACHMENTS FOR BEND-RATHER. Wm. Brede, Lihue, Island of Kauai, Hawaiian Islands. [Filed July 31, 1876.]

Brief.—The work is fed forward, after each stroke of the cutter, by means of a cam-wheel attached to the friction-pulley that drives the feed-screw of the lathe, with adjustable arm and link and slotted bar, carrying pawl to engage a ratchet or gear wheel, on the feed-screw.

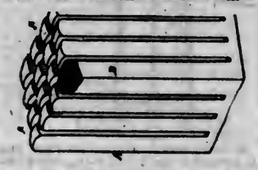


1. The combination of the slotted plate A, the arm B, provided with a dovetail tongue, *b'*, the blocks C D, tool-holder F, and swiveled screw E, and the connecting-bar I, with each other, to adapt them to be applied to the face-plate, spindle, and frame of a lathe, substantially as herein shown and described.

2. The table J, provided with the leg *j'*, the bent arm K, and the adjustable cross-bar k^1, to adapt it to be applied to the lathe-bed, the carriage, and the frame of a lathe, substantially as herein shown and described.

3. The combination of the cam-wheel L, the bent lever M, the connecting-bar N, the slotted bar O, provided with the collar *o'*, and the pawl P, with each other, to adapt them for attachment to the friction-wheel and the feed-screw of a lathe, substantially as herein shown and described.

181,023. FIRE-KINDLERS. Saml. S. Brown, Richmond, Ind. [Filed Jan. 20, 1876.]



The kindler or bundle A, made as described, in combination with the match B, whereby the kindler is made self-igniting, substantially as shown and described.

181,024. IRONING-BOARDS. M. A. Bryant, Prescott, Me. [Filed June 21, 1876.]



1. The reversible shirt-board, composed of the two boards *a d*, and bracket *e f*, constructed substantially as described.

2. The combination of the reversible shirt-board *a d e f*, with the sliding adjustable shirt-board *g*, substantially as and for the purposes set forth.

181,025. BELT-FASTENERS. J. P. Barnham, Chicago, Ill. [Filed June 19, 1876.]



The hinks A, provided with projections or stops B, in combination with the rods C, as and for the purpose set forth.

181,026. POST-HOLE BORERS. J. H. Caler, Fallstown, and C. M. Merrick, New Brighton, Pa. [Filed June 26, 1876.]

Brief.—An iron head having four inclined faces, on each of which are side ribs. To this head are secured, alternately, by transverse bolts, steel curved cutters and carriers.



1. The combination, in a post-hole borer, of a handle, two or more cutting blades, secured in fixed positions, and appliances for adjusting the blades upon said handle, to regulate the diameter of the opening cut, substantially as set forth.

2. The combination of the handle, cutters C C, arranged upon opposite sides thereof, and alternating carriers D D, substantially as and for the purpose set forth.

3. The cutters C and carriers D, adjustable upon the handle in respect to each other, for the purpose of regulating the extent of the cut, substantially as set forth.

4. The cutters C, curved at the lower ends, and having sharpened edges *c g*, the edge *c* being straight and inclined downward and forward, substantially as set forth.

5. The handle described, provided with the head *b*, having flat inclined faces, each with ribs having parallel sides forming bearings for the edges of the adjustable blades, as set forth.

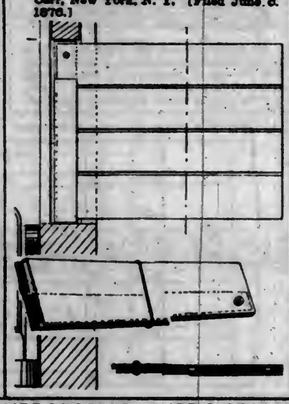
6. The handle, provided with a head, *d*, having inclined faces *e*, and with blades adjustable on said faces, substantially as and for the purpose set forth.

181,027. CHAMBERS AND URINALS. Peter F. Campbell, Jersey City, N. J. [Filed Mar. 15, 1876.]



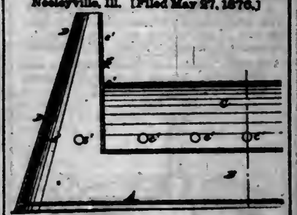
The hollow foot or base *d*, connected to and combined with the chamber-vessel, to elevate the same from the floor and sustain it, substantially as and for the purpose set forth.

181,033. DUST-GUARDS FOR CARS. Wm. Carr, New York, N. Y. [Filed June 6, 1876.]



A portable dust-guard for car-windows, made of a number of folding pieces or strips, in connection with a pivoted clamp-piece, fitting over the ends of the strips when opened, substantially in the manner and for the purpose set forth.

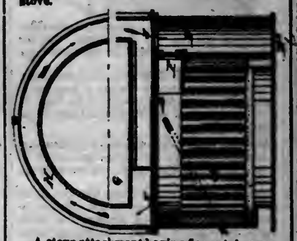
181,039. STEAM-WASHERS. C. C. Carter, Neeleyville, Ill. [Filed May 27, 1876.]



An improved steam-washer, formed of the flat base or bottom A, the inclined sides B, the V-shaped concave top C, the rounded and inclined ends D, and the vertical plates E, and provided with the holes *b' c' c'*, to adapt it for use, substantially as herein shown and described.

181,040. SUMMER STOVES. Chas. H. Chase, Newport, R. I. [Filed July 1, 1876.]

Brief.—Made to fit the usual pot-hole of a stove.



A stove attachment having fire-pot A, openings E I J, oven G, flue H, damper F, and diving-flue D, as shown and described.

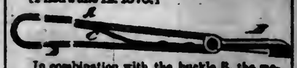
181,041. CULTIVATORS. Joseph W. Chase, Middleport, Ohio. [Filed May 8, 1876.]

Brief.—The frame is made of iron, and consists of three bars, curved at the rear end to receive the shares. The outer bars are pivoted to the center bar, and are adjustable outward and vertically.



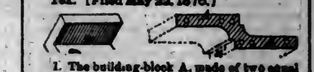
The combination of the beams *a d*, handles *c*, guide *e l*, links *g*, bolts *i*, plates *h*, set-screws *k*, and a fastening device for connecting the end of the links to the beams *d*, substantially as specified.

181,042. COMBINED BUCKLES AND SNAPS. Richard St. L. B. Chinnery, Kankakee, Ill. [Filed June 12, 1876.]



In combination with the buckle B, the metallic straps A D, the latter provided with the spring C, adapted to bring their beveled ends in close contact, all constructed substantially as shown and described, for the purpose specified.

181,043. CELLULAR-WALL BUILDING-BLOCKS. Nicholas J. Clayton, Galveston, Tex. [Filed May 22, 1876.]



1. The building-block A, made of two equal parts, connected by a middle portion at an angle thereto, as shown and described.

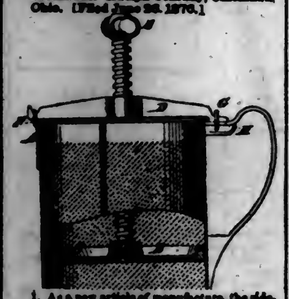
2. The block A, having offset in the middle, with rabbets *a'*, arranged as and for the purpose set forth.

3. The corner-block made solid for a distance equal to the thickness of wall, and with a hole through said solid part, as shown and described.

4. The bearing-blocks C, in combination with the blocks A, for supporting the ends of the joists, substantially as herein shown and described.

5. The fan-blocks D, made straight and with a flange upon the inner side of their middle part, in combination with the blocks A, substantially as herein shown and described.

181,644. FRUIT AND JELLY MASHERS AND STRAINERS. Adolph Gennety, Cincinnati, Ohio. [Filed June 26, 1876.]

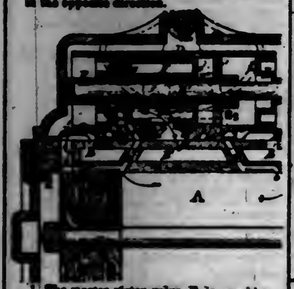


1. As a new article of manufacture, the slit-perforated metallic cup A, provided with follower, screw, and nut-bar D, as shown and described.

2. The cross-tree D, having the press-screw E fitted to screw up and down in it, and being detachably connected to cup A by loop F, sliding link G, and handle H, substantially as specified.

181,645. STEAM-VALVES FOR PUMPING AND OTHER ENGINES. Hiro Cope and James R. Maxwell, Hamilton, Ohio. [Filed May 18, 1874.]

Brief.—As the piston nears the end of its stroke, it uncovers a port in the cylinder, to allow steam to pass up through the main valve, and operate an auxiliary piston-valve, which works in a cylinder formed on the main valve. Said auxiliary valve opens an exhaust-port from one end of the main-valve cylinder, and allows steam, which enters through a small port at the other end, to operate the main valve. When the main piston nears the end of its back stroke, the valves are moved in the opposite direction.



1. The master piston-valve F, in combination with the auxiliary cylinder D, and the ports and passages $a' a^2 a^3 a^4 a^5$, substantially as described.

2. The combination of the main slide-valve D', the movable auxiliary cylinder D, the stationary pistons B B', and the master piston-valve F, together with the ports and passages a', a^2, a^3, a^4, a^5, f, f', f^2, f^3, f^4, b, b', i, i', i^2, n, and n', constructed and arranged as and for the purpose specified.

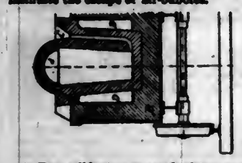
3. The main steam-passages A A, and the supplementary passages a a, in combination with the main slide-valve D' and piston B, substantially as and for the purpose described.

4. The combination of the cylindrical valve, the projecting cam, and the forked lever for moving the valve, substantially as described.

5. In combination with the main piston B and the master piston-valve F, the steam-passages a' a^5, with the additional ports b b', substantially as described.

181,646. PROCESSES AND APPARATUS FOR REFINING METALS. John Corson and Frederick Winter, Washington, D. C. [Filed May 19, 1876.]

Brief.—Molten metal is introduced at bottom of a mold or crucible, which is heated until the metal is being poured. Heated gas is conducted over the surface of the metal, to facilitate the escape of air-bubbles.



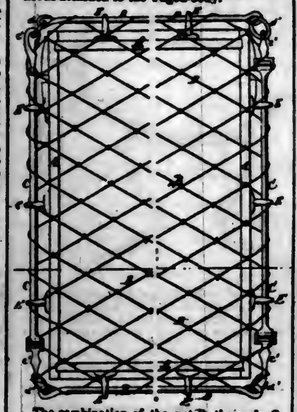
1. The calidist, composed of the crucible surrounding chamber D, the arched space d beneath the cover, and the inlet and outlet passages d' and d^2, communicating therewith.

2. The process described of refining metals by casting them in ingots in covered crucibles previously heated to the required uniform temperature, and not further heated after the metal is supplied to the crucible, except from the top, the metal being prevented from contact with outward as variable atmosphere, substantially as described.

3. The described method of refining a mass of metal at the lower part of the ingot or mass, and forcing the volatile and other impurities upward, by casting in a heated crucible deprived of variable atmosphere, and surrounded at sides and at top by calidists, in connection with introducing the molten metal at the bottom of the mold.

181,647. WAGON-COVERS. Chas. Cromer, Red Bluff, Cal. [Filed June 12, 1876.]

Brief.—Rods inserted in the meshes of the net at its four edges are held down by snap hooks attached to the wagon-body.



The combination of the net B, the rods C D, the connecting snap-hooks c', and rings d', and the holding snap-hooks E, with the body or box A of a wagon, car, or other vehicle, substantially as herein shown and described.

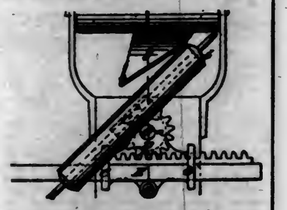
181,648. DRAFT-RODS FOR RAILWAY-CARS. William R. Cross, Piedmont, W. Va., assignor of one-half his right to S. A. Silver, same place. [Filed June 12, 1876.]

1. The combination of two draw-heads, united by a continuous draw rod or rods, springs, and jam-blocks, interposed between the draw-rods and frame-bolsters, and springs interposed between a central abutment on the draw-rod and transverse beams of the car-frame on each side of said abutment, substantially as set forth.

2. The combination of the draw-heads B B', draw-rods C C', swivels C', springs D' D² D³ D⁴, jam-blocks d' d^2 d^3, bolsters A' A', and cross-beams A² A², substantially as set forth.

181,649. BELT-SHIFTERS. A. Crosby, Boston, Me. [Filed July 22, 1876.]

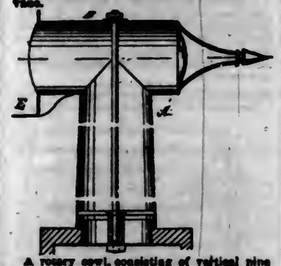
Brief.—By moving the rack-bar, the roller attached to the sector is made to bear obliquely against the edge of the belt, causing it to run from one pulley to the other.



The combination of the roller C, frame b, sector D, rack E, substantially as shown and described.

181,650. CEMENT-COVER. J. M. Davies, Iron Valley, Pa. [Filed June 12, 1876.]

Brief.—The oblong cast-coated cans as a cover.

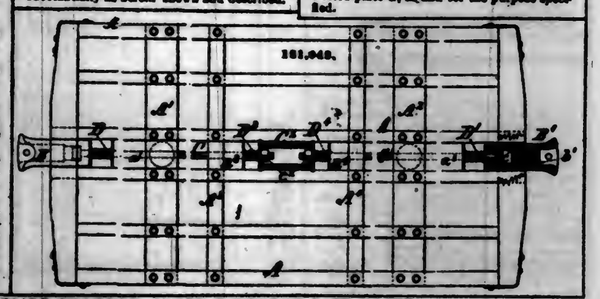


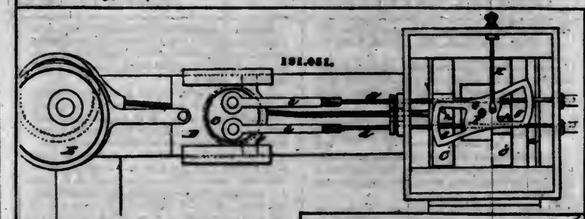
A rosary cowl, consisting of vertical pipe A, horizontal pipe B, and oblong tube E, the latter serving both as a vane and a discharge pipe, in the manner specified.

181,651. CUT-OFFS FOR STEAM-RADIATORS. Julius C. Deben, Jackson, Mich. [Filed June 20, 1876.]

1. The slotted plate G g, arranged on stud F, and the pivoted rod H, connected with governor, in combination with valves O' O', having studs h, substantially as and for the purpose described.

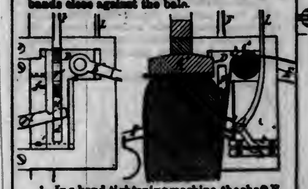
2. The combination, with valves O' O', of eccentric E, connected therewith by yoke, slide D, disk C, rods c c, and stems d d, and the slotted plate G, as and for the purpose specified.





181,652. BAND FULLING AND LOCKING MACHINES FOR BALING COTTON. R. De Gray, New Orleans, La. [Filed June 20, 1876.]

Brief.—The revolving shaft draws the bands up into close proximity to the buckles, while the buckle-bar carrying the buckles is forced downward by its levers. The plate, urged by the lower pair of levers, presses the stretched bands close against the bale.



1. In a band-tightening machine, the shaft E, having slots e' and ratchet-teeth e^2, constructed and operating substantially as set forth.

2. In a band-tightening machine, the buckle-bar H, having grooves H' and notches h^1 for the purpose of drawing tight the buckle ends of the bale-bands, substantially as set forth.

3. In a band-tightening machine, the sliding bearings D, whereby the upper and lower band-tightening apparatus are supported, substantially as and for the purpose set forth.

4. In a band-tightening machine, the plate K, operating substantially as set forth.

5. The shaft E and the sliding bearings D, substantially as set forth.

6. The combination of the buckle-bar H and the cams F', substantially as set forth.

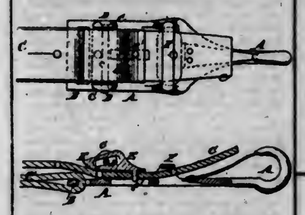
7. The combination of shaft E, the buckle-bar H, and the bearings D, substantially as described.

8. The shaft E, the buckle-bar H, and the sliding plate K, combined and operating substantially as set forth.

9. The combination of the plate K and the levers L, substantially as and for the purpose set forth.

10. The buckle-bar H and the weighted levers I, constructed and operating substantially as set forth.

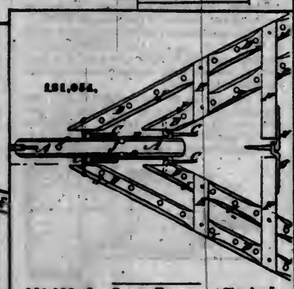
181,653. CORRUGATED BUCKLES AND SNAP-HOOKS. Francis J. Deles, Pierre City, Mo. [Filed July 11, 1876.]



The combination of the slotted wedge-block F, having a rigid tongue, f', formed upon the forward part on its inner side, and the screw or bolt D, with the shank of a snap-hook, A, provided with the loop B, the keeper F, and the legs C, substantially as herein shown and described.

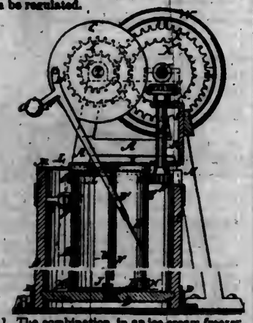
181,654. HARROWS. Jackson De Moss, Noblesville, Ind. [Filed June 26, 1876.]

The combination of the central bar A, provided with the eye-bars B, the wings D E F, the hooks G H, and the eye-bar G, with each other, substantially as herein shown and described.



181,655. ICE-CREAM FREEZERS. Charles L. Dexter, Philadelphia, Pa. [Filed May 27, 1876.]

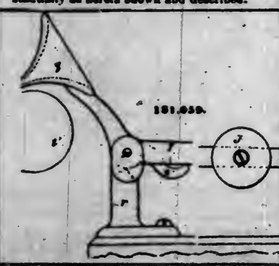
Brief.—The can is supported in a vertical position by the arms and friction-roller. The cross-bar and floats scrape the frozen cream from the can, and throw it to the center. The pivoted bar, carrying the scraper, is worked by suitable mechanism, by which its motion can be regulated.



1. The combination, in an ice-cream freezer, of the outer tub B, having arms G, friction-rollers F, and angle-irons H, with the inner revolving can E, and operating gearing, substantially as herein described, for the purpose set forth.

2. The combination of the cross-bar J, the rods K, the arms I, the cross-bar M, and the floats N, with the can E, and tub B, substantially as herein shown and described.

3. The combination of the gear-wheels X X', the sliding gear-wheels Y Y', the crank-wheel O', and the pivoted bar D', provided with the paddle E', and the weighted arm F' G', substantially as herein shown and described.



181,656. PERAMBULATING-CHAIRS. Thos. Divine, Charleston, S. C. [Filed June 21, 1876.]



The chair A, provided with legs B and C, bellows D, crank c, pipes E, swinging arm F, and fan G, the several parts being constructed, arranged, and combined to operate substantially as and for the purpose described.

181,657. CHAR-BOXES. Thomas A. Dodd, Providence, R. I. [Filed May 9, 1876.]

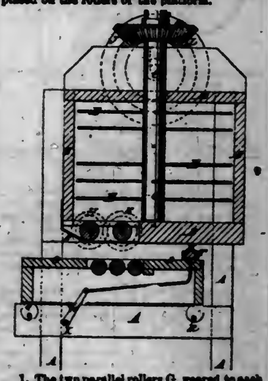
Brief.—The front of the box is of glass, and the lid that covers the box has a flap hinged to it, that shuts down and covers the glass front.



A cigar-box, A, provided with a glass front, a', and having a flap, a^2, hinged to the forward edge of its top or cover, to shut down over said glass front, substantially as herein shown and described.

181,658. BRICK-MACHINES. R. A. Drawdy, Jacksonville, Fla. [Filed June 26, 1876.]

Brief.—The rollers in the bottom of the pug-mill force the clay directly into the molds placed on the rollers of the platform.



1. The two parallel rollers G, geared to each other, revolving toward each other, placed in an opening in the bottom of the mud-box B of a brick-machine, and driven from the shaft C of said mud-box by suitable connecting-gearing, substantially as herein shown and described.

2. The combination of the platform C and rollers F with the frame A, the mud-box B, and the rollers G, substantially as herein shown and described.

181,659. STOP-MOTIONS FOR DRAWING-FRAMES. Isaac N. Edgerly, Greenwoodale, Conn. [Filed Mar. 20, 1876.]

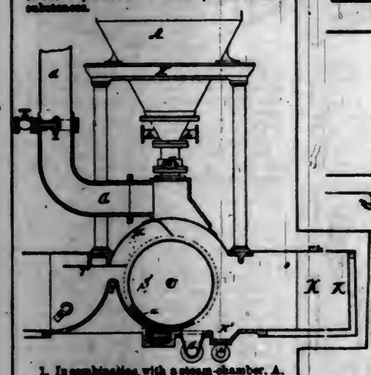
Brief.—The novelty lies in the construction of, and means for operating, the lock-bar, pivoted so as to come in contact with the stop-wheel and stop the machinery when the sliver breaks or runs out, or when the trumpet becomes clogged.

1. The bar K, provided with slot *e*, trumpet-lever I, weight J, and trumpet *g g'*, stand L, with slotted extension *o*, slide *g*, having pin *h*, bell-crank *f a*, and pivot *x*, in combination with the bolt-shipping or clutch mechanism of *o* driving-frame, as and for the purposes described.

2. In combination with the bar K, provided with slot *e*, trumpet-lever I, weight J, and trumpet *g g'*, stand L, with slotted extension *o* and strap *d*, slide *g*, with pin *h*, bell-crank *f a*, and pivot *x*, the bell-crank *a b*, having an arm, *c*, and weight *F*, as and for the purposes described.

181,660. APPARATUS FOR MASHING, GRIND-ING, &c., FOR DISTILLERIES. Gustav Ellenberger, Bladenhorst, Germany. [Filed June 10, 1876.]

Brief.—An exhaust-pipe with a steam-jet is provided for drawing off the steam from the mash-tub, and for drawing a current of air over the mash for cooling it. The cutting-edges upon the revolving drum and plate below it cross each other diagonally, so as to produce a shearing action upon the grain. A vertical division-plate at the end of the drum and a curved plate at the back side of it cause the mash to pass repeatedly around the tub, and between the grinding-surfaces. An adjustable plate corrects the surface of the grinding-drum. A depression in the bottom of the tub, in front of the drum, receives hard substances.



1. In combination with a steam-chamber, A, and mashing-tub K, the exhaust-pipe G, provided with an injector apparatus, Q, in the manner and for the purpose described.

2. In a mash-machine, in combination with the revolving drum S the movable plate X', in the manner and for the purpose specified.

3. In a mash-tub, K, provided with a central division-piece, E, the inclined raised partition Y, situated behind the revolving drum S, substantially in the manner and for the purpose set forth.

4. In a mash-tub, K, provided with a central division-plate, E, the recess K', situated before the revolving drum S, for the purpose set forth.

5. The mashing-tub K, provided with a partition-plate, E, double sides and bottom, skewed inclined partition Y, recess K', revolving drum S, bed-plate W, and movable plate Y', combined and constructed in the manner and for the purpose substantially as set forth and described.

181,661. TANNING PROCESSES AND COMPOUNDS. William Farris, Yarmouth, Me. [Filed June 22, 1876.]

Brief.—Tanning solution composed of extracts of juniper and sumac, cold salt, salsoda, gamboge, and sulphur.

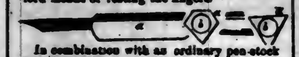
1. The process of softening skins and hides and removing the hair therefrom preparatory to tanning the same, which consists in immersing the said hides or skins first in the lye-bath and then the lime, soda-ash, and sulphur bath, substantially as described.

2. The tanning compound herein described composed of the ingredients named, substantially as set forth.

3. The process herein described of dressing and tanning hides and skins, which consists in first submitting the skin to the lye-bath; second, to the lime, soda-ash, and sulphur bath; and, finally, to the tanning compound, all as herein set forth.

181,662. PEN-HANDLE ATTACHMENTS. W. H. Foye, Portland, Me. [Filed Nov. 26, 1874.]

Brief.—Provides the lower end of a pen-handle with an adjustable griping-piece, having inclined faces of varying angles, to afford means of resting the fingers.

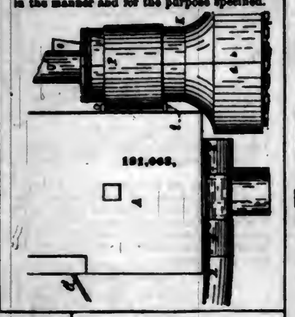


In combination with an ordinary pen-stock the adjustable piece *a*, having the aperture *b* and the inclined faces, as and for the purpose set forth.

181,663. ANIMAL-TETHERS. P. Francis, Cleveland, Ohio. [Filed June 8, 1876.]

1. The combination of the spring F, reels C D E, shaft E, rope G, box A, and clamp K, the latter secured to the box by a bead, P, and rods Q, substantially in the manner and for the purpose set forth.

2. In a device for tethering animals, constructed substantially as described, the pivotal point H, and pole or reach R, attached to, and arranged in connection with, the box A, in the manner and for the purpose specified.



181,663.

181,664. TOY GUNS. Conrad W. Fries, St. Louis, Mo. [Filed June 12, 1876.]

Brief.—The trigger is a spring push-pin arranged transversely of the stock. Pressure upon it pushes the hammer past its dead-point, when the spring snaps it against the breech or cartridge.

In a toy gun, the hammer F, link *e*, spring E, and hollow H, with a trigger, G, and spring *g*, all said parts being combined and arranged to operate substantially in the manner specified.



181,664.

181,665. TRANSPLANTERS. James R. Goodwin, Rockbridge County, Va. [Filed July 26, 1876.]

Brief.—A frame with a bifurcated head, to which are secured toggle-levers, which operate transplanting-blades, which pass through slots on each side of a guide-block, through which the plant passes.

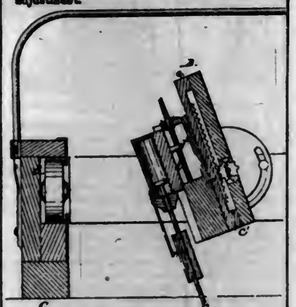
1. The bifurcated frame A and guide-block C, provided with the openings *d d*, in combination with the blades D D, toggle-levers E E, rods *e e*, and supplemental cross-head F, substantially as and for the purpose set forth.

2. The bifurcated frame A and guide-block C, provided with the slots *d d*, in combination with the blades D D, toggle-levers E E, rods *e e*, supplemental cross-head F, provided with the arm *f*, and the packers P P, attached to the levers by rods *p p*, all constructed substantially as and for the purpose set forth.

3. The guide-block C, in combination with the sectional diaphragm *a*, substantially as and for the purpose set forth.

181,666. STONE-CHANNELING MACHINES. Nahum J. Green, Rutland, Vt., assignor of one-half his right to J. B. Reynolds, same place. [Filed Mar. 10, 1876.]

Brief.—Traveling by a pinion and rack, on ways, is a carriage supporting three tools, each reciprocating from a steam-cylinder, the middle one, in addition, partially rotating. They are adapted to separate or collective adjustment.



1. A stone-channeling machine which works upon ways of any length, having two or more single reciprocating cutters, which operate independently of each other, and are attached to an adjustable mechanism, said adjustable mechanism being arranged to feed the cutters up to or withdraw them from their work at the will of the operator, and arranged to adjust the cutters laterally at any desirable angle for cutting the rock, the cutters also being so arranged as to permit of their collective adjustment longitudinally with the cut or channel either way from a perpendicular, substantially as and for the purpose specified.

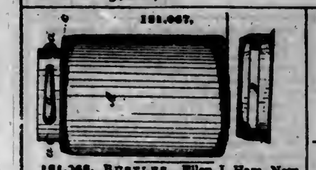
2. The combination of two or more single reciprocating cutters, which operate independently of each other, with their engines, a mechanism for adjusting collectively the cutters longitudinally with the cut or channel, the adjustable mechanism composed of the two parts B and C, said mechanism for feeding the cutters up to or to withdraw them from their work, and for adjusting the same with the cutters and engines at any desirable angle for cutting, and a feeding mechanism for feeding the machine along its ways, substantially as and for the purposes specified.

3. The cutters in a stone-channeling machine, having two or more single independently-working reciprocating cutters, adapted to a longitudinal adjustment either way from a perpendicular, substantially as and for the purposes specified.

4. The combination, in a stone-channeling machine having two or more single independently-working reciprocating cutters, of one or more rotating drills with one or more drills which do not rotate, substantially as and for the purposes specified.

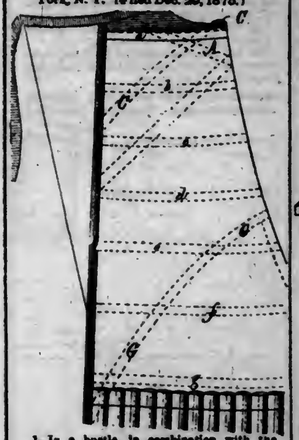
181,667. FRUIT-JARS. H. D. Hall, Salem, N. J., assignor of one-half his right to C. Hall, same place. [Filed May 9, 1876.]

The combination, with the jar A, having a shoulder or breast for supporting the gasket below the neck of the jar, and the neck of the jar formed with three inclined legs, *a*, of the sheet-metal cover B and gasket C, said cover provided with three elongated towardly-projecting legs, and an outwardly-flaring lower edge, to engage, respectively, with the neck and the gasket of the jar, substantially as and for the purpose set forth.



181,667.

181,668. BUSTLES. Ellen J. Ham, New York, N. Y. [Filed Dec. 29, 1875.]

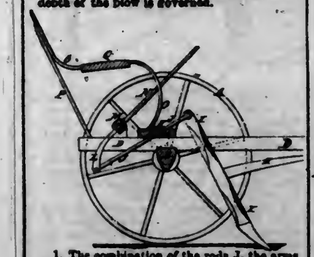


1. In a bustle, in combination with the usual bands and springs forming the frame thereof, the arched or bowed spring C, extending over the top of the bustle, and terminating at the front on both sides thereof, as and for the purpose as herein shown and set forth.

2. In a bustle or skirt, divided into two parts or sections, in combination with the usual bands and springs forming the frames thereof, the spring D, extending from the front and base on both sides, in the form of a bow or arch, to a point forming the apex of the lower section, usually about one-half the height of the skirt, substantially as herein shown and set forth.

181,669. SULEY-PLOWS. Alex. Hamilton, Harrisburg, Ark. [Filed May 22, 1876.]

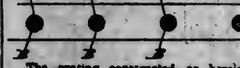
Brief.—The plow-standards are fixed to drag-bars, and have a vertical motion. Behind the seat is a rock-shaft for each plow, and upon each side of the seat a toothed rack, into which the rock-shaft lever engages. An arm from the rock-shaft is connected with the upper end of the plow-standard by a diagonal rod, and by the movement of the lever the depth of the plow is governed.



1. The combination of the rods J, the arms L, the shaft M, the levers N, and the slotted foot-board K with the upper ends of the plow-standards I, and with the bars C D of the frame, substantially as herein shown and described.

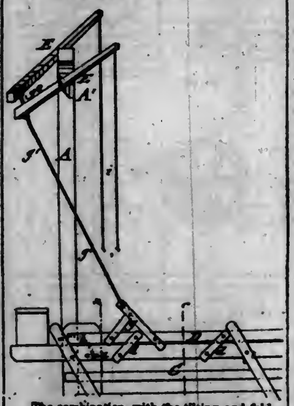
2. The combination of the curved and slotted arms O, having notches or a series of teeth, and connected at their rear ends, by a transverse bar, with the braces P, the seat Q, the plow-frame, and the plow-raising devices, as and for the purpose set forth.

181,670. BURGLAR-PROOF GRATINGS. Chas. P. Haughian, Brooklyn, N. Y., assignor to William Arthur, in trust for Wm. Arthur, Charles P. Haughian, C. D. Schaberth, and Julius Baur, same place, and A. B. Mullett, Washington, D. C. [Filed Dec. 18, 1875.]



The grating constructed, as herein described, of compound plates of iron and steel in alternate layers, inseparably welded together, and bars constituted of iron cores A, with steel casings B welded thereon, the whole constituting a grating for use in prisons or other structures, or for the protection of banks or other buildings.

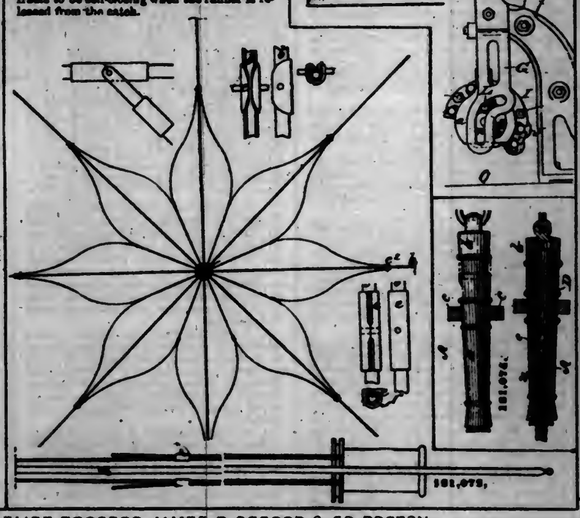
181,671. GATES. Uriah W. Hardy, Albion, Ill. [Filed May 27, 1876.]



The combination, with the tilting and folding gate, of the falcromed levers E, the pivoted latch D, and the quadrantal guide, as and for the purpose specified.

181,672. UMBRELLAS. Joseph Hayward, Stocksbridge, near Sheffield, and William Hoyland, Hunshelf, near Sheffield, England. [Filed June 10, 1876.]

Brief.—The arrangement of the stretchers with the ribs given to the stretchers a spring when the umbrella is raised, which causes the frame to be self-closing when the runner is released from the catch.



181,672.

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1. The frames of umbrellas and parasols, constructed substantially in the manner herein before described, each stretcher being formed with two blades or limbs, which are jointed, one to the rib on its right hand, and the other to the rib on its left hand, and the other to the rib on its left hand, as herein described.

2. The combination, substantially as herein before set forth, of the double stretchers, the ribs upon the opposite sides of each of which the respectively adjacent limbs of two stretchers are jointed, and the clips by which said limbs are coupled together near their ends, whereby they are held in proper position, and strain on the joints between them and the ribs lessened.

3. The combination of the trough-shaped ribs, the middle bits or joints fitting around the ribs and having their edges bent inward into the troughs of the ribs, and the pivots or pins projecting from the sides of the bits, substantially in the central lines of the ribs, by which pins the stretchers are joined to the ribs, these members being constructed and operating substantially as herein before set forth, whereby the ribs are strengthened and the ribs and stretchers, when folded, lie side by side, as described.

181,673. PRINTING-PRESSES. Edward Haly, Dublin, Ireland. [Filed Oct. 6, 1875.]

1. The cylindrical inking-table D, mounted in the sliding frame B, in combination with the plates I, provided with the crank-arms L, and the arms G, provided with the slots *n*, all constructed to operate substantially as described.

2. The combination of the stationary bed O with the circular ink-table D, mounted in a vertically-reciprocating frame, and the roller-carrying plates I, provided with the crank-pins L working in the slots *n*, all constructed and arranged to operate substantially as described.

181,673.

181,674. UMBRELLAS. Joseph Hayward, Stocksbridge, near Sheffield, and William Hoyland, Hunshelf, near Sheffield, England. [Filed June 10, 1876.]

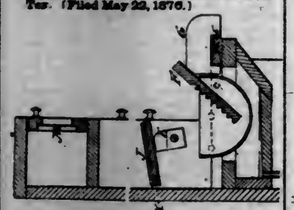


181,674.

181,074. WATCH-KEYS. William S. Hicks, New York, N. Y. [Filed July 17, 1876.]

In combination with the case A, composed of the parts a and b, the bit or tube B and the screw mechanism, substantially as described.

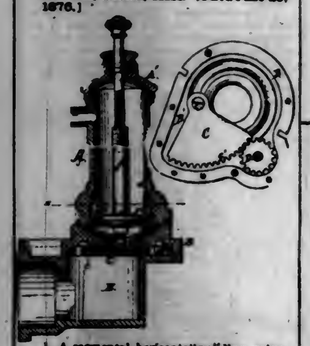
181,076. COMBINED DISH AND CLOTHES WASHER. Asberry C. Jacobson, Orange, Tex. [Filed May 22, 1876.]



1. The combination of the inclined wash-board F, notched supporting-blocks G, and key I, as shown and described.

2. The draining-shelf J, pivoted to the frame at K, in combination with the pivoted blocks L, the whole being arranged substantially as shown and described.

181,076. HYDRANTS OR WATER-PLUGS. E. B. Jones, Boston, Mass. [Filed June 20, 1876.]



1. A segmental horizontally-sliding valve, O, provided with teeth, and operated by a pinion, in combination with a hydrant or water-plug, substantially as set forth.

2. The combination of a segmental horizontally-sliding valve, C, pinion D, and base B with a hydrant or water-plug, and a connection, E, substantially as shown and specified.

3. The recessed base B, provided with recesses b^1, in combination with a horizontally-sliding valve, C, connection E, and stock A, having lugs a, substantially as shown, and for the purpose set forth.

4. In combination with a valve, C, provided with teeth c^1, and operated by pinion D, the base B, stock A, and valve F, arranged substantially as shown and described.

5. The hydrant or water-plug herein described, consisting of the stock A, base B, valve C, pinion D, valve F, and water-main connection E, all constructed and arranged substantially as specified.

181,077. ELEVATORS. John G. Kurtz, Milton, Pa. [Filed July 22, 1876.]

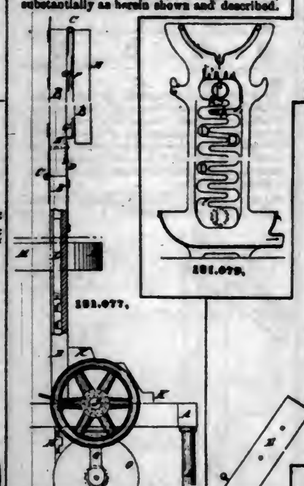
Brief.—A jointed sectional standard, is provided with a T-groove, in which an arm carrying a platform works by means of a jointed rack-bar. The rack-bar is operated by a pinion-wheel. The standards are hinged at one side, and fastened by a strap, springs, and pins.

1. The standard B, made in sections, and provided with a T groove, the jointed rack-bar H, and the gear-wheel I, in combination with each other and with the frame A, and a mechanism for turning the said gear-wheel, substantially as herein shown and described.

2. The combination of the springs D, the pins E, and the cam-levers G, whether the springs F be used or not with the hinged ends of the sections of the standard B, substantially as herein shown and described.

3. The combination of the bar L, the arm M, and a platform, gallery, or cage, N, with the grooved standard B, and with the jointed rack-bar H, and the gear-wheel I, substantially as herein shown and described.

4. The combination of the spool O and the coiled spring R with the jointed rack-bar H, substantially as herein shown and described.



181,077.

181,079.

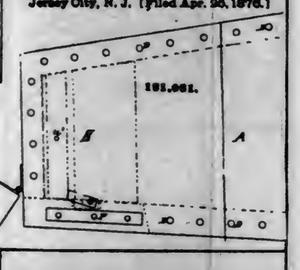
181,079. BEER-COOLERS. Wm. Lawrence, London, England. [Filed Feb. 26, 1876.]

The apparatus for cooling and heating liquids, having corrugated metal plates with horizontal corrugations, the corrugations of one plate entering the corrugations of the other plate, and forming between the plates a serpentine passage for a sheet of liquid against their inner sides, and serpentine paths for the passage of liquids in sheets on their outer sides, substantially as shown and described.

181,080. LUBRICATING COMPOUND. Artus T. Lyon and Edward O. Lamber, Cincinnati, Ohio; said Lamber assignor to said Lyon. [Filed May 26, 1876.]

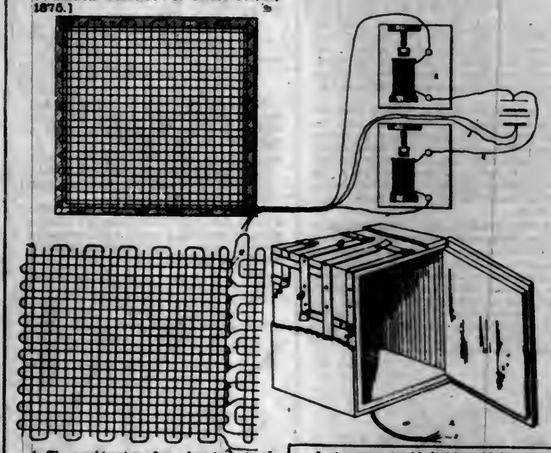
The lubricant composed of shale-rock, pulverized plumbago, castor-oil, and lard, compounded as herein stated.

181,081. CANNONS. Richd. B. H. Leighton, Jersey City, N. J. [Filed Apr. 26, 1876.]



181,081.

181,078. ELECTRIC BURGLAR-ALARMS. J. N. Larned, Buffalo, N. Y. [Filed Oct. 21, 1876.]



1. The combination of an electrical circuit linearly and superficially distributed, formed by insulated wires connected together in such a manner that they cannot be separated or moved from one another without breakage, and so that if part of such wires be connected together to form said circuit, such part cannot be distinguished from the rest, with means for producing an alarm, substantially as shown and described.

2. The combination of an electrical circuit linearly and superficially distributed, formed by insulated wires connected together in such a manner that the current of electricity shall frequently return backward in its progress through said circuit, with means for producing an alarm, substantially as shown and described.

3. The combination of an electrical circuit linearly and superficially distributed, formed by metal stripe held between two shells, which spring apart and break said circuit when the shells are split or broken, with means for producing an alarm, substantially as shown and described.

1. A cannon provided with a wide bore, made rectangular in cross-section, and flaring toward the front end to scatter the shot, as and for the purpose set forth.

2. A cannon formed of the top and bottom plates A B, the side pieces C C, and the breech-piece c^1, riveted to each other, substantially as herein shown and described.

3. The combination of the door E, the pins I, the connecting-bar F, and the button G with the cannon A B C C c^1, substantially as herein shown and described.

4. The bottom plate B of the cannon, provided with a transverse groove to receive the guide of the cartridge, substantially as herein shown and described.

5. The breech-piece c^1 of the cannon, having a rabbet to receive the rib of the cartridge containing the fulminate, substantially as herein shown and described.

6. The wide and shallow flaring cartridge H, made with a guide-rib upon its lower side, and a rib to contain the fulminate upon its rear end, substantially as herein shown and described.

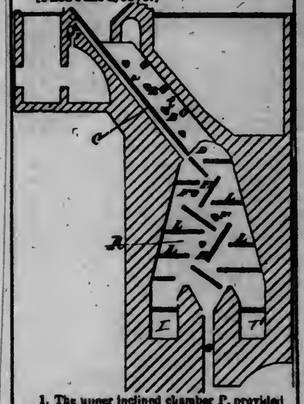
181,082. CHAIRS. Christopher W. Loveley, St. Paul, Minn. [Filed Dec. 2, 1874.]



1. The link A, provided with the beveled or tapering hook at one end, and with the centrally notched or recessed bar at the other, constructed to operate in the manner described.

2. The link provided with the hook b^1, lip b^2, and flattened or recessed and bar b, constructed as described, for the purpose set forth.

181,083. FURNACES FOR ROASTING ORES. Horatio G. Livermore, San Francisco, Cal. [Filed June 2, 1876.]



1. The upper inclined chamber F, provided with the dams or ribs E, in combination with the vertical lower chamber E, provided with the alternately-inclined floors D E, and abutments F, as set forth.

2. In combination with the ore-floors D E, inclined, as shown, the fire-places I I', situated upon opposite sides of the furnace, and the deflecting-plates L, whereby the floors are heated alternately upon their upper and lower sides, substantially as herein described.

3. The plates or diaphragms L, extending from the walls toward the inclined floors E F, so as to deflect the heat upon both surfaces of these floors, substantially as herein described.

181,084. WATER-WHEELS. Leonard Long Princeton, Wis. [Filed Jan. 22, 1876.]

Brief.—The buckets are arranged between an interior cone-hub and an exterior cone-cylinder, the buckets extending from an outer top flange of the inner cone, on an inclined segment of a circle, to the cone-cylinder, and then an inward and downward spiral curve to the bottom of the same and the lower part of the cone-hub.

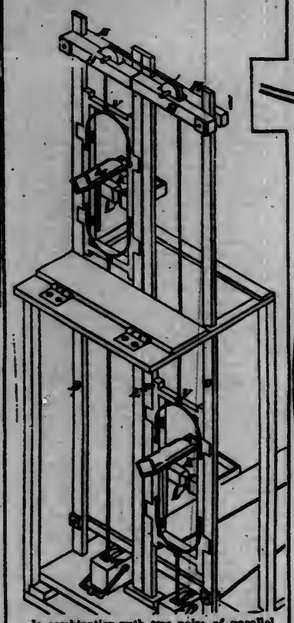
1. A water-wheel composed of a flanged interior cone hub, inclined and spirally-curved buckets, and a cone cylinder, extending to lower edge of buckets, the whole constructed substantially in the manner and for the purpose set forth.

2. A water-wheel provided with buckets extending from the top flange of inner cone hub, first along and around a segment of a circle to the upper edge of the outer cone cylinder, and down along an inward and downward spiral inclination or twisted spiral to the lower part of cone cylinder and cone hub, substantially as described.

3. A water-wheel having interior hub of inverted conical shape, with flange at top or larger diameter, to throw water with centrifugal motion toward center of wheel, substantially as mentioned.

181,085. BRICK AND MORTAR ELEVATORS. Thomas Mann, Portland, Oreg. [Filed July 13, 1876.]

Brief.—The crown-piece is made in two lengths, each connecting a pair of uprights, so that the parts can be adjusted to suit the arrangement of the joists of the first floor and the spaces between them.

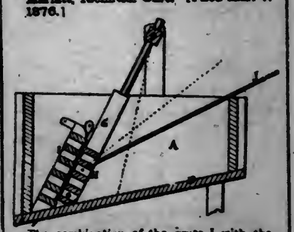


In combination with two pairs of parallel uprights guiding-posts, D E and F G, each of which serves to guide a sliding frame or carriage, V, and both of which carriages are suspended by the same rope, the upper cross-timber H, made in two parts, so that the frames can be adjusted to any desired angle to each other, substantially as and for the purpose described.

181,086. ANIMAL-TRAPS. Josiah Martin, Palestine, Tex. [Filed June 11, 1876.]

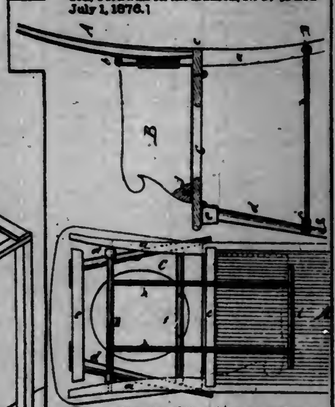
The combination of the knife-blade A, having the slot F and projection p, the spring S, lever B, catch C, and bait-lever D, when constructed substantially as herein described, and for the purposes set forth.

181,087. WASHING-MACHINES. George W. Mariatt, Richfield, Ohio. [Filed Mar. 7, 1876.]



The combination of the grate I with the beater H, having the arms G, adapted to slide in the pivoted shaft F above the inclined box A, and operated by the handle J, as specified.

181,088. FOLDING CHAIRS. Adlie Matthiessen, Cornwall on the Hudson, N. Y. [Filed July 1, 1876.]

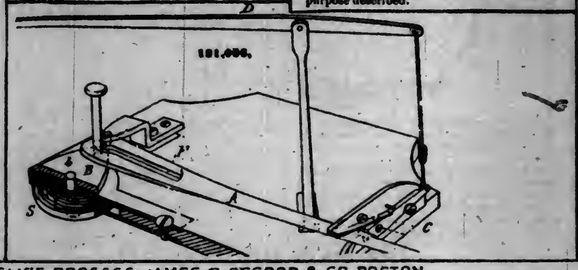


The combination of the folding arms B, seat C, provided with dowels f, folding legs d, brace-rods A, pivoted bar D, bar d, pins g, and back A, as shown and described.

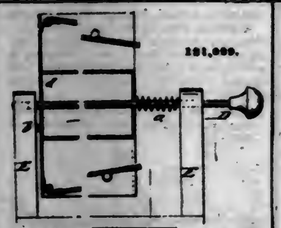
181,089. REVOLVING BILL-HOLDERS. S. W. Maynard, Kingston, N. [illegible] Filed May 27, 1876.]

1. A revolving bill-holder, having a number of receptacles for bills and other papers, arranged around a central section or part, and provided with hinged and spring-acted covers, in combination with a sliding and spring-acted revolving shaft, and a locking device, substantially as and for the purpose set forth.

2. The combination of the turning and spring-acted bill holder, having as many perforations as bill-receptacles, equidistant from the shaft, with a fixed stop-pin on the supporting-frame, substantially as and for the purpose described.

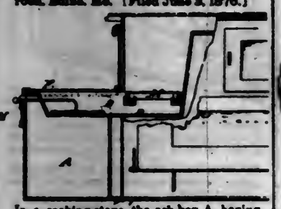


181,086.



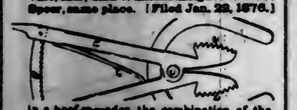
181,089.

181,089. COOKING-STOVE. J. C. McChesney, Edina, Mo. [Filed June 3, 1876.]



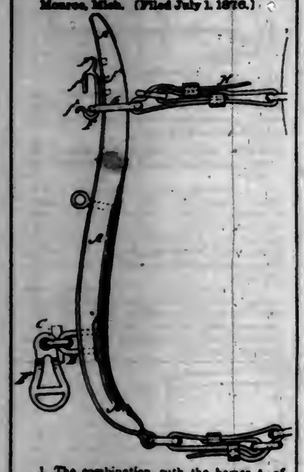
In a cooking-stove, the ash-box A, having the register B in its front side for admission of air, when the ash-box is employed as a fire-box, the perforated bottom plate D, and the hearth F, covering the ash-pit B, as shown and described, for the purpose specified.

181,091. HOOP-SPREADER. Theodore W. McIntosh and John L. Williams, Brownsville, Ind., said Williams assignor to W. B. Spear, same place. [Filed Jan. 29, 1876.]



In a hoop-spreader, the combination of the two levers e, pivoted together at e, and having the teeth e upon their shorter ends, with the ratchet-bar f and spring d, substantially as shown and described.

181,092. HARNESS. August H. W. Michaelis, Monroe, Mich. [Filed July 1, 1876.]



1. The combination, with the hames A, of the staples B, tug-clips C, and breast-rings E, all arranged as shown, and for the purpose described.

2. The fastenings F, provided with the guards f^1 f^1, and the pins f^2 and the loops G, in combination with the perforated upper part of the hames A, for connecting the hame-strap H adjustably with said hames, substantially as herein shown and described

181,093. BATTERY-GUNS. Alonzo H. Multimore, U. S. A. [Filed Jan. 4, 1876.]

Brief.—The small guns are arranged around a breech-loading field-piece. The small barrels are supplied with cartridges from slots in a series of sleeves, the outer and inner sleeve rotating, and the middle one, which carries the breech-bolts, remaining stationary. A cartridge drops into a slot in the upper section of the middle sleeve, and if this slot has a bolt, the bolt pushes it forward and the next cartridge rides over. If the slot has no bolt, the cartridge falls into a slot in inside sleeve, and is carried to the lower section, where it falls back into any vacant slot in middle sleeve. The shells are drawn back to second series of slots, and drop out at bottom. The revolving sleeves may turn either way.



181,093.

1. A battery-gun, consisting of a central gun of heavy caliber, surrounded by a series of smaller stationary guns, substantially as and for the purpose described.

2. The combination, with a gun having a conical screw-capped breech, of a corresponding cap or breech-piece, substantially as and for the purpose described.

3. The combination, with a stationary lock-cylinder, of a revolving cartridge-cylinder, substantially as and for the purpose described.

4. The combination, with a stationary lock-cylinder, of a cartridge-cylinder constructed with cams or grooves, whereby the firing mechanism feeds, discharges, and ejects the cartridge, substantially as and for the purpose described.

5. The combination, with the lock-cylinder of a battery-gun, of a cartridge-cylinder, provided with a double reversible spiral cam, substantially as and for the purpose described.

6. The combination, with a gun-lock, of two independent cartridge-cylinders, provided with corresponding cams on the inner and outer face, respectively, of same, substantially as and for the purpose described.

7. The combination, with a gun-lock, of a cartridge-cylinder provided with a cam, constructed to operate said lock by being revolved in either direction, substantially as and for the purpose described.

8. The combination, with suitable gun-locking mechanism, of two independent cartridge-cylinders and double reversible spiral cams, substantially as and for the purpose described.

9. The combination, with a revolving cartridge-cylinder, of a stationary lock-cylinder provided with slots, in which operates the lock of the gun, substantially as and for the purpose described.

10. The stationary lock-cylinder, provided with a series of gun-barrels secured to the face-periphery of same, substantially as and for the purpose described.

11. The stationary lock-cylinder, constructed with feeding and ejecting slots, in combination with a revolving cartridge-cylinder, substantially as and for the purpose described.

12. The combination, with the locking mechanism of a stationary gun, of a revolving cartridge-cylinder having suitable feeding and ejecting slots, substantially as and for the purpose described.

13. The combination, with a firing-pin, of a spring-extractor, constructed substantially as described, whereby, upon withdrawal of the exploded shell from the barrel of the gun, the same is released by the retraction of the pin.

14. The firing-lock, consisting of a case and pin, respectively, provided with rear legs, said pin having a conform forward construction, in combination with spring-extractors, substantially as and for the purpose described.

15. The combination, with the central gun and stationary surrounding barrels, of the centrally-located trunnions, for supporting same upon the main carriage, substantially as and for the purpose described.

16. A series of stationary guns mounted upon a single carriage, and operated by revolving cylinders, substantially as and for the purpose described.

17. The combination, with a series of stationary gun-barrels, of any suitable axial support, said barrels being loaded and discharged by one or more revolving cartridge-cylinders and connecting lock mechanism, substantially as and for the purpose described.

18. The combination, with the cartridge cylinder or cylinders of a battery-gun, of a double reversible spiral cam, substantially as and for the purpose described.

181,094. FRUIT-DRYING. Andrew M. Mortimer, Salt Lake City, Utah. [Filed June 26, 1876.]

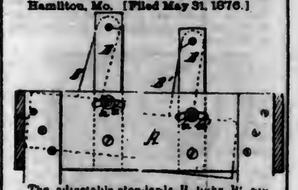
Brief.—The bars and shelves are so pivoted that the former can be moved outward at their bottom, and the latter will be kept in a horizontal position. Curtains or screens are secured on a roller at the top of the device, and the whole apparatus can be revolved about a pivot at the base.



1. The combination of the base-frame A, the upright frames D, the pivoted bars E, and the pivoted shelves F with each other, substantially as herein shown and described.

2. The combination of the stationary parts J and the hinged parts K of the cover, the shaft and crank L M, and the curtains N with the frame-work A D and the swinging shelves E F, substantially as herein shown and described

181,095. FLOUR-BOLTS. Wm. D. Murray, Hamilton, Mo. [Filed May 31, 1876.]



The adjustable standards B, links B', pivoted thereto at their upper ends, set screws c, and slotted supports A, substantially as and for the purpose set forth.

181,096. GOVERNOR ATTACHMENTS. Chas. Noer, Brooklyn, N.Y. [Filed June 5, 1876.]

Brief.—The device is to be attached to the governor shown in Patent No. 175,830, of 1876, to correct certain irregularities in its operation.

1. In a governor or regulator, the lever B, with its mortises x and pin u, in combination with the guide-piece c and c', with its mortise or groove c, all as and for the purpose set forth.

2. In a governor or regulator, the lever B, with its mortise j, in combination with the slide-block c, working in said mortise, the slide-block g, working in the mortise F of the frame A, all as shown and described

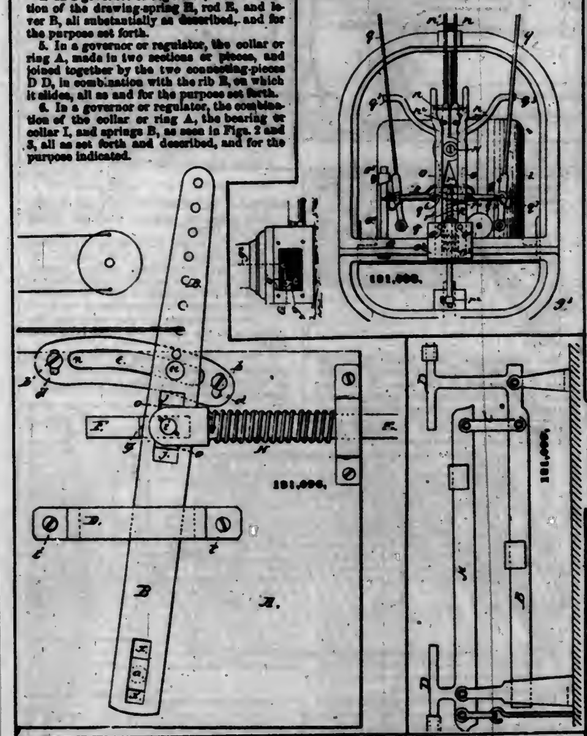
3. In a governor or regulator, the lever B, with its mortise j, slide-block c, working in said mortise, in combination with the slide-block g, working in the mortise F of the frame A, and the rod E, connected with the slide-block g by the pin i, all as and for the purpose set forth.

4. In a governor or regulator, the combination of the drawing-spring H, rod E, and lever B, all substantially as described, and for the purpose set forth.

5. In a governor or regulator, the collar or ring A, made in two sections or pieces, and joined together by the two connecting-pieces D D, in combination with the rib B, on which it slides, all as and for the purpose set forth.

6. In a governor or regulator, the combination of the collar or ring A, the bearing or collar I, and springs B, as seen in Figs. 2 and 3, all as set forth and described, and for the purpose indicated.

Brief.—The pressure of the car-wheels upon a rail placed beside one of the rails of the track, and connected, by means of a system of crank-levers and rods, with mechanism which brings together a system of signals before an opening in a case, sets the signals, and, by the gradual descent of the movable mechanism, (which descent is regulated by a screw, which graduates the escape of fluid from the "dash-pot,") the signals are removed from before the opening, to show that a given time has elapsed since the passing of a preceding train.



181,098.

181,098. RAILWAY TRAIN-SIGNALS. John C. Paige, Stoneham, Mass. [Filed Nov. 22, 1875.]

1. In combination with primary actuating mechanism, substantially as described, operated by a passing train, and indicating mechanism to give the signals, a piston and dash-pot, substantially as described, for determining the time that the signals shall remain exposed.

2. The combination of the semicircular signal-disks with mechanism, substantially as described, for uniting them before the display-opening, for the purpose of exposing the signal and mechanism, substantially as described, for separating them for the purpose of throwing them back out of the line of vision, substantially as described.

3. The combination of the close fulcrum-box, having the side opening, as described, and the bar B, adapted to protect the opening, as described.

4. In combination with a water-tight fulcrum-box, having a side opening, the plunger E, having the right-angled arm s adapted to protrude through the opening, as described.

5. The combination of the vertically-moving frame g^5, the casting I, the piston-rod i, and piston i', with the dash-pot, substantially as described.

6. The combination of the vertically-moving frame g^5, having head O and standards o o, with the lever-block n, having pins n^2, as described.

7. The combination of the vertically-moving frame, having standard o, with the releasing-lever P and lever-blocks n, substantially as described.

8. The combination of the lever-blocks n with the catch-bars g^4 and signal-rods g^5, substantially as described.

9. The combination of the catch-bars g^4, signal-rods g^5, and releasing-rod R, as described.

10. The combination of the catch-bars g^4, signal-rods g^5, and releasing-rod R with the vertically moving frame g^5, as described.

11. The combination of the releasing-rod R and its spring r^2 with the catch-bar g^4, as described.

12. The combination of the releasing-rod and the ear r^1 of the frame with the catch-bars g^4, as described.

13. The combination of the pivoted standards o o with the intermediate spring o^2, substantially as described.

14. In combination with the adjustable collar o^2, connected to the vertically-moving frame g^5 and adapted to actuate the releasing-lever P, the adjustable collar r^3 upon the releasing-rod R, adapted to determine the time of release of the catch-bars, by means of which the time of exposure of the two signals relative to each other may be determined, as described.

15. The combination of the catch-bars g^4 and the springs g^6 with the signal-arms g^3, as described.

16. The combination of the releasing-lever P and its spring p^2 with the catch-bars g^4, as described.

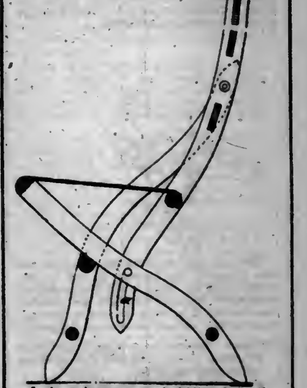
17. In combination with the sectional signals and the duplicate mechanism for actuating these signals, substantially as described, the descending weight g^7, as set forth.

18. The combination of the following elements: first, primary actuating mechanism for raising a weight and displaying the signals; second, a descending weight; third, independent mechanism operated by the weight for throwing the signals out of the line of vision; and, fourth, mechanism, substantially as described, for controlling the descent of the weight.

181,099. WEIGHING-SCALES. A. Pangburn, Fremont, Ohio. [Filed Mar. 13, 1876.]

A weighing-scale having the scale-lever B connected near its fulcrum with the end of the long arm of the ordinary scale-lever A by a link, C, each lever being provided with an auxiliary scale, D, as and for the purpose specified.

181,100. FOLDING CHAIRS. F. P. Parker, Gardner, Mass. [Filed July 29, 1876.]



1. As an improvement in folding chairs, the combination of the back section, having curved recesses near the ends, with the swinging rear-leg section, having fixed projecting pins, substantially as and for the purpose specified.

2. The combination of the recessed back section, swinging rear-leg section, having fixed pins and holding-staples, and of the front legs, pivoted to the upper part of the back, and by a cross-piece to the staples of the rear legs, substantially in the manner described, and for the purpose specified.

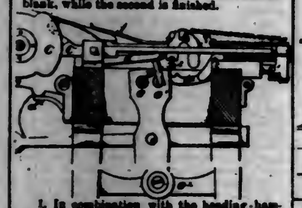
181,097. LANTERNS. Theodore B. Osborne, New York, N.Y. [Filed July 31, 1876.]



In a lantern, the globe C, having grooves a b formed in the glass, as described, in combination with the top B and bottom A, having catches or lugs d, and locking devices C, substantially as and for the purpose herein set forth.

181,102. MACHINES FOR MAKING RIVETS. Jas. Hunter B. Pierce, Cuyahoga Falls, Ohio. [Filed June 8, 1876.]

Brief.—On being cut off the blank falls into the carrier, which presents it to the fingers to be held thereby, while the hammer driven it into the die-opening, and partially forms the head. While a second blank is being driven into the other die-opening the first is finished. The first blank is then discharged, and the first-mentioned die-opening receives the third blank, while the second is finished.



1. In combination with the heading-hammer having three hammering-faces, the reciprocating dies *e e'*, substantially as and for the purpose shown.

2. A rivet-machine, provided with a carrier, C', in combination with the fingers D' D', substantially as and for the purpose shown.

3. The combination of the cutter *f'* and carrier C', substantially as and for the purpose shown.

4. The combination, with the fingers and hammers, of the carrier C' and the reciprocating dies *e e'*, substantially as and for the purpose shown.

5. The combination, with the carrier and hammers, of the fingers D' D' and reciprocating dies *e e'*, substantially as and for the purpose shown.

6. The combination of the cutter *f'*, carrier C', fingers D' D', and reciprocating dies *e e'*, substantially as and for the purpose shown.

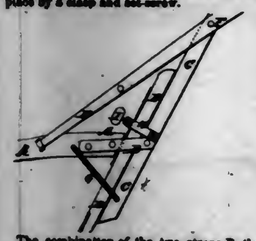
7. The adjustable carrier C', substantially as and for the purpose shown.

8. In a rivet-machine, the combination of two moving or reciprocating dies with fingers D' D', carrier C', and the hammering-surfaces, substantially as and for the purpose shown.

9. The combination of the reciprocating dies *e e'*, and heading-hammer, provided with three hammering-surfaces, J, K, and L, substantially as and for the purpose shown.

181,103. PLOW-STOCKS. James A. Price, Meadow, Tex. [Filed July 11, 1876.]

Brief.—The beam is secured to the standard by iron straps, having a space between the rear end of the beam and standard for a supplemental standard, which carries the share. This supplemental standard is held in place by a clasp and set-screw.



The combination of the two straps B, the two braces G, the U-strap H, and its set-screw I with the beam A and the stationary standard C, to receive and hold the detachable standard D, to which the plow is attached, substantially as herein shown and described.

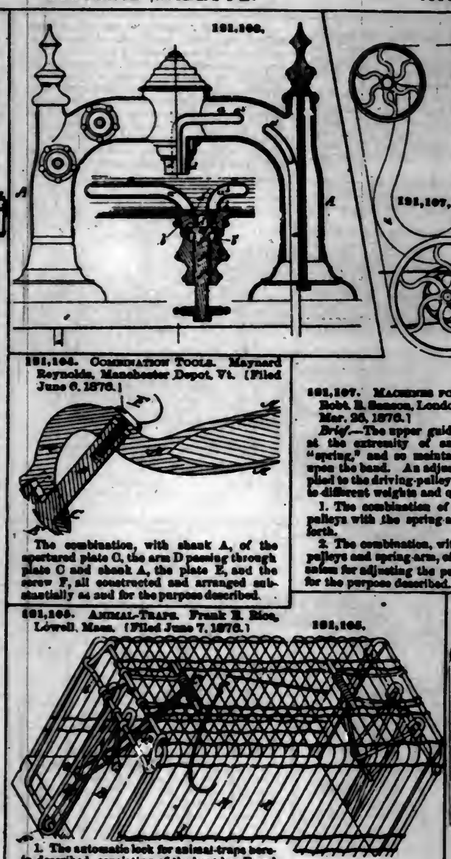
181,104. FOUNTAINS FOR MINERAL OR OTHER WATERS. Alvin D. Fuller, Boston, Mass. [Filed June 10, 1876.]

Brief.—The pipes for discharging the different waters are massed in a common opening, each of said pipes being controlled by a wheel-valve.

1. The combination of the hollow structure A, pipes *a a*, faucets *b b*, and common discharge-opening *d*, substantially as and for purposes stated.

2. The outlet ends of the pipes *a a*, massed at a suitable point in the structure A, in order that a drinking-vessel placed below them may receive liquid discharged from one of them, substantially as and for purposes stated.

181,105. ANIMAL-TRAPS. Frank H. Rice, Lowell, Mass. [Filed June 7, 1876.]



1. The automatic lock for animal-traps herein described, consisting of the bent bar E and link D, substantially as set forth.

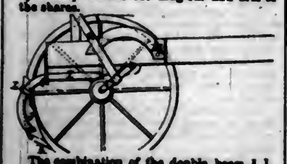
2. The combination of the trap A, the hinged door B, provided with the bent bar E, and the spring-link C D, substantially as set forth.

3. The combination of the trap A, the hinged door B, provided with the bent bar E, and the spring-link C D, substantially as set forth.

4. The lever F *f* and bail G, in combination with the link D, bent bar E, door B, and cage A, substantially as set forth.

181,106. PRAIRIE-SOD CULTIVATORS. Wm. J. Robertson, Jasper County, Mo., assignor of one-half his right to Phillip Knight, same place. [Filed May 12, 1876.]

Brief.—The rectangular frame is mounted upon wheels by means of a crank axle-tree. The drag-bars are double and journaled to the axle-tree. The shares are pivoted to the lower end of the curved drag-bars, and held in place by a clasp around the drag-bar and arm of the shares.



The combination of the double beam I I, constructed as described, the coiter J, with clips K and clasp L, all substantially as herein set forth.

181,108. COMBINATION TOOLS. Maynard Reynolds, Manchester Depot, Vt. [Filed June 6, 1876.]

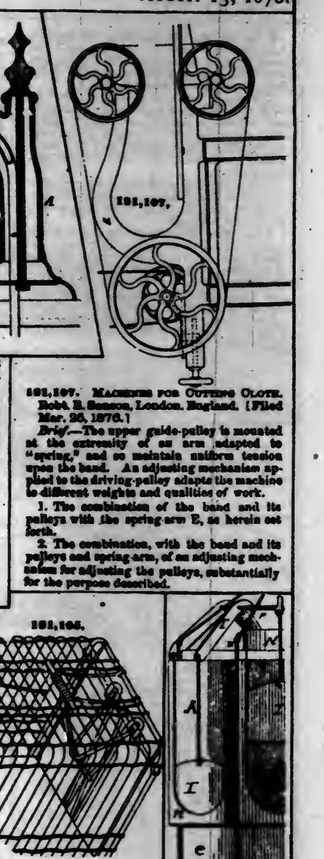
The combination, with shank A, of the apertured plate C, the arm D passing through plate C and shank A, the plate E, and the screw F, all constructed and arranged substantially as and for the purpose described.

181,107. MACHINES FOR OUTSIDE CLOTH. Robt. B. Sanson, London, England. [Filed Mar. 25, 1876.]

Brief.—The upper guide-pulley is mounted at the extremity of an arm adapted to "spring," and so maintain uniform tension upon the band. An adjusting mechanism applied to the driving-pulley adapts the machine to different weights and qualities of work.

1. The combination of the band and its pulleys with the spring-arm E, as herein set forth.

2. The combination, with the band and its pulleys and spring-arm, of an adjusting mechanism for adjusting the pulleys, substantially for the purpose described.



181,109. HEELS FOR BOOTS AND SHOES. C. Schwerdtfeger, Palmyra, Mo. [Filed June 6, 1876.]

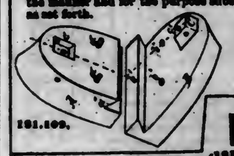
1. A heel for boots and shoes formed in two parts, said parts being connected together at their squared ends by means of a dovetail joint, and at their circumference by means of a series of screws, substantially as described, for the purpose set forth.

2. The combination of the parts A B of a two-part heel, connected together at their squared ends by means of a dovetail joint, and at their circumference by means of a series of screws, and the shank C and screw D, substantially as described, for the purpose specified.

3. The combination of the part B, having a beveled or hook-shaped shank, E, and the shank C, with the part A, having recesses *f* and *e*, and the screw D, substantially as described, for the purpose specified.

4. The combination of the part A, having downwardly-projecting pins or studs *a*, with the part B, having suitable holes or recesses to receive said studs or pins *a*, substantially as described, for the purpose specified.

5. A heel consisting of two permanent sections, made of rubber, horn, or similar material, said sections being connected together at their square ends by means of a dovetail joint, and at their circumference by means of a series of screws, in combination with one or more layers of leather, and a boot or shoe, to which said heel is removably connected, in the manner and for the purpose substantially as set forth.

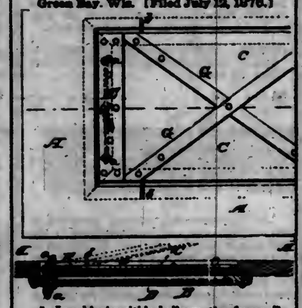


181,110. MILK-COOLERS. Thos. Sexsmith, Oneonta, N. Y. [Filed June 6, 1876.]

1. In a milk-cooler, the combination, with the U-shaped cooler B and pan A, containing the same, of the pipe C, arranged with its discharge and projecting upward beneath the top portion of said cooler, as and for the purpose specified.

2. The milk-pan having a collar, H, attached to the bottom, in combination with a supporting-cap, I, fixed on a post, K, and provided with set-screws L, substantially as specified.

181,111. VALVES FOR BELLOWS. A. Smith, Green Bay, Wis. [Filed July 12, 1876.]

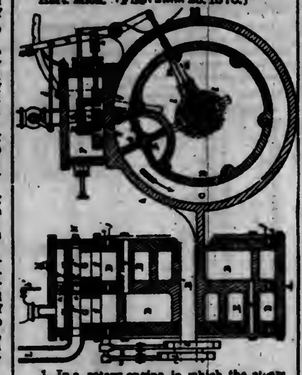


1. In a blacksmith's bellows, the frame B, secured to the under side of the plank A around the valve-opening, and having the valve resting thereon within the opening, substantially as and for the purposes herein set forth.

2. The blacksmith's bellows valve herein described, consisting of the elastic wooden plate C, with covering D, hook cleat E, and diagonal cleats G G, and attached to the seat by straps *a a*, substantially as and for the purpose herein set forth.

3. The guides *b b*, in combination with the plank A, frame B, and valve C D, for the purpose described.

181,112. ROTARY ENGINES. A. C. Speer, Hart, Mich. [Filed June 26, 1876.]



1. In a rotary engine in which the steam or active agent is admitted thereto by means of apertures, the opening and closing of which are accomplished through the agency of slide-valves, the casing A, having stationary abutments D, combined with the revolving pistons B, shaft B', and rotating abutments E, substantially as set forth.

2. The casing A, having the induction and eduction ports *g*, and provided with the stationary abutments D, the valve-chest F, reversing and expansion valves G H, and revolving pistons B, having the rotating-abutments E, combined in a rotary engine, substantially as set forth, and for the purposes specified.

3. In combination with the valve-chest F, the valve K, adapted as means whereby the communicating aperture in the partition K', between the two parts of the said chest, may be closed or opened, substantially as specified.

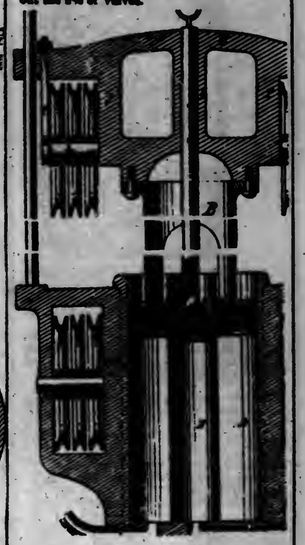
4. A rotary engine, having a double or centrally-divided piston, and a partition in the steam-chest with apertures therein, as described, which, when opened, admit steam to both sides of the said centrally-divided piston; but which, when closed, and so the attachment of supply and delivery pipes, admit of the use of the machine as a rotary motor and a rotary pump, as herein specified.

5. In a rotary engine, the throttle-valve, adapted, by means of the lever *i*, to be opened, as the reversing-valves are moved from a central to an extreme position, or one to which the pistons B are caused to revolve in either a forward or a backward direction, substantially as described.

6. The shaft B', carrying the pistons B and rotary abutments E, the casing A, having the induction and eduction ports *g*, and stationary abutments D, the valve-chest F, reverse-valves G, and expansion valves H, the latter operated by means of connection and rods from the main shaft B', all combined in a rotary engine, substantially as herein described.

181,113. HYDRAULIC ELEVATORS. Timothy Hubbell, Boston, Mass. [Filed Mar. 2, 1876.]

Brief.—Water in the main or tank is made to counterbalance the weight of the car without the use of valves.



1. The method of counterbalancing the car and plunger of a hydraulic elevator by means of the water in the main or tank acting directly on the plunger, and without the intervention of valves, substantially as and for the purpose set forth.

2. The method herein described for utilizing the water of a main as an auxiliary power in raising, without waste or consumption, consisting of connecting pipes without the intervention of valves, substantially as set forth.

3. The hollow piston B, provided with the beveled flanges *a'* and *b*, in combination with the rings *a* and *c*, substantially as and for the purpose set forth.

4. The piston *c*, in combination with the beveled cap *r* and screw-nut *p*, substantially as and for the purpose set forth.

5. The cross-head C, provided with the pendent arms I I, supporting the journals *b b*, in combination with the eyebolts I I, substantially as and for the purpose set forth.

181,114. TOY SPRING-GUNS. S. G. Stryker, Elmira, N. Y. [Filed July 20, 1876.]



1. The combination, with the stock A, provided with a shoulder and with an opening extending through both the stem and handle, of a tubular or coiled spring bearing on said shoulder and guided by the stem, as set forth.

2. The hollow stock A, its shoulder *f*, and slots *a a*, adapted to receive the ends of a cross-bar, *c*, on the arrow or projectile, between which bar and the shoulder a spring may be compressed, as specified.

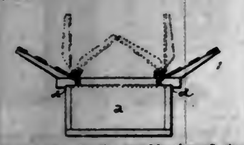
181,115. LATCHES AND LOCKS UGGERMER. W. H. Taylor, Stamford, Conn., assignor to the Yale Lock Manufacturing Company, same place. [Filed July 20, 1876.]



1. In combination with the pivoted bolt B, provided with a spring, G, the tail-piece D, pivoted to the bolt at a point intermediate between its fulcrum and its locking end and the hub O.

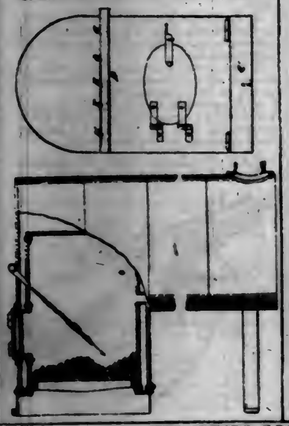
2. In combination with the pivoted bolt B, pivoted tail-piece D, and hub G, the sliding bolt E, and tumblers F, for securing the bolt B in the locked position.

181,116. HAT AND STOCK RACKS. James P. Temple, Knapp, Wis. [Filed June 9, 1876.]



In a grain-rack, the combination of the bed *a*, cross-bars *c*, hooks or staples *e*, hooks *g*, and racks, the said racks being designed to be raised upward and inward, so as to be used in the transportation of animals, substantially as shown and described.

181,117. METHODS OF CONSUMING SMOKE. James Todd, Potosi, Mo. [Filed Feb. 28, 1876.]



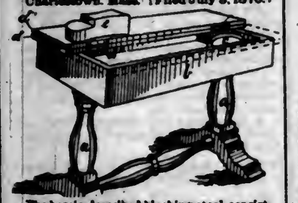
The herein-described method of consuming smoke in furnaces by the introduction, in the manner shown and described, of air compressed to at least fifteen pounds per inch.

181,118. LIFE-PRESERVING MATTRESSES. Geo. N. Torrence, Philadelphia, Pa. [Filed Oct. 28, 1875.]



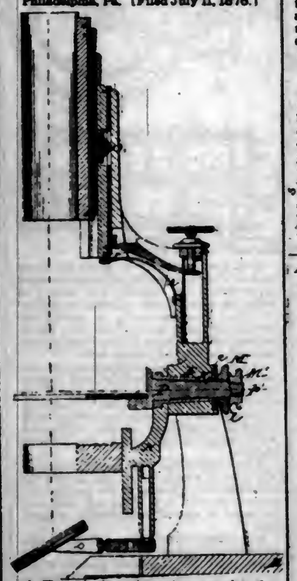
The life-preserving mattress, consisting of the centrally-arranged mattress-filling C, the end or side buoyant substances D, inclosed in bags or sacks, which are enveloped by the covering B, common to all parts, and a layer of filling intermediate of the bags and the said cover B, substantially as and for the purpose set forth.

181,119. BLACKING-STOOLS. A. Watertman, Charlestown, Mass. [Filed July 3, 1876.]



The herein-described blacking-stool, consisting of the support *a c*, receptacle *b*, with its stationary blacking-case *c*, stationary cover *d*, and hinged cover *S*, with the foot-rest *e*, substantially as and for the purpose set forth.

181,120. MICROSCOPES. Jos. Zentmayer, Philadelphia, Pa. [Filed July 11, 1876.]



1. The swinging mirror-stem, carrying the mirror and its accessories, and having for its axis of revolution a line which intersects the optical axis *a c e* of the body at a point in the plane of the object slide, substantially as described and shown.

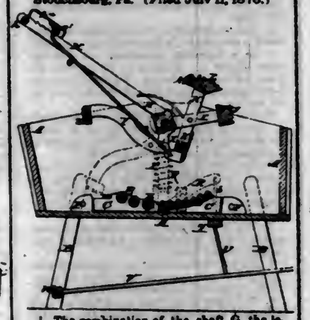
2. The combination of the mirror-stem and its collar with the flanged sleeve and nut, substantially as described and shown.

3. The combination of the shouldered bar P, supporting the stage, with the flanged sleeve and independent nut M', substantially as described and shown.

4. The combination of the secondary slide with the screw and lever, or their equivalent.

5. The combination of the secondary slide with the spring *k*, or its equivalent.

181,121. WASHING-MACHINES. Jno. Zeller, Stouchsburg, Pa. [Filed July 11, 1876.]



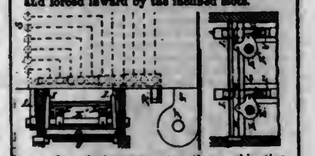
1. The combination of the shaft G, the levers H *h*, the arms I, the corrugated block J, the pivoted arms K, the corrugated block L, the roller M, the cross-bar N, and the rods O *o'*, with each other, and with the ends-box A and the stationary rubber C D E, substantially as herein shown and described.

2. The combination of the spiral springs P, the hanging-rods Q, the levers R, the connecting-rods S, the cross-bar T, the connecting-rod U, and the treadle V, with each other and with the ends-box A and the shaft G, that carries the oscillating rubber, substantially as herein shown and described.

3. The combination of the eye-straps X, the pivoted levers Y, and the cross-bar Z, with the ends-box A, the stationary rubber C D E, and the shaft G, that carries the oscillating rubber, substantially as herein shown and described.

181,122. DRESSES. Jas. L. Adams and Jos. G. Blondin, Montreal, Quebec, Canada. [Filed July 7, 1876.]

Brief.—The main steam-pipe is decreased in size, to supply branch pipes equally. The bar to which are attached the uprights is operated by the lever and bell-crank. The teeth on the uprights catch under the upper trays, and raise them when said uprights are raised and forced inward by the inclined slots.



1. In a drying apparatus, the combination of a fan or blower, F, steam-pipes S and M, as and for the purposes specified.

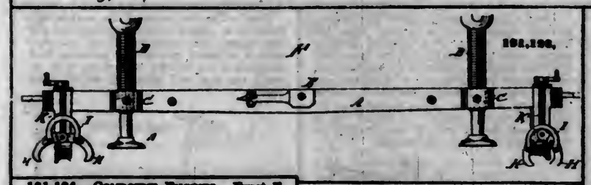
2. In a drying apparatus, the external arrangement of openings D and P, way H, lever L, and scrap-box J, as specified.

3. In a drying apparatus, the combination mechanism composed of shaft F, horizontal transverse bar G, to which it is connected by bell-crank E, slot I, dog or upright C, provided with a claw or tooth, springs U, and lever L, all arranged substantially as and for the purposes specified and hereinbefore mentioned.

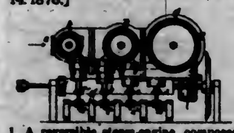
181,123. RAILROAD-TRACK-LIFTING MACHINES. Robert Aldred, Glencoe, Ontario, Canada. [Filed July 26, 1876.]

Brief.—A beam on two wheels, at each end, is exactly gaged to the track, and has a grappling-dog over each rail, worked by a vertical screw. The revolution of screw-posts working in nuts on the beam effects the raising. An adjustable spirit-level is also attached.

The combination, in a railroad track-lifting machine, substantially as described, of a frame marked A, two screws, B B, in combination with two nuts, C C, with spirit-level K; also, four dogs, H H H H, in combination with two bails, I I, and two screws, K K, as and for the purpose hereinbefore mentioned.



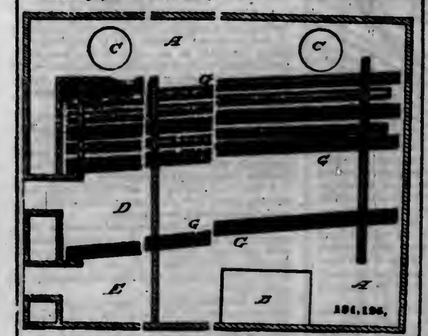
181,124. COMPOUND ENGINES. Ernst F. Althans, Breslau, Germany. [Filed July 14, 1876.]



1. A reversible steam-engine, composed of three cylinders connected to cranks set at angles of about one hundred and twenty degrees, and provided with steam and exhaust valves, the exhaust-valves of the first cylinder forming the supply-valves of the second, and the exhaust valves of the second the supply-valves of the third, all combined and operating with reversible valves, substantially as and for the purposes set forth.

2. The combination, with three cylinders, A B C, and with their supply and exhaust valves *a a' b b' c c' d d'*, of a cam-shaft, provided with contiguous rows of cams *a' a' b' b' c' c' d' d'*, whereby the compound engine can be worked conveniently in either direction, substantially as set forth.

181,125. HEATING-FURNACES. T. Angell, Brooklyn, N. Y. [Filed May 10, 1876.]



1. The hot-air chamber A, provided with a number or series of interdependent pipes, O, containing a quantity of liquid, and each pipe hermetically sealed, and the inlet B and outlet C, substantially as and for the purposes set forth.

2. The hot-air chamber A, provided with the pipes G, sealed as described, the inlet H, outlet C, fire-chamber D, and ash-pit E, all constructed and arranged as and for the purpose set forth.

181,126. SCREWS FOR BOOTS AND SHOES AND APPARATUS FOR DRIVING THE SAME. Adolph Angst, Zurich, Switzerland. [Filed May 27, 1876.]

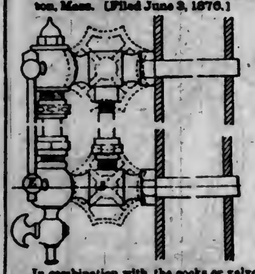


1. The screw A, having a body of uniform diameter, with a conical point at each end, substantially as shown and described.

2. The driver for said screws, constructed, as shown and described, with the plunger or rod B, having the conical recess *a* in its end, as set forth.

3. The beveled piece *c*, with the spring *c*, arranged in the side of the tool, as shown, for the purpose of holding the screw A from dropping out, as herein described.

181,127. WATER-INDICATORS FOR STEAM-GENERATORS. Edward H. Ashcroft, Boston, Mass. [Filed June 9, 1876.]



In combination with the cocks or valves of a water-indicator, a connection extending from one to the other, and so arranged with reference to the valves that the distance between them can be varied, and, when properly adjusted, it shall prevent undue strain upon the glass tube, substantially as set forth.

181,128.



181,129. MECHANICAL BALL-THROWERS. Charles H. Bagley, Elgin, Ill. [Filed June 20, 1876.]

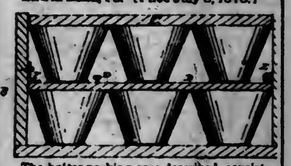
Brief.—By placing the ball in the hand of the figure and pressing back the spring-impelled right arm, the ball may be discharged upon freeing the said arm by means of the trigger-spring.

181,130. WIND-TURBINES FOR PLOWS. W. Beerworth, Elizabeth, Ill. [Filed Aug. 14, 1876.]



The curved bar B, having forward extending bar D, and secured to a plow-beam by the eyebolts G G, serrated plates C C', and nuts *a a*, all substantially as and for the purposes set forth.

181,131. BUTTER-PACKAGES. Benjamin Beller, East Lampeter Township, Lancaster County, assignor to J. S. Newhauser, Bird in Hand, Pa. [Filed July 8, 1876.]



The butter-packing case described, consisting of the box R, shelves D, cleats E, attached to the inside of the box, and the turn-buttons F, arranged at points opposite to said cleats, as and for the purpose set forth.

181,132. OSCILLATING VALVES. W. Bellis, Indianapolis, Ind. [Filed Apr. 24, 1876.]



A hollow tapering valve, having lateral outlet and exit ports, closed at the ends, and provided in said closed ends with openings *a a'*, whereby steam is permitted to escape from within the valve to the spaces between the closed ends and the heads of the chest, to balance the valve laterally, as set forth.

181,133. FOUNTAIN-PEN HOLDERS. Lorentz Berg, Minneapolis, Minn. [Filed Feb. 3, 1876.]

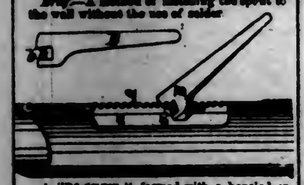


1. In a fountain-pen, the ink-holding handle or tube A, having the plate *b*, perforated as *c c*, and tubes *d D*, hinged together as shown, and forming a continuation or extension of tube A, substantially as and for the purpose hereinbefore set forth.

2. In combination with the tube A, having the perforated plate *b* and tubes *d D*, the adjustable pen-holding tube F and cap or cover I, substantially as and for the purpose hereinbefore set forth.

161,125. ADVERTISING FASTENERS FOR WATER-CONDUCTORS. Levi Berger, Philadelphia, Pa. [Filed Feb. 12, 1875.]

Brief.—A method of fastening the spout to the wall without the use of solder



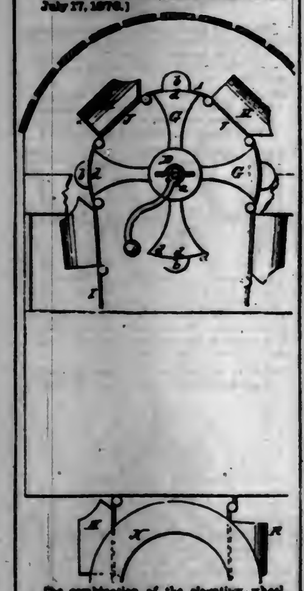
1. The driver B, formed with a beveled or dovetailed groove, substantially as shown and described.

2. The beveled tongue or rack A, for attachment to water-conductors, substantially as shown and described.

3. The combination of the beveled rack A, driver B, having the beveled or dovetailed groove or notch *b* and shoulder *b'*, and wedge-pin or nail C, the whole forming means for attaching water-conductors to walls without soldering at the time of attachment, substantially as set forth.

4. The driver B, beveled or sloping on its upper surface, to prevent water being conducted to the wall.

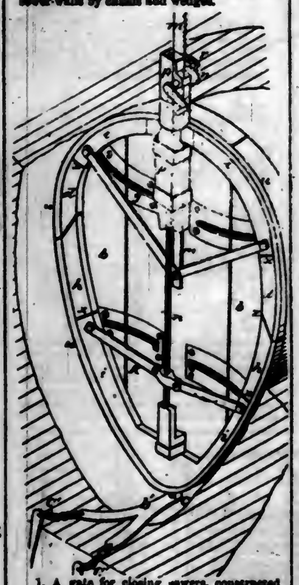
161,126. WATER REVATORS AND PURIFIERS. Thos. T. Bishop, Atlanta, Ga. [Filed July 27, 1876.]



The combination of the elevating-wheel, composed of the hub D, with radial sheet-metal arms G, having rounded tenons *h*; the endless chain, composed of the alternate slotted plates I and solid plates J hinged together; the buckets H, provided with vents *e* and secured to the solid plates J, and the flanged wheel K, all constructed substantially as and for the purposes herein set forth.

161,127. REVERSIBLE GATES FOR SEWERS. Thos. Brady and Dennis B. Manning, San Francisco, Cal. [Filed July 6, 1876.]

Brief.—An expansible gate for flushing sewers, consisting of a central piece and hinged side wings, with suitable packing-strips, made to pass through the man-hole. The side wings are operated by toggle-levers and a screw extending above the sewer, and ratchet and rack-bar connected to the levers. A support is secured to the central piece for the rack-bar and screws. A footed bar, to form a rest for the gate, is connected to the sewer-walls by chains and wedges.



1. A gate for closing sewers, constructed with hinged side wings, whereby its width may be decreased in order to pass it through the man-hole, and then increased to effectually close the sewer, substantially as described.

2. A sewer-gate constructed with hinged side pieces, for increasing or decreasing the width of the same, and with an expanding or contracting series of flexible packing-pieces, which may be operated by means of screws or ratchets, to form a line of packing around said gate, substantially as and for the purpose specified.

3. The herein-described end and side pieces *d h* and *e i*, hinged together, substantially as shown, and provided with suitable packing-strips, in combination with the gate, having grooves or ways upon its center and side pieces, and arranged to be contracted or expanded by a ratchet-wheel and bar and screw-rod, or by ratchets alone, constructed substantially as specified.

4. The timber *p*, secured upon the center piece A, and extending above the gate, so as to form a bearing for the ratchet mechanism, and also a handle for the same, substantially as and for the purpose specified.

5. The bar *b'*, constructed to form a rest for the gate, and temporarily connected with the sewer-walls by chains and wedges, or any equivalent manner, substantially as specified.

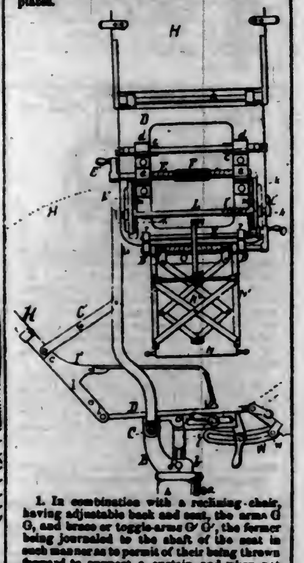
161,128. PROCESSES FOR COATING SEEDS PREPARATORY TO PLANTING. William R. Brandriff, Springfield, Ohio. [Filed Jan. 22, 1876.]

Brief.—The process described consists in coating fibrous seed with a soluble silicate, for the purpose of causing the fibers to adhere to the envelope of the germ, and also to act as a fertilizing compound.

The processes of preparing cotton or other fibrous seeds for planting, which consists in dipping the seed in a solution of silicate of soda or silicate of potash, substantially as described.

161,129. RECLINING-CHAIRS. Thomas M. Brintnall, New York, N. Y., assignor of one-half his right to John Goodchild, same place. [Filed Apr. 26, 1876.]

Brief.—The inclination of the seat is regulated by an adjusting-screw and inclined sliding plates. The inclination of the back and arms is adjusted by means of a sliding shaft attached to the forward ends of the arms beneath the seat, and sliding in slotted guide-plates.



1. In combination with a reclining-chair, having adjustable back and seat, the arms G G, and brace or toggle-arms G' G', the former being journaled to the shaft of the seat in such manner as to permit of their being thrown forward to support a curtain, and when not so used withdrawn and folded over the back of the chair, substantially as described.

2. The swinging back H, having knee-bar-legs I I', which project in front of the plane of the back, arms J K, having chamfer *k l*, and shaft L, connecting said arms under the seat, the whole combined and arranged to operate substantially as described.

3. The combination of the hinged seat D and the plates F F', the same arranged to operate substantially as described.

4. The extension foot-rest, and a system of toggle-arms or lazy-tongs, N', in combination with the right- and left-hand screw O and traveling sheet nuts P P', the whole constructed and arranged to operate substantially as described.

5. A swinging foot-rest, having a pivoted supporting-arm, W, attached thereto, shaft S, and locking-eccentric *x*, the whole combined and arranged to operate substantially as described.

161,130. DEVICES FOR CUTTING DISKS OF METAL, &c. Dominicus Brix, Conneaut, Ill. [Filed July 14, 1876.]



As a means for cutting circular forms the plate A, standards C and C, cross-bar D, spiral springs E and E, shaft F, crank *f*, adjustable arm G, and cutter H, all constructed and combined to operate in the manner and for the purpose substantially as specified.

161,131. RAISING AND BROILING DEVICES. Joseph H. Bruns, Meridian, Miss. [Filed June 30, 1876.]

Brief.—The upper edge of the outer portion of the base of the cover is bent sharply downward, to form a hollow rim or bead to receive the upper edge of the pan, thus making a close joint.



1. The cover H, having the double base and bead or rim I, in combination with the pan A, substantially as set forth.

2. The cover H, having the double base and rim I, in combination with the pan A, bar D, and broiling device P, substantially as shown and described.

161,140. RETAINERS FOR EXTENSION-TUBES FOR GASALIERS. John C. Cassidy, Brooklyn, N. Y. [Filed Mar. 17, 1876.]



The combination, with the tube C, of the slotted collar *d*, cap E, washer *e*, and two or more springs, F, constructed and operating substantially as and for the purposes set forth.

161,141. MEAL-BINS. Daniel G. Close, Reading, Pa. [Filed July 6, 1876.]



1. Kneading-board H H', hinged to casing A, and adapted to form the top and back thereof, substantially as set forth.

2. A bread-molder's case, having compartments C and D, rest E, slave F, drawer G, and kneading-board H H', all constructed and used substantially as and for the purpose set forth.

161,142. HORSE HAY-RAKES. A. W. Coates, Alliance, Ohio. [Filed June 28, 1876.]



In a horse hay-rake, the combination, with the driver's seat and the clearer K, of the rearwardly-projecting bars J J', bent edgewise, and terminating in a T-shaped end for attachment to said clearer, and fastened at their front ends, one to the driver's seat, and the other to the support for the driver's seat, so as to brace the said seat and hold the clearer in a rigid elevated position, substantially as described.

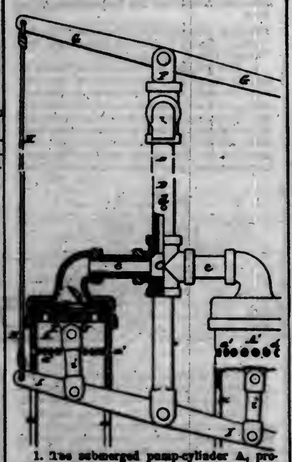
161,143. FOLDING CHAIRS. William B. Cogar, Morris Ill., assignor to the Sherwood Rocker Furniture Company, same place. [Filed June 9, 1876.]



The combination of the crossed and pivoted legs A A' A' A', the extended back bars C C, pivoted straps *m m*, and arms E E, having slots *f f*, pivoted to the round *g*, and connected to the bars C by the headed bolts or screws *y*, all substantially as and for the purposes set forth.

161,144. SUBMERGED PUMPS. J. W. Collet, Upper Alton, Ill. [Filed June 27, 1876.]

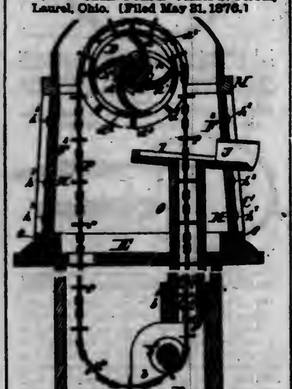
Brief.—Water enters the part of the cylinder above the pistons through holes in the sides of the cylinder, just above the level of the pistons when in their lowest position.



1. The submerged pump-cylinder A, provided with perforations *a'* near its upper end and adapted to permit the water to enter above the piston when the piston is lowered, in combination with piston J and valve-disk K, as and for the purpose described.

2. The submerged pump-cylinders A A', provided with perforations *a'* near their upper ends, in combination with piston J, valve-disk K, valves L L', pipe D, beams I and G, and rods H, as and for the purpose set forth.

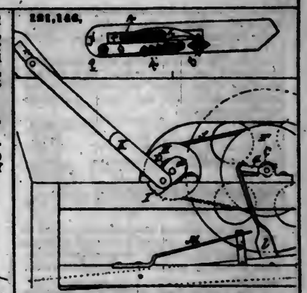
161,145. CHAIR-PUMPS. James S. Corbin, Laurel, Ohio. [Filed May 31, 1876.]



1. The curb C, provided with channeled or grooved base B *a*, wood sides F F' F' F', metal bands G, bands or rods H, and nuts *g'*, as and for the purpose set forth.

2. The cast-iron shoe B, having journal-bearings *b* for the lower sheave, and adapted to rest on the cistern-floor, in combination with the water-tube C, as and for the purpose set forth.

161,146. WASHING-MACHINES. J. J. Daly, Bloomington, Ill. [Filed June 17, 1876.]



1. In a washing-machine, the wash-boards E and E', in combination with the roll F and pivoted arms C C, substantially as and for the purpose herein set forth.

2. In a washing-machine, the wash-boards E and E', the pivoted arms C C, and roll F, in combination with the pawls T T and grooved roller S, provided with ratcheted ends *s s*, substantially as and for the purpose herein set forth.

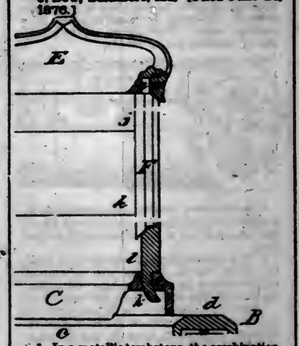
3. In a washing-machine, the shafts C and D, pulleys F and H, round belt *f*, cranks I I, and connecting-rods K K, in combination with the wash-boards E and E', the roll F, and grooved roller S, substantially as and for the purpose herein set forth.

161,147. CORNICE-NEWS. Rudolph Decker, Salle St. Ernst, Saxe-Coburg-Gotha, Germany, assignor to W. H. Kloth, Blain, Ill. [Filed July 1, 1876.]



In a cork-screw, substantially as described, the spindle A, provided with the left-hand screw-thread *a* and nut C, having a right-hand screw-thread, *b*, cut on its exterior, in combination with the cylinder and flange D D', substantially as shown and set forth.

161,148. METALLIC GRAVE-STONES. Wm. J. Dow, Baltimore, Md. [Filed June 24, 1876.]



1. In a metallic tombstone, the combination, with the sectional U-shaped curb B, of the base-plate A, having the edge flange *a* and lugs *b*, substantially as and for the purpose specified.

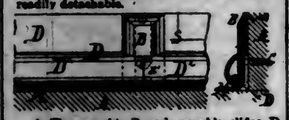
2. The base-plate A, having edge flange *a*, in combination with the sections *c d* of a metallic curbing, joined together, substantially as specified.

3. The columns F, having curved tongues *h*, tenons *n*, and vertical grooves *i*, in combination with the removable tablet-sections *j k l*, the cap-piece E, having mortises *m*, and the base C, having slots *g g*, substantially as and for the purpose specified.

4. The removable tablets *j k l*, grooved columns F, adapted to be removably secured to the base C, and the detachable cap E, combined and arranged substantially as specified.

181,150. CARPET-FASTENERS. Uriah S. Diefenbacher, Jersey Shore, Pa. (Filed Mar. 6, 1876.)

Brief.—The movable slides being practically continuous, and so constructed as to contain a portion of the edge of the carpet, while the uprights co-operate, and make the whole readily detachable.



1. The uprights B and movable slides D D' d', the latter adapted to engage with the former, and also with the carpet M, and to operate therewith, as and for the purposes herein specified.

2. The beaded parts or slides D, uprights B, and suitable holding means, combined with the hollow bead D' and teeth D', adapted to engage with the carpet, and to contain a portion thereof within the bead, as and for the purposes herein set forth.

181,151. COMPOSITIONS FOR ORNAMENTING SURFACES. Maurice Dietrich, Philadelphia, Pa. (Filed Jan. 6, 1876.)

The compositions for ornamenting surfaces, consisting of rice-flour, starch, alcohol, lard-oil, sperm-oil, white wax, soap, alum, and a coloring-matter, substantially as set forth.

181,152. COLLAPSING CORES FOR CASTINGS. Jacob K. Dimmick, Newport, Ky. (Filed May 20, 1876.)

Brief.—Core-sections divided into three sections—one of which is rigidly attached to the skeleton ends or supports; the others are hinged to the first section, so as to swing toward and from the center. The sides of the ends adjacent to the swinging or hinged sections are elliptical or cut away to permit the collapse. Operated by cams mounted on a common shaft. Modification of cams, and also of familiar device, shown.



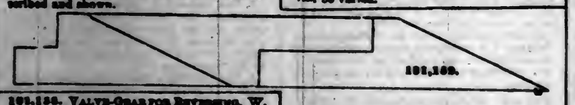
1. A collapsing core-bar composed of bar B, provided with rigidly-connected ends or heads, and hinged wings A A', substantially as specified.

2. The combination, substantially as specified, of the bar B, provided with rigidly-connected ends or heads, the hinged expansion-wings A A', the shaft C, cams D, and the cams D.

3. The combination of bar B, provided with rigidly-connected ends or heads, expansion-wings A A', shaft C, cams D, and limiting-stops E, substantially as and for the purposes specified.

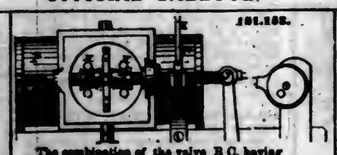
181,153. MANUFACTURE OF HARROW-TOOTH BLANKS. Gerrit Donaldson, Pleasant Valley, Iowa. (Filed Feb. 19, 1876.)

The manufacture of harrow-tooth blanks, by cutting the same from a bar of metal of proper width, as and for the ends herein described and shown.



181,153.

181,154. VALVE-GEAR FOR REVERSING. W. H. Downing, Barnhart's Mills, Pa. (Filed June 20, 1876.)



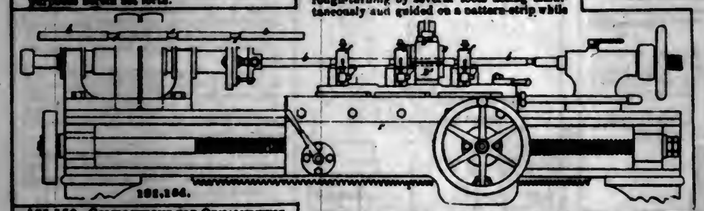
181,152.

The combination of the valve B C, having pins and rollers H, the cam or eccentric projections I I on the valve-rod S, and the operating-lever K, attached to said rod, all substantially as and for the purposes herein set forth.

181,154. MACHINERY FOR TURNING GUN-BARRELS. Henry C. S. Dyer, Westhorpe, England. (Filed July 24, 1876.)

1. The process, as essentially as herein described, for turning the exterior of gun-barrels true with their bore, such process consisting of the successive operations of centering by means of a boss temporarily attached to the barrel, spotting or turning true parts while the barrel is steadied by the said boss, rough-turning by several tools acting simultaneously and guided on a pattern-strip while the barrel is steadied at its spotted parts, and finishing by a turning-tool and steadying-rest, both guided as they travel by a pattern-strip.

2. The series of machines herein described, consisting of the centering, spotting, rough-finishing, and finishing machines, substantially as and for the purpose specified.



181,154.



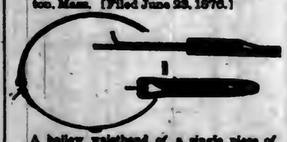
181,157.

181,155. OVERALLS. Geo. B. Hager, Boston, Mass. (Filed June 22, 1876.)



A garment having a waistband provided with a series of eyelet-holes, e, and with a cord or cords, interlaced and arranged substantially as and for the purposes set forth.

181,156. OVERALLS. Geo. B. Hager, Boston, Mass. (Filed June 22, 1876.)



A hollow waistband of a single piece of cloth, folded, stitched, and slit in the manner and for the purposes substantially as set forth.

181,157. MOSQUITO-BARS. A. L. Edwards, New York, N. Y. (Filed Jan. 3, 1876.)

Brief.—The bar or canopy is supported by a flexible band, the ends of which are attached to the head-board of the bedstead by adjustable brackets having suitable clamping devices. The connection between the band and the brackets is adjustable, so that the position of the band with relation to the bed can be varied.

1. In combination with the clamps A, the elastic or flexible band B, substantially as described.

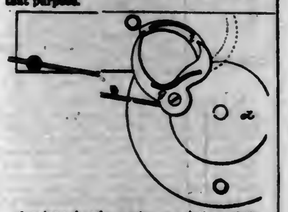
2. The band B, having its ends slotted, and the hole *f*, and secured to the arm *a* of the brackets by means of the screw *s* and pin *p*, substantially as shown and described.

3. The band B, provided with a series of holes, *f*, by which it can be adjusted, in combination with the bracket A, substantially as and for the purposes set forth.

4. The clip B, in combination with the bracket A and band F, all constructed and arranged to operate as set forth.

181,158. ROTARY-SHUTTLE CARRIERS FOR SEWING-MACHINES. Alonzo W. Eldredge, Big Rapids, Mich. (Filed Feb. 19, 1876.)

Brief.—The shuttle is carried with the same side up at all times, the carrying or holding arms having a regulating-lever attached for that purpose.



A rotary-shuttle carrier, consisting of the disk *d*, arms *g g*, and rod *e*, substantially as shown.

181,159. TOY BLOW-HORNS. Charles W. Fallows, Philadelphia, Pa. (Filed June 27, 1876.)



A blow-horn made of corrugated sheet metal, for the purposes herein set forth.

181,160. MACHINERY FOR TWISTING HAY FOR FUEL. James H. Foster, Yankton, Dak. (Filed Aug. 3, 1876.)

Brief.—The frame is extensible, one portion sliding upon the other. A swiveling hook in a transverse roller serves to hold the twist at the point of doubling. After doubling, the long half of the twist is coiled round the shorter part as a core.



181,160.

1. In a machine for twisting hay for fuel, the combination of the extensible frame O O', twisting-heads B B', and adjustable rotating hook *c*, substantially as shown and described, for the purpose specified.

2. In a machine for twisting hay for fuel, the combination of the extensible frame O O', twisting-heads B B', upright pins *b b'*, and catches D D', all constructed and arranged substantially as shown and described, for the purpose specified.

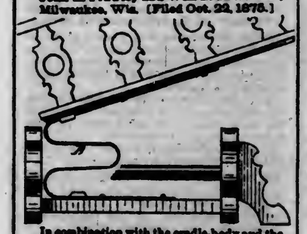
3. In a machine for twisting hay for fuel, the combination, with the rotating head B, having a shoulder, as described, of the pivoted lever F, substantially as and for the purpose specified.

181,161. HORSE-COLLARS. Charles J. Fox, Fond du Lac, Wis., assignor of one-half his right to N. Lyons. (Filed June 8, 1876.)



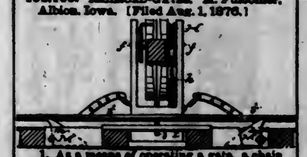
The sections or parts A A' of a horse-collar, having a dowel or pin, *a*, and a socket, *b*, and connected together by a spring, B, substantially as and for the purpose set forth.

181,162. SPRING-CRADLES FOR CHILDREN. John R. Frawley and Wm. R. H. Bristow, Milwaukee, Wis. (Filed Oct. 22, 1875.)



In combination with the cradle-body and the base or stand, the compound spring B, constructed with the three bends or bows, as herein shown and described.

181,163. RAILROAD-GATES. M. Fulcomer, Albion, Iowa. (Filed Aug. 1, 1876.)



1. As a means of operating a gate, a chain composed of three parts, one of which passes over a fixed pulley, the other two connecting opposite points, whereon motion is communicated to the part upon the pulley, substantially as set forth.

2. A vertically-rotating gate, provided with a coiled-spring buffer, the buffer being fixed to the inner side of the post, with its coil circumjacent the pivot of the gate, substantially as set forth.

3. A pair of counterbalanced spans, having an chain connection with the flange of a curved, and provided with rocking shafts and arms, which are connected by chains, or a chain, with the pulley on the gate, for the purpose of operating the gate, substantially as set forth.

4. An elongated half-elliptical track-spring, detached at both ends, and held in place by guide-bolts, which move downward in their fixed plates when the spring is depressed by the flange of the wheel, substantially as set forth.

5. The combination of the elongated half-elliptical spring with the counterbalanced spans, substantially as specified.

6. The gate A, provided with the weight D, elastic buffer F, and pulley H, substantially as described.

7. The combination of the gate A, provided with the weight D, buffer F, reel H, and chain A, with the spring *i* and rocking bars *m*, as described.

8. The gate A, provided with the weight D, buffer F, reel H, and chain A, in combination with the spring *i*, dogs M, rocking bars *m*, and arms *a*, substantially as specified.

181,164. CLOTHES-DRYING. Ezra B. Oldenbroeve, New York, N. Y. (Filed June 20, 1876.)

1. The combination of the piece B, having the cap I and ratchet K, the piece D, having the pawl-piece M and holes *d*, the piece E, having the rack A attached to it, and pin *s* and plate C, all arranged and operating substantially as set forth.

2. In a clothes-drier, the combination of the piece E, having the cap I, ratchet K, and piece N', the piece D, having the pawl M and holes *d*, and the piece B, having the rack A and piece N, substantially as set forth.

3. The combination of the pieces B, D, and E, secured as to their upper parts by the clevis *c*, and having their lower ends controlled by the pieces N N', substantially as expressed.

4. The ratchet K, provided with the pin *i*, operating in combination with the pawl M, plate L, and piece E, having holes *h*, substantially as described.

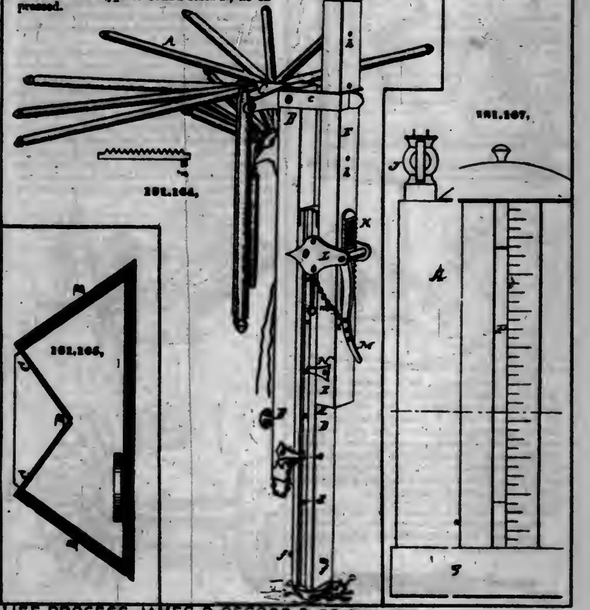
5. The plate C, having the clevis *c*, which is employed to secure the upper ends of the pieces B, D, and E, substantially as specified.

6. The ratchet K, in combination with the pawl M, pieces B, D, and E, substantially as specified.

7. The ratchet K, in combination with the pawl M, pieces B, D, and E, and pieces N and N', substantially as described.

8. The combination of the pieces D B E, ratchet K, pawl M, pieces N and N', clevis *c*, and pin *f*, substantially as specified.

9. The combination of the piece B, provided with the cap I, holes *h*, ratchet K, and plate N', the piece D, provided with the holes *d*, plate L, and pin *f*, and the piece E, provided with the rack A, plate C, and piece N, as expressed.



181,164.

181,165.

181,165.

181,166. ROACH-TRAPS. Rudolf Hagen, New York, N. Y. (Filed June 22, 1876.)

In combination with the inclined sides B B of an inmost trap, the transparent panes C C, each having one side provided with a recess, so that when said recessed sides are brought together and inclined downwardly they form an aperture, D, as and for the purpose specified.

181,166. NUT-LOCKS. Peter S. Haldeman and A. J. Stewart, Smithfield, Pa. (Filed July 17, 1876.)



The combination of the grooved nut B, recessed bolt A, and the double spring-bolt C provided with the head D, shoulders *b b*, and points *d d*, substantially as and for the purposes herein set forth.

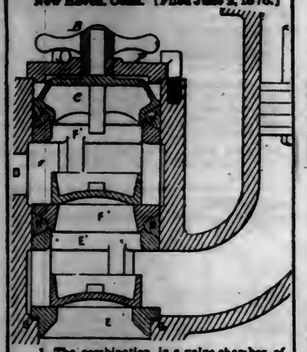
181,167. SODA-FOUNTAINS. C. Frans Henrichsen, Louisville, Ky. (Filed May 20, 1876.)

181,167.

1. In a soda-fountain, the combination of a filling-pipe, I, having at its upper end a flanged funnel, a, resting on pipe b, and a stop-cock, J, substantially as and for the purpose set forth.

2. The combination of the fountain A with gage F, central ice-chamber G, with outlet-pipe and stop-cock G H, the charging and filling pipe I, with stop-cock J, and the siphon K, with stop-cock L, all constructed substantially as and for the purpose herein set forth.

181,169. PUMP-VALVES. Ebenezer Hill, South Norwalk, and Fredk. C. Rowland, New Haven, Conn. [Filed June 2, 1876.]

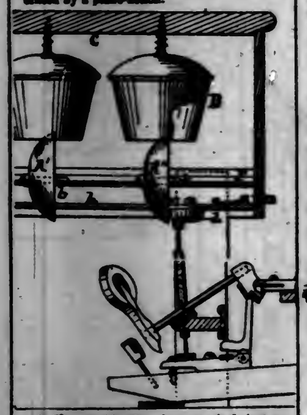


1. The combination, in a valve-chamber, of the valve-cages and interposed packing, substantially as described.

2. The combination of the screw B, cap C, cages F' and F, placed one upon the other, and with interposed packings, substantially as described.

181,170. BELL PIANO-FORTES. Frederick M. Hill, Brooklyn, and Frank L. Wing, New York, N. Y. [Filed Apr. 5, 1876.]

Brief.—Bell-gongs are arranged to have a portion of the edge of each one project within a resonator or sounding-chamber, and operated by a piano-action.



1. The combination, in a musical instrument, of a series of bells, gongs, or similar-shaped sounding-bodies, A' A'', with a series of vessels or tubes, B, arranged to re-enforce and intensify the sounds of the said bodies, and with a key-board mechanism for actuating the same, substantially as described.

2. In combination with the subject-matter of the preceding claim, a sounding board or box, C, substantially as described.

181,171. BROOMS. Samuel Hobbs, Wilmot, Ohio, assignor to Mendal Wm. M. Johnston, and Lycurgus Pfouts, same place. [Filed July 14, 1875.]

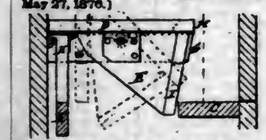
In a head, the slotted center plate or link A, formed with the arms D D, in combination with the broom-straw B and the exterior side plates C C, substantially as and for the purpose herein set forth.

181,172. CURTAIN-TASSEL CLASPS. Jos. M. Henderson, Brooklyn, N. Y. [Filed June 20, 1876.]



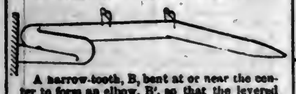
As a new article of manufacture, a curtain-tassel clasp or shade-pull, made of a single piece, having embracing sides adapted to confine the woolen strip, and provided with securing-pelots at different altitudes, and with a ring-support, substantially as and for the purposes described.

181,173. PRIVY-SEATS. Peter D. Howard and Matt. Allard, La Porte, Iowa. [Filed May 27, 1876.]



A privy-seat formed by the combination of the seat D, end boards E E, front board I, hinged rear board K, pivots F, and cleats G H J, with each other, substantially as herein shown and described.

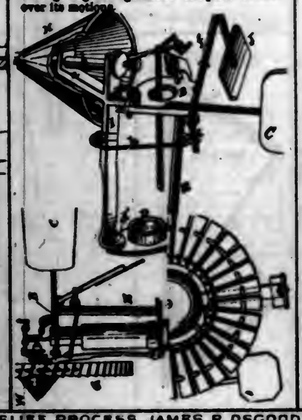
181,174. HARROW-TEETH. D. W. Hughes, St. Louis, Mo. [Filed Feb. 5, 1876.]



A harrow-tooth, B, bent at or near the center to form an elbow, B', so that the leveled part of the tooth will stand at an angle with the upper part, for the purpose herein set forth.

181,175. WHEELBARROWS. Arthur Humphrey, Arcola, Ill., assignor of one-half his right to James W. Griswold, same place. [Filed June 7, 1876.]

Brief.—The weight of the wheel is directly between the two bearings, whereby only short bones for the journals need be used, and, consequently, there is but little friction. The wheel staff or support is, near its upper end, provided with a half-hinge, which connects with a similar half-hinge on the turn-table, while the lower end of said staff or support is, by a hinge, connected with the ring on the center tower. By means of these hinges the wheel is enabled to turn almost square around, thus giving the governor complete control over its motions.



181,176. ROCKING ATTACHMENTS TO CHAIRS. Platt C. Ingersoll, Green Point, Brooklyn, N. Y. [Filed June 26, 1876.]

1. The combination, with a chair, of one or more foot-rockers, applied to the rear legs only of the chair, and terminating at their forward ends back of the front legs of the chair, substantially as specified.

2. A foot-rocker constructed with a socket, c, for reception of the lower end of the leg of the chair within it, in combination with the brace f, essentially as described.

3. The combination of a brace, f, with the foot-rocker B, essentially as described.

181,177. CAR-TRUCKS. Jos. Ireland, Cleveland, Ohio. [Filed Nov. 27, 1875.]

Brief.—Collar protects axle from being cut by supporting-plates. Curved slot allows its end to move with anti-friction wheel.



1. The axle D, provided with collars E, and rotating in curve-slotted bearings, substantially as and for the purpose described.

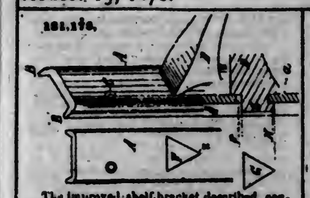
2. The combination of the axle D, collars E, curve-slots f, and springs c, substantially as and for the purpose described.

3. The combination of the axle D, the friction-wheel C, and the curve-slotted bearings or brackets B f, the said axle having freedom to reciprocate within the bracket B, substantially as and for the purpose set forth.

4. The combination of the axle D, having friction-balls in their ends, with the friction wheels C, substantially as and for the purpose specified.

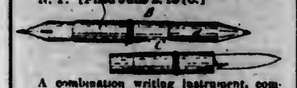
181,178. BRACKETS. Elisha T. Jenks, Middleborough, and Alpheus Byrd, Boston, Mass. [Filed May 17, 1876.]

181,179.



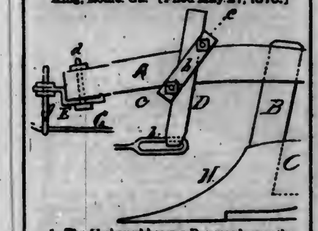
The improved shelf-bracket described, consisting of the upright A, provided with the V shaped hole F and flanges B, and the arm D, provided with the triangular head G, constructed and arranged to operate substantially as and for the purpose set forth and specified.

181,179. COMBINATION WRITING INSTRUMENTS. Camillus M. Johnson, New York N. Y. [Filed June 2, 1876.]



A combination writing instrument, composed of a central tubular body, A, open at each end, in combination with two removable and reversible end sections, B C, fitting into each end of the body A, and having their respective extremities provided with pen and pencil, knife and rubber, substantially as herein shown and described.

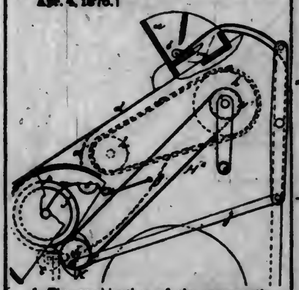
181,180. DRAFTS FOR PLOWS. Abraham B. King, Camden, Ohio, assignor to Catharine King, Rome, Ga. [Filed May 27, 1876.]



1. The U-shaped hanger D, passed upon the beam from below, and having its ends extended upward at each side of the beam, in combination with the beam, a U-shaped clamp, c, inclosing the said arms, the purchase-plate b, applied upon the clamp, and nuts a, substantially as specified.

2. The horizontally-vibrating, slotted, angular clevis-plate E, carrying the adjustable depending eyebolt f, and having the fixing-points e at its rear end, in combination with a clamp-bolt, d, beam A, and draft-rod C, passing at its front end through the said eyebolt, and secured at its rear end to the arm D, substantially as specified.

181,181. GRAIN-SEPARATORS. Thomas C. Jory and J. W. Jory, Salem, Oreg. [Filed Apr. 4, 1876.]



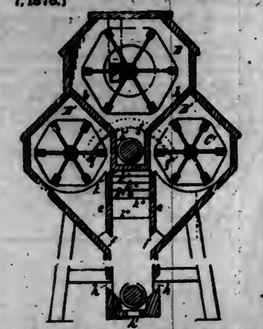
1. The combination of the reciprocating scraper b with the upwardly inclined bottom-board of the hopper, as and for the purpose specified.

2. The imperforate cockle-conveying cylinder p, in combination with the wheat-screen f, having the exterior fixed spiral flange r, and attached to the rotating shaft or axis by means of the spiral flange q, as shown and described, whereby the mixed wheat and cockle are separated, conveyed in opposite directions, and discharged at opposite ends of the screen and cylinder respectively, as shown and specified.

3. The revolving screen f, having rotating and vertical shaking motion imparted to it by means of cam-wheels K, substantially as specified.

4. The combination of the hopper g with the vertically-shaking screen and the apron e, substantially as specified.

181,182. MIDDLINGS-SEPARATORS. C. F. Keller, Nevada, Ohio, assignor to Dale B. Zimmerman, Greensburg, Pa. [Filed June 7, 1876.]



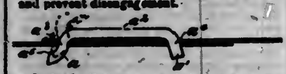
1. The air passages or pipes arranged intermediate between the bolting-chambers B' B', and in the described relation to the outlet-passages f f, substantially as and for the purpose specified.

2. The bolting-chambers B B' B', with their respective bolts arranged in the described relation to each other, and to the air pipes or passages b b' b', &c., and operating substantially as described.

3. The middlings-discharge outlets f of the bolting-chambers B', arranged intermediately between the inlet air-passage h in the conveyor-trough and the air pipes or passages b b', substantially as and for the purposes set forth.

181,183. WIRE COTTON-BALE TIES. Phineas F. King, St. Louis, Mo., assignor to George O. Clarke. [Filed Jan. 6, 1876.]

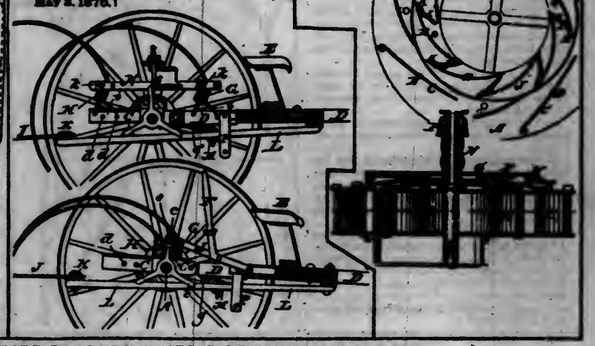
Brief.—The strain of the ends of the band causes the bent ends of the wire tie to impinge and prevent disengagement.



1. A wire fastening, consisting of the body part a^2, having projecting ends $a^3 a^3$, their bearing-points at $a^4 a^4 a^4$, all constructed to operate in the manner and for the purpose set forth.

2. The combination of a wire fastening, consisting of the body part a^2, its ends $a^3 a^3$, bearings $a^4 a^4$, locking-point a^5, with slotted band ends, as and for the purposes set forth.

181,184. COMBINED HAY RAKE AND TEDDER. E. J. Knowlton, Ann Arbor, Mich. [Filed May 3, 1876.]



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1. In combination with a wheeled main frame, two changeable rake-heads, G and H, adapted to be used jointly as a single rake-head, or independently as two separate tedding heads and devices, substantially such as shown and described for operating said heads.

2. In combination with a wheeled main frame, a changeable rocking rake-head, capable of being shifted forward and backward on the frame, so as to operate upon the front or the rear end thereof, substantially as shown and described.

3. In combination with the frame provided with holes d, a changeable rake-head provided with arms i, having lateral pivots or studs to enter said holes.

4. The combination of the two rocking rake-heads G and H, mounted on the frame, and connected by the bar N with the arms or cams c, secured to the axle A, as shown.

5. In combination with the changeable rake-head or heads, the arms C, mounted on the axle A, the thills D, hinged to the forward ends of said arms, and the hooks p, or equivalent devices, whereby the arms and thills may be locked rigidly together.

6. In combination with the arms c and the bar N, arranged to operate as shown, the adjustable plate s, as and for the purpose described.

7. In combination with a removable rake-head, G, the hand-lever F, provided with the link l, having its rear end provided with the lateral stud and the latch m.

8. In combination with the bar l, having the clearer-arms J attached thereto, the arms or bars I, connected at their forward ends to the main frame, and sustained at their rear ends by the pole M, mounted on bolts secured to the main frame, as shown.

9. The combination of the arms C, mounted on the axle and hinged to the thills D, hooks p, arms c, changeable rake-heads G and H, bar N, and hand-lever F, all constructed and adapted for the uses described and shown, whereby the machine is rendered capable of a transformation into a rake or a tedder, as required.

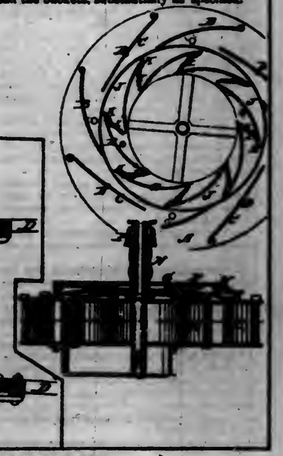
10. In combination with a wheeled main frame, an adjustable rocking rake-head and adjustable devices, substantially such as shown and described for operating said head, whereby it may be operated at will to gather the hay into windrows, or operated automatically to spread the hay upon the ground.

181,185. WATER-WHEELS. Burrell C. Lambeth, Thomasville, N. C., assignor to himself and I. L. Young, same place. [Filed Apr. 18, 1876.]

Brief.—The disk being detachable makes the wheel reversible by taking it off and turning the rims and buckets upside down. There is also an arrangement of spring-valves between the buckets.

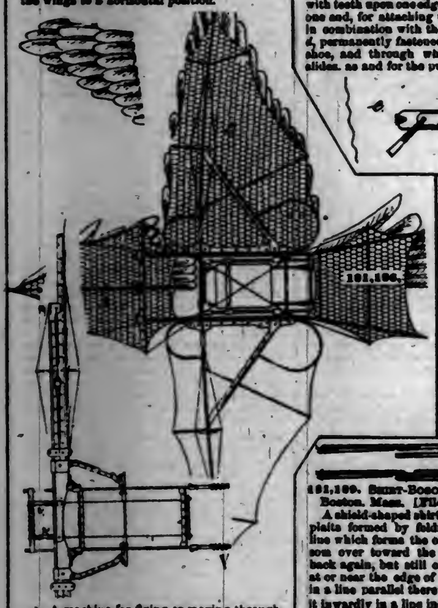
1. In a water-wheel, the combination, with stationary buckets, of spring-valves arranged between the buckets, the latter being hooked over the edge of valves, substantially as and for the purpose specified.

2. The detachable disk I, combined with the reversible wheel, composed of the rims J and the buckets, substantially as specified.



181,186. FLYING-MACHINES. Francois X. Lamboley, New York, N. Y., assignor of one-half his right to Henri Berlie, same place. [Filed July 19, 1876.]

Brief.—Combining with a frame for supporting the body a pair of wings and other mechanism, whereby the weight of the body may co-operate with the other portions of the mechanism to depress the wings, in order to utilize the lifting effect upon the atmosphere. The operator stands on a platform suspended to the lower ends of the wings by cords, so that the weight of the body tends to raise the wings, and also to strain the springs. In addition to this force, a hand-lever extends across the main frame, and is attached at each end to connecting links, by which arrangement the operator lifts the wings as he presses with his weight upon the platform, and thereby the combined powers of the weight of his body and his lifting arm are made use of to raise the wings to a horizontal position.



181,186.

1. A machine for flying or moving through the air, consisting of a frame for supporting the parachute, as described, and wings operated by the combined force of the weight and lifting energy of the operator.

2. In combination with a flying-machine, the trapeze or hand-bar connected with the wing-arms at a point outside of the pivoted connection with the frame, and a platform connected to the wing-arms at a point of the opposite side of the fulcrum, substantially as described, and for the purposes set forth.

3. In a flying-machine, the skeleton frames covered with net-work and covered with feathers or similar material overlapping each other, in the manner as described, and for the purposes set forth.

4. The combination of the wings, the platform, trapeze-bar, and springs R R, for resisting upon the wings to depress them, substantially as described.

5. The trussed arms and skeleton frame covered with net-work, substantially as described.

6. The spring-feet, in combination with the main frame, as and for the purposes set forth.

7. In combination with a flying-machine, one or more casks, and a tube for inflating the same in case of falling upon the water, as described.

8. The combination of two levers attached to a frame by a pivoted connection for fulcra, and having a pedal attachment and springs attached to other short arms, with a hand-lever connected to the same levers at points on the opposite side of the fulcra, for giving rapid and powerful motion to the levers, substantially as described.

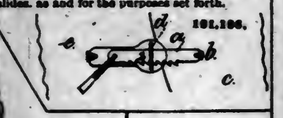
181,187. FASTENINGS FOR SHOES, GLOVES, &c. George W. Lascell, Syracuse, N. Y. [Filed Apr. 6, 1876.]



The link *a*, removably connected at one end to the part *b* of the shoe or garment, and provided with the stud *c* at the other end, in combination with the plate *e*, having a connecting-tongue, *f*, extending out from one side and containing an eccentric slot, *d*, for the stud *c*, substantially as set forth.

181,188. FASTENINGS FOR SHOES, GLOVES, &c. George W. Lascell, Syracuse, N. Y. [Filed Apr. 6, 1876.]

The shoe-fastening composed of the bar *a*, with teeth upon one edge, and with an eye, *b*, at one end, for attaching the same to the part *c*, in combination with the staple-formed loop *d*, permanently fastened to the part *a* of the shoe, and through which staple the bar *a* slides, as and for the purposes set forth.



181,188.

181,189. SHIRT-BOSOMS. Stephen Lashey, Boston, Mass. [Filed June 22, 1876.]

A shield-shaped shirt-bosom, having its side plaits formed by folding the cloth from the line which forms the outer margin of the bosom over toward the front, then folding it back again, but still outwardly from a point at or near the edge of the central plait, and in a line parallel therewith, and then folding it inwardly in a line inclined from top to bottom toward the central plait, in the manner substantially as shown and described.

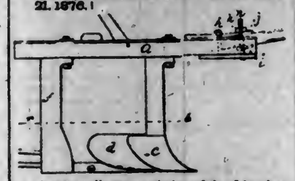


181,189.

181,190. OVERALLS. Stephen Lashey, Boston, Mass. [Filed June 24, 1876.]

An overall, consisting of the pantaloon part A, breast-piece B, and sleeves D D, constructed and arranged for operation substantially as set forth.

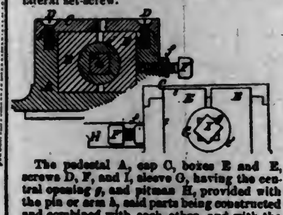
181,191. POTATO-DIGGERS. Albert L. Libbey, Exeter, Me., assignor to himself and George S. Hill, same place. [Filed June 21, 1876.]



A potato-digger consisting of the following parts, to wit: A frame, *a*, triangular digger *b*, separator *m*, formed by parallel rods, projecting from said digger toward the rear of the machine, shares *c c*, curved upon their outer surfaces, and provided with parallel guide-boards *d d* upon their inner sides, and adjustable tongue *g*, hinged, as described, to the frame *a*, all said parts being constructed, combined, and arranged in the manner and for the purposes set forth.

181,192. CUTTER-BAR COUPLINGS FOR MOWING-MACHINES. Delavan Manning, Middletown, N. Y. [Filed Aug. 6, 1875.]

Brief.—The sleeve operates as a bushing for the pin of the connecting-rod, and receives the wear from the inclosing boxes, which may be compensated for by screwing inward the lateral set-screw.



The pedestal A, cap C, boxes E and E, screws D, F, and I, sleeve G, having the central opening *g*, and pitman H, provided with the pin or arm *h*, said parts being constructed and combined with each other, and with the cutter-bar of a harvester or mower, in the manner and for the purpose substantially as specified.

181,193. POTATO-DIGGERS. Stephn. Martin, North Gower Township, Carleton County, Ontario, Canada. [Filed May 17, 1876.]

Brief.—Two longitudinal sides, at the front end of which is a plow, which raises the potatoes upon a rotating apron, which carries them to the rear, where they fall into a receptacle.

181,193.

1. The combination of the parallel sides A A, having mold-boards O O, the intermediate plow-point F, and apron G, and the rotatory blades M, driven from the axle B by the band and pulley devices, as described.

2. The flap-valve E, opening upwardly, pivoted to the sides A A between the point F and apron G, as and for the purpose set forth.

181,194. CASTING DIE-PLATES. Jos. B. Moore, Hamilton, Ontario, Canada. [Filed July 13, 1876.]

Brief.—Casts a pattern-plate by first casting a bed-plate around which to cast the pattern-plate. The bed-plate is cast in a mold made by interposing between the sections of a two-part mold a layer or stratum of sand, thereby producing a cavity or mold immediately over or in addition to the pattern or pattern-cavity. After the bed-plate is cast, the stratum of sand is removed and the pattern-plate cast, occupying the space made around the bed-plate by the removal of the sand.



181,194.

The process, herein described, of forming pattern-plates from the pattern itself by first forming a pattern-bed and casting metal directly around and in contact with the same, substantially as described.

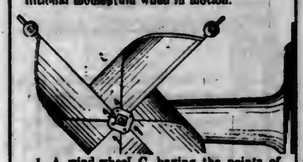
181,195. WEATHER-STRIPS. J. H. McIntire, Crestline, Ohio. [Filed June 15, 1876.]



The plate or strip A, having affixed thereto an axle or rod, *c*, around which is placed a spring, is combined with, and hung in, a groove or concavity, *e*, in the lower edge of the door, and the stud or stop *b*, constructed and arranged to operate as described, and for the purpose set forth.

181,196. WINDMILLS. Daniel Nyeswander, Springfield, Ohio, assignor to himself and David Nyeswander, same place. [Filed May 27, 1876.]

Brief.—The vanes of this wind wheel are made of sheet metal, and of such form that it is possible to attach the points which are bent over toward the center to a central plate, which is fixed on the end of the shaft. Weights are provided at the extremity of the arms for balancing the wheel and giving additional momentum when in motion.

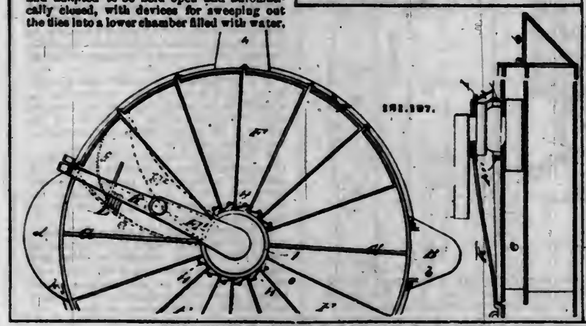


1. A wind-wheel, C, having the points of the vanes *g* brought together and attached to a central plate, D, substantially as specified.

2. The adjustable vane G, in combination with the bed-plate B and lever *c*, having the lug *d* engaging with holes *e*, as shown and described.

181,197. FLY-TRAPS. Charles Olson, Red Wing, Minn. [Filed May 27, 1876.]

Brief.—A top composed of hinged plates, and adapted to be held open and automatically closed, with devices for sweeping out the flies into a lower chamber filled with water.



181,197.

1. The combination of hinged plates or valves F F, links H H, ring I, lever-arm K, stop *k*, and spring L, substantially as and for the purpose set forth.

2. In a fly-trap, the combination of a top, adapted to be held open and automatically closed, with devices for sweeping out the flies, substantially as and for the purpose set forth.

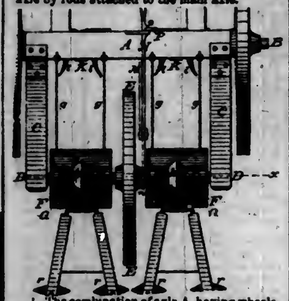
181,198.

181,198. PAPER BAGS. James S. Ostrander, Dayton, Ohio, assignor to Thomas Nixon, same place. [Filed Apr. 26, 1876.]

A paper bag cut from a tube, and having its bottom secured by two lines of paste, B D, one of which cements the two sides of the bottom lap together, while the other cements this two-ply lap to one side of the body of the bag, substantially in the manner and for the purpose specified.

181,199. CORN-PLANTERS. Silas R. Owen, Norwalk, Ohio. [Filed Mar. 20, 1876.]

Brief.—To the main axle are hinged side beams, extending rearwardly, that serve as journals for a second axle having a central wheel, on each side of which are cylindrical hoppers, provided with dropping-cylinders that revolve with the axle. The cylindrical hoppers are prevented from revolving with axle by rods attached to the main axle.



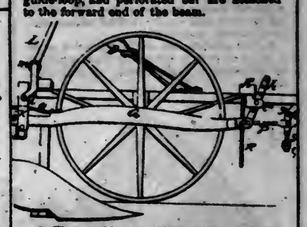
1. The combination of axle A, having wheels B, with the swinging rods *g* and stationary cylinders G, substantially as and for the purpose shown and specified.

2. The combination of the axle A, having wheels B, with the swinging beams C C and shaft D, the latter having wheel E arranged centrally between the rotating cylinders F F, substantially as and for the purpose shown and specified.

3. The combination of axle A, having toothed upright P, swinging beams C C, shaft D, carrying-cylinders F, and central wheel E, and lever N, having hook *n* and pawl *p*, all combined to operate substantially as and for the purpose shown and specified.

181,200. SULEY-PLOWS. Joseph M. Payne, Dallas, Tex. [Filed May 27, 1876.]

Brief.—A spring is attached to the rear end of the beam, and bears against the inside of the stirrup in which the beam is suspended. A lever pivoted to the rear cross-bar and to the stirrup supports the beam. A draft-bar, guide-loop, and perforated bar are attached to the forward end of the beam.



1. The combination of operating and suspending lever L with stirrup K, spring O, and plow-beam G, substantially as set forth.

2. The combination of draft-rod F, plow-beam G, guide-loop E, and perforated link A, substantially as described, and for the purpose set forth.

181,201. BUTTON-FLIERS. Clark M. Platt, Waterbury, Conn. [Filed July 24, 1876.]



A plier-shaped instrument for attaching buttons with metallic fastenings to garments, constructed with elliptical recesses formed in and near the ends of the inner faces of the jaws, and with a circular concave recess in one jaw, and a conical boss formed on and spring secured to the other of said jaws, substantially in the manner and for the purpose described.

181,202. BUCKETS OR VALVES FOR CHAIN-PUMPS. Frederick Potter and Wm. Webb, Beardstown, Ill. [Filed July 3, 1876.]

Brief.—A spheroidal elastic bucket has a drain-tube passing through it, and is compressible, to remedy wear against the well-tube, by means of a central bolt and basin-shaped washers on either side of the ball.



1. The basin-shaped washers C C, each with drain *c* leading to a central tube, E, in combination with ball A and its contained elastic tube E, as and for the purposes described.

2. The combination of the basin-shaped compressers C C, provided with drains *c*, and ball A, as described.

3. The bucket A B C D E, constructed and arranged as described, with elastic tube E, in combination with the elastic ball A, the two latter working together to allow the ball to compensate for exterior wear against the tubing, by means of usual nuts and bolt, as described.

181,203. HARVESTERS. William H. Pritz, Dayton, Ohio. [Filed June 22, 1876.]

1. The cam-plate A, provided with tracks E E' and switches G H, in combination with crown-wheel M, and revolving reel or rake arms C, arranged in connection with each other and mounted upon the main frame, substantially as herein set forth.

2. The cam-plate A, provided with the switch G and trigger T, in combination with the spring-detent U, substantially as herein set forth.

3. The crown-wheel M, with the detachable supporting arms O, constructed substantially as herein set forth.

4. The combination of the cam-plate A and its automatic switches G and F, and a crown-wheel, with the reel or rake arms C, having the arm *b* and roller D, all arranged upon the main frame of the machine, as herein set forth.

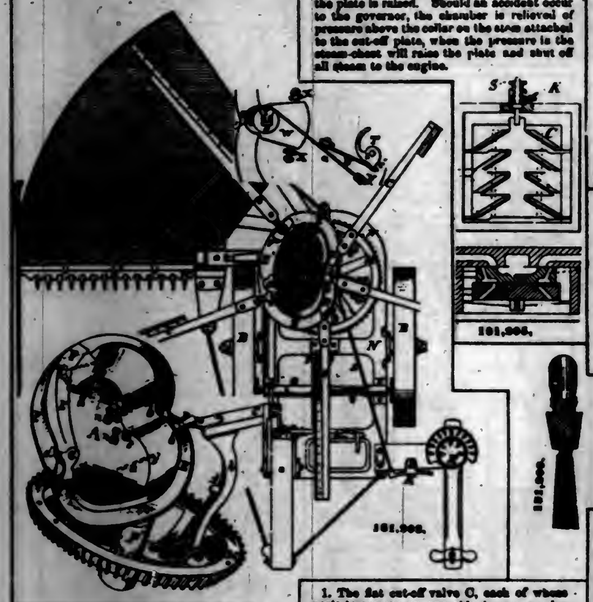
5. The projection D^1 on one or more of the rake-arms, in combination with cam-plate A, provided with switch G, trigger T, and spring-detent U, substantially as herein set forth.

6. Switch G, spring-detent U, trigger T, in combination with the foot-lever K and its connecting crank-rods, substantially as herein set forth.

7. Cam-plate A, provided with plate W and connected in the shaft by means of cut-screws X X and t t, substantially as herein set forth.

8. Cam-plate A, connected to plate W by means of screws, in combination with adjusting-screws r and s for vertical adjustment, substantially as set forth.

9. The combination of the ratchet a, pawl b, worm a', rack c, and center-wheel mounted on fork-shaft w, substantially as herein set forth.



161,905. GAS-MACHINES. Alonzo U. Hand, Minneapolis, Minn. (Filed May 20, 1876.)

Brief.—The gravitating-holder is operated by a piston having a water-supply regulated by valves, connected by a shaft with a tilting weight and slotted arm. Motion is given to this arm by pins projecting from the vertical sliding rod. The compressed air passes into holder on the right, and is controlled by a central valve with rod attached to top of holder. The air is discharged through a bottom pipe.

1. The combination of the gravitating pump or holder A, water-supply E, valves G G', crosshead I, shaft c, with tilting weight H and slotted arm d, and the rod b, attached to the holder and provided with pins r s, substantially as and for the purposes herein set forth.

2. The combination of the pump or holder A, water-supply E, valves G G', pipe f, cylinder J, piston K, and waste or exhaust pipes h h', substantially as and for the purposes herein set forth.

3. The combination of the air-pump A, water-cylinder J, with piston K, air-inlet pipe L, with valve e, pipe M, with valves f and m, and holder C, all substantially as and for the purposes herein set forth.

161,906. CUT-OFF VALVES. Profit B. Rice, Warren, Pa. (Filed Oct. 5, 1875.)

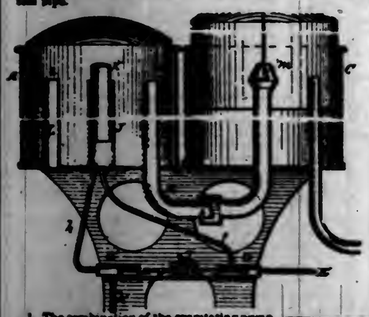
Brief.—When the engine is required to run fast, the cut-off plate is lowered, which leaves the ports open longer. To diminish the speed, the plate is raised. Should an accident occur to the governor, the chamber is relieved of pressure above the collar on the stem attached to the cut-off plate, when the pressure in the steam-chest will raise the plate and shut off all steam to the engine.

161,906.

1. The flat cut-off valve C, each of whose ports terminates on one side in one opening, and on the other in several openings, arranged at an angle to its edges, substantially as described.

2. The combination, substantially as specified, of the main valve, the cut-off valve, having angular ports on one side, and the cut-off plate having jagged edges corresponding to the angular ports of the cut-off valve.

3. The stem S and collar i, in combination with the cock K, arranged to operate substantially as and for the purposes set forth.



161,906.



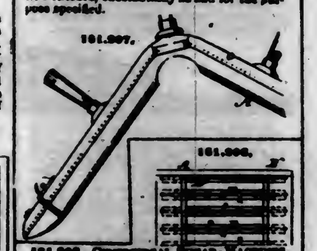
161,906.

161,906. PAINTER'S CORNERED DUSTS, SCRAPER, AND KNIFE. J. V. Richardson, Evansville, Ind. (Filed May 20, 1876.)

A compound brush, putty-knife, and scraper, consisting of the head A, handle B, provided with screw D and putty-knife and scraper C, constructed substantially in the manner and for the purposes set forth.

161,907. HARNESS-PADS. Edward R. Bridge, Geo. A. Nelson, and W. E. Bushnell, Hayesville, Ohio. (Filed June 6, 1876.)

The rim c, which forms a part of the pad A, having no offset, and provided with indentation cutouts, substantially as and for the purpose specified.



161,907.

161,908. CENTRIFUGAL SUGAR-MACHINES. Emily Bradley, Brooklyn, N. Y. (Filed June 21, 1876.)

Brief.—Projecting ribs extending at right angles to each other are formed upon the divided plates of the centrifugal machine, for the purpose of grooving the slabs of sugar, so that they may be readily broken into blocks.

1. In combination with the drum of a centrifugal machine, the plates B B, made with projecting ribs c, substantially as specified.

2. In combination with the drum A and ribbed partitions B B, the false partition B', substantially as specified.

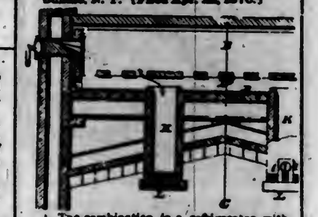
161,909. BRUSHES. Henry Rosenthal, New York, N. Y. (Filed July 17, 1876.)

1. In a brush, a metallic frame with a removable end piece, in combination with a series of square brush-cautions sliding thereto, and rendered stationary, substantially in the manner herein set forth.

2. In a brush, the ferrules secured to the head by means of a rod which passes through them all, substantially as shown.

161,909.

161,910. REFRIGERATORS. James J. Ross, Buffalo, N. Y. (Filed Apr. 28, 1876.)



1. The combination, in a refrigerator, with an ice and a preserving chamber, of a series of dead-air spaces separating said chamber, substantially as described, for the object stated.

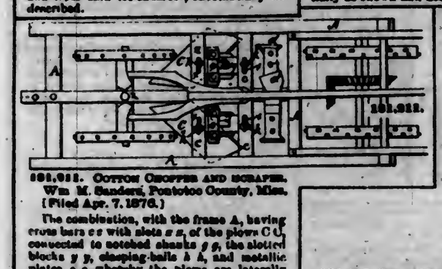
2. The combination, with the ice-chamber B and preserving-chamber C, of the double partitions composed of the joists and rafters covered on one side with matched stuff, and on the opposite side with a layer of a water-proof material, whereby said chambers are separated by three dead-air spaces, substantially as described.

3. A refrigerator, provided with pendent ducts, which lead the cold air from the ice-chamber to the preserving-chamber, arranged along both sides of the central line of the ceiling of the preserving-chamber, as and for the purpose set forth.

4. The combination, with the ducts K, of the adjustable pans L, provided with a water-absorbing substance, and jointed to the said ducts by a flexible filtering substance or material, substantially as described, for the use and purpose set forth.

5. In a refrigerator, a preserving-chamber, having its ceiling arranged to slope from the center toward both longitudinal sides, and rising from the rear toward the front wall, and provided with an exit-opening in the highest point of said chamber, substantially as described, for the purpose set forth.

6. The combination, with the ice-chamber B, of the graduated ventilators I, ducts K, and the cage L, constructed and arranged substantially as described, for the purpose of controlling the ingress and egress of air to and from said ice-chamber, substantially as described.

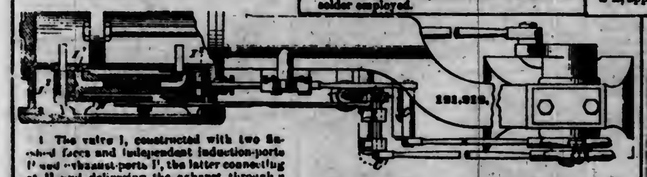


161,911. COTTON CHOPPER AND SCRAPER. Wm. M. Sanders, Pontotoc County, Miss. (Filed Apr. 7, 1876.)

The combination, with the frame A, having cross bars c c with slots a a, of the plows C C, connected to notched shanks g g, the slotted blocks y y, clasping-bolts h h, and metallic plates e e, whereby the plows are laterally and vertically adjustable in front of the chopping-wheel, all substantially as herein set forth.

161,912. SHEET METAL BOXES. O. M. Sloat, Brooklyn, N. Y. (Filed June 19, 1876.)

Brief.—The sides of the sheet-metal box are held in position by the corner flaps bent inward and outward over the top edges of the adjacent sides. An even top edge is formed, so as to permit adjustment of a cover. No solder employed.



161,912.

A four sided sheet-metal box with an even top edge, produced from a blank, A, formed with supporting flaps i j b l m n o p and locking ears r y k t u' v' w' y', substantially as shown and described.

161,913. FEATHER-RENOVATORS. Wm. M. Sheldon, Williamsburg, Mo. (Filed June 27, 1876.)

Brief.—Steam is admitted into the chamber and cooling by perforations in the reel-shaft. The lateral openings of the journal can be closed by a plug, and those of the shaft by working in the steam-pipe.

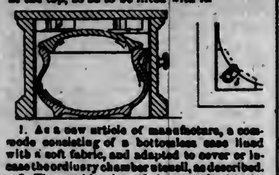


1. The combination, with the hollow perforated reel shaft, of the sliding or detachable pipe g, substantially as shown and described.

2. The combination of the pipe g, having an imperforate body, with the reel-shaft, having perforations throughout its length and also in its journal, and the hollow casing, substantially as shown and described.

161,914. COMMODES. Sydney R. Smith, Georgetown, D. C. (Filed Jan. 26, 1876.)

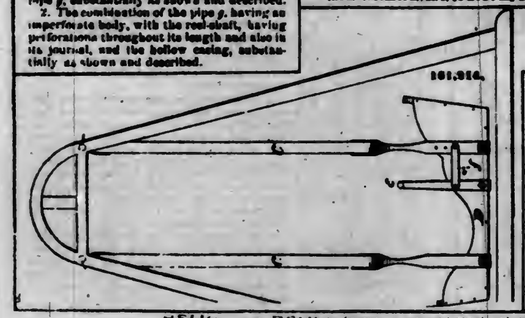
Brief.—The cover shown hides the chamber utensil from view, and serves other obvious purposes. The cover of said chamber utensil may be fastened, if desirable, to the outer case at the top, so as to be lifted with it.



1. As a new article of manufacture, a commode consisting of a bottomless case lined with a soft fabric, and adapted to cover or incase the ordinary chamber utensil, as described.

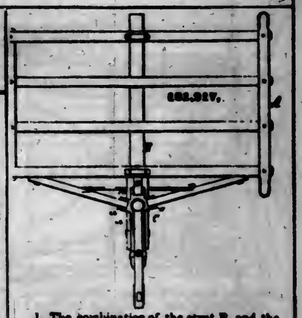
2. The combination of the rests b with the lips a and turn-button c', arranged within the case A, substantially as and for the purpose specified.

161,917. ATTACHING DRAUGHTS TO WAGONBEDS. George H. Smith, North Kingston, (near Wickford,) R. I. (Filed July 12, 1876.)



161,914.

161,915.



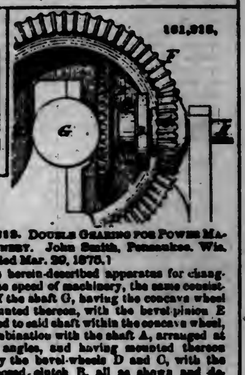
161,915.

1. The combination of the strut B, and the spider C, and its supporting-braces D D E E, with the wagon body or bed A, all being arranged as set forth.

2. The combination of the strut B, spider C, supporting-braces D D E E, and the ties G G with the wagon-bed A, all being arranged as represented.

3. The combination of the cross I with the strut B, and the spider C, and its braces D D E E, applied to the wagon-bed A, as set forth.

161,916.



161,916.

161,916. DOUBLE GEARING FOR POWER MACHINERY. John Smith, Pennsboro, Wis. (Filed Mar. 29, 1876.)

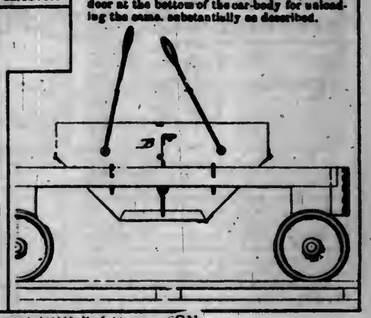
The herein-described apparatus for changing the speed of machinery, the same consisting of the shaft G, having the concave wheel F mounted thereon, with the bevel-pinion E secured to said shaft within the concave wheel, in combination with the shaft A, arranged at right angles, and having mounted thereon loosely the bevel-wheels D and C, with the interposed clutch B, all as shown and described.

161,918. ELEVATING AND CARRYING APPARATUS. Bladen T. Snyder, Georgetown, D. C. (Filed Aug. 2, 1876.)

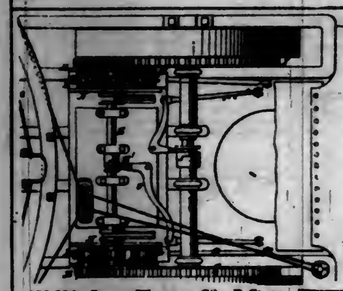
1. In an elevating and carrying apparatus, the detachable body, adapted to serve as an elevating-bucket, for the purpose of handling the coal or other material in bulk, substantially as described.

2. In combination with the car-truck, the body B, provided with two bails for attaching it to the elevating-rope, and with hooks, by which it can be supported within the frame of the truck, substantially as described.

3. In combination with the car-body or bucket, the doors at each end, for facilitating the loading of the car in contracted shafts, and the door at the bottom of the car-body for unloading the same, substantially as described.



161,918.



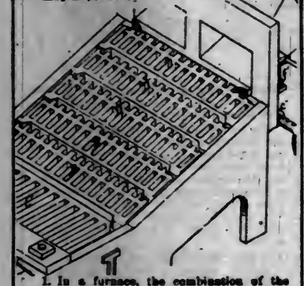
181,220. STEAM-WAGONS. Silas B. Stone, Indianapolis, Ind. [Filed Apr. 12, 1876.]

1. In combination with the engine and drivers of a steam-wagon, the crank-shaft E, made in two sections, and clutch E', substantially as set forth.

2. In combination with the crank-shaft and drivers, propelled by force applied to the double geared ring I, the driving pinions L L' and sliding boxes N, whereby the driving power may be applied to the external or internal gears, substantially as set forth.

3. In combination with the pinions K on the crank-axle, the pinions L L' and M M', hung on counter-shafts and in sliding boxes, whereby said pinions are of different sizes, so as to permit the speed of the wagon to be changed by shifting the pinions engaging the external or internal gearing of the ring I without changing the speed of the pinions, substantially as set forth.

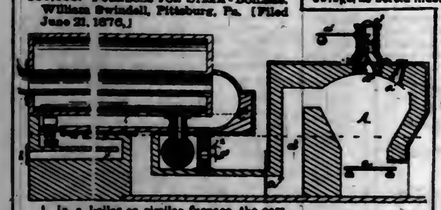
181,221. TRANSVERSE ROCKING GRATES. Henry Swindell, Allegheny, Pa. [Filed May 26, 1876.]



1. In a furnace, the combination of the series of transverse grates D D, arranged to form pivoted sections of an inclined feed-surface, substantially as specified.

2. The combination of the series of transverse grates D D, arranged to form pivoted sections of an inclined feed-surface, and the horizontal pivoted dumping-grate C, substantially as specified.

181,222. FURNACES FOR STEAM-BOILERS. William Swindell, Pittsburg, Pa. [Filed June 21, 1876.]

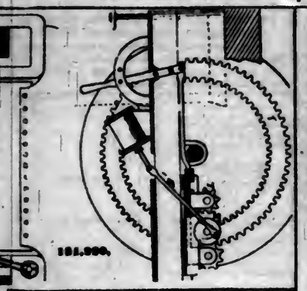


1. In a boiler or similar furnace, the combination of the series of air and gas induction flues with the combustion-flues b b', arranged above and between the same, substantially as and for the purpose specified.

2. The combination of the boiler or similar furnace, composed of the series of air and gas induction flues g h and the combustion chamber or flues b b, with the gas-producer A, substantially as and for the purpose specified.

3. In a boiler or similar furnace, the combination of the induction gas-flue, the combustion-chamber, and the connecting pipe b', provided with a suitable valve, substantially as and for the purpose set forth.

4. The combination of the charging cylinder or hopper, flared at its base, and the bell or conical drop-valve, substantially as and for the purpose set forth.



181,223. SELF-LOCKING STOVE LEGS OR FEET. William W. Tice, California, Ohio. [Filed June 20, 1876.]

Brief.—The studs hold the leg in position by means of the tenis and key-piece.



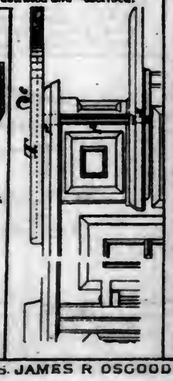
In combination with stove-plate G, having stud E, armed with teats *e e* and stud F, pierced at *f* for key-piece H, the leg or foot A, whose flange B has notch C and orifice D, substantially as and for the purpose set forth.

181,224. COOKING-STOVE ATTACHMENTS. Theo. R. Timby, Tarrytown, N. Y. [Filed Jan. 26, 1876.]

Brief.—A portion of the shelf is cut away, so that it shall not cover the pot-hole. The shelf is supported from the hearth-plate, the pivot passing through the top plate.

1. The improved attachment for cooking-stoves and ranges herein specified, consisting of a rotary or swinging shelf, supported at or above the top of the stove or range by an extended and shouldered vertical pivot, *p*, rigidly attached to the shelf, and occupying pivotal holes *r s* in the stove or range, as shown and described, for the purposes set forth.

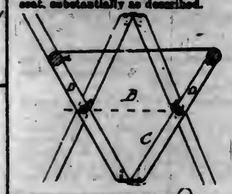
2. A rotary or swinging shelf, supported at, or close above, the top of a cooking stove or range by a vertical pivot, and constructed with a segmental recess, or its equivalent, which gives unobstructed access to the lid or lids of the pot-holes over which the shelf swings, as herein illustrated and described.

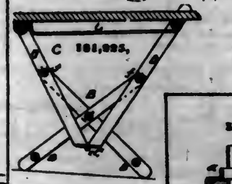


181,225. FOLDING CHAIRS. Jos. H. Travis, Boston, Mass. [Filed Nov. 27, 1876.]

1. In a folding chair, the combination of a folding seat-supporting frame, composed of two sections hinged together below the point of support, and a folding leg-frame, the seat-frame being pivoted to, and supported by, the leg-frame, as substantially as described.

2. In a folding chair, the combination of the leg-frame B, composed of strips of timber pivoted midway between their ends, and connected by suitable rounds with the seat-supporting frame C, constructed of the timbers D, hinged at their lower ends, and provided at their upper ends with a flexible or adjustable seat, substantially as described.



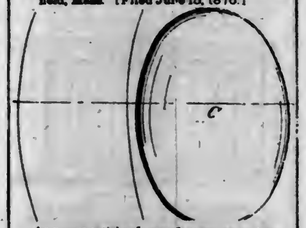


181,226. PISTONS FOR STEREOPS, AIR-PUMPS, &c. Reinhold Vander Linde, New York, N. Y., assignor to himself and Chas. H. Koechling, same place. [Filed Feb. 28, 1876.]

Brief.—The piston has rigid shoulders, over which the elastic collars are pushed.

The piston A, having annular shoulders *a a*, in combination with the elastic collars *b b* and flexible washers *d d*, as and for the purpose specified.

181,227. AXES. Henry W. Warner, Greenfield, Mass. [Filed June 15, 1876.]

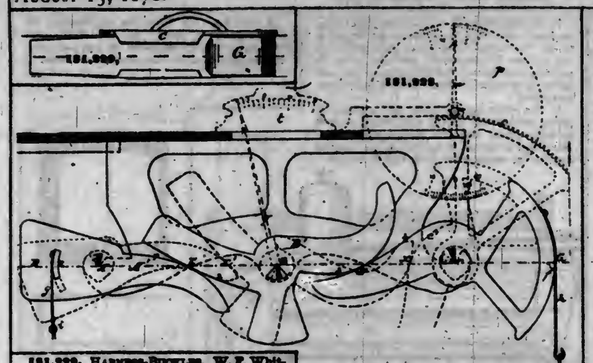


As a new article of manufacture, an axe having the single concavity C formed on each of its sides, extending nearly across the same substantially as shown and described.

181,228. AUTOMATIC WEIGHING-SCALES. Chas. A. Whedon, Cranford, N. J. [Filed July 15, 1876.]

1. A combination of curved levers for weighing purposes, consisting of a middle lever having two curves, and two levers having one curve each, and being in rolling contact with the curves of the middle lever, respectively, the points of contact being in the line of the axes of the levers, and the curves being such that the two points of contact preserve an invariable distance between them, which distance equals the fixed distance between the centers, substantially as specified.

2. The combination of three levers revolving about fixed centers, with which their centers of gravity coincide, in rolling contact with each other, and moving the third lever in arcs proportional to the weights applied to the first lever, substantially as specified.

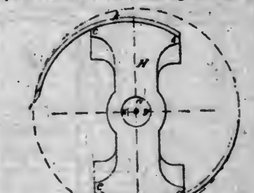


181,229. HARNESS-BUCKLES. W. F. Whitney, Ukiah, Cal. [Filed Feb. 16, 1876.]

The plate A, with flanges B B and C C, and cross-bar D, made in one piece, in combination with the curved pivoted plate G, having the tongue a permanently secured thereto, substantially as and for the purposes herein set forth.

181,230. CUTTER-HEADS. J. H. Whitaker, Davenport, Iowa. [Filed Sept. 9, 1875.]

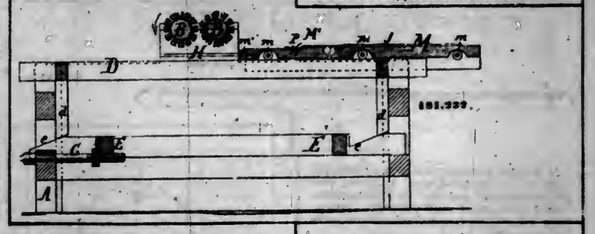
Brief.—Circular knives, having beveled cutting edges, are eccentrically fastened to a head provided with eccentric bearing-surfaces.



The cutter-head H, with its eccentric surfaces *b c* and *d e*, in combination with the circular knives *b b'*, and the bevel cutting edge *i i*, substantially as and for the purpose set forth.

181,231. PROCESSES AND APPARATUS FOR REFINING SUGAR. James Wilhelm, Pittsburg, Pa. [Filed Apr. 1, 1876.]

Brief.—The juice is run from the vat below the pressing-rollers into pans provided with coils of steam-pipe, where it is treated with lime-water, this being neutralized by stearic acid. The juice is then run into evaporating pans, where it is partially concentrated, and then pumped into a semi-strup tank, from which it flows through bone-black filters to a receiving-tank, after which it is passed to the finishing-pans.

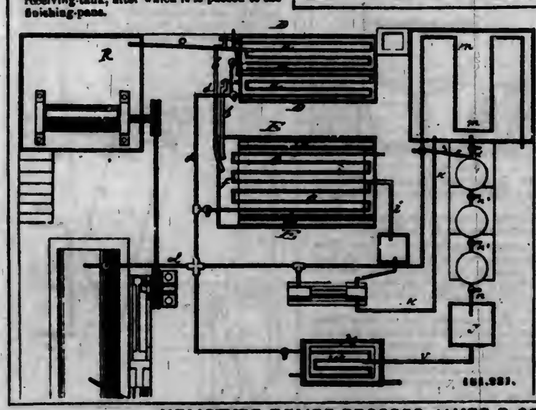


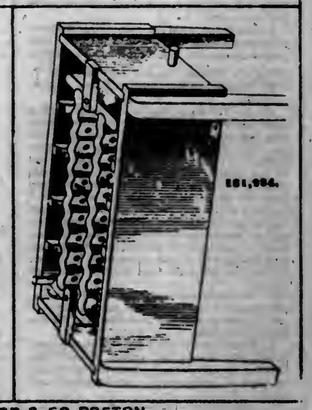
1. The tank D, provided with the partition *s*, steam-pipes *d d*, and swinging pipes *b b*, leading into the evaporator E, in combination with the reservoir K and pipe *e*, substantially as described, and for the purpose set forth.

2. The process of refining sugar, which consists in first introducing milk of lime into the juice or dilute sirup, and then adding stearic acid or stearine, substantially as described, and for the purpose set forth.

3. The filter herein described, having the perforated false bottom *p*, carbon *p'*, provided with a passage, through which extends the rod *p'*, perforated top *p'*, woven cloths *p' p'*, and pipe *n'*, leading into the bottom of the filter, substantially as and for the purpose described.

4. The filter herein described, provided with the pipe *n'*, in combination with the sectional pipe *s*, connecting the steam and sirup pipes, substantially as described, and for the purpose set forth.





181,232. MACHINES FOR FINISHING KNITTED GOODS. James L. Williams, Utica, N. Y., assignor to himself and Saml. S. Lowery, same place. [Filed Apr. 7, 1876.]

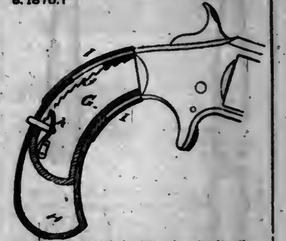
Brief.—The flattened garment is held by a sucker clamp upon an adjustable bed, and subjected to rotating brushes.

1. The carriage M M' and clamp P, in combination with one or more revolving brushes, B, as herein specified.

2. The adjusting means G E, in combination with the ways D, carriage M M', clamp P, and brushes B, as herein specified.

3. The process of treating knitted fabrics by first compressing and harnessing in an extended condition, and afterward brushing the surface, so as to obtain both firmness and smoothness, as herein specified.

181,233. EXTENSIBLE STOCKS FOR PISTOLS. Ebenezer Wilcox, Otto, N. Y. [Filed July 6, 1876.]



1. A pistol provided with a longitudinally-extensible stock, substantially as and for the purpose set forth.

2. The combination of frame G, stock H, and sleeve I, substantially as set forth.

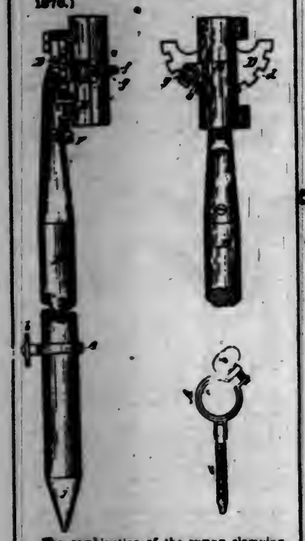
3. The combination of frame G, notched at *j j*, with hollow stock H, provided with spring-catch K and plunger I, substantially as set forth.

181,234. WASHING-MACHINES. George L. Wiltell, Camden, N. J., assignor of one-half his right to Chas. A. Snyder, Philadelphia, Pa. [Filed July 28, 1876.]

1. The combination, substantially as specified, of the ends-box, the reciprocating rubbers, arranged vertically or edgewise in said ends-box, and the connecting bars or heads of said rubbers, hung or pivoted centrally on fixed axes.

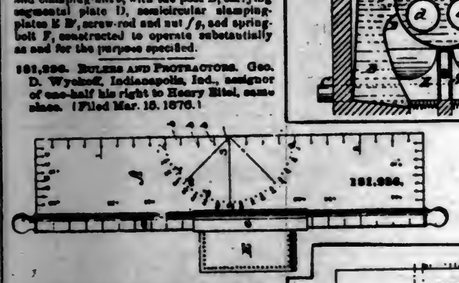
2. The combination, substantially as specified, of the reciprocating vertical rubbers, linked together by connecting bars or heads, as described, and the ends-box, having roughened surfaces opposed to the rubbers.

181,886. UMBRELLA-SUPPORTERS. Alfred E. Wright, Monroe, Mich. (Filed July 1, 1876.)



The combination of the spring clamping-ring A, pivoted or hinged to the screw-rod a and clamping-nut b, with the post B, carrying segmental plate D, semicircular clamping-plates E E', screw-rod and nut f g, and spring-bolt F, constructed to operate substantially as and for the purpose specified.

181,896. RULERS AND PROTRACTORS. Geo. D. Wyckoff, Indianapolis, Ind., assignor of one-half his right to Henry Eitel, same place. (Filed Mar. 18, 1876.)



1. A ruler, A, constructed with a graduated edge and a cylindrical edge, c, having also graduations, and provided with the perforations b c, combined with the angle, perforations d d, to form a combined rule or scale and protractor.

2. Combined with the rule A, constructed with graduations and perforations b c d, the perpendicular line attachment E, as set forth.

181,897. STEAM-BOILERS AND SETTING. T. B. Redman, Milan, Ohio. (Filed Aug. 4, 1876.)

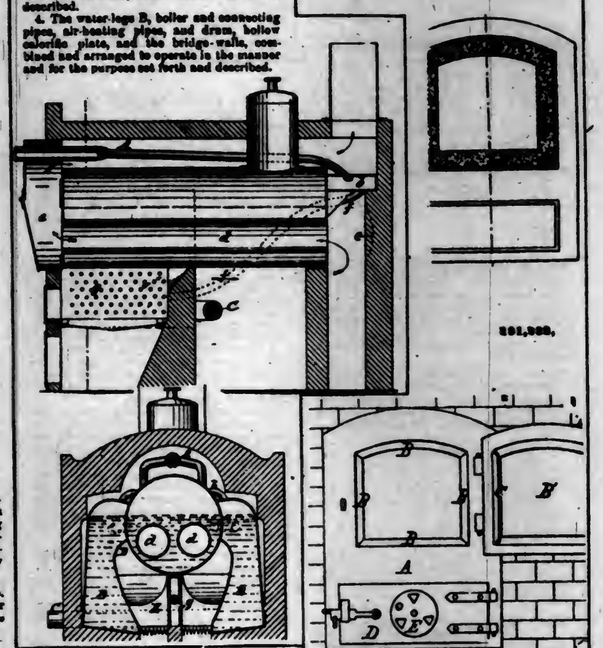
Brief.—The water fire-boxes diverge from a point below the grate to a point above, where they converge and join the boiler near the top, the upper portion forming a "curve crown." The hot-air pipes pass over the top of the boiler to a heating-drum at the rear, forming a division in the rear flue, and pipes lead the air to a "hollow calorific wall," through which it is distributed to the furnace under the boiler. The steam is superheated and air heated by the waste products of combustion passing over the boiler to the uptake. The bridge-wall slopes downward, by which the heat is deflected from the center of the boiler.

1. The coiled heating-pipes A, crown distributing-box b, pipes f, and calorific hollow wall g, substantially as described, and for the purpose set forth.

2. Water-legs B, diverging as shown, provided with the curved crown D, said legs forming the sides of a fire-box, and connected by pipe C, substantially as described and shown.

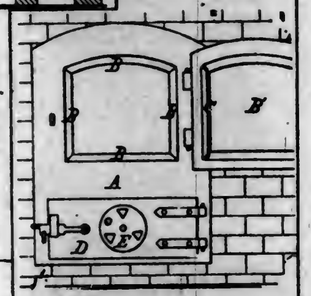
3. The combination of the diverging curve-crowned water-legs B D, connected by pipes C and the boiler, whereby an enlarged heating-surface is presented, and the water is purified and heated before entering the said boiler, substantially in the manner shown and described.

4. The water-legs B, boiler and connecting pipes, air-heating pipes, and drum, hollow calorific plate, and the bridge-walls, combined and arranged to operate in the manner and for the purpose set forth and described.



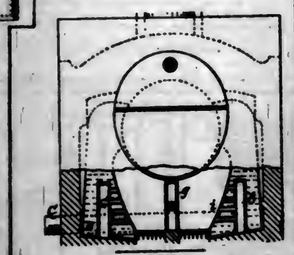
181,898.

5. In a door for kilns, the combination of the flanges C, C, and C', fire-tiles B B', cast bar D, and draft-regulator E, substantially as arranged, and for the purpose set forth.



181,899.

181,900.



181,900. DOORS FOR LIMEKILNS. William Gwynn, Sacramento, Cal. (Filed Aug. 7, 1876.)

Brief.—The door and doorway are wholly defended from the fire by the linings.

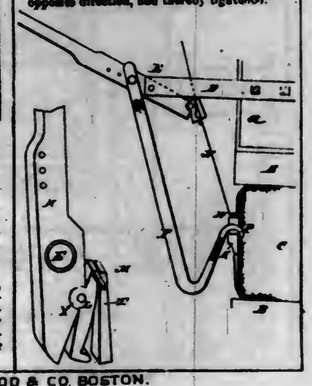
1. In a door-frame for lime or other kilns, the combination of the fire-door and ash-door cast in one frame, the fire-door and doorway having flanges arranged upon them for receiving fire-tiles, substantially as and for the purpose set forth.

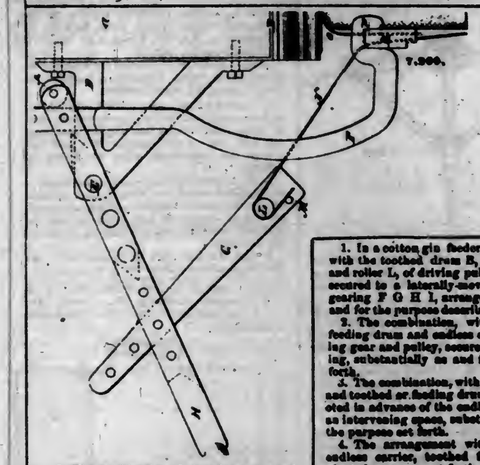
2. In a door-frame for lime or other kilns, the combination of the fire-doorway and ash-box cast in one frame, the fire-door and doorway having flanges arranged upon them for receiving fire-tiles, and the draft-regulator attached to ash-door, substantially as and for the purpose set forth.

REISSUES.

7,900. BALE-BAND-TIGHTENING DEVICES. Charles H. Chase, New Orleans, La., assignor, by mesne assignments, of part interest to Jasper Thayer and John F. Butin. Patent No. 170,064, dated Nov. 16, 1875. (Filed June 20, 1876.)

Brief.—The double-acting lever causes the buckle attached to one end of the band to move in one direction, while the other end of the band is pulled through the buckle in the opposite direction, and thereby tightened.





7,899.

1. The combination of the platen a, brackets D D, and double-acting lever H, the latter having its fulcrum in a rod or cross-piece, uniting the brackets D D, substantially as and for the purposes herein shown and specified.

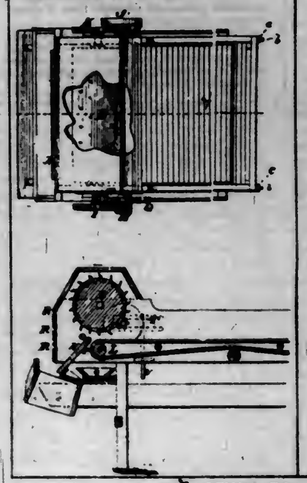
2. The combination of the double-acting lever U, having a series of perforations, with a fulcrum-pin resting in brackets D D, projecting from the platen a of a cotton or other press, whereby the fulcrum or bearing of said lever may be changed to change the amount of leverage to be applied, substantially as and for the purpose hereinbefore set forth.

3. The combination of the double-acting lever H, bar F, having cleats or goose-neck P, and bar G, having the pins L M, substantially as and for the purpose herein shown and specified.

4. The combination of the double-acting lever H, having the slipper-jaws L T, with the force-bar F, having cleats or goose-neck P, substantially as and for the purpose herein shown and specified.

5. The combination of the lever H, having a fixed jaw T, with the loose jaw L, pivoted at Y, and having the guide-piece M, substantially as and for the purpose herein shown and specified.

7,901. COTTON-GIN FEEDERS. Frederick W. Flynn, Germantown, Tenn., assignor, by mesne assignments, to Wm. H. Lockwood. Patent No. 162,871, dated Apr. 20, 1875. (Filed June 19, 1876.)



1. In a cotton gin feeder, the combination, with the toothed drum B, endless carrier A, and roller L, of driving pulley and gear J M, secured to a laterally-moving shaft, and the gearing F G H I, arranged substantially as and for the purpose described.

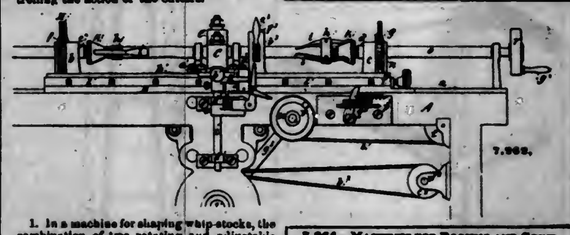
2. The combination, with the toothed or feeding drum and endless carrier, of the driving gear and pulley, secured to a sliding bearing, substantially as and for the purpose set forth.

3. The combination, with an endless carrier and toothed or feeding drum, of an apron pivoted in advance of the endless carrier to form an intervening space, substantially as and for the purpose set forth.

4. The arrangement with relation to the endless carrier, toothed feeding-drum, and pivoted apron, as set forth, of a trough below said endless carrier, substantially as and for the purpose described.

7,902. GAGE-LATHES. Livern Hull, Charlestown, assignor to the American Whip Company, Westfield, Mass. Patent No. 53,003, dated Mar. 6, 1866. (Filed Dec. 1, 1876.)

Brief.—Whip-handles and similar articles can be properly rounded and shaped by means of a suitable holding and feeding mechanism, a pair of revolving cutters or burrs having their axis of rotation at right angles to the axis of the stock, and suitable guides for controlling the action of the cutters.



7,902.

1. In a machine for shaping whip-stocks, the combination of two rotating and adjustable clamps for holding the whip-stock with revolving cutters, whose axis of rotation is at right angles to the axis of the stock, substantially as described, for the object set forth.

2. In a machine for shaping whip-stock, the combination of revolving cutters, the adjustable and rotating clamps for holding and revolving the whip-stocks, and the guides though which the stock is passed for firmly holding the stock while being dressed by the cutters, as described.

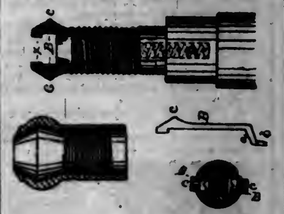
3. In a machine for dressing whip-stocks, the combination with revolving cutters, whose axis of rotation is at right angles to the axis of the stock, of mechanism, such substantially as described, for moving the cutter or cutters in the direction of the axis of the same, as and for the object specified.

4. The adjustable rods or connecting-links a' a' with the cutter-frames or carriages D E, with levers b^1 and h^1, arranged to operate with the pattern-guide k^1, substantially as specified.

5. The combination of the straining or tension mechanism, with the rotating mandrels d d, and their jaws for holding the whip-stock strained or taut, substantially as described.

7,903. DEVICES FOR HOLDING BITS AND OTHER TOOLS. Miller's Falls Company, Miller's Falls, Mass., assignee, by mesne assignments, of J. Ernest Barber, administrator of Wm. H. Barber, deceased. Patent No. 42,627, dated May 24, 1864; reissue No. 4,736, dated Feb. 6, 1872. (Filed Apr. 19, 1876.)

Brief.—Bits and analogous tools can be securely held without any previous fitting to the holder, by means of a socket having a rectangular tapering bore to receive the shank of the bit; a pair of jaws having projections upon their upper outer surfaces, recesses in their confronting faces, and angular lower ends, terminating in short tangs; and a threaded sleeve-nut, having an enlarged internal chamber inclosing the jaws.



1. The jaws B B, constructed substantially as and for the purposes specified.

2. The enlarged chamber Z, in combination with jaws having projections e and s, substantially as and for the purpose specified.

3. The threaded socket provided with a rectangular tapering bore, in combination with a chambered sleeve-nut, and jaws having projections e and s, substantially as and for the purpose specified.

4. The combination of a threaded socket, having a rectangular tapering bore, a sleeve-nut acting in the direction of the handle, and companion jaws working in slots which prevent lateral displacement, said parts co-operating to grasp and center the bit, and also fasten the shank firmly in the tapering bore, the jaws taking hold upon the stem of the bit below its shank, substantially as described.

5. In combination with the loose companion jaws of a bit-holder, a spring applied at their non-grasping ends to automatically open the jaws, substantially as described.

7,904. MACHINES FOR ROUGHING AND GRINDING BARK. Samuel R. Thompson, Portsmouth, N. H. Patent No. 176,709, dated Apr. 25, 1876. (Filed May 31, 1876.)

Brief.—The bark can be ground entire, or any desired thickness of "rind" or "fiber" separated therefrom, by means of a rotary cuttered cutting-cylinder, a vertically-adjustable bed-plate, and a vertically and horizontally adjustable sparred roller, supported by two arms hinged to slotted cars in the supporting-frame, and oscillating in a vertical plane, in connection with suitable operating mechanism. Longitudinally-curved pieces of bark can be fed to the cutters by a hinged apron attached to the outer end of the bed-plate. Fragments of bark can be fed to the cutters by means of a hopper, the sides of which are provided with adjustable or hinged flaps.

1. The rotary cutter for bark-rossing machines, herein shown and described, provided with teeth, which, on a line parallel with the axis of the roller, are separated by spaces equal to double their own width, as specified.

2. A rotary cutter for bark-cutting machines, provided with teeth arranged in series parallel to the axis, and separated laterally by continuous channels winding spirally around the cutter and isolating each tooth, as specified.

3. The slotted bed-plate M, combined with the threaded adjustable standards M', rising from the frame B, and provided with jam-nuts s, substantially as described.

4. The feed-roll E, combined with the horizontally and vertically-adjustable pivoted arms F F, substantially as described.

5. The pivoted arms F F, having the slots f, combined with the threaded standards f', having the nuts i, substantially as described.

6. The horizontally and vertically adjustable feed-roll E, combined with the rotary cutter A, located in fixed bearings, substantially as described.

7. The combination of the horizontally and vertically adjustable feed-roll E, the horizontally and vertically adjustable bed-plate M, and the rotary cutter A, located in fixed bearings, substantially as described.

8. The cleaner V, attached to the arms F, in combination with the feed-roll E, substantially as described, for the purpose specified.

9. The hopper T, having the hinged flaps or doors U U', combined with the feed-roll E, and rotary cutter A, substantially as described, for the purpose specified.

10. The flap U, hinged to the bed plate M, and adapted either to form an extension of the bed-plate or a covering for the side of the hopper, substantially as described.



7,264.

7,264. UMBRELLAS. Georg Rockstaller, St. Louis, Mo., assignor of one-half interest to Julius Steiner, same place. Patent No. 173,260, dated Jan. 18, 1876. [Filed May 27, 1876.]



7,265.

1. As a new article of manufacture, the four-sided or square umbrella for vehicles, provided with a four-ribbed frame, substantially as and for the purpose set forth.

2. The combination of a square cover, E, having square perforation, re enforce band J, and pockets a, with the four ribs F, and separate bearing-collar D, substantially as and for the purpose set forth.

3. The brace H composed of two parallel bars, h h, having eyes h^2 h^2, in combination with the slider I, having separate recesses i for each eye or end h^2, substantially as set forth.

4. The combination of staff B, provided with square top C, forming the flat sides c, ribs F, having orifices F^2 and rounded ends F^1, adapted to turn on said sides c, and the ring G holding said ends to said top, as and for the purpose set forth.

5. The brace H composed of two parallel bars, h h, with eyes h^2 h^2 and return-bend h^1, and combined with the slider I, having separate recesses i, one for each end or eye h^2 h^2, substantially as set forth.

6. The bread rib F, in combination with the double brace F F and runner I, substantially as set forth.



7,266.

1. The mode herein described of burning waste anthracite coal in a steam-boiler furnace—that is to say, by depositing it in a thin layer on a grate, repeatedly raking or breaking up the ignited layer from above, and subjecting it from below to numerous jets of air under continuous pressure from a closed ash-pan, all as set forth.

2. The combination, in a steam-boiler furnace, of a perforated fuel-bed, E, the ash-pan F, pipe or pipes M, and steam nozzle or nozzles G, communicating with the steam-space of the boiler, all as set forth.

7,266. APPARATUS FOR DRYING BONE-BLACK. Peter Farley, New York, N. Y. Patent No. 113,754, dated Apr. 18, 1871. [Filed Aug. 20, 1875.]

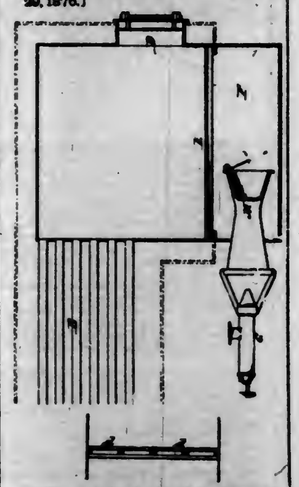
Brief.—Moisture is expelled between the inclined plates, which direct the material to be dried against the heated surface.

1. A drier for drying bone-black, constructed and arranged substantially as described, so as to employ and utilize the surplus heat from the kiln, and to automatically dry and discharge the bone-black, when dried, into the retorts.

2. In a drier, inclined slats or surfaces, in combination with a radiating heating-surface, constructed and arranged substantially as described, to constantly and automatically deliver the material upon the heating or radiating surfaces.

3. The inclined slats B B, applied to the heating-chamber, substantially as described.

7,267. STEAM-BOILER FURNACES. John E. Wootten, Reading, Pa. Patent No. 173,432, dated Feb. 15, 1876. [Filed Apr. 29, 1876.]



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COMMISSIONER'S DECISIONS.

SARGENT AND BURGE.—*Interferences with reissue applications.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the motion to dissolve the interference declared between the application of James Sargent for the reissue of his patent of July 20, 1875, No. 165,878, and the application of John Burge, for the reissue of his patent of August 3, 1875, No. 166,255.*]

The case of Merrill and Carleton reviewed. The full extent of that decision never followed by the Office or the courts.

Under the decisions of the United States Supreme and Circuit Courts it becomes the duty of the Commissioner of Patents, in restricting reissue applications, to have regard to the state of the art as shown both by antecedent and subsequent inventions.

The word "restricted" in section 4916, R. S., relating to reissues, construed as being used in its ordinary sense, and having the same signification as when applied to original applications.

Whenever a claim is made to an invention of which the Patent Office has jurisdiction it becomes its first duty, under the law, to ascertain whether the claimant is the first and original inventor.

This restriction applies as well to reissue applicants as to original ones, and when there are opposing claimants an interference proceeding is necessary in order to determine the question.

The practice of declaring interferences with reissue applications, continued by the Office for nearly forty years, recognized by contemporaneous legislation, in harmony with the decisions of the United States Supreme Court, acquiesced in and expressly affirmed by other courts, is now again resumed in all proper cases.

[*J. L. Morris* and *J. J. Coombs* for Sargent,
M. S. Hopkins for Burge.]

DOOLITTLE, *Acting Commissioner:*

This is an appeal from the Examiner of Interferences granting a motion to dissolve this interference, on the ground that the same was unlawfully declared, in view of the recent decisions of the Office and the Supreme Court of this District.

The situation of the parties is as follows: August 22, 1873, John Burge filed his application for a patent, which patent was granted August 3, 1875. In the meantime (March, 1875) James Sargent filed his application, and a patent was granted him July 20, 1875, a few weeks prior to the granting of the patent to Burge.

The applications of both parties related to "Improvements in Time-Locks." Burge was first in the Office by nearly two years, but last to receive a patent. It appears that neither party at first laid claim to the subject-matter now in interference; but on March 17, 1876, Burge filed an application for a reissue of his patent, which was followed, April 5, 1876, by a reissue application from Sargent, the claims in both of which were adjudged by the Primary Examiner to interfere.

The whole question of the validity of declaring interferences with reissue applications is before us again for consideration.

In the recent decisions of this Office in regard to the matter of interferences between reissue applications and other applications for patents, the Office followed what it believed to be the doctrine established by the Supreme Court of this District in its decree in the Mayall case. But in the absence of an expression of any opinion or reasons given by the Court as the basis of such decree, the Office at first adopted it only so far as the circumstances of succeeding cases corresponded with the circumstances of the Mayall case.

It is now insisted, however, by counsel in behalf of Burge, that the decree of the Supreme Court in the Mayall case was based upon a previous decision of Judge Fisher, of the District Circuit Court, in what is known as the Merrill and Carleton case; which decision they contend goes clearly beyond the interpretation given to it by the Office.

Until the rendition of the decree in the case of Mayall the Office practically disregarded the doctrine set forth in the Merrill and Carleton case, and up to that time continued its long established practice of declaring interferences with reissue applications in the same manner and for the same reasons as in original applications.

Another practice having been established by the Commissioner in the Becker and Throop, Paris and Busey, Morse and Carroll, and the Covell cases, based upon the decree of the Supreme Court in the Mayall case, and it now being insisted that such decree reaffirmed in its entirety the doctrine of the Merrill and Carleton case, which went much farther than the Commissioner's decisions just mentioned, it becomes necessary to inquire precisely what was held in the Merrill and Carleton case, and to ascertain whether the Office has followed or de-

parted from the rule there set up. For if that decision is binding at all upon the Office it is binding to its fullest extent, and there is no good reason for obeying it but partially.

The learned judge in that case, having at the conclusion of his decision emphatically stated that the Commissioner "has no power to declare an interference in cases of applications for reissue," leaves no doubt in my mind as to the interpretation to be placed upon it, and there was no doubt, as I am personally aware, in the mind of the court at the time of the decree in the Mayall case as to its interpretation. The whole decision of Judge Fisher proceeds upon the ground, as above set forth in his conclusion—and as elsewhere declared—that "the Commissioner has no power or authority vested in him by law in cases of reissue to make up a controversy between the applicant and any person outside of the Patent Office." If, then, there were reasons inducing or compelling the Office to change its practice in view of this decision, the same reason should exist requiring it to go still further and abolish the practice of declaring interferences with reissue applications in all cases whatsoever.

In order to fully comprehend the whole subject it will be necessary to inquire what the statute provides the Commissioner shall do in respect to reissue applications, so far as to control their grant, and as to original applications so far as respects the matter of interference.

Under the first division of the question the requirements of section 4916, R. S., must be regarded. They are as follows:

SEC. 4916. Whenever any patent is inoperative or invalid by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a new patent for the same invention, and in accordance with the corrected specification, to be issued to the patentee, or in the case of his death, or of an assignment of the whole or any undivided part of the original patent, then to his executors, administrators, or assigns, for the unexpired part of the term of the original patent. Such surrender shall take effect upon the issue of the amended patent. The Commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for a reissue for each of such reissued letters patent. The specifications and claim in every such case shall be subject to revision and restriction in the same manner as original applications are. * * * *

Interferences are established by authority of section 4904, which is as follows:

Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the Primary Examiner to proceed to determine the question of priority of invention. And the Commissioner may issue a patent to the party who is adjudged the prior inventor, unless the adverse party appeals from the decision of the Primary Examiner, or of the Board of Examiners-in-Chief, as the case may be, within such time, not less than twenty days, as the Commissioner shall prescribe.

The whole difficulty in the matter seems to turn on the proper construction to be given to that clause in section 4916, relating to reissues, which requires that—

The specifications and claim in every such case shall be subject to revision and restriction in the same manner as original applications are.

The court, in the Merrill and Carleton case, in construing this clause, held—

But if the Commissioner shall find that the original patent is invalid or inoperative by reason of a defective specification, or by reason of the patentee having claimed in his specification, as his own invention, more than he had a right to claim as new, and that the error was the offspring of accident, mistake, or inadvertence, and not fraudulent, he has nothing further to do except to issue the new patent, unless it be to exercise his power of "revision and restriction"—that is to say, examine the specification as corrected by the applicant, and upon such revision so to restrict that amended specification, if necessary, as to have it cover the same invention which was described or shown in the original description, drawings, and model, and cover nothing more.

Having made this revision and restriction, if the applicant for reissue shall accept the restriction, it only remains for the Commissioner to reissue the patent with the specifications so corrected, revised, and restricted. He has no right to review and revise prior decisions of the Office, made upon the original application, but only to restrict the specification proposed for reissue so as to limit it to the original invention.

It would seem from these provisions of the acts of Congress that the duty of the Commissioner of Patents is a plain and simple one. Although the section last alluded to contemplates and provides for *a revision and restriction* of the claim of the person offering the surrender, and asking for a reissue, the same as in case of original applications; yet it does not mean to place applications for reissued letters patent in all other respects upon the same footing as applications for original patents. It places them upon the same footing only in regard to a *revision and restriction* of the amended specification, so that whenever a party, being dissatisfied with his original patent, shall make an offer of surrender, and ask for a reissue, it becomes the duty of the Commissioner simply to examine his amended specifications, to determine whether an honest mistake has been made in the issuing of the original patent, as contemplated by the law of Congress, and if he finds that the application for reissue is for the same invention or device, and that the mistake made in the original patent was honestly made, it is his duty, having examined the amended specification, to determine whether they are correctly and rightfully made out so as to cover the original invention, and no more, as shown by the original description, drawings, and model. If he finds that they cover too much or too little, it is his duty to inform the applicant of that fact, and to point out in what particulars the specification should be amended or restricted.

This being done, if the applicant should amend his specifications accordingly, there is no discretion left with the Commissioner in regard to granting the reissued letters patent.

From that sentence in the above extract in which it is said that the Commissioner "has no right to review and revise prior decisions of the Office, made upon the original application, but only to restrict the specification proposed for reissue so as to limit it to the original invention," in connection with the remaining language quoted, it appears to me that the court held that the Commissioner has no power, upon the reissue application being made, to inquire again as to the *novelty* of the invention at the time of the filing of the original application; but that he is concluded therein by the previous act of the Office in granting the patent. Otherwise, if he were permitted to inquire into the state of the art at the time the original patent was granted, or the original application filed, he might find that the Office had overlooked very important references which, in his judgment, met the case precisely; and if he acted upon that knowledge, and required, as is now done almost every day, the applicant to strike out or disclaim what was old at the time of the original grant, he would be "reviewing and revising prior decisions of the Office made upon the original application."

It clearly seems, therefore, that the court confined the power of the Commissioner to the revision and restriction of the reissue applications so far only as it concerns the description of the invention set forth in the original application, and the claims made thereon; that if the description was defective the Commissioner should allow it to be corrected; if proper claims were not made, or if they were defective, he might allow them to be made or corrected to agree with the specification. In other words, that the only power the Commissioner has in such cases is to see that the deed should be corrected in regard *only* to the matter therein contained, without regard to antecedent or subsequent matters set up by other parties in their deeds.

That the decision in question confines the Commissioner to this narrow ground is further seen by a sentence near its close, in which it is held that the Commissioner "has no power to go back and open the question settled years before by himself, or his predecessors, with a view to determine again whether, in the first place, the patentee was entitled to have his original letters patent."

This construction, up to this time, has certainly never been given to the law by the Office, and I believe is opposed to the decision of the United States Supreme Court in the very first case in which arose the question of the validity of the reissue of patents made before any express law authorizing such a thing to be done.

Chief Justice Marshall, delivering the opinion of the United States Supreme Court, in *Grant* vs. *Raymond*, (6 Peters, 218,) held:

It has been also argued that the new patent must issue on the new specification, and on the application which accompanies it. Consequently, it will not be true that the machine was not known or used before the application.

But the new patent, and the proceedings on which it issues, have relation to the original transaction. The time of the privilege still runs from the date of the original patent. The application may be considered as appended to the original application; and, if the new patent is valid, the law must be considered as satisfied, *if the machine was not known or used before that application.*

It has been urged that the public was put into possession of the machine by the open sale and use of it under the defective specification, and cannot be deprived of it by the grant of a new patent. The machine is no longer the subject of a patent.

This would be perfectly true if the second patent could be considered as independent of the first. But it is in no respect so considered.

But since the incorporation into the statute of the provision relating to reissue applications, by which the power of the Commissioner to restrict the same has been defined, the same court has in several cases not only indicated that it was the duty of this Office to look into the state of the art previous to the time of the grant of the original application, but also to the state of the art subsequent thereto; holding not only that the reissue applicant is not authorized to have his patent reissued to cover matter which was not new at the time of the filing of his original application, but that he was also prohibited from incorporating into his patent, by means of expansive claims, and elastic descriptions, inventions which had been made subsequent to the grant of his first patent.

In the case of *Brooks* vs. *Fiske*, (15 How., 212,) the court, in passing upon a reissued patent in controversy, said:

It is deemed proper to remark that the fact of procuring a patent for a new and useful machine in 1845, under the assumption of a reissue, which was not useful as patented in 1828, for want of feed and pressure rollers, now used, as alleged in defense, would present a question of fraud, committed on the public by the patentee, by giving his reissued patent of 1845 date as an original discovery made in 1828, and thereby overreaching similar inventions made between 1828 and 1845.

In *Burr* vs. *Duryee* (1 Wall., 531,) the court, after stating clearly and explicitly the fact that the invention embraced by the original patent in controversy was entirely new at the time of the filing of the original application, proceeded to say, however, that the purpose of the patentee was clearly transparent, by the means of elastic and equivocal claims and description, to cover up inventions subsequently made.

The court not only condemned this practice, but indicated the duty of the Patent Office in the premises, in the following language:

The Patent Bureau in this country is composed of men of scientific attainments, who examine the merits of every claimant of a patent, and decide whether, in their opinion, it attempts to claim a monopoly of things before known or invented. They are not expected, as formerly, to grant a patent, without inquiring, to every applicant who is ready to pay the fees. Such a course of conduct would be highly injurious to the public, by furnishing means to impose on the public by false pretences, and with threats of expensive and ruinous litigation.

The surrender of valid patents, and the granting of reissued patents thereon, with expanded or equivocal claims, where the original was clearly neither "inoperative or invalid," and whose specification is neither "defective nor insufficient," is a great abuse of the privilege granted by the statute, and productive of great injury to the public. This privilege was not given to the patentee or his assignees in order that the patent may be rendered more elastic or expansive, and therefore more "*available*" for the suppression of all other inventions.

Again, the same court, in *Carlton* vs. *Bokee*, (17 Wall., 471,) remarked:

We think it proper to reiterate our disapprobation of these ingenious attempts to expand a simple invention of a distinct device into an all-embracing claim, calculated by its wide generalizations and ambiguous language to discourage further invention in the same department of industry, and to cover antecedent inventions.

And the duty of the Commissioner not only to revise and restrict the specifications and claims in view of the invention set forth in the original application, but to act as a judge in matters of fact to prevent fraud where the intention was to cover up by the reissue antecedent as well as *subsequent* inventions, is clearly set forth in later decisions of the same court.

In *Seymour* vs. *Osborne*, (11 Wall., 516,) in commenting upon the power of the Commissioner in this respect, the court held:

Matters of construction arising upon the face of the instrument are still open, *but all matters of fact connected with the surrender and reissue are closed in such a suit by the decision of the Commissioner in granting the reissued patent.* (*Rubber Co.* vs. *Goodyear*, 9 Wall., 796; *Stimpson* vs. *Railroad*, 4 How., 404; *Railroad* vs. *Stimpson*, 14 Peters, 458.)

The above practice is summarized in the case of *The Union Paper Collar Company* vs. *White*, United States Circuit Court of the eastern district of Pennsylvania, (7 OFFICIAL GAZETTE, 878,) by Judge McKennan, as follows, in speaking of the seventh reissue of Hunt's original patent:

This multiplication of reissues is of itself suggestive of a purpose to cover *intervening improvements*, and some phrases in the specification of the last reissue may, not without semblance of reason, be treated as having that significance. It is difficult to suppose that so many reissues, with considerable intervals of time between them, were necessary to correct accidental or inadvertent mistakes in the specification and claims of the original patent, and yet the correction of them is the only legitimate purpose of a reissue. This practice has been strongly disapproved by the Supreme Court on more than one occasion. * * * *

Whatever reason there may be to suspect that the motive of the patentee was to give undue elasticity to his patent, still the law presumes that the reissue was granted to correct an inadvertent omission in the original, *because it commits to the Commissioner of Patents the conclusive determination of that question*, and the only test of the validity of his action is whether he has allowed a reissue for a different invention from that covered by the original patent, or for what was not therein described, claimed, or indicated.

These decisions plainly show, then, that the Commissioner of Patents, in order to defeat fraud and deceit when attempted to be practiced in the reissue of a patent, must have regard to the state of the art not only *prior* to the issue of the original patent but subsequent thereto. It makes him not only a ministerial officer to correct a deed, but a judicial officer to consider and weigh all the facts in connection with such correction, and to determine upon the validity of the new claim presented in view of such facts. His duties, then, are certainly of a broader scope than that given him by the court in the Merrill and Carleton case.

In short, so far as restriction of a reissue application is concerned, in view of the state of the art, he is put precisely upon the same ground as when restricting an original application.

If the word *restricted* were used in that part of the statute which provides that the patent shall be granted

to the first and original inventor when certain due proceedings have been observed, and if the same word had also been used in the section relating to interferences, so that in the first instance applicants should be restricted to that for which they were the first and original inventors, and in the second place restricted to that of which they were proven to be the prior inventors, it is very clear that the word would not narrow the construction that has always been placed upon those sections. The term would be held to have its common signification, "to restrain within bounds," and there is no reason why it should not receive its common signification in its present location in the section relating to reissue applications.

All the requirements of the law respecting the grant of original patents are classed as "restrictions" by the United States Supreme Court in the late case of *Beckendorfer* vs. *Faber*, (10 OFFICIAL GAZETTE, 71.)

It is among the first rules for the interpretation of words in a statute that they must be presumed to have their proper and ordinary signification unless there is some good reason for supposing otherwise, as where technical terms are used.

The former part of the section in question having stated distinctly that the new patent must be for the same invention, to construe the clause that "the specification and claim in every such case shall be subject to revision and restriction in the same manner as original applications are," as referring to the invention previously made and patented would not only be surplusage but would render the whole section ambiguous.

Original applications are not revised and restricted in regard to the new matter referred to by this section, but are revised and restricted, as has already been shown, in view of matter shown in *other* applications and patents, and by the general state of the art.

It being the duty of the Office, then, to restrict reissue applications, in view of the state of the art, in the same manner as original applications are restricted, it remains only to inquire whether an interference is a necessary part of such restriction. The only evidence, in many cases, which the Office has of the state of the art as opposed to a particular patent or application is the fact that the same invention is claimed by a different party.

Whenever a claim is made, of which the Office has jurisdiction, it becomes its first duty, under the law, to ascertain whether the claimant is the first and original inventor. In the case of a patent opposed by an application, it is necessary to settle this question in order to ascertain whether a patent shall also be granted to the applicant; and jurisdiction is given to the Office over the patent, not for the purpose of correcting, restricting, or invalidating it, but for the purpose of ascertaining the rights of the opposing parties to the subject-matter thereof. So, in exercising the jurisdiction the law gives over a reissue application, no attempt is made, or lawfully can be made, by the Office to invalidate the original patent. The surrender of that is not effected until a new one issues in its place. But the applicant for reissue having come within its jurisdiction, and the question being whether to him or to another party belongs the title of first and original inventor of the precise matter on which the government is asked to extend further and fuller protection, the Office cannot avoid the determination of that question without violating the first and paramount duty required of it by the law. That question cannot be settled without an interference, or some other similar proceeding, by which the rights of the respective parties to this species of property can be judicially investigated and determined.

Whether a patent is valid or not is a question for the courts; but whether the patentee is the first inventor is a question for the Office whenever the protection of the Office to a particular invention is asked by one who opposes the claims of the patentee to that title.

I fully agree with counsel for Burge that the section providing for interferences prescribes no order of dates in relation to patents or applications which are included therein.

There cannot be a rule of law (as counsel maintains) respecting the declaration of interferences with reissue applications that will make it proper and lawful in one set of cases and not in another; the date of a patent or the date of an application for a patent is no reliable indication of the date of the invention comprehended by it, as every one familiar with patents is aware.

But it is further contended that as the statute contemplated the duplicating of patents in some cases as inevitable, the remedy of a suit in equity between interfering patents, provided for by the statute, would appear to have been devised to cover just such cases as the present one, and that where reissues are applied for they should be granted as a matter of course, and the courts who are best qualified to adjudicate upon vested rights should be allowed to settle the disputed question. The difficulty with this doctrine is that what is not clearly described and claimed in a patent is not a vested right, and in determining in the first place in whom rights should vest the Office is not in any case authorized or justified in shifting the responsibility upon the courts. The courts have pointedly condemned the practice of granting patents, both originally and by reissue, bad in form and in substance, which would have been withheld if the Patent Office had properly performed its legitimate duties.

It is the duty of the Office in all cases, whether in the grant of a patent in the first place or in its reissue subsequently, to make a thorough examination into the state of the art and to vest in no one a right which he is not by law entitled to have; and also to see, as far as possible, before the patent issues that it sufficiently protects the person to whom the grant is made, and affords the public a clear understanding of its extent.

The point made by counsel in behalf of appellant, that regard must be had to the contemporaneous construction of the law in question by Congress and the courts, is of weight. For nearly forty years it was the practice of the Office to declare interferences with reissue applications. Congress incorporated substantially the same requirements in regard to reissues and interferences in the various general laws and revisions during that period.

In the case of *Potter* vs. *Dixon*, decided in 1863 before Mr. Justice Nelson in the United States Circuit Court for the southern district of New York, (2 Fish., 381,) wherein the question arose of the power of the Commissioner to reopen an interference case after a decision by the Supreme Court of this District under the then existing practice, for the purpose of putting therein a second application for a reissue, the court held that the Commissioner had that power, and remarked that under the law (section 8 of the Act of March 3, 1837,) he had "the same power on a reissue over the question of granting it, which he possessed in the case of an original application for a patent."

In the original case, (*Wilson* vs. *Singer*, Dunlop, J., December 20, 1859,) the District Supreme Court distinctly held that it was the *duty* of the Commissioner to declare interferences in proper cases with reissue applications.

This was the long-established practice of that court up to the time of the Merrill and Carleton case, and the latter is the only decision of that or any other court cited against it.

Many more reasons might be adduced in favor of the practice here contended for did time and space permit. It is to be very much regretted that the Supreme Court of this District, in its late action in the Mayall case, did not prepare an opinion, or give its reasons in full for the conclusion reached by it.

The only exposition of the law by that court being that of the Merrill and Carleton case, I am constrained, with all due respect, to depart from that decision for the reasons that it is inconsistent with the views of the supreme and other courts of the United States as to the scope of the powers of the Commissioner of Patents over reissue applications, and opposed to the long-established practice of the Office, which was recognized by contemporaneous legislation, and acquiesced in and expressly affirmed by the previous decisions of the courts of this district, and at least one of the United States Circuit Courts.

The decision of the Examiner of Interferences is reversed, and the practice of declaring interferences with all reissue applications in proper cases will be resumed.

This case was heard by me in absence of the Commissioner, but, after writing the decision I submitted it to him, and he desires me to state that he fully concurs therein.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

THE RUMFORD CHEMICAL WORKS *vs.* GEORGE V. HECKER.

[*In equity.—Before* NIXON, *J.*]

In order that a decision of the United States Court in another district shall be considered *res adjudicata*, the matters in controversy should be fully settled, and a final decree entered.

A decree is to be considered interlocutory whenever an inquiry as to matter of law or fact is directed preparatory to a final decree. When a decree finally decides and disposes of the whole merits of the cause, and reserves no further questions or directions for the future judgment of the court, so that it will not be necessary to bring the cause again before it for its final decision, it is a final decree.

[*C. A. Seward* and *Wm. M. Evarts*, for plaintiff.
C. F. Blake, C. M. Keller, and *S. Williamson*, for defendant.]

NIXON, *J:*

The questions raised by the pleadings in this case are within a narrower range than the arguments of counsel would seem to indicate. Some matters have been settled by previous adjudication between the parties.

The complainant is a corporation, organized under the laws of the State of Rhode Island, and claims to own, by assignment, certain letters patent originally granted to Eben N. Horsford, April 22, 1856, for an "Improvement in pulverulent acid for use in the preparation of soda-powders, farinaceous food, and for other purposes."

After the second reissue of said patent, June 9, 1868, the complainant filed a bill against this defendant in the southern district of New York, alleging an infringement of said reissue, in which a decree was entered March 20, 1873—the court holding the first, second, and third claims of the said patent, as reissued, void, but affirming the validity of the fourth claim, adjudging the defendant to have infringed the same, and ordering an account for the profits in consequence thereof. Whether such infringement had taken place solely by a use of what was named in the fourth claim, irrespective of any selling by the defendant of the mixture claimed in the third claim, or whether it had taken place also through sale by the defendant of such mixture in connection with a use of it by the vendees under the fourth claim, was treated as a question not then to be decided, but to arise in evidence to be given in the accounting in regard to the facts attending the sales, and the use made by the vendees of the mixture sold.

The prayer of the bill in the above case was for an account of the profits only, it having been filed before the passage of the Patent Act of July 8, 1870, in the 55th section of which it is enacted that—

The court shall have power, upon bill in equity, filed by any party aggrieved, to grant injunctions according to the course and principles of courts of equity, to prevent the violations of any right secured by a patent, in such terms as the court may deem reasonable; and upon a decree being rendered in any such case for an infringement, the complainant shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby; and the court shall assess the same, or cause the same to be assessed under its direction, and the court shall have the same powers to increase the same in its discretion that are given by this act to increase the damages found by verdicts in actions upon the case.

The bill in this case, filed since the enactment of the above section, sets up the decree in the first mentioned suit, and alleges that it was to recover profits only, and prays (1) for the damages which the complainant has sustained in consequence of the infringement of the reissued patent by the defendant prior to the 20th day of March, 1873; and also (2) for the damages, and gains and profits subsequent to that date, on the ground that, since then, the defendant has substituted a new acid for the one in which the recovery was had, and which new acid was not embraced within the former decree.

The answer of the defendant admits the decree in the Circuit Court of the United States for the southern district of New York in the suit between the same parties, and that the court sustained the validity of the fourth claim of the complainant's reissue; but alleges that by the same decree it became *res adjudicata* between the complainant and defendant; that the first, second, and third claims of the patent were invalid and void, and that the complainant ought not to be heard on any allegations in this court that said claims are good and valid in law. It further avers that the defendant should not be held to answer in this suit for any of the matters alleged against him prior to the decree.

It admits that, after the making of the said decree, the defendant ceased to manufacture and use acid prepared in the manner in which the acid that was the subject of the former bill was prepared, and that he has since made and used an acid, but whether it is substantially the same as, or an equivalent for, the acid

which was the subject of the former suit, the defendant is ignorant and cannot answer, and avers that it would require a scientific research to enable him to answer touching the nature and character of said acid. It further denies the infringement of the complainant's patent by the defendant, and also that Horsford is the original and first inventor of the alleged invention.

Issue was duly joined, the proofs taken, and the case set down for hearing at the September term of 1874. But before the argument, to wit, on the 12th day of September, an application was made to the court in behalf of the defendant for leave to file a supplemental answer, and to open the proofs for further evidence. The motion was based on the existence of certain alleged facts which had come to the knowledge of the defendant, and which either did not exist, or were not within his personal cognizance at the time of filing his answer, or when the testimony was closed.

These facts were (1) that, since the filing of said answer, the defendant had been ordered by the Circuit Court of the United States for the southern district of New York, to answer interrogatories which he had before refused to answer before the master in the accounting in the New York suit, and which fully disclosed the amount and the extent of his business in the use of all acids in the manufacture and sale of self raising flour, from the date of the reissued patent to June 13, 1874; and (2) that the acid which the defendants used since the 20th of March, 1873, was a dry, fine, homogeneous powder, containing, as an active agent, phosphoric acid in an available condition to be used as a substitute for the tartaric acid in decomposing an alkaline carbonate in making bread without the use of ferment, and is, in fact, the same acid as that which was held, by the court in the suit pending in the United States Circuit Court for the southern district of New York, to be the acid the manufacture and use of which is described and claimed in the complainant's patent.

After argument I refused the motion, being satisfied in regard to the first-stated fact that no evil or injustice could arise to the defendant, as at most it simply involved the question of double accounting, which was at all times under the control of the court; and, in regard to the second, that, if the allegation was material, it came too late, as, by the use of the most ordinary diligence, he could have ascertained it before the answer was put in.

After the hearing, and while the case was *sub judice*, another application was made by the defendant to have the case opened and a supplemental answer filed, alleging in substance (1) that all the self-raising flour sold by the defendant, as charged in the bill of complaint, was by him purchased of Hecker & Brother, in the city of New York, and that the said Hecker & Brother had accounted to the complainants herein therefor, in the suit of *The Rumford Chemical Works* vs. *Hecker & Brother*, then pending in the United States Circuit Court for the southern district of New York; and (2) that the invention described in the letters patent of the complainant was described in "The Elements of Experimental Chemistry, by William Henry, M. D., F. R. S., (11th edition, in 2 volumes,) published by Robert Desilver, 111 Walnut street, Philadelphia, 1831, vol. I, chap. vii, sec. 5, pages 323-4."

This motion was also refused, for the reasons assigned on the previous application, and for the additional reason that the amendment secondly proposed was in the nature of cumulative evidence on the issue of want of novelty in the complainant's patent, and has reference only to the first and second claims of said patent, which, according to the view that the court was disposed to take of the case, were not involved in the present controversy.

The complainant's reissue, the infringement of which is alleged, has reference to a chemical composition or product useful in the making of bread—a matter which closely touches the comfort and well being of the whole family of man. Prof. Horsford was familiar with the method in use when he obtained his original patent. He knew of yeast or leaven, of cream-tartar, salaratus, and tartaric acid, and his object was to find some other compound which, being mixed with flour, would produce the necessary porosity or lightness, and at the same time would increase the healthfulness of the bread, and diminish the cost of its production. A reference to the different reissues will show that at the start he had not developed in his own mind, nor did he fully comprehend, all the beneficial results which were to flow from his alleged invention.

The original patent, No. 14,722, "for improvement in preparing phosphoric acid as a substitute for other solid acids," was granted April 22, 1856. In the schedule he alleges that he has invented a new and improved preparation or substance, being a substitute for a pulverulent acid for use in manufactures of soda-powders and other similar compounds, where a dry acid is required.

After stating the proportions of the ingredients, and the processes of the manufacture, he proceeds to say that—

> The object is to obtain available phosphoric acid in such form that it may be intimately mixed with dry alkaline carbonates, or other sensitive chemical compounds, without decomposing them, or entering into combination with them, except upon the addition of moisture, or the application of artificial heat. This requires that the acid or acid phosphate be mixed with a neutral diluting agent, as flour, or starch, to increase the extent of surface, that the action may be prompt when moisture or heat is applied, and at the same time to more or less invest the particles of acid, to prevent them from action or contact while dry. * * * * As a dry, brittle powder, the article has the advantage of a pulverulent acid; may be handled, weighed, or stirred, as a tartaric acid or cream-tartar, and as a substitute for these, and a variety of similar pulverulent acids and acid salts, has many uses in manufactures. It may, among other uses, be mixed with dry alkaline carbonates, (carbonate of potassa or carbonate of soda,) and remain in this state without evolution of carbonic acid until moistened or heated, thus making it a substitute for cream-tartar and tartaric acid in the preparation of yeast-powder, or baking-powder.

His sole claim is—

> For pulverulent phosphoric acid for neutralizing alkaline bases, and producing carbonic acid at will from a mixture of said pulverulent acid with alkaline carbonates, upon the addition of moisture or heat, or both.

On the 7th of May, 1867, the complainant, as the assignee of Horsford, surrendered the patent, and obtained reissue No. 2,597, for "Improvement in the manufacture of phosphoric acid and phosphate, for use in the preparation of food, and for other purposes." In this reissue he makes the following addition to the schedule of the original patent:

> The acidified mixture, prepared in accordance with the foregoing specification, is called by the inventor "Pulverulent Phosphoric Acid." The acid agent which this preparation places in available condition is phosphoric acid, as tartaric acid is the available acid agent in cream-tartar, and this is used as a substitute for tartaric acid or cream-tartar to decompose alkaline carbonates in the well-known process of making bread, cake, &c., without the use of ferment or leaven. It may be well to add that the substance produced and used in substantial accordance with this invention yields phosphate of lime and the alkalies, which are important constituents of human food, and which are, in a great degree, removed from the flour in the process of bolting, and thus the nutritious qualities of which it has been deprived are restored to the flour, and in general terms the various forms of farinaceous food are enriched with phosphates at the same time, and with the same agents, that are provided for as a substitute for ferment or leaven.

And then claims as follows:

> 1. The mixing in the preparation of farinaceous food with flour of a powder or powders, such as described, consisting of ingredients of which phosphoric acid or acid phosphates and alkaline carbonates are the active agents, for the purpose of liberating carbonic acid, as described, when subjected to moisture or heat, or both.
> 2. The use of phosphoric acid or acid phosphates, when employed with alkaline carbonates, as a substitute for a ferment or leaven in the preparation of farinaceous food.

Subsequently, another surrender was made, and a new reissue, No. 2,979, was obtained June 9, 1868, for "Improvement in pulverulent acid for use in the preparation of soda-powders, farinaceous food, and for other purposes."

He therein states, as an addition to the former schedules and specifications—

> I am aware that acid phosphates have been used as fertilizers, but, because of the method pursued in their manufacture, their coarseness, dark color, and offensive impurities, they were totally unfit to be used in the preparation of food. I am also aware that acid phosphates and phosphoric acid in a liquid or more or less viscid condition, have been prepared in the laboratory of the chemist; but neither of these phosphoric acids or acid phosphates possessed the properties essential to the purpose for which I design to employ them. The body, which I have invented and above described, is a form of acid phosphate of lime, or of mixed acid phosphate of lime and phosphoric acid, in which the phosphoric acid is the active and valuable constituent, free from the objectionable qualities of the above-mentioned bodies.

He further alleges that his invention is a dry, fine, white, homogeneous powder, unobjectionable on account of odor, taste, or composition, and that these traits, together with the restoration to the flour of the phosphates, which are to a great degree lost in removing the bran in the process of bolting, are the essential requisites in any compound for obtaining the best results in the practical preparation of self-raising flour.

He then claims—

> 1. As a new manufacture the above-described pulverulent acid.
> 2. The manufacture of the above-described pulverulent phosphoric acid, so that it may be applied to the manufacture, and for the purpose above described.
> 3. The mixing, in the preparation of farinaceous food with flour, of a powder or powders, such as described, consisting of ingredients, of which phosphoric acid or acid phosphates and alkaline carbonates are the active agent, for the purpose of liberating carbonic acid, as described, when subjected to moisture or heat, or both.
> 4. The use of phosphoric acid, or acid phosphates, when employed with alkaline carbonates as a substitute for ferment or leaven in the preparation of farinaceous food.

The first of these claims is for the acid; the second for the process by which it is produced; the third for the mixing of the acid with flour, thereby forming a marketable commodity, leaving all the preliminary steps toward bread-making completed, except the addition of water and baking; and the fourth for the use of the combined materials in the making of bread.

In their construction, it is insisted by the counsel for the defendant that the complainant is estopped by the decree of the Circuit Court of the United States for the southern district of New York from any inquiry into the validity of the first, second, and third claims. That suit was substantially between the same parties, and involved the same subject-matter; but the third essential requisite seems to be wanting to make the question *res adjudicata* between the parties—to wit, a final decree. The matters involved in the controversy were not fully settled. Not only was an account ordered to be taken, but the learned judge expressly reserved for future consideration the questions of arts, and the compensation to be allowed to the master. The Supreme Court has repeatedly held that decrees like the one under consideration were not final, but interlocutory. (*Bernard* vs. *Gibson*, 7 How., 650; *Beebe* vs. *Russell*, 19 How., 285; *Humiston* vs. *Stainthorp*, 2 Wall., 106.)

In *Beebe* vs. *Russell*, *supra*, Mr. Justice Wayne, in delivering the opinion of the court, said:

> A decree is understood to be interlocutory whenever an inquiry as to matter of law or fact is directed preparatory to a final decision. When a decree finally decides and disposes of the whole merits of the cause, and reserves no further questions or directions for the future judgment of the court, so that it will not be necessary to bring the cause again before the court for its final decision, it is a final decree.

But, although there has been no final decree rendered in the cause that concludes the parties or this court, it does not follow that the controversy between the litigants remains open, as it would have remained if there had been no adjudication thereon. That court is one of co-ordinate jurisdiction.

The question of the novelty of the claims of the complainant's reissue was submitted to its consideration, and, after the aid of full and exhaustive argument by very able counsel, the learned judge held that the first and second claims of the patent were anticipated by Lawes, and the third by Fowler, and that the three were void for want of novelty.

What effect should such a decision have upon the action in this case? Some rule of comity must be observed, especially in regard to the construction of patents, which are in the nature of franchises granted by the government to the citizen, the scope and limit of which are first examinable in the circuit courts, and afterward, if needs be, by a common appellate tribunal. I have long been of the opinion that the interests of the public will be best conserved, and the respect and authority of the courts best maintained, by following, in all instances, the decisions of the courts upon the same subject-matter of controversy, when, after a fair comparison of the testimony in the two cases, there does not appear to be new or additional, or contradictory evidence, which impel the court in the second hearing to a different result.

It has long been the custom of the justices of the Supreme Court at the circuits to adopt the rulings of each other upon the same point, even when their own judgment would probably have been different, if the question had been one of impression.

In arguing the case of *Washburne* vs. *Gould*, (3 Story, 132), the counsel for the plaintiffs called Mr. Justice Story's attention to the opinion of Justice McLean, in *Brooks* vs. *Bicknell*, (3 McLean, 250,) that, under the law as it then stood, a patent could be removed by the administrator of a deceased patentee; whereupon that learned judge interposed:

> The rule of comity always observed by justices of the Supreme Court in cases which admitted of being carried before the whole court, was to conform to the opinion of each other, if any had been given. Such decisions amounted to authority, which, though not conclusive, were operative whenever the question should be carried up; and, therefore, although his mind has not much difficulty in the point, he should rule for the plaintiffs, in conformity with the opinions of Mr. Justice McLean.

Observing the same rule of comity in the present case, I adopt the construction given by Judge Blatchford to the several claims of this reissue, and hold (1) that the fourth claim is valid, and (2) that the question of the novelty of the first, second, and third claims is not an open one here, at the present stage of the litigation between these parties.

I do this somewhat reluctantly as to the third claim, because it seems to me that the learned judge has not discriminated with his usual accuracy between the use of chemical and mechanical equivalents, but has assumed that the same rule obtains in the one case as in the other.

He says that the acid phosphate of Horsford is a mere equivalent for the tartaric acid of Fowler; as much so as a screw or lever is a mechanical equivalent for a pulley. This is doubtless true, unless new results are produced by the substitution of the new acid; but since the leading case of *Crane* vs. *Price*, (1 Web. Pat. cases, 409), it has not been considered safe to invoke

the ordinary doctrine of equivalents in construing patents for new manufactures or compositions of matter. The Supreme Court, in *Hicks* vs. *Kelsey*, (18 Wall, 674,) seems to recognize the authority and principle of that case, by observing:

> In *Crane* vs. *Price*, it is true, the use of anthracite instead of bituminous coal with the hot-blast in smelting iron ore was held to be a good invention, inasmuch as it produced a better article of iron at a less expense. But that was a process of manufacture, and, in such processes, *a different article replacing another article in the combination often produces different results*. The latter case is more analogous to the case of composition of matter than it is to those of machinery, and, in compositions of matter, a different ingredient changes the identity of the compound, whereas an iron bar in place of a wooden one, and subserving the same purpose, does not change the identity of a machine.

But I am not disposed to dwell upon this, as I incline to the opinion that a fair construction of the fourth claim of the complainant's patent renders the third claim of little practical value.

I come next to the question of infringement, and whether the proofs sustain this issue depends upon the construction of the fourth claim of the complainant's patent.

The evidence is that the defendant manufactured and sold a self-raising flour. The application of usual chemical tests to the compound revealed the fact that the materials selected to be mixed with the flour were the bicarbonate of soda and the acid phosphate, which was substantially produced by Lawes in the manufacture of manure, but which, according to the testimony, was first applied by Prof. Horsford in the making of bread.

It is true that this combination, when at rest or unexcited, is not bread, and that it requires the application of water and heat to produce a chemical action, which will set free the carbonic acid and convert the flour into risen dough ready for the oven.

It is further shown that the defendant advertised and sold large quantities of self-raising flour thus prepared, and claimed in his communications to the community, and in order to arrest the public attention, that his "self-raising flour is an invaluable article for producing in a few minutes, by the addition of cold water only, without yeast or salt, the most nutritious and wholesome bread."

And he recognized Prof. Horsford as the inventor of the improved ingredients for producing the self-raising property imparted to the flour, not only by paying to the owner of the patent from 1862 to 1868 large sums of money for the use of these ingredients, but by referring to him from time to time in his publications as one of our most eminent chemists, to whom the public was indebted for the invaluable invention and discovery.

Does such a preparation and sale for the purpose of being used by the purchaser in making bread infringe the fourth claim, which is defined by the inventor to be—

> The use of phosphoric acid or acid phosphates when employed with alkaline carbonates as a substitute for ferment or leaven in the preparation of farinaceous food.

I think the proof of what the defendant did, to wit, use the constituents of the complainant's patent with the intent and for the purpose of enabling the buyer to turn the compound into bread by the application of water and heat, places him in the attitude of an infringer; that it establishes at least a *prima facie* case of infringement, and throws upon the defendant the burden of showing that the self raising flour thus prepared by him was not, in fact, used for bread-making. Such antecedent step taken by him in mixing a compound to be used in the making of bread, with such avowals of the purpose and use for which it was made, and followed by large sales by the defendant, brings the case within the principle of *Wallace* vs. *Holmes*, (9 Blatch., 65,) and of *Renwick* vs. *Pond*, (10 Blatch., 39,) and there must be a decree against the defendant for the infringement of the fourth claim of the complainant's patent, and for an injunction and an account.

I am in doubt whether the decree should also embrace the damages from the date of the reissue to the 20th of March, 1873, the period of time covered by the decree in New York, in which profits only were prayed for and recovered. I incline to the opinion that a fair construction of the 55th section of the act of 1870 only allows a decree for the damages arising from the special infringement alleged in the bill of complaint.

If, however, the counsel for the complainant desire to be heard further upon that point, the solicitor may so prepare the decree that the master shall be instructed to take a separate account for damages, if any, prior to March 20, 1873, and I will hear the parties on exceptions to the master's report.

DISCLAIMERS FILED.

167,057.—Improvement in Passenger-Registers.—JOHN B. BENTON, New York, N. Y. Patented August 24, 1875. Disclaimer filed August 30, 1867. Disclaims 10th and 12th clauses of the claim in the following words, to wit:

10. The combination, with a registering mechanism and an actuating-lever, of an intermediate spring or motor placed under tension by the movement of the actuating-lever impelled by the hand of the operator in one direction, and setting in motion the registering mechanism upon the return movement of the lever in the other direction, substantially as set forth.

12. The means of attaching to, and releasing the instrument from, the place where used, by means of the hook or horn and the parts bearing upon the same, substantially as set forth.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 22, 1876.]

9,449.—Shawl or Lace Pin.—LEONARD S. BEALS, Astoria, N. Y. Application filed August 10, 1876. Term of patent 3½ years.

9,450.—Rims for Fountain-Basins.—JOSEPH W. FISKE, New York, N. Y. Application filed August 9, 1876. Term of patent 7 years.

9,451.—Fountain-Basins.—JOSEPH W. FISKE, New York, N. Y. Application filed August 9, 1876. Term of patent 7 years.

9,452.—Carpets.—JOHN HAMER, Dutchess county, assignor to SEAMLESS CLOTHING MANUFACTURING COMPANY, Matteawan, N. Y. Application filed July 31, 1876. Term of patent 3½ years.

9,453.—Carpets.—ALFRED HEALD, Philadelphia, Pa., assignor to HUGH MCCALLUM, ORLANDO CREASE, ANDREW J. SLOAN, and WILLIAM MCCALLUM, same place. Application filed August 4, 1876. Term of patent 3½ years.

9,454.—Centennial Belfry.—MICHAEL HILD, Philadelphia, Pa. Application filed May 20, 1876. Term of patent 3½ years.

9,455.—Sleeveless Jacket.—GEORGE F. HOLLIS, Boston, Mass. Application filed August 10, 1876. Term of patent 3½ years.

9,456 to 9,462, inclusive.—Carriage-Steps.—DANIEL A. KIMBARK, Chicago, Ill., assignor of one-half his right to GEORGE W. DAILEY, New Haven, Conn. Applications filed July 24, 1876. Term of patents 7 years.

9,463.—Ornamental Shirt-Fronts.—AMAND PLANT, New York, N. Y. Application filed August 14, 1876. Term of patent 3½ years.

9,464 to 9,472, inclusive.—Fabric.—ROBERT SCOTT and AARON JEWELL, Lawrence, Mass. Applications filed July 4 and August 4, 1876. Term of patents 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 22, 1876.]

3,940.—Leaf-Tobacco.—JOSEPH J. ALMIRALL, New York, N. Y. Application filed November 9, 1874.

"A duplication of the letter A, in Roman capitals, shaded on the reverse or left side, each letter being placed horizontally, with their bases facing each other, so as to form a rhomboidal figure, and having in the center of the figure the letters J J A in Roman capitals."

3,941.—Polish.—EUREKA MINING AND MANUFACTURING COMPANY, Detroit, Mich. Application filed June 29, 1876.

"A female figure holding a package of the polish, with a cup, mirror, urn, tea-pot, and other articles lying before her, and the words 'Michigan Tripoli.'"

3,942.—Cigars.—JOSÉ GENER, New York, N. Y. Application filed July 1, 1876.

"Words 'LA ESCEPCION.'"

3,943.—Smoking-Tobacco.—WILLIAM S. KIMBALL & CO., Rochester, N. Y. Application filed August 5, 1876.

"Words 'VANITY FAIR.'"

3,944.—Smoking-Tobacco.—WILLIAM S. KIMBALL & CO., Rochester, N. Y. Application filed August 5, 1876.

"A design or symbol which is composed, in detail, of one vertical and two horizontal sections, the former bearing representations of the faces of a medal, the whole arranged as shown."

3,945.—Plaster.—V. C. & C. V. KING, New York, N. Y. Application filed May 1, 1876.

"Word 'KNICKERBOCKER.'"

3,946.—Cosmetics.—LOUISE POTTER, New York, N. Y. Application filed July 6, 1876.

"Word 'HEPATIA.'"

3,947.—Pins.—THOMAS PORTER, Mont Clair, N. J. Application filed August 12, 1876.

"Words 'American & Howe-Pin Companies,' with the pictured representation of a Cupid seated on the back of a dolphin, with a pin grasped in his right hand."

3,948.—Paper Collars.—SPRINGFIELD COLLAR COMPANY, Springfield, Mass. Application filed July 31, 1876.

"The semblance of a cribbage-board."

3,949.—Corned and Pickled Beef.—WATTS, PARKER & CO., New York, N. Y. Application filed July 15, 1876.

"Words 'SAPIENS OPTIMA MERCATUR.'"

3,950.—Whisky.—WM. L. WOLFE & CO., Baltimore, Md. Application filed June 7, 1876.

"Word-symbol 'PFEIFFER.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 22, 1876.]

818.—Title: **"Clark's Domestic Cleansing Fluid."**—CHARLES H. CLARK, Providence, R. I.

819.—Title: **"'That' Pile Cure."**—GARDEN & MINOR, Belmont, Wis.

820.—Title: **"Rubber Paint Co. of Cleveland, Ohio."**—THE RUBBER PAINT COMPANY, Cleveland, Ohio.

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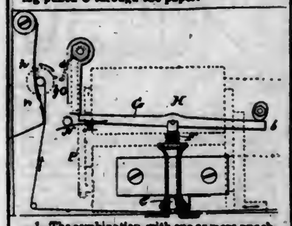
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED AUGUST 22, 1876

181,239. PERFORATORS FOR AUTOMATIC TELEGRAPHY. George L. Anders, Boston, assignor to R. Baker Welch, Cambridge, Mass. [Filed June 15, 1876.]

Brief.—Ordinarily rotation of cam I simply vibrates lever G on its pivot. If armature O be attracted, it forms a fulcrum for the lever, so that the punch-rod P is carried down, forcing punch C through the paper.



1. The combination, with one or more punches, of a continuously-rotating cam, or its equivalent, an oscillating lever, G, attached to each punch, springs F M, acting on each lever, a movable stop, which arrests the oscillation of the lever and causes the operation of the punch, and a device for moving the stop, substantially as and for the purpose set forth.

2. In combination with the oscillating lever and movable detaining-stop, as described, an electro-magnet for moving the stop, substantially as and for the purpose set forth.

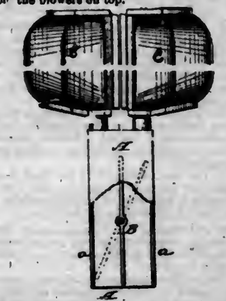
3. In combination with the oscillating lever G, the arm O, rock-shaft L, armature P, and electro-magnet R, substantially as and for the purpose set forth.

4. In combination with the punching mechanism, as described, and the continuously-acting power operating the same, mechanism operated, as described, from the power that operates the punch, and simultaneously with it, for feeding the paper strip at such a rate relatively to the period of rotation of the cam-shaft that a prolonged operation of the punch will produce an elongated perforation in the paper strip, substantially as and for the purpose set forth.

5. The combination of the shaft X, collar c, having on it the projection g, and attached to the shaft by the spiral spring d, pin h on the collar, pin upon the shaft, arm e, and rock-shaft f, substantially as and for the purpose set forth.

181,240. VENTILATING CARS, &c. Wright S. Andrews, Galveston, Tex. [Filed July 12, 1876.]

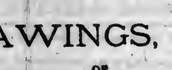
Brief.—A flat tube placed in a vertical position between the windows of a car on the inside, with the upper end nearly on a line with window-sills. This tube extends from one to two inches through and below the bottom of the car, with openings to let the air pass out from the blowers on top.



The combination of the flat tube A, with bottom openings a a and self-acting valve B, and the heads or blowers C C, substantially as and for the purposes herein set forth.

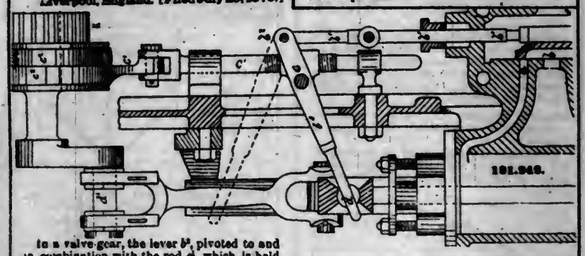
181,241. BARRELS. D. F. Bowker, Fitzwilliam, assignor to Stephen D. Osborn and John A. Wright, Keene, N. H. [Filed July 27, 1876.]

Brief.—The joints between the staves are covered by a cleat provided with tongues, which enter corresponding grooves in the staves.



The cleat C, provided with the tongues b b, in combination with the channeled staves of a barrel, substantially as and for the purpose set forth.

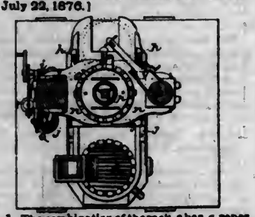
181,242. VALVE-GEARS. G. A. C. Bremme, Liverpool, England. [Filed July 26, 1876.]



181,242.

In a valve-gear, the lever b^2, pivoted to and in combination with the rod c^1, which is held and worked by the eccentric c^2, the point d of the lever being attached to and worked by the piston-rod or crank of the engine, the point d^2 of the lever being attached to and working the slide-valve b of the engine, substantially as set forth.

181,243. CIDER-PRESSES. Hiram L. Brown and Silas M. Brown, Vistula, Ind. [Filed July 22, 1876.]



1. The combination of the rack, a bar, f, rope or chains h, and windlass i with the blocks j and weights m, substantially as set forth.

2. The catches n, pivoted to the uprights b so as to move vertically, and adapted to hold the racks in position, substantially as specified.

3. The rack d, formed of slats 1, rods 2, latches 3, and blocks 7, the rack being made to open on one side, substantially as specified.

4. The bottom 8, hooks 5, and catch 6, in combination with the rack d, substantially as set forth.

181,244. APPARATUS FOR LOWERING BRICK INTO WELLS. John Campbell, Tiffin, Ohio, assignor of one-half his right to George D. Loomis, same place. [Filed July 15, 1876.]



1. The frame A A, constructed of steel or other suitable material, with cross-bars K K, feet B B, and loop H, substantially as described.

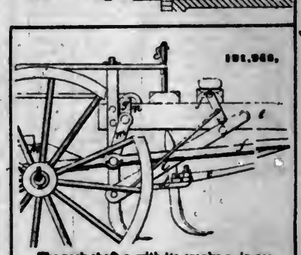
2. The frame A A, with a single arm, G, hinged to one side of frame A A, and rope F, substantially as and for the purpose described.

3. The frame A A, with arms D D, pin L, and rope F, substantially as described.

4. Two or more frames, A A A A, pivoted together, and provided with arms D D D D, pin L, and rope F, substantially as described, and for the purpose set forth.

181,245. CULTIVATORS. Clement L. Carter, Union City, Ind. [Filed May 11, 1876.]

Brief.—The frame proper of the cultivator is supported at its forward end by the neck-yoke, and its rear end is supported by a pair of wheels, and a rock-shaft having crank and link connection. By the movement of this shaft, the cultivator-teeth are raised and lowered at pleasure.

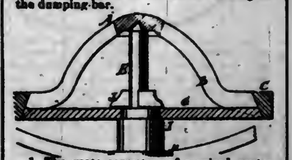


181,246.

The rock-shaft g, with its cranks n, in combination with the connecting-links m and bars f, thus uniting the frame M with the tongue-bars f, as and for the purpose specified.

181,246. GRATES. John R. Case, Ishpeming, Mich. [Filed Jan. 27, 1876.]

Brief.—The grate revolves on the center post, and is keyed to the raised bearing on the dumping-bar.



1. The grate consisting of a raised center A and inclined radial grate-bars B, braced by connecting-pieces, in combination with the dumping-bar, provided with a raised bearing, on which the grate is pivoted, substantially as specified and shown.

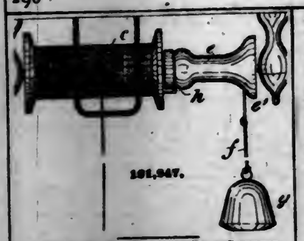
2. The braces G, center ring H, and center post E, for bracing and supporting the grate.

3. The center post E, provided with the shoulder I and key J, for securing the grate in place, as specified.

181,247. TWINE-REELS. James Clarke, Montreal, Quebec, Canada. [Filed May 16, 1876.]

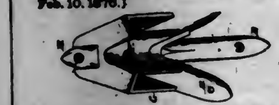
The combination of the reel a and rod c, friction-spring b, and cord and weight f and g, substantially as and for the purposes described.

HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & CO BOSTON.



161,847.

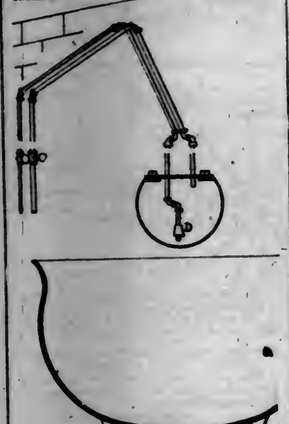
161,848. SLEIGH KNEE AND BEAM SOCKETS. John J. Cobb, Grand Rapids, Mich. [Filed Feb. 10, 1876.]



The combined knee-socket and beam-holder for sleighs and cutters, having groove A for holding the cutter-beam, projecting bottom B, and sockets C C, arranged between the cutter-beam and runner, substantially as herein shown and described.

161,849. BOILING APPARATUS. James H. Covey, New York, N. Y. [Filed Aug. 4, 1876.]

Brief.—By the application of the weight, the inner end of the discharge-pipe is kept always at the lowest point within the steam-chamber.



An improved boiling apparatus, consisting of a boiler chamber, having an inlet steam-pipe and an outlet exhaust-pipe, said pipes being fitted with swivel-joints, so as to be moved in any direction, and the end of the exhaust-pipe within the hollow chamber being weighted, so that it shall adapt itself to whatever angle the steam-chamber may be placed in a vessel containing liquid to be boiled, all being made substantially in the manner and for the purpose shown and described.

161,850. MECHANISM FOR FOLDING PAPER. Luther C. Crowell, Boston, Mass. [Filed Aug. 8, 1876.]

Brief.—The web is severed longitudinally as it passes from a perfecting printing-press. One part is led laterally over a guide, so as to be lapped under the other part, and both together are then to be severed transversely and folded. Fingers attached to the blanket of the second impression-cylinder apply paste to the web.

1. The combination of the bed-roller and a cutter with a guide, substantially as described, to conduct one portion of the severed web laterally and against the other portion.

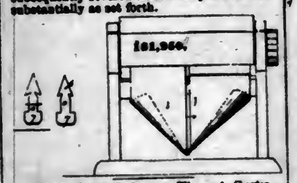
2. The bed-roller and cutter, in combination with a leading-roller and the guide, to deliver one part of the severed web laterally and against the other part, substantially as described.

3. In a perfecting-press, provided with printing and impression cylinders, the combination, with a cutter and bed-roller, of a guide, substantially as described, to carry laterally, and to lap, one portion of the severed web over against the other portion, substantially as described.

4. The combination, with the impression-cylinder, of paste-appliers *e*, attached to the cover of the impression-cylinder, and adapted to apply paste to portions of the web to be subsequently folded, substantially as described.

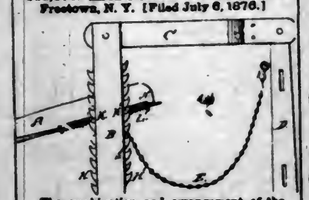
5. The combination of the mechanism to paste and mechanism to sever the web longitudinally with a guide, substantially as described, to direct the portion of the severed web longitudinally and against the pasted surface of the other portion, substantially as set forth.

6. The method herein described of folding paper in a printing-press or folding-machine, consisting in automatically severing the web longitudinally, and then directing one of the severed portions laterally and against and in contact with the other severed portion, to be subsequently severed transversely and folded, substantially as set forth.



161,851.

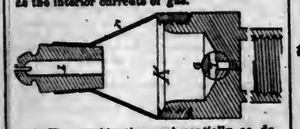
161,851. LIFTING-JACKS. Hiram A. Curtis, Frostown, N. Y. [Filed July 6, 1876.]



The combination and arrangement of the posts B and B', serrated teeth H and H', with the notches S and S' thereto, and other similar teeth forming the racks, as described, lever A, chain E, and frame-work C and D, all made and operated substantially in the manner and for the purpose as herein described and shown.

161,852. ILLUMINATING APPARATUS. F. Darracott, Brookline, Mass. [Filed Feb. 17, 1876.]

Brief.—Admission of gas to the expansion-chamber is controlled and directed by means of a suitably-perforated plug. The expansion-chamber is of frusto-conical shape, which controls the exterior currents of air, as well as the interior currents of gas.



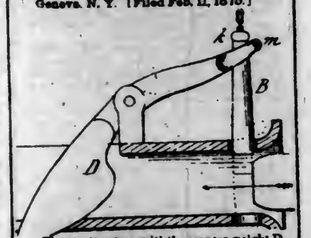
1. The combination, substantially as described, of a combined regulator, check, and diffuser, C, an expansion-chamber, E, with conical roof N, and a shade, U, having conical openings O and P at top and bottom, with walls formed on curves S T, substantially parallel with the outlines of the flame R of burner, the plane of the lower opening P being on, or nearly on, a level with the base of the frustum of a cone N, all for the purposes set forth.

2. The combination of the combined device G, for regulating, checking, and diffusing the gas, with the conical-roofed expansion-chamber K, for the purpose of regulating, checking, expanding, and controlling the current of gas, substantially as described, illustrated, and set forth.

3. The combination of the frustum of a cone N with the shade U, having walls S T formed on curves substantially parallel with the outlines of the burner-flame R, for the purpose of controlling and directing the current of air, substantially as described, illustrated, and set forth.

4. The combination of the combined device G, of a burner for regulating, checking, and diffusing the gas, with an inlet-passage, H, and an expansion-chamber, substantially as and for the purposes set forth, described, and illustrated.

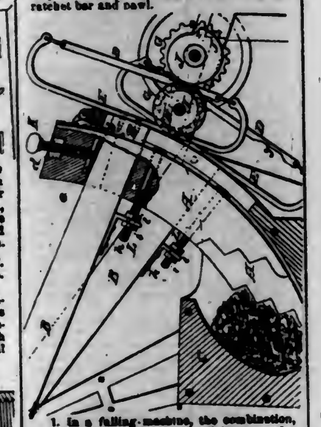
161,853. CAR-COUPLINGS. Chas. Durrick, Geneva, N. Y. [Filed Feb. 11, 1876.]



The combination, with the counter-weight D, provided with the eye *m*, of a pin, B, resting loosely in the said eye, and retained by a cross-head, *k*, the whole constructed and arranged so that in coupling the eye can slide down upon the pin, to admit the shackle, and in uncoupling the pin can be raised independently of the counter-weight, as and for the purpose specified.

161,854. FULLING-MILLS. Joshua Draper, Middletown, N. Y. [Filed Mar. 13, 1876.]

Brief.—The beaters are raised and dropped by cam-rolls, between which the elevating-straps, indirectly attached to the former, pass. They are also adjustable upon their helves by means of the upper and lower set-screws, and may be held in an elevated position by the ratchet bar and pawl.



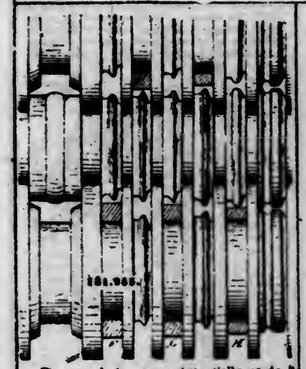
1. In a fulling-machine, the combination, with the head or hammer and its arm, of a strap or strip, D, having a thin portion, *y*, near the bottom, and connected to said arm, and a roller and friction wheel, block, or cam, for operating the same, substantially as herein set forth.

2. The combination of the head A, arm B, bent bar E, strap or strip D, roller E, and friction-wheel J, having cut-away portion *s*, all substantially as and for the purpose herein set forth.

3. The combination, with the head A and arm B, of the screw K, nut *d*, plate *c*, screw L, plate *b*, and nuts *f f*, all substantially as and for the purposes herein set forth.

161,855. ROLLS FOR ROLLING RAILS. Wm Evans, Joliet, Ill., assignor of one-half his right to E. S. Smith, same place. [Filed May 27, 1876.]

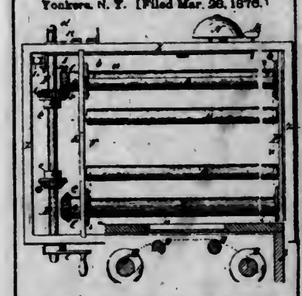
Brief.—The rings are interposed between the collars in the blank passes in order to make very thick collars unnecessary in new rolls, to sustain collars that have become high, and then, by repeated turnings, to more readily adapt the outer rolls, on reversal, to an interposed new middle roll.



161,856.

The use of the ring, substantially as described, to resist the strain upon the collars.

161,856. STATION-INDICATORS. C. O. Fichi, Yonkers, N. Y. [Filed Mar. 28, 1876.]



1. The combination of the shaft F, provided with the pinions G G, rollers A A, provided with the pinions *e e*, and beam-rollers D D, or their equivalents, with the aprons or canvas bearing the names of the stations, all substantially as and for the purpose set forth and described.

2. The combination of the shaft F, pin I, slide K, and spring L, substantially as set forth.

3. The combination of the slide K, spring L, hammer M, and bell N with the shaft F, provided with the tappet or pin I, all substantially as and for the purpose set forth and described.

161,857. VEHICLE HEAD-BLOCKS. Zoho Fischesser, West Sonora, Ohio. [Filed May 6, 1876.]

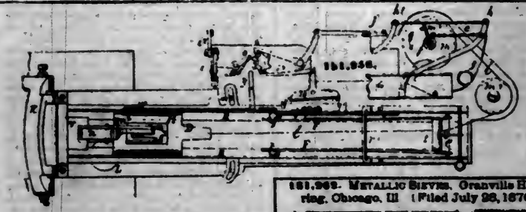
Brief.—The head-block is composed of two pieces with springs between them.



The herein-described head-block, composed of the pieces A and B, pivoted together as described, and provided with the interjacent springs *c*, substantially as and for the purpose specified.

161,858. NAIL-PLATE FEEDERS. Franklin A. Gleason, Brooklyn, N. Y. [Filed Oct. 4, 1875.]

Brief.—Improvement on the invention described in Letters Patent No. 85,522. The invention comprises mechanism for delivering the lowermost plate from the pile in the plate-box to the nippers; mechanism for holding the nipper-carriage until the plate falls upon the devices in front of it; and mechanism for automatically connecting and disconnecting the devices for operating the vibrator, and for throwing in and out of gear the clutch which connects the gearing for operating the plate-carriers, and drawing back the nipper-carriage with the main shaft.



161,858.

1. The combination, with the nipper and nipper-slide, of the nipper-jaw *n*, provided with projecting stop a^1, and slotted pin-hole and universal joint *s*, substantially as herein shown and described.

2. The friction-clutch C and nipper-slide H, with projecting bar D, in combination with the double lever F F.

3. The clutch *a*, bevel-gears *d d'*, chain *e*, plate-carriers *h h'*, pulley *m*, and cord *i*, substantially as combined with the shaft A.

4. The combination of the eccentric *k*, connection and pawl *i*, connection *o'*, and elbow r^2, with the shaft A and vibrator R.

5. The bar *w*, lever *y*, ratchet wheel and lever *o*, as combined with the pawl *i*, and operated by the nipper slide H for arresting vibratory motion.

6. The lever S, elbow 7, sliding plates 9 9^1, T-lever 10, and bar 12 combined with the fly-lever n^2 and nipper jaw *n*, for reproducing vibratory motion.

7. The combination of the inclined bearings *q q* and wedges K K with the die-lever L.

8. The combination of the clearing-spring s^1 with the gage *v* and cutter-lever R, substantially as herein shown and described.

161,859. HOOF-TRIMMERS. Geo. Greiner, Bowling Green, Ohio. [Filed July 22, 1876.]



In a hoof-trimmer, the shank A formed with the head D, inclined shoulder A, and square shoulder *b*, in combination with the blade C, bolt *d*, and nut *e*, as and for the purposes herein set forth.

161,860. AUTOMATIC LIGHTING DEVICES FOR GAS-BURNERS. William W. Hannah, Hudson, N. Y. [Filed June 8, 1876.]



In an automatic lighter for gas-burner, substantially such as described, the pivoted cover C, provided with the bottom or guide-piece B, as specified.

161,861. LADIES' CHEST-PROTECTORS. H. Hayward, New York, N. Y. [Filed July 21, 1876.]



A ladies' chest-protector, consisting of a piece of felt, or similar material, pressed into a form to fit the body, substantially as shown and described, as a new article of manufacture.

161,862. METALLIC SIEVES. Granville Herring, Chicago, Ill. [Filed July 28, 1876.]



The combination of an upper and lower hoop, forming the sieve body, and a horizontal flange around the inner circumference of the sieve-body, said flange consisting of the interhooked edges of the said hoops, and of the wire-cloth bottom, substantially as described.

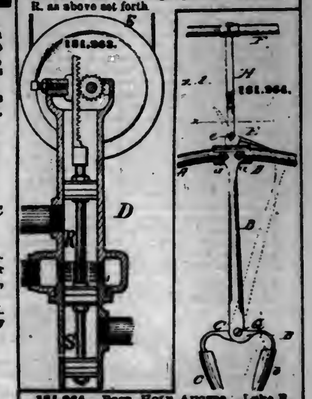
161,863. HYDRAULIC ELEVATORS. Milton P. Higgins, Worcester, Mass. [Filed June 7, 1876.]

Brief.—The two water-services of different heads, in connection with the valve having a cylindrical case with perforated ports, and controlled by an endless cord, with a suitable arrangement of pulleys, gives a steady and uniform motion to the elevator carriage.

1. The combination, substantially as described, of a hydraulic elevator, with two services of different heads or pressures, and the valve D, or its equivalent, as and for the purposes set forth.

2. In a hydraulic elevator, substantially as described, the combination of the flexible cord and two or more pulleys, N O, and the valve-gear E, when combined and operated in the manner as and for the purposes described.

3. A water-valve having a perforated port, constructed as and for the purposes described, consisting of a cylinder of two parts, R and S, S having a perforated portion inserted into the bell mouth or enlarged part of the other, R, as above set forth.



161,863.

161,864.

161,864. POST-HOLE AUGERS. Lobe R. Hitchcock, Fillmore, N. Y. [Filed July 24, 1876.]

Brief.—Two arms pivoted together, and their lower ends bent at right angles, or nearly so, to which are attached blades, which can be adjusted toward or from each other.

1. The combination, with the arm and blade C *c* and ferrule D, of the arm and blade B *b* and curved bar or handle A, substantially as and for the purpose specified.

2. The combination, with the arm and blade B *b*, having curved bar or handle A, and arm and blade C *c*, having ferrule D, of the pivoted cam E, substantially as and for the purpose specified.

3. The combination, with the arms and blades B C *b c*, of the bar H and handle F, the several parts constructed and arranged to operate in the manner substantially as and for the purpose specified.

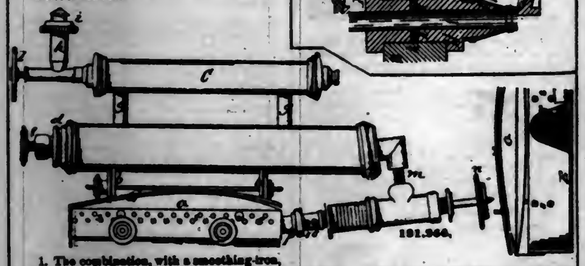
181,865. SINK GUARD AND COVER COMBINED. Addison S. Hodges, Hyde Park, Mass. [Filed Jan. 28, 1876.]

Brief.—A metallic disk provided with a central opening, that can be closed, when desired, by means of a cover that is hinged to the circular disk, and one or more wires bent in a V shape are cast to the metallic disk in such a manner as to project downward into the discharge-pipe from the sink, thus forming a guard against clogging.



The combination of the plate a with its perforations b and movable cover c, and one or more V-shaped wires, d d, as and for the purpose set forth and described.

181,866. SELF-HEATING SMOOTHING-IRONS. John S. Hall, Cincinnati, Ohio. [Filed Nov. 12, 1875.]



1. The combination, with a smoothing-iron, of a close reservoir for containing a combustible fluid under pressure, and a compressed-air chamber for producing the requisite pressure upon the fluid, substantially as and for the purpose herein specified.

2. In combination with a smoothing-iron provided with a close reservoir to contain a combustible fluid, and a compressed-air chamber for applying pressure to the fluid therein, a gas-generating burner for producing a blowing flame in the smoothing-iron, substantially as and for the purpose herein specified.

3. In combination with a self-heating smoothing-iron provided with a reservoir to contain a combustible fluid under pressure, an air-condensing chamber, C, constructed and arranged to serve the additional purpose of a handle for the smoothing-iron, substantially as and for the purpose herein specified.

4. In combination with a self-heating smoothing-iron, an interior plate, E, of copper, and provided with a shield-ridge, r, for diffusing and equalizing the heat of the burner-flame upon the bottom of the smoothing-iron, substantially as herein specified.

181,867. STOP-VALVES. Charles Jenkins, Boston, Mass. [Filed July 31, 1876.]



1. The combination, in the gate of a straight-way valve, of the casing-piece k, packing m, packing-piece k, and binding-piece l, all as and operating substantially as described.

2. The combination of the inclined abutment f, valve-seat s, packing m, and packing-piece k, moved and operated by the valve-stem A, substantially as described.

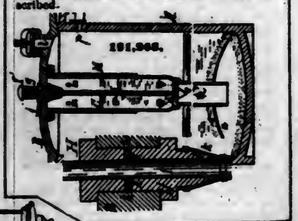
181,868. APPARATUS FOR CARBURETING AIR-GAS OR GAS. Adolph Kayser, Buffalo, N. Y., assignor to Pascal P. Pratt, same place. [Filed June 20, 1876.]

1. The combination, with the generating-vessel A B and acid-receptacle C, of the perforated diaphragm a and the tube a', opening into the space between the diaphragm a and the bottom of the vessel A, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the movable rod f and stationary guide i, of the flexible tube k, secured to the same, as described, for forming a gas-tight joint between the parts, while permitting the rod to be easily moved, substantially as hereinbefore set forth.

3. The combination, with the movable rod f and glands H H', of the flexible tube k, packing-ring h, and collar h', substantially as and for the purpose hereinbefore set forth.

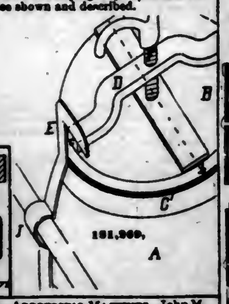
4. A carbonic-acid-gas generator, composed of the vessel A B, acid-receptacle C, perforated diaphragm a, tube a', valve and stem e f, and spring g, substantially as shown and described.



181,869. OPEN-POOL BARRELS. James N. Keans, F. Protesendans, and J. Donahue, Philadelphia, Pa. [Filed July 6, 1876.]

Brief.—An air-tight joint is formed between a cess-pool barrel and its lid by means of suitable packing placed between the barrel and lid. The lid is secured in position by a cross-bar and set-screw passing through said bar, and pressing on a bearing-strip on the lid, the ends of the cross-bar projecting under catches formed on the upper part of carrying-loops attached to the sides of the barrel.

In a cess-pool barrel, A, the combination of a lid, B, packing C, cross-bar D, catches E, screw F, and the carrying-loops L, as and for the purpose shown and described.

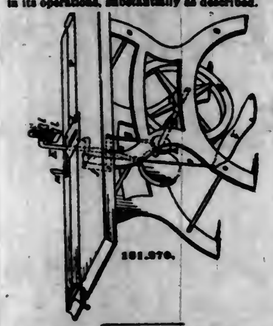


181,870. ADDRESSING-MACHINES. John M. Kennard, Waterloo, N. Y. [Filed June 10, 1876.]

1. In combination with the reciprocating plunger E, constructed and operating substantially as described, the slotted quadrangular plates-stops i, connected to the plunger by a clamp and thumb-nut, as and for the purpose described.

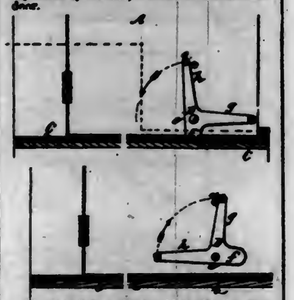
2. In combination with a spring-pawl pivoted to a bell-crank lever, operated by an eccentric, the treadle l and wire s, to temporarily arrest the advance of a galley, substantially as described.

3. In combination with a mechanism for advancing the galley of an addressing-machine by means of an eccentric bell-crank and spring-pawl, the plunger E, also operated by an eccentric independent of any intermediate mechanism, so as to render the machine noiseless in its operations, substantially as described.



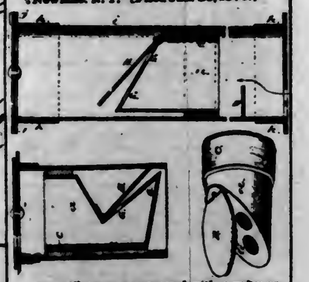
181,871. DOOR-FASTENERS. Jacob D. King, Fort Wayne, Ind. [Filed July 26, 1876.]

Brief.—A three-armed catch or fastener is loosely pivoted to the side of the door, the shorter of the three arms or levers entering a slot in the foot-board or sill of the door, while either of the other two is conveniently manipulated by the foot, to fasten or unfasten the door.



The door-fastener D, provided with the arms f, g, and h, and pivoted to a door at c, in combination with the door A, with the pin n, and the slot b in the foot-board C, all substantially as and for the purpose hereinbefore set forth and specified.

181,872. VALVE-VENTILATORS. W. Lane, Newfane, N. Y. [Filed Jan. 20, 1876.]

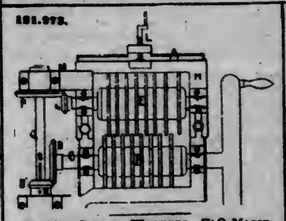


A ventilator so constructed with a valve as to permit the passage of air only one way, with said valve on a movable tube, which can be removed or reversed as pleasure, and for purposes herein set forth.

181,873. ICE-CRUSHING MACHINES. David W. Low, Gloucester, Mass. [Filed Apr. 1, 1876.]

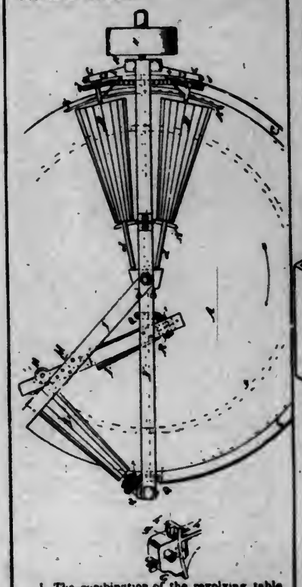
An ice-crushing machine having two rollers, B and E, the sliding frame H M, having a screw-threaded rocrss, adjusting-screw L, gears D D' F N, and sliding shaft Q, the whole combined substantially as and for the purpose set forth.

181,873.



181,874. BUTTER-WORKERS. H. O. Mason, Dundee, Ill. [Filed May 6, 1876.]

Brief.—A circular table revolves nearly in a horizontal plane, its lower side dripping into a segmental trough. The butter is carried under radial conical fluted rollers at one side, capable of elevation at both or either end, and fluted rollers at different angles on the opposite side of the center.



1. The combination of the revolving table A, inclined to its axis of motion, working-rollers D, and the independent stationary trough C, arranged substantially as and for the purpose set forth.

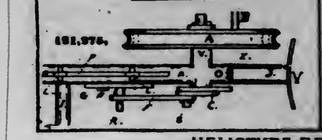
2. The combination of the working-rollers D, turning-rollers L, arranged at angles to each other, and a revolving table, A, substantially as and for the purpose set forth.

3. The combination of the block E, adjustable on the post F, and shafts d, for the purpose of adjusting the height of the inner ends of the rollers D, substantially as described.

4. The combination of the shafts d and curved boxes G, adjustable, as described, on the frame H, for the purpose of adjusting the outer ends of the rollers D, substantially as set forth.

5. The frame I I', pivoted at one end to the supporting-frame J, and adjustable on the parts F, J', and P, substantially as described, in combination with the rollers L suspended from said frame, for the purpose of adjusting the height of the rollers, as set forth.

181,875.



181,875. SHARPENING-MACHINES. James C. McLaren and Charles B. Coveney, San Francisco, Cal. [Filed June 17, 1876.]

Brief.—The grinder and its arbor frame are made to slide back and forth over the driving wheel frame by means of a sliding crank and link connection, so that the grinder, while it revolves, may pass along the edge to be sharpened. Detach above connection at either end, and grinding-wheel revolves, without reciprocation.

The pickle-sharpener, to operate either fixed or reciprocating, composed of the bed frame J, having the bearing-plate V, the handle B, the guide-post H, and the guide-posts L and L, and the reciprocating frame K, having the sleeves V and W, the slot P, and set-pin Z, in combination with the adjustable crank C, the connecting-rod F, and sliding saw-block G, when constructed and operated, substantially as and for the purposes set forth.

181,876. GAS-PURIFIERS. Peter Mussinger, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed June 26, 1876.]

Brief.—The flanges of the inner wall of the water-cap are within a depression extending into the water-box, but opening into the purifying-chamber, so that the bolts and nuts for securing them together may be readily operated, and also so that they will not interfere with the lime tray. The bolts and nuts also are thus protected from the water in the seal-box.



A gas-purifier constructed in sections, the interior flanges of each of which sections are located in a depression or other recess formed in the inner wall of the water-cup, in such manner that the flanges do not project into the water-cup, nor yet into the gas-chamber, but are completely embedded within the depressions, not exposed to water, and do not project into the gas-chamber at all, substantially as shown and described, and to the ends set forth.

181,877. FIRE-PLACE HEATERS. S. Musser, Beaver Falls, Pa. [Filed June 6, 1876.]

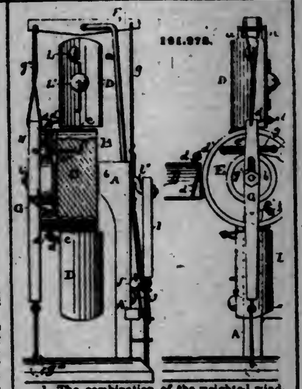


The combination, in a fire-place heater, of the plates 1, 2, 3, 4, 5, and 6, substantially as shown and described.

181,878. WHEELS. John H. Painter, Muscatine, Iowa. [Filed Feb. 14, 1876.]

Brief.—An arrangement of counterpoise-weights, by means of which the movement of the wheel is rendered steady and uniform. It further consists in a new brake device for regulating the speed of the wind-wheel, and also in a device for regulating the motion of the sails.

181,879.



1. The combination of the weighted wind-sail with one or more adjustable weights arranged upon levers or cords connected with the pump-rod, substantially as and for the purpose specified.

2. The bar G, having the slot y and brake H, arranged to operate in combination with the weight g^{iv}, and flange disk E, and pinned wind-sails D, substantially as and for the purpose specified.

3. The bar G, having the brake H', operating in combination with the disk E and sails D, lever F, and rod or chain g^{vv}, substantially as for the purpose specified.

4. The disk E, operating in combination with the pivoted wind-sails D, link-rods d', and spiral springs g d'', substantially as and for the purpose specified.

5. The disk E, having slot e', operating in combination with the hub C, having pin f', substantially as and for the purpose specified.

181,879. MACHINES FOR REMOVING THE BURR FROM HORSESHOES. C. H. Perkins, Providence, R. I., assignor to the Rhode Island Horseshoe Company. [Filed July 14, 1876.]

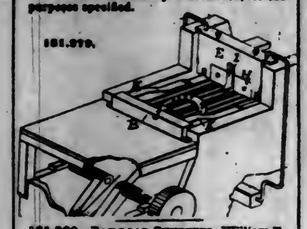
Brief.—The burr left by the nail-hole punches is removed by a yielding planing cutter, under which the shoe is carried by a reciprocating table. Cam-surfaces on the table elevate the cutter-bar, to allow the heel portions of the shoe to pass under the cutter, and a finger attached to said bar prevents the heel or warped shoes from striking against and injuring the cutter. A downwardly projecting finger removes the shoe after being planed, as the table retracts.

1. A reciprocating bed, B, and a yielding or stationary bed, E, provided with the finger I and a suitable tool, H, the whole constructed

and operating together in the manner substantially as described, for the purposes specified.

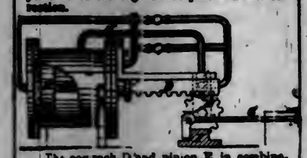
2. A reciprocating bed, B, having inclined surfaces K K, in combination with the yielding bar E, tool H, and finger I, the whole constructed, arranged, and operating together in the manner substantially as described, for the purposes specified.

181,879.



181,880. RAILROAD-SWITCHES. William H. Frail, New York, N. Y. [Filed July 26, 1876.]

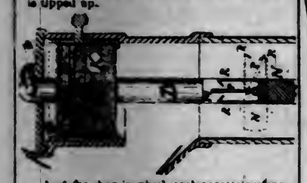
Brief.—An improvement in that class of switches which are operated by compressed air, consisting of a self-acting device, by which the play of the switch-bar is positively limited in both directions to the required throw of the switch,—viz., by attaching the switch-bar by a crank-pin to a pinion engaging with a rack on a prolongation of the piston-rod, said pinion having such a number of teeth that the required throw revolves it nearly, but not quite, one revolution. A lug on the switch-bar is thus carried by the revolution of the pinion an alternate sides of a fixed stop, beyond which the lug cannot pass in either direction.



The cog-rack D and pinion E, in combination with bar G, attached to a movable switch-rail, and so arranged as to give more than one-half of a revolution to the crank connected to the switch-bar before the same shall be arrested, and, when so arrested, that the crank-pin shall be past the center-line, so that a reverse movement will be required to carry the switch-rail to its opposite position, substantially as shown and described.

181,881. FARE-BOXES. William H. Frail, Washington, D. C., assignor of one-half his right to Burton H. Shapley, Philadelphia, Pa. [Filed Aug. 2, 1876.]

Brief.—As each fare is deposited a plate of metal is dropped upon it, to separate it from the preceding fares. A gravitating gate prevents the return of the plates when the box is tipped up.

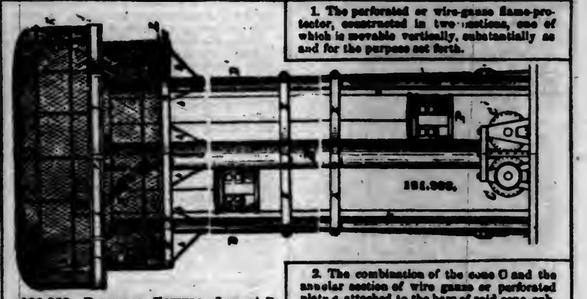


1. A fare-box in which each successive fare, when paid in, is permanently separated by a plate from the fares previously paid, and by another plate from the next fare which may be paid, so that each fare may be separately viewed and counted, operating substantially as and for the purpose herein set forth.

2. A gravitating lock or device, composed of the swinging weight K, the hooked arms R R, and the pivoted latch P, all arranged and operating substantially as and for the purpose herein set forth.

181,882. LIQUID LAUNDRY-BLUING. Thos. S. Robinson, Bovidere, N. Y. [Filed July 3, 1876.]

The composition of matter consisting of liquid laundry-bluing and glycerine, for the purpose specified.



181,883.

181,883. ELEVATOR-TOWERS. Lemuel B. Sawyer, Boston, Mass., assignor to Sawyer Improved Observatory Company, same place. [Filed July 12, 1876.]

1. Three or more tubular columns, arranged about equidistant from each other around a common center, and tied together at suitable intervals by horizontal beams, in combination with an elevator-car located between said columns, and adapted to be moved up and down upon guide-bars formed upon or secured to the exterior of said columns, substantially as described.

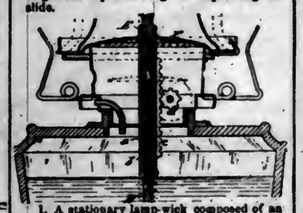
2. The combination of the beams F, G, H, and B, tie-beams I, and tubular columns A, B, D, and D', all arranged and adapted to support the floor J and upper inclosure K, substantially as described.

3. The combination, with a series of tubular columns supporting the floor J and inclosure K, of the gallery L and rods, chains, or wire ropes e e, depending from the floor J, and adapted to support portions of the gallery, as and for the purposes described.

4. The combination of a series of tubular columns, supporting at their tops a floor and inclosure, a gallery surrounding said columns, portions of which are supported by rods, chains, or wire ropes e e from said upper floor, and guy-rods, chains, or ropes leading from said gallery to the ground, as and for the purposes described.

181,884. LAMP WICKS AND BURNERS. H. C. Scott, Clinton, Iowa. [Filed May 2, 1876.]

Brief.—The flame may be regulated or extinguished by elevating or depressing the slide.

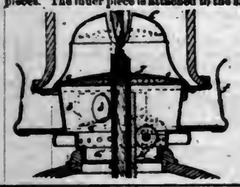


1. A stationary lamp-wick composed of an upper asbestus section, E, and a lower section, D, of common wicking, in combination with a stationary wick-tube, a, section of the flame-protecting plate, and a regulating-slide, b, fitted around and moving upon the outside of the tube, substantially as and for the purpose set forth.

2. The combination of the stationary wick-tube a, regulating-slide b, and stop-disk G, attached to the lower end of the slide, substantially as and for the purpose set forth.

181,885. LAMP-BURNERS. H. C. Scott, Clinton, Iowa. [Filed May 2, 1876.]

Brief.—The gauze protector is made in two pieces. The inner piece is attached to the slide.

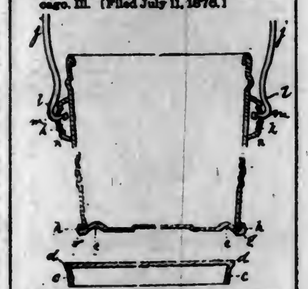


1. The perforated or wire-gauze flame-protector, constructed in two sections, one of which is movable vertically, substantially as and for the purpose set forth.

2. The combination of the cone C and the annular section of wire gauze or perforated plate c, attached to the bars of said cone, substantially as described.

3. The combination of the cone C, sections of wire-gauze or perforated plate I and c, and slide G, substantially as described.

181,886. LARD-PANS. Joseph Sears, Chicago, Ill. [Filed July 11, 1876.]



1. In combination with a pail tapering from top to bottom, the cover B, made, as described, of a single piece, and provided with the annular bead d at its edge, and flange e connecting therewith.

2. In combination with the bail-ear, the removable bail f, made as described, and with its ends which enter the ears nicked or notched, as shown and described, and for the purpose set forth.

3. As an article of manufacture, the tapering pail described, provided with the annular depression c in its bottom, the cover B, with its bead d and flange e, and the removable notched bail f.

181,887. REFLECTORS. Faunt L. Senour, Pittsburg, Pa. [Filed July 26, 1876.]



1. The combination of the center conical or bell-shaped reflector J and the exterior reflector I, arranged at or near right angles with the base of the inner reflector, and a suitable distance from the same, substantially as and for the purposes herein set forth.

2. The adjustable collar O with skeleton frame I, containing the reflectors J and I, and suspended on the gas-fixture by a set-screw, H, substantially as herein set forth.

181,888. DEVICES FOR ABSORBING THE NOISE OF ESCAPING HIGH-PRESSURE STEAM OR GAS. Thomas Shaw, Philadelphia, Pa. [Filed July 11, 1876.]

Brief.—The noise produced by escaping high-pressure steam or gas is absorbed by passing through a woven fabric, and between the coils of a spring surrounding a valve or blow-off pipe.

1. The combination of steam-chamber a, with cylinder a and canvas g, for the purpose set forth.

2. The woven fabric g, with or without spring f, in combination with a steam or gas escaping cylinder, a, substantially as and for the purpose set forth.

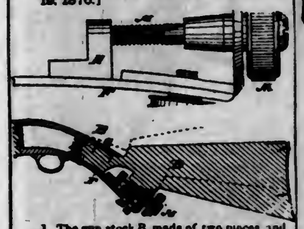
3. The combination of spring or other elastic medium f, with woven fabric g, for the purposes described.

4. The spiral coil b, with or without the woven fabric g, substantially as and for the purpose set forth.



181,889.

181,889. ADJUSTABLE GUN-STOCKS. Abel Sherman, Crown Point, Ind. [Filed June 19, 1876.]

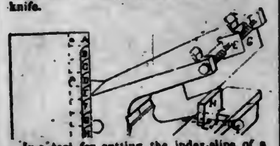


1. The gun-stock B, made of two pieces, and attached together by two hinged plates, F and G, one plate being firmly secured to both pieces of the stock, and the other made adjustable on one of the pieces thereof, substantially as specified.

2. The combination of the thumb-screw M, shoulder-piece D of the stock, and the hinged plate F, provided with a shoulder or lug, H, substantially as specified.

181,890. TOOLS FOR CUTTING INDEX-SHEETS. Saml. M. Simons, Philadelphia, Pa. [Filed June 20, 1876.]

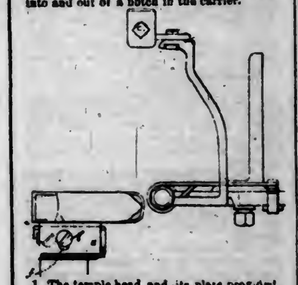
Brief.—One gage regulates the depth of cut from edge of leaf, while the other gage determines the length of cut from end of the knife.



In a tool for cutting the index-slips of a blank book the combination of a knife, G, a longitudinal gage, E, and an in-cut gage, H.

181,891. LOOM-TEMPLES. Edwd. S. Stimpson, Hopedale, Mass., assignor to Dutcher Temple Company, same place. [Filed Apr. 10, 1876.]

Brief.—The temple-head is made adjustable upon the carrier, toward both the selvage and the lay. The stand is provided with an oblique notch or jaw, which shifts the spring into and out of a notch in the carrier.

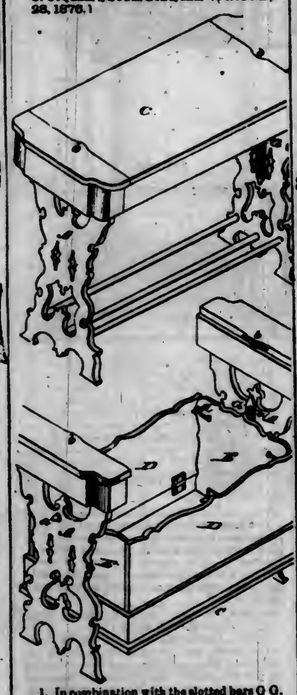


1. The temple-head and its plate provided with a lip, in combination with the carrier, slotted to receive screw or bolt f, and grooved to receive the lip, substantially as described.

2. The combination of a temple-head, carrier, and its spring, with a spring-shifter adapted to move the spring laterally to disengage it from the carrier, and to hold the spring when the temple is moved back, substantially as described.

3. The pivoted carrier, provided with a side notch, in combination with the spring-shifter, adapted to remove the spring out of the notch in the carrier.

181,892. COMBINED CRIB AND TABLE. M. C. Urquhart, South Bend, Ind. [Filed July 28, 1876.]



1. In combination with the slotted bars G G, a platform, C, finished as a table-top on one side, and a child's crib on the opposite side, substantially as herein set forth.

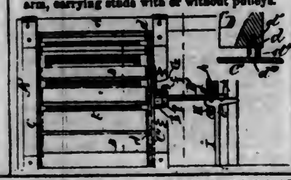
2. The folding sides D, and ends E, in combination with the table-top C, upright supports A, and slotted bars G, substantially as described.

3. In combination with the reversible swinging platform C, the uprights A A, adapted to form the ends of a table-top, as described.

4. The combination of the reversible platform C, upright supports A A, slotted bars G G, and studs or pins a a, all constructed substantially as and for the purposes described.

181,893. WINDMILLS. George H. Wallace, Newton, Iowa. [Filed May 24, 1876.]

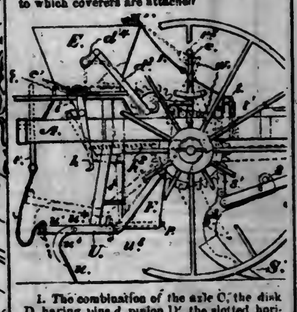
Brief.—This wind-wheel rotates on a vertical axis, and is surrounded by a series of shutters, which may be closed to abet off the wind entirely from the wheel, and opened to let it on. The shutters have a peculiar arrangement of hinge, constructed with a journal, collar, and end. There is a cam-wheel arranged to operate with the wind-wheel and arm, carrying studs with or without pulleys.



181,894.

181,894. CORN-PLANTERS. Z. D. Waters, Brookville, Md. [Filed May 31, 1876.]

Brief.—A disk secured on the axle, provided with pins, strikes in its revolution the end of a pivoted lever, for imparting an intermitting movement to the seed-slide, in connection with retracting-springs and levers. The same movement also vibrates the fertilizer-slide just after the seed has been dropped by suitable levers. Hinged to the frame, and extending rearwardly, is a bow-shaped frame, to which coverers are attached.



1. The combination of the axle C, the disk D, having pins d, pinion D', the slotted horizontal bar g, vertical levers h, springs h', shaft n, and the upright arm, terminating in toothed sector i, adapted to reciprocate feed-slide f, provided with indentations upon its under side, substantially as and for the purpose described.

2. The combination of the axle C, the disk D, having the pins d, the pinion D', horizontal slotted bar g, vertical bar h, springs h', shaft n, rigid arm o' thereon, link o', and bell-crank lever o on its shaft o', adapted to reciprocate feed-slide p, substantially as shown and described.

3. The covering apparatus, consisting of the two bars U, and U-shaped bar u', hoires u', bearing the blades u, and the whole hinged to the frame, substantially as and for the purpose described.

181,895. BLOWING-ENGINES. P. L. Weimer, Lebanon, Pa. [Filed June 7, 1876.]

Brief.—The valves, valve-seats, and guards are grated. The leather valves vibrate between the seats and guards. The cylinder is surrounded by an outer cylinder or case, which receives the air supplied to and discharged from the main cylinder. The lower end of piston is cup-shaped, and fits over bottom valves. The valves and ports are large, being equal in area to piston, and will admit of high speed.

1. The combination, substantially as shown and described, of a grated valve, valve-seat, and guard plate.

2. The combination of a grated valve-seat, a grated valve-guard, and a grated leather valve, arranged to vibrate between the seat and the guard, the slits or openings in the valve and guard being arranged to correspond or register with each other, while those in the seat are arranged to be covered or closed by the leather, substantially as shown and described.

3. In combination with the cylinder A and piston B, the valve-chests or seats E, extending into the cylinder, and provided with inlet-valves both in their faces and walls, substantially as shown and described.

4. The cylinder A, having the inlet valves D located in its ends, and the series of outlet-valves F located around its periphery or circumference, as and for the purposes described.

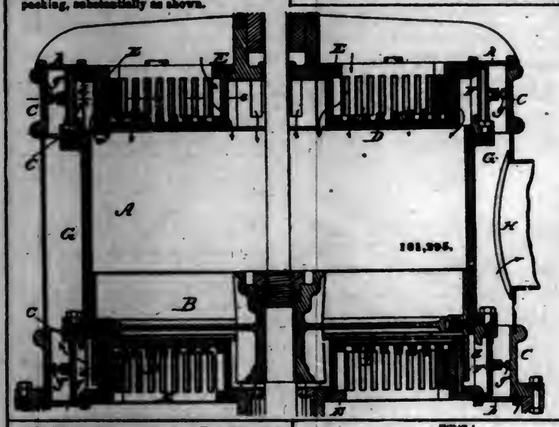
5. In combination with the cylinder A, provided with the series of circumferential outlet-valves F, the annular surrounding chamber O, provided with a discharge-pipe.

6. The combination of the cylinder A, the hollow rings O, provided with the air-outlets or throats d, the valves F, and the curved valve-guards, applied within the rings, as shown.

7. In combination with the cylinder A and the valve-chests I, extending therein, the piston B, recessed and adapted to fit down over.

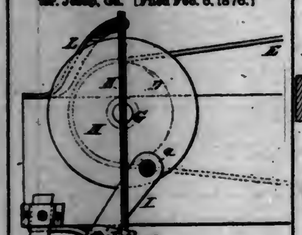
around, and between the cheats, as shown, and for the purposes described.

3. The piston B, constructed with the tbd wide surface-bearing and the recessed faces, and provided with the circumferential wooden packing, substantially as shown.



No. 181,895.

181,896. APPARATUS FOR TRANSMITTING POWER. John L. Williams and Mac Carter, Jesup, Ga. [Filed Feb. 6, 1876.]



The triple crank H I J, crank-pin a, in combination with the vertical reciprocating rod K, set-screw d, guides L, and the pin b, all constructed and arranged as and for the purposes specified.

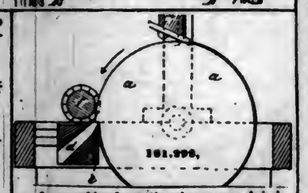
181,897. STOVE-PIPE. George Wright, Chicago, Ill. [Filed Feb. 25, 1876.]



A stove-pipe in which the longitudinal seam is formed by uniting in a Z form one edge of the sheet, while the opposite edge remains straight and slides into the groove thus formed, the two edges being fastened by pins or their equivalents, substantially as described.

181,898. MACHINES FOR MAKING SHOE-PEGS. Olif Abell, Woleott, Vt. [Filed Sept. 4, 1875.]

Brief.—The pegs are formed from the periphery of a rotating log by means of two stationary cutters, which cut and paint a strip of veneer of the requisite thickness to form the pegs; the strip being then cut into pegs by a rotating cylindrical cutter, provided with suitable cutting-blades projecting radially from its surface.

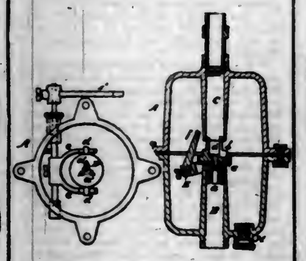


No. 181,898.

In a machine for cutting shoe-pegs and similar articles, the combination of the cutters *g*, that channel the surface, with the cutter *e*, grooved at *a*, to remove the layer of wood, and cut a V-shaped channel upon the under surface of each layer or veneer, substantially as set forth.

181,899. PUMPS. John S. Adams, Elgin, Ill. [Filed Mar. 13, 1876.]

Brief.—During the operation of the pump, water passes into the chamber, in which it is prevented from oscillating and from returning to the well, unless the check-valve is raised. The water may be retained in the suction-tube while the sand is being removed.



1. The combination of the auxiliary chamber A, pipe B, entering the bottom of the said chamber and extending above the bottom, to constitute a sand-trap, the fixed pipe C, entering the top of the said chamber and terminating above the pipe B, and a check-valve arranged to play between the interior ends of the said pipes, substantially as and for the purposes specified.

2. The combination of the chamber A, pipes B and C, check-valve D, and a valve-lifting device, all arranged substantially as described with relation to each other, for the purposes set forth.

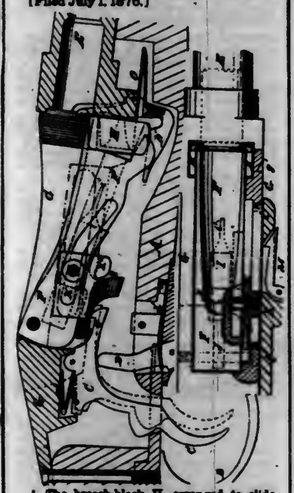
181,900. MARKING ATTACHMENTS FOR LAND-ROLLERS. Wm. V. Aldridge, Lebanon, Iowa, assignor of one-half his right to James W. Brown, same place. [Filed May 11, 1876.]

Brief.—In combination with a land-roller, independent marking attachments, adjusted and operated by hand-levers.



The rock-shaft *c*, crank *h*, hand-lever *e*, and pitman *d*, forming the independent mechanism of marker No. 1, and the corresponding parts *c'* *h'* *e'* *d'*, forming the independent marker No. 2, and the hand-lever *f*, connecting-rod *g*, and pivoted marker No. 3, all arranged and combined with the land-roller A B, having the central platform C and seat D, substantially as and for the purposes shown and described.

181,901. BREECH-LOADING FIRE-ARMS. E. J. Altman, Birmingham, Great Britain. [Filed July 1, 1876.]

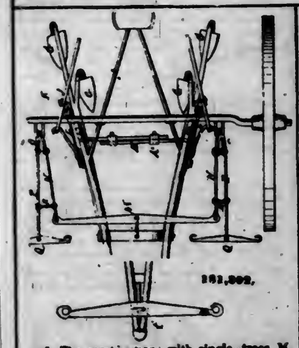


1. The breech-block H, arranged to slide in grooves in the solid sides of the breech-piece G, at right angles with the bore of the barrel B, as it is carried up and down by the holder F, substantially as herein shown and described.

2. The combination of the knob or handle L and the sliding plate K, provided with an arm, K', with the slotted breech-piece G, the grooved breech-block holder F, and the hammer I J, substantially as herein shown and described.

3. The combination of the lock-lever D, with the trigger C, the hammer I J, and the slotted trigger-guard B, substantially as herein shown and described.

181,902. CULTIVATORS. John C. Bannigan, Dunleith, Ill. [Filed Mar. 21, 1876.]



No. 181,902.

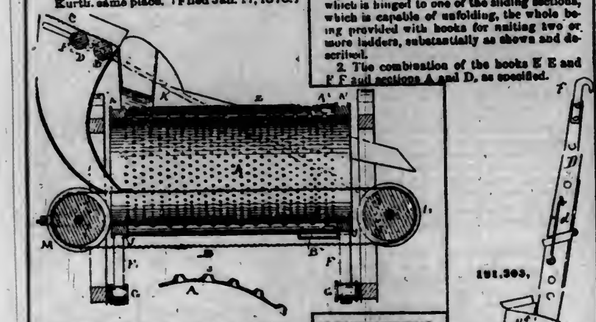
1. The combination, with single-trees M Q, of the connected rods N P, and lever O, the latter pivoted to axle, as shown and described.

2. The combination, with tongue and yoke, of the pin S and ring S', connected and arranged as and for the purpose set forth.

3. The combination of the plow-beams, having front ends held by a ball-and-socket joint, and with each other, by adjustable bars H, as and for the purposes specified.

4. The combination of the pivoted levers J, the swiveled arms K, and the connecting rods I I, with the axle B and the plow-beams F, substantially as herein shown and described.

181,903. GRAIN-SEPARATORS. Robert M. Becker, Milwaukee, Wis., assignor to H. Kurth, same place. [Filed Jan. 17, 1876.]



1. The cylindrical sieve A, formed of a single thickness of metal, and having indentations *a*, with perforations at the bottom of less diameter than the indentations, substantially as and for the purposes specified.

2. The sieve C, arranged to operate in combination with the rollers D, having a surface of rubber or other yielding material, and having a reciprocating motion, substantially as and for the purposes specified.

3. The endless-belt sieve B, arranged to operate in combination with the cylindrical sieve A, substantially as and for the purpose specified.

4. The combination of the sieve C with the reciprocating rubber rollers D, endless-belt sieve B, and cylindrical sieve A, substantially as and for the purpose specified.

5. The brush E, arranged to operate in combination with the belt U and cylindrical sieve A, substantially as and for the purpose specified.

6. The pulleys L M, having rubber or other yielding surfaces, as described, and arranged to operate in combination with the endless-belt sieve B, substantially as and for the purpose specified.

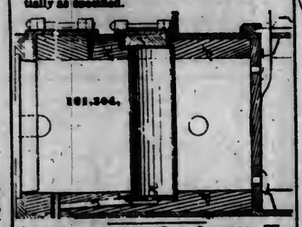
7. The pulleys W, J, and G and endless belts F, arranged to operate in combination with the cylindrical sieve A, having the flanges N, substantially as and for the purpose specified.

181,904. FURNACES FOR ASSAYING. T. M. Berge, New York, N. Y. [Filed Mar. 1, 1876.]

1. An assaying-furnace having the front and back walls constructed and arranged to receive muffles of different sizes, and make close joints with the ends of the same, substantially as described.

2. The muffle J, having a flange, Q, in combination with the furnace-wall, having the ledge P of larger dimensions than the muffle, substantially as described.

3. The muffle having the escape-passage R for the gaseous products located in its end wall, in combination with a furnace having the flue B extending below said passage, substantially as specified.



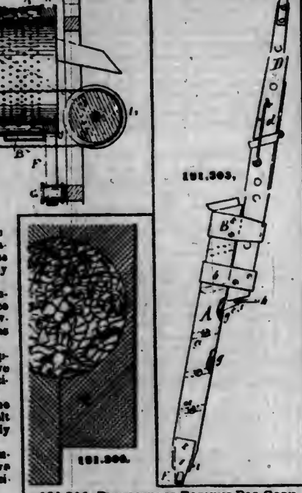
No. 181,904.

181,905. EXTENSION STEP-LADDERS. W. H. Bitter, Fort Howard, Wis. [Filed June 20, 1876.]

Brief.—The ladder is composed of three sections—the two lower sections sliding the one on the other, and the third or top section hinged to the second section, by which means a step or extension ladder is formed, if desired. The top and bottom sections are provided with hooks, which are placed at right angles to each other, so that several ladders may be hooked together.

1. A step-ladder composed of three sections, two of which are capable of extension by sliding one upon the other, and a third section, which is hinged to one of the sliding sections, which is capable of unfolding, the whole being provided with hooks for uniting two or more ladders, substantially as shown and described.

2. The combination of the hooks E E and F F and sections A and D, as specified.

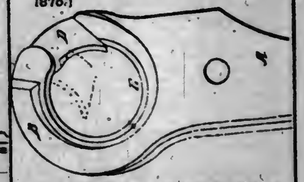


No. 181,906.

181,906. PROCESSES OF PARCHING POP-CORN BALLS. Gardner A. Blodget, Elmira, N. Y. [Filed Feb. 9, 1876.]

The improved process of manufacturing pop-corn balls, consisting of the following steps: first, forming the corn into balls or batches by hand; secondly, placing the balls thus formed into the concave recess of the lower press-block; thirdly, fitting the concave recess of the upper press-block down upon the projecting part of the ball in the lower block; fourthly, pressing the two blocks together to shape, compact, and size the ball; and, lastly, removing the ball from the press-blocks, as herein set forth and shown.

181,907. VEHICLE-POLE ATTACHMENTS. B. C. Bradley, Chicago, Ill. [Filed Sept. 7, 1876.]



1. In a draft-pole attachment, the blade or fin A and back C, provided with the ring B, constructed as described, and for the purpose set forth.

2. The blade or fin A, back C, border E, and ring B, in combination with the latch D, provided with legs G, constructed and arranged substantially as and for the purpose specified.

181,908. TROLLING-HOOKS FOR FISHING. Henry C. Brush, Brush's Mills, N.Y. [Filed July 22, 1876.]

Brief.—Under the spoon is attached a float to keep the troll from sinking when the speed of the boat or rod slackens.



The combination of the float A with the shank *a*, spoon B, and hooks of an ordinary troller, substantially as shown and described.

181,909. CARTRIDGE-CAPPING MACHINES. Charles M. Burton, George P. Bellsbury, and Charles S. Wells, New Haven, Conn., assignors to the Winchester Repeating Arms Company, same place. [Filed Aug. 7, 1876.]

Brief.—The caps are placed in a hopper, and are fed down through a tube, at the lower end of which they are received between two spring-jaws mounted on one arm of a vibrating crank-lever, by which jaws they are carried down and placed over the pocket or opening in the cartridge, and are then seated by a punch carried by the reciprocating head-block. The vibrating jaws are operated through the medium of a pivoted lever, operated upon at its upper end by a cam projection on the head-block, and connected at its lower end with an arm of said crank-lever.

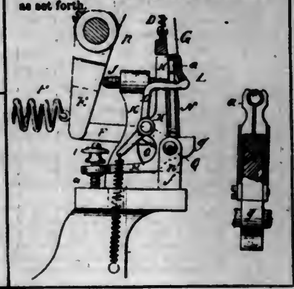
1. The magazine or hopper D, with the reciprocating tube T, constructed to operate substantially as and for the purpose set forth.

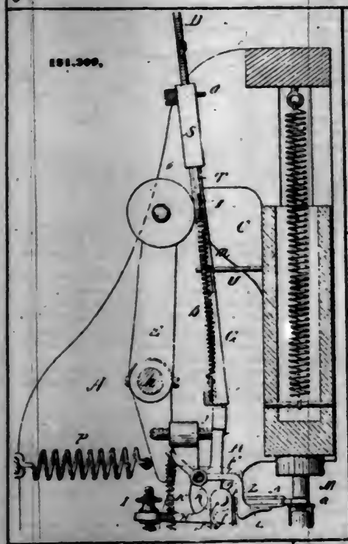
2. The combination of the hopper D, reciprocating tube T, and the stationary tube G, substantially as set forth.

3. The pivoted arm N, provided with the spring-clamps *a*, in combination with the gate L, the yielding stop-piece H, and the pointed pin or screw J, all constructed and arranged to operate substantially as described, whereby the primers are transferred from the tube G to the head of the shell, as set forth.

4. The combination, substantially as set forth, of the tube G, stop H, carrier-arm H, sliding gate L, and reciprocating punch M, all arranged to operate substantially as set forth.

5. In a capping-machine, a pivoted or swinging arm N, constructed to operate substantially as described, whereby it shall receive a primer from the mouth of a supply-tube, and transfer it to a cartridge-shell, substantially as set forth.

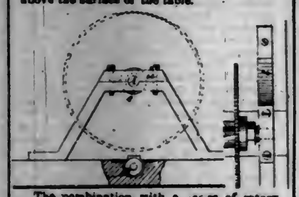




191,209.

191,210. MACHINES FOR SAWING LATHS. John W. Calkins, Avoca, N. Y. [Filed June 26, 1876.]

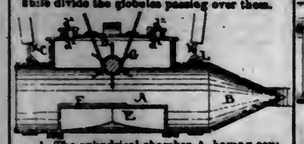
Brief.—For relieving the friction of the boards passing under a series of circular saws, separated the required distance by washers, and arranged upon the same mandrel. A directly subjacent roller is placed in the table in such manner as to project a short distance above the surface of the table.



The combination, with a series of rotary saws on the same mandrel, of the directly subjacent roller D, placed in, but projecting above, table, as shown and described.

191,211. CHURNS. J. Campbell, Almonte, Ontario, Canada. [Filed May 29, 1876.]

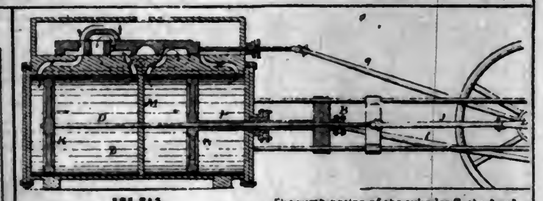
Brief.—A cylinder with conical ends is suspended by hinged rods, inclining inwardly to their attachment to the vessel, so that the ends dip in their outward stretch. A cord fixed to the same top connections passes around and rotates a central wheel, with arms dipping into the cream. At the bottom a breaker and knife divide the globules passing over them.



1. The cylindrical chamber A, having conical ends B, cream-breaker E, and knife F, constructed and arranged to operate as and for the purpose herein specified.

2. The combination, with the cylindrical chamber A, cream-breaker E, and knife F, of the agitating wheel G, as and for the purpose herein specified.

3. In a pendulously-operating churn, the combination, with the cylindrical chamber A, cream-breaker E, and knife F, of the cover D, provided with the air-opening d and agitating wheel G, when constructed and arranged to operate as and for the purpose herein specified.



191,213.

The combination of the cylinder Z, the fixed head M, the piston-heads K K', the hollow piston-rod P, and the piston-rod D the valve thereof, the supplementary valve s, operating together, for the uses and purposes described.

191,214. OVERALLS. Morris Crocker and Charles Sommerfeld, Chicago, Ill. [Filed Dec. 22, 1875.]



A pantaloons garment having the elastic strip A inserted in the back pocket B B, and the elastic attachment C C and eyelets D D, combined and arranged substantially as and for the purposes specified.

191,215. BUNGS. William W. Crooker, Waukegan, Ill. [Filed Aug. 14, 1876.]

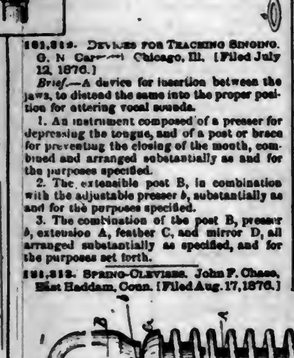
Brief.—The bung is in the form of two truncated cones united at their bases. The lower half is fitted with a gasket. The bush is bored out tapering to receive it. An annular space is left between the bung and bush to receive cement or rosin. The notches are to receive a lifter or wrench.



1. In combination with the bush A, the conical bung B, provided with a gasket, and affording the space between the two for the sealing material, as explained.

2. The conical bung B, provided with the notches or indentations n n, as described.

191,216. WINDOW-SCREENS. A. B. Davis, Lynnfield, Mass. [Filed May 17, 1876.]



191,212.

191,213. DEVICES FOR TEACHING SINGING. G. N. Carman, Chicago, Ill. [Filed July 12, 1876.]

Brief.—A device for insertion between the jaws, to distend the same into the proper position for uttering vocal sounds.

1. An instrument composed of a presser for depressing the tongue, and of a post or brace for preventing the closing of the mouth, combined and arranged substantially as and for the purposes specified.

2. The extensible post B, in combination with the adjustable presser *b*, substantially as and for the purposes specified.

3. The combination of the post B, presser *b*, extension A, feather C, and mirror D, all arranged substantially as specified, and for the purposes set forth.

191,218. SPRING-CLEVISES. John F. Chase, East Haddam, Conn. [Filed Aug. 17, 1876.]



191,218.

The hollow slotted tube A, having the fixed collar C at one end, and the sliding collar C and link B at the other, in combination with the hook D, having stem E, the key A, and spring I, all constructed and operating substantially as shown and described.

191,219. NUT-LOCKS. Thomas C. Conrad, Philadelphia, Pa. [Filed Aug. 7, 1876.]



1. The combination of bolts A, nuts B, washer C, provided with face recesses for nuts, slotted recesses at the circumference, and a circumferential recess at the back, and of locking-wire D, that extends from one washer to the other, in the manner substantially as and for the purpose set forth.

2. The washer C, provided with slots at the circumferences that are made wider at the lower part and tapering from back to front, substantially as specified.

3. A washer for nut-locks, having a circumferential recess at the back to secure the locking-wire passed around the washer, substantially as described.

191,220. STEAM-ENGINES. A. B. Orthfield, Lincoln, Ill. [Filed Dec. 23, 1875.]



191,219.

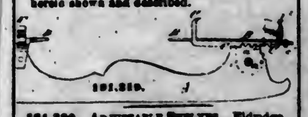
1. The portions A B of the frame of a window-screen, provided with the holes *e*, having the shoulders *f*, and connected by the tubes or sockets C, in combination with the springs *d*, rods *c*, slots *f*, and pins *h*, constructed, arranged, and operating substantially as described, for the purpose set forth.

2. The netting i, with its strips of tape *k*, in combination with the two portions A B of the frame, substantially as and for the purpose set forth.

191,221. SKATES. John A. Dodge, Amherst, Nova Scotia, Canada. [Filed June 6, 1876.]

The combination of the sliding clamp C,

provided with rack-teeth, with the pivoted heel-plate B and toothed segment a', formed upon the skate-runner A, substantially as herein shown and described.



191,319.

191,222. ADJUSTABLE SHELVES. Eldridge C. Donnell, Chelsea, Mass. [Filed Jan. 17, 1876.]



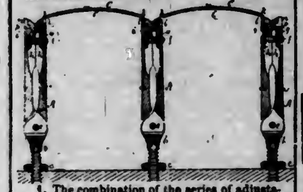
1. The notched strips C C', composed of wood, the grain of which runs transversely, combined with the backing-strips *c*, composed of wood the grain of which runs longitudinally, substantially as described, for the purpose specified.

2. The strips C' C', having the inclined notches, combined with the removable cleat G, having similarly inclined notched ends, substantially as described, for the purpose specified.

3. The combination of the bracket E, cleat G, notched strips C' C', and a vertically-adjustable shelf, all arranged and operating substantially as described.

191,223. YARN-GUIDES FOR SPOOLING-MACHINES. George Draper, Hopedale, Mass. [Filed June 26, 1876.]

Brief.—The guides are made in two parts, one hinged to the other, and their extremities are adjusted to each other by a screw. Outside and at their ends the jaws are notched to receive each the bent end of an arched wire, which connects the guides, and conducts the thread into them.



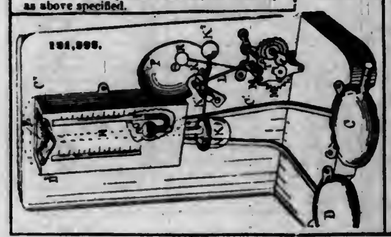
1. The combination of the series of adjustable-jawed spooling-guides A with the series of removable arched wire-conductors C, arranged with and applied to such guides, substantially as specified.

2. The jawed guide A, having to each or either of its jaws, a compound socket, *a p*, as described, for the reception of a conductor, as explained.

3. The arched conductors C, bent near their ends, as shown at *k l*, in combination with the jawed guides A, substantially as specified.

191,224. PROCESSES OF ROASTING, SMELTING, AND CALCINING ORES. James Duffy, San Francisco, Cal. [Filed May 16, 1876.]

The process of roasting, smelting, or calcining ores by saturating or intermixing the ore, with a highly-combustible liquid, as described, and then treating it in a furnace, substantially as above specified.



191,225.

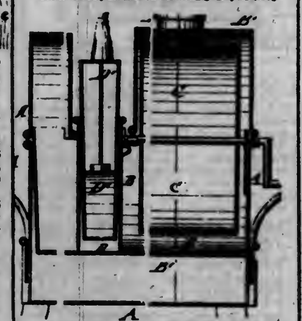
191,225. FIRE-ALARMS. Albert F. Ellis, Boston, Mass., assignor of one-half his right to W. H. Dole and F. B. Dole, same place. [Filed July 28, 1876.]

Brief.—Air-chambers located in the several rooms of a building are connected by pipes with a mercury-reservoir. In the event of a fire the air in the chambers expands, and causes an overflow of the mercury into a counterbalanced cup, whereby the lever to which said cup is attached is tripped and an alarm mechanism released.

1. The combination of the air-chambers C, &c., with the mercury-reservoirs C' and the counterpoise-cup K, all operating substantially as described, and for the purpose set forth.

2. The combination of the counterpoise-cup K, the lever E', crank K', and let-off device L M, with the alarm device T, all operating together substantially as described, and for the purpose set forth.

191,226. PEA-NUT ROASTERS. J. Esposito, New York, N. Y. [Filed July 22, 1876.]



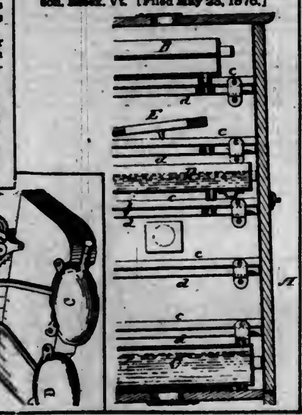
A pea-nut roaster provided with a hot-water chamber, arranged in case A vertically above the draft-passage, between the roaster and the storage-chamber, as shown and described.

191,227. BALANCED ROTARY VALVES FOR STEAM-ENGINES. John Fairburn, Upton, Quebec, Canada. [Filed May 3, 1876.]



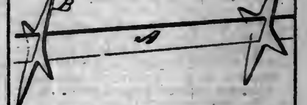
The combination and arrangement, with the valve, constructed and operating as described, and the cylinder, of the steam-passages *b* and exhaust-passages *c*, the said passages being formed by the valve-seat *d* and parts *e*, as shown.

191,228. REFRIGERATORS. Jos. F. Ferguson, Essex, Vt. [Filed May 23, 1876.]



191,229. MILK-CANS. Robert Ford, Nanteno, Iowa. [Filed Dec. 31, 1875.]

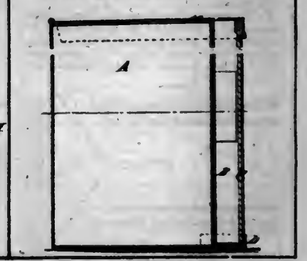
Brief.—Four-pointed barbs stricken from sheet metal have, in the direction of their two longer points, elongated slots for the reception of flat metal rails, thus preventing rotation of the barbs. The longest points of the barbs are in continuation of the length of the slots, in view of the shape of the flat rail.



1. In combination with the flat metallic rail A, arranged with its flat surfaces facing inward and outward, the flat four-pointed metallic barb B, having an oblong rectangular slot, *s*, adapted to receive the said rail, substantially as specified.

2. The four-pointed barb B, having oblong slot *s*, the length between the points of the barbs in line with the slot being greater than that at right angles thereto, substantially as specified.

191,230. PACKING-CASES FOR CRACKERS AND CONFECTIONERY. Jos. Garneau, Sr., St. Louis, Mo. [Filed June 20, 1876.]

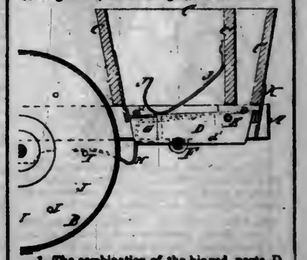


1. A milk-safe, A, provided with an upper cooling-reservoir, B, a lower heating reservoir, C, and the intermediate milk-pans D, resting upon suitable cleats *d*, arranged as described, and for the purpose set forth.

2. In the milk-case A, provided with upper cooling and lower heating reservoirs, the pans D, arranged above each other, and adapted to be drawn out upon suitable sliding frames E, all arranged as and for the purpose described.

191,227. SEED-PLANTER AND FERTILIZER-DISTRIBUTER. J. C. Fooshe, Greenwood, S. C. [Filed July 15, 1876.]

Brief.—The bottom of the hopper is formed of two hinged parts, to which toothed feeders are adjustably attached. Spring-arms upon the hinged section are struck by pins on the bearing-wheel, for discharging the fertilizer.



1. The combination of the hinged parts D of the hopper-bottom, provided with the flanges *g*, the teeth *g'*, and the adjustable bent toothed plates G, the bent arms H, the alternate pins I, and the springs J with the hopper C, the frame A, and the wheel B, substantially as herein shown and described.

2. The combination of the screen-partition *e* and the plate K with the hopper C, and the rear ends of the hinged parts D of the hopper-bottom, substantially as herein shown and described.

191,232. HARROWS. Robert Ford, Nanteno, Iowa. [Filed Dec. 31, 1875.]

Brief.—Four-pointed barbs stricken from sheet metal have, in the direction of their two longer points, elongated slots for the reception of flat metal rails, thus preventing rotation of the barbs. The longest points of the barbs are in continuation of the length of the slots, in view of the shape of the flat rail.

1. In combination with the flat metallic rail A, arranged with its flat surfaces facing inward and outward, the flat four-pointed metallic barb B, having an oblong rectangular slot, *s*, adapted to receive the said rail, substantially as specified.

2. The four-pointed barb B, having oblong slot *s*, the length between the points of the barbs in line with the slot being greater than that at right angles thereto, substantially as specified.

The combination of sample-case H, having a transparent side, C, with the same case A, having the extension D, and with the cover E, substantially as specified.

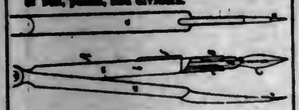
181,280. CORSETS. Catherine A. Griswold, New York, N. Y. [Filed Apr. 18, 1876.]



Ladies' corsets having shoulder-straps constructed and arranged in connection with the busk, as shown, in combination with bands or lacing adjustable by buckles, as set forth.

181,281. DIVIDERS. Adolphe Gruber, Boston, Mass., assignor to L. Prang & Co., same place. [Filed Apr. 24, 1876.]

Brief.—The combination in one instrument of pen, pencil, and dividers.



1. The combination of the troughed limb a, provided with the compass-point c, with the slotted and tubular limb b, provided with the concave-convex projection f, to receive the projection g of the pen-carrier, each limbs a b being pivoted together or to a handle at their upper ends, as set forth.

2. The tubular pen-carrier B, provided with the pen-socket r and the projection g, arranged as set forth.

3. The slotted tubular pen-carrier B, provided with the pen-socket r, and the compass-point cover h, arranged as shown.

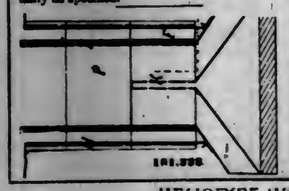
4. In combination with the part A, as described, the removable tubular and slotted pen-carrier B, and the removable reversible compass-pointed pencil-holder D, all constructed and arranged substantially as set forth.

181,282. MANUFACTURE OF ARTIFICIAL MARBLE. Richard Gudden, New York, N. Y. [Filed Oct. 15, 1875.]

1. The method of making black artificial marble by means of cement mixed with vegetable or animal black and water, filling the pores after crystallization with some cement already colored black, crystallizing the latter, polishing, and again filling the pores with blackened cement, then spreading on black-liquid coloring matter and nitrate of iron, then washing and polishing and applying a second layer of black liquid, and finally washing and polishing, substantially as specified.

2. The combination, with the cement or plaster, of soluble glass and manganese, the same being mixed with the water employed in mixing the cement, substantially in the proportions stated.

3. The combination of a surface-coating with the cement or plaster when new, consisting of soluble glass mixed with the white of eggs, and a second coating composed of water and soluble glass in equal proportions, substantially as specified.

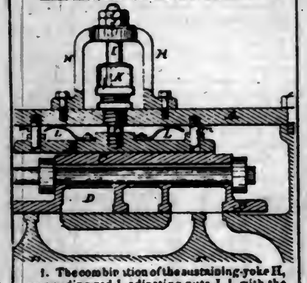


181,282.

181,283. REPORTS FOR DISTILLING MERCURY ORES. Frederick Gutzkow, San Francisco, Cal. [Filed Apr. 3, 1876.]

In a reducing-retort, the straight removable end pieces I, in combination with the flanged side plates P, to form the body thereof, substantially as described.

181,284. BALANCED VALVES. Leonard H. Hall, Erie, Pa. [Filed Feb. 28, 1876.]

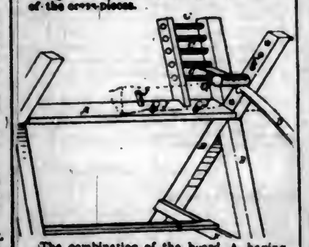


1. The combination of the sustaining-yoke H, suspending-rod I, adjusting-nuts J J, with the balance-plate B, for suspending and making adjustable the said plate, and the pins m, for steadying the same, substantially as shown, and for the purposes mentioned.

2. The pins m, in combination with the flexibly-seated plate B, for steadying the same, substantially as shown and described.

181,285. SAW-BUCKS. Peter W. Hardwick, Boscomy, Ind. [Filed Apr. 3, 1876.]

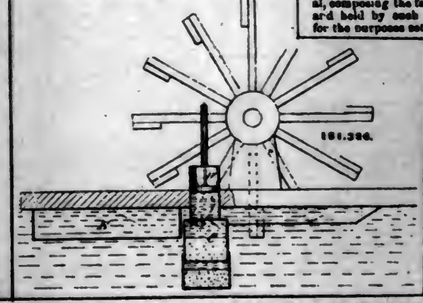
Brief.—The wood is firmly held, while being sawed, by means of a series of rounds mounted in a standard and one of the cross-pieces, and a lever, one end of which is passed through the rounds, and the other secured by a pin having an eccentric tenon upon one end, and fitting in an aperture in the upper part of one of the cross-pieces.



The combination of the board A, having pins J J, rounds C C, pin G, and lever D, with the cross-pieces B B, provided with apertures E, constructed to operate as shown and described, and for the purpose specified.

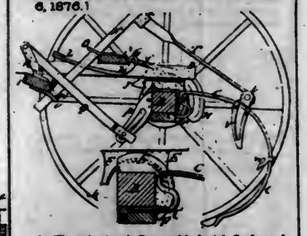
181,286. WATER ELEVATORS AND PURIFYING. Conrad Hartsell, St. Joseph, Mo. [Filed June 20, 1876.]

A tube attached to ship, boat, or float so as to be submerged, and provided with a filter at the bottom, as shown and described, whereby a vessel of pure water is always at hand on board ship for drinking or other purposes.



181,286.

181,287. HORSE HAY-RAKES. Henry H Hathaway, Clockville, N. Y. [Filed June 6, 1876.]



1. The rake-teeth C, provided with S-shaped heads at the rear side of the axle B, substantially as herein shown and described.

2. The rake-teeth C, having their lower ends bent downward, forward, and upward to form runners to slide upon the ground, substantially as herein shown and described.

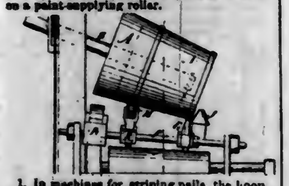
3. The combination of rod G, having crank g', and the tilting-plate H, pivoted to angle-plates I, and having hook J, with the ratchet K, arranged substantially as and for the purpose specified.

4. The combination, with the seat, of bars N, passing through keepers O on cross-bar d^3, and to the rear edge of forward cross-bar d^1, said bars being supported by pins n^1, as set forth.

5. The downwardly-projecting axle-arm P, slotted and combined with bars Q R and cross-bar d^3, as and for the purpose set forth.

181,288. MACHINES FOR STRIPING PAILS. Samuel R. Henry, Stillwater, Minn. [Filed May 16, 1876.]

Brief.—The pail is placed on a vertically-adjustable chuck, and is held in place by a roll at the bottom of the pail. By means of a foot-treadle, the chuck is pressed down and forces the pail upon a guide-roller having flanges to conform with the width of hoop, and upon the striping-rollers, which revolve on a paint-supplying roller.



1. In machines for striping pails, the hoop guide-roll H, supported on the spring O, as shown and described.

2. The combination, with chuck A B, of the roll J to hold the pail, as set forth.

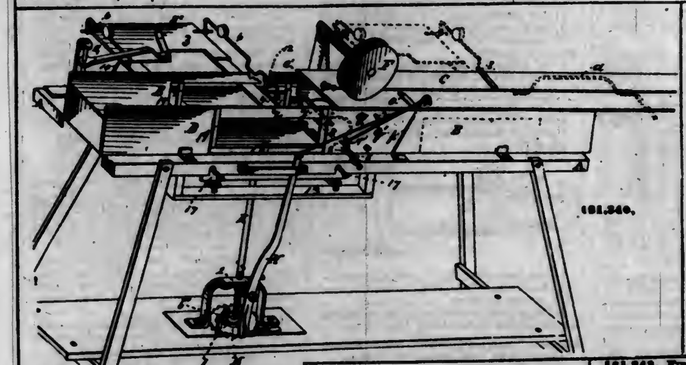
3. The combination of chuck A B, rolls H J, and striping rolls O, substantially as and for the purpose specified.

181,289. SASH-HOLDERS. Edward B. Hill, New Haven, Conn., assignor to Hezekiah Bradford and Herman Hamburger, Philadelphia, Pa. [Filed Jan. 10, 1876.]

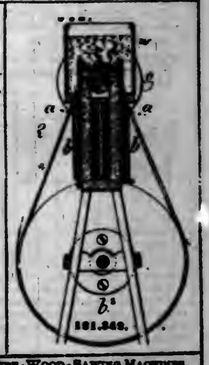
Brief.—The novelty is in the method of attaching a rubber face to the pressure plate.

The cross-bar i, and opening or recess in the pressure-plate of the friction-clamp, around which bar the india-rubber, or similar material, composing the face of the clamp, is passed and held by each bar, substantially as and for the purposes set forth.





181,340.



181,342.

181,340. MACHINES FOR LABELING FRUIT-CANS. Jos. Hinkley, Rockford, Ill. [Filed June 5, 1876.]

Brief.—The can is placed in a trough, and a reciprocating slide or cover (provided with projecting pins, which come in contact with movable arms, which actuate the pasting and label-feeding mechanisms) is placed over the can, and bears upon it, thereby causing it to move or roll over the label, which has previously had paste applied.

1. In a labeling-machine, the combination, with a can-holder, and with label-pasting devices, substantially as described, of a reciprocating slide, C, operating to bear upon and roll the can or box forward through the machine.

2. In a labeling-machine, a reciprocating slide, provided with projections or pins, combined with the operative mechanism for feeding forward the can, pasting the label, affixing it to the can, and discharging the labeled can, substantially as described.

3. In a labeling-machine, the combination, with a reciprocating slide adapted to roll and feed a can or box, at each forward and backward movement, of a guideway or trough, B, constructed to receive cans, and to discharge them at both of its ends, or in opposite directions, substantially as described.

4. The combination, with the slide C, and its pin a, of the label-lifting platen J, and intermediate devices, substantially as described, serving to lift the platen intermittently by the action of the pin a upon the rod or lever p, substantially as and for the purposes set forth.

5. The combination, with slide C, and its pin a, of the rocking gear-shaft s, and its spring, the rocking-shaft o, and tipping-pan w, substantially as and for the purposes set forth.

6. The combination, with slide C, and its pin a, of the rocking-shaft s, and its clamping cross-bar p, substantially as and for the purposes set forth.

7. The combination, with the slide C, and its pin a, of the spring-lever 16, link 16^a, rock-lever 11, link 11^a, and reciprocating brush-carriage 3, substantially as and for the purpose described.

8. The combination, with the reciprocating brush-carriage 3, of the bent lever-arms 6, the guide-posts 12, paste-cups e, and tipping-pans w, substantially as and for the purpose set forth.

9. In combination with the trough or can-holder B the side bars 13, each suspended on yielding supports or springs 15, substantially as and for the purpose set forth.

10. In combination with the label-box I, the adjusting device 16, substantially as and for the purpose set forth.

11. In combination with the label-box I, the adjusting-rods 17 17, provided with right and left screw-threads, substantially as and for the purpose set forth.

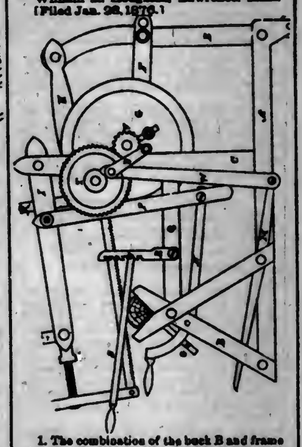
12. In combination, the platen J, its threaded rod or post K, gear M, lever N, and its resetting-spring 1, link g, rod p, and slide C, as and for the purpose set forth.

181,341. TOY CANNONS. Scott B. Hibbard, Chicago, Ill. [Filed May 15, 1876.]

Brief.—The trail hooks over the trunnions, which trunnions also serve as an axle. The breech is closed by a wedge, which slides between the butt of the piece and a cross-bar on the trail.



181,342. FIRE-WOOD-SAWING MACHINES. William A. Hodgkins, Lawrence, Mass. [Filed Jan. 26, 1876.]



1. The combination of the buck B and frame A C Q with the wheel D, the fulcrum E, and its lever S, in a manner substantially as and for the purpose herein described and set forth.

2. The combination of the saw and its frame K with the arm I, the connecting-arm H, the lever E, the arm F, the wheel G, the gear-wheel V and T, the crank U, the pitman W, the treadle M, the pitman P, the lever N, the catch O, the fulcrum R, the lever S, the buck B, and frame A, in a manner substantially as and for the purpose herein described and set forth.

181,343. PLASTERERS'-TOOLS. Asa A. Howe, Ulysses, Pa. [Filed May 1, 1876.]

Brief.—A plastering-tool consisting of a box with an open top, and a bottom formed of two inclined steel plates, one lapping over the other, and both hinged at the upper ends to the box. The box is provided with guides at two sides. A handle on one of the hinged bottom pieces serves to press the box against the surface to be plastered, and as the plaster is distributed, the pressure on the adjustable bottom forces the mortar out until the box is quite empty. Springs return the bottom to its inclined position, when it is again filled.



1. The combination, in a box or frame, A B, of the double bottom C and guides D E, the said bottoms being hinged to the frame, and overlapping one part by the other, substantially as specified.

2. The combination of handle I with the double hinged bottom C and the box or frame H, substantially as specified.

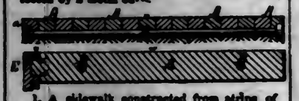
181,846. CARPENTERS' GAUGE. Charles H. B. Hutchinson, Menomonee, Wis. [Filed Apr. 11, 1876.]



The blocks A and A', provided with the adjustable stops a a', in combination with the cross-bars D, having a scale on it, and the handle c, substantially as set forth.

181,846. SIDEWALKS. Theodorus Hyatt, New York, N. Y. [Filed Feb. 5, 1874.]

Brief.—A sidewalk of planks laid with their edges up, and secured together by transverse bolts. The outer ends of the planks are protected by a metal curb.



1. A sidewalk constructed from strips of board, combined so as to present their edges to wear, substantially as and for the purpose specified.

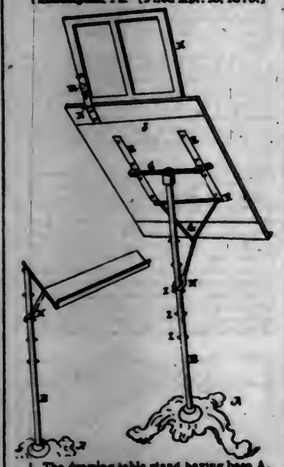
2. The curb E, c, and c constructed as above, and combined with the sidewalk A, a', and a', in the manner and for the purpose set forth.

181,847. MILK-COOLERS. Wm. H. Hyde, Cortland Village, N. Y. [Filed July 28, 1876.]
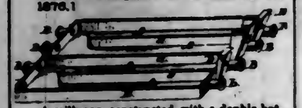


A milk-pan constructed with a double bottom, E, having an open space between the double portions, for reception of a cooling or warming medium, divided into two equal sections, each section having its connected compartments A A with inlet and outlet passages C and D, carrying the said medium through the center compartments outward, and with ventilating-orifices B B, all combined and made substantially as and for the purposes above described.

181,848. DRAWING-BOARDS. Saml. James, Philadelphia, Pa. [Filed Apr. 15, 1876.]

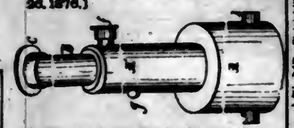


1. The drawing-table stand having base A, cross-piece C, the two parallel bars E E, and rest G, combined and arranged substantially as described.

2. The combination, with a drawing-table top, having stop N, of the easel K, provided with adjustable slide L, constructed and arranged as specified.

3. In a drawing-table stand, having the rest G and fork H, the stem B provided with the pins J J, substantially as set forth.

181,849. CASES FOR SHUT-OFF RODS AND STOP-COCKS FOR GAS AND WATER PIPES. Frederick Jerecki, Erie, Pa. [Filed June 26, 1876.]

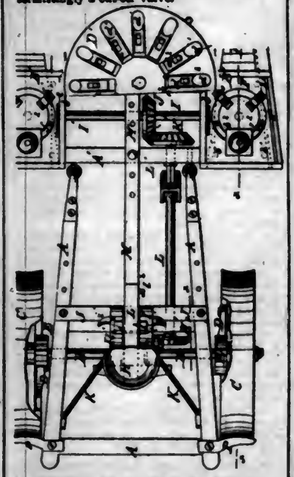


1. The round case, *Fig.* I, with a large section, A, at the bottom, and the smaller sections, A' and B, above.

2. The adjustable section B of the case, *Fig.* I, held in place by the spring *f* and stop *g*.

181,850. SEED-PLANTERS. Peter Kraus, Aragon, Nebr. [Filed Mar. 20, 1876.]

Brief.—The seat-standards are secured to a cross-bar, that is adjustable for varying the heights of the seat. The lower end of the dropper-spindle has formed on it a cam that engages with a forked lever, for vibrating intermittingly a cut-off valve.

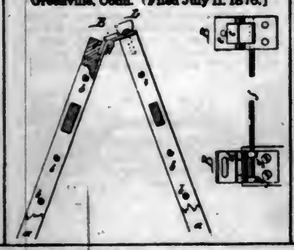


1. The combination of the adjustable cross-bar J and the adjustable braces K with the seat H, seat-standard I, and frame A, substantially as herein shown and described.

2. The combination, with spout O', of the valve Q', plate R', and lever S', arranged substantially as and for the purposes set forth.

3. The combination of the exchangeable cam-wheels V', the levers S' T', the sliding plate R', and the spring W' with the spindle P', that carries the dropping-wheel D', and with the valve Q', pivoted in the conductor-spout O', substantially as herein shown and described.

181,851. CLOTHES-DRIERS. Orlando B. Lee, Greenville, Conn. [Filed July 11, 1876.]



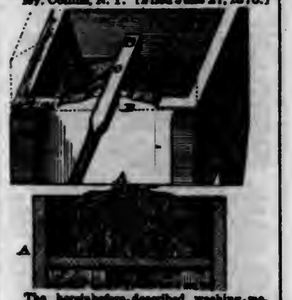
The frame a b, having hinges B B', the former hinge having shoulders c c and hole e, while the latter has a slot, d, in combination with thumb-screws D and rod f, the latter passing through ears g to connect the hinges, as shown and described.

181,852. COTTON-CLEANERS. Amos J. Lee, Limbaugh, Ala. [Filed May 9, 1876.]



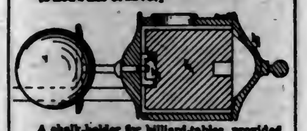
The cotton-cleaner case A, having bottom slats B and side slats C, in combination with revolving shaft D, having spirally-arranged paddles E, recessed on their working faces, as shown and described.

181,853. WASHING-MACHINES. S. Lindsley, Collins, N. Y. [Filed June 27, 1876.]



The herein-before-described washing-machine, consisting of a tub, A, provided with a vertically-operating dasher, B, composed of the top board B', sides B'', and the series of slats b, said dasher being provided with the passage c, between the top board B' and the slats b, and operated by a hand-lever, C, having its fulcrum in the bearing E, upon the upper edge of said tub A, in such manner that said dasher will descend by its own gravity and ascend by means of said lever C, the whole being constructed and arranged to operate substantially in the manner and for the use and purpose described.

181,854. BILLIARD CHALK AND BALL HOLDERS. Rubel Mortimer, New York, N. Y. [Filed June 6, 1876.]



A chalk-holder for billiard-tables, provided with side openings G, and opening H, key I, and ball-holder K, arranged substantially as and for the purposes specified.

181,855. ELEVATOR-BELTS FOR HOISTING-BUCKETS. Frederic H. C. Moy, Buffalo, N. Y. [Filed July 8, 1876.]

Brief.—The brace secured by the staple keeps the links in position. The wings on the links are provided with eyes for fastening the buckets thereto.

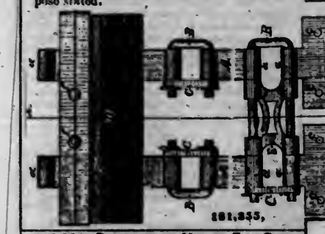
1. The combination, with the links A, of the buckets D, and one or more bolts, *f*, surrounded by the tubes *g*, said bolts *f* being arranged to connect the front and rear sides of said buckets with each other, and the buckets with the belt-links, substantially in the manner as and for the use and purpose stated.

2. The combination of the links A, provided with the eyes a, with the wings *b*, having the apertures c, substantially as described, for the use and purpose stated.

3. The brace M, in combination with the links A and staple B, for the purpose mentioned.

4. The combination, with the links A, having wings *b*, and being connected with one another by the staples B, of the buckets D, secured to the said wings by the bolts c and

f, the latter being provided with the tubes *g*, the whole constructed and arranged substantially in the manner and for the use and purpose stated.



181,845.

181,856. PROCESSES OF MAKING ZINC CARTRIDGE-CASES. Isaac M. Milbank, Greenfield Hill, Conn. [Filed Dec. 2, 1874.]

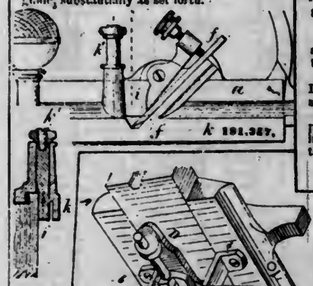


As an improvement in the art of manufacturing cartridge-cases of sheet-zinc, coating the zinc with tin and then forming the case by the usual mode of stamping or drawing, but without annealing at any time, save just previous to the last drawing operation, when the partly-finished case is annealed by hot water, substantially as described.

181,857. TONGUING AND GROOVING PLANES. Charles G. Miller, New Britain, Conn., assignor to Stanley Rule and Level Company, same place. [Filed July 17, 1876.]

Brief.—A tonguing and grooving plane, having a stationary guide, is provided with a second guide, adjustable in a plane parallel to the face of the stationary guide.

The combination, with a tonguing-plane, having stock a, cutters e and f, and guide *k*, of the second guide or fence *i*, moving in a plane parallel to the face of the stationary guide, substantially as set forth.



181,857.

181,858. TOBACCO-CUTTERS. J. G. Petty, Kingston, R. I. [Filed Feb. 17, 1876.]

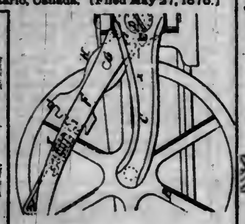
Brief.—The cutter is pivoted to the handle, and thrown down by it, and simultaneously thrown laterally to give a draw-cut.

1. The blade B, link C, and operating-lever D pivoted to each other and the frame A, substantially as set forth.

2. The frame A, having the opening e and projection *b*, in combination with the lever D, link C, and blade B, substantially as and for the purposes set forth.

181,858.

181,859. ADJUSTMENTS FOR HARVESTER-PLATFORMS. Saml. Noxon, Jr., Ingersoll, Ontario, Canada. [Filed May 27, 1876.]



The combination of the toothed lever F and the rigid arm H of the support D with the grain-wheel arm G, having toothed hub E, and being pivoted to support D, which is attached to the grain-table, substantially as specified.

181,860. SETTEES. B. A. Osgood, Wakefield, Mass. [Filed June 21, 1876.]



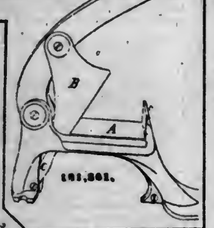
In combination with the seat and lower portion of a chair, settee, or similar article of furniture, the springs c, placed in front of the center of the seat, between the seat and lower portion, and having their closed ends toward the front, the said seat resting solely upon the said springs, substantially as and for the purpose herein described.

181,861. TOBACCO-CUTTERS. J. G. Petty, Kingston, R. I. [Filed Feb. 17, 1876.]

Brief.—The cutter is pivoted to the handle, and thrown down by it, and simultaneously thrown laterally to give a draw-cut.

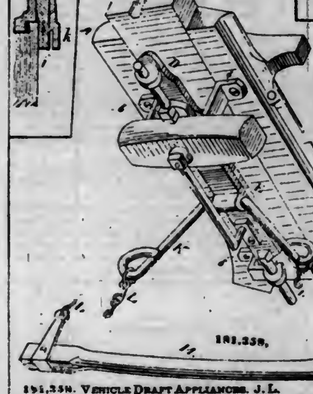
1. The blade B, link C, and operating-lever D pivoted to each other and the frame A, substantially as set forth.

2. The frame A, having the opening e and projection *b*, in combination with the lever D, link C, and blade B, substantially as and for the purposes set forth.



181,861.

181,338. VEHICLE DRAFT APPLIANCES. J. L. Mueller, Milwaukee, Wis., assignor to himself and C. H. Meyer, same place. [Filed Apr. 11, 1876.]



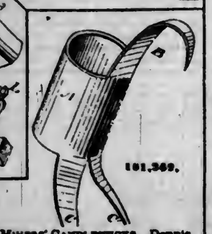
181,338.

1. The combination of the bounds A A, bracket D, and draw-bar F, operating as described, to relieve the tongue from all strain, as set forth.

2. The combination of the bounds A A, bracket D, draw-bar F, rod K, links L, and axle-tree M, all operating to relieve the tongue from strain, as set forth.

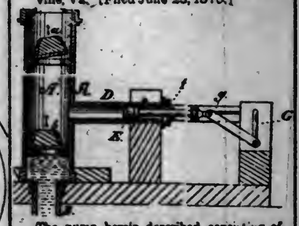
181,862. MINERS' CANDLESTICKS. Dennis Quicliven and Robt. N. Lineberger, Ukiah, Cal. [Filed June 13, 1876.]

The candlestick or holder consisting of the socket A with its forked prongs C, and hook H, substantially as and for the purpose herein described.



181,862.

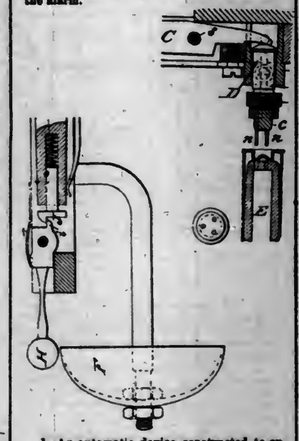
181,863. PUMPS. Geo. W. Rinehart, Keysville, Va. [Filed June 23, 1876.]



The pump herein described, consisting of large vertical valve-cylinder A, provided in its interior with a single set of induction and ejection valves, a *b*, and reservoir or chamber A', horizontal smaller-sized piston-cylinder D, secured to the valve-cylinder at the central portion thereof, and just above the induction-valve *b*, pistons E F, and operating mechanism G *g*, all constructed and arranged to operate substantially as described.

181,864. MACHINES FOR TESTING CARTRIDGE-SHELLS. George P. Salisbury and Charles S. Wells, New Haven, assignors to Winchester Repeating Arms Company, New Haven, Conn. [Filed Aug. 3, 1876.]

Brief.—The plunger, carrying the testing-pins, descends with the cross-head without interruption when the cartridge has been properly punctured; but when one or more holes are wanting, in consequence of defective punches, said plunger is arrested in its descent, while the continued descent of the cross-head causes it to be forced up into its socket, tripping the bell-lever and sounding the alarm.



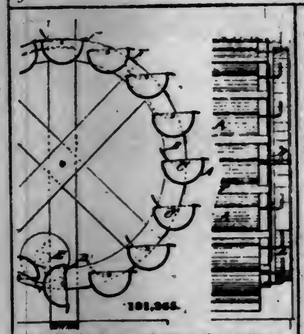
1. An automatic device constructed to operate substantially as described, whereby an alarm is sounded whenever the testing-pins n fail to enter holes in the shell, as set forth.

2. In combination with piston D, provided with the pins n, the bell F, with intermediate operating mechanism, constructed to operate substantially as described, whereby the movement of the piston D will cause the bell to ring, as set forth.

3. The combination of the sliding piston D, lever C, with its spring-catch J, and bell F, with its pivoted hammer H, all arranged to operate substantially as and for the purpose set forth.

181,865. WATER-WHEELS. R. D. Sayre, Westerville, Ohio. [Filed Mar. 21, 1876.]

Brief.—The buckets of an overshot-wheel or breast-wheel pivoted to the wheel-rims so as to remain upright and hold the water until the center is reached at the bottom, when they are tilted by a cam to empty the water, by which the wheel retains all the water as long as it does any good, and the weight can be applied farther from the center of the wheel by pivoting the buckets at the periphery of the wheel-rims.



181,365.

1. The buckets A of an overshot or breast wheel, pivoted to the wheel-rims, and provided with an arm, D, and a cam, E, for emptying them, substantially as specified.

2. The cam for tilting the buckets, extended from the point of tilting the buckets to the point of filling them, or thereabout, substantially as specified.

3. The combination of cross-bar F with the tilting bucket A and the wheel-rim, substantially as specified.

181,366. MAKING PIPE-MOLDS. W. Smith, Pittsburg, Pa. [Filed Jan. 21, 1876.]

1. The conical pattern D, operated by a hydraulic ram or other equivalent means, substantially in the manner and for the purposes herein set forth.

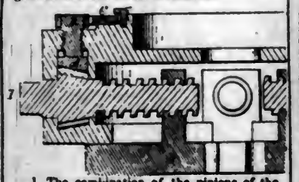
2. The bell-ow bowl pattern V, with its packing-flange, in combination with the flask F, pattern D, and plunger B, as and for the purposes herein set forth.

3. The flask F, in combination with the bar C, for the purposes herein set forth.

4. The combination of the carriage M, guide-flange P, and false flange R, for supporting the bowl-pattern V and flask F, substantially as and for the purposes herein set forth.

181,369. CHUCKS FOR METAL-LATHES. A. B. Smith, Denver, Colo. [Filed June 24, 1876.]

Brief.—The gear-headed screws, which throw the toothed ring into gear with the pinions on the jaw-screws, are operated by a peripherally-cogged ring secured to the lower half of the chuck, a blind tooth in which prevents the screws from being turned too far down. Springs press against the face of the ring, which operates the pinions on the jaw-screws, and throw it out of gear, when gear-headed screws are withdrawn.



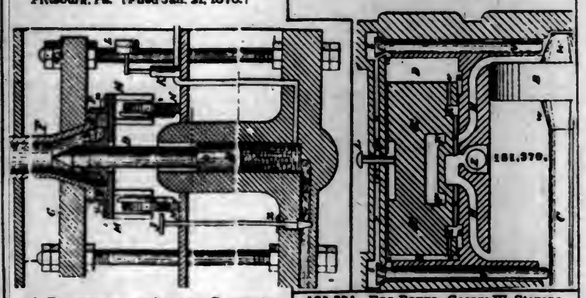
1. The combination of the pinions of the jaw-screws, provided with square indexed ends I, toothed ring A, springs F, and screws B, substantially as described.

2. The combination of the gear-headed screws B and the rings A C, substantially as described.

181,370. STEAM-MOVED VALVES FOR ENGINES. Andrew J. Stevens, Sacramento, Cal. [Filed Mar. 31, 1876.]

1. The supplemental valves *t*, with their stems V, and the operating cones or inclines W in the main cylinder, in combination with the steam-passages *r* and *u*, the valve-piston, provided with ports *c*, *b*, and *i*, and the recess *n*, substantially as herein described.

2. The valve E, having the steam-ports F F and the exhaust-port G, and the ports *k*, *o*, and *i* upon its lower side, and the recess *m*, substantially as set forth.



181,370.

1. The conical pattern D, operated by a hydraulic ram or other equivalent means, substantially in the manner and for the purposes herein set forth.

2. The bell-ow bowl pattern V, with its packing-flange, in combination with the flask F, pattern D, and plunger B, as and for the purposes herein set forth.

3. The flask F, in combination with the bar C, for the purposes herein set forth.

4. The combination of the carriage M, guide-flange P, and false flange R, for supporting the bowl-pattern V and flask F, substantially as and for the purposes herein set forth.

181,371. EGG-BOXES. George W. Stevens, New York, N. Y. [Filed July 26, 1876.]



The herein-described egg-box, consisting of a series of partitions, A, provided with cushions and horizontal partitions C, provided with cushions D, substantially as set forth.

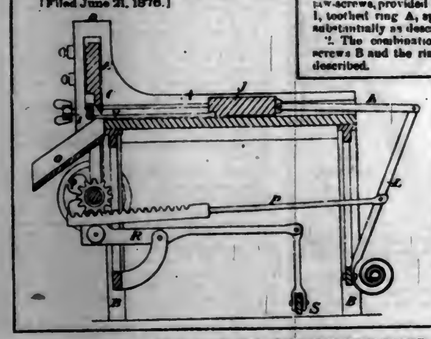
181,372. METHODS OF FORMING EMBANKMENTS. George Swift and W. T. O'Neale, San Francisco, Cal. [Filed July 26, 1876.]

The method of forming levees or embankments, the same consisting in constructing low embankments or timber retaining-walls, successively above each other, for the formation of canals, channels, or troughs, and filling said channels by any suitable means with sand, gravel, or other sedimentary deposit, mixed with water, which is drawn off after the sediment has been deposited, thus forming a concrete embankment, substantially as herein described.

181,373. COMPOUNDS FOR REMOVING SCALE FROM BOILERS. Robt. R. Taylor, Reading, Pa. [Filed May 29, 1876.]

A compound, consisting of five pounds chestnut oak bark, half pint honey, two ounces washing-soda, one quart extract sumac, one quart extract Irish moss, and one quart extract slippery-elm to two gallons water, as and for the purpose set forth.

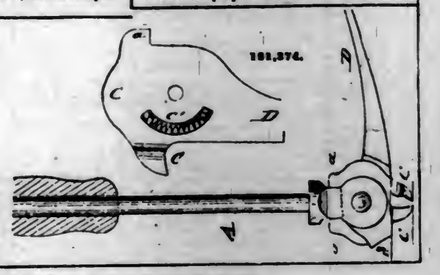
181,367. SOLDER-CUTTING MACHINES. F. C. Smith and C. R. Smith, Portland, Oreg. [Filed June 21, 1876.]



1. The combination of a barrel-stand having supporting braces or handles with a front box and covering-top tray, for storing a set of measures and funnels for each barrel, substantially as set forth.

2. The combination of a barrel stand with a treadle-operated rack piece and a sliding spring-catch, operated from the front of the stand to tilt and lower barrel, as required, substantially as specified.

181,374.



181,379.

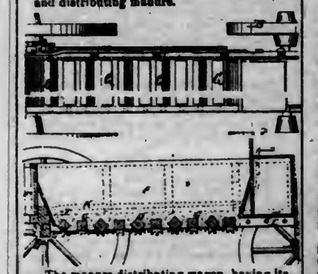
181,374. NAIL-EXTRACTORS. W. H. Tinker, Springfield, Mo. [Filed Apr. 18, 1876.]

Brief.—The jaws are fulcrumed to the lower part of a handle having a sliding weight, and are provided with symmetrically-extending levers, opened by spiral springs set in curved slots in the inner sides of the jaws.

In nail-extractors the jaws C, fulcrumed to lower part of the handle, provided with spring-levers D, and having the stops *a*, all constructed and arranged substantially as and for the purpose specified.

181,375. MANURE-WAGONS. Jason W. Town, South Woodbury, Vt. [Filed June 6, 1876.]

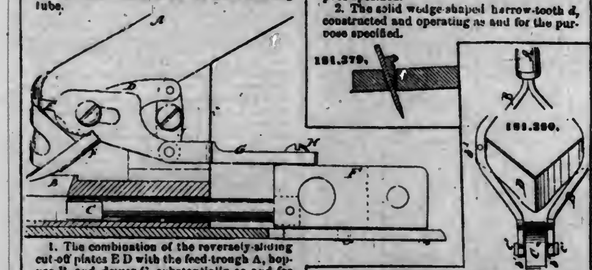
Brief.—The bottom of the wagon is formed of a series of square rollers, for pulverizing and distributing manure.



The manure-distributing wagon, having its bottom formed of angular parallel bars or rollers C, arranged near each other, so as to discharge the manure when rotated, but prevent its escape at other times, as shown and described.

181,376. NAIL-FEEDING MACHINES. Frank Toepfer, Milwaukee, Wis. [Filed May 22, 1876.]

Brief.—The nails are automatically fed to the driver by means of an inclined trough, provided at its lower end with an inclined guide and nail-delivering tube; a pair of reversely-sliding cut-off plates attached to the inner side of the trough, and connected to and operated by the driver-block; and a hopper located immediately under the nail-delivering tube.

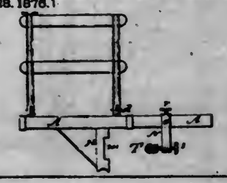


1. The combination of the reversely-sliding cut-off plates E D with the feed-trough A, hopper B, and driver C, substantially as and for the purpose set forth.

2. The combination of the slotted link G, lever J, and driver-block F, having stud-pin H, with the feed-trough A, hopper B, and driver C, substantially as and for the purpose set forth.

3. The combination of the inclined guide and nail-delivery tube K with the trough A, hopper B, and driver C, as and for the purpose set forth.

181,377. WINDOW-SCAFFOLDS. Helen C. Traphagen, New York, N. Y., assignor to Annie Traphagen, same place. [Filed July 28, 1876.]



The cross-clamp T, legs N N, set screws *s s* and *r r*, in combination with the beams A A and legs H H, with notches *n*, substantially as and for the purpose described.

181,378. HYDRANTS. Lafayette L. Treman, Ithaca, N. Y. [Filed May 8, 1876.]
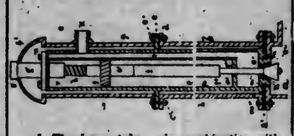


1. The inner tube *c*, in combination with the outer case or tube *a b*, the inner tube being fitted to the outer tube by the adjustable packed joint at or near the junction of the parts *a b*, which joint is tightened by the bolts *e'* through the flanges *e* and *d*, as set forth.

2. The flange *e*, fast to the tube *c*, in combination with the outer case *b*, for the purpose of bolting the tubes *c* and *b* together, and for the purpose of tightening the joint at the base of the tube *c*, as set forth.

3. The recess or groove *r* in the tube *c*, holding the rod *i*, and providing for the valvular drain-opening about the part *i''* of the rod *i* at the base of the recess *r*, as set forth.

4. The inner tube *c*, having combined with it the rod *i*, revolving nut *g*, valvular-rod opening *i'''*, rod clamps or guides *j*, and with the recess *r* in it, substantially as set forth.

5. The projection *c'''* beneath the base *c''*, for the purposes of enlarging the valve-seat for the valve *i''*, and of holding the gasket *m'''* on the end of the tube, as set forth.

6. The outer case *b*, with a flange extending outward on its top at or near the surface of the ground, and base tube or pipe *a*, in combination with the inner tube *c* and its flange *e*, extending outward to and lying on the flange of the case *b*, thereby securing the inner tube *c* to the outer case *b*, and thus to the water-pipe beneath the hydrant, as set forth.

181,379. HARROWS. Andrew J. Upham, Sterling, Ill. [Filed Nov. 16, 1876.]

1. The beam *b*, provided with the wedge-shaped slots, elongated in the line of draft, in combination with the harrow-tooth *d*, all substantially as described, and for the purpose specified.

2. The solid wedge-shaped harrow-tooth *d*, constructed and operating as and for the purpose specified.

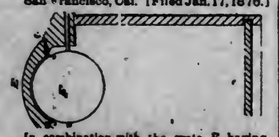
181,379.

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181,380. WHEEL-HOES. Rudolph Vampill, Mullins, S. C. [Filed July 22, 1876.]

An improved wheel-hoe, formed of the handle A, the diamond-shaped frame B, provided with the slotted cross-head legs *b'*, and the cutter-seat legs *b''*, the wheel C and axle-bolt *c'*, and the knife D, constructed and combined with each other, substantially as herein shown and described.

181,381. TUYERES. Isaac S. Van Winkle, San Francisco, Cal. [Filed Jan. 17, 1876.]



In combination with the grate E, having its lower surface made concave, as shown, the valve F, having the convex side O, and mounted upon a shaft, so as to be rotated to open or close the air-passage, substantially as here in described.

181,382. MACHINES FOR SEPARATING FIBER FROM PLANTS. John B. Vogel, New York, N. Y., assignor to himself and W. L. Bowron, same place. [Filed July 3, 1876.]

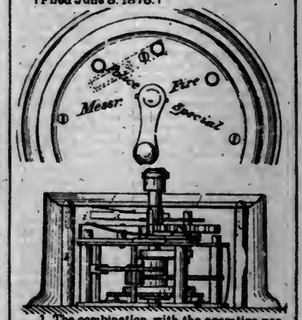
Brief.—The fiber is suspended from a slowly-moving feed-apron, and delivered between the overlapping ribs on the crushing-rollers.



1. The combination of the endless apron D, having suspending devices *h*, with the rollers B and C, of a decorticating-machine, substantially as specified.

2. In combination with the endless apron D and rollers B C, the clamping device E, arranged for use, substantially as herein shown and described.

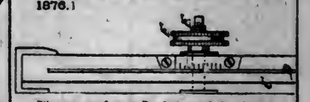
181,383. DISTRICT-TELEGRAPH SIGNAL-BOXES. John H. C. Watts, Baltimore, Md. [Filed June 8, 1876.]



1. The combination, with the operative portion of a signal-box, of a stop, arranged substantially as described, allowing the crank to be turned at all times for one class of signals, but locking its further operation to send other classes of signals until it be operated to release the mechanism, substantially as and for the purpose set forth.

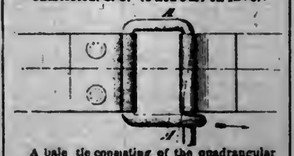
2. The alarm-signal box composed of an insulating-base and a spun or struck-up sheet-metal case or cover, substantially as and for the purpose set forth.

181,384. LEVELING-RODS. Geo. L. Whitehouse, Farmington, N. H. [Filed July 1, 1876.]



The tongued part B of the rod, having the slit D between the target and the main part, and the clamp-nut F and stud-screw E, in combination with the grooved part A of the rod, substantially as specified.

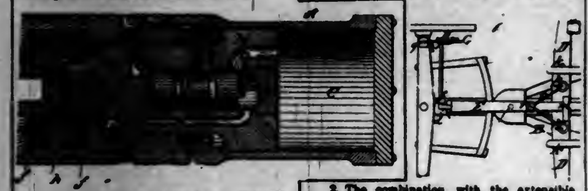
181,385. BALE-TIES. Willis Wilkinson, Charleston, S. C. [Filed July 11, 1876.]



A bale-tie consisting of the quadrangular metal A, having one free end straight, and subjacently crossing the other, while the latter is provided with a hook at its end, substantially as and for the purpose specified.

181,386. ROCK-DRILLING MACHINES. R. S. Winchester, Boston, Mass. [Filed June 20, 1876.]

Brief.—The valve, which is carried by the piston, moves to open the ports by the momentum imparted to it by the piston, when said piston is checked in its movement.



1. An engine having its valve carried with the piston, and operated by the momentum imparted thereto by the movement of the piston, substantially as described.

2. In combination with the cylinder A, provided with suitable steam-passages, the piston F, having the valve V fitted in a cavity therein, substantially as described, whereby the valve is operated wholly or mainly by the momentum imparted to it by the movements of the piston, as set forth.

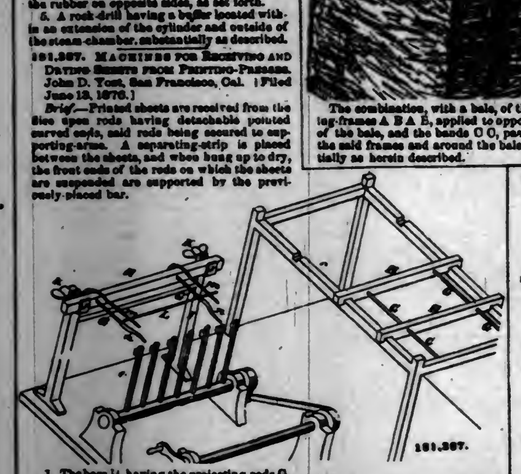
3. In combination with a valve arranged to be operated by the momentum imparted to it by the movement of the piston, the inlet or port *p*, to admit steam or air to assist in moving or sustaining the valve, as set forth.

4. The buffer, composed of the rubber or elastic rings *f f*, with the interposed metallic ring *k*, in combination with the piston having shoulders thereon, arranged to strike against the rubber on opposite sides, as set forth.

5. A rock-drill having a buffer located within an extension of the cylinder and outside of the steam-chamber, substantially as described.

181,287. MACHINERY FOR RECEIVING AND DRYING SHEETS FROM PRINTING-PRESSES. John D. Yost, San Francisco, Cal. [Filed June 13, 1876.]

Brief.—Printed sheets are received from the fly upon rods having detachable pointed curved ends, said rods being secured to supporting-arms. A separating-strip is placed between the sheets, and when hung up to dry, the front ends of the rods on which the sheets are suspended are supported by the previously-placed bar.



1. The bars H, having the projecting rods G, in combination with the frame O, the rods of each bar being supported upon the preceding bar, substantially as and for the purpose set forth.

2. The sockets J, with adjusting-screws K, in combination with the bars H, for the purpose and substantially as herein described.

3. In combination with a device for receiving the sheets directly from the press, as shown, the strips L, for separating the sheets, substantially as and for the purpose herein described.

4. The hinged bars m, in combination with the rods G and strips L, substantially as herein described.

5. The removable points s, for receiving the sheets, said points having their extremities drawn toward each other, so that the sheets will be straightened as they are carried back upon the rods G, substantially as herein described.

181,288. WAGON-BRAKES. George Adair and Fred. Babcock, Rock Falls, Ill. [Filed Feb. 7, 1876.]

Brief.—To enable the brake-reach to be adjusted to the wagon reach.

1. The combination, with the brake-beam D and brake-lever H upon the front bolster, of an extensible coupling-reach, E, provided with a lapping-iron, *i*, for its long adjustment, and a slag or plate, *s*, for its short adjustment, to said brake-beam, substantially as described.

2. The combination, with the extensible coupling-reach E and the brake-beam D, of the brace *o*, hinged to the brake-beam, and connected to the coupling-reach when the wagon is shortened, as described.

3. The combination, with the extensible reach E, the brake-beam D, and the hinged brace *o*, of the holding-strap *m*, as and for the purpose described.

181,289. RAILING MANURE AND OTHER SUBSTANCES. Jas. B. Archer, Yonkers, N. Y. [Filed July 20, 1876.]

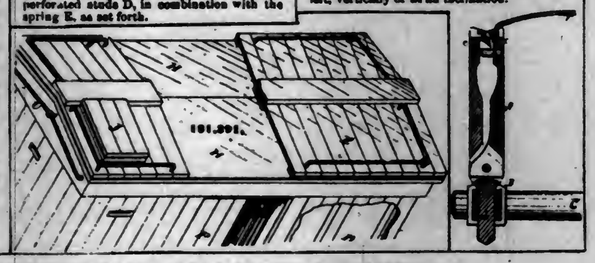


The combination, with a bale, of the clamping-frames A B A B, applied to opposite sides of the bale, and the bands C C, passing over the said frames and around the bale, substantially as herein described.

181,290. ELASTIC LINK-BARS FOR RAILROAD-SWITCHES. Thomas G. Armstrong, Jamestown, N. Y., assignor of one-half his right to Henry C. Thompson, Meadville, Pa. [Filed May 11, 1876.]

1. The split link-bar, in two parts, A and B, as shown and set forth.

2. The bars, A and B, provided with the perforated studs D, in combination with the spring E, as set forth.



181,291. REFRIGERATING-CARS. John M Ayer, Chicago, Ill. [Filed May 27, 1876.]

1. In a refrigerator-car, the roof-boards F E, with an air-space between them and over the india-rubber sheathing H, combined with the inside board lining F, to form an additional air-chamber above said lining.

2. In a refrigerator-car, the roof-boards F E, india-rubber sheathing H, and inside lining-board F, inclosing two air-spaces, as shown, combined with the below side walls B C and india-rubber sheathing H, as set forth.

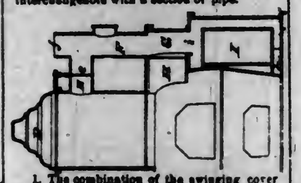
181,292. PAVEMENTS. Samuel Baird, Baird Iron Works, Ohio. [Filed June 23, 1876.]



The combination, with a paving composition, of a series of single iron rings, provided with exterior wedge-shaped projections, said series rigidly united by a single connecting-strip, substantially as and for the purpose set forth.

181,293. STOVES. Chas. Baldwin, Chicago, Ill. [Filed Apr. 29, 1876.]

Brief.—Peculiar mechanism for opening damper in gas-flue when the cover to magazine is opened. A shelf to be turned into space between body of stove and smoke-pipe when not in use. A detachable over at rear, interchangeable with a section of pipe.



1. The combination of the swinging cover D, damper *c*, and link-piece *d*, substantially as and for the purpose set forth.

2. The combination of the cover D, damper *c*, link-piece *d*, and adjusting-piece *d'*, substantially as and for the purpose set forth.

3. The link-piece *d*, pivoted to the damper *c*, and constructed as specified, so as to be used either for connecting the damper to the swinging top or for a handle to operate the damper independently, substantially as described.

4. The combination of the drum C, pipe F, center top *b*, having a rear projection, and shelves *c*, all constructed and arranged as shown, so that the shelves may be turned up into the space between the reservoir and pipe when not in use, substantially as described.

5. The combination of the exit-pipe H, short flue-pipe G, and projecting base-plate of the stove, all constructed and arranged as shown, so as to permit the application at pleasure of either a removable oven, I, or a removable flue-pipe, G', between the pipes H and G, and the rear extension of the base-plate, substantially as described.

181,294. YARN-GUIDE SUPPORTERS FOR SPOOLING-MACHINES. Jos. R. Bancroft, Hopedale, Mass. [Filed July 31, 1876.]

Brief.—One of the jaw-shanks is extended below, to form a spindle adjustable in a radial arm, which is itself adjustable upon a horizontal supporting-rod. As a result, the guide can be adjusted up or down, to the right or left, vertically or at an inclination.

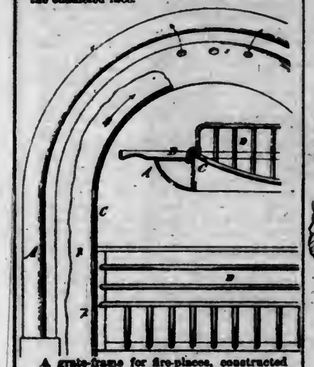
1. The improved jawed yarn-guide, having the main shanks *a b* of its jaws *c a* pivoted together, and provided with the auxiliary shank *d*, extending from one of them, in one piece therewith, all being substantially as set forth.

2. The combination of the support-rod C and the adjustable arms B, and the clamp-screws D applied thereto, as set forth, with thread or yarn guides applied to said arms, so as to be supported by or adjustable in or relatively to them, as set forth.

3. The combination of the bar C, adjustable arms B, thread or yarn guides A, and the conductor or intervening arched guide-wire F, all being arranged and applied substantially as set forth.

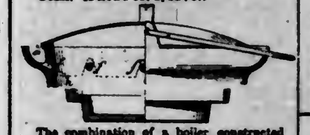
181,295. REINFORCED FRAMES FOR FIRE-PLACES. Homer J. Bargis and A. P. Ball, Richmond, Ind. [Filed Aug. 3, 1876.]

Brief.—An air-circulation between the front and back of the frame, for the protection of the enameled face.

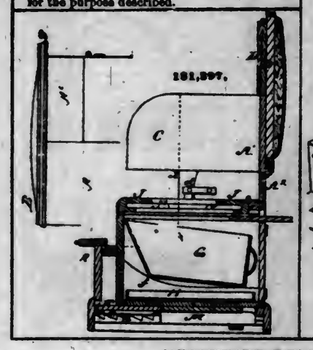


A grate-frame for fire-places, constructed with an enameled frame or plate, A, and plates B and C, forming between the plates and in front of the fire-place an intermediate air-space, provided with openings near the top and bottom to induce currents of cool air along the back of the enameled front, and in front of the inner plate B, to which the grate D is attached to keep down the temperature of the enameled plate, substantially as set forth.

181,296. OUTLINABY ROLLERS. Julius Bovin, Plainfield, N. Y., assignor of one-half his right to Henry V. Barton, East Hampton, Conn. [Filed Feb. 8, 1876.]



The combination of a boiler constructed with the channel *a*, and perforations *f*, and the cover constructed with corresponding perforations or notches *h*, substantially as and for the purpose described.



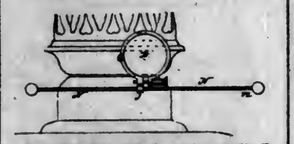
181,297. HARNESS-CLOSETS. J. W. Boyton, Jackson, Ohio. [Filed May 18, 1876.]

1. The combination of the case A, with hinged frames A^1 A^2, hinged lid B, side pieces C C, cushions D D^1, and rack-bars *d d*, and constructed as and for the purposes set forth.

2. The combination, with the exterior case A, of the interior box E, divided into compartments, as described, the adjustable seat J, with slides J' J', and the pans H G, all as and for the purposes set forth.

3. The combination of the bar C, adjustable arms B, thread or yarn guides A, and the conductor or intervening arched guide-wire F, all being arranged and applied substantially as set forth.

181,298. ATTACHMENTS FOR LIGHTING LAMPS. Reinhold Biber, Brooklyn, N. Y. [Filed Aug. 7, 1876.]



In combination with the pinion-spindle D of an oil or fluid lamp, the strap or clamp G, the arm J, having a balance-lever, N, on its end, substantially in the manner and for the purpose set forth.

181,299. BRICK-KILNS. E. W. Bingham, Philadelphia, Pa. [Filed June 17, 1876.]

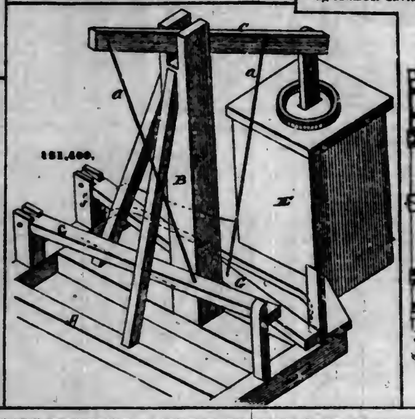


1. The combination, with a vertical kiln-wall section, *a*, forming the back of a furnace, and having one or more eyes opening through it, of the bent side eyes *d' d'*, opening through the side walls C C of said furnace, substantially as specified.

2. The combination, with a kiln-furnace having eyes opening angularly into its rear portion, of the oblique rake-holes in the walls of said furnace opposite said eyes to facilitate opening and closing the same, substantially as specified.

3. The combination, with the side walls C C of a kiln-furnace, of the obliquely-placed openings or mouths *h* of the bent lateral eyes *d'*, which extend through the kiln-wall to the arches, substantially as specified.

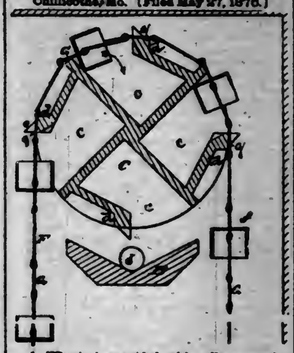
4. The combination, with a vertical kiln-wall section, *a*, forming the back of a furnace, of the bent lateral eyes *d d* opening through the side walls C C of the furnace, substantially as specified.



181,300. CHURNS. Lawrence Blust, New Albany, Ind. [Filed July 12, 1876.]

The combination of the bed-frame A, standard B, levers G G, rods or cords *e e*, rocking beam C, shaft D, and its dasher, and churn-box E, all constructed substantially as and for the purposes set forth.

181,301. CHAIN-PUMPS. George Blythe, Chillicothe, Mo. [Filed May 27, 1876.]



1. Wheel C, provided with cells *c c* and guides *e e*, which are notched at *f' f'*, substantially as and for the purpose set forth.

2. Wheel C, provided with cells *c c*, and notched guides *e e*, in combination with bucket-chain F, provided with T-shaped plates G, as and for the purpose set forth.

181,302. APPARATUS FOR TREATING REFUSE FROM SLAUGHTER-HOUSES FOR FERTILIZING PURPOSES. John Bonfield, Chicago, Ill. [Filed Mar. 9, 1876.]

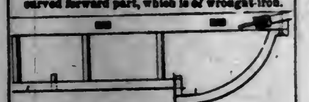
Brief.—The substance to be treated is fed, through a hopper having an automatically-closing bottom, into an open-ended revolving cylinder, supported upon anti-friction wheels, and journaled at its ends upon and around short stationary cylinders, permanently secured to frame-work. The cylinder is rotated by worm-gearing, and is provided internally with radial flanges. The stationary cylinder farthest from the feed has an escape-pipe for foul gases, and discharges material by a hopper into a pipe leading to a screen-chamber. The whole cylinder is inclined toward this end. By a fan hot air and products of combustion are drawn from a furnace and forced simultaneously through both branches of a pipe, one branch of which leads to the cylinder just below the feed-hopper, the other to the lower part of the discharge-hopper, and farther on to the screen-chamber, where it passes through a vertically-adjustable plate, and terminates in a flaring mouth. The dried substance is blown through this pipe against graduated screens in the chamber. From the compartments between the screens the matter, dried and pulverized, is dropped into a receiving-chamber having vents.

1. The combination of the air-heating furnace A, fan B, hot-air-blast pipes C' F, cylinders G F G', and the receiving and screening-chamber H, all constructed, arranged, and operating substantially in the manner described, and for the purpose stated.

2. In combination with the hot-blast pipe C', a series of upright screens, m m, located in the receiving-chamber H, and operating in the manner and for the purpose specified.

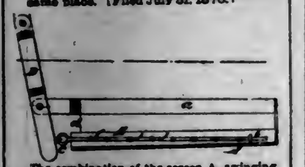
181,403. SLED. James L. Brannock and James A. Cleveland, Antioch Mills, Ky.; said Cleveland assignor to said Brannock. [Filed May 23, 1876.]

Brief.—The straight portion of the runner is of wood, and is fitted to a socket in the curved forward part, which is of wrought-iron.



A sled-runner, consisting of a curved wrought-iron bar, extending from the top of sled to the curve of runner, a metallic band welded thereto, and a straight piece of wood fitting into the band, substantially as shown and described.

181,404. SEAMING-SEPARATOR. Elijah Brown, New York, N. Y., assignor to himself, Rhen Peck, and Gilbert J. Bogart, same place. [Filed July 31, 1876.]



The combination of the screen A, swinging arms D D, pivoted to a suitable support, and the divider E, constructed and arranged substantially as specified.

181,405. PROCESSES OF SAVING CAUSTIC ALKALI IN THE MANUFACTURE OF PAPER-PULP. Samuel Brown, Chillicothe, Ohio. [Filed Apr. 10, 1876.]

The within-described process for preparing straw for paper-pulp, consisting of the following stages, namely: boiling the straw in a weak solution of lime, crushing the same, reducing it in a rag-engine to "half stuff," and then subjecting it under steam pressure to the action of caustic alkali, substantially as and for the purpose set forth.

181,406. COMBINED HARNESS-SADDLE AND CHECK-HOOK. Peter Burns, Syracuse, N. Y. [Filed Aug. 11, 1876.]



The combination, substantially as specified, of the pad-tree, the saddle, the leather interposed between them, the check-rein hook, and the fastening-bolt Z, having a horn, F', and a guard-plate, F.

181,407. BUCKLES. Peter Burns, Syracuse, N. Y. [Filed Aug. 11, 1876.]



A buckle, substantially such as described, in which the tongue swings free of the bar B, and the frame has a depressed cross-bar under the tongue.

181,408. STEAM-PUMPS. John Cahill, Mahanoy City, Pa. [Filed May 10, 1876.]

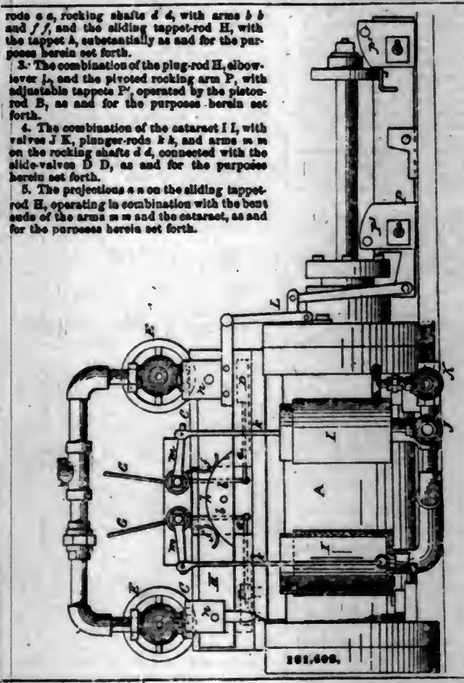
1. In a steam-pump, the combination, with the cylinder A, of the two steam-chests C C, with slide-valves D D and the stop-valves E E, substantially as and for the purposes herein set forth.

2. The combination of the slide-valves D D, rods a a, rocking shafts d' d, with arms b b and f f, and the sliding tappet-rod H, with the tappet h, substantially as and for the purposes herein set forth.

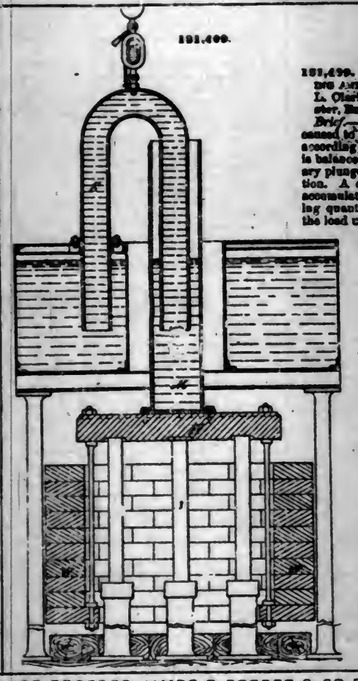
3. The combination of the plug-rod H, elbow-lever I, and the pivoted rocking arm P, with adjustable tappets P', operated by the piston-rod B, as and for the purposes herein set forth.

4. The combination of the cataract I I, with valves J K, plunger-rods k k, and arms m m on the rocking shafts d d, connected with the slide-valves D D, as and for the purposes herein set forth.

5. The projections s s on the sliding tappet-rod H, operating in combination with the bent ends of the arms m m and the cataract, as and for the purposes herein set forth.



181,408.



181,409.

181,409. HYDRAULIC APPARATUS FOR RAISING AND LOWERING BRIDGES, &c. Josiah L. Clark and John Standfield, Westminster, England. [Filed Sept. 11, 1874.]

Brief.—A part or all of the plungers can be caused to sustain the load of the accumulator, according to the pressure desired. The load is balanced and regulated by the supplementary plunger when thrown into or out of action. A compensator is connected with the accumulator by a siphon, whereby the varying quantity of water increases or decreases the load upon the plunger.



181,409.

1. The combination, substantially as hereinbefore set forth, of the lifting-ram, the weighted accumulator, and the supplementary plunger thereof, whereby the weight or load is permanently balanced and its raising and lowering effected by throwing the supplementary plunger out of or into action.

2. The combination, substantially as hereinbefore set forth, of a weighted accumulator, with a series of cylinders and plungers, a part or all of which can be caused to sustain the load of the accumulator according to the pressure desired.

3. The combination, substantially as hereinbefore set forth, of the weighted accumulator, the ram, and a compensator, substantially such as described, whereby the varying immersion of the accumulator, plungers, and the ram is compensated.

4. The combination, substantially as hereinbefore set forth, of the accumulator, the hollow compensator, the tank, and the siphon connecting the tank and compensator, whereby the pressure is automatically regulated.

5. The combination, substantially as hereinbefore set forth, of the weighted accumulator, a series of cylinders and plungers, and a series of presses, the rams of which move synchronously through stated distances to lift a load uniformly, whereby each press is operated from the accumulator independently of the others by its corresponding cylinder and plunger.

6. The combination, substantially as hereinbefore set forth, of the accumulator, a series of cylinders and plungers, a series of rams, each operated from the accumulator independently of the others by its own cylinders and plungers, and the automatic relief-valves, whereby inequality of pressure is compensated and the movement of the body in a horizontal position is secured.

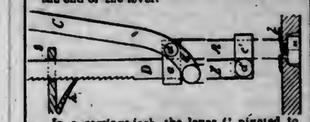
7. The packing-gland, constructed as described, with vertical slots to form projections, and an annular groove to form a seat for the cup-leather, for the purpose specified.

8. The combination, substantially as hereinbefore set forth, of the packing-gland, constructed with vertical slots and a seat for the cup-leather, the press having vertical slots and an annular ring or groove, and the locking-pins, whereby the cup-leather may be removed or inserted and secured in place at will.

9. The hydraulic lifting apparatus, hereinbefore described, consisting of the combination of the platform for supporting the weight to be lifted, the ram upon which the platform is mounted, an accumulator weighted to counterpoise the article to be lifted, lifting cylinders and plungers, and a supplementary cylinder and plunger which raises and lowers the weight by disturbing the counter-balance of the apparatus as it is thrown into and out of action.

181,410. WAGON-JACKS. Fred. A. Cleland, Canandaigua, N. Y. [Filed Apr. 24, 1876.]

Brief.—The lift-bar has a loop embracing and sliding on the stem, and is itself embraced by and works in another loop on the top of the stem, at which point the lever is pivoted. A link connects the bottom of the lift-bar with the end of the lever.



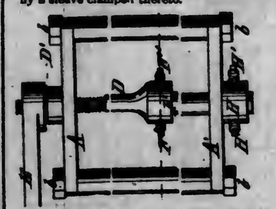
In a carriage-jack, the lever C pivoted to the standard A, having its arm c' extending in curved form beyond the fulcrum, the rise-bar D, and the link-bar E, adapted to vibrate past said fulcrum to fix the lever when depressed, as set forth.

181,411. FRAME-SQUARING TOOLS. Jerome Cleveland, Tecumseh, Mich., assignor of one-fourth his right to Otis W. Bean, same place. [Filed June 26, 1876.]

The improved tool for squaring frames, consisting of a bar, B, and heads C, having beveled or angular ends E, and an indicator, a, said heads being adjustable, as shown and described, for the purpose specified.

181,412. TUBE-STRETCHING MACHINES. J. T. Connelly, Connellsville, Pa. [Filed July 29, 1876.]

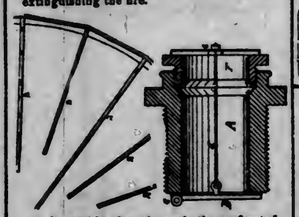
Brief.—The tube to be stretched is clamped in the socket of the threaded adjustable rod, while the other end is held against the frame by a sleeve clamped thereto.



The combination of perforated plate A', collar H, having clamping-screws H' H', perforated plate A, screw-threaded stretching-rod D, having socket F and clamping-screws F' F', nut D', and suitable framing connecting said end plates A A', substantially as set forth.

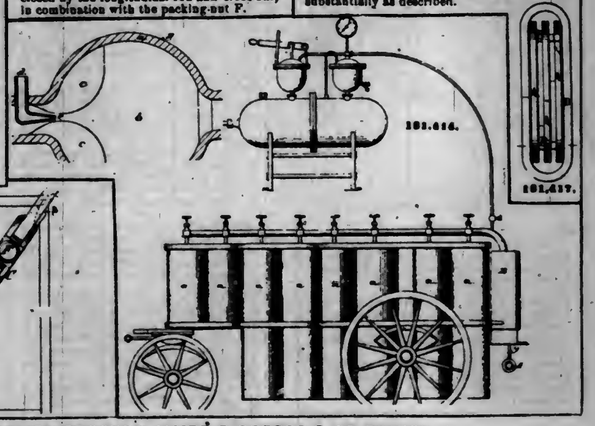
181,413. EXTINGUISHING FIRES IN OIL-TANKS. Jos. H. Connelly, New Brighton, assignor to J. L. Hastings and W. H. Hastings, Pittsburg, Pa. [Filed June 27, 1876.]

Brief.—The carbonic-acid gas is introduced into the body of the oil at the lower part of the tank; from thence it rises to the surface, extinguishing the fire.



1. In combination, the tank, the perforated radial pipes extending within it through a suitable bushing, and the main distributing-pipe for the extinguishing agent, placed outside of said tank, and connecting with the radials.

2. In an oil-tank bushing, the main portion A, having flap-valve B, adapted to be held closed by the longitudinal rod and cross-bar, in combination with the packing-nut F.



181,414.

181,411.

181,417.

181,414. FIRE-EXTINGUISHERS. Joseph H. Connelly, New Brighton, assignor to J. L. Hastings and W. H. Hastings, Pittsburg, Pa. [Filed June 27, 1876.]

Brief.—A series of mounted holders contain washed gas under great pressure. At the rear is a heating apparatus for expanding the gas before it mixes with the water-supply.

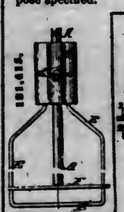
1. The combination of generator, Fig. 1, with purifier, the series of mounted holders and the heating apparatus attached, substantially as and for the purposes described.

2. In a fire-extinguishing apparatus, an agitator or mixing-chamber and hose-coupling combined, Fig. 6, consisting of shell A, mixing chamber b, spiral wings c, an ejector nozzle, e, substantially as described, and for the purposes set forth.

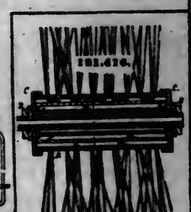
3. The within-described method of expanding carbonic-acid gas by heat, and then contracting its volume by bringing it in contact with the water-supply, whereby a perfect commingling of gas and water is made more quickly and economically than by any other known method, and without the necessity of the agitation of the water and gas, as heretofore used.

181,415. MOP-HOLDERS. John W. Cubbage and J. Alexander, Gallipolis, Ohio. [Filed May 16, 1876.]

The mop-holder herein described, consisting of the sliding-head G, clamp rod or frame E, clamp-bar F, set-screw g', and handle A, the clamp-rod E being secured at its ends in the sliding head, and fitted to be adjusted upon and secured to handle A, as and for the purpose specified.



181,415.



181,416.

181,416. BOILER-FLUE BRUSHES. Joseph H. Davis, Sewickley, Pa. [Filed Sept. 26, 1875.]

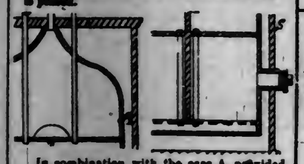
In a flue-brush, the combination of the metal cylinders D e, tube f, washers g h, ends C, screw-nuts B, and steel bristles s, all constructed, arranged, and operating substantially as herein described, and for the purpose set forth.

181,417. ORNAMENTAL CHAINS. Solomon Davidson, New York, N. Y. [Filed June 5, 1876.]

The combination, in a chain-link, of one or more filling-rings, A, two cross-heads, B B, having notches for the reception of the said filling ring or rings, and a binding-ring, D, which engages with the said cross-heads, the whole constructed and connected together substantially as described.

181,418. GAS APPARATUS. Richard Dean, Virginia City, Nev. [Filed July 13, 1876.]

Brief.—Gas is generated in the lower chamber, where the metal turnings rest upon a perforated false bottom. Dilute acid is supplied to the generating-chamber from chamber above, and the gas is carbureted in the upper chamber, where the hydrocarbon fluid is placed.

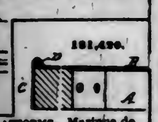


In combination with the case A, provided with the hereinbefore-described arrangement of carburetor and generators, the protecting-case B, with a sufficient space between the two cases for a non-conducting substance, substantially as specified.

181,419. NUT-LOCKS. Daniel Denhoe, Bucyrus, Ohio, assignor of one-half his right to Augustus Ehenert, same place. [Filed June 5, 1876.]

The bowed plate or spring A, having tapering apertures or openings *a' a'* to receive, and in combination with, the bolts *d d*, beveled or chamfered ends *e e*, and fish bars or plates *b b*, substantially as and for the purpose set forth.





181,420. STOVE-PLATFORMS. Marinus de Yonge, Chicago, Ill., assignor of one-half his right to Gerrit Minardi, same place. [Filed Aug. 3, 1876.]

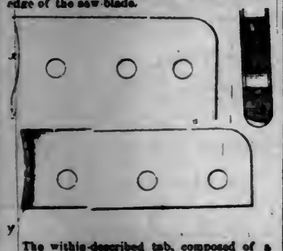
Brief.—The cover is a vertical band, which encircles the wood, and fits over the wire and top plate.

1. A stove-platform consisting of a wooden base-piece, having a flat and even upper face, combined with a sheet-metal cover projecting above the edge of the base, and there supported by means of a wire, substantially as and for the purposes specified.

2. A stove-platform consisting of a wooden base-piece, having a flat and even upper face, the flat sheet-metal disk or cover B, the projecting and turned-over sheet-metal band or hoop C, and the supporting-wire D, all combined and arranged together substantially as and for the purposes specified.

181,421. TABS FOR GANG-SAWS. Henry Disston, Philadelphia, Pa. [Filed July 10, 1876.]

Brief.—The tab is formed of a single strip of steel, bent in the middle, and having at the bend a convex portion, adapted to fit snugly in a concave recess formed in the toothed edge of the saw-blade.



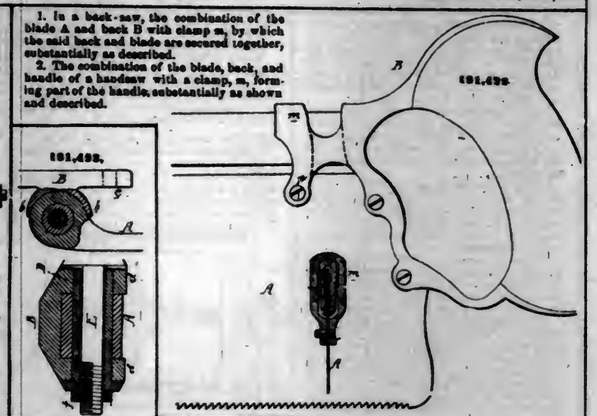
The within-described tab, composed of a strip of steel, bent as described, and having at the bend a convex portion, *y*, adapted to a recess, *x*, in the blade, as set forth.

181,422. HANDSAWS. Henry Disston and Chas. T. Shoemaker, Philadelphia, Pa., assignors to Henry Disston, Hamilton Disston, and Albert H. Disston, same place. [Filed Apr. 20, 1876.]

Brief.—The back and blade of a back-saw are secured together by a clamp, forming part of the handle, or formed of a separate piece or pieces of bent metal.

1. In a back-saw, the combination of the blade A and back B with clamp *m*, by which the said back and blade are secured together, substantially as described.

2. The combination of the blade, back, and handle of a handsaw with a clamp, *m*, forming part of the handle, substantially as shown and described.

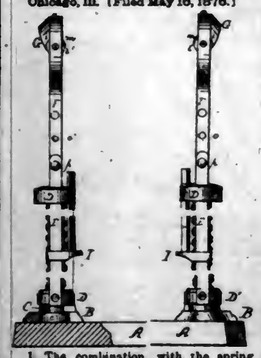


181,423. SPRING-CONNECTIONS FOR VEHICLES. William Evans, Philadelphia, Pa., assignor to John Benesset, Lewis T. Matlack, William Evans, and Geo. E. Evans, same place. [Filed June 22, 1876.]

1. The combination of the spring A, having a rounded end, with the block B constructed for attachment to a vehicle, and having a cap, *b*, adapted to the rounded end of the spring, and ears *d*, serving as bearings for the pivoting bolt or sleeve, as set forth.

2. The combination of the bolt E and its head *e*, having ribs *i*, with the block B and sleeve D, having notches *m*, as described.

181,424. HEARTH-LIFTS. Harry H. Evarts, Chicago, Ill. [Filed May 16, 1876.]



1. The combination, with the spring or springs *s*, of the hand-grasp, strap F, pin *p*, bars E F, and ring D', all arranged substantially as specified.

2. The combination, with the spring or springs *s*, of the cap D, rod C, passing down through said springs, and provided with the nut *c*, socket-plate B, and platform A, substantially as specified.

3. The combination, with the registering-gage of the cap D, provided with the slot in which each gage slides, said slot being made to fit the gage sufficiently close to prevent its fall by its own gravity, substantially as specified.

4. The combination, with the registering-gage and the spring or springs, of the ring D', the bars E E attached to said ring, and the plate I, carried by said bars, said parts being constructed and arranged substantially as specified.

5. The hand-grasp G, in combination with the metal strap F F, surrounding and securing the same, substantially as set forth.

7. In a hearth-lift, the combination of two or more springs of different tension, coiled at the same diameter, and put together essentially as described, and for the purposes set forth.

8. The combination, substantially as specified, of the platform A, provided at each end with the socket-plates B B, and the lifting-handles, provided with the flange or nut *c*, whereby the handles are secured to the platform.

9. The combination, substantially as specified, of the socket-plate B, with the lifting-handle, provided at the bottom with a flange or nut, *c*, passing under the flange of the plate, a movable or sliding ring, D', and a spring acting to force said ring down upon the plate, whereby the flange of the socket-plate is clasped with sufficient strength to hold the handle in an upright position, and to prevent its too easy removal from the socket-plate.

181,425. NUT-LOCKS. Chas. H. Everhart, Manchester, Md. [Filed June 6, 1876.]



1. In combination with the nut B, having intersecting recesses *h h'*, the spring *d*, secured within the recess *h*, and projecting beyond *h'*, substantially as and for the purpose hereinbefore set forth.

2. The combination of the nut B, having recesses *h h'*, and lateral perforation *e*, with the projecting spring *d* and beveled pin *f*, substantially as and for the purpose hereinbefore set forth.

181,426. ELEVATED WAYS. H. W. Farley, Chicago, Ill. [Filed Aug. 3, 1876.]

Brief.—The sections of the endless-way belt are connected, so as to have vertical rigidity and lateral flexibility.

1. The hereinbefore-described carrier, in which the links are united longitudinally by means of the cross-bars A'' and A''', secured to their ends, and provided respectively with the boss *a''* and recess *a'''*, substantially as and for the purpose specified.

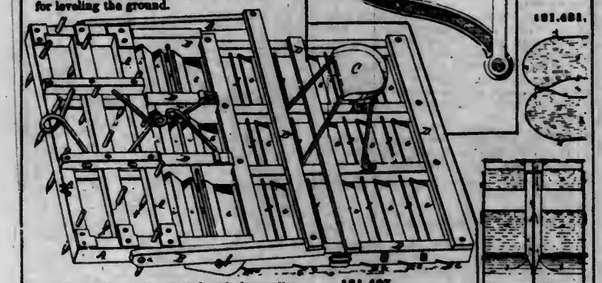
2. The means employed for insuring the relative horizontal planes of the links, consisting of the tongue A', provided at its end and upper side with the cross-bar A'', and fitting into the opening *a*, and the cross-bar A''', spanning the end of said opening, substantially as and for the purpose hereinafter shown.

3. The link described, consisting of the body A, provided with the recess *a*, the tongue A', the cross-bars A'' and A''', having respectively a semicircular boss, *a''*, and recess *a'''*, and cross-bar A''', constructed and combined in the manner and for the purpose substantially as set forth.



181,427. CLOD-CRUSHERS AND DRAGS. H. Feenders, Charles City, Iowa. [Filed Mar. 4, 1876.]

Brief.—A clod-crusher constructed with a set of graduated knives at its front end, to separate the rod, and a series of smoothing-blades and intervening wires at its rear end for leveling the ground.



1. A clod-crusher provided with forwardly-inclined knives for cutting the clods, and backwardly-inclined blades for smoothing the earth, and intervening wires for preventing the crusher from clogging, substantially as described.

2. In combination with a clod-crusher having knives *i*, blades *c*, and rods *f*, substantially as described, the reversible drag A, pivoted upon the arms B B', as and for the purpose set forth.

181,428. CAR-AXLE LUBRICATORS. James B. Flynt, Brooklyn, N. Y. [Filed June 6, 1876.]



The combination, in a car-axle box, of an absorbent pad supported upon a vertical spiral spring, resting upon the bottom of the axle-box, and provided with a flexible jacket, said jacket and pad inclosing an eccentric wheel turning loosely upon an axle supported by rods jointed to its ends and to the coils of the spring, substantially as set forth.

181,429. PASSENGER-CAR VENTILATORS. Washington Foglesong, Dayton, Ohio. [Filed Jan. 18, 1876.]



The combination, with a railroad-car, of the casing covering the ordinary ventilating-roof thereof, and adapted to be connected with a pipe or pipes extending to the front of a locomotive, for supplying the car with pure air when running in a train, substantially as specified.

181,430. WAGON-BRAKE LEVERS. James S. Fullerton, St. Louis, Mo. [Filed July 1, 1876.]

1. The dog F, provided with a weight, *f'*, at its front end, in combination with the brake-lever A, ratchet-sector C, and draw-rod E, substantially as and for the purpose set forth.

2. The ratchet-sector C, having groove *c*, in combination with the bracket-piece having tongue *b'*, as and for the purpose set forth.

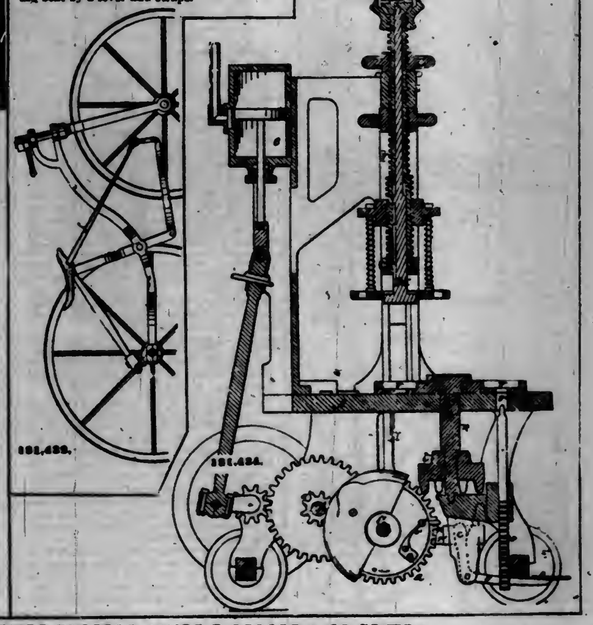
181,431. CAMP-KETTLES. Antoine A. Gervais, Paris, France, assignor to A. Gervais & Co., same place. [Filed June 13, 1876.]

Brief.—It is intended that two or more vessels shall be used at once, the depressions in the sides uniting to form a flue.

The camp-kettle, composed of the two vessels *a* and *c*, having an arched bottom, and a concavity, *i*, upon its side, for the purpose described.

181,432. VELOCIPEDES. Sebastian Gfrörer, Jr., New York, N. Y., assignor of one-half his right to A. A. Crosby, same place. [Filed June 19, 1876.]

Brief.—The pedals are connected to a swaying seat by a lever and straps.



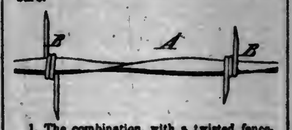
1. A velocipede constructed with an oscillating lever, to the upper end of which is affixed a saddle and one end of a connecting-rod, and to the lower end treadles or foot-levers, substantially as and for the purpose described.

2. In a velocipede, foot-levers secured to a vertical lever by a hinge-joint, and supported at their outer ends by straps leading and attached to the saddle or seat, substantially as and for the purpose described.

3. In a velocipede, a vertical lever, carrying the saddle, combined with a connecting-rod and cranked axle, substantially as and for the purpose described.

181,433. BARBED FENCE-WIRE. Joseph F. Glidden, De Kalb, Ill. [Filed Jan. 26, 1876.]

Brief.—The shape of the fence-wire prevents both rotary and longitudinal movement of the barb.



1. The combination, with a twisted fence-wire, elongated in cross-section, of a coiled barb, substantially as and for the purpose set forth.

2. The combination, with the oval and twisted wire A, of the coiled and barbed wire B, substantially as specified.

181,434. PRESSES FOR MOLDING GLASS-WARE. Jonathan Haley, Rochester, Pa. [Filed July 21, 1876.]

1. In a portable or movable power-press for molding glass, the combination, with the press proper, of a motor-engine arranged on and carried by the frame of the press, and directly connected with and operating the rotating crank-shaft, from which motion is imparted to the various parts of the press, substantially as and for the purposes set forth.

2. The combination, with the motor-engine, and the reciprocating plunger of the glass-press, of a governor operated by the plunger, or some part moving in unison therewith, to increase and diminish the supply of steam or other motor fluid to the engine, at the times and in the manner substantially as set forth.

3. The combination of the reciprocating yoke, the throttle-valve, the lever or handle for the same, and the governor-rod provided with adjustable stops engaging and operated on by the yoke, as set forth.

4. The tubular plunger screw-rod, in combination with the plunger-spindle, fitting and movable longitudinally within said rod.

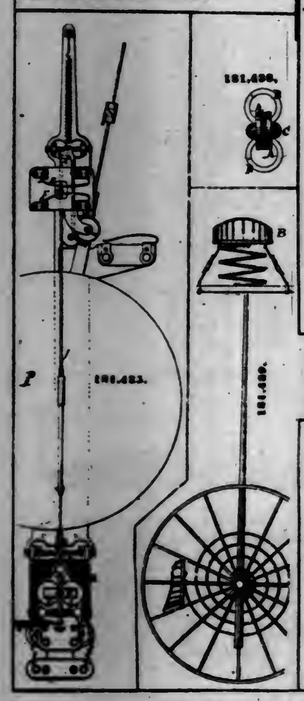
5. The combination, substantially as described, of the tubular plunger screw-rod, the plunger-spindle, the spring-case at the upper end of said rod, the inclosed spring, and the adjustable screw-presser, the combination being and acting as set forth.

6. The combination, with the rotating crank-shaft that operates the plunger, of an intermittently-rotating mold-plate, connected with and operated by the crank-shaft, substantially as set forth.

7. The combination, with the rotary crank-shaft that operates the plunger, of an intermittently rotating mold-plate and an intermittently-reciprocating lifter, the parts being connected with and operated by the crank-shaft, substantially as set forth.

8. The stopping and starting mechanism, consisting of the lever-treadle formed or provided at its inner end with an inclined or beveled stop, as described, in combination with the crank-shaft, the spring clutch-pin and its unlocking-pin, and the loose gear on said shaft, for operation as shown and set forth.

9. The combination of the removable rotary mold-plate, its arbor, and the main bed-plate, substantially as set forth, whereby either said rotary plate or the fixed bed-plate, as desired, can be used to receive the molds.



181,486.

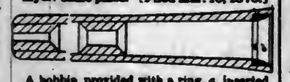
181,485. ELECTRO-MAGNETIC RAILROAD-SIGNALS. Thomas S. Hall and George H. Snow, West Meriden, Conn., assignors to the Hall Railway Signal Company. (Filed Jan. 21, 1876.)

1. The combination, with an electro-magnet and signal operated thereby, and two circuits, one from the entrance end and one from the exit-end of a section, of two circuit-controlling keys, one in each circuit, located near and mechanically operated by the lever of the signal, so that the circuit from the point operating the signal at one time is broken by the movement of the lever opening one key, and the circuit is closed to the point from whence the lever is next to be operated by the closing of the other key, or vice-versa, substantially as described.

2. The combination of an elastic rod, *i*, with electro-magnet E, stop-lever S, signal P, and key F in the circuit of said electro-magnet, substantially as and for the purpose set forth.

3. The combination of a key, E, with the releasing-magnet L, stop-lever S, and signal P, said key being situated in the circuit of the releasing-magnet, substantially as and for the purpose set forth.

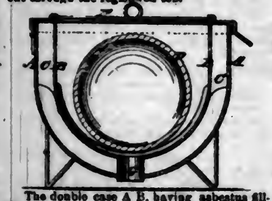
181,486. BOBBINS. Chas. Hardy, Nashua, N. H., assignor to himself and Eaton & Ayer, same place. (Filed Mar. 10, 1876.)



A bobbin provided with a ring, *c*, inserted within its lower end, and held in place by the bushing *c'*, in the manner and for the purpose specified.

181,487. HEATERS FOR CARS, &c. Milton W. Hazelton, Chicago, Ill., assignor to himself and Anson W. Eggleston, same place. (Filed June 20, 1876.)

Brief.—The air enters by the inlet in the bottom, is heated by the cylinder, and passes out through the registered top.



The double case A B, having asbestus filling C, inlet G, and register F, and a heater, D, combined and arranged substantially as described.

181,488. ORNAMENTAL CHAINS. James L. Heeley, North Attleborough, Mass., assignor to Davidson Brothers, New York city. (Filed June 5, 1876.)

The combination, in a chain-link, of two or more inner rings, A, placed side by side, with two outer rings, B B, extending in opposite directions, and a transverse ring, C, extending through the inner rings, and forming a socket for the outer rings, the whole constructed and connected together substantially as described.

181,489. TROTTING-VEHICLES. Alonzo Hitchcock, New York, N. Y. (Filed Feb. 2, 1876.)

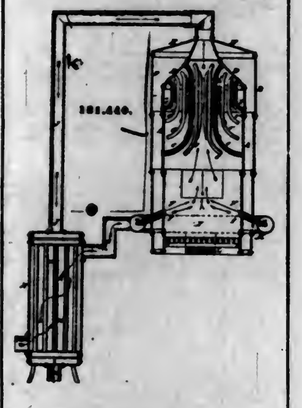
In a trotting-vehicle, a seat, B, freely supported upon a coiled spring or springs, substantially as described

181,490. STEAM-BOILER FURNACES. Ben Jas. Hobson, Hutchinson, Kans., assignor to himself and W. H. Richardson, Cincinnati, Ohio. (Filed Feb. 26, 1874.)

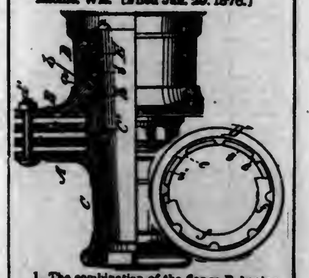
1. The shells A B and central crown-sheet D, in combination with the vertical tubes C, curved at both ends to meet both the shell A and crown-sheet D at right angles, substantially as and for the purpose specified.

2. The circulating-tubes C C' C'' C''', increasing in bore toward the center of the combustion-chamber, curved at their lower ends, as shown, and disposed in annularly-arranged groups, inclosing a gradually-contracting stellated space for flame, substantially as and for the purpose specified.

3. The combination of pipe G, supplying forced air, from a blower or other apparatus, to the combustion-chamber of the boiler above the grate or bed of fuel, air-heater H, fuel-furnace I, and pipe J, conveying the products of combustion through the heater H, the parts being combined and operating substantially in the manner and for the purpose specified.



181,491. VEHICLE-HUBS. N. L. Holmes, Racine, Wis. (Filed Jan. 20, 1876.)

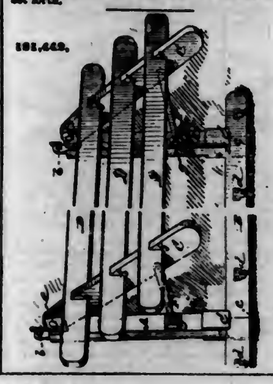


1. The combination of the flange B, having hub or box D, with interior shoulder *c*, and the flange A, with box C, having extension C', fitting in box D and clinched or headed over the shoulder *c*, for the purpose herein set forth.

2. The longitudinal ribs *d* on the exterior of the hub-extension C', in combination with the flange B, having grooves in its hub, for the purpose herein set forth.

3. The combination of the hub D with interior ribs *c*, the sleeve E with notched flange *f* and turned-down part h, the hub-extension C', and packing *i*, all as and for the purpose set forth.

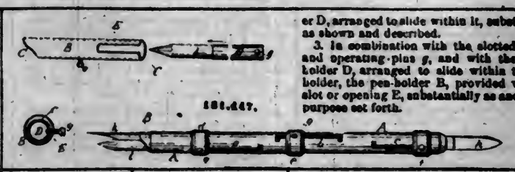
181,492.



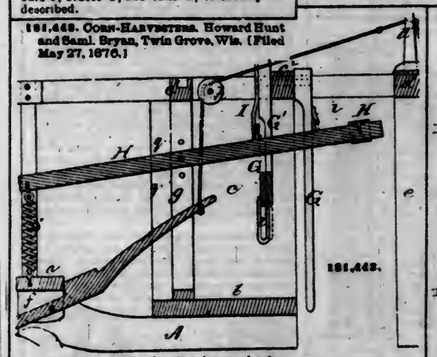
181,442. CLOTHES-DRIERS. Jas. P. Howell, New York, N.Y., assignor to R. M. Silvers, same place. (Filed Feb. 9, 1876.)

1. The combination, with the posts A, provided with lower sockets *c*, of the rail B, fitted to enter within or through said sockets, and provided with projections or hooks D, substantially as specified.

2. A rack for clothes and other articles, composed of posts A, having a lower rail, B, and a hinged leaf of rails, consisting of hinged bars C, braces F, and rails D, essentially as described.



181,443. CORN-HARVESTERS. Howard Hunt and Saml. Bryan, Twin Grove, Wis. (Filed May 27, 1876.)



1. The alternately-vibrating dropper-hooks G G', and rods *l l*, in combination with a vibrating treadle, H, and the frame of a corn-harvester, substantially as specified.

2. In combination with the dropper-hooks G G', rods *l l*, and treadle H, the spring S, substantially as specified.

3. Hooks G', connecting-rods l, having slots in their upper ends, and treadle H, in combination with the dropper-hooks G, and rods *i*, substantially as specified.

4. In a corn-harvester, the dropper-hooks G G', adapted to be alternately extended and retracted, substantially as and for the purpose set forth.

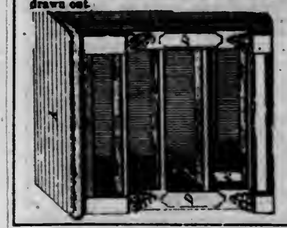
181,444. MOCCASIN BOOTS. S. T. Hutchins, Anson, Me. (Filed Feb. 21, 1876.)

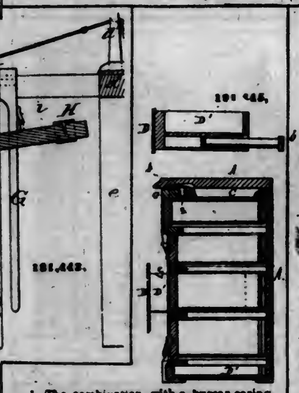


A boot moccasin having a single seam at the front portion of the leg, and the vamp, sole, and quarters, formed of the patterns D F, substantially as described, and for the purpose set forth.

181,445. BUREAUS. Johannes Isakson, Chicago, Ill. (Filed July 1, 1876.)

Brief.—Under the top is a shallow drawer, whose front represents the top stile, and is secretly locked through the opening for the first main drawer. On each side stile is a raised panel, which forms the front of a secret drawer, which is locked through the opening for the third main drawer. This drawer has a false bottom, beneath which is a drawer opening to the rear of the main side drawer. Boxes are arranged behind the stiles, at the sides of the other main drawers, which can be swung out when the said main drawers are drawn out.



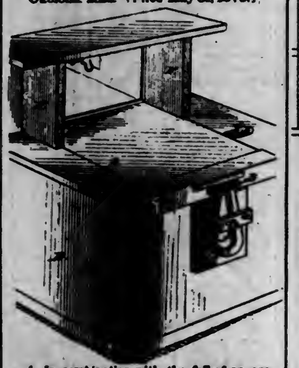


1. The combination, with a bureau-casing, A, of the drawer C, spring *b*, and releasing-stud *a*, as and for the purpose set forth.

2. The combination, with the casing of a bureau, of the drawers D', and dogs *d*, as and for the purpose set forth.

3. The boxes E, arranged between the ends of the main drawers and side walls, and behind the side stiles of a bureau, substantially as described.

181,446. ANIMAL-TRAPS. Chancy R. Jeans, Okolona, Miss. (Filed May 31, 1876.)



1. In combination with the fall of an animal-trap of the character shown, the magnet A and its armature B, arranged to operate substantially as described.

2. In combination with hooks *h* and attached drowning-weights W, the shelves or pins K, located upon the interior walls of the well D, for the purposes set forth.

181,447. PEN AND PENCIL CASES. Cassilius M. Johnson, New York, N. Y. (Filed July 10, 1876.)

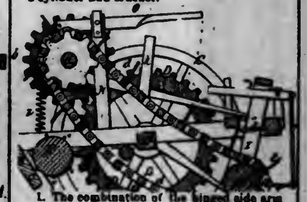
1. The combination, with the tubular slotted case A and operating bands *d e f*, of the pen and pencil holders B D, arranged one within the other, and to slide from one end of the case A, together with the knife *h*, arranged to slide from the opposite end of the case, substantially as herein shown and described.

2. In combination with the slotted case A, the pen-holder B, provided with the inner lining C, in combination with the pencil-holder D, arranged to slide within it, substantially as shown and described.

3. In combination with the slotted case A and operating-plate *g*, and with the pencil-holder D, arranged to slide within the pen-holder, the pen-holder B, provided with the slot or opening E, substantially as and for the purpose set forth.

181,448. EARTH-PULVERIZERS. J. M. Kendall, Trenton, Ill. (Filed June 20, 1876.)

Brief.—The bearing-wheels have gearing, which propels an endless carrier, by which the clods are carried up and deposited between a cylinder and crusher.

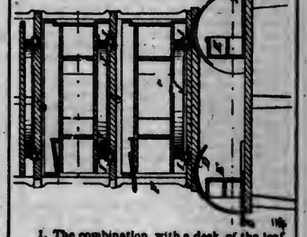


1. The combination of the hinged side arm A', carrying the end of the shaft *a*, with pinion *b*, the spring *d*, lever O, link *m*, and catch *k*, all substantially as and for the purposes herein set forth.

2. In a pulverizer, the combination of a rotating toothed cylinder and a hinged rocking or reciprocating crusher, substantially as and for the purposes herein set forth.

3. The combination, in a pulverizer, of an endless rotating carrier, a rotating toothed cylinder, and a rocking or reciprocating crusher, substantially as and for the purposes herein set forth.

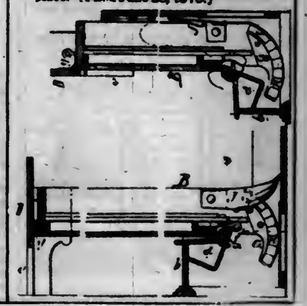
181,449. WRITING-DESKS. Jerome M. Keys and H. J. Taylor, Tecumseh, Nebr. (Filed June 12, 1876.)



1. The combination, with a desk, of the leaf B, sliding in and out, and having a rack, E, on the back part thereof, as and for the purpose described.

2. The case A, provided with a tower, F, divided horizontally by doors G into sections, each of which has a rack, flanged wheels, and a ring, as shown, and for the purpose specified.

181,450. WARDROBE-BEDSTEADS. Cheney Kilburn, Philadelphia, Pa., assignor to himself, Henry S. Hale, Artemus Kilburn, J. Warren Hale, and Warren Hale, same place. (Filed June 26, 1876.)

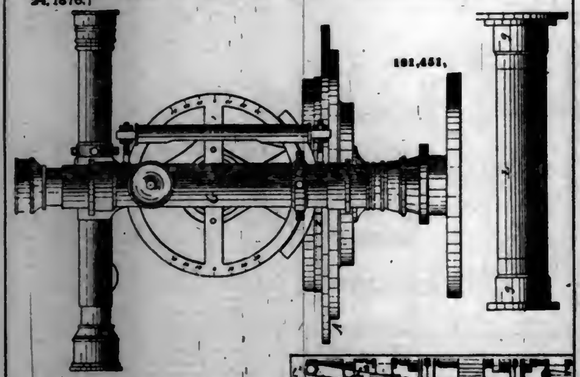


1. The combination, in a folding bedstead, of the pivoted and movable portion B D, with a weight, the greater portion of which is above, and the lower portion below, a horizontal line drawn through the center of the pivots when the bed-frame is depressed, all as set forth.

2. The combination of the bed-frame with the arms G, their segmental recesses, and the weighting bars H, as specified.

3. The apron J, combined with the bed-board, substantially as set forth.

181,451. SURVEYING-INSTRUMENTS. Wm. Kuebler, Philadelphia, Pa. [Filed June 24, 1876.]



181,451.

1. The combined Y-level and transit, having two telescopes centrally and diametrically arranged above the compass, at right angles to each other, and the Y-bearings below the extended journal-seat arms, which carry the transit-telescope, substantially as specified.

2. The combination, with a surveying-transit, of a side telescope, sweeping in a vertical plane parallel with that of the transit-telescope, for perpendicular sighting and measuring angles of depression and elevation, substantially as specified.

3. The telescope-standards, consisting of the portions C, extending upward from the base-plate, and terminating at their upper ends in bearings a, and the portions D, extending above said bearings, to receive the journals of the transit-telescope, substantially as specified.

4. The axis-piece adapted to revolve in the wyes, forming the journal of the level-telescope, when arranged in the vertical plane, substantially as specified.

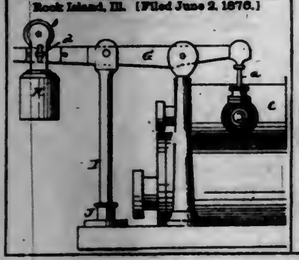
5. The combination, with a wye axis-piece having a graduated end wheel, of the level-telescope and the divided arc, substantially as specified.

6. The level-telescope, provided with a side attachment, m, in combination with the axis-piece and fastening-rod, substantially as specified.

7. A surveying-instrument having double-seated standards diametrically opposite each other, on each side of, and extending above, the transit-compass, for mounting the level and transit telescope, substantially as specified.

8. A Y-level having an axis attachment, L, to form a journal for the level-telescope, at right angles with the cylinder-case of said telescope, substantially as specified.

181,452. PUMP-GOVERNORS. J. Silas Lee, Rock Island, Ill. [Filed June 2, 1876.]



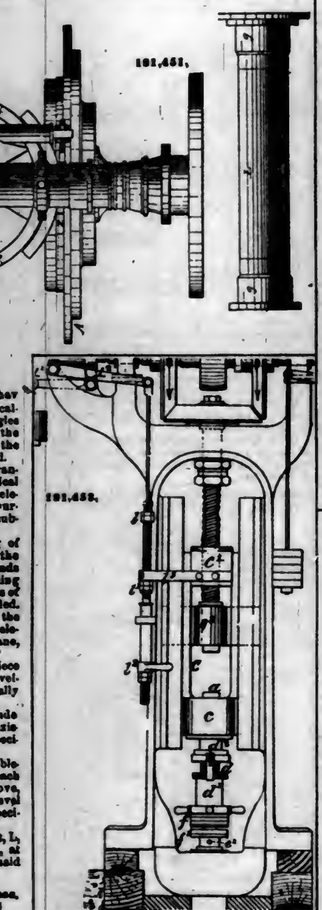
1. The sliding frame C, carrying a die, a, and receiving reciprocating motion toward and from the fixed die by means of a screw carrying a friction-wheel, which is driven alternately in opposite directions by friction-wheels on a sliding rotary shaft, which is moved endwise by levers operated by a tappet worked by the sliding frame C, all as set forth.

2. In combination with the sliding frame C, carrying the die a, a plunger, d', and a fixed pin, e, for discharging the forged article from the lower die, substantially in the manner and for the purpose above described.

3. The arrangement of elastic washers f f, carried by the pin e, which is itself supported on the bed of the press by a cross-pin, e', for yielding or giving way to any undue downward pressure of the sliding frame C.

is a pump-governor, operated by the pressure of water in the main, the pipe K, stuffing-box J, and rod I, in combination with the pivoted beam G connected with the valve of the pumping-engine, and provided with the self-acting weight H, all substantially as and for the purpose herein set forth.

181,453. MACHINES FOR MAKING BOLTS, RIVETS, &c. Jules A. Le Blanc and A. J. Vincent, Paris, France, assignor to George Greenwood, Leeds, England. [Filed June 9, 1876.]



181,453.

1. The mode herein before described of constructing the broom with an internally-tapering socket, by first forming the brush of the broom upon the stick of which the socket is to be formed, and afterward boring or reaming the socket to the size and taper required, substantially as hereinbefore set forth.

2. The combination, with the brush of a broom and its binding-wire a, of the fastening-wire b, the ends of the wires being interlocked with each other, substantially as hereinbefore set forth.

3. The combination, with the brush of a broom and the conical socket, of the nails or tacks, or their equivalent, extending through one side of the head of the broom, and through one side of the socket, and clinched on their inner ends, substantially as herein before set forth.

4. The combination of the brush of the broom, the conical socket E, and the cap secured to said socket by one or more tacks, or their equivalent, extending through one side of the said cap, through one side of the head of the broom, and through one side of said socket, substantially as hereinbefore set forth.

181,454. BROOMS. John F. Lee, Jr., Brooklyn, N. Y., assignor to C. F. Linde, same place. [Filed Dec. 22, 1876.]

Brief.—The broom-corn is applied around a socket-piece, the bore of which flares upwardly to receive a gummed hand'e. The head is bound with wire or covered with a ferrule, nails or metal pins being driven in and turned by an interior anvil. A wire transverse to the wrapping-wires holds them in their relative positions.

1. The mode herein before described of constructing the broom with an internally-tapering socket, by first forming the brush of the broom upon the stick of which the socket is to be formed, and afterward boring or reaming the socket to the size and taper required, substantially as hereinbefore set forth.

2. The combination, with the brush of a broom and its binding-wire a, of the fastening-wire b, the ends of the wires being interlocked with each other, substantially as hereinbefore set forth.

3. The combination, with the brush of a broom and the conical socket, of the nails or tacks, or their equivalent, extending through one side of the head of the broom, and through one side of the socket, and clinched on their inner ends, substantially as herein before set forth.

4. The combination of the brush of the broom, the conical socket E, and the cap secured to said socket by one or more tacks, or their equivalent, extending through one side of the said cap, through one side of the head of the broom, and through one side of said socket, substantially as hereinbefore set forth.



181,454.

181,455. BROOMS. John F. Lee, Jr., Brooklyn, N. Y., assignor to C. F. Linde, same place. [Filed Dec. 21, 1876.]

Brief.—The broom-head is formed upon a socket-peg, the socket in which flares to receive the handle, and is bound thereon. A metallic cap or collar embraces the part. The metallic lining of the socket is flanged at top to turn down upon this cap or collar.

1. The combination, with the brush of a broom, of an internally-tapering socket to receive the handle, and a cap surrounding the head of the broom.

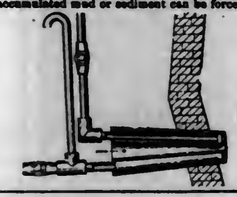
2. The combination, with the brush of a broom, of an internally-tapering socket to receive the handle, a cap surrounding the head of the broom, and wire or equivalent binding around the head of the broom.

3. The combination, with the brush of a broom, of a tapering socket for the handle, a cap, and a connection between the said cap and the said socket, substantially as herein-before set forth.

4. The combination, with the brush of a broom, of a tapering socket for the handle, a cap, and an outward projection from the said socket over the said cap, substantially as herein-before set forth.

181,456. TUYERES. Mark Lester, Bellaire, Ohio, assignor to himself, Edward Jones, and William M. Read, same place. [Filed July 26, 1876.]

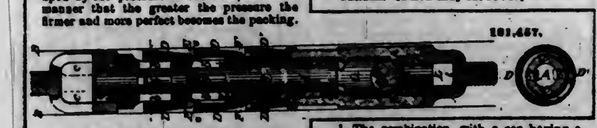
Brief.—The eduction-pipe is provided with a "blow-off" outlet, upon a line with the bottom part of the water-space, through which the accumulated mud or sediment can be forced.



The tuyere having an annular water-space, in combination with a supply pipe entering the same at the top, and extending to the base of the same, as described, and an overflow-pipe communicating with said water-space at the bottom, and having a blow-off cock and outlet upon a level with the said bottom of the water-space, as and for the purpose described.

181,457. PUMPING-VALVES FOR WORKING-BARRELS. John J. Lewis, Petrolia, Pa. [Filed July 22, 1876.]

Brief.—A series of packing-cups are acted upon by the pressure of the fluid, in such a manner that the greater the pressure the firmer and more perfect becomes the packing.



181,457.

1. The combination of the body A, having step or shoulder a, and slots b b' b'', flexible packing-cups D D' D'', and jam-rings E F, having slots c f, substantially as and for the purpose herein shown and specified.

2. The combination of body A, packing-cups D D' D'', jam-rings E F, and valve-cylinder G, for tightening and retaining the cups and rings, substantially as and for the purpose hereinbefore set forth.

3. The pumping-valve for working-barrels herein described, consisting of body A, having step a and openings b b' b'', top cap C, having openings c, packing-cups D D' D'', jam-rings E F, having openings c f, valve-cylinder G, having brackets g, seat-ring H, and valve-ball K, and bottom cap L, having openings l, all combined and arranged to operate substantially as and for the purposes herein shown and specified.

181,458. HAND-STAMPS. Paul Liebe, Dresden, Saxony. [Filed Apr. 8, 1876.]

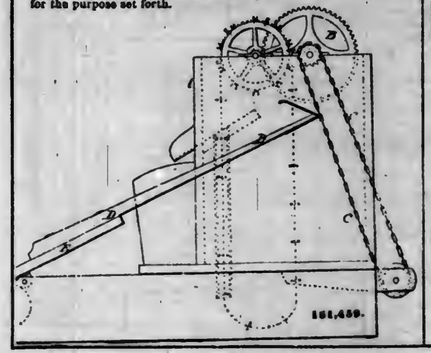


The combination of the casing a of a hand-stamp, having a cover backing for the type, and a groove, c, with the type, having inclined sides to correspond with the backing, and having projections g, substantially as described.

181,459. CATTLE-PUMPS. J. H. McConnell, Putney, N. Y. [Filed Jan. 26, 1876.]

Brief.—Motion is transmitted from the platform to the chain by means of a pointed lever, which engages the chain on its downward movement, thereby operating the pump. By means of the arm projecting from the lever, the pump may be worked by hand without changing any of its parts.

The lever D, attached to the platform E, having its point made to engage and disengage with the chain C, substantially as and for the purpose set forth.



181,459.

181,460. DISCHARGING-CARS. James W. McDonald, Campellton, New Brunswick, Canada. [Filed May 12, 1876.]

1. The combination, with a car having a raised supplemental frame, O, carrying polygonal end rollers, of an endless belt, G, composed of jointed plates of metal, as and for the purpose described.

2. The endless belt G, forming the top of the car, and consisting of hook-jointed metal plates having bent-end extension a, as described, in combination with the supplemental frame O, the car-frame A, the supports D, the polygonal rollers D' D', and the friction rollers H, substantially as and for the purpose described.

3. The combination, with the endless belt G, and the polygonal rollers D' D', of the car axle I, extended beyond the sides of the car, and connected with one of the polygonal rollers by suitable mechanism, substantially as described.

4. The combination, with the belt G, and the polygonal roller D', carrying pulleys F, of the chains E, sliding pulleys K, having a clutch, and the lengthened axle I, having a rigid and firmly-attached clutch, J, as and for the purpose described.

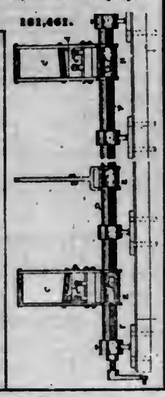
5. The combination of belt G, polygonal roller D', having pulley F, chains E, sliding pulleys K, having grooved pulley R and a clutch, lengthened axle I, having clutch J, the tongs L, pivoted at one end and grasping grooved pulley R at the other, the connecting-rods M, lever N, pivoted to the bottom of the car, and a hand-lever connection for the same, as and for the purpose described.

6. The combination, with the car having endless belt G, of a second endless belt, Q, arranged at the end of the car transversely to the same, and adapted to receive the discharge from the first belt and carry it to one side, substantially as described.

181,461. ATTACHMENTS TO VENEER-CUTTING MACHINES. Jno. D. McEachern, Harriston, assignor to S. Wallace, Seaforth, Ontario, Canada. [Filed Nov. 23, 1875.]

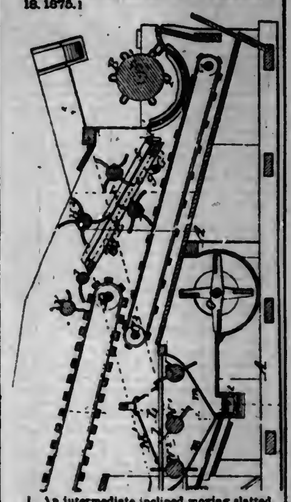
Brief.—Cuts to a bevel, marks and cuts off the sheet as it comes from the machine.

The beveling-knives C' C' and cutting-off knife d, held within the frames C C, pivoted upon the rod D, in combination with blocks E E and screw F, arranged and operated substantially as described, and for the purpose specified.



181,461.

181,462. GRAIN-SEPARATORS. Phineas E. Marrihew, Fond du Lac, Wis. [Filed Dec. 18, 1875.]



181,462.

1. In intermediate inclined moving slatted elevating-floor, in combination with the threshing-cylinder and concave, and straw-carrier, substantially as described.

2. In combination with the inclined slatted elevating-floor, straw-carrier, and threshing-cylinder, the revolving beaters thereof, substantially as and for the purposes set forth.

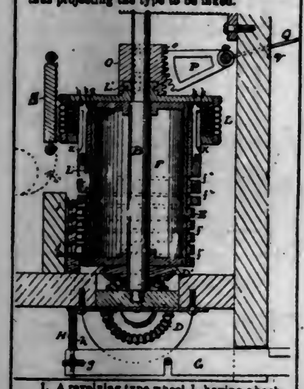
3. The horizontally suspended and supported longitudinally-vibrating raddle L, in combination with the revolving beaters N N' N'' of the shoe, whose fingers are adapted to work between the slats of said raddle, substantially as and for the purposes described.

4. In a threshing-machine, the combination of the intermediate slatted or slotted inclined and moving elevating-floor and its beaters with the threshing-cylinder and its concave, lifting fork, auxiliary beater, and straw-carrier, substantially as and for the purposes described.

181,463. TYPE-WRITING MACHINES. Geo. H. Morgan, Alexandria, Va., assignor to Typographical Machine Printing Company, of the District of Columbia. [Filed Feb. 5, 1876.]

HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & CO. BOSTON.

Brief.—The type-wheel being adjusted, by means of the lever and segment, to bring the desired style of type in its circle directly opposite the projections on levers K, the key representing the desired letter is pressed, which forces the rod H upward, and presses the cam-bar into the slot in the cylinder, where the beveled face *n*, coming in contact with the beveled face on rod E, forces said rod down, so that the projection on its end, coming against the projection on the under side of the pivoted lever, will force the type out to make the impression. As the cylinder continues, the rod E will be forced back by a stationary cam, thus projecting the type to be inked.



1. A revolving type-wheel, L, having a back and-forth movement on its shaft, and having the same letters, in different styles or sizes of type, arranged circumferentially in parallel circles, the letters of each style or size being confined to their own circle, and each type capable of independent movement, for the purposes specified.

2. A revolving type-wheel, L, having different styles or sizes of type, arranged as described—that is to say, circumferentially in parallel circles, the letters of each style or size being confined to its own circle, each letter or type being actuated independently of the other, substantially as specified.

3. A revolving type-wheel, L, having different styles or sizes of type, arranged as described—that is to say, circumferentially in parallel circles, the letters of each style or size being confined to its own circle and capable of being adjusted so as to bring any desired style or size of type in a line with actuating printing mechanism, arranged to operate within the wheel, substantially as and for the purpose specified.

4. The type-wheel L, having two or more series of radial slots, *l*, arranged circumferentially and radially, as described, in combination with corresponding series of movable type M, each series comprising a different style or size of type from those of the other series, substantially as and for the purpose specified.

5. An adjustable type-wheel, L, carrying two or more series of independently moving type, in combination with a hand-lever, substantially as described, for adjusting the same, as and for the purpose specified.

6. The type-wheel L, having the central projection L', with a groove *l'*, operating in combination with the sleeve O and segment-gear P, substantially as and for the purpose specified.

7. The combination of a sliding revolving type-wheel, L, with a revolving cylinder, *b'*, carrying the type-operating mechanism, in such manner that the former shall encircle the end of the latter and be capable of sliding thereon, in the manner substantially as and for the purpose specified.

8. In combination with an adjustable type-wheel, having two or more series of type, arranged circumferentially, and each type capable of independent movement, mechanism, substantially as described, for operating the same.

9. The combination of movable type with a sliding cam, by means of which a reciprocating motion is given to the type, substantially as and for the purpose specified.

10. The combination of a movable type, a cam-lever, and a sliding cam-bar, substantially as and for the purpose specified.

11. A cylinder, F, having a series of cam-slides, E, and cam-levers K, operating in combination with a type-wheel, L, having movable type M, substantially as and for the purpose specified.

12. The levers K, provided with projections *k'* and cams *k*, substantially as and for the purpose specified.

13. The sliding rod E, having cam *e* and cam face *e'*, substantially as and for the purpose set forth.

14. The combination of the key bars G, rods H, cam-bars I, sliding rods E, and levers K, substantially as and for the purposes specified.

15. An adjustable cam-rod, H, in combination with the rod I and key bar G, substantially as and for the purpose specified.

16. The combination of the key-bars G and rod H, having cam *h'*, with spring *h*, the whole constructed, arranged, and operated substantially as and for the purpose specified.

17. The fixed cam plate K, operating in combination with the cylinder F and sliding rods E, substantially as and for the purpose specified.

181,464. LASTING APPARATUS FOR BOOTS AND SHOES. David Morey, Watsonville, Cal., assignor of part of his right to Galen A. Pierce and J. A. Howard, same place. [Filed June 21, 1876.]



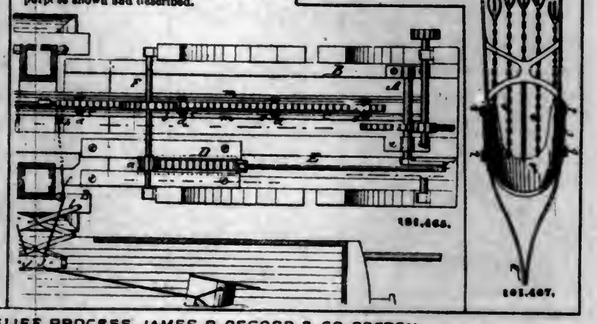
1. A lasting-clamp, consisting of the yoke A, with its screw B, in combination with the forceps, having the jaws E and the handles F, said handles being operated by means of the pin G, when the screw is turned to draw the yoke away from the last, substantially as herein described.

2. The handles F of the lasting-forceps, notched at *i*, so that they may be opened and closed sufficiently to seize the leather without separating enough to pass the pin G, substantially as herein described.

181,465. GRAIN-CAR UNLOADERS. Geo. M. Moulton, Chicago, Ill., assignor to himself and J. T. Moulton. [Filed June 26, 1876.]

1. A grain-car unloader provided with two racks, C D, connected by pinion with the same shaft F, the latter rack operated from drive-shaft and the former connecting with unloading mechanism, substantially as shown and described.

2. The combination of the bars *l l*, pulleys *j j*, and frame B, substantially as and for the purpose shown and described.



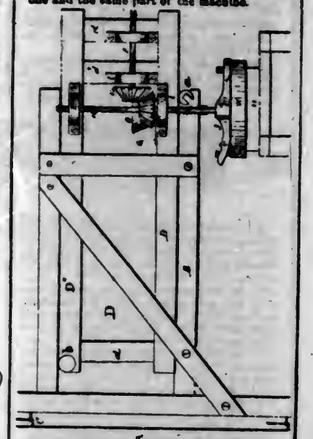
181,466.



181,467.

181,466. MARBLE-POLISHING MACHINE. David C. Myers, Oskaloosa, Iowa. [Filed Feb. 12, 1876.]

Brief.—A sliding frame, carrying the driving gears, is mounted within and at the end of a swinging frame provided with friction rollers. These the rotary and lateral motion of the grinder is effected by power applied at one and the same part of the machine.



In a marble-polishing machine, the combination of an upright, A, a swinging derrick frame, B, an independently horizontally moving frame, D, that moves in and out of the frame B, and supports the driving-wheels E C, and shafts H F, and cross head J, substantially as shown and described.

181,467. POTATO-DIGGERS. Aaron J. Nellis, Pittsburg, Pa. [Filed July 3, 1876.]

Brief.—The blade of the digger is concave crescent shaped, and drawn by a divided beam. On each side is a hinged keel, that is adjustable. The separators consist of a series of chains terminating in bracketed floats of a general globular form.

1. In combination with the drag chains of a potato-digger, the pronged floats *a'* of general rounded form, substantially as and for the purpose specified.

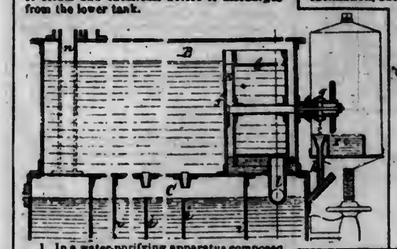
2. The combination of the crescent-shaped scoop A with the agitating chains *a a*, provided with floats *a'*, substantially as and for the purpose set forth.

3. The combination of the crescent-shaped scoop A, having the agitating-chains *a*, with the pivoted handles and beam B B', and the standards *b'*, substantially as specified.

4. The combination of the crescent-shaped scoop A, having the agitating-chains *a*, with the handles and beam B B', and the adjustable heel and guide pieces C, substantially as and for the purpose specified.

181,468. WATER-PURIFYING APPARATUS. Melchior Nolden, Frankfort-on-the-Main, Germany. [Filed July 10, 1876.]

Brief.—The water is subjected to the action of steam and chemicals before it discharges from the lower tank.



1. In a water-purifying apparatus composed of separate tanks or chambers, in which the water is subjected to separate cleansing operations, the separate tank or vessel A, provided with an inlet for the introduction of the water to be purified, one or more steam-pipes for introducing steam down into and through the water in said tank, and an overflow-pipe for carrying off the heated water from said tank, in combination with a lower tank or receptacle, F, substantially as specified.

2. The hot-water tank or receptacle B, constructed to form a separate or second compartment, E, having an overflow-opening, *e*, into it, in combination with the wheel C, arranged within the compartment E, and separated from the water in the remaining portion of said tank by a partition *f*, essentially as described.

3. The chemical solution lifter or distributer H, arranged on the axle of the wheel C, by which it is operated, substantially as and for the purposes herein set forth.

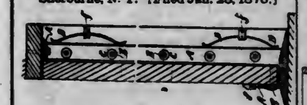
4. The circulating lower purifying-tank C, provided with a series of cleansing-apertures in its bottom, and pipes *t* connected therewith, and having stop cocks or plugs, substantially as and for the purposes herein described.

181,469. LEGGINGS. Farnam L. Oakley, Brooklyn, N. Y. [Filed May 2, 1876.]



The legging herein described, having the ribbed border B and leg D, each made of groups of stitches 1 2 3, &c., and 1' 2' 3', &c., each group containing three stitches, said legging having the ribbed contracted portion C made of groups of stitches 1° 2° 3°, &c., each made of two stitches, without reducing the quantity of yarn used for each circular row of stitches through the entire article, as shown and set forth.

181,470. WEATHER-STRIPS. H. R. Parker, Sherburne, N. Y. [Filed Jan. 28, 1876.]

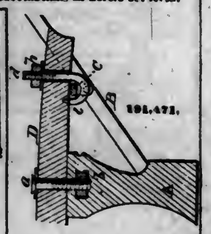


The strips A, clothed with felting, as described, and provided with slots *a*, screws B, washers C, and grooves *g*, in combination with the elliptical springs D, secured in place by clips *f*, the whole arranged on the outside or at face of the door, substantially as and for the purpose specified.

181,471. ADJUSTABLE PLOW-BEAMS. John Pentreath, Newark, N. J., assignor to the New York Plow Company, New York, N. Y. [Filed May 18, 1876.]

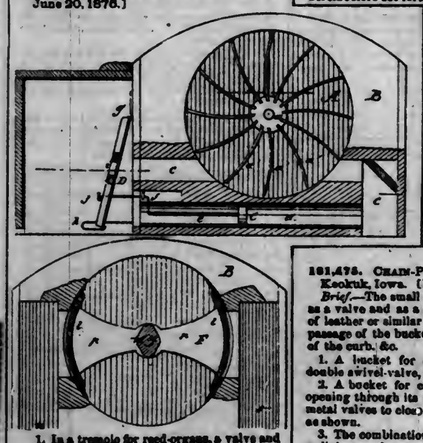
Brief.—The pivoted beam is secured at any adjustment by screwing the nut upon the J-shaped bolt, which embraces the serrated cross-bar.

The combination, in a plow, of the beam D, pivoted by a bolt, *a*, to the standard A, the cross-bar C connecting the two handles and serrated upon its upper face, and the J-shaped screw-bolt *d* and nut *h*, whereby the plow-beam may be moved and adjusted at any desired inclination, substantially as herein set forth.



181,471.

181,472. REED-ORGAN TREMOLOS. Henry L. Pierce, Easton, Pa., assignor to himself and Samuel Trumbore, same place. [Filed June 20, 1876.]



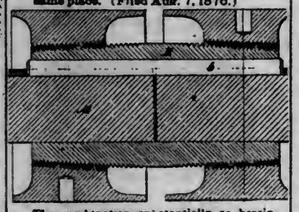
1. In a tremolo for reed-organs, a valve and piston connected by a rod, the piston being operated by atmospheric pressure in such a way as to control the supply of air admitted to the propelling-wheel by operating the said valve, as shown and described.

2. A cut-off, F, consisting of staves or sections of a cylinder, I, arranged at the ends of arms *p*, and provided with the casing B and the passages *n* and *o*, substantially as shown and described.

3. The combination of the wheel A, having the curved vanes *a'*, the casing B, having the passage *c*, the piston C, and the valve D, substantially as shown and described.

4. The combination of the piston C, valve D, spring *h*, opening *i*, and passage *e*, as specified.

181,473. SHAFT-COUPLINGS. Robert Poole, Baltimore, Md., assignor to Poole & Hunt, same place. [Filed Aug. 7, 1876.]



The combination, substantially as herein-before set forth, of the grooved shafting, the elliptic tapering split sleeve enveloping the shafting, the key carried by said sleeve, and the clamping nuts working on the inclined surfaces of the sleeve.

181,474. CHAIN-PUMPS. A. J. Purviance, Keokuk, Iowa. [Filed June 13, 1876.]

Brief.—The small central valve serves both as a valve and as a pivot. The slitted sheet of leather or similar material permits the free passage of the buckets, but prevents wetting of the curb, &c.

1. A bucket for chain-pumps, having a double swivel-valve, as described.

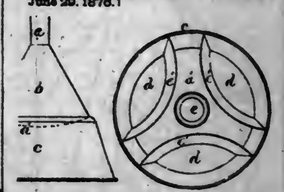
2. A bucket for chain-pumps, having an opening through its center, and two or more metal valves to close the same, substantially as shown.

3. The combination of the frame *c*, rubber *c'*, link *e*, valve *g*, plate *h*, opening *i*, and valve I, substantially as specified.

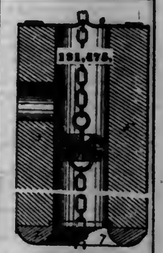
4. In a bucket for chain pumps, the combination of a double swivel-valve and an opening, *i*, for drainage through the center, substantially as set forth.

5. The slitted sheet 6, placed upon the top of the stock, as shown.

181,475. CLOTHES-POUNDERS. Rezin J. Pumphrey, Knox County, Ohio. [Filed June 29, 1876.]



The improved clothes-washer herein described, as an article of manufacture, consisting of the frustum *c*, with its curved diaphragm *c'* divided into lens or lune shaped compartments *d d d*, which lessen in size as they recede toward diaphragm *c'* by the proportionate inclination of the partitions *c'*, the cone *b*, and the metal handle *a*, the whole arranged substantially as and for the purpose herein before set forth.



181,476. CHAIN-PUMPS. A. J. Purviance, Keokuk, Iowa. [Filed June 13, 1876.]

Brief.—The small central valve serves both as a valve and as a pivot. The slitted sheet of leather or similar material permits the free passage of the buckets, but prevents wetting of the curb, &c.

1. A bucket for chain-pumps, having a double swivel-valve, as described.

2. A bucket for chain-pumps, having an opening through its center, and two or more metal valves to close the same, substantially as shown.

3. The combination of the frame *c*, rubber *c'*, link *e*, valve *g*, plate *h*, opening *i*, and valve I, substantially as specified.

4. In a bucket for chain pumps, the combination of a double swivel-valve and an opening, *i*, for drainage through the center, substantially as set forth.

5. The slitted sheet 6, placed upon the top of the stock, as shown.

181,476. COMPOSITION PASTE FOR FLY-PAPER. J. Ralston, Greenville, Pa. [Filed May 9, 1876.]

A sticky fly-paper paste, consisting of oil, Venice turpentine, and rosin, substantially in the proportions herein described.

181,477. HARVESTERS. Solomon Rawson, Scott Thacher, and Isaac Rawson, Hornellsville N. Y. [Filed Aug. 15, 1876.]

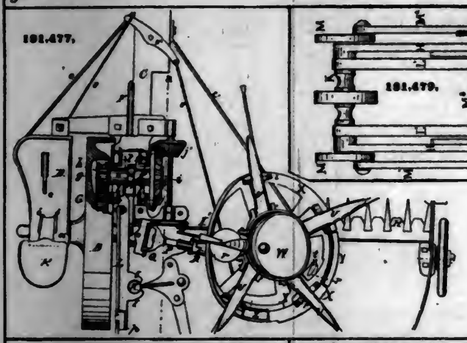
1. The shaft A, carrying wheels *g* and *j*, in combination with the continuous bearing *k*, moving in guides, and the cam-collar *n*, provided with a lever-extension, as and for the purpose described.

2. The track X, made double at X', and having a rocking portion, Y, and a spring-seated section, Z, as and for the purpose described.

3. The track having a double portion, X', a rocking section, Y, and a spring-seated section, Z, in combination with the rake-arm, having extensions *s*, the subjacent lever *r*, having cam *t*, the rods *v v'*, and the levers *u w*, substantially as and for the purpose described.

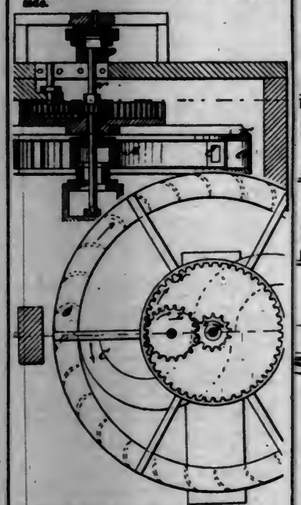
4. The frame A, carrying the platform in the rear and sickle-driving mechanism in front, and made together adjustable therewith on the main axle, as a pivot to regulate the height of the cutter-bar, in combination with the tongue loosely pivoted to the main frame immediately below the main axle, and an elbow lever, F, for adjusting the said main frame with respect to the tongue, substantially as described.

181,477.



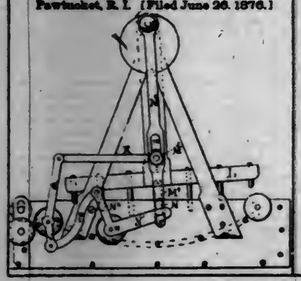
181,478. WATER-WHEELS. Wm. H. Rector and H. C. Black, Santa Rosa, Cal. [Filed May 27, 1876.]

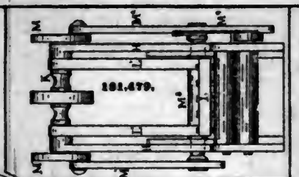
Brief.—A reaction-wheel of S shape, receiving water from the under side, and having a water tank or chamber on the shaft, subject to downward pressure of water, to counterbalance the upward pressure on the under side.



The combination, with a reaction-wheel receiving water from the center of bottom, of a chamber, D, arranged on the shaft N, and receiving water from above, as shown and described, whereby the upward and downward pressures are counterbalanced, for the purpose specified.

181,479. MACHINES FOR COLORING COTTON, WOOL, &c. J. T. Rice and D. A. Arnold, Pawtucket, R. I. [Filed June 26, 1876.]



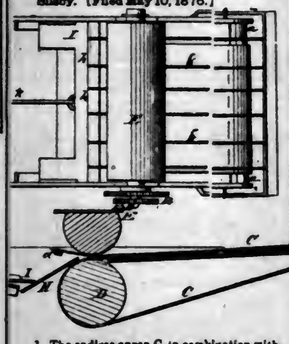


181,479.

1. In a coloring-machine, the combination of a concave tank, D, the plunger L, the slotted uprights L' L', and the shaft K with the actuating mechanism, all operating together, substantially as described, and for the purpose set forth.

2. The combination of the pitman M', the lever N' N', link P, lever Q Q', and link R with the cross-piece M', and plunger L, all operating substantially as described, and for the purpose set forth.

181,480. PLAITING-MACHINES. John Robinson and Eugene W. Silsby, Ottumwa, Iowa; said Robinson assignor to said Silsby. [Filed May 10, 1876.]



1. The endless apron C, in combination with the rollers D, E, and e, and the tucking-plate I, substantially as and for the purposes herein set forth.

2. The wires *b b*, or their equivalents, passing between the rollers D E, their inner ends attached to a stationary bar, and their outer ends to a pivoted frame, as herein set forth.

3. The combination of the endless apron C, rollers D e, pressure-roller E, wires *b*, inclined plate H, and the tucker-plate I, all constructed and arranged to operate substantially as and for the purposes herein set forth.

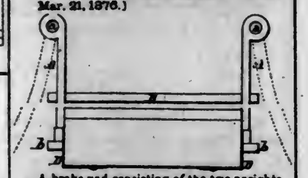
4. The adhesive strips *f*, in combination with a plaiting-machine, for the purposes herein set forth.

181,481. WIRE CRADLES. Edward Rollert, Chicago, Ill. [Filed July 18, 1876.]



The cradle described, consisting of the rockers A A', ring B, saddle B', the frame C, and the frame C', all covered with wire cloth, when the said frame C' extends from the rear end of the cradle to the ring B, and covers entirely the opening in the said cradle, all being constructed, arranged, and combined substantially as described and shown.

181,482. CAR-BRAKE PADS. Thos. Russell and J. F. Shank, Philadelphia, Pa. [Filed Mar. 21, 1876.]



A brake-pad consisting of the two uprights A A, formed with ears *a*, flanges *b*, and T-shaped slots *d*, and the cross-bar B, having T-shaped ends, in combination with strap-irons D, or their equivalent, for holding them to the spring-board, substantially as herein set forth.

181,483. HYDRANTS. Jeremiah E. Scanlan, Cleveland, Ohio. [Filed July 20, 1876.]

Brief.—The casing about the valve-rod is adapted to the action of frost.

1. In a hydrant, the combination, with the valve-stem and outer casing, of the inner casing H, rigidly secured at its lower end only, and packed at its upper end, whereby it may have free longitudinal movement to expand or contract, substantially as and for the purpose set forth.

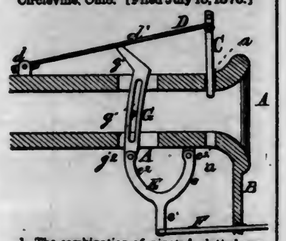
2. In a hydrant, the combination, with the valve-stem G and collar F, of the outer casing B, inner casing H, and packing I, the packing serving to connect the casings, so that they may have free and independent longitudinal movement, substantially as and for the purpose specified.

3. The case H, provided with right-hand screw at the bottom, in combination with collar F, tapped into a support or bearing with a left-hand screw, substantially as and for the purposes described.

4. The combination, with the collar F, of the annular groove F' and the conduits F'' and E', the whole constituting a waste-weir.

5. The hydrant, consisting of a main barrel, case H, with packing I, collar F, bushing or support E, waste-weir, valve and valve-stem, all substantially as and for the purposes set forth.

181,484. CAR-COUPLINGS. Albert Scoles, Circleville, Ohio. [Filed July 15, 1876.]



1. The combination of pivoted slotted arm D, with pin C, Y-shaped lever E, horizontal rod F, and extension G, substantially as set forth.

2. The combination of draw-head A, perforated plate B, horizontal rod F, lever E, slotted extension G, pin *g'*, lug *g'*, slotted arm D, and gravitating pin C, substantially as and for the purpose set forth.

181,485.

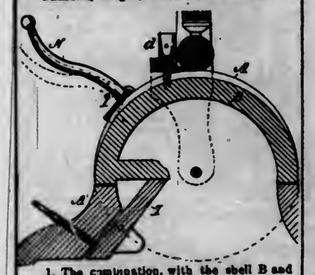


181,485. GAS-BURNERS. Fredk. A. Seaver, Philadelphia, Pa. [Filed Aug. 16, 1876.]

Brief.—Adapted to prevent the valve from wedging or sticking.

The gas-burner described, having, in combination, the perforated valve B, the expansion-chamber B', and the wire gauze A, substantially as and for the purposes described.

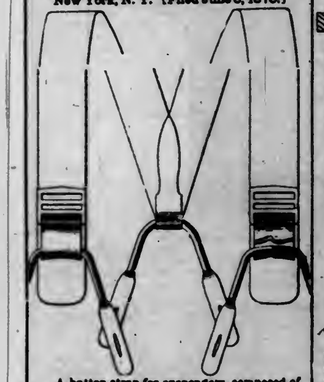
181,486. LEATHER-TAPERING MACHINES. John Settle, Lebanon, and Geo. W. Settle, Oakland, Oreg. [Filed July 24, 1876.]



1. The combination, with the shell B and the disk A', of an eccentric clamping-bar pivoted to the said disks, substantially as and for the purpose described.

2. The combination, with the shell B and the disks A', of the eccentrically-pivoted clamping-bar I, having a handle, N, crank-extension L, and spring M, substantially as and for the purpose described.

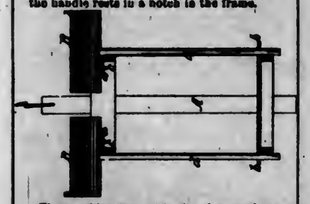
181,487. SUSPENDERS. James B. Sharp, New York, N. Y. [Filed June 6, 1876.]



A button-strap for suspenders, composed of a flat strip of knitted, braided, or woven fabric, bent on itself crosswise over a rounded core, and united at its edges, to impart a circular shape to the strip, and adapt it to slide in a looped buckle, substantially as shown and described.

181,488. HOD-ELEVATORS. Walton Smith, Brooklyn, N. Y. [Filed Aug. 3, 1876.]

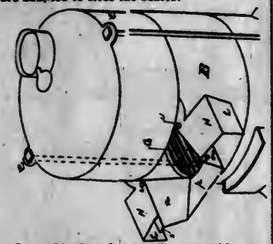
Brief.—The steady-pin of the hod passes through an eye beneath. The lower part of the handle rests in a notch in the frame.



The combination, with the elevator-frame A and hod B, of an eye, *c*, recess *b*, and steady-pin *c*, all constructed and operating substantially as shown and described.

181,489. SOLDERING-FURNACES. Ferdnd. C. Smith and Charles E. Smith, Portland, Oreg. [Filed May 16, 1876.]

Brief.—The pivoted doors with their wings are adapted to close the hearth.



In a solder-iron furnace, the removable section B around the fire-box, and provided with the opening G and hearth *p q*, in combination with the pivoted doors H H, having the depending aprons I I, substantially as set forth.

181,490. MUSICAL INSTRUMENTS. Hermann Smith, Brixton, and J. B. Hamilton, Greenwich, England. [Filed June 22, 1876.]

Brief.—The reed initiates vibration, which is led off by elastic springs or wires to other sounding boards or bodies, giving novel effects.



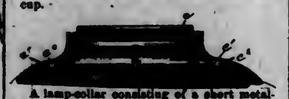
1. The combination of the reed or other vibrating portion of a musical instrument with an elastic spring connected to the vibrating end of said reed, and to the reed-frame, or other object, as and for the purpose set forth.

2. The combination of the reed *b* and the elastic spring *e* connected to the reed, and to the reed-frame, or other object, with the weighted rode *f*, as set forth.

3. The combination of the vibrating reed and the elastic spring connected to the reed and to the spring-lever *m*, with the said spring-lever communicating with the resonance-box *q*, substantially as described.

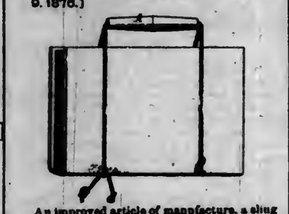
181,491. LAMP-COLLARS. C. F. Spencer, Rochester, N. Y. [Filed Aug. 11, 1876.]

Brief.—A lamp-collar which acts as a drip-cup.



A lamp-collar consisting of a short metallic tube, C, provided at its lower edge with a flange, *c'*, having recesses or depressions *c''*, forming channels for the oil, said collar being fastened to and forming part of the oil-feast, and secured within the lamp in such position that the tubular portion will project into the opening in the same, forming between it and the lamp-top the oil-drip space, substantially as described.

181,492. SLINGS FOR PACKAGES. George D. Stevens, East Orange, N. J. [Filed Feb. 9, 1876.]



An improved article of manufacture, a sling for packages, which is composed of a hollow handle and a double cord, provided at its ends with stops, to prevent the same from slipping through the handle, the whole being constructed substantially as shown and described.

181,493. PLOWS. Wm. Stephenson, Acton, Ontario, Canada, assignor to the Acton Plow Company, same place. [Filed June 3, 1876.]

Brief.—The beam, handles, standard, clevis, and arms for fastening the land-side and mold-board are formed integrally of one piece of metal. The standard has a triangular socket to receive the share. The land-side, having a keeper sliding on an arm upon the beam, is adjustable vertically by a set-screw.



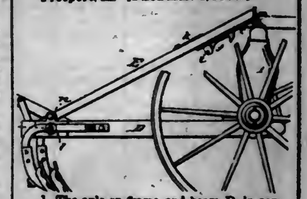
1. The beam A, having clevis-head P, standard C, projections D E, and bifurcated handles B B, integrally formed therefrom, as set forth.

2. The beam A, formed triangular in cross-section rearward of the standard C, and forward of the same of rectangular form, for combining lightness with strength.

3. The combination of land-side H, pivoted to the standard C near its forward end, and provided with loop or keeper 1, the beam A, provided with downwardly-projecting arm D and the vertical set-screw J, said screw working in a socket in the lateral portion of the arm, and pivoted to the keeper, and the keeper and land-side adapted to slide on the arm, as and for the purposes set forth.

4. The beam A, having curved standard C, whose lower end is provided with a triangular socket, formed wholly therein, in combination with the share G, having tapering triangular projection for attachment to the standard, as set forth.

181,494. CULTIVATORS. Daniel C. Stover, Freeport, Ill. [Filed Mar. 4, 1876.]



1. The axle or frame and beam D, in combination with the rigid bar E, pivoted at one end, and arranged to slide back and forth upon the axle at the other, for holding the beam up when not in use, and regulating the depth of the plows when at work, substantially as and for the purpose set forth.

2. The combination of the axle or frame, bar E, beam D, and slotted plate *l*, substantially as and for the purpose specified.

181,495. FEED-TROUGHS FOR STOCK-CARS. Zadok Street, Salem, Ohio. [Filed Sept. 13, 1875.]

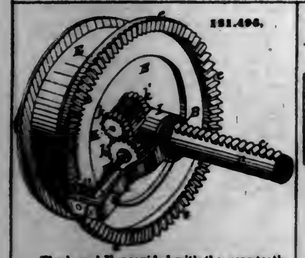


A removable feed-trough for stock-cars, having at its front vertical bars D, the lower ends of which are secured to the trough C, while their upper ends are secured to the top F of the frame, and held firmly and immovably in position to prevent the entrance of animals therein, said frame being open at its rear to permit of its being placed in position against the car, and to facilitate the supplying of the trough with feed and water, substantially as set forth.

181,496. GAS-FIXTURES. Chas. Y. Taylor, Brooklyn, N. Y. [Filed July 31, 1876.]

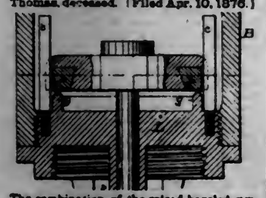
Brief.—For extension drop-lights. By drawing down the tube C, the barrel E will be rotated, so as to coil up said spring, while by moving the said tube upward the barrel will be rotated in an opposite direction. Thus, if the strength of the spring is adapted to the weight of the tube and its attachments, the spring will act as a brake.

181,496.



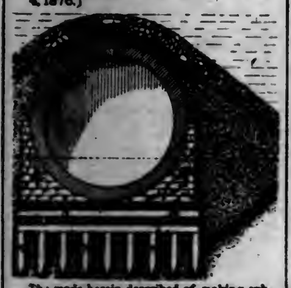
The barrel E, provided with the gear-teeth e, the spring F, the pinions G, h, k, and F', sleeve I I', provided with the bearing i, and the shafts H and K, constructed as shown, and combined with each other, the pipe B, and the tube C, having the longitudinal toothed rack c, substantially as and for the purpose set forth.

181,497. PUMP-VALVES. Charlotte Thomas, Sacramento, Cal., executrix of William H. Thomas, deceased. [Filed Apr. 10, 1876.]



The combination of the raised beveled rim or seat g, the notched valve, provided with the soft-metal sawdish b, secured in a dovetail cavity, the vertical parallel guide-bars c c, projecting from the head I, as shown and described, to operate as specified.

181,498. SUBAQUEOUS TUNNELS. John G. Trautwine, Philadelphia, Pa. [Filed Aug. 4, 1876.]



The mode herein described of making subaqueous tunnels—that is to say, the building of the tunnel above water on a platform, and the sinking of both, so that the said platform shall form the permanent base of the tunnel, all substantially as herein set forth.

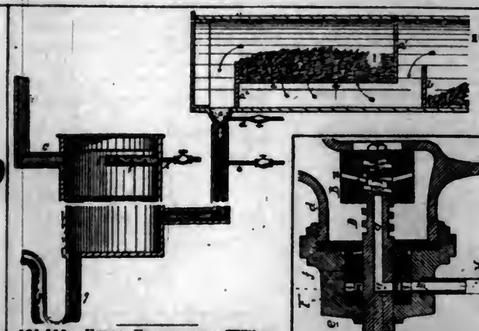
181,499. PROCESSES AND APPARATUS FOR MANUFACTURING GAS. H. W. C. Tweddle, Pittsburg, Pa. [Filed Mar. 13, 1876.]

1. The process of manufacturing illuminating gas, which consists in passing the gas generated from the charge of coal in a retort through or over a body of coke located in said retort between the charge and exit pipe, and subsequently subjecting the gas thus produced to the action of a water-jet or spray before its escape from the exit-pipe of the retort, substantially as herein specified.

2. In combination with a retort of the ordinary form, the perforated basket a a' a², and the barrier b, interposed between the charging-orifice and the gas-exit, substantially as and for the purpose specified.

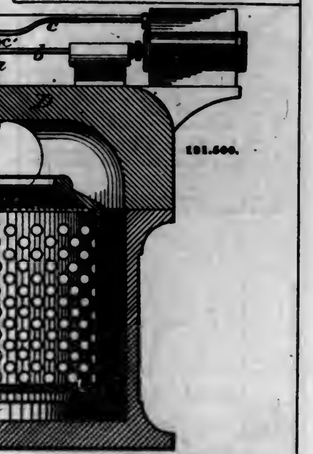
3. In combination with a gas-retort, having the basket a a' a² interposed between the charging-orifice and the gas-exit, the exit-pipe c, provided with the steam-jet d, and the water-jet e, substantially as and for the purpose specified.

181,499.



181,500. HYDRO-EXTRACTORS. William P. Uhlinger, Philadelphia, Pa. [Filed Dec. 31, 1875.]

181,502.



The combination of a tub, A, perforated basket B, having an imperforated bottom, shaft C, and detachable segmental overhanging bracket D, secured to the top of the tub A, and affording the upper bearing for the shaft C, and supporting the motor which revolves the shaft and basket, substantially as described, and for the purpose set forth.

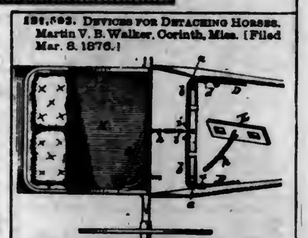
181,501. STEAM-BOILER ATTACHMENTS. C. M. Van Tine, Boston, Mass., assignor to Wm. P. Hunt, same place. [Filed July 1, 1876.]



1. The slide-valve a, in combination with the lever E and adjustable float-rod D, substantially as and for the purpose set forth.

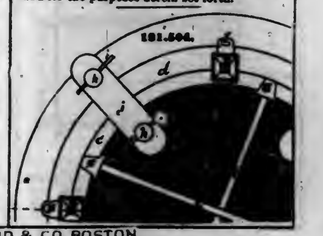
2. The combination of the float-rod D, provided with the adjusting-nut n and the shoulder d, with the lever E and the stops I K, substantially as and for the purpose specified.

181,502. DEVICES FOR DETACHING HORSES. Martin V. B. Walker, Corinth, Miss. [Filed Mar. 8, 1876.]



The combination of the whiffletree C, having end loops a a, the trace-connecting straps b b, pins i i, plate E, with chain A, pivoted lever G, with foot-piece I, and the vehicle-body H, having curved slot m, all substantially as and for the purposes herein set forth.

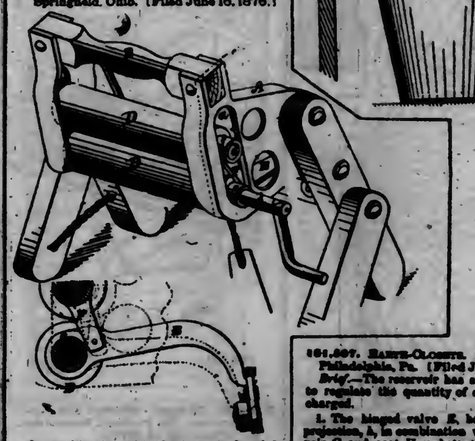
181,503.



181,504. CASTING CAR-WHEELS. Nathan Washburn, Hartford, Conn. [Filed Aug. 30, 1875.]

The process of making a wheel of iron or steel, consisting in first casting the tire, then removing it still hot to another mold, and then casting and welding the body thereto.

181,505. CLOTHES-WRINGERS. F. Way, Springfield, Ohio. [Filed June 16, 1876.]



In combination with the journals d and d of the pressure-rollers D and D, the levers E and F, pivoted at their inner ends upon said journals, and connected together so that the depression or elevation of the outer end of said lever E shall cause said rollers to be moved together or apart, substantially as and for the purpose specified.

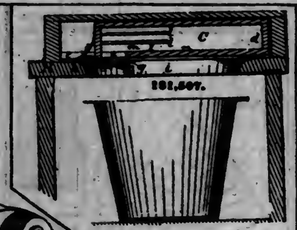
181,506. STEREOSCOPES. Wesley Wilcox and Jas. P. Ryan, Fort Scott, Kans. [Filed June 13, 1876.]



1. In a stereoscope having a revolving view holder or cylinder with radial wings, the combination therewith of hinged wings or view-holders, alternating with the fixed wings, substantially as described.

2. A stereoscopic view holder having a reflector on its reverse side, substantially as described.

181,507.



181,507. HAND-CLOSETS. E. S. Williams, Philadelphia, Pa. [Filed July 1, 1876.]

Brief.—The reservoir has slide mechanism to regulate the quantity of earth to be discharged.

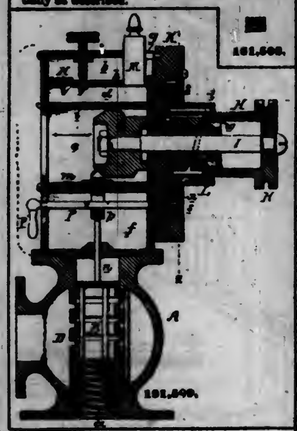
1. The hinged valve E, having a spring projection, h, in combination with the reservoir C and seat H H, substantially as and for the purpose set forth.

2. The adjustable slide I, in combination with the reservoir C, for measuring each charge of earth, substantially as set forth.

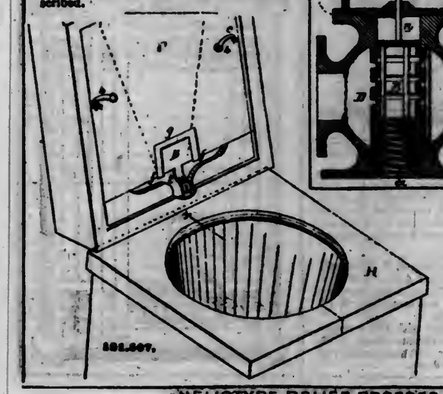
181,508. DENTAL FOIL. E. S. Williams, New York, N. Y. [Filed June 26, 1876.]

As an improved article of manufacture, a ribbon or pile of dental foil, constructed of a series of lamine folded alternately from one side and the other of a sheet of foil, and having a smooth uncorrugated surface, substantially as described.

181,509.



181,507.



181,509. GOVERNORS FOR STEAM-ENGINES. James D. Willoughby, Philadelphia, Pa. [Filed Jan. 12, 1876.]

1. The combination of a hub or cam, O, driven by the engine, and controlling the spring-valve B, with a wheel, K, revolving at a determinate speed, and with mechanism, substantially as described, by which the said wheel governs the longitudinal position of said hub, as set forth.

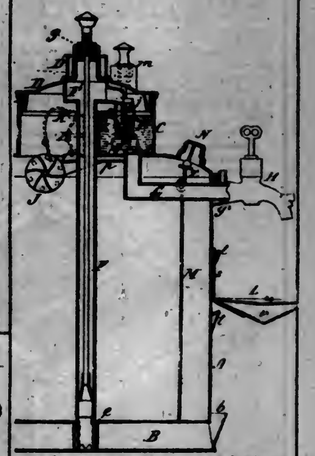
2. The combination of a spring steam-valve and its guided spindle with the rotating hub O, the sleeve H, driven by the engine attached to the said hub, the ring I, the spring-wheel K, its hub having a spiral groove adapted to the said sleeve H, and a device for retarding the wheel, as specified.

3. The combination of the said spring-wheel K and the plunger M, operated by the same, with the compartments b and d, and communications between the compartments.

4. The combination of the spring valve-stem n or its slide p with the hub O, controlled in its lateral movement by the variations in the speed of the engine, and having a tapered or grooved end, which will permit the complete closing of the valve, as set forth.

5. The combination of the hub O and spring-valve B with the intermediate sliding valve-stem p and crooked spindle F, with its handle F', all as set forth.

181,510. LIQUID-MEASURING TANKS. Ebenezer Williams, Marshall, Tex. [Filed May 29, 1876.]



1. In a measuring tank-can, the combination of the measuring-chamber and an alarm device, operated by the overflow from said chamber, both chamber and alarm being within the tank in such proper mechanical relation as to effect the purposes stated.

2. The gage-thimbles I I', arranged upon and rising from the bottom of the receiving and measuring chamber E, in combination with the caps k and the valves A, substantially as and for the purpose herein set forth.

3. The neck C, formed with the tank A, having measuring-chamber E therein, and combined with the pump F F', said measuring chamber E being directly within, and forming a part of, the body of the tank, substantially as herein set forth.

4. The combination, with the gage-nipples I I', and their screw valve-stems i, of the skeleton screw-holders, and their base-caps k, and adapted to screw upon said gage-nipples, for the purpose stated.

5. The combination, with the top measuring compartment E, and the gage-nipples I I', arranged therein, and each provided with an overflow or outlet passage, as described, of the chute p communicating with each outlet, the turning-bucket device J, and the alarm K, operated thereby, whereby the passage of the surplus oil back into the tank is made the means for giving the alarm of the desired measure.

6. The combination, with the surplus-discharging chute p, arranged beneath the measure of the receiving wheel, of buckets J, the

pivoted bell-hammer E operated thereby, and the alarm-gong R, supported upon the measure-partition c, all arranged for co-operation within the tank beneath its cover.

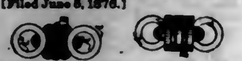
7. The locking device *f f'*, for holding the pump down, in combination with the bottom guide-depression *e*, whereby the pump is kept from turning, and is locked against vertical movement.

8. The combination, with a measuring-tank, A C, constructed substantially as herein described, of the bottom chamber B, the hop sealing-groover *a n g*, the cover D, pump-rod cap, the valve-rod key-caps, and the draft-cock jacket *g'*, all constructed as and for the purpose set forth.

9. The combination, with the screw-cap N in the tank, of the gage-rod M, connected to said cap by a swivel-link coupling, *s*, to allow the cap to be screwed on and off, with the gage-rod connected thereto.

10. The pump-tube F, provided with the screw-thread *y*, and combined for use with screw tubular extension-section P, and the nozzle-extension Q, to adapt the pump for filling the tank, as described.

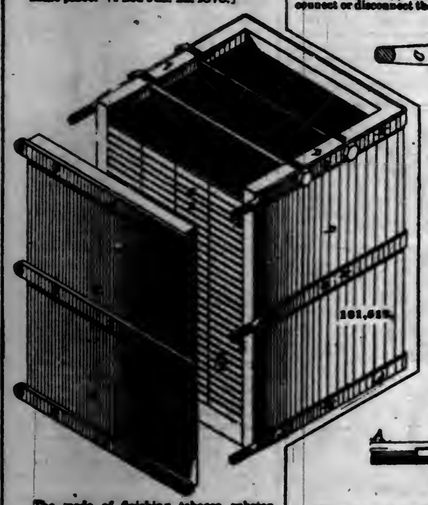
181,511. ORNAMENTAL CHAINS. Proctor B. Witherell, North Attleborough, Mass., assignor to Davidson Brothers, same place. [Filed June 6, 1876.]



1. The combination, in a chain-link, of three interlaced rings, A A' A'', and two or more transverse rings, B, arranged around the inner or middle interlaced ring, substantially as described.

2. The combination of a filling-piece, C, with the middle interlaced ring A', and with the outer rings A A'' and the transverse rings B, for the purpose of holding the several parts in symmetrical positions, substantially as described.

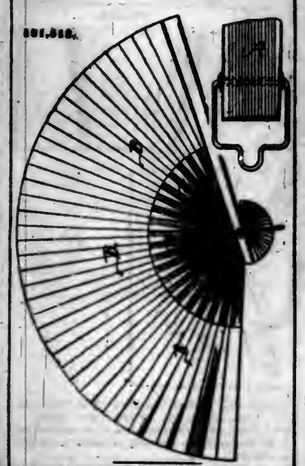
181,512. MANUFACTURING FINE-TOBACCO. Christian Wortzy, St. Louis, Mo., assignor of one-half his right to Henry McCabe, same place. [Filed Jan. 22, 1876.]



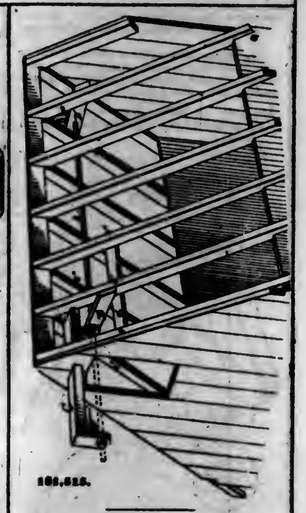
The mode of finishing tobacco, substantially as described, consisting of placing the plugs in a box in alternate layers with thin metal plates, applying extreme pressure thereto, and subjecting the plugs to dry heat of about 140° Fahrenheit for several hours while they are tightly compressed between the plates, which are in contact with the brass faces of the plugs, and finally removing the bar, and leaving the contents there in until cold.

181,513. FANS. Jacob H. Young, Washington, D. C. [Filed June 16, 1876.]

In combination with a fan, provided with a tubular rivet for securing the ends of the splints together, the bent-wire ball, constructed to be sprung into the ends of said tubular rivet, substantially as herein shown and described.



181,513.



181,513.

181,514. CLUTCHES FOR DISENGAGING AND DISENGAGING PULLEYS ON FLY-WHEELS. B. A. York, Reading, Mich., assignor of one-half his right to A. M. B. Fitzsimmons, same place. [Filed May 10, 1876.]

Brief.—Within the slotted end of the shaft is a T-shaped key, which moves out and in to connect or disconnect the wheel with the shaft.



181,514.

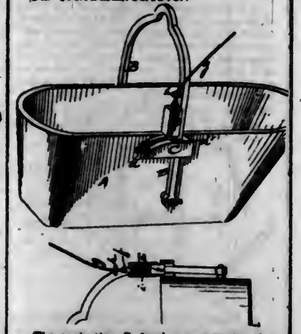
The combination of the shaft A, slotted longitudinally, as described, the bearing B, provided with slots *g g*, the fly-wheel C, provided with slots *a a* in its hub, the slotted T-shaped sliding spring-key D, pin *b*, and cap C, all constructed substantially as and for the purpose herein set forth.

181,515. HAT-ELEVATORS. J. R. Fitzhugh, Philadelphia, Pa. [Filed Aug. 16, 1876.]

1. The bar A, provided with the prongs *c c*, in combination with the cross-bars B B', substantially as set forth.

2. The bar A, provided with the prongs *c c*, in combination with the cross-bars B B', braces *d d*, and rollers *e e' e''*, substantially as and for the purpose set forth.

181,516. TROUGHS - BUCKETS FOR COAL-ELEVATORS. J. R. Fitzhugh, Philadelphia, Pa. [Filed Aug. 14, 1876.]



181,516.

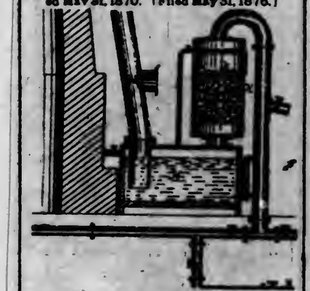
The projection C, having a curved end, a longitudinal slot, *d*, and a transverse slot, *d'*, and the bearing E, spring *f*, and bolt A, in combination with the bucket A and the ball B, as set forth.

181,517. SPRING BED-BOTTOMS. William S. Reynolds, La Fayette, Ind., assignor of one-half his right to Helen M. Sempill, same place. [Filed Sept. 4, 1875.]

The combination and arrangement of the cross-slats B, parallel spring-bars C, fixed hangers I, movable hangers J, rubber-strap springs L, longitudinal slats D, central cross-slats F, vertical springs H, dowel cross-bars E, and longitudinal slats G, all substantially as shown, and for the purposes described.

REISSUES.

7,966. PROCESSES OF COLLECTING AND PURIFYING FURNACE-GASES. Jos. H. Connelly, New Brighton, Pa., and John McLure, Wheeling, W. Va., assignors to the Smoke-Consuming, Heat, and Gas-Light Company, Pittsburg, Pa. Patent No. 103,572, dated May 31, 1870. [Filed May 31, 1876.]



1. The process of utilizing the gases and substances which pass off from furnaces, cupolas, stacks, and coke-ovens, by drawing or conveying them off by the means substantially as herein described, separating said substances from said gases, substantially as herein described, and then applying said gases or the carbonic oxide and hydrogen obtained, by the means substantially as herein described, to aid and assist the combustion in the fires of furnaces, substantially as set forth.

2. The process of utilizing the gases and substances which pass off from furnaces, cupolas, stacks, and coke-ovens, by drawing or conveying them off by the means substantially as herein described, separating said substances from said gases, substantially as herein described, and then enriching the carbonic oxide and hydrogen obtained by the addition thereto of a coal or oil gas, to adapt it for illuminating purposes, substantially as set forth.

3. The furnace or coke-oven pipe, leading from a close cover to or through suitable condensing and purifying apparatus, and in combination with a fan or exhaust for drawing off and utilizing the otherwise waste gases, substantially as set forth.

4. The combination of the furnace or coke-oven pipe, a condenser, N, scrubber K, purifier V, holder Z, and pipe X, for supplying to the contents of the holder a gas rich in carbon, substantially as and for the purpose set forth.

7,969. CIGAR-MOLDS. Napoleon Du Brul, Cincinnati, Ohio. Patent No. 114,665, dated May 9, 1871. [Filed Jan. 6, 1876.]

Brief.—The molds are of tin. The upper matrices have lateral flanges, that limit their downward movement by striking the partition-walls of the lower matrices.

1. The upper former, constructed with sides D and pressing-faces O', united as described to form sharp edges *e*.

2. The backing G, upper formers O', and bearings D', in combination with the matrices O and their walls O', as and for the purpose set forth.

3. A cigar-mold consisting of a lower member having cups to receive the tobacco, and an upper member with a backing and flanged and feather-edged formers attached thereto, the upper formers sliding within the lower cups, and the flanges, which are formed or connected in one body with each of the upper formers, resting on the walls of the lower cups, to limit the closure of the mold, as explained.

4. The combination of the bracing-bridges and sheet-metal formers, substantially as and for the purpose set forth.

5. The formers C, stamped out of sheet metal, with flanges *f*, as and for the purposes described.



7,970.

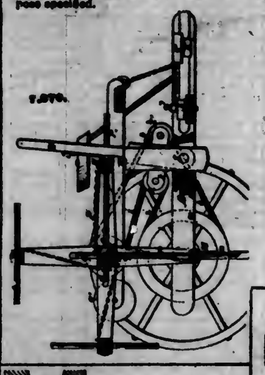
7,970. HAY-TEDDERS. Walter C. Gifford, Jamestown, N. Y., assignor, by mesne assignments, to Stuart Perry, Philo Remington, Sand. Remington, and Elphalet Remington, Jr. Patent No. 45,992, dated Jan. 24, 1865. [Filed July 13, 1876.]

1. In a rotary hay-spreader, the combination, with a rotary reel, of rake-teeth and teeth-actuating mechanism, whereby the teeth have a continuous rotary and an intermittent or variable vibratory movement.

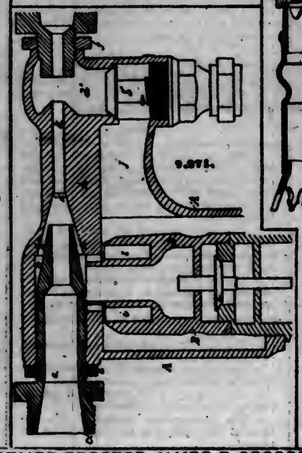
2. In a rotary hay-spreader, the combination, with the rocking-shaft and rake-teeth attached to the reel, of cam or equivalent mechanism, constructed and arranged to impart an intermittent or variable movement to the rake-teeth while they are operating to spread and release the grass.

3. In a rotary hay-spreader, the combination, with a vertically-adjustable rotary reel, of rake-teeth and teeth-actuating mechanism, whereby the teeth have a continuous rotary and an intermittent or variable vibratory movement in a reel adapted to be adjusted to different heights, substantially as and for the purpose set forth.

4. The combination, with the reel of a rotary hay-spreader, of rake-heads or tine-sheths made in two sections, and connected in a yielding manner, substantially as and for the purpose specified.



7,970.



7,971.

7,971. INJECTORS. Geo. H. Little, Peabody, Mass. Patent No. 156,671, dated Nov. 10, 1874. [Filed July 3, 1876.]

Brief.—The discharge-tube is adjustable to regulate the operative size of the vacuum-chamber. Instead of water wasting at the overflow when the injector is not in operation, it is conducted to the suction-pipe through a connecting-chamber.

1. The combination, in an injector, of the tube *d*, made as described, the nut *f*, the tube *h*, and the overflow-valve *g*, Fig. 2, the act of fording a means of adjustment, serving to create a vacuum sooner or later at will.

2. In combination with the injector, the annular water reservoir or chamber *i*, made in the top of the tube B, and placed in the nearest practicable proximity to the tube *a*, substantially as and for the purpose set forth.

3. The combination, in an injector, of the priming-chamber *i* with the tube *a*, and with the tube B, whereby the injector is adapted to be applied in use with either the tube *c* or the tube B as the steam-receiving tube, substantially as described and shown.

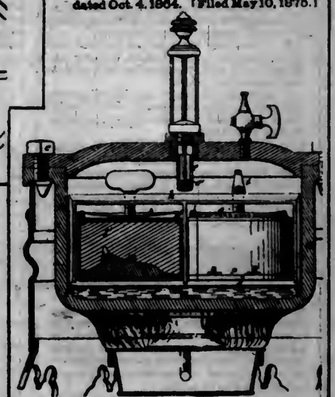
4. The combination, with an overflow-chamber of an injector, of a pipe or passage surrounding the regular central-pipe B, and communicating with it at or near its upper end, for carrying the overflow-water back to the water-supply or some of the injector, or for conveying water from the supply-pipe, B to the overflow-chamber by the opening of valve *g*, substantially as shown and described.

5. A water-supply pipe, B, of an injector, provided with a check-valve, *h*, at or near its upper end, substantially as shown and described.

6. In combination, the adjustable steam-inlet tube *a* and its adjusting-nut *e*, the adjustable outlet-tube *d* and its adjusting-nut *f*, the main tube or body A, water-inlet pipe B, connecting with the side of A, and an overflow, substantially as and for the purposes set forth.

7. In combination with an injector, a water-supply tube, B, provided with a self-acting valve, *h*, and an annular priming-chamber, *i*, and having a surrounding water-chamber between tube B and its case A, substantially as shown and described.

7,972. VULCANIZING APPARATUS FOR DENTISTS. George B. Hayes, George B. Snow, Theo. G. Lewis, John R. Noble, and James Q. Brett, Buffalo, N. Y., assignees of Emily A. McDermut, administratrix of John L. McDermut, deceased. Patent No. 44,541, dated Oct. 4, 1864. [Filed May 10, 1876.]



1. The within-described method or process of molding a dental plate by confining the mold and material therein contained, out of which the dental plate is to be formed, in a close or covered vessel, and subjecting them, while so confined, to the combined and continuous influences of heat and mechanical pressure until the material is softened and the mold closed, substantially as hereinbefore set forth.

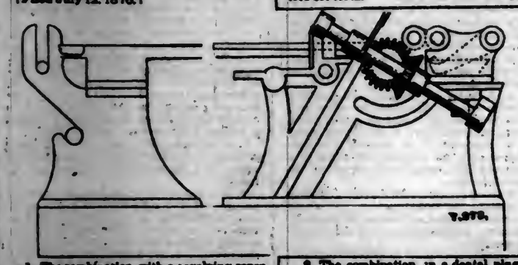
2. The within-described method or process of molding and vulcanizing a dental plate by a continuous operation, consisting in closing the dental flask inside a steam-generator, thereby molding the plate, and then subjecting the plate so molded to the usual vulcanizing process without changing its position inside the generator, substantially as hereinbefore set forth.

5. The combination, with a dental flask, of a yoke or frame, an interposed spring, and a regulating-screw, whereby pressure upon the spring is adjusted, substantially as described.

6. The combination of a dental flask, a yoke or frame centering the flask and bearing upon the same through an interposed spring, substantially as described, thereby closing the flask when inclosed within a heating-vessel.

7. The combination, with an oval, oblong, or other shaped vessel, of two flasks placed side by side on the same level in a double or two-part clamping-frame, whereby two dental plates may be subjected to like indications of temperature during the process of vulcanization, substantially as hereinbefore set forth.

7,272. PAPER-BAG MACHINES. Charles H. Morgan, Philadelphia, Pa., assignor, by mesne assignments, to the Union Paper Bag Machine Company, same place. Patent No. 97,726, dated Feb. 27, 1869. [Filed July 12, 1876.]



7,272.

1. The combination, with a revolving severing device, substantially as described, of a stationary paper-supporting plate, A, and tension or holding pulleys.

2. The combination, with a paper web or tube supporting device, of a revolving severing device and devices for holding the paper web taut while being severed, all substantially as described.

3. The combination, with a paper-tube-supporting bar, of a revolving severing device and a pair of holding-rollers, as a E, all substantially as described.

4. The constantly-moving feed-rolls, acting in combination with a web or tube supporting device, all substantially as described.

5. A revolving blade, in combination with tube-supporting bars or plates, to sever portions of tube with overlapping ends, all substantially as described.

6. A pair of rolls which hold the tube while being severed, in combination with a blade, which pastes and folds the tube and forms the bottom of the bag.

7,274. DENTAL PLUGGERS. George B. Snow and Theo. G. Lewis, Buffalo, N. Y., assignors, by mesne assignments, to themselves, John H. Noble, and J. Q. Brodt, composing the firm of the Buffalo Dental Manufacturing Company. Patent No. 60,264, dated Oct. 30, 1866. [Filed Apr. 28, 1876.]



7,274.

1. A stop or abutment attached to the case of a dental plugging-instrument, for the purpose of arresting the motion of the hammer in the case at the point where it strikes the tool-holder, and there supporting it against the action of its impelling-spring, independently of either the tool-holder or spring-catch, substantially as described.

2. A spring interposed between a reciprocating tool-holder and its encircling case, operating to thereof the tool-holder part wardly from the case, substantially as herein described.

3. The combination of a stop attached to the case of a dental plugging instrument, and a spring interposed between said case and a reciprocating tool-holder therein contained, when operating to raise or suspend a reciprocating mallet from the tool-holder, independently of the action of a spring-catch, substantially as herein described.

4. The combination, with the case of a dental plugging-instrument, of a hammer reciprocating therein, a spring actuating the hammer, a tool-holder reciprocating in the case, and a spring interposed between the case and the tool-holder, for constantly thrusting outwardly the latter, substantially as described.

5. A retainer case constructed in two sections, one containing a mallet, its actuating spring, and spring-catch, the other a reciprocating tool-holder by which the mallet is operated, and a spring to raise the mallet from the tool-holder, substantially as herein described.

6. The lifting-bar D, connected at one end with the tool-holder, and having radial motion thereon, and engaging at its other end with the hammer F and inclined plane M, substantially as herein described.

7. The combination, substantially as herein described, of the tool-holder B, lifting-bar D, and inclined plane M, having on it a shoulder, m', serving as an abutment for the lifting-bar D, and thereby arresting the motion of the case A over the tool-holder B.

8. The combination, substantially as herein described, of the spiral spring G, actuating the mallet F, with an adjustable piston, I, and screw-cap H, for the purposes hereinbefore set forth.

9. The combination, in a dental plugging-instrument, substantially as herein described, of a tubular case, a ring or sleeve surrounding the case and movable thereupon, a stop or screw fastened in the sleeve, and projecting through a slot in the case into its interior, and a reciprocating mechanism contained within the case, operating to produce blows, the whole being so constructed and arranged that the motion of the reciprocating mechanism within the case may be arrested or modified by the motion of the said sleeve.

10. The combination, with the ordinary socket plugging-tool, of a terminal screw, J, for the purpose of retaining the said tool more securely in its socket, for use substantially as herein before set forth.

7,275. PAPER-BAG MACHINES. The Union Paper Bag Machine Company, Philadelphia, Pa., assignor, by mesne assignments, of S. B. Fettes. Patent No. 26,527, dated May 29, 1860; extended seven years. [Filed July 12, 1876.]

1. The method of preliminarily creasing the paper, to assist in forming it into a tube, by combining a device, substantially as described, of less width than the web of paper, with a roll of paper, the paper passing from the latter over said device, under tension, on its way to the folding devices.

7,274.

2. The combination of a rolled web of paper and a device for breaking, bending, or creasing the web longitudinally, with devices for drawing the said web from the roll under tension over the creasing device, all substantially as described.

3. The combination of the paper-roll shaft, the drum O, for preliminarily creasing, breaking, or bending the tube longitudinally, and the former and the folding devices.

4. The combination of the paster P with the web-feeding mechanism, whereby the former positively revolves the latter, so that the web and paster move in unison, all substantially as described.

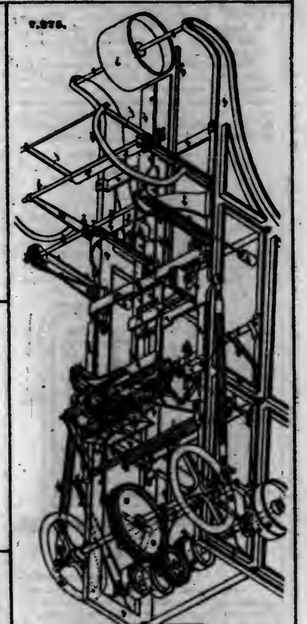
5. The slide Q, constructed and operating substantially as described.

6. The folder and paster P', constructed and operating substantially as described.

7. The clamps V V' V', constructed and operating substantially as described.

8. The reciprocating clamps V V', constructed and operating substantially as described.

7,276. UMBRELLA DRIP-CUPS. John P. Vinson and George W. McKinny, Rochester, N. Y.; said McKinny assignor, by mesne assignments, to P. B. Viele. Patent No. 176,662, dated Apr. 11, 1876. [Filed Aug. 7, 1876.]



7,276.

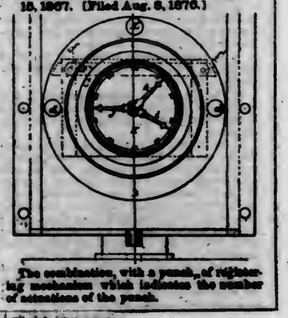


1. A drip-cup, C, for umbrellas, composed entirely of rubber or equivalent elastic material, for the purposes set forth.

2. A drip-cup, C, for umbrellas, provided with a neck, n, composed of rubber or equivalent elastic material, whereby the cup may be applied to either a large or a small stay, and the joint between them rendered watertight without additional appliances, substantially in the manner and for the purposes set forth.

3. A drip-cup, C, for umbrellas, having its upper edge provided with a contracted or curved lip, c, substantially as and for the purposes set forth.

7,277. INDICATORS FOR PUNCHING-MACHINES. Wm. Welch, Bridgeport, Conn., assignor, by mesne assignments, to Robt. T. Clark. Patent No. 60,877, dated Oct. 16, 1867. [Filed Aug. 8, 1876.]



The combination, with a punch, of registering mechanism which indicates the number of actuations of the punch.

HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & CO BOSTON.

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NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., September 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

COMMISSIONER'S DECISIONS.

J. ROACH.—*Trade-Mark; Appeal.*

[*Appeal from the decision of the Examiner of Trade Marks in the matter of the application of James Roach for the registration of a Trade-Mark.—Decided August 9, 1876.*]

The words "Croup Tincture" are not the proper subject of a trade-mark; they are purely descriptive of the nature of the compound, and employed to indicate its purpose.

Words that can properly be applied to a variety of medicines for a specific disease, which medicines are supposed to possess curative properties, are not proper to be used and registered as trade-marks.

[*E. W. Anderson*, attorney.]

DUELL, *Commissioner:*

The words now sought to be registered as a trade-mark are "Croup Tincture," a name applied to a preparation for the cure of croup.

The issue raised is as to whether those words are descriptive. In my opinion they are descriptive of the nature of the compound, and are employed to indicate its purpose.

It is placed upon packages containing a compound which is offered to the public as a tincture for the cure of croup, and might with propriety be applied to any of the numerous tinctures that are prescribed for that purpose, and, as was said in the case of *Dundas Dick & Co.*, (9 OFFICIAL GAZETTE, 538,) any one has the right to use these words descriptive of the medicines he may make.

The applicant, in his label, fully recognizes its descriptive nature when he says "this tincture is prepared especially for croup." It is but a sample of the popular manner of designating medicines; we see, for instance, every day such titles as Ague-Pills, Cough-Sirups, Cough-Mixtures, Worm-Lozenges, and others referring to most every disease. None of these can be regarded as arbitrary titles, but as the proper descriptive appellation of the articles, and as such they become public property. (*Phalon* vs. *Wright*, Am. Trade-Mark Cases, 307.)

Applicant might have his label registered as such, but cannot as a trade-mark.

The decision of the Examiner is affirmed.

W. SIMPSON & SONS.—*Label.—Appeal.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the applications of William Simpson & Sons for registration of Labels, filed April 4, 1876.—Decided July 13, 1876.*]

Only those prints and labels *not* trade-marks can be registered in the Patent Office.

There is a radical and essential difference between trade-marks and labels.

As the law prescribes different fees for the registration of trade-marks and labels, the Office is bound to establish a clear distinction between the two, even if the law made no distinction.

Matter in a label purely arbitrary and fanciful, and which is calculated to deceive a manufacturer or purchaser, should be stricken out, and, *per contra*, a trade-mark solely descriptive of the contents of the package, or the name of its proprietor and place of manufacture, should not be allowed to be an essential part of such trade-mark.

Arbitrary words and fanciful figures cannot be registered as a label.

DOOLITTLE, *Acting Commissioner:*

The subject of this appeal consists of two applications for the registration of labels. One application was originally for the word "Eddystone" in connection with the representation of a light-house, and the words "Wm. Simpson & Sons, Philadelphia, No. —— Yds." beneath.

The other consisted of the picture of three female fig-

ures standing near a tomb, and the words "Wm. Simpson & Sons, Philadelphia."

Since this appeal was taken the applications have each been amended to read as follows:

The label or print consists of a sheet or strip of paper containing the words "Wm. Simpson & Sons, Philadelphia," and other matter shown in the following copy.

This amendment makes no difference in the *merits* of the cases, but only renders the applications indefinite in description, and is bad for that reason. I shall discuss the cases as filed in their original and better form.

The first application was rejected on appeal from the Examiner of Trade-Marks upon the ground that the word "Eddystone" was an arbitrary word, not descriptive, and that the matter set forth therein did not come within the common definition of the word "label."

A reconsideration of the former decision in connection with the action upon the second application is now requested.

The ground taken by counsel for the parties amounts substantially to this, that the alleged labels, although containing matter properly constituting trade-marks, are not vitiated thereby, and that there is no reason for striking out the matter which might be used as a trade-mark.

I do not understand the counsel as contending that there is no distinction between trade-marks and labels; but it does appear to me that they insist upon registering such matter as can be regarded as a trade-mark or a label, according to their fancy, or according to the varying opinion of the general public.

The law establishing the registration of labels distinctly sets forth that only those prints and labels *not* trade-marks may be registered in the Patent Office upon the payment of the fee of six dollars. The provisions of the trade-mark law as uniformly construed are radically and essentially different from those relating to labels.

There is no reason why the Office should adopt a practice which will lead to confusion and uncertainty in regard to these matters. If the law made no distinction between trade-marks and labels, still, so long as it prescribed different fees for their registration, the Office would be bound to establish a clear distinction between the two for its own guidance and the information of the public.

Now, the definition of the word "label" as given by Webster's Dictionary, and which has been adopted by this Office in the matter of their registration, is as follows:

A narrow slip of silk, paper, parchment, &c., affixed to anything denoting its contents, ownership, and the like—as the label of a bottle or a package.

The same author defines a trade-mark to be—

A distinguishing mark or device used by a manufacturer on his goods or labels, the legal right in which is recognized by law.

The latter definition is not, perhaps, so sufficiently distinct from the former as to obviate all difficulty. Still, a distinction is made, as shown by the expression that a trade-mark may be used *on the label*. The further necessity of such a distinction is recognized in the Godillot case, (6 OFFICIAL GAZETTE, 641.) The decision in that case is an exposition of the new law provided for the registration of labels in the Patent Office.

The Acting Commissioner there remarked:

It was urged that applicant, although having matter admissible to registration as a trade-mark, should be permitted to take, if he chooses, a more limited protection than that which he might be entitled to receive. But admitting that the protection asked for is more limited, still the action of the Office in strictly analogous cases would be sufficient guide and justification in refusing to register, as labels, prints which contain matter which might be registered as trade-marks. The Office refuses to grant design patents for shapes and forms having strictly mechanical functions, though doubtless the protection of a design patent is much more limited in its nature than the protection afforded by a mechanical patent.

The law prescribes what sort of protection shall be given to certain well-defined subject-matter, and by this the Commissioner must be guided.

Some of the bad results which would flow from a want of a clear distinction between the two subjects are set forth in the concluding remarks of the Examiner of Trade-Marks in his report on this case, as follows:

To permit the registration of distinguishing marks of trade, under the law of June 18, 1874, on the ground that the parties applying for such registry, term such marks "labels," when in fact they serve every purpose of lawful trade marks—they being labels in as far only as they are the vehicles of trade-marks—would be a fraud on the public as well as on the Office. While the applicant who obtains the registration of a trade-mark under the cover of a label, clearly obtains no legal protection for his trade-mark, yet by the fact of registration he obtains a moral protection for such trade-mark, which is unjust to the public at large, because upon its face it is a misrepresentation. Furthermore, by admitting to registry, as labels, matter which the Office would not hesitate to register as trade-marks, is a wrong, inasmuch as it deprives the Office of a source of revenue of which the law contemplates it should have the benefit.

It follows that matter in a label purely arbitrary and fanciful in its nature, which is claimed as a part of the label, but which would lead the public, manufacturer, or purchaser into the belief that it was lawfully a trade-mark (not being descriptive of the contents of the package) should be required to be stricken out from the application for such registration, and on the other hand matter in an application for the registration of a trade-mark solely descriptive of the contents of the package, or the name of its proprietor and the place of its manufacture, should not be allowed to remain as an *essential* part of such trade-mark.

I am, therefore, of the opinion that "the word Eddystone" in connection with the figure representing a "light-house," of which applicant describes his first label as consisting, should be refused or stricken out of such application as a label, but may be registered as a trade-mark. The same objection applies to the second alleged label, which applicant says consists of "three female figures standing near a tomb." Applicant continually insists that the words "Wm. Simpson & Sons, No. —— Yds." are descriptive of the manufacturer and his goods. No one disputes that, but the objection is that he includes within the express terms of his label and seeks protection thereon of other matter not a label, but more properly a trade-mark. Both cases are met by that part of the definition above given from Webster of a trade-mark as "being a mark or device used by a manufacturer *on his label*."

Applicant will be permitted to register the name of his firm, their place of business, description of the nature, quality, and quantity of his parcels as a label; but he cannot be allowed to claim the arbitrary words and fanciful figures mentioned as part of the label. These should be registered as a trade-mark.

It is true that the names of corporations and of single individuals have sometimes been recognized as constituting lawful trade-marks, but only in exceptional cases, and where such names have been given that character by long public acquiescence, which fact has been established by unquestionable proof. But such a claim on the part of this applicant, if made, could not be considered upon an application for the registration of that name as a label under existing laws.

Time will not permit the discussion of the one or two decisions relied upon by the applicant as establishing the practice contended for by him. I do not regard them as going to the length he now claims, but were his interpretation of them the proper one, I could not assent to the conclusions drawn therefrom.

The decision of the Examiner upon these applications is affirmed.

J. C. MCLAREN AND C. B. COVENTRY.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of James C. McLaren and Charles B. Coventry, for* "IMPROVEMENTS IN APPARATUS FOR GRINDING SICKLE-BARS OF HARVESTERS," *filed October* 26, 1875.—*Decided August* 18, 1876.]

Mechanical skill or ingenuity is not patentable.

To constitute a machine an improvement upon another, there must be a substantial difference in the mode of operation or the result produced, which is not alone attributable to mechanical skill, but is the product of invention.

Cheapness alone will not confer patentability upon a machine that possesses no other merit.

[*Geo. W. Dyer & Co.*, for appellants.]

DOOLITTLE, *Acting Commissioner:*

The apparatus claimed by these parties is designed for use in sharpening the sickles of harvesters without removing them from the machine. Its essential features are an emery-wheel supported at one end of the standard, and driven by a pulley having its bearing on the same standard, the whole being presented so as to act upon the sickle in the same manner that a brace is applied in boring wood—that is to say, it is braced against some portion of the body and steadied with one hand while the other hand is employed in operating the driving wheel.

The claim enumerates all of the essential parts of the machine, and is as follows:

As an improvement in hand apparatus for sharpening the teeth of harvesters in position, the combination of a single rod, B, having a fixed cross-rod at its extreme end, an emery-wheel, A, upon one end of the cross-rod, a small pulley, D, upon the other end of the same, a large pulley, C, upon one side of the rod B, a supporting and guiding handle, *c*, upon the opposite side of the same rod, and intermediate between the two pulleys, substantially as described.

The references cited as anticipating this invention are the patents to James H. Curran, June 30, 1872, No. 123,088, for an "Improvement in Sickle-Grinder;" and T. P. Randall, November 26, 1872, No. 133,337, for "Improvement in Horseshoe Sharpeners." In this latter patent is shown almost precisely the same combination of parts as those claimed by the applicants, with the addition of a supplementary rest or guide, and the substitution of a plain-faced emery-wheel in the place of the beveled one.

In the former patent is shown a combination in all respects similar to applicant's, except that the frame carrying the emery-wheel and pulley is hinged to a base-plate.

Looking, then, at the present device, we find in the one case that a beveled-face emery-wheel has been substituted for the cylindrical wheel used by Randall; and in the other that Randall's rest or frame has been substituted for that employed by Curran. This I do not regard as invention, but as a simple aggregation, such as was defined in *Sarven* vs. *Hall*, (5 Fisher, 415,) not to be patentable.

At the hearing considerable stress was laid upon the fact that applicant's device was more cheaply constructed than the others, and was therefore a patentable improvement.

To constitute a machine an improvement on another, there must be a substantial difference in its mode of operation or the result produced, which is not attributable to mechanical skill, but is the product of invention.

Where an invention has once been developed, it oftentimes becomes susceptible of innumerable modifications or changes in the forms, proportions, or materials of the various parts, but no court would protect such colorable variations simply because a saving in material had been effected or the cost of production had been lessened.

Such is the office of the mechanic, and it was never the design of the statutes that he should be hampered in the free exercise of his profession.

We must look beyond mere skill for the quality of invention which is necessary to support a patent. (*Blandy* vs. *Griffith*, 3 Fish., 609.)

Structural changes of form and proportion, although they improve the operation without changing the mode of operation, and produce a much better result, but one of the same kind, are only different and better forms of embodying the same idea, and illustrate the difference between mechanical skill and inventive genius. (*E. J. Greeley*, 4 OFFICIAL GAZETTE, 612; *Smith* vs. *Pearce*, 2 McLean, 178; *Putman* vs. *Yerrington*, 9 OFFICIAL GAZETTE, 669.)

Mr. Justice Curtis, in delivering the opinion of the Supreme Court, *Winans* vs. *Denmead*, (15 Howard, 330,) says:

Under our law a patent cannot be granted merely for a change of form. The act of February 21, 1793, §3, so declared in express terms; and though this declaratory law was not re-enacted in the patent act of 1836, it is a principle which necessarily makes part of every system of law granting patents for new inventions. Merely to change the form of a machine is the work of a constructor, not of an inventor; such a change cannot be deemed an invention.

It is a notorious fact that machines are seldom, if ever, constructed in exact accordance with the patent. Nor does the law require that they shall be; the specification is addressed to those skilled in the art, "and may leave some things to their skill in applying the invention." (*Mowry* vs. *Whitney*, 14 Wallace, 620.)

The inventor is required to explain his *invention* fully, and after the principle is thus exposed, a multitude of modifications may be devised by the mechanic, but are not patentable. (*Parker* vs. *Hulme*, 1 Fish., 44.)

"As long as the root of the original conception remains in its completeness," says Judge Swayne, in *Blandy* vs. *Griffith*, "the outgrowth, whatever shape it may take, belongs to him with whom the conception originated."

A mere carrying forward, a new or more extended application of the original thought, a change only in form, proportions, or degree, the substitution of equivalents doing substantially the same thing in the same way, by substantially the same means, with better results, is not such invention as will sustain a patent. The rule applies alike whether that preceded was covered by a patent or rested only in public knowledge and use. (*Smith* vs. *Nichols*, 21 Wallace, 112.)

A mere colorable or slight alteration of a machine, or a change in its proportions, gives no ground for a patent. (*Brooks* vs. *Bicknell*, 3 McLean, 262.)

Invention is distinct from skill, and relies upon the latter, in many instances, to assist in developing improvements. (*Sparkman* vs. *Higgins*, 1 Blatch., 209; *Judson* vs. *Moore*, 1 Fish, 548; *Blandy* vs. *Griffith*, 3 Fish, 609.)

Cheapness alone will not confer patentability upon a machine that possesses no other merits. Such was the conclusion of the Supreme Court in *Hotchkiss* vs. *Greenwood*, (11 Howard, 248,) and referred to in *Reckendorfer*

vs. *Faber*, (10 OFFICIAL GAZETTE, 71,) and it is stated in Curtis on Patents, §73, that—

The mere quality of cheapness, or other superiority in the material of which an article is made, disconnected with any new or different mode of applying that material in the process of making the thing, has not been held to be the subject of a patent.

As every change in form or proportion, the substitution of equivalents, and the various modifications that may be devised by the mechanic must invariably affect in a greater or lesser degree the cost of the device or machine, and as the courts have repeatedly decided that such changes or departures from the patent did not constitute invention; it is reasonable to infer that they have never regarded mere cheapness sufficient to establish invention.

In the case under consideration skill alone has been the medium whereby the device is made different in structure, but not in operation, from the references. No invention being apparent, a patent cannot lawfully issue.

The decision of the Board is therefore affirmed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

CALEB IVES AND GEORGE B. GREEN, PLAINTIFFS IN ERROR *vs.* MILTON A. HAMILTON, ADMINISTRATOR OF PALMER HAMILTON, DECEASED.

[In error to the Circuit Court of the United States for the Eastern District of Michigan.—October term, 1875.]

The patent granted Palmer Hamilton 5th of September, 1865, sustained, it being for improvement in saw-mills.

Where an invention is claimed as an improvement on an old machine, it is properly taken for granted that a practical mechanic is acquainted with the construction of the machine upon which the improvement is made.

Where the same movement is obtained in a machine by a change in the attachment of one part to another, it is not a change of principle.

Mr. Justice BRADLEY delivered the opinion of the court.

This was an action brought to recover damages for the infringement of certain letters patent granted to Hamilton, the plaintiff below, for an improvement in saw-mills. The defendants pleaded the general issue, with notice of special matter, setting up several prior inventions, among others that of one Isaac Straub. The plaintiff's patent was dated the 5th day of December, 1865.

His improvement, as described therein, consisted of the combination of the saw with a pair of curved guides at the upper end of the saw, and a lever, connecting-rod or pitman, straight guides, pivoted cross-head, and slides or blocks and crank-pin, or their equivalents, at the opposite end, whereby the toothed edge of the saw is caused to move unequally forward and backward at its two ends while cutting.

His claim is—

Giving to the saw in its downward movement a rocking or rolling motion, by means of the combination of the cross-head working in the curved guides at the upper end of the saw, the lower end of which is attached to a cross-head, working in straight guides and pivoted to the pitman below the saw, with the crank-pin, substantially as described.

The old method of guiding a saw in its upward and downward movement was to cause the two ends of the cross-head, to which the upper end was attached, to slide in straight grooves or guides. The lower end of the saw was guided in the same manner, and to the lower cross-head was attached by a pivot the lever or pitman worked by the crank of the driving-wheel. This arrangement gave the saw a straight and uniform motion, up and down, between the guide-posts of the frame in which it worked, either perpendicular or at a slight inclination, according to the position of the guide-posts.

In Hamilton's improvement the guiding grooves for the upper end of the saw are curved, with the concave part of the curve turned toward the approaching log, so that as the saw descends, the top part at first retreats before the log and afterward moves up toward it, at the same time that the bottom part is moved back and forth, in just the opposite directions, by being attached to the pitman above the cross-head; the combined motions thus giving to the whole saw a kind of rocking or vibratory movement, by which the teeth take the most advantageous bite into the log, and all of them perform their proportional part of the work. The result is something like that produced by two men working a saw in a saw-pit.

The defendant is using a saw in which the guides are not curved, it is true; but they each consist of two straight lines that represent two consecutive cords of the curve in Hamilton's guides; and are arranged in other respects in the same manner as this curve, namely, having the interior angle, like the concave side of the curve, turned toward the approaching log, the effect being exactly the same. Hamilton also connects the lower end of his saw to the pitman below the cross-head instead of above it; but by reversing the motion of his crank, or driving-wheel, he produces exactly the same combination of movements as those produced by Hamilton, the one being the exact equivalent of the other; and if Hamilton's patent was for the result, the infringement would be so perfect as to amount to a mere copy of the invention. But Hamilton does not claim the result. He could not do it, for, as he says, the same result was effected by two men when sawing in a pit. His claim is "giving to the saw in its downward movement a rocking or rolling motion, *by means* of the combination, &c."—that is, not the rocking motion itself, but the *means* devised by him for producing it.

The question in the case, therefore, is whether the defendants use the same or equivalent means—that is, the same or substantially the same combination of mechanical devices.

The substitution of guides at the top, made crooked by a broken line instead of a curved line, is too transparent an imitation to need a moment's consideration. A curve itself is often treated, even in mathematical science, as consisting of a succession of very short straight lines, or as one broken line, constantly changing its direction; and many beautiful theorems were evolved by the early mathematicians on this hypothesis. At all events, in mechanics, when, as in this case, a broken line is used instead of a regular curve, being deflected at one or more points by a very slight angle, and performing precisely the same office as a curve similarly situated, the one is clearly the equivalent of the other.

The attaching of the lower end of the saw to the pitman below the cross-head instead of above it, and thereby getting the same movement as before by reversing the motion of the crank, is no change in principle. This is too obvious for discussion.

The combination of the two things in the defendants' mill, namely, the crooked guides above, and the connection of the saw with the pitman below at a point removed from its center of motion, (both being calculated to give to the saw the precise rocking or vibratory motion desired,) is a close copy of the plaintiff's invention; quite as close as is usually made by those who attempt to evade a patent while they seek to use the substance of the invention.

The defendants insist, however, that Hamilton's patent is defective for not clearly describing the position, perpendicular or otherwise, in which the curved guides should be placed; and that if any required position can be inferred from the patent it is a perpendicular one, while the guides of the defendants' saw are inclined at a slight angle to the perpendicular. As to the alleged defect of the patent, there is nothing in the objection. The invention claimed is an improvement on an old machine; and it is properly taken for granted that the practical mechanic is acquainted with the construction of the machine in which the improvement is made; and nothing appears in the case to show that any peculiar position different from that of saw-mills constructed in the ordinary way, is necessary to render it effective and useful. The essence of the improvement has nothing to do with the precise position of the guides. It is a combination of mechanical means to produce a rocking motion of the saw. And this combination is just as applicable to guides that have a slight inclination as to guides that are perpendicular. We think that there is no ground for either branch of the objection. The description in the patent is sufficiently specific; and the inclination of the defendants' guides cannot exempt them from the charge of infringement.

The complaint made by the defendants that the patent is defective in not stating the nature of the curve for the guides, whether that of a circle or of some other figure, in view of the subject-matter of the improvement and of the diagrams annexed to the patent, are not sufficient to affect its validity. Any good mechanic acquainted with the construction of saw-mills, and having the patent and diagram before him, would have no difficulty in adopting the improvement, and making suitable curves.

The conclusions to which we have come are decisive of the case. It is unnecessary to discuss in detail the different points made at the trial, or the several instructions asked. We have examined them all, and find nothing on which to base a judgment of reversal. If Straub's patent would have revealed anything to affect the validity of Hamilton's, the parties did not see fit to spread it on the record, and therefore we have no means of deciding that question.

The judgment is affirmed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date August 29, 1876.]

9,473.—Embroidery-Pattern.—EMIL CRIMAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed August 14, 1876. Term of patent 3½ years.

9,474 to 9,477, inclusive.—Center-Piece.—SAMUEL KELLETT, San Francisco, Cal. Applications filed May 22, 1876. Term of patents 14 years.

9,478.—Nubias.—JAMES PHIPPS, Philadelphia, Pa. Application filed June 17, 1876. Term of patent 3½ years.

9,479 and 9,480.—Carpet.—CHARLES A. RIGHTER, Philadelphia, Pa., assignor to DORNAN BROS. & Co., same place. Applications filed August 16, 1876. Term of patents 3½ years.

9,481.—Floor Oil-Cloth.—JOSEPH ROBLET, Brooklyn, N. Y., assignor to W. M. BRASHER & Co., same place. Application filed August 18, 1876. Term of patent 3½ years.

9,482.—Shirt-Front.—SAMUEL STEINWEG, New York, N. Y. Application filed August 7, 1876. Term of patent 3½ years.

9,483.—Watch and other Chain Swivels.—VIRGIL DRAPER, North Attleborough, Mass., assignor to OSCAR M. DRAPER, same place. Application filed June 13, 1876. Term of patent 14 years.

9,484.—Ornamental Casting.—ADELIO MIOZZI, New York, N. Y. Application filed June 5, 1876. Term of patent 3½ years.

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 29, 1876.]

821.—Title: "**Mason's Irresistible Transparent Cement.**"—J. H. MASON, Peekskill, N. Y. Application filed August 10, 1876.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date August 29, 1876.]

3,951.—Campaign Equipments.—STERLING BONBALL, Philadelphia, Pa. Application filed July 31, 1876.

"The figure or representation of a hay-cock."

3,952.—Fruits in Green and Canned State.—FRUIT GROWERS' TRADE COMPANY, New York, N. Y. Application filed August 14, 1876.

"An equilateral triangle printed in red or other color, with an interior triangle connecting the center of the side of the outer triangle in some light color."

3,953.—Human-Hair Goods.—HIPPOLYTE GUILMARD, New York, N. Y. Application filed March 27, 1876.

"The word-symbol 'Invisible' and the pictorial representation of a top piece."

3,954.—Fertilizers.—THOMAS J. HAND, New York, N. Y. (Re-registration.) Application filed August 11, 1871.

"A skeleton bullock's head, with horns, in front of crossed bones, and resting upon a bleeding heart. Below, on the right-hand side, in the distance, is a plowman, and on the left-hand side, a man harvesting grain. A rod lying across the horns sustains a filiet inclosing the design, and bearing the motto or inscription 'How this red rain hath made the harvest grow.'"

3,955.—Kid and Lambskin Gloves.—HARRIS BROTHERS, New York, N. Y. Application filed August 12, 1876.

"The word-symbol 'PRÉVOST.'"

3,956.—Cement.—JOHN A. KEENAN, Philadelphia, Pa. Application filed August 16, 1876.

"The arbitrarily-selected words 'Stratena' or Polytechnic London.'"

3,957.—Cigars.—KERBS & SPIESS, New York, N. Y. Application filed August 14, 1876.

"The word-symbol 'HERALD.'"

3,958.—Cigars.—S. LOWENTHAL & Co., Cincinnati, Ohio. Application filed August 7, 1876.

"A representation of the seal used in the United States Treasury Department, and the words 'National Seal.'"

3,959.—Bitters.—HENRY H. RAPHALL, New York, N. Y. Application filed August 14, 1876.

"The letters and number 'A. R. 100,' together with a word in Hebrew characters below the same, signifying 'Perfect Cure,' (Refuoh Shalamoh.)"

3,960.—Cigars.—JOHN W. SHAEFFER, San Francisco, Cal. Application filed August 14, 1876.

"The words 'GREEN SEAL.'"

3,961.—Cigars and Tobacco.—STRATTON & STORM, New York, N. Y. Application filed August 11, 1876.

"The word symbol 'FAULTLESS.'"

3,962.—Cigars and Tobacco.—STRATTON & STORM, New York, N. Y. Application filed August 11, 1876.

"The word-symbol 'FAMILY.'"

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE.
WASHINGTON, D. C., *August* 30, 1876.

On the petition of JOHN R. HARRINGTON, of Brooklyn, N. Y., praying for the extension of a patent granted to him on the 1st day of April, 1856, reissued in two divisions, and numbered, respectively, 2,415 and 2,416, on the 11th day of December, 1866, for an *Improvement in Machines for Making Carpet-Lining*, this application having been authorized by act of Congress, approved August 14, 1876;

It is ordered that the testimony in the case be closed on the 31st day of October next; that the time for filing arguments and the Examiner's report be limited to the 10th day of November next; and that said petition be heard on the 15th day of November next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED AUGUST 29, 1876.

	Class No.	No. of Patent.
Arm rest, adjustable, M. Shoemaker	146	181,732
Auger, earth, B. J. C. Howe	51	181,578
Auger, post hole, G. Fletcher	56	181,659
Axle, J. H. De Valin	31	181,647
Baggage seal, C. G. Schneider	146	181,599
Baling press, J. A. Bostwick	7	181,554
Baling press, W. H. Brock	7	181,631
Baling press, W. H. Brock	7	181,632
Barrel, E. B. Georgia, (reissue)	40	7,289
Barrel cover, E. Pettiery	88	181,591
Bath tub, C. A. Blessing	8	181,625
Beater and compressing press, G. Ertel	7	181,564
Bed bottom, D. H. Taylor	62	181,605
Bed bottom, spring, E. Barton	62	181,623
Bed bottom, spring, J. Bates	62	181,552
Bed bottom, spring, A. C. Miller	62	181,586
Bed bottom, spring, H. S. and A. J. Wentworth	62	181,611
Bee hive, G. H. Wiley	9	181,753
Bill file, J. Foster	146	181 663
Bird cage, G. F. J. Colburn	170	181,557
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Savage, G. M., and C. Machris, Skipping rope	181,736
Sawyer, C. E., Eyeleting machine	181,540
Schmidt, M., Carburetor	181,727
Schneider, C. G., Baggage seal	181,599
Schon, M., and T. West, Key hole guard	181,728
Scrannage, M., Tumbler washer, (reissue)	7,284
Scribner, C. E., Telegraphic repeater	181,600
Servoss, H. S., and G. Myers, Gas regulator	181,729
Shanklin, A., Road scraper	181,730
Shaw, D. E., Windmill	181,542
Sheil, B., Paving block	181,601
Sherriff, J., and W. S. Soule, Trunk	181,738
Shipley, J. K., Eaves trough hanger	181,731
Shoemaker, M., Adjustable arm rest	181,732
Simonds, N. M., Laundry stove	181,733
Smith, E., Land roller	181,734
Smith, H. B., Book support	181,737
Smith, H. S., Fastener for rubber tires	181,602
Smith, M. D., and J. B. Stanley, Machine for throating spokes, (reissue)	7,285
Smith, P. T., Dental cotton holder	181,736
Smith, R. H., Street sweeping machine	181,735
Soule, W. S., and J. Sherriff, Trunk	181,738
Spangler, L., Dumb waiter	181,543
Sprague, A. J., and J. A. Patterson, Truss bridge, (reissue)	7,282
Squire, H., Fastening hulls of wooden ships	181,603
Stanley, J. B., and M. D. Smith, Machine for throating spokes, (reissue)	7,285
Stow, O. W., Door bell	181,604
Strasser, L., Machine for stringing tobacco leaves	181,739
Studebaker, J. M., and H. L. Hinds, Machine for cooling tires	181,740
Swallow, A., Bustle	181,741
Taylor, D. H., Bed bottom	181,605
Thompson, N. H., Multiplex telegraph	181,742
Thompson, W. H., Nursery crib	181,743
Tirrill, O., Carburetor	181,544
Titus, J. H., Inking apparatus	181,744
Townsend, L., Traction wheel	181,745
Tracy, J. B., Car coupling	181,606
Trawbeck, R. C., Plow	181,746
Trout, C. F., Coin package	181,545
Tryon, W. A., and G. H. Winslow, Washing machine	181,757
Tullock, J., Combined ore crusher and feeder	181,607
Upham, A. J., Barbed fence wire	181,608
Van Antwerp, D. T., Bridle	181,747
Van Heers, G. T., and C. A. Bourquin, Magic lantern	181,626
Vick, W. H., Heating boiler for residences, &c	181,609
Vredenburgh, J. R., Register apparatus for plate printing	181,748
Waggoner, G., Railway rail joint	181,749
Walker, F., Coloring walking canes	181,610
Webb, G. H., Cotton gin	181,546
Webber, J. J., Horse boot	181,750
Wehrle, F., Skylight	181,547
Wentworth, H. S. and A. J., Spring bed bottom	181,611
West, T., and M. Schon, Key hole guard	181,728
White, E. V., and J. W. Young, Grain drier	181,760
White, J., Globe holder, (reissue)	7,286
Whitlock, W. H., Starch boiler and strainer	181,751
Wiley, G. H., Bee hive	181,753
Wiley, R., Combined fire place and furnace	181,752
Wilkinson, L., Tray	181,754
Willis, A., Operating ships' davits	181,755
Wilt, C. T., Trunk cover protector	181,612
Winslow, G. H., and W. A. Tryon, Washing machine	181,757
Winter, G., Combination lock	181,756
Woodard, A. B., Vulcanizing apparatus for dentists	181,758
Woodward, H., Electric light	181,613
Worthington, H. R., Compound engine	181,548
Wyatt, T. M., Folding chair	181,759
Yocum, W. F., and A. M. Barnes, Tanning	181,621
Young, J. W., and E. V. White, Grain drier	181,760

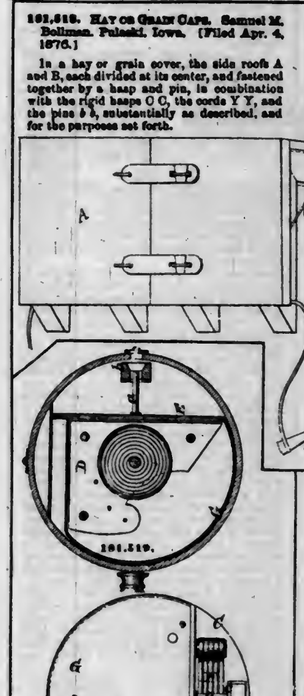
TITLES, DRAWINGS, AND CLAIMS

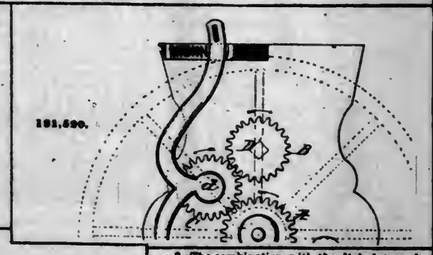
OF

PATENTS GRANTED AUGUST 29, 1876.

181,518. HAY OR GRAIN CAPS. Samuel M. Bollman, Pulaski, Iowa. [Filed Apr. 4, 1876.]

In a hay or grain cover, the side roofs A and B, each divided at its center, and fastened together by a hasp and pin, in combination with the rigid hasps O C, the cords Y Y, and the pins *b b*, substantially as described, and for the purposes set forth.





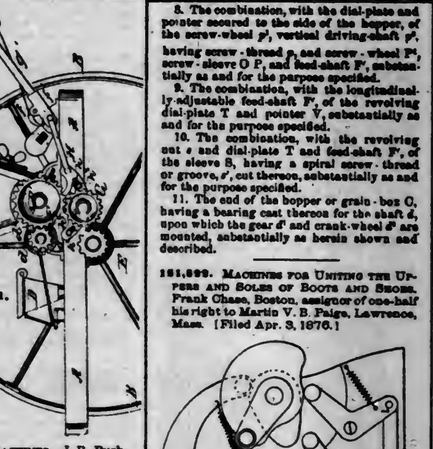
181,519. WATCHMEN'S TIME-DETECTORS. Jacob E. Buark, Boston, Mass. [Filed July 22, 1876.]

1. The combination, in a watchman's time-detector, of the secondary case G, front plate C, back plate D, partition-plate E, marking device F, and clock-movement, constructed to operate substantially as described, said secondary case being firmly secured to the back plate, with its edges bearing against the front and partition plates, as and for the purpose specified.

2. The combination, with the marking devices of a watchman's time-detector, of the steel facing *c*, soft-metal stud *b*, front plate C, and guide-pin *a* projecting from the partition-plate, substantially as and for the purpose specified.

181,520. SEEDING-MACHINES. J. B. Bushnell, Fond du Lac, Wis., assignor to Wheel and Seeder Company, same place. [Filed July 24, 1876.]

The combination, with the driving-gear A and gear B, of the intermediate gear C, mounted upon a pivoted lever, whereby the weight, or its equivalent, and position of said intermediate gear automatically keeps it always in mesh with the driving-gear when the machine is in working position, and which is thrown out of gear by the reverse motion of the driving-gear, in connection with the resistance produced by the operating mechanism through the medium of the gear-wheel communicating motion thereto, substantially as described.



181,521. SEEDING-MACHINES. J. B. Bushnell, Fond du Lac, Wis., assignor to Wheel and Seeder Company, same place. [Filed July 25, 1876.]

1. The combination, with the intermediate gear G, of the pivoted and slotted segmental plate H, upon which the gear G is mounted, and guide pin or pins h^3 for adjusting the operating mechanism in and out of gear with the driving mechanism, substantially as described.

2. The feed-case I and discharge-spout L, cast in one piece, substantially as herein shown and described.

3. The combination, with the revolving cylinder J', having flange J' and feed-case I, of the yoke I', for securing the cylinder within said feed-case, substantially as described.

4. The combination, with the feed-wheel J and feed-case having groove or channel *i* formed in the lower part thereof, of the gate or stop K, arranged below the feed-wheel, and adjustable longitudinally therewith, for filling the space at or near the point of discharge and between the turned part of said feed-wheel and the bottom of the feed-channel, substantially as and for the purpose specified.

5. The adjustable ring or nozzle formed into two parts, N N', having the lugs *a* and recesses *a'*, and made flaring at their lower ends, substantially as and for the purpose specified.

6. The combination, with the ring or nozzle formed into two parts, and having their lower portions made flaring, of a spring for holding their upper portions together, in the manner substantially as and for the purpose specified.

7. The combination of the hollow sleeve O, having a slot or slots *o* on its interior surface, and the feed-shaft F', having a pin or pins, *o'*, for permitting lateral adjustment to the feed-shaft, substantially as and for the purpose specified.

8. The combination, with the dial-plate and pointer secured to the side of the hopper, of the screw-wheel p^3, vertical driving-shaft p^2, having screw-thread *p*, and screw-wheel P^4, screw-sleeve O P, and feed-shaft F', substantially as and for the purpose specified.

9. The combination, with the longitudinally adjustable feed-shaft F', of the revolving dial-plate T and pointer V, substantially as and for the purpose specified.

10. The combination, with the revolving nut *o* and dial-plate T and feed-shaft F', of the sleeve S, having a spiral screw-thread or groove, *s'*, cut thereon, substantially as and for the purpose specified.

11. The end of the hopper or grain-box C, having a bearing cast thereon for the shaft *d*, upon which the gear d^2 and crank-wheel d^3 are mounted, substantially as herein shown and described.

181,522. MACHINES FOR UNITING THE UPPERS AND SOLES OF BOOTS AND SHOES. Frank Chase, Boston, assignor of one-half his right to Martin V. B. Paige, Lawrence, Mass. [Filed Apr. 3, 1876.]

1. In a sole-fastening machine, the combination of pistons J and K, for operating the driving-rod, one being moved by the other by means of compressed air, all substantially as and for the purpose set forth.

2. In a sole-fastening machine, the presser-foot H, working by the pressure of compressed air, substantially as and for the purpose described.

3. The combination of pistons J and K, cylinder G, and driving-rod *i*, substantially as shown and described.

4. In combination, the nail-carrier N and presser-foot H, having a vertical movement together, all as shown and described.

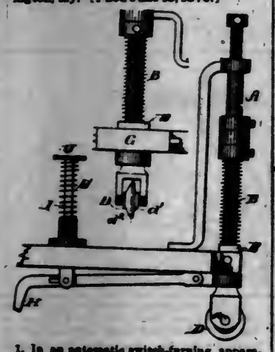
5. In combination, the nail-cutter S, with holder E and presser-foot H, all having a common movement together, substantially as set forth.

6. The rack *s* and pinion *w*, when arranged to operate in combination with the presser-foot H, substantially as and for the purpose set forth.

7. The pinion *w*, pawl *y*, and rack *s*, all arranged in combination to move the presser-foot, substantially as set forth.

HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & CO BOSTON.

181,522. DEVICES FOR OPERATING RAILROAD-SWITCHES. Thomas F. Corry, Covington, Ky. [Filed June 16, 1876.]

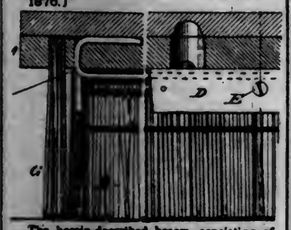


1. In an automatic switch-turning apparatus for street-cars, the wheel D, having its face beveled, with a long incline, d^3, and short incline, d^2, substantially as shown and described.

2. The combination, with the shaft A, carrying the wheel D, of the box E, case G, and spring b b, constructed and arranged substantially as and for the purposes set forth.

3. The plow H, in combination with pendant I, step J, and spiral spring B^1, substantially as and for the purposes hereinbefore set forth.

181,524. BROOMS. William Dickinson, West Northfield, Mass. [Filed June 15, 1876.]



The herein-described broom, consisting of the head A, provided with the coarse fibrous material G seated in its outer edge, and the compact central mass of fine fibrous material B doubled over the wire c and clamped between the blocks D, the wire and the blocks being secured to the head, and the blocks united by the screws E, as shown.

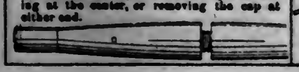
181,525. CROSS-HEADS. Chilion M. Farrar, Buffalo, N. Y. [Filed July 5, 1876.]



A cross-head provided with a wrist-pin composed of the turned or flatted sleeve E and the core C, formed substantially in the manner and for the purposes described.

181,526. HEAD-CAGE FRICTION. Henry N. H. Fleisher, West Troy, N. Y. [Filed July 31, 1876.]

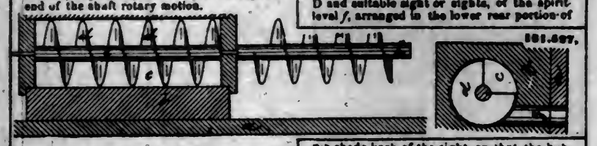
Brief.—Insects creep through the lateral apertures, and may be removed by unscrewing at the center, or removing the cap at either end.



A bird-perch, having the internal longitudinal cavity and the lateral apertures, also having the medial screw-joint and terminating-caps, substantially as described and shown, for the purposes above set forth.

181,527. REED-ORGAN TREMOLOS. Carl Fogelberg, Boston, Mass. [Filed July 24, 1876.]

Brief.—A spiral flange fixed to a shaft, and inclosed in a wind-box, is caused, by the air-current, to give a spiral fan upon the exposed end of the shaft rotary motion.



181,527.

The herein-described tremolo attachment for organs, consisting of the box b, receptacle c, helix-shaped fan-motor d, rotary shaft e, and openings f g, in combination with the rotary helix-shaped fan d, and its shaft h, substantially as and for the purpose set forth.

181,528. ROOFING COMPOSITIONS. Charles L. Fowler, Philadelphia, Pa., assignor of one-half his right to Edward H. Twining, same place. [Filed July 15, 1876.]

Brief.—Forty gallons of the product obtained by the distillation of coal-tar at from 400° to 475° is put into a vessel, and thoroughly and evenly melted by a moderate heat. Four bushels of dry sifted sand and four bushels of dry pulverized clay are sifted, and mixed thoroughly, and incorporated in the melted mass.

A roofing composition composed of sifted sand, dry pulverized clay, in its natural state, and a product distilled from coal-tar within the degrees 400 to 470, so as to permit of the retention of some of the lighter oils, when obtained and combined substantially in the manner and proportions herein before set forth.

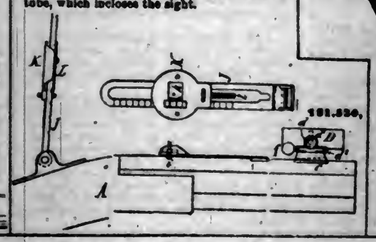
181,529. CLOTHES-DRIERS AND CURTAIN-STRETCHERS. James A. Green, Toronto, Ontario, Canada. [Filed May 4, 1876.]



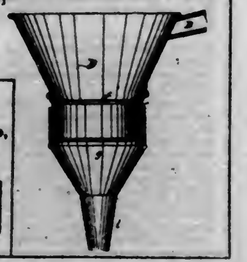
In the combination of the uprights E and bars A B, provided with headless brass pins 4, mortises D, slots C, pins I, and notches b b, substantially as and for the purpose specified.

181,530. SIGHTS FOR FIRE-ARMS. Hamlit G. Latta, Friendship, N. Y. [Filed Apr. 6, 1876.]

Brief.—A rotating shaft, carrying several sights, is arranged transversely on the barrel. It has a square shoulder at one end, upon which a spring bears to hold it in the desired position. A spirit-level is arranged within a tube, which incloses the sight.



181,530.



1. The combination, with the open sight c, of the globe-sight D e, connected with the sight c by a suitable slide, so that the globe-sight can be applied and removed without disturbing the open sight, substantially as hereinbefore set forth.

2. The combination, with the tubular shade D, of the rotating shaft d, sights c e^1, nut d^1, having a square shoulder, and spring d^2, substantially as and for the purpose herein before set forth.

3. The combination, with the tubular shade D and suitable sight or sights, of the spirit-level f, arranged in the lower rear portion of the shade back of the sight, so that the bubble is prevented from reflecting light upon the sight, and the level at the same time protected against breakage, substantially as hereinbefore set forth.

4. The combination, with the upright J, eye-piece K, and spring L, of the slide k, provided with a vernier-scale, and adjusted vertically by a screw, l, for correcting the elevation of the aperture, substantially as hereinbefore set forth.

181,531. ROTARY-HOOK SEWING-MACHINES. John McGlockey, New York, N. Y. [Filed Jan. 25, 1876.]

Brief.—The rotating hook is formed as a flange projecting laterally from the side of a disk, which is arranged to revolve in a stationary bobbin-case, having a portion of its periphery removed, to allow of the passage of the needle and the formation of the loop. This hook is constructed with its outer edge tapering gradually outward and backward from its front a certain distance, and then inward, so that the same presents the form of two triangles with their perpendiculars joined. At the highest point or junction of the two angles is arranged a shoulder or thread-retainer, to retain the thread until the same has been carried around the bobbin, which is done without the thread being twisted, a slot being formed in rear of the point of the hook to assist in this movement. A guide is fixed at the edge of the stationary bobbin-case, across the apertures formed therein, to hold the thread in contact with the thread-retainer until the loop has been carried around the bobbin.



1. The combination of the rotating hook C, the fixed bobbin-frame A, and the bobbin B, provided in the bobbin-frame and supported independent of the hook, substantially as and for the purpose herein set forth.

2. The hook C constructed with the shoulder f at its front, and the notch c^2 behind its beak c, in combination with the bobbin B, substantially as and for the purpose herein set forth.

3. The fixed guide f, in combination with the bobbin B and the hook C, constructed with the shoulder f, substantially as and for the purpose herein set forth.

181,532. COMPOUND IMPLEMENTS. Peter Meibert, Pittsburg, Pa. [Filed July 19, 1876.]

A compound implement, consisting of the nutmeg-grater A, having a receptacle, B, serving as a handle to the strainer D f, funnel g provided with the conductor i, and cake-cutter h, the several parts being combined and arranged substantially as and for the purpose described.

181,533. BARBED FENCE-WIRE. Charles W. Miller, Sycamore, Ill. [Filed July 1, 1876.]



In a barbed-wire fence, the barbs C, bent as shown, and attached to the wires A by means of fine pliable wire, substantially as set forth.

181,534. HYDRANTS. George A. Oglesby, Harrisburg, Pa. [Filed Apr. 21, 1876.]

Brief.—The valve-spindle engages with the forked rod. The catch of the handle keeps it in a raised position, thus preventing the hydrant from closing.

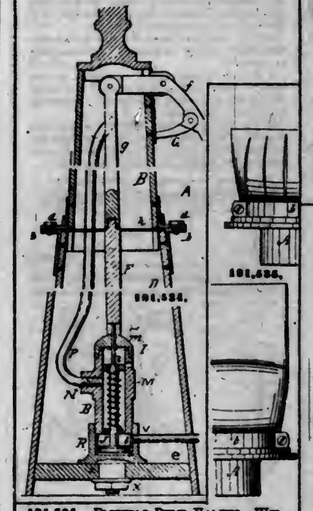
1. In a hydrant, the casing A, composed of two transverse sections, B and D, which are secured and connected by means of the angular bars b, screws d, and bar h, as and for the purpose expressed.

2. In a hydrant, the handle f, provided with the trigger G, which, when dropped, compels the rod g to assume and remain in a depressed position and, when raised, allows the rod g to return to its initial condition, and prevent the influx of water.

3. In a hydrant, the handle f, in combination with the rod g, and forked rod F, operating in the guides M, substantially as and for the purpose set forth.

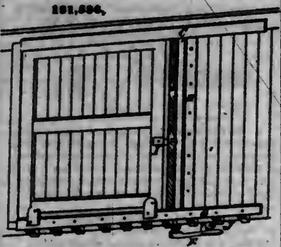
4. The cylinder I, provided with the apertures N and caps n and R, substantially as expressed.

5. The cylinder I, provided with the caps n R, apertures N, and guides M, in combination with the rod H, provided with the spring B^1 substantially as described.



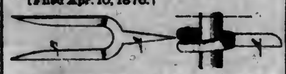
181,535.

181,536.



The revolving lock-bar C, with its flange-plate D, as above described, in combination with the bar H, lock-plate I, lever E, and catch J, when arranged, constructed, and operated substantially as and for the purpose set forth.

181,537. WIRE-FENCE BARBS. Rheubin H. Pooler and William T. Jones, Sesser, Ill. [Filed Apr. 10, 1876.]



The herein-described fence-barb, cut from flat metal, and having three parallel prongs, two of which are provided with flat faces and offset, as shown, and adapted to be twisted about the fence-wire, in the manner and for the purpose set forth.

181,538. HARVESTER-RAKES. Henry B. Pridmore, Brockport, N. Y. [Filed Apr. 1, 1876.]

1. In a reel-rake, a cylinder, B, revolving with the shaft C, having its convex surface spirally furrowed, for the purpose set forth.

2. A bifurcated lever, e, in combination with the spirally-furrowed cylinder B and stop-latch b, substantially as shown, and for the purpose set forth.

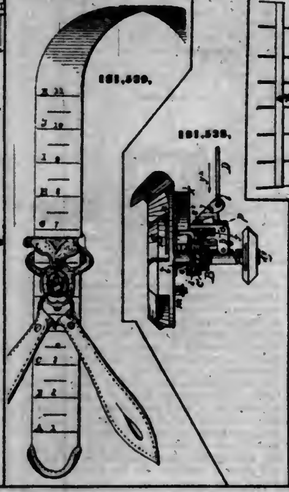
3. A stop-latch, b, provided with stops c^1 and c^2, &c., for the purpose set forth.

4. A washer, r, provided with arms s and s^1, in combination with the switch S, stem g, tripping-lever c, cylinder B, and spring k, substantially as shown and described.

5. A pendent slotted guide, o, with or without notches v, employed to guide the branch f of the lever e, substantially as shown and described.

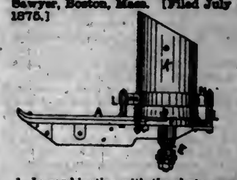
6. A stop-pin, j, in combination with a stop-latch, b, and eted e, substantially as and for the purpose set forth.

181,539.



181,535.

181,540. EYELETING-MACHINES. Charles H. Sawyer, Boston, Mass. [Filed July 26, 1875.]



1. In combination with the chute or race A of an eyeleting-machine, the adjustable movable guard C, constructed substantially in the manner described, as and for the purpose set forth.

2. In combination with the chute or race A of an eyeleting-machine, the rotative feed-cylinder D, as constructed with the flexible rubber fingers F, as and for the purposes set forth.

3. The combination of a rotary feed-cylinder, D, and friction-disk G with a hopper, K, all substantially as and for the purposes set forth.

4. The frictional device consisting of the disk G, spiral torsion-spring H, and adjustable bearing P, in combination with the vertical shaft E and rotative feed-cylinder D, all being arranged substantially as and for the purposes set forth.

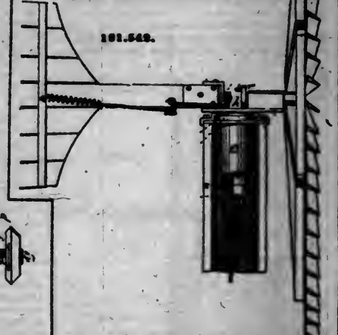
181,541. HUB-CAPS FOR CARRIAGES. John H. Sanderson, Greenfield, Mass. [Filed Aug. 8, 1876.]

Brief.—The cap is fastened by spring protuberances into the band.



The combination of an internally-flanged hub-band, A, and a flanged cap, B, provided with yielding arms or protuberances C, substantially as shown and described.

181,542.



181,543. WINDMILLS. D. E. Shaw, Chesterworth, Ill. [Filed Feb. 24, 1876.]

Brief.—This wheel has a series of sails with their fronts and backs of different angles, and the plate through which the turn-table passes having its opening larger than the diameter of said turn-table, so that the vane and wheel will fold together by the inclination from the perpendicular of the turn-table. There is also a thin edge of a step with an annular recess to form a receptacle for oil.

181,536. FLEXIBLE PUMP-VALVES. Wm. Painter, Baltimore, Md. [Filed Aug. 1, 1876.]

1. A flexible valve provided with a flap or flaps and a heavy base, which is composed of flexible material, but which is sufficiently inflexible longitudinally to prevent introversion, substantially as described.

2. A flexible valve, with or without the flap or flaps c, sufficiently inflexible longitudinally at its base to prevent introversion, and scored or slitted longitudinally to provide for lateral flexibility, substantially as described.

181,550. CAB-DOOR LOCKS. S. S. Pilson, Louisville, Ky. [Filed June 5, 1876.]

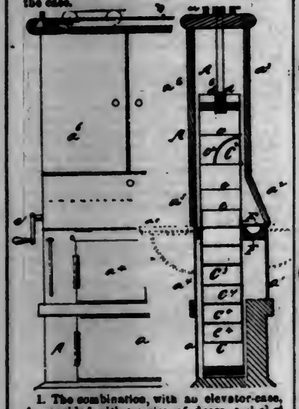
1. A wheel for windmills formed of a series of sails with their fronts and backs of different angles, substantially as and for the purpose set forth.

2. A plate, through which the turn-table of a windmill passes, having its opening larger than the diameter of said turn-table, so that the vane and wheel will fold together or out of gear by the inclination from the perpendicular of the turn-table, substantially as and for the purpose specified.

3. The combination, with a cylindrical turn-table having a thin edge, of a step with an annular recess to form a receptacle for oil, substantially as and for the purpose described.

161,543. DUMB-WAITERS. Lewis Spangler, Auburn, Ind. [Filed May 31, 1876.]

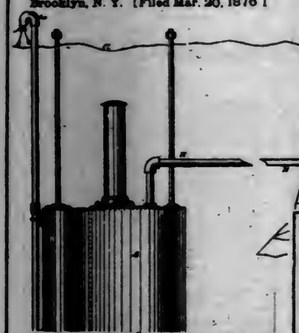
Brief.—The dumb-waiter case is provided with doors on either side that may give ready access. On each side, also, are doors that open downward, forming tables, one of which, on the kitchen side of the waiter, serves to hold dishes for washing. Hot and cold water pipes, and also a waste-pipe, are provided in the case.



1. The combination, with an elevator-case, A, provided with a series of doors, a a^1 a^2 a^3 and folding tables a^5 a^6, so arranged as to give access to the opposite sides thereof, the elevator-car C being provided with guards C' and straps or braces c^2, and drawers C^1, substantially as shown and described.

2. An elevator-case, A, constructed with a series of doors, a, a^1, a^2, a^3, and a^4, folding tables a^5 a^6, sink or trough F, cover F', and pipes O O^1 O^2, substantially as shown and described.

161,544. CARBURETERS. Oakes Tirrill, Brooklyn, N. Y. [Filed Mar. 20, 1876.]



In a gas-machine or air-carbureter, of the class herein indicated, the hermetically-closed wet-meter wheel C, located within the building to be supplied with gas, and provided with the delivery-pipe I, in combination with the carbureting apparatus A, located outside of the building, and connected with the aforesaid meter-wheel by the single pipe H.

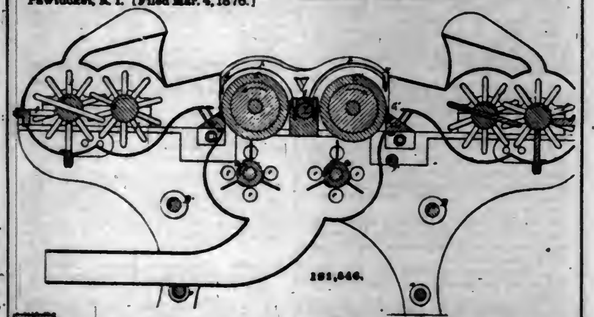
161,545. COIN-PACKAGES. Chas. F. Trout, Boston, Mass. [Filed June 28, 1876.]

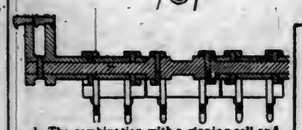


1. As a new manufacture, the coin-package, substantially as described, consisting of the tongue, d, and the piece c, and its extensions b, all arranged and combined as set forth, the said tongue being provided with a fastening-band or elastic loop, as and for the purpose specified.

2. The body part of the package, as made of the piece a, and its extensions b, arranged, applied, and secured together as set forth.

161,546. COTTON-GINS. George H. Webb, Pawtucket, R. I. [Filed Mar. 4, 1876.]





1. The combination, with a ginning-roll and a stationary knife, of a reciprocating knife, constructed in two or more lengths or sections, and mechanism for independently reciprocating each knife-section, substantially as described.

2. The combination, with a pair of ginning-rolls and two stationary knives, of two balanced reciprocating sectional knives, mounted on arms which project from opposite sides of a complex rock-shaft, and mechanism for reciprocating said balanced knives, and causing them alternately to co-operate with their respective stationary knives and ginning-rolls, substantially as described.

3. The combination, with a reciprocating knife and a stationary knife, of a ginning-roll mounted in sliding journal-boxes provided with adjusting and holding devices, substantially as described, whereby the ginning-roll may be moved to or from both the reciprocating and stationary knives, and firmly set in any desired position, for the purpose specified.

4. The combination, with roller ginning mechanism, of a feeding-platform, stationary teeth, and two or more revolving toothed openers, arranged to operate in connection with the stationary teeth, and with each other, for opening the cotton, and located with reference to the ginning mechanism and to a communicating trunk or chamber, substantially as described, whereby the cotton, when opened, is delivered continuously to the ginning mechanism, as set forth.

161,547. SKYLIGHTS. Florian Wehrle, New York, N. Y. [Filed Mar. 9, 1876.]

Brief.—A means for holding in place the glass panes of skylights without the use of putty

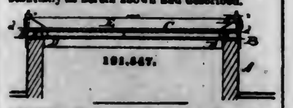
1. A skylight-frame B, combined with the trough D, which covers three sides of said frame, and is open at both ends, substantially as herein shown and described.

2. The combination of the trough D, which has the lower inner ledges b b and the higher outer ledges d d, with the glass pane C, that rests on the ledges b, between the ledges d, substantially as specified.

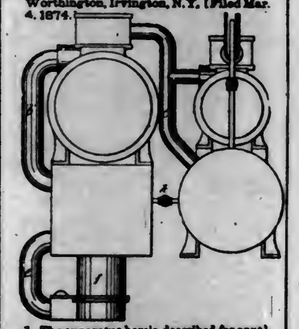
3. The combination of the cap E with the open-ended trough or gutter D, substantially as specified.

4. The L-shaped clamp e, applied to the skylight-frame against the unprotected lower edge of the glass pane, substantially as herein shown and described.

5. The skylight-frame B, provided with the projecting rib f, which reaches toward the unprotected lower part of the glass pane C, substantially as herein shown and described.



161,548. COMPOUND ENGINES. Henry R. Worthington, Irvington, N. Y. [Filed Mar. 4, 1876.]



1. The apparatus herein described for equalizing the adhesive pressure upon the steam-pistons of a compound engine; or, in other words, the combination of a tank with two pipes, provided with proper valves, the one to connect the tank with the boiler, the other to connect the tank with the condenser, the tank being, at the same time, in connection with the adhesive pipe or passages of a small cylinder, and the induction pipe or passages of a large cylinder, the combination being and operating substantially as hereinbefore set forth

2. The apparatus, substantially such as herein described, whereby the flow of water through a pipe caused by two pumps may be rendered more constant and equable than has been heretofore practicable, such apparatus consisting essentially of two pumps, a large and a small steam-cylinder, a duplex valve-gear, a tank and connections therefrom to the steam-cylinders, the boiler, and the condenser, all these parts being and acting substantially as hereinbefore set forth.

161,549. METHODS OF PACKING FISH. Oscar Andrews, Gloucester, Mass., assignor of three-fourths of his right to Geo. Friend, George F. Friend, and Fred. C. Langsford, same place. [Filed July 8, 1876.]



The above described method of packing dried fish, consisting in placing upright pieces of fish closely together in the box, the grain of the said pieces running perpendicularly to the bottom of the box, and said pieces having been originally cut transversely from the fish, all substantially as and for the purposes hereinbefore set forth.

161,550. CHAIN-PUMP BUCKETS. Charles R. Arnold, Hamilton, Ill. [Filed Feb. 12, 1876.]

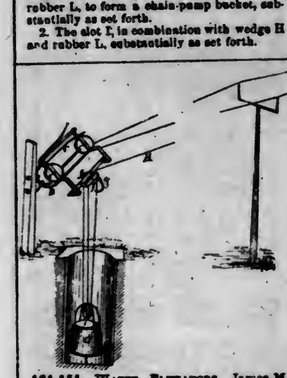
Brief.—The central part is slotted to carry the link, which has a thread, onto which the rubber is placed by screwing down. The slot is for a wedge to expand the rubber as it wears, and also furnishing a drip to prevent freezing



1. The metallic center part A, having a passage down in it for drip, together with the disk K and ribs M, in combination with the rubber L, to form a chain-pump bucket, substantially as set forth.

2. The slot F, in combination with wedge H and rubber L, substantially as set forth.

161,551. WATER-ELEVATORS. James M. Bain, Highland, (Sago P. O.,) Ohio. [Filed Feb. 4, 1876.]



Brief.—Buckets are attached to a rope, by which they are lowered into and elevated from the water-source, and are then conveyed by the said rope drawing a carriage over a wire tramway to the receiving places, and are there emptied by a tripping device opening a valve in the bottom of the buckets, the rope being operated by a windlass.

1. In a water-elevator, having a tramway over which the water is carried in buckets, the yoke B, located over the source of water-supply and adapted to receive and tilt the bucket-carriage, thereby depositing said bucket in the well or other water source, substantially as described.

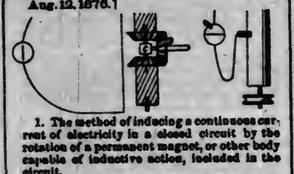
2. The carriage C, provided with a hook, g, in combination with the yoke B, cord H, and bucket G, whereby said bucket is automatically connected with and disconnected from said hook, substantially as shown and described.

161,552. SPRING BED-BOTTOMS. J. Bates, Janesville, Wis. [Filed Apr. 22, 1876.]



The yielding woven-wire netting A, with its selvage-border, in combination with the coiled springs D of a bed-bottom, substantially as described, and for the purposes set forth.

161,553. GENERATING ELECTRIC CURRENTS. Alexander G. Bell, Boston, Mass. [Filed Aug. 12, 1876.]



1. The method of inducing a continuous current of electricity in a closed circuit by the rotation of a permanent magnet, or other body capable of inductive action, included in the circuit.

2. The combination of the conducting-wire, forming a closed circuit with a permanent magnet, or other body capable of inductive action, so that the rotation of the one in the neighborhood of the other shall induce a continuous current of electricity in the closed circuit.

161,554. BALING-PRESSES. J. A. Bostwick, New York, N. Y. [Filed Feb. 26, 1876.]

1. The plates g hung by hinges and swinging near the upper edges of the bale, in combination with the slide-bar r, and hooks 2, substantially as and for the purposes set forth.

2. The folding-bar s', with the folders t, turning and sliding in bearings s, in combination with the slide-bars r, for varying the distance of the folders from the bale, substantially as set forth.

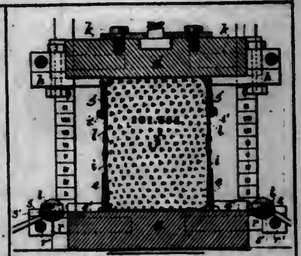
3. The combination, with the folding-bar s', and folders t, of the hinged plate s, that is movable toward or from the bale, and serves to turn up the hoops against the sides of the bale, substantially as set forth.

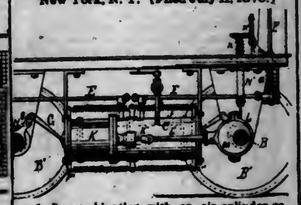
4. The combination, with the folding-bar s', of the gages to determine the position of the folding-bar to produce the length required in the hoops, substantially as set forth.

5. An adjustable folding mechanism applied to a baling-press for folding the ends of the hoops, in substantially the manner set forth.



161,555. CAR-STARTERS. T. M. Brintnall, New York, N. Y. [Filed July 11, 1876.]





1. In combination with an air cylinder or chest and piston and piston-rod, the ratchet-wheel J, secured on the axle B, the lever G, having a cam-toe, f, and the pawl H, having a cam-head, A, the whole so constructed and arranged that the lever shall engage the pawl with the ratchet when pushed forward and free it on its return movement, substantially as described.

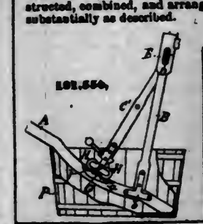
2. The cylinder or chest D, piston and piston-rod F, arm F', with spring attachment, a lever, G, pawl H, and ratchet J, secured to the axle B, the whole combined and arranged to operate substantially as described.

3. In a car-starter, the combination of the pump K, piston-rod K', band L, eccentric M', having a clutch-hub, the sliding clutch M', and axle B, the whole constructed and arranged to operate substantially as described.

4. In a car-starter, the clutch M', bifurcated lever m', foot-lever N, return spring n, and stop or lock N', the whole combined and arranged in connection with an air-pump, to operate substantially as described.

161,556. WASHING-MACHINES. Martin A. Caldwell, North East, Pa. [Filed Jan. 26, 1876.]

A washing-machine consisting of a curved corrugated wash-board, A, standards B B, having slots E E, in which are secured the journal-castings D D, the same being of the form shown, and provided with springs encircling their shanks, rock-shaft C, oscillating frame C', and a rubber device consisting of rollers H H, and brush G, the whole constructed, combined, and arranged to operate substantially as described.



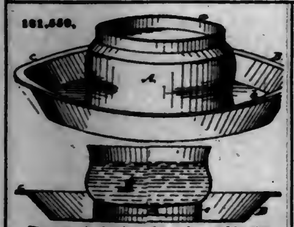


161,557. BIRD-CAGES. Geo. F. J. Colburn, Washington, D. C. [Filed July 26, 1876.]

The stay for bird-cages, and other wire-work composed of a band, a, of any desired configuration, provided with holes b, clamp c, in combination with the wires f, substantially as and for the purpose specified.

161,558. BIRD-CAGES. Geo. F. J. Colburn, Washington, D. C. [Filed June 12, 1876.]

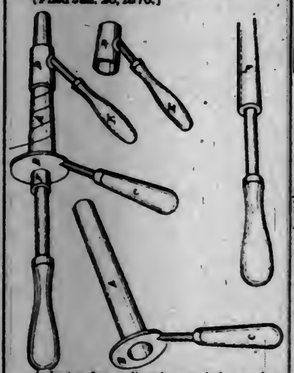
Brief.—A bathing-cup is mounted in a sand-tray. The bath may be inverted and constitutes a perch.



161,559.

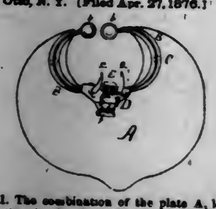
The cup A, having rim *a*, in combination with a saucer, B, having rims *c c*, bottom *b* constructed, arranged, and applied to bird-cages in the manner and for the purpose specified.

161,560. CURLING-IRONS. John H. Crawford, Kerr's Store, assignor of one-half his right to G. W. Painter, West Millvale, Pa. [Filed Jan. 26, 1876.]



A device for curling human hair, consisting of the long tapering hollow tube A, provided with a flange, B, and handle C, in combination with the circular hollow clamp D and iron rod F, substantially as and for the purpose set forth.

161,561. ANIMAL-MUSEUMS. S. F. Crowell, Otto, N. Y. [Filed Apr. 27, 1876.]

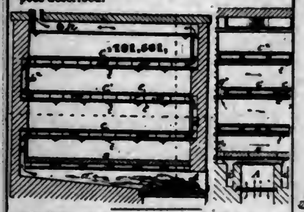


1. The combination of the plate A, levers B, (terminating in balls at *b b* and points at *c c*,) and clasp D, as shown and described.
2. The combination of the leather case E, strap *f*, and points *c c*, as set forth.

161,562. BAKING OVENS. Chas. D. Curtis, Syracuse, N. Y. [Filed Feb. 4, 1876.]

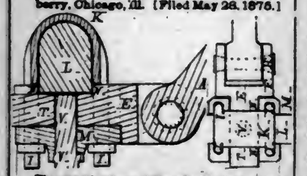
Brief.—Cold air may at pleasure be admitted to the baking-chamber at either side.

1. The combination and arrangement, in a baker's oven, of the furnace A, placed at the bottom centrally in one end, and the horizontal fire-flue *a*, extending to the rear end of the oven, both covered with iron plates, and having the cold-air flues *i i* on their sides, the short vertical flues *b b' b''* alternately at opposite ends, extending across the entire width of the oven, the horizontal lift-flue-shelves *c c' c''* arranged one above the other, and connected at the ends with the alternating vertical flues *b b' b''*, and having, respectively, at opposite sides, the openings *e e*, and connected with the exit-flue at the top, and provided with the damper *a* thereat, the cross-bars *f f* tying and bracing the sides of the oven and supporting the shelves, and the solid tile-shelf *s* interposed between the furnace and bottom flue-shelf, having opening *o* on one side, all constructed substantially as described and shown, for the purpose set forth.
2. The horizontal tile flue-shelves *c' c''*, constructed of two courses of earthen bakers' tiles, with brick between them, laid lengthwise under the longitudinal joists, arranged one above the other, supported on cross-bars *f f*, and connected alternately at opposite ends by the short vertical flues *b' b''*, and having air-passages *o o* in opposite sides, respectively, and combined with the furnace A at the bottom of the oven and the exit-flue at the top, substantially in the manner and for the purpose described.



161,563.

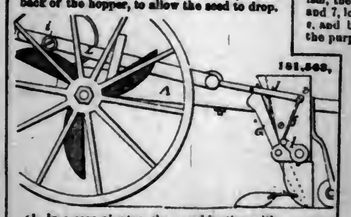
161,563. THILL-COUPLINGS. J. M. Dusenberry, Chicago, Ill. [Filed May 26, 1876.]



The combination of the clip K, the bottom part M, the projection T from the coupling E, having shoulders and solid bearings in part M, and cross-bolt holder V, substantially as and for the purpose set forth.

161,564. CORN-PLANTERS. John H. Bagie, Hamburg, Iowa. [Filed Jan. 22, 1876.]

Brief.—To a transverse beam seed-hoppers are attached, within which seed-cylinders are journaled. One end of the journal passes through the side of the hopper, to which a crank-arm is attached, which, by connecting-rods, is attached to a rocking shaft, that is vibrated by a rearwardly-extending lever, having a roller that is acted upon by a cam-wheel. Upon the arms of the rocking shaft are pins, that strike the upper portion of the pivoted back of the hopper, to allow the seed to drop.

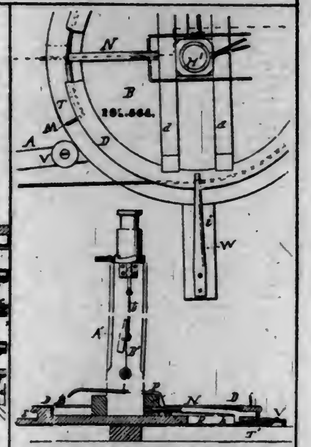


161,564.

1. In a corn-planter, the combination with the rocking shaft K, connected with and operating the dropping-rollers H, of the lever L, with stud and roller *i*, and the three-armed cam-wheel M, substantially as and for the purposes herein set forth.
2. The combination of the rocking shaft K, arms J J, having projecting pins *h h*, the connecting-rods *f f*, cranks I I, rollers H H, and pivoted back plates G' G', with the air springs *a a*, all substantially as and for the purposes herein set forth.

161,565. BEATER AND COMPRESSING PRESSES. George Betel, Quincy, Ill. [Filed Aug. 9, 1876.]

Brief.—The operation of taking up and releasing the beater-rope is performed without checking the movement of the taking-up wheel. One movement of the hand-lever actuating the vertical rod and cord causes the device to operate either in its beater or presser capacity.



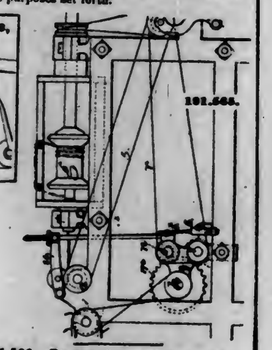
161,565.

1. The shuttle T, in combination with the wheel B, provided with a recess to confine its movement, as set forth.
2. The shuttle T, in combination with the wheel B, having the groove E and recess F, substantially as shown and set forth.
3. The shuttle T, provided with the stop M, substantially as set forth.
4. The shuttle T, having the stop M, in combination with a recessed wheel and an elastic bumper, W, as set forth.
5. The clutch-bolt N, for the purposes set forth.
6. The clutch-bolt N, in combination with the tripping-wheel V and balance-lever P, substantially as shown and described.
7. The lever A', rod *i*, and cord B', for the purpose forth.

161,566. REGULATORS FOR ROPE-SPINNERS. Isaiah Farthing, Paterson, N. J. [Filed June 19, 1876.]

Brief.—The feed of fiber is governed by a gear, which is actuated by either of two pinions of different size. Two speeds and an entire stop are produced by these, according as the swinging frame, carrying the condensing-roller and actuating the shipper, ships the belt to two fast, or a fast and a loose, or two loose pulleys.

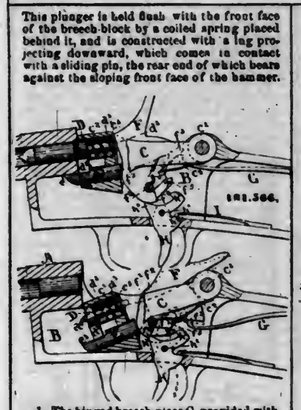
In combination with the spinning mechanism, the wheel *m*, pinions *n* and *o*, pulleys 6 and 7, loose pulleys 8 and 9, ratchet and pawl *r*, and belt-shifter *s*, substantially as and for the purposes set forth.



161,566.

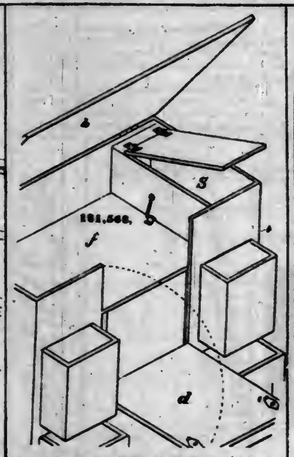
161,567. BRECECH-LOADING FIRE-ARMS. Bernard Fasoldt, Albany, N. Y. [Filed Dec. 13, 1876.]

Brief.—By the force of the explosion the hammer is cut at full cock; the breech-block depressed, and the arm put in condition for reloading. This is accomplished by making the breech-block hollow, and providing it with a plunger the size of the head of the cartridge. This plunger is held flush with the front face of the breech-block by a coiled spring placed behind it, and is constructed with a lug projecting downward, which comes in contact with a sliding pin, the rear end of which bears against the sloping front face of the hammer.



161,566.

1. The hinged breech-piece C, provided with a chamber, *c'*, in combination with the plunger D and spring *d'*, as and for the purpose specified.
2. The combination of the hinged breech-piece C, provided with a chamber, *c'*, with the plunger D and sliding pin E, as and for the purpose specified.
3. The hinged breech-piece C, provided with a mortise, as herein described, in combination with the hammer F, having its pivotal center fixed to the frame-work B, as and for the purpose specified.
4. The combination of the plunger D and sliding pin E with the hammer F, when arranged to co-operate in the manner as and for the purpose herein specified.
5. The hammer F, provided with a spring-catch, *f'*, in combination with the trigger H, having a hook, H^1, as and for the purpose specified.
6. The hinged breech-piece C, pivoted to the frame-work B by the pin *c'*, in combination with the hammer F, having the cams *f'*, for raising the breech-piece automatically when the hammer is thrown forward by the main spring G, in the manner and for the purpose herein specified.
7. The combination of the hinged breech-piece C, provided with a chamber, *c'*, plunger D, and sliding pin E, with the hammer F, having cams *f'* and springs *c'*, when co-operating as herein described, to effect the cocking of the hammer F, and depressing the breech-piece C, as herein specified.
8. The combination of the plunger D and firing-pin d^2 with the hammer F, as and for the purpose specified.

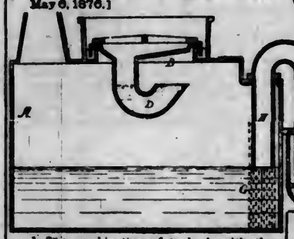


161,568.

161,568. MEAL-BINS. Jacob R. Felter, San Bernardino, Cal. [Filed Apr. 27, 1876.]

1. In a cupboard constructed with side drawers or compartments, substantially as described, a centrally-located flour-chest, *e*, pastry-board *f*, constituting a top for such chest, and side lid *d*, arranged to close said chest and the front opening to the space above said board, substantially as specified.
2. In a cupboard constructed substantially as described, the pastry-board *f*, hinged lid *h*, and the detachable spice-box S, arranged substantially as shown and described.

161,569. TANKS OR VESSELS FOR THE INTERMITTENT DISCHARGE OF SEWAGE, &c. R. Field, Westminster, England. [Filed May 6, 1876.]



161,569.

1. The combination of tank A with the siphon H, having its bend rising above the top of the tank, and with the weirs L and M arranged at the discharging-mouth of the siphon, substantially in the manner and for the purpose herein described.
2. The combination, in a siphon sewage-tank, of the trapped supply-pipe D and strainer G, with the siphon H and discharging-weirs L and M, substantially as herein described.
3. The discharging-trough K, provided with the weirs L and M, made capable of being turned round, so as to vary the direction of discharge from the siphon-tank, substantially as herein described.

161,570. WASHING-MACHINES. H. P. Fry, Leslie, Mich. [Filed June 2, 1876.]

1. The grooved and notched eccentric bearings, in combination with the standards and rocking bar of a washing-machine, substantially as herein described.
2. The combination, with the side boards B B' of the roller-frame, of the connected metallic journal-boxes, formed by casting the metal in the said side boards, substantially as described.
3. In a washing-machine, the arrangement of the frames and standards, rollers, and rubbing-board, the eccentric bearings and buttons, in combination with the body of a washing-machine, substantially as and for the purpose set forth.

161,571. REVERSIBLE SEATS. Wm. Gardner, New York, N. Y., assignor of one-half his right to Oliver L. Gardner, same place. [Filed May 31, 1876.]



161,571.

1. The hung or suspended seat and back A A', alternately acting in the capacity of one another as their positions are changed or reversed, and revolving or bearing upon rollers, &c., substantially as and for the purpose set forth.
2. The seat and back A A', hung between side pieces, and having curved bars or strips *b b*, provided with notches or recesses *b' b'*, in combination with rollers *c c* attached to said side pieces, substantially as and for the purpose set forth.

161,572. COTTON-PRESSES. Wm. Golding, New Orleans, La. [Filed July 15, 1876.]

Brief.—The slanting struts brace the abutment near the cylinder. Their tops are held in position by suitable tie-rods and cross-frames.

1. In a cotton-press, the combination, substantially as specified, of the abutment-beam, the slanting columns or struts, and the journal-boxes for supporting the axes of the cranks or cogged segments for operating the movable plates.
2. The combination, substantially as specified, of the abutment-beam, the slanting columns or struts, the journal-boxes for supporting the axes of the cranks or cogged segments for operating the movable plates, the frame-work, and the tie-yoke.
3. The combination, substantially as specified, of the side timbers of the frame-work, the metal bars inserted therein, the slanting column or strut, and the cross-head of the tie-yoke.

HELIOTYPE RELIEF PROCESS. JAMES R OSGOOD & CO. BOSTON.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO BOSTON.

4. The combination, substantially as specified, of the runing wedge, the upper platen or counter-wedge, and the elastically-seated anti-friction-rollers.

5. The combination, substantially as specified, of the upper platen or counter-wedge, the anti-friction-roller, the T bearings, the sockets, and the springs.

4. In a dental chair, the adjustable or movable arms F, jointed parallel bars f f, and pawl f^1, combined and arranged with the sides of the chair, substantially as and for the purposes specified.

5. The extension-brace E^1, consisting of the parts e^2 e^3, and combined with the swivel-bar T, and the lower part of the chair at E^2, substantially as and for the purposes described.

6. The jointed brace E, in combination with the seat A^4 and the base-frame of the moving portion of the chair, for the purposes specified.

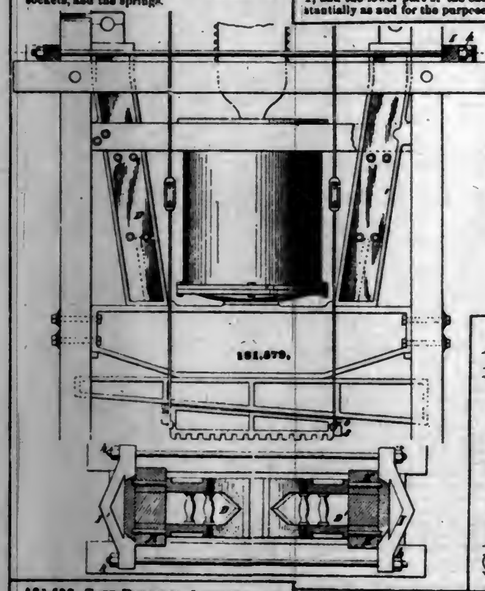
7. The head-rest G, provided with a ball, G^1, loose ring G^2, and parts g g^1, in combination with the part R of the bar H, bolt g^2, and tightening-lever H^1, for the purposes described.

legs hinged to the socket plate or head and made with a joint below their hinging-joint, which joint is at right angles to the said hinging-joint, substantially as and for the purpose described.

4. The combination of the stationary piston-rod, having a feed-screw formed on it, the spherical guide, the feed-nut, and a steam or air cylinder, carrying the drill-tool, substantially as described.

5. The combination of the movable cylinder, open at one end and closed at the other, and having a drill-holder formed on its closed end, the piston having its steam or air chest, and inlet and outlet passages in communication with passages in the one end of the piston-rod, and the valve fitted within the piston and entirely within the cylinder, and operated by contact with the inner sides of the heads of the cylinder, all as and for the purpose herein described.

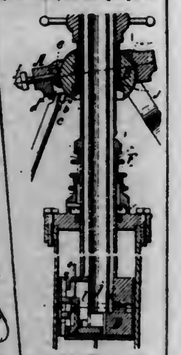
6. The combination of the movable cylinder carrying the drilling-tool, the stationary piston, the annular ratchet and annular pawl, attached respectively to the cylinder and the rod of the piston, the spiral feather, and the spring, substantially as and for the purpose described.



181,579.



181,577.



181,576.

181,575. TACK-HAMMERS. Lewis Granger, Armada, Mich. [Filed July 13, 1876.]

Brief.—The hammer is provided with a spring claw having an elongated opening for the reception of the shank of the tack to be driven.



The spring claw e, combined with a tack-hammer, as and for the purposes described.

181,576. BIT-STOCK WRENCHES. George W. Green, Exeter, N. H. [Filed July 10, 1876.]



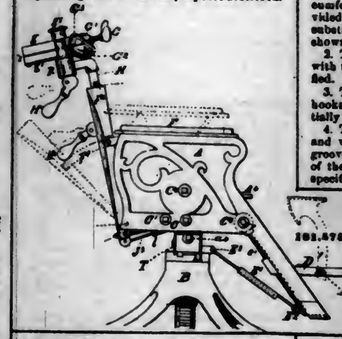
In combination with the bit-stock, the herein-described wrench, consisting of the movable jaws a g g', screw h, spring i, shank c', and shank-plate c, substantially as and for the purpose set forth.

181,576. DENTAL CHAIRS. Geo. B. Hayes, Buffalo, N. Y. [Filed Aug. 17, 1876.]

1. In a dental chair, the combination, substantially as specified, of the chair-frame, the pedestal or stand, and the intermediate telescopic columns geared for independent adjustment.

2. The combination of the head-rest bar H, grooved pulley J^1 K, cords J^2 J^3, and adjustable hook J^4, substantially as and for the purposes described.

3. The adjustable platform D^1 of a dental chair, in combination with the jointed foot-rest D^2, the supporting-surfaces of which are formed by the respective sides e and e^1 of an angle-plate, or its equivalent, as and for the purposes set forth.



181,576. ROCK-DRILLS. A. Herring, Crown Point, N. Y. [Filed Mar. 31, 1876.]

1. The piston rod or stem of a rock-drill, provided with the spherical guide B, in combination with the spherical socket plate or head A, having an elongated opening through it, the clamp c, and screw f, substantially in the manner and for the purpose described.

2. The combination of the hand-feed nut, the screw-threaded piston-rod of a rock-drill, the spherical guide B, and the spherical socket plate or head A, substantially as and for the purpose herein described.

3. The combination of the piston rod or stem of the rock-drill, the spherical guide, the spherical socket plate or head, and the tripod with



181,577. FUSE-ESCAPES. F. Holthausen, Paris, France. [Filed Aug. 15, 1876.]

1. The block a, grooved spirally on its circumference near its middle portion, and provided with straight grooves b b at its ends, substantially as and for the purpose herein shown and described.

2. The combination of the grooved block a with the guard-plate i, substantially as specified.

3. The combination of the block a with the hooks i, arms a, eyes a, and rope d, substantially as herein shown and described.

4. The block a, made with a spiral groove, and with straight grooves b b, the straight grooves extending across several convolutions of the spiral groove, as and for the purpose specified.

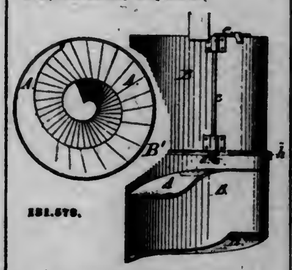
181,578.

181,578. AUGER-BITS. Wm. Hanson, Jr., Bridgeport, Conn. [Filed Aug. 15, 1876.]

1. The auger-bottom B^1, upper shell B, hinge f, and locking device d, substantially as specified.

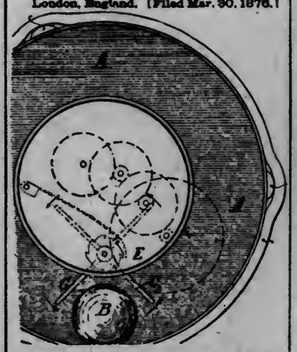
3. The locking device d e i, constructed as described, for connecting the parts B and B^1.

4. The cylindrical shell B, formed with the overlapping flange A, to embrace the lower section B^1 and protect it from lateral displacement, substantially as specified.



181,578.

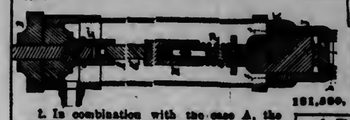
181,579. ODOMETERS. Sidney Johnson, London, England. [Filed Mar. 30, 1876.]



The combination, in machinery for indicating the distance traveled by vehicles, of the annular chamber A, the ball B, working by gravity therein, the bladed driving-wheel C, and the rubber band or tube H, all substantially as and for the purposes described and set forth.

181,580. HYDRANT AND STREET-WASHER COUPLING. John H. Kennedy, Cleveland, Ohio. [Filed July 28, 1876.]

Brief.—The projecting pins of the plunger slide upon the inclines of the surrounding thimble, then lifting or closing the valve below.



2. In combination with the case A, the thimble J, provided with inclines or cams e and valve-seat b, in the manner substantially as described, and for the purpose set forth.

2. The valve-head H', studs f, and valve I, in combination with the thimble J and shell or case A, in the manner substantially as described, and for the purpose specified.

3. The valve-head H, stem G, spring P, and link G', in combination with the valve F, seat D, and case A, substantially in the manner as described, and for the purpose specified.

181,581. STRAW-CUTTERS. I. N. Le Compte, Eminence, Ky. [Filed Jan. 27, 1876.]

Brief.—The knife is hung to a swinging board, which forms one side of the cabinet. The opposite side of the cabinet is hinged to swing up to form a table upon which to lay the straw. The knife is attached to the swinging side by a peculiar swinging link, which gives the knife a shear-cut, and also allows the ready removal of the knife to sharpen it.



181,582.

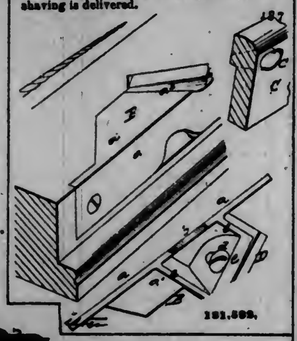
1. The straw-cutting machine, provided with the knife H, and having its frame so constructed that it can be converted at will into a close case or cabinet surrounding and inclosing the knife, substantially as shown and described.

2. In combination with the cutting-table A and end boards C, the hinged leaf B, and the swinging board F, having the knife H pivoted thereon.

3. In combination with the knife H, the link G, consisting of the two arms hinged together and provided with the pivot e and spring-catch d, as shown.

181,582. PLANES FOR CUTTING CIGAR-LIGHTERS. Harrison W. Lilly, Pittston, Pa. [Filed Mar. 15, 1876.]

Brief.—Curled tapering shavings for cigar-lighters can be cut by means of a bit attached to and adjustable upon a metallic bed, provided upon its upper surface with a diagonal tapering gutter, and upon its lower surface with an inclined and tapering frame; a stock having a recess corresponding to the form of the bed, and provided with pointed projections to secure it in place; and a guard attached to the side of the stock, and provided with a suitable orifice, through which the shaving is delivered.



1. The iron D, in combination with the bed or plate B a a^1, having the iron-bed proper a and gutter a^2, substantially as and for the purpose set forth.

2. The iron D and bed B a, having the gutter a^2, in combination with the stock A and guard C, having the orifice c, all constructed to operate as shown and described.

181,583. DIAL-TELEGRAPH. J. C. Ludwig, San Francisco, Cal. [Filed July 6, 1876.]

1. The cylindrical cap B, for containing the mechanism, having the central hub F, in combination with the flanged cup-shaped cover C, made smaller than the cap B, so as to allow the operating-arm to project between the two, and at the same time protect the dial D and indicator E by the glass cover, substantially as herein described.

2. The ratchet G, pawl H, rotary circuit-breaker J K, and the operating-arm X, in combination with the cap B and cover C, as united as to permit the the arm X to project between the two, substantially as and for the purpose described.

3. In combination with the circuit-breaker J K, with its operating-arm X, indicator E, and the double caps B C, the arm L, when constructed to make and break connection with the screw-stem M, substantially as herein described.

4. The screw-stem M, with its supporting-plate, when mounted upon the insulating-plate, and secured to the bottom of the cap B, substantially as herein described.

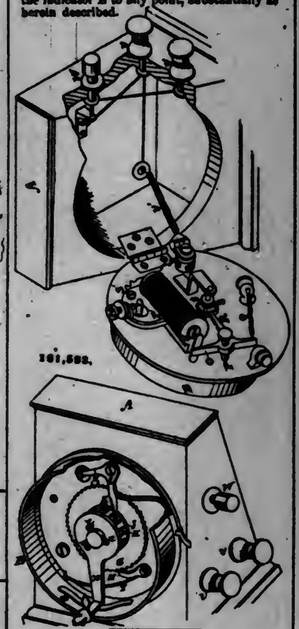
5. The caps B and C, containing the operating mechanism, united as shown, and having the magnet, screw-stem, and escapement for operating the indicator secured to the bottom of the cap B, which is hinged to the supporting-stand A, substantially as and for the purpose herein described.

6. The magnet consisting of the legs and the coil, enveloping one of the legs for the purpose of bringing the poles close together and reducing the size of the armature, substantially as described.

7. The magnet having the leg surrounded by the coil, said leg being divided longitudinally into two parts, substantially as and for the purpose herein described.

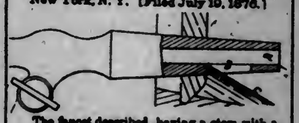
8. The containing-cup B, carrying the magnet and operating mechanism, and hinged to the support A, in combination with the elastic or extensible connecting-wire V, so that the device may be operated without breaking the connection, substantially as described.

9. The cut-off W, in combination with the binding-screws U, for the purpose of setting the indicator E to any point, substantially as herein described.



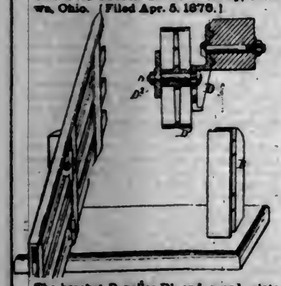
181,583.

181,584. COCKS AND FAUCETS. A. Lehrs, New York, N. Y. [Filed July 19, 1876.]



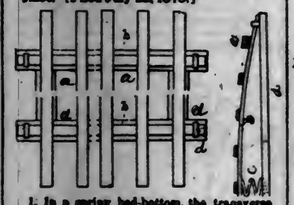
The faucet described, having a stem with a longitudinal bore, a, at the inner end, and an aperture, b, at the under side, equal in area to the outlet, and arranged to afford a passage for the fluid from the barrel to the bore a on a line with the inner face a of the barrel-head, as set forth.

181,585. HANGINGS FOR SLIDING AND SWINGING GATES. David McCurdy, Ottawa, Ohio. [Filed Apr. 5, 1876.]



The bracket D, roller D', and guard plate D², secured together by the bolt b, in combination with the heel-post of a gateway, for hanging a gate thereto, substantially as described.

181,586. SPRING BED-BOTTOMS. Andrew C. Miller, Portland, Me., assignor of one-half his right to William Davenport, same place. [Filed July 29, 1876.]

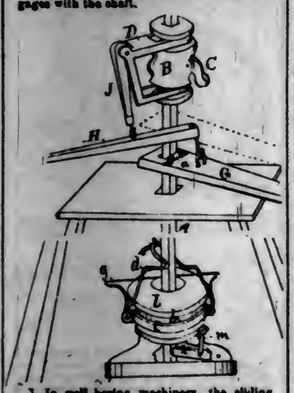


1. In a spring bed-bottom, the transverse springs b, having their ends free, moving through the staples c.

2. In a spring bed-bottom, the transverse springs b, having their ends free, moving through the staples c, in combination with the slats a, the coil-spring e, and the frame d, substantially as set forth.

181,587. HARTH-BORING MACHINERY. Wm. K. Miller, Birmingham, Iowa. [Filed Feb. 24, 1876.]

Brief.—A sliding block on shaft, with an eccentric lever, is provided with a bearer and pivoted fulcrum, to which a lever is suspended, and connected with its inner end to an adjustable swamp. A locking device for operating the bucket, and when unlocked to raise the bucket, consists of a sliding sleeve, with vertically-moving collar, and a rotating collar, attached to a link and pivoted pawl, that engages with the shaft.

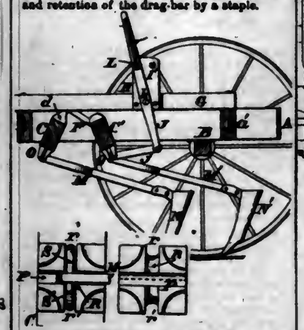


1. In well-boring machinery, the sliding block B on the shaft A, carrying the eccentric C, the rotating bearer D, the pivoted and pendent fulcrum J, and the suspended lever H, in combination with the adjustable sweeping beam G, substantially as and for the purposes shown and described.

2. The sliding sleeve L on the shaft A, carrying the vertical-moving collar b, the rotating collar c, the link m, and the pivoted pawl k, substantially as and for the purposes shown and described.

181,588. GRAIN-DRILLS. Wm. H. Nauman, Dayton, Ohio. [Filed July 10, 1876.]

Brief.—The two rocking bars are journaled in the frame, and are connected together by a rod centrally attached to one, and to the top of the other, so that when they are rocked by the lever they move toward and away from each other. To the frame is secured a grooved and channeled clip, for the reception and retention of the drag-bar by a staple.



1. In combination with the rocking bars O O', the end plates D d, E e, D' E' d', and connecting-rod F, whereby said bars O O' are caused to oscillate simultaneously, but in opposite directions, substantially as herein described, and for the purpose forth.

2. The clip O, made either in one or more pieces, and provided with a channel, F, and groove E r r', which latter receives the staple S S' that couples said clips to the rocking bar C, and also serves as a bearing for the perforated head of drag bar M, or its equivalent device, substantially as herein described and set forth.

181,589. NUT-LOCKS. E. C. Naylor, New Sharon, Iowa. [Filed Aug. 6, 1876.]



The elongated split nut C, provided with the flange C', and with exterior screw-threads running in opposite direction to the interior threads, and made tapering, as described, in combination with the nut D screwed thereon, substantially as and for the purposes herein set forth.

181,590. MACHINES FOR SEWING STRAW BRAID. Frank D. Palmer, New York, N. Y. [Filed Aug 5, 1875.]

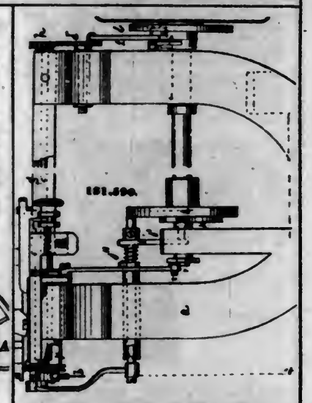
Brief.—Improvement of Letters Patent No. 171,774. The oscillating needle-shaft works in adjustable bearings, whereby the depth of the passage of the needle through the braid is regulated, and the looper is mounted upon a shaft which has both an oscillating and longitudinally-reciprocating movement.

1. In combination with looper-hook f and shaft J, the cams L and K, arm j', and spring j², arranged as described, whereby an oscillatory and reciprocatory motion transverse to the line of stitching is imparted to said looper, as and for the purposes set forth.

2. In combination with the needle-shaft a, carrying gear h, the segment d, connecting-rod f, lever e, and cam e', whereby the proper oscillatory motion is imparted to the needle, as set forth.

3. The adjustable bearing S, in combination with the shaft c, and curved needle b, as and for the purposes described.

4. The circular feed a, in combination with hollow shaft y, needle-shaft c, and curved needle b, substantially as set forth.



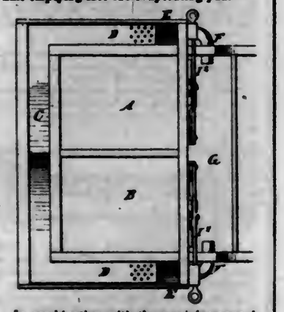
181,591. BARREL-COVERS. Edwd. Pottory, New Orleans, La. [Filed June 6, 1876.]



In combination with the hinged pieces A, B, and C, the lugs a b e, as described, and for the purpose specified.

181,592. EVAPORATORS FOR SUGAR. Henry Ramsey, Louisville, Ky. [Filed Feb. 1, 1876.]

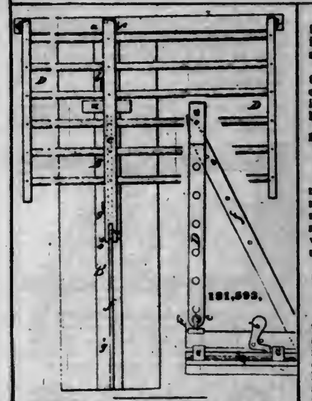
Brief.—The scum overflows from the receiving-pan into the troughs, falls through their perforations, and is conveyed away. The strup settling from the scum falls into a conduit emptying into the evaporating-pan.



In combination with the receiving-pans A B, the trough C, surrounding the exterior sides of the receiving-pans, to catch the scum boiling over the edges of the pans, and having a discharge-opening, E, for the outflow of the scum, the perforations D, and pipe F, for drawing off liquid strup passing over with the scum, and discharging the same into the evaporator-pan G, substantially as set forth.

181,593. CLOTHES-DRIERS. D. B. Randall, Glover, Vt. [Filed Feb. 17, 1876.]

A clothes-drier consisting of the guide B, having grooves i in its opposite edges and notches g in its face, the bar a, the pawl b, the blocks c, the horizontal rail F, the rack D, and the brace f, all combined and relatively arranged as and for the purposes described.



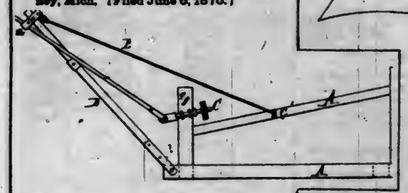
181,594. PLANING-TOOLS. Frederick Raub, Pittsburg, Pa. [Filed June 10, 1876.]

Brief.—Two slotted adjustable semicircular jaws, having screw threads upon their inner surfaces, and pivoted to a suitable handle, are provided with a supplementary jaw, pivoted to one of the main jaws, and adjustable through the slot in said jaw, for planing cylindrical articles of wood of small diameter. The plane-bit is longitudinally adjustable through the slit in the opposite main jaw.



The combination of the jaws A, B, and D, adjusting-screws i and j, and plane-bit g, arranged and operating with relation to each other, substantially as herein described, and for the purpose set forth.

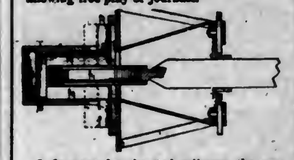
181,595. SUPPORTS FOR TUMBLING-RODS FOR THRASHERS, &c. Albt. Reason, Pinckney, Mich. [Filed June 6, 1876.]



The combination, with the main frame A and the driving-shaft C of a thrashing-machine, of the bar and brace D D', hinged to the said frame, the bearing a for the tumbling-rod, the hooked rod E, and the staples c c', constructed and arranged substantially as described and shown.

181,596. CARS FOR ELEVATED RAILWAYS. W. W. Riley, New York, N. Y. [Filed July 12, 1876.]

Brief.—Central wheel pivoted in cylindrical slotted bearing held in cylindrical slotted case, allowing free play of journals.



1. In a car for elevated railways, the central grooved wheels mounted in swiveled bearings, substantially as described.

2. In combination with the housings, slotted as described, the cylindrical blocks, forming the swiveled bearings for the wheels, substantially as described.

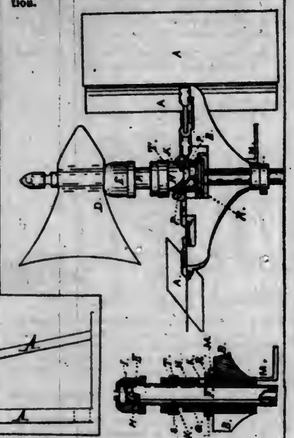
3. The combination of the housings, slotted, as described, to allow of the play of the car-axles, and the cylindrical swiveled block in which said axles are journaled, substantially as set forth.

181,597. PROCESSES OF REMOVING WASTE INK. Judah T. Robertson, New York, N. Y. [Filed Dec. 16, 1876.]

The process of preserving, separating, and renovating oil-color or ink that contains fibrous matter or other foreign substance, by first immersing it in water, then running it through a centrifugal machine, either with or without water or other fluid, and then grinding it in a mill, substantially as described.

181,598. WINDMILLS. J. N. Bundle, Vimlia, assignor to himself and D. L. Fonseca, San Francisco, Cal. [Filed July 22, 1876.]

Brief.—The vane of this wheel is attached to the inner or main sleeve by means of a set-screw or other attachment, to enter the socket in the friction-brake shoe, so as to place the cam in relative position with the vane, the lower side of the groove being at the right, and the higher side at the left, when facing the mill from the leeward side. The cams or pins, operating in the groove as the wings revolve, adjust the same to the wind, holding the wings in a horizontal position until the windward side is reached, when the pins, passing down into the lower side of the grooves, cause the wings to assume a vertical position until reaching the leeward side, when the pin passes into the higher part of the groove, again causing the wings to maintain a horizontal position.

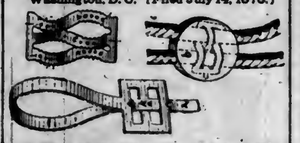


1. The sails A and cams or pins P, in combination with the groove K, when adjusted by the lever M, in the manner and for the purpose set forth.

2. The friction-brake, composed of the cap E, the shoulder G, the shoe H, and the roll I, when operated by means of the vane D, substantially as set forth.

3. The adjustable cam N Q, operated in combination with and by means of the bands T and E and the shifting-lever M, as set forth.

181,599. BAGGAGE-SEALS. C. G. Schneider, Washington, D. C. [Filed July 14, 1876.]



1. The combination, with a baggage-seal, having a soft-metal sealing-disk, of a locking device having ragged, sharp, or like projections or surfaces, substantially as and for the purpose described.

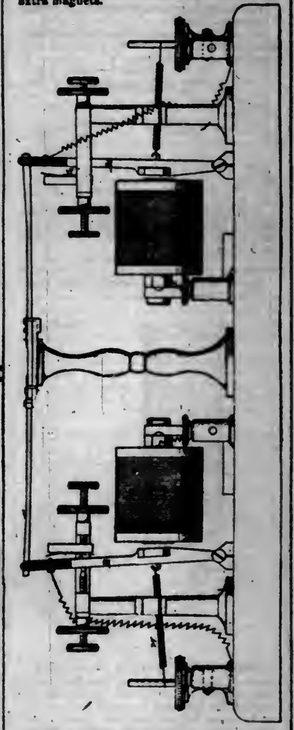
2. In a baggage-seal, the combination, with the sealing device, of a cord locking device, adapted to encircle and enter said cord by means of serrated, ragged, or similar surfaces or projections thereon, substantially as described.

3. The combination, in a baggage-seal, of a locking device, substantially as described, having parallel bars extending transversely of said device, and a shuttle passing between the bars of said locking device, the two being rigidly connected, when applied, by means of teeth, substantially as specified.

4. In a baggage-seal, a locking device, constructed with bars having ragged edges or surfaces curved alternately in opposite directions, so as to occupy space on both sides of the eyes of the disk or seal, substantially as described.

181,600. TELEGRAPHIC REPEATERS. Chas. E. Scribner, Toledo, Ohio, assignor of one-half his right to Thos. E. Bond, same place. [Filed Aug. 9, 1876.]

Brief.—Dispenses with local batteries and extra magnets.



1. The combination, in a repeater, of two relays and their armature levers, so arranged that the armature-lever of either controls the circuit through the other relay.

2. The combination, with two relays and their levers, of a mechanical device, substantially as described, intermediate of the levers, and arranged to be operated by either, so that the movement of one lever causes the mechanical device to lock the other lever in position for repeating, substantially as and for the purposes set forth.

3. The mechanical device situated between the two relays, consisting of a post, platen-bed, two rods, two catches, and two springs.

4. Combination of a mechanical locking device and a spring-contact, operated by an armature-lever, both arranged in such relation that upon the movement of one of the levers to the contact the circuit will be closed through the other magnet, to hold its armature before the mechanical locking device can release it.

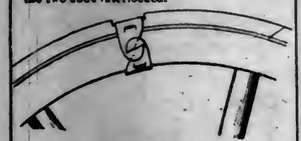
3. Combination of a mechanical locking device and a spring-contact, operated by an armature-lever, both arranged in such relation that upon the movement of one of the levers from the contact the mechanical locking device is brought into operation to lock the other lever before the electrical circuit through its magnet is broken.

181,601. PAVING-BLOCKS. Bernardo Sheil, London, England, assignor of one-half his right to N. E. Blackall, same place. [Filed Apr. 4, 1876.]

The improved manufacture of paving-block described, consisting of pieces of wood intervaled with broken granite, and having the interstices filled in with a composition of tar-oil, pitch, chalk, and sand, in the proportions, substantially, of about six gallons of oil to about five hundred weight of pitch, seven and one-half hundred weight of chalk, and seven and one-half hundred weight of sand, the oil being added while boiling.

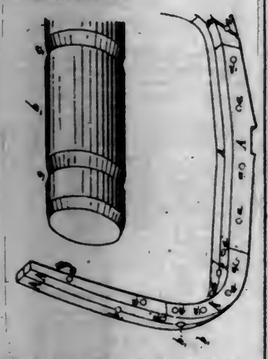
181,602. FASTENERS FOR RUBBER TIRES. Herbert S. Smith, New York, N. Y. [Filed Aug. 3, 1876.]

Brief.—The fastener, which is alike at both ends, is wound about the tire and felly, and the two ends interlocked.



A device for securing rubber tires, consisting of a metal band having a hook at each end, said hooks being adapted to interlock with each other, as described.

181,603. FASTENING HULLS OF WOODEN SHIPS. Heber Squier, Grand Haven, Mich. [Filed June 6, 1876.]



1. The method of fastening the abutting joints of a ship's frame, or the fastening of the longitudinal timbers to the frames, and keying the adjacent members to each other by key-pins halved into such joints or into the contiguous edges of longitudinal timbers and contiguous members of frames, substantially as described.

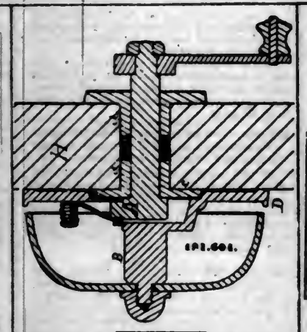
2. The wooden treenail described, consisting of a cylindrical body, A, having the groove a, countersunk and arranged substantially as described and shown.

181,604. DOOR-BELLS. Orson W. Stow, Plainsville, Conn. [Filed June 2, 1876.]

1. The plate D, having the central cam-chamber in the back to receive the cam c, substantially as described, and for the purpose specified.

2. The cam A, having the bearings for its shaft secured to the door, and detached from the plate which carries the hammer, substantially as described, and for the purpose specified.

3. The plate D, carrying the stud B, and having the walls of the central chamber upon one side cut away, substantially as described, and for the purpose specified.



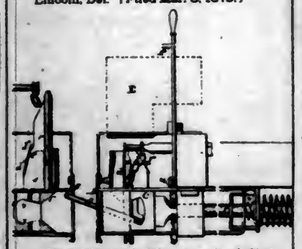
181,605.

181,606. BED-BOTTOMS. David H. Taylor, Westfield, N. Y. [Filed June 16, 1876.]



The combination of the guide-flange F', hooked bracket E, and adjustable tension-bar D with the spring bars A A', auxiliary springs C, bearing-block B, and hooks 1, or their equivalents, when constructed and used substantially as and for the purpose set forth.

181,606. CAR-COUPLINGS. Jos. B. Tracy, Lincoln, Del. [Filed Mar. 8, 1876.]



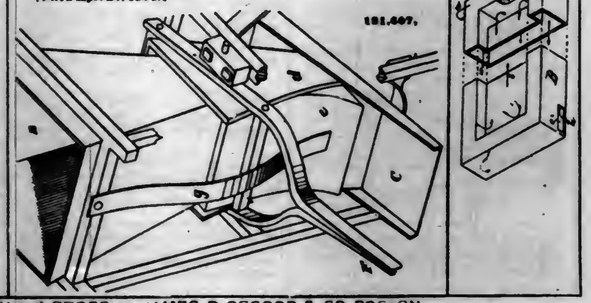
1. The buffer-head sliding over the shelf attached to the draw-bar, in combination with the coupling-pin, whereby the coupling is completed previous to the concussion of the cars, substantially as and for the purpose set forth.

2. The hinged platform B, substantially as and for the purpose set forth.

3. The combination of the hinged platform and the bent lever F, substantially as and for the purpose described.

4. The combination of the coupling-pin c, having the web c' and hook c'', with the bevel-ed surface c''' and pin d'' of the guide-tube d.

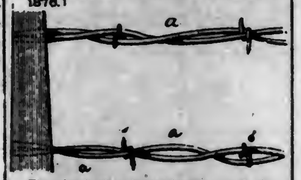
181,607. COMBINED ORE CRUSHER AND FEEDER. James Tullock, Oakland, Cal. [Filed Apr. 27, 1876.]



181,607.

A combined ore crusher and automatic ore-feeder, consisting of the hopper B, reciprocating jaws d e, and chute C, arranged to be operated by the drop of the stamp acting upon the lever F, substantially as and for the purpose set forth.

181,608. BARBED FENCE-WIRES. Andrew J. Upham, Sterling, Ill. [Filed June 22, 1876.]



The wire barb b, in combination with the two wires a a, the barb being bent from the outside around each of the wires, with its points projected between the wires in opposite directions, as and for the purpose specified.

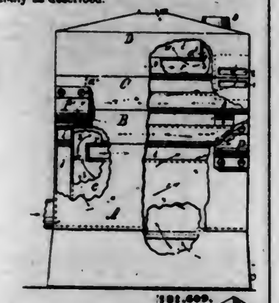
181,609. HEATING-BOILERS FOR RESIDENCES, &c. William H. Vick, Rochester, N. Y. [Filed July 14, 1876.]

Brief.—The boiler consists of independent water-sections, each of which contains a longitudinal heat-flue. The sections are so constructed that the water and heat travel in different directions.

1. In a sectional water or low pressure steam-heating boiler, an independent water section, having a longitudinal smoke and heat flue, substantially as shown in Fig. 4, and described.

2. A heating-boiler built up of independent water-sections, each of which sections contains a single smoke-flue, *s*, surrounded, excepting upon one side, by a single continuous water-space, *w*, substantially as shown and described.

3. The arrangement, in a heating-boiler, of a series of sections, A B C, &c., one over the other, the contiguous sections being joined by exterior water-connections P, &c., in such a manner that the top portion of the water-space of one is joined to the bottom of that of the next alternately at or near the ends, substantially as described.

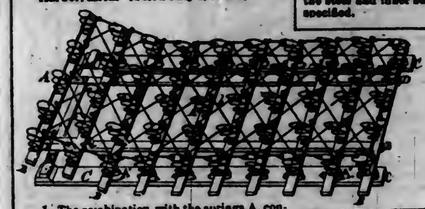


181,609.

181,610. PROCESSES OF COLORING WALKING-CANES. Friedrich Walker, Guttenberg, N. J. [Filed May 6, 1876.]

The process of coloring walking sticks or canes by the action of steam and a mixture of iron and acid, substantially as described and set forth.

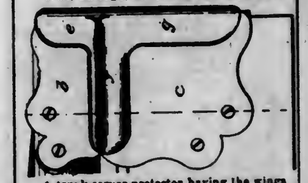
181,611. SPRING BED-BOTTOMS. Henry S. Wentworth and A. J. Wentworth, Benton Harbor, Mich. [Filed July 1, 1876.]



1. The combination, with the springs A, connected by the hooks b, and the slats B, as described, of the carrier-bars C C, springs A', slats D, and girt E, substantially as and for the purpose set forth.

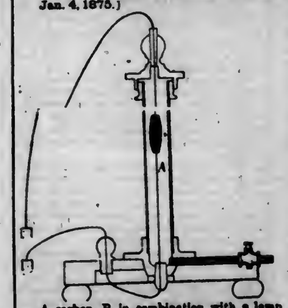
2. In a bed bottom, the combination of the springs A and slats B of the slats D, having the blocks e, substantially as described and shown.

181,612. TRUNK-COVER PROTECTORS. C. T. Wilt, Chicago, Ill. [Filed Feb. 21, 1876.]



A trunk-corner protector having the wings b, c, and d, the two former at an obtuse angle to each other, and the latter at right angles to the wings b c, and the corners or angles of the protector provided with the concavo-convex bosses or projections e f g, substantially as and for the purposes herein set forth.

197,613. ELECTRIC LIGHTS. H. Woodward, Toronto, Ontario, assignor, by mesne assignments, to R. M. Wells, T. R. Fuller, and Ernest Heimrod, same place, and C. H. Woodward, Lindsay, Canada. [Filed Jan. 4, 1875.]



A carbon, B, in combination with a lamp or other suitable vessel, A, filled with rarefied gas, possessing the property of not chemically combining with the carbon when in a state of incandescence, in connection with the described arrangement and mode of connection of the electrodes E E with the carbon, all as shown and set forth.

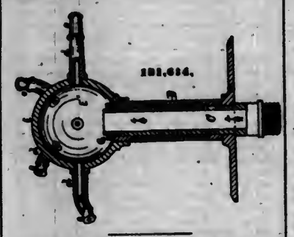
181,614. FIRE-EXTINGUISHERS. Everett L. Abbott, South Bend, Ind. [Filed May 1, 1876.]

1. The combination, with the hollow stem C, of the revolving sleeve D and spherical case E, substantially as and for the purpose specified.

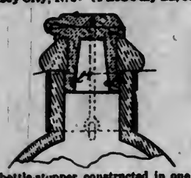
2. The combination, with the spherical case F, forming the spherical chamber E', of the curved discharge-tubes *d*, inserted within the shell of the case, and so arranged as to admit of being adjusted to change the direction of the discharge of the various streams of water, substantially as and for the purpose specified.

3. The annular collar G, secured upon the stem C, and adjusted to form a packing, so as to prevent the water from escaping between the stem and inner surface of the sleeve D, as specified.

181,614.



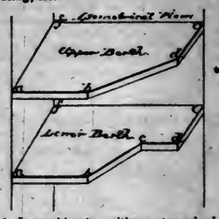
181,615. BOTTLE-STOPPERS. A. Albertson, Jersey City, N. J. [Filed July 22, 1876.]



A bottle-stopper constructed in one piece, with a flexible ear, to which a binding-bail is attached, substantially as and for the purpose set forth.

181,616. SLEEPING-CARS. Horatio Allen, South Orange, N. J. [Filed Feb. 1, 1876.]

Brief.—A space is provided in each berth-section, for convenience of the occupant in dressing, &c.



1. In combination with a rectangular berth-section, a berth or berths having a portion thereof removed—that is to say, of a form not occupying the entire horizontal sectional area, in order to provide "a place of access," substantially as described.

2. The combinations of seats and backs herein described, and presented in Fig. 4", Fig. 5", Fig. 6", whereby a berth of the form described, and of access as described, are obtained.

181,617. BROWNE-STILLS. F. W. Arvine, Hartford City, assignor to E. Lerner, Mason City, W. Va. [Filed May 3, 1875.]

Brief.—The still is constructed with a conical bottom, to facilitate the removal of its contents and the cleansing of it with water. An absorber is placed on top of the receiver, and being filled with coke, stone, or broken pottery, and supplied by a pipe with bitters, it absorbs and deodorizes the bromine vapors, which arise into it through a pipe from the receiver.

1. The still-bottom made funnel-shaped, and having a steam pipe entering at the lowest point, substantially as described.

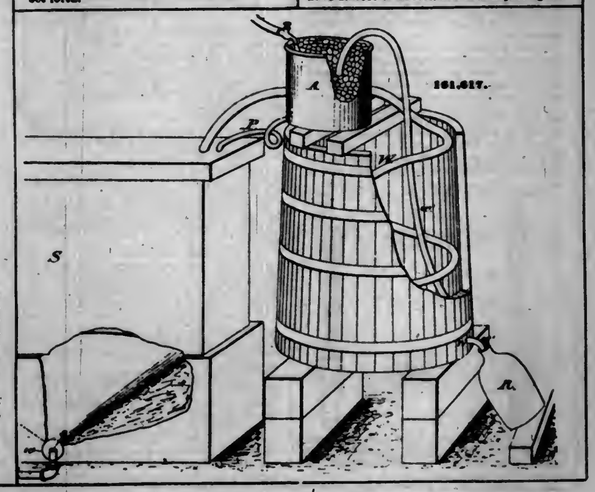
2. The still-bottom made funnel-shaped, in combination with a steam-pipe entering at its lowest point, and having an annular outlet-orifice around the same, substantially as described.

3. The absorber A, filled with material, substantially as described, in combination with the pipe *w'*, communicating with the receiver R, and the pipe P, communicating with the still S, as and for the purpose described.

181,618. MANUFACTURE OF HOLLOW GLASSWARE. Thomas B. Atterbury, Pittsburg, Pa., assignor to himself and Jas. S. Atterbury, same place. [Filed Aug. 5, 1876.]

1. As an improvement in the manufacture of hollow pressed glassware, forming the article in sections, of which the receiving ones have marces or offsets, and then adjusting the

181,617.



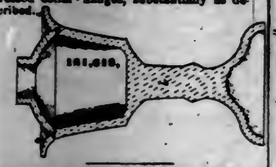
HELIOTYPE RELIEF PROCESS JAMES R OSGOOD & CO. BOSTON.

HELIOTYPE RELIEF PROCESS JAMES R. OSGOOD & CO BOSTON.

sections while at a welding-heat, or such a heat as will cause the sections to unite, substantially as and for the purpose specified.

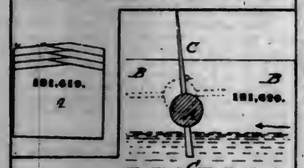
2. A hollow article of glassware, composed of pressed sections united by means of recesses or offsets formed on the receiving-sections, substantially as and for the purposes specified.

3. A hollow article of glassware with contracted neck or opening, having one or more pressed collar-flanges, substantially as described.



181,619. MANUFACTURE OF SHOE-NAILS. Lloyd W. Austin, Taunton, Mass., assignor to the Albert Field Tack Company, same place. [Filed July 15, 1876.]

The within-described improvement in the art of manufacturing shoe-nails, the same consisting in cutting the blank from a nail-plate so as to leave parallel sides and a point beveled on one side only, as shown, and afterward finishing the nail and changing the form of timpoint by dies, substantially as set forth.



181,620. FLOOD-FENCES. Wiley C. Barber, Rockmart, Ga. [Filed June 6, 1876.]

Brief.—The stakes are held in vertical position by the eccentrically-pivoted log, in which they are secured. Upon the accumulation of drift-wood against the upper ends of the stakes, they will turn down with the current, releasing the drift-wood, and then automatically reassume their vertical position.

The combination of the eccentrically-pivoted log A, provided with stakes C, with the supports B, substantially as and for the purpose specified.

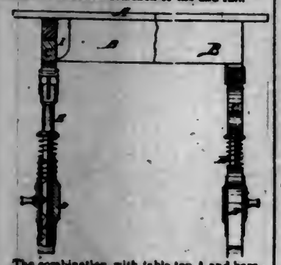
181,621. TANNING. Alpheus M. Barnes and William F. Yocum, Weston, Mo. [Filed June 20, 1876.]

1. The compositions of the bating-liquor, dress-liquor, and tan-liquor, and the process of tanning therewith, and with the gambier and sumac or liquors, substantially as herein described.

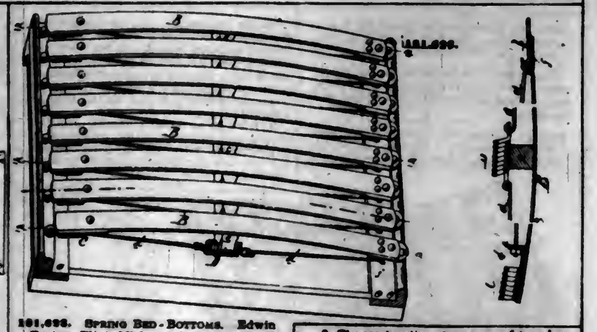
2. The process of tanning hides with the hair and fur on, by subjecting them to action of a dress-liquor prepared as described, and then treating them with a composition of oil and half-strength lye, as herein set forth.

181,622. FOLDING TABLES. W. P. Bartholomew, St. Louis, Mo. [Filed May 16, 1876.]

Brief.—The folding legs are adjustable in height, and are held in open position by means of a button attached to the end rail.



The combination, with table-top A and bars B, of the button I, part C, supported by a standard, E, that slides in socketed part D, as shown and described.

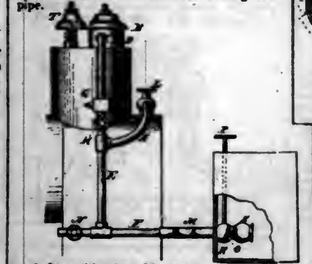


181,622. SPRING BED-BOTTOMS. Edwin Barton, Flint, Mich., assignor to himself and Charles Putnam, same place. [Filed Feb. 9, 1876.]

The slat B, provided with the clip b, truss-block c, springs C D, links d d, clip e, and hook f, in combination with the studs a, substantially as and for the purpose set forth.

181,624. SAFETY-VALVE ATTACHMENTS TO PREVENT NOISE AND UTILIZE THE ESCAPE-STEAM. Alfred Berney, Somerville City, Mass., assignor to Mary E. Berney, same place. [Filed Aug. 22, 1876.]

Brief.—The safety-valve is provided with a detachable hood, from which escape-steam is conducted to the tender to heat the water therein. The pipe leading from the hood to the tender is provided with a vacuum-valve and a stop-cock, and is connected to a heater-pipe from the boiler, to prevent freezing. A valve at the end of the pipe in the tender absorbs the noise of steam rushing into the water, and prevents water from entering said pipe.



1. In combination with a safety-valve, a hood or cover resting upon the boiler or disk surrounding the valve-seat, and provided with lugs for securing it thereto, an opening for the escape-steam, and a screw for regulating the tension of the valve-spring, substantially as set forth.

2. In combination with the detachable hood or cover A, the pipe E, provided with the valves G and H, substantially as described, and for the purpose set forth.

3. In combination with the hood or cover A, the pipe E, provided with the vacuum-valve G, substantially as described.

4. The combination of the pipe E and heater-pipe K, provided with the valve L, substantially as described, and for the purpose specified.

5. The combination of the hood or cover A, and pipe leading to the tender and connected thereto, with a suitable coupling and pipe, provided with a noiseless valve, S, substantially as described, for the purpose specified.

6. The combination of the hood or cover A, as described, with the pipes E, F, and K, hose M, pipe O, valve E, and noiseless valve S, substantially as described, and for the purpose specified.

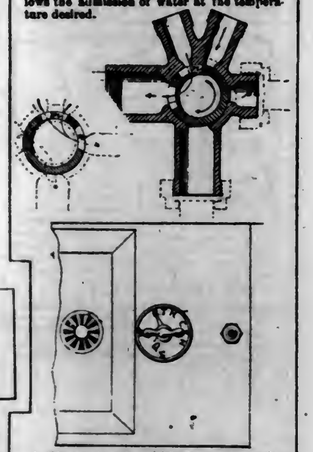
7. The combination of the pipe F, provided with the stop-cock N, hose M, pipe O, valve E, and noiseless valve S, as described, and for the purpose specified.

8. The combination of the hood or cover A and pipe leading to the tender, said pipe provided with a vacuum-valve, hose, and pipe, provided with a valve, S, substantially as described, and for the purpose specified.

9. The combination of an open safety-valve, connected with the steam-space of a boiler, a detachable hood or cover for inclosing the same, connected with the pipes E and F, hose M, and valve E, connecting with the water-space of the tender, substantially as described, and for the purpose specified.

181,625. BATH-TUBS. Charles A. Blessing, Philadelphia, Pa. [Filed Aug. 11, 1876.]

Brief.—Both the waste and supply are through the lower inlet-pipe. The cock allows the admission of water at the temperature desired.



1. The combination, with the water supply and waste pipes of a bath-tub and supply-cock, of a siphon-shaped overflow-pipe, connected with the supply and waste pipe, constructed and arranged to operate substantially as described.

2. The combination, with the water-inlet pipe, hot and cold water supply pipes, and waste-pipe of a bath-tub, of a single cock, constructed substantially as described, for admitting hot or cold water separately or together into the tub, and to discharge the same into the waste-pipe, as set forth.

3. The combination, with a shower-bath pipe and pipes for admitting hot and cold water into the shower-pipe, of a single cock, constructed substantially as shown, for permitting a simultaneous flow of water from the tub and into the shower-pipe, substantially as described.

4. The combination, with a bath-tub having recesses in its lining, formed as described, of a removable seat and suitable retaining device therefor, substantially as described.

181,626. MAGIC LANTERNS. C. A. Bourquin, Vesoul, and G. T. Van Beers, Ronchamps, France. [Filed June 10, 1876.]

1. The magic lantern A, provided with the hinged lens-holder C, and with the regulating-catch *b d*, substantially as herein shown and described.

2. In combination with the hinged lens-holder C of a magic lantern, the burner D, secured to said hinged lens-holder, substantially as specified.

3. The annular oil-reservoir *f*, combined with and formed on the hinged lens-holder C, of a magic lantern, substantially as specified.

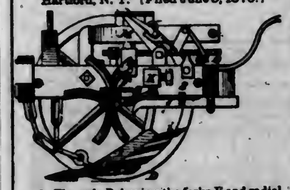


181,627. HALTERS. Ferdinand R. Bowdow, Newtown Stephensburg, Va. [Filed Aug. 16, 1876.]



A halter composed of the three straps A, C E, and C E, with the ring B and loops D, G G, and J J, substantially as and for the purposes herein set forth.

181,628. POTATO-DIGGERS. William Boyd, Hartford, N. Y. [Filed June 5, 1876.]



1. The axle B, having the forks F and radial knife O secured thereto, in combination with the driving-wheels D and clutches C, substantially as and for the purpose specified.

2. The combination, with the revolving curved forks F, secured to main axle B, of the rear curved stationary knives, substantially as and for the purpose specified.

3. The combination, with the forks F, secured to main axle B, of the downwardly-turned knives e, braced about midway of their length by a slotted binder, S, substantially as and for the purpose set forth.

4. In a potato-digger, the short side knives H H', in combination with the longitudinal revolving cutter G, substantially as and for the purpose described.

5. The combination, with the forks F, secured to main axle B, and knives e, of the swinging plow I, hooked beneath axle B, and chains L and L', to secure the plow-point to the beam, substantially as and for the purpose specified.

6. The combination of plow I, hung on bearing-blocks K K', fasteners L L', with levers M M', substantially as and for the purpose described.

7. In combination with levers M M' and fasteners L L', the head-rail Q and ratchet R R', with intermediate mechanism, substantially as and for the purpose set forth.

8. The combination, with the slotted front frame of a potato-digger, of a laterally-adjustable draft-pole, whose extreme rear is secured to said front frame, substantially as and for the purpose described.

181,629. PORTABLE PHOTOGRAPHIC APPARATUS. Wm. A. Brice, London, England. [Filed Feb. 21, 1876.]

Brief.—Comprises camera, dark-room, and developing-trays in one case. To be used in outdoor photography.

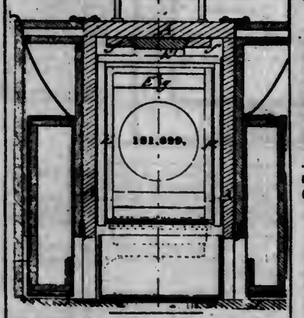
1. A photographic apparatus, composed of a central casing or compartment, with sliding and pivoted focusing-frame, hinged side cases, hinged interior covering-boxes, and adjustable trays for the different solutions, the whole being arranged to fold and close into portable shape, substantially in the manner and for the purpose set forth.

2. The movable solution-trays, being provided at both sides with strips that run in grooves, and perforations of the bottom and of the side casings, to move the same into the central compartment and back again, substantially as set forth.

3. The hinged covers or boxes fitting on the opened side cases to inclose the trays, and produce the dark room with the central compartment, as described.

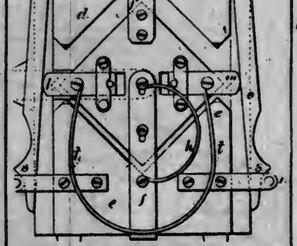
4. The combination of the focusing-frame, sliding by means of a top piece or guides of the central casing, with the inner pivoted frame, having catch devices and strings for lowering, raising, and locking the frame, substantially as specified.

5. The inner pivoted frame, having projecting arms at top and bottom for supporting the ground-glass or sensitizing plate, substantially as described.



181,630. SHEET-METAL MACHINES. Wm. H. Brock, Flushing, N. Y., assignor to J. A. Bostwick, New York city. [Filed Mar. 20, 1876.]

Brief.—Two sets of seam-compressing dies are operated alternately, in order to make a smooth seam for the soldering-iron. The small or corner dies make two strokes or compressions, and the male or large dies one each, and so timed that the single stroke comes between the double ones. One set of dies overlaps a portion of the seam opened or covered by the other, so as to prevent any buckling of the metal.



1. The V-shaped dies *d e l m*, arranged to act at the corners of the can end of the head-block *a*, and made too long to allow of their being closed at one time, in combination with the means, substantially as specified, for closing and then opening first one pair of dies and then the other in the same plane, substantially as set forth.

2. The side bars *n o*, with cam projections *s*, and the stationary fingers *r*, in combination with the secondary dies *l m* and main dies *d e*, substantially as set forth.

181,631. BALING-PRESSES. Wm. H. Brock, Flushing, assignor to J. A. Bostwick, New York, N. Y. [Filed Feb. 25, 1876.]

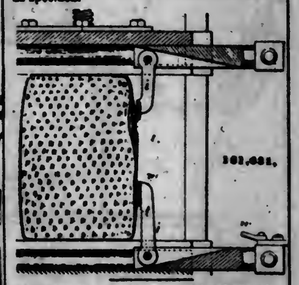
Brief.—The platens are grooved transversely, to receive the hoops and the stocks of the tightening apparatus. The partial withdrawal of the stocks causes the toggle-bars to tighten the hoops, and bring their ends into position for fastening.

1. The combination, with a baling-press, of the sliding stock and toggle-bar to strain the hoop, substantially as specified.

2. The combination, with the sliding stock and toggle-bar, of a clamp to grasp and hold the hoop, substantially as set forth.

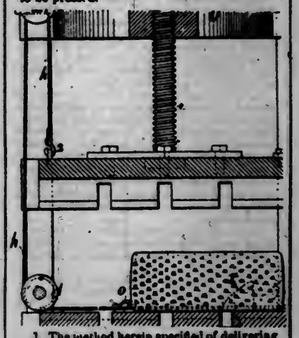
3. The gage-hook *m'*, in combination with the stock and toggle-bar, substantially as set forth.

4. The toggle-bar *i*, hinged at one end, near the surface of the platen, in combination with the bale-tie holder at the end of said bar *i*, for holding one end of the hoop, and bending the hoop against the side of the bale, substantially as specified.



181,632. BALING-PRESSES. Wm. H. Brock, Flushing, assignor to J. A. Bostwick, New York, N. Y. [Filed Mar. 13, 1876.]

Brief.—The effective force or power of the press, during the running back or opening movement of the platen, is utilized in delivering the bale laterally from the press. It may also be availed of in drawing in the next bale to be pressed.

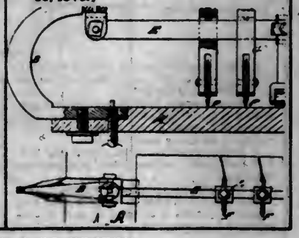


1. The method herein specified of delivering the pressed bale from a press by applying the power exerted in opening the press to move said bale laterally, as set forth.

2. The belts or chains A, connected at their ends with the moving platens, and passing around the pulleys, substantially as specified, in combination with the claws or arms *o*, for moving the bale out from the press, as set forth.

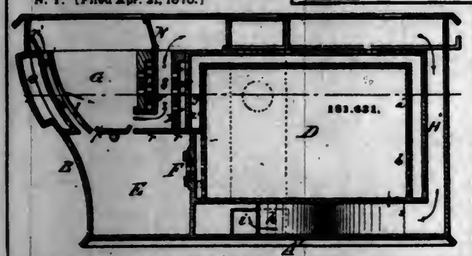
3. The belt or chain, passing across the bed of the press, and provided with claws, and connected with the moving platen, so as to be moved across the press by the platen, as set forth.

181,633. PAPER-CUTTING MACHINES. Jas. H. Brown, Porter's Mills, Wis. [Filed May 16, 1876.]



The lever E, swiveled at one end to curved bar B, and provided with cutters F F, in combination with table A, having a screw whose end protrudes therethrough, to enable the paper to be cut in whole circles of varying size, as described.

181,626. FIRE-BOXES FOR STOVES, RANGES, AND FURNACES. P. N. Burke, New York, N. Y. [Filed Apr. 21, 1875.]



1. The auxiliary combustion-flue *e*, with air-openings in its ends, in combination with the air-space *m*, fire-box G, and dampers N *n'*, substantially as described, and for the purpose set forth.

2. The auxiliary flue *s*, provided with air-openings in its side and ends, in combination with the air-chambers *t* and *w*, provided with air-openings, air-space *m*, dampers N *n'*, and fire-box G, substantially as described, and for the purpose set forth.

3. The auxiliary combustion-flue *s*, provided with air-openings, in combination with the fire-box G, air-chambers *t*, *w*, and *m*, and hot-air flues *f f*, substantially as described.

4. The auxiliary combustion-chamber *e*, provided with air-openings in its sides and ends, in combination with air-chambers L and W and damper N, substantially as described, and for the purpose set forth.

5. The chamber *e*, into which air may be admitted through registers or perforations communicating with the chambers *f f*, in combination with fire-box G, auxiliary combustion-chamber *e*, and dampers N *n'*, substantially as and for the purpose set forth.

6. The oven D, having end perforations *b b'*, for the passage of hot air, in combination with the chamber *e*, damper F, and ash-pit E, substantially as described, and for the purpose set forth.

7. The flue *g*, in combination with the auxiliary combustion-chamber *e* and fire-box G, substantially as described, and for the purpose set forth.

8. The flue *g*, in combination with the chambers *f f* and *e*, auxiliary combustion-chamber *e* and fire-box G, substantially as and for the purpose set forth.

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5. The combination of the guards A, roller J, finger *h*, and lever K, as shown and described.

6. The combination of the diagonally-divided guide T, and the guides S S', as shown and described.

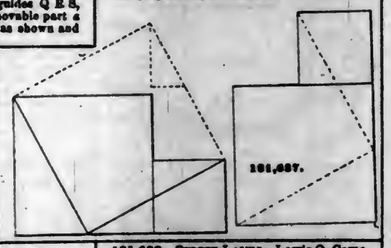
7. The combination of the guides Q R S, lever K, paste-trough B, and movable part *a* of the frame A, substantially as shown and described.

8. The combination of the weighted lever *s*, and guide R', as shown and described.

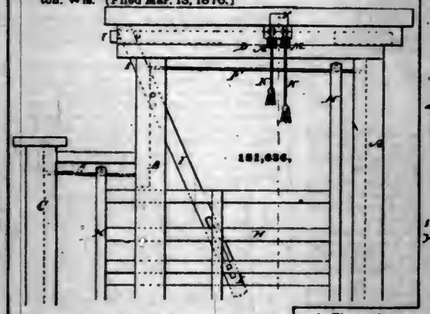
9. The guide V bent at the ends, passing through sleeves and supported by shoulder and pin against springs, as and for the purpose specified.

10. The combination of the hinged cover U, finger *d*, paste-trough B, and roller *j*, substantially as described.

The combination of the five blocks, consisting, respectively, of a trapezium, trapezoid, and three similar right-angle triangles, variable in their arrangement, as described, for the purpose of mechanically verifying the geometrical proposition, as set forth.



181,631. GATES. George W. Calkins, Milton, Wis. [Filed Mar. 13, 1876.]



1. The perforated semicircular plates E E, pivoted to the base-ring, and adapted to swing horizontally, for opening or closing the lower end of the lamp, as shown and described.

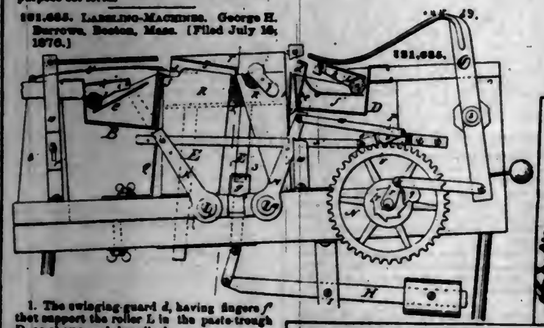
2. The hydrocarbon-holder, supported over the lamp proper by means of an arm, I, provided with a socket, which fits over an extension of the standard C, as shown and described, for the purpose specified.

181,632. STREET-LAMPS. Lewis O. Cameron, Pittsburg, Pa., assignor to himself and Newbold & Sons, Baltimore, Md. [Filed July 17, 1876.]

Brief.—Means of supporting the oil-reservoir; also, horizontally-swinging doors to allow access to the interior of the globe.



181,633. LABELING-MACHINES. George H. Barrows, Boston, Mass. [Filed July 16, 1876.]



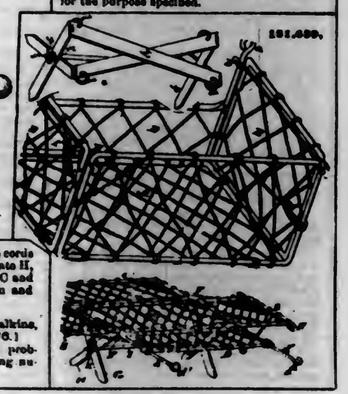
1. The swinging guard *d*, having fingers *f* that support the roller L in the paste-trough D, as shown and described.

2. The automatic label-feeding device, consisting of the weighted lever H, the table F, standard E, clamp *g*, and retaining-lip *f*, substantially as shown and described.

3. The combination of the guides Q Q' R R' S S', and table F, substantially as shown and described.

4. The combination of the weighted lever O, rod *i*, arm *r*, ratchet *r'*, wheel N, pinion *n*, cranks *o o'*, rods *u s'*, arms K and M, and rollers J L, as specified.

181,634.



The lever I, the sliding bar J, and the cords K, in combination with the suspended gate H, and its frame, consisting of posts A B C and bars F G, substantially as herein shown and described.

181,637. PUZZLE-BLOCKS. R. R. Calkins, St. Joseph, Mo. [Filed Aug. 7, 1876.]

Brief.—Illustrates the forty-seventh problem of Euclid, and is capable of forming numerous other figures.

181,639. FOLDING FLOWER BALCONY AND STAND. Emma B. Carver, Philadelphia, Pa. [Filed June 30, 1876.]

Brief.—The basket or balcony is made up of rods and wire woven together. The two sides and ends can be set upright or spread out into a plane. When set upright a box is formed; when spread out a shelf is formed for holding flower-pots. When used in a lawn, an iron frame fitted for its reception supports it above the ground.

1. A folding flower-balcony, composed of the bottom or frame A, and hinged sides B B C D, substantially as shown and described.

2. In combination with the folding sides of a flower-balcony, the holding devices E for holding said sides in an upright position, substantially as shown and described.

3. In combination with the folding sides B B C D, formed or provided with eyes or loops *f f*, the rods F for retaining said sides in the same plane as the bottom or frame A, substantially as shown and described.

4. The combination of the convertible flower balcony and stand, composed of the frames A B C D, with the stand G, composed of bar I and legs H H, the several parts being constructed and arranged for operation, substantially as shown and described.

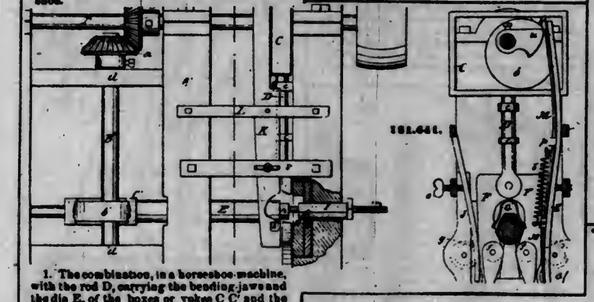
181,640. PLOWS. S. N. Cedarland, Solomon Rapids, Kans. [Filed May 27, 1876.]



The flat plow-share F, having an angular front edge, and the cutter G attached to the side thereof, the point or apex of said angle being nearer the cutter than the opposite side of the share, as and for the purpose specified.

181,641. HORSESHOE-MACHINES. John W. Chewning, Jr., Shadwell Depot, Va. [Filed May 20, 1876.]

Brief.—An adjustable gage-bar on both sides of the die, around which the blank is bent; a knife-bar sliding in ways on the gage-bar, through which the rod is fed, and reciprocated by cam and projection on its end. The bent blank is forced by the swaging-bar into the shaping-die, and ejected therefrom by means of an ejector connected with the swaging-die, and operated on the retrograde movement of the die. This ejector reciprocates through an opening in the shaping-die, and is in cross-section of the same shape and size as the inner periphery of the shoe, with a tongue on both sides to strike against the shoe.



1. The combination, in a horseshoe-machine, with the rod D, carrying the bending-jaws and the die E, of the boxes or yokes C C' and the shaft B B', connected by a bevel-gear, and having cams *b b'*, substantially as and for the purpose described.

2. The pivoted reciprocating bending-jaws F, having flanged or rabbeted edges *i*, in combination with the flanged stationary rollers *g*, substantially as and for the purpose described.

3. In a horseshoe-machine, the combination, with the swaging-die, of an ejector arranged in alignment upon the end of said die, and operated simultaneously with the die on its retrograde movement to eject the horseshoe, substantially as described.

4. The combination, with the die E, having a screw-socket in the end, of the rod *m*, sleeve I, and nut *n*, substantially as and for the purpose described.

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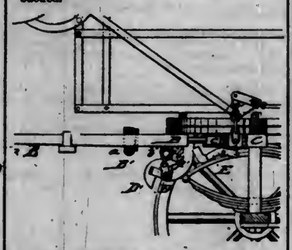
5. The die E and the perforated female die H H', having grooves *l*, in combination with the slide I, having tongues K, and the continuous rod *m*, having screw-threaded ends, and nut *n*, as and for the purpose described.

6. The knife-bar M, having cutting-edge *r* and projection *q*, in combination with the spring *t*, the bar *k*, having hole *s*, and the shaft S, having cam *u*, as and for the purpose described.

7. The combination, with the swaging devices, of the pivoted gage-bar J, having set-screw *o*, and the gage-bar *k*, carrying the knife, and having the set-screw *v*, substantially as and for the purpose described.

181,642. WAGON-BRAKES. M. S. Clark, Brooklyn, N. Y. [Filed July 31, 1876.]

Brief.—The brake is operated by the backward movement of the tongue. A treadle, which serves as a foot-rest for the driver, operates a mechanism, whereby the action of the brake may be arrested while the vehicle is backed.



1. The combination of sliding tongue B, having pin-shaped end, and the socket C of fifth-wheel, with rack and pinion *b d*, crank-arms *a'*, and brake-rod D, having fixed crank-arms, as described.

2. A wagon-brake, provided with a forked lever E, between the rear of tongue and socket C, as set forth.

3. The lever E, connected with a rock-shaft by swivel-chain, as and for the purpose specified.

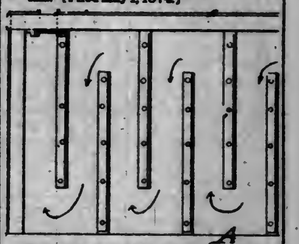
4. The guide-socket C, having slotted perforation to guide swivel-chain, substantially as described.

181,643. BRAKES FOR FIRE-TRUCKS. M. S. Clark, Brooklyn, N. Y. [Filed July 31, 1876.]

Brief.—A brake for the rear wheels of a hook-and-ladder truck operated by the steersman.

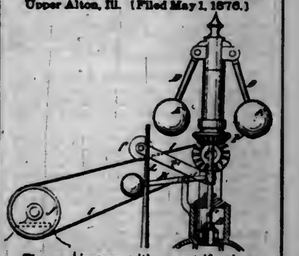
The combination of the fulcrumed treadle and crank-shaft of the truck-frame, by a connecting swivel-chain, with the crank-shaft and spring-acted brake mechanism of the fifth-wheel, substantially in the manner and for the purpose set forth.

181,644. SHUP-PANS. Jas. Clegg, Almond, Ala. [Filed May 1, 1874.]



The combination, with the partitions having an increasing height in regular gradations from the front to the rear of the pan, of the side passages *a*, whereby the varying depths of the partitions co-operate with the side spaces to obtain the advantages set forth.

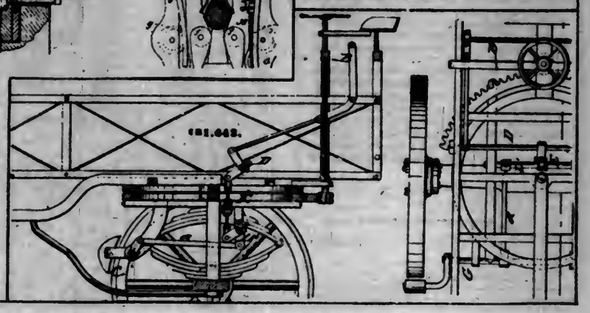
181,645. STEAM-GOVERNORS. J. W. Collet, Upper Alton, Ill. [Filed May 1, 1876.]

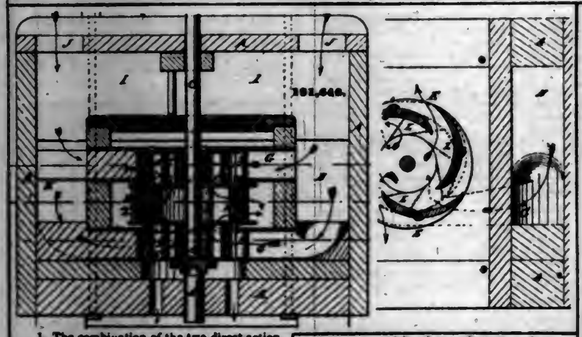


The combination, with a centrifugal governor, D E, and its driving-belt J, and customary connections, of the counter-balance K, operating to open the valve in opposition to the centrifugal pressure of the governor-balls and the arm P', resting by an idle-pulley, P, on the driving-belt, and connected with the counter-balance, so as to raise the same and close the valve in event of the breakage or unshipping of the belt.

181,646. TURBINE WATER-WHEELS. Edwd. Derby, Ridgway, Pa. [Filed Aug. 7, 1876.]

Brief.—Three wheels are attached to the shaft, and also rigidly attached to each other. The upper and lower wheels are direct-action wheels, and receive water upon their opposite sides, through the chutes, from the chambers at the opposite ends of the case. The water passes up from the lower, and down from the upper, wheel, so as to balance the thrust upon the shaft, and thus lessen the friction. The water enters the middle wheel on both sides of its center, and reacts, so that its whole force is utilized.





1. The combination of the two direct-action wheels D F and the central reaction-wheel E, with the shaft C and the case A, substantially as herein shown and described.

2. The case A, provided with the chutes G, the water-chambers H I, and the discharge-ejnozzle M, substantially as herein shown and described, to adapt it for use with the triple wheel D E F, as set forth.

181,647. AXLES. John H. De Valin, Baltimore, Md. [Filed Aug. 12, 1876.]

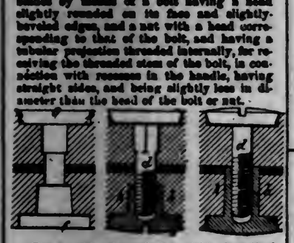


1. The detachable arm B, combined with the body A of the axle in such manner as to admit of its vertical adjustment with reference to the longitudinal center line of the said axle, substantially as shown.

2. In combination with the arms B, having the shanks a projecting therefrom, and body A, constructed at the ends thereof, as shown, the washers d and nuts e, the said washers and body having their opposing surfaces provided with teeth or serrations, substantially as and for the purposes set forth.

181,648. SECURING SAW-HANDLES TO BLADES. Henry Disston, Philadelphia, Pa. [Filed Jan. 28, 1876.]

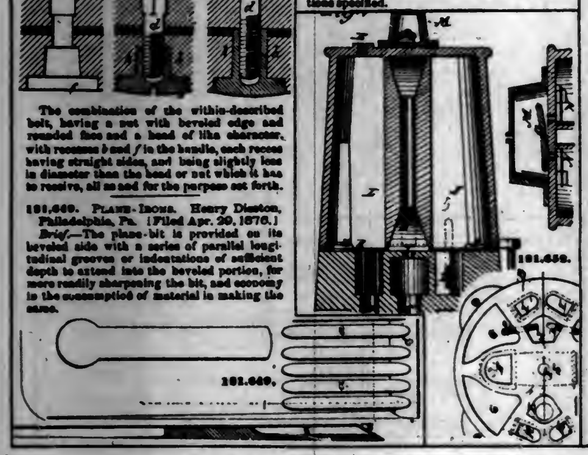
Brief.—Saw-handles are secured to their blades by means of a bolt having a head slightly rounded on its face and slightly-beveled edges, and a nut with a head corresponding to that of the bolt, and having a tubular projection threaded internally, for receiving the threaded stem of the bolt, in connection with recesses in the handle, having straight sides, and being slightly less in diameter than the head of the bolt or nut.



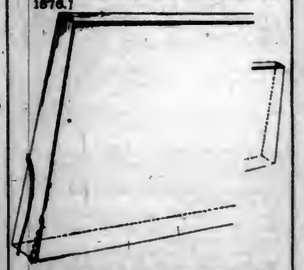
The combination of the within-described bolt, having a nut with beveled edge and rounded face and a head of like character, with recesses b and f in the handle, each recess having straight sides, and being slightly less in diameter than the head or nut which it has to receive, all as and for the purpose set forth.

181,649. PLANE-IRONS. Henry Disston, Philadelphia, Pa. [Filed Apr. 20, 1876.]

Brief.—The plane-bit is provided on its beveled side with a series of parallel longitudinal grooves or indentations of sufficient depth to extend into the beveled portion, for more readily sharpening the bit, and economy in the consumption of material in making the same.



181,650. SAW-BLADE BLANK. Henry Disston, Philadelphia, Pa. [Filed Jan. 21, 1876.]



A saw-blade blank made tapering from the butt to the outer end, and from the front to the back edge, and retaining on its faces the skin due to rolling, as herein set forth.

181,651. PROCESSES OF TREATING WOOD. Frederic Dixon, London, England. [Filed June 6, 1876.]

The process for treating wood, casks, or vessels, or the staves thereof, which consists in treating each, first, with a solution of hydrochloric or sulphuric acid; and, secondly, with a saturated solution of salicylic acid and bisulphite of soda, or other bisulphite or bisulphites, in the manner and for the purposes as hereinbefore described, said solutions being made in the proportions or about the proportions specified.

181,652.

As a new article of manufacture, a plane-bit having grooves or indentations on its beveled side, as specified.

181,653. STEAM VACUUM-PUMPS. William V. Dubois, Covington, Ind. [Filed July 11, 1876.]

1. In a vacuum pump, the combination of the working-chambers G, air-chamber J, discharge-chamber L, jet-pipes P, vacuum-chamber S, valves F I K, and the double rocking clack-valve O, arranged in chamber M, located at the top of the cylinder, and having ports N, all constructed and arranged as shown and described, to operate as specified.

2. The curved rocking valve O, in combination with the ports N of working chambers G G, said valve working in a horizontal seat, as shown and described, for the purposes specified.

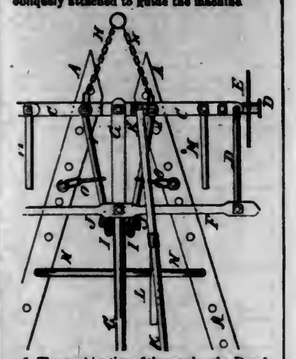
181,654. SLATES. Napoleon Du Brul, Cincinnati, Ohio. [Filed July 6, 1876.]



As a new article of manufacture, a slate having a solid frame, with the letters of the alphabet in the face of said frame in depress characters, to form a permanent and correct copy for the user of the slate, as herein set forth.

181,655. COMBINED CULTIVATOR AND HARROW. J. R. Dunlap, Sherman, Ill. [Filed Mar. 6, 1876.]

Brief.—A bent axle-tree carries on its outer ends each a disk cutting-wheel. Two bars, carrying harrow-teeth, are secured to the arched bar that is connected to the axle, each bar diverging rearwardly, leaving an open space at their front ends for the row of plants. A pair of cultivator-beams are pivoted to the forward transverse arched bar, their rear ends being adjustable. A pair of handles are obliquely attached to guide the machine



1. The combination of the crank-axles D and the rotary cutters E with the bar C and the V-harrow A B, substantially as herein shown and described.

2. The combination of the cross-bar F and the lever G with the crank-axles D, the rotary cutters E, the cross-bar C, and the harrow A B, substantially as herein shown and described.

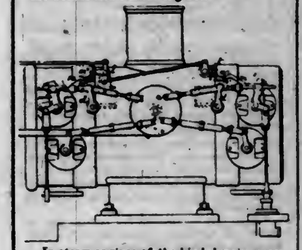
3. The combination of the lever K and pivoted bar L with the bar C, the V-harrow A B, and the plows I J, substantially as herein shown and described.

4. The combination of the pivoted bars M with the cross-bar C, the V-harrow A, the lever K, and the pivoted bar L, substantially as herein shown and described.

5. The combination of the cross-bar N, having its middle part raised, and an offset at the end of said raised middle part, in combination with the V harrow A B and the levers G K, substantially as herein shown and described.

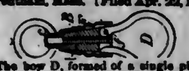
181,656. VALVE-GEARS FOR STEAM-ENGINES. Joseph Farcot, St. Ouen, France. [Filed July 21, 1876.]

Brief.—One of the inclines will trip the valve at any desired point during the forward movement of the gear; the other incline will trip the valve at any desired point during the back movement of the gear, so that there is a full range of cut-off for the whole stroke of the Corliss and similar engines.



In steam-engines of the kind herein specified, the combination, substantially as described, of the divided wiper, and the hook lever, formed with a double incline, these elements acting together, substantially in the manner set forth.

181,657. SWIVELS FOR WATCH-CHAINS. E. F. Fisher, North Attleborough, assignor of one-half his right to Jos. T. Bacon & Co., Wrentham, Mass. [Filed Apr. 22, 1876.]



1. The bow D, formed of a single piece of metal, attached to the cone or socket B by a fulcrum at one of its ends, and secured by a screw, A, which engages with a thread formed in one side of the bow, substantially as specified.

2. The conical shell or case F, in combination with the cone or socket B, provided with an internal screw-thread, arranged to operate substantially as specified.

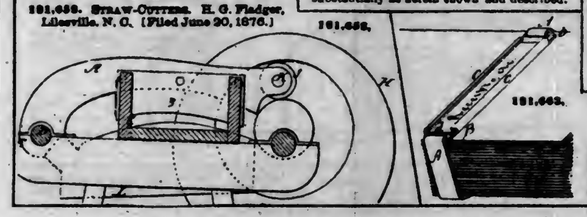
3. The bow D and cone or socket B, in combination with the conical shell or case F and the screw A, arranged and operated substantially as specified.

181,658. FENCING FOR THRASHING-MACHINES. John Potterton Fison, Tewersham, England. [Filed June 13, 1876.]



In a thrashing-machine, a balanced guard-cylinder, connected to, and acting in combination with, a swinging feed-board, substantially as herein shown and described, for the purpose specified.

181,659. STRAW-CUTTERS. H. G. Fledger, Lilesville, N. C. [Filed June 20, 1876.]



The balance driving-wheel H, having the eccentric groove I, in combination with the cutter-lever A, having the roller J mounted on the side of its free end, as described.

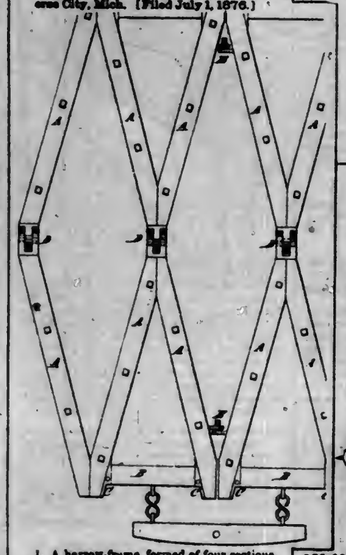
181,660. POST-HOLE AUGERS. G. Fletcher, Hume, N. Y., assignor of one-half his right to B. L. Brookins, same place. [Filed June 16, 1876.]

Brief.—A shaft of convenient length is provided at its upper end with a cross-handle. The lower end of the shaft is provided with a cross-bar, welded or otherwise securely attached. The ends of this cross-bar are bent downward and inward, and to each end, respectively, is attached a concave blade of triangular form, the points approaching each other, and one lip of each projecting slightly beyond its fellow.



The shaft c, cross-arm b, and handle d, constructed as described, in combination with the blades a a', secured, respectively, to the ends of the arms b at the right and left of their centers, in the manner substantially as and for the purpose specified.

181,661. HARROWS. Jas. M. Flower, Traverse City, Mich. [Filed July 1, 1876.]



1. A harrow-frame formed of four sections, A B, each section consisting of three bars, A, arranged in the form of the letter N, and connected at one end by a cross bar, B, substantially as herein shown and described.

2. The combination of the iron hinges D E with the four sections A B of the harrow, substantially as herein shown and described.

181,662.

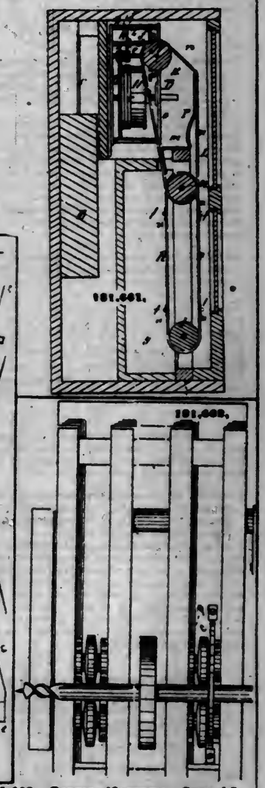
181,663.

181,664. ADVERTISING-CLOCKS. Arthur P. Ford and Lucian W. Farrar, Abington, Mass. [Filed May 29, 1876.]

Brief.—An auxiliary clock-movement is so connected with an ordinary clock as to intermittingly rotate an endless band, which displays a series of advertisements through a glass door below the clock-face.

1. The clock-movement B and drum D, with their weights and connecting mechanism, in combination with the shaft a, wheel H with its cogs g, pinion p, sprocket-wheels M N, chains w r s, rolls k l, and endless band E, substantially as described, for the purposes set forth.

2. The strips a, for attaching the advertisements in place, in combination with the rods t, chains r s, and rolls k l, substantially as described.



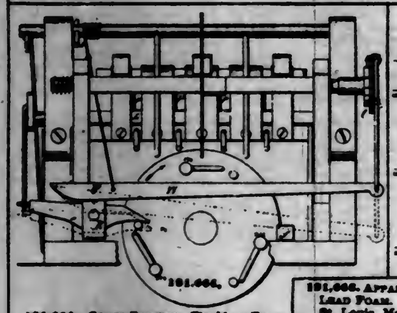
181,665. BORING-MACHINES. Samuel S. Forman and William Conlee, Mount Sterling, Ky. [Filed Mar. 24, 1876.]

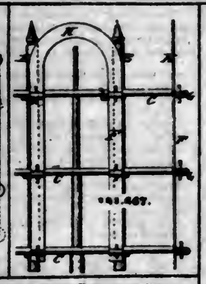
Brief.—In a machine for boring the holes in fence-posts, the auger-shaft is provided with a balance-wheel, and made to rotate upon friction-wheels mounted on a carriage, longitudinally adjustable by means of a rack and pinion and crank-shaft.

The combination of the auger-shaft, having a balance-wheel thereon, the friction-rollers, and the carriage upon which the friction-rollers are mounted, as and for the purposes described.

181,666. BELL-FILES. Julia Foster, Philadelphia, Pa. [Filed May 29, 1876.]

As a new article of manufacture, the improved file for papers, consisting of the flanged plate C, adapted to hold the indorsement-slip d and having the slotted and slit ears b and the endless elastic band A combined, substantially as described.





181,664. GRAIN-BINDER. Thaddeus Fowler, Seymour, Conn., assignor of one-half of his right to J. G. Wilber, Jr., and Isaac S. Richardson, Lake City, Minn., (Filed Mar. 9, 1876.)

In a machine for bundling grain, the combination of the following elements: a holder to receive the grain, an automatic beater to press upon the grain in the holder, a deliverer to take the grain from the holder, a mechanism, substantially such as described, between the deliverer and the beater, whereby a predetermined position of the beaters will cause the action of the deliverers to remove the grain from the holder.

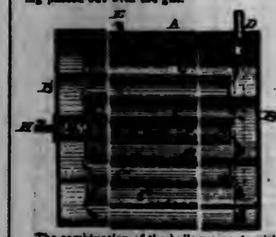
181,665. CARVING-FORKS. James D. Frary, New Britain, assignor to the Frary Cutlery Company, Bridgeport, Conn. (Filed July 1, 1876.)



In a carving-fork, the stationary guard and rest, or either of them, held in position by a boss cast around them and the shank of the fork, substantially as described.

181,666. GAS APPARATUS. Joseph Geisenberger, Philadelphia, Pa., assignor to Puth, Gormly, Sr., and Isaac Geisenberger, same place. (Filed Aug. 17, 1876.)

Brief.—The air-induction pipe is coiled once around the carburetor in the outer annular space, and is perforated throughout the length of the coiled part, for the purpose of uniformly distributing the air or gas through the absorbent material. A strainer covering the entrance to the eduction-pipe prevents globules of oil and mechanical impurities from being passed out with the gas.



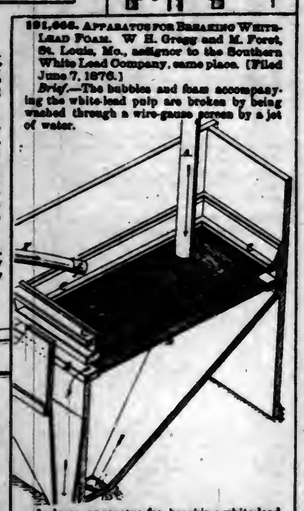
The combination of the bellow case A with liquid-pipe E, the series of partitions or cylinders C and C', connected, respectively, to the heads B and B', the perforated air-pipe D, extending entirely around the interior of one end of the same between the outer case and the first partition or cylinder, the strainer G, and gas-pipe H, all constructed substantially as and for the purposes herein set forth.

181,667. REVOLVING SNOW-STAND. O. P. Gould, Lewisburg, Pa. (Filed June 20, 1876.)

The combination, with spider-frames C, of the arch-bars F H, having loops at G, as and for the purpose specified.

181,668. APPARATUS FOR BREAKING WHITE-LEAD FOAM. W. H. Gregg and M. Forst, St. Louis, Mo., assignor to the Southern White Lead Company, same place. (Filed June 7, 1876.)

Brief.—The bubbles and foam accompanying the white-lead pulp are broken by being washed through a wire-gauze screen by a jet of water.



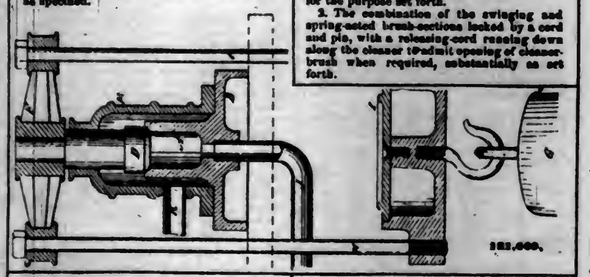
1. In an apparatus for breaking white-lead foam, the screen B, in combination with the foam-duct A, substantially as set forth.

2. In an apparatus for breaking white-lead foam, the screen B, combined with the foam-duct A and water-pipe F discharging therein, substantially as and for the purpose set forth.

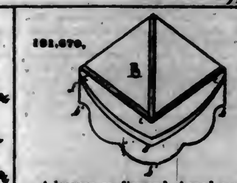
3. In an apparatus for breaking white-lead foam, the combination with the upper screen B of one or more screens, D, beneath it, with side overflows *d*, as and for the purpose set forth.

181,669. APPARATUS FOR TESTING STEAM-PRESSURE. Howard Greenleaf and Alfred Greenleaf, Brooklyn, N. Y. (Filed June 6, 1876.)

The combination of upright cylinder A, having valve D seated in the top, and the inlet-pipe J below the top, case E, beam F, rods H, weight-holder I, and weight G, substantially as specified.



181,670. ROOFING-TILES. J. Greenawalt, Pittsburg, Pa. (Filed July 26, 1876.)

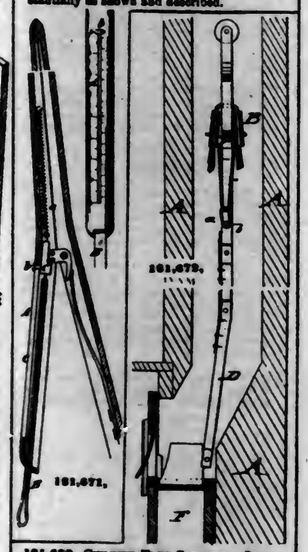


A lozenge or diamond shaped roofing-tile, elongated longitudinally across the rest, increasing in thickness from the upper to the lower edge, and having the rabbet from *c* to *b'*, ridge B, and groove D, substantially as and for the purpose described, as a new article of manufacture.

181,671. COMBINED GLOVE-STRETCHER AND HAND-MEASURE. M. Greenebaum, Harrisburg, Pa. (Filed June 12, 1876.)

1. The combination of a glove-stretcher and hand-measuring device, substantially as shown and described.

2. The combination of the jaw A, loop or measure B, spring *c*, index *b*, and scale *d*, substantially as shown and described.



181,672. CHIMNEY-FLUE CLEANERS. James Grimes, Portsmouth, Ohio. (Filed Apr. 4, 1876.)

1. A chimney-sweeper made of sectional links jointed together, and provided with swinging and spring-acted wing-brushes at the upper link or stem, substantially as and for the purpose set forth.

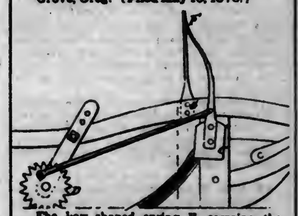
2. The combination of the swinging and spring-acted brush-sections locked by a cord and pin, with a releasing-cord running down along the cleaner to admit opening of cleaner-brush when required, substantially as set forth.

181,673. PROCESSES OF MANUFACTURING IRON AND STEEL. Wm. Harris, Sr., Reading, Pa. (Filed June 3, 1876.)



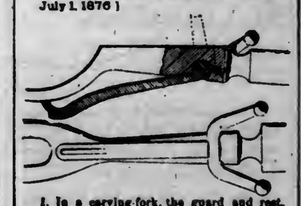
The process herein described for converting cast-iron into wrought-iron or steel, by first reducing the same with pulverized magnetic-iron ore within a chamber, and, when in a melted state, subjecting it to a water-bath, and then, when cool, melting it in another chamber with similar iron ore, the two chambers and receiver being arranged in the same furnace, substantially as herein set forth.

181,674. PLOWS. Stephen M. Harris, Forest Grove, Oreg. (Filed May 16, 1876.)



The bow shaped spring F, carrying the cleaver C, in combination with the beam and plow standard, and geared with a wheel, D, suspended from the beam, substantially as specified.

181,675. CARVING-FORKS. Geo. L. Hart, Bridgeport, assignor of one-half his right to J. D. Frary, New Britain, Conn. (Filed July 1, 1876.)

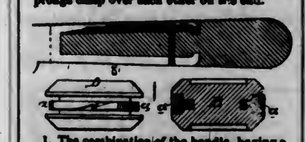


1. In a carving-fork, the guard and rest, combined by a transverse pintle of one and the same piece, with the guard and rest, seated in a cavity across the back of the shank of the fork, substantially as described.

2. In a carving-fork, the guard and rest, combined by a transverse pintle of one and the same piece, with the guard and rest, seated in a cavity across the back of the shank of the fork, combined with a spring bearing on said pintle, substantially as and for the purpose described.

181,676. ATTACHING KNIVES AND FORKS TO HANDLES. Glover S. Hastings, Unionville, Conn. (Filed Feb. 10, 1876.)

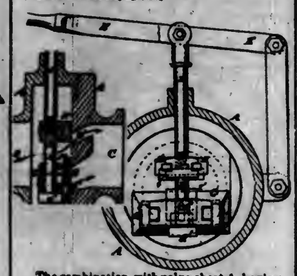
Brief.—Each part of the bifurcated or double-pronged tang passes in a deep groove around one side of the handle, and the two prongs clasp over each other on the end.



1. The combination of the handle, having a groove extending along its opposite edges and ends, with a blade having prongs *a a*, adapted to the groove, and curved and notched at their outer ends, so as to be interlocked and embrace the handle, all substantially as set forth.

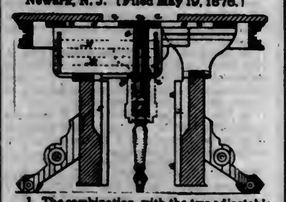
2. The combination of the prongs *a a* with a handle having a T-shaped groove deeper than the prongs are wide, and wider near the edges of the handle than the prongs are thick, as and for the purpose specified.

181,677. BALANCED THROTTLE-VALVES. Hubbard Hendrickson, Red Bank, N. J. (Filed Feb. 21, 1876.)



The combination, with valve-chest A, having inlet and outlet B C, of a valve-stem, D, limited in its movement through valve G by a nut, *d'*, and valve H, arranged as shown and described.

181,678. EXTENSION-TABLES. Geo. Heyl, Newark, N. J. (Filed May 19, 1876.)



1. The combination, with the two adjustable sections of an extension-table, of supports, adjustable on a line central with the table, in a position to uphold the inner ends of the divided leaves, as set forth.

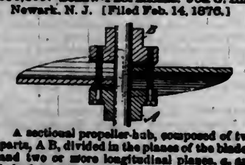
2. The combination, with the two divisions of the extension-table, of studs *a c*, as set forth.

3. The supports *c*, combined with the slides *c*, for the purpose specified.

4. The slides having slots to receive lugs *o* on the detachable leaves, as set forth.

5. A detachable leaf, consisting of two sections, provided at the ends with dowels and sockets, as set forth.

181,679. SCREW-PROPELLERS. Jos. G. Hill, Newark, N. J. (Filed Feb. 14, 1876.)



A sectional propeller-hub, composed of two parts, A B, divided in the planes of the blades, and two or more longitudinal planes, *a*, and bolted together and to the blades by bolts D, parallel to the shaft, substantially as specified.

181,680. OIL-CANS. Alonzo D. House, Ulster, Pa., assignor of one-half his right to Samuel Peterson, Stanhope, N. J. (Filed Aug. 7, 1876.)

As a new article of manufacture, the oil-can herein described, consisting of the cylindrical body A, having a removable top, to render its contents accessible through its open mouth, the inverted conical bottom B, and inclined tube C, the latter being provided with a faucet and passing through the body, as set forth.

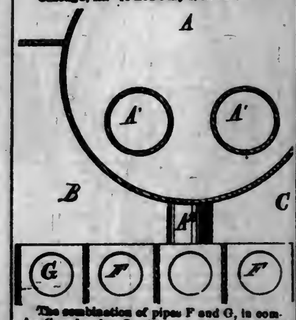
181,681. HORSE HAY-RAKES. Edgar Huson, Ithaca, N. Y., assignor to himself and Jno. M. Jamieson, same place. (Filed Apr. 26, 1876.)



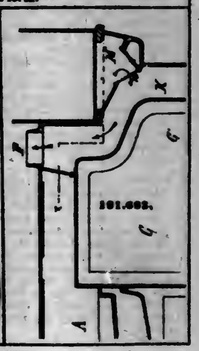
1. The combination, with the hinge A, pivoted in front of the axle, and its rear portion resting on the axle, of the rake-head H, connected with the hinge A by means of the connecting-rods F, shaft C, and pivots B, substantially as and for the purpose specified.

2. The combination, with the hinge A, constructed and arranged as described, the rake-head H, connecting-bars F, and shaft C, of the chain-wheel I, chain J, lever K, and hand-lever O, substantially as and for the purpose specified.

181,682. FURNACES FOR STEAM-GENERATORS. Reuben Jenkins and Henry Rudre, Chicago, Ill. (Filed July 1, 1876.)



The combination of pipes F and G, in combustion-chamber C, with cells D D E' E' and pipes or flues A' A', substantially as and for the purpose set forth.



181,683. COOKING-STOVES. Josiah Jewett, Buffalo, N. Y., assignor to Jewett & Root, same place. [Filed June 14, 1876.]

Brief.—When both dampers are closed the draft is under the oven; when the upper one is closed and the lower open it is under the reservoir; when the upper is open it is direct.

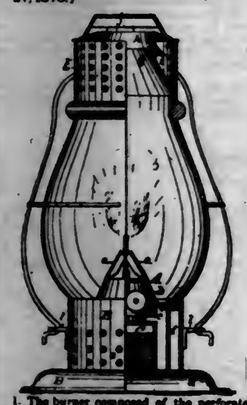
In a cooking-stove, the combination, with the oven O, provided with the lower rear extension O', and two sets of diving and ascending flues, one in the same vertical plane with, and the other in rear of, the exit-passage F, of the horizontal or nearly horizontal flue-chamber H, arranged above the rear set of vertical flues, the covered central flue K being slightly beveled or depressed below the top of said chamber, and provided with opening a and damper c, substantially as and for the purpose herein before set forth.

181,684. STOP-VALVES. James D. Keegan, New York, N. Y., assignor to himself and James D. Keegan, Jr., same place. [Filed July 22, 1876.]



The combination of the casing A, valve B, flange *f*, and balls *d*, as shown and described.

181,685. LANTERNS. Henry C. Kelly, Chicago, Ill., assignor of one-half his right to August Hellmuth, same place. [Filed July 27, 1876.]



1. The burner composed of the perforated cap *b* and the wick tube, in combination with the deflectors *a a*, as and for the purpose described.

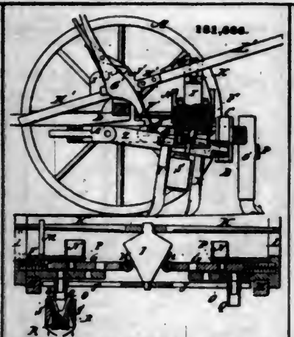
2. The base consisting of raised disk *d*, perforated cylinder *c*, having rim *e*, and the cup ply-tube *f*, arranged as described, in combination with the oil-receptacle, having a burner with cap *b*, substantially as and for the purpose described.

3. The laterally-perforated cap-piece E, having flanges *g h* and raised plate *j*, combined with the chimney, and adapted to be held thereupon, for the purpose described.

4. The base-piece E, having hooks *i*, opening laterally, in combination with the guards attached to a cap-piece, and having catches *k*, adapted to ensure the parts together, substantially as described.

181,686. COMBINED PLANTER, CULTIVATOR, AND MARKER. Jos. K. Kelly, Algonquin, Ill. [Filed Mar. 21, 1876.]

Brief.—There are two seed-boxes mounted upon a rectangular frame supported upon two wheels. The seed-slides work in opposite directions from the center, being pushed inward by spiral springs, and outward by a wedge-shaped cam worked by a hand-lever. The seed-space, with its dropping-valves, is located immediately in rear of the furrow-opener, followed by the covering-shares and rollers.



1. The combination of the wedge I, the rollers H, and the lever K, with the dropping-slides G, the box F, and the slotted standards L, substantially as herein shown and described.

2. The combination of the perforated rubber blocks O, and the perforated rubber plates P, with the dropping-slides G, and the bottoms of the hoppers E, substantially as herein shown and described.

3. The combination of the valve-blocks R, the valve-box S, and the cross-bar J, with the plow-standards T, and with the wedge I that operates the dropping-slides, substantially as herein shown and described.

4. The combination of the bar F' with the roller-standards O', to receive the couplings Y of the plow-standards T X, substantially as herein shown and described.

181,687. MILK-BOILERS. John H. Kinsman, Salem, Mass. [Filed June 12, 1876.]

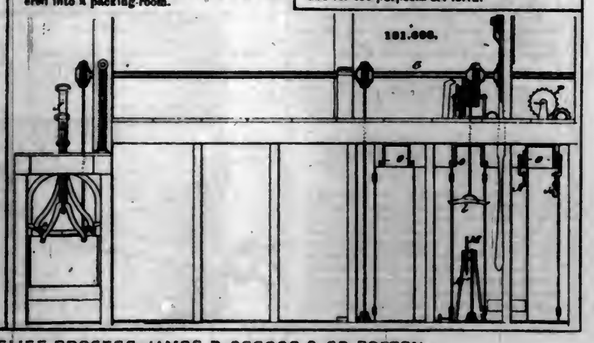
Brief.—The parts can be nested for packing, and are designed to keep milk from boiling over.



The within-described device for the use in boiling milk, consisting of truncated cone B, perforated at *b*, or with serrated base, and provided with neck *b'*, and truncated cone C, notched or serrated at *c*, and having neck *c'*, the whole constructed and combined substantially as and for the purpose set forth.

181,688. SLAUGHTERING APPARATUS. E. Knott, London, Ontario, Canada. [Filed Mar. 19, 1876.]

Brief.—The animal enters a trap-pen; is secured, slaughtered, skinned, and opened; is thence drawn on a car by a windlass, and conveyed upon a tramway to elevators, which lift it to a cutting apparatus; and is thence lowered into a packing-room.



181,689.

1. The combination, with the hinged stall-floor G, of the supporting-rod, provided with a spring, *g*, as shown and described.

2. The combination of the vertically-sliding parts D and E of the stall-door, and their catch-rods or bandles, operating as specified.

3. The wheel-tracks, the tramways attached to the ceiling both within and without the freezing-house Q, and the car P, having sections of tramways applied to its under side, and running on rails or ways transversely of the tramways, all combined as shown and described, to operate as and for the purpose specified.

181,690. SCHOOL-DESKS. Morris Lancaster, Richmond, Ind. [Filed July 19, 1876.]



1. The pawl or dog, secured to the swinging lid, and adapted to engage with, or be disengaged from, the stop with which it registers automatically by the movement of the lid upon its hinge or pivot, substantially as described.

2. The pawl or dog, pivoted to the supporting-arm or other portion of the desk-lid, and in combination with the spring or short arm *a*, the lip G, shoulder H, and curved portion of the recess E, substantially as and for the purposes set forth.

181,691. CAR-COUPLINGS. Wm. F. Leopold, St. Joseph, Mo., assignor of one-half his right to Pierre Le B. Coombs, same place; said Leopold and Coombs assignors of one-third their right to Littleton R. Lancaster, same place. [Filed June 17, 1876.]

1. The draw-head, which, while of ordinary general exterior form of construction, and provided with top and bottom holes adapted for an ordinary drop-bolt, is also provided with the channels *c* and *b*, which together compose a continuous channel inclining downward from the front of the draw-head, and adapt the same for a shifting and swinging piece, *f*, as and for the purposes set forth.

181,692. HORSESHOE-BLANKS. Benjamin M. Legg, Belmont, assignor of three-fourths of his right to Dwight D. Kimal, Wm. L. Pitts, and Abbott L. Starr, Piatt County, Ill. [Filed Aug. 5, 1876.]

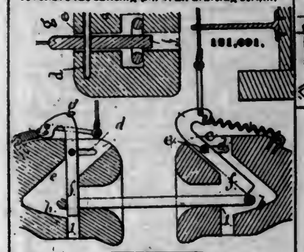


A horseshoe-blank, A, of wrought-iron, having an extension, A', in one piece therewith, which is adapted to be turned down, so as to form a toe-calk to prevent slipping on hard ground, stone, wood, or ice, substantially as and for the purpose set forth.

2. In combination with the channels *b* and *c*, the horizontal slots *d d'*, adapted to allow an automatic forward and backward movement of the shifting pivot-pin *e*, on which the swinging-piece *f* is sustained.

3. The swinging piece *f*, overbalanced on its top at its rearward end, as shown and described, in combination with a horizontally-shifting fulcrum-pin and the resisting spring, substantially as set forth.

4. The combination of the weighted piece *f*, the horizontally and automatically shifting fulcrum-pin *e* and the upper and lower bearings or abutments in the draw-head, serving to relieve the shifting-pin of all drafting strain.



181,693. MACHINES FOR CLIPPING HORSES. P. A. Lhernault, New York, N. Y. [Filed Feb. 24, 1876.]

Brief.—A shearing-machine actuated by a spring-motor is provided with a vane-governor, which serves to regulate the speed, and as a fan-blower, to blow the cut hair away from the knife, so as to enable the operator to watch closely the progress of his work.



In a device for clipping horses, the combination, with a spring-motor, of a circular reciprocating cutter, and a vane-governor, for maintaining uniformity of speed, and blowing away the cut hair.

181,694. CANT-HOOKS. William A. Lloyd, Cheshire, Mass. [Filed June 6, 1876.]

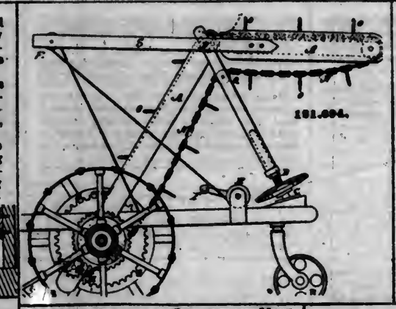
Brief.—The cant-hook is provided with a spiral spring, one end of which is attached to the lever, and the other end to an eye formed in the hook beyond the point, for the purpose of throwing the hook against the log and insuring a bite.



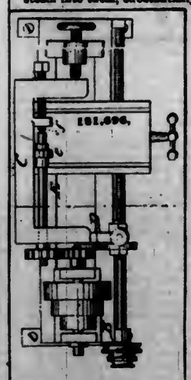
The cant-hook herein described, consisting of a lever, A, encircling-strap B, having ears C, pivoted hook D, provided with extension or heel beyond the pivot-point, and the spiral spring E, all the parts being constructed and relatively arranged as herein set forth, for the purpose specified.

181,695. HAY-LOADERS. C. Loader, East Peunard, England. [Filed June 27, 1876.]

The upper jointed section of the frame A, provided with arms S, and combined with the elevator N O, the pulleys Q, and the cord-and-pulley mechanism E F, substantially as and for the purpose described.



181,697.



181,696.

181,698. SEPARATING GELATINE AND MEAT FROM BONES AND RENDERING LARD AND TALLOW. Asel Storrs Lyman, New York, N. Y. [Filed July 16, 1876.]

Brief.—When lard is rendered by this process, dispenses with inner cylinder, lets steam into the bottom, and discharges directly into the reservoir beneath. Revivifies bone-black by the process herein.

1. The mode of removing the gelatine, fat, and meat from bones by first heating them under pressure, and then suddenly reducing the pressure around them to such an extent that a portion of the water shall be flashed into steam, and press the gelatine and fat before it out of the bone, and remove the meat, substantially as specified.

2. Heating the bones under pressure, and then suddenly reducing the pressure around them to such an extent that a portion of the water shall be flashed into steam and press the gelatine and other animal matter before it out of the bone, and then removing any gelatine remaining on the surface of the bones by passing a current of steam downward through them, in the manner substantially and for the specified purposes.

3. Rendering tallow and lard by heating it under pressure, and then suddenly reducing the pressure around it to such an extent that a portion of the water contained in each of the little membranous cells shall be flashed into steam, and rupture the cell and force out the fat contained in it, in the manner substantially and for the purposes specified.

4. Heating the bones, then removing the pressure and sending a current of steam down through them, for the purpose of washing off the gelatine that has been driven out from them by the sudden flashing of water into steam into them, substantially as specified.

181,699. MILLING ATTACHMENTS FOR LATHES. William Main, Jr., Columbia, S. C. [Filed July 11, 1876.]

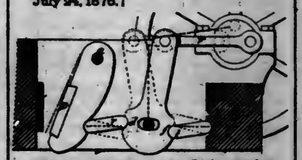
Brief.—One arm of the swinging frame, prolonged beyond the lathe-center, carries at its end a screw-bolt, that passes through a slotted arm that projects up from the lathe bed, and is tightened thereto at any desirable position by a nut.

The combination of the swinging cutter-carrying frame C, applied to the lathe-centers, with a slotted arc-shaped standard clamped to the lathe, and provided with a clamp-screw and adjusting tangent-screw, substantially in the manner and for the purpose specified.

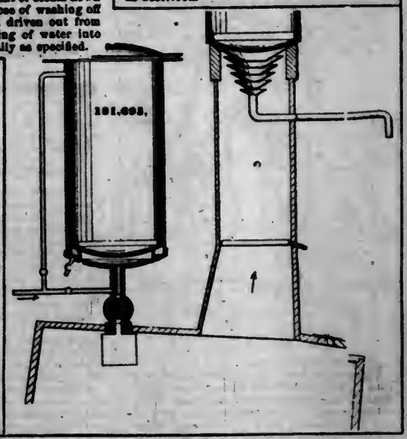
181,697. WASHING-MACHINES. Micajah D. Martin, Marietta, Iowa. [Filed June 26, 1876.]

The lever D, turning cross-bar E, uprights F, bolts G, and adjusting-nuts H, combined with the rubber B, substantially as specified.

181,698. STONE-CRUSHERS. S. L. Marsden, New Haven, Conn., assignor to the Blake Crusher Company, same place. [Filed July 24, 1876.]



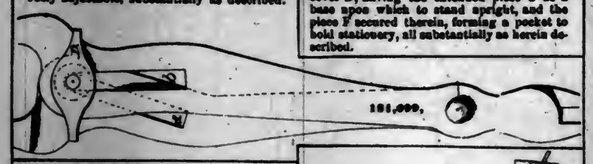
As an improvement in the Blake crusher, the combination of the crushing-jaw and a reciprocating lever hung upon a movable fulcrum, with a block between the said lever and jaw on one side, and between the lever and abutment on the opposite side, substantially as described.



181,690. WRENCHES. Thos. McDonough, Mont Clair, N. J. [Filed Feb. 26, 1876.]

Brief.—The double-jawed arms are adjusted to and from each other by a bolt riding the slots, and clamped by a set-screw.

A wrench constructed with pivoted arms, provided with jaws at each end, simultaneously adjustable, substantially as described.



181,699.

181,700. OILERS FOR LOOSE PULLEYS. H. McGraw, Detroit, Mich. [Filed May 26, 1876.]

In oilers designed to be fastened to the hub of loose pulleys, and to rotate therewith, a tube, C, and stem D, provided with a cap-valve, A, the said tube extending nearly to the top of the cup A to allow but little play to the stem, substantially as described and shown, for the purpose set forth.



181,700.



181,701.

181,701. PIPE-TONGS. Duncan McLaren, Brooklyn, N. Y. [Filed July 3, 1876.]

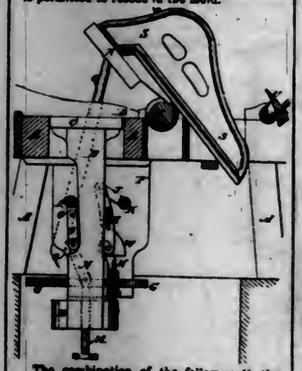
Brief.—The hook may be recessed instead of perforated, for the end of the lever to pass into it.

1. The pipe-tongs, lever L, having on its outer and forward edge the toothed surface T, and on its inner forward and plain edge the surface O, opposed to the body of the hook, as shown and described.

2. The hook H, provided with the V and the slot S, and the lever L, provided with the toothed surface T, opposed to the V of the hook, and the surface O opposed to the body of the hook, in combination.

181,702. BRICK-MACHINES. Ferdnd. Michel, Dallas, Tex. [Filed July 31, 1876.]

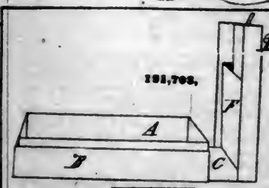
Brief.—The cap-block is held in position to receive the pressure of the brick by means of the lever, whose opposite end is supported by the eccentric shaft. The thickness of the brick is regulated by the distance the follower is permitted to recede in the mold.



The combination of the followers C, the bars D, the block E, the studs or rods H H, the links I H, the arms J O, the shafts K F, the levers L Q, the cap-blocks R, the lever S, and the eccentric shaft U with each other, and with the frame A, plates or frames F, and the plate G, substantially as herein shown and described.

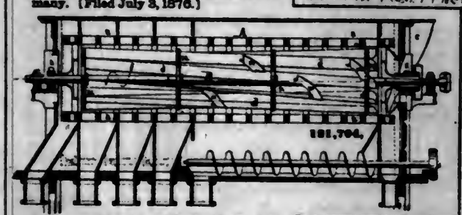
181,703. PAPER BOXES. Elisha Morgan, Springfield, Mass. [Filed July 26, 1876.]

The combination, of the box A, with the cover D, having the extended piece C as a base upon which to stand upright, and the piece F secured therein, forming a pocket to hold stationery, all substantially as herein described.



181,703.

181,704. FLOUR-DRESSING MACHINES. A. C. Nagel and R. H. Kaemp, Hamburg, Germany. [Filed July 3, 1876.]



181,704.

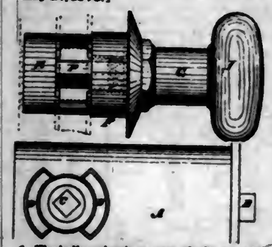


181,707.

1. The combination, with the blades *d* of the agitator B, of one or more auxiliary blades *a*, set at a greater inclination to the axis of said blades, substantially as and for the subject specified.

2. In combination with the agitator B and meal or dressing-cylinder A, the partition-plates *a*, one or more, arranged substantially as and for the object specified.

181,705. ATTACHING KNOB-ROSES TO DOORS. M. C. Niles, Chicago, Ill. [Filed May 27, 1876.]



1. The hollow shank, composed of two parts, K and J, interlocked and secured together by a piece, O, substantially as described.

2. The door-lock, constructed with a slit or slits on each side of the lock, in such a manner as will allow the tube E to pass through the slits, over the hub, and through the lock, and permit of the free operation of the hub and parts of the lock by which the latch is moved, substantially as described.

3. The combination of a lock, A, constructed with slots D in both plates of the case, arranged opposite to each other, and a tube, E, divided by slits extending from one end thereof nearly to the other, substantially as and for the purpose set forth.

4. The combination of a lock, A, constructed with slots D in both plates of the case, arranged opposite to each other, a tube, E, divided by slits extending from one end thereof nearly to the other, and roses G, attached to the ends of the tube on opposite sides of the lock, substantially as and for the purposes set forth.

5. The combination of a lock-case, having slots D in both plates thereof, arranged opposite to each other, a tube, E, slitted as described, and passing entirely through the lock-case from side to side, and a hub of ordinary construction, supported by the plates of the lock-case, and within the tube, substantially as set forth.

6. The combination of the rose G, the knob I, having a shank made in two parts, K and J, and the piece or plug O, substantially as specified and shown.

181,706. POCKET-CALENDARS. B. F. Norris, Chicago, Ill. [Filed June 8, 1876.]

The disk A, having indentations *d*, corresponding to the division of its face, in combination with the disk A', pivoted concentrically thereto, and having a stud, *c*, projecting upon one side to form a knob for turning, and upon the other to form a locking-stop to engage with the indentations, substantially as and for the purpose described.



181,706.

181,707. DRAFT-EQUALIZERS. C. W. Nuss, Coloma, Mo. [Filed May 24, 1876.]

The combination of the removable bar A, for direct attachment to the draft-clevis, and equalizing-bars C C', attached to the bottom and top of the bar A, respectively, as described, carrying at the outer end E a single-tree, and at the inner end a hook, or equivalent device, for direct attachment of the harness-trace, substantially as set forth.

181,708. SPOKE-SOCKETS. H. Oldendorph, Waterloo, Ill. [Filed Aug. 7, 1876.]

Brief.—The socket is made of two separate pieces of sheet metal pressed into proper shape.

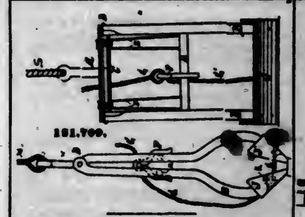


As a new article of manufacture, plates C, provided with shanks *c'*, and so formed as to fit upon the side of a felly and spoke, to fasten said spoke when broken off at the shoulder of its tenon, substantially as herein shown and described.

181,709. APPARATUS FOR CLEANING CHIMNEYS. Miles D. Osgood, Indianapolis, Ind., assignor of part of his right to David N. Huoy and Charles W. Tyer, same place. [Filed Aug. 10, 1876.]

Brief.—The springs tend to expand the arms, and keep the scrapers in contact with the walls of the flue. The arms may be brought together by means of the rope and pulley. The clamp holds them together while the apparatus is being lowered in a chimney.

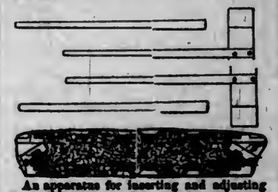
The combination, in a chimney-cleaner, of the frames B B, pivoted or hinged to the bar C, provided with an extended arm, A, bars H H, and scrapers J J, with the clamp F, ropes S G G', springs E E, and pulley K, to raise and lower the apparatus and to expand and contract the scrapers, substantially as and for the purpose hereinbefore set forth.



181,709.

181,710. APPARATUS FOR FILLING COMFORTABLES. Frank L. Palmer, Montville, Conn. [Filed Apr. 15, 1876.]

Brief.—The cotton or other filling is laid upon one of the racks, and the detached rods laid upon it near the ends of the frame, and the hinged rods turned over, so as to fold the filling over the detached rods. The other rack is then placed on the top of the filling, and both frames, grasped by the hand, are inserted within the casing, which is made in the form of a bag. Upon reaching the bottom the upper frame is withdrawn, the filling smoothly spread by the movable rods, and the lower frame removed, leaving the filling ready for quilting.



An apparatus for inserting and adjusting the filling in comfortables and blankets, and for similar purposes, consisting of a pair of adjustable racks or frames, constructed and arranged to operate in connection with each other, substantially as herein described.

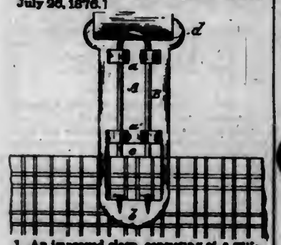
181,711. SEWER STENCH-TRAPS. Harvey H. Parry, Columbus, Ohio. [Filed July 3, 1876.]



1. In a sewer-trap, a horizontal shaft with three or more radial buckets attached thereto, and segmental guards or casings for said buckets to work in, when rotated by the water passing into the trap, substantially as set forth.

2. The combination of the frame A, segmental casings C D, horizontal rotating shaft *d*, and buckets G G, provided with elastic strips A, all constructed substantially as and for the purposes herein set forth.

181,712. CLASPS. Simon B. Parker, Brooklyn, N. Y., assignor of one-half his right to Hamilton B. Follett, same place. [Filed July 26, 1876.]

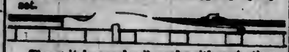


1. An improved clasp, consisting of a suitable frame-work, adapted to receive a sliding pin or pins, and formed with a plate at one of its ends, against which the points of said pins bear after being passed through the material, substantially as and for the purpose set forth.

2. The combination, with a sliding pin or pins, B, of a frame-work, A, constructed with the heads *a a'*, depression *b*, and open space *c*, substantially as and for the purpose set forth.

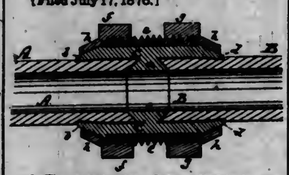
181,713. RAILROAD-SWITCH GUARDS. F. P. Peace, Maryville, Tenn., assignor of one-third his right to R. Walker, same place. [Filed May 9, 1876.]

Brief.—The guard-rails have curved hooks, designed to catch the wheels in case they run off on account of the switch being improperly set.



The switch guard-rail, made with projecting head or catch near the end of the guard that is curved below the level of the tracks, substantially as specified.

181,714. PIPE AND HOSE COUPLINGS. Henry Pennie, Brooklyn, N. Y., assignor to himself and James L. Sharp, New York city. [Filed July 17, 1876.]



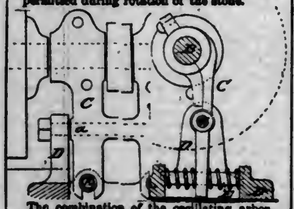
1. The combination of the cylindrical continuous sleeve C, with the pipes A and B, which are indented or grooved, to receive the ends of the sleeve, substantially as herein shown and described.

2. The combination of the sleeve C, which has tapering ends *b d* of flexible material, with the nuts *f* and *g*, which have conical extensions *h*, all substantially as herein shown and described.

3. The process, herein described, of joining two ends of pipe A B by inserting them within a cylindrical continuous sleeve, and thereupon crowding the ends of said sleeve closely against the pipes, substantially as specified.

181,715. MOUNTINGS FOR EMERY-GRINDERS. Chas. A. Perkins, Fisherville, N. H. [Filed July 31, 1876.]

Brief.—The journal-bearings of the grinding-wheel extend downward, are centrally pivoted, and their lower bifurcated ends stride transverse rods, on which are mounted coiled springs, one on each side of the bifurcated ends, by which an elastic swinging motion is permitted during rotation of the stone.



The combination of the oscillating arbor-carrying frame C, having slotted lower ends, with lateral rods B and spiral springs E', of base-plate D', substantially as and for the purpose described.

181,716.



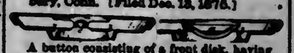
181,716. NUT-LOCKS. Charles Fiehlen, St. Louis, Mo., assignor, by mesne assignments, to William W. Wells, Truman L. Holmes, and David T. Welch, same place. [Filed Feb. 24, 1876.]

Brief.—The nut is provided with interior triangular slots through its threaded portion, and is hollowed out and provided with sharp abutting corners on its under side, so as to spring it inwardly and bind it securely upon the threaded portion of the bolt without weakening the nut.

1. The nut A, having the interior triangular-shaped slots *c* passing through the threaded part of the nut, with projecting corners *d*, substantially as and for the purpose set forth.

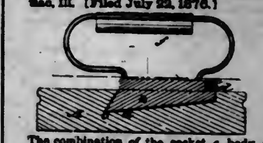
2. The interior triangular-shaped slot *c*, formed in the nut, as and for the purpose set forth.

181,717. BUTTONS. Clark M. Platt, Waterbury, Conn. [Filed Dec. 12, 1876.]



A button consisting of a front disk, having the bar *a* integral therewith, and the back disk or shell formed with the hub *b*, said hub having the projections *c* to support the rear ends of the bar, substantially as and for the purpose specified.

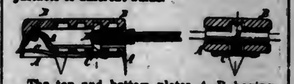
181,718. FLAT-IRON HEATERS. Franklin A. Powell and Susanna L. Robinson, Pontiac, Ill. [Filed July 22, 1876.]



The combination of the socket *c*, body A, part *b*, hollow portion *f*, latch *d*, and hook *e*, substantially as shown and described.

181,719. ADJUSTABLE POCKET-BOOK FASTENERS. Daniel M. Read, New York, N. Y. [Filed Apr. 4, 1876.]

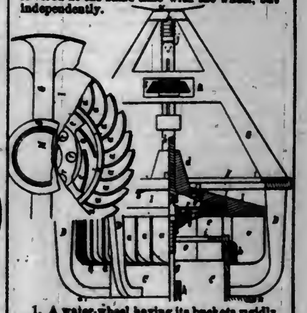
Brief.—By reason of the groove in upper and lower plates, lateral displacement of the catch of the closing-flap is prevented. The groove being serrated renders the book adjustable to different bulks.



The top and bottom plates A B, having each a corrugated channel, in combination with a face-plate, D, having a catch on both sides, substantially as and for the purpose specified.

181,720. WATER-WHEELS. A. J. Robinson, Fremont, N. H. [Filed Mar. 4, 1876.]

Brief.—The quantity of water admitted to this wheel is regulated by moving the wheel itself in the direction of the length of its shaft, and it is so constructed that the pressure of the water sustains the weight of the wheel, which may be raised or lowered by a screw, or equivalent device, against which the wheel presses counter to the pressure of the water aforesaid; also, the constructing and locating the guides, which direct the water to the buckets, so that they may be raised or lowered at the same time with the wheel, but independently.



1. A water-wheel having its buckets rigidly fixed to the plate or body of the wheel, which is moved in the direction of the length of its shaft to regulate the amount of water received by its buckets, substantially as hereinbefore described.

2. In combination with a water-wheel, constructed and adjusted to act as its own gate, substantially as herein before described, guides *a* and their supporting frame or plate *c*, moved in the same direction with that of the wheel, substantially as and for the purpose hereinbefore set forth.

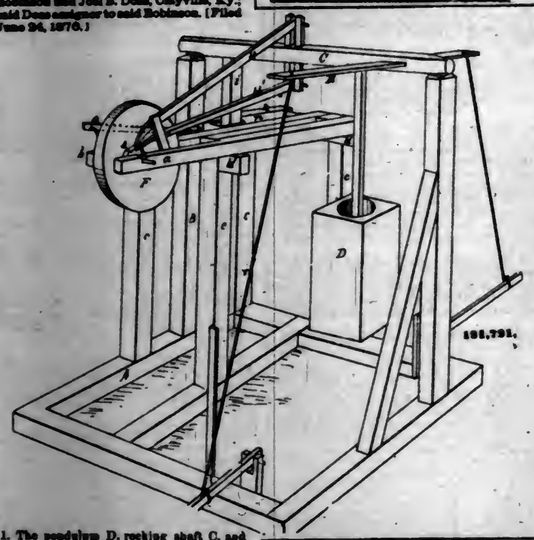
3. A water-wheel, having a step, *f*, at the upper or outer end of its shaft, as a counter step or pressure to the pressure of the water, the position of said step being regulated by a screw, F, substantially as herein before specified.

4. The combination of the guide-plate *e*, guides *c*, annular plate *d*, and cylinder C, substantially as herein before described.

5. A water-wheel having one or more hand-holes, *e*, located substantially as herein before shown and described.

6. A water-wheel which receives the water internally and discharges externally in both a horizontal and vertically-downward direction or a horizontal and vertically upward direction, according to the position of the wheel, substantially as herein before set forth.

181,721. PENDULUM-MOTOR. Oscar B. Robinson and Joel B. Dunn, Chayville, Ky.; said Dunn assignor to said Robinson. [Filed June 24, 1876.]



181,721.

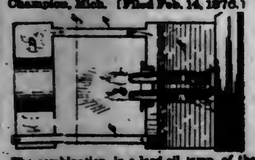
1. The pendulum D, rocking shaft C, and trick-lever *i*, in combination with the slider *n*, pitman *o*, and wheel F, arranged substantially as described, and for the purpose specified.

2. The combination of the pendulum D, shaft C, pawls H and H', with the wheels F *e*, arranged substantially as described, and for the purpose specified.

3. The combination of the pendulum D and shaft C with the lever E, rods *c'*, and levers I, arranged substantially as described, and for the purpose specified.

4. The arrangement of the uprights A, shafts C, pendulum D, levers E and I, trick-lever *i*, slider *n*, pawls H and H', pitman *o*, and wheels F *e*, substantially as described, and for the purpose specified.

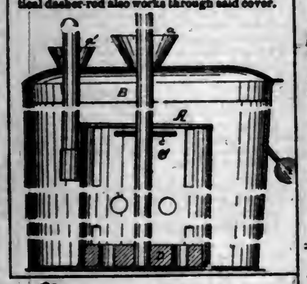
181,722. LARD-OIL LAMPS. John Roemer, Champion, Mich. [Filed Feb. 14, 1876.]



The combination, in a lard-oil lamp, of the drum D and oil-chamber A, connected by heat-conducting air-pipes B, substantially as and for the purpose specified.

181,723. CHURNS. David J. Rogers, Bardstown, Ky. [Filed July 26, 1876.]

Brief.—The churn-cylinder, within a larger cylinder, is perforated, and has a handle passing through the cover of the outer vessel, by which handle it is held in place, while its vertical dasher-rod also works through said cover.



1. The perforated tube C, having a projecting handle, B, for holding the same in position, in combination with a dasher, forming a churning device adapted to be used within any adequate size or form of containing-case, substantially as described.

2. The perforated tube C, having a socket, *b*, and projecting handle B, in combination with a dasher, D, a containing-case, A, and a cover, B, having funnel-shaped openings *a a'*, substantially as and for the purpose described.

181,724. VENT-FAUCETS. Alex. B. Rossy, Pittsburg, Pa., assignor of one-half of his right to Christopher L. O'Connor, same place. [Filed June 13, 1876.]



1. In combination with the partition-body and perforated valve of a bib-cock, a puppet-valve, *a*, provided with a float, and having a grooved or channeled stem, said puppet-valve being adapted to fall by gravity and to rise by the pressure of the water, so as to open and close the air-vents, substantially as described.

2. In combination with the valve of a bib-cock, perforated as above, a grooved or channeled puppet or other valve, *a*, substantially as shown and described.

181,725. ELLIPSOGRAPH. Henry C. Root, San Francisco, Cal. [Filed July 11, 1876.]

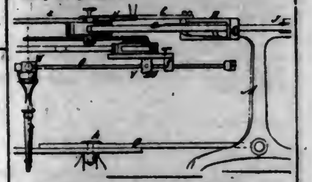
1. The standards A B, ways C, rollers J, slided D, yoke H, and adjusting-screws I, combined and arranged substantially as specified.

2. The centers E F, rings K, cranks L N, and slides D, combined and arranged substantially as specified.

3. The centers E F, connected adjustably by the crank L, center stud M, and binding-screw *m*, substantially as specified.

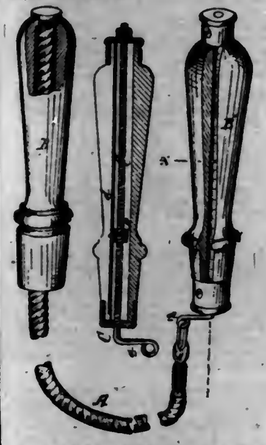
4. The center F, crank L, screw *d*, plate T, bearings S, clamp-nut U, and the sweep O, combined and arranged substantially as specified.

5. The sweep O, slide W, set-screw X, stock Y, set-screw Z, and key *f*, combined substantially as specified.



181,726. SHIPPING-ROPES. G. M. Savage and Chas. Machris, Detroit, Mich. [Filed June 2, 1876.]

Brief.—Each revolution of the rope turns a screw-rod arranged loosely in one of the handles, and moves a traveling index-nut one degree over the scale.

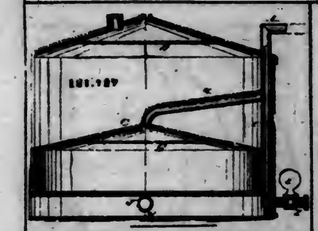


The slotted handle B', screw-rod C, index-nut D, and graduated plate *d*, in combination with a shipping-rope, A, for registering the revolutions of the latter, substantially as described.

181,727. CARBURETTERS. Martin Schmidt, Houston, Tex. [Filed May 16, 1876.]

Brief.—The incoming oil and the gas to be carbureted are distributed through the porous packing by a perforated plate. The gas is forced down through the perforated false bottom, which supports the porous packing, and up through the hood, from which it escapes by the exit-pipe. Uncarbureted gas is mixed with the carbureted gas in this pipe, entering by a branch pipe having a stop-cock. Air may be blown into the carburetor through a perforated pipe placed below the false bottom.

The combination, in a carburetor, of the perforated plate D under the gas and oil inlets, and the hood C, having a convex top, to which is attached a perforated plate, O, under the outlet H, as shown and described.



181,727

181,728. KEY-HOLE GUARDS. M. Schon and Thomas West, Englishtown, N. J. [Filed Aug. 2, 1876.]

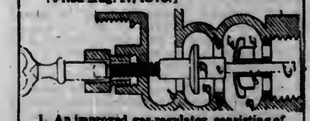


1. The slotted guard-plate *i*, having a feather, *e*, the grooved stem *f*, and tongue *c*, combined substantially as and for the purpose specified.

2. The guard-plate *i*, having a tapering hub, substantially as and for the purpose set forth.

3. A key-hole guard, consisting of the combination of a sliding, removable, and adjustable slotted guard-plate, a guard-plate carrying-stem having a retaining-leg, and a bit and hub, substantially as specified.

181,729. GAS-REGULATORS. Henry S. Services and George Myers, New York, N. Y. [Filed Aug. 17, 1876.]

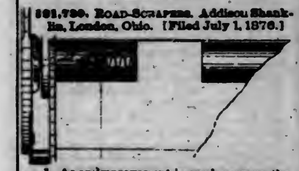


1. An improved gas-regulator, consisting of a casing with communicating chambers, one above the other, in connection with an adjustable diaphragm, affixed to the stem in one chamber, and with separately-vibrating cup-valves, sliding on the stem in the other chamber, to jointly control the supply and regulate the pressure of the gas, substantially in the manner and for the purpose set forth.

2. In a gas-regulator, the cup-shaped valves E E', arranged to slide on the stem of the regulator, and constructed so that the lower valve is of smaller diameter, but of greater height, than the upper, to vibrate independently by the pressure of the gas, substantially as herein set forth.

3. The cup-shaped valve E, having a conical top part, in combination with the upper valve E', having partly a horizontal, partly a conical, top part, forming contact only at point of connection with stem, to prevent sticking, for the purpose herein set forth, and in the manner described.

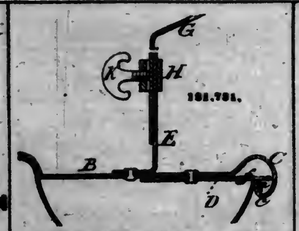
181,730. ROAD-SCRAPERS. Addison Shankland, London, Ohio. [Filed July 1, 1876.]



1. As an improvement in road-scrapers, the combination of the sliding spring-bolts, made adjustable in the guide-sockets of the bowl, with the recessed and slotted locking-sockets of the handles, substantially as and for the purpose specified.

2. A scraper-bowl, having sockets with square guide-grooves, and threaded spring-bolts with screw-nuts turning thereon, to set the bolts to proper length after being worn, substantially as specified.

181,731. HAY-TROUGH HANGERS. Joseph K. Shipley, Ashland, Ohio, assignor to L. J. Sprengle, same place. [Filed Apr. 13, 1876.]



181,731.

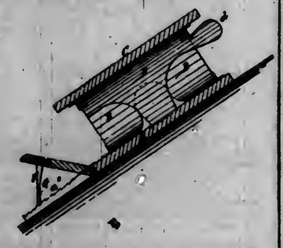
1. In combination with the arms G E, secured, respectively, to the roof and to the eave-trough hanger B, the slotted coupling-block H, slotted to receive the said arms, and a clamp-screw, K, substantially as specified.

2. The hanger-bar B, having its inner end O bent in scroll form, first upward, and then curved downward, and terminating in an upward hook, *c*, and the latch-bar D, pivoted under said bar B, and extending across the concavity of the scroll O, substantially as specified.

3. The combination, with an eave-trough having the outwardly-bent inner lip *e*, of the hanger-bar B, having the scroll end O, with hook *c*, and protected latch D, substantially as specified.

181,732. ADJUSTABLE ARM-RESTS. Moses Shoemaker, Plattsburg, assignor to himself and Charles J. Nesbitt, Platt City, Mo. [Filed July 31, 1876.]

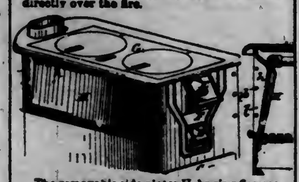
Brief.—To the base-plate are pivoted swinging arms, to which the rest or top plate is pivoted; said plate having a swinging brace, which takes into stops or notches in the base, whereby to secure the rest at the desired height. The base also has a hinged portion for adjusting the leaf of the book.



The combination of the base-plate A, provided with the notches *a' a'*, the hinged arms B, the top plate C, the adjustable hinged brace D, the hinged plate E, and the pivoted brace F G, substantially as herein shown and described.

181,733. LAUNDRY-STOVES. N. M. Simonds, St. Louis, Mo. [Filed Sept. 26, 1875.]

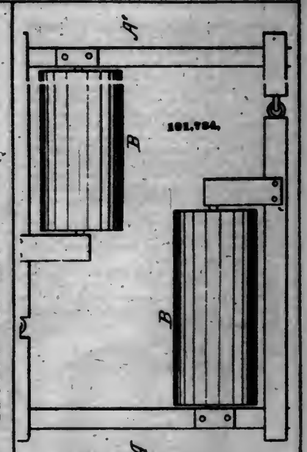
Brief.—The detachable plates are inclined directly over the fire.



The removable side plates H, having flanges at the bottom and sides, and overhanging the fire-grate located in a line with their base, constructed as set forth.

181,734. LAND-ROLLERS. Eleazer Smith, Greene, Iowa. [Filed Mar. 13, 1876.]

Brief.—The roller-frame is rectangular, made in two sections, and hinged diagonally to the line of draft. There are two rollers—one in each section of the rectangular frame, and one in advance of the other, the inner ends overlapping. The inner end journals of each roller are supported by an arm from the longer front and rear beams of the frame.



181,734.

In a ground-roller, the flexible rectangular frame, composed of sections A A', jointed near the front and rear corners of said frame, the line connecting the joints being diagonal to the line of draft, and no central bar being employed, in combination with rollers B B, applied substantially as described.

181,735. STREET-SWEEPING MACHINES. R. H. Smith, Philadelphia, Pa. [Filed June 12, 1876.]

Brief.—The broom-shaft has its bearings in lever-arms, which are rigidly secured to the axle of the machine, by which it is raised or lowered through the medium of a lever. The dust-receptacle is hung loosely at one edge to the axle, the other edge being provided with a flange, which rests on an adjustable rod, rendering it easily unloaded. The lower edge of the dust-receptacle is provided with a hinged apron. The brushes are secured in slots by passing the material outward through diverging openings in the slats or bars. The bars are secured to the main shaft by screws.



1. A street-sweeping machine in which the broom-shaft E has its bearings in, and is combined with, arms *f f* keyed to the axle of the machine, as set forth.

2. The combination of the axle B and the arms *f f*, carrying the broom-shaft, with the lever O and its spring-arms *n*, the segmental plate P, its openings *i*, and pins *g*.

3. A street-sweeping machine in which the dirt-receptacle or pan G is hung loosely to the axle B, and supported at its front end, all substantially as set forth.

4. The combination of the pan G, loosely hung to the axle, with the perforated segmental plates I and the bar *n*.

5. The combination of the pan G, loosely hung to the axle, with the arm J.

6. The combination of the pan G and its rib *r* with the hinged apron K.

7. The combination of the lower edge *b* of the pan G with the apron K, arranged to leave a space, *g*, intervening between the upper edge

of the spoon and the edge *p* of the pan, as and for the purpose set forth.

8. The combination of the cylinder P with the blocks S, each having a groove, *t*, and openings *c* and *c*, as set forth.

9. The combination of the cylinder P with blocks S, recessed to and fitted closely together on the said cylinder, and with bunches of broom material passed through the blocks and retained in place by the cylinder, as set forth.

10. The combination of the shaft B and cylinder P with the spiders Q, keyed to the shaft, embedded in the cylinder, and serving to receive the ends of the bolts which secure the blocks S to the cylinder, as set forth.

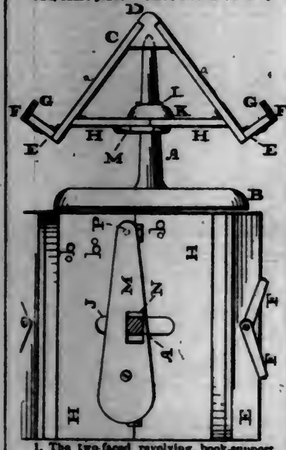
181,736. DENTAL COTTON-HOLDERS. Pierce T. Smith, Burlington, assignor of one-half his right to John Rix, Fort Madison, Iowa. [Filed Feb. 26, 1876.]

Brief.—A box is loaded with lead at its bottom, and furnished with a spring and diaphragm, for forcing forward cotton, which is taken out, as required, through an opening in the cover of the box.



In an instrument for holding dental cotton, the combination of the hollow cylinder, the adjustable cover with hole in center, and the conical spiral spring with follower and loaded bottom, substantially as described, and for the purposes set forth.

181,737. BOOK-SUPPORTS. Hiram B. Smith, Philadelphia, Pa., assignor to Osborn Conrad, same place. [Filed Feb. 28, 1876.]



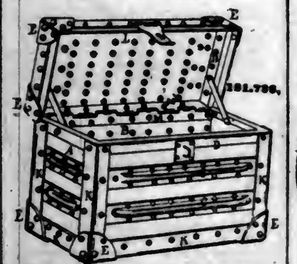
1. The two-faced revolving book-support, consisting of the inclined face-pieces *a*, top bar D, and bottom piece H, in combination with the pedestal A and base B, substantially as and for the purpose set forth.

2. The shifting-bar M, with the pedestal A passed through it, for tilting the stand C, substantially as and for the purpose set forth.

3. The spring-arms F D, consisting of flat pieces pivoted to the hinged ledges E, and folding thereunder substantially as and for the purpose set forth.

4. The folding face-pieces *a*, top bar D, folding piece H, and folding ledges E, combined and operating substantially as and for the purpose set forth.

181,738. TROWEL. Wm. S. Soule, Boston, and John Eberolf, Dedham, Mass. [Filed Apr. 20, 1876.]



The improved trunk, provided with corner-rods E, angle-pieces K, and corrugated reinforcing strips C, all formed of rawhide, substantially as and for the purpose set forth.

181,739. MACHINES FOR STRIPPING TOBACCO-LEAVES. Louis Strasser, Columbus, Ohio. [Filed May 22, 1876.]

Brief.—The leaves are forced onto a thread over a needle by a vibrating pusher, and arranged alternately upon opposite sides of a rod below the thread, to keep them separated. The thread and rod can be removed when filled, and another set in the machine.

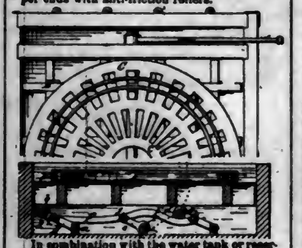


1. The combination of springs I and J and pusher O with a needle, A, resting in notched incline C, substantially as specified.

2. The combination, with the needle, the incline C, and cavity E, of the spring I and a pusher, as shown and described, whereby the tobacco-leaves are guided to and thrust on the point of the needle, as specified.

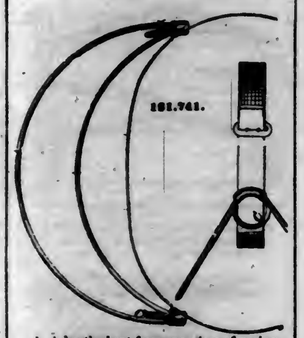
181,740. MACHINES FOR COOLING TIRES. John M. Studebaker and Hugh L. Hinds, South Bend, Ind. [Filed Apr. 10, 1876.]

Brief.—The wheel is immersed horizontally, and all parts of its periphery are acted upon simultaneously, and with like effect, by means of a water tank or reservoir, inside of which is arranged a vertically-adjustable platform, for supporting the wheel in a horizontal position; and a hand-lever connected to a rock-shaft, arranged in bearings at the bottom of the tank, and two or more vibrating arms connected to said shaft, and provided at their upper ends with anti-friction rollers.



In combination with the water tank or reservoir and wheel-supporting platform herein described, the connected vibrating supporting-arms and rocking shaft, substantially as and for the purpose set forth.

181,741. BUSTLES. A. Swallow, Shelbyville, Ill. [Filed July 15, 1876.]



1. A bustle, bent from one piece of spring-wire, to form two bows that are connected by coiled springs, substantially in the manner and for the purpose set forth.

2. The combination of a bustle, bent from one piece of spring-wire into spring-connected bows, with a belt attached to the spring ends of the bustle, substantially as specified.

3. A bustle, composed of one piece of wire bent to form two spring-connected bows, and one bow being larger than the other to admit passage of bows, past each other, substantially as set forth.

181,742. MULTIPLEX TELEGRAPHS. Niles H. Thompson, Albion, Mich. [Filed July 1, 1876.]

1. A device consisting of one or more switches, combined with and operated automatically by one or more electro-magnets, in such a manner as to break and close two or more electric circuits in succession.

2. A device consisting of one or more switches, operated automatically by one or more electro-magnets, combined with two or more electric circuits, as arranged that when one circuit is broken another will be closed, and so on through the series, in a regular order, again and again.

3. A device consisting of one or more switches, operated automatically by one or more electro-magnets, so as to break and close two or more electric circuits in succession, combined with two or more keys, so constructed as, when manipulated, to change the electrical condition of the current through any or all of the circuits.

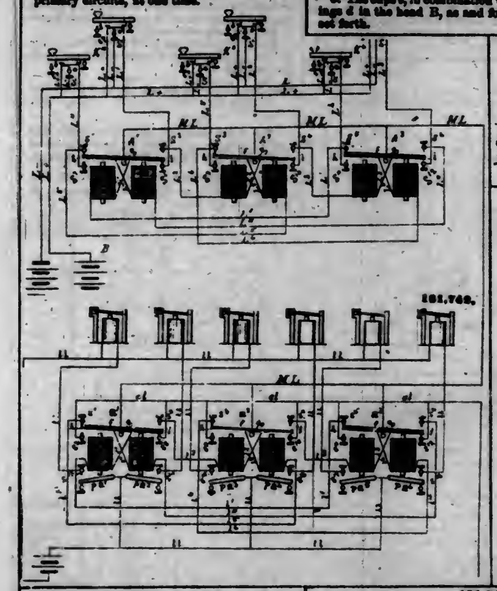
4. A device consisting of one or more switches, operated automatically by one or more electro-magnets, so as to break and close two or more electric circuits in succession, combined with two or more armatures, so constructed as to break and close secondary circuits, operating sounders or other receiving-instruments, whenever the electrical condition of the current flowing through the primary circuits is changed.

5. The combination, with transmitting-instruments consisting of one or more switches, operated automatically by one or more electro-magnets, so as to break and close two or more electric circuits in succession, of receiving-instruments consisting of one or more switches, operated automatically by one or more electro-magnets, so as to break and close the said circuits at the same time they are broken and closed by the switches of the transmitting-instruments.

6. The combination, with transmitting-instruments consisting of one or more switches, operated automatically by one or more electro-magnets, so as to break and close successively two or more electric circuits, in each of which is placed one or more keys, so constructed as, when manipulated, to change the electrical condition of the current flowing through any of the circuits, of receiving-instruments consisting of one or more switches, operated automatically by one or more electro-magnets, so as to break and close the said circuits, respectively, at the same time they are broken and closed by the switches of the transmitting-instruments, and armatures placed in the said circuits, so constructed as to break and close secondary circuits, operating sounders or other receiving-instruments, whenever the electrical condition of the current flowing through any of the primary circuits is changed by the manipulation of the said keys, and arranged substantially as described, so that two or more telegraph-dispatches may be transmitted through a single conducting-wire, forming a portion of all the primary circuits, at one time.

2. The combination of the heads B, hoops b, and a pliable or yielding tube, C, with the shaft A, substantially as and for the purpose set forth.

3. The cups *c*, in combination with the openings *d* in the head B, as and for the purpose set forth.

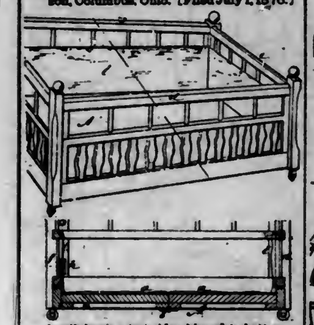


181,743. INKING APPARATUS. Jonas H. Titus, Detroit, Mich., assignor to himself and Hubert Brossard, same place. [Filed Apr. 10, 1876.]

Brief.—Two disks having grooves in their edges, in which the roller fabric is held by hoops from the ends of the inking-cylinder. The shaft is furnished with right-and-left-hand screws, which enter central screw-threaded holes in the disks, and by the turning of said shaft the disks are extended, and the fabric forming the cylinder stretched tightly thereon. Air-holes are made in the disks for the purpose of keeping the inking-roll cool.

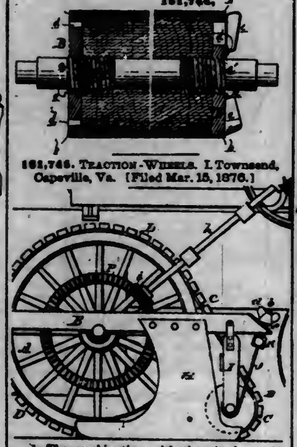
1. In an inking-roller, the combination of a hollow body formed of a fabric or yielding material under tension between heads on the roller-shaft and openings in the said heads, to allow the passage of air through the said roller, substantially as and for the purposes set forth.

181,744. NURSERY-CRIBS. W. H. Thompson, Columbus, Ohio. [Filed July 1, 1876.]



A crib having two sides hinged to bottom, two sides hinged to the corner-posts, and two divisions hinged at *b*, as shown and described.

181,745. TRACTION-WHEELS. I. Townsend, Capeville, Va. [Filed Mar. 15, 1876.]



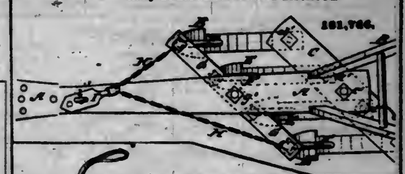
1. The combination, with the wheel A and endless track C D, of the stationary rotating roller E, and the adjustable roller G, both arranged in front of the wheel, substantially as and for the purposes herein set forth.

2. The combination of the roller G, pivoted arms I I, brace-rods J J, cross-bar K, bolt *b*, and nut *d*, all substantially as and for the purpose herein set forth.

181,746. PLOWS. E. C. Trowsdale, Blanco, Tex. [Filed June 26, 1876.]

Brief.—The two cross-bars holding the beams and the standards pivot upon the beam, and the standards and braces pivot upon the cross-bars. When the latter are adjusted, the shovel-standards are automatically kept square with the line of draft.

The combination of the cross-bars C G, pivoted at their centers to the beam A, the standards D, pivoted at their upper ends to the cross-bar C, the braces F pivoted at their forward ends to the cross-bar G, the adjustable chain H, and the adjustable hook-plate I, with each other and with the plow-beam A, substantially as herein shown and described.



181,747. BRIDLES. Daniel T. Van Antwerp, Prophetstown, Ill. [Filed July 22, 1876.]

1. The adjustable straps C, attached to the head-strap A of a bridle-headstall, substantially as herein shown and described.

2. The overdraw-straps E, constructed as described, in combination with the head-strap A and the adjustable straps C, to receive the bit-rings and the check-reins, as set forth.

181,748. REGISTER APPARATUS FOR PLATE-PRINTING. J. R. Vredenburgh, New York, N. Y. [Filed Feb. 4, 1876.]

Brief.—The points are adjustably fixed to spring-caps pivoted to curved arms of rock-shafts journaled under the sides of the plate-bed, which shafts are connected by beveled wheels to a shaft rocked by an intermittingly-reciprocated rack-rod. The points are thrown over the plate after it is inked, to register and hold the sheet thereon, and then withdrawn as the sheet is caught by the impression-roller.



1. The register-points *a b*, arranged in combination with the caps *d* and the arms *h*, substantially in the manner described.

2. The combination of the adjustable points *a* and *b*, the arms *h*, and the shaft *i*, the rack *f* and pinions *g*, and the handle *e* and the rod *l*, substantially in the manner described.

181,749. RAILROAD-RAIL JOINTS. George Waggoner, Fremont, Ohio. [Filed Mar. 13 1876.]

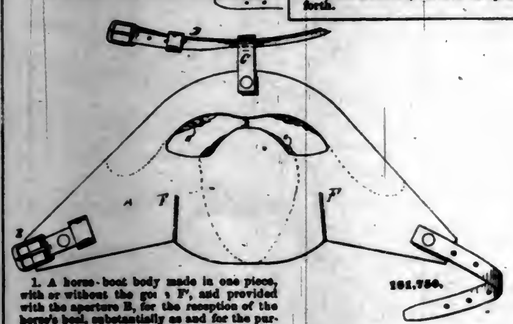


1. The combination, with the ends of two adjacent rails, having their flanges cut away at *b b'*, of the railway splice-bar B, provided with a tread, N, on a plane with the tread of the rails, substantially as and for the purpose specified.

2. The combination, with the rail ends, having their flanges cut away at *b b'*, of the splice-bar B, the bars H I L, and two or more bolts, K, substantially as and for the purpose specified.

3. The combination, with the rail ends, having their flanges cut away at *b b'*, of the splice-bar B, the central tie D, and bread center ties C and E, substantially as and for the purpose specified.

181,750. HORSE-BOOTS. Joel J. Webber, Geddes, N. Y. [Filed Aug. 7, 1876.]

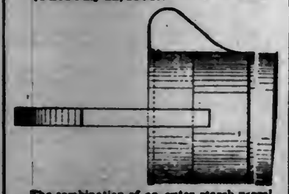


181,750.

1. A horse-boot body made in one piece, with or without the gore F, and provided with the aperture B, for the reception of the horse's heel, substantially as and for the purpose specified.

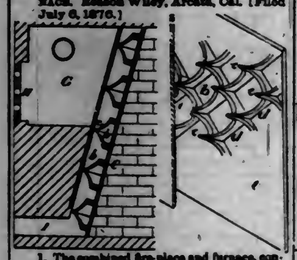
2. The horse-boot consisting of the main part A, provided with apertures B, back loop C, ankle-strap D, front strap E, and sponges H H, as shown and described.

181,751. STARCH BOILERS AND STRAINERS. William H. Whitlock, New Albany, Ind. [Filed July 22, 1876.]



The combination of an outer starch-vessel, with a sliding interior strainer, having a fixed operating bail, substantially in the manner and for the purpose set forth.

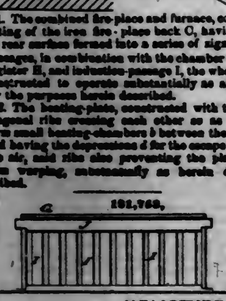
181,752. CONSERVED FIRE-PLACE AND FURNACE. Benson Wiley, Arcata, Cal. [Filed July 6, 1876.]



1. The combined fire-place and furnace, consisting of the iron fire-place back C, having its rear surface formed into a series of zigzag passages, in combination with the chamber G, register H, and induction-passage I, the whole constructed to operate substantially as and for the purpose herein described.

2. The heating-plate, constructed with the diagonal ribs crossing each other so as to form small heating-chambers b between them, and having the depressions d for the escape of the air, said ribs also preventing the plate from warping, substantially as herein described.

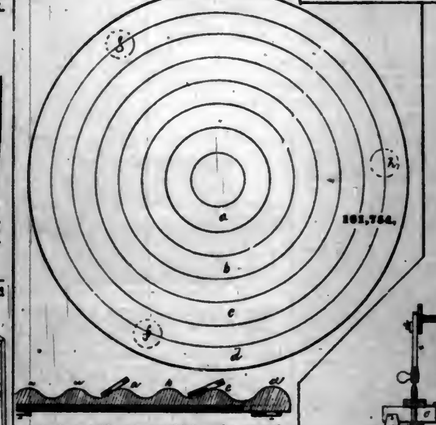
181,752.



181,753. BUR-HIVES. George H. Wiley, Vicksburg, Mich. [Filed May 13, 1876.]

The honey-box G, closed at its sides, open at its top and bottom, and provided with mortises or gains in its end pieces, in combination with the honey-frames I I, secured to the cross-bars J J, having tenoned ends, substantially as described, and for the purpose set forth.

181,754. TRAYS. Lewis Wilkinson, Brooklyn, N. Y. [Filed Nov. 22, 1875.]



181,754.

1. A portable money-tablet or change-pad, provided on its receiving-surface with corrugations, constructed and adapted for the purpose hereinbefore set forth.

2. In combination with a money-pad or change-tablet, the attached legs or supports, secured in sockets or upon the surface, substantially as and for the purposes shown and described.

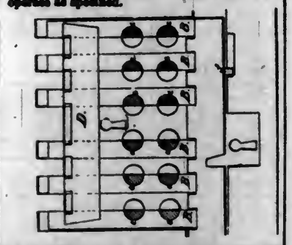
181,755. MEANS FOR OPERATING SHIPS' DAVITS. Asa Willis, Brooklyn, assignor of one-third his right to Thomas R. Smith, New York, N. Y. [Filed Feb. 21, 1876.]

1. The combination of the lazy-tongs L, the standard S, and boat or crane part C of the davit, the male screw *a*, and the female screw *f*, substantially as described.

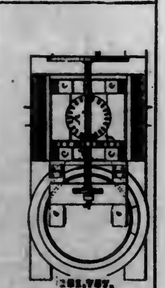
2. The combination of the two standard S, the lever H, and tie-lock F, substantially as herein set forth.

181,756. COMBINATION-LOCKS. George Winter, Floyd County, Va. [Filed Mar. 2, 1876.]

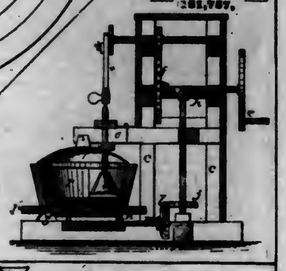
The combination of the pins, provided with radial fingers, and having a semi-cylindrical portion, *c*, the sliding dogs having notches, and the semicircular grooves, the bar D, and notched bolt X, as shown and described, to operate as specified.

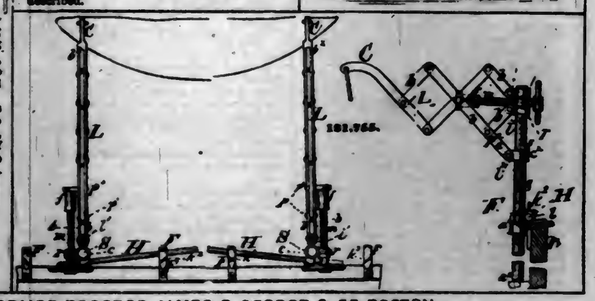


181,756.



181,757.





181,755.

181,757. FOLDING CHAIRS. T. M. Wyatt, Russellville, Ark. [Filed May 27, 1876.]

1. The combination of the hinged legs A B, the hinged bars D E I, the sliding bars F, and the cross-plate *f' f'* with each other to form the frame of the chair, substantially as herein shown and described.

2. The combination of the wood blocks G, with the bars D E F of the chair-frame, to receive the upholstering H, substantially as herein shown and described.

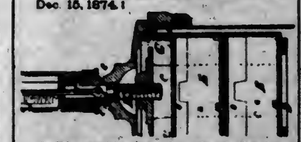
3. The combination of the rounds K L, and the seat J, provided with the straps *f f*, with the hinged bars I D of the chair-frame, substantially as herein shown and described.

181,757. WASHING-MACHINES. George H. Winslow and Wm. A. Tryon, Monticello, N. Y. [Filed Feb. 7, 1876.]

1. The combination of the shaft *d*, handle *e*, spur-wheel *f*, pinion 1, shaft 2, crank 3, rod 4, washer 5, and revolving tub, substantially as set forth.

2. The combination of shaft *d*, pinion *g*, wheels *h i* 1, shafts 1 *m*, rack *o*, board *p*, tub *r*, and a washer, 5, substantially as described.

181,758. VULCANIZING APPARATUS FOR DENTISTS. Alonzo B Woodard, Hornellsville, assignor to the Buffalo Dental Manufacturing Company, Buffalo N Y [Filed Dec. 15, 1874.]



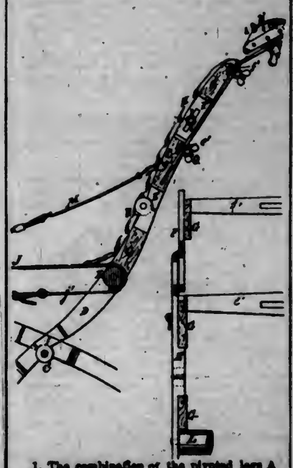
1. The combination of a closed vessel or boiler, a clamp or cage contained therein, and a screw-rod passing from the outside to the interior of the said closed vessel, and engaging by its threaded portion with the said clamp or cage, the whole being so constructed and arranged that the rotation of the screw-rod shall draw the clamp toward it, and close one or more dental flasks contained in, and held by, said cage, by pressing them against the top or some suitable upper portion of the said vessel, substantially as herein set forth.

2. The combination, with the cage D and screw-rod H, of the horse G G, arranged to abut against the cover of the vulcanizing-vessel when the cage is drawn upward by the screw-rod, substantially as and for the purpose herein set forth.

3. The combination of the screw-rod H, provided with an inverted conical boss, *i*, with the cover B, provided with a conical socket or seat, *f*, for said boss, substantially as and for the purpose herein set forth.

4. The combination, with the screw-rod H, provided with the passage *e* and cavity *g*, of the thermometer I J, substantially as and for the purpose herein set forth.

181,759. FOLDING CHAIRS. T. M. Wyatt, Russellville, Ark. [Filed May 27, 1876.]



1. The combination of the pivoted legs A B, the hinged bars D E I, the sliding bars F, and the cross-plate *f' f'* with each other to form the frame of the chair, substantially as herein shown and described.

2. The combination of the wood blocks G, with the bars D E F of the chair-frame, to receive the upholstering H, substantially as herein shown and described.

3. The combination of the rounds K L, and the seat J, provided with the straps *f f*, with the hinged bars I D of the chair-frame, substantially as herein shown and described.

4. The combination of the adjustable head-rest N, and the slotted bar O, having the two set-screws Q Q, with the slotted cross-plate *e' f'* of the chair-frame, substantially as herein shown and described.

181,760. GRAIN-DRIERS. John W. Young and Ebenezer V. White, La Crosse, Wis. [Filed May 4, 1876.]

Brief.—Steam or hot air may be admitted directly to the grain, or simply circulated through the pipes.

The apparatus for heating grain described, consisting of the case A, zigzag spout *b*, pipes *c* and *m*, and valves *g*, *k*, and *l*, as and for the purpose described.

181,760.



181,761.

181,761. HYDRAULIC ELEVATORS. Peter J. Borgar, Cincinnati, Ohio, assignor to Lane & Bodley, same place. [Filed Mar. 9, 1875.]

Brief.—An elevator adapted to change the stroke and vary the consumption of water, according to the load to be raised.

1. In a hydraulic elevator, the combination of traveling sheaves G G and sheaves I I, adapted to be localized, or to be connected so as to move with the sheaves G G, substantially as and for the purpose specified.

2. The combination of the set of sheaves G G, set of sheaves I I, and connecting-hooks J, operating substantially as and for the purpose specified.

3. The combination of set of sheaves G G, set of sheaves I I, hooks J J, and projections L, operating substantially as and for the purpose specified.

REISSUES.

7,278. LAMPS. Lewis J. Atwood, Waterbury, Conn. Patent No. 90,111, dated July 21, 1868. [Filed Mar. 4, 1875.]



1. In a lamp-burner, a draft-regulator composed of an air-distributer and draft-plate, connected together and surrounding the upper part of the wick-tube, in combination with a chimney-support below the draft-regulator, substantially as set forth.

2. An air-distributer and draft-plate or deflector surrounding the upper end of the wick-tube, in combination with spring chimney-supports below the said draft-plate and air-distributer, as set forth.

3. The combination of the elevated air-distributer and draft-plate with the chimney extending below the edges of the draft-plate, and with draft-regulating openings around the edges of the draft-plate, substantially as set forth.

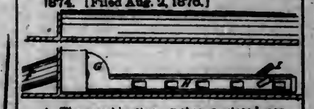
4. An elevated air-distributer and draft-plate, surrounding the upper end of the wick-tube, in combination with springs between the draft-regulator and the interior of the chimney, and connected to such draft-regulator, substantially as set forth.

5. The draft-plate *c*, with a flange-collet and springs around its edges, in combination with a furnace-cone their extends from said draft-plate to the coupling *g* or ratchet-cap, substantially as specified.

6. The coupling *g*, removable from the wick-tube *b*, and ratchet-cap *d*, in combination with the foraminous air-distributer *f*, draft-plate *c*, springs *i*, and chimney-holder *l*, substantially as set forth, whereby the entire draft-regulator and chimney can be removed from the wick-tube or ratchet-cap and replaced, as set forth.

7 The coupling *g*, concave clips *h*, and notch *i*, in combination with the wick-tube *b* and ratchet-cap *d*, as and for the purposes specified.

7,279. REFRIGERATING-CARS. John J. Bate, Brooklyn, N. Y., assignor, by mesne assignments, to the Bate Refrigerating Company. Patent No. 146,060, dated Feb. 3, 1874; reissue No. 5,042, dated June 30, 1874. [Filed Aug. 2, 1876.]

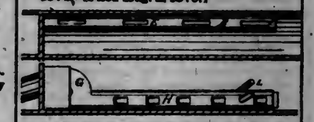


1 The combination, within a closed car, chamber, or house, of an ice box or chamber, mechanical means for inducing an air blast or current through the ice, inlet openings connected with the ice box, and arranged in different parts of the chamber, so that the air in the chamber, after passing through the ice-box, will be distributed and drawn to all portions of the room, to be returned again through the ice box substantially as described.

2. The combination, within a closed car, chamber, or house, of an ice box or chamber, mechanical means for inducing an air blast or current through the ice, inlet openings connected with the ice-box, and arranged in different parts of the chamber, outlet-openings, also connected with the ice box, and arranged in different parts of the chamber opposite to said inlet-openings, so that the air in the chamber, after passing through the ice-box, will be distributed to all portions of the room, substantially as described.

3. In combination with a closed refrigerating-chamber, an ice-box open above and below, and provided with an inlet conduit-tube or pipe, for drawing the air to be cooled from different points in the cooling-chamber at a distance from the ice-box.

7,280. REFRIGERATING-CARS. John J. Bate, Brooklyn, N. Y., assignor, by mesne assignments, to the Bate Refrigerating Company. Patent No. 146,060, dated Feb. 3, 1874; reissue No. 5,042, dated June 30, 1874. [Filed Aug. 2, 1876.]

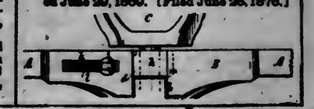


1. The combination, within a car, chamber, or house, of the ice-box, constructed for the passage of an artificial air blast or current, the outlet-pipe, formed with the outlet-openings and provided with deflecting devices, and a mechanical means of inducing the air blast or current, substantially as and for the purpose set forth.

2. The combination, with a car, chamber, or house, of the ice-box, the mechanical means of inducing the air blast or current, and the slotted inlet-pipe, provided with slides for varying the available size of its inlet-openings, substantially as and for the purpose set forth.

3. The combination of the inlet-pipe to the ice-box, slotted or formed with openings, as described, with the said ice-box, the mechanical means for inducing the air blast or current, and the outlet-pipe, constructed with deflectors for distributing the cooled or refrigerated air to the car, chamber, or house, substantially as and for the purpose set forth.

7,281. BOWLOCKS. Wm. H. Benson, Cape Elizabeth, Me., assignor to F. H. Davis, Gloucester, Mass. Patent No. 91,517, dated June 20, 1860. [Filed June 26, 1876.]



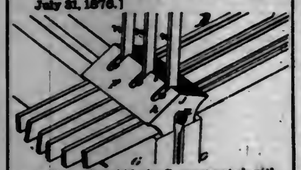
1. The rowlock-supporter B, provided with a spindle-socket, b, open in front, to enable the rowlock to be turned or dropped down below the upper surface of the supporter or the gunwale A, to which it may be applied.

2. The rowlock-supporter B, provided with the spindle-socket, open in front, in combination with the rowlock C, having its spindle so applied or pivoted to the supporter as to be capable of being revolved therein, and of being dropped or turned down below the upper surface of the supporter or the gunwale to which it may be applied.

3. The combination of the slide-bolt b with the rowlock-supporter, provided with the spindle-socket, open in front, as described.

4. The combination of the slide-bolt b with the rowlock-supporter B, provided with the spindle-socket, open in front, and with the rowlock C, so pivoted to or applied to the supporter as to be capable of being revolved therein, and of being turned or dropped below its top, or that of the gunwale A, all being essentially as specified.

7,893. TRUSS-BRIDGES. John A. Patterson and A. J. Sprague, Toledo, Ohio. Patent No. 140,400, dated Jan. 13, 1874. [Filed July 31, 1876.]



1. The pedestal-blocks C, constructed with the brace-rests a, the elevation b, for the connection of the chord-links, the ear f, and the base-plate c, all substantially as specified.

2. The angle-block F, consisting of plates h, and plates f, and middle plates h, the end and middle plates being slotted to straddle the connecting-pin, and the plates h slotted for the suspending-rods, substantially as specified.

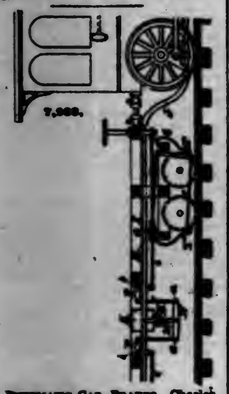
3. The said angle-blocks, arranged to rest by slots in the plates f and h on the coupling-pin m, and admit the chord-links between plates h and the floor-beams, to connect with the pin m, substantially as specified.

4. The chord-links D, the angle-blocks F, and floor-beam suspenders H, suspended from the rods n by the pin m, substantially as specified.

5. The combination of the suspending-rods n, angle-plate F, pin m, and the chord-links D, substantially as specified.

6. The combination of the suspending-rods n, angle-blocks F, pin m, chord-links D, and the floor-beam G, substantially as specified.

7. The combination, in a truss-bridge, of the rods n, suspended from the top-chord angle-plate F, diagonal braces B, connecting-pin m, and the lower chord-links D, substantially as specified.



7,903. PNEUMATIC CAR-BRAKES. Charles B. Peddle, Terre Haute, Ind., assignor to Wm. Loughridge, Baltimore County, Md. Patent No. 61,260, dated Feb. 6, 1867. [Filed July 19, 1876.]

1. The combination of the steam-pipes and steam-chests of a locomotive with air-pipes E H, extending the whole length of a train of cars, the valve F in the steam-chest, and the air-cylinders K, provided with pistons L, connected with the brake-mechanism of the cars, to operate in the manner substantially as and for the purpose set forth.

2. In combination with the rods c, attached directly to the brake-levers Q, the levers P, adapted to be actuated in the braking operation by means of the reciprocating lever N and connecting-rods O, substantially as shown.

3. The levers P, adapted to vibrate at opposite sides of the air-cylinder K, and constructed to form, in connection with the rods O and cross-head or lever N, the connection between the brake-rods c, substantially as and for the purpose set forth.

4. The air-cylinder K, having the piston L and piston-rod M, in combination with the cross-head or lever N, whereby the force operating upon the said piston is distributed by intervening mechanism to the wheels of separate trucks, or wheels on the opposite sides of the said piston and cylinder, substantially as shown.

5. The intermediate levers P, having their fulcra at b b, on opposite sides of the air-cylinder K, in combination with rods c and levers Q, substantially as set forth.

6. In a continuous pneumatic car-brake, the air-pipe H, bent so as to bring the ends thereof on opposite sides of the longitudinal center line of the car, substantially as and for the purpose described.

7. In a continuous pneumatic car-brake, an air-pipe or duct, the ends of which are on opposite sides of the longitudinal center line of the car, in combination with a flexible tube or pipe crossing the said longitudinal center line of the car, and connecting one end of the said pipe or duct with one end of a similar pipe or duct on an adjoining car or locomotive, substantially as and for the purpose set forth.

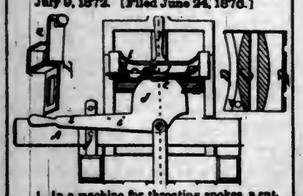
7,904. TUMBLER-WASHERS. M. Scrannage, Boston, Mass. Patent No. 82,907, dated Oct. 13, 1868. [Filed July 15, 1876.]



1. A tumbler-washer, provided with a vertical revolving support, adapted to rotate the tumbler on its longitudinal axis, substantially as and for the purpose set forth.

2. The rose D, provided with tangentially-discharging orifices d', in combination with a rotating support for the tumbler, substantially as and for the purpose described.

7,905. MACHINES FOR THROATING SPOKES. Joseph B. Stanley and M. D. Smith, Tough Kenamon, Pa. Patent No. 126,823, dated July 9, 1872. [Filed June 24, 1876.]



1. In a machine for throating spokes, a cutter-head provided with concave rotating knives, having concave edges, the concavity of the cutting-edge being less than the concavity of the body of the rotating knife, substantially as and for the purpose set forth.

2. In a spoke-throating machine, the spoke-holder H, pivoted to the frame G, which is applied to the vertical slide F, substantially as and for the purpose set forth.

3. The eccentric spoke-support J, arranged in front of the cutter-head, under the spoke-carrier, substantially as and for the purpose set forth.

4. The gage I, arranged in combination with the spoke-holder H, substantially as and for the purpose set forth.

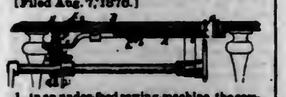
7,906. GLOBE-HOLDERS. Jos. White, Philadelphia, Pa. Patent No. 102,731, dated Apr. 27, 1870. [Filed July 11, 1876.]



1. A globe-holder having spring or elastic arms a c c, made with curved or bent ends b b, forming hooks or catches for embracing the lower edge or flange around the lower opening of the globe.

2. The improved globe-holder herein described, consisting of the disk or center D, having aperture d for the passage of a gas-burner, and spring or elastic arms a a a, terminating in hooked or curved ends for the purpose, substantially as set forth.

7,907. FEEDING MECHANISMS FOR SEWING-MACHINES. J. L. Coles and D. H. Coles, New York, N. Y., assignors, by mesne assignments, to Coles Universal Feed Sewing Machine Company, of New York. Patent No. 82,133, dated Oct. 20, 1868; reissue No. 6,177, dated Dec. 10, 1872. [Filed Aug. 7, 1876.]

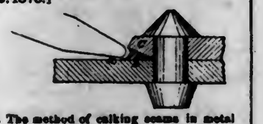


1. In an under-feed sewing-machine, the combination, with a feed-bar which is free to move in the direction of its length, and also to assume an oscillating motion, and which carries the feed-dog, of a cam, which acts on the feed-bar, and which can be adjusted to impart to the feed-dog a motion in any desired direction, substantially as herein shown and described.

2. The combination, with the feed-dog and feed-bar of an under-feed sewing-machine, and with the cam which controls the direction of the feed, of a handle and index for adjusting the feed-controlling cam, and to indicate the direction in which the feed takes place, substantially as set forth.

3. The combination, with an adjustable cam, O, and with the feed-bar A, on which said cam acts, of a cam-supported feeding-surface, d, substantially as shown and described.

7,908. MODES OF CALKING BOILERS. Jas. W. Connery, Philadelphia, Pa. Patent No. 150,831, dated May 12, 1874. [Filed Oct. 20, 1876.]



1. The method of calking seams in metal substantially as described.

2. The combination, in a boiler, tank, or analogous article, of overlapping plates having the calking herein described, the metal of the edge of one plate being compressed against the side of the other to prevent setting, and thereby obviate an initial fracture, as set forth.

7,909. BARRELS. Elijah B. Georges, Clifton, Va., assignor to himself and Margaret Hotsel. Patent No. 104,542, dated June 15, 1870. [Filed Aug. 3, 1876.]



A fruit keg or barrel having longitudinal apertures in the staves or heads, or both, as and for the purposes described.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

COMMISSIONER'S DECISIONS.

G. L. HARRISON, JR.—*Interlocutory Appeal.*

[*Appeal from the decision of the Principal Examiner in the matter of the application of George L. Harrison, Jr., for* "IMPROVEMENTS IN APPARATUS FOR MANUFACTURING FUEL KNOWN AS 'CHARBON ROUX.'"—*Decided August* 5, 1876.]

A man cannot have a patent for the function or abstract effect of a machine, but only for the machine which produces it.

He cannot describe a machine which will perform a certain function, and then claim the function itself and all other machines that may be invented to perform the same purpose.

[*J. Boneall Taylor*, attorney.]

DOOLITTLE, *Acting Commissioner:*

The invention in this case is said to consist in a process and machinery for manufacturing charbon roux.

Two claims are presented—one to the device, and the other to the process, which latter is as follows:

The process of making charbon roux, herein described, by subjecting sticks or pieces of wood, in a continuously or intermittently rotating perforated cage, to the action of heat, radiated upon the cage, from a circumscribing chamber and furnace, substantially as described.

This claim the Examiner refuses to consider upon its merits, because it is to the function of the machine presented under the guise of a so-called "process," and that if a process cannot be covered without any reference to the apparatus, it becomes evident that that particular apparatus is indispensable to the conduction of the process, and the process is, therefore, but its legitimate function.

It is the form of this claim alone that I now have to consider, and this involves an examination into the patentability of mechanical processes, so called, and the necessity of making claims in the clearest and most unequivocal form.

The claim, as I view it, is certainly bad in form. The only patentable process that applicant has described is the old one of charring wood by heating it in a closed vessel. This he has so qualified and encumbered by the operation of his improved device that the claim assumes the proportions of the function or operation of the mechanism. The mechanism employed is, as far as I am at present advised, an improvement on that heretofore used, and, possibly, produces a better article. The invention seems to be of the character defined in *Whittemore et al.* vs. *Cutter*, (1 Gall., 480:)

> When a specific machine already exists producing certain effects, if a mere addition is made to such machine to produce the same effect in a better manner, a patent cannot be taken for the whole machine, but for the improvement only. * * * *
>
> In like manner, if to an old machine some new combinations be added to produce new effects, the right to a patent is limited to the new combinations. A patent can in no case be for an effect only, but for an effect produced in a given manner, or by a peculiar operation.

Applicant already has a claim to the improved machine, and has thus covered all that is patentable.

His other claim is in effect to the process of making charbon roux as effected by the improved machine described; or, in other words, applicant seeks to claim the function, operation, or effect of the machine.

This the Supreme Court, in *Corning* vs. *Burden*, (15 Howard, 264,) held was not a patentable subject-matter. In that case the circuit judge instructed the jury that the claim in the patent was for "a new process, mode, or method of converting puddler's balls into blooms, by continuous pressure and rotation of the ball between converging surfaces," and that it included "any machine adapted to accomplish the object of his invention, as above specified, by the process, mode, or method above described."

This the Supreme Court held to be an error, as the construction to be given to a claim "should be that which is most favorable to the patentee, *ut res magis valeat quam pereat.*" Therefore, said claim should be construed to embrace the machine, as the process referred to was not patentable.

The court says:

It is for the discovery or invention of some practical method or means of producing a beneficial result or effect that a patent is granted, and not for the result or effect itself. It is when the term "process" is used to represent the means or method of producing a result that it is patentable, and it will include all methods or means which are not effected by mechanism or mechanical combinations. * * *

But it is well settled that a man cannot have a patent for the function or abstract effect of a machine, but only for the machine which produces it. * * *

He cannot describe a machine which will perform a certain function, and then claim the function itself and all other machines that may be invented to perform the same purpose.

The principles thus enunciated were substantially reiterated and recognized by the same authority in *Burr* vs. *Duryee*, (1 Wallace, 531,) where the following language is employed:

The use of ill-defined abstract phraseology is the frequent source of error. It requires no great ingenuity to mystify a subject by the use of abstract terms of indefinite or equivocal meaning. Because the law requires a patentee to explain the mode of operation of his peculiar machine which distinguishes it from others, it does not authorize a patent for a *mode of operation as exhibited in a machine*. Much less can any inference be drawn from the statute, that an inventor who has made an improvement in a machine, and thus effects the desired result in a better or cheaper manner than before, can include all previous inventions, and have a claim to the whole art, discovery, or machine which he has improved.

So in *Burden* vs. *Corning*, (2 Fisher, 477,) a different case from the one before cited, in construing a claim to "the mode of bending the rod, and placing it in its proper position between the swaging-dies, as above set forth," it was held to include the mechanism only.

Assuming, then that the plaintiff is the original and first inventor of the devices covered by his second claim, it must be conceded that his patent therefor must be limited to the mechanism described in his specification, and referred to in such claim, or the equivalent thereof; and that he cannot patent the result produced by the operation of such mechanism, but only the means invented and described by him for producing such result.

Says Judge Shepley in *Piper* vs. *Brown*, (4 Fisher, 175,):

It is for the discovery or invention of some practicable method or means of producing a beneficial result or effect that a patent is granted, not for the result or effect itself.

"Process" or "method," when used to represent the means of producing a beneficial result, are in law synonymous with "art," provided the means are not effected by mechanism or mechanical combinations. The term "machine" includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result; but when the result or effect is produced by chemical action, or by the application of some element or power of nature, or of one substance to another, such modes, methods, or operations are called "processes."

And this is in almost the same language as was used by the Supreme Court in *Corning* vs. *Burden*.

In most of the cases cited the courts have deprecated the practice of granting indefinite and ambiguous claims, although they have interpreted such claim so as to save the patent if possible. It is the fault of the Office whenever such claims are admitted, and the practice should receive no encouragement, for the law requires every applicant to "particularly point out, and distinctly claim, the part, improvement, or combination which he claims as his invention or discovery," the object of which is to inform the public of the exact limits of the monopoly.

In *Tompkins* vs. *Gage*, (2 Fisher, 577,) Judge Shipman expressly, and in no very mild terms, condemns the practice of granting patents which can only be understood by the public after the courts have passed upon and defined their scope. He says:

Before dismissing this case, we deem it proper to express in explicit terms the disapprobation of this court of the loose manner in which specifications for patents are very often drawn up. We are well aware that sometimes it may be difficult to clearly and exactly state and describe the subject-matter of an invention. This is the case where the mechanism constituting or embodying the invention is extensive and complicated. But these difficult instances bear no adequate proportion to the cases to which specifications, and especially those parts of them which are devoted to stating the claim, are very loosely framed. Patents are constantly being reissued for the purpose of stating the claims of the inventor, in order that the description may coincide with the invention, when the subject is neither complicated nor difficult to delineate. In many cases when they are not reissued the courts are called upon, under the rule of "liberal construction," to pass upon confused and obscure specifications, and upon claims which have very scant and imperfect relation to the more detailed description in the body of the instrument. This loose practice is injurious to inventors, is the profit, *i. e.*, source, of litigation, and multiplies the embarrassments and labors of the courts in their efforts to protect the fruits of inventive skill and meritorious ingenuity.

Thus, while applicant's claim might be construed by a court to embrace a combination only, it should not be admitted unless the invention could not be expressed in a better form. This it undoubtedly can be as a combination. In its present form it has a tendency to mislead the public, and would seem to grant that which the Supreme Court has decided the Office has no authority to grant.

I do not wish to be understood as deciding that a mode, method, or process is not patentable simply because mechanical devices are employed. Such, in my opinion, was not the intention of the Supreme Court when it says:

It is when the term "process" is used to represent the means or method of producing a result that it is patentable, and it (the term) will include all methods or means which are not effected by mechanism or mechanical means.

For in illustrating the difference between a process and machine it is said—

Another may invent a labor-saving machine by which this operation or process may be performed.

So, too, in *Piper* vs. *Brown*, before mentioned, it is said—

It is essential to the validity of the process as an invention to show how it may be adapted to practical use. In showing this the inventor *may describe mechanical means of applying, or peculiarly shaped vessels for containing*, any of the ingredients used in his process or art. *But they constitute no part of his invention.* Another person may discover new and useful means of applying or using the inventor's process, and be entitled to a patent for that improvement, without the right to use the process. So the inventor himself may discover such new means or invent new appliances which may be the subjects of a patent to him, separate and apart from his patent for the art itself—

Thus clearly showing that the process is something distinct from the operation of the machine.

It was to distinguish between the unitary operation or function of a machine—that which must inevitably follow, and is inseparable from its use—and a process or method amounting to an improvement in the art, which may be carried out by a variety of mechanical means, but in which the real invention consists in something more than the functions of such devices—as, for instance, in a mode of procedure. (Case of E. W. Shippen, 8 OFFICIAL GAZETTE, 727.) It was to distinguish between these two that the court said the term "process" would not include methods or means which are effected by mechanism or mechanical combinations, as a patent is granted "for the discovery or invention of some practicable method or means of producing a beneficial result or effect, and not the result or effect itself."

It is thus very important to discriminate between a process which may be carried on by machinery, and a process which amounts to the function or effect of a machine.

If in the present case we separate the process or method proper from the operation or effect of the machine, we have the simple process of charring wood in a closed vessel, which is too old now to be patented.

There seems to be no foundation for this claim as presented, and it was properly rejected.

The decision of the Examiner is affirmed.

PATRICK FITZGIBBONS.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of Patrick Fitzgibbons for letters patent for* "IMPROVEMENT IN STEAM-BOILERS," *filed October* 21, 1874. *Decided August* 26, 1876.]

An aggregation of devices in which each performs its separate functions without producing by their combination anything novel in operation or result is not patentable.

But where new and useful results are produced by the union of elements found separately in other structures, which are the legitimate consequences of the entire arrangement, it does not come within the rule, but constitutes a legitimate combination

[*Geo. W. Dyer & Co.*, for appellant.]

DOOLITTLE, *Acting Commissioner:*

The invention, which is the subject of this appeal, relates, as applicant alleges, to that class of steam boilers in which the products of combustion pass from the furnace into a combustion-chamber at one end of the boiler, thence through horizontal flues into a smoke-box at the other end of the boiler, whence the unconsumed portions escape into the exit-flue.

"It consists," he adds, "in the peculiar construction and relative arrangement of the interior portions of the boiler, substantially as hereinafter specified, whereby the cleaning of the smoke-box, flues, and combustion-chamber can be accomplished with greater facility and fewer openings than in boilers of this kind as heretofore constructed." The claim is as follows:

In a tubular boiler, the combination of the following elements, viz: a fire-box, B, situated below the boiler proper and extending to the rear thereof, a smoke-box, C, immediately in front of the boiler proper and situated above the fire-box, a water-space situated between the fire-box and the boiler proper and smoke-box, a combustion-chamber situated at the rear of the boiler proper and communicating with the fire-box, a water-space, F, entirely around the top of the boiler, and the top rear side and bottom of the combustion-chamber, and upon the front, rear, and sides of the fire-box, and the flues D, communicating directly between the combustion-chamber and the smoke-box, all constructed and arranged substantially as and for the purposes set forth.

The reference first given in answer to this claim is the patent of F. A. Huntington, December 24, 1872, No. 134,284. I do not regard this as a sufficient reference, for the reason that Huntington's patent does not show a fire-box extending to the rear of the boiler proper, a smoke-box immediately in front of the boiler proper and above the fire-box; nor a water-space situated between the fire-box, the boiler proper, and smoke box.

The references cited, however, from Burgh's "Boilers and Boiler Making" are more in point, especially Fig. 539, p. 211, representing Glasson's marine boiler, patented in the year 1852, No. 1,036.

In this patent is shown a combination of the fire-box situated below the boiler proper and extending to the rear thereof, with a smoke box immediately in front of the boiler proper and situated above the fire-box, a water-space situated between the fire-box and the boiler proper and smoke-box, a combustion-chamber at the rear of the boiler proper connecting with the fire-box, a water-space entirely around the top of the boiler, the top, rear, and side of the combustion-chamber, and upon the rear, top, and bottom of the fire-box, and flues connecting directly the combustion-chamber and the smoke-box.

It will be seen that the elements of the present application and their precise arrangement are met by this reference, except the feature called the bottom of the combustion-chamber and a few inches of water-space in rear of the fire-box. But these latter changes must be regarded as quite inconsiderable so far as the question of patentable novelty is concerned.

Although the patent referred to represents a boiler having three fire-boxes and combustion-chambers and a single water and steam space, while applicant represents but a single fire-box with boiler, yet this makes no difference in principle or mode of operation.

The same general construction shown by applicant is found in the drawings in Pim's English patent of 1850, No. 13,160, varying only in the one or two unessential modifications, before referred to.

I do not agree, however, with the remaining reason given by the Examiner for his rejection of this application. In addition to the matter of the references above described, the Examiner holds that as water-fonts, water door casings, water-jacketed doors, and combustion chambers are common in steam-boilers, the present arrangement of devices is a mere aggregation of old elements, each performing its own result regardless of the others. This view appears to be sustained by the majority of the Board.

The results accomplished by this and similar arrangements of the same devices in boilers are the obtaining of steam and water space wasted in those boilers in which the fire-box is contained within the cylinder, materially increasing the heating capacity of the boiler, the protection upon all sides to the boiler, fire-box, and combustion-chamber from the destructive influence of heat, and the insurance of a thorough combustion of fuel and economical application of the products of combustion in the making of steam; and these results appear to me to be the product of a single organism.

In the celebrated stove case of *Hailes* vs. *Van Wormer*, (20 Wall., 353,) the devices employed were held to produce no new effect because used in combination. Each produced its peculiar or appropriate function unchanged by the operation of the others. The production of heat and illumination was not due, so the court substantially held, to the combination any more than it was in organisms in which one or more of those devices were omitted.

In short, it was a mere aggregation of devices in which each performed its separate function without producing anything novel in operation or result by their combination. But the results produced in the present case are the legitimate consequences of the entire arrangement. Each device performs its function in cooperation with the other devices in producing the successful operation of the entire machine. If this were not so the vast number of boilers that have been invented and patented, having for their object economy in space and in the use of fuel, the perfect production of steam, &c., and the convenient arrangement of parts necessary thereto, possessed no patentable novelty.

It is not, therefore, that applicant has simply made an aggregation of devices that his application is refused, but because his peculiar arrangement appears to me to be substantially anticipated by previous inventors.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—WESTERN DISTRICT OF PENNSYLVANIA.

WILLIAM SMITH & SONS *vs.* JAMES MARSHALL & CO.

[*In equity.—Before* MCKENNAN, *C. J.—Decided August* 26, 1876.]

The elements of a combination being old *per se*, the essence of the invention consists in the novelty of their combination and its

adaptation to the use for which it is intended, and its infringement will consist in the use of a machine, substantially embodying the combination in its entirety, for the same purpose.

The first claim of Firth and Ingham's patent, No. 37,037, for flasks for casting iron pipes, viz—"The combination, substantially as set forth, of the two halves A and A' of the flask hinged together, the staples I, or their equivalents, the flanges *a a*, and the clamps B B, or their equivalents, for the purpose specified"—is not infringed by the use of a flask divided in two halves, having staples, flanges, and clamps, but with the halves secured loosely together by bolts passing through the flanges on one side.

As the function of the bolts is to prevent the halves of the flasks from becoming detached from each other, and that of the hinges is to permit the opening of the flask far enough apart, but no farther, "than is necessary to allow the pipe and sand to fall out, and insure the correct closing of the two halves together;" and as the pipe is drawn lengthwise out of the bolted flask and is discharged automatically from the hinged flask through the side, the bolts are not the equivalents of the hinges, either in function or operation.

Mechanical equivalents are not those merely which produce the same result; a mechanical equivalent, as generally understood, is where one device may be adopted instead of another to perform the known function of the latter, by a person skilled in the art, from his knowledge of the art.

[*Benham D. Jones, J. J. Coombs,* and *A. M. Brown,* for complainants.

Bakewell & Kerr, for respondents.]

OPINION OF THE COURT.

McKENNAN, *C. J.*:

The bill in this case is founded on three patents, viz: No. 142,661, to James B. Aston, for improvement in devices for Blackwashing Molds; No. 53,833, to George Ross, for improved Molding and Casting Apparatus; and No. 37,037, to John Firth and John Ingham, for improved Flasks for Casting Iron Pipes.

No infringement of the first two of these patents has been proved, and it has, therefore, been agreed that the bill, so far as it relates to them, may be dismissed without prejudice.

To the complaint founded on the Firth and Ingham patent several defenses are set up in the answer, but as the case is decisively with the respondents on the question of infringement it is only necessary to consider this defense.

The first claim of the patent is the only one involved in the controversy, and is as follows:

The combination, substantially as set forth, of the two halves A and A' of the flask hinged together, the staples I, or their equivalents, the flanges *a a*, and clamps B B, or their equivalents, for the purpose specified.

From the specification it appears that the invention is applicable to flasks for casting iron pipes. These flasks consist of iron cylinders divided horizontally into two equal parts. The semi-cylindrical parts are each provided with a flange, and are held together on one side by stop-hinges attached to the flanges, and on the other by clamps tightened by wedges. When the parts are brought into contact and thus secured they constitute a "rigid iron tube, incapable of being disarranged." After being placed vertically in the casting-pit, and then suitably manipulated, the molten metal is poured into the mold and the flask is then ready to be removed and its contents discharged. This is effected by attaching the tackle of a revolving crane to the staples in each half of the flask, and swinging it round to a proper position above the foundry-floor, where it will be suspended horizontally. The clamps are then removed, and the halves of the flask will then open sufficiently to allow the contents to fall out on the foundry-floor, but will be prevented by the hinges from opening further than is necessary for this purpose. This is the specific and peculiar function of the hinges, and they have no distinctive utility, except as necessary devices in the mode of manipulating and emptying the flask described in the specification.

The invention, then, as described and claimed in the patent, consists of a combination of the two halves of a flask for casting iron pipe, of flanges on each edge of the halves, of stop-hinges applied to these flanges on one side, of clamps to be applied to the flanges on the opposite side, and of staples attached to each half about the middle of it. None of the elements of this combination are claimed as the invention of the patentees. In point of fact, they are all old, so that the novelty of their combination and adaptation to the use for which they are intended constitute the essence of the invention.

Whether the respondents have infringed the patent will depend, then, upon the fact of their use of a flask substantially embodying this combination in its entirety in the manufacture of iron pipe. That their flasks are divided horizontally into two equal parts, each with flanged edges, that there are staples or handles on each of these parts, and that clamps are applied to the flanges on one side of the halves to hold them together, is not denied. But the respondents do not use hinges on their flasks, instead of which the halves of the flask are fastened together by means of bolts and nuts, applied to the flanges on one side through holes therein provided for that purpose. And these bolts and nuts are claimed to be merely the equivalents of the hinges described in the patent. They cannot be considered abstractly as mechanical equivalents, because they have apparently very different mechanical adaptabilities. Mechanical equivalents are not those merely which produce the same result. "A mechanical equivalent, as generally understood, is where the one may be adopted instead of the other, by a person skilled in the art, from his knowledge of the art." (Curtis on Patents, sec. 332, note.) Certainly no degree of skill would suggest the substitution of a bolt and nut for a hinge to perform the well-known office of the latter.

Nor are they equivalents in the sense even of producing the same results. The prescribed function of the hinges is to allow the two halves of the flask to separate when the clamps on the opposite side are removed, and to prevent them "from opening farther apart than is necessary to allow the pipe and sand to fall out and insure the correct closing of the two halves together." That they may perform this function at all it is indispensable that the flask should be removed from the casting-pit and suspended in a horizontal position in pursuance of the method indicated in the specification.

But the mode of manipulation employed by the respondents is essentially different from this. They do not discharge the contents of the flask from its side; they do not remove the flasks from the casting-pit, but retain them there in a vertical position. The halves of the flasks are held together tightly by clamps, and the bolts are used solely to prevent the halves of the flask from becoming detached from each other. When the pipe is cast, and it is desired to discharge it from the flask, the clamps are taken off the flanges, and the bolts being left loose, with half an inch or less play, the flasks are pried apart as far as the bolts will permit. The chain of a crane is then attached to the bowl of the pipe, and it is drawn out vertically, without removing the flask from its place in the pit, and the sand is permitted to fall out into the pit at the other end.

Now, in a mode of operation so different from that in which a hinge is an appropriate device, it is obvious that it would be neither a necessary or proper auxiliary. The distinctive capabilities of a hinge are available only in a process which contemplates an automatic discharging of the flask, from its side, when it is horizontally suspended for that purpose. But in a method wherein the flask is kept in an upright position and the pipe inclosed in it is withdrawn vertically by the direct application of mechanical force there is no required or useful place for the peculiar office of a hinge, and the use of a bolt cannot, therefore, be regarded as merely substitutionary.

It remains only to add that the respondents, having discarded one of the essential elements of the patented combination, are not infringers. Assuming that they use all the other elements of the invention, they do not encroach upon the right of the patentees, unless they appropriate his invention as a unit, or employ merely a colorable substitute for one or more of its constituents. This is the result of the application of a very familiar principle of the law of patents, and rules the case in favor of the respondents.

Let a decree then be entered dismissing the bill so far as it relates to Patents Nos. 142,661 and 53,833 without prejudice, and as to Patent No. 37,037 generally, with costs.

DISCLAIMERS FILED.

167,057.—Improvement in Passenger-Registers.—JOHN B. BENTON, New York, N. Y. Patented August 24, 1875. Disclaimer filed August 30, 1876. Disclaims 10th and 12th clauses of the claim in the following words, to wit:

10. The combination, with a registering mechanism and an actuating-lever, of an intermediate spring or motor placed under tension by the movement of the actuating-lever impelled by the hand of the operator in one direction, and setting in motion the registering mechanism upon the return movement of the lever in the other direction, substantially as set forth.

12. The means of attaching to, and releasing the instrument from, the place where used, by means of the hook or horn and the parts bearing upon the same, substantially as set forth.

CATALOGUES AND CIRCULARS RECEIVED,

At the Library of the U. S. Patent Office.

Diamond-Drills.—AMERICAN DIAMOND ROCK-BORING COMPANY, Providence, R. I.

Force-Pumps.—NASON MANUFACTURING COMPANY, 71 Beekman street, New York city.

Planing and Molding Machinery.—S. A. WOODS MACHINE COMPANY, South Boston, Mass.

Saw-Mill Machinery.—SNYDER BROTHERS, Williamsport, Pa.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 5, 1876.]

9,485.—Picture-Frame.—ALONZO GRIFFIN, Meshoppen, Pa. Application filed March 23, 1876. Term of patent 3½ years.

9,486.—Heating-Stoves.—ROBERT HATCHMAN, Detroit, Mich., assignor to MICHIGAN STOVE COMPANY, same place. Application filed August 25, 1876. Term of patent 7 years.

9,487.—Gates.—WILLIAM TWEEDDALE, Brooklyn, N. Y. Application filed July 1, 1876. Term of patent 14 years.

9,488.—Street-Lamps.—GEORGE D. BURTON, New Ipswich, N. H. Application filed August 26, 1876. Term of patent 7 years.

9,489.—Woolen Fabrics.—DAVID L. EINSTEIN, New York, N. Y. Application filed August 21, 1876. Term of patent 7 years.

9,490.—Coat.—FREDERICK KELLOGG, Chicago, Ill. Application filed August 19, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 5, 1876.]

3,963.—Cordial.—ALEXANDRE LEGRAND AINÉ, Fécamp, France. Application filed August 21, 1876.

"The capital letters 'D. O. M.,' and the representation of a cross below the letters, together with the words 'Le Directeur,' the initial letters 'A. L.,' and a scroll below the cross."

3,964.—Cordial.—ALEXANDRE LEGRAND AINÉ, Fécamp, France. Application filed August 21, 1876.

"A representation of the holy St. Benoit carrying an abbot's crozier in his hand, and being placed within a double circular border. The words 'S. Benedictus' are arranged within the interior border, while the abbreviated Latin words 'Sig. Prior. S. Sæ Trinitatis. Cong. S. Mavri' are placed in the space within the interior and exterior borders. The whole is surrounded by a circular border of dots or beads that encircle the double border."

3,965.—Cordial.—ALEXANDRE LEGRAND AINÉ, Fécamp, France. Application filed August 21, 1876.

"The coat of arms of the abbey of Fécamp, consisting of a shield with three abbots' hats, surrounded at the sides and bottom by an abbot's stole. Above the shield are arranged an abbot's hat and crozier. A palm-branch is arranged at each side of the shield, and the whole inclosed by a dotted or beaded border of circular shape."

3,966.—Cordial.—ALEXANDRE LEGRAND AINÉ, Fécamp, France. Application filed August 21, 1876.

"The word-symbol 'BENEDICTINE.'"

3,967.—Hair-Pins.—BLAKE & JOHNSON, Waterbury, Conn. Application filed August 21, 1876.

"The portrait of a lady, with a Cupid in the air holding a rose over her head, inclosed in a medallion, with the words 'Ne Plus Ultra' inscribed over the medallion."

3,968.—Carriages and Wagons.—J. B. BREWSTER & Co., New York, N. Y. Application filed August 21, 1876.

"The word-symbol 'POLO.'"

3,969.—Gin.—IVES, BEECHER & Co., New York, N. Y. Application filed August 26, 1876.

"An heraldic shield, inclosed in a circular border."

3,970.—Shirts and Drawers.—J. LOWMAN & BRO., Cincinnati, Ohio. Application filed August 21, 1876.

"The word-symbol 'FOUNTAIN' and the monogram composed of the letters J L B."

3,971.—Flour.—MORA, MARTIN & Co., New York, N. Y. Application filed August 22, 1876.

"The word-symbol 'CATALANA.'"

3,972.—Baking-Powder.—LEWIS E. RANSOM, Garden City, N. Y. Application filed August 22, 1876.

"The device of a hand holding a card with the word 'Health' thereon, and inclosing a branch of a plant."

3,973.—Tobacco and Cigars.—STRAITON & STORM, New York, N. Y. Application filed August 18, 1876.

"The arbitrary words 'LA REINA DEL TROPICO.'"

3,974.—Sulphur-Soap.—JAMES M. VAN DYKE, Philadelphia, Pa. Application filed August 21, 1876.

"The initials 'J. M. V.,' arranged in the form of a monogram."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 5, 1876.]

822.—Title: **"N. K. Fairbank & Cie., Saindoux Raffiné."** N. K. FAIRBANK & Co., Chicago, Ill. Application filed August 25, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE, WASHINGTON, D. C., *August* 30, 1876.

On the petition of JOHN R. HARRINGTON, of Brooklyn, N. Y., praying for the extension of a patent granted to him on the 1st day of April, 1856, reissued in two divisions, and numbered, respectively, 2,415 and 2,416, on the 11th day of December, 1866, for an *Improvement in Machines for Mating Carpet-Lining*, this application having been authorized by act of Congress, approved August 14, 1876;

It is ordered that the testimony in the case be closed on the 31st day of October next; that the time for filing arguments and the Examiner's report be limited to the 10th day of November next; and that said petition be heard on the 15th day of November next.

Any person may oppose this extension.

R. H. DUELL, *Commissioner of Patents.*

INDEX OF INVENTIONS PATENTED SEPTEMBER 5, 1876.

	Class No.	No. of Patent.
Advertising desk, J. D. D. Mortimer	146	181,863
Advertising device, H. H. Browne, (reissue)	54	7,292
Air vent and collapse valve, R. J. Malcolm	152	181,791
Anchor, D. Z. Evans	138	181,928
Auger, fore, G. N. Stearns	29	181,874
Bell ear, L. Wirthlin	136	181,810
Bait kettle and cooler, combined, J. C. Hitchcock	143	181,844
Bale hoop tightener, Knowles and Derden	7	181,940
Bale tie buckle, T. Bunker	7	181,818
Barrels, machine for making, T. M. Healey	40	181,889
Base burning stove, A. White	154	182 004
Base heating stove, G. H. Johnson	154	181 942
Basin, catch, H. Frank	8	181 931
Basin cock, Forns and Mooney	167	181,929
Bed bottom, spring, L. C. Boyington	62	181,816
Bee hive, G. C. Wilson	9	182 009
Beer cask, M. Seitz, (reissue)	40	7 297
Beer vat, G. Meurer	19	181,862
Bell toy, L. A. Bevin	143	181 902
Blowing machine, J. G. Baker, (reissue)	19	7 291
Boiler furnace, H. M. Smith	149	181,991
Book cover protector, J. Mahedy	15	181,956
Boot and shoe sewing machine, W. Jackson	134	181 941
Boot and shoe tip, J. A. Pease	16	181 974
Boot blacking apparatus, M. Simon	22	181,801
Boots and shoes, tipping and patching, D. T. Cooper	16	181,821
Breech loading fire arm, J. Fiedler	18	181,830
Brick machine, E. Sprague	20	181 803
Broom winding machine, M. Gollaher	22	181,935
Cabinet for exhibiting braids, F. E. Goehring	54	181,834
Cam attachment for steam engines, W. H. Wilson	150	182 010
Can, metallic, G. L. Harrison, Jr	136	181,783
Cane and seat, combined, Smith and Jacoby	165	181,802
Car coupling, D. P. Cubberley	122	181,916
Car coupling, R. A. Kelly	122	181,946
Car coupling, R. A. Kelly	122	181,947
Car coupling, W. S. Owen	122	181,971
Car coupling, A. Wald	122	181,807
Car coupling, R. K. Welch	122	181,824
Car replacer, J. Booth	120	181,766
Car wheel, L. Le May	122	181,854
Carbureter, C. Edgar	27	181,926
Card grinder, M. A. Furbush	28	181,933
Carrier for barrels, boxes, &c., N. Oak	19	181,797
Cartridge shell, J. P. Pieri	32	181,977
Chandeliers, protector for, F. J. Symmes	64	181,877
Child's carriage, Carter and Fox	31	181,907
Chopping knife, E. G. Cushing	23	181,918
Churn, M. S. Cresswell	45	181,913
Churn, E. A. Oliver	45	181 966
Churn, W. M. K. Thornton	45	182,001
Churn dasher, A. McDaniel	45	181,860
Cider and wine press, Cowley and Farquharson	19	181,775
Cider mill, J. T. Griffin	19	181 839
Clasp, A. M. Butler	23	181 819
Cloth cutting machine, A. Warth, (reissue)	38	7,304
Clothes pin, U. D. Mihilla	91	181,861
Cockle separator, H. Kurth	159	181,786
Cocoa nut grater, S. Croft	88	181,914
Coin, appliance for storing and counting, W. Cunningham	42	181,773
Compound engine, C. E. Emery	150	181,780
Cooking stove, D. Stuart	154	181,996
Cooling and ventilating mines, houses, &c., T. Joseph	166	181,945
Corn marker and coverer, combined, W. Dolenty	133	181,922
Corn planter, Frederick and Peck	133	181,932
Corn planter, Galt and Tracy	133	181,832
Corn planter, hand, J. Downing	133	181,825
Corset, S. B Ferris	80	181,781
Corset, H. H. May	80	181,960
Corset clasp, A. Ottenheimer	80	181,970
Cracker machine, J. H. Mitchell	6	181,862
Cultivator, T. J. Jones	43	181,944
Desulphurizing ores, apparatus for, W. O. Davis	99	181 776
Defecation of saccharine solutions, H. Leplay	155	181,856
Ditching and tile laying machine, J. F. Young	51	181 887
Door check, J. Peirce	24	181 865
Dough raising apparatus, W. and R. L. Skillen	6	181 989
Dovetails, machine for cutting, Babee and Haendel	173	181,897
Draft attachment, Luther, Chemberlin, and De Groff	31	181,955
Draft equaliser, J. Beard	31	181,765
Drill teeth attachment, G. W. Crooks	133	181 915
Drive chain, J. H. Elward	72	181,779
Earth auger, H. W. Pulse	51	181 981
Egg beater, Boon and Colburn	88	181,903
Electric alarm, A. Bradford	50	181,905
Evaporator for hot air registers, W. R. Fowler	154	181,930
Extension table, W. S. and A. D. Seaman	62	181,986
Feeder for thrashing machines, J. W. Dozier	159	181 923
Fertilizer, G. J. Poppl-in, (reissue)	96	7,296
Fertilizer distributer, P. P. Linder	133	181,858
Fires in oil tanks, apparatus for preventing and extinguishing, J. H. Connelly	35	181,911
Floating power, J. L. Shipe	168	181,988
Feeding table, W. O. Osgood	62	181,969
Frame for curtain fixtures, E. L. Lloyd	62	181,952
Fruit drier, J. W. Seymour	48	181,987
Furnace grate, R. C. Graves	149	181,837
Furnace, ore roasting, J. Winterburn	99	181,896
Gage, diameter, R. D. Williams	97	181,809
Gage for hair cutting, Bow and Williams	161	181,904
Game table, J. B. Butzbach	143	181,769
Gang plow, E. A. Beers	114	181,901
Garden and field hoe, revolving, D. B. Sherman	43	181,870
Gas apparatus, A. Glachet	66	181,934
Gas light and pressure indicator, W. W. Goodwin, (reissue)	64	7,301
Gas regulator, A. Strauss	64	181,875
Gate, J. M. Richardson	59	181,965
Gate, farm, J. W. Baker	59	181,898
Gate valve, J. Banister	159	181 899
Glass mold trimmer, J. Zihlmann	68	181,888
Glass polishing machine, E. Ford	68	181,831
Glove safe, S. Lewy	62	181 951
Governor for steam engines, G. F. Ernst	69	181,927
Grain band, J. H. Swihart	74	181,876
Grain binder, W. Lottridge	74	181 934
Grate bar, Allen and Barton	149	181,892
Gridiron, G. Cornwall	154	181,893
Grinding phosphates, bones, &c., machine for, H. Ducsh	96	181,924
Grindstone frame, J. E. De Freest	70	181,919
Gunpowder pile driver, F. C. Prindle	82	181,983
Gutters, machine for making wooden, A. W. McCausland	173	181,794
Gymnastic apparatus, P. Graham	143	181,836
Hair pulling pin, A. Hurd	161	181,847
Hair triggers of rifles, &c., setting, G. O. Leonard	55	181,855
Harrow, S. Kain	73	181,849
Harrow, J. G. and J. H. Stokesbary	73	181,995
Harvester, W. Lottridge	74	181 953
Hat fastener, C. C. Shelby	161	181,872
Hat pouncing machine, R. Eickemeyer	76	181,829
Hay elevator, Young and Carroll	77	182 012
Heater for fire engines, circulating, W. S. Reynolds	118	181,799
Heating and feeding air to furnaces, G. W. Broc	149	181,767
Hinge, H. L. Hapgood	24	181,843
Horseshoe nails, machine for making, J. A. Huggett	60	181,784
Hose pipe, Hovey and Leshure	81	181,940
Ice cream freezer, C. W. Packer	58	181,972
Ironing board, D. H. Bagley	91	181,813
Knife cleaner, R. A. Barker	70	181,764
Lamp extinguisher, L. Homann	90	181,938
Lamp filling tube, C. Chinnock	90	181,909
Lasting machine, G. W. Copeland	16	181,772
Lathing, metallic, J. W. Kennett	4	181,850
Lathing, metallic, J. W. Kennett	4	181,851
Leather tips for boots and shoes, manufacturing, A. Van Wagenen	16	182,002
Line fastener, A. C. Swoards	91	181,998
Liquid measure, W. K. Johnston	167	181,943
Lock and chain fastening combined, W. R. Edelen	93	181,925
Locomotive and car steam brake, T. J. Shellhorn	122	181,869
Loom shuttles, mechanism for threading, T. S. Parker	95	181,798
Marble cleaning composition, D. Love	153	181,790
Mechanical movement, H. E. Towle	67	181 905
Middlings separator, J. B. Martin	57	181,957
Milk can cover, Dunlap and Blasonett	45	181,777
Milk cooler, G. N. Horton	45	181,939
Millstone stuffing machine, W. N. Cosgrove	57	181,774
Mop head, H. H. Mason	22	181,958
Music leaf turner, J. Collicott	102	181,771
Musical building block, H. Eckhardt	143	181,827
Nail plates, machine for cutting, L. Soule	103	181,993
Nest for fowls, C. Haise	116	181 840
Nut lock for railroad joints, G. McGregor	14	181,961
Paper box, D. K. Osborn, (reissue)	109	7,295
Paper feeding machine, J. T. and F. Ashley	117	181,895
Paper machines, reducing the strain and friction upon the fourdrinier wire of, J. H. De Witt	108	181,921
Paper sheathing, siding, &c., J. F. Ellsworth	109	181,778
Paraffine, apparatus for purifying, F. Q. Barstow	96	181,814
Piano action joint, F. Preston	112	181,866
Pile driving mechanism, E. Larkin	82	181,788
Pipe mold, A. O'Neill	33	181,967
Planing machine, E. G. Allen	173	181,893
Plow, J. S. Hartzell	114	181,842
Plow, M. P. Sparks	114	181,873
Potato digger, D. D. T. Brown	114	181,768
Poultry coop, M. Ehlbert	116	181,828
Press for molding sugar into cubes, A. de la Montagnie	155	181,920
Puddling furnaces, construction and protection of, J. Pedley	85	181,975
Pug mill, H. Aiken	20	181,890
Pump, W. H. Pollard	118	181,960
Pump for continuous discharge, S. D. Lount, (reissue)	118	7,302
Pump plunger and valve, J. Matthews	118	181,793
Pump, steam and vacuum, J. D. Willoughby	118	182,005
Railroad rail, compound, R. W. Thompson	120	181,978
Railroad signal, automatic, G. Gledhill	120	181,833
Railroad switch, C. Hughes	120	181 785
Railroad switches, safety lock for, A. W. Willcox	120	182 007
Railroad switches, safety lock for, A. W. Willcox	120	182 008
Railway car wheels, manufacture of, A. Krupp	122	181,853
Refrigerator, P. J. Kromer	58	181,950

	Class No.	No. of Patent.
Registering mechanism, duplex, Towle and Benton, (reissue)	42	7,290
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Rocking chair, H. Lamprecht	62	181,787
Rotary engine, J. M. Polsley	150	181,981
Ruffler for sewing machines, E. J. Toof	134	181,879
Sad iron heater, W. H. Haylock	154	181 937
Saw sharpening machine, J. McSweeny	131	181 795
Sawing machine, G. T. Riddle, (reissue)	130	7,303
Scroll sawing machine, E. Anderson	130	181,762
Seed planter and cultivator, combined, W. J. Pirkle	133	181,978
Self loading cart, A. Vreeland	31	181,882
Set screw, R. S. Baranm	14	181,763
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Shank and heel support for boots and shoes, J. S. Nelson	16	181,965
Ship's galley, W. Young	137	182,011
Shoe fastening, C. F. Kleinschuster	16	181,948
Shoe fastening, C. M. Platt	16	181 979
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Skate, roller, C. W. Saladee	143	181 868
Slate frame attachment, R. Parke	146	181,973
Sleeping car, G. Leve	121	181,857
Snow melting machine, Mullaly and Hawkins	120	181,964
Spader, stalk cutter, and field roller, rotary, P. D. and H. C. Pelsor	43	181,976
Spading plowing, and stalk cutting machine, combined, W. M. Mathes	43	181,959
Spectacles, S. F. Chandler	157	181,908
Spinning spindle, J. C. Stanley	142	181,804
Spinning top, A. Kern	143	181,852
Spoke tightener, J. W. Gray	31	181,838
Spooling thread or yarn, machinery for, J. W. West	17	181,885
Steam boiler, R. M. Beck	148	181,900
Steam boiler, H. Purdy	148	181,867
Steam engines, apparatus for kindling fires of, C. L. Scoville	150	181,800
Steam radiator, W. B. Snow	147	181 992
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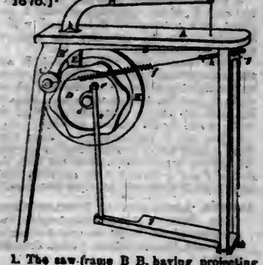
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPTEMBER 5, 1876.

181,763. SCROLL-SAWING MACHINE. R. Anderson, Peekskill, N. Y. [Filed Jan. 17, 1876.]

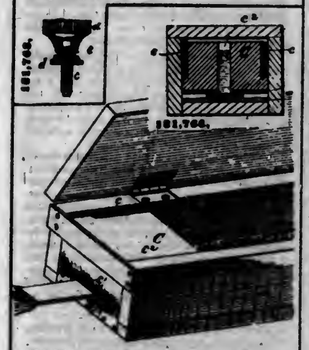


1. The saw-frame B B, having projecting arm B', roller C, spring *f*, and cam D, combined and operating substantially as described.

2. In combination, the cam D, arm B', spring *f*, crank pin *e*, pitman *c'*, and treadle F, arranged and operating substantially as and for the purpose hereinbefore set forth.

181,765. SET-SCREWS. Russel S. Bevens, Chicago, Ill., assignor to H. C. Goodrich, same place. [Filed July 27, 1876.]

A set-screw the head *a* of which is provided with a chamber, *b*, in combination with a loose washer, *d*, having a neck, *e*, into which the edge of the chamber is turned, substantially as specified.



181,766. KNIFE-CLEANERS. R. A. Barker, Topeka, Kans. [Filed July 3, 1876.]

The device described, consisting of the box A, having a padded bottom, the padded block C, having the vertically-extended opening *d*, adapted to hold a column of water, and pressure-springs *e*, as described, the block C lying upon the padded bottom at one end of the box, as shown, the construction being such that a knife being polished rests upon a plane surface extending into the brick-dust chamber, as described.

181,768. DRAFT-EQUALIZERS. Jacob Beard, New Boston, Ill. [Filed Nov. 19, 1875.]



1. In a three-horse equalizer, the whiffletree C and the whiffletree D, pivoted in the frame B at unequal distances from their extremities, so that there may be equal distances between the loops at *d* and *d'*, *d'* and *d''*, *d''* and *d'''*, as shown and specified.

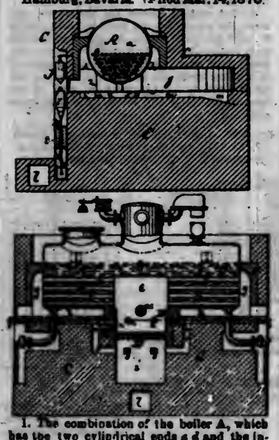
2. The frame B, composed of two equal pieces, and held together by the castings E and E', in combination with the clevis A, the casting *b*, provided with a slotted lug, and the whiffletrees C and D, as heretofore described, and for the purposes set forth.

181,766. CAR-REPLACERS. Joseph Booth, Hamilton, Ontario, Canada. [Filed Feb. 24, 1876.]



The combination of the clip A, stud C, and replacer D, attached and placed as and for the purpose specified.

181,767. DEVICES FOR HEATING AND FEEDING AIR TO FURNACES. G. Wilhelm Broo, Hamburg, Bavaria. [Filed Mar. 14, 1876.]



1. The combination of the boiler A, which has the two cylindrical ends *a d* and the intermediate fire chamber, with the smoke-passages *g g h h*, transverse channels *j j*, and chimney, substantially as herein shown and described.

2. The combination, in a steam-boiler, of the air-passage *l* with the air heating tubes G, chimney E, air-distributing passages *m m*, and channels *n o*, substantially as specified.

3. The combination of the valve *p* with the channels *n o* and passage *m*, to operate substantially as specified.

4. The air-supply-regulating apparatus, consisting of the vessels I J and slide H, combined with the valve *p* and channels *m*, *n*, and *o* of a steam-boiler, to operate substantially as herein shown and described.

181,768. POTATO-DIGGERS. Daniel D. T. Brown, Mumford, N. Y., assignor of one-fourth his right to William D. Garbutt, same place. [Filed Sept. 20, 1875.]

Brief.—The share is double and secured to each other by means of short chains or links. The forward share is secured to a beam by means of curved iron braces. To the rear share is rigidly attached a series of three-pronged separating-fingers, which have an upward curve at their rear ends.



181,769.

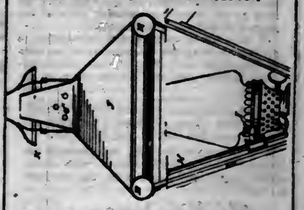
The V-shaped cutters C C', loosely attached together, the rear cutter C' having fingers *f* rigidly fixed thereto, in combination with the curved draft-rods B and rigid pole A, as and for the purposes set forth.

181,769. GAME-TABLES. J. B. Batchoch, Chicago, Ill. [Filed Apr. 26, 1876.]

Brief.—The object-balls, from the inclination of the circular head portion, collect by gravity at the opening thereof, and, being struck by a cue-ball, perhaps knock down the pins arranged behind them.

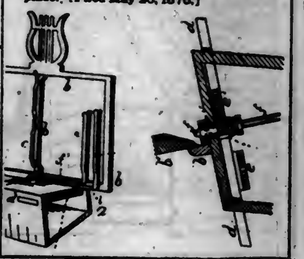
The herein-described game-table A, having the inclined circular head A', communicating therewith through the throat *a'*, and adapted to the playing of the described game by means of balls B and pins C, substantially as set forth.

181,770. STREET-LAMPS. Chas. C. Charles, Englewood, Ill. [Filed June 17, 1876.]



The combination, in a street-lamp for burning kerosene-oil, of a body or case made air-tight, or nearly so, excepting at the top, the metallic roof and reflector J, the ventilator and smoke-escape K, arranged in the top of the case, the tank E E, forming a part of the frame, and supporting the roof J, the filling-pipe D, and a cock arranged in the said pipe, substantially as and for the purposes specified.

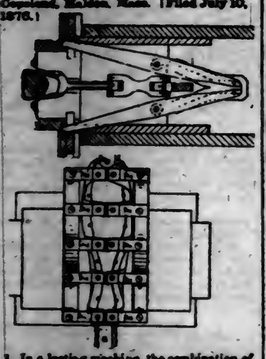
181,771. MUSIC-LEAF TURNERS. John Colbrooth, Boston, Mass., assignor to Ellen S. Getchell and Susan W. Sanford, same place. [Filed May 26, 1876.]



1. In a mule-loof tarrer, the center bar *b*, projecting forward from the desk A, so as to bring it over the center upon which the leaf-turning arms *f f* turn, and covered to said desk at top and bottom, constructed and arranged to operate substantially as and for the purpose set forth.

2. In combination with the subject-matter of the above claim, the bar *d*, racks *e e*, and geared leaf-turning arms *f f*, substantially as and for the purpose set forth.

241,772. LASTING-MACHINES. George W. Copeland, Malden, Mass. (Filed July 10, 1876.)



1. In a lasting-machine, the combination of a girth extensible under strain, with jaws having, in the operation of lasting, a rising motion, actuated by a closing motion, and a downward motion toward the median line of the last-bottom, substantially as described.

2. In a lasting-machine for girth-lasting, the combination of jaws, separate fingers, and an extensible girth, provided at its edges with non-extensible thongs, substantially as described.

3. In a lasting-machine for girth-lasting, the combination of the fingers having a rising and closing motion, and extended when closed to near the median line of the sole, with an extensible girth lapped and drawn upon the shoe by the inwardly-projecting ends of the fingers, substantially as described.

4. In a lasting-machine for girth-lasting, a girth containing the combination of an elastic extensible central band, with non-extensible lateral portions, substantially as described.

241,773. APPLIANCES FOR STORING AND CONVEYING COAL. William Cunningham, Baltimore, Md. (Filed May 24, 1876.)

In a receptacle for coal, substantially as described, the graduated walls A, with openings B, substantially as and for the purpose set forth.

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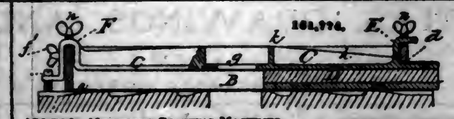


MILLSTONE-STAFFING MACHINES. Wm. M. Cosgrove, Faribault, Minn., assignor of one-fourth of his right to J. S. Jordan, same place. (Filed June 17, 1876.)

1. The combination, with the ring B, of the radial right-angular guides *b*, substantially as specified.

2. In combination with the ring B, the diametrical staff C, adapted to be clamped and adjusted on the said ring, substantially as specified.

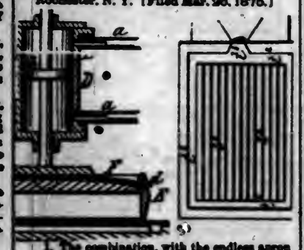
3. In combination with the ring B, having edge opening *d*, the diametrical staff C, having arms B F, and set-screws *e e* and *f f*, substantially as specified.

4. In combination with the ring B and diametrical staff C, having wood facing D, the leveling-screw *x*, substantially as specified.

5. The edge ring E, having projecting lug *c*, with set-screw *f*, and the edge opening *d*, in combination with the diametrical staff C, projecting through the said opening, substantially as specified.

6. The staffing device for millstones, consisting of a metallic ring provided with guides to hold it in position on the stone, concentric with its periphery, a diametrical metallic staff, faced with wood, carrying a coloring material in grooves upon its under side, and nut and thumb screws for adjusting the staff to the ring and face of the stone, substantially as specified.

241,775. CIDER AND WINE PRESSES. Covel R. Cowley and Duncan S. Farquharson, Rochester, N. Y. (Filed Mar. 26, 1876.)



1. The combination, with the endless apron C, of the curb E and follower F, said parts receiving an intermittent action, and operating in the manner and for the purpose specified.

2. The combination, with the curb E and follower F, of the springs *d d*, secured in the middle to the follower, and passing at the ends through sockets of the curb, whereby the follower is made elastic in its action, and is raised to the top of the curb when not under pressure, as herein shown and described.

3. The combination, with the curb E and follower F, of the hydrostatic press D, receiving-pipes *e e'*, and the four-way cock K, for operating the curb and follower alternately in opposite directions, as shown and described.

4. The combination, with the three-pump I and cock K, of the regulating-cylinder L, provided with a weighted piston, and with a shifting device for changing the cock, as shown and described.

5. The combination, with the cock K and the piston of the regulating-cylinder L, of the sleeve V, weighted shaft *g*, shoulder *g'*, the chain *r*, and the stop *w* and arm *s*, connecting with the stops *v v'* on the disk M of the cock, as and for the purpose specified.

6. The bed R, consisting of a raised platform, resting under the curb and supporting the endless apron, and constructed with the slats *s' s'* and grooves *r' r'*, for allowing ready escape of the expressed juice, as described.

241,776. APPARATUS FOR DESULPHURIZING ORES. Wm. O. Davis, Philadelphia, Pa., assignor of one-fourth his right to Charles H. Stuart, Boston, Mass. (Filed July 28, 1876.)

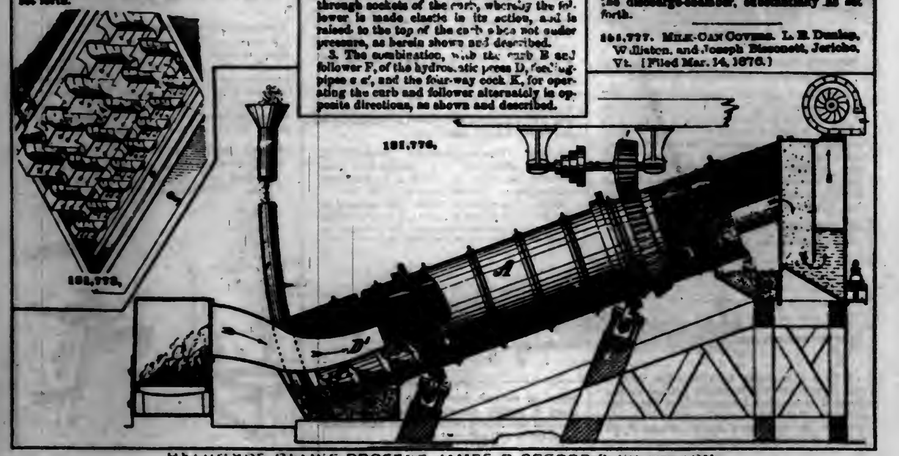
Brief.—Ore in a pulverized state is fed to the lower chest, when it is caught up and carried along by the helical conveyor fastened to the inner surface of the revolving cylinder. During its passage the ore is constantly raised and let fall by agitator-blades placed nearly at right angles to the threads of the screw, and is thus thoroughly subjected to the action of the hot products of combustion, drawn by an exhaust from the furnace through the center of the cylinder. The heavier portions of the roasted ore fall into the lower compartment of the receiving chamber at the delivery end of the conveyer, while the lighter portions, together with the gases from the furnace, are carried by the force of the exhaust through the upper compartment into another chamber, containing a hydraulic trap. In being sucked through the water, the last of the ore is deposited, the gases passing on.

1. The combination, in an apparatus for desulphurizing ores, &c., of a cylinder or chest, an internal screw-conveyer blade, and a series of agitator-blades placed between the threads of the screw-conveyer, and extending from one thread to the other, so as to raise the pulverized ore as they revolve with the cylinder, substantially as set forth.

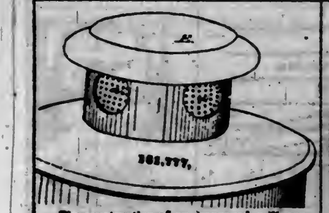
2. The combination, in an apparatus for desulphurizing ores, &c., of a cylinder or chest, a hot-air flue communicating with the receiving end thereof, a draft-chamber communicating with the delivery end, and an exhaust-fan and hydraulic trap, substantially as set forth.

3. The combination, in an apparatus for desulphurizing ores, &c., of a cylinder or chest, a discharge-chamber divided horizontally into two compartments, and a draft-chamber communicating with the upper compartment of the discharge-chamber, substantially as set forth.

241,777. MILK-CAN COVERS. L. B. Dunlap, Williston, and Joseph Bennett, Jericho, Vt. (Filed Mar. 14, 1876.)



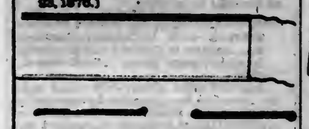
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The construction of an improved milk-can cover, having an adjustable ventilating-top, E, and a projecting slightly-curved rim, substantially as described, and for the purpose set forth.

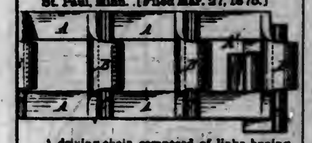
241,778. FARM SEPARATORS, SIFTERS, &c. J. F. Ellsworth, Fulmont, N. Y. (Filed Feb. 23, 1876.)



1. Paper sheathing, siding, &c., composed of two or more sheets connected together by coal-tar or like material, the raw edges of the sheets being protected by hems or laps folded around them, substantially as specified.

2. Paper sheathing, siding, &c., composed of two or more sheets connected together by coal-tar or like material, the raw edges of the sheets being protected by hems or laps, which contain cords or tapes, or wire, substantially as specified.

241,779. DRIVE-CHAINS. John H. Hyward, St. Paul, Minn. (Filed Mar. 27, 1876.)



A driving-chain composed of links having the flattened and expanded side bars A A, open hook B, and cylindrical end bar C, all constructed substantially in the manner and for the purpose set forth.

241,780. COMPOUND ENGINES. C. H. Emery, Brooklyn, N. Y. (Filed Dec. 12, 1873.)

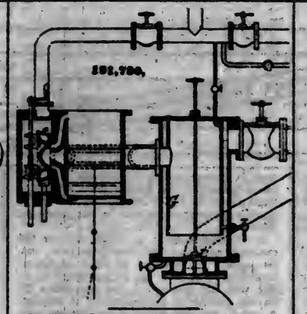
Brief.—The two engines are not connected, but they are regulated with respect to each other by the pressure in an intermediate chamber, which is controlled by a cut-off on the large cylinder, or on both engines; or steam may be admitted to said chamber from the boiler, or taken from it to the condenser, to vary its pressure.

1. The method of regulating the relative speeds or powers of two independently-loaded engines, of different sizes, operating together, in connection with an intermediate chamber, as a compound engine, by means of a cut-off on the larger cylinder, substantially as specified.

2. The method of regulating the relative speeds or powers, with a given quantity of steam, of two independently-loaded engines, of different sizes, operating together, in connection with an intermediate chamber, as a compound engine, by means of cut-offs on both cylinders, substantially as specified.

3. The method of regulating the relative speeds or powers of two independently-loaded engines, of different sizes, operating together as a compound engine, but having no mechanical connections to keep the two in time, by varying the pressure in an intermediate chamber, substantially as and for the purpose specified.

4. An exterior heater, G, combined with the intermediate chamber of a compound engine in such manner as to secure circulation of the steam on both sides of the heater, substantially as and for the purpose specified.



241,780.

241,781. CORSETS. Sherwood R. Ferris, Brooklyn, N. Y. (Filed May 16, 1876.)



1. The combination of the corset with the triangular gore *b*, which is secured to the corset at its lower end or point *f* only, leaving both edges free, and is placed over the slit of the corset, to close the same and permit its adjustment, substantially as specified.

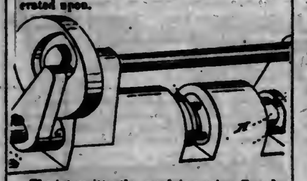
2. The combination of the gore *b* with the upper projecting piece *c*, substantially as and *b r* the purpose specified.

3. A corset made with two slits at the top and four slits at the lower edge, each of said slits being provided with an adjustable closing-flap, substantially as specified.

4. The corset-tap *a* applied to the upper end of, and combined with, the gore *b*, and provided with stiffening-rib *i*, substantially as and for the purpose herein shown and described.

241,782. MACHINES FOR MAKING RIVETS. &c. George A. Gray, Jr., Hamilton, Ohio. (Filed Jan. 22, 1876.)

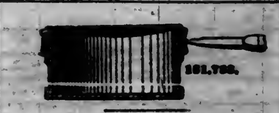
Brief.—The wire is fed through the rocking or intermittently-revolving arbor into the continuously-revolving arbor (and the finished article is expelled) while they co-travel, and the former turns back, so as to cover the blank and leave it in the die, in the latter to be operated upon.



The intermittently-revolving arbor G and the continuously-revolving arbor H in combination, as and for the purpose specified.

241,783. MEDALLIC CASES. G. L. Harrison, Jr., Philadelphia, Pa., assignor to Harrison Brothers & Co., same place. (Filed July 6, 1876.)

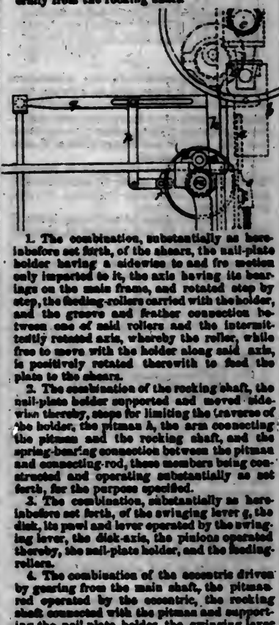
A case for paints, preserves, or the like, in the flange of whose cover is formed an elevation, consisting of a circumferential band of metal supported by two circumferential shoulders or supports, to the end that when the flange has been soldered to the body the cover can be removed by section through the elevation, substantially as described.



241,783.

241,784. MACHINES FOR MAKING HORSESHOE-NAILS. John A. Hoggett, 13 Ferndale Road, Clapham, England. (Filed Apr. 8, 1876.)

Brief.—Of the two vertical cams projected from a rocking shaft, that turns in bearings in the head-plate, the one supports the rear end of the feed-trough, and the other is connected to the feed-roll frame, that supports the other end of the trough, the roll-frame itself being supported by, and slidable on, a cross-shaft, which is the axis of the lower feed-roll, and to which rotary motion is imparted by pawl and ratchet. The rocking shaft is slightly turned, and the feed-trough moved thereby from one pair of cutters to the other, by means of a rod, which depends from an eccentric, and connects at its lower end to an arm projected laterally from the rocking shaft.



1. The combination, substantially as hereinbefore set forth, of the shears, the nail-plate holder having a sideways to and fro motion only imparted to it, the axle having its bearings on the main frame, and rotated step by step, the feeding-rollers carried with the holder, and the groove and feather connection between one of said rollers and the intermittently rotated axle, whereby the roller, while free to move with the holder along said axle, is positively rotated therewith to feed the plate to the shears.

2. The combination of the rocking shaft, the nail-plate holder supported and moved sidewise thereby, stops for limiting the traverse of the holder, the pitman h, the arm connecting the pitman and the rocking shaft, and the spring-bearing connection between the pitman and connecting-rod, these members being constructed and operating substantially as set forth, for the purpose specified.

3. The combination, substantially as hereinbefore set forth, of the swinging lever g, the disk, its pawl and lever operated by the swinging lever, the disk-axis, the pinions operated thereby, the nail-plate holder, and the feeding-rollers.

4. The combination of the eccentric driven by gearing from the main shaft, the pitman rod operated by the eccentric, the rocking shaft connected with the pitman and supporting the nail-plate holder, the swinging lever connected with the rocking shaft, and the intermittently moving disk, operated through its connection with the swinging lever, and imparting motion to the rollers for feeding the nail-plate, these members being constructed and operating substantially as hereinbefore set forth.

241,785. RAILROAD-SWITCHES. Charles Hughes, Montreal, Quebec, Canada, assignor of part of his right to Wm. Angus, John Macfarlane, and James Macfarlane, same place. (Filed June 6, 1876.)

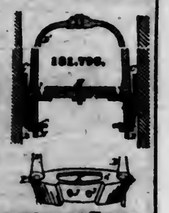
Brief.—Two moving portions of the switch are operated by the same hand-lever, through a long longitudinally-moving connecting-rod and links, which unite the motions to be simultaneously moved. The movable rail ends are supported in a chair of peculiar form, which admits of the required angular motion.

1. The combination of the switches *f* and *g* with rails *a b c* and *d e*, substantially as and for the purposes described.

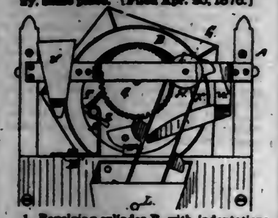
2. The chair *o*, having bridge-piece *v* and flared or bell-shaped end, substantially as and for the purposes described.

3. The chair *o*, flared at both ends, having bridge-piece *v*, substantially as and for the purposes described.
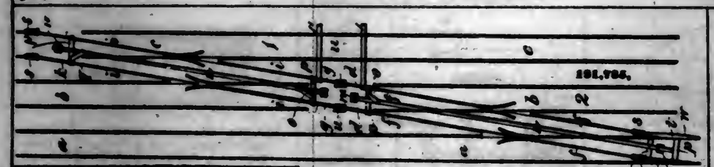




181,786. COCHLE-SEPARATORS. Hermann Kurth, Milwaukee, Wis., assignor to Cochle Separator Manufacturing Company, same place. [Filed Apr. 20, 1876.]



1. Receiving cylinder B, with indentations on the inside of same, and an outside cylinder, C, with large meshes or openings attached to said cylinder B by studs, and both revolving together on friction-rollers D, in combination with shaft E and flange-pulleys F, substantially as described.

2. The combination of cylinder B, pinion I, brush S, yielding spring D', catch-board S, spring T, and adjustable angle-iron A', substantially as described.

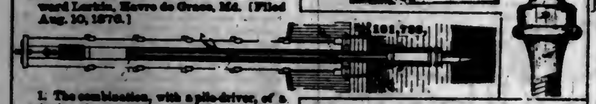
3. The combination of stationary brush S, yielding spring D', and cylinder B, substantially as described.

181,787. ROCKING-CHAIRS. H. Lamprecht, New York, N. Y. [Filed June 12, 1876.]



In a rocking-chair having a supporting-frame provided with feeders E, the combination of the cross-bar m, constituting a rod, n, carrying the coils of a spring, D, the central portion of which bears against the cross-bar m, and the two extremities attached to brackets o, pivoted to pieces k, affixed to the runner, and the latter provided with slotted guides, arranged for working downward over bolts s on the inside of the supporting-frame, substantially as set forth.

181,788. PILE-DRIVING MECHANISMS. Edward Lorkin, Havre de Grace, Md. [Filed Aug. 10, 1876.]



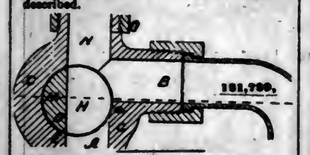
1. The combination, with a pile-driver, of a swinging sleeve or tube suspended therefrom, and extending from about the surface nearly to the bottom of the water, or of the space through which the head of the pile is to be driven, substantially as and for the purposes set forth.

2. The combination of a pile-driver, a swinging sleeve or tube suspended therefrom, and extending from about the surface to the bottom of the water, and a follower extending from the head of the pile being driven into and above the swinging sleeve, and in line with the driving-hammer, substantially as and for the purposes set forth.

181,789. SHOP-CHOCKS. Thomas Leavitt, Everett, Mass. [Filed June 9, 1876.]

1. The combination, in a stop-cock, of the casing C, provided with inlet-passage A, outlet-passage B, arranged at right angles, or nearly so, to A, and the drill-passage E, in line with, and forming an extension of, the passage A, and a plug-valve, D, having passage H corresponding to passage A, cut in one side thereof, and located with its axis at right angles to, but to one side of, the axis of the inlet-passage A, as and for the purposes described.

2. The combination, in a stop-cock, of the casing C, provided with inlet-passage A, outlet-passage B, arranged at right angles, or nearly so, to A, and the drill-passage E, in line with the passage A, the plug-valve D, having passage H corresponding to passage A, cut in one side thereof, and located with its axis at right angles to the axis of the passage A, but in a different plane, and the cap C, for closing passage E, all arranged and adapted to operate as and for the purposes described.



181,790. MARBLE-CLEANING COMPOSITIONS. David Love, Yellowhead, Ill. [Filed Mar. 12, 1876.]

The process herein described of cleaning marble, granite, and other stone, by first washing the stone to be cleaned with a solution of lime-water, and then applying a compound consisting of three parts of muriatic acid and one part of acetic acid, substantially as and for the purpose specified.

181,791. AIR-VENTS AND COLLAPSE-VALVES. Robert J. Malcolm, Cincinnati, Ohio, assignor to himself and George B. Mason. [Filed June 1, 1876.]

Brief.—An air-vent or collapse-valve constructed with an air port or passage extending from the valve-seat downward through the valve-casing, and also in the combination, with a disk-valve provided with a central perforation, of a valve-seat formed with air inlet and outlet passages.

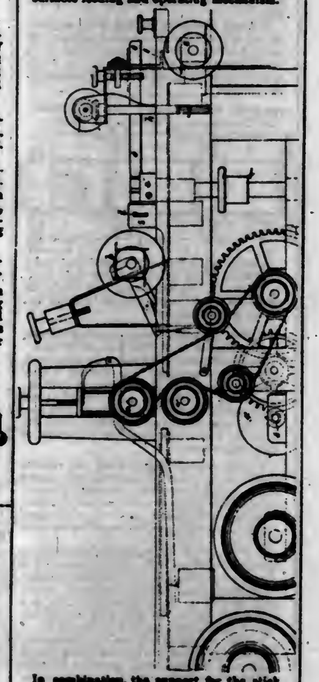
An air-vent valve, consisting of the screw-threaded stem, provided with a central passage, A, side port D, and a flat valve-seat, in combination with a flexible valve, C, having aperture b and a screw-threaded cap, E, formed with an offset to hold the valve C against its seat, all constructed substantially as and for the purpose specified.

181,792. PUMP PLUNGERS AND VALVES. Jno. Matthews, Lyndon, Ontario, Canada. [Filed May 10, 1876.]

The valve-seat A', provided with a recess, I, and projections J' J' in said recess, in combination with the packing-holder B, for the purpose of securing the valve to the plunger, substantially as described.

181,793. MACHINES FOR MAKING WOODEN GUTTERS. A. W. McCausland, Gardiner, Me., assignor to Oakland Manufacturing Company, same place. [Filed May 5, 1876.]

Brief.—Wooden gutters with closed ends are formed at one operation by means of a suitable bed; a rotary cutter mounted in a vertically-inclined adjustable frame above the bed, for forming the bottom of the gutter; two cutters mounted on vertical arbors for forming the sides; a dipping-cutter mounted on an arbor below the bed, for cutting the groove or inside; a stop for controlling the dipping-cutter; a vertically-adjustable overhanging bed, for holding the blank firmly down upon a fixed bed for the dipping-cutter's action; and suitable feeding and operating mechanism.



In combination, the support for the stick being acted upon, the dipping-cutter and mechanism to move it toward or from, and a stop to control its movement toward, the center of the stick, the rigid bed arranged above the dipping-cutter, and adapted to bear against the stick, and hold it positively against the support and in opposition to the cutter, and a feed, all combined and adapted to operate substantially as shown and described.

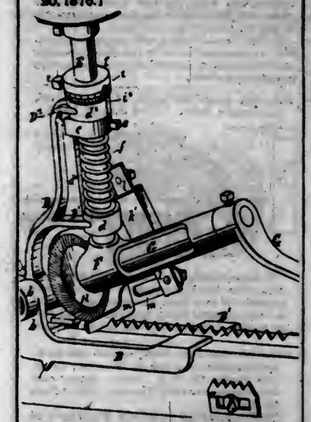
181,794. UMBRELLA-HOLDERS. George W. Marble, Chicago, Ill., assignor of one-half his right to Nicholas J. Wheeler, same place. [Filed Jan. 19, 1876.]



1. The water-tight socket or holder for an umbrella, in combination with a bracket for detachably securing the same to the wall or other stationary object, substantially as described.

2. The combination of the tube, the bracket, and the collar, adapted to secure an umbrella in the tube, substantially as described.

181,795. SAW-SHARPENING MACHINES. J. McSweeney, Pittsfield, Mass. [Filed Jan. 20, 1876.]



1. The combination, with the clamping-bars and traveling-carriage B B', of the adjustable toothed plate e, for setting the traveling-gage or foot-piece m', substantially as described.

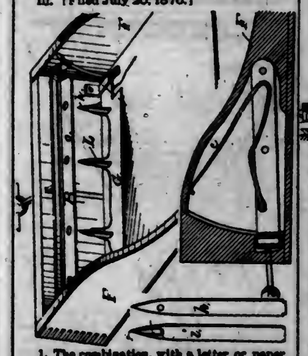
2. The traveling-carriage B B', in combination with the standard D and sliding rod E, carrying the sharpening-wheel, arranged and operating substantially as described.

3. The combination, with the sliding rod E, carrying the sharpening-wheel, as described, of the collars c and I for gaging the depth of the teeth.

4. The combination, with the sliding rod E, of the collars c and I and spring f, arranged and operating as described, and for the purpose set forth.

5. The collar I, on the sliding and turning rod E, provided with the scale for regulating the adjustment of the rod and sharpening-wheel and the bevel of the saw-teeth, as described.

181,796. TEMPORARY BINDERS. Rufus M. Merrill, Englewood, assignor of one-half his right to William A. Amberg, Chicago, Ill. [Filed July 20, 1876.]



1. The combination, with a letter or paper file and binder, of a needle or needles having a slit extending from its point to its eye, substantially as and for the purpose set forth.

2. In a letter file and binder, the combination of a single binding-cord with a set of eye-pointed needles, one or more of which is slitted from its penetrating end to its eye, and with a presser-bar or its mechanical equivalent, the combination operating substantially as and for the purpose set forth.

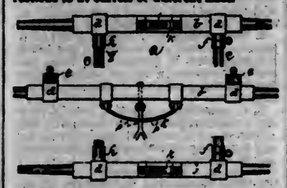
3. A removable plate or needle holder, provided with needles having eyes, as described, and near their points, the same being adapted to receive a binding-cord, to carry it through the filed papers, and then to be withdrawn from the papers, leaving the binding-cord therein, substantially as set forth.

4. The combination, with the side pieces F, of the pivoted and swinging presser-bar B, provided with lever-arms b and springs c c, and operating substantially as and for the purpose described.

5. The described combination of the sleeve, lever, presser-bar, needle-holder and needles, and single binding-cord, the combination operating substantially as set forth.

181,797. CARRIERS FOR BARRELS, BOXES, &c. Nathaniel Oak, Exeter, Me. [Filed June 21, 1876.]

Brief.—The carrier is adjustable in two directions to fit barrels of different sizes.



1. The carrying-frame a, consisting of side pieces b b, provided with sliding bands d d, to which cross-bars c c are attached, substantially as specified.

2. The combination of the side pieces b b and cross-bars c c, adjustable upon each other, whereby both the length and width of the frame may be regulated, substantially as set forth.

3. In a carrying-frame, the bands f, surrounding the side pieces, in combination with the supporting-hooks secured thereto, as set forth.

4. In a carrying-frame, the combination of supporting-hooks with a cheek or stop, h, substantially as and for the purposes set forth.

5. In combination with a carrying-frame, the grapples m n, pivoted to each other, and secured to said frame by links, substantially as and for the purposes specified.

181,798. MECHANISMS FOR TEMPLATING LOOM-SHUTTLES. T. S. Parker, Oshoco, N. Y., assignor of one-half his right to W. T. Horrobin, same place. [Filed Jan. 24, 1876.]

Brief.—The shuttle is placed in a socket having side and end adjustments, to bring the eye to the mouth of a tube connected with a rubber bulb. On releasing the bulb from compression, it sucks the air in and the thread through the eye.



1. A table or bed for supporting the shuttle, provided a non-yielding contact to receive the shuttle-tip, in combination with a compressible elastic bulb having an inlet-mouth adapted to suck in air through it, and through the eye of the shuttle.

2. In combination, the shuttle-supporting bed, the side supports, and means for relatively adjusting to each other the eye of the shuttle and the inlet of the suction device.

3. The combination of the elastic bulb and its mouth-piece, a shuttle-supporter having a spring to hold the same against the bulb-inlet, and an adjusting device to adapt the holder for different sizes of shuttles.

4. A shuttle-holder having a mouth-piece in communication with a suction device, and adapted to the eye of a shuttle in the holder, and provided with a spring or elastic bearing for pressing the shuttle against the mouth-piece.

5. A shuttle-holder having a suction mouth-piece, an end bearing, and side bearings, arranged and adapted to receive the eye and point of the shuttle.

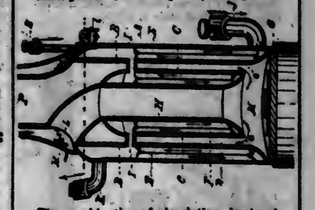
6. A shuttle-holder having a suction mouth-piece, side bearings e e', and an adjustable end bearing, to receive shuttles of different lengths between the eye and end of the nose or point of the shuttle.

7. In combination, the shuttle holder or bed, having a socket to receive the shuttle-tip, an elastic bulb or air-chamber opening into such bed, and a nose or receptacle to contain the bulb.

8. In combination, the shuttle-holder, the elastic bulb, and a bulb-compressor, substantially as shown and described.

9. In combination, the shuttle-holder, the elastic bulb, a case or holder for the bulb, and a bulb-compressor.

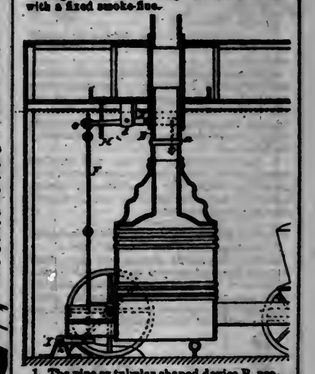
181,799. CIRCULATING-HEATERS FOR FEED-REACTORS. Wm. S. Reynolds, Lo Fayette, Ind., assignor to himself and H. M. Campbell, same place. [Filed Sept. 13, 1875.]



The combination of circulating heater A, boiler Y, connecting-pipes S K J, and bracket b, substantially as shown, and for the purposes described.

181,800. APPARATUS FOR KINDLING THE FIRES OF STEAM-BOILERS. C. L. Scoville, Ashtabula, Ohio. [Filed May 29, 1876.]

Brief.—Apparatus for automatically connecting and disconnecting the smoke-stack with a fixed smoke-flue.

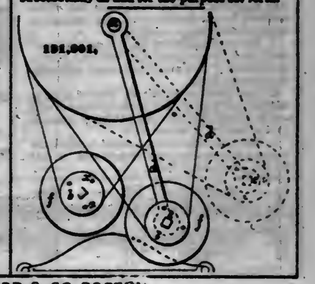


1. The pipe or tubular-shaped device B, provided with a suitably-shaped mouth for connecting the smoke-stack of an engine with a device affording a draft, in combination with a means of elevating or freeing said device B by the movement of the engine, substantially as specified.

2. The threaded eye-bolt c, in combination with the lever H, spring-stud H, and pipe B, as expressed.

3. The chain or rope F, eyebolt c, lever H, and pipe B, in combination with the shaft I, having the arms f and f, substantially as set forth.

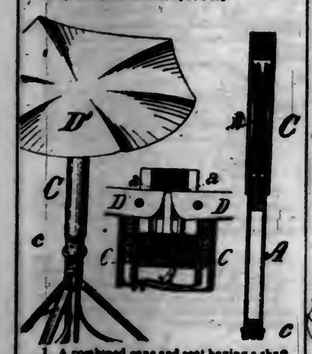
4. The plates M, having the cheeks L, arranged in relation to each other, to the pipe A, and the shaft I, provided with the arms f, substantially as and for the purposes set forth.



181,801. BOOT-BLACKING APPARATUS. M. Simon, New York, N. Y. [Filed July 22, 1876.]

The combination of the swinging frame *d*, the driving-shaft *e*, and the shafts *b* and *c* with the cylindrical brushes *c* and the disk-brushes *f*, mounted with flaring openings, and held together by the springs *s*, substantially in the manner and for the purpose described.

181,802. CORDWOOD CARRIER AND SEAT. R. W. Smith and Cyrus Jacoby, South Bethlehem, Pa. [Filed Mar. 2, 1876.]



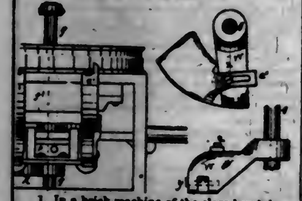
1. A combined cane and seat having a shaft or body and a spring-tripod, substantially as set forth.

2. The combination of the externally screw-threaded shaft A, having a shoulder, *c*, the socket C, having an internal screw-thread, the ribs D, jointed to the shafts A, and bearing against the shoulder *c*, and the adjustable collar *c*, and a flexible seat, D', substantially as described.

3. The combination, in a cane and seat, as described, of a shaft, having a bearing, *c*, and arms D, provided with a flexible seat, and an adjustable collar for inclosing the ribs, substantially as described.

181,803. BRICK-MACHINES. Edwin Sprague, Pittsburg, Pa. [Filed July 19, 1876.]

Brief.—The molds are pushed into place from on the feeders, and are elevated by the inclines of the mold-elevators operating to push upward the blocks supporting the same, to receive the clay from the hollow projections on the bottom of the pug-mill.



1. In a brick-machine of the class hereinbefore described, the mold-elevator, in combination with the mold-carrier, as and for the purpose set forth.

2. In a brick-machine of the class hereinbefore described, the mold-elevators and mold-carriers, in combination with the sprags *q*, arranged to operate as set forth.

3. The combination of the sliding knife-carrier *l*, and its projections *c*, with the hollow projections *f'* and cam *h*, arranged and operating as set forth.

4. The combination of the hopper-shaft *f*, carrying the arm W, and sweep pivoted to said arm at *y*, and provided with an arm, *c'*, secured by a set-screw, Z, as set forth.

5. The mold-elevators, operated through the medium of the mold-carrier and cam, as and for the purpose set forth.

181,804. SPINNING-SPINDLES. James C. Stanley, New Hartford, Conn. [Filed Mar. 9, 1876.]

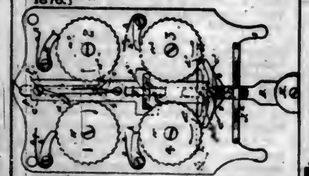
Brief.—By means of the double-inverted cup of the revolving cap, the lateral throw of oil is prevented, and the cup or bowl beneath (formed on the outer jacket) is protected from dust, while the overflow of oil above is returned to the oil-cup in grooves cut in the inner jacket, without coming in contact with the spindle inclosed within said jacket, whereby the oil can be returned as well while the spindle is in motion as when it is at rest.

1. The cap *o*, formed with the whirl and the reversed or inverted cups *p r*, in combination with the bowl *l* and spindle *s*, substantially as and for the purpose specified.

2. The combination of the cap *o*, spindle *s*, jacket *p*, provided with the bowl *l*, and jacket *f*, having ducts *m*, operating to return the overflow to oil-cup *o* without coming in contact with the spindle, all substantially as described.

3. In combination, spindle *s*, jacket *f*, forming a bearing thereby, and overlapping cup *d*, and oil-cup *o*, having oil-spaces between the cup and jacket, all substantially as described, and for the purpose set forth.

181,805. MECHANICAL MOVEMENTS. E. B. Towle, New York, N. Y. [Filed Aug. 24, 1876.]



1. A movable bar provided with a suitable means for applying the actuating force by which it is moved at will in two or more prescribed directions, corresponding to predetermined motions of two or more independent elementary parts of independent mechanical devices or systems, each capable of being actuated by force delivered through said movable bar by suitable connections, combined with restoring-springs, by which the movable bar is brought into its normal position, ready for a new actuation in either of its prescribed directions, substantially as described.

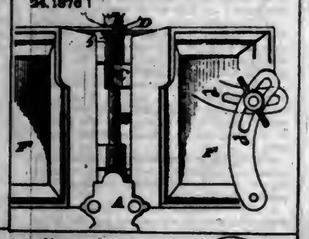
2. In combination with a supporting-frame, a movable bar, actuating carriers controlled by stops, capable of motion in two or more directions, and capable of driving separately through said carriers either one of two or more systems of mechanism, substantially as described.

3. The combination of a handle or finger piece, adapted to move in two or more directions, with the finger-supports, corresponding to the movements in said directions, substantially as shown and described.

4. The combination of a movable bar, capable of movement in two or more directions, with restoring-springs and stops to bring the bar into its normal position, substantially as shown and described.

5. The combination of a handle or finger piece with two or more finger-supports, substantially as and for the purpose set forth.

181,806. WINDOW-MIRRORS. Jan Van de Linde, Grand Rapids, Mich. [Filed June 26, 1876.]





181,806.

1. The duplex window-mirror, consisting of two glasses angularly adjustable on a common spindle supported by a projecting bracket, in combination with the two slotted circular plates and clamping mechanism, substantially as and for the purposes described.

2. The circular plates and supporting-spindle, in combination with the bearing-collar and thumb-clamp, substantially as and for the purpose described.

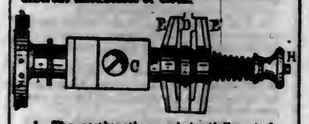
181,807. CAR-COUPLINGS. Andrew Wald, Davenport, Iowa. [Filed Aug. 11, 1876.]



The combination, substantially as described, of the draw-head A, weighted dog D, having projection *b'* and tooth *b*, and coupling-pin E, the several parts being designed to operate in connection with the coupling-link, as set forth.

181,808. TENSION-REGULATORS FOR SEWING-MACHINES. John B. Wheeler, Lynn, and Frank. W. Coy, Boston, Mass.; said Coy assignor to said Wheeler. [Filed June 20, 1876.]

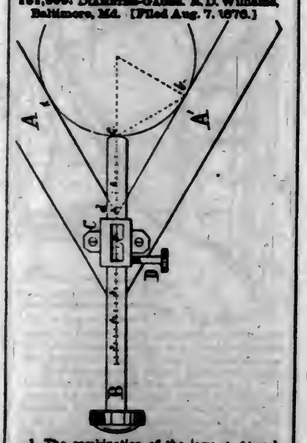
Brief.—Attached to an arm which is to be vibrated by the rise and fall of the presser-foot is a wedge or double-side cam, which is situated between two cam-sleeves on the tension-wheel shaft, the object being to automatically vary the side pressure on the tension-wheel, and thus vary the thread-tension for different thicknesses of cloth.



1. The combination, substantially as described, of the tension-spool, the inclined blocks E E', and the wedge-block D, the latter being automatically operated by the presser-foot, as set forth.

2. The combination, substantially as described, of the tension-spool, the shaft B, the bracket C, blocks E D, *p*, spring G, and nut H, as and for the purpose set forth.

181,809. DIAMETER-GAGES. R. D. Williams, Baltimore, Md. [Filed Aug. 7, 1876.]



1. The combination of the jaws A A' and graduated bar B, substantially as described, and for the purpose set forth.

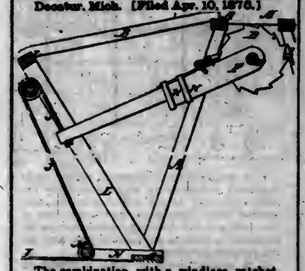
2. The combination of the jaws A A', graduated bar B, and clamp D, substantially as and for the purpose described.

181,810. HAMS FOR BALE. Louis Wöhlin, St. Louis, Mo. [Filed June 5, 1876.]



The ear for bells, as herein shown and described, made to have an upper taper or fastening end at *a*, its body part *a'* curved outward to form a loop, while its lower end is fastened by a single rivet, as and for the purpose set forth.

181,811. STUMP-PULLERS. G. G. Adams, Decatur, Mich. [Filed Apr. 10, 1876.]



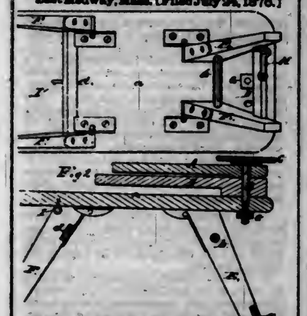
The combination, with a windlass, ratchet, pawl, and lever, of the frame I, rope J, and pulleys H M, arranged substantially as shown and described, for the purpose specified.

181,812. WASHING-MACHINES. O. Allen, Corinth, N. Y. [Filed July 22, 1876.]



A washing-machine provided with a bed-rest, consisting of the cross-bars C, side bars D, inclined perforated end boards E, resting on inclined corner blocks *b'*, and side boards G, all constructed and arranged substantially as shown and described.

181,813. IRONING-BOARDS. D. H. Bagley, East Medway, Mass. [Filed July 24, 1876.]



1. In the ironing-table or skirt-board, the two sets of legs E E F F, pivoted to the body or top *a*, so as to fold in opposite directions, and one within the other, and across its upper cross-bar, all as shown and described.

2. The combination of the hook H and eye I with the table-top *a*, and with the two sets of legs E E F F, pivoted thereto so as to fold in opposite directions, and one within the other, and across its upper cross-bar, all substantially as represented.

3. In combination with the ironing-table or skirt-board, the end-iron supporter C and one or more press-boards, A B, connected to the said table by a single screw, D, and nut G, all being as set forth.

181,814. APPARATUS FOR PURIFYING PARAFFINE. Frank G. Berdow, Cleveland, Ohio. [Filed June 26, 1876.]

Brief.—Paraffine to be purified is placed within a vessel upon a perforated bottom, and is sprayed with benzine, and a current of air is forced into the vessel above the contents, causing the benzine to be forced through the paraffine and carry off its impurities.



1. In an apparatus for purifying paraffine-wax or other analogous substances, the combination of a closed receptacle or vessel, having a perforated bottom, for supporting the substance to be operated upon, with a pipe, C, for admitting the purifying element, and pipe D, for the admission of compressed air to the chamber above the perforated bottom, substantially as and for the purpose described.

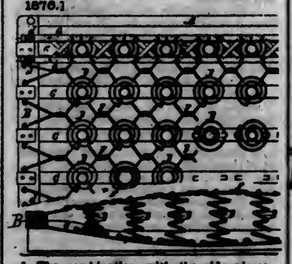
2. An apparatus for purifying paraffine-wax, consisting of a receptacle closed at the top, and provided with a diaphragm of canvas, or other suitable strainer, for supporting the paraffine-wax, a pipe, C, for admitting benzine or other purifying agent, and a pipe, D, for the admission of compressed air to the chamber above the paraffine, substantially as described

181,815. MAKING TEA AND COFFEE POT BODIES, &c. Alfred Bagley, Newark, N. J. [Filed Apr. 20, 1876.]



The process herein described of manufacturing tin plate tea and coffee pot bodies and tea urns, consisting of forming them first into cones or truncated cones, and then of spinning them into any desired form, and burnishing them on a suitable chuck, substantially as and for the purposes specified.

181,816. SPRING END-BOTTOMS. Levi C. Boyington, Chicago, Ill. [Filed July 20, 1876.]

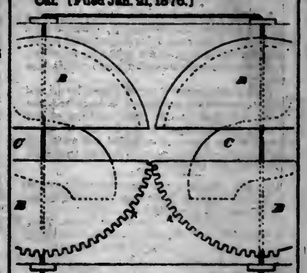


1. The combination, with the side pieces A A, cross-bars B B, and springs D, of the series of metallic arc-shaped spring-bars C, adjusted to support the springs, substantially as and for the purpose specified.

2. The combination, with the springs D, of the arc-shaped spring-slats G G, connected together laterally by the tie-braces *a a*, substantially as and for the purpose specified.

3. In combination with the slats G G, as specified, and the springs D, the tie-rods F, connecting the springs, substantially as and for the purpose specified.

181,817. TURN-TABLES FOR REPLEMS TRACTION-WAYS. Jos. Britton, San Francisco, Cal. [Filed Jan. 21, 1876.]



1. In endless-cable traction-ways, a means for transferring cars from one of a series of parallel tracks to the others without raising the gripping device or disturbing the cables, consisting of a series of turn-tables, slotted above their points of support, and turning simultaneously through a quarter-revolution, so as to bring the slots in which the griper travels into alignment with each other, and allow the transverse passage of the griper and of the car from one track and cable to another without delay, substantially as set forth.

2. A turn-table provided with a slot and passage or chamber extending across it above the point of support of said table and below its surface, when said chamber is made wide enough at each end to permit a propelling rope or cable to pass through it, and at the same time permit the table to make a quarter-rotation without interfering with the rope or cable, substantially as and for the purpose set forth.

3. A turn-table consisting of the two upper sections B B, connected with secondary tables or platforms C C on alternate sides of the center, so as to leave a free space beneath the opposite halves of the sections B B, substantially as and for the purpose set forth.

4. In combination with a railroad-track, a series of turn-tables, B B, constructed and connected so as to rotate simultaneously, substantially as described.

181,818. BALE-TIE BUCKLES. T. Bunker, Cuero, Tex. [Filed July 22, 1876.]

An improved bale-tie buckle, consisting of the half-ring bars A B, having small half-ring hooks formed upon their ends, securing the ends of a bale-band, substantially as shown and described.

181,819. CLASPS. Alva M. Butler, Constantine, Mich. [Filed Apr. 18, 1876.]



A clasp, C, bent at right angles to fit upon the edge of a box, and having points *c'* formed upon its end parts to enter the cover and side of said box, substantially as herein shown and described.

181,820. TREE-TRANSPLANTERS. Timothy Carroll, Anaheim, Cal. [Filed June 21, 1876.]

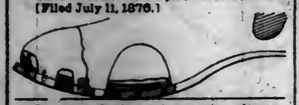
Brief.—A vertically-moving tube attached to a frame by guides, and capable of being raised and lowered by a lever attached to the top of the frame. Within the tube is a loose ring, arranged to slide down and force out the plant.



1. In a transplanter, the combination of a sliding tubular cutting-case, A, operated by a lever, B, a loose ring, f, having a standard, a, moving in a slot, p, and a frame or standard, c, all constructed, arranged, and operated, as set forth.

2. In combination with the frame, lever, and tube, constructed to operate as described, the piece f, hinged to the lower portion of the frame, and arranged to be bolted, so as to lengthen the frame, or unbolted and swung at right angles thereto, so as to shorten the same, substantially as specified.

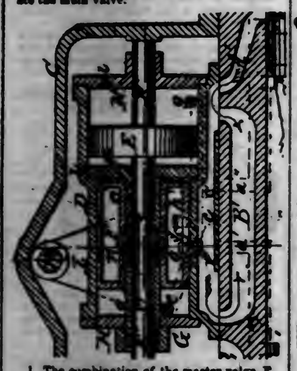
181,921. TIPPING AND PATCHING BOOTS AND SHOES. David T. Cooper, Jackson, Mich. [Filed July 11, 1876.]



The method of securing patches, tips, or fastings to boots and shoes, consisting of the doubling of the edge of the leather to be united to the sole, and piercing within the folds a wire, the ends of which pass down through the sole; then further securing the patch, tip, or fasting by intermediate wire clips, which pass through the folded edge and sole, the ends being twisted and clipped or clinched, all as shown and described.

181,922. VALVES FOR STEAM PUMPING-ENGINES. Ezra Cope and James R. Maxwell, Hamilton, Ohio. [Filed Sept. 6, 1874.]

Brief.—As the main piston nears the end of its stroke, it opens a small port in the cylinder, which allows live steam to pass up through a port in the main valve to the auxiliary-valve cylinder and operate the auxiliary valve. The auxiliary valve exhausts the steam from alternate ends of the main-valve cylinder, to allow the live steam, which is admitted through small ports in said cylinder, to operate the main valve.



1. The combination of the master-valve F, the auxiliary piston E, and the auxiliary cylinder D, the latter being subdivided to form two cylinders in which the two former operate, substantially as described.

2. The master valve F, the auxiliary piston E, and the auxiliary cylinder D, in combination with the ports and passages a', a'', a, c', g, g', f, i, c, and n, arranged, constructed, and operated substantially as shown and described.

181,923. GRIDIRONS. George Cornwall, Garden City, N. Y. [Filed Feb. 28, 1876.]

Brief.—The trough which receives the gravy is not directly over the fire. The flanges inclose the pot-hole.

The improved gridiron, consisting of the corrugated cheek plates A, having inclined ends flanges B, rear flange C, and the projecting and depressed front trough D, substantially as specified.

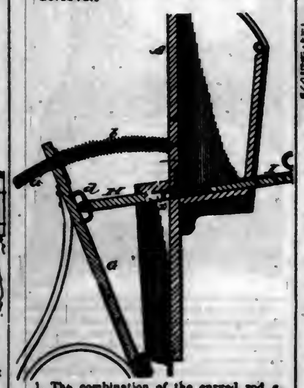
181,924. WAREHOUSE-TRUCKS. J. J. Deal, Wilmot, Ohio. [Filed July 11, 1876.]



1. The rocking reach or rod *b*, in combination with the frames B B, platform D, and handle E, substantially as and for the purposes herein set forth.

2. A truck composed of end frames, pivoted side bars, axles, and wheels, and a handle, the said frame being adapted to fold together, so that the wheels will form rollers above the top of the frame to assist in moving the load, substantially as shown.

181,925. HAND CORN-PLANTERS. Jason Downing, New Madison, Ohio. [Filed Apr. 20, 1876.]



1. The combination of the curved rod *a*, surrounded by a spiral spring, *b*, with the staff A and lever G, substantially as shown and described.

2. The adjustable slide I, provided with a loop, *w*, which receives the pin *g* of the feed-bar H, substantially in the manner and for the purposes set forth.

181,926. TOBACCO-STICK HOLDERS. Thos. A. Bunn, Louisville, Va. [Filed June 20, 1876.]

Brief.—The device clamps and supports horizontally a stick, upon which the tobacco-leaves are hung as they are cut.

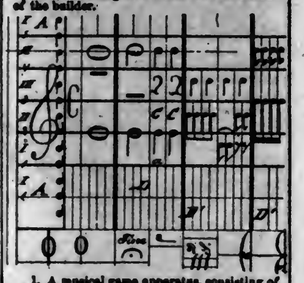
1. The combination, in a tobacco-stick holder, of the staff or post A, movable block C, and the retaining device or eccentric handle D, substantially as and for the purpose described.

2. The combination of the movable foot-piece B with the post A, block C, and stick-retaining device D, as and for the purpose set forth.



181,927. MUSICAL BUILDING-BLOCKS. H. Eckhardt, Columbus, Ohio. [Filed July 1, 1876.]

Brief.—The blocks may be used to build up a musical staff with different melodies upon it, according to the skill and invention of the builder.



1. A musical game apparatus, consisting of clef-block A, extending above and below the staff, a series of blocks differing in size, and marked with signs, lines, and characters of the staff, and the dividing measure-stripe D, arranged to operate substantially as and for the purpose specified.

2. A musical building-block, provided on some of the sides with musical characters or signs, and with edge-lines to form the horizontal or staff lines, substantially as and for the purpose described.

181,928. POULTRY-COOPS. Marion Hilbert, Greenville, Ala. [Filed June 26, 1876.]
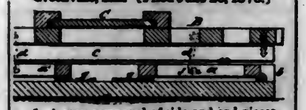


1. A coop composed of side and end pieces, hinged to a bottom in such a way that the end pieces may be folded on the bottom, and the side pieces folded on the end pieces, and the top placed over all and hooked to the bottom, substantially as shown and described.

2. The combination of the hinged end pieces a a' and hinged side pieces *c*, hooks *g* and *f*, top B, sliding cover C, hooks *d*, and bottom A, as shown and described.

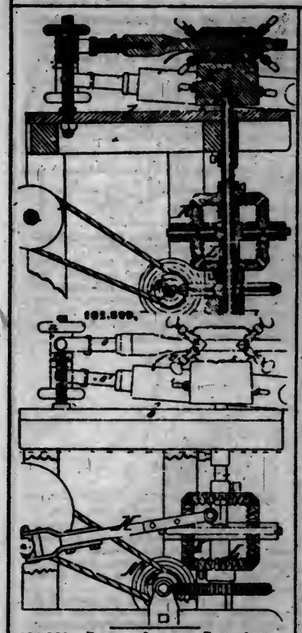
181,929. HAT-FOUNDING MACHINES. Rudolf Bickmeyer, Yonkers, N. Y. [Filed Aug. 1, 1874.]

Brief.—The hat-block has imparted to it a combined progressive and rotary reciprocating motion. The varying progressive motion is produced by means of a cone-pulley and a worm and screw, and the rotary reciprocating motion by means of a crank-shaft and the reciprocating frame I, (carrying gears,) indirectly attached to the block-spindle. The motions may be employed jointly or independently of each other. The peculiarly-constructed stocks facilitate the holding and manipulating of the forming material.

1. The combination, substantially as before set forth, of the hat-block carrier, the reciprocating frame, the progressive turning mechanism, and the rubbing-stock for holding the rubbing material.

2. The combination, substantially as before set forth, of the hat-block carrier, the reciprocating frame, the progressive turning mechanism, and the devices for varying the relative speeds of the reciprocating and turning motions.

3. The combination, substantially as before set forth, of the progressive turning mechanism and the vibrating frame, with the shaft that imparts motion to the hat-block, whereby the said shaft is caused to both reciprocate circularly and turn progressively, and to impart this compound movement to the hat-block.



181,930. BREECH-LOADING FIRE-ARMS. Josef Fiedler, Pittsburg, Pa. [Filed July 7, 1876.]

Brief.—The firing-pin, which passes through and is carried by the movable bolt, has a lug at the side of the rear end, which is brought in front of an intermediate bolt in the side of the receiver. When the breech is closed and locked, the hammer strikes the intermediate bolt, by which the firing-pin is driven forward. An arrangement of rivings in the bottom of the receiver throws out the empty shell when the breech is opened.



1. Intermediate bolt D, located on the side of the bore of the barrel, in combination with needle *b*, in receiving cylinder E, constructed substantially in manner described, and for the purpose named.

2. Vertical spring *f*, placed in groove F, having an inclined beveled edge sett to extractor H, in combination with lateral spring *e*, having a bevel on its vertical side, constructed substantially as described, and operating in manner explained.

181,931. GLASS-POLISHING MACHINES. Edward Ford, New Albany, Ind. [Filed July 11, 1876.]

Brief.—The glass is placed upon a horizontally-rotating table, and polished by disks linked or flexibly connected together and to the standards of the frame, and rotated on their axis by friction, but moved to and fro by a male and female screw, automatically operated by belt and bevel-gear connection with motive power. Sand and water both moves with the polishing-disks.

1. The circular disk B, screw-shaft H, and hollow nut-carrying bar N, in combination with runner R, substantially as and for the purpose described.

2. Disk B, screw-shaft H, and female screw or hollow nut-carrying bar N, in combination with two or more runners, *o'*, which one only is directly connected with bar N, the other being indirectly and movably connected therein, substantially as and for the purpose described.

3. The combination, with rotary disk B, of one or more runners and suitable actuating mechanism, for automatically reciprocating the runners on the rotary disk, substantially as and for the purpose described.

4. The combination of two or more runners and hollow nut-carrying bar N with screw-shaft H and the several connecting-rods which connect the runners with each other and with the standards, substantially as and for the purpose described.

5. Disk B, two or more runners, and hollow nut-carrying bar N, in combination with screw-shaft H, and the several connecting-rods which connect the runners with each other and with the standards, substantially as and for the purpose described.

6. The combination, with rotary disk B, of the perforated sand-box V, recurvably secured to the swinging crane S, whereby the sand-box may be located over any portion of the rotary disk, substantially as and for the purpose set forth.

7. The combination of disk B, crane or arm S, perforated sand-box V, and lug-provided connecting-rod P, whereby the sand-box is moved with the runners, substantially as and for the purpose described.

8. The pulleys *n q r*, connected with the driving-pulley by a crossed and straight belt, in combination with the screw-shaft F, traveling arm *f*, belt-shifting arms *i p*, and suitable intermediate gearing, connecting with the runners by means of screw-shaft H and hollow nut-carrying rod N, substantially as and for the purpose set forth.

9. The belt-shifting device, consisting of sliding rod *b*, provided with guide-pins *i' p' k r*, springs *w w'*, and weighted lever *S*, substantially as and for the purpose described.

10. The combination, with the rotary disk B and two or more runners, connected to move in unison, of suitable actuating mechanism, substantially as set forth, whereby the runners will have a combined rotary and reciprocating movement on the surface of the glass, substantially as and for the purpose set forth.

11. The combination, with a rotary disk, B, of two or more runners and a sand-box, located to deliver sand on the disk between the runners, substantially as and for the purpose specified.

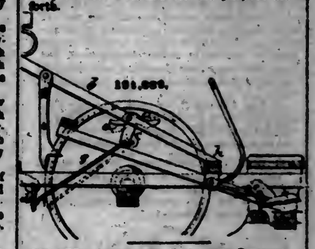


181,932. CORN-PLANTERS. Thomas A. Galt and George B. Troop, Sterling, Ill. [Filed July 25, 1876.]

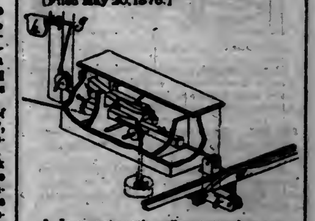
Brief.—The scrapers are operated by rods attached to pivoted foot-rests. The foot-lever for operating the front frame is bent around and journaled beneath the cross-bar, and one end projecting into a receiver on the rear end of the tongue, while the opposite end rises up within reach of the driver, to be operated by his foot for depressing the runners, in connection with a pivoted frame for elevating them.

1. The foot-lever *m*, fulcrumed, as described, under the cross-beam *h*, and having the upwardly-curved arm, in combination with the part *k*, the lower-frame *b'*, and the front frame of the planter, substantially as and for the purpose mentioned.

2. The scrapers *d d*, pivoted foot-rests *n n*, and connections *g g*, in combination, substantially as described, and for the purpose set forth.



181,933. AUTOMATIC RAILROAD-SIGNALS. Geo Gledhill, Providence, R. I. Assignor of part of his right to Thomas Boothby, Eastwood, and Abbel Bower, same place. [Filed May 20, 1876.]



1. In an automatic railroad-signal apparatus, the combination, with the signal-board and signal-lantern, of the hinged arm *c*, the bell-crank *h*, slide *o*, pawl *k*, and weighted lever *g*, arranged and operating substantially as and for the purpose set forth.

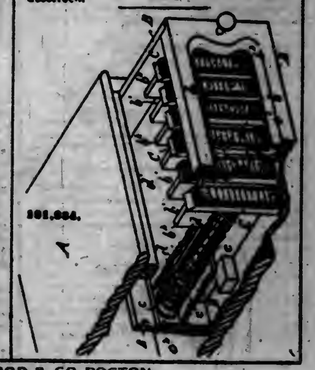
2. In an automatic railroad-signal, the combination, with a day and night signal, of the hinged arm *c*, arranged by the mechanism, substantially as described, to release the weighted lever *g*, and then raise the signal, as and for the purpose set forth.

3. The combination of the hinged arm *c'*, the bell-crank lever *b'*, the slide *o'*, and hinged arm *k'*, arranged to operate the disengaging mechanism, substantially as and for the purpose described.

4. In an automatic railroad-signal, the combination, with a day and night signal, of the arm *c'*, the slide *o*, pawl *k*, lever *g*, and weight *m*, arranged so as to lower the signals, substantially as and for the purpose specified.

5. The combination, with the slide *o*, pawl *k*, and lever *g*, of the weight *m*, arranged and operating substantially as and for the purpose described.

6. In an automatic railroad-signal, the combination, with a day and night signal, of the hinged arms *d* and *c'*, the weighted lever *g*, and weight *m*, and the intermediate mechanism, substantially as described, arranged to raise and lower the signals, substantially as described.



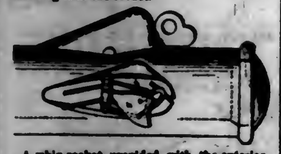
181,634. CABINETS FOR EXHIBITING BRAIDS. F. R. Cockering, St. Louis, Mo. [Filed Aug. 1, 1876.]

1. A cabinet and its drawer, the latter having the separate compartments, and each of these having, further, a follower automatically actuated by a spring, and by means whereof the braids can be arranged in the position shown and described, and retained in said position, as and for the purposes set forth.

2. The follower C, its stem c, spring d, in combination with compartment b', drawer B, and cabinet A, all constructed to operate in the manner and for the purpose set forth.

181,635. WHIP-SOCKETS. Wm. C. Goodwin, New Haven, Conn., assignor to J. J. Mitchell, Hamilton, Ohio. [Filed July 1, 1876.]

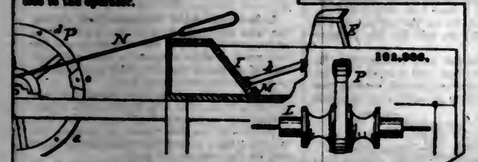
Brief.—The whip is locked automatically by inserting it in the socket.



A whip-socket, provided with the exterior piece b, in combination with the hinged spring c and hinged piece a, provided with the staple e, substantially as set forth.

181,636. GYMNASTIC APPARATUS. Peter Graham, Philadelphia, Pa. [Filed Apr. 19, 1876.]

Brief.—To the ends of a wheel, weighted at its periphery, is secured one end of an elastic cord, which, upon being pulled, affords exercise to the operator.



181,636.

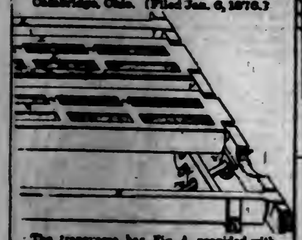
1. In a gymnastic apparatus, the wheel F, provided with removable weights, arranged to be secured upon or adjacent to its periphery, substantially as expressed.

2. In a gymnastic apparatus, the foot-rest I, secured to slide in the cleats H, and provided with the elastic strips b, substantially as described.

3. In a gymnastic apparatus, the combination of the rest H, foot-rest I, wheel F, and cords N, substantially as specified.

4. In a gymnastic apparatus, the wheel F, mounted upon an axle provided with spools or receptacles to receive the cords N, as set forth.

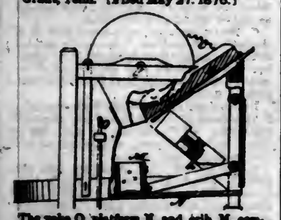
181,637. FURNACE-GRATES. R. C. Graves, Cambridge, Ohio. [Filed Jan. 6, 1876.]



The transverse bar, Fig. 4, provided with notched V-shaped ends, in combination with the grate-bars, Figs. 2 and 3, fulcrum F, and lever X, as shown at Fig. 1, for the purpose set forth.



181,638. GRAIN-SEPARATOR. John Thos. Griffin, Grant, Tenn. [Filed May 27, 1876.]



The yoke O, platform M, and crib M, combined with the grinding cylinder and hopper, substantially as specified.

181,639. NESTS FOR FOWLS. Chas. Halse, Atlanta, Ill. [Filed July 20, 1876.]

The combination of the coop A with interior platform C, the adjustable standard E, the adjustable lever G, and the nest B and door D, suspended from opposite ends of said lever, substantially as and for the purposes herein set forth.

181,640. CORN-PLANTERS. Jos. Hall, Jr., Bloomington, Ill. [Filed Jan. 27, 1876.]

Brief.—The jack-blocks c, guided between the studs a and the cams r, in mortises in the stocks a b, and acting directly upon the jack-blocks, in combination with the clamping-follower l, substantially as and for the purposes set forth.

2. The removable tie-bar d, in combination with the stocks a b, follower l, jack-blocks c, and actuating mechanism, substantially as set forth.

181,641. STRAW-CUTTERS. Wm. H. Hall, Tiffin, Ohio. [Filed June 6, 1876.]

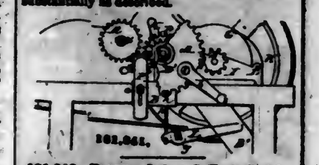
Brief.—The two gear-wheels, which mesh with the gear-wheel on the adjustable arm, are made reversible and interchangeable, by means of which the speed of the feed-rollers may be increased or diminished, as desired.

1. The slotted wedges G G, made convex-convex, to fit the under side of the knife and the upper side of the radial arms, in combination with the radial arms B B and spindle knife F, substantially as and for the purposes set forth.

2. The brushes B, constructed with the eccentrically-extending lobes or *b'*, which form the bearing for the driving-wheel A, in combination with the short shaft D', substantially as described.

3. The reversible and interchangeable gear-wheels D and E, in combination with wheel C, mounted upon the adjustable arm F, substantially as described.

4. The horizontal frame L L and g, connecting-rods M M, feed-rollers N, and spring T, substantially as described.



181,642.

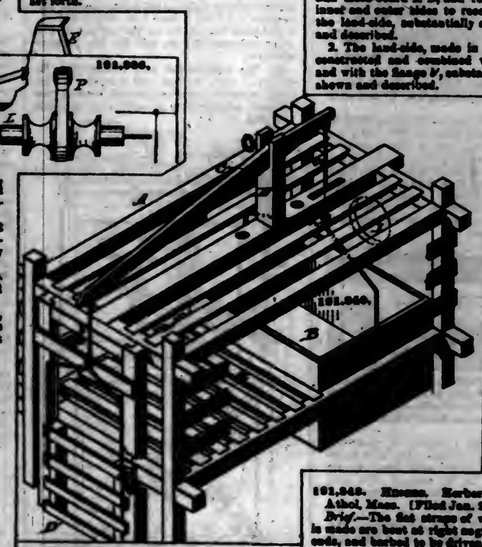
181,642. PLOWS. Judson S. Hartsell, Addison, Pa. [Filed May 9, 1876.]

Brief.—A flange is formed upon the lower part of the mold-board and standard. The land-side is made in two parts, the upper part with an offset upon its forward end, to underlap the flange upon the standard. The forward end of the lower part fits in a recess in the lower part of the flange.



1. The flange *b'* formed upon the standard and mold-board A B, and recessed upon its inner and outer sides to receive the parts of the land-slide, substantially as herein shown and described.

2. The land-side, made in two parts, D E, constructed and combined with each other and with the flange *b'*, substantially as herein shown and described.



181,643.

181,643. HARVESTER. Herbert L. Hapgood, Athol, Mass. [Filed Jan. 27, 1876.]

Brief.—The fast fingers of which the blade is made are bent at right angles at the outer ends, and barbed to be driven into the wood, so that the blade may be put on without screws or nails.

A hinge, consisting of a central pivot-pin and two or more pointed straps projecting therefrom upon opposite sides, and having their outer or pointed ends provided with one or more barbs or hooked teeth, and bent at right angles, as set forth, and adapted to be applied without screws or nails, substantially as described.

181,644. COMBINED HAY-KNIFE AND COCKER. James C. Hitchcock, Commerce, Wis. [Filed June 10, 1876.]

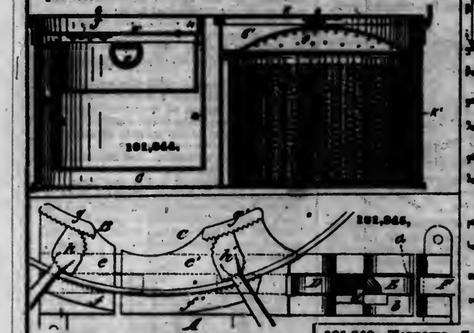
Brief.—The live-bait compartment is connected with a dry compartment, having receptacles for any articles, as lunch, lines, reel, &c.

1. The combination, with the compartment C, provided with the perforated cover K, of the compartment G, provided with the inner wall a, substantially as specified.

2. The combination, with the compartment C, provided with the inner wall a and compartment C', of the perforated and removable basket K', substantially as specified.

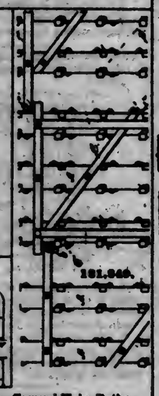
3. The combination, with the compartment C, of the cover G, provided with the rim H and hinged bottom H', forming the compartment J, substantially as and for the purpose specified.

The spring E, with single slot *a*, and beveled on the under side around said slot, and the correspondingly-shaped nut A, in combination with the rear clip-bolt, clip B, and plate C, all constructed and arranged as and for the purpose set forth.



181,644.

181,645.



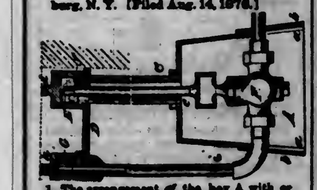
181,646.

181,645. TIRE-UPSETTERS. Edwd. W. Hall, Corinna, Me. [Filed July 31, 1876.]

1. The combination of the fluted cams *h h'*, jaws B C, having the ribs *f f'* and the fluted legs *g g'*, the roller D, eccentric E, and bed-piece A, substantially as shown and described.

2. In a tire-upsetter, the fluted cams *h h'* and the fluted legs *g g'*, arranged and operating substantially as shown and described.

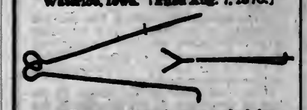
181,646. STOP-COCKS AND STREET-WASHERS. George B. Hoobe, Williamsburg, N. Y. [Filed Aug. 14, 1876.]



1. The arrangement of the box A with or without the doors h, the tube C, socket E, and cap *d*, substantially as herein shown and described.

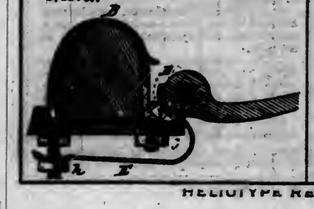
2. The combination of the box A, tube C, plate D, socket E, cap *d*, stop-cock F, stem *e*, pipe *i*, nipple G, and cap *h*, as set forth.

181,647. HAM-PUTTING PINS. Annis Hurd, Waterloo, Iowa. [Filed Aug. 7, 1876.]



A pulling or curling pin composed of clasping spring-legs, connected at the head by a spring-coil whose sections are arranged at an inclination to each other and to the legs, substantially as specified.

181,648. TABLE-COUPLINGS. Henry J. Ens, Seymour, Conn., assignor to himself and Raymond French, same place. [Filed Aug. 9, 1876.]



181,649. HARROWS. Samuel Kain, Bethany, Ohio. [Filed July 15, 1876.]

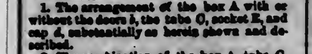
Brief.—One side of each beam is beveled; the opposite side is vertical. Both are mortised to hold the teeth in a vertical or slanting direction. The hinges, arranged in opposite directions, are held in position by pivoted latches.

1. In a harrow the beams A, each having one side beveled and the opposite side vertical, and both mortised substantially as described, for holding the teeth either in a vertical or a slanting direction, in the manner and for the purpose specified.

2. In a sectional hinged harrow the hinges, composed of the gudgeons *b* and loops *a*, when arranged in opposite directions to each other, and held from displacement by the pivoted latches or detents G, substantially in the manner and for the purpose specified.

181,650. METALLIC LATHING. James W. Kenneth, Troy, N. Y. [Filed Mar. 8, 1876.]

Brief.—A metallic lathing having a corrugated surface, with outward inclines and clamps to hold the mortar, and cleats at its rear side to keep it from the wood-work.



1. A metallic lathing consisting of a corrugated surface having outward inclines *a a*, for the purpose described, and a series of clamps, *c*, openings *b b*, and cleats *d d*, as and for the purpose described.

2. In a metallic lathing, the combination of corrugations A with the cleats *d d*, for the purpose described.

181,651. METALLIC LATHING. James W. Kenneth, Troy, N. Y. [Filed Mar. 21, 1876.]

Brief.—A spirally-twisted metal lath is combined with a metal corrugated carrier, which is provided with depressions and chair-fastenings, to hold the lath on the same.



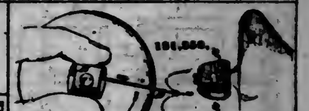
1. A twisted or spiral lath of tin or sheet metal.

2. The combination of a twisted or spiral metallic lath, C, with a corrugated metallic carrier for the plaster, substantially as described.

3. The combination of a twisted or spiral metallic lath C with the depressions B, and clamp or chair fastenings *b b*, as and for the purpose described.

181,652. SPINNING-TOPS. Andrew Zorn, Utica, N. Y. [Filed Feb. 28, 1876.]

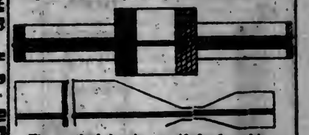
Brief.—The head or tubular handle is attached to the spindle and spins with the top, or is held while used as a whirligig.



181,652.

The tubular handle B, combined with the top, and the string D, attached to the spindle within said handle, substantially as specified.

181,653. MANUFACTURE OF RAILWAY-CAR WHEELS. Alfred Krupp, Essen, Prussia. [Filed June 22, 1876.]



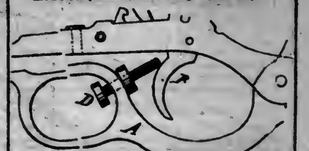
The method herein specified of making wheels by forging or rolling a bar with the end portions wide and the middle portions narrow, with a rib or projection on one side, and a corresponding groove on the other extending the entire length, and then rolling said bar upon itself to form a disk, and forging and welding the same, substantially as set forth.

181,654. CAR-WHEELS. Louis Le May, Wadsco, N. Y. [Filed May 22, 1876.]



The combination with hub A, having flanged extension at one end, movable ring-section A', and the rim B, having chamber c, of the double web of S-shaped springs C, arranged substantially as and for the purpose specified.

181,655. MACHINES OR SHUTTLES HAND-TRUSSES OF RUSHES, &c. George O. Leonard, Red Bluff, Cal. [Filed July 11, 1876.]



The combination of the screw D, finger-lever A, and trigger B, substantially as shown and described.

181,656. PROCESSES FOR THE DEFECATION OF SACCHARINE SOLUTIONS. E. Lagalay, Paris, France. [Filed May 11, 1876.]

The process herein described for the defecation of saccharine solutions and raw juices, the same consisting in mixing a compound of dialuic phosphate and phosphate of soda with the juices before the lime for defecation is added, substantially as specified.

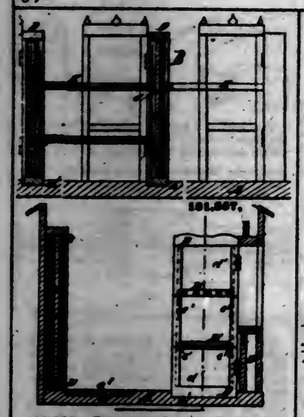
181,657. SLEEPING-CARS. Gustave Love, Montreal, Quebec, Canada. [Filed July 11, 1876.]

Brief.—The berths are secured in vertical frames hinged to the side walls of the car.

1. The frames D, divided into two compartments by a central partition, *d'*, and hinged to the side walls E of a car in such a way that they may be swung in against the said walls, or swung out at right angles with them, substantially as herein shown and described.

2. The combination, with the hinged frames D, of the berths E, the stop-pins *f'*, and the spring-stops *g'*, in such a way that the said berths may be placed in a vertical position within said frames D, or turned down into a horizontal position between two adjacent frames, D, substantially as herein shown and described.

3. A car-door provided with recesses *e'* at right angles with the walls E, to receive the lower ends of the frames D when said frames are swung outward, substantially as herein shown and described.



181,867.

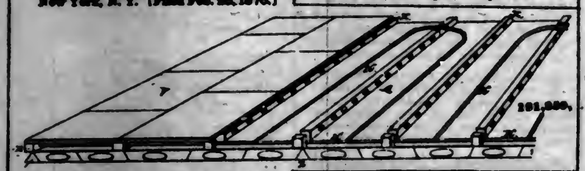
181,868. PUDDLING-DISTRIBUTOR. P. P. Lesley, Alexandria, Ala. [Filed June 20, 1876.]

Brief.—A blank is fitted to be adjusted on the axle in and out of the hopper, in connection with a slide for graduating the amount of coal to be sown.



In combination with the hopper, revolving axle, and distributer, the blank I, sliding on the axle, as and for the purpose specified.

181,869. WARMING FLOORS. J. S. Lindley, New York, N. Y. [Filed Feb. 20, 1876.]



181,869.

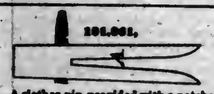
In combination, with a floor of a building, consisting of concrete blocks A A, supported on beams B B perforated blocks C C, and pavement V, constructed of material that shall radiate heat slowly, such as plain or ornamental tile, soap-stone, marble, &c., a series of steam-pipes, E E, the whole constructed and arranged to operate substantially as and for the purpose specified.

181,870. CHIMNEY-TOPS. Alex. McDaniel, Dubuque, Iowa. [Filed Aug. 14, 1876.]



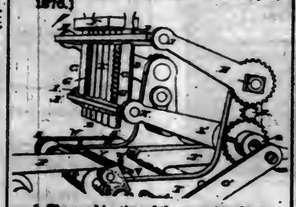
The inclined vanes or brakes *c f*, in combination with the cones A A, as shown and described, for the purpose specified.

181,871. CLOTHES-PINS. Ulrich D. Mielke, Fond du Lac, Wis. [Filed Apr. 26, 1876.]



A clothes-pin provided with a notched cross-key driven through the head, and extending at right angles, substantially as specified.

181,872. CRACKER-MACHINES. J. Henry Mitchell, Philadelphia, Pa. [Filed July 11, 1876.]



1. The combination of the geared oscillating arms H H' and intermediate pinion, I, for the purpose of keeping cutter-frame always in a vertical position, as herein described.

2. The weight P, in combination with pincers or stamps B, accumulating momentum to be used in shaping and ejecting the material from the cutters D.

181,873. ADVERTISING-DESKS. John D. D. Mortimer, Chicago, Ill. [Filed July 10, 1876.]

Brief.—The desk C, upon which a ledger, register, or other book may be placed, is arranged to receive upon its advertising-base A, and is being revolved in one direction, its spindle (which is provided with an eccentric) protrudes an advertising-slide, which is withdrawn within the base by a spiral spring.

The combination of the base A, provided with receptacles *d* and *l*, the revolving top C, having pivot *g* and eccentric *h*, the slide *i*, and the spring *p*, all substantially as herein shown and described, for the purpose specified.

181,874. STOVE-PIPE COLLARS. William E. Ogilvie and Thos. Whaley, Wadsworth, Ohio. [Filed Feb. 17, 1876.]

1. A stove-pipe collar, C, provided with ratchet-arms D D, and sliding carrier E E, whereby said collar is caused around a stove-pipe in the flue thereof, substantially in the manner herein before set forth.

2. The combination, with the stove-pipe collar C, of the half-collar H, and cam L, substantially in the manner herein before described, for the purpose set forth.

3. The combination of the lever M, provided with a cam, L, with the rest N secured to the collar C, whereby said lever is clamped in any desired position, for the purpose set forth.

4. The combination, with the collar C, of any suitable detachable flue-cover, secured to said collar by means of the arms D D and nuts G G, substantially in the manner herein-before described, for the purpose set forth.

181,875. DOOR-CHECKS. Jas. Peirce, Mora, Ill. [Filed July 31, 1876.]

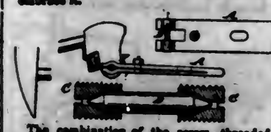
Brief.—A combined holder and buffer, in which an interposed piece of rubber keeps of the catch-plate constitutes the buffer, and the latch is automatically held in place by a removable pin and spring, which, when detached, leave the combined device to act as a buffer only.



A door-check provided with latch A, pins *e f*, spring *d*, and frame *g*, the latter having spring *h* and catch *i*, the spring *d* and pin *f* being removable, as and for the purpose specified.

181,876. JOINTS OF PIANO-ACTIONS. Frank Preston, Rapin, Ill. [Filed Feb. 26, 1876.]

Brief.—The screw-bushing is metallic, and is clamped between the two flanges, which embrace it.



The combination of the screw-threaded bushes G, having conical sockets, with the pivot E, having conical ends, and the clamping bearing-plate A, substantially as specified.

181,877. STEAM-BOILERS. Hiram Purdy, Burlington, Iowa. [Filed June 5, 1876.]

1. A boiler having inverted conical fires placed vertically, or nearly so, to its axis, across it, substantially as and for the purpose set forth.

2. The fire-bridge of a boiler-furnace, constructed with inverted conical air-supplying tubes E, placed vertically, substantially as described.

3. The combination, with a fire-box and smoke-flue, or gas-chamber, of a fire-bridge having a perforated rear slope or distributer, D', and a fresh-air-supply passage, *f'*, formed by the plate D and shell *g*, substantially as and for the purpose set forth.

4. In a boiler-furnace, the bridge D, the slope or distributer D', the chamber F, the pit *f*, and the conical tubes E, placed vertically, substantially as and for the purpose set forth.

5. In a boiler-furnace, the combination of the slope or distributer D', the bottom *g* of the fire or chamber G, and conical air-supply tubes E, constructed and arranged to admit fresh air into the smoke-flue or gas-chamber below the slope or distributer, substantially as set forth.

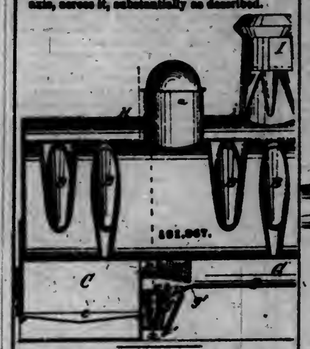
6. A boiler stack or chimney, provided with inverted conical tubes J and side openings *j*, constructed and operating substantially as set forth.

7. The combination, with a steam-boiler having the inverted conical fires B, and the cover H, having a stack or chimney, I, with the inverted conical fires J, substantially as and for the purpose set forth.

8. The combination of the fire-box C, the fire-bridge D, having the inverted conical air-tubes E placed vertically, the boiler having the inverted conical fires B, and the stack or

chimney I, having the inverted conical fires J, substantially as described.

9. The combination of the fire-box C and bridge-wall D with its smoke-flue or chambers G H and stack or chimney I, and the boiler having fires B, vertically, or nearly so, to its axis, across it, substantially as described.



181,867.

181,878. ROLLER-SKATES. C. W. Saladee, Washington, D. C. [Filed July 12, 1876.]



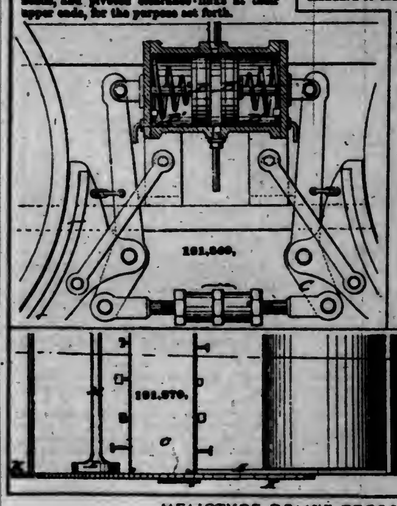
1. A roller-skate provided with two swiveling-rollers, each pivoted in front of its bearing beneath one end of a tilting-stock, and having its bearing at the rear of said pivot exceeding in width three-fourths the diameter of the roller, as and for the purpose set forth.

2. A skate, provided with a spring, A, bent at the end, and adapted to an axial socket in the stud *b*, for the purpose specified.

3. As a new article of manufacture, a roller-skate, provided with vitreous rollers having roughened peripheries, substantially as and for the purpose specified.

181,879. LOCOMOTIVE AND CAR STEAM-BRAKES. Thos. J. Shellhorn, Marquette, Mich. [Filed Feb. 28, 1876.]

In locomotive and car brakes, the combination of the brake-levers, the fulcrumed brake-heads, and pivoted clearance-links at their upper ends, for the purpose set forth.



181,880.

181,870.

181,880. REVOLVING GARDEN AND FIELD HOES. David B. Sherman, Charleston, Va. [Filed July 10, 1876.]

A frame consisting of side boards A, front and board B, rear top board C, and handles K, in combination with roller, rotary hoe, and wheel-axle, substantially as and for the purpose specified.

181,871. SUCKER-ROD EXTRACTORS. Geo. M. Shaffer, Hanleston, Pa. [Filed May 30, 1876.]

Brief.—The upper pin in the socket, in the downward movement, presses against the top of the spring clamp, and causes the jaws to spread to receive the end of the sucker-rod.



The combination of socket B, having opposite slots *a a*, tapering grooves *d*, and cross-piece *b b* with the V-spring C, toothed and arranged as shown and described.

181,872. HAT-FASTENERS. C. C. Shelby, Jersey City, N. J. [Filed July 26, 1876.]

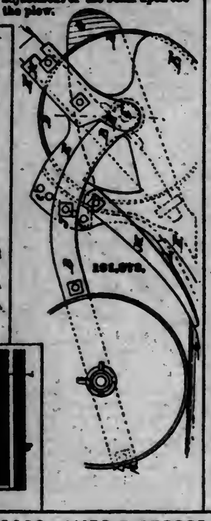


1. A hat-fastener, consisting of a pin adapted for connection with the hat, and attached to a cord, or an equivalent thereof, as and for the purpose set forth.

2. A hat-fastener, consisting of the pin *a*, connected to the cord, when combined and arranged to operate substantially in the manner and for the purpose set forth.

181,873. PLOWS. Melvin P. Sparks, Spring Lake, Mich. [Filed Mar. 25, 1876.]

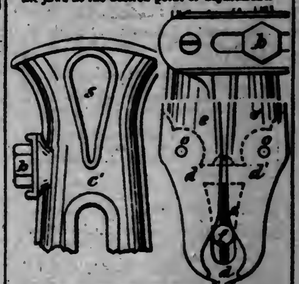
Brief.—The beam is composed of two wrought-iron bars, curved downward at the rear and to receive the shaft of a bearing-wheel that travels in the bottom of the furrow. The forward end of the beam is fortified by a wooden beam bolted between the iron beams. A bearing-wheel supports the forward end of the beam. The depth of the furrow is regulated by the adjustment of the beam upon the standard of the plow.



181,873.

181,874. FRUIT AUGERS. Geo. N. Stearns, Syracuse, N. Y. [Filed July 11, 1876.]

Brief.—In tunneling spoken the bulk of the end of the spoke, before using a hollow auger, is cut away by means of two laterally-adjustable jaws having funnel-shaped mouths—one of said jaws being provided with a taper-curved aperture to overcome the tendency to cut more on one side of the spoke than on the other, and the other jaw having a slot opposite to said aperture, in which the knife is set at an acute angle; a shank having two curved arms, connected to a cross-piece having an orifice in its center, through which a screw, carrying a circular wedge, passes into a slot in the shank; and a slotted strap and set-screw, for holding the jaws at the desired point of adjustment.



1. The two adjusting-jaws *e e'*, with funnel-shaped mouth, in combination with each other and the knife *k*, set at an acute angle, substantially as herein shown and described, for the purpose specified.

2. The shank *d*, the screw *c* passing through the cross-piece *b' b''*, the wedge or pin *f*, in combination with two jaws, *e e'*, held by the strap *a*, substantially as and for the purpose specified.

3. The adjustable jaw *e'* or its equivalent, provided with the taper-curved aperture E, substantially as herein shown and described, and for the purpose specified.

181,875. GAS-REGULATORS. Alex. Strauss, Washington, D. C. [Filed May 27, 1876.]



1. The cone A, the spiral springs D and E on spindle *f*, in combination with valves B and C, as described.

2. In a gas-regulator, the slotted valve B and springs D and E, all combined as and for the purposes as set forth.

181,876. GRAIN-BANDS. John H. Swihart, Upshur, Ohio. [Filed July 1, 1876.]

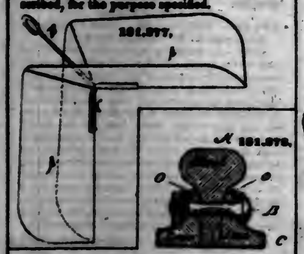


An improved grain-binder, formed of two wires, A B, jointed to each other, and the plate C, provided with three holes, two in one end and one in the other, and hinged to the wire B, substantially as herein shown and described, to adapt it for use, as set forth.

181,877. PROTECTORS FOR CHANDELIERS. F. J. Symmes, San Francisco, Cal. [Filed July 1, 1876.]

1. A cutter and protector for chandeliers, consisting of union plates A, placed at an angle to each other, and provided with compensation-rod B, as and for the purpose described.

2. The union plates A A, connected by angular clamps C, substantially as shown and described, for the purpose specified.



181,878. COMPOUND RAILROAD-RAIL. R. W. Thompson, Wadsworth, Ohio. [Filed Apr. 22, 1876.]

1. A compound railroad-rail, consisting of the two flanged side rails O and O' and the central or tread rail A, having its central rib or mesh let or made a depth as to come flush with the bottom of the flanges of the side rails, so as to rest therewith upon the face of the sleeper, and of such a form as to permit said tread-rail to be removed without detaching or disturbing the side rails, as set forth.

2. In combination with the compound rail, the clamp C, applied thereto, and secured by the bolt B, substantially as herein set forth.

181,879. RUFFLING FOR SEWING-MACHINES. Edwin J. Toof, New Haven, Conn. [Filed July 12, 1876.]

Brief.—The ruffling-blade is rigidly attached to a pendent arm pivoted to an upright on the attachment, the pendent arm being actuated from the presser-bar through the medium of a horizontal arm, both arms being on the same pivot, and having adjustable connections.



1. In a ruffling attachment adapted to be secured to the base-plate or sliding plate of a sewing-machine, the combination, with the base or bridge piece B, of the gathering-blade I, separator J, levers D and E, and the presser or smoother H, substantially as and for the purposes set forth.

2. In a ruffling attachment adapted to be secured to the base-plate of a sewing-machine, the combination of the bridge B, provided with a post supporting a pendent arm, to which a gathering-blade is rigidly connected, and an open-ended lever connecting with the needle-bar, for operating said arm and gathering-blade, substantially as and for the purpose set forth.

3. The combination of a lever, D, adjusting-screw F, vibrating arm E, frame B C, blade I, presser or smoother H, and separator J, substantially as and for the purposes set forth.

4. The combination of frame B C, levers D E, adjusting-screw F, gathering-blade I, presser H, separator J, and edge-gage K, substantially as and for the purposes set forth.

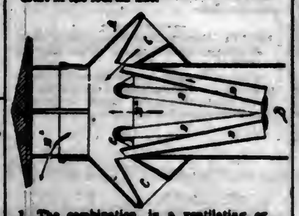
5. The combination of frame B C, levers D E, adjusting-screw F, gathering-blade I, presser H, and edge-gage K, substantially as and for the purposes set forth.

6. In a ruffling or gathering attachment adapted to be secured to the cloth-plate of a sewing-machine, an elastic blade, rigidly secured to a pendent arm, which arm is actuated by a forked horizontally-arranged lever connecting with the needle-bar, substantially as and for the purposes set forth.

7. In a ruffling or gathering attachment for sewing-machines, the combination of two levers, one of which is vertically arranged, supporting a gathering-blade rigidly attached thereto, the other horizontal, and an adjusting medium at their junction, for regulating the throw of the gathering-blade, and for varying the fullness of the ruffles or gathers, substantially as set forth.

181,880. VENTILATOR-COWLS. Charles A. Valle, Worcester, Mass., assignor of one-half his right to Jos. M. Rice, same place. [Filed Aug. 4, 1876.]

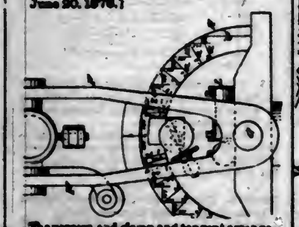
Brief.—The air enters the inlet-passages over the tops of the tubes, thus creating a draft in the foul-air flue.



1. The combination, in a ventilating or chimney flue cowl, of one or more air-inlets and draft tubes or passages arranged with the main flue, substantially as set forth, whereby the external air entering said inlet-passages is delivered past or across the ends of the draft-passages, for effecting an upward current within the flue, in the manner described.

2. In combination, substantially as set forth, the hood A, inlet passages or funnels C, draft tubes or passages D, and foul-air flue B, as and for the purposes set forth.

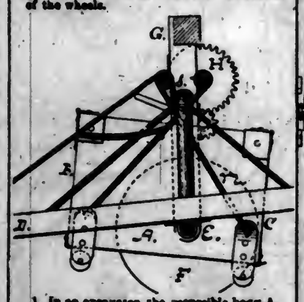
181,881. SURVEYING-INSTRUMENTS. M. W. Venable, King's Mountain, Ky. [Filed June 20, 1876.]



The vernier, and clamp and tangent arrangement J, in combination with the vertical semi-circular limb H and the telescope-standard F, arranged on the axis G, and in relation to the said limb H, as described.

181,882. SELF-LOADING CART. Aaron Vreeland, Mount Clair, N. J. [Filed July 31, 1876.]

Brief.—A reversible body on wheels, for gathering the earth at one end and dumping it out of the other, provided with doors at both ends, and double ropes and windlasses to manipulate the body. The draft-frame is connected with the axle on the inside of the wheels, and the windlass-frame on the outside of the wheels.

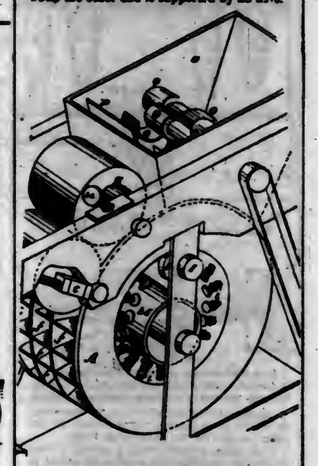


1. In an excavator, the reversible body A, gathering the earth by a forward motion, having the front and rear end pieces B and C, jointed to swing open, and the chains r and s connecting it with the windlasses H and I, substantially as and for the purposes specified.

2. The draft-frame D, connected with the axle E on the inside of the wheels F, and the windlass-frame G on the outside of the wheels, substantially as and for the purpose set forth.

181,883. MACHINES FOR COMPACTING LOOSE GRANULAR SUGAR INTO CUBES. Thirsy L. Wadsworth, Sacramento, Cal., executrix of Wadsworth Wadsworth, deceased. [Filed June 2, 1876.]

Brief.—The sugar is fed into a hopper, and is compressed into the cubical molds by broad curved revolving blades, and by pressure-rollers set in adjustable bearings. The cubes of sugar are forced from the molds by pistons, the rods or stems of which, as the cylinder-mold revolves, strike against an eccentrically-placed roller within the cylinder. The pistons, after passing the eccentric roller, are drawn to the bottom of the molds by springs coiled around their stems. One end of the cylinder-mold rests, by an inner flange, upon a roller, while the other end is supported by an axle.

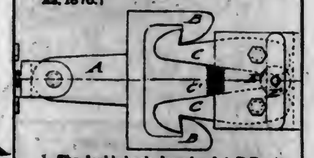


1. A circular rotating mold, A, supported as above described, in combination with the supporting friction-roller J, which is arranged to bear against the inner portion of the cylinder, and receive the downward pressure, substantially as above specified.

2. The hopper O, having the spirally-arranged broad plates or blades Q Q, mounted upon a transverse shaft, R, inside of it, near its bottom, substantially as and for the purposes described.

3. The hopper O, having the sliding gate P at one side, and provided with curved pressing and filling plates Q Q, arranged to be rotated at or near its bottom, in combination with the cylindrical rotating mold A, substantially as and for the purposes described.

181,884. CAR-COUPLINGS. Robt. K. Welch, Frankford, Philadelphia, Pa. [Filed July 22, 1876.]



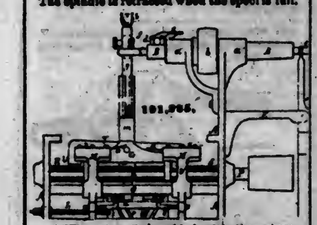
1. The double-hook draw-head A B B, pivoted at the rear to a sliding spring-bolt, to adapt it to be used in the manner described.

2. The lever-hooks C C, of a car-coupling, provided with intermediate front spring, and extended rearward on each side of a vertically-movable cone, B, as and for the purpose specified.

181,885. MACHINERY FOR SPOOLING THREAD OR YARN. John W. West, Boston, Mass. [Filed Mar. 10, 1876.]

Brief.—The thread-guide rests upon the spool, and as the filling increases, the rod to which the guide is attached is forced upward, thereby lifting the frame that carries the inclined ways. These ways or guides control the ends of a pair of pivoted levers, which, in turn, regulate the position of the uprights or

poppets, to which are attached the horizontal plates and springs that alternately bring the half-nuts into engagement with the right-and-left screw. The traverse of the thread-distributer is thus automatically made to increase as the space between the heads of the spool enlarges. The frame is provided with an adjusting-screw for different-sized spools. The spindle is retracted when the spool is full.



1. The arbor B, provided with the retractive spindle C and the stop-bolt *d* thereafter.

2. The frame H, provided with the series of adjusting-holes in its upper and lower bars, in combination with the slotted bars *p p*, the levers *s u*, and the guide *f*, and applied to them, substantially as specified.

3. The separate movable poppets M M and the connections *r s*, in combination with the levers *s u* and their operative slotted bars *p p*, as described, all being arranged and applied as set forth.

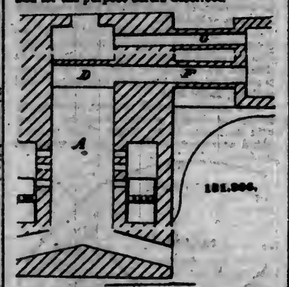
4. The combination of the movable and adjustable carriage I, the levers *s u*, connections *r s*, poppets M M, frame H, and slotted bars *p p*, all being substantially as specified.

5. The machine or combination, substantially as described, composed of the rotary arbor B, for carrying the spool, the thread-guide *f*, lifter-rod *g*, frame H, slotted bars *p p*, levers *s u*, movable-rod adjustable carriage I, screw-connections *r s*, poppets M, notched plates *s s*, springs *d' d'*, fingers *s g*, rocker lever T, carriage O, screw-threaded projections U U, and right and left screws E E, all arranged, supported, and applied in manner, and to a frame, A, substantially as specified.

181,886. ORE-ROASTING FURNACE. John Winterburn, Cambria, Cal. [Filed July 13, 1876.]

1. The prism-shaped distributer, extending across the furnace in a line with, and connecting with, the pipe F, so as to act both as a distributer and fume-conveyer, as described.

2. The furnace A, having the fume-collecting distributer D so placed as to receive the fumes arising from the reduction of the ore below that point, and the pipe or passage G situated above said collector, for the purpose of separating and conveying away the steam and vapors caused by drying the ore in its passage to the distributer, substantially as and for the purpose herein described.



181,887. DITCHING AND TILE-LAYING MACHINE. James P. Young, Niagara Falls, N. Y. [Filed May 11, 1876.]

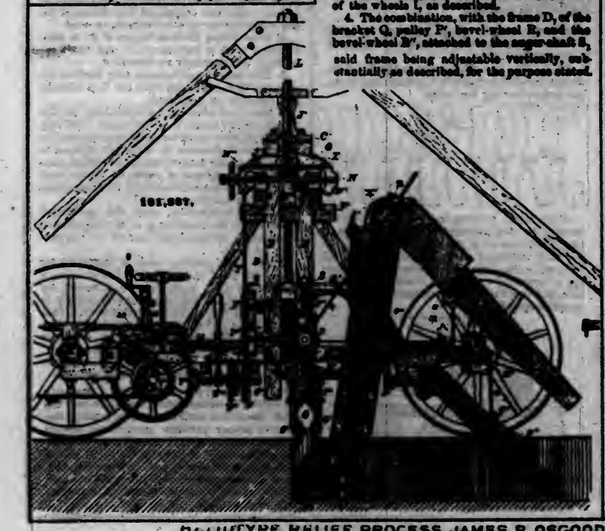
Brief.—A ditching and tile-laying machine in which an earth-auger with spiral cutters moves either vertically or inclined, up or down, and is operated by gearing and a sweep, without stopping the machine. In the rear of the auger is arranged an endless bucket-chain to scoop up the earth, and a movable chute to convey it to either side of the ditch. In the rear of the bucket-chain is a vibrating chute, which receives the tiles, and conveys them into the ditch by means of a pivoted spout arranged adjustably by a hand-lever, pivoted support, crank-wheel, and suitable sliding frame. A propelling device with differential gearing varies the movement of the machine instantaneously.

1. The combination, with the uprights B, of the sliding frame D, operated by the screws E, and a reversing-gearing arranged to receive its motion from the main driving-wheel J, substantially as described, for the purpose stated.

2. The combination, with the uprights B, of the sliding frame D, operated by the screws E, a reversing-gearing, and a driving-gearing for the auger, both sets of gearings being constructed to receive their motion from the main driving-wheel T, substantially as described, for the use and purpose set forth.

3. The combination, with the uprights B, of the sliding frame D, screws E, nuts D', bevel-wheels H, and the reversing-gearing, consisting of the bevel-wheels I engaging the main bevel wheel J, and provided with suitable clutches for engagement and disengagement of the wheels I, as described.

4. The combination, with the frame D, of the bracket Q, pulley P', bevel-wheel E, and the bevel-wheel D', attached to the auger-shaft S, said frame being adjustable vertically, substantially as described, for the purpose stated.



5. The combination, with the sliding frame D, of the bracket Q, pulley P', bevel-wheel E, bevel-wheel D', and the shaft X', whereby the elevator is operated substantially in the manner, and for the use and purpose described.

6. The combination, in a ditching-machine with a movable support, of the elevator X, constructed and arranged to be elevated with said movable support and independently of the same, substantially as described.

7. The combination, with the vertically-sliding frame D, having the brackets R', of the elevator X, said elevator being suspended between said brackets, substantially as described.

8. The combination, with a ditching-machine, of a device for laying tiles, said device being located in the rear of the auger cutting the ditch, and operated by suitable connecting-gearing from the main gearing, the whole being arranged to operate substantially in the manner described, for the purpose stated.

9. In a ditching and tile-depositing machine, a vibrating chute, arranged to receive the tiles to be deposited, and to convey them into the ditch by means of a properly-arranged spout, substantially as described.

10. The combination, with the sliding frame D, of the vibrating chute *c*, as described.

11. The combination, with the sliding frame D, of the vibrating chute *c*, and the pivoted spout *g*, as described.

12. In a ditching or tile-laying machine, the depositing-spout *g*, said spout being provided with means for adjustment to the depth of the excavation, as described.

13. The combination, with the vibrating chute *c*, of the pivoted spout *g*, both being arranged to operate upon, and connected to, an adjustable support, substantially as described.

14. The combination, with the vibrating chute *c*, of the lever *f*, connected with said chute by the links *e e*, and operated by the crank-wheel *d* engaging, with its crank-pin *a*, a slot-hole on the upper extremity of said lever, substantially as described.

15. The disengaging device for the vibrating chute *c*, consisting of the hand-lever *f*, pivoted to the support *f'*, and carrying the crank-wheel F, and provided with means for adjustment, substantially as described.

16. In a ditching-machine, and in combination therewith, a propelling device constructed and provided with a differential gearing, substantially as described, for instantaneously varying the forward movement of said machine, substantially as described.

17. The combination, with a differential gearing, of the drum V, arranged to be operated by said differential gearing for the purpose of propelling the machine, substantially in the manner and for the purpose described.

18. In a ditching-machine, and in combination therewith, the shaft U', provided with a suitably-arranged pulley for giving motion to said shaft, and with a series of gear-wheels of different diameters permanently attached, and a series of corresponding gear-wheels, U'', revolving upon the shaft U'', and provided with a clutch, U', constructed and arranged substantially as described, for instantaneously varying the forward movement of the machine, or arresting the same, as stated.

19. The combination, with the rear axle A'', of the segment 3 engaging the pinion 5 connected by the shaft 6, and a suitable device for giving motion to said shaft 6, substantially as described, for the use and purpose stated.

20. The combination, with the rear axle A'', of the segments 3 and 4, and the curved inwardly-projecting plates attached to said segments, and engaging with grooved wheels placed behind the plates engaging with said segments, substantially as described, for the use and purpose stated.

21. The combination, with the adjusting device for the rear axle, of a suitably-arranged brake, whereby said axle is locked in position, substantially as described.

22. The combination, with the segment 3 and its operating device, of the segment 4, brake 16 and 17, and an operating device for said brake, consisting, essentially, of the foot-lever 18, connected with said brake by means substantially as described.

23. The combination, with the sliding frame D, capable of a vertical adjustment, of the pulleys P', F, P', and U, belt or chain T, and the auger G, substantially as described, for the use and purpose stated.

24. In a ditching-machine, an adjustable sliding frame carrying the auger G, motor, a device, substantially as described, for giving motion to said auger in its various positions from the main driving-pulley, by means of a chain or belt, substantially as described.

28. In a dishing-machine, the combination, with a vertically-adjustable auger, of the suspended sighting device consisting of the horizontal longitudinal bar *f*, pivoted by means of the universal joint *h*, and provided on its forward extremity with the pivoted bar *F*, provided with the horizontal transverse bars *f* having the hair-lines *m*, substantially as described.

29. In a dishing-machine, a vertically or obliquely revolving auger, composed of the shaft S, head O^{iv}, helical heads O', and the tipped plate O^{v}, said heads being arranged to form sections of a cylinder whose interior has a free and unobstructed passage for the dirt, substantially as described.

37. The combination, with the helical plates O', of the detachable cutters *p*, for the purpose stated.

38. The cutter *p*, constructed with the shoulder *r*, and provided with means for attachment, substantially as described.

39. The combination, with the pulleys P P', of the gear-wheels P^{iv} P^{v}, and the pulley P^{vi}, as described.

40. In a dishing-machine, the combination, with the main driving-gear, and the driven gearing, of a friction-pulley, arranged either on the driving or driven gearing, with capability of automatically retarding or arresting the movements of the auger and elevator, and the forward movement of the machine, substantially in the manner as, and for the use and purpose, described

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181,889. GLASS-MOLD THERMOMETER. Joseph Hitchcock, Bellaire, Ohio. (Filed July 18, 1876.)

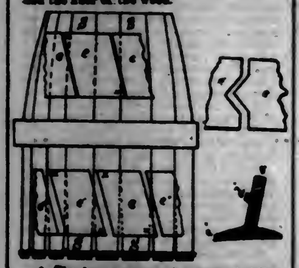


1. A trammer for glass-molds, consisting of the knife or cutter D, in combination with the body A, substantially as and for the purpose set forth.

2. The combination, with body A, of the knife D, provided with slots B, substantially as and for the purpose set forth.

181,890. MACHINERY FOR MAKING BARRELS. Thomas M. Hanley, Washington, D. C. (Filed Aug. 26, 1876.)

Brief.—Hooping the operation of truening and chamfering barrels, the staves are prevented from catching in the edges of the truening-ring by means of a ring formed of a series of pieces, whose lines of union are at angles with the lines of union of the staves and the fiber of the wood.



1. The dog or compressing-segment *f B d*, constructed to operate as shown and described, and for the purposes set forth.

2. In a machine for truening and compressing barrels, a segmental ring, composed of a series of pieces, *f f f*, whose lines of union are at an angle or angles with the lines of union of the staves and the fiber of the wood, constructed to operate as shown and described, and for the purposes set forth.

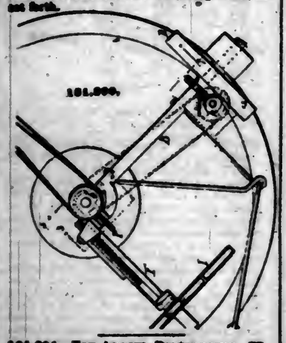
181,891. TOY-SHIP. Henry Allen, Philadelphia, Pa., assignor of one-third of his right to Wm. H. Irvin, same place. (Filed Aug. 9, 1876.)

1. The combination of the tempering-wheel I, hung to a radial shaft, with a transfer-wheel, D, arranged to intermit in a circle outside the tempering-wheel, and with mechanism whereby motion is communicated to the said transfer-wheel from the center of the pit, all substantially as set forth.

2. The combination of the arm B and its transfer-wheel D with the shaft F and its tempering-wheel I, and with devices, substantially as described, by which the two are connected together, as set forth.

3. The combination of the fixed worm S on the stationary stem a with the tempering-wheel I on the radial arm or shaft, and with devices through the medium of which the said worm is caused to slide the said tempering-wheel radially, as set forth.

4. A chip-pot in which the arm carrying the tempering-wheel is pivoted at a point in line with the center of the piston which imparts radial movement to the tempering-wheel, as set forth.



181,891.

181,892. TOY ARROW-DISCHARGERS. W. W. Algeo, Philadelphia, Pa., assignee of one-half his right to L. J. Richards, same place. (Filed Apr. 15, 1876.)

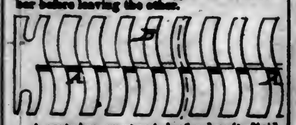


1. The block A, having an axial bore, *a*, with funnel-shaped ends *b*, and the elastic discharging-string C, substantially as specified.

2. The toy herein described, consisting of an oblong arrow-block, A, having a bore, *a*, rounded out at each end, a handle, B, a discharging-string, C, and a rod or arrow, substantially as specified.

181,893. GRATE-BAR. Lucien M. Allen and William Barton, Tuscaqua, Pa. (Filed June 26, 1876.)

Brief.—The bars are curved to break joints, so that the sliding-bar will approach one crossbar before leaving the other.



A grate-bar, constructed of a longitudinally-bearing-bar and laterally-curved cross bars or ribs, disconnected at their outer ends, extending from the upper part of the bearing-bar at both sides, the cross-bars at one side alternating or breaking joints with those at the other side, substantially in the manner and for the purpose specified.

181,894. PLOW-MOLDBOARD. B. S. Allen, Boston, Mass., assignor to B. F. Kendall, trustee, same place. (Filed Jan. 3, 1876.)



181,894.

Brief.—The material to be planed is firmly held down upon the bed of the machine by means of a yielding pressure-bar having two bearing-edges and an intermediate friction-roller.

The combination of a yielding pressure-bar or bars, constructed as above described, the stationary bars or supports *p e*, placed immediately beneath them, and the rotating cutter, as described.

181,896. SHACKLE-BOLT FASTENING. P. Armstrong, Bridgeport, Conn. (Filed July 10, 1876.)



The combination of a shackle having one or more recesses, *g*, a shackle-bolt, *b'*, and a lock, H, substantially as and for the purpose described.

181,897. PAPER-PRESSING MACHINE. John T. Ashley and Profit. Ashley, Williamsburg, N. Y. (Filed Jan. 8, 1876.)

Brief.—The pile-table is vertically lifted to adjustable stops by weighted levers, and lowered by levers engaging ratchet-bars at its sides. Wheels, perforated around their periphery, revolve intermittingly or continuously around stationary segmental exhaust-chambers, and thus lift the top sheet suspended by a continuous upwardly-inclined blast, and pass it to the feed-table of diagonal tapes, which carry it sidewise to the register-gage, and forward to the gage of the printing-machine, where a bar drops upon the front edge to hold it. A brush across the tapes, and one at each side of the table, hold down the sheet. The feed-wheels and their chambers are adjustable on their shaft, so as to touch only the margins of the sheet, and the shaft rests in bearings which may be stationary or vertically reciprocated.

1. The feed-table B, vertical slides B' B', and weighted levers B^{iv} B^{v}, combined as described, and for the purpose set forth.

2. The combination, with the feed-table B, of the racks *c*, pawl-levers *c'*, cam *i*, and weighted levers B^{vi}, having their fulcra on the sides of the main frame, all constructed and arranged as shown and described.

3. The feet or stops *e e*, laterally adjustable upon bar *e'*, for the purpose of being brought to bear upon the margins of the sheets of paper when the bar of knife cannot be used.

4. Gravitating friction-fingers *f f'*, in combination with a hook-stop, O, and the feed-table B, substantially as described.

5. The laterally-adjustable thin flexible fingers *f f f f*, combined with the feed-table B, substantially as described.

6. The feed-wheel A, for operating on the margin of the sheet, in combination with segmental exhaust-chamber, and an extension for holding said chamber in a proper relation to that part of the feed-wheel in immediate contact with the sheets of paper, to enable said feed-wheel to act substantially in the manner and for the purpose specified.

7. The combination, with the perforated wheel A and air-chamber *p*, of the depressed cam-plate *o*, substantially as and for the purpose set forth.

8. The combination, with a reciprocating feed-table, B, of the blast-pipe F, delivering a continuous blast in an upward direction, for separating the sheets of paper preparatory to their being moved by the feed-wheels A, substantially as and for the purpose described.

9. Rocker E, in combination with the tapes of a feed-table, substantially as described.

10. Rocker F^{iv}, combined with the register-bar guides G G, substantially as described.

11. The bar *e'*, for the purpose of stopping the vertically-reciprocating feed-table and the paper thereon in their ascent, and holding the same in proper position previous to the act of feeding, in combination with said feed-table, substantially as described.

12. In combination with the exhausting-trunk D, one or more valves, *b*, their arms *b'*, springs *b''*, and cams *o'* on shaft B', substantially as described.

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13. Rear bifurcated extensions *f'* on the exhausting-chambers *p*, in combination with the rod *p'* on the trunk D, substantially as described.

14. The flexible pipe, in combination with the chamber *p* and the perforated feed-wheel A, substantially as and for the purpose described.

15. The exhausting-chamber *p*, provided with the extension *p'*, for the purpose of holding said chamber in its proper relation to that part of the wheel immediately in contact with the paper, as described.

16. The perforated feed-wheels A, in combination with a revolving shaft, said wheels being laterally adjustable thereon, in order to set said wheels at a greater or less distance apart, to accommodate sheets of paper of different widths.

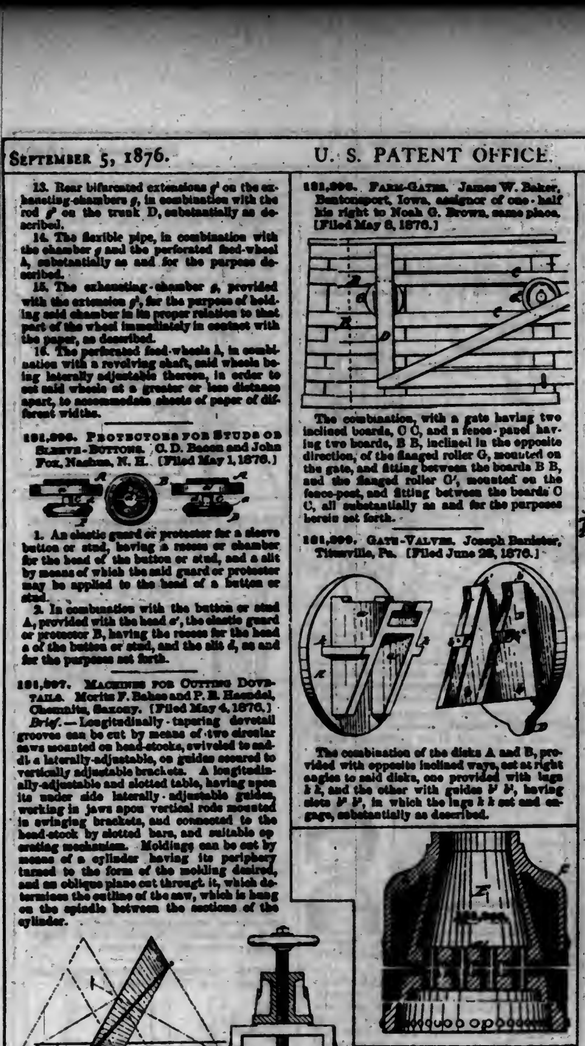
181,898. PROTECTORS FOR STUDS OR SLEEVE-BUTTONS. C. D. Bacon and John Fox, Nashua, N. H. (Filed May 1, 1876.)

1. An elastic guard or protector for a sleeve button or stud, having a recess or chamber for the head of the button or stud, and a slit by means of which the said guard or protector may be applied to the head of a button or stud.

2. In combination with the button or stud A, provided with the head *a'*, the elastic guard or protector B, having the recess for the head *a'* of the button or stud, and the slit *d*, as and for the purposes set forth.

181,899. MACHINES FOR CUTTING DOVETAILS. Moritz F. Bahse and P. E. Haendel, Chemnitz, Saxony. (Filed May 4, 1876.)

Brief.—Longitudinally-tapering dovetail grooves can be cut by means of two circular saws mounted on head-stocks, swiveled to and di a laterally-adjustable, on guides secured to vertically adjustable brackets. A longitudinally-adjustable and slotted table, having upon its under side laterally-adjustable guides, working in jaws upon vertical rods mounted in swinging brackets, and connected to the head-stock by slotted bars, and suitable operating mechanism. Moldings can be cut by means of a cylinder having its periphery turned to the form of the molding desired, and an oblique plane cut through it, which determines the outline of the saw, which is hung on the spindle between the sections of the cylinder.



181,899.

1. The combination of the head-stocks H H', carrying the saws with the guides E, and mechanism, substantially as described, whereby the said saws may be moved laterally.

2. The within-described saw for forming moldings, having its outline determined by cutting in an oblique plane through a cylinder turned to the outline of the desired molding, substantially as shown and described.

181,900. FARM-GATES. James W. Baker, Bentonsport, Iowa, assignor of one-half his right to Noah G. Brown, same place. (Filed May 8, 1876.)

The combination, with a gate having two inclined boards, C C, and a fence-panel having two boards, B B, inclined in the opposite direction, of the flanged roller G, mounted on the gate, and fitting between the boards B B, and the flanged roller G', mounted on the fence-post, and fitting between the boards C C, all substantially as and for the purposes herein set forth.

181,901. GATE-VALVES. Joseph Banister, Titusville, Pa. (Filed June 28, 1876.)

The combination of the disks A and B, provided with opposite inclined ways, set at right angles to said disks, one provided with lugs *b b*, and the other with guides *b' b'*, having slots *b'' b''*, in which the lugs *b b* set and engage, substantially as described.

181,902. GANG-PLOWS. Edwin A. Beers, De Kalb Centre, Ill. (Filed June 2, 1876.)

Brief.—The axle-tree has a double crank, and can be rotated by means of a lever secured by a rack. Another lever with a pawl and ratchet elevates or depresses the furrow-wheel. The plow-beams are hinged to long crank-portion of the axle-tree, and can be elevated or depressed by changing the position of the axle tree. The draft is applied directly to the beam, and more or less land taken by changing the position of the tongue.



1. In combination with the bar W, the pole V, provided at its rear end with the forked plate V', which is pivoted upon said bar, and the adjustable collars *w* and *w* placed around the latter, and bearing against the forked ends of said plate, substantially as and for the purpose specified.

2. In combination with the main frames, the axle-tree C, provided with the crank portion *c*, journaled within the plates B and B', and having secured upon one end a radial arm, D, that sustains the axle-arm *d* of the ground-wheel K, substantially as and for the purpose shown.

3. The axle-tree C *c*, the arm D *d*, the main frame A, A', B, and B', and the plow-frame L, L, M, N, N, Q, and R, constructed and combined in the manner and for the purpose set forth.

4. The plow-frame, consisting of the beams L, L, and M, cross-bars N and N, disk Q, plate R, and pivoted bolt, all combined to operate substantially as and for the purpose shown and described.

5. In combination with the plow-frame, hinged to or upon the double-crank axle-tree *c*, the quadrant T, having the radial slot *t* and shoulder *t'*, the lever U, and the bar U', substantially as and for the purpose specified.

6. In combination with the main frame, the caster-beam I, pivoted at its front end to said frame, forward of the axle, supported at its rear end, in rear of the plows, by a caster-wheel, K, and having at each end independent lateral motion, substantially as and for the purpose shown.

181,903. BELL TOYS. Isaac A. Bevin, East Hampton, Conn. (Filed June 2, 1876.)



1. The combination of the cylinder A, flanged heads B B, gong C, and ball E, the whole constructed to operate substantially as described.

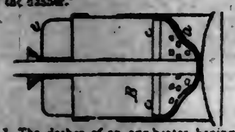
2. In combination with the cylinder and gong, the studs or projections secured to the peripheries of the heads, substantially as described.

181,906. STEAM-BOILERS. Robert M. Beck, Westminster, Md., assignor to the Taylor Manufacturing Company, same place. (Filed June 28, 1876.)

The dome C, smoke-box E, and fire-head *c*, formed in one piece or casting, and having the configuration shown and described.

181,903. EGG-BEATER. Alonzo T. Boon and Lodyard Colburn, Chicago, Ill. [Filed Mar. 27, 1876.]

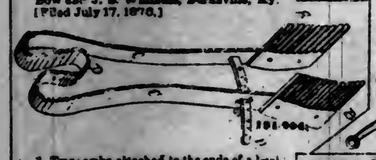
Brief.—An egg-beater, consisting of a cylindrical body having an ogee-shaped bottom, and a dasher having a similar ogee shape and a packing-rim formed by turning up the sides of the dasher.



1. The dasher of an egg-beater, having a rigid packing-rim, *c*, substantially as and for the purpose set forth.

2. The perforated ogee-shaped dasher B, having its edge turned up to form the packing-rim *c*, in combination with the ogee-shaped bottom *a*, substantially as shown and set forth.

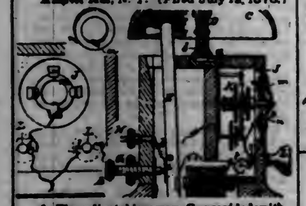
181,904. GAGES FOR HAIR-CUTTING. I. T. Bow and J. S. Williams, Burkesville, Ky. [Filed July 17, 1876.]



1. Two combs attached to the ends of a bent metal spring, to form a hair-gage, as herein set forth.

2. The combination of the two combs A B, bent spring C, forming the handle D, the perforated bar D, and pin or key *d*, substantially as and for the purposes herein set forth.

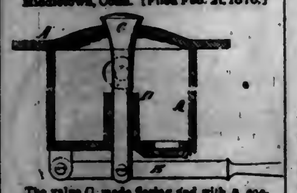
181,905. ELECTRIC ALARM. A. Bradford, Amsterdam, N. Y. [Filed July 12, 1876.]



1. The adjustable screw G, provided with the movable pin *h* and spring *i*, substantially as and for the purposes herein set forth.

2. The combination, in an electric alarm, of the box A, having the clock mechanism K, and a dial-face, J, the adjustable ring M, with stud *n*, magnets I, armature-lever H, gong G, and switches L L', with the necessary electric connecting-wires, substantially as and for the purposes herein set forth.

181,906. TUYERES. Charles E. Berridge, Middletown, Conn. [Filed Feb. 21, 1876.]



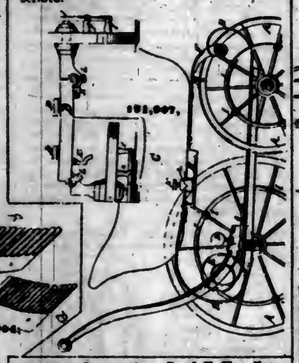
The valve C, made flaring and with a convex or wedge top, and provided with a lever, E, in combination with the guide-socket D and box A, substantially as herein shown and described.

181,907. CHILDREN'S CANE SEAT. Charles W. Carter, Terre Haute, Ind., and E. B. Fox, Isle St. George, Ohio; said Carter assignor to said Fox. [Filed June 26, 1876.]

Brief.—The axles are hinged near their journals, so that the wheels may be turned under the body, and adapt the carriage to use as a crib.

1. The combination of the tail-shaft scroll-springs E, the scroll-springs D, the adjustable sliding bar G and its set-screws N, and keepers R with the axles B and body C of a child's carriage, substantially as herein shown and described.

2. The combination, with shouldered axles hinged near their journals, and having stops K, secured to pivoted loops L, of wheels having studs I, with rings J, as shown and described.



181,908. SPECTACLES. Saml. F. Chandler, Springfield, Mass., assignor to himself and Henry F. Chandler. [Filed Jan. 17, 1876.]

The combination and arrangement of the short temple-springs *b*, the additional reversed springs *c*, the pads *d*, the fastenings *f*, and the short temple-pieces *e*, jointed to the spectacle frame, all substantially as and for the purposes described.





181,909. LAMP-FILLING TUBES. Charles Chimnock, Brooklyn, N. Y. [Filed Feb. 17, 1876.]

A filling-cap for lamps, consisting in a hemispherical-shaped cap, constructed in two parts, one within the other, the outer one being provided with an annular base, for the purpose of securing it to the lamp, and the inner part being pivoted at its center to the center of the outer portion, in such manner that said inner part may be rotated to open or close the cap, substantially as herein described.

181,910. STOVE-PIPE. Ledyard Colburn, Chicago, Ill. [Filed Mar. 14, 1876.]



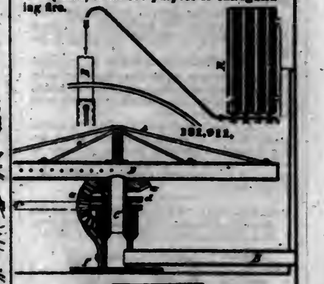
1. The section or joint of a stove-pipe having recess A, constructed and adapted to receive a water-vessel, substantially as and for the purpose set forth.

2. The combination of shelf D, joint of stove-pipe provided with recess A and connections B B, and vessel C, substantially as and for the purpose set forth.

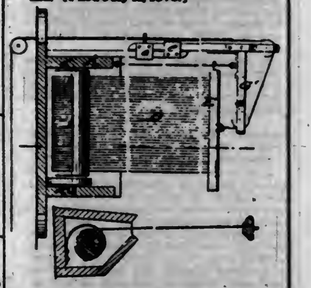
181,911. APPARATUS FOR PREVENTING AND EXTINGUISHING FIRES IN OIL-TANKS. Jos. H. Connelly, New Brighton, Pa., assignor to Jas. L. Hastings and Wm. H. Hastings, N. Y. [Filed Aug. 26, 1876.]

Brief.—The horizontal perforated pipe delivers gas into the body of the oil when revived.

The combination of gas-reservoir R, the pipe B, central pipe *c*, with crank *c'*, gearing *a*, and perforated distributing-pipe D, Figs. 2 and 3, all substantially as described, for the purpose of delivering gas into a tank of oil, naphtha, or other combustible fluid, for the purpose of preventing the ignition of the oil or naphtha, or for the purpose of extinguishing fire.



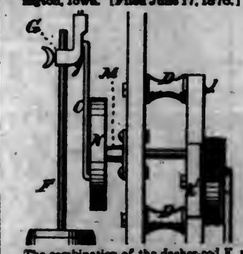
181,912. FLAG SIGNALING APPARATUS. E. D. Couch and Jesse M. Lamb, Sharpsville, Ind. [Filed July 11, 1876.]



1. The combination, with the slotted inclosing flag box or receptacle, of a cross-piece at the end of the flag, fitting the opening of the box, to close the same when the flag is wound up within the box, substantially as described.

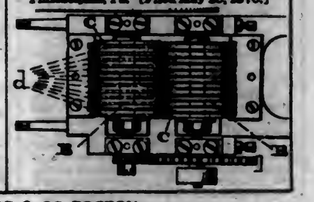
2. The combination of the signal-flag with the sliding supporting-arm, having guide-bands and set-screw to adjust arm to length of flag, substantially as specified.

181,913. CHURNS. M. B. Creswell, Washington, Iowa. [Filed June 17, 1876.]



The combination of the dasher-rod F, socketed sleeve G, with bent arm *g'*, crank-shaft O, crank-wheel N, sleeve M, and suitable gearing.

181,914. COCOA-NUT GRATERS. S. Croft, Philadelphia, Pa. [Filed May 26, 1876.]



1. The two cylinders B B, formed with teeth or serrations C C, with intervening spaces *d*, the teeth of each cylinder projecting into the intervening spaces of the opposite cylinder, both cylinders feeding and grating, substantially as and for the purpose set forth.

2. Two similar feeding and grating cylinders, E, rotating at different degrees of speed, substantially as and for the purpose set forth.

181,915. DRILL-TEETH ATTACHMENTS. G. W. Crooks, Kalamazoo, Mich. [Filed May 4, 1876.]



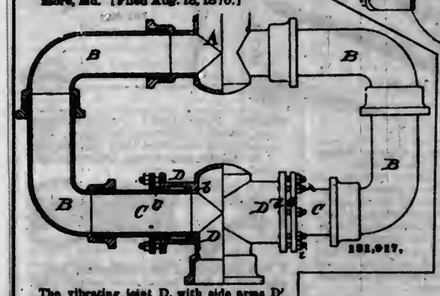
The drill-tooth attachment A, having the two rearwardly-curved and divergent spring-prongs *d*, carried by a shank-piece, *c*, and adapted to be clamped or bolted upon the rear of a drill-tooth, as described, and for the purpose specified.

181,916. CAR-COUPLINGS. D. P. Cubberley, Marion, Ind. [Filed Aug. 9, 1876.]



An improvement in car-couplings, consisting of the latch-bar B, having an eye, *f*, slot *h*, and a rear end, inclined upwardly and forwardly in a straight line to its upper edge, in combination with the link C, and the drawbar A, having cross-pin *d*, slot *e*, and depression *g*, substantially as and for the purpose described.

181,917. VIBRATING JOINTS FOR DEEP WATER-PIPE LAYING. James Outten, Baltimore, Md. [Filed Aug. 16, 1876.]



The vibrating joint D, with side arms D' and stuffing-boxes G, in combination with the tubes C, elbows B, and T-joint A, substantially as and for the purposes herein set forth.

181,918. CHOPPING-KNIVES. R. G. Cushing, Oswego, N. Y. [Filed July 8, 1876.]



1. The blade of a chopping knife having two edges of different configuration, one edge being of a zigzag or corrugated form, and the other an ordinary straight cutting edge, substantially as described, and for the purpose set forth.

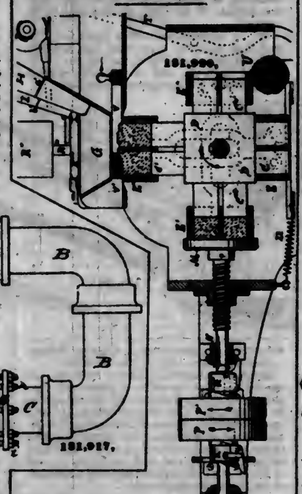
2. The arrangement of the two-edged blade A together with, and embraced by, the elastic frame D, whereby either edge may be adjusted for use, and securely held by means of the conical pivots *c c* and triangular grooves *b b*, operating on and securing corresponding ends of the blade A by the compression and tension of frame D, all constructed and arranged as herein shown and described.

181,919. GRINDSTONE-FRAMES. Jerome B. De Forest, Troy, N. Y., assignor of one-half his right to James W. Lawrence, same place. [Filed Mar. 21, 1876.]

Brief.—The frame may be put in compact form for packing by removing the braces and folding up the legs.

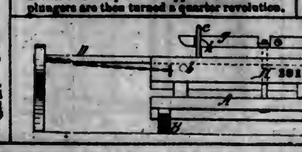


The combination, in a grindstone-frame, of the parallel tubes A A, provided with boxes I I, the T-joints B B, end tubes C C, tubular legs D D, diagonal braces *b b*, and central clamp G, all constructed substantially as and for the purposes herein set forth.



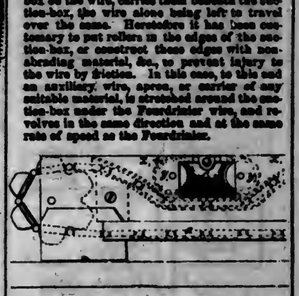
181,920. PRESSES FOR MOLDING SUGAR INTO CONES. Alex. de la Montanaia, New York, assignor to himself and D. Meiers, Brooklyn, N. Y. [Filed June 15, 1876.]

Brief.—The granular sugar to be molded is admitted to the hopper in graduated quantities from a spout having slide-valves. Dry powdered sugar is blown into the dies, and upon the top of the other sugar, to prevent its sticking to the molds. The sugar is first passed into the molds by a plate secured to a lever on the top of the hopper. The dies and plungers are then turned a quarter revolution.



181,921. MEANS FOR REDUCING STRAIN AND FRICTION UPON THE FOURDRINIER WIRE OF PAPER-MACHINES. Josiah H. De Witt, Oswego, N. Y. [Filed Oct. 4, 1875.]

Brief.—Supports the Fourdrinier wire upon a carrier, consisting of an endless chain at each side connected by cross-slats or small rollers, and stretched around rollers or sprocket-wheels, one at each end of the machine. The small rollers may, at their ends, revolve in a groove. As the chains and rollers or slats would interfere with the action of the suction-box on the wire, carries them beneath the suction-box, the wire alone being left to travel over the same. Heretofore it has been customary to put rollers in the edges of the suction-box, or construct these edges with non-abrading material, &c., to prevent injury to the wire by friction. In this case, to this end an auxiliary wire, apron, or carrier of any suitable material, is stretched around the suction-box under the Fourdrinier wire, and revolves in the same direction and at the same rate of speed as the Fourdrinier.



1. The combination of a carrier with the Fourdrinier wire-net of a machine employed in making paper from pulp, said carrier consisting of chains connected by cross-ties, or a wire-net of suitable texture, substantially as described, and subjected to a different tension from the Fourdrinier wire, in the manner described, for the purpose of protecting and preserving the Fourdrinier wire, as herein shown.

2. The auxiliary carrier W, in combination with the rollers *y y*, suction-box C, and Fourdrinier wire X, arranged and operated substantially in the manner described.

181,889. COMBINED CORN HARROW AND COVERER. Wm. Dudley, Independence, Iowa. [Filed Mar. 31, 1876.]

Brief.—Along, narrow frame, mounted upon three runners. The upper runner carries in half-grooves two horizontal extensible slide-rods, to the outer ends of which spring-markers are secured.

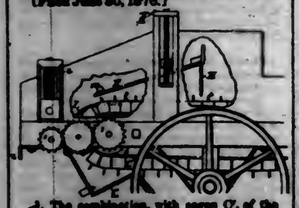
1. The combination, with a long, narrow runner-bed, A, provided with runners B, of a supplemental top-frame, C, carrying extensible side-bars, consisting of parallel rods D, arranged in half-grooves, and provided with coil-spring markers E at their ends, whereby they may be extended and drawn in in the direction of their length, substantially as herein set forth.

2. The combination of the marker-rods D, provided with arms *a* at their inner ends, with the top plate B, provided with the slots *c*, notches *d*, and springs *f*, whereby the markers may be turned in their half-grooves, extended and held in marking positions, substantially as herein set forth.

3. The combination of the marker-rods D, provided with arms *a* at their inner ends, with locking notched arms *g* at the ends of the grooved top plate B, whereby the marker-arms *a* may be turned to bring and secure their spring-markers in elevated positions when not in use, substantially as herein set forth.

4. The grooved bed C for the marker-rods D, in combination with the top plate B, having slots *c* coincident with the bed-grooves, and provided with interlocking and holding appliances, to either maintain the markers in their working positions or when drawn in out of use.

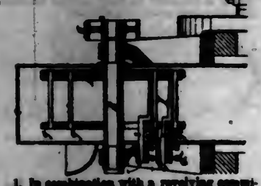
181,890. FENDERS FOR THRASHING-Machines. James W. Dozier, Nashville, Tenn. [Filed June 30, 1876.]



1. The combination, with spurs O, of the inclined board E, having teeth H, the fixed legs *d*, the cross-bar G, and screw-shafts I, as shown and described, to operate as specified.

2. The combination of the rods L with the channeled bolt or spurs, substantially as shown and described.

181,891. MACHINES FOR GRINDING PHOSPHATES, BONES, &c. Henry Dosch, Baltimore, Md. [Filed June 30, 1876.]



1. In combination with a revolving communicating-wheel, consisting of a disk, having fixed thereto concentric circles of breaking-bars, adjustable breakers *a*, projecting into the spaces formed by said circles, as and for the purpose set forth.

2. In combination with the rings *g g'* of the communicating-wheel, the ledges or projections *f f'* upon the case of the machine.

181,892. LOCK AND CHAIN-FASTENING Combined. Wilbur R. Ellicks, Washington, D. C. [Filed July 20, 1876.]

1. The combination of a door-lock with a chain-fastening, operated and released from the opposite side of the door to which it is attached, substantially as and for the purpose described.

2. In combination with a chain-fastening, connected to a lock, the movable bolt B, carrying the trigger C, tumbler F, and trigger-shifter I, substantially as and for the purpose specified.

3. In combination with a chain-fastening connecting a door-jamb with the bolt of a lock, the trigger C and trigger-shifter I, operated by a key and key-lever or its equivalent, substantially as and for the purpose described.

4. In combination with a chain-fastening connecting a door with the jamb of the same, a spring or springs located between the two, and fastened to the chain, to receive any shock it may have to bear, substantially as described.

5. In combination with a chain-fastening and the grooved bolt of a lock carrying the trigger C and trigger-shifter I, the projection K, formed upon the bolt, to depress said trigger-shifter and retain it in contact with the key or key-lever, substantially as described.

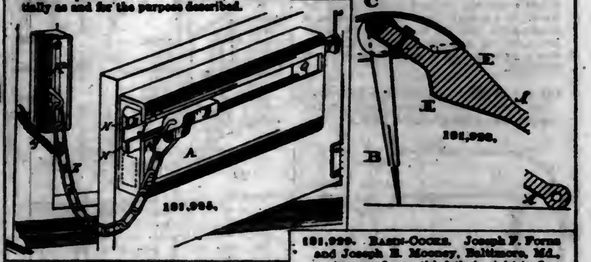
6. In combination with the trigger C and tumbler or tumblers F, pivoted to a grooved bolt, the tumbler hook or hooks *f* to retain the trigger when the groove of said bolt is not released by the key, substantially as described.

7. In combination with the grooved bolt B, to receive the hook or lug of a chain-fastening, and the hooks of tumblers pivoted to said bolt B and the trigger C, the projection *f* upon said trigger, to prevent any tampering with the tumbler-hooks through the groove of the bolt, substantially as described.

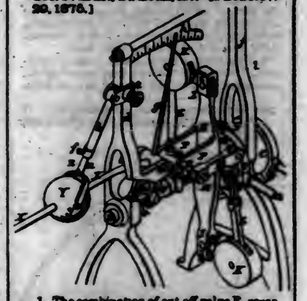
8. In combination with a chain-fastening connected with a lock, and a grooved bolt, B, having a pivoted catch, G, the said grooved bolt extending back over a portion of the opening Q, (when so retained by the catch G,) to prevent the removal of the chain-lug from the lock, substantially as described.

9. In combination with a chain-fastening and lock, the bolt B, having a longitudinal groove for the reception of the chain-lug, and the trigger C, capable of being adjusted to permit the release or the introduction of said chain-lug at the front end of the bolt from the outside of the door, substantially as described.

10. In combination with a chain-fastening and lock carrying a grooved bolt, substantially as shown in Fig. 5, the flanges A' A', formed upon the case of the lock, substantially as and for the purpose described.



181,893. GOVERNORS FOR STEAM-ENGINES. Geo. F. Brust, St. Louis, Mo. [Filed Nov. 20, 1876.]



1. The combination of cut-off valve E, eccentric F, governed to disk M, governor-balls and arms K J, connected to arms L, and connected to sleeve-operating device L S R T, sleeve U, and lever X Y with weight Y, constructed and combined substantially as set forth.

2. The combination of weighted arm X Y, register *g h*, sleeve U, cut-off eccentric F, and connections T R S M, constructed and combined substantially as and for the purposes set forth.

181,894. ANCHORS. David S. Evans, Town Point, Md. [Filed Aug. 17, 1876.]

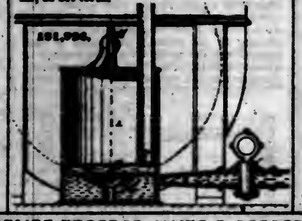
1. The cap C, formed with or secured to the pivoted fluke-arms B, substantially as and for the purpose set forth.

2. The shank A, formed with an enlargement or swell, E, for the step of the fluke-arms, substantially as and for the purpose set forth.

181,895. CARBURETORS. Charles Edgar, Dayton, Ohio. [Filed Feb. 15, 1876.]

Brief.—A rotary air-blower delivers air through a pipe beneath a perforated diaphragm having a detector for spreading the air up through oil in the carburetor. An oil-supply reservoir admits oil through a pipe beneath said diaphragm. An equalizing-pipe opens a little above the perforated diaphragm in the carburetor, and leads back into the top of the oil-reservoir, to maintain a thin stratum of oil above the diaphragm.

The combination of the oil-reservoir, evaporating-chamber, perforated diaphragm, a regulating-pipe to maintain a thin film of oil above the diaphragm, a suitable air-forcing appliance, a conducting-pipe arranged to introduce the air underneath the diaphragm, and the deflecting-shield M, to distribute the air, as set forth.



181,896. BABBIT-COCKS. Joseph F. Foran and Joseph H. Mooney, Baltimore, Md., assignors of one-third their right to Jos. T. Broadbent, same place. [Filed Apr. 29, 1876.]



1. In a basin-faucet, the combination, substantially as described, of a self-swinging bellow scoria, having a closing-valve, with a spring encircling the bellow valve-rod D, said spring operating on the valve in a direction opposite to that exerted on the valve by the pressure of the water, whereby the valve is closed against the pressure of water from the main, and the swinging nozzle operated automatically, and the liability of the bursting of the pipes lessened, substantially as described.

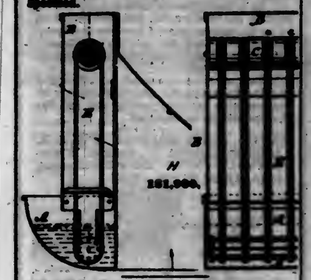
181,897. EVAPORATORS FOR HOT-AIR Blast-Furnaces. Wm. R. Fenton, Baltimore, Md. [Filed Mar. 6, 1876.]

1. The combination, with water-receptacle A, of a frame, B, closed at top, slotted at bottom as well as front, and open at the rear, the said frame being provided with strips of absorbent, substantially as and for the purpose described.

2. The combination, with water-receptacle A, of opposite rolls C D, provided with endless strips B, that may be moved on the rolls, as set forth.

3. The combination, with absorbents in the form of endless strips, and the bottom roll, of a tap rail that is grooved circumferentially and at intervals, to keep the strips apart, in the manner specified.

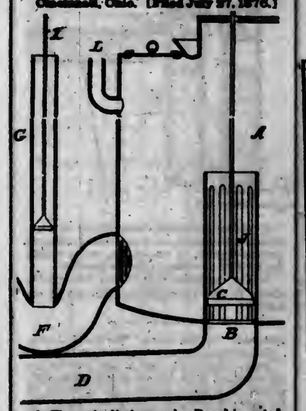
4. The combination, with frame B, constructed and provided with absorbents, as described, of the attachment H, as and for the purpose specified.



181,898.

181,899. GAS APPARATUS. Alfonso Gladstone, Alexandria, Va. [Filed Aug. 25, 1876.]

Brief.—The apparatus diametrically opposite each other on one end of the retort, are for permitting the reversal of the retort and for connecting the stand-pipe in either position. The end to be removable, so that ring may be adapted to the retort when reversed. The ring is secured in the lugs by a fastening device. The end to be removable, so that ring may be adapted to the retort when reversed. The ring is secured in the lugs by a fastening device. The end has a sealing-bar is provided for partially relieving the lid from pressure. The stand-pipe is vertical, and has an auxiliary extended portion, provided with a water-cup and relief-cup for cooling the gas and relieving undue pressure; also for permitting the return of tar that may be deposited. The pipe or handling to the patent has one branch rising into a cooler. A cap in the portion perforated in its periphery, distributes the gas. A water-valve in the holder prevents back pressure of gas.



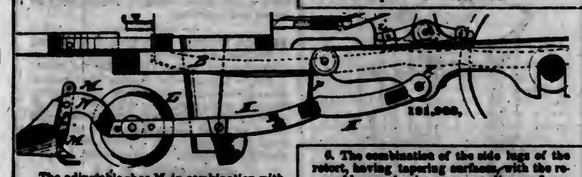
181,901. CATCH-BASINS. Henry Frank, Cincinnati, Ohio. [Filed July 27, 1876.]

1. The main discharge-pipe D and inverted siphon F, in the described combination with a catch-basin, A, stand-pipes J and G, and plunger C and I, for the purposes set forth.

2. The pipe G, extending upward from the middle of the inverted siphon F, and provided with suitable plunger I, for the purpose explained.

181,902. CORN-PLANTERS. Geo. D. Frederick and Eugene Funk, Jude, Wis. [Filed Jan. 31, 1876.]

Brief.—To the under side of the main frame are attached adjustable swinging frames, carrying at their front ends adjustable shoes and bevel-wheels, for opening and packing the furrows.



181,903.

The adjustable shoe M, in combination with the swinging frame K and the beveled wheel L, for the purposes herein set forth.

181,904. GRAIN-GRINDERS. M. A. Furbush, Philadelphia, Pa. [Filed May 16, 1876.]

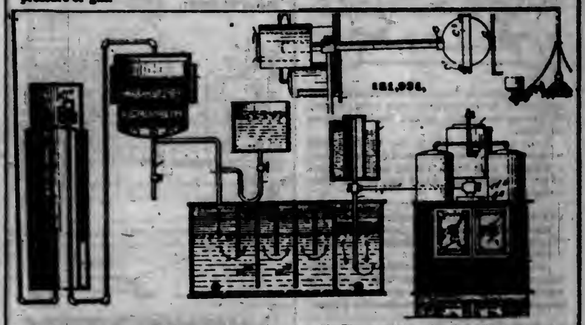
Brief.—Grooved grinding-cylinder to give sharp points to the teeth of the cards. Fine emery and oil or water used. Card and grinding cylinders moved in same direction. Plane of the concave sections drawn across. Grinder may be narrow and move from side to side.



The within-described cylinder, having continuous V-shaped ribs, by which sustained emery is applied to the teeth of the card-cylinder, as set forth.

181,905. GAS APPARATUS. Alfonso Gladstone, Alexandria, Va. [Filed Aug. 25, 1876.]

Brief.—The apparatus diametrically opposite each other on one end of the retort, are for permitting the reversal of the retort and for connecting the stand-pipe in either position. The end to be removable, so that ring may be adapted to the retort when reversed. The ring is secured in the lugs by a fastening device. The end has a sealing-bar is provided for partially relieving the lid from pressure. The stand-pipe is vertical, and has an auxiliary extended portion, provided with a water-cup and relief-cup for cooling the gas and relieving undue pressure; also for permitting the return of tar that may be deposited. The pipe or handling to the patent has one branch rising into a cooler. A cap in the portion perforated in its periphery, distributes the gas. A water-valve in the holder prevents back pressure of gas.



181,906.

1. In combination with the retort, the two independent fire-chambers, adapted for use in connection with the retort, as described.

2. In combination with the retort, the upper fire-chamber, having its rear wall provided with slots or perforations, as described.

3. The combination of the retort, having lugs at one end only, with a range provided with corresponding recesses, the construction being such that the retort may be reversed without entirely removal from the range.

4. A retort having a main opening at one end only, and provided with central gas-openings upon two sides, in line with each other, so that it may be reversed by a half-revolution, as described.

5. The reversible retort, having lugs at one end only, in combination with removable ears, the construction of the lugs being such that the ears are equally secured when the retort is in either position, as described.

6. The combination of the side lugs of the retort, having tapering surfaces, with the removable ears, having corresponding surfaces, as described.

7. The safety-bar *e'*, adapted to revolve on its bearings, as described, for the purpose of locking or unlocking the retort, as described.

8. The combination of the turning safety-bar with the cross-bar *e'*, having the slotted end, as described.

9. The combination of the removable ears *e'*, cross-bar *e'*, and safety-bar *f* with the retort, as described, the parts being removable, as and for the purpose set forth.

10. In combination with an independent cross-bar and nerve-cleat for holding the secured-lid closed, an independent safety-bar, adapted to catch the lid when the holding-cleat is loosened, as described.

11. The pipe D, having an auxiliary portion, connecting above the opening communicating with pipe *d'*, for the purpose of cooling the gas, as described.

12. In combination with the pipe D, having the intermediate opening communicating with pipe *d'*, the cap *d*, adapted to relieve the pipe when charged, substantially as described.

13. In combination with the retort, the main pipe D, having the *d'* communicating portion, a trap-chamber *D'*, and the relief-cap *d*, the pipe being held in a vertical plane for the purpose of returning tar into the retort.

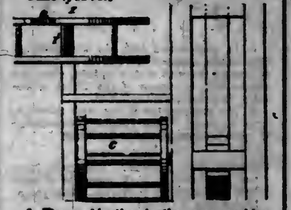
14. The combination of the first and second vertical pipes with the horizontal connecting-pipe, the vertical pipes being open at each end, and the horizontal pipe having cleaning-openings *d'*, as described.

15. The upper end of the having a system of open-ended vertical pipes, provided above with relief-caps, as described.

16. The combination of the two main vertical pipes and the chamber *D'* with the retort and ear-box, the pipes being adapted, by means of the chambers, to throw down the tar into the retort and box, as described.

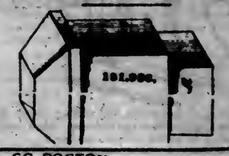
17. The purifying-box described, having each alternate partition provided with an opening above and below, as described.

181,907. BROOM-WINDING MACHINES. M. Gallaher, Chicago, Ill., assignor of one-half his right to M. Cahill, same place. [Filed June 7, 1876.]



1. The combination, in the same machine, of the table or platform I, having therein the perforations or pockets *c c*, with the broom-winding mechanism, substantially as and for the purposes specified.

2. The combination, in the same machine, of the rotary table or platform I, having therein the perforations or pockets *c c*, with the broom-winding mechanism, substantially as and for the purposes specified.



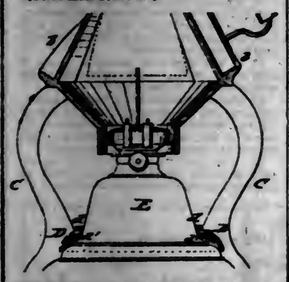
181,908.

181,926. VENTILATING-CAPS FOR PIPES. Cornelius, Jas. Frank Grooves, Brooklyn, N. Y. [Filed Nov. 12, 1875.]

1. The lower tube A, outer or overlapping tube C, and deflecting-cap D, with rim projecting over the end of the tube A, combined with the angular deflector c, substantially as described.

2. The tube A, and overlapping tube C, cap D, and deflecting-cap B, with projecting rim, combined with the angular deflector c, substantially as described.

181,927. SAD-IRON HEATERS. William H. Hayhurst, Jeffersville, assignor to himself and Charles S. Pierson, Sandy Hill, N. Y. [Filed Mar. 20, 1876.]



1. The lamp B, having diametrically-opposite pins d, in combination with a leg-frame, C, having the ring D, as and for the purpose set forth.

2. In a sad-iron heater, the burner, made with two wick-tubes, operated by a pendicle, e, whereby each flame, having its own current of air, will burn more freely and be less liable to smoke.

181,928. LAMP-EXTINGUISHERS. Louis Hermann, Cincinnati, Ohio, assignor of one-half his right to R. H. Robb, same place. [Filed Aug. 6, 1875.]

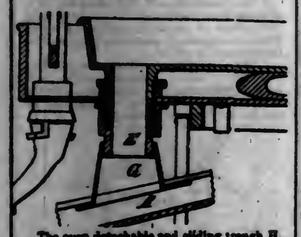
Brief.—When the lamp is tilted the weight falls, and, by means of the wick-raiser, to which it is connected by chain and lever, lowers the wick and extinguishes the flame.



1. In combination with the wick-raiser, a drop-weight attached thereto, for the purpose of lowering the wick within its tube, when the weight falls by reason of the tilting of the lamp, substantially as specified.

2. The combination of the wick-raiser B, lever D, trigger F, and weight G, constructed to operate substantially as described.

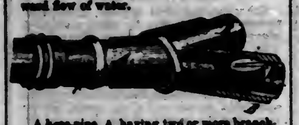
181,929. MILK-COOLERS. George N. Horton, Rochester, N. Y., assignor of one-half his right to S. S. Horton, same place. [Filed Apr. 1, 1876.]



The open detachable and sliding trough H, in combination with the corrugated tube G and coupling E, for the purpose set forth.

181,930. HOSE-PIPE. Chas. F. Hovey and A. P. Lothrop, Springfield, Mass. [Filed Aug. 17, 1876.]

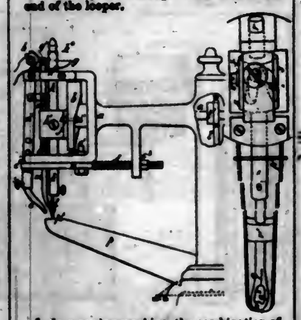
Brief.—A hose-pipe, having two or more branches, each of which is provided with a valve, which, in case one of the hose respectively attached thereto should burst, the valve closes automatically and prevents the backward flow of water.



A hose-pipe, A, having two or more branches, B, each of which is provided with a valve which is closed automatically by the action of the water when in use, to prevent the backward flow of water through its branch when the hose attached to that branch bursts or becomes disconnected, substantially as described.

181,931. BOOT AND SHOE SEWING MACHINES. William Jackson, London, England. [Filed Oct. 30, 1875.]

Brief.—The looper has a longitudinal and oblique motion, and is operated by a pin acting in a V-shaped groove in its rear end. The needle passes through a hole in the front end of the looper.

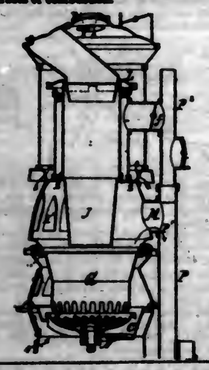


1. In a sewing-machine, the combination of the looper g, the rod r, the cam o, having the groove o', the stud n, the connecting-rod t, and the shaft s, for the purpose of actuating the looper, substantially as and for the purpose set forth.

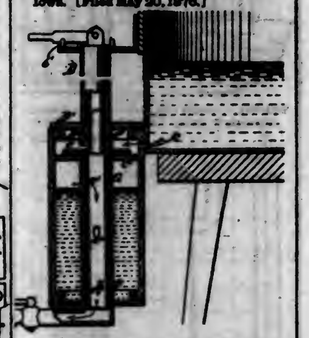
2. The combination, with the cam b and reciprocating needle-bar k, of the fixed bar d, the slide a, the spring f, and nut o, for giving the said fixed bar a horizontal motion, and the pin P on the needle-bar, lever g, and spring o', for imparting a vertical motion to the said fixed bar, all constructed and arranged to operate substantially as described and shown.

181,932. RAIL-HEADING MACHINES. Grove H. Johnson, Erie, Pa. [Filed Jan. 7, 1876.]

Brief.—Various combinations of parts for producing more or less direct escape of the products of combustion.



181,933. LIQUID-MEASURES. William K. Johnston, Cordova, Ill., assignor of one-half his right to C. L. Maxwell, Princeton, Iowa. [Filed May 20, 1876.]

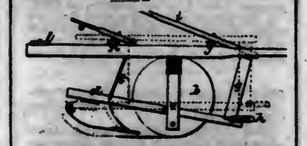


1. The combination, substantially as hereinbefore described, of a perforated rotating measuring-pipe, an air-passage, and a spring for holding a rotating valve in position.

2. The combination of valve c with cap D', sleeve D, and spring F, substantially as set forth.

181,934. CULTIVATORS. Thomas J. Jones, Blairsburg, Iowa. [Filed June 9, 1876.]

Brief.—The front ends of the plow-beams are attached to an arched coupling-bar, supported by a lever, whereby the direction of the plows is changed. The rear ends of the beams may be raised, when desired, by means of chains connecting them with a rock-shaft and lever.



The combination of the two beams d, united at their front ends by the bow s, single-tree A, attached to the ends of the bow, lever f, shaft e, and chains or rods t, substantially as shown and described.

181,935. COOLING AND VENTILATING MINES, HOUSES, &c. Thomas Joseph Trebarthen Pentyrgrith, Wales. [Filed Mar. 24, 1876.]

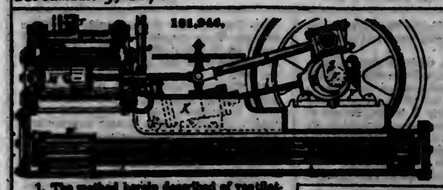
Brief.—The air after leaving the compression-cylinder passes through the cooling-chamber to the expanding-cylinder. The cut-off valve in the expanding-cylinder is arranged to cut-off at the proper point, so as to give as much compressed air as required, without reducing the pressure in said cylinder.



1. In combination, in a heating-stove, a direct-draft flue, leading out of the upper part of the magazine-chamber, a damper in said flue, an extension, P', of the reversible flue, and an air-register in the same, substantially as described.

2. In a heating-stove, substantially as described, the combination, with the back flue, of an air-register, located between the direct-draft exit-flue and the reversible-draft exit-flue connected with said back flue, substantially as described.

3. The top plate e, having the opening e' and the flue-strips e' e', in combination with the magazine, magazine-casing, and exit-flue F, substantially as described.



181,944.

1. The method herein described of ventilating mines, &c., the same consisting in compressing air in a receiver or receivers, and then allowing the air to discharge through suitable outlets as the atmospheric gases or matter to be purified, substantially as described.

2. The improved cooling apparatus P P' p p', in which the compressed air is cooled by means of water constantly circulating around the internal tubes p', in which compressed air passes, in the manner described.

181,945. CAR-COUPLINGS. Richd. A. Kelly, Manchester, Iowa. [Filed July 26, 1876.]



1. The combination of the draw-bars and hooks pivoted to swiveled cross-bars and suspended at their front ends from the balance or sway bars pivoted to the ends of the cars, as shown and described, to operate as set forth.

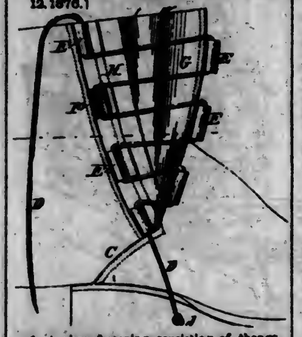
2. The combination of the rod provided with arm c, and adapted to slide and rotate as described, with the catch, sway-bar, and coupling-hooks and draw-bars, as shown and described.

181,947. CAR-COUPLINGS. Richd. A. Kelly, Manchester, Iowa. [Filed July 26, 1876.]

1. The combination of the weighted angle-braced washers with the springs, cranks, and coupling-bars and draw-heads, as shown and described, for the purposes specified.

2. The combination of the levers G, the coupling-bars and draw-heads supported therefrom, the sliding and rotating rod I, having arm c and wing f, and the bracket K, constructed with hook and shoulder, as shown and described, for the purposes specified.

181,948. SHOE-FASTENINGS. C. F. Kleinschuster, Marburg, Austria. [Filed Aug. 12, 1876.]



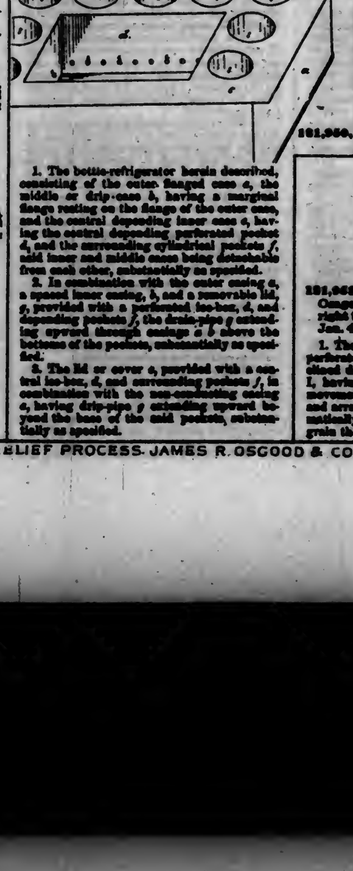
1. A shoe-fastening consisting of thongs or strings D, inserted in vertical eyes E E', attached alternately to the vamp and quarters in a shoe having side gores G, substantially as set forth.

2. The eyes E E', constructed with bushings F of coiled wire, adapted to operate as set forth.

181,949. BALE-HOOP TIGHTENERS. Thomas G. Knowles and James P. Durden, Vienna, La. [Filed May 9, 1876.]

A bale-hoop tightener consisting of notched lever F, having forked claw G, and hook H, having yoke J, substantially as and for the purpose specified.

181,950. REFRIGERATORS. P. J. Kromer, Columbus, Ohio. [Filed June 22, 1876.]

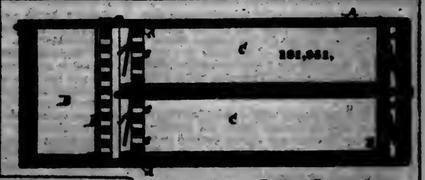


1. The bottle-refrigerator herein described, consisting of the outer flanged case a, the middle or drip-case b, having a marginal flange resting on the flange of the outer case, and the central depending inner case c, having the central depending perforated pocket d, and the surrounding cylindrical pockets f, said inner and middle cases being detachable from each other, substantially as specified.

2. In combination with the outer casing a, a upward inner casing, b, and a removable lid g, provided with a perforated tee-bar, d, and depending pockets f, the drain-pipe g extending upward through casings a b above the bottoms of the pockets, substantially as specified.

3. The lid or cover g, provided with a central tee-bar, d, and surrounding pockets f, in combination with the case-containing casing c, having drip-pipe g extending upward beyond the base of the said pockets, substantially as specified.

181,951. GLOVE-SAFES. Simeon Lowy, New York, N. Y. [Filed Feb. 15, 1876.]

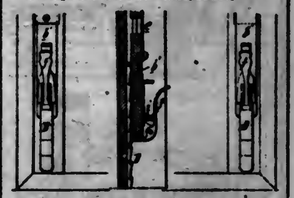


1. A glove-safe, consisting of a chest of drawers, provided with closely-fitting doors and with a receptacle for a hygroscopic material, substantially as shown and described.

2. The combination, in a chest, A, of a receptacle, B, for a hygroscopic material, and drawers provided with packing-rings f and with holes e in their ends, through which the interior of the drawers communicates with the receptacle B, substantially as set forth.

3. The combination, with the front-boxes ends of the drawers C, their channels c, and the receptacle B, of valves f, substantially as and for the purpose shown and described.

181,952. FRAMES FOR CURTAIN-FIXTURES. Edwin L. Lloyd, Philadelphia, Pa., assignor of one-half his right to Samuel T. Lloyd, same place. [Filed Mar. 16, 1876.]



1. A curtain-carrying frame for windows in which a laterally-adjustable cross-bar at the top is combined with side strips made in sections adjustable vertically, as set forth.

2. The combination of the vertically-adjustable curtain-carrying frame and its spring-levers f f with the notched strips D D, secured to the window-frame, as set forth.

181,953.



181,953.

181,953. HARVESTERS. William Loveridge, Cumps, Iowa, assignor of two-thirds his right to M. V. Nichols, same place. [Filed Jan. 4, 1876.]

1. The combination, with a continuous interforate platform, B, having an upwardly-inclined delivering-side, and a bent guide-rod, I, having an automatic rising and falling movement, of the rake H, pivoted at one end, and arranged and operated to conform automatically to said platform in delivering the grain therefrom.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

2. The boot-guide-rod I, in combination with the endless chain L and the pivoted rake H, substantially as and for the purpose stated.

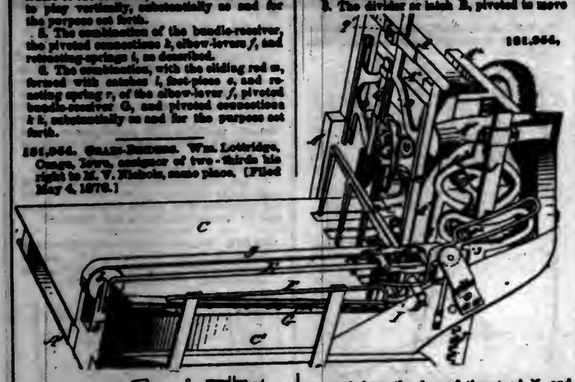
3. The combination of the rake H, having arm K, the guide-rod I, and the endless chain L, of the pivoted and swiveling collar *a* and staple *d*, substantially as and for the purpose set forth.

4. In combination with a rake deriving its motion from an endless chain, the guide-rod I, having its outer end rigidly secured to the frame of the machine, and its inner end free to play vertically, substantially as and for the purpose set forth.

5. The combination of the bundle-receiver, the pivoted connections *h*, elbow-lever *f*, and retracting-springs *i*, as described.

6. The combination, with the sliding rod *m*, formed with catches *l*, foot-piece *o*, and retracting-spring *r*, of the elbow-lever *f*, pivoted bundle-receiver G, and pivoted connection *h i*, substantially as and for the purpose set forth.

181,054. GRAIN-BINDERS. Wm. Lotteridge, Osage, Iowa, assignor of two-thirds his right to M. V. Fishole, same place. [Filed May 4, 1876.]



1. The rake-arm D, sliding upon the guide-rod E, and provided with a segmentally-slotted arm *d*, in combination with an endless chain, adapted to receive said arm and permit the rake to rise and fall while drawing it in either direction, substantially as set forth.

2. An endless chain for operating the reciprocating rake, constructed of a chain-section, G, and a belt-section, *g*, provided with a tightening device, *f*, in combination with the sprocket-wheel E, given an intermittent rotation alternately in opposite directions, substantially as herein set forth.

3. The combination of the rake D, reciprocating upon guide-rod E, on which it is free to rise and fall, and provided with an arm, D', projecting rearwardly of the bearing on the guide-rod, with a fixed endless guide, F, in the rear, and an automatic switch-lever, I, for elevating the rake at the inner end of its sweep, and throwing said arm beneath the guide to hold the rake up, substantially as set forth.

4. The combination of the rotating crank-shaft K, reciprocating rock-bar J, pinion A, sprocket-wheel E, endless belt G, rake-arm D, and guide-rod E, substantially as and for the purpose set forth.

5. The combination of the crank-shaft K, reciprocating rock-bar J, pinion A, sprocket-wheel E, belt, and rake D with the slotted switch-lever I, operated from the crank-shaft, and the fixed endless guide F, substantially as and for the purpose set forth.

6. The combination of the crank-shaft K, the vertically-moving bar Q, and the rock-shafts *L L' L''*, provided with compressing-fingers, all arranged and operating substantially as set forth.

7. The combination, with the stand N, perforated to admit through it the wire for binding, and having a transverse rod or shoulder, *n*, secured or formed on its top face, of the pivoted latch or divider R, having the eye *n'* formed on its under side, and recessed to fit the shoulder and clamp the wire, and provided with a spring for automatically depressing it, substantially as set forth.

8. The divider or latch R, pivoted to move to and from the face of the stand N, and formed with a depression, fitting a shoulder on the stand for clamping the wire, an eye on the under side so a passage and guide for the wire, and having the portion forward of the eye formed into a thin blade or wedge, substantially as and for the purpose set forth.

9. The combination of the bladed twister-shaft W *s*, and the whirl T, adapted to receive the twister-blade for operation, as described, with the fixed and movable cutters S S', substantially as and for the purpose herein set forth.

10. The combination, with the recessed whirl T, and the twister-blade *s*, with which it interlocks, and by which it is revolved, of a spring-detent, *t'*, for holding said whirl in position to allow both the wire ends and the twister-blade to enter its recess for operation, as described.

11. The combination of the notched whirl T, spring-detent *t*, and projection on the moving carriage carrying the twister-blade, said projection being formed at the proper point on the carriage to release the whirl at the moment the twisting-blade engages it, substantially as set forth.

12. The vertically-moving carriage F, carrying the twisting-blade W, the cutter-blade S', and the spring-shank nippers B', in combination with the stand N, provided with the spring-latch R, for guiding the wire, the upright cutter S, and the revolvable recessed segment-whirl T, all arranged and operating substantially as and for the purpose set forth.

13. The twister-shaft, fashioned to enter and bind the wire in the whirl-recess, and provided with the flat-pointed spur *s*, to enter between the ends of the wire so held outside of the whirl, and to be withdrawn therefrom, substantially as and for the purpose herein set forth.

14. The combination of the twister-blade W, intermittently revolving in the vertically-moving carriage F, and the recessed whirl T, capable of rotation in its bearings *t' t''*, substantially as and for the purpose set forth.

15. The combination of the twister-blade W, having the lateral dividing-spur *s* on its end, the recessed segmental whirl T, with the fluted standard U, having the bottom of the fluting out of line with the recess in the whirl, substantially as and for the purpose set forth.

16. The inverted divided guide *y y'* of the carriage F, in combination with the fluted standard U, whirl T, and twister-blade W, substantially as and for the purpose herein set forth.

17. The combination, with the nippers B', having the flat shoulders, of the pivoted lifting-latch R, provided with the separator or divider *r*, adapted to pass upward between and clear of said nippers, and supported upon said shoulders in position to slide off by the descent of the carriage F, carrying the nippers, as herein set forth.

18. The pivoted yielding latch R, provided with the eye *n'* and the end divider *r*, in combination with the cast-shoulder *n*, the nippers B', cutters S S', and the vertically-moving carriage F, substantially as and for the purpose herein set forth.

19. The shaft M, provided with the segmental cam S, in combination with the vertically-moving rack-bar Q', provided with the rail *s*, and the horizontal twisted blade W *n*, connected with said rack-bar by intermediate gearing *o o' o''*, said cam passing beneath the rolls to elevate the rack-bar, and thereby operate the twister-shaft, as herein set forth.

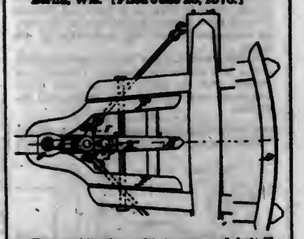
20. The shaft M, provided with the double cam V Z, in combination with the elliptical yoke O, within which the crank-cam V operates, the rack-bar with the roll *o*, on which the cam Z acts, and the carriage P, carried by said yoke, and containing the twister and its operating pinions, all arranged to depress the twister-carriage while elevating the twister-operating rack-bar, as herein set forth.

21. The combination, with the cam-yoke O, the rack-bar Q', and the cams V Z, operating to depress the twister-carriage and to elevate the rack-bar, of the stop *q'*, for depressing the rack-bar by the ascent of the twister-carriage, substantially as herein set forth.

22. The combination, with the rock-shaft L and its fingers *m*, of the yoke *h*, and the pending auxiliary fingers *m'*, to support the rising fingers and limit the inward movement of the pendent fingers in compressing the gavel.

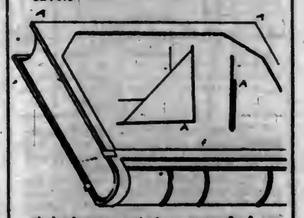
23. The combination, with the crank-shaft K, and the rake operated thereby, as described, of the gavel-compacting devices connected with and operated by said crank-shaft through the bat-and-arm connections *t q f* of the rock-shaft L, and connections *P P P P* of the rock-shafts *L' L'*, substantially as herein set forth.

181,055. DRAFT ATTACHMENTS. Justus P. Luther, H. D. Chamberlin, and N. De Groff, Berlin, Wis. [Filed June 26, 1876.]



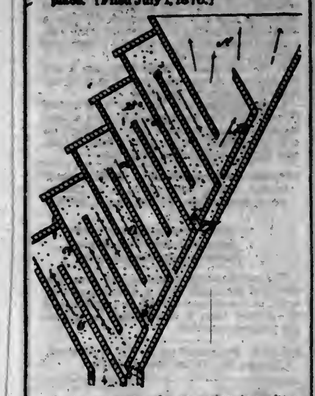
The combination, with tongue and bolt K, of the draw-bar J, arranged on top of tongue, and slotted to receive said bolt, substantially as and for the purpose specified.

181,056. BOOK-COVER PROTECTORS. James Mahedy, Sperry, Iowa. [Filed Aug. 3, 1876.]



A book-cover protector composed of corners A and connecting-straps, substantially as shown and described.

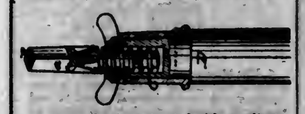
181,057. MIDDLINGS-SEPARATORS. James B. Martin, Newark, Ohio, assignor to the Ohio Middlings Purifier Company, same place. [Filed July 1, 1876.]



1. An apparatus for removing impurities from currents of air, consisting of an inclined dust-passage and a tortuous air-passage, the two communicating with each other at intervals, substantially as set forth.

2. In a dust-funnel for middlings-purifiers for removing impurities from the currents of air, the combination of casing A with perforated partitions B and pieces *a a* and *b b*, connected alternately to said partition and to the side of the casing, substantially as and for the purpose set forth.

181,058. MOP-HEADS. Henry H. Mason, Springfield, Vt. [Filed June 30, 1876.]



1. A mop-head constructed with an adjustable clamp, to which is affixed a screw stem, which passes into the socket for the handle, and which has an operating-nut placed between the under side of the adjustable clamp and the upper end of the socket, substantially as and for the purpose described.

2. In a mop-head, an operating nut, working on a screw-stem, and placed between the under side of the adjustable clamp and the upper end of the socket, in combination with a socket having a perforation, into which the screw-stem enters, substantially as and for the purpose described.

181,059. COMBINED SPADING, PLOWING, AND SCALE-CUTTING MACHINES. William McC. Mather, Caldwell, Tex., assignor of part of his right to Thomas M. Hunt and Wm. Philp, Sr., same place. [Filed July 6, 1876.]

Brief.—The machine is mounted upon two wheels, and has a system of gears for giving motion to the spaders and cutters. A crushing-roller bends down the stalks, and they are cut into short lengths by reciprocating cutters, each of which is provided with an elbow-joint, to prevent injury by striking against impenetrable substances.

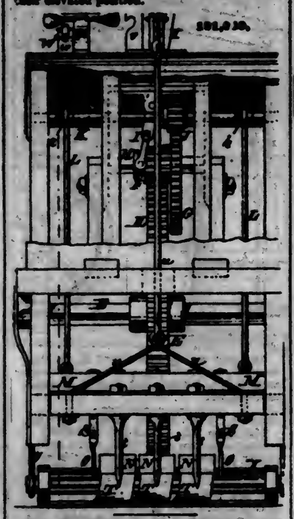
1. A series of spaders arranged in a plane parallel with the axis of the machine, and interposed spades to plane at right angles thereto, all attached to a reciprocating crosser and operating as herein set forth.

2. The combination of the range of spades N O and the range of plows T, operating to loosen and turn the ground in the manner substantially as herein described.

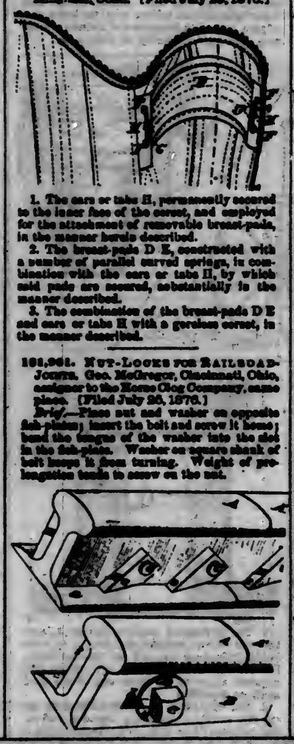
3. The combination, with the spades N O, of the knuckle-joints H and springs S, constructed and applied as specified, to permit the spades to bend backward on striking an impenetrable body, and regain their operative position.

4. The combination of the skeleton-roller Y, spades N, and plows P, as and for the purpose set forth.

5. The combination of the clutch-wheel or pinion F, for throwing the spades in and out of gear, and the lock W *w*, for securing the crank-shaft L so as to retain the spades in their elevated position.



181,060. CORSETS. Harriet H. May, Birmingham, Conn. [Filed July 20, 1876.]



1. The cord or tube H, permanently secured to the lower face of the corset, and employed for the attachment of removable breast-pads, in the manner herein described.

2. The breast-pads D E, constructed with a number of parallel curved springs, in combination with the cord or tube H, by which said pads are secured, substantially in the manner described.

3. The combination of the breast-pads D E and cord or tube H with a garden corset, in the manner described.

181,061. NUT-LOCKS FOR RAILROAD-JOINTS. Geo. McGregor, Cincinnati, Ohio, assignor to the Keane Clog Company, same place. [Filed July 20, 1876.]

Brief.—Place nut and washer on opposite fish-plates; insert the bolt and screw it home; bend the tongue of the washer into the slot in the fish-plate. Washer on square shank of bolt keeps it from turning. Weight of projection tends to screw on the nut.

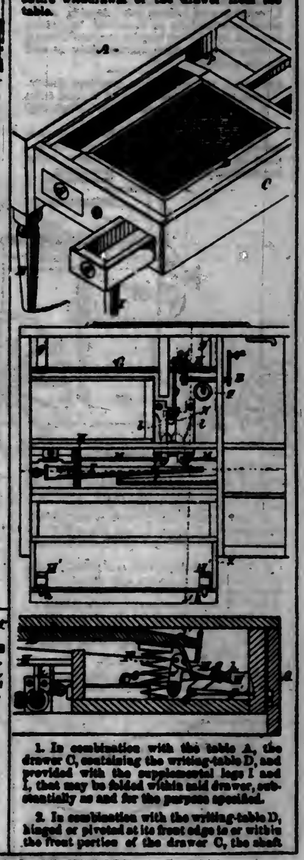
In a nut-locking device for rail fish-plates, the combination of bolt C, washer D, provided with lip *d*, fish-plate B, provided with recess *b*, and nut E, provided with elongation *e*, the bolt having an angular or flat-sided portion, and the washer a like-shaped orifice, all substantially as specified.

181,062. BEER-VATS. Geo. Mercer, Singleton, N. Y. [Filed Aug. 28, 1876.]

A vat for cooling beer or other liquids, constructed with a sheet-metal lining, which is made in sections overlapping each other at their edges, and fastened together and to the bottom of the vat by means of nails or rivets driven through the metal and clinched in position, and having solder run between and over the overlapping edges of the said sections, and over the heads of the nails or rivets, substantially as and for the purpose described.

181,063. COMBINED TABLE AND WRITING-DESK. Chas. W. Miles, Jersey City, N. J. [Filed May 20, 1876.]

Brief.—A combined table and writing-desk, in which the latter is contained within a drawer that slides horizontally into the former, and is provided with folding legs, which are automatically thrown downward to support the front end of the drawer when drawn out. Devices are employed to raise and secure in an inclined position the writing-desk; also, for locking the desk when the drawer is pushed into the table; also, for preventing the entire withdrawal of the drawer from the table.



1. In combination with the table A, the drawer C, containing the writing-table D, and provided with the supplemental legs I and L, that may be folded within said drawer, substantially as and for the purpose specified.

2. In combination with the writing-table D, hinged or pivoted at its front edge to or within the front portion of the drawer C, the shaft

G, journaled within the rear portion of said drawer, and provided with the radial arms f' and f², and the bars H' and H² connected to and projecting rearward from the lower side at the rear edge of said drawer, substantially as and for the purpose shown.

3. In combination with the hinged writing-table D, provided upon its lower side, near its rear edge, with the catch F', the shaft F, journaled within the drawer G, provided with the hooked arm f', for engagement with said catch, and having the handle f for use in partially rotating said shaft, substantially as and for the purpose set forth.

4. The means employed for connecting the rear portion of the hinged writing-table D with the table A, consisting of the bars R' and R², pivoted to and projecting rearward from said writing-table, and provided each with an upward-projecting stud, h, which engages with an opening, a, that is provided within the lower side of the top of said table A, substantially as and for the purpose shown and described.

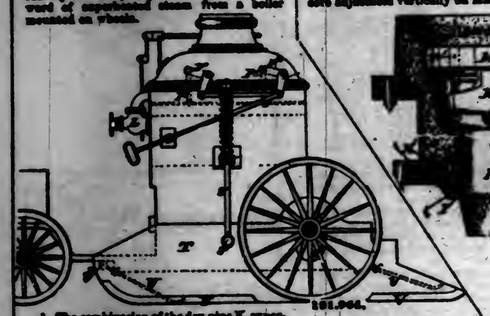
5. In combination with the supplemental legs I and I, provided with the catches i and i, the shaft K and K, having the hooked arms k and k, and arms b' and b², the pivoted levers L and L, the rods M and M, the sliding block N, and the rod O, connected to and operated by the arm f of the shaft G, substantially as and for the purpose specified.

6. In combination with the table A and drawer C, the bottom P and P, connecting-rod Q, and pivoted bearing and handle p and p', substantially as and for the purpose shown.

7. The combination, described herein, in which is combined the table A, drawer C, writing-table D, and supplemental legs I and I, supplied with locked and releasing mechanism, substantially as described, by means of which said device may be converted into a writing-desk or a table, substantially as and for the purpose set forth.

181,966. MACHINES FOR MELTING SNOW. John Mahaffy, New York, N. Y., and John T. Hawkins, Philadelphia, Pa. [Filed May 4, 1876.]

Brief.—Snow and ice are melted from street-railway tracks by the flexible ejection downward of superheated steam from a boiler mounted on wheels.



181,966.

1. The combination of the dry-pipe K, superheating-pipe M, superheating-tubes O, descending chimneys N, and damper P, substantially as and for the purposes set forth.

2. The hooked bar, formed by the self-adjusting plates T, chain U, and doors V V', in combination with the springs S S, substantially as described.

3. The combination, with the boiler, having the descending chimneys and steam-jets, of the hooked bar, formed by the plates T T, doors V V, &c., substantially as described.

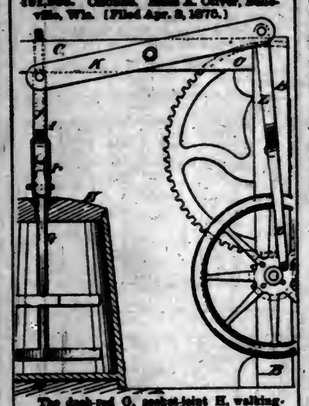
4. In a snow-melting machine, the combination, with the steam-boiler, of the descending chimneys N, and descending steam tubes (, substantially as described.

181,966. SHANK AND HEEL SUPPORTS FOR BOOTS AND SHOES. Jas. G. Folsom, Hillsborough, Ill. [Filed Feb. 26, 1876.]



A heel-supporter, composed of pieces D and E, made adjustable upon each other, substantially as and for the purpose set forth.

181,966. CHIMNEY. Elam A. Oliver, Belleville, Wis. [Filed Apr. 8, 1876.]



The flask-rod G, socket-joint H, walking-beam K, perpendicular and horizontal supports B G, and chain and gearing, arranged as described.

181,967. PIPE-MOLDS. Andrew O'Neill, Baltimore, Md. [Filed Feb. 28, 1876.]

Brief.—To form end of mold, case a bottom having an upward and inner rim, with radial projections to form the mold for the beginning or lap groove of a flange to be cast on the pipe, and to form also the upper part of ogee-lugs on that flange. The bottom has also centering-lugs for the flask-body. Displace this bottom by a chill-plate having centering-lugs, and also conical mouth and other indentations to form mold for lower end of pipe, and of its flange and of its lugs. Bell-core adjustable vertically on main core.



181,967.

1. The impression plate or former A, constructed with an annular prominence, A', with radial projections a a, and an internal ridge, B, with radial projections c c, to impart the required shape to the lower end of the sand mold, as described.

2. The chill-plate H, constructed with an annular cavity, i, centering lugs h h, and radial recesses (, to form, in connection with a superposed sand mold, a chilled pipe end and lugs, as described.

3. The combination of the chill-plate, constructed with an annular prominence, H', and centering lugs h h, and recesses ((, with a sand mold formed by an impression-plate with recesses corresponding to the said prominence and lugs, as explained.

4. The combination of the body-core K and the bell-core M, and ring core or cake M' adjustable thereon, as described.

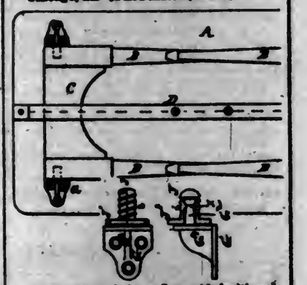
5. The superimposed flange or false bottom O, combined with the impression-plate A, having annular prominence A' and centering lugs a a, and adapted for use with a flask of common form, in the manner described.

181,968. WEATHER-STRIPS. H. H. Osgood, Boston, Mass., assignor to B. G. Underwood, same place. [Filed Aug. 7, 1876.]



The weather-strip described, the same consisting of the elastic strip A, folded longitudinally, as shown, and having its edges united to a flexible base, B, substantially as and for the purpose described.

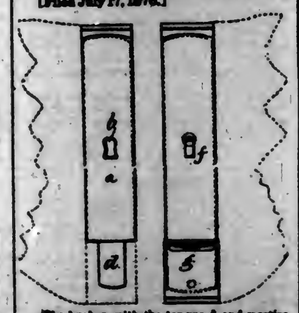
181,969. FOLDING TABLES. W. O. Osgood, Chicago, Ill. [Filed Mar. 11, 1876.]



1. The blocked sleeve J, provided with end flange J' and exterior screw-threads i, in combination with the shouldered sheath G' and casing G, as and for the purposes herein set forth.

2. The combination, in a folding table, of the top A, the hinged legs B B, provided with cross-bars C, having pins b, the single pendent metallic spring D, the casings G G', with shouldered sheaths G', blocked sleeves J, having end flanges J', and exterior screw-threads i, all constructed substantially as and for the purposes herein set forth.

181,970. CORNER-CLASPS. Albert Ottenheimer, Stuttgart, Germany, assignor to Ottenheimer Brothers, New York city. [Filed July 17, 1876.]



The hook c, with the tongue d, and mortise b, in combination with the bent or spring f, hook f, and pocket g, substantially as set forth.

181,971. GAS-CONSUMERS. Wm. S. Owen, Cedarboro, Iowa. [Filed Aug. 30, 1876.]

1. In a coupling for railway cars, the bent spring arranged in the draw-head, having flaring ends coincident with the flaring sides of the draw-head and cap-plates, which open and close laterally with the spring to support the pin in coupling position, and to open for its descent by the entrance of the coupling-link to effect the coupling.

2. The combination, with the coupling-link and the coupling-pin, of the bent spring, having flaring ends e, and laterally opening and closing cap-plates d, as and for the purpose herein set forth.

3. The coupling-pin, of oval form, in combination, in combination with a raised guide-way, f, of corresponding form, as and for the purpose herein set forth.

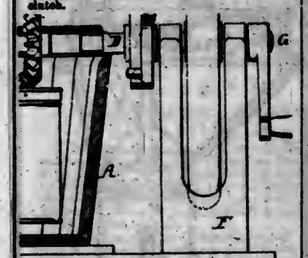
4. The combination, with the coupling-pin F, provided with the cross-head f, of a raised guide, f, on the draw-head, provided with the cross-notch h, as and for the purpose herein set forth.



181,970.

181,972. ICE-CREAM FREEZERS. Charles W. Fisher, Philadelphia, Pa. [Filed July 10, 1876.]

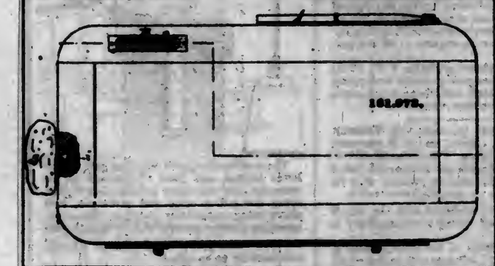
Brief.—By means of the peculiar construction of the sleeve, the operator is enabled to connect or disconnect the freezer from the driving mechanism without manipulating the sleeve.



A standard or frame, F, carrying the horizontal driving-shaft G, and a freezer, A, with horizontal shaft D, arranged in line with the driving-shaft, in combination with a clutching device constructed, substantially as described, for permitting the withdrawal and replacing of the freezer without manipulating the coupling.

181,973. SLATE-FRAME ATTACHMENTS. R. Forbs, New York, assignor to J. H. Conlee, Brooklyn, N. Y. [Filed Mar. 20, 1876.]

Brief.—The ruler, sponge, and pencil-sharpener are all attached to the frame of the slate for use when required.



181,973.

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1. The combination of the school-slate frame A with the projecting pins or springs e e, and with the slotted ruler, substantially as herein shown and described.

2. In combination with the school-slate frame A, which has the recesses i, the sponge g, provided with the spring jaw or jaws A h, fitting into said recesses i, substantially as described.

3. In combination with the school-slate frame A, the pencil-sharpener B, consisting of the depressed plate s and transverse knife-blade p, substantially as specified.

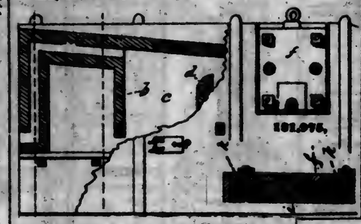
181,974. TIPS FOR BOOTS AND SHOES. J. A. Fenn, Hyde Park, assignor to the American Shoe Tip Company, Boston, Mass. [Filed Jan. 20, 1876.]



1. A rawhide shoe tip or toe protector, colored to assimilate to the color of the shoe to which it is attached.

2. A rawhide shoe tip or toe protector, colored to assimilate to the color of the shoe to which it is attached, and waterproofed, for the purpose set forth.

181,975. CONSTRUCTION AND PROTECTION OF PUDDLING-FURNACES. James Pedley, Pittsburg, Pa., assignor of one-half his right to Henry Neville, same place. [Filed May 23, 1876.]



181,975.

1. In a puddling-furnace having the combustion-chamber c, terminated by the bridge d, and divided from the fire-chamber by means of the hanging bridge b, the combination with said combustion-chamber of the air-flues a, extending upward and backward through the roof of the furnace, and opening into the combustion-chamber immediately above the bridge b, substantially as shown and described.

2. The combination, with the flanged dam-casting f, of the detachable fire-clay lining i behind thereto, but separated from contact therewith by a space around its edges, substantially as described and shown.

3. The combination, with the dam-casting f, of the detachable fire-clay lining i, having the nipples h, to separate the adjacent surfaces, substantially as described and shown.

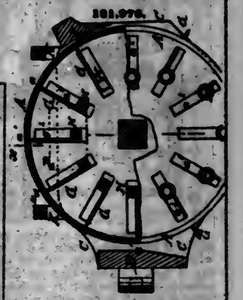
181,976. ROTARY SPADES, SCALE-CUTTERS, AND FIELD-ROLLERS. Peter D. Pelzer and Henry C. Pelzer, Metamora, Ind. [Filed Jan. 18, 1876.]

Brief.—A large roller has within its shell a series of bars, the ends of which pass through slots in the head-pieces. These bars are provided with blades that fit into slots in the face of the roller. The ends of the bars enter cam-grooves in stationary plates, which constitute the end pieces of the frame in which the roller is mounted. The axes is bipartite, one track of which is concentric with the journal of the roller, the other being eccentric upon the lower circuit. Sliding-blocks are provided at the branching-point, so that the bars can be made to take either track. When they follow the concentric groove, the blades are retained within the roller, and when they follow the eccentric groove they are thrust out upon the lower side of the roller.

1. The roller A, provided with rows of alternating slots a' in its face, and with corresponding radial slots a' in its ends, the side plates C, provided with annular grooves c' and eccentric beauk grooves c' in their inner surfaces, the cutters G, and the cutter-bars H, in combination with each other, substantially as herein shown and described.

2. The combination, with roller having slots a' a', the bars H, and the spades G, of the side plates C C, having eccentric grooves c', and the guide-bars I, operated by mechanism J K L, as and for the purposes specified.

3. The slots a', formed in the upper part of the side plates, and their notched cap-blocks P, to enable the cutter-bars and cutters H to be withdrawn from the roller A, substantially as herein shown and described.



181,976.

181,977. CARTRIDGE-SHELLS. Joseph P. Plant, Ghisoni, Corsica, assignor to Wm. Smith, London, England. [Filed May 14, 1875.]



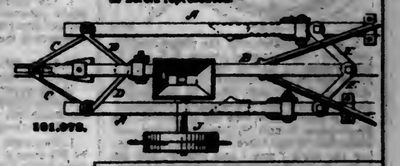
A cartridge case or shell composed of india-rubber or gutta-percha, or a compound of either of these materials, and metal foil, substantially as described.

181,978. COMBINED SEED-PLANTER AND CULTIVATOR. Wm. J. Pirkle, Cumming, Ga. [Filed July 12, 1876.]

Brief.—The two outside beams are connected to the central beam by pivoted bars, and are adjustable by two bars at the front, secured to a bolt moving in a slot in the central beam. To one side of the frame is journaled a driving-wheel, that rotates a cog-wheel secured on the same shaft.

1. The frame-pieces A A, in combination with the beam E, and the bars B B, D D, and C C, arranged substantially as and for the purpose set forth.

2. In combination with the adjustable frame-pieces and beam, the seeding-wheel M and the gearing-wheel J upon the same shaft, said shaft being sufficiently long to allow of lateral spreading of the frame, substantially as herein represented.



181,978.

181,979. SHOE-FASTENINGS. O. M. Platt, Waterbury, Conn. [Filed July 24, 1876.]

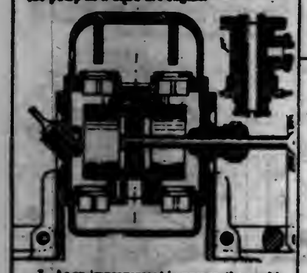
181,979.

1. A fastening for shoes, gloves, &c., consisting of a tubular stud, secured to the fabric by a tubular rivet, and combined with an eyelet with a slot formed therein, as and for the purpose described.

2. In a fastening for shoes, gloves, &c., an eyelet with a slot forming the continuity of the channel formed by the flanges and shank of the eyelet, as and for the purpose described.

181,980. PUMP. Wm. H. Pollard, Seneca Falls, N. Y., assignor to Gould Manufacturing Company, same place. [Filed Aug. 14, 1876.]

Brief.—The suction-opening of the pump has a T-joint that may be connected to the stationary suction-pipe, or to a detachable sleeve, to connect with an overboard suction-pipe. The spout is provided with an attachment, to which a hose may be applied for using the pump as a hand fire-engine.



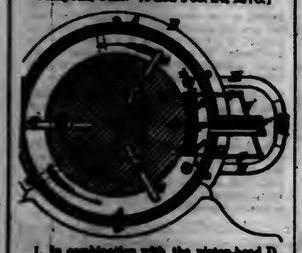
1. As an improvement in pumps, the combination of the cylinder-heads, cast in one piece with the feet or supports, with the pump-casing, in such a manner that the bed-plate is raised to suitable height from the floor or other point of support to give ready access to lower valves, substantially as specified.

2. The combination, with the suction-part of the pump of a T joint, F, closed by plug F', and with a stationary suction-pipe secured thereto, substantially as described.

3. The combination of the suction-part of the pump with a joint, F, having an enlarged main part, and with a sleeve, G, recurving and fitting thereto, to attach hose and stationary suction-pipe, substantially as set forth.

4. The combination, with the discharge-part or spout N of a pump, of an attachment, H, secured by bolt F' and screw-nut F'', to apply a hose and nozzle, for using the pump as a force-pump, substantially as specified.

181,981. ROTARY ENGINE. J. M. Priddey, Coshocton, Ohio. [Filed Feb. 24, 1876.]



1. In combination with the piston-head D, provided with the radial grooves E, E, and N, the cylinder A, having its induction-ports I and I and its eduction-ports J and J arranged with relation to each other, in the manner and for the purpose substantially as specified.

2. In combination with the cylinder A, the steam-pipes H and H, jointed together and controlled by one valve, the chamber F having the ports f and f and pipes f, and the valves G and G arranged together and operated simultaneously, substantially as and for the purpose shown and described.

181,982. GUNPOWDER PILE-DRIVING. F. C. Prindle, Philadelphia, Pa. [Filed Aug. 4, 1876.]

Brief.—The pile-driver frame has the usual guide-posts upon a base with braces secured by transverse and lateral angle-irons. The ram and gun slide upon the front flanges of the channel-bars. Brake-bars extend nearly the length of the guide-posts, and are arranged between the flanges thereof, and are operated by springs to draw them off and a lever to throw them against the posts. The brake-bars are pivoted by inclined links to the posts.

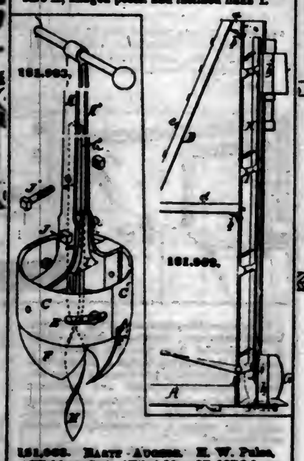
1. A pile-driver frame, in which guide-posts B B' of wrought-iron, channel, or flanged bars are combined with a base, A, and braces D, all substantially as set forth.

2. The combination of the channel-iron or flanged posts, transverse angle-iron bars b, angle-bars d, and braces D.

3. The combination of the ram and gun G of a gunpowder pile-driver with the channel-iron or flanged posts, the front flanges f of which serve as guides for the ram and gun.

4. The combination of the channel-iron or flanged posts with the brake-bars H combined between the flanges, connected to the posts, and suspended to the ram, all substantially as set forth.

5. The combination described of the brake-bars H, flanged posts, and inclined links I.



181,983.

181,984.

181,983. HAND-AUGERS. H. W. Pulse, Waldron, Ind. [Filed Mar. 27, 1876.]

Brief.—The auger-stem is split and is made expansible by a wedge-shaped expander with helm, through which a bolt passes and fastens it. The gimlet-point is extensible by a slot in its shank. The cylindrical retainer has its upper and lower edges made sharp to form cutting-edges. The spiral entering-blades are at their upper ends arranged partly within and partly without the retainer, and have their lower edges made converging.

1. The combination of split stem A A', gimlet-receiver C C', and attached spiral blades F F' with the slidable expander I I, upon the stem of the gimlet H.

2. The gimlet H, having the slotted shank O, and capable of being fixed at any desired projection by means of the bolts J J'.

3. The cylindrical retainer C C', having upper and lower cutting-edges c c', for the purpose set forth.

4. The spiral entering-blades F F', whose upper portions are partly within and partly without the retainer, and whose lower edges converge in the manner represented.

181,985. WATER-CLOSETS FOR VESSELS. David H. Mee, Lowell, and C. H. Sargent, Newburyport, Mass. [Filed May 22, 1876.]

Brief.—The contents are discharged below the water-line. The middle plunger may descend low enough to open the lower valve.

1. The valve H, combined with the arm F by the stem J and spring c, substantially as described.

2. The combination of the lever E, link D, arm F, and valve H, substantially as described.

3. The combination of the arm F and plunger K, provided with the valve K', substantially as described.

4. The combination, with the plunger K, of the valve K', operated positively by the link G, which drives the plunger, substantially as described.

5. The combination of the valve H, made to close before the upward stroke of the plunger is completed, with the latter, substantially as described.

6. The combination of the bowl A, the plunger K, provided with the valve K', and the valve M, substantially as described.

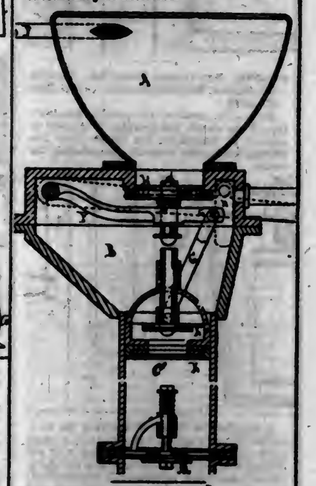
7. The combination, with the closet discharge-pipe O, discharging directly from the pan enclosed below the water-line, of the clean-water pipe H, carried inboard below the water-line, and emptying into the pipe O, between the pan and its discharge end, substantially as described.

8. In combination with the bowl A and discharge-pipe O, the enlarged connecting box or reservoir R, substantially as described.

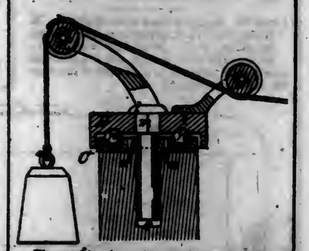
9. The combination of the discharge-pipe O, leading outboard below the water-line, of the valve M, opening downward and outward in such position that the rise and pitch of the vessel will operate it automatically, substantially as described.

10. The combination of the valve H, plunger K, and valve M, substantially as described.

11. The combination of the valve H and valve M, with the clean-water pipe H, discharging into the conduit between said valves, substantially as described.



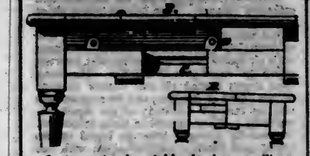
181,985. GATES. Joseph M. Richardson, Mentz, N. Y. [Filed Aug. 24, 1876.]



The combination, with a folding gate, of the lower journal-rest plate C, fastened to the gate-post, and the upper journal-plate D, carrying the pulley-arms and pivot-pin, said plates being respectively provided with corresponding circular grooves d d', to engage with the interposed anti-friction balls or wheels, substantially as specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO BOSTON

181,986. EXTENSION-TABLES. William S. Seaman and Abram D. Seaman, Milwaukee, Wis. [Filed Feb. 1, 1876.]

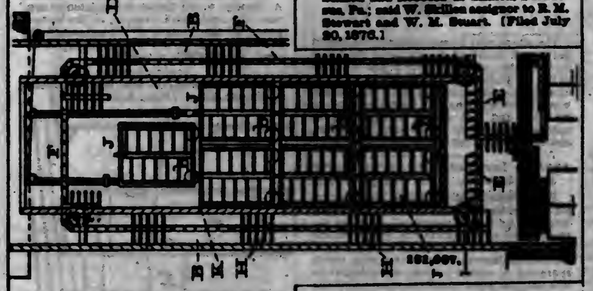


1. An extension-table having auxiliary leaves hinged together, and adapted to fold over and lie upon each other when the table is folded, said series of leaves being hinged to a leaf fastened to the extension slides, or to the table-frame, as and for the purpose set forth.

2. The slide E, connected to the bar G by hook D, in combination with the slides C and F, and the hinged leaves B, as and for the purpose set forth.

181,987. FRUIT-DRIERS. Jas. W. Seymour, Dover, Del. [Filed Mar. 2, 1876.]

Brief.—The parts K, which are forced into a perpendicular position by the upward movement of the car, afterward drop into a horizontal position, and form a track upon which it may be moved to the other end of the drier.



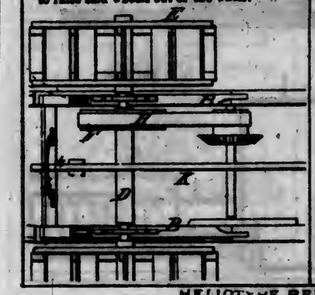
1. The slide-frame E, in combination with the carriers H suspended from the endless conveyer F, which passes successively through the said frame, in combination with the heated chamber D, and the shifting-cars J, successively from said chamber D, substantially as and for the purpose set forth.

2. The drying-chamber D, formed with folding supporting-rails K, and operating with the cars J, substantially as and for the purpose set forth.

3. The combination, with the cars J, of the self-engaging catches K of the hoisting-rope or chain, substantially as and for the purpose set forth.

181,988. FLOATING POWERS. J. L. Shipp, Clinton, Tenn. [Filed Aug. 5, 1876.]

Brief.—Two water-wheels journaled in a tilting frame, pivoted to the sides of a boat or floating dock, in combination with a rotating shaft and drum, or pulley and power-transmitting belt, and with a lever which operates to raise said wheels out of the water.



181,989. DOUCHE-RAISING APPARATUS. W. Skillen and Robeson L. Skillen, Parkesburg, Pa.; said W. Skillen assignor to R. M. Stewart and W. M. Stuart. [Filed July 20, 1876.]



1. The combination of tilting frame B, carrying shaft D, drum F, and wheels B E, with combined J and shifting-lever K, substantially as and for the purpose set forth.

2. The combination of the lever K, having its fulcrum in combined J, hook M, pivoted frame B, with shaft D, and wheels B E, substantially as and for the purpose set forth.

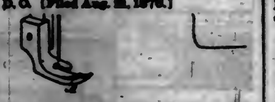
3. The combination of frame B with lever K and detachable connection L, substantially as and for the purpose set forth.

181,990. DOUCHE-RAISING APPARATUS. W. Skillen and Robeson L. Skillen, Parkesburg, Pa.; said W. Skillen assignor to R. M. Stewart and W. M. Stuart. [Filed July 20, 1876.]

...stop-screws *d*, substantially as and for the purposes set forth.

2. The guided stops *c'*, in combination with the holder H, with its gages *f*, substantially as and for the purposes described.

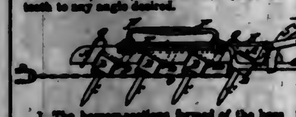
181,994. TREADLE-OUTSOLES FOR SEWING-MACHINES. John M. Stump, Washington, D. C. [Filed Aug. 28, 1876.]



The pressure-foot herein described, provided with the vertical thread-eater A, the same being attached on the left-hand side, and near the front end of the presser-foot, as shown and described.

181,995. HARROWS. James G. Stokesbery and J. H. Stokesbery, Millersburg, Iowa. [Filed July 12, 1876.]

Brief.—Bars combined with diagonal braces, the ends of which set as hinges. The teeth are set in a transverse bar, pivoted to a longitudinal bar, which, with a lever, adjusts the teeth to any angle desired.



1. The harrow-sections formed of the bars A, notched upon their lower sides, the hinged bars B, that receive the teeth C, the elbow-arms D, the connecting-bars E, and the diagonal brace-rods F, having eyes formed in their ends to receive the rods or bolts G, substantially as herein shown and described.

2. The combination of the lever H, the connecting-bars I, the elbow-arms J, the spring lever part K, and the notched bar L, with the projecting rear end of the bolt or rod G, and with the ends of the hinged bars B of two adjacent sections, substantially as herein shown and described.

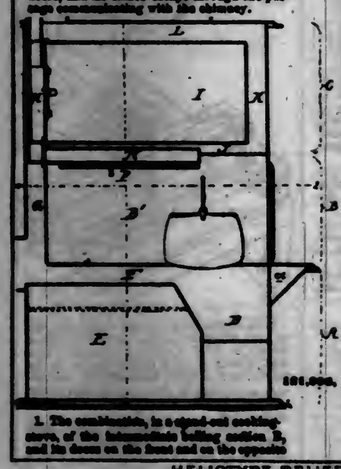
3. The combination of the bent arms M and the connecting-bar N with the ends of the hinged bars B of two adjacent sections, substantially as herein shown and described.

4. The combination of the draw-chains O with the middle parts of the hinged bars B of the sections, and with the draw-bar P, substantially as herein shown and described.

5. The combination of the runners Q with the notched bars A and transverse bars R of the sections, substantially as herein shown and described.

181,996. COOKING-STOVES. David Stuart, Philadelphia Pa., assignor to D. W. Stuart, same place. [Filed May 12, 1876.]

Brief.—The top plate is without bolts or holes. The boiling-chamber is entirely inclosed by doors, and all fumes escape through the passage communicating with the chimney.



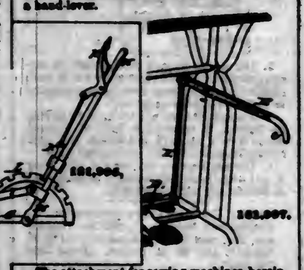
1. The combination, in a stand-out cooking-stove, of the intermediate boiling-section B, and its doors on the front and on the opposite sides, with the upper and lower sections O A, as and for...

2. The combination, in a cooking-stove, of the oven B, chamber B', and oven I, with the plates D, and flues F G J K L, and outlet, all arranged in respect to the ovens and boiling-chamber, as and for...

3. The combination of the boiling-chamber B', the passage E, communicating with the chimney and damper P.

181,997. OPERATING SEWING-MACHINES. Jeffery M. Switzler, Memphis, Tenn. [Filed May 9, 1876.]

Brief.—A short horizontal bar extends across the front of the pedals. The extremity of this is connected with a pitman worked by a hand-lever.



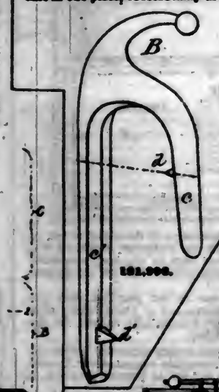
181,996.

181,997.

The attachment for sewing-machines, herein shown and described, consisting of the hand-lever E, the pitman or lever F, and the lever or bar D, adapted to be connected to the main-shaft, and connected with the pedals, whereby the machine may be run, by hand, or by hand and foot power, substantially as specified, the whole constructed, combined, and arranged, as set forth.

181,998. LINE-FASTENERS. A. C. Sweerds, Philadelphia, Pa. [Filed July 28, 1876.]

The bifurcated or U-shaped lever-clamp for clothes-lines, having the long and short branches *c f* turned downward, carrying upon the head a hook, B, turned upward in the plane of the branches, from the longer toward the shorter thereof, and provided with inside square *d d'* at unequal levels, and adapted to bite into the wood of a fence when under the strain of a clothes-line, all said parts being cast in one piece, substantially as specified.



181,999.

181,999. MANUFACTURE OF VINEGAR. A. M. Tolt, Jersey City, N. J., and G. A. Ford, Brooklyn, N. Y. [Filed Mar. 6, 1876.]

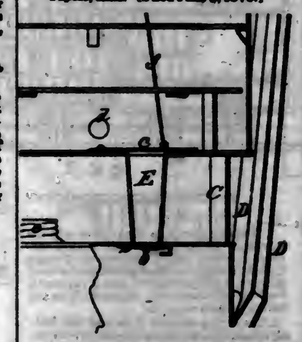
Brief.—Partially charges the acidifier with oxidized vinegar. Then passes into it air at about 120° Fahrenheit. Then allows liquid and air to pass into another in a regulated flow, and at same time causes communication of pump with the former, and communication of pump and upper part of acidifier. The pump then draws heated air and vapors through falling liquid of acidifier, and back again into and up through the body of the liquid alternately. When oxygen or air is exhausted, relieves it by nitrogen from the liquid in the heater, and charges acidifier again with hot air.

1. The process, herein described, of making vinegar by forming a current or currents of heated air through the liquid in a close acidifier or vessel, and causing or through the liquid being introduced thereto, and otherwise keeping up a constant circulation of said air within the close vessel and liquid, substantially as specified.

2. An apparatus for making vinegar by the introduction and circulation of heated air among or through the liquid to be converted, consisting of a heater, C, a close acidifier or vessel, A, a pump connecting the heater with the acidifier both above and below, subject to the control of stop-cocks or valves, and a charger, E, for supplying the liquid to the acidifier, essentially as described.

3. The combination, with the close acidifier A, through which the air is circulated to convert the liquid into vinegar, of the charge-pipe *r*, for the nitrogen of the exhausted air, and the charger E, into which said pipe is entered, substantially as specified.

182,000. WASH-BOILERS. Miles W. Tucker, Tupelo, Miss. [Filed June 8, 1876.]



A steam-washer having its clothes-tub arranged over the water-tank, and the air-space F between them, the supporters C and end spouts D leading from the water-tank to the clothes-tub, and the return pipe E passing through said air-space, and having valves 3 and 4, substantially as specified.

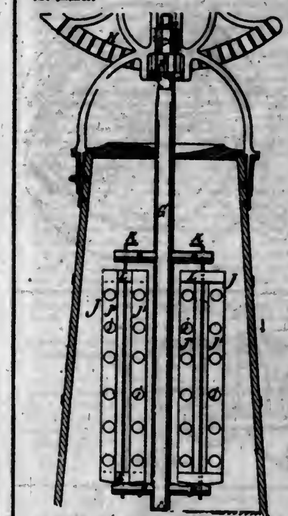
1. The combination, in a stand-out cooking-stove, of the intermediate boiling section B, and its doors on the front and on the opposite

181,999.

181,999.

182,001. CHURNS. Wm. M. K. Thornton, St. Louis, Mo. [Filed July 20, 1876.]

Brief.—A vertical dasher is reciprocally operated by a sector and pinion at top. It carries at opposite sides degree dashers, their blades perforated and at right angles to each other, so that the forming butter shall be detached from the blades at every reversal of the dasher.



1. The dasher J, constructed, as described, in angular form, and pivoted to the arm *g* of the vertical shaft G, which has a number of revolutions, alternately, in right and left directions, substantially as and for the purpose set forth.

2. The dasher J, constructed of the diverging and converging sides J' J', adapted to automatically turn upon rods K, in combination with the shaft G, substantially as and for the purpose described.

3. In a churn, the combination of the shaft G, provided with arms *g*, pivoted dashers J J, and segment H, substantially as and for the purpose described.

4. In a churn, the combination of the shaft G, arms *g*, and removable rods K, whereby the troughs J may be substituted by butter-gatherers M, and vice versa, substantially as and for the purposes set forth.

182,002. MANUFACTURING LEATHER TIPS FOR BOOTS AND SHOES. A. Van Wagenen, Boston, Mass. [Filed Aug. 8, 1876.]

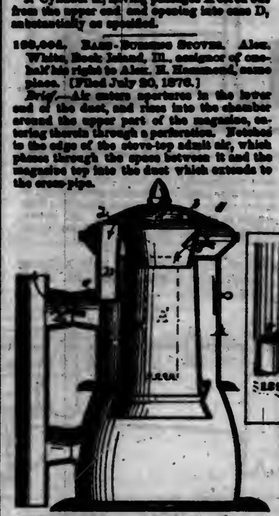


Solid Blank. Excavated Tip.

The process herein described of manufacturing leather tips for boots and shoes, consisting in first cutting the blank from a sheet of leather, then hardening and finishing its outer edge, and, lastly, excavating the top surface to leave the hardened protecting portion, substantially as and for the purpose described.



182,003. WATER-BUCKETS. George Wells, Montreal, Quebec, Canada, assignor to himself and C. H. Solomon & Co., same place. [Filed June 6, 1876.]



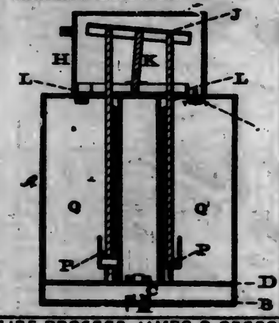
1. The chamber C and dust A', having apertures *a*, in combination with the magazine B, provided with inlet *b*, substantially as and for the purposes set forth.

2. The combination of dust D, situated within the body of the stove and in the upper part of the combustion-chamber about the fuel-reservoir, and having inlet *d*, with chamber or space F in the top of the stove, and exit-pipe E *e*, substantially as and for the purposes set forth.

3. The combination of space F, over the top of the fuel-magazine, and dust D, having inlet *d* and exit *e*, with chamber C around the upper end of the said magazine, perforations *f*, and dust A, having apertures *a*, substantially as and for the purposes set forth.

182,004. STEAM AND VACUUM PUMPS. Jas. D. Willoughby, Philadelphia, Pa. [Filed Feb. 8, 1876.]

Brief.—The steam-valve is operated by thermostats located in the work-chambers of the pump. A gradual vacuum is produced in the work chambers by having the injection-pipes to discharge near the upper end thereof, whereby the first particles of water discharged are warmed by steam remaining in said work-chambers after the water is expelled therefrom. The temperature of the water injected is gradually diminished as the steam is condensed and a vacuum formed.



1. In a steam-pump, a thermostat, in combination with the steam-valve, substantially as and for the purposes set forth.

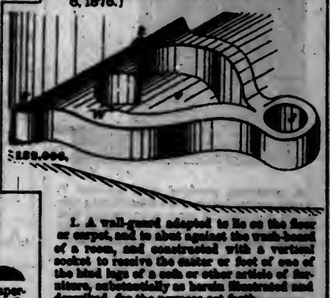
2. The rock-shaft J and steam-valve I, in combination with the rods F, which are in contact or connected at one end with the rock-shaft, passed into the work-chambers, and automatically operated at the other end in said chambers, by means substantially as described, and for the purposes set forth.

3. The water-pipes D' D'' D''', in combination with the stop-cocks *a a' a''*, and valves *b' b'' b'''*, and suction-pipe Y, substantially as described, and for the purposes set forth.

4. The injecting-pipes F, communicating with the work-chambers and the discharge-chamber, and combined therewith, substantially as and for the purposes set forth.

5. The combination of the work-chambers Q Q', and receiving or reservoir chamber S', and discharge-chamber S'', within the cylindrical shell A, substantially as described, and for the purposes set forth.

182,005. WALL-GUARDS FOR FURNITURE. O. A. Wilcox, Brooklyn, N. Y. [Filed Apr. 6, 1876.]



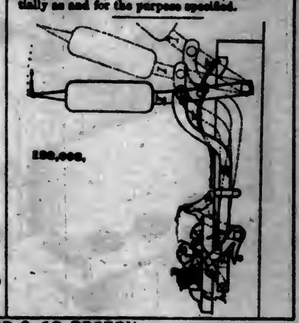
182,005.

1. A wall-guard adapted to lie on the floor or carpet, and to abut against the wash-board of a room, and constructed with a vertical socket to receive the caster or foot of one of the hind legs of a sofa or other article of furniture, substantially as herein illustrated and described, for the purposes set forth.

2. A wall-guard for furniture adapted to lie on the floor or carpet, and to abut against the wash-board of a room, and provided with a vertical socket, *i*, at its outer extremity and elastic pads *i' i'* at its rear edge, substantially as herein shown and described, for the purposes specified.

182,007. SAFETY-LOCKS FOR RAILROAD-SWITCHES. Aaron W. Willcox, Plymouth, N. Y. [Filed Aug. 4, 1876.]

In combination with the block D, fitted to the chair C, so as to lock the rail B in position, the latch E, pivoted upon said block and arranged to engage with said chair, substantially as and for the purpose specified.



182,006.

180,000. SAFETY-LOCKS FOR RAILROAD-SWITCHES. Aaron W. Wilson, Plymouth, N. Y. [Filed Aug. 4, 1876.]

1. In combination with the block D, fitted between the side of the rail B and the raised portion c of the chair C, the bar E, provided with the arm e, the bar G, the rod H, having the stud h, and the operating-lever I, said parts being constructed and arranged to operate in the manner and for the purpose substantially as specified.

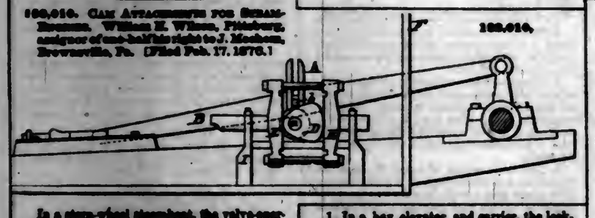
2. In combination with the operating-lever I, the spring-catch K, arranged in the manner and for the purpose substantially as shown.

180,001. RAIL-RIVET. George C. Wilson, Carrollton, Ill. [Filed June 16, 1876.]



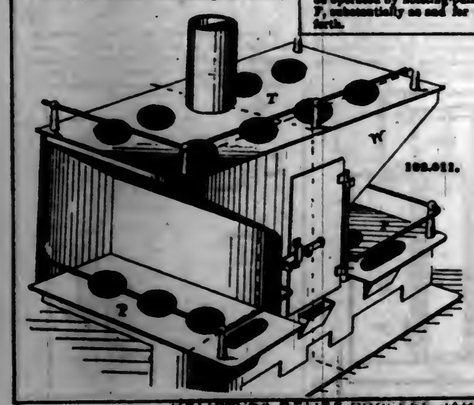
A melt-trap, provided with the door V, loosely pivoted between the cheeks U, and having its rear edge cut away, and provided with the ventilator W, all substantially as and for the uses and purposes shown and described.

180,010. GAS ATTACHMENTS FOR STEAM-BOILERS. William H. Wilson, Pittsburg, assignor of one-half his rights to J. Maclean, Brownsville, Pa. [Filed Feb. 17, 1876.]

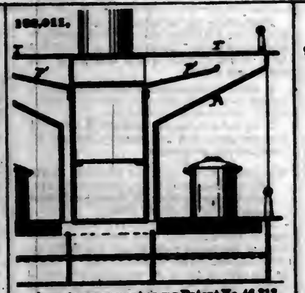


In a stern-wheel steamboat, the valve-operating gun D, located forward of the stern built-head F of the boat, and connected to the cross-shaft c, in combination with the valve-yoke E, pinion B having pin b, and the slotted arm A on the shaft c, all constructed substantially as and for the purposes herein set forth.

180,011. SHOE' GALLEYS. William Young, Washington, D. C. [Filed Aug. 22, 1876.]



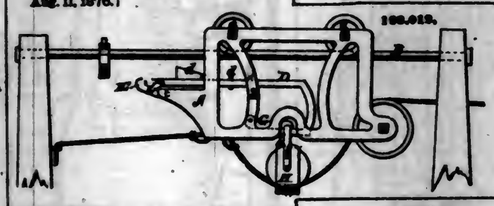
180,011.



180,012.

As an improvement on my Patent No. 46,313, for a ship's galley, the combination of the enlarged top plate T, deflecting-plates P P', inclined plates A A, and wing-plate W, all arranged in the manner described and shown, and operating as and for the purpose specified.

180,013. HAT-ELEVATORS. Robt. A. Young and William Cottrell, Indiana, Pa. [Filed Aug. 11, 1876.]

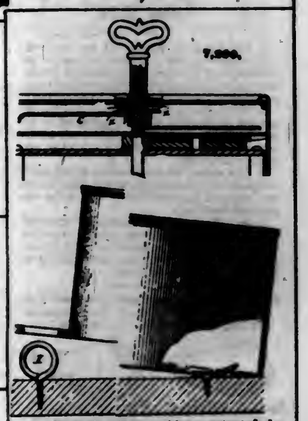


180,013.

1. In a hay elevator and carrier, the locking-bar D, having stud d, and constructed as shown and described, combined with trip G, and hinged and pivoted tongue B, to operate in frame A, substantially as set forth.

2. The combination of hoisting-pulley H h, with the trip G, and locking-bar D d, substantially as and for the purposes described.

3. The combination of carrier-frame A, having locking-bar D d, and trip G, adapted to be operated by hoisting-pulley H h, with stop F, substantially as and for the purposes set forth.



7,000.

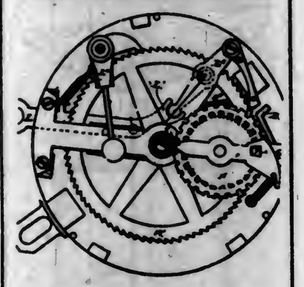
1. In registering-machines, actuated by pulls given upon a lever, the combination of two locket-fingers, one of which is carried by friction, and may be freely adjusted to any point on the dial, and the other of which is permanently fixed to and moves only with the driving mechanism, arranged to operate substantially as described.

2. The actuating-lever L and lever L', pawl A, and ratchet-wheel W, in combination with the stop-lock B, adapted to receive the end thrust of the pawl at each movement of the actuating-lever, whereby the ratchet-wheel is securely locked.

3. A cover-plate, provided with suitable apertures, mounted upon the same shaft and combined with a register-disk, in combination with a register-wheel, the actuating-lug of which moves simultaneously the cover-plate and the disk, to bring the proper number upon its dial in view, and to keep, at the same time, the next consecutive number on the disk obscured until it is time for the indicator to change, and show said next number at the completion of a century, or at any other point of general division.

REISSUES.

7,000. DUPLEX REGISTERING MECHANISM. Hamilton B. Towle and John B. Benton, New York, N. Y.; said Benton assignor to said Towle. Patent No. 102,727, dated Apr. 27, 1870. [Filed Aug. 23, 1876.]



4. The disk c, carrying the index-hand C, in combination with the key V, inserted through the opening in the cover-plate.

5. The combination of a primary and a secondary register or indicator in the same apparatus, the secondary indicator registering any part of the total of a series of movements, and being capable of being set to zero at pleasure, while the primary indicator remains unchanged by such setting of the secondary register to zero, and will continue to register and indicate the total, substantially as and for the purpose described.

6. The means, substantially as shown and described, for attaching an instrument to and releasing the same from the place where used, said means being the inclined hook or horn and the parts bearing upon the same, and a confining wedge or lock.

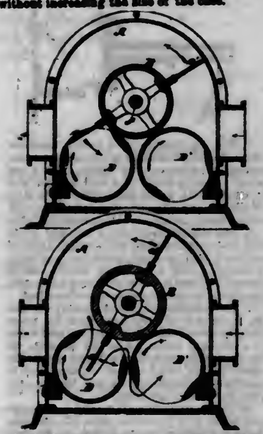
7. A duplex registering-machine, in which two registers indicate at the same time every registering motion given, by means of the actuating lever or handle to one of them.

8. An unalterable register acting simultaneously with another register combined therewith, the said other register being adjustable by means of a knob or key, by which it may be set to any desired indications, substantially as explained.

9. Two registers or indicators in the same apparatus, so arranged and co-operating that one of them serves to check any attempt to make fraudulent indications on the other, substantially as described, for the purpose set forth.

7,001. BLOWING-MACHINES. John G. Baker, Philadelphia, Pa. Patent No. 145,862, dated Dec. 9, 1873. [Filed Aug. 12, 1876.]

Brief.—The revolving slotted cylinders act as cut-offs, and revolve at double the speed of the vaned cylinder. The vanes extend to or beyond the centers of the slotted cylinders, to increase the blowing capacity of the machine without increasing the size of the case.



1. A blower in which are combined, within a chest, A, a cylinder, B, its vanes a a', and the slotted cylinders D and D', all substantially as described.

2. The combination, in a blowing-machine, of a revolving cylinder, to which vanes are secured, with a recessed or slotted revolving cylinder, to or beyond the center of which the said vanes extend as the machine operates, for the purpose specified.

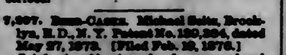
7,002. ADVERTISING DEVICES. Henry H. Browne, Brooklyn, N. Y. Patent No. 73,023, dated June 16, 1868. [Filed Aug. 8, 1876.]



1. As a new article of manufacture, an advertising card and a mirror combined and connected together by means of a rim, c, substantially in the manner shown and described.

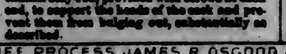
2. The rim c, provided with holes for the reception of pins, in combination with a mirror, a, and advertising-card b, substantially as set forth.

7,003. TESSELLATED FLOORS. Samuel P. Grocock, New York, N. Y. Patent No. 170,141, dated May 30, 1876. [Filed Aug. 28, 1876.]



The composite block or section A, for marquetry-flooring, formed of pieces b, arranged in a suitable design or pattern, and the asphaltic backing B, the same being connected as shown and described.

7,004. TESSELLATED FLOORS. Samuel P. Grocock, New York, N. Y. Patent No. 170,141, dated May 30, 1876. [Filed Aug. 28, 1876.]



The composite block A for marquetry-flooring, formed of pieces arranged in a suitable design or pattern, and connected by strips e inserted in grooves formed in the under side thereof, as shown and described.

7,005. PAPER BOXES. David E. Osborne, Baltimore, Md. Patent No. 170,630, dated Nov. 30, 1876. [Filed June 28, 1876.]

1. A paper-box blank, consisting of the edge-flapped back and front A and B, the latter having the cut c', the rectangular connecting part B', and suspensory-extension A', substantially as shown and described.

2. A paper-box provided with the extended back A A' and bottom-stiffening block C, as and for the purposes described.

3. As a new article of manufacture, a top-flap-closing paper-box, having the suspensory-perforation f, the cut c', and the rectangular triangular bottom-stiffening block C, as described.

7,006. PIANO-FORTES. Geo. J. Popplein, Baltimore, Md., assignor, by mesne assignments, to the Poppleins Improved Phosphate Fertilizing Company, same place. Patent No. 140,944, dated Mar. 21, 1874. [Filed Aug. 7, 1876.]

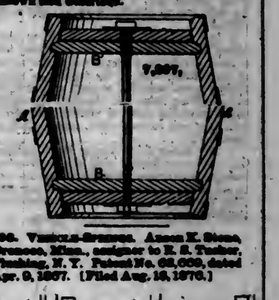
1. A fertilizer containing tripoli or diatomaceous silica.

2. A fertilizer consisting of tripoli and phosphate of lime, both minutely subdivided and intimately mixed, as and for the purpose described.

7,007. BURN-GUARDS. Michael Stein, Brooklyn, E. D., N. Y. Patent No. 180,204, dated May 27, 1873. [Filed Feb. 10, 1876.]

Brief.—A rod having a head on one end and a nut on the other, and screw-threads of the same pitch, and running in the same direction on both ends, passes longitudinally through the cask, for strengthening the heads of the same.

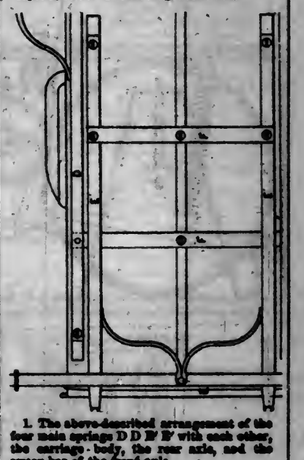
1. In combination with a beer-cask, a longitudinal stay-rod, provided with screws at each end, to support the heads of the cask and prevent them from bulging out, substantially as described.



7,007.

2. The combination of the stay-rod, having a head upon one end and a nut upon the other end, and screw-threads of the same pitch, and running in the same direction upon both ends with the heads of the cask A B, substantially as shown and described.

7,008. VEHICLE-SPRINGS. Aaron K. Stone, Oronoco, Minn., assignor to E. S. Tucker, Flushing, N. Y. Patent No. 63,000, dated Apr. 9, 1867. [Filed Aug. 16, 1876.]



1. The above-described arrangement of the four main springs D D F F with each other, the carriage-body, the rear axle, and the sweep-bar of the front axle.

2. The auxiliary or transverse springs F F, interposed between the carriage-body and the side bars or springs D D or F F, substantially as described.

7,009. TIMER-RECORDER. R. B. Brown, Chicago, Ill., assignor, by mesne assignments, to Edwin Chesterman, Philadelphia, Pa., and S. McHenry, Woodbury, N. J. Patent No. 94,089, dated Apr. 15, 1862. [Filed Aug. 29, 1876.]

1. In a portable fare-register, the combination of an indexed registering or counting train, an indexed indicator or alarm, and a primary receiver, whereby, at one and the same register, on the receipt of each fare a deposit is made directly in the receiver, a numerical registration made, and an alarm operated, substantially as set forth, and for the purpose described.

2. In a portable fare-register, the combination of a receiver provided with an orifice opened for and during the receipt of each fare, and closed at other times, with a registering-train simultaneously operated by the same actuating handle or rod, substantially as and for the purpose described.

3. In a portable fare-receiver, the combination of a receiver provided with an orifice opened for and during the receipt of each fare, and closed at other times, with an alarm simultaneously operated by the same actuating handle or rod, substantially as and for the purpose described.

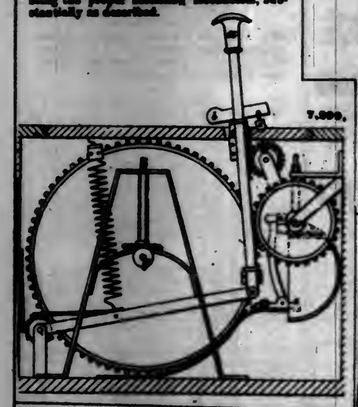
4. In combination with portable and indexed registering and alarm mechanism, actuated by a single handle, a receiver separated therefrom by a diaphragm or partition, in which tickets or tally-pieces are deposited, and registration and alarm effected by one operation of said handle, substantially as described.

5. In a portable fire-register, the combination, of an extending-arm, pivoted on the axis of the ratchet of the recording or counting mechanism, a spring feeding-pawl attached to said arm, and receiving therefrom its extending motion, and a retentive spring restoring said arm to position, substantially as described.

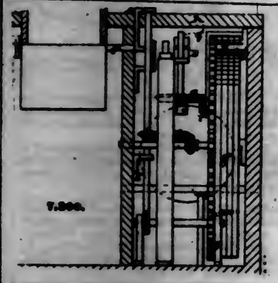
6. In a fire-register having an alarm mechanism, the combination of an actuating arm or lever pivoted to a center within the radius of the ratchet-wheel of the register, a spring feeding-pawl attached to said arm or lever, and receiving therefrom its extending motion, and a retaining-pawl to prevent retrograde motion of said ratchet-wheel, substantially as described.

7. In a fire-register having alarm mechanism, the combination, with the registering-train, of mechanism whereby the register may be set to any required position without operating the proper actuating mechanism, substantially as described.

7,899.



7,900.



7,900. TICKET-REGISTER. R. B. Brown, Chicago, Ill., assignor, by mesne assignments, to Edwin Chesterman, Philadelphia, Pa., and E. McCleary, Woodbury, N. J. Patent No. 94,899, dated Apr. 10, 1869. [Filed Aug. 28, 1876.]

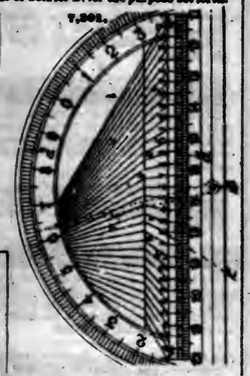
1. In a portable fire-register, having alarm mechanism, the registering-train placed between the point of extraction and the point at which the feeding-pawl engages with the ratchet-wheel of the register, substantially as and for the purpose described.

2. In a fire-register, the combination of a register and alarm with a bracket, by means of a ratchet-wheel or driving-pawl, *b*, retaining-pawl *c*, and the alarm-pawl *g*, substantially as described.

3. In a fire-register having alarm mechanism, the combination, with the extracting-handle, of devices, whereby the indication of the instrument is prevented at the will of the conductor, substantially as and for the purpose described.

7,901. GAS LIGHT AND FUEL COMPANY INSTRUMENT. W. W. Gerhard, Philadelphia, Pa. Patent No. 103,020, dated Apr. 26, 1870; reissue No. 6,004, dated Jan. 30, 1872. [Filed June 26, 1876.]

7,902.

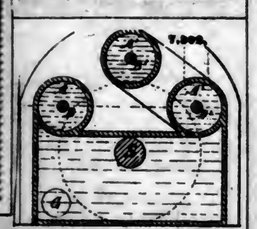


7,902. STEAM-ENGINE INDICATOR. Samuel D. Lowell, Chattanooga, Tenn., assignor of one-half thereof to D. A. Roberts, Rathbone, and S. P. Wells, Parkersburg, W. Va. Patent No. 92,021, dated July 13, 1869. [Filed Aug. 28, 1876.]

1. The combination, with a jet-photometer, of a candle-power scale, substantially as and for the purposes hereinbefore set forth.

2. The combination in a jet-photometer, substantially as described, of the candle-power scale *c'* and the horizontal pressure-scale C with the arched pressure-scale *c'*, and the index or pointer B, for the purpose set forth.

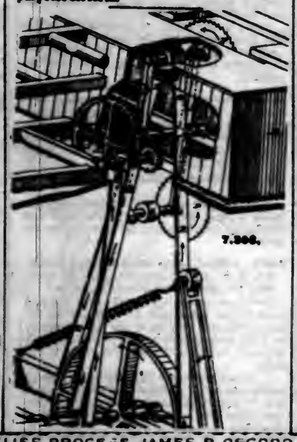
7,903.



7,903. PUMPS FOR CONTINUOUS DISCHARGE. Samuel D. Lowell, Chattanooga, Tenn., assignor of one-half thereof to D. A. Roberts, Rathbone, and S. P. Wells, Parkersburg, W. Va. Patent No. 92,021, dated July 13, 1869. [Filed Aug. 28, 1876.]

A pump consisting of three or more barrels or cylinders, connected by passages which afford a continuous water-way through all of the cylinders, in combination, substantially as herein described, with a piston in each cylinder, provided with a valve or valves which open on the side thereof farthest from the induction-passage of the cylinder, and mechanism for imparting to each piston a reciprocating movement, substantially as and for the purposes set forth.

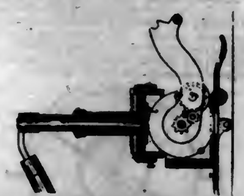
7,904.



7,904. GLOVE-CUTTING MACHINES. Alban Warth, Stapleton, N. Y. Patent No. 180,944, dated Aug. 6, 1872. [Filed July 10, 1876.]

Brief.—The arm transmitting motion to the cutter has three motions, longitudinal, a swinging vertical, and a rotating. The handle above may be so set as to stand either in advance of or on out and the same side of the knife and driving-gear. The said gear is made in sections adjustable to different sized cutters. The standard follows the path of the cut and wedges it open. The cutter is set so that its vertical diameter coincides with the axis of motion of the driving-gear and the swiveling standard. A sharpening device attached to the side of the feed-gear keeps the cutter sharp, and presents a constantly-changing face to the cutter by revolving with said gear.

7,905.



7,905. SEWING-MACHINES. Geo. T. Biddle, St. Louis, Mo. Patent No. 149,060, dated Sept. 26, 1873. [Filed May 20, 1876.]

Brief.—The moves are hung upon opposite ends of revolving moves. They are then brought alternately in contact with the material to be cut.

1. One or more circular moves, P, supported with their driving arbor or arbors O at a distance from a central shaft, L, rotating continuously to bring the saw or saws to their work, substantially as set forth.

2. In combination with the saw-driving pulleys S S and belt R, the idler T, insuring the constant rotation of the pulleys and retention on said pulleys of the belt in all positions of the frame M M, substantially as set forth.

7,906.

7,906. PUMP. Alfred Wood, Philadelphia, Pa. Patent No. 180,945, dated Aug. 8, 1876. [Filed July 10, 1876.]

Brief.—The combination, with the cylinder, of a valve-seat, a valve, and a valve-guard, substantially as and for the purpose set forth.

7,907.

7,907. CUTTING-MACHINES. Alfred Wood, Philadelphia, Pa. Patent No. 180,946, dated Aug. 8, 1876. [Filed July 10, 1876.]

Brief.—The combination, with the cutter-head, of a knife and a throat-plate containing a knife-receiving socket, with a rod which is free to swing in a vertical, and also in a horizontal, plane, and with a table, over which the cutting mechanism is to be moved, substantially as and for the purpose set forth.

2. The combination, with a rotating knife, and with a throat-plate containing a knife-receiving socket, of a rod, which has a sliding, a swinging, and a revolving motion, and is geared together with the revolving knife, substantially as and for the purpose described.

3. The combination, with a rotating traversing knife, and with the mechanism for transmitting motion to, and for guiding, said knife, of a standard which forms the bearings for the shaft of the rotating knife, and also for the shaft through which motion is transmitted to said knife, substantially as and for the purpose shown and described.

4. The combination of a sectional double cog-wheel with the throat-plate, the rotating knife, and the mechanism for transmitting motion to, and for guiding, said knife, substantially as and for the purpose set forth.

5. The combination, with the rotating knife, the throat-plate, and the mechanism for transmitting motion to, and for guiding, said knife, of an automatic feed-receiving motion from the spindle of the rotating knife, substantially as and for the purpose shown and described.

6. The combination, with the rotating knife, and with the mechanism for imparting motion to, and for guiding, the same, of a sharpening device mounted on an arbor, which is geared together with said knife, substantially as and for the purpose set forth.

7. The combination, with the rotating knife, of a standard, which projects beyond both sides of said knife, and which follows in the cut opened by the same, so as to spread the cut-material and prevent it from crowding against the sides of the knife, substantially as shown and described.

8. The combination, with the shaft which carries the rotating knife, and with the wheel which imparts motion to said knife-shaft, of a handle, disengaged in advance, or on one end the same side of, between knife and the wheel, substantially as and for the purpose set forth.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

OFFICIAL GAZETTE

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per copy, or, where twenty or more copies are ordered at one time, at 10 cents per copy.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior Mountings and Fittings.
Carriages and Wagons.	Sewing-machines.
Cloth.	Ships, construction.
Cordage.	Ships, propulsion.
Crinoline and Corsets.	Signals.
Driers and Kilns.	Silk.
Electricity.	Spinning.
Felting and Hats.	Stationery.
Fire-arms.	Stoves and Furnaces.
Harvesters.	Thrashing.
Knitting and Netting.	Umbrellas and Fans.
Lamps and Gas-fitting.	Weaving.
Mills.	
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

COMMISSIONER'S DECISIONS.

JOHN GILLIES.—*Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of John Gillies for* "IMPROVEMENT IN STEAM SLIDE-VALVES," *filed May* 13, 1876.—*Decided September* 4, 1876.]

Improvements made in separate parts of an entire organization, and not co-operating so as to produce a new combination, should not be allowed in one application, especially where the classification of the Office and the practice of applicants in presenting their cases recognize the several improvements as constituting separate inventions.

[*D. P. Holloway*, for appellant.]

DUELL, *Commissioner:*

After a full and complete examination of the alleged invention, in this case, I have come to the conclusion that the action of the Examiner in requiring a division is well founded.

Slide-valves with cut-off attachments are old, a fact which applicant recognizes in his specification. His improvements, then, do not relate to an entirely new organism, but refer to separate and distinct parts thereof.

There is no new combination between the cut-off itself and the mechanism whereby it is operated. It

would seem that the slide-valve is adapted to be operated by any of the numerous devices employed for giving motion to valves designed for the same purpose, but of a different construction; and the same may be said of the mechanism for operating the cut-off which would perform the same functions as it does in the present case, irrespective of the particular form of valve employed.

The distinction between improvements in the mechanism for operating cut-offs and the valves themselves has been recognized by the Office in its classification, and is evidenced by the nature of the improvements as presented by inventors in their applications, which are usually confined to one or the other of these subjects.

The present case seems to be of substantially the same character as that referred to by the Examiner in support of his action, (G. E. Tower, C. D., vol. 15, p. 240,) and as was said in that case—

While the Office would not willingly, on the one hand, impose any increased burden on an applicant, it must, on the other, classify and keep clear the records of the Office, and recognise therein the distinct classes of invention as they grow and expand.

In the present instance the distinction seems to be clearly pointed out both by the nature of the invention and by the classification of the Office, which assigns to different subdivisions the mechanism for operating the valve and the structure of the valve itself.

The decision of the Examiner is affirmed.

OLIVER *vs.* ZELLER.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of James Oliver, filed August 11, 1875, and the patent of John P. Zeller, May 18, 1875, filed January 20, 1875, for* "IMPROVEMENT IN PLOWS."—*Decided August 19, 1876.*]

It is contrary to the policy and intent of the rules of practice to allow the amendment of a preliminary statement in respect to essential matter, after testimony has been taken, or after they have been opened to the inspection of the respective parties.

But little weight can be given to the theory advanced by one of the parties, that he communicated a knowledge of the invention to his opponent, where it appears that he is without definite knowledge of his own efforts toward making the invention until he has learned his opponent's case.

[*Leggett & Leggett*, attorneys for Oliver.
Alexander & Mason, attorneys for Zeller.]

DOOLITTLE, *Acting Commissioner:*

The subject-matter involved is contained in the claim of the patentee, Zeller, and is as follows:

In a plow, the combination of the plow-point D, provided with lug b, and the colter E, provided with the wing G, the point and colter being constructed, as described, of separate pieces, and detachable independently of each other, substantially as herein set forth.

Zeller filed his application January 20, 1875, and the patent was granted May 18, 1875. Oliver filed his application August 11, 1875.

Sometime after the preliminary statements were filed and opened to the inspection of the respective parties, Oliver gave notice that he should move to amend his preliminary statement, and also to be allowed to introduce the testimony which he was about to take under the proposed amendment. He accordingly took the depositions of several witnesses upon his amended statement previous to the day of hearing his motion to amend.

The motion to amend was allowed by the Examiner of Interferences. Then Zeller came forward, after he had taken testimony, and moved to amend his preliminary statement. This was denied; but in denying it, Acting Commissioner Spear held as follows:

There is no precedent for amending a preliminary statement after the testimony has been taken, and such precedent would be mischievous. If any error has been made in admitting Oliver's amended statement that must be corrected at the hearing on the merits. The Office has ample authority to do Zeller justice without attempting to modify his preliminary statement now.

There appears to me no good reason for allowing the amendment of the preliminary statement in the one case and not in the other. In the late case of *Guest* vs. *Finch*, (10 OFFICIAL GAZETTE, 165,) it was held that it is quite apparent that to allow amendments of preliminary statements in respect to essential matters after testimony has been taken, or after each has learned the other's dates, would be to destroy their value altogether.

The inclination that parties would have to make up new cases for themselves, after learning the date of an opponent's invention, is sufficiently indicated, I think, in the affidavit of one of the parties adduced in support of Oliver's motion to amend his statement. He says:

I assisted Mr. Oliver in preparing his original preliminary statement. Mr. Oliver had great difficulty in fixing the exact date of his invention. I know that Mr. Oliver kept no memorandum of his invention at that time, and that he was constantly engaged in devising and suggesting various improvements in plows and machinery in process connected with their manufacture.

In talking the matter over, recalling conversations between ourselves and comparing them and linking them with other matters of a different nature, he finally concluded that the date set up in the original statement generally correct, though we were neither of us well satisfied as to its being correct, but deemed it probable from the date which we followed.

He then proceeds to say that afterward (having in the meantime seen Zeller's statement) they found that their previous efforts made with such care to ascertain the date of Oliver's invention, were entirely wrong by at least eleven months. This is not only a suspicious circumstance, but would be ordinarily indicative of an attempt to manufacture a case.

The latter impression has not been entirely removed by the fact that Oliver's witness subsequently testified from written memorandum prepared by his attorneys.

I do not mean to assert that Oliver was guilty of irregularity in the conduct of his case, a conviction which might arise upon the circumstances above stated; but I merely cite them as showing that the practice of amending preliminary statements at a late date in essential matters, or a departure in the proof from the essential matters given in preliminary statements, necessarily gives rise to grave suspicions as to the integrity of the parties engaged in it.

For the above reasons, and in view of the fact that the parties were notified that the matter of thus amending the preliminary statement of Oliver could be corrected at the final hearing, I have decided to disregard the amended statement of the latter, and confine him in his proof to the original statement.

In that statement he alleges that he first conceived the idea of making a plow-point in two pieces about three months after the granting of Patent No. 144,795, dated November 18, 1873. The proof shows that at that time he had not reduced the invention now in controversy to any tangible shape whatever. And one witness in behalf of Zeller testifies, that in June or July, after Zeller's patent was granted, he had a conversation with Oliver, in which he (Oliver) asked his opinion of Zeller's plow-point, referring to the matter in controversy, and expressing his own opinion that it would meet with approval, and that Oliver then made no claim to the device.

There is no evidence showing that Oliver had more than a bare conception of this invention prior to the filing of his application for a patent.

If the question of originality between the parties did not arise, Oliver would certainly be regarded as having failed to overcome even the *prima facie* case made by Zeller upon the record.

Zeller, in the latter part of 1872, was a pattern-maker in Oliver's employ, and it is alleged by Oliver, that while so engaged, he imparted to Zeller the knowledge of the device in controversy. This Zeller denies, and he produces witnesses who swear that they saw a model in his possession on the 1st of January, 1873, at his home representing this invention, which Zeller told them he made, and which he was striving to keep secret.

In his direct testimony, Oliver does not mention any circumstances, or any particular time, when he communicated the knowledge of this invention to Zeller; but states simply that he thinks he must have done so, as Zeller was his pattern-maker, and he was in the habit of imparting to him all of his plans in the construction of plows.

After Zeller takes the stand, and relates how he came to conceive of this invention, at a certain time when Oliver and himself was at work upon a plow, made after the style of Oliver's patented one, and when the colter was broken into two pieces, &c., Oliver's memory is refreshed, and in his rebutting testimony he admits that Zeller's testimony brought the whole thing fresh to his mind.

It is this absence of knowledge on the part of Oliver, all the way through, from the time of making his original preliminary statement up to the time of the close of his testimony, of all efforts on his part toward making the invention, until after that knowledge was imparted to him by his opponent, that leads me to give but little weight to the theory that Oliver communicated the invention to Zeller; but gives rise to the conviction, which the testimony strengthens, that the reverse of this is the case, and that Zeller was first to conceive, and first to impart to others, at least to Oliver, the knowledge of this invention.

There is but one other party besides Oliver who alleges that the invention was talked over by Oliver in the presence of Zeller in March, 1873. But we must throw out of the case entirely the testimony of three or four witnesses in Zeller's behalf, if we refuse to credit him with having a completed model of this invention on January 1, 1873. These witnesses are not impeached in the regular way of impeaching witnesses, by showing that they are unworthy of belief in the neighborhood in which they lived, but by an examination into their power of recalling other dates, other than January 1, 1873. The two circumstances combined, that the day mentioned was a holiday, and that for the first time they then saw the model of a new plow, an article with which some of them were well acquainted, has sufficiently convinced me that the event could have been easily impressed upon their minds, while at the same time they might have forgotten all events transpiring on subsequent holidays, or some other particular occasions, and that, too, without impairing substantially their standing as credible witnesses.

The testimony adduced on the part of Oliver, perhaps, shows that Zeller, at all times, has not acted above suspicion, and has been cognizant of if not participant in some dishonorable matters. But still I see no reason why the evidence of such transactions should destroy his whole case. There is nothing to convince me in the record that a conspiracy has been entered into by him and his witnesses in the matter.

After a careful review of all the testimony and circumstances in the case, and in view of the limitation prescribed as to the preliminary statements, I am convinced that Zeller was the first and original inventor of this device.

The decision of the Board of Examiners-in-Chief awarding priority to Zeller is hereby affirmed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

BROWN & SEAVEY, APPELLANTS, *vs.* ENOCH PIPER.

[*In the matter of the appeal from the Circuit Court of the United States for the District of Massachusetts.—Decided October*, 1875.]

The claim to "preserving fish or other articles in a close chamber by means of a freezing-mixture, having no contact with the atmosphere of the preserving-chamber, substantially as set forth" when taken in connection with explanations contained in the specification, construed to be for the application to articles to be preserved of the degree of cold necessary to preserve them, by means of a "close chamber," in which they are to be placed, and "a freezing-mixture, having no communication with the atmosphere of the preserving-chamber."

Such claim is infringed by any one who produces this result by the means designated, in any way substantially the same with that described, having the feature of the non-contact of the freezing-mixture with the air of the preserving-chamber.

The invention is anticipated by the patent granted to John Good for a corpse-preserver.

The application of an old process to a new subject without any exercise of the inventive faculty, and without the development of any idea which can be deemed new or original in the sense of the patent law, is not patentable.

Evidence of the state of the art is admissible in actions at law under the general issue without special notice, and in equity cases without any averment in the answer touching the subject.

It consists of proof of what was old and in general use at the time of the alleged invention, and is received for three purposes and none other: to show what was then old, to distinguish what was new, and to aid the court in the construction of the patent.

The various matters of which judicial notice will be taken, enumerated.

The judge may resort to any means for refreshing his memory respecting matters generally known within the jurisdiction of the court, which he may deem safe and proper.

Care must be taken that the requisite notoriety exists. Doubts on the subject should be resolved in the negative.

Ice-cream freezers are things of public notoriety, and though not mentioned in the pleadings or proofs, the court can take judicial notice of the fact, and give it the same effect as if it had been set up as a defense.

The invention claimed is anticipated by the ice-cream freezer.

Mr. Justice SWAYNE delivered the opinion of the Court.

The bill is founded upon two patents granted by the United States to the appellee, one numbered 732, of the 19th of March, 1861, the other numbered 36,107, and

dated August 5, 1862. The second and later patent was not relied upon in the argument here, and may, therefore, be laid out of view. Our attention will be confined to the prior one. It is declared in the specification to be "for a new and improved method of preserving fish and meats." The invention is alleged to consist—

in a method of preserving fish and other articles in a chamber, and cooling the latter by means of a freezing-mixture, so applied that no communication shall exist between the interior of the preserving-chamber and that of the vessels in which the freezing-mixture is placed.

The specification continues—

I do not profess to have invented the means of artificial congelation, nor to have discovered the fact that no decay takes place in animal substances so long as they are kept a few degrees below the freezing-point of water; but the practical application of them to the art of preserving fish and meats, as above described, is a new and very valuable improvement. The apparatus for freezing fish and keeping them in a frozen state may be constructed in various ways, and of different shapes. The apparatus shown in the drawing, however, will suffice to illustrate the principle and mode of operation.

The process and apparatus are then described as follows: A box of wood or other suitable material, surrounded by a packing of charcoal or other non-conducting substance, is to be provided, and the fish in small quantities laid in it on a rack. Metallic pans filled with a freezing-mixture, such as salt and ice, are then to be set over them, and a cover shut over the pans.

In about twenty-four hours, the freezing-mixture having been changed once in twelve hours, the fish will be frozen completely through.

After being frozen the fish or meat may, if desired, be covered with a thin coating of ice, and this coating may be preserved by applying the substances named, which will exclude the air and prevent the juices from escaping by evaporation.

The fish are then *to be packed closely* in a large preserving-box, which is inclosed in a still larger box, the space between the boxes being filled with charcoal or other non-conducting material, to exclude the heat.

Other minor details are described, which it is not deemed material to repeat. The patentee then declares—

I do not desire to be understood as confining myself to the specific apparatus above described, nor to the use of either or both the preliminary processes of freezing and cooling; but I have described the mode of operation, which, by experience, I have found best for preserving the most delicate varieties of fish.

The summation and claim are—

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is *preserving fish or other articles in a close chamber by means of a freezing-mixture, having no contact with the atmosphere of the preserving-chamber, substantially as set forth.*

The patent is not for the principle, long and well known to physicists, that a low degree of cold like a high degree of heat, prevents the decay of animal matter, nor is it for the freezing of the articles to be preserved before or after they are placed in the preserving-chamber, nor is it for applying, by means of an apparatus with any particular details of construction, cold to the articles to be preserved, nor is it for the frigorific effect of the freezing-mixture upon the atmosphere of the inner chamber, but it is for the application to such articles of the degree of cold necessary to preserve them by means of a "close chamber," in which they are to be placed, and "a freezing-mixture having no communication with the atmosphere of the preserving-chamber."

If this result be reached by the means designated, in any way substantially the same with that described, having the feature of the non-contact of the freezing-mixture with the air of the preserving-chamber, there is a clear invasion of the territory which the patentee has marked out and seeks to appropriate to himself.

It was earnestly maintained by the learned counsel for the appellee that the essence of the invention is the creation of "a freezing atmosphere" in the preserving-chamber.

To this there are several answers. There is nothing in the specification or claim to warrant the proposition. The direction is that "the fish are to be packed closely." This implies clearly that as many fish are to be put into the preserving-chamber as it can be made to contain.

Atmospheric air is itself an agent of decay, and in all such cases it is important to preclude, as far as possible, its presence and contact.

If air be absolutely excluded, putrefaction ceases, and the result is the preservation of the substance in some circumstances, perhaps in all. (3 Ure's Dic. of Arts, 548.)

On this principle is founded Appert's process, by which easily-decomposible articles of food and drink, such as meat, fish, vegetables, milk, &c., are preserved for years, viz., by packing them in air-tight bottles or soldered tin cans, heating the vessels for several hours in boiling water, and keeping them carefully closed. (2 Watts Dic. of Chem., 625.) The patentee is to be presumed to have known this property of air.

The patent is for "a new and useful improvement" in the art to which it relates. It was issued under the act of July 4, 1836. The rights of the parties are to be considered in the light of that act. The defense relied upon in the answer is the want of novelty, and several instances of prior use and knowledge, with the requisite circumstances of time, place, and persons are alleged.

We deem it sufficient to consider one of them. On the 17th of August, 1842, a patent was issued to John Good "for a corpse-preserver." The apparatus, as described, was an outer case with a close-fitting lid. The case was made double, there being a partition to within four or five inches, more or less, of the top of the outer one, leaving a space between the two of several inches, which was to be filled with ice. There was a false bottom with holes in it in the inner compartment. It rested upon ledges, which kept it four or five inches above the bottom. The intervening space was a receptacle for ice. The corpse was deposited upon the false bottom, a tray was placed over it and under the lid, the tray was four or five inches deep, used to contain the freezing-mixture, and had a flange to prevent the mixture from escaping. Proper outlets were provided for the passage of the water from the melting ice. There was no communication between the tray containing the freezing-mixture and the inner compartment containing the body. Swarts, an intelligent and unimpeached witness, was examined on the 15th of October, 1869. He testified that he was an undertaker, and had used the apparatus for about twenty years, sometimes with ice under the false bottom, and sometimes without it. In either case he applied a sufficient degree of cold to prevent putrefaction before interment. He thought the bodies were sometimes frozen, but was not certain. The material point in his business was the prevention of decay for the time being, and that was always accomplished.

Here was the application of the requisite degree of cold exactly in the manner called for in the specification of the appellee.

This is hardly denied; but it is insisted that the process was never applied by the witness to the preservation of fish and meats.

The answer is, that this was simply the application by the patentee of an old process to a new subject, without any exercise of the inventive faculty, and without the development of any idea which can be deemed new or original in the sense of the patent law. The thing was within the circle of what was well known before, and belonged to the public. No one could lawfully appropriate it to himself, and exclude others from using it in any usual way for any purpose to which it may be desired to apply it. This is fatal to the patent. (*Ames* vs. *Howard*, 1 Sumner, 487; *Howe* vs. *Abbott*, 2 Story, 194; *Bean* vs. *Smalwood*, Id., 411; *Winans* vs. *B. & P. R. R.*, Id., 412; *Hotchkiss* vs. *Greenwood*, 11 How., 266.)

There is another view of the case that may properly be taken. Evidence of the state of the art is admissible in actions at law under the general issue without a special notice, and in equity cases without any averment in the answer touching the subject. It consists of proof of what was old and in general use at the time of the alleged invention. It is received for three purposes and none other: to show what was then old, to distinguish what was new, and to aid the court in the construction of the patent.

Of private and special facts in trials in equity and at law the court or jury, as the case may be, is bound carefully to exclude the influence of all previous knowledge. But there are many things of which judicial cognizance may be taken.

To require proof of every fact, as that Calais is beyond the jurisdiction of the court, would be utterly and absolutely absurd. (Gres. Ev. in Eq., 294.)

Facts of universal notoriety need not be proved. (See Taylor's Ev., §4, note 2.) Among the things of which judicial notice is taken are the law of nations, the general customs and usages of merchants, the notary's seal, things which must happen according to the laws of nature, the coincidences of the days of the week with those of the month, the meaning of words in the vernacular language, the customary abbreviations of Christian names, the accession of the chief magistrate to office, and his leaving it. In this country such notice is taken of the appointment of members of the Cabinet, the election and resignation of senators, and of the appointment of marshals and sheriffs, but not of their deputies. The courts of the United States take judicial notice of the ports and waters of the United States where the tide ebbs and flows, of the boundaries of the several States and judicial districts, and of the laws and jurisprudence of the several States in which they exercise jurisdiction. Courts will take notice of whatever is generally known within the limits of their jurisdiction, and if the judge's memory is at fault he may refresh it by resorting to any means for that purpose which he may deem safe and proper. This extends to such matters of science as are involved in the cases brought before him. (See 1 Greenleaf's Evidence, p. 11; Gresley's Ev., *supra*, and Taylor's Ev., §4, and *post*.)

In the *Ohio L. & T. Co.*, vs. *Debolt*, (16 How., 435,) it was said to be "a matter of public history, which this court cannot refuse to notice, that almost every bill for the incorporation of companies" of the classes named is prepared and passed under the circumstances stated. In *Hoare* vs. *Silverlock*, (12 Adolphus & Ellis, 624, N. S.,) it was held that where a libel charged that the friends of the plaintiff had "realized the fable of the frozen snake," the court would take notice that the knowledge of that fable generally existed in society. This power is to be exercised by courts with caution. Care must be taken that the requisite notoriety exists. Every reasonable doubt upon the subject should be resolved promptly in the negative.

The pleadings and proofs in the case under consideration are silent as to the ice-cream freezer. But it is a thing in the common knowledge and use of the people throughout the country. Notice and proof were therefore unnecessary. The statute requiring notice was not intended to apply in such cases. The court can take judicial notice of it, and give it the same effect as if it had been set up as a defense in the answer, and the proof were plenary. (See *M. & H. Glue Co.* vs. *Upton*, 6 OFFICIAL PATENT OFFICE GAZETTE, 843, and *Needham* vs. *Washburn*, 7 Id. 651—both decided by Mr. Justice Clifford upon the circuit.) We can see no substantial diversity between that apparatus and the alleged invention of the appellee. In the former, as in the apparatus of the appellee, "the freezing-mixture" has "no contact with the atmosphere" of the chamber where the work is to be done. If the freezer be full, and the preserving-chamber be full, there would be room for but little air in either. If either were only partially full the vacuum would be filled with that substance. The cold is generated by the same materials, and applied under the same circumstances. If the cream were taken out of the freezer and fish put in, there would be, in all substantial respects, the same apparatus, process, and result. If the preserving-chamber were as tight as the freezer, either might be convertibly used for the purpose of the other.

The preservative effect of cold, and especially of dry cold, is well known and exemplified in the keeping of meat and fruit in ice-houses. Animals have been found undecomposed in the ice of Siberia, which belong to extinct species, and which must have been embalmed in ice for ages. (Tit. "Antiseptic," 1 Ameri. Encyclo., 570.)

Artificial freezing is usually applied to water and articles of food.

There are two general methods of effecting it, viz: by liquefaction, and by vaporization and expansion. The method by liquefaction is performed by freezing-mixtures, which are formed by mixing together two or more bodies, one or all of which may be solid. They are used together in vessels having three or more concentric apartments—an inner one containing the article to be frozen, one eccentric to this containing the freezing-mixture provided with some contrivance for agitation, one, again, outside of this filled with a non-conductor of heat, as powdered charcoal, gypsum, or cotton wool, and sometimes one between them for holding water. (Tit. "Freezing," 7 Id., 474.)

Here the principle and substance of the appellee's claim are set forth as belonging to the general domain of knowledge and science. It is known that Lord Bacon applied snow to poultry to preserve it. He said the process succeeded "excellently well." The experiment was made in his old age imprudently, and brought on his last illness.

Examined by the light of these considerations, we think this patent was void on its face, and that the court might have stopped short at that instrument, and, without looking beyond it into the answers and testimony, *sua sponte*, if the objection were not taken by counsel, well have adjudged in favor of the defendant.

These views render it unnecessary to consider the exceptions to the master's report.

The decree of the circuit court is reversed, and the cause will be remanded with directions to dismiss the bill.

SUPREME COURT OF THE UNITED STATES.

ENOCH PIPER, APPELLANT, *vs.* GEO. T. MOON, GEO. S. LANPHEAR, P. BENJAMIN, B. W. WEST, SAMUEL B. MILLER, JOHN COMSTOCK, JAS. C. COMSTOCK, THOMAS R. CROCKER, CALEB HAWLEY, AND GILBERT COMSTOCK.

[*Appeal from the Circuit Court of the United States for the Southern District of New York.—No. 30.—October Term*, 1875.]

Mr. Justice SWAYNE delivered the opinion of the court:

The appellant's bill in this case is founded upon the same patent as the bill of the appellee in case No. 29, just decided.

In this case the court below dismissed the bill, and the complainant appealed to this court. What was said in No. 29 disposes of this case.

The decree of the circuit court is affirmed.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

ARTHUR PICKERING *et al. vs.* WILLIAM H. PHILLIPS *et al.*

[*In Equity.—Before* CLIFFORD, *J.—Decided September* 1, 1876.]

In a suit at law on a patent, thirty days notice in writing must be given of all matters relied upon by the defendant to prove the patentee was not the original and first inventor of the improvement. In equity suits for infringement such notice must be given in the answer of the respondent.

An agreement made between the owners of a patent and an infringer, in which mention is alone made of the right secured by the patent set forth, though operating to estop the grantees of original patent from prosecuting such infringers, does not extend to a subsequent reissue obtained by assignees, or estop them from maintaining a suit against such parties.

[*Jas. E. Maynadier* for complainants.
E. H. Bennett for defendants.]

OPINION OF THE COURT.

CLIFFORD, *J.*:

Defective patents, if invalid, may be surrendered and reissued, and the lawful grantee of the new patent may maintain a suit in equity against an infringer, to recover the gains and profits which such infringer made by his unlawful acts, if the cause of action is properly set forth in the bill of complaint.

Sufficient appears to show that letters patent were, on the 1st day of August, 1865, granted to George Nimmo for "a new and useful improvement in molding crucibles and pots," as more fully set forth in the record, and that the complainants, during the lifetime of the patent, became the assignees of the same. Infringers were prosecuted, but the grantees of the original patent, finding that the specification was defective, settled the suit against the Taunton Crucible Company, and surrendered the patent, and the record shows that the same was reissued to them as such assignees. Since that time they have commenced the present suit, and the charge is that the respondents unlawfully and wrongfully use an apparatus which, in construction and mode of operation, embraces the invention described and claimed in the reissued letters patent. Service was made, and the respondents appeared and set up three defenses: 1. They deny that George Nimmo is the original and first inventor of the alleged invention. 2. That the complainants are estopped from maintaining the present suit against the respondents, for the reasons set forth by the respondents in their special plea. 3. That none of the acts done by the respondents amount to an infringement, for the reason that they were all done by the respondents as officers and agents of the Taunton Crucible Company, under a license from Thomas G. French, and because they are not in violation of any rights of the complainants.

1. Unless the invention is new and useful the letters patent are not the proper foundation of a suit for infringement, but the letters patent, when introduced in evidence, if regular in form, afford a *prima facie* presumption that the alleged inventor is the original and first inventor of what is therein described as his improvement. Persons charged with infringement may disprove that presumption by showing that the invention had previously been patented or described in some printed publication, or that the alleged inventor was not the original and first inventor of the improvement, but they cannot be allowed to give such evidence in a suit at law unless they give notice in writing of their intention to do so thirty days before the trial. Notices of the kind are required to state the names of the patentees and the dates of their patents, and when granted, and the names and residences of the persons alleged to have invented the same, and where and by whom the invention had been used. Proofs of the kind may be given in equity suits for infringement, upon proper notice being given in the answer of the respondent, and with the like effect. (16 Stat. at Large, 208. Rev. Stat., sec. 4920, p. 960.) Such a notice was never given in this case, and of course the first defense must be overruled.

2. Prior to the surrender of the original patent, a suit was commenced by the then grantees of the same against the Taunton Crucible Company, charging the respondents with the infringement of the exclusive right secured by the letters patent, and it appears that the bill of complaint was dismissed upon the terms and conditions specified in the agreement exhibited in the present record. It appears by the entry that the respondents recovered costs; but the proofs show that the respondents paid the costs of the suit to the complainants. Support to the second defense is attempted to be drawn from that agreement; but the complainants insist that the terms of the agreement extend no further than to estop the grantees of the original patent from prosecuting the respondents for infringing the title set up in that bill of complaint, and the court after a careful consideration of the question is compelled to adopt that conclusion. No mention whatever is made of any right except what is secured by the patent set forth in the bill of complaint. Reasonably construed, the court is of the opinion that the agreement set up in the second defense does not operate as a license to the respondents to make and use the invention secured by the reissued patent, nor does it estop the *present* complainants from prosecuting the respondents for an infringement of the exclusive right secured by the reissued patent.

3. Suppose that is so, still it is insisted by the respondents that they do not infringe the exclusive rights secured to the complainants, which is the only question that remains to be considered. Issues of the kind make it necessary to construe the claim of the patent and to ascertain what is the real nature and character of the invention secured by the patent. Crucibles made of clay, or other articles made of plastic material, require to be molded before they are exposed to heat, and what the complainants claim as the invention of George Nimmo is the apparatus described in the specification, which consists of a revolving vessel and the device called a "rib," and the mechanism for connecting the rib and the vessel, and for so guiding the rib that it will approach the axis of revolution as it is withdrawn from the revolving vessel. Clay suitable for molding is placed in the vessel, which is then rapidly revolved, when the rib is brought down upon the clay in the vessel, and is pressed down upon it until the clay is reduced to the desired form, the profile of the rib forming the inside of the crucible, and the revolving vessel giving form to the outside of the same. Due form having been given to the crucible, the rib is then withdrawn, which is a matter of difficulty, in case the crucible is of less diameter at the mouth than below, unless the mechanism for guiding the rib is so constructed that it will cause the rib to approach the axis of revolution as it is withdrawn from the revolving vessel. Unless the rib can be so guided it is impossible to manufacture vessels having a bilge, without injury to the manufactured article, and it is for that reason that the patented apparatus of the complainants is greatly superior to any thing which has preceded it in the art.

Taken as a whole it is both new and useful, and when taken as a whole the court is of the opinion that the articles manufactured by the respondents do infringe the exclusive rights secured to the complainants by the reissued letters patent. Doubts were entertained upon that subject at the argument; but a more complete examination of the record has had the effect to remove those doubts, and to convince the court that the apparatus used by the respondents is substantially the same as that described in the specification of the reissued patent. They use the vessel and the rib, and mechanism for connecting the two, and for causing the rib to approach the axis of revolution as it is withdrawn from the revolving vessel. Viewed in the light of these suggestions, it is clear that the complainants are entitled to a decree for an account and for an injunction.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

LEVI B. STORRS *vs.* PATRICK HOWE *et al.*

[*In equity.—Before* CLIFFORD, *J.—Decided September* 2, 1876.]

In a suit for infringement of a patent the burden of proof is upon the plaintiff or complainant to show that the patentee was the first and original inventor of the improvement, and that the patent has been infringed by the party against whom the suit is brought.

The patent, if introduced in evidence, affords a *prima facie* presumption that the patentee is the original and first inventor, and, in the absence of proof to the contrary, is sufficient to entitle the party instituting the suit to recover for the alleged violation of his exclusive rights.

Equivalents are allowed in every class or description of inventions.

A combination of old ingredients is not infringed unless it appears that the alleged infringer made or used the entire combination.

Equivalents are such ingredients as will perform the same function as the one described, and which were well known at the date of the patent as proper substitutes for the ones actually described in the patent.

[*Chas. H. Drew*, for complainant.
John S. Abbott, for defendants.]

OPINION OF THE COURT.

CLIFFORD, *J.*:

Equivalents are allowed in an invention consisting of a combination of old ingredients, as well as in every other class or description of inventions. Such an invention consists entirely in the combination, and the rule is that the rights of the patentee under it differ in one respect from those of a patentee of an invention that consists of an entire machine, or of a new and useful device, as the rights of a patentee for a mere combination of old ingredients are not infringed unless it appears that the alleged infringer made or used the entire combination. (*Prouty* vs. *Ruggles*, 16 Pet., 341.) Combinations of the kind include not only the ingredients described in the patent, but equivalents also, by which is meant any other ingredients which will perform the same function as the one described, and which were well known at the date of the patent as proper substitutes for the ones actually described in the patent. (*Gill* vs. *Wells*, 22 Wall., 28.)

On the 8th of June, 1858, a patent in due form was granted to the complainant for a new improved pressing-machine for tailors' use, of which he alleges that he is the original and first inventor, and the record shows that the patent was subsequently extended to him for the term of seven years from and after the expiration of the first term. By virtue of the patent there was secured to the complainant, as he alleges, the exclusive right to make, use, and vend to others to be used, the patented machine, and he alleges that the respondents have, in violation of his exclusive rights, wrongfully made, used, and vended to others to be used, the said invention, as more fully set forth in the bill of complaint, and he prays for an account and for an injunction. Service was made, and the respondent, Patrick Howe, appeared and filed an answer, in which he alleges that two valid patents were granted to him, which he still holds, and which, as he alleges, were granted to him for inventions of which he was the original and first inventor, as follows: one dated October 10, 1871, for an improvement in clothes-pressing machines, the other dated December 12, 1871, for an improvement in machines for pressing cloth. Having described these patents, he admits that he has caused machines for pressing cloth to be made and sold for use in accordance with those patents; but he denies that in such acts he has infringed the patent of the complainant. Superadded to that, he denies infringement in any and every form in which it is charged in the bill of complaint. Persons seeking redress for the unlawful use of letters patent are obliged to allege and prove that they, or those under whom they claim, are the original and first inventors of the improvement, and that the patent has been infringed by the party against whom the suit is brought. Both of these allegations must be established by the party instituting the suit; but the law is well settled that the patent in question, if it is introduced in evidence, and is in due form, affords a *prima facie* presumption that the first named allegation

is true, and it is equally well settled that that presumption, in the absence of satisfactory proof to the contrary, is sufficient to entitle the party instituting the suit to recover for the alleged violation of his exclusive rights. (*Seymour* vs. *Osborne*, 11 Wall., 533.)

Tested by that rule it is as clear as any thing in legal decision can be, that the only question in this case is whether the allegation of infringement is proved. Such a charge being an affirmative allegation made by the complainant, the burden of proof is upon him to establish it, unless it is admitted in the answer. (*Agawam Co.* vs. *Jordan*, 7 Wall., 609.) Sufficient appears in the specification and drawings to show that the invention consists in attaching, by a universal joint, a goose or tailor's iron to a jointed arm, the arm and other parts being constructed as therein shown, and connected to the treadle, the same being attached to a proper frame, and used in connection with a press-board, the whole being so arranged that the manipulation of the goose or iron is greatly facilitated, whereby the work to be ironed may be subjected to a heavy or light pressure, as may be desired, with a slight exertion or expenditure of power by the operator. Of course it must have a platform, which must be supported at the proper height by a suitable frame, which may be constructed of wood or iron. Particular description is given of each part of the machinery, from which it appears that the lever is a very essential ingredient, being of cast-iron, its lower end being connected by a link to the lower end of a bent lever, which is attached to a treadle. From the same it also appears that the bent lever is attached to the lower part of the frame by a fulcrum-pin, and that a vertical rod is attached to the treadle, and that a cross-plate is attached to the upper end of the rod, and that the cross-plate rests on the upper ends of two spiral springs, which are fitted on guide-rods, the lower ends of the springs resting on a cross-piece, to which the guide-rods are attached, the cross-piece being attached to the frame. One of the functions of the spiral springs is to keep the treadle elevated, and, consequently, the upper end of the bent lever is thrown backward from the platform as far as it is allowed to move. Two horizontal lips are formed in the upper end of the bent lever, between which a jointed arm is attached by a screw, which passes through those lips and through the jointed arm, the screw fitting in a thread in the jointed arm, and the screw has a crank on its upper end. All these particulars are given in the specification, and the patentee states that the goose or iron is attached by a universal joint to the outer end of the jointed arm, the joint being formed by pivoting a sphere or ball in a fork, the shank of which is fitted and allowed to turn freely in the jointed arm, to which the patentee adds that the goose is provided at the center of its upper part with a vertical spindle, which passes through the sphere or ball in which it is allowed freely to turn, and that the goose is hollow, and is heated by means of hot irons placed within it. Connected with the machinery is a press-board, one end of which is secured in proper position on the platform by means of a clamp, which is formed of a jaw actuated by a cam being pivoted at the upper end of a described standard, and directly over a stationary jaw, attached to a standard. Description is also given of the means of supporting the other end of the press-board; but it is sufficient to say that the means described show that the platform may be adjusted under any part of the press-board. Very satisfactory description also is given of the mode of operating the machine in substance and effect, as follows: that the cloth or garment to be pressed is placed on the press-board, that the goose, being properly heated, is pressed down on the work to be operated by depressing the treadle with the foot, it appearing that the goose may be moved over the cloth in any direction in consequence of its described connection with the jointed arm Perfect freedom of the goose is obtained, and as the foot of the operator is employed for giving pressure to the iron, and the hands are only employed for moving it, the desired work may be performed very effectually, a greater pressure being obtained and the goose manipulated with much greater facility than when the hands alone are employed for performing the work. By turning the screw the jointed arm may be raised or lowered, and the standard or support, by being movable, allows work that is sewed at the edge to be slipped over on the press-board, as shown in drawings, which is a great convenience.

What he claims as new is (1) the lever, the jointed arm, the goose, and the treadle, when connected together, and arranged relatively with each other and the press-board, so as to operate as and for the purpose set forth. (2.) He also claims the particular manner of connecting the goose and spindle, which passes loosely through the sphere or ball of the universal joint, whereby the goose is allowed an independent rotary movement; but he does not claim the sphere or ball, nor the fork with its shank fitting in the jointed arm; instead of that it is only the peculiarity attending the connection of the goose to the sphere which he claims, as set forth in the specifications. Briefly stated, the mode of operation is as follows: Pressure being applied to the treadle by the foot of the operator, the same is transmitted through the lever to the jointed arm, so that the goose, which is attached to the forward end of that arm, may be brought down upon the work to be pressed with such degree of force as in the judgment of the operator will be sufficient to accomplish the desired result, which shows that it is pressure upon the treadle which depresses the extreme end of the jointed arm to which the goose is attached, and which causes the goose to accomplish the work described in the specification. All these features, it is claimed by the complainant, are contained in the the respondents' machine, and the complainant insists that they operate together as and for the same purpose. Beyond all question the respondents have the press-board, and it is conceded that they have the treadle, the jointed arm, and the goose; but the respondent who filed the answer denies in argument that he uses the lever which constitutes the fourth element in the combination of the complainant.

Differences of a formal character certainly exist in the fourth ingredient or element of the two machines; but it is clear that the lever employed in the machine of the respondents performs the same function as that performed by the lever shown in the complainant's machine, and the better opinion is that the two are substantially alike, differing only as to mere mechanical arrangements. Pressure is transmitted to the jointed arm in both by the foot of the operator applied to the treadle. In the complainant's machine [the pressure brings down the link attached at one end of the treadle, and at the other end to the lower end of the lever, and thus brings down the upper end of the lever, to which is attached the jointed arm, the forward extremity of the same, to which the goose is attached, being depressed, and thus the necessary pressure is exerted upon the cloth or garment. Just the same function is performed by the same element or ingredient in the respondent's machine, but the treadle pushes up the forked connecting-link, which takes the place of the link in the complainant's machine, by which action the forward end of the lever, to which the upper end of the lever is attached, is depressed, and the jointed arm, with the goose attached, is thus brought down upon the work exactly in the same manner as in the other machine. Examined in the light of these suggestions, as the case should be, it is clear that there are in each machine substantially the same four elements or ingredients, operating together to produce the same result. Whatever differences exist are to be found in the mode of transmitting motion from the treadle to the lever, to which the jointed arm is connected. In the complainant's patent the lever is described in a perpendicular position, while in the latter it is shown in a horizontal position, which is the controlling difference between the two machines. Enough appears to show that these are mere formal matters, as it is not claimed in either patent that the position of the lever is any part of the invention. These differences in the mechanical arrangements are mere formal variations, producing no new result, and come clearly within the proper range of mechanical equivalents.

Properly construed it is clear from what has already been remarked that the respondents also infringe the second claim of the complainant's patent. Remarks already made show that it is the particular manner of connecting the goose to the arm which is embodied in that claim, by which is meant that the goose or iron is provided with a spindle which passes loosely through the sphere or ball of the universal joint, whereby the goose is allowed an independent rotary movement subject to the before-mentioned disclaimer. Nothing being alleged to the contrary in the answer, it must be assumed in this case that the complainant is the original and first inventor of that improvement, and if so, the court is of the opinion that the charge of infringement is proved by the evidence in the case.

Decree in favor of the complainant for an account and for an injunction.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 12, 1876.]

9,491.—Stoves.—AMOS C. BARSTOW, Providence, R. I. Application filed August 25, 1876. Term of patent 14 years.

9,492.—Fireman's Belt.—CHARLES F. BRIGHAM, Worcester, Mass. Application filed June 30, 1876. Term of patent 7 years.

9,493.—Muff.—BRUNO LÜDDECKE, New York, N. Y. Application filed August 4, 1876. Term of patent 3½ years.

9,494.—Iron Fences.—JOHN B. WICKERSHAM, Philadelphia, Pa. Application filed April 22, 1876. Term of patent 7 years.

9,495.—Bottles.—GEORGE W. SHEDD, Jr., Boston, Mass., assignor to CHARLES C. TOPLIFF, Fishersville, N. H. Application filed September 2, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 12, 1876.]

3,975.—Medicines.—ALEXIAN BROTHERS, St. Louis, Mo. Application filed July 31, 1876.

"A picture of the institution of the Alexian Brothers in St. Louis, Missouri, known as the 'Alexian Brothers' Hospital.' Above the picture are inscribed the words 'Trade-Mark.'"

3,976.—Starch.—E. R. DURKEE & CO., New York, N. Y. Application filed August 30, 1876.

"The word-symbol 'GOLDEN.'"

3,977.—Corsets.—DAVID H. FANNING, Worcester, Mass. Application filed August 29, 1876.

"The arbitrarily-selected words 'Bon Ton.'"

3,978.—Piano-Fortes.—JOSEPH P. HALE, New York, N. Y. Application filed September 5, 1876.

"The word-symbol 'STAR.'"

3,979.—Piano-Fortes.—JOSEPH P. HALE, New York, N. Y. Application filed September 5, 1876.

"The word-symbol 'STANLEY.'"

3,980.—Piano-Fortes.—JOSEPH P. HALE, New York, N. Y. Application filed September 5, 1876.

"The word-symbol 'MOZART.'"

3,981.—Piano-Fortes.—JOSEPH P. HALE, New York, N. Y. Application filed September 5, 1876.

"The word-symbol 'WAGNER.'"

3,982.—Piano-Fortes.—JOSEPH P. HALE, New York, N. Y. Application filed September 5, 1876.

"The word-symbol 'R. BRADBURY.'"

3,983.—Flour.—JOSEPH F. IMME, St. Louis, Mo. Application filed July 17, 1876.

"Word 'Charm' and a shield containing the capital letter I, which I arrange as shown in the accompanying drawing—that is, the shield surrounded by wheat, and the word 'Charm' below the same."

3,984.—Champagne Wines.—G. H. MUMM & Co., Rheims, France. Application filed September 2, 1876.

"The representation of an eagle with head erect and wings extended."

3,985.—Champagne Wines.—G. H. MUMM & Co., Rheims, France. Application filed September 2, 1876.

"The symbol of an eagle with head erect and outstretched wings, encircled by the words and letters 'G. H. Mumm & Co.,' 'G. de Bary.'"

3,986.—Champagne Wines.—G. H. MUMM & Co., Rheims, France. Application filed September 2, 1876.

"The words and letters 'G. H. Mumm & Co., Rheims,' accompanied by the circular design."

3,987.—Champagne Wine.—G. H. MUMM & Co., Rheims, France. Application filed September 2, 1876.

"The border shown in the accompanying label, the distinctive characteristic of which is that it is of octagon shape, its principal sides being greater in length than those contiguous to the corners of the label."

3,988.—Velvet Ribbons and Piece-Velvets.—METER & DICKINSON, Philadelphia, Pa. Application filed August 29, 1876.

"The arbitrarily-selected words 'OLIVE BRANCH,' together with a representation of a dove with an olive-branch in its bill."

3,989.—Liqueur or Cordial.—Frère MARCEL MARIE GAZIER, Isère, France, Procureur of the Convent of the Grande Chartreuse. Application filed September 1, 1876.

"The word-symbol 'CHARTREUSE.'"

3,990.—Piano-Fortes.—ALBERT WEBER, New York, N. Y. Application filed September 5, 1876.

"The word-symbol 'WEBER.'"

3,991.—Piano-Fortes.—ALBERT WEBER, New York, N. Y. Application filed September 5, 1876.

"The word-symbol 'WEBBER.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 12, 1876.]

823.—Title: **"Liquor Monachorum Benedictinorum."** CAZADE, CROOKS & REYNAUD, New York, N. Y. Application filed August 21, 1876.

824.—Title: **"Veritable Liqueur Benedictine."**—CAZADE, CROOKS & REYNAUD, New York, N. Y. Application filed August 21, 1876.

825.—Title: **"Miller's Pain Curer."**—GEORGE Y. MILLER, Luzerne, N. Y. Application filed August 5, 1876.

826.—Title: **"Cod Liver Cream."**—D. A. SHERMER, Baltimore, Md. Application filed August 31, 1876.

APPLICATION FOR EXTENSION.

DEPARTMENT OF THE INTERIOR, U. S. PATENT OFFICE,
WASHINGTON, D. C., *August* 30, 1876.

On the petition of JOHN R. HARRINGTON, of Brooklyn, N. Y., praying for the extension of a patent granted to him on the 1st day of April, 1856, reissued in two divisions, and numbered, re-

spectively, 2,415 and 2,416, on the 11th day of December, 1866, for an *Improvement in Machines for Making Carpet-Lining*, this application having been authorized by act of Congress, approved August 14, 1876;

It is ordered that the testimony in the case be closed on the 31st day of October next; that the time for filing arguments and the Examiner's report be limited to the 10th day of November next; and that said petition be heard on the 15th day of November next.

Any person may oppose this extension.

3t R. H. DUELL, *Commissioner of Patents.*

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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPTEMBER 12, 1876.

182,013. SPECTACLES. George Andrews, Hartford, Conn. [Filed Apr. 29, 1876.]

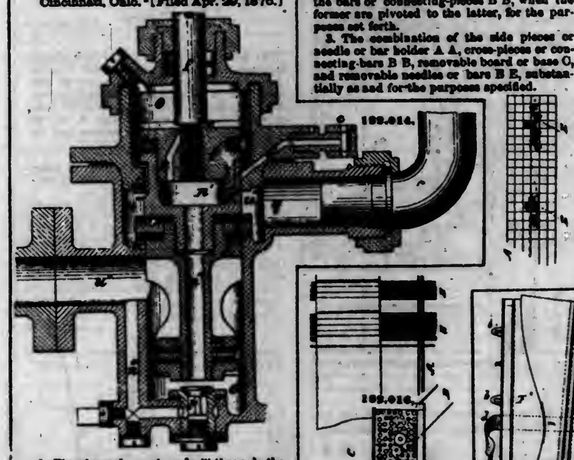


1. The combination of the frames A B and the lenses C D with a spring band passing around the head, when constructed and arranged so that the frames and lenses turn outwardly around to the side of the head, away from the eyes, when desired, substantially as herein set forth.

2. The frames A and B, provided with the steels a a b b, for holding the lenses of spectacles, substantially as described.

3. The combination of the clip H with the joint formed by the frame A and the side bar E, the whole being constructed and arranged substantially in the manner herein described.

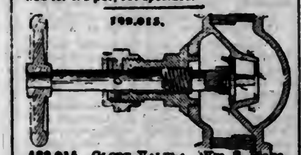
182,014. SELF-CLOSING VALVES. Ferdnd. Beyr, Frankfort-on-the-Main, Germany, assignor to himself and E. W. Lippert, Cincinnati, Ohio. [Filed Apr. 29, 1876.]



1. The channels n, n', and n'' through the valve, in combination with the spaces O and O' above and below said valves, for the purpose of transferring water from one to the other of said spaces, substantially as described.

2. The valve K' K'', which cuts off the escape through channel o' before the passage of water into the chamber n'', and in reverse order cuts off the feed-water before opening the entrance to channel o', substantially as and for the purpose specified.

182,015.



182,016. GLOBE-VALVES. Wm. S. Bacon, Boston, Mass. [Filed Aug. 25, 1876.]

Recy.—To prevent the valve and its seat from being cut or worn by steam rushing between them at its initial pressure, a hollow conic frustum extends down from the valve-seat, within which an auxiliary valve attached to the main valve works. When the valves are opened the area of the opening between the auxiliary valve and the surface of the frustum is always less than that between the main valve and its seat, thereby reducing the pressure of steam before it reaches the main valve and its seat.

A globe-valve provided with a hollow conic mouth-piece, E, and an auxiliary valve, F, arranged and combined with its valve-seat D and valve B, substantially as set forth, and for the purpose and to operate in manner as specified.

182,016. PLAITING-MACHINES. J. M. Boyce, Belvidere, Ill. [Filed May 26, 1876.]

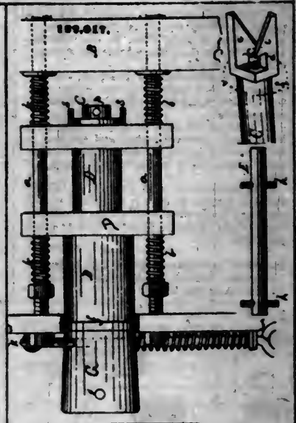
1. A plaiting and fluting machine provided with needle or bar holders of wire-cloth or metal strips, having therein numerous rows of perforations, interstices, or spaces, arranged both vertically and laterally with relation to each other, substantially as shown and described, for the purpose of admitting of the plaiting or fluting needles or bars being differently arranged or adjusted, and held either vertically or laterally with relation to each other and the goods, and in positions corresponding to the various styles or patterns of work.

2. The combination of the needle or bar holders of a plaiting or fluting machine with the bars or connecting-pieces B B, when the former are pivoted to the latter, for the purposes set forth.

3. The combination of the side pieces or needle or bar holder A A, cross-pieces or connecting-bars B B, removable board or base C, and removable needles or bars B E, substantially as and for the purposes specified.

182,016.

182,017.

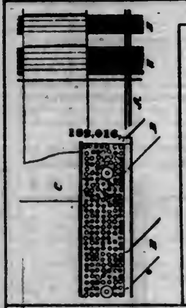


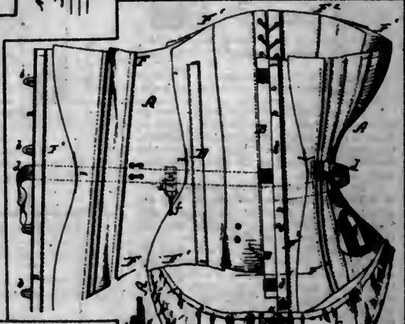
182,016. STEM WINDING AND SETTING DEVICES FOR WATCHES. John A. Dawson, Boston, Mass. [Filed Feb. 7, 1876.]



A longitudinally-sliding shipper-bar, bar, ing a plane, D, which is inclined or diagonal to the line of motion of the bar, combined with the spring-arm E, or other carrying device of a stem-winding watch, substantially as described, for the purpose specified.

182,016.





182,017. CAR-COUPLINGS. E. D. Brown, Buffalo, N. Y., assignor of one-half his right to E. A. Clark, same place. [Filed May 8, 1876.]

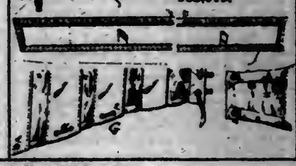
1. The draw-bar and coupling devices consisting of the bar C, with the hooks a a attached thereto, collar f, in combination with the draw-head G and coupling-rod E h h', as and for the purpose specified.

2. The draw-head G, draw-bar C, with hooks g a d, hole e, and collar f, in combination with the cross-head D, working on two guide-rods, e e, substantially as specified.

3. The coupling-rod E, with the pins h h', in combination with the bevaled hooks a a and draw-bar C, as and for the purpose specified.

4. The loose draw-bar C, having the hooks a a, and tarsing in the frame D, in combination with the uncoupling devices, substantially as specified.

182,018.



182,019. CORSETS. Sherwood B. Ferris, Brooklyn, N. Y. [Filed Aug. 16, 1876.]

1. The combination of a corset, A, with the reversible stay B, that is applied to one of its edges, and combined with the springs a a, substantially as and for purpose herein shown and described.

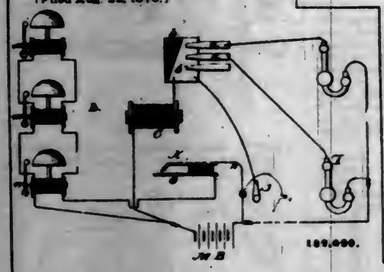
2. The combination of a corset, A, with the pocket D, which is provided with an opening at one of its stitched seams for the insertion and removal of the stiffening devices, substantially as specified.

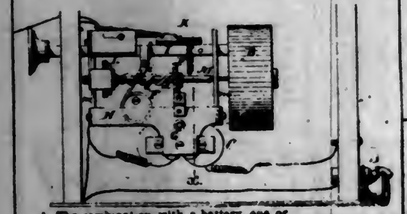
3. The combination of a corset, A, with the adjustable skirt-support E, that slides on a belt or cord, d, substantially as herein shown and described.

4. A corset composed of several sections, F F' F', partly joined together, and adapted to be completed by joined, to form a finished garment, substantially as herein shown and described.

5. In combination with a corset, A, the abdominal support G, that is composed of stiff sections placed onto a flexible belt, i, substantially as and for the purpose herein shown and described.

182,020. AUTOMATIC FIRE-ALARM TELEGRAPH. John H. Guest, Brooklyn, N. Y. [Filed Aug. 22, 1876.]





1. The combination, with a battery, one or more alarms, and a main circuit, of one or more branch circuits containing thermostats, the closure of the circuit in any branch by its thermostat operating all the alarms, substantially as set forth.

2. The combination, with a battery, a series of thermostats, an electrical circuit, and one or more ordinary magnetic alarms, of a self-closing and breaking or vibrating magnetic ball, substantially as set forth.

3. The combination, with several main circuits and several series of alarm-bells, thermostats, and branch circuits, of a single main battery and connections, as shown, the said main battery supplying the current for all the several main circuits, substantially as set forth.

4. The shield U, having solid face or bottom and perforated or open sides, substantially as set forth.

5. The combination of the cylinder B, shaft M, screw-thread d, slide I, with dog i and spring E, substantially as set forth.

6. The combination with cylinder B, of shaft M, with screw-thread d, slide I, with dog f, spring E, escapement L, and electro-magnetic stop D G, substantially as set forth.

7. The combination of the slide I, the plate K, with portions b and b', the springs a a, the cylinder B, and its motor-train, and the electro-magnetic stop, substantially as set forth.

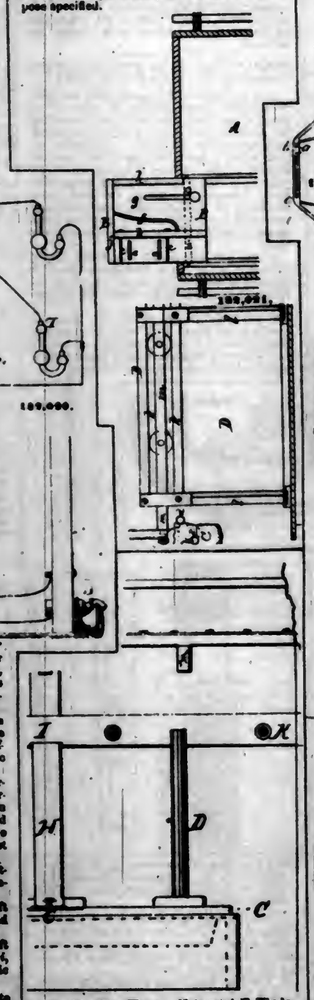
8. The combination of the slide I, the cylinder B and its motor-train, the electro-magnetic stop, and the switch for causing the stop to allow the motor to complete a full revolution of the cylinder after a partial revolution thereof, substantially as set forth.

182,021. MAIL-BAG CATCHERS. Dolphin Harrison, Farnham, assignor of one-half his right to Thomas Guess, Buffalo, N. Y. [Filed Apr. 26, 1876.]

1. The car A, constructed with the sliding-out mail compartment B, with the partitions b b or their equivalents, and in combination with the catcher and deliverer D k m s e, substantially as and for the purpose specified.

2. The mail catcher and deliverer D, consisting, essentially, of the extension-arm m, the barbed catch n, and holder e, attached thereto, with the guard-springs p e, substantially as and for the purpose specified.

3. The sliding compartment B, having the partitions b b, the bar f, pins c c, and springs e e or their equivalents, as and for the purpose specified.



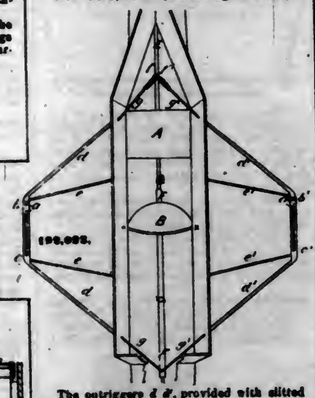
182,022. HOT-ELRS. Nehemiah B. Hinds, Cooperstown, N. Y. [Filed Mar. 1, 1876.]

Brief.—The middle pan is provided with a cover having steam-pipes at either end, and an aperture in the center, which is governed by a slide, and which is coincident with the mouth of the vertical pipe leading to the distributer, from which steam is directed upon the dry cloth.

1. In a hop-kiln, the combination of the pan B, cover C, pipe H, having slide c, and heater I, provided with the perforated pipes K, substantially as and for the purpose set forth.

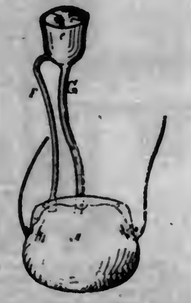
2. In a hop kiln, the combination of the pan B, cover C, pipes D, pipe H, having slide c, and heater I, having perforated pipes K, substantially as and for the purpose set forth.

182,023. SLIDING BOWLOCK AND STRETCHER COMBINED. George W. Isaacs, Jr., New York, N. Y. [Filed Aug. 4, 1876.]



The outriggers d d', provided with slitted ways c c', reciprocating rowlocks a a', secured to the movable beds b b', guy-ropes g g', and tension e e', in combination with the adjustable foot-board or stretcher B, sliding bed F, springs f f', and stationary seat A, all arranged and operating in the manner and for the purpose set forth.

182,024. CATAMENIAL SACES. G. H. Johnston, Chicago, Ill. [Filed Feb. 16, 1876.]



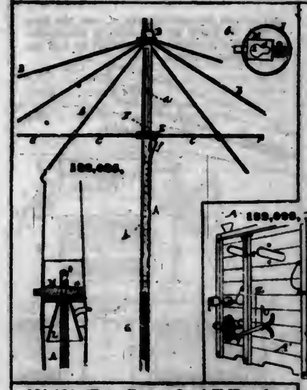
The combination, with the sack A, and tubes F and G, of the receiving-cup C, provided with the lining D, forming the air-chamber E, substantially as and for the purpose specified.

182,025. CANE AND UMBRELLA COMPOUND. August Kindermann and Theodore Harris, Cleveland, Ohio. [Filed July 12, 1876.]

1. In combination with the tubular rod or handle A and collar E, the spring G, attached to a pin, F, by a link, b, arranged to operate for spreading the umbrella, substantially in the manner as herein set forth.

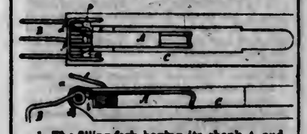
2. The slide M and spring n, in combination with the ferrule J, rod A, and sections I and H of the herein-described walking-cane, substantially as set forth, and for the purpose specified.

3. The combination of the tubular slotted rod A, spring G, pin F, collar E, slide M, spring n, and sections H and I of the walking-cane herein described, substantially in the manner as set forth, and for the purpose specified.



182,026. WEFT-FORKS. Jacob H. Knowles, Lawrence, Mass. [Filed Aug. 16, 1876.]

Brief.—The weft-fork is composed of two parts, each adapted to vibrate upon a common axis. Stops are provided to prevent too great a vibration. The object of thus hinging the prongs separately is to permit of their being thrown upward by the shuttle should it be caught in the shed, thereby preventing the breaking or bending of the prongs.

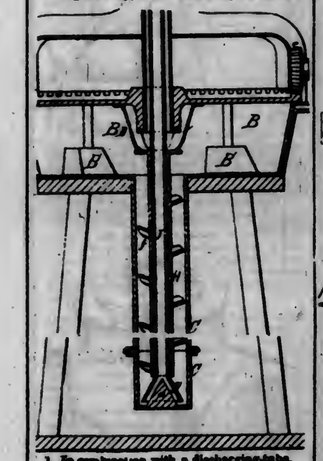


1. The filling-fork having its shank A and series B of tines in separate parts, hinged together, and provided with a hinge-stop, b, all being to operate substantially as described.

2. The combination of the stop d, projecting from the shank A, with the supporting-slide C, and with the filling-fork, having its shank A and set B of prongs or tines in separate parts, hinged together, and provided with a hinge-stop, b, as set forth.

3. The combination of the back-stop f, projecting from the slide C, with such slide, and with the filling-fork, having its shank A and set B of prongs hinged together and provided with the stop b, all being essentially as shown and described

182,027. AMALGAMATORS. Wm. McCourt, Virginia City, Nev. [Filed Aug. 22, 1876.]

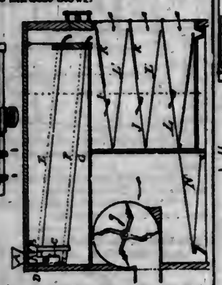


1. In combination with a discharging-tube, J, a cone, c, and a tube, C, substantially as and for the purpose described.

2. In an amalgamator, having the tube C, the agitating-tube H, and the discharging-tube J, the overflow-pan B, and the plows B', substantially as and for the purpose described.

182,028. MIDDLINGS-PURIFIERS. C. McGinnis, Chicago, Ill. [Filed June 23, 1876.]

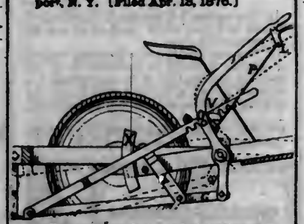
Brief.—The knockers are operated in sets, the upper ones, which act on the finest screens, striking the hardest blows.



1. The feed-hopper A, provided with the inverted V-shaped cut-off D, in combination with the feed-valves B C and riddles E F, as set forth.

2. The combination of the riddles E F I J L M with the agitators P' P' P P P, operated in sets by the rods Z U, vibrating lever V, and trip-wheel e e, as and for the purpose specified.

182,029. HARVESTERS. A. Miller, Brockport, N. Y. [Filed Apr. 13, 1876.]



1. The draft-bar G, lever I, link K, in combination with the tongue and finger-bar, pivoted to the main frame, substantially as described.

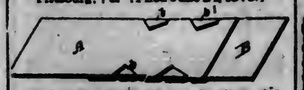
2. The combination of the draft-bar G, ratchet-bar H, lever I, and flanged eccentric V, substantially as described.

182,030. HARVESTING-MACHINES. A. Miller, Brockport, N. Y. [Filed Apr. 7, 1876.]



A tabular finger-bar having flanges projecting from the front and rear thereof, substantially as described.

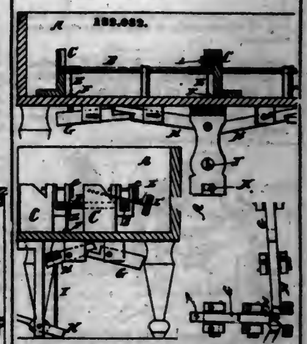
182,031. BALE-TIES. Henry Millinger, Pittsburg, Pa. [Filed June 24, 1876.]



A hoop-iron having its overlapping end A B provided with inclined slots a b in each edge, running from the edge at an angle of forty-five degrees inward, forming lips A, which are pressed so as to stand beyond, but parallel with, the plane of the band.

182,032. PIANO ATTACHMENTS. William Muth, Montreal, Quebec, Canada. [Filed July 8, 1876.]

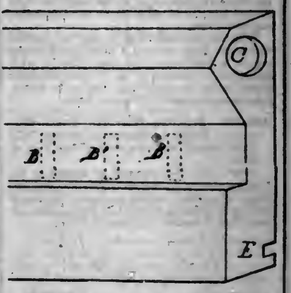
Brief.—Mechanism for shortening the stroke of the hammer to produce a piano or soft tone.



Posts C, rods D and E, followers F, levers G and H, pedal-rod I, and pedal K, in combination with the bar B and case A, substantially as and for the purpose set forth.

182,033. GRATE-BACKS. Joseph D. Ogle, Richmondale, Ohio. [Filed Aug. 5, 1876.]

Brief.—The ribs form air-passages, and also serve to stiffen the back plates.



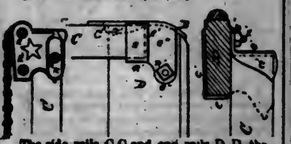
The hollow grate-back provided with ribs B B', projections D D', inlet E, and orifice C, constructed substantially as set forth, and for the purpose of heating an upper room.

182,034. PLATFORM-SCALES. H. B. Osgood, Binghamton, N. Y. [Filed Mar. 29, 1876.]



The combination of the detachable head-stirrup A, socket-stirrup C, with adjustable slide b, and lever B, constructed and arranged substantially as herein shown and described, for the purpose set forth.

182,035. CORNER-PLATES FOR BED-BOTTOM FRAMES. J. William C. Peters, Chicago, Ill., assignor to Whittlesey & Peters, same place. [Filed Oct. 6, 1875.]



The side rails C C and end rails D D, the latter arranged above the former, in combination with metal corner-plates, consisting of the vertical walls a and a', united by means of a cross plate or bar, the walls a a being adapted to lap the ends of the end rails, and lipped, as shown at c and c', to lap the upper and inner faces, respectively, of the said rails, and the said plates being also provided with a

flange, *e'*, to admit of attachment to the end rail, all substantially as and for the purposes specified.

182,656. SHOE-TIPS. William F. Franks, Marlborough, Mass. [Filed Aug. 12, 1876.]

A boot or shoe up or prunetter, composed of vulcanized fiber formed into the proper shape, substantially as and for the purposes specified.



182,657. VESSELS FOR HOLDING LIQUIDS. Elias B. Regan, Jersey City, N. J. [Filed June 6, 1876.]

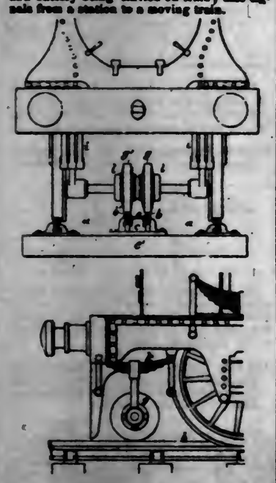
1. The combination, with a cap, A', of the oblique diaphragm B, having an opening therein, furnishing a valve-seat for a valve having its stem working through the side of the said screw-cap, substantially as described.

2. The combination, with the diaphragm, of the valve D, constituted of the body, the ring E, and the disk of india-rubber or other packing substance.

3. In combination with a cap for bottles which are filled through a valve-closed opening in a diaphragm, the vent-tube H, (and screw-top,) arranged so as to open into the vessel below the diaphragm, for use in filling the vessel, substantially as set forth.

182,658. RUNNING-MACHINERY TRAIN-SIGNALS. David L. Salomons, Broom Hill, Tunbridge Wells, England. [Filed Dec. 4, 1875.]

Brief.—For the purpose of signaling between trains, and warning a train of the proximity of another before or behind it, alarm and battery being carried on train; also signals from a station to a moving train.



1. The combination, with the sectional electric rails, constructed and arranged as described, and the ordinary track of a railway, of the adjustable battery and signal wheels *g g'*, and their metallic communications with a suitable battery and an electric signal dial or index, substantially as shown, and for the purpose specified.

2. The combination, with the electric rails *b b'*, of the signal and battery wheels *g g'*, and their communications, with a suitable battery and an electric signal-bell, substantially as and for the purposes specified.

3. The combination, with the electric rails *b b'*, the battery and signal wheels *g g'*, and their metallic communications with a suitable electric battery, an electric bell, or an electric indent-dial, or both, of a lever-armature and its electric communications with a battery and suitable signal apparatus at a distant station, substantially as described, for the purpose specified.

182,659. CAR-COUPLINGS. P. H. Sloan, Syracuse, N. Y. [Filed Aug. 18, 1876.]

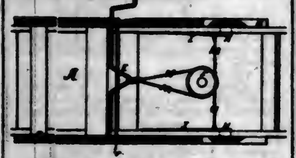


1. The double hooks *a a*, connected and constructed substantially as and for the purposes specified.

2. The double cross-head or H-link *l*, as herein described, for a coupling.

3. The combination of the cross-head link *l* and ring *m*, for a coupling.

182,660. DUMPING-WAGONS. N. M. Spielman, Tiffin, Ohio. [Filed May 29, 1876.]



1. The springs I I, catches H H, pulleys P P, cord M N, and crank-shaft E, as and for the purpose set forth.

2. The combination, in a dumping-wagon, of the box A, hung on trunnions D D, the frame or bed-timbers B B, the springs I I, pulleys P P, cord M N, crank-shaft E, and the straight axle-trees, substantially as described.

182,661. WASHING-MACHINES. S. J. Taylor, Boone, N. Y. [Filed Mar. 20, 1876.]



1. The combination of the radially-grooved rub-board C, the rubbers D placed in said grooves, and the staples *b* holding them therein, all constructed substantially as and for the purposes herein set forth.

2. The combination of the rub-board C, spider E, square shaft *d*, spring A, and spring-catches *i i*, all substantially as and for the purposes herein set forth.

182,662. CLOTHES-DRYERS. L. Talbott, Madisonville, Iowa. [Filed Feb. 1, 1876.]

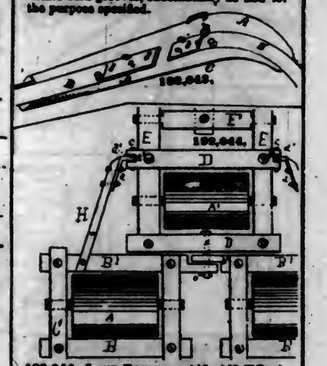


The frame E, carrying the pulley G, and made adjustable by means of the crank F, in combination with the cord I, crank *g*, and removable pulley O, substantially as and for the purpose specified.

182,663. HAMES FOR HARNESS. George M. Triplett, Stewart, Ohio. [Filed Aug. 26, 1876.]

The hames hereinbefore described longitudinally, substantially as described.

182,664. LAND-ROLLERS. Alfred H. Ufford, Coldwater, Iowa. [Filed June 6, 1876.]

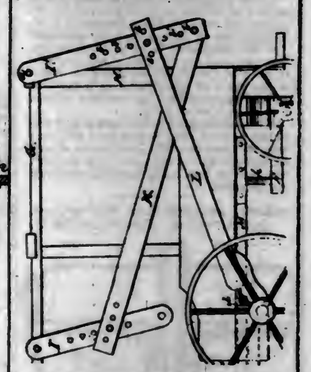


1. The combination of the rollers A A A, each made to revolve within its own section, and connected together by the pivotal joints in the continuations of the beams B', and the angle-irons *a* on the beams H, as shown and described.

2. In a land-roller, the combination of cross-bars D D', beams E, tongue-rail F, pivoted between H, and centrally-pivoted bars B', all arranged and operating as described, and for the purpose set forth.

182,665. VEHICLES. William Wurpenberg, Norwich, Conn. [Filed July 1, 1876.]

Brief.—The vehicle is propelled by the occupants by means of a system of levers operating a crank on the rear axle.



1. The adjustable levers I F, pivoted to and pendent from the frame G of a wheel vehicle, in combination with the adjustable rods E L and the crank *d*, for the purposes set forth.

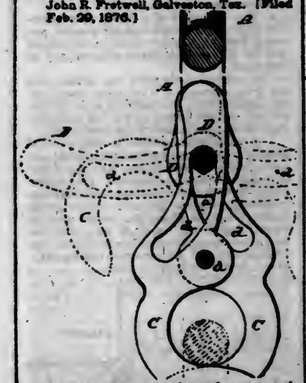
2. Combination of guide C, cord *f*, pivoted piece M, and bar N, all as for the purposes set forth.



182,646. LOCKING-VALVES. O. B. Wickham, Titusville, Pa. [Filed Feb. 14, 1876.]

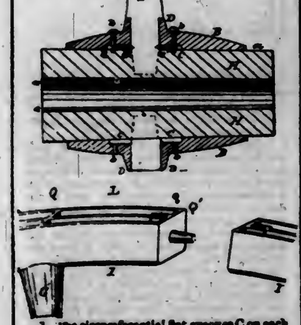
The construction of a stop-cock or valve with slotted openings C D, as shown, in the plug to correspond with an opening, B, in the body of the valve, in combination with a padlock, A, for the purpose of controlling the transmission of fluid through a pipe.

182,647. AUTOMATIC DETACHING-HOOKS. Cornelius P. Wyckoff, Mobile, Ala., and John R. Fretwell, Galveston, Tex. [Filed Feb. 29, 1876.]



The hooks C C, pivoted together at *a*, and formed with elongated shanks D D, having curved slots *d d*, in combination with the open link A and pin or bolt *b*, substantially as and for the purposes herein set forth.

182,648. VEHICLE-WHEELS. John W. Anderson, Drumore Township, (near Green P. O.,) Lancaster County, Pa. [Filed Aug. 18, 1876.]



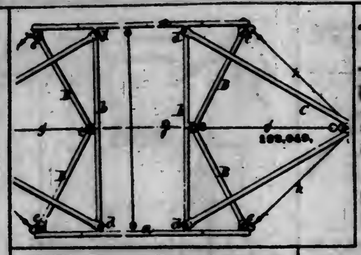
1. The circumferential slot grooves C on each side of the openings of the sockets D, on the inner face of the hub-casing B, the continuous wedging-bands C', held in place by screws or wedge-pins *b*, to clamp the tenons of the spokes F when in place, substantially as and for the purpose specified.

2. The metallic U-shaped rim I of a wheel, made in two or more sections, with intermediate rib or ribs L, cross-braces Q Q', the latter provided with oblong tapering perforations, the sockets O' for the end of the spokes F, substantially as and for the purpose described.

182,649. HAMMOCK-FRAMES. Jesse B. Aret, Brooklyn, N. Y. [Filed Aug. 18, 1876.]

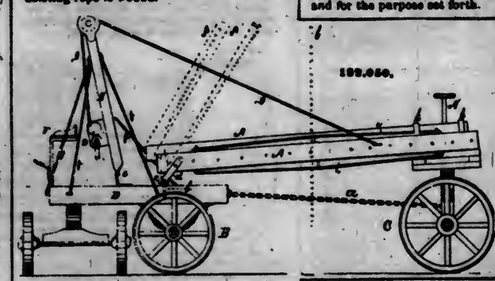
1. A hammock-frame, composed of rigid side rails *a*, sectional hinged end rails *b*, hinged braces B, and folding derricks C, all constructed and operating substantially as described.

2. The combination, with the rigid side rails *a*, sectional hinged end rails *b*, hinged braces B, and folding derricks C, of guy-ropes *h*, and a rope, *g*, all arranged substantially as and for the purpose set forth.



182,650. FIREMEN'S ESCAPE-LADDER AND TRUCK. James A. Arnold, Newark, N. J. [Filed Jan. 26, 1876.]

Brief.—One end of the ladder is pivoted to a truck, the other end being supported and carried by an extra pair of wheels, which are connected to the main truck by a chain. The ladder is raised and lowered by a hinged derrick, which is steadied by guy-ropes, and carries a drum and windlass, on which the hoisting-rope is wound.



1. The combination of the detachable trucks B C, the derrick secured to the front truck, and the ladder A resting upon the rear truck and connected to the front truck by a detachable rod or pivot, *b*, as set forth.

2. The combination, with truck D, of the adjustable ladders, the derrick-post B', hinged at the lower end to the truck, and the flexible stays *f* connected to the post and to the truck, as specified.

182,651. DOUBLE-WOVEN TEXTILE FABRICS. Seth W. Baker, Providence, R. I. [Filed May 27, 1876.]

Brief.—The fabric is woven after the fashion of Gujer, but with finer threads on the side forming the interior of the hose, (for the purpose of producing a smooth inner surface,) except at the edges, where the stouter threads are retained to give greater strength at the seam.



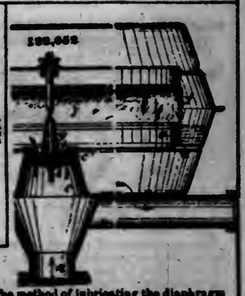
1. The improved woven fabric, having one side or face, F, of fine texture, and the other side or face, C, of coarse texture, the edges E being constructed of a stouter thread than that employed in the body of the fabric, substantially as described.

2. The herein-before-described fabric, provided with the strengthened edges H, in combination with the rubber lining G, substantially as described.

182,652. GAS-REGULATORS. B. J. Baker, Baltimore, Md., assignor to Dickey, Baker & Co., same place. [Filed July 21, 1876.]

Brief.—Means for lubricating the diaphragm.

1. In a gas regulator having a diaphragm substantially such as described, the oil-reservoir, in combination with said diaphragm, which is attached within the wall of the reservoir, so as to be within reach of the oil, substantially as described.

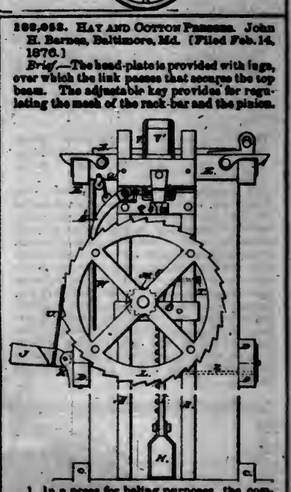


2. The method of lubricating the diaphragm of a gas-regulator by keeping the edge thereof in contact with oil, whereby the oil may be carried to any part through capillary attraction, as set forth.

3. A valve for gas-regulators, made of conical and globular parts, made separate, and fitted to each other and to the valve-seat, as and for the purpose set forth.

182,653. HAY AND COTTON PRESSES. John H. Barnes, Baltimore, Md. [Filed Feb. 14, 1876.]

Brief.—The head-plate is provided with lugs, over which the link passes that secures the top beam. The adjustable key provides for regulating the mesh of the rack-bar and the pinion.



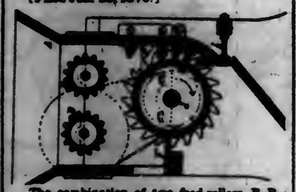
1. In a press for baling purposes, the combination of the upright beams A, cross or tie beam O, pinion M, driving-wheel L, rack bar I, and adjustable key N, substantially as described.

2. The combination, with the rack-bar I and its follower, pinion M, and ratchet-wheel L, of the pivoted lever J, link U, and pawl H', substantially as described.

3. The uprights A A and the head-plate Q, provided with lugs *s s*, in combination with the links V and beam V', arranged on the top door F of the same, substantially as described.

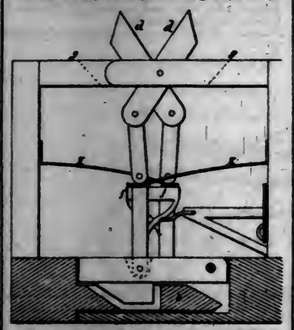
4. The combination, with the pinion M, rack-bar I, and upright beam A, of the key N and a set-screw, T, substantially as and for the object specified.

182,654. HOP-CRUSHERS. Adolph Bornmann and Friedrich Hoeppner, New York, N. Y. [Filed Jan. 26, 1876.]



The combination of two feed-rollers, B B, having teeth on their surfaces, with a toothed crushing-roller, C, and with a closed frame, A, on one side of which are formed a stationary crushing-surface, D, and an adjustable crushing-surface, E, all constructed and operating substantially in the manner shown and described.

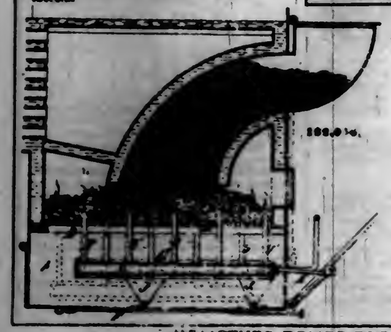
182,655. CAR-COUPLINGS. Arthur L. Hunt, Johnstown, Wis. [Filed Aug. 24, 1876.]



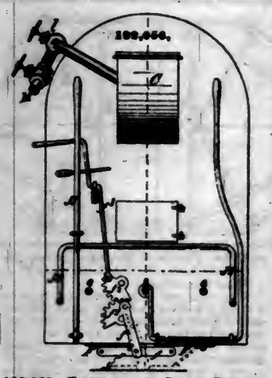
The combination of the double clutch in a coupler, with the wedge-shaped tongues *b b*, and the dogs *c c*, springs E E, levers *d d* and D D, connecting-rods and arms *f f*, substantially as described, and for the purposes set forth.

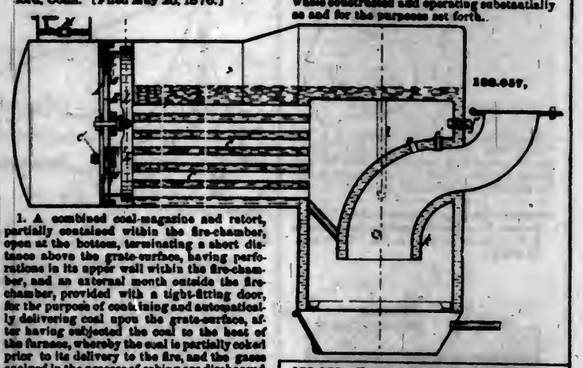
182,656. STEAM-BOILER FURNACES. James W. Bonta, New Brighton, Pa., assignor to Bonta Furnace Company, Hartford, Conn. [Filed Feb. 1, 1876.]

In a steam-boiler furnace, provided with a magazine-retort, partially contained within the fire-chamber and partially projecting therefrom externally, a gas-discharge pipe, connected at one end with the external portion of the magazine-retort and at the other end with the fire-chamber, and provided with a valve, in combination with an air-injection pipe, also provided with a valve, the whole constructed and arranged substantially as shown and described, for the purpose of drawing gas from the magazine-retort and injecting it into the fire-chamber, and thus creating a draft through the magazine-retort, and increasing the rapidity with which gas is generated therein.



182,657. FURNACES FOR STEAM-BOILERS. James W. Bonta, New Brighton, Pa., assignor to Bonta Furnace Company, Hartford, Conn. [Filed May 20, 1876.]





1. A combined coal-magazine and retort, partially contained within the fire-chamber, open at the bottom, terminating a short distance above the grate-surface, having perforations in its upper wall within the fire-chamber, and an external mouth outside the fire-chamber, provided with a tight-fitting door, for the purpose of containing and automatically delivering coal upon the grate-surface, after having subjected the coal to the heat of the furnace, whereby the coal is partially coked prior to its delivery to the fire, and the gases evolved in the process of coking are discharged from the upper portion of the magazine-retort into the fire-chamber, in suitable position for contributing by their ignition to the heating of the boiler.

2. A magazine-retort, substantially such as described, in combination with a closed ash-pit and injection-pipes, for the introduction of prescribed quantities of oxygen into the ash-pit, and from thence through the grate into the fire-chamber.

3. A magazine-retort, substantially such as described, and a closed ash-pit, provided with an induction-pipe, for the introduction of oxygen below the grate-bars, in combination with an induction-pipe, for introducing oxygen into the fire-chamber, in suitable position for immediate mixture with the gases generated and discharged from the retort, substantially as described.

4. A magazine-retort, substantially such as described, surrounded within the fire-chamber by a water-jacket connected at variable elevations with the water-body of the boiler by means of suitable pipes, substantially as described.

5. A fire-chamber, provided with a magazine-retort, substantially such as described, in combination with a supplementary combustion-chamber, provided with induction-pipes for supplying the said supplementary combustion-chamber with oxygen, either in the form of air or steam, or both.

6. The tube-sheet of a boiler, in combination with the fire-brick reducer-damper, provided with mechanism whereby the damper may be opened and closed, substantially as described.

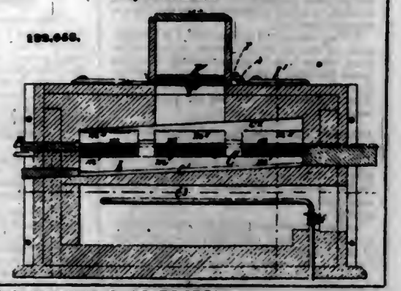
7. A perforated fire-brick wall, constituting the outer boundary of a supplementary combustion-chamber, substantially such as described, in combination with a flue or smoke-stack damper, substantially as described.

8. A steam-boiler furnace having a closed ash-pit, provided with an induction-pipe, and a fire-chamber, also provided with an induction-pipe or pipes, a magazine-retort, substantially such as described, a supplementary combustion-chamber having a pipe or pipes for the admission of oxygen thereto, and an external perforated fire-brick wall, provided with a perforated rotating fire-brick disk, the whole constructed and operating substantially as and for the purposes set forth.

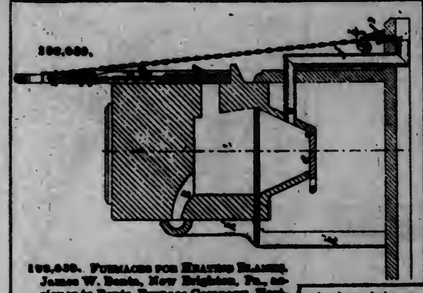
182,658. FURNACES FOR MELTING COPPER. James W. Bonta, New Brighton, Pa., assignor to Bonta Furnace Company, Hartford, Conn. [Filed Aug. 5, 1876.]

1. The double series of base-burning coal-magazines, arranged over two corresponding series of closed ash-pits, provided with pipes for injecting blasts of air, in combination with a melting-chamber, substantially such as described, situated between the coal-magazines, and having narrow openings in its opposite side walls, a short distance above its bed, for admitting the flames from the lower parts of the coal magazines, substantially as set forth.

2. A series of base-burning coal-magazines, substantially such as described, and a melting-chamber having an inclined bed, in combination with downward flues leading from the melting-chamber, the inner mouths of the said flues being at, or nearly at, the same level as the lower boundary of the openings in the side walls of the melting-chamber bed, substantially as described.



182,659.

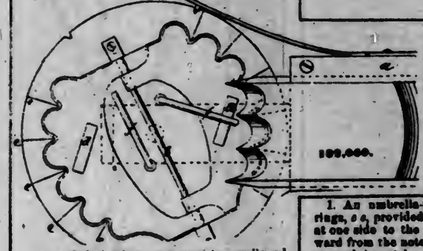


182,659. FURNACES FOR HEATING BLANKS. James W. Bonta, New Brighton, Pa., assignor to Bonta Furnace Company, Hartford, Conn. [Filed Apr. 8, 1876.]

1. In a furnace for heating blanks, a heating-chamber provided with an outlet for the escape of the noncombustible products of combustion, and an opening or mouth for allowing access to its interior, provided with a movable door, and a closed ash-pit, provided with a pipe for the injection of air, in combination with two vertical chambers or magazines, closed at the top by movable covers, for containing coal and discharging the same, after partial coking, into the opposite sides of the heating-chamber, substantially as shown and described.

2. A sliding door for closing the mouth of an opening through which access is had to the interior of the heating-chamber of a furnace, for the purpose of introducing blanks to be heated, and mechanism for raising such door, in combination with an air-blast pipe, and with a valve arranged in such air-blast pipe, the whole constructed and operating substantially in the manner described, whereby, when the door is raised, the blast is shut off from the furnace by the closing of the valve.

182,660. LEATHER CRIMPING AND FOLDING MACHINES. Henry Charmbury, Newark, N. J. [Filed Feb. 4, 1876.]



1. A disk, having a recess with a scalloped or curved pointed outline, in combination with a correspondingly-shaped folding-iron, to fold and press down the edges of the scallops or curved points of the fabric under treatment.

2. A curved pointed or scalloped clamping-plate, in combination with a disk, to secure the leather to be folded and pressed.

3. A disk, arranged to rotate about its own axis, in combination with a reciprocating folding-iron, the face of the disk and the folding-iron to be arranged upon the same plane.

4. One or more clamping-plates, made with a curved pointed or scalloped edge, in combination with a disk, arranged to rotate, and a pressing or folding iron, to fold and press the edges.

5. The spring J, in combination with the rotating disk, to fix it in the desired position.

6. A disk, provided with the grooves *e e e* upon its face, to indicate the places to which the leather or other material is to be folded, substantially as specified.

182,661. FIRE-ESCAPES. John S. Cochran, New York, N. Y. [Filed Aug. 18, 1876.]

1. In a fire-escape, the sprocket-wheel D, sustained by the pivot B of the hanger C, having its point of suspension in the same plane as the groove of the sprocket-wheel, in combination with the drum and the centrifugal friction-blocks, the inner circumference of the drum being concentric with the pivot B, all substantially as and for the purpose herein set forth.

2. The staple or step G on the drum, and the bolt attached to the hanger, said parts constituting a stop which prevents the lowering of the drum within the hanger, substantially as and for the purpose herein set forth.

182,662. SWINGS. Charles Cornwell, Philadelphia, Pa. [Filed Feb. 8, 1876.]



1. In a doorway-swing, the hooks B B, in combination with the looped strap C or cord E, substantially as and for the purpose set forth.

2. The cent F, having the holes J, K, and L, in combination with the side ropes E E, the whole constructed and arranged substantially as described.

182,663. UMBRELLA-RUNNERS. William P. Ferguson, Brooklyn, N. Y. [Filed Feb. 17, 1876.]





1. An umbrella-runner, having a ring or rings, *c c*, provided with springs *c' c'*, fastened at one side to the plate *b*, projecting downward from the notched ring *a*, and arranged to catch in notches *a' a'*, substantially as herein before set forth.

2. The combination of the notched ring *a*, the rings *c c*, provided with springs, the stick *e*, with the notches *d' d'* formed therein, and the outside sliding cone *d*, all constructed to operate substantially as herein before set forth.

182,664. COMBS, &c. Patrick Gibbons, Keokuk, Iowa. [Filed July 14, 1876.]



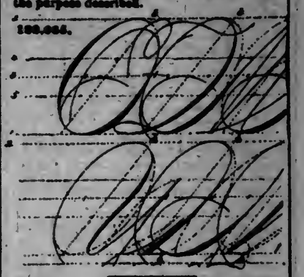
The cork with the inclosing cord tied tightly around it from bottom to top, across the fiber, and having its ends extending from the top, as an improved article of manufacture, for use substantially as set forth.

182,665. BLACKBOARDS. J. W. C. Gilman, Malden, Mass. [Filed June 20, 1876.]

Brief.—Faint outlines are printed upon the blackboard for the teacher to follow if necessary.

The described improvement in instructors' blackboards, consisting of a blackboard-surface, prepared for writing or drawing with chalk, and having faintly printed thereon, in lines of low tone, construction-lines, illustrations, and diagrams, to be successively developed and brought out by the teacher by the aid of chalk-drawing, substantially as and for the purpose described.

182,666.



182,666. VEHICLE-SPRINGS. A. Goodyear, 2d, Hamden, Conn. [Filed Mar. 8, 1876.]



The block of India-rubber E *r r*, with flanges or T-shaped extensions, in combination with the inner ends of the spring, constructed and arranged in the manner and for the purpose herein described.

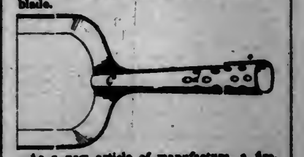
182,667. INVALID ATTACHMENTS FOR BEDS. Edwin W. Grafton, Chicago, Ill. [Filed Feb. 9, 1876.]



The invalid attachment for spring-beds herein described, consisting of bar D, slats G G, and slats F F', the latter connected with bar D by means of cords *c c*, hinged side pieces H H, having notches I and bar or handle I, all combined and operating substantially as and for the purpose herein shown and specified.

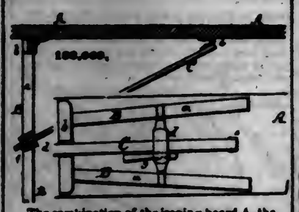
182,668. SHOVELS. John Graves, New York, N. Y., assignor to Robert Seamans and H. W. Shepard. [Filed Aug. 11, 1876.]

Brief.—The pattern for the shovel is made of a single sheet of plate metal, of the form for the blade and handle, and then set up in dies, the handle being raised to a half-cylindrical form, and commencing at the heel of the blade.



As a new article of manufacture, a fire-shovel constructed out of a single piece of metal, having its handle projecting directly from the blade, and the excess of metal left in forming the rim being worked up to impart a half-round or semi-circular form to the handle at its point of union with the blade, substantially as described.

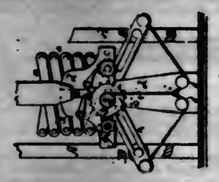
182,669. IRONING-TABLES. Henry Guyer, Newark, and Anna Newton, Jersey City Heights, N. J. [Filed Aug. 18, 1876.]



The combination of the ironing-board A, the hinged leg B, having the swiveled slotted cross-piece d, and the brace C hinged to the board A, and extending through the slot of said swiveled cross-piece d, substantially as specified.

182,070. ELEVATORS. Phillip Hammert, New York, N. Y. (Filed Aug. 24, 1876.)

Brief.—The lower arms of the lazy-tongs have adjustable weight to help to extend the said tongs into a vertical position. The weights can be removed from or adjusted on said arms.



1. The combination, in an elevator, of the lazy-tongs a a with a weight, D, that is applied to the lower pair of levers constituting the lazy-tongs, substantially as and for the purpose set forth.

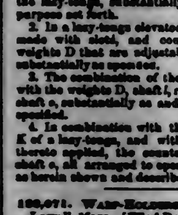
2. In a lazy-tongs elevator, the levers K K, made with slots, and combined with the weights D that are adjustable in said slots, substantially as specified.

3. The combination of the slotted levers K with the weights D, shaft f, rope n, and crank-shaft e, substantially as and for the purpose specified.

4. In combination with the weighted arms K of a lazy-tongs, and with the weights D thereto applied, the counter-weight E, and shaft e, all arranged to operate substantially as herein shown and described.

182,071. WARP-BOLSTER. Nathaniel Hill Lowell, Mass. (Filed Dec. 10, 1875.)

Brief.—The groove in the beam has an undercut at one side, and the bar that fits into it has a corresponding shape. The bar being rolled into its place, (it is not slid in lengthwise,) the warps or fabric extending from the side of the groove, which has the undercut, may be drawn with any degree of tension without its removing the bar.



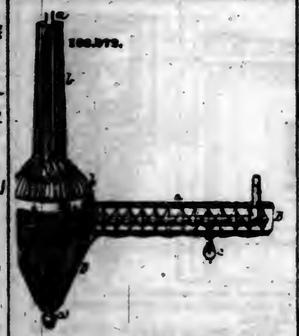
A bar or beam, A, provided with a slot, F, having an undercut, C, in combination with the rolling-bar B, substantially as and for the purpose described.

182,072. PRESSED-GLASS TRIMMINGS FOR CHANDELIERS, BRACKETS, &c. J. H. Hobbs, Wheeling, W. Va. (Filed Aug. 24, 1876.)

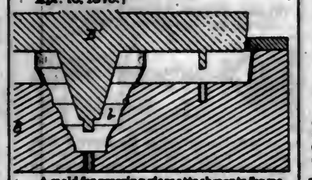
1. Open-sided pressed-glass trimmings or mountings, constructed for attachment to brackets and bracket-arms, substantially as set forth.

2. In combination with radial brackets a', pressed-glass U-shaped attachments B and open bowed pressed glass center plate B', substantially as set forth.

3. In combination with a pressed or blown glass bowl-shaped center-piece, with hole in the bottom, or other suitable means of attachment to a supporting-stem, a, two or more outwardly-extending pressed-glass trimming-pieces, which shall inclose or ornament the bracket tubes or arms to which they are applied, substantially as set forth



182,072.



A mold for pressing glass attachments for metallic chandeliers, having a central cavity for the pressing of a center-piece or a part thereof, and radial cavities communicating therewith for the pressing of bracket-trimmings thereon, so as to form a part thereof, in combination with a plunger, which shall both shape the center-piece, and also force the glass centrally into the radial cavities, substantially as set forth.

182,074. MANUFACTURE OF TINNED SHEET-COPPER. Thomas James, Seymour, Conn. (Filed June 21, 1876.)

As an improvement in the art of polishing sheets of tinned copper, placing two sheets together, their tinned surfaces being in contact, and passing the same between polished rolls, the latter rolling in contact with the copper surfaces, substantially as described.

182,075. WINDOW-BLINDS. A. A. Joyce, New York, N. Y. (Filed July 26, 1876.)

Brief.—The slats are provided with pinion-wheels, and operated by rack-bars. Metallic clips hold the pinion-wheels and racks together. The slat-pivot is made T-shaped at its inner end, and enters an opening in the blind-slat.



182,075.

1. The clips E, in combination with the rack G, pinion D, and operating-rack F.

2. A blind-slat, B, with one or both ends square, and perforated, so as to receive the tenon a.

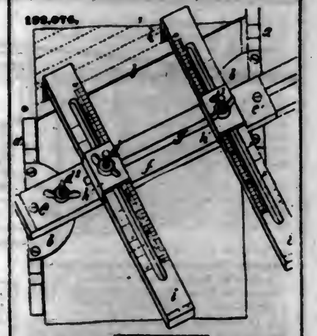
3. The blind-slat B, in combination with the blind-slat tenon a.

4. The combination of the racks G and F, pinion D, clips E, plates l, tenon a, and slats B, for the ends and purposes mentioned.

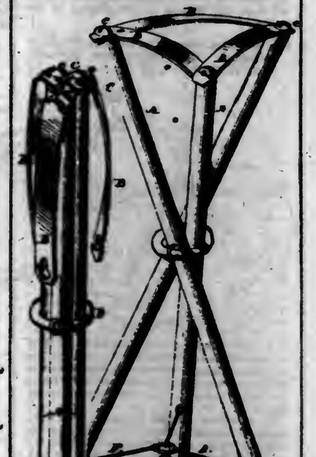
182,076. CLOTH-MARKING. Geo. T. Jones, Ashland, Mass. (Filed Aug. 11, 1876.)

1. The combination of the guides a a', slotted center bar f, and slotted ends-bars f f, constructed to operate substantially as and for the purpose described.

2. In combination with the guides a a', the metal plates b b with elliptic slots c c, limiting the movement of the slotted center bar f in both directions, substantially as herein set forth.



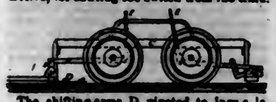
182,076.



A folding seat or stool composed of the supports A, the metal straps B, and links C, the connecting-ring D, and the folding seats E, constructed and operating substantially as and for the purpose specified.

182,077. OPERATING RAILROAD-SWITCHES. E. Joralemon, Bainbridge, N. Y. (Filed Aug. 5, 1876.)

Brief.—A shifting device carried on the locomotive, for shifting the switch from the train.

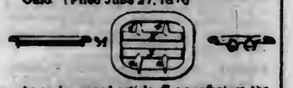


The shifting-arms D, pivoted to lugs c, in combination with levers E, connecting-rods F, and switch-rail A, working in recess d, substantially as herein described, for the purpose set forth.

182,078. CAMP-STOOLS. Benj. F. Larrabee, Lynn, Mass. (Filed Apr. 20, 1876.)

A folding seat or stool composed of the supports A, the metal straps B, and links C, the connecting-ring D, and the folding seats E, constructed and operating substantially as and for the purpose specified.

182,079. BUCKLES. Wm. Lesse, Cincinnati Ohio. (Filed June 27, 1876



As an improved article of manufacture the grooved buckle-frame A, provided with depending ears, into which are journaled two parallel grooved levers, each lever being provided with two grooved prongs, substantially as described, and for the purpose set forth

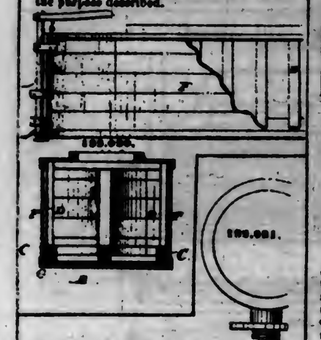
182,080. CONSTRUCTION OF IRON BOATS, &c. John McCreary, Middletown, Pa. (Filed Aug. 7, 1876.)

1. In a canal or other flat-floor iron boat, the knuckle-plate C, constructed of wood, and adapted to render the frame elastic at such point, substantially as and for the purpose described.

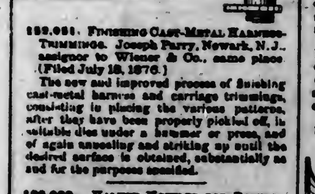
2. The combination, with the iron floors B and iron ribs D, of the knuckle-plate C, the latter adapted to support and receive the said ribs and floors, substantially as and for the purpose described.

3. The bilge-fender G, projecting both laterally outward and vertically downward from the knuckle of an iron boat, substantially as and for the purpose described.

4. The combination, with the metallic outer skin F, iron ribs and floors D B, of the knuckle-plate C and fender G, substantially as and for the purpose described.



182,080.



182,081.

182,081. FINISHING CAST-METAL HARNESS-TRIMMINGS. Joseph Perry, Newark, N. J., assignor to Wiener & Co., same place. (Filed July 18, 1876.)

The new and improved process of finishing cast-metal harness and carriage trimmings, consisting in placing the various patterns, after they have been properly pickled off, in suitable dies under a screw or press, and of again annealing and stirring up until the desired surface is obtained, substantially as and for the purposes specified.

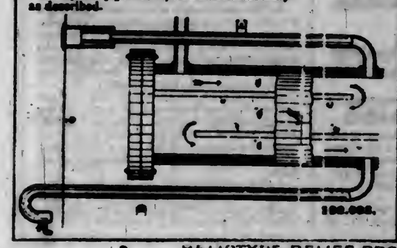
182,082. VALVED MOBILES FOR BOTTLE-STOPPERS. Elias E. Rogers, Jersey City Heights, N. J. (Filed Aug. 17, 1876.)



The combination, with the tube and the valve, of the cap D, provided with a nozzle, E, and having projections within, so arranged as to rest on and hold the valve against its seat when said cap is screwed down, and when unscrewed slightly will allow the liquid or other contents to escape by the nozzle, substantially as specified.

182,083. WATER COOLERS AND PURIFIERS. John S. Seymour, St. Louis, Mo. (Filed July 18, 1876.)

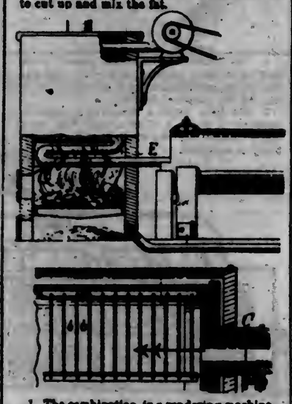
The herein-described water cooler and purifier, consisting of the cylinder A, partitions e and e', and pipes C, D, and E, substantially as described.



182,083.

182,084. RENDERING APPARATUS. Amor Smith, L. Smith, and Amor Smith, Jr., Cincinnati, Ohio. (Filed May 20, 1876.)

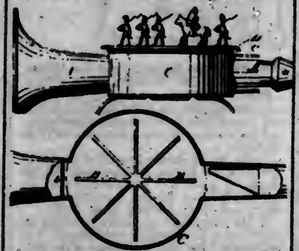
Brief.—A revolving tank is provided with two pipes, through one of which passes a blast of hot air; through the other the material to be treated is fed without interrupting the operation. Across the interior of the tank bars or chains are stretched, which serve to cut up and mix the fat.



1. The combination, in a rendering-machine, of the revolving tank B, into which the material to be rendered is introduced, the hot-air pipe E, constituting a blast of heated air directly into said tank, and the feed-pipe C, conducting the material to be rendered into said tank while in operation, substantially as above and described.

2. The combination, with the revolving tank B of a hot air rendering-machine, of bars and chains b b c c, one or both, for the purpose of dividing and agitating the animal matter, and assisting in its reduction, substantially as described.

182,085. TOY TRUMPETS. Fred Sterling, Austin, Tex. (Filed June 24, 1876.)



In combination with a toy trumpet, A, having the deflector a and sounding apparatus b, arranged either in front of or behind the deflector c, the paddle-box C and rotating wind-wheel B, the latter having a rotating disk, D, secured thereto, upon which are affixed devices or figures, substantially as and for the purpose hereinbefore specified.

182,086. SAFETY HOD-ELEVATORS. John W. Sutton, New York, N. Y. (Filed Mar. 13, 1876.)

Brief.—The elevator-frame carries on each side a series of horizontally-swinging cranes, the arms of which form hod-crutches. The arms are swung outward for the reception of the hods, and swing back automatically, so that the whole apparatus is brought to a reduced compass for ascent or descent.

1. A horizontal movable crane, constructed with the hod-carrying crotches D, in combination with the elevator, substantially as and for the purpose set forth.

2. The lower pivot b' of the crane B, arranged at a greater distance from the standard C than the upper pivot b, whereby the crane, with their crotches D, are caused to automatically swing inward toward the standard, substantially as set forth.

3. The flanges c, provided upon the lower extremity of the extension A' of the hod-carrying crotches D, in combination with the crane B, substantially as and for the purpose set forth.

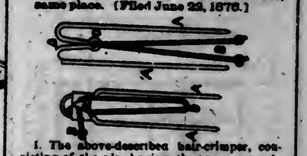
182,087. FIRE-KINDLERS. Felix Tyler, Cleveland, Ohio. (Filed June 16, 1876.)

Brief.—The pieces are held together by nails driven in from each side, and passing beyond the center, thus preventing the pieces from turning.



The fire-kindler above and described, consisting of strips or pieces of wood A B, interlocking by alternate arrangement from opposite sides, secured together by nails D, and having an igniting slit or slits, C, the whole constructed in the form of an arch or bridge to support the fuel while being ignited or kindled, and to provide an air-space beneath the fuel, substantially as specified.

182,088. HAIR-CRIMPERS. Sylvester Walker, Boston, Mass., assignor to Danl. Foben, same place. (Filed June 22, 1876.)

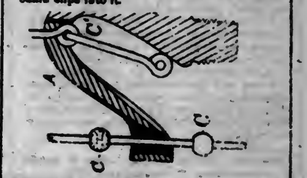


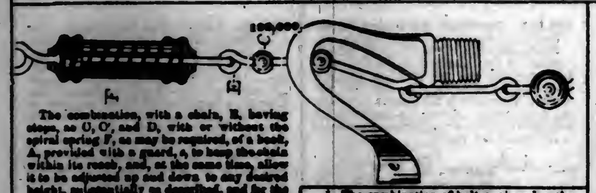
1. The above-described hair-crimper, consisting of the pin, having the two prongs A, spring-clamp D, and eye C, formed from a single piece of wire, in combination with the cord B, all being constructed and arranged to operate essentially as and for the purposes set forth.

2. The above-described hair-crimper, consisting of the pin, having two prongs, A, non-elastic cord B, and spring-clamp D, arranged in such manner as to admit of the cord being drawn within the clamp, so as to be held at any point upon the same, as may be required by the varying quantities of hair placed upon the pin, as and for the purposes substantially as set forth.

182,089. SUSPENDING CHANDELIERS. Geo. Warner, Des Moines, Iowa. (Filed May 6, 1876.)

Brief.—The chain and its stops can pass through the aperture in the guard when the hook is lifted to one side, so that the chain slips into it.





The combination, with a chain, B, having stops, as C, C', and D, with or without the spiral spring F, as may be required, of a hook, A, provided with a guard, a, to keep the chain within its reach, and, at the same time, allow it to be adjusted up and down to any desired height, substantially as described, and for the purpose set forth.

189,680. IRON-MAKING APPARATUS. Charles Whitaker, Davenport, Iowa. [Filed Feb. 23, 1876.]

Brief.—A frame of separable sides set on a spacer platform, and lined with a removable greased and water-tight fabric, in which water is frozen by natural temperature. One side of mold lower than the other, that carries water may overflow into an inferior mold. Central block relieves sides of mold from pressure.



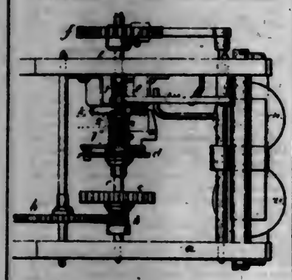
1. The framing-mold B, having the sides *f f* provided with end tenons, and the sides *e e* provided with end mortises, in combination with the keys *h h* and slatted removable frame, substantially as and for the purpose set forth.

2. The framing-mold B, having the upper edge of one of its sides *f* lower than the other three sides, substantially as and for the purpose set forth.

3. The greased lining C, in combination with the framing-mold B, constructed as set forth, and slatted frame A, substantially as described, and for the purposes set forth.

4. The frame A, provided with end pieces *b b* and slats *c c*, having interstices between them, substantially as described, and for the purpose set forth.

189,681. PRINTING-TELEGRAPH. Charles J. Wiley, New York, N. Y. [Filed Feb. 10, 1876.]



1. The combination, with a type-wheel and its motor, of a compound detent that simultaneously disconnects the motor and locks the type-wheel, as the reverse.

2. A notched unison ring and detent, *c*, in combination with a type-wheel and a screw, substantially as set forth.

3. A screw receiving an end movement as the type-wheel revolves, in combination with such type-wheel, and unison mechanism brought into action by the end movement of the screw, substantially as set forth.

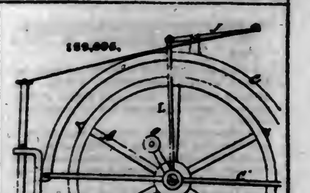
4. The combination of the ratchet-wheel *d*, compound detent *c r*, sleeve *e*, type-wheel *f*, unison-ring *h*, screw *i*, and lever *m*, substantially as and for the purposes set forth.

5. The combination, with the notched unison ring and the liberating mechanism operated by the press magnet, of the compound detent *c r*, and a spring to press the detent *c* into the notch of the unison-ring, substantially as set forth.

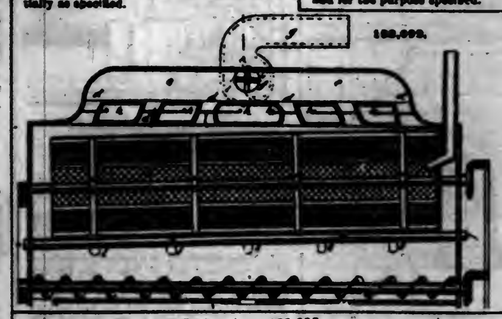
189,682. FLOUR-BOLTS. John F. Agler, Avoca, Iowa. [Filed May 27, 1876.]

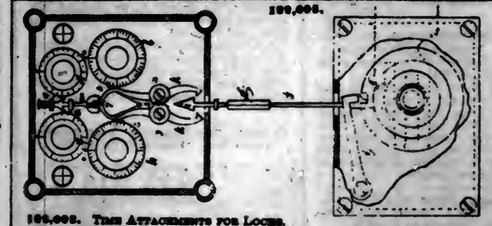
1. The combination of bolt *a*, pipes *b c*, the cushion-crank *g*, passages *d*, having adjustable valves, and cushion-box *f*, substantially as and for the purpose specified.

2. The inlet pipes *b*, distributing-pipes *c*, passages *d*, slides *h*, chest *a*, box *f*, and dust-spout *g*, combined with the floor-bolt, substantially as specified.



An ice-velocipede having its drive-shaft journaled in the spring bars C', and connected, by pivoted rods L, with a hand-lever, J, as and for the purpose specified.





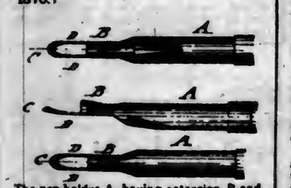
189,683. TIME ATTACHMENTS FOR LOCKS. Henry F. Allen, Brooklyn, N. Y. [Filed Sept. 20, 1876.]

1. The combination of the forcope *h*, link *f*, and dog or finger *b*, with the two time-dials *b i* and their operative cams *k*, substantially as set forth.

2. The spring-forceps *h*, made of two levers upon separate centers, and provided with the segmental gears *3*, in combination with the two time-dials *b i* and the connection to the dog or stop *b*, substantially as set forth.

3. The forceps-lock *m*, made of a sliding bar moved by a clock-dial, in combination with the forceps *h* and time mechanism of the lock, substantially as set forth.

189,684. FOUNTAIN PEN-HOLDERS. A. P. Allen, Denmark, Iowa. [Filed May 22, 1876.]



The pen-holder A, having extension B and point C in one piece, and connected by straps D, the said extension being beveled, and provided with a cavity, B', above the body of pen, substantially as shown and described.

189,685. ICE-VELOCIPEDES. Juan Arnao and Juan Arnao, Jr., Brooklyn, N. Y. [Filed June 20, 1876.]

189,686. SEWING-MACHINES. E. C. Barton, Philadelphia, Pa. [Filed Mar. 20, 1876.]

Brief.—A carriage mounted on rails, and moved longitudinally of the work by a peculiar combination of mechanism from a pattern-cam, which also, by means of mechanism peculiar to this machine, moves two frames (each carrying sewing mechanism) transversely upon the carriage, either independently or together. The sewing mechanisms are driven from a shaft (upon which the two frames are moved) transverse to the carriage, and may be operated singly or together, according to the number of seams desired. The fabric operated upon is stationary.

1. The combination of a traveling carriage, two or more frames carrying sewing mechanism, and moving transversely on said carriage and mechanism, substantially as set forth, for imparting independent transverse movement upon the carriage to either or both of said frames, as and for the purposes described.

2. The combination of a traveling carriage, a frame carrying sewing mechanism and moving transversely on said carriage and mechanism, substantially as described, whereby the longitudinal movement of the carriage and the transverse movement of the frame are effected by the same pattern-cam.

3. The combination of a traveling carriage and one or more frames mounted and moving transversely thereon, each carrying a sewing mechanism in which the shuttle-carrier vibrates transversely to the line of movement of its carrying-frame, substantially as set forth.

4. The combination of two frames, each carrying sewing mechanism, and moving parallel to a driving-shaft, with said driving shaft provided with mechanism, substantially as described, whereby the sewing mechanisms of

the two frames are operated without regard to the relative positions of the frames and shaft, substantially as set forth.

5. The combination of a traveling carriage, two frames carrying sewing mechanisms and moving upon the carriage transversely to its line of movement, and a cloth-plate attached to one of the frames, and having a slot common to the needles of both frames, substantially as set forth.

6. The combination of a driving-shaft, two frames mounted and moving longitudinally thereon, and each carrying a sewing mechanism, and cloth-and clutch-levers on said driving-shaft, whereby said sewing mechanisms may be operated therefrom either singly or together, substantially as set forth.

7. The combination of the frames C C', needle-bars *c' c'*, shuttle-carriers *d' d'*, driving-shaft E, and shuttle-carrier shafts *e' e'* operated by said driving-shaft, substantially as set forth.

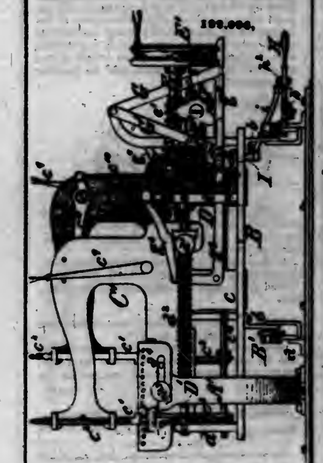
8. The combination of a pattern-cam, F, driving-shaft E, frame C, carrying sewing mechanism, and mechanism, as described, whereby said frame is connected to and moved by the pattern-cam.

9. The combination of a driving-shaft, E, worm *e'*, worm-wheel *f'*, pattern-cam F, and traveling carriage B, provided with a feed mechanism variably operated from the pattern-cam by mechanism, substantially as set forth.

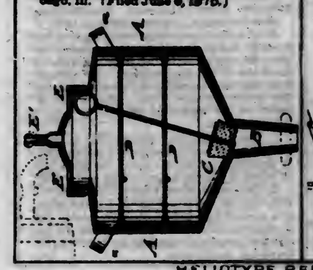
10. The combination of the carriage B, frames C C', and guide-bars D D', substantially as set forth.

11. The combination of the carriage B, movable frames C C', driving-shaft E, pattern-cams F F', vibrating arms G G', and connecting-links *g' g'*, substantially as set forth.

12. The combination of the rail *a*, carriage B, clutch-lever H, spring *h'*, link *h''*, rock-shaft I, arms *i i'*, links *i' k*, bell-crank *k*, cam *J'*, and vibrating arm G', substantially as set forth.



189,687. FUNNELS. John O. Barton, Chicago, Ill. [Filed June 6, 1876.]



189,688. SAND-PUMPS. William H. Birge, Franklin, Pa. [Filed Aug. 7, 1876.]

Brief.—A rotating sand-pump valve, provided with toothed segment, which engages with a rack formed at the edge of a slot in the outer part of a telescopic case. The telescoping of the parts operates the valve.

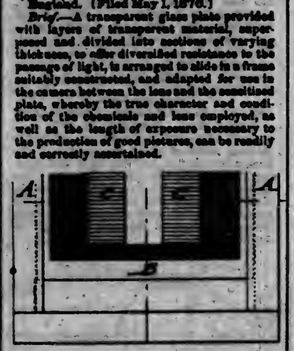


1. A rotating sand-pump valve, which is opened and closed by the telescoping or sliding together of the parts forming the lower end of the pump, substantially as specified.

2. The combination of the sliding tubes A and B, valve-plug C, segment *c*, rack *b*, and spring D, substantially as shown and described.

189,689. PHOTOGRAPHIC TESTING-PLATES FOR CALOTYPE. William A. Brine, London, England. [Filed May 1, 1876.]

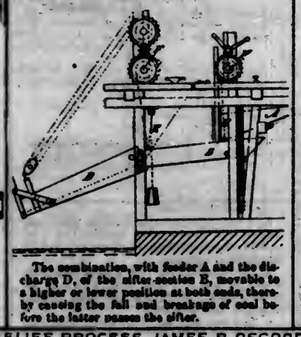
Brief.—A transparent glass plate provided with layers of transparent material, superposed and divided into sections of varying thickness, to offer diversified resistance to the passage of light, is arranged to slide in a frame suitably constructed, and adapted for use in the camera between the lens and the sensitized plate, whereby the true character and condition of the chemicals and lens employed, as well as the length of exposure necessary to the production of good pictures, can be readily and correctly ascertained.



The photographic testing-plate or actinometer herein described, consisting of the frame A and the sliding glass plate B, divided into sections C by sheets or layers of transparent material, the device being adapted for attachment to a photographic camera, and for use in the manner herein set forth.

189,690. COAL-CHUTES. Edmd. B. Bulkley, Perth Amboy, N. J. [Filed Mar. 6, 1876.]

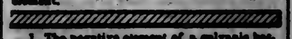
Brief.—The screening-chute or the delivery-chute may be elevated and lowered at either end separately or together by laterally shifting a central shaft and pinions.



The combination, with feeder A and the discharge D, of the sifter-section B, movable to a higher or lower position at both ends, thereby causing the fall and breakage of coal before the latter passes the sifter.

189,691. NEGATIVE PLATES FOR GALVANIC BATTERIES. John Byrne, Brooklyn, N. Y. [Filed Oct. 19, 1875.]

Brief.—Copper plate enveloped in a rolled or beaten sheet of platinum for a negative element.

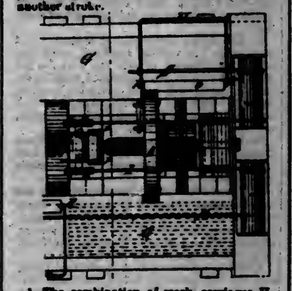


1. The negative element of a galvanic battery, consisting of a conducting-core covered with a solid adherent coating of platinum, whereby the direct action of the acid upon the said core is entirely prevented, substantially as described.

2. The improved process or method of fabricating negative plates for galvanic batteries described, consisting of coating a copper core with solder, applying thereto a plate of rolled or hammered platinum, having its surfaces previously tinned, and then applying heat, so as to metallically unite the copper and platinum, the platinum being made to completely envelop the copper, as and for the purpose specified.

189,692. MACHINES FOR HAWING STAVES. Benj. H. Catching, Forest Grove, Oreg. [Filed May 27, 1876.]

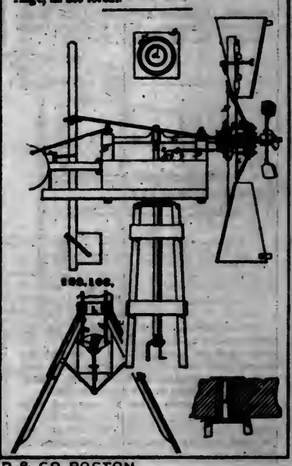
Brief.—A head-saw formed in two parts, one of which cuts while the other is on the back stroke, is fitted on an oscillating circular head, on each side of which is a feed-carriage worked by weighted cords, and a saw-table provided with grooves in its under side for gaging the work to the saw, and in which a guide-stud is shifted toward the saw one groove each time the saw is drawn back for another stroke.



1. The combination of work-carriages H, saw-table G, weighted cord I, drum J, and cords K, substantially as specified.

2. The combination of ratchet Q and pawl P with the weighted cord I; drum J, cord K, and work-carriage H, substantially as specified.

3. The saw-tables having a series of grooves, L, in combination with a guide-stud on the work-carriage, for gaging the work to the carriage, as set forth.



180,105. WHEELS. John P. Colbert, La Porte, Ind. (Filed June 12, 1876.)

Brief.—The governor-wheel is mounted on a screw-shaft. A sliding head is fitted to the shaft, and is capable of two planes, one of which is fitted to the shaft in the rear of the mains, and the other in front of the mains. These planes are connected by screw-bolts, one for each sail. Attached to the rear plane of this sliding head are rods, which connect to the pendulum or vertical lever, fulcrumed in the base, and provided with a weight, the tendency of which is to keep the sails full in the wind.

1. The small governor-wheel mounted on a screw-shaft in line with the main shaft, and connected to the sails of the mill, in the manner specified.

2. The combination, with the sliding head, consisting of two separate planes placed one at each side of the hub of the main wheel, of screw-rods running from plate to plate, and of the sylphoid-rods for controlling the sails which are threaded upon the screw-rods, and also the lock-nuts on said screw-rods for locking the said controlling-rods in position, as specified.

3. The combination with the sails, of the small vanes placed at the edges thereof, and standing broadside to the line of rotation, whereby the motion of the mill is caused to act as a governor, substantially as specified.

4. The means employed to throw the sails out of gear, consisting of a rod which passes straight back from the sliding head, and a flexible chain connected to said rod and passing over a pulley, below which it is attached to the vertical hand-rod, substantially as specified.

5. The means employed for centering and supporting the vertical hand-rod, consisting of the combination of said rod with the pitman, said pitman being provided with the enlarged perforated screw-threaded portion, through which said rod is threaded, and which contains the swiveling pump-rod connection, substantially as specified.

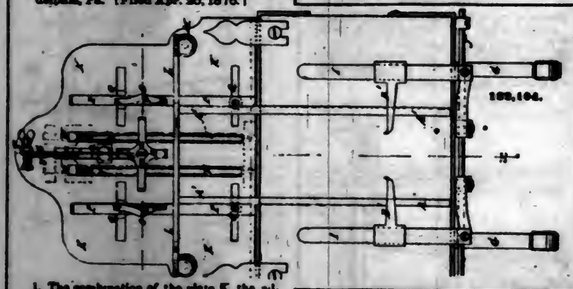
6. The carriage, composed of the timbers B and B', and the pillow-blocks B'', all held together by the through-bolts b, substantially as specified.

7. The combination, with the carriage, and with the central bearing or pivot upon which the carriage turns at the lower end, of a raised lip or rim on the flat bearing or base encircling said pivot-cone at a little distance therefrom, as and for the purpose specified.

8. The combination of the sails, the masts, and the sail-operating levers, the latter pivoted directly to the masts, substantially as specified.

9. The combination of the small governor-wheel, the large wheel, and sails, with the vanes placed upon the edge thereof, the adjustable tail vane, the weighted lever, the sliding head, and its connections, whereby the united effect of three governors acting in conjunction is produced upon the mill, substantially as specified.

180,104. FEEDING APPARATUS FOR CARD-PRINTING PRESSES. Wm. M. Clark, Philadelphia, Pa. (Filed Apr. 26, 1876.)



180,104.

1. The combination of the plate K, the adjustable shelf L, the adjustable guides O, the spider and its spring-bars E E U, and the flanged guide-bars A', to hold the cards and guide them into place upon the platen F, substantially as herein shown and described.

2. The adjustable arms B', provided with forwardly-projecting carved points, serving the purpose both of stops for the card and to raise the card slightly from the face of platen, as set forth.

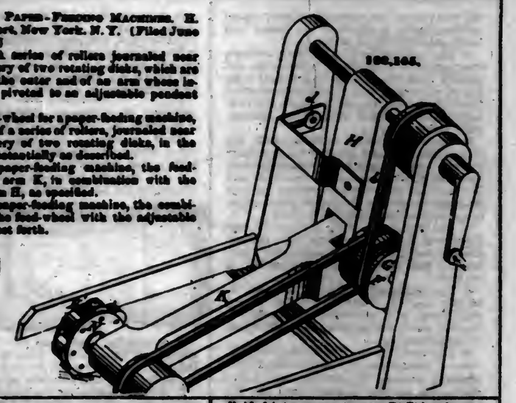
180,105. PAPER-FEEDING MACHINES. H. W. Covert, New York, N. Y. (Filed June 3, 1876.)

Brief.—A series of rollers journaled near the periphery of two rotating disks, which are carried at the outer end of an arm whose inner end is pivoted to an adjustable pendent arm.

1. A feed-wheel for a paper-feeding machine, composed of a series of rollers, journaled near the periphery of two rotating disks, in the manner substantially as described.

2. In a paper-feeding machine, the feed-wheel and arm K, in combination with the pendent arm H, as specified.

3. In a paper-feeding machine, the combination of the feed-wheel with the adjustable arm K, as set forth.



180,105.

180,106. PROCESSES FOR THE MANUFACTURE OF RAWHIDE. Wm. Coupe, South Attleborough, Mass. (Filed July 11, 1876.)

The improved process described, of submitting the hides or skins from which the hair has been removed to a succession of baths, composed of the solution and in the order set forth, and, when partially dry, coating them with a mixture of tallow, beef-wax, and paraffine, and then submitting them to the action of a revolving drum or other suitable softening apparatus, all substantially as stated, for the purpose described.

180,107. HAND-AUGERS. Louis Dillaire, Austin, Minn. (Filed Aug. 16, 1876.)

Brief.—An earth-auger having adjustable runners attached to the upper edge of the bucket at one end, and the other end passing through loops on the shaft-center. The bucket is made with two compartments divided by a removable partition. The lower portion is provided with a hinged part, which is forced out against the earth and stops the cutting.



1. The combination, with a roll-auger, of the running-knife *c*, hinged to the upper edge of the main body of the auger, and having its opposite end secured adjustably to the shaft, substantially as set forth.

2. A roll-auger composed of the upper and lower compartments D' O', separated by a removable partition-shelf, D, as shown, and for the purpose specified.

3. The combination, with the upper section B and portion *d*, hinged to the part *d* of the lower section C, of the partition-shelf D, substantially as described.

4. The combination, with a roll-auger, A, divided into compartments B' O' by the partition-shelf D, supported by the portion *d'* of the lower section C, of a series of reaming knives, *c c*, hinged to the upper edge of the cylinder or section B, and connected adjustably to the operating shaft or center *a*, and the part *d'* hinged to the part *d*, substantially as set forth.

180,108. GUIDES FOR SEWING-MACHINES. John J. Donahoe, New Orleans, La. (Filed July 28, 1876.)

Brief.—A trumpet-shaped guide-tube for the cord has its upper half attached to its lower by a hinge and spring, so that it will expand when a seam or other obstruction or enlargement on the cord in passing through it, and is attached to a plate which is provided with devices for adjusting the height of the tube from the machine-table, and for guiding the edges of the cloth.

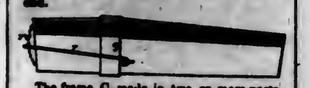


1. The trumpet-shaped and spring jointed guide-tube A, spring-guide D, and the attaching-plate F, combined and arranged substantially as specified.

2. The attaching-screws G, combined with the attaching-plate F, provided with the bearer B, and guide-tube A, substantially as specified.

180,109. COFFINS. John Dana, Oskaloosa, Iowa. (Filed Aug. 2, 1876.)

Brief.—A two-part coffin, divided vertically, has its parts held firmly together by a bail, which works upon a curved rock-bar on the end.



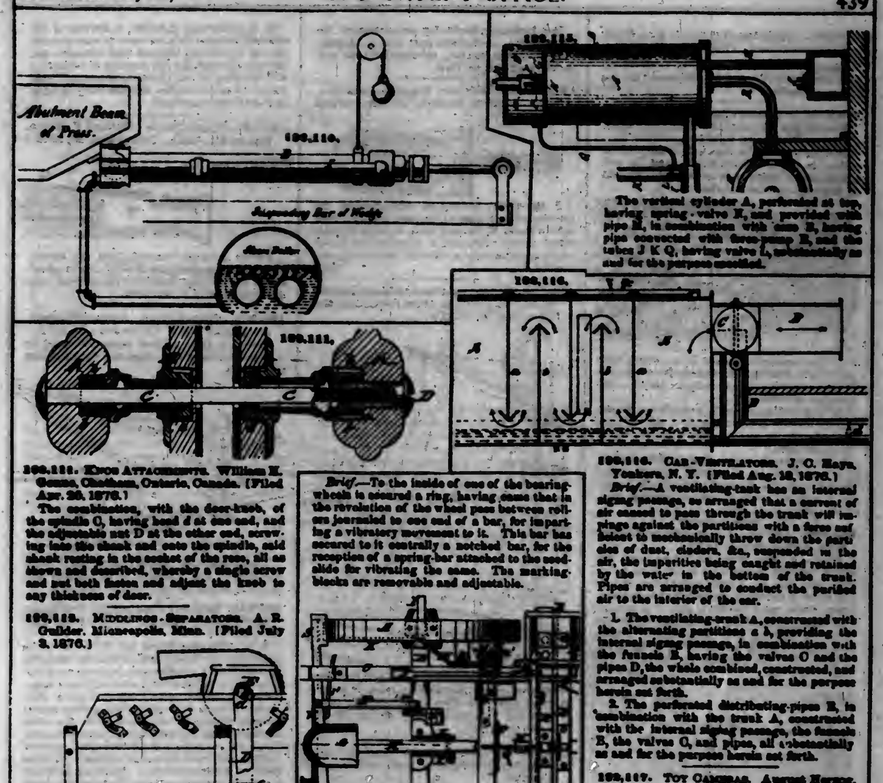
The frame C, made in two or more parts, and provided with the bail I and ratchet *n*, substantially as manifest.

180,110. COTTON-PRESSES. Wm. Golding, New Orleans, La. (Filed July 15, 1876.)

Brief.—The upper platen is adjusted by the running wedge operated by a hydraulic engine, the engine being fed from the water in the boiler of the steam-engine. The cylinder is pivoted and the piston-rod is connected with the running wedge. The piston-rod is relieved of the weight of the cylinder by a counter-weight.

1. The combination, substantially as specified, with the running wedge of a cotton-press, of a pivoted hydraulic engine, the piston-rod of which is directly connected to said wedge.

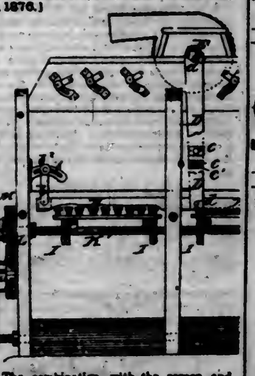
2. The combination, substantially as specified, with the running wedge of a cotton-press, of a pivoted hydraulic engine, the piston-rod of which is directly connected to said wedge, and the mount, substantially as described, for balancing the cylinder.



180,111. KNOB ATTACHMENTS. William H. Gemma, Chatham, Ontario, Canada. (Filed Apr. 26, 1876.)

The combination, with the door-knob, of the spindle C, having head *d* at one end, and the adjustable nut D at the other end, screwing into the shank and onto the spindle, said shank resting in the socket of the rose, all as shown and described, whereby a single screw and nut both fasten and adjust the knob to any thickness of door.

180,112. MIDDLINGS-SEPARATORS. A. R. Gulder, Minneapolis, Minn. (Filed July 3, 1876.)



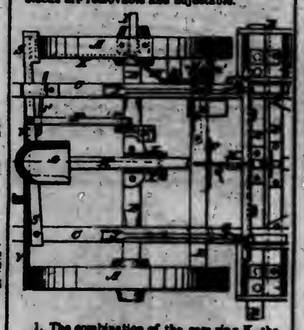
1. The combination, with the screen and frame carrying the troughs, of the slotted levers D D, wrist-pins *d d* and *e* arranged on the same side of the fulcrum of said levers, and eccentrics *d' d'* for giving a simultaneous and corresponding vibrating motion to each direction to the screen and troughs, substantially as specified.

2. The combination, with the brush or brushes H, of suitable mechanism adapted to impart to the brush or brushes a slow transverse reciprocating movement in one direction, and a quick return movement in the other direction, across the under surface of screen, and at right angles to the flow of the material over the same, substantially as and for the purpose specified.

3. The combination, with the brush or brushes, crosses chains I I, sprocket-wheels J J, and shafts K K', of the pulley M, band L, having jewel *n*, notched pulley P, horizontal shaft Q and coiled spring P, or its equivalent, arranged to operate in the manner substantially as and for the purpose specified.

180,113. COMBINATIONS FOR STEAM-ENGINES. R. Hardesty, Shepherdsville, Ky. (Filed July 11, 1876.)

Brief.—To the inside of one of the bearing-wheels is secured a ring, having cams that in the revolution of the wheel pass between rollers journaled to one end of a bar, for imparting a vibratory movement to it. This bar has secured to it centrally a notched bar, for the reception of a spring-bar attached to the saddle for vibrating the same. The marking-blocks are removable and adjustable.

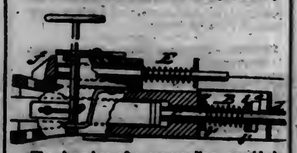


1. The combination of the cam-ring K, the pivoted bar M, the rollers N, and the spring O with the wheel A, the frame C, and the bar L, to give a reciprocating movement to said bar L, substantially as herein shown and described.

2. The combination of the notched plate P and the spring-arm Q with the reciprocating bar L and the dropping-bar R, substantially as herein shown and described.

3. The combination of the detachable and reversible marking-blocks Y with the rims of the wheel A, substantially as herein shown and described.

180,114. CAR-COUPLINGS. Saml. Hamer, Salt Lake City, Utah. (Filed July 1, 1876.)



The draw-bar of a car-coupling, provided with shoulder *f* and spring-bolt E, arranged substantially as and for the purpose specified.

180,115. COMBINATIONS FOR STEAM-ENGINES. R. Hardesty, Shepherdsville, Ky. (Filed July 11, 1876.)

The vertical cylinder A, perforated at top, having spring-valve K, and provided with pipe H, in combination with cam R, having pipe connected with force-pump E, and the tubes J K Q, having valve I, substantially as and for the purpose specified.

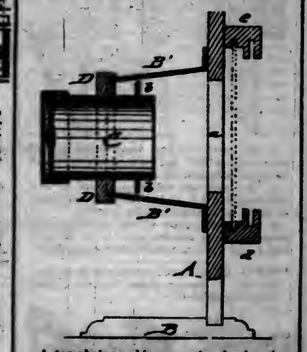
180,116. CAR-VENTILATORS. J. C. Hays, Yonkers, N. Y. (Filed Aug. 16, 1876.)

Brief.—A ventilating-trunk has an internal zigzag passage, so arranged that a current of air caused to pass through the trunk will impinge against the partitions with a force sufficient to mechanically throw down the particles of dust, cinders, &c., suspended in the air, the impurities being caught and retained by the water in the bottom of the trunk. Pipes are arranged to conduct the purified air to the interior of the car.

1. The ventilating-trunk A, constructed with the alternating partitions *a b*, providing the internal zigzag passage, in combination with the female E, having the valves O and the pipes D, the whole combined, constructed, and arranged substantially as and for the purpose herein set forth.

2. The perforated distributing-pipe B, in combination with the trunk A, constructed with the internal zigzag passage, the female E, the valves O, and pipes, all substantially as and for the purpose herein set forth.

180,117. TOY CAMERAS. August Herzog, New York, N. Y. (Filed Feb. 14, 1876.)



A toy photographic apparatus, having the base B, grooved strips *d e*, and front aperture *a*, the camera-tube B', the lens-holding tube C, closed by front cap, having flare-plate D and flange *i*, and the plate-holder E, having plate F and hinged door, all substantially as shown and described.

180,118.



180,116. VEHICLE-SPRINGS. Wm. Hunt, Cedarloma, Iowa. (Filed May 22, 1876.)

The spring-bar M and brace-bar O, combined with the plates K L and bolt B, as and for the purpose specified.

180,119. PRESERVING-PACKAGES FOR Fruits, &c. Elizabeth S. Hunt, Cleveland, Ohio. (Filed Aug 6, 1876.)

Brief.—To keep the fruit within the juice or pickle in edjustable vertically, and by two modifications furnished in diameter for jars of different sizes and shapes.



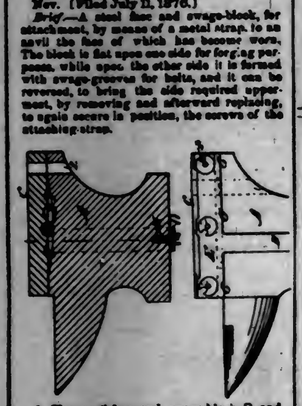
1. The immersing-plate F, provided with stem B, in combination with the holding-plate C, and cover E, substantially as and for the purpose specified.

2. The holding-plate C, provided with the double cushion J, packing-strip a, and tubular extension D, in combination with the cover E, as set forth.

3. The immersing-plate F, and holding-plate C, connected by an edjustable stem, in combination with the recessed neck of the package A, and its cover E, substantially as and for the purpose set forth.

180,120. ANVILS. James Jenkins, Corlear, Nev. (Filed July 11, 1876.)

Brief.—A steel face and swage-block, for attachment, by means of a metal strap, to an anvil the face of which has become worn. The block is flat upon one side for forging purposes, while upon the other side it is formed with swage-grooves for bolts, and it can be reversed, to bring the side required uppermost, by removing and afterward replacing, to again secure in position, the screws of the attaching-strap.

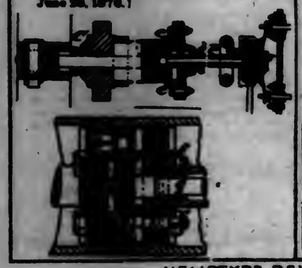


1. The anvil-face and swage-block C, and attaching-bar D E, and bolts F, combined and arranged substantially as specified.

2. The anvil-face and swage-block C, and attaching-bar D E, and bolts F, combined with an anvil, A, substantially as specified.

3. The combination of the anvil-face and swage-block A, attaching-bar D E, bolts F, key J, and anvil A, substantially as specified.

180,121. HYDRAULIC BRAKES FOR GUN-CARRIAGES. A. Krupp, Essen, Prussia. (Filed June 20, 1876.)



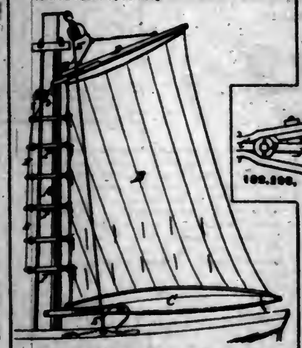
In a hydraulic brake for gun-carriages the combination of the two-part piston, piston-rod, disk, and valves, substantially as and for the purposes set forth.

180,122. SAP-SPOUTS. Hiram A. Lawrence, West Shefford, Quebec, Canada. (Filed June 6, 1876.)



A sap-spout having an edge around the lower part and sides of its base, and provided with a stem, B, having hook C, with a transverse upper edge and a longitudinal lower edge, substantially as herein shown and described.

180,123. BALANCE-LEVER FOR MASH-HOOPS. William R. Leighton, West Pembroke, Me. (Filed Mar. 6, 1876.)



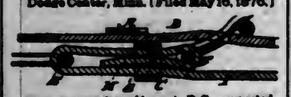
The combination, with the gaff and the hoop-lifting line, of an intermediate roller or sheave running along the mast to support the hoop-connecting line, substantially as and for the purpose described.

180,124. WHIFFLETREE-COUPLINGS. Asa T. Martin, Jr., Waverly, Iowa. (Filed Apr. 20, 1876.)



The combination of bolt A, inclined toward its center, and washer B, inclined on its upper surface, substantially as shown and described, for the purpose specified.

180,125. HARNESS-LOOPS. D. McMillan, Dodge Center, Minn. (Filed May 10, 1876.)



The combination of bars A B C, connected by bars D with the rivets O, as shown and described, for the purpose of holding strap-loops E F, as set forth.

180,126. REFRIGERATORS. Mahlon Moon, Morrisville, Pa. (Filed July 11, 1876.)



In a preserving-chamber, a fibrous or absorbent material secured upon or near the surface of a partition between said chamber and the ice-chamber, for the purpose of collecting and carrying off the moisture condensed from the air in said chamber, substantially as herein shown and described.

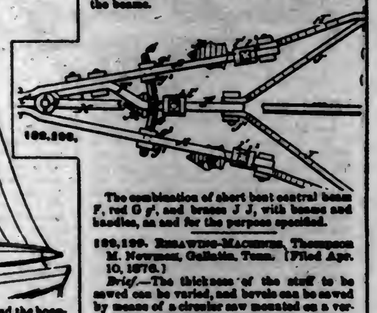
180,127. "LAMP-POSTS. Edward F. Morse, Plantsville, Conn. (Filed Oct. 26, 1875.)



As an article of manufacture, the herein-described lamp-post, consisting of the shouldered hollow pipe B and the sheet-metal tube A, substantially as set forth.

180,128. CULTIVATORS. Edward Mauman, Bridgeport, Ohio. (Filed June 19, 1876.)

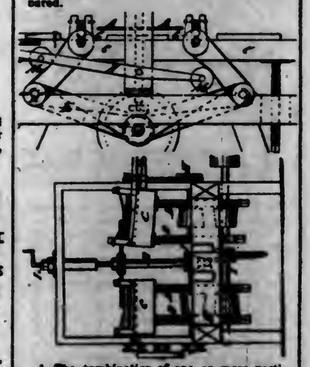
Brief.—A short central beam sustained by a U-shaped bend in a cross-rod for adjusting the beams.



The combination of short bent central beam F, rod G *g'*, and braces J J, with beams and handles, as and for the purposes specified.

180,129. REAPING-MACHINES, Thompson M. Newman, Gallatin, Tenn. (Filed Apr. 10, 1876.)

Brief.—The thickness of the staff to be sawed can be varied, and bevels can be sawed by means of a circular saw mounted on a vertical arbor, between two vertically and angularly adjustable tables, provided upon their upper surfaces with spring feed-rollers geared by counter-shafts and belts with the driving-shaft, and suitable operating mechanism. The belts are tightened by means of grooved pulleys attached to levers pivoted between them to the outer sides of the frame, in which a vertical stationary tube, that forms a bearing for the upper end of the saw-arbor, is secured.



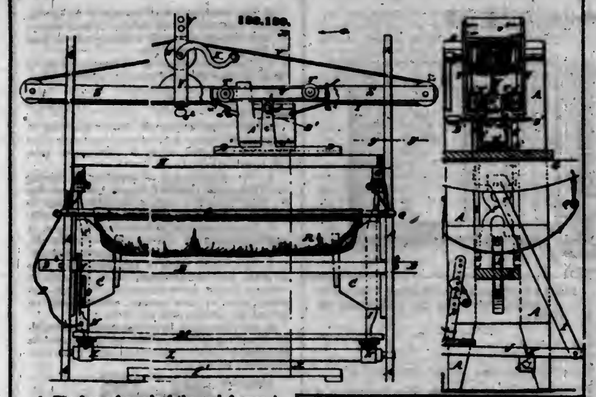
1. The combination of one or more vertically adjustable and tilting tables, C, with a rotary saw, A, on a vertical arbor, substantially as specified.

2. The driving-shaft I, counter-shafts H, belt tighteners M, lever N, and feed-rollers F, combined and arranged substantially as specified.

3. The tighteners M and lever N, combined and arranged with the belts of the front and back feed-rollers, substantially as specified.

180,130. INCOMBE APPARATUS. H. J. Nott, St. Mary's, Tex. (Filed July 11, 1876.)

180,139.



1. The frame formed of the end frames A, the slotted connecting-board B, the bolts *b'*, the grooved braces C, and the wedge-keys D, constructed and combined substantially as herein shown and described.

2. The combination of the tongues E, the sliding frames F, and the cross-bars G, with the end frames A, to enable the table H to be raised and lowered, substantially as herein shown and described.

3. The combination of the pitmen I, the levers J, the rock-shaft L, and the connecting-bar M, with the frames A and with the cross-bars G, for raising and lowering the table H, substantially as herein shown and described.

4. The combination of the grooved bars or rails S and the carriage T U, provided with the arms *u'*, and the pin B', with the frames A, for carrying the smoothing-iron A' back and forth along the table H, substantially as herein shown and described.

5. The combination of the adjustable frame V *v' v''*, the shaft W, the crank X, the two cords Y, the pulleys Z, and the hooks or catches *x' x''*, with the grooved bars or rails S and the carriage T U, substantially as herein shown and described.

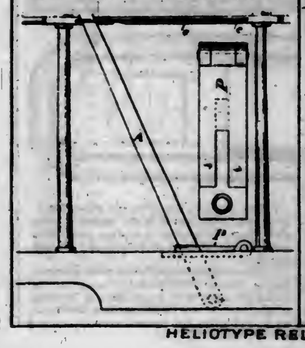
6. The combination of the hook *a'* and swivel *a''* with the smoothing-iron A', to adapt it to be connected with and drawn by the carriage T U, substantially as herein shown and described.

7. The combination of the fluting-iron C', provided with the perforated arms *c'*, and the fluting-plate D', with the smoothing-iron A', the carriage T U, and the table H, substantially as herein shown and described.

8. The combination of the rods Q and apron R with the ends of the cross-bars G that support the table H, substantially as herein shown and described.

9. The combination of the adjustable stop N, the pivoted guard O, and the cord P, with the end frames A and the bar M that connects the levers J, substantially as herein shown and described.

180,131. CAR-COUPLINGS. B. N. Phelps, New York, N. Y. (Filed Aug. 21, 1876.)



1. In combination with the actuating-lever of a car-coupling of a hinged protecting cap or plate, as at F, covering the slot in which the said lever plays, substantially as described.

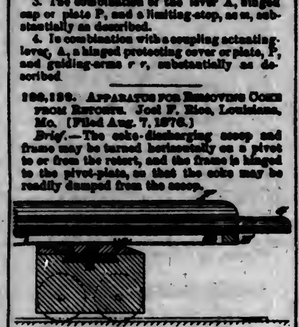
2. A cap or plate, as F, for covering and protecting the slot in which plays the lever actuating a car-coupling automatically raised and lowered by the movements of said lever, substantially as described.

3. The combination of the lever A, hinged cap or plate F, and a limiting-stop, as *a*, substantially as described.

4. In combination with a coupling actuating-lever, A, a hinged protecting cover or plate, F, and guiding-arms *f' f'*, substantially as described.

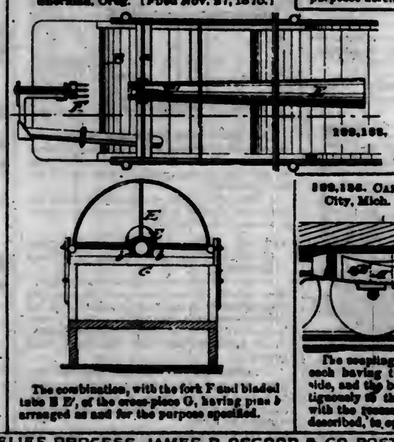
180,132. APPARATUS FOR REMOVING COKE FROM RETORTS. Joel F. Rice, Louisiana, Mo. (Filed Aug. 7, 1876.)

Brief.—The coke-discharging scoop and frame may be turned horizontally on a pivot to or from the retort, and the frame is hinged to the pivot-plate, so that the coke may be readily dumped from the scoop.



The combination of the scoop C, slide F, hinged frame E, pivoted bolster-plate D, slide O, and track A, substantially as specified.

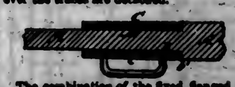
180,133. APPLE-CORERS. Isaac Rogers Sheridan, Oreg. (Filed Nov. 27, 1875.)



The combination, with the fork F and bladed tube B E', of the cross-piece G, having pins *b* arranged as and for the purpose specified.

180,134. HOLDBACKS FOR TRELLS. George Sell, East Randolph, N. Y. (Filed July 11, 1876.)

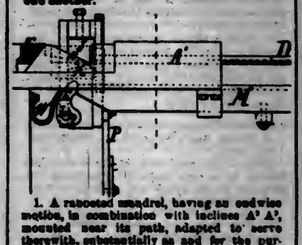
Brief.—The hold-back is disengaged whenever the traces are detached.



The combination of the fixed flanged tube B and the sliding tube C, containing said fixed tube, and having the keeper *c*, with the shafts A, all constructed and relatively arranged, as shown, to operate in the manner set forth.

180,135. MACHINERY FOR FORMING LOOPS AND ANALOGOUS ARTICLES. Wm. H. H. Simms, Mowarie, N. J. (Filed Feb. 9, 1876.)

Brief.—The blank is caught at the middle under a lip extending across the plunger, and the latter, reciprocating rectilinearly, forces one end of the wire against and up a steep inclined plane, which bends that end upward at right angles, while the other end passes at first up a less inclined plane, and then along a horizontally-oblique plane, which bends that end obliquely across, and completes the bend of the other end by bending it in the opposite direction, so that the two ends extend cross one another.



1. A rapidly-rotating mandrel, having an endwise motion, in combination with inclines A' A', mounted near its path, adapted to serve therewith, substantially as and for the purposes herein specified.

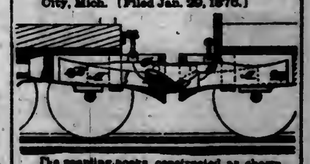
2. The shears K, in combination with the rabbeted mandrel D and inclines A' A', as specified.

3. The intermittent feeding devices H H, in combination with the knife K, rabbeted mandrel D, and inclines A' A', as specified.

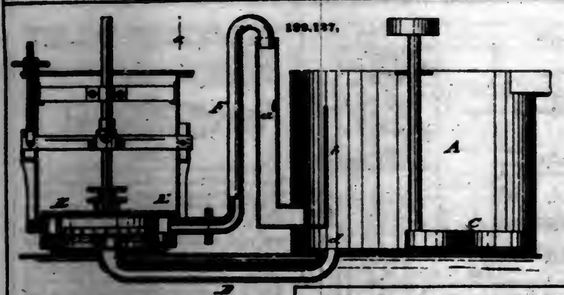
4. The combination of the rabbeted reciprocating mandrel D, inclines A' A', shears K, and intermittent feeding devices H H, as and for the purposes herein specified.

5. In the manufacture of links and analogous articles, the mode of operation in which a piece of iron or other metal, being cut off to the right length and firmly held, is moved in a direction transverse to its length, and bent to a plane across its path, by contact with one or more inclined surfaces presented thereto, the metal being guided by the rabbet *d*, all substantially in the manner and for the purposes herein specified.

180,136. CAR-COUPLINGS. John Slade, Bay City, Mich. (Filed Jan. 29, 1876.)



The coupling-hooks, constructed as shown, each having the projection *a* on the under side, and the beveled block D, attached contiguously to the side thereof, in combination with the recessed draw-heads, as shown and described, to operate as specified.



180,127.

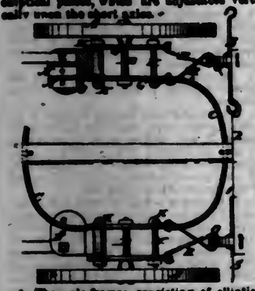
180,127. PAPER-PULP SEPARATORS. Jos. S. Smart, Troy, N. Y. (Filed May 26, 1876.)

Brief.—Pulp is placed in the vat and mixed with a confined quantity of water. The finer particles held in suspension flow through an opening at the top to a paper-machine, while the coarser particles collide to the bottom, where a revolving arm carries them to an outlet in the bottom of the vat, whence they are conveyed through a pipe to a centrifugal grinder, and returned and forced back through a pipe and emptied over a partition into the vat.

A grinding-engine, E, and separator A, connected by pipe D and outlet *d*, in combination with the partition *b*, pipe F, and emptier *e*, and the curved revolving arms C, arranged on a central shaft of vat or separator, as and for the purpose specified.

180,128. WHEEL-CULTIVATORS. Thomas R. Wallis, Egg's Point, Minn. (Filed May 22, 1876.)

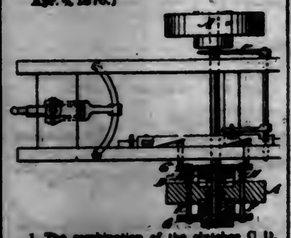
Brief.—The lower ends of the arches are bent so as to form bolts for connecting the elliptical plates, which are adjustable vertically upon the short axles.



1. The axle-frames, consisting of elliptical plates G and connecting bolts H, combined with the short axles B and the arch standards C, substantially as herein shown and described.

2. The bolts H, formed on the arch-standards C, and combined with plates G, substantially as herein shown and described.

180,129. LOCOMOTIVE-WHEELS. Wilson Westenhaver, Spring Garden, Ill. (Filed Apr. 4, 1876.)



1. The combination of the studdes C D, sliding-springs E, and the sliding cam-bar J, with the wheel, fitted loosely on the shaft, substantially as specified.

2. The disks C, and rods F, combined with the studdes C D and wheel A, substantially as specified.

180,140. HORSESHOE-BLANK. James M. Whitman, Pembroke, Me. (Filed Aug. 16, 1876.)



As an improved article of manufacture, a horseshoe-blank, rolled with heel and toe calks, and toe-clip, and plate at the ends, substantially as herein shown and described.

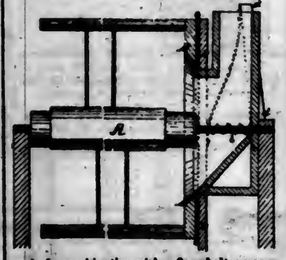
180,141. DOOR-BUTTONS. William Wilcox, Philadelphia, Pa. (Filed July 27, 1876.)

Brief.—Helical bearing surfaces being utilized to cause the button, as it rotates, to bind with gradually-increasing stress upon the door.



The door-button C, constructed with a helical bearing-surface, *c*, and operating flange or leg D, and a cylindrical opening, E, for the pivot-screw, substantially as set forth.

180,142. FLOUR-BOLTS. W. H. Woolard, Windsor, Ill. (Filed July 11, 1876.)



1. In combination with a four-bolt, an auxiliary head, provided with a packing of wool or other similar material, and retained in place by suitable springs, substantially as shown and described.

2. The combination of the reel A, head D, packing *c*, springs *b*, straps *e*, and standards *d*, as shown and described.

180,143. COMBINED PUMP AND WELL. John Q. Adams, Kalamazoo, Mich. (Filed July 20, 1876.)

Brief.—The lowermost section is bored to open a hole for the passage of the coupling that follows. A coupling provided with an internal recess receives the lugs which secure in place an inner tube supporting a ball-valve, which communicates with the pump-tube proper.

1. In combination with a tubular well and pump, the cylindrical bottom sleeve or piece G, having bevels *c*, recess *d*, shoulder *d'*, and inner studs *g' g'*, substantially as and for the purpose set forth.

2. The combination of springs F F, having lugs or catches *ff*, with tubular filter or screen D, and bottom sleeve G, substantially as and for the purpose set forth.

3. The combination of rubber-packing G with tubular filters D, recessed tubular extension E, screw-threaded collar H, and outer tube A', substantially as and for the purpose set forth.

4. The combination of rubber-packing G with metal washer *g*, tube section or extension E, screw-threaded collar H, and outer tube A', substantially as set forth.

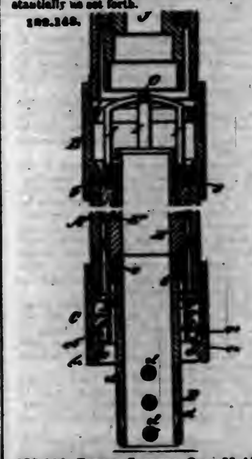
5. The combination of coupling E, having circumferential beads *b b*, and L-shaped lug *b'*, with ball-valve tube J, having springs O O and catchers F F, substantially as set forth.

6. Tubular extension E, having top lug *a*, in combination with screw-threaded collar H, substantially as and for the purpose set forth.

7. The combination of the ball-valve tube J with the compressible packing, metallic washer, double screw-threaded collar, and the pump, pipe, or tube proper, substantially as and for the purpose set forth.

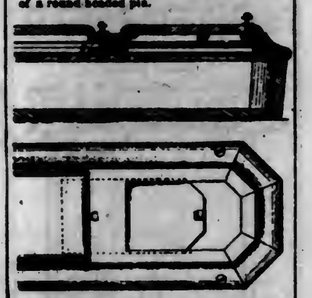
8. An inner tube, provided with downwardly-extending springs, which serve to guide its descent and to clamp it to the outer tube, substantially as set forth.

180,163.



180,164. BURIAL-CASKETS. Cicero M. Allen, Kalamazoo, Mich., assignor of two-thirds of his right to Hosea Hamlin and Ethan Allen, same place. (Filed July 1, 1876.)

Brief.—An unframed glass plate slides in the cover proper of the casket, and is retained in any particular position by a stop composed of a round headed pin.

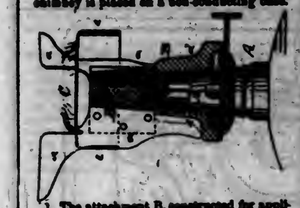


1. The combination, with the single lid or cover of a burial-casket, of the unframed glass plate, freely adjustable in a plane parallel to said lid, substantially as and for the purpose described.

2. The combination, with the independently-sliding glass in a burial-case, of an engaging device provided with a smooth end bearing, substantially as and for the purpose described.

180,146. BURNERS FOR HEATING PURPOSES. Thomas R. Almond, Brooklyn, N. Y., assignee of one-half his right to R. L. Fobes, Malden, Mass., and said Thos. R. Almond and R. L. Fobes assignors of one-third of their right to Amasa S. Fobes, Cambridge, Mass. (Filed Aug. 4, 1876.)

Brief.—Air is supplied to the lower burner in limited quantity. The metallic top of the chimney is placed on a non-conducting base.



1. The attachment B, constructed for application to a lamp-burner, and closed partly on top for the purpose of causing the flame of the burner to vaporize part of the fuel, and allowing said vapors to feed a second flame in the upper part of the attachment, substantially as specified.

2. The plate C, applied to and combined with the vaporizing lamp vapor-burner attachment B, substantially as specified.

3. The vaporizing-chimney and vapor-burner B, combined with the exterior annulus *c*, substantially as specified.

4. The vaporizing-chimney and vapor-burner B, made perforated above the base *d*, substantially as specified.

5. The vaporizing-chimney and vapor-burner B, combined with the arms or brackets *e*, substantially as specified.

180,146. PAPER-PENDING MACHINES. J. T. Ashley and Frederick Ashley, Williamsburg, N. Y. (Filed Jan. 6, 1876.)

Brief.—The pile-table is oscillated by cam-lever and friction-clutches. Gravitating friction-fingers separate the top sheet, which is picked up by pneumatic fingers secured to a vertically and horizontally reciprocating bar, and by them carried forward and dropped on the feed-table, over which pass, at right angles, endless moving tapes, making the sides registry, while flexible fingers on the bar push the sheet to the front gages. The feed-bar is fixed to sliding extensible arms of a shaft, worked by a sliding bar and pivoted lever. The valve-opening arms are operated by the sliding arms.

1. The combination of the frictional feet C, the table B, having an intermittent vibrating motion, and the adjustable inclined bank *b*, for the purpose set forth.

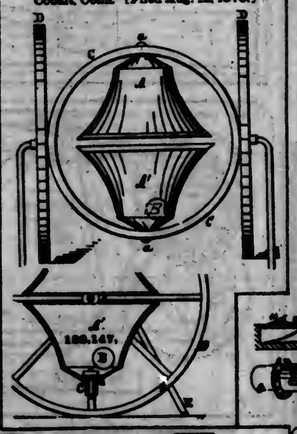
2. The combination, with a feed-table, of a mechanism for depressing the feed-table, which consists, substantially, in levers B, cams *f*, springs *a*, rods *b*, and clamp *g*.

3. In an automatic paper-feeder, the lifting device, substantially as described, which carries the sheet of paper forward to the feed-board, then releases it to receive its side registerer, in combination with the tapes of the feed-board, running at right angles to the side guide, and the friction-fingers for adjusting the front edge of the sheet to the guides of a printing-press.

4. A vertically and horizontally reciprocating bar, I, actuated by extensible vibrating arms N, in combination with picking-up fingers P P, a suction trunk, H, and flexible pipes R R, substantially as described.

5. Valve V, applied to the trunk H, and actuated as described, in combination with a bar, I, carrying picking-up fingers P, and with vibrating extensible arms, substantially as described.

180,147. CORNER TOYS. Charles A. Bailey, Cobalt, Conn. (Filed Aug. 12, 1876.)



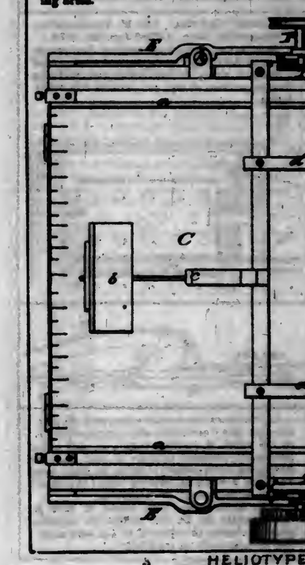
180,147.

1. The combination, with the frame A, of the pivoted arms B, the pivoted arms C, and the pivoted arms D, substantially as specified.

2. The combination, with the frame A, of the pivoted arms B, the pivoted arms C, and the pivoted arms D, the latter provided with the pivoted arms E, substantially as specified.

180,148. PAPER-PULP STRAINERS. Thomas R. Almond, Brooklyn, N. Y., assignee of one-half his right to R. L. Fobes, Malden, Mass., and said Thos. R. Almond and R. L. Fobes assignors of one-third of their right to Amasa S. Fobes, Cambridge, Mass. (Filed Aug. 4, 1876.)

Brief.—Air is supplied to the lower burner in limited quantity. The metallic top of the chimney is placed on a non-conducting base.



180,148.

1. The attachment B, constructed for application to a lamp-burner, and closed partly on top for the purpose of causing the flame of the burner to vaporize part of the fuel, and allowing said vapors to feed a second flame in the upper part of the attachment, substantially as specified.

2. The plate C, applied to and combined with the vaporizing lamp vapor-burner attachment B, substantially as specified.

3. The vaporizing-chimney and vapor-burner B, combined with the exterior annulus *c*, substantially as specified.

4. The vaporizing-chimney and vapor-burner B, made perforated above the base *d*, substantially as specified.

5. The vaporizing-chimney and vapor-burner B, combined with the arms or brackets *e*, substantially as specified.

180,149. PROCESSES OF PROTECTING IRON SURFACES. Frederick S. Barff, Kilburn, England. (Filed Aug. 14, 1876.)

1. The process of protecting iron or steel surfaces from rust or corrosion by submitting the plates, articles, or objects composed of the same, to an elevated temperature, in conjunction with superheated steam or aqueous vapor, so that a coating or film of oxide of iron, or what is commonly known as black oxide of iron, may be formed thereon.

2. The process of reducing the oxide or oxides of iron or rust when existing upon the plates, articles, or objects prior to their being treated in the manner hereinbefore described, by submitting said plates, articles, or objects to the action of hydrogen gas, as set forth.

180,150. UMBRELLAS. Richard W. Barnes, Brooklyn, N. Y. (Filed Aug. 24, 1876.)

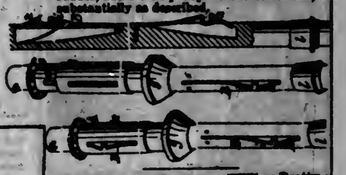
1. An umbrella-spring, having a holding-slot and two surfaces inclined from the entrance to the slot downward in opposite directions, substantially as described.

2. The combination, with an umbrella-spring having a holding-slot located between two surfaces, which incline downward from the entrance of the slot in opposite directions, of a runner and an auxiliary runner, substantially as described.

3. The combination, with an auxiliary runner arranged to control the holding-spring of an umbrella, of a tip-holder, substantially as described.

4. The combination, with the main or auxiliary runner of an umbrella, with or without a tip-holder attached thereto, of a friction-ferrule mounted on the handle and arranged to engage with the runner, substantially as described.

5. A runner composed of two or more tubes telescopically arranged, provided with a suitable stop, a notch-ring at the upper end of the runner, and a rib-tip cap at the lower end, substantially as described.



180,150.

180,160. LOOM-SHUTTLES. William Beatty and C. M. Edwards, Gray, Me. (Filed June 2, 1876.)

Brief.—Two sheet-steel shells shaped up by dies, united by cross-pieces, and provided with tips.



The metallic shuttle, constructed of two shells, B C, of steel, in combination with the steel tips *b* and the cross-pieces *c*, by which they are secured, substantially as described.

180,161. GRINDING-MACHINES. Joe Berry, Manchester, Great Britain, and J. Giles, Hyde Park, Mass. (Filed Dec. 27, 1875.)

Brief.—The article to be ground is secured to a vertically-adjustable plate that moves with the reciprocating bed. The grinder-frame is also adjustable vertically. The grinding-wheel is moved laterally by means of cams acting upon spring and follower introduced into the ends of the shaft.

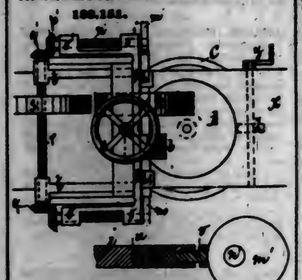
1. In combination with the rotary and laterally moved grinder *b*, the vertically-adjustable plate or rest A, screw-spindle D, and wheel G, and the horizontally-adjustable carriage *a*, all arranged and constructed in a manner and for the purpose as herein shown and described.

2. In combination with the grinder *b* and its shaft *f*, the shafts *s s' r*, pinions *p p' q q'*, and the cams *n n'*, as and for the purpose set forth.

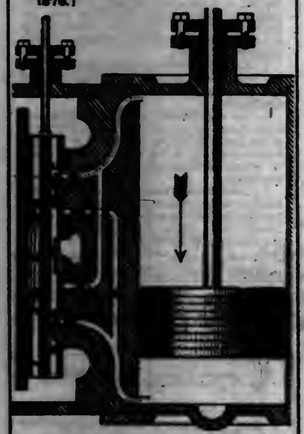
180,166.

3. In combination with the shaft f and cams n n', one or both ends of said shaft f bored out for the reception of the spring s and cylinder r, for the purpose as herein fully set forth and described.

180,155.



180,156. VALVES FOR REVERSING ENGINES. Seth H. Bevins, New York, N. Y., Joseph Wein, Jersey City, N. J., and William H. Phillips, New York, N. Y. (Filed May 18, 1876.)



The reciprocating rod and cylindrical slide-valve having ports on opposite sides, and capable of being partially rotated, in combination with an engine having two sets of ports, one of which is direct and the other cross, substantially as set forth.

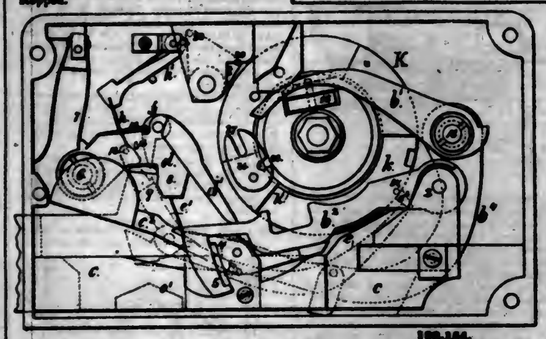
180,157. MECHANICAL MOVEMENTS. A. E. Hahn, Mendota, Ill. (Filed Aug. 16, 1876.)



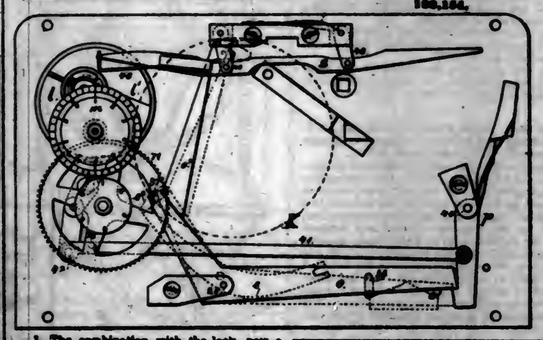
The combination, with the pawl G, pivoted to the bounty-revolving box or carrier B, of the driving pulley or device A, provided with pins or projections a a', arranged on opposite sides or one end of the pawl, and having lost space or motion between them, the ratchet-wheel D, and the shaft C, substantially as specified.

180,158. TIME AND PERMUTATION LOCK COMBINED. Charles C. Ellis, Norwich, Conn. (Filed Nov. 18, 1875.)

Brief.—A time mechanism is constructed and so combined with a permutation-lock that the force is prevented by a pin from coming in contact with the tumblers until the time arrives when the time mechanism removes the said pin and allows the force to pass against the tumblers. The movement of the lock-bolt in locking or unlocking causes the time latches, and applies a spring-starting mechanism to the balance-wheel, so as to insure the first movement thereof if it has stopped.



180,159.



1. The combination, with the lock-bolt e and spindle-cams h, of the latch-lever b', its balancing lever or spring c', the dog d, and its arm d', substantially as specified.

2. The rocking step 16 and cams 45, in combination with the chamber tumblers and lock-spindle, substantially as set forth.

3. The pawl f upon the dog d, in combination with the jack c', fusee-lever e, and main lever b' of the lock, substantially as set forth.

4. The guard-spring k upon the lever-arm b', in combination with the dog d and jack c', substantially as set forth.

5. The cut a, with the fork 27 and notch 26, in combination with the stationary key 1 and its pins 29 and 28, as and for the purposes set forth.

6. The lever c, with the pins 27 and 28, in combination with the clock-movement, the fusee c', and the double inclines c' upon the bolt, substantially as set forth.

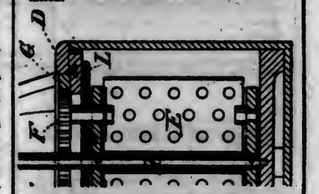
7. The spring starting-finger 45 for the balance, operated by the movement of the lock-bolt, substantially as set forth.

2. The combination of the curved blade A with handle B and locking-rope C, the stationary guide E, sliding prong D, with tie-rope a, and the pulley f, suspended from the locking-rope, all substantially as and for the purposes herein set forth.

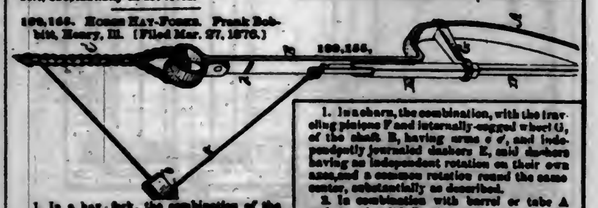
3. The removable gage G, in combination with the blade A, prong D, and guide E, all as and for the purposes herein set forth.

180,160. OATGUN. Leo H. Brockwalter, Greenville, Ohio. (Filed Jan. 22, 1876.)

Brief.—Two perforated vertical dashers revolve on their respective axes, and also around a common axis. A rotating and flat cushion forces moisture at top, yet permits free ventilation.



180,161. HAY-FORK. Frank Robbins, Henry, Ill. (Filed Mar. 27, 1876.)



1. In a hay-fork, the combination of the curved blade A with handle B, and the sliding prong D, and stationary guide E, as and for the purposes herein set forth.

180,162. CHURN. Leo H. Brockwalter, Greenville, Ohio. (Filed Jan. 22, 1876.)

Brief.—Two perforated vertical dashers revolve on their respective axes, and also around a common axis. A rotating and flat cushion forces moisture at top, yet permits free ventilation.

180,163.

1. In a churn, the combination, with the traveling pinions F and internally-cogged wheel G, of the shaft B, having arms a a', and independently journaled dashers E, said dashers having an independent rotation on their own axes, and a common rotation round the same center, substantially as described.

2. In combination with barrel or tube A and annular lid D, the perforated metallic plate I, closing the opening of the said annulus, substantially as specified.

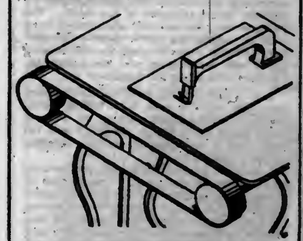
180,157. BOOK-SHELVES. John L. Boone, San Francisco, Cal. (Filed July 6, 1876.)



A book-shelf, B, in combination with a roller, C, arranged along its front edge, as described, for the purpose set forth.

180,158. CARRIER ATTACHMENTS FOR SEWING-MACHINES. John L. Boone, San Francisco, Cal. (Filed June 9, 1876.)

Brief.—An endless belt provided with driving mechanism, and adapted to support the material and facilitate the feeding of the same, is attached to the ordinary sewing-machine table. The belt or carrier acts in combination with the usual feeding device of the sewing-machine.



In combination with a sewing-machine provided with a feeding device beneath the presser-foot, a carrier consisting of the endless belt B and one or more drums arranged in front of a sewing-machine, so as to carry the heavy sewed material in either direction, substantially as and for the purpose above specified.

180,159. COMPOUND SHAFTS FOR ENGINES. Horatio G. Brooks, Dunkirk, N. Y. (Filed May 20, 1876.)

1. The combination of the shafts A C to transmit motion to the driving-wheels, and the shaft B to overcome dead-centers, all having separate bearings and disconnected pins, as set forth.

2. The combination of the pitmen E, disconnected crank-pins F G, crank-shafts A B C, and wrists H, for transmitting motion from the steam-cylinder to the driving-wheels, as specified.

180,160. APPARATUS FOR MANUFACTURING WHITE LEAD. Ludwig Brunnlen, London, England. (Filed Oct. 9, 1876.)

1. The process of manufacturing white lead, consisting in first subjecting metallic lead to the action of a weak solution of acetate of lead, or acetic acid, so as to moisten it, then drawing off said liquid and passing a current of hot air around said lead to oxidize it, then dissolving the so-formed oxide by means of a solution of acetate of lead, and then introducing carbonic-acid gas, causing the precipitation of the carbonate of lead, substantially as described.

2. An apparatus for manufacturing white lead, consisting of the rocking box, having induction and eduction pipes, obstructing divisions, and a perforated pipe, substantially as and for the purpose set forth.

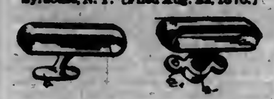
180,161. TRACE-CARRIER. Peter Burns, Syracuse, N. Y. (Filed Aug. 11, 1876.)



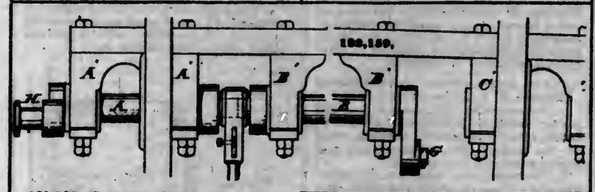
1. A trace-carrier composed of a plate for rivoting it to the harness, provided with studs, as described, and a spring hook or hooks, the free ends of the latter terminating in a flattened head made flaring both upon the inner and the outer side, substantially as and for the purpose specified.

2. The trace-carrier plate A, having studs a' a' integral therewith, substantially as and for the purpose specified.

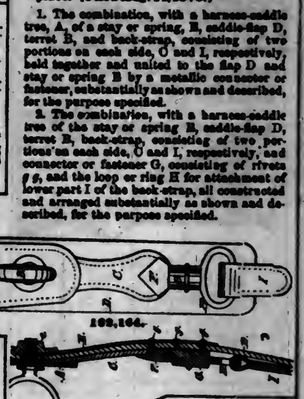
180,162. HARNESS-PAD. Peter Burns, Syracuse, N. Y. (Filed Aug. 22, 1876.)



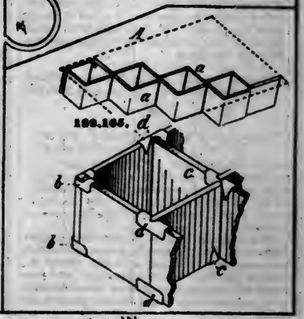
180,163.



180,164.

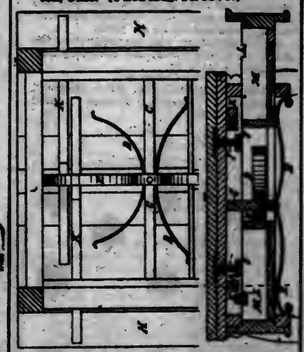


180,165.



The combination of the flexible rod of a harness-pad and the metallic loop connected therewith, provided with a fastening, a or a', substantially as specified.

180,166. TABLES. Saverio Carbone, Dayton, Ohio. (Filed Aug. 14, 1876.)



1. The drawers M, notched at L, in combination with leaves H, having projecting arms, adapted to pass into the notches to securely lock the drawers, substantially in the manner herein before set forth.

2. The central bridge C, provided with the C-springs D and locking-spring E, having teats thereon, in combination with a central plate on the bottom of the drawer, provided with a hole or pocket, substantially as and for the purposes set forth.

180,164. HARNESS-SADDLES. Patrick F. Carroll, Louisville, Ky., assignor of one-half his right to J. T. Gatbright, same place. (Filed Aug. 14, 1876.)

1. The combination, with a harness-saddle tree, A, of a stay or spring, B, saddle-flap D, turret E, and back-strap, consisting of two portions on each side, O and I, respectively, held together and united to the flap D and stay or spring B by a metallic connector or fastener, substantially as shown and described, for the purpose specified.

2. The combination, with a harness-saddle tree of the stay or spring B, saddle-flap D, turret E, back-strap, consisting of two portions on each side, O and I, respectively, and connector or fastener G, consisting of rivets f g, and the loop or ring H for attachment of lower part I of the back-strap, all constructed and arranged substantially as shown and described, for the purpose specified.

HELIOTYPE RELIEF PROCESS. JAMES R. OSGOOD & CO. BOSTON.

182,166. BEE-BOXES. John H. Case, Boston, and Charles H. Larrabee, Somerville, Mass. [Filed July 17, 1876.]

1. The case A, subdivided into compartments by the partitions a, formed of wood veneers, bent at right angles, as described, and united at the angles only, by clasps, and without lap, substantially as set forth.

2. In combination with the partitions a the clasps b c d, constructed and operating substantially as set forth.

182,167. PLAYING-CARDS. Robt. Chancery, Montpellier, (Herault,) France. [Filed Aug. 28, 1876.]

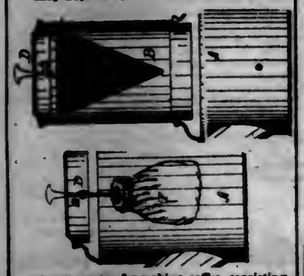


1. A playing-card the face of which consists of the usual figure or emblem, together with a miniature representation of itself arranged in one of the corners, as and for the purpose specified.

2. A triplicate playing-card the face of which consists of the usual figure or spots, and two miniature representations of said figure or spots, arranged at diagonally-opposite corners, as and for the purpose shown and described.

3. A pack of playing-cards in which the court-cards have at the left of each main figure a miniature representation of the card itself, and the usual distinguishing emblem at the right, as and for the purpose specified.

182,168. COFFEE-MAKING APPARATUS. P. Joseph Chouvellill, New Orleans, La. [Filed May 22, 1876.]

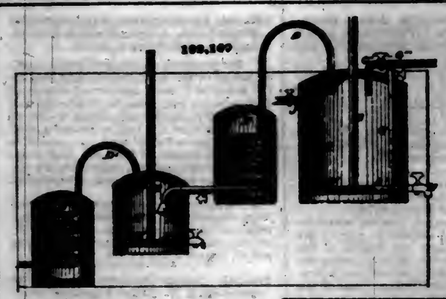


An apparatus for making coffee, consisting of the detachable cestices A B, the latter provided with an annular rest, *b*, cover D having hook E, and bags C F, the whole constructed, combined, and arranged to operate substantially as described.

182,169. STEP-LADDERS. William L. Clark, Webster City, Iowa. [Filed Aug. 3, 1876.]



The ladder-cestice A, having the spring or self-acting holding-pin B *d*, in combination with, and to which is hinged, the cestice A', having perforations, and its upper end provided with laterally-projecting pieces or steps *a' a'*, substantially as and for the purpose set forth.



182,169. APPARATUS FOR THE SEPARATION OF PETROLEUM PRODUCTS. Jas. Cole, Jr., Cleveland, Ohio. [Filed Apr. 10, 1876.]

Brief.—The heat-stills provided with an independent blast-pipe, to admit a blast of air or steam to carry off the products of distillation.

1. The combination, with a still provided with a vapor-outlet, of perforated steam-pipes for applying heat to the contained liquid, and an independent blast-pipe for introducing within the still a current of air or steam, substantially as and for the purpose described.

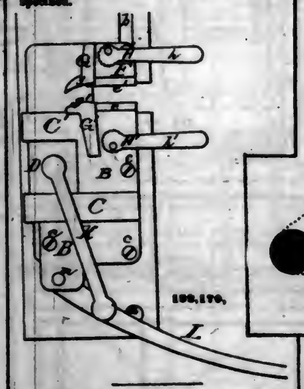
2. The combination, with a still provided with perforated steam-pipes for applying heat to the contained liquid, and an independent blast-pipe for introducing within the still a blast of air or steam, of one or more encompassing stills A A', each still connected with the preceding still by a pipe, D, &c., passing through a condenser, E, &c., substantially as and for the purpose described.

3. Two or more stills, A A', &c., each provided with perforated pipes for admitting steam-heat at or near the bottom, each still connected with the preceding still by a pipe passing through an intermediate condenser, said first still provided with an independent blast-pipe for admitting within the series of stills a current of air or steam, the whole constituting a means for separating the liquid products of petroleum or other oil, all combined substantially as described.

182,170. TIRE-UPSETTERS. D. W. Copeland, Thurman, N. Y. [Filed July 20, 1876.]

1. The combined tire, upset-chaser, and bender, having the body-piece B and slide D, formed, respectively, with the upsetting arm G G', the bending jaws, serrated cams, and chasers, substantially as specified.

2. The combination, with the right-angle slide chaser D and its bending, upsetting, and chaser jaw, of the rigid body-piece B, its bending, upsetting, and chaser jaw, the loops O O', and the toggle-lever K L, substantially as specified.



182,171. CLOTH-FOLDING MACHINES. James D. Cottrell, Fawtucket, R. I. [Filed May 23, 1876.]

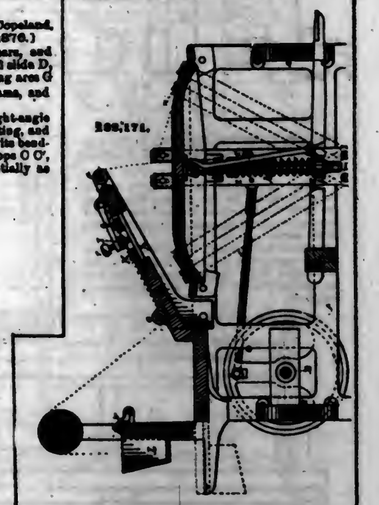
Brief.—The increasing tension of supporting-springs is employed to counterbalance the increasing weight upon the table. Guiding, spreading, and tension bars are employed adjustable to the character of the fabric. The pulley driving the send-roll is connected therewith by ratchet and pawl, whereby the cloth may be freely drawn through the roll, turning freely and independently of the pulley preparatory to starting the machine.

1. In a cloth-folding machine, the combination, with suitable jaws, of a folding-table, centrally mounted, and rocking on a transverse shaft, which moves vertically with the table, and is supported by springs, substantially as described.

2. A table, centrally mounted, and rocking on a transverse shaft, which is supported by springs and suitable holding-jaws, in combination with a pair of parallel folding-knives, each of which is arranged to operate in connection with one end of the table and a holding-jaw, is rigidly mounted on a pair of pivoted standards, which are linked together, and simultaneously vibrated on their pivots, substantially as described.

3. The combination, with the folding mechanism, of stationary tension-bars and an intermediate adjustable bar, with or without diagonal spreading-covers, substantially as described.

4. The combination, with folding mechanism and a delivery-roll, of a belt-pulley, rotatively connected with the delivery-roll by a pawl and ratchet, substantially as described.



182,172. APPARATUS FOR INDICATING THE INTENSITY OF RADIATION. Wm. Crookes, Morningside Road, England. [Filed Aug. 10, 1876.]

1. An instrument for indicating the intensity of radiation, composed of an exhausted air-tight transparent case, vessel, or chamber, and a body, which is suspended or pivoted, as an axis within the said case, vessel, or chamber, to be exposed to radiation, which penetrates the said case, vessel, or chamber, substantially as herein described.

2. The combination, with an exhausted transparent inclosing case, vessel, or chamber, and a bar or series of vanes, having lighter and darker surfaces, suspended or pivoted within said case, vessel, or chamber, substantially as and for the purpose herein described.

3. The combination, with an exhausted transparent case, vessel, or chamber, and a body, which is suspended or pivoted therein so to expose to the action of radiation, of a magnet and mirror attached to said suspended body, and a magnet placed externally to said chamber, substantially as and for the purpose herein described.

182,175. COMPOSITION PAINT FOR COATING ROOFS. Thomas Dana and E. R. Stuart, Manchester, N. H. [Filed May 27, 1876.]

A composition of matter consisting of gutta-percha, tungsten, chloroform, and resin, japan and asphalt varnish, as set forth.





182,176. VAPOR-BURNERS. Ezbulon Davis, Canton, Ohio, assignor of one-half his right to Wm. B. Bisbé, same place. [Filed Sept. 1, 1876.]

Brief.—The oil is vaporized by jets at *a*, which are protected by a shield, *m*.

1. A packing of mineral wool, *c*, in the tube *a* of a gasoline-burner, as a means of holding the sand in position and subdividing the burning fluid into atoms, substantially as set forth.

2. The combination of a packing of mineral wool, *c*, and a packing, *d*, of sand in the tube *a* of a gasoline-burner, whereby the burning fluid is minutely divided into atoms in its passage through them, substantially as described.

3. The chamber *c*, having the shield *m* cast as a part thereof, substantially as described.

4. The tube *f*, divided, at or near its center, into two branches, and having the holes *o* on its inner sides, so that jets of flame will heat the tube *f*, substantially as set forth.

5. The combination of the chamber *c*, having a sheet-iron top, *i*, tube *g*, burner-tube *f*, having the openings *a o* and tube *a*, substantially as shown.

182,177. ROTARY MEASURES. Danl. Davis, Jr., and Edwd. Wright, Worcester, Mass., assignors to Wm. F. Hudson, same place. [Filed Apr. 7, 1876.]



1. The frame A of a speed-indicator, in which the bent plate *a* and rim *b*, that protects the gear-wheel D, the stud-pin *c*, on which the latter is mounted, and legs C C', in which the worm-spindle is supported and turns, and a handle B, are all cast in one piece, substantially as set forth.

2. A speed-indicator composed of a casing, A, a graduated scale and corresponding zero index, mark, or point, a worm-spindle, E, having a projecting end, *p*, through which it receives motion, either by an angularly-shaped point, *p*, or a removable metallic cap-piece, G, and a single gear-wheel, D, the whole being arranged and combined so as to operate in the manner substantially as set forth.

3. In combination with the gear-wheel of a speed-indicator carrying a cam-pin, *n*, a spring point or pricker, substantially as set forth.

4. The removable metallic cap-piece G, constructed with teeth *r* having sharp and unyielding edges, substantially as and for the purposes set forth.

5. The combination of an angularly-arranged adjusting-screw, *c*, with a removable worm-screw, E, provided with a circumferential groove, *z*, gear-wheel D, and casing A, of a speed-indicator, substantially as set forth.

6. In a speed-indicator, the combination of an adjustable index-finger, I, with a single gear-wheel, D, having a graduated scale, and a worm-spindle, E, having a projecting end, *p*, through which motion is imparted to the latter, the whole operating in the manner and for the purposes set forth.

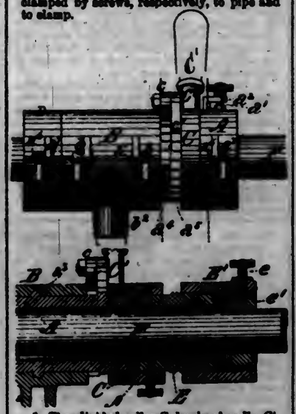
182,178. TOBACCO-BAGS. Wm. J. Ousson, Richmond, Va., assignor of one-half his right to Moses Millhiser, Gustavus Millhiser, and Saml. Hirsh, same place. [Filed Aug. 2, 1876.]



A cloth tobacco-bag, A, having its bottom folded to form the triangular pieces B B, and the points thereof connected by an elastic string, *c*, substantially as and for the purposes herein set forth.

182,174. PIPE-CUTTERS. William R. Dales and Gonsegye C. Lashy, Philadelphia, Pa. [Filed Aug. 2, 1876.]

Brief.—A clamp of two hinged parts surrounds pipe; has recess at each end to receive rings in sections, to adapt it to pipes of differing diameter. Hinged holder and a hinged lever-ring surround clamp, which carries cutter at either end. Revolve loosening either way about clamp, to revolve clamp and cutter either way. Square threading-die lies in socket in end of clamp, and is held by a cover, and has orifices for exit of shavings. Two hinged sleeves, threaded to desired pitch, are clamped by screws, respectively, to pipe and to clamp.



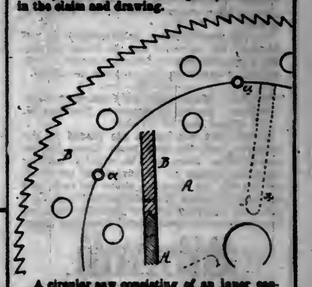
1. The divided collar C, having handle C', and pawls *a a'*, in combination with the socket A, provided with ratchets *a' a'*, and cutter *s*, substantially as described.

2. The combination of the divided collar C, pawls *a a'*, socket A, ratchets *a' a'*, die D, and feed-screws E E', as and for the purpose set forth.

182,179. REMOTE-MAGNETIC WATCHMEN'S TIME-RECEIVERS. Peter A. Dowd, Boston, Mass. [Filed Feb. 21, 1876.]

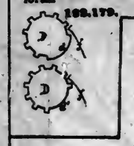
Brief.—Type-wheel bearing numbers of stations, revolved by successive makes and breaks of circuit. Circuit-closer at each station, with makes and breaks of sufficient number to produce complete revolution of type-wheel, and with one long "make" or "break" suitably disposed thereon, to cause type-wheel to stop momentarily at proper point, and allow number of station to be printed.

In combination the marking-wheel A, the paper B, the mechanism for actuating the marking-wheel by making and breaking the circuit, the mechanism for securing the impression after the marking-wheel is brought into its proper position, and a series of automatic circuit-closers, D *f*, constructed as described, so as to give the desired motions to the marking-wheel A, and hold it in its proper place while making the impression, the whole combination being substantially as set forth.

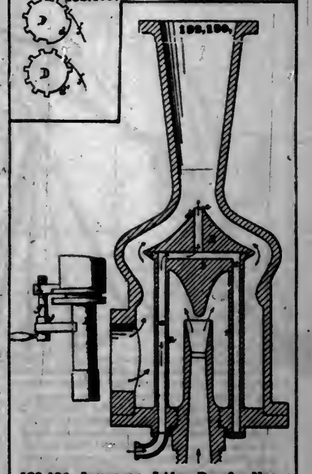


A circular saw consisting of an inner central portion, A, and an outer portion, B, united, all substantially as set forth.

182,179.



182,180.



182,180. INJECTORS. Isidore Dreyfus, New York, N. Y. [Filed July 7, 1876.]

1. The combination, substantially as set forth, of a hollow or channeled spreader, arranged within the condensing-chamber, as described, with an external water-supply for producing an auxiliary or secondary supply to feed the boiler, or for cooling the condensing-surface of the spreader, or for performing both operations, as specified.

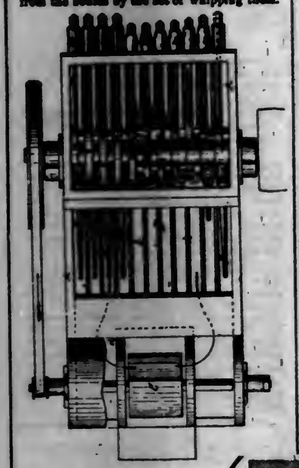
2. The combination, substantially as described, within an injector or ejector, of a spreader, for facilitating the condensation of

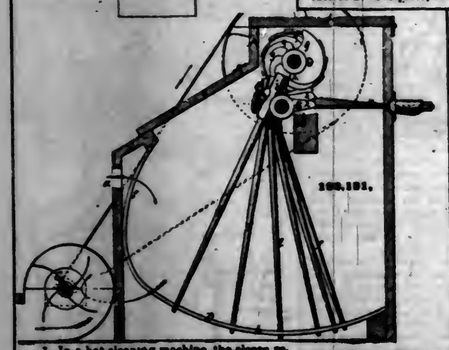
the steam-jet, with a steam-supply pipe communicating with said spreader, substantially as and forth, whereby a vacuum or partial vacuum may be created in the water-supply pipe, to raise or draw water to the injector or ejector.

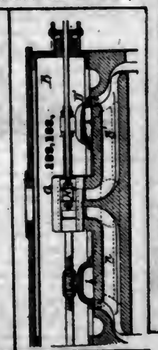
3. The combination, substantially as set forth, of the spreader and the steam-jet nozzle, adjustable to and from one another, substantially as and for the purposes described.

180,181. MACHINES FOR CLEANING HAT-BODIES. Rudolf Hickemeyer, Yonkers, N. Y. [Filed May 23, 1876.]

Brief.—The hat-bodies are placed in the chamber, and the dust, loose fibers, &c., removed from them by the rapidly-moving whipping-beaters F. A current of air is admitted into the chamber above the hats, and discharged below the skeletonized bed by a fan, thus carrying off the particles removed from the bodies by the act of whipping them.







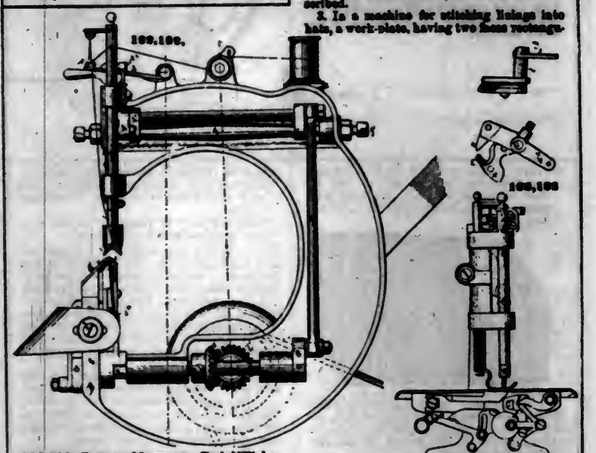
1. In a hat-cleaning machine, the closed receptacle or chamber, and the series of whipping-beaters, in combination and arranged with relation to each other for affording a space for receiving the hat-bodies in mass, substantially as described, whereby the mass of bodies are supported partially by the beaters and partially by the interior surface of the chamber, are beaten by the upward blows of the beaters, and kept in motion, as set forth.

2. In a hat-cleaning machine, the combination, with an inclosed chamber having a skeletonized bed, an air-induction aperture in the upper front portion of the chamber, above the bed, and air-eduction apertures below the bed, of an apparatus for inducing currents of air, and the whipping-beaters, substantially as described, whereby the incoming current of air throws the upper hat-bodies backward and downward upon the beaters and the outgoing current carries the dust and loose fiber from the chamber, as set forth.

3. In a hat-cleaning machine, the combination, with the inclosing-chamber and the skeletonized carved bed, of the whipping-beaters, substantially as described.

4. The combination, with a carved bed, composed of bars, of a series of whipping-beaters, axially mounted and extended through the spaces between the bars of the bed, substantially as described.

5. In a hat-cleaning machine, the vibrating whipping-beaters, in combination with cams for moving the beaters backward, and springs which are adjustable for imparting a light or a heavy blow, substantially as described.



180,182. SEWING-MACHINES. Rudolf Hickemeyer, Yonkers, N. Y. [Filed Apr. 26, 1876.]

Brief.—The machine is mounted on a horizontal shaft in such a manner as to be adjusted to any desired position thereon, and carries a work-plate, formed with two faces, arranged at right angles to each other, that is mounted on a post or standard, so as to leave a space in rear of the same, and between it and the driving-shaft, for the brim of the hat. This work-plate is so arranged with respect to the needle that said bodie passes through it in a line parallel to a line bisecting the angle of the work-plate, and the work is held thereon by means of a presser-foot having corresponding faces; the crown of the hat being supported by an auxiliary work-support secured adjustably to the said post or standard below the work-plate. The looper is provided with a hook extending from its rear, which seizes the loop after the same has been drawn through the work, and carries it clear of said looper on its next forward stroke.

1. Moving mechanism contained within or mounted upon a frame, which is axially mounted upon a transverse driving-shaft, substantially as described, whereby the mechanism may be operated while the machine is set in any desired position with relation to its driving-shaft, as set forth.

2. The combination, with a cast-off, of a looper, composed of two hooks, which project in opposite directions, are united to each other, are vibrated together, and arranged with relation to a needle, substantially as described, whereby one of said hooks draws out a loop from the needle and the other hook spreads the loop, carries the lower and thereof past the path of the needle, and maintains control of the loop after the cast-off has released it from the looper-hook, substantially as described.

3. In a machine for stitching linings into hats, a work-plate, having two faces rectangular to each other, and a needle which moves in a line with, or parallel to, a line bisecting the angle of the work-plate, in combination with a presser-foot, having two faces which correspond with the faces of the work-plate, which presses equally on both faces, and which moves to and from the work-plate in a line parallel with the path of the needle, substantially as described.

4. In a machine for stitching linings into hats, a work-plate, having a front face for supporting the side crown, and a narrow rear face for supporting the brim, mounted upon a standard, which projects above the driving-shaft, and contains or supports the feeding and stitch-forming mechanism, substantially as described, whereby a free open space is afforded at the rear of the standard above the driving-shaft, and below the rear face of the work-plate, for the reception of the edge of stiff curled brims, as set forth.

5. In a machine for stitching linings into hats, the combination, with the main work-plate, of an auxiliary adjustable work-plate, substantially as described.

6. The presser-foot I, provided with two compressing faces and an intermediate space between the two faces for the reception of a sweat-lining, substantially as described.

7. A presser-foot, having two pressing-faces and a transverse open slot in one of the faces, substantially as described.

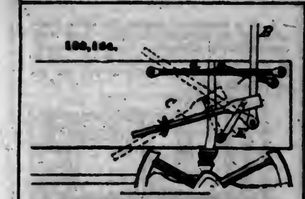
180,183. STEAM-ENGINES. C. W. Ervien, Philadelphia, Pa. [Filed Aug. 4, 1876.]

Brief.—To start the engine, when it is stopped at such a point that the valve covers both the ports, a supplementary valve-seat, having ports communicating with the main ports of the cylinder, is arranged within the steam-chest.

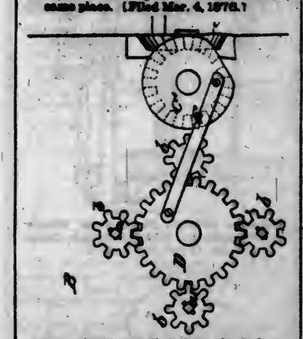
The combination, with the steam-chest B and its main valve, of the supplementary valve-seat or seats G, arranged within the chest, the ports m m', communicating with the main steam-passages, and the supplementary valve or valves H, all substantially as set forth.

180,184. WAGON-BRAKE LEVERS. F. Funk, Beverly, Ill. [Filed Aug. 11, 1876.]

In a wagon-brake, the combination of the pivoted lever E, sliding brake-rod C, and pivoted fulcrum-bar E, substantially as shown and described, for the purposes specified.

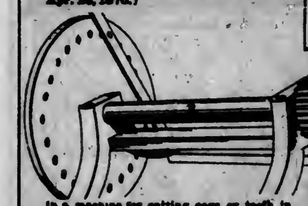


180,185. CHURNS. William W. Hunt-ington, Ind., assignor to W. H. Hunkhead, same place. [Filed Mar. 4, 1876.]

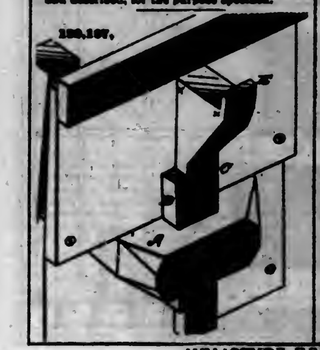


The union of vertical shafts a, circularly arranged, and provided with the arms d, dashers C, and pinions b, in combination with the central gear-wheel D, pinions E, bevel-gear wheels C C', and chare-box A E, whereby a rapid oscillating motion is given to the dashers, substantially as and for the purpose set forth.

180,186. MACHINES FOR CUTTING COGS IN CLOCK-WHEELS. Louis F. Grant, Winsted Conn., assignor of one-half his right to William L. Gilbert, same place. [Filed Apr. 26, 1876.]



In a machine for cutting cogs or teeth in clock-wheels, the sliding spindle D, with its point d and recess e at the rear end, and the spring E for holding the same in place, in combination with the axle b of the mandrel B, substantially in the manner herein shown and and described, for the purpose specified.

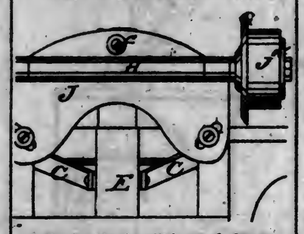


180,187. GUNS-CASES. George Green, Elizabeth, Ill. [Filed June 20, 1876.]

Brief.—The sliding graduated gage can be secured in any desired position, by means of a slotted blank, through which the cleat is passed, and a wedge driven in by the side of the cleat.

The combination of the slotted block A with rigid friction-plate B, the adjustable sliding gage C with flange F and the wedge D, substantially as and for the purposes herein set forth.

180,188. CIRCULAR WOOD-SPLITTING MACHINES. Christian O. Hall, Chicago, Ill., assignor of one-half his right to Archibald Bidell, same place. [Filed Jan. 8, 1876.]



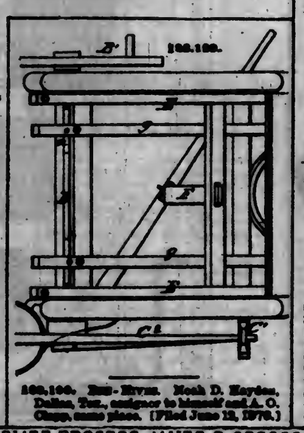
1. In a machine for splitting wood, the combination of the circular knife G, and the elastic pressure-roller F on the same shaft, substantially as specified.

2. The shaft H, provided with the circular knife G, and elastic pressure-roller F, attached to the pivoted plate J, in combination with the feed-rollers d f, operated by suitable mechanism, as described.

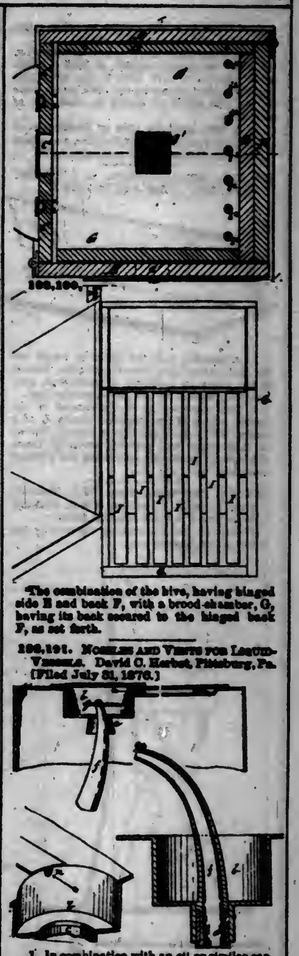
180,189. MOTORS. Henry Hart, Nichols, N. Y., assignor of one-half his right to H. W. Westerman, same place. [Filed Jan. 27, 1874.]

In a driving mechanism for operating a churn and a washing-machine, the rod C, connected to crank-arm c of the crank-shaft B, and to the knee-joint of the toggle-levers C' C', the upper lever C' attached to one end of the vertically-vibrating lever C', in combination with the vertically-vibrating frame H, pivoted to the crank-shaft B, substantially as described.

180,190. MOTORS. Moses Shaw, Dallas, Tex., assignor to himself and A. C. Clapp, same place. [Filed June 12, 1876.]



180,191. NOZZLES AND VENTS FOR LOCOMOTIVE-WHEELS. David C. Herbst, Pittsburg, Pa. [Filed July 31, 1876.]



1. In combination with an oil or similar can, the telescoping joint-nozzle, constructed substantially as described, so that it can be suspended within the can when not in use, for the purpose specified.

2. In combination with an oil or similar can, the chamber and the telescoping joint-nozzle, substantially as and for the purpose specified.

3. In an oil-can head, the combination of the sunken chamber and the sunken vent-channel communicating therewith.

180,192. WATER-GAGE TUBES. James J. Hicks, Hatton Garden, and Lewis J. Ormsby, and Rishd. Hansom, Halifax, England. [Filed June 16, 1876.]



1. The tube B, provided with a backing or strip, a, of white or colored enamel, or other reflecting means, of the required width, to adapt it to change the appearance of the contained colorless liquid to a milk-white or other color without changing the appearance of the tube above said liquid.

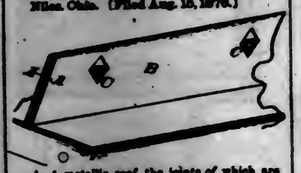
2. A water-gage tube, B, having a strip, a, of white or colored enamel or other reflecting means, of such a width as to adapt it by reflection to change the appearance of the con-

tained water is a milk-white or other color, to render said water readily visible.

2. A water-gage tube, B, having a strip, a, of white or colored enamel, of such a width as to enlarge it to give color to the contained liquid without changing the dark appearance of the tube above the liquid on each side of the strip.

3. A tube, having a strip or backing, a, of less width than the bore of the tube, and adapted to color the contained colorless liquid.

189,192. METALLIC ROOFS. L. J. Holstein, Milan, Ohio. [Filed Aug. 16, 1876.]



1. A metallic roof, the joints of which are covered by the bent-down lips or clips, formed in the same by notching therethrough, substantially as and for the purpose described.

2. The combination of the flanged or upturned edges of the metallic sheets A of a roof with the cap B and lips or clips C, formed in said edges and cap by notching therethrough, substantially as and for the purpose described.

189,193. AUTOMATIC TOYS. W. L. Hubbell, New York, N. Y., assignor to R. Jenkins, same place. [Filed May 20, 1876.]

Brief.—To imitate walking upon or by the hands across a slack rope.



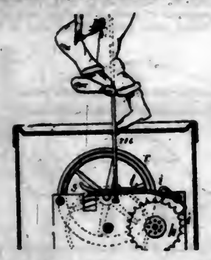
1. The combination, with a clock-movement and intermediate gearing, of the arms A of a toy figure, with the lower ends B' extended to form pedal-levers, the guides C for the arms, and the hands that are hinged or made with the figure's back, substantially as set forth.

2. The combination, with the clock-movement, a toy figure, and a balance-weight, of the arms pivoted at C and moved by winding, and the hands with the fingers and thumbs spread, substantially as set forth.

3. The combination, with a toy figure, of arms operated by cranks to give a hand-over-hand motion, and a clock-movement having an escapement-wheel, pallets, and and a balance-wheel vibrated, A, substantially as and for the purposes set forth.

4. As a new article of manufacture, a toy gymnast, having hands, to which a hand-over-hand movement is communicated by a spring and gearing, substantially as set forth.

189,196. TOY DANCING FIGURES. W. L. Hubbell, New York, N. Y., assignor to R. Jenkins, same place. [Filed May 18, 1876.]



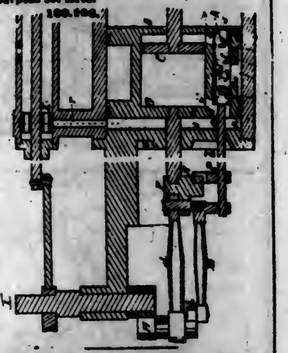
1. The oscillator *r*, in combination with the escapement *h i*, lever *l*, and dancing figure, substantially as set forth.

2. The combination, in a toy dancer, of the escapement *h i*, lever *l*, oscillator *r*, spring *u*, rod *m*, and dancing figure, substantially as set forth.

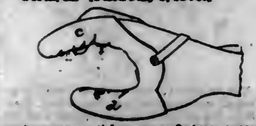
189,196. COMPOUND STEAM-ENGINES. L. Hunteon, Natick, Mass. [Filed May 10, 1876.]

1. The sliding tubular valve K, with its apertures *f* and ports *g*, placed within the side of the piston-cylinder B, in combination with the ports (*f* and openings 13 15, operating substantially in the manner and for the purpose described.

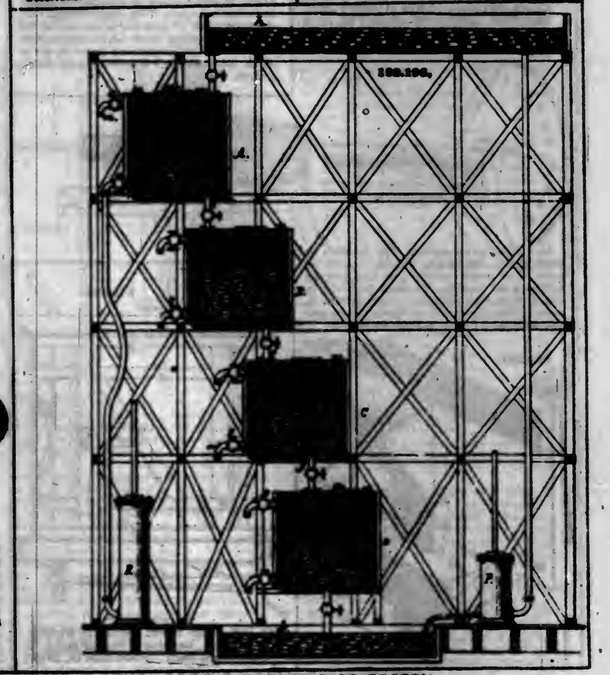
2. In a compound engine, the valve-crank arranged to travel in the same circle with, and slightly in advance of, the main crank H, in combination with the rods M L, piston B, and guide W P, substantially as and for the purpose set forth.



189,197. RUDDERS-PROPELLERS. Wesley Hutchinson and John Hutchinson, Chesterfield, Ill. [Filed July 8, 1876.]



As a new article of manufacture, a combined rudder compound of a finger, *c*, and thumb *d*, made from a single piece of flexible material, *a*, rivets *i*, and the straps *e*, that buckle directly across the back of the hand, substantially as shown.



189,196.

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1. The oscillator *r*, in combination with the escapement *h i*, lever *l*, and dancing figure, substantially as set forth.

2. The combination, in a toy dancer, of the escapement *h i*, lever *l*, oscillator *r*, spring *u*, rod *m*, and dancing figure, substantially as set forth.

189,198. COMPOUND STEAM-ENGINES. L. Hunteon, Natick, Mass. [Filed May 10, 1876.]

1. The sliding tubular valve K, with its apertures *f* and ports *g*, placed within the side of the piston-cylinder B, in combination with the ports (*f* and openings 13 15, operating substantially in the manner and for the purpose described.

2. In a compound engine, the valve-crank arranged to travel in the same circle with, and slightly in advance of, the main crank H, in combination with the rods M L, piston B, and guide W P, substantially as and for the purpose set forth.

189,196.

189,197. RUDDERS-PROPELLERS. Wesley Hutchinson and John Hutchinson, Chesterfield, Ill. [Filed July 8, 1876.]

As a new article of manufacture, a combined rudder compound of a finger, *c*, and thumb *d*, made from a single piece of flexible material, *a*, rivets *i*, and the straps *e*, that buckle directly across the back of the hand, substantially as shown.

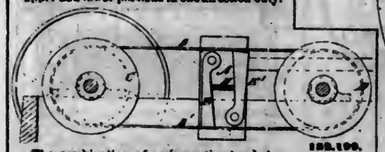
189,198. PROCESSES AND APPARATUS FOR TANNING. Jos. J. Johnston, Columbiana, Ohio. [Filed Mar. 10, 1876.]

1. The described process of tanning, consisting in immersing the skins or hides in the herein-before-described tanning-liquor in vacuo for a period of time, and subsequently subjecting the said liquor and skins or hides to an air-blast, substantially as and for the purpose set forth.

2. The vats A, B, C, and D, provided with coupling-pipes *m*, and arranged one above the other, and communicating with each other by pipes *e*, *f*, and *g*, in combination with an air-pump, E, and reservoirs *h k* and pump P, substantially as herein described, and for the purpose set forth.

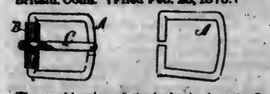
189,199. CONVERTIBLE MOTION. Hiram L. Joslin, Mankato, Minn., assignor to himself and Henry K. Lee, same place. [Filed Mar. 6, 1876.]

Brief.—An endless belt operated by a reciprocating block, which has pawls clamping its upper and lower portions in one direction only.



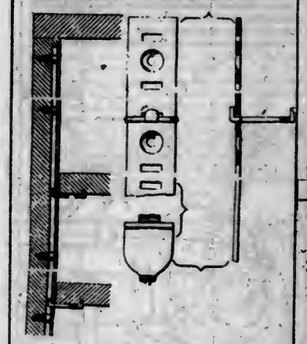
The combination of reciprocating-head A, having reversely-operating friction-pawls E E', with a belt, B B', and wheels C D, substantially as specified.

189,200. BUCKLES. Lorin F. Judd, New Britain, Conn. [Filed Feb. 26, 1876.]



The combination of the body A, the tube B surrounding its abutting ends, and the tongue C, with its eye formed around the tube, all substantially as described, and for the purpose set forth.

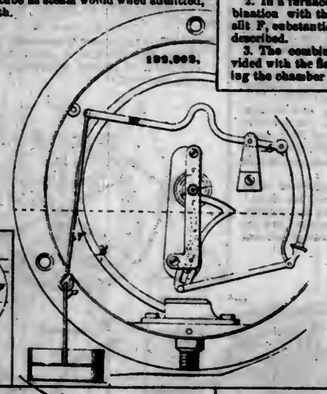
189,201. DEVICES FOR SUPPORTING SHELVES. Matthew Kay, Mansfield Road, Parish of St. Pancras, assignor to William Henry Tonks and Edmd. Tonks, Birmingham, England. [Filed Aug. 16, 1876.]



The improvements in apparatus for supporting the shelves of book-cases and other shelves herein before described and illustrated in the accompanying drawing—that is to say, the combination of metallic shelf-supporting hooks, formed each with a broad, strong, upwardly-turned hook, as described, with vertical metallic strips attached to each end of the book or other case or support, and provided with openings, with which openings the hooks of the studs are engaged and disengaged, substantially as set forth.

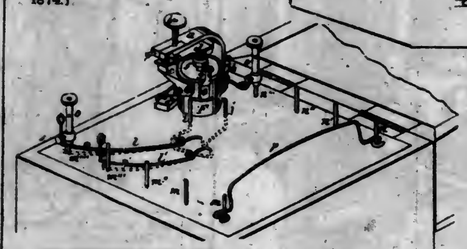
189,202. PRESSURE-GAGES. R. B. Keyes, Charlestown, assignor to W. H. Ireland, Boston, Mass. [Filed Apr. 10, 1871.]

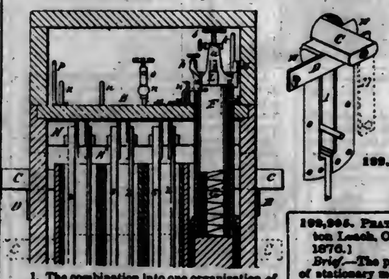
The mode of testing pressure-gages, substantially as herein described, the same consisting in having the pressure-tube free from internal steam or liquid pressure, and in then applying to the tube at its free end, directly or through a system of leverage, weights, more or less in number, having a known action on the tube, in such manner as to act upon the tube as steam would when admitted, as set forth.



189,202.

189,203. ELECTRICAL APPARATUS. Jerome Kidder, New York, N. Y. [Filed May 9, 1874.]





1. The combination into one organization of battery elements of different qualities, an induction coil or coils, and the wire *p*, operating substantially as set forth.

2. The horizontally-elongated slots *u u*, in combination with the arms O O and the bars D D, substantially as and for the purpose set forth.

3. The metallic devices *v v' w x 2 2'*, operative for holding both the positive and the negative battery plates or elements, substantially as and for the purpose set forth.

4. The tube F, in combination with a coil or coils, and with the metallic tube *t*, substantially as and for the purpose described.

5. The combination of the tubes F and *t*, an induction coil or coils, the screw *b*, and the armature *d*, as set forth.

6. The combination of the tubes F and *t*, electrical bellows of three different lengths and thicknesses of wire, the screw *b*, and the spring or armature *d*, as set forth.

189,204. BLAST-NOZZLES FOR STEAM-BOILER FURNACES. Alvin Lawrence, Lowell, Mass., assignor of one-half of his right to John E. Foster, Philadelphia, Pa. [Filed May 29, 1876.]

1. In an air-nozzle for furnaces, the continuous slit F, substantially as and for the purpose described.

2. In a furnace, the grate-bars C C, in combination with the nozzle E, and continuous slit F, substantially as and for the purpose described.

3. The combination of the nozzle E, provided with the flange O and the shell N, forming the chamber P.



189,204.

189,205. PEAT-PRESSING MACHINES. Boynton Leach, Owego, N. Y. [Filed June 12, 1876.]

Brief.—The peat is compressed in two sets of stationary molds by the action of two sets of reciprocating plungers. The molds are open at upper and lower ends. A small engine is mounted on the pressing-cylinder, to control the slide-valve for induction and eduction. The slide-valve is balanced.

1. In a machine for pressing peat or other material, the combination of a series of reciprocating plungers, operated by hydraulic pressure, and a series of stationary molds, open and unobstructed at their discharge ends, and of the same, or nearly the same, internal area throughout, substantially as and for the purpose set forth.

2. In a machine for pressing peat or other material, the combination of two sets of stationary molds and two sets of reciprocating plungers, operated alternately, and forming a double press, substantially as described and shown.

3. In a machine for pressing peat or other material by hydraulic pressure, the combina-

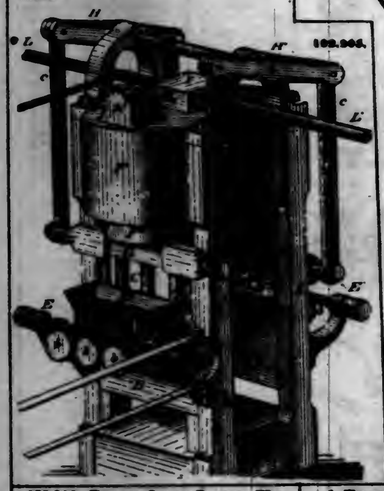
tion of the valve-chest I, the valve F, the metallic packing k, and the elastic packing i and i', substantially as described and shown.

4. In a machine for pressing peat or other material by hydraulic pressure, the combination, with the pressing-cylinders F F', of the valve-chest I, the valve F', the metallic packing k, the elastic packing i i', the ports d d' f, and the induction and eduction pipes L L', substantially as described and shown.

5. In a machine for pressing peat or other material by hydraulic pressure, the combination, with the pressing-cylinders of the small engine E, mounted upon the same, and adapted to control the valve for the induction and eduction of the pressing-liquid, substantially as and for the purposes set forth.

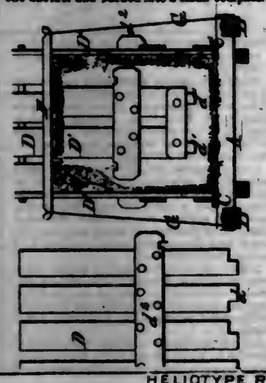
6. In a machine for pressing peat or other material by hydraulic pressure, the combination of the cylinders F F', pistons F' F', cross-heads G G', plungers O O', walking-beams H H', and connecting-rods e e', substantially as described and shown.

7. In a machine for pressing peat or other material by hydraulic pressure, the combination of the pressing cylinders and pistons, the plungers, the stationary molds, and the spiral feeders, substantially as described and shown



192,906. HAY AND COTTON PRESSES. Wm. D. Libbey, Marquette, Mich. [Filed July 20, 1876.]

Brief.—When the press is to be transported from place to place, the head surrounding the tops of the sections is removed, the sections are drawn from the sockets in the bed-frame and separated, when they are laid flat upon one another and packed into a small compass.



1. The combination, with a carriage-body, A, of a truck composed of a frame, B, which is hinged to the front part of the body, and forms the bearings for the front axle, and of hinged arms E, which form the bearings for the hind axles, the whole being constructed and operating substantially as shown and described.

2. The combination of the body A, hinged frame B, hinged arms E, push-handle H, and hooks c, or other equivalent fastenings, whereby the truck is locked, when the push-handle is depressed substantially as set forth.

3. The combination of the body A, handle H, hinged frame B, hinged arms E, hooks c, and bolts h, substantially as shown and described.

192,906. SIGNALS FOR DOORS. Benjamin G. Martin, New York, N. Y., assignor of three-fourths of his right to Wm. Seward, Jr., New York city. [Filed Feb. 24, 1876.]

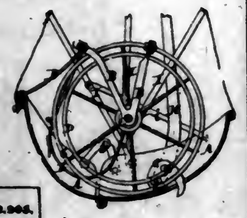
Brief.—The door can only be bolted from the inside. The act of bolting rotates a disk on the outside, which shows whether the room is occupied or vacant.



1. A press for cotton, hay, or similar materials, having a casing composed of detachable sections, which are secured to the bed-frame by mortises and tenons, and to each other by recessed extensions, substantially as and for the purpose set forth.

2. Casing-section D, having tenons d and recessed buttons d', in combination with casing-section D', having tenons d', and bed-frame, substantially as and for the purpose set forth.

192,907. CHILDREN'S CARRIAGES. Carl G. Macht, New York, N. Y., assignor to himself and G. A. Meeres, same place. [Filed Feb. 19, 1876.]



192,907.

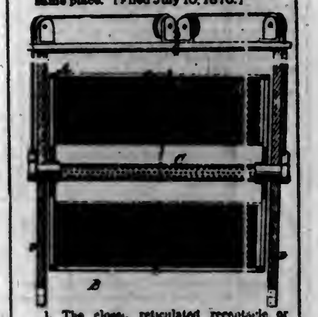


1. The combination, with the carriage-body A, of the bed-frame B, the hinged arms E, the push-handle H, and the hinged frame B, substantially as and for the purpose set forth.

2. The combination, with the carriage-body A, of the bed-frame B, the hinged arms E, the push-handle H, the hinged frame B, the hinged arms E, and the hooks c, substantially as and for the purpose set forth.

The announciator-plate G and plate H, having the opening I, in combination with the cam B, bolt C, rack and pinion D E, and extensible spindle F, substantially as described, said spindle being made in two parts to telescope one within the other, as and for the purpose set forth.

192,909. APPARATUS FOR TREATING WOOL. Nicholas Mary, Boston, Mass., assignor of one-half of his right to Andw. J. Clement, same place. [Filed July 10, 1876.]



1. The close, reticulated receptacle or wheel A, constructed in compartments having perforated sides, and with spaces c between them, essentially as and for the purpose herein set forth.

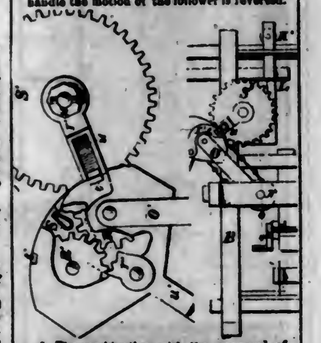
2. The closed reticulated receptacle or wheel A, constructed in compartments composed of perforated baskets d, substantially as shown and described.

3. The combination of the perforated hollow axle C, with the closed reticulated receptacle or wheel A, formed of reticulated compartments, essentially as specified.

4. The combination, with the vat B, of the removable blocks or bearings D D, and the raising and lowering closed reticulated receptacle or wheel A, substantially as shown and described.

192,910. HAY AND COTTON PRESSES. John A. McBryde and M. H. McBryde, Laurinburg, N. C. [Filed June 26, 1876.]

Brief.—The wheels in the housing are caused alternately to engage the wheel actuating the screw-rod. Thus, by depressing the handle secured to said housing, the lower cog-wheel therein is caused to mesh with the wheel carrying the screw-rod, and the follower is forced into the press-box. By raising the handle the motion of the follower is reversed.



1. The combination, with the screw-rod of a toggle-press, of a hand-gearing attachment, constructed and arranged substantially as described, whereby the gearing may accommodate itself through a vertical or lateral movement, substantially as and for the purpose set forth.

2. The combination, with the screw-rod of a toggle-press, wherein the follower has a lateral movement, as set forth, of a reversible power-gearing attachment, constructed and arranged to admit of a movement in unison with the screw-rod of the press, substantially as and for the purpose described.

3. In a hay and cotton press, the combination, with the screw-rod of a vertically and laterally moving follower, of a reversible power-gearing, constructed to lock the follower at any desired height, substantially as and for the purpose described.

4. The combination, with the follower and toggles of a hay and cotton press, of an elevated cross-bar, adjustable in a right-angular plane to the vertical travel of the follower, substantially as and for the purpose described.

5. In a hay and cotton press, the combination, with the follower, toggles, and rollers, traveling on elevated track, of an intermediate bearing-bar, supported by standards secured to the axis of said rollers, substantially as and for the purpose described.

6. The combination, with the cog-wheel S', of the housing Q and cog-wheels E E', substantially as and for the purpose specified.

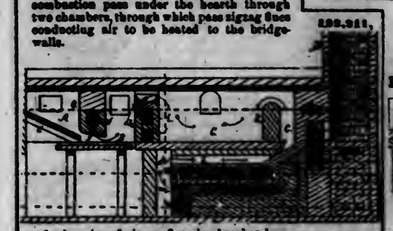
7. The combination, with the cog-wheels S' E E' of the housing Q, constructed with a tooth, O, substantially as and for the purpose specified.

8. The combination, with the cog-wheels S' E E' and housing Q, of the links r r' and spring-pressed detent t, substantially as and for the purpose set forth.

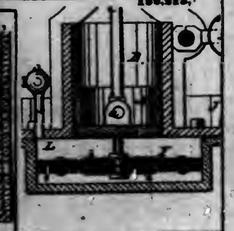
9. The combination, with the housing Q, cog-wheels S' E E', of the chain-wheels p p' and chain g, substantially as and for the purpose specified.

192,911. REVERBERATING AND REGENERATIVE FURNACE. Hugh McDonald, Allegheny, Pa. [Filed Sept. 20, 1875.]

Brief.—The fuel is heated and sweated in a chamber before falling onto the grate. A pendent fire-will and the bridge-wall are provided with flues for conducting hot-air to the fire-box to mix with the gas. The products of combustion pass under the hearth through two chambers, through which pass zigzag flues conducting air to be heated to the bridge-walls.



192,911.

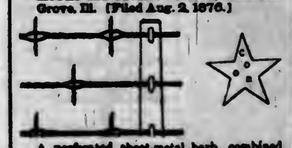


192,912.

1. A series of zigzag flues in chamber I under the bottom of the working-chamber C, communicating, through the medium of vertical and transverse flues, with chambers in the bridge-wall h and partition-wall e, the latter communicating with the fire-grate B, whereby atmospheric air is highly heated, and subsequently commingled with the products of combustion, by the inductive draft of the furnace, substantially as hereinbefore described, and for the purpose set forth.

2. In a metallurgic furnace the flues *r s t u v w x y z j k l*, in combination with the fuel-chamber A, grate B, working-chamber C, flue e, heating-chambers *l* m, and stack D, all constructed and operating with relation to each other, substantially as herein described, and for the purpose set forth.

192,913. RAISING FENCE-WIRE. James C. McGlin and Thomas H. Hart, Shabbona Grove, Ill. [Filed Aug. 2, 1876.]



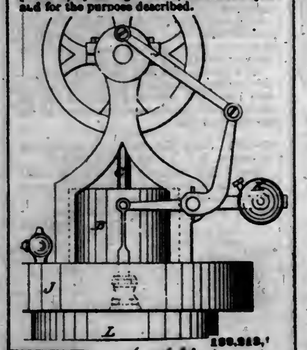
A perforated sheet-metal bark, combined with a laid-wire rope the several strands of which pass through the perforations in said bark, substantially as set forth.

192,914. HOT-AIR REGISTER. Benjamin F. McKinley, Fort Richmond, Ohio, assignor to himself and H. R. Mathias, same place. [Filed Aug. 30, 1876.]

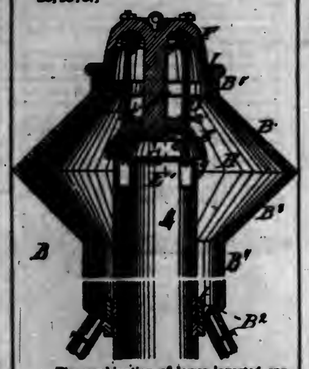
1. In a hot-air register, a pattern constructed simply of layers of wire-cloth, fastened together, and which extends to the walls of the cylinder, substantially as and for the purposes described.

2. The combination, with a working-piston and its cylinder, of a piston made of wire-cloth with free edges, located in an inclosed chamber, communicating with the working-piston cylinder, and between the heated surfaces and the working-piston, and operated alternately with the working-piston through suitable gearing, substantially as and for the purpose described.

3. The combination, with the working-piston A and its cylinder B, having a base-piece, J, of the lower piston-chamber L, of greater diameter than the working-cylinder, and bolted to the base-piece J, together with the wire piston I, operating therein, substantially as and for the purpose described.



192,914. SPARK-ARRESTERS. Terrence J. McMahon, Golden City, Colo. [Filed July 20, 1876.]

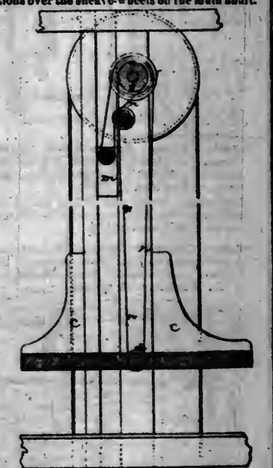


The combination of lower inverted cup or cone E, perforated at E', with its supporting-rods, the smoke-flue A, and upper inverted cup or cone F, having central weighted pointed bar F', substantially as and for the purpose set forth.

2. The combination of stack-head B, having cylindrical portion B', flaring portions B² B', lower inclined portion B³, and upper annular flange B⁴, with smoke-flue A, inverted deflecting cones or cups E and F, and screw-threaded rods D, substantially as and for the purpose set forth.

192,915. ELEVATORS. John McMurtry, Lexington, Ky. [Filed July 21, 1876.]

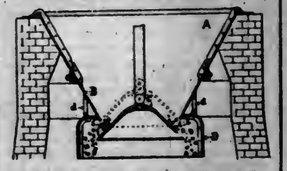
Brief.—An endless rope passes in opposite directions over sheave-wheels of different diameters on the main operating-shaft, being kept taut by the weight of the movable platform, and the weights moving in openings between the guide-posts. The platform is raised and the weights depressed, in a corresponding degree. The platform is locked when the main shaft ceases to operate by reason of the ropes passing in opposite directions over the sheave-wheels on the main shaft.



The combination of the main shaft E, with its sheave-wheels f and g, of different diameters, with the endless ropes n n on cams, and connected with the platform c, and the weights m m over and around the idlers d, I, and k, and operated by the wheel I, or its equivalent, on the end of the main shaft E, substantially as described, and for the purpose set forth.

192,916. CUP AND CONE FEEDERS FOR BLAST-FURNACES. P. H. Moore, Wheeling, W. Va. [Filed Apr. 3, 1876.]

Brief.—A feeder-apron is attached to the lower end of the cup, to prevent the entering materials from striking against the furnace-walls as they run off from the cone.

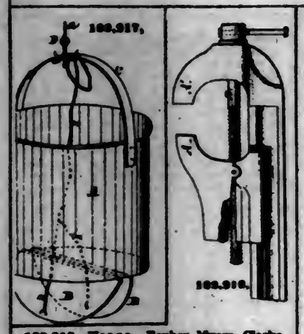


A blast-furnace feeder consisting of the hopper A, mouth-piece B, bell C, flanged feeder or apron D, secured to the mouth-piece B by strips d d, the whole constructed, combined, and arranged to operate substantially as and for the purpose specified.

192,917. FRUIT-BUCKETS. William Morton, Woodhull, assignor of four-fifths of his right to Silas G. Tubbs and S. L. Wildrick, Woodhull, and H. Baldwin and L. G. Lain, Addison, N. Y. [Filed July 17, 1876.]

Brief.—A cord attached to the double opening bottom passes through a slot in the bail, and is provided with a reversible grapple for suspending the bucket while picking or for raising it after the fruit is emptied.

The combination of the bucket A, stationary ball C, the centrally-pivoted bottom plates B B, the cord a, attached to said plates, and passing through a hole in the bail, and the pronged reversible grapple D, all constructed substantially as and for the purposes herein set forth.



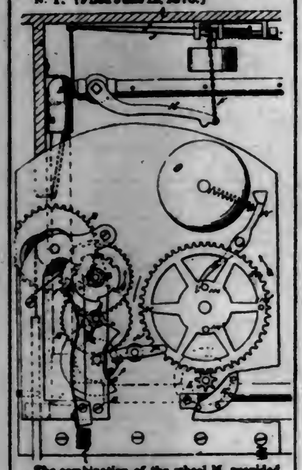
169,917.

169,918.

169,918. VISE. Reuben Myers, Clarke County, assignor of one-half of his right to Russell, Bennet & Robbins, Springfield, Ohio. (Filed Mar. 23, 1876.)

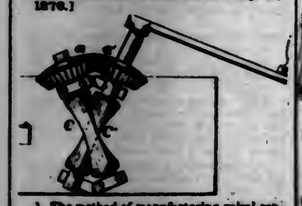
The hinged tilting and sliding jaw A, in combination with stationary jaw A' and screw B, substantially as described.

169,919. COMBINED ELECTRIC FIRE-SIGNAL APPARATUS AND FIRE-EXTINGUISHER. T. F. Morine and John W. Smith, Brooklyn, N. Y. (Filed June 12, 1876.)



The combination of the wheel M, provided with the pins m' m', the pivoted trip-bar P, and the wheel Q, provided with a pin, p', with the shaft of a water-wheel, K, placed in the water-pipe B of an automatic fire-extinguishing apparatus, with the hammer F of a bell, O, and with the gearing of an ordinary telegraph-alarm, R, substantially as herein shown and described.

169,920. MACHINES FOR MAKING SPIRAL CONVEYERS. Ferris Ogden, Mansfield, assignor of one-half his right to E. B. Stambaugh, Cleveland, Ohio. (Filed July 14, 1876.)



1. The method of manufacturing spiral conveyers, augers, &c., consisting in subjecting a bar or blank to continuous compression between concave-faced rollers, arranged to have their axes cross at or near their centers, substantially as and for the purpose described.

2. The combination, with rolls having oblique axial lines of direction, of the plate-presenting mechanism, located in the right-angular cross-plane of the point where the rolls cross each other, substantially as and for the purpose described.

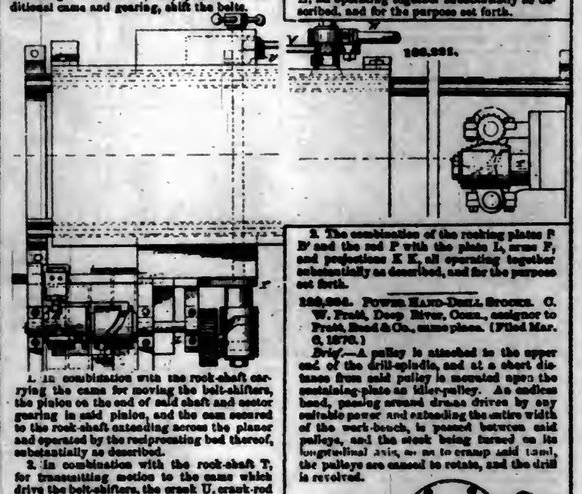
3. In combination with the bevel-gears *a a'*, the rolls C C', with concave surfaces, their axes placed obliquely to each other, and their surfaces separated sufficiently to operate on the plate or material introduced between them, substantially as and for the purpose described.

4. In combination with two rolls with concave surfaces, their axes placed obliquely to each other, the presenting-guide D, substantially as and for the purpose described.

5. In combination with two rolls with concave surfaces, their axes placed obliquely to each other, the presenting-guide D and receiving-guide E, substantially as and for the purpose described.

169,921. BELT-SHIFTERS. George A. Ohl, Newark, N. J. (Filed Oct. 9, 1876.)

Brief.—The projecting points on the under side of the reciprocating table strike the cams actuating the rock-shaft, and, by means of additional cams and gearing, shift the belts.

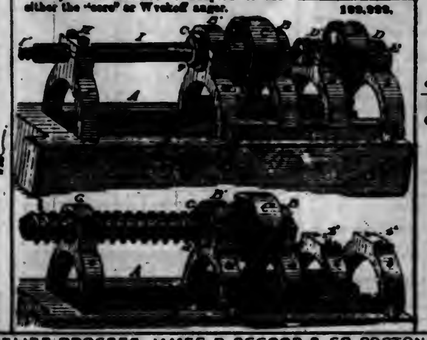


1. In combination with the rock-shaft carrying the cams for moving the belt-shifters, the pinion on the end of said shaft and sector gearing in said pinion, and the cam secured to the rock-shaft extending across the planer and operated by the reciprocating bed thereof, substantially as described.

2. In combination with the rock-shaft T, for transmitting motion to the cams which drive the belt-shifters, the crank U, crank-rod V, and lever W, the latter provided with the reversely-arranged cams Y Y', and the projections Z on the reciprocating bed of the planer, for operating said lever, substantially as described.

169,922. BORING-MACHINES. P. T. Furbish, Corinth, N. Y. (Filed May 8, 1876.)

Brief.—The machine is adapted to use either the "screw" or Wyckoff auger.

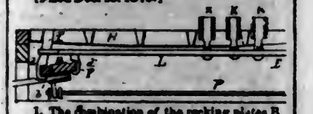


169,922.

1. In a boring-machine, the hollow shaft C, having a screw-threaded outer end adapted to receive and hold a screw-auger, or the outer shell of a Wyckoff auger, and the removable shaft E, provided with the socket *c*, to receive and turn the inner part of a Wyckoff auger, constructed and arranged substantially as described and shown.

2. The boring-machine described, consisting of the bed A, the frames *a a' b b'*, the journal-boxes B B', the hollow shaft C, having a screw-threaded outer end, the solid shaft E provided with the socket *c*, the journal-boxes D D', adapted, with the said shaft E, to be bodily removed from the supporting-frames, and the pulleys O P, all constructed and arranged substantially as described and shown.

169,923. DEVICES FOR OPERATING GRATE-BARS. Philip W. Pratt, Abington, Mass. (Filed Dec. 13, 1876.)



1. The combination of the rocking plates B B' and the rod P with the arms E E' and bars H, all operating together substantially as described, and for the purpose set forth.

169,923.

2. The combination of the rocking plates F F' and the rod P with the plate I, arms F, and projections K K, all operating together substantially as described, and for the purpose set forth.

169,924. POWER HAND-DRILL STOCKS. C. W. Pratt, Deep River, Conn., assignor to Pratt, Read & Co., same place. (Filed Mar. 6, 1876.)

Brief.—A pulley is attached to the upper end of the drill-spindle, and at a short distance from said pulley is mounted upon the sustaining-plate an idler-pulley. An endless band, passing around drums driven by any suitable power and extending the entire width of the work-bench, is passed between said pulleys, and the stock being turned on its longitudinal axis, so as to cramp said band, the pulleys are caused to rotate, and the drill is revolved.

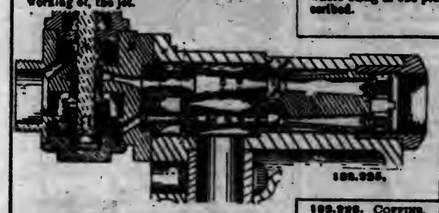


169,924.

The combination of the open-sided head F' *p* P'', the tubular bearing T of the drill-spindle; the handle h, and the pulleys w^1 w^2, substantially as described, and for the purpose set forth.

169,925. INJECTORS. Julius Prosper, Pittsburg, Pa. (Filed Aug. 7, 1876.)

Brief.—The injector-head has two receiving, combining, and delivery tubes of different capacities, in order that the feed may be varied at pleasure without breaking the jets or otherwise deranging the action of the injector. The valve-chamber is provided with two delivery-ports and two valves for guarding the same, whereby either receiving-tube may be employed at the will of the operator. Automatic valves are interposed between the combining and delivery tubes, so as to close the combining and delivery tube not in use. The combining-tube is perforated to insure an additional supply of water to, and the regular working of, the jet.



1. An injector provided with two jets or receiving-tubes and two combining and delivery tubes, substantially as and for the purpose specified.

2. The combination, in an injector, of two jets or receiving-tubes with a valve-chamber having suitable ports and two valves for controlling the admission of steam to the jets, substantially as specified.

3. In an injector, the combination of the two jets or receiving-tubes and the overflow-steam jet, with the three valves arranged upon a common stem, and suitable valve-seats and ports, substantially as and for the purpose specified.

4. In an injector, the combination of the independent guide-plate and disk *b'* with the jet or receiving-tube and the combining-tube, substantially as and for the purpose specified.

5. The perforated combining-tube, substantially as and for the purpose specified.

6. The combination of the automatic valve with the two combining-tubes and the overflow-port, substantially as and for the purpose specified.

7. In an injector, the combination of the automatic valves *f' f'' f'''* with the delivery-tubes, substantially as and for the purpose specified.

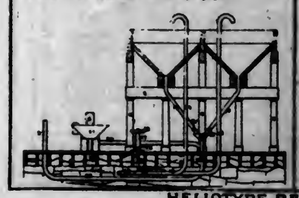
8. In an injector, the cones or cowling, having the part *a'* of screw-thread, substantially as and for the purpose specified.

9. The combination of the jet or receiving-tube, having the rounded or convex nose, with the combining-tube, having the convex lip, substantially as and for the purpose set forth.

10. In combination with an injector the overflow-cannle, arranged upon the valve-chest, and taking its steam directly therefrom, substantially as and for the purpose specified.

169,926. APPARATUS FOR ELEVATING AND CONVEYING GRAIN IN BULK. M. Randolph, New York, N. Y. (Filed June 10, 1875.)

Brief.—Air is projected by a blower through a pipe having interior longitudinal wings, for the purpose of giving spiral motion to such air, which latter propels the grain to a switch connecting with either of a series of ascending pipes to bins. These bins are unloaded by pipes descending from each floor, and converging to a point where valves control the outflow to a general discharge-pipe.



1. The blast-pipe I, when constructed with a concentric core, B, and diverging wings 10, so as to form an annular blast delivered in curvilinear or rectilinear lines, substantially in the manner and for the purpose set forth.

2. The swivel 13, for connecting the grain-receiving pipe 12 with the blo-pipe 15, substantially in the manner and for the purpose set forth.

169,927. TAGS. Edmund D. Reynolds and Oliver B. Reynolds, Brockton, assignors to George L. Soule, Middleborough, Mass. (Filed Mar. 6, 1876.)

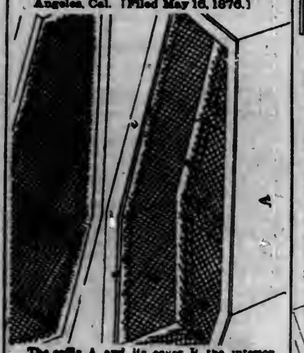
1. As a new article of manufacture, a tag having duplex leaves arranged so that, when attached, an end of each leaf is uncovered, as set forth.

2. As a new article of manufacture, a tag having duplex leaves, consisting of the blank A, folded at *x x x* to form a re-enforce, the whole being in one piece, substantially as described.



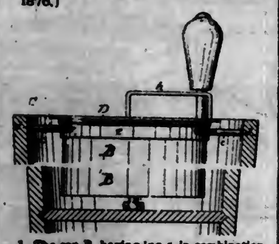
169,927.

169,928. COFFINS. Samuel Rodgers, Los Angeles, Cal. (Filed May 16, 1876.)



The coffin A and its cover B, the interior surface of which is lined with a disinfectant, such as charcoal and calcium combined, and the whole covered with a wire-cloth, *d*, substantially as and for the purpose set forth.

169,929. ICE-CREAM FREEZERS. David J. Rogers, Bardstown, Ky. (Filed July 28, 1876.)

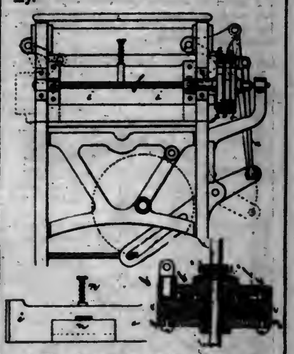


1. The can B, having lug *g*, in combination with the centering rim C, having slot *f*, and attached to the tub through extensions *e* and flanges *d*, substantially as and for the purpose described.

2. The combination, with the cover D, of the compound handle, consisting of strap h, attached at one end to the center of the cover, and at the other near the circumference, together with the knob *i*, mounted upon the strap near the circumference, substantially as and for the purpose described.

169,930. PAPER-CUTTING MACHINES. H. Schlenker, Buffalo, N. Y. (Filed June 6, 1876.)

Brief.—The knife and clamp descend together. The latter, when it strikes the pile of paper, is arrested in its downward movement, but by reason of its driving friction-clutch a pressure, both steady and great, is induced upon the paper, thereby firmly holding the same while being operated by the knife. The clamp is provided with a resiliently-opening gage, whereby the paper can be properly set upon the machine with relation to the knife without first lowering the latter, as is customary.



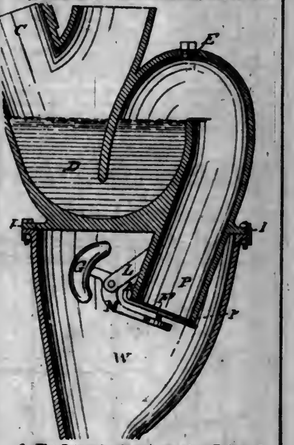
1. The clamp *i*, in combination with the shaft *f* and connecting-rod *a*, and with the clutch mechanism and the mechanism, substantially as described, which operates the cutting-knife, as and for the purpose specified.

2. The friction-disks *b*, *c*, *g*, and *i*, arranged to operate in combination with the shaft *f* and clamp *i*, substantially as and for the purpose specified.

3. The combination of the disks *b c g* with disk *i*, shaft *f*, washer *e*, jam-nut *m*, and with the clamp *i* and connecting-rod *a*, substantially as and for the purpose specified.

4. The indicator *n*, constructed substantially as described, and arranged to operate in combination with the clamp *i*, for the purpose specified.

169,931. STENCH-TRAPS. John P. Schmitz, San Francisco, Cal. (Filed July 20, 1876.)



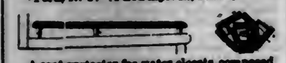
1. The S-trap having an opening, E, base I, sloping tube P, and leg L, as and for the purpose described.

2. The combination, with the sloping tube P, having lugs L, of the weighted lever M, carrying the loosely-attached cover F, having flange E, substantially as and for the purpose described.

3. The casing W, in combination with the flap-trap, and the S-trap, having a base I, for the purposes described.

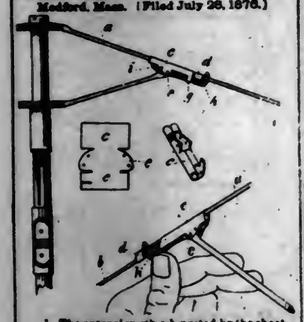
4. The combination of the flap-trap and S-trap, as and for the purpose described.

182,982. SEAT-PROTECTORS FOR WATER-CLOSETS. Gustav Schwarzwald, New York, N. Y. [Filed Apr. 12, 1876.]



A seat-protector for water-closets, composed of a series of sections provided with short feet, and hinged together in such manner that the whole may be rolled up out of the way, substantially as described.

182,983. FOLDING UMBRELLAS. Alb. Shaw, Medford, Mass. [Filed July 26, 1876.]



1. The extension-rib *a b*, united by the sheet-metal clasps or slides *c d*, the clasp *c*, having the flanges *e* formed thereon, substantially as and for the purposes set forth.

2. The extension-rib *a b*, slides *c d*, and spring-hook *h*, held in position by the stretcher-rivet, and operating substantially as set forth.

3. In a folding umbrella, the rib in two parts, in combination with a spring and a stop for the spring, limiting its movement at a given point, substantially as and for the purposes set forth.

182,984. PREPARATION OF ALIZARINE, &c., MADE FROM ANTHRACENE. Richard Simpson, Arthur Brooke, and Thomas Royle, Harrow, England. [Filed June 16, 1876.]

1. Anzarine and other analogous coloring matter made from anthracene, in the form of dry powder, substantially as set forth.

2. The hereinbefore-described method of preparing alizarine and other analogous coloring matter from anthracene, which consists in mixing hydrate of lime and water, adding thereto the coloring matter, mixing the whole together, drying the mixture, and finally passing it through a sieve, substantially as set forth.

182,985. CORN-PLANTERS. Alb. D. Smith, Nelsonville, Ohio. [Filed July 15, 1876.]

1. In a corn-planter, the hollow transporting and feeding wheels F F, provided with doors *f f*, in combination with radial casings I I, feeding-box J, having extension *j*, spring K, and discharging-box J, substantially as described, and for the purpose set forth.

2. The V-shaped bar G and spiral springs O O, in combination with the guide-flanges P P, and plow-points H H, adapted to make both longitudinal and cross furrows, substantially as described, and for the purpose set forth.

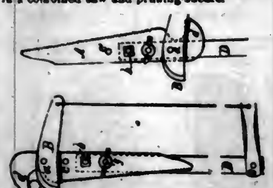
3. In combination with wheels F F, having cogs *f' f'*, the locking device L M N, provided with hooks *n n*, substantially as and for the purpose set forth.

4. The frame D, lying in the same vertical plane with the axle, and attached thereto outside of the wheels, said vertical frame carrying the driver's seat, tongue, and locking devices L M N *n*, substantially as described, and for the purpose set forth.

5. The combination of V-shaped bar G, adapted to cut cross-furrows, with guide-flanges P P and spiral springs O O, substantially as and for the purpose set forth.

182,986. PRUNING-SHEARS. Frank Smiley, Batavia, N. Y., assignor of one-half of his right to Roderic F. Thompson, same place. [Filed July 14, 1876.]

Brief.—A reversible saw, having the heel portion cut out to form a jaw of the shear, is thus utilized to constitute one of the blades in a combined saw and pruning-shears.



1. In a pruning implement, a combined pruning-shear and pruning-saw, in which the heel of the latter is shaped to form a jaw of the shear, substantially as herein described and shown.

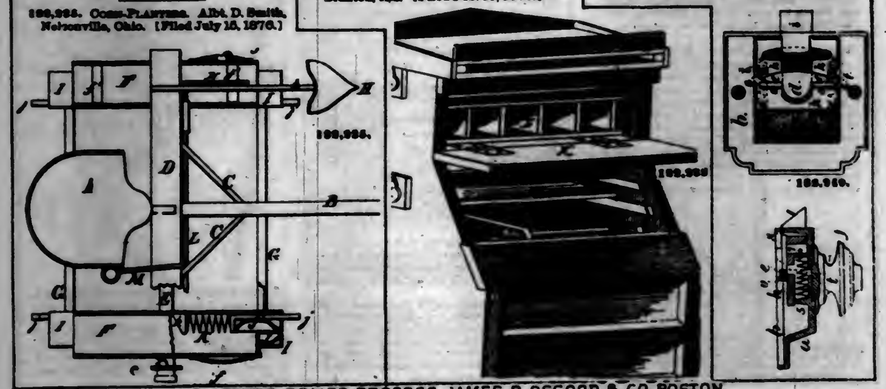
2. A reversible pruning-saw, having holes *e* and *e'* equidistant from the pivot-hole, which saw forms one of the blades of a pruning-shear, in combination with a pivot-bolt, I, clamping-screw *g*, and stock D, substantially as shown and described.

182,987. HARROW-TEETH. Wm. W. Speer, Pittsburg, Pa. [Filed May 27, 1876.]



A quadrilateral grooved tooth, having parallel sides and a plane-sided point, substantially as and for the purpose described.

182,988. COMBINED WRITING-DESK AND MEAL-CHEST. William H. Stephenson, Stafford, Ind. [Filed Feb. 10, 1876.]



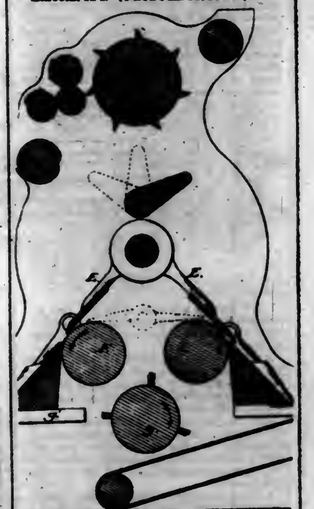
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1. In a flour cabinet or case, the lid or door D, provided with the flanges *f* and the removable cleat *c*, as and for the purposes herein set forth.

2. The combination of the case A, divided to form bins A' A', the rounded cleats *b b*, lid or door D, and inclined sieve G, as and for the purposes herein set forth.

3. The combination, with a flour and meal cabinet, of a desk-compartment, J, having hinged door K and removable pigeon-hole rest L, substantially as shown and described.

182,989. COTTON-GINS. Henry A. Steele, Lincoln, R. I. [Filed Jan. 19, 1876.]



1. The combination, in a double roller-gin, of the rolls *a a*, opener *b*, and vibrating partition C, substantially as and for the purpose described.

2. The combination of the shaft *d*, constructed and arranged as described, the two elastic rolls F F, with the cam-plates H H, arranged to operate on two rolls from one central shaft, as and for the purpose set forth.

3. The combination, with the knives A A, rolls F F, and the projecting board *g'*, of the revolving clearer-roll *g*, arranged to operate on both of said rolls, substantially as described.

182,990. OUTBOARD-LATCHES. Elbridge J. Steele, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed Apr. 17, 1876.]

The combination, in a cupboard-latch, of the box-shaped case *a*, slotted at *b*, the latch *i*, slotted shank and flanges *e*, the springs *f*, flanges *d* and *h*, the spindle *d*, cams *c*, and knob *f*, the three latter cast in one piece, substantially as and for the purposes set forth.

182,991. ANIMAL-TRAPS. Henry T. Smith, Ottawa, Kans. [Filed July 17, 1876.]



1. In an animal-trap having a receiving and a prison compartment, the combination therewith of an outer tilting transferring-conduit, whereby the animal is transferred from the receiving to the prison compartment, and a hinged falling door, whereby its egress is prevented, substantially as described.

2. In an animal-trap having a receiving and a prison compartment, and an outer tilting transferring-conduit communicating with said compartments, the combination therewith of the tripping devices, consisting substantially of the platform A, the triggered rock-rod *i k*, the hanging notched bar *f*, and the pin *d*, substantially as and for the purposes described.

182,992. MANUFACTURE OF HANDLED LAMPS. Lorenz Stoehr, Pittsburg, Pa., assignor to McKee & Brothers, same place. [Filed Aug. 14, 1876.]



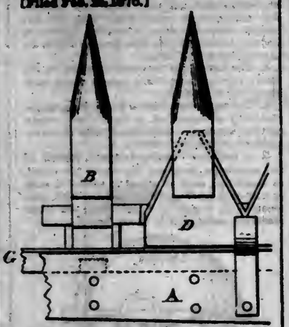
The process herein described for making handled lamps, and other articles of glass-ware having handles, by pressing the foot and handle in one piece, the latter being disconnected at one end from the foot, and then blowing the body of the lamp or other article onto the same, thereby forming a connection between the disconnected end of the handle and the body, as set forth.

182,993. MEAT-TENDERERS. Levi Stone, Mount Vernon, assignor of one-half his right to Jesper D. Harris, Danville, Ohio. [Filed July 7, 1876.]



The block B, provided with the double-pointed needles *a a*, the edges of same being placed at right angles to the edges of others, in combination with the screw *b* and handle A, substantially as and for the purpose set forth.

182,994. COTTON-BANDING FOR SHAFTING. F. B. Sutton and W. O. Sutton, Kankakee, Ill. [Filed Feb. 26, 1876.]

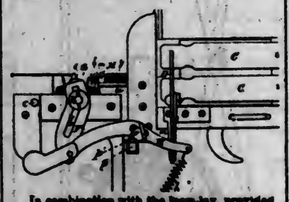


1. The L-shaped locking-bar G, formed with the square notches A, in combination with the finger-bar A, ledger-plates C, and fingers B, having recesses *e*, grooves *f*, and square tongues *i*, all as and for the purposes herein set forth.

2. The combination of the step-shaped ledger-plates C and the L-shaped locking-bar G, arranged as described, to take off the wear from the fingers and finger-bar, substantially as set forth.

182,995. STOP-MOTIONS FOR LOOMS. John J. Switzer, Boston, Mass. [Filed Dec. 29, 1875.]

Brief.—The breast-beam is provided with a stud that is secured to a pivoted arm which is constructed to operate upon the shipping mechanism. When the weft is unbroken the stud enters a hole in the lay as it beats up, but if the weft is absent a bent arm is free to rise out of the cavity in the lay, thereby drawing a slide-plate over the aforesaid hole. When the stud strikes against this plate the pivoted arm is forced back, and the shipping-lever carries the belt onto the loose pulley, and the loom is stopped. A connected slide is provided for forcing the outer end of the long lever upon the hook of the hooked lever, by which means the bent arm is kept from rising up under the weft-thread until the shuttle is boxed. An auxiliary arm is also provided, and is operated by a cord, wheel, and pivoted lever, which latter is pressed down by the bent arm, and released by it when it rises under the weft-thread. This auxiliary arm serves to carry the weft-thread back toward the reed and insure its acting upon the bent arm.



In combination with the loom-lay, provided with cavities C and *c*, as set forth, the lever K, spring *k*, connected slide *p*, bent arm F, auxiliary arm H, shaft *g*, casing *r s*, wheel P, cord *m*, arm *n*, hooked lever D, stud *d*, pivoted arm *o*, and shipping devices, all being substantially and to operate as set forth.

182,996. BOOT AND SHOE LASTING MACHINES. Saml. S. Tiffany, Newark, N. J., and Geo. W. Pike, Milford, Conn. [Filed Feb. 24, 1876.]



1. In a machine for lasting boots and shoes, the pinchers A, having the jaws B' B', and shanks *a* and *b*, the shank *a* having a ball-head, in combination with the sectioned holder C, substantially as and for the object specified.

2. In a machine for lasting boots and shoes, the pinchers A, constructed to have a swinging movement imparted to them, in combination with the sliding holder C, substantially as and for the object specified.

3. In combination with the standard D, the holder C, pinchers A, hammer F, spring G, trigger H, spring *s* and pin I, when all are arranged relatively to each other for operation substantially as described, for the purpose specified.

4. In combination with the standard D, holder C, pinchers A, hammer F, spring G, trigger H, spring *s*, and pin I, the spring-catch L, substantially as and for the object specified.

5. The spring-catch L, in combination with the hammer F, substantially as and for the object specified.

182,997. SOAP. Marshall Turley and John Fleming, Council Bluffs, Iowa. [Filed Mar. 7, 1876.]

A soap formed of the glutinous matter of grain, an oily or fatty substance, and an alkali, substantially as herein set forth.

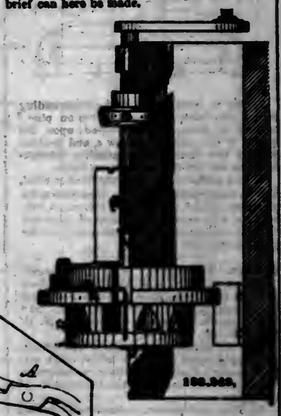
182,998. SULKY-PLOWS. W. A. Vanmeter, McAfee, Ky. [Filed Jan. 22, 1876.]



The combination of the axle-tree D, slotted L-shaped iron E, wheel-spindle *d*, with collar *a*, box G, with rod A, and nut *f*, substantially as and for the purpose herein set forth.

182,999. BAG-SEWING MACHINES. William Webster, San Francisco, Cal., assignor of one-third his right to Ellington Derrick, same place. [Filed Jan. 27, 1876.]

Brief.—For overstitching bags. The needle moves in a circular race, broken only at the point where the fabric is introduced, and its movement is effected by two radial jaws, each of which, in its turn, retires when the portion of the needle with which it engages is in the fabric, and again takes hold after the needle has passed through, thus maintaining a constant positive movement. Also, a feed device and means for taking up slack thread peculiar to this machine, of which no intelligent brief can here be made.



1. A sewing machine or mechanism, composed of the following elements, viz: A circular disk or needle-guide, B, having a groove or track for the needle; a curved needle, E, formed on the arc of a circle that coincides with the groove or track of the disk; a needle-driving mechanism consisting of a cam, M, cam-plate P, and dogs or arms *d d'*, or equivalents for giving to the needle a continuous rotary motion within the groove in a forward direction; and a cylindrical take-up, D, formed with a central aperture, and arranged to revolve continuously in the same direction as the needle, when these parts are arranged and combined with proper feeding, driving, and thread-controlling mechanism, as described and set forth.

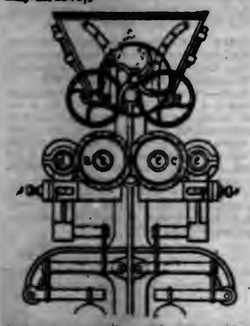
2. In a sewing machine or mechanism, the circular needle holding and guiding disk B, with a groove or track for the needle, the axis of which coincides with the center of the disk, combined with mechanism to move it in a horizontal direction upon its axis or shaft over and upon the central take-up D, but having no rotary motion, constructed as and for the purpose described and set forth.

3. In a sewing machine or mechanism, the combination with the needle E, herein described, of the revolving cam M, cam-plate P, and dogs *d d'*, or equivalent mechanism for driving and propelling the needle continuously forward in a rotary path, in the manner and for the purpose described and shown.

4. In a sewing machine or mechanism, the combination, with the needle E, and its propelling mechanism herein described, of a revolving conical thread cast-off and take-up D, arranged within the circle traversed by the needle, and having a continuous rotary motion in the same direction as the motion of the needle, in the manner and for the purpose described.

5. In a sewing machine or mechanism, the elastic tension-band *i*, and its adjusting-plate H, or equivalent, arranged and combined with the conical revolving take-up D, to control the loops of thread in the manner described and shown.

199,850. MACHINERY FOR GRINDING MEAL. Federigo Wegmann, Naples, Italy. [Filed May 22, 1876.]



1. One or more rolls *c*, and corresponding rolls *d*, the latter being supported on pins *f* resting in slots, and fulcrumed upon the points of the adjusting-screws *i*, and pressed against the former automatically, substantially as and for the purposes set forth.

2. In a machine for preparing flour or meal, and in combination with the other operative mechanism thereof, the crushing-rollers *c d*, constructed with unbroken surfaces of porcelain or other equivalent siliceous substance, for the purpose set forth.

199,851. FOUNTAIN. Wm. R. Wetmore, Lincolnton, N. C., and John Hegarty, New York, N. Y., assignors to said Hegarty and Alanson H. Tift, New York, N. Y., and William R. Wetmore, Lincolnton, N. C. [Filed Aug. 20, 1875.]

Brief.—The reservoir, which is uppermost, will supply water to the jet below. The water from the jet collects in the lower reservoir in readiness for use when the fountain is reversed.

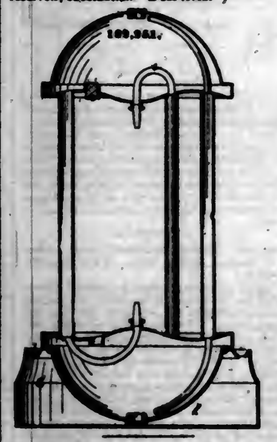
1. The combination, substantially as set forth, of the two reservoirs, each provided with a jet, which communicates with the other reservoir alone, as and for the purpose described.

2. The two reservoirs, the jets, and the intermediate columns, through which the jets are put in communication with their respective reservoirs, in combination with the air-supply tubes, extending within the reservoirs, and the column or columns through which air is supplied to said tubes.

3. The reversible fountain, in combination with a separate supporting base or stand, substantially as set forth.

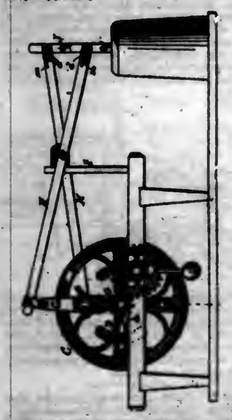
4. The supporting base or stand, formed substantially as described, to receive and retain surplus water, in combination with the independent reversible fountain.

5. A bodily reversible fountain, formed of two reservoirs, arranged one above the other, as described, each of which is provided with or carries a jet that communicates with, and receives its supply of liquid from, the other reservoir, substantially as set forth.



199,852.

199,852. CHURN-MOTORS. N. C. Wieting and W. F. Waters, Toledo, Iowa. [Filed July 12, 1876.]

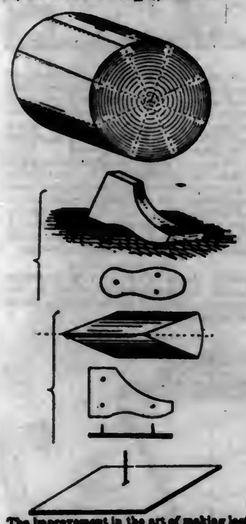


1. The combination, with the levers H H, and pitmen G G, the fly-wheel C, having longitudinally-slotted spokes, the longitudinally-slotted crank-arms E E, and the adjustable chuck-blocks B B connecting the pitmen, crank-arms, and fly-wheel, by means of the bolts *p*, all constructed substantially as and for the purposes herein set forth.

2. The levers H, slotted plates *d*, hooks *m*, and rods J, with pins A, in combination with the fly-wheel, pitmen, adjustable chuck-blocks, and slotted crank-arms, all constructed substantially as and for the purposes herein set forth.

199,853. METHOD OF FORMING LAST-BLANKS. Henry Wight, Malden, Mass. [Filed July 20, 1876.]

Brief.—Wooden blanks to be worked up into boot and shoe lasts are produced by laying out the bolt large enough to produce lasts of three different sizes, and sawing into wedge-shaped pieces by a band-saw. A suitable side pattern is then placed on the under side of said piece, and secured to it by pins upon the pattern, the edge of which is pressed continually against a vertical pin on the table during the operation of sawing. A suitable bottom pattern is attached to the under side of the blank by screws, guided as in the preceding case, and the bottom shape gives to it.



The improvement in the art of making last-blanks, shown and described, consisting in the operations one, two, and three, conducted substantially as set forth.

199,854. GAS-BURNERS. Wm. H. Wilbur, Fall River, Mass. [Filed Mar. 6, 1876.]

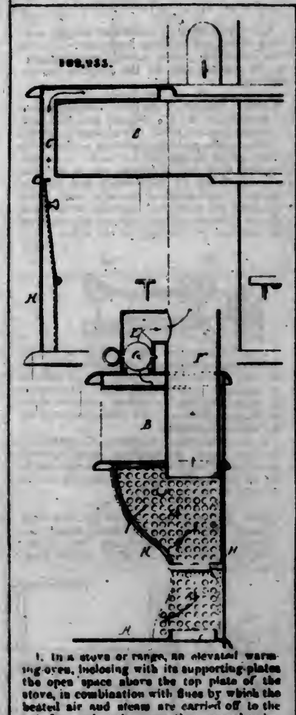


The combination, with a gas-burner having an adjustable plug-valve passing transversely through the same, of a vertically-adjustable collar, fitting over the base of the burner, for concealing the plug-valve, as and for the object specified.

199,855. RAISER. Abraham C. Williams and Robert S. Liddle, Albany, N. Y., assignors to John S. Perry, trustee and executor, N. B. Perry, and Andrew Dickey, same place. [Filed May 2, 1876.]

Brief.—Passages for carrying odors into exit-flues; flues to warm elevated closet; regulation of draft in connection with the foregoing; drop-shelves under the warming-closet.

199,855.



1. In a stove or range, an elevated warming-oven, inclosing with its supporting-plates the open space above the top plate of the stove, in combination with flues by which the heated air and steam are carried off to the exit-flue, and at the same time caused to impart their heat to the warming-oven, all substantially as described.

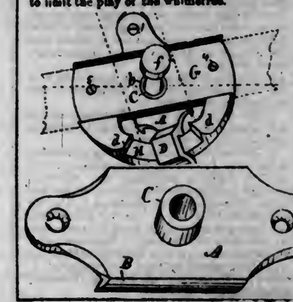
2. In a cooking-stove or range, an elevated warming-oven, supported above the top plate of the stove, with flues for carrying off the offensive heated air and steam, in combination with a structure supporting or forming part of the said oven, and serving to direct the said air and steam to the entrance of the flues, all substantially as specified.

3. The combination of the warming-oven B, its flues C C, flues E and F, and damper G.

4. The combination of the adjustable shelf or shelves *a' a'* with the supports H H', extending above the top plate of a cooking-stove or range, and with a pipe, F, through which fumes from the cooking-vessels placed on the said shelves may be carried off to the chimney, all substantially as set forth.

199,856. WHIFFLETREE-PLATES. Daniel R. Winter, Newton, Iowa, assignor of one-half of his right to James M. Irwin, same place. [Filed Dec. 20, 1875.]

Brief.—Two metal plates having a boss and socket to relieve the bolt from strain, and lugs to limit the play of the whiffletree.

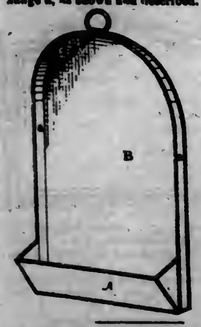


199,856.

The wagon-tongue plate A, having the central boss C and the rear extension D, with a transverse slot, E, in combination with the whiffletree-plate G, having a central hole, *b*, and lugs *c c* on the under side, and a concentric countersink, H, with shoulders *d*, substantially as and for the purposes shown and described.

199,857. HANGING BEDSTEADS. John C. Winton, Muddy Creek, Tenn. [Filed Apr. 21, 1876.]

The improved spittoon composed of the receptacle A and vertical back B, provided with flange *a*, as shown and described.



199,858.

199,858. ORGANS. Thomas Wilsons, Baltimore, Md. [Filed July 6, 1876.]

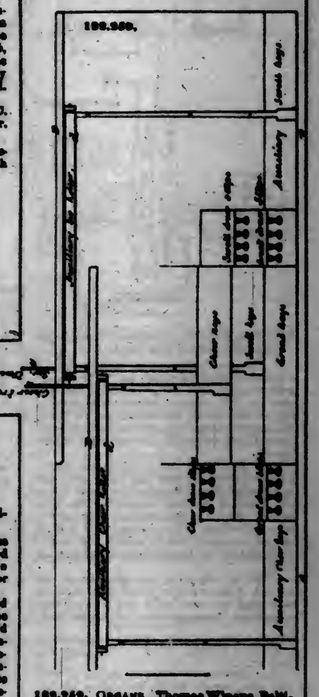
1. An organ-action, in which the resistance required to give the proper "touch" is divided between the valve and the key, with the main resistance at the key, substantially as and for the purposes set forth.

2. In an organ-action, in which the required resistance is divided between the keys and the valves, as described, the combination, with said keys and valves, of couplers, arranged to connect the several connections at points intermediate between the key and valve in the manner set forth, whereby the added resistance due to the coupling is confined to the valve-resistance.

3. An organ-sticker, slotted substantially as and for the purposes shown and set forth.

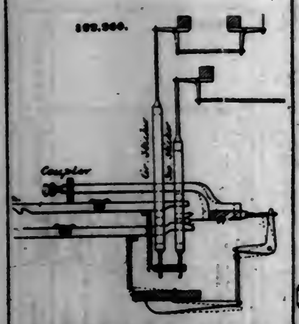
4. The combination of the keys of the ranks to be coupled with the slotted stickers and the coupler-bar and coupling-hooks carried by the same, the combination being and acting as set forth.

199,859. ORGANS. Thomas Wilsons, Baltimore, Md. [Filed June 14, 1876.]



199,859.

The combination in one organ, with the main key-board, and the pallets or valves operated thereby, of one or more auxiliary key-boards, whose keys operate the same pallets or valves that are operated by the corresponding main keys, the parts being arranged and connected, substantially as described, so that each key in the several key-boards may act on its pallet or valve without disturbing or moving the keys of the other key-board or key-boards.



192,060. ORGANS. Thomas Winans, Baltimore, Md. [Filed Aug. 24, 1876.]

1. The combination, in an organ-action, of a constant valve-resistance and a key-resistance, automatically varied to accord with the increase or decrease of resistance due to coupling or uncoupling, substantially as set forth, whereby the sum of the resistance to be overcome is maintained the same under all circumstances.

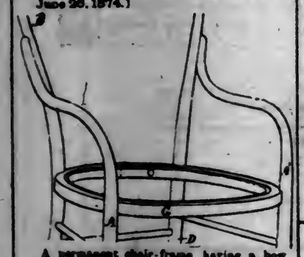
2. In an organ-action in which the resistance is divided between the valve and key, as described, the combination, with said valves and keys, of couplers, connecting the sub-actions at points intermediate between the keys and valves, and connected with and arranged to operate the key-resistance at the same end in the manner substantially as set forth.

3. The combination, substantially as described, of the organ-keys and the transverse knife-edge bar, upon which said keys are supported and vibrate, substantially as set forth.

192,061. SOAP COMPOSITIONS. Charles D. Wesley, Walden, N. Y. [Filed July 20, 1876.]

A composition for soap, consisting of mineral wool, caustic alkali, and tallow or fat, substantially as described.

192,062. CHAIRS. Robert Wood, West Troy, N. Y., assignor of one-half his right to Grove M. Harwood, same place. [Filed June 20, 1874.]



A permanent chair-frame having a bow back and arm-rails, and formed by the four artificially-bent pieces A, A', D, and O of straight-grained wood, all rigidly fastened together at the seat-frame, and with the parts A, A', and D rigidly fastened and braced together above and below the seat-frame, as described.

REISSUES.

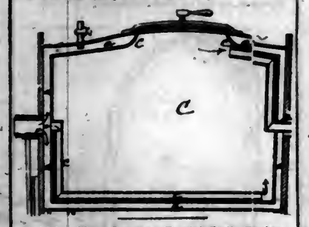
7,203. KETTLES FOR TRYING OILS. John L. Alberger, Buffalo, N. Y. Patent No. 99,150, dated Nov. 30, 1869. [Filed Apr. 13, 1876.]

1. An apparatus to render or treat animal matter, consisting of a tight tank having a bottom wall, formed of two shells united together, provided with the necessary openings, fitted with the usual mountings to close them with a tight joint, substantially as described.

2. A steam-tight rendering-tank, horizontally placed, fitted with trunnions, and provided with a bilge on one side thereof, in which is situated a man-hole, through which to discharge the contents of the tank, substantially as described.

3. A closed tank or kettle, to render or treat animal matter, fitted with a pipe leading from or near the top thereof, to control and condense the escaping vapors and gases developed in the process, for the purpose of avoiding their offensive odor.

4. The bottom-walled tank or boiler C, provided with the steam-pipe c, leading from the steam-jacket a to the interior of the tank, as and for the purpose set forth.



7,206. NUT-LOCKS. Daniel Dull, Spring Township, Crawford County, Pa. Patent No. 176,420, dated Apr. 25, 1876. [Filed July 3, 1876.]

Brief.—The lock is held solely by its pressure against the nuts, and is swung into and out of place.



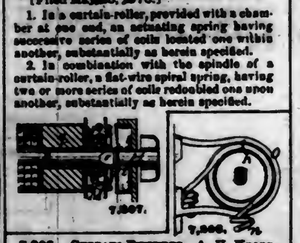
1. The spring s, so shaped that it may be placed between three or more nuts on both sides of the spring, and so that by its pressure against a side of each nut the spring and nuts are mutually bound, substantially as set forth.

2. The spring s, when constructed with the flange e, substantially as and for the purpose set forth.

7,207. CURTAIN-FIXTURES. A. H. Knapp, Newton, and Geo. W. Bailey, Lawrence, Mass.; said Bailey assignor to said Knapp. Patent No. 102,409, dated Apr. 26, 1870. [Filed May 23, 1876.]

1. In a curtain-roller, provided with a chamber at one end, an actuating spring having successive series of coils located one within another, substantially as herein specified.

2. In combination with the spindle of a curtain-roller, a flat-wire spiral spring, having two or more series of coils redoubled one upon another, substantially as herein specified.



7,206. 7,207.

7,208. CURTAIN-FIXTURES. A. H. Knapp, Newton, and Geo. W. Bailey, Lawrence, Mass.; said Bailey assignor to said Knapp. Patent No. 102,409, dated Apr. 26, 1870. [Filed May 23, 1876.]

1. In combination with the roller and spindle of a curtain-fixture, a compound spring, composed of a series of separate spiral springs or coils, respectively contained in interconnecting holders, substantially as and for the purpose herein specified.

2. In combination with the balance-spring and roller of a curtain-fixture, a spindle provided with a device arranged on a shaft, H, in line with the said spindle, for adjusting the free end of the spring without taking down or disturbing the fixture, substantially as and for the purpose herein specified.

3. In combination with the roller of a curtain-fixture, a spring-brake, and cord-cord, so arranged that the simple drawing down upon the cord-cord relieves the roller of the brake, substantially as herein specified.

4. A spring-brake, I, of a curtain-roller, constructed with an open-cord loop, n, for inserting and withdrawing the cord without threading or unthreading the same, substantially as herein specified.

5. A curtain-roller, formed of several sections of wood, extending from center to circumference, and joined radially, substantially in the manner and for the purpose herein specified.

7,209. BURIAL-CASKETS. Samuel Stein, Rochester, N. Y. Patent No. 132,603, dated Oct. 29, 1872. [Filed Aug. 2, 1876.]

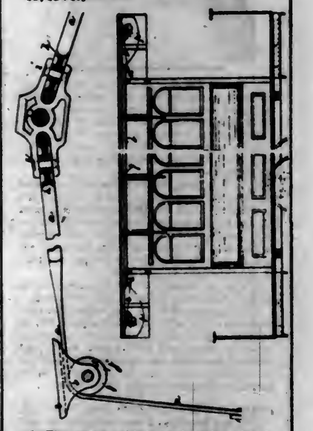
Brief.—The molding is of wood covered with sheet metal except on its back. A screw passing from inside of coffin passes into the uncovered part of the molding, and holds it upon the upper edges of the coffin sides. The moldings are connected together in the form of a skeleton frame, and secured afterward to the box forming the body of the coffin.



1. A burial-casket consisting of a box or receptacle, having metal-covered molding extending around its marginal edges, secured by screws or nails passing from the interior of the box into the uncovered portions of the moldings, as shown and described, and for the purpose specified.

2. A burial-casket consisting of an exterior skeleton frame, A, made of metal-covered moldings, in combination with interior box B, fitting within said frame and secured by screws or nails, as herein described.

7,210. DEVICES FOR RINGING STREET-CAR BELLS. Charles Curt, Boston, Mass., assignor to John Stephenson, Patent No. 101,560, dated Apr. 5, 1870. [Filed Aug. 19, 1876.]



1. The spring-rod b, in combination with the bells a or equivalent signal, substantially as described.

2. The combination, with the signaling devices of a public conveyance, of hand-pulls c, or equivalent device, so arranged with respect to the seats that the passengers can, without rising therefrom, communicate by signal with the manager of the conveyance, substantially as set forth.

3. The combination of the hand-pulls c or equivalent devices with the spring-rod b, substantially as set forth.

4. The levers e d, in combination with the spring-rod b and the connections o f and p p, substantially as described.

5. The combination of signaling apparatus, constructed and arranged substantially as described, with a passenger-car, whereby, through pulls c or their equivalents, conveniently accessible to the passengers within, the signals can be given at one end only of the car during its progress in one direction, while, by the same combination of apparatus with the car, provision is also made for convenient and direct signals between the conductor at one end of the car, and the driver at the other, substantially as set forth.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

REGISTRATION OF FOREIGN TRADE-MARKS.

The following correspondence between this Office, the Secretary of the Interior, and the Acting Secretary of State, relative to the rights of foreign residents to register their trade-marks under the statutes now in force, is published for the information of the public.

The Office will be guided in this matter by the opinion expressed by the Secretary of the Interior.

R. H. DUELL,
Commissioner of Patents.

September 25, 1876.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 26, 1876.

HON. Z. CHANDLER,
Secretary of the Interior:

SIR: I have the honor to call your attention to a practice which I find has been followed by this Office in the matter of the registration of certain foreign trade-marks, concerning the legality of which I have considerable doubt.

Section 4937, Revised Statutes, provides that—

Any person or firm domiciled in the United States, and any corporation created by the authority of the United States, or of any State or Territory thereof, *and any person, firm, or corporation, resident of or located in any foreign country, which by treaty or convention affords similar privileges to citizens of the United States,* and who are entitled to the exclusive use of any lawful trade-mark, or who intend to adopt and use any trade-mark for exclusive use within the United States, may obtain protection for such lawful trade-mark by complying with the following requirements.

It has heretofore been the practice to record trade-marks of English applicants in this Office by virtue, I believe, of the third article of the treaty of 1794, and the general principles of international comity. I find, however, no treaty upon the statute-book between this country and Great Britain that appears to me to cover the subject of trade-marks, or such a treaty as is required by the terms of the section just cited.

Neither can I find any act of Parliament by which Great Britain grants the privilege in question to foreigners.

The only countries with which I am aware we have special treaties or conventions on this subject are Austria, Belgium, France, the German Empire, and Russia.

If a general treaty of trade and commerce is sufficient to warrant the grant of this privilege to citizens of foreign powers, then citizens of countries other than the ones mentioned might be entitled to it.

I have, therefore, to request that this communication be submitted to the Secretary of State for the purpose of ascertaining whether, in his opinion, there are any existing treaties or conventions by which this Office is authorized in continuing the practice in question in regard to the citizens of Great Britain, or of countries other than those with which we have special treaties.

Very respectfully,

R. H. DUELL,
Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., September 19, 1876.

THE COMMISSIONER OF PATENTS:

SIR: Your letter of the 26th ult., concerning the practice of your Office in the registration of trade-marks for foreign applicants, was duly referred to the honorable Secretary of State; and I now transmit, for your information, a copy of a letter, dated the 15th inst., from the Acting Secretary of State, with its inclosure, and of one from the Secretary of State, with the papers accompanying it, dated the 18th inst.

It appears from the Acting Secretary's letter that there are no treaty stipulations with Great Britain upon the subject of trade-marks, the treaty of 1794 with that Kingdom having been canceled long ago. I am of opinion, therefore, that under the operation of sec-

tion 4937 of the Revised Statutes, no "person, firm, or corporation, resident of or located in" the Kingdom of Great Britain should be privileged to have trade-marks registered in the United States Patent Office so long as there is no existing treaty or convention between said government and the United States which affords similar privileges to citizens of the United States.

I am, sir, very respectfully, your obedient servant,

Z. CHANDLER,
Secretary.

DEPARTMENT OF STATE,
Washington, September 15, 1876.

The Hon. ZACHARIAH CHANDLER,
Secretary of the Interior:

SIR: I have the honor to acknowledge the receipt of a letter from the Acting Secretary of the Interior, of the 28th ult., together with the copy of a letter from the Commissioner of Patents, which accompanied it, upon the subject of the registration of foreign trade-marks.

It would appear from these letters that the Commissioner of Patents desires to ascertain what privileges are accorded to citizens of this country in respect to the registration of trade-marks by those countries with which we have no treaties governing the question, and inquires particularly as to the practice of Great Britain, referring to the treaty of 1794.

In reply, I have to inform you that there are no treaty stipulations with Great Britain upon the subject of trade-marks, and that the treaty of 1794 with that Kingdom was long ago canceled. A careful search has been made into the records of the Department embracing the period from January, 1865, to date, and no information relative to the protection of trade-marks has been found, other than that contained in a dispatch (No. 584, dated December 8, 1875) from General Adam Badeau, Consul General at London, a copy of which, with its accompaniments, is herewith inclosed. A copy of the act, (38 and 39 Vict., chap. 91,) to which reference is made in the papers accompanying General Badeau's dispatch, is also inclosed.

I have the honor to be, sir,

Your obedient servant,

W. HUNTER,
Acting Secretary.

[Inclosures.]

Mr. Badeau to Mr. Cadwalader, No. 584, December 8, 1875. Act referred to.

COMMISSIONER'S DECISIONS.

DOD *vs.* COBB.—*Interference; Motion to Reopen.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Santiago Dod, filed November 11, 1875, and Delphine B. Cobb, filed July 24, 1875, for* "IMPROVEMENTS IN HEATING APPARATUS FOR VACUUM PANS, &c."—*Decided September 8, 1876.*]

A rehearing in a case of interference will only be granted on such a showing of the merits as would entitle a mover to a new trial in a suit at law.

Ignorance, inadvertence, or mistake on the part of a party or his counsel, is ordinarily no ground for granting a new trial.

A new trial will not be ordered where the only allegation is surprise in matter of law.

A motion to reopen the case for the purpose of taking further testimony refused, where the evident purpose was not to prove priority, but to impeach the novelty of the invention claimed by the opposite party, and the affidavits offered failed to fully set forth the names of the persons or the facts to be proved.

Where in the declaration of the interference it was noticed that one claim in each case was involved, it is no sufficient reason for reopening the case for the introduction of the further testimony that the party and his counsel both considered that the invention, as stated in his claim, was the only one in issue, whereas the other party's claim clearly indicates a broader and, in that respect, different subject-matter.

DUELL, *Commissioner:*

In declaring the interference the Primary Examiner notified the parties respectively that their first claims interfered and formed the subject-matter at issue.

These claims are as follows: Dod's is—

The combination with the pan A, and steam-jacket B, of the independent hollow heating or evaporating plates C C', arranged radially, parallel with one another, or otherwise within the pan, and in communication above and below with the steam-jacket B, substantially as specified.

Cobb's claim is as follows:

Heating-chambers, radially, or nearly so, within the shell of an evaporating-pan, and having suitable passages for the admission of steam, and discharge of waste-water, as and for the purpose specified.

Upon the issue so made, preliminary statements were filed by the parties and testimony taken in support of their respective claims. The case was heard by the Examiner of Interferences, who rendered a decision in favor of Dod, whereupon an appeal was noted to the Board of Examiners-in-Chief. In their decision they make the following recommendations:

That the whole case be opened up for new testimony upon the clearly-defined issue of, first, who was the first to invent the plates; and second, who was the first to invent the radial arrangements.

This they do because, in their opinion, Cobb's first claim presents patentable subject-matter over that which is more broadly set forth in Dod's claim. In other words, they find that there were two subjects-matter put in interference instead of one, viz: First, the independent hollow heating or evaporating plates, arranged in the pan as described by Dod; and second, the independent hollow heating or evaporating plates, *arranged radially* within the pan, as specified by Cobb.

Cobb, by his attorney, now makes a motion to reopen the case as recommended by the Board of Examiners-in-Chief; and in support of this motion advances two reasons; first, surprise; and second, newly-discovered evidence. Three affidavits were filed in support of the motion, which represent that Cobb's attorneys and he himself were under the impression, up to the time of the Board's decision, that the radial arrangement of the plates constituted the whole subject at issue, and that, being so advised, Mr. Cobb confined his preliminary statement and proofs to the facts relating to the invention of such arrangement, and, therefore, that it was a matter of surprise to them when the Board determined that the subject-matter in controversy was the broad idea of using independent hollow heating or evaporating plates.

The mistake was undoubtedly that of the attorney, for it appears from the letters in the file, and of which the parties are presumed to have notice of the contents, that Dod's claim was included, and that such claim is not in terms limited to the radial arrangement.

Moreover, as appears from the testimony offered on the part of Dod by one of his witnesses, Alfred Gregory, a specification writer for Brown & Allen, the said claim, its purpose and effect, was discussed during the progress of the case.

In view of these circumstances it seems then that the only facts relied upon as establishing surprise are mistakes in matter of law and fact on the part of counsel in advising the party as to the nature of the issue.

In the case of *Winchester* vs. *Grosvenor*, (48 Ill., 517,) it was held that—

A mere mistake of an attorney in advising a particular defense, or the fact that the attorney abandoned the defense of the suit, and the defendant was compelled to employ other counsel who tried the case, will not, in the absence of fraud, warrant decreeing a new trial.

It is an established rule in the office that a rehearing in a case of interference will only be granted on such a showing of the merits as would entitle a mover to a new trial in a suit at law, (L. C. Pattee, 2 OFFICIAL GAZETTE, 618; *Marsh* vs. *Dodge*, 2 OFFICIAL GAZETTE, 643.)

It is a rule of practice that ignorance, inadvertence, or mistake on the part of a party or his counsel is no ground for a new trial. *Legrand* vs. *Baker*, (6 T. B. Mon., Ky., 235;) *Coburn* vs. *Currens*, (1 Bush., Ky., 242;) *Heath* vs. *Marshall*, (46 N. H., 40;) *McNeish* vs. *Stewart*, (7 Cow., N. Y., 474;) *Pleasants* vs. *Clements*, (2 Leigh, Va., 474;) *Armstrong* vs. *U. S.*, (6 N. and H. Ct. Claims, 226;) *People* vs. *O'Brien*, (4 Park., Cr., 203;) *Prevost* vs. *Gratz et al.*, (Peters C. C., 364;) *Meeker* vs. *Wilson*, (1 Gall., 419–424.) And further, that surprise in matter of law is not ground for a new trial. *Child* vs. *U. S.*, (6 Court of Claims, 44;) *Hite* vs. *Lenharte*, (7 Mo., 22;) *Dotherd* vs. *Teaque*, (40 Ala., 583;) *Beals* vs. *Beals*, (27 Ind., 77;) *People* vs. *O'Brien*, (4 Park., N. Y., 203;) *Morgan* vs. *Houston*, (25 Vt., 572.)

It seems, therefore, that applicant has failed to make such a showing as would warrant the court in granting a new trial on the ground of surprise. As for the second reason for reopening the case for the purpose of introducing newly-discovered evidence, it entirely fails to make out a good case. The evident purpose of the parties in obtaining a reopening of this interference for the purpose of introducing further testimony is to prove a want of novelty of the subject-matter in dispute, and not alone to establish priority on the part of Cobb. But even if it were advisable or proper to reopen the case for the purpose of introducing testimony to prove that Dod was not entitled to a claim, such as he has presented, and which has so far been allowed by the Office, his affidavits in support of the motion are totally insufficient for the purpose. They do not set forth the matter which it is alleged they can produce to show a want of novelty in Dod's invention. This is a fatal objection.

After a careful review of all the facts in the case, it appears to me that Cobb has failed to make out a good case. It has been shown that matters of surprise such as are complained of are not to be regarded as sufficient to warrant a court in ordering a new trial, and that nothing that can be termed newly-discovered evidence has been shown to be in possession of the moving party.

Cobb has had an opportunity to fully present the facts regarding his invention, and his failure to avail himself of it through want of diligence and care on the part of himself and counsel, cannot be pleaded in excuse, especially when the affidavits presented in support of the motion to reopen the case do not specifically set forth the facts expected to be proved or the parties to be called as witnesses.

The motion is refused.

JOSEPH F. IMBS.—*Trade-Mark; Appeal.*

[*Appeal from the decision of Examiner of Trade-Marks in the matter of the application of Joseph F. Imbs, for the registration of a Trade-Mark, filed July 17, 1876.—Decided August 29, 1876.*]

It is no objection to a trade-mark that the several parts of which it is composed have been used separately, provided it is so distinct as not to deceive or mislead the public.

A trade-mark consisting of the letter I within a shield, surrounded by wheat and situated above the word "charm," has a sufficient distinctive individuality over the words "Golden Charm" over a large fanciful monogram consisting of the letters F. G. S. & Co., and the words "Attrition Flour" over a shield on which are inscribed bunches of wheat.

[*T. H. Alexander*, attorney.]

DOOLITTLE, *Assistant Commissioner:*

Applicant states that his trade-mark consists of the word "Charm, and a shield containing the capital letter I," which he prefers to arrange as shown in his accompanying drawings, *i. e.*, the shield surrounded by wheat and the word "Charm" below the same, the whole surrounded by a border; but he adds that the border may be omitted altogether and the relative position of the design altered without materially changing the character of his trade-mark, the essential feature of which is the word "Charm," the shield with the letter "I," and the wheat.

At the present hearing his attorney proposed to restrict his trade-mark to the precise arrangement shown in the drawing—that is, with the letter "I" within the shield, surrounded by wheat, and situated above the word "Charm."

Restricted to this precise arrangement, I think there is "a sufficient distinctive individuality" presented over those of the references. The words "Golden Charm" over a large fanciful monogram consisting of the letters F. G. S. & Co., would hardly be mistaken by any one of ordinary discernment, and especially by one who is looking for applicant's peculiar brand, for that of the latter. So with the words "Attrition Flour," over a shield on which are inscribed bunches of wheat.

I must differ as to that case from the Examiner, who regards the shield as the essential part of the trade-mark. The word "Attrition," though susceptible of being used descriptively, as indicating the manner in which the flour is made, or pulverized, yet is such an uncommon distinction applied to flour as to amount, substantially, to a fanciful arbitrary symbol, and appears to me to be the essence of the trade-mark. At any rate, there is nothing but the figure of a shield that bears any resemblance to applicant's device.

The whole question in cases of this kind is not whether

persons are entitled to combine in one device independent devices that have been separately used as trade-marks, but whether, after such combination has been made, there is a probability of the public being misled or deceived thereby. If not, and the distinctiveness of the new combination is quite apparent to ordinary intelligence, no objection should be made to its registration, if the other requisites of the law are complied with.

The decision of the Examiner is reversed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

HIRAM TUCKER *vs.* THE TUCKER MANUFACTURING COMPANY.

[*In equity.—Before* CLIFFORD, *J.—Decided September* 1, 1876.]

The Commissioner may allow a patentee to redescribe his invention in a reissue and to include in the description and claims of the patent not only what was well described before, but whatever else was suggested or substantially indicated in the specification, model, or drawings, which properly belonged to the invention as actually made and perfected.

The question of identity of inventions described in the original and reissue patents is a matter of legal construction, to be determined by the court on a comparison of the two instruments.

If the Commissioner grants a reissue for a different invention from that described in the original patent, it is invalid.

Defects in the description of an original patent may be cured by reissue, but the patentee may not strike out the entire description of one of the ingredients of a combination, and insert in lieu thereof a description of other devices, unless it be alleged that such other devices are the equivalents of the device stricken out.

[*Chauncey Smith, Walter Curtis,* and *Charles M. Reed,* for complainant.

Geo. L. Roberts, for defendants.]

OPINION OF THE COURT.

CLIFFORD, *J.:*

Inventors, if they desire to secure letters patent for their inventions, must apply to the Commissioner therefor, in writing, and the requirement is that they shall file in the Patent Office a written description of the invention, and of the manner and process of making, constructing, and using the same, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains to make, construct, and use the invention. (16 Stat. at Large, 201.)

Pursuant to that provision the complainant in this case applied in writing to the Commissioner for a patent, describing his invention as a new and improved process or method of superficially bronzing or coloring iron, as more fully set forth in the specification of the patent. Iron, he asserts, has heretofore been japanned by covering its surface with oily solutions of asphaltum and pigments, and by the subsequent application of heat sufficient to produce hardness; and he also admits that metals have been lacquered or bronzed by the application of a solution of resin and metallic powders or salts, dried by exposure to air or heat. Both of these operations, he admits, are old and well known. Instead of that, his invention, as he alleges, consists in a process of covering iron with a very thin coating of oil, and then subjecting it to heat, the effect of which is to leave upon the iron a firm film, which is very durable, and which gives the iron a highly ornamental appearance, like that of bronze. Exact and complete description is given in the specification of the steps to be taken in applying the process so as to effect the described result. Three directions of the kind are given, as follows:

1. That the surface of the iron to be bronzed shall be cleansed from sand, scales, or other foreign matter, and where fine effects are desired the suggestion is that the surface should be polished or made smooth.

2. That the surface of the iron so prepared should be covered with a very thin coating of linseed-oil, or some equivalent oil, and the suggestion of the patentee in that regard is that he attains such a coating by applying the oil with a brush, and then rubbing the oiled surface thoroughly with a rag, sponge, or other suitable implement.

3. That the iron so prepared and oiled should be placed in an oven and exposed to heat of an intensity sufficient to change a brightened surface of clean unoiled iron to a color varying from that of light straw to deep blue, until the required bronze color is developed upon the iron, the suggestion of the patentee being that the resultant shade of color will depend very much upon the degree of heat employed, as well as upon the duration of its application, which, in every case, may depend upon the skill, care, and judgment of the operator, both in the application of the oil and in regulating and determining the degree and duration of the heat. Boiled linseed-oil is preferred by the patentee, and he directs that the iron, when the desired shade of bronzing is obtained, be removed from the oven or furnace, and he suggests that the process of oiling and heating may be repeated with profit if it be desired to deepen the shade of the bronzing, it being understood that the effect of each repetition will be to deepen the shade until the color becomes black. High heat, the patentee states, when applied to unoiled iron, will have the effect to produce upon the surface of the iron the series of colors pointed out in the specification, but he asserts that a thin coating of oil applied as directed before heating the iron has the effect to modify the oxidation and to produce a new and improved surface resembling bronze, and which is highly ornamental and of a character to resist the effects of moisture and handling. Exhibits showing the practical results of the patented process were given in evidence at the final hearing, and they are abundantly sufficient to prove that the described steps are respectively essential to attain successful results, or, in other words, that it is essential that the surface of the iron should be cleansed from sand, scales, or other foreign matter, that the surface should be covered with linseed-oil or its equivalent, unmixed with pigment, lacquer, or japan, that the coating should be extremely thin, and that the iron thus prepared and oiled should be placed in an oven or furnace and be subjected to a high degree of heat.

Exact description of the invention is required to accomplish three great ends: 1. That the Government may know what they have granted and what will become public property when the term of the monopoly expires; 2. That licensed persons desiring to practice the invention may know, during the term, how to make, construct, and use the invention; 3. That other inventors may know what part of the field of invention is unoccupied. Sufficient appears to show that the description of the invention given in the specification constitutes a full compliance with those several requirements. Discussion of the title of the complainant is unnecessary, as it is admitted in the answer filed by the respondents, and the complainant alleges that the respondents have, since they reassigned the patent to the complainant, infringed his exclusive right and privilege to make and use the invention and to vend the same to others to be used, and he prays for an account of all gains and profits realized by the respondents from the unlawful use of the same, together with the damages suffered by the complainant by reason of such unlawful use and for an injunction.

Process was served and the respondents appeared and filed an answer, in which they deny the charge of infringement and set up four other defenses: 1. That the reissued patent on which the suit is founded is not for the same invention as the original; 2. That the process described in the specification was not the subject-matter of invention at the time the original patent was granted; 3. That the complainant is not the original and first inventor of the described improvement; 4. That the alleged invention was known to, and was used by, the persons named in the answer before the complainant applied for a patent.

1. Persons seeking redress for the unlawful use of letters patent are obliged to allege and prove that they, or those under whom they claim, are the original and first inventors of the improvement, and that the same has been infringed by the party against whom the suit is brought, and the burden to establish those allegations is in the first place upon the party instituting the suit, but the law is well settled that the letters patent in question, where they are introduced in evidence in support of the claim, if they are in due form, afford *prima facie* presumption that the alleged inventor is the original and first inventor of what is therein described as his improvement. (*Seymour* vs. *Osborne,* 11 Wall., 538.) Apply that rule to the case before the court and it is clear that the decision must turn chiefly upon the defenses set up in the answer.

Due description of the invention is given in the specification, and the letters patent being regular in form, the *prima facie* presumption is that the complainant is the original and first inventor of the alleged improvement. Defective patents may be surrendered and reissued, but the act of Congress expressly requires that the reissue must be for the same invention as the original, and consequently where it appears on a comparison of the two instruments as matter of legal construction that the reissued patent is not for the same invention as that embraced and secured in the original patent, the reissued patent is invalid, as that state of facts shows that the Commissioner exceeded his jurisdiction. Unquestionably he may allow the specification to be amended if the patent is inoperative or invalid, and in that event he may reissue the patent in proper form. Errors and imperfections may be corrected, and with that view the Commissioner may allow the patentee to redescribe his invention, and to include in the description and claims of the patent not only what was well described before, but whatever else was suggested or substantially indicated in the specification, model, or drawings, which properly belonged to the invention as actually made and perfected. Interpolations of new features or devices which were neither described, suggested, nor indicated in the original specifications, drawings, or Patent Office model are not allowed, for the plain reason that the Commissioner has no jurisdiction to grant a reissue unless it be for the same invention as that embodied in the original patent. (*Sickles* vs. *Evans et al.,* 2 Cliff., 222.)

Whether a reissued patent is for the same invention as that embodied in the original patent, or for a different one, is a question for the court, to be determined as a matter of construction on a comparison of the two instruments, aided or not by the testimony of expert witnesses, as it may or may not appear that one or both may contain technical terms, or terms of art requiring such assistance in ascertaining the true meaning of the language employed.

Reissued patents are valid unless the differences between the reissued patent and the original are such that the court can see, upon the comparison of the two instruments, as matter of legal construction, that the reissued patent is not for the same invention as the original. Common knowledge shows that the mechanism of a loom and of a sewing-machine are essentially different, and it would follow that a patent for one could not be surrendered and reissued for the other, as the court could see as matter of construction that the Commissioner in granting the reissue had exceeded his jurisdiction. Defects in the description may be cured, but the patentee may not strike out the entire description of one of the ingredients of a combination, and insert in lieu thereof a description of other devices, unless it be alleged that such other devices are the equivalents of the device stricken out. (*Gill* vs. *Wells,* 22 Wall., 2.)

Corrections may be made in the specification, but they must not be of a character to change the substantial nature of the invention, either by enlarging or diminishing its legal effect or substantial mode of operation. Questions of some nicety may arise, but the rule being that the reissued patent must be sustained unless it appears as matter of legal construction that it is not for the same invention as the original, it will seldom happen that the question will be involved in much difficulty. Differences undoubtedly exist between the expressions contained in the respective specifications in this case, but it is clear that they are not of a character to warrant the court in deciding that the reissued patent differs in substance and legal effect from the original which was surrendered.

2. Much examination of the second defense is unnecessary, as the issue presented is entirely one of fact. Taken as a whole, the proofs are convincing that the oil coating under the process of the complainant is oxidized with the surface of the iron, and that the joint effect is to produce a new surface resembling bronze in color, better calculated to resist the effects of moisture and handling than iron smoothed in the ordinary way.

3. Properly construed, the invention of the com-

plainant is the process of ornamenting iron in imitation of bronze by the application of oil and heat, as specifically described in the specification, by which a new surface is produced to the iron, which resembles bronze in color, and is better calculated to resist the effects of moisture than iron smoothed in the usual way. Construed in that way, as the patent should be, and it is clear that there is no proof in the record to show that the complainant is not the original and first inventor of the improvement. Widely different views are entertained by the respondents as to the construction of the patent, and hence they contend that the proofs sustain their defense, that the invention is not novel, but the court is unable to adopt their theory as to the construction of the patent, and consequently does not think it necessary to respond very fully to their course of argument under the present head, the court being decidedly of the opinion that the complainant is the original and first inventor of the alleged improvement.

4. Most of the remarks of the court under the preceding head are also applicable to the fourth defense set up by the respondents. Assume that the patent is properly construed by the court, and it follows that the respondents utterly fail to show that the process of the complainant was ever known or used prior to the application of the complainant for his original patent.

5. Nothing remains to be considered, except the question of infringement, which may properly be disposed of by a few observations. Enough appears to show that on the 15th of December, 1863, the original patent was granted to the complainant; that on the 3d of March, 1865, he assigned the same to the respondents; that on the 11th of September, 1866, the original patent was surrendered and was reissued to the respondents as the assignees of the complainant; that the respondents, on the 27th of August, 1872, reassigned the invention as secured by the reissued patent to the complainant. Throughout that period, to wit, from the 3d of March, 1865, to the 27th of August, 1872, it appears that the respondents held the title to the invention as secured by the original and reissued patent, and it appears that they, during that time, manufactured large quantities of goods by the process described in those patents, and that they paid royalties to the complainant for the right to use the process, and that throughout that whole period they acknowledged the validity of the patented invention.

None of those matters are in controversy, but the charge is that respondents, since they reassigned the patented invention to the complainant, have unlawfully continued to use the same without license, and have refused to pay any royalty to him for such, or to acknowledge his legal and just rights under the reissued letters patent. Suffice it to say that the proofs fully establish that charge, and show that the respondents went immediately to work to see if they could not effect the same results as those accomplished by the patented process without infringing the same, and they now contend that they have been successful in their efforts. Instead of that, the court is of the opinion that they have plainly infringed the patented process, that the attempt to avoid the charge of infringement is merely colorable, and that the complainant is clearly entitled to an account and to an injunction.

GLOVER SANFORD *et al. vs.* MERRIMAC HAT COMPANY.

[*In Equity.—Before* CLIFFORD, *J.—Decided September* 2, 1876.]

Patentable inventions pertaining to machines may be divided into four classes: first, entire machines; second, separate devices of a machine; third, new devices of a machine in combination with an old element; fourth, combinations of old devices or elements.

Where the invention consists entirely in a new combination of old elements or ingredients, the law is well settled that a suit for infringement cannot be maintained unless it appears that the respondent has used all of the elements or ingredients of the new combination.

[*Edward Avery*, for complainants.
Wm. W. Swan, for defendants.]

OPINION OF THE COURT.

CLIFFORD, *J.*:

Patentable inventions pertaining to machines may be divided into four classes: first, entire machines, as a car for a railway, or a sewing-machine; second, separate devices of a machine, as the colter of a plow, or the divider of a reaping-machine; third, new devices of a machine in combination with old elements, all embraced in one claim, or with separate claims for what is new, together with a claim for the new combination of all the elements; fourth, devices or elements of a machine in combination, where all the devices or elements are old.

What the assignor of the complainants professes to have invented is a new and useful improvement in sewing-machines, and he states in the specification that the invention is designed for the purpose of stitching the sweats or leather lining into hats; and that the invention consists in the peculiar form of the work-plate, with a guide for the sweat and a guide for the hat, combined with a sewing-machine or stitching apparatus. Beyond doubt, he refers to a particular sewing-machine, which has a needle-bar, needle, presser-foot, looper, and feeding mechanism; but it is unnecessary to pursue that description, as the patentee expressly states that the improvement is alike applicable to other sewing-machines, and that he does not intend to confine himself to any particular stitching apparatus, meaning only that the one referred to is preferred. Special reference is made to the work-plate of the new improvement, in which he states that its upper surface is made concave, and that its front is turned down and curved, as seen in Figs. 1, 2, and 3 of the drawings, and he adds that the plate is arranged relatively to the feed, needle, and looper, the same as the ordinary flat work-plate, without stating whether it is new or old. Passing from that, he proceeds to refer to the guides, commencing with the guide for the sweat, which he says is attached to the presser-foot or other part of the machine, and that it is formed from thin sheet metal, of the proper width, and so as to permit the sweat-leather to pass freely down beneath the presser-foot. Next, he refers to the guide for the hat, and remarks that it rests upon the angle of the work-plate, so as to properly guide the hat up on the work, the angle of the hat brim and body resting upon the angle of the work-plate. Certain directions are then given, as follows: That the hat to which the sweat is attached must be placed upon the table so that the angle of the brim and hat shall come beneath the needle, the hat-guide bearing thereon with the force of the spring denoted by the red color in the drawings. Nothing is stated in the specification to denote whether the described guides are new or old, nor does the specification contain any suggestion or intimation that either of the guides may be dispensed with in conducting the operation. Instead of that, the directions continue that the sweat-leather is then passed through the sweat-guide beneath the presser-foot, so that the needle will catch upon the edge of the leather while the machine is operated in the usual manner, stitching the leather to the hat; and the patentee suggests that the peculiar form of the table, combined with the feed, causes the hat to be turned gradually round until the leather is neatly stitched entirely around the hat. Tested alone by the description of the improvement, the better opinion is that the same is a mere arrangement of old elements in a new combination, to work out a new and useful result, and such are the views of the respondents; but the complainants insist that the description of the improvement, when taken in connection with the claim, warrants the conclusion that the work-plate and the two guides are new devices, invented by the patentees. Nothing certainly appears in the description to support the theory that it required any invention to make the work-plate or either of the guides; and the court is of the opinion that the mere fact that the patentees claim those several devices, in combination with a stitching apparatus, is not sufficient to support the conclusion that the Commissioner of Patents ever intended to adjudge that the patentees were the original and first inventors of those several devices. "Our invention," say the patentees, "is designed for the purpose of stitching the sweats to hats, and consists in the peculiar form of the work plate, and a guide for the sweat, and a guide for the hat, combined with a sewing-machine or stitching apparatus;" but there is nothing in the description of the work-plate to show that it required any invention to make it, or that there is anything in the form of the device to entitle the the maker of it to the reward due to an original and first inventor of a new and useful improvement. All that is said about it is that its upper surface is made concave, that its front edge is turned down and curved, so that the rim of the hat rests upon the upper surface of the plate, while the crown rests against the side, and the patentees admit that it is arranged relatively to the feed, the needle, and looper, the same as the ordinary flat work-plate.

As before explained, guides are required, but it is not even suggested that they are peculiar in form, or that it involved any invention to construct or arrange those devices. Enough is stated to show that the sweat-guide is formed from thin sheet metal, so as to permit the leather to pass freely down beneath the presser-foot, and the statement is that it must be of proper width; but the specification gives no definite description of the form of the guide for the hat, except what may be inferred from the function which it is to perform. Stress is laid upon the peculiar form of the table, but it is not necessary to remark upon that device, as it is not claimed that it is new. Viewed in the light of these suggestions, the court is of the opinion that the invention consists of the work-plate, the two guides, constructed and arranged as described, in combination with a sewing-machine or stitching apparatus. Construed in that way, it is very clear that the respondents have not infringed the complainants' letters patent, as they do not use the guide for the hat. Where the invention consists entirely in a new combination of old elements or ingredients, the law is well settled that a suit for infringement cannot be maintained unless it appears that the respondent has used all of the elements or ingredients of the new combination. (*Prouty vs. Ruggles*, 14 Pet., 341; *Vance vs. Campbell*, 1 Black, 428; *Gould vs. Rees*, 15 Wall., 193; *Seymour vs Osborne*, 11 Id., 555.)

Patents may doubtless be granted for a new device, and for the same in combination with old elements, and if both inventions are properly described and claimed, the patent will be valid for both; but it is not necessary to pursue that inquiry in this case, as the court is of the opinion that neither the description of the supposed improvement nor the claim of the patent in question brings the case before the court within that rule. Infringement not being proved, the bill of complaint must be dismissed.

Decree, that bill of complaint is dismissed.

HUGH W. COLLENDER *vs.* JOHN E. CAME *et al.*

[*In equity.—Before* CLIFFORD, *J.—Decided September* 2, 1876.]

The patent granted to Hugh W. Collender January 19, 1858, reissued March 19, 1867, and subsequently extended: *Held*, to be for a new and useful mode of making and constructing the described parts of a billiard-table, and is infringed by the use of the invention described in the Came patent.

Defenses alleged in the answer must be proved, to be of any effect.

[*Jas. E. Maynadier*, for complainant.
Geo. L. Roberts and *Reuben L. Roberts*, for defendants.]

OPINION OF THE COURT.

CLIFFORD, *J.*:

Patents may be granted for any new and useful art, machine, manufacture, or composition of matter, or for any new and useful improvement thereof, subject to the conditions specified in the patent act. (16 Stat. at Large, 201.) Inventions, in order that they may be patentable, must be new and useful, and the better opinion is that the improvement must be of such a character that it involved invention to make it, as the act of Congress confers no right to obtain a patent except to a person who has invented or discovered what is declared to be patentable. Patents, in due form, when introduced by a party suing for an infringement, afford a *prima facie* presumption that the patentee is the original and first inventor of what is therein described as his improvement. Doubts upon that subject cannot be entertained, but defenses to such a charge, besides the want of patentability, if due notice of the same is given, are allowed by law. Three only need be mentioned: (1) that the improvement had been patented or described in some printed publication prior to the supposed invention or discovery; (2) that the complainant was not the original and first inventor of the improvement; (3) that the improvement had been in public use, or on sale, in this country for more than two years before the application for a patent, or that it had been abandoned. (Rev. Stat., sec. 1920, p. 960.)

Sufficient appears to show that a patent, in due form, was granted to the complainant on the 12th of January, 1858, for a new and useful improvement in uniting comparatively hard substances to elastic foundations of billiard-cushions, and that the same was surrendered on the 19th of March, 1867, on account of a defective specification, and reissued to the same patentee for the same invention. Due application was subsequently made for an extension, and the record shows that the reissued patent was subsequently extended for the further term of seven years from the expiration of the first term. Gains and profits, it is charged, have been made by the respondents by infringing the exclusive right secured to the complainant by the said reissued patent, and he prays for an account and for an injunction. Process having been issued and service made, the respondents appeared and filed an answer. They deny that they have made, used, or sold cushions for billiard-tables in accordance with the specification of the complainant's patent, or that they have made any gains or profits by infringing the exclusive right secured to him, as charged in the bill of complaint, and for defense upon the merits they allege that the patentee is not the original and first inventor of the improvement, but that the same had been previously described in the specification of the foreign patent referred to in the answer, and that it was known to and had been used by the persons therein named, and at the places specified in the answer. Pursuant to leave given they filed an amended answer, in which they allege that the complainant never reduced the alleged invention to practice, and that it is not capable of being used or employed upon a billiard-table, or of subserving any useful purpose or result, as alleged or suggested in the specification. Satisfactory description is given of the invention in the specification, from which it appears that it consists in uniting the comparatively solid substances which are employed at or near the front part of billiard-cushions with the elastic foundation of the cushions, by placing the more solid substances in a mold, and allowing the melted rubber to flow against or around the same, so that it shall surround the back and end of the edges, and thus securely confine it, or to allow plastic rubber or fluid rubber to come in contact with the back of the more solid substance, and to adhere to it by reason of said substance containing within itself a similar adhesive property to the rubber, forming the foundation so that it shall adhere to the same by reason of its adhesive nature, aided, if need be, by holdfasts or projections on the back side or ends of the hard substances. By such means the patentee states that he is enabled to dispense with cement, nails, hinges, or any cloth covering to retain the hard substances in proper position on the elastic foundation. It also enables him, as he states, to overcome the disagreeable noise heard when the ball comes in contact with a steel strip fastened at its lower or upper edge. Speaking of the utility of the invention, he also states that it also enables him, without the trouble of cementing, to face the front of the steel with a transparent facing of rubber, which will deaden the sound of the steel strip, and gripe the ball sufficiently to give greater effect to twisting shots, and also to prevent the ball sliding off at an imperfect angle, instead of a proper angle, when played at a very obtuse angle against the cushion. All these advantages he claims, and adds that, besides those, it enables the manufacturer to save time, labor, and expense in adjusting and securing the hard substances to the softer ones, and enables him to furnish a cushion which, by being properly colored and finished, can be used without any woolen or cloth covering. Three modes of applying the invention are stated in the specification, and they are severally sufficient to show to the court that the patentee complied strictly with that provision in the act of Congress which requires the applicant for a patent, before he can receive it, to file in the Patent Office a written description of the manner of making, constructing, and using his invention, and also to show that the invention is capable of subserving some useful purpose, as claimed by the complainant. Construed in the light of these suggestions, it is quite clear that it is for a new and useful mode of making and constructing the described parts of a billiard-table.

Unquestionably the invention relates chiefly to the cushion; but the true construction of the patent is that the invention is for a new and useful mode of constructing the described part of the table used in playing billiards. Much discussion of the defense that the invention was previously described in the foreign patent named is quite unnecessary, as the court is clearly of the opinion that the theory of fact involved in the proposition cannot be sustained, for the reason that the invention is not described in the specification of that patent. Justly compared, it is so clear that the two are essentially and substantially different that it would be a waste of words to pursue the inquiry. Defenses alleged in the answer must be proved, which is all that need be said in response to the proposition that the invention was previously known to and used by the persons named in the answer, even if it be assumed that the defense, as pleaded, is sufficient to defeat the complainant's patent, which is by no means admitted. Nothing, therefore, remains to be considered except the question of infringement. Certain admissions in the answer and in the proofs aid very much in determining that question; as, for example, it is admitted in the answer that the respondents have made and sold, and are now making and selling cushions such as are described in the specification of the Came patent, and the evidence proves that they manufacture cushions like Exhibit 19, which is admitted in argument. Carefully compared, the court is of the opinion that the manufacture of the respondents is substantially the same as that of the complainant. Differences exist in the description of the primary elements of the manufacture, but the patentee of the Came patent states that in the manufacture of his cushion the compound band is to be entirely surrounded by rubber along the whole length of the cushion, and just within it in a line parallel to the face, against which, in the use of the table, the ball strikes; and he adds that the location of the compound band is obtained by suitably securing it in the rubber-cushion mold before vulcanization, and, obviously, by vulcanizing the rubber a union is made between it and the woven casing of sufficient strength to resist all strain at that point resulting from the impact of the balls on the face of the cushion, the woven casing under such strains being held to the band by its tight and close fit, as therein previously explained. Support to the conclusion expressed is also derived from the claim of the patent, which is—

An india-rubber billiard-cushion constructed with an embedded spring band, having woven about it light and close-fitting fibrous casing or covering, as described, for the purpose specified.

Mechanical differences undoubtedly exist, but the general mode of constructing the two cushions is the same, as more fully appears by comparing the manufacture of the respondents with the machine of the complainant, as described in the specification of his patent. Compared in that way, the conclusion must be, in the opinion of the court, that the charge of infringement is satisfactorily proved.

Decree for an account and for an injunction.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 19, 1876.]

9,496.—Trunks.—ALEXANDER CAMPFIELD, Newark, N. J. Application filed August 4, 1876. Term of patent 3½ years.

9,497.—Alto-Relievo.—BALDWIN COOLIDGE, Lawrence, Mass. Application filed August 14, 1876. Term of patent 7 years.

9,498.—Twine-Holders.—WILLIAM M. GRISCOM, Reading, Pa. Application filed August 26, 1876. Term of patent 7 years.

9,499.—Font of Printing-Types.—JULIUS GÜLDENSTEIN, Roselle, N. J., assignor to MACKELLAR, SMITHS & JORDAN, Philadelphia, Pa. Application filed September 7, 1876. Term of patent 14 years.

9,500.—Carpets.—ETIENNE GUIRAUD, New York, N. Y., assignor to JAMES H. GAY, Philadelphia, Pa. Application filed August 31, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 19, 1876.]

3,992.—White Lead.—ROBERT J. ALTHEN & Co., St. Louis, Mo. Application filed September 2, 1876.
"The arbitrarily-selected words 'GOLD MEDAL.'"

3,993.—Steam-Gages.—EDWARD H. ASHCROFT, Boston, Mass. Application filed August 21, 1876.
"A shield."

3,994.—Lubricating-Oil.—BINGHAMTON OIL REFINING COMPANY, Binghamton, N. Y. Application filed September 2, 1876.
"Word-symbol 'Cylindroil.'"

3,995.—Smoking-Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed August 23, 1876.
"The arbitrary words 'WORLD'S FAIR.'"

3,996.—Smoking-Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed August 23, 1876.
"The word-symbol 'RUBY.'"

3,997.—Whisky.—JOHN KETWORTH, Washington, D. C. Application filed September 8, 1876.
"The arbitrary words 'SILVER WEDDING.'"

3,998.—Shoe-Pegs.—KEARSARGE PEG COMPANY, Andover, N. H. Application filed August 7, 1876.
"The letter-symbols 'X X.'"

3,999.—Carpet-Lining.—WILLARD LEWIS, Walpole, Mass. Application filed July 3, 1876.
"The word-symbol 'IMPERIAL.'"

4,000.—Window-Shade Cloth.—OSWEGO SHADE CLOTH COMPANY, Oswego, N. Y. Application filed August 24, 1876.
"The word 'CHOUAGUEN.'"

4,001.—Rubber Goods.—RUBBER CLOTHING COMPANY, New York, N. Y. Application filed April 26, 1876.
"The words 'THE RUBBER CLOTHING COMPANY.'"

4,002.—Bitters and other Medical Preparations.—DWIGHT G. STOUGHTON, Hartford, Conn. Application filed May 18, 1876.
"A picture of the sphinx."

4,003.—Illuminating-Oils.—WILLIAM E. SEWELL, New Orleans, La. Application filed August 23, 1876.
"The word-symbol 'SEPTOLINE.'"

4,004.—Cigars.—SEIDENBERG & Co., Key West, Fla., and New York, N. Y. Application filed September 6, 1876.
"The arbitrary words 'LA ROSA ESPAÑOLA.'"

4,005.—Cigar-Boxes.—WILLIAM WICKE & Co., New York, N. Y. Application filed August 15, 1876.
"The representation of the Spanish coat of arms, flanked by two lions, the whole being supported on an ornamental pedestal."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 19, 1876.]

827.—Title: **"Warranted Pure Silver Plate on White Metal, by R. B. & Co."**—DERBY SILVER COMPANY, Derby, Conn. Application filed September 11, 1876.

828.—Title: **"Acheson's Hair Generator."**—P. TENNEY GATES, New York, N. Y. Application filed August 12, 1876.

829.—Title: **"Notice—This favorite article of Rice Flour is prepared from the finest Carolina Rice."**—SAMUEL WILES' SONS, New York, N. Y. Application filed September 6, 1876.

CATALOGUES AND CIRCULARS RECEIVED,

At the Library of the U. S. Patent Office.

Wood-Cutting Machinery.—J. A. FAY & Co., corner of John and Front streets, Cincinnati, Ohio.

All patents issued during the week are signed, sealed, and dated on Tuesday.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., September 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPTEMBER 19, 1876.

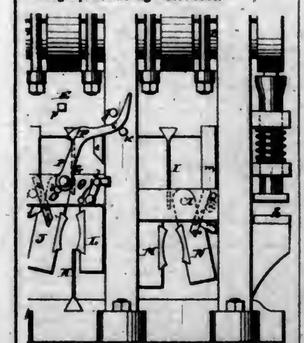
182,263. BUTTONS. Saml. Adams, Antioch, Cal. [Filed May 22, 1876.]



The fastening described, consisting of the two heads, A A, each having a groove in its under side, and the teeth or points a a, constructed, arranged, and combined substantially as described and shown.

182,264. MACHINES FOR MAKING AX-POLLS. William N. Armstrong, New York, N. Y. [Filed Mar. 25, 1876.]

Brief.—The movable jaw is closed by a wedge and opened by an inclined bar attached to and reciprocating with the cross-head, and the blank is punched first from above by a moving punch, and then from below by a stationary punch, and the eye is completed in the next succeeding set of dies, by a single punch acting from above.



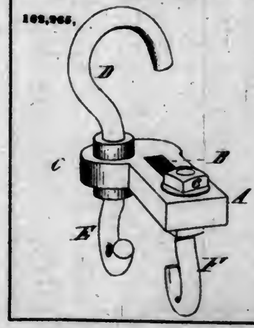
1. In a machine for shaping ax-polls, the combination of the stationary jaw M with the pivoted jaw N, and with the arm *e*, wedge *m*, and pin *n*, substantially as described.

2. The sliding cross-head O, having the lock *d* and carrying the jaws J and L, combined with the slide E and unlocking device *e*, substantially as specified.

3. The combination of the hook P with the cross-head O, which carries the jaws J and L, and with the slide E, which carries the pin *p*, all arranged to operate substantially as described.

4. In a machine for making ax-polls, the combination of a pair of vertical movable jaws, holding the blank, with a stationary punch and an upper movable punch, all arranged in such a manner that the upper punch will first indent the upper part of the blank, and thereupon the lower punch will indent the lower part of the blank, substantially as specified.

182,265.



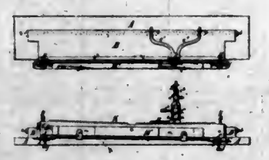
182,265. ADJUSTABLE PULLEY-BLOCK HANGERS. John F. Barker, Springfield, Mass. [Filed July 17, 1876.]

Brief.—Two hooks for pulleys in a horizontal bar, placed out of line with each other, one adjustable in a slot.

An adjustable pulley-block hanger, consisting of the slotted bar A, the movable hook F, the hook E, set out of line with the slot B, and hook F secured therein, and the hook D, operating substantially as and for the purpose described.

182,266. MACHINES FOR JOINTING SAWS. Morton Barton, Eau Claire, Wis. [Filed Aug. 10, 1876.]

Brief.—An adjustably-rocking saw-clamp is attached to one side of a base, and a guide-rod to the other, on which rod a file-holder slides, and about which it swings as a center. The file may be raised and lowered, rotated and swung from over the saw-clamp.



1. In a saw-jointing machine, a rocking frame, I, for clamping and holding in position double-cut saws, substantially as set forth.

2. In a saw-jointing machine, a horizontally-sliding and vertically-swinging tool-post, having a vertically-adjustable and horizontally-swinging file-holder, substantially as and for the purpose set forth.

3. In a saw-jointing machine, the combination of a rocking frame, I, and the tool-post C, substantially as and for the purpose set forth.

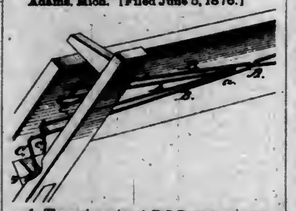
4. The rocking frame I, having slotted plates I', set-screws J', check-nuts *j*, and plates J', substantially as and for the purpose set forth.

5. The combination of the frame B, having a bracket, *b'*, and set-screws N, and the rocking frame I, having a pivot-bolt, *i*, projections *n*, substantially as and for the purpose set forth.

6. The tool-post C, having a set-screw, D, a plunger, E, a clamp-head, F, and a file-clamp, G, constructed and operating substantially as set forth.

7. The combination of the rocking frame I, having lugs *i*² and an elbow-plate, L, with the board *k* and the cheeks M M' for clamping and adjusting a double-cut saw, substantially as set forth.

182,267. VEHICLE-SPRINGS. S. N. Betts, Adams, Mich. [Filed June 5, 1876.]

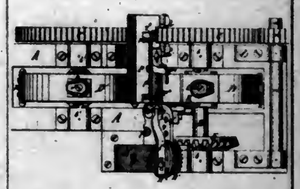


1. The main spring A B C D, with the arms B diverging, the points C turned outward and downward, and brackets D on the extreme points, to embrace the stake at its base, to hold the spring and also the wagon-box in place.

2. The re-enforcing spring *a b c*, with the arms *b* running parallel for a short distance, as seen at *a*, then diverging, with the points *c* turned outward and downward, and so fastened to the wagon-box by the wide staple at *a* that it can be thrown in and out of use, as the case may require, constructed to operate substantially as set forth.

182,268. MACHINES FOR MAKING HORSESHOES. Clinton Browning, Short Creek, W. Va. [Filed June 19, 1876.]

Brief.—Rolls for severing the required length of blank from the heated bar, and feed-rollers for advancing it over the rollers between which it is beat. Two revolving wheels—one of which is provided with a series of formers for bending the blank between the rollers, and the other with a series of raised molds, provided with pits for the reception of the formers—are mounted, with their peripheries opposing each other, upon shafts journaled in the frame. A die for punching, creasing, and forming the bent blank with a toe-calk is arranged around each former, and the blank is pressed down upon said die by the curved surface of the mold upon the opposite die-wheel. Each former is attached to a vertically-movable shank. Stationary wedge-shaped plates strip the shoe from the former.



1. In a horseshoe-machine, the rollers F² and H², for shaping and cutting the blanks for horseshoes, substantially as hereinbefore set forth.

2. In a horseshoe-machine, the combination of feed-roller I, the pressure-roller I², the spring I³ and the plate J, having a slot, *j*, and a flaring guide, *j'*, substantially as set forth.

3. The bending-rollers *k k'*, the core-die L, the shield P, and arm P², constructed and operating substantially as set forth.

4. The combination of the straight-faced die-plate K, having a depressed straight-faced skeleton die K', the movable die L, having a straight-faced step *l*, and the die R, with a pressure-surface so curved that, by the co-operation of the said parts, a horseshoe with straight surfaces and the requisite variable thickness from toe to calk is produced, substantially as set forth.

5. The combination of the rollers *k k'*, the bars O O', the rollers *o o'*, the notches *o* in the rim of the wheel O, the stands *p p'*, and the spring *p*³, substantially as and for the purpose set forth.

6. The bearing-box P, having a shield, P², concentric to the periphery of the wheel D, shield Q, eccentric to said periphery, and a stopping-arm, P³, substantially as and for the purpose set forth.

7. The die-plate K, having a continuous skeleton die for the formation of creases, nail-holes, and toe, inserted from below, and secured by a continuous tapering joint, substantially as set forth.

8. The combination of the die-plate K, the skeleton die K', and the movable core-die L, constructed and operating substantially as set forth.

9. The plates N, the steps *m*² *m*³ *m*⁴, and the die L, constructed and operating substantially as set forth.

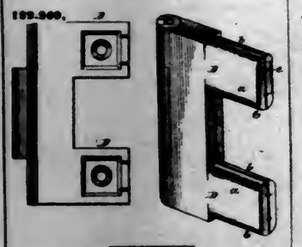
10. The combination of the continuous skeleton die K', and the die R, whereby the horseshoe is provided with toe, creases, nail-holes, and relief countermarks of the nail-holes, substantially as set forth.

182,269. HINGES. Chas. B. Clark, Buffalo, N. Y. [Filed Feb. 24, 1876.]

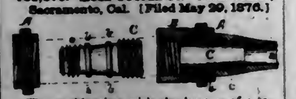
A hinge the leaves of which are constructed with wings D, having flattened sides *a* and semi-cylindrical edges *b*, the end of each wing being constructed with the marking-notches *c*, substantially as described.

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182,269.



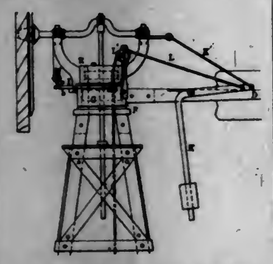
182,270. HOSE-COUPLINGS. Orrin Collier, Sacramento, Cal. [Filed May 29, 1876.]



The combination, with the hose *a*, of a tapering sleeve, provided with screw-threads *c* and collars *b*, and a screw-threaded nut, A, substantially as described and shown.

182,271. WINDMILLS. Merritt J. Covell, Sycamore, Ill. [Filed Apr. 27, 1876.]

Brief.—An arm extends downwardly from a part of the yoke, and is adapted at the lower end to carry a roller or wheel. The roller rests upon a circular track secured to the head. In the revolution of the yoke, the wind-wheel is carried around until it meets the stop, and this arrangement equalizes the weight or strain of the yoke upon the parts supporting it.



1. The yoke E, provided with the roller *a*, in combination with the track *b*, secured to the vane-head C, substantially as and for the purpose described.

2. In combination with the vane-head C and track *b*, the stop I, projecting from the yoke E, adapted to limit the movement of the yoke and attachments independently of the said vane-head, substantially as and for the purpose specified.

3. In combination with the yoke E and vane D, the bent weighted lever K, rod K', and rope or wire L, adapted to regulate the relative positions of the vane and yoke, with its attachments, substantially as and for the purpose set forth.

182,272. HORSE-RAKES. Jas. W. Fenwick, Patterson, Ontario, Canada, assignor to Peter Patterson, same place. [Filed Feb. 26, 1876.]



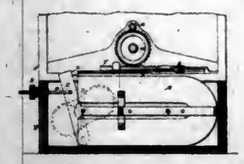
1. The spindle F, having levers G and E attached thereto, and operated by the spring *f* and foot *d*, in combination with the revolving clutch H, substantially as and for the purpose specified.

2. The push-bars D, carried upon a stationary axle, J, and provided with feet *d*, in combination with a T-shaped crank or lever, C, and rod B, operated by a foot-lever, A, as and for the purpose specified.

3. The toe *a* upon the foot-lever A, in combination with the shoulder *b* upon the hand-lever L, substantially as and for the purpose specified.

182,273. MAGNETO-ELECTRIC MACHINES. Joseph Gray, Sheffield, England. [Filed Aug. 11, 1876.]

Brief.—For indicating and regulating the strength of current.

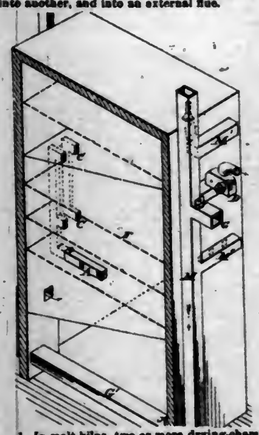


1. The combination, in a magneto-electric machine, of the magnet, revolving cores, keeper E, adjustable, as set forth, graduated plate *d*, and a pointer, *e*, connected to devices operated by the movement of the keeper, as specified.

2. The combination of the adjustable keeper, the graduated plate and pointer, carried by the lid, and the flexible connections, whereby the lid may be moved without affecting the adjustment of the pointer.

182,274. MALT-DRYING KILNS. Rudolph D'Heureuse, New York, N. Y. [Filed Feb. 3, 1876.]

Brief.—Air can be drawn from one chamber into another, and into an external flue.



1. In malt-kilns, two or more drying-chambers communicating substantially as shown, in combination with flue M communicating with one or more of the chambers, and exhaust D, whereby air can be drawn from one drying-chamber into another, and be exhausted from one or more of the chambers at one or different points at the same time, substantially as and for the purpose set forth.

2. In malt-kilns, two or more communicating drying-chambers, in combination with flue M, communicating with one or more of the chambers, fine G', and furnace E, substantially as and for the purpose set forth.

3. In malt-kilns, two or more drying-chambers communicating by flue or flues C, in combination with flue M, communicating with one or more of the chambers, substantially as and for the purposes described.

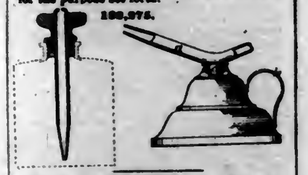
4. As an improvement in malt-kilns, the flue M, provided with a sprinkler, substantially as and for the purpose set forth.

182,275. OILERS. Rudolph D'Heureuse, New York, N. Y. [Filed Dec. 4, 1875.]

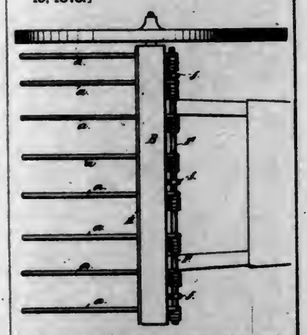
Brief.—A liquor-thief is used as a stopper to the can, and as a detachable means of carrying and regulating the flow of the oil; also used as a spout to the can.

A stopper for an oil-can, provided with a tube adapted to communicate with the interior of an oil-receptacle, and having one end of greater diameter than the other, and both ends having orifices, substantially as and for the purpose set forth.

182,275.



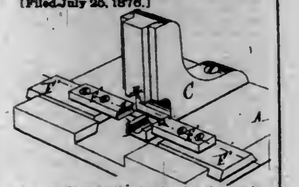
182,276. HORSE-HAY-RAKES. Henry C. Herchelrode, Dayton, Ohio. [Filed Nov. 15, 1875.]



1. The rake-teeth *c*, having their ends coiled at right angles to their planes, and adapted to pass and turn freely upon the cylindrical rod F, substantially as and for the purpose specified.

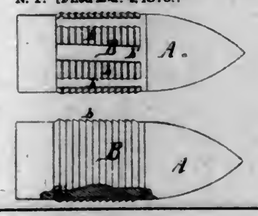
2. The rake-head or axle B, having equidistant tapering apertures, and secured upon its rear face, the slotted plate E, with the slots arranged with reference to the apertures, as described, in combination with the rake-teeth *c*, having their ends coiled, as represented, and secured to the head by means of the rod F and eyebolts *f*, or their equivalents, substantially as and for the purpose specified.

182,277. MACHINES FOR FORGING BOLT-BLANKS. George B. Hill, Detroit, Mich. [Filed July 25, 1876.]



In a machine for forging bar-iron into a circular form, the combination, with the table A and standard C, of the sliding dies *a c c*, and anvil *b*, having concave faces, constructed and arranged substantially as described and shown.

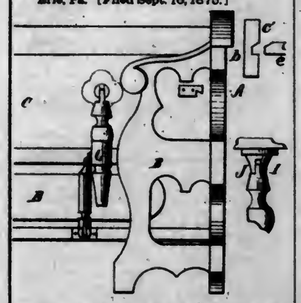
182,278. PROJECTILES FOR RIFLED ORDNANCE. Benj. B. Hotchkiss, New York, N. Y. [Filed Mar. 4, 1876.]



1. The grooves *a a'* in the body A, at both the front and rear of the packing, in combination with the packing-belt B, inclosing and locking both its edges therein, as herein specified.

2. The circumferential ridges *b* and longitudinal grooves *b'* on the packing-belt B, in combination with each other and with the body A, and adapted to serve as and for the purposes specified.

182,279. FOLDING SEATS. John L. Kapple, Erie, Pa. [Filed Sept. 16, 1875.]



1. A seat formed with a stationary back and uprights, A, a folding seat-bottom, C, hinged leg-support, and a swinging brace, the latter pivoted to a rigid cross-bar, substantially as and for the purpose set forth.

2. The combination, with the folding seat-bottom C and folding leg-support G, of folding side arms or supports E, substantially as and for the purposes described.

3. In combination, with the side arms provided with the slotted lugs *c' c'*, the seat-bottom C, provided with tapering lugs or pins *c c*, substantially as set forth.

4. The combination, with the seat-bottom and leg-support, of the wedge-hinge I J, substantially as set forth.

5. The combination, with the folding seat-bottom and hinged leg-support, of the hat-rest E, the latter supported on a swinging brace that is pivoted to a rigid cross-bar, substantially as and for the purpose described.

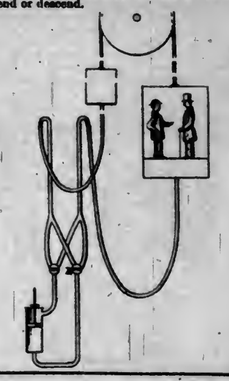
6. The seat having sides and seat-bottom adapted to fold against the seat-back and folding foot-rest, substantially as and for the purpose described.

7. A seat constructed with folding sides, seat-bottom, hat-rest, and foot-rest, all arranged to operate substantially as and for the purposes set forth.

8. The combination, in a single seat, of folding seat-bottom, folding leg-support, folding hat-rest, and folding side arms, substantially as and for the purposes described.

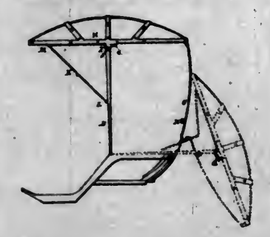
182,280. ELEVATORS. Walter K. Malvin, New York, N. Y. [Filed Aug. 12, 1876.]

Brief.—Fluid is pumped from the box on the car side into the counter-balance box, or vice versa, as it is desired to cause the car to ascend or descend.



In an elevator in which the car is caused to ascend and descend by the shifting of a weight, as described, the combination of the balance-box or reservoir, the counter-balance reservoir, either on the car or in a separate box, conduits connecting said reservoirs, and a forcing apparatus adapted to transfer the liquid through said conduits from one to the other of the reservoirs, the combination being and acting as set forth.

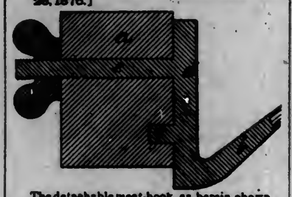
182,281. VEHICLE-TOPS. Geo. R. McCrea, Bowmanville, Ontario, Canada. [Filed Apr. 13, 1876.]



1. The front posts B B, having knee-shaped tops G G, and held by the pins J within the brackets I, preferably formed by the side plates H', in combination with the folding braces K, hinged to the front posts B B at L L, and the plates H as M M, substantially as and for the purpose specified.

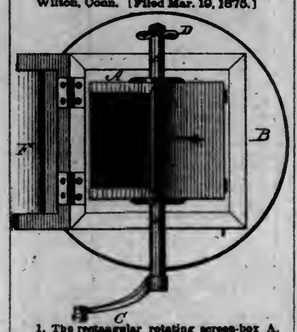
2. The stop-bar N, attached to the back posts C C, in combination with the hinged front posts B B, as and for the purpose specified.

182,282. DETACHABLE MEAT-HOOKS. Sargent O. Morse, Boston, Mass. [Filed June 28, 1876.]



The detachable meat-hook, as herein shown, consisting of the hook part *b*, plate *d*, spur *g*, and holding-screw, substantially as and for the purpose set forth.

182,283. ROTARY SCREENS. H. B. Osborne, Wilton, Conn. [Filed Mar. 19, 1875.]

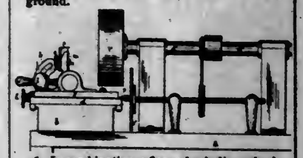


1. The rectangular rotating screen-box A, having its shaft *a* provided with the worm-cam D, arranged to operate in the slotted stud or bearing E, substantially as shown and described.

2. An ash-sifter composed of the case B, having the semicircular hinged cover F, with the rectangular rotating and oscillating screen A mounted therein, the whole being constructed and arranged to operate substantially as described.

182,284. GRINDING-MACHINES. J. L. Otis, Leeds, Mass. [Filed July 10, 1876.]

Brief.—A hinged tool-rest, adjustable to and from the face of the grinder, is mounted on a reciprocating frame, operated by a crank-wheel and pitman, driven by a band from the grinder-shaft. A hinged gage determines the exact position of the edge of the tool being ground.

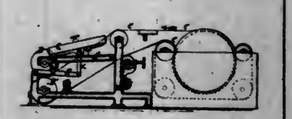


1. In combination, a flanged grinding-wheel, *r*, a rest, *i*, traveling across the grinding-face thereof, and a ways-block, *b*, pivotally adjustable with reference to such grinding-face, all substantially as described, and for the purpose set forth.

2. In combination, the grinding-wheel *r*, the rest *i*, and the pivoted gage *y*, moving on and off the edge of the blade to be sharpened, all substantially as described.

182,285. MECHANISMS FOR GRADUALLY DIMINISHING THE PRESSURE UPON PAPER-BOARD ON THE CYLINDER. J. N. Paddock, Syracuse, assignor to himself and Howard Lockwood, New York, N. Y. [Filed Apr. 3, 1876.]

Brief.—The web is taken up and wound upon a roll which is journaled to a movable arm extending backward and pivoted to a standard of the machine. Below and in front of the roll is a shorter standard, to which is pivoted a lever having bars, one of which is pivoted to the movable arm, and the other and larger one to a tube-reservoir, which is in turn pivoted on a projection upon the arm. As the layers of paper increase on the roll the roll rises, and with it the movable arm, which, through the shorter bar, raises the lever, while this, through the longer bar, gradually elevates the end of the tube-reservoir, which rests on the arm near the roll. Thus the pressure is gradually reduced upon the roll, and through it upon the paper as it increases in thickness, whereby, when the paper-cylinder is cut and removed from the roll and straightened or flattened, the outside will, in flattening, be about equally compressed with the inside, and there will not be so great a tendency to curl up or cockle.



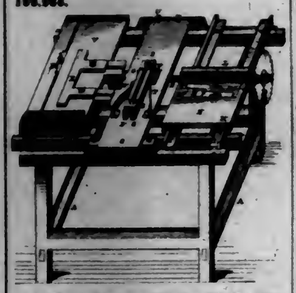
1. In paper manufacture the within-described process consisting in gradually diminishing the pressure upon the concentric layers of pulp from the interior to the exterior, as it accumulates, to give an equal density throughout when the material is divided and flattened out, substantially as specified.

2. The combination of the rollers D B' and belt C with the connections E X Z, the arm A', and the graduating device G, as and for the purposes specified.

182,286. SAW-TABLES. Wm. B. Plummer, Buffalo, N. Y. [Filed July 5, 1876.]

Brief.—A hinged matching-table, a crosscut-saw table, and a rip-saw table, are arranged upon the same frame, and the saws and matching-cutters are mounted upon the same arbor, and driven by one belt. The crosscut-saw table is provided with a series of transverse recesses, in which are secured adjustable spring-gages having barbed heads, for producing various sizes of boxes at the same time without changing the gages. The matching-table is slotted to allow the tonguing and grooving cutters to operate through it, and provided on its face with laterally-adjustable guide-bars and spring-guides upon either side of the guide-bars, for guiding the boards during the tonguing and grooving operation.

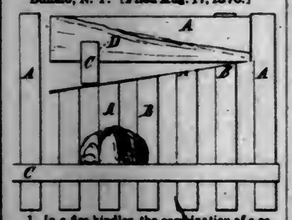
182,966.



1. The combination, with the table K, of the series of recesses N and the series of adjustable spring-gages P, consisting of the shank *p*, provided with the slot-hole *p''* and the barbed head *p'*, substantially as described, for the use and purpose stated.

2. The combination, with the table Q hinged to the transverse beam A'' on one end, and provided with adjusting-screws U on the opposite end, of the cutters F and G, guide-bars E E', adjustably secured to said table by the screws S, and transverse plates *s*, and the two spring-guides T T', the whole constructed and arranged in the manner as and for the use and purpose described.

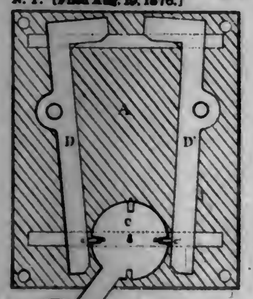
182,967. FIRE-KINDLERS. Chas. L. Pond, Buffalo, N. Y. [Filed Aug. 17, 1876.]



1. In a fire-kindler, the combination of a series of hard and soft wood bars, A B, coated with a resinous material, with a binder, C, by which they are connected and held together, substantially as and for the purposes specified.

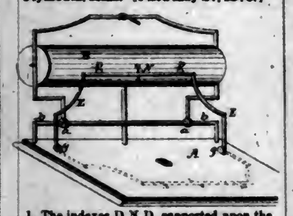
2. A series of bars, A or B, of wood, coated with a resinous material, and arranged substantially as specified, in combination with a binder, C, to which they are connected by means of a slot or opening, D, to leave the lower side of the binder projecting downward, as and for the purposes described.

182,968. AUTOMATIC "CAST-OFF" FOR SAILS OF VESSELS. John S. Ray, Hudson, N. Y. [Filed Aug. 19, 1876.]



The combination of the pendulum B, having a circular head, C, provided with gains or notches *a a a a*, surrounding its vibratory center, with the vertical levers or clamp-bars D D' and safety-bolt E, substantially as and for the purpose hereinbefore set forth.

182,969. TYPE-WRITERS. Saml. T. Ryder, Plymouth, Mass. [Filed May 27, 1876.]



1. The indexes D N D, supported upon the frame E E, in combination, by hinges *g g*, with the plate A, as described.

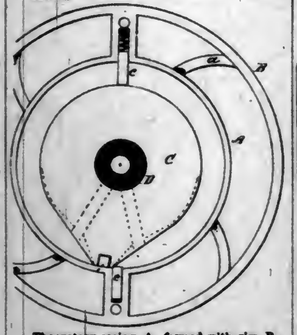
2. The indexes D N D, hinged to the top-plate of a type-writing machine, and arranged to indicate the printing-point and direction of printed line, in combination with the hinged tympan B, substantially as and for the purpose set forth.

182,970. GRATE-BARS FOR FURNACES. Geo. Schmauch, Mauch Chunk, Pa., assignor of one-half of his right to Samuel H. Tacy, same place. [Filed June 30, 1876.]



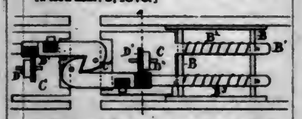
The grate-bar herein described, consisting of the central web A, hollowed on its upper surface and the plain surface, angular projections B, diverging in opposite directions, each bar being independent, substantially as described.

182,971. ROTARY ENGINES. Frederick P. Schofield, Oscoda, Mich. [Filed July 15, 1876.]



The rotary casing A, formed with rim B, webs or arms *a*, and air-spaces *a'*, and abutments *c*, in combination with the stationary hub C, formed with passages *g h* and grooves *i*, and the hollow shaft D, having supply and exhaust ports *e f*, the whole constructed and arranged to operate as set forth.

182,972. CAR-COUPLINGS. Chas. W. Soule and Galen F. Daymon, Weymouth, Mass. [Filed Mar. 9, 1876.]



1. The partially-revolving coupling-hook F, provided with teeth or projections for giving to it the required rotative movement, it being arranged to operate substantially as and for the purpose set forth.

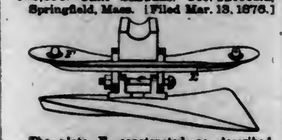
2. The combination of the partially-rotating coupling-hook F and the buffer C, having a recess in its outer end, as described, the parts being arranged to operate substantially as set forth.

3. The combination of the partially-rotating coupling-hook, the buffer C, the plates B B, the rod B', and the springs B² and B³, substantially as shown and described.

4. The combination of a partially-revolving coupling-hook, gear-wheels for operating the same, and a toothed rack operated by a lever or levers, substantially as and for the purpose set forth.

5. The combination of a partially-rotating coupling-hook, a spring for operating the same, and a gear-wheel for imparting motion thereto, they being arranged to operate substantially as set forth.

182,973. CART-SADDLES. Geo. Theobald, Springfield, Mass. [Filed Mar. 13, 1876.]



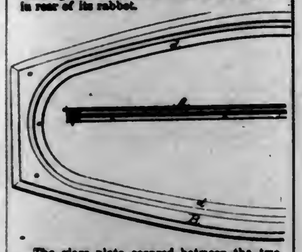
The plate E, constructed as described, whereby it is adapted for holding the weather-piece F, and at the same time affording a bearing for the bolt C, as shown.

182,974. TONIC PREPARATION. W. Turner, Mount Carmel, Ill. [Filed May 3, 1876.]

A tonic compound composed of cardamom-seed, cinnamon-bark, caraway-seed, coriander-seed, juniper-berries, cinchona-bark, gum-benzoin, gum-myrrh, blood-root, sassafras-bark, wild-cherry bark, whisky, syrup Tolu, iodide potash, cochineal, tartrate iron and potash, honey, and water, in about the proportions herein set forth.

182,975. BURIAL-CASE LIDS. L. B. Tuttle, Sterling, Ill. [Filed Aug. 4, 1876.]

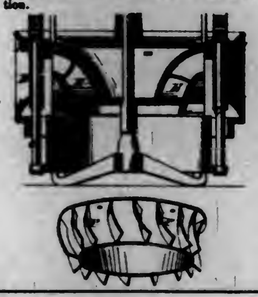
Brief.—The face-glass is secured between two pieces of cast-iron molding, which are screwed together and then dropped into a rabbet in the lid. Pins cast upon one of the moldings are inserted in holes in the lid just in rear of its rabbet.



The glass plate secured between the two parts of the cast-metal frame, and secured in the rabbet of the lid by means of the pins or projections inserted in the lid itself, all substantially as and for the purpose described.

182,976. TURBINE WATER-WHEELS. David S. Walsh, Sheboygan Falls, Wis., assignor of one-half of his right to B. E. Sanford, same place. [Filed Apr. 20, 1876.]

Brief.—This wheel has draft-tube and gate combined. The gate-rods are protected. The double buckets quarter turned and tunnel-shaped chutes are also features of the invention.



The combination, in a turbine water-wheel, substantially as described, of a gate and draft-tube combined, double buckets quarter turned, tunnel-shaped chutes, and protected gate-rods.

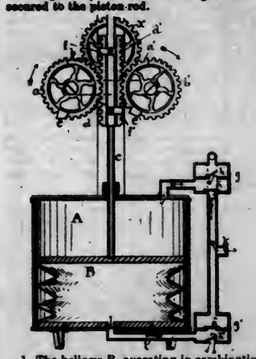
182,977. FIFTH-WHEELS. Edwin Wilson, Prattsburg, N. Y. [Filed Feb. 28, 1876.]



In the construction of carriages, the circle C attached to the plate D by the bars E and F, and the plate D provided with the semi-cylindrical plates G, made as specified, and having upon their upper surfaces the bolsters H and I, all constructed and arranged substantially as and for the purpose set forth.

182,978. AIR-PUMPS. David B. Sanger, Medford, Mass. [Filed Apr. 1, 1876.]

Brief.—The piston works in a covered cylinder with a stuffing-box, and is provided with a casing (of rubber cloth or other material impermeable to air) attached to the bottom of the cylinder, and forming a bellows-valve, and induction and adduction pipes receive and discharge the air. The reciprocating motion is given to the piston by two geared wheels with segments, the latter working in racks secured to the piston-rod.

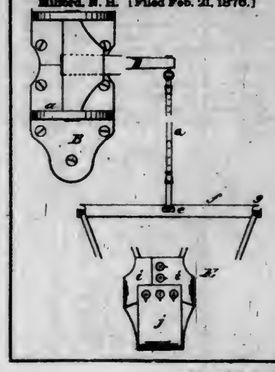


1. The bellows B, operating in combination with covered cylinder A, and valves *h' h'' h''' h''''*, to produce a constant current of air, as specified.

2. The segments *a a'*, with projections *c c'*, in combination with the geared wheels *b b'*, toothed racks *d d'*, with lugs *f f'*, operating to impart a constant reciprocating motion to the rod *e*, as described and specified.

3. The valve-boxes *g g'*, with inlet-valves *h' h'''*, outlet-valves *h'' h''*, operating in combination with the covered cylinder A, in the manner and for the purpose specified.

182,979. BABY-JUMPERS. Nelson H. Brown, Milford, N. H. [Filed Feb. 21, 1876.]

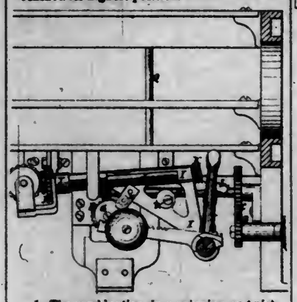


1. In a baby-jumper, the plates B B, having flanges *a a*, and the pivoted sleeve C with tapering mortise *b*, in combination with the tapering crane D, substantially as and for the purpose set forth.

2. The two plates B B, having flanges *a a*, the pivoted sleeve C with tapering mortise *b*, and the tapering crane D, in combination with the strap *d* with cross-bar *f*, and the harness E, substantially as and for the purpose specified.

182,980. SPINNING OR TWISTING FRAMES. Isaac G. Chandlee, Philadelphia, Pa., and Reuben S. Marshall, Manchester, N. H. [Filed May 17, 1876.]

Brief.—The ring-rail has a vertically reciprocating motion, and is also gradually elevated from a lower to a higher position. Means are provided for lowering said rail after it has reached its highest position.



1. The combination, in a spinning or twisting frame, of the frame I, shaft J, worm K, curved rack or worm-segment L, and mechanism for imparting to the said shaft an intermittent motion, whereby a progressive elevation is given to the rings in spinning or twisting, substantially as described.

2. The combination of curved rack or worm-segment L, worm K, shaft J, and a handle to turn the shaft J, so as to gently lower the rings after the bobbins are filled, substantially as and for the purpose described.

182,981. KNIVES, FORK, AND STEEL RESTS. Le Roy J. Cherrington, Worcester, Mass. [Filed Nov. 13, 1875.]



The knife and fork rest A B C, in combination with one or more rests, D D D, for the sharpening-steel, substantially as and for the purpose or purposes hereinbefore set forth.

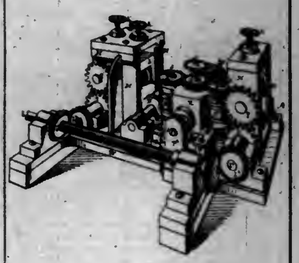
182,982. MACHINES FOR STRAIGHTENING RAILROAD-RAILS AND OTHER BARS. W. B. Chisholm, J. Walker, and Edwin Martin, Cleveland, Ohio. [Filed Aug. 2, 1876.]

Brief.—The adjustability of the rolls endwise adapts them to bear, by their body or plain surface, against the edges of the flange, and by their collars or flanges against the side of the head of the rail.

1. In a machine for straightening metallic rods, rails, and bars, of irregular shape in cross-section, a series of grooved, collared, or molded rolls, at least three in number, on different sides of the line of feed, adjustable in the direction of their length with reference to the inversion of the rod, rail, or bar, substantially as and for the purposes set forth.

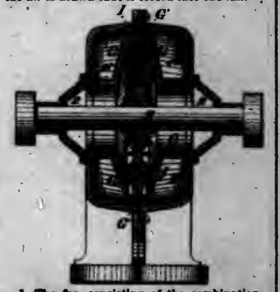
2. The grooved rolls D D' D'', in combination with mechanism, substantially as described, for effecting the simultaneous endwise adjustment of the rolls.

3. The combination of end feed and delivery rolls, horizontal straightening-rolls, and endwise adjustable vertical straightening-rolls, substantially as and for the purposes set forth.



182,983. BLOWER-FANS. G. W. Clayton, Cleveland, Ohio. [Filed Mar. 9, 1876.]

Brief.—An air-space or reservoir is inclosed between the fan-case and disks, situated upon each side of the revolving buckets, from which the air is drawn that is forced into the fan.

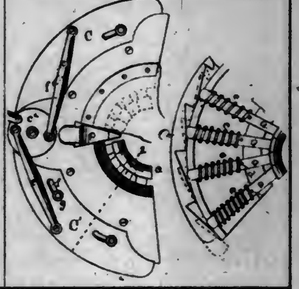


1. The fan, consisting of the combination, with the revolving buckets and the fan-case A, of disks G and reservoir or reservoirs H, substantially as and for the purpose described.

2. The combination, with the case A and fan-leaves F, broadened at their rear ends to admit of enlarged throats *f*, and disks G, made to conform to the shape of the said fan-leaves, substantially as and for the purpose described.

3. The combination, with the fan-leaves, the disks G, and case A, of barricades or stops I, substantially as and for the purpose described.

182,984. LASTING-MACHINES FOR BOOTS AND SHOES. Geo. W. Copeland, Malden, and Edward L. Conkey, Boston, assignors to Geo. W. Copeland, trustee for the National Lasting-Machine Association, Boston, Mass. [Filed July 15, 1876.]



1. In lasting mechanism for lasting boots and shoes, the combination of a rising jaw with a series of yielding fingers, arranged to constantly bear against the surface of the last from a given line, somewhat remote from the edge of the last to the edge and over upon the insole, substantially as described.

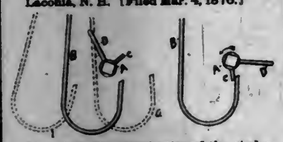
2. In lasting mechanism, the combination of the fingers *a*, stops *d*, and springs *e*, arranged to operate as described, with the locking sliding plates C C', substantially as set forth.

3. The combination of the locking sliding plates C C', provided with the slots *f*, with the screws or bolts *g*, connecting-rods *e e'*, and cam-lever *d'*, substantially as described.

4. The combination of the lasting mechanism, substantially as claimed, with a strap or girth fastened to the jaw to fall over the projecting ends of the fingers, substantially as and for the purpose described.

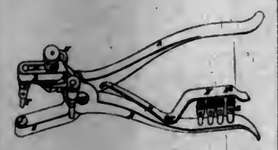
5. In a lasting-machine in which a series of fingers are caused to set from a point somewhat remote from the edge of the insole in straining and smoothing the upper upon the last, the fingers described, formed upon their contacting ends with a rounded upwardly-presenting surface, substantially as and for the purpose described.

192,806. LOCK-WORK ATTACHMENTS FOR CLOCKS. R. C. Covell and M. M. Robinson, Laconia, N. H. [Filed Mar. 4, 1876.]



In a clock, the combination of the stud *e* and arm D of the minute-hand arbor A with the drop-wire B, all being constructed and arranged substantially as specified and represented.

192,806. SPRING-PUNCHES FOR FINISHING LEATHER, &c. Oscar B. Crane, Newark, N. J., assignor to H. F. Osborne, same place. [Filed May 20, 1876.]

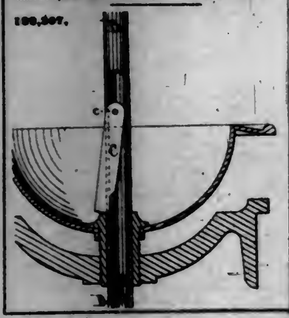


1. The combination, in a hand-spring punch, of two or more adjustable links, carrying punches, with the jaw B of the spring-punch, and the clamping device H, substantially as and for the purpose described.

2. In combination the jaws B, provided with the slot M, the set-screw H, and links *J* and N, all arranged and operating substantially as shown and described.

3. In combination the handles A B, spring D D', and punches G, all substantially as described, and for the purpose set forth.

192,807.



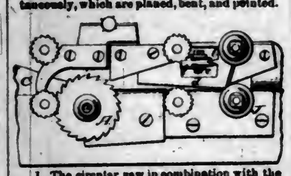
192,807. WATER-CLOSET APPARATUS HANDLE. John S. Delehanty, Albany, N. Y. [Filed Aug. 29, 1876.]

Brief.—The spring-catch holds up the pull and allows the water to flush the closet until the former is pressed in.

The connection B, provided with the spring-catch C and spring D, in combination with the valve-operating mechanism of a water-closet, as and for the purpose herein specified.

192,808. HOOP-MACHINES. Jacob Dobbins, Litchfield, Mich. [Filed May 2, 1876.]

Brief.—In passing a plank through the machine the saw and knife cut two hoops simultaneously, which are planed, bent, and pointed.

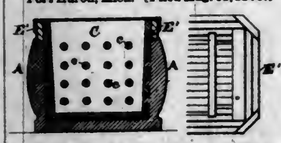


1. The circular saw in combination with the stationary knife, as and for the purpose set forth.

2. The circular saw and stationary knife in combination with the vibrating arms, with their lances, substantially as and for the purpose set forth.

3. The circular saw, stationary knife, and vibrating arms, with their lances, in combination with the rotary planers and the bending apparatus, substantially as and for the purpose set forth.

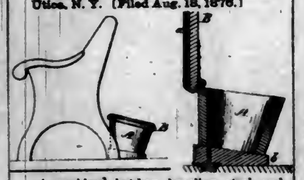
192,809. ARTIFICIAL-MARBLE BURIAL-CASES. J. H. Douglass and J. H. Smith, Port Huron, Mich. [Filed Aug. 18, 1876.]



1. The herein-described method of constructing burial-caskets and other articles by casting artificial marble upon a perforated backing or support in mould, substantially as and for the purpose specified.

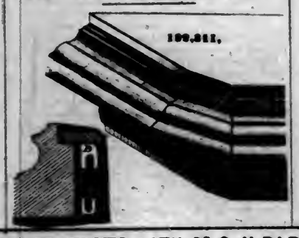
2. A burial-casket constructed, as described, with an interior perforated backing, C, and exterior molded surface A, and wooden strip E', substantially as and for the purpose specified.

192,810. COMBINED HAT-BOX, KNEELING-STOOL, AND FOOT-REST. Peter Dutton, Utica, N. Y. [Filed Aug. 18, 1876.]



A combined hat-box, kneeling-stool, and foot-rest, consisting of the box A, with cover B, and the rod C, with split spring-band D, for attaching said box to the floor, substantially as and for the purpose described.

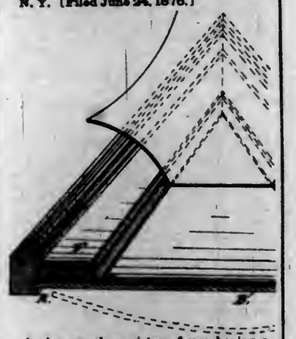
192,811.



192,811. WALL-BRACKETS. Jas. P. Fielding and Albert A. Fielding, Boston, Mass. [Filed Feb. 23, 1876.]

As a new article of manufacture, a bracket having an outer border or frame-work of picture-frame molding, mitered together at the corners, having a top board secured to the upper edges of said molding, being made reversible by the addition of a bottom board, secured to the lower edges of said molding, and adapted to the sides or corners of a room, for the purposes set forth.

192,812. FRAMES FOR SHOW-CARDS OR PICTURES. Edwin A. Galindo, Brooklyn, N. Y. [Filed June 24, 1876.]



A show-card or picture frame having a strip, F, with a wide flat gluing-surface upon the under side thereof, and a rabbet or recess, *s*, in combination with the backing B and groove R, the whole constructed and arranged to operate substantially in the manner and for the purpose set forth.

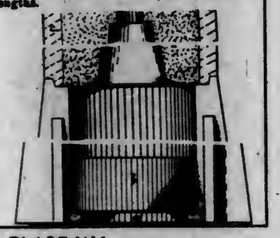
192,813. SHIRTS. Thomas Green, Brooklyn, N. Y. [Filed Aug. 26, 1876.]



A shirt provided, in addition to the usual openings or slits for facilitating the putting on and removal of the same, with the opening D at the side of the bosom, substantially as and for the purpose set forth.

192,814. MOLDS FOR STAMPING-MILL SHOES. William Hainsworth, Pittsburg, Pa. [Filed Feb. 2, 1876.]

Brief.—A series of removable bottoms of differing heights for casting shoes of differing lengths.

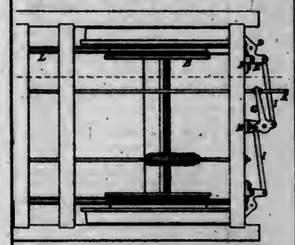


1. In molds for casting shoes and dies for stamping-mills, the combination, with a metal mold, of interchangeable bottoms, substantially as and for the purposes set forth.

2. The combination of sand mold, metal mold, and interchangeable bottoms, within or against which to cast the stem, body, and working face of the shoe, substantially as set forth.

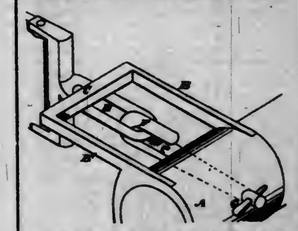
192,815. CAR-BRAKES. Charles C. Holt, Lawrence, Mass. [Filed Feb. 24, 1876.]

Brief.—Braking accomplished by winding ropes round brake-wheels.



In a car-brake constructed as herein described, the combination of the wheels B B, the cable L, the pulleys D D, the elbow-cranks E E E E, the bearings F F, the rods I I I I, the T's G G, the bearings H H, and cables K K, in a manner and for the purpose substantially as and for the purpose set forth.

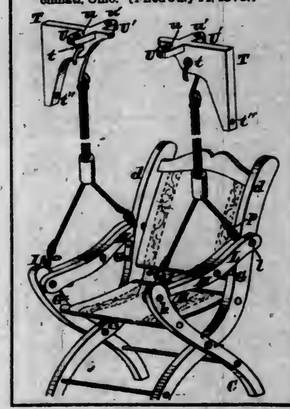
192,816. TRACE-HOOKS. Thos. J. Hubbell, Napa City, Cal. [Filed Aug. 3, 1876.]



1. The ferrule A, provided with the link B B C, and having the hook F passing through it and the wood below the link, substantially as and for the purpose described.

2. The ferrule A, with its link B B C secured upon the end of the single-tree by means of the shank *e*, upon the ends of which is a hook, F, the whole combined and arranged to operate as and for the purpose described.

192,817. SWINGS. John F. Johnson, Cincinnati, Ohio. [Filed July 14, 1876.]

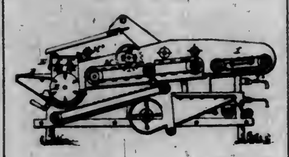


1. In a door-way swing, the angle-bracket T *t t'*, having lugs U u U' projecting laterally, and in the plane of vibration, substantially as herein described, and for the purpose set forth.

2. The perforated plate G J, provided with an arm-rest, H, and a suspension-ring, I, as and for the purpose stated.

192,818. COMBINED CLOVER-HULLING AND THRASHING MACHINE. David Lippy, Mansfield, and E. S. Stocking, Cleveland, Ohio. [Filed June 13, 1876.]

Brief.—Provides the cylinder with reversible bars, each having teeth upon both faces, the one set adapted to clover-hulling, the other to thrashing grain. Reverses cylinder for the different kinds of work, and adapts the carrier for overshot or undershot work. Attaches a belt-tightening device to the grain-carrier belt.



1. A thrashing-cylinder provided with reversible cross-bars, having teeth secured to opposite sides of the bars, substantially as and for the purpose set forth.

2. The combination, with a thrashing-cylinder provided with independently-reversible cross-bars, having teeth on opposite sides of an interchangeable concave for operating upon grain or clover, substantially as and for the purpose set forth.

3. The cylinder B, provided with reversible bars or shafts *b*, having teeth upon one side for operating upon clover, and teeth upon the other for operating upon grain, substantially as and for the purpose described.

4. The combination of a clamped fender-plate and the reversible cylinder of a thrashing or hulling machine, substantially as and for the purpose described.

5. The combination of the adjustable fender-plate E, the adjustable feeding-board D, and the reversible cylinder B, substantially as and for the purpose described.

6. The combination of adjustable feeders or rubbers with a thrashing-cylinder provided with reversible toothed bars, substantially as and for the purpose set forth.

7. In a thrashing and hulling machine, the combination of rubbers or feeders F F', moving journals *f*, and rack and pinion *f'*, substantially as and for the purpose described.

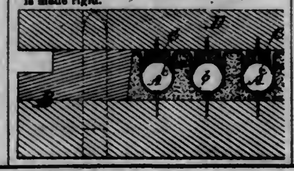
8. The combination, with a reversible thrashing-cylinder, provided with reversible toothed bars, of a vertically-adjustable endless apron, to receive the material from the top or bottom of the thrashing-cylinder, substantially as and for the purpose set forth.

9. The combination, with a reversible thrashing-cylinder, provided with reversible toothed bars, of the adjustable apron H, and windlass H', substantially as and for the purpose set forth.

10. In a thrashing and hulling machine, the combination, with the endless apron I, of the agitators I' I', located, respectively, beneath the upper and lower leaves of said apron, substantially as and for the purpose described.

192,819. CIGAR-MOLDS. Fredric C. Miller, Cincinnati, Ohio. [Filed July 25, 1876.]

Brief.—The lower block of the mold has a rigid sheathing of tin, and the faces of the upper mold are of tin, so that the whole mold is made rigid.



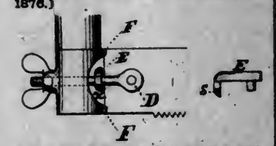
192,820. SPOKESHAVES. Geo. D. Mosher, New Britain, Conn. [Filed Aug. 24, 1876.]

Brief.—The knife is held in place and vertically adjustable by means of a clamp having a loop upon its rear part and an inclined standard upon the body of the shave, between which the knife is fastened by a set-screw passing through the upper part of the clamp.



The combination of the knife *b*, the clamp *c*, having the loop *c'*, and the standard *d*, all substantially as described, and for the purpose set forth.

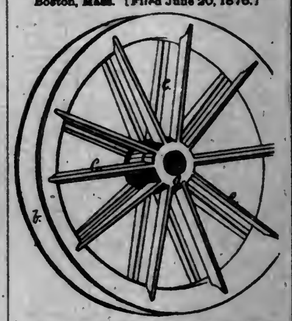
192,821. CROSSCUT-SAW HANDLES. John Nutmeyer, Trenton, Ohio. [Filed Feb. 17, 1876.]



1. The jaw E, provided with collar S and pin T, in combination with the eyebolt D, substantially as and for the purpose described.

2. The combination of the laterally-bent eyebolt D, jaw E, and projections F, for securing the saw-blade centrally, substantially as described.

192,822. BLOCK-SHEAVES. J. W. Norcross, Boston, Mass. [Filed June 20, 1876.]

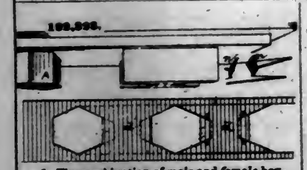


1. As a new article of manufacture, a block-sheave, in which the concave rim is connected with the hub by two sets of spokes inclined inward, and set one opposite the other, substantially as and for the purpose described.

2. The combination, with the hub *a* and concave rim *b*, of the spokes *c c*, extending from the outer edge of the hub, and inclining inward, connecting with the sides of the concave rim, leaving the central portion of the concave rim unsupported, and arranged so as to have the spokes placed opposite one to another, substantially as and for the purpose set forth.

192,823. DIES FOR CUTTING BARBS FOR WIRE FENCES. Jas. B. Oliver, Leet Township, (Pittsburg P. O.,) Allegheny County, Pa. [Filed Aug. 18, 1876.]

192,293.



1. The combination of male and female hexagonal and H shaped male and female dies, with shearing-edges, substantially as and for the purposes set forth.

2. A barb-blank having four prongs and two intermediate turned-up lips, substantially as set forth, with reference to Fig. 5.

192,294. COOPERS' CROZES. Charles Olmstead, East Bloomfield, N. Y., assignor to himself and E. S. Kellogg, same place. [Filed Mar. 6, 1876.]

Brief.—A series of V-shaped rollers are mounted in the face of the stock for guiding the setter.



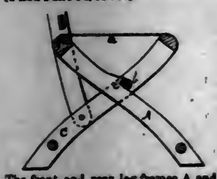
A crozing-tool having roller-guides A, in combination with cutter C, substantially as specified.

192,295. ANIMAL-POKER. J. Q. A. Oliver and E. H. Phillips, York Township, (Mallet Creek P. O.,) Medina County, Ohio. [Filed Mar. 13, 1876.]



The spring D, constructed as described, in combination with the spur-head B and spur-plate C, substantially in the manner and for the purpose set forth.

192,296. FOLDING CHAIRS. Geo. C. Paine, Boston, Mass., assignor of one-half of his right to Eugene H. Mahoney, same place. [Filed June 14, 1876.]



The front and rear leg-frames A and C, in combination with the back B and stretcher A, and with or without the projection e, and all constructed and operating in the manner and for the purpose as shown and described.

192,297. HOLDBACK ATTACHMENTS. Chamberlayne Phelps, Rensselaer Falls, N. Y. [Filed July 26, 1876.]



1. A holdback attachment for carriages consisting of a wedge-shaped plate, in combination with a collar adjusted to slide on the plate, substantially as and for the purposes described.

2. In a holdback attachment for carriages having plates A and collars D D', the diagonal bearings d d' for the holdback-straps, substantially as described.

3. The holdback attachments for carriages consisting of plates A, having concave bearings b b' and loops c, in combination with the wedge-shaped collars D D', having left and right diagonal strap-bearings d d', substantially as described.

192,298. APPARATUS FOR SELECTING SHOT. Robert Poole, Baltimore, Md., assignor to Poole & Hunt, same place. [Filed Aug. 7, 1876.]

Brief.—Hopper and shelves pivoted to side pieces. Each shelf has an extension side, to vary the width between the shelves. The side of the hopper may be vertically adjustable to regulate the width of its outlet.



1. A shot-distributing hopper, constructed substantially as hereinbefore set forth, with an inclined slotted bottom, and a rotating spreader-shaft, which acts on the shot on their way to escape, and distributes them uniformly to the slot.

2. The combination, substantially as hereinbefore set forth, of the slotted hopper, the spreading-shaft, and the spreading-strip.

3. The combination, substantially as hereinbefore set forth, of the hopper, the scattering-cone, and the spreader shaft.

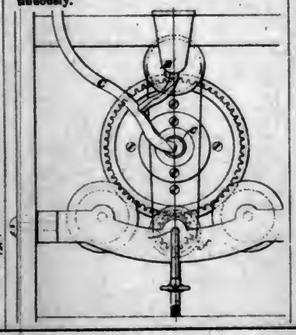
4. The series of shot-separating shelves, constructed substantially as described, each independent of the others, and having their upper edges provided with a sliding section, adjustable by set-screws, for the purpose specified.

5. The combination, substantially as hereinbefore set forth, of the series of shelves, their side bars, the pivoted arms supporting the shelves, and the adjusting-screws.

6. The shot-selecting apparatus hereinbefore set forth, consisting of a series of step-like shelves, independently adjustable both as to width and inclination, and the adjustable pivoted hopper for supplying shot to the first of the series of shelves.

192,299. SHOT-POLISHING MACHINES. Robt. Poole, Baltimore, Md., assignor to Poole & Hunt, same place. [Filed Aug. 7, 1876.]

Brief.—A tumbling-barrel, mounted on and rotated by friction-rollers, is provided at its front end with a supply-pipe, centrally connected by a ball-and-socket joint. Polishing-powder is supplied to the pipe from a hopper containing a feed-screw, and stirring-wires operated thereby. The powder is met by the shot in the supply-pipe from a branch pipe. The exit-pipe is centrally located in the opposite end of the barrel, so that the shot and powder are contained long enough to complete the polishing, and be discharged continuously.



1. The combination, substantially as hereinbefore set forth, of the hopper which contains the polishing material, the yielding comb or rake teeth therein, and the revolving feed-screw, whereby the packing of the polishing material is prevented and a regulated feed secured.

2. The combination, substantially as hereinbefore set forth, of the hopper for containing the polishing material, the comb or rake teeth therein, the feed-screw, the discharge-pipe for the polishing material, the shot-duct, and the tumbling-barrel, whereby the polishing material is fed in regulated quantities into the shot-duct, and thoroughly mingled with the shot before entering the tumbling-barrel.

3. The hereinbefore-described improvement in the art of polishing shot, which consists in feeding them continuously to the tumbling-barrel at one end thereof, together with the polishing material, polishing them by the uninterrupted rotation of the barrel, and the contact of the polishing material, and discharging them at the end of the barrel opposite to that at which they entered in a continuous stream, substantially in the manner and by the means set forth.

4. The combination, substantially as hereinbefore set forth, of the shot feed-tube, the tumbling-barrel, its discharge-pipe, and the adjustable supporting-frame, whereby the rate at which the shot flow through the barrel may be regulated.

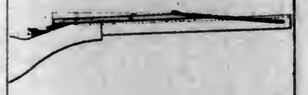
5. The combination, substantially as hereinbefore set forth, of the feed-tube, the tumbling-barrel, and a universal joint in the head of the barrel through which the tube passes, whereby the barrel may be freely rotated and adjusted relatively to the feed-tube.

6. The combination, substantially as hereinbefore set forth, of the tumbling-barrel, a series of slides at its discharge end, and the lever by which said slides are simultaneously opened and closed, whereby the contents of the tumbling-barrel may readily be discharged when it is desired to vary the size of the shot to be polished.

7. The tumbling-barrel, constructed substantially as described, having a feed-tube and a discharge-tube, connected with its opposite ends, concentric with its axis of rotation, and also provided with peripheral openings and adjustable slides near its discharge end, for the purposes specified.

192,300. ARROW-GUNS. Charles Robinson, Cambridgeport, Mass. [Filed Mar. 13, 1876.]

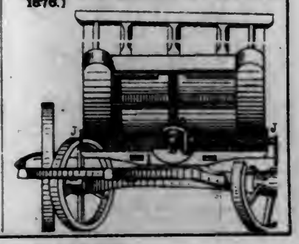
Brief.—The arrow is held in place by a rear pin, upon which a perforation in the stem of the arrow fits, and is dislodged therefrom by the lifting action of the trigger.



1. An arrow-gun, constructed with a catch or holder to automatically retain the arrow acting at or near its rear end, and with an impelling-cord arranged to act upon the arrow near its forward end, substantially as herein specified.

2. In combination with the foregoing claim, an arrow or missile shaft, C, provided with a means of automatically retaining it in the gun, and with a means of impelling it forward by a cord, substantially as and for the purpose herein specified.

192,301. DUMPING-WAGON JACKS. Wm. W. Sawyer, Boston, Mass. [Filed Feb. 26, 1876.]



The combination of the screw-spindle A, provided with the ball-and-socket joint B B', and operated by the crank F, extended rod E, and bevel-gear C D, all bearing a fixed relation to the truck, with the swiveling-nut G and car-body, when arranged and operated substantially as described.

192,302. CAR AND CARRIAGE STEPS. F. A. Sawyer, 2d, Boston, Mass. [Filed Apr. 17, 1876.]

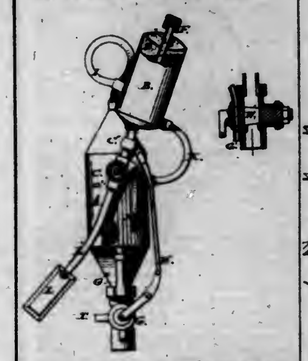


1. In a step plated with soft vulcanizable gum, the surface of open channels and isolated projections or ridges surrounding a depressed panel, upon which is molded resilient letters or other characters denoting ownership, when constructed and arranged substantially as and for the purpose described.

2. The above-described step consisting of a plating of soft vulcanizable gum, upon which is molded raised resilient letters or projections of a color contrasting with the base, substantially as and for the purpose described.

192,303. AUTOMATIC AIR-COMPRESSORS. William D. Seal, Washington, D. C., assignor to himself and W. T. Mellor, same place. [Filed July 24, 1876.]

Brief.—Water flows into the lower chamber and compresses the air in both chambers to the same pressure as at fountain-head. It then ceases to flow. As the air is exhausted at check-valve the water will rise in the lower chamber, thence through tube to upper chamber to near the top, when the weight will overbalance it, and as it strikes the rest it will operate the cock opening water-way and air-way, and shutting off the water-supply.



1. The combination of the air-compressing stationary chamber A, connected with the movable chamber B by means of tubes I and K, pipe S, journal-box C, airway in journal-box, and bolt O', combined and arranged substantially as set forth.

2. The combination of the stationary air-compressing chamber A, bolts O' O', and casing-pipes P P securing the parts, as and for the purpose specified.

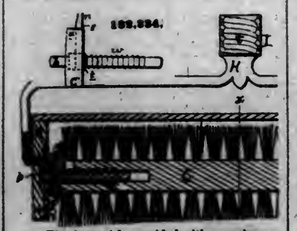
3. In combination with the air-compressing chambers A and B, the pipe S, journal-box C, airway and clamp-joint O', in connection with the rod H, arranged and operating substantially as set forth.

4. In combination with the air-compressing chambers A and B, the cock G, with an air-vent, G', waste-water way W, and inlet water-way T, and rod H, all arranged and operating as described and set forth.

5. In combination with cock G, having air-vent G' running parallel with waste-water way W, the air-pipe G'' connecting the cock with the lower part of chamber A, as and for the purpose set forth and described.

6. In connection with the air-compressing chamber B, the rubber collar F on projection of pipe S, arranged to operate as described.

192,304. CARPET-SWEEPERS. R. W. Smith, Boston, Mass. [Filed June 16, 1876.]



1. The journal b, provided with an enlargement, f, in combination with the spring w, arm a, and cap C', having a slotted flange, t, the whole constituting an attachment for application to the shaft C of a carpet-sweeper, as set forth.

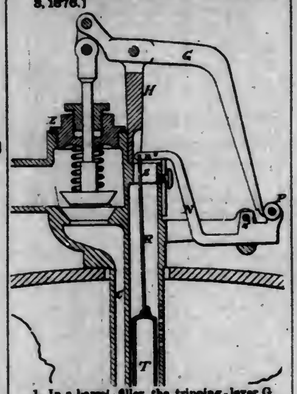
2. The combination, in a sweeper, of the bail H, having a socket and threaded enlargement, l, and handle fitted to the socket in said enlargement, substantially as specified.

3. The plates F, having beveled edges, and adjustable in dovetailed recesses, substantially as set forth.

192,305. ARTIFICIAL MARBLES. James H. Smith and Jas. H. Douglass, Port Huron, Mich. [Filed Aug. 10, 1876.]

An artificial marble made of Keene's cement, plaster-of-paris, fish-glue, isinglass, gum-shellac, asbestos, gum-arabic, and wax mineral colors, prepared and molded in the manner substantially as and for the purpose specified.

192,306. BARREL-FILLING MACHINES. Jas. S. Stewart, Philadelphia, Pa. [Filed June 3, 1876.]

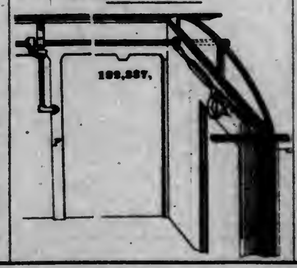


1. In a barrel-filler, the tripping-lever G, pivoted upon the arm H, and operating the valve-stem through the stuffing-box E, in combination with the trigger N, the link R, and float T, substantially as herein described.

2. In a barrel-filler, the trigger N, in combination with the wheel P, for the purpose of liberating the valve-arm, as described.

3. In a barrel-filler, the combination of the adjustable scale N', the trigger N, link R, and float T, substantially as described.

192,307.



192,307. MECHANICAL MOVEMENTS. H. B. Towle, Roselle, N. J., and John B. Benton, Yonkers, N. Y.; said Benton assignor to said Towle. [Filed Aug. 28, 1876.]

1. The combination of an actuating rod, two cranks, or one double crank, and a slotted bar or lever, operating substantially as described, to transmit motion at will in either of two directions, for the purposes set forth.

2. The combination of two actuating rods, connected by bevel-geared sectors, one of which sectors is provided with a long cog-tooth, or teeth, to serve as a stop or stops, to prevent excessive motion of the gears, substantially as shown and described.

3. The T-formed slotted lever, and the cranked actuating rod, in combination with the intermediate adjustable parts connecting the crank and slotted lever, substantially as described and shown.

4. Two rods, each having two sets of connection to the two separate objects to be acted upon, with suitable means for actuating said rods in such a manner that the operator may actuate or operate either, and but one of said objects at a time, by exercising force upon either of said rods, in either direction, substantially as set forth.

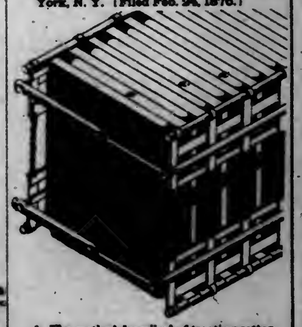
5. In a car provided with a system of horizontal rods or other connections, working a registering-machine fixed in said car, the combination, with said horizontal connections, of a vertical rod by which the horizontal connections may be worked by means of a suitable wrench or lever, substantially as described.

192,308. BEE-HIVES. Rufus P. Walthall, Booneville, Miss. [Filed Apr. 8, 1876.]



The herein-described bee-hive, consisting of the lower apartment B, partition F, dividing the apartment into open and close brood-chambers, which are provided with frames E, combined with the removable box G, having detachable top H, said box having swinging frames I pivoted thereto, all constructed and arranged substantially as and for the purpose set forth.

192,309. METHODS AND MEANS OF TREATING COTTON-BALES FOR AND DURING COMPRESSION. Frederick G. Wheeler, New York, N. Y. [Filed Feb. 24, 1876.]



1. The method described of treating cotton-bales before and during compression, consisting, essentially, in applying the bands to the bale before it enters the press, and holding them before and during the time of compression by means of independent frames, substantially as described.

2. In combination with a bale and securing-bands laid upon the same, an independent removable frame for holding the bands in place, as described.

3. A frame adapted for adjustment to suit bales of different width, substantially as described.

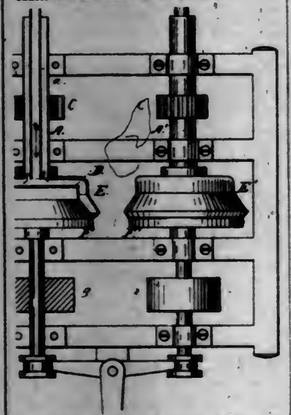
4. A frame provided with side plates or bars, hinged thereto, as described.

5. An independent frame having side pieces adapted to hold the bale against lateral expansion, as described.

6. A frame having flanged sides and locking-bars, as described.

192,840. FRICTION FEED-CLUTCHES FOR CIRCULAR-SAW MILLS. J. W. Zimmerman, Manistee, Mich. [Filed June 17, 1876.]

Brief.—Two shafts revolving in opposite directions, and capable of being alternately connected with a saw-mill carriage to drive it forward or backward, are connected by a friction-clutch formed of a conical overhanging friction-pulley mounted on the end of a sliding shaft, and an overhanging chambered concave friction-pulley mounted on the end of a hollow shaft. The pulleys are thrown in and out of gear by a double bell-crank lever and grooved pulleys upon the outer ends of the sliding shafts. The pulleys are kept cool by cool water flowing through tubes in the hollow shafts into the chambers of the same.

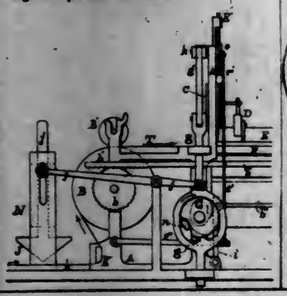


1. The chamber D in the friction-pulley B, in combination with the hollow shaft A and cold-water pipe I, substantially as and for the purposes set forth.

2. The combination of the conical overhanging friction-pulley F, the overhanging chambered concave friction-pulley E, tubular shaft A, and water-pipe I, substantially as and for the purposes described.

192,841. PAPER-BAG MACHINES. Frank Anderson, Peekskill, N. Y. [Filed Feb. 7, 1876.]

Brief.—As the strip passes into the machine a notch is cut in the margin. A blank is then severed and folded transversely, when the edges are pasted and folded.



1. The troughs J, arranged in one or more series above a reciprocating bolt, A, substantially as herein shown and described.

2. The combination of the adjustable frame H, the troughs J, one or more series, the inclined gather-boards W, the openings S, slides U, spout T, and exhaust-fan V, with each other and with the reciprocating bolt A and box B, substantially as herein shown and described.

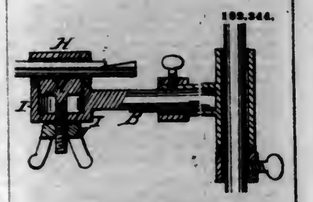
192,842. PLATE-LIFTERS. M. G. Barbour, Portland, Me. [Filed June 19, 1876.]



The herein-described plate-lifter consisting of a round pointed blade, having the corrugations C and the lune-shaped border E, to which is attached the handle A B.

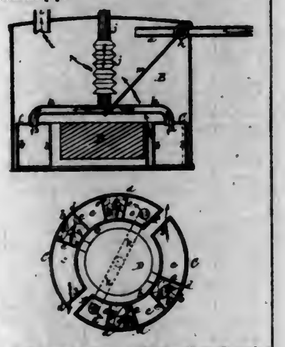
192,843. TOOL-HOLDERS. C. C. Bergh, St. Paul, Minn. [Filed July 1, 1876.]

A tool-holder, consisting of an extension-rod, A B, and a clamping-chuck, H I J, mounted on a vertical pivot, E, substantially as specified.



192,844. CARBURETORS. Dana Bickford, New York, N. Y. [Filed Nov. 18, 1876.]

Brief.—The carbureting-chamber is annular, and has radial perforated partitions, between which sponge is packed. A float is secured within the annular carbureting-chamber, so that the whole rests upon the surface of the oil. A rod extends from the float to a cock in the oil-supply pipe, and the rise and fall of the float thus regulates the supply of oil. Air enters the top of the floating carburetor by a flexible pipe.



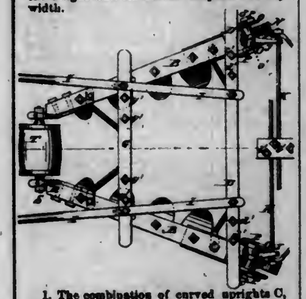
1. In combination with the float D and chamber B, the saturator C, as shown in Figs. 2, 5, and 7, having outside walls *b b*, sponge chambers and passages *c*, radial walls *d*, and branch pipes *k*, all constructed and arranged substantially as shown and described.

2. In combination with the carburetor supply-pipe, the supply-cock *k*, operated by a floating saturator, C, having outside walls *b b*, sponge chamber and passage *c*, radial walls *d*, and branch pipes *k*, all constructed and arranged substantially as shown and described.

3. In combination with the floating saturator C, having outside walls *b b*, sponge chamber and passage *c*, radial walls *d*, and branch pipes *k*, all constructed substantially as shown and described, the flexible inlet-pipe *j*, constructed substantially as and for the purpose set forth.

192,845. CARD-WINDERS. Horace C. Briggs, West Auburn, Me. [Filed June 26, 1876.]

Brief.—The frame adjustable in width, and the tongue and its braces adaptable to any width.



1. The combination of curved uprights C, having perforated flanges *c'*, the bent posts F, braces H, cross-bars D G, and plow-beams B, provided with notched brackets R, substantially as herein shown and described.

2. The curved uprights C, with perforated flanges *c'* rigidly secured to the front ends of plow-beams B, and adjustably secured to cross-bar D, in combination with the hooks J and tongue I, as and for the purpose specified.

192,846. CAR-REPLACERS. H. G. Brooks, Greenville, S. C. [Filed Feb. 26, 1876.]

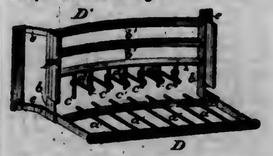
1. A car-replacer made of an inclined wheel-guiding main part, that tapers gradually from the lower wider end to the upper higher end, in connection with rail-binding end wings and a wheel-guiding key at the higher end of the main part, substantially in the manner and for the purpose set forth.

2. The key-sockets *c*, extending at a small angle of inclination toward the axis of the replacer from the curved end part of the guard-flange *d'* to such distance from the wing that the key carries the flange of the wheel toward the rail and allows the same to drop readily between key and rail, substantially in the manner described.

3. The combination of the key having rear recess with the re-enforcing heel of the sockets, to prevent pushing out of key, as set forth.

192,849. OPEN FIRE-PLACE GRATES. Thos. Brown, Cincinnati, Ohio. [Filed July 14, 1876.]

Brief.—The grate allows the air to circulate freely around and through it.



1. In an open fire-place grate, the combination of the horizontal frame D and the front vertical frame D', set backward bodily into the fire-place from the face of the jamb, and supported from the said jamb, substantially as described and shown.

1. The combination of the driving-wheels W W, pinion P, and brush-roller B B, having its bearings near the center, substantially as and for the purpose described.

2. The brush-roller B B, having central bearings only, in combination with the adjustable bearings E E, and set-screw X, for the purpose specified.

3. In a carpet-sweeper, the brush-roller B B, having central bearings, with no end bearings, for the purpose described.

4. The brush or tufts H H, in combination with the frame F F, as described.

5. In combination with the brush-shaft of a carpet-sweeper, having its bearings at the center of said shaft, the bearing-block E E, as and for the purpose set forth.

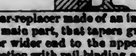
192,847. CULTIVATORS. Horace C. Briggs, West Auburn, Me. [Filed June 26, 1876.]

Brief.—The frame adjustable in width, and the tongue and its braces adaptable to any width.

1. The combination of curved uprights C, having perforated flanges *c'*, the bent posts F, braces H, cross-bars D G, and plow-beams B, provided with notched brackets R, substantially as herein shown and described.

2. The curved uprights C, with perforated flanges *c'* rigidly secured to the front ends of plow-beams B, and adjustably secured to cross-bar D, in combination with the hooks J and tongue I, as and for the purpose specified.

192,848. CAR-REPLACERS. H. G. Brooks, Greenville, S. C. [Filed Feb. 26, 1876.]

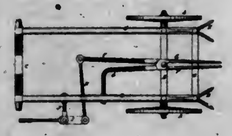


1. A car-replacer made of an inclined wheel-guiding main part, that tapers gradually from the lower wider end to the upper higher end, in connection with rail-binding end wings and a wheel-guiding key at the higher end of the main part, substantially in the manner and for the purpose set forth.

2. The key-sockets *c*, extending at a small angle of inclination toward the axis of the replacer from the curved end part of the guard-flange *d'* to such distance from the wing that the key carries the flange of the wheel toward the rail and allows the same to drop readily between key and rail, substantially in the manner described.

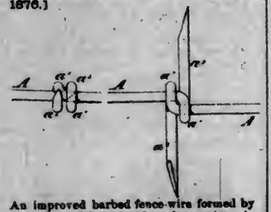
3. The combination of the key having rear recess with the re-enforcing heel of the sockets, to prevent pushing out of key, as set forth.

192,850. STALK-PULLERS. R. D. Brown, Austin, Tex. [Filed Apr. 18, 1876.]



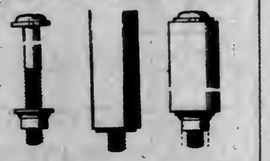
A stalk-puller formed of the wheels and axle A B, the frame C, the jaws F G, the connecting-rod H, and the lever I, constructed and operating in connection with each other, substantially as herein shown and described.

192,851. BARBED FENCE-WIRES. Rollin G. Brown, De Witt, Iowa. [Filed Aug. 14, 1876.]



An improved barbed fence-wire formed by interlocking with each other the sections A, having loops *a'* and barbs *a''* formed upon their ends, substantially as herein shown and described.

192,852. GUN-CLEANERS. Bern L. Budd, Fairfield, Conn. [Filed Sept. 2, 1876.]



1. A prepared swab of felt, constructed substantially as described, and adapted for use in a gun-cleaner.

2. In a gun-cleaner, a pin provided at one end with a slotted head perforated to receive a cord, and at the other with a removable adjusting and holding nut, substantially as and for the purpose described.

3. The combination of the cylinder or washer, of prepared felt, with the pin headed and slotted at one end, and at the other carrying the holding and adjusting nut, and adapted to screw into the ordinary cleaning-rod, substantially as and for the purpose described.

4. A gun-cleaner consisting of a cylinder of prepared felt mounted upon a metal shank, adapted for attachment to a string or cleaning-rod, and provided with a suitable clamping device, substantially as set forth.

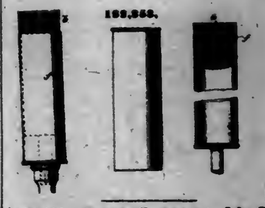
192,853. IMPLEMENTS FOR CLEANING CARTRIDGE-SHELLS. Bern L. Budd, Fairfield, Conn. [Filed Sept. 2, 1876.]

1. The brush *b*, in combination with the sheath *f*, substantially as described, and for the purposes set forth.

2. A cartridge-shell cleaner, consisting of a brush provided with a device which may be projected to clamp the bristles for introduction into the shell, and then withdrawn to allow them to be spread for use.

192,854. CARPET-FASTENERS. John H. Campbell, New York, N. Y. [Filed June 12, 1876.]

Brief.—The usual bent spring metal clamp used to secure the edges of the carpet is removably attached to the floor by a key-hole slot, which passes over a nail-head and locks upon it.



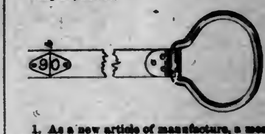
A carpet-fastener provided with key-hole *a*, by which it may be fastened or unfastened with a headed pin, *b*, in the manner and for the purpose specified.

192,855. BELLOWS-VALVES. J. Campbell, San Francisco, Cal. [Filed Feb. 10, 1876.]



A valve for the tuyeres and pipes of blacksmiths' bellows, composed of the block B, having its front face inclined in one direction and convex in a transverse direction, in combination with the hinged valve C, substantially as and for the purpose described.

192,856. MEASURING-CHAINS. William Chesterman, Sheffield, England. [Filed July 14, 1876.]



1. As a new article of manufacture, a measuring tape or band of metal, having its divisions and subdivisions marked or indicated by metal studs or rivets passing through the same to render the markings more conspicuous, all substantially as and for the purposes herein set forth.

2. The combination, with the metal tape or band and rivets, as set forth, of the numbered plates *b b*, riveted to the band to mark the principal divisions thereof, substantially as specified.

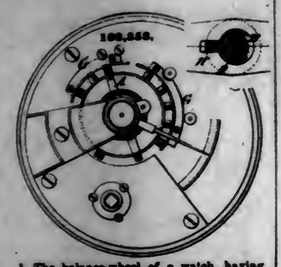
192,857. BOTTLE-STOPPERS. Jason Clark, Allegheny, Pa., assignor to Angelina K. Clark. [Filed May 5, 1876.]



1. In combination with a bottle-stopper of the class specified, and the ball for securing the same, the curved or convex spring-plate, to which the stopper is secured, substantially as and for the purpose specified.

2. In combination with a bottle-stopper, the curved spring-plate C, having the loop and leg *c c'* and the double-looped wire, forming both pintle and catch, substantially as and for the purpose specified.

192,858. WATCH-BALANCES. A. F. Curpen, Plymouth, Ohio. [Filed June 20, 1876.]



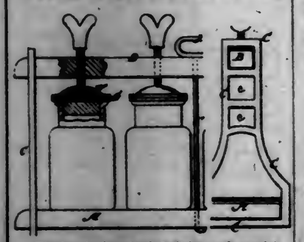
182,858.

1. The balance-wheel of a watch, having freedom in its hole for the staff, and being connected to it between friction-collars, which allow it to shift laterally by the shocks of the watch when it falls on its edge, substantially as specified.

2. The balance-wheel of a watch, connected to the staff by collars, which are attached by friction, to allow the wheel to shift along to, and be stopped by, the bridges or the top plate when the watch falls flat or sidewise, substantially as specified.

3. The combination of plates G with the balance-wheel of a watch, having freedom in its hole for the staff, and being connected to it between friction-collars, which allow it to shift laterally by the shocks of the watch when it falls on the edge, substantially as specified.

182,859. FRUIT-JAR RACKS. S. D. Dills, Lawrenceville, Ill. [Filed July 22, 1876.]



The herein-described fruit-jar rack consisting of the bars A B and frames C C, the latter being provided with openings C to allow the top to be secured at a greater or less elevation above the bottom, for the purpose specified.

182,860. WATCH-CASE SPRINGS. Numa J. Feltz, New York, N. Y. [Filed Aug. 28, 1876.]



The combination, with a sliding and adjustable watch-case spring, of a bearing or bridge piece, that is secured to the case and fitted by downward-extending perforated end posts or lugs to the seat of the case, substantially in the manner and for the purpose specified.

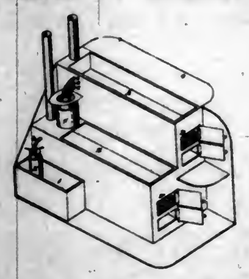
182,861. FURNITURE-CASTERS. Benjamin H. Flanders, Brooklyn, N. Y. [Filed Aug. 7, 1876.]

Brief.—An interposed cup or lining of glass within the metal socket, covering the entire space, and furnishing a uniform anti-friction bearing for the ball of the caster.



A caster-socket provided with an anti-frictional bearing of glass extended from the upper point of greatest pressure, and around the upper half of the ball to avoid friction with the metallic shell, as shown and described.

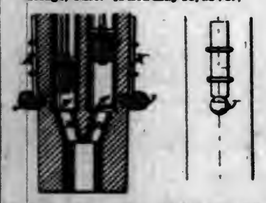
182,862. PROCESSES AND APPARATUS FOR REFINING AND PACKING SULPHUR. Edwin J. Fraser, San Francisco, Cal. [Filed May 16, 1876.]



1. In a sulphur-refining apparatus the upper tank A, having furnace B, and lower tank E, having furnace F, in combination with pipes *c c c*, textile strainer D, having protecting-cylinder N, and tube K, tank I, and cylinder J, all constructed, arranged in relation to each other, and operated as set forth.

2. The process of packing sulphur, the same consisting in running the fused sulphur into casks which have previously been saturated or immersed in water, substantially as above described.

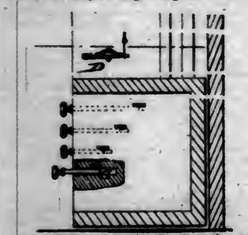
182,863. PUMPS. David N. Green, Rockbridge, Ohio. [Filed May 16, 1876.]



The detachable plugs J, held over lateral apertures in pump stock by sliding keys, as shown and described.

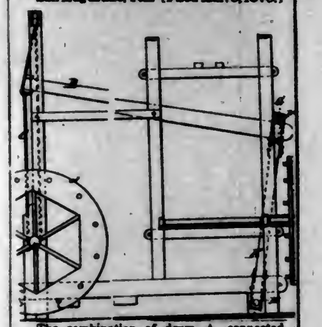
182,864. SIGNAL ATTACHMENTS FOR ELEVATORS. Charles Hoffman, New York, N. Y. [Filed May 16, 1876.]

Brief.—The combination of pulls and lever mechanisms of the dumb waiter or elevator, with signaling devices arranged at the different stories of the building, the lever mechanisms and signaling devices being so arranged that each lever operates only the signal of the story corresponding therewith.



As an improvement in elevators, the combination of pulls and lever mechanisms of the dumb waiter, with signaling devices arranged at the different stories of the building, the lever mechanisms and signaling devices being so arranged that each lever operates only the signal of the story corresponding therewith, substantially as and for the purpose set forth.

182,865. COTTON-PRESSES. Wm. H. Hore, San Augustine, Tex. [Filed Mar. 6, 1876.]



The combination of drum A, connected with lever B by rope, and provided with two master-wheels, of the pitman E, connected with lever B by a pin, G, and stirrups G H, as and for the purpose specified.

182,866. COMBINED GARDEN-IMPLEMENT. John M. Jones, Palmyra, N. Y. [Filed Dec. 31, 1875.]

Brief.—An agricultural implement with a transplaster at right angles with its handle, and projections for the purpose of attaching other implements.



1. In combination with the weeding and transplanting blades C C', their handles B B', extending therefrom at right angles, or nearly so, and provided with projections for receiving trimming-cutters *c c* and trowel D, the parts being constructed and arranged substantially as shown, and for the purposes set forth.

2. The handles B B', pivoted together, and provided with projections at right angles thereto for receiving transplanting-blades C C' and trimming-cutters *c c*, substantially as and for the purposes set forth.

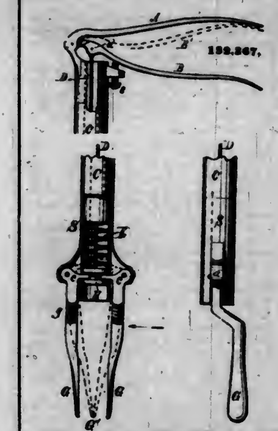
182,867. WEEDING AND TRANSPLANTING IMPLEMENT. John M. Jones, Palmyra, N. Y. [Filed Nov. 1, 1875.]

Brief.—A hollow staff has at its upper end one fixed handle at nearly right angles, and immediately below it a pivoted handle. To this latter is pivoted a rod that passes down through the hollow of the staff, and at its lower end connects with the short arms of a pair of jaws that are held apart by a spring. By compressing the handles the jaws are forcibly closed, and can thus be used for pulling weeds or transplanting small plants.

1. In combination with the grooved or hollow staff C, and fixed handle A, projecting therefrom at right angles, or nearly so, the hinged lever B, rod D, and blades G, as and for the purposes shown and described.

2. In combination with the spring E and head H, the rod D, staff C, handle A, and lever B, arranged to operate conjointly, substantially as and for the purposes set forth.

3. In combination with the curveted staff C and grooved head H, the hinged blade or blades G, as and for the purposes set forth.

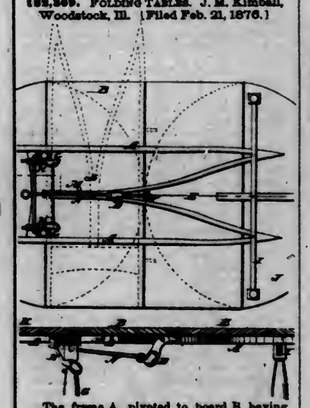


182,867.

182,868. PROCESSES FOR FINISHING BUCK-SKINS. James Kent, Gloversville, N. Y. [Filed Mar. 25, 1876.]

The within-described process for treating tanned skins, consisting of first applying the soap-and-water solution, or its described equivalent, as set forth, then sprinkling and brushing them with plaster-of-paris, sand, and pulverized pumice-stone, each or all as described, and, lastly, submitting them to the action of a buffing-wheel, or its described equivalent, substantially as and for the purpose set forth.

182,869. FOLDING TABLES. J. M. Kimball, Woodstock, Ill. [Filed Feb. 21, 1876.]



The frame A, pivoted to board B, having legs C and weighted latch D hinged to it, and combined with boards J E and bar I, and also with board K, substantially as specified.

182,870. SPARK-ARRESTERS FOR STOVE-PIPES. Horace W. King, Richmond, Mo. [Filed July 1, 1876.]

Brief.—A medicating substance may be placed in the vessels.

1. The combination with smoke-pipe A, having holes C G, of the boiler B, and the jacket D having holes E, in order that sparks may be extinguished in the manner described.

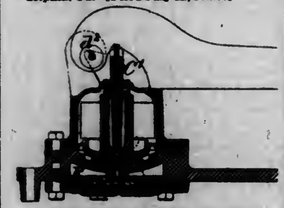
2. The combination, with smoke-pipe and boiler, of the vessels H, extending down into the boiler, substantially as and for the purpose specified.

182,871. PROCESSES OF ELIMINATING PHOSPHORUS FROM IRON. J. B. Kimbal, Catoctin Furnaces, Md. [Filed Aug. 7, 1876.]

1. The process, herein described, of eliminating phosphorus from iron, the same consisting in reducing the oxide of iron to the metallic state in presence of dolomite, substantially as described.

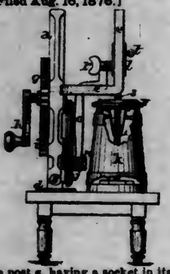
2. The process, herein described, of purifying metallic iron and eliminating phosphorus therefrom, the same consisting in treating the molten metal with dolomite, substantially as described.

182,872. DAMPER-REGULATORS FOR STEAM-BOILERS. William Barnet Le Van, Philadelphia, Pa. [Filed July 12, 1876.]



The combination, in a damper-regulator, of a flexible diaphragm, a subjacent water-chamber, a steam-supply pipe connected to the water-chamber at or near its top, and a water-pipe leading from the diaphragm to a point in the water-chamber below the opening of the steam-supply pipe, substantially as set forth.

182,873. CHURNS. Richd. P. Liston, Selma, Ill. [Filed Aug. 16, 1876.]



1. The post *a*, having a socket in its end to receive the tenon *e* on the spider *d*, in combination with the bolt *b*, as set forth.

2. The combination of the post *a* and detachable two-armed guide or support *c*, constructed as shown and described.

3. The combination of the cover *r*, rods or plates *s*, and ring L, with the dash-rod *s*, substantially as shown.

182,874. HAND-CULTIVATORS. James S. Lucas, Bowling Green, Ky. [Filed July 11, 1876.]

Brief.—With the cultivator-teeth are arranged cutting-knives, to pass near the rows and cover vines or runners with a drawing stroke.

The combination of the spreading wings A, cultivator-teeth C, cutting or pruning knives D, and handle B, all constructed and relatively arranged as herein shown, for the purpose set forth.

182,875. PLUG-TOBACCO. Geo. H. Lyford, Brooklyn, N. Y. [Filed May 27, 1876.]



A plug of tobacco in which a wooden label is embedded before putting on the last wrapper, the latter being cut over the label for a branding-space, as shown and described.

182,876. VALVE-COUPLINGS FOR VACUUM-PIPES. Daniel W. Magee, New York, N. Y. [Filed Mar. 23, 1876.]

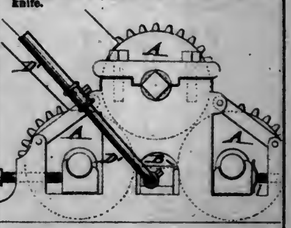
Brief.—When the coupling is joined, the levers hold the valves off their seats.



A coupling for the pipes of vacuum-brakes consisting of male and female pipes A B, having valves C C in the same, the said valves being forced away from their seats by pivoted levers G G, all arranged substantially in the manner and for the purpose herein described and set forth.

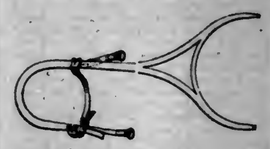
182,877. SUGAR-MILLS. Jas. Mallon, Baton Rouge, La. [Filed May 9, 1876.]

Brief.—Introduces steam to the cane through a perforated pipe through perforations in the knife.



The combination, in a sugar-mill, with crushing-rolls A, of the steam-pipe and cane-knife, both perforated and arranged substantially as and for the purpose specified.

182,878. OPEN SIDE THILLS. C. H. Matthiessen, Odell, Ill. [Filed May 27, 1876.]



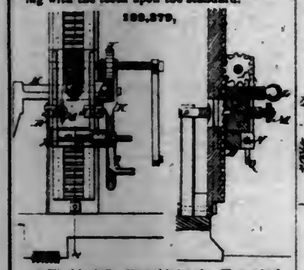
A thill, hook-shaped in front, and having in the rear a bifurcation re-enforced with an intermediate brace, all in one piece, as shown and described.

182,879. SAW-MILL DOGS. A. Mapham, Fayette, Ohio. [Filed July 11, 1876.]

Brief.—A longitudinally-adjustable log-dog is mounted in a block vertically-adjustable upon a toothed standard by a cranked pinion attached to a shaft provided with a ratchet-wheel and pawl-lever for pressing the dog into the log when great force is required; and a longitudinally-adjustable plank-dog is mounted in a block vertically-adjustable in relation to the log-dog by vertical bars passing through and fastened by set-screws in studs upon the log-dog block. The log-dog

is secured in position by a spring stop-pin, and the log-dog block is prevented from falling when not in use by a spring stop-pin engaging with the teeth upon the standard.

No. 189,879.

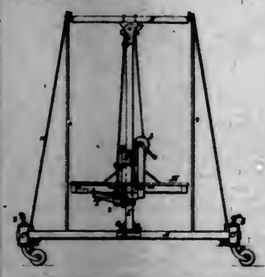


1. The block C, adjustable log-dog H, cranked pinion I, ratchet-lever K, ratchet-wheel J, and toothed standard A, combined and arranged substantially as specified.

2. The block P, adjustable plank-dog N, and bars O P, combined with the block C and standard A, substantially as specified.

189,880. PORTABLE ELEVATORS. Andrew Miller, Guntersville, Ala. [Filed Aug. 4, 1876.]

Brief.—The center-pole, on which the platform travels, is secured at its lower end to a frame, and to the top a cross-bar is secured to which brace-rods and guy-ropes are attached. A pulley is located in the upper end of the center-pole, over which the hoisting-rope passes from its fastening to a hoisting-drum. A clutch is so arranged that should the hoisting-rope break it will engage with the side of the center-pole and stop the descent of the platform.



1. The combination, in an elevator, of the parallel beams A A, center platform B, side pieces C C, with hook-bolts *a a*, and the removable centers D D, substantially as and for the purposes herein set forth.

2. The combination of the side piece *c*, stirrup E, timber G, and guy-ropes *d*, substantially as and for the purposes herein set forth.

3. The combination of the platform B, stirrup H, standard I, bolt *e*, and wedge *f*, substantially as herein set forth.

4. The combination of the standard I, pulley-frame J, cross-head K, and rods (*i*, substantially as herein set forth.

5. The combination of the hoisting-rope *n*, sliding bolt P, with spring *v*, the arm V, and safety-catch lever T, with the platform and the standard, substantially as and for the purposes herein set forth.

6. The combination, with the standard I and cam L, of the swinging loops *s*, clasp or stirrup S, bolt *t*, and safety-catch lever T, substantially as herein set forth.

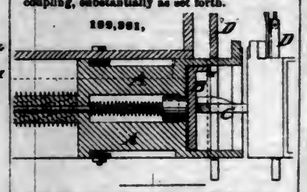
189,881. CAR-COUPLINGS. Alvin K. Mott, Atlantic, Iowa. [Filed Aug. 21, 1876.]

1. The combination of the draw-head A, having side guide-grooves, sliding and spring acted block or follower B, forked lock-piece D, and arrow-headed link C, substantially in the manner and for the purpose set forth.

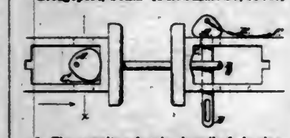
2. The combination of the sliding and spring-acted follower-block B, provided with top flange *a*, with the vertically-sliding fork-piece D, being recessed at the lower ends to admit forward motion of top flange when fork-piece is raised, so as to support the same in raised position, substantially as specified.

3. The combination of the sliding and spring acted follower-block with the arrow-headed link and the projecting sides of the forked lock-piece, to sustain link at any height for coupling, substantially as set forth.

No. 189,881.



189,882. CAR-COUPLINGS. J. H. Parmelee, Bridgeport, Conn. [Filed Mar. 20, 1876.]

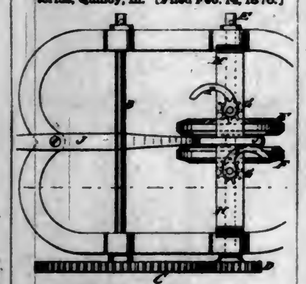


1. The coupling herein described, having the head A and link portion B, substantially as and for the purposes herein set forth.

2. The combination of the coupling, having head A and link B, with the draw-head provided with the concave interior bearings C, for the purposes herein set forth.

3. The combination of the coupling above described with the spring F in the fastening-chain E, substantially as and for the purposes herein set forth.

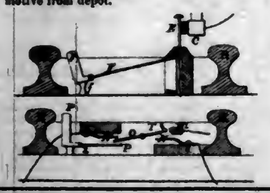
189,883. MOWING-MACHINES. Frank Pasterina, Quincy, Ill. [Filed Feb. 14, 1876.]



The combination of the two cams I, the two pairs of gear-wheels G F, the shaft E, and the pair of gear-wheels D C, with the axle B of the drive-wheels, and with the oscillating lever J, that vibrates the sickle-bar, substantially as herein shown and described.

189,884. ELECTRO-MAGNETIC RAILROAD-SIGNALS. Theodore A. B. Putnam, New York, N. Y. [Filed July 31, 1875.]

Brief.—Devices for giving automatically a signal upon an advancing locomotive by a displaced switch or draw-bridge; for locking a switch in safety position by an advancing locomotive; for giving an alarm on locomotives when two are on same section; for signaling at road-crossings the approach of the locomotive, and for operating a signal on locomotive from depot.



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1. The combination of the arm J, drop K, arm V, and socket A, with the necessary parts to operate the same, as herein shown and described, for the purposes intended.

2. A rising and falling conductor, E, constructed as described, in combination with the necessary parts to operate the same, and the mechanical combinations operating in connection with the movement of the same, as herein described and set forth.

3. The combination of the brush C with the conductor E, for the purposes intended.

4. The combination of the upright W, rod X, catch *g*, arms Y and M, and wheel *p*, with the necessary parts to operate the same, as herein shown and described, for the purposes intended.

5. The combination of the rod O, conductor N, drop T, and lever P, with the necessary parts to operate the same, as herein shown and described, for the purposes intended.

189,885. DROPPERS FOR FERTILIZERS. Peter F. Randolph, Liberty Corner, N. J. [Filed Mar. 14, 1876.]

Brief.—Working through a cylinder, open at both ends, is a plunger having an upper and a lower valve adjustable for graduating the amount of seed to be sown. To the cylinder at the top is attached a flexible hopper for holding the seed.

1. The combination of a plunger or valve-stem, having an upper and lower valve and a barrel or cylinder open at both ends, with a hopper attached to one end of the barrel, as described.

2. In combination with the plunger, the upper and lower valves, and the means for adjusting them, substantially as described.

3. In combination with the plunger and cylinder, the conical valve, substantially as described.

4. In combination with the plunger, the rubber ball and stop-bar for arresting its movement, as described.

5. The combination of the bag and connecting-chute with the plunger and vibrating hopper.

6. In a dropper for fertilizers, the combination of a barrel or cylinder, open at both ends, a plunger provided with measuring-valves and a flexible hopper adapted to vibrate as described.

7. In a dropper for fertilizers, the combination of a barrel or cylinder open at both ends, a plunger provided with measuring-valves, and a stop to arrest the motion of the plunger, as described.

8. In a dropper for fertilizers, the combination of a fixed portion adapted to rest upon the earth, having a barrel or cylinder open at both ends, a vibrating plunger having measuring-valves, and a flexible hopper vibrating with the plunger, as described.

No. 189,885.



No. 189,886.

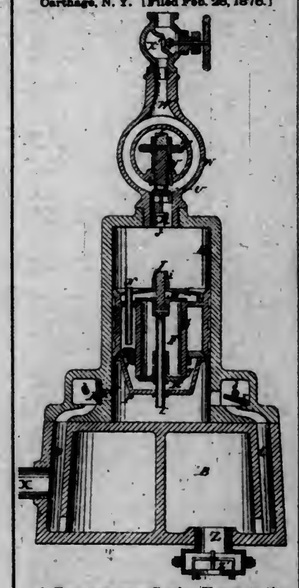


189,886. GAS-BURNERS. Charles Royle, New York, N. Y. [Filed Sept. 2, 1876.]

Brief.—The flow of gas is regulated by the rotation of the burner.

The cap B spun in to fit upon the neck and top of the base A, having holes formed in its upper part corresponding in number and position with the holes through the said base, and having its lower part spun outward to receive the cover C and the ring-plate D, and to serve as a handle for adjusting it, substantially as herein shown and described.

189,887. PUMPING-ENGINES. B. G. Shortt, Carthage, N. Y. [Filed Feb. 26, 1876.]



1. The steam-cut-off valve V open to the atmosphere on its upper side, in combination with the steam and vacuum chamber E, and the reciprocating piston, as shown and described, whereby the valve is seated by atmospheric pressure just previous to the upward stroke of the piston, as set forth.

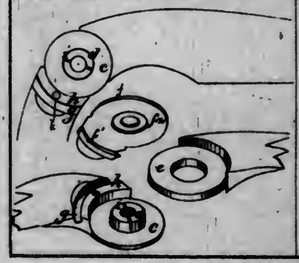
2. The combination of the plug *i*, the passage *j*, the cut-off valve, the piston, the valve J, and chamber B, as shown and described, to operate as specified.

3. The air-chamber B, and supply-pipe Z, provided with valve Z', in combination with the passage U, valve J, cylinder R, and piston having the valve M, substantially as shown and described, whereby the expansion of air in said chamber forces the water into the cylinder when a vacuum is formed therein, as set forth.

4. The combination, with cylinder E, of the head G, and its valves H M O, arranged and operating substantially in the manner described.

189,888. HINGE-JOINTS. Mexico Spring, San Francisco, Cal. [Filed July 25, 1876.]

Brief.—A hinge-joint, more especially adapted for use in artificial limbs, is fitted with a detachable cap-piece, having a suitably-shaped extension, and on its inner side a recess fitting over the hub. A dowel-fastening is formed by means of a curved rib cast transversely across one bar or portion of the hinge, and interlocking with a correspondingly-shaped groove on the other bar; and the cap is further secured by a screw or screws passing through it into the curved rib.

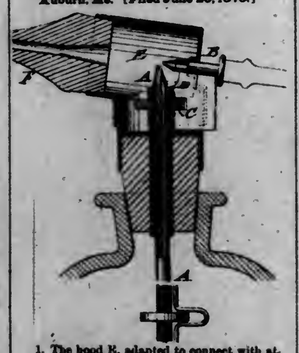


1. The side plate or cap *f* extended on one side of the hinge-joint, as described, and provided with a rib or projection, *h*, which interlocks with a corresponding cavity or recess, *g*, in the main bar, substantially as and for the purpose set forth.

2. In a hinge-joint, constructed substantially as described, the hub *d*, provided with a transverse split, *i*, into which the two ends of a flat wire bent partially or entirely around the hub may be secured, substantially as and for the purpose set forth.

3. The cap *f*, arranged to interlock with the bar A in the manner described, and provided with a recess, *f'*, upon its under side, which fits over the hub, in order to further protect the screw from strain, substantially as herein described.

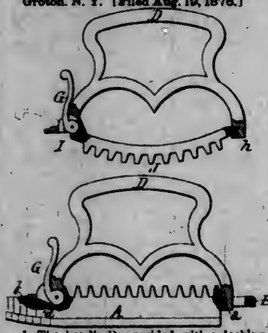
189,889. ATOMIZERS. Frank B. Stanley, Auburn, Me. [Filed June 20, 1876.]



1. The hood E, adapted to connect with atomizing-tubes A B and nozzle F, substantially as and for the purpose specified.

2. The combination of the liquid-tube with a central adjustable wire extending into the point of the tube, to regulate quantity of liquid thrown out, substantially as set forth.

189,890. FLUTING-IRONS. N. R. Streeter, Groton, N. Y. [Filed Aug. 19, 1876.]



1. The handle D, provided with a locking device, G, a notch or recess, *a*, and foot D', whereby it may be applied to the iron A, or the fluting-iron J, substantially as specified.

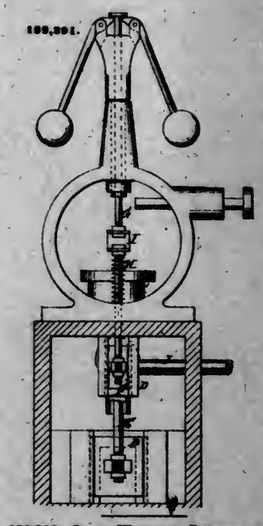
2. The iron A, provided with mortised projection E with notch *a*, the recess *b*, and inclined grooves *d*, in combination with the handle D, having arm D', foot D', and cam-lever G, substantially as and for the purposes herein set forth.

3. The fluting-iron J, provided with notched flange *h* and grooved socket I, in combination with the handle and iron, substantially as and for the purposes herein set forth.

189,891. STEAM-GOVERNORS. J. K. True, San Francisco, Cal. [Filed June 20, 1876.]

The throttle-valve B, the rod E, and the engine D, the latter having valve F connected with the governor, in combination with, and located in, the steam-chest, as and for the purpose specified.

No. 189,891.



189,892. STEM-WINDING DEVICES FOR WATCHES. Albert Troller, San Francisco, Cal. [Filed July 13, 1876.]



A winding device for watches, consisting of the spirally-grooved cylinder G, operated by the crown H, in combination with the bell-crank lever E, dog D, winding-ratchet A, and pawl B or equivalent device, substantially as and for the purpose herein described.

189,893. REGULATING WINDMILLS. David Turnbull, Waverly, Ill. [Filed Mar. 6, 1876.]

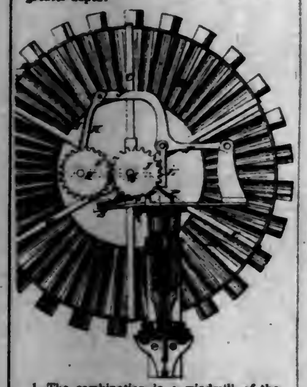
Brief.—The float being buoyed up by the body of water in the tank, allows the spring to throw the pawl into the ratchet on the shifting-rod, thus holding it until the water is exhausted from the tank, when the weight is allowed to fall, releasing the lever from the ratchet, thus throwing the machinery into gear, and starting the pump.



In combination with the ratcheted or notched shifting-rod, the spring lever or pawl, and weighted float connected therewith and suspended in the water-tank, the whole arranged to operate substantially as described.

182,394. WINDMILLS. Edward Williams, Potosi, Wis. [Filed May 16, 1876.]

Brief.—The power is transmitted to the pump-rod by a pair of eccentric wheels, and a lever giving increased leverage on the up-stroke, with quicker motion on the down-stroke, and enabling the wheel to lift from a greater depth.

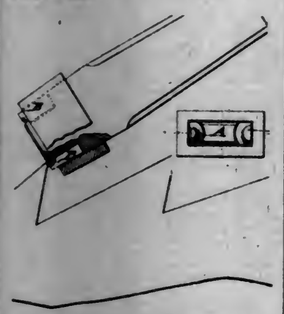


1. The combination, in a windmill, of the crank-shaft for working the pump-rod, and eccentric gears connecting said crank-shaft with the wheel-shaft, substantially as specified.

2. The combination, in a windmill, of a lever, J, having the pump-rod L connected to it, and a crank-shaft connected with said lever and located to one side of the hollow axis in which the pump-rod works, substantially as specified.

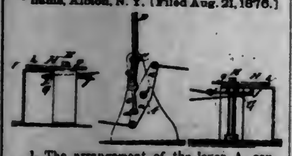
182,395. SAW-SWAGES. Asher Willey, Rochester, Mo. [Filed Aug. 21, 1876.]

Brief.—The ends of the swaging-dies are curved, and impart a concave cutting edge to the saw-tooth.



A swage for shaping saw-teeth composed of a stock, with tapering and recessed end, one or more curved shaping-dies, and a locking-sleeve, substantially as specified.

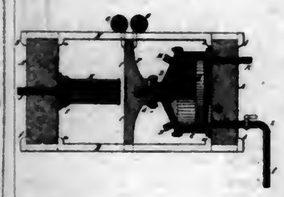
182,396. RAILWAY-SIGNALS. John H. Williams, Albion, N. Y. [Filed Aug. 21, 1876.]



1. The arrangement of the lever A, connecting-rod *e*, and signal-arm D, substantially as shown and described.

2. The combination of the sectoral arm H, shaft E, lever G, rods I, lever A, connecting-rod *e*, and signal-arm D, substantially as shown and described.

182,397. MACHINES FOR TESTING PIPES. Walter Wood, Philadelphia, Pa. [Filed Aug. 3, 1876.]



1. In a machine for testing the strength of pipes, a disk, F, actuated by hydrostatic pressure, substantially as shown and described, and for the purpose specified.

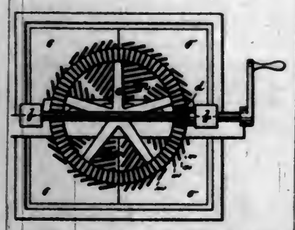
2. In a machine for testing the strength of pipes, the combination of the disk F, the cylinder C, piston-rod D, and piston-rod head E, substantially as shown and described, and for the purposes set forth.

3. The piston-rod D, head E, and disk F, in combination with the cylinder C, having valves K, L, M, and N, one of which, L, is provided with a pipe, *l*, substantially as shown and described, and for the purposes specified.

4. The combination of the pipe H, the disk A', disk F, piston-rod D, piston-head E, and cylinder C, substantially as shown and described, and for the purposes specified.

182,398. CLAY-GRINDERS. Chas. B. Wyatt, Somerville, Mass. [Filed Apr. 3, 1876.]

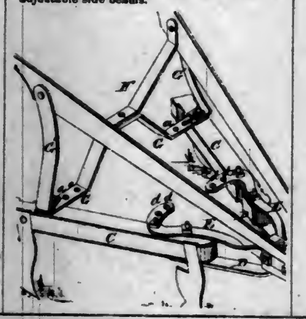
Brief.—The downward-projecting rods are made in one piece with or secured to the arm or head and to the rotary and yielding knives or grinders. The under sides are made inclined, and provided with hardened shoe-plates.



In combination, the rotary shaft *f*, arm or head *g*, rods *h h*, springs *i i*, rotary yielding knives or grinders *k k k*, the diverging grate *n n n*, and the clay-receptacle *o*, as and for the purpose herein set forth and described.

182,399. CULTIVATORS. E. A. Aderholt, Oxford, Ala. [Filed Apr. 15, 1876.]

Brief.—A cultivator with a main beam, to which is attached, by a bifurcated brace, two adjustable side beams.

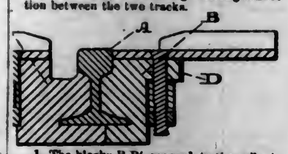


1. The beams A and C C, in combination with the bow D and the bars E E, with graduated holes for holding and spreading the front of the side beams, as is herein set forth.

2. The bars G F and G' G', in combination with the beams C C, the handles, and the bars E E, and bow D, as and for the purpose set forth.

182,400. RAILROAD-CROSSINGS. John H. Ainsworth, Philadelphia, Pa. [Filed July 10, 1876.]

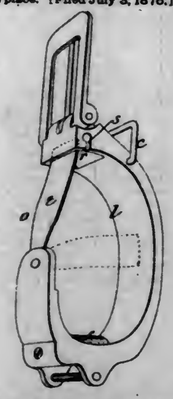
Brief.—The rails of the crossing track are firmly secured to the fishing of the rails of the other track, thus making a strong connection between the two tracks.



1. The blocks B B', secured to the rails A, and supporting and connecting the cross-rails F, substantially as and for the purpose set forth.

2. The plates or blocks B B', with laterally-projecting plates D, substantially as and for the purpose set forth.

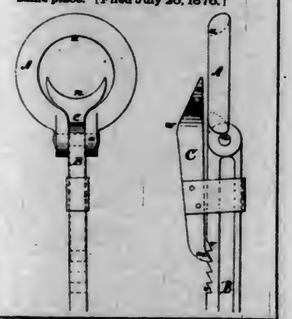
182,401. TELL-LUGS. Thomas Barrett, Boston, Mass., assignor to J. S. Folsom, same place. [Filed July 3, 1876.]



1. The lug *l*, having the side opening *o*, recess *r*, and slot *s*, combined with the elastic swinging tongue or plate *t*, adapted to enter and bear outwardly against one side of the recess *r*, as set forth.

2. The combination of the friction-roller *f*, the removable pin *j*, the screw S, and the sockets *b b'* and *a'*, of the lug *l*, as set forth.

182,402. BUNG-EXTRACTORS. A. Bayler, New York, N. Y., assignor to J. Trageser, same place. [Filed July 26, 1876.]



The bar B, provided with teeth *v* at its lower surface, and a hinged ring, A, in combination with the lever C, having a circular cavity or claw, *u*, at one end and a pointed projection, *m*, at its other end, fitting into the teeth *v*, the whole being constructed and operating in the manner and for the purpose substantially as described.

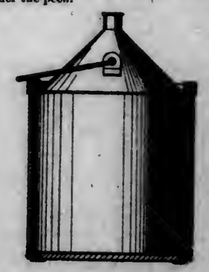
182,403. HOOKS FOR WATER-CONDUCTORS. Levi Berger and William H. Berger, Philadelphia, Pa. [Filed Feb. 19, 1876.]



As a new article of manufacture, the cast-metal water-conductor hook herein described, consisting of the broad curved part A, re-enforcing rib B, and tang C, terminating in the driving-head D, substantially as shown.

182,404. SHIPPING-CANS. Lewis F. Botts, Chicago, Ill. [Filed July 17, 1876.]

Brief.—Paints or varnishes can, or wraps is in paper or cloth. Outer jacket of horizontal and separate wooden bands, held together by vertical metal strips fastened to upper and lower bands and to wooden bottom. Inner wooden hoop at top (or a flange) over but not under the peen.



1. The shipping-can provided with an exterior protecting-jacket, whereof the body is composed of several bent-wood horizontal bands, substantially as specified.

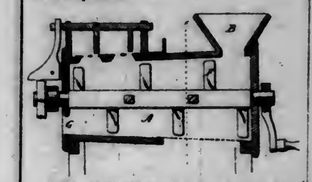
2. The shipping-can provided with an exterior jacket composed of several bent-wood horizontal bands held together by vertical strips, substantially as specified.

3. The combination, with the can and the jacket composed of several bent-wood strips, of the wooden disk at the bottom, the shoulder lying above and not under the peen at the top, and the thin narrow strips securing the whole together and to the can, substantially as specified.

4. The combination, with the can and its exterior wooden protecting-jacket, of the interposed layer of paper or other suitable coating or fabric lying between the wood jacket and the metal can, substantially as specified.

182,405. CHEESE MANUFACTURE. George W. Bigelow, New Haven, Conn., and Lyman S. Lindsley, Eaton, N. Y. [Filed July 31, 1875.]

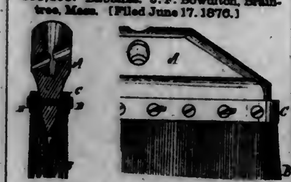
Brief.—The curd is cut, drained, and salted at one operation.



1. The combination of the cylinder A, constructed with the receiving-aperture B, the strainer C, for the escape of the whey in the bottom, the curd-outlet G, diagonally opposite the receiving-aperture, and the spirally-revolving beater, constructed and operating all substantially as specified.

2. In combination with the cylinder constructed with a receiving-aperture, a discharge-opening, and an outlet for the whey, combined with a series of spirally-set revolving beaters, operating to work the curd from the receiving-opening to the discharge, and a salt-hopper, with an agitator arranged therein to distribute the salt upon the curd within the cylinder, substantially as specified.

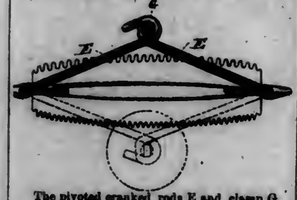
182,406. BRUSHES. J. F. Bowditch, Braintree, Mass. [Filed June 17, 1876.]



As an improved manufacture, the brush, substantially as described, composed of the wedge-shaped stock A, the mass B of bristles, the metallic hoop C, and the series of clamp-screws D and nuts E, all arranged and applied essentially as set forth.

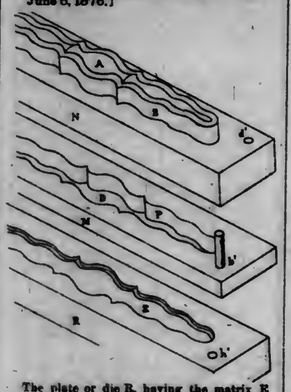
182,407. CURRY-COMBS. F. B. Bradley, Southington, Conn. [Filed Mar. 16, 1876.]

Brief.—The comb is double faced, and by means of pivoted side bars and clamp the handle is adjusted to use either face.



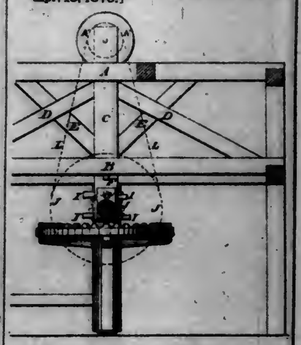
The pivoted cranked rods E and clamp G, in combination with a curry-comb and its handle, whereby provision is made for shifting the handle to either side and clamping it in place, to enable either face of the instrument to be used at pleasure, substantially as set forth.

182,408. DIES FOR COMPRESSING AND ORNAMENTING LEATHER. Edward Hill Brewer, Cortland, N. Y., assignor of one-half of his right to M. S. Bierce, same place. [Filed June 6, 1876.]



The plate or die R, having the matrix E and perforations *b b'*, in combination with the plate M, having the opening D and studs *b b'*, and the plate N, having the projection or relief R and perforations *d d'*, all constructed and operating in the manner and for the purpose specified.

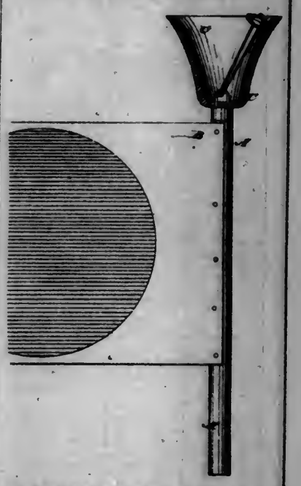
182,409. HORSE-POWERS. Thos. M. Brown and John R. Kendrick, Sharon, Ga. [Filed Apr. 13, 1876.]



1. The hereinbefore-described attachment for cotton-gins, consisting of the beams A and B, upright C, provided with the key F, and adjustable bearings G, and braces D and E, the several parts being constructed, arranged, and combined to operate substantially as and for the purpose described.

2. The adjustable bearing G, provided with the keys I, in combination with the upright C, and pulleys J K, and belt L, substantially as and for the purpose described.

182,410. HAND-SIGNALS FOR RAILROADS. Samuel Brown, Philadelphia, Pa., assignor to Edward D. Stokes and Samuel Bayle, same place. [Filed July 31, 1876.]



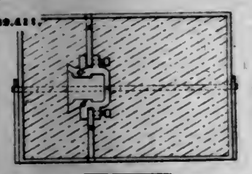
A hand-signal for railroad-crossings, consisting of the staff A, flag B, and bell C, arranged substantially as shown and described.

182,411. FLASKS FOR MOLDINGS. George B. Chamberlin, Providence, R. I., assignor of one-half his right to Benj. F. Pabodie, same place. [Filed May 10, 1875.]

Brief.—A flask composed of two parts, hinged together at the bottom, and held to each other for operation by the cope encompassing their tops. The chill is also composed of two parts, and one part attached to the inner side of each of the hinged parts of the flask, so as to open and close with them.

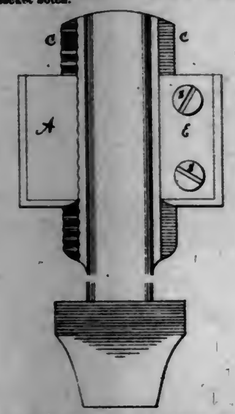
The combination of a pivoted drag with chills, a chill being secured to each side of the drag, substantially as shown, and for the purposes set forth.

182,411.



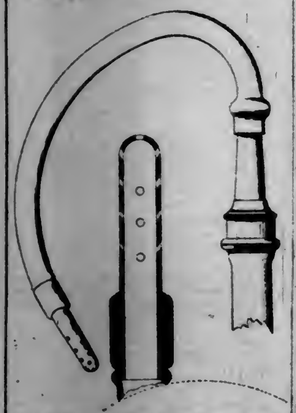
182,412. VISE. George H. Chamberlin, Providence, R. I., assignor of one-half his right to Benjamin F. Pabodie, same place. [Filed May 10, 1876.]

Brief.—The vise is adjusted to and fro by means of corrugations on the sliding bar, which is dovetailed to the bench-plate. It is adjusted to any desired angle with the bench by an upwardly-sliding bolt entering one of a series of concentric holes in the under side of the bench-plate. Said bolt is secured in locking position by a radial pin, being partially rotated with the bolt, and resting in a bayonet-socket notch.



In a vise, the combination of the perforated plate A and a beam, C, the two engaging, by a corrugated dovetail-joint, screws S S and cap *c*, as hereinbefore set forth.

182,413. FOUNTAIN-NOZZLES. David B. Chase, West Winsted, Conn. [Filed Aug. 21, 1876.]



In combination with a flexible discharge-tube, the tubular discharge, perforated with openings inclined both longitudinally and radially, substantially as described.

182,414. BLOTTING-PAD AND HAND-REST. Thomas Chase, Philadelphia, Pa., assignor to Geo. B. Chase, same place. [Filed July 24, 1876.]

Brief.—Pieces of blotting-paper having adhesive strips to attach them together, and an elastic strap with a split portion, whereby to secure the pad to the writing hand.

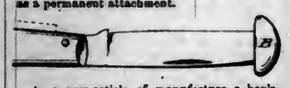


1. The combination of the pad A with the elastic strap *d*, having a split portion, *e*, the whole being adapted for use upon the writing-hand, as set forth.

2. As new articles of manufacture and sale, blotting-sheets *a b c*, &c., provided with adhesive stripe *f*, as set forth.

182,415. POCKET-KNIVES. A. W. Coates, Alliance, Ohio. [Filed Sept. 2, 1876.]

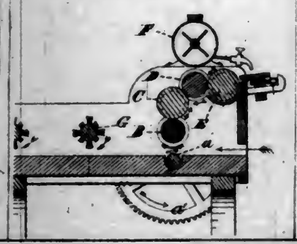
Brief.—The end of the ordinary blade of a pocket-knife projects beyond the handle when closed, and is provided with a suitable knob as a permanent attachment.



As a new article of manufacture, a boy's pocket-knife, having a blade extended beyond the handle, with a metallic knob, B, formed upon the end thereof, as and for the purpose described.

182,416. PAINTING-MACHINES. Isaac W. Cooper, Spring Church, Pa. [Filed May 6, 1876.]

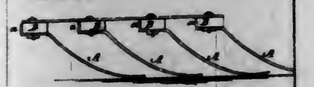
Brief.—Paint is fed from a receptacle having a stirrer through a pipe and stop-cock, and drops through a hole in the scraper into a trough underneath the first roll. A series of alternately corresponding rolls convey the paint down to the last or painting roll, which conforms to the irregular surface of the board, which latter is fed through the machine by a plain-surfaced roll embedded in the floor, and is finished by revolving brushes beyond.



1. The apparatus for painting and finishing weather-boards of plain and chamfered or beveled surface, consisting, essentially, of the following elements, to wit: The table A, feeding-roller *e*, mixing and delivery tank F, receiving-roller E, painting-roller B, having its surface cylindrical and enlarged, as shown, intermediate rolls C D, and finishing-brushes G, &c., substantially as shown and described, and for the purpose set forth.

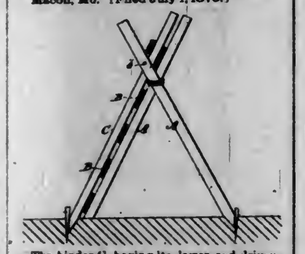
2. In combination with the receiving-roll E, and painting-roll B, having their surfaces respectively diminished and enlarged, as shown, the intermediate distributing-rollers C D, having their surfaces respectively diminished and enlarged to correspond with each other, and with the rolls B E, and having their peripheries partly cylindrical and partly enlarged and diminished, as shown, whereby boards of both plain and chamfered surfaces, or either, may be painted, substantially as described.

182,417. LAND-DRAG AND CLOD-CRUSHER. J. M. Crockett, Dallas, Tex. [Filed Aug. 14, 1876.]



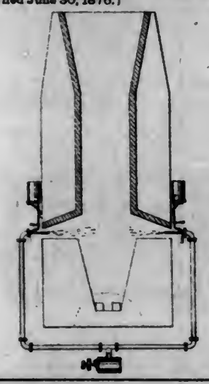
As the improvement hereinbefore described, the drag formed of a series of rows or ranks of short flat flexible metal bars A, and parallel wooden cross-bars B, each of the former having a single curve, also provided with a flange, *c*, and attached to the cross-bars at their front ends, the rear ends being left free, as shown and described, for the purpose specified.

182,418. FARM-FENCES. Strander Orum, Macon, Mo. [Filed July 1, 1876.]



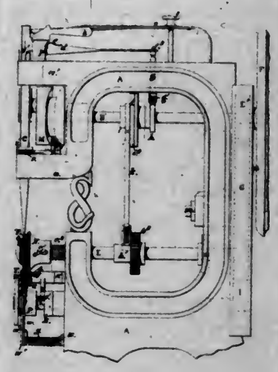
The binder C, having its lower end driven into the ground and its upper end secured by pin *b*, in combination with the jointed stakes A and the bars B, arranged upon one of the inclined sides of said stakes, as and for the purpose described.

182,419. PROCESSES FOR THE MANUFACTURE OF LIME AND CEMENT. Uriah Cummings, Buffalo, N. Y., assignor to himself, Louis J. Bennett, and W. W. Pierce, same place. [Filed June 30, 1876.]



In the process of manufacturing lime or cement, the injection of a carbonized air-spray directly upon the stone at a red heat, and subsequently, substantially as and for the purpose specified.

182,420. MACHINES FOR SEWING BOOTS AND SHOES. John Outlan, Camden, N. J. [Filed May 27, 1876.]



1. The combination, with the feed-wheel N and the auxiliary feed-wheel O, of the feed-shaft E and spring *e*', the several parts being constructed and arranged substantially as and for the purpose described.

2. The thread-carrier T, mounted, as shown, in combination with cam P, spring *s*, and shaft S, whereby the proper vibratory movement, sidewise, is imparted to said carrier, substantially as and for the purpose described.

3. In combination with the thread-carrier T, mounted, as shown, arm *t*, wrist-pin *t*', and cam R on shaft K, substantially as and for the purpose described.

4. The combination of the feed-wheel N, spring *e*', shaft E, adapted to afford an elastic pressure in the direction of the work upon the feed-wheels, substantially as and for the purpose described.

5. The combination with the needle-bar B and toothed wheel *r* feathered thereon, as shown, the toothed sector *n*, provided with wrist-pin *b*', and pivoted on projection *a* of the main frame, and the cam M on the shaft B', adapted to vibrate the needle-bar upon its vertical axis, substantially as and for the purpose described.

6. The combination of the lever *d*, provided with its tubular elbow *d*' pivoted at *p*, plate-spring *e*, and cam A on shaft B', and connecting-bar *g*, adapted to operate the presser-bar C, substantially in the manner and for the purpose set forth.

7. The combination of the parts composing the swinging frame to support the work and render the frame adjustable, to wit, the horizontal bar Y provided with its slot Y', inclined bar U, having the spiral spring *u*' and *u*', and sleeve *j* seated thereon, and the vertical bar J, substantially as shown and described.

182,421. EXPLOSIVE COMPOSITIONS. Louis de Soulages and Raymond Cahuc, Toulouse, France. [Filed Aug. 7, 1876.]

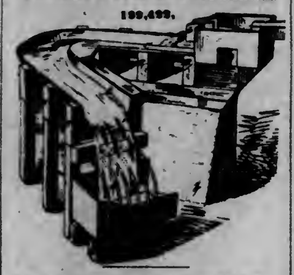
1. A mining-powder composed of nitrate of potash, sulphur, lamp-black, and tanning-bark or sawdust, and sulphate of iron, substantially in the manner and in the proportions set forth.

2. The process of forming a compound for mining purposes, which shall be incombustible at low temperature and non-explosive except when under pressure, by first heating nitrate of potash, carbon, and sulphur in the presence of sawdust and a solution of sulphate of iron till a homogeneous liquid mass is produced, then cooling and drying the same, as described.

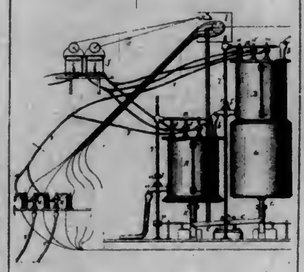
182,422. FLUMES. Samuel C. Dike and Sidney M. Brown, Yon Bet, Cal. [Filed Aug. 21, 1876.]

A flume composed of semi-cylindrical sheet-iron sections, placed upon suitable supports, and provided with a sand-box at its upper end, and a curved grating at its lower end, and a walk at one of its edges, all constructed and arranged as herein shown and described.

182,422.



182,423. APPARATUS FOR TESTING MINE-GASES. Alex. L. Douchy, Paris, France. [Filed July 24, 1876.]



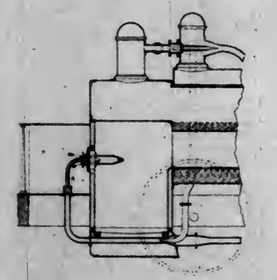
1. The combination of tubing for conveying the gases from the mines with an analyzing apparatus, J, and means, substantially as described, for automatically drawing the said gases from the mines.

2. The combination of the balanced cylinder B, its water inlet and outlet, with the gas-valves *d*, *d*', and *m*, and the analyzer J.

3. The combination of the balanced cylinder B, its water inlet and outlet, with the valves *d*, *d*', and *m*, and the rod T, and its projections, as set forth.

4. The combination of the analyzer J, and the tubing V and V', with their valves H H and electro-magnets, and the indicator I, as set forth.

182,424. MEANS FOR UTILIZING EXHAUST STEAM. John Downes, Handsworth, England. [Filed July 1, 1876.]



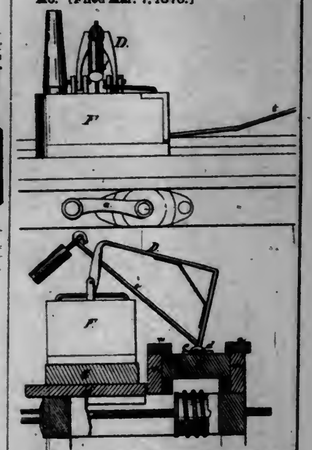
1. The combination, substantially as described, of the feed-water tank, the exhaust-pipes leading thereto, and the exhaust-steam blast-pipe, through which the surplus exhaust steam in said tank is conveyed to the fire-box or furnace, as and for the purposes set forth.

2. The combination, substantially as set forth, of the feed-water tank, the exhaust-steam pipe or pipes leading thereto, and the blast and boiler feed connections leading from said tank, whereby the exhaust steam in the said tank is conveyed both to the fire-box or furnace, and, together with the feed-water, to the boiler, substantially as described.

3. The combination and arrangement, substantially as set forth, of the feed-water tank, the exhaust-steam pipe or pipes leading thereto, the surmounting dome, the live-steam injector, and the boiler feed-pipe, through which the exhaust steam and the water in said tank are conveyed to the boiler.

4. The feed-water tank and the exhaust-steam pipe or pipes leading thereto, in combination with the air pipe or pipes, and the exhaust-steam pipe leading from said tank, and arranged to operate in connection with said air pipe or pipes, substantially as described, and for the purpose of conveying a mixture of exhaust steam and heated air to the furnace.

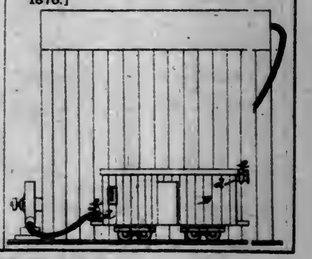
182,425. IRONING APPARATUS. Holland B. Evans and Wilson Kestler, St. Charles, Mo. [Filed Mar. 7, 1876.]



1. The sliding board C, having the hinged bar *d*, in combination with the bifurcated arm D hinged to the iron F, and weighted arm *a*', substantially as described, and for the purpose set forth.

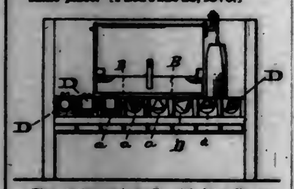
2. The board C, sliding in grooves in the elevated portion *m*, and having the hinged bar *d*, in combination with the hinged arm D, iron F, weighted arm *a*', and guide-rod *t*, substantially as described, and for the purpose set forth.

182,426. PROCESSES OF PRESERVING ANIMAL AND VEGETABLE SUBSTANCES DURING TRANSPORTATION. Chas. J. Everett, Tenafly, N. J., assignor to himself and R. B. Lockwood, Boulder, Colo. [Filed Aug. 2, 1876.]



The process herein described of preserving animal or vegetable substances during transportation by confining them in an air-tight car or other vehicle or chamber, having its walls built to obstruct the passage of heat, and then making temporary communication between such vehicle or chamber and an ice-house or heater, and establishing circulation between either of the latter and the vehicle or preserving-chamber, and subsequently severing such communication, and excluding the external air from the interior of the car or chamber, substantially as specified.

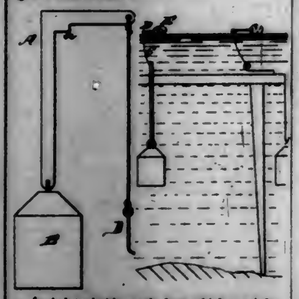
182,427. FURNACE-GRATE. Thos. Fowkes, Philadelphia, Pa., assignor to E. R. Gurley, same place. [Filed June 26, 1876.]



The stationary bars B, with laterally-projecting separating-blocks C, having supporting depressions *a*, in combination with the rotary bars D, alternating with the stationary bars, substantially as and for the purposes set forth.

182,428. DEVICES FOR CATCHING WATER-FOWLS. J. Forbes, Jr., Flatwell, Mich. [Filed Aug. 12, 1876.]

Brief.—The angle rests upon a shelf or bar under water, supports the weight at one end, and holds the baited hook on the surface at the other. The game takes the bait, thereby dislodging the angle, and the weight sinks the game to the bottom.

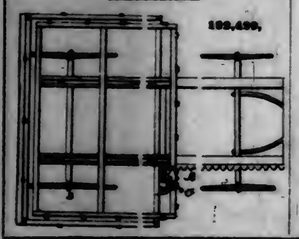


1. A detachable catch, from which a weight is suspended, and a hook or other means of catching game, in combination with a suitable support, and operating substantially as and for the purpose set forth.

2. The catch or square A, in combination with weight B, line C, and hook D, or its equivalent, substantially as and for the purpose set forth.

3. The combination of angular catch A, having shoulder *a*, with weight B, line C, and hook D, substantially as and for the purpose set forth.

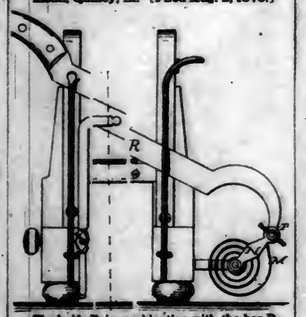
182,429.



182,429. HAY-RACK. James W. Foust, Meadville, Pa. [Filed Feb. 2, 1876.]

The hay-rack constructed in two sections, as described, the same to be operated by a crank-pinion and rack, C B and A A, or their equivalent, for the purposes set forth.

182,430. STRAW-CUTTERS. Karl Frankmann, Quincy, Ill. [Filed Aug. 2, 1876.]



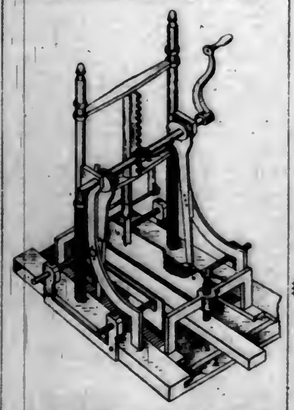
The knife B, in combination with the bar P, spring M, and pivot-stands, N, substantially as set forth.

182,431. COMPOSITION AND PROCESSES FOR MAKING ARTIFICIAL CORAL, IVORY, &c. Julius Frankenberger, New York, N. Y., assignor to C. L. Joslin, W. L. Palmer, and A. W. Williams, composing the firm of Joslin, Palmer & Williams. [Filed Dec. 23, 1875.]

1. The composition for producing artificial corals, ivory, amber, horn, &c., consisting of cassine, sal-soda, acetic acid, and coloring matter, substantially as herein described.

2. The process herein described of producing artificial corals, ivory, amber, horn, &c., by mixing cassine with sal-soda and water, and subjecting the mixture to heat, then removing the oily matter, and after cooling and coloring, adding thereto acetic acid, all substantially as set forth.

182,432. MORTISING-MACHINES. C. Gadker, Covington, Ky. [Filed Feb. 25, 1876.]

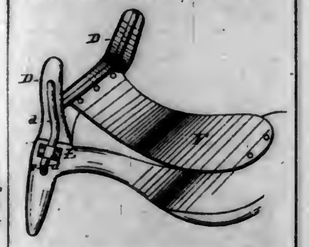


1. The combination of the chisel-frame guided vertically between upright columns, a rack and segmental pinion for driving said frame on its downward stroke, and springs acting upon said frame to return it to its elevated position, substantially as described.

2. In combination, the grooved cams, the levers, one end of which embraces said cams, the other end carrying pawls to engage with racks upon the sliding carriage, for the purpose of automatically feeding said carriage in either direction after each stroke of the chisel, substantially as specified.

3. The combination of the grooved bed A, the carriage B, adapted to be fed automatically or by hand, the chisel-frame supported between columns secured to said bed, the driving-shaft and segmental pinion, and spirally-coiled spring, for operating said frame in the manner described.

182,433. RIDING-SADDLES. J. T. Gathright, Louisville, Ky. [Filed Aug. 16, 1876.]

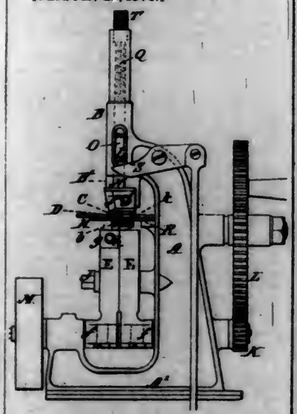


1. The combination, with the tree of a gentleman's saddle, of usual construction, of the detachable horns D D, constructed and arranged substantially as shown and described, for the purpose specified.

2. The combination, with the tree of a gentleman's saddle, provided with horns over the pommel, of the supplementary detachable seat F, substantially as shown and described, for the purpose specified.

3. The combination, with the tree of a gentleman's saddle, of the usual construction, of the detachable horns D D, re-enforcing metallic strips *d d*, staples or metallic loops E E, screw attachments *e e*, and supplementary detachable seat F, all constructed and arranged substantially as shown and described, for the purpose specified.

182,434. MACHINES FOR CHANNELING THE SOLES OF BOOTS AND SHOES. Louis Goddu, Boston, Mass., assignor to the American Cable Screw Wire Company, same place. [Filed July 20, 1876.]



1. In a boot and shoe sole channeling machine, a vertically-intermittent lower feed and a vertically-intermittent channeling-knife, in combination with an intervening fixed slotted table for the feed, for operation substantially as herein set forth.

2. In a machine for channeling boot and shoe soles, a fixed slotted table and an upwardly-operating under-feed device, in combination with a presser-foot and a channeling-knife carried thereby, for joint operation in feeding the sole, cutting the channel, and determining its depth, in the manner substantially as herein set forth.

3. The combination, with the dog-carriers E E, arranged to operate as described, of the fixed slotted table H, the vertically-intermittent presser-foot, and the double crank-shaft G, whereby a continuous feed is produced from beneath the table, as herein set forth.

4. The combination, with the fixed table H and a presser-foot, C, of a sole-edge rest, E, carried by said presser foot, for action as herein set forth.

5. The combination, with the fixed slotted table H and an intermittently upward-operating feed device, of a channel-knife, D, and an edge-rest, E, carried by a vertically-intermittent presser-foot, for operation as described.

6. The mode of determining the depth of the channel, consisting in feeding the sole against the knife while it is intermittently raised from the table and in contact with the presser-foot, which serves to gage such depth and render it uniform.

7. The removable feed-dogs *b*, in combination with the fulcrumed carrying-arms E, the clamp-plates *g*, and screws *h*, by which said dogs are secured at a variable height.

8. The feed-dog carrying-arms E, having the extension-bearings *f*, in combination with the fulcrum-blocks *d*, the fulcrum clamp-screw J, and the operating-eccentrics F, substantially as and for the purpose herein set forth.

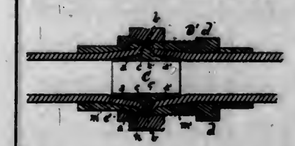
9. The combination, with the standard A, of the eccentric shaft G, the intermittent dog-carriers E E, gear-wheels K L, and balance-wheel M, as described.

10. The combination, with the hollow standard-head B and the presser-foot C, of the extension-guide B^1, as and for the purpose herein set forth.

11. The combination, with the presser-foot C and the channeling-knife D, attached thereto, of the stop *k*, adapted to protect the channel-knife from contact with the table.

12. The lever S, pivoted to the standard, in combination with vertically-adjustable presser-foot C, its channeling-knife, and the treadle-rod connecting with said lever, as and for the purpose herein set forth.

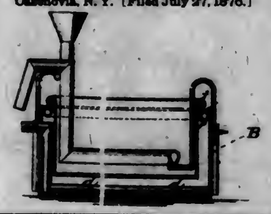
182,435. CONNECTIONS FOR LEAD PIPES. Hugh Guyer, Albany, assignor to himself and Samuel Baker, Albany, and J. H. Reynolds, Troy, N. Y. [Filed Jan. 31, 1876.]



1. The connecting-bush C, having tapering ends *a a'* for entering the bore of the pipes to be connected, made solid with one another, and separated by the annular projection *b*, in combination with sleeves D and D', made with tapering bores *a a'* for forming a lap-joint when said sleeves are drawn or pressed toward the annular projection *b* of said connecting-bush, substantially as set forth.

2. A connecting-bush, C, provided with inclined ends *a a'*, having a solid connection with each other, and adapted to enter the bore of the pipes to be connected, sleeves D and D', provided with tapering bores adapted to embrace the ends of the pipe distended by the tapering surfaces *d d'*, and the inclined surfaces *c c'* of the annular projection *b*, adapted to force the metal of the ends of the connecting-pipes into the beveled end edges *a a'* of said sleeves when said sleeves are drawn toward each other, substantially as set forth.

182,436. MILK-COOLERS. H. A. Hannum, Canenovia, N. Y. [Filed July 27, 1876.]



The milk-pan, within the surrounding tank B, in combination with the perforated pipe *d* at the bottom of the tank, having a bent end, and the perforated pipe *p*, between the milk-pan and the tank, at the upper edges of the same, for the purpose of throwing the water against the upper part of the sides of the pan, as and for the purpose described.

182,437. PESSARIES. Evans B. Harding, Northampton, Mass., assignor to M. L. Harding, same place. [Filed May 24, 1876.]

Brief.—The free ends of the loop are flattened and rounded, to prevent the flesh catching over them. The bar for inserting the pessary has its open eye angled, so that it may the more readily be removed. A concavo-convex support is pivoted at its center in the U-bend of the frame.



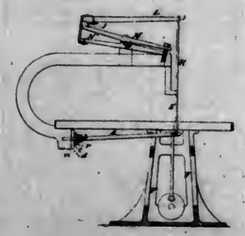
1. The frame A, having its hooked ends a^1 a^1 flattened and turned inwardly, substantially as and for the purpose set forth.

2. The concavo-convex disk B, hung by journals at or about its center in the frame A, between its vertical arms or portions *a a* and below its cross-bar a^1, substantially as and for the purpose set forth.

3. The pessary adjusting bars C C, having the loops or eyes *c c* arranged at an angle to the line of said bars, substantially as and for the purpose set forth.

182,438. SCROLL-SAWING MACHINES. W. D. Herschel, New York, N. Y., assignor to John First and Paul Pryibil, same place. [Filed May 18, 1876.]

Brief.—The saw is attached at each end to vibrating levers, and strained by springs acting upon the levers.



1. The combination of the springs N N', constructed and arranged substantially as described, with the oscillating lever L, having its fulcrum *f* on that end of the spring N farthest from the connecting-rod E, to which said lever L is pivoted, substantially as and for the purpose described.

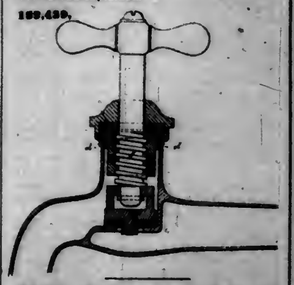
2. The combination of the rocker *r*, having the angles *t t*, with the plane-surfaced soft packing *d* interposed between said rocker and the plane surface *n*, and attached to the plane surface *n*, the rocking arm A, and the saw B, substantially as and for the purpose set forth.

182,439. COMPRESSION-FAUCETS. Jacob Hills, Haydensville, Mass. [Filed Aug. 26, 1876.]

1. The screw-nut B, provided with the flange *c* and one or more ears, *d*, in combination with the valve-case, having the notched flange *b*, all being substantially as set forth.

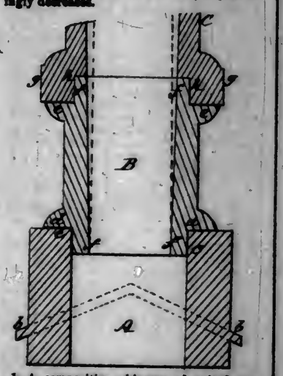
2. The improved faucet, constructed substantially as described, viz., with its body provided with the valve chamber and seat, the induct and educt, and the notched flange, as set forth, and with its valve-stem furnished with the screw cap and the valve to revolve thereon, and with the screw-nut having the supporting-flange and one or more ears, all being applied and arranged essentially as shown and explained.

182,439.



182,440. CHIMNEYS. Spencer Hinton, Orleans, N. Y., assignor of one-half his right to George A. Snook, same place. [Filed July 26, 1876.]

Brief.—The wall of the sections increases in thickness from the top to the bottom, while the horizontal area of the flue correspondingly decreases.

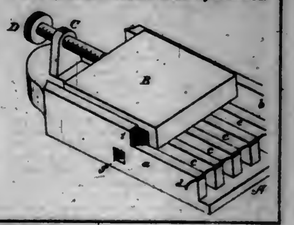


1. A composition chimney of united sections, in which the top sections B C have inner upwardly-inclining walls and outer vertical walls, in combination with the base-section A, having a flue of larger area than the top sections, as shown, and for the purpose specified.

2. In a composition chimney of united sections A B C, the middle section B, provided with broad bottom and top ledges *d d* and *e e* and deep holding ends *f f*, in combination with the broad base-section A *e* and the cap C, having the heavy bead-projection *g*, as shown, and for the purpose specified.

182,441. GOLD-FOIL CONDENSERS FOR DENTAL USE. John Hood and S. H. Reynolds, Hyde Park, Mass. [Filed Feb. 5, 1876.]

Brief.—A bed with parallel cutting-bars has a sliding cover, also carrying parallel bars, which work in the openings of the lower set. Slots are cut in the ends of the bars to admit rods, around which the foil may be rolled.



1. In a device for treating gold foil, the bed A, provided with the side pieces *a* and *b*, in combination with the cutting-bars *c* and part B, as and for the purpose specified.

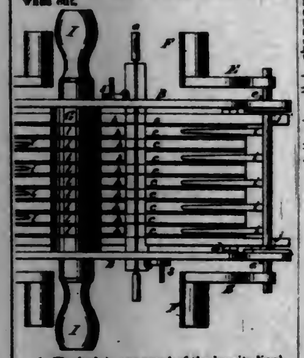
2. The bed A and cutting-bars *c*, provided with the curved slots *d*, in combination with the winding-wires, as and for the purpose set forth.

3. The bed A, cutting-bars *c*, cross-bar *f*, lug C, and adjusting-screw D, in combination with the part B, as and for the purpose specified.

4. The process of making cylinders for dental use by first cutting the foil into strips, winding the strips upon wires, so as to form cylinders, and then annealing them, as and for the purpose specified, and completing the process by removing the winding-wires, in the manner set forth.

182,442. FOIL-CONDENSERS. John Hood and S. H. Reynolds, Boston, Mass. [Filed Aug. 9, 1876.]

Brief.—A cutter composed of parallel edged disks rotates upon a bed as its journals slide in grooves on the side pieces of said bed. Fingers attached to weighted rock-shafts hold the foil down to the bed. A carrier containing split mandrels is inserted in the bed, to take up and wind the narrow strips of foil when cut.



1. The bed A, composed of the longitudinal pieces *a a'* and strips *b*, united by the bolts *d*, and provided with a transverse recess for the reception of the carrier M, as and for the purpose set forth.

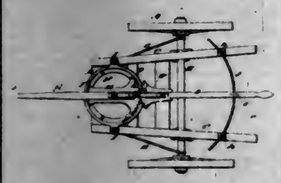
2. In a foil condensing machine, the combination of the bed A, side pieces B, mandrel-carrier M, and rolling cutter O, as specified.

3. The rock-shafts provided with the arms E, weights F, and tongues *i*, substantially as and for the purpose specified.

4. In a foil-condensing machine, the combination of the weighted rock-shafts, provided with the tongues *i*, with the bed A and rolling cutters, as set forth.

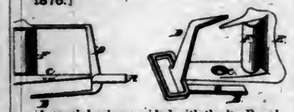
182,443. WHEEL-CULTIVATORS. William P. Hubbard, Farmland, Ind. [Filed Aug. 5, 1876.]

Brief.—A pivoted tongue geared with a segment-lever, also pivoted, held at any horizontal adjustment by a rack-bar.



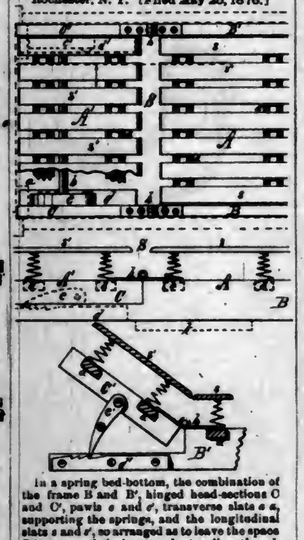
The combination of the pivoted tongue G, having the toothed segment-plate H, the circular bed-plate F, the lever I, provided with toothed plate *i* and rack-bar J, whereby the tongue is deflected, and retained at any desired angle, substantially as described and shown.

182,444. CHECK-HOOKS FOR HARNESS. J. B. Hess, Sheridan, Ill. [Filed Feb. 28, 1876.]



A check-hook, provided with the lip B, pulley or roller F, and having a diagonal opening in the top between the standards D and E, all substantially as shown and described.

182,445. BED-BOTTOMS. Albert G. Irving, Rochester, N. Y. [Filed May 26, 1876.]



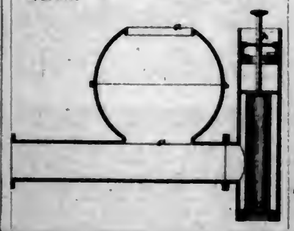
In a spring bed-bottom, the combination of the frame B and B', hinged head-sections C and C', pawls *e* and *e'*, transverse slats *a a*, supporting the springs, and the longitudinal slats *s* and *s'*, so arranged as to leave the space S between their inner ends, to allow the adjustment of the head-sections.

182,446. MANUFACTURE OF TWIST-DRILLS. Wm. A. Ives, New Haven, Conn., assignor to Wm. A. Ives & Co., same place. [Filed Jan. 24, 1876.]



The method herein described of manufacturing twist-augers, consisting in drawing the pod from a round rod, milling the channel *d*, and the completion of the twist *s* through the head, and so as to form the spur in rear of the fleer-lip *f*, substantially as described.

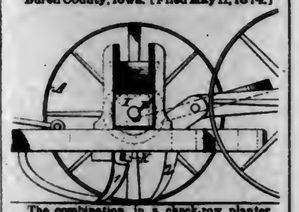
182,447. WATER-CLOSETS. George Jennings, London, Great Britain. [Filed May 2, 1876.]



1. A latrine or pan for water-closets, having the form of a truncated globe, and which is made in two or more sections, substantially as described.

2. The piston-cylinder, constructed with the valve-shell and cylinder-passage *g*, in combination with the valve E, piston G, and the latrine or pan of a water-closet, substantially as described.

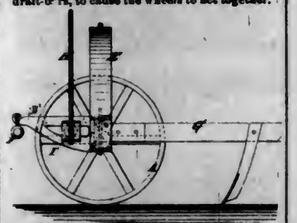
182,448. CORN-PLANTERS. William Jones and Jasper N. Jones, Union Township, Van Buren County, Iowa. [Filed May 11, 1874.]



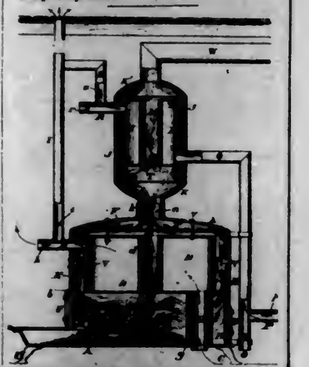
The combination, in a check-row planter, with the pivoted runner-frame L, of marker-wheel A, shaft E, carrying the seed-cylinders G, adjustable hoppers H, guides J, and lever-frame B, substantially as and for the purpose set forth.

182,449. CULTIVATORS. Edwin W. Joy, Iowa City, Iowa, assignor to himself, M. F. Dunlap, and Samuel J. Faust, same place. [Filed July 1, 1876.]

Brief.—An independent arch between the draft-bars, to cause the wheels to act together.



The combination of yoke H with the draft bars D, and with the wheels A, working on independent axles B, hinged to yoke E, substantially as specified.



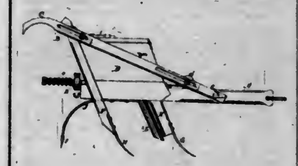
THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

182,450. HOT-AIR ATTACHMENTS FOR STOVES. Charles Kalbfuss, Westville, Ohio. [Filed Aug. 27, 1873.]

The combination, with the stove A B and and annular and heating chamber D, of the separable drum, constructed with central and annular smoke-flues M m', an annular air-heating chamber, N, and connecting-pipes O R & W, all as specified.

182,451. SEED-PLANTERS. J. P. Kalfuver, Madisonville, Tenn. [Filed July 17, 1876.]

Brief.—The seed-slide is vibrated by a slotted handle moving on pins, and a connecting-cord and retracting-spring.



In a seed-planter, the combination of hopper D, handles B B', and seed-slide K, having a spring, *c*, at the rear, and cord or chain *g* at the front, friction-roller *d*, and sliding handle C, substantially as and for the purpose described.

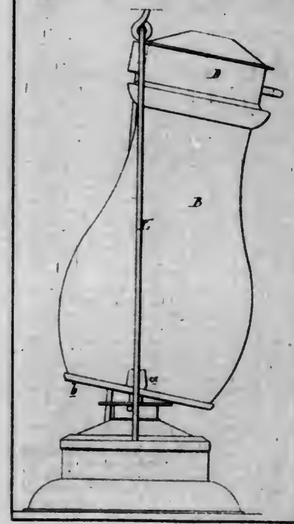
182,452. BUCKLES. William F. Kennon, Buena Vista, Tex. [Filed June 27, 1876.]



The hereinbefore described buckle, consisting of the central portion A, provided with elongated curved necks C, and connected at each end to open-slotted cross-arms B, arranged substantially as and for the purpose described.

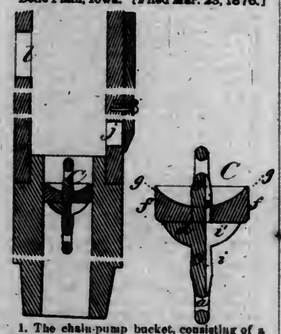
182,453. LANTERNS. John Krummenacher, New York, N. Y., assignor to R. E. Dietz, same place. [Filed Aug. 7, 1876.]

Brief.—The base is made to tilt to admit of the removal of the globe and top from the bail.



The combination of the globe B of the lantern, the cap D, and the plate *b* movable, to permit the tilting of the globe, with the guard E, having a bail, *d*, bearing on the top of said cap, as set forth.

182,454. CHAIN-PUMPS. F. A. Leavens, Belle Plain, Iowa. [Filed Mar. 23, 1876.]



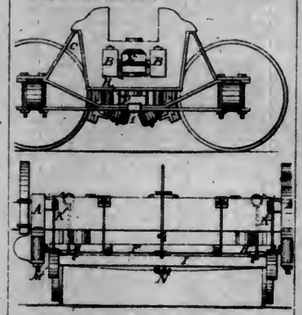
1. The chain-pump bucket, consisting of a disk, *l*, provided with a longitudinal slot, *i*, a supporting-flange, *d*, having radial notch *c'*, and a rubber disk, *f*, having a concave upper and a plane lower face, substantially as specified.

2. As a new article of manufacture, a right cylindrical rubber disk, *f*, concave upon its upper and plane upon its lower face, and provided with the thin edges *g*, adapted to be forced outward against the walls of the stock-tube by the pressure of the raised water, substantially as specified.

3. In a chain-pump, the expansible right cylindrical disk *f*, having its entire periphery in contact with the walls of the stock-tube, provided with a plane lower and a concaved upper surface, and with a thin angular edge, *g*, adapted to be forced outward against the walls of the said tube by the weight of the column of water, substantially as and for the purpose set forth.

182,455. CAR-TRUCKS. Laban B. Lyons, Chillicothe, Ohio. [Filed July 20, 1876.]

Brief.—Cast-iron frames mortised to receive the ends of the truck-timbers, and supported on angular truck-irons. Upright standards to limit the play of the truck in case of accident. Bolster rests upon beams suspended from the truck-timbers by U-shaped hangers. Hangers are also used to support the brakes, two being connected to the beam and two directly to the brake-heads.



1. The detachable guards and confining link and hooks, in combination with the truck-beams, as shown and described.

2. The angular truck-irons, in combination with the metal frame, provided with lateral and vertical projections, substantially as shown and described.

3. The U-shaped hangers, made in one piece, in combination with the vibrating bearing or beam, as shown and described.

4. The detachable hook-hangers, for suspending the brake-beam, in combination with the brackets *d'*, having removable pins, as shown and described.

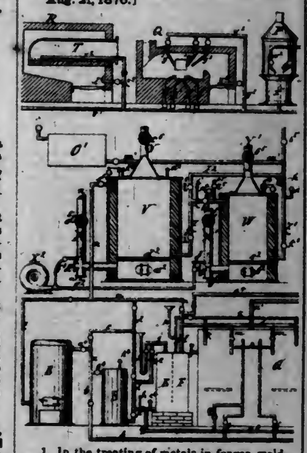
5. The combination of the hangers with the pivoted brake-shoes and the brake-head, the latter having a notch or open slot to receive the rod, whereby the shoe is held in proper position on the head, as shown and described.

6. The combination, with the brake-beams, of the sliding hooks N, the link or staple O for securing the latter, and the operating-lever, as shown and described, for the purpose specified.

7. The brake-beams, double hook-hangers, and recessed blocks attached to the beam to support the beams, and adapt them for convenient detachment, as set forth.

8. The cast frames A A, having mortises for reception of the ends of the truck-timbers, as shown and described.

182,456. TREATMENT OF METALS IN FORGES, &c. Joseph P. Gill, Newark, N. J. [Filed Aug. 21, 1876.]



1. In the treating of metals in forges, welding and reheating furnaces, and in the manufacture of metals by fagoting, hammering, and rolling, the direct application of hydrogen gas, either pure or with a small admixture of carbonic oxide, said gas being applied with or without atmospheric air, and with or without some carbonaceous material for fuel, but always in excess, as and for the purpose set forth.

2. The direct application of carbureted-hydrogen gas or hydrocarbon vapor, in regulated quantity and quality, either with or without hydrogen gas, to the treatment of iron and steel in the forge or a reheating-furnace, either open or closed, as and for the purpose set forth.

3. In the process of treating metals in forges, welding and reheating furnaces, the direct application of hydrogen gas combined with the direct application of carbureted-hydrogen gas or hydrocarbon vapor, in regulated quantities, for the purpose of increasing the percentage of carbon in them, or with the direct application of carbonic-oxide gas or carbonic-acid gas, for the purpose of decarbidizing or decarbureting them, or with the direct application of superheated steam and carbonic-acid gas, to assist in decarbureting them, and also with air either hot or cold, substantially in the manner as herein described, and for the purpose set forth.

4. The process of annealing articles of cast-iron, malleable cast-iron, wrought-iron, and steel, and of other metallic substances, by the direct application of hydrogen gas in a vessel heated in a furnace, and from which atmospheric air is excluded or admitted in regulated quantity, the oxygen of the air uniting with the hydrogen, forming water, and leaving only hydrogen and nitrogen, substantially in the manner as herein described, and for the purpose set forth.

5. In the process of treating metals in forges, welding and reheating furnaces, for the working of the same, the passing in a downward direction of superheated steam, or commingled superheated steam and hydrocarbon vapor,

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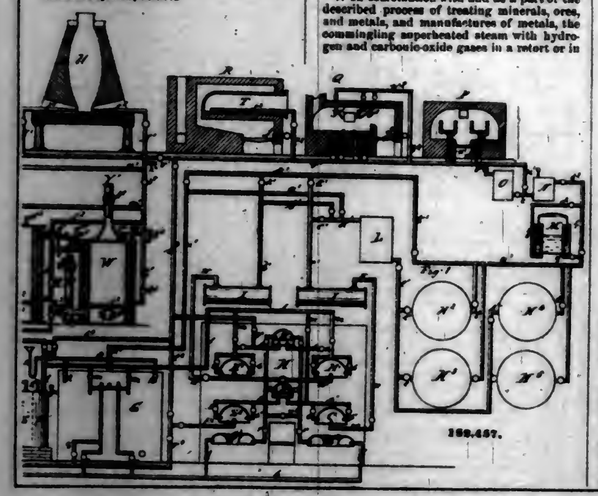
through incandescent mineral or metallic substances, heated in a vertical vessel or retort made steam-tight, and of sufficient strength to resist a high pressure, the said superheated steam or combined superheated steam and hydrocarbon vapors being decomposed in their said passage, and the direct delivery of the resultant hydrogen and other gases from the manufacturing apparatus, with the pressure of the boiler in which the steam is generated, to the forges and furnaces, without the intervention of gas-holders or pumping apparatus, substantially in the manner as herein described, and for the purpose set forth.

6. In the process of treating metals in forges, welding and reheating furnaces, for the working of the same, the commingling superheated steam with hydrogen and carbonic-oxide gases in a retort or in a conducting-chamber in and leading from a retort, the said retort or chamber containing incandescent mineral or metallic substances for the purpose of converting the carbonic-oxide into carbonic-acid gas and diminishing the proportion of the carbonic-oxide gas, substantially in the manner as herein described, and for the purpose set forth.

7. In an apparatus for the treatment of metals in forges, welding and reheating furnaces, a steam-generator, a hydrocarbon-vaporizer, and connected therewith a vessel or retort for converting the steam and hydrocarbon into gas, and a pipe or pipes leading from the said vessel or retort to the forges and furnaces, said apparatus being made steam-tight, and so constructed that the pressure from the steam-generator shall be transmitted to the gas in the converting vessel or retort, and force it through the said pipes to the forges and furnaces, substantially in the manner as herein described, and for the purpose set forth.

8. In an apparatus for the treatment of metals in forges, welding and reheating furnaces, the combination of a boiler, B, a superheater, S^1, a hydrocarbon-vaporizer, E F, a retort-bench, G, containing retorts for the manufacture of heating and illuminating gases, a retort-bench, H, containing superheaters S^1 S^2 S^3, and a retort or retorts, H^1, for the manufacture of hydrogen gas, a retort, C, for the manufacture of carbonic acid or other gases, hydraulic mains I and J, condensing, purifying, and measuring apparatus I, gas-holders H^2 H^3 H^4 H^5, small receiving-holder M, force-pump and regulator N, an air or gas receiver, O, vertical vessels or retorts V and W, blower X^2, condensing and purifying apparatus O', forge P, with tuyeres, reverberatory furnace Q and tuyeres, reheating or annealing furnace R, containing a vessel or retort, T, and connecting-pipes, the whole being connected by suitable pipes and valves substantially in the manner as herein described, and for the purpose set forth.

192,457. TREATMENT OF MINERALS AND METALS. Joseph P. Gill, Newark, N. J. [Filed Sept. 12, 1876.]



192,457.

1. In the reduction of ores and treatment of molten metals, the direct application, substantially as described, of hydrogen gas, superheated steam, carbonic-oxide gas, carbonic-acid gas, atmospheric air, either hot or cold, the hydrogen being in excess, and carbureted-hydrogen gas and hydrocarbon vapors, substantially in the manner as herein described, and for the purpose set forth.

2. In the treatment of metals and manufactures of metals, the direct application, substantially as described, of hydrogen gas, superheated steam, carbonic-oxide gas, carbonic-acid gas, atmospheric air, either hot or cold, the hydrogen being in excess, and carbureted-hydrogen gas and hydrocarbon vapors, either with or without a solid, liquid, vaporized, or gaseous carbonaceous fuel, substantially in the manner as herein described, and for the purpose set forth.

3. In the production of metallic sponge and its conversion into wrought-iron, steel, homogeneous iron, and cast-iron, the direct application of hydrogen gas, superheated steam, carbonic-oxide gas, carbonic-acid gas, atmospheric air, either hot or cold, the hydrogen being in excess, and carbureted-hydrogen gas and hydrocarbon vapors, either with or without a solid, liquid, vaporized, or gaseous carbonaceous fuel, substantially in the manner as herein described, and for the purpose set forth.

4. The treatment of iron in heated retorts by means of superheated steam and hydrocarbon vapor, during the process of manufacturing heating and illuminating gases by the decomposition of the said steam and vapor, substantially as set forth.

5. The direct application of hydrocarbon vapors, carbureted-hydrogen gas, and carbonic-oxide gas, in a closed vessel, box, or retort, heated in a furnace, and from which atmospheric air is excluded, to iron, for its conversion into homogeneous iron, steel, malleable cast-iron, or cast-iron, substantially in the manner as herein described, and for the purpose set forth.

6. In combination with and as a part of the described process for the treatment of minerals, ores, and metals, and manufactures of metals, the passing, in a downward direction, of superheated steam or commingled superheated steam and hydrocarbon vapor, through incandescent mineral or metallic substances, heated in a vertical vessel or retort, made steam-tight and of sufficient strength to resist a high pressure, the said superheated steam or combined superheated steam and hydrocarbon vapors being decomposed in their said passage, and the direct delivery of the resultant hydrogen and other gases from the manufacturing apparatus, with the pressure of the boiler in which the steam is generated, to the blast, reverberatory, annealing, and the other furnaces and apparatus, without the intervention of gas-holders or pumping apparatus, substantially in the manner as herein described, and for the purpose set forth.

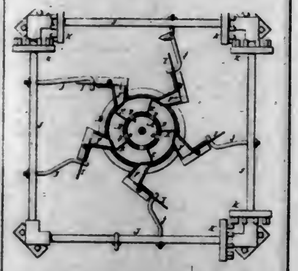
7. In combination with and as a part of the described process of treating minerals, ores, and metals, and manufactures of metals, the commingling superheated steam with hydrogen and carbonic-oxide gases in a retort or in a conducting-chamber in and leading from a retort, the said retort or chamber containing incandescent mineral or metallic substances, for the purpose of converting the carbonic-oxide into carbonic-acid gas, and diminishing the proportion of the carbonic-oxide gas, substantially in the manner as herein described, and for the purpose set forth.

8. In an apparatus for the treatment of minerals, ores, and metals, and manufactures of metals, a steam-generator, a hydrocarbon-vaporizer, and connected therewith a vessel or retort for converting the steam and hydrocarbon into gas, and a retort or conducting-chamber for the treatment of carbonic-oxide gas, and a pipe or pipes leading from said retorts to the cupola and other furnaces and vessels for the treatment of minerals, ores, and metals, and manufactures of metals, said apparatus being made steam-tight, and constructed, as described, so that the pressure from the steam-generator shall be transmitted to the gas in the converting-vessel or retort, and force it through the said pipes to the furnaces and vessels aforesaid, substantially in the manner as herein described, and for the purpose set forth.

9. In an apparatus for the treatment of minerals, ores, and metals, and manufactures of metals, the combination of a boiler, B, Plate 1, a superheater, S, a hydrocarbon-vaporizer, E F, a retort-bench, as at G, containing retorts and vaporizers for the manufacture of heating and illuminating gases, a retort-bench, H, containing superheaters, as at S^1 S^2 S^3, a retort or retorts, H^1, for the manufacture of hydrogen gas, a retort, C, for the manufacture of carbonic-acid and other gases, hydraulic mains I and J, condensing, purifying, and measuring apparatus, as at I, gas-holders, as at H^2 H^3 H^4 H^5, small receiving-holder M, force-pump and regulator, as at N, an air or gas receiver, as at O, vertical vessels or retorts V and W, blower X^2, condensing and purifying apparatus, as at O', retorts and condecting-chambers A and B, D and E, in Plate 2, a reheating-furnace, P, Plate 1, a reverberatory furnace, Q, with tuyeres, a reheating or annealing furnace, R, containing a vessel or retort, T, with connecting-pipes, a cupola or blast-furnace, U, with tuyeres, the whole being connected with suitable pipes and valves, substantially as set forth.

192,458. TURBINE WATER-WHEEL. Benj. M. Mallitte, Chester, Pa. [Filed Aug. 24, 1876.]

Brief.—The water is discharged through ports into the interior of the central ring. The water-ring is furnished with as many inlet-branches as there are buckets in the wheel, each being furnished with a gate adapted to guides at the outer ends of the branch, and having an inclined slot for receiving one end of a bent rod secured at its other end to a rock.



1. The combination, in a turbine water-wheel, of an inner ring, A, having outlet-ports *x* and an outer ring, B, and its inlets F, with a wheel having buckets for controlling the inlets and outlets, substantially in the manner described.

2. The within-described wheel, composed of the ring D, flanges *a a*, and buckets E, constructed for attachment to and detachment from the said ring and flanges, substantially as set forth.

3. The combination of the inlet-passages and their gates with shafts J, geared together, and carrying arms *j*, for the simultaneous operation of the gates, substantially in the manner described.

192,459. RAILROAD-RAIL JOINTS. Frank W. Marston, Philadelphia, Pa., assignor of one-half his right to John Marston, Jr., same place. [Filed Sept. 30, 1876.]



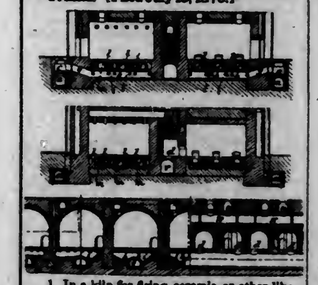
The within-described rail-joint, consisting of the halved ends of two adjoining rails and the splicing-bars B and B', in combination with cross-ties situated in respect to the said halved positions of the rails, as set forth.

192,460. CLASPS FOR BLANKET-STRAPS. Elisha A. Markham and James M. Roe, Ayer, Mass. [Filed Feb. 26, 1876.]



A clasp for blanket-straps, consisting of the plate *a* and screw *c*, made in one piece, and provided with a recess for the strap, in combination with the plate *b*, substantially as described.

192,461. KILNS. Georg Mackheim, Berlin, Prussia. [Filed July 15, 1876.]



1. In a kiln for firing ceramic or other like articles, provided with a series of connected firing-chambers, the combination with said chambers of a distinct and independent series of gas-flues for supplying gaseous fuel to said chambers, and a distinct and independent series of air-flues for supplying heated air to said chambers to effect the combustion of said fuel therein, substantially as specified.

2. The combination, with the firing-chambers B, of the perforated, distinct, and independent gas-flues *g*, and dampers *c*, the flues *i*, with their openings *l* through the hearths of said chambers, and the distinct and independent perforated air-flues *f*, provided with dampers, and connecting the series of firing-chambers with each other, essentially as shown and described.

192,462. LANTERNS. Sam'l Houston Miller, Brooklyn, N. Y., assignor to Jesse B. Falk, same place. [Filed June 23, 1876.]

1. The body A, constructed with the recess *f*, in combination with the continuous base D, whereby provision is made for the attachment of the body A to the base D without cutting or recessing the upper annular portion of the base, or otherwise breaking the continuity and strength of the aforesaid upper part of the base, substantially as set forth.

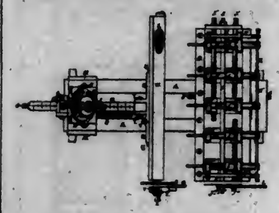
2. The combination, with the stem *s* and recessed lower end of the body A attached to the base D, by a turning or axial movement, of the pin or projection *g* in the bottom of the base D and the step *a* in the bottom of the oil-cup E, all substantially as and for the purpose herein set forth.



192,462.

192,463. BORING-MACHINES. Archibald Moore, Lowell, Mass., assignor to Samuel R. Stott, same place. [Filed May 1, 1876.]

Brief.—Wooden legs for cylinders are held and bored, at any angle to a tangent of the cylinder formed by the legs, by means of a series of longitudinally-adjustable drill-arbors provided with suitable boring-tools; a face-plate attached to the end of a graduated arm; and longitudinally and angularly adjustable screws, for adjusting the drill-arbors to or from each other, and suitable operating mechanism.



1. The face-plate W, adjustable on the center *s*, in combination with the drill-arbors D D', as and for the purpose described.

2. The face-plate W, in combination with the drill-arbors D D' and the graduated arm Q, as and for the purpose described.

3. The face-plate W, in combination with the drill-arbors D D', the screw X, and ratchet Y, as and for the purpose described.

4. The face-plate W, in combination with the drill-arbors D D', the screw X, ratchet Y, and stops *b b'*, as and for the purpose described.

5. The radius Q, provided with vertically-adjustable centers N N', in combination with the face-plate W, as and for the purpose described.

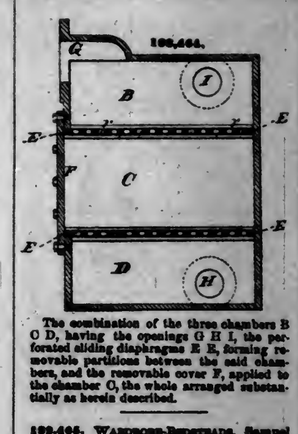
6. The radius Q, provided with the screw *d*, in combination with the swinging yoke P, as and for the purpose described.

7. The radius Q, in combination with the carrier *h*, swiveled beam *i*, and tangent screw *j*, as and for the purpose described.

8. The parallel bars G G', in combination with the rack-bars H H', pinions K K', and drill-arbors D D' D'', having the annular grooves F F' F'', all constructed and arranged as herein described, as and for the purpose described.

192,464. FILTERS FOR THE FEED-WATER OF CONDENSING STEAM-ENGINES. Jeremiah Mulford, New York, N. Y., assignor of part of his right to Cornelius H. Delamater and George H. Robinson, same place. [Filed Aug. 16, 1876.]

Brief.—If the filter becomes clogged, the outlet in the upper compartment may be used to supply water unfiltered.

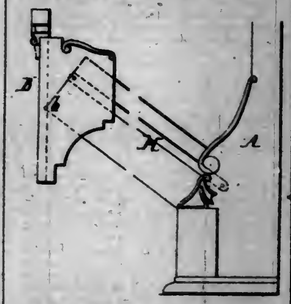


192,464.

The combination of the three chambers B C D, having the openings G H I, the perforated sliding diaphragms E E, forming removable partitions between the said chambers, and the removable cover F, applied to the chamber C, the whole arranged substantially as herein described.

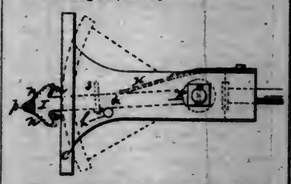
192,465. WASHBOARD-BRACKETS. Samuel M. Newcomb, Philadelphia, Pa., assignor to Henry S. Hale, Artemas Elborn, J. W. Hale, Chaney Kilburn, and Warren Hale, same place. [Filed Aug. 18, 1876.]

Brief.—A rod is pivoted at one end to the stationary frame, and at the other end to the hinged foot-board, by which means the latter is caused to fold and unfold as the bed is raised or lowered.



The combination of the head A, bed-frame D, and foot-board B of a folding bedstead, with the bar or bars H, substantially as and for the purpose set forth.

192,466. CAR-COUPLINGS. Franklin H. D. Newbard, Hokendauqua, assignor of two-thirds of his right to George Rower, Catasauqua, and Benj. B. Lynn, Bethlehem, Pa. [Filed Aug. 24, 1876.]



The combination of the draw-head A B, open at top and bottom, the buffer C, the gravity draw-bar G, with head I, provided with top and bottom hooks *m m*, top and bottom concaves *o o*, and side bevels *p p*, horizontal pivoting-bolt E, and stop-bolt h, all constructed substantially as and for the purpose herein set forth.

192,467. MOLDS FOR SHAPING SHOVEL-HANDLES. Hiram Oliver, Industry, Me. [Filed Mar. 11, 1876.]

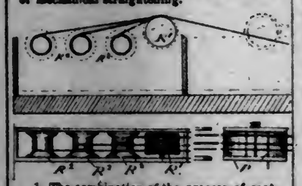
192,467.



The mold herein described for shaping the handles of shovels and other similar tools, consisting of a base-plate, A, having curved channels *a a*, formed by the rims *a a* and *b b*, the latter converging to a sharp edge or shoulder, *d*, substantially as and for the purpose herein shown and described.

192,468. STRAIGHTENING IRON AND STEEL WIRE. Wm. Wm. H. Paine, Brooklyn, N. D., N. Y. [Filed Sept. 5, 1876.]

Brief.—Regulates the distance from the coating-bath to the winding-drum in such manner that the wire shall become cooled or set before being flexed. The winding-drum is also made of a diameter varying with that of the wire under treatment, to prevent permanent bending or settling on being wound thereon. The result is a wire which uncoils in straight lengths, thus avoiding the necessity of mechanical straightening.



1. The combination of the process of coating and the process of straightening iron and steel wire in continuous lengths in one continuous process, consisting in passing the wire continuously from the swift through the acid-bath, thence to and through the coating-bath, thence in a straight line to the guide-roller and drum, these latter being placed so far from the coating-bath that the wire shall be cooled and set before reaching them, and then winding it upon the drum made of such a size, according to the size of the wire, that it shall not be permanently set thereby.

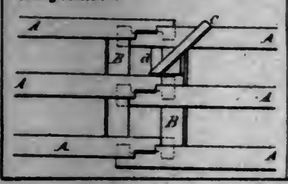
2. The combination of the molten and liquid bath P and the winding-drum R^2 and guide-roller R^1, the two latter being placed so far from the former that the wire between them becomes cooled and set while extended in a straight line, the winding-drum R^2 and guide-roller R^1 being so proportioned that the wire shall not be reset in spiral curves upon its being wound or bent thereon.

3. As an improved article of manufacture, straight coated wire in continuous lengths, with its natural limit of elasticity unimpaired.

4. As an improved article of manufacture, straight wire in continuous lengths, with the limit of elasticity naturally imparted by the coating-bath unimpaired.

192,469. PORTABLE FENCES. G. G. Park, Plainford, Nebr. [Filed Mar. 11, 1876.]

Brief.—Vertical displacement of the angularly-interlocked panels is prevented by the locking devices *c d*.



The locking devices *d* and *c*, in combination with the notched fence-panels A B, substantially as and for the purposes herein set forth.

192,470. APPARATUS FOR FACILITATING THE EXAMINATION AND PACKING OF CANS. Geo. H. Perkins, Philadelphia, Pa., assignor to himself and Jos. Le Comte, New York city, and Atlantic Refining Company, Philadelphia, Pa. [Filed Nov. 6, 1876.]

Brief.—The cans traverse slowly rearward from the point of filling to the point of boxing. During this operation the cans are turned over, so that any leak may be discovered before they leave the platform.



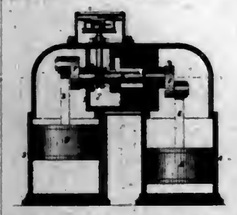
1. The combination of the carriage A, adapted to suitable ways, with the ways E and sliding frame F.

2. The combination of the ways E with the inclined guiding-ways G G', and their rollers *x*.

3. A device for testing cans filled with liquid, consisting of a way or platform extending from a point at which it receives the filled and soldered cans to a point at which the cans are delivered for boxing, the surface of said way moving at a determinate speed, and having facilities for turning the cans during their conveyance, all substantially as and for the purpose set forth.

192,471. WATER-METERS. A. W. Poocock, London, England. [Filed June 22, 1876.]

Brief.—The valve is placed loosely on an eccentric disk, which is firmly secured to the crank-shaft, so that the pressure of the liquid keeps the valve down on its seat.



The combination, in a liquid-meter, of two pistons working in suitable cylinders, a double crank-shaft, a valve, a valve-chamber provided with two partitions forming one chamber, which communicates with the supply-pipe, and another chamber, which communicates with the delivery-pipe, and a valve-seat, provided with four ports, two of which communicate with the lower, and the other two with the upper, parts of the two cylinders, all constructed and operating substantially as shown and described.

192,472. SIFE-STRAINERS. Stephen Porter, Boston, Mass. [Filed July 7, 1876.]



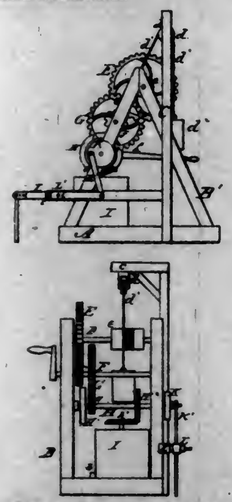
The combination, with a strainer-plate, A, having a tube, B, of a cup-shaped dish, D, which is applied to the said plate A, substantially as and for the purpose described.

192,473. COVERS FOR SAP PAILS OR BUCKETS. H. S. Preston and F. G. Sullivan, Stamford, N. Y. [Filed Dec. 11, 1875.]

Brief.—The cover is hinged to the bucket, and has an arch or hood upon the top to receive the end of the sap-spile, so that during a rain-storm the rain or snow that falls upon the cover is conveyed off outside of the bucket, and thus prevented from mingling with the sap.

192,474. CONSTRUCTION OF CHURN-MOTORS. Calvin T. Reed, Edenburg, and Thomas Williams, Newcastle, Pa. [Filed Aug. 21, 1876.]

Brief.—A series of wheels and pinions are out of gear with a rotary and a reciprocating churn while the weight is being wound on a drum, after which the movement of a lever restores the connections.



The improved churn-motor, for imparting rotary and vertically-reciprocating motion to churns of different kinds, consisting, essentially, of the frame B B', horizontal shafts D F H, gearing E *f* G *g*, drum *s*, cord *s*', pulley *d*, bevel gearing H^3 *h'*, crank K, pitman K', and rock-shaft L, all combined and arranged substantially as described and shown.

192,475. CAR-COUPLINGS. Edmd. O. Richard, Quebec, Quebec, Canada, assignor of part of his right to Jean B. Richard, Columbia, S. C., and Jos. C. Richard, Quebec, Canada. [Filed Aug. 1, 1874.]

1. Coupling-hooks K K, in combination with curved guards N and springs P P', substantially as described.

2. The coupling-hooks K K, in combination with the curved guards N N, springs P P', wedge W, and stationary lifter *p*, substantially as and for the purpose set forth.

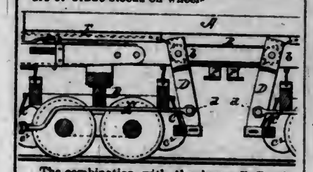
3. The stationary lifter *p*, made in one piece, having its front end inclined, and serving both as a support and guide for the coupling-hooks K K, substantially as described, and for the purpose set forth.

192,475.



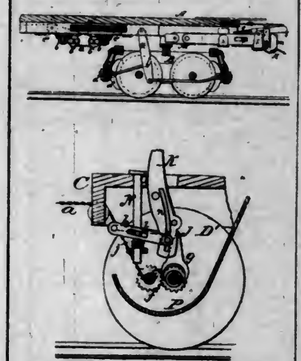
192,476. CAR-BRAKES. Edmond O. Richard, Quebec, Quebec, Canada, assignor of part of his right to Jean B. Richard, Columbia, S. C., and Jos. C. Richard, Quebec, Canada. [Filed Aug. 1, 1874.]

Brief.—Regulating-bars for limiting pressure of brake-blocks on wheels.



The combination, with the levers D D, of the adjustable regulators P P, substantially as specified.

192,477. CAR-BRAKES. Edmond O. Richard, Quebec, Quebec, Canada, assignor of part interest to Jean B. Richard, Columbia, S. C., and Joseph C. Richard, Quebec, Canada. [Filed Aug. 8, 1874.]

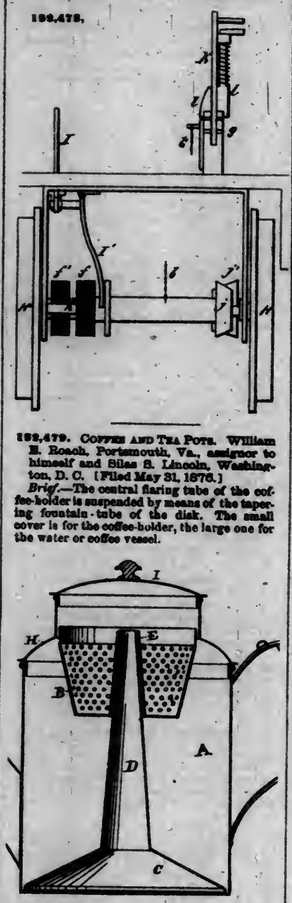


1. Brake-chains *a a*, applied around pulleys *c c* and *b' b'*, in combination with single-trees *b b*, longitudinally-movable bars F F, brake-levers G, and rods *e e*, connecting with the brakes, substantially as described.

2. In combination with the winding-drum F, fast spur-wheel *f*, and shifting spur-wheel *f'*, the yoke *g*, arm J, connecting-rod A, treadle N, and reversing-lever K, substantially as described.

192,478. COFFEE AND TEA POTS. William B. Roach, Portsmouth, Va., assignor to himself and Silas S. Lincoln, Washington, D. C. [Filed May 31, 1876.]

Brief.—The central flaring tube of the coffee-holder is suspended by means of the tapering fountain-tube of the disk. The small cover is for the coffee-holder, the large one for the water or coffee vessel.



The detachable metal perforated coffee-holder, having the central tapering tube, in combination with the disk C, covering nearly the entire bottom of the vessel, and provided with the tapering tube D, detachable top H, and cover I, all constructed and arranged as and for the purpose specified.

192,480. SWINGING CRADLES. Thomas J. W. Robertson, Washington, D. C. [Filed Aug. 21, 1876.]

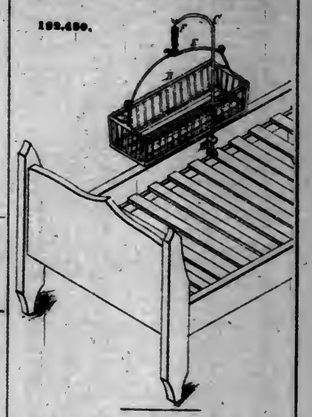
1. In combination with a cradle having a suitable supporting-eye or bearing, a standard adapted to be secured at one end to a bedstead, and formed at the other end into an arm constructed to receive the eye or bearing of the cradle-support, and permit the cradle to vibrate laterally, in the manner described.

2. The combination, with a cradle, of a standard adapted to turn in a socket, substantially as specified, whereby the cradle may be adjusted over the bed or on the outside of the bedstead, in the manner set forth.

4. The combination, with a swinging cradle, of the socket B, standard C, and spring F, substantially as specified.

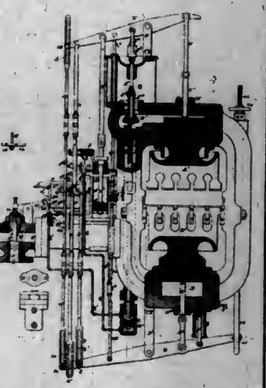
3. The combination of the socket B, the standard C, and the cradle D, arranged substantially as and for the purpose described.

192,480.



192,481. MACHINES FOR MOLDING AND PRESSING BRICK BY HYDRAULIC PRESSURE. Ethan Rogers, Cleveland, Ohio. [Filed June 20, 1876.]

Brief.—The valve-box has a central seat-plate common to the three valves, and water-supply and exhaust-chambers also common to all the valves. A valve and appropriate connection with the water-engine operates the valve by which communication between the upper follower cylinder and water-supply is opened and closed.



1. The valve *e f g*, in combination with the valve-box P and plate P^2, forming the seat for all the valves, substantially as set forth.

2. The combination of feeder *p*, link *o*, bell-crank lever *n n'*, rod 19, bell-crank lever 16 17, and valve *p*, substantially as set forth.

3. The combination of valve *g*, bell-crank lever 15 16, with pin 21, toggle-pawl 22 24, pitman-rod 26, beam *c*, rod 27, and beam T, substantially as set forth.

4. The combination of valve-box P, valve *g*, pressure and exhaust ports 5, 6, and *h'*, respectively, water-pipes Q and Q', engine O N N', and valve M, substantially as set forth.

5. The combination of feeder *p*, engine *n n' n²*, pipes o^2 o^3, valve *f*, ports *v* v^1 v^2 v^3 *h'*, shaft *w*, with arms w^2 w^3, rod *s*, and beam *c*, with pin working in slot *s'* of said rod, substantially as set forth.

6. The combination of the valve *f*, having shaft *w*, and arm w^4, with pitman *z*, beam T, spring-pin 3, shaft *s*, arms s^2 s^3, pitman *t*, and beam *c*, substantially as and for the purpose set forth.

7. The combination of upper mold-piston A, beam T, reversing-engine *f f' f''*, water-pipes *d' d''*, and valve *e*, its water ports and passages *e' e'' e''' h'*, substantially as set forth.

8. In combination of the valve *e*, rock-shaft *i*, leg or arm *i'*, arm *j*, pitman *k*, and beam *c*, arm *j'*, rod *m*, bell-crank lever *n n'*, rod *o*, and feeder *p*, substantially as set forth.

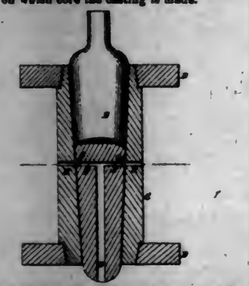
9. The combination of the valve *e*, shaft *i'*, arm *j'*, rod *m*, bell-crank *n n'*, feeder and rod *p*, *o*, link *r*, rock-shaft *s*, with arms *s' s''*, pitman-rod *t*, and beam *c*, substantially as set forth.

10. The combination of valve K, pin 42, lever 41, toggle 36 37, rock-shaft 36, arm 35, slotted rod 39, and beams T and *c*, substantially as and for the purpose set forth.

11. The combination of piston B, rod B', link B'', beam *c*, vertical stop-rod 43, with slot 44, adjusting-nut 45, and spring 44, substantially as set forth.

182,482. MANDRELS OR CORES FOR CASTING. James M. Bohrer, Shamokin, Pa., assignor to himself and William L. Follower, same place. [Filed June 13, 1874.]

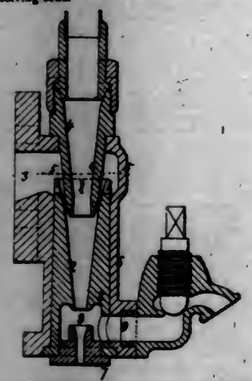
Brief.—A conical supporting-plug, provided with ventilating orifices and groove, fits a corresponding cavity in an outer casing, provided with registering ventilating orifices, and a key to permit contraction, when the plug is withdrawn, which constitutes a core, and which core is provided with annular disks, with conical perforations, between which disks and on which core the casting is made.



The combination of central tapering plug B, internally-tapering sectional shell C, beveled key J, and flanges D D, the plug having vent-hole E, lateral holes F, and groove G, while the shell has vent-holes H, all substantially as shown and described, for the purpose specified.

182,483. INJECTORS. Hubert Roggy, Brussels, Belgium, assignor to Alfred A. Dixon, Sheffield, England. [Filed July 31, 1876.]

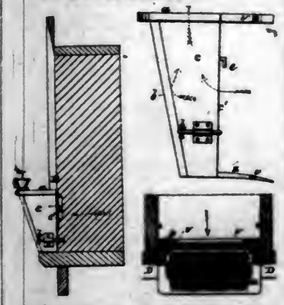
Brief.—Slits are made in the apex of the combining-cone opposite the water-pipe, into which cone and below which slits the steam is led and passes. The steam-cone is secured into an enlargement forming the water-chamber, enveloping both the combining-cone and receiving-cone.



1. The combination of the steam-nozzle of an injector with the water-chamber 5 and the combining-cone 2, having slots 1 1 in its projecting edge, as and for the purpose described.

2. The combination of the casing 6 with the detachable combining-cone and steam-nozzle, as described.

182,484. VENTILATING ATTACHMENTS FOR WINDOWS. Chas. C. Sankey, Newcastle, Pa. [Filed Jan. 19, 1876.]



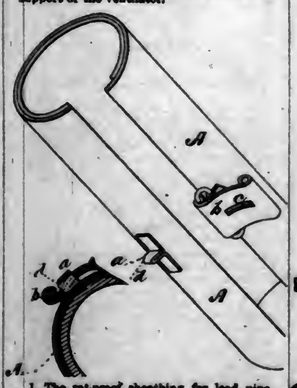
1. The casement-ventilator for windows consisting of the glass front *b*, the sides *c*, opposite the face-molding of the window-casing, and cut away at *c'* to fit the same, and the top *a* and base *a* laterally notched to correspond with the moldings, and extending beyond the sides to meet the sash, substantially as specified.

2. The combination, with the slotted and perforated molding D, of the casement-ventilator, having the horizontally-extended top, and the sides cut away at *c'* to fit said molding, and the sliding hooks and locking-bolts, substantially as specified.

182,485. METALLIC CASINGS FOR LEAD PIPES. Sarah E. Saul, Brooklyn, N. Y. [Filed Feb. 26, 1876.]

Brief.—The sheathing has an interior lining of non-conducting material glued or secured thereto, divided longitudinally, and adapted to be clamped around water-pipe already laid.

Brief.—The top and bottom of the ventilator are extended horizontally forward beyond the vertical edges of the sides, and are notched, as shown, on each side, to fit the moldings of the window-casing closely, and project between the same to the sash, against which, when the window is open, the top fits neatly. The edges of the sides are designed to fit against the face-moldings, in order that the space of the ventilator will be equal to that of the window when the sash is raised. The extended bottom affords a broad base for the support of the ventilator.



1. The rat-proof sheathing for lead pipe, made of tin or other hard sheet metal, and having an interior lining of non-conducting material glued or pasted thereto, the said sheathing being longitudinally divided and adapted to be clasped around the pipe when already laid, substantially as specified.

2. As a new article of manufacture, a hard sheet-metal sheathing, having an interior non-conducting material secured thereto, and provided with clamps, substantially as specified.

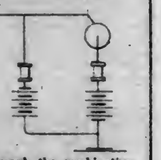
3. The combination, with a metallic pipe and a sheathing, A, of the beveled spur *a* and hasp *b*, substantially as specified.

4. The metallic sheathing A, provided with spur *a* and hasp *b*, as a new article of manufacture.

5. The frost-proof metallic or wooden sectional casings or coverings for lead pipe, tubular in form, and lined with a suitable non-conducting material, as substantially as specified.

182,486. ELECTRICAL CIRCUITS FOR CHEMICAL TELEGRAPHS. Wm. B. Sawyer, New York, N. Y., assignor of three-fourths of his right to James G. Smith, Hackensack, and Robt. F. Stockton and R. J. Anderson, Trenton, N. J. [Filed Jan. 22, 1876.]

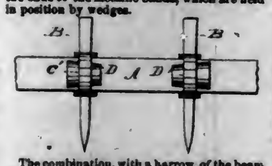
Line



In a chemical telegraph, the combination, with a battery of one polarity, which is thrown into the line by a metallic contact, of a battery of opposite polarity in a shunt, so arranged that the second battery will be constantly upon the line, the combined batteries maintaining an electrical equilibrium of the line, and the transmission of a signal being effected by the removal of the first battery through breaking the metallic contact, as set forth.

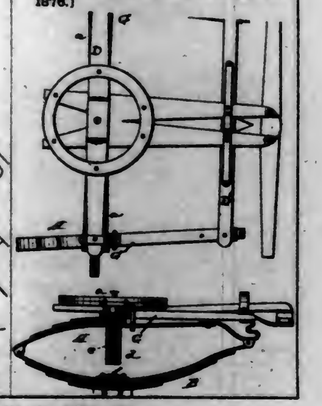
182,487. HARROWS. Christoph Schottler, Grosseville, Wis. [Filed Aug. 26, 1876.]

Brief.—The teeth fit in vertical grooves upon the sides of the beams and in slots formed in the ends of the metallic bands, which are held in position by wedges.



The combination, with a harrow, of the beam A, provided with grooves *a*, teeth B, strap or band C, and key D, all constructed and arranged substantially as shown and described, for the purpose specified.

182,488. VEHICLE-PLATFORM SPRINGS. J. E. Sherby, Brazil, Ind. [Filed June 27, 1876.]



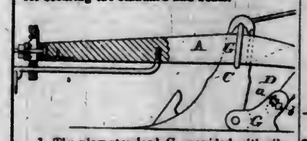
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1. The half-springs A and spring-bar D, in combination with the springs B, as and for the purposes set forth.

2. The spring-bars D D' and cross-spring bars G G, in combination with the springs A A and B B, as and for the purposes herein set forth.

182,489. PLOWS. Joseph Smoot, Sr., Baltimore, Md. [Filed Aug. 14, 1876.]

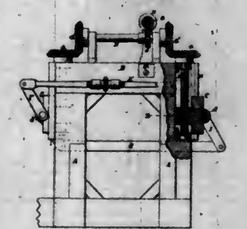
Brief.—Devices for adjusting the draft and for securing the standard and beam.



1. The plow-standard C, provided with rib or flange *e*, in combination with the grooved beam A, grooved casting *d* on top of the beam, and clip G, substantially as and for the purposes herein set forth.

2. The combination of the plow-beam A, slotted plate L, having corrugations *m*, slotted plate J, having ribs *i* and corrugations *h*, the bolt *n*, washer *p*, with ribs *s* and nut *r*, all as and for the purposes herein set forth.

182,490. STONE-SAW MILLS. D. B. Stearns, Berea, Ohio. [Filed Mar. 7, 1876.]



1. The combination of the heads C C, feed-screws D D, rocking shafts *d d*, with cranks or arms I I and F F, one or more saws, J, and stretcher K, all substantially as and for the purposes herein set forth.

2. The combination, with the feed-screws D D, of the miter-gears G G, shaft E, with miter-gears G' G', and worm-wheel O, and the shaft M, with worm N, and cone-pulley L, substantially as and for the purposes herein set forth.

182,491. SCREW-THREADING ATTACHMENTS TO BRADING-MACHINES. V. H. Strayer and John E. Webber, Calmar, Iowa. [Filed Mar. 20, 1876.]

Brief.—Turn crank till gage is at desired distance from nut. Place one end of pipe over beaded wheel and against gage-nut. Turn again, when nut forces pipe back off beaded wheel, which meanwhile threads it. Reverse pipe and run it on, threading the other end.

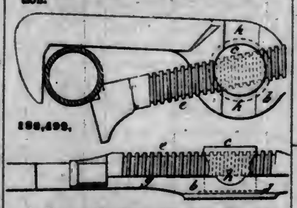


1. The gage-nut B, provided with two upward-extending prongs, which embrace the shaft C', substantially as described, and for the purposes set forth.

2. The bead-wheel A and the grooved wheel A', in combination with the gage-nut B, provided with two upward-extending prongs straddling the shaft C', substantially as described, and for the purposes set forth.

182,492. PIPE-WRENCHES. H. C. Stouffer, Canfield, Ohio, assignor of one-half his right to John Childs, Smith's Ferry, Pa. [Filed Apr. 24, 1876.]

Brief.—To adjust the tool, turn the flat side of the screw-threaded shank against the side of the other shank, and revolve it till the shanks are at a right angle. Screw the shank through the bearing-plug as far as desired, bring the flat faces of the shanks together, and revolve the screwed shank into operative position.



1. The combination, with the adjustable screw-jaw, of the cylindrical bearing-plug *e*, provided with an interior diameter screw, to receive the jaw-screw, and allow the latter to be adjusted by rotating it directly within the screw of the plug.

2. The adjustable screw-jaw, provided with the angular bearing side *g*, in combination with the cylindrical bearing-plug *e*, and the main jaw, as and for the purposes described.

3. The adjustable jaw, provided with the angular bearing side, and working by male and female screw directly through the cylindrical bearing, as described, in combination with the main jaw, having a radial face cavity, h, into which the screw may be turned, as and for the purpose described.

182,493. CAR-BUMPERS. Ivor R. Titus and Henry C. Rossinger, Huntington, W. Va. [Filed Dec. 13, 1875.]



1. The combination of the buffer-base C, spring B, cap D, connecting-rod E, plates G G, and draw-bar I, all constructed substantially as and for the purposes herein set forth.

2. The combination, with the plates G G and rod E at each end of a railroad-car, connecting the buffer and draw-bar, of the rod H, having its ends slotted and connected to the plates by a pin, *a*, passing through the slot, substantially as and for the purposes herein set forth.

182,494. BARRELS. J. Tomlinson, Goderich, Ontario, Canada. [Filed Nov. 3, 1874.]

Brief.—The barrel is composed of two layers of wood with an intervening layer of metal.



1. A wooden barrel, formed of one or more veneers, A, with the grain of the wood running lengthwise of the same, and provided with an interior cylinder, C, of a single sheet of thin wood, with its grain running at right angles to that of the veneers, and having its ends feathered and overlapping, as set forth.

2. The sheet-metal lining E, in combination with the veneer or veneers A and cylindrical sheet C, as and for the purposes set forth.

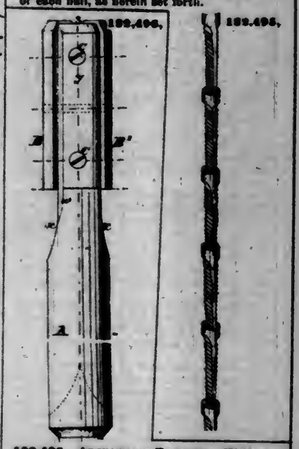
182,495. FASTENINGS FOR THE SOLES OF BOOTS AND SHOES. Chas. H. Trask, Lynn, Mass., assignor to the American Cable Screw Wire Company. [Filed July 13, 1875.]

1. As a new article of manufacture, a continuous length of integral wire or rod of distinct nails or pegs, having heads and points, substantially as and for the purpose herein set forth.

2. A continuous wire of distinct nails or pegs, having heads and cutting-points formed by coincident indentations in the sides of a wire or rod, and with angles of taper on two or more sides, leaving the heads of equal diameter with the rod, for the purpose stated.

3. A continuous length of integral wire or rod of nails, the heads of which are unreduced sections *x*, which sections or shoulders are adapted to serve as a means of feeding the continuous rod, and determining the extent of the feed, which must be the length of the nail, and no more.

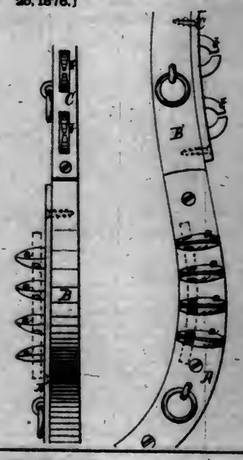
4. A continuous length or integral wire of distinct nails or pegs, having transverse roughened corrugations, curves, or threads *x*, applied to the coincident indentations or tapers of the wire which forms the tangs or blades of each nail, as herein set forth.



182,496. ADJUSTABLE REAMERS. William Tucker, Fiskedale, Mass. [Filed Mar. 27, 1876.]

The improved adjustable reamer herein described, consisting of a stock, A, having a pair of jaws, *y y'*, with angular bit-seats *x x* between them, cutting-bits or cuts B B', having wedge-shaped backs fitting into the said seats, and adjusting-screws C C', uniting the said jaws and the bits respectively, substantially as illustrated and set forth, for the purposes specified.

182,497. HAMES FOR HARNESS. John D. Turbeville, Dresden, Tenn. [Filed Jan. 26, 1876.]



The wooden hame B, having the metal plate A, carrying the ings *a*, and secured upon the front of the hame, extending from the lower extremity to somewhat above the middle thereof, and the metal plate C, carrying the slotted hame-strap eyes *b*, secured upon the edge of the hame, and extending from the point where the lower plate terminates to the upper extremity of the hame, as described, and for the purpose specified.

182,488. MACHINES FOR CUTTING TEXTILE MATERIALS. Albin Warth, Stapleton, N. Y. [Filed Aug. 18, 1876.]

Brief.—The power is communicated by belts or cords to prevent injury in case of the heating and setting of any journal. For a like purpose the pulleys on the cutter-standard are mounted on a sleeve, and the sleeve upon the standard. Two grinding-disks are used, and set obliquely to the axis of the cutter. The protector admits of nothing coming to the knife but the cloth and the disks.

1. In a machine for cutting textile and other materials, the combination of a pulley, *e*, swivel-arm G H I, belt *f*, pulleys *f'* *c'*, belt *d'*, pulleys *b'* *p*, disk-knife *c*, and foot-plate K, with its standard L, all constructed and operating substantially in the manner shown and described.

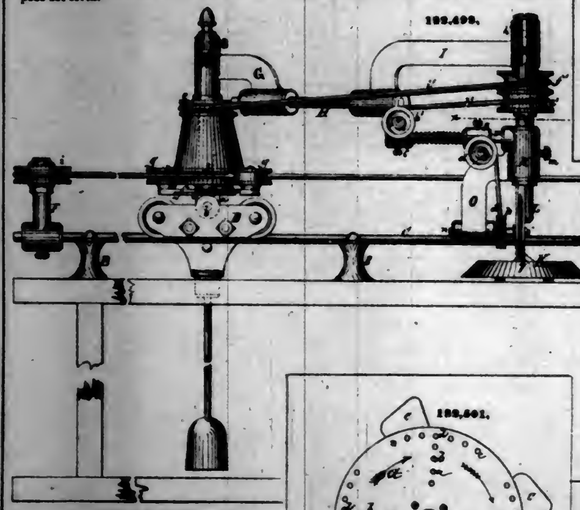
2. The combination, with the pulleys *c' f'*, standard L M, and disk-knife *c*, of a tube, *g'*, fitting loosely over the pin M and into the pulleys *c' f'*, substantially as and for the purposes set forth.

3. The combination of the carriage D, belt *k*, pulleys *c d*, swivel-arm G H I, pulleys *c' f'* *b' p*, standard L, disk-knife *c*, and foot-plate K, all constructed and operating substantially as and for the purpose shown and described.

4. The protector L, enveloping the disk-knife *c* except at the grinding and cloth-cutting points, substantially as and for the purpose set forth.

5. The grinding-disks *n' o'*, arranged on opposite sides of the disk-knife *c*, and mounted on a shaft running in a direction oblique to that of the knife-arbor, substantially as set forth.

6. The combination, with the sleeve N, standard L M, disk-knife *c*, and foot-plate K, of a hanger, O, which forms the bearing for the knife-shaft, and of a rod, *r*, which supports pulleys *b'*, substantially as and for the purpose set forth.



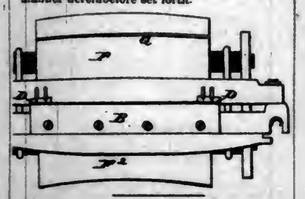
182,489. VESSEL-CUTTING MACHINES FOR BARREL-MAKING. Jasper A. Waterman, Reading, Mich. [Filed Feb. 10, 1876.]

Brief.—A continuous sheet of wood for forming a barrel has the proper bilge given to it while being cut from the log.

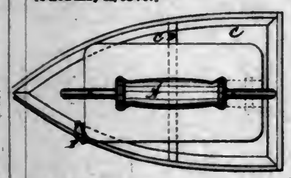
1. The curved knife B, for cutting a bilge-shaped sheet of wood, in combination with rolls F F', substantially in the manner herein before described, for the purpose set forth.

2. The combination, with the knife B, of the shaping-roll F, provided with the knife G, whereby a sheet of wood is cut from a log, and formed with a bilge-projection into a barrel-blank, substantially in the manner hereinbefore set forth.

3. The combination of the roll F, provided with the knife G, with the feed-roll F', whereby a sheet of wood is both fed from a log and cut into a barrel-blank, substantially in the manner hereinbefore set forth.

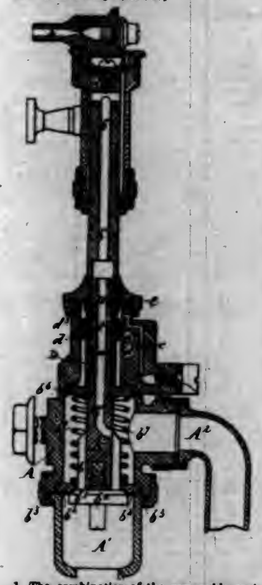


182,490. SAD-IRONS. James M. Whiting, Providence, R. I., assignor of one-half his right to Benjamin F. Fabodie, same place. [Filed May 11, 1876.]



The combination of irons *c c*, springs *b b*, guard *a*, wedge W, and shoe *e* with vertical rib, as shown and described.

182,491. STONE-DRESSING MACHINES. Israel Whitcomb, Hingham, Mass. [Filed Feb. 21, 1876.]



1. The combination of the removable seat *b'*, washer *b'*, valve *b'*, having stem *b'*, all said parts being constructed and arranged, as shown, with relation to valve-stem B and shell A, as and for the purpose set forth.

2. The stem D', shoulder *d'*, cap-washer *d'*, in combination with sleeve D, having shoulder *d*, and the shell A, as and for the purpose set forth.

3. The stem B, seat *b'*, washer *b'*, valve *b'*, stem *b'*, collar *b'*, spring *b'*, sleeve D, stem D', cap-washer *d'*, cap E, packing *e*, stem E', shell A, having ribs O O', water-passage *c*, the regulating-screw F, and pipes A' A', all said parts being constructed and combined as

The improved stone-dressing machine, substantially as described, consisting of the series or sets of hammers or strikers C, and the set of disks B, provided with the pivot and stop-pins *b d*, and the radial and areal ranges of holes *c c*, all ranged with a shaft, A, and to operate essentially as specified.

182,492. WATER-CLOSET VALVES. Peter White and John C. Kupferle, St. Louis, Mo. [Filed July 5, 1876.]

1. The combination of the removable seat *b'*, washer *b'*, valve *b'*, having stem *b'*, all said parts being constructed and arranged, as shown, with relation to valve-stem B and shell A, as and for the purpose set forth.

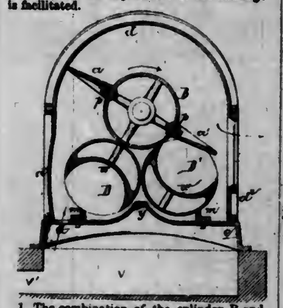
2. The stem D', shoulder *d'*, cap-washer *d'*, in combination with sleeve D, having shoulder *d*, and the shell A, as and for the purpose set forth.

3. The stem B, seat *b'*, washer *b'*, valve *b'*, stem *b'*, collar *b'*, spring *b'*, sleeve D, stem D', cap-washer *d'*, cap E, packing *e*, stem E', shell A, having ribs O O', water-passage *c*, the regulating-screw F, and pipes A' A', all said parts being constructed and combined as shown and described, as and for the purpose set forth.

5. The combination, in a regulator-valve, of a cylinder, G, having stem G', with water-passage *b'*, cup-leather *g*, screw *g'*, cup G', cup-leather *g'*, upper cap G', having passage *h'*, water-pipe H, having passage *h*, the regulating-screw H', all said parts being constructed and arranged to operate as shown and described, and for the purpose set forth.

182,493. BLOWING-MACHINES. John W. Wilbraham, Philadelphia, Pa., assignor to himself, Thomas Wilbraham, and James Wilbraham, same place. [Filed June 30, 1876.]

Brief.—The chest is so constructed that access may be had to the interior without disturbing the working parts. The vanes are readily adjustable on the cylinder, preventing concussions. The loss of compressed air is avoided, and the adjustment of the bearings is facilitated.



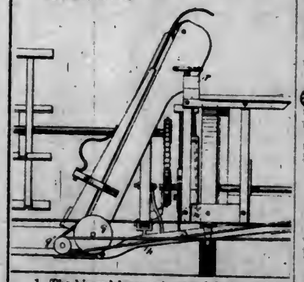
1. The combination of the cylinder B and its vanes with the chest, composed of the heads *b b*, arched top-piece *d*, concentric with the said cylinder, the base *c*, and detachable side pieces *d' d'*, all substantially as set forth.

2. The combination, in a blowing-machine, of a vaned cylinder, B, arranged to revolve in a chest, with a chamber, *r*, below the base, an inlet passage, *v'*, and an opening, G, in the base, all substantially as set forth.

3. The combination of the cylinders D D', the base *c*, and the adjustable blocks *m m* on the base, as specified.

4. The combination of the two cylinders D D' with the extension *y* of the base.

182,494. HARVESTERS. Giles S. Williams and A. J. Peirce, Madison, Wis. [Filed Apr. 28, 1876.]



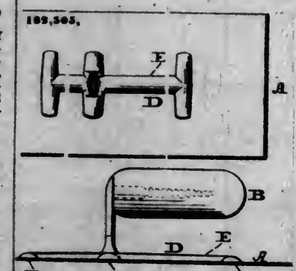
1. The hinged bars *c c'*, arms *h h*, in combination with the equilibrium-lever *e*, and rod or chain connections, as set forth.

2. In combination with the hinged bars and arms and levers, the nut-screw and hand wheel and connections, as and for the purposes set forth.

3. In combination, the lever *e*, bars *c c'*, and arms *h h*, and the nut for raising and lowering the inner end of the platform and the grain-wheel, the cord or chain for raising the same passing over the pulleys, and connected to the nut, for simultaneously raising both ends, as set forth.

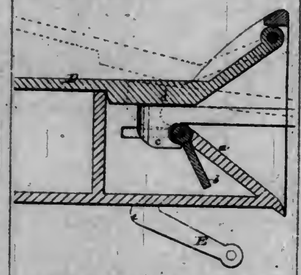
182,495. PLASTERERS' TROWELS. Wallace Williamson and Wm. H. Greaser, Philadelphia, Pa. [Filed Aug. 17, 1876.]

182,505.



The combination, with the trowel-blade A, of a re-enforce, D, consisting of the longitudinal bar E and transverse bars F, substantially as and for the purpose set forth.

182,506. CAR-COUPLINGS. Jas. H. Wood, Baltimore, Md., assignor to himself and Elisha Davis, Tunnelton, W. Va. [Filed June 17, 1876.]



1. The cover D, provided with, at the upper part of the front of draw-head, a fulcrum-pin that serves also to brace and re-enforce the open top of draw-head, as described.

2. The cranks E E, having head *e*, combined with an armed shaft, B *b*, and a hinged presser-board, having projecting sides *d*, as and for the purpose described.

3. A draw-head having inclined mouth, rock-shaft B with its lift-arm, and the front pivoted cover, all constructed and arranged substantially as and for the purpose specified.

182,507. COLLAR-BUTTONS. S. W. Young, Providence, R. I. [Filed Aug. 5, 1876.]



The collar-button consisting of the roughened linings *d*, the post *e*, having a central rivet portion, and the edge-rolled cap and shoe, substantially as specified.

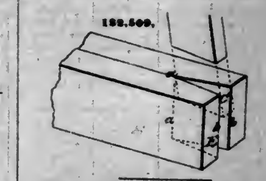
182,508. FIRE-EXTINGUISHING COMPOUNDS. Francois Charles Zapfe, New York, N. Y. [Filed Aug. 22, 1876.]

The herein-described fire-extinguishing compound, consisting of a mixture of calcium chloride, alum, having a potash base, and water, substantially as herein set forth.

182,509. DIES FOR TRIMMING THE POINTS OF HORSESHOE-NAILS. John H. Zottman, Vergennes, Vt., assignor of one-half of his right to William S. Hopkins, same place. [Filed June 20, 1874.]

The die for pointing horseshoe-nails, provided with an opening, having beveled side faces intersecting each other, the outer edges of the opening being parallel to each other, and the outer end of the die being inclined to the cutting face, substantially as described, and for the purpose set forth.

182,510.



1. As a new article of manufacture, round straight steel wire, in continuous lengths, with the natural limit of elasticity imparted by the heating device, and subsequent cooling unimpaired.

2. As a new article of manufacture, round straight tempered steel wire, in continuous lengths, with the limit of elasticity imparted by the heating device and subsequent tempering-bath and cooling unimpaired.

3. The process of straightening round steel wire, of various sizes, in continuous lengths, consisting of passing the wire through the heating device, and thence in a straight line to the roller-guide and drum, placed so far from the heating apparatus that the wire shall be permanently set between them, and then wound on a drum of such diameter as shall not reset it in the form of spiral curves.

4. The combination of the process of tempering, and the process of straightening, round steel wire, in continuous lengths, in one continuous process, consisting in passing the wire continuously through the heating device, thence to and through the tempering-bath, thence in a straight line to the guide-roller and drum, the latter placed so far from the tempering-bath that the wire shall be cooled and set before reaching them, and then winding it upon the drum, made of such a size, according to the size of the wire, that it shall not be permanently bent thereby.

5. The combination of the heating device F, the hardening and tempering bath B, and the winding-drum E', and guide-roller R', the two latter being placed at the relative distances from the tempering-bath described, so that the wire shall be cooled and set while extended in a straight line between them, and the winding-drum E' and guide-roller R' being constructed of diameters proportioned to the size of the wire, as set forth, whereby the resetting of the wire in spiral curves, upon its being wound or bent thereon, is prevented, substantially as described.

182,511. TYPE-WRITING MACHINES. C. L. Sholes and M. Schwalbach, Milwaukee, Wis., assignors to the Type-Writer Company, New York city. [Filed Mar. 30, 1872.]



1. The combination of a series of connecting wires or ligaments with a series of type-bars of a type-writing machine, pivoted and set so they may vibrate and all strike at the same place, and with a series of pivoted key-levers, each provided with a pivot at one end and a key on the other, by the attachment of each connecting wire or ligament directly to the outer end of a type-bar, and directly to a point between the pivot and key of a key-lever, substantially as described.

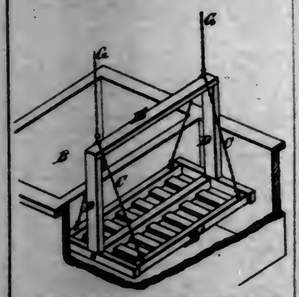
2. The combination of a series of key-levers of a type-writing machine, each provided with a pivot at one end and a key on the other, with a guide rack or reed composed of a wire or pin between each two contiguous key-levers and attached to a cross-bar, both above and below the key-levers, substantially as described.

3. The combination of the key-levers and letter-space ratchets of a type-writing machine with a vibratory frame composed of a vibratory bar or arm attached to each end of a connecting-bar, pivoted in line across over the key-levers, of a pendent cross-bar, under and next the key-levers, and of a connecting wire or ligament attached to each end of the under cross-bar and to the corresponding vibratory bar above, substantially as described.

4. The combination of a lifting-spring with the letter-space ratchets and key-levers of a type-writing machine, each key-lever provided with a pivot at one end and a key on the other, and with the vibratory frame composed of a vibratory bar or arm attached to each end of a connecting-bar pivoted in line across over the key-levers, of a pendent cross-bar under and next the key-levers, and of a connecting wire or ligament attached to each end of the pendent cross-bar, and to the corresponding vibratory bar above, substantially as described.

REISSUES.

7,311. APPARATUS FOR HANDLING HIDES DURING THE TANNING PROCESS. Otis W. Bean, Tecumseh, Mich. Patent No. 170,280, dated Nov. 23, 1875. [Filed Aug. 12, 1876.]



1. In combination, with a tan-vat, a horizontal platform, adapted to receive the hides upon its surface, and to be raised and lowered in the vat, by means substantially as described.

2. The combination of the platform B' and posts D D, top cross-beam E, binding-chains C C, and hoisting-chains G G, substantially as and for the purpose set forth.

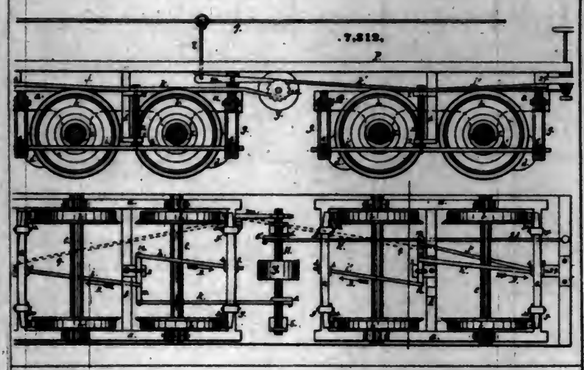
7,312. AUTOMATIC CAR-BRAKES. J. Davis, Allegheny, Pa. Patent No. 55,067, dated May 29, 1866; reissue No. 3,532, dated July 6, 1869. [Filed July 11, 1876.]

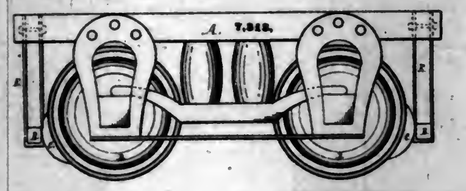
Brief.—The retraction of the draw-bar operates the brakes upon the wheels of both trucks.

1. The combination of the cranks *c* and *c'* on the spring-shaft 11 of the improved brake, substantially as herein described and set forth.

2. The combination of the pawl *n* and ratchet-wheel 22 with the shaft 11, cranks *c* and *c'*, and coil spring, combined, arranged, and operating substantially as herein described, and for the purpose set forth.

3. The combination and arrangement of the coil spring shaft 11, cranks *c* and *c'*, rods *j k j'* and *k'*, levers 18 and 16, and shaft *a*, with the rods *i i' h h'*, brake-bars *c*, and brakes *d*, constructed, combined, arranged, and operating as herein described.





7,313. CAR-BRAKE HANGERS. John Davis, Allegheny, Pa. Patent No. 55,067, dated May 29, 1866; reissue No. 3,532, dated July 6, 1869. [Filed July 11, 1876.]

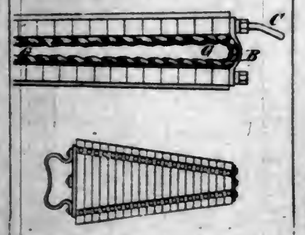
1. The brake-bars B, inclosed in stirrups E E, the latter attached to the truck-frame A, substantially as herein described, and for the purpose set forth.

2. The stirrups E E, constructed and arranged as herein described, to inclose and suspend the brake-bar, as and for the purpose set forth.

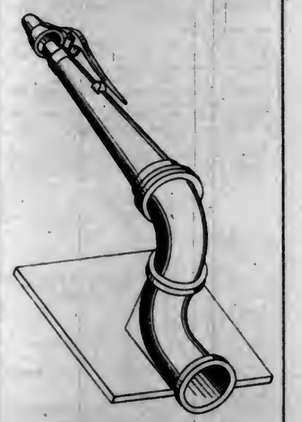
7,314. OIL-SQUEEZERS. Hans Olsen, Montreal, Quebec, Canada, assignor to Edwd. Rawlings. Patent No. 174,971, dated Mar. 21, 1876. [Filed Sept. 7, 1876.]

Brief.—Two flat boards, hinged together, have their inner meeting surfaces of corrugated metal, along the edges of which are strips of braided horse-hair.

An oil-squeezer composed of two corrugated pressing-surfaces, of wood or metal, having on either side of its meeting-faces strips of horse-hair, as herein set forth, and for the purposes described.



7,315. HYDRAULIC NOZZLES. Henry C. Perkins, North Bloomfield, Cal. Patent No. 177,419, dated May 16, 1876. [Filed Aug. 29, 1876.]



The method of moving the discharge-nozzles of hydraulic machines so as to point in any direction, the same consisting in the application of the deflecting power of the stream of water passing through the discharge-pipe upon a suitable deflecting device, substantially as herein described.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

SAMUEL A. STEVENS, TRUSTEE, *vs.* WILLIAM E. PRITCHARD.

[*In Equity.—Before* CLIFFORD, *J.—Decided September* 1, 1876.]

Reissued patents are presumed to be for the same invention as the original, unless the contrary appear.

The question is not one of fact, but of legal construction upon a comparison of the two instruments.

The provision of the act of Congress, that new features shall not be introduced, does not take away the right to include in the reissue whatever was substantially suggested or indicated in the surrendered specifications, drawings, or Patent Office model.

Where it appears, on a comparison of the two instruments as matter of law, that the reissued patent is not for the same invention as that embraced and secured in the original patent, the reissued patent is invalid.

A patent may embrace both a combination consisting of several elements, which, together, compose an organized machine, and sub-combinations consisting of fewer members of the same elements.

[*Elias Merwin*, for complainant.
Jas. E. Maynadier, for defendant.]

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OPINION OF THE COURT.

CLIFFORD, *J.*:

Cases arise where a patentee having invented a new and useful combination, consisting of several elements, which in combination compose an organized machine, also claims to have invented new and useful inventions, consisting of fewer members of the same elements, and in such cases the law is well settled that, if the several combinations are new and useful, and will severally produce new and useful results, the inventor is entitled to a patent for the several combinations, provided he complies with the requirements of the patent act, and files in the Patent Office a written description of each of the alleged new and useful combinations, and of the manner of making, constructing, and using the several inventions. He may, if he sees fit, give the description of the several combinations in one specification, and in that event he can secure the full benefit of the exclusive right to each of the several inventions by separate claims, referring to the specification for the description of the inventions, without the necessity of filing separate applications for each of the inventions. Separate descriptions of the respective inventions in one application are as good as if made in several applications; but the claims must be separate, and it would follow that if the patentee, by inadvertence, accident, or mistake, should fail to claim any one of the described combinations, he might surrender the original patent, and have a reissue not only for the combinations claimed in the original specification, but for any which were so omitted in the claims of the original patent. (*Gill vs. Wells*, 22 Wall., 24.)

Matters of fact are for the most part without dispute, and they may be stated in a few propositions, as follows:

The complainant is the assignee of the reissued patent of Joseph L. Joyce, as the same is exhibited in the record.

By the patent it appears that the invention is a new and useful improvement in making boots and shoes, the object of the same being to protect the upper leather near where it is joined to the sole. Superadded to that, the patentee states that, in the usual construction of boots and shoes, the upper leather, as it is turned over the edge of the insole, is exposed upon the inside to the angle of the upper side of the insole, and at the toe of the shoe or boot, particularly in children's wear, and he also states that the wear of the shoe or boot, in consequence of that exposure, soon cuts through the upper

leather, or rather forms a bearing, against which the wear upon the outside soon destroys the upper leather at such bearing. Having pointed out the defect to be remedied, he proceeds to state that the object of his invention is to overcome that difficulty; and that the invention consists in beveling the edge of the insole from the lower side back toward the top, so that the upper will not bear against the upper angle of the insole; also in an upwardly-projecting edge on the sole around the toe, formed from a part of the sole, but so as to preserve the outer edge of the sole, to show as the whole or part of the principal sole.

Frequent reference is made by the patentee to the drawings. As, for example, he states that in his improved construction he bevels the insole from the lower surface up, as denoted on the left of Fig. 2 in the drawings, so that the angle of the insole, around which the upper bears, will be down upon the outer sole, leaving no exposed angle in the upper against which the wear will come as in the usual construction, by which means the angle against which the wear of the shoe is made being removed, it follows that the wear of the shoe will be much less than when the angle is present, as in the usual construction.

Special reference is then made to Fig. 1, as illustrating the second part of his invention, and the patentee states that the sole of the shoe or boot is constructed with an edge projecting up onto the upper, so as to protect the same from wear, and that the edge is formed by cutting down the surface of the sole, as represented in that figure.

Two claims are added, but it is only necessary to refer to the second, as it is not pretended that the first claim has been infringed by the respondent. What the patentee claims in the manufacture of boots and shoes from leather in the second claim is, the sole constructed with a recess, into which the insole and the upper, at the edge of the insole, are embedded, the surrounding edge of the recess being formed from the sole itself, within, and so as to preserve the outer edge of the sole, to show as the whole or part of the principal or outer sole.

Process was issued and served, and the respondent appeared and filed an answer, in which he set up the following defenses: 1. He alleges that the patentee is not the original and first inventor. 2. That the second claim of the reissued patent is not for the same invention as the original patent. 3. He denies the charge of infringement.

1. Suffice it to say in respect to the first defense that it is unsustained by any satisfactory proof, and having been abandoned in the argument, it is overruled.

2. Reissued patents are presumed to be for the same invention as the original unless the contrary appears. Matters of fact are not open under such an issue in a suit for infringement. Instead of that, the conclusion in such case must always be in favor of the validity of the reissued patent, unless it appears upon a comparison of the two instruments that the reissue, as matter of legal construction, is not for the same invention as the original. Surrenders are allowed in order that what was imperfect before may be made perfect, and in order that what was before ambiguous may be made clear and certain; and for that purpose the patentee may add whatever was substantially suggested or indicated in the original specifications, drawings, or Patent Office model. New features may not be introduced, for the reason that every interpolation of the kind is forbidden by the act of Congress. Errors and defects may, however, be corrected under the conditions specified; and the prohibition that new features shall not be introduced must not be understood as taking away the right to include in the reissue whatever was substantially suggested or indicated in the surrendered specifications, drawings, or Patent Office model.

Unquestioned authority is conferred upon the Commissioner to grant a new patent in case the original is surrendered, and his action in granting the same is final and conclusive, unless the court is of the opinion, upon comparing the two instruments, that the reissued patent, as matter of legal construction, is not for the same invention as the original. Such was the rule laid down by this court the first time the question was presented to the present presiding justice. (*Sickles* vs. *Evans*, 2 Cliff., 221.) Attempt was made in that case to maintain the proposition that, in the absence of fraud, the allegations in the specification of a reissued patent, however different they may be from the description in the specification of the original patent, are nevertheless conclusive evidence that the invention was made, and that the means to accomplish the result were invented as therein described. Responsive to that proposition, the court remarked that where two specifications are consistent, or where there is no positive conflict or absolute inconsistency, the proposition may be correct; but where it appears on the face of the respective specifications, as matter of law, that the specification and claims of the reissued patent are for a different invention from that secured in the original letters patent, such a rule cannot be applied. Much consideration was given to the whole subject in that case, and the court held that where it appears, on a comparison of the two instruments as matter of law, that the reissued patent is not for the same invention as that embraced and secured in the original patent, the reissued patent is invalid, because that state of the case shows that the Commissioner exceeded his jurisdiction, and the court in this case adheres to that conclusion without qualification or abatement.

Beyond doubt, the invention in controversy is of a twofold character, both tending to accomplish the same end; and, for the purposes of explanation, it may be divided into two features, consisting, in the first place, in beveling or paring away the insole so that the upper will not bear against the upper angle or edge of the insole. All details in respect to that feature will be omitted, as nothing of the kind is in controversy in the case before the court. Coming to the second feature, it is clear that it consists in cutting a recess in the outer sole, or sole next to the inner sole, near the toe, into which the upper underlying the insole, and the insole itself, can be embedded more or less, the wall of the recess thus forming a protection to the upper at the toe. Properly applied, no doubt is entertained that the invention is a highly useful one in making boots and shoes to be worn by children. Both parties agree that it is the second feature of the alleged invention that is included in the second claim of the reissue. Attention is called to the fact that the second claim of the reissued patent differs from the second claim of the original patent, as if the difference in the claims of the two patents is sufficient to show that the former is not for the same invention as the latter. Such a comparison is doubtless proper in considering the issue before the court, but it is by no means decisive of the issue, as the surrender is often made to correct errors and defects of the Patent Office or of the party in improperly limiting the claim or in giving it a greater scope than the description will warrant. Corrections may be made in such cases by the specifications, drawings, or Patent Office model, and if the alterations do not exceed what was well described before, and what is substantially suggested or indicated in the surrendered specifications, drawings, and Patent Office model, the reissued patent cannot be held invalid upon the ground that it embodies and secures a different invention from the original. Apply those rules to the case before the court, and the conclusion necessarily follows that the second defense must be overruled, as it is not possible to decide as matter of law that the reissued patent is for a different invention from that embodied and secured in the original patent.

3. Enough appears in the answer to show that the complainant must prevail over the third defense, for the reason that the answer admits that the respondent has made and sold shoes with tips formed by turning up a portion of the sole, said shoes being, so far as concerns the tip, the same as the invention described in the patent under which he works, but of the ordinary construction so far as concerns the insole. Propositions of various kinds are advanced by the respondent in support of his third defense, but they are all too much tinged with his preceding theory that the invention secured by the reissued patent is different from the original to require a separate examination. Suffice it to say that it has been overruled, and that in view of that, the invention described in the bill of complaint must be considered as the one embodied and secured in the reissued patent on which this suit is founded.

Defenses not sustained do not modify the invention in question, and if not, then it follows in a case like the present, that in the question of infringement the issue depends upon a comparison of the alleged infringing exhibits with the invention described in the bill of complaint. Tested by that rule, the court is of the opinion that the charge of infringement is fully proved. Expert testimony was given upon the subject, and it is entirely satisfactory that the manufactures of the respondent do infringe the second claim of the reissued patent.

Decree for an account and an injunction in favor of complainant, with costs.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

LORENZO H. RICHARDSON *et al. vs.* BAXTER B. NOYES *et al.*

[*In equity.—Before* CLIFFORD *and* LOWELL, *J. J.—Decided September 1, 1876.*]

A complete invention is not anticipated by a partial embodiment of the idea that was lacking in just those features necessary to its success.

Where two patents have been issued, each claiming, broadly, the same invention, and the earlier patentee is held to be the first inventor, the claim in the second patent must be restricted to the particular devices there specially described.

The defendants, though they manufactured only one part of the combination covered in the patent, are nevertheless infringers, if it appears that such parts were made and sold for the express use to which they were put.

[*Thos. L. Livermore*, for complainants.
Horatio D. Parker, for defendants.]

OPINION OF THE COURT.

LOWELL, *J.*:

The plaintiffs are the owners of two patents for improvements in children's carriages, one originally issued to Bein & Ulrich, February 11, 1868, and one to Henry M. Richardson, October 7, 1873. The distinguishing feature in both these patents is, that the top of the carriage is connected with standards which are movable and may be adjusted and fastened in any required position, before or behind the child who is seated in the carriage.

The plaintiffs maintain that before 1868 carriages for children were made with tops like those of an ordinary gig or "buggy," which would fold back somewhat like a fan, but which could not be adjusted forward of the perpendicular at all, and behind it only by folding, and not by moving the whole top in one body. Both the patents above mentioned lay claim to the broad invention, but as the plaintiffs own both it is not very important to them which patentee is entitled to it, unless some one made the invention between the date of the Bein & Ulrich and that of the Richardson patents.

So far as novelty goes, we are of opinion that Bein & Ulrich, if they made this invention, were not anticipated by any of the patents or carriages which have been introduced in evidence. We have carefully examined all of these things, but shall only mention one which appears to us to approach the invention much more nearly than any of the others. The Whitney carriage, illustrated by Exhibit 1, was a child's carriage, with a folding back, and if the evidence is trustworthy, it had a locking device not substantially different from that of Bein & Ulrich, by which the top could be held in several positions. But this carriage differed from Bein & Ulrich's in two respects, both of which were limitations upon its usefulness, as compared with the patented carriage. It was not calculated for a standing top, but only for one which folded like a fan, whereas Bein & Ulrich's is adapted to either form; and, second, it could not be tipped forward of the perpendicular. In other words, it did not have a top and standards so arranged as to move freely forward and backward, but only backward, and was kept from moving forward by the cloth of the back, or some substitute therefor. It appears to have proved imperfect, and to have been given up by reason of these very limitations. We do not consider it to be what is called an abandoned experiment, but an imperfect embodiment of the idea which is now found to be important.

The next question is, whether Bein & Ulrich's patent embodies the invention of the standard and top, so connected as to be readily moved and adjusted, practically, at any required angle. This is a somewhat delicate question, and one upon which the experts differ. We

think the preponderance of the evidence is that it did operate practically and usefully. It would seem that the inventors did not find a sale for their carriages, and that their invention was capable of a better application than they were aware of. As they applied it the seat for the child was made to shift from one end of the carriage to the other, and this required a larger and more expensive carriage than is at all necessary, for as soon as you acquire the full power of shifting the top so as to shield the child in any required direction it is useless to change the seat. We are satisfied from the evidence and from inspection of the model, as compared with the patent, that the invention was made and described by Bein & Ulrich.

It follows that Richardson's patent must be restricted to the particular devices there specially described; but, as we have said, that is not material, because the plaintiffs own both patents.

Do the defendants infringe the Bein & Ulrich patent? We find that they do. They make only the standards for children's carriages; but it is admitted that they are made and sold to the carriage-builders for the express use to which they are put—that is, for children's carriages, and it is not denied that this makes them in law infringers, if their standards, when combined with the carriages in the mode in which they are designed to be combined, infringe the patent.

Upon this point it seems to us that the defendants use standards which embody the Bein & Ulrich improvement. It is true that their standards are so pivoted to the top that the latter can be moved by itself instead of being moved with the standards in the arc of a circle. This may or may not be an improvement, as to which the witnesses are at issue, but, if it be one, it is by way of addition to the patent rather than in avoidance of it. It contains "the standard for supporting a carriage top, consisting of two parts suitably united, and provided with a device for locking said parts in any required position," as described in the patent.

Decree for complainants for an injunction and an account.

FREDERIC HOLBROOK, *Tr., et al. vs.* JOSIAH B. SMALL; SAME *vs.* ELBRIDGE G. MATTHEWS.

[*In equity.—Before* CLIFFORD *and* LOWELL, *J. J.—Decided September* 1, 1876.]

A claim for making in iron a frame which had before been made in wood cannot be sustained.

It is an infringement of a patented machine to make and use a machine which operates, or may operate if the owner is disposed to use it so, in the manner pointed out by the patent.

[*John Hilliz*, for complainants.
T. L. Livermore, for defendants.]

OPINION OF THE COURT.

LOWELL, *J.*:

Elbridge G. Matthews, the defendant in one of these suits, is the patentee of the improvements in controversy, for which he took out two patents, which are now the property of the plaintiffs. The defendants in the other suit are the manufacturers who employ him. The machines which the defendants make and sell are intended to rival and supersede those of the plaintiffs, and to avoid their patent, and the only question is whether it has been successfully avoided. Both patents relates to machines for sowing seed, and are admitted to be valid. Infringement only is denied.

The patent of April 13, 1869, No. 88,971, has three claims in controversy, which, without following the exact words of what are technically called the claims, are these:

1. A frame made of malleable iron or other metal, in combination with the handles and seed-box.
5. The use, in the combination, of a white or light-colored lining for the inner surface of an open seed-tube or conductor, to enable the workman to distinguish readily the operation of the machine in sowing seeds.
7. The arrangement of the dial-plate and dial in the device for holding the latter in place, substantially as described, whereby the dial can be adjusted without tipping or turning over the machine.

In the Patent of June 8, 1869, two claims are in controversy:

1. The combination, with the marker J, and arms I I, of the pins *e* and *f*, for the purposes set forth, which are to retain the markers in an elevated position when not in use for marking the place for the furrow.
4. A seed dial-plate constructed as described in the patent.

Much evidence has been introduced upon the state of the art before 1869, and we think the defendants have proved that the first claim of the first patent is merely for making in iron a frame which had before been made in wood; and, therefore, as matter of law, that this as a distinct claim cannot be supported, and that the infringement of that claim by itself is no sufficient ground of action.

Upon the fifth claim the question is one of fact, whether the defendants use an open conductor with a white or light-colored lining. The evidence is conflicting, though it turns on the very simple inquiry whether the sower, in using the defendants' machines, can see the seed fall. In other words, whether their conductor is an open conductor in the sense of the patent, or is closed from the view of the operator by a gage, which is introduced for another purpose. We find the preponderance of the evidence to be, that the defendants do make and use such an open conductor, which operates, or may operate if the farmer is disposed to use it so, in the manner pointed out by the patent.

We think the seventh claim of the first patent is infringed. This is a point of construction of language and intent in the description, which, though not very clear, is, on the whole, sufficient to indicate that the figures should be on the upper side of the dial, so that they can be read and adjusted without turning or tipping the machine over.

The fourth claim of the second patent appears to us to be infringed. It is for a dial which has some advantages over the earlier forms, and these are adopted by the defendants with a change which is only formal.

The connection of the marking-arms with the pins is somewhat improved in the defendants' machine, but for the purposes of this combination we regard it as substantially similar.

Decree for complainants for an injunction and an account.

DISCLAIMERS FILED.

61,172.—Improvement in Bindings for Skirts.—THOMAS B. DE FOREST, Birmingham, Conn. Patented January 15, 1867. Disclaimer filed September 22, 1876, by SALLIE V. DAY, assignee.

Disclaims, in the second paragraph of the specification, the following words, to wit: "or other flexible material."

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date September 26, 1876.]

9,501.—Clothes-Driers.—HENRY P. ROBERTS, Tunkhannock, Pa. Application filed August 31, 1876. Term of patent 3½ years.

9,502.—Stave-Basket.—BENJAMIN F. TUTHILL, Burlington, Vt. Application filed September 5, 1876. Term of patent 7 years.

9,503.—Fountain.—WILLIAM TWEEDDALE, Brooklyn, N. Y., assignor to NORTH AMERICAN IRON WORKS, same place. Application filed August 14, 1876. Term of patent 14 years.

9,504.—Embroidery-Pattern.—EMIL CHISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed September 15, 1876. Term of patent 3½ years.

9,505.—Fences.—ALEXANDER SMITH, Monticello, N. Y. Application filed September 16, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 26, 1876.]

4,006.—Tickings and Cotton Fabrics.—AMOSKEAG MANUFACTURING COMPANY, Manchester, N. H. (Re-registration.) Application filed February 28, 1872.
"The letters A. C. A."

4,007.—Prepared Article of Wheat for Food.—AUSTIN JACKSON & Co., Dansville, N. Y. Application filed September 4, 1876.
"Word-symbol 'Granfla,' and a pictorial device beneath it."

4,008.—Electro Voltaic and Magnetic Appliances.—JAMES BEYAN, New York, N. Y. Application filed August 31, 1876.
"The representation of a lion in the act of grasping or seizing streaks of lightning."

4,009.—Liquors.—CAZADE & CROOKS, New York, N. Y. (Re-registration.) Application filed February 26, 1876.
"The words 'Otard, Dupuy & Co., Cognac.'"

4,010.—Brandy-Bottle Caps.—CAZADE & CROOKS, New York, N. Y. (Re-registration.) Application filed August 24, 1872.
"A circular colored border, A, surrounding a white or metallic ground containing a coiled belt or band consisting of two circles, B B, with a vertical bar, F, with buckle or fastening device C C, surmounted by a crown, D."

4,011.—Sugar-Cured Hams, Shoulders, and Breakfast-Bacon.—J. C. FERGUSON & Co., Indianapolis, Ind. Application filed July 19, 1876.
"The firm-name 'J. C. Ferguson & Co.,' the letters 'J. C. F. & Co.' interwoven and forming a monogram, the word 'Monogram,' and the general design of the label."

4,012.—Flour.—CHARLES GALIGHER, Cairo, Ill. Application filed July 5, 1876.
"The symbol 'FANCY CREOLE.'"

4,013.—Fly-Leaves.—JOHN J. HARRIS, Evansville, Ind. Application filed July 31, 1876.
"The fanciful words 'CHINESE SHOO-FLY.'"

4,014.—Playing-Cards.—LEE & SHEPARD, Boston, Mass. Application filed January 10, 1876.
"The words 'The Globe Playing Card.'"

4,015.—Clothing.—MOTTE & SPECHT, St. Louis, Mo. Application filed August 24, 1876.
"The word-symbol 'FAMOUS.'"

4,016.—Boots and Shoes.—MOTTE & SPECHT, St. Louis, Mo. Application filed September 7, 1876.
"The word-symbol 'FAMOUS.'"

4,017.—Salt.—NICHOLAS ASHTON & SONS, Liverpool, England. Application filed May 22, 1876.
"The words 'ASHTON'S FACTORY FILLED.'"

4,018.—Soap.—ROBINSON BROTHERS & Co., Boston, Mass. Application filed August 7, 1876.
"The word-symbol 'BABY.'"

4,019.—Printed Publication.—CAROLINE V. ROBERTSON, Hagerstown, Md. Application filed September 19, 1876.
"The pictorial devices or symbols hereinbefore described, with the words 'T. G. Robertson's,' together with the border surrounding the whole."

4,020.—Cigars.—JOHN B. ROMERO, Key West, Fla. Application filed September 16, 1876.
"The arbitrarily-selected words 'CAYOS DE SAN FELIPE.'"

4,021.—Hermetically-Sealed Goods.—STEPHEN J. SENECA, Havre de Grace, Md. Application filed September 5, 1876.
"The representation of a red cross and the words 'Red Cross Brand.'"

4,022.—Cigars and Tobacco.—R. E. SMITH, Jr., Coatesville, Pa. Application filed September 9, 1876.
"The words 'Belle of Brandywine.'"

4,023.—Rubber Goods.—UNION INDIA RUBBER COMPANY, New York, N. Y. Application filed September 7, 1876.
"The words 'UNION INDIA RUBBER COMPANY.'"

4,024.—Whisky.—WALSH & KELLOGG, Cincinnati, Ohio, and Covington, Ky. Application filed September 7, 1876.
"The fanciful words 'Orange Valley.'"

4,025.—Plug-Tobacco.—LIGGETT & MYERS, St. Louis, Mo. Application filed August 31, 1876.
"A circular tag or label having an aperture at its center, and of such color or appearance as to contrast strongly with the surface upon which it is, or is to be, affixed."

4,026.—Plug-Tobacco.—LIGGETT & MYERS, St. Louis, Mo. Application September 7, 1876.
"A star-shaped tag or label, having a circular aperture at its center, and of such color or appearance as to contrast strongly with the surface upon which it is intended to be, or is, affixed."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date September 26, 1876.]

830.—Title: **"We solicit one trial of Jettine."**—ORVEL HOLDEN & Co., Chicago, Ill. Application filed September 18, 1876.

831.—Title: **"Dr. F. P. Metz's German Remedy for Leucorrhea."**—FRANK P. METZ, Keokuk, Iowa. Application filed September 4, 1876.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

The drawings of some 150,000 patents have been photolithographed.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

INDEX OF INVENTIONS PATENTED SEPTEMBER 26, 1876.

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Boat detaching apparatus, Otterson and Reeves	13	182,593
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Burial casket, R. Allen	39	182,514
Burner for coal, J. M. Hicks	154	182,579
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Lubricating material, Vacuum Oil Company, assignee of M. P. Ewing, (reissue)	87	7,322

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Oil can, W. N. Thompson	107	182,536
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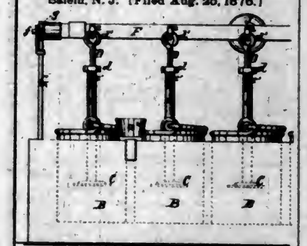
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED SEPTEMBER 26, 1876.

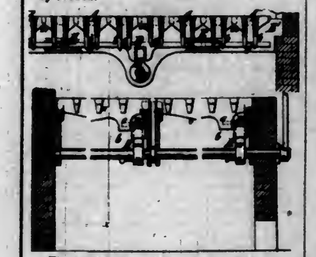
182,513. APPARATUS FOR COOLING AND DEODORIZING MILK. George Abbott, Jr., Salem, N. J. [Filed Aug. 26, 1876.]



The apparatus herein described, consisting of the water-trough A, the immersed milk-vessels B, dashers C, on rods *a* hung on arms E by links D, the oscillating-beam F with its pivoted supports G, the braces *g*, and pins *h*, and the hand-lever I, all arranged to operate together as described, and for the purpose specified.

182,514. ROCKING-GRATES FOR FURNACES. Hawley Adams, New York, N. Y. [Filed June 5, 1876.]

Brief.—The shaft is provided with a toe-piece which clutches into a cross-link, which in turn clutches with pins in a projection at the end of the grate-bars. Said bars are thereby rocked.



The combination of the rock-shaft G, having the arms or teeth H, with the slide-bar D, provided with the guiding-slots and pins *c d*, and a grate composed of independent grate-bars, provided with the legs or projections *b b*, substantially as and for the purpose herein specified.

182,515. BURIAL-CASKETS. Ethan Allen, Kalamazoo, Mich., assignor of two-thirds of his right to Hosea Henika and Oscar M. Allen, same place. [Filed Aug. 7, 1876.]

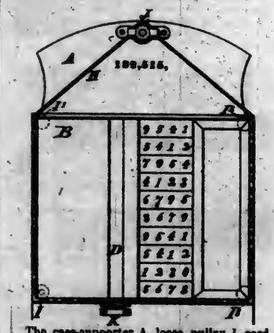
Brief.—The removable face-glass is secured in grooves by means of a spring.



In a coffin or burial-case, the combination, with the independent glass lid of the main cover, of a spring or equivalent device acting in a plane parallel to same, whereby the glass lid is automatically locked and unlocked, substantially as described.

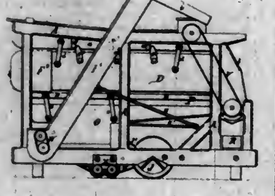
182,516. ARITHMETICO-CARDS. W. F. Beade, Buffalo, N. Y. [Filed Mar. 11, 1876.]

Brief.—The case can be turned within the suspending-cords to exhibit different columns of figures.



The case-supporter A, loose pulley J, cord H, pulleys or pins I P P P, and case B, substantially as and for the purposes specified.

182,516. GRAIN THRASHING AND SEPARATING MACHINES. B. Carpenter, Plain City, Ohio. [Filed Apr. 26, 1876.]



1. In a combined thrashing, separating, and hulling machine, the combination of a riddle composed of the adjustable slats *d* and shaking-arms *d'*, and a reciprocating shoe, D, having an imperforate bottom, with a trap-door in it, substantially as and for the purpose set forth.

2. In a combined thrashing, hulling, and separating machine, the combination of the agitating grain-reel F, the inclined board F', and the rake-teeth *f'*, substantially as and for the purpose set forth.

3. In a combined thrashing, hulling, and separating machine, the combination of the reel F, its board F', the hopper H, and the screw I, substantially as and for the purpose set forth.

4. In a combined thrashing, hulling, and separating machine, the combination of the grain-reel F, the board F', the openings *h h'*, the board K, and the screws L M, substantially as and for the purpose set forth.

5. In a combined thrashing, hulling, and separating machine, the combination of the imperforate reciprocating boards N *d'* and the screws L and M, substantially as and for the purpose set forth.

6. In a combined thrashing, hulling, and separating machine, the combination of the reciprocating board K, the fan J, and the screws L and M, substantially as and for the purpose set forth.

7. In a combined thrashing, hulling, and separating machine, the stationary air-arresters, consisting of the rabbeted boards F', and T-shaped board P, located as described, substantially as hereinbefore set forth.

8. In combination with the thrashing mechanism and the separating mechanism, the heller Q, beneath the lower end of the inclined imperforate shoe D, and the trap in said shoe, substantially as described.

9. The combination of the thrashing-cylinder, vibrating shoe D, having a trap-door, *d'*, in its imperforate bottom, the hulling-cylinder and its concave, the vibrating shoe O, and the fan J, substantially as described.

10. The combination of the thrasher C, the heller Q, the vibrating shoe D, the vibrating shoe P, and the fan J, constructed and operating substantially as and for the purpose set forth.

11. In a combined thrasher, huller, and separator, the combination, with the thrashing mechanism and its raddle and with the hulling mechanism, of inclined imperforate boards K and N, common to each, and a blast-fan and grain and seed conveyers, located essentially in the described relation to such boards, whereby the separating and sorting operations are performed, substantially as set forth.

182,517. PROPULSION OF VESSELS. Eustace J. Collett, Washington, D. C. [Filed Mar. 1, 1876.]

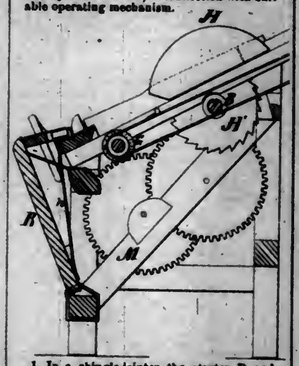


1. A laterally-vibrating wing pivoted within a wedge-shaped case attached to a vessel or other body to be propelled, substantially as herein set forth.

2. The combination, of the hull or shell A, wedge-shaped cases B B, wings C C pivoted therein, pivot-rods *a a*, and the arms *b b* connected to and operated by an engine, all substantially as and for the purposes herein set forth.

182,518. SHINGLE-JOINTS. Charles Coy, Big Rapids, Mich. [Filed Mar. 10, 1876.]

Brief.—Shingles can be edged and made of uniform width with parallel sides by means of a fixed and a movable saw, provided with shields and guards, and mounted in a rectangular frame having inclined ways; a starter for presenting the shingles to the saws, attached to the front of the main frame, and provided at its upper part with a hinged plate having bended rollers, and retained in position by an elastic rod, in connection with suitable operating mechanism.



1. In a shingle-jointer, the starter R and elastic rod *s* in combination with the plate S provided with the rollers *d d'*, substantially as described, and for the purposes set forth.

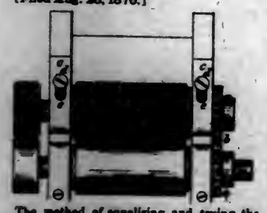
2. The shaft N, provided with the wheel O, in combination with the cord or band *c* and the movable way K, substantially as described, and for the purposes set forth.

3. The inclined ways K K', saws H', and

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arbor B in combination with the shields H I, the guards *h h'*, and the rollers *b b'*, substantially as described, and for the purposes set forth.

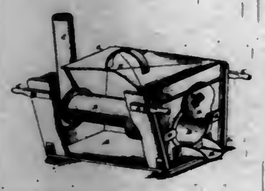
182,518. EMERY-GRINDERS FOR CARD-CYLINDERS. George Fowler, Philmont, N. Y. [Filed Aug. 26, 1876.]



The method of equalizing and truing the surfaces of emery-cylinders or rollers by bringing in contact with the perimeter thereof a plain face roller or cylinder whose surface impinges against the emery surface, and whose axis is parallel to the surface to be equalized, and by rotating the two in contact, substantially as and for the purpose described.

182,520. AGRICULTURAL BOILERS. Lemuel Fuller and Charles Fuller, Rockford, Ill. [Filed July 20, 1876.]

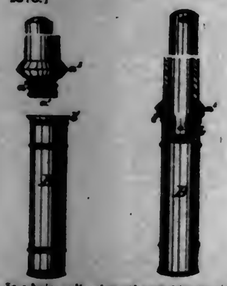
Brief.—The device is adapted to be tilted to admit of the removal of the contents.



1. In an agricultural boiler having a removable cover upon a body with oblique sides and resting upon rockers, the combination of the wooden body A, metallic longitudinal flue B, the said flue enlarged at one end to form the fire-box B, and the other end provided with the smoke-flue C, all arranged and operating substantially as described.

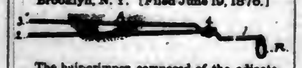
2. The combination of the body A, flue B, having flanges *l*, carrying bars G, tie-rods *h h'*, and rockers H, all these parts arranged and operating substantially as described, and for the purpose set forth.

182,521. HAIR-CURLING IRONS. Mary B. Garnham, Carthage, N. Y. [Filed Apr. 5, 1876.]



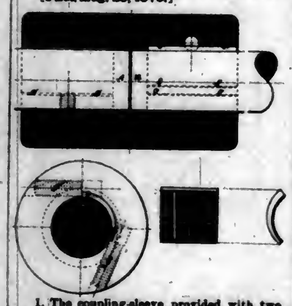
In a hair-curling iron, the combination, with the hollow tube A, having the open base or butt end *a'*, provided with a tenon, *a²*, and circumferential collar *a³*, of the handle-piece B, having the cap *b* and circumferential flange *b'*, arranged to operate as described, and for the purpose specified.

182,522. HAIR-CRIMPERS. George B. Hart, Brooklyn, N. Y. [Filed June 19, 1876.]



The hair-crimper composed of the adjustable round wire rods 1 2 3, of equal lengths, in combination with the ring E, secured to either rod, all arranged to operate in the manner and for the purpose set forth.

182,523. SHAFT-COUPLINGS FOR MACHINERY. Michael H. Kernaul, Berlin, Prussia. [Filed Aug. 23, 1876.]

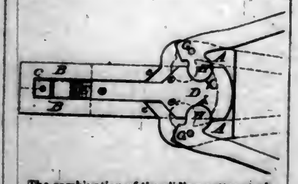


1. The coupling-sleeve provided with two independent grooves or seats, separated by a central chamber or enlargement of the sleeve-bore, and having the deepest point of one groove opposite the shallowest point of the other groove, in combination with the independent arc-shaped wedges and the shaft-sections, all constructed and relatively arranged to operate in the manner set forth.

2. The combination of the arc-shaped wedge, having a corrugated or roughened inner surface, and the retaining and adjusting screw, with the coupling sleeve or hub and the shaft, said screw passing radially through the sleeve or hub, and bearing upon the heel or large end of the wedge, as and for the purpose set forth.

182,524. BOLT-CUTTERS. W. A. Lawrence, McZena, Ohio. [Filed Mar. 25, 1876.]

Brief.—The moving cutter-bar is stopped by corresponding shoulders on it and its guides.



The combination of the sliding cutter-stock D, having recesses *h h*, shoulders *e e*, and cutter F, plate A, having guide-arms B B, forming shoulders *c c*, and bolding the solid removable cutter F, covering-plate F, and hand-levers G, all arranged to operate substantially as and for the purpose herein shown and specified.

182,526. JOURNAL-BOXES. W. H. Lungren, Wilmington, Del. [Filed Aug. 14, 1876.]



The loose liner of soft metal between car-axle journals and hard-metal bearings, so arranged that they can be removed and replaced at pleasure, and thereby prevent the beating of journals caused by any unevenness from wear or otherwise, substantially as described.

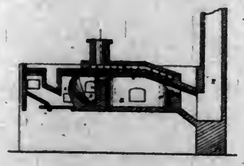
182,526. CLASPS FOR CORSETS. Mary B. Mansfield, Salem, Mass. [Filed July 1, 1876.]



As a new article of manufacture, the improved corset-guard described, consisting of the body A B, provided with the inwardly-bent teeth *d d* and holes *a b*, constructed and arranged to operate substantially as set forth and specified.

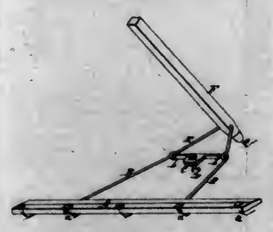
182,527. REVERBERATING-FURNACES. H. McDonald, Allegheny, Pa. [Filed Nov. 13, 1875.]

Brief.—A remelting and a puddling chamber are placed side by side in the furnace, over which extends an air-chamber having perforations extending through the crown, and admitting air to both chambers.



In a metallurgic furnace, the ordinary puddling-chamber E and remelting-chamber D, in combination with the air-chamber G and perforated crown *l*, substantially as described, and for the purpose set forth.

182,528. CARPET-STRETCHERS. G. C. Miller, Rockford, Ill. [Filed July 20, 1876.]



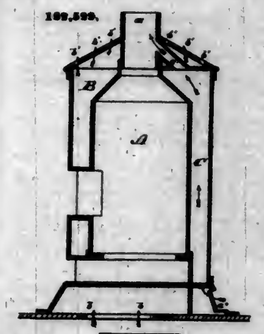
1. In a carpet-stretcher, the combination of the pull-bar, having curved teeth, the draft-rods secured to the same, the rigid dog, the ball, and pointed lever, all these parts arranged and operating substantially as described, and for the purpose set forth.

2. The combination, in a carpet-stretcher, of the pull-bar A, having the curved teeth *a* inserted therein, diagonal draft-rods B, the ball E, made from a single rod, hinged to the pointed lever F, and draft-rods, substantially in the manner shown and described.

182,529. HEATING AND VENTILATING STOVES. Chas. D. Moody, St. Louis, Mo., assignor to Charles F. Wharf, same place. [Filed Feb. 17, 1876.]

The combination of the heater A, hot-air chamber B, ventilating-chamber C, openings *b h*, *b' b'*, &c., *c''*, shaft *c'*, and pipe, *c*, substantially as described.

182,529.



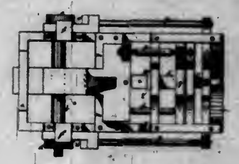
182,530. ROCKING-CHAIRS. Michl. Ohmer, Dayton, Ohio. [Filed May 15, 1876.]



The combination, in a rocking-chair or cradle, of the concave rockers A, the convex rails B of the platform, and the cross rods or levers *d*, when the respective parts are constructed and united, substantially as and for the purpose specified.

182,531. MACHINES FOR MAKING TIE-BUCKLES FOR BALE-BANDS. H. W. Oliver, Jr., Pittsburg, Pa. [Filed Apr. 24, 1876.]

Brief.—The principal novelty is the form of the dies, which, in addition to cutting the buckle from the plate, imparts to the lip that particular form necessary to the easy insertion of the strap.



1. The combination of the punch *b* and the dies *c* and *n*, one having a projection and the other a corresponding depression, for the purpose of forming, in the operation of punching the buckle, the free lip, and of setting up the same, as described.

2. In combination with the hollow die *n*, having a projection, *r*, the die *c*, having a corresponding depression, the die-box *n*, and punch *b*, operating substantially as and for the purposes set forth.

182,532. BRACKETS. Charles B. Pottengill, Boston, Mass. [Filed July 1, 1876.]

Brief.—A piece of wire is doubled back at the middle, and each arm is formed into a holder for a flower-pot. A hooked plate is arranged on the wire near the central bend, through which a fastening-screw is passed.



1. In a bracket, the body *a*, provided with the pot-holders E E, the body and holders being integral or composed of a single piece of wire, and otherwise constructed and arranged to operate substantially as set forth.

2. In a bracket, the holder A, provided with the hook C and flanges B B, the body *a*, and the pot-holders E E, constructed and arranged to operate substantially as specified.

182,533. MODE OF UTILISING OLD RAILS. Jacob Reese, Pittsburg, Pa. [Filed July 20, 1876.]



The method herein described of utilising old rails or rail ends in the manufacture of sheet or plate metals, consisting of, first, cutting the rails or rail ends to suitable lengths; second, separating the flange from the web and head; and, third, presenting the pieces so prepared to the rolls sidewise—that is, the axis of the piece parallel to the axes of the rolls, and thus reducing the piece to a sheet or plate by spreading it in a direction transverse to its longitudinal axis.

182,534. DENTAL PLUGGERS. Cassius M. Richmond, San Francisco, Cal., assignor of one-half his right to Bernard M. Gildea, same place. [Filed Oct. 11, 1875.]

Brief.—A coil spring is used for receiving and conveying the force of the blow given by the hammer.

1. The combination, in a dental plugging instrument, of the tool-holder B, shaft E, and spring D connecting them together, for the purpose set forth.

2. The combination, in a dental plugging instrument, of the pinion K on end of shaft L, bevel-gear wheel G, with the pin I and hook F, connected to the upper end of spring D by its shank H, as and for the purpose described.

182,535. HORSESHOE-BLANK BARS. Alfred B. Seymour, Cincinnati, Ohio. [Filed May 31, 1876.]

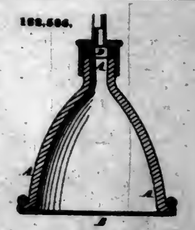


The blank herein described, consisting of a bar, A B, with parallel ridges O O', transverse cavities E E, and a longitudinal separating-groove, D, as specified.

182,536. OIL-CANS. Walter N. Thompson, Millville, N. Y. [Filed Oct. 20, 1875.]

The combination of glass body A and rubber bottom B, secured together by a bead of the latter sprung over an outer flange at the lower edge of the former, as and for the purpose specified.

182,537.

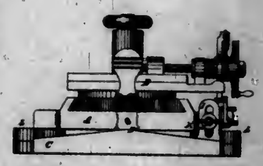


182,537. LOAD-BINDERS. Fredk. B. Turley, Sonora, Ohio. [Filed Dec. 8, 1875.]



The combination, in a boom-pole holder or binder, substantially as described, of a sliding band and hinged ring or its equivalent, with a pawl for holding the pole.

182,538. DIAMOND MILLSTONE-DRESSING MACHINES. William P. Uhlinger, Philadelphia, assignor to Samuel R. Griscom, Pottsville, Pa. [Filed July 10, 1876.]

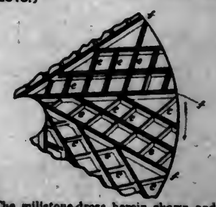


1. A pivoted bed-plate, A, in a diamond dressing-machine, so arranged as to enable the machine to dress either a right or left hand furrow automatically, substantially as described.

2. The wedge-pieces I, for the purpose specified.

3. The combination of the pivoted bed-plate A, curved slot-standards I, thumb-screws J K, and base-plate C, the whole forming a device for maintaining the bed-plate at any desired inclination, substantially as and for the purpose specified.

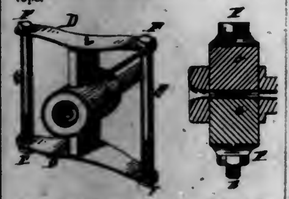
182,539. DRESS FOR MILLSTONES. Platt B. Viele, Rochester, N. Y. [Filed Nov. 9, 1876.]



The millstone-dress herein shown and described, consisting of leader or major furrows *f*, leading tangentially from the rear side of the eye of the stone, instead of the front, as heretofore, and the minor furrows *e*, leading backward at right angles, or nearly so, from the major furrows, substantially as and for the purposes set forth.

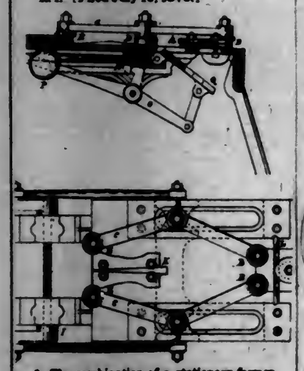
182,540. ROPE-MACHINES. David Whiton, William Thomas, and Charles F. Hough, Hingham, Mass. [Filed Aug. 14, 1876.]

Brief.—The spring-dies arranged in the "ready" mouth-piece, smooth, mold, and round, the ready producing a clean finished rope.



The combination, with the ready mouth-piece of a rope machine, of the pair of self-adjusting dies *c c*, springs D D, and adjusting bolts and nuts E E and F F, substantially as described.

182,541. MACHINES FOR BENDING HORSE-SHOE-BLANKS. John Wilts, Providence, R. I. [Filed July 10, 1876.]



1. The combination of the stationary former, A, and projection Y, the bending-rollers B B, and levers C C, with the guides E E, divided by an adjusting-wedge, K, in a horseshoe-bending machine, substantially as shown and described.

2. The combination of a trap-door, Q, of the lever C, counter-weight P, and lug N, with a horseshoe-bending machine, substantially as and for the purposes set forth.

182,542. REMEDY FOR HOG CHOLERA. M. R. Yewell, Bardstown, Ky. [Filed Apr. 3, 1876.]

For the cure of hog cholera, a compound consisting of bicarbonate of soda, bicarbonate of potash, soda-phosphate, and pulverized charcoal, salt, and the cinder and ashes from a blacksmith's forge, as a preventative, substantially as and for the purpose hereinbefore specified.

182,543. MANUFACTURE OF BOXES. Wm. H. Allen, New York, N. Y. [Filed June 19, 1876.]

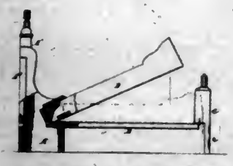
Brief.—Blanks are cut from a sheet of leather-board moistened, and struck up in a die, after which they are treated with oil and coated with shellac.



The process herein described of manufacturing boxes or covers from leather-board, rendering the same water or oil proof and hard, substantially as herein set forth.

182,544. FOLDING BEDSTEADS. D. Arnaud, Boston, Mass. [Filed Mar. 20, 1876.]





1. The combination of the stationary part A, the front B, bed-frame D, and feet C *c*, constructed and arranged as described.

2. The combination of the stationary part A with the table E, said table being hinged to a sliding piece, *e*, and having folding legs *f*, substantially as described.

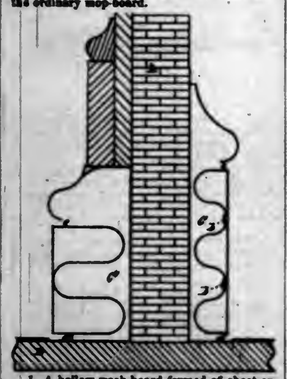
182,545. PNEUMATIC RAILWAYS. William H. Bailey, New York, N. Y., assignor to American Tube Works, Boston, Mass. [Filed Sept. 13, 1876.]



The combination of a drawn or rolled seamless metallic tube or cylinder, and a movable carrier, substantially as and for the purpose set forth.

182,546. WASH-BOARDS. J. O. Bentley, Philadelphia, Pa. [Filed Feb. 9, 1876.]

Brief.—A steam-chamber is substituted for the ordinary mop-board.



1. A hollow wash-board formed of sheet or cast metal, for the circulation of steam or hot air, it being constructed and arranged in relation to the wall to radiate the heat into the room from both its front and rear surfaces, substantially as and for the purpose set forth.

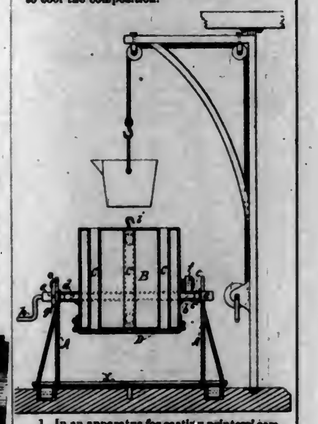
2. The hot-air chamber C, having an inlet-passage, *d*, and an outlet-passage, *e*, in combination with a hollow metallic wash-board, substantially as and for the purpose set forth.

3. A hollow wash-board made of sheet or cast metal, with corrugations at its rear side, substantially as and for the purpose set forth.

4. The radiators B, in combination with a a hollow metallic wash-board and the hot-air chamber, substantially as and for the purpose set forth.

182,547. APPARATUS FOR CASTING COMPOSITION ROLLERS. Millard F. Bingham, New York, N. Y. [Filed Feb. 9, 1876.]

Brief.—The stocks to be covered with composition are placed in the molds C of the receptacle B, which latter revolves within collars to which the spindles, resting in the slotted standards A, and on which the cylinder oscillates, are attached. Before casting, steam is introduced through pipe *l*, and water introduced by pipe *m*, flowing off by pipe *n*, serves to cool the composition.



1. In an apparatus for casting printers' composition rollers, an oscillating receptacle, B, provided with a removable bottom, D, in combination with the slotted standards A, constructed and operating substantially as described, for the purposes set forth.

2. In an apparatus for casting printers' composition rollers, a revolving receptacle, B, provided with a removable bottom, D, in combination with the slotted standards A, constructed and operating substantially as and for the purposes set forth.

3. In an apparatus for casting printers' composition rollers, the combination, with the receptacle B, provided with a removable bottom, D, of the inlet-pipes *l* and *m* for the introduction of steam and water, and the exit-pipe *n* for the water, for the purposes fully set forth.

4. In an apparatus for casting printers' composition rollers, the combination, with the slotted standards A, of the receptacle B, having upon it the flange *b*, and provided with a removable bottom, D, the collars *c c'*, to which are attached the spindles *e*, the ratchet-wheel *g*, and ratchet *o*, substantially as and for the purposes indicated.

5. In an apparatus for casting printers' composition rollers, the combination, with the slotted standards A, of the receptacle B, having upon it the flange *b*, and provided with a removable bottom, D, the collars *c c'*, rollers *d*, and rollers *f*, substantially as and for the purposes set forth.

182,548.



182,550. SWINGS. H. J. Blakeslee, Concord Township, Erie County, Pa. [Filed Mar. 3, 1876.]

1. In a swing, the combination, with the carriage C, of the pendants D and the spreading pendants E E', substantially as described and shown.

2. In a swing, the combination, with the rounded cross-beam A, of the chains F F', to which the pendants supporting the carriage are attached, substantially as described and shown.

3. In a swing, the combination, with the rounded cross-beam A, of the carriage C, the pendants D, spreading pendants E E', and the chains F F', substantially as described and shown.

4. In a swing, the combination, with the standards B B', of the strips or blocks *a a'*, secured to the bottom of the same, substantially as described and shown.

5. The swing described, consisting of the rounded cross-beam A, standards B B', cross-piece G, ropes G', carriage C, pendants D E E', and chains F F', all constructed, arranged, and combined substantially as described and shown.

182,549. EVAPORATING-PANS. John S. Blymyer, Cincinnati, Ohio. [Filed May 1, 1876.]

Brief.—A pocket in the bottom of the first pan outside of the furnace is for holding heavy impurities deposited. Depressions in the bottom of the second series of pans, connected by tubes, allow the sugar-juice to flow and circulate more closely in contact with the flames from the grate. An elbow-pipe, open at top, is formed to turn sidewise, and carry off the juice at different levels from one apartment to another. A damper in front and two beyond the finishing-pan are arranged to regulate the heat under it.



1. The pocket *e* in the bottom, and located outside of the furnace, substantially as described.

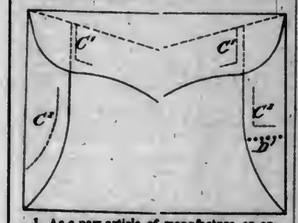
2. An evaporating-pan, having the longitudinal depressions or trough-like cavities U in its bottom, in combination with the tubes T, all constructed and operating substantially as described.

3. An evaporating-pan, provided with one or more partitions, *g*, with recesses *m* at its ends, substantially as and for the purpose set forth.

4. In combination with the finishing-pan C, the converging flues or pipes L L, each provided with a damper, D, arranged to be operated independently, as described.

5. The combination, in an evaporator, of the converging flues L L, each provided with a damper, the pan C, and the damper *h* extending part way across the flue, all being arranged to operate substantially as described, for controlling the application of heat to the finishing-pan, as set forth.

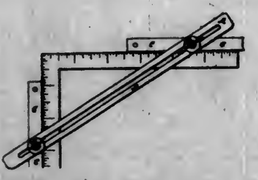
182,550. ENVELOPES. George H. Booth, Rathmines, Dublin, Great Britain. [Filed Apr. 3, 1876.]



1. As a new article of manufacture, an envelope composed of a front, A, formed in one with a top flap, B, two side flaps, D, and a bottom flap, C, formed with slits C' C'', the said flaps being coated with composition, and folded over in the manner and for the purpose hereinbefore described and set forth.

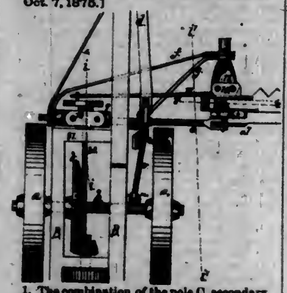
2. The combination, with the front A, top flap B, and the bottom flap C, formed with slits C', of the two side flaps, one being perforated with holes D', and almost the entire inner surfaces of the top flap and solid side flap, and one solid portion only (down to the perforations D') of the perforated side flap being coated with adhesive composition, as herein before described, so that the whole may be folded up to form a safety-envelope, substantially as herein set forth, for the purpose specified.

182,551. BEVELS. George H. Bradshaw, Fayetteville, Tenn. [Filed July 31, 1876.]



A carpenter's instrument for getting the bevel and measurement of braces and rafters, consisting of an angled scale-bar, longitudinally slotted-bar A, screws B B, and the corresponding bars C C, as shown and described.

182,552. MOWERS. Harry H. Bridenthal, Jr., Westmoreland County, Pa. [Filed Oct. 7, 1875.]



1. The combination of the pole C, secondary pole *d*, arm *d*, and the braces *e f g*, these members constructed and operating substantially as and for the purpose herein specified.

2. The combination of the frame 31, sleeve and ball 32, shaft 30, socket-sleeve 9, and the braces *e f* and *g*, substantially as and for the purpose set forth.

3. In combination with the braces 6 and 9, the removable collar 24, as and for the purpose herein specified.

4. The combination of the arm 4, link *e*, frame B, and the brace *g*, these members constructed and operating substantially as and for the purposes herein specified.

5. The herein-described shoe 13, consisting of a thin metallic plate, corrugated lengthwise, and provided with lips and pivots, all constructed substantially in the manner and for the purpose herein specified.

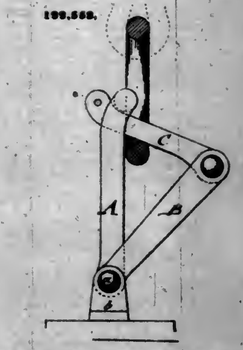
6. The brace 6 and the sleeve 9, provided with the shoulders 9', substantially as and for the purposes herein set forth.

7. The cutter-bar *b'*, conical stud 20, block *o'*, follower-block 21, and the pitman 19, these members all combined and constructed substantially in the manner and for the purposes herein specified.

182,553. BOAT-DETACHING APPARATUS. Wm. A. Brice, London, England. [Filed May 1, 1876.]

The combination of the pivoted and slotted main piece or link A, swinging connecting-piece B, and look-piece C, that bears with its curved free end on the rounded-off top part of the main link, to readily lock or release the same, substantially as described.

182,555.



182,554. BOOTS AND SHOES. H. Brossel, Indianapolis, Ind. [Filed June 24, 1876.]

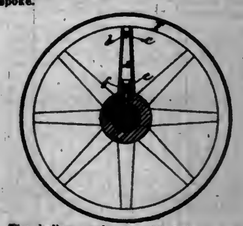


1. A boot or shoe, the upper being cut from the pattern A, constructed in the manner herein shown and described, all substantially as herein set forth.

2. The pattern A for uppers, as herein shown and described.

182,555. AXLE-LUBRICATORS. F. A. Bruns, New York, N. Y. [Filed July 6, 1876.]

Brief.—The oil is contained in a hollow spoke.



The hollow spoke A, with holes *c* and *f*, and screws *b* and *e*, substantially as described, and for the purposes set forth.

182,556. AXLE-SETS AND GAUGES. William C. Carlton, Boise City, Idaho. [Filed Jan. 22, 1876.]

Brief.—Axles can be set and the gather and dish of wheels obtained by a wooden bar, having a scale in its upper side, and jointed to its right-hand end a slotted metal bar, on which are adjustably attached two clamps, each consisting of two forked arms having their inner ends pivoted to each other, and provided in their outer ends with prongs, and having a similar clamp on its left hand, in connection with a bar carrying a sliding scale, and having on its upper side a scale, and at its inner end a slotted cross-plate, and rigidly attached to the inner end of the slotted bar.

The combination of the three bars A B H, the three clamps C D F S, the slotted arm I, the sliding rule M, and the clamping-screws E G J N with each other, substantially as herein shown and described.

182,556.



182,557. BREECH-LOADING FIRE-ARMS. Horace A. Castle, Ilion, N. Y. [Filed May 5, 1876.]



1. A double-barrel gun, having two vertically-arranged and suited barrels, which are attached to the breech or stock by means of a vertical pivot-pin, arranged on one side of the barrels, substantially as and for the purpose described.

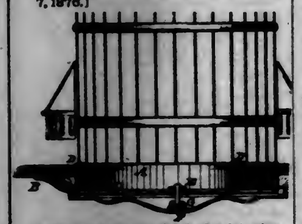
2. In a gun with two vertically-arranged barrels, the combination of the horizontal arm H, the vertical pivot-pin D, the cam-bent e, and the retractor G, constructed and operating substantially as set forth.

3. In a breech-loading gun with horizontally-swinging double barrels, the combination of the breech F', arm E, pin D, the brace C C', the wedge C', the bolt H, the lever I, and the spring F, substantially as and for the purpose set forth.

4. The breech or stock for a double-barrel gun, constructed with a bottom and side supports for the barrels, and with a hinging side lug for the vertical pivot-pin of the hinge on which the barrels swing horizontally, to pass through, substantially as and for the purpose described.

5. The hammer K and K', slotted at its top, and having the adjustable face K' fitted in the slot thereof, and pivoted to the sides of the same, and provided with the dog N and spring-catch O, substantially as described.

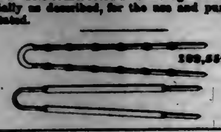
182,558. BIRD-CAGES. John H. Chappel, Brooklyn, assignor of one-half of his right to Jacob May, Buffalo, N. Y. [Filed Aug. 7, 1876.]



1. The combination, with the band A, of an intermediate or auxiliary bottom or screen, C, and the bottom proper B, secured to said auxiliary bottom, substantially in the manner and for the use and purpose described.

2. The combination, with the screen C, of the central rim or canopy E, bottom B, with the rim G and slot-hole I, and the swivel F, the whole constructed and arranged substantially as described, for the use and purpose stated.

182,559.



182,560. LASTING-MACHINES FOR BOOTS AND SHOES. Geo. W. Copeland, Malden, Mass. [Filed Aug. 26, 1876.]

Brief.—The shoe-upper is stretched smoothly upon the last by means of elastic rolls or cushions, which are adapted to move vertically or longitudinally up or along the sides of the shoe upon the last.



1. In a lasting-machine, the combination of the jaws A, having an upward movement, substantially parallel with the sides of a last, with the yielding elastic or flexible pads a, all arranged and operating substantially as described.

2. In a lasting-machine, the combination of jaws A and yielding elastic or flexible pads a, with an independent folding device arranged to close upon the insole, substantially as and for the purpose described.

3. In a lasting-machine, the combination of the jaws A with the rolls E, substantially as and for the purpose described.

4. In a lasting-machine, the rolls E or rocking pads, in combination with a brake, c, or other suitable restraining device, whereby the rolling movement is partly converted into and combined with a straining action, substantially as and for the purpose described.

5. In a lasting-machine, the rolls E adapted to operate upon the sides of the last in smoothing the upper upon the same, substantially as and for the purpose described.

6. The combination, in a lasting-machine, of the rolls E and a lasting-girth, I, having its straps 2 attached to the periphery of said rolls, substantially as shown and described.

7. In a lasting-machine, the combination of a lasting girth or pads with one or more rolls, arranged to act conjointly in fitting an upper to a last, substantially as shown and described.

8. The rocking pad described, provided with a rolling surface and a folding projection, V, substantially as shown and described.

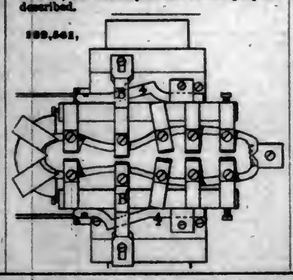
9. The combination, in a lasting-machine, of an arm, O, having an upward movement substantially parallel to the last with the rocking pad M, substantially as and for the purpose described.

10. In a lasting-machine, a smoothing-roll, operated transversely or longitudinally upon the under surface of the last, substantially as shown and described.

11. The combination, in a lasting-machine, of the rolls or rocking pads described, with independent lasting plates or fingers, substantially as and for the purpose set forth.

12. The following-described method of lasting, consisting in fitting the upper to the last by a rolling or rocking movement of independent surfaces on the surface of the last, by which the upper is fitted thereto and smoothed thereon, substantially as and for the purpose described.

182,561.



182,561. LASTING-MACHINES FOR BOOTS AND SHOES. Geo. W. Copeland, Malden, Mass. [Filed Aug. 11, 1876.]

1. In a machine for lasting the uppers of boots and shoes, the combination of the jaws A with the swiveling-fingers B, substantially as and for the purpose described.

2. In a machine for lasting the uppers of boots and shoes, the combination of the jaws A with pivoted adjustable fingers B, arranged as to height only upon the jaws to correspond to the curvature of a last's bottom, substantially as shown and described.

3. In a machine for lasting the uppers of boots and shoes, the combination of the jaws A with the fingers B', having an independent transverse movement, substantially as described, for the purpose set forth.

4. In a machine for lasting the uppers of boots and shoes, the combination of the jaws A with two or more pairs of fixed fingers and one or more pairs of swiveling fingers, arranged to operate substantially as described.

5. In a machine for lasting the uppers of boots and shoes, the combination of two or more pairs of fixed fingers and one or more pairs of fingers having an independent transverse motion effected by mechanism, substantially as described, with the jaws A, for the purpose set forth.

6. In a machine for lasting the uppers of boots and shoes, the combination of one or more pairs of fixed fingers, one or more pairs of swiveling-fingers, and one or more pairs of fingers having an independent transverse movement, with the jaws A, substantially as set forth.

7. In a machine for lasting the uppers of boots and shoes, the removable fingers B, in combination with the jaws A, the fingers being interchangeable thereon, substantially as and for the purpose described.

8. In a lasting-machine, the combination of the jaws A, the vertically-adjustable fingers B, and the girth G, substantially as and for the purpose set forth.

9. In a lasting-machine, the combination of two parallel jaws, A, removable fingers B, and girth G, substantially as set forth, and for the purpose described.

10. In a lasting-machine for lasting the uppers of boots and shoes, the combination of the jaws A and removable fingers B with a toe-and-heel-lasting mechanism, adjustable to and from the spindle between the jaws, substantially as described.

11. In a lasting-machine for lasting the uppers of boots and shoes, the fingers B, having a clamp to hold the girth, and provided with the pivots e, substantially as described.

12. In a lasting-machine for lasting the uppers of boots and shoes, the jaw A, having upward and a closing motion relative to the last, in combination with a girth possessing elasticity, substantially as and for the purpose described.

13. In a lasting-machine, the combination of the jaws A, inelastic girth G', and spring e, substantially as described, for the purpose set forth.

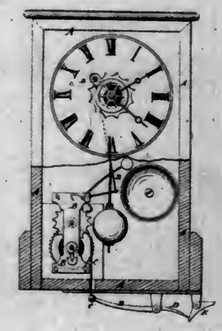
14. In a lasting-machine for lasting the uppers of boots and shoes, the combination of a jointed spindle, 7, lever 8, adjustable rod d, and operating-lever 3, all operating substantially as and for the purpose described.

15. In a lasting-machine for lasting the uppers of boots and shoes, a lasting-girth, provided with a roughened frictional inner surface, substantially as and the purpose described.

16. In a lasting-machine for lasting the uppers of boots and shoes, a lasting-girth, consisting of an inelastic flexible base and an elastic contacting inner surface, substantially as described.

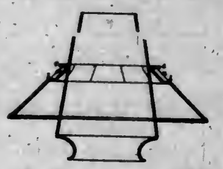
17. In a lasting-machine for lasting the uppers of boots and shoes, the combination of two jaws, A, provided with fingers, girth G, and toe-and-heel-lasting mechanism, substantially as and for the purposes described.

182,562. TIME-DROP ATTACHMENTS FOR ALARM-CLOCKS. Charles Cottrell, Newport, R. I. [Filed Sept. 2, 1876.]



The combination of the loop-rod C, the lever D, and the obtuse-angled lever E with an alarm-mechanism, B, and a clock, A, substantially as herein shown and described.

182,563. LAMP-SHADES. Robt. R. Crosby, Boston, Mass. [Filed Mar. 20, 1876.]

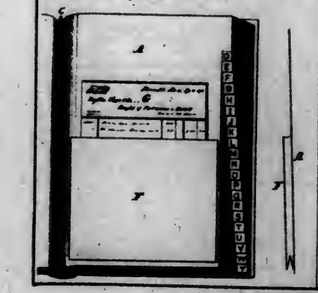


1. As a new manufacture, an earthenware or glass conical lamp-shade, having its upper edge or part corrugated or fluted, substantially as and for the purpose specified.

2. In a lamp-shade, the corrugations or flutes e, and base and cap flanges b c, arranged therewith, all substantially as described.

182,564. REFERENCE-INDEXES. D. A. Davis, Worcester, Mass. [Filed May 2, 1876.]

Brief.—Each leaf is alphabetized, and provided with a pocket upon its face into which bills, &c., are placed.



1. The reference-index book herein described, consisting of indexed leaves A, provided with pockets or receptacles F, substantially as and for the purpose set forth.

2. A pocket attachment for books, consisting of a sheet of fabric bordered with three pasted folds, substantially as and for the purpose set forth.

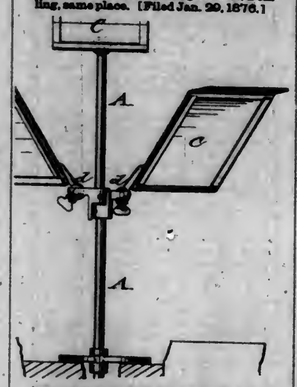
182,565. MANUFACTURING BOOTS AND SHOES. Joseph W. De Castro, Newark, N. J. [Filed June 1, 1876.]



1. The boot or shoe constructed with the upper edge of the welt A stitched to the outside of the upper B, and through to the under side of the insole I, in combination with the lower edge of the welt stitched to the outsole C, substantially as and for the purposes specified.

2. The lower edge of the upper B, turned outward under the lower edge of the welt A, and with it stitched to the outsole C, substantially as set forth, and for the purpose named.

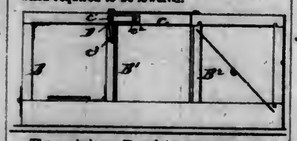
182,566. WINDOW-MIRRORS. Carl A. Dembling, New York, N. Y., assignor to A. Dembling, same place. [Filed Jan. 20, 1876.]



The window-mirrors C, connected by ball-and-socket or universal joint with sleeves movable on the vertical rod A, as shown and described, to enable them to be moved to either side, obliquely, up, or down.

182,567. TOPS FOR LANDAU CARRIAGES. Robert Dunn, St. Louis, Mo. [Filed June 7, 1876.]

Brief.—The top of the center section is thrown over upon the top of the front section when required to be lowered.



The angle-brace D and its connecting-pins c^1 c^2 c^3, by which the frame c is connected with the bows B^1, as and for the purpose set forth.

182,568. OIL-BURNING LOCOMOTIVES. C. J. Bamos, New York, N. Y. [Filed Jan. 10, 1876.]

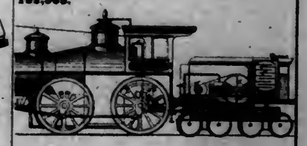
1. The method of generating steam in a locomotive-boiler by burning, within a fire-box lined with a refractory material, a highly heated hydrocarbon vapor, generated by the action of incandescent steam on a flowing current of oil, substantially as described.

2. In connection with a locomotive fire-box, the combination of an oil-vapor generator with an oil-pump and air-blower, operated by the same motor, which latter device adjusts the relative proportions of the oil fed to the vapor-generator and the air fed to the fire-box, substantially as described.

3. The combination, with the oil-feed pipe of an oil-vapor-burning locomotive, of a relief-valve and return-pipe to return the excess of oil to the reservoir.

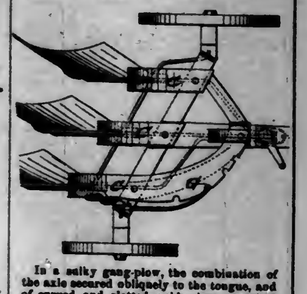
4. In an oil-vapor locomotive, a sliding and revolving sleeve-joint, constructed and provided with a refractory cement-packing, as shown, and adapted to connect the pipes which convey the steam and vapor between the tender and the locomotive.

182,569.



182,569. SULKY GANG-PLOWS. Thomas B. Fagan, Van Wert, Ohio. [Filed Aug. 7, 1876.]

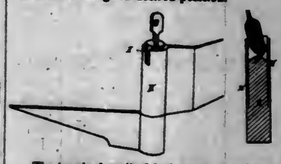
Brief.—Oblique axle, slotted guides, and plow-beams resting upon a crank.



In a sulky gang-plow, the combination of the axle secured obliquely to the tongue, and of curved and slotted guide-bars attached thereto, with the swinging plow-beams, substantially in the manner and for the purpose set forth.

182,570. LOCK-HINGES. Chas. J. Ferguson, Philadelphia, Pa., assignor to himself and William C. Kent, same place. [Filed Aug. 23, 1876.]

Brief.—The pivoted latch resting on a conical or peaked seat within a vertical slot on top of the pintle, and automatically engaging with a corresponding slot of the eye or socket to lock the hinge in desired position.

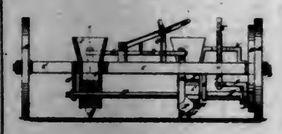


The herein-described lock-hinge, consisting of a pintle, A, to the top of which is pivoted a latch or cross-piece, B, in combination with an eye or socket, H, having one or more vertical slots, I, with which the latch automatically engages, all substantially as and for the purpose set forth.

182,571. SEED-PLANTERS. Wm. F. Finney, East Castle Rock, Minn. [Filed July 15, 1876.]

Brief.—The standard of the opening and covering plows are attached to diagonal bars, and all are simultaneously adjusted. The shaft carrying the dropping-wheels is made square at one end, on which is mounted a sliding pinion, for engaging with a spur-wheel secured to one of the bearing-wheels for revolving the shaft.

189,571.



1. The combination of the diagonal bars L and the lever O with the standards K M of the opening and covering plows J N, and with the frame C, substantially as herein shown and described.

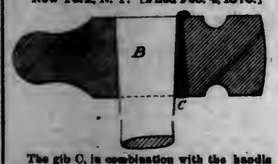
2. The combination of the fixed revolving shaft F, carrying the dropping-wheels H, with the frame C, hangers G, sliding pinion E, forked bar S, lever T, traction-wheel A, and spur-wheel D, all constructed and relatively arranged as herein set forth.

189,572. NEEDLE-THREADING DEVICES. Julia Foster, Philadelphia, Pa. [Filed Mar. 14, 1876.]



A presser-foot for sewing-machines, formed with a device for indicating the position of the eye of the needle, said device consisting of a light spot or plate, backed by, and integral with, said foot, but distinct in appearance therefrom, as shown and described.

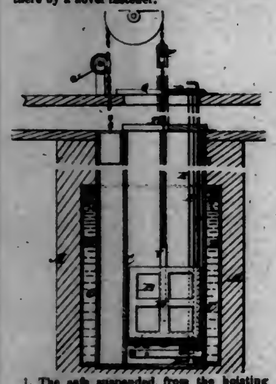
189,573. FASTENING HANDLES TO HAMMERS, AXES, &c. Auguste A. Boubert, New York, N. Y. [Filed Feb. 4, 1876.]



The gib C, in combination with the handle B, and the eye of a hammer, ax, or other tool, as and for the purpose herein set forth.

189,574. FIRE AND BURGLAR PROOF SAFES. Isaac J. Gray, Pentwater, Mich. [Filed May 1, 1876.]

Brief.—The safe is in case of fire dropped to the bottom of a well, and securely fastened there by a novel fastener.



1. The safe suspended from the hoisting and lowering chain on pivots, allowing it to revolve, in combination with a well below, substantially as specified.

2. The locking tumblers L and the hook K, secured in the bottom of the well, in combination with the safe, having a staple to engage with the hook, substantially as specified.

189,575. CHIMNEYS. Mercy C. Halsted, St. Louis, Mo. [Filed June 20, 1876.]

Brief.—The smoke-flue is spiral.

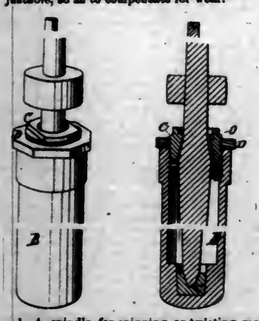


1. A chimney having exterior smoke-flue and interior heating and ventilating passages or flues, substantially in the manner and for the purpose set forth.

2. A chimney made of an outer and inner cylinder, and having a vertical partition-wall in the inner cylinder, forming heating and ventilating passages, substantially as set forth.

189,576. SPINDLES AND BOLSTERS FOR SPINNING AND TWISTING MACHINERY. W. F. Hastings, Bridgeport, Conn. [Filed Jan. 10, 1876.]

Brief.—The spindle is held steadily in the bolster between a step in the bottom of the bolster and an interiorly-tapered bearing-nut secured to the top of the bolster, and bearing upon a conical upper bearing-surface formed on the spindle. The bearing-nut is made adjustable, so as to compensate for wear.



1. A spindle for spinning or twisting machines, provided with an upper conical or tapered journal adapted for bearings in the top of its bolster, substantially in the manner described, for the purposes hereinbefore set forth.

2. The combination, with the spindle A, having a conical or tapered journal *a*, of the adjustable bearing-nut C, in the manner substantially as hereinbefore described, for the purposes set forth.

3. The combination with the bolster B, provided with a step, *c*, of the spindle A, interiorly-tapered bearing-nut C, and jam-nut D, in the manner substantially as hereinbefore described, for the purposes set forth.

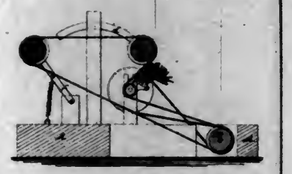
189,577. GARMENT-STANDS. F. A. Hatch, Wakefield, assignor to himself and W. H. Rothwell, Boston, Mass. [Filed Aug. 16, 1876.]

An expansible garment-stand constructed substantially as described, namely, of the separate sections A B B, provided with mechanism as set forth, for moving the outer ones relatively to each other or to the inner one, all being as and for the purpose essentially as specified.

189,577.



189,578. MACHINES FOR CURLING FEATHERS. Johann Hawlowetz, New York, N. Y. [Filed May 27, 1876.]

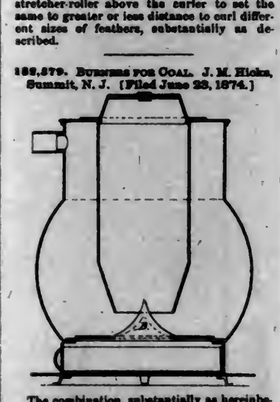


1. A machine for curling ostrich and other feathers, made of a revolving curling-blade, in connection with a revolving belt or apron that yields to the beats of the curler, substantially in the manner and for the purpose specified.

2. A machine for curling feathers, made of a revolving curler and an endless belt or apron stretched over a driving-roller, an adjustable top roller, and a swinging and spring-acted rear roller, substantially as specified.

3. The combination of the revolving curler and the yielding apron with an adjustable stretcher-roller above the curler to set the same to greater or less distance to curl different sizes of feathers, substantially as described.

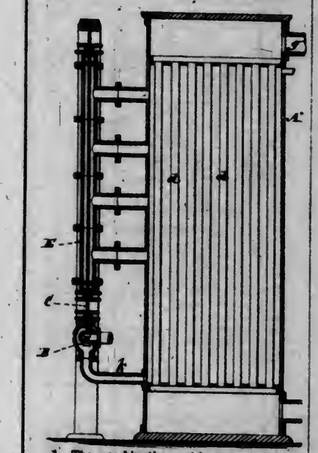
189,579. BURNERS FOR COAL. J. M. Hicks, Summit, N. J. [Filed June 23, 1874.]



The combination, substantially as hereinbefore set forth, in a stove or furnace, of a combustion-chamber provided with no other opening except that for the escape of the gaseous products of combustion, and an outlet covered by a valve, for the discharge of ashes at the bottom, and a closed base-plate inclined upward, for guiding and directing the fuel, air for combustion, and ashes in their passage from the reservoir to the combustion-chamber, with a fuel-reservoir provided with an adjustable air-valve arranged, as described, above said closed inclined base-plate, and in reference to said combustion-chamber, all the air for combustion being compelled to pass through said air-valve and between said inclined base-plate and the lower edge of the reservoir, through the fuel, there being no other communication between the reservoir and the combustion-chamber, all constructed and arranged to operate in manner described.

189,580. SURFACE GAS-CONDENSERS. C. W. Isbell, New York, N. Y. [Filed Jan. 4, 1876.]

Brief.—The admission of water to the condenser is automatically regulated by a valve, operated by an expansion-rod, which is fixed at the other end, and extends through a separate tube, communicating by branch tubes with the condenser-cylinder and the main body of water therein. Varying degrees of temperature of the water act on the expansion-rod.

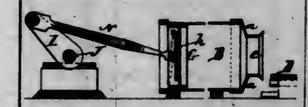


1. The combination, with a surface-condenser, of the independently-acting expansion-rod C, arranged outside of the condensing-vessel A, but exposed to the water of the condenser, and the valve B, connected with the free end of the rod for controlling the supply of feed-water to the condenser, substantially as herein described.

2. The combination of the outside water tube or jacket E with the expansion-rod C, inclosed therein and immovably attached above, the water-connections *a*, arranged at varying heights between said tube and the condenser, the valve B, controlled by said rod, and the feed-water supply-pipe I, substantially as shown and described.

189,581. RAG-TURNING MACHINES. E. S. Judson and Frank H. Van Houten, Mattewan, N. Y. [Filed Aug. 7, 1876.]

Brief.—An adjustable table for holding the bag is situated before a cylinder, provided with a removable mouth-piece, over which the bag is stretched. The turning is effected by drawing the bag into the cylinder by the withdrawal of the piston by means of the crank and connecting-rod.

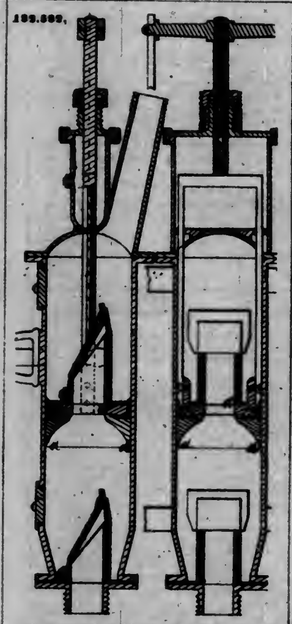


In a machine for turning bags, the combination of the cylinder B, with removable mouth-piece *a*, piston C, with valve *h*, crank I, shaft J, connecting-rod K, and adjustable table D, substantially as described and set forth.

189,582. PUMPS. Frank Kahl, Richmond, Va. [Filed Mar. 6, 1876.]

Brief.—When the pump is to be started for operation, the water-chamber is filled, this chamber being provided with a cock for filling the same, and, when desired, the water escapes through a screw-plug.

189,582.



1. A pump-barrel having its interior of equal diameter from a point slightly in rear of the eduction port or mouth of the induction-valve to the bonnet or cap of the barrel, and its lower interior portion behind said point tapering or decreasing in diameter, for the purpose of reducing the dead-water area, and produce an unobstructed and smooth interior surface throughout the length of the barrel, substantially as described, for the purpose specified.

2. In combination with the hand-holes of a pump-barrel, the covers or plugs so constructed that their inner or lower surfaces shall be flush with, and of the configuration of, the interior wall of the barrel, so as to form practically a part and portion of said interior wall of the barrel, substantially as described, for the purpose set forth.

3. In a pump especially adapted for the pumping of semi-fluid or viscous matter, as set forth, the combination, with the barrel of the pump, of an eduction-nozzle of comparatively great length, so constructed that its axis shall lie at angle to the axis of the barrel, substantially as described, and for the purpose specified.

4. In a pump, the combination, with the barrel and cap or bonnet, of a water chamber or chambers, to receive the yoke or bail and its connections, substantially as described, and for the purpose set forth.

5. The combination of a dome-shaped head or bonnet of a pump-barrel with a water chamber or chambers, so connected that the bottom or back wall of said chamber or chambers shall form receptacles or chambers, or stuffing-boxes c^1 c^2, for the passage of the arms of the bail into the barrel, said dome and bottom or back walls being provided with suitable apertures for the purpose, substantially as described, for the purpose specified.

6. The combination, with the water chamber or chambers, of the stuffing-boxes c^1 c^2, and suitable screw-plugs and set-screws, or their equivalent, as and for the purposes set forth.

7. In a pump, the piston having its induction-port formed bell-mouthed, and the edges thereof tapered to a knife-edge, or practically so, and having a circumferential flange or shoulder, *d*, in combination with a piston-head, d^1, having a corresponding circumferential shoulder or offset to fit the depression in the piston, substantially as described, and for the purpose set forth.

8. The combination, with the pump-barrel, of a piston and piston-head, and the arms of a bail or yoke, said arms being connected to the periphery of the piston-head on opposite sides, and on a line parallel with the axis of said pump-barrel, in such manner as to work in frictional contact, or practically so, with the interior walls of said barrel, substantially as described, and for the purpose set forth.

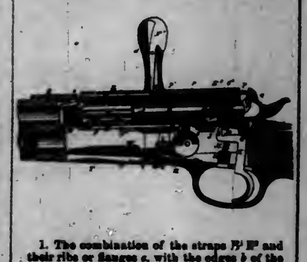
9. The combination, with a pump-barrel, of a piston, constructed as described, and a recessed piston-head, and the arms or shanks of a bail, said arms or shanks being of a truncated triangular shape in cross-section, and having their outer or broadest surfaces convex to fit the concave surface of the interior wall of the barrel, substantially as described, and for the purpose specified.

10. The combination, with the piston of a pump, constructed as described, of the piston-head, having vertical recessed shoulders or ears, to receive the angular-shaped arms of the bail upon its periphery, so that said arms shall be flush with the latter, and practically in frictional contact with the interior walls of the pump-barrel, as described, and for the purpose specified.

11. In a pump for pumping viscous or semi-fluid matter, as set forth, the combination of the barrel, the dome-shaped head, the water-chamber, the stuffing-boxes c^1 c^2, and the elongated eduction-nozzle, with the piston, the bail and bail-arms, and the pump-rod, substantially as described, for the purpose set forth.

12. A pump, the barrel of which is provided with trunnions, and mounted on a hand or other truck, in combination with suitable mechanism for raising or depressing its induction or lower end to work the pump either in a horizontal position or at any inclination required or desired, substantially as set forth.

189,583. MAGAZINE FIRE-ARMS. John W. Keene, Newark, N. J. [Filed Feb. 9, 1876.]



1. The combination of the straps B^1 B^2 and their ribs or flanges *c*, with the edges *b* of the open-topped receiver B, as herein shown and described.

2. The locking device for the breech-bolt, consisting of the spring-bolt F and its operating-lever F^1, arranged and operating substantially as herein described.

3. The combination of the spring-bolt F with the shell-extractor, when arranged and operating substantially as and for the purpose herein described.

4. A shell-ejector, operating with an oscillating motion and provided with an arm or head, J, for holding it in place on the bolt, and serving as its center of oscillation, substantially as herein described.

5. A sear constructed with an arm or head, f^1, for attaching it, a hook, f^2, for engagement with nose of the trigger, and a nose, *i*, for engagement with the cock and half-cock notches, substantially as herein described.

6. A trigger constructed with an arm extending forward and a nose extending rearward, in combination with a sear constructed substantially as herein described.

7. The trigger-spring N, arranged as herein described, in combination with the trigger K, as specified.

8. The combination, with the hammer or firing-pin and a rear cap or collar, of a sliding pin, P^1, and cam P^2, and equivalent device, for placing the gun at half-cock, substantially as herein described.

9. The combination, with a reciprocating breech-block carrying the lock or firing mechanism therein, of a swinging cocking-piece or lever, arranged and operating substantially as and for the purpose herein described.

10. The combination of the firing-pin R, the hammer R^1 provided with the slot *s*, the spring S, and the pin or screw *s*, constructed and arranged as herein shown and described.

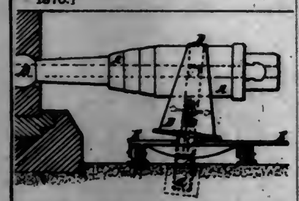
11. The leaf T, hinged or pivoted in the bottom of the carrier-wall, and operating independent of the carrier, as herein shown and described.

12. The combination, with the reciprocating breech-bolt, of the carrier-lever V, carrier W, and spring v, constructed, arranged, and operating as herein shown and described.

13. The locking-sleeve D, having the depression *d''* in its front end, in combination with the extractor G, substantially as and for the purpose herein described.

14. A straight groove in the breech-bolt, in combination with a projection in the receiver, substantially as and for the purpose herein described.

182,584. CONSTRUCTION OF ORDNANCE. A. Krupp, Essen, Prussia. [Filed June 28, 1876.]

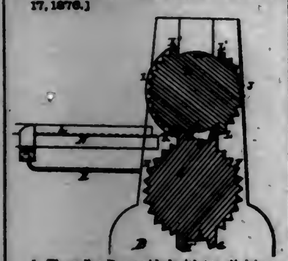


1. The spherical portion B of the cannon at or near the muzzle end, and held by and fitting and working in a corresponding socket formed in a shield, armor, or other protecting fixed or movable structure C, the said cannon being sighted and trained substantially as set forth.

2. The cannon A, with spherical formation B at or near its muzzle end, held and fulcrumed in a corresponding socket, in combination with frames D and with turn-table E or equivalent device, and with hydraulic or other cylinder G and elevating screw F, or other known elevating appliances.

3. The combination, with the cannon, of the spherical end B and protecting cap C, substantially as set forth.

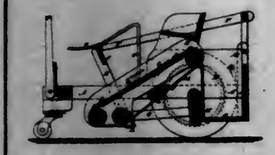
182,585. MACHINERY FOR CONSOLIDATING SHEET METAL FOR WARE-BOARDS. Simon B. Leghorn, Cleveland, Ohio. [Filed June 17, 1876.]



1. The roller B, provided with two divisions or series of corrugations, I and J, the series I having marginal bands M, and each series terminating, respectively, at a flanging brake or bar, K K' and L L', in combination with the roller C, provided with two divisions or series of corrugations, E F, terminating at the flanging brakes or bars G G and H H', substantially in the manner as described, and for the purpose set forth.

2. The flanging brakes or bars H H' of the roller C, in combination with the brakes K and K' of the roller B, arranged to co-operate substantially in the manner as described, and for the purpose specified.

182,586.



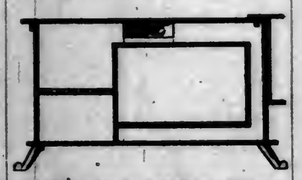
182,586. HAY RAKES AND COCKERS. Moses Manlove, Muscoda, Wis. [Filed July 11, 1876.]

1. The combination of the swinging back N, the drop-bottom O P, the connecting-bars Q, the levers and cross-bar R S, and the lever T, with the frame A and the box M that receives the hay from the elevator, substantially as herein shown and described.

2. The combination of the bent rod U with the swinging elevator B I J K L and the cross-bar S of the levers R, substantially as herein shown and described.

182,587. COOKING-RANGES. Thomas J. March, Limerick Station, Pa. [Filed July 24, 1876.]

Brief.—Mica-sections in oven-plates, for more rapid transmission of heat.



1. The combination with the fire of a cook stove or range, of an interior oven-plate, constructed with one or more heat-radiating sections of mica, substantially as and for the purpose described.

2. The combination, with the metallic mica-plated oven, of fires surrounding said oven, substantially as and for the purpose described.

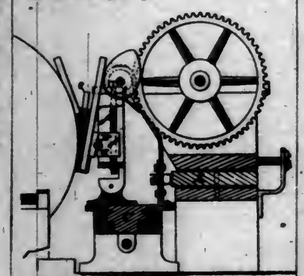
3. In a cook stove or range, the combination, with a base flue, of the bottom oven-plate, provided with one or more mica-covered openings, substantially as and for the purpose described.

4. The combination, with the side of a cook-oven, provided with heat-radiating sheets of mica, of the flue connecting the top and bottom oven-flues, substantially as and for the purpose described.

5. The combination, with the interior oven-plate and outer side plate of a cook stove or range, both said plates provided with mica sections and having an intermediate heating-flue, of a reservoir or other heating attachment secured to the stove or range, substantially as and for the purpose described.

182,588. SHOVEL-GRINDING MACHINES. W. A. Meyer, North Easton, Mass. [Filed Aug. 14, 1876.]

Brief.—A series of blank-holders are journaled on a rod, which slides back and forth across the face of the revolving grinder. The blanks are pressed against the grinder by a cam, which revolves against the loose upper ends of the holders. The cam-carriage is adjusted to and from the blank-holder carriage by a thumb-screw, and is also pivoted so as to turn laterally when a cam attached to the blank carriage strikes the beveled corners of the cam-carriage.



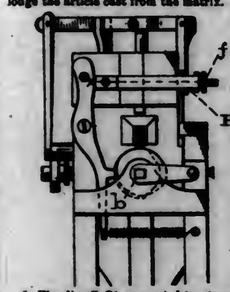
1. A machine for grinding shovel-blanks and other articles, consisting, essentially, of a number of swinging and traversing supporting-frames, in combination with a revolving and adjustable grindstone and a revolving adjustable cam-eccentric, the whole being constructed and operated substantially as and for the purpose specified.

2. The combination of the blank-holding frames, with a retaining-chain passing through eyes at their upper ends, and pulleys of the traversing shovel-frame and cam-carriage, substantially as and for the purpose specified.

3. The laterally-swinging cam-carriage, having a projecting base-plate, with concaved or inclined face, in combination with a fixed set-block of the traversing shovel-frame carriage, substantially as described.

182,589. MACHINERY FOR CASTING MEDALS. Wm. B. Moore, Camden, N. J., assignor of one-half his right to E. L. Richie, Philadelphia, Pa. [Filed Feb. 16, 1876.]

Brief.—The dies are connected adjustably by a yoke in such manner that as one is withdrawn the other follows far enough to dislodge the article cast from the matrix.

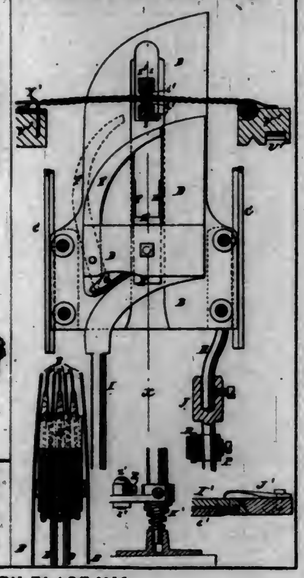


1. The dies G G', connected by the yoke H, and operating substantially as and for the purpose set forth.

2. The adjustable connection *f* of the die G' and yoke H, substantially as and for the purpose set forth.

182,590. FRINGE-TWISTING MACHINES. S. Mortimer, West Troy, N. Y. [Filed July 21, 1876.]

Brief.—The twisting-fingers are rendered yielding by a spring-joint in the upper one and a spring in the bearing of the other. The roughened roll is rendered yielding by spiral springs applied to its ends. The pick-up is of one piece of metal. The shell-stems are adjusted in sockets. The rear fingers of the inner shell are not borne by spiral springs.



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1. The sockets J K, attached to the guide-rods L M, in combination with the stems H I of the shells B D, substantially as herein shown and described.

2. The pick-up E, made in one piece, in combination with the shells B D, substantially as herein shown and described.

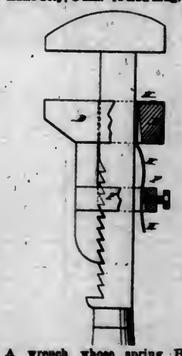
3. The combination of the spring J' with the jointed upper finger I', substantially as herein shown and described.

4. The combination of the spring K' with the shaft B', that carries the lower finger H', substantially as herein shown and described.

5. The combination of the toothed roller Z and its spiral springs *z''* with the front bar V' of the carriage, substantially as herein shown and described.

6. The combination of the spiral springs G with the shell-fingers F and the shell D, substantially as herein shown and described.

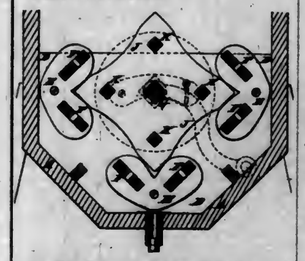
182,591. WRENCHES. A. M. Mortimer, Salt Lake City, Utah. [Filed Aug. 14, 1876.]



A wrench whose spring H is passed through a loop, F, as well as a movable jaw, D, and secured at the end to the front of said jaw, as and for the purpose specified.

182,592. ROTARY CHURNS. A. M. Mortimer, Salt Lake City, Utah. [Filed Aug. 14, 1876.]

Brief.—A revolving shaft of square form carries star-shaped end pieces, in the points of which are held square bars. These points mesh into the concavity of pivoted crescents, each carrying two boards nearly at right angles with each other. Near the base are longitudinal bars or breakers.

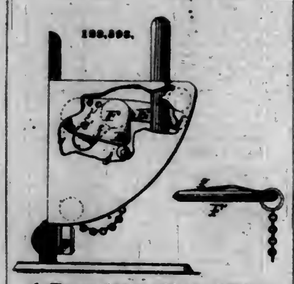


1. The combination of the end boards D, the pivoted beaters E F, and the revolving shaft G and plates J with each other and the box A, substantially as herein shown and described.

2. The combination of the square bars K with the revolving plates J and shaft G, and the pivoted beaters E F, substantially as herein shown and described.

3. The combination of the stationary bars L with the end boards D, the beaters E, the shaft G, the plates J, and the square bars K, substantially as herein shown and described.

182,593. BOAT-DETACHING APPARATUS. Thos. G. Otterson and Albert S. Reeves, Philadelphia, Pa. [Filed July 20, 1876.]



1. The combination, with the slotted cam, of the lever-latch, substantially as and for the purpose set forth.

2. The combination, with the slotted cam and lever-latch journaled thereto, of the bolt J and link, substantially as and for the purpose specified.

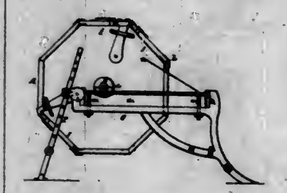
3. The slotted cam, constructed with angular bearings *c c'*, in combination with the lever-latch E, formed with projections *f f'*, substantially as and for the purpose set forth.

4. The combination, with the slotted cam and the latch-lever, of the pin F', provided with a retaining-spring, *g*, substantially as and for the purpose set forth.

5. The combination, with the slotted cam and lever-latch, of the closed link and supporting-pin, substantially as and for the purpose set forth.

182,594. GRAVE-FILLERS. Edwin R. Parell and Chas. H. Van Houten, Newark, N. J. [Filed July 20, 1876.]

Brief.—A revolving receptacle for receiving the earth excavated from a grave, and for returning the same. It is made telescopic, to be adapted to any length of grave, and may have two compartments—one for the main body of earth, and the other for the upper layer of mold. The frame is adjustable, to conform to the nature of the ground.



1. The grave-filling machine, having the revolving cylinder A, with the hinged covers *f*, and the axle B hung in the sliding boxes *d*, working on the adjustable bars L, in combination with the frame C, substantially as and for the purposes specified.

2. The adjustable bars L, operated by the screws *m*, in combination with the frame C and cylinder A, substantially as and for the purpose set forth.

3. The adjustable posts P in combination with the frame C, substantially as set forth, and for the purpose specified.

182,595. GAS-REGULATORS. Augustus Parsons, Chicago, Ill. [Filed Aug. 2, 1876.]

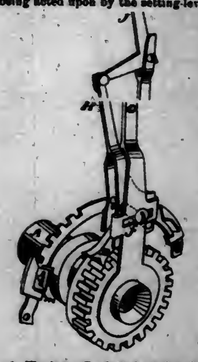


1. The combination of the casing A, projection *a*, and guide F, constructed substantially as and for the purpose set forth.

2. The combination of the guide F, float C, valve-rod E, and valve D, constructed substantially as and for the purpose above described.

182,596. SAW-MILL HEAD-BLOCKS. Wm. Phillips, Colfax, Cal. [Filed June 21, 1876.]

Brief.—By means of a bell-crank lever and slide, provided with a diagonal slot, the setting-pawl is given a forward movement before being acted upon by the setting-lever.



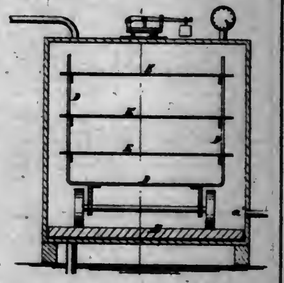
1. The lever G, slotted at *f*, and the movable bar H, with its angular slot *i*, having the fulcrum-pin *c* of the pawl D passing through both slots, so that, when the bar H is forced downward, the pawl will be moved forward until it falls into the teeth of the ratchet, for the purpose of taking up the lost motion, substantially as herein described.

2. The bell-crank lever J, pivoted to the lever G, so that its long arm acts as a part of the lever, while its short arm is connected with the bar H, and operates to force it down and throw the pawl into contact with the ratchet before the lever G begins to move, substantially as herein described.

3. In combination with the lever J, pivoted to the lever G, the catch *m'*, for the purpose of preventing a movement of the joint and causing the two levers to move as one when working backward, substantially as herein described.

182,597. APPARATUS FOR CURING TOBACCO. Charles S. Philips, Brooklyn, N. Y. [Filed June 20, 1876.]

Brief.—The steam-tight box has one end hinged to turn down, so that a truck having racks carrying the leaf-tobacco can be run in and out of it at will.



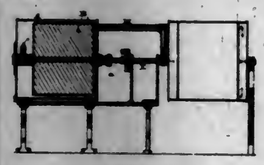
A steam-tight chest, provided with false bottom B, door C hinged at lower edge, truck D, and racks E, all substantially as and for the purpose specified.

182,598. CARBURETERS. John A. Pierce, Philadelphia, Pa., assignor of two-thirds of his right to James Bradley and John Robinson, agent, same place. [Filed July 21, 1876.]

The stationary air-cylinder A, with inclosed revolving drum B, and the revolving carbureting-chamber F, in combination with a divided shaft, a E, carrying the drum and chamber at opposite ends, connected by a pawl and ratchet, and having one length for the winding-cord, and with the stationary air-pipe H, the pawl and ratchet, the winding length of

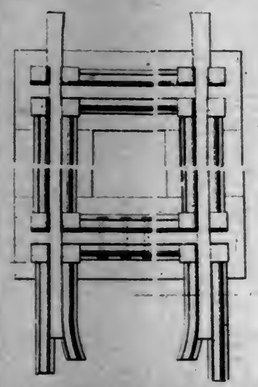
the divided shaft, the other length thereof, and the air-pipe being intermediate of the aforesaid drum and chamber, substantially as and for the purpose set forth.

192,598.



192,599. RAILROAD-CROSSINGS. D. Pierce, Tower Hill, Ill. [Filed June 26, 1876.]

Brief.—The main and guard rails are of equal length, and at their ends are secured to corner posts, which in turn are secured to the bed-plate by screw-nuts. A concave base or filling rail is retained in position by the rail-sections and by recesses in the corner posts. The main and guard rails are interchangeable.



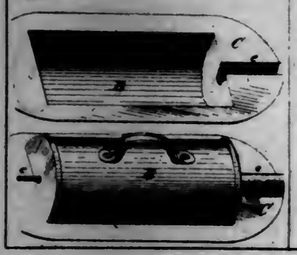
1. The combination, in a railroad-crossing, of the exchangeable main and guard rails, with fixed corner-posts secured to the bed-plate at each point of intersection of the tracks, for holding the rail-sections in position, substantially in the manner and for the purpose set forth.

2. The combination of the main and guard rails with the rail-locking posts secured to the bed-plate, and with the concaved base-rail, substantially as and for the purpose described.

3. The concave base-rail, extended beyond the rail-locking post, and made wider with suitable inclination, in combination with the main rail and the curved end of the guard-rail, to guide wheels on the crossing, substantially as specified.

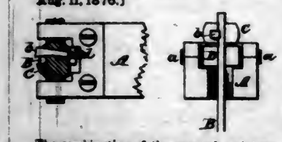
192,600. COFFEE-ROASTERS. F. Prieve, Winona, Minn. [Filed Aug. 26, 1876.]

Brief.—Adapted to sit on the top plate of stoves.



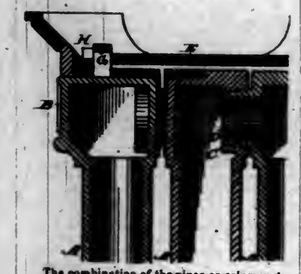
The combination, herein shown, of the close semi-cylindrical cover B, having a rim, C, to rest flat on the stove, the latter provided with a semi-tubular bearing, *e*, with the cylindrical roasting-cylinder A, provided with the short journal *c*, long journal *d*, crank *b*, and door *a*, when they are arranged to operate in the manner shown, and for the purposes specified.

192,601. ROD-ADJUSTERS FOR OIL-WELLS. John M. Reardon, McGraw, Pa. [Filed Aug. 11, 1876.]



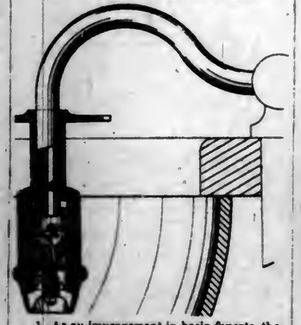
The combination of the grooved and transomed adjuster C D, the rod B, wedge-bolt *b*, and nut *d*, substantially as and for the purposes herein set forth.

192,602. RADIATORS. John R. Reed, Westfield, Mass. [Filed July 18, 1876.]



The combination of the pipes or columns A, head-pieces B, with tapering holes C and tapering nipples D, lugs G, rod E, and nuts H, all substantially as and for the purposes herein set forth.

192,603. BASIN-FAUCETS. Edwin S. Rich, New York, N. Y. [Filed Aug. 7, 1876.]

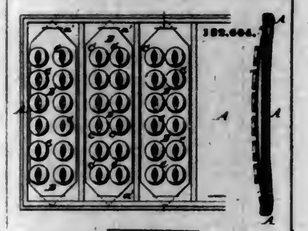


1. As an improvement in basin-faucets, the interior threaded collar E, extended around and below the compression-valve into the nozzle, to prevent leaking of faucet at upper part of sleeve, substantially as and for the purpose set forth.

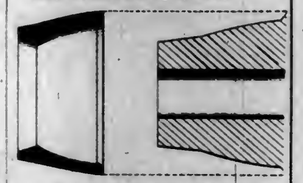
2. The inner collar E of a basin-faucet, having interior valve-seat and stem-valve, to be closed by pressure of water on removing compression-valve, substantially as specified.

192,604. SHOW-CARDS FOR BUTTONS AND LIKE ARTICLES. Charles A. Righter, New York, N. Y. [Filed July 31, 1876.]

The cards A, made of two folds stuck together in the middle, connected at the edges, slitted at *a'*, and provided with pockets to receive the points of cards B, all substantially as shown and described.



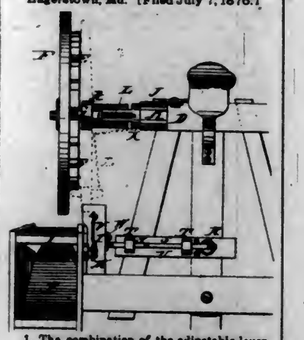
192,605. VEHICLE-HUB BANDS. George L. Rouse and Marshal W. Stoddard, Cincinnati, Ohio. [Filed Aug. 6, 1875.]



1. A metallic band for strengthening a wooden hub on either side of the spokes, made somewhat smaller than the natural size of the hub, and provided with an interior recess, with which a corresponding portion of the hub interlocks by the expansion of the compressed wood after the band has been forced on, substantially as specified.

2. A metallic band for strengthening a wooden hub on either side of the spokes, made somewhat smaller than the natural size of the hub, and having its bore or aperture made flaring at the exterior end, with which flaring end a corresponding portion of the hub interlocks by the expansion of the compressed wood after the band has been forced on, substantially as specified.

192,606. CORN-PLANTERS. L. B. Rowland, Hagerstown, Md. [Filed July 7, 1876.]



1. The combination of the adjustable lever A, the ground-wheel F, notches E, axle D, sliding thimble K, spring L, and latch G, all operated by or in connection with the hand-lever J, substantially in the manner and for the purposes set forth.

2. The combination of the lever A, ground-wheel F, notches E, trigger I, link V, crank G, and rocking cup B, substantially as and for the purposes set forth.

3. The adjustable lever A, in combination with the trigger I, link W, levers S S', and marker C, provided with the spring R, substantially as described.

192,607. FRUIT-GATHERERS. S. R. Rockel, Kansas City, Mo. [Filed June 15, 1876.]

Brief.—Two hands having cutting-teeth—one hand firmly attached to the pole, the other to a pivoted shank operated by a wire or cord. To the pole is adjustably attached a receptacle for the fruit.

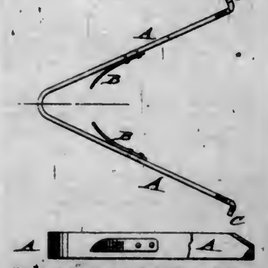
192,607.



1. The combination of the staff A, cord *a*, spring *b*, and hands B C, provided with serrated cutters *d d*, substantially as hereinbefore set forth.

2. In combination with the hoop G and staff A, the plate h and pin *i*, constructed and operating substantially as and for the purposes set forth.

192,608. HOOP-EXPANDERS. C. H. Shepard, Elizabeth, N. J. [Filed Mar. 13, 1876.]



The V-spring A, provided with the interior and opposite springs B B, and the projections C, substantially as and for the purpose specified.

192,609. CAR-AXLE BOXES AND OILERS. Joseph N. Smith, Jersey City, N. J. [Filed May 17, 1876.]

1. The shoe-piece D, constructed and arranged, substantially as described, around the bottom and sides of the axle-box, and covering the opening in the pedestal, substantially as and for the purpose herein specified.

2. The lugs or projections E E on the sides of the housing of the axle-box, in combination with notches *c c* in the flaps of the saddle, substantially as and for the purpose herein specified.

3. A plunger, L, having a free reciprocating up-and-down movement, and acting upon the lubricating-fluid by its momentum, produced automatically by the vibratory motions of the car running upon the track, substantially as and for the purpose herein specified.

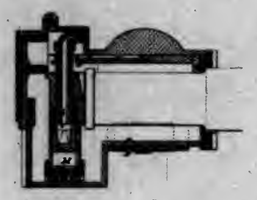
4. The combination, with a plunger, L, having a free reciprocating up-and-down movement to act by momentum on the lubricating-fluid, of a spring, *f*, which partially supports the plunger, to equalize the up-and-down motions and give greater sensitiveness thereto, substantially as herein specified.

5. The combination of a freely-reciprocating momentum-plunger, for the purpose set forth, provided with an oil-containing valve, and a closed well, M, in which the plunger works, provided also with an oil-containing valve, substantially as herein specified.

6. The oil-conveying trough or channel *s* formed as set forth in the bearing-plate P of the axle-box, and provided with apertures *t u*, for distributing oil to the top and end of the axle-journal, and arranged to catch the oil ejected from the oil-elevating plunger, substantially as herein specified.

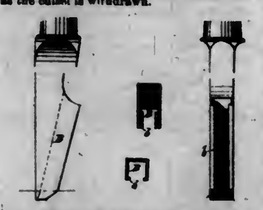
7. The arrangement of the oil-elevating plunger L in an opening of the stopping-bar, substantially as and for the purpose herein specified.

192,609.



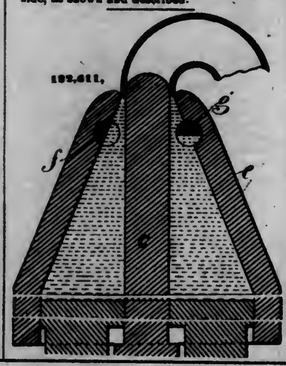
192,610. MORTISING-CHISELS. B. H. Smith, Whitestown, N. Y. [Filed Feb. 19, 1876.]

Brief.—The throat of the chisel is made rectangular in cross-section, and of gradually-increasing diameter from the bottom upward, for clearing the mortise of the core or chips as the chisel is withdrawn.



The improved mortising-chisel herein described, having the channel B, made rectangular in cross-section, and of gradually-increasing diameter from the cutting-lips upward, and provided with the lips *b b* on its front side, as shown and described.

192,611.

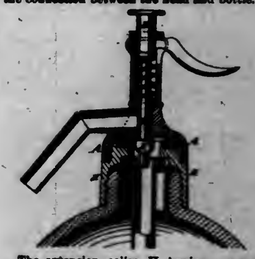


192,611. MACHINES FOR MAKING LEAD TRAPS AND BENDS. Thomas F. Stevenson, Brooklyn, N. Y. [Filed May 22, 1876.]

The combination, with the mandrel *e* and die *c* of a pipe-press, of two pressure-relieving plugs, *f* and *g*, at opposite sides of the mandrel, recessed to conform to the taper of the die, and provided with means for moving each plug, substantially as and for the purposes set forth.

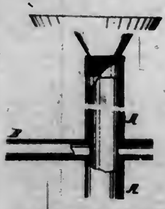
192,612. SYPHON-HEADS FOR MINERAL-WATER BOTTLES, &c. Jos. W. Stillwell, Peekskill, N. Y. [Filed Aug. 7, 1876.]

Brief.—The object is to enable the valve of the head to be removed without disturbing the connection between the head and bottle.



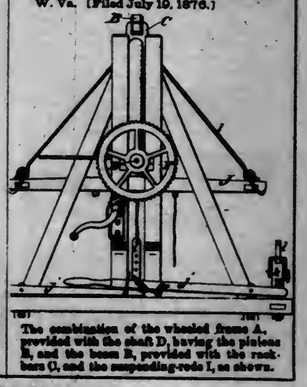
The extension-collar H, having a screw-thread cut in the inner surface of its lower part, a screw-thread cut in the outer surface of its upper part, having a ring groove in its upper end, and a recess and shoulder in its inner surface, in combination with the base A of a siphon-head, substantially as herein shown and described.

192,613. IRRIGATING APPARATUS. Fredk. Taylor, Covington, Pa. [Filed June 12, 1876.]



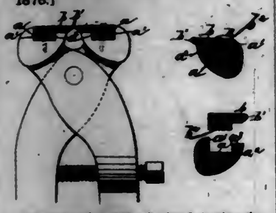
An irrigator consisting of the main pipe A and branch pipes B, the latter provided with pointed tubes at the end, substantially as and for the purpose specified.

192,614. APPARATUS FOR HANDLING AND TRANSFERRING HIDES DURING THE TANNING PROCESS. John R. Tyson, St. Albans, W. Va. [Filed July 19, 1876.]



The combination of the wheeled frame A, provided with the shaft D, having the pinions E, and the beam B, provided with the rack-bars C, and the suspending-rods I, as shown.

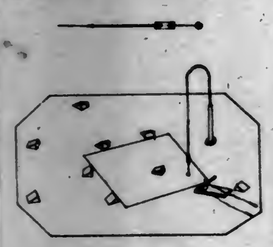
182,614. CUTTING-NIPPERS. H. B. Todd, West Meriden, Conn. [Filed Aug. 16, 1876.]



In combination with the head, having the recess *a*, with long and short sides *a' a''* at right angles to the bottom, and bearing-faces *a²*, the cutter having the blade *b*, with cutting-edge *b'*, and the shank *b²*, arranged as described, for the purpose set forth.

182,615. GAME APPARATUS. Benjamin B. Townsend, Boston, Mass. [Filed Aug. 16, 1876.]

Brief.—A set of devices arranged upon the basis of base-ball, whereby a diminutive suspended ball is driven off its pendent support over a field having cages or pockets at stated intervals.



1. The combination of the pendulous-needle carrier with the bat pivoted to a stand and provided with one or more working-lines, all substantially as specified.

2. The combination of the pendulous-needle carrier and needle with the bat pivoted to a stand and provided with one or more working-lines, all being substantially as set forth.

3. The combination of one or more cells, substantially as described, with the pendulous-needle carrier, and the pivoted bat, provided with one or more working-lines, as explained.

4. The pendulous needle, connected with its carrier by a joint or flexible connection, substantially as and for the purpose specified.

5. The folding cell, composed of the plates *b c*, and the pendent and plain side pieces *d d e e*, constructed and applied substantially as set forth.

182,617. HARMONICAS. Edward D. Tuttle, Waterbury, Conn. [Filed July 8, 1876.]

Brief.—Harmonicas, called also mouth-organs.

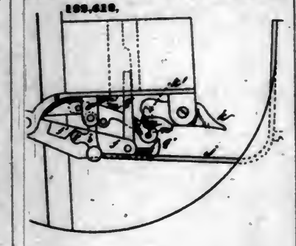


In a mouth-harmonica, the block A, provided with a projecting mouth-piece, *b*, formed and being a part of the said block, substantially as described.

182,618. STOP-MOTIONS FOR LOOMS. F. O. Tucker, Hartford, Conn. [Filed Apr. 20, 1876.]

Brief.—The weft-feeler is attached to the upper arm of a bell-crank lever, provided with a hook, which in turn is pivoted to a vertically-vibrating arm that is hinged to a plate upon the sill of the lay. A cam-plate is fastened to the breast-beam, against which a swinging dog strikes, a rear extension of which engages with a projection upon the vertically-vibrating arm, and throws it up toward the lay-sill, thereby causing a pin upon its side to strike against a second swinging arm provided with a pivoted hook or latch. This latch, should the weft be broken being forced forward by a spring, engages with a pin upon the rear of the dagger, so as to throw the front or heavy end of the dagger up into position to strike the shipping devices. Should the weft be present, the feeler is dragged back, and the hook upon the bell-crank lever prevents the latch from operating the dagger.

182,618.

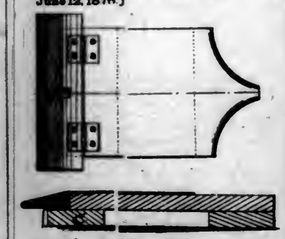


1. In combination with the stopping mechanism and lathe of a loom, the vibratory piece *m*, the pawl-hook *n*, spring *m'*, and dagger *k*, provided with pin *k'*, all substantially as described.

2. In combination with the stopping mechanism and lathe of a loom, the dagger *k*, pawl-hook *n*, adapted to be controlled by the weft-feeler, and vibratory piece *m*, all substantially as described.

3. In combination with the stopping mechanism of a loom, the hook-pawl *n*, the pivoted arm *m*, dagger *k*, lever *f*, and the feeler *g*, having hook *g'*, all carried by the lathe, and operating together, substantially as described.

182,619. BOSOM IRONING BOARDS. Luther A. Van Kerve, Binghamton, N. Y. [Filed June 12, 1876.]



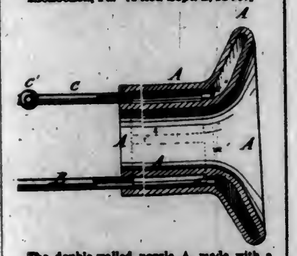
The combination of a bosom-ironing board, having projecting cross or base strip, with a hinged and beveled bar or cross-piece, substantially as and for the purpose set forth.

182,620. TRY-SQUARES. Frederick Vezzie, Worcester, Mass. [Filed Apr. 20, 1876.]



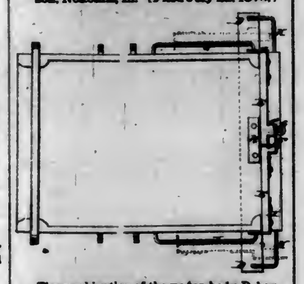
In a square, the combination of a blade provided with a shank at a right angle to the exposed part of the blade, with a beam recessed or grooved, the shank of the blade being fitted to said groove or recess, substantially in the manner and for the purpose specified.

182,621. BELLY-PIPE NOZZLES FOR BLAST-FURNACES. Sigismund F. Vielhaber, Conshohocken, Pa. [Filed Sept. 2, 1876.]



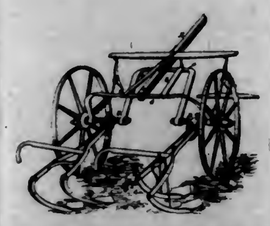
The double-walled nozzle A, made with a flaring inner end, and provided with a ring-partition, *a'*, at the base of its said flaring inner end, having two holes formed through it corresponding with the holes in its outer end, in which the inlet and outlet pipes B C are inserted, and provided with two longitudinal partitions, *a²*, in its straight part, said way between said inlet and outlet pipes, substantially as herein shown and described.

182,622. WAGON BED-GATES. E. C. Wilson, Nokomis, Ill. [Filed July 22, 1876.]



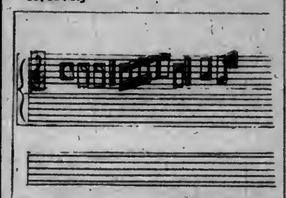
The combination of the wagon-body B, having the rods J at its sides, with the end-gate sections E, provided with angle-plates I, fitted on said rods, substantially as and for the purpose set forth.

182,623. WHEEL-CULTIVATORS. Weles Aldrich, Dayton, Ohio, assignor to Dayton Machine Company, same place. [Filed June 23, 1876.]



The metal arches C and D, of the shape represented, each clasping, respectively, the inner rail outer ends of the stub-axles B, and braced by the tongue E and bars *b*, the whole united substantially as and for the purpose specified.

182,624. PROCESSES OF PREPARING SURFACES FOR PRINTING MUSIC. Michael Alexeoff, St. Petersburg, Russia. [Filed July 19, 1876.]

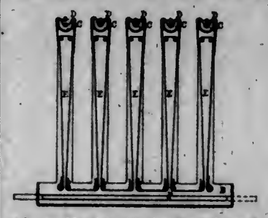


1. As a new article of manufacture, type for the printing of music, consisting of strips of transparent paper carrying the various signs and characters, as and for the purpose set forth.

2. The within-described process of producing surfaces or plates for printing music—that is to say, by pasting upon a suitable background strips of transparent paper carrying the notes, signs, or other characters, and from the sheet thus prepared producing a printing-surface by photolithography, photo-relief, or similar process, as set forth.

182,625. APPARATUS FOR TREATING PETROLEUM. George Allen, Franklin, Pa. [Filed Apr. 20, 1876.]

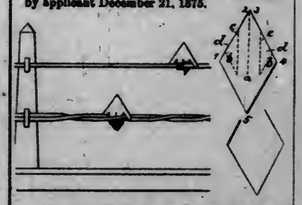
Brief.—The oil is drawn by capillary attraction from an elevated tank through sheets of cloth suspended from the tank, and is subjected during its passage through the cloth to currents of heated air, for the purpose of removing the volatile constituents of the oil.



In combination with the elevated troughs C and sheets of fibrous material D, secured thereto substantially as shown, the fibrous sheets E, tray B, and steam-pipe F, substantially as and for the purpose set forth.

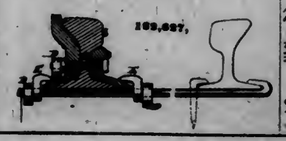
182,626. BARBS FOR WIRE FENCES. Frank Armstrong, Bridgeport, Conn. [Filed Aug. 28, 1876.]

Brief.—Improvement in invention patented by applicant December 21, 1875.



As a new article of manufacture a barb for wire fences, composed of sheet metal, cut as shown, with the portions *d* removed, and adapted to be applied to a fence-wire, substantially as hereinbefore set forth.

182,627.

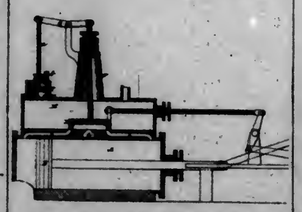


182,627. RAILROAD-RAIL JOINTS. John H. Atwood, Stonington, Conn., assignor of one-half his right to Joseph W. Storrs, Springfield, Mass. [Filed July 27, 1876.]

1. The combination, with the rails and the fish-plates resting on the sleepers, of the hooked bolts A, connecting and holding the fish-plates at their lower ends below the rails, the bolts *g* passing through fish-plates and the rails, and nut D applied to the said bolts, substantially as and for the object specified.

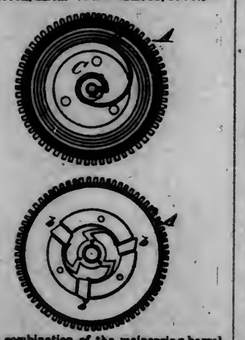
2. The hook-shaped washers E of the bolts which unite the fish-plates with the rails or the opposite rails with each other, in combination with the base-flanges of the rails and of the fish-plates, over which the hooked ends of said washers are arranged to lap, essentially as described.

182,628. BALANCED VALVES. B. T. Babbitt, New York, N. Y. [Filed June 9, 1876.]



In combination with the slide-valve D of an engine, jointed rod *d*, passing through a stuffing-box in the upper part of the trunk F, forming part of the valve-chest, the lever G, rod *s*, piston I, and cylinder *f*, connected with the steam-chest or boiler above the piston I, the whole arranged to operate substantially as set forth.

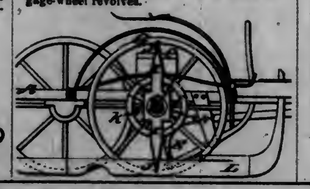
182,629. WATCH-BARRELS. Chas. Barclay, Hancock, Mich. [Filed Mar. 18, 1876.]



The combination of the mainspring-barrel A, interior reversible barrel D, having notches *x*, the clicks *b*, covering-plate C, mainspring G, and winding-arbor R, all substantially as and for the purpose set forth.

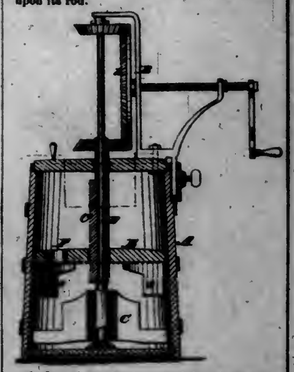
182,630. CORN-PLANTERS. Henry Bottsell, Centerville, Ind. [Filed Mar. 4, 1876.]

Brief.—Upon either side of the centrally-revolving gage-wheel is geared marking-wheels for checking the rows. Centrally attached to the frame is an elongated plow, in which the gage-wheel revolves.



182,631. ROTARY CHURNS. J. H. Bennett, Nunda, N. Y., assignor to J. A. Duryee, same place. [Filed June 20, 1876.]

Brief.—Two concentric vertical rods revolving in different directions, the upper floating, but having pendent arms, the lower fixed upon its rod.



1. In a churn having revolving dashers, a floating dasher, which rests upon the surface of the cream, and is rotated by means of a feathered shaft driven by a suitable gearing, substantially as shown and described.

2. The combination of the floating dasher E, dashers C, feathered shaft D, and gearing B, substantially as shown and described.

3. A dasher consisting of the concaved wings *s*, attached to a suitable disk having the apertures F, as specified.

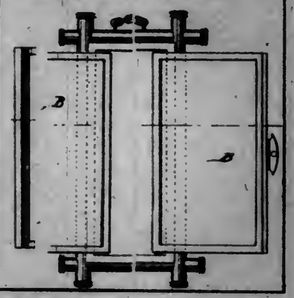
182,632. COMBINED ERASER-HOLDER AND PENCIL-POINT PROTECTOR. Wm. H. Bennett, New York, N. Y., assignor to Orestes Cleveland, Jersey City, N. J. [Filed Jan. 10, 1876.]



1. The eraser-holder herein described, consisting of a tube having inwardly-projecting inclined retaining tongues located at some distance below the upper end of the tube, and so as to provide a bearing-surface, *b*, for the erasive head, substantially as shown and described.

2. The combination of an erasive head, with a tube provided with inwardly-projecting holding devices, and with a plain inner surface at its outer end, substantially as shown and described.

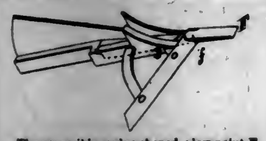
182,633. MIRRORS. Ludger T. Berton, Paris, France, assignor to Pierre Leopold Brot, same place. [Filed Aug. 7, 1876.]



A composed mirror formed of main glass having frame *a*, within which are hinged on opposite sides the glasses *B*, to fold within said frame, as shown and described.

182,634. PLOW-POINTS. John W. Beverly, Lisbon, Mo. [Filed July 8, 1876.]

Brief.—The construction of the reversible plow-point.



The reversible wedge-shaped plow-point F, having oblique grooves *f* on its top and bottom, and notched sides, the end of the point *F* being provided with projection *g*, substantially as and for the purpose set forth.

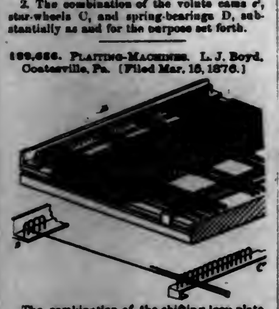
182,635. LAMP-BURNERS. Etienne Bolleau, St. Louis, Mo. [Filed Mar. 22, 1876.]



1. The combination, in a lamp-burner, of star-wheels C and volute cams *c'* on collar E, substantially as set forth.

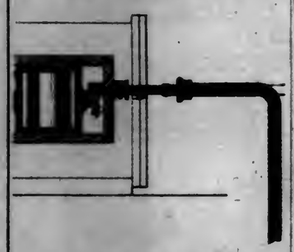
2. The combination of the volute cams *c'*, star-wheels C, and spring-bearings D, substantially as and for the purpose set forth.

182,636. PLAITING-MACHINES. L. J. Boyd, Coatesville, Pa. [Filed Mar. 16, 1876.]



The combination of the shifting loop-plate C and the flanged fixed loop-plate B and table A, arranged to operate substantially in the manner and for the purpose specified.

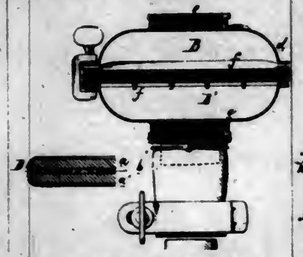
182,637. SLIDE-VALVES. James Brady, Brooklyn, N. Y. [Filed Aug. 4, 1876.]



1. The combination, with the slide-valve, constructed with a hollow back, of two hollow valve-stems working through stuffing-boxes in the valve-chest, and communicating with the interior of said hollow back to form inlet and outlet passages thereto and therefrom, for the circulation of water or cooling fluid, substantially as and for the purpose herein described.

2. The combination of the bent hollow pivots or elbows G G with the hollow back *d* of the slide-valve B, and the hollow stems or pipes D D, essentially as described.

182,638. WATER-FILTERS. Isidor Bruch, Philadelphia, Pa. [Filed Aug. 25, 1876.]

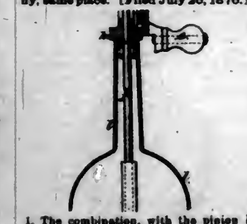


1. The within-described filtering-disk, composed of two pieces, *a* and *a'*, of felt or other filtering fabric, and a rubber ring, D, lapped over the edge of the disk, all as set forth.

2. The combination of the two pieces *a* and *a'* of felt, intervening piece *b* of wire-gauze, and the rubber ring D.

3. The within-described filter-casing composed of two parts, B and B', each part consisting of the screw-thimble *c*, grate *f*, and sheet-metal body *d*, secured to the thimble lapped over the edge of the grate, and forming with the latter a flange, *m*, all as set forth.

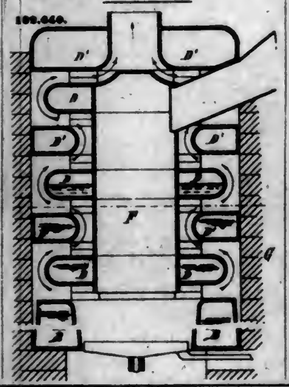
182,639. EGG-BEATERS. John G. Brothwell, Wolcottville, Conn., assignor to the Turner and Seymour Manufacturing Company, same place. [Filed July 26, 1876.]



1. The combination, with the pinion *k* of the egg-beater, of the loops *o* cast upon such pinion, and the sheet-metal strip forming the outer beater *l*, having the ends bent at right angles perforated and connected with the pinion, as specified.

2. In an egg-beater, the combination of one wheel having two circular ranges of teeth, with the two pinions, one in an opening in the stock, and the other at the end thereof, substantially as set forth.

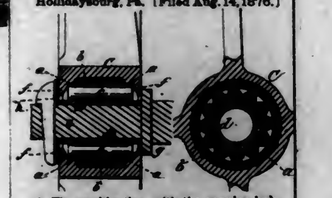
182,640.



182,640. SECTIONAL STEAM-GENERATORS. Morris B. Buell, Dunkirk, N. Y., assignor of one-half his right to H. C. Brundage, same place. [Filed Feb. 7, 1876.]

The combination, with the chamber B, fuel-magazine F, and casing C, of the alternating smaller and larger horizontal rings D D', so as to form a winding passage for the products of combustion, substantially as and for the purpose hereinbefore set forth.

182,641. CAR-AXLE BEARINGS. S. Clark, Hollidaysburg, Pa. [Filed Aug. 14, 1876.]



1. The combination, with the annular hub-end seats *a* and the ring of loose rolls *c*, of the chamber *b* for the oil, formed between said seats and outside of the rolls, as and for the purpose described.

2. The combination, with the ring of loose rolls *c*, the hub ends *f*, and the loose sleeve *d*, of the shoulder *g* and the washer-plate *h*, as and for the purpose described.

3. The hub C, having the integral ends *f*, the end seats *a a*, and the oil-chamber *b*, substantially as described, in combination with the ring of loose rolls *c*, the loose sleeve *d*, the washer-plate *h*, and the shoulder *g* of the axle, as and for the purpose described.

182,642. WHEEL-CULTIVATORS. Samuel P. Coons, Winchester, Ill. [Filed Mar. 27, 1876.]

1. The Nut D, arranged to embrace the swivel-plate C, and adjustably connected therewith by means of the connecting-bolt *c'*, and arranged to connect with the tubular axle-piece H by means of the screw-stem F, as described and set forth.

2. The straps B B', swivel-plate C, link D, tube H, and axle G, combined and arranged as and for the purpose set forth.

182,643. SNOW-CASES. Pierre Francois Dallenne and Felix A. B. Messager, Paris, France. [Filed Nov. 30, 1874.]

Brief.—A casing of a suitable shape contains a movable platform for the reception of the articles to be exhibited, and adapted to be raised and lowered by means of machinery operated by hand or by a spring. The top of the casing is provided with hinged wings at each side, which serve, in connection with a movable center-piece, secured to a standard attached to the movable platform, to close the box when the platform is down, and which are automatically opened by said platform as it is raised.

1. The combination of the movable stage B F with the vertical screws *a*, provided with pinions at their lower ends, the intermediate gearing *f g h i*, barrel *d'*, and wheel C, substantially as described.

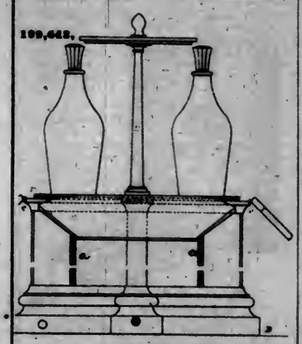
2. In combination with the movable platform B F the hooked rods *s*, link *y*, hinge *z*, and flaps or wings J, substantially as described.

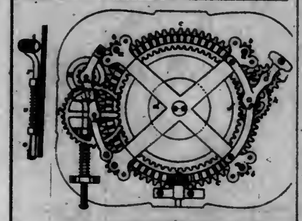
3. In combination with the movable platform B F and flaps J, the stage or platform G, substantially as described.

4. In combination with the beveled wheel *n*, wheel *o*, and intermediate gearing *l m*, the spring-rod *r*, cone *t*, and elastic ball or stop *v*, substantially as described.

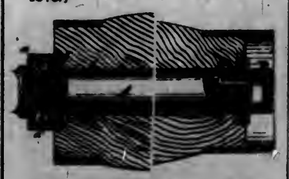
5. The combination of the movable platform B F and the gearing for raising the same, the standard H, platform G, flaps J, the whole constructed and arranged to operate substantially as described.

182,642.





182,644. VEHICLE-AXLES. David Dalzell, South Egremont, Mass. [Filed July 14, 1876.]

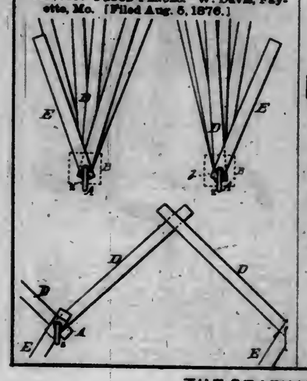


1. The axle-arm A, constructed with a direct journal-bearing surface extending within the chambered collar *a*, to accommodate the projecting end of the straight journal-box B, and allow said collar to receive the entire inward thrust of the wheel, as set forth.

2. The collar *a*, constructed with a grooved chamber, (with or without the outlet *a'*), substantially as shown.

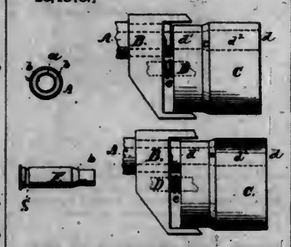
3. The box B, provided with the external grooves *g h*, for the purpose specified.

182,645. FLOOD-FENCES. W. Davis, Fayette, Mo. [Filed Aug. 5, 1876.]



The flood-fence consisting of the end perforated rails D and braces E, provided with oblique slot *b*, the foot-blocks B for the bottom of the post-holes, the iron-rod uprights A, and their end bands or fastenings, to secure the foot-blocks, and the rails which are pivoted, each at one end, to the rods, substantially as specified.

182,646. REVOLVING FIRE-ARMS. Joshua Davis, Limestoneville, Pa. [Filed Sept. 20, 1873.]



1. The barrel A, having the groove *e* around the opening into its bore, and the notches or passages *b b* leading from the bore into said groove, substantially as specified.

2. The cylinder C, having the chambers *d*, composed of a front part, *d'*, and a rear part, *d''*, of greater diameter than the front part, connected by the beveled interior annular shoulder *c*, substantially as specified.

3. The cartridge-case F, having its rear end of larger diameter than its front end, the shoulder *h* connecting said ends and the annular groove or indentation *g* around its larger or rear end, substantially as specified.

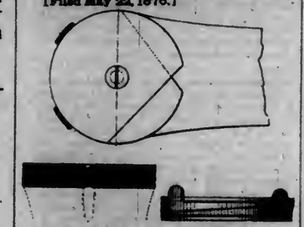
4. The replacing-spring *e* in combination with the frame B, cylinder C, and pin D, substantially as specified.

5. The combination with cylinder C, barrel A, spring *e*, and frame B, of the elastic cartridge-case F, substantially as and for the purpose set forth.

182,647. COMPOSITIONS FOR ARTIFICIAL MARBLE. Louis De Planque, New York, N. Y., assignor to himself and F. Strom, same place. [Filed Mar. 26, 1876.]

A composition for artificial marble and other stones, consisting of plaster-of-paris, whey, starch, glue, and sulphate of zinc, prepared substantially in the manner and the proportions set forth.

182,648. HEEL-SPRINGS FOR BOOTS AND SHOES. Abram Dilley, Drakestown, and John L. Larrison, Schooley's Mountain, N. J.; said Larrison assignor to said Dilley. [Filed May 22, 1876.]



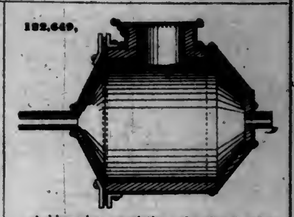
1. A heel-spreader adapted to be applied on the inside of the boot or shoe, and made of adjustable wedge-shaped rubber plates, pivoted by a fastening center pin, substantially as herein shown and described.

2. The pivoted rubber plates, having upward-projecting side lugs at the thickest part, to adjust the plates, substantially as herein shown and described.

182,649. BLOW-PIPES. Orren G. Dodge and William Gushurst, Omaha, Nebr. [Filed Aug. 26, 1876.]

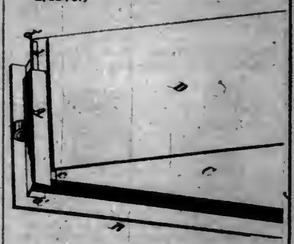
Brief.—Combustible material is placed in the fire-chamber through an opening for the purpose. A blast is driven through a tube at one end, forcing the flame out of the nozzle at the other end of the chamber.

182,649.



A blow-pipe, consisting of a fire-chamber provided with a door for the introduction of combustible material, and with a blast-pipe connected with any suitable air-forcing apparatus, and having nozzles adapting it to different kinds of work, substantially as herein shown and described.

182,650. TEMPORARY BINDERS. Henry H. Edwards, Minneapolis, Minn. [Filed Feb. 2, 1876.]



1. The open metallic binder or clamp A, provided with the interior holding-shoulder *b*, whereby the tablet is inserted sidewise, secured and held in place upon the back.

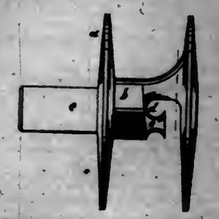
2. The combination, with the open metallic binder A, provided with the interior holding-shoulder *b*, of the end lips *a a*, and back B, and the tablet C, as described.

3. The combination of the back B, binder or clamp A, formed with shoulder *b*, on its inner side, flexible back D, formed with shoulder and stiffening-strip *d'*, and stitched or pasted tablet or book C, substantially as hereinbefore set forth.

4. As an article of manufacture, the within-described memorandum book or tablet, composed of back B, clamp or binder A, rigidly secured thereon near one end or side, and tablet C, and hinged back D, said tablet and back being removable only by sliding it laterally, substantially as herein set forth.

182,651. WIRE-STRETCHERS. R. Ellwood, Sycamore, Ill. [Filed July 3, 1876.]

Brief.—The device is placed over a fence-wire, so that the wire will enter space *d*, and, by means of a wrench applied to shank *c*, the wire is drawn taut around hook or catch *a*, and held by a pin, which is inserted through holes *f* in the two disks *a a'*, above the wire on one side and below it on the other.

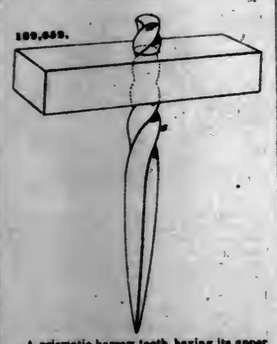


The herein-described wire-stretcher, provided with flanges *a a'*, central connection *b*, hook *a*, shank *c*, and holes *f*, substantially as and for the purpose specified.

182,652. HARROW-TEETH. Stephen Emery, Cameron, Mo. [Filed Aug. 12, 1876.]

Brief.—The shank of the tooth is twisted for insertion in the beam.

189,649.



A prismatic harrow-tooth having its upper end twisted to form spiral angular edges of slow pitch, substantially as specified.

189,650. NUT-LOCKS. E. G. Feltheusen, Buffalo, N. Y. [Filed Aug. 26, 1876.]

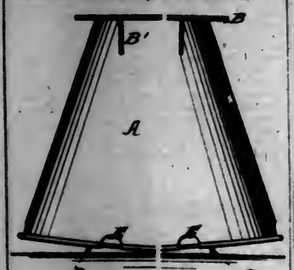


1. A nut-lock consisting of a bolt or lug arranged in a recess or cavity of the nut, and held in engagement with a groove in the screw-bolt by a suitable spring, so as to prevent the unscrewing of the nut unless the locking-bolt is depressed and disengaged from the groove of the screw-bolt, substantially as herein before set forth.

2. The combination, with a screw-bolt having longitudinal grooves c, of the screw-nut B, provided with cavity b and hooked locking-bolt a, furnished with a spring, d, so that the nut is locked by the bolt a engaging in one of the grooves of the screw-bolt, and released by depressing the locking-bolt, substantially as herein before set forth.

189,651. WASH-BOILERS. Josiah W. Field, Rockford, Ill. [Filed Aug. 12, 1876.]

Brief.—An interior case consisting of the smaller end at top open, and having a horizontal flange perforated; the base-line "boat-shaped," and having side perforations and cross-wires on a lower plane than the edge.



1. Casing A, having a conoidal or upwardly-tapering shape, and provided with a perforated upper flange, B, substantially as and for the purpose set forth.

2. A conoidal casing for the inside of a wash-boiler, said casing having a horizontal flange around its upper rim, substantially as set forth.

3. Casing A, having its bottom rim curved, so that the two ends of said rim are raised above the surface on which said rim rests, substantially as and for the purpose set forth.

4. The combination of supporting-rods D D with casing A, constructed with a bottom rim having upwardly-turned ends, substantially as and for the purpose set forth.

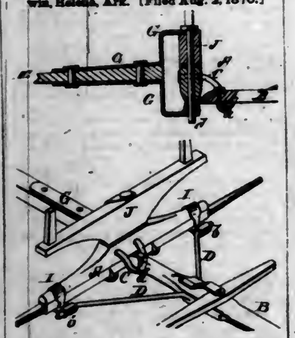
5. Casing A, provided with perforations E E near the bottom of the same, and with top flange B, substantially as and for the purpose set forth.

189,652. GRAIN-BINDERS. Jeptha Garrard, Cincinnati, Ohio, assignor to Excelsior Grain-Binder Company, (limited,) New York, N. Y. [Filed June 6, 1876.]



A twister for grain-binders, constructed with curved radial arms and with a ridge over the axis of said arms projecting above the plane of the outer portion thereof, substantially as and for the purposes set forth.

189,653. COUPLING VEHICLES. W. Goodwin, Helena, Ark. [Filed Aug. 2, 1876.]



1. The combination of the axle A, provided with clips I I, having loops b and the projecting central loop C, with the tongue B, having staple a and the braces D D connected to the tongue and inserted in the loops b, all substantially as and for the purposes herein set forth.

2. In combination with the axle A and reach E, the angular metallic plates G G, connected to the top and bottom of the reach, and projecting over and under the bolster J and axle A, respectively, and the king-bolt d, passing through both plates, bolster, and axle, substantially as herein set forth.

189,654. APPARATUS FOR DRAWING EFFERVESCENT LIQUIDS. Charles Greiner, New York, N. Y. [Filed Feb. 19, 1876.]

Brief.—The device is for discharging aerated liquid, and at the same time mixing with it a measured quantity of the desired syrup. The horizontally-moving lever at the top operates the valve-stems as desired. At each discharge the syrup-can is washed out.

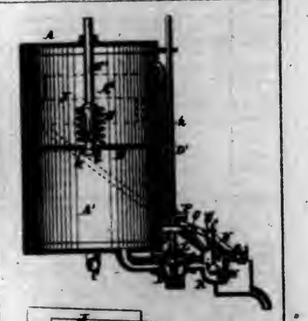
1. The combination of a liquid-supply valve, C, a liquid-discharge valve, D, and a pressure-relieving valve, E, with a receiving-vessel, A, and with a lever, F, arranged to open the several valves, substantially as described.

2. The pressure-relieving valve E, constructed with two faces, *e d*, in combination with a receiving-vessel, A, having a partition, M, with the liquid-supply valve C, and discharge-valve D, substantially as described.

3. The combination, with the lever F, which serves to open the valves C D E, of a projecting toe, I, substantially as described, and for the object specified.

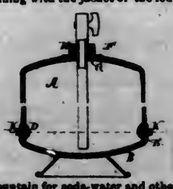
4. The syrup-reservoir J and syrup measuring-can K, in combination with the receiving-vessel A, substantially as described.

5. In combination with the syrup-can K, its gate M, the pivoted arm N, and the projecting lug P, attached to the stem of the liquid-discharge valve D, substantially as described.



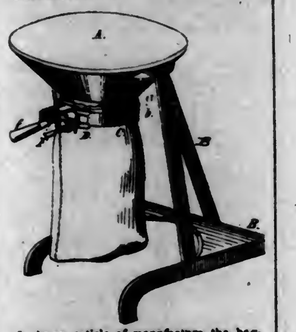
189,655. SODA-WATER FOUNTAINS. Chas. Greiner, New York, N. Y. [Filed Feb. 19, 1876.]

Brief.—A novel method of uniting the base and the lining with the jacket of the fountain.



In a fountain for soda-water and other effervescent liquids, the combination of the lining A, having one or more grooves, D, the collar E, detachable base B, and screws K, for uniting the parts, substantially as described.

189,656. BAG-HOLDERS. Francis H. Green and Eli B. Finney, Eau Claire, Wis. [Filed June 24, 1876.]

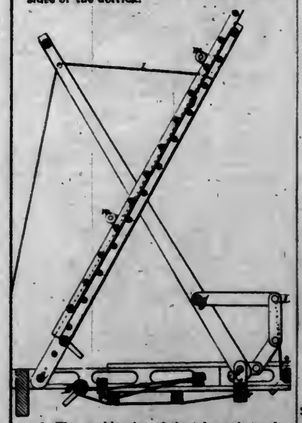


1. As an article of manufacture, the bag-holder herein described, consisting of funnel A, having neck *a*, frame or standard B, and belt C, having buckle D and fastener, consisting of slotted plate E, lever F, rack G, and pawl *g*, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

2. In combination with the discharge-spout of a mill, grain-elevator, or threshing-machine, the bag-holding device herein described, consisting of belt C, having buckle D and fastener E F G *g*, substantially as and for the purpose herein shown and specified.

189,660. FIRE-ESCAPE LADDERS. John A. Groshon, New York, N. Y., assignor to himself and Jno. D. Buckhout, same place. [Filed Aug. 18, 1876.]

Brief.—The frames in which the ladder and derrick are pivoted are telescopic, and are extended or contracted by means of a windlass and ropes. Jointed levers secured to the frame and to the derrick, to which ropes are attached; the ropes in turn being attached to a windlass, are used for raising the derrick in position. Stay bars or rods are pivoted to the sides of the derrick.

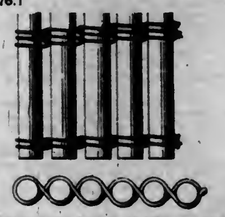


1. The combination of the telescopic truck-frame with a windlass secured in the extensible section of the frame, and with two ropes, one of which extends from the windlass to a traverse of the main section, while the other passes through a traverse secured to the extensible section, and thence to a traverse secured to the main section of the frame, so that by one and the same windlass the frame can be extended and contracted, substantially as shown and described.

2. In combination with the compound lever D, made of two sections, which are hinged to the derrick, and connected by hinged straps, the rope A attached to the round of the levers and passing around a windlass journaled in the derrick, substantially as described.

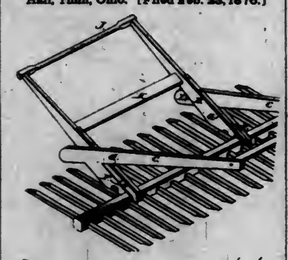
3. The combination, with the derrick and with the truck-frame, of side braces, which are pivoted to the truck-frame and to the derrick, substantially as and for the purpose described.

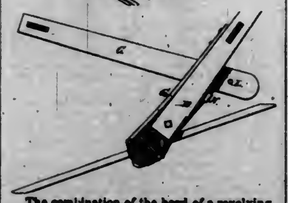
189,661. WOVEN WOODEN FENCINGS. J. J. Hall, Brooklyn, N. Y. [Filed Aug. 12, 1876.]



A series of wooden bars rigidly connected together a short distance from one another by one or more wires at the top and bottom, which wires are bent back and forth around said bars, and returned in a reverse manner, so that the bars are inclosed in a loop, and the two ends of the wires meet at the starting-point, and are then twisted together, substantially as and for the purposes set forth.

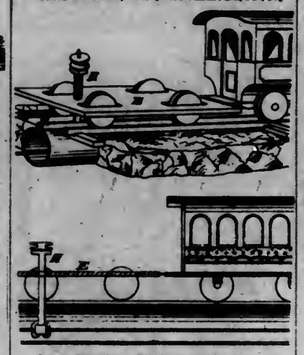
189,662. REVOLVING HORSE-RAKES. W. H. Hall, Tiffin, Ohio. [Filed Feb. 23, 1876.]





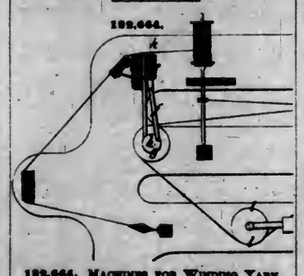
The combination of the head of a revolving rake, mounted in a frame, B B O C, with the arms D D, girth K, handle J, and stops L L N N, substantially as described, and for the purpose set forth.

189,663. RAILWAYS. Andrew S. Hallidie, San Francisco, Cal. [Filed Mar. 24, 1876.]



In combination with the cars of a street or other railway which are intended to be propelled by means of an endless cable moving in an underground slotted tunnel, the trunk or dummy B, having the permanently-attached gripping device H, substantially as and for the purpose described.

189,664. MACHINES FOR WINDING YARN. William Haslam, Bolton, England. [Filed Aug 16, 1876.]

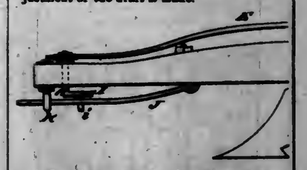


Brief.—For cleaning the yarn an open comb or reed is arranged for it to pass through, to which a vertical reciprocating motion is given besides the motion it derives from the guide-rail with which it travels.

The combination, in a machine for winding yarn, of the vertically-reciprocating guide-rail *c c* with the rail *e e*, having a reed or comb, *h*, and moving with the said guide-rail, but at the same time having an independent vertically-reciprocating motion, substantially as described.

189,665. FURROW-GAGES FOR PLOWS. B. B. Hawes, Morrisville, Vt. [Filed July 15, 1876.]

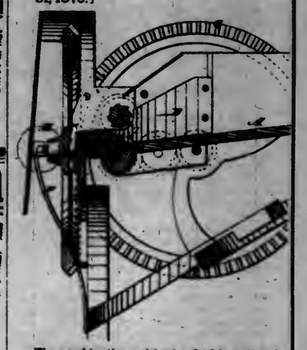
Brief.—The draw-rod is supported under the forward end of the beam by a horizontal loop. A shaft passes vertically through the beam, and a crank-pin passes through a slot in the rod, by which means a horizontal adjustment of the draft is made.



1. In a furrow-gage for plows, the combination of a vertical crank-shaft, having a horizontal arm, with a laterally-vibrating draft-bar and suitable shifting mechanism, substantially as and for the purpose set forth.

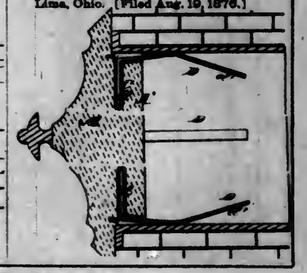
2. The combination of shifting-rod E, having rack F, with wheel G, crank H I, pin *i*, and slotted draft-bar J, substantially as and for the purpose set forth.

189,666. STRAW-CUTTERS. Amasa Hovey, New Albany, Pa., assignor to himself and Philo Mingos, same place. [Filed July 31, 1876.]



The combination, with the feed-box A and cutting-wheel B C, of the yielding spring-plates D attached to the sides of the cutting-box, and converging toward each other, substantially as and for the purpose set forth.

189,667. FLUE-STOPPERS. J. B. Higgins, Lima, Ohio. [Filed Aug. 19, 1876.]



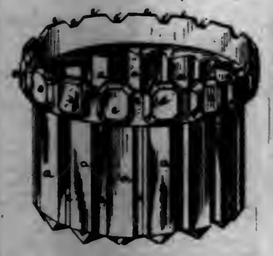
1. A pipe-stopper provided with a cylindrical body, A^1, recessed on its sides at *a c*, substantially as and for the purpose set forth.

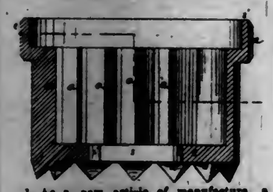
2. A recessed pipe-stopper, provided with detachable sockets or spring-holders, substantially as set forth.

3. Detachable socket C, provided with bottom spring-plate c^1 and upward-turned front lip c^2, substantially as and for the purpose set forth.

4. The combination of recessed stopper A, face B, and flat springs D D, each of which is provided with a straight part, *d*, and a curved part, d^1, substantially as and for the purpose set forth.

182,668. PRESSED-GLASS PENDANTS FOR CHANDELIERS, &c. John H. Hobbs, Wheeling, W. Va. [Filed Sept. 11, 1876.]





1. As a new article of manufacture, a pressed-glass lantern or pendant, consisting of a ring of prisms united edge to edge, substantially as set forth.

2. In a pressed-glass lantern or chandelier and lamp-pendant, the combination of a ring of prisms, *a*, and a bead of figures, *c*, united in the operation of making, substantially as set forth.

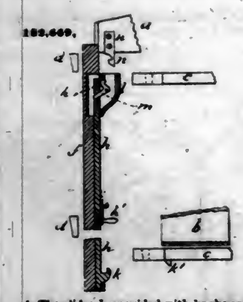
3. In a pressed-glass lamp attachment, an inwardly-projecting ring, *c*, suitably shaped in the edges of its aperture for supporting the lamp, substantially as set forth.

182,669. BOOK-CASES. William Homes, Boston, Mass., assignor to Warren Homes, same place. [Filed June 6, 1876.]

Brief.—A grooved back-board at the top of the case fits over the ends of the panels forming the back, and the top and bottom are locked to the back panels by means of sliding bars, provided with hooks that engage with catches on said top and bottom.



182,669.



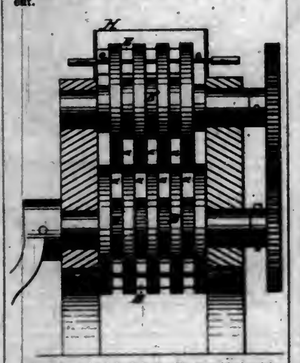
1. The slides *h*, provided with knobs or handles *h'*, in combination with the levers *m*, each provided with a hook at its upper end, and the hook *u* upon the back-board *a*, for the purpose of locking a portable book-case, substantially as herein described.

2. In combination with a portable book-case, the slides *h*, provided with the knobs or handles *h'* and hooks *h*, and the bottom *c*, provided with the hooks h^1, all substantially as and for the purpose above set forth.

3. The combination of the slides *h*, provided with the knobs *h'* and hooks *h*, and the levers *m* and rests *c*, substantially as and for the purpose before specified.

182,670. FOIL-CONDENSERS. John Hood and Stephen H. Reynolds, Boston, Mass. [Filed Aug. 9, 1876.]

Brief.—The foil is cut into narrow strips by two series of alternate rotating shear-disks. Split mandrels are passed through one set of disks near the periphery, and serve to roll up the thin ribbons of foil after they have been cut.



1. The cylindrical beds B, provided with the longitudinal groove *c* and transverse grooves *d*, substantially as and for the purpose set forth.

2. The rotary cutters B and B', in combination with the cylindrical beds B, as and for the purpose specified.

3. The wipers F and G, in combination with the rotary cutters B and B', as and for the purpose set forth.

4. The combination of the rotary cutters B and B', provided with the cylindrical beds B and split mandrels *e*, with the wipers G F and inclined feed-table H, substantially as and for the purpose set forth.

182,671. RECLINING-CHAIRS. N. N. Horton, Kansas City, Mo. [Filed Apr. 19, 1876.]

Brief.—The head-rest is attached to angular arms that are pivoted to the back and to the upper ends of the arm-standards. The arm-standards are knuckle-jointed, and are connected at their lower ends to a bowed shaft beneath the seat, which shaft carries a pawl to engage with a rack, so as to hold the back in any position. A spring is attached to the rear arm of the spider and to the crank-shaft, so as to keep the knuckle-joints closed. The spider carries a stop-lock for securing the chair when faced in either direction, said stop-lock being connected to the back, so as to be retracted when the back is tipped forward. The stem of the spider is slotted to receive the toothed supporting-arm of the pivoted leg-rest, which arm is disengaged by means of a lever, so as to permit the rest to drop.



1. The angular arms H and head-rest I rigidly connected together and hinged to the back E, in the manner and for the purpose set forth.

2. The bow-shaped crank-lever F in combination with the uprights G, back E, arms H, supporting-pawl J, and rack K, substantially as and for the purpose set forth.

3. The combination of the uprights G, constructed with knuckle-joints, and the hinged back E, and arms H, to provide for setting the back forward, in the manner and for the purpose set forth.

4. The combination of the back E, arms H, and jointed uprights G, and a suitable supporting-frame with the stop Q, so that said stop will be retracted by the tipping forward of said back, in the manner explained.

5. The combination of the hinged back E, arms H, uprights G, crank-lever F, supporting-pawl J, and lever M for retracting said pawl, as set forth.

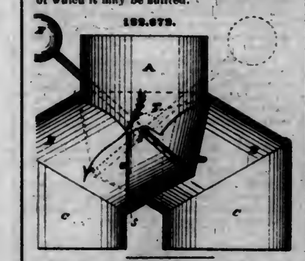
6. The spider, having arms for attachment to the seat-frame D', and bearings for the shaft which forms the pivot of the uprights G, in the manner explained.

7. The leg-rest N in combination with the hinged supporting-arm O working in a slot in the stem of the spider C, and with the lever P for elevating said supporting-arm when the leg-rest is to be lowered, substantially as set forth.

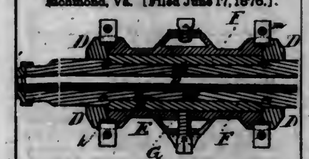
182,672. OUT-OFF BRANCH PIPES. George W. Howell, Covington, Ky. [Filed Oct. 20, 1874.]

In combination with the pipe A, the branch pipes B B, and the straight branch pipes C C, the cut-off D, consisting of two curved pieces of metal, united at such an angle as to form a complete elbow with either of the branch pipes B B and pipes A and C C, said cut-off being secured to a wire, L, pivoted at the junction of the branch pipes B B, by means of which it may be shifted.

182,672.



182,673. CAR-AXLES. John D. Imboden, Richmond, Va. [Filed June 17, 1876.]



1. In combination with the tubular axle-sections A A, the solid core filling up said sections, screw-threaded upon its ends, and the counterweak nuts clamping the adjacent inner ends of the said sections together, substantially as specified.

2. In combination with the tubular axle-sections, and a solid core, breaking joints therewith, the splice or truss box E, having an annular oil-reservoir, G, substantially as specified.

3. The splice or truss box E, having gibs or bearings F between the box and axle-sections, in combination with the axle-sections A A, and the set-screws clamping the said bearings across the joint of the axle-sections, substantially as specified.

4. In combination with the axle-sections A A, having rabbeted collars D, the splice or truss box, having correspondingly-rabbeted ends, and a packed clamp-ring fitting in the groove formed by the said rabbets, substantially as specified.

5. The sections A A, of a car-axle, adapted to be reversed, substantially as set forth.

6. The sections A A of a car-axle, having the rabbeted screw-threaded ends *c*, whereby they are capable of being reversed, substantially as specified.

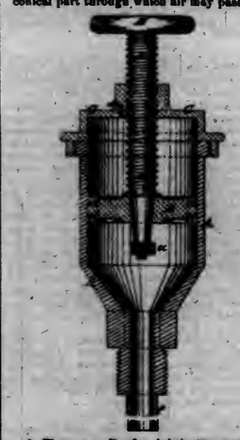
182,674. SHEET-METAL CANS. Tryon J. M. Jewell, New York, N. Y., assignor of one-half his right to Nathan Seeley and Geo. I. Stevens, same place. [Filed Apr. 5, 1876.]



A metal can having a circumferential groove, *c*, formed in the body of the can, as shown, said can being provided with a flanged cover having a corresponding groove, *c*, formed in its flange, and arranged to register with the groove *c* in the body of the can, and form a recess or chamber for the reception of a cutting-wire, substantially as described.

182,675. LUBRICATORS. George C. Johnson, Portland, Me., assignor to himself and Leonard Crockett, same place. [Filed Aug. 14, 1876.]

Brief.—The piston on the conical end of the screw-piston rod drops to the nut on the end of the rod when the lubricant becomes heated, leaving a space between it and the conical part through which air may pass.

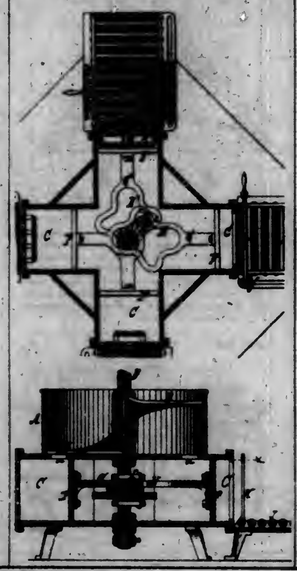


1. The screw D of a lubricator, provided with a conical end that extends through piston, and some distance beyond it, being end-threaded, and having end nut, for the purpose specified.

2. The combination of the cylinder A, piston B, having a central conical seat, the screw D, having the conical end, the cap C, and tube *c*, substantially as shown and described.

182,676. BRICK AND TILE MACHINES. F. J. Kennedy, Brooklyn, N. Y. [Filed Aug. 17, 1876.]

Brief.—The anti-friction rollers operate separately on the respective cages, thus not impeding each other's action. The fulcrum ends of the cutting-levers engage in holes or slots, so that they may be adjusted at any desired distance apart for cutting into sections the compressed clay issuing from the press-boxes.



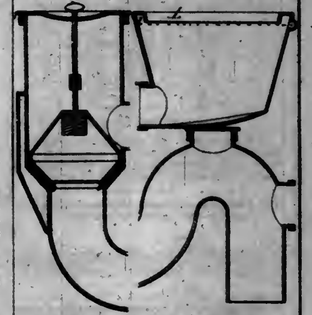
1. The combination of radiating press-boxes C C, followers F, arranged therein, the tempering-tub A, having apertures *a* in its bottom, through which the clay is supplied to the press-boxes, its vertical shaft B, and the spiral wiper D, having at its lower end a plate, E, the whole constructed to operate as and for the object set forth.

2. The combination of detached anti-friction rollers *b b'*, with the cages H H', followers F, and press-boxes C C, substantially as and for the purpose described.

3. The combination, with the platforms J and cutting-frames K, of side rails provided with slots, or a number of holes, substantially as and for the purpose set forth.

182,677. WATER-CLOSETS. J. H. Keyser, New York, N. Y. [Filed Feb. 5, 1876.]

Brief.—The overflow-passage has its outlet above the plunger-valve, which fits upon the seat of the upright cylinder and the foul-air trap, and leads below the valve into the foul-air chamber.



1. The combination of a pan, an upright cylinder, a foul-air trap, a water-supply valve and chamber, as described, an overflow-passage, and an imperforated tightly-fitting foul-air valve, substantially as and for the purpose described.

2. The water-valve chamber, formed in relief from, and at the rear or one side of, the upright cylinder and the foul-air trap of the closet, and supported by brackets of said cylinder and trap, substantially as and for the purpose described.

3. The tappet-lever, passed partly into the upright cylinder of the closet and pivoted thereto, and having two prongs at one end for passing alongside the plunger-valve rod, and a broad flattened head at the other end for striking the upper end of the water-valve stem, substantially as described.

4. A pivoted tappet-lever with one of its ends interposed loosely between the plunger-valve and the top of the upright cylinder, and its other end arranged above and free from the end of the water-supply valve, substantially as and for the purpose described.

5. A water-supply valve of a water-closet, operated by a tappet-lever, substantially as and for the purpose set forth.

6. A seat for a plunger-valve of a water-closet, formed of a ground-off metal annulus and chilled, and suited to the cast metal of the cylinder of the closet in the operation of casting, substantially as and for the purpose described.

7. A conical plunger-valve for a water-closet, made with a conical groove in its periphery, and provided with a rubber packing-ring, which is held in place by expanding it and allowing it to contract upon the plunger-valve, and thereby seat itself in the said groove, substantially as and for the purpose described.

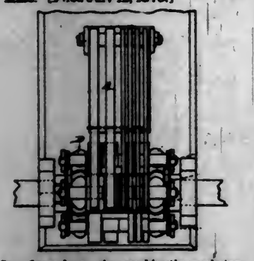
182,678. SHEDDING MECHANISMS FOR LOOMS. Lucius J. Knowles, Worcester, Mass. [Filed July 12, 1876.]



1. The combination, with the grooved and recessed harness sheave or pulley F, of the flanged sheaves or pulleys E, fitting into the recesses of the sheave or pulley F, substantially as and for the purposes set forth.

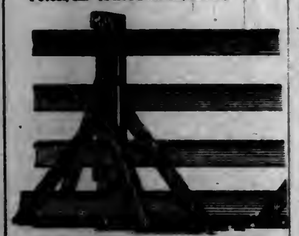
2. The combination, in a loom with harness-frames having their cord-holding staples or eyes a arranged out of line with each other, of harness-supporting sheaves or rolls of different sizes, substantially as and for the purposes set forth.

182,679. SHEDDING MECHANISMS FOR LOOMS. Landon J. Knowles, Worcester, Mass. [Filed July 12, 1876.]



In a fancy loom, the combination, substantially as set forth, of jacks of unequal thicknesses, and corresponding risers and depressors for operating the same.

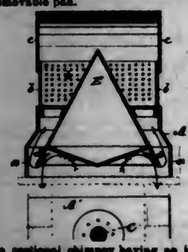
182,680. FENCE-POSTS. Moses H. Knight, Potosi, Ill. [Filed Feb. 23, 1876.]



In a board fence, the combination of upright posts A A, having cross-pieces c c, and braces b C with the strip B and braces T T, substantially as and for the purpose herein shown and specified.

182,681. ORNAMENTS. Geo. F. Knight, Carroll, Ohio, assignor to himself, Nathaniel Havens, and Jno. W. Willson, same place. [Filed Sept. 5, 1876.]

Brief.—The deflector diverts the soot from the inner to the outer flue, down which it falls into a removable pan.



1. The sectional chimney having an inner and outer flue, in combination with the top section A^1, having a double pyramidal deflector, B, with skirt *d*, located just above the outer flue, substantially as and for the purpose described.

2. The top section A^1, composed of the enlarged portion *c*, perforated cage *b*, and cover *c*, in combination with the double pyramidal deflector B, having skirt *d*, as and for the purpose described.

3. The sectional chimney having an inner and outer flue, with stove-pipe connection with the inner one, and soot-pan below, in combination with the top section A^1, composed of enlarged portion *c*, cage *b*, and cover *c*, and the double pyramidal deflector B, having skirt *d*, substantially as and for the purpose described.

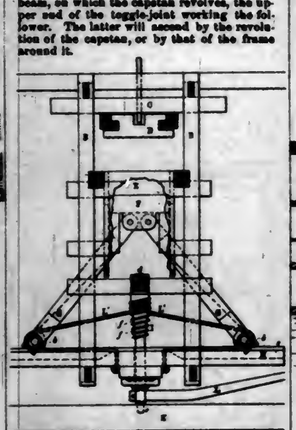
182,682. PROCESSES FOR TREATING TOBACCO EXTRACTS. Stephen Kreckowizer, Hoboken, N. J. [Filed June 27, 1876.]

1. The herein-described process of preparing extracts from tobacco-stems, which consists in first expelling from the tobacco-stems the noxious nicotine; then in expelling a portion of the nicotianine by distillation; then in skimming the nicotianine from the liquor of distillation, and treating the remaining liquor of distillation with an acid; then in returning the liquor of distillation to the tobacco-stems; then in adding water, or water mixed with alcohol; then in boiling the stems until they have given up the extractive substances which they contain; then in drawing off the liquor from the stems, and evaporating it to the consistency of an extract; and then, finally, in adding to the concentrated extract a suitable quantity of the nicotianine obtained by skimming the liquor of distillation.

2. In preparing tobacco-extracts by distillation, I claim treating the liquor of distillation with an acid, for the purpose of forming a salt of nicotianine, and thus preventing the escape of the nicotianine from the liquor of distillation by volatilization.

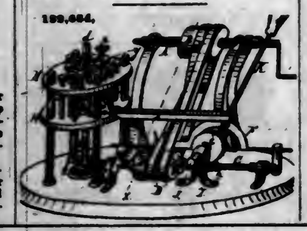
182,683. COTTON-PRESSES. Lewis Lewis, Vicksburg, Miss. [Filed Aug. 30, 1876.]

Brief.—A spirally-grooved conical capstan has a rope attached to it, with each end passing around a pulley on the foot of a toggle-bar on each side; thence fastened to a cross-beam, on which the capstan revolves, the upper end of the toggle-joint working the follower. The latter will ascend by the revolution of the capstan, or by that of the frame around it.



In a cotton-press, the reversible spirally-grooved conical capstan I, in combination with the rope *L*, rollers *b*, and bars G, for the purpose of drawing together the lower ends of the said bars G, whereby a vertical movement of the follower F is obtained, substantially as herein set forth.

182,684.



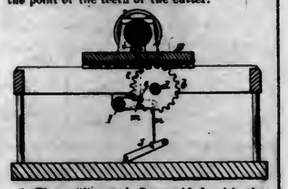
182,684. MANUFACTURE OF LACE-LEATHER AND APPARATUS THEREFOR. H. Loescher, Chicago, Ill. [Filed July 18, 1876.]

1. The process for converting green hides into lace-leather without the use of lime or solids by first unhairing the hide through fermentation, then drying the skin, and, finally, softening it by beating it, substantially as described.

2. In a machine for softening hides, the combination, with the spindle G, the shaft C, the open and crossed belts E F, and mechanism for automatically shifting the said belts to rotate the spindle alternately in opposite directions, substantially as described and shown.

182,685. MACHINES FOR CUTTING RIVET-HEADS. Aurelius W. Mahon, Richmond, Va. [Filed June 7, 1876.]

Brief.—The tool consists of a toothed centerpiece, with a hardened steel flange on each side the exact size of the diameter of the tool at the point of the teeth of the cutter.

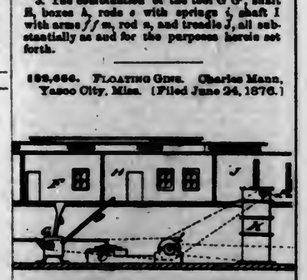


1. The milling-tool G, provided with the side flanges G', and keyed upon a rotating mandrel, E, as and for the purposes herein set forth.

2. The combination of the tool G G' and the reciprocating table or carriage B, as and for the purposes herein set forth.

3. The combination of the tool G G', shaft E, boxes A, rods *e* with springs *i*, shaft I with arms *f f* *m*, rod *n*, and treadle *J*, all substantially as and for the purposes herein set forth.

182,686. FLOATING GINS. Charles Mann, Yazoo City, Miss. [Filed June 24, 1876.]



A steamboat-hull having on its lower deck a gin, G, and a press, K, actuated by the same motive power that propels the boat, and provided on its upper deck with the adjacent rooms F H J, the seed and lint rooms F H being connected by chutes *s* and *g* with the gin, substantially as described, and for the purpose set forth.

182,687. CONVERTIBLE CHAIRS AND CRADLES. S. C. Magill, Chicago, Ill. [Filed Jan. 7, 1876.]

1. In a child's high chair, the combination, with the hinged back frame C^1, of the hinged head-board C^2, substantially as described and shown.

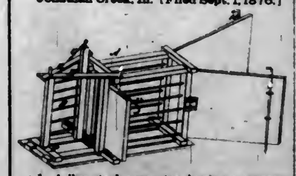
2. In a child's high chair, the vibrating seat-frame C, hinged back frame C^1, hinged head-board C^2, hinged leg-frame C^3, and cords *f h*, all constructed and arranged substantially as described and shown.

3. The high chair described, consisting of the frame A, the frames B, the vibrating seat-frame C, the hinged frame C^1, the hinged leg-frame C^3, the cords *f h*, and the pivoted table E, all constructed and arranged substantially as described and shown.

182,687.



182,688. STOCK-SEPARATORS. Abia Minor, Jonathan Creek, Ill. [Filed Sept. 1, 1876.]



1. A live-stock separator having a narrow passage-way for the transfer of the stock, and at the exit end of said passage-way a separating-gate to divide and direct the animals, substantially as described.

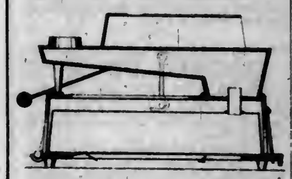
2. The combination, with a live-stock separator, of the converging entrance-gates, substantially as described.

3. The combination of a cut-off gate with a live-stock separator.

4. The combination of the passage-way frame A and separating-gate D, substantially as described.

182,689. SAD-IRON HEATERS. Josiah Miseli and Preston H. Sessoms, Colerain, N. C. [Filed Aug. 29, 1876.]

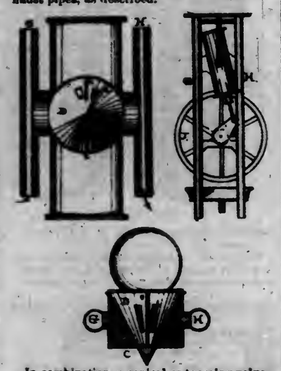
Brief.—The several parts are detachable. The frame is hinged to the base.



The cast-iron heater herein described, consisting of a base-plate, hinged frame or stand, combustion-chamber, with its rear end formed into a flue, and receptacle for the cast-iron, all constructed and arranged substantially as shown and described, for the purpose specified.

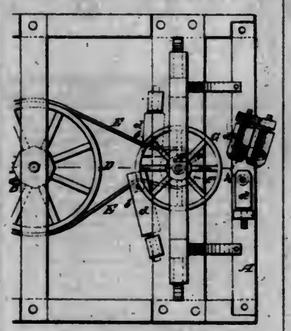
182,690. WATER-MOTORS. John B. Morrow, San Francisco, Cal., assignor to C. D. and Ezra Hinckley, same place. [Filed Feb. 24, 1876.]

Brief.—A conical or tapering valve forming the trunnion, oscillating within a fixed cone or seat having the same form as the valve. A valve-chest divided by a partition above and beneath the cone, and the supply and exhaust pipes, as described.



In combination, a conical or tapering valve, E, oscillating within a fixed cone, D, or a seat having the same form as the valve, a valve-chest, divided by the partitions *c c* above and beneath the cone, and the supply and exhaust pipes G H, the whole constructed, arranged, and operating substantially as herein shown and described.

182,691. HORSE-POWERS. J. B. Muldrow, Lynchburg, S. C. [Filed July 6, 1876.]



The inclined pivoted arm *S*, arm *S'*, rollers *b b'*, in combination with the rollers *b b*, belt E, wheel D, roller B, and vertical shaft *a*, all constructed and arranged substantially as and for the purpose set forth.

182,692. WASHING-MACHINES. R. Murphy, Canisteo, N. Y. [Filed June 9, 1876.]

The head B, in two pieces, *d d*, the semicircular pieces of iron with the spurs *g g*, and button F and the staple A, for the purpose specified.

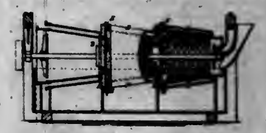


182,693.



182,694. DRUM-SCREENS FOR MINERALS. Martin Neuerburg, Kalk, near Cologne, Germany. [Filed Aug. 31, 1876.]

Brief.—As equivalents to buckets, spiral passages leading from each mantle to the interior of the next finer screen may be used.



1. The combination of two or more rotating screens of different fineness, arranged on a common axis, a mantle or mantles surrounding one or more of said screens, a channel or channels of communication between the mantle of each coarser screen and the interior of the next finer one, and a passage or passages leading from the interior of one or more of the screens out through the exterior of said mantle or mantles, substantially as and for the purpose specified.

2. The combination, with the rotating screens of different fineness, arranged upon a common shaft, as herein set forth, of the partitions F, the discharging-passages H, the mantles I, the buckets K, and the conoid rims L, substantially as and for the purpose specified.

182,694. SPINNING-TOPS. Charles Nicklas, New Haven, Conn. [Filed May 13, 1876.]



A spinning-top, carrying upon its stem an index, D, which is provided with wings *b* for retarding its motion when the top is spinning, in combination with a scale, E, of figures or characters marked upon the rim of the top, substantially as and for the purpose described.

182,695. MILITARY ACCOUTREMENTS. W. S. Oliver, British Army. [Filed Sept. 4, 1876.]

Brief.—The two main straps which support the accouterments are detachably connected.

1. The combination, substantially as described, of the magazine-brace and kit-brace, detachably connected, substantially as and for the purposes set forth.

2. The combination, substantially as set forth, of the magazine-brace, the kit-brace, and the magazine-bag, the latter being transferable from the shoulders to the loins, and adapted to be applied to either brace, as described.

3. The magazine-brace, consisting of the back-straps and the main strap provided at its ends with adjustable hooks, and above the hooks with short side straps or buckles to engage the back-straps, substantially as set forth.

4. The kit-brace, provided at its center part with metal eyes or loops, and otherwise constructed substantially as set forth.

5. The magazine-brace and kit-brace, in combination with the magazine-bag and kit-bag, provided with hooks, and adapted to engage the braces substantially as shown and described.

6. The combination, substantially as set forth, of the waist-belt, the magazine-brace, the kit-brace, magazine-bag, and the kit-bag, said parts being constructed and arranged substantially as described.

7. A set of accouterments, comprising a kit-brace and bag, a magazine brace and bag, a waist-belt, and a coat-yoke, adapted for use substantially as set forth.

8. The magazine-bag, provided with laterally-shiftable hooks, substantially as set forth.

9. The magazine-bag or the kit-bag, provided with hooks, a center strap adapted to hold down the flap or cover, side straps arranged to pass through slits in the flap, and to support the contents of the bag when the flap is loosened, and otherwise constructed substantially as set forth.

10. The herein-described magazine-brace, combined with cavalry cartridge or ammunition pouches under the arrangement substantially as set forth.

11. The coat-yoke, constructed and provided with hooks, substantially as and for the purposes set forth.

12. The mess-can, provided with a mess-can strap, and adapted for use substantially as set forth.

13. The canteen, the cup, and the canteen-strap, constructed, arranged, and adapted for application to the waist-belt, substantially as set forth.

192,695.



192,696. CURTAIN-TASSELS. Herman D. Osgood, Stoneyville, Mass., assignor of one-half his right to Jos. M. Osgood, same place. [Filed July 3, 1876.]

Brief.—A form covered with velvet or other ornamental flexible material, said form having an ornamental bowl at the bottom, and a bell-shaped covering at the top, said parts being connected by rods, straps, or other suitable devices.

1. In combination with the head *a* and sleeve *b*, the bolt *c*, provided with the double hook *d*, and the straps *h*, substantially as and for the purpose herein set forth.

2. In combination with the form *e*, made solid or hollow, and in one or more pieces, the bowl *g*, straps *h*, and ball *k*, all substantially as and for the purpose specified.

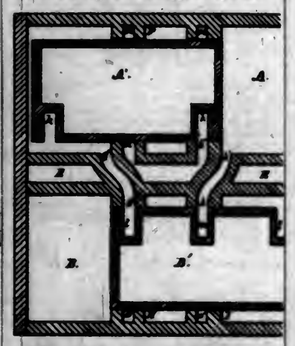
3. The combination of the form *e*, made solid or hollow, and in one or more pieces, the bowl *g*, and the ball *k*, the said form, bowl, and ball being arranged in the position above described, for the purpose hereinbefore set forth.

192,697.



192,697. WATER-METERS. J. B. Paddock, Chicago, Ill. [Filed Oct. 23, 1875.]

Brief.—The plunger of each cylinder serves as a valve to control the admission of water and its discharge from the opposite cylinder.



1. The combination, with cylinders A and B, receiving-chamber D, discharge-chamber E, and plungers A' and B', of a series of receiving-ports, *a*, *b*, *c*, and *d*, a series of connecting channels or ports, *e e'*, *f f'*, *g g'*, and *h h'*, and a series of discharge-ports, *a' b' c'*, and *d'*, arranged substantially as described.

2. The plunger A', having three D-cavities, arranged as described, and operating both as plunger and valve, and capable of being used in either cylinder by reversing its position, and when used in one cylinder its end cavities forming receiving and connecting ports, and its middle cavity forming connecting and discharge ports; and when used in the other cylinder its center cavity forming receiving and connecting ports, and its end cavities forming connecting and discharge ports.

3. The combination, with plungers A' and B', of the channels *n*, *n'*, *o*, and *o'*, arranged as described.

192,698. MACHINES FOR CANCELING POST-AGE-STAMPS AND POSTMARKING LETTERS. T. G. Palmer, Schuylerville, and H. F. Clark, Poughkeepsie, N. Y. (Filed Mar. 18, 1876.)

1. The pressure-roller F' and its shaft F, provided with the mutilated gear E, and the stud H, in combination with the pivoted lever K, to arrest the revolution of said roller, substantially as described.

2. The stud *e* and arm *d* on the mutilated gear M, in combination with arm I and pin G, attached to the shaft F, to stop and set in motion said mutilated gear M, substantially as set forth.

3. The mutilated gear E on the pressure-roller shaft F, combined, by mechanism substantially as described, with the mutilated gear M on the type-roller shaft L, to allow the gears E and M to remain at rest at each revolution, as and for the purpose specified.

4. The spring *f*, in combination with the journal-boxes of the mutilated gear-wheel E, of the pressure-roller F', and of the driving-gear D, to allow the gears D and E to separate at each revolution, if necessary, and to admit various thickness of papers between the pressure-roller and type-roller, as specified.

5. The pin J, attached to the pressure-roller F', in combination with the mutilated gear E, and the gears D and C, to advance said mutilated gear before motion is transmitted to the type-roller, as and for the purpose specified.

6. The cams *e f*, in combination with the double compound levers M M, and the deliverers N', arranged on either side of the printing-rollers, as and for the purpose specified.

192,699.



192,699. TRACK-CLEARERS. Eli Perry and Andw. J. Manley, Fox Lake, Wis. [Filed Mar. 21, 1876.]

1. In a snow-plow, the combination of a horizontal vertically-movable cutter-platform, D, vertical stationary side cutters C, and a vertical sliding knife, G, substantially as herein described, and for the purpose set forth.

2. The combination of a laterally-sliding cutter or spade, J, with the horizontal cutter-platform D, and vertical sliding knife G, for cutting the enervated snow into two parts, and conveying it to discharge-chutes, substantially as herein described.

3. The combination, in a snow-plow, of a centrally-located cutter, J, with a rising platform, D, elevating a mass or block of snow, for cutting the same into cuttings, substantially as herein described.

192,700. APPARATUS FOR SEPARATING CREAM FROM MILK. Dexter Pottengill, Delhi, N. Y. [Filed Aug. 26, 1876.]

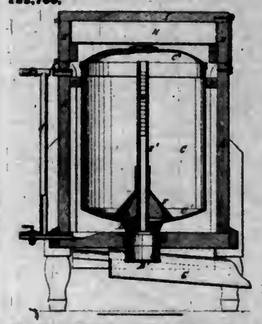
Brief.—A wooden exterior case and a metallic interior one, with space between, and water ingress and egress and ice-drip above, the milk filtering from the base, leaving the cream within.

1. The apparatus consisting of the box A, the swinging ice-box H, the vat C, the supply-pipe J, and the waste-pipe K, all constructed and operating substantially as set forth.

2. The combination of the vat C, the tube B', the plug-valve E, the funnel D, and the strainer F, constructed and operating substantially as set forth.

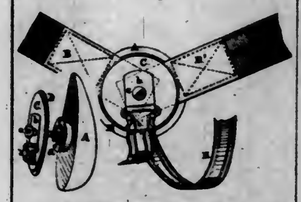
3. The combination of the vat C, the funnel D, the cock B, and the cap B', constructed and operated substantially as set forth.

192,700.



192,701. TRUSSES. William L. L. Pierce, San Francisco, Cal. [Filed Aug. 3, 1876.]

Brief.—A tubular rubber spring rests at one end in a recess in the pad, and at the other against a metal disk, a screw passing through all three to secure them together. The screw also passes through and confines a buckle-plate, between which and the metal disk are inserted the free ends of the elastic body-belt.



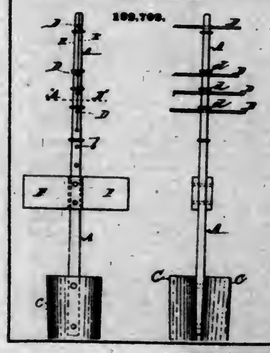
1. The combination, with the pad A, of the plate D, the tubular spring *c*, and the set-screw *e*, substantially as described and shown.

2. The combination, with the pad A, of the divided band B B', the plate D, and the set-screw *e*, when the said set-screw passes through the plate and the ends of the band into the said pad, as betsantially as described and shown.

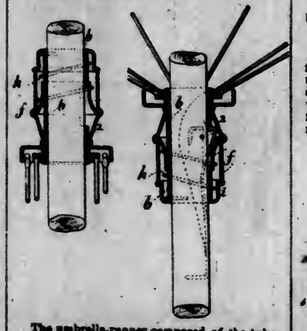
3. The combination, with the pad A, of the plate D, the set-screw *e*, the divided band B B', and the movable buckle-plate *b*, substantially as described and shown.

4. The combination of the pad A, plates C D, divided band B B', movable buckle-plates *b*, set-screw *e*, and tubular spring *c*, constructed and arranged substantially as described and shown.

192,702.



192,702. UMBRELLA-RUNNERS. David S. Plume and Geo. W. Tucker, Waterbury, Conn. [Filed Sept. 17, 1875.]



The umbrella-runner composed of the tube *b*, tubular slide *f*, cone 2, spring *h*, and tip-cap *c*, substantially as set forth.

192,703. BOOT AND SHOE COUNTER SUPPORTS. George W. Powers, Decatur, Ill. [Filed July 24, 1876.]



A counter-support consisting of the part C and serrated tang A, the parts arranged at an obtuse angle to each other, and constructed with a square driving-shoulder outside of and in line with part C, to adapt the counter-support to be secured to a manufactured boot or shoe, substantially as and for the purpose set forth.

192,704. PIN-STICKING MACHINES FOR KEY-BOARDS. Charles W. Pratt, Deep River, Conn., assignor to Pratt, Read & Co., same place. [Filed Mar. 20, 1876.]

Brief.—For sticking the pivot and guide-pins in the bed of key-frame of musical instruments for the keys to work on.



1. The combination of rotating carrier-disk *j*, having pin-holes *i* and springs *k*, with pins *l*, all substantially as described.

2. The combination of rotating carrier-disk *j* with slide *a*, standard *o*, disk *w*, pawl *y*, and ratchet *c*, all substantially as described.

3. In a pin-sticking machine for musical instruments and other key-boards, the combination of table *s* with bifurcated pressure-finger *d*, all substantially described.

4. The combination of slide *d'* with reciprocating arm *f''* and finger *h'*, all substantially as described.

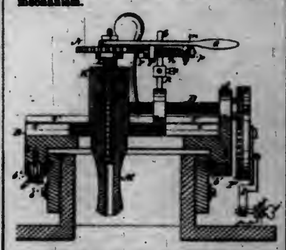
5. The combination of rod *t'* with cam *l'* and French cams *m' n'*, all substantially as described.

6. The combination of French cams *m' n'* and cam *l'* with rod *t'*, slide *d'*, arm *f''*, and finger *h'*, all substantially as described.

7. The combination of carrier-disk *j*, slide *a*, and pinion *T* with eccentric *p*, shaft *r*, cams *l' m' n'*, rod *t'*, arm *f''*, and slide *d'*, substantially as described.

192,705. DIAMOND MILLSTONE-DRESSING MACHINES. Aaron C. Fry, Keedysville, Md. [Filed Aug. 24, 1876.]

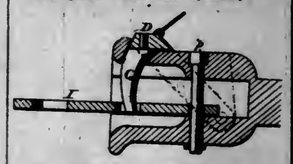
Brief.—The carriage has adjustable cleats for compensating wear of the latter. On the upper surface of the rectangular piece of the carriage is fixed a hollow cylinder, through which the adjustable diamond tool-holder is moved up or down and regulated by gear mechanism.



1. In a diamond-tool millstone-dressing machine, the combination, with a longitudinally-grooved main frame, A, of a carriage, B, cheeks *b'* and *c'*, provided with the slots *b''* and *c''* and clamp-screws *b'''* and *c'''*, substantially as shown and described, for the purpose specified.

2. In a diamond-tool millstone-dressing machine, the combination of the main frame A and carriage B, tool-holder M, vertical screw I, cog-wheel N, lever O, reversible spring-pawl P, and adjustable gage R, substantially as shown and described, for the purpose specified.

192,707. CAR-COUPLINGS. G. W. Putnam, Glens Falls, N. Y., assignor of part of his right to D. W. Sherman and S. F. Brower, same place. [Filed June 13, 1876.]



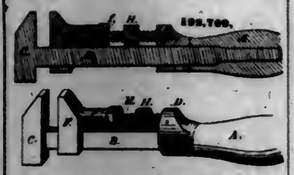
The combination of the draw-head A, having exterior recesses *b b*, forming inclined shoulders *a a* and top shoulder *d*, the arms C C, pivoted in the recesses, and connected by the cross-bar D, provided with the hook-shaped pin G, and the tapering coupling-plate I, permanently attached to the draw-head by the pin *g*, all substantially as and for the purposes herein set forth.

192,708. PURIFYING IRON AND MAKING STEEL. John L. Randall, Albany, N. Y., assignor to himself and Stephen Munson, same place. [Filed June 6, 1876.]

The process of purifying iron and producing steel, which consists in treating molten cast-iron while in a receiver, with pulverized titanic ore, potassic ferrocyanide, and potassic nitrate, substantially in the manner named, and the proportions herein set forth.

192,709. WASHSTANDS. John T. Reed, St. John, New Brunswick, Canada. [Filed June 26, 1876.]

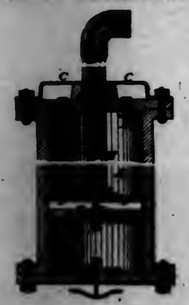
Brief.—The nut pushes the sliding jaw forward, and it is either pulled or falls backward.



192,709.

In a wrench, the combination of handle A, having shaft B and head C, stationary screw E, having nut H, and sliding jaw F, having downward projection *f*, perforated so as to slide upon screw E, substantially as and for the purpose herein shown and specified.

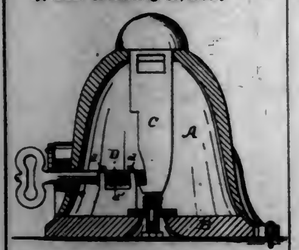
192,710. FURNS. Archibd. Riddell, Guelph, Ontario, Canada. [Filed Apr. 26, 1876.]



1. The combination of the submerged cylinder A, having valves B and protecting covering-plate C, with the plunger herein described, consisting of tubular piston-rod H and piston D, the latter having transverse slot or opening *d*, intersected by vertical perforations *f f'* and plate F, all constructed and combined to operate substantially in the manner and for the purposes shown and specified.

2. In a submerged pump, A, the protecting covering-plate C, arranged over the top valves so as to prevent their becoming blocked or choked up, substantially as and for the purpose described.

192,711. HITCHING-POST. Charles F. Roth, Madison County, assignor of one-half his right to Albt. H. Adkison, Madison County, Iowa. [Filed Aug. 30, 1876.]



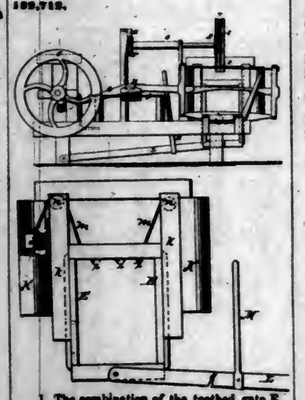
1. A hitching-post composed of a hitching-bar retained within a surrounding case, and released by means of a key, substantially as shown and described.

2. In a hitching-post, the combination of the hitching-bar C, locking-bar D, spring *d'*, and case A, constructed and arranged substantially as shown and described, for the purpose specified.

192,712. FIRE-WOOD-SAWING MACHINES. Lemuel Reed, Whitefield, N. H. [Filed July 19, 1876.]

Brief.—The wood is firmly held while being sawed by means of a vertically-sliding gate having teeth in the under surface of its upper cross-bar, lowered by a ratchet-handle lever, and raised automatically by weights running in tubular casings on each side of the gate-frame. The saw is raised from the log by a perforated plate (through which the top brace of the saw passes) attached to a cord passing over a pulley in a vertical standard, and attached to a wheel on the outer end of a horizontal shaft. A ratchet and pawl at the inner end of said shaft holds the saw when raised.

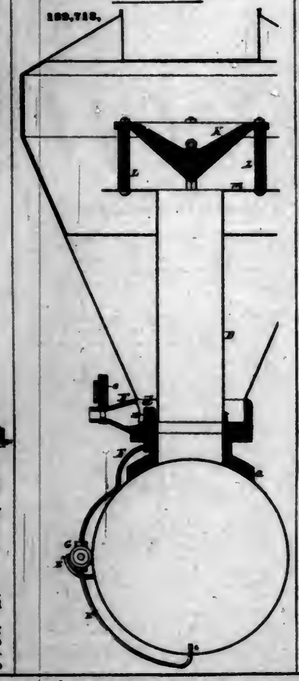
192,713.



1. The combination of the toothed gate E, cords *m*, weights J, casings K, lever L, ratchet-handle M, and plate *p*, all as and for the purposes herein set forth.

2. The combination of the saw I, plate *i*, cord *i*, pulley *o*, and shaft O, with pulley N and pawl and ratchet P R, substantially as and for the purposes herein set forth.

192,714.



192,715. SPARK-ARRESTERS. W. Rushton, Atlanta, Ga. [Filed June 1, 1876.]

1. The combination, in a locomotive-stack, of a nozzle, *c*, communicating with the boiler, and the hollow enlargement or opening F, arranged at the base of the stack opposite the nozzle, to leave an intervening receptacle for the sparks, substantially as set forth.

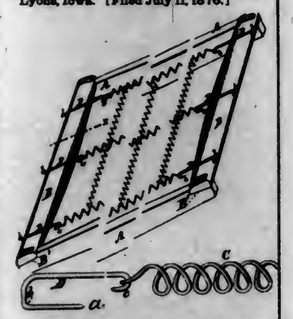
2. The saddle-ring cast with a hollow enlargement, F, carrying the valve-casing, and with a hollow projection, *d*, extending downward through an opening in the saddle, and serving to conduct the steam or water to the nozzle *c*, as set forth.

3. The combination of the nozzle *c*, pipes E E' F', and three-way cock G, as and for the purpose set forth.

4. The guards L, having inclined sides, for the purpose specified.

5. The combination of the guards or supports L, and funnel K, having sockets *i* to receive the upper ends of said supports, as specified.

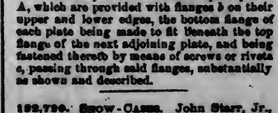
192,714. SPRING-BEDS. Gideon A. Russell, Lyons, Iowa. [Filed July 11, 1876.]



1. The frame of a coil-spring bed-bottom, having the rails joined together by beveled joints B', substantially as and for the purpose described.

2. The rods D, having ends *e*, formed by acute angles at *b*, and curved above the angles, in combination with the rails B, rounded at the upper and outer corners, and joined to rails A by beveled joints B', substantially as and for the purposes described.

192,717. FIRE-PROOF BUILDINGS. John J. Schillinger, New York, N. Y. [Filed Sept. 6, 1876.]



1. A ceiling consisting of a hollow arched tile constructed in one piece, in position, with a flat bottom and arched top, the flat bottom being composed of plaster-of-paris and the arched top of cement, the mass being perforated throughout, substantially as and for the purpose set forth.

2. A hollow arched tile, the upper part of which is made of cement and the lower part of plaster-of-paris or other light material, and provided with tie projecting from its arched back, substantially as set forth.

3. A hollow arched tile, provided with anchors connected by tie-rods, both cast in the body of the tile, substantially as described.

192,718. HEAD-RESTS. G. A. Shaw, Toronto, Ontario, Canada. [Filed May 3, 1876.]

The head-rest K, provided with a shank, J, passing through the guides J' upon the clip B, in combination with the adjustable holder H, provided with a socket, I, and strap upon the strap F, substantially as and for the purpose specified.

192,719. CONSTRUCTION OF IRON BOATS. John T. Smith, New York, N. Y. [Filed Sept. 2, 1876.]

A boat composed of metallic strips or plates A, which are provided with flanges *b* on their upper and lower edges, the bottom flange of each plate being made to fit beneath the top flange of the next adjoining plate, and being fastened thereto by means of screws or rivets *c*, passing through said flanges, substantially as shown and described.

192,720. SNOW-CASES. John Starr, Jr., Huntington, W. Va. [Filed Aug. 3, 1876.]

Brief.—A rod passes through the top of the show-case, and is provided at its upper end with a thumb-piece, and is keyed at its lower end to a spider, which is connected by rods with the doors of the case, so that all the doors can be opened or shut simultaneously.

192,721. LIFTING-JACKS. Charles W. Tarr, Plymouth, Ohio, assignor of one-half his right to Kroenke, Tarr & Arnold, same place. [Filed Aug. 30, 1876.]

1. The combination, with the standard and operating lever of a lifting-jack, of the lifting-bar D adjustably secured to the standard, the said bar D provided with hook *f* and arm *d*, substantially as and for the purpose set forth.

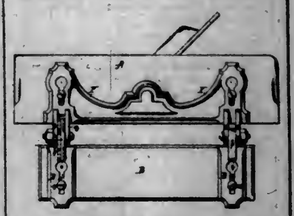
2. The combination, with the standard of a lifting-jack, and an adjustable lifting-bar, D *f d*, secured thereto, of an adjustable lever, B, substantially as and for the purpose set forth.

3. The combination, with the standard of a lifting-jack having lifting-bar D secured in the guide E *g*, of the lever B, provided with a roller, *c*, adapted to work in contact with the arm *d*, and lock in the groove *h*, substantially as and for the purpose set forth.

4. The combination in a lifting-jack of the standard A, provided with lever B and heel H of the lifting-bar D, constructed with arm *d* and hook *f*, substantially as and for the purpose set forth.

192,722. PLANE-GUIDES. A. J. Toamey, Evansville, Ind. [Filed June 12, 1876.]

Brief.—The plane-guide can be adjusted and held at any desired angle by means of slotted plates attached to the guide, and provided with projections, one of which forms a graduated segment; slotted plates attached to the plane-stock, and provided with ears to receive the projections on the guide-plates; and hinged and clamping-bolts passing through the ears and projections, and fastened by nuts upon their outer ends.

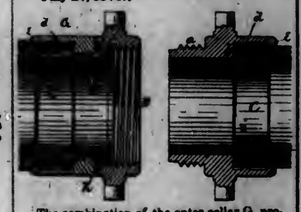


1. The combination of the hinging and clamping bolts *d* with the plane A and plate F, having ears *e e*, and with the guide B and plates D, having projection *b*, all substantially as described.

2. The plates D, having slots *g*, with enlarged openings *i*, in combination with the guide B and its set-screw *a*.

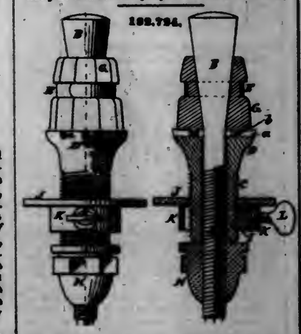
3. The combination of the guide B and the plates D, having a graduated segmental projection, *b*, with the plane A and the plate F, having ears *e e*, as and for the purpose set forth.

192,723. HOSE-COUPLINGS. Hiram Tyler and Wm. H. Severson, Geneseo, assignors to H. C. Silsby, Seneca Falls, N. Y. [Filed July 27, 1876.]



The combination of the outer collar G, provided with interior circumferential beads *d e*, the hose B, inner expansible hand C, provided with one or more exterior beads, *f*, the short collar-tube E, having shoulder *h*, and brazed or soldered to the collar G, and the swivel D, having shoulder *h'*, all constructed substantially as and for the purposes herein set forth.

192,724.



192,724. TUBE-EXPANDERS. Hiram Tyler and Wm. H. Severson, Geneseo, assignors to H. C. Silsby, Seneca Falls, N. Y. [Filed July 27, 1876.]

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

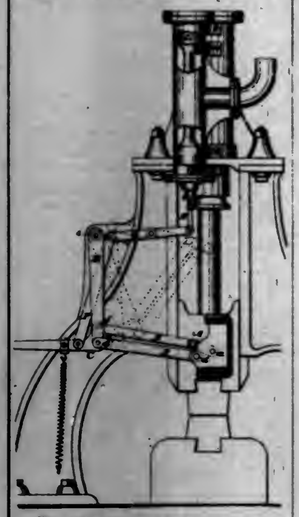
Brief.—The expansible jaws may be provided with ribs to form grooves on the inside of pipes.

1. In a tube-expander, the combination of the screw-stem A with cone B, the sleeve U with head D, having radial grooves *c*, the expanding-jaws G with pins *b* and open encircling-spring E, and the nut H, all substantially as and for the purposes herein set forth.

2. In combination with a tube-expander, the adjustable gage composed of the disk J, with slotted hub or nut I, the collar K, and set-screw L, substantially as and for the purposes herein set forth.

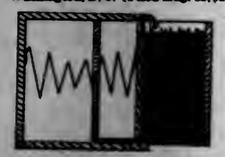
192,725. STEAM-HAMMERS. Wm. Walker, Manchester, England, assignor to himself and John S. Crossley, Wilmington, Del. [Filed Aug. 11, 1876.]

Brief.—The impact of the blow of the hammer changes the position of the valve through intermediate mechanism connected thereto, whereby a dead blow may be struck by the hammer at any point of its descent.



The combination, with a steam-hammer, of the dropping-lever A, projection *a'* on the top of the hammer, link E, connecting-rod D, lever C swung from a fixed point, *c*, by connecting-rod E, link F, and lever G, connected with the valve-spindle H, all constructed and arranged substantially as shown and described, for the purpose specified.

192,726. BILL-FILES. Charles S. Whitman, Washington, D. C. [Filed Aug. 16, 1876.]

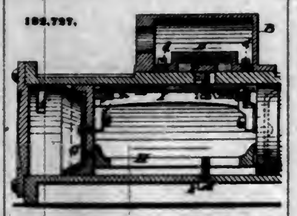


A document-case provided with a movable drawer, having a follower operated by a spring attached to the back of the case, as and for the purposes described.

192,727. WATER-METERS. Parker Wells, Lynn, Mass. [Filed Sept. 16, 1876.]

Brief.—The slide-valve is operated by an arrangement of springs and inclines attached to the two bars that connect the pistons. The pistons at the end of the stroke strike a pin, and give motion to the registering apparatus.

192,727.

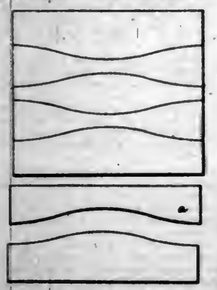


1. In a water-meter, the combination, with the cylinder A and valve-chest B, with the ports and passages as described, of the sliding valve D, provided with the pin h, projecting downward into the cylinder, and operated by means or springs L L connected to the reciprocating pistons, substantially as and for the purposes herein set forth.

2. In a water-meter, the combination of the pistons G G, connecting-bar I, set out near each end, the inclines J m, and spiral springs L L, all constructed substantially as and for the purposes herein set forth.

3. In a water-meter, the combination of the cylinder A, pistons G G, slotted connecting-bar H, and pin or screw *k*, substantially as and for the purposes herein set forth.

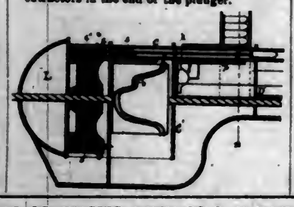
192,728. DIES FOR CUTTING SHEET METAL FOR PIPE-ELBOWS. Samuel G. Warner, Brooklyn, N. Y. [Filed Mar. 8, 1876.]



A single die composed of two parts, a and *b*, having corresponding curved cutting-edges, substantially as shown and described, whereby all of the blanks necessary to form the curved elbows of stove-pipes and similar articles may be cut from the sheet of metal without waste by a single set of dies, each stroke of the moving portion of the die cutting out one blank, and at the same time forming one side of another, as set forth.

192,729. MACHINES-GUNS. Elihu Wilder, Manchester, N. H. [Filed Mar. 20, 1876.]

Brief.—The cartridges are dropped from the hopper into a receiver, and are forced into the barrels by the plungers and fired. The receiver is hinged to the frame, and has a reciprocating motion imparted to it by a pin in the under side of the plunger, which moves in an irregular slot in the bottom plate of the receiver. This motion is so timed relatively to the backward movement of the plunger that the top of the receiver operates as a "cut-off," to prevent the cartridges in the hopper from dropping down. At the same time the slot in the floor of the receiver presents itself to allow the fired shell to drop out from the extractors in the end of the plunger.



1. A double extractor, in combination with the plunger and pin *k*, for closing the hooks.

2. The combination of a rotary double cam with a series of reciprocating plungers, arranged in the arc of a circle, and a series of stationary barrels, correspondingly arranged on the same arc of a circle, substantially as and for the purpose set forth.

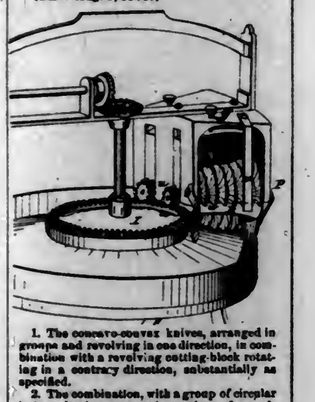
3. A rotating lock, consisting of the middle section of a disk, wide enough only to support one plunger at each end, and having spring-hammers, substantially as and for the purpose set forth.

4. The combination of the ejector-plate, the cartridge-receiver, and the brace *s*, substantially as and for the purpose set forth.

5. The combination of the cartridge-receiver, having a slot in the bottom plate, and the plunger C, having a pin, *r*, to operate substantially as and for the purpose set forth.

6. The combination of the breech L, lock-carrier R, having abutting-shoulders, and plunger C, whereby the recoil of the gun is transferred to the breech and frame, substantially as and for the purpose set forth.

192,730. MEAT-CUTTING MACHINES. Theo. Willi, Quincy, Ill., assignor of one-half his right to William Huberwedel, same place. [Filed Aug. 5, 1876.]



1. The concavo-convex knives, arranged in groups and revolving in one direction, in combination with a revolving cutting-block rotating in a contrary direction, substantially as specified.

2. The combination, with a group of circular knives, having an elastic tension, of an adjustable rotating chopping or cutting surface which conforms to the line of the edges of the knives, substantially as set forth.

3. The combination of two or more groups of concavo-convex knives, the edges of which pass between the spaces separating the knives of the other group, substantially as and for the purpose set forth.

4. The cone V, provided with the concavo-convex knives P, in combination with the spring M, substantially as set forth.

5. The stripper R, in combination with the spring *s*, for the purposes specified.

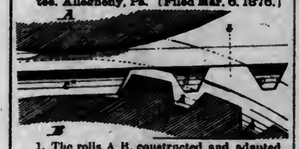
192,731. DIES FOR FORMING HORSESHOES. John R. Williams, Portsmouth, Ohio, assignor to David McCandless, trustee, Allegheny, Pa. [Filed Mar. 6, 1876.]

Brief.—The lower die is furnished with a series of cavities for receiving pyramidal and elongated toe-calks, and intermediate punches for forming countersinks for the nail-holes.



The dies A B, for imparting the final shape or external finish to horseshoes, substantially as herein described.

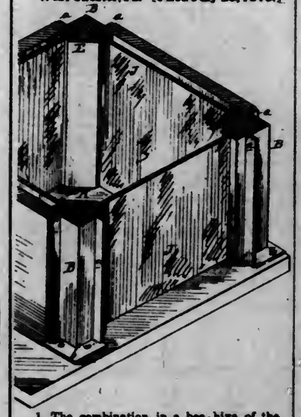
192,732. MANUFACTURE OF HORSESHOE-BLANKS. John R. Williams, Portsmouth, Ohio, assignor to David McCandless, trustee, Allegheny, Pa. [Filed Mar. 6, 1876.]



1. The rolls A B, constructed and adapted as herein described, for the production of calked horseshoe-blanks.

2. The rolled bar, having two or more sets or series of pyramidal projections, *c*, and interposed longitudinal ridges *c'*, substantially as herein described, and adapted to be cut up into blanks for horseshoes.

192,733. BEE-HIVES. Elwood P. Worrall, West Chester, Pa. [Filed July 28, 1876.]



1. The combination, in a bee-hive, of the floor A, metallic frame C, and metallic standards B connecting the two, and adapted to receive between them detachable side pieces D, substantially as set forth.

2. The hive provided with L-shaped standards B, having flanges *a* and *b*, as and for the purpose specified.

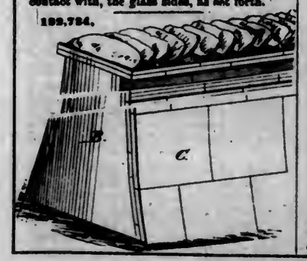
3. The combination of the standards B and uprights E, having grooves *i*, to receive the edges of glass plates J, substantially as set forth.

4. The metallic frame C, having flanges *c*, *a*, and *i*, as and for the purpose set forth.

5. A bee-hive the body of which consists of corner standards B B B B, supporting uprights E, and sides consisting of glass plates J, as set forth.

6. The combination of the standards B B B B, glass plates J, forming the body of the hive, and detachable side pieces D, supported by the standards parallel to, but free from contact with, the glass sides, as set forth.

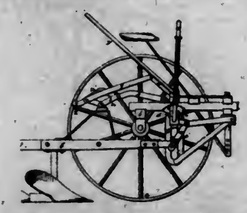
192,734.



The shoe *b*, provided with the perforated pendant *b'*, in combination with the frame A, tooth *a*, and bolt *c*, substantially as and for the purpose set forth.

192,735. WHEEL-PLOWS. Edmund D. Reynolds and Oliver B. Reynolds, Brockton, Mass. [Filed Mar. 13, 1876.]

Brief.—The double toggle-joints and connecting-bars between the rock-shaft and plow-beams are so constructed that the lever is self-locking, both when the plows are up and down. Crank-shaft, links, and hangers at the front end of plow-beams.



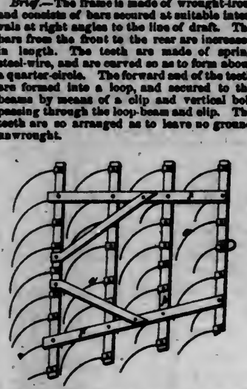
1. In a lifting device for plows, the toggles *n n'* and bar A, in combination with the bars 9 9, substantially as and for the purpose set forth.

2. The toggles *n n'* and bar A', in combination with the bars 9 9, arms 10 10, and shaft D, substantially as and for the purpose set forth.

3. The slotted arms *o o* and beams *f f*, provided with bifurcated ends, in combination with the bars 12 12, arms *o' o'*, and shaft E, substantially as and for the purpose set forth.

192,736. HARROWS. Edmund D. Reynolds and Oliver B. Reynolds, Brockton, Mass. [Filed Mar. 13, 1876.]

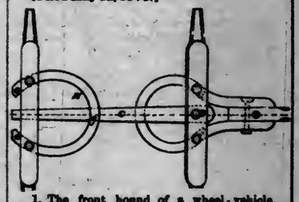
Brief.—The frame is made of wrought-iron, and consists of bars secured at suitable intervals at right angles to the line of draft. The bars from the front to the rear are increased in length. The teeth are made of spring steel-wire, and are curved so as to form about a quarter-circle. The forward end of the teeth are formed into a loop, and secured to the beams by means of a clip and vertical bolt passing through the loop-beam and clip. The teeth are so arranged as to leave no ground unwrought.



192,736. FENCES. Geo. W. Young, Louisville, Ky. [Filed Sept. 8, 1876.]

The earth fence having its foundation below the surface of the ground, its sides narrowing from the base to the top and concave, its exterior covered with tiles which deflect the rain outwardly, and surmounted by a water-shed and binding-cap, substantially as shown and described.

7,317. CARRIAGE-HOUNDS. John Fishbaugh, Tiffin, Ohio, assignee, by mesne assignments, of John Maddock, deceased. Patent No. 33,955, dated Sept. 24, 1861. [Filed May 12, 1876.]



1. The front hound of a wheel-vehicle, formed in a single length from a single piece of material with its two ends terminating in the front of the front axle, substantially as described.

2. The front hound of a wheel-vehicle, made in a continuous length and of a single piece of material, having its rear part bent to the form of a loop and its ends projecting in front of the front axle, and forming a means for attaching the draft-pole to the vehicle, substantially as described.

3. The front hound of a wheel-vehicle, made of a single piece of material, with its rear portion bent to the form of a loop and having its ends projecting in front of the front axle, and forming jaws between which the draft-pole is inserted.

4. The front hound of a wheel-vehicle, made in a continuous length from a single piece of material, and having the material dressed away on the bent portion so that the sectional dimensions of the bent portion shall be less than that of the straight portions, substantially as described.

5. The front hound of a wheel-vehicle, formed in a single length of a single piece of material, with its rear part bent to the form of a loop, the area of the cross-section at the middle of said bent part being less than that of any other part of said hound, substantially as described.

6. The front hound of a wheel-vehicle, formed in a continuous length of a single piece of material, the cross-section of the said hound being least at the middle of said bent portion and gradually increasing as the ends are approached, substantially as described.

7. The rear hound H of a wheel-vehicle, made in a single continuous length of material bent in the form of a loop, substantially as described.

7,318. CIGAR-CUTTERS. Peter A. La France, Elmira, N. Y., assignor to himself and H. B. Kendall. Patent No. 93,794, dated Feb. 9, 1869. [Filed Jan. 17, 1876.]



In combination, a table adapted to receive and retain the cigar in proper position, and a concave knife, B, attached to the table, so that the large end of the cigar will lie in the concavity, and a concave cutter, C, actuated by a lever, to close upon the end of the cigar with a circular or oval cutting-orifice, substantially as set forth.

7,319. MIXING MINERAL AND FOSSIL SUBSTANCES WITH BITUMINIZED CLAY TO FORM A PLASTIC MATERIAL. Pryor Lea, Goliad, Tex. Patent No. 144,397, dated Nov. 11, 1873. [Filed Aug. 29, 1876.]

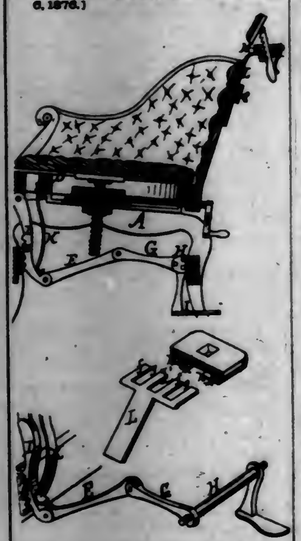
REISSUES.

7,316. TOOLS FOR DRAWING SPIKES. M. D. Converse, A. H. Elliott, and Henry C. Sergeant, New York, N. Y., assignees, by mesne assignments, of George G. Stone, administrator of George Stone, deceased. Patent No. 46,164, dated Jan. 31, 1865. [Filed Sept. 6, 1876.]

In an implement for drawing spikes and nails, the combination of a handle or lever, provided with a jaw upon its lower end, and curved or rolling fulcrum, or automatically-changing fulcrum, to which is affixed a jaw to act in connection with the jaw upon the handle or lever, substantially as and for the purpose described.

The new compound or product of bitumen, clay, and mineral or fossil substance, or both mineral and fossil substances, the proportions of the bitumen and other firm material being as above stated, or thereabout.

7,269. BARBERS' AND DENTAL CHAIRS. M. Leidecker, Rochester, N. Y. Patent No. 102,689, dated May 3, 1870. [Filed June 6, 1876.]



1. In a barber or dental chair, the combination, with the base A and body B, of a jointed or pivoted lever-connection, extending across the bottom of the chair, provided with a foot-pedal, I, at the rear, in convenient position to be operated by the foot, and connected at the front with the ratchet, in such a manner as to disconnect the ratchet, to adjust the inclination of the chair when pressure is applied to the foot-pedal, as herein described.

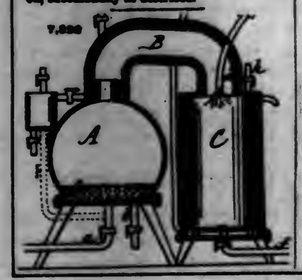
2. The hooked block G, arm D, spring or springs K, toggle-arms F G, shaft H, and pedal I, combined with the parts A B of the chair, in the manner described, and for the purpose specified.

3. The foot-pedal constructed with the offset shaft H, in combination with the jointed connection F G, so arranged that while the foot-pedal comes at the right-hand corner of the chair the jointed connection extends centrally across the chair, as herein shown and described.

7,291. MATERIAL FOR LUBRICATING. Vacuum Oil Company, Rochester, N. Y., assignee, by mesne assignments, of M. P. Ewing, deceased. Patent No. 56,030, dated Sept. 11, 1866. [Filed Jan. 29, 1876.]

An unburned, residual, heavy hydrocarbon oil, substantially as described.

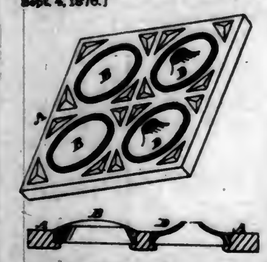
7,292.



7,292. MATERIAL FOR LUBRICATING. Vacuum Oil Company, Rochester, N. Y., assignee, by mesne assignments, of M. P. Ewing, deceased. Patent No. 56,030, dated Sept. 11, 1866. [Filed Jan. 29, 1876.]

The process of making residual heavy hydrocarbon oil without burning, by distillation of the light oils from crude petroleum under vacuum with steam, substantially as described.

7,293. VAULT-COVERS. Thomas Thompson and Thornton Thompson, San Francisco, Cal., assignees of Catharine Lynch, sole devisee of Wm. Lynch, deceased. Patent No. 152,136, dated June 16, 1874. [Filed Sept. 4, 1876.]



1. An illuminating-tile frame, A, provided with dead-lights B, and removable ventilators D, constructed substantially as and for the purpose set forth.

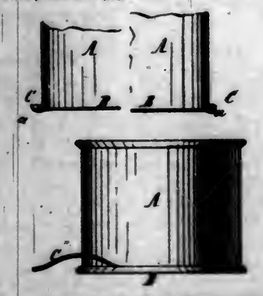
2. An illuminating-tile frame, A, provided with dead-lights B, and crowning or convex removable ventilators D, having a central hole through its apex, substantially as and for the purpose described.

3. An insertible ventilator for dark rooms, combined with an illuminating-tile, when the ventilators are made to correspond in size and shape with the size and shape of the openings of the dead-lights in the frame, substantially as and for the purpose specified.

4. A removable respiratory ventilator for illuminating-tiles, consisting of a crowning or convex section or block, D, having a hole, E, passing vertically through its center, for the purpose specified.

7,294. METALLIC CASE. George W. Ball, Brooklyn, N. Y. Patent No. 167,870, dated Sept. 21, 1876. [Filed Sept. 9, 1876.]

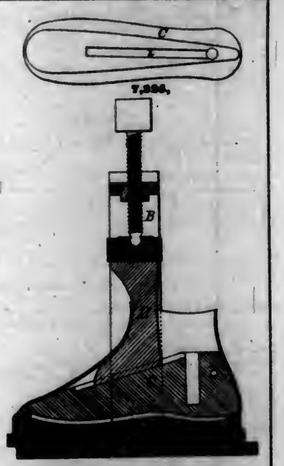
Brig.—The packing-cord may be either wholly fibrous, or rubber or wire covered with cloth, rubber, or paper.



1. A crimped or folded seam-joint of a sheet-metal vessel inclosing a fibrous or elastic packing-cord, substantially such as described, with or without a projecting end, all as set forth.

2. The can-body, A, having vertical sides, in combination with the flanged top or end B and packing-cord C, the flange a of the top being crimped or folded over said cord, substantially as described.

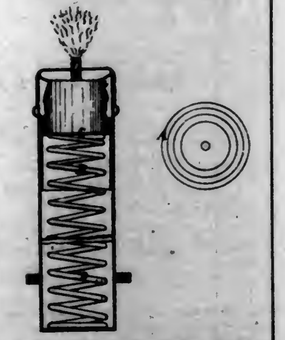
7,295. MACHINERY FOR SHAPING THE SOLES OF BOOTS AND SHOES. Joseph B. Johnson, Lynn, Mass. Patent No. 71,495, dated Nov. 26, 1867. [Filed Oct. 26, 1876.]



1. In a machine for shaping and consolidating the soles of boots and shoes, the combination, with a last and a presser, of a mold adapted to shape the sole after it has been united to the upper, all substantially as shown and described.

2. In combination, the press B, presser D, last C, and mold A, all constructed and arranged substantially as shown and described.

7,296. CANDLESTICKS. Elmri I. Pratt, New York, N. Y., assignor to Mary B. Pratt. Patent No. 166,223, dated Aug. 3, 1875. [Filed Aug. 17, 1876.]



1. The combination, in a candlestick, of the elevating-spring and a candle-cast mounted on such spring, and provided with an upturned rim, substantially as and for the purpose set forth.

2. A cup of a candlestick, provided with a rouge, both of whose walls shall lie outside of the top of the candle when the candle is brought into position by adjusting the cup to the holder, substantially as and for the purpose set forth.

3. The combination of the cup of a candlestick and the upturned rim of the candle-cast, adapted to surround the base of the candle and form a receptacle for the melted tallow, substantially as and for the purpose described.

7,297. ROOFING MATERIALS. C. M. Warren, Brookline, Mass. Patent No. 179,280, dated July 11, 1876. [Filed Sept. 14, 1876.]

A roofing material composed of felt or paper, saturated with tar, and provided with a surface-coating of sun-proof pitch, substantially as described.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

COMMISSIONER'S DECISIONS.

LITTLE *vs.* LILLIE, PILLARD, AND SARGENT.—*Interference; Motion to Dissolve.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the applications of S. A. Little, filed June 6, 1876, L. Lillie, filed April 28, 1876, O. E. Pillard, filed August 13, 1875, and James Sargent, filed March 10, 1875, for* "IMPROVEMENTS IN TIME-LOCKS."—*Decided September 30, 1876.*]

A motion based upon the same facts and reasons as a previous one, which was denied and no appeal taken, should be refused on the ground that the matter is *res judicata*.

The section of the law providing for the issuing of a subpœna to compel the attendance of witnesses extends only to "contested cases" arising in the Office.

Interferences and extensions are the only "contested cases" recognized in the practice of the Office.

The law provides that the patent shall be granted to the first and original inventor.

The oath accompanying an application is received as evidence that the party is the first and original inventor, and it renders the patent, when granted, *prima facie* evidence of the fact.

When the same evidence is presented by two or more parties the oath of one nullifies that of the other; and it becomes necessary to determine by other evidence to whom the patent shall issue. For this purpose interferences are instituted.

The jurisdiction of the Examiner of Interferences is confined to contested cases involving the question of priority of invention and matters incidental thereto; that of the Principal Examiners to *ex parte* cases involving the rights of an applicant to a patent.

Since the act of July 8, 1870, no appeal can be taken from the decision of the Commissioner in interference cases.

Rule 59 construed and explained.

The first section of the rule gives the Examiner of Interferences authority to dissolve an interference where there has been an error on the part of an Examiner acting in his executive capacity.

The second section of the rule provides for the suspension of the interference proceedings in proper cases, in order that the question of patentability of the matter in controversy may be determined by the proper officer, the Primary Examiner, the Examiner of Interferences having no authority to decide such questions.

It is the right of all applicants to have their claims considered, and the duty of the Commissioner to declare an interference whenever, in his judgment, an application interferes with another application or an unexpired patent.

Whenever there exists a conflict between two or more pending applications an interference should be declared, and it matters not that one of the parties is precluded from obtaining a patent so long as the other may and does insist upon his claim, and his status as prior inventor remains undetermined.

Whether the party to whom priority of invention is awarded shall receive a patent is not to be decided by the interference proceeding, but as an *ex parte* matter.

The Examiner of Interferences has no jurisdiction over the question of patentability.

DUELL, *Commissioner:*

This is an appeal from the action of the Examiner of Interferences denying a motion to dissolve the interference.

It seems that *ex parte* affidavits were presented by Sargent for the purpose of showing that the subject-matter in interference had been in public use more than two years prior to the filing of Little's application, and that the locks had been on sale more than two years before Lillie filed his application. Both of these parties were furnished with copies of the affidavits and motion papers.

Sargent asked the Examiner upon the showing thus made to dissolve the interference on the ground that neither Little nor Lillie were entitled to a patent, and, therefore, there was no foundation for an interference. A motion to this effect had previously been made and refused, and no appeal taken from the decision of the Examiner. The objection was urged against the present motion, both before the Examiner and on appeal before me, that the matter had once been decided and the action acquiesced in by the parties.

This was a good ground for refusing this second motion, the matter being *res judicata*. There being no limit of time prescribed either by the law or rules within which an appeal shall be taken on interlocutory matters, and no action having intervened which would preclude an appeal, it is thought best to waive the for-

mality of a renewal of the appeal and consider the matter as properly before me. The issue raised is as to the jurisdiction of the Examiner of Interferences over those questions which affect the patentability of the inventions in interference.

The line of argument adopted at the hearing of this appeal has rendered necessary a rather extensive review of the law respecting interfences, and the rules of the Office applicable thereto.

The Examiner having refused to consider the motion, the questions as to the admissibility of the *ex parte* testimony does not present itself for determination, the issue being on the construction of the rules.

The first act which conferred upon the Commissioner the power to make rules was that of 1839, section 12, which authorized him "to make all such regulations in respect to the taking of evidence to be used in contested cases before him as may be just and reasonable."

This power extended only to contested cases, and it was not until the act of 1861 that authority was expressly conferred upon him to go beyond such cases. Section 1 of said act provides "that the Commissioner of Patents may establish rules for taking affidavits and depositions required in cases pending in the Patent Office," and, further, that parties in "contested cases" might obtain a subpœna to compel the attendance of witnesses.

By section 19 of the act of 1870, re-enacted in section 483 R. S., the power of the Commissioner in this particular is extended.

> The Commissioner of Patents, subject to the approval of the Secretary of the Interior, may, from time to time, establish regulations not inconsistent with law, for the conduct of proceedings in the Patent Office.

By a subsequent section, § 43, (R. S. 4905,) it is provided—

> That the Commissioner may establish rules for taking affidavits and depositions required in cases pending in the Patent Office, and such affidavits and depositions may be taken before any officer authorized by law to take depositions to be used in the courts of the United States, or of the State where the officer resides.

The next section provides for the issuing of a subpœna to compel the attendance of witnesses in contested cases. Interferences and extensions are the only "contested cases" recognized in the practice of the Office; consequently, it is in such cases alone that an adverse party has power to compel the attendance of witnesses, the Office being provided with no machinery for the purpose. The prosecution of an application is an *ex parte* proceeding, so characterized by the courts and the Office.

It is the application of a party in the manner and to the officer provided by law for the protection of a species of property.

The Office merely decides whether the party comes within the terms of the statute as the one entitled to the grant. Among other requirements the statute provides that the applicant shall be the first and original inventor; otherwise the Office shall refuse to grant him a patent.

When an application is made the party is required to make oath that he verily believes himself to be the first and original inventor, and this is received as evidence of the fact, and renders the patent, when granted, *prima facie* evidence that the patentee is the first and original inventor. (*Philadelphia and Trenton Railroad* vs. *Stimpson*, 14 Pet., 456; *Corning* vs. *Burden*, 15 How., 270; *Parker* vs. *Stiles*, 5 McLean, 60.

When, however, a party claims an invention which is described and may be claimed by another applicant or patentee, the oath of one nullifies that of the other, and it becomes a matter for further proof as to which one is, in contemplation of law, the first and original inventor. It is for this purpose that an interference is declared not to determine the patentability of the invention, but whether the party claiming it is the person designated by the statute as the originator of the invention. This distinction is observed throughout all the statutes on this subject.

The first laws relating to interfering applications were passed in 1793, when, under the system then in practice, patents were grantable as a matter of course, the only examination being to determine whether the invention was sufficiently useful and important and the papers in proper form. Even at that early date it was found necessary to provide a means whereby to determine which of two or more persons was the first and original inventor, and for this purpose it was provided that the matter should be submitted to arbitrators.

The act of 1836, establishing the Patent Office, inaugurated a new system, which, with various modifications, has since been adopted. The office of Commissioner of Patents was then created, and his powers and duties were defined to be "under the direction of the Secretary of State to superintend, execute, and perform all such acts and things touching and respecting the granting and issuing of patents for new and useful discoveries, inventions, and improvements, as herein provided for, or shall hereafter, by law, be directed to be done and performed."

Section 6 of said act prescribed the conditions upon which a patent should be granted, and section 7 required the Commissioner to cause an examination of each application to be made in order to determine whether, under the statute, the party was entitled to a patent, and, if found not, then he was to refuse the grant.

As a matter separate and distinct from this examination, provision is made in section 8 for interferences, as follows:

> That whenever an application shall be made for a patent, which, in the opinion of the Commissioner, would interfere with any other patent for which an application may be pending, or with any unexpired patent which shall have been granted, it shall be the duty of the Commissioner to give notice thereof to such applicants or patentees, as the case may be; and if either shall be dissatisfied with the decision of the Commissioner on the question of priority of right or invention on a hearing thereof, he may appeal from such decision on the like terms and conditions as are provided in the preceding section of this act; and the like proceedings shall be had to determine which or whether either of the applicants is entitled to receive a patent, as prayed for.

The appeal, like that in cases arising from a second rejection under sections 6 and 7, was to be taken to a Board of Examiners appointed for the purpose. By the act of 1839 this Board was abolished, and the Chief Justice of the District substituted as the appellate tribunal. The act of 1852 gave to the assistant judges the same authority to hear appeals as the Chief Justice.

Section 2 of the act of 1861 created the Board of Examiners-in-Chief, whose duty it was made "to revise and determine upon the validity of decisions made by Examiners when adverse to the grant of Letters Patent; and also to revise and determine in like manner upon the validity of the decisions of Examiners in interference cases." From the decision of this Board an appeal would lie to the Commissioner.

The condition of the law at this time made it necessary that interferences be declared for determining the question of priority between two or more persons, in order that the first and original inventor might be discovered. The Primary Examiners were intrusted with the decision of these cases, and, like *ex parte* cases, their action could be appealed from to the Board of Examiners-in-Chief, from them to the Commissioner, and thence to any of the Justices of the District Court.

On the 8th of July, 1870, the laws relating to patents were revised and the Patent Office reorganized, several marked and important changes being made in the practice.

The provisions for interferences were contained in section 42, (R. S. 4904,) as follows:

> Whenever an application is made for a patent, which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the Primary Examiner to proceed to determine the question of priority of invention. And the Commissioner may issue a patent to the party who is adjudged the prior inventor, unless the adverse party appeals from the decision of the Primary Examiner, or of the Board of Examiners-in-Chief, as the case may be, within such time, not less than twenty days, as the Commissioner shall prescribe.

A special Examiner was provided to attend to interference cases. Appeal to the Board and the Commissioner was allowed as in *ex parte* cases, but here the former practice and analogy ceased. While *ex parte* cases were appealable to the Supreme Court of the District of Columbia sitting in banc, instead of the Justices, interferences could not be taken beyond the Commissioner, his decision being final.

The work of the Office was then divided into *ex parte* and contested cases, the former to be considered by the Primary Examiners, from whose action an appeal might ultimately be taken to the Supreme Court of the District, and the latter to the Examiner of Interferences, whose action was limited to the decision of the question of priority of invention of which the Commissioner was the last appellate tribunal.

In order to facilitate the practice of the Office the present rules were adopted. They require that the Primary Examiner shall settle all questions relating to the patentability of the invention before he declares the preliminary interference, for upon doing this the case is at once transferred to the Examiner of Interferences. The jurisdiction of the Examiner of Interferences extends only to the determination of the question of priority of invention and matters incidental thereto, in the manner prescribed by the rules.

The law not recognizing the right of an applicant to appeal from the decision of the Examiner of Interferences to the Supreme Court of the District, which privilege is accorded to all applicants who are denied a patent for other statutory reasons, it follows that such officer is not competent to pass upon matters affecting the patentability of the invention claimed, but that that function is intrusted to the Primary Examiners. Such was the decision of the Supreme Court of the District of Columbia in *Bigelow* vs. *The Commissioner*, (7 OFFICIAL GAZETTE, 603.) It is in view of all the foregoing facts that Rule 59, the one under consideration, must be construed.

Rule 59 provides that "an interference will not be declared until the subject-matter is decided to be patentable." This as a matter of course, for if the invention is not patentable, there is no question of priority that affects the grant of a patent.

"If, after being declared, it is found that no interference in fact exists," *i. e.*, that the same invention is not described or claimed by the parties, "or that there has been such irregularity in declaring the same as will preclude the proper determination of the question of right between the parties," this refers solely to the act of the Examiner declaring the interference, and has no relation to the merits, "it will be dissolved and an appeal may be taken to the Commissioner in person."

It will be observed that the Examiner is authorized to dissolve the interference, subject to review by the Commissioner, only for matters that are merely executive. This is obvious, for no appeal is allowed to the Examiners-in-Chief or to the Supreme Court; therefore it must be for reasons that do not affect the rights of the applicants. The declaration of an interference by the Primary Examiner is but an executive act, the authority for doing which is delegated to him by the Commissioner.

Were the Examiner of Interferences permitted under the rule to act upon the merits of the applications that come before him, it would be an assumption of authority which the law does not countenance. The decision of the Primary Examiner upon the merits is alone subject to appeal, not that of the Examiner of Interferences. But it sometimes happens that during the pendency of an interference matters are discovered which go to show that neither party is, under the law, entitled to a patent for the matter in interference; and if such is the case, then it would be contrary to the purpose of this proceeding to continue it. But the Examiner of Interferences having no power to decide these matters, and the Primary Examiner having no jurisdiction of the cases, it becomes necessary that the Commissioner should exercise his supervisory authority, and the second paragraph of Rule 59 provides for such emergency.

> If, during the continuance of an interference, it shall appear that neither party is entitled to a patent by reason of abandonment, public use, or any other statutory bar, the Examiner of Interferences or Examiners-in-Chief, as the case may be, will direct the attention of the Commissioner to the facts either by a report, if before the hearing, or in the decision of the question of priority, if the interference comes to a regular hearing. The Commissioner, if in his judgment it is necessary, will then suspend the interference and remand the cases to the Principal Examiner for the determination of any of these questions.

This rule is fully in consonance with the law. The Commissioner expresses no opinion upon the subject, but simply suspends the interference proceeding, in order that the patentability of the invention in controversy may be determined by the officer whom the law has designated should first pass judgment upon the case.

The Commissioner may, it is true, refuse to grant a patent, even after the Board or Examiner has rendered a decision favorable to the applicant, but it is in a capacity other than as an appellate tribunal.

Should it appear that only one of the two or more parties to the interference was not entitled to a patent, it would be useless to suspend proceedings, for the question of priority of invention would still remain undetermined. One of the parties may be the prior inventor and still not be entitled to a patent, but that fact would be no warrant for the Office to grant the patent to a subsequent inventor, or to a person whose

status is undetermined. Moreover, should it appear that the prior inventor had given his invention to the public, it would be contrary to the spirit and policy of the patent law to grant a patent to another who is clearly not entitled to it, being a subsequent inventor.

Whether the party to whom priority of invention is awarded shall receive a patent therefor is not to be decided by the interference proceeding, but as an *ex parte* matter. The Commissioner is authorized, by section 4904, to issue a patent to the party adjudged to be the prior inventor; he is not required to do so, however. It merely disposes of one of the many questions that arise upon the examination of an application. The restriction put upon the grant by section 4886 applies as well to such cases as any other, and the Commissioner is bound to consider whether such claimant is "justly entitled to a patent under the law."

If neither party is entitled to a patent for the invention involved, the necessity for an interference ceases, as this proceeding is instituted simply for the purpose of guiding the Office in granting or refusing the patent to those applying for it.

Formerly it was the practice to dissolve the interference under these circumstances, but it sometimes happened that the supposed bar to the grant did not in fact exist, in which case it was necessary to re-declare the interference, and all the testimony that had been taken in the first case was lost. To avoid this tax upon inventors, it was provided that the interference should be suspended until the matter was settled, and could be resumed again should the necessity for it occur. There is not the slightest conflict between the rule as thus explained and the law.

It is the right of all applicants to have their claims considered, and the duty of the Commissioner to declare an interference whenever, in his judgment, an application interferes with another application or an unexpired patent.

Little and Lillie, having in all respects complied with the law in presenting their applications, and there being an undoubted interference, they are entitled to show when they made their inventions, and the Office is bound to refuse a patent to each and every one of them until the question of priority has been determined in the manner pointed out by the statute.

Whether the Commissioner would be authorized to disregard an application which was introduced for fraudulent or vexatious purposes, I am not called upon to decide, for I am convinced that whatever may be the designs of the owners—and I do not recognize anything more than a lawful competition on their part—the applicants are to all appearances *bona fide* inventors.

It is to be remarked that during the conduct of this case a motion was made by Pillard to dissolve this interference upon substantially the same grounds as are now contended for by Sargent—*i. e.*, that the invention described and claimed was not patentable.

Upon an appeal to me from the decision of the Examiner of Interferences, Sargent assumed the position which is now taken by Little, Lillie, and Pillard, that all matters referring to the patentability of the invention were *ex parte* and could not be inquired into in an interference proceeding. At that time I said:

Three issues are here raised: First, that the claims of Sargent are bad in form; second, that said claims are anticipated; and third, that no interference in fact exists between the applications of Sargent and Pillard.

As regards the first two issues, I am of the opinion that they do not constitute a part of the interference proceeding, but, like those of abandonment and public use, affect the statutory rights of Sargent, and are issues between him and the Office.

Were there any doubt in my mind as to the correctness of this rule, having applied it in Sargent's behalf and as against his opponents, I could not consistently do otherwise than assert it when the relations of the parties are changed, and it operates to his disadvantage. But I have no doubts on the subject.

My conclusions on this matter are that the Examiner's action was correct in refusing to dissolve the interference upon the ground that Little and Lillie were not entitled to a patent by reason of two years' public use before filing his application, as he had no jurisdiction over the question, and that it is not a matter now to be considered whether those parties are entitled to a patent, so long as Sargent insists upon a claim to an invention for which there is another interfering application pending in the Office, the question of priority of invention remaining undecided.

The decision of the Examiner is accordingly affirmed.

CHARLES S. WESTCOTT.—*Interlocutory Appeal; Division of Application.*

[Appeal from the decision of the Principal Examiner in the matter of the application of Charles S. Westcott, filed August 25, 1876, for Letters Patent for "MEANS FOR HOLDING STEREOTYPE, &c., PLATES IN PRINTERS' CHASES."—Decided September 29, 1876.]

Independent inventions having no community of operation and producing no unitary result, cannot be included in one application. If new and useful, they are the proper subjects of separate patents.

[Hamilton E. Towle, attorney.]

DOOLITTLE, *Acting Commissioner:*

Applicant claims singly, and in combination, newly-constructed clamps, sticks, and quoins, as an improved means of holding stereotype and similar plates in printer's chases.

The clamps for holding the plates upon the foundation-blocks have nothing to do with the operation of securing the blocks in the chase. They perform their legitimate function whether the blocks are secured in the chase or not. Nor is the successful operation of the peculiar form of "the extensible or compressible stick or furniture H" dependent upon or due to the form or operation of the quoins and wedges. So, too, the quoins "Q" can be just as well and successfully operated in chases having neither the clamps nor the "furniture H."

Each of these features produces no other result when used in one organism than when used separately in others.

They are independent inventions having no community of operation, and producing no unitary result. If new and useful, they are the proper subjects of separate patents.

The decision of the Examiner is affirmed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 3, 1876.]

9,506.—Bass-Relief.—AUGUST CARLEWITZ, Newark, N. J. Application filed July 12, 1876. Term of patent 7 years.

9,507 to 9,510, inclusive.—Carpets.—JAMES L. FOLSOM, Brooklyn, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,511 to 9,534, inclusive.—Carpet.—OTTO HEINICKE, New Utrecht, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,535.—Toy Candy-Box.—JACOB HIRNER, Philadelphia, Pa. Application filed 12, 1876. Term of patent 3 years.

9,536 to 9,551, inclusive.—Carpet.—HENRY HORAN, East Orange, N. J., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,552 to 9,557, inclusive.—Carpet.—ELEMIR J. NEY, Dracut, Mass., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,558 to 9,560, inclusive.—Carpet.—HENRY NORDMANN, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,561 and 9,562.—Carpets.—GEORGE W. PIGGOTT, New York, N. Y., assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,563 to 9,566, inclusive.—Carpet.—JOHN H. SMITH, Enfield, assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,567 to 9,571, inclusive.—Carpet.—WILLIAM H. SMITH, Enfield, assignor to HARTFORD CARPET COMPANY, Hartford, Conn. Applications filed September 15, 1876. Term of patents 3½ years.

9,572.—Cigar-Box.—SAMUEL S. WIEST, Schoeneck, Pa. Application filed May 27, 1876. Term of patent 7 years.

9,573.—Hinges.—CHARLES B. CLARK, Buffalo, N. Y. Application filed September 11, 1876. Term of patent 7 years.

9,574.—Caramels or Candy-Drops.—GEORGE S. COLLUM, Hartford, Conn., assignor of one-half his right to WALTER A. BRYANT, same place. Application filed August 29, 1876. Term of patent 7 years.

9,575.—Parlor-Stoves.—FRANK A. MAGEE, Chelsea, assignor to THE MAGEE FURNACE COMPANY, Boston, Mass. Application filed September 26, 1876. Term of patent 7 years.

9,576.—Bracelets.—GEORGE G. MILLER, Philadelphia, Pa. Application filed July 31, 1876. Term of patent 3½ years.

9,577 and 9,578.—Decorating Tin Plates.—SAVILLION VAN CAMPEN, Rahway, N. J., assignor of one-half of his right to THOMAS J. RAYNER, same place. Applications filed September 12, 1876. Term of patents 3½ years.

9,579.—Bracelets.—JAMES WILKINSON, Mount Vernon, N. Y. Application filed September 14, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 3, 1876.]

4,027.—Cigars.—L. HIRSCHHORN & Co., New York, N. Y. Application filed September 22, 1876.
"The representation of a key placed across the words 'Stone State.'"

4,028.—Vegetable Tonic.—LYDIA C. HOWES, South Yarmouth, Mass. Application filed July 15, 1876.
"The word-symbol 'PAWKUNNAWKUT.'"

4,029.—Fancy Dry-Goods.—ABRAHAM G. JENNINGS, Brooklyn, N. Y. Application filed September 21, 1876.
"The word-symbol 'CECILIAN.'"

4,030.—Cotton Sheetings.—LANGDON MANUFACTURING COMPANY, Manchester, N. H. Application filed September 1, 1876.
"The words 'Langdon Manf'g Co.' and the figures '76.'"

4,031.—Plug-Tobacco.—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed September 22, 1876.
"The word-symbol 'CONSTANCE.'"

4,032.—Plug-Tobacco.—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed September 22, 1876.
"The word-symbol 'QUARTETTE.'"

4,033.—Plug-Tobacco.—MERCHANTS TOBACCO COMPANY, Boston, Mass. Application filed September 22, 1876.
"The word-symbol 'TRIO.'"

4,034.—Medical Compound.—ANNA NEWELL, New York, N. Y. Application filed August 23, 1876.
"The words 'LELAND'S MAGIC CURER,' in connection with the fac-simile of the signature of Daniel Leland."

4,035.—Canned Provisions.—PORTLAND PACKING COMPANY, Portland, Me. Application filed May 27, 1876.
"The representation or symbol of a star."

4,036.—Canned Provisions.—PORTLAND PACKING COMPANY, Portland, Me. Application filed May 27, 1876.
"The word 'STAR.'"

4,037.—Medical Compound.—JOSEPH STEER, New York, N. Y. Application filed September 2, 1876.
"The word-symbol 'ANTIMALARIUM,' when used in conjunction with the representation or figure of a bottle labeled with a miniature of my trade-mark."

4,038.—Tobacco and Cigars.—STRAITON & STORM, New York, N. Y. Application filed August 18, 1876.
"The word-symbol 'PERFECTION.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 3, 1876.]

832.—Title: **"Tonic Bitters."**—JAMES M. BEARDON, Mount Vernon, Ill. Application filed September 23, 1876.

833.—Title: **"This Check is Payable in Merchandise or on Account."**—LEAVITT & CORMAN, Marion, Ill. Application filed September 25, 1876.

834.—Title: **"Leland's Magic Curer."**—ANNA NEWELL, New York, N. Y. Application filed August 25, 1876.

NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C., September 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

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Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

INDEX OF INVENTIONS PATENTED OCTOBER 3, 1876.

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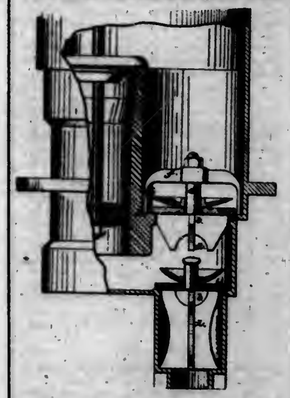
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED OCTOBER 3, 1876.

182,727. PUMPS. Wm. Adair, Liverpool, England. [Filed Mar. 14, 1876.]

Brief.—A flexible disk-valve of india-rubber or leather, and a perforated free leather-lift or like valve are combined together as one.



1. The compound pump-valve described, consisting of a flexible disk, *a*, perforated valve *b*, and feathers *d*, the disk *a* being capable of opening independently of as well as with the valve *b*, substantially as set forth.

2. The flexible disk *a* and perforated valve *b*, in combination with the frame *e f g* of the discharge-chamber of a pumping apparatus, substantially as set forth.

182,728. METAL CAR-ROOFS. H. Aldridge, St. Louis, Mo. [Filed Aug. 3, 1876.]

Brief.—A corrugated metal roof having a ridge-board and lateral joint-covering strips secured through the metal to the roof-timbers.



1. A sectional corrugated-metal covering, fastened upon a car-roof by means of joint or lap-covering cross-strips suitably secured in position, substantially as and for the purpose set forth.

2. The ridge-board for covering up the joints of the corrugated-metal sheets, and for firmly holding down the ends of the said sheets upon the roof of the car, in combination with the running-board, which is above the surface of the metal covering, and bears upon the ends of the joint-strips F, substantially as set forth.

3. The longitudinal ties, having bearing-blocks, substantially as and for the purpose set forth.

182,729. CAR-ROOFS. H. Aldridge, St. Louis, Mo. [Filed Aug. 4, 1876.]

Brief.—A corrugated metal roof secured by lateral and longitudinal strips of wood, which are fastened through the metal to the roof-timbers.

1. A car-roof consisting of corrugated metal sheets, joint or lap covering cross-strips, and longitudinal ties arranged and fastened upon the frame-work of a car, substantially as and for the purpose described.

2. The combination of the eave-board, the bearing-blocks, and the corrugated metal sheets, substantially as and for the purpose set forth.

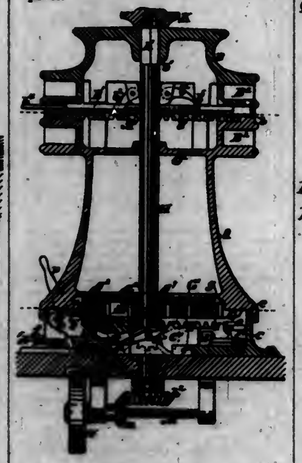
3. A superstructure or top-frame consisting of lap or joint covering cross-pieces, and of longitudinal ties, whereby the said cross-pieces are kept in position and in close contact with a sectional covering in sheet form upon the frame-work of a roof, substantially as described.

182,730.



182,740. CAPSTANS. William J. Alrich, Hickon, Md. [Filed July 11, 1876.]

Brief.—The cap and body of the capstan may work conjointly or separately, as desired, and in either direction, or be locked, by appropriate movements of the handles carrying the rings provided with inclines for lifting the pawls.



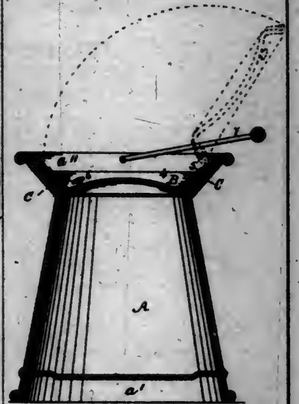
1. In combination with the capstan A and shaft B, the latter having a pinion, H', the wheel G', holding lifters *f' f'*, substantially as shown and described.

2. In combination with the body A, having the annular rack G and the base C containing the pawls *e e e e*, the sliding ring F, having the beveled blocks *f'* and knob or handle *f*, substantially as shown and described.

3. In combination with the hub C and pawls *d d d d* sustained thereon, the sliding ring D, having double inclined blocks *d'* and actuating handle *d*, said pawls being arranged to engage with the teeth *I* on the under side of the wheel G', substantially as and for the purpose set forth.

4. In combination with the body A, having an annular rack, A', and the capstan B containing pawls *b' b'*, the sliding ring B', for permitting and preventing the engagement of said pawls and rack, so as to govern the relative motions of the said sections A and B, substantially as shown and described.

182,741. CHAMBER-BUCKETS. L. C. Batten, Gloucester, N. J. [Filed Sept. 8, 1876.]



The chamber-basket described and shown, the same consisting of the body A, feet *a'*, and flared mouth *a''*, the flared and hinged lid B; the elastic packing-band C, and ball 7.

182,742. CORSETS. Fanney C. Batcheller, Boston, Mass. [Filed Aug. 11, 1876.]



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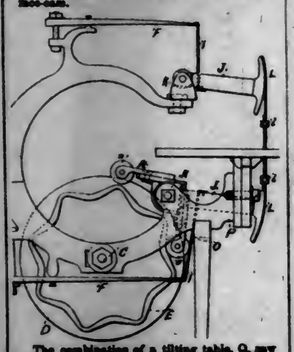
1. A corset the bust portion of which is made double or of two thicknesses of material, each supplied with whalebone, the outer having more fullness than the inner, and the two connected together about the base of the bust, but separate and open at the top, as and for the purposes described.

2. A corset provided with the outer bust A and the inner bust B, having less fullness than A, and connected thereto below the bust and disconnected and open at the top, as set forth, in combination with the removable cushion or pad C placed between A and B, substantially as described.

3. In a corset having its bust portion made double or of two separate thicknesses of material having different degrees of fullness, and connected together about the base of the bust, as set forth, one or more gores, *f f*, and one or more slits, *h h*, and lacings *j*, all arranged and adapted to operate as and for the purpose described.

192,742. SCROLL-SAWS. Henry L. Beach, Montrose, Pa. [Filed Mar. 26, 1876.]

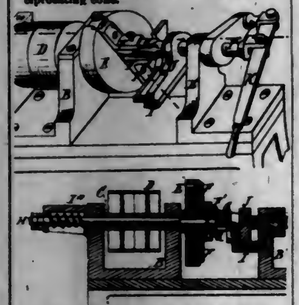
Brief.—The saw passes through an angularly-adjustable table, is attached to the outer ends of two rocking levers pivoted to flanged pieces attached to projecting arms of the main frame, and is operated by two rollers supported in bearings upon the outer ends of a horizontal and a vertical metal plate, attached to the inner part of the lower lever, in connection with a crank-wheel provided with a surface-cam.



The combination of a tilting table, Q, saw M, having its ends held in the plates I, the rocking curved levers J, straps L, springs F, and wheel D, provided with a surface-cam, R, operating the rollers a and c, substantially as and for the purposes described.

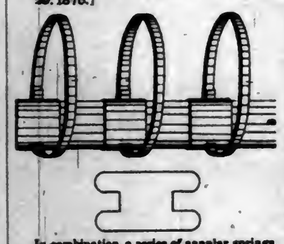
192,744. RUNG-CUTTERS. John Bowen, Detroit, Mich. [Filed June 6, 1876.]

Brief.—The cutters are attached to holders moving in a dovetail groove across a chuck, and are governed in their movements by a reciprocating cone.



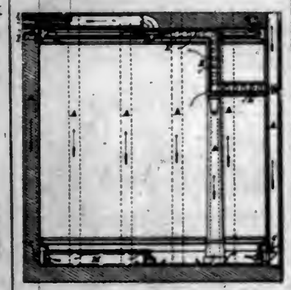
1. The combination, with the face-plate B, having a dovetail groove cut across its face, of the tool-carriers F F', sliding in the said groove, and the sliding cone H', substantially as described and shown.

192,745. FURNITURE-SPRINGS. Jesse L. Branson, Cincinnati, Ohio. [Filed Sept. 20, 1876.]



In combination, a series of annular springs, made of flat steel, a metal strap applied thereto, as shown, and clasps serving to unite the strap to each of the springs, substantially as set forth.

192,746. SYSTEMS OF VENTILATION. Aaron B. Brown, Worcester, Mass. [Filed June 11, 1876.]



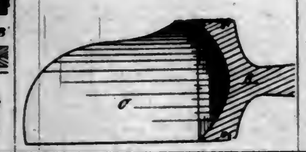
1. The arrangement and combination of the flues A A, drawing the air from the bottom of the room through the chamber behind the base-board B, said chamber having a general open connection to the room, and the direct inlet-flues I K with their diffused distribution, as above set forth and described.

2. The direct inlet-flues I K, having the gust-valves O', in combination with the chamber behind the cornice F, or passages L, L', and K, through beams, &c., of large rooms, as in churches and halls, for diffusing the inflowing air in the manner and for the purpose described.

3. The chambered platform M, with its openings, in combination with the exhaust-flues A and feed-flues I, substantially as described.

4. The combination of the gust-valves O' with the feed-flues, substantially as described.

192,747. SCOOPS. Alphonso Button, Rochester, N. Y. [Filed May 8, 1876.]



The scoop herein described, consisting of the concave wooden head A, having the channel *c*, and the metallic body C, formed with wings *a*, adapted to meet or to lap upon each other, the edge of the body O being upset to allow it to enter the said channel *c*, all as and for the purposes set forth.

192,748. PROCESSES OF ORNAMENTING METAL AND OTHER SURFACES. G. T. Clare, New York, N. Y. [Filed Mar. 21, 1876.]

1. A process of printing and ornamenting wood or metal surfaces, consisting in providing the same with a dry, sympathetic, or absorbent coating, based upon a yielding background, and then printing directly upon the said coating, substantially as and for the purpose set forth.

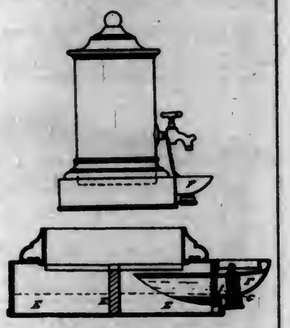
2. The process of preparing a plate-surface for the press, either lithographic or letter-press, consisting in covering said surface with a mixture of copal-varnish and boiled oil, which is then coated with a tacky substance, and finally dusted with white lead or other suitable pigment, substantially as and for the purpose described.

3. The process of decorating metallic or other substances, consisting in providing them with a smooth absorbing-surface, underlaid by an elastic supporting-skin, and then passing same successively through a rolling, printing, baking, and final varnishing process, all substantially as and for the purpose described.

4. As a new article of manufacture, a plate for printing or ornamental purposes, provided with a smooth absorbent picking-up surface, underlaid by an elastic supporting-skin or ground-work, substantially as and for the purpose described.

192,749. WATER-COOLERS. M. De Yonge, Chicago, Ill. [Filed Aug. 17, 1876.]

Brief.—The water-cooling tank rests upon a cross-shaped frame which is placed in a hollow base. Beneath the stop-cock of the tank a drip-dish projects from the base, which latter is perforated to allow the water to run back into it. When the hollow base is too full, a plug in the bottom of the drip-dish is withdrawn, allowing the water to fall to the level of the bottom of drip-dish.



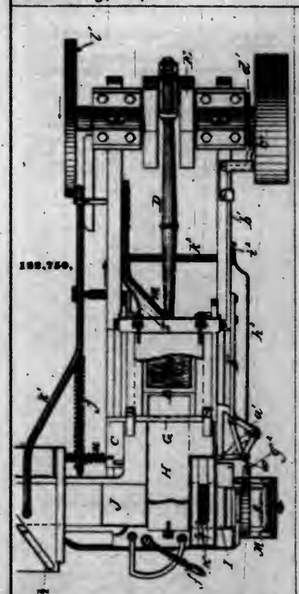
1. The combination of the removable tank, the hollow base, the tank-supporting frame, the drip-dish communicating with the base, and a plug, substantially as and for the purpose specified.

2. The combination of the removable tank, the hollow metallic base to receive the tank, the arched wooden frame or tank-support E within the base, the hollow drip-dish F communicating with the base, and provided with the plug-receiver G, having an opening, *f*, therein, substantially as and for the purpose specified.

192,750. MATCH-MACHINES. John Du Bois, Williamsport, Pa. [Filed June 29, 1876.]

Brief.—The bolt from which the matches are to be cut is carried against a knife, and divided in line with the grain into slices, which are carried between splitting-knives and divided into splints. The splints are automatically packed in a receiving-chamber, and delivered thence into a suitable receptacle.

192,750.



1. The combination of the knife G and the reciprocating carriage E, provided with the vertically-movable bottom F with mechanism, substantially such as shown and described, for operating the same.

2. The combination of the series of parallel stationary splitting-knives K, mounted in the throat or passage I, and the reciprocating slide J, arranged to operate as described.

3. In combination with the slide J and splitting-knives K, the receiving-chamber M, provided with the hinged cover O and movable bottom P, arranged to operate substantially as shown and described.

4. The match-machine, consisting of the slicing devices E G, the passages H I, the slide J, the splitting-knives K, and the receiving-chamber M, all combined and arranged to operate substantially as shown and described.

5. In combination with the reciprocating carriage E, for holding the wood and presenting the same to the knife, the knife G, arranged to move endwise during the advance of the carriage, substantially as shown and described.

6. The combination of the reciprocating carriage E, provided with the sliding bottom F, having the rack-bar *a*, the shaft *c*, provided with the pinion *b* and ratchet-wheel *d*, and the vibrating lever *e*, provided with the pawl *f*, with devices, substantially such as shown and described, for imparting the vibration to the lever at each movement of the carriage.

7. In combination with the vibratory lever *e*, mounted upon the reciprocating carriage E, as and for the purpose described, the guide *g'*, dog *h*, and spring *i*, mounted on the main frame.

8. In combination with the pinion-shaft *c* and ratchet-wheel *d*, communicating with the movable carriage bottom, as shown, the clutch *p*, and lever *r*, for permitting the descent of the bottom.

9. In combination with the dog *h*, provided with the arm *l*, and arranged to operate as described, the hooked arm *m*, connected with the carriage-bottom F, as and for the purpose described.

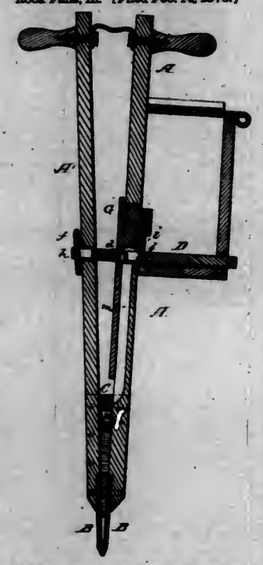
10. In combination with the dog *h*, provided with the arm *l*, the shaft *h'*, provided with the arms P and *p'*, the rod *h''*, lever *p'*, and the sliding bottom P, of the receiving-chamber M, arranged to operate said lever, for the purpose of stopping the production of splints when the chamber becomes filled, as described and shown.

11. The receiving-chamber M, provided with the hinged front *a'*, and with the sliding back *b'*, for expelling the splints or sticks from the chamber.

12. In combination with the ratchet-wheel *d*, arranged to elevate the carriage bottom F, as described, the pawl *g* and the lever *e*, provided with the pawl *f*, and arranged to turn the wheel at each movement beyond the point at which it will be held by the pawl *g*, as described, so that the wooden block may fall away from the knife during its backward movement.

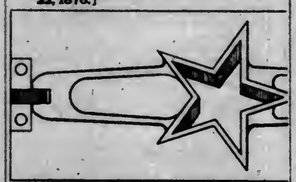
13. The combination, substantially as shown and described, of a knife, G, a reciprocating carriage, B, adapted to present a block of wood to the knife, and devices, substantially such as shown, arranged to raise the block prior to each forward movement, so that the knife can cut a slice therefrom, and then lower the block away from the knife during the backward movement, to avoid friction.

192,751. HAND CORN-PLANTERS. F. Dyer, Rock Falls, Ill. [Filed Feb. 14, 1876.]



The part A, provided with the block G and the passage *m*, in combination with the slide D, part A', and flexible loop *h*, and pin *f*, all substantially as and for the purpose specified.

192,752. DYES FOR PRINTS-DYEING. De Witt C. Farrington, Lowell, Mass. [Filed May 22, 1876.]



The combination, with a dye-vat and dyeing-frame, of the die-holder and removable die, substantially as described.

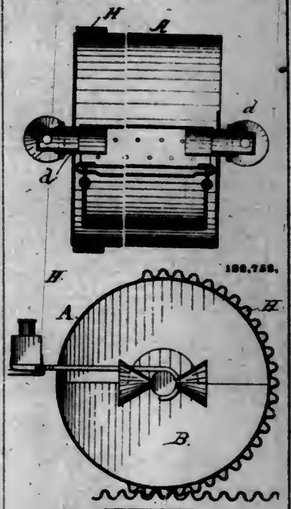
192,753. IRONING APPARATUS. W. Halsted, Trenton, N. J. [Filed Aug. 5, 1876.]

1. The combination of a hollow ironing-roller, A, adapted to be propelled over the material to be smoothed or ironed, an axle provided with the journals *d d*, on which the ends of the cylinder revolve, and a suspended fire-pot or pan within such roller for heating the same, substantially as shown and described.

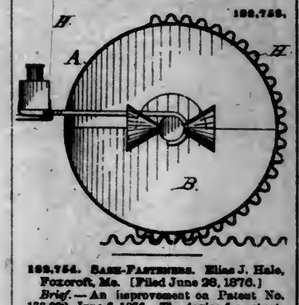
2. The combination of the hollow roller A, fire-pan F, and the hollow perforated blower-tube C within the roller, and communicating with inlets through which air from without may enter, substantially as and for the purpose set forth.

3. The combination, with the hollow roller and its inclosed fire-pan, of a sprinkling-vessel, substantially as shown and described.

4. The combination, with the hollow roller and its inclosed fire-pan, of the fluting device H affixed thereon, and adapted for joint use with the separate fluting-piece I, substantially as shown and described.

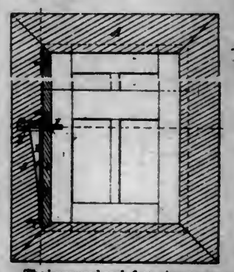


192,754.



192,754. SASH-FASTENERS. Elias J. Hale, Foxcroft, Me. [Filed June 26, 1876.]

Brief.—An improvement on Patent No. 178,292, June 6, 1876. The device for actuating the bolt-spring is separate or disconnected from the same, and consists of a headed pin, arranged in the bead, having the head on the inner edge of the bead and against the spring, arranged in a chamber in the inside bearing of the window-frame, and extended into the bolt disposed in a chamber or recess of the frame.



The improved sash-fastening, constructed as described, composed of the perforated slide-bolt D, the combined wire spring E, and stud *c*, and the separate headed pin or actuator F, all being for application to the window-frame A, its inside lining *g*, and the bead *i* thereof, substantially as set forth.

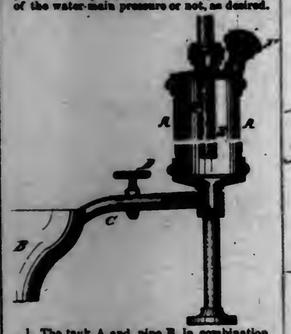
192,755. MANUFACTURE OF BOOTS AND SHOES. Jesse W. Hatch, Rochester, N. Y. [Filed Nov. 2, 1872.]



The improvement in the art or process of manufacturing boots having attached stiffenings to support their counters, consisting in crimping the counter and stiffening prior to lasting, by turning the edges of the counter and stiffener from the outside toward the center of the heel-form, and closely about the edges of the heel-form, and then applying the boot-leg and crimped counter and stiffener to a last, having thereon an inner sole, and then lasting the parts, substantially as described.

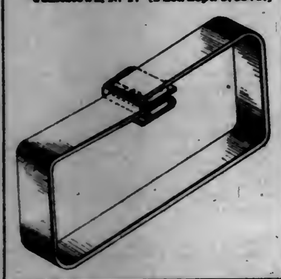
189,766. WATER-CLOSET TANKS. Helge A. Hansen, Chicago, Ill. [Filed Mar. 4, 1876.]

Brief.—A tank which may be conveniently placed as to space, and which may make use of the water-main pressure or not, as desired.



1. The tank A and pipe B, in combination with the air-vent F, substantially as specified.
2. The tank A, provided with the vent F, in combination with the basin B, pipe C, and valve D, substantially as described.

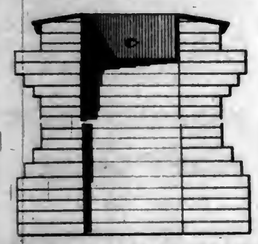
189,767. BALE-TIES. William B. Hamilton, Jamestown, N. Y. [Filed Sept. 6, 1876.]



The bale-tie buckle herein described, consisting of a flat piece of metal, bent over upon itself, so as to form two flat and parallel leaves, with straight unbroken edges, with a space between said leaves to accommodate the ends of the bands, substantially as and for the purposes described.

189,768. CHIMNEY-TOPS. Jacob Hessler, Syracuse, N. Y. [Filed Aug. 27, 1874.]

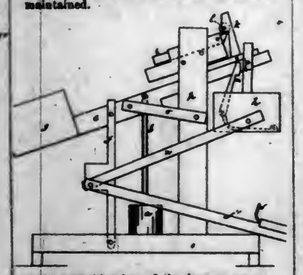
Brief.—The top can be easily cast. The inner flange protects the inside of the upper part of the chimney from the weather.



In a chimney-top of the character herein specified, the combination, with the top plate a thereof, of the downwardly-depending parallel flanges d and e, serving to clamp the upper course of brick between them, and to afford a protection to the upper portion of the flue, as and for the purposes specified.

189,769. WATER-ELEVATORS. Timothy H. Hutchinson, Gorham, N. H. [Filed June 3, 1875.]

Brief.—The pump is operated by a lever which is pivoted to a rocking stanchion, by which the vertical movement of the piston is maintained.



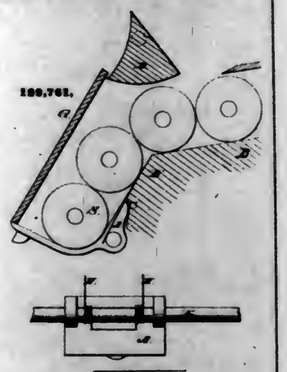
1. The combination of the lever c, arm e, rocking stanchion f, and piston b, with a pump, a, all arranged substantially as and for the purposes herein set forth.
2. The combination of the lever c, arm e, rocking stanchion f, lever a, and reservoir h, as and for the purposes set forth.
3. The combination, with the lever c, stanchion f, piston b, arm e, lever a, reservoir h, and pivoted frame f, as and for the purposes set forth.
4. The combination, with the reservoir h and its valve, of the notched lever m and lever c, as and for the purposes set forth.

189,770. SEALING BOTTLES, JARS, &c. C. M. Jacob, Paris, France. [Filed Sept. 16, 1876.]

1. The method of sealing bottles, jars, &c., by covering their corks or mouths with a composition of silicate of soda or potassa mixed with finely-divided lime, talc, magnesia, or similar substances, substantially as set forth.
2. The method of glazing the sealing after it is applied by subjecting it to the action of carbonic acid.

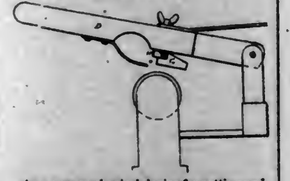
189,771. SHOW-CASES FOR SPOOL-SILK. Wm. G. Kelly, Lancr, N. Y. [Filed Apr. 24, 1876.]

1. In a spool-cabinet, the drop-valve A, in combination with the spring H, as and for the purpose set forth.
2. In a spool-cabinet, the shelves B B', inclined at different angles, as described, and for the purpose set forth.
3. A spool-cabinet having end standards, the front edges of which are formed with projections G M, alternating with depressions P Q, as and for the purpose set forth.
4. The combination, in a spool-case, of the shelves B B', the drop D, the valve A, and glass plates b, as and for the purpose set forth.



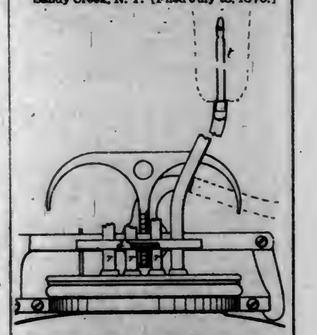
189,769. LATHE ATTACHMENTS. Israel Kinney, London, Ontario, Canada. [Filed July 21, 1876.]

Brief.—The article to be operated upon is put in a lathe and revolved, when the tool forms a spiral upon its surface.



As a new mechanical device for cutting and marking spirals and other ornamental designs, the sliding holder D, in combination with the adjustable cutting or marking tool G, attached angularly thereto, substantially as shown and described.

189,762. COW-MILKERS. E. M. Knollin, Sandy Creek, N. Y. [Filed July 13, 1876.]

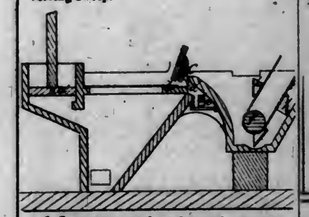


1. In combination with a vacuum-chamber, A, and flexible pipes r and tips t, the clamping-bar b, substantially as and for the purpose set forth.

2. In a milking apparatus, a previously-exhausted air-chamber, A, provided with flexible tubes r, tips t, and cock G, for the purpose set forth.

189,764. ORE WASHERS AND SEPARATORS. George Lauder, Pittsburg, Pa. [Filed July 20, 1876.]

Brief.—The baffle-plate arrests the upward movement of the water against that part of the material first passing from the screen, thus enabling the lighter particles of the slack to settle away from the reach of the revolving sweep.



1. In an ore or coal washer and separator of the class specified, the combination of the baffle-plate and the sweep, arranged relatively to the overflow, substantially as and for the purpose specified.
2. In an ore or coal washer and separator of the class specified, the jigger-tank, provided with the baffle-plate and sweep, arranged at the overflow, and in combination with the settling-tank, substantially as and for the purpose specified.

189,765. CIGARETTE-PACKAGES. Henry Maddock, Brooklyn, N. Y. [Filed Sept. 9, 1876.]

Brief.—In the merchantable package with the cigarettes are arranged a few matches for the convenience of the smoker.



1. A package of cigarettes, prepared for sale with matches inclosed in the same envelope, and adapted for carriage in the pocket, as set forth.
2. The box c, having the cover b, side flaps a a, and removable partition g h, substantially as and for the purpose set forth.

189,766. GAME APPARATUS. Samuel Noah, Salem, Mass. [Filed Apr. 6, 1876.]

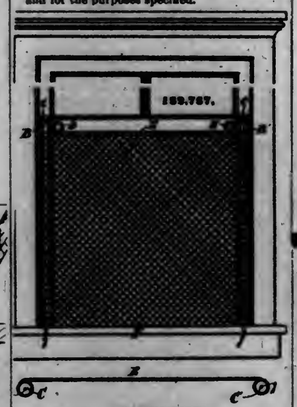


A game apparatus consisting of a series of counters of different colors, constructed and marked substantially as shown and described.

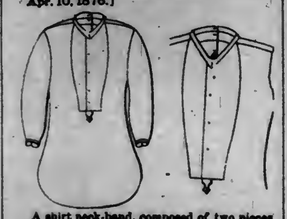
189,767. WINDOW-SCREENS. T. Nowell, Indianapolis, Ind. [Filed July 20, 1876.]

Brief.—The screen-cloth is attached to two rollers, provided at one end with a pivot projecting into the sill below, and at the other with holes at different angles to receive screw-eyes, which enter the window-jambs and hold the rollers in place.

1. The roller B B', pivoted to the sill F at g, and provided with holes C C' to receive the screw-eyes D D', in the manner and for the purpose set forth and described.
2. In combination, the rollers B B', screen E, pins g, and screw-eyes D D', arranged and adapted to be used in windows or doors, as and for the purposes specified.

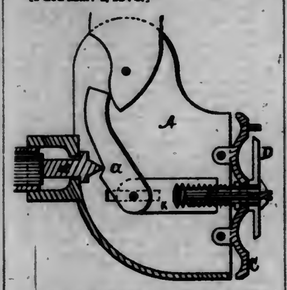


189,768. SHIRTS. Charles C. Noyes and David W. Noyes, Boston, Mass. [Filed Apr. 10, 1876.]



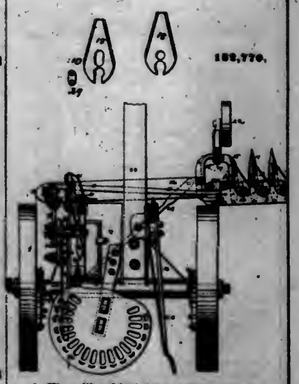
A shirt neck-band, composed of two pieces cut on the bias, and having their ends lapped and joined at an angle to form a point in the front of the neck-band, instead of a curve, and having the button-hole cut perpendicularly through the four thicknesses of the lapped ends, substantially as and for the purpose herein set forth.

189,769. REGULATORS FOR HOT-AIR FURNACES. George C. Paine, Boston, Mass. [Filed Mar. 4, 1876.]



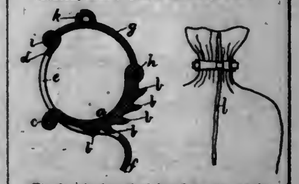
1. The combination of the head A, levers B and e, adjusting-screw J, nut K, dial C, and pointer D, in the manner and for the purpose substantially as shown.
2. The head A, levers B and e, adjusting-screw J, nut K, dial C, and pointer D, in combination with the tube E, and non-expansible rod or cord F, all arranged in the manner substantially as and for the purpose set forth.

189,770. MOWERS. H. Palmcrantz, Stockholm, Sweden. [Filed July 11, 1876.]



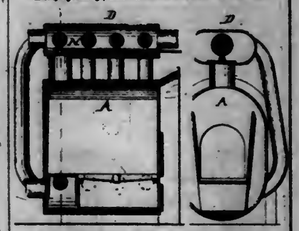
1. The pillow-block 27, provided with two bearings, and combined with the shaft 7, V-shaped driving-arm 5, and with the guide-pin 35 and handle 8, all arranged to operate substantially as herein shown and described.
2. The cutting apparatus, composed of the slotted fingers 19, reciprocating cleansing-prongs 17, and vibrating knives 18, all arranged for operation, substantially as specified.
3. The knife 18, made with a hole and with a slot to be connected to the reciprocating pin 38, and to the stationary pin f, and combined with the doubly-perforated collar 20, substantially as herein shown and described.

189,771. BAG-FASTENERS. A. J. Palmberg, Boston, Mass. [Filed Mar. 16, 1876.]



The herein-described bag-fastener, consisting of the curved metallic piece a, with its teeth b b b, and projection c, hinged to the curved piece g, and the curved slotted piece d e, hinged at i to said piece g, having the eye k and cord or band l, as and for the purpose set forth.

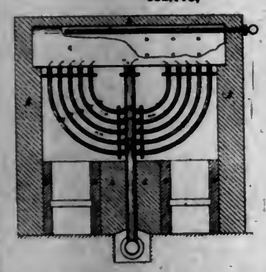
189,772. HOT-AIR FURNACES. Henry Randall, Quincy, Ill. [Filed June 22, 1876.]



In a hot-air furnace the drum D, in combination with the furnace A and pipes or flues P, which connect the drum with the furnace from points in the fire-chamber opposite the ash-pit, wherefrom the mouths of the flues are separated by an impervious wall or plate, substantially as specified.

189,773. SECTIONAL STEAM-GENERATORS. Lydia F. Renshaw, Cohasset, Mass. [Filed Feb. 21, 1876.]

192,773.



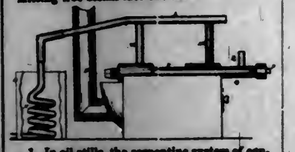
The improved boiler herein described, consisting of an upper water-body, G G, in combination with the series of pipes K and M, arranged together substantially as described.

192,774. COMPOUNDS FOR REMOVING SCALE FROM STEAM-BOILERS. James Riley, Chicago, Ill. [Filed May 16, 1876.]

The walnut bark, or its chemical ingredients, as given, combined with caustic soda, sodaash, black-oak bark, and white-oak bark, compounded as and for the purposes set forth.

192,775. APPARATUS FOR DISTILLING OIL. Henry C. Rose, Cleveland, Ohio. [Filed May 3, 1876.]

Brief.—Oil is distilled by fire and free steam-heat. It is run through a series of connected horizontal distilling-pipes, each of which has vertical edaction-pipes connecting with a separate condenser, whereby oils of different gravity are obtained. A perforated steam-pipe extends into each distilling-pipe for admitting free steam into the oil.



1. In oil-stills, the serpentine system of continuous horizontal pipes B F G, &c., arranged over a furnace, and having pipes M, in combination with the pipes 1 2 3, &c., for retaining and conducting the various qualities of vapor generated from the uninterrupted flow of oil through the pipes B F G, &c., subjected to a uniform heat, or nearly so, substantially as set forth.

2. The pipes B F G, &c., with the connecting-pipes J K L, &c., arranged horizontally over a furnace, in combination with the vertical pipes M, substantially as and for the purposes set forth.

3. The combination of the system of pipes B F G, &c., steam-pipes F, and vertical pipes M, vapor-pipes 1 2 3, &c., with their respective coils, E, tank O, and furnace A, in the manner substantially as herein described, and for the purpose specified.

192,776. REVOLVING COUPLINGS FOR TRAIN-TELEGRAPH. Andrew Ryder, Oakland, Cal. [Filed Jan. 6, 1876.]

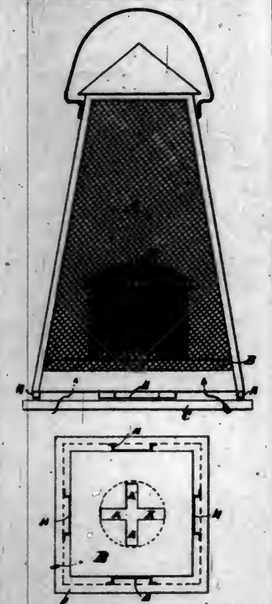




192,776.

The coupling for train-telegraph described, consisting of the body A, through which the wire is passed, and held by a set-screw, *d*, the spring-beak *c*, and spring *b*, substantially as described and shown.

192,777. FLY-TRAPS. James M. Scantlin, Evansville, Ind. [Filed Aug. 10, 1876.]

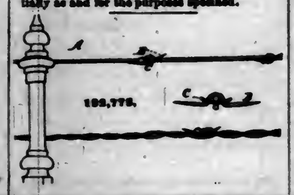


1. The turret D, constructed with the top cap E, projecting slightly over the wall of the turret, with the upper edge of the turret turned outward, forming, with the projecting edge of said cap, open lips, through which the flies pass from the turret to the main case A, substantially as and for the purposes specified.

2. The bent strips H, attached to the inside of the main case A at its bottom, and acting as springs when pressed against the bottom C, holding it in place, substantially as and for the purposes specified.

3. The bottom C, provided with plowed trenches K, for the purpose of holding bait and enticing the flies to the center of the bottom of the trap, as described.

4. A fly-trap constructed with the turret D, having the cap E and opening G, the upper floor B forming a dark chamber between it and the wooden bottom C, the latter having the grooves K in the center, and held in its place by the bent strips H acting as springs when pressed against the bottom C, substantially as and for the purposes specified.

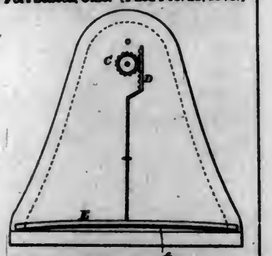


192,778.

192,778. BARBED FENCE-WIRE. Cyrus A. Vosburgh, Chicago, Ill. [Filed Aug. 26, 1876.]

The combination of the barbs B, formed of pointed and arched pieces of wire, and the slotted metal parts C with the fence-wire A, the said parts C embracing the arched portion of the barbed parts B, and clamping the fence-wire, as shown and described.

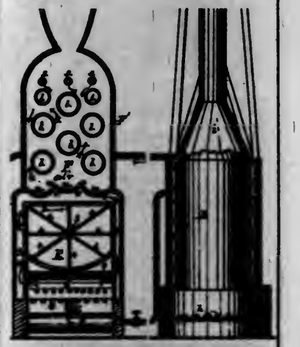
192,779. BAROMETERS. Edmd. C. Wagner, Fort Seneca, Ohio. [Filed Feb. 23, 1876.]



A barometer constructed of two pieces of wood, E and *f*, suitably connected together, mounted in a suitable frame, and provided with gearing D C, dial A, and indicator B, substantially as described, and for the purposes set forth.

192,780. APPARATUS FOR EVAPORATING LIQUIDS. Jas. B. Weaver, Pittsburg, Pa. [Filed Jan. 24, 1876.]

Brief.—Pumps liquid (saline or saccharine) to top of tower, and discharges it into the feed-pipe, whence, by natural pressure, it is sprayed into central chamber of first heater, agitating the liquor therein, and subjecting it to pressure; thence liquid passes into spiral chamber of second heater, which has fire-head and central heating-chamber, and thence into spiral chamber of front heater, and into a screen under close boiling-pan; thence up to spraying-pipes in evaporating-chamber above boiler, and down over steam-heated pipes, and through upward currents of hot air to troughs, which convey it into settling-vat, which has steam-heaters and air-tubes upward through it, and has a cover and a stack; and finally into a granulating-vat, also steam heated, and which has a steam-operated agitator for maintaining horizontal circuits of the liquor.



1. In an evaporating apparatus, the heater B, having chambers C *f*, and spiral channel *e*, in combination with the heater D, having spiral channel *g*, and the boiling-pan E, substantially as herein described, and for the purpose set forth.

2. In an evaporating apparatus, the boiling-pan E, surrounded by the chamber 5 for the passage of heated air, in combination with the pipe F and distributing-pipes *s*, and a heater, consisting of chamber *m* and pipes *l*, substantially as herein described, and for the purpose set forth.

3. In an evaporating apparatus the heater, consisting of chambers *m* and pipes *l*, in combination with the collecting-pans *u* and settling-vat H, substantially as herein described, and for the purpose set forth.

4. The settling-vat H, having vapor-chamber I, stack *f*, and air-passages *n* and *o*, substantially as herein described, and for the purpose set forth.

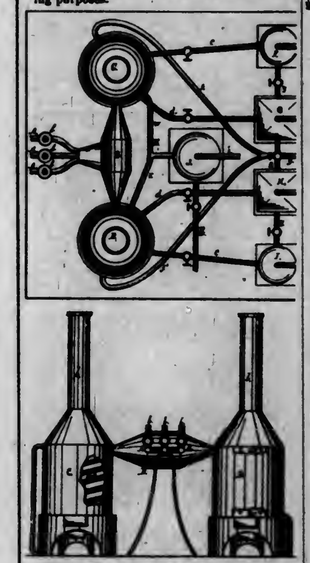
5. In an evaporating apparatus, the distributing-pipes *s*, and heater, consisting of chambers *m* and pipes *l*, inclosed in the chamber F, having a stack, G, substantially as herein described, and for the purpose set forth.

6. In an evaporating apparatus, the supply-pipe *a'* and stand-pipe *b'*, the latter provided with the distributor *d'* on its lower curved end, in combination with the heater B, whereby the saline and saccharine liquid is conveyed to the chamber C of the heater and subjected to hydrostatic pressure, substantially as herein described, and for the purpose set forth.

7. The semicircular agitator L, provided with a steam-supply pipe, *c*, substantially as and for the purpose described and set forth.

192,781. STEAM-HEATERS. Jas. B. Weaver, Pittsburg, Pa. [Filed Jan. 24, 1876.]

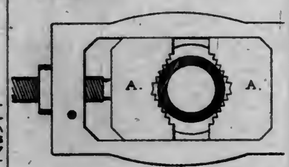
Brief.—Exhaust steam is reheated for warming purposes.



1. The pipe or pipes A, having a valve or valves, *b*, chambers B, pipes *c d*, heaters C and D, in combination with a receiver or receivers, substantially as herein described, and for the purpose set forth.

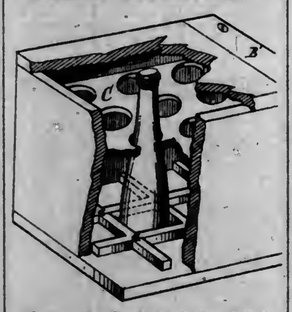
2. The combined heater and condenser J, in combination with the heater D, having a chamber, *e*, through which the liquid flows, substantially as herein described, and for the purpose set forth.

192,782. PIPE-VISES. James H. Wilkinson, South Newmarket, N. H. [Filed Mar. 20, 1876.]



In combination with the box or jaw-holder, the two loose detached chilled cast-iron jaws, A A, located therein, and a jaw-adjusting screw unattached to either jaw, substantially as shown and described.

192,783. CASES FOR TRANSPORTING BOTTLES AND BOTTLED LIQUIDS. George Wilson, Toledo, Ohio. [Filed June 6, 1876.]



1. As a means for securing the cover B to the bottle-case A, the hooks D', each mounted on a spindle, D, having a slotted head, *b*, and journaled through the end of said box, in combination with an eye or staple, *c*, on the under side of said cover, substantially as described.

2. In combination with a box having cockets formed by crossed strips *a* secured to its bottom, the perforated follower C, when adapted to be dropped upon the necks of bottles contained in said case, to secure them in position by nailing or otherwise holding it down, substantially as described.

192,784. WOOD-PLANING MACHINES. E. M. Wilcox, Chicago, Ill. [Filed July 20, 1876.]

Brief.—A thin board can be held to the bed of a planer while a thicker board is approaching the knives by means of a rock-pressure bar carrying a roller, the bar having two bearings, an upper and lower at each end, the upper bearing fitted in rubber rings working in inclined slotted frames upon the main frame. The delivery-roller is constantly lubricated by means of a housing provided with a horizontal slot, in which the packing is placed, and a slot in the lower part of the house, through which the oil is communicated to the roller.

192,785. BUTTER-WORKERS. Francis G. Wynkoop, Cedar Falls, Iowa. [Filed Apr. 3, 1876.]

Brief.—A trough, a frame to slide thereon, a slide in this frame moving by means of levers, and carrying a revolving presser at its lower end.

1. The combination of a tray adapted to hold the material to be operated upon, with an independent sliding carriage and an independently-operating butter-worker, substantially as described.

2. The combination of a carriage, B, having grooved standards with the side pieces carrying the butter-worker, as described.

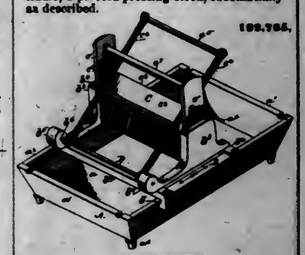
3. In combination with the carriage B, having grooved standards, and the side pieces carrying the butter-worker, adapted to move in said standards, the lever-arms for actuating the side pieces, substantially as described.

4. In combination with the vertically-moving side pieces and the pivoted lever-arms, the intermediate swinging links, as described.

5. The combination of a sliding carriage, having the grooved standards, the vertically-moving side pieces, the pivoted lever-arms, and the intermediate swinging links, as described.

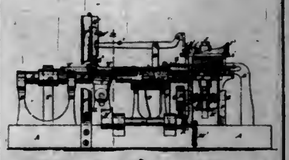
6. In combination with a vertically-moving frame, a pivoted pressing-block, substantially as described.

192,786.



192,786. BUNG-MACHINES. Charles Abel, Brooklyn, N. Y. [Filed July 31, 1876.]

Brief.—The bung-blanks are tapered and the ends beveled by the machine at one operation.



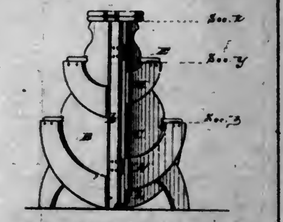
1. The combination of the plate A', cam I', sliding bar J', arm K', shaft L', spring M', and holder N' O' P' with the shaft J and centers D O, for carrying the blank bung forward to said centers, substantially as herein shown and described.

2. The combination of the cam Q, the lever R, the spring S, the connecting-rod U, the U-frame V, the cutter X, and the rod W with the shaft J and the centers D O, for operating the said cutter to taper the bung, substantially as herein shown and described.

3. The combination of the plate A', the cam B', the lever C', the sliding cutter-holder E', the cutter G', and the spring H' with the shaft J and the centers D O, for operating the said cutter to bevel the bung-heads, substantially as herein shown and described.

192,787. FLOWER-STANDS. H. B. Adams, Paris, Ill. [Filed Dec. 27, 1875.]

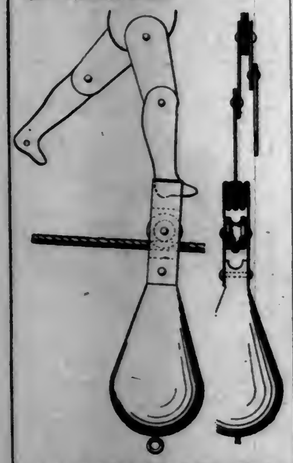
Brief.—A flower-stand, with vertical folding leaves and circular dropping-shelves, which can be adjusted in one or more sections.



The combination, in a flower-stand, of the folding vertical wings A B C D, with the circular folding leaves in any number of sections, substantially as described, and for the purposes set forth.

182,788. TOY CARRIERS. John H. Adamson, Clifton, N. J. [Filed Sept. 9, 1876.]

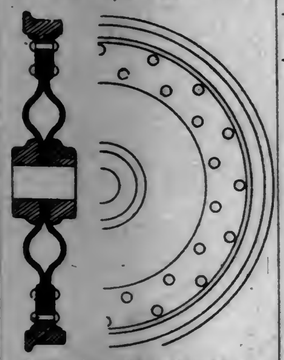
Brief.—Adapted to hold different toys, so as to be detachable at will, the whole riding upon a tight rope, as usual.



1. A weighted and traversing carrier for toy figures and other articles, provided with a clamping device at the upper end, substantially in the manner described, and for the purpose specified.

2. A traversing carrier for toy figures, provided with a clamping device for supporting said figures, substantially as herein shown and described.

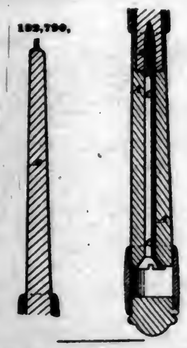
182,789. CAR-WHEELS. Richard N. Allen, Hudson, N. Y., and Albt. B. Pullman, Chicago, Ill. [Filed June 15, 1876.]



In a car-wheel, a tire provided with an inwardly-projecting rib, which abuts against the periphery of the plate or plates that compose the web or body of the wheel, and is secured thereto by means of rings or annular plates, bolted or rivited both to the web and the rib of the tire, substantially as and for the purpose set forth.

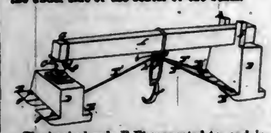
182,790. WRIPE. Dexter Avery, Westfield, Mass. [Filed Aug. 14, 1876.]

The handle A, counterbored from its forward end to receive the end of the stock B, and provided with a screw, C, passing longitudinally through it from its lower end, and screwed or driven into the stock B within said counter-bore, substantially as herein shown and described.



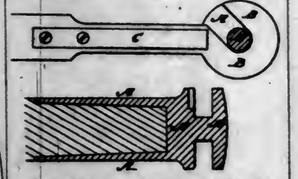
182,791. STUMP-EXTRACTORS. Tilmann Balliet and John S. Demarest, Nevada, Ohio. [Filed Sept. 2, 1876.]

Brief.—A beam with a fulcrum-block under one end, and a screw-purchase block under the other, the resistance between. To render the same portable, the blocks are on runners, and connected by hook-rods to an eyebolt on the under side of the center of the beam.



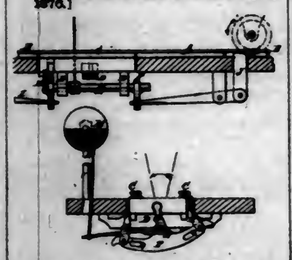
The hooked rods F F' connected to, and in combination with, the blocks B D, upon runners E E' and beam A, having a ring, &c., f, and yoked, as at G, to the lifting-screw handle e, substantially as and for the purpose set forth.

182,792. TRACE-FASTENERS. E. N. Banks, Williamsport, Pa. [Filed Aug. 14, 1876.]

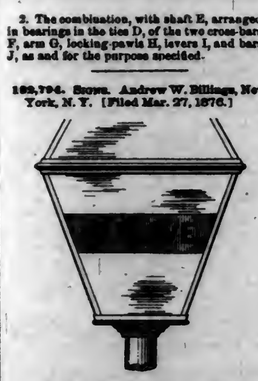


The combination of ring-grooved socket A, having side notch, and hook B, having a spring, C, attached to the side of its neck, as shown and described, to form a tug-fastener.

182,793. RAILROAD-SWITCHES. Cosmo S. Batchelor, Lebanon, N. H. [Filed Aug. 7, 1876.]



1. The combination, with rails A B, of a stitch-rails C, connected by a frame, centrally pivoted to the middle one of three ties, D, as shown and described

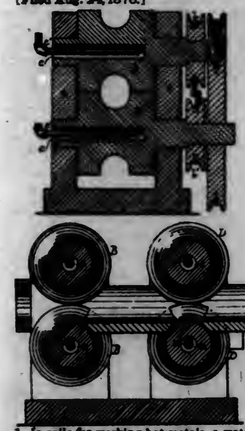


2. The combination, with shaft E, arranged in bearings in the ties D, of the two cross-bars F, arm G, locking-pawls H, levers I, and bars J, as and for the purpose specified.

182,794. SIGN. Andrew W. Billings, New York, N. Y. [Filed Mar. 27, 1876.]

A sign for a street-lantern and other purposes, formed by affixing direct to a pane of glass, by an adhesive composition, a strip of textile fabric, saturated with soluble glass and marked with the designating characters, substantially as set forth.

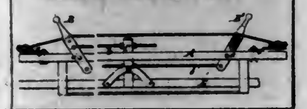
182,795. ROLLS FOR WELDING AND FINISHING TUBES. Mildred Blakey, Etna Borough, Pa., assignor to himself, George A. Chalfant, and J. L. Robertson, same place. [Filed Aug. 24, 1876.]



1. In rolls for working hot metals, a water-chamber, c, extending from the segmental end of the roll, through the working part of the roll, and terminating in a closed end, in combination with a water-supply pipe of less exterior diameter than the chamber, arranged in such chamber, and extending to, or nearly to, the closed end of the chamber, substantially as and for the purpose set forth.

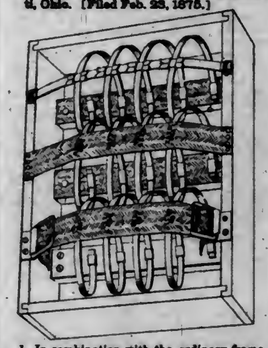
2. The combination of grooved pipe-rolls B B' D D', connected by a guide, and arranged and geared to co-operate in finishing metallic pipe, when one of the rolls, D, which is intended to operate on the joint of the pipe, is geared to operate at a different speed from other rolls, substantially as set forth.

182,796. CHECK-ROWERS. Wm. L. Black, Virginia, Ill. [Filed Aug. 7, 1876.]



The sliding valve-bar E, connected with forked levers B B' by adjustable rods b b' passing through valve-bar arm C, one below, the other above, frame A, and one pivoted above, the other below, the fulcrum of levers B B', constructed and arranged as and for the purpose specified.

182,797. FURNITURE-SPRINGS. Jesse L. Branson and August Juergens, Cincinnati, Ohio. [Filed Feb. 23, 1875.]

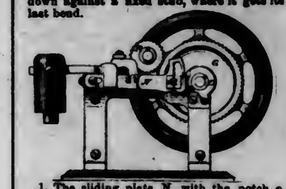


1. In combination with the ordinary frame of a spring-seat a supporting-strip, attached to the under side of said frame, flat wire springs coiled in a direction transverse to the length of such strip, and a webbing strip attached to the upper side of the coils, and having buckles or hooks to engage with suitable clips on the frame.

2. The combination, with the spirally-bent spring, of a metal steadying-strip secured to the several spirals on the one side of the spring, and of a webbing or equivalent material, also secured to the several spirals on the opposite side, the webbing being adapted for being readily tacked, when desired, to a rigid wooden bar, substantially as shown and described.

182,798. MACHINES FOR WINDING SPIRAL STUDS. Daml. F. Briggs, Cranston, assignor of one-half his right to G. M. Luther, Providence, R. I. [Filed June 16, 1876.]

Brief.—A rotating mandrel with a slot across its end abuts against a sliding and tilting plate that has a notch in its upper edge, through which the wire is passed, and also an inwardly-projecting pin. The wire being in place, its outer end lying in the notch, and the body of it on an angle-edged table, the plate is moved forward, and bends the end of the wire down into the slot in the mandrel, and the latter then rotates and forms the spiral. Then the plate is tilted down, which brings its pin against the wire, and carries it down against a fixed stab, where it gets its last bend.

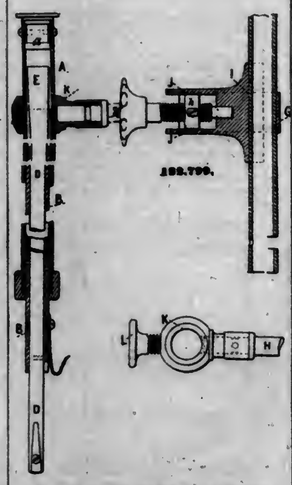


1. The sliding plate N, with the notch a and pin c, in combination with the slotted arbor B, and the cam D, and adjustable projection f, substantially as and for the purpose specified.

2. The combination of the shaft A, sector-wheel G, wheels F and T, plate J, spring-detent n, and arbor B, substantially as and for the purpose specified.

3. The table r, in combination with the plate N and slotted arbor B, substantially as described, and for the purpose specified.

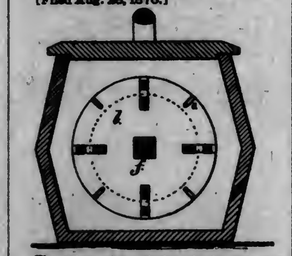
182,799. EXTENSION-CHANDELIERS. Jas. E. Browne, Newark, N. J., and C. H. Carter, Brooklyn, N. Y. [Filed June 12, 1876.]



1. In an extension-chandelier, the combination of an outer tube, A, an inner expansible tube, B, and a rod, D, provided with a cone or wedge, E, constructed and operating substantially as and for the purpose specified.

2. The clamping device, consisting of the strap G, screw-rod H, shoe I, nut A, and eye K, and set-screw L, constructed and operating substantially as and for the purpose set forth.

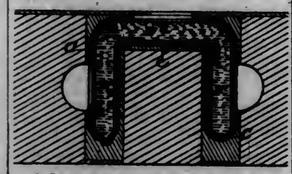
182,800. CHURNS. John Brown, Loran, Ill. [Filed Aug. 26, 1876.]



The rotary churn-dasher, made with the end heads m, and larger central head l, and with the longitudinal buckets, and intermediate wires, as and for the purposes set forth.

182,801. SPIRIT-LEVELS. Burkner F. Burlington and Lewis H. Priest, South Lancaster, Mass.; said Burlington assignor to said Priest. [Filed Mar. 11, 1876.]

Brief.—The glass tube surrounded by rubber.



1. In combination with a glass tube for a spirit-level, an elastic tube, inclosing the same, and provided with an opening on top, for the purposes herein set forth.

2. In spirit-levels, a boat tube, formed with one or two arms or legs at right angles, for the purposes herein set forth.

182,802. ELECTRIC PILES. Jules Carpentier, Saint Josseten Noode, Belgium. [Filed Mar. 8, 1876.]

Brief.—To be placed in moist earth or sand, to form an earth-battery.



The electric pile, consisting of plates of copper and zinc or other metals, bearing similar electric relations to each other, provided with series of teeth or blades, and insulated by strips, slats, or blocks of wood, or other suitable material, substantially as and for the purpose specified.

182,803. HARVESTERS. Edward H. Clinton and Wm. A. Knowlton, Rockford, Ill., assignors to William A. Knowlton. [Filed June 23, 1876.]



1. The combination, substantially as before set forth, of the guard-fingers, the ledge-plates thereof, (one for each guard-finger,) and the cutter-blade, whose range of movement is restricted by the crank, so that it will always overlap both of the ledge-plates with which it co-operates.

2. The combination, substantially as before set forth, of the conical cutter-eye, the duplex cone-pin, and the spring thereof.

3. The combination, substantially as before set forth, of the oblique-revolving carrier, the reel-arms pivoted thereto, and the adjustable links, whereby the position of the reel-arm relatively to the said carrier can be adjusted and secured.

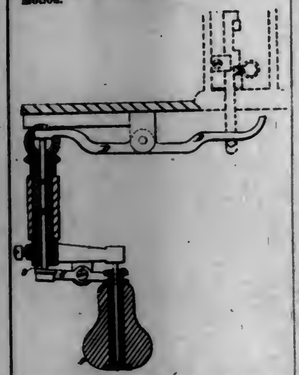
4. The combination, substantially as before set forth, of the straight inclined standard, the oblique-revolving carrier, the rake hinged on said carrier, and the cam.

5. The combination, substantially as before set forth, of the straight inclined standard, the oblique-revolving carrier, and the reel-rib connected with said carrier.

6. The combination, substantially as before set forth, with the same straight inclined standard and oblique-revolving carrier, of the rake hinged on said carrier, and the reel-rib, also connected thereto.

182,804. MECHANISMS FOR OPERATING STOP-MOTIONS OF SEWING AND EMBROIDERY MACHINES. E. Cornely, Paris, France. [Filed Aug. 21, 1876.]

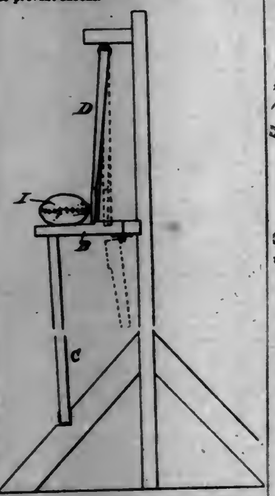
Brief.—The crank which operates the feed is connected by suitable mechanism with the stop-motion, in such a manner that it not only governs the feed, but also operates the stop-motion.



1. The combination, with the feed and the stop motion of universal-feed sewing or embroidering machines, of a single crank-handle, which both governs the feed and operates the stop motion, substantially as herein set forth.
2. The combination, with the stop-motion mechanism, of the sliding handle N, lever G, hollow shaft h, rod E, and lever D, substantially in the manner herein set forth.

182,805. MAIL-BAG CATCHERS. Pearce K. Curtis, Hanover, assignor of one-half his right to Charles H. Coffin, Mulberry, Md. [Filed Mar. 9, 1876.]

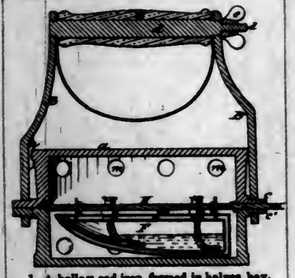
Brief.—Bag rests loosely on platform. Guided inward and backward when received, to prevent shocks.



1. An apparatus for taking on or delivering packages from cars, said apparatus consisting of a shelf or support, B, for the package I, an arm or frame, D, resting loosely in rear of said package, and the inclined arm b for imparting motion thereto, all constructed to operate substantially as described.
2. The hinged receiver L, having its bottom inclined laterally and longitudinally, substantially as shown and described.
3. The hinged shelf B, brace C, and the loose arm D, in combination with the hinged receiver L, all constructed to operate substantially as and for the purpose set forth.

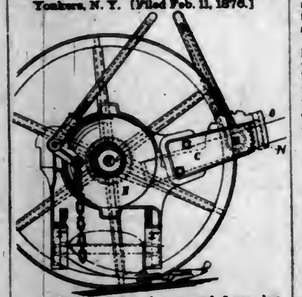
182,806. SAD-IRONS. Ezra B. Custer, Chicago, Ill. [Filed Aug. 26, 1876.]

Brief.—The lamp is suspended from the rod, so that its center of gravity is below the center of rotation of the iron, which allows the latter to revolve while the lamp remains immobile.



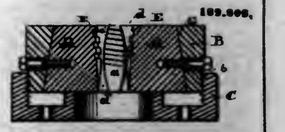
1. A hollow sad-iron, formed in halves, having transverse *b b* and *c c* formed at the line of junction, united by braces attached to the handle D, substantially as and for the purpose described.
2. A lamp, F, suspended within a hollow sad-iron from a rod passing through its center substantially as and for the purpose described.
3. In combination with a hollow sad-iron and a lamp suspended within it, the central rod H, having the end h flattened, and a handle, H', with which to turn the sad-iron, substantially as described.
4. In combination with a sad-iron inclosing a lamp, the recess a in the rear of the brace B, to receive the point of the sad-iron, and thumb-nut c, to retain the parts rigidly, substantially as described.

182,807. MOWING-MACHINES. B. Dutton, Yonkers, N. Y. [Filed Feb. 11, 1876.]



1. The dish-shaped gear and finger bar frame B, with the projecting arms T T, and hub b.
2. The combination of the brace-arm C, arranged to extend around the driving-wheel, and secured to the pole or frame of the machine, with the gear and bar frame B, provided with an extended hub, b, which supports the frame B upon the axle H, and the hub a of the driving-wheel having its bearing upon the hub *b* of the gear and bar frame B, substantially as specified.
3. The gear and bar frame B, in combination with the brace-arm C, and its adjusting gears E and O, constructed substantially as described, for the purpose herein specified.

182,808. DEVICES FOR TURNING SHAFTING. Albert Dwelle, Virginia, Ill., assignor of one-half his right to Gerard B. Allen & Co., St. Louis, Mo. [Filed July 11, 1876.]

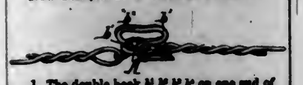


1. The herein-described shafting-turning device, consisting of the dies A A A' A, die-stock B, and cap C, combined and operating substantially as described.
2. Arranged and held in a suitable die-stock, the dies A A A A, shaped so as to include the cylindrical space *d'* and conical space, *d*, and provided with the thread E, substantially as described.
3. The dies A A, &c., shaped and arranged to inclose the cylindrical space *d'* and conical space *d*, and provided with a screw-thread, E, for the purpose of feeding the shaft into the device, substantially as described.
4. The dies A A A A, shaped and arranged to inclose the conical space *d* and cylindrical space *d'*, and provided with the cutting-edges *a' a' a'*, for the purpose of turning shafting.
5. The combination of the dies A A A A, and the die-stock B, substantially as described.
6. The combination of the cap C provided with the flange *c*, the die-stock B, thread *b*, and dies A A A A, operating substantially as described.

182,809. COMPOSITIONS FOR ECONOMIZING AND ASSISTING THE COMBUSTION OF COAL. Morris B. Eaton, Le Roy, assignor of one-half his right to Lewis H. Rogers, Avon, N. Y. [Filed May 16, 1876.]

The compound herein described for treating coal, consisting of Glauber salts, wood-ashes, and fine coal, in the proportions substantially as named, and applied in a powdered form, as and for the purpose specified.

182,810. RAIL-TIES. Lemuel H. Evans, Tremont Station, assignor to W. Brockner, New York, N. Y. [Filed Mar. 17, 1876.]



1. The double hook *b' b' b' b'* on one end of the tie, formed by bending the doubled wire, as shown, in combination with the loop A on the other end, and adapted to serve together, as and for the purposes herein specified.
2. The end *c*, extended past the engaging hook or hooks on the tie, and arranged to be pressed against and into the body of the bale by the tension of the loop A, in combination with the double hook and said loop, and its neck a pressing on the outer face of the said end, all substantially as and for the purposes specified.

182,811. POTATO-DIGGERS. Antony Favreau, Holyoke, Mass., assignor to Jos. Favreau, same place. [Filed July 20, 1876.]

Brief.—A plow having a cutter on its central line, rearwardly-projecting clod-breakers and separators, and adjustable shoes.

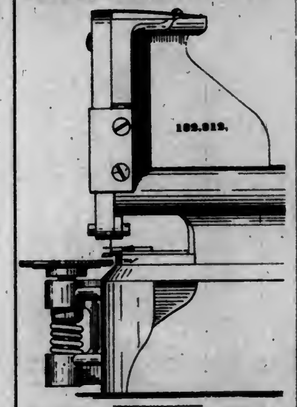


The combination, with the plow A, provided with the cutter C, clod-breakers D, and separating-rods E, of the adjustable shoes F, as and for the purpose herein specified.

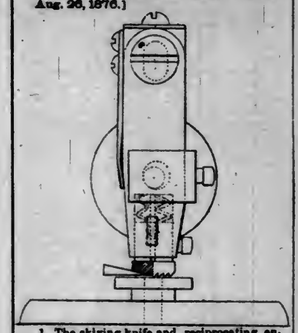
182,812. BOOT AND SHOE SOLE CHANNELING MACHINES. W. G. Fitzgerald, Boston, Mass., assignor to H. C. Wainwright, same place. [Filed Aug. 26, 1876.]

1. The rotating yielding support and stationary channel-knife, in combination with an engaging and disengaging feeder to move the material up to the knife, substantially as described.

2. The rotating support and channel-knife, in combination with an engaging and disengaging feeder adapted to engage the material in the channel back of the knife, and to operate substantially as described.
3. The rotating spring-supported table and channel-knife, in combination with two sole engaging and disengaging feeders, arranged one at the front and the other at the rear of the knife, and adapted to operate substantially as described.
4. The fixed channel-knife and vertical edge-gage *m*, in combination with the spring-supported annular table or bed, to hold the sole up to the knife and permit the edge of the sole to bear against the gage, substantially as described.
5. A horizontally-rotating and vertically-movable sole-support and a vertical sole-edge gage, situated outside the path in which the support rises and falls, in combination with a channel-knife and sole engaging and disengaging feeders, adapted to operate substantially as described.
6. A cutting-knife, in combination with a feeding device, adapted to engage and disengage the material, feed it up to the cutter, and shaped at its front edge to bear upon the lip cut from the sole as it passes over the cutter, substantially as described.



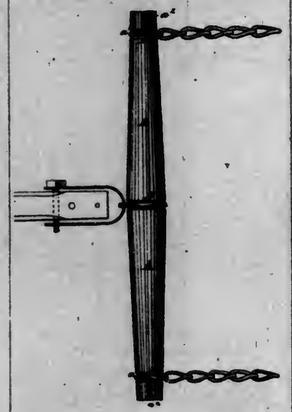
182,813. LEATHER-SKIVING MACHINES. W. G. Fitzgerald, Boston, Mass., assignor to H. C. Wainwright, same place. [Filed Aug. 26, 1876.]



1. The skiving-knife and reciprocating engaging and disengaging feeder, in combination with a support for the material being skived, and with a presser adapted to operate or move over the surface of the knife, in advance of the feeder, (to prevent the material from wrinkling and being irregularly cut,) substantially as described.
2. The combination, with the knife, of the vibrating presser-foot, adapted to operate in advance of the feeder, and above the upper surface of the knife, substantially as and for the purpose described.

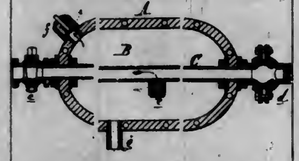
3. The knife-holder *w*, in combination with the adjustable knife *a'* and block *b'*, substantially as described.

182,814. SINGLE-TREES. Louis Flatau, Pittsburg, Tex. [Filed May 22, 1876.]



A single-tree having near each end a circular groove, *c'*, and from thence running to the end a longitudinal groove, *a'*, as and for the purpose specified.

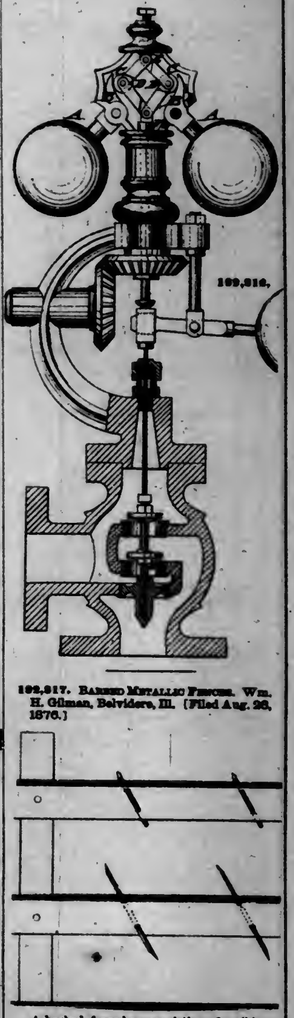
182,815. PONTOONS FOR RAISING SUNKEN VESSELS, &c. Wm. Foster, Detroit, Mich., assignor to himself and Wm. Travis, same place. [Filed Aug. 26, 1876.]



1. A wrecking-ponton, consisting of the rigid frame A, and collapsible sides B B, constructed substantially as described and shown.
2. In a collapsible wrecking-ponton, the combination, with the frame A B B, of the central pipe C, running the entire length of the ponton, and the check-valve *c* in the said pipe, substantially as described and shown.
3. The combination, with the wrecking-ponton A B B, of the central pipe C, running the entire length of the said ponton, check-valve *c*, stop-cock *e*, and universal ball-joint coupling *d*, substantially as described and shown.
4. In a wrecking-ponton, the combination, with the frame A B B, of the pipe C, having stop-cock *e*, ball-joint *d*, and check-valve *c*, the safety-valve *f*, and open vent *g*, all constructed and arranged substantially as described and shown.

182,816. GOVERNORS FOR STEAM-ENGINES. Robert W. Gardner, Quincy, Ill. [Filed July 31, 1876.]

1. In centrifugal governors, the pendulous arms A A, having curved extension-toes B, in combination with the pivoted double-link parallelograms D D, substantially in the manner, and for the purpose set forth.
2. The combination of the pendulous arms A A, having inner toes B, with the steel rollers C, and pivoted double-link parallelograms D D, substantially as specified.
3. The combination of the double-pivoted-link parallelograms, having sliding top steel, with the guide-tube and set-screw of the governor-head, substantially as set forth.



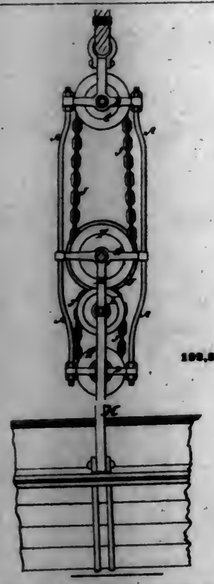
182,817. BARBED METALLIC FENCES. Wm. H. Gilman, Belvidere, Ill. [Filed Aug. 26, 1876.]

A barbed fence-bar, consisting of a ribbon of metal, either flat, flanged, or corrugated, pierced by a series of pairs of holes, and provided with pointed wire barbs fixed in the said holes, substantially as shown and described.

182,818. APPARATUS FOR SETTING UP SHIPS' RIGGING. Thomas F. Hall, Omaha, Nebr. [Filed Aug. 21, 1876.]

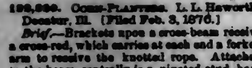
1. The combination of the double chain-pulley F, of different diameters, with the pulleys I, frame G, and endless chain J, substantially as herein shown and described.
2. The combination of the guide-rods A and pulleys C E with the endless chain J and differential pulley F, substantially as herein shown and described.
3. The combination of the differential pulley F, the pulleys I, the frame G H, the guide-rods A, the pulleys C E, and the endless chain J with each other, substantially as herein shown and described.

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182,819.

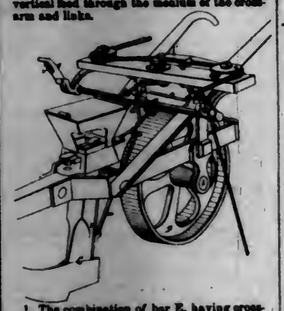
182,819. WIRE-FENCE BARBS. Mortimer S. Haraha, Chicago, Ill. [Filed Sept. 9, 1876.]



The flat sheet-metal barb for wire fences, having an aperture, *a*, and a gap, *c*, opening to the nearest edge, and made with a slot, *b*, to receive a wedge, substantially as specified.

182,820. CORN-PLANTERS. L. L. Haworth, Decatur, Ill. [Filed Feb. 3, 1876.]

Brief.—Brackets upon a cross-beam receive a cross-rod, which carries at each end a forked arm to receive the knotted rope. Attached to the beam centrally is a pivoted stud having upon its upper end vibrating forked arms for the knotted rope to engage with, to impart an oscillatory movement to the seed-slide and vertical feed through the medium of the cross-arm and links.

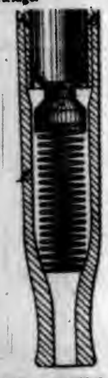


1. The combination of bar E, having cross-arm G and forked arms F F', with sliding cut-off feed P, alternate acting vertical feed *r*, and links 6 and 20, and so arranged and operating substantially as described.

2. The bar E, bearing the oscillating arms F F' and cross-arm G, in combination with a stud, N, having vibrating arms *f*, *f'*, and *d*, and the link 5, substantially as and for the purpose set forth.

182,821. CIGAR-PIPES. Issachar A. Heald, San Francisco, Cal. [Filed Jan. 3, 1876.]

Brief.—The piston is close fitting, and receives the cartridge and spiral spring. Fingers project at the end of the tube, for retaining the cartridge.

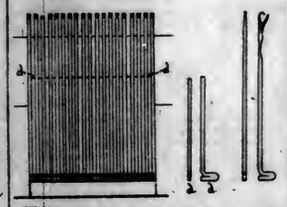


1. The tube A, provided with the longitudinally-projecting points E, for holding the cartridge in position, substantially as shown and described.

2. In combination with the tube A, the funnel-shaped piston C, and spring D, constructed and arranged to operate as set forth.

182,822. NEEDLE-BARS AND CYLINDERS OF KNITTING-MACHINES. Jos. Heginbothom, Philadelphia, Pa. [Filed May 20, 1876.]

Brief.—The grooves in the needle-bar or cylinder are dispensed with, and the bar or cylinder is made with a plain surface. Short blanks or bits, made with butts the same as the needles, are placed between the needles to give the requisite space. By changing or shifting these blanks the gage or pitch of the machine may be changed.



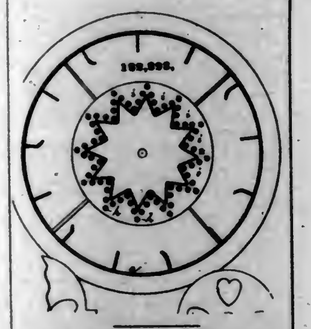
1. In combination with the needle-bar, cylinder, or dial of a knitting-machine, provided with knitting-needles, the independent and movable bits *d d* arranged between the said needles, as and for the purpose set forth.

2. In combination with a knitting-machine needle-bar, cylinder, or dial, provided with steps or projecting pieces and knitting-needles, the independent and movable bits *d d*, arranged between the said needles, as and for the purpose set forth.

182,823. APPARATUS FOR COOLING ANIMAL-CHARCOAL. Charles H. Hersey, Boston, Mass. [Filed June 3, 1876.]

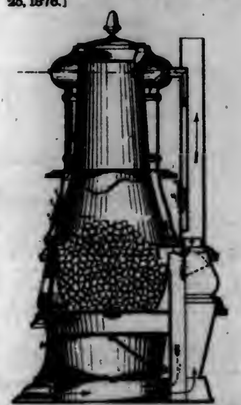
Brief.—The bone-charcoal to be cooled is fed into the upper end of an inclined rotating cylinder, provided with interior radial shelves, by which it is carried up and discharged into the troughs of the central rotating cooling-cylinder. The cooling-cylinder is composed of pipes, arranged to form troughs, through which circulates the cooling-liquid.

The inclined rotating cooling-cylinder, composed of pipes A, to receive cooling-liquid, and arranged to form chambers *i* for the reception of char, in combination with the drum *a*, provided with shelves, to lift the char and discharge it upon the cooling-cylinder to cool it, substantially as described.



182,824.

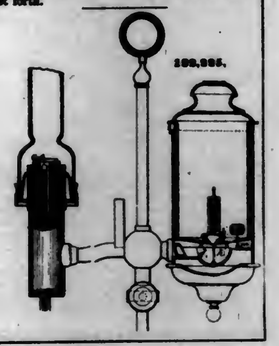
182,824. HEATING-STOVES. Geo. W. Herrick, Detroit, Mich., assignor to Detroit Stove Works, same place. [Filed Aug. 25, 1876.]



1. In combination, and communicating with the interior of the magazine-casing of a stove, substantially as described, a hot-blast flue inclosed in the smoke-pipe thereof, substantially as and for the purpose set forth.

2. In a heating-stove, substantially as described, the combination of the following elements, to wit: a fire-pot, a grate, an ash-pit, a base-chamber, containing flues, incased ascending and descending flues, a smoke-pipe, communicating with said flues, an incased magazine surmounting the fire-pot, and a hot-blast flue inclosed in the smoke-pipe, and communicating with the interior of said magazine-casing, substantially as and for the purposes set forth.

182,825.

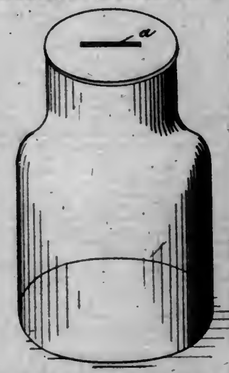


182,825. LAMPS. Charles F. A. Hinrichs, Brooklyn, N. Y. [Filed Jan. 4, 1876.]

1. The float D and indicating-stem *m*, provided with a head outside the reservoir, acting as a valve, in combination with the removable inverted lamp-reservoir, for the purposes set forth.

2. The lamp-fountain made with the cavity *d* below the valve *h'* of the reservoir, into which cavity the tube from the burner extends, in combination with the removable reservoir and spring-valve, substantially as set forth.

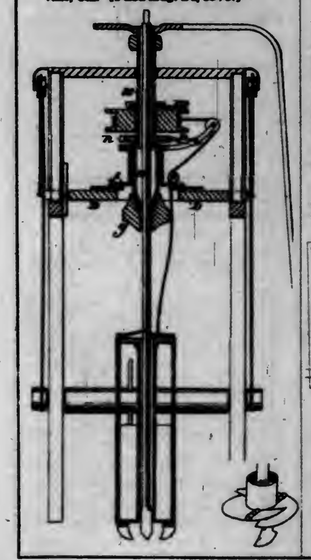
182,826. TOY MONEY-BOXES. J. W. Hoard, Providence, R. I. [Filed Mar. 6, 1876.]



1. A transparent or translucent glass money-box or savings-bank, made integral, and having a slit or slot, *a*, therein, as described and shown.

2. A transparent or translucent glass money-box, made integral, and having a depressed portion, *b*, and a slot for the admission of money made in such depressed portion.

182,827. MACHINES FOR OPERATING HARVESTERS. Ellery M. Hoagland, Watsonville, Cal. [Filed Aug. 24, 1876.]



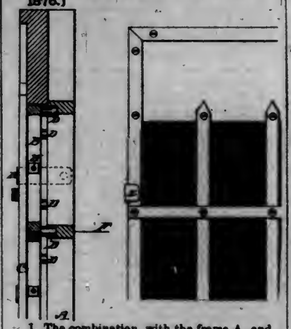
1. The sliding platform D, with its short tube E, which is supported by the flange *f*, said tube having the conical threaded lower end split, as described, in combination with the nut *g*, for griping the drill-rod, substantially as above described.

2. The lower tube E, with its conical split threaded lower end and nut *g*, secured to the sliding platform D, in combination with the upper tube H or driving-shaft, when the two are arranged to be automatically connected and disconnected by means of the ratchet-wheel *n*, arm *o*, with its pawl *p*, and projection *s*, substantially as and for the purpose described.

3. The combination of an upper driving shaft or tube, H, with toothed wheel *l* and loose pulley *k*, with its pawl *m*, and having a ratchet-wheel, *n*, at its lower end, with a lower tube, E, having an automatically-operated pawl, by which the motion of the lower shaft can be arrested, while the upper shaft continues its rotation, substantially as and for the purpose described.

4. The combination of a lower tube, E, for holding the drill-rod, with an upper driving tube or shaft, H, for raising the auger, when the two are arranged to be automatically connected and disconnected without stopping the motion of the main driving tube or shaft, substantially as and for the purpose above described.

182,828. MIDDLINGS-SEPARATORS. Andw. Hunter, Philadelphia, Pa. [Filed July 24, 1876.]

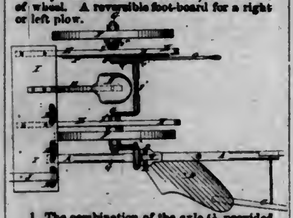


1. The combination, with the frame A, and screen or screens B, of the rubber or other elastic bearings D D, supporting said screens, and clamps E for holding said screens down upon the elastic bearings, substantially as and for the purpose set forth.

2. The combination, with screen A, of the curtains F, suspended from the screen-frame transversely thereto, substantially as and for the purpose set forth.

182,829. WHEEL-PLOWS. R. T. Hunter, Maherville, Ill. [Filed July 28, 1876.]

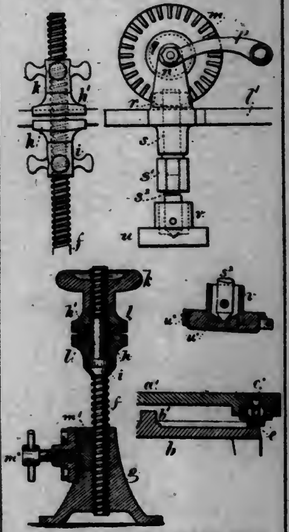
Brief.—Axle with two cranks, one outside of wheel. A reversible foot-board for a right or left plow.



1. The combination of the axle G, provided with the cranks g^1 g^2, the lever O, the hook-rod o^1, the notched bar P, and the coupling Q R with the bars H, the wheels F, and an ordinary plow, substantially as herein shown and described.

2. The combination of the reversible board I, provided with the slotted corrugated plates K, and the tongue J, provided with the corrugated plates L L', with the bars H, attached to the axle G g^1 g^2, substantially as herein shown and described.

182,830. POLISHING-MACHINES. Job Johnson, Brooklyn, N. Y. [Filed June 9, 1876.]



1. The vertical screw-standard *f*, nuts or collars *i k*, and jaws *h h'*, in combination with the slotted arm *l*, shaft *n*, bevel-gears *m* and *r*, and spindle *s*, substantially as set forth.

2. The base *b*, with the central stud *b'* and longitudinal ribs *c*, adapted to receive either the circular bed *a* or the rectangular bed *a'*, and rollers *a'*, substantially as set forth.

3. The surfacing-tool *v*, with a socket, *v*, in combination with the pointed stud *c'*, fitting loosely in the socket *v*, and the cross-pin passing through a mortise in the stock, substantially as set forth.

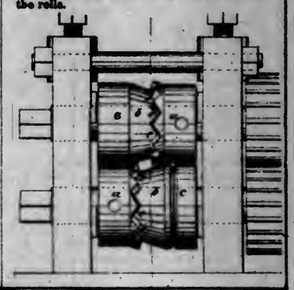
4. The slotted arm *b* and clamping-jaws through which such arm can be slid, and upon which it can be swung, in combination with the surfacing or boring tool and bevel-gearing for revolving the same, as set forth.

5. The surfacing-tool *v*, socket *v*, and pointed stock v^2 and cross-pin, in combination with the ring v^3, for retaining the surfacing material, as set forth.

6. The clamping device, consisting of the segment of a screw, m^1, combined with the foot *g*, standard *f*, and screw-pin m^2, substantially as set forth.

182,831. MACHINES FOR ROLLING NUT-BLANK BARS. Henry Johnson, Haverstraw, N. Y. [Filed Aug. 21, 1876.]

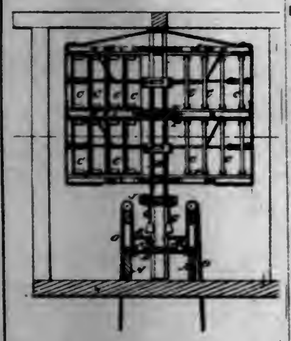
Brief.—In operating the bar used is of a width equal to the breadth of the space between the salient points of the two sections, but as much thicker than the space as may be necessary to furnish material for filling the re-entering angles as passing it through the rolls.



The combination, in a rolling-mill with one or more rolls or other devices, of a roll formed of sections *a b c*, the first having an irregularly-formed side and the second a conical shape, as and for the purpose specified.

182,822. WIND-WHEELS. John J. Kimball, Naperville, Ill. [Filed Mar. 25, 1876.]

Brief.—Each bar has a weighted cord attached to the inner end, and passing over pulleys down along the shaft and around the regulating spools to a point above the table fixed on the shaft directly under the weight, and so as to slide up and down. Under this table another table is fixed having conical rollers, and made to rise and fall, but not to revolve with the shaft, being fitted in the upright guides, and having cords attached for raising and lowering it to start and stop the wheel by lifting the weight off the stop-bar and letting them on.

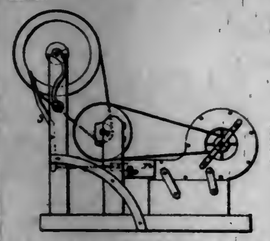


1. The jointed and pivoted stop-bars D and weighted cords G, combined with the fans C, pivoted between the wheel-arms, substantially as specified.

2. The revolving table K, vertically-sliding table L, and cords O, combined with the weighted cords G, and fans C, substantially as specified.

182,823. BLOWERS. A. J. Klingensmith, Latrobe, Pa. [Filed May 24, 1876.]

Brief.—The air-chest is provided with spring-valves and levers to prevent the accumulation of explosive gases in pipes and blower.



As a safety attachment to a blower, the combination of the air-chest *a*, one or more pipes, *c*, spring-valves 1, and levers 3, whereby explosive gases are prevented from accumulating in the pipes and blower, substantially as shown.

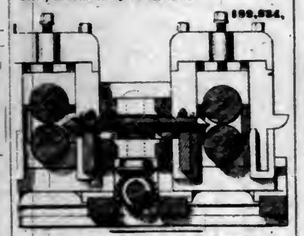
182,824. MACHINES FOR ROLLING BAND AND HOOP IRON. Bernard Leath, Howard, Pa. [Filed Aug. 17, 1876.]

1. A series of two or more horizontal, and two or more vertical, plain-faced rolls, arranged in a common line of feed, in combination with a guide or guides which, between the vertical rolls, along the line of their bite, shall inclose the plate, bar, billet, or hoop on its flat sides, substantially as set forth.

2. In combination with a pair of vertical or edging rolls of a rolling-mill, a guide passing between said rolls, which, open at its edges or sides, shall inclose the top and bottom flat sides of the bar, billet, plate, or hoop, substantially as and for the purposes set forth.

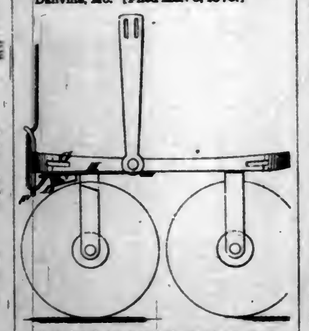
3. In combination with the vertical edging-rolls D D, a guide, G, having open sides along the length of bite of the rolls, a close top and bottom through the same length, and bell-mouthed or sloping sides adjacent to the rolls, as at *a a*, substantially as and for the purposes set forth.

4. The combination of adjustable plain-faced horizontal and vertical or edging rolls, and removable guides passing between vertical rolls, whereby, through readjustment of the rolls, and interchanging of the guides, metallic straps, hoops, and plates of different sizes can be produced without changing the rolls, substantially as set forth.



182,824.

182,825. PARLOR-SKATES. W. Lockwood, Danville, Mo. [Filed Mar. 6, 1876.]



A parlor-skate provided with brake D, attached to the end of a spring, H, lying along the bottom of foot-piece, said spring being also provided with a cord that passes through guides F, and up within reach of the skater, as shown and described, for the purpose specified.

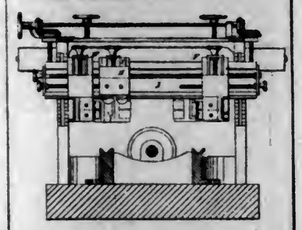
182,826. STOP-WATCHES. H. A. Lagrin, New York, N. Y. [Filed Aug. 7, 1876.]



1. The combination, with a beveled and toothed wheel attached to the watch-movement, of a timing attachment having a similarly beveled and toothed, but inverted, center wheel, that is thrown in or out of gear with the watch-movement by suitable lever and spring devices, substantially in the manner and for the purpose set forth.

2. The combination of bevel-wheel C', inverted beveled wheel C, lever D, lifting-spring D^1, and lowering-spring D^2, to establish or interrupt connection of watch-movement and timing attachment, substantially as specified.

182,827. STONE-DRESSING MACHINES. W. J. Macomber, Chicago, Ill., assignor to himself and Edward Backus, same place. [Filed Aug. 17, 1876.]



1. The combination of two sets of tools and tool holders, F H, arranged so as to operate alternately from the opposite ends of the stone toward the center, substantially as and for the purposes specified.

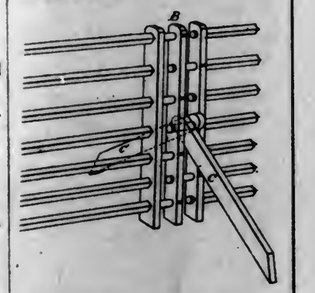
2. In a stone-dressing machine, a hinged tool-holder, arranged to carry two or more sets of tools, one set in advance of the other, and each set operating upon a different plane, substantially as specified.

3. In a stone-dressing machine, the screw L, case M, and nuts N, in combination with suitable tool-holders, each case and nut constructed so that it can be operated independently of the other, substantially as and for the purposes set forth.

4. The spring *i*, in combination with a hinged tool-holder, substantially as and for the purpose specified.

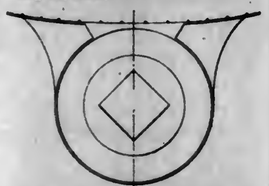
5. In a stone-dressing machine, the two adjustable frames J J', adapted to receive two sets of tools and holders, substantially as described.

182,828. PORTABLE FENCES. Josiah Martin and Jos. W. Briggs, Palestine, Tex. [Filed July 12, 1876.]



The combination, with the alternately-projecting ends of the rails of adjacent panels, of the perforated post B and braces C, substantially as herein specified and described.

182,829. COMBINED STEP AND HUB-BAND. R. McDonald, Georgetown, Colo. [Filed Aug. 28, 1876.]



A step, hub-band, nut, and dust-box combined in a single casting or piece of metal, or made in several parts, permanently fixed together, substantially as shown and described.

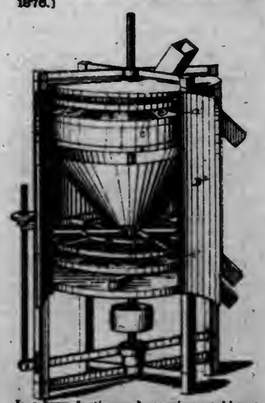
THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

182,840. FRUIT-PICKERS. J. C. McEwen, Leesburg, Fla. [Filed May 22, 1876.]



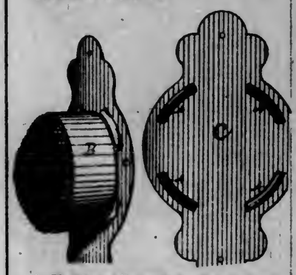
In a fruit-picker, the combination of wires C, fastened at lower end to a disk, B, and free at the other to admit the twigs between them, with the shears D E, arranged, as shown and described, so that the fruit is allowed to rest in the picker before the stem is excised.

182,841. BRAN-SCOURING MACHINES. S. C. McMaster, Sewickly, Pa. [Filed July 12, 1876.]



In a bran dusting and scouring machine, a horizontal scouring and sifting bed, composed of alternate segments of wire-cloth and emery, or its described equivalent, extending radially from the spindle outward, in combination with a horizontal brush working thereon, substantially as set forth.

182,842. PIN-RACKS. Chambers Miller, Kilbuck Township, Allegheny County, Pa. [Filed Feb. 26, 1876.]



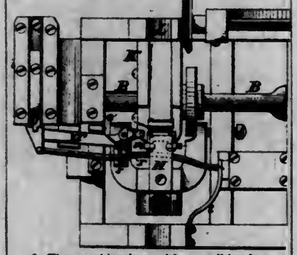
1. The pin-case B, provided with bottom projections *c*, substantially as described, and for the purpose set forth.

2. The rack C, having lips A for receiving the bottom projections on the case B, substantially as described, and for the purpose set forth.

3. The pin-case B, having bottom projections *c*, in combination with the rack C, having lips A, substantially as and for the purpose set forth.

182,843. MACHINES FOR FORGING HORSE-SHOE-NAILS. James Mills, Keeseville, N. Y. [Filed July 7, 1876.]

Brief.—The anvil, with which the revolving roller, hammer, and the edging-hammer co-operate, is located on a frame that is automatically though intermittingly oscillated, to bring the cutters, which are attached to the same frame, in position to operate, and the nose-piece, as it is called, which guides the nail-rod, is depressed after the blank has been forged, and the anvil swung aside, to bring the forged portion of the rod in the path of the cutters, which then move and cut off the blank at both ends simultaneously.



1. The combination, with a striking-hammer and stationary hammer or die, of a revolving rolling-hammer and an anvil, vibrating in a plane transverse to the line of action of said rolling-hammer, substantially as and for the purpose described.

2. The combination, with a striking-hammer, a stationary hammer or die, and a revolving rolling-hammer, of an intermittently-oscillating anvil and cutter-carrier, constructed so that the cutters and anvil are alternately brought into operative position, substantially as and for the purpose described.

3. In a horseshoe-nail machine, the combination, with the feed-lever T, carrying nose-piece *s*, of the stationary and striking hammers or dies, and the combined anvil and cutter-carrier, intermittingly vibrating at right angles to the plane of action of the revolving hammer, substantially as described.

4. The combination of cam-wheel D, slide N, and griper-jaws U V, substantially as and for the purpose described.

5. The anvil-carrier S, having anvil Z, stationary cutters *a' a''*, cutter-holder X, lever Y, spring *c'*, and stop *h'*, substantially as and for the purpose described.

6. The anvil-carrier S, having cam *c'* and lever Y, in combination with shaft B, having cams *a* and *b*, substantially as and for the purpose described.

7. The combination, with the striking-hammer H, feed-lever T, and shaft B, provided with cam *c*, and carrying the oscillating anvil and cutters, of the revolving rolling hammer, substantially as and for the purpose described.

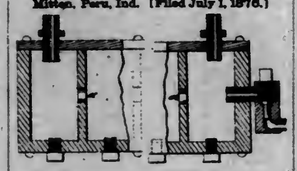
8. The combination, with the intermittingly-oscillating anvil-carrier S, of the stationary cutters *a' a''*, and movable cutters *F F'*, arranged so that the nail is cut simultaneously at head and point, substantially as and for the purpose described.

9. The combination of gripers U V, nail-blank releaser W, and shaft B, having cam *d*, substantially as and for the purpose described.

10. The combination of nose-piece lever T with standard *u'* and lever *v'*, substantially as and for the purpose described.

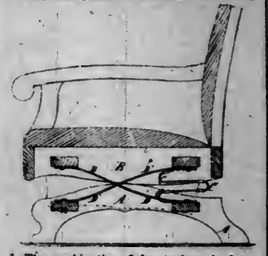
11. The combination of shaft B, having cams *a b c d*, of anvil-carrier S, nose-piece lever T, and griper U, substantially as and for the purpose described.

182,844. FEED-WATER HEATERS. John B. Mitten, Peru, Ind. [Filed July 1, 1876.]



A feed-water purifier subdivided into a series of chambers, B, and these connected by apertures *a* located above their bottoms, the water inlet and outlet being arranged diagonally opposite, while the bottom of each chamber is provided with a detachable plug, as shown and described.

182,845. ROCKING-CHAIRS. Fredk. Mohr, New York, N. Y., assignor to Jas. T. Allen & Co., same place. [Filed Sept. 19, 1876.]

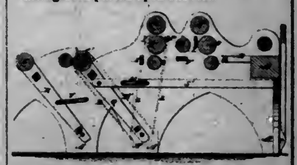


1. The combination of the stool or platform A, the rocking-chair B, and spring C, said spring being constructed of the form substantially as described, and arranged as shown.

2. The stool or platform A, rocking-chair B, serpentine spring C, and curved springs D D', combined and arranged to operate substantially as set forth.

182,846. WOOD-PLANING MACHINES. A. M. Mortimer, Salt Lake City, Utah. [Filed Aug. 14, 1876.]

Brief.—The machine is provided with a series of rollers, by means of which the board is returned to the front of the machine after having been planed upon one side.



1. The combination of the rollers K L, the pivoted frames Q *k*, the connecting-bars S T, and the levers W X, with the frame A, of a planer for raising the boards from the forward feed-rollers to the return feed-rollers of said planer, substantially as herein shown and described.

2. The combination of the feed-rollers M N with the ordinary feed-rollers H G and D C, for returning the board above the cutter-head F, substantially as herein shown and described.

3. The combination of the small roller P, with the feed-rollers H M and D N, for raising the returning board out of the sweep of the cutters, substantially as herein shown and described.

4. The combination of the receiving-roller O with the frame A and the feed-table B, of the planer to receive the board as it is returned, substantially as herein shown and described.

182,847. SAFETY-POCKETS. George Palmer, Littlestown, Pa. [Filed Apr. 22, 1876.]

1. In a pocket-protector, an adjustable rotating shaft, carrying cutting-blades, constructed and arranged substantially as and for the purpose set forth.

2. The combination of the rotating shaft carrying cutting-blades, the catch F^1, and frame C' of the pouch A, substantially as and for the purpose set forth.

3. In a pocket-protector, the combination of the cutting-blades and the guard G.

4. The combination of the loop I, chain J, and pouch sides A and B.

5. The combination of the chain J, loop I, and additional protector H, substantially as and for the purpose set forth.

6. In the additional protector, the rods carrying the cutting-blades operated by the connecting-wires, substantially as and for the purpose set forth.

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No. 182,847.

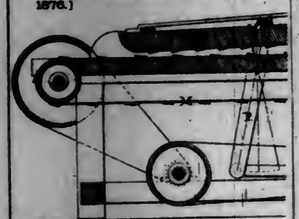


182,848. RAILROAD-RAIL JOINTS. George Palmer, Littlestown, Pa. [Filed Apr. 10, 1876.]



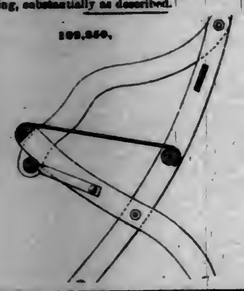
The combination of the cross-plate C¹, with its projection C², (filling the space between the return flanges of the fish-plate,) and the fish-plates B B and rails A A, in the manner and for the purpose herein set forth.

182,849. MACHINES FOR CLEANING AND SEPARATING BRISTLES. William F. Parks, Baltimore County, Md., assignor to Wm. Wilkins, same place. [Filed June 29, 1876.]

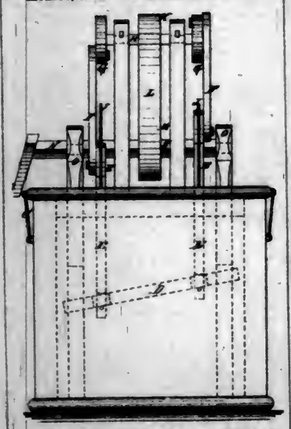


The combination of an endless band provided with transverse ridges, with a slide at an angle thereto, similarly provided with ridges, the movement of the band being continuous, while that of the slide is reciprocating, substantially as described.

182,850.

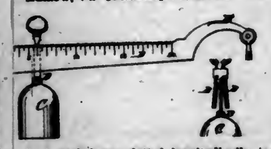


182,851. CHURNS. James M. Roberts, East Monroe, Ohio. [Filed June 6, 1876.]



The oscillating dasher D, the shafts E, the connecting-bars F, crank-wheels G, the shaft H, the pulleys and belt K M L, the shaft N, and the crank P, as arranged with each other and with the churn-body A, substantially as herein shown and described.

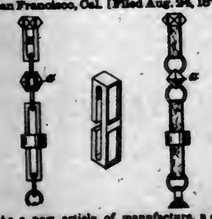
182,852. SCALE-BEAMS. Edward A. Rock, Ludlow, Vt. [Filed Sept. 9, 1876.]



1. A scale-beam slotted longitudinally to receive the stem D of the weight C, substantially as herein shown and described.

2. The T-indicator, in combination with the stem D of the weight C, and with the slotted beam B, substantially as herein shown and described.

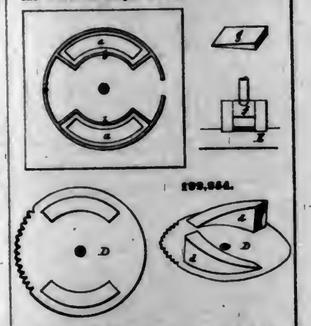
182,853. WATCH-CHAINS. J. J. Rohrbach, San Francisco, Cal. [Filed Aug. 24, 1876.]



As a new article of manufacture, a chain consisting of the open bar-links, A having the sides fitted to receive an ornamental setting, and so united by the links E G as to present either the metal-edge view or the ornamental-face view, substantially as herein described.

182,854. TURBINE WATER-WHEELS. T. Ross, Cortland Village, and O. Jennings, Danby, N. Y. [Filed June 28, 1876.]

Brief.—This wheel is mounted so as to revolve horizontally upon the vertical shaft with a deck and gate above the wheel. The gate is a circular plate resting upon the flanges of the deck-plate, and provided with chutes permanently attached, to correspond with and match the openings in the deck-plate. Whenever the wheel settles a space is left between the upper rim of the wheel and the deck, thus causing leakage and waste of water, and to obviate this a wedge is driven under the step in the opening, which raises the wheel and keeps it in place.

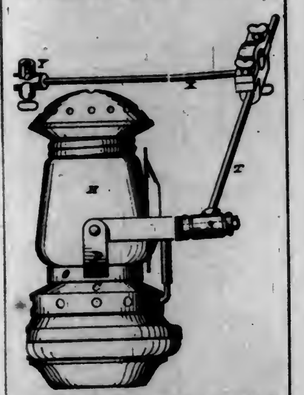


1. In combination with a water-wheel, the deck-plate B, with ports *a a* and flanges *b b*, and the circular gate D, with chutes *d d*, made substantially as and for the purposes above described.

2. In combination with a water-wheel, the step-block E, step *f*, and wedge *g*, all combined and arranged substantially as and for the purposes above described.

182,855. DEVICES FOR ATTACHING LAMPS TO BAND INSTRUMENTS. H. Buhlmann, Lockport, N. Y. [Filed July 10, 1876.]

Brief.—A bracket slides over a portion of the band instrument, and supports on one arm a lamp and on the other a book-rack.



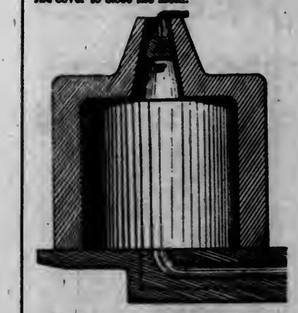
1. The combination, with a suitable lamp, suspended, substantially as described, of the clamping-socket U, rod T, socket S, and the bail Q, substantially as described, for the purpose stated.

2. The combination, with the bail Q, socket S, rod T, and clamp U, for supporting the lamp of the rod X, and socket Y, for supporting the music-sheet or book-rack of a musician, substantially in the manner and for the use and purpose stated.

3. The combination, with the bail Q, of the brackets P and the collar O, said collar being interposed between the globe H and contracted ring C, for adjustably supporting the lamp, substantially in the manner described.

182,856. INGOT-MOLDS. Charles M. Ryder, Cleveland, Ohio. [Filed Aug. 7, 1876.]

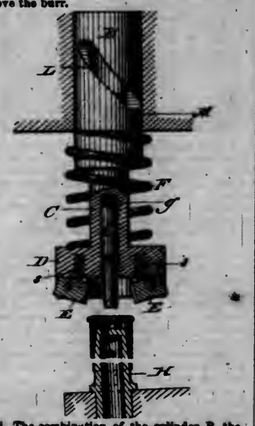
Brief.—As the molten metal rises in the mold the hot air and gases pass out between cover and mold until the molten metal lifts the cover to close the mold.



In combination with the neck of a mold smallest at its mouth and gradually enlarging downwardly, a cover in the shape of a truncated cone or pyramid, its smallest end upward suspended within said neck and capable of movement in a vertical direction, substantially as described.

182,857. MACHINES FOR BURNING CARTRIDGE-SHELLS. George P. Salisbury and C. S. Wells, New Haven, Conn., assignors to the Winchester Repeating Arms Company, same place. [Filed Aug. 3, 1876.]

Brief.—As the head-block descends upon the shell, brought directly under it, the plunger G comes in contact with the head of the shell and is arrested, while the cylinder C rides down over it, causing the jaws to clamp the flange of the shell. When, in the descent of the cylinder C, the block D comes solidly against the shell, it is in turn arrested and caused to recede into the hollow cylinder B, and is rotated through the pin on the former and the spiral groove on the latter, operating to carry the shell around with it, and to remove the burr.

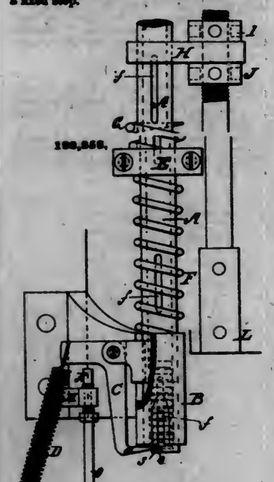


1. The combination of the cylinder B, the block D, provided with the clamping-jaws E, and spring F, and the spring-plunger G, all arranged to operate substantially as described.

2. The hollow pin H, with one or more holes in its upper end, arranged on a dial or foot-plate to hold the shells while being burred, as set forth.

182,858. FEEDING DEVICES FOR MACHINES FOR MAKING CARTRIDGE-SHELLS. George P. Salisbury, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. [Filed Aug. 7, 1876.]

Brief.—The tube or blank holding receptacle is forced downward by a reciprocating cross-bar acting on a spiral spring that rests on a collar fastened to the tube, and upward by another but weaker spring below the collar. A detent attached to and moving with the tube closes the bottom of the tube and supports the column of blanks until in its descent a lateral arm of the detent encounters a fixed stop.



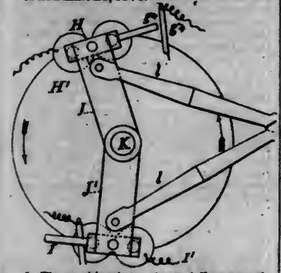
No. 182,856.

1. The vertically-reciprocating tube A, having the spring arm or detent C attached thereto, in combination with the stationary stop N, all arranged to operate substantially as described.

2. In combination with the sliding tube A and spring-arm C, the adjustable stop N, for adjusting or regulating the action of the arm C, as set forth.

3. The sliding tube A, provided with the springs F G, of different degrees of strength, arranged to operate substantially as shown and described.

182,859. ELECTRO-MAGNETIC GOVERNORS FOR MARINE ENGINES. James Sangster and William S. Grosvenor, Buffalo, N. Y. [Filed Mar. 22, 1876.]



1. The combination, substantially as specified, with the steam-supply governing-valve, of the revolving armature, an electro-magnet controlled by a governor, which responds to variations in the speed of the engine, and an electro-magnet controlled by a governor, which responds solely to variations in the immersion of the propeller.

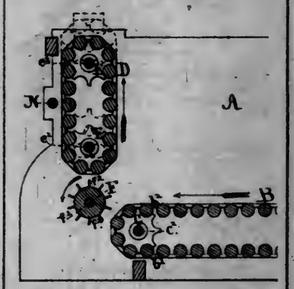
2. The combination, substantially as specified, of the continuously-rotating armature, the electro-magnet normally at rest, but adapted to move with the armature when charged, and the circuit-breaker limiting the conjoined motion of the magnet and armature.

3. The combination, substantially as specified, of the continuously-rotating armature, two electro-magnets placed on opposite sides of the axis of the armature and linked together, as described, and, while normally at rest, adapted to move with the armature alternately when charged, and two circuit-breakers respectively arranged on opposite sides of the magnets.

4. One or more capsules, P, or their equivalents, arranged at or near the stern of a vessel, having an opening for admitting water thereto, in combination with the steam-tube P¹, rod Q, and the necessary connections for operating the steam-supply valve of a marine engine, substantially as and for the purposes described.

182,860. SEED-COTTON GIN FEEDERS. C. F. Scattergood, Albany, N. Y. [Filed Jan. 11, 1876.]

Brief.—The cotton is fed to the revolving picker-cylinder by an endless belt of cylinders forming the floor of the case. Over the picker and endless belt of like character, traversing the end of the case vertically, lifts the excess of cotton to prevent choking. This belt may be raised and lowered at will, with its sliding end supports, to regulate the quantity of cotton fed to the picker.



1. The endless apron D, in combination with the feeding-roller F and box A, as and for the purpose specified.

2. The combination, with the endless apron B and feeding-roller F, of the endless apron D and box A, as and for the purpose specified.

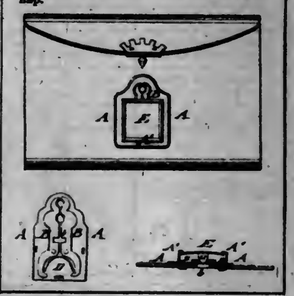
3. The combination of the endless aprons B and D and feeding-roller F, with the discharge-opening of the feeding-box A, as and for the purpose specified.

4. The combination of the endless aprons B and D and the feeding-roller F with the gear-wheels G, H, I, J, and L, as and for the purpose specified.

5. The combination of the endless apron D with the slides Q, as and for the purpose specified.

182,861. POCKET-BOOK LOCKS. Ernst Schnepp, East New York, N. Y. [Filed Aug. 26, 1876.]

Brief.—Depressing the face-plate B, which is provided upon its under side with a conical stud, causes the pivoted spring-jaws to open or recede in opposite directions, thus releasing their hold upon the barb of the closing-flap.

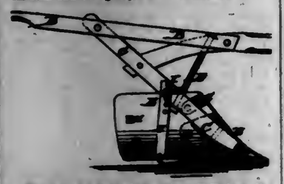


1. The combination of the fairmould and spring-acted jaw-levers B, having recesses b, with a guided and swinging top or face plate, B, provided with a cutting or tapering stud, a, that opens the jaws on being depressed, substantially in the manner and for the purposes specified.

2. The combination of the swinging top or face plate B, having front stud a and rear bearing or bridge d, with the base-plate A, and rimmed locking-frame A', substantially as and for the purpose specified.

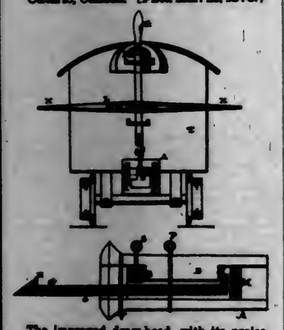
169,862. PLOWS. Adam Schantz, Carrollton, Mo. [Filed June 26, 1876.]

Brief.—To a common shovel-plow is affixed two rigid mold-boards, supported at the rear ends by a stiff brace, the front end resting upon and secured to a metal bar, the ends of which are attached to the standard. A sole extends backward from the point of the share, its rear end being adjustable vertically.



The combination of the wings E F, bow G, cross-piece H, and bar I, arranged in a plow-frame, substantially as and for the purpose specified.

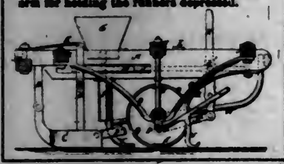
169,863. CAR-COUPLINGS. H. Sells, Vienna, Ontario, Canada. [Filed Mar. 21, 1876.]



The improved draw-head, with its projection B, partition E, self-acting rising and lowering cross-bar D, as connected with levers G and H, and their regulating-slots K and L, when combined, constructed, and operating as herein described, and for the purpose set forth.

169,864. CORN-PLANTERS. H. J. Snyder, Adams, (Davenport P. O.,) Ohio. [Filed June 26, 1876.]

Brief.—The dropping-slides are vibrated by connecting-rods attached to pivoted levers on each side of the frame, that receive motion from the bearing-wheels. To the side of the frame is attached a rod for bracing the marking-rod. The runners are pivoted at the front to depending arms, and about midway of their length are attached uprights that extend up over the side bars, and are secured by a bolt. Bearing upon the upright is a spring-arm for holding the runners depressed.



1. The combination of runners C, pivoted to cross B, the uprights D, connected above the side bars of frame by a bolt, and the springs E, resting on said bolts, as and for the purpose specified.

2. The combination of the dropping-slide H, the notched connecting-rod J, the pivoted lever K, the connecting-rod N, and the crank-pin *o'* with the side bar of the frame A, the seed-hopper G, and the wheel O, substantially as herein shown and described.

3. The combination of the pivoted marking-bar V and the curved brace-bar W with the side bars of the frame A, substantially as herein shown and described.

169,865. STREET-LAMPS. S. W. Squires, Normal, Ill., assignor of one-half his right to Brainerd Smith, same place. [Filed Sept. 4, 1876.]

Brief.—The lamp is vertically adjustable, and a spring is placed in the upper section to relieve the sheet in case the fastenings should give way.



1. A lamp-post composed of two sections, A and B, whereby the upper section can be raised and lowered on the lower section, substantially as and for the purpose specified.

2. The combination, with section A, having slot *a*, of section B, having spring-catch C, substantially as and for the purpose described.

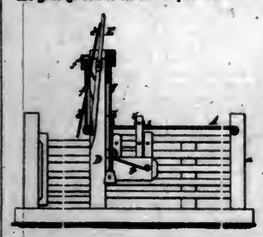
3. The combination, with section A, of adjustable section B, having set-screw D, whereby section B can be turned around on section A, and secured in any desired position thereon, substantially as and for the purpose specified.

4. The combination, with the sections A and B, of the spring E, substantially as and for the purpose specified.

5. The combination, with the lantern and lamp, of the drip-cup and wires *b b*, whereby the lantern and lamp are removably secured to the lamp-post, substantially as specified.

169,866. AUTOMATIC GATES. B. C. Stephens, Albia, Iowa. [Filed Aug. 3, 1876.]

Brief.—The gate is suspended upon a rod pivoted at its rear end to a post, and, when said rod is elevated by levers B and connecting-cords, the gate glides off upon it. By means of weights and cords the rod is brought back to its horizontal position, and the gate glided to its closed position.

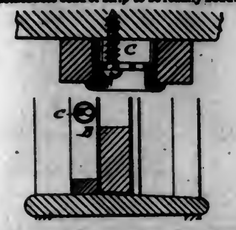


1. In combination with the sliding gate B, the pivoted rod A and guide-rod C, provided with a shoulder, *c*, the operating mechanism, substantially as and for the purpose set forth.

2. The combination, with the gate B, rods A C, levers B B, cords *f f*, and pulleys *f' h h'*, of the weighted cord *g i*, substantially as specified.

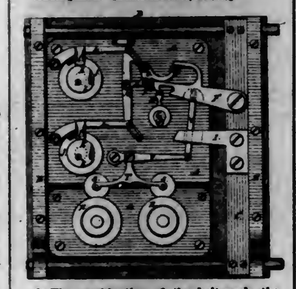
169,867. WINDOW-HEAD FASTENERS. H. W. Stetson, Black Brook, N. Y. [Filed Aug. 28, 1876.]

Brief.—A metallic plate, with key-hole slot, combined with a fixed screw, permitting the detachable head or strip to be readily handled.



The combination of the metallic plate B, having a key-hole slot, the detachable strip or bead A, and the fixed screw C on the window-casing, as and for the purpose set forth.

169,868. CORDAGE TIER AND COMBINATION LOCKS. H. Stockwell, Stamford, Conn., assignor to Yale Manufacturing Company, same place. [Filed Mar. 8, 1876.]



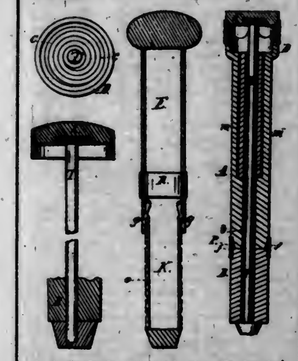
1. The combination of the bolt-work, the spindle for operating the same, one or more time mechanisms, and suitable connecting mechanism operated by the time mechanisms, whereby the spindle and bolt-work may be automatically connected and disconnected, substantially as hereinbefore set forth.

2. The combination, with the bolt-work, of a safe-door, and with its operating spindle passing through said door, of two independent sets of permutation wheels or tumblers, relatively so connected and combined by means of suitable intermediate connecting mechanism as that, by the concurrent locking of both said sets of tumblers the connection between said bolt-work and said spindle may be severed, and that, by the unlocking of either or both of said sets of permutation-tumblers the connection may be restored between said bolt-work and said spindle.

3. In combination with the bolt-work of a safe-door and with its operating spindle passing through said door, one or more sets of permutation wheels or tumblers, and one or more time mechanisms provided with suitable connecting devices, whereby the connection between said bolt-work and said spindle is controlled at will by either or all of said sets of permutation-tumblers, or by either or all of said time mechanisms.

4. In combination with the bolt-work of a safe-door, and with the operating-spindle thereof passing through said door, and a movable connection for connecting the bolt-work and spindle, a support, V, or its equivalent, operated through suitable connecting devices by one or more time mechanisms.

169,869. COMBINED CANE AND STOOL. W. D. Taber, Buffalo, N. Y. [Filed June 12, 1876.]



1. A single-legged stool, when the leg is constructed with chambers to contain the detached seat or parts of it, substantially as described.

2. A single-legged stool, when the leg is made in sections B and K to slide in and upon each other, combined with catch *g*, ferrule E, and holes O, substantially as described.

3. The detachable seat-bottom, made in sections, combined with the chambers of the leg of a single-legged stool, substantially as described.

4. The detachable seat-bottom W, combined with a staff to form a single-legged stool, when such staff is convertible from the leg of the stool into a cane independently of the seat W, substantially as described.

5. The cushion *r s*, combined with the chamber of the leg of a single-legged stool, substantially as described.

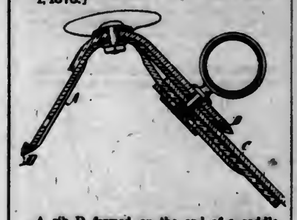
6. The brace T, combined with a single-legged stool, substantially as described.

7. The foot-piece F, combined with a single-legged stool, substantially as described.

8. The jointed pieces *b' b'*, in combination with the detachable seat-bottom and with the chamber of a sectional cane, substantially as described.

9. The sections L L, adapted to form the seat of a single-legged stool, substantially as described.

169,870. HARNESS-SADDLES. Samuel B. Tompkins, Sing Sing, N. Y. [Filed July 1, 1876.]



A rib, D, formed on the end of a saddle tree-plate, made with an upward curve to give room for the backband, substantially as herein shown and described.

169,871. HARNESS-SADDLE TREES. Samuel B. Tompkins, Sing Sing, N. Y. [Filed Mar. 12, 1876.]

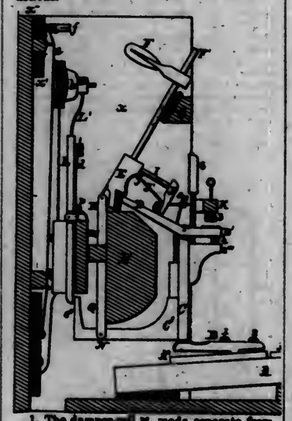
1. A saddle-tree plate, having a bridge for the terret-screw, constructed with jogs or shoulders H only, or the same and a bar, J, connecting them at the upper side of the bridge to support the flap against downward strain, substantially as specified.

2. The combination, with a saddle-tree, having an elevated bridge for the terret, of a flap, made solid the entire breadth of the tree above the bridge, and having support against downward strain by shoulders H only, or H and J, substantially as specified.



169,872. UPRIGHT-PIANO ACTIONS. George Trayser, Richmond, Ind. [Filed Apr. 13, 1876.]

Brief.—The string-frame being pivoted to swing out backward from the front of the case, has the damper action attached thereto, giving access to both damper and hammer actions.



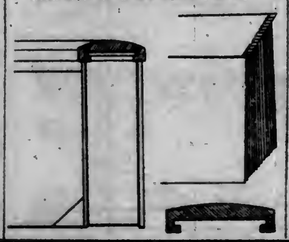
1. The damper-rail M, made separate from the rest of the action and its supports, and combined with the detachable swinging frame *o''*, substantially as specified.

2. In combination, with the key A and damper-lever L, the double rocker-arm O' O'', all constructed and arranged to operate substantially as described.

3. In combination, with the key A, damper-lever L, and hammer F, the post C and double rocker-arm O' O'', substantially as described.

4. In combination, with the key A, damper-lever L, and hammer F, the double rocker-arm O' O', the post C, and jack D D', substantially as described.

169,873. BOOK-BINDING. Wm. H. Wahl, Philadelphia, Pa., and Julius Smith, Haddonfield, N. J. [Filed Apr. 17, 1876.]



1. The detachable cover-back having a groove constructed as described, and provided with stop devices, as and for the purpose set forth.

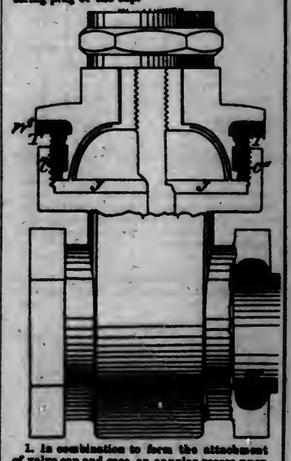
2. The notched or toothed slot, provided with a step or shoulder of the construction, and for the purpose hereinbefore described.

3. The notched or toothed slot, provided with the grooves at the base of the rows of teeth, for the purpose herein set forth.

4. The combination of the detachable cover-back, having a groove or guiding-pieces and stop devices, constructed as described, with a toothed or notched slot and attaching threads or wires, in the manner and for the purpose hereinbefore described.

169,874. STOP-VALVES. John Ward, Lansingburg, assignor to Ludlow Valve Manufacturing Company, Troy, N. Y. [Filed Aug. 2, 1876.]

Brief.—To prevent the threaded connection between the valve-case and cap becoming fixed by rust, a threaded Babbitt metal filling is placed within an annular recess upon the entering-ping of the cap.

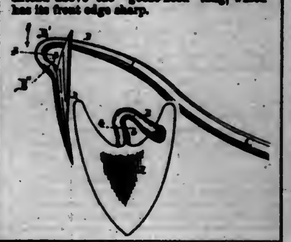


1. In combination to form the attachment of valve cap and case, an annular recess upon the entering-plug, with a threaded Babbitt metal interior filling within the recess, as and for the purposes herein shown and described.

2. In combination, the Babbitt-metal washer-surface upon the flange of the valve-cap, between the cap and case, and the Babbitt-metal jacketed plug of the cap, which forms a threaded connection between the cap and case, substantially as shown, and for the purposes described.

169,875. HOES. Edward Warren, Marshall, Mich., assignor to George Ingersoll, same place. [Filed Apr. 20, 1875.]

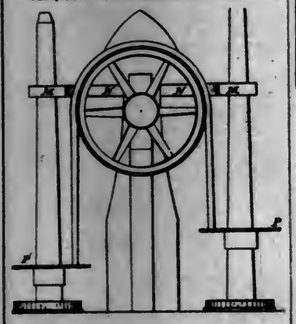
Brief.—The blade of the hoe is sagittate, with concave face. The handle is attached by a shank, curved backward so as to fall behind the blade, then upward and forward, and again slightly downward, thus bringing the body of the handle into line with the center of the face of the hoe-blade, whose wings extend above the "goose-neck" tang, which has its front edge sharp.



1. The combination of doubly-curved handle C, rearwardly-curved goose-neck E, and concave, pointed, or heart-shaped hoe-blade A, substantially as and for the purpose set forth.

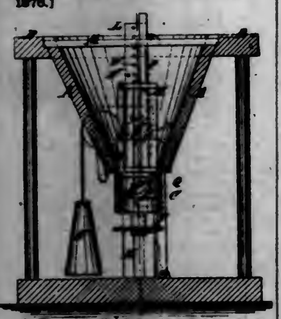
2. The combination of the rearwardly-curved goose-neck with the concave sagittate blade, the wings of which extend above the handle, as and for the purposes specified.

192,876. PUMPS. Ira G. Wheeler, Coddingville, Ohio. [Filed June 17, 1876.]



The combination of the two pumping-cylinders, connecting-chamber, the piston-rods, connected by the strap working over a pulley and operated by the treadles attached to the rods, all constructed substantially as and for the purpose described.

192,877. SAGE FILLER AND PACKER. E. M. Whitney, Batavia, N. Y. [Filed June 6, 1876.]



1. The vertically-sliding bars F and slide H, crank-shaft I, pinion J, and the valve E, combined with the hopper A and spout C, substantially as specified.

2. The valve E, pivoted on the vertically-sliding bar F, and connected, by rod G, with the slide H, sliding on bar F, and geared with the crank-shaft, substantially in the manner described.

3. The spring O and trip-bar P, combined with bars F and slide H, substantially as specified.

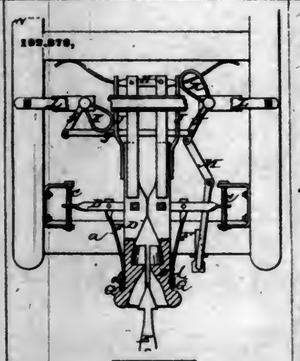
4. The vertically-adjusting platform D, with its weight S, step-lever T, and pins U, combined with the filling and pressing apparatus, substantially as specified.

192,878. CAR-COUPLINGS. J. S. Williams, Chicago, Ill. [Filed July 27, 1876.]

1. The combination, with the jaws D D, of the cross-bar E, springs F F, and elastic band G, substantially as and for the purpose specified.

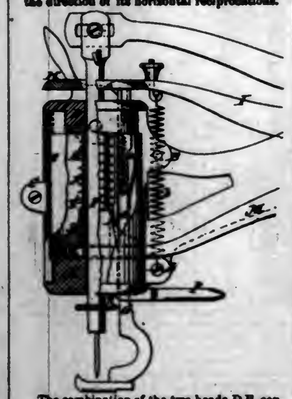
2. The combination with the jaws D D of the bars J J, cams K K, levers *f f*, connecting-rod *g*, jointed lever M, and crank-shaft N, substantially as and for the purpose specified.

192,879.



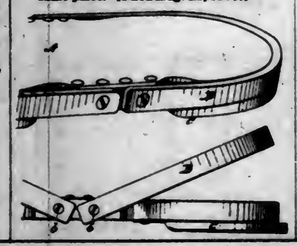
192,879. FEED MECHANISMS FOR SEWING-MACHINES. Willard W. Williams and N. S. Wakefield, Camden, N. Y. [Filed Apr. 18, 1876.]

Brief.—Improvement on patent to James, Joseph, Edward, and William Pitt, No. 117,303, July 18, 1871, consisting in enlarging the ring upon the end of the lever, which operates the cam or incline to move the feed-foot horizontally, and placing the feed-foot within said ring, the result being that the feed-foot is allowed to be moved around in continuous circles in either direction, to change the direction of its horizontal reciprocations.



The combination of the two heads D E, connected by the sleeve E', through which the needle-bar passes, the conical sleeve J, slotted to receive the feed-foot G, the arm M, provided with the ring L, said ring being placed inside of the cylinder A, and the feed-foot operated within the ring L by the sleeve J, substantially as and for the purpose set forth.

192,880. IRONING-BOARDS. Adam H. Wilson, Hauntdale, Pa., assignor to Peter Nev, same place. [Filed Aug. 26, 1876.]



The board A, provided with the offsets C C, in combination with semi-elliptical surrounding bands or hoops B pivoted near the center at *b b*, substantially as and for the purpose described.

192,881. BOX-SCRAPERS. Leonard Bailey, Hartford, Conn. [Filed Sept. 13, 1876.]

Brief.—That portion of the tool which carries the cutter is pivoted to the handle, so as to adapt itself to the surface of the box to be scraped.



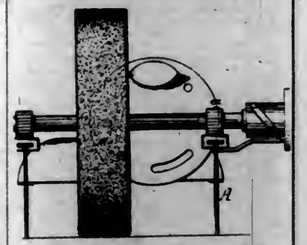
1. In combination, head *c*, having bed elongation *c'*, chisel *d*, front rest *h*, and thumb-screw *e* passing through the bed elongation and pressing on the back side of the chisel, all substantially as shown and described.

2. In combination, bar *b*, head *c*, chisel *d*, guard or gage *i* pivoted on bar *b*, spring-bar *i'*, and screw *g*, all substantially as shown and described.

3. In combination, forked handle *a*, bar *b*, serving as pivot for head *c* and front rest for chisel *d*, pivoted head *c* having elongation *c'*, and screw *e*, all substantially as shown and described.

192,882. SAD-IRON-GRINDING MACHINES. John G. Baker, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company, same place. [Filed Sept 12, 1876.]

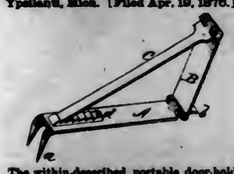
Brief.—Either chills the face-plate or fastens to it a harder metal plate.



1. A sad-iron-grinding machine in which a revolving and reciprocating grindstone is combined with a revolving face-plate, and with devices for securing the sad-irons to the said plate, all substantially as set forth.

2. The combination, with the grindstone, of the revolving face-plate, having a hardened surface, and with devices for securing the irons to the said hardened surface.

192,883. DOOR-CHECKS. Simon C. Ball, Ypsilanti, Mich. [Filed Apr. 19, 1876.]



The within-described portable door-holder, consisting of the plate or bar A, with claws *a* and ratchet-bar *d*, the hinged link B, with lip *b*, and the hinged dog or pawl C, substantially as and for the purposes herein set forth.

192,884. MATCH-BOXES. J. P. Benjamin, New York, N. Y. [Filed May 16, 1876.]

Brief.—The catch on the rod projects through the slot in the division-plate, and propels a match when the rod is operated by means of the lip.

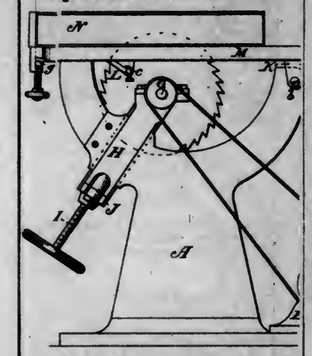
The rod *g*, provided with catch *f*, lip *a*, and spiral spring *d*, arranged to operate in the guides or slotted portions of the division-plate and case of a match-safe, substantially as described.



192,884.

192,885. SAWING-MACHINES. M. T. Boult, Battle Creek, Mich. [Filed Aug. 31, 1876.]

Brief.—The saw-table is provided with means for adjustment at right angles to the plane of the saw, which is carried in a movable frame, so arranged that any desired portion of the periphery of the saws may be brought above the table.



1. The sawing-machine table M, provided with the dovetail tongue *g*, parallel guide N, sliding carriage Q, and diagonally-adjustable guides S T, substantially as and for the purpose specified.

2. The table M, provided with the bracket K, in combination with the pivotal adjusting-screws *b* and pedestal A, substantially as and for the purpose set forth.

3. The saw-arbor carrying-frame H, provided with the cross-piece J and adjusting-screw I, in combination with the pedestal A, as set forth.

4. The pedestal A, constructed as described, in combination with the sliding frame H, carrying the saw-arbor, and the laterally-adjustable hinged table M, substantially as and for the purpose set forth.

192,886. VIGNETTING PHOTOGRAPHIC PRINTING-FRAMES. Washington Boyce, Tuscola, Ill. [Filed Apr. 29, 1876.]

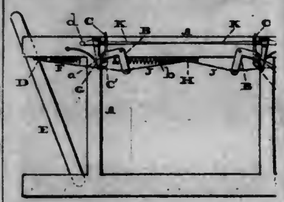


1. A vignetting device composed of the plate D, provided with a hinged plate, G, and adjusting devices E E *d d*, substantially as set forth.

2. The combination, with a photographic printing-frame, A, of the apertured plate D, the slotted pivoted arms E E, screws *a a*, thumb-nuts F F, apertured hinged plate G, and the set-screw *d*, substantially as described, and for the purpose set forth.

192,887. STOP-MOTIONS FOR LOOMS. Hugh Carlon, Chester, Pa., assignor to G. P. Denis, Brother & Co., same place. [Filed Aug. 10, 1876.]

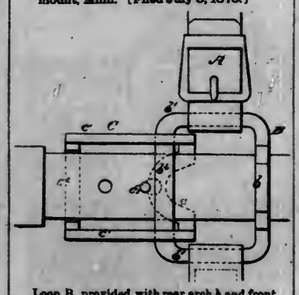
Brief.—The needle is thrown up into the shed by the action of the picking-lever. It is locked in that position by the latch-dog, thereby holding the lower arm of the elbow-lever vertical, which draws the dagger into its striking position. Should the weft be unbroken, it will loop around the needle and tilt it, so as to unlock the dog, when the dagger-spring will prevent the stopping of the loom. Should the weft fail, the reverse will be true.



1. The dog G, in combination with the needle C and elbow-lever B, and with the bar D, arm or dagger H, connecting-rods F J, and spring *h*, substantially as and for the purpose set forth.

2. The needle C with head C', and elbow-lever B with nose *a*, in combination with the dog G, pivoted bar D, and pick-arm E, and with the swinging arm or dagger H, substantially as and for the purpose set forth.

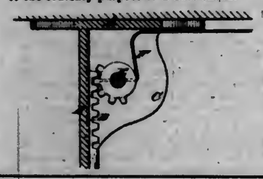
192,888. BUCKLES. Lawrence Carr, Rosemount, Minn. [Filed July 8, 1876.]



Loop B, provided with rear arch *b* and front wedging-arch *b'*, in combination with loop C, having inverted rear arch *c*, inclined sides *c'*, and backward curve *c²* in front, and tongue *c³*, substantially as and for the purpose set forth.

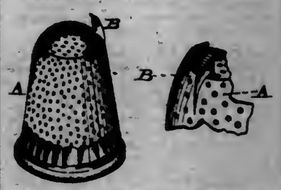
192,889. DOOR-CHECKS. William Cassill, Reed's Mills, Ohio, assignor to himself and James M. Henderson, same place. [Filed Aug. 21, 1876.]

Brief.—A sliding bumper, actuated by rack and pinion, is combined with a spring-catch or holder in such manner as to hold the door open as against moderate pressure, as well as to the ordinary purpose of a door-check.



The combination of the case or frame A B C, the sliding bumper D, actuated by rack and pinion, the pivoted cylinder E, and the catch E, with each other, all substantially as herein shown and described.

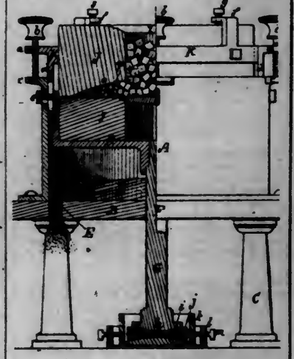
192,890. SEWING-THIMBLES. Saml. Chard, Mianus, Conn. [Filed Aug. 24, 1876.]



The cutter B, rigidly attached to the top end of a thimble, substantially as set forth.

192,891. WOOD-PULP ENGINES. J. Chase, Orange, Mass. [Filed May 8, 1876.]

Brief.—Blocks of wood of suitable size are fed through a central opening in the top of the upper stone to a chamber between the two stones formed by the concavity of the upper stone. It is there gradually ground as it is being forced outward from the center by centrifugal force caused by the revolving of the lower stone. The lower stone has a plane surface, and is revolved by a central shaft resting upon friction-rollers. After being ground the wood falls over and between the lower stone and the curb upon a convex table, whereby it is thrown out through an opening in the bottom of said table. The upper stone is adjustably attached to a metal band by screws. Set-screws passing through lugs on this band to similar lugs on the case regulate the height of the stone. From the band are pendent lips, which are slotted to receive bolts passing through the curb, thereby confining the frame or support of the upper stone firmly to the curb.



1. In engines for pulping wood, the combination, with a suitable curb or case, of two stones, the operative face of one of which is flat or practically flat, while that of the opposite stone is largely concave, the object being to provide an intermediate chamber, which gradually diminishes in depth from its center outward, substantially as and for the purposes stated.

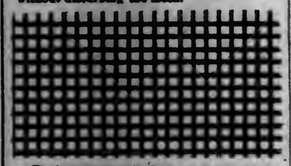
2. In engines for pulping wood, the combination, with the case or curb thereof, of two stones, whose adjoining or operative faces are formed substantially as described, so that the intermediate space or chamber gradually lessens in depth from the center outward, while the upper stone is pierced axially to admit of passage of wood to the said chamber, substantially as and for purposes stated.

3. The combination, with the upper stone J and its supporting-ring, of the described adjusting and confining devices, whereby the position of the stone with respect to its ring and to the curb of the engine is adjusted to

compensate for the wear of the two stones, substantially as shown and described.

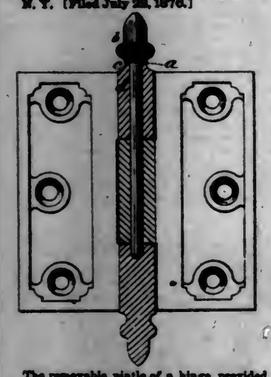
182,902. MATTING. J. R. Chase and Galen Caulfield, Tom's River, N. J. [Filed Oct. 20, 1875.]

Brief.—The weft is run through nine as it is woven; consequently is laid in wet, and adheres to the warp-threads, so forming a fabric that can be handled in the after treatment without disturbing the mesh.



The improvement in the manufacture of matting in imitation of wire-matting, the same consisting in stretching and brushing cotton-warp and filling-threads, running the latter threads through nine as they are woven in, and stretching and painting the woven fabric, all as set forth, and for the purposes described.

182,903. HINGE. Chas. B. Clark, Buffalo, N. Y. [Filed July 28, 1876.]



The removable pintle of a hinge, provided with a knob, having a flat bearing-surface at its lower end of a diameter less than the diameter of the knob, in combination with the knuckle, having a bearing-surface at its upper end of a diameter less than the main body of the knuckle, substantially as shown and described, whereby a contracted-neck bearing-surface is obtained, as set forth.

182,904. MORTISING-CHISEL. Eli Cole, Horseheads, N. Y. [Filed July 22, 1876.]

Brief.—A mortising-chisel is provided with a central longitudinal rib, having serrations in its sides, for cleaning the mortise of small chips and particles of wood as the chisel is withdrawn therefrom.



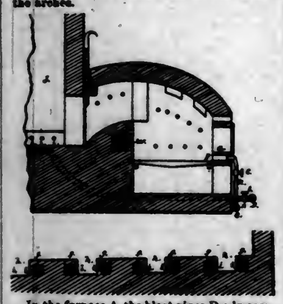
1. A mortising or tenoning chisel, provided with a longitudinal central rib C, having cutting-edge *e* at right angles to cutting-edge *f* of the chisel proper, substantially as and for the purpose set forth.

2. A mortising or tenoning chisel, having the longitudinal central rib C, provided with side serrations *c'*, substantially as and for the purpose set forth.

3. The combination of a chisel-blade, having beveled face B', with central longitudinal rib C, having serrations *c'*, or their equivalents, on its sides, substantially as and for the purpose set forth.

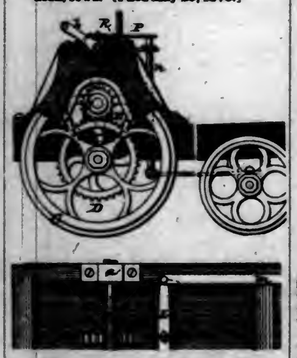
182,905. BRICK-KILNS. William S. Colwell, Pittsburg, Pa. [Filed Sept. 4, 1876.]

Brief.—Adapted to supply air at various points about the furnace, and to flues under the arches.



In the furnace A, the blast-pipes D *e*, in combination with the flues *s*, *t*, *u*, and *g*, substantially as herein described, and for the purpose set forth.

182,906. HAND-POWER FOR PROPELLING VEHICLES. Lucius R. Converse, Shenandoah, Iowa. [Filed May 20, 1876.]



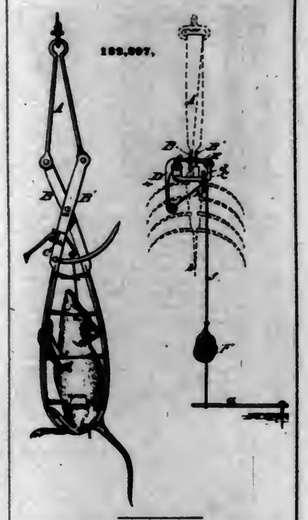
1. The combination of the front axle B, provided with wheels C C, and provided with cog-wheels D D on the outside of the body, and near each driving-wheel, the shaft *d* mounted in bearings on top of the body, and provided with a pinion, *h*, at each end, which gear into the cog-wheels D D, and having a center cog-wheel, E, and the shaft *f*, with pinion *e*, and cranks *i i*, all substantially as and for the purposes herein set forth.

2. The combination of the front axle I with wheels J J, the pivoted bar H, with downwardly-bent ends connecting-rods *m m*, shaft *n*, with lever L, and crank P, and the notched plate R, all substantially as and for the purposes herein set forth.

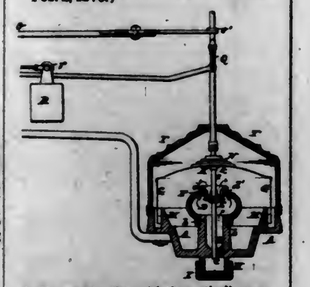
182,907. ANIMAL-TRAPS. Daniel Conner, Athens, Ohio. [Filed July 22, 1876.]

1. The combination of the spring A, arms B B', cross-piece C, bent lever D, and pawl E, all constructed and arranged substantially as and for the purposes hereinbefore set forth.

2. In combination with the retaining cross-piece C, pawl E, and bent lever D, the pull-cord *f*, terminating either at the bait-hook F or at the treadle G, substantially as and for the purpose hereinbefore set forth.



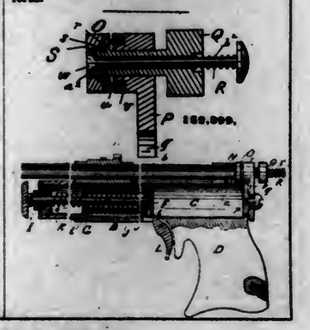
182,908. GAS-REGULATORS. Isaac Cook, St. Louis, Mo., assignor of one-half his right to J. E. Sprague, same place. [Filed Feb. 2, 1876.]



1. The combination, with the vertically-moving cup G, of the valve E, and the stem *e* attached thereto, the stem being provided with guides *e' F e*, substantially as and for the purpose set forth.

2. The combination of cup G, stem *e*, valve E, and removable valve-box D within said cup, constructed substantially as set forth.

3. The combination of the inverted cup G, valve E, stem *e*, bar F, and adjustable weight R, substantially as and for the purpose set forth.



182,909.

182,910. SPRING AIR-PISTOLS. W. C. Cross, Boston, Mass. [Filed Aug. 3, 1876.]

1. In combination with the swinging arm P, a spring-returned pusher-stem, for adjusting the dart in position, substantially as described.

2. In combination with the swinging arm P, the movable breech-block O and the spring-returned pusher-stem E, substantially as described.

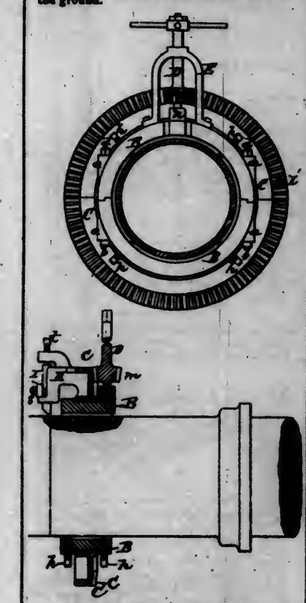
3. In combination with the swinging arm P, the movable breech-block O, arranged to interlock therewith by pins *n* and sockets *o*, substantially as specified.

4. In combination with the barrel, air-chamber, and setting-rod I, the additional casing K, constructed and arranged to operate substantially as described.

5. In combination with the barrel, air-chamber, and spring-impelled plunger, the setting-rod I, with its spring *g* and tube *f*, all arranged to operate substantially as described.

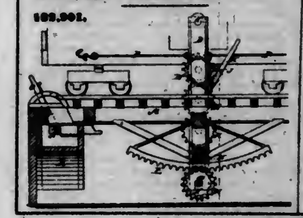
182,911. PIPE-CUTTERS. James Curran, Baltimore, Md. [Filed Aug. 12, 1876.]

Brief.—For cutting large cast-iron pipes under ground, both the collar about the pipe to be cut and the gear-wheel are made in sections, detachable from each other, to enable the tool to be closed around the pipe beneath the ground.



In a device for cutting pipes, the combination of the collar B, formed of two independent and detachable pieces bolted together at each of their ends, and provided with pointed set-screws *h*, the wheel C, composed of two independent and detachable parts, having bevel cogs *i* on one side, the head H, provided with adjustable cutter I, the pinion *m*, and shaft D, all constructed substantially as and for the purposes herein set forth.

182,912.

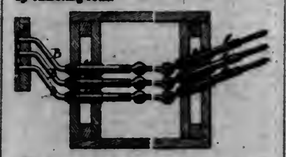


182,912. DUMPING-CARS. Eugene Davis, Clinton, Ill. [Filed May 9, 1876.]

The combination of the arc-shaped rack E, shaft G, spur-wheel F, and suitable operating devices, with the centrally-pivoted truck-section A, stationary truck, and discharge-chutes B, all relatively arranged as and for the purpose set forth.

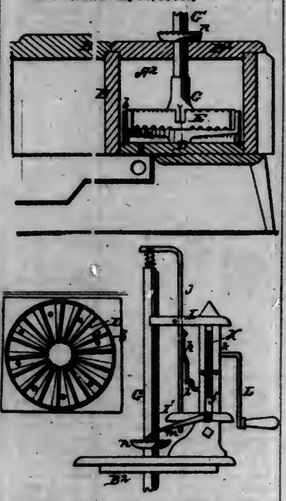
182,913. BORING-MACHINES. Walter De Sanno, Corry, Pa., assignor to F. S. Allen, New York, N. Y. [Filed Mar. 26, 1874.]

Brief.—A series of boring-tools are simultaneously revolved by a corresponding series of crank-shafts, to which they are connected by tumbling-rods.



The journals *a* of the drill-stocks C, located in the frame A obliquely to the connecting-links E and the bearings of the crank-shafts B, all in the described combination herein shown, for the purpose specified.

182,914. WASHING-MACHINES. Alex. B. Dickinson and Elias A. Barrett, Lyndon, Kans. [Filed July 17, 1876.]



1. The square perforated bottom D, provided with the radial tapering ribs *a*, arranged in circular form, surrounded by the rim *b*, and detachably secured within the chamber A^2, as set forth.

2. The combination of the pounder E, rod G', screw *d*, rod J, and spring *e*, as and for the purposes herein set forth.

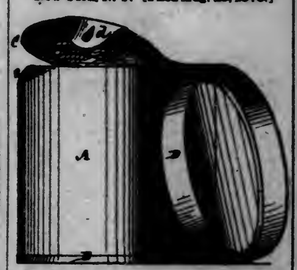
3. The combination of the rod G' with ratchet-wheel *n*, the pawl *m*, rod J, pitman *k*, crank *l*, gears *f K*, and crank L, all constructed substantially as and for the purposes herein set forth.

182,915. RAZOR-BACKS. Hiram A. Dow, Quarry, Iowa. [Filed Aug. 10, 1876.]

Brief.—The back of a razor-blade is provided with parallel strips, connected to either side by legs and plate-springs, and there is also a suitable sliding rod, having thumb-piece and downwardly-projecting legs, the construction, by complex means, serving to expand the casing or false back of the razor, to permit the more easy sharpening and bringing to a satisfactory edge.
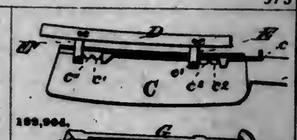


182,914.

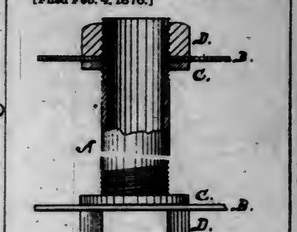


182,915.

182,916. METALLIC CASES. J. F. Drummond, New York, N. Y. [Filed Aug. 26, 1876.]

In combination with the flat-rimmed metallic disk C, provided with the perforated tag *d*, the removable cover D, substantially as described.

182,917. PIPES FOR HOT-AIR FURNACES. William H. Drummond, Newark, N. J. [Filed Feb. 4, 1876.]

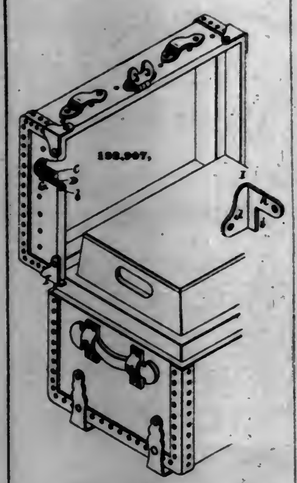


In an air-heating furnace, the combination of the pipes A, heads B, collars C, and nuts D, substantially as and for the purpose specified.

182,918. TRUNKS. Theodore R. Dunham, Newark, N. J. [Filed Aug. 29, 1876.]

1. The combination, with the lid-frame C of a trunk, of the stock G, projecting below the same to form the valance, and the metallic band D, also extending below the frame, and formed with the turned-up flange *b*, to receive and hold the stock, substantially as and for the purposes herein set forth.

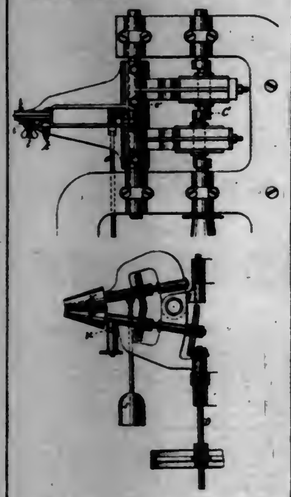
2. The valance-clamp I, constructed, as described, of one piece of metal, with the leaf *i* on one side, and the arm *h* and flange *i* on the other side, substantially as and for the purposes herein set forth.



192,907.

192,908. HAT-POUNCING MACHINES. Rudolf Bickemeyer, Yonkers, N. Y. [Filed Sept. 2, 1876.]

Brief.—The vibrating pouncing-plates are arranged so as to operate upon the upper and lower surfaces of the brim simultaneously, or upon either, as desired. The lower plate is hinged at its rear end to its lever, and provided with an adjusting-screw, whereby its plane or face may be altered with relation to the upper plate, so that brims thicker at the band may be operated upon as well as those of uniform thickness. The feed-rolls and their gearing are mounted in a hanger, which is adjustable to and from the pouncing-plates, and which is hinged to or in line with a driving-shaft, from which power is derived for operating them. The upper roll and upper plate may be raised or lowered simultaneously by means of a rod and treadle, and held in an elevated position by a pivoted lever, which rides the treadle when depressed, thus avoiding the necessity of stopping the machine when it is desired to remove one hat and put in another.



1. The combination, with vibrating pouncing-plates and laterally-adjustable feed-rollers, of a treadle, substantially as described, whereby the rolls and the plates may be readily separated for the insertion or removal of a hat while the rolls revolve and the plates vibrate, as set forth.

2. The combination, with vibrating pouncing-plates, feed-rollers, and a treadle, of a rod connected with the treadle, which is adjustable with relation to one of the vibrating plates, substantially as described.

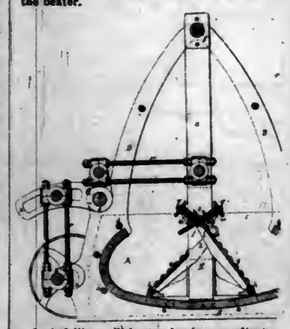
3. The combination, with the feed-rollers, the vibrating pouncing-plates, and the treadle, of a holding-lever, substantially as described, whereby the plates and rollers, when separated, may be maintained in that position, as set forth.

4. In a hat-pouncing machine, laterally-adjustable feed-rollers, their shafting and gearing, all mounted in a hanger, which is hinged to or in line with the driving-shaft, from which power is derived for operating the rollers, substantially as described.

5. A pouncing-plate, hinged to its lever, in combination with an adjusting-screw, substantially as described, whereby said plate may be inclined from front to rear and held in position, as set forth.

192,909. FULLING-MILLS. Rudolf Bickemeyer, Yonkers, N. Y. [Filed Sept. 2, 1876.]

Brief.—The improvements are applicable in part to vibrating and to falling beaters, in that the beaters have faces which are angularly adjustable. An adjusting-screw, a cylindrical nut, and a rocking-seat for the screw are employed in combination, for effecting the adjustment and securing the beater-face in position. The vibrating beater has a variable throw, graduated by means of an adjustable connection between the driving-shaft and the beater.



1. A fulling-mill beater, having an adjustable beater-face, substantially as described, whereby the face may be adjusted, set, and operated at any desired angle, as set forth.

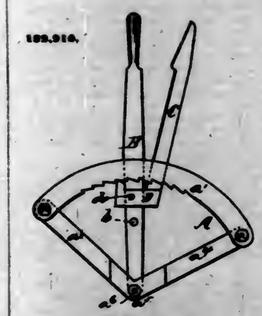
2. The combination, with a fulling-mill beater, having a hinged or pivoted face, of an adjusting-screw attached to the beater face by means of a sleeve and a cylindrical nut, substantially as described.

3. The combination, with a fulling-mill beater, of a hinged face and an adjusting-screw connected to said face, and housed in a rocking-seat secured to the helve of the beater, substantially as described.

4. The combination, with a vibrating fulling-mill beater and its driving-shaft, of connecting-rods, a bell-crank lever, and an adjustable connecting device between one arm of the lever and one of the connecting-rods, substantially as described.

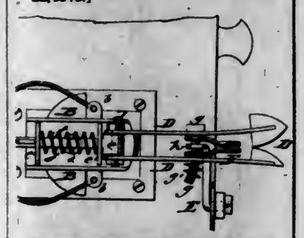
192,910. WAGON-BRAKE LEVERS. Edward Engle and Henry K. Snavely, Muscatine, Iowa. [Filed Nov. 30, 1875.]

The within-described device for operating a wagon-brake, consisting of the bars a^2 a^3, the rack-bars a^4 a^5, connected to each end of the top of the same, the upright lever B, pivoted to the hub and passing between the rack-bars, the lever *c* having a pawl, D, at its lower end which is pivoted near its front end to the lever B, constructed and used as and for the purposes set forth.



192,910.

192,911. CAR-COUPLINGS. Leonard Fleckenstein, Creswell, Pa., assignor to himself and Martin Miller, same place. [Filed May 22, 1876.]



The combination, with hooks D, of curved bolt *g*, spring *g'*, hook F, and lever E, all arranged substantially as and for the purpose specified.

192,912. FURNACES FOR HEATING IRON AND STEEL BLANKS. Albert Gale, St. Johnsbury, Vt. [Filed May 3, 1876.]



1. In a furnace for heating blanks, the adjustable front *e*, in combination with a suitable device for supplying a blast of air to the fire-chamber, substantially as described.

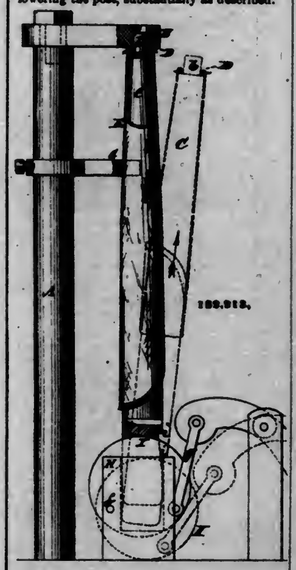
2. The combination, with the chamber having the hopper *c*, of the adjustable front *e*, door *c'*, and cap *d*, as and for the purpose specified.

192,913. APPARATUS FOR ATTACHING RINGS TO UMBRELLA-CASES. Robert J. Gemmill, New York, N. Y. [Filed Apr. 29, 1876.]

1. In a machine for attaching metallic binding-rings to the ends of umbrella-cases, the solid and removable externally heated case-holding post C, substantially as and for the purpose herein set forth.

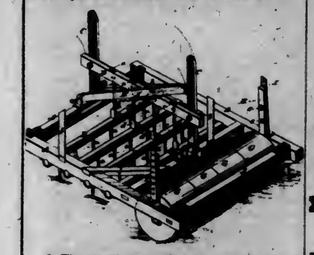
2. The solid post C, having a tilting motion and reduced at its upper end to form a solid male die, *b*, in combination with the stationary female die B, substantially as and for the purpose herein described.

3. The raising and lowering cam I, in combination with the free or loose and tilting case-holding post C, and the female die B, whereby said post is tilted in and out of line with the female die by the operation of raising and lowering the post, substantially as described.



192,914. COMBINED HARROW AND LAND-ROLLER. William Gillelan, Emmittsburg, Md. [Filed June 7, 1876.]

Brief.—Harrow-bars regulated by a lever connected to the bars by springs. At one end is journaled a roller made in sections.



1. The combination, with the rocking bars B, provided with harrow-teeth *a*, of the spring-bars *g*, projecting from said rocking bars, the longitudinal bar D, connecting the two levers C C, and provided with slots *s* and stud *h*, and the pivoted bar E, having pins or serrations *e*, all as and for the purposes herein set forth.

2. The roller G secured upon a shaft connected to the standards H H, in combination with the perforated castings I I on the frame A and the bolts *c*, all substantially as and for the purpose set forth.

192,915. COTTON-SCRAPERS. Leroy C. Gillespie, Sr., Brownsville, Tenn. [Filed Dec. 20, 1876.]

Brief.—A slotted brace to regulate the angle or pitch of the scraper.

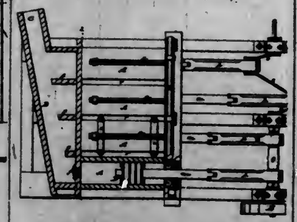


192,915.

In combination with the plow-foot B, having its lower end narrowed, as shown at *a*, the scraper-wing D connected thereto by the pivot-bolt *b*, and the slotted angle-regulator G, connected to the wing and to the plow-foot, substantially as shown and described.

192,916. APPARATUS FOR VENTILATING MINES. William Grein, Shenandoah City, Pa. [Filed July 26, 1876.]

Brief.—A series of air-pumps by which a direct and positive current of air may be forced to the extremity of the drift and all its cross-cuts, whereby the sulphurous and other gases are caused to flow toward and up the shaft, thus supplying all the avenues of the mine with pure air, and expelling all the deleterious gases.

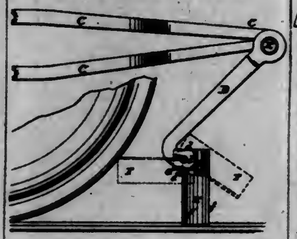


1. The combination of a series of air-forcing chambers, operating successively, with an inclined conduit extended to the extremities or chambers of the drift in a mine, for the purpose set forth.

2. The combination of the vertical and horizontal rollers *n n'* with the square or rectangular piston-rod *m*, substantially as described.

3. The arrangement of a series of pipes, G, over the rounded covers of the air-forcing chambers A, in combination with the troughs *r* at the bed of the latter, substantially as and for the purpose specified.

192,917. TRACE-CLEARERS. Jas. B. Green, St. Louis, Mo. [Filed Jan. 22, 1876.]

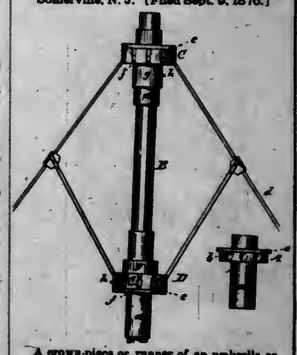


1. The combination of grease-box B, frame C, adjustable arm D, and a shoe, constructed to clear the rail of obstructions, for the purpose set forth.

2. The combination of shoe F, spring I, pivot H, and arm D, substantially as and for the purpose set forth.

3. The combination of a track-clearing shoe and its rigid supporting-frame, when said frame is secured to grease-box B, substantially as set forth.

192,918. UMBRELLAS. Jacob H. Gumble, Somerville, N. J. [Filed Sept. 9, 1876.]



A crown-piece or runner of an umbrella or parasol, for connecting the ribs or stretchers thereof, consisting of the drum A, formed with sockets upon its sides, and an angular flange, *c*, and tube *a*, in combination with the cap C, formed with slots *f* and tube *g*, substantially as and for the purpose set forth.

192,919. MICROSCOPES. Ernst Gundlach, Rochester, N. Y. [Filed Aug. 10, 1876.]

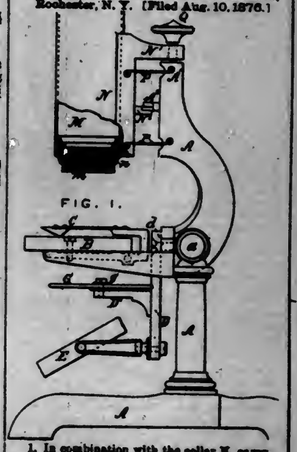


FIG. 1.

1. In combination with the collar N, carrying the body M, the springs P serving the double function of guides for the collar and springs to depress it and prevent lost motion, as herein specified.

2. The springs or guides P, body M, collar N, arm N', screw Q, and stops N^2 A^2, in combination, as herein specified.

3. The mirror-bar D, mirror B, D', and diaphragm G, combined and arranged relatively to the stage B, as and for the purposes herein specified.

192,920. SHIRTS. Simeon Guttmann, New York, N. Y. [Filed June 3, 1876.]

1. The collar D, provided with the two faces F and F', and the corresponding reverse-faced collar-bands E and E', as shown and described.

2. The double cuff E, provided with the parti-colored face S, as shown and described.

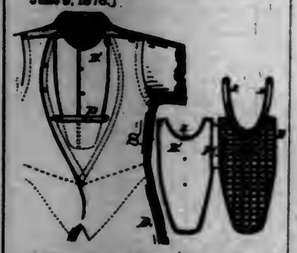
3. In combination with the two or more bosoms of a single shirt, composed of material of different faces and colors, the collar D, provided with two faces F, and F', and the corresponding reverse-faced bands E and E', as shown and described.

4. In combination with the two or more bosoms of a single shirt, composed of material of different faces and colors, the double cuff E, provided with the two colored faces E, as shown and described.



192,920.

192,921.—COMBINED SHIRT AND DRAWERS. Simeon Gutmann, New York, N. Y. [Filed June 9, 1876.]



1. The composed under-garment composed of the drawers D, opening vertically in front, and horizontally in the rear, across the middle of the back, and of the shirt B, made continuous with the drawers in front, and made adjustable in the rear by two or more rows of attaching devices, as shown and described.

2. A shirt-front, provided with a horizontal opening, located across the chest, so as to receive the lower free end of a stiff bosom only and detain it therein, in combination with the bosoms B and B'.

3. The false bosom B, provided with the neck-band E, in combination with the false bosom B' without neck-band, the two being attached to each other on the side, so as to be capable of folding over each other, as set forth.

192,922.—WHIFFLETREE. Alexander W. Hall, Cincinnati, Ohio. [Filed Mar. 17, 1876.]

Brief.—The employment, in connection with each pair of sails and carrying-arm, of a spring, one end of which is fixed and the other end is connected with the sail or arm, so as, to enable the vertical sail to yield to any extraordinary force, and oscillate beyond a vertical line, and cause the opposite sail to rise above a horizontal line, so as to receive a portion of the force of the wind, thus counteracting the effect. The spring is connected to the arm by two cords and two rods, arranged at right angles to the axis of the arm and at right angles to each other.

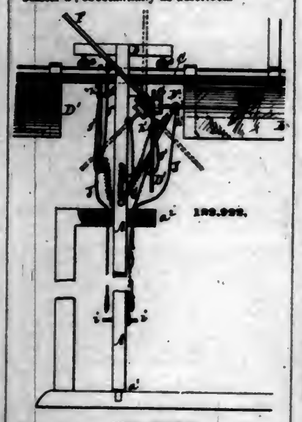
1. A vertical windmill having its sails in pairs, each pair rigidly secured to a single carrying-arm, loosely attached to or suspended from the shaft or spindle to enable it to have a lateral oscillating motion, substantially as and for the purpose herein described.

2. The combination of the center shaft or spindle A, the cross heads or bars B, carried thereby, and the sail-carrying arms C, suspended from said cross-heads, substantially as herein described.

3. In combination with the center shaft or spindle of a vertical windmill, the arrangement of the sail-carrying arms beside said shaft, substantially as and for the purpose herein described.

4. The combination, with the sails and carrying-arms, of the springs G, adjustable rods h h', and cords or connections g' g'', substantially as and for the purpose herein described.

5. The combination, with the shaft and the sails and their carrying-arms, of the cords or chains J, connected with the sail-carrying arms and passing through openings in the bolster a^2, substantially as described.



192,922.

192,923.—MACHINES FOR ROLLING HORSE-SHOE-NAILS. Geo. L. Hall, Boston, Mass., assignor to the Narragansett Horse-Nail Company, Hartford, Conn. [Filed June 26, 1876.]

Brief.—A vertical conductor is arranged above the die-rolls, and in a line therewith. Below the said rolls is a sliding discharge-tube. A rod carried by said discharge-tube enters an opening in an intercepter-lever, (the front end of which works through a slot in the blank conductor,) and prevents it from being forced inward by a spiral spring, to cut off the supply of blanks. Should a nail become bent while passing between the rolls, it will impinge against the discharge-tube and push it downward, thus withdrawing the rod from the opening in the intercepter-lever, which then swings inward and obstructs the channel of the vertical conductor.

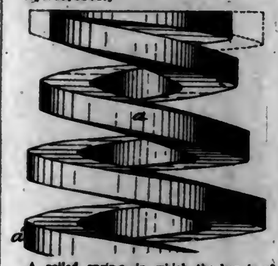


1. In a nail-machine, the tube C, having a limited vertical sliding motion in a direct line, combined with appliances, substantially as described, for closing the feeding tube, all as set forth.

2. The combination of the rotating disc, feed-tube B, lever b', and sliding tube C, and rod c, arranged and operating as specified.

3. The springs h and bolts b, combined with the sliding tube C, and its slotted flanges, as set forth.

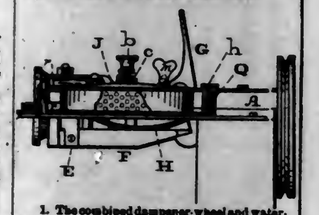
192,924.—CAR-SPRINGS. Walter P. Hansell, Pittsburg, Pa., assignor of one-third his right to G. W. Morris, same place. [Filed Apr. 19, 1876.]



A coiled spring, in which the bar is of equal thickness throughout, with the end coils of less diameter than the middle, to give the greatest strength to the ends and the least resisting force to the middle coils, as shown, and for the purpose described.

192,925.—MACHINES FOR BINDING AND WIRING HAT AND BONNET FRAMES. Robert F. S. Heath, Camden, N. J. [Filed Jan. 26, 1876.]

Brief.—The binding is fed off a reel and over a hollow dampening or water-wheel, whose periphery is perforated and covered with absorbent material. The degrees of moisture imparted to the latter are regulated by a vent-screw in the face of the wheel.



1. The combined dampener-wheel and water-reservoir I, having a reticulated periphery, covered with an absorbent material, and constructed with the flanges r r, substantially as described.

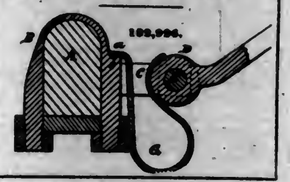
2. The valve M, constructed as shown in Fig. 6, with a side groove, in combination with the combined dampening-wheel and reservoir, substantially as specified.

3. The arm F, pivoted at its front end to the leg E, and having its rear end engaging with a lever, G, in combination with the spring H and roll J, all constructed and arranged as shown and described.

4. The combination, with the presser-rolls, of the gear-wheel D, formed with a circumferential groove, N', substantially as and for the purpose set forth.

5. The leg E, affording a bearing for the axis of the gear-wheel of the presser-rolls, in combination with the arm F, carrying one of the presser-rolls, and pivoted to said leg, substantially as and for the purpose set forth.

6. The wire guide N, having an eye therein, through which the wire passes, in combination with the plate d and screw e, whereby said guide is rendered adjustable, substantially as and for the purpose set forth.



192,926.

192,926.—TRILL-COUPLINGS. John C. Hendry, Boston, assignor of one-half his right to Brigham, Litchfield & Vining, South Abington, Mass. [Filed Sept. 9, 1876.]

The U-shaped spring G, having one arm curved, as shown, and the other made straight and provided with the flange a, in combination with the slip B, having shoulder b, the arms C C, eye D, and bolt E, as and for the purposes set forth.

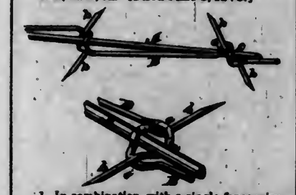
192,927.—BUCKLES. Chas. W. Higinbotom and Fredk. P. Smith, Vandalia, Ill. [Filed Aug. 29, 1876.]

Brief.—Improvement on Patent No. 154,673.



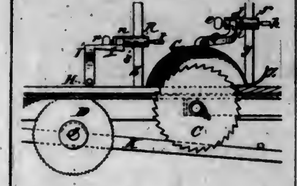
The combination of frame A and detachable tongue-plate B, having the central nib or lug a and the claws or points b, substantially as shown and described, for the purpose specified.

192,928.—BARBED FENCE-WIRE. Peter P. Hill, Alto, Ill. [Filed June 6, 1876.]

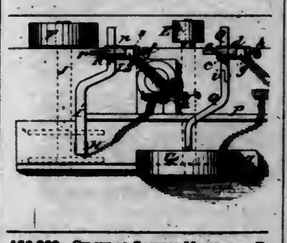


1. In combination with a single fence-wire, A, the short sections of wire B, having pointed ends, which are linked together and interlocked upon said single wire, with their points projecting in different directions, for the purpose set forth.

2. The combination of the main central wire A and the detachable barbed wires B, having the bends a and c near their ends, and linked together, substantially as and for the purpose set forth.



192,929.



192,929.—CIRCULAR SAWING MACHINES. F. J. Hueber and Thos. J. Hamilton, Indianapolis, Ind. [Filed June 16, 1876.]

Brief.—Stuff of varying width and thickness can be sawed as desired by means of a circular saw, a pair of vertically-adjustable feed-rolls mounted in a pivoted lever-frame below a slotted table, a laterally-adjustable gage, a vertically and horizontally adjustable yielding pressure-roll, and suitable feeding and operating mechanism. The saw is covered and the operator protected by a vertically and laterally adjustable hood, having at its front part an upwardly-curved lip. The feed-rolls can be depressed beneath the table when it is desired to feed by hand.

1. The combination, with the saw-head G and its supporting-arm Q, of the double-slotted bracket d, clamp-screws e h, and standard f, substantially as and for the purpose herein set forth.

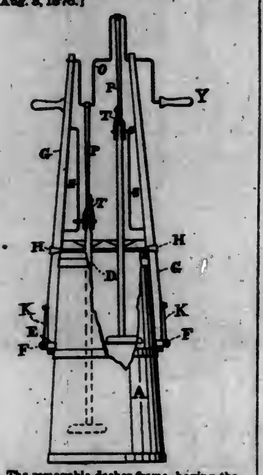
2. The hood-supporting arm Q, provided with the knuckle-joint i, for the purpose described.

3. The combination, with the adjustable gage P and the circular saw, of the horizontally-adjustable saw-head G, for the purpose described.

4. The combination, with the adjustable rolls D and driving-pulley F, of the lever-frame K M, pivoted as described, and the ratchet-holding bar M, substantially as and for the purpose herein set forth.

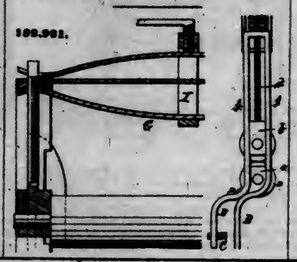
5. The spring-carrying arm I F for the feed-roll H, in combination with the double-slotted bracket E, the clamp-screws r t, and the standard S, substantially as and for the purpose herein set forth.

192,930.—CHURNS. Isaac G. Hubbard and Daniel G. Sterling, Nelsonia, Ill. [Filed Aug. 3, 1876.]



1. The removable dasher-frame, having the double crank O, pitmen P, having bifurcations at their lower ends, detachable dashers D, and guides S, in combination with the loops T and B F, and hooks K, substantially as and for the purposes set forth.

2. The pitmen P having the bifurcations, one arm of which is notched and pivoted, in combination with the dashers D, substantially as and for the purposes set forth.



192,931.

192,931.—CLOTHES-WRINGERS. A. Israel Klimowwicz, Mo. [Filed Aug. 12, 1876.]

1. In a clothes-wringer, the combination of the side pieces, each made of a single metal bar, bent to form the standards A A and feet B B, with the set-screws C C and rollers D D', substantially as and for the purposes herein set forth.

2. The combination of the upper roller D', sliding boxes b b, having rods d d, shouldered at their upper ends, the elliptic springs G G', collar I, and screw J, substantially as and for the purposes herein set forth.

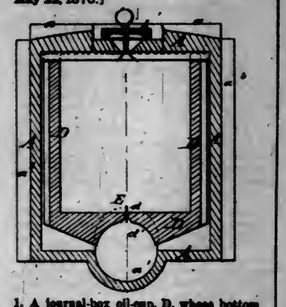
192,932.—BLACKBOARD-RUBBERS. D. Jackson, Chicago, Ill. [Filed Mar. 6, 1876.]

Brief.—The tapering wedge is removed to slip the rubbing surface or cover around to a fresh or unworn part, and is then returned.



The combination of the block A, fitted with the endless band of carpet or other material B, with the handles C connected thereto by brace E E, and provided with an angular recess on its under side, and the triangular wedge F, for clamping the band in place, substantially as described.

192,933.—CAR-AXLE BOXES. Marion Jansen and Josiah Mikesel, Garrisons, N.Y. [Filed May 23, 1876.]



1. A journal-box oil-cup, D, whose bottom is provided with perforations and pins, substantially as and for the purpose described.

2. The combination, with oil-cup of journal-box, of a glass tube, F, connected therewith, as and for the purpose set forth.

3. The combination of box A, having top hole, door B, with overlapping lug, and the spring-key C, substantially as and for the purpose specified.

192,934.—SELF-OPENING CANS. Tryon J. M. Jewell, New York, N. Y., assignor of one-half his right to N. Seeley and Geo. I. Stevens, same place. [Filed Mar. 15, 1876.]



1. The method of inserting and securing the ripping-wire in place in a sheet-metal can or box of the class described, by passing the inner end of said wire through coincident holes or orifices provided in the flange of the cover

and near the upper edge of the body of the can or box, bending the said inner end of the wire into a hook to insure its hold upon the said body, and then turning or rotating the cover to bring the wire between the flange of the latter and the upper part of the body, can, or box, substantially as set forth.

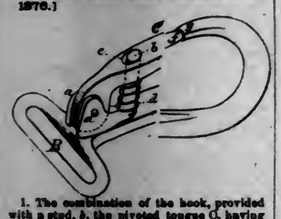
2. In a can of the class described, the ripping-wire C, formed with a hook, *f'*, on its inner end, in combination with the cover-flange *b*, constructed with the rib *a'* and hole or orifice *c''*, and the body A, provided with a hole or orifice, *a*, near its upper edge, the whole constructed and arranged substantially as and for the purposes herein set forth.

182,926. COMPOUND FOR FIRE-BRICKS. STOVE-LININGS, &c. James Kieran, Cohoes, N. Y., assignor of part of his right to Thomas McGuinness and Arthur Moan, same place. [Filed June 16, 1876.]

Brief.—The compound is used for lining stoves, &c., by pressing it into suitable shapes while in a plastic state.

The compound for stove brick or lining composed by pounding, sifting, and mixing three parts of old fire-brick, two parts of yellow clay, one part of fire-clay, one part of salt, and one-half part of cement, then adding water and pressing the mass into blocks, substantially in the manner and for the purpose hereinbefore set forth.

182,927. WIRE-FASTENER-HOOKS. Edward C. Keuth, Chicago, Ill. [Filed Mar. 28, 1876.]



1. The combination of the hook, provided with a stud, *b*, the pivoted tongue C, having a slot, *c*, to receive the stud *b*, and the spiral spring *d*, substantially as and for the purpose set forth.

2. The combination of the stud *b* on the body of the hook, the pivoted slotted tongue C, spiral spring *d*, and washer, placed on the stud between the spring and the tongue, substantially as and for the purpose set forth.

182,928. ARTIFICIAL STONE COMPOUND. Jacob Kornmann, Dubuque, Iowa. [Filed July 10, 1876.]

An artificial stone compound, consisting of brick-dust, cement, coal-dust, plaster-of-paris, and rain-water in about the proportions named, and for the purpose herein shown and specified.

182,929. HYDRANTS. John C. Kupferle and Peter White, St. Louis, Mo. [Filed July 13, 1876.]

1. The recesses *i'* in the foot-piece I and lugs *a c'* of the shell of the pump, combined as and for the purpose set forth.

2. The shell A, having lugs *a a'*, the foot-piece I, having recesses *i'*, and flange I', the housing H, and its flange *h'*, all combined as and for the purpose set forth.

3. The guide *j'*, having flange *j*, inclined sides *j'*, in combination with housing H, as and for the purpose set forth.

4. The cylinder B, having seat *b*, inner guide-shoulder *b'*, the opening *b''*, the rib *b'*, the threads *b' b'*, shoulder *b'*, as and for the purpose set forth.

5. The rib *b'* in the cylinder-body B, in combination with lug *c'* on valve-stem C, as and for the purpose set forth.

6. The opening *b''* in the shoulder *b'* of the cylinder-body, as and for the purpose set forth.

7. The valve-stem C, having lug *c'*, the cylinder-body B, having seat *b*, threads at *b' b'*, shoulder *b' b'*, rib *b'*, opening *b''*, packing *b'*, the valve D, cap E, cup-leather *c*, shell A, having seat *a'*, flange *a'*, all said parts being combined to operate in the manner and for the purpose herein shown and described.

8. The cap E, packing *c*, in combination with cylinder B, valve-stem C, having waste *c'*, as and for the purpose set forth.

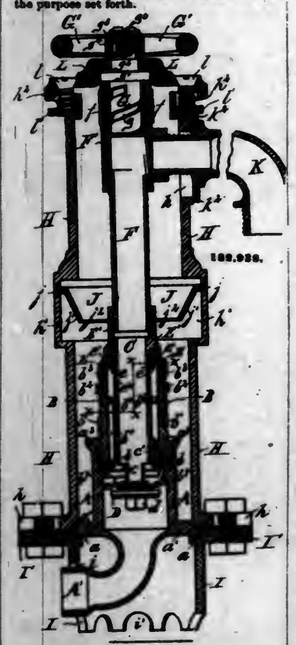
9. The coupling F', washer *c'*, cap E, washer *c*, waste *d'*, valve-stem C F, and cylinder B, said parts combined and operating with relation to the waste; in the manner and for the purpose set forth.

10. The Babbitt metal *f*, in combination with screw-coupling F', and stem G, having shoulders *g' g'*, as and for the purpose set forth.

11. The hand-wheel G', its pin *g'*, in combination with groove *g'* of stem G, having also shoulder *g*, as and for the purpose set forth.

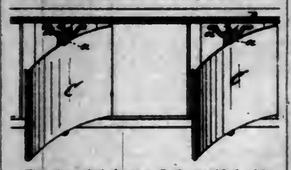
12. The hand-wheel G', its pin *g'*, stem G, having groove *g'*, threads *g*, shoulders *g' g'*, the set-screw *g'*, screw-coupling F', and cover of housing H, all said parts being combined as and for the purpose set forth.

13. The combination of the screw *g'*, hand-wheel G', screw-stem G, coupling F', said parts being constructed as herein shown and described, to operate in the manner and for the purpose set forth.



182,930. DUST-GUARDS FOR RAILWAY-CARS. Edwd. Lowrish, New York, N. Y. [Filed July 22, 1876.]

Brief.—Flanges lap over the window-frame to prevent the dust from passing in behind.



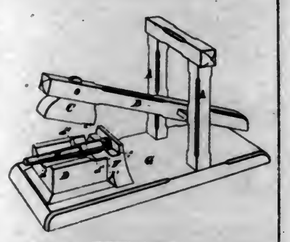
The pivoted deflectors C C, provided with the flanges *b b* and notched lugs *b*, in combination with the operating-rod D, having arms *c*, substantially as above described.

182,931. MANUFACTURE OF AXLE-BOXES. Tunnis V. Le Roy, Utica, N. Y. [Filed June 24, 1876.]

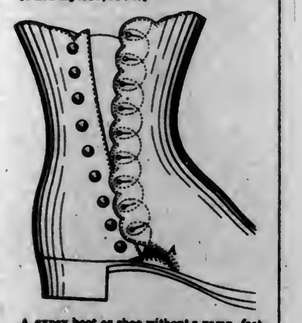
1. As an improved article of manufacture, an axle-box composed of iron and steel wound spirally, the steel being on the inner side, substantially as and for the purpose set forth.

2. The process of manufacturing axle-boxes, consisting, first, in welding a bar of iron to a bar of steel; next, in drawing the same to a narrow rod; next, in winding said rod around a suitable mandrel, with the steel inside; then, in welding the coils by blows upon the ends of the box; and, finally, in shaping said box by suitable dies and mandrel, as above described.

182,940.



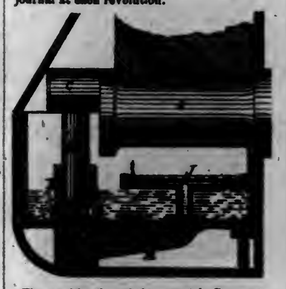
182,941. MANUFACTURE OF BOOTS AND SHOES. Walter T. Martin, Danvers, Mass. [Filed Apr. 19, 1876.]



A gypsy boot or shoe without a vamp, fastened by a straight row of buttons at the side, extending from the top of the shoe to the shank, and provided with an elastic gore, A, inserted at the bottom of the opening, all in the manner specified and shown.

182,942. LUBRICATING CAR-AXLES. Benj. G. Martin, New York, N. Y. [Filed Aug. 12, 1876.]

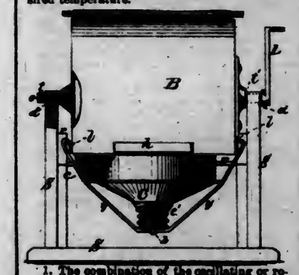
Brief.—By the operation of the piston, the oil is thrown upon the under surface of the journal at each revolution.



The combination of the eccentric C, mounted on the journal, with the piston D, working in the cylinder E, located in the oil-chamber, and provided with perforations G, and the pipe H, and horizontal perforated pipe J, located directly below the end of the journal, the whole arranged to operate substantially as herein described.

182,943. CHURNS. William Marvin, Sumner, Mich., assignor of one-half his right to Samuel H. Stevens, same place. [Filed July 15, 1876.]

Brief.—An end-over-end churn-body; a large hollow dasher fixed in position in relation to the churn-body, containing a liquid of any desired temperature.



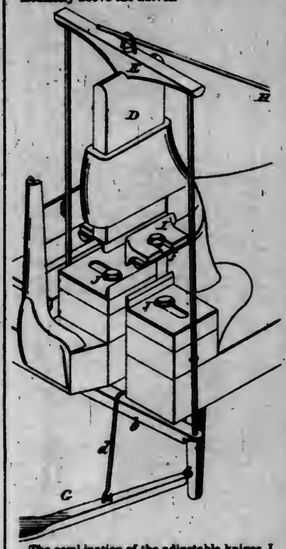
1. The combination of the oscillating or rotating churn-body B with the hollow dasher T, having a tempering-chamber formed within it, substantially as and for the purposes set forth.

2. The combination of the tempering-chamber and dasher T with the cover C and the body B, substantially as and for the purpose set forth.

3. The combination of the cover C, the screw-cap *c'*, having the bars *b b*, the legs I, attached to the body of the churn, and the yoke *g*, securing both the cover and screw-cap, substantially as and for the purpose set forth.

182,944. MACHINES FOR TENONING TENONS ON SPOKES. L. H. Merriman, Auburn, Ill. [Filed May 13, 1876.]

Brief.—The tenons on spokes are dressed down to suit the mortises in the hubs by means of two laterally-adjustable knives, through which the tenon is forced by a vertically-reciprocating plunger, operated by a treadle and spring, and two laterally-adjustable guides arranged on the plunger-frame immediately above the knives.



The combination of the adjustable knives J J, adjustable gages I I, the plunger D, operated by the foot-lever G, and the spring H, substantially as and for the purposes herein set forth.

182,945. "STAR BRAID." August Moll, Brooklyn, N. Y. [Filed May 15, 1876.]

Brief.—In applying the trimming where an acute angle occurs it can be simply turned over, without the necessity of keeping the same side up.



The new article of manufacture of star braid, having the usual filling and bat six binding-threads, and being alike on both sides, substantially as herein specified.

182,946. IRONING AND POLISHING BOARDS. Lawrence Mooney and Daniel W. Young, Allegheny, Pa. [Filed Jan. 26, 1876.]

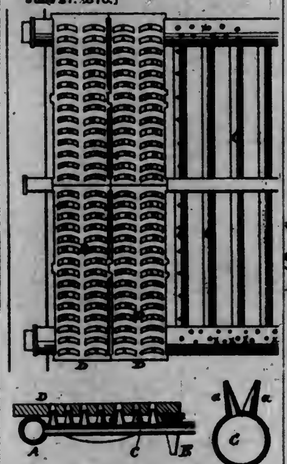


1. The improved polishing-board A, having its working-surface convex laterally or in transverse section, substantially as described.

2. A laundry polishing-board, of wood or other material, having a polished sheet-metal surface, as an article of manufacture.

3. The combination, with the shirt-board A, having a transverse beveled recess, *c*, in its under surface, of the correspondingly-beveled clamping-strip *d*, hinged at its inner edge to the under side of the board, and fitting said recess, substantially as shown and described.

182,947. BLAST-FURNACES. Braxton H. Murray, St. Paul, Minn., assignor to Smith Brothers & Murray, same place. [Filed June 27, 1876.]



1. In a furnace, a system of pipes communicating with each other, provided with diverging tapering tubes or blow-pipes, and arranged immediately under the grate-bars, and adapted to be connected with a blast-fan having connection with the smoke-stack, substantially as and for the purposes herein set forth.

2. In combination with the grate-bars of a furnace, the parallel perforated front and rear pipes A B, center-bar E, and the connecting pipes C C, provided with diverging tapering tubes or blow-pipes *a a*, all constructed and arranged substantially as and for the purposes herein set forth.

3. The grate-bar sections D D, constructed as described, with curved tapering openings, as shown, in combination with the pipes A B and connecting-pipes C, having blow-pipes *a*, substantially as and for the purposes herein set forth.

182,948. WAGON-BRAKES. W. R. Nash, Darlington, Wis. [Filed Apr. 8, 1876.]



The sliding front bolster J', with slotted plate *n*, in combination with the rod K and sliding hind bolster J, as and for the purpose set forth.

182,949. CHURNS. David R. Novitt, Elkin, Ind. [Filed July 3, 1876.]



The combination of the levers C and E, links *d e*, head-piece H, sliding bar J with arm I, rod *a*, and spring K, all constructed and arranged to operate substantially as and for the purposes herein set forth.

182,950. COMBINED EASY-CHAIR AND LOUNGE. William T. Nichols and John H. Cain, Chicago, Ill. [Filed Jan. 28, 1876.]



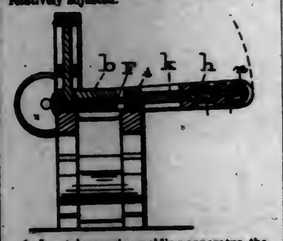
1. The combination of the main frame A, provided with arms M, and the auxiliary frame C pivoted to the main frame, substantially as and for the purpose set forth.

2. The combination of the notched pivoted piece F, stop or dog G, and spring H, for holding the auxiliary frame C at any desired angle of inclination to the main frame A, as specified and shown.

3. The combination of the shaft J, knob K, and cord L, for operating the spring H to adjust the auxiliary frame C, as specified.

182,961. APPARATUS FOR MOLDING CLAY TOBACCO-PIPES. Joseph G. Oliver, Philadelphia, Pa. [Filed Mar. 20, 1876.]

Brief.—The plunger-frame and the borer-frame have a common axis, whereby they are relatively adjusted.

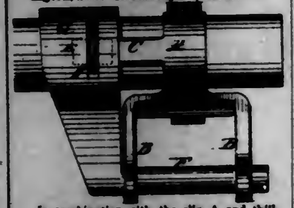


1. In a tobacco-pipe molding apparatus, the plunger, mounted on an axial frame, so as to be adjustable to the angle of the bowl to be molded, substantially as and for the purpose set forth.

2. The borer F, having rotary and sliding motions, and mounted on the axial frame E, substantially as and for the purpose set forth.

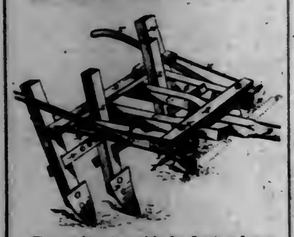
3. In a tobacco-pipe molding apparatus, an adjustable bowl-plunger and adjustable stem borer or wire, combined and operating substantially as and for the purpose set forth.

182,962. TRILL-COUPLINGS. Beresford L. Osborn and Charles L. Alexander, Washington, D. C. [Filed Sept. 7, 1876.]



In combination with the clip A and thill-coupling, having the ordinary lugs B, the ear D, bolt-loop G, and key E, all constructed and arranged to operate in combination substantially as and for the purposes set forth.

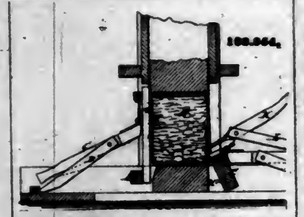
182,963. CULTIVATORS. John Palcor, El Dorado, Iowa. [Filed Sept. 14, 1876.]



The combination, with the front and rear transverse bars A B, central bars C between the same, the shaft E, passing transversely through the said bars, and the pendent curved K, having eddies, as described, of the independent adjustable plow-beams F and G, having the plows or cams I, provided with a series of elongated openings, J, substantially as shown and described, for the object specified.

182,964. COTTON AND HAY PRESSES. Wm. M. Feamsters and Wm. H. Feamsters, Pontiac, Mo. [Filed June 20, 1876.]

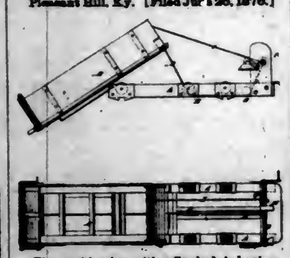
Brief.—The hinged door is closely pressed against the bale on one side by hinged toggle-jointed levers, while the hand-tightening device and a set of toggle-levers are applied on the other.



182,964.

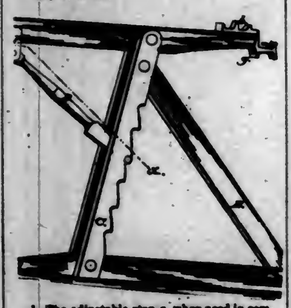
The case having pivoted side A, the lever C, having pivoted brace D, the pivoted presser G, and the lever I, having pivoted brace J, in combination with a lever, K, having circular prongs provided with a tent or projection, as shown and described, for the purpose specified.

182,965. DUMPING-WAGONS. Francis M. Pennebaker and William F. Pennebaker, Pleasant Hill, Ky. [Filed June 26, 1876.]



The combination, with roller-bed A, having windlass mechanism and box B removable on said bed, of the shaft-cord D, passing under pulleys E in front of box, shaft-cord I, attached to rear of box, and the clutch device G H, all arranged substantially as and for the purpose specified.

182,966. WAGON-JACKS. Adam N. Price, Jamestown, N. Y., assignor of one-half his right to Milo Harris, same place. [Filed July 3, 1876.]



1. The adjustable step g, when used in combination with the lever E, in the manner and for the purpose described.

2. The adjustable step g, lever E, pawl-rod D, ratchet-standard C C, standard B, and base A, when all are combined and used in the manner and for the purpose described.

182,967. ANIMAL-TRAPS. John Quigley, Winona, Minn. [Filed June 26, 1876.]

Brief.—Striking arm actuated by a spring, and rest for said victim until the spring "runs down."

1. In an animal-trap, the main shaft F, having the notch p and stop j, in combination with the vibrating bar E, having the latch h, the rock-shaft C, having the notch t and the loop r, and the rescuer-rod J, substantially as specified.

2. In combination with the spring-actuated main shaft F, carrying the striker I, the latch-bar E, adapted to engage with said shaft, the notched let-off rock-shaft C, and the spring S', substantially as specified.

3. In combination with the notched rock-shaft C and latch-bar E, the spring S' for retracting the said bar, and the spring s for throwing it into engagement with the said shaft, substantially as specified.

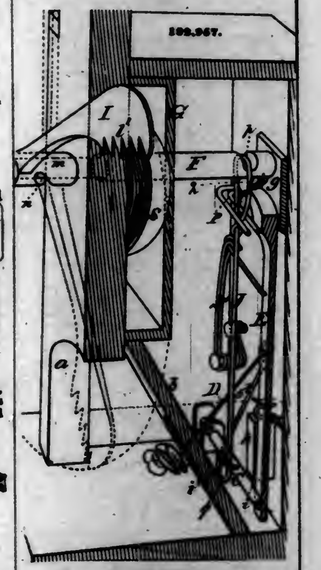
4. In combination with the spring-actuated main shaft F, the striker I, having tubular shank, with oblique slot a, adapted to be passed over the end of the said shaft, substantially as specified.

5. In combination with the self-adjusting striker I, constructed as described, and the spring-actuated shaft F carrying the said striker, the stop L, substantially as specified.

6. The rock-shaft C and trigger-arm d, in combination with a cord, I, and a slotted inclined guard, b, substantially as specified.

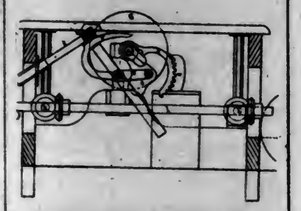
7. In combination with the rescetter-rod J, the guides P for holding it in proper relation to the notched main shaft F, substantially as specified.

182,967.



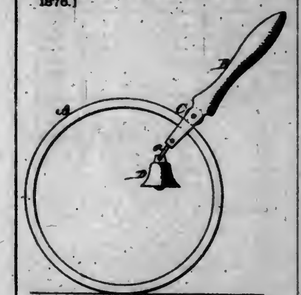
182,968. SAW-SHARPENER. David Hall Rice and J. W. Martinet, Lowell, Mass.; said Martinet assignor to said Rice. [Filed Oct. 2, 1876.]

Brief.—The saw is made vertically adjustable by means of a tangent screw acting upon a toothed segment attached to the frame carrying the saw-arbor.



The combination of the frame d, attached to the same bench frame, with the frame c, and mandrel a, substantially as described.

182,969. TRUNDLE-HOOP HANDLES. John J. Riley, West Troy, N. Y. [Filed Feb. 26, 1876.]



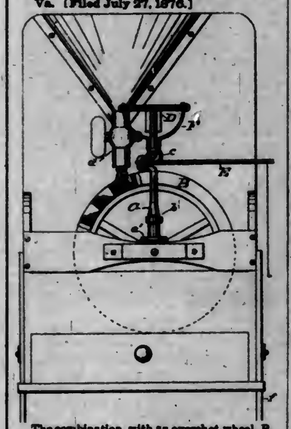
The combination, with a hoop, A, of the slotted or forked handle B, roller C, and bell D, substantially as herein set forth.

182,970. HOLDBACKS. Orville M. Robinson and Albinus J. Merrill, Upper Jay, N. Y. [Filed Aug. 18, 1876.]



The hook c, having the two ends c, in which are journaled the rollers d, substantially as set forth.

182,971. AUTOMATIC FANS. Moris Rubon and Herman K. Bradshaw, Alexandria, Va. [Filed July 27, 1876.]

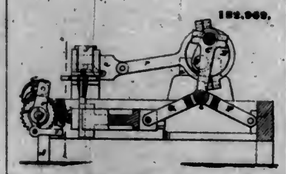


The combination, with an overshot-wheel, B, geared with and actuating a vertical crank-shaft, C, of a horizontal arm, E, carrying the fan, and pivoted at one end to the crank of the vertical shaft, together with the swinging loop F, loosely connected below to the fan-arm, and supporting the same so as to effect the compound reciprocation, substantially as and for the purpose described.

182,972. RIVET-HEADING MACHINES. Hamilton Ruddick, Waterbury, Conn., assignor to Blake & Johnson, same place. [Filed Feb. 14, 1876.]

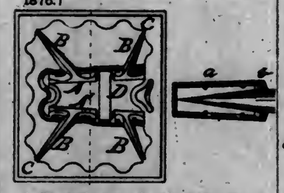
Brief.—The punch-stock carries two heading-punches, one above the other, that co-operate to form the head of the rivet by means of devices that alternately depress and elevate the forward end of the stock.

182,973.



In a machine for heading rivets, the combination of a horizontally-reciprocated punch-carrier, H, vertically-reciprocated punch-adjuster J, slotted plate s, eccentric rod r, and knuckle-jointed links F G, arranged and co-operating substantially as and for the purpose specified.

182,974. CARRIAGE STEP AND SHANK. F. A. Sawyer, 2d, Boston, Mass. [Filed Aug. 5, 1876.]



1. The carriage-step described, consisting of a metal plate formed upon its under surface with the wedging ribs A A', substantially as and for the purpose set forth.

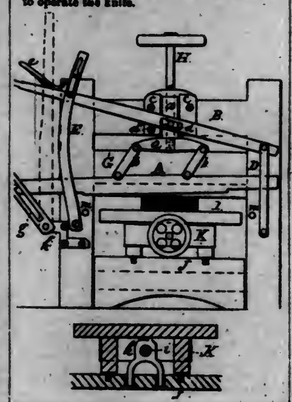
2. In a carriage-step, the ribs A A', stays B, and bar D, substantially as shown and described.

3. The combination of a shank provided with a wedge-shaped head, substantially as shown, with a step provided with wedging ribs designed to lap upon the head, as shown, and to project sufficiently beyond the head to lock the step to the shank, substantially as shown and described.

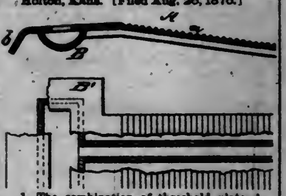
4. The step-shank described, when provided with a head wedge-shaped in cross-section and plan, substantially as and for the purpose described.

182,975. PAPER-CUTTING MACHINES. Wm. T. Shaffer, Fremont, Nebr. [Filed Feb. 12, 1876.]

Brief.—The carriage is provided with an adjusting-screw and a fork, the latter serving to connect the carriage to the bed of the machine, and also to admit of its being readily removed therefrom when it is desired to use the machine as a standing press only. One bar is connected to the sliding knife-head to adjust the knife with relation to the pile of paper to be cut, while another bar is employed to operate the knife.



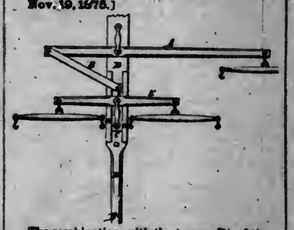
182,976. WEATHER-STRIPS. M. B. Smyth, Holton, Kans. [Filed Aug. 26, 1876.]



1. The combination of threshold-plate A with trough B, having extensions B' B' and rear supporting-flange b, substantially as and for the purposes set forth.

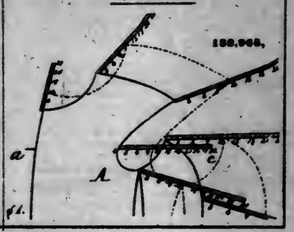
2. A detachable metal threshold, provided with a trough and with supporting-ribs, which also serve as discharge-tubes for said trough, substantially as and for the purpose set forth.

182,977. TREAD-HORSE ENGINES. Henry Spunaugle, Shenandoah, Iowa. [Filed Nov. 19, 1875.]



The combination, with the tongue D', of the plate D, formed with the guides e e, the slide C, the double-tree E, pivoted to the slide, the one-horse lever A, pivoted to the tongue, and the bar B, connecting the short end of the lever with the rear end of the slide, substantially as herein set forth.

182,978.



1. The knife suspended from a sliding holder by means of pivotal swinging arms, in combination with an adjusting and operating lever, substantially as and for the purpose set forth.

2. The combination of the knife A, provided with guide-pin f, pivotal swinging arms b b, sliding holder a, provided with pin d', lever C, provided with oblong slot d and pawl e, slotted curved ratchet and guide E, slotted guide D, and lever F, provided with slots g, and having its fulcrum upon an angular projection attached to the standard of the machine, substantially as set forth.

3. The removable carriage, provided with an adjusting-screw and a fork, as described, in combination with the bed of the machine, substantially as and for the purpose set forth.

182,979. PREPARING TAN-BARK FOR TRANSPORTATION. Jonathan Sherman, Jr., Chicago, Ill., assignor of two-thirds his right to Abraham G. Courson, same place, and Jas. L. Hill, Milwaukee, Wis. [Filed Mar. 6, 1876.]

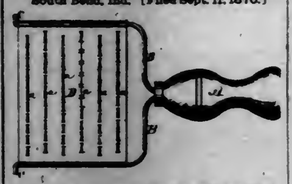
The process for the preparation of bark for tanning, consisting in drying and grinding, and then compressing the bark sufficiently to crush the cells containing tannin, and at the same time to form small cakes of the ground material, convenient for transportation.

182,966. APPARATUS FOR DRAFTING PATTERNS. Carl A. Steiner and Carl Laas, St. Louis, Mo. [Filed May 11, 1876.]

1. In combination, with the patterns shown in Figs. 1, 2, 3, 6, 7, the rule or scale *a b c*, having the lettered spaces representing the different figures as to size, as shown and described, as and for the purpose set forth.

2. The combination of the scale herein shown and described, the pattern illustrated in Figs. 1, 2, 3, 6, 7, and the ruler devices 4, 5, 8, 9, as and for the purpose set forth.

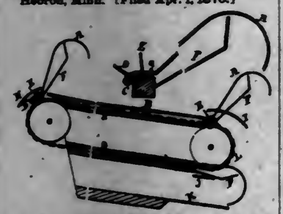
182,969. CURRY-COMBS. Carlo R. Taylor, South Bend, Ind. [Filed Sept. 11, 1876.]



1. In a curry-comb, the plate D, provided with a series of rows of slots, *a*, and a continuous corrugated wire inserted in each row and fastened thereto, forming the open V-shaped or curved teeth *b*, substantially as herein set forth.

2. The combination of the handle A, wires B B, forming knockers C C, and the slotted plate D, with open V-shaped or curved wire teeth *b*, substantially as and for the purposes herein set forth.

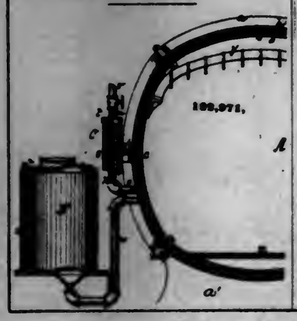
182,979. HAY-LOADERS. W. H. Thurston, Hebron, Minn. [Filed Apr. 1, 1876.]



1. The rake-head B, teeth A, and tripe D, E, and F, in a hay-loader, in combination with the chain L and guides H and I, for the purpose of elevating and dropping the rakes, carrying them up, and returning them down, without essentially changing the direction of their points, and at the same time keeping them all above the hay.

2. The combination, in a hay-loader, of the wheels M, levers P, fulcrums Z, cord R, and windlass Q, for the purpose of suspending from the rakes, and at the same time lifting the head end of the loader away from the ground when not in use, or in passing from field to field.

3. The combination, in a hay-loader, of the apron hinged to the floor at its lower end with the staple J, substantially as described, and for the purpose specified.

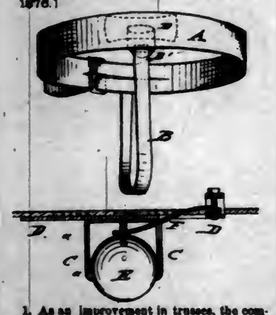


182,971. APPARATUS FOR PRESERVING FOOD. Alois Thoma, Hoboken, and Christian Burich, Jersey City Heights, N. J. [Filed Apr. 27, 1876.]

1. The combination, with a closed chamber, A, of a cylinder, C, containing a series of open-bottomed trays containing loose cotton, and of an exhauster, B', the cylinder C being connected to the chamber A by a pipe, *c*, and the exhauster B' being in communication with said chamber by a pipe, all substantially as and for the purpose shown and described.

2. A refrigerating-chamber, A, constructed of a layer, *c*, of sheet metal, with flanges *i* to support the heads B B' and the plates *m*, in combination with supports *e*, fastened to the layer *c* and sustaining the boards *f*, jacket *h*, and the hubs *s*, which are provided with feet *s'*, all constructed and operating substantially as shown and described.

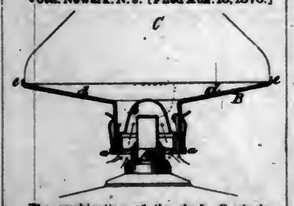
182,973. TRUSSES. Winfield A. Turner, Hiawatha, Kans., assignor to himself and J. F. Roehm, same place. [Filed Aug. 14, 1876.]



1. As an improvement in trusses, the combination of the fixed socket-tube of the base-plate, with a sliding ball-carrying socket-tube, and suitable set-screws, to adjust the length of the pad, substantially as and for the purpose set forth.

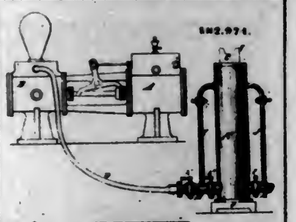
2. The combination of the movable ball-pad with a bend-spring, bearing at one end on the under side of the ball, and being acted upon by an adjusting mechanism at the other end to adjust the pressure of the pad, substantially as specified.

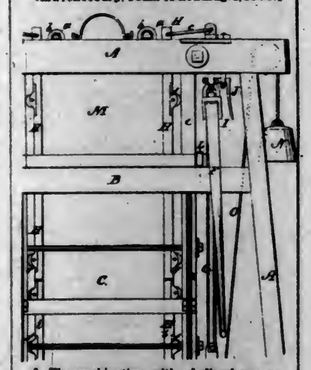
182,972. SHADE-HOLDERS FOR LAMPS. Carl Votti, Newark, N. J. [Filed Aug. 16, 1876.]



The combination of the shade C, shade-holder E, constructed of transparent material, and provided with a downwardly-extending socket, *c*, and dish-shaped flange *d*, with the cone *b*, having a flange, A, provided with apertures for the admission of air to the outside and inside of the cone, the whole arranged to operate without a chimney, substantially as set forth.

182,974. HAY AND COTTON PRESSES. Isaac N. Ward, Henryville, and Hugh R. White, Lawrenceburg, Tenn. [Filed Aug. 1, 1876.]



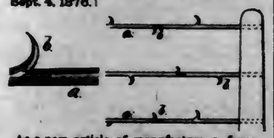


1. The combination, with a baling-box provided with sliding ends, of the bails and rods G, as shown and described, so as to steady the said sliding ends.

2. The combination, with the removable sides M and sliding ends H of the detachable corner-posts *c*, fitting in mortises, and of the dogs or clamps L, engaging the projecting portions of sides M, all constructed and arranged as shown and described, for the purpose specified.

3. The sliding ends H of the press-box, provided with friction-rollers, in combination with the follower and the corner-posts of the press-box, as shown and described.

182,976. BARBED FENCE-WIRE. Theodore A. Weber, New York, N. Y., assignor to J. H. Woodman, Bennington, Vt. [Filed Sept. 4, 1876.]



As a new article of manufacture, a fence-wire with the tapering spikes or barbs cut from the metal of the wire itself, and turned outwardly, leaving a tapering groove in the wire, substantially as set forth.

182,977. DYNAMO-ELECTRIC MACHINES. Edward Weston, Newark, N. J. [Filed Aug. 14, 1876.]

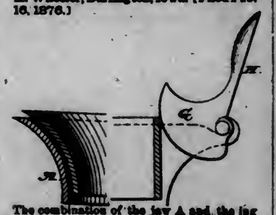
1. In a dynamo-electric machine, an adjustable switch, operated or controlled by means of a revolving shaft for opening or closing the circuit between the machine itself and an external conductor, the whole being arranged to open the circuit between the machine and the external conductors when the speed of the machine falls to a certain point, as herein set forth.

2. The method of making and breaking the current between a dynamo-electric machine and an external conductor by means of a revolving shaft, a mass of mercury, and an adjustable piece of metal, substantially as herein set forth.

3. In combination with a magneto-electric machine, a switch, operated or controlled by means of a belt or other mode of transmitting power, a revolving shaft, and an adjustable wire or other piece of metal, the whole being arranged to open the circuit between the machine and the external conductor when the speed of the machine falls to a certain point.

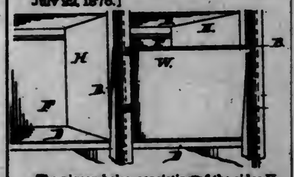


182,978. MACHINERY FOR CREASING THE UPPERS FOR BOOTS AND SHOES. Charles A. Wheeler, Burlington, Iowa. [Filed Feb. 16, 1876.]

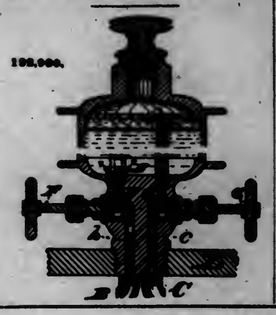


The combination of the jaw A and the lug D, constructed and used as described, with the cam-lever G H, for the purposes herein set forth.

182,979. PERFORATING-HOLES FOR PAPERS. John C. Wigent, Columbia City, Ind. [Filed July 22, 1876.]



The papers-holes, consisting of the sides H, tops and bottoms D, cleats A, having grooves E, sliding doors W, and slots F, all substantially as shown and described.



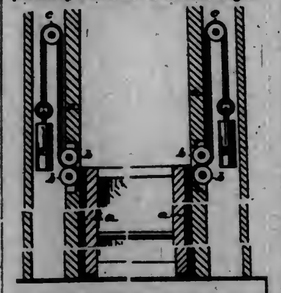
182,980. STEAM-LUBRICATORS. Frederick G. Wiesbogel, Chicago, Ill. [Filed July 29, 1876.]

1. The combination of the steam-pipe L and the lubricator A, constructed with a short steam-duct, *b*, and a long oil-duct, *c* D, and bent pipes E and C at the bottom of the stem, and arranged in the steam-pipe so that the pipe E will open toward the current of steam, and the pipe C from said current, substantially as and for the purpose set forth.

2. The combination of the oil-chamber A, passages or ducts *b c* in the stem *c*, tube D, bent pipes B C, and check-valve E, substantially as and for the purpose set forth.

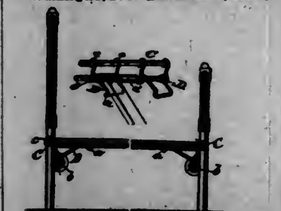
182,981. RAISE-BALANCES. W. Woodward, Nashville, Tenn. [Filed Sept. 4, 1876.]

Brief.—The use of three pulleys, and their relative location, serving to conceal the cord entirely from view, and at the same time to give greater range of movement to the mash, permitting it to be moved its entire length.



The combination, with the mash, having grooved edges, of the two pulleys *b b*, located in the middle of the frame, the pulley *c*, located above the same, and the cord *e*, having weight *d* attached and passing around pulley *c*, between pulleys *b b*, and attached to the bottom of the mash, substantially as and for the purpose described.

182,982. BED-SPRINGS. James W. Wright, Washington, D. C. [Filed Mar. 6, 1876.]

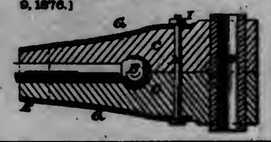


1. The independent detachable springs D, having projecting loop-shaped seats *a*, spring coils *b*, and upward-extending arms terminating in hooks *c*, substantially as described, and for the purpose set forth.

2. The detachable springs D, having seats *a*, coils *b*, and hooked arms *c*, in combination with the continuous pivot-rod E passing through said coils, as and for the purpose described.

3. The combination of the detachable springs D, rod E, and alternating tubes *d*, as and for the purpose described.

182,983. PITMEN FOR HARVESTERS. James Doo Wright, Columbia, Tenn. [Filed Sept. 9, 1876.]



The combination of the pitman A with ball B, the bisected box C C, collar or band E, with arms G G, and the single bolt H with nut I, all substantially as and for the purposes herein set forth.

182,984. RAILWAY-TIES. Leonora E. Yates, Washington, D. C. [Filed Apr. 12, 1876.]

Brief.—A sheet-metal tie of trough form, with yielding sheet-metal tubular cushions under the rail-seats.



1. The tubular cushion *c*, constructed as described, in combination with the tie *a* and rails *a'*, for the purposes set forth.

2. The sleeve *d*, in combination with rails *a'*, clamps *b*, and tubular cushion *c*, for the purposes set forth.

REISSUES.

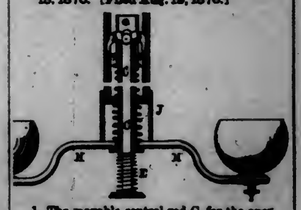
7,286. GRAIN-DOORS FOR RAILWAY-CARS. Miles H. Card, Freeport, and Levi Safford, Chicago, Ill. Patent No. 113,220, dated Aug. 22, 1871. [Filed Sept. 9, 1876.]



1. The combination, with the imperforate grain-door hinged at one end to the car in such manner as to "up end" in opening, of a curved shoulder-piece at the other end forming a lap-joint with the door, and connecting the door with the car side, substantially as and for the purposes set forth.

2. The combination, with the up-ending car-door, of the lagging or flap on the bottom of the door, substantially as specified.

7,289. CHANDELIERS. Charles H. Carter, Brooklyn, N. Y., and J. B. Browne, Newark, N. J., assignors to E. B. Finch, Peekskill, N. Y. Patent No. 178,783, dated June 13, 1876. [Filed Aug. 19, 1876.]



1. The movable central rod C, for the operating at will of a checking or supporting device.

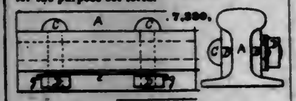
2. The checking or supporting device, operated by a centrally-located movable rod.

3. The combination, with the rod C and cams or supporting levers E, of the sliding tube D and cap G, for regulating and limiting the motion of the cams, substantially as herein described.

7,290. NUT-LOCKS. Benjamin W. Davis, Keokuk, Iowa, assignor of one-half interest to Wm. Leighton, same place. Patent No. 166,906, dated Mar. 16, 1876. [Filed Sept. 11, 1876.]

1. The arched spring *c*, arranged with the crown of the arch bearing against the fabber, said spring having an elongated bolt-hole at or near each outer free end of the arch, whereby, on the turning down of the nuts, the elastic force of the spring will be brought to bear on each nut equally, or nearly so, substantially as and for the purposes set forth.

2. The curved spring *d*, provided with elongated openings for the bolts C, and also provided on its outer ends with vertically-projecting lips *g*, engaging the sides of the nuts, in combination with the ordinarily-constructed nuts D and fish-bar B, substantially as and for the purpose set forth.



7,880.

7,881. STEAM-GENERATORS. George T. McLoanthlin, Boston, Mass. Patent No. 166,906, dated Aug. 3, 1876. [Filed Sept. 18, 1876.]

Brief.—The invention relates to that class of steam-generators in which a series of water-tubes depend from the crown-sheet of a water and steam chamber into the fire-box, each tube having within it an inner tube to effect a circulation and secure a thin layer of water between the heated tube and the water-circulating or inner tube.



1. The removable ring *d* and its springs *b*, combined with the main depending and the circulating tubes for centering and holding the upper end of the circulating-tube, substantially as set forth.

2. The main depending tube *u*, connected with the crown-sheet by means of screw-threads, as set forth, and the circulating-tube *y* within the main tube, combined with the removable centering devices, substantially as described, for centering the circulating-tube at bottom and top, as set forth.

3. The outer tube *u*, the inclined projections *x*, and the inner tube *y*, arranged, with relation to each other, substantially as described, and so that the lower end of the inner tube is centered automatically, and its end left unobstructed for the passage of water, as set forth.

4. The outer tube *u*, provided with the removable plug, combined with the inner tube and removable centering mechanism, and arranged, with relation to the steam-chamber and fire-box, so that the inner tube may be removed from the top or the bottom of the outer tube, substantially as described.

5. The combination, with the outer and inner tube, of the safety-valve, arranged to discharge the water on the fire in the fire-box, substantially as described.

6. The combination, with the sheets or heads of a steam-generator, of the removable ties of equal lengths, and adjustable eyebolts, the ties being interchangeable, as and for the purpose set forth.

7. The vertical steam and water cylinder, and the tubes *n* and *y*, suspended and arranged above the fire-box, and forming no part thereof, and having an open annular space about the cylinder for the passage of the heat and products of combustion, the entire cylinder having an equal exposure, or nearly so, on all sides, substantially as set forth.

7,882. HAY AND GRAIN ELEVATORS. Thos Powell, Stockton, Cal. Patent No. 162,207, dated Apr. 20, 1875. [Filed Sept. 4, 1876.]

Brief.—Two reticulated slings, each stretched at top and bottom by bars, are connected at bottom by hooks and eyes self-detachable in sailding longitudinal movement, when a spring-catch is released by a rope.

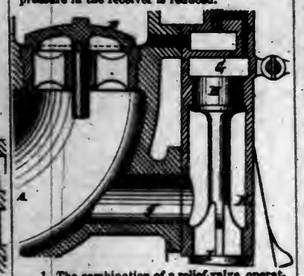


1. The inclined or oblique self-detaching hooks E, in combination with eyes D, and a detachable fastening for preventing the bars B B from moving longitudinally, substantially as and for the purpose described.

2. The sections A A, provided with hooks and eyes D E, and swivel-hook F, having crank G, catch I, and trip-cord H, all arranged as shown and described.

7,883. RELIEF APPARATUS FOR AIR-COMPRESSORS. Geo. H. Reynolds, New York, N. Y., assignee of one-half interest to C. H. Delamater and G. E. Robinson. Patent No. 160,966, dated Mar. 16, 1875. [Filed Sept. 21, 1876.]

Brief.—When the desired pressure is attained in the reservoir, a valve opens automatically, and permits the compressed air to open the relief-valve by acting upon a piston on the valve-stem. The piston of the compressor then works in equilibrio until the pressure in the receiver is reduced.



1. The combination of a relief-valve, operating to establish communication between the compressor and the external atmosphere, and a supplementary valve governed by the pressure of the air delivered by the compressor, and controlling the action of the relief-valve, substantially as specified.

2. The combination, with a duct, A, in communication with the compressed-air reservoir or receiving-pipes, of a check-valve, B, through which the air is discharged by the compressor, a relief-valve, I, opening communication between the compressor and the external atmosphere, and the controlling-valve C operated by the pressure of the air on the delivery side of the check-valve, and governing the action of the relief-valve, essentially as and for the purpose or purposes specified.

7,884. FASTENINGS FOR SPINNING-RINGS. Jacob H. Sawyer, Lowell, Mass., assignor to Geo. Draper & Son. Patent No. 117,934, dated Aug. 8, 1871. [Filed July 7, 1876.]

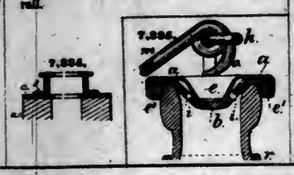
Brief.—The lower end of the spinning-ring is provided with a flange or enlarged portion, and is held down to the ring-rail by a socketed sheet-metal holder, adapted to encompass the ring above its lower flange. This holder is attached to the ring-rail by screws, whose shanks are of less diameter than the holes in the holder through which they pass, which construction admits of the horizontal adjustment of the ring-holder and ring.

1. The combination, with a spinning-ring, provided with a flange or enlarged portion at its lower end, of a socketed holder, adapted to encompass the ring above its lower or enlarged flange or end, to hold the ring down in proper position with relation to the rail, and permit the adjustment of the ring and holder above the ring-rail.

2. The combination, with a ring, of a sheet-metal holder, to receive and hold the lower end of the ring, substantially as described.

3. The sheet-metal holder, provided with a socket to receive the lower end of the ring next the rail and split, substantially as described.

4. A ring-holder, provided with a ring-receiving socket or opening, of less diameter at its upper portion than at its lower portion next the ring-rail, and adapted to rest upon and hold a ring on or above the top of the ring-rail.



7,884.

7,885. BOTTLE-STOPPERS. Theo. A. Weber, New York, N. Y., assignor to Joseph H. Woodman. Patent No. 66,270, dated July 2, 1867. [Filed July 17, 1876.]

Brief.—The tubular downward projection of the plate is to receive the end of the filling-tube, and also forces the perforated rubber disk against the mouth of the bottle.

1. The combination, in a bottle-stopper, of an elastic disk and a metal plate, having a downward central projection, substantially as set forth.

2. The combination, in a bottle-stopper, of a metal plate having a downward central projection, an elastic disk, a compressing-lever, and a bail, substantially as set forth.

3. The combination, in a bottle-stopper, of an elastic stopper, a metal plate with a central opening, a neck-band, and means for connecting the neck-band and plate and compressing the elastic stopper, substantially as specified.

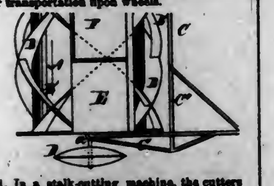
4. The combination, in a bottle-stopper, of a cam-acting lever, a metal disk, an elastic disk, and a yoke-wire, forming the fulcrum for the cam-acting lever, substantially as set forth.

5. The combination, in a bottle-stopper, of the cap *a* and elastic perforated diaphragm *b*, substantially as and for the purposes described.

6. The combination, in a bottle-stopper, of a perforated cap, *a*, perforated diaphragm *b*, ring *d*, and mechanism, substantially as described, for holding the same tightly upon a bottle, substantially as described.

7,886. STALK-CROPPERS. Reuben Wright, Clifton, Va., assignor, by mesne assignments, to Robert H. Avery and Cyrus M. Avery. Patent No. 89,834, dated May 4, 1869. [Filed Aug. 16, 1876.]

Brief.—Spiral cutters. Machine reversible for transportation upon wheels.



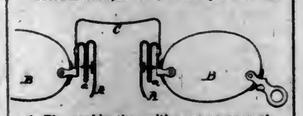
1. In a stalk-cutting machine, the cutters B, of spiral form, and affixed to the cylinder A, so as to cut the stalks in rolling over them, substantially as and for the purpose specified.

2. The cutters B', of spiral form, and affixed to the cylinder A, crossing the cutters B, substantially as described, and for the purpose specified.

3. The cutters B, of spiral form, arranged upon the cylinder A, substantially as shown, so as to present their cutting-edges to the soil in a manner adapted to fit over the convexity of the ridges upon which the stalks grow, substantially as described, and for the purpose specified.

4. The combination of the frame C, wheels D, and cylinder of cutters A, so that the frame C may be inverted, substantially as and for the purpose specified.

7,887. EYEGLASSES. Isaac Alexander, Washington, D. C. Patent No. 174,758, dated Mar. 14, 1876. [Filed Sept. 9, 1876.]



1. The combination, with nose or supporting springs of eyeglasses, of means for adjusting the springs to or from each other, so as to vary the distance between them, substantially as set forth.

2. An eyeglass having its nose-springs or spring-clamps adjusted to or from each other, substantially as set forth.

3. The spring-clamp for eyeglasses, made adjustable by a set-screw, substantially as and for the purpose set forth.

4. The spring A for eyeglass-clamps, made adjustable, substantially as shown and described.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

COMMISSIONER'S DECISIONS.

D. L. PROUDFIT.—*Interlocutory Motion.*

[*Appeal from the decision of the Examiner in the matter of the application of David L. Proudfit for a* "DESIGN FOR BILL-HEADS, CHECKS, &c.," *filed August* 12, 1876.—*Decided September* 28, 1876.]

The rejection of an application on the ground that it does not present the proper subject-matter for a design patent goes to the merits of the case, and may be appealed to the Board.

The Board have appellate jurisdiction whenever a statutory bar is interposed and the patentability of the subject is denied.

Only such matters as affect Office practice and are interlocutory in their nature are appealable direct to the Commissioner.

All the reasons for rejecting an application should be given at once.

[*Pollok & Bailey*, attorneys.]

DUELL, *Commissioner:*

The Examiner has refused to consider this case upon the ground that it does not "present proper subject-matter for a design patent," in view of certain decisions of the Commissioner.

The attorney, recognizing the former practice of the Office in this particular, inquires whether his proper course is to appeal to the Board or to the Commissioner in person.

Heretofore matters of this kind have uniformly been disposed of by the Commissioner on interlocutory appeal, but such proceeding, I am convinced, was erroneous.

The Supreme Court in *Commissioner of Patents* vs. *Whitely*, (4 Wallace, 522,) decided that an application must be received before it can be acted upon, and that if the Commissioner actually refuse to receive an application a mandamus would lie to compel him, but that a mandamus would not lie where there was a remedy by appeal, as in the case of a refusal to allow the application after it had been received.

The statute provides that whenever an application is twice rejected, an appeal may be taken to the Board of Examiners-in-Chief, from them to the Commissioner, and thence to the Supreme Court of the District.

This has reference to all matters which go to the merits of the invention, and applies whenever a statutory bar is interposed and the patentability of the subject is denied.

Only such matters as affect Office practice and are interlocutory in their nature are appealable direct to the Commissioner in his executive or ministerial capacity.

In the case under consideration the objection clearly affects the merits, and involves the question of its patentability under the statute. The appeal should, therefore, be addressed to the Board.

The Examiner is directed to present all his objections to the application, so that a second appeal will not be necessary should his decision on this question be overruled.

DWYER AND CARTER *vs.* DICKEY AND PERRY.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of James Dwyer and John V. B. Carter, filed May* 22, 1874, *and Andrew Dickey and John S. Perry, filed April* 24, 1874, *for Letters Patent for* "IMPROVEMENTS IN BASE-BURNING STOVES."—*Decided October* 3, 1876.]

A joint invention cannot be carried back to a date earlier than that at which the subject-matter was first discussed by the parties.

Joint inventors can derive no benefits from individual efforts and proceedings occurring prior to the time that they came together for mutual operations, as priority cannot be awarded to joint inventors for that which was invented by one only.

Not until the ideas of the parties are incorporated in complete form is their joint invention accomplished.

It appearing both as a presumption of law and from the evidence adduced that the successful party in the interference had

knowledge of certain patents alleged to anticipate the claims involved, the case was remanded to the Primary Examiner for further consideration upon its merits.

DOOLITTLE, *Acting Commissioner:*

The subject-matter involved in the above-named interference is comprised in the first and third claims in each of the interfering applications.

The first and third claims of the later applicants, Carter and Dwyer, are as follows:

1. In a diving-flue heating-stove, the combination of the ascending and descending flues, located in the rear thereof, with the space between the grate and fire-pot, and the illuminating-windows opposite the same, substantially as described.
3. The combination of the horizontally vibrating and dumping grate J with the ring I, supported by the braces K, as shown and set forth.

The corresponding claims of Perry and Dickey are substantially the same as those of their opponents. Carter and Dwyer, however, in view of the fact that both the Examiner of Interferences and the Board of Examiners-in-Chief have decided that Perry and Dickey were the first to conceive, complete, and put in use the subject-matter of the third claim; and, also, as they contend, the precise invention therein set forth is shown in the patent of Elihu Smith of June 4, 1872, and claimed in the reissue of that patent, 6,891, announce their purpose to no longer contest the subject-matter of that claim in this proceeding.

As to the novelty of the matter of the claim in question, as well as to that of the first claim, it was decided by the Commissioner, June 29, on the hearing of a motion by Carter and Dwyer to dissolve the interference on the ground of lack of patentability, that the determination of this question would be postponed until after the final hearing and decision upon the question of priority, and that then the patent to the successful party should be withheld until the question of novelty could be reviewed and redetermined in the usual way as an *ex parte* question by the Primary Examiner.

The burden of proof rests upon Carter and Dwyer. They base their claim as prior inventors upon certain drawings and sketches made by Carter in 1867 and 1872. The attorney for Carter and Dwyer admits that the drawings of 1867 do not show the entire invention in controversy, as it does not embrace the anti-clinker idea; but that those made in 1872 do show all the elements of the "Crown Jewel," the name given by these parties to the stove in controversy, and that each of them exhibits the elements embraced in the first claim, namely, rear revertible flues, a space between the bottom of the fire-pot and the top of the grate, and the illuminating-windows opposite the space. It appears, then, that in resting their whole case upon the drawings and sketches of Carter, it would of necessity eliminate Dwyer from the contest. But this whole question as to the respective parties herein being joint inventors was passed upon by the Acting Commissioner, September 20, 1875. (8 OFFICIAL GAZETTE, 518.) The then Examiner of Interferences had dissolved this interference on the ground that neither Carter and Dwyer on the one hand nor Perry and Dickey on the other could properly apply as joint inventors of the devices claimed in the first and third clauses of their respective applications. The whole matter was elaborately gone into by the Acting Commissioner, and he decided that in view of the evidence and the joint oaths of the respective parties, their joint applications had been properly made. This decision proceeded upon the ground that the elements under discussion constituted a unit, and that the result produced was the union of the combinations claimed in the two clauses of claim, which in each case was a joint production. Upon a careful consideration of that decision, in view of the facts, I see no reason for disturbing it.

To now admit what is contended for by Carter and Dwyer, that Carter was the first to invent, would necessitate the dissolution of the interference. It is impossible to award priority to joint inventors for that which was invented by one only. Carter and Dwyer in their testimony both admit that the invention in its present shape was not completed or perfected until by their joint efforts they devised and constructed the stove in its present condition.

It appears that Carter in 1872, several years after it is alleged he had made his original sketches showing the elements of the first claim in controversy, first spoke to Dwyer about the matter; and it was not until November or December, 1873, that the Detroit Stove Works, of which Dwyer was a member, concluded to accept the ideas of Carter, and decided to construct a stove with his improvements. In January, 1874, Carter testifies that he commenced making working drawings and patterns of a stove, which were submitted to Dwyer, and the work went on under the latter's directions. This work was upon the stove known as the "Crown Jewel" comprising the entire matter in interference. It was during the construction of this stove that Dwyer gave directions to Carter to incorporate therein the particular form of grate with slots or followers, which is embraced by the present second claim, and which is alleged to be the invention of Dwyer. It was not until the ideas of the parties were thus incorporated into this stove that their joint invention was accomplished, and this occurred in the early part of 1874.

On the part of Perry and Dickey they allege, and I think it appears, that the invention, regarded as a whole, was devised and completed by their united efforts, and put in operation in this completed form as early as April, 1873. This was at a time anterior to the completion of the invention by Carter and Dwyer, to their joint action in the matter, and to the acceptance of Carter's improvements by Dwyer or his company. Both tribunals below agreed upon this statement of the facts, and I have examined the evidence sufficiently to convince myself that they were correct.

The decision of the Board of Examiners-in-Chief in awarding priority to Perry and Dickey is therefore affirmed.

In remanding the application of Perry and Dickey, as above indicated, to the Primary Examiner for re-examination as to the matter of novelty, his attention is called to the fact that both by presumption of law and by the evidence adduced in this proceeding the respective joint parties were aware of the existence of the patents of James Spear and Elihu Smith at the time of the alleged completion by them of this invention. It is principally upon the patents of Spear and Smith, referred to in the brief of the counsel for Carter and Dwyer, that the motion to refer the case to the Examiner was based.

The case is now remanded to the Primary Examiner for consideration of those references in pursuance with the Commissioner's decision of June 29, above referred to.

SOL KUH.—*Interlocutory Appeal.*

[*In the matter of the application of Sol Kuh for Letters Patent for* "IMPROVEMENTS IN MATTING-LOOMS." *filed May* 10, 1876.—*Decided August* 26, 1876.]

It is the duty of the Office to allow an inventor to embrace in one application contrivances, however distinct, which mutually contribute in producing and are essential to a unitary result, notwithstanding they may belong to different classes.

When there is no actual combination of the several machines or contrivances that produce by their co-operation a certain effect, but are entirely independent of each other in their operation, they should not be allowed in one application.

There is no necessary co-operation between a machine for sawing or splitting corn-stalks and one for weaving the material prepared thereby, although both are attached to the same frame, and operated by the same shaft.

[*Alexander & Mason* for appellant.]

DOOLITTLE, *Assistant Commissioner:*

This is an appeal from the Principal Examiner requiring a division of the application.

September 7, 1875, Patent No. 167,545 was granted to applicant for the mechanism of a loom for weaving matting and other coarse fabrics. The present application embraces some additions to the loom arrangement, and also mechanism for sawing or splitting the sticks, corn-stalks or other similar material of which the matting is composed. The Examiner admits all those parts relating to the loom proper, but requires applicant to eliminate from this application the splitting mechanism. The splitting mechanism is connected with the frame of the loom and both are driven by the same shaft.

It is the duty of the Office to allow an inventor to embrace in one application contrivances, however distinct, which mutually contribute to produce a unitary result.

Where such contrivances are essential in producing the result it should make no difference whether they belong to one or a dozen classes. The Office has no right to fritter away an applicant's invention by splitting it up into as many applications as it has parts. But where there is no actual combination of several machines or contrivances that produce, by their co-operation, a certain effect, but are entirely independent of each other in their operation, they should not be allowed in one application. This doctrine has been repeated quite frequently of late.

Applying it to the present case, we find that there is no necessary connection between the loom and the splitting or sawing mechanism.

The corn-stalks or other material can be woven into matting without being split at all, and applicant has filed a sample of the matting in the latter condition. Or the stalks can be split or sawed any distance from the loom, and by, perhaps, a hundred or more different machines already in use for that very purpose. A supply of split material can be furnished by one portion of this machine one year, and used by the other the next year.

Unlike the Birdsell case, (7 OFFICIAL GAZETTE, 682,) the present machine is not a unit. There, although five or six independent contrivances were employed for thrashing, hulling, bolting, screening, and conveying, the court held that they all co-operated to produce the result, and were necessary to that end. "Without either," it was added, "there would be a failure to the extent of the function which it performs, and the work intended to be accomplished would be imperfectly done."

Here, as we have found, the sawing or splitting apparatus is entirely unnecessary to the performances of weaving or the production of the matting. In such clear cases I think it is right to insist upon a division. So far as continuing and automatic operations of a combination of contrivances are concerned, I think it hardly necessary that they should be possessed in order that the devices may be embraced in the same application.

As was held in the case of Eynon, C. D., 1871, p. 243, it is only necessary that each device "shall fill a necessary office, and act a necessary part in producing the result," and to do this they need not necessarily be connected together by operating mechanism.

The decision of the Examiner is affirmed.

JAMES D. WRIGHT.—*Interlocutory appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of James D. Wright, filed August* 23, 1876, *for the reissue of Patent No.* 100,481, *dated November* 22, 1870.—*Decided October* 9, 1876.]

A reissued patent must be granted in the name of the patentee, or, in case of his death, or of an assignment of the whole or of an undivided part of the original patent, then to his executors, administrators, or assigns.

If obtained without the assent of such assignees it would be defective.

It is, therefore, the duty of the Commissioner to determine by whom a reissue may be effected, and he is invested with authority to prescribe what proof shall be adduced by an applicant to show that the application is made and concurred in by the proper parties.

A certified copy of the abstract of title, together with the oath of the applicant, has been fixed upon as the necessary evidence for this purpose.

The amount paid for a copy of the abstract of title is not a part of the fee, but the price of that kind of evidence.

[*R. D. O. Smith*, attorney.]

DOOLITTLE, *Acting Commissioner:*

Applicant in this case denies the authority of the Commissioner to insist upon the requirement of Rule 63, maintaining that there is no authority in law for such rule.

The Rules of Practice, as published for the convenience of persons practicing before the Office, are instituted under the authority of section 483, R. S., which provides that "the Commissioner of Patents, subject to the approval of the Secretary of the Interior, may, from time to time, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office."

The rule can only be attacked on the ground that it is inconsistent with law. This I do not consider to be the fact. The rule is adopted for the convenience of the Office in making up its files and determining to whom the grant shall be made. It requires that "the petition for a reissue must be accompanied with a certified copy of the abstract of title, giving the names of all assignees owning any undivided interest in the patent, and, in case the application is made by the inventor, it must be accompanied with the written assent of such assignees."

The law requires the Commissioner to grant a reissued patent "in the name of the patentee, or, in case

of his death or of an assignment of the whole or of an undivided part of the original patent, then to his executors, administrators, or assignees."

His action in this respect cannot be impeached for fraud, (*Seymour* vs. *Osborne*, 11 Wall., 516,) and the reissued patent, if granted without the assent of assignees, would be defective. (*Potter* vs. *Holland*, 1 Fisher, 327; *Woodworth et al.* vs. *Stone*, 3 Story, 749; *Dental Vulcanite Company* vs. *Wetherbee*, 3 Fisher, 87; *Meyer et al.* vs. *Bailey et al.*, 8 OFFICIAL GAZETTE, 437.)

It is, therefore, of vital importance that neither the patentee nor assignee should be permitted to obtain a reissue without the other's assent. It being made the duty of the Commissioner to determine by whom a reissue may be effected, (*The Commissioner of Patents* vs. *Whiteley*, 4 Wall., 522,) he is necessarily invested with authority to prescribe what proof shall be adduced to show that the application is made and concurred in by the proper parties. He has accordingly adopted the practice of requiring each applicant for a reissue to furnish as evidence an abstract of title in addition to his oath as to ownership. This method has been fixed upon as the best adapted for the purpose, requiring the party to show at the outset that he comes within the provisions of the statute.

The amount paid for a certified copy of abstract of title is not a part of the fee, but is the price of the evidence of title, which must accompany the petition.

Upon the whole, I am convinced that the rule is well calculated to meet the ends of justice and convenience, and that the Commissioner is warranted by the law in establishing and enforcing the same.

Applicant will, therefore, be required to comply with the rules, and file a certified abstract of title before his case will be further considered.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

THE LYMAN VENTILATING AND REFRIGERATING CO. *vs.* NEWELL CHAMBERLAIN, *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided September* 23, 1876.]

The construction given to the claims of Azel S. Lyman's reissued patent No. 5,786, March 10, 1874, in *The Lyman Ventilating and Refrigerating Co.* vs. *Wm. Lalor*, adopted as the rule in this case.

The doctrine announced in *The N. W. Fire Extinguisher Co.* vs. *The Philadelphia Fire Extinguisher Co.* (6 OFFICIAL GAZETTE, 34,) and *The Lyman V. & R. Co.* vs. *Lalor*, (6 OFFICIAL GAZETTE, 642,) that a withdrawn and abandoned application does not afford sufficient evidence of an invention to defeat a subsequent patent, reiterated and approved.

Although the description may be so full and precise in the application for a patent as to enable one skilled in the art to which it appertains to construct what it describes, it does not attain the proportions or the character of a complete invention until it is embodied in a form capable of useful operation.

[*Browne & Holmes*, *Whitney & Betts*, and *E. J. Cramer*, for complainants.

Proctor, *Warren* and *Brigham*, and *Dickerson & Beaman*, for respondents.]

OPINION OF THE COURT.

SHEPLEY, *J.*:

The reissued Letters Patent granted March 10, 1874, to Stephen Cutter, assignee of Azel S. Lyman, No. 5,786, for "an Improvement in Methods of Cooling and Ventilating Rooms," have repeatedly been the subjects of litigation, and the claims of the patent have repeatedly been the subject of judicial construction. In the suit of these same complainants against William Lalor, in the Southern District of New York, Judge Blatchford delivered an elaborate opinion, giving the construction of the most important claims in the reissued patent. This opinion, which was delivered September 10, 1874, was upon a motion for preliminary injunction. The same construction which was given by Judge Blatchford is contended for by the complainants in this case. As the same construction has been substantially repeatedly given in the Circuit Court, in the Northern, Southern and Eastern Districts of New York, in the Second Judicial Circuit, I adopt that construction as the law of this case.

The invention of Lyman, as thus construed, consists in a combination of a proper reservoir, holding the cooling material in an elevated position, so as to create the required circulation with a conduit or conducting structure which will surround the cooling material or the cooled air, or both, and give to the cooled air its downward motion in a determined direction, in its application to a room in which this reservoir and conduit is elevated, or in relation to which they hold this elevated position for the purposes of cooling, purifying, and ventilation. There must be a reservoir for the cooling material open at or near the top for the current of lighter and warmer air to come in contact with the cooling material and become condensed, and, by its greater specific gavity, to fall through the cooling material downward to and over the floor of the room, and in so doing displace the lighter and warmer air, forcing it upward toward the top of the compartment to be again, by contact with the ice in the reservoir, condensed, precipitating its moisture, and again falling, by specific gravity, downward, thus keeping up a continual circulation; *and there must be something which will answer the requirement of the patent as a "descending conduit," to give to the current of cooled air a determined downward direction.*

With this description of the invention of Lyman, as described and claimed in the reissued patent, the question whether Lyman was the original and first inventor of what is claimed in the reissued patent, may now be considered with reference to the evidence upon that issue in the record in this case, which is much more full than the testimony in any of the cases before referred to.

In the case against Lalor, Judge Blatchford decided in accordance with the very-well-considered and able opinion of Judge McKennan, in the case of *The Fire Extinguisher Companies*, (6 OFFICIAL GAZETTE, 34,) that the application of Thaddeus Fairbanks made September 5, 1846, rejected February 6, 1847, and withdrawn July 27, 1847, did not, of itself, afford sufficient evidence of an invention which antedated the invention of Lyman. The learned Judge says, "It is not shown that prior to the date of the original patent to Lyman, much less prior to the date of Lyman's invention, a refrigerator was actually constructed embodying what was set forth in the application of Fairbanks." He therefore comes to the conclusion sustained by the opinion of Judge McKennan in the case cited, that although the description may be so full and precise in the application for a patent as to enable one skilled in the art to which it appertains to construct what it describes, it does not attain the proportions or the character of a complete invention until it is embodied in a form capable of useful operation.

In this case the evidence is perfectly conclusive of the construction both in 1846 and 1849, by Thaddeus Fairbanks, of refrigerators which embodied the invention set forth in Fairbanks' application, and that such refrigerators continued in practical and public use and are in existence and produced in evidence in the case.

Upon the construction of the patent claimed by the complainants, and upon the construction given to the claims of the patent by Judge Blatchford, these Fairbanks refrigerators furnish a perfect defense upon the question of novelty. Upon any construction which can be given to the Lyman patent, "the poor man's refrigerator" or "the barrel refrigerator," made by George Whittier, at Danversport, Massachusetts, which contained an elevated ice-box, rack, cold-air chamber, and descending conduit or flue separate from the ice-box and extending nearly to the bottom of the refrigerator, giving a determined downward direction to the current of cold air, must be considered as anticipating the Lyman patent, and the same remark is applicable to the upright refrigerator made by George Whittier and used by James D. Black, and to "The Mead & Whittier refrigerator," so called. The defendants in this case do not use any combination which is not clearly proved to have been in public and practical use prior to the date of the invention of Lyman, and therefore cannot be held to be the infringers of any invention of which he was the first and original inventor.

Bill dismissed with costs.

DISCLAIMERS FILED.

170,024.—Improvement in Wire Fences.—THOMAS S. SEABURY, St. James, N. Y. Patented November 16, 1875. Disclaimer filed October 10, 1876.

Disclaims that part of the claim which is in the following words, to wit: "Stems *e*, sockets *f*, and."

The claim corrected should be:

"The covers D, with longitudinal slot *g*, in combination with the wire C and posts A A, substantially as and for the purpose set forth."

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 10, 1876.]

9,580.—Capitals, Points, and Figures of a Font of Printing-Types.—DAVID WOLFE BRUCE, New York, N. Y. Application filed September 27, 1876. Term of patent 14 years.

9,581.—Font of Printing-Types.—DAVID WOLFE BRUCE, New York, N. Y. Application filed September 27, 1876. Term of patent 14 years.

9,582.—Font of Printing-Types.—JAMES M. CONNER, Greenville, N. J. Application filed September 26, 1876. Term of patent 7 years.

9,583.—Badge.—VINCENT FOUNTAIN, Jr., West New Brighton, N. Y. Application filed September 22, 1876. Term of patent 3½ years.

9,584 to 9,587, inclusive.—**Inkstands.**—HERMANN J. MÜLLER, New York, N. Y. Applications filed September 16, 1876. Term of patents 7 years.

9,588.—Paper Boxes.—JOHN E. TAYLOR, Springfield, Mass. Application filed August 9, 1876. Term of patent 3½ years.

9,589.—Bells.—JOHN J. LYNCH, Washington, D. C., assignor to MARY LOUISA LYNCH, same place. Application filed October 14, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 10, 1876.]

4,039.—Cordial or Liqueur.—ALEXANDRE LEGRAND AINÉ, Fécamp, France. Application filed August 21, 1876.

"A lead band applied around the neck of the bottle containing the cordial, and having a thin strip of lead soldered thereto, which strip is extended over the cork of the bottle to the opposite side of the neck-band, to which it is also soldered, and is then run downward along the neck of the bottle to a front seal, to be retained by the same, and a seal on the cork of the bottle."

4,040.—Fancy and other Dry Goods.—E. FLAXLAND & Co., Paris, France. Application filed August 31, 1876.

"The word-symbol 'INIMITABLE.'"

4,041.—Medicines.—GOLDENBERG & Co., Philadelphia, Pa. Application filed August 29, 1876.

"The letter 'G.'"

4,042.—Preparation for the Hair.—R. P. HALL & Co., Nashua, N. H. Application filed July 3, 1876.

"The fanciful title 'HALL'S VEGETABLE SICILIAN.'"

4,043.—Preparation for Lung and Throat Diseases.—WILLIAM N. HEDGES, Springfield, Ohio. Application filed August 8, 1876.

"The word 'Life' and the portrait of the proprietor."

4,044.—Paper and Pasteboard Boxes for Shirts, Collars, and Cuffs.—EDWARD HILSON, New York, N. Y. Application filed August 10, 1876.

"The representation of woven willow-ware."

4,045.—Stoves.—JEWETT & ROOT, Buffalo, N. Y. Application filed September 20, 1876.

"The word-symbol 'Argalia.'"

4,046.—Cotton Shirtings and Sheetings.—LANGDON MANUFACTURING COMPANY, Manchester, N. H. Application filed September 25, 1876.

"The words 'Seventy-Six,' and a representation of a person carrying a flag."

4,047.—Fertilizers.—JOHN R. LONG & Co., Baltimore, Md. Application filed September 25, 1876.

"The arbitrarily-selected words 'PLANTERS' FAVORITE.'"

4,048.—Medicinal Oil.—JOSEPH B. SABINE, London, Ontario, Canada. Application filed May 27, 1876.

"The figure of the flower represented in the accompanying fac-simile; also the name 'Curatine,' and the legend 'For the healing of the nation.'"

4,049.—Baking-Powder.—CHARLES H. SHEPLEY, Philadelphia, Pa. Application filed September 7, 1876.

"Words 'Shepley's Keystone' and the pictorial representation of a stone arch."

4,050.—Cutlery.—THEILE & QUACK, Elberfeld, Germany. Application filed June 23, 1876.

"A representation of the device of two fish-hooks and the letters and character 'T. & Q. E.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 10, 1876.]

835.—Title: **"Buyrn's Carbo-Phosphine Match."**—E. M. BUYRN, Norfolk, Va. Application filed September 22, 1876.

836.—Title: **"Dickenshied's Asthma Remedy."**—CHARLES DICKENSHIED, Philadelphia, Pa. Application filed September 21, 1876.

837.—Title: **"The Nursery Toilet Chair."**—CECILIA GELDOWSKY, Boston, Mass. Application filed September 23, 1876.

838.—Title: **"Label for Circulars."**—MICHAEL B. LEAVITT, Boston, Mass. Application filed October 2, 1876.

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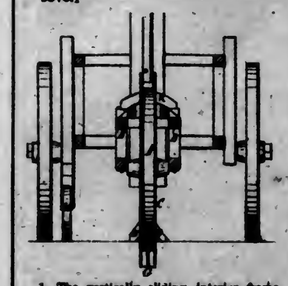
PATENTS GRANTED OCTOBER 10, 1876.

183,006. Grave-Boxes. J. H. Adams, North Andover, Mass. [Filed June 9, 1876.]



The combination, with the receptacle A, having a perforated top or cap, of granulated particles a larger than the perforations in the cap, and contained within the body or main chamber of the receptacle, as and for the purpose set forth.

183,006. Dumping-Machines. Matthew J. Austin, Denham, Tex. [Filed May 6, 1876.]



1. The vertically-sliding interior frame, moving in ways in the exterior frame, and operated by means of the crank-turning toothed pinions engaging with a rack, and controlled by a pawl and ratchet, as described.

2. In combination with the interior frame, constructed as described, the T-shaped colter G, the widener H, the flanged wheel A, the scraper D, shoe D', and fender E, all constructed, arranged, and operating substantially as described.

183,007. Tag-Fastener. Silas Baldwin, Toledo, Ohio. [Filed Apr. 26, 1876.]

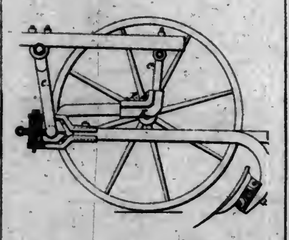


The combination, with the tag T, of the metallic fastener *f*, the latter constructed with a short reverse bend, *b*, clinched to the lower portion of the tag, and provided with the open hook *a*, curved over the upper extremity of the tag, whereby same may be readily removed from or re-attached to goods, substantially as and for the purpose described.

183,008. Cultivators. Fredric P. Bender, Charleston, Iowa. [Filed Apr. 24, 1876.]

Brief.—Frame of tubular pipe bent at different angles, and supported by bearing-wheels. Tubular plow-beams, to which plows are connected by hooks and break-pins.

183,009.



1. The cultivator-holder having a breaking-pin connection with a pin above arranged to break, combined with a hook below, which admits of removing the plow, substantially as set forth.

2. The combination of parts H F, having an elbow-shaped space between them, with the wheel-frame C C and wheel-axle E, substantially as set forth.

3. The combination of the tongue, the wheels, and the tubular pipes C C', bent and connected, substantially as set forth, to form a cultivator-frame.

4. The cultivator-plow beams formed of tubes having the joint-connection in front, and curved down to receive the cultivators, and having the curved portion enlarged, substantially as set forth.

183,009. Transplanters. J. W. Bernard and J. T. Millvion, Callaway County, Mo. [Filed Aug. 12, 1876.]

Brief.—A common dibbling-tool has upon the opposite and a cavity for receiving the plant, a ring to support it, designed also to press the soil around the roots of the plant after its insertion into the hole made by the dibber.



The head C, cavity *d*, and ring *e*, on the opposite end of a dibber, for the purpose specified.

183,010. Corner-Pieces for Rooms. Levi J. Bugbee, Springfield, Vt. [Filed May 22, 1876.]

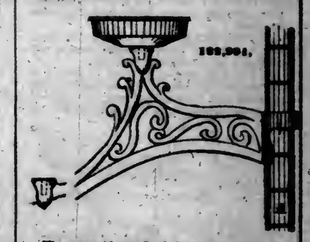


The corner-piece A, with its three curved sides *a a a*, combined with the grooves *d d d*, substantially as above described.

183,011. Flower-Stands. W. H. Butler, Des Moines, Iowa. [Filed July 3, 1876.]

Brief.—A bracket having an inner ribbed hub fitting over a grooved standard, upon which it may be revolved or vertically adjusted.

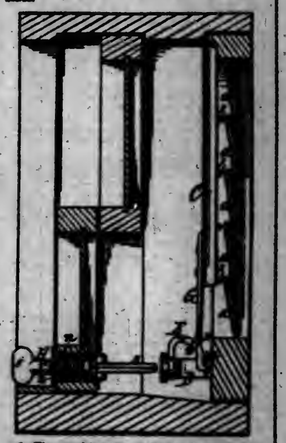
183,011.



The grooved standard, in combination with a bracket having an inner ribbed hub, substantially as and for the purpose hereinbefore set forth.

183,012. Blind-Slat Adjuster. Wm. W. Byam, Rochester, N. Y., assignor of one-half his right to H. C. Byam, same place. [Filed Feb. 26, 1876.]

Brief.—As an improvement on former Patent No. 171,066, December 14, 1875, a spring-plate is used, together with a spring-centered and notched key-shaft. There is also a supplementary and adjustable connecting-rod between the upper and lower series of blind-slats.



1. The combination, with the frame D and cam E, of the spring-plate m, arranged to operate in the manner and for the purpose specified.

2. The combination, with the slat-rods C C', of the supplementary connecting-rod G', provided with the slot k and screws *l l*, as and for the purpose specified.

3. The key-shaft H, constructed with the two adjusting portions *r s*, in combination with the barrel a and reaming-spring *c*, as and for the purpose specified.

4. The combination, with the portions *r s* of the key-shaft, of the wire step *q*, passing through holes of the shank and entering notches in the part *s*, as and for the purpose specified.

183,013. Vehicle-Brake. Wm. F. Clark, 60 Paul, Minn. [Filed Mar. 7, 1876.]

1. The combination of the clamping-levers F and K, bolt H, thumb-nut I, spring M, and cross-bar G, with the bock cast A, substantially as specified.

2. In carriages, sleighs, and similar vehicles, the legs O O, having the elongated pivot-holes V V, in combination with the stop-dogs U U,

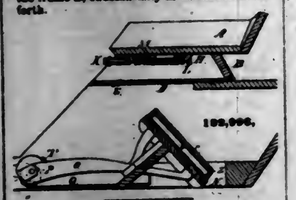
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arranged and operating substantially in the manner and for the purpose hereinbefore set forth.

3. In carriages, sleighs, and similar vehicles, the combination and arrangement of the legs O O, step-dogs B B, elongated pivot-holes V V, notches T T, and step-dogs U U, arranged and operating substantially as hereinbefore specified.

4. The child's seat X, attached to the lower side of the seat F at right angles thereto, substantially as hereinbefore specified.

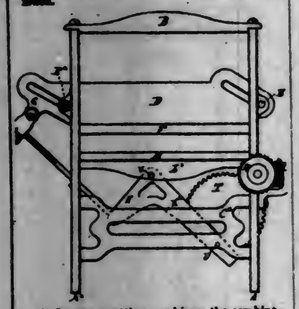
5. The angular-shaped frame Z, hinged to the frame of the seat H, in combination with the extension b, when the same is hinged to the frame E, substantially as hereinbefore set forth.



182,902.

182,904. PAPER-CUTTING MACHINES. T. B. Dooley, Boston, Mass., assignor to Dooley Manufacturing Company. [Filed Jan. 26, 1876.]

Brief.—Eccentric pin E' is provided, as shown, to adjust the knife-edge with relation to the upper surface of the bed M, when, by careless grinding in sharpening of the knife, one or the other of its ends is ground off too much.



1. In paper-cutting machines, the combination of the standards A A', the cross-bars B and C C', the platform M, the slotted blade-bar D, and the blade F, with the cog-wheel T, and the machinery to actuate it, the peg U, the grooved bell-crank K K', and the screw-shaft J, and screw-block H, when constructed and arranged substantially as shown and described.

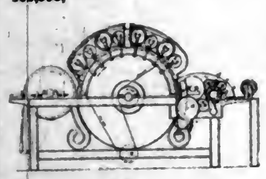
2. In paper-cutters, the double centered or eccentric pin E', in combination with the standards A A', the cross-bars B and C C', the platform M, the slotted blade-bar D, and the blade F, and the machinery to actuate the blade, all when constructed and arranged substantially as described.

182,905. GARMENT-HOLDERS. Josiha Dyson, Philadelphia, Pa. [Filed Jan. 10, 1876.]

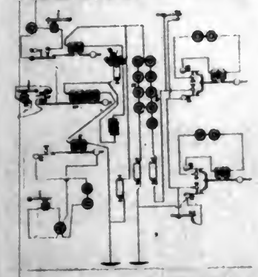
Brief.—This invention relates to a new combination and arrangement of elements in themselves old and well known, whereby a double carding-engine is constructed, or a single machine embodying two distinct systems of carding and cleaning, so that one machine performs the work heretofore done by two, thereby economizing power and space, and effecting a saving of material, time, and labor.

The combination and arrangement of the feed roller or rollers e, the carding-cylinder A, the small carding-cylinders a and c, the small cleaning-cylinders b and d, the large carding and cleaning cylinder B, the carding and cleaning cylinders D and E, and the stripper-cylinder F, all operated in connection, substantially as described, and for the purpose set forth.

182,906.



182,906. ACOUSTIC TELEGRAPHS. Thomas A. Edison, Menlo Park, N. J., assignor to the Western Union Telegraph Company. [Filed May 16, 1876.]



1. In an acoustic telegraph, two sections, a b, of the battery, in derived circuits from the main line, in combination with resistance and a tremolo circuit-closer operated by the reed, or its equivalent, and placed in one of the battery-circuits, substantially as set forth.

2. In an acoustic telegraph, a battery, in two sections, connected to the line, and to derived circuits, in combination with tremolo circuit-closers, reeds operated by magnets, and keys to short circuit the circuit-closers, substantially as set forth.

3. The combination, with an acoustic telegraphic reed, of an extension that is lighter than the reed to operate circuit-closing devices, substantially as set forth.

4. The combination, with an acoustic receiving-instrument, of a derived circuit from the main line containing a condenser, and a resistance in the main line, substantially as set forth.

5. The combination, with a vibrating reed in an acoustic telegraph, of four electro-magnet spools placed in the main line, substantially as set forth.

6. The combination, with the vibrating reed n, of the lever u, and local circuit, arranged so that the lever u is only acted upon by the reed n when in full vibration, substantially as set forth.

7. The combination, with an acoustic telegraph, of a local circuit, a secondary battery, a receiving-instrument or sounder, and a circuit-closer operated by the reed, substantially as set forth.

182,907. ELECTRIC CIRCUIT-CLOSERS FOR FIRE-ALARMS. Jonathan O. Fowler, Jr., Hudson, Wis. [Filed Apr. 21, 1876.]

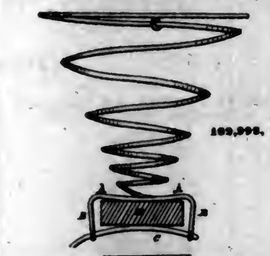


In an electrical fire-alarm, the combination of a self-acting circuit-closing device, held open, substantially as shown, and a hot-air match, arranged to release the device and permit it to close the circuit, as shown and described.

182,908. BED-SPRINGS. William S. Gray, Leominster, Mass. [Filed July 20, 1876.]

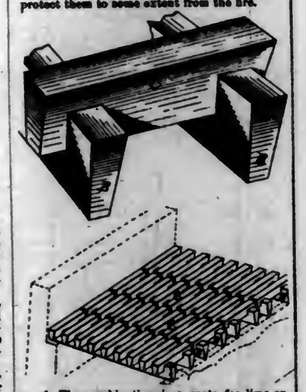
A spiral bed-spring, having curved seated clasps A A and loops B B, in combination with the key C for fastening the same, substantially as described.

182,909.



182,909. GRATES FOR LIMEKILNS. Wm. Gwynn, Sacramento, Cal. [Filed Aug. 7, 1876.]

Brief.—The bricks can readily be put in place or removed, and they overhang the flanges or intervening ribs on the bars, and protect them to some extent from the fire.



1. The combination, in a grate for lime or other kilns, of a supporting-bar having depressions or openings with inclined sides, and a surface of fire-brick or similar fire-proof material, of corresponding shape to the openings in the supporting-bar, arranged at right angles to said bar, substantially as described, and for the purpose set forth.

2. The combination, in a grate for lime or other kilns, of a supporting-bar having depressions or openings with inclined sides at regular intervals, with a surface of fire-brick, said brick being of a corresponding shape to the openings in the supporting-bar, and arranged at right angles to said bar, substantially as described, and for the purpose set forth.

182,910. TOY MONEY-BOXES. John Hall, Watertown, Mass. [Filed Mar. 29, 1876.]

Brief.—A coin placed in the mouth of the dog overweights the pivoted head, causing it to turn toward the money-orifice. An arm fixed to the pivot-rod at the proper point inside the box strikes a stop, dislodging the coin, which is thus dropped within.

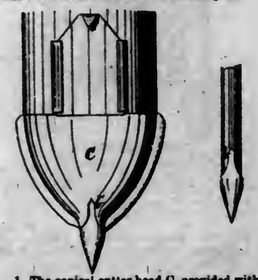


1. The spindle C, fixed at the upper end to the head of the dog figure, and pivoted at the lower end to the step D, substantially as and for the purposes described.

2. The counter-balance arm E, in combination with the spindle C, step D, and stops a b, substantially as and for the purposes described.

182,911. AUGERS. John Halliday and D. Brady, New Orleans, La. [Filed Mar. 16, 1876.]

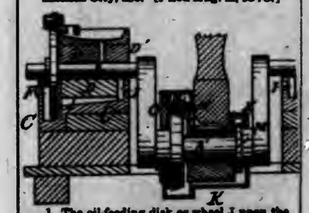
Brief.—The auger is provided with a conical cutter-head and hollow stem, through which the shaft passes, being secured thereon by a spring and pin. The shaft remains stationary while the bucket is raised for discharging.



1. The conical cutter-head C, provided with hollow stem B, and bucket D, in combination with the shaft A, for the purpose set forth.

2. In combination with the hollow stem B, the pin f, as described, and for the purpose set forth.

182,912. LUBRICATORS. Thomas Haynes, Kansas City, Mo. [Filed Aug. 11, 1876.]



1. The oil-feeding disk or wheel J upon the crank-pin A', in combination with the oil cup or reservoir K, attached to the connecting-rod B and inclosing the crank-pin, and a scraper, N, arranged to take the oil or lubricant from the said feeding disk or wheel and deliver it upon the brass of the crank-pin, substantially as and for the purpose set forth.

2. The shaft-bearing C, having the oil cups or reservoirs F I, connected together by a passage, j, substantially as and for the purpose set forth.

3. The bisected packing-ring O, having its parts hinged together and slitted, as at o o, to receive and permit of its attachment to the oil-reservoir K, substantially as set forth.

182,913. BOOK-COVERS. C. W. Hill, West Meriden, Conn. [Filed Dec. 24, 1875.]

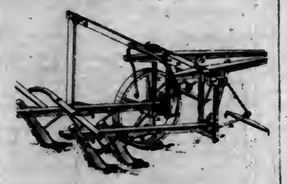


1. The combination, with the cover of an album and the flexible connecting-piece to which they are attached, of the inclosing-bands d and e, divided at or near their junction with the back, and adapted to fold together and protect the leaves of the album, substantially as herein described and shown.

2. In combination with the bands d and e, the slots f and projections g on said bands, substantially as and for the purpose described.

182,914. WHEEL-CULTIVATORS. Ludia H. Hodges, Tarrant County, Tex. [Filed July 20, 1876.]

Brief.—A square beam-clevis eccentrically pivoted in the frame.



1. The clevis K, having four sides in the form of a parallelogram, and pivoted eccentrically between the vertical bars E F, as set forth.

2. The reversible clevis K, eccentrically pivoted on the vertical bars E and F, in combination with the plow beam and frame, whereby the front end of the plow-beams are attached and provided with both lateral and vertical adjustments, as specified.

3. The bent plate S, forming a keeper for the marker and a draft-hook, in combination with the draft-rod R, chain h, beam B, and bar E, as shown and described.

182,915. FILTERS FOR TEA AND COFFEE POTS. Loren C. Hoyle, Sutton, Mass. [Filed Feb. 26, 1876.]



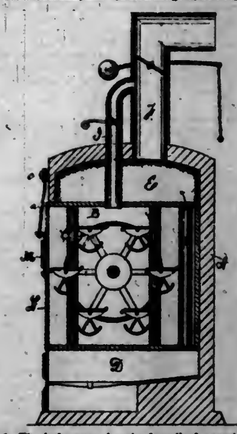
The combination, with the wire-cloth body A, the ends of which are protected by the overlapping bindings a a', the cover B, provided with upwardly-diverging spring-frame, substantially as and for the purpose specified.

182,916. SHOES. Cheong Hee, San Francisco, Cal., assignor to John A. Magee, same place. [Filed Aug. 28, 1876.]



A laced shoe, the upper of which consists of quarters a a, having their lower ends extended and adapted to overlap each other at the instep, in combination with a separate vamp-piece, b, all constructed and united in the manner and for the purpose specified.

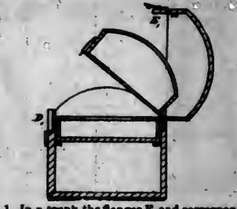
182,917. BAKE-OVENS. David Hughes, New Orleans, La. [Filed Aug. 7, 1876.]



1. The bake-oven herein described, provided with heating-flues C, steam-flue I, and hinged door L, the latter having a slide-covered opening constructed therein, all arranged to operate as herein described, and for the purpose set forth.

2. In combination with the casing A, furnace D, heat-chamber E, and chimney F, the oven B, provided with heating-flues C and flue I, substantially as set forth.

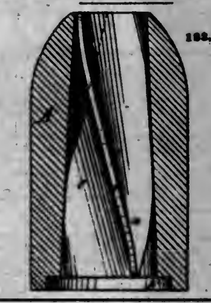
182,918. TRUNKS. Charles M. Jenkins, St. Louis, Mo. [Filed Apr. 6, 1876.]



1. In a trunk the flanges E, and corresponding recesses D, substantially as and for the purpose set forth.

2. In combination with a shortened back, and the cover and hinged trays of the double-acting spring-catch and corresponding staples, substantially as shown and described.

182,919.



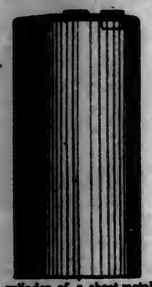
182,009. PROJECTILES. Chas. G. Kellogg, Brooklyn, N. Y. [Filed Apr. 17, 1876.]

Brief.—The passage of air through the winding passages is calculated to give a rifle-motion to the projectile in its flight.

1. A long shot having three or more equal passages throughout its entire length, formed by three or more spiral vanes diverging from a solid core in the center of the shot, substantially as specified.

2. A long shot having three or more equal passages throughout its entire length, formed by three or more spiral vanes diverging from a solid core in the center, and a recessed rear, in combination with a sabot, substantially as specified.

182,010. KITCHEN-BOILERS. J. G. Knapp, New York, N. Y. [Filed Feb. 10, 1876.]

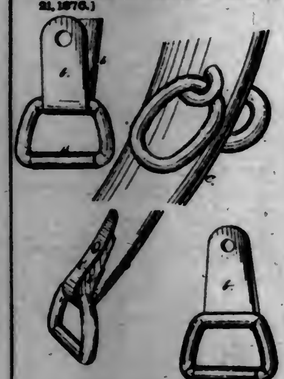


1. The cylinder of a sheet-metal kitchen-boiler, formed of ductile metal by drawing or spinning, without seam or joint, substantially as set forth.

2. The cylinder and head of a sheet-metal kitchen-boiler formed without seam or joint, substantially as set forth.

3. In a sheet-metal kitchen-boiler, wherein the cylinder and head are formed without seam or joint, the pipe-sockets formed by turning the metal inwardly or outwardly, to afford an increased bearing for the pipe-couplings, substantially as set forth.

182,011. BITS FOR HARNESS-HAMES. Geo. J. Leichworth, Buffalo, N. Y. [Filed July 21, 1876.]

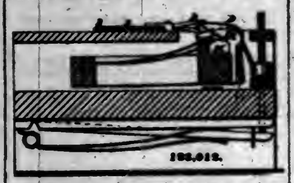


1. A hame-eye having the tongue or tongues *b*, substantially as and for the purposes set forth.

2. The combination of the loop having a tongue or tongues, *b*, the wooden part B of hame, and metal facing-band C, substantially as described and shown.

182,012. ORGAN-ACTIONS. E. B. Lotten, Quincy, Ill. [Filed May 20, 1876.]

Brief.—By pressure upon a knee-lever the octave of any note held by the coupler may be kept sounding after removal of the key-pressure, initiating it.



1. An organ or analogous wind instrument in which the octave of a certain reed or note is sounded and may be prolonged as desired, while said reed or any other reed or reeds, note or notes, except said octave, may be sounded at will, substantially as specified.

2. An elastic action frame carrying a vibrating jack or other equivalent means of operating the sound-producing element of an organ or other analogous wind instrument, substantially as specified.

3. An action-frame for organs and analogous wind instruments, having an elastic tongue, as described, in combination with a means of opening the sticker-pin, substantially as specified.

4. An action-frame for organs and analogous wind instruments, having an elastic tongue, as described, in combination with an octave-coupler, substantially as specified.

5. An action-frame for organs and analogous wind instruments, pivoted or hinged at one side, and having an elastic tension at the other, substantially as specified.

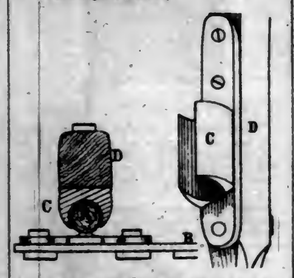
6. An action-frame for organs and analogous wind instruments, which, being depressed, permits, and being released, determines, the operation of the sound-producing element of the instrument, substantially as specified.

7. In an organ or analogous wind instrument, the pedal S and draw-rod T, in combination with an elastic action-frame, substantially as specified.

8. The coupler B, in combination with the vibrating pivoted jack D, substantially as specified.

9. The combination of a coupler, mounted upon an elastic action-frame, with a jack having an elastic action, substantially as specified.

182,013. VESSELS-STEERS CONSTRUCTING. Henry W. Livingston, Livingston, N. Y. [Filed Sept. 16, 1876.]



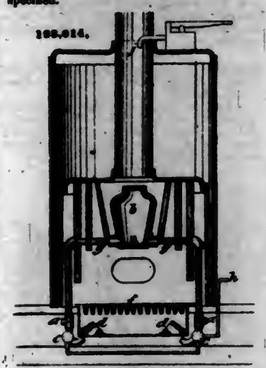
1. The combination of cylinder A and longitudinal socket or slotted cap C, one being attached to spring B, and the other to side bar D, substantially as and for the purpose herein described.

2. The combination of side bars D with the semi-elliptical spring B by means of the cylinder A and longitudinal socket-cap C, substantially as and for the purpose hereinbefore set forth.

182,014. SUPERHEATING AND FEEDING EXHAUST STEAM TO FURNACES. James C. Merryweather, Henry Merryweather, and Christopher J. W. Jakeman, London, England. [Filed Apr. 3, 1876.]

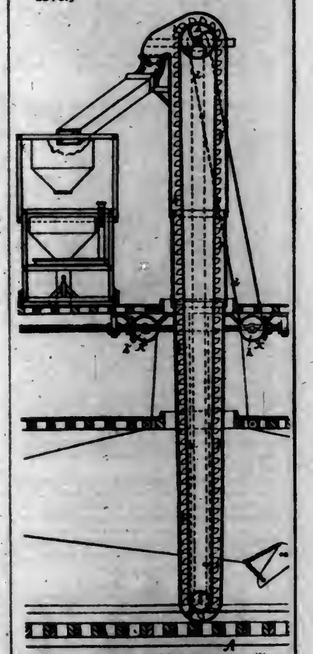
1. The combination, with the exhaust-steam pipes *a* of an engine, of the chamber *b*, pipes *g*, and nozzles *d*, arranged in relation to the grate *f* and the chimney of the boiler, substantially as hereinbefore described with reference to Fig. 1, for the purpose specified.

2. The regulating-cocks *e* and operating means *h*, in combination with the two discharge devices *b d*, and the connecting-pipes leading from the exhaust of an engine, and adapted to control the proportion of the exhaust steam passed through the fire, as herein specified.



182,014.

182,015. UNLOADING GRAIN-VESSELS. G. Milleen, Buffalo, N. Y. [Filed Apr. 17, 1876.]



1. The combination, with a steam or sailing vessel, of the shovels J J, arranged to operate as described with the drums E K', said drums working on a loose shaft, *h*, and the hands and clutches formed into a series of V-shaped friction-rings, as and for the purpose specified.

2. The combination, with a cargo-carrying vessel, of the stationary elevator or elevators, constructed to telescope down and up, substantially as and for the purpose specified.

3. In a grain-carrying vessel, and in combination therewith, the telescopic elevators and the portable telescopic weighing-hoppers and the spouts, all to be used and operated in connection, substantially as described.

182,016. KNITTED UNDER-GARMENTS. Chas. H. Moeller, St. Louis, Mo. [Filed Apr. 5, 1876.]

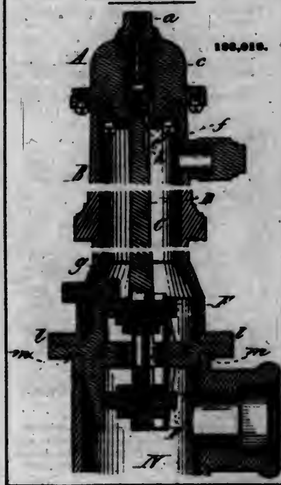


As a new article of manufacture, knitted under-garments, having the wristbands, armbands, ankle-bands, gussets, and gores of network of a finer or smaller mesh than that of which the body of the garment is composed, substantially as described and shown, and for the purpose set forth.

182,017. MILK-COOLERS. Hiram Moro, Chicago, Ill. [Filed June 21, 1876.]



A milk-can, B, provided with a suspended ice-chamber, A, and removable cream-pot C, fitted to the top of said chamber A, and inclosed and protected by the can-cover D, all constructed and arranged substantially as set forth.



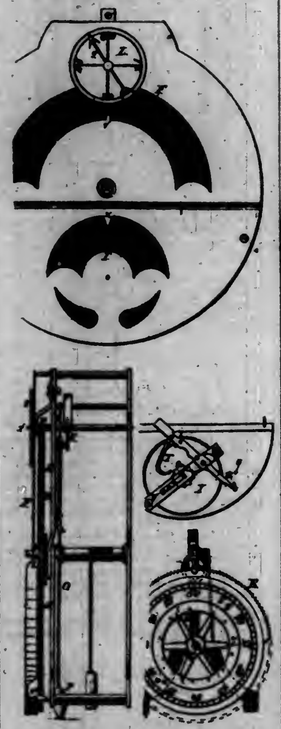
182,018.

182,018. HYDRANTS. Dunne T. Perkins, Holyoke, Mass. [Filed Aug. 17, 1876.]

1. The combination of the base H, provided with the flange *m*, the plate I, having a groove to receive the upper flanged end of said base, the flange *l* on the lower end of the hydrant-tube B, and the bolts *o*, all substantially as and for the purpose described.

2. The combination of the valve-rod D, the valves F and F', the plate L forming the valve-seats, the nut *e*, to move the valve-rod, a stop, *s*, to determine the upward movement of the rod in opening the valve, the cap A, and the plate *f*, secured thereto and fitted to the upper end of the valve-rod, to prevent said rod from turning, all substantially as set forth.

182,019. CLOCKS. Leopold Phillips, Tipton, Mo. [Filed June 30, 1876.]



1. Combination of revolving hour-dial I, stationary hour-indicator *a*, journal-pin *n*, and cheek pressure-spring *p*, substantially as shown, and in the manner set forth.

2. Lever G, ratchet *o*, and pawl T, in combination with revolving hour-dial plate I, substantially as shown, and for the purposes set forth.

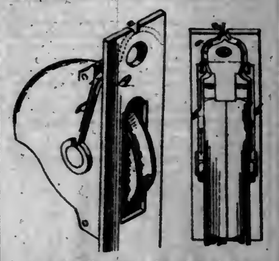
3. In combination with motive power D, main driving-wheel B, minute-dial plate F, the catch-pin *s*, lever G, ratchet *o* and pawl T, and hour-dial plate I, substantially as shown, and for the purposes set forth.

4. In combination with adjustable pendulum-ball P, pendulum-rod O, escapement K, pinion H, seconds-hand *f*, propelling-wheel E, minute-dial plate F, the catch-pin *s*, drop-lever G, revolving hour-dial I, ratchet *o* and pawl T, and stationary hour-indicator, substantially as shown, and for the purposes set forth.

5. In combination, the revolving hour-dial I, stationary indicator *a*, revolving minute-dial F, stationary indicator *v*, with seconds-dial L, and revolving seconds-indicator *p*, substantially as shown, in the manner and for the purpose set forth.

182,020. SASH-PULLEYS. H. S. Pomeroy, New Haven, Conn. [Filed Aug. 12, 1876.]

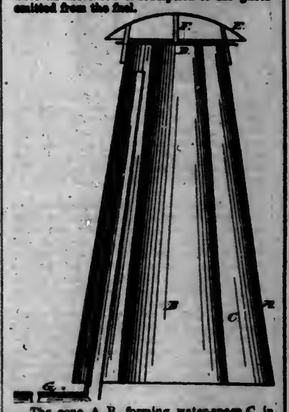
Brief.—A device or means of conveniently oiling the pivots of a sash-pulley without removal.



A sash-pulley whose face-plate A is provided with the groove *s* and notch *o*, and whose flanges are provided with the guiding-ribs *b b*, substantially as described and shown, for the purpose set forth.

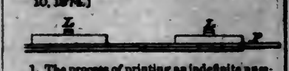
182,021. SMOKE-CONSUMERS. D. G. Power, Milwaukee, Wis. [Filed Sept. 28, 1876.]

Brief.—A cone having an annular water-chamber and a central passage for air is placed on top of the grate-bars. The steam generated in the chamber, and the air which enters through the passage, are spread at the top of the cone, and supply oxygen to produce an increased consumption of the gases emitted from the fuel.



The cone A B, forming water-space C, in combination with pipe G, perforated plate D, and cap E, substantially as and for the purpose specified.

182,022. PHOTOGRAPHIC-PRINTING FRAMES. Thomas L. Ray, Belvidere, Ill. [Filed Oct. 10, 1876.]



1. The process of printing an indefinite number of sun-pictures from negatives of different intensity at one time and at the same exposure to light, substantially as described.

2. The method of securing the equal printing of pictures in printing—that is, by retarding the light on all of the least intense negatives or increasing the light on all of the most intense, or by retarding the light on the least intense and increasing the light on the most intense, by means of equalizing-media and condensing-lenses, substantially as set forth.

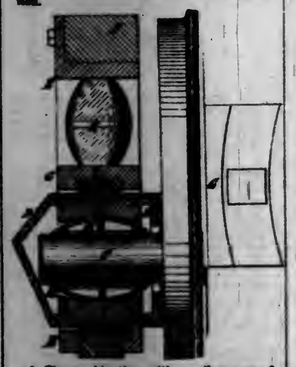
3. The method of printing one picture from each negative in the printing-frame on a continuous piece of sensitive paper, and leaving an indefinite number of pieces of sensitive paper between the negatives just the size of the pictures already printed, substantially as described.

4. The method of pressing the sensitive paper in contact with negative in the printing-frame by means of the flexible strip F, with block L and spring S' and the cover K, when constructed, combined, and arranged to operate substantially as and for the purpose set forth.

5. As a new process, the printing of an indefinite number of pictures at one time and in the same frame of different persons or from negatives of the same intensity, taken on separate glasses, when said pictures are finished on separate cards, substantially as set forth.

182,092. RUNNING-GEAR FOR CARS. G. W. Rosson, Brooklyn, N. Y. [Filed Feb. 10, 1876.]

Brief.—Trucks are dispensed with, each pair of wheels being capable of swiveling motion.



1. The combination, with a railway-car, of pillow-blocks and independent spring-supporting bars or plates, provided with arc-shaped concentric or nearly-concentric slots or grooves, and automatically-adjustable journal-boxes provided with tongues or tenons fitting in the aforesaid slots or grooves, substantially as and for the purpose herein set forth.

2. The combination, with pillow-blocks provided with arc-shaped and concentric or nearly-concentric slots or grooves, and automatically-adjustable journal-boxes, provided with tongues or tenons fitting in such slots or grooves, of springs arranged between the said pillow-blocks and journal-boxes, for obviating violent concussions between them, substantially as set forth.

3. The combination, with a pair of wheels arranged on a continuous axle and capable of adapting themselves to curves in a railway, of a fulcrum-piece arranged midway between them and consisting of a hanger and bearing-blocks, and preferably an interposed packing, substantially as and for the purpose herein specified.

4. The combination, with the journal-boxes of a railway-car, of bearing-pieces applied to the axle-journals and bearing-blocks, substantially as described, whereby provision is afforded for the automatic adjustment of the axles in every direction.

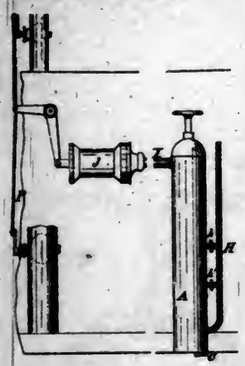
5. The combination, with the pillow-blocks of a railway-car, of automatically-adjustable journal-boxes and bearing-pieces, applied to the axle-journals, and providing for the independent adjustment of the axle, substantially as described, whereby provision is afforded for the universal and independent adjustment of the axles of a car.

6. The combination of the pillow-block B, plate G, springs H, adjustable journal-boxes D, springs I J, fulcrum-piece K L L', and bearing-piece M, substantially as and for the purpose herein set forth.

182,094. PROCESSES OF PREPARING GLUE. John H. Ross and Chas. D. Ross, Albion, N. Y. [Filed Aug. 11, 1873.]

The process herein described of preparing glue, which consists, first, in boiling and decanting sour milk to remove the oily matter, then drying and cutting the curd by alkali, and adding lime-water, and, finally, boiling the product till the watery matter is expelled, as and for the purpose specified.

182,095. MARINE-ENGINE GOVERNORS. Jas. Sangster and Wm. S. Grosvenor, Buffalo, N. Y. [Filed Aug. 24, 1876.]



1. In a marine-engine governor, the combination of the air and water tube A I, the adjustable lip or plate O, and piston K, substantially as and for the purposes specified.

2. The combination, in a marine-engine governor acting on the steam-controlling valve, of an air and water tube, A I, a cylinder and piston, and inlet and outlet relief-valves I F arranged in said piston, substantially as and for the purposes specified.

3. The combination, in a marine-engine governor, of a supplementary air and water tube, H, with the main tube A and one or more pipes, h h', having stop cocks or valves for controlling communication between them, for purposes substantially as described.

182,096. HARNESS-MOUNTINGS. Samuel S. Sargeant, Newark, N. J. [Filed Sept. 17, 1875.]

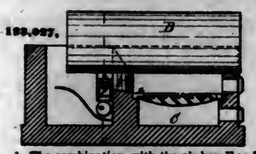


Harness-mountings composed of separate tips and bases of polishable metal, and the body of japanned metal, all substantially as herein described.

182,097. BOILER-FURNACES. P. J. Schmitt, Chicago, Ill. [Filed July 18, 1876.]

Brief.—A transverse perforated air-pipe is located in rear of the bridge-wall, and is raised and lowered for the purpose of enlarging or diminishing the throat of the furnace.

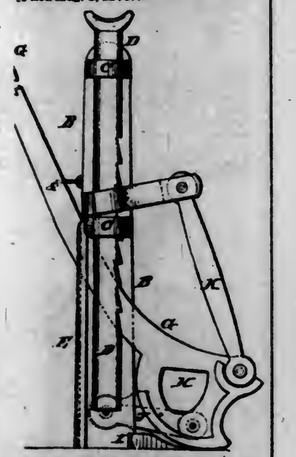
182,027.



1. The combination, with the air-box F and the bridge-wall, of a means for raising said air-box to reduce the area of the throat, substantially as described.

2. The combination, with the air-box F, of the inclined apron b, formed at the top of the bridge-wall, and a grate with diminished air-spaces c at the back, substantially as described.

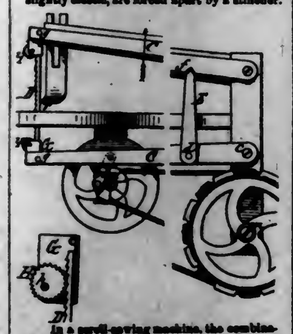
182,098. LIFTING-JACKS. James O. Scott and Herman A. Gosbel, Galveston, Tex. [Filed Aug. 8, 1876.]



In a lifting-jack, the lever G, with segment H, the incline I and pivoted arm J, in combination with standard B, guides C, leg E, bars D and K, substantially as and for the purpose set forth.

182,099. SCROLL-SAWING MACHINES. A. H. Shipman, Rochester, N. Y., assignor of one-half his right to Julius F. Binder, same place. [Filed Mar. 31, 1876.]

Brief.—The saw is strained between toothed eccentrics on the vibrating arms, which engage with the saw-teeth. The arms, being slightly elastic, are forced apart by a stiffener.



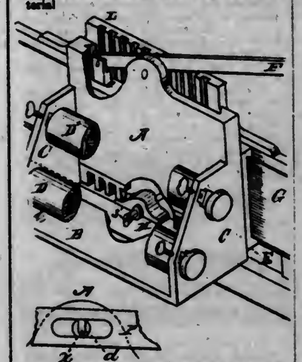
In a scroll-sawing machine, the combination, with the saw D, of the hangers G G, and serrated eccentrics H H, arranged to operate in the manner and for the purpose specified.

2. The hangers G, constructed of a folded or double metallic plate to receive the saw D and eccentric H, and pivoted to the gate to turn freely, as shown and described, and for the purpose specified.

3. In a scroll-sawing machine, the combination, with the straight, open-ended spring-arms O O, having an inherent elasticity for straining the saw, of the fulcrum-bar E, pivoted permanently to the lower arm, and constructed at the top with a wedge-shaped end, which fits loosely into the notch f of the upper arm, whereby the said arm may be thrown open for the insertion or removal of the saw without disconnection of any of the parts, as shown and described, and for the purpose specified.

182,060. MACHINES FOR FORMING DOVETAIL-JOINTS IN WOOD-WORKING. Chas. Stengel, Hamilton, Ohio. [Filed July 1, 1876.]

Brief.—A guide-plate provided with a series of grooves at the same distance from each other as the intended dovetails governs the action of the rotating cutter upon the material

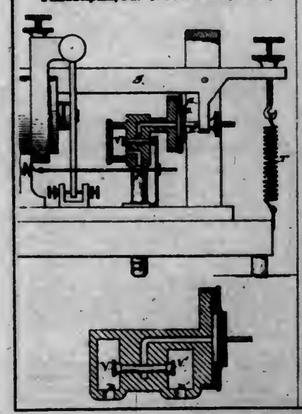


1. The combination of the wedge-pointed guide a, connected with the carriage A, and the grooved plate L upon stationary plate G, in the manner and for the purpose specified.

2. The slotted lever F, in combination with the sliding plate E and pin d, attached to the carriage in the manner and for the purpose specified.

3. The eccentrically-journaled and sleeved rolls D D', and their adjustable boxes, in combination with the carriage A B C of the dovetailing-machine, as and for the purpose specified.

182,061. ELECTRO-TELEGRAPHIC APPARATUS. Elihu Thomson and E. J. Houston, Philadelphia, Pa. [Filed Nov. 8, 1875.]



1. In a telegraphic sounder, the combination of a movable diaphragm or piston, A, with the sounding-lever S, to produce the stroke in one direction, and with a spring, T, to produce the return-stroke of said lever, as described in the foregoing specification.

2. In an electric signal or telegraphic apparatus, as a means of controlling the fluid-supply, the valve mechanism V V', consisting essentially of a longitudinally or spirally grooved stem or rod, bearing and serving as a guide for the valves V and V', to operate in the manner and for the purpose herein before described.

3. The combination of the valve mechanism V V', consisting of the longitudinally or spirally grooved rod or stem and the valves V and V', as described, with a movable diaphragm or piston, for the purpose set forth.

4. The combination of the armature-lever L of an electro-magnet with the valve mechanism V V', constructed as hereinbefore described, for the purpose set forth in the foregoing specification.

5. As a means of regulating the force required for the movement of the valve mechanism V V', the adjustable spring q, the elasticity of which is employed for balancing the fluid-pressure on the valves, as described in the foregoing specification.

6. As a means of rendering the motion of the valve mechanism V V' independent of variations in the fluid-pressure, the flexible surface K, closing and opening into the conduit P, arranged in the manner hereinbefore described, so as to exert a pressure on the valve mechanism V V' equal and opposite to that exerted by the fluid-supply.

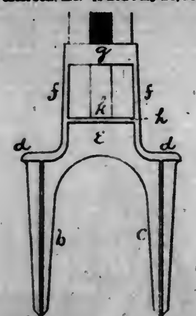
7. The combination of the diaphragm and valve mechanism V V' with the conduits P P', connected, respectively, with two reservoirs containing fluid at different pressures, as shown and described in the foregoing specification.

8. The combination of two or more movable diaphragms or pistons, provided with a valve mechanism, as described, so as to exert pressures in the same direction, in opposite directions, or in directions at any angle with each other.

9. The combination of two or more movable diaphragms or pistons in such manner that the movement of the first, controlled by the electro-magnet, as described, may control the valve mechanism of the second, and the second of the third, if so desired, and similarly to the end of the series, in the manner and for the purpose set forth in the foregoing specification.

10. The combination, with the conduit P, of an air-filter, Z, for the purpose set forth.

182,062. FENCE-POSTS. John B. Warren, Westbrook, Me. [Filed July 26, 1876.]

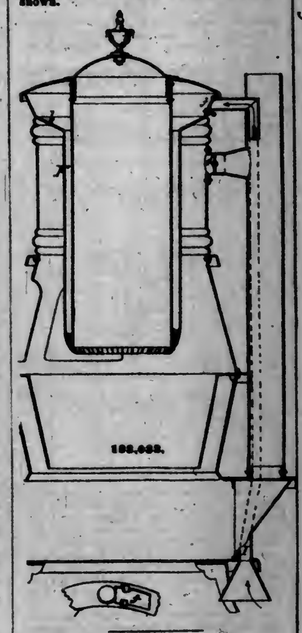


The combination, with the cast-iron foot or standard a, having the two arms b c, caps d, plate e, side pieces f, socket g, and flat surface h, of the wooden post, substantially as herein described.

182,063. HEATING-STOVES. Thos. White, Quincy, Ill. [Filed June 20, 1876.]

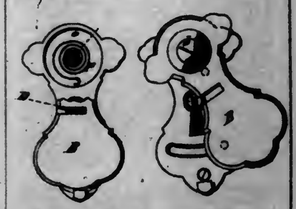
1. In a heating-stove, with an inclosed magazine, and an exterior fire adapted for direct and flue reversible draft, and in combination with the direct and reversible flues, the air-pipe I, arranged within the exterior flue, with its lower end near the floor and its upper end connecting with the upper end of the air-space between the double walls of the magazine, and adapted to supply heated air to the combustion-chamber whether the draft of the stove be direct or reversible, substantially as described and shown.

2. In combination with an air-tube, I, the slide-damper f, adapted to cover wholly or in part the upper end of said air-tube, for the purpose of regulating the flow of hot air in the same, substantially as described and shown.



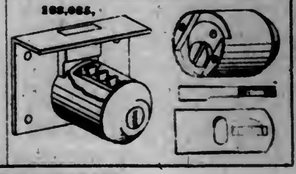
182,064. KEY-FASTENERS. John A. Whittemore and Peter Slattery, Springfield, Mass. [Filed Aug. 24, 1876.]

Brief.—The usual slotted escutcheon is furnished with a bevel upon its under side, so that a sharp tool inserted from the outside of the key-hole may slip and not be able to turn the escutcheon-plate.



In combination with escutcheon B, provided with a slot, a, to fit over and hold an angular-barreled key, D, the beveled under face of the escutcheon, for the purpose as shown and described.

182,065.



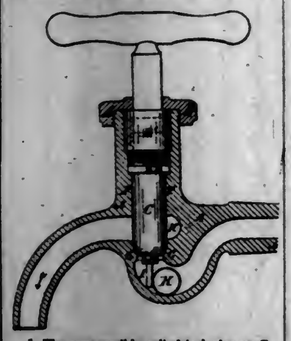
182,636. LOCKS FOR DRAWERS, &c. *F. H. Young*, Kingston, Mass. [Filed Aug. 19, 1876.]

A bolt, provided with the key-slot *i*, and a talon recessed into the bolt from one side and from one edge, in combination with a rotative tumbler-case, which actuates the bolt, and an escutcheon, provided with a lateral recess at one end for receiving the bolt, substantially as described, and for the purposes specified.

182,636. LAMP-WICKS. Albt. Angell, East Orange, N. J., assignor to Charles F. A. Hinrichs, Brooklyn, N. Y. [Filed May 24, 1876.]

A non-combustible lamp-wick, made of mineral wool and mixed with a refractory cement, substantially as described.

182,637. FAUCETS. Jared A. Ayres, Hartford, Conn. [Filed Aug. 18, 1876.]



1. The compressible cylindrical plunger C, passing through a contraction above the water-way of a faucet, and forming a valve below for the letting on or shutting off of the water, substantially as herein described.

2. The ball H, lying loose in the water-way, in combination with the stem I of the plunger and the valve-seat G, to operate as a stop-valve when the plunger is withdrawn, substantially as herein described.

3. The combination of the hollow screw B upon the handle with the screw E, the square D, and the plunger C, substantially as herein described.

182,638. NUT-LOCKS. D. R. Baird, Johnstown, Pa. [Filed Sept. 18, 1876.]



The washer *i*, placed under the heads of the bolts *c*, in combination with an end-wise-moving fish-plate, *l*, having the holes *g* and recesses *i*, and the bolts *c*, having a portion of their shanks of a form corresponding to the recesses, substantially as shown and described.

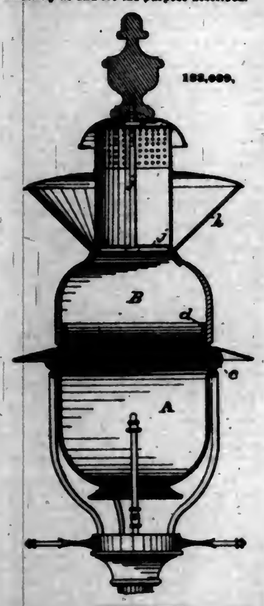
182,639. STREET-LAMPS. Jos. W. Bartlett, New York, N. Y. [Filed May 20, 1876.]

1. A glass or plate adapted for street-lamps, composed of two transparent parts or halves, the upper part being not only adapted at its top to support a metallic chimney and a reflector, but also to rest upon or to be supported directly by the lower half, which it overlaps, or by a deflector or ring surrounding such lower half, and held to its place substantially as shown and described.

2. In combination with the transparent glass A of a street-lamp, provided with an annular ridge or bulge, *c*, and with a rim, *d*, projecting above such bulge, the transparent glass B adapted to fit over such rim and upon such ridge, or upon an interposed deflector or ring, and also adapted at its top to support a metallic chimney and a reflector, substantially as shown and described.

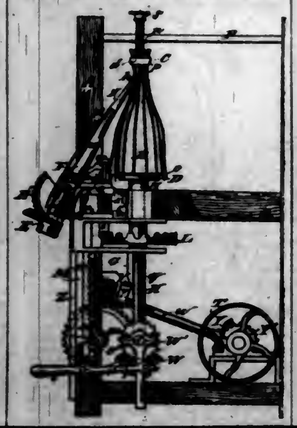
3. In combination, the translucent upper half globe or glass, the upper reflector *h* surmounting the same, a ventilating-chimney, and the connecting-rod, and cross-bars *f*, substantially as and for the purpose described.

182,639.



182,640. BOTTLE-COVERING MACHINES. A. L. Beaber and Frederick W. Volkman, San Francisco, Cal., assignors of part of their right to Henry De Veuve and Lâcoul Verlan, same place. [Filed Aug. 1, 1876.]

Brief.—Bottle is placed on a rotating table, held by a block set against its upper end. Around the block is a hinged collar with radial spring-clasps for the warp-threads. The lower ends hang loosely, so that a filling-instrument carrying the woof may alternately pass under and over the warp. The shuttle or instrument is rocked by sector-wheels, and has feet or flanges at its upper end, along which the warp-threads on the revolving bottle pass alternately under and over.



1. In a bottle-covering machine, the herein-described oscillating feeder F F, consisting of a fluted rod, *e*, provided with tubular pendle E, spring-holder *h h*, and bent flange *f*, for alternately lifting and passing over the vertically-suspended rattan, &c., threads from the supply-clamp *c*, all arranged as shown, substantially as herein set forth and specified.

2. In the same, the feeder F F, fitted to the jacket *J o o* by the collar O', in combination with the spring A' and the carrier-frame Q Q, arranged as described, for causing the needle N to adapt itself to the shape of the bottle, substantially as herein set forth and specified.

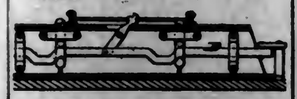
3. In the same, the spring-clamp *r p f*, provided with several spring-catches, *d d d*, hook-catch *B'*, and fitted to the grooved block *h*, in combination with the bottle B, feeder F F, and adjusting-screw *s*, arranged as shown, substantially as and for the purposes specified.

4. The pivoted feeder *F J o o*, provided with beveled segment R, in combination with the segment P', arm *a i*, lever *l*, toothed spindle *i*, toothed wheel I, carrier-frame Q Q, and feathered rotating shaft H *g*, substantially as and for the purposes herein set forth and specified.

5. The carriage-frame M M, fitted within the slide-bars S S, carrying the feeder-oscillating mechanism described, and provided with rack *s s*, in combination with the pinion *m*, fitted to the shaft X, provided with toothed wheel U, geared to the worm V, and actuated by the beveled wheels Y Y' and driving-shaft K, substantially as herein set forth and specified.

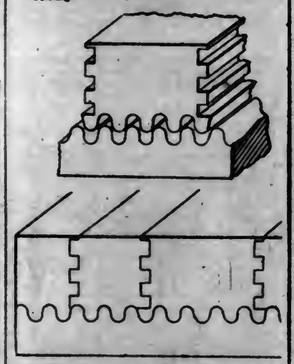
6. The adjustable slotted plate G, fitted to the frame A A by bolts 1 2, and carrying the worm V, and beveled gear Y, connected by the shaft *n*, in combination with the driving-gear K Y and adjustable toothed wheel U, for regulating the speed of pinion *m*, rack *s s*, and carriage M M, as herein set forth and specified.

182,641. RAILROAD-SWITCHES. William Buchanan, Yonkers, N. Y. [Filed May 3, 1876.]



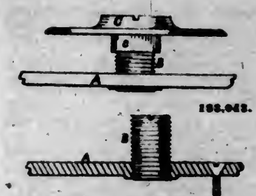
The combination of the switch-lever, connected to and operating the switch-rails, the bolts operated positively independent of the motion of the rails, and mechanism whereby the same movement of the lever is made the means of operating positively in both directions both the rails and the locks, substantially as set forth.

182,642. COMPOUND LUMBER. Daniel M. Cunningham, Richfield, N. H. [Filed Sept. 26, 1874.]



As a new article of manufacture, compound lumber, composed of different woods united at their inner faces by means of parallel tongues and grooves, substantially as described and shown, for the purpose set forth.

182,643. SECURING KNOB-ROSES TO LOCKS. S. W. Downs, Norwich, Conn. [Filed Dec. 2, 1876.]

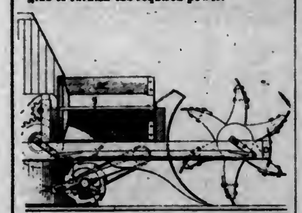


182,643.

The exteriorly-screw-threaded detachable tube or thimble B, when made and used as herein described, to screw into the threaded plate A of a mortise-lock, in combination with the threaded flanged rose C *c*, which travels upon the thimble far enough to adapt the rose and the lock to be secured upon doors of various thickness, as herein described.

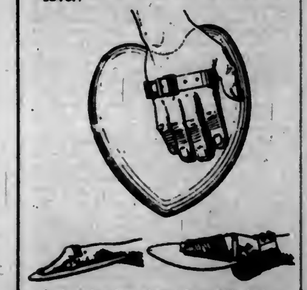
182,644. TRACK-CLEARERS. W. Dunbar, Ashland, Wis. [Filed May 29, 1876.]

Brief.—The device is attached to the forward end of a car, which carries a small engine to furnish the required power.



A combination machine composed of one fan-wheel with curved fans, two fan-wheels with straight fans, a pair of flange-wheels, and a plow with hinged sections to the wings, substantially as described, and for the purpose set forth.

182,645. HAND AND FOOT PLATES FOR SWIMMING. Robert H. W. Dunlop, Kent Gardens, Ealing, England. [Filed June 28, 1876.]

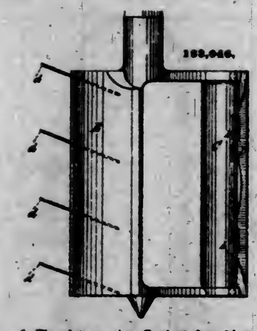


1. A swimming-plate of an elliptical or heart shape, with one end recessed, and with the edges beveled, substantially as and for the purposes set forth.

2. A foot plate or flipper for swimming having a recess at one end, and with means for attaching such plate to the foot with the recessed portion at the hollow beneath the instep, substantially as set forth.

182,646. DASHERS FOR ICE-CREAM FREEZERS. John H. Dunbar, Philadelphia, Pa. [Filed Sept. 11, 1876.]

Brief.—To the outer ends of arms which project from one side of the central shaft is pivoted or hinged a convex plate, the free edge of which projects inward toward the center of the can, and to the outer hinged edge of said plate a scraper is attached by means of springs. Projecting from the other side of the central shaft is a curved plate, to the convex surface of which are attached, at right angles, several upward-abutting wings.



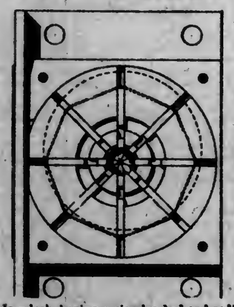
182,646.

1. The plate or wing C, pivoted or hinged to the arms *a a* of the dasher, having the scraper D attached thereto by means of the springs *b*, substantially in the manner and for the purpose set forth.

2. The concentrically-curved and radially-inclined wings *d*, in combination with the convex surface of the plate M, substantially in the manner shown and described.

3. The pivoted or hinged plate C, having the scraper D, in combination with the convex plate E, having the wings *d*, substantially in the manner shown and described.

182,647. LOCKS FOR DOORS, &c. H. Ensor, Meadville, Pa. [Filed July 26, 1876.]



In a lock having a circular bed and radial tumblers, the combination, with radial tumblers, of an endless spring or band, substantially as described, whereby all the tumblers are pressed toward the center of the key-hole, as set forth.

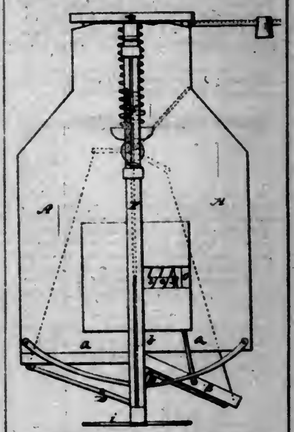
182,648. SLEEPING-CARS. William Fotts, Milwaukee, Wis. [Filed Aug. 9, 1876.]



1. A dressing-room in a sleeping-car arranged between the seats or berths in a recess, D, provided with doors E, F, and G, substantially as described.

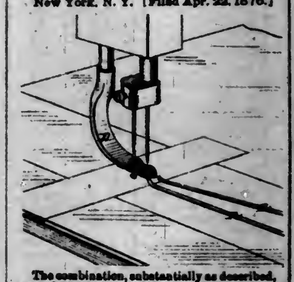
2. A recess, D, between the backs of seats B in a sleeping-car, substantially as described.

182,649. GRAIN-METERS. Jos. Fry, Allen, Ill. [Filed Nov. 17, 1873.]



The combination of the receptacle A with the oscillating angular bottom B, the jointed braces D D, and the oblong circular rod *d*.

182,650. SEWING-MACHINES. G. Funk, New York, N. Y. [Filed Apr. 22, 1876.]



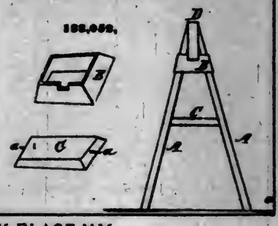
The combination, substantially as described, of a cloth plate or slide, provided with two ribs, with the two needles and feed mechanism of a sewing-machine, as and for the purpose set forth.

182,651. GRAINING-ROLLERS. Edwd. A. F. Hart, Chicago, Ill. [Filed Mar. 6, 1876.]



A graining-roller covered with sponge for imitating French-walnut burls, substantially as described and shown.

182,652.



182,636. SCAFFOLDS. Micajah M. Harvey, Williamston, Ohio. [Filed Sept. 8, 1876.]

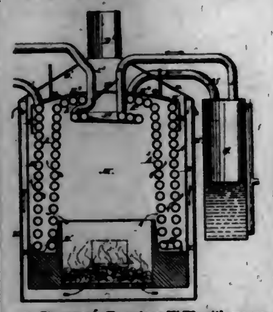
A truss or scaffolding, consisting of the notched band B, brace-piece C, with spurs *c*, in combination with the legs A and cross-piece D, substantially as and for the purpose set forth.

182,637. BALE-TIES. Abram W. Hess, Chicago, Ill. [Filed Oct. 26, 1876.]



A bale-tie, consisting of a metallic strip fastened by means of tongues and slots cut at one and the same time in the overlap of the ends of the tie, the tongues of the upper lap projecting into the slots of the under lap, and the tongues of both the upper and under lap being on the inside of the tie when the same is fastened, leaving the outside thereof free from any projections, substantially as described.

182,638. STEAM-GENERATORS. J. B. Herreshoff, Bristol, R. I., assignor to himself and Sarah L. Herreshoff, same place. [Filed Mar. 20, 1876.]



1. The curtain E, and top F F, with means H for opening and closing the same, in combination with a coil boiler, and a flue for the rising of the gases around the same, as herein specified.

2. The construction of a coil boiler, with the openings or spaces between the convolutions increasing gradually from the top downward, as and for the purposes specified.

3. In combination with one or more inclosing-coils, A^1 A^2, the top coil A^3 adapted to serve therewith, as herein specified.

4. The valve H, in combination with the top coil A^3, and one or more inclosing-coils below, as herein specified.

5. The ring-valve G in the close top E F F, arranged as shown, to allow not only the escape of the products of combustion, but also the cleaning of the coils A^1 A^2 by reaching downward through the opening, as herein specified.

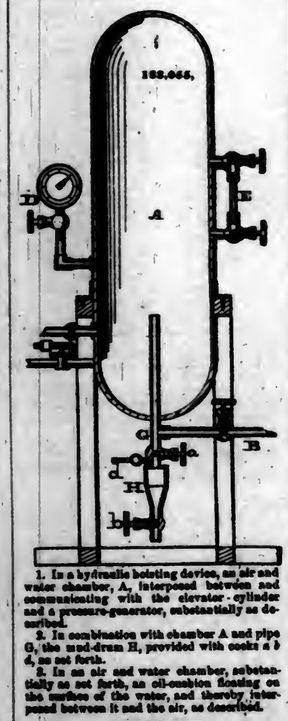
6. The valve or register I, controlling the space below one or more inclosing-coils, in combination with the casing D, and means for closing the top of the combustion-chamber, as specified.

7. In combination with one or more inclosing-coils, A^1 A^2, the shield B^2 within the base, as and for the purposes specified.

8. In combination with a coil boiler and a separating-vessel, C, the pipes C^1, adapted to lead the mingled water and steam to an independent finishing apparatus, as and for the purposes specified.

182,639. AIR-CHAMBERS FOR FORCING WATER FOR OPERATING ELEVATORS, &c. Philip Hinkle, San Francisco, Cal. [Filed Aug. 30, 1876.]

Brief.—The large air chamber or reservoir interposed between the ordinary air-chamber of the force-pump and the elevator-cylinder is used as an accumulator of pressure. Water can be forced from this chamber into the cylinder of the elevator. An oil-cushion floating upon the surface of the water prevents the absorption of air.

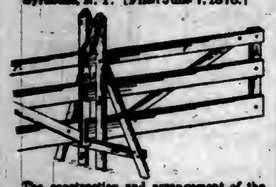


1. In a hydraulic hoisting device, an air and water chamber, A, interposed between and communicating with the elevator-cylinder and a pressure-generator, substantially as described.

2. In combination with chamber A and pipe G, the mud-drum H, provided with cocks *a b d*, as set forth.

3. In an air and water chamber, substantially as set forth, an oil-cushion floating on the surface of the water, and thereby interposed between it and the air, as described.

182,640. FOUNTAIN PENCILS. R. S. Hotham, Syracuse, N. Y. [Filed June 7, 1876.]

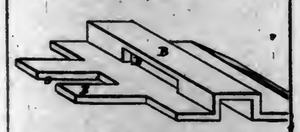


The construction and arrangement of the parts as herein described, in combination with the panels interlocking and held in place and firmly secured to the parts, substantially as and for the purposes specified.

182,641. GRINDSTONE ADJUSTMENTS. Jas. L. Howard, Hartford, Conn., assignor to James L. Howard & Co., same place. [Filed Sept. 14, 1876.]

The combination of the wheel K, shaft *j*, carrying spur-wheels, wheel K', the spring *i*, the tube I, and the shaft *h*, substantially as set forth.

182,642. BALE-TIES. Christian Krieg, Dallas, Tex. [Filed May 10, 1876.]

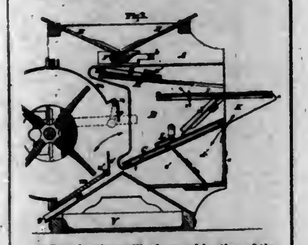


1. The clasp B with the tongue E, constructed substantially as herein described.

2. The combination of the clasp B with the tongue E, the band H, and the fastening F, substantially as and for the purpose herein set forth.

3. The combination of the clasp B with the tongue E, the band H, and the sliding fastening C, substantially as and for the purpose herein set forth.

182,643. GRAIN-SEPARATORS. Geo. Leach, Schenectady, N. Y., assignor to himself and John D. Campbell, same place. [Filed Apr. 22, 1876.]



1. In a fanning-mill, the combination of the feed-rollers F F, the cone-pulleys *c* and *d*, and the fan D, all arranged in such manner that the speed of the rollers will be proportioned to the speed of the fan, and the number of revolutions of the rollers relatively to that of the fan be capable of adjustment, as herein set forth.

2. The slide forming the bottom of the shoe B, provided with a lock-groove joint, as shown in Fig. 5, by means of which it is secured in place, as set forth.

3. In a separator, the combination of the sieve I, having a central partition and gauze of two degrees of fineness of mesh, the screen C, and the slide J, arranged beneath the sieve I, with its upper edge in loose connection with the central partition of same, as and for the purposes set forth.

4. In a separator, the combination of the extension K, the sieve I, with central partition and gauze of two degrees of fineness, the slide J, arranged directly beneath said partition, and box *d'*, all arranged and constructed as set forth.

5. The combination of the shouldered shaft A, halved sockets *i i*, lugs *j*, arms *k k*, and fan-blades *l l*, substantially as set forth.

6. The combination of the shutters M M, or their equivalents, rods or bars *q q*, valves *o o'*, arms *p p*, branches *r r'*, rod *s*, and weights *t t*, constructed and arranged to operate substantially as set forth.

7. The elevator-case B, having its four walls formed with lock-groove joints, as shown in Fig. 5, whereby they are held firmly together, but capable of being readily taken apart for packing, as herein set forth.

8. In combination with the air-valves *o o'*, arranged in the interior so as to be operated by the fan-blast, the indicator H, branches *r r'*, rod *s*, cord *v*, and weights *t t w*, or their equivalents, to form an indicating device to govern the speed of the fan, as set forth.

9. The connecting-rod P, having a lateral joint at *p'*, and longitudinal adjustment at *p''*, in combination with the bell-crank Q, swivel *q'*, dog D, and shoe B, all as herein set forth.

182,644. COMPOUNDS FOR MAKING SOAP. George T. Lewis, Philadelphia, Pa., and William J. Menzies, St. Helen's, England; said Menzies assignor to said Lewis, trustee of the American Lye Company, Philadelphia, Pa. [Filed Jan. 26, 1876.]

A compound for making soap, consisting of caustic soda and soda-ash, combined in the manner specified and described.

182,645. ADJUSTABLE CRANKS FOR GRINDSTONES, &c. M. P. Locke, Salem, Mass. [Filed Aug. 7, 1876.]

Brief.—To obviate the ellipticity of the stone, resulting from the simultaneous pressure of the tool with that of the foot, a circular series of holes in the disk on the end of the spindle permits the point of attachment thereto of the pitman to be varied.

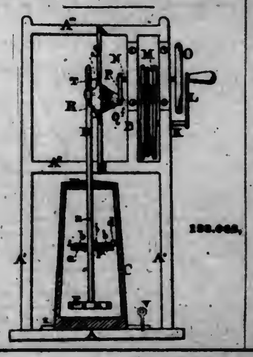


Equalizing the wear of the periphery of grindstones, operated by a foot-treadle, by means of changing the position of the crank or wrist pin, or the upper end of the pitman-rod, to any desired point to effect the required result, substantially in the manner herein shown and described.

182,646. HYGROSCOPES. Antonio Menzel, Stapleton, N.Y., assignor to Reserve Menzel, same place. [Filed Dec. 1, 1876.]



The hygrometer herein described, composed of the coil B, having one of its surfaces varnished along its entire length, the index D, shaft *c*, and frame A', as and for the purposes specified.



182,647. CHURNS. Ira Nappin, Farmington, Ill. [Filed May 2, 1876.]

Brief.—A vertically-reciprocating motion only is imparted to the dasher-rod. The sidewise motion of the crank is accommodated by the movable dovetailed block moving upon the corresponding block, which moves vertically, but not horizontally.

1. In combination with a winch and balance-wheel motors or gearing, substantially as described, the block Q of the crank P, the sliding block R on the rod S, said block R adapted for attachment to the rod of a churn-dasher.

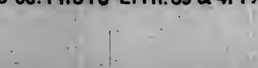
2. The combination, with the shaft N and crank P, of the sliding head-block Q, and sliding cross-head R on guide S, as described.

3. The adjustable dasher F, as shown, in combination with the rod D, blocks R and Q, and crank P, and movable upon the rod to the hole *s* or other point, as described.

4. The dasher F, composed of slats *b*, disposed in quadrangular form, and loosely attached to the rod D by pin *d*, as described.

182,648. CUTTER-HEADS. David K. Overbiser, Williamsport, Pa., assignor of two-thirds his right to S. I. Russell and Jas. E. Abbott, Chicago, Ill. [Filed Mar. 2, 1875.]

Brief.—Circular cutters, for tonguing and grooving flooring, are cut away at one part to form a cutting-edge, and are provided with annular grooves at the top and bottom.



1. The tonguing-cutter A, constructed and operating substantially as shown and described, and for the purpose specified.

2. The grooving-cutter B, constructed and operating substantially as shown and described, and for the purpose set forth.

182,649. RAILROAD-SWITCH CHAIRS. D. C. Pierce, Chicago, Ill. [Filed Mar. 31, 1876.]



1. A railway-switch chair, provided with side bearings of different heights for receiving the treads of the wheels on one side, and the flange of the wheels on the other, of passing cars, as set forth.

2. In combination with a railway-switch chair, adjustable and removable bearing-blocks, arranged as described, and for the purpose set forth.

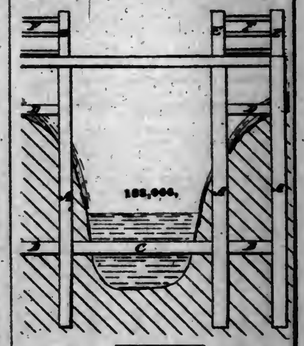
3. In combination with a railway-switch chair constructed as herein described, bearing-blocks, provided with a cross stay-rib, E, for preventing any longitudinal motion of the same, as described.

4. A railway-switch chair, provided with openings in its sides opposite the end of the movable rail, as and for the purposes set forth.

182,650. DRAIN-PIPING. W. A. J. Pollock, Kinston, N. C. [Filed Mar. 6, 1876.]

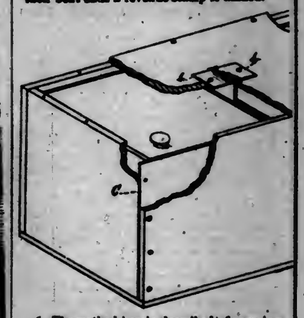
Brief.—This frame-work, which spans a drain and closes the gap between two sections of fence, is constructed to prevent cattle or other stock from passing from one field to another by wading the drain.

The herein-described frame-work, consisting of the standards A, frame B, series of parallel rails C, and the two upper series of parallel bars D, all combined and arranged substantially as described, and adapted to be used as set forth.



182,651. SHIPPING CANS AND CASES. Eben C. Quinby, St. Louis, Mo. [Filed Aug. 30, 1876.]

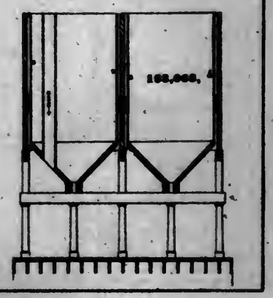
Brief.—Diagonally opposite sides of the metal can project, and are nailed between the sides and ends of the wooden case. Metal strips soldered severally to equigrooves pass through a slot in cover of case. On their bent ends a revenue-stamp is affixed.



1. The method herein described of securing tin shipping-cans to the required wooden cases, which consists in extending one or more of the sides of the can outward beyond its body, and securing the extension between the joint or joints of the wooden case by the means used to fasten together the sides of the case, as set forth.

2. The combination of one or more cans, each having one or more sides secured, as described, in the joint or joints of a packing-case, with one or more straps secured to the can or cans, passing through a slot in the cover, and bent over the same, as and for the purpose set forth.

182,652. [illegible]



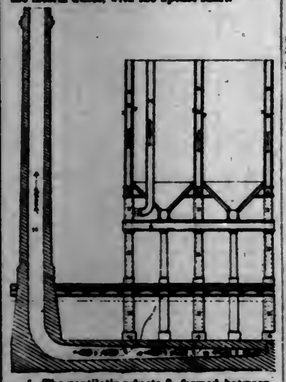
182,068. VENTILATING-DUCTS. M. Randolph, New York, N. Y. [Filed June 10, 1875.]

Brief.—The backing supports the thin perforated lining, and the space between the backing and the lining constitutes an air-way.

The metal lining 5, supported between the furring strips 4 by a metal backing, 6, as described and shown.

182,069. CONSTRUCTION AND VENTILATION OF BINS FOR WAREROOMS, &c. M. Randolph, New York, N. Y. [Filed Sept. 21, 1876.]

Brief.—The perforated side plates are fastened to the posts or studs, so as to form vertical air-ducts. The latter are connected by means of air-passages in the girders, posts, and, by the lateral ducts, with the upcast shaft.

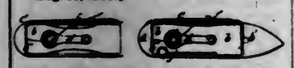


1. The ventilating-ducts 8, formed between the perforated side plates 7 and the posts or studs 3, the air-ducts in girders 5 and posts 3, and the lateral ducts 9 and 10, and the upcast shaft 11, the whole combined and arranged so as to form a complete system of ventilating-bins, either in buildings or vessels, substantially as described and set forth.

2. The base-blocks 4, constructed with an interior air-passage for connecting the duct within the column 3, that rests upon the said block 4, with the lateral duct 9, substantially as shown and described.

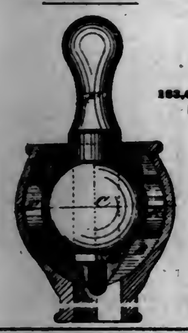
3. The lateral receiving-duct 10, constructed with a regularly-increasing sectional area as it proceeds toward the upcast shaft 11, substantially as and for the purposes set forth.

182,070. SHUTTLES FOR SEWING-MACHINES. Wm. Reid, Glasgow, Great Britain. [Filed Aug. 18, 1876.]



The kink-removing spring *d* and perforated bearing *b'*, in combination with the sewing-machine shuttle, substantially as set forth.

182,071.

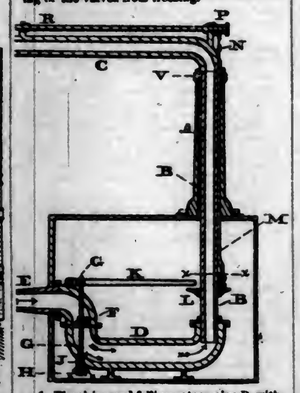


182,071. SHAFT-COUPLINGS. George B. Rider, Martin's Ferry, Ohio. [Filed May 17, 1876.]

In contradistinction to shaft-couplings composed of a two-part shell and four rollers, the shell in one piece, provided with grooves for the rollers, in combination with the ball and two rollers, the frictional contact of shell, ball, and rollers being chilled, and the whole arranged in the manner shown and described.

182,072. WATER-COLUMNS. A. R. Roberts, Philadelphia, Pa. [Filed July 1, 1876.]

Brief.—When a locomotive is being supplied with water, the valves are operated by mechanism outside of the pipe, through which the water flows. Stuffing-boxes are not required, and there will be no check to the working of the valves from freezing.



1. The rising and falling rotary pipe B, with surrounding sliding sleeve I, and the branch C, with rotary-rod K, in combination with the valve-connection M outside of said rotary pipe B, substantially as and for the purpose set forth.

2. The inlet-pipe B and base-pipe D, in combination with the supply-valve F intermediate of said pipes, and the water-valve H at the lower side of the base-pipe, said valves being fitted to the stem G, which is common to both valves, and projects outside of the pipe B, and with the lever K, connected to said projecting stem G, substantially as and for the purpose set forth.

3. The rising and falling rotary pipe B, with surrounding sliding sleeve I, the branch C, with rod K, and the supply-valve F and waste-water valve H, fitted to a common stem, G, in combination with the outside connection M, intermediate of the sleeve L and rod K, and with the outside lever K, intermediate of the sleeve L and stem G, substantially as and for the purpose set forth.

182,073. ORNAMENTAL AND FLEXIBLE LUMBER. George C. Setchell, Norwich, Conn. [Filed Mar. 10, 1876.]

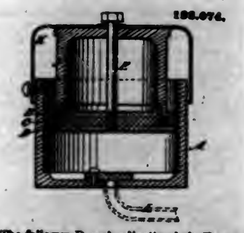


The ornamental and flexible lumber, having parallel longitudinal kerfs in both sides, nearly through its thickness, the kerfs of one side being midway between those of the other, substantially as and for the purpose set forth.

182,074. AIR-SPRINGS FOR CARS. Anthony P. Smith, Newark, N. J., assignor to himself and Patrick Doyle, same place. [Filed Mar. 13, 1876.]

Brief.—Elastic packing so arranged as to re-enforce the air employed as a spring.

182,074.



The follower D and adjusting-bolt B combined with the elastic packing C, plates E, and the cylinder A, substantially as specified.

182,075. HEATERS. I. D. Smead, Bloomington, Ill. [Filed Sept. 4, 1876.]



The combination, in a portable school-room heater, of the fire-box B, having planting top *b*, main vertical flue C, communicating directly with rear of fire-box, inclined smoke-tubes D, flue or chamber E, and horizontal tubes F, the several parts being connected and arranged in the manner substantially as and for the purpose specified.

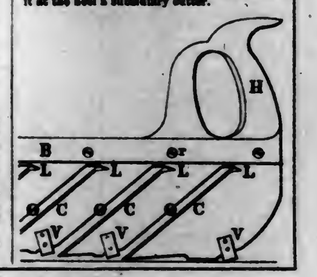
182,076. BIAS MEASURES. J. Kirk Somes, Springfield, Mass. [Filed July 26, 1876.]



As an article of manufacture, the implement herein described, consisting of a yard-stick, with the shorter bias-bars at both ends graduated on both sides, and united at their inner ends by a bar parallel with the yard-stick, for the purpose set forth.

182,077. ICE-TOOLS. Frank Stafford, Barre, Vt. [Filed Aug. 7, 1876.]

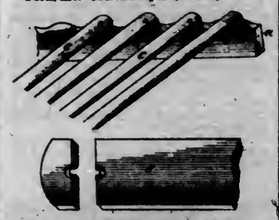
Brief.—Each of the cutters has attached to it at the heel a subsidiary cutter.



1. As an article of manufacture, a hand ice-groover for cutting up large blocks of ice, consisting of the cutters, substantially as described, secured to the back piece B, and the handle H, all combined and arranged substantially as described, and for the purpose set forth.

2. The combination of the loop-cutters V V, one or more, with the grooves or teeth of the ice-cutter, substantially as described, and for the purpose set forth.

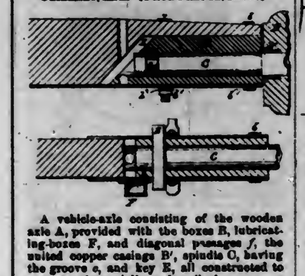
182,078. BED-BOTTOMS. John H. Staples, York, Me. [Filed July 22, 1876.]



1. The combination, with the slats of the curved bearings *b*, and suitable retaining mechanism, substantially as and for the purpose set forth.

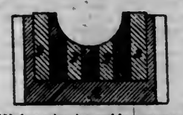
2. The slats *c*, having the holes or slots *e* in their ends removed on both sides, in combination with the curved bearings *b*, having the pins *d*, substantially as and for the purpose described.

182,079. VEHICLE-AXLES. Jas. M. Stone, Calamine, Ark. [Filed June 12, 1876.]



A vehicle-axle consisting of the wooden axle A, provided with the boxes B, lubricating-boxes F, and diagonal passages *f*, the united copper casings B', spindle C, having the groove *c*, and key E, all constructed to operate substantially as described.

182,080. JOURNAL-BOXES. Peter Sweeney, New York, N. Y., assignor to himself and Wm. B. Bishop, same place. [Filed Mar. 31, 1876.]



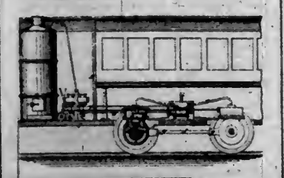
A self-lubricating journal-box, composed of a shell, A, supporting-layers B, of rawhide, and lubricating-layers C, composed of boiled oil, beeswax, mercury, and graphite, substantially as described.

182,081. MOTORS FOR CARS, TRACTION-ENGINES, &c. ARSON P. THAYER, New York, N. Y. [Filed Sept. 16, 1876.]

1. As a motor for propelling street-cars, traction-engines, omnibuses, &c., the combination of a steam-engine or other motor, a pump and a rotary pressure-wheel, arranged for forcing air or liquids through the pressure-wheels, and thereby producing continuous rotary motion.

2. The combination of a steam-engine or other motor, a pump and a rotary pressure-wheel or engine, arranged for forcing air or liquids through the pressure-wheel, and thereby producing rotary motion, with suitable means for increasing and diminishing the volume of air or liquid admitted to and impelled by the pump.

182,082.

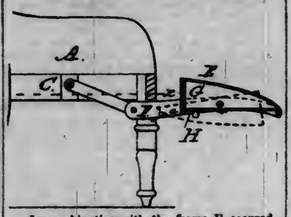


182,082. TOY GUNS. Robert D. Townsend, Indianapolis, Ind. [Filed Mar. 27, 1876.]



In a toy gun, the stock A, barrel C, the grooved cap B, the shuttle F, having the feather or rib O, and an elastic bumper, L, and the rubber spring D, all constructed and arranged to operate substantially as shown, for the purposes specified.

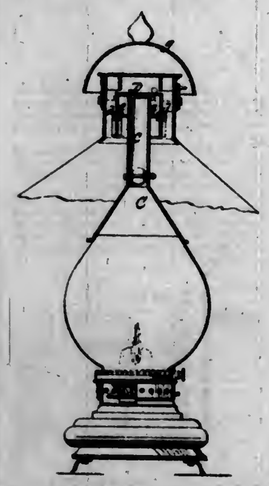
182,083. FOOT-RESTS FOR CHAIRS. Jos. H. Travis, Boston, Mass. [Filed Jan. 6, 1876.]



In combination with the frame F, secured to the chair A, the chambered foot-rest E, provided with a door, H, said foot-rest being pivoted in the aforesaid frame, as and for the purpose set forth.

182,084. STREET-LAMPS. W. R. Underhill, Van Wert, Ohio. [Filed Feb. 23, 1876.]

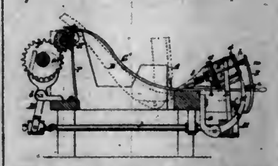
Brief.—The cone and stack can be elevated and supported by the studs in the grooves, to admit the removal of the globe.



The cone C, having its stack provided with projections or studs *c c*, in combination with the tumbler or cap D, having the inverted L-shaped grooves or inlets *d d*, substantially as and for the purpose set forth.

182,085. NAIL-PLATE FEEDERS. Rollin Van Amburgh, Wetmore, Kans. [Filed Mar. 21, 1876.]

Brief.—The semi-rotation of the nose-piece and barrel, first in one direction and then in the other, is produced by a nut, which is caused to reciprocate back and forth upon a spirally-grooved shaft, a belt connecting said shaft with the barrel. The feeding mechanism is operated by a forked-end lever, which, as the feeder oscillates forward, strikes the bed of the machine, is tipped, and its ends caused to bear upon rods connected to a longitudinally-moving collar. This collar is formed with two diametrically-opposed cam-surfaces, which force apart the rear ends of the pivoted gripers, and cause their forward ends to bind upon the nail-plate as the barrel rotates.



1. In a nail-plate feeder, the reciprocating block I, the spirally flanged or grooved shaft fitting therein, the barrel K, and the belt or other suitable connecting mechanism, all combined and arranged substantially as described, for the purpose of effecting the alternately-reversed rotary movement of the barrel.

2. The combination of cam *e*, forked lever H, block I, and shaft J, having spiral *e*, with the barrel and the connecting-belt, or its equivalent, substantially as described.

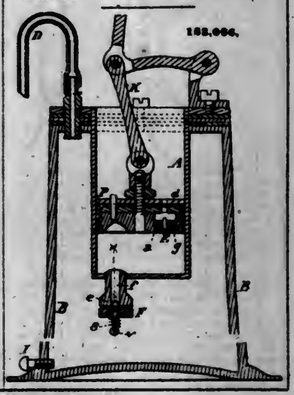
3. The combination of the oscillating frame N, the lever R, the spring-held slide-rods, the cam-collar *i*, the sliding frame *l*, and the pivoted gripers *j*, as and for the purpose set forth.

4. The combination, with the reversely-rotating barrel, of the non-reviving sliding collar *i*, having diametrical cams *h h*, the sliding frame *l*, and the gripers *j*, pivoted thereto so as to revolve with the barrel, and arranged with their rear extensions upon the sliding collar *i*, as described, and for the purpose set forth.

5. The combination of the block I, operated by suitable mechanism, and the shaft J, having spiral *e*, with the barrel and the connecting-belt, the oscillating frame N, and the feeding-lever R, substantially as described, and for the purpose set forth.

6. The combination, substantially as herein described, of the pivoted frame N, barrel K, and feeding devices, with the connecting-rod G', spring P, and main shaft carrying cam Q, as set forth.

182,086.



182,096. BLOW-PUMPS. Jacob B. Wallace, Canton, Ohio. [Filed Aug. 26, 1876.]

Brief.—Compressed air is forced from the air-pump (in the receiver) into receiver, from which it passes through a flexible tube and bung-plug into the cask.

1. The combination of the air-pump, surrounded by the receiver B B, flexible tube D, and bung-plug C, substantially as herein described.

2. The bung-plug C, constructed with side connecting-tube J, a valve, G, removable end H, and the outer end solid, substantially as described.

182,097. WIRE BALE-TIES. C. F. Washburn, Worcester, Mass. [Filed Mar. 6, 1876.]



1. The bale-tie with the wire thereof bent double at the end, twisted together, and bent up into a hook, with the opening 3 of less diameter than the wire of the bale-tie, substantially as set forth.

2. The bale-tie made of stiff wire bent double at the end, twisted together, and bent up into a hook, with the shoulder 6 within the hook, and with the double portion 5 of the wire bent back behind and contiguous to the hook, substantially as and for the purposes set forth.

3. The wire bent forward with the portion of the wire 5 contiguous to the bend of the hook, as specified.

4. The combination of the wire hook and shoulder 6 with the loops a and c, said loops touching each other at the points of crossing 7, to press the loop a toward the shoulder 6, for the purposes set forth.

182,098. FURNACES FOR COKE. L. H. Watson, Cleveland, Ohio, assignor to the Cleveland Steam-Gage Company, same place. [Filed Sept. 4, 1876.]



1. The bracket or crane P, supporting the wheel C, gear D, and pinion E, and provided with the sleeves and set-screws J J and the projection H, in combination with the step I, substantially as and for the purposes set forth.

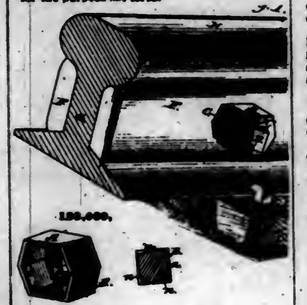
2. The fan-blower herein described, in combination with the forge and the mechanism for operating the same, all as set forth.

182,099. NUT-LOCKS. Theophilus Weaver, Harrisburg, Pa. [Pat. dated Feb. 29, 1876.]

1. A screw-threaded bolt or shaft, B B, having formed on its end the angular button B and the angular cam a, or the round cam a, for the purpose of holding in locked position thereon a nut-check, A N, substantially as set forth.

2. The nut check or lock constructed with eye K to fit the button B of the bolt, and with part A to embrace the sides of the nut C, and applied thereto and to the bolt B B' as a limited and locking swivel, substantially as and for the purpose set forth.

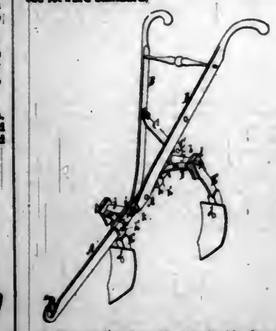
3. The projections *l l l l* on the base N of the nut-check A N, in combination with the button B on bolt B B', and with the nut C, for the purpose set forth.



182,099.

182,100. CULTIVATORS. Edward Wiard, Louisville, Ky., assignor to B. F. Avery, same place. [Filed Apr. 17, 1876.]

Brief.—A single straight iron beam supports the handles. Upon one side, near the rear end, is mounted an arm, secured by bolts, for the reception of the plow-standard. About the middle of the beam, and upon the opposite side, is mounted another arm, to receive the forward standard.

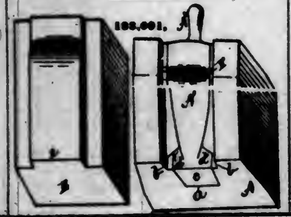


1. The combination, in the double-shovel plow, of the single iron-beam, the two shovels, and the braced and stayed brackets, all constructed and arranged as and for the purpose set forth.

2. The plow-shovel bracket F, constructed with the abutting side plate, the tubular stay, flanged plate, and diagonal brace, in the manner and for the purpose described.

3. The lever-bracket, as described, made with an open loop, to receive the plow-beam edgewise, and with a passage through its looped portion, to permit the insertion through it and the beam of a wooden pin, substantially as described.

182,101.



182,101. DIES FOR FORMING FORWARD LAND-SIDE BARS FOR PLOWS. Charles O. Wilder, Monmouth, Ill., assignor of one-half of his right to Weir Plow Company, same place. [Filed Sept. 12, 1876.]

1. In dies for forming forward land-side bars, constructing the bed-die in two parts, with adjacent recesses *b* and *d*, in which the land-side is forged, and from which it may be readily and easily removed by removal of the detached part of the die, substantially as described, and for the purpose specified.

2. In dies for forming forward land-side bars, constructing the bed-die in two parts—a fixed part, A, and a removable part, A'—substantially as described, and for the purpose specified.

3. The die A A', constructed in two parts, having recesses *b* and *d*, and arranged to operate with the head-die B, substantially as described, and for the purpose specified.

4. The removable die A', having a bead, *c*, combined with the fixed die A, having a recess, *c'*, substantially as described, and for the purpose specified.

5. The substitutive blocks F, combined with recess A, substantially as described, and for the purpose specified.

182,102. DIES FOR MAKING PLOW-BEAMS. Chas. O. Wilder, Monmouth, Ill., assignor of one-half of his right to Weir Plow Company, same place. [Filed Sept. 12, 1876.]

Brief.—The blank, having been properly curved, is bent at both ends in dies C C', and struck into form in dies H H' or J J', according as right or left hand brace is desired, the pin P having been positioned accordingly.



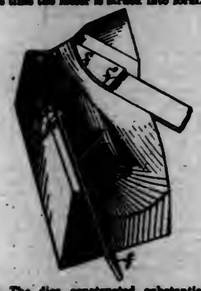
1. In a series of dies for swaging plow-braces, the dies, consisting of the recess as matrix C, and the corresponding projection C', substantially as set forth.

2. In a series of dies for swaging plow-braces, the dies, consisting of the recesses C, H, and J, and the corresponding projections on the head-die, substantially as set forth.

3. In a series of dies for swaging plow-braces, the guide F, attached to and removable from either end, and operating in combination with the recesses C, J, and H, substantially as set forth.

182,103. DIES FOR WELDING AND FORMING FROGS FOR PLOWS. Charles O. Wilder, Monmouth, Ill., assignor of one-half his right to Weir Plow Company, same place. [Filed Sept. 12, 1876.]

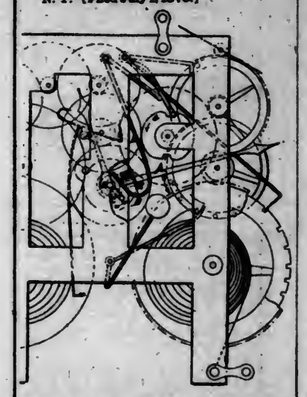
Brief.—The land-side is struck into form and then welded to the wing-brace, and at the same time the latter is struck into form.



1. The dies, constructed substantially as shown and described, for welding together the land-side and the wing-brace, and striking the latter into form, as set forth.

2. The dies, constructed substantially as shown and described, for striking the land-side into form preparatory to welding to the wing-brace, as set forth.

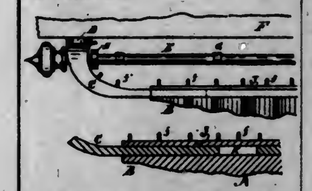
182,104. LOCK-WORK ATTACHMENTS FOR CLOCKS. John W. Williams, New York, N. Y. [Filed July 1, 1876.]



The combination, with the ordinary hook or bent arm C and the trip-wire D, of an incline or cam plate, E, attached to the trip-wire D, and operating in the manner and for the purposes set forth.

182,105. COMBINED CORNICE AND CURTAIN-ROLLERS. Hans H. Winger, Indianapolis, Ind. [Filed July 17, 1876.]

Brief.—The curved arms of the brackets slide in the coracle-front, in a groove provided therein, by means of which the device may be adjusted to windows of different widths. The curtain-roller passes through openings in the bracket-arms.



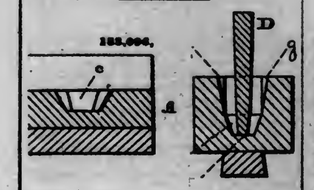
1. The brackets C C', formed with the foot or brace D, provided with the key-hole slot *d*, and also provided with hooks *f* to support inside curtains L, and having journal bearings or holes to allow the roller E to operate in, as set forth and described.

2. The center section A, provided with groove K and hooks *f*, in the manner and for the purposes specified and set forth.

3. In combination, the roller E, clips G, flexible washers H, and hangers C C', adapted to be operated in the manner and for the purposes set forth and described.

4. As a new article of manufacture, a device for supporting curtains, consisting of the roller E, adjustable brackets C C', and center section A, arranged to operate substantially as and for the purposes specified.

182,106.

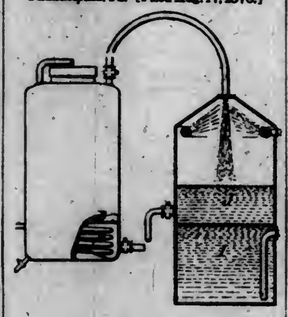


182,107. MANUFACTURE OF AXE-EYE HAMMERS. Jonathan Yerkes, Philadelphia, Pa. [Filed Dec. 29, 1875.]

Brief.—The blank is placed over a depression in the first die, into which a portion of metal is forced. This is placed over a like depression in the second die and punched, forming a tapering eye, with metal stored, to be used in the final shaping of the same with a punch having parallel sides.

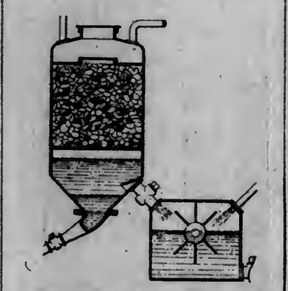
For the manufacture of axe-eye hammers, the series of dies A, C, B, and D, constructed and operating substantially as shown and described.

182,107. TREATING SUBSTANCES WITH HYDROCARBON VAPOR. William Adamson, Philadelphia, Pa. [Filed Aug. 17, 1876.]



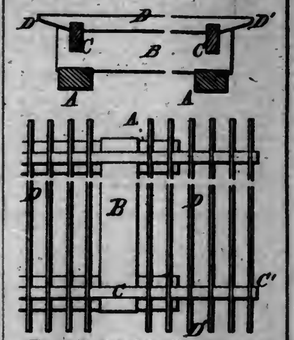
As an improvement in treating animal or vegetable substances with hydrocarbon for the purpose of extracting from such substances oils, fats, resins, &c., for cleansing different materials, and for preserving the substances, the within-described process consisting of, first, causing the vapor to pass through the substances to be treated in one vessel, then causing this vapor to be simultaneously washed and condensed in another vessel, separating the washed and purified hydrocarbon from the foul water, and, finally, returning the hydrocarbon to be revaporized in the first vessel, all substantially as and for the purpose set forth.

182,108. TREATING SUBSTANCES WITH LIQUID HYDROCARBON. William Adamson, Philadelphia, Pa. [Filed Aug. 17, 1876.]



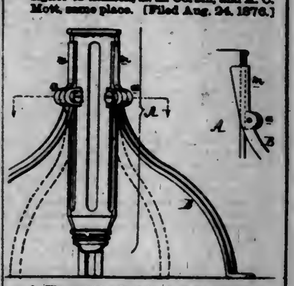
As an improvement in treating animal or vegetable substances with hydrocarbon, for the purpose of extracting from such substances oils, fats, resins, &c., for cleansing different materials, and for preserving the substances, the within-described process, consisting of, first, causing the liquid to pass through the substances to be treated in one vessel, then causing the liquid to be washed in another vessel, separating the washed and purified hydrocarbon from the foul water, and, finally, returning it to be reused in the first vessel, all substantially as and for the purpose set forth.

182,109. RAILWAY-GATES. Jas. B. Akins, Jackson Gap, Ala. [Filed Aug. 12, 1876.]



The combination of the sills A A, stringers B B, having beveled edges *b b*, girders C C, having extensions C' C', and slats D D, having pointed extensions D' D', substantially as and for the purpose set forth.

182,110. HOLDERS FOR CHRISTMAS-TREES. Hermann Albrecht, Philadelphia, Pa., assignor to himself, B. A. Corbin, and A. C. Mott, same place. [Filed Aug. 24, 1876.]



1. The within-described support, consisting of the socket A, combined with legs B, connected to the sides of the said socket above its lower end, substantially as described.

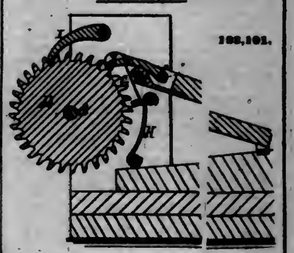
2. The combination of the socket A, having a tapering lower end, with a griping device near its upper end, substantially as specified.

3. The combination of the socket A with legs B, hinged to the same, as set forth, for the purpose specified.

4. The combination of the socket A, legs B, hinged to the socket, and griping-arms a, each of which forms part of one of the legs, all substantially as described.

5. The combination of the socket, made in three or more parts, each part having lugs a, with legs B, hinged to the legs by the same rivets or screws which aid in connecting the several parts of the socket together, as set forth.

182,111.

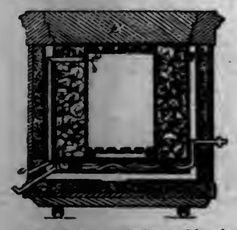


168,101. CAPSTANS AND WINDLASSES. F. S. Allen, Gomeld, Mass. [Filed Aug. 26, 1876.]

Brief.—A ratchet-wheel of a windlass is operated by a pawl and a link—the one on the long arm of a lever to push, the other on the short arm falling into the rear to pall. A stop-pawl is on the standard.

In a windlass, the combination, with the ratchet-wheel D, as described, of the link G and its guide-plate H, and the push-pawl F, pivoted, respectively, to the short and long arms at *f* and *g* of the channeled and bifurcated lever E, together with a stop-pawl, I, whereby, by the oscillation of the lever E, the link G and pawl F will operate alternately to revolve the wheel D in the same direction, as and for the purpose specified.

168,102. REFRIGERATORS. I. Allegretti, New York, N. Y. [Filed Sept. 17, 1875.]



1. In combination with the provision-chamber, the ventilating-tubes *e e'*, the induction-tube entering directly from the external air, and the eduction-tube leading from the provision-chamber through the ice-chamber, and then downwardly by the side of the ice-chamber, and communicating with the external air, for the purpose of establishing a current of air through the provision-chamber, substantially as set forth.

2. In a refrigerator, the combination of an inner metallic chamber for containing provisions, one or more chambers above or at the sides of the same for containing ice, a surrounding air-space, and inclosing-case, with the tubes for ventilating the provision-chamber, and coiled pipe for cooling water, the whole constructed and arranged as herein set forth.

168,103. DEVICES FOR TEACHING MUSICAL TRANSPOSITION. THOS. J. Allison, Gladewater, Tex. [Filed Apr. 26, 1876.]



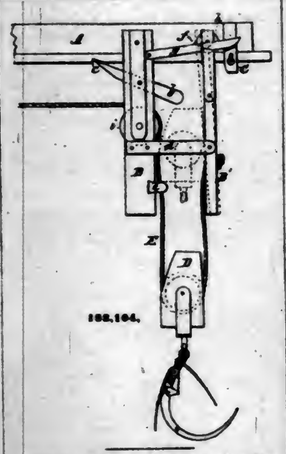
The improved instrument herein described, for the transposition of the key in music, consisting of the slide *a*, containing figures or characters indicating one octave of the voice part, slides *c* and *d*, and rods *b* and *f*, combined with the keys *h*, scales *g*, and *e i*, substantially as and for the purpose described.

168,104. HAY-ELEVATORS. Joshua Anderson, Short Creek, Ohio. [Filed Sept. 14, 1876.]

1. The carriage composed of the frame B, having a retaining projection, *c*, and the loosely-pivoted frame B', having a locking-latch connection with the frame B above, in combination with the rope E and a block, D, adapted to be supported between the frame-pieces, substantially as described, and for the purpose specified.

2. The combination of the ways A, having inclined plates C, with the carriage composed of frame B and loosely-pivoted frame B', having a locking-latch connection, *g*, adapted to be disengaged by plates C, substantially as and for the purpose described.

3. The carriage composed of frame B, carrying detent *h*, pulley *i*, and projection *c*, and the loosely-pivoted frame B', having a latch-connection with frame B above, combined with the ways A, having notch *c* and inclined plates C, the block D, and the rope E, arranged substantially as and for the purpose described.



168,104.

168,105. SPRING BED-BOTTOMS. John Barron, Batavia, N. Y. [Filed Aug. 5, 1876.]

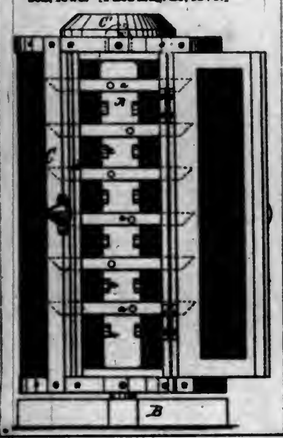


Bed-bottom slats provided with the separating blocks or extensions *a*, projecting beyond their sides, and adapted to abut against each other to keep the slats at the proper distance apart, substantially as specified.

168,106. LUBRICATING COMPOUNDS. John W. Bartlett, Moline, Ill., assignor to himself and Mervin Witherell, same place. [Filed Sept. 16, 1876.]

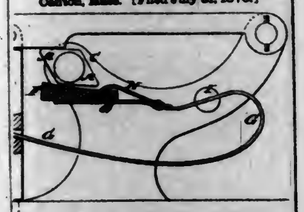
An improved fire-proof lubricating compound, formed of pulverized blue-stone, oil-rock, carbonate of potash, chloride of lime, American soap-stone, concentrated lye, golden machine-oil, pure lard-oil, salt, tartaric acid, and soft water, in the proportions and manner substantially as herein set forth.

168,107. MILK-SAFES. Chas. Beam, Jackson, Iowa. [Filed Aug. 25, 1876.]



A milk-safe, in which the fixed and stationary pens A is mounted on a base or sill, B, and contains the projecting shelves or supports *a*, with the revolving frame or chamber C, and the door D, and with the cap *c*, as and for the purpose specified.

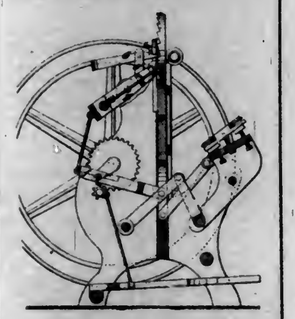
168,108. OILERS FOR CAMS. John H. Beal, Canton, Mass. [Filed July 31, 1876.]



The combination of a piece of oil-saturated felt, F, and its spring-holder G, with a cam, A, to keep said cam constantly oiled, substantially as herein shown and described.

168,109. PRINTING-PRESSES. Willard W. W. Belknapp, Brooklyn, N. Y. [Filed July 1, 1876.]

Brief.—The bed and distributing-disk are together reciprocated vertically by a linked connection to the platen, which is oscillated by a toggle jointed to a crank-arm on the driving-shaft, which arm is also linked to and oscillates the inking-roller frame.



In a printing-press, the combination of a swinging platen, a vertically-reciprocating bed, and an oscillating inking device, substantially in the manner and for the purpose set forth.

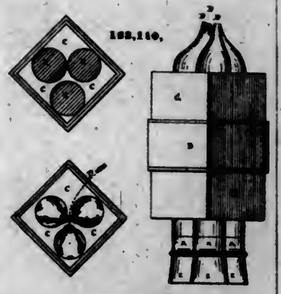
168,110. APPARATUS AND METHODS FOR THE DELIVERY, SEPARATELY AND SIMULTANEOUSLY, UPON THE SAME POINT, OF TWO OR MORE LIQUIDS CHEMICALLY INCOMPATIBLE. Henry C. Berry, Chicago, Ill. [Filed June 30, 1876.]

Brief.—For example: Nitrate of silver and nitrate of potash, to make "mitigated nitrate of silver;" or, in staining cells for microscopic examination, may apply the nitrate of silver and liquor potassæ at the same time; or, in bleaching vegetable structures for similar use, a solution of chloride of lime and an acid may be applied separately.

1. The method of delivering two or more liquids, chemically incompatible, simultaneously at the same point, and preventing their premature commixture, which consists in conveying them to the point of application in separate conduits, and discharging them there, substantially as described.

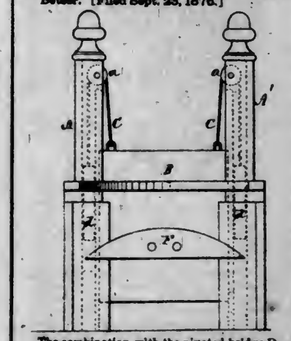
2. The tubes A, having spouts D in juxtaposition, substantially as described, and for the purpose set forth.

3. The combination of the tubes A, having spouts D and stoppers E, and the box B, substantially as described, and for the purpose set forth.



168,110.

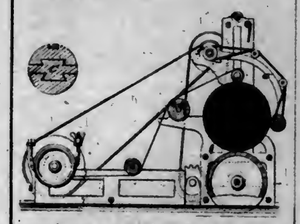
168,111. DRAW-BRIDGE GATES. Benj. F. Betser and S. B. Betser, Bloomington, Ill.; said Benj. F. Betser assignor to said S. B. Betser. [Filed Sept. 23, 1876.]



The combination, with the pivoted bridge D, having frames G and rollers H, of the hollow posts A A' A A', the gates B, cams F, cords C C, pulleys *a a*, and weights *d d*, all constructed substantially as and for the purposes set forth.

168,112. MACHINES FOR ROLLING PAPER. Charles T. Bischof, Gloggnitz, Austria. [Filed May 27, 1876.]

Brief.—The roller upon which the paper is wound is of tapering sections, connected longitudinally by dovetail tongues and grooves. The supporting-frame has curved arms, which carry rotary cutters, which are adjusted relative to the paper by eccentrically-arranged rollers, which bear upon the paper-roll. A smoothing-roller is employed, which travels in the opposite direction to the paper which is being rolled.



1. In a paper-rolling machine, the winding-up roll C, made in three longitudinal sections, the two outer dovetailed to the middle one, and the latter arranged to slide in and out of the other two, as and for the purpose specified.

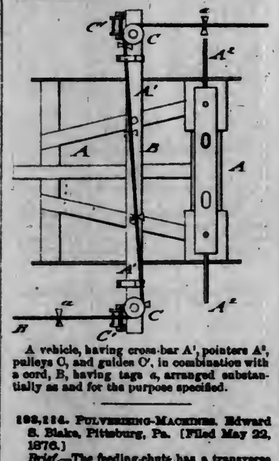
2. In a paper-rolling machine, the combination, with the stretching and winding-up rollers, of a smoothing-roller, that turns in opposite directions to the motion of the paper, substantially as specified.

3. The combination, with a revolving driving top shaft of a paper-rolling machine, of curved and swinging arms or frames, being adjustable on the shaft, and having revolving cutting-knives and guide-rollers at the ends, substantially as specified.

4. The shafts of the cutting-knives, having eccentric extensions, with guide-rollers and set-screws, for adjusting the rollers to the required depth of the cutting-knives, substantially as set forth.

168,113. CHECK-ROWERS. Albt. M. Black, Pawnee, Ill. [Filed July 31, 1876.]

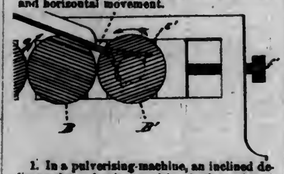
Brief.—The cord has tags, which operate in connection with pointers upon the frame of the machine.



A vehicle, having cross-bar A', pointers A^2, pulleys C, and guides C', in combination with a cord, B, having tags *a*, arranged substantially as and for the purpose specified.

168,114. PULVERIZING-MACHINES. Edward S. Blake, Pittsburg, Pa. [Filed May 22, 1876.]

Brief.—The feeding-chute has a transverse opening about midway of its length, through which one portion of the material to be ground falls to the rolls beneath, the remainder continuing to the end of the chute, where it discharges into another set of rolls. The axle of one of these latter rolls is provided with projecting spurs, which engage projections from the chute, and give to it a positive vertical and horizontal movement.



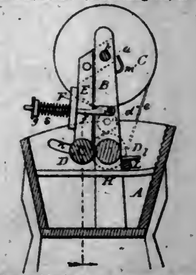
1. In a pulverizing-machine, an inclined delivery-chute, having positive horizontal and vertical reciprocating movements to cause a steady intermittent delivery of material, in combination with the pulverizing-rolls, from the shaft of one of which motion is communicated to said chute, substantially as described.

2. In a pulverizing-machine, the combination, with the roll B', having its shaft provided with the tappets A^2, of the chute C, having the spurs *b* and *c*, the whole being constructed and arranged to give a vertical and horizontal reciprocating movement to the said chute, substantially as described.

3. The combination, with the shaft of a pulverizing-roll, B', having one or more projections, *d*, of a chute, C, provided with a projecting spur, *c*, engaging with projections *d*, and having the spring *s* arranged and operating substantially as described.

4. In a pulverizing-machine, the combination of the following elements, viz: an inclined vibrating or oscillating chute formed to deliver, as described, two pairs of crushing-rolls, a system of idlers, *i*, and double bearings having a fixed central bolster and means of adjustment, all arranged and operating substantially in the manner and for the purpose set forth.

168,115. WASHING-MACHINES. J. F. Blair, Fredonia, Kans. [Filed Aug. 12, 1876.]



1. The combination, with the slotted box A, standards B, and the rollers D, bearing in said standards, of the swinging arms E, springs *s*, bearings, and roller D', bearing in said swinging arms, substantially as specified.

2. The combination, with the shaft *b* and elevated wheels C C, of the standards B and stationary and swinging rollers D D', having end pulleys and driving cords or belts connecting the latter to said elevated wheels, substantially as specified.

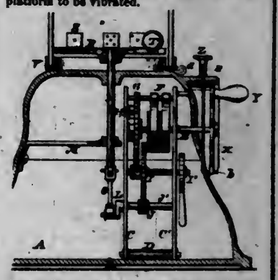
3. The combination, with the box A and stationary and swinging rollers D D', of the transverse guard-slats H H, substantially as specified.

4. The box A, having the stationary and swinging rollers, the movable guard-roller I, and the low and elevated bearings for said guard-roller, substantially as specified.

5. The combination, with the swinging roller D' and its extended journal, passing through a slot in the box-wall, of the drip-pocket, arranged under said slot, substantially as specified.

168,116. DICE-BOXES. Joseph Boehner and William Hinse, Buffalo, N. Y. [Filed Sept. 14, 1876.]

Brief.—The platform is agitated by clock-work mechanism controlled by a spring finger-pin or latch, pressure upon which allows the platform to be vibrated.



1. As a new article of manufacture, a combined automatic dice-box and ball-jumper, constructed and arranged in the manner and for the purpose substantially as described.

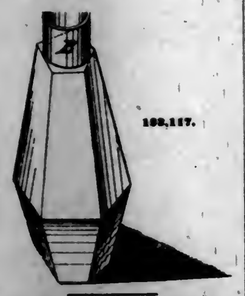
2. The combination, with a suitable stand, of the inclosed clock-work, and a table arranged to be swiftly vibrated in a vertical plane, substantially as described and stated.

3. The combination, with the stand A, of the internal clock-work, the shaft N, the crank L, connecting-rod O, table P, and the globe or cover U, as described.

4. In an automatic dice-box, the combination, with the shaft E, of the notched disk X, handle Y, knob Z, and the catch *b*, substantially in the manner and for the use and purpose described.

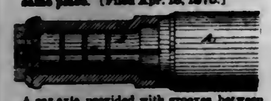
168,117. POISON-BOTTLES. J. W. Bowles, Louisville, Ky. [Filed Sept. 16, 1876.]

A poison-bottle, whose body is formed in the shape of a coffin, resting on the head-piece as a base, and having the neck formed at the upper or foot end of the same, substantially in the manner and for the purpose specified.



182,117.

182,118. CAR-AXLE. E. J. Bowen, Kent, Ohio, assignor of one-third his right to O. B. Page, and one-third to Thos. Egbert, same place. [Filed Apr. 18, 1876.]



A car-axle provided with grooves between the journal and its shell, together with inlets and outlets for the air, as shown and described, whereby much of the heat generated by friction in the shell may be carried off by a circulation of air.

182,119. PASSENGER-REGISTERS. John H. Brown, Brooklyn, and James Goodfellow, New York, N. Y.; said John H. Brown assignor to said James Goodfellow. [Filed Sept. 9, 1876.]



1. The combination of the longitudinally-operating chain or flexible rack B, and its slotted inclosing-tube A, with a registering apparatus or mechanism, for operation by a portable or detached hook applied to the rack or chain, substantially as specified.

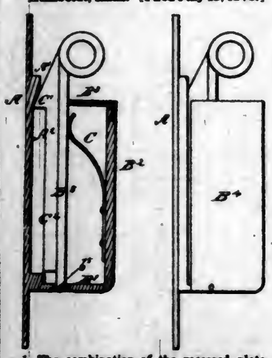
2. The combination of the bolt D, having a wedge-shaped slot, *l m*, the lever F loose on the index-spindle *e*, and provided with a pawl, *g*, the ratchet-wheel *h* also loose on the spindle *e*, and provided with a pawl, *i*, and the ratchet wheel *j*, fast on the index-spindle *e*, essentially as described.

3. The spring-pawl *g*, in combination with the loose ratchet-wheel *h*, the pawl *i*, and the ratchet-wheel *j* fast on the index-spindle *e*, substantially as specified.

4. The combination, with the index, of a lock in gear therewith, whereby the index can only be set by a key fitting said lock, essentially as described.

5. The combination, with the lock-spindle *s* restrained from turning in a back direction, of the spur-gears *t u*, and the gear *r* fast on the index-spindle *e*, substantially as specified.

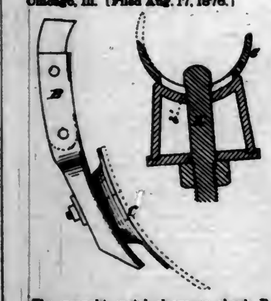
182,120. REIN-HOLDERS. James B. Bryan, Humboldt, Kans. [Filed July 15, 1876.]



1. The combination of the recessed plate A^1 with the hinged clamp C^1 C^2, pivoted plates B^1 B^2, rigid plates B^3 B^4, and spring C, substantially as described, and for the purpose set forth.

2. The combination of rigid hook plate B^3 and top plate B^4 with pivoted sides B^1, bottom B^2, and front B^5, all constituting a spring-protecting casing, substantially as set forth.

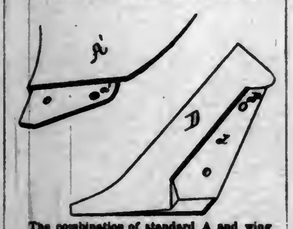
182,121. CULTIVATORS. C. P. Buckingham, Chicago, Ill. [Filed Aug. 17, 1876.]



The wrought-metal sleeve or shank B, formed from a blank bent or folded into the shape described and shown, and provided with a lateral concavity, *b'*, in its front side, at the lower end thereof, adapted to receive the convex surface of the wrought-metal shovel-block C, substantially as and for the purpose set forth.

182,122. PLOWS. John R. Bucher, Canton, Ohio, assignor of two-thirds his right to Lewis Gibbs and W. A. Wikidal, same place. [Filed Aug. 10, 1876.]

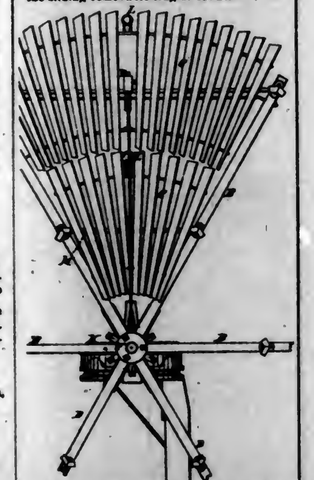
Brief.—Construction of the recessed share and manner of securing it to the standard.



The combination of standard A and wing A', having extension *a* and stud *a'*, with share D, having recess *d*, bolt *d'*, and socket *d''*, substantially as and for the purpose set forth.

182,123. WINDMILLS. John Burnham and Burton H. Ruggles, Batavia, Ill., assignor to the United States Wind Engine and Pump Company, same place. [Filed May 10, 1876.]

Brief.—A removable center-plate provided with cars, in combination with the spider, levers, and shaft, and radial arms in one or more sections. A weight is applied on the largest area of the sail, in combination with the sliding removable ring or collar.



1. The removable center plate N, provided with cars *n n*, in combination with the spider K, levers G, and shaft A, and radial arms B, in one or more sections, as set forth.

2. The weight L, attached to the end of the sail which has the largest area, in combination with the governing-weight arranged in rear of the sail, substantially as and for the purpose set forth.

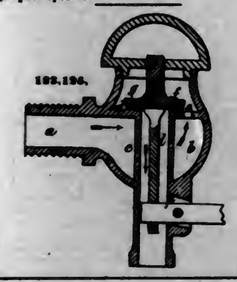
3. The weight L, applied on the largest area of the sail, in combination with the sliding removable ring or collar, substantially as and for the purpose set forth.

182,124. TOY PISTOLS. O. C. Butterwork, St. Louis, Mo. [Filed July 20, 1876.]



In the toy pistol herein described, the combination, with the barrel B, hollow stock A, concave-faced piston C, and piston-rod *c*, of the trigger E, trigger-spring F, and lateral spring-catch G, all constructed and arranged substantially as shown and described, for the purpose specified.

182,125.

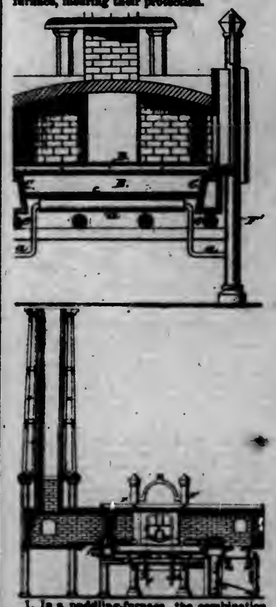


182,126. VALVES FOR TRAPS. George Butler, Southwark, England. [Filed Aug. 21, 1876.]

The combination of the valve *f*, inlet *e*, and enlarged chamber *b*, with the outlet *c* projecting through the said chamber, and with the partition *d*, having an opening or openings, *a*, as and for the purpose set forth.

182,126. CONSTRUCTION AND PROTECTION OF PUDDLING-FURNACES. Saml. Caddick, Pembroke, Me. [Filed June 9, 1874.]

Brief.—The vertical supporting-columns at the hearth-corners are hollow, and contain a water-supply, which is distributed by suitable pipes to the more exposed portions of the furnace, insuring their protection.



1. In a puddling-furnace, the combination of the hollow chill C, inclosed on all sides, and extending above and entirely around the bed-plate, the connecting blast-pipe *f* on one side and an outlet-chamber on the other side opening into the fire-box, constructed and arranged substantially as described and shown.

2. In a puddling-furnace, the combination, with the frame-work of the doors, of the removable water-pipes *d d'* attached to the inner edge of the openings, and the supporting water-columns F F', constructed and arranged substantially as described and shown.

3. In a puddling-furnace, the combination of the supporting water-columns F F' and the water-pipe *h*, constructed and arranged substantially as described and shown.

4. In a puddling-furnace, the combination of the supporting water-columns F F' and the water pipe or pipes D, constructed and arranged substantially as described and shown.

182,127. CHIMNEY-BOILERS. Saml. Caddick, Pembroke, Me. [Filed May 23, 1876.]

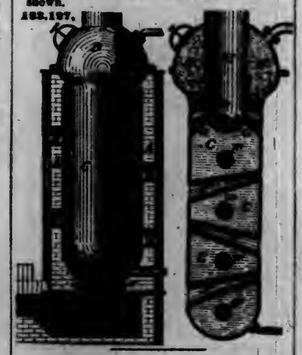
1. In a puddling, reheating, or other metal-working furnace, the combination, with the stack thereof, of a steam-boiler, C D, suspended within the said stack, substantially as and for the purposes set forth.

2. The combination, with the casing A, of the vertical cylindrical boiler C, suspended within the same, so as to leave a space, O', entirely around the boiler, and inclined flues F, passing through the said boiler and connecting the said space, substantially as described and shown.

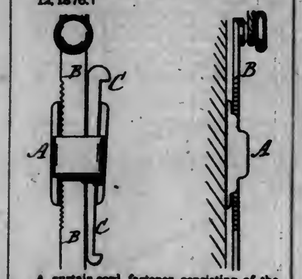
3. The combination, with the boiler C and the space O', of the depending flue E and the flues G, substantially as described and shown.

4. The combination, with the boiler C and space O', of the inclined flues F and G and the flue E, substantially as described and shown.

182,127.

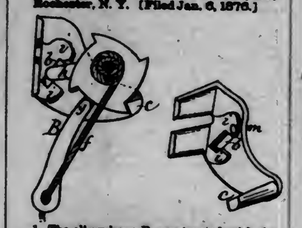


182,128. CURTAIN-CORD TIGHTENERS. N. Campbell, Rochester, N. Y. [Filed Feb. 12, 1876.]



A curtain-cord fastener consisting of the case A, ratchet-slide B, and key C, the ratchet-teeth being upon one edge of the slide, and engaging with a fixed tooth or teeth on the inside of the case A, and the wedge resting between the opposite edge of the slide and the edge of the case, as shown and described, and for the purpose specified.

182,129. CURTAIN-FIXTURES. N. Campbell, Rochester, N. Y. [Filed Jan. 6, 1876.]



1. The elbow-lever B, constructed with the two arms *g h*, in connection with the bracket being situated between the fixed stop *e*, and the back of the bracket, as herein shown and described, and for the purpose specified.

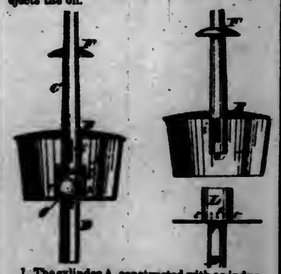
2. In a curtain-fixture, the bit *a*, and socket *b*, the socket constructed shorter than the bit, the bracket having the depression *k* in the back to contain the bit, and a boss, *i*, on its front to serve as a stop to the lever, as and for the purpose specified.

3. The combination, with the bit *a* and socket *b* of the pin *m*, as and for the purpose specified.

4. The combination, with the lever of a curtain-fixture, of the check-pieces *i i* on the bracket, forming stops to gage the movement of the lever in its upward and downward throw, as specified.

182,130. OIL-FEEDERS FOR OILING MACHINES. Charles Carroll and Geo. B. Mott, New Orleans, La. [Filed Mar. 18, 1876.]

Brief.—A tube, intended for tight insertion in the neck of the receptacle, leads into a small chamber having a flexible top with an attached nozzle descending into it. Pressure on the top causes the inner end of the nozzle to close the chamber, that fills with oil on the insertion of the receptacle, and simultaneously ejects the oil.



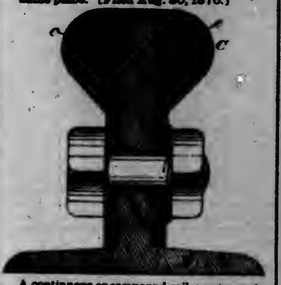
1. The cylinder A, constructed with an induction-tube, D, an aperture, *c*, guarded by a valve, C, and a discharge-nozzle, C, substantially as set forth.

2. The combination of the cylinder A, the flexible top B, the discharge-nozzle C, fixed in said flexible top, and the pressure-collar F, all as herein described.

3. The combination of the cylinder A, induction-pipe D, and stopper B, for application to a bottle or can, substantially as described.

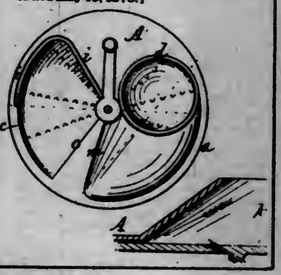
4. The combination of the cylinder A, inner chamber I, inlet *c*, and nozzle C, constructed and arranged to operate substantially as set forth.

182,131. RAILROAD-RAILS. John T. Clark, Augusta, Ga., assignor of part of his right to Charles E. Stone and John O. Marsh, same place. [Filed Aug. 30, 1876.]



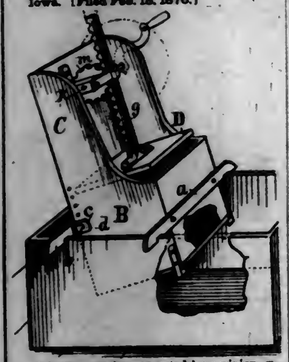
A continuous or compound rail constructed, as herein described, of a web and base, A B, and a steel cap, C, applied thereto so as to leave cavities *c*, as and for the purpose set forth.

182,132. GRATING AND SLICING. Miles L. Clinton and Chas. M. Clinton, Ithaca, N. Y. [Filed May 16, 1876.]



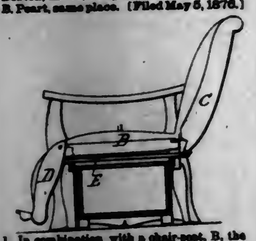
The casing A, constructed with the hollow dish-shaped rim *a*, hollow standard *f*, spiral wedge-shaped receptacle *h*, and opening *e*, with the raised rim *i*, as shown and described, and for the purpose specified.

182,182. BUTTER-WORKERS. Henry A. Glow and Henry C. Hartman, Des Moines, Iowa. [Filed Feb. 13, 1876.]



A butter-worker operated by a pinion, *m*, and a rack, *g*, carrying a platen, D, moving in a portable case, B C, having a reticulated bottom, E, and said case adapted for resting upon and within a hollow frame and base by means of the cleats *a b*, substantially as and for the purposes shown and described.

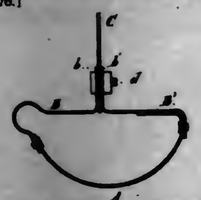
182,184. RECLINING-CHAIRS. L. V. Cobb, Boston, Mass., assignor to himself and F. B. Peart, same place. [Filed May 5, 1876.]



1. In combination with a chair-seat, B, the extension H, when arranged to be moved in and out from under the seat-frame of the chair-seat, substantially as and for the purpose specified.

2. In a reclining-chair, the seat B, back C, and flap or leg-rest D, lever E, extension H, and attachment L, when all arranged and combined substantially as and for the purpose specified.

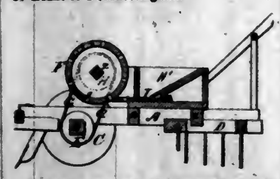
182,185. RAVEN-TROUGH HANGERS. M. H. Cochran, Paw Paw, Ill. [Filed Mar. 27, 1876.]



An eave-trough hanger consisting of the thin metal strip A, in combination with the two parts B B', having upturned ends *b b'*, and the adjustable strap C and bolt *d*, all constructed and operating substantially as and for the purpose specified.

182,186. COTTON AND CORN PLANTERS. G. H. Coffee, Gainesville, Mo. [Filed Sept. 11, 1876.]

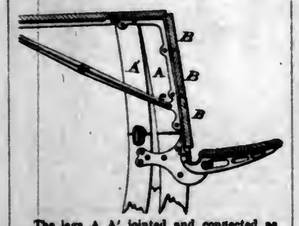
Brief.—Upon the frame is placed a hopper for seed, provided with an ordinary reciprocating slide. Mounted at the front of the frame, and suitably journaled, is a cylinder for holding cotton-seed or fertilizer, receiving motion from the bearing-wheels by an endless belt. Motion is transmitted to the seed-slide by means of a connecting-rod.



1. In a machine for planting corn or cotton, the raised independent hollow seed-dropper drum F, having pulley H, the axle B of transporting-wheels C, having pulley E, the endless belt G, communicating motion from the wheels to the drum, the crank-wheel L on the drum-shaft Z, pitman K operating horizontally-vibrating lever J, and the slide I, having dropper *i*, and reciprocating in the hopper H', combined and arranged substantially as specified.

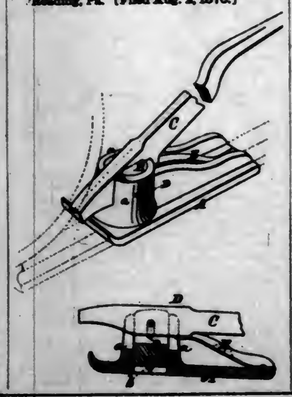
2. The combination, with the axle Z, carrying the raised independent seed-dropper drum F, and pulley-wheels E, and crank-wheel L, of the axle B, supporting-wheels C, and pulley E, the endless belt G, pitman K, lever J, hopper H, and seed-slide I, substantially as set forth.

182,187. SCHOOL-DESKS. Wm. B. Cogger, Morris, Ill. [Filed May 26, 1876.]



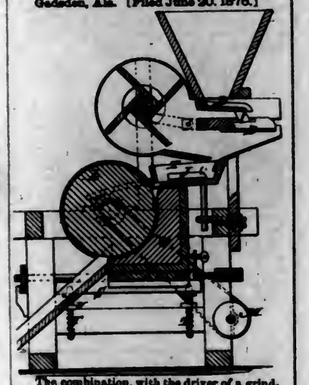
The legs A A', jointed and connected as herein set forth, secured to the back bar B, and the side joints covered by means of the plates F F, all as and for the purpose set forth.

182,188. PINCH-BARS. M. Grier Collins, Reading, Pa. [Filed Aug. 2, 1876.]



The shoe A, provided with the hollow boss *a*, having vertically-elongated horizontal openings *a''* at its sides; the block B, fitted within said boss, and provided at its lower end with the bit *b*; the bar C, pivoted within the upper end of said block by means of the bolt D, and the spring E, arranged to sustain the weight of said bar and block, said parts being constructed and combined to operate in the manner and for the purpose substantially as specified.

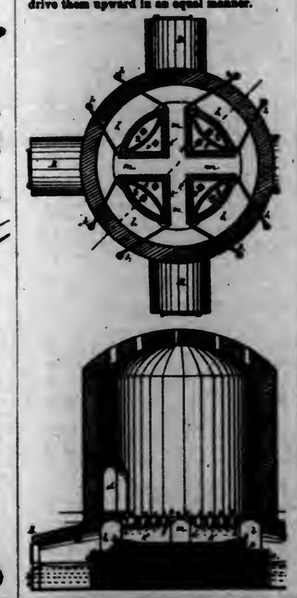
182,189. GRINDING-MILLS. Jas. M. Collier, Gadsden, Ala. [Filed June 20, 1876.]



The combination, with the driver of a grinding-mill composed of a cylindrical runner and a concave, of driving-belts K, one at each end of the driver, said belts being led in a direction opposite to the push of concave to a counter-shaft, M, as and for the purpose set forth.

182,190. POTTERY-KILNS. Wm. S. Colwell, Pittsburg, Pa. [Filed Sept. 4, 1876.]

Brief.—Adapted to spread the products of combustion under the floor of the kiln, and drive them upward in an equal manner.



1. In a pottery-kiln, the furnace B, in combination with the circular flues *l* and the flues *m*, substantially as herein described, and for the purpose set forth.

2. In a pottery-kiln, a blast-generator, in combination with the air-chambers *q* and *r*, said chambers communicating with the flues *l* and *m*, substantially as herein described, and for the purpose set forth.

3. In a pottery-kiln, a blast-generator in combination with the flues *l* and *m*, substantially as herein described, and for the purpose set forth.

4. In a pottery-kiln, the hollow piers *p'* having air-flues *w* and *z* and compartments *q* and *r*, in combination with the flues *l* and *m*, substantially as herein described, and for the purpose set forth.

5. In a pottery-kiln, the circular flues *l*, provided with valves *b*, in combination with the flues *m*, substantially as herein described, and for the purpose set forth.

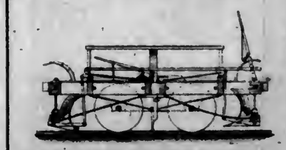
6. In a pottery-kiln, the spreaders *s* and *f*, in combination with the flues *l* and *m*, substantially as herein described, and for the purpose set forth.

7. In a pottery-kiln, the spreaders *u* and *v*, in combination with the apertures *t* in the bottom *c*, substantially as herein described, for the purpose set forth.

8. In a pottery-kiln, the projections *e* for protecting the openings *s* communicating with the compartments *q* and *r*, substantially as herein described, and for the purpose set forth.

182,141. SNOW-PLOWS. William Cooke, Morrisville, Vt., assignor to himself and Henry A. Bunnell, same place. [Filed July 1, 1876.]

Brief.—A truck bearing at each end a plow suspended from a projecting T-shaped drawbar, ice inside the track to cut by a group of vertical cutters, and thrown outside the rails by the plow at the rear end of the truck.



1. The draw-bar of a car-truck, having its extremity T-shaped, and projecting beyond the front of the platform or frame so as to form a support for a suspended plow, as shown and described.

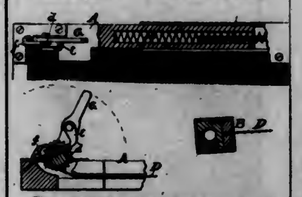
2. Snow-plows adjustable to both sides of rail, and throwing the snow clear of track, substantially as set forth.

3. Snow-plows hung to cross-head, eyebolts, and sliding rod, whereby curves may be turned and both rails cleaned, in the manner specified.

4. The combination of the car-frame, with vertically-adjustable and spring-acted cutters or knives, that clear the rails of ice, substantially as specified.

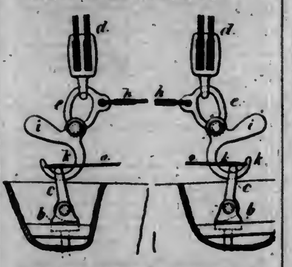
5. The combination of the lateral cutter-frame with a fulcrumed lever and retaining-chain, to raise cutters clear of the track, substantially as described.

182,142. WINDOW-SCREENS. T. J. Cope, Philadelphia, Pa. [Filed July 13, 1876.]



The combination of the two frames A and B, arranged as described, with concealed springs *a a*, to extend the same, the wire-netting D, roller D', with ratchet-wheel *d*, lever G, and pawls *e f*, all substantially as and for the purposes herein set forth.

182,143. BOAT-DETACHING APPARATUS. A. B. Cruickshank, Dundee, Scotland, assignor to himself and J. G. Williams, Philadelphia, Pa. [Filed Sept. 11, 1876.]



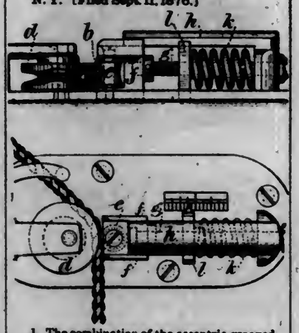
1. In the boat-detaching apparatus, the combination of the weighted hook and inclined shackle, substantially as set forth.

2. The combination, with the fall *d*, of the link *c*, weighted hook *h*, shackle *a*, and bridle-line *b*, substantially as described.

3. The line *c*, in combination with the weighted hook *h* and swinging shackle *c*, substantially as set forth.

4. The combination, in the boat-detaching apparatus, of the falls *d*, links *c*, weighted hooks *h*, inclined shackles *a*, bridle-line *b*, and line *c*, substantially as set forth.

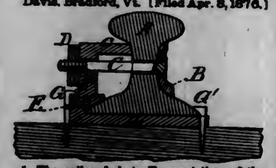
182,144. SPRING-CLEATS FOR VESSELS. A. B. Cruickshank, Dundee, Scotland, assignor to himself and Geo. C. Bell, New York, N. Y. [Filed Sept. 11, 1876.]



1. The combination of the eccentric grooved wheel *d*, yielding roller *e*, sliding jaw *f*, and adjustable spring *k*, substantially as set forth.

2. The wheel *d*, having a zigzag groove for receiving the rope, and an eccentric axis, in combination with the roller *e*, jaw *f*, spring *k*, screw *g*, nut *l*, and lanyard *s*, substantially as and for the purposes set forth.

182,145. RAILROAD-RAIL CHAIRS. W. S. Davis, Bradford, Vt. [Filed Apr. 8, 1876.]

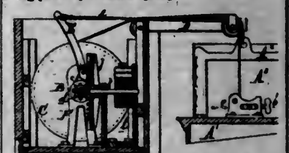


1. The railroad-chair B, consisting of the base-plate *a*, the grooved enlargement *b*, open vertical flange F, and bridge-flange *c*, adapted to straddle the rail-joint, substantially as specified.

2. In combination with the rails A, fish-plate B, bolts C, and nuts D, the chair E, having raised vertical flange F, with opening *i* and horizontal bridge-flange *c*, with notch *j*, substantially as specified.

182,146. FIRE-ESCAPES. John Davis, Joliet, Ill. [Filed Aug. 31, 1876.]

Brief.—The descent of the car is regulated by a brake, and the car is returned to its starting-place by a coiled spring.

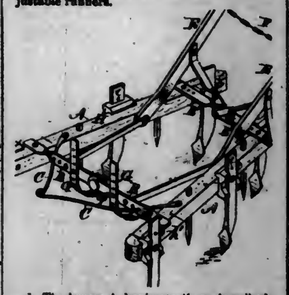


1. In a fire-escape, substantially as described, the combination, with the pulley-shaft, cords, and cage, of the coiled spring and gearing, adapted to reverse the motion of said shaft and elevate the empty cage, substantially as set forth.

2. In a fire-escape, substantially as described, the combination, with the cabinet A, of the removable top A^1, folding davits D, hinged bails A^2, protecting-canvas A^3, pulley-shaft B, brake-lever H, and cords *c c*, constructed and arranged substantially as described and shown.

182,147. COMBINED CULTIVATOR AND HARROW. A. Demarce and Tennis Vreeland, Fairfield, Iowa. [Filed Sept. 9, 1876.]

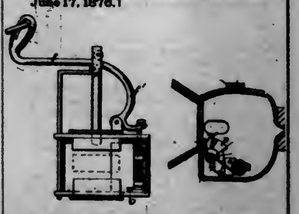
Brief.—A frame hinged centrally by connecting-bars, operating with vertically-adjustable runners.



1. The beams A, having teeth, as described, and connected to each other by the hinged bars B B', and arranged to operate with the runners G, substantially as described, and for the purpose specified.

2. The beams A, having teeth, as described, handles E, chain F, draft-hooks C, and connected to each other by the hinged bars B B', and arranged to operate with the runners G, substantially as and for the purpose specified.

182,148. CAR-COUPLINGS. Ninian H. Dolsen, Chatham, Ontario, Canada. [Filed June 17, 1876.]



1. In a car-coupling, the flaring mouth, made of one piece of wrought-iron and swaged or pressed into shape, as set forth.

2. In combination with the flaring head, the upper and lower plates, made of wrought-iron, and riveted thereto by their outwardly-bent ends, as set forth.

3. The side plates, the forward ends of which are riveted to the flaring mouth, and the rear ends brought together and extended back between the upper and lower plates, as set forth.

4. The inner and outer plates, composed of the parts *b b s s*, connected to each other and to the flaring head, and the outer having the upturned rear ends, as set forth.

5. The guide *d*, passing through ears formed on the upper and lower plates, and connected to the upper end of the pin, in combination with the curved lever passing through loop in said pin, as set forth.

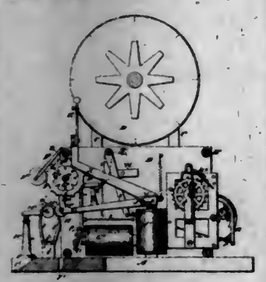
6. The loop and arms *g g'*, formed of one piece, and connected to the upper end of the pin, as set forth.

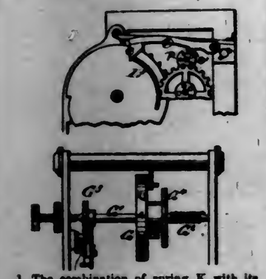
7. The curved lever, pivoted, as described, passing through a loop on the upper end of the pin, and having a catch at the opposite end, as set forth.

8. The gate-latch formed with lever ends *e e'*, and loosely hinged on the pivot, which carries the lug on its upper end, in combination with the eastern *m* and *p* and the springs *r s*, as set forth.

168,149. PRINTING-TELEGRAPHS. Henry Ilsen, Washington, D. C., assignor of one-half his right to Jos. F. Oyster, same place. [Filed Sept. 2, 1876.]

Brief.—Designed more particularly to print and space the numbers indicating the locality of the box from which a fire-alarm signal is sent, the signal being transmitted in the ordinary manner.





1. The combination of spring K, with its train of wheels, circuit-closing wheel L, actuated thereby, pivoted arm O, having tooth or lug *o*, and wheel P, having notch *p*, substantially as and for the purpose set forth.

2. The combination of wheel L, having a tooth, *l*, and a series of teeth, *P*, arranged as shown, with pivoted circuit-closing arm N, substantially as set forth.

3. Lever R, in combination with pawl-and-ratchet attachment L', and a tripping-rod attached thereto, substantially as set forth.

4. The wheel L, in combination with the arm N, and devices for detaining the circuit-closing train of wheels, said wheel L being adapted to trip said detaining devices, substantially as described.

5. The combination of flanged wheel L with pivoted stopping and starting arm O, and devices for locking the automatic mechanism when said arm O falls, substantially as set forth.

6. The combination of type-wheel G with its reversing-spring, arm Z, bearing an impelling-pawl, ratchet G^1, dog *a*, finger V^1, the notched wheel G^2, and a rigid actuating bar or arm on frame H^1, substantially as set forth.

7. A circuit-closing wheel, L, having teeth *l*, in combination with frame H^1, carrying roller H, type-wheel G, having a typeless space, g^1, and devices operated by the circuit closed by wheel L for tilting frame H^1, substantially as and for the purpose set forth.

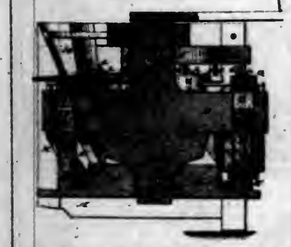
8. Type-wheel-reversing mechanism, in combination with devices which allow said mechanism to operate only immediately after the paper is withdrawn from said type-wheel, substantially as set forth.

9. In a fire-alarm-telegraph receiving-instrument, which is adapted to print and space, a printing device which operates after the signal, or a component part of it, is sent, and after the full signal, substantially as described.

10. In a fire-alarm-telegraph receiving-instrument which is adapted to print and space numbers, a printing device which operates after the signal, or a component part of it, is sent, and after the full signal, to operate for the purpose of distinguishing one signal from another, substantially as described.

168,150. BRICK-MACHINES. S. B. Frank, Lillard's Mills, Tenn. [Filed July 17, 1876.]

Brief.—As the molds emerge from under the hopper an incline moves the covers over the molds, and the pressure is given by the inclined planes above and below simultaneously. As the wheel rotates the covers are moved off the molds by passing against a second incline, and the followers are then immediately raised by the sudden rise of the lower circular plane, and the finished bricks carried out of the mold.



1. The recessed sliding cover G, provided with the block I, pins *d d*, and spring *h*, substantially as and for the purposes herein set forth.

2. The combination of the followers D, the covers G with spring-blocks I, and the inclines H and J, for simultaneously pressing the brick both from above and below, as set forth.

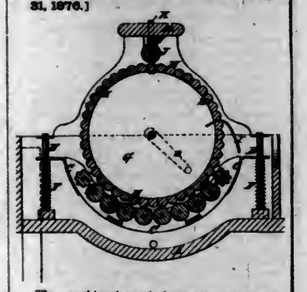
3. The inclines K and N, arranged as shown, in combination with the sliding covers G, for the purposes herein set forth.

168,151. TABLE-CUTLERY. Jas. D. Frary, New Britain, assignor to Frary Cutlery Company, Bridgeport, Conn. [Filed Sept. 16, 1876.]



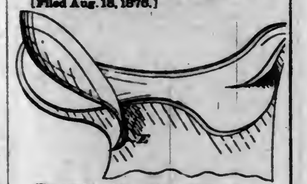
In table-cutlery, in which the blade is constructed with a screw-tang, one or more shoulders on the bolster end of the handle, combined with a bolster cast upon the blade and into such shoulder, substantially as described.

168,152. WASHING-MACHINES. Benjamin F. Fowler, Eau Claire, Wis. [Filed July 31, 1876.]



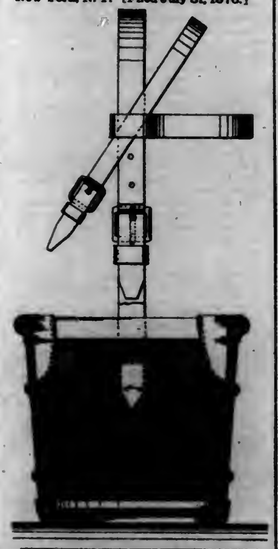
The combination of the semi-cylindrical frame C, the small rollers D, the large roller G H, the presser-roller J, the guide-rods M and K, and the spiral springs F and N, with each other and with the suds-box A, substantially as herein shown and described.

168,153. RIDING-SADDLES. John T. Gathright and Jas. C. Watson, Louisville, Ky.; said Watson assignor to said Gathright. [Filed Aug. 18, 1876.]



The combination, with the skirt and cantle of a saddle, of the thigh-support E, extended from the cantle and attached to the skirt, substantially as and for the purpose described.

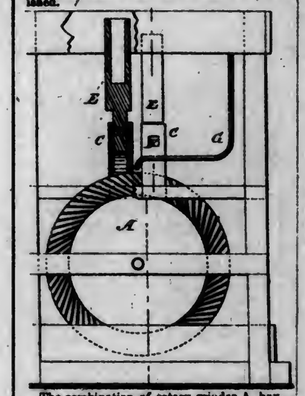
168,154. HORSE-MUZZLES. J. W. Gedney, New York, N. Y. [Filed July 31, 1876.]



The horse-muzzle above described, constructed of wire-netting, forming the sides, and having a bottom of similar material removably secured to the sides by an interlacing wire and an inside and outside strip of leather, substantially as and for the purpose described.

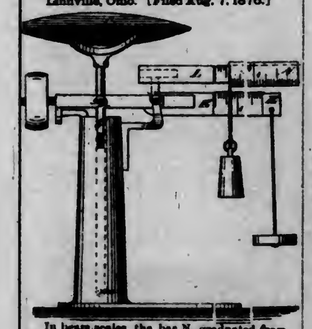
168,155. WOOD-GRINDERS FOR PAPER-PULP. Jos. O. Gregg, Elkhart, Ind. [Filed July 15, 1876.]

Brief.—The wood, cut into pieces of suitable size, is fed to the stone through guides by the pressure of a weighted follower, the stone being moistened by a stream of water. The stone has a double-beveled periphery, which is grooved, and so scrapes or cuts the wood, partially in the direction with its grain, even when the block is presented crosswise. The follower is forked to correspond with the bevel-edged stone, and as it presses the wood upon the same until a very small portion remains unground, waste of material is diminished.



The combination of rotary grinder A, having double-beveled and obliquely-grooved periphery, the guides C, having openings F, the end-forked weighted followers D, and the water-jet pipe G, all arranged substantially as and for the purpose specified.

168,156. BEAM-SCALES. Geo. W. Grove, Lanville, Ohio. [Filed Aug. 7, 1876.]



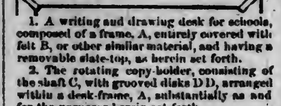
In beam-scales, the bar N, graduated from each end, and sliding on a stationary beam, L, parallel to the beam E, as and for the purpose specified.

168,157. DESK-SLATE-HOLDERS. John Haggerty, Corry, Pa., assignor of one-half his right to V. G. Curtis, same place. [Filed June 14, 1876.]

Brief.—The portable desk is covered with felt as well as the slate-frame, forming the main portion of its top. Above the slate is hung a revolving copy-holder.



168,157.



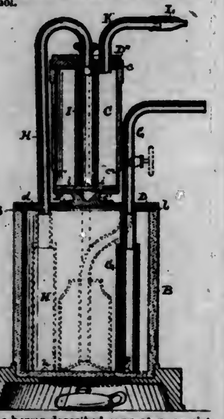
1. A writing and drawing desk for schools, composed of a frame, A, entirely covered with felt B, or other similar material, and having a removable slate-top, as herein set forth.

2. The rotating copy-holder, consisting of the shaft C, with grooved disks D D, arranged within a desk-frame, A, substantially as and for the purposes herein set forth.

3. The combination of the desk-frame A, with felt covering B, copy-holder C D, inclined racks H, pencil-rack I, with elastic bands *b b*, and the noiseless slate-top J L, with spring-catch R, substantially as and for the purposes herein set forth.

168,158. DISSOLVING APPARATUS FOR MAKING EXTRACTS. Thomas K. Hardman, La Fayette, Ind., assignor of one-half his right to Samuel Bancroft, same place. [Filed Mar. 23, 1876.]

Brief.—The substance from which an extract is to be made is placed in the lower chamber of the apparatus, where it is treated with free steam or external heat, by which the aromatic volatile vapors are driven over into the upper chamber, where they are collected in alcohol.

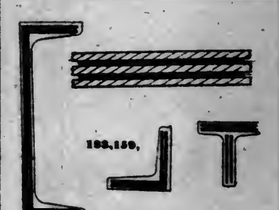


1. The herein-described apparatus, consisting of the vessels B and C, united by the tube H, and provided with the induction-tube G and eduction-tube K, substantially as and for the purpose specified.

2. The combination of stand A and vessels B and C with covers *b c*, plates D D', and rods E E', substantially as and for the purpose specified.

168,159. ART OF MANUFACTURING ANGLE-IRONS. Charles P. Haughian, Brooklyn, N. Y., assignor to Wm. Arthur, in trust for William Arthur, Charles P. Haughian, Casper D. Schubarth, and Julius Baur, same place, and Alfred B. Mullett, Washington, D. C. [Filed Dec. 18, 1875.]

As an improvement in the art of manufacturing angle-irons, the method of first constructing a pile of alternate plates of iron and chrome-steel, heating the same to the proper temperature, and then passing the same flatwise between rollers, which, at the same time, weld the pile and imparts the initial bend, and repeating the passes through other grooves of properly graduated forms until the bar has been brought to the desired shape, substantially as described.



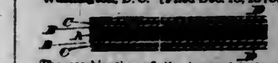
168,159.

168,160. COMPOSITE METALLIC GIRDERS. Charles P. Haughian, Brooklyn, N. Y., assignor to Wm. Arthur, in trust for William Arthur, Charles P. Haughian, Casper D. Schubarth, and Julius Baur, same place, and Alfred B. Mullett, Washington, D. C. [Filed Dec. 18, 1875.]



A compound beam, girder, flanged plate, or analogous structure, for architectural, engineering, or ship-building purposes, consisting of iron and steel inseparably welded together, in manner substantially as herein described.

168,161. METALLIC PLATES COMPOUNDED OF STEEL AND IRON. Charles P. Haughian, Brooklyn, N. Y., assignor to Wm. Arthur, in trust for William Arthur, Charles P. Haughian, Casper D. Schubarth, and Julius Baur, same place, and Alfred B. Mullett, Washington, D. C. [Filed Dec. 18, 1875.]



The combination of the internal body of steel A and a protecting casing consisting of alternate layers B C D, of iron and steel, as and for the purpose set forth.

168,162. FURROW-GAGES. Benj. B. Hawes, Morrisville, Vt. [Filed Sept. 20, 1875.]

Brief.—The draft-rod of a swivel-plow works in an extensible slot, and is thus given greater or less vibration.



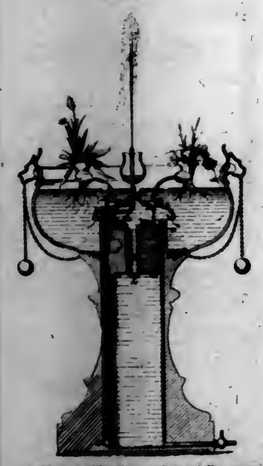
1. The draft-plate or hanger C, placed vertically on the end of a plow-beam, having the lateral slot *s* and the vertical slots *t t*, substantially as described, and for the purpose set forth.

2. The draft-rod regulator, composed of the vertically-slotted plate C and the laterally-adjustable parts D D, forming the laterally-extensible slot *s* and the vertical slots *t t*, substantially as described, and for the purpose set forth.

168,163. PARLOR-FOUNTAINS. J. Hagerty, New York, N. Y. [Filed Sept. 12, 1874.]

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

168,163.



1. The combination, substantially as set forth, with the basin and reservoir-cylinder, of the jet supply-pipe, communicating with the lower end of the cylinder, and weighted piston movable in the cylinder, and provided with a water passage and valve closed during the descent of the piston, and open when the piston is raised.

2. The piston provided with a peripheral ridge or projection at or near its upper end, in combination with the rubber packing, formed with a groove to engage said ridge, and otherwise constructed substantially as set forth.

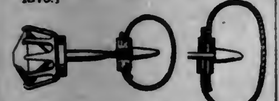
3. In combination with the piston and water passage therethrough, the rubber valve applied to the bottom of the piston, formed with a thickened or re-enforced center, and with thin elastic or extensible ends, substantially as and for the purposes set forth.

4. The removable jet-tip, adapted to fit the end of the jet supply-pipe, and closed at its lower end by a wire-gauze or perforated diaphragm, as and for the purposes set forth.

5. The combination of the piston, the ornamental tulips or knobs, their supporting stoppers or bases and sockets, and the connecting cords or chains, substantially as set forth.

6. A portable fountain consisting of a reservoir, basin, jet-tube, and weighted piston, provided with an opening and valve thereto, and mechanism for raising the piston within said reservoir, the reservoir having one or more passages leading from the basin, substantially as set forth.

168,164. EAR AND OTHER STUDS. Anthony Hessels, New York, N. Y. [Filed Sept. 9, 1876.]

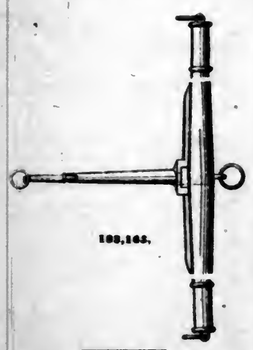


1. As an improvement in ear and other studs, the combination of the annularly-recessed shank of the stud with the perforated or slotted ends of a spring-ring applied thereto back of the ear or shirt-front, substantially in the manner described, and for the purpose specified.

2. A spring-ring for ear and other studs, provided with slotted or perforated and guided ends, substantially as described and shown.

168,165. REIN SUPPORTING ATTACHMENTS FOR NECK-YOKES. Chas. R. Hicks, Mount Sterling, Ill. [Filed July 31, 1876.]

A neck-yoke attachment for guiding the reins, composed of an arm having swinging end link and outer rein-supporting swivel-ring attached to the neck-yoke, substantially in the manner and for the purpose set forth.

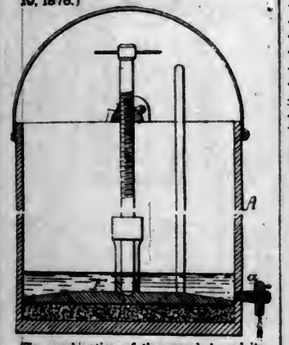


168,166. HEATERS FOR HOT-HOUSES. John F. Higgins, Mansfield, Mass. [Filed Aug. 11, 1876.]



The combination of the inclosing-chamber A, the heating-furnace B, the flue D, leading from the latter around the inside of the chamber A, and provided with the drums J, the chimney F, and dampers for changing the direction of the draft through the flues, the whole constructed and arranged to operate substantially as herein described.

168,167. DEVICES FOR EXTRACTING JUICES. G. Hinaman, Long Eddy, N. Y. [Filed July 10, 1876.]



The combination of the vessel A and its spigot *c*, arranged above the bottom, with the loosely-fitting plunger F, as set forth.

168,168. KEY-FASTENERS. S. A. Hoadley, New Haven, Conn., assignor to Reynolds & Co., same place. [Filed Sept. 15, 1876.]

Brief.—A straight bar is inserted in the keyhole, and a hook which is swiveled upon its outer end is brought around against the key-shank, and clamped there by a thumb-screw.

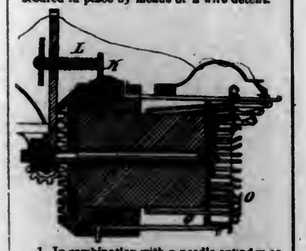
The herein-described key-fastener, consisting of the bar A, with a hook arranged to turn in a plane transverse to the said bar, combined with a clamping device to hold the said hook when engaged with the key-spindle, substantially as set forth.

168,168.



168,169. ROTARY KNITTING-MACHINES. Wm. H. H. Hollen, Fostoria, Pa., assignor of one-half of his right to Sumner S. Kirk, Washington, D. C. [Filed May 10, 1876.]

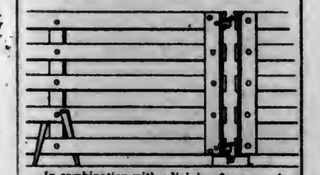
Brief.—The cylinder is provided with spring-hooks, one to each needle, whose function it is to draw the cloth, as fast as knitted, away from the needles, and toward the center of the cylinder, and thus dispense with the use of weights. The needle-cam is adjusted by a right-and-left-hand screw, which is then secured in place by means of a wire detent.



1. In combination with a needle-cylinder or needle-bar and the needles, the spring-hooks O, and a cam for operating the same, substantially as and for the purposes set forth.

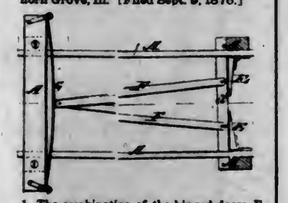
2. The cam K, having open spaces X Y in front and rear, and the right and left hand screw L, in combination with the detent W, substantially as and for the purposes specified.

168,170. PORTABLE FENCES. S. C. Hurley, Danville, Ill. [Filed Sept. 2, 1876.]



In combination with adjoining fence-panels having an upper hinge connection, the lower hinge connection consisting of the angular or bent rod O', having extension *c*, which passes through eye B' of strap *b* into a socket or recess in block D, substantially as and for the purposes set forth.

168,171. HOG-TRAPS. B. K. Jenkins, Elkhorn Grove, Ill. [Filed Sept. 9, 1876.]

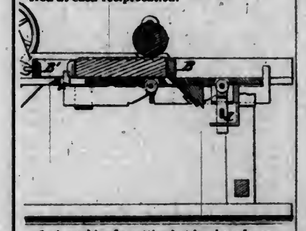


1. The combination of the hinged doors E, the connecting-bars F, and the spring G with the pen A, substantially as herein shown and described.

2. The combination of the hinged doors E, the connecting-bars F, the spring G, the swinging gate E, the bent lever C, and the strap D with the pen A, substantially as herein shown and described.

168,172. HAT-BOX-BOARD-CUTTING MACHINES. William Jenkins, Newark, N. J. [Filed Aug. 5, 1876.]

Brief.—The block is placed in a reciprocating carriage, and is carried over a stationary knife, which cuts off a sheet, that passes out below the knife; the block, upon its return, being raised from the bed and contact with the knife by rollers that are raised and lowered at each reciprocation.



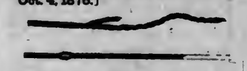
1. A machine for cutting hat-box boards, consisting of a reciprocating block-carrier, weighted pressure-roller, adjustable cutting-knife, and vertically-movable lifting-rollers, the whole being constructed and operated substantially as and for the purpose set forth.

2. The combination of the reciprocating block-carrier with a notched slide-rod having projecting ends, and with block-lifting rollers at both sides of the cutting-knife, substantially as specified.

3. The box-shaped carrier B, having extension-frame B' for supporting the pressure-roller when the lifting-rollers are thrown up, substantially as set forth.

4. The extension-frame B' of carrier B, having slotted recess a^2 for passing over projecting lug or end of roller operating slide-rod, substantially as set forth.

168,173. BRISTLES FOR SHOEMAKERS' USE. Harry M. Jenkins, Baltimore, Md. [Filed Oct. 4, 1876.]



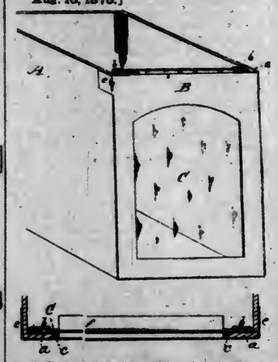
A shoemaker's bristle composed of two pieces of wire twisted together their entire length, with the exception of a short space at or near their middle portion, leaving a slit to receive the end of the thread, and adapted to be closed by distension, all substantially as set forth.

168,174. CAR-SEATS. Thomas R. Johnson, Philadelphia, Pa. [Filed Feb. 21, 1876.]



The combination, in a car-seat, of the arm C and its pivoted bar D, having slots E E', of the form described, with the back F, having pins *d d'*, adapted to the slots in the bar D, as set forth.

168,175. SHOW-BOXES. Patrick F. Kelly and Wm. J. Walker, Pittsburg, Pa. [Filed Aug. 16, 1876.]



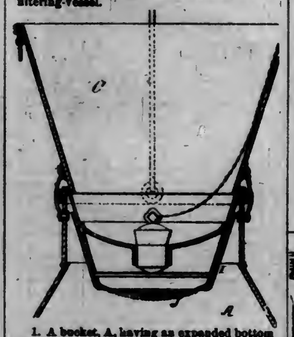
1. The combination, with a box having an open front, of a removable or detachable frame for holding the glass plate, substantially as and for the purpose set forth.

2. A box having an open front and a frame, with plates *b*, curved to form spaces for the reception of the side strips *a a* of the box and glass plate C, substantially as specified.

3. The combination, with the box A, of the frame B, for holding the glass plate C, formed with curved plates *b* and *f*, and shoulders *e*, substantially as and for the purpose set forth.

168,176. MILK-PAILS. Hiram H. Kingsbury, Olney, Ill. [Filed Sept. 2, 1876.]

Brief.—A milk-bucket wide at bottom, narrow at top, receiving a funnel-shaped valved filtering-vessel.



1. A bucket, A, having an expanded bottom and a narrow inlet-tube, A^1, substantially as set forth.

2. The combination of a bucket, A, with an upper vessel, C, adapted to be used substantially as set forth.

3. In combination with bucket A and funnel C, a detachable cap, I, and strainer J, substantially as set forth.

168,177. STEAM-CARRIAGES. J. M. Leuck, West Milford, W. Va. [Filed May 16, 1876.]

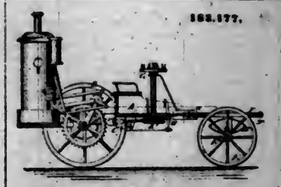
Brief.—Motion of axle communicated to wheels by means of spring-clutches operated by levers in front of seat. Body supported upon springs.

1. A vehicle having a seat near the middle, with a hand-lever in front thereof, by which one or both wheels may be thrown out of gear with axle, and a hand-wheel, G, for operating the guide-wheel, as set forth.

2. The combination, in vehicle A B C, of the spring-clutches C' and hand mechanism C', arranged as and for the purpose described.

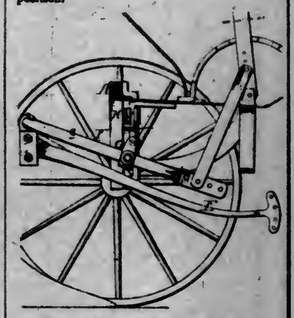
3. The combination, with vehicle A B C, of the steering device G, pulley *d'*, belt *d*, rotary disk F, springs F', axle E', and guide-wheel E, arranged as and for the purpose specified.

168,177.



168,178. SULKY-PLOWS. John L. Laughlin, Peru, Ill. [Filed June 23, 1876.]

Brief.—The pivoted bent lever to which the plow-beam is attached is suspended from the ends of a pivoted beam placed immediately below the horizontal part of the arched axle-tree. A hand-lever, connecting-rod, and segment serve to hold the plow in any desired position.

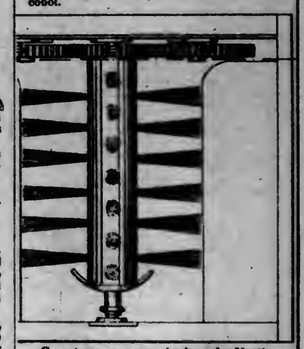


1. The combination of the U-shaped frame F and the plow hung to the central portion *d* of the same, with the pivoted lever H, from opposite ends of which the arms *e e* of the said frame are suspended, substantially as described.

2. The combination of the lever H, hung to the frame A of the plow, with blocks G, connected to said lever and adapted for the reception of the side bars of the plow-carrying frame F, as set forth.

168,179. CARPET-SWEEPERS. S. F. Leach, Chelsea, Mass. [Filed Aug. 8, 1876.]

Brief.—The gear-wheels are made of leather, and rendered water-proof by coating with or soaking in a solution of gum-shellac and alcohol.

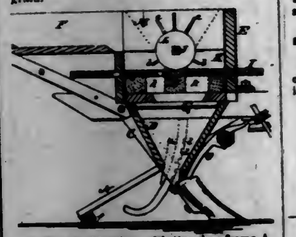


Carpet-sweeper gear-wheels made of leather, treated with a hardening and water-proofing substance, as and for the purpose set forth.

168,180. SEED-PLANTERS. John H. Lee, Livingston, Ala. [Filed Aug. 15, 1876.]

Brief.—A common shovel-plow has mounted upon it a seed-box, which is provided with an agitating-wheel with radial pins. Upon the

respective ends of the wheel-shaft are crank-arms, one pointing upward and the other downward. From the ends of these arms are cords extending back to the knees of the driver, and his walk operates a seed-slide by means of the radial pins in the agitating-wheel. A spring-coverer covers the planted grain.

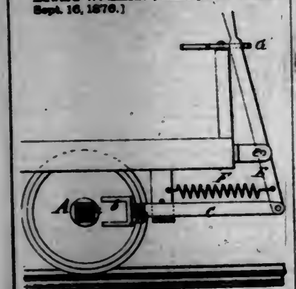


1. The combination, with the plow-frame A B C, of the cheeks D, grain-box E, hopper F, slide I, having holes *a* and *d*, and the shaft J, carrying the spilled wheel L, adapted to be oscillated, as described, and for the purpose set forth.

2. The combination, with the grain-box E, of the slide I, having holes *a* and *d*, the frame H, having holes *b*, the shaft J, with wheel L, having long spikes *c* and short spikes *d*, and the hoppers F M, substantially as and for the purpose described.

3. The combination, with the planter and its plowing devices, of a coverer composed of the frame *f f*, pivoted to the brace-bar O of the plow, and a thong-spring, P, fastened beneath the plow-beam, and pressing at its rear end upwardly against the coverer-frame, substantially as and for the purpose described.

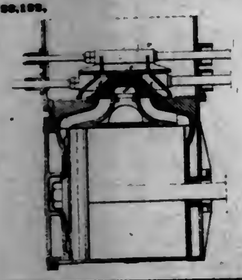
188,181. CAR-BRAKES. David H. Levy, New York, N. Y., assignor to himself and Edward W. Limmer, same place. [Filed Sept. 16, 1876.]



1. The combination of a clutch, thrown forward by a spring to engage with the squared portion of the car-axle, substantially as shown and described.

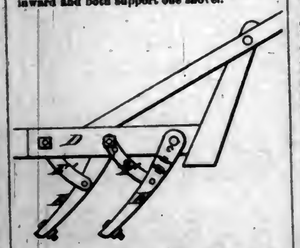
2. The combination of the squared axle A, clutches *b*, bars B and C, lever E, spring F, and catch G, substantially as herein shown and described.

188,182.



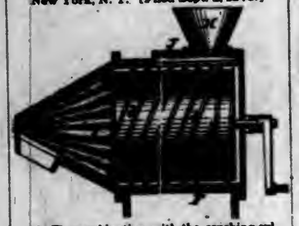
188,183. CULTIVATORS. William Manley, Minden, La. [Filed July 20, 1876.]

Brief.—Curved standards arranged to curve outward and carry each a shovel, or to curve inward and both support one shovel.



The combination of beam D with bent standards B E and shovel G, whereby said standards may be adjusted far apart or close together by simply transposing them, substantially as and for the purpose set forth.

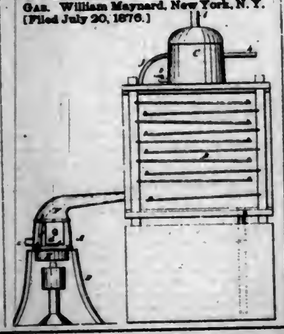
188,184. GRINDING-MILLS. B. G. Martin, New York, N. Y. [Filed Sept. 2, 1876.]



1. The combination, with the crushing-cylinder C, provided with a grinding-cone at one end, and with spiral blades around the cylindrical portion, of the casing F, provided with a longitudinal feed-chamber, J, on top, and a concave grinding-chamber at one end, substantially as herein set forth.

2. In combination with the crushing-cylinder C and casing F, the longitudinal semi-cylindrical feed-chamber J, with plain inner surface, located above the crushing-cylinder, substantially as herein set forth.

188,185. APPARATUS FOR THE GENERATION AND HYDRATION OF SULPHUROUS-ACID GAS. William Maynard, New York, N. Y. [Filed July 20, 1876.]



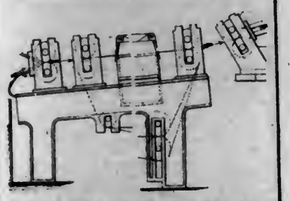
1. The sulphur-pan having a conical upwardly-tapering bottom and straight outer wall, forming an open annular trough, substantially as and for the purpose described.

2. The cupola F, made of clay, with bands *b*, and having inlet-connection *c*, and a door, *d*, in combination with the sulphur-pan E, having a conical bottom, and the stand D, substantially as and for the purpose described.

3. The sulphur-combustion chamber having an opening with an under-cut edge, *e*, at the top and rabbeted edges *f* upon the sides and bottom, in combination with the door *d*, having edges corresponding to the edges of the opening, and provided with a handle, substantially as and for the purpose described.

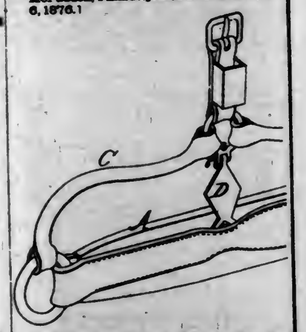
4. The combination, with the condenser B, of the reservoir C, having an inlet, *h*, and outlet-cock *i* for conveying the water to the condenser, together with a pipe, *j*, for the mixed sulphurous acid and azotized air, connecting the condenser with the reservoir above the level of the water, and a removable cover, *k*, having an outlet, *l*, for the azotized air, substantially as and for the purpose described.

188,186. PROCESSES OF PREPARING AND COATING METALS. Jethro J. McCullough, Wilmington, Del. [Filed May 27, 1876.]



The described process of coating sheet metals, which consists in subjecting the sheets to an acid-bath to remove the scale, &c., and, finally, after removing the excess acid from the withdrawn sheets and preheating, immersing them in the usual coating-bath to complete the process, the various stages of treatment being successive and continuous, substantially as and for the purpose set forth.

188,187. SAFETY-TUGS FOR HARNESS. P. McFadden, Philadelphia, Pa. [Filed Sept. 6, 1876.]



1. In combination with the safety-tug D, the hip-strap ring *b*, having a loop or eye, *b'*, substantially as shown and described.

2. In combination with the breech-band A and tugs C C, the supplemental tug D, located between the latter, and operating substantially as and for the purposes set forth.

188,188. FOUNTAIN-HOSE CARRIAGES. Ives W. McGaffey, Chicago, Ill. [Filed July 7, 1876.]

1. The hose-reel, mounted upon a wheeled carriage, which is provided with a foot or brace, by means of which it may be sustained in an upright vertical position, whereby the device becomes capable of use, both as a hose-carriage and as a fountain-standard, substantially as specified.

2. The combination, with a hose-reel mounted upon a suitable carriage or upon a suitable standard or frame-work, of a clasp or clasps upon the reel or standard, or both, for holding the hose or nozzle, so that the apparatus may be used as a lawn-sprinkler, substantially as specified.

3. The reel, pivoted in two ways to the standard, one pivot being its own axis for reeling and unreeling the hose, and the other pivot at right angles thereto, allowing the reel to swing around the standard, substantially as specified.

4. The hose-reel, provided with a set-screw for locking it from turning, and with a clasp or clasps for holding the nozzle, substantially as set forth.

5. The combination of the reel, the standard, and the sleeve which supports the former upon the latter, together with the stops upon the sleeve for locking it in several positions, substantially as specified.

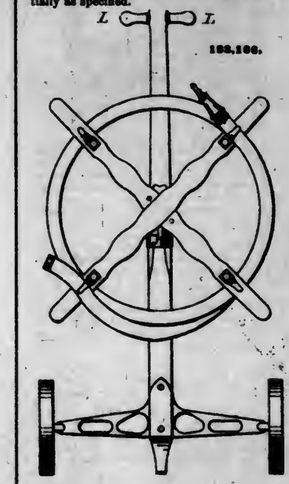
6. The peculiarly-constructed clasp upon the top of the standard for holding the nozzle, consisting of two shell-like halves secured by a single bolt through the standard, which bolt serves as a pivot upon which the device may be adjusted, as a hinge upon which it may be opened, and as a means of locking it in the desired position when attained, substantially as specified.

7. The wheeled reel-bearing standard, having handles L L near the top, and the handle L' near the middle, substantially as specified.

8. The reel carried upon a spindle having grooves cut around it, in combination with the set-screw through the reel-hub, substantially as specified.

188,189. MACHINES FOR BENDING METAL PIPES. Jos. McWilliams, Detroit, Mich. [Filed Apr. 5, 1876.]

Brief.—Hinged to a strap pivoted to the stationary former is a forked lever carrying (one in each fork) two rollers—one for bending the heated pipe around the former, and the other for rolling the bent portion into the peripheral groove of the same. A pinion attached to the side of the latter roller gears with a toothed segment on the frame, so that the said roller will rotate axially while revolving about the former.



In a bending-machine, substantially as described, the double forked lever E E', grooved wheels F F', and pinion G', in combination with the former B, pivot-stud *c*, geared segment C, and a means for clamping the article to be bent to the side of the former, substantially as shown and set forth.

188,191. SHUTTER-WORKERS. Samuel W. Merry, Quincy, Ill. [Filed Nov. 27, 1876.]



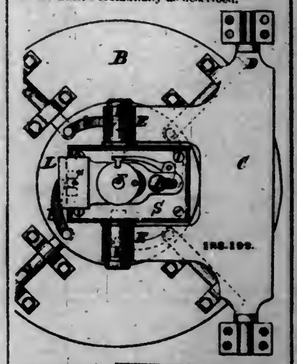
The disk *c'*, secured to a movable shaft, and provided with the curved tapered prongs *d*, in combination with the bracket D, provided with the dependent teeth *d'*, substantially as specified.

188,192. REVOLVING DOORS FOR BURGLAR-PROOF SAFES. Henry Millward, Cincinnati, Ohio. [Filed Dec. 28, 1876.]

1. A circular door, B, and lock S, secured to a common hinge, C, the said door being arranged to revolve upon the hinge in such manner as to operate the permutation-lock S and the bolts M, substantially as described.

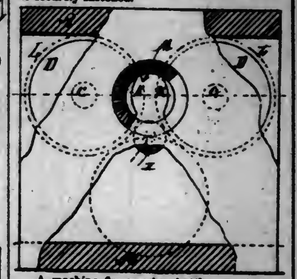
2. In combination with the revolving door, the dial O and hinged pointer P, secured to the front of the safe, substantially as described.

3. On a revolving door, the combination of the bolts M, slotted disk L, and bolts N of the permutation-lock S, operated by the rotation of the door, substantially as described.



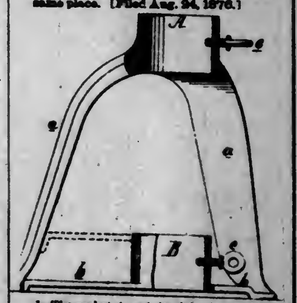
188,193. MACHINES FOR PLACING CAPSULES ON BOTTLES. Wm. T. Moffat, New York, N. Y., assignor to Chas. R. Barnett, same place. [Filed Mar. 27, 1876.]

Brief.—The two main rollers, having the grooves seen, revolve in opposite directions. By inserting the bottle-neck between them, and causing said rollers to turn, the capsule is securely fastened.



A machine for capping bottles, consisting of the grooved rollers D D and the roller F, all operated as described, in combination with the frame A, substantially as set forth.

188,194. CHRISTMAS-TREE HOLDERS. A. C. Mott, Philadelphia, Pa., assignor to himself, R. A. Corbin, and Hermann Albrecht, same place. [Filed Aug. 24, 1876.]

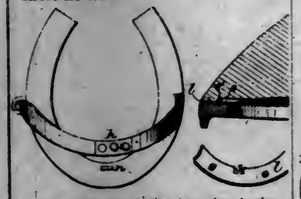


1. The socket A and its legs, in combination with a socket, B, constructed for attachment to the legs of the said socket A, substantially as set forth.

2. The combination of the socket A and its legs with the socket B, having arms *b* adapted to the feet of the said legs, as specified.

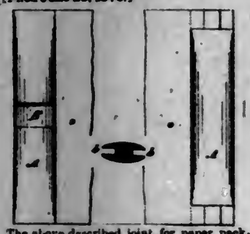
182,195. HORSESHOES. Edvard Murraine, Rochelle, Ill. [Filed Sept. 11, 1876.]

Brief.—The attaching-plate and shoe are connected only by a notch and stud. Projections on its upper surface hold the plate to the hoof. The shoe is thus kept from slipping forward, and the holding-band side the plate in securing the shoe to the hoof. No nails or screws are used.



The combination, with a horseshoe, having a stud, *a*, of the plate *l*, with the notch *s*, the plate being separately attached to the hoof, and entirely disconnected from the shoe, except by the stud and notch, and a holding-band, *h*, for attaching the shoe to the foot, substantially as and for the purposes specified.

182,196. JOINTS FOR PAPER PACKAGES. William H. Murphy, Syracuse, N. Y., assignor of a part of his right to Johnston Miller and Samuel A. Seager, same place. [Filed June 26, 1876.]

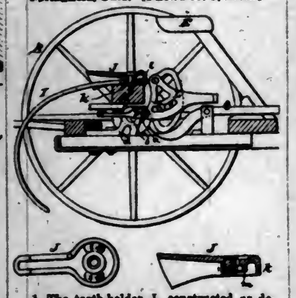


The above described joint for paper packages, made of the strip A, having the grooves *b* and slot B therein, in combination with the paper sides *c*, when constructed and operated substantially as above described.

182,197. BLOW-OFF COCKS. Saml. Myers, Pittsburg, Pa. [Filed July 1, 1876.]

The improved blow-off cock for steam-boilers, composed of the casing M, provided with the inlet-tube C, the annular beveled seat, and downward discharge-tube, and the valve A, provided with a circumferential groove at a point opposite the inlet, and fitted in said casing, as shown and described, whereby it is adapted to be guided accurately to its seat, also shear off, as it descends, any scale that may project from the inlet-opening, but to exclude scale when once said inlet has been passed, and yet permit the downward escape of water, as specified.

182,198. HORSE HAY-RAKES. H. Myers, Springfield, Ohio. [Filed Feb. 5, 1876.]

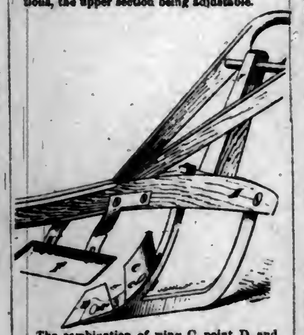


1. The tooth-holder J, constructed as described, with central flange *m* and convex projections *i i*, for the purposes herein set forth.

2. The combination of the tooth I with loop *a*, the holder J with flanges *k m*, and convex projections *i i*, the rubber block *h*, and screw *f*, all substantially as and for the purposes herein set forth.

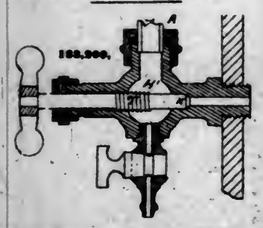
182,199. PLOWS. John R. Newton, Rusk, Tex. [Filed June 12, 1876.]

Brief.—The scraper is attached to the beam by hangers, is placed obliquely, and adjustable both vertically and horizontally. The mold-board proper is divided into two sections, the upper section being adjustable.



The combination of wing C, point D, and scraper F, combined and arranged on a plow-frame, to operate together as set forth.

182,200.

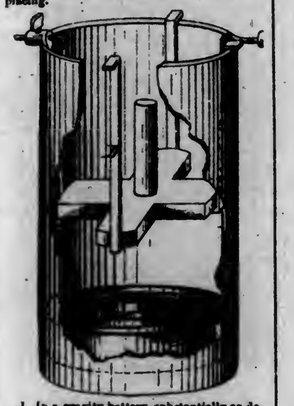


182,200. WATER-GAGES. T. J. Nottingham, Cincinnati, Ohio. [Filed Jan. 19, 1875.]

The combination of the threaded valve-stem A', operating an automatic valve, B, from its end, the valve B, the frustum-shaped valve-seat D, the chamber H, and the pin C, all substantially as shown and described.

182,201. GRAVITY-BATTERIES. Myron W. Parrish, Jackson, Mich. [Filed Aug. 31, 1876.]

Brief.—For keeping the circuit complete while the zinc is removed for cleansing or replacing.

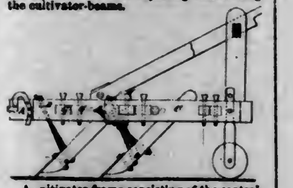


1. In a gravity-battery, substantially as described, a copper hanger adapted to complete the circuit through the contained solution, and to suspend or sustain the zinc plate in the latter, substantially as set forth.

2. The copper hangers D D, forming a basket for sustaining the zinc plate in the superannatantcointion of a gravity-battery, and adapted to complete the circuit through the solutions independently of the zinc plate, substantially as described.

182,202. CULTIVATORS. Garland A. Parsons, Dover, Ark. [Filed July 31, 1876.]

Brief.—Devices for adjusting and bracing the cultivator-beams.

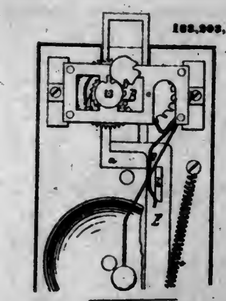


A cultivator-frame consisting of the central, intermediate, and outside plow-beams A B C, the beam B having the cross-bars D passing through beam A, and the beam C having cross-bars E F passing through both beams A B, substantially as and for the purpose specified.

182,203. BURGLAR-ALARMS. William A. Parker, Brooklyn, N. Y., assignor to Wm. M. Parker, New York city. [Filed Mar. 31, 1876.]

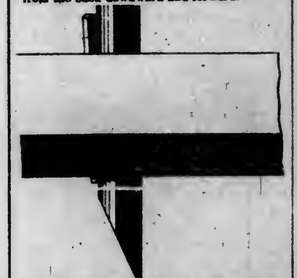
Brief.—The act of opening a door or window to which the alarm is attached releases a slide, which is moved by a spring, and which slide releases the detent of a clock-work mechanism, and permits an alarm to be sounded.

The combination, with an alarm, B, of a slide, E, having a notch, *d*, in its edge, a spring, *e*, which exerts an upward and a lateral strain on said slide, a slot, *b*, for guiding the slide, and retaining the same when it is depressed, a lug, *h*, and stop-lever D, all constructed and operating substantially as shown and described.



182,204. HARROWS. Calvin L. Pierce, Fond du Lac, Wis., assignor to Henry B. Fargo, same place. [Filed Apr. 26, 1876.]

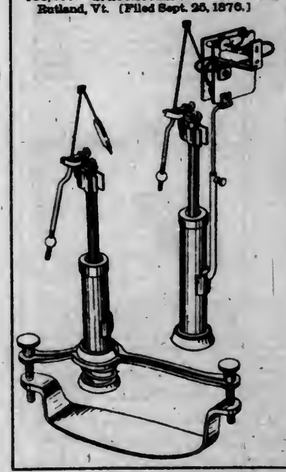
Brief.—A cross-section of the tooth shows a rounded back, two straight flat front faces forming an acute angle, and a long flat bevel from the heel downward and forward.



1. A solid tooth of acute angle in front and convex back, with a flat bevel from the back side of the tooth downward to the front edge, as shown and described.

2. The combination, in a harrow, of a solid tooth of acute angle in front and convex back, as specified, the iron wedge or key to hold the tooth in place, and the bar with beveled corners on the lower side, the tooth being set in the beam with its angles equally presented to the line of draft.

182,205. SPHYGMOGRAPHS. H. A. Pond, Rutland, Vt. [Filed Sept. 26, 1876.]



1. In apparatus for recording the movement of pulsating bodies, a needle, or other marking or tracing instrument, connected by a free joint with the device by which it is supported, and through the intermediary of which the movement of the pulsating body is communicated to it, substantially as set forth.

2. The pendulous needle, or other tracing-instrument, and its supporting vibratory lever, in combination with the pulsatory float, substantially as set forth.

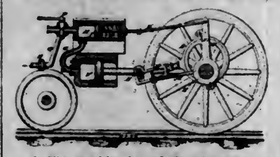
3. The combination, substantially as set forth, of a cylinder-piston and float, a marking or tracing mechanism operated by said float, and a feeding and holding mechanism adjustable to properly present the surface to be marked to the action of the tracing-instrument.

4. The vibratory three-armed lever, provided with jointed needle or other tracing-instrument, having one of its arms arranged to be operated by the pulsating float, and adapted to be used as a weighing-beam, substantially as set forth.

5. A sphygmograph, in which the tracing mechanism is operated by a float, which derives its movement from the pulsatory movement of the liquid in the liquid-cylinder or receptacle of the instrument, substantially as set forth.

6. In combination with the feed-wheels of the feeder and holding mechanism, the cylinder, hollow piston, piston-rod, and stop-cock or valve thereon, said rod being connected with the feed mechanism by a cord, and the parts being arranged to operate as described and shown in Figs. 4 and 5 of the accompanying drawing.

182,206. AIR-BRAKES. James R. Reniff, Bloomington, Ill. [Filed Apr. 20, 1876.]



1. The combination of the air-pump, an auxiliary air-cylinder communicating directly with the pump, so that the air is forced by the latter into and through the former, and a spring-piston within the cylinder, and connected to mechanism which it operates to throw the pump into and out of action automatically, substantially as described.

2. The combination of the cylinder H, piston I, spring J, rods K, arms L and M, and reciprocating arm E, for making and breaking connection with the pump piston-rod, substantially as specified and shown.

3. The combination of the arm E, slotted as described, and provided with a notch, O, and the pump piston-rod, substantially as described.

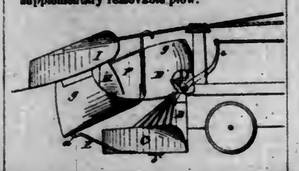
4. The combination, with the air-pump of an auxiliary cylinder, provided with the spring-piston I, supply-pipe Q, the stop-cock P, and the brake-cylinder X.

5. The brake-cylinder X, provided with the drip-passages *a* and *b* and the stop-cock *s*, substantially as described.

6. The combination of the chain *f*, connected to the piston-rod, levers *h*, arranged on both sides of the wheels, sheaves *e*, connecting-rods *f*, and the brake-shoes, as shown and described.

182,207. SNOW-PLOWS. Horace Resley, Cumberland, Md. [Filed Aug. 24, 1876.]

Brief.—Above an ordinary track-clearing plow is mounted a scoop having a slight vertical adjustment, and bearing a swinging deflector and vertical cutters. Above this is a supplementary removable plow.



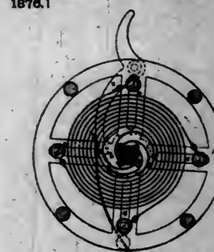
1. The upper supplemental plow I, detachably located upon supports *m m* above the scoop, in combination with the scoop, having flanged front sides *g* and supports *m m*, substantially as and for the purpose described.

2. The combination, with the scoop D, having upturned sides *g* and a pivoted deflector, F, of the cutter-blades H, arranged at the points of deflection of the snow-columns upon each side of the deflector, so as to form supports for the same, substantially as and for the purpose described.

3. The scoop D, pivoted at *a* upon supports E, in combination with rock-shaft *d*, with same *a*, and lever *e*, substantially as and for the purpose described.

4. The combination, with the scoop D, arranged to throw the snow upon both sides of the cutter-blades H, arranged in the path of the two snow-columns, at the points of deflection of the same, for the purpose described.

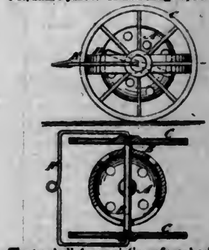
182,208. VOLUTE-SPRING MOTORS. Roland Rhett, Baltimore, Md. [Filed Apr. 20, 1876.]



1. In a spring-motor, a series of volute springs, the outer ends of which are attached to the cage, in which they are confined at points equidistant, or nearly equidistant, from each other, and the inner ends connected to the central winding-shaft, the said springs being arranged to move in the same plane in the coiling and uncoiling operation, substantially as and for the purpose set forth.

2. The cage A, having the radial slots *e*, in combination with a series of volute springs, the outer ends of which are adapted to have a free radial movement in the coiling and uncoiling of the same, by means of a central winding-shaft, to which the inner ends of the said springs are attached, substantially as and for the purpose specified.

182,209. BELL TOYS. John T. Rich, Middle Haddam, Conn., assignor to J. C. Clark & Co., same place. [Filed Aug. 7, 1876.]



The toy bell A, consisting of a spherical perforated shell, secured at one side only to the axle and mounted upon the wheels C C, connected by the ball F, when constructed and arranged to operate substantially as described.

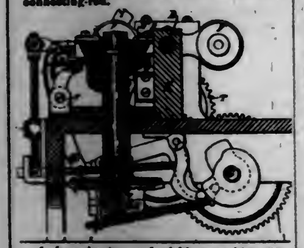
182,210. HORSE-HOPPLES. J. F. Riesgraf, Copiapo, Chili. [Filed Aug. 14, 1876.]



A horse-hoppie composed of the strap A, with the fastening-buckle B and the intermediate link C, arranged as shown and described, for the purpose specified.

182,914. MACHINES FOR NICKING SCREWS. Chas. D. Rogers, Providence, R. I. [Filed Aug. 16, 1876.]

Brief.—The revolving mandrels are caused, when bringing the blanks successively in front of the saw, to impinge by their rear ends against a cam-plate attached to a hinged arm, which forces them forward, so as to bring the head of the blank very near to the saw, and after the nippers have grasped the blank, their movement forward to carry the blank against the saw is aided by the cam-plate, which is forcibly drawn against the end of the arbor by the same mechanism that imparts the forward movement to the gripers, acting on the arm through the medium of a connecting-rod.

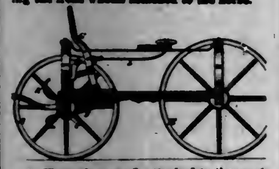


1. In a shaving and nicking machine, the plate Y, operated in combination with the teeth, or by mechanism substantially as described, for the purpose specified.

3. In combination with the cheek-shaft of a shaving and nicking machine, the gearing described, consisting of wheel T, cog D', and plate C', arranged and operated from the main shaft, substantially as described.

182,915. DETACHING HORSES. James H. Rogers, Charleston, W. Va. [Filed Sept. 11, 1876.]

Brief.—The vrapce may be uncoupled, leaving the front wheels attached to the horse.



1. The spring-arm I, attached to the reach-bar, and arranged to operate substantially as described.

2. In combination with the reach-bar of a carriage or similar vehicle, a spring-support, I, constructed and arranged substantially as described and shown, to sustain and absorb the movement of the body in the event of the separation of the front axle and wheels therefrom.

3. The combination of the tapering hing-bolt C, spring I, and hay F, with devices substantially such as shown for controlling said hay.

4. The arms or runners K, constructed and arranged substantially as shown and described.

5. In combination with the hay F, arranged as and for the purpose described, the lever G and cord b, as shown.

182,916. PLOWS. Mario R. Brant, Rockville, Ill. [Filed July 17, 1876.]

Brief.—A gang of eight plows are arranged diagonally to the line of draft. A common windlass extends transversely through the front of the frame, which is supported on six wheels. By rotating the windlass the plows are raised and lowered. A bar provided with pins, operated by a lever, holds the plows in an elevated position.

1. The combination of the plow-beams A A, the plow-standards and mold-boards L M, pivoted thereto, with the chains P, sheaves O, and windlass Q, for throwing the plows in and out of working position, in the manner described.

2. The combination of the axle C C, plow-beams A A, cross-bars B B, main cross-beam E E, standards F F, and adjusting-screws D D, substantially as and for the purpose set forth.

3. The combination of the axle C C, detached axle-section C', guiding-standard F, and adjusting-screws D and H, as and for the purpose set forth.

4. The combination of the plow-beams A A, cross-bars B B, and draft-chains P attached thereto, as and for the purpose set forth.

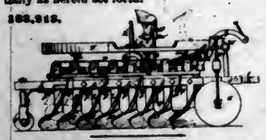
5. The combination of the axle C C, carrying-wheels G, G, G', and F, the gage-wheels S S, with the plows A L M, as and for the purposes set forth.

6. The combination of the pivoted plows L M, beams A, short beams l', legs F, and locking-bar R, as and for the purpose set forth.

7. The combination of the pivoted plows L M, chains P P, windlass Q, locking rock-shaft W, arms X, and pins *s*, as and for the purposes set forth.

8. The combination, with a gang-plow, constructed to operate substantially as herein set forth, of the platform U, driver's seat V, and operating-arms *g* R' *s*, projecting above said platform, within reach of the driver, substantially as herein set forth.

182,913.

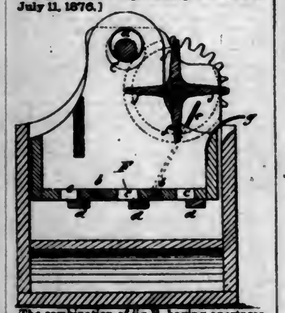


182,914. PERMUTATION-PADLOCKS. D. A. Root, Bay City, Mich. [Filed June 2, 1876.]



In a permutation-padlock, the combination of the tumblers D D' and dial-knob E, all notched internally, as shown, with the index-washers *b b*, constructed and arranged substantially as described and shown.

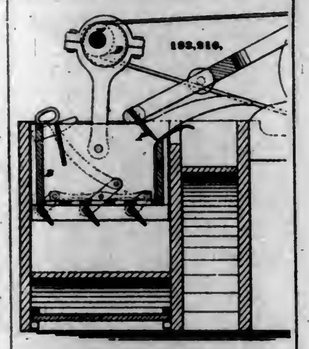
182,915. COAL AND ORE WASHERS. Anthony Bowne, Nesquehoning, Pa. [Filed July 11, 1876.]



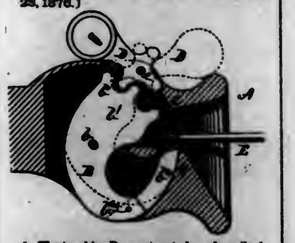
The combination of jig F, having apertures *b c*, valves *d*, and apron *g*, with the eccentric *a* and wings *f f f' f''*, substantially as and for the purpose specified.

182,916. JIGGERS. Anthony Bowne, Nesquehoning, Pa. [Filed Mar. 6, 1876.]

The combination, with a jig, B, moved up and down in tank, of the scraper F, working on the inside of jig, substantially as and for the purpose described.



182,917. CAR-COUPLINGS. Wm. H. Sadler, Moline, Ill., assignor of one-half his right to Jas G. Wells, same place. [Filed Aug. 28, 1876.]



1. The tumbler B, constructed, as described, with an enlarged upper end, *b'*, provided with teeth *b''*, and arranged to operate with the correspondingly-toothed lever D, draw-head A, and link E, substantially as and for the purpose specified.

2. The oscillating tumbler B, constructed in two parts, *b' b'''*, hinged to each other, and arranged to operate with the draw-head A and link E, substantially as and for the purpose specified.

182,918. PAPER-PERFORATING MACHINES. Socrates Scholefield, Providence, R. I., and C. E. Baker, Mont Clair, N. J., assignors to themselves and Chas. E. Johnson, Philadelphia, Pa. [Filed Jan. 4, 1876.]

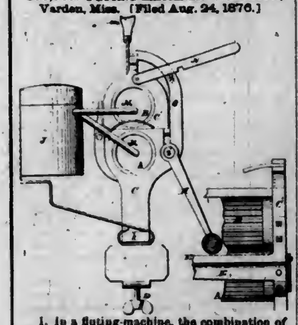
Brief.—A barbed pin attached to a bar sliding in a rocking frame scratches on its backward movement a hole in the top sheet, which it enters on its forward movement. Springs attached to the frame counteract the motion of the sheet on the pile, which the pin tends to produce.



1. The inclined pin F, barbed, hooked, or roughened subjacently near the point, and combined with a paper-feeder to make a hole in top sheet during the backward movement, preparatory to entering said hole on the forward movement, substantially as and for the purpose described.

2. The combination, in a paper-feeder, with the pin F, of the springs I, arranged as substantially as and for the purpose specified.

182,919. FLUTING-MACHINES. W. G. Scott, Vardon, Miss. [Filed Aug. 24, 1876.]

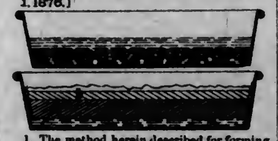


1. In a fluting-machine, the combination of the stationary frame C E, carrying the lower roller A, the hinged frame O' B' G, carrying the upper roller B, the latch N, and pin *s*, all constructed substantially as and for the purposes herein set forth.

2. The combination of the hinged frame O' G, with roller B, the spring P, and pivoted handle R, with cam *p*, substantially as and for the purposes herein set forth.

3. In combination with the hollow open-ended rollers of a fluting-machine, a loop, J, provided with burners M M, and arranged to swing upon a rod or wire, K, substantially as and for the purposes herein set forth.

182,920. ART OF MAKING TIN-FOIL INGOTS. Henry Selling, New York, N. Y., assignor to Helena Selling, same place. [Filed Sept. 1, 1876.]



1. The method herein described for forming a foil-ingot, the same consisting in pouring molten tin upon congealed lead, and then placing the so-formed block-lead downward in a bath of molten tin, whereby the tin unites to the bottom of the lead, and, rising around the block of lead and tin, embraces the same without uniting thereto by fusion, substantially as described.

2. A foil-ingot, consisting of three layers of metal, one of the outer layers projecting upward around the edges of the ingot, and embracing it, but not united to the other outer layer by fusion, substantially as described.

3. The ingot herein described, consisting of a layer of lead alloyed with bismuth, incased in tin, which latter may or may not be also alloyed with bismuth, substantially as described.

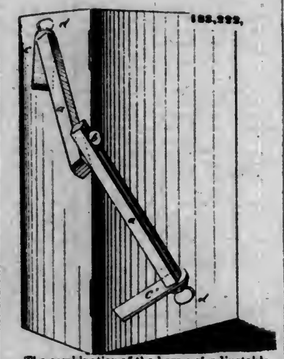
182,921. ROCKING-CHAIRS. Wm. Shaub, Nashville, Tenn. [Filed May 22, 1876.]



1. The combination of back-rests, secured to backward-extended seat-rests, with the arm-rests and posts, substantially as specified.

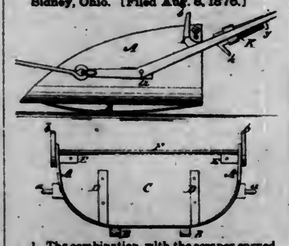
2. The combination of posts and seat-rests with inside stiffening pieces that taper toward the rear ends, substantially as specified.

182,922. STAIR-BUILDERS' TOOLS. Theo. Simonson, Hillsborough, Ohio. [Filed June 20, 1876.]



The combination of the bars *a a'*, adjustable pieces *c c'*, and the screws *b*, *d*, and *d'*, substantially as shown and described.

182,923. ROAD-SCRAPERS. Benj. Slusser, Sidney, Ohio. [Filed Aug. 8, 1876.]



1. The combination, with the scraper curved in transverse direction, of the rockers B B, located in alignment, with the draft upon the convex bottom at a distance from the sides, substantially as and for the purpose described.

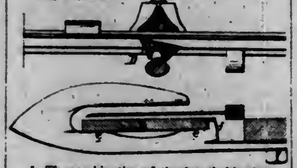
3. The combination of the scraper A, end-board C, straps D E, and tie-rod F, substantially as and for the purpose described.

3. The combination, with the scraper A, of the bar G, attached thereto by means of pivots and locking devices, and extending forward of the pivots, to form connection with the draft-bail, and extending to the rear of the same to form a handle, substantially as and for the purpose described.

4. The combination, with the scraper having a locking-bolt, of the bar G, the draw-bar J, having stud *d* and spring *e*, the spring-seated catch K, and keepers *f f*, constructed and arranged substantially as and for the purpose described.

5. The combination, with the scraper A, of the curved bar I, attached to the rear upper portion of the sides of the same, and having upwardly-projecting end *b*, to form a grappling-extension, and rearwardly-projecting end *c*, to form a locking-bolt, substantially as described.

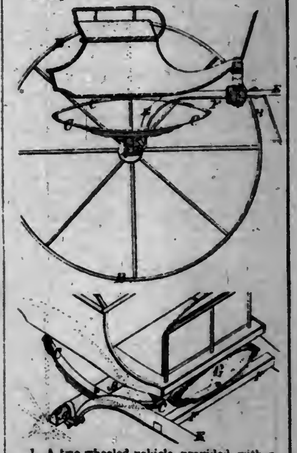
182,924. GUARD-FINGERS FOR HARVESTERS. Jonathan Smith, Buckingham, Pa. [Filed July 17, 1876.]



1. The combination of the detachable plate D, with a guard, B, having bearings *e* on which the said plate D rests, and is free to rock, as set forth.

2. The combination of the plate D with the guard B, its bearings *e* for the plate, and its lug *f*, as set forth.

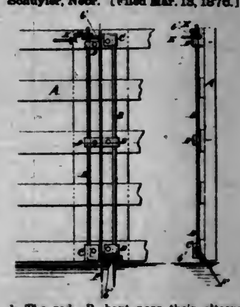
182,925. TWO-WHEELED VEHICLES. Thos. Snow, Social Circle, Ga. [Filed Aug. 8, 1876.]



1. A two-wheeled vehicle, provided with a body which supports a seat, and having the forward end of said body connected to or with the shafts by means of a spring, substantially as and for the purpose specified.

2. In combination with the spring-connection between the front end of the body and the shafts, a flexible joint between the rear ends of said shafts and the axle, substantially as and for the purpose shown.

182,926. PORTABLE FENCES. G. F. Stevens, Schuyler, Nebr. [Filed Mar. 13, 1876.]



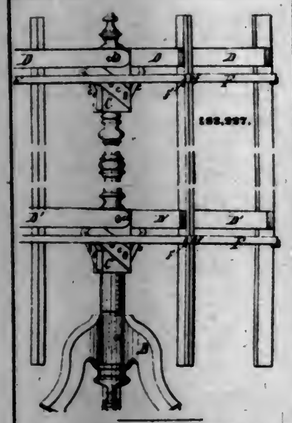
1. The rods B, bent near their alternate ends at right angles, and having eyes formed in said bent ends *b'*, in combination with the ends of the panels A, substantially as herein shown and described.

2. The grooved clamping-blocks C D, in combination with the rods B and the panels A, substantially as herein shown and described.

3. The combination of the bolts E with the eyes of the upper bends *b'* of the rods B, and with the panels A, substantially as herein shown and described.

182,927. CLOTHES-DRIERS. David Stephens and Joseph Stephens, Ogdensburg, N. Y. [Filed Aug. 26, 1876.]

In a clothes rack or drier, the arms D and D', pivoted in pairs to the faces, in line with each other, of the four-sided parts C and C', respectively at the upper and lower end of the post A; the vertical bars E, pivoted to the outer ends of and connecting the arms of the several pairs, and carrying the pivoted locking-rods F F', with their hooks *f*, together with the diagonal supports *g*, having the projecting ends *e'*, all combined and arranged to operate as described, and for the purpose specified.



182,227.

182,228. ICE-CASKETS. Hugh G. Stewart and Almarine A. Gwaltney, Baltimore, Md. [Filed June 12, 1876.]

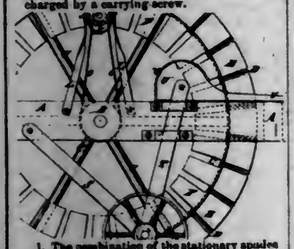


1. An ice casket having the four sections A, B, C, and D, the section C being made separate and removable from the bottom D, substantially as and for the purposes set forth.

2. A cooling-board consisting of several sections, E F G, the same being ice-boxes, substantially as specified.

182,229. ROTARY CULTIVATORS. S. Tadlock, Hope, Tex. [Filed July 11, 1876.]

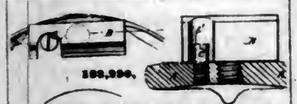
Brief.—The spades divide the periphery of the operating wheel. The dividing-spades are fixed, and hinged spades beat at right angles form the inner cutting side and top of each section. An arm provided with a spring holds them in cutting position. A scoop or chute extending half round the wheel cuts up each section of earth divided by the spades, and holds it to be carried by the wheel to the top, where the hinged spade is tilted, and the earth thrown into a lateral trough, and carried to the outside of the machine and discharged by a carrying-screw.



1. The combination of the stationary spades D, the hinged angular spades E, provided with the arms F and springs G, and the chute H, with the wheel C, shaft B, and frame A, substantially as herein shown and described.

2. The combination of the frame J, trough K, swiveled screw M, pulley N, and band O with the ditching-wheel C D E, the shaft B, and the frame A, substantially as herein shown and described

182,230. HORSESHOES. Victor Thue, Scranton, Pa., assignor of one-half his right to J. H. Fellows, same place. [Filed Mar. 13, 1876.]



182,230.

The combination of a horseshoe, A, toe-calk B, having a vertical groove in its rear face, and a screw-threaded shank, the screw C and its screw-threaded hole in the shoe located at the rear of the toe-calk, and away from the edge of the shoe, all as and for the purposes set forth.

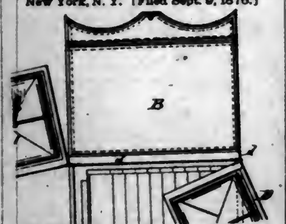
182,231. FAUCETS. Anton Tomiska, Iowa City, Iowa. [Filed Mar. 27, 1876.]



1. A wooden faucet-tube, in combination with a metallic sheathing, which extends from end to end of said tube, substantially as set forth.

2. The combination, with wooden faucet-tube A, of metallic sheath C, constructed in one piece, and extending from end to end of said tube A, with metal tube D and spigot-cent F, substantially as set forth.

182,232. PAPER BOXES. Ralph Trautmann, New York, N. Y. [Filed Sept. 9, 1876.]



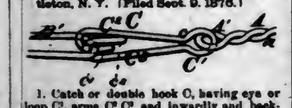
The box A, made with the elevated back d, and combined with the cover B, and with the boxes D D, whose corners are hinged to the ends of the elevated back d, substantially as herein shown and described.

182,233. DEVICES FOR PREVENTING THE COLLAPSE OF BOILERS. Abijah Tucker, Rochester, N. Y. [Filed Aug. 28, 1874.]



In combination with a boiler and a feed-water pipe, P, an automatic valve between the boiler and the check-valve, whereby a current of air is admitted into the interior of the former when a vacuum is formed therein, substantially as and for the purpose set.

182,234. BALE-TIES. John Tweeddale, Castleton, N. Y. [Filed Sept. 9, 1876.]

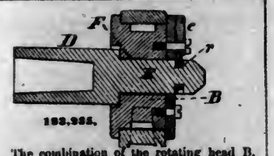


1. Catch or double hook C, having eye or loop C^2, arms C^a C^b, and inwardly and backwardly turning hooks c^a c^b, substantially as set forth.

2. The catch-hook C, the free ends of which are turned in opposite directions, in combination with the loops A' B' of the bale-tie wire, substantially as shown and described.

182,235. WRENCHES. Matthew Vassar, 2d, Ballston Spa, N. Y. [Filed Aug. 25, 1876.]

Brief.—A two-way ratchet-wrench, having a nut-socket bottomed into its disk.



182,235.

The combination of the rotating head B, having the button *a* pivoted thereto, and having the central mortise F formed therein, with the socket D, having the tenon E formed thereon, and having the recesses *r* for the reception of the button *c*, substantially as and for the purpose set forth.

182,236. ARGAND GAS-BURNERS. Samuel B. H. Vance, New York, N. Y., assignor to Mitchell, Vance & Co., same place. [Filed Sept. 22, 1876.]

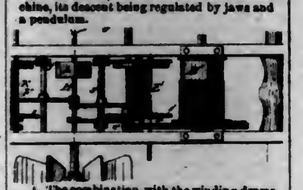
Brief.—The flow of gas is regulated by turning the lever H to the right or left, and thus elevating or depressing the valve D.



The combination of the valve and valve-stem D E, provided with the spring F and collar G, with the base A of an Argand gas-burner, provided with the shoulders a^1 a^2, and having its upper end beveled or inclined, and with the lever H, having the lower side of its upper end beveled or inclined, substantially as herein shown and described.

182,237. HOISTING AND PUMPING MACHINES. John R. Weber, Bourbon, Ind. [Filed July 26, 1876.]

Brief.—The weight, being raised by separate mechanism, is attached to work the machine, its descent being regulated by jaws and a pendulum.



1. The combination, with the winding drums B B' and weights for operating the machine, of the shafts a a' for transmitting the power to the driving-shaft, and the drums E E' for elevating the weights, substantially as described and shown.

2. The combination of the weights and gearing, the regulating pendulum and fans, and the removable pumping mechanism, constructed and arranged substantially as described and shown.

182,238. AXLE-LUBRICATORS. John J. Westmore, Shebonier, Ill. [Filed July 15, 1876.]



The combination, with axle having groove *a*, receiving lubricant through a channel, *d*, of the oil-cup, of the skein A, having ribs *c*, that fit closely into corresponding grooves of axle, as and for the purpose specified.

182,239. WOOD PAVEMENTS. Henry F. Williams, San Francisco, Cal. [Filed Sept. 18, 1876.]

1. An upper course for a pavement composed of thin and short pieces of wood, bound together by asphalt or bitumen, substantially as described.

2. The pavement described, consisting of a rigid foundation, and a surface layer of wood of thin and short pieces, bound together and to the foundation by asphalt or bitumen, substantially as described.

182,240. COMBINED COMB AND HAIR-CUTTERS. Adolf Wehl, Ocala, Fla. [Filed Aug. 2, 1876.]

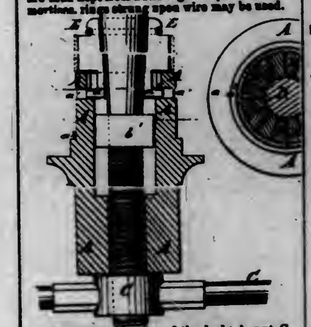


1. The combination, with a flat comb, A, having screw-threaded openings, as described, of the cutting-blade B, arranged upon one side of the comb, and having slots *b*, through which set-screws *s* pass into the screw-threaded openings of the comb for adjusting said cutting-blade, substantially as described.

2. The combination, with a comb, A, and cutting-blade B, of a guard, D, substantially as and for the purposes set forth.

182,241. TUBE-EXPANDERS. A. Work, Providence, R. I. [Filed May 27, 1876.]

Brief.—A square nut on the end of the mandrel, working in a square recess in the body of the tool, prevents the mandrel from turning. Instead may be a groove and tongue. The expansible segments are hooked into mortises in the end of the tool-body, and are thus kept from buckling. In place of the mortises, rings or strong open wire may be used.



1. The combination of the body A, nut C, the spindle having cylindrical screw-threaded part and the smooth tapered portion, and the intermediate collar *b'*, as shown and described, to operate as specified.

2. The combination, with the body A, having the radial slots *a'*, of the segments D, having hooks *d'*, as shown and described, whereby the segments are separately maintained in a position radial to the spindle, as specified.

3. An expanding-tool formed by the combination of the body A, perforated longitudinally, and provided with the shoulders a^1 a^2, the spindle B, made conical at one end, having a screw-thread cut upon the other end, and provided with a square collar, the lever-nut C, the fine segments D, and the rubber band or bands E, with each other, substantially as herein shown and described.

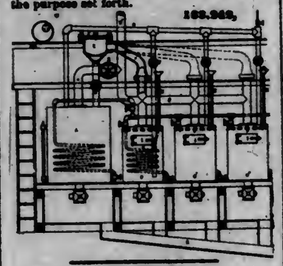
182,242. PROCESSES AND APPARATUS FOR MANUFACTURING FERTILIZERS FROM NIGHT-SOIL. Robert R. Zell, Baltimore, Md. [Filed June 21, 1876.]

1. In the manufacture of a fertilizing compound from night-soil, the process consisting in separating the night-soil into watery and semi-fluid bodies, distilling the ammonia vapor from the said watery constituent, and incorporating the ammonia vapor with the semi-fluid mass or base of the fertilizing compound after the treatment of the latter with sulphuric acid, for the purpose of fixing the ammonia, substantially as herein before specified.

2. In an apparatus for treating night-soil in the manufacture of a fertilizing compound, the tanks A and C, connected by the draft and gas pipes, respectively, represented by D and G, and provided with the steam coils or worms *d*, in combination with the pipe *c*, having the strainer *b* leading to the said tank A, and removable pipe *e*, connecting the said strainer indirectly with the tank C, substantially as shown.

3. In an apparatus for treating night-soil in the manufacture of a fertilizing compound, the tank C, provided with the apertures *e*, in combination with the draft-pipe D and branch D' of the same, substantially as and for the the purpose set forth.

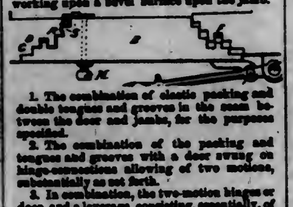
182,243.



REISSUES.

7,233. SAFES. John Farrel and J. Weimer, New York, N. Y. Patent No. 101,245, dated Mar. 29, 1870. [Filed May 2, 1874.]

Brief.—The door has a double-action hinge and rubber packing in a tongue and groove, a lever to operate the door, and a button working upon a bevel surface upon the jamb.



1. The combination of elastic packing and double tongues and grooves in the seam between the door and jambs, for the purposes specified.

2. The combination of the packing and tongues and grooves with a door swung on hinge-connections allowing of two motions, substantially as set forth.

3. In combination, the two-motion hinges or door, and a leverage, consisting, essentially, of a lever of the second order.

4. In combination, the said leverage and the bar or rod K, arranged substantially as set forth, and having the functions and capacity specified.

5. In combination, the said leverage, rod K, and upper and lower hinges.

6. In combination, the leverage specified, the packing, and two-motion hinges or door.

7. In combination, the leverage specified, tongues and grooves in the door and jambs, and two-motion hinges or door.

8. In combination, the packing, tongues and grooves, leverage, and two-motion hinges or door.

9. The projection *s* and corresponding recess R, as described.

7,239. UNDERGROUND TUBES FOR PROPULSION OF CARS. Andrew S. Hallidie, San Francisco, Cal. Patent No. 179,085, dated June 20, 1876. [Filed Sept. 19, 1876.]



1. The endless wire rope R and inclosing slotted tube D, in combination with the supporting-pulleys I H, the openings P, all constructed and arranged to operate substantially as described.

2. The openings P', arranged at intermediate points in the slotted tube D, for allowing the gripping attachment to be withdrawn from the tube, substantially as and for the purpose described.

3. The depending pulley *t*, for sustaining the upward thrust of the rope inside of the tube D, at the bottom of the inclines, substantially as and for the purpose described.

7,240. REFRIGERATORS. John C. Jewett, Buffalo, N. Y. Patent No. 60,812, dated Oct. 16, 1867. [Filed May 26, 1876.]

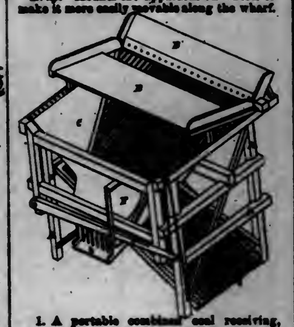


1. A refrigerator having the ice-box situated at its top, said ice-box being provided with top and side doors, whereby free access to the ice-box is obtained, substantially as set forth.

2. The ice-chamber of a refrigerator constructed with an elevated bottom, *d*, in combination with legs or depressions *a a'*, provided with perforations *f f* and the shallow pans *f f*, arranged and operating as and for the purpose herein before stated.

7,241. COAL SCREENS AND CHUTES. Martin R. Roberts, San Francisco, Cal. Patent No. 140,077, dated June 17, 1873; reissue No. 6,231, dated Jan. 5, 1876. [Filed July 10, 1876.]

Brief.—Mounts the apparatus on wheels to make it more easily movable along the wharf.



1. A portable combined coal receiving, screening, and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water-craft, and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as described.

2. The receiving-hopper B B', in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate A, and one or more independent screens, I, all combined and arranged substantially as and for the purpose above described.

3. The metal blast or false bottom K, in combination with the receiving-hopper B B', reservoir O, chute F, and gate A, substantially as and for the purpose above described.

4. The combination of the hopper B B', for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate A, all constructed to operate substantially as and for the purpose set forth.

5. In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate A, the combination being substantially as is herein set forth.

7,242. PRINTING-TYPES. Henry Stephenson, William Thompson, and William G. Blake, Sheffield, England, assignors to F. W. Griffith and Geo. P. Byron. Patent No. 101,295, dated Apr. 5, 1870; extended Mar. 19, 1870. [Filed May 5, 1876.]

Brief.—A series of types which, in combination of rules, represent a ribbon folded diagonally.



7,842.

1. The combination of the rule *g* for printing the representation of a straight length of ribbon, and the type for printing the extremities and terms of such plane length of ribbon, substantially as described and specified.

2. The type herein described, for printing type-ribbon, consisting of the shading-sections 3 P^3, the rules *g g* connecting them, and representing the face of the ribbon, and the terminal or diagonal sections 1 1^a 5 P^5, constructed, combined, and arranged substantially as described and specified.

3. The type 1 1^a to form the terminal *a*, 2 2^a to form the shadings *b*, 5 5^a to form long diagonals *d*, 3 3^a to form short diagonals *c*, and 4 4^a to form intermediate diagonals *f*, all located in a form and combined with thick and thin metal rules *g g*, as and for the purpose specified.

4. The combination, with the type herein described for printing type-ribbon, of letter-type for printing on the representation of the face of the ribbon, substantially as described and specified.

7,843. VISES. Charles Burnes, Cincinnati, Ohio, assignor to Chas. Parker, Meriden, Conn. Patent No. 76,694, dated Apr. 14, 1868. [Filed Sept. 23, 1876.]

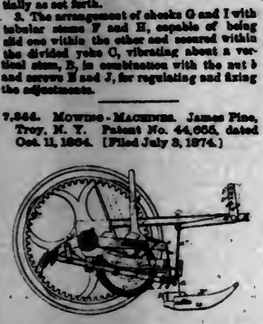


1. A bench-vise consisting of a pair of jaws, and a screw for adjusting said jaws relatively to each other, the said jaws arranged and combined with a socket, and adjustable within said socket in a vertical plane around a horizontal axis of which the screw is substantially the center, and substantially as described.

2. A bench-vise adjustable around two centers at right angles to each other, substantially as set forth.

3. The arrangement of cheeks G and I with tubular stems F and H, capable of being slid one within the other and secured within the divided yoke C, vibrating about a vertical stem, B, in combination with the nut b and screws E and J, for regulating and fixing the adjustments.

7,844. MOWING-MACHINES. James Pine, Troy, N. Y. Patent No. 44,655, dated Oct. 11, 1864. [Filed July 3, 1874.]



1. The combination of the lifting-lever with the pulley, having a sliding axis, and the finger-bar, substantially as set forth.

2. Brace H, with its rear end attached to, and moving in, the curved slot at the rear end of arm F J, in combination with said arm and with the supporting-pendant pivoted at one end to the frame, and at the other end to the brace, the front end of said brace being connected with the coupling-bar or bar G, as set forth.

3. The combination of coupling-bar G, connected to, and vibrating on, the gear-frame, and the flexible connection between said coupling-bar and the whiffletree, as described.

4. The track-cleaner S, applied to the outer end of the finger-bar, and made adjustable by means of teeth at the heel of the ear, to which the track-cleaner is attached, adapted to mesh into corresponding teeth, at the heel of the shoe, and a suitable clamp-pin device, as described.

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5. The combination, in a draft or gear frame of a mowing-machine or harvester, of the sides E and F J, and tube D, through which the axle A passes, all constructed as described.

6. The combination of the gear and cutting apparatus supporting-frame, composed of one piece extending in front and rear of the axle, and supported and kept in position by the axle passing through the tube, or through a hole or opening through said frame, and the gearing and shafting to operate the cutting apparatus secured to, and supported by, said frame and axle between the two driving-wheels, and the cutting apparatus connected to said frame within or between the planes of said driving-wheels, substantially as and for the purpose set forth.

7. The frame of a mowing-machine or harvester, composed of one piece, mounted upon, and supported by, the axle, as set forth, and having one side or arm hollow or dished, by which the crank-shaft to operate the cutting apparatus is saddled, substantially as described.

7,845. PARLOR-SKATES. Cyrus W. Saladee, Washington, D. C. Patent No. 177,500, dated May 16, 1876. [Filed Aug. 10, 1876.]



1. A parlor-skate supported by rollers at the front and rear, having caster-like attachments and movements, and arranged to operate substantially as set forth, for the purpose specified.

2. A parlor-skate supported at each end by a roller or rollers, capable of a limited caster-movement round a pivot in front of the axle, and retreated by a spring, substantially as and for the purpose set forth.

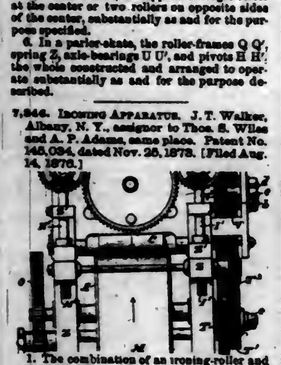
3. A parlor-skate in which the foot-stock, supported by front and rear caster-rollers, has its bearing at each end upon a roller-frame in front of the roller-axle, substantially as and for the purpose set forth.

4. A roller-skate in which the stock has its bearings upon the roller-frames, and one of the latter bears upon and counterbalances the other, substantially as and for the purpose set forth.

5. The combination, in a parlor-skate, of roller-frames and axles, constructed substantially as described, to support a single roller at the center or two rollers on opposite sides of the center, substantially as and for the purpose specified.

6. In a parlor-skate, the roller-frames Q Q^1, spring Z, axle-bearings U U^1, and pivots H H^1, the whole constructed and arranged to operate substantially as and for the purpose described.

7,846. IRONING APPARATUS. J. T. Walker, Albany, N. Y., assignor to Thos. S. Wiles and A. P. Adams, same place. Patent No. 145,094, dated Nov. 25, 1873. [Filed Aug. 14, 1876.]



1. The combination of an ironing-roller and a clothed roller with another clothed roller and ironing-roller, all arranged and geared together so as to iron articles first on one side only, and next on the other side, all at one progressive operation, substantially as described.

2. The clothed roller B and ironing-roller D, in combination with the ironing-roller E and clothed roller A', and the intermediate guide, all arranged to operate substantially as described.

3. The ironing-roller C' and clothed roller A, in combination with the clothed roller B and ironing-roller D, and the intervening guide or guides, substantially as described.

4. The combination of the clothed rollers A, B, and A' with the ironing-rollers C', D, and E, and intervening guides, substantially as set forth.

5. The combination of a clothed roller, A, and two ironing-rollers, C C', constructed so as to be heated internally, and both arranged and geared to turn in surface-contact with the said clothed roller, and furnished with an intervening clearing-guide, substantially as described.

6. Two or more ironing-rollers and two or more clothed rollers, combined so as to iron articles first on one side, and next on the other side, and mounted in stationary and movable frames, by which the clothed and ironing rollers can all be separated at once, substantially as described.

7,847. STOCKING AND SKIRT HOLDERS. Andrew Warren, Waltham, Mass. Patent No. 159,201, dated Feb. 2, 1875. [Filed July 14, 1876.]



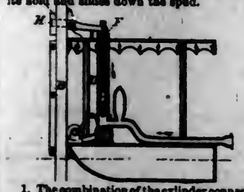
1. The metallic stocking-holder composed of the enlarged portion at the top, and converging sides flat on their faces, and provided with holding-edges, substantially as and for the purpose set forth.

2. The holder adapted for attachment to the band or strap of a stocking-supporter, having an opening enlarged at the top and contracted at the bottom, to form a slot having converging sides with flat faces *f f* and holding-edges *e e*, as set forth.

3. The combination, with the strap or band *s* of a stocking-supporter, of a holder having an opening enlarged at the top and merging downward into a narrow slot, provided with flat faces and holding-edges, and constituting the sole means for retaining the stocking, as set forth.

7,848. HYDRAULIC LIFTS. James Canan, Fort Colborne, Ontario, Canada, assignor of one-half interest to John Burrow, Walter Chatfield, and Albert Chatfield. Patent No. 177,372, dated May 16, 1876. [Filed Sept. 27, 1876.]

Brief.—The working-cylinder, receiving power from a force-pump, is provided with a piston, the rod of which is connected with a lever-clamp, which gripes the spud or anchor, and as the piston ascends it is raised with it, and as the piston descends the clamp relaxes its hold and slides down the spud.



1. The combination of the cylinder connected with a force-pump, and provided with a plunger, F, a clamp, H, and spud or anchor, substantially as shown and described, whereby the clamp is caused to gripe the spud as the plunger is forced out and to slide down on the same when the plunger recedes, as specified.

2. The combination, with the spud or anchor, of the cylinder and plunger, the same being suitably connected and arranged to operate substantially as herein shown and described.

7,849. FASTENINGS FOR GARMENTS. Wm. G. Cook, New York, N. Y., assignor, by mesne assignments, to Geo. Frost, Boston, Mass. Patent No. 50,064, dated May 29, 1866. [Filed Aug. 14, 1876.]



A metallic holder for garments, constructed substantially as described, having at one end an expanded mouth, opening into a longitudinal tapering slot, adapted to receive and hold the material, all substantially as set forth.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

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OF THE

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

NOTICE TO MANUFACTURERS AND OTHERS.

UNITED STATES PATENT OFFICE,
Washington, D. C, September 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 17, 1876.]

9,590.—Bracelets.—HENRY CARLISLE, Jr., Philadelphia, Pa. Application filed September 14, 1876. Term of patent 3½ years.

9,591.—Spoons.—HENRY W. HIRSCHFELD, West Meriden, Conn., assignor to THE MERIDEN BRITANNIA COMPANY, same place. Application filed August 21, 1876. Term of patent 14 years.

9,592.—Floor Oil-Cloths.—JEREMIAH MEYER, Lansingburg, N. Y., assignor to D. POWERS & SONS, same place. Application filed October 4, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 17, 1876.]

4,051.—Truffles.—BONFILS BROTHERS & CO., Carpentras, France. Application filed September 29, 1876.
"A representation of the figures of a pig and man."

4,052.—Cigarettes.—DAVID WILLIAM DE FOREST, Brooklyn, N. Y. Application filed October 10, 1876.
"A crown and scepter on a cushion, beneath which are ribbons forming a triangle."

4,053.—Natural Mineral Water.—RICHARD DUNBAR, Waukesha, Wis. Application filed September 27, 1876.
"The words 'Dunbar's Wonderful Discovery; Bethesda.'"

4,054.—Scarfs and Ties.—FISK, CLARK & FLAGG, New York, N. Y. Application filed September 30, 1876.
"The word-symbol 'BRUNSWICK.'"

4,055.—Cigars.—S. FUGUET & SONS, Philadelphia, Pa. Application filed September 28, 1876.
"The representation of a key."

4,056.—Articles of Ivory.—F. GROTE & CO., New York, N. Y. Application filed August 16, 1876.
"A pictorial illustration, in which are embraced a savage, tusks, elephants, mountains, and trees, arranged as follows, viz., a nude (except sash) savage standing between two ivory tusks, dexter and sinister; the tusks and savage are resting upon two other tusks crossed beneath, and mountains are in the background. Underneath the crossed tusks are two elephants, one in full view, the other partly concealed. The whole is artistically surrounded by trees."

4,057.—Flea-Destroying Powder.—LAZELL, MARSH & GARDINER, New York, N. Y. Application filed August 24, 1876.
"The compound word-symbol 'FLEA-KILLER.'"

4,058.—Lanterns.—EDWARD MILLER & CO., Meriden, Conn. Application filed October 4, 1876.
"The word-symbol 'Tempest.'"

4,059.—Cigars.—JUAN B. ROMERO, Key West, Fla. Application filed September 22, 1876.
"The Spanish coat of arms and the trophies of war, lions, &c., arranged at both sides of the coat of arms on the base or pedestal."

4,060.—Fever-Medicine.—FRANK H. SHELHORST, Belleville, Ill. Application filed August 4, 1876.
"A heavy stone arch, bearing three heavy stone pillars, placed in a line over the center of the arch from right to left, the heaviest in the center, and each of these pillars has a cap on the top, tapering to a point; second, a pair of scales, suspended over the arch and pillars from right to left, embracing the pillars."

4,061.—Medical Preparation.—JOHN N. SOLOMONS, Bayonne, N. J. Application filed September 25, 1876.
"The word-symbol 'DIGESTINE.'"

4,062.—Medicated Plasters.—SEABURY & JOHNSON, New York, N. Y. Application filed September 29, 1876.
"Word 'Capcine.'"

4,063.—Shirts, Shirt-Fronts, Drawers, and Overalls. SAMUEL STERNBERGER, Philadelphia, Pa. Application filed September 28, 1876.
"Word-symbol 'PEARL' and the figure of a scalloped disk."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 17, 1876.]

839.—Title: "**Antiseptic Wadding.**"—CHARLES G. AMENDE, Hoboken, N. J. Application filed October 10, 1876.

840.—Title: "**Antiseptic Cotton.**"—CHARLES G. AMENDE, Hoboken, N. J. Application filed October 10, 1876.

841.—Title: "**Borated Cotton.**"—CHARLES G. AMENDE, Hoboken, N. J. Application filed October 10, 1876.

842.—Title: "**Borated Wadding.**"—CHARLES G. AMENDE, Hoboken, N. J. Application filed October 10, 1876.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

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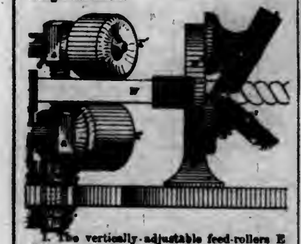
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED OCTOBER 17. 1876.

182,943. SPIRAL-MOLDING MACHINES. E. F. Abbott, Albany, N. Y. [Filed Sept. 17, 1874.]

Brief.—Pieces of wood of any desired length and of varying diameters can be cut with either right or left hand spirals by means of vertically-adjustable cutters secured to a pivoted head, vertically-adjustable feed-rollers attached to shafts having their axial lines at acute angles with each other, and supported in adjustable bearing-standards of unequal length, adjustable guides, and suitable operating mechanism.



1. The vertically-adjustable feed-rollers E E', secured to the shafts D D', and so placed that their axial lines will be at acute angles with each other, in combination with the gears F F', by which the said rollers are revolved, substantially as and for the purpose set forth.

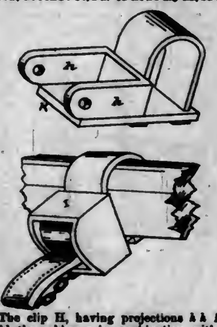
2. In combination with the feed-rollers E E', carried by the shafts D D' placed at acute angles, the bearing-standards B B' and C C', of unequal lengths, provided with screw-threads on their entire lengths, and secured to the base-plate in an adjustable manner by the nuts *f f'*, substantially as and for the purpose set forth.

3. The cutter-head H, composed of the stationary piece H', cutter-holders H², and cutters H³, in combination with the vertically-adjustable feed-rollers E E', having their axial lines crossing each other, substantially as and for the purpose set forth.

4. The cutter-holders H², composed of the base A, provided with the pivot *h'*, and the bracket *h*, provided with slot *i*, in combination with the stationary piece H', substantially as and for the purpose set forth.

5. In combination with the vertically-adjustable feed-rollers E E', having their axial lines crossing each other, and the stationary piece H' of the cutter-head H, the hollow centering-piece L, and the adjustable guides M M, substantially as and for the purpose set forth.

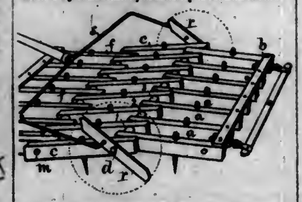
182,944. TELL-COUPLINGS. J. W. Anderson, Green P. O., Pa. [Filed July 12, 1876.]



The clip H, having projections *h h* K to hold the rubber *g*, in combination with the thill-iron *a*, bolt *p*, and the cap I, having an angular recess, *i*, and binding-screw *k*, all substantially as shown and described, and for the purpose set forth.

182,945. FLEXIBLE HARROWS. John A. Anderson, Des Moines, Iowa. [Filed Apr. 1, 1876.]

Brief.—A flexible harrow with short bars attached to each other by rods running transversely through their ends, all of which can be raised by tumblers operated by a forked lever.



1. The series of short teeth-bearing bars *a e f*, the end cross-bars *b g*, the connecting-rods *d m*, the series of blanks 1 2 3, the tumblers *r r*, and the forked lever *t s*, all arranged and combined substantially as and for the purposes shown and described.

2. The pivoted tumblers *r* and lever *s t*, in combination with a harrow, substantially as and for the purposes set forth.

182,946. CAR-COUPLINGS. F. M. Andrews, Natick, Mass. [Filed Sept. 11, 1876.]



The combination of the staple I, provided with the notch *f* and the latching-catch *e*, as described, with the notched bolt-retractor H, horizontal slide-bolt D, spring E, bolt-stopper F, and its actuating-spring G, all being applied together and to the platform A, coupling-head B, and bolt-case C, substantially as set forth.

182,947. HINGES FOR GLASS ARTICLES. R. Bakewell, Jr., Pittsburg, Pa. [Filed Aug. 3, 1876.]



The glass mug or like article, having the handle or lug perforated for the passage of the pintle, and in combination with the hinge-joint, in the manner and for the purpose specified.

182,948. REHANDS FOR MILLSTONES. G. L. H. Behrns, Lubeck, Germany. [Filed Jan. 15, 1876.]

1. The improvement in the construction of millstone-casings, the same consisting of the exterior casing C, the interior metal plating D, and the intermediate non-conducting material E, substantially as and for the purpose set forth.

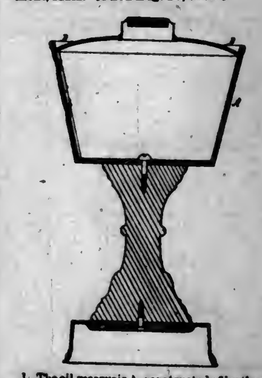
2. The inclosing-band I, in combination with the ring H, fixed to the upper stone, and the ring J, suspended from said band I, the two rings having a tongue and groove, respectively, on adjacent faces, substantially as and for the purpose set forth.

3. The discharge-spout with the bend M and the screw N, for preventing ingress of air to the casing by the flour-spout, substantially as herein described.

4. The grating and screen P and Q, for sifting the air on its way to the exhaust-pipe, substantially as herein described.

5. The combination, with the millstone-casing, of the exhaust-pipe G, having its bend internally lined with non-conducting material E and metal plating D, and the portion G' below the bend unlined, substantially as and for the purpose set forth.

182,949. LAMPS. Thomas W. Brown, Belmont, Mass. [Filed Aug. 26, 1876.]

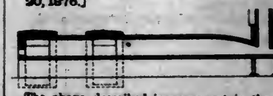


1. The oil-reservoir A, constructed of leather-board, and provided with a metallic guard, D, applied to its upper edge, and arranged to project above the upper head, all being substantially as set forth.

2. The lamp as composed of the mineral base, the wooden standard, and the leather-board oil-reservoir, with its lining or covering of glass, all arranged as specified and represented.

3. The oil-reservoir, having its sides composed of a sheet of leather-board perforated in the laps, and provided with one or more sheets of mica or transparent material, arranged with the perforations and between the laps, as set forth.

182,950. MANUFACTURE OF HORSESHOES. James A. Burden, Troy, N. Y. [Filed Mar. 20, 1876.]

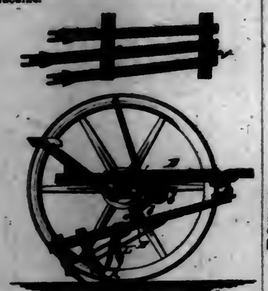


The above-described improvement in the manufacture of horseshoes by machinery, consisting in passing the horseshoe-bars, after they have left the rolls, and while they are still highly heated, through an intermediate furnace, and thence into the cutting and bending machine, substantially as and for the purpose specified.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

183,841. COMBINED CULTIVATOR AND MOLDY-PLOW. Jacob Henry Cole, Danville, Pa. [Filed Sept. 5, 1876.]

Brief.—The cultivator-bars are all pivoted to a common cross-bar. These are all simultaneously adjusted vertically or horizontally by independent levers. The cultivator-beams can be removed and gang-plows introduced without any change in the other parts of the machine.



1. The combination of the pivoted tongue D, the sliding and rotating shaft *b*, connected to the tongue and to the beams, the lever I, shaft *k*, with arm *k'*, and link *i*, substantially as and for the purposes herein set forth.

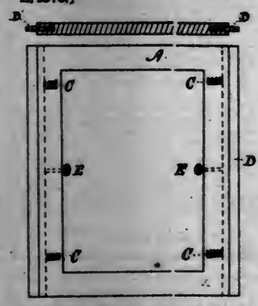
2. In a cultivator or sulky-plow, a single shaft, *b*, sliding and rocking in bears *a a*, and connected to the plow-beams, in combination with two separate and independent levers, whereby the plows may be raised and lowered and moved laterally, substantially as herein set forth.

183,842. STEAM-PACKING. Thomas Colvin, New York, N. Y. [Filed Mar. 11, 1876.]



The new article of manufacture composed of india-rubber, fibrous braids, and plumbago, combined in the manner and for the purpose described.

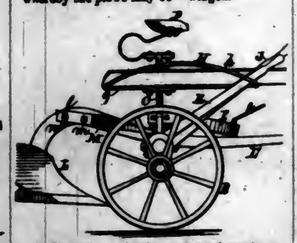
183,843. WINDOW-SCREEN. Benjamin F. Cunningham, Taunton, Mass. [Filed Mar. 11, 1876.]



A window-screen composed of the frame A, for holding the wire or cloth, the two sides of which frame are grooved, in combination with the strips D, springs C C, rods E, having knobs or rings on their inner ends, to keep the strips in place and allow removal, all constructed and arranged as set forth.

183,844. SULKY-PLOWS. Geo. Curtisdall, Davenport, Iowa. [Filed May 24, 1876.]

Brief.—A triple-crank axle—one end crank rigid, the other adjustably attached. An adjustable lever operates the rigid end and central crank of the axle, to which the plow-beams are secured. The adjustable crank is operated by a lever secured thereto. Both of said levers work upon the same segment-bar. Braces attached to the axle, and having their rear ends slotted, are pivotally secured by a bolt to the plow-beam near their slotted ends. An additional bolt passes through the slots 1, whereby the plows may be "winged."



1. The axle A, having a central crank, *a*, and side cranks *a' a''*, and horizontal parts A' A'', arranged to operate with one or more plows, L, attached to the central portion of the axle, and with arch C, substantially as described, and for the purpose specified.

2. The axle A, having central crank *a* and side crank *a''* rigidly connected thereto, and side crank *a''* adjustably attached thereto, for operation with one or more plows, L, arch C, and wheels B B', substantially as described, and for the purpose specified.

3. The lever J, arranged to operate with the cranks *a a'*, arch C, plow L, wheels B B', and crank *a''*, substantially as and for the purpose set forth.

4. The lever K and adjustable crank *a''*, combined with the axle A, having cranks *a a'*, substantially as and for the purpose specified.

5. Levers J and K, attached respectively to the axles *a*, *a'*, and *a''*, and arranged to both operate upon the same segment-bar H, as and for the purpose set forth.

6. The braces M, attached at their forward ends to the axle A, and at their rear ends to the beams L by a pivotal bolt, *n*, and a bolt, *n'*, through a slot, *m''*, substantially as and for the purpose specified.

7. The arch C and tongue G, combined with the triple crank-axle A, plow L, and wheels B B', substantially as and for the purpose specified.

8. The arch C and tongue G, combined with the triple crank-axle A, plow L, wheels B B', driver's seat D, levers J K, and segment H, substantially as and for the purpose specified.

183,845. BREECH-LOADING FIRE-ARMS. B. G. Dorchester, Sioux City, Iowa. [Filed June 8, 1876.]

Brief.—An intermediate forked lever is pivoted in the trigger-plate. In unlocking the breech-block the support bears against one end of said lever, and presses the other end of said lever against the breech-block below its axis, and forces it open. In closing the breech the action upon the lever is reversed, and the breech-block support is forced into its place.



In a breech-loading fire-arm, the combination of the breech-block *a*, breech-support *b*, having the connecting-lever *d* arranged between the two, hammer *c*, springs *h* and *i*, and cartridge-extractor *e*, the several parts being arranged in relation to each other, substantially as and for the purpose described.

183,846. FINGER-NAIL TRIMMERS. William C. Edge, Newark, N. J. [Filed Sept. 28, 1876.]

Brief.—A concave cutter is attached to a pivoted bar, and another to the frame of said bar. A slide locks the cutter-bars in a closed position.

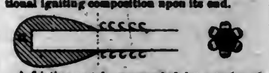


1. A finger-nail trimmer, consisting of the stationary concave cutter A, attached to the frame C, and of the movable concave cutter B, attached to the pivoted bar D, substantially as herein shown and described.

2. In combination with the shell or frame C, having the cutter A, and with the pivoted bar D, having the cutter B, the movable latch *d*, substantially as specified.

183,847. MATCH-SPLINTS. C. A. French, Davenport, Iowa. [Filed Aug. 5, 1876.]

Brief.—A series of shavings are cut around the body of the match, near its head, without entirely disengaging them therefrom, for the purpose of rendering the body of the match more easily ignited by the burning of the frictional igniting composition upon its end.



A friction-match surrounded by a series of partially-disengaged shavings, substantially as and for the purpose hereinbefore set forth.

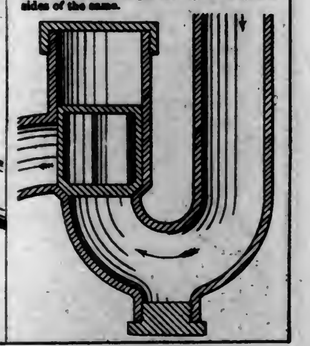
183,848. MATCH-SPLINTS. C. A. French, Davenport, Iowa. [Filed May 5, 1876.]

Brief.—One end of the match-splint is split into a number of parts, which remain slightly separated from each other, for the purpose of rendering the body of the match easily ignitible from the heat engendered by the burning of the composition upon its end.

As a new article of manufacture, a match-stick having one of its ends split or divided, substantially as and for the purpose hereinafter set forth.

183,849. SEWER-TRAPS. Thomas Guerin, San Francisco, Cal. [Filed June 30, 1876.]

Brief.—As the valve lifts to allow the water to flow through the trap the confined air above the valve escapes through the top and sides of the same.

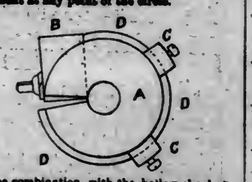


1. The plunger of polished brass or other incorrodible metal, with its openings on the top and sides.

2. In a trap, the combination of the polished brass valve, as shown, and the beveled valve-seat of incorrodible metal.

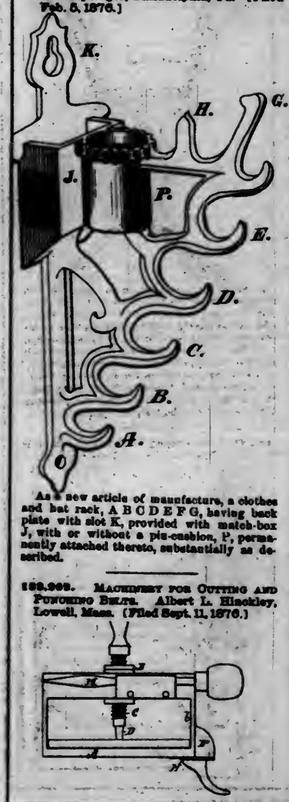
183,850. BALANCING REVOLVING CUTTER-HEADS. Albert Hall, Willington, Conn. [Filed Apr. 19, 1876.]

Brief.—The balance-weights are secured to a dovetail projection upon the periphery of the cutter by set-screws, which allow of their adjustment at any point of the circle.



The combination, with the hollow cheek A and cutter B, of two or more balance-weights, C C, when these balance-weights are secured upon the periphery of the cheek by the annular dovetailed groove or flange D, so as to slide freely upon its periphery, and to be adjusted in their required positions by the set-screws *a c*, substantially as and for the purposes herein set forth.

183,851. HAT AND CLOTHES RACKS. Isaac W. Heysinger, Philadelphia, Pa. [Filed Feb. 5, 1876.]



As a new article of manufacture, a clothes and hat rack, A B C D E F G, having back plate with slot K, provided with match-box J, with or without a pin-cushion, P, permanently attached thereto, substantially as described.

183,852. MACHINERY FOR CUTTING AND PUNCHING BELTS. Albert L. Hinckley, Lowell, Mass. (Filed Sept. 11, 1876.)

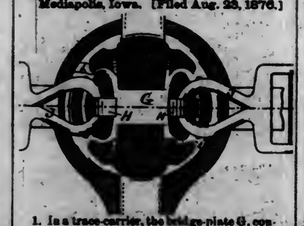
183,853. DISINFECTING AND DEODORIZING WATER-CLOSETS AND URINALS. Edward Howard, Mount Vernon, N. Y. [Filed Feb. 17, 1876.]

Brief.—The water, before reaching the closet, passes through the disinfecting-vessel shown.



In combination, the vessel A, inlet-pipe D, outlet-pipe F, said vessel A having a screw-cap, C, for introducing deodorizing material.

183,854. TRACE-CARRIERS. Jos. D. Hobbs, Mediapolis, Iowa. [Filed Aug. 28, 1876.]



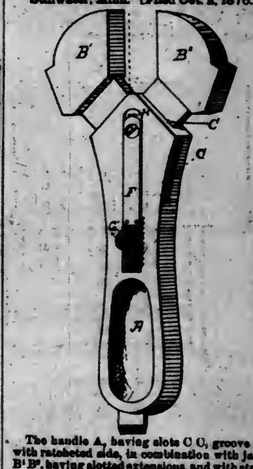
1. In a trace-carrier, the bridge-plate G, constructed as described, and supported between the bars F, rising from the ring A, and arranged to operate with the hooks H, bars I, and eyes J, substantially as described, and for the purpose specified.

2. A trace-carrier consisting of ring A, bars F and I, plate G, hooks H, and spring A, all constructed and arranged substantially as described, and for the purpose specified.

183,855. SWINGING OUTRIGGERS FOR ROW-BOATS. G. W. Lemon, Jr., New York, N. Y. [Filed Nov. 13, 1876.]

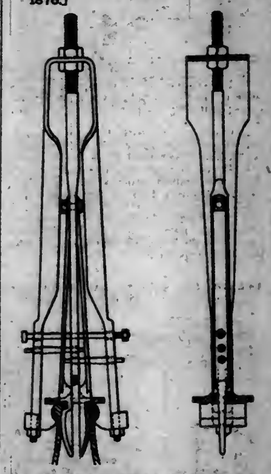
The swinging arms or cranes A A, hung upon each side of the boat A at *m*, operating to increase the speed of the boat by the action of the oars upon the extreme outer ends or fulcrums of said arms at different angles, in combination with suitable mechanical devices operating upon the inside of the boat A, substantially as and for the purpose set forth.

183,856. WRENCHES. Charles M. Jordan, Stillwater, Minn. [Filed Oct. 2, 1876.]



The handle A, having slots C C, groove H, with ratcheted side, in combination with jaws B' B', having slotted extensions, and with strap F, pivoting-pin D, and spring-dog G, as and for the purpose described.

183,857. GLASS-TOOLS. John Lamont, Glasgow, North Britain. [Filed May 29, 1876.]



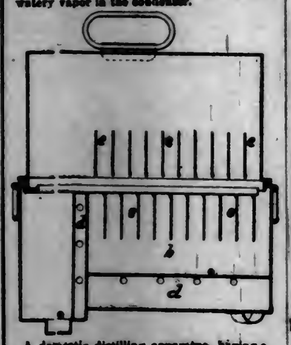
1. In a spring hand-tool for forming simultaneously the outer and inner parts of necks of bottles, the combination of the self-opening outer formers, the self-closing inner formers, and the pushing-studs *a''' a'''*, each projecting through one of the stops or supports of the inner formers and through the central spindle or bar *b*, and both acting when the apparatus is compressed in the hand to shut

against its opposite spring a', substantially as and for the purpose set forth.

2. The combination, in a hand-tool for forming the necks of bottles with a rim or groove, A, within the same, of the exterior formers a' a'' a''', the interior formers a a' a'', studs a''', spindle and disk b b', and cross-pin or guide d, substantially as shown and described.

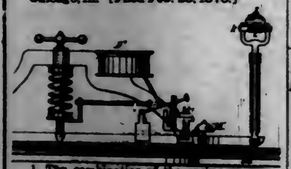
182,966. DOMESTIC DISTILLING APPARATUS. T. L. Lynch, Jersey City, N. J. [Filed Aug. 24, 1876.]

Brief.—Water is distilled and condensed for the purpose of purifying it. Air-chambers with perforated sides are provided—one below the condenser, and one between it and the still, for the purpose of keeping it sufficiently cool. Vertical plates assist in condensing the watery vapor in the condenser.



A domestic distilling apparatus, having a distilling-chamber, a, condensing-chamber b, condensing-plates c, and air-passages d, constructed as and for the purpose described.

182,969. REALTY-LIFTS. James P. Marsh, Chicago, Ill. [Filed Feb. 26, 1876.]



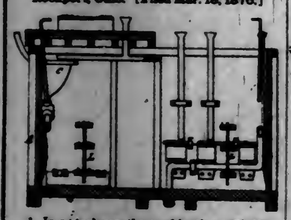
1. The combination of the spring-pressure plate I with the grasping-piece K of the handle, substantially as and for the purpose specified.

2. In combination with the spring-pressure plate I and grasping-piece K of the handle, the cushion L, substantially as specified.

3. The combination of the indicating-plate M' with the indicating-dial F and signal-ball, substantially as and for the purpose specified.

4. The combination of the lifting-lever, pawl, and ratchet-arm, whereby the lever is held at any adjusted point against the resisting force exerted on the lever, substantially as and for the purpose specified.

182,970. STOCK-CARS. Benj. Martin, East Rockport, Ohio. [Filed Mar. 18, 1876.]



1. In a stock-car, the combination, with the water-tanks C C, secured to the corners of the car, diagonally opposite each other, with water and feed hoses, arranged along the opposite sides of the car, diagonally opposite each other, substantially as and for the purpose set forth.

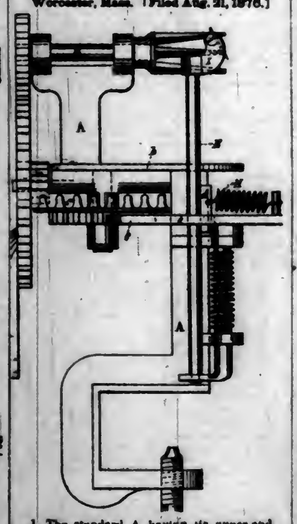
2. The combination, with the feed and water troughs h h', of the water-trough covers, and a single rock-shaft for operating them, substantially as and for the purpose specified.

3. The combination, with the flexible partitions L, of independent tightening devices, constructed to be adjusted to engage with the several loops of the partition, substantially as and for the purpose specified.

4. The combination, with the partitions L, of tightening devices, consisting, essentially, of bracket O, adjustable fulcrums P, and lever R, substantially as and for the purpose set forth.

5. The two tanks, located at diagonally opposite ends of a car-deck, and adapted to be filled from a common receiving-conduit, in combination with independent supply-pipes, provided with exterior valve-connecting mechanism and a final discharge-outlet, said supply-pipes connecting with stationary interior drinking-vessels, located above same, substantially as and for the purpose described.

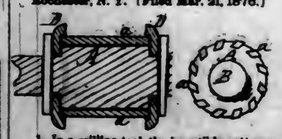
182,971. APPLE-PARERS. J. D. Scogrove, Worcester, Mass. [Filed Aug. 21, 1876.]



1. The standard A, having its upper and lower parts connected by means of the horizontal plate b, cast therewith, substantially in the manner and for the purpose set forth.

2. The knife-shaft E, having a lug, d, cast on one side, for the connection of the tension-spring H, and to prevent the shaft turning in the slot c of the notched sector-plate, substantially as set forth.

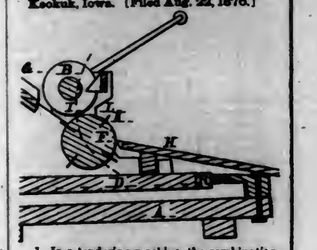
182,972. MILLING-TOOLS. Jos. M. Smith, Rochester, N. Y. [Filed Mar. 21, 1876.]



1. In a milling-tool, the insertible cutters a, constructed of diamond shape in cross-section, with opposite cutting-edges, whereby the cutters may be reversed, as and for the purpose specified.

2. The combination, with the milling-head A, constructed with grooves and with insertible cutters a a fitting in the grooves, of the shouldered flanges or rims D D, clamping the cutters in place in the head, as and for the purpose specified.

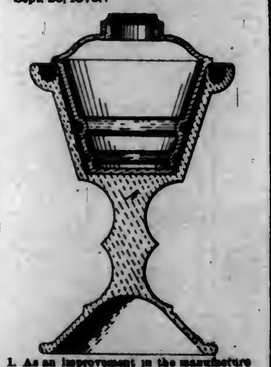
182,973. MEAT-TENDERERS. J. W. Smith, Keokuk, Iowa. [Filed Aug. 22, 1876.]



1. In a tendering-machine, the combination with the feeding-board G and table H, the cutting-roll B, having annular cutting-blades i, and the feeding-roll F, having the longitudinal series of teeth K, as and for the purpose substantially as set forth.

2. The combination of tables A D, cylinders B F, and tables G H, arranged to act together, substantially as set forth.

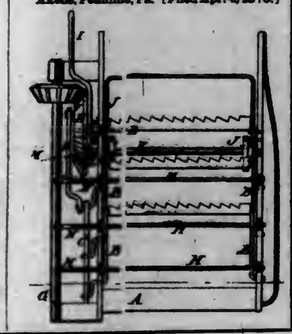
182,974. MANUFACTURE OF GLASSWARE. John Adams and Jacob Bonshire, Pittsburg, Pa., assignors to Adams & Co. [Filed Sept. 20, 1876.]



1. As an improvement in the manufacture of glassware of the class specified, first forming the bowl and its cup-base independently, and subsequently uniting the two by cement, substantially as and for the purpose specified.

2. The hollow article of glassware herein described, composed of the independent bowl and cup-base sections, the two being united by a cement, and inclosing the ornamentation in the space between the sections, substantially as and for the purpose specified.

182,975. HARVESTER-DROPPERS. Wm. H. Akers, Pennline, Pa. [Filed Apr. 4, 1876.]

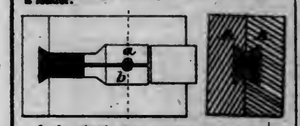


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The combination of the balls B, the fingers H, and the guard-ball J, with the connecting-bars C D, gear-wheels E F, lever I, shaft K, fork L, and pin M, by which said balls, fingers, and guard-ball are operated in connection with each other and the platform of a reaper, substantially as herein shown and described.

182,976. EXTENSION-TABLE SLIDES. Saml. B. Alexander, Springfield, Ohio, assignor to Hiram P. Wright and Justus V. Elster. [Filed Sept. 12, 1876.]

Brief.—A divided tongue, having a spring interposed between the two parts, one of the parts being loose. A fixed tongue, narrower than the divided tongue, is placed before it as a leader.

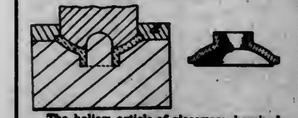


1. An elastic tongue for extension-table slides, constructed in two separate pieces, being horizontally divided, and a spring of rubber, or its equivalent, interposed between them, as shown and specified, for the purpose set forth.

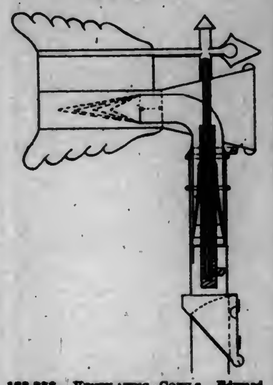
2. In combination with sections a and b and spring c, or its equivalent, slide-sections A, with their grooves a', as and for the purpose herein before set forth.

3. In combination with the elastic tongue shown and specified, the sectional solid leader d, made slightly smaller than the former, for the more easy introduction of the same into the groove of the slide, the two tongue-sections being arranged relatively to each other and to the slide as set forth.

182,977. MANUFACTURE OF HOLLOW GLASSWARE. Thomas B. Atterbury, Pittsburg, Pa., assignor to himself and Jas. S. Atterbury, same place. [Filed Sept. 23, 1876.]



The hollow article of glassware, herein described, composed of pressed sections, having marses or offsets upon the receiving sections, and united by cement, substantially as and for the purpose specified.

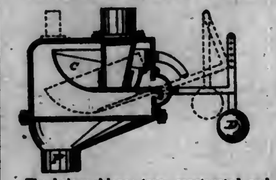


182,978. VENTILATING-COWLS. Edward G. Banner, London, England. [Filed Sept. 27, 1876.]

Brief.—The under side of this chamber, into which the air-pipe is led, is inclined obliquely, and upon it rests a plate of mica, or other light material, which is placed loosely in the chamber, without being attached in any way. Its lower end rests in the lower angle of the chamber, and it rises and falls as on a hinge. Being very light, it is raised by the slightest upward current, but falls immediately the upward current ceases, and effectually prevents any down-draft.

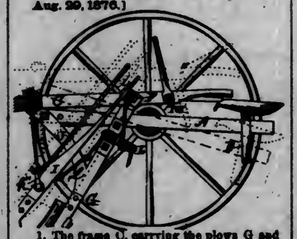
The improved combined ventilating apparatus consisting of a cowl constructed and proportioned as herein specified, in combination with a valve for preventing down-draft, constructed substantially as described.

182,979. DRAIN-TRAPS. Edwd. G. Banner, London, England. [Filed Sept. 27, 1876.]



The balanced-lever trap, constructed and operating substantially as herein shown and described, and consisting of the oscillating valve cup or pan C, carried by a lever provided with a counter-balance, in combination with the containing-cone and the soil-pipe B, which dips into and is closed by the said valve cup or pan, substantially as and for the purpose described.

182,980. CULTIVATORS. Chas. A. Bentley, Canton, Ill., assignor of one-half his right to Martin Hoffman, same place. [Filed Aug. 29, 1876.]



1. The frame C, carrying the plows G and I, and tongue D, pivoted to the frame A, and arranged to operate with the rock-shaft M, cranks m, and hand-lever m', substantially as and for the purpose specified.

2. The seat-support, constructed as described, of a truss-frame, and adjustably seated on the bars C, substantially as and for the purpose specified.

182,981. PROCESSES OF PREPARING MOSS. Geo. H. Blake, Portland, Me. [Filed Mar. 7, 1876.]

The process above described of treating hanging moss or southern moss by artificial heat, substantially as and for the purposes set forth.

182,982. STRIPING IMPLEMENTS. Chas. H. Carr, Frederick Reif, and Robert M. Arey, Cincinnati, assignors to Cincinnati Coffin Company, Cincinnati, Ohio. [Filed June 23, 1876.]

Brief.—A holder with a striping-wheel at its end has arms projecting upward, to which is pivoted a vibrating frame. Within this frame a distributing-roller, having a free longitudinal movement, revolves upon a shaft, which, by means of slotted arc-plates in the frame and a nut to hold it in position, may have its angle of inclination to the axis of the striping-wheel slightly changed. Graduated scales on the arc-plates indicate the proper relative position of each end of the shaft. Extending out from the pivot on the opposite side from the frame is a thumb-piece, which may be pressed upward by a spring, thus causing the distributing-roller to come in contact with the striping-wheel, and when the machine is put in motion, the striping-wheel, by leaving a spiral track upon the distributing-roller, takes off the paint from the entire surface.

1. A striping implement consisting, essentially, of a holder, A O O', carrying the rotating striper D, said holder having applied to it a vibrating frame whose shaft has journaled upon it a distributing-roller, N, the latter being maintained in contact with the periphery of wheel or disk D by a spring, substantially as described.

2. In connection with the holder A O O', wheel or disk D, vibrating frame H I J J', shaft K, and distributing-roller N, the spring P and tension device O o', as and for the purpose specified.

3. The combination of the curved ends J J' of the vibrating frame and shaft K, plates L L', head k, and nut k', for disposing said shaft obliquely to the axis of the striping-wheel, for the purposes set forth.

4. The combination of frame H I J J' j j', shaft K k k', sliding boxes L L', and distributing-roller N, as and for the purpose set forth.

5. In combination with the frame I J j J' j', shaft K k k', shiftable boxes L L', and distributing-roller N, the indicators I P and graduations M M', substantially as described, and for the object explained.

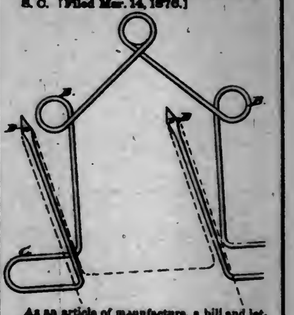


182,983. BUTTER-DISHES. Elijah G. Cate, Bridgeport, Ohio, assignor to La Belle Glass Company, same place. [Filed July 3, 1876.]



As a new article of manufacture, a butter-dish, having a plate, b, surrounded by a raised rim broken or perforated at intervals, a depressed drain-cup outside the same, a cover-seat outside the drain-cup, and a raised annulus, c, inside the cover-seat, substantially as set forth.

182,984. BILL-FILES. Jas. O. Clay, Aiken, S. C. [Filed Mar. 14, 1876.]



As an article of manufacture, a bill and letter file, constructed of wire bent to form the loops A B B and projecting arms C C, and having eyes in the flattened and pointed ends of the needles D.

182,985. STRAW-CUTTERS. J. Q. Crosby, Newark, N. J. [Filed Jan. 29, 1876.]

1. The plate b, provided with the hollow axial stud b', secured to the plate or frame a by the clips a^2 and screw a^3, substantially as

2. The hub or bearing c', provided with the dovetail groove c^2, and oscillating plate or arc c, substantially as set forth.

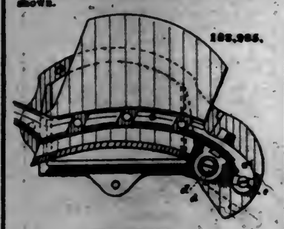
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3. The combination, with the hub d^1, having the groove d^2, and arc or plate c, of the knife-lever c, provided with the screw c^2, having the dovetail-shaped head c^3 and set-screw c^4, as and for the purpose specified.

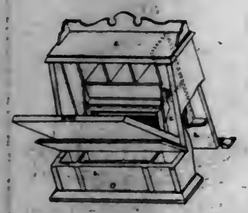
4. The combination, with the frame a, having the extension a^2 and slips a^3, and the knife-lever c, having the extension c^1 and screws c^2 c^3, of the plate b, having hollow axial stud b^1, and hub b^2, having groove b^3, and arc or plate d, all constructed and operating substantially as and for the purpose set forth.

5. The combination of the detachable hub d^1 and plate or arc c with the removable hollow axial stud b^1 and plate b, substantially as shown.

192,995.

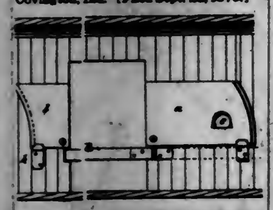


192,996. COMBINED DESK AND SEWING-MACHINE COVER. Adam Cunningham, Billerica, assignor of one-half his right to Daniel S. Kimball, Lowell, Mass. [Filed July 27, 1876.]



The writing-desk A, provided with the recess B, as and for the purpose described.

192,997. GRAIN-CAR DOORS. J. M. DUNCAN, Covington, Ind. [Filed Sept. 23, 1876.]



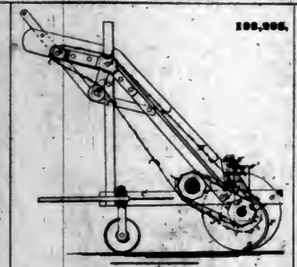
1. A grain-car door made in two parts, each of which is pivoted at the upper and outer corner to one of the car-door parts, and is capable of swinging in a vertical plane, the separating line between the parts of the door being an arc described from the pivot of one of the doors, substantially as herein shown and described.

2. The combination of the vertically-swinging parts a b, the hinged bar B, and brackets g and h, substantially as shown and described.

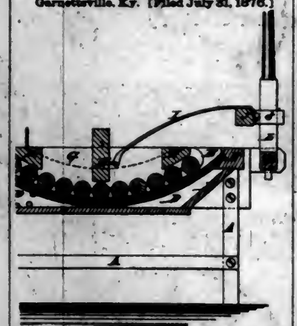
192,998. HAY-LOADERS. Thomas Elliott, Peterborough, Ontario, Canada. [Filed Mar. 13, 1876.]

The combination of the adjustable bars O, the hook-bars n', and the posts N, with the frame C, and the rake N P, substantially as herein shown and described.

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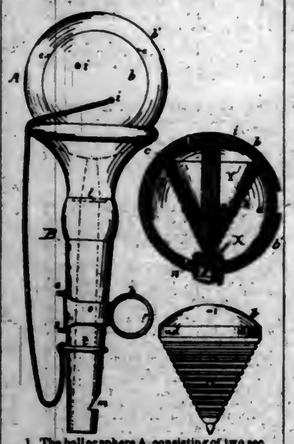
192,999. WASHING-MACHINES. C. Fitch, Garnettsville, Ky. [Filed July 31, 1876.]



The combination of the hinged arms I, the cross-bar J, the keeper K, the lever L, and the rock-shaft M, with the movable rubber F G H and with the suds-box A, substantially as herein shown and described.

193,000. COMBINATION TOYS. W. T. Foster, Trenton, N. J., assignor to S. B. Marshall, same place. [Filed May 12, 1876.]

Brief.—Combines a cup and ball, a peg, a spinning and a humming top, a beam, a whistle, a trumpet, and the handle for spinning the tops, with a receptacle for the cord.



1. The ball or sphere A, consisting of two sections, b b', the section b being provided with a stem, f, and made reversible, substantially as set forth.

2. The combination, with the sections b b', of the movable plug g, having a conical head, as set forth.

3. The combination of the hollow section b' and the detachable conical grooved section b, constituting a peg-top, as set forth.

4. The cone h, detachable from the section b, having a stem, f, extending through the cone, as specified.

5. The combination of the section b, its stem f, and hollow cone h, as specified.

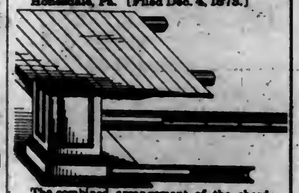
6. The combination of the sections b b', forming the ball A, and having coinciding openings i n, as set forth.

7. The hollow holder B, adapted to the sphere A, and provided with a reed, l, as specified.

8. The hollow holder B, notched at m, and adapted to form a whistle, as specified.

9. The perforated ring p, having pins s, and arranged on the stem of the ball holder, as set forth.

193,001. GRIDDLE FOR BISCUITS. J. Foster, Honesdale, Pa. [Filed Dec. 4, 1875.]



The combined arrangement of the chords and props and the truss-work in the interior of tubular girders, substantially as herein described, and for the purpose set forth.

193,002. CAR-AXLE BEARINGS. Thomas Frame and Andrew Scott, Burlington, Iowa. [Filed Aug. 29, 1876.]



1. The rollers C, constructed as described, of frustro-spheroidal or frustro-spindle form, and arranged to operate with the saddle F, having shoulders f', and box A, substantially as described, and for the purpose specified.

2. The plates D and G, constructed as described, and combined with the saddle F, frustro rollers C, and box A, substantially as and for the purpose specified.

3. The plates E G and D F, combined with the rollers C and box A, substantially as described, and for the purpose specified.

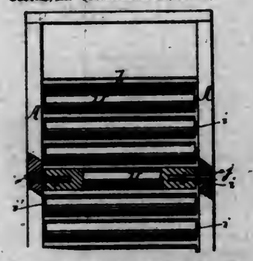
193,003. LAMP-CHIMNEY CLEANERS. D. T. Freese, North Amherst, Ohio. [Filed Sept. 9, 1876.]



1. The covered springs B, spring-pressed slide C, and adjustable handle E, with a rod, A, substantially as and for the purpose set forth.

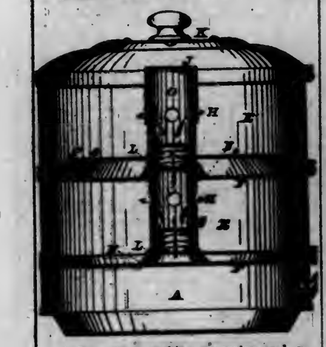
2. A lamp-chimney cleaner consisting of the rod A, covered springs B, slide C, spring D, handle E, and nut F, arranged substantially as herein shown and described.

192,994. WASH-BOARDS. Jos. S. Garner, Galena, Ill. [Filed Mar. 30, 1874.]



In a wash-board, the combination, with a frame, A, having cross-bars b c, top piece d, back board e, of a series of rollers, H H, having independent axes i i working in bearings j j, and provided with disks or washers i' i', applied between the ends of the rollers and the framing A, substantially as shown and described.

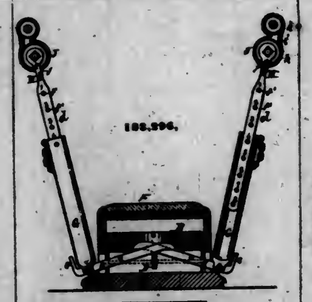
192,995. STEAM COOKING APPARATUS. C. E. Gilbert, Canaseraga, N. Y., assignor of one-half his right to F. B. Brown, same place. [Filed Sept. 26, 1876.]



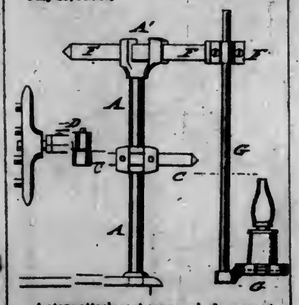
1. In a steam cooking apparatus, such as herein before described, the combination, with the vessels E, of the central conducting-tubes G, removably attached to said vessels by means of the coupling L and socket N, said couplings being provided with flaring flanges corresponding with each other, substantially as hereinbefore described, for the purpose stated.

2. The combination, with the reservoir A, having the spout B and aperture C, of a series of cooking-vessels, E, placed one upon the other, by means of the tapering bottoms F, and each provided with a central conducting-tube, G, having apertures H, the whole constructed and arranged to operate substantially in the manner and for the use and purpose described.

192,996.

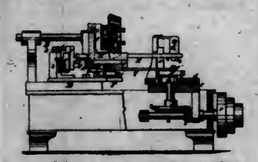


192,997. STOVE-PIPE ATTACHMENTS. G. H. Hancock, Richmond Factory, Ga. [Filed July 15, 1876.]



A stove attachment composed of a supporting-standard, A, attached to stove, with adjustable arms C and F sliding in guide sockets or brackets thereon, and supporting, respectively, a swiveled clothes rack or fork, E, and an adjustable lamp box or bracket, G', substantially in the manner and for the purpose set forth.

192,998. GEAR-PLANERS. Andw. Hanegan, Covington, Ky. [Filed Sept. 9, 1876.]



1. The arrangement, in a gear-planer, of two tool-holders carried by a single rest, and moving independently and oppositely in forming the curve of the sides of the teeth, being guided by a form, representing one side of the tooth, through an arrangement of levers, for simultaneously planing both sides of a tooth of a gear-wheel, substantially as shown and described.

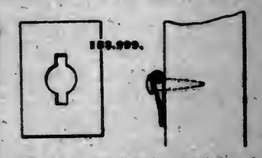
2. The combination of the slide H, support I, tool-holders J K, levers p, and their sliding fulcrum, the slotted bar o, slide n, connecting-rod M, and stud r, substantially as shown and described.

3. The radius-bar E, in combination with the slides f and g, standard h, pin j, form k, and screw i, as herein shown and described.

4. The radius-bar E, in combination with the pivoted bar G, turn-table d, and cam e, substantially as shown and described.

5. The combination of the slotted crank-disk O, adjustable crank-pin w, sectoral arm P, connecting-rod Q, and slide H, substantially as shown and described.

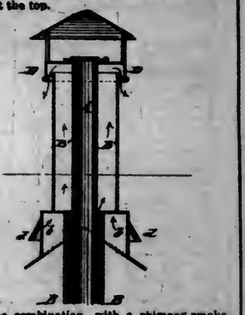
192,999.



The fence-wire fastening, consisting of a folded sheet-metal plate, having a bight taken centrally therefrom, and adapted to be pressed down upon the fence-wire and secured to a post by a nail or wedge driven through the bight and into the post so as to form a tightening-wedge between the wire and the plate, substantially as specified.

193,000. COMBINED CHIMNEY-TOP AND VENTILATOR. Joseph Harmon, Decorah, Iowa. [Filed Aug. 26, 1876.]

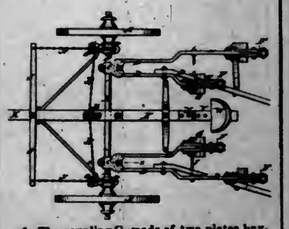
Brief.—Air admitted through apertures in the base of the enlarged part draws the air from the ventilating-tube, which makes its exit at the top.



The combination, with a chimney smoke-flue, A, of a surrounding ventilating-tube, B, provided with an enlarged top part, B', with exit-openings and cap above the base of the chimney-top, the top part B' communicating by bottom apertures a and side apertures b of the base of the chimney top with the exit-openings, to create an air-draft in the ventilating-tube, substantially in the manner and for the purpose set forth.

193,001. CULTIVATORS. Charles R. Hartman, Allison, Ill. [Filed June 26, 1876.]

Brief.—The coupling consists of two pieces that have half-round recesses that fit the axle-tree, and is held by a bolt in front. The rear end of the coupling has in each part a half-round groove, and, when united, forms a semicircular channel for the reception of the bent double beam, thus allowing a lateral motion. A single bolt holds the rear end of the coupling together.



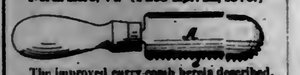
1. The coupling C, made of two plates having half-round grooves near the front and semicircular grooves near the rear, in combination with axle and continuous double beam, as and for the purpose specified.

2. The curved bars E, provided at their lower ends with grooves to receive the plow-standards F, pivoted to the rear ends of the plow-beams D, and provided at their upper ends with wooden break-pins, substantially as herein shown and described.

3. The combination, with the axle B and the guide-pulleys O, of the coupling P, made in two parts, and provided with recesses in their inner surface to receive pins attached to said axle, substantially as herein shown and described.

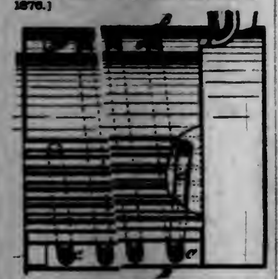
4. The combination, with the axle B and the tongue K, of the coupling L, made in two parts, and provided with recesses in their inner surface to receive pins attached to said axle B, substantially as herein shown and described.

182,202. CURRY-COMB. G. H. Hawrison, North Hero, Vt. [Filed Apr. 22, 1876.]



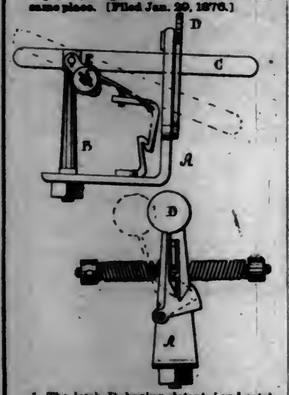
The improved curry-comb herein described, formed of the straight blade A, made convexo-convex in cross-section, and provided with teeth *d*, beveled on each side, and having their points in line, as shown and described.

182,203. FEED-WATER HEATERS. Charles Hewins, Greece City, Pa. [Filed Jan. 3, 1876.]



The combination, with a generator, A, and feed-water pipe C, surrounding or encircling said generator, of the casing E, provided with induction-pipe *a* and eduction-pipe *b*, adapted to direct the exhaust steam into and from the chamber formed between said generator and said casing, as and for the purposes set forth.

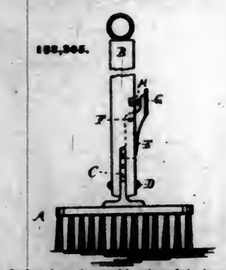
182,204. STOP ATTACHMENTS FOR STEAM-GOVERNORS. Edward R. Hubbard, Chicago, Ill., assignor to Frederick C. Walls, same place. [Filed Jan. 20, 1876.]



1. The latch D, having detent *f* and catch E, in combination with the bar C, bar B, and spring *e*, substantially as and for the purpose specified.

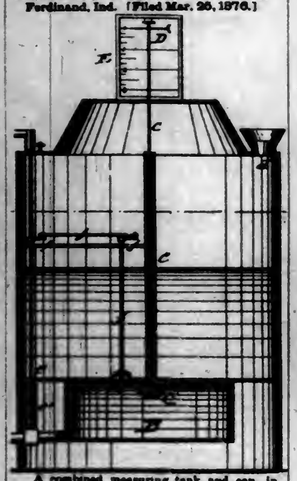
2. The combination of a spring, detent, or catch and operating bar or lever with the latch D, substantially as set forth.

182,205. BRUSH-HANDLES. Orlando Jameson, Boston, Mass. [Filed July 10, 1876.]



In brushes, the combination of the brush A, the handle B, and the adjusting-plate C, when toothed on the top and both sides or edges, with the catch E and its thumb-piece G and spring H, all when constructed and arranged substantially as described.

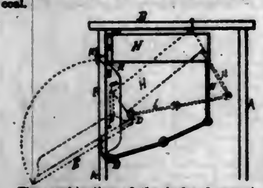
182,206. LIQUID-MEASURES. John F. Judy, Ferdinand, Ind. [Filed Mar. 20, 1876.]



A combined measuring tank and can, in which the tank B is placed under and within the can A, so as to form a part thereof, and having the float C C', which rises up through the can, an index, D, and valves to let the liquid into, and draw it off from, the tank, all arranged to operate substantially as shown and described.

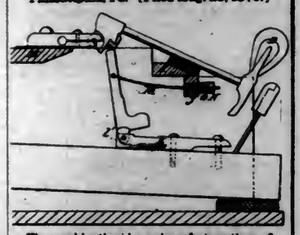
182,207. ASH-SIFTERS. A. M. Ketchum, Schenectady, N. Y. [Filed Sept. 26, 1876.]

Brief.—Turn the button at the top of the door, when weight of coal in sieve dumps it and opens the door, which becomes a spout. Sieve is reciprocated horizontally by the wire handle, on which it pivots on dumping the coal.



The combination of the inclosed case A, having cover B, having a pivoted door and spout, E, and a movable sieve, H, having a pivoted gate, G, spout E and sieve H being connected by rod L and arm N, arranged substantially as and for the purposes set forth.

182,208. PIANO-ACTIONS. M. C. Knabe, Philadelphia, Pa. [Filed Aug. 26, 1876.]



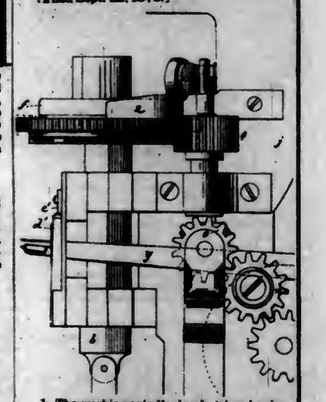
The combination, in a piano-forte action, of the rod M, and its nut N and washer O, with the cheek L and the regulating-rail J, constructed and arranged to operate substantially as herein shown and described.

182,209. SASH-HOLDERS. Emil Lasse, Syracuse, N. Y. [Filed June 9, 1876.]



The wedge-shaped fastener *a*, having the diagonal slot *c* and the outwardly-projecting catch and handle *e*, the outer surface of the flange having a continuous unbroken surface, adapted to receive a rubber band, substantially as described and shown, for the purpose set forth.

182,210. HEEL-MACHINES FOR BOOTS AND SHOES. Reuss M. Lane, Rockland, Mass. [Filed Sept. 22, 1876.]



1. The working-spindle, head, trimming-lever, and plate or ring, adapted to engage the trimming-lever, in combination with a clutch and shafts *h* and *r*, adapted to turn the shaft *r*, and plate or ring and trimming-lever, in opposite directions, substantially as described.

2. The plate or ring and cams or projections 1 2, in combination with a lever, *j*, and a connecting-rod to operate the lever, for changing the actuating part of the clutch to reverse the trimming-lever, substantially as described.

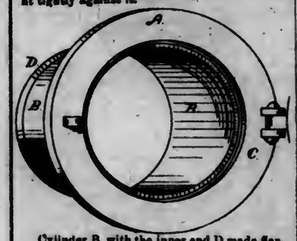
3. The working-spindle and lock, in combination with the lever *y*, to hold the actuating part of the clutch out of operative position while the spindle is depressed, substantially as described.

4. The working-spindle and lock, in combination with the lever and catch *c'* and lever *b'*, substantially as described.

5. The working-spindle, head, and plate or ring, provided with teeth, in combination with the shaft *r* and long gear 4, adapted to engage the teeth on the plate or ring *i* in all positions of the working-spindle, substantially as described.

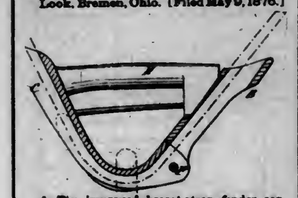
182,211. STOVE-PIPE THIMBLES. James M. Le Count, Hartford, Wis. [Filed Apr. 6, 1876.]

Brief.—The inner side of the cylinder has a flare to hold the thimble in place. The outer flare has an indentation, so that the door will fit tightly against it.



Cylinder B, with the inner and D made flaring to hold the thimble in the opening for same, and cover E, in combination with rim A and indentation C, substantially as described.

182,212. BREAST-STRAP FENDERS. John C. Look, Bremen, Ohio. [Filed May 9, 1876.]



1. The improved breast-strap fender, consisting of the looped and grooved plates A B, constructed in the form shown, and pivoted together at F, substantially as specified.

2. The stay-brace H and the fork I, combined with the looped and grooved plates A B, constructed in the form shown, and pivoted together at F, substantially as specified.

182,213. HAT AND COTTON PRESSES. Jas. Lytch, Laurinburg, N. C. [Filed Aug. 17, 1876.]

Brief.—The tops of the swords are attached to the follower, and depend therefrom. The pawls, with their upper or lower hooks engaging in the notches of the swords, are operated by the hand-levers, to move the follower downward or upward, according as the weights governing the pawls are placed.

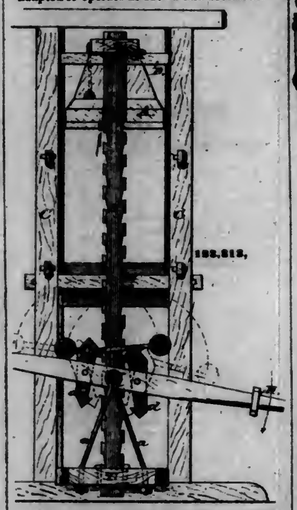
1. In a press of the character herein specified, the combination of the follower, having the doubly-serrated swords attached thereto and depending therefrom, and the operating-levers carrying the automatic pawls, adapted to force the swords both upwardly and downwardly, as set forth.

2. The combination, with the swords, having the indentations on one side opposite the projections on the other, of the gravitating-pawls, having hooks and inclined faces at each end thereof, adapted to move the swords continuously in either direction, as specified.

3. The combination, as before set forth, of the doubly-serrated swords, attached to and depending from the follower, the levers carrying the automatically-gravitating pawls, and the fulcrum composed of the rods *x x*, bolted to timbers T, *xx* and for the purpose described.

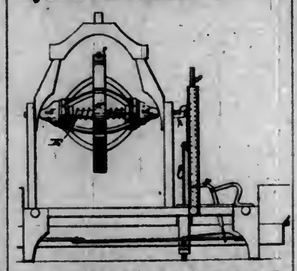
4. The combination, as before set forth, of the levers, carrying the automatic pawls, and the connecting-bar H, by means of which both levers may be simultaneously operated, as described.

5. The combination of the fulcrums *x x*, levers L, bevel-faced pawls *d d*, provided with weights *w*, (or their described equivalents,) serrated swords S, and follower A B, all adapted to operate as shown and described.



182,214. METHODS OF CHECKROWING CORN. Charles B. Maclay, Delavan, Ill. [Filed Apr. 27, 1876.]

Brief.—Journaled upon the frame is a rope-wheel, having spokes entering the periphery, two of which are provided with pins for preventing the rope from slipping. On each side of the main wheel are sliding hubs, from which extend arms to each side of the spokes, so that when they are forced together by the pivoted forked lever, the spokes will be forced out, expanding the circumference of the wheel. One end of the journal is made in crank form for the attachment of vertical bars for operating the seed-slide and marker.



1. The combination of an adjustable wheel, J, crank *r*, bar *o*, perpendicular arm *f*, bent lever *g*, and slide *h*, substantially as and for the purpose set forth.

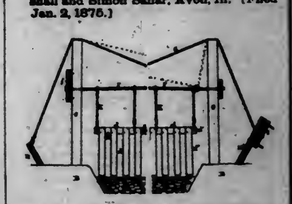
2. The combination of the chain C, Fig. 1, adjustable wheel J, crank *r*, and a marking-bar, substantially as shown and described, to operate in connection with a planter, as specified.

182,215. STOVE-PIPE JOINTS. Robt. Mainar, Orilla, Ontario, Canada, assignor to himself and Charles McInnes, same place. [Filed Mar. 25, 1876.]

In a stove-pipe joint, the combination of a stove-pipe end having projecting rivets or studs with the connecting stove-pipe end having slots and pivoted locking-hooks, substantially as specified.

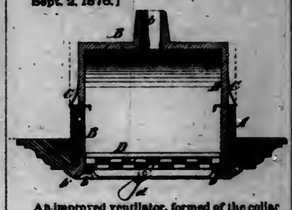


182,216. FLOOD-FENCES. James R. Marshall and Simon Sellar, Avon, Ill. [Filed Jan. 2, 1876.]



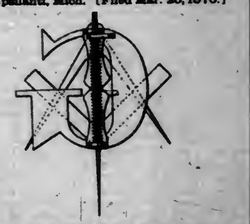
The flood-gate formed of linked sections *d*, suspended by cords or wires K from the cord or wire F, in combination with the hanging brace G and ring J, said sections being removable, as and for the purpose specified.

182,217. VENTILATORS. William H. Maxfield, Maysville, (Harlan P. O.,) Ind. [Filed Sept. 2, 1876.]



An improved ventilator, formed of the collar A, the box B, provided with the flanges *b' b'* and the collar *b''*, the spring-catches C, and the grate D, provided with the lever *d'*, constructed and combined with each other substantially as herein shown and described.

182,218. MASONIC BADGES. James McCoy, Ypsilanti, Mich. [Filed Mar. 25, 1876.]

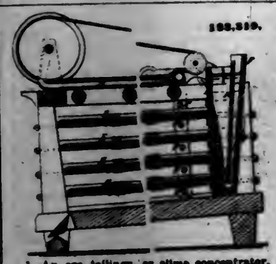


A masonic badge, consisting of a back plate, to which are rigidly secured a square and compass, the latter provided with the pivoted legs *a*, arranged to operate substantially as and for the purpose set forth.

182,219. ORE-CONCENTRATORS. F. E. Mills, Virginia City, Nev. [Filed Aug. 16, 1876.]

Brief.—The pulped ore runs into the classifying head-box, where it arranges itself in strata, according to its gravity. From thence it spreads itself over the tables, from which it is washed by the traveling "water-broom."

No. 183,319.

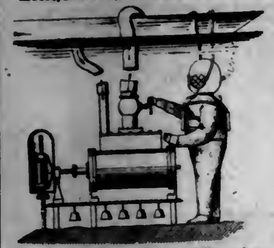


1. An ore, tailings, or slime concentrator, consisting essentially of a vertical series of inclined tables, plates, or floors, framed one over another, and sloping in the same direction, provided with feeding-apertures of different heights, and combined with a water-sprouting device for sweeping the whole series simultaneously, substantially as and for the purpose hereinbefore described.

2. The stationary gang-table A A A, Figs. 1 and 2, combined with the traveling water-broom P P P P, Figs. 1 and 2, constructed and operating substantially as described.

3. In combination with a series of inclined plates or tables, framed one over another, the classifying head-box F, either with or without the partition H, constructed and operating substantially as and for the purpose hereinbefore set forth.

No. 183,320. SUBMARINE ROCK-DRILLS. Edwd. Moore, Portland, Me. [Filed Mar. 1, 1876.]



1. The described method of drilling submarine rock by placing the engine which operates the drill under water and near the rock to be drilled, and operating the engine by compressed air or other suitable medium, through tubes connecting the engine to the compressor or other reservoir located above the surface.

2. A submarine rock-drilling apparatus having an air or other suitable engine constructed to stand upon the rock beneath the surface of the water and operate a drill connected therewith, with suitable connections extended to the air-compressor or other motive power at the surface, and suitable escape pipe or valves for the exhaust.

3. A submarine rock-drilling apparatus, substantially as described, having the working parts covered, as and for the purposes set forth.

4. A submarine rock-drilling apparatus, as described, provided with detachable weights, as and for the purposes set forth.

No. 183,321. GRAIN-DRILLS. Wm. H. Naumas, Dayton, Ohio. [Filed May 31, 1876.]

Brief.—Within the non-rotatable sleeve, and bearing against an annular ledge, is fitted a slotted sleeve for the reception of the flanged feed-wheel, for rotation and adjustment with it. This slotted sleeve is held in contact with the ledge by a tubular follower, that has an arm attached to the shiftable bar for adjustment with the non-rotatable cylinder. The bar to which these non-rotatable cylinders are attached passes through the seed-cups, and serves as a bridge for the seed.

1. The longitudinally-shiftable but non-rotatable cylinder G, in conjunction with a fixed seed-cup, C, and a rotating feed-wheel, substantially as herein described, and for the purpose stated.

2. The combination of cup C, feed-wheel E *e*, rotatable and adjustable sleeve F *f*, the latter being made either in one piece or in sections, and longitudinally-shiftable but non-rotatable cylinder G, as and for the purpose set forth.

3. The combination of cup C, feeding device E *e*, rotary sleeve F *f f*, non-rotatable cylinder G *g*, and adjusting appliances I *i* L *l*, substantially as herein described.

4. In combination with a series of fixed cups, C, feed-wheels E *e*, non-rotatable cylinders G L *l J*, and shaft D, the bar K, passing through the cups C, to serve as a bridge at the top of the same, and for the simultaneous and uniform adjustment of said cylinders, substantially as shown and described.

No. 183,321.



No. 183,322. BOTTLE AND CUP STOPPER. Carlton Newman, San Francisco, Cal. [Filed Sept. 9, 1876.]

Brief.—The stopper of the flask can be used as a cup, the neck of the bottle being enlarged to give the cup a sufficient size for use.



1. The bottle or flask A, provided with the screw-neck D, in combination with the cup B, the bottom of which is provided with female screw-threads corresponding with the screw-threads of the neck D and the cork G, substantially as and for the purpose described.

2. The cup-stopper B, consisting of the screw-threaded base and flaring mouth, in combination with the bottle or flask A, having the short screw-threaded neck D and enlarged neck C, the latter of which corresponds in shape with the shape of the mouth of the cup, substantially as and for the purpose described.

No. 183,323. DESK ATTACHMENTS FOR CHAIRS. James A. Park, Lansing, and Wm. Woolhouse, Mason, Mich. [Filed Feb. 21, 1876.]



1. The combination, with a desk for chairs, of the casting E, constructed with socket E′, the disk F, with wedge-shaped pin G, the flanged casting H, and washer I, substantially as and for the purposes herein set forth.

2. The beveled or wedge-shaped board K, in combination with the desk and the flanged casting H, and revolving disk F, provided with supporting-pin G, for the purposes herein set forth.

3. The combination of the tray A, having longitudinal grooves *a a*, the sliding top B, constructed with ways *b b*, and the catch *d*, substantially as and for the purposes herein set forth.

4. The sliding desk-top B, provided with the box C, having false bottom *f*, for the purpose herein set forth.

5. The hinged spring-door C′, in combination with the box C and sliding desk-top B, for the purposes herein set forth.

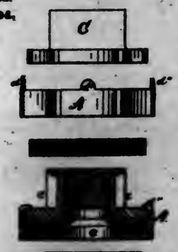
6. The pivoted book-rack and shelf D, in combination with the box C and sliding top B, as and for the purposes herein set forth.

No. 183,324. NUT-LOCKS. Daniel R. Pratt, Brooklyn, N. Y. [Filed July 30, 1874.]

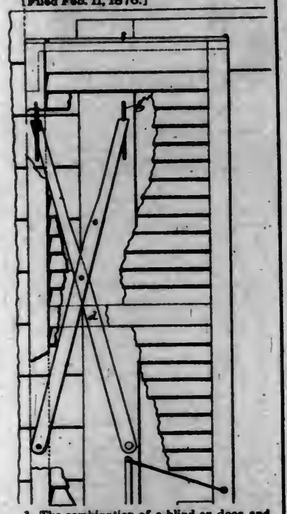
Brief.—The nut and cup-shaped washer, with an interposed rubber gasket, are interlocked and securely attached together, so that all turn together.

The nut and follower C, cast in one piece, with the depressions *c c* formed within or upon the side face of the nut, and with the projections *d′ d′* upon the periphery of the follower, in combination with the cup A, having formed upon and within it the lugs or ears *d″ d″*, in the manner and for the purpose herein described.

No. 183,324.



No. 183,325. HANGERS FOR BLINDS OR DOORS. Edwin Prescott, Hampton Falls, N. H. [Filed Feb. 11, 1876.]



1. The combination of a blind or door and pivoted crossed levers, connected, each at one end positively and at the other end loosely, with the blind or door and casing or building over which the blind or door moves, and adapted to completely sustain the blind or door during its movement, substantially as described.

2. The blind or door and its projections at the back, in combination with the holding device, to operate substantially as described.

3. A sliding blind or door and levers to sustain and direct it, in combination with a blind holding or locking device, adapted to hold a blind, substantially as described, and with a crank or handle to operate the locking device from within a room or building, as set forth.

4. The blind or door and its levers *d e*, pivoted together and connected with the blind and casing, as shown, in combination with guide-strips connected with the top and bottom of the door and with pins and hooks at the sides of the strips, to prevent movement of the blind or door away from or toward the casing, all substantially as described.

No. 183,326. EXCAVATOR AND DUMPING-CART. Jacob Price, San Leandro, Cal. [Filed Feb. 21, 1876.]

1. In combination with an earth-box, A, mounted upon wheels B B′, one of which serves as an earth-elevator, a horizontal spreading and distributing wheel, *e e′*, provided with teeth *g g* on its rim, which serve to engage with the spokes of one of the cart-wheels for the purpose of rotating the spreading-wheel, substantially as and for the purpose set forth.

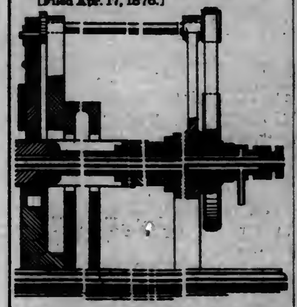
2. In combination with the plow E of an excavating-machine, attached to the beam M, and connected with a rock-shaft, Q, which can be operated by the driver on his seat, the spring-pawl *n*, with its lever-extension *v* and stirrup W, substantially as and for the purpose set forth.

3. In combination with an earth-box, A, the bottom of which is composed of two or more hinged sections, each of which sections has a crank, *r*, arranged to project from the end of the box, all of which are connected together, the secondary crank *i*, pitman *n*, and crank-shaft *r′*, the arm *p* of which is bent, as described, when the pitman *n* is connected with the arm *p* at the bend of the joint, so as to provide a self-sustaining joint, which fastens by passing the vertical line, substantially as and for the purpose described.

No. 183,326.



No. 183,327. MACHINES FOR MAKING METALLIC TUBING. John B. Root, New York, N. Y. [Filed Apr. 17, 1876.]



1. The combination of the revolving mandrel, the stationary guide-frame for guiding the work onto the mandrel at an acute angle, and the seaming-roll, these parts being arranged to operate substantially as described.

2. In combination with the revolving mandrel, the bending and flanging rolls, by means of which the edges of the blank or skelp are shaped for forming a spiral lock-joint while passing over the roll-frame.

3. The spiral guide upon the heel of the mandrel, made detachable and adjustable, substantially as and for the purpose described.

4. In combination with the roll-frame, the vertically-adjustable mandrel-bearing, which permits the use upon the same machine of mandrels of different diameters, substantially as described.

5. In combination with the revolving mandrel, a guide band or chain encircling it, substantially as shown and described, and for the purpose set forth.

6. The tucking-lever and grooved shoe, or equivalent mechanism, for closing up and inclining the folds of the seam, preliminarily to the action of the seaming-roll, substantially as described.

7. The guide or roll frame, pivoted to the bed of the machine, so as to be adjustable to different angles relatively to the mandrel, substantially as and for the purpose described.

8. In combination with the pivoted and adjustable guide or roll frame, the swiveled hanging and sliding brackets, as a means of conveying power from the main shaft to the rolls of the guide-frame.

No. 183,328. MACHINES FOR MAKING SPIRAL-JOINTED METALLIC TUBING. John B. Root, New York, N. Y. [Filed May 15, 1876.]

Brief.—The former around which the blank or strip of metal to bent is composed of two parts, one of which (the upper) is connected to and moves with a spirally-reciprocating saddle. Attached to a frame connected with the saddle is a clamping mechanism or pressure-rod, which descends upon the strip, holding it to the upper section of the former, and causing it to be drawn into the machine as the saddle makes its forward spiral reciprocation. Arranged within the hollow lower section of the former is a compound lever, which operates a slide reciprocating in ways formed in the outer end of said section, that holds the work in position while the saddle and feeding devices are performing their alternate backward reciprocations. When the machine is used to manufacture riveted pipe, the lower end of the pressure-rod is armed with a punch for punching the rivet-holes, and the slide of the holding mechanism is employed to head or set the rivets.

1. The spirally-reciprocating saddle, constructed and arranged to operate substantially as and for the purpose set forth.

2. In combination with the spirally-reciprocating saddle, an adjustable clamping and feeding mechanism, constructed and arranged to operate substantially as described, so as to be carried by, and reciprocate with, the saddle, and at the same time be adjustable relatively thereto for pipe of different sizes.

3. In combination with the spirally-reciprocating saddle and an adjustable clamping and feeding mechanism, partaking of the various movements of the saddle, the adjustable lever-bar, which supports the lever of the holding or riveting mechanism.

4. The combination of the spirally-reciprocating saddle, a grooved adjusting-block, B, and the intermediate guide-blocks *c* and *d*, or their equivalents, as a means of regulating the longitudinal movement of the various parts, substantially as described.

5. The spirally-reciprocating clamping bar or former, constructed to operate substantially as set forth.

6. The combination of the spirally-reciprocating bar or former G and the guide band or strap, arranged and operating substantially as set forth.

7. The combination of the spirally-reciprocating bar G and a clamping device, constructed and arranged to move in unison therewith, substantially as and for the purpose set forth.

8. The combination of the spirally-reciprocating bar G and a punch, constructed and arranged to move in unison therewith, substantially as and for the purpose set forth.

9. In combination with a spirally-reciprocating feeding-frame, F, the pressure-rod H and pressure-shoe I, constructed and arranged to operate substantially as described.

10. The combination of the guide-frame and a spirally-reciprocating clamping and feeding mechanism, constructed to operate substantially as set forth, so as to advance the work with an intermittent motion.

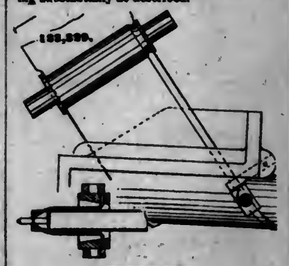
11. The combination, in a machine for making pipe, of a spirally-reciprocating clamping and feeding mechanism, by means of which the work is advanced intermittingly, and a stationary holding or riveting mechanism, acting alternately with the feeding mechanism, substantially as and for the purpose described.

12. The combination of the connecting-rod L with the lever O of the clamping and feeding mechanism, and the lever K of the holding or riveting mechanism, the former regulating the relative movements of the latter, substantially as and for the purpose set forth.

13. In combination with the lever O of the feeding mechanism, the connecting-rod L and the lever K of the holding mechanism, the main lever M, arranged to operate in combination, substantially as described.

14. In combination with the holding and riveting lever, the ring P, arranged and operating substantially as described.

No. 183,329.



No. 183,330. INTERCHANGEABLE ATTACHMENTS FOR SEWING-MACHINES. I. M. Ross, Brooklyn, N. Y. [Filed Aug. 26, 1876.]

Brief.—A loop-laying hub in the form of a short cylinder remains stationary, and about it is caused to rotate a spring-seated looping-hook carrier. A cord connected with the needle-bar rotates the carrier to form the loop, while a double spiral spring reverses the carrier on the down-stroke of the needle, thereby winding up the cord. A suitable tension device is provided for the pattern thread or cord.

1. A thread-looping hook adapted to be positively rotated in one direction by the vibrating needle-bar and a cord and pulley, and to be retracted by a spring, substantially as described.

2. A rotating spring-seated thread-looping hook, substantially as described.

3. The combination of a rotating spring-seated thread-looping hook with a stationary laying-hub, substantially as described.

4. The combination of a looping-hook carrier, a stationary laying-hub, and a coiled spring attached to and rotating the carrier upon said hub, substantially as described.

5. The combination of a stationary laying-hub, a rotating looping-hook carrier, a coiled spring actuating the latter, and a recessed foot-piece or support, substantially as described.

6. The combination of the stationary laying-hub, the rotating looping-hook carrier, coiled actuating-spring, and propelling-cord, substantially as described.

7. The loop-laying hub, constructed with a hooked projection, 4, and a channel, 3, for supporting the pattern-thread, substantially as described.

8. The combination of the rotating looping-hook 5 with the stationary laying-hub, the construction being substantially as described, whereby the said hook is made to ride upon the ledge 3 of the hub, and thus prevent the pattern-thread from slipping backward, substantially as described.

9. As an article of manufacture, an embroidering attachment, consisting of a holder adapted to be attached to the presser bar or foot of a sewing-machine, and supporting a stationary loop-laying hub, a spring-seated looping-hook, a propelling-cord, and its guide, substantially as described.

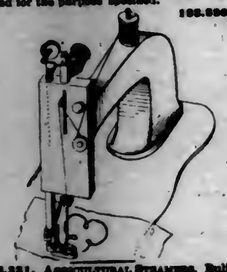
10. A plate, as D, having mounted upon it the stationary laying-hub, looping-hook carrier, and its actuating mechanisms, and adapted to be inserted into a bifurcated presser-foot, substantially as described.

11. The returned double spiral spring, Figs. 11 and 12, constructed substantially as described.

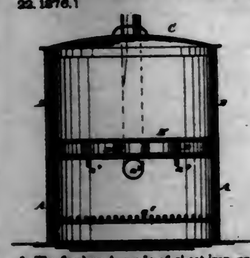
12. In combination with the propelling-cord of a rotating thread-carrying device, the compensating-spring s, substantially as described.

13. The carrier C, having its ledge 13 constructed with a hook, 5, and an inclined plane, 12, extending up to the ledge, substantially as and for the purpose specified.

No. 182,230.



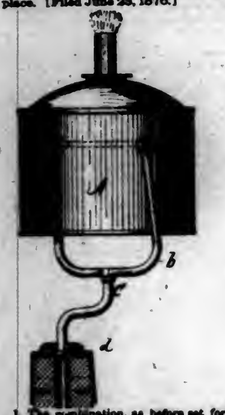
182,231. AGRICULTURAL STEAMERS. Rufus W. Rathbun, Stamford, N. Y. [Filed Sept. 22, 1876.]



1. The fire-box A, made of sheet-iron, open at top and bottom, provided with a door, a^1, a draft-opening, a^2, a pipe-collar, a^3, and one or more cross-bars, a^4, whether a grate, a^5, be used or not, substantially as herein shown and described.

2. An improved steaming apparatus formed of the sheet-iron fire-box A, provided with the door a^1, draft-opening a^2, pipe-collar a^3, and cross-bars a^4, and the vessel B, also made of sheet-iron, and provided with a cover, C, a rack, D, and a perforated false bottom, E, substantially as herein shown and described.

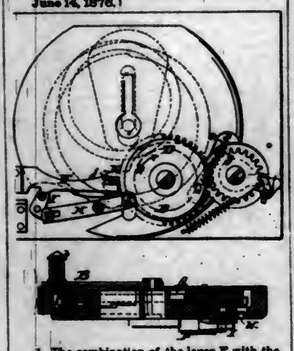
182,232. TORCHES. Moritz Saulson, Troy, N. Y., assignor to Minnie Saulson, same place. [Filed June 28, 1876.]



1. The combination, as before set forth, of the bent shank C, having the arms b pivoted to the torch-bowl, and the handle E, in which the said shank revolves, substantially in the manner described.

2. In a torch, the combination, with the bent shank C, having arms b and a hub to prevent its withdrawal, of the ferrule d, attached to the handle E, as set forth.

182,233. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Friedrich B. Schmidt and John S. Fresse, Brooklyn, N. Y. [Filed June 14, 1876.]



1. The combination of the lever F with the annular plate E, eccentric lug f, spring e, and with the grooved wheel D, the lug f being rigidly attached to the annular plate E, which turns on the hub of the wheel D, substantially as herein shown and described.

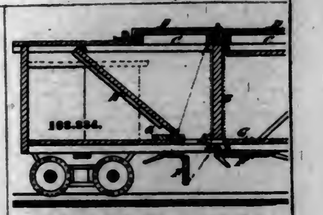
2. The combination of the lever H, having the pin s, with the feed-wheel C, and with the bell-crank I, having the pin u, substantially as herein shown and described.

3. The shaft G, made with a shorter toe, g, and a longer toe, q, combined with the feed-lever F and with the automatic stop I, substantially as herein shown and described.

4. The feed-wheel C, provided with the projecting pin v, and combined with the pin b of the clamp B, all arranged so that the motion of the feed-wheel will be automatically arrested by the pins v and b, substantially as specified.

5. In combination with the feed-wheel C, which has the pin v, the adjustable gage L, arranged to operate substantially as herein shown and described.

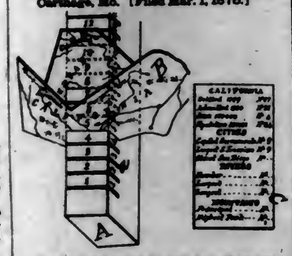
182,234. PERFUME-CASE. Edwd. D. Shaffer, Moncton, New Brunswick, Canada. [Filed May 16, 1876.]



182,234.

A freight-car divided by partition B, having inclines H H, and provided with top openings C and bottom openings, outside covers D F, and inside door G, all arranged substantially as and for the purpose specified.

182,235. GAME-CARDS. B. T. Bitterley, Carthage, Mo. [Filed Mar. 1, 1876.]



1. A game apparatus consisting of the rack A, cards C, and map-sections B, substantially as set forth.

2. In a game apparatus, a set of cards or map-sections, B, each one of which represents a geographical division or subdivision of a map, in combination with a pack of cards containing information relative to the geographical and historical features represented by the set first aforesaid, substantially as set forth.

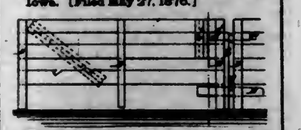
182,236. PROCESSES OF PRINTING ON AND DECORATING METAL SURFACES. Legrand B. Smith, New York, N. Y. [Filed Apr. 20, 1876.]

1. The process of indelibly printing a metallic sheet, consisting in printing directly upon a roughened metallic surface, and subjecting same to a heated temperature, substantially as and for the purpose described.

2. In the process of indelibly printing a metal surface, prepared as above described, coating same with a gummy substance, whereby its oxidation upon subjection to heat is prevented, substantially as and for the purpose described.

3. A process of indelibly printing on metal, the same consisting in printing a roughened surface with ink compounded of gold and metal, then coating with gum, and finally treating same to a moderate heat, substantially as and for the purposes described.

182,237. FENCES. William Stacy, Cottage, Iowa. [Filed May 27, 1876.]



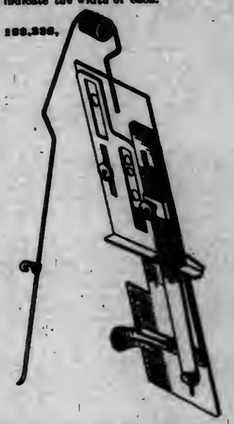
The combination, with the panel, having perforated projecting cowpier C, and the panel having cleats b', of the support B, constructed as described, the pin d and the wedge D, as and for the purpose specified.

182,238. TUCK MARKERS AND CREASERS FOR SEWING-MACHINES. Jas. T. Sterrett, Carlisle, Pa. [Filed Sept. 1, 1876.]

Brief.—The bed-plate of the marker has the spring-arm which operates the marking devices rigidly secured to its rear end, and is provided with two scales, which are laid in opposite directions from a common zero-point.

To the upper side of this bed-plate is arranged a slide carrying the marking devices, and also a guide, both of which are separately adjustable thereon. These parts are so arranged that when the attachment is secured to a sewing-machine the said zero-point will be opposite to the needle, and, as the marking devices are both adjustable independently of each other and of the said bed-plate, the width of the tuck, and also the distance between the tucks, may be varied, the said scales serving to indicate the width of each.

182,239.

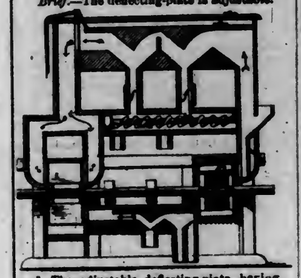


1. In combination with the bed-plate of a tuck-marker, provided with a scale or scales having measurements in both directions from a common zero-point, plates H I, each separately adjustable on the bed-plate, as and for the purposes set forth.

2. The combination, with the bed-plate A, having the spring-arm R attached thereto, of the spring-plate I J, carrying the marking devices, and the gage H, the plate I J and gage H being independently adjustable on said bed-plate, whereby the width of the tuck and the space between the tucks may be regulated without changing the position of the bed-plate or of the arm R, as and for the purposes set forth.

182,239. GRAIN GRADERS AND SCOURERS. Lucious O. Stevens, Burlington, Iowa, assignor of one-half his right to E. B. Combs, same place. [Filed June 17, 1876.]

Brief.—The defecting-plate is adjustable.



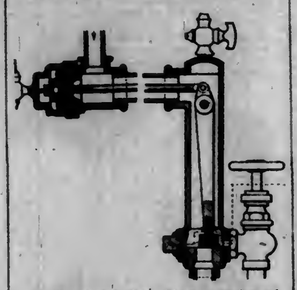
1. The adjustable defecting-plate having two or more defectors constructed with inclined sides and enlarged base-connections, substantially as and for the purpose described.

2. The combination, with the adjustable blast-damper, of the vertically-adjustable defectors, same constructed with angularly-inclined sides, substantially as and for the purpose described.

3. The combination, with the upper blast-chamber, provided with adjustable deflectors, and the conveyer-chamber, of intermediate vertical spouts, constructed with lateral dust-passages, substantially as and for the purpose described.

4. The combination, with the adjustable deflector and damper, located between the plates of said deflector, of the discharge-spouts / situated within the air-chamber, substantially as and for the purpose described.

182,240. STEAM-TRAPS. Ferdinand Steele, Brooklyn, N. Y. [Filed Aug. 26, 1876.]

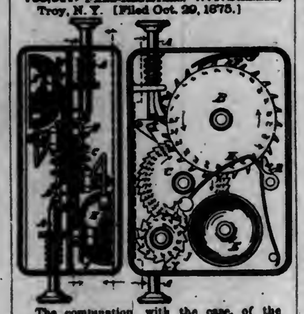


1. The combination, with an expansion-rod, of a lever and slide-valve and the inclosing-tubes, forming a steam-trap, substantially as set forth.

2. The combination, with the valve and expansion-rod in a steam-trap, of the screw socket-plug, for holding and adjusting the stationary end of the rod, such socket-plug having threads of different pitch upon the outside and inside, respectively, for the purposes and as set forth.

3. In a steam-trap, the combination of a slide-valve, lever, and expansion rod or tube, and a removable seat for the valve, substantially as set forth.

182,241. FARE-REGISTERS. W. J. Stillman, Troy, N. Y. [Filed Oct. 29, 1875.]



The combination with the case, of the crown-wheel B, provided with indicating-numbers, the notched wheel C, having stud l', notched wheel J, ball E, spring-lever H, projection H', double spring-pawl F, push-lever A, provided with coil-spring, and L-shaped spring a', all constructed substantially as and for the purposes herein set forth.

182,242. BROOM-HANDLES. G. W. Stockwell, Natchez, Miss. [Filed May 16, 1876.]

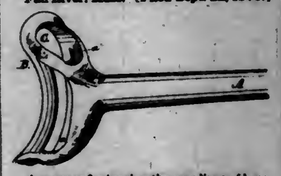
In combination with the broom or brush A, the handle composed of sections B, C, and D, connected by tenons and mortises, and pivoted to set the broom at any required angle, and set-screw for fixing the detachable sections, substantially as set forth.

182,243. LUBRICATING COMPOUNDS. Peter Sweeney, New York, N. Y., assignor to himself and Wm. B. Bishop, same place. [Filed Mar. 31, 1876.]

1. A compound for lubricating purposes, made of graphite, boiled oil, bees-wax, mercury, bole Armonia, and gelatine, said ingredients being mixed together substantially in the manner and in about the proportions specified.

2. A compound for lubricating purposes in which is combined paper-pulp, graphite, boiled oil, bees-wax, and mercury, mixed together substantially in the manner and for the object specified.

182,244. HOSE-SPANNERS. John B. Taber, Fall River, Mass. [Filed Sept. 22, 1876.]



A spanner for turning the couplings of hose, consisting of the handle A, having the enlarged end B formed to fit the curvature of the coupling, and provided with the slot C and apertures a, substantially as and for the purpose shown and described.

182,245. PAINT-BRUSH BINDERS. L. Tanney, Beaver Falls, Pa. [Filed June 26, 1876.]

An improved metallic binder for paint-brushes, formed of the semi-cylindrical plates A, having divided disks B attached to their upper ends, and having eyes formed upon their side edges, the plate D, having eyes formed in its end edges, and the wires C, substantially as herein shown and described.

182,246. HYDRAULIC MOTORS. William O. Wakefield, Boston, Mass. [Filed July 24, 1876.]

Brief.—The shifting cam-rings and connecting-rods, with adjustable connection, receive motion from the motor piston-rod, and are used as a substitute for a crank, avoiding the dead-center of the latter.

1. A hydraulic cylinder and reciprocating piston, and a shaft to be driven from the piston, in combination with two pulleys and carriers and friction-rollers to rotate the shaft continuously from the piston, substantially as described.

2. The combination, with the pulley, of the carrier and series of contiguous rollers of graduated sizes, substantially as described.

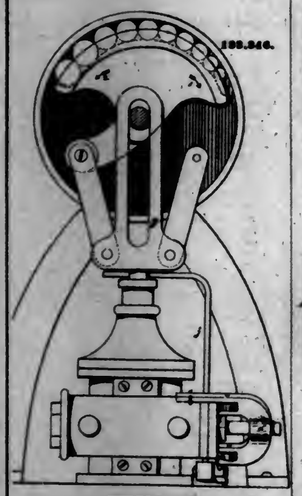
3. The valve-spindle and shifting cam-ring, in combination with the pivoted yoke and its finger and stops, substantially as described.

4. The shifting cam-ring and piston, in combination with connecting-rods g j, and an adjustable connection between the rods, substantially as and for the purpose set forth.

5. A hydraulic piston and cylinder, and a valve mechanism changed to reverse its ports through the action of the piston, in combination with a shaft provided with two pulleys, and with two carriers and series of friction-rollers, substantially as described.

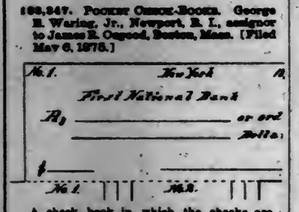
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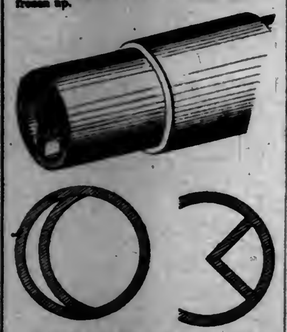
166,847. Pocket Check-Book. George H. Waring, Jr., Newport, R. I., assignor to James E. Osgood, Boston, Mass. [Filed May 6, 1876.]



A check-book in which the checks are folded in upon the stub-piece, which lies between the checks, and which is alone attached to the back of the book.

166,848. Water-Pipes, &c. Thomas Warhurst, Wappinger's Falls, N. Y., assignor of one-half his right to Henry D. Barr, Washington, D. C. [Filed Mar. 7, 1876.]

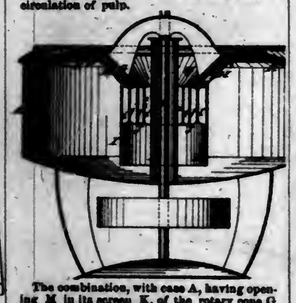
Brief.—The object is to prevent water freezing in the pipes, or to relieve the same when frozen up.



A pipe for conveying water or other liquids, cast with an internal partition, forming a chamber into which to introduce a heating medium, for the purpose specified.

166,849. Paper-Pulp Engines. John S. Warren, Cumberland Mills, Me. [Filed Aug. 7, 1876.]

Brief.—The inner cone, with the short tube depending therefrom, is attached by means of a bridge-piece to the shaft, which passes up through a hollow column, while the outer cone, with its longer depending tube, is held stationary by flanges attaching it to the wire screen, which has an opening for the admission of pulp. Knives are attached to the inside of the outer cone and tube, and to the outside of the inner cone and tube. Knives are also placed upon the inside of the inner tube, cutting across others attached to the hollow column. When the case is nearly filled with pulp, and the shaft and cone rapidly revolved, centrifugal force causes the pulp to flow up between the knives, and keeps up a circulation of pulp.



The combination, with case A, having opening M in its screen K, of the rotary cone G and tube *f*, the stationary cone H and tube I, and the series of knives, arranged substantially as shown and described.

166,850. Compositions for Preserving Bolting-Cloths. John Wayman, Collinsville, Ill. [Filed July 22, 1876.]

The compound formed of wormwood, oil of cedar, beef-galls, and tallow, in the proportions substantially as herein shown and described.

166,851. Oil-Chandeliers. H. Wellington, Green Point, N. Y. [Filed Oct. 4, 1876.]



1. In an oil-chandelier of the character herein shown, a removable central transparent glass reservoir, located between and in connection with the wick-cups, which are supplied with oil through pipes leading from the bottom of said central reservoir, substantially as set forth.

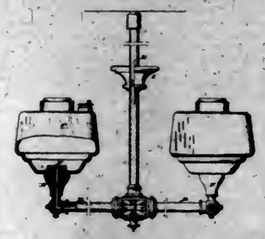
2. In combination with a central removable transparent glass reservoir in an oil-chandelier, of two or more removable transparent wick-cups, arranged substantially as shown and described.

3. In an oil-chandelier having two or more wick-cups, the combination, with the metallic supply-tubes, of a removable transparent glass oil-vessel, located between said cups, substantially as and for the purposes set forth.

4. In an oil-chandelier, the combination, with the central oil-containing vessel, of a perforated tube passing therethrough and adapted to clamp the bottom of said vessel upon a packing-gasket, substantially as shown and described.

5. In combination with a glass reservoir, screw-threaded at its lower extremity, a correspondingly-threaded base, L, carrying a hollow nipple, and a packing-gasket clamped between the two, substantially in the manner and for the purpose described.

166,852. Oil-Chandeliers. H. Wellington, Green Point, N. Y. [Filed Oct. 4, 1876.]



1. In combination with the pipes B B of an ordinary gas-chandelier, a series of lamp-founts having perforated bottoms, through which connection is established between the several founts, substantially as and for the purpose set forth.

2. In combination with a glass lamp-bowl, perforated as described, the base E and hollow screw-plug F, adapted to clamp said bowl between the packing-gaskets, substantially as and for the purpose described.

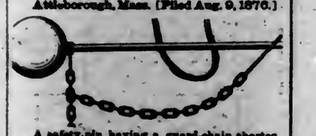
3. The filling-orifice *e*, located in the sustaining-pipe K, and surrounded by the cup I, substantially as and for the purpose set forth.

166,853. Car-Couplings. F. F. Wheeler, Waupaca, Wis. [Filed Aug. 14, 1876.]



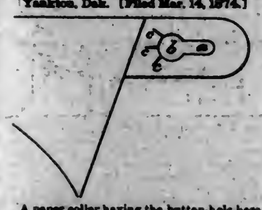
The combination of block A, iron bar B, and roller C, revolving in inclined slots F, all constructed substantially as and for the purpose described.

166,854. Safety-Pins. Lewis B. White, Attleborough, Mass. [Filed Aug. 9, 1876.]



A safety-pin having a guard-chain shorter than the pin attached to the same near the head, and provided with a snap-hook at its free end, substantially as above described, and for the purpose set forth.

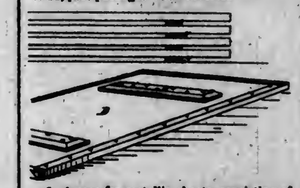
166,855. Paper Collars. F. Wilson, Yankton, Dak. [Filed Mar. 14, 1876.]



A paper collar having the button-hole herein described, consisting of an enlarged eye, *b*, having at one end the contracted neck or extension *a*, and at the other end, extending in the direction of the length of the button-hole, the slits *c*, one central and direct, and on each side thereof one running obliquely, and forming with said central slit an acute angle, as specified.

166,856. Cases for Packing Metal Sheets. W. Dewees Wood, Pittsburg, Pa. [Filed Oct. 2, 1876.]

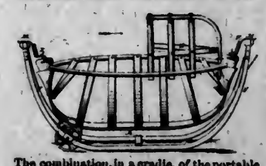
Brief.—Folds a sheet of metal about the metal sheets to be packed. Places a wooden block on the latter sheets and nails the former sheet to the block. Has fibrous or lined or lined fibrous packing between wood and metal, and in joints of wooden cover. Cleats on cover to support packages when inverted.



1. A case for metallic sheets, consisting of sheet A, closed at the corners, and secured to a wooden cover, D, the latter being provided with raised cleats *c*, substantially as and for the purposes set forth.

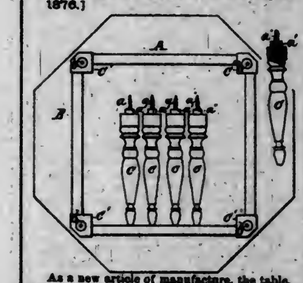
2. A water-tight case for metallic sheets, composed of a metallic sheet, A, folded as described, in combination with wooden cover D, with lined or packed joints, and cleats *c*, substantially as set forth.

166,857. Cradles. A. Woodward, Shelburne Falls, Mass. [Filed Mar. 7, 1876.]



The combination, in a cradle, of the portable cradle-body A, made of any elastic material, and elliptical in form, suspended by means of suitable rings and spring-hooks E E to the hinged extremities M M of the bent supports F F, to the bottom of which are attached wheels, in such a manner that, by raising one of these extremities by means of a strap or handle, the weight of the cradle is thrown upon the wheels, for the greater convenience of moving it from place to place, substantially as described.

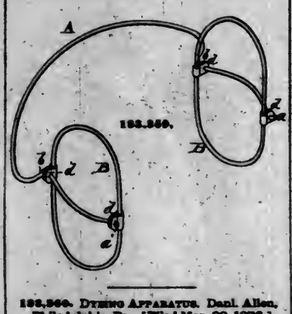
166,858. Table. Reva P. Wright, Springfield, Ohio, assignor of one-half his right to J. V. Hister, same place. [Filed Aug. 8, 1876.]



As a new article of manufacture, the table, substantially as described, consisting of the top A, rails or braces B, posts C, with mortises *b*, and legs C, with tenon *c'* and double-ended screw *c*.

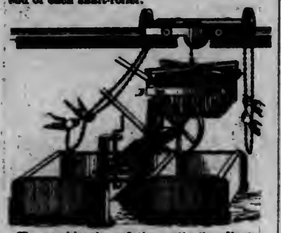
166,859. Ear-Mufflers. William Abbott, Bapy, Pa., assignor of one-half his right to George W. McIlwen, same place. [Filed Aug. 18, 1876.]

In an ear-muffler, the combination of the head-piece A, having the bends *a b* at each end, and the pad-frames B B, provided with the perforated plates or ears *d d*, substantially as and for the purposes herein set forth.



166,860. Dyeing Apparatus. Dani. Allen, Philadelphia, Pa. [Filed Mar. 20, 1876.]

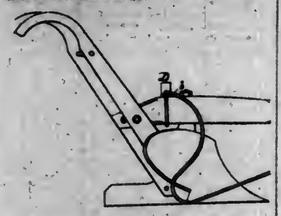
Brief.—A frame supporting the hank-rollers is raised and lowered by the ordinary elevator mechanism. The shafts of a series of cog-wheels have bearings in a vertically-adjustable table, and have at each end a coupling-plate, corresponding to a similar one on the end of each shaft-roller.



The combination of the vertically-adjustable frame D and its shafts *a* with the bench J, carrying the driving mechanism separate from the frames and tube, and adjustable to different heights, as and for the purpose set forth.

166,861. Plow-Pendings. W. A. Barrow, Sycamore, Ill. [Filed Mar. 30, 1876.]

Brief.—A single rod, curved as shown, and hinged to a clamp at either end of the beam, so that it may rise and fall by gravitating force, or be locked down.

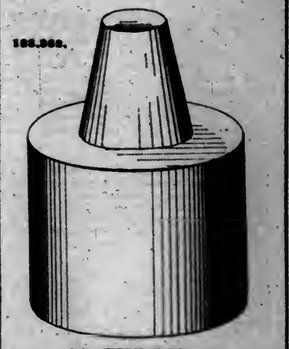


The pivoted rod C, constructed to arch outward from the forward end of the plow-beam, and to incline downward and outward from said beam, and hinged, as shown, to the rear end thereof, combined with the said beam, the clamps *b*, and locking device D, substantially as and for the purpose herein specified.

166,862. Dies and Shoes for Quartz-Mills. S. P. Bartol and J. M. Lounsdale, Boston, Mass. [Filed Oct. 2, 1876.]

Brief.—The shot-iron found in the ashes and cinders from a cupola-furnace, by reason of its inherent tenacity and hardness, is utilized in the manufacture of dies and shoes. It is cast in the usual manner, and the finished article is uniformly hard and tenacious throughout its whole mass.

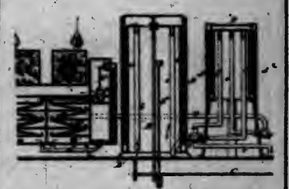
A shoe and corresponding die (one or both) for quartz-crushing mills and amalgamating-pans, composed of the waste or bug iron from the ashes from a cupola-furnace, or from similar source, as set forth.



No. 865.

166,865. Carburetters. Samuel Bean, Cincinnati, Ohio. [Filed Mar. 4, 1876.]

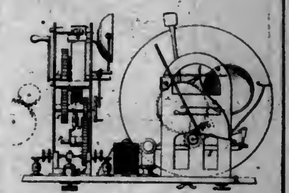
Brief.—The air-supply to the carburetor is automatically regulated by the rise and fall of the air-holder, which operates a valve in the air-pipe.



1. The air-engines or blowers A A', having a guide-rod, B, passing air-tight through the head of the cylinder *a'*, and through base B', in combination with pitman-rod B'' and crank-shaft C, substantially as and for the purpose set forth.

2. The combination, substantially as hereinbefore described, of the air-engines or blowers A A', having inlet and outlet pipes *b* and *c*, with suitable valves, the movable inverted cup D, exit-pipe *e*, automatic valve *f*, pipe *g*, and carburetor, for the purpose set forth.

166,864. Telegraphic Fire-Alarms. L. Birge and C. D. Williams, St. Paul, Minn. [Filed June 20, 1876.]



1. The combination, in a system of fire-alarm telegraphy, of a rotating cam, a lever provided with a non-conducting pad, an indicator, and a dial-plate having numbers corresponding with the numbers on the alarm-boxes, to indicate the locality of the alarm-box and fire, substantially as and for the purposes herein set forth.

2. The ratchet-wheel *b'* and pawl Y, operated by the armature-lever S, for holding the hand still to the number of the box operating while the alarm is running in, as set forth.

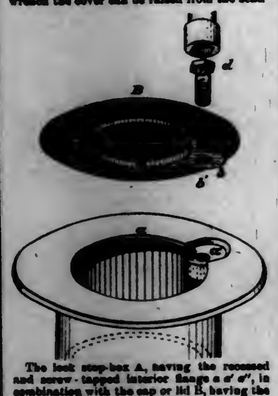
3. The lever S and friction-roller G', for stopping and holding the indicator, as set forth.

4. The grooved wheel C', for drawing the hand back to the point on the dial face from which it starts when the alarm is given.

5. In a system of fire-alarm telegraphy, rotating cams of varying sizes in the different alarm-boxes, and a lever in each of said boxes, upon which the cam strikes to open the circuit, in combination with magnets, armature, bell, indicator, and dial-plate at the station, all constructed and arranged substantially as described, whereby a single opening and closing of the electric circuit will indicate the location and number of the alarm-box, as set forth.

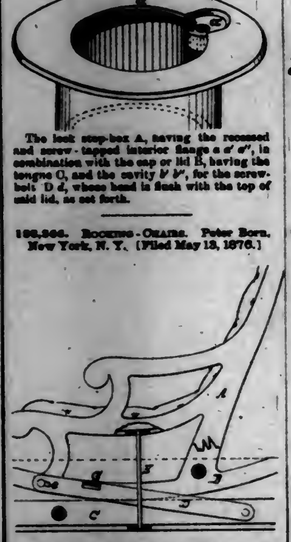
182,865. LOCK STOP-BOXES FOR SERVICE-COCKS OF GAS AND WATER MAINS. Thos. Birch, Cincinnati, Ohio, assignor of one-half his right to Henry Ramshaw, same place. [Filed Sept. 6, 1876.]

Brief.—By removing the screw with the wrench the cover can be raised from the seat.



The lock stop-box A, having the recessed and screw-tapped interior flange *a a'*, in combination with the cap or lid B, having the tongue C, and the cavity *b b'*, for the screw-bolt D *d*, whose head is flush with the top of said lid, as set forth.

182,866. ROCKING-CHAIRS. Peter Born, New York, N. Y. [Filed May 13, 1876.]



The frame D D and G, in combination with the stationary rails O O, spring H, and rockers B of the chair A.

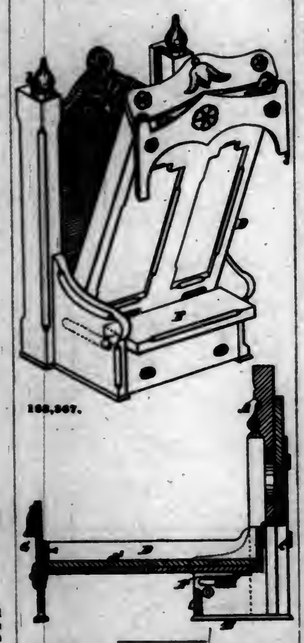
182,867. WARDROBE-BEDSTEADS. Fredk. Cautier, Philadelphia, Pa. [Filed Mar. 16, 1876.]

1. The head-board A, arranged to slide vertically, substantially as shown and described.

2. The head-board and body of a wardrobe-bedstead, united by a hinged connection, and so combined and arranged that the former counterbalances the latter when elevated, substantially as shown and described.

3. In combination with the foot-piece E, the bar F, hinged to the body D, substantially as shown and set forth.

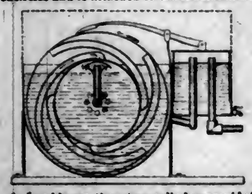
4. The sliding head-board A, grooved posts B b, body D, foot-piece E, hinged bar F, and sectional foot-board G, the several parts being constructed and combined substantially as shown and set forth, to form a wardrobe-bedstead.



182,867.

182,868. BLOWERS. John M. Cayce, Franklin, Tenn., assignor to himself A. Thomas, O. A. Bailey, James McElwee, R. B. Cayce, and Joseph L. Parks, same place. [Filed Apr. 12, 1876.]

Brief.—A cylinder, provided with curved tubular arms and openings around its axis for the egress of water, revolves in a tank of water. A curved pipe standing vertically within the cylinder, and forming the hollow axis, serves as an exhaust-pipe, conveying the compressed air to the receiver or holder. A friction brake, moved by the rising and falling of the movable top of holder, regulates the speed automatically by pressure on a band which encircles and is attached to the tubular arms.



1. In a blower, the rotary cylinder, provided with the curved tubular arms and openings around its axis for egress of water, the curved pipe, standing vertical within the cylinder and forming the hollow axis thereof, through which the air forced into the cylinder is ejected, as shown and described.

2. The combination, with the rotary cylinder having tubular arms, of the adjustable liquid-seal air-holder and friction-brake, as shown and described, whereby the speed of the cylinder is automatically regulated, as set forth.

3. The combination of the hood, with the rotating cylinder having tubular arms and peripheral openings *a*, and the pipe standing vertical within the cylinder, as and for the purpose specified.

182,869. PLASTER CEILINGS, CORNICES, &c. Thomas P. Cleary, San Francisco, Cal. [Filed Aug. 9, 1876.]

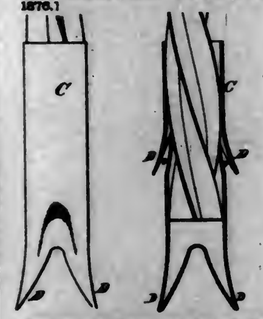
Brief.—An ornament for ceilings and walls consists of a frame-work of wood or metal, and a netting of wire or fibrous material to receive and hold the plastering spread upon it.



182,869.

As a new article of manufacture, an ornament adapted to be secured in position, consisting of a frame, *b*, netting *a*, stretched over the same, and plaster A, spread over the netting, substantially as described and shown.

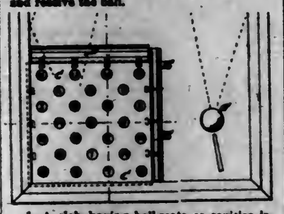
182,870. LIGHTNING-RODS. Robert S. Cole, Mount Pleasant, Iowa. [Filed Apr. 8, 1876.]



The sheet-metal sleeve C, provided with the discharging projections D D on its lower end and sides, and having openings *e e* in its sides, said sleeve being adapted to receive the ground-section A of a lightning-rod, substantially as described, and for the purpose set forth.

182,871. ATTACHMENTS FOR BILLIARD-TABLES. E. W. Collender and A. P. Rudolphe, New York, N. Y. [Filed Sept. 16, 1876.]

Brief.—A tablet, rectangular in shape, and recessed to form cups, which are numbered, has one side or end fitted with an incline, and upon another side a removable cushion, to adapt it for any corner of a billiard-table bed and receive the ball.



1. A slab, having ball-seats or cavities in its upper surface, and provided with an inclined surface at one edge, and a cushion at another edge, and adapted to be used on a billiard-table, substantially as set forth.

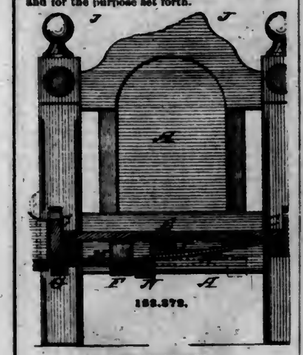
2. In combination with the slab C, or its equivalent, an inclined and removable or shifting plate or piece, D, the whole constructed to operate substantially as and for the purpose set forth.

3. In combination with a slab or contrivance adapted to be moved or shifted to different corners of a table, a reversible and shifting cushion-rail, E, whereby the contrivance may be adapted to any one of the four corners of the table.

182,872. CRIB ATTACHMENTS FOR BEDSTEADS. Jos. H. Couri and R. F. Lemley, Newark, Ohio. [Filed Sept. 13, 1876.]

1. The crib J, having the folding ends L and slats M, in combination with the bars G and N and the springs H I, substantially as and for the purpose set forth.

2. The bars F, G, and N, and the crib J, in combination with the springs H I and transverse bar E of the bedstead, substantially as and for the purpose set forth.



182,872.

182,873. SCREW-PROPELLERS. Harry A. Crossley and Geo. W. French, Cleveland, Ohio. [Filed Sept. 21, 1876.]



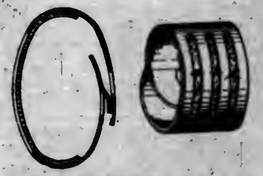
1. A propeller-blade having one edge straight, or nearly so, and the other parabolic or elliptical, a concave face, convex back, and a reversely-curved tip or edge, substantially as and for the purpose specified.

2. The blades of a screw-propeller, having corrugations, flutes, or grooves, deepest at their forward ends, and decreasing rearwardly in depth gradually, substantially as and for the purpose specified.

3. A screw-propeller having blades set at different angles or pitches, and in different planes on the hub, substantially as and for the purpose described.

4. A propeller-blade having corrugations, flutes, or grooves, decreasing gradually in depth rearwardly, and its tip or edge curved backwardly, substantially as shown and described.

182,874. BRACELETS. Paul J. Cullman, New York, N. Y. [Filed Nov. 19, 1875.]



A bracelet consisting of a solid band, provided with a series of parallel circumferential or longitudinal slots in its back, as shown and described, for the purpose specified.

182,875. DEVICES FOR PICKING COTTON. Richard A. Ottilig, Shreveport, La. [Filed Aug. 23, 1876.]

1. For picking cotton, a glove or other hand-covering, provided with wire fangs or hooks inclined toward the wrist, substantially as shown and described.

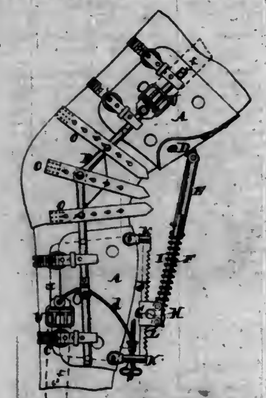
2. The combination, with a glove, of the fangs or hooks formed of wire, having a loop, *a*, which is bent down to secure the fangs or hooks, as shown and described.



182,875.

182,876. APPARATUS FOR CONTRACTED JOINTS. Saml. A. Darrach, Orange, N. J. [Filed Apr. 12, 1876.]

Brief.—The usual adjusting connection between the upper and lower part of a leg-brace is made yielding by a coil-spring. The lower part of the leg is drawn downwardly by cords running over pulleys on the apparatus, and attached to sticking plasters on the leg itself.



1. The combination of the clasps A A with the spring I and rods E F, and the rack and pawl *d* L, substantially as described.

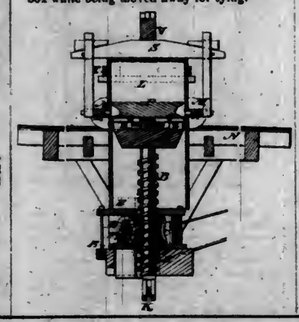
2. The cords *d* and bands *f*, arranged upon the clasps A, and operated by means of an adjusting-screw, S, substantially as described.

182,877. PROCESSES OF TREATING RAWHIDE. Samuel A. Darrach, Orange, N. J. [Filed Apr. 12, 1876.]

The process herein described of treating rawhide by saturating it with a solution of shellac and borax, then compressing it and subjecting it to heat, all substantially as set forth.

182,878. COTTON-PRESSES. Jas. H. Davis and William White, Winnsborough, Tex. [Filed Apr. 26, 1876.]

Brief.—The arm attached to the lower end of the main screw operates the slides to throw the worm out of gear when the follower has been raised to the height required. A false follower is employed to secure the bale in the box while being moved away for tying.



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1. The combination, with the nut C and screw B of a screw-press, of a worm, D, for driving the follower home, and a gear-wheel, H, for returning it, mounted in adjustable bearings for gearing and ungearing with the nut, substantially as specified.

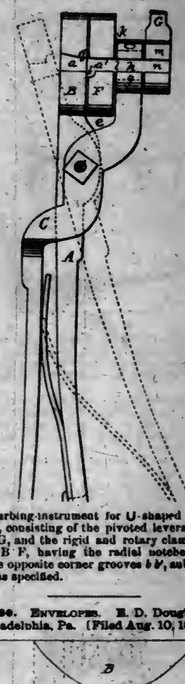
2. The combination of the arm K, screw B, slides E, and the worm, as shown and described.

3. The combination, with the false follower P, adapted to be relieved from follower A, of the movable upper press-box L, as described, and having wheels M and cross-bar V, all as shown and described, to operate as specified.

4. The catches Q of false follower P, having hooked projections Z, in combination with the T-shaped studs W of follower A, substantially as specified.

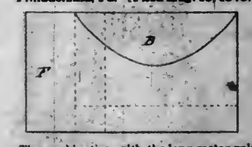
182,879. WIRE-BARBING TOOLS. J. Dobbs, Victor, Iowa. [Filed Aug. 24, 1876.]

Brief.—Grooves at the corners of the slots for the fence-wire, and extending around the axis of motion, receive a U-shaped barb.



A barbing-instrument for U-shaped barb blanks, consisting of the pivoted levers A C, crank G, and the rigid and rotary clamping-heads B F, having the radial notches *a a'* and the opposite corner grooves *b b'*, substantially as specified.

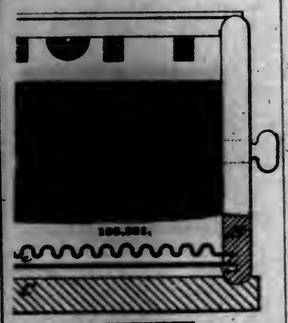
182,880. ENVELOPES. H. D. Dougherty, Philadelphia, Pa. [Filed Aug. 10, 1876.]



The combination, with the long rectangular strip A A', of the turn-flaps B C D and return-flap E, to form the envelope, with extension F, in the manner specified.

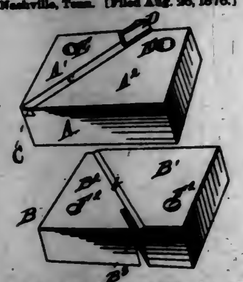
182,881. SIGNS. William Draper, Philadelphia, Pa. [Filed Aug. 9, 1876.]

The means herein described for producing light and shade on letters or figures, consisting of a corrugated or fluted background, combined with a plate of glass on which transparent letters or figures are delineated, or with an opaque plate of metal or other material from which open letters or figures are cut, substantially as and for the purposes shown and set forth.



186,892.

186,892. MANUFACTURE OF BALE-TIES. S. N. Drake, New Orleans, La., assignor of one-fourth his right to Wm. W. Totten, Nashville, Tenn. [Filed Aug. 26, 1876.]



1. A die, A, having raised biting-flange D and concavities E E, in combination with a die-surface having a slot, F², and convex bends F², substantially as and for the purpose set forth.

2. The combination of die A, having bar C, oblique bevel *a*, biting-flange D, and concavities E E, with die B, having longitudinally-oblique bevel *b*, slot F², and convex bends F², substantially as set forth.

3. A bale-tie having depressed portion G¹, slot G², and spade G¹ G² upon one end, and corresponding depressed portion H¹, slot H², and spade H¹ H² on the other end, substantially as and for the purpose set forth.

4. A bale-tie having depressed portion G¹, oblique bevel G², slot G², and spade G¹ G² upon one end, and corresponding depressed portion H¹, oblique bevel H², slot H², and spade H¹ H² on the other end, substantially as and for the purpose set forth.

186,893.



186,893. BASE-BURNING HEATING-STOVES. James Dwyer and John V. B. Carter, Detroit, Mich., assignors, by mesne assignments, to S. H. Ransom, trustee, Albany, N. Y. [Filed May 22, 1874.]

1. In a heating-stove, the combination of two descending flues and one ascending flue, located within the shell and on the rear, with corresponding flues in a hollow base, entirely filling the same, substantially as described.

2. In a heating-stove, the combination of the segmental flue-strips in the base thereof, the ascending and descending flues, and the curved partition *a*, having a damper-opening, all arranged substantially as set forth.

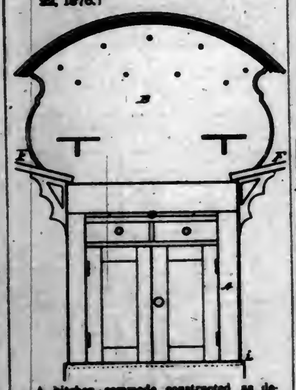
3. In combination with the section C, the slots *a* formed in the outer wall of the same, above the plane of the grate, and the sliding segments *a*, adapted to cover said slots wholly or partially for the purpose of inserting a poker through said slots, to clear off the top of the grate, and at the same time prevent the escape of dust, substantially as described.

186,894. MILK-COOLERS. Curtis C. Eddy and Dwight H. Foster, Mexico, N. Y. [Filed Sept. 2, 1876.]

Brief.—A table, having an elevating device attached to one leg, is provided with a pan, which is divided by a reservoir extending the whole length of the pan. This reservoir has a funnel and a pipe at one end, by means of which the heating or cooling medium is introduced, while discharge-pipes lead from the top and bottom of the other end. Two discharge-pipes, one each side of the reservoir, open from the pan to draw off the milk.

In combination with the pan A and central longitudinal reservoir B, the funnel C, pipe D, entering at one end of the reservoir, waste-pipe E, discharging from the top of the other end, discharge-pipes G I, and a table, J, provided with an elevating device, L, at one end, substantially as shown and described.

186,895. KITCHEN-CONSOLES. Wm. Elvin, Indianapolis, Ind., assignor of one-half his right to John W. Johnson. [Filed Aug. 23, 1876.]



A kitchen-commode constructed as described, and consisting of the body A, provided with the groove *i* entirely around its base, and having a cupboard in the lower portion with a sink and drain-pipe, and small receptacles K K above, covered by the folding top F F, and a detachable sideboard, B, all constructed to operate substantially as and for the purpose set forth.

186,896. SPINNING-FRAME SPINDLE AND BOBBIN. Jeremiah Bemis, North Bennington, Vt. [Filed June 24, 1876.]

Brief.—The bobbin is provided with a metallic core, extending from the base about half-way up, or some distance toward the top of the bobbin, and furnishing a metallic frictional connection between the said bobbin and the spindle, which is shortened so that its upper end terminates just above the metallic lining of the bobbin.



1. The spindle A, constructed substantially as shown, and projecting above the bolster a distance barely sufficient to receive and drive a bobbin by frictional contact applied only at the bottom thereof, substantially as specified.

2. The bobbin B, provided at its bottom with a metallic bushing, C, adapted to be attached to a spindle, substantially as set forth.

3. The spindle A, restricted in its projection above the bolster, as specified, in combination with the bobbin B, with or without metallic bushing, and adapted to be driven by frictional contact, substantially as shown and described.

186,897. TET-SQUARES. Jeremiah Bemis, Bennington, Vt. [Filed Apr. 26, 1876.]

Brief.—Blades of square perforated at points of graduation, and used in connection with suitably-constructed scribing-points, for laying off bevels, mortises, and other rectangular work.
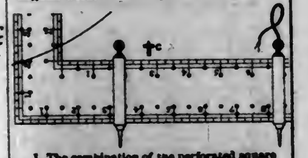


1. The combination of the perforated square A B and guide-centers C C, substantially as described and set forth.

2. A square for artisans' use, having each limb thereof provided with perforations at regular intervals of linear measure, reading from the inner edge of its adjacent limb, substantially as specified.

186,898. DOUGHS. Joseph Fowler, Robert K. Gauthier, and John C. Allen, Buffalo, N. Y. [Filed May 13, 1876.]

Brief.—The usual suppository of cocoa-butter is made flexible by adding various ingredients—among others glycerate of starch. This flexible bougie is coated with glue or gelatine, which can be medicated.

1. A flexible urethral bougie composed of gum arabic or tragacanth, glycerate of starch, and cocoa-butter, in substantially the proportions specified.

2. The glycerate of starch, as an ingredient of flexible urethral bougies.

3. A flexible urethral bougie, medicated or not, flexible at the temperature of the body, coated with glue or gelatine, medicated or not, as set forth.

186,899. REVOLVING FIRE-ARMS. Frank W. Freund, Cheyenne, Wyo. [Filed Sept. 27, 1876.]

Brief.—The object of the invention is to produce an arm that may be taken apart and put together by hand without the use of tools, and in which the parts are so interlocked with each other that they are secured together by a single latch-fastening, and the use of screws, pins, and keys is dispensed with.



1. A continuous connection of parts in pistols extending throughout the arm, finally locked by a single device, substantially as described, whereby all the parts are secured in their positions, and by the unlocking of the said locking device all the pieces become detachable successively or in groups, substantially as set forth.

2. A locking device, substantially as described, for a revolving fire-arm, by the unlocking of which all the parts previously connected may be disconnected, substantially as set forth.

3. In a revolver, a removable or detachable lock-plate carrying the lock mechanism and the revolving mechanism, substantially as described.

4. The lock-plate C and the cylinder-rod C², united together and supporting one another, substantially as set forth.

5. A detachable lock-plate adapted to be inserted into its seat in the breech-frame, and to be held therein by the removable parts contiguous to it, substantially as described.

6. The back-strap N, having its upper end fastened to the cylinder-frame B, the lock-plate C, and the guard-strap L, having its lower end interlocked with the lower end of the back-strap N, substantially as set forth.

7. The connection of the lock-plate C, carrying the cylinder-rod C², the latter having a notch, *c*², and the guard-strap L, having a hook, *l*, and a projection, *l*², substantially as set forth.

8. The final locking device, consisting of the spring O, provided with the pin *o* attached to the back-strap, and the guard-strap L provided with the socket *l*², substantially as set forth.

9. The combination of the back-strap N, having the leg N², the guard-strap L, having the pin P, and a latch-fastening, substantially as described.

10. The combination of the back-strap N, having the leg N², and the notch *n*², with the pin P of guard-strap L, and the spring P², substantially as set forth.

11. The combination of the cylinder-rod C² and the extractor-case S, having a flange, U, substantially as set forth.

12. The combination of the barrel A, provided with a lug, T, having a projection, *t*, and the extractor-case S, for holding said case in position, substantially as set forth.

13. The extractor or ejector case S, provided with an enlargement, *r*¹, at the rear end of its bore, as and for the purpose described.

14. The means herein described for securing the spring D to the lock-plate C, consisting of the button *c*², so shaped that when the corresponding shaped opening in the spring is placed over it, and a partial turn given to said spring, the latter will be fastened in place, as set forth and described.

15. The combination of the main spring P, having a hook, *p*, and the back-strap N, having a notch, *n*², substantially as set forth.

16. The combination of the guard-strap L, the rest-pin F, the cylinder-frame B, the spring *m*, and the piston *m*², substantially as set forth.

17. The combination of the frame B and the guard-strap L, having the hook *l*, and a fastening device on the rear stock, whereby the two parts are connected together so as to be separated by a downward-swinging movement of the guard-strap, substantially as described.

18. The combination of the cylinder-frame B, the guard-strap L, having the hook *l*, and the cylinder-rod C², having the notch *c*², substantially as set forth.

19. The combination of the lock-plate C, having a button with an inclined surface, C², and the cylinder-frame B, having an inclined surface, B², substantially as set forth.

20. The combination of the guard-strap L, provided with the leg *l*², the lock-plate C, and the back-strap N, with the pin *n*², substantially as set forth.

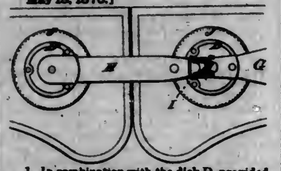
186,900. BALE-TIES. A. A. Goldsmith, Charleston, S. C. [Filed Sept. 2, 1876.]



1. The tie-plate D, having the angular cross-tongue E, rear bar G, depressed at the bend *k*, and guard F, separated from said cross-tongue by the angular slit *s*, opening at the front of the plate, and joined to the depressed rear bar G, substantially as specified.

2. The tie-plate having the angular cross-tongue E separated by slit-opening *s* a in front, and the bent fastening-legs *a* cut from the material of the plate in rear, substantially as specified.

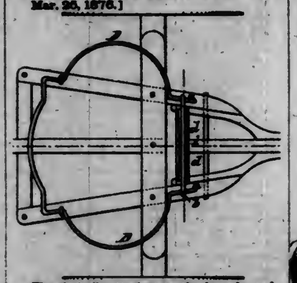
186,901. FASTENINGS FOR HORSE-BLANKETS. Jonathan Hall, Keene, N. H. [Filed May 13, 1876.]



1. In combination with the disk D, provided with the projections *a a*, and adapted for attachment to a horse-blanket or other similar article, the hook E, disk *D'*, strap H, and eye I, all substantially as, and operating as set forth.

2. In combination with the hand-strap G, the disks D D', hook E, and eye I, all substantially as set forth.

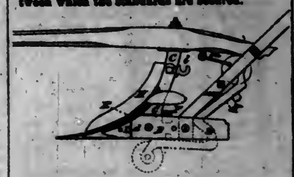
186,902. TONGUE-SUPPORTS FOR WAGONS. Isaac N. Marbaugh, Brighton, Iowa. [Filed Mar. 20, 1876.]



The circle D, attached to the hounds, and provided with the arms *a a*, connected together by the bar *b*, in combination with the pole C, adjustable springs *d d*, connected by a single bolt, *i*, and notched at *e*, substantially as described, and for the purpose set forth.

186,903. PLOWS. George T. Hedrick, Mill Springs, Ky. [Filed July 10, 1876.]

Brief.—Form of standard and mode of attaching the parts to it. A bearing-wheel arranged to be secured under the plow or out of use above it. Land-side of two plates, between which the standards are secured.



1. The plow-standard C, having the point *a* and lug *d*, and provided with the seat E, having the notched vertical flange *e*, as shown and described.

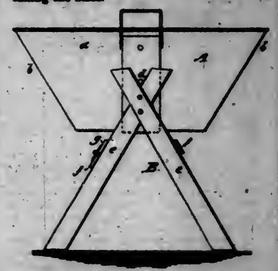
2. The combination of the standard C with double land-side, mold-board, and share, as shown and described.

3. The curved or bent arm K, carrying the bearing-wheel and pivoted to the land-side plates, as shown and described, for the purpose specified.

4. The bent arm pivoted to the heel of the land-side, the bearing-wheel, pivoted to the free end of said arm, the hook *m*, and the handles B, extended below the beam, as shown and described, whereby the wheel may be secured in the elevated position, as specified.

186,904. NAIL-BOXES. Robert Hermance, Schuylerville, N. Y. [Filed Aug. 26, 1876.]

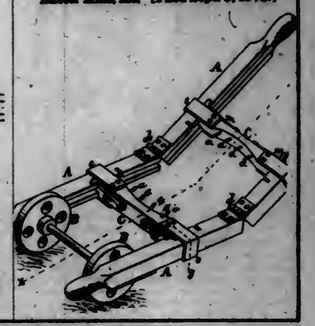
Brief.—This is an iron box hung upon trunnions, to contain nails or other like articles, so that the box can be readily handled in retailing the nails.



1. The basket A for containing nails or other like articles, having flat side *a*, flaring ends *b*, and pivots *d*, in combination with a suitable frame or support, substantially as and for the purpose set forth.

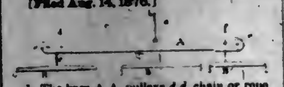
2. The frame or support B, consisting of cross-pieces *e* and cross-bars *f*, and hinged slat *g*, in combination with the basket A, substantially as and for the purpose described.

186,905. RAISIN-TRIMMER. Charles F. Hill, Exeter Mills, Me. [Filed Sept. 9, 1876.]



The carriage c supposed of the hinged side pieces A A and the movable cross-bars C C, with their latches, in combination with the truck-wheels B B, for the purpose specified.

182,396. TRAIN-HOOKS EQUALIZERS. Thos. Hoadley, Tuscola, Ill., assignor of one-half his right to Wm. M. Lowman, same place. [Filed Aug. 14, 1876.]



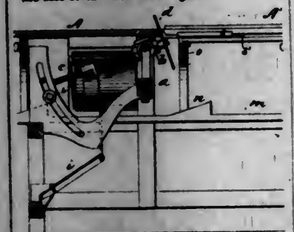
1. The bars A A, pulleys *d d*, chain or rope *c*, connected with single-trees B B, arranged to balance the third single-tree B, substantially as described.

2. The combination, with the triple-tree A, of pulleys *d d*, chain or rope *c*, for the attachment of the single-trees B B, as constructed and arranged.

3. The triple-tree A, single-tree B', pulleys *d d*, chain or rope *c*, and single-trees B B, combined and arranged as and for the purposes described.

182,397. MITERING-MACHINES. Leonard D. Howard, St. Johnsbury, Vt. [Filed July 31, 1876.]

Brief.—A circular saw is carried upon a frame, one end of which is pivoted and the other vertically adjustable, the saw-table moving upon slides, so as to adjust the opening through which the saw passes to the different positions of the latter as its angle to the face of the table is changed.



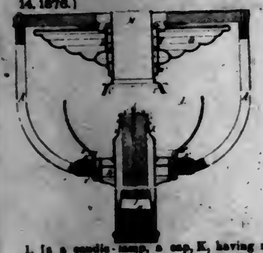
1. In a mitering-machine, the saw, which has its arbor revolving in one rocking and one movable bearing, the rocking bearing being behind the plane of the saw, in combination with a table adjustable to and from the saw, as set forth.

2. The adjustable arbor, carrying the saw, pulley *f*, band and driving pulley *g*, in combination with the tightening-pulley *h*, the parts being arranged and operating as set forth.

3. The table A', adjustable on ways *s s'*, and held in place by set-screws *p*, as set forth.

4. The guides *q q*, pivoted to the adjustable table A', with pin to move in slots *t t*, and in combination with the tipping-saw, as set forth.

182,398. CANDLE-LAMPS. Frank L. Howard, Hartford, Conn., assignor to James L. Howard & Co., same place. [Filed Sept. 14, 1876.]



1. In a candle-lamp, a cup, K, having a horizontal annular flange or rim, *b'*, and a shoulder, *b''*, which, together with the top end of the candle, form a chamber, *b'*, for the melted tallow, the said chamber being of smaller diameter than the candle, substantially as and for the purpose set forth.

2. The combination of the tube G, having a flange, *g*, the spring H, and the conical cap I, and a circular knife-edge, *f*, and the cap K, having a conical bearing, *h*, and a stop, *b'*, all constructed and operating substantially as set forth.

3. The combination of the notches *b'* and the stopping-pin *b'*, constructed and operating substantially as set forth.

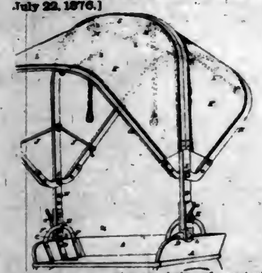
4. The combination of the projections *d*, spaces *d'*, laps *d''*, the pin *b'*, and the spring-bolt C, all constructed and operating substantially as set forth.

5. The combination of the body D, the springs F, the flanges *b'*, and the projections *d*, all constructed and operating substantially as set forth.

6. In a bracket or center car-lamp, the combination of tubes M M', spring F, socket *m*, socket *b'*, and lamp-globe L, substantially as described.

7. The combination of the reflector O, the tubes M, M', and N, the socket *m*, the flange *a*, and spring P, all constructed and operating substantially as set forth.

182,399. WAGON-SEAT AWNINGS. Demetrius Jannopoulo, St. Louis, Mo. [Filed July 22, 1876.]



A wagon-seat awning consisting of a central bow, D, provided with front and rear wing-bows G H, cover K, seat-joints *b*, curved guide-bars F, screw-bolts E, and hand-nuts *e'*, as and for the purpose set forth.

182,400. MACHINES FOR SEWING FURS. C. F. Knoch, New York, N. Y. [Filed July 12, 1876.]

Brief.—The special improvement consists in providing a device for laying down the hair out of the way, so that the seam will be only in or on the skin. Other improvements are in details of construction and arrangement.

1. In a machine for sewing furs, in combination with the sewing and feeding mechanism, a device or mechanism, substantially as described, for combing or laying the hairs or fibers down or out of the way for the seam, as herein set forth.

2. The combination of a rotary brush or wheel with the needle and feed, substantially as and for the purposes herein set forth.

3. The combination of the feed, the horizontally-operating needle, the vibrating needle, and the frame having a vertical cross-slot to pass the work vertically, with the over-seam on top, and exposed to the eye of the operator, substantially as herein set forth.

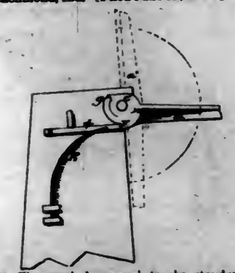
4. The combination of the driving-shaft with its cams and crank, the vertical sliding bar with vibrating lever, the take-up, needle-bar, twister with its operating mechanism, and the feed with its levers and the vibrating needle, all substantially as and for the purposes herein set forth.

182,401. PROCESSES FOR REFINING PETROLEUM AND OTHER OILS. Daniel M. Lamb, London, Ontario, Canada. [Filed Sept. 19, 1876.]

1. In the art of treating oils by the agency of gas generated by the admixture of sodium chloride and sulphuric acid, the first step toward bleaching and deodorizing, which consists in generating the gas beneath the oil, and while the same is at rest, thus permitting the gas to permeate the oil and act upon the entire body, substantially as described.

2. The process of treating oil by agitating in contact with the gas and water, drawing off the water, and discharging the gas by blowing air through the body of oil, substantially as described.

182,402. SCHOOL-DESKS. M. Lancaster, Richmond, Ind. [Filed June 19, 1876.]



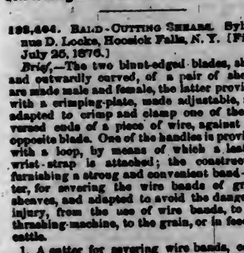
1. The pawl *d*, secured to the standard which supports the desk, and adapted to engage with or be disengaged from a stop automatically by the movement of the lid of the desk on its hinge or pivot, substantially as described, for the object herein set forth.

2. The horizontal bar *d*, pivoted at its rear end to the standard of the desk, in combination with the spring E and lid-supporting arm *d'*, having the cam-surface and shoulders or stops *g* and F at its rear end, substantially as shown and described.

182,403. CALCULATORS. Niels Larsen, West Point, Nebr. [Filed June 15, 1876.]

The combination of the concentric numbered and independently-movable cylinders A B C with the perforated shield D and a suitable locking device, substantially as set forth.

182,404. SCHOOL-DESKS. James A. Lougee, Concord, N. H. [Filed June 19, 1876.]



1. The combination of the desk-top A, the hinged leaf B, the standard C, and the pivoted bar D, substantially as described.

2. The combination of the desk-top A, the hinged leaf B, the standard C, the pivoted bar D, and the pivoted bar E, substantially as described.

182,405. BALE-CUTTING SHEARS. Sylvanus D. Locke, Hoosick Falls, N. Y. [Filed July 26, 1876.]

Brief.—The two blunt-edged blades, short and outwardly curved, of a pair of shears are made male and female, the latter provided with a crimping-plate, made adjustable, and adapted to crimp and clamp one of the reversed ends of a piece of wire, against the opposite blade. One of the handles is provided with a loop, by means of which a leather wrist-strap is attached; the construction furnishing a strong and convenient hand-cutter, for severing the wire bands of grain-sheaves, and adapted to avoid the danger of injury, from the use of wire bands, to the thrashing-machine, to the grain, or in feeding cattle.

1. A cutter for severing wire bands, composed of the male and female blunt-edged shear-blades A B, the latter being provided with the crimping-plate *m*, adapted to crimp and clamp one of the severed ends against the side of the blade A, substantially as and for the purpose set forth.

2. In combination with the blades A B, the crimping-plate *m*, made adjustable, substantially as and for the purpose described.

3. The blades A B, having a plate, *m*, attached to one of said blades, for the purpose of clamping against the side of the opposite blade one of the severed ends, and provided with a loop, *d*, to receive a wrist-strap, as set forth.

182,406. VENTILATING CARS. J. Loughin, Philadelphia, Pa. [Filed Sept. 27, 1876.]

Brief.—The ceiling has numerous perforations, through which the foul air arising from the inside of the car will pass, and be carried away by the lateral drafts through the open side or wire-gauze.



1. A car provided with a false ceiling, C, below the roof, forming an air-chamber, D, said ceiling being perforated or formed with openings *c c* for the passage of air, substantially as shown and described.

2. The chamber D, having foraminated bottom, divided into separate compartments by the ribs or girders E E, and having also side openings G G, to permit the passage of lateral air-currents.

182,406. PROCESSES OF REFRIGERATION. R. H. Lucas, San Francisco, Cal. [Filed July 14, 1876.]

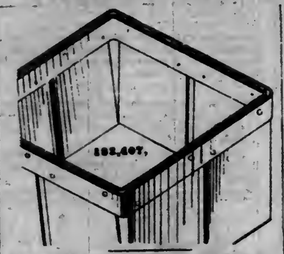


1. The process herein described of producing a low degree of temperature for curing and preserving purposes, consisting of the circulation of air over and around troughs containing a non-congealable saline liquid and of a refrigerant gas, through tubes or pipes immersed in said liquid, substantially as herein-before set forth.

2. In combination with a refrigerating-room, B, provided with the saline troughs and refrigerant gas-pipes A *a*, the chamber E, provided with non-congealable saline troughs C C, pipes *c c*, and fan D, and pipes *d d d' d'*, the upper and lower chambers connected by channels and openings *b b b' b'*, whereby a free circulation is obtained, in the manner and for the purposes described.

182,407. FRUIT-BASKETS. J. H. Marvil, Laurel, Del. [Filed Jan. 9, 1876.]

A basket constructed of two pairs of parallel independent splints, one pair being secured to the other at right angles to the same, the intersecting portions forming the bottom with suitable intervices for ventilation, the ends beyond said intersecting parts being provided with an offset on their outer edges, for the purpose of partially filling up the corners of the box when bent upward and bound together, substantially as set forth.



182,407.

182,408. LATHE-DOGS. James McGeorge, Bellaire, Ohio. [Filed June 27, 1876.]

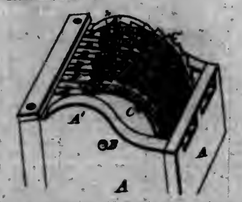
Brief.—The opening in the frame of the dog has converging sides, which form a base or wedge-point, upon which the article is clamped by the screw. The end of the screw turns in a bearing of Babbitt metal in a cross-brace, which slides in guides formed in the inner sides of the dog, and projects slightly beyond said cross-brace, the purpose of which is to steady the screw and prevent it from twisting so as to impinge against the work to be clamped.



1. The combination, with the dog or carrier *a*, having the converging open sides *s s* and the griping-screw *a*, of the cross-brace *f*, attached to the end of said screw and carried by it, as and for the purpose described.

2. The dog-frame or carrier *a*, provided with grooved guides *g*, forming griping double ribs, as combined for use with the cross-brace *f* and the griping-screw, as described.

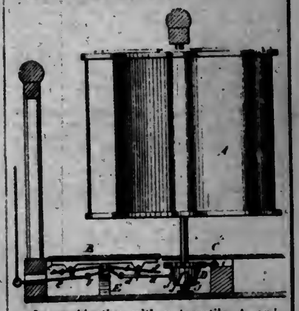
182,409. ADDING-MACHINES. J. H. Mears, Oshkosh, Wis., assignor of one-half his right to A. C. Austin, same place. [Filed Mar. 20, 1876.]



1. In an adding-machine, the combination of the notched plate C', having projecting pins *c*, with the disks C, provided with recesses *c* for the spring-pins *f*, the latter projecting through slots *g* beyond the peripheries of disks C, substantially as and for the purpose herein-before set forth.

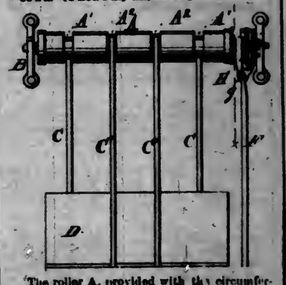
2. The combination of the disks C C', having spring-pins *f*, with the springs D, having cams *t*, substantially in the manner and for the purpose herein-before set forth.

182,410. PASSENGER-REGISTERS. William Mehan, Hoboken, N. J., assignor to himself, Hezekiah Butts, and Jno. Egan, same place. [Filed Aug. 26, 1876.]



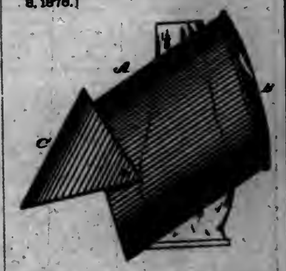
In combination with a turnstile, A, and ratchet C, the cam D, having concave notches, and the pins *f* centrally located in the notches, the levers *d e* and *b k*, spring K, and platform B, substantially as herein shown and described.

182,411. CURTAIN-FIXTURES. John W. Miller and Eugene W. Sibby, Ottumwa, Iowa. [Filed July 22, 1876.]



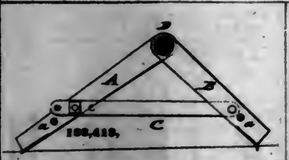
The roller A, provided with the circumferential guide-grooves A' A', in combination with the ribbons C C' C', operating therein, and attached to opposite parts of said grooves at their upper ends, and to the upper and lower ends of the curtain D at their lower ends, substantially as described, and for the purpose set forth.

182,412. COMBINED SHADE AND REFLECTOR. Caleb B. Mock, Kentland, Ind. [Filed Apr. 3, 1876.]



The inclined hoop A, reflector B, and adjustable hood or apron C, constructed and arranged substantially as and for the purpose herein set forth.

182,413. SHINGLING-BRACKETS. David M. Moore, Windsor, Vt., assignor to himself and James H. Cook, same place. [Filed July 22, 1876.]



The combination of pivoted braces A B, connecting-bands C, lateral piece D, and braces *a a*, all constructed and arranged as shown and described, for the purpose specified.

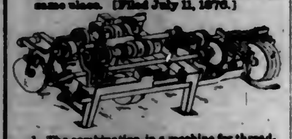
183,414. VARIABLE SIGNS. Louis Nieländer, Pittsburg, Pa. [Filed June 6, 1876.]



1. The combination, in a variable sign, of a flanged back plate, A, a flexible face-plate, C, a key, E, and letters D, the whole constructed and arranged substantially as described.

2. The combination of a guide-groove, *f*, with the flanged back plate A, key E, flexible face-plate C, and letters E, substantially as and for the purpose described.

183,415. MACHINES FOR THREADING SCREWS. E. S. Fiske, Hartford, Conn., assignor to National Screw Company, same place. [Filed July 11, 1876.]



1. The combination, in a machine for threading screws, of revolving dies for cutting the thread with jaws for griping the blank to be threaded, revolving contemporaneously in the opposite direction, substantially as described, and for the purposes specified.

2. The combination, in an intermittingly-revolving yoke-frame, of two spindles, provided with griping-jaws, and with clutch mechanism, substantially as described, for connecting either spindle, while threading a blank, with the shaft from which it derives the rotary movement requisite for the threading operation, substantially as described.

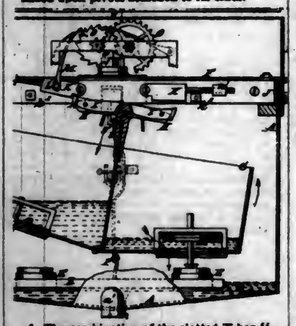
3. The combination of the die-arbor in a screw-cutting machine with mechanism, substantially as described, for giving a backward movement to the arbor, to enable the dies to clear the point of the threaded blank, and mechanism, substantially as described, for throwing out of and into gear the mechanism which causes the yoke-frame to be rotated, substantially as specified.

4. The combination of revolving jaws for holding a blank to be threaded, a die-arbor carrying threading-dies, revolving, while cutting the thread, in a direction opposite to the direction of rotation of the holding-jaws, and mechanism, substantially as described, for enabling any suitable spring-acting belt-shipper to act to change the direction of rotation of the jaws and the threading-dies, respectively, substantially as specified.

5. The combination, in a spindle for griping a blank in a screw-machine, of the griping-jaws, the internal compound levers, having a longitudinal movement, and a sliding sleeve, for moving the internal levers forward and backward, and causing them also to vibrate on their fulcra, substantially as described, whereby a wide extent of opening can be obtained, to enable the jaws to receive a blank, coupled with a powerful gripe, to enable the jaws to hold the blank.

183,416. WATER-METERS. Sebastian Fitzmaie, Portland, Oreg., assignor to himself and Thomas Hutton, same place. [Filed July 22, 1876.]

Brief.—The tank is divided into two equal compartments by a cross-partition, and balanced upon pivots attached to its sides.

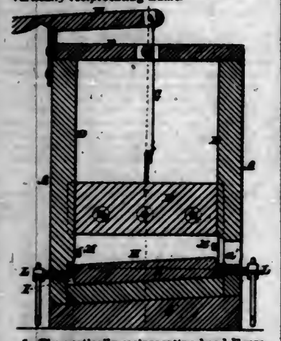


1. The combination of the slotted T-bar H, the pivoted catch-bars I, the pivoted weighted bar K, *k'*, the pin or rod L, the pawl M, and the ratchet-wheel N, with the tilting tank C, the case A, and the register O, substantially as herein shown and described.

2. The combination of the valve G *g'*, the connecting-bar P, the lever Q, and the float R, with the supply-pipe F and the case A, substantially as herein shown and described.

183,417. MACHINES FOR TRIMMING STAVE-BLANKS. David Bait, Brooklyn, N. Y., assignor to H. T. Richardson. [Filed Aug. 14, 1876.]

Brief.—The stave-blank is secured upon an inclined bed, and cut to the desired form by means of two parallel knives attached to a vertically-reciprocating frame.



1. The vertically-reciprocating head E, provided with the parallel cutters H and H, the ways D and D, secured upon the standards A and A, and arranged to receive the grooved ends of said head, and the base C, connecting together said standards and furnishing a support for the material being operated upon, in combination with each other and with the mechanism for raising and releasing said head, substantially as and for the purpose specified.

2. The means employed for securing the stave-blank in place, consisting of blocks I and I, secured to or upon the inner faces of the standards A and A, and the screw L, passing horizontally inward through one of said standards and blocks, said parts being combined to operate substantially as shown.

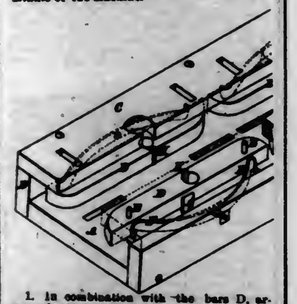
3. In combination with the cutters H and H, attached to the head E and arranged to reciprocate vertically, the base C, provided with the grooves *c* and *c*, and having an inclination of its upper face with relation to the line of the cutting-edges of said cutters, substantially as and for the purpose set forth.

4. The standards A and A, cross-bar B, base C *c c*, guides D and D, sliding head E, lever F, cord G, cutters H and H, and blocks I and I, and screws L and L, all constructed and combined to operate in the manner and for the purpose substantially as shown and described.

5. In combination with the standards A and A, the base C, and with the vertically-reciprocating cutters H and H, the cleats M and M, secured upon said standards, substantially as and for the purpose specified.

183,418. PLANING-MACHINE GUIDES. David Bait, Brooklyn, N. Y., and Geo. S. Prindle, Washington, D. C., assignors to H. T. Richardson. [Filed Aug. 10, 1876.]

Brief.—The guides are made simultaneously adjustable, so that the central line of the piece being planed shall coincide with the middle of the machine.

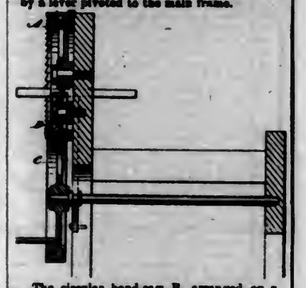


1. In combination with the bars D, arranged to bear with a yielding pressure against the edges of material being operated upon, the bars H, pivoted together and to said bars D, in the manner and for the purpose substantially as specified.

2. The frame composed of the plate A, sides B, and top plate C, the pressure-bars D, the guide-studs E and G, the springs F, the pivotal bars H, and the guide-blocks I, all constructed and combined to operate in the manner and for the purpose substantially as set forth.

183,419. MACHINES FOR SAWING STAVES. George W. Richardson, Arlington, Ky., assignor to himself and W. T. Davis, same place. [Filed Apr. 10, 1876.]

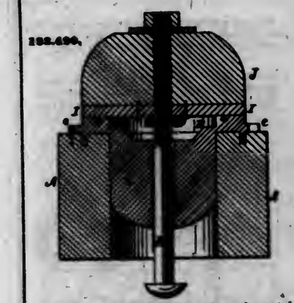
Brief.—Staves can be sawed to the proper shape by means of a circular band-saw arranged upon a stationary circular track, provided with a notch in the side adjacent to the work-table, for the passage of the staves, and a circular opening in its lower part, in which is secured a friction-roller, for pressing the saw onto a friction driving-wheel, which is mounted in a bridge-tree vertically adjustable by a lever pivoted to the main frame.



The circular band-saw B, arranged on a stationary way, A, having notches E and F, in combination with friction-wheel C and friction-roller D, substantially as specified.

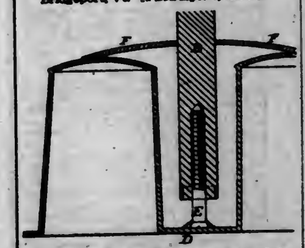
183,420. PUMP-VALVES. Cosmas Roth, Roseville, Ind. [Filed May 26, 1876.]

183,420.



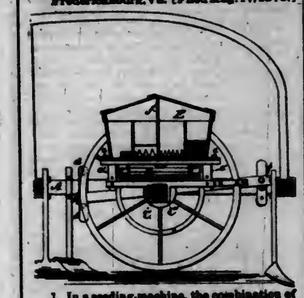
In combination with the stock A, the metallic frame B, having annular flange *e*, annular seat *s*, wings C C, and sleeve D between the same and the valve I J, screw-stem E, and nuts *n n*, all constructed substantially as and for the purposes herein set forth.

183,421. CLOTHES-POUNDERS. J. Russell, Bridgeport, Vt. [Filed Apr. 4, 1874.]



A handle, B, secured to the center of the pressure-plate D by means of the screw E, and braced above by the arms F, as shown and described.

183,422. COTTON AND CORN PLANTER AND FERTILIZER-DISTRIBUTER. William Scott, Fredericksburg, Va. [Filed Aug. 17, 1876.]

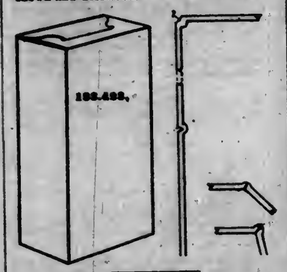


1. In a seeding-machine, the combination of the main frame A, main shaft C, hopper B, slotted projections and clamp-screws *e*, and vertical frames *e'*, substantially as shown and described, for the purposes specified.

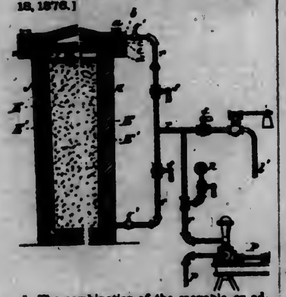
2. In a seeding-machine, the combination, with the hopper B, having rectangular opening *f f* in its bottom, of the vibrating shaft G, rectangular plate *g*, adjustable feeder *g'*, arm *g''*, and tappet or tappets *d*, substantially as shown and described, for the purpose specified.

183,423. PAPER BOXES. H. De F. Shelton, Birmingham, Conn., assignor of one-half his right to Thos. L. Cornell, same place. [Filed Feb. 3, 1876.]

A Manila or equivalent paper box-blank, printed and creased on the same side of the blank, and having printed lines in the depressions or creases, which indicate and facilitate the lines for bending, and also give a finish to the bended edges, all substantially as shown and described.



183,424. APPARATUS FOR FEATHERING LIQUIDS. Thomas R. Sinclaire, New York, N. Y., assignor to Sinclaire Rectifying Machine Company, same place. [Filed Aug. 18, 1876.]



1. The combination of the movable or adjustable diaphragm F, one or more, with or without the movable or adjustable diaphragms D E, either or both, and a filtering-vessel, substantially as and for the purposes herein specified.

2. The combination of the movable or adjustable diaphragm E, one or more, with or without the movable or adjustable diaphragm D, and a filtering-vessel, substantially as and for the purposes herein specified.

3. The combination of the movable or adjustable diaphragm D E F, any or all, with a conical or tapering filtering-vessel, substantially as and for the purposes herein specified.

4. The combination, with a filtering-vessel and the movable or adjustable diaphragms E F, either or both, of the pipe or pipes *r*, with or without the pump P, or other pressure-producing medium, the latter with or without the pressure-gage R and safety-valve S, either or both, substantially as and for the purposes herein set forth.

5. The combination, with a filtering-vessel, of the movable or adjustable diaphragms D E F, either or both of the latter, and differential forcing apparatus, substantially as herein specified.

6. The combination, with a filtering-vessel, of the chambers or passage-ways D' E' F', so arranged or constructed as to establish communication between all of the said chambers or passage-ways, substantially as and for the purposes herein specified.

7. The combination, with a filtering-vessel and a movable or adjustable liquid-tight diaphragm, of the passage or chamber medium T, substantially as and for the purposes herein specified.

8. The combination, with a filtering-vessel or chamber, of the movable or adjustable diaphragms or walls D E F, any or all, and the joints or hinges *a'*, *p*, and *s*, respectively, substantially as and for the purposes herein specified.

9. The combination, with a filtering-vessel or chamber, of the diaphragm E and the hinges or joints *p'*, one or more, substantially as and for the purposes herein specified.

10. The combination, with a filtering-vessel, of a flexible or movable feed or exit pipe, and a movable or adjustable diaphragm, D, E, or F, substantially as and for the purposes herein specified.

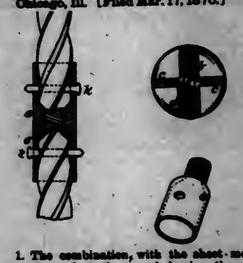
11. The combination, with a filtering-vessel, of the movable or adjustable liquid-tight diaphragm D E F, any or all, and spring or other mechanism for compressing the same, substantially as and for the purposes herein specified.

12. The combination, with a filtering-vessel, of the movable or adjustable diaphragms D E F, any or all, and ledges, shelves, or deflectors, with or without counter ledges or deflectors, substantially as and for the purposes herein specified.

13. The combination, with a filtering chamber or vessel, of a movable or adjustable bottom wall or diaphragm, provided with an impervious or liquid-tight surface surrounding its orifice or outlet, substantially as and for the purposes herein specified.

14. The combination, with a filtering vessel or chamber, of a longitudinally flexible or movable wall or walls or diaphragm, E, substantially as and for the purposes herein specified.

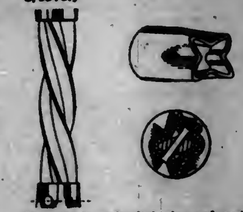
183,425. LIGHTNING-RODS. Chas. H. Smith, Chicago, Ill. [Filed Mar. 17, 1876.]



1. The combination, with the sheet-metal lightning-rod sections, each having the perforated central diametric bar *a*, of the pins *b* and the hollow cylinder coupling-sections *c c*, provided at their adjacent ends with screw-connections, and at their outer ends with cylindrical recesses, to receive the ends of the rod-sections and keep the same in position, substantially as specified.

3. A lightning-rod consisting of a central flattened or oval bar and an exterior copper sheathing, closely following in contact the surface of the edges of said bar or strip, to form two of the ribs of the rod, and bended or doubled upon itself longitudinally on each side of said bar or strip to form the other two ribs, substantially as specified.

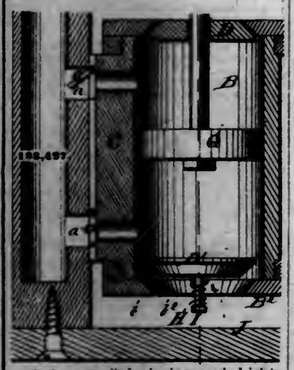
183,426. LIGHTNING-ROD CONNECTIONS. Chas. H. Smith, Chicago, Ill. [Filed Aug. 5, 1876.]



The couplings for lightning-rod sections, having solid bodies provided with screw-connections at their adjacent ends, and extended at their opposite ends to form hollow cylindrical compressed convoluted walls *b*, adapted to fit the grooves and ribs of said sections, substantially as specified.

183,427. PUMPS. Clarence E. Smith and Lemuel Kingsbury, Council Bluffs, Iowa; said Kingsbury assignor to H. Hollingsworth, same place. [Filed Sept. 9, 1876.]

Brief.—The cylinder-heads are cut away to form inwardly-flaring valve-seats for conical valves, which are held together by a framing consisting of two bent rods, which play vertically in staples secured on opposite sides of the cylinder-heads.



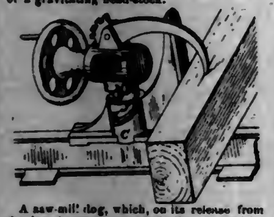
1. A pump-cylinder having a conical inlet-valve and valve-seat at each end, said valves being connected by a frame or rods, so as to act alternately, substantially as set forth.

2. The combination of tube A, cylinders B, inlet-valves D D, frame E, discharge-valves *e e'*, piston-rod F, and piston G, substantially as set forth.

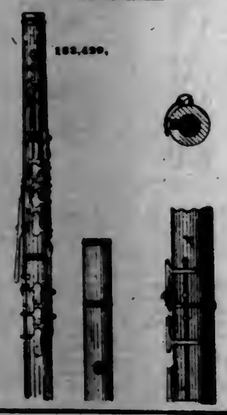
3. The combination of cylinder B, valves D D and *e e'*, piston-rod F, piston G, frame E, and spring H, substantially as set forth.

182,422. SAW-MILL DOGS. Saml. R. Smith and Edward Myers, Cincinnati, Ohio, assignors to the Lane & Bodley Company, same place. [Filed July 27, 1876.]

Brief.—The dog, when released from the log, is automatically retracted by the action of a gravitating head-stock.



A saw-mill dog, which, on its release from the log, becomes automatically retracted by the action of a gravitating head-stock, E, whose stem D occupies a socket, C, and whose stud J occupies a spiral slot or way, K, in the knee, or device substantially equivalent, for the purposes set forth.



182,429. FLUTES. Louis C. Southard, Boston, Mass. [Filed Apr. 11, 1876.]

The flute A, provided with the finger-holes a and the elongated keys B, combined, constructed, and arranged to operate substantially in the manner and for the purposes set forth.

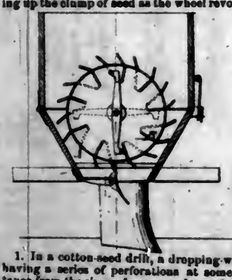
182,430. BURGLAR-ALARMS. J. F. Steiner, Dubuque, Iowa. [Filed Sept. 1, 1876.]



The combination, with a window-sash, provided with the pins or projections *g* of the swinging burglar-alarm A, having the hook *k*, hammer *a*, and trigger *b*, constructed and arranged substantially as described and shown.

182,431. COTTON-SEED DRILLS. Henry Steckler, Jr., New Iberia, assignor to himself and Richard Frotscher, New Orleans, La. [Filed Aug. 7, 1876.]

Brief.—The rim of the wheel is perforated with a series of holes, and a like series is formed a short distance from the periphery, for the reception of a wire that is passed from each side through the rim, and allowed to project to agitate the seed, and also to strike the upper end of a pivoted lever, for breaking up the clump of seed as the wheel revolves.

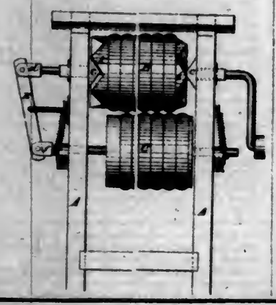


1. In a cotton-seed drill, a dropping-wheel, having a series of perforations at some distance from the circumference, and a perforated rim, in connection with wires passed through a hole of the wheel, and at alternate sides of the wheel through adjoining holes of the rim, substantially as and for the purpose set forth.

2. The combination of a dropping-wheel, having projecting wires, with an oscillating lever-fork, to drop seed separately, as specified.

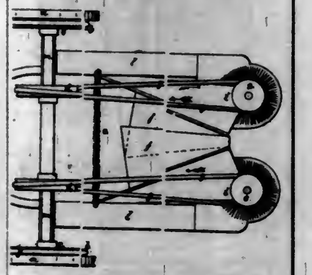
3. The combination of a dropping-wheel, having projecting wires, an oscillating lever-fork below the same, and an opener or plow, having funnel-shaped top part and open rear part, substantially as described.

182,432. WASHING-MACHINES. C. Stone, Barkesville, Ky. [Filed Aug. 21, 1876.]



The arrangement of the ribbed rolls B C, cams *b*, lugs *c*, lever E, and swivels *d f*, substantially as herein shown and described.

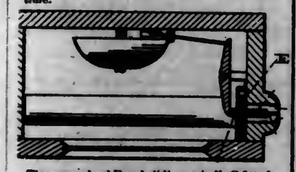
182,433. COTTON-HARVESTERS. William Stoddard, Winona, Minn., and Dewitt C. Herndon, Germantown, Tenn., assignors of one-third their right to Thos. A. Nelson, Memphis, Tenn. [Filed Mar. 2, 1876.]



The combination of the swinging frames C C, carrying the platforms *f f*, cylinders *i i*, and elevators *l l*, and regulated by means of the spring *o*, substantially as and for the purposes herein set forth.

182,434. STATION-INDICATORS. Amanda L. Waggoner and J. S. Waggoner, Bridgeport, N. J. [Filed Sept. 1, 1876.]

Brief.—An alarm, in connection with the indicator, is operated by the insertion of the key for turning the indicator; said key pushing in a spindle, which projects through the boss of the gear-wheel, whereby the indicator is operated and the gong sounded at the same time.



The gear-wheel E and sliding spindle G fitted therein, in combination with the sheet winding and unwinding rollers, and alarm-operating mechanism, substantially as and for the purpose set forth.

182,435. CHURNS. Abel G. Walton, Browning, Ill. [Filed Mar. 21, 1876.]



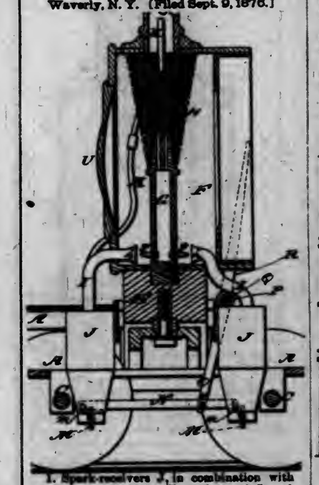
1. The dasher A, hung at one end upon the headed axis A', upon which it is free to slide, and provided with a spring, *a*, pressing against the said axis, substantially as and for the purpose set forth.

2. In combination with the dasher A and receptacle B, the axes A' A², spring *a*, and washer or packing D, substantially as and for the purpose set forth.

3. The lever C, in combination with the dasher A and axis A', held in position by a spring, *a*, substantially as and for the purpose specified.

4. The dasher A, consisting of radial beaters or paddles *s s*, punctured or perforated, as at *c' c'*, and provided each with a flange or rim, *c'*, substantially as and for the purpose specified.

182,436. SPARK-ARRESTERS. J. N. Weaver, Waverly, N. Y. [Filed Sept. 9, 1876.]



1. Spark-receivers J, in combination with steam-conducting pipe K, smoke-stack L, and exhaust-nozzle G, whereby the steam is drawn from said spark-receivers, substantially as set forth.

2. The combination of receivers J J with valves M, crank-arms *m m*, connecting rod or bar N, arm O, rocking sleeve or shaft Q, and operating-lever R, substantially as set forth.

3. The combination, with receivers J, of steam conducting pipe K, having lower bell-shaped mouth *k* and wire screen K', and with exhaust-nozzle G, and smoke-stack L, substantially as and for the purpose set forth.

182,437. RAILROAD-SWITCHES. Joseph S. Williams, Riverton, N. J. [Filed Aug. 17, 1876.]

Brief.—The crossing is a single rail, having its axis at the point of union of the rails of the main and side track, and is operated in one direction by an adjustable lever, and in the other direction by an adjustable guard-rail; said guard-rail extending slightly beyond the switching-point, and forming a bearing-plate for the wheels on the main line. An adjustable inside guard-rail also extends slightly beyond the switching-point, forming a bearing-plate for the wheels on the side track. The two guard-rails are loosely connected by bolts, which pass through the crossing-rail. Spiral springs are placed on the bolts, between the inside guard-rail and the crossing-rail, to keep said crossing-rail on an alignment with the main track.



1. The crossing C, consisting of a single length, having its axis at the butt-end, at the point of union of the rails of the main and side tracks, and positively operative in either direction over the main and side tracks by the action of the car-wheels upon a connection or connections at one or both ends of the switch, substantially as and for the purpose set forth.

2. The switch lever or guard G, automatically forcing the shifting rail or crossing either to the main line or side track, substantially as and for the purpose set forth.

3. The swinging lever E of the shifting-lever G, and movable rail C, rendered adjustable relatively to the throw of said rail C, substantially as and for the purpose set forth.

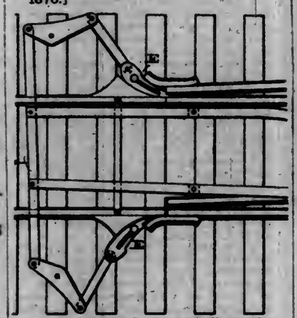
4. The plates or rails H H', lapping the joints of the switch-rail C and the rails A' B' of the main and side tracks, and connected, to leave threats, substantially as and for the purpose set forth.

5. The plates or rails H H', automatically adjustable, substantially as and for the purpose set forth.

6. The springs J, common to the switch-rail C and plates or rails H H', substantially as and for the purpose set forth.

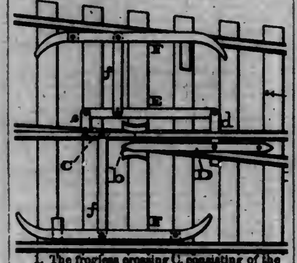
7. The bolt or plate K, in combination with the plates or rails H H' and the switch-rail C, substantially as and for the purpose set forth.

182,438. RAILROAD-SWITCHES. Joseph S. Williams, Riverton, N. J. [Filed Aug. 23, 1876.]



Plates or fillings E, automatically or otherwise operative, to take the bearings of the wheels either on the main line or side track at the end of the switch-rails, or to lock the same, substantially as set forth.

182,439. RAILROAD-SWITCHES. Joseph S. Williams, Riverton, N. J. [Filed Aug. 16, 1876.]



1. The frog-less crossing C, consisting of the two connected lengths A" B", and having its axis at the butt-end, said crossing forming a solid rail-bearing with either of the rails A' B', and positively and automatically operative therewith by the action of the car-wheels in either direction, without shifting any rail outside of the gage of the main line, substantially as set forth.

2. The bearing G at the opening joint of the switch-rail, substantially as and for the purpose set forth.

3. The plates or rails H, covering the head of the rail of the main or side track, and defining the course of the wheels approaching the head of the switch, substantially as and for the purpose set forth.

182,440. RAILROAD-SWITCHES. Joseph S. Williams, Riverton, N. J. [Filed Aug. 28, 1876.]



1. The main and side rails, movable to the end of the rail of the main line, at the point of crossing, and protected by plates, rails, or fillings, that take the bearing of the wheels at the open joint, either of the main line or side track, substantially as and for the purpose set forth.

2. A rail or plate, shifting lengthwise of the track, which operates upon the switch rail or rails, substantially as and for the purpose set forth.

182,441. SAFETY APPLIANCES FOR CARS AND LOCOMOTIVES. Jos. P. Wilson, New York, N. Y. [Filed Sept. 26, 1876.]



1. The combination, with a car-truck, having runners E E', of the flanged wheel H, hinged by its arms to one of such runners, constructed and arranged substantially as described and shown.

2. The combination, with a car-truck, of the standard I, secured to the truck-frame, and the yielding shoe *i* in the foot of such standard, constructed and arranged substantially as described and shown.

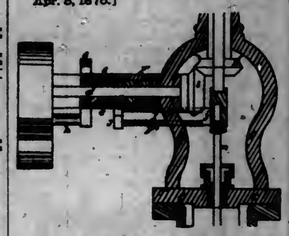
3. The combination, with a car-truck, of the standard I, secured to the truck-frame, the shoe *i*, pivoted by links *k* in the foot of such standard, and the spring *k'* between the said shoe and standard, constructed and arranged substantially as described and shown.

4. The combination, with the car-truck and runners, of the double-flanged wheel G G', journaled by a shaft, *g*, upon the said runners, constructed and arranged substantially as described and shown.

5. The combination, with the car-truck, of the wheel F, journaled in hangers *d*, and supported from a corner of the truck-frame by the screw-rod *e* and braces *d'*, constructed and arranged substantially as described and shown.

6. In combination with a railroad-car, locomotive, or tender, the standard I, provided with shoes, the hinged bevel-wheels, and the runners, substantially as and for the purposes set forth.

182,442. STEAM-ENGINE GOVERNORS. Wm. Yates, London, Ontario, Canada. [Filed Apr. 8, 1876.]



1. In a governor, the speeder-arm K and the shaft I, provided with cranks J *j*, in combination with the valve-rod *n*, the cam *c'* upon the sleeve *c*, and the idler-pulley arm G, all operating together, as and for the purpose set forth.

2. In combination with the valve-rod *n* of a governor, and the speeder-arm K, the supporting and adjusting screw *m*, and the crank-shaft I, controlled by the governor-belt *o*, as and for the purpose set forth.

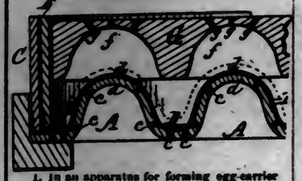
182,443. OPTICAL LENSES. Charles Alt, New York, N. Y. [Filed May 9, 1876.]



An optical lens made of a homogeneous piece of glass, covered wholly or in part with enamel, substantially as and for the purpose described.

182,444. APPARATUS FOR FORMING EGG-CARRIERS. Lucius S. Ball, Canandaigua, N. Y. [Filed Dec. 10, 1875.]

Brief.—The wire-cloth covering-plate, which is attached to a hoop or curb, is fitted upon hollow, perforated, corrugated cones of metal, and upon this plate is placed a backing or filling plate having holes, whereby it fits over the covering-plate and cones. This backing-plate also has a hoop or curb to aid in holding the pulp. The required quantity of pulp is then introduced, and the follower or die placed upon it to press out the water and give the pulp shape. After the water has been sufficiently pressed out, the follower is taken off and the backing-plate is lifted up, then removing with it from the matrix the green pulp, which may then be taken off and set away to dry.



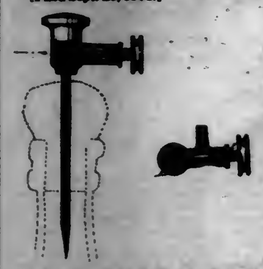
1. In an apparatus for forming egg-carrier plates, the combination of the bed-plate A, covering-plate B, backing-plate D, and follower or G, the bed-plate being provided with cones, the covering-plate being shaped to fit over the same, and the backing-plate being provided with holes, whereby it will fit upon the raised portion of the follower-plate, as and for the purpose specified.

2. The combination, with the perforated cones or dies upon which the pulp is formed, of a backing-plate, D, fitting over the cones or dies, and serving as a base or support for lifting the pressed pulp sheet from the cones or dies, as herein shown and described.

3. The combination, with the covering-plate B and backing-plate D, of the hoops or curbs C E, forming a receptacle for the fluid pulp, as shown and described, and for the purpose specified.

4. The covering-plate B, constructed with separate raised pieces d d, inserted through sockets of the plate and stitched in place, as shown and described, and for the purpose specified.

182,445. BOTTLE-FAUCETS. Wm. Bentley and Richard Bentley, New York, N. Y. [Filed Sept. 25, 1876.]



A champagne-tap constructed with a cylindrical and hollow tapping-tube having beveled vent-holes therein, and provided with a solid head, and with branch and outlet tubes and a screw-stem and valve, substantially in the manner and for the purpose described.

182,446. VARIABLE CUT-OFFS FOR DIRECT-ACTING ENGINES. Benjamin Brasolle, St. Louis, Mo. [Filed Jan. 20, 1876.]

Brief.—The two center pistons are attached to the valve, the other two to a stem passing through the former. The valve is moved to cut off steam from the main cylinder by steam being admitted between one of the center pistons and the adjacent end piston. The stroke of the valve is completed by steam being admitted back of said end piston. An oscillating valve gives steam to the valve-pistons.

182,446.



1. The piston made in two parts—viz., heads D D¹ and D² D³—the latter set having stem d^2 passing through the former set, when applied and operating within an auxiliary cylinder, as and for the purpose set forth.

2. The cut-off pistons D D¹, auxiliary cylinder C, having steam-chest C¹, and ports $c\ c'\ c^2$, in combination with slide-valve b and main ports of a steam-cylinder, to cut off steam from the latter, as and for the purpose set forth.

3. Within the auxiliary cylinder C, the stop-pistons D² D³ and the steam-chest C¹, having the ports $a\ c'\ c^2$, in combination with slide-valve b and the main ports of a cylinder, whereby the piston of the latter is operated in the manner and for the purpose herein set forth.

4. The combination of the double piston D D¹ D² D³, carrying slide-valve b, auxiliary cylinder C, and steam-chest B', as and for the purpose set forth.

5. The relative arrangement of the inlet-ports $a\ c'\ c^2$, having cored chambers $f'\ f'\ f'$, also exhaust-ports $c'\ c'\ c'\ c^2\ c^2\ c^2$ and cored chambers $f\ f\ f\ f'\ f'$, in a rotary disk-valve E, in combination with steam-chest C¹, having ports and passages $a\ c'\ c'\ c'\ c^2\ c^2$, and by means whereof the admission and exhaust of steam are had, in the manner and for the purpose set forth.

6. The rotary valve E, having inlet-ports $a\ a'$, cored chambers $f'\ f'\ f'$, exhaust-ports $c'\ c'\ c'\ c^2\ c^2\ c^2$, cored chambers $f\ f\ f\ f'\ f'$, in combination with the high-pressure ports $c'\ c^2$, cylinder C, and its stop-pistons D² D³, to operate as and for the purpose set forth.

7. The rotary valve E, having inlet-ports $a\ a'$, cored chambers $f'\ f'\ f'$, exhaust-ports $c'\ c'\ c'\ c^2\ c^2\ c^2$, cored chambers $f\ f\ f\ f'\ f'$, in combination with cut-off ports $c'\ c^2$, cylinder C, and its carrier-piston D D¹, to operate as and for the purpose set forth.

8. The combination of the rotary valve E, having inlet-ports $a\ c'\ c^2$, cored chambers $f'\ f'\ f'$, exhaust-ports $c'\ c'\ c'\ c^2\ c^2\ c^2$, chambers $f\ f\ f\ f'\ f'$, the high-pressure ports $c'\ c^2$ and cut-off ports $c'\ c^2$, cylinder C, its valve-chest C¹, and the double pistons D D¹ D² D³, said parts operating substantially in the manner and for the purpose set forth.

9. The disk-cover G, having steam-spaces $g\ g'$, full faces $g'\ g'$, and exhaust-chambers $g'\ g'$, as and for the purpose set forth.

10. The disk-cover G, having steam-spaces $g\ g'$, full faces $g'\ g'$, exhaust-chambers $g'\ g'$, in combination with a rotary valve, E, having inlet ports and chambers $a\ c'\ c^2\ f'\ f'\ f'$, and exhaust ports and chambers $c'\ c'\ c'\ c^2\ c^2\ c^2$ and $f\ f\ f\ f'\ f'$, to operate as described.

182,447. PLUMBERS' PLUGS. W. A. Butler, New York, N. Y. [Filed Aug. 12, 1876.]

Brief.—The plug and seat are both "struck up" from sheet metal. The plug fits without grinding.

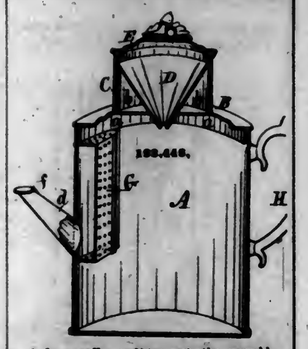


1. As an improved article of manufacture, a plumber's plug-seat constructed of sheet metal stamped into shape, with a flange, b, and body d, as and for the purposes described.

2. In combination with a sheet-metal plug-seat, stamped into shape as described, the sheet-metal plug similarly stamped, and adapted to fit into said plug-seat, substantially as and for the purposes described.

182,448. COFFEE AND TEA POTS. Lewis G. Comparet, Des Moines, Iowa. [Filed May 1, 1875.]

Brief.—The flange of the top, on being placed in position, strikes the upper extremity of the filter, and forces it also into position.



1. In a coffee and tea pot, the movable cover B, carrying the fixed dome C, the hinged dome-cover E, and the inclosed and fixed funnel and condensing-chamber D, substantially as and for the purposes shown and described.

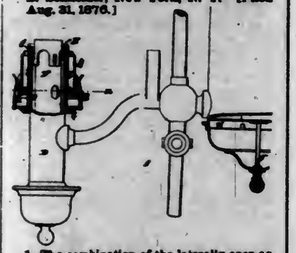
2. The movable cover B, having a rim, e e, and the movable filter G, adapted to slide over the opening of the spout d, arranged and combined substantially as and for the purposes shown and described.

182,449. WHIP-BUTTONS. W. O. Daniels, Westfield, Mass. [Filed Mar. 23, 1876.]



An improved whip-button, consisting of the ferrule A, having the part B plaited or wrought upon its exterior surface, the said parts being combined substantially as described.

182,450. PETROLEUM-LAMPS. Wilhelm Dotte, Berlin, Prussia, assignor to Bennett B. Schneider, New York, N. Y. [Filed Aug. 31, 1876.]



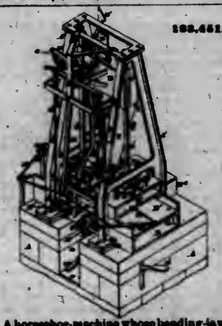
1. The combination of the laterally open or interrupted tube C of the chimney-carrier with the outer tube A thereof, whereby air to promote combustion passing up between said tube is enabled to circulate in contact with the burner-tube, and thereby operates to keep the wick-tube cool, substantially as and for the purpose herein set forth.

2. A chimney-carrier having its bottom constructed of a perforated ring, G, united by a groove or lap-joint with the lower edge of the outer tube A, and the whole clamped together by a groove and lap-joint with the gallery B of said carrier, essentially as described.

3. In combination with the fountain-receiver H, having notches or openings e in its bottom edge, the screw-pin g, extending from the bottom of said receiver, and the drip-cup arranged on said pin, and constructed to extend beyond the lower edges of the fountain-body, substantially as and for the object specified.

182,451. MACHINES FOR MAKING HORSE-SHOES. S. Bypack, Cincinnati, Ohio, assignor of one-half his right to J. B. B. Lindner, same place. [Filed Aug. 21, 1876.]

182,451.



1. A horseshoe-machine whose bending-jaws are closed around a fixed die by the descent of a vertically-reciprocating wedge-shaped plunger, which plunger passes through the longitudinal slot of the die, substantially as herein described and set forth.

2. A horseshoe-machine, consisting, essentially, of a vertically-reciprocating wedge-shaped plunger for closing the bending-jaws around the fixed die, and two horizontally-reciprocating boxes, carrying the creasing and punching devices, into which boxes said plunger alternately descends, substantially as herein described and set forth.

3. The combination of vertically-reciprocating wedge-plunger Y Y¹ Y², slotted bed-plate B' b' M b', fixed die b², pivot O, bending-jaws D D', stamps E e F' e', arms E² e^2 F² e^2, and carriages F f' f', substantially as herein described and set forth.

4. In combination with stamps E e F' e', carriage F f' f', and connections E² F² for closing the bending-jaws D D', in the manner described, the flexible mediums G G', sheaves $g\ g'$, rods R1 and 31', and lifting-bar 33, which latter is elevated at the proper time by the ascending plunger, so as to open said bending-jaws, substantially as herein set forth.

5. In combination with the hinged and notched bending-jaws C D d D' d' and fixed die b², the pivoted levers H h H' h', whose inner ends carry flanged rollers I I', that exert only a downward pressure on the blank, substantially as herein described and set forth.

6. In combination with the pivoted bending-jaws C D d D' d', fixed die b², and levers H h H' h', the stop or gage K, link h² h' k', pin k², slotted shanks L t, and guide-screw t', arranged and adapted to operate with reference to each other, substantially as herein described and set forth.

7. The claw O' $o\ o'$, applied to the head of pivot C, and adapted to be operated by lever P $p\ p'$, so as to advance and clamp the blank, and then to be retracted and be released from the same, substantially as herein described and set forth.

8. The caps U and washers u, applied to the upper ends of creasers r and punches v, substantially as herein described and set forth.

9. The fillings S, applied behind the creasers r and punches v, and secured in position by the retaining devices r^1 or W w', substantially as herein set forth.

10. The ducts t, channels s, and reservoir T, arranged with reference to the creasers and punches of a horseshoe-machine, so as to effect an intermittent discharge of oil, substantially as herein described and set forth.

11. The combination of shouldered creaser-holder R r^2 and two or more cylindrical stems, R' R², that pass through circular apertures in the creasing-box Q, substantially as herein described and set forth.

12. In combination with the punches v, heads V, and stems V', applied to the punching-box Q', as described, the outwardly-projecting pins U' resting upon the yoke X, which latter is supported upon a set of spiral springs, e, substantially as described.

13. The swinging lever 12 13 14, pivoted to frame 10 at 11, and adapted to vibrate either to the right or left, so as to shift the creasing and punching boxes, by the contact of latch 4 with the notches 5' or 6' of the slotted tripping-bars 5 5' or 6 6', substantially as herein described and set forth.

14. In combination with the swinging lever 12, the supporting-frame 10, and the two slotted tripping-bars 5 and 6, the projecting pins 16 and spring-retainer 15, substantially as herein described and set forth.

15. In combination with swinging lever 13, operated substantially as described, the chains 19 and 25, sheaves 17 and 18, arm 26, and rod 27, for reciprocating the connected boxes Q and Q' longitudinally of the bed-plate B', substantially as described.

16. The rigid bar 21, applied either to creasing-box Q or to the punching-box Q', and furnished with stops 23 and 23 for limiting the movements of said connected boxes, substantially as herein described.

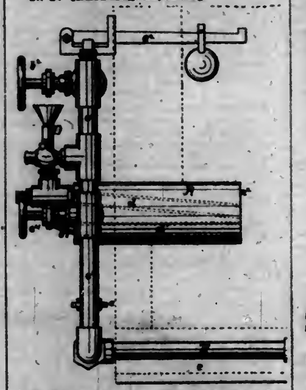
17. In combination with the wedge-shaped plunger Y, having a vertical edge, Y', and an inclined edge, Y², the grooves $y'\ y'$ and flanged rollers F' f' N n, the former roller being journaled in the carriage F f' f', while the latter roller is pivoted in a fixed bearing between the bed-plates B B' of a horseshoe-machine, substantially as herein described and set forth.

18. The provision, in a horseshoe-machine, of an elastically-supported stirrup, 32, which receives the impact of the descending plunger and initiates the return stroke of the same, substantially as herein described.

19. The combination of stirrup 32, supporting-springs 33, and vertical guides 34 and 35, substantially as herein described and set forth.

20. The cylinders H² H², for maintaining the rollers I I' in contact with the blank, and at the same time allowing their levers H H' to turn on the pivots h h', substantially as herein described and set forth.

182,452. CORRUGATED TAR-BURNERS FOR GAS-RETORTS, &c. John Findlay, Ogdensburg, N. Y. [Filed Aug. 26, 1876.]



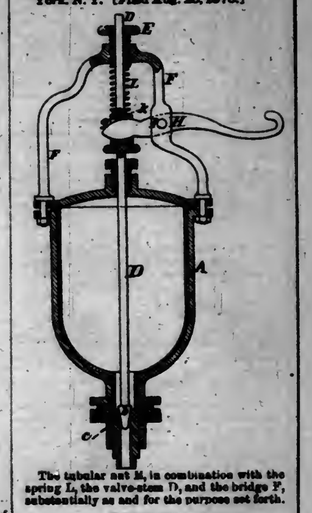
1. The combination, with the furnace of a gas-retort, of the water-compartment A, having the water induction and eduction tubes B and C, respectively, and traversed longitudinally by the tar-discharge pipe d and the air-flue d^2, when said pipe d has a downward incline from the head a^2 to the head a^3, and the air-flue d^2 opens into the furnace immediately under the opening of the pipe d, whereby, at the moment the tar, in a highly liquefied state, makes its entrance into the furnace, it is caught by the draft through the flue d^2, and is thrown, in a spray, into the furnace, as and for the purpose specified.

2. The combination, with the furnace of a gas-retort, of the water-compartment A, having its induction and eduction tubes B and C, and its longitudinal tar-discharge pipe d, and underlying air-flue d^2 of the cell E arranged in flue 4, and provided with the pipe d' and jet-pipe d^3, all to operate as described, and for the purposes specified.

182,453. BED-BOTTOMS. Wm. H. Gaylord, Oskaloosa, Iowa. [Filed Aug. 26, 1876.]



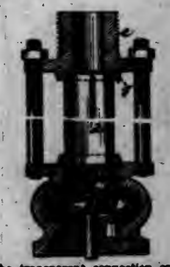
182,454. APPARATUS FOR THE MANUFACTURE OF SODA-WATER. Wm. Geo. New York, N. Y. [Filed Aug. 26, 1876.]



The tubular nut M, in combination with the spring L, the valve-stem D, and the bridge F, substantially as and for the purpose set forth.

182,455. CONNECTIONS FOR SODA-WATER APPARATUS. William Geo, New York, N. Y. [Filed Aug. 26, 1876.]

Brief.—A transparent tube between the generator and washer, to ascertain the condition of the gas. It is also provided with means for preventing escape when breakage occurs.

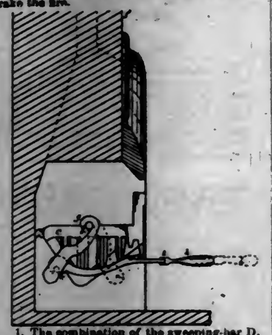


1. The transparent connection or gas-conducting glass tube d, in combination with a valve applied to either of its ends, and held open by said tube when intact, but closing by the pressure of the gas on the breaking of said tube, essentially as and for the purpose or purposes herein set forth.

2. The combination of the gas-conducting glass tube d, the movable seat h, acting also as a valve-stop, applied to either end of said tube, and the valve k, substantially as and for the purposes specified.

182,446. GRATE. Geo. W. Geissenhainer, Pittsburg, Pa., assignor to W. W. Wallace, same place. [Filed Oct. 18, 1876.]

Brief.—The pivoted sweeping-bar carries teeth, which pass between the grate-bars and rake the fire.



1. The combination of the sweeping-bar D, pivoted on trunnions *f*, and the grate, substantially as herein described, and for the purpose set forth.

2. The lever *h*, constructed in two parts, hinged together, and pivoted on the trunnion *e*, in combination with sweeping-bar D and grate C, substantially as described, and for the purpose set forth.

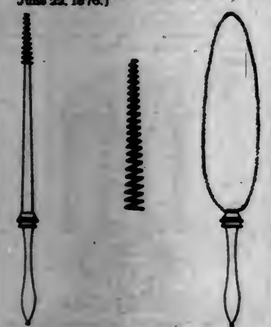
182,447. GRAPPLING-PROJECTILES. Wm. P. Greenough and William A. Morrison, Cambridge, Mass. [Filed Sept. 11, 1876.]



1. The grappling-projectile, substantially as described, consisting of the shank A, heads *a b*, series of flaked arms B, springs E, buster C, and bail D, all arranged and applied essentially as set forth.

2. The combination of the shank A, provided with two heads, *a b*, with the series of flaked arms and their springs, arranged as specified.

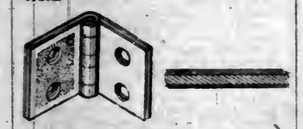
182,448. DOUBLE-RAKERS. Lauvin Hobbith, Montreal, Quebec, Canada. [Filed June 22, 1876.]



A duster made of the tail of an animal mounted upon a suitable handle, which forms a core within it, and to which it is secured by means of a band or ferrule, substantially as described.

182,449. HINGE. Charles B. L. Holman, New York, N. Y. [Filed Sept. 29, 1876.]

Brief.—The hinge is made from a previously-constructed compound metal plate, which is made up of an interior body of zinc and an exterior coating of block-tin. The soft tin surface receives readily impressions of dies for ornamenting, and is not easily corroded.



As a new article of manufacture, a hinge, made of a sheet of metal previously formed, having a face of block-tin and an inner sheet or backing of zinc or hard metal, united permanently to the facing-sheet, when the soft tin facing constitutes the outer face of the hinge, as and for the purpose specified.

182,450. SNAP-HOOKS. Geo. M. Hubbard, New Haven, Conn., assignor to O. B. North & Co., same place. [Filed Sept. 15, 1876.]



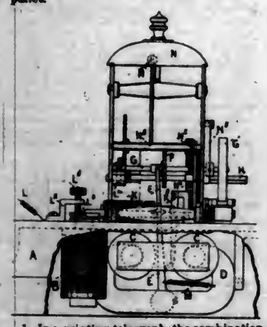
The herein-described snap-hook, consisting of the body, terminating at one end in a hook, and at the other in means for attaching the hook, combined with a hook or U-shaped latch hung within the body upon a pivot at its lower forward end, with a spring, the bearing-point of which is forward of the said pivot, and the upper end of the said latch closing against the end of the hook, all substantially as set forth.

182,451. SPRING BED-BOTTOMS. Gideon Huntington, London, Ontario, Canada. [Filed July 20, 1874.]

A slitted bed-bottom slat, in combination with springs arranged substantially as described.

182,452. PRINTING-TELEGRAPHS. Adolphus A. Knudson, Brooklyn, N. Y., assignor to the Gold and Stock Telegraph Company, New York city. [Filed Feb. 1, 1876.]

Brief.—Effects unison by disengaging escape-wheel and pallet, and allowing motor-train to revolve type-wheel to a designated point. Type and escape wheels rigidly attached to shaft, the pallet-lever having two bearings, so that by the operation of a unison-magnet it may be thrown clear of the pallet.



1. In a printing-telegraph, the combination, with the motor-driven train, a type-wheel, and an escape-wheel, both rigidly secured to a shaft, of a pallet-ed escapement lever of an electro-magnetic escapement, and an electro-magnet operating to disengage the lever from the escape-wheel, and allow both the type and escape wheels to be turned freely and instantly to a designated point by the driving-train, substantially as described.

2. The combination, with the escapement-lever, of a magnet and a local circuit therefor, controlled by the main circuit, and operating to disengage the escapement or pallet lever, and rigidly-attached escape and type wheels, substantially as described.

3. The combination, with the pallet or escapement lever, of two electro-magnets, one controlling the action of the lever upon the escape-wheel, and the other its position in relation thereto, substantially as described.

4. The combination, with the pallet or escapement lever, arranged to engage with or be disconnected from an escape-wheel, of a stop on the type-wheel, or shaft thereof, arranged to take against the pallet when the same is disengaged, and simultaneously stop the type and escape wheels at the desired point, substantially as described.

5. The combination, in a printing-telegraph, of a circuit-breaker with the type-wheel, or its shaft, and an electro-magnet, whereby the escapement mechanism may instantly and automatically return to its working position, substantially as described.

6. The combination of the electro-magnet K, its armature and lever, and a local circuit, and local circuit operated by the main circuit, for throwing the pallets out of and into contact with the escape-wheel, substantially as described.

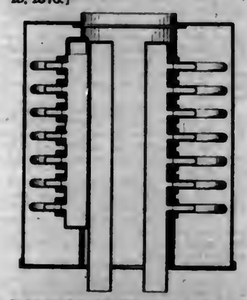
7. In a printing-telegraph, the escapement or pallet lever, having two pivotal bearings at right angles to each other, and independently operated, substantially as described.

8. The combination of the circuit-breaker L^2 on the type-wheel shaft with the break-piece L^3 of the local circuit, whereby the escaping mechanism is permitted to return to its proper working position, as described.

9. The combination of the vibrating tongue L^2 with, and arranged in, the local circuit and magnet K, for controlling the relative position of the escapement or pallet lever and escape-wheel, the vibrating tongue holding the local circuit open when the main circuit is working, thereby allowing the lever and wheel to be held in engagement, substantially as described.

10. In a printing-telegraph, the bell N, hammer N^1, shaft N^2, arm N^3, pendent N^4, pendent arm N^5, and pin N^6 on the type-wheel shaft, for giving signals, substantially as described.

182,453. FEED-WATER HEATERS. Israel P. Magoon, St. Johnsbury, Vt. [Filed Sept. 15, 1876.]

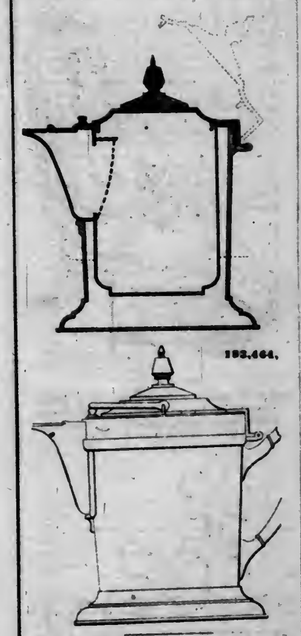


In locomotive feed-water heaters, the combination of the vertical inlet and outlet pipes, the stand-pipe, communicating with the outlet-pipe near its upper end, and encircling-pipes connecting the inlet-pipe with the said stand-pipe, all arranged in a chamber around the smoke-stack, substantially as described.

182,454. COFFEE-POTS. Edwd. B. Manning, New Haven, Conn. [Filed June 23, 1876.]

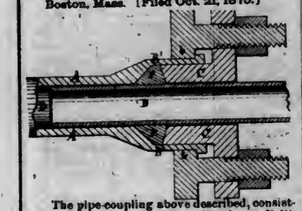
1. The combination of the inner and outer vessel, the said inner vessel constructed with an overhanging or downward-projecting flange, and the said outer vessel provided with a bead or stop below the upper edge, on which the said flange rests to support the said inner vessel, all substantially as described.

2. In a double-walled vessel, the inner portion of which is constructed with a pouring-spout, and made removable, the combination therewith of the cover for the said inner vessel, extended outward over the edge of the inner vessel, and hinged to the outside portion, substantially as described.



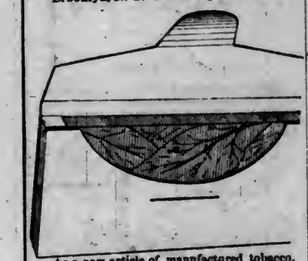
182,464.

182,465. PIPE-COUPLINGS. Wm. T. Nyhan, Boston, Mass. [Filed Oct. 21, 1875.]



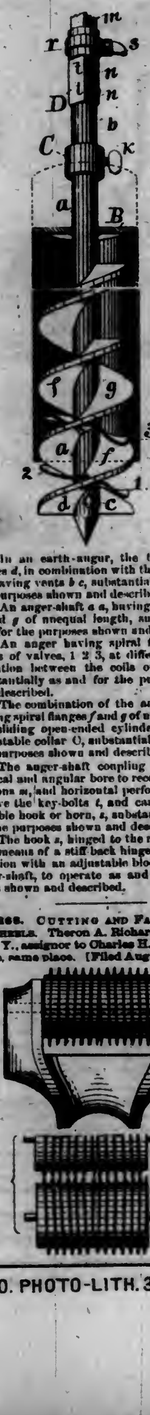
The pipe-coupling above described, consisting of the short pipe A, stuffing-boxes B B', and their glands C C, the coupling and pipes being connected together by the packing *p*, as described.

182,466. PLUG-TOBACCO. Adolph Pearl, Brooklyn, N. Y. [Filed Sept. 22, 1876.]



As a new article of manufactured tobacco, plug-tobacco cut up or shredded without destroying the original form of the plug, and inclosed by an envelope, band, or case, which preserves the original form of the plug and exposes to view the original grain thereof, substantially as specified.

182,467. EARTH-AUGERS. Chas. D. Pierce, La Salle, Ill. [Filed Aug. 16, 1876.]



1. In an earth-augur, the lateral-moving valves *d*, in combination with the hollow shaft *a a* having vents *b c*, substantially as and for the purposes shown and described.

2. An anger-shaft *a a*, having spiral flanges *f* and *g* of unequal length, substantially as and for the purposes shown and described.

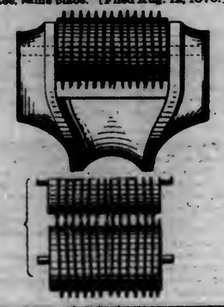
3. An anger having spiral flanges and a series of valves, 1 2 3, at different points of elevation between the coils of the flanges, substantially as and for the purposes shown and described.

4. The combination of the anger-shaft *a a*, having spiral flanges *f* and *g* of unequal length, the sliding open-ended cylinder A, and the adjustable collar C, substantially as and for the purposes shown and described.

5. The anger-shaft coupling D, having a vertical and angular bore to receive the shaft-sections *a*, and horizontal perforations *a a* to receive the key-bolts *i*, and carrying an adjustable hook or horn, *z*, substantially as and for the purposes shown and described.

6. The hook *z*, hinged to the rotating collar *r* by means of a stiff back hinge-joint, in combination with an adjustable block, D, and an auger-shaft, to operate as and for the purposes shown and described.

182,468. CUTTING AND FACING EMERY-WHEELS. Theron A. Richards, Brooklyn, N. Y., assignor to Charles H. Wight, trustee, same place. [Filed Aug. 12, 1876.]



1. The improvement in the art of cutting emery-wheels, grindstones, granite, sandstone, marble, slate, and other like material, natural and artificial, by screw-thread cutters.

2. The improvement in the art of cutting emery-wheels, grindstones, marble, slate, and other like material, natural and artificial, by screw-thread cutters made to crosscut, as by right and left hand screw-thread cutters passing alternately over the same surface.

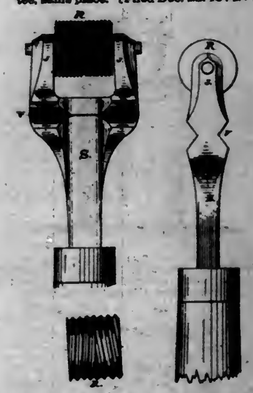
3. A roller-cutter for facing stone, provided with a screw-thread cutting-surface on its circumference.

4. A roller-cutter for facing stone, provided with a right-hand screw-thread cutting-surface, in combination with a roller-cutter provided with a left-hand screw-thread cutting-surface.

5. A cutter for operating upon the surface of stone or other like material, provided with rollers the cutting devices of which are located diagonally to each other, and so fixed as to compel the path of the cuts of one diagonal to cross those of the other diagonal in the same course, and by repetition plane the surface traversed.

6. The improvement in the art of cutting stone and other like substances by roller-cutters, the cutting devices of which are located diagonally to each other, and so as to crosscut, one over the path of the other in the same course, and by repetition plane the entire surface traversed.

182,469. TOOLS FOR FACING EMERY-WHEELS. Theron A. Richards, Brooklyn, N. Y., assignor to Charles H. Wight, trustee, same place. [Filed Dec. 23, 1874.]



The tool for facing emery-wheels and grindstones shown and described, consisting of the handle H, provided with the jaws J J, and the roller-cutters R R, in combination, in the manner and for the purpose set forth.

182,470. LIQUID-BLACKING DISTRIBUTERS. Daniel G. Rollin, New York, N. Y., assignor to Patrick H. Drake and Wm. P. Ward, same place. [Filed Aug. 12, 1876.]

Brief.—The liquid in a bottle is permitted to flow through the cork, where the device is located, when a spring is depressed into the sponge at the outer end, and is closed automatically by the spring.

1. In combination with the stopper B and bottle A, the tube E, the ejecting-tube *d*, surrounded by the spring *h*, and provided at its outer end with a sponge-cup, D, and at its inner end with the openings *g*, valve *e*, and button or stop *f*, the whole arranged to operate substantially as described.

2. In combination with the ejecting-tube *d* and tube E, the valve-seat B in the inner end of the tube E, and valve *e* on the inner end of the ejecting-tube *d*, constructed to operate substantially as described.

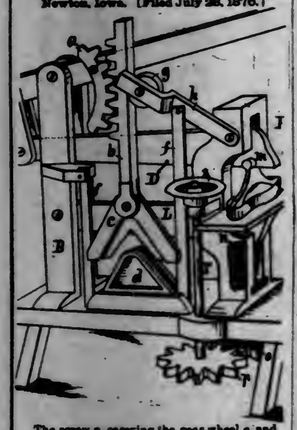
3. In combination with the tube E, the ejecting-tube *d*, the cup *c* secured to the sleeve *b*, and button *f* secured to the tube *d* for limiting the motion of said tube in the tube E, substantially as described.

4. The sponge or absorbent pad-cup C and the hollow sleeve b, ejecting-tube d, its spring A, and valve e, in combination with the tube E, the whole arranged to operate substantially as described.



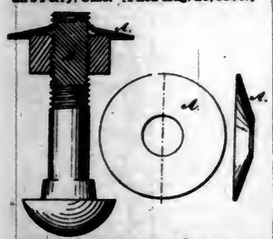
188,470.

188,471. LEATHER CUTTING AND MOLDING MACHINES. J. Schofield and Jos. Stevens, Newton, Iowa. [Filed July 26, 1876.]



The screw a, carrying the gear-wheel c, and the shaft r, having the hand-wheel s and the pinion p, mounted upon the base A and upright B', and arranged and combined with the pivoted arm L, carrying the table K, substantially as and for the purposes shown and described.

188,472. NUT-LOCKS. A. J. Scott, Martin's Ferry, Ohio. [Filed Aug. 26, 1876.]



The bolt B and nut D, in combination with the circular dish-shaped washer A, said washer entirely overlapping the nut, and having an indent on its inner edge forced between the threads of the bolt, locking the nut, substantially as described.

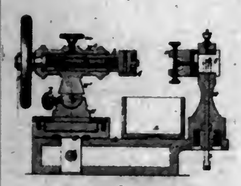
188,473. BUCKLES. Dwight L. Smith, Waterbury, Conn., assignor to Waterbury Buckle Company, same place. [Filed Sept. 15, 1876.]



The herein-described buckle, consisting of the frame a b c, with a longitudinal bar, d, forming a central bearing, f, and constructed with ears between the bearing and the ends of the frame, combined with a tongue constructed with a cam upon its upper edge and spurs upon the lower, the trunnions of the said tongue closed by ears upon the bar, substantially as specified.

188,474. MACHINES FOR CUTTING DIAMONDS. Thos. F. Tully, New York, N. Y., assignor to Isaac Hermann, same place. [Filed Aug. 16, 1876.]

Brief.—The dop or holder in which the cutting-diamond is connected has (by the motions of the tall-block) lengthwise, cross-wise, horizontally circular, and vertically circular motions.



The combination of the sliding carriage B, the circularly-adjustable lower body-piece H of the tall-block, the upper body-piece H' fitted to rock up or down on the lower body-piece H', and the head H'' with its feed-screw h, and longitudinally-sliding socket k carrying the dop or holder G, essentially as described.

188,475. LEG AND FOOT REST. T. Weddle, Brooklyn, N. Y. [Filed Aug. 26, 1876.]

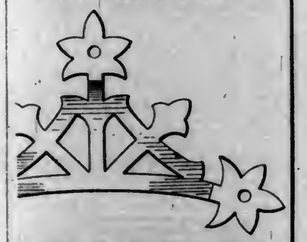
1. The sectionally-constructed foot-rest, having its sections A A united by one or more hinges, b, in combination with the leg-rest B, united, by one or more hinges, c, with one of the foot-board sections A, near its meeting end, with the other foot-board section, essentially as shown and described.

2. The hooked stays d and locking-pins e, in combination with the hinged leg-rest B and hinged foot-board sections A A, substantially as specified.

188,475.

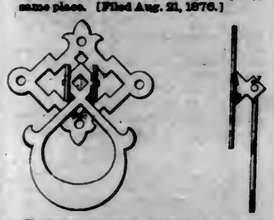


188,476. DRAWER-PULLS. W. N. Weeden, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. [Filed Aug. 21, 1876.]



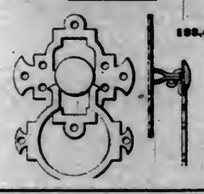
As an article of manufacture, the herein-described drawer-pull, consisting of an open or skeleton body, of substantially concavo-convex form in transverse section, with securing-ears in a horizontal plane, constructed from sheet metal, and substantially as specified.

188,477. DRAWER-PULLS. W. N. Weeden, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. [Filed Aug. 21, 1876.]



The herein-described drawer-pull, consisting of the skeleton sheet-metal base, with the ears or cut-out portion turned up therefrom, combined with a swinging handle hinged to the said ears, substantially as specified.

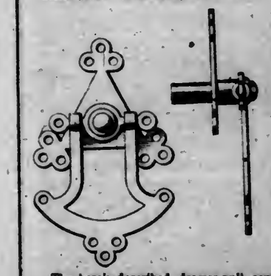
188,478.



188,478. DRAWER-PULLS. W. N. Weeden, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. [Filed Aug. 21, 1876.]

The drawer-pull consisting of a skeleton sheet-metal base, with one or more parts cut from the base, slotted and turned outward, combined with a sheet-metal handle, constructed with a shield or boss and tongue projecting therefrom, the said tongue bent to form the hinge-connection, substantially as described.

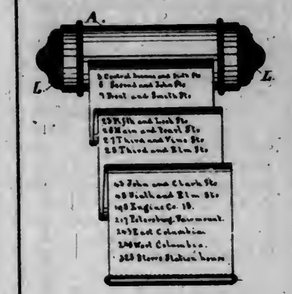
188,479. DRAWER-PULLS. W. N. Weeden, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. [Filed Aug. 21, 1876.]



The herein-described drawer-pull, consisting of the tubular central body by which the pull is secured, the transverse bar secured upon same on the said body, and a handle hinged to the said bar, substantially as described.

188,480. ADVERTISING-WINDOW RIBBON REELS. H. J. Rice, Cincinnati, Ohio. [Filed Sept. 11, 1876.]







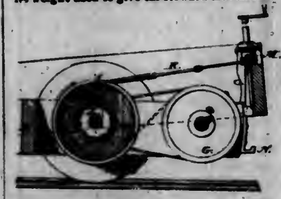
1. In a fire-alarm advertiser, the combination, with the case A and the revolving cylinder or spool I, of the fixed cap B and removable cap C, and the stationary axle D and its seats E E, as and for the purpose set forth.

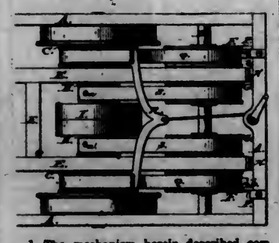
2. In combination with the stationary axle D, the conical tube or bed F and the conical wire spring G, secured at its smaller end to the hook-pin H, and at its larger end to the revolving spool or barrel I, as and for the purpose set forth.

3. In combination with the outer case A, provided with the longitudinal slot l, the spool I within such case, provided with the opening r therein, all as and for the purposes described.

188,481. CAR-STARTERS. Lewis R. Sharp, New York, N. Y. [Filed June 20, 1876.]

Brief.—Mechanism for raising the car-body, its weight used to give car forward movement.





1. The mechanism herein described, composed of the windlass M, connected with belts by the yoke, in combination with pulleys C and F, and arms O attached to the body of the car, to form the lifting device, as described, for the purpose set forth.

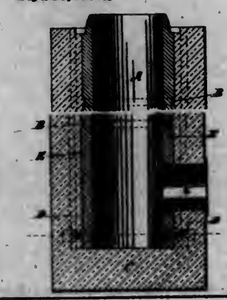
2. The weighted body of the car, arms O, pulleys F and G, moving about the shaft D, belts S, or their equivalents, pulleys H, and drum I, with its ratchet device, all combined to form the starter, as described, for the purpose set forth.

3. The inside frame E, providing bearings for the shafts D and car-axles, with its shoes N, to form, together with the car-axles, supports for the body of the car while not being lifted, as and for the purpose set forth.

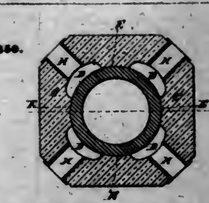
4. The counter-action car-brake produced through windlass M, yoke R, pulleys C and F, and car-body attached by arms O, as described.

REISSUES.

7,250. CHIMNEY AND VENTILATING FLUES. A. H. Bourne, Fort Scott, Kans. Patent No. 179,702, dated July 11, 1876. [Filed Sept. 30, 1876.]

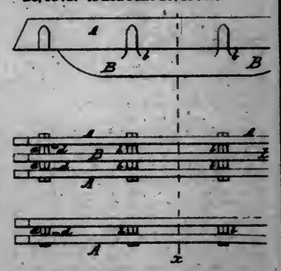


7,250.



The combination, with clay-pipe A, having grooves B, of the cement-case C, built on cores that form flues D, and provided with ribs E, substantially as and for the purposes specified.

7,251. GRATE-BARS. G. H. Clarke, Brooklyn, N. Y. Patent No. 142,146, dated Aug. 26, 1873. [Filed June 20, 1876.]

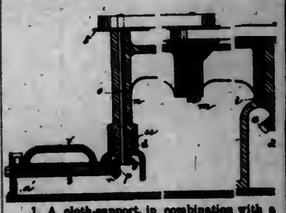


1. A series of furnace grate-bars in which each alternate bar has similar lugs on either side, which enter between projections on either side of the intervening bars, substantially as described and specified.

2. In combination with the bars B, provided with the lugs a a, the bars A, provided with the dovetail projections c c and lugs d d, constructed and operating substantially as described and specified.

7,252. CLOTH-CUTTING MACHINES. Isaac Fenno and Patrick Howe, Boston, Mass., assignors, by mesne assignments, to Isaac Fenno, Richard D. Goodwin, Charles M. Blake, Adams K. Tolman, and Henry G. Hartshorne. Patent No. 120,327, dated July 16, 1872; reissue No. 6,003, dated Sept. 17, 1872. [Filed Sept. 15, 1876.]

Brief.—The jointed arm permits the movement of the cutter in every direction over the cloth. The adjustable foot beneath the cloth prevents the cutter from coming in contact with the table.



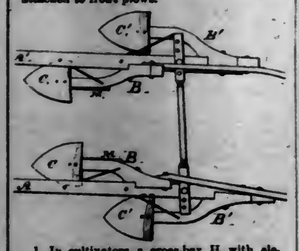
1. A cloth-support, in combination with a cutter actuated by mechanism which permits it to be moved bodily over the cloth, and a cloth-lifting foot-piece co-operating therewith, substantially as described.

2. A cutter and co-operating foot-piece, in combination with a swiveling cutter-carrier and a movable supporting mechanism, arranged and organized substantially as described, to permit the cutting-edge of the cutter to be turned and moved in any direction to follow the line of marking on the cloth to be cut.

3. The cloth-lifting foot-piece, in combination with a rotary cutter, its movable support, and actuating mechanism, constructed and adapted to operate substantially as described.

7,853. CULTIVATORS. Edward Pratt, Rock Grove, Ill., assignor to Samuel J. Wallace, Keokuk, Iowa. Patent No. 44,747, dated Oct. 18, 1864. [Filed July 12, 1876.]

Brief.—Arched connections between plow-beams at front and rear. Adjustable runners attached to front plows.



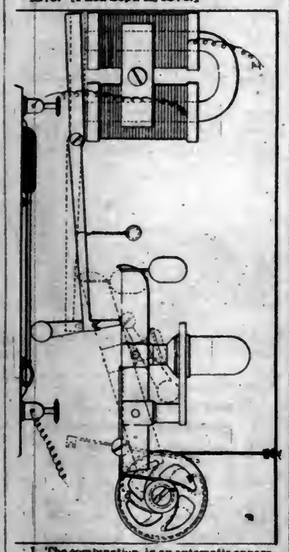
1. In cultivators, a cross-bar, H, with elevated center, having at its ends vertical pivots L′, with upper and lower bearings l l′ therefor, and interspaces P, connecting two plow-frames, A A′, so as to hold their plows upright and allow them movement on the pivots, substantially as set forth.

2. The combination, in a walking straddle-row cultivator, of two plow-beams, A A′, each bearing a handle, K, with an elevated cross-yoke, having at its ends pivots L′ and upper and lower bearings l l′, connecting the plow-beams, so as to hold their plows upright and allow either of them to be drawn freely in advance of the other as they are drawn forward, substantially as set forth.

3. The elevated cross-yoke, having pivots L′, and interspaces P in its ends, in combination with two plow-frames, A A′, connected in the rear to hold them from crowding apart or together as they are drawn along in throwing furrows to the center or apart, substantially as set forth.

4. The cultivator, with two plow-beams, A A′, connected without forward tongue, and having the front plows C C combined with vertically-adjustable runners M, substantially as set forth.

7,854. ALARM AND FIRE-EXTINGUISHER. Solomon Sanderson, Huddersfield, England. Patent No. 102,579, dated Apr. 27, 1870. [Filed Sept. 11, 1876.]



1. The combination, in an automatic apparatus for extinguishing fires, of a valve for governing the discharge of the extinguishing element, with a magnet constructed and arranged substantially as described, and serving to open the valve upon an undue increase of heat in the room in which it is situated.

2. The cock or valve J′, weighted lever u, wheel K, and weight g, in combination with the locking-catch T, percussive lever I, and lever N, moved by or through the expansion of a thermostat, substantially as and for the purpose set forth.

7,855. REVOLVING FIRE-ARMS. George W. Schofield, U. S. A. Patent No. 138,047, dated Apr. 22, 1873. [Filed Sept. 26, 1876.]



1. The combination of an extractor having a hollow or tubular stem, and a spring having suitable stops or abutments arranged within said stem, the combination being and operating substantially as set forth.

2. A hollow extractor-stem having slots *a c*, the spring-stop described, spring, and the shoulders *a*, when combined for operation as and for the purpose described.

3. The combination of the extractor-stem, lifter, and lifter-catch, said catch being provided with ears *b b*, so that it may be thrown out of catch with the lifter, as desired, and as specified.

4. In combination with the hammer R and the hand D pivoted thereto, the crank O, and the nose *w*, and slot *z* for revolving the cylinder, substantially as described.

5. In combination with the hammer, hand, and crank, the recoil-plate interposed between the head of the crank or the crank-arm and the ratchet or semi-clutch on the shank or axle of said crank, so as to rotate the cylinder and at the same time cut off all escape for the gas between the cylinder and the lock mechanism, substantially as described.

6. A lifter-catch pivoted at right angles with the motion of the lifter, substantially as specified.

7. The combination, substantially as set forth, of a pivoted lifter, pivoted lifter-catch, and extractor-stem.

8. The combination of a pivoted lifter and lifter-catch, pivoted at a point in front of its extremity, adjacent the guard of the arm, substantially as set forth.

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DISCLAIMERS FILED.

3,609.—Improvement in Plows.—GEORGE WATT, Richmond, Va. Patented November 26, 1867, No. 71,560. Reissued August 17, 1869. Disclaimer filed October 17, 1876.

Disclaims the seventh item of the claim, which is in the following words, to wit:

"The handles G G′, both attached to the land-side side of the plow, as represented and described, for the purposes set forth."

137,425.—Improvement in Springs for Vehicles.—RUFUS M. STIVERS, New York, N. Y. Patented December 1, 1874. Disclaimer filed October 25, 1876.

Disclaims that part of the specification which is in the following words, to wit:

"And, further, that, in lieu of imparting a curved raised portion to the spring, the same may be made flat, and the bar for connecting the body with the spring rest upon such flat portion."

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 24, 1876.]

9,593.—Cooking-Ranges.—AUGUSTUS P. CORSE, Troy, N. Y., assignor to EDDY, CORSE & Co., same place. Application filed September 28, 1876. Term of patent 7 years.

9,594.—Statue of Washington.—JETHRO B. CRAWFORD, Rochester, N. Y. Application filed June 21, 1876. Term of patent 3½ years.

9,595 to 9,597, inclusive.—Embroidery-Pattern.—EMIL CHIRAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Applications filed October 12, 1876. Term of patents 3½ years.

9,598.—Hats.—ALONZO D. FOSTER, Chicago, Ill. Application filed September 18, 1876. Term of patent 3½ years.

9,599.—Bed.—MORITZ FREYTAG, Chicago, Ill. Application filed June 19, 1876. Term of patent 14 years.

9,600.—Show-Card.—JULIUS FULD, New York, N. Y. Application filed September 29, 1876. Term of patent 3½ years.

9,601.—Magazine-Stoves.—JOHN MAGEE and FRANK A. MAGEE, Chelsea, assignor to THE MAGEE FURNACE COMPANY, Boston, Mass. Application filed September 26, 1876. Term of patent 7 years.

9,602.—Parlor Cooking-Stoves.—FRANK A. MAGEE, Chelsea, assignor to MAGEE FURNACE COMPANY, Boston, Mass. Application filed September 26, 1876. Term of patent 7 years.

9,603.—Spoon and Fork Handles.—GEORGE WILKINSON, Providence, R. I., assignor to GORHAM MANUFACTURING COMPANY, same place. Application filed August 26, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 24, 1876.]

4,064.—Desk-Furniture.—SAMUEL DARLING, Providence, R. I. Application filed September 11, 1876.

"A representation of a rock resembling, or nearly resembling, the rock near Plymouth, Massachusetts, called Pilgrim Rock."

4,065.—Teeth and Mouth Wash.—E. FOUGERA & Co., New York, N. Y. Application filed September 26, 1876.

"Words 'Bernard's Golden Dentifrice.'"

4,066.—Collars and Cuffs.—SOLOMON S. GRAY, South Boston, Mass. Application filed October 9, 1876.

"The arbitrarily-selected words 'ECONOMY IS WEALTH.'"

4,067.—Tincture for Destroying Bed-Bugs.—CHARLES HEINRICH, Plainfield, N. J. Application filed August 9, 1876.

"The fanciful words 'THE WONDERFUL KILLER.'"

4,068.—Pocket-Books.—SAMUEL HYMAN, Nashville, Tenn. Application filed September 14, 1876.

"A band, by which the pocket-book is tied or secured, applied transversely and longitudinally of the pocket-book, and cemented or sealed at the intersections."

4,069.—Cooking-Ranges.—JAMES & KIRTLAND, New York, N. Y. Application filed September 22, 1876.

"Word-symbol 'BEEBE.'"

4,070.—Acid Phosphates.—JOHN E. LAUER, Edgewater, N. Y. Application filed September 7, 1876.

"The word 'Wheat' and the representation of the fox, stork, and jar."

4,071.—Edge and other Tools.—LATHROP & Co., Newark, N. J. Application filed August 30, 1876.

"The word-symbol 'WASHOE.'"

4,072.—Leaded Sheet-Iron.—MARSHALL BROTHERS & Co., Philadelphia, Pa. Application filed August 29, 1876.

"A figure of an eagle perched on a prostrate lion."

4,073.—Horn Goods.—PHELPS & EVERDELL, New York, N. Y. Application filed September 20, 1876.

"The words 'Continental Comb Company.'"

4,074.—Smoking-Tobacco.—JULES P. SARRAZIN, New Orleans, La. Application filed September 7, 1876.

"The word and figures 'Old '76,' and the representation of Goddess of Liberty, Indian, and Continental soldier."

4,075.—Woven Fabrics Known as "Cheviots."—PHILIP H. WENTWORTH, Boston, Mass. Application filed September 15, 1876.

"The figure of a man dressed only in a shirt, standing on a bale of cheviot fabric."

4,076.—Woven Fabrics Known as "Duck."—PHILIP H. WENTWORTH, Boston, Mass. Application filed September 15, 1876. "The figure of a duck."

4,077.—Smoking-Tobacco and Cigarettes.—JOHN BLAKELY, Jersey City, N. J. Application filed Oct. 17, 1876.

"The word-symbol 'MARGARITA,' used in connection with the expression 'DOES NOT DRY THE THROAT.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 24, 1876.]

843.—Title: "**Sulphuret Oil of Roses.**"—N. W. & F. S. BUTTON, New York, N. Y. Application filed October 10, 1876.

844.—Title: "**Veritable Liqueur Benedictine.**"—CAZADE, CROOKS & REYNAUD, New York, N. Y. Application filed August 21, 1876.

845.—Title: "**An Unfailing Remedy.**"—ARCHIBALD M. DE WITT, West Pittston, Pa. Application filed Sept. 11, 1876.

846.—Title: "**Vegetable Hair.**"—DELTA MOSS COMPANY, New Orleans, La. Application filed October 17, 1876.

847.—Title: "**Patent Hair Fiber.**"—DELTA MOSS COMPANY, New Orleans, La. Application filed October 17, 1876.

848.—Title: "**Claret-Palmas & Maleyat, Bordeaux.**" JOSEPH A. DURAND, San Francisco, Cal. Application filed September 28, 1876.

849.—Title: "**Duryeas' Satin Gloss Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, New York, N. Y. Application filed July 29, 1876.

850.—Title: "**Duryeas' Superior Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, New York, N. Y. Application filed July 29, 1876.

851.—Title: "**Duryeas' Improved Corn Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, New York, N. Y. Application filed July 29, 1876.

852.—Title: "**Economy is Wealth.**"—SOLOMON S. GRAY, South Boston, Mass. Application filed October 9, 1876.

853.—Title: "**Granulated Hop Yeast.**"—THERON B. PARKS, Milwaukee, Wis. Application filed October 3, 1876.

854.—Title: "**Infallible Rheumatic Liniment.**"—CLINTON SHANE & JAMES KEARNEY, San Francisco, Cal. Application filed October 4, 1876.

855.—Title: "**Berlin Print Works Warranted Fast Colors.**"—WILLIAM SIMPSON SONS & CO., Philadelphia, Pa. Application filed October 12, 1876.

856.—Title: "**Dr. Wm. Wood's Fever Pills.**"—WILLIAM WOOD, Cairo, Ill. Application filed October 17, 1876.

857.—Title: "**Margarita Smoking Tobacco, Does not Dry the Throat.**"—JOHN BLAKELY, Jersey City, N. J. Application filed October 17, 1876.

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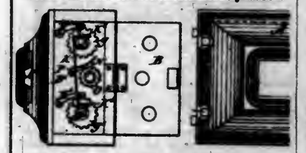
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED OCTOBER 24, 1876.

183,482. STATION-INDICATORS. George Allan, Waterloo, Arthur J. M. Tenny, St. Johns, John Allan, St. Vincent De Paul, and James Allan, Montreal, Quebec, Canada. [Filed Apr. 26, 1876.]

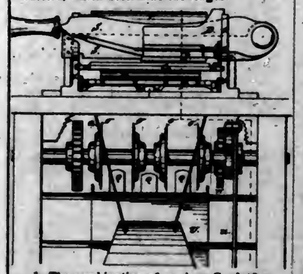
Brief.—The rolls to which the ends of the indicating-apron are attached are locked in fixed positions through the medium of pawls, which take into spur-wheels mounted on the winding end of each roll. The pawls are connected by means of a rod, which is so bent near the key end of the rolls that the act of placing the key on either roll strikes the rod, and causes it to simultaneously throw the pawls out of contact with the spur-wheels, thus permitting the apron to be wound from off one roll onto the other. When the key is withdrawn the rolls are simultaneously locked.



In combination with the rollers D D', with ends *d d'*, the toothed wheels *g g'*, with pawls H H' and rod K, as and for the purposes herein set forth.

183,483. CIGARETTE-MACHINES. Leon J. Bejottes, New York, N. Y. [Filed Apr. 27, 1876.]

Brief.—The tobacco is pressed under an iron roller, and is cut, and falls upon a reciprocating carrier into the bight of an apron, where the wrapper is put on, and then falls between cutters, which determine the length.



1. The combination of carriage C, platform P, apron A, springs *d d'*, cords *a a' a''*, check-plate D, and cutters *e*, as and for the purpose set forth.

2. The gumming device, consisting of the sliding bar E, having faces *h*, vibrating cam H, gumming-plate J, roller K, and box L, combined and arranged as described.

3. The combination of sliding platform P, lever N, ratchet W, cord *a''*, spring *b'*, treadle E, cutters *e*, and rod *n*, as and for the purpose set forth.

183,484. CORN-POPPERS. Herman Beimer, Cincinnati, Ohio. [Filed Sept. 6, 1876.]

Brief.—Additional wires are introduced into the wire-netting to stiffen the same.



1. A corn-popper, having the stiffening wires or braces integral with the wire-netting forming the body or basket, substantially as described.

2. The combination, with the wires *o* and basket A, of the binding *b*, for securing the ends and edges of said wires and basket, substantially as described.

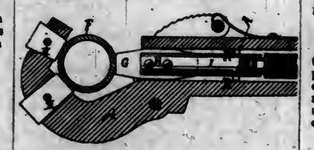
3. The combination, with the basket and handle of a corn-popper, of the cast-metal socket B riveted to the sheet-metal binding *b*, and the wire shank or tang *c*, having spirally-arranged barbs or cuts *d* on its outer end, and secured in said socket, substantially as and for the purpose described.

4. A corn-popper, the body or basket whereof is formed of wire-netting, having stiffening wires or braces incorporated therein, substantially as described.

5. A corn-popper having the ends of its braces or stiffening-wires secured by means of the binding thereof, substantially as described, and without any bending or other manipulation of the said braces or wires.

183,485. COMBINED WRENCH AND PIPE-CUTTER. John Brewer, Brooklyn, N. Y. [Filed June 2, 1876.]

Brief.—Cutter-head reversible. May wholly or partially withdraw cutter and its operating-rod, which rides in grooves cast in the chilled body of the tool. Unlatch and throw forward the toothed and hinged jaw, and tool becomes a wrench.



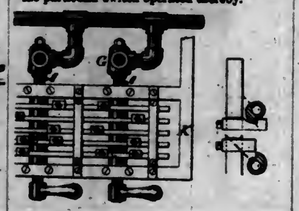
1. The body A of the implement, provided with a longitudinal hole, and with the grooves Q running longitudinally through the same, substantially as and for purpose set forth.

2. The dogs B hung to be thrown forward against the pipe F, and backward against the body of the implement, and to be held by the spring-catch E to adapt the tool for a wrench or cutter, substantially as set forth.

3. The holder I, carrying the double-ended or reversible cutter G, and connected with the handle P by the swivel-joint J, and also provided with the spline or pin R, all arranged so as to be withdrawn together from the body of the tool, substantially as and for the purpose set forth.

183,486. PNEUMATIC SWITCH-LOCKING APPARATUS. David A. Burr, Philadelphia, Pa. [Filed July 20, 1876.]

Brief.—The object is to lock any one or more of the series of air-valves in a pneumatic switch-moving apparatus by the movement of any other valve in the series, thereby preventing the movement of the former until the latter valve shall have been restored to its original position. This is accomplished by a series of locking-cams placed on the rods which operate the valves, which locking-cams engage with stops on a series of transverse bars, which, in turn, are operated by motor-cams on the valve-rods. The stops are adjustable on the transverse bars, and can be so arranged as to produce any desired locking combination. The locking of the respective air-valves, of course, effects the locking of the particular switch operated thereby.



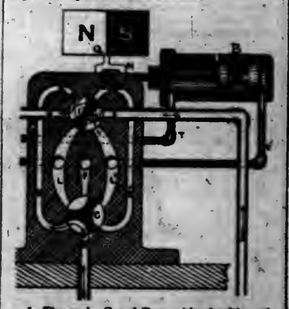
1. In an apparatus for operating railway switches and signals by means of compressed air, the combination, with cock or any rod actuating an air-valve or cock therein, of a transverse rod or bar to be actuated by the movement of said valve-rod, and which shall, when so actuated, lock or unlock thereby one or more of the remaining valve-rods, substantially in the manner and for the purpose herein set forth.

2. An adjustable cam or eccentric, C, secured upon the rod A, actuating any one of the valves or cocks in a pneumatic switch and signal apparatus, combined with and working against one or more adjustable bearing-plates, F, secured upon a transverse locking-bar, B, for the purpose of actuating said bar by the movement of the first, and thereby locking the remaining cocks or valves in said apparatus, substantially as and for the purpose herein set forth.

3. The combination, substantially as herein described, of the bar locking one or more of the valve-rods in a pneumatic switch and signal system, with the device indicating automatically the movements of the switches and signals, the lock-bar being actuated by the indicating device, substantially in the manner and for the purpose herein set forth.

183,487. PNEUMATIC SWITCH-SIGNALS. David A. Burr, Philadelphia, Pa. [Filed May 22, 1876.]

Brief.—Compressed air admitted from main to supply-pipe sets the switch by pressure on piston in cylinder. Movement of switch opens puppet-valve, which allows further current of air to a second cylinder, where the movement of a piston sets the signal and opens escapes for the air-column.



1. The cocks C and D, combined with each other and with a pneumatic piston operating a railroad-switch, a second piston actuating said cock D, an air-supply main, exhaust-vents, and suitable connecting-pipes, all substantially in the manner and for the purpose herein set forth.

2. In combination with the cock D and its actuating-piston M, and with the cock C and switch-piston K, a dial-board, R, and pointer W, arranged to indicate the position of said switch by the movement of the cock D, substantially as herein set forth.

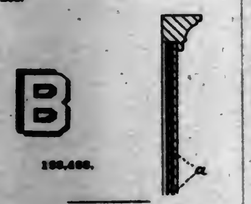
3. In combination with the movable rails of a railway-switch, and with cross-pipes X X', directly connecting the air-supply pipes H' and I' of a pneumatic piston operating said switch, valves *b b'*, controlling said cross-pipes, and arranged to determine the direction of the air-currents therein, and opposed, respectively, by the movable switch-rails, when thrown to their normal position in the one direction or the other, substantially as and for the purpose herein set forth.

183,488. ORNAMENTED GLASS TABLETS. M. B. Church, Philadelphia, Pa., assignor of one-half his right to Geo. Eastman, Eastmanville, Mich. [Filed July 12, 1876.]

1. The ornamented transparent-glass tablet A *a*, combined with the glass mirror B *b* as a background, as and for the purpose described.

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2. As a new article of manufacture, the glass tablet herein described, consisting of a removable ornamented glass plate, A a, combined with the glass mirror B b as a background, substantially as and for the purpose specified.



No. 188,488.

188,489. SAFETY SWIVEL HOOKS OR PINS. Thomas Cogswell, Boston, Mass. [Filed Sept. 11, 1876.]

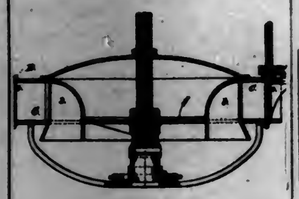


1. The combination of the loop a, the shield c, and swivel pin or hook b a, as and for the purpose set forth.

2. The combination, with a loop, a, of a swivel hook or pin, b c, provided with a locking device, substantially as and for the purpose specified.

188,490. TURBINE WATER-WHEELS. Ashley Dodge Cole, Toronto, Ontario, Canada. [Filed July 28, 1876.]

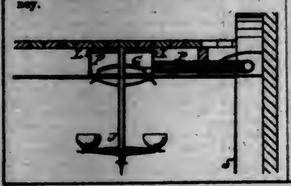
Brief.—The gates are hinged to the outer ends of the stationary partition. In proportion as they are closed the water is directed toward the center of the wheel.



In a turbine water-wheel, the series of partitions *b*, having the sockets *c* at their outer extremities, the series of gates C, hinged in the said sockets, arms *c'*, links G, and circumferentially-adjustable ring D, all combined and operating substantially as herein specified, for the purpose set forth.

188,491. VENTILATORS. John W. Collins, Washington, D. C. [Filed Sept. 11, 1876.]

Brief.—A perforated plate or register is placed in the ceiling of the room, between the joists, in the open space between the plastering and the flooring of the room above. The box is of any convenient shape, and on one side of it is inserted a pipe. This pipe is carried under the bridge beneath the fire-place, and thence into one of the flues of the chimney.



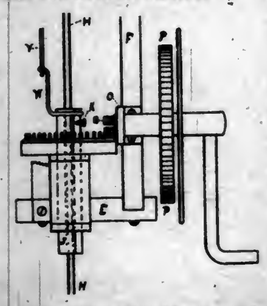
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1. A ventilator, F, and pipe P placed between the joists of a building, as shown, and substantially as described, and for the purposes set forth.

2. The combination of a ventilator-box, F, with damper G, pipe P, cover L, cord S, and spring N, as shown and described, and for the purposes set forth.

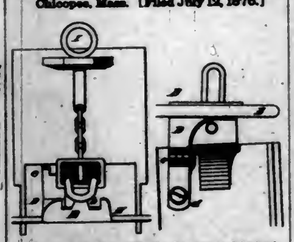
188,492. ROCK-DRILLING MACHINES. C. C. Creager, Tiffin, Ohio. [Filed Apr. 15, 1876.]

Brief.—A horizontal crown-wheel has revolving with it, on its center, a drill reciprocated vertically by a loose strap and walking-beam, worked by the crank of a shaft revolved by gearing connecting with that which works the crown-wheel, all being on a sliding frame on vertical rods of a stationary one, which has a winch to feed and withdraw it.



The combination of the sliding frame E E' F F, frame A A' B B' C, and feed-screw X, the crank-shaft Z for raising and lowering the drill, the device I, J, and Q for rotating the drill, and the crank-shaft S, wheel T, arm U, walking-beam V, crooked arm W, shaft J, and drill H, substantially as described.

188,493. CAR-COUPLINGS. Brigham Day, Chicopee, Mass. [Filed July 19, 1876.]



In combination with the buntor and link of a car, the piece B, having the seat *b* for the link, handle E, and arm D, with double joint *c d*, substantially as shown and described.

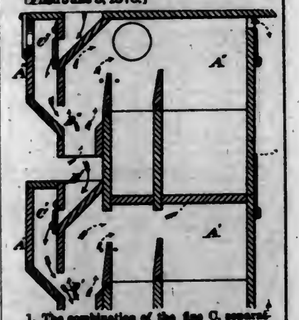
188,494. STOVE-PIPE JOINTS. John Dreger, Whitby, Ontario, Canada. [Filed Apr. 26, 1876.]

Brief.—The pipe is adjustable horizontally by means of the clamp.



An adjustable stove-pipe, constructed or formed, as shown, of an S-shaped or folded edge, B', and plain edge B, which enters the recess in the edge B', united at one end by single rivet G, and at the other end by screw-clamp A D F, as and for the purposes described.

188,495. MIDDLINGS-SEPARATORS. N. P. Messenmyer and A. Dohner, St. Louis, Mo. [Filed June 3, 1876.]



1. The combination of the flue C, separating-flue D, openings *d* and *d'*, valve B, extension *e* of said valve, and chamber F, substantially as described.

2. The combination of the flue C, arranged as described, the separating-flue D, openings *d* and *d'*, valve B, extension *e* of said valve, and chambers F and G, substantially as shown and specified.

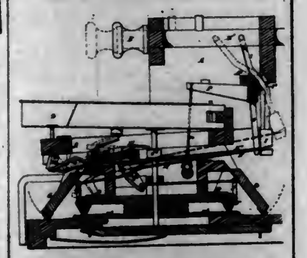
3. The combination of the flue C, flue D, openings *d* and *d'*, valve B, extension *e* of said valve, chambers F and G, and valve *h*, substantially as described.

4. The combination of the separating-flue D, openings *d* and *d'*, valve B, extension *e* of said valve, chambers F and G, valve *h*, and the independent outlets *g g*, substantially as and for the purpose of enabling the middlings to be thoroughly separated and classified.

5. The combination of the flue D, valve B, chambers F and G, valve *h*, spouts K K, valve *k*, and outlets *g g*, substantially as described.

6. The combination of the separating-flue D, valve B, extension *e* of said valve B, and the middling-chamber F, substantially as described.

188,496. REED-ORGAN ACTIONS. Andrew H. Hammond, Worcester, Mass. [Filed July 3, 1876.]



1. The combination, with the stop pulls or rods F and mute-connections K, of the arms or levers I, constructed with offsets I', arranged for operation against a suitable supporting-rest, A', substantially in the manner described, whereby the levers are rendered self-supporting and the mutes held open when the pulls are drawn.

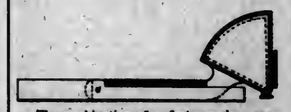
2. In combination and relative arrangement, substantially as described, the mutes F, provided with arms or pins *f*, the connecting rods or cords K, with the reversing-lever K', the offset levers or arms I, and stop-pulls E E', for the purposes set forth.

3. In combination with the octave-coupler table H, the inclined reciprocating rods or wedges L, bar M, and mechanism for imparting movement to the same, substantially as and for the purpose set forth.

4. The combination, with the levers I or cushions J, which sustain the mute-connections, and the operating-shaft R, of a rocking bar, N, provided with arms O, which act against said levers I or cushions J, and operate the mutes when said bar N is oscillated, substantially as and for the purposes set forth.

188,497. FOOT-WARMERS. Geo. B. Hayes, Buffalo, N. Y. [Filed Feb. 22, 1876.]

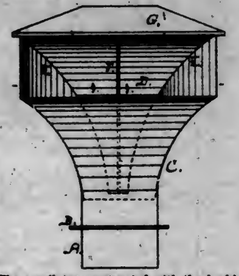
Brief.—Adjustable foot rest and warmer for dental or other chairs.



The combination of a foot-warming apparatus with the adjustable foot-rest of a dental chair, substantially as and for the purposes specified.

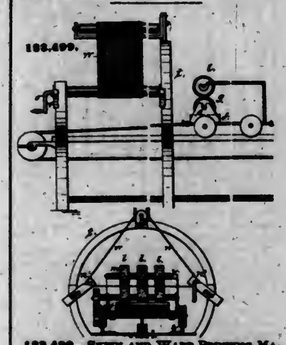
188,498. VENTILATORS FOR FLUES. Adam Hay and Jacob De Vaumey, Newark, N. J. [Filed Sept. 18, 1876.]

Brief.—This ventilator is made to fit inside of the flue. Above its base is added a concave funnel, and inside of this funnel is placed another similarly-shaped funnel, and the two are connected by the corner ribs, which act as partitions, besides serving to unite the funnels. The ribs assist in catching the currents of air from all quarters, compelling their descent into the flue, and thence into the apartment where it is needed.



The ventilator constructed with the double concave funnel shapes C and D, forming the orifice between, divided by the rib partitions E and F into the tubes I, and having the cap G and base A, substantially as and for the purposes specified.

188,499. SCREW AND WARP PRINTING MACHINES. Edmund W. Horton, North Manchester, and R. B. Caldwell, South Manchester, Conn. [Filed Mar. 4, 1876.]

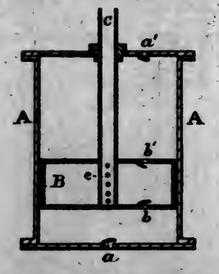


Brief.—The printing-rollers are made up of sections adjustably screwed on their shafts, and are journaled in the front end of an open reciprocating carriage, the rollers printing simultaneously on both sides of the horizontal portion of the yarn, which is stretched triangularly over three rollers held in adjustable bearings.

1. The hoop *f*, and the three skein-rolls *a a' a²*, adjustable toward and from a common center, in combination with the reciprocating carriage *e* having the opening *e'*, and carrying the two sets of color-rolls *g i*.

2. In combination the two sets of color-rolls *g i*, both set on threaded shafts.

188,500. DOUBLE FORCE-PUMPS. Hiram Hulbert, Benj. F. Nash, and H. W. Nash, Plymouth, Wis. [Filed July 11, 1876.]



The stationary cylinder A, having the valves *a a'*, in combination with the reciprocating inner cylinder B, having inlet-apertures, each aperture being provided with a separate clack-valve, *b b'*, and with the hollow perforated piston-rod C *c*, as and for the purposes specified.

188,501. ROTARY BLOTTERS. W. H. Kelly, New York, N. Y. [Filed Mar. 16, 1876.]



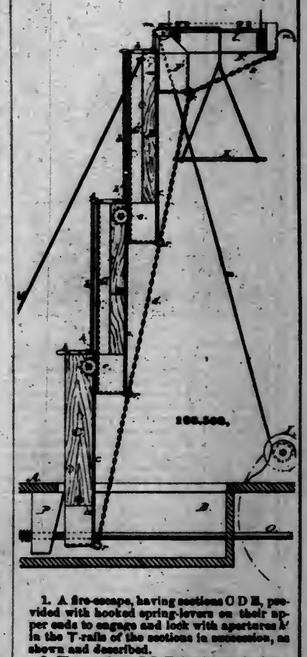
1. The resilient cylindrical roller A, in combination with latches B B, provided with a hook or clamp surface upon one edge of the drop, so as to clamp the roller when closed, and a cam surface and notch upon the other edge, so as to brace the roller when open, substantially as described.

2. In a cylindrical blotter the combination of the roller A, the side frames *a' a²*, the drum C, clevis *c*, and clamping-cam *c'*, substantially as and for the purpose set forth.

3. In a cylindrical blotter the combination of the drum C and cloth strip E, substantially in the manner and for the purposes specified.

4. In a cylindrical blotter, the drum C, windlass *c'*, and strip E, sufficiently long to pass outside of the cylinder, whereby the blotting-paper may be secured to the drum outside of the cylinder, and wound upon the drum without detaching any of the parts of the roller, substantially in the manner described.

188,502. FIRE-ESCAPES. A. Kindermann, Cleveland, Ohio. [Filed Sept. 16, 1876.]



1. A fire-escape, having sections O D E, provided with hooked spring-levers on their upper ends to engage and lock with apertures *h'* in the T-rails of the sections in succession, as shown and described.

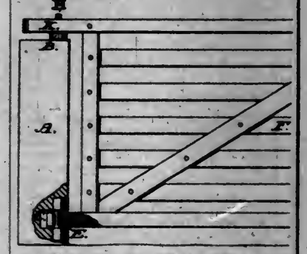
2. The sections O D E, having rack-plates G, into which the pinions *c c* mesh, and spring-hooked levers *h*, the T-rails, and eyes or hooks *r r*, for the attachment of chains *s*, all substantially as shown and specified.

3. The combination of the sections O D E, and the upper hinged section F, provided with a trap-door, H, bar *l*, hooks *n*, with the life car or basket K, and windlass I, substantially as shown and specified.

4. The combination of the sections C, D, E, and F of a fire-escape, with chains S and *k*, as shown and described.

5. The combination of the sections O D E, with the adjusting device herein described, consisting of a shaft, O, hand-wheel *i*, crank-pinion N, spring-bars *g g*, and pieces *p p*, substantially as shown and specified.

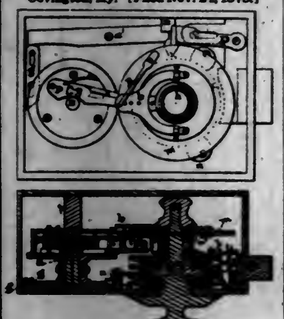
188,503. GATES. Jas. M. Mollestire, Asheville, N. C., assignor of one-half his right to John B. Ray, same place. [Filed July 3, 1876.]



1. The combination of the gate F and the post A, said post having the pintles or hinge, consisting of the parts B E O E, substantially as and for the purpose specified.

2. A gate-post having the elliptical pintle E, adapted to be used in connection with an enlarged slot in the lower rail of the gate, substantially as and for the purpose specified.

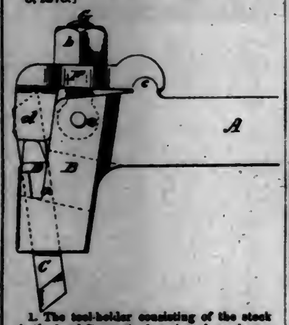
168,504. PERMUTATION-LOCKS. J. Meyer, Covington, Ky. [Filed Nov. 24, 1875.]



1. The bolt I of the secondary lock, having the projections *f f' f''*, in combination with the driving-wheel *d* of the main lock, provided with the slide *e*, having pins V V', whereby the driving-wheel is connected with, and disconnected from, the tumblers of the main lock, substantially as described.

2. The driving-wheel composed of an inner disk, *a'*, and an outer ring, *a*, in combination with cap *b*, catch *b*, and slide *e*, with its pins V and V', the parts being constructed to operate substantially as specified.

168,505. TOOL-HOLDERS. Alfred J. Nov, Reuben A. Matthews, and William Henry Berry, Nottingham, England. [Filed Sept. 5, 1876.]



1. The tool-holder consisting of the stock A, the head B, mortised or slotted, as shown, the clamp F, and the swivel-bolt G, with nut *b*, all combined and arranged substantially as herein set forth.

2. The combination of the head B, mortised or slotted, substantially as shown, the clamp F, constructed as specified, and the roughened wedge D and tool C, formed as described, all arranged to operate substantially as set forth.

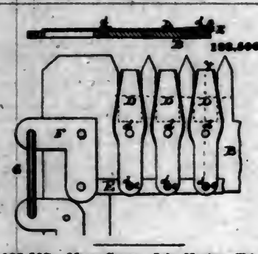
3. In a tool-holder, the clamp F, pivoted or fulcrumed, as shown at *c*, and provided with a jaw, *d*, in combination with the swivel-bolt G and nut *b*, all arranged to hold the tool in place, as set forth.

4. The combination of the head B, having a socket or slot with a right and left taper, a tool, C, with parallel sides, and a wedge, D, having its opposite sides tapered precisely as the walls of the socket, all for the purpose of adjusting the tool either to the right or left, as shown and described.

168,506. CUTTER-BARS FOR HARVESTERS. Thomas V. Nichols, Otsco, Ill. [Filed Feb. 1, 1876.]

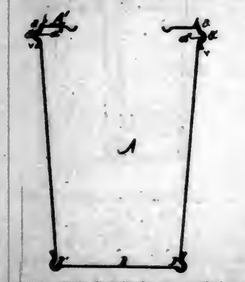
1. The cutter-bar B, having the blade-journals *c*, formed by punching or striking up the metal from the lower or under side of the bar, substantially as set forth.

2. The cutter-bar B, having journals *c*, as described, in combination with the blades D, fingers C, and bar E, substantially as and for the purpose specified.



168,507. MEAT-CANS. John Norton, Chicago, Ill. [Filed Apr. 1, 1876.]

Brief.—Soldered on the outside under the outward flange of the cover, and also on the inside in the groove of the cover, wherein rests the upper edge of the side of can. Bottom soldered on the outside under the flange.



1. The within-described can, consisting of the body A, having beads at or near its ends, in combination with correspondingly-headed top and bottom pieces, flanged to lap the ends of the body and flaring outwardly to receive the solder, substantially as and for the purposes specified.

2. The within-described can, having therein the bead *a''*, and provided with the top or cover A', having the downwardly-turned flange *a*, headed at *a'*, and inclined outwardly or from the body, as shown, substantially as and for the purposes specified.

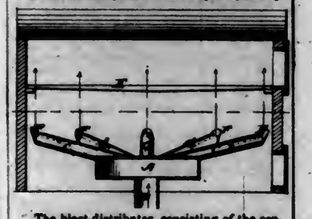
3. The within-described can, provided with the bottom B, headed at the corner about a corresponding bead on the lower end of the body, and flared outwardly from the body, substantially as shown and described.

168,508. GAS-COUPLINGS. Samuel F. Page, Valatie, N. Y. [Filed May 17, 1876.]



The clutches I, recessed at *c*, and provided with the springs *a*, bearing against the cap G, link O, and lever C, in combination with the draw-heads A A, provided with the concave face B, having mortises *a*, beveled on their inner surfaces, and the hooked bar K, all constructed to operate as described.

168,509. DEVICES FOR SUPPLYING BLAST TO FURNACES. Nathaniel B. Packard, Brockton, Mass., assignor to himself and Wm. Austin, same place. [Filed Apr. 12, 1876.]



The blast-distributer, consisting of the central chamber A and the radiating pipes C, which are of varying lengths, and are adapted to deliver jets or currents of air at various points along the outer edge or margin of a furnace-grate, substantially as shown and described.

168,510. GAS-METERS. Robert C. Phillips, Cincinnati, Ohio. [Filed Aug. 21, 1876.]

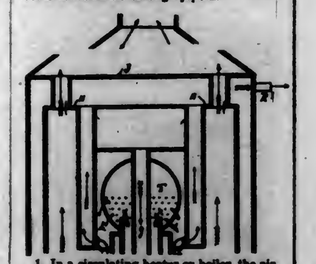
Brief.—By placing the partition diagonally, and locating the flag-rods and hinges in opposite corners, the case can be made much smaller than by the usual arrangement.



The diagonal partition C C, the diaphragms G G, the flag-rods I I, located in opposite diagonal corners of the meter, the arms J and J', the pitmen K and K', the tangent or crank with the spindle, arranged and located substantially as shown and described.

168,511. WATER-HEATERS. William S. Reynolds, La Fayette, Ind., assignor to himself and Helen M. Scarpill, same place. [Filed Apr. 12, 1876.]

Brief.—Sediment accumulating in the chamber G is blown off through pipe L.



1. In a circulating heater or boiler, the air-tube O, surrounded by the jacket O', to form an annular water-space, P, between them, said air-tube and water-space projecting below the grate W, and extending upward through the fire-space, in the manner shown, for the purposes set forth and described.

2. In combination with an air-tube, O, provided with an annular water-space, P, on its outside, inclosed by means of an outlet-jacket, O, the inlet-pipe R, and outlet-pipes R' R'', in the manner shown, for the purposes set forth and described.

3. In combination with an air-tube, O, surrounded with a water-space, P, a register, V, arranged at the bottom, to allow cold air to enter the air-tube, in the manner shown, for the purposes specified.

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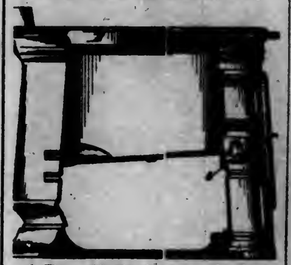
4. In combination with an air-tube, O, surrounded with a water-space, P, the air-spreader T, arranged above, to be operated in the manner shown, for the purposes described.

168,512. BOTTLE-STOPPLES. Augustus H. Rich, Fall River, Mass., assignor of one-third his right to Jas. H. Crittenden, same place. [Filed May 20, 1876.]



In combination, metallic stopple A', rubber ring B', wires O' O' D' D', metallic pin A', and spiral spring b', as set forth and described, for the purpose specified.

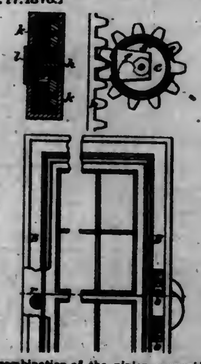
168,513. RANGES. Apollos Richmond, Brooklyn, Conn. [Filed July 13, 1876.]



1. The combination, in a range of oval outline, of a fire-box with curved ends and front, an oven with curved sides, a top flue with curved flue-strip, as shown and described, and dining and rising flues, provided with dust-doors, substantially as and for the purpose set forth.

2. The combination of the removable cap *a*, in which the end of grate is journaled, and the latch *b* for securing it in place, all as and for the purposes set forth.

168,514. SASH-BALANCES. Joseph Schater, Syracuse, N. Y., assignor of one-half his right to Phillip Schaller, same place. [Filed Mar. 17, 1876.]



The combination of the pinion *c*, provided with hollow hub *d*, and annular flange *e*, coil-spring *c*, placed within and attached at the outer end to said flange, collar *f*, holding inner end of the spring, plate *f* attached to collar *f*, cam *k*, having recess *l* and pin *h*, all constructed and arranged as described and shown, in combination with the rack *b* and spring-pin *n*, as and for the purpose set forth.

168,515. CURTAIN-FIXTURES. William R. Skinner, Milford, Mich. [Filed May 26, 1876.]

Brief.—A gravitation-pawl operated by a cord, which passes through a guard attached to the frame. The roller is made in two sections, of quarter-foil shape, so that the length of the roller is adjustable. A flexible cylindrical jacket surrounds the corrugated adjustable roller, on which the curtain is wound. The curtain is held to the roller by means of a cord passing from the flanged head at one end to the flanged head at the other end. The curtain passes through a slot in the outer jacket. The lower rod is adjustable lengthwise.



1. In a curtain-fixture, the combination, with the toothed periphery of the cord-pulley, of the gravitating-pawl *g*, having the weighted end G, said pawl being pivoted between the walls *a a'* of the bracket, underneath the axis of the curtain-roller, in such a position that the cord depending from the pulley will touch the weighted and curved end of the pawl, and by a direct downward pull release it from the ratchet, as and for the uses and purpose set forth.

2. A roller for curtain-fixtures, composed of the sections O' O'', flanges *l l*, and pivots *e e*, said sections being constructed of metallic tubes having a quarter-foil transverse section, and arranged to slide one into the other for adjustment, substantially as described.

3. A curtain-bar composed of a tube and a solid rod sliding therein, said rod being provided with a spring, *i*, for retaining said pieces in frictional contact, substantially as described.

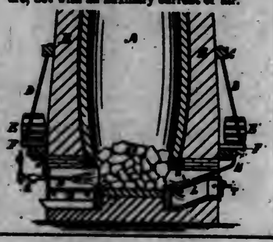
4. The combination, with the corrugated roller O, composed of sections, of a flexible jacket, I, substantially as described.

5. The combination, with the bracket A', of the ratchet-wheel D, pulley E, flange F, gravitation-pawl G, and the guard H, substantially as described, for the object mentioned.

6. The combination, with the roller O, composed of metallic sections having a quarter-foil transverse section, of the slotted flanges *l l*, cords K K, and the curtain R, substantially in the manner as and for the use and purpose stated.

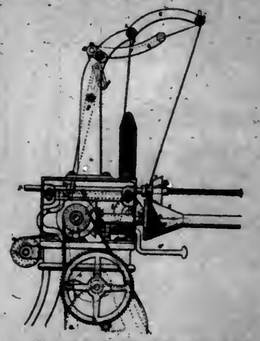
168,516. LUBRICATORS. Henry Stacey, Indianapolis, Ind. [Filed Feb. 16, 1876.]

Brief.—A blast of steam, air, and oil may be used in connection with the closed chamber; or oil alone may be used, without pressure, but with an auxiliary current of air.



168,517. YARN-BOBBIN WINDERS. Samuel T. Thomas, Boston, Mass., and Winfield S. Thomas, Laconia, N. H. [Filed Sept. 6, 1876.]

Brief.—An adjustable vibrating arm produces a variable tension upon the yarn as it is wound in conical layers upon the bobbin. The arm is adjustable upon a rock-shaft, from which are suspended slotted arms, that are also adjustable at different angles. A vibrating vertical arm or lever, provided with a slot at its upper end, is at its lower end actuated by a sliding plate. The sliding plate is operated by the bent lever and cam. The slotted ends of the vibrating levers are coupled together by a screw-bolt and nut, which furnishes an additional means of adjustment. The vibrating arms and standards are in pairs—one arm at each end of the machine. The tension-arms are connected by a cross-bar, over which the yarn passes.



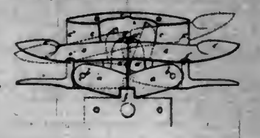
1. In a linsklin, the arrangement and combination of the fire-chamber M L at opposite sides of the long diameter of the ellipse A, the air-passages W, the discharge-openings P P on each side of the short diameter of the ellipse A, the cooling-chambers O O', provided with doors R R', registers T and W', as shown, for the purposes set forth and described.

2. In a linsklin, the fire-chamber L, constructed with an inclined partition, M, arranged to allow coal-tar or other heavy oils that are fed to the upper part of the inclined partition to run down the incline to the fire-chamber L, said chamber L being also provided with an air-register, T, all arranged and adapted to be operated for the purposes set forth and described.

3. In combination with the closed fire-chamber M of a linsklin, an oil or coal-tar injector, operated in the manner and for the purpose set forth and described.

168,518. GATE-LATCHES. Samuel M. Timkham, Taunton, Mass., assignor to S. M. Timkham & Sons, same place. [Filed Sept. 16, 1876.]

Brief.—Two pivoted drop-latches are both simultaneously lifted by pressing down either end of a loose bar, passing under loops and pins upon their upper ends.



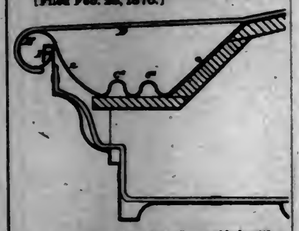
1. The cam *c*, lever *e*, sliding plate *h*, lever *g*, arms *f* and *e*, rod *k*, with its hook *j*, and rod *i*, with its pin *k*, the several parts being constructed, combined, and arranged to operate together, as and for the purpose set forth.

2. The sliding plate *h*, lever *g*, arms *f* and *e*, rods *k* and *i*, with their hook *j* and pin *k*, vibrating rod *p*, and adjustable guide *r*, the several parts being constructed, combined, and arranged to operate together, as and for the purpose specified.

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The herein-described latch, consisting of the latches a a, with their uprights a' a' and pins a'' a'', hinged at b b, in combination with the lever c d' d'' and the cam e, with its fulcrums f' f, as and for the purposes set forth.

182,519. CORNICE-GUTTERS. Charles A. Valle, Worcester, Mass., assignor of one-half his right to Jos. M. Bice, same place. [Filed Feb. 28, 1876.]

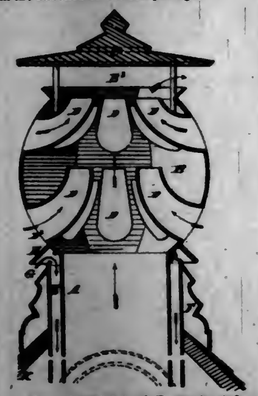


1. A sheet-metal gutter, C, provided with one or more longitudinal rolls or corrugations, C', along its bed, substantially as and for the purpose set forth.

2. The improved method, substantially as described, of securing the front edge of the gutter to the cornice-crown by the roll B and angular flange I, for the purpose set forth.

182,520. VENTILATORS. Charles A. Valle and Henry M. Sanders, Worcester, Mass., assignors of one-third of their right to Jos. M. Bice, same place. [Filed Apr. 17, 1876.]

Brief.—A ventilator-head, of spheroidal shape, provided with one or more series of inwardly and upwardly converging funnels, constructed and arranged in relation to the head and to each other radially within the spheroidal part, with their larger ends opening to the exterior of the head, while their lower or smaller ends turn upward and open in the direction of the exit-passage.



1. The spheroidal head B, constructed as herein shown and described, with radial converging funnels D, opening from the exterior and discharging upward to an annular group around and near the axis or center of the head as set forth.

2. In combination, substantially as shown and described, the spheroidal head B, inwardly tapering tubes or funnels D, pinnoid vibble the head B, flue or pipe A, and flat cap-plate C, said parts being constructed and arranged in relation to each other as set forth, for the purpose stated.

3. The combination, with the ventilator-head B, and flue A, of the external flue E, flange A, and openings C, substantially as and for the purposes set forth.

182,521. LEAD-PRESERVING AND SWEEPING SUITS. Frank Weeks, Chicago, Ill. [Filed Sept. 29, 1876.]

182,521.



1. A life-preserving and swimming suit provided with one or more chambers which are in communication with the interior thereof, and from which food, water, and other life-supporting substances may be drawn at will into the mouth while the whole body is inclosed water-tight within the suit, substantially as described.

2. A life-preserving and swimming suit which incloses the body and head water-tight, in combination with a floating air-chamber, which is provided with tubes by which it communicates with the atmosphere above the water, and with the interior of the suit, substantially as described.

3. The elastic tube on the lower end of the upper section of the suit, in combination with the elastic tube on the upper end of the lower section of the suit, substantially as described, whereby the necessary elasticity for holding the suit water-tight upon the body is secured, and the two parts of the suit held in a like manner together, substantially as described.

182,522. ORGAN-REEDS. Henry K. White, Brattleborough, Vt., assignor to J. Estey & Co., same place. [Filed Oct. 26, 1874.]

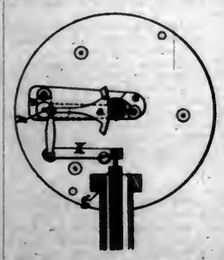
Brief.—The reed-tongue is so proportioned to the slot in the frame as to leave a decidedly open space beyond the point of the reed.



1. A reed for musical instruments, having the slot in the reed-plate extended beyond the free end of the tongue for a distance about equal to the width of the reed-slot, as herein described, to produce an echo-like or muffled tone, substantially as herein specified.

2. In a reed-organ or musical instrument, the combination, with a duplicate set of reeds and a principal set of common reeds, of a set composed in part of reeds having extended slots, as hereinabove described and claimed, and in part of common reeds, substantially as and for the purpose herein specified.

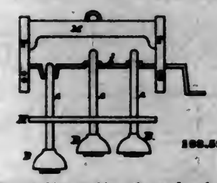
182,523. TRANSOMS. Geo. B. Wiggin, South New Market, N. H. [Filed Apr. 12, 1876.]



1. The described combination, with a hard-rubber strip or tube, of a wooden rod, the two being firmly connected at one end only, and the rod being elsewhere free of the rubber, and serving to communicate motion, derived from the expansion or contraction of the rubber, directly to the mechanism to be operated.

2. In combination with the hard rubber and the wooden rod, the described system of levers, the rock-plates, rock-shaft, and pinion, spring-indicating hand or pointer, and dial, substantially as and for the purpose set forth.

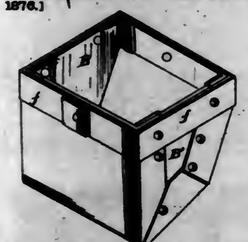
182,524. WASHING-MACHINES. Benjamin I. Williams, Lansing, Mich. [Filed Feb. 28, 1876.]



182,524.

In a washing-machine, the cord and pulleys, with the sliding gate M T T, in combination with the crank I, pitman A, cover H, and beaters B, having the chambers F and chutes C, as and for the purpose specified.

182,525. ELEVATOR-BUCKETS. William G. Avery, Cleveland, Ohio. [Filed Sept. 1, 1876.]



1. An elevator-bucket having a covered and flat-faced apron, whereby a more ready delivery is secured, substantially as and for the purpose described.

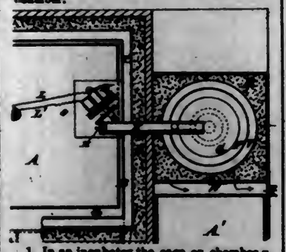
2. The blank A for elevator-buckets, formed with notches *g g*, slits *d d'*, and flap *a*, substantially as and for the purpose described.

3. An elevator-bucket formed of principal blank A and separate side blanks B B', whether the same are or are not turned over at their upper, rear, and side edges, substantially as and for the purpose described.

4. The combination, in an elevator-bucket, of principal blank A, separate side blanks B B', whether the same are or are not turned over at their upper, rear, and side edges, and re-enforcing strip *f*, substantially as and for the purpose described.

182,526. INCUBATORS. Harris W. Axford, Omaha, Nebr. [Filed Mar. 6, 1876.]

Brief.—The temperature of the incubating-chamber is regulated by an electric apparatus, the armature of the magnet being connected with a damper placed in the tube, through which the heated air is admitted. The air is heated and moistened by a lamp and boiler attachment, which also warms the chick-chamber.



1. In an incubator the cage or chamber *g*, the hot-air chamber *c*, and the passage W, and the heating-chamber with which the same communicates, all combined and arranged as shown and described, for the purpose specified.

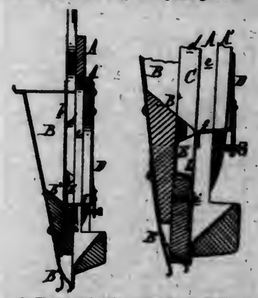
2. The mercury-gage, provided with an adjustable connecting-point, in combination with the electric magnet K, armature J, and the damper H, arranged in the mouth of the tube B, which projects into the oven A, as shown and described, whereby the temperature of the oven may be regulated and maintained at a higher or lower degree, as shown and described.

3. In an incubator, the mercury-gage, the magnet, and regulating-damper H, located within the oven A, in combination with the air-inlet tube B, the chambers F and G, and the heating apparatus connected therewith, all arranged as shown and described, for the purpose specified.

4. The lamp K, chimney U, air-passage *c*, water-boiler *b*, heater G V, and an insulated air-chamber F, combined substantially as shown and described.

182,527. HAND-PLANTERS. S. P. Babcock, Adrian, Mich. [Filed Jan. 7, 1876.]

Brief.—The slotted plunger moves in vertical side guides. To the beak of the hopper is attached a metal cut-off, the lower end of which is bent, and projects within through an opening in the beak, and the quantity of seed sown is graduated by an adjusting-screw.



1. The combination, with the metal hopper B, of the slotted plunger and the guides *b b*, covering the exposed parts of the said plunger throughout the hopper, substantially as described and shown.

2. The combination, with the slotted plunger C and measuring-cup E, cut back on its filling side, of the cut-off spring D *f*, constructed and arranged substantially as described and shown.

3. The combination, with the hopper B, of the slotted standard A, slotted plunger C, slotted plate A, and spring D, constructed and arranged substantially as described and shown.

182,528. SEWING-MACHINE SHUTTLES. G. W. Baker, Cleveland, Ohio. [Filed July 7, 1876.]

Brief.—The arm which holds the bobbin in its seat, the tension-spring, and the thread-controlling-spring are formed in one piece, and pivoted to the side of the shuttle-body at the end of the tension-spring.



1. The combination, with a shuttle-case, of the tension-spring C, provided with arm *c*, and thread-controlling spring D, the springs formed in one piece, and pivoted at *b* to the outside of the shuttle-case, substantially as and for the purpose specified.

2. The springs C D, pivoted to the outside of the shuttle at *b*, the spring C, provided with arm *c*, in combination with the shuttle, having an open front bearing for the bobbin, and a rear groove, *g*, for the reception and retention of the spring D, substantially as and for the purpose set forth.

182,529. GRAIN-BINDERS. David W. Barnett, Cadiz, Ohio. [Filed June 22, 1876.]

1. The combination, with the gaviers S S, of the gear-wheels *d d*, engaging with each other and arms or rods *d' d''*, as and for the purpose set forth.

2. The combination, with the gaviers S S, gear-wheels *d d*, and arms or rods *d' d''*, of the pawl P, and intermediate gear-wheel R, provided with the ratchet or stops *d' d'* on its axle, substantially as and for the purpose set forth.

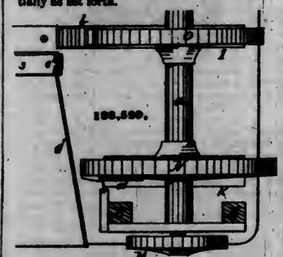
3. The combination, with the gaviers S S, arms *d' d''*, gear-wheels *d d* R, ratchet or stops *d' d'*, and pawl P of the actuating-wheel N, provided with the segment *a'* and cam *a''*, substantially as set forth, and for the purpose specified.

4. The combination, with the actuating-wheel N, provided with the segment *a'*, pinion *a''*, crank *a'''*, and pitman *a''*, of the twister *h*, pinion *h'*, oscillating frame *g*, rack *f*, and clasp *i*, substantially as and for the purpose stated.

5. The combination, with the actuating-wheel N, provided with segment *a'*, pinion *a''*, crank *a'''*, pitman *a''*, and oscillating frame *g*, of the twister *h*, pinion *h'*, and rack *f*, substantially as set forth, and for the purpose described.

6. The combination of the twister *h*, clasp *i*, tucker *k*, pinions *h' k'*, and oscillating frame *g*, with the racks *f f'*, pitman *a''*, crank *a'''*, pinion *a''*, and segment *a'* on the wheel N, supported and operated by the driving-shaft *a*, substantially as and for the purposes set forth.

7. The combination, of the gaviers S S, arms *d' d''*, gear-wheels *d d* R, and pawl P, with the twister *h*, clasp *i*, tucker *k*, racks *f f'*, pinions *h' k'*, and oscillating frame *g*, substantially as set forth.



182,530. BOXES FOR ARTIFICIAL FLOWERS. Isidore Birge, Philadelphia, Pa. [Filed Mar. 2, 1876.]

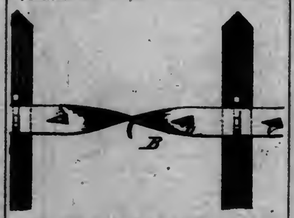


1. The inclined beds B, supported at one end on the uprights C, which are formed with openings D at their lower ends, substantially as and for the purpose set forth.

2. The inclined beds B and uprights C with openings D, in combination with the tapering sockets D', projecting from the uprights and communicating with the openings thereof, substantially as and for the purpose set forth.

182,531. METALLIC SHRIVE FOR FENCES. Jacob Brinkerhoff, Auburn, N. Y. [Filed Aug. 24, 1876.]

Brief.—The strips are twisted in opposite directions, to allow for contraction and expansion.



The strip or bar B for metallic panels for fences, twisted in opposite directions, substantially as and for the purpose set forth.

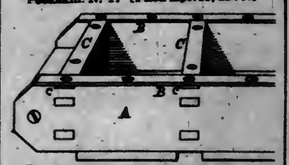
182,532. VENTILATORS AND PROTECTORS FOR ROOFS. Ernst M. Brock, Galveston, Tex. [Filed July 26, 1876.]

182,532.



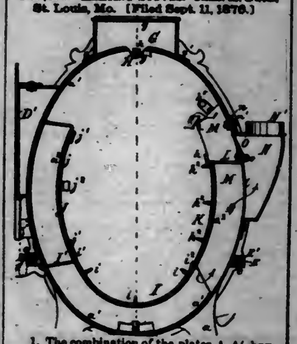
The combing herein described consisting of the cap D, having inclined flanges *b* with openings, edges *a*, neck E, and skirt G, extending outward upon each side the block, all combined and arranged substantially as and for the purpose specified.

182,533. BRICK-MOLDS. Chas. M. Brown, Peekskill, N. Y. [Filed Apr. 10, 1876.]



The transverse stripe C C, extending entirely across the mold, and having their ends formed with the offsets *c c*, that they may lie under the side stripe B B, substantially as shown, and for the purposes described.

182,534. HEATING-STOVES. Chas. H. Buck, St. Louis, Mo. [Filed Sept. 11, 1876.]



1. The combination of the plates A A', having rims *a''*, lugs *k*, and buttons *k'*, with the lining K, having notches *k'*, substantially as and for the purpose set forth.

2. The combination of the plates A A', having rims *a''* and legs *f'*, and the fender J, having notches *f'*, substantially as and for the purpose set forth.

3. The combination of the fender J, the lining I having flanges I^1 and i^2, tongue-and-groove joint i^3, with the lining K, the buttons k', the legs f' *k*, and the rims a'', substantially as and for the purpose set forth.

4. The combination of the plates A A', the rods E, and stays D', substantially as set forth.

5. The combination of the crown-piece G, the rods H, rods E, and sheet-iron casing D, lining K, and the plates A A', substantially as and for the purpose set forth.

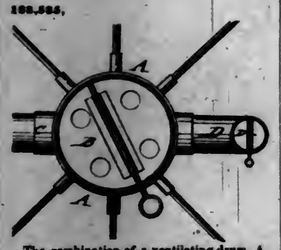
6. The combination of the sheet-iron casing D and plates A A', lining K, the flange *n* of the smoke-chamber N, and the bolts *n'*, substantially as and for the purpose set forth.

7. The combination of the foot or fire-chamber floor *n* n^1 n^2, the passages h^2 and *l*, the valve O, and the smoke-chamber N, substantially as and for the purpose set forth.

182,535. VENTILATORS. Henry A. Bunnell, St. Johnsbury, Vt. [Filed June 6, 1876.]

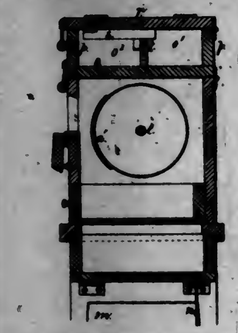
Brief.—A ventilating-drum inserted in a stove-pipe, with upward-extending funnel and downward-extending pipe, having register near floor, and funnel below the floor, to ventilate rooms in different stories.

No. 182,535.



The combination of a ventilating-drum, A, inserted in stove-pipe, with an oval-extending funnel D¹ and downward-extending pipe E, having register F near floor and funnel E¹ below the floor to ventilate rooms in different stories, substantially as set forth.

No. 182,536. ASH-SIFTERS. Mary J. Christie, Brooklyn, N. Y. [Filed Feb. 28, 1876.]



1. The sliding bars *t t*, between the box-shaped receptacles *o' o'* in the cover of the ash-sifter, in combination with the hinged cover *r* and leaves *u u*, substantially as set forth.

2. The cover for the ash-sifter, made of the bottom *o*, sides *p*, and ends *q*, forming a box, that is hinged to the case of the rotary ash-sifter, in combination with the cover *r*, that is hinged to such box, substantially as set forth.

No. 182,537. BATH-CABS. Charles H. Cooper, Watertown, N. Y. [Filed July 28, 1876.]



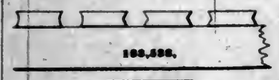
1. In a portable bath-car, a room, *e*, and pipes and heater, to keep the air therein at high temperature, in combination with a room, *f*, cold and hot water tanks, and pipes connecting room *f* with the cold and hot water tanks, substantially as and for the purpose described.

2. The combination, with the car, of movable closets, arranged to be moved horizontally through the side of the car, substantially as described.

No. 182,538. LATHS. Ezra Coleman, Virginia City, Nev. [Filed Sept. 20, 1876.]

A plastering-lath provided with grooves on each edge, either V-shaped or circular in form, cut lengthwise of the lath, substantially as described, or its equivalent.

No. 182,538.



No. 182,539. LASTING-GIRTHS FOR LASTING BOOTS AND SHOES. George W. Copeland, Malden, Mass. [Filed Aug. 26, 1876.]



1. A lasting-girth of formative material, molded to a shape conformable to the surface of the last upon which it operates, substantially as shown and described.

2. A lasting-girth consisting of an elastic central band, A, partially elastic and fibrous intermediary bands, and inelastic fibrous edges, substantially as shown and described.

3. A lasting-girth having edges of two or more thicknesses of fibrous material, extended unequally into the elastic band, and united thereto by heat and pressure, substantially as shown and described.

4. A lasting-girth having elevated and depressed inner surfaces, conversely arranged to the concave and convex parts of a last's surface, substantially as and for the purpose described.

5. A lasting-girth provided with the longitudinal projection *c* along its central line, substantially as shown and described.

6. A lasting-girth of varying thicknesses, substantially as shown and described.

7. A lasting-girth bulged inwardly upon its sides, substantially as shown and described.

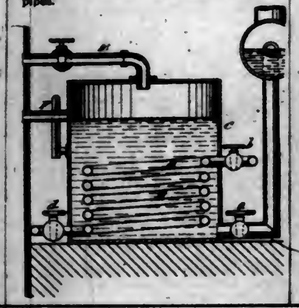
8. A lasting-girth having flexible edges of alternating elastic and fibrous material, substantially as shown and described.

9. A lasting-girth composed of a wholly elastic central portion and independent inelastic fingers, arranged in relation to each other so that the fingers are separated by elastic portions of the girth, substantially as shown and described.

10. A flat lasting-girth, consisting of a gored elastic central portion and inelastic flexible edges, substantially as shown and described.

No. 182,540. APPARATUS FOR THE MANUFACTURE OF COAL-GAS. Thomas Curley, Wilmington, Del. [Filed Apr. 4, 1876.]

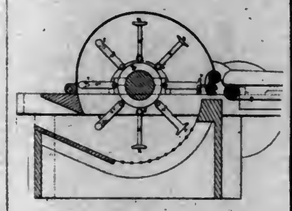
Brief.—Coal-tar is conducted from the hydraulic main into a closed vessel, supplied with a steam-coil, where the light vapors of naphtha and benzole are distilled off and mingled with the coal-gas, for preventing the deposit of crystallice napthaline in the gas-pipes.



A hydraulic main, A, connected by suitable means with the main G, in combination with the pipe B, vessel C, steam-coil D, and pipe E, forming an appiratus whereby, by a single continuous operation, the products of the distillation in the retorts, to wit, the gas and the vapors of naphtha and benzole, are combined, producing a gaseous compound for illuminating purposes, and which will also prevent the deposit of naphthaline in the pipes through which it flows, substantially as specified.

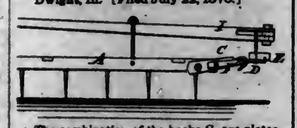
No. 182,541. COTTON-OPENERS. John H. Crane, (Julia V. Crane, administratrix,) Lowell, Mass. [Filed Mar. 21, 1874.]

Brief.—The beaters are each provided with one or more arms, hinged to the periphery of the main shaft, and operating-blades arranged in a line with the said shaft, at the end of the said arm or arms.



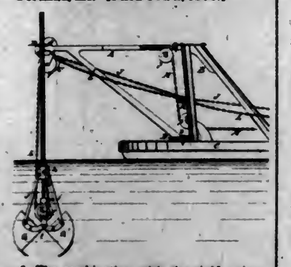
In combination with the feed-roll of a cotton-opener, the yielding beaters *t u v*, constructed and applied as described, with operating-blades, a rod with arm or arms a^1 a^2 a^3, hinged to the periphery of the shaft or cylinder A, and operating substantially as and for the purpose described.

No. 182,542. HARROWS. Adolphus W. Davis, Dwight, Ill. [Filed July 22, 1876.]



The combination of the hooks C, eye-plates D, and latches F with the draft-bar E, and with the outer sides of the forward ends of the side bars A of the harrow-section, substantially as herein shown and described.

No. 182,543. DREDGING-MACHINES. C. O. Davis, Portland, Me. [Filed Oct. 2, 1876.]



1. The combination, with the rigid swinging crane A, of the horizontal friction-wheel D and a device, substantially as described, for clamping said wheel, as and for the purpose specified.

2. The combination, in dredging machinery, of the chain M and the vertical rods or shafts that operate the buckets, for holding the buckets down, substantially as shown and described.

3. The combination of the chains J and L, sheaves m and r, frame H, rods F, slotted piece *h*, bars *f*, and buckets G G', substantially as herein shown and described.

4. The combination of the tubular shafts E, rods F, slotted piece *h*, bars *f*, buckets G G', frame H, guides D, chains J L M, and crane A, substantially as shown and described.

No. 182,544. SHOE-FASTENINGS. H. B. Dennett, Boston, Mass. [Filed Apr. 29, 1876.]



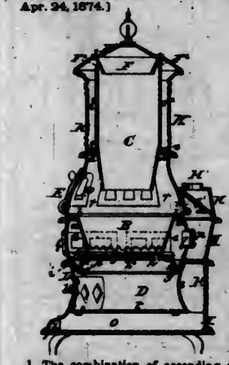
1. The plate *c*, cut from a sheet of metal, having the tangs *b*, which are provided with one or more slots, as shown, and a central depression, *c*, all substantially as and for the purpose set forth.

2. The anchor *h*, cut from a sheet of metal, provided with tangs *m* and orifice *o*, for the purpose shown and described.

3. The combination of the plate *c* and covering-plate *e* with the sheave *d*, all being constructed and arranged as and for the purpose specified.

4. The covering-plate *e*, having a central depression to receive the pivot of the sheave *d*, and provided with arms A, adapted to enter slots in the plate *c*, all substantially as and for the purpose stated.

No. 182,545. HEATING-STOVES. Andw. Dickey and John S. Perry, Albany, N. Y. [Filed Apr. 24, 1874.]



1. The combination of ascending and descending flues placed on the rear side of a stove, illuminating windows or doors in the draft-chamber base-section, and the free open space B, between the top surface of the grate or fire-bed and the base of the fire-pot or combustion-chamber proper.

2. The combination of ascending and descending flues placed in the rear of a stove, a free open space between the top of the grate and lower end of the fire-pot sufficiently large to permit the removal of clinkers and other obstructions, illuminating windows opposite said space, and a grate or fire-bed having an open space between it and the walls of the stove to admit of clinkers and other obstructions being dropped between the grate and said walls of the stove into the ash-pit, substantially as described.

3. The combination of the check-draft passage *l*, having a damper, *n*, to open and close the same, with the upward flue H and the ash-pit, substantially as described.

4. The grate-frame constructed with legs, supported upon, and in combination with, a flange or projection upon the side wall of the draft-chamber base-section, substantially as described.

No. 182,546. SHIPS' WINDLASSES. J. L. Dickenson, Hempstead, N. Y. [Filed Oct. 2, 1876.]

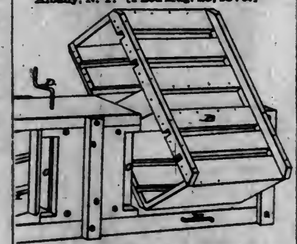
Brief.—The beveled sides of the keys render them easily and hastily removed for disengaging the parts in dropping anchor.

The ping D E, made in two parts, with their adjacent sides beveled in opposite directions, in combination with the wheels A C of a ship's windlass, substantially as herein shown and described.

No. 182,546.



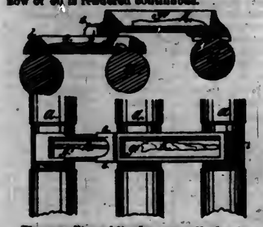
No. 182,547. BALING-PRESSES. P. K. Dederick, Albany, N. Y. [Filed Aug. 29, 1876.]



In that class of presses into which the hay is fed and pressed by a reciprocating traverser, either jointly or separately, the revolving bale-chambers A and B, each having two or more compartments, in combination with the reciprocating traverser, substantially as set forth.

No. 182,548. SADDLES FOR TOP ROLLS OF SPINNING-MACHINES, &c. Ezra Dixon, Bristol, R. I. [Filed Sept. 20, 1875.]

Brief.—The saddles are constructed with an oil-chamber and outlets, the latter partially closed with wicks or loosely-fitting metallic pins, and have a longitudinal channel underneath the chamber, whereby dust and lint are prevented from closing the oil-outlets, and the flow of oil is rendered continuous.



The metallic saddle for top rolls, having a chamber, *f*, and oil-outlets, adapted to be partially closed with wicks or metallic pins, and also having a longitudinal channel, *n*, underneath the chamber, as and for the purpose described.

No. 182,549. BOLLING TOPS. H. F. Dunham, Springfield, Mass. [Filed Apr. 3, 1876.]

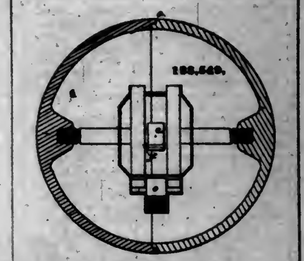
Brief.—The globe is hollow, with an internal axle, from which depends a weight, and to which one end of a spring or springs is secured. Bolling the ball to a distance winds the spring, which, bearing upon the weight, holds it from the perpendicular, and thus causes a reverse traveling of the globe.

1. As a new article of manufacture, a mechanical globe, provided with an axis and a weight, and a spring adapted to raise the weight, to move or reverse the movement of the globe, substantially as described.

2. The combination of the globe and axis with a weight and two springs, adapted to raise the weight, to move or reverse the movement of the globe, substantially as described.

3. The globe and its axis, in combination with the springs and weight and sliding pin, adapted to engage the notched collars, substantially as described.

No. 182,550.



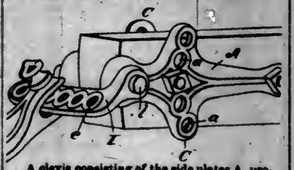
No. 182,550. TOY THAUMATROPES. William H. Earle, Georgetown, D. C. [Filed Oct. 11, 1876.]



1. In thaumatropes, the frame A, with open slotted standards A', in combination with a revolving and removable picture-card, substantially as and for the purpose described.

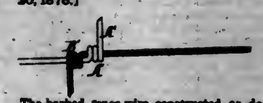
2. The removable blow-pipe, in combination with the frame A and revolving cards, substantially as and for the purpose described.

No. 182,551. OLIVERS. William H. Edwards, Moline, Ill. [Filed July 24, 1876.]



A clevis consisting of the side plates A, provided with the arms C, having the series of holes a formed therein, and the cross-bar I, provided with the series of holes *c*, said plates and cross-bar being connected by the pins or studs *l* cast thereon, as shown and described.

No. 182,552. BARBED FENCE-WIRES. Lemuel B. Brune, New York, N. Y. [Filed July 20, 1876.]



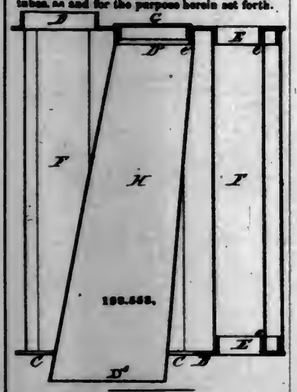
The barbed fence-wire constructed, as described, of the short lengths A A' A², the portions A' A' of each being coiled around, and the parts A² A² projecting, all substantially as and for the purposes herein specified.

No. 182,553. HEATING-DRUMS. Thos. B. Field, Corning, N. Y., assignor to Mary E. C. Field, same place. [Filed Mar. 3, 1876.]

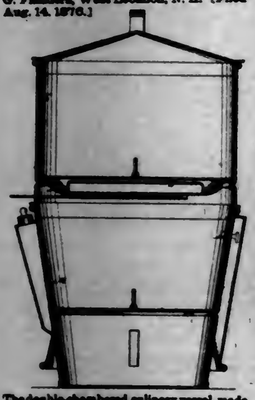
1. The heating-drum, consisting of the casing A, heads B B', having the bottom opening C and the top openings D D', the open-end pipes F, and the pipe H, extending obliquely from the opening D' to the opening C, all arranged as and for the purpose described.

2. The combination, with a heating-drum consisting of a chamber provided with openings C D, for the entrance and exit of the products of combustion, and a group of open-ended pipes, F, of a pipe, H, open at its lower end D', and of larger diameter than the tubes F, and suspended among said group of tubes, and a removable cover, G, all arranged as and for the purpose herein set forth.

3. The combination, with a heating-drum consisting of a chamber provided with openings C D, for the entrance and exit of the products of combustion, and a group of open-ended pipes, F, of a pipe, H, open at its lower end and of larger diameter than the tubes F, and suspended in an oblique position within the space formed by the group of radiating tubes, as and for the purpose herein set forth.



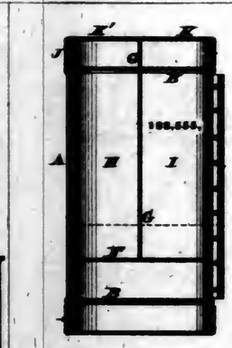
188,554. STEAM-COOKING KETTLES. Wm. G. Flanders, West Lebanon, N. H. [Filed Aug. 14, 1876.]



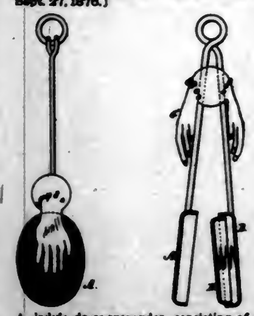
The double-chambered culinary vessel, made in detachable parts A B, each provided with a perforated diaphragm, and the upper part B having a bottom, E, provided with a slide for closing the apertures therein, as shown and described, for the purpose specified.

188,555. STOVE-BOXES. Augustus B. Frazee, Cincinnati, Ohio, assignor of one-half his right to Cushmer Work, same place. [Filed May 29, 1876.]

A spice-box, consisting of a cylindrical vessel, A, closed at bottom at F, and furnished with two segmental chambers, H and I, and a rotary lid, J, having the stop L, which lid is held at K and perforated at K' to permit the contents of one of said chambers being discharged while the contents of the other chamber are retained, substantially as herein described.

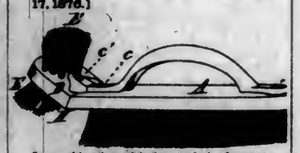


188,556. CLASPS FOR HOLDING GARMENTS. Alex. L. Fyfe, London, England. [Filed Sept. 27, 1876.]



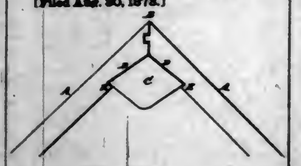
A lady's dress suspender, consisting of a pair of capped jaws, A B, provided with an internal spring pad or cushion, and attached to a spring-shank, in combination with a retainer, adapted to embrace the back of the jaws and hold them together, substantially as shown and described.

188,557. BLACKING-BRUSHES. Charles B. Goldsmith, Holyoke, Mass. [Filed July 17, 1876.]



In combination with the stock A, the reversible piece D, provided with a brush, E, on each side, and secured to said stock so as to remain in an elevated position when the stock is in a horizontal position, substantially as and for the purpose set forth.

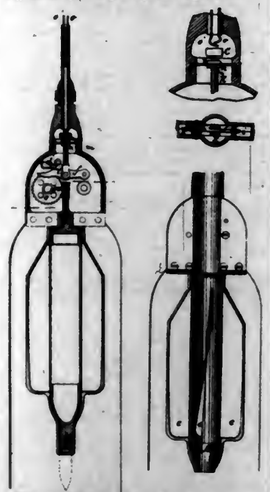
188,558. DEVICES FOR STRENGTHENING THE LEGS OF HEAVY PIECES OF FURNITURE. Frederick S. Gwyer, New York, N. Y., assignor to L. H. Mace & Co., same place. [Filed Aug. 30, 1873.]



The rhomb-shaped block C, combined with boards A A, having miter-joint B, beveled rabbets D D, and shoulders E E, as and for the purpose specified.

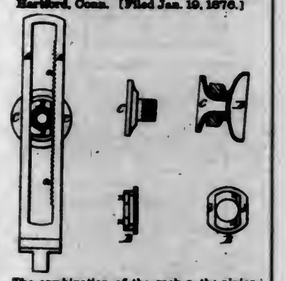
188,559. ELECTRIC LOCK. John P. Haines, New York, N. Y. [Filed July 25, 1876.]

Brief.—An arrangement for excluding water from the chamber in which are arranged the circuit-closing points, and the reciprocating-rod for pressing the points together.

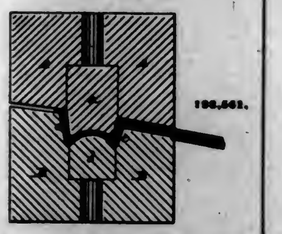


The combination of the diaphragm m, rod k, wires o' o, and chamber C, substantially as shown and described.

188,560. GUM-SHIELD. Henry Hammond, Hartford, Conn. [Filed Jan. 19, 1876.]



The combination of the rack e, the pinion and bevel C, the slide B, and the clamping-nut D, substantially as described.



188,561. DIES FOR MAKING HOES. Henry Hammond, Hartford, Conn. [Filed Feb. 4, 1876.]

Brief.—A series of dies for roughly forming from heated plate metal, shearing the flue, and finally finishing the hoe-blank.

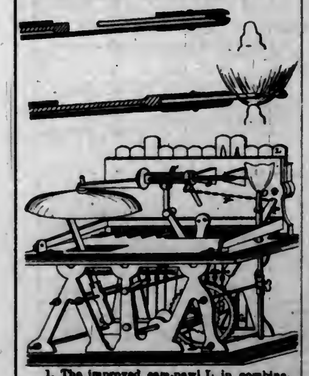
1. The dies A B, with their plungers a b and recesses c d, for giving form to the blank, substantially as herein described.

2. The shearing-dies D E, with the projection d', substantially as and for the purpose herein described.

3. The combination of the dies A B, D E, and F G, to form a finished hoe-socket upon the blade from a blank, C, cut from a plate, substantially as shown and described.

188,562. BURGLAR AND FIRE ALARMS. N. Harper, Newark, N. J., assignor to L. F. Haskell. [Filed Apr. 26, 1874.]

Brief.—A burglar-alarm for the purpose of simultaneously ringing a bell, lighting the gas, and showing the point where entrance has been attempted; also, in connection therewith, a shutter-fastener, which, when moved, releases a spring, which sounds the alarm.



1. The improved cam-pawl L, in combination with the improved trigger a, hinged frame Z, cross-head Q and spring P', lever P, and spring P'', the parts being connected and operating substantially in the manner and for the purpose set forth.

2. The eccentric E and the hasp A, in combination with the window-plate B, the parts being connected and operating substantially in the manner and for the purpose set forth.

188,563. BOOK, SHAWL, OR PARCEL HANDLES. Geo. Havell, Newark, N. J. [Filed May 15, 1876.]



Is a handle for carrying books, shawls, or parcels, a pendent loop, attached to and forming a part of each handle, for the purpose of attaching or supporting the middle strap, all constructed as shown and described.

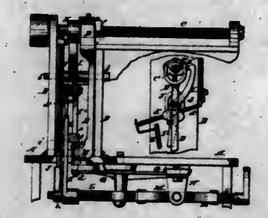
188,564. FEED MECHANISMS FOR SEWING-MACHINES. Oliver S. Heard, Coventry, R. I. [Filed May 16, 1876.]

Brief.—The feed-shaft is vibrated horizontally by a lever, which is rocked by a cam on the shaft in the goose-neck of the machine, whose lower arm has a projection, which strikes an arm on the feed-shaft, and which latter arm is rocked by a spring. A vertical vibration of the feed-shaft is obtained by a rod on its rear end, operated by another cam on the main shaft, and held up to the cam by a spring.

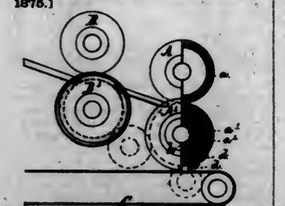
1. The combination of the cam H, lever I, adjustable arm I', with adjustable projection f, feed-shaft I, with arm K and spring s', all as and for the purposes herein set forth.

2. The combination of the cam H, post J, with spring i and collar h, feed-shaft I, and journaled hanger M, as and for the purposes set forth.

188,564.



188,565. CRACKER-MACHINES. Ignatz J. Hilgerd, Brooklyn, N. Y. [Filed Nov. 6, 1875.]

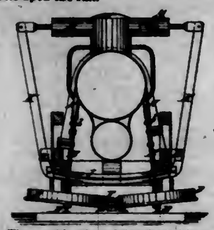


1. In a cracker-machine, the combination of feeding-rolls B B', carrying-belt C, the molding-cylinder A, provided on its periphery with the half-mold a, and the cylinder A', having having formed on its periphery the half-mold a', the two meeting at a point during their revolution and, by joint action upon the dough, molding a cracker therefrom, substantially in the manner as herein shown and set forth.

2. In a cracker-machine, the combination of feeding-rolls B B', conveying-belt C, the upper molding-cylinder A, having half-molds a, and the lower molding-cylinder A', having half-molds a', each of which is provided with ejectors d, operated by the shafts f and cam h, the whole arranged for joint operation, substantially as and for the purposes as herein shown and set forth.

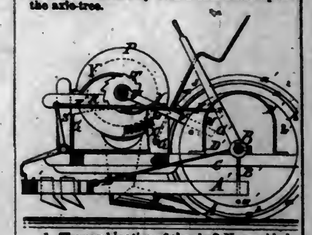
188,566. LOCOMOTIVES. Wm. Holdsworth, Traverse City, Mich. [Filed May 16, 1876.]

Brief.—Drive-wheels supported on vertical axles, and adapted to clutch a middle rail. Lower box of said axle rests in a guide having a lateral movement, and connected by a lever with a piston-rod, whereby steam-pressure is employed to produce the traction of the wheels upon the rail.



188,567. CORN-PLANTERS. Ira Houghtling, Houghton, Mich. [Filed Feb. 14, 1876.]

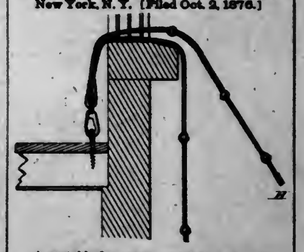
Brief.—A single pair of wheels are placed upon an axle-tree the requisite distance for a row. The peripheries, being V-shaped, mark the ground for the rows in one direction, while the check-row is formed by markers upon the periphery of the wheels. The seed is deposited automatically from a cam-wheel upon the axle-tree.



1. The combination of the shaft N, provided with the projections or cams M, and the disk I, provided with the slide J, the spring K, and the arm L, with the conductor-spouts H, substantially as herein shown and described.

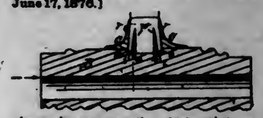
2. The combination of slide J and spring K, connected by an adjustable link, as and for the purpose specified.

188,568. FIRE-ESCAPES. H. R. Houghton, New York, N. Y. [Filed Oct. 2, 1876.]



A portable fire-escape, consisting of a wire-rope having a series of cross-bars or rests interlaced and lashed thereto, the said rope having a loop formed at its upper end, with an extension end, H, for convenience of escape upon the main rope, the whole being suspended by a snap-hook caught in an eye, which is screwed to the wood-work or floor of a room, substantially as shown and described.

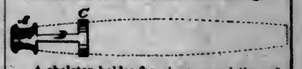
188,569. VEHICLE-WHEELS. Jos. Huber, Rochester, assignor of one-half his right to John H. Pettit, Shortsville, N. Y. [Filed June 17, 1876.]



As an improvement in vehicle-wheels, the wooden hub B, having a slight annular recess, a, separate metallic collars C C, formed as shown and described, so as to provide an annular dovetail space to receive the inner ends of the spokes, one or more annular wedges, w, and the rivets r, as and for the purposes set forth.

188,570. CIGAR-HOLDERS. John Hutton, New York, N. Y. [Filed Sept. 20, 1876.]

Brief.—The spring-arms clamp the cigar, while its end rests in the tip that is held between the teeth, so that the lips of the smoker surround and come in contact with the cigar.

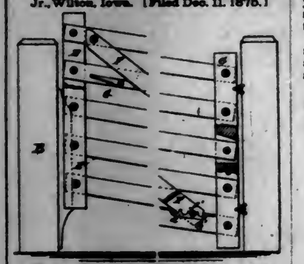


A skeleton holder for cigars, consisting of the mouth-piece A, in combination with the spring-arms B B and semicircular clips C C, for the uses and purposes herein set forth, shown, and described.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

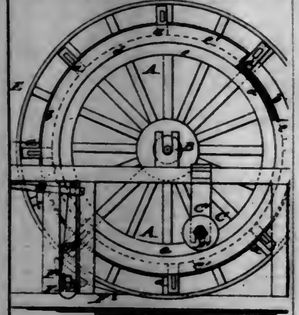
182,571. FARM-GATES. Joseph Jennings, Jr., Wilton, Iowa. [Filed Dec. 11, 1876.]



The combination, with a swinging farm-gate, having pivoted bars B and diagonal brace F, pivoted to the front end of the upper gate-bar, of the hand-lever G, attached near the upper front end of gate, as shown and described, for raising the brace-bolt f^1 out of notches d^1 on the lower gate-bar, and lowering the gate, as specified.

182,572. HORSE-POWERS. Isaac Joyner, Jonesborough, Miss. [Filed Sept. 22, 1876.]

Brief.—Two parallel vertical spider-frame wheels and lateral braces support a drum, on the inner periphery of which the power is exerted, and against which inner periphery a friction-wheel on a hand-shaft transmits it.

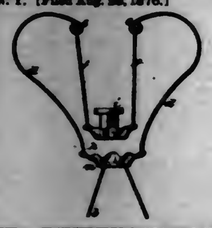


1. A drum or cylinder for horse-powers, constructed of supporting spider-frames, with outer lateral brace-pieces carrying the drum-frame, substantially in the manner and for the purpose set forth.

2. The combination of a drum or cylinder, at the inside of supporting spider-frames and outer brace-pieces, with a friction pulley or wheel, brought in contact therewith, and being mounted on the driving-shaft, substantially as herein specified.

3. A circumferential band or wheel, E, mounted around the spider-frame A', in combination with brake-shoe F', and operating lever mechanism, to regulate speed of wheel, substantially as herein set forth.

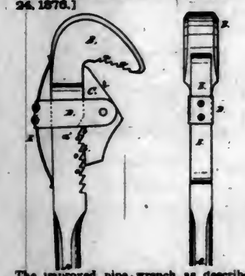
182,573. CANDLE-HOLDERS FOR CHRISTMAS-TREES. Henry W. Kahlke, Brooklyn, N. Y. [Filed Aug. 28, 1876.]



1. The candle-holder made of the saucer *a*, yoke *d*, suspending-wires *f*, saucer *h*, and spring candle-holder *i*, substantially as set forth.

2. The spring candle-holder *i*, made of sheet metal, with the bands 3 and 4, vertical bars 5, and attaching-prong 2, for the purposes and as set forth.

182,574. PIPE-WRENCHES. Thomas Keenan, East Cambridge, Mass. [Filed Apr. 24, 1876.]



The improved pipe-wrench, as described, the same consisting of the lever A, provided with a notched shank, *a'*, and stationary or fixed jaw, B, having an acute-angled serrated face, *e*, the movable jaw C formed with the inclined retreating non-serrated face *f*, and serrated non-tilting base, the clasp D, and clamp E, the whole being combined and arranged in manner as shown and described.

182,575. CISTERNS. Jas. Kennon, Jamestown, Ohio, assignor to Mary E. Kennon, same place. [Filed Apr. 26, 1876.]

Brief.—A walling of burnt clay for wells and cisterns, in which the upper edge of each section is thickened or enlarged, to afford a secure seat or bearing for the superimposed section to rest upon.



A walling for wells and cisterns made of sections, or in one continuous piece of burned clay, with top covering, the upper edge or seat of the sections being made wider than the lower, substantially as specified.

182,576. HAND-SLEDS. John Lee, Boston, Mass. [Filed Aug. 24, 1876.]



As an improved article of manufacture, a sled having runners made of T-iron, properly attached and braced, so as to make the broad surface of the T-iron the bearing-surfaces, substantially as set forth.

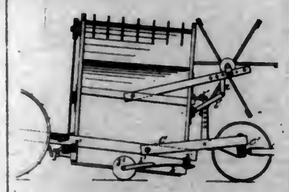
182,577. HARVESTERS. C. W. Lovalley, St. Paul, Minn. [Filed May 16, 1876.]

1. The finger-bar *F*, provided with the cap-plate f^3, overhanging the sickle-bar, in combination with the platform carrier-apron H, overhanging and passing around the finger and sickle bars, substantially as and for the purpose set forth.

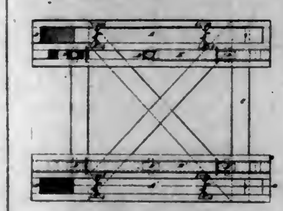
2. The wing guards or boards O O, hinged to the delivery-board O' in such manner as to fold between said delivery-board and the folding binders' table, substantially as described.

3. The overhang reel, mounted upon reel bearers pivoted at their rear ends, in combination with links *l*, crank-arms *S*, rock-shaft L, and adjusting-lever L', all arranged and operating as described.

182,577.



182,578. APPARATUS FOR WASHING CARRIAGES. Andrew Lewis, Shellsburg, Iowa. [Filed Aug. 21, 1876.]

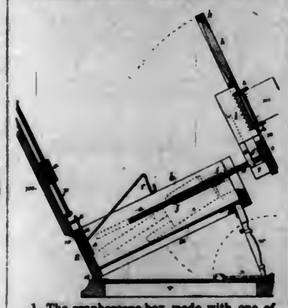


1. The combination of the tank A and rubber strips *c*, supported by the bar *F* in the slot *b*, substantially as shown and described.

2. The combination of the tank A, rollers D, and bar E, substantially as shown and described.

3. The combination of the tanks A A', rubber strips *c*, bars F, rollers D D', and frame C, as shown and described.

182,579. GRAPHOSCOPES. Wm. H. Lewis, Green Point, N. Y. [Filed Mar. 1, 1876.]



1. The graphoscope-box, made with one of the ends to slide, in combination with the lens-holder, substantially as set forth.

2. The lens-holder, formed of metal, with legs, in combination with the graphoscope-box, to which the legs of the lens-holder are connected, and a holding-stop, to retain such lens-holder in position when in use, substantially as set forth.

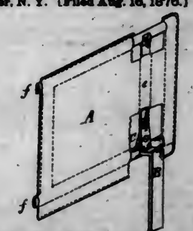
3. The combination, with the lens-holder and movable box end, of the metallic slides *c*, sustained by the eyes *f*, and the friction-springs *i*, substantially as set forth.

4. The view-board, made of the hinged box-lid, in combination with the sliding picture-holder, substantially as set forth.

5. The spring picture-holders *r*, made hook-ended and applied within the box, as and for the purposes set forth.

6. The hinged step *s*, with openings for the end of the swinging strut *w*, and forming also a catch for holding the cover of the graphoscope and base together, substantially as specified.

182,580. WAGON-DASHES. Jas. B. Lines, Homer, N. Y. [Filed Aug. 16, 1876.]



1. In a covered dash for wagons, the foot B, extended so as to form a cross-bar to the dash, and attached to the rails of the dash-frame, substantially as and for the purpose set forth.

2. The combination of the extended foot B, provided with the fork *d*, and the frame *f*, provided with the projection C, swaged on the lower rail of said frame, substantially as and for the purpose set forth.

3. A combination of the frame *f f* and the leather cover, provided with the stitched channel *e*, with the extended foot B, substantially as and for the purpose set forth.

182,581. CHIMNEY-CAPS. F. Lichtenfels, Newark, N. J. [Filed Oct. 6, 1876.]



The metal chimney-cap, constructed in sections A and B, and made to telescope by the ribs C and grooves D, and locked by means of the bolt E and key *i*, and having the bracket-supports *v* fitted to the sockets *n*, substantially as and for the purpose specified.

182,582. CROQUET-MALLETS. Harry Malin, Pleasantville, Pa. [Filed Aug. 14, 1876.]



A croquet mallet head, A, provided on its striking face or faces with an annular dovetail tenon, C, in combination with the rubber cap B, having a corresponding-shaped mortise fitting said tenon, substantially as described.

182,583. QUARTZ-MILLS. David Dickinson Mallory, Mystic Bridge, Conn. [Filed Aug. 17, 1876.]

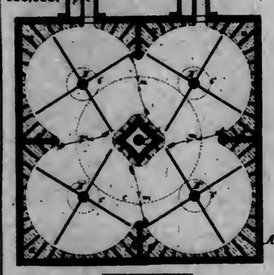
Brief.—The material to be crushed is thrown about by the beaters, and the effect is produced by the streams moving in opposite directions coming in contact. The powder is blown out by the beaters, through the channel *c*, to the larger pipe E, when the heavier particles settle in the passage *c'*, and then in the feeding-trough, by which they are led back into the mill.

1. The combination, with a suitable casing, A, of two or more wheels or beaters, B' B', &c., revolving in the same direction, and projecting the particles of matter to be crushed in opposing streams meeting at the points *n*, substantially as and for the purposes herein specified.

2. In combination with the two or more wheels or beaters B' B', &c., the inclosing casing A, having a ridged or roughened interior holding the lining *a*, of like material to that being treated, substantially as and for the purposes herein specified.

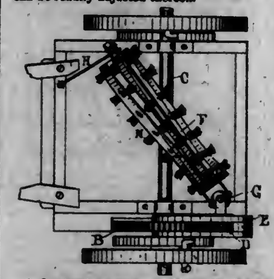
3. In combination with the casing A, and two or more wheels or beaters, B' B', revolving in the same direction, the discharge-passage *c*, separating-chamber E, and return-passage *c'*, to assort the particles, and carry the coarser particles into the feed-passage G, substantially as and for the purposes herein specified.

182,584.



182,584. STREET-SWEEPERS. James W. McDonald, Woburn, Mass. [Filed July 10, 1876.]

Brief.—The pinion-wheels, which impart motion to the diagonal brush by means of a ball-joint, are so arranged as to impart motion in a parallel plane, in lieu of the bevel-gear connection. The brushes are secured to T-irons, which are secured to the shaft by means of staple-bolts and screws, so that the brushes can be readily adjusted thereon.



1. In street-sweeping machines, the broom described, consisting of a shaft, F, the angle-iron N fastened thereon, and the brooms, secured to the projecting edges of the angle-iron, substantially as and for the purpose described.

2. The combination of the clasp O, the brooms, and the angle-iron N, all arranged in relation to each other so that the brooms may be adjusted upon the projecting edges of the angle-iron, substantially as described.

3. In a street-sweeping machine having a diagonal broom-shaft, as a means of actuating said broom-shaft, the combination of a ball-joint, O, and a pair of spur-gears, B D, revolving on parallel axes, and one of them mounted in the frame E and swung upon the axis of the other, substantially as and for the purpose described.

182,585. ROTARY CHURNS. J. McDermaid, Rockford, Ill. [Filed June 24, 1876.]

Brief.—A revolving barrel having abutments longitudinally arranged, and a central removable cover of smaller diameter than the barrel-head.

1. The combination of the churn-body A, the open head O secured to the body as described, provided with the cover B, having the handle B^1, for removing and carrying purposes, substantially as described.

2. The cover B, provided with ears B^2, in combination with the head having the opening O', screw-nuts D, and screw-bolts D', all arranged and operating substantially as shown and described.

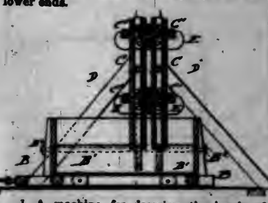
3. In a revolving barrel-shaped churn, having one solid head and one head with an opening, as shown, the removable longitudinal bars or beaters E, arranged and operating substantially as described, and for the purpose set forth.

182,586.



182,586. STONE-DRESSING MACHINES. Jno. C. Miller, Bridgewater, Va. [Filed Sept. 16, 1876.]

Brief.—Adjustable plates support the stationary stones, while a reciprocating metallic trough containing sand and water shapes them. Differently-shaped troughs may be substituted. Cloth on the holding-plates protects the stone-surfaces. The holding plates may also have stone supporting legs at their lower ends.

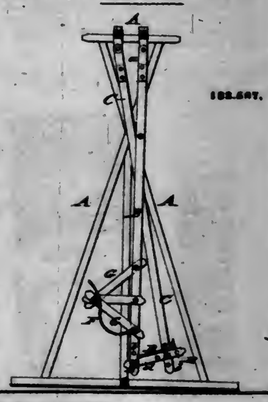


1. A machine for dressing the heads of grave and other stones, being composed of a reciprocating carriage with head shaping and grinding trough, and of adjustable stone-supporting frames and face-plates, substantially as described, and for the purpose specified.

2. The combination of the holding face-plates C, adjustable side pieces D D', cross-pieces C', and adjustable brackets E, to support any size of stone to be exposed to the grinding action of the trough, substantially as set forth.

3. The reciprocating carriage, constructed of an exchangeable metallic shaping-trough, supporting side and head pieces, and longitudinal connecting-rods, substantially as and for the purpose set forth.

182,587.

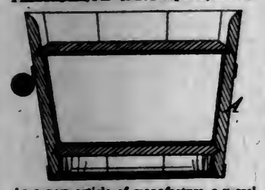


182,587. SPRINGS. William Mogle, Anoka, Minn. [Filed July 1, 1876.]

Brief.—Novelty consists principally of the devices for adjusting the height of the foot-board.

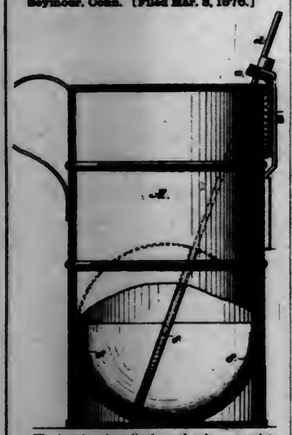
The combination, with frame A and rods B C, of a seat-frame, set hook of and attached to the lower rods B, and the foot-board suspended to the rods, and vertically adjustable on the same at front and rear, as shown and described.

182,588. BUTTER-PACKAGES. A. W. Monroe, Philadelphia, Pa. [Filed Sept. 18, 1876.]



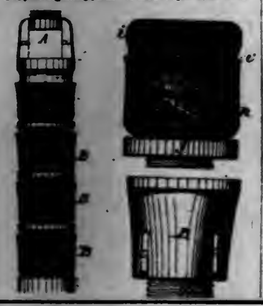
As a new article of manufacture, a vessel adapted to contain acids, oils, and fatty substances, lined with hard rubber, substantially in the manner described.

182,589. HOG-BEATERS. Wm. B. Nichols, Seymour, Conn. [Filed Mar. 8, 1876.]



The herein-described mechanism, consisting of the standard *a*, crank *b*, wheel *c*, and spindle *d*, provided with the pinion *e* and beaters *f*, *f*, in combination with the cap A, having a hollow hemispherical bottom, substantially as shown and set forth.

182,590. PISTONS FOR DEEP WELLS. James Old, Allegheny, Pa. [Filed Sept. 9, 1876.]



1. As an improvement in pistons for deep wells, a hollow cylindrical piston, composed of top piece A and valve-chamber C and intermediate packing-sections B, capable of being adjusted as to its length by the addition to it or removal from it of one or more of the sections B, substantially as described.

2. As an improvement in pistons for deep wells, the reversible valve-seat D made of hard brass, in combination with the valve-chamber C, bottom piece *d*, and annular lug *g*, substantially as described.

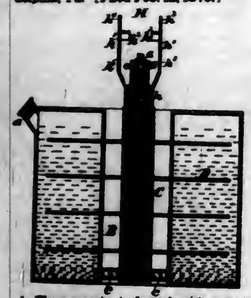
3. As an improvement in pistons for deep wells, a piston composed of one or more hollow cylindrical packing sections, B, the top piece A, and valve-chamber C, substantially as described.

4. As an improvement in pistons for deep wells, one or more of the sections B, provided with slots *a*, so placed as to prevent the accumulation of sediment in the packing-cups, in combination with the packing-cups, the valve, and valve-chamber placed at the lower end of the piston, whereby the hydrostatic pressure is utilized to expand the packing and to force the sediment out of the cups, substantially as described.

5. As an improvement in pistons for deep wells, the slots *a* in the sections B, so placed with relation to the packing-cups that no sediment can accumulate in the bottom thereof, substantially as described.

6. As an improvement in packing-cups for pistons, the cup-packing E, composed of cup *h* and cup *i*, substantially as described.

182,591. LAMPS. Robert W. Park, Philadelphia, Pa. [Filed Feb. 12, 1876.]



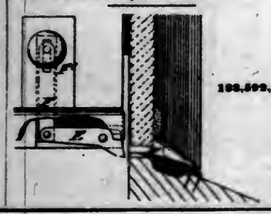
1. The reservoir A, formed with a central opening, B, in which is inserted a retort, C, from which heat is conveyed to the contents of said reservoir, substantially as shown and described.

2. In combination with the reservoir A, the inclosed retort C, having arms D, which penetrate the inner wall of said reservoir, and tubular communicating passages *c c*, substantially as shown and described.

3. The burner H, composed of the collar *h* and perforated wings *h*¹ *h*², having shoulders or ledges *h*³, substantially for the purposes set forth.

4. The combination of the reservoir A, retort C, having tubes *c c* and arms D D, wick-tube H, and burner H, the several parts being constructed and combined substantially as described, for the purposes specified.

5. The method herein described of burning coal-oil, by partially volatilizing it in an air-tight reservoir, conducting it thence to a heated retort, where it is completely volatilized, and then supplying it in a gaseous form at the point of combustion, whence heat is conducted to produce volatilization in said reservoir and retort, as set forth.

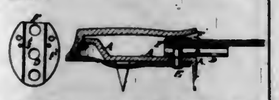


182,592.

182,592. WEATHER-STRIPS. Amos Frott, Percival, Iowa. [Filed Aug. 26, 1876.]

The combination of hinged extension-strip D D', lever E, and slide-piece F, all arranged with respect to door and sill, substantially as and for the purpose specified.

182,593. POCKET-BOOK FASTENERS. Danl. M. Read, New York, N. Y. [Filed Apr. 4, 1876.]



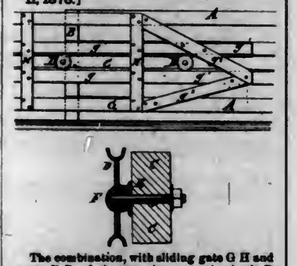
As the improvement herein before described, the combination, with the flap or strap of the pocket-book and the base-plate A, having the fixed pin B, of the flap-plate F, having a top portion, with an end extension, F', covering and protecting the end of said strap, and a bottom plate having a lengthwise depressed portion perforated at D, as shown and described.

182,594. NOSE-RINGS FOR SWINE. Edmund S. Richards, Tripoli, Iowa. [Filed Apr. 18, 1876.]



The combination of the roller A, bent wire B, and washers C, constructed and arranged substantially as and for the purpose specified.

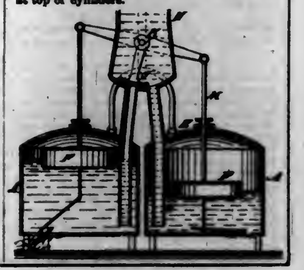
182,595. FARM-GATES. Wm. H. Richardson, Sheboygan Falls, Wis. [Filed July 11, 1876.]



The combination, with sliding gate G H and posts B B, of the two rim-grooved wheels D D, revolving on hollow bearings, and clamped by nut-bolt F, the bar C, as and for the purpose specified.

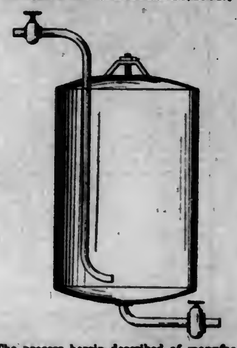
182,596. AIR-COMPRESSORS. Henry H. Sewtell, Randolph, N. Y. [Filed May 22, 1876.]

Brief.—The air is compressed by the pressure of the water in the cylinders. The rock-valve regulates the supply of the water to the inlet-pipes. The floats operate the water-valves. The air is received and discharged at top of cylinders.



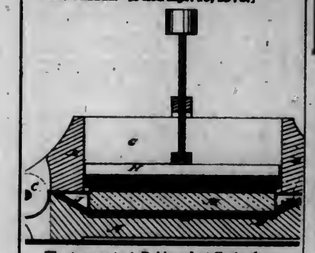
The rock-valve J on the curved bottom of the pen-stock, water-inlet pipes B and floats F, combined with the pen-stock H, and with cylinders A, having outlet-valves for water connected to the floats, and also having the air inlet and outlet passages, substantially as herein shown and described.

182,597. MANUFACTURE OF CREAM OF TARTAR. Guido Schnitzer, Schwabisch Hall, Germany, assignor to Julius W. Haas, Dubuque, Iowa. [Filed June 20, 1876.]



The process herein described of manufacturing cream of tartar by subjecting ground argols, together with hydrochloric acid and chloride of potassium and water, in a steam-tight vessel to the direct action of compressed or superheated steam for the necessary length of time, and then allowing the solution to stand till the crystallization of the bitartrate of potassa is complete, substantially in the manner specified.

182,598. MACHINES FOR MOUNTING PHOTOGRAPHS. Robert Sheane, Listowell, Ontario, Canada. [Filed Apr. 10, 1876.]



The two parts A B, hinged at C, the former having card-recess D, plate E, cushion F, and cavities J J, while the latter is provided with opening G and follower H, all substantially as shown and described.

182,599. LIQUID-FILTERING APPARATUS. T. B. Sinclaire, New York, N. Y., assignor to Sinclaire Rectifying Machine Company, same place. [Filed June 8, 1876.]

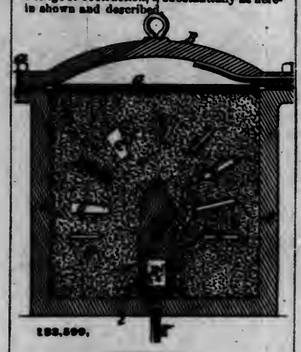
1. The combination, with a filtering-vessel, A, and an inwardly projecting pipe or receiver, K, of one or more ledges or deflectors, *l*, and with or without counter-ledges *m*, substantially as herein shown and described.

2. The combination, with a filtering-vessel, having a longitudinally tapering, concave, or circular side wall (or walls,) of a bottom or bottom diaphragm, provided with an impervious surface surrounding the orifice, passages, or perforations, the said bottom orifice, passages, or perforations being so covered or so arranged or constructed that the filtering material will not pass through the same in the operation of filtration, substantially as described.

3. The combination, with a filtering-vessel, A, of the inclined surface *g*, and a ledge or obstruction, *l*, substantially as herein shown and described.

4. The combination, with a filtering-vessel, having a longitudinally-tapering, concave, or circular side wall (or walls,) of the inclined surface *g*, substantially as herein shown and described.

5. The combination, with a filtering-vessel, A, of the inclined surface *g*, with or without a ledge or obstruction, *l*, substantially as herein shown and described.



182,599.

182,600. CARPET-CLEANERS. S. B. Stearns, Duluth, Minn. [Filed Sept. 16, 1876.]

Brief.—The carpet is stretched on an upright frame, and acted on by brushes revolving vertically, and by spring-beaters.

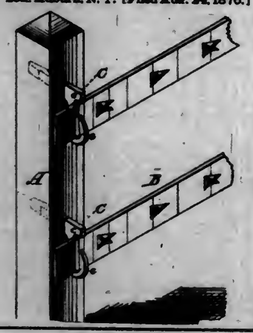


1. A carpet-cleaning apparatus, constructed of successively-striking spring-acted beaters and radial revolving brushes operated jointly from one actuating-shaft, substantially in the manner and for the purpose set forth.

2. The combination of the ratchet *d* of the actuating-shaft with the spring-acted beater-arms, fulcrumed to standard B, and provided with cross whips or beaters at their ends, substantially as specified.

3. The combination of the revolving disk D, having sockets with interior fastening-ring, and outer guide-bands with radial dusting or scouring brushes, substantially as described.

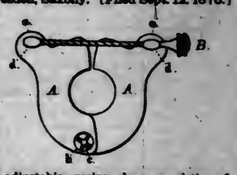
182,601. DEVICES FOR SECURING METALLIC FENCE-RAILS TO POSTS. Danl. C. Stover, Freeport, Ill., assignor to Jacob Brinkerhoff, Auburn, N. Y. [Filed Aug. 24, 1876.]



1. A clasp or hook adapted to be secured to a post, and provided with projection *c* and the parts *d e* of yielding material for the purpose of securing metallic fence-rails to posts, for the purpose set forth.

2. The hook C, having shank *a b*, projection *c*, and the parts *d e*, for the purpose of securing the metallic fence-rails to the posts, for the purpose set forth.

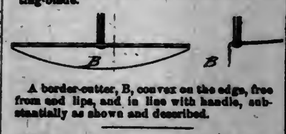
182,602. SURGICAL CLAMPS. A. G. Strubell, Dresden, Saxony. [Filed Sept. 12, 1876.]



As adjustable ovarium-clamp, consisting of the hinged semicircular jaw-plates A A, having extensions *a a*, the threaded pin B, in combination with the eyes *d d*, the pivot-pin *c*, and the countersunk disk *b*, substantially as described and shown, and for the purpose intended.

182,603. GARDEN-RAKES. A. M. Suydam, Waterloo, N. Y. [Filed July 1, 1876.]

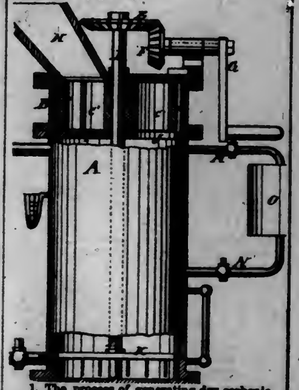
Brief.—The rake is made of sheet metal, the teeth being cut. The head is turned at right angles to the teeth, with a convex edge, and the handle inserted in line with the cutting-blade.



A border-cutter, B, convex on the edge, free from end lips, and in line with handle, substantially as shown and described.

182,604. CARBONIC-ACID-GAS GENERATORS. Charles H. Thompson, Waterbury, Conn. [Filed July 3, 1875.]

Brief.—The dry carbonate is fed in continuously through a trapping-cylinder. Pipes and channels are provided to equalize the pressure of gas upon all sides of the materials being fed in, allowing them to drop into the generator by gravity.



1. The process of generating dry carbonic-acid gas continuously, which consists in trapping uninterruptedly and quickly any desired quantity of dry carbonate from an independent source into a quantity of acid, supplied in quantity to conform to the supply of carbonate, substantially as described.

2. In the production of carbonic-acid gas, the process of feeding a dry carbonate at will from an independent source continuously into the generating-chamber, against the pressure of the gas, by equalizing the pressure upon the upper and lower surfaces of the dry carbonate, substantially as set forth.

3. The hopper H, provided with the partition H', substantially as and for the purpose set forth.

4. A feeding device consisting of a wheel having two or more boxes, open at the bottom, and leaving spaces between them, substantially as described.

5. The combination of the feed-wheel C in the chamber B with the partition I, having opening J, as set forth.

6. The chamber B, provided with a bulge or additional chamber, b, above the opening J, to contain gas and equalize the pressure upon the contents of the compartments C' of the feed-wheel, as described.

7. The combination of the hopper H, partitioned, as described, the feeding device in the chamber B, and the chamber A, substantially as and for the purpose specified.

8. The combination of the partitioned hopper H, the feeding device in chamber B, the chamber A, having stirrer K, and an acid-chamber, suitably connected to the chamber A, substantially as described.

188,606. SLEIGH-BELLS. Geo. W. Tucker, Waterbury, Conn. [Filed Sept. 18, 1876.]



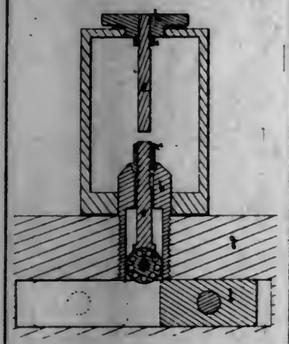
1. A sleigh-bell made of one piece of sheet metal, including the portion to which the attaching-rivet is applied, as set forth.

2. A sleigh-bell made of sheet metal, having three or more vibrating tongues pointing toward each other with intervening slots, substantially as set forth.

3. The method herein specified of making sleigh-bells from a cup-shaped blank by cutting out the blank with arch-shaped tongues, and bending those tongues toward each other for retaining the clapper, substantially as set forth.

188,607. OIL-CUPS. James Vair, Ravenna, Ohio. [Filed Sept. 22, 1876.]

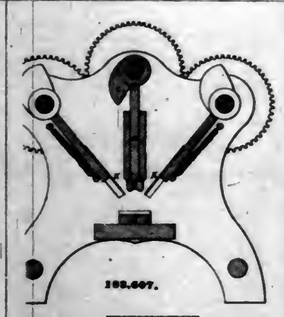
Brief.—The cross-head, in its reciprocating motion, strikes the roller secured at the bottom of the valve-rod, lifting up the valve from its seat, to allow the oil to flow down to lubricate the guides, and when the cross-head passes, the roller and valve fall.



The roller *c*, in combination with the valve *c*, substantially as described.

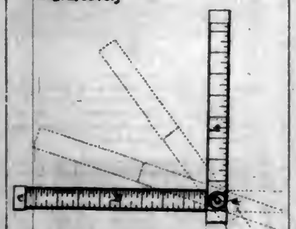
188,607. MACHINES FOR CUTTING BOOT AND SHOE SHANKS FROM LEATHER. Jeremiah M. Watson, Sharon, Mass. [Filed Aug. 26, 1876.]

In a machine for the production and finishing of shank-stiffeners, the combination of the reciprocating die C with the bed or fellow die B, and the two inclined and intermittently-reciprocating knives E E, all being arranged substantially as described, and provided with mechanism for operating the movable parts thereof, essentially as set forth.



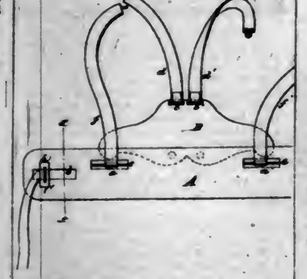
188,607.

188,608. MEASURING-RULES. Emery D. Waterbury, Mason City, Iowa. [Filed Aug. 2, 1876.]



The combination of the pieces A and B, stationary clasp C, and swiveled clasp D, with screw *a* and thumb-nut G, substantially as and for the purposes herein set forth.

188,609. REIN-HOLDERS. Geo. W. Waters, Centre, Mo. [Filed Sept. 2, 1876.]



1. The combination of the bar A, plate B, straps $d\ d'$, $f\ f'$, and D D', substantially as herein shown and described.

2. The combination of the bar A, provided with slots $a\ a'$ and $b\ b'$, with the rods *c*, slides C', straps $d\ d'$, $f\ f'$, and D D', substantially as set forth.

188,610. WHEEL-PLOWS. S. Frank Welch, Ottawa, Ill. [Filed June 15, 1876.]

1. The perforated leveling-arms $n^3\ n^3$ of the lifting-frame $i\ i^2\ n\ o\ n^2\ o^2$, in combination with said frame, and with the lugs $c^2\ c^2$ of the rear clip-plate d^2, and with said plate, substantially as described, and for the purpose specified.

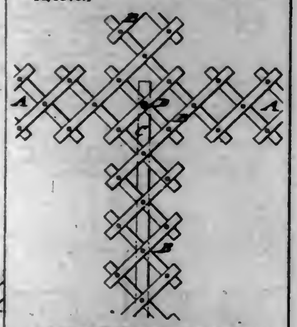
2. The slotted clip-plates *d* and d^2, in combination with clamps *l* and *m m*, and with the plow-beam B, substantially as described, and for the purpose specified.

3. The special arrangement and combination of levers F and A, pawls *o* and o^2, notched segments N and D, connecting-bars *e* and H, the lifting-frame and clip-plates *d* and d^2, substantially as described, and for the purpose specified.



188,610.

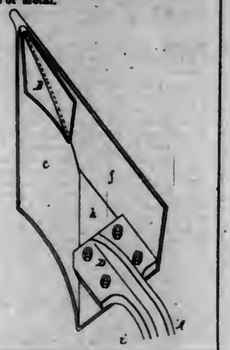
188,611. FLOWER-TRELLISES. Charles H. Westcott, Seneca Falls, N. Y. [Filed Aug. 14, 1876.]



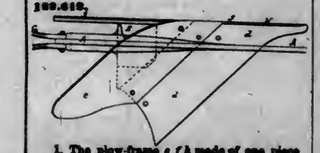
A flower-trellis formed, as shown, of two or more flexible lattice-frames, A B, pivoted at the same point L, and fastened detachably at D' on the stake C, substantially as shown and described.

188,612. PLOWS. Ebenezer G. Whiting, Northfield, Minn. [Filed July 1, 1876.]

Brief.—Cutting and forming the frame or support of the several parts of the plow from one piece of metal.



188,613.



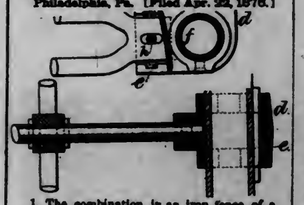
1. The plow-frame *a f h* made of one piece of metal, cut in the shape described and shown, and bent by suitable means into a support or seat for the mold-board, share, land-side, and beam of the plow, substantially as shown and described, and for the purposes set forth.

2. The auxiliary piece B, in combination with the frame *a f h*, and welded or otherwise secured thereto, as herein before described.

3. The combination and arrangement of the curved beam A, frame *a f h*, and handles G G', as herein before set forth.

4. The curved shield and brace E, in combination with the mold-board *c* and land-side frame *f*, as and for the purpose herein before explained.

188,613. IRON FENCES. J. B. Wickersham, Philadelphia, Pa. [Filed Apr. 22, 1876.]



1. The combination, in an iron fence, of a two-part grasping-clamp, the horizontal rails, and elastic material between the rails and clamps, substantially as and for the purposes set forth.

2. In an iron fence, the two-part clamp *d e*, connected by a bolt and provided with openings, in combination with the post passing through such openings, and the rail received and secured by the clamps, substantially as set forth.

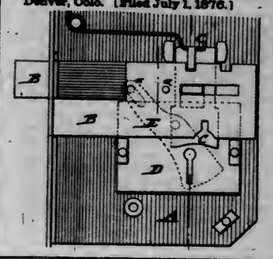
3. The two-part grasping-clamps with recesses for receiving the ends of the rails, in combination with the rails, and projections or collars entering the recesses in the clamps, substantially as set forth.

188,614. GROCERS' SAMPLE-CASES. Hans A. Winden, Clermont, Iowa. [Filed Mar. 14, 1876.]



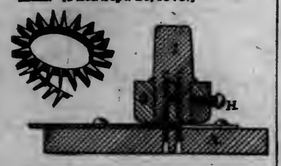
A grocer's sample-case, consisting of the triangular box A, having glass top *e*, the correspondingly-shaped block B, and the springs C, the whole constructed and arranged as specified.

188,615. DOOR-LOCKS. Gustav Winter, Denver, Colo. [Filed July 1, 1876.]



The combination in case A of bolts B and tumblers C, separated by plate D, the bolts being connected by pins *a* with pivoted key-hole guards E, and provided with parallel heads, one above another, in the face-plate, as shown and described.

188,616. TACK-STRIPS AND MACHINES FOR THE SAME. Erastus Woodward, Boston, Mass. [Filed Sept. 20, 1876.]



1. In a machine for cutting tack-strips, the combination of a bed-plate, A, provided with the diverging dies B, with punching-dies C, substantially as shown and described.

2. The combination of the bed-plate A, guide D, and gaging-lock E with punching-dies C, substantially as and for the purpose described.

3. The combination of the removable punching-dies C, wedge-shaped block F, clamping-ring G, set-screw H, and bar I, substantially as and for the purpose set forth.

4. In a machine for cutting tack-strips, the combination of the bed-plate, having the two diverging slots B, with the intermediate gaging-lock E, similar in dimension to one of said slots, and placed parallel thereto and between the said diverging slots, for the purpose of gaging the tacks as they are formed from the plate and punching-dies, substantially as described.

5. The above-described tack-blank, consisting of pointed shanks connected from each other by the interposed bend-forming uncut margin, substantially as shown and described.

6. The following described process of cutting two rows of blanks from a flat strip of metal, consisting in punching diagonal slots across the strip, alternately converse to each other, and opening or nearly opening into each other, substantially as shown and described.

188,617. BALING MANURE. B. Ackerman, New York, N. Y. [Filed Sept. 19, 1876.]



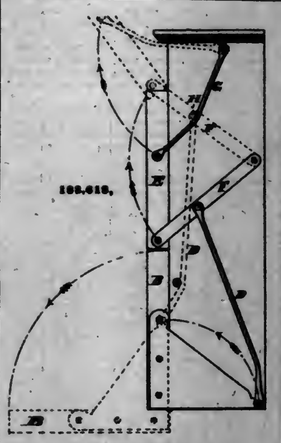
1. A bale having a longitudinal piece, B, as above, firmly united to the several bands or ties A, by passing the said ties through or around the same, and securing their ends, substantially as and for the purposes herein specified.

2. A bale of manure or analogous material, having bands or ties A connected to a longitudinal piece, B, by passing through or around the same, and having additional longitudinal pieces C as or near the corners, substantially as herein specified.

188,618. DIBBS. John Adriaanse, Oldcastle, Ill., assignor to Peter M. Adriaanse, Milwaukee, Wis. [Filed Sept. 25, 1876.]

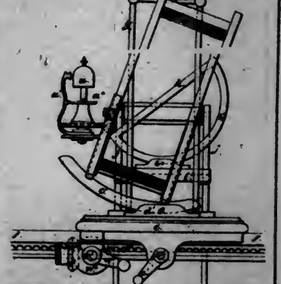
A door made in two parts, B and E, the lower part hinged to swing down horizontally, and the upper part E connected thereto by connecting strips or rods D and F, substantially as and for the purpose specified.

188,619.



188,619. WARPING-MACHINES. John J. Ashworth and George Ashworth, Pendleton, England. [Filed July 13, 1876.]

Brief.—The threads are led through a reed the alternate dents of which are closed and made shorter than their alternates. By moving a pair of pillars or vertical rods mounted on a slide to and fro past the point of closure, the alternate threads are separated, and the lease may easily be taken. An angle-rod is adjustable to throw the same number of threads upon a greater or less width of beam. The beam is divided by flanges into sections, which are filled in succession, by moving the sliding bed, which carries the leading and tension devices, agreeably thereto. A tension-indicator and warp-indicator combine to prove and correct each other.



1. The combination, with a warp-beam having different sections $f'\ f^2$, of the frame *e*, carrying the warping devices, substantially as described, and made longitudinally adjustable with respect to the said warp-beam through rack f^4 and pinion f^5, as and for the purpose described.

2. The warp-beam, having pulleys *q*, that rest upon and revolve with the drive-pulleys r' from frictional contact produced by the gravity of the beam, in combination with the shaft w^1, having a crank, the miter-gears $w^2\ r^1$, the shaft *z*, worm s^2, pinion *t*, and shaft *s*, carrying cams s^1, as and for the purpose set forth.

3. The warp-beam consisting of continuous shaft q^1, combined with adjustable flanges q^2, fastened to the beam by nut-screws, together with rods q^3, substantially as and for the purpose described.

4. The rood *c*, having a curved segment, c^1, combined with grooved block b^1, and adjusted therein by means of a set-screw, as and for the purpose described.

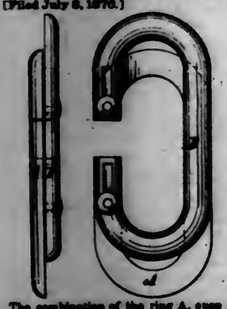
5. The combination, with rood *c*, of the pillars *g*, located upon a slide in the base-piece *a*, as and for the purpose described.

6. The angle-rod *h* and sector *h'*, made adjustable in a grooved block, *i*, combined with and located between the road and the roller *k*, substantially as and for the purposes described.

7. The combination, with rollers *k p n n'*, of rollers *o o'*, rods *m*², plates *m*³, levers *s*, and falling-roller *l*, substantially as and for the purposes described.

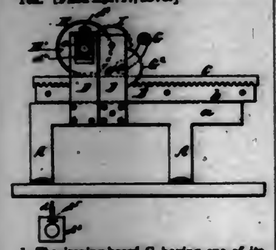
8. The combination of the indicators *a* and *a'*, the one being actuated by the roller *p*, and the other by the warp-beam, substantially as and for the purpose described.

188,680. LAP-HEMER. George W. Atkins and Jas. C. Harris, Jefferson County, Ark. [Filed July 6, 1876.]



The combination of the ring A, open near one end, and having headed studs *a a'*, with the ring B, open near the center, and provided with studs corresponding in position with the said studs, substantially as and for the purpose specified.

188,681. BROOM APPARATUS. Charles F. Bailey and George F. Perrault, Rockport, Tex. [Filed Apr. 17, 1876.]



1. The leaning-board C, having one of its ends reduced in width and strengthened with the bottom binding-strip *e* and *e'*, and its ends provided with trunnions *c'*, by means of which it is mounted on its bearings on frame B, so as to be allowed a transverse oscillating motion, as described and set forth.

2. The boring-cylinder F with hollow journals *f*, that rest in the hollow journals of its outer cylinder B, and fitted in a stationary position by means of one of the journals *f*, and also provided with fire-bottom *f'* and smoke-flues *f''* and F', substantially as and for the purpose set forth.

3. The rectangular frame B, having an open bottom that adapts it to the support of the clothing being ironed, and provided with the supporting-leg *b'* and the cogged rack *b*, by which it is operated.

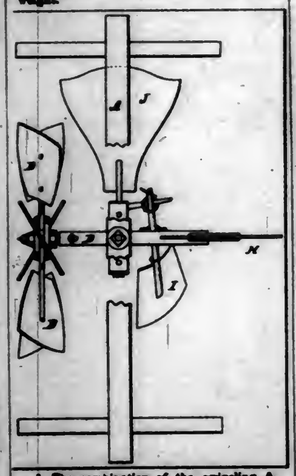
4. The hinged standard D', with its retaining-bottom *d'*, for the support of the hollow journal of the removable head F', substantially as and for the purpose set forth.

5. The hinged arm *c'*, for the support of the free end of cylinder B when the standard D' is removed, as and for the purpose set forth.

6. The pillar-blocks *d'*, and their adjusting-screws *d''*, in combination with the standards D and D', and the hollow journals *c*, as and for the purpose set forth.

188,682. WEATHER-VANE. A. J. Ball, Mount Vernon, Ohio. [Filed Sept. 18, 1876.]

Brief.—An automatic adjusting attachment for throwing the vanes out of the wind when the storm is heavy, consisting of a main tail fixed upon an oscillating shaft, which is arranged in bearings in a frame above and parallel with the main shaft, and a deflector-blade rigidly fastened to the shaft of the main tail, and having upon each side of the same a suspended rod or cord, adapted to receive a weight.

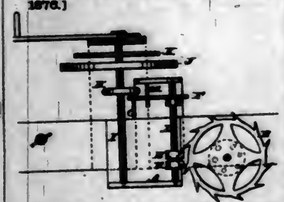


1. The combination of the swiveling A-shaped frame B, and the crank-shaft C, having vanes D, with the pitman E, the pivoted bar *d*, having a swiveling-connection with the pitman, and the lever G, having an independent pivot-bar, *d*, and adapted to be worked simultaneously therewith or independently thereof, as and for the purpose described.

2. The combination, with the main shaft and vanes of a vertically arranged open vertical pivots, of the oscillating main tail H, the suspended deflector-blade I, rigidly attached to the main tail for oscillating the same, and the oscillating supplemental tail J at right angles to the main tail, and loosely connected with the deflector-blade, so as to be oscillated thereby, substantially as and for the purpose described.

3. The combination, with the main tail and the supplemental tail, arranged as described, of the deflector-blade rigidly fastened to the shaft of the main tail, and having upon each side of the same a suspended rod or cord adapted to receive a weight, as and for the purpose described.

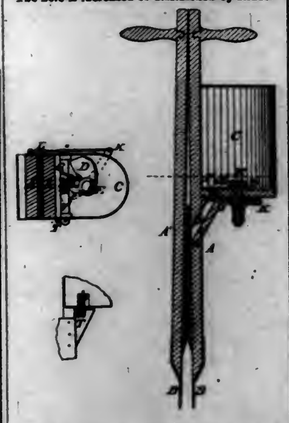
188,683. RECAPPERWINK. Robert Barclay, Paris, Ontario, Canada. [Filed Aug. 28, 1876.]



The combination of the parallel spindles D and I, the spindle D, provided with bifurcated lever F and disk-pallets E E, having inclined faces, and the spindle I, provided with balance-wheel J and disk H, having pin G, adapted to engage with the bifurcated lever F, as and for the purpose set forth.

188,684. CORN-PLANTER. Francis A. Burr, Exeter, Me. [Filed Apr. 12, 1876.]

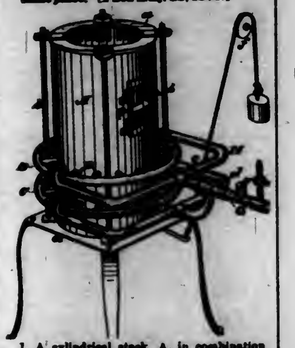
Brief.—Passing up through the bottom of the hopper is a central pin, upon which are mounted slides—one within and the other below the hopper—so that when the discharge-hole is covered at the bottom it is filling, and when covered at the top it is discharging. The hole is increased or diminished by slides.



1. The combination of the pivoted legs A A', having hopper C, with the central pin E, having slides D G, and arm K, operated by rod L, substantially in the manner and for the purpose herein shown and specified.

2. In a hand corn-planter, the combination of slides G V, clearers M, and coiled spring T, substantially as and for the purpose herein shown and specified.

188,685. APPARATUS FOR SUPPLYING HOSE. William B. Berger, Chicago, Ill., assignor of one-half his right to Isaac Atkinson, same place. [Filed Aug. 28, 1876.]



1. A cylindrical stack, A, in combination with a series of gas-burners arranged around the interior surface, and a swinging door to close the bottom of the stack, substantially as and for the purpose set forth.

2. The combination of the stack A, perforated door B, closing the bottom thereof, exterior rings of gas-pipe B C, gas-burners D, and stop-cocks *c c*, arranged and operating substantially as described.

3. The combination of the gas-pipe rings B C, the branching pipes H I, the feed-pipe G, and the stop-cocks *c* and *d*, substantially as and for the purpose set forth.

188,686. TOBACCO-PIPES. James Bingham, Philadelphia, Pa. [Filed Sept. 21, 1876.]

Brief.—The pipe has interchangeable tips, for either holding tobacco, cigars, or cigarettes.

The portable smoking apparatus consisting of the water-vessel A, stopper B, tubes C D, stem E, and interchangeable bowl F, cigar-holder G, and cigarette-holder H, substantially as and for the purpose described.



188,686.

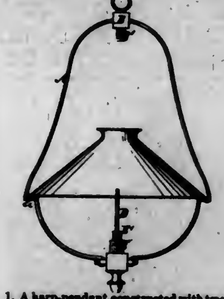
188,687. SHADE-HOLDER. Herbert Blackman, New York, N. Y. [Filed Jan. 26, 1876.]



1. A shade-holder, constructed with metal supports bent or formed at one end to receive a shade, and fastened into a base-piece at the other end, said base-piece being constructed so as to attach to the ordinary gas or lamp fixture, substantially as described.

2. The combination of the base A with the wire-supports and shade and lamp, when arranged and operated as described.

188,688. PENDANTS FOR LAMPS. Herbert Blackman, New York, N. Y. [Filed Apr. 7, 1876.]



1. A harp-pendant constructed with two vertical branches, having a bead or projection near their center for a shade-rest, in combination with the shade-rest D D, constructed and operated substantially as described.

2. The reversible shade-rest D D, in combination with a harp-pendant fixture, constructed and operated as described.

188,689. BAKERS' OVENS. H. A. H. Bohm, Philadelphia, Pa. [Filed Sept. 18, 1876.]

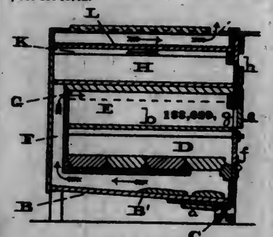
Brief.—The grate may be placed at various distances from the bottom of the lower oven.

1. The series of ovens D E H, in combination with the vertical flue F, horizontal flue G, and vertical flue J, constructed and operating substantially as and for the purpose set forth.

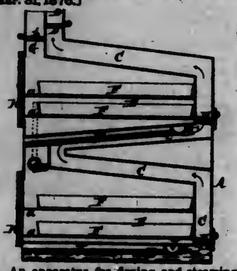
2. The oven H, with corner flues J, in combination with the horizontal side flues K and horizontal central flue L, substantially as and for the purpose set forth.

3. The combination of the series of ovens D E H and the raising and lowering grate B, substantially as and for the purpose set forth.

4. The combination of the series of ovens D E H and the grate B, consisting of the plate B', with grated portions *a a* at the sides of its front, substantially as and for the purpose set forth.



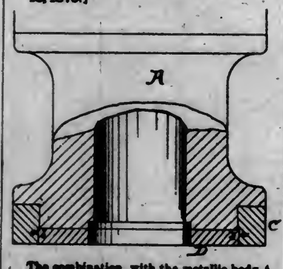
188,690. FRUIT DRIER AND STEAMER. Wm. Braidwood, Mount Vernon, N. Y. [Filed Mar. 31, 1876.]



1. An apparatus for drying and steaming fruits and other articles, composed of a closed vessel, A, containing a chamber, B, a circulation flue, C, compartments E, for the reception of trays F, and escape-pipes D and G, one for the escape of steam to create a draft in the other, which serves for the escape of moisture arising from the material to be dried, all constructed and operating substantially as shown and described.

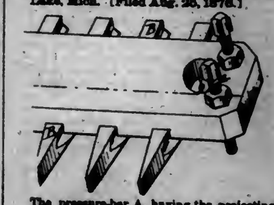
2. The combination of hot-air channels J K J' K' with the closed vessel A, chamber B, circulation flue C, compartments E, trays F, and escape-pipes D and G, substantially as set forth.

188,691. TAPPETS FOR STAMP-RODS. Jas. Brodie, San Francisco, Cal. [Filed Mar. 13, 1876.]



The combination, with the metallic body A of a tappet, having a diminished end, of the steel ring C, projecting beyond the said small end of the tappet, and provided with the bevel *c*, and the iron plate D, having beveled edge *b*, the several parts being constructed, arranged, and secured in position substantially as described and shown.

188,692. PLANING-MACHINES. William G. Brookus and Charles H. Barnum, Spring Lake, Mich. [Filed Aug. 26, 1876.]



The pressure-bar A, having the projecting fingers B dovetailed into its under surface, substantially as described.

188,693. GAGE-LATHES. William Brown and John D. Howe, St. John, New Brunswick, Canada. [Filed July 20, 1876.]

Brief.—By means of an adjustable and removable auxiliary cutter, mounted in a cutter-bar having a sleeve upon its lower end, by which it is longitudinally adjustable upon a horizontal rod secured in supports upon the side of the lathe, beaded or ball and hollow work can be finished, so that it will not show any marks of the knife, and obviate the necessity of sandpapering or rubbing.



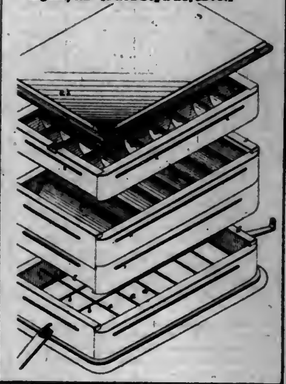
1. In a gage-lathe, the combination of the traveling carriage B with the auxiliary cutter attachment herein described, consisting of the cutter D, handle or cutter-bar E, arm G, sleeve E', and spring F, arranged to operate substantially as and for the purpose herein shown and specified.

2. In combination with the lathe A and traveling carriage B, the sliding piece C, substantially as and for the purpose set forth.

3. The combination of the lathe A, guide *c*, traveling carriage B, and sliding piece C, substantially as and for the purpose herein shown and described.

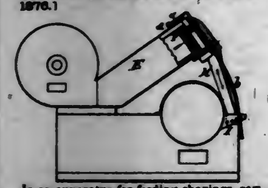
4. The combination of the lathe A, having notched guide *c*, with the carriage B, having sliding piece C and auxiliary cutter attachment D E E' F G H, all combined and arranged so as to operate in the manner and for the purpose substantially as hereinbefore set forth.

188,694. EGG-CARRIERS. Geo. Bull, Winfield, Kans., and J. W. Woodruff, Bloomington, Ill. [Filed Sept. 28, 1876.]



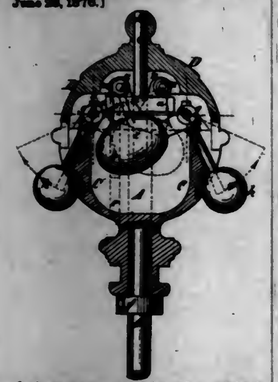
The combination, in an egg-carrier, of a series of sections, each composed of a frame provided with cross-cords *a* at intervals, a single sheet, C, of cloth, connected to each end of the frame, and loosely passed over the cords, so as to fall down between, the longitudinal cords *b*, passed over the cloth C and cords *a* at intervals, and having cross-stripe D, so as to form double thickness of cloth in each pocket, substantially as set forth.

182,635. APPARATUS FOR FEEDING SHAVINGS, SAWDUST, &c., TO FURNACES. John P. Burnham, Chicago, Ill. [Filed Aug. 19, 1876.]



In an apparatus for feeding shavings, sawdust, &c., to furnaces, the curved pipe or tube B, having a valve-opening on its outer periphery provided with an adjustable cut-off valve, F, with its edge presented to the blast, whereby the shavings and air-blast are separated, the valve-opening communicating with pipe H, which leads to the furnace, the ends of said tube E leading respectively to the fan and the waste-heap, all constructed and combined to operate, substantially as described.

182,636. STEAM-ENGINE GOVERNORS. Edward Benn, Magdeburg, Germany. [Filed June 28, 1876.]



1. A governor, consisting of a weighted pendulum and a slide, the angles of the pendulum and arms being such that the momentum of the centrifugal force will be proportional to the cosine of the angle of separation, whereby the governor will be astatic in operation, in the manner and for the purpose set forth.

2. A governor, consisting of a spherical sleeve, provided with weighted pendulums, constructed to operate as described, whereby the sleeve is elevated vertically upon the spindle to regulate the speed of the engine or other apparatus, substantially as described and shown.

3. In combination with the angular weighted levers or pendulums B, one of the weights of which extends to the side of the axis opposite its point of suspension, the vertically-sliding sleeve or sphere C D, and the plate a secured on the spindle A, the whole constructed to operate substantially as described.

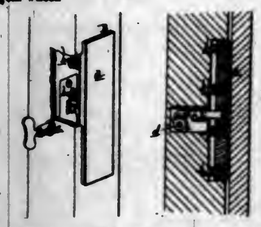
4. In combination with the angular levers, the eccentric stud and friction-rollers, by means of which the position of the levers or pendulums may be adjusted, substantially as set forth.

5. In combination with the sphere C D and plate a, the rod *b* extending through a vertical aperture in the lower part of the sphere for the purpose of rotating the sphere with the spindle, substantially as set forth.

6. In combination with the sliding sphere C D, plate a, and spindle A, the downwardly-projecting guide-rod k extending through the center of the plate a and into the spindle A, substantially as and for the purposes set forth.

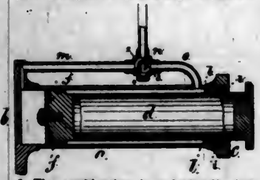
182,637. SASH-HOLDERS. Seth Byram, Fenton, Mich. [Filed June 2, 1876.]

Brief.—A friction-pad is forced against the window-frame by springs, and withdrawn by a pivoted rack-bar operated by a segmental gear-wheel.



The combination, with the pad-plate B, of the shaft *d*, pinion *e*, and toothed link C, for retracting the same, constructed and arranged substantially as described and shown.

182,638. HYDRAULIC JACKS. Stephen Byram, Brooklyn, and John A. Gronson, New York, N. Y. [Filed Sept. 10, 1875.]

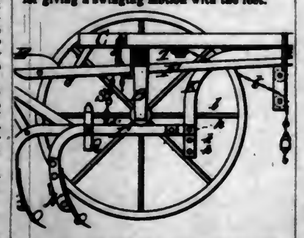


1. The combination, in a hydraulic jack, of a piston, *f*, ram *d*, cylinder *a*, supply-pipes m and *o*, and three-way cock *n*, as and for the purposes set forth.

2. The packing for a hydraulic jack, provided with the loose ring *l* between the packing at *i* and the water-space, for the purposes and substantially as set forth.

182,639. RIDING AND WALKING CULTIVATORS. Andrew Canfield, Davenport, Iowa. [Filed Aug. 26, 1876.]

Brief.—The frame is rectangular and supported upon two wheels. The seat is mounted upon two bars, which are provided with stirrups for vertical and longitudinal adjustment. The draw-bar is swiveled to the front beam, and curved backward and downward, to the end of which the share-beams are pivoted. Foot-pieces are attached to the share-beams for giving a swinging motion with the foot.

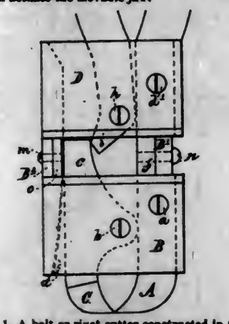


1. In a cultivator, the seat-sustaining rods F F, in combination with the double stirrup G, having openings *g g*, and perforated plates H H, substantially as and for the purpose set forth.

2. In a cultivator, the seat-sustaining rods F F, double stirrup G, having openings *g g*, and perforated plates H H, in combination with the laterally and vertically vibrating shovel-beams I, provided with foot-rests Q', substantially as and for the purpose set forth.

182,640. BOLT-CUTTERS. Wm. C. Carlton, Boise City, Idaho. [Filed Apr. 29, 1876.]

Brief.—The tool has two casings. In one is a fixed jaw and a movable jaw acted upon by a spring; in the other is a fixed and movable lever. The casing containing the cutting-jaws swings by pivots upon the other, so that in whatever position swung, the movable lever will actuate the movable jaw.



1. A bolt or rivet cutter constructed in two sections, one consisting of a frame or casing, in which are secured and hung the operating handles or levers, the other of a casing carrying the cutting-blades and their arms, the two sections being pivoted and secured together by means of suitable projections, through which the pivots are passed, enabling the section carrying the cutting-blades to be turned at any angle to the right or left, and operated thereat, in the manner as and for the purposes as herein shown and set forth.

2. In a bolt or rivet cutter, the combination of the casing B, carrying the fixed cutting-blade and arm A, and movable cutting-blade and arm C, pivoted thereto, and provided with returning-spring *d*, and the casing D, carrying the fixed arm F and movable lever G, pivoted therein, the two parts being pivoted together by means of projections *e*, *f*, and B' B², and pins m and *n*, the whole operating substantially as and for the purposes as herein shown and set forth.

182,641. WINDMILLS. Albert H. Cleaveland, Bowen, assignor of one-half his right to Hiram B. Gray, Belvidere, Ill. [Filed Aug. 10, 1876.]

Brief.—The wheel can be tipped upward and backward by the force of the wind when it rises above a certain degree, which degree can be varied by means of an adjustable counter-balance, so arranged as to bring the wheel back into the wind when the force falls below the degree at which the counter-balance is adjusted.



1. The wind-wheel mounted on shaft *a*, having its bearing in hinged yoke B, and fitted with gear-wheel *f*, to engage the gear-wheel *b* on crank-shaft *c*, to impart a rotary motion to the crank *l*, as and for the purpose set forth.

2. The upward-swinging yoke B, in combination with the turning center support and wind-wheel, to pursuit the wind-wheel to turn upward out of the action of the wind, substantially as shown and described.

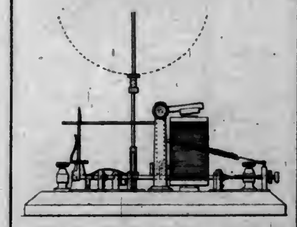
3. The combination of the upward-swinging yoke B, and governing-vane R, for the purpose of turning the wind-wheel upward in a horizontal position out of the action of the wind, substantially as shown and described.

4. The adjustable counter-weight *e*, in combination with the governing-vane and upward-swinging yoke, for the purpose of adjusting the mill to a required force of wind, to throw it out of the action of the wind, as described.

5. The hinged governing-vane, in combination with stud *s*, to limit the tipping of the wind-wheel to a horizontal position by means of hook *p*, and to return the wind-wheel to a perpendicular working position, substantially as hereinbefore set forth.

6. The spring *m*, in combination with the upward-swinging yoke, as and for the purpose set forth.

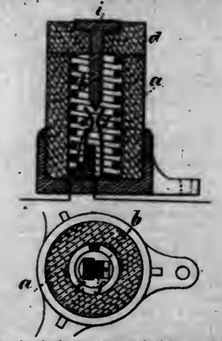
182,642. ELECTRIC RAILWAY-SIGNALS. Joseph I. Conklin, Jr., New York, assignor to himself and Charles A. Dresser, Brooklyn, N. Y. [Filed Apr. 20, 1876.]



1. The vertical shaft *f*, carrying the signal, the pinion *e*, rack *d*, and sliding bar *c*, in combination with the electro-magnet *a*, armature *b*, armature-lever *b'*, and electric circuits arranged substantially as specified, to give the signal a quarter-turn when one track circuit-closer is operated, and to turn the signal back again when the next circuit-closer is operated, as set forth.

2. In an electro-magnetic railway-signal, the sliding bar *c*, latch *h*, and catch-bar *i*, in combination with the signal, the electro-magnet *a*, armature *b*, and circuit-closers n o p, substantially as set forth.

182,643. CIRCUIT-CLOSERS FOR RAILWAY-SIGNALS. Jos. I. Conklin, Jr., New York, assignor to himself and Chas. A. Dresser, Brooklyn, N. Y. [Filed May 22, 1876.]



The circuit-closer composed of the springs *e* and *f* within the hollow elastic column *d*, and the contact-pin *i*, passing through the cap *d*, as and for the purposes set forth.

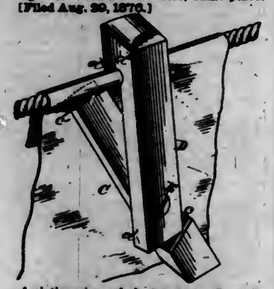
182,644. COMBINED LIEBIG'S AND GAS-GENERATOR. John Cowan, London, England. [Filed May 15, 1876.]

In combination with a limekiln having closed mouth, one or more gas-retorts, supported just below said mouth within the limestone-chamber, and above the calcining limestone, whereby the retorts are subjected to the direct action of the waste flame and heat without being embedded in the calcining matter, substantially as and for the purpose described.



182,644.

182,645. CLOTHES-PINS. John W. Craig, Kirkwood, Ill., assignor of one-half his right to Thomas W. Beers, same place. [Filed Aug. 30, 1876.]



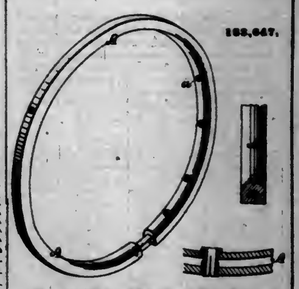
A clothes-pin made in two parts, C and D, pivoted together, the part *D* having an obliquely-cut end, *d*, operating against a shoulder, *e*, on the part C, and a shoulder, *d'*, extending over the end of the part C, substantially as and for the purpose specified.

182,646. CLASPS FOR HARNESS. Fredk. H. Dahm, New York, N. Y. [Filed Sept. 18, 1876.]



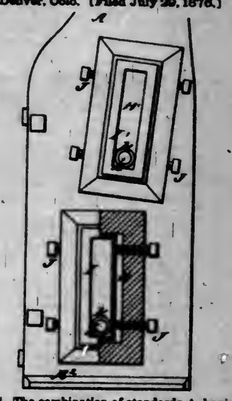
A harness-coupling, consisting of the lower plate A, with hooks *a a*, and spring *b*, projections *c* and *g*, and the upper plate B, with arch *f*, and projections *d*, both plates adapted to be held together by set-screws *e e*, substantially as described.

182,647. CARRIAGE-WHEEL FELLIES. H. Danford, Geneva, Ill. [Filed Aug. 9, 1876.]



The tubular metal felly A, made hollow, and having transversely a plane periphery, and a half-round inner face, substantially as and for the purpose specified.

182,648. QUARTZ-CRUSHERS. F. M. Davis, Denver, Colo. [Filed July 29, 1876.]



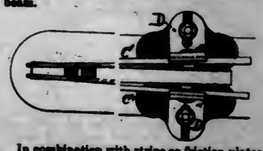
1. The combination of standards A, having inclined slots H' and vertical slots H, with crushing-block F and trunnions or gudgeons K K, substantially as and for the purpose set forth.

2. The combination of standards A, having inclined slots H' and vertical slots H, provided with adjustable boxes I I, with crushing-block F and trunnions K K, substantially as and for the purpose set forth.

3. Trunnions K, provided with loose metal sleeves L, in combination with boxes I I' and adjusting-screws J J, substantially as and for the purpose set forth.

182,649. PICKER-CHECKS. Robert Davidson and Jno. Richardson, Fall River, Mass. [Filed June 20, 1876.]

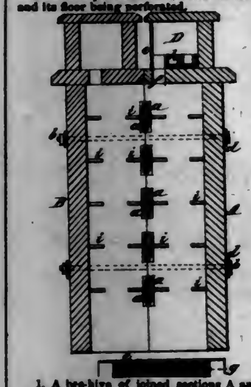
Brief.—The binders are flexible wooden arms secured to brackets that are provided with means for adjusting them upon the race-beam.



In combination with strips or friction-plates C C, the brackets D D, adapted for adjustment by clamp-screws, as above and described, to vary the relative angle of said strips, as and for the purpose specified.

182,650. BED-RIVES. John W. Davis, Highland Township, Muskingum County, and Thomas H. Davis, Otsego, Ohio. [Filed Sept. 21, 1876.]

Brief.—The hive divides longitudinally and centrally, bisecting a vertical series of cross-slats, with which the comb divides. Openings communicate with a top chamber, in which the bees are fed; said chamber being perforated at one protected side, a door at its base and its floor being perforated.



1. A bee-hive of joined sections A and B, adapted for vertical division and separation upon the bisection of the transverse slats *c*, as and for the purpose stated.

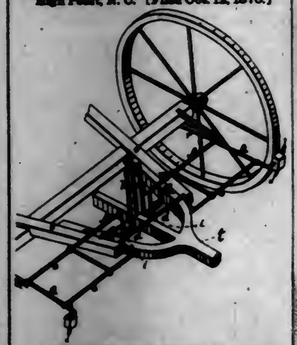
2. The combination, in a bee-hive having sections A and B, adapted for division and separation vertically, of the horizontal sectional slats *c*, which, when the sections are joined, form a succession of slats, as and for the purpose described.

3. The combination, in a bee-hive having sections A and B, adapted for division and separation vertically, of the transverse slats *c* and wall and slat pads *i*, as and for the purpose described.

4. The cellular feed-platter *h*, arranged within the top box D, and combined with the openings *f* in work-chamber, for the purpose specified.

5. The cellular feed-platter *h* and the removable wire-cloth cover *g*, adapted for use within the top box D, and in connection with the openings *f* of the work-chamber, for the purpose specified.

182,651. WAGON-BRAKES. C. G. Deming, High Point, N. C. [Filed Oct. 12, 1876.]



1. The grant-shaped brake-bars, as described, fastened to bands and bolt by means of iron eyebolts *m m* and eyes *i i*, as herein described, and for the purposes set forth.

2. The adjusting crank-bar *a b*, fastened to the tongue *t* by iron bands *o o*, and the pin *s*, as herein described, and for the purposes set forth.

3. The brake-bar A, pivoted to a support, *r*, between the center and periphery of a vehicle-wheel, and capable of being applied upward by a lever, or downward by the operation of the tongue, substantially as shown, and for the purposes set forth.

182,652. LIFTING-JACKS. Wm. Donaldson, Cincinnati, Ohio. [Filed Aug. 28, 1876.]



1. The standard A, having the bearing *a*, with semicircular groove *b'* connected therewith, for the purpose described and set forth.

2. The vibrating fulcrum B, having bearing *a'*, provided with lip *b'*, semicircular bearings *b b* and openings *g g*, all arranged substantially in the manner described, and for the purpose specified.

3. The pawls C C, having concaved ends, provided with lip *a'*, for the purpose specified and set forth.

4. The combination, substantially as specified, of the vibrating fulcrum, the rack-bar, the pawls, and the adjustable springs F F, adapted to be brought into action in lowering the weight.

5. The combination of the standard A, vibrating fulcrum B, pawls C C, rack-bar D, cap *i*, and springs E E, operating substantially as described, and for the purpose set forth.

182,653. CORN-SHELLERS. R. W. Douglas and Darius Parkhurst, St. Louis, Mo., assignors to Kinmband, Ferguson & Co., same place. [Filed Mar. 7, 1876.]



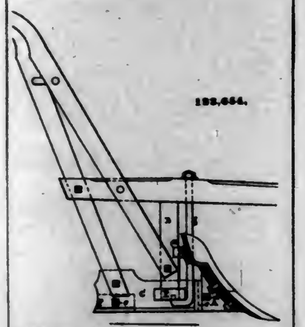
1. The curved grate D, constructed of detachable bars *d*, formed with distance-lugs *f'*, and resting in grooves *a*, substantially as set forth.

2. The combination of the apron F G, pulley I, and fanform O, substantially as and for the purpose set forth.

182,654. PLOWS. Mahalel D. Dozier, Camden C. H., N. C. [Filed June 26, 1876.]

Brief.—The standard is bolted to the land-side, and is held to the land-side by a clip upon its inner face. A beak is inserted into its lower end, the rod passing through the beam, and is secured by a nut on the top of the beam. The heel of the land-side is provided with a supplemental part, which can be removed at pleasure.

The standard A, provided with the jaw *a* and hole for the insertion of the hook-bolt *b*, the land-side C, having the staple E and grooved rib *c*, the vertical brace D, and hook-bolt *b*, combined substantially as described.



182,654.

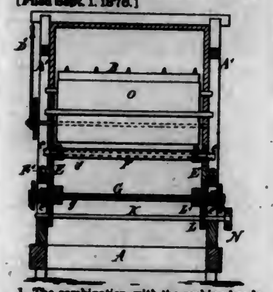


182,655. HARNESS-SADDLES. John A. Ducastel, Philadelphia, Pa. [Filed Apr. 22, 1876.]

1. A saddle-tree, A, provided with arms B B, which form a part of the tree, substantially as shown and described.

2. The combination of the arms B and the hooks *a* with the set-screws *b*, as set forth.

182,656. GRAIN-SEPARATORS. John H. Steward, St. Paul, Minn., assignor to Seymour, Sabin & Co., Stillwater, Minn. [Filed Sept. 1, 1876.]



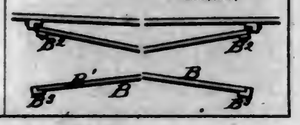
1. The combination, with the rocking heads B B, provided with stub-axles, and the bearings *c c'*, of the shafts I K, gears L L', disks F, and pitman P, substantially as set forth.

2. The heads B, provided with the stub-axles B', in combination with the tables F G, connected to said head, respectively above and below their centers of oscillation, substantially as set forth.

3. The rocking heads B, provided with bearings *c c'*, in combination with the supporting-arms *f f*, one or both mounted in said bearings, so as to rotate or rock therein, substantially as set forth

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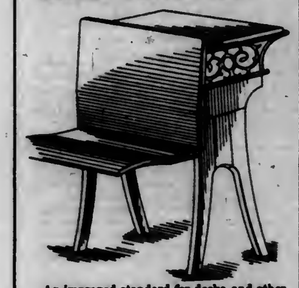
182,657.



182,657. SPRING BED-BOTTOMS. J. Forbes, Jr., Flatwell, Mich. [Filed Aug. 12, 1876.]

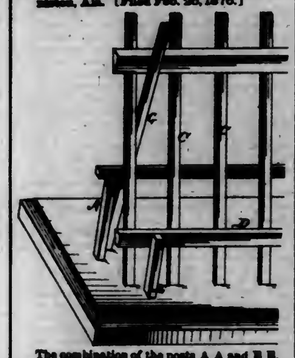
In a bed-bottom, the combination of the supporting-frame B B, connected to the bed bottom, and adjusting-rods C C, constructed substantially as and for the purpose set forth.

182,658. SCHOOL-DESKS. Henry E. Fry, Marion, Ind. [Filed Sept. 11, 1876.]



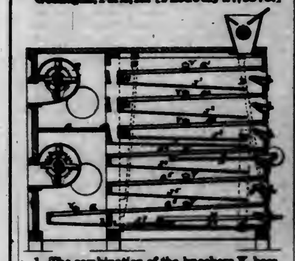
An improved standard for desks and other similar articles, composed of three pieces, tongued and grooved and united together as described, whereby the grain of the wood forming said standard will run in the direction of the legs, substantially as described.

182,659. FENCES. Robert L. Garrett, Anniston, Ala. [Filed Feb. 26, 1876.]



The combination of the posts A A and B B, the horizontal bars or rails B D, the inclined boards C and G, and top rail H, all constructed substantially as and for the purposes herein set forth.

182,660. MIDDLINGS-SEPARATORS. Wm. H. Gosbegan, Paris, Ill. [Filed July 27, 1876.]

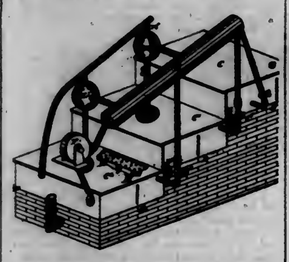


1. The combination of the knockers V, bars W, springs Y, and wheel T, with eccentric *t*, substantially as and for the purposes herein set forth.

2. In combination with the series of sieves and carrier-boards, the tail-board G, and movable auxiliary carrier-board F', having conveyer upper surface, attached to handles N, extending to the front of the machine, as and for the purposes herein set forth.

182,661. APPARATUS FOR TREATING AND AGING SPIRITUOUS LIQUORS. George Gosney, Philadelphia, Pa., assignor of one-half his right to John Yearsley, same place. [Filed May 4, 1876.]

Brief.—A water-pan is placed over the grate, and under the first liquor-pan, to moderate the heat. The pans are made separate to facilitate cleaning and repairs. The top of one pan is on a plane with the bottom of the pan above, so that the liquor may be readily run from the upper pan through each one successively to the lowest one of the series. Air is blown into the liquor through perforated pipes in each pan. Water-jackets surround the vapor-pipes for condensing the vapor.

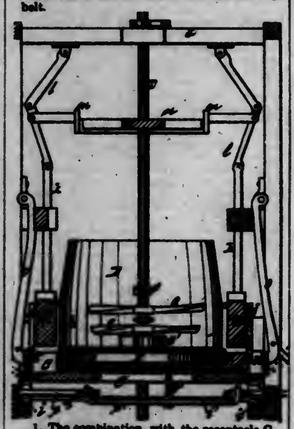


1. In an apparatus for aging and treating spirituous liquors, as herein described, the pans C C', &c., formed with flat bottoms and made separate from and independent of each other, the bottom of each pan being on a line with the top of the next lower pan, as set forth.

2. The combination of the separate flat-bottomed pans C C' C', water-pan D, air-trunk E, and condensers L I M as with communicating pipes, constructed substantially as herein shown and described.

182,662. BRICK-MACHINES. Frank Grant, Middleport, Ohio. [Filed Apr. 12, 1876.]

Brief.—The brick is compressed by the vertical plunger between the side presser-plate and the horizontal follower. Upon the release of the outer presser-plate, the inner plate or follower forces the brick onto the off-bearing belt.

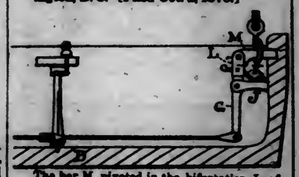


1. The combination, with the receptacle C, of the follower F and presser blocks or plates G G H H, operating conjointly to form the clay into a brick shape, substantially as set forth.

2. The follower F and presser blocks or plates G G H H, in combination with the receptacle C, shaft D, having cams E *n*, knee-jointed rods *b l*, frame *m*, jointed bars or rods *o o' p*, bar *q*, and plate *p'*, substantially as and for the purpose set forth.

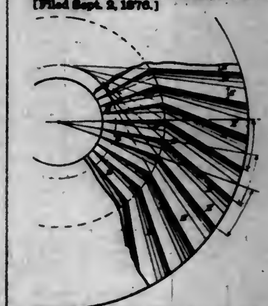
3. The presser plates or blocks H H, in combination with the rods *o o*, bars *o' o'*, rods *p p*, and plate *p'*, having a bar or screw, *q*, connecting it to the follower F, substantially as and for the purpose set forth.

182,663. BOAT-DETACHING APPARATUS. Robert Groenwell, Washington, D. C., assignor to himself and Conrad Wagsforth, Mendville, Pa., and Chas. F. Wiss, Washington, D. C. [Filed Oct. 2, 1876.]



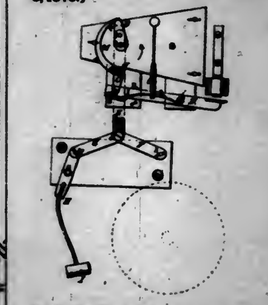
The bar M, pivoted in the bifurcation L of the lever G, having its fulcrum in the horizontal arm J, secured in the end of the boat, and provided with the curved guide K, substantially as and for the purposes described.

182,664. MILLSTONE-DRESS. Henry Grieg and William McElroy, Lockport, N. Y. [Filed Sept. 2, 1876.]



The millstone having the beveled portion *a*, radial and tangential furrows D, and plane surfaces E, as and for the purpose set forth.

182,665. ELECTRO-MAGNETIC BELL-STRIKING APPARATUS. Frank W. Grinvold, Providence, R. I., assignor to himself and Dexter L. Pierce, same place. [Filed June 6, 1876.]

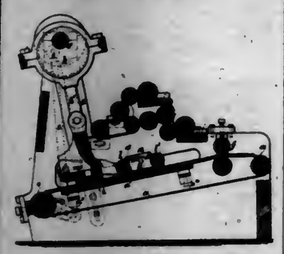


1. The circular-armed escapement-lever C, with its locking-pin *c* and stop *r*.

2. In combination with the crank B, escapement-lever C, and armature-lever D, the roller or pin *c* and click *f*.

3. The levers F and G, in combination with the lever H, connecting-rod E, and crank E, the whole constructed and arranged substantially as and for the purposes specified.

182,664. LOZENGE-MACHINE. Charles H. Hall, Brooklyn, N. Y., assignor to himself and F. P. Tarbell, New York city. [Filed July 26, 1876.]



1. The reciprocating head A, punches *i*, and printing-blocks *l F*, sustained by and moving with the head A, in combination with the clearing-plate *n*, apron *a*, and adjustable table *a'*, substantially as and for the purposes set forth.

2. The combination, in a lozenge-machine, of an adjustable table, the apron supported by such table, and the cutters and types for printing and cutting such lozenges, substantially as set forth.

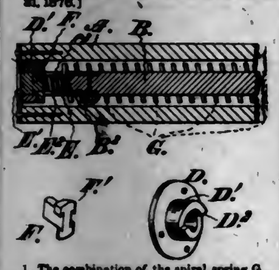
182,667. SLED-BRAKES. Johan A. Hanson, Wagon Landing, Wis. [Filed May 18, 1876.]

Brief.—When the team is not drawing, the ends of the bounds drop under the runner, and their sharp points are forced into the snow.



The combination of the runners A, links B, and curved bounds D, having sharp points *d*, substantially as and for the purpose specified.

182,668. CURTAIN-FIXTURES. Isaac W. Heysinger, Philadelphia, Pa. [Filed Jan. 31, 1876.]



1. The combination of the spiral spring G, shaft E, and recessed journal E with a curtain-roller, provided with cylindrical journal-boxes in the ends thereof, and with fixed journals adapted to fit therein, which said journals are provided with shanks, by which they may be directly attached to the window-casing, substantially as described.

2. In combination with the recessed journal E E' of a spring-shaft, E, the transverse locking-pin F, extending through the recess E², and capable of longitudinal motion therein, and the ratchet D', together with the fixed support C, having the journal *c'*, adapted to enter the recess E' and act against the locking-pin F therein, within the body of the roller, the whole constructed to operate substantially as and for the purpose described.

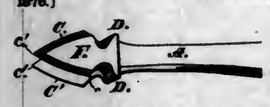
3. In a spring curtain-roller, a locking device, all the parts of which are concealed within the body of the roller, and which is adapted to be thrown out of gear by means of a key-shaped support, constructed to enter the end of the roller when the curtain is placed in position for use, the whole arranged to operate substantially as set forth.

4. The combination, in a curtain-fixture, of the parts D' and D², the spiral mainspring G, the internal guide-rod E, the tubular recessed journal and thereof, E, having the parts E' E² E³, the small internal spring *d'*, the cross locking-bolt F F', together with a fixed support, C, the whole constructed substantially as described.

5. A curtain-roller having the journal-box *D'*, in combination with a recessed journal permanently fixed therein, no part of which extends out beyond the external surface of the cap D, together with a support adapted to look into the end of said recessed journal and support the same, substantially as described.

6. In combination with a curtain-roller, A A', a bearing-piece, *L*, having a recess formed at one end to furnish a bearing for the roller, and having a spike-shaped shank to adapt it to be driven directly into the end of the roller, in the manner substantially as set forth.

182,669. CAN-OPENERS. Isaac W. Heysinger, Philadelphia, Pa. [Filed Mar. 28, 1876.]



1. A can-opener having two straight parallel double-edged blades, C C', provided with a narrow part or neck just below the shoulder D, which will allow either blade to be slightly rotated while in the cut, so as to enable it to describe a curved or straight line according to the shape of the can, substantially as herein set forth.

2. As an article of manufacture, a right and left handed double-bladed can-opener, consisting of a handle, A, shoulders D B, spear-shaped blades C C', having the inner surfaces plain, and the outer ones ground to an obtuse cutting-edge, the whole constructed substantially as described.

182,670. MACHINES FOR FORMING, INSERTING, AND CLINCHING STAPLES IN BOOKS. Henry B. Hoyt, Philadelphia, Pa., assignor to the Novelty Paper Box Company, same place. [Filed Sept. 23, 1876.]

Brief.—The signatures forming the book-pack are inserted between vertical guide-plates, where they rest by gravity in position to be operated upon, and a staple length of wire is protruded across the face of the mandrel. A head carrying the staple-bending fork and the perforating-awls swings up-ward to bring the awls in a plane to puncture the work, and the bending-fork in position to co-operate with the mandrel. The said tools, moving forward simultaneously, operate as follows: The awls are rotated and thrust through the book-pack and withdrawn. The bending-fork moves forward to form the wire into a staple, which is deposited in the internal longitudinal groove, downward to strip the staple off the mandrel, and forward (in the plane just vacated by the drills, which have moved downward with the fork) until its end meets and compresses the book-pack. The hammer is then driven forward to insert the staple in the holes perforated in the book-pack. As the staple-legs are protruded they meet the inclined faces of the clinching-plates, and are bent inwardly, and while the hammer still rests upon the crown of the staple, the clinching-plates are swung forward to press the legs down tightly upon the face of the work. The intermittent feed-wheels then advance the book, while the clinching mechanisms are retracted, and the operation is repeated. When the stapling is completed, pressure upon a lever opens both the guides and the feed-rollers, and at the same time brings into action the continuous feed-wheels, which deliver the book out of the machine.

1. The combination, with staple-inserting mechanism and a work-supporting table, of work-guides standing at right angles to said table, and forming a way in which the book-pack may rest upon its back or edge by gravity on said table to receive the staple, substantially as described.

2. The combination, with perforating mechanism and a work-supporting table, of work-guides standing at right angles to said table and forming a way in which the sheets or signatures of a book may rest by gravity on the table, so as to be perforated in lines parallel with its edges, substantially as described.

3. The combination, with mechanisms for inserting and clinching staples in the backs of books or similar articles, of reciprocating rotating drills, to perforate the paper or other material to receive the staples, substantially as described.

4. The combination, with staple-inserting and clinching mechanisms and work-supporting table, of two guides movable to fixed positions with relation to each other to adjust the width of the guideway they form, substantially as described.

5. The combination, with book-stapling mechanism, of one or more pairs of compressing feeding-rollers, operating intermittingly to feed the book along a given space after the insertion of each staple, all substantially as described.

6. The combination, with book-stapling mechanism, of one or more pairs of feed-rollers operating continuously, to carry the work operated upon out of the way of the stapling mechanism after the stapling process has been completed, all substantially as described.

7. The combination, with stapling mechanism, of one or more pairs of feed-rollers having intermittent rotary motion, and one or more pairs of feed-rollers having continuous rotary motion, constructed and operating substantially as described.

8. The combination, with staple-inserting mechanism, of a pair of clinchers, consisting of two rocking-shafts lying parallel to each other, and so shaped at their extremities as to clear the plate N and provide clinching-plates to engage with and bend the staple-legs toward each other, against the book or other article through which the staples have been driven, substantially as described.

9. The guide-plate N, provided with a slot having enlargements at its extremities, in combination with staple-inserting and clinching mechanisms, whereby the staple-legs as they are inserted are guided in the same planes to the clinchers, and in clinching are guided so as to be turned down in straight lines toward each other, substantially as described.

10. A staple-clinching mechanism consisting of two plates, *q*, operating by means substantially as described, so as to stand apart at proper angles to partially bend the staple-legs as they are forced through the work, and then to be swung toward the work upon centers which are slightly outside of the points of protrusion of the staple-legs through the work, whereby the clinching of said legs is effected by simple pressure, substantially as described.

11. A staple forming and presenting mechanism, consisting of a forming-mandrel and an internally-grooved bending-fork, the said mandrel being stationary during the operation of forming the staple around it, and the said bending-fork moving forward, by means substantially as described, to form and deposit the staple within its internal grooves, and downward to strip it from off the forming-mandrel, and forward to carry it into position to be inserted into the work, substantially as described.

12. The combination of the forming-mandrel and nipper, substantially as described.

13. The combination of a forming-mandrel and nipper constructed with a wire-guiding eye, substantially as described.

14. A forming-mandrel provided with a nipper and operated by means substantially as described, so as to be moved over the staple length of wire until said wire rests at a point near the extremity of the mandrel, where it is clamped by the nipper in position to be operated upon by the bending-fork, substantially as described.

15. The combination, with staple-clinching mechanism, of the swinging bracket B, carrying the perforating mechanism and the staple forming and inserting mechanism, substantially as described.

16. The combination of slide 10, toggle D, and rock-shaft 28, substantially as described.

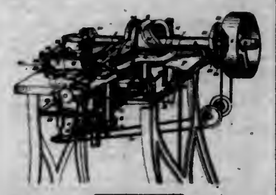
17. The combination of slide 10, toggle D, head 19, and screw T, substantially as described.

18. The combination of rollers H H', bell-crank 13, and toggle-lever D, substantially as described.

19. The combination of bell-crank L, slider K, rack *b*, pinion *f*, wheel U, and drill-spindles, substantially as described.

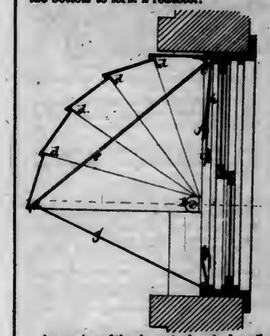
20. The combination of a swinging bracket carrying drill-spindles and gears for rotating them, with a reciprocating rack for actuating the spindle-gears, substantially as described.

182,670.



182,671. AWNINGS. Frederick Hoberst, New York, N. Y. [Filed Mar. 15, 1876.]

Brief.—The shade can be drawn to the top of the frame to form an awning, or lowered to the bottom to form a reflector.



An awning of the character herein described, adapted to be pivoted to the center of the window-frame, and to be lowered from the top to form a reflector, or raised from the lower portion of the frame to form an awning, substantially as and for the purpose specified.

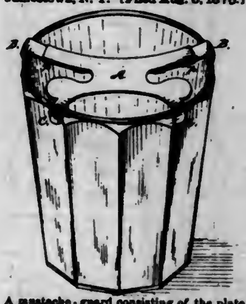
182,672. BRUSHES. Charles B. L. Holmes and William B. Lawrence, New York, N. Y. [Filed July 6, 1876.]

Brief.—The handle is a horizontal ring of round metal, supported by standards secured to the brush-back.



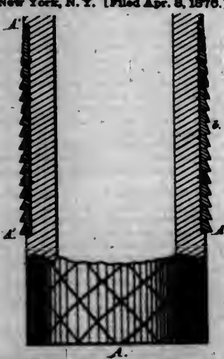
A brush provided with a handle consisting of a ring, C, supported by standards above the back of the brush, as and for the purpose set forth.

182,673. MUSTACHE-GUARDS. J. S. Horton, Jamestown, N. Y. [Filed Aug. 5, 1876.]



A mustache-guard consisting of the plate A, having hooks C C and lips *a a a a*, or their equivalent, in combination with the sliding plates B B, having hooks on their outer ends, all constructed substantially as described and set forth.

182,674. PROJECTILES. Benj. B. Hotchkiss, New York, N. Y. [Filed Apr. 3, 1876.]

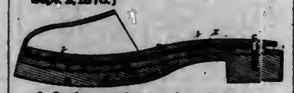


1. A projectile, having a packing-band let into a sunk recess, A', around the body A, with its exterior ridged, as indicated by *b*, and so proportioned that the metal of the ridges will, when crushed down to the lands of the gun, just fill the intervening hollows between the ridges, as and for the purposes herein specified.

2. In combination with a body, A, having a sunk packing-space, A', and a ridged packing-belt, B *b*, the chamfered or conical front B' on the said packing, as and for the purposes herein specified.

3. A double series of evenly-distributed scratches or shallow cuts on the solid exterior of the body of the shell, as and for the purposes specified.

182,675. WOODEN-SOLED SHOES. Theophilus B. Hyde, Westerly, R. I. [Filed Sept. 2, 1876.]



1. In the manufacture of wood-soled shoes, an improved process, consisting, first, in shaping the block or blank to conform to the finished sole, and then sawing the same into sole-sections, with surfaces of curvature adapted to be united together to form two or more thicknesses of sole, substantially as shown and described.

2. The combination, with the insole D and outer sole A, of the yielding intermediate sole E, of smaller size than the insole, leaving a marginal space, *a*, between said insole and outer sole for the introduction of the edge of the upper, substantially as specified.

3. The combination, with an insole and tread-sole, sawed from the same block, of a welt-sole, C, located between the two, and screwed to the insole, substantially as specified.

4. A wood-soled shoe having the sections of its sole sawed apart to fit each other, and the yielding intermediate sole E laid in water-proof cement between the insole and outer sole, substantially as specified.

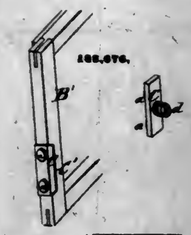
5. The wood-soled shoe consisting of the insole D, intermediate sole E, tread-sole B, and welt-sole C, connected, first, to the insole, and then to the tread-sole, said parts being arranged substantially as herein specified.

182,676. SASH-HOLDERS. Albert Irvine, Gloucester City, N. J. [Filed Sept. 14, 1876.]

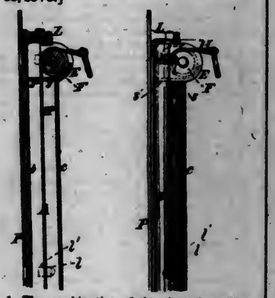
Brief.—A slight novelty in the combination and arrangement of old devices.

The combination, with the recessed sash, of the cast-metal block C, having recesses in its outer surface, holding rubber cushions *a a*, and a boss on its inner surface holding a spring, *d*, said block being concealed from view by the strip B, all substantially as described and shown, for the purpose set forth.

182,676.



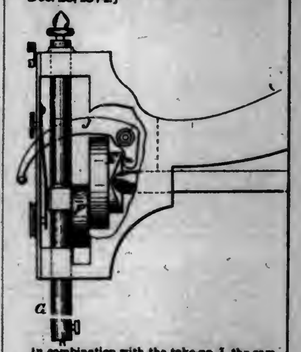
182,677. TETHERING DEVICES. James L. Jackson, New York, N. Y. [Filed Sept. 18, 1876.]



1. The combination of the pivoted oscillating halter-case A, the pulley F, the halter H, the weight I, the attaching-plate P, and bearings L, substantially as and for the purpose specified.

2. The combination of the pivoted oscillating halter-case composed of two parts, *b c*, having the legs *l F*, for attaching said parts *b c* together, and the stops *s s'*, and containing the pulley F and cushioned weight I, with the attaching-plate P and bearings L, substantially as and for the purpose set forth.

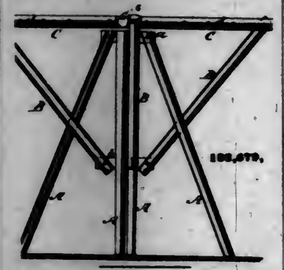
182,678. SEWING-MACHINES. Jas. Jamieson, Hamilton, Ontario, Canada, assignor to Richard M. Wenner, same place. [Filed Dec. 28, 1874.]



In combination with the take-up J, the cam E and slotted needle-bar G, the several parts being arranged as described, whereby the proper motion is imparted to the take-up, as and for the purpose set forth.

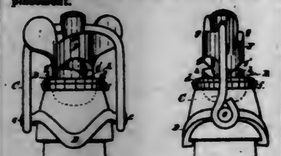
182,679. CLOTHES-DRIERS. John F. Jaques, Moline, Ill., assignor to himself and John W. Bartlett, same place. [Filed Sept. 16, 1876.]

The combination of the bars A, casting *a*, bars B, casting *b*, bars C, casting *c*, and the cords *d*, substantially as shown and described.



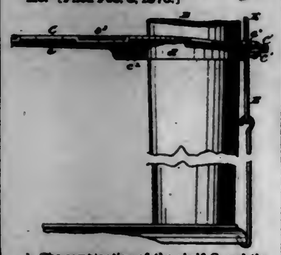
182,680. BOTTLE-STOPPERS. Gustaf Johnson, Cambridgeport, assignor to Charles Mingay and Rainey J. Boardman, Boston, Mass. [Filed Apr. 3, 1876.]

Brief.—When the stopper is fastened, the stirrup prevents further forward movement of the turning-lever, and the difference in eccentricity of the cams prevents accidental displacement.



The combination, with the yoke B and the stirrup C, of the stopper D, provided with cams *h h*, and the turning-lever F, provided with duplex cams *g g* and *g' g'*, the whole being arranged and applied, or to be applied, to the neck of a bottle or vessel to be sealed, substantially as set forth.

182,681. STOVE-PIPE SHELVES. George B. Johnston and Judson Allen, St. Charles, Mo. [Filed Feb. 8, 1876.]



1. The combination of the shelf O and tie-bar B, when used substantially as and for the purpose set forth.

2. The combination of tie-bar B with a shelf composed of sections O' O', hinged together at the rear, and having flanges *o o* and *l*, and bolts *o' o'*, as and for the purpose set forth.

182,682. SEEDING-MACHINES. James H. Jones, Rockford, Ill., assignor to Ralph Emerson and Wm. A. Talcott, same place. [Filed Oct. 7, 1876.]

Brief.—The continuous feeding-chain passes through the hopper at the bottom for feeding, and back beneath a concave curver above for agitating the seed. One of the pulley-wheels, over which the feeding-chain passes, is journaled in slots, so that it is free to rise and fall. Beneath and pivoted to the hopper is a reciting spout, that projects into the delivery-spout, for graduating the flow of seed. To one side of the hopper is attached a divided open receiver, for conducting the seed to the drill-hoes.

1. A force-feed consisting of an endless chain working transversely through a hopper, substantially as herein before set forth.

2. The combination, substantially as herein-before set forth, of a seed box or hopper, an endless feed-chain traversing said hopper transversely, and a driving-wheel, around which the chain passes outside the hopper.

3. The combination, substantially as herein-before set forth, of a seed box or hopper, a driving-wheel, and an endless feed-chain passing through openings both in front and rear of the hopper.

4. The combination of a hopper, an endless feed-chain working through it, and a regulator for adjusting the area of the discharge-opening.

5. The combination of a hopper, an endless feed-chain working through an opening therein, a regulator for adjusting the area of the discharge-opening, a rock-shaft on which said regulator is mounted, and a gage-clamp indicating the rate of feed.

6. The combination of a hopper, a driving-wheel, a self-adjusting gravity tension-pulley, and an endless feed-chain passing through the hopper.

7. The combination of the hopper, the driving-wheel, the endless feed-chain, the tension-pulley, the bracket and its downwardly and outwardly inclined slots, in which the shaft of the tension-pulley has its bearings, whereby both friction and gravity co-operate in producing tension on the driving-chain.

8. The combination of a hopper, an endless feed-chain passing through said hopper in both directions, and an arch-way or passage for the upper portion of the chain.

9. The open-heel receiver, constructed substantially as herein-before set forth, with an open top and bottom and with lugs to receive the driving-shaft, and adapted to be secured to the side of the hopper beneath the chain-driving wheel, to receive and afford a view of the seed discharged from the hopper, as set forth.

10. The combination of the hopper, the open-heel receiver secured thereto, its lugs, the driving-shaft mounted in the lugs, the driving-wheel mounted on the shaft between the lugs and the endless feed-chain.

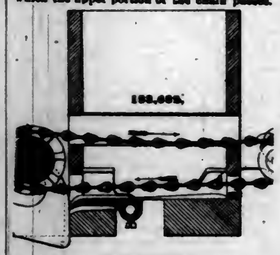
11. The chain trough or way, constructed, substantially as set forth, with an open middle portion and tubular ends, whereby a free discharge is secured, while waste is prevented when the chain is at rest.

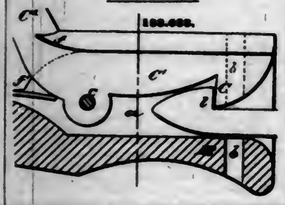
12. The combination of the hopper-walls, its bottom inclines, and the chain-trough, having shoulders against which the inclines abut, and supporting-surfaces on which they rest at their lower ends.

13. The combination of the hopper, the chain-trough, the feed-regulator, the open-heel receiver, the driving-wheel, and the chain.

14. The combination, substantially as herein-before set forth, of a hopper, a driving-wheel, a tension-pulley, an endless feed-chain passing over said wheel and pulley and through the hopper, and an open-heel receiver.

15. A seeding-machine hopper, constructed substantially as herein-before set forth, with openings in front and rear communicating with a trough, through which a chain passes in one direction, and a passage-way above it, through which the upper portion of the chain passes.

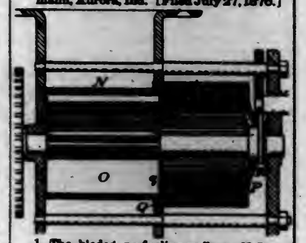




182,683. CAR-COUPLINGS. Jacob King, Greenville, Ohio. [Filed June 24, 1876.]

The combination, with the coupling-head B, of the tongue C', having the rear angular extension C', the rod *i*, and crank-shaft I, operating in the manner described, and for the purpose set forth.

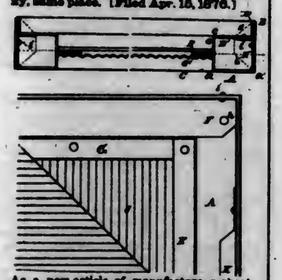
182,684. FEED-REGULATORS. F. Klinkermann, Aurora, Ind. [Filed July 27, 1876.]



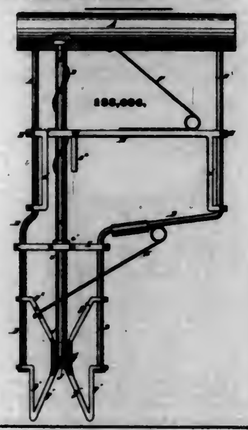
1. The bladed ap-feeding wallower N O *q*, in combination with the sliding regulator F Q *g*, substantially as and for the purpose set forth.

2. In combination with the sliding regulator F Q *g*, the elliptical rod V and slotted plate V' *a*.

182,685. SHEET-METAL SHUTTERS. Abson O. Kitteridge, Salem, Ohio, assignor to Kitteridge Cornice and Ornament Company, same place. [Filed Apr. 10, 1876.]



As a new article of manufacture, a sheet-metal door or shutter, constructed substantially as herein described—viz., a piece of metal, A, bent at *a a'* to form the width of the side of the frame, return-bend or lock B, flange C, strip of metal B', bent, as described, at *c c'*, flange D and flange E, angle-iron K, and panels I J, as herein set forth.



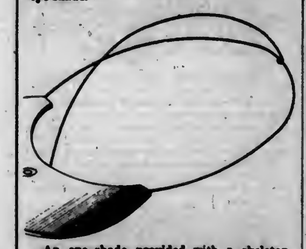
182,686. TOBACCO-SCOURER-GUMMER-DESTROYER. Jos. E. Keams, John B. Mayfield, Walter C. Keams, and Andw. J. Furr, Boonsborough, Mo. [Filed Sept. 6, 1876.]

1. The rear rod B, bent forward or toward the front rod E, the rotating cutter-bearing rod C, arranged contiguous to said front rod, the cross-bar I, and vertically-reciprocating bar H, all combined as shown and described, for the purpose specified.

2. The forked part G *g*, made in the form of the letter W, in combination with rod C, bar E, handle A, and rods B B, as shown and described.

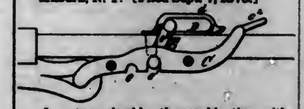
182,687. SHADES FOR THE EYES. Henry C. Kromer, Philadelphia, Pa. [Filed June 2, 1876.]

Brief.—A wire encircling the head, and another passing over it, are secured to the usual eye-shade.



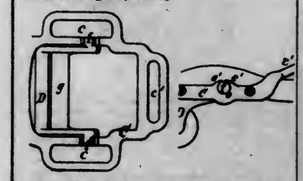
An eye-shade provided with a skeleton frame, consisting of a body portion, passing around the head, and a crown portion passing over it, for supporting the shade on the head, substantially in the manner set forth.

182,688. TRACE-BUCKLES. Emmitt G. Lobte, Friendship, assignor to Byron C. Smith, Auburn, N. Y. [Filed Sept. 7, 1876.]



In a trace-buckle, the combination, with the tongue-plate D and bail B, of the buckle-frame C, having each of its side bars provided with two or more pivot-bearings or recesses, *e e'*, of different depths, to adapt the buckle to hold traces of different thicknesses, substantially as herein-before set forth.

182,689. TRACE-BUCKLES. Emmitt G. Lobte, Friendship, assignor of one-fourth of his right to Byron C. Smith, Auburn, N. Y. [Filed Aug. 24, 1876.]

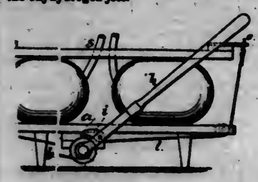


1. A trace-buckle composed of the main frame C, cast of malleable metal, and provided with recesses *e* and ears *c' c'*, and the tag-bail D, provided with pivots *f*, the parts being secured together, as herein shown and described.

2. The combination, with the buckle frame C, of the curved tag-bail D, pivoted thereto in the manner herein shown and described, and provided at the highest part of its curve with a cross-bar, *g*, bearing against the trace, as and for the purpose herein-before set forth.

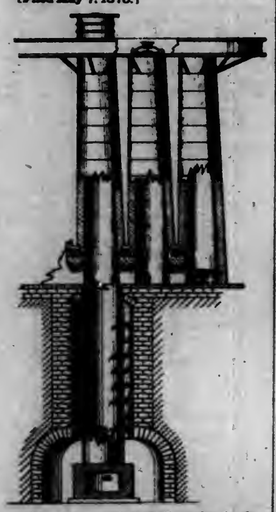
182,690. PRESSURE APPARATUS FOR GAS-BAGS. Grove H. Loomis, East Cambridge, Mass., assignor to H. and H. T. Anthony & Co., New York, N. Y. [Filed Sept. 22, 1876.]

Brief.—Two gas-bags are placed in position between the platen and follower. The lever operates the machinery, and winds the straps upon the shaft, and draws the follower toward the platen, thereby compressing the gas in the bags to whatever extent may be required for correctly supplying the flame at the oxyhydrogen jets.



The platen *a*, with the cross-shaft *e* beneath it, in combination with the ratchet-wheels *c* and *g*, pawls *f* and *i*, lever *h*, straps *l*, and follower *c*, the parts being constructed as set forth, and adapted to receive and compress the gas-bags of an oxyhydrogen light, substantially as set forth.

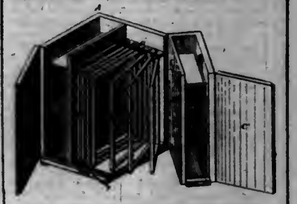
182,691. MANUFACTURE OF IRON AND STEEL DIRECT FROM THE ORE. William A. Lyttle, The Grove, Hammersmith, England. [Filed May 7, 1875.]



1. The process, substantially as herein described, of producing pulverulent metal direct from ore by exposing bricks or lumps compounded of ore and agglutinating material to the action of hot gases or of flame, free from oxygen, such hot gases or flame being brought to bear upon the said compounded lumps in a common vertical blast-furnace shaft, by being forced upward among the lumps as a hot-blast from any convenient combustion-chamber or furnace, external to, but in air-tight communication with, the bottom of such blast-furnace, as and for the purposes described.

2. The process, substantially as herein described, of producing steel direct from iron ore or from pulverulent iron, by exposing lumps compounded with carbonaceous matter and powdered iron ore, or with carbonaceous matter and pulverulent iron, to communication by means of heat imparted to the lumps by means of a non-oxidizing flame forced through them in the common vertical blast-furnace shaft, and fusing the same after cooling, and after the perfect removal of all redundant carbon by the winnowing-blast, by compounding the pulverulent steel with fluxes, as described, and effecting the fusion by flame, in a common vertical smelting-furnace, such flame being supplied in the manner described.

182,692. BEE-HIVES. V. D. Manahey, Manchester, Md. [Filed June 21, 1876.]



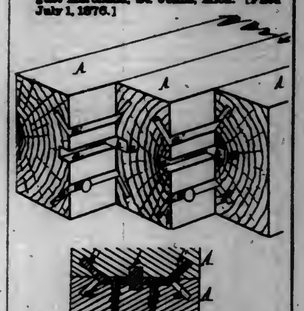
1. The hive-box A, consisting of stationary box A'' O and hinged swinging box A', having removable top or cover B, rear doors O O', bee-entrance *a*, and ventilating perforation *f*, substantially as and for the purpose herein shown and specified.

2. The box A'' O, containing honey-boxes F and swinging comb-frames D, in combination with hinged box A', arranged to swing aside, so as to permit frames D to open sidewise, substantially as and for the purpose hereinbefore set forth.

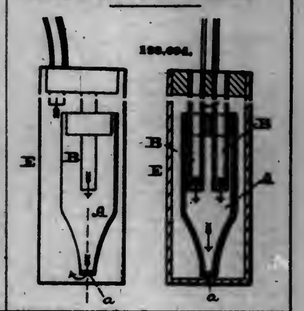
3. The hinged boxes A' A'', having perforated partitions B B, in combination with the perforated honey-boxes F, kept in place by wedges I, substantially as and for the purpose herein-before set forth.

4. The bee-hive herein described, consisting of hinged boxes A' A'', having perforated partitions B, perforated honey-boxes F, kept in place by wedges I, shelf or bracket G, and swinging comb-frames D, all combined and arranged to operate substantially in the manner and for the purpose herein shown and specified.

182,693. RUNNING-TABLE SLIDES. August Marchand, St. Johns, Mich. [Filed July 1, 1876.]



The slip B, having the rib *b* and outwardly-turned ends *b' b'*, secured to the slide, having diverging grooves *a a' a'*, plowed in it, and adapted to enter corresponding grooves in an adjoining slide, substantially as described.

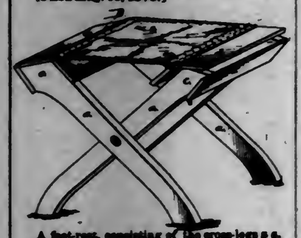


182,694. INFALERS. George I. McKelway, Philadelphia, Pa. [Filed June 14, 1876.]

Brief.—The two tubes through which the air enters pass over the ingredients to make the gas to be inhaled. Instead of opening at the lower ends into the wash-bottle, open into an interior inclosing-vessel, which interior vessel itself opens at its bottom into the wash-bottle proper.

The vessel A, with outlet *a*, and suspended tubes B, in combination with the surrounding vessel E and inhaling-tube or mouth-piece D, the upper or outer ends of said tubes B communicating with the atmosphere, but not with the vessel E, substantially as and for the purpose set forth.

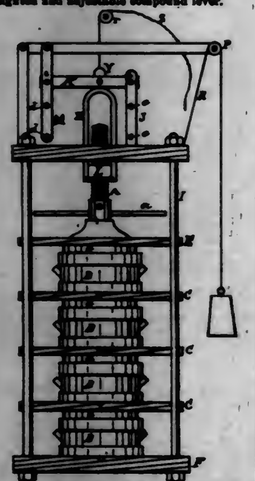
182,695. FOOT-REST. Edwin F. Merwick, New Haven, Conn., assignor to New Haven Folding Chair Company, same place. [Filed Aug. 16, 1876.]



A foot-rest, consisting of the cross-legs *a a*, top *b*, and receptacles D D, the latter being formed by the side *c*, lid *d*, and upper extremities of the legs *a a*, as and for the purpose set forth.

182,696. CHEESE PRESSES AND HOOPS. H. W. Miller, Utica, N. Y. [Filed May 18, 1876.]

Brief.—A hoop and inner ring lie beneath each of a vertical series of followers, pressed by a screw working in a nut held down by a weighted and adjustable compound lever.



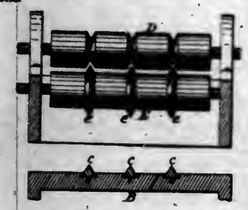
1. The cheese-hoop herein described, consisting of solid outer hoop B, having inside slitting ring G, substantially as and for the purpose shown and specified.

2. The press-boards C, having recesses *c* on one or both sides, in combination with the cheese-hoops B, having sliding rings G, substantially as and for the purpose herein shown and specified.

3. The combination of the upper press-board E, adjustable as to height by the screw A, bail Z having nut L, upright J having perforations *e*, lever K, and arm M having perforations *d*, with the press-boards C having recesses *c*, and cheese-hoops B having sliding rings G, substantially as and for the purpose herein shown and specified.

182,697. WOOD-MOLDING MACHINES. N. M. Miller, Moline, Ill. [Filed Jan. 10, 1876.]

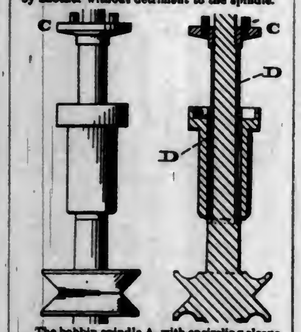
Brief.—The bed of a planing-machine is provided with parallel guides, corresponding in section with the section of the stuff to be worked. A similar conformation of the feed-rolls.



The bed B provided with parallel guides C, in combination with the feed-rolls D and E, constructed as described, and for the purpose set forth.

182,698. SPINDLES FOR SPINNING-FRAMES, &c. Henry Myers and Abraham Vansandt, Upper Darby, Pa. [Filed Aug. 17, 1876.]

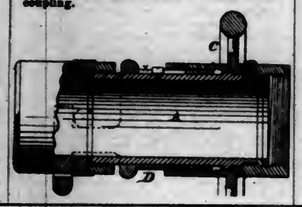
Brief.—The spindle is partly reduced in diameter, and there re-enforced or protected by an encircling sleeve, which is placed on and rigidly secured to the spindle, between the shoulder formed by reducing its diameter and the bobbin-rest, whereby the wear occasioned by contact with the bolster falls on the said sleeve, which can be replaced, when worn out, by another without detriment to the spindle.



The bobbin-spindle A, with encircling sleeve D locked therewith, in combination with the locking bobbin-rest C, substantially as and for the purpose set forth.

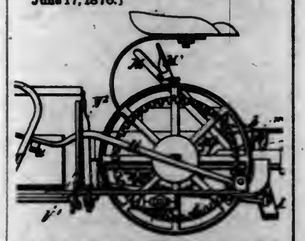
182,699. HOSE-CONNECTIONS FOR FIRE-ENGINES. Patrick H. Owens, Toledo, Ohio. [Filed Sept. 16, 1876.]

Brief.—The coupling is composed of four pieces. A collar is secured upon one end to hold the wheel-nut in place. The sleeve is provided with hooks to receive the hose-coupling. The wheel-nut draws the coupling up to form the joint upon the packing in the hose-coupling.



The combination of the cylinder A, exterior sliding sleeve D, with cinch or hooks E E, and the swivel-nut C, substantially as and for the purposes herein set forth.

182,700. HARVESTERS. John Peterson and Andrew Thorson, St. Peter, Minn. [Filed June 17, 1876.]



1. In combination with hinged jaws T T and internally-geared wheel B', hinged arm U, provided with plate T', and with tooth *a'*, substantially as set forth.

2. Swinging notched plate V', in combination with lever-arm U, and with devices, substantially as set forth, for tripping said plate.

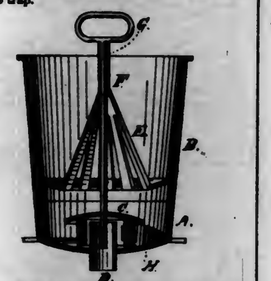
3. The combination of stud X on arm P with bent arm W, and devices connecting the same to swinging notched plate V', substantially as set forth.

4. The box composed of shield D', steps or platforms S S', and sides *s s'*, in combination with compressing-arms T T and operating-lever T, substantially as described, and for the purpose set forth.

5. A harvester provided with jaws T T, which are adapted to automatically raise and hold the straw that is raked into them, substantially as and for the purpose set forth.

182,701. SLOP-TRAPS. James D. Pierce, Milwaukee, Wis., assignor of one-half his right to John R. Smith, same place. [Filed Apr. 6, 1876.]

Brief.—The cap over the drain-pipe has a wing attached to it to form a scraper, for stirring up sediment collected on the bottom of the trap.



1. Bottom A, top B, slatted portion E in top B, and tube F, in combination with cover C and handle G, substantially as specified.

2. Cover C, wing H, and rod G, in combination with bottom A and pipe D, substantially as specified.

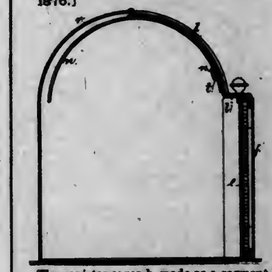
182,702. BALE-TIES. Erastus B. Pierce, Cuyahoga Falls, assignor of one-half his right to J. B. Blakeslee, Cleveland, Ohio. [Filed Sept. 30, 1876.]



1. A hook for a bale-tie or other purpose, constructed of a strip of suitable metal by folding the sides of said strip for a short distance from one end longitudinally on a line midway between the edges, bending the metal downwardly into the shape of a hook, and then forcing the sides closely together, substantially as described.

2. The tongue formed at the outer end of the eye of a bale-tie, capable of being closed inwardly toward the hook to lock it in position, substantially as described.

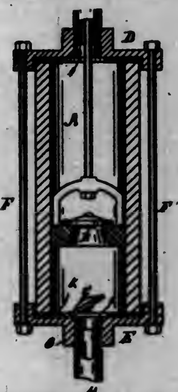
182,703. CANISTERS. James H. Frazier, Brooklyn, assignor to Wright Gillies & Brother, New York, N. Y. [Filed Aug. 26, 1876.]



The canister-cover *k*, made as a segment of a cylinder of sheet metal, with fingers *i* on the under side, in combination with the canister, having a segmental top, *r*, and the segmental flanges *n*, attached to the inner surfaces of the canister sides, and described from a different center to the top *r*, as set forth.

182,704. PUMPS. Lafayette D. Ballsbach, Indianapolis, Ind. [Filed Aug. 10, 1876.]

Brief.—A stone or baked-clay cylinder is provided with iron flanges at the top and bottom, which are united together by means of bolts. The flanges at top and bottom are provided with screw-threads, to which are attached iron pipes, such as are used in driven wells.



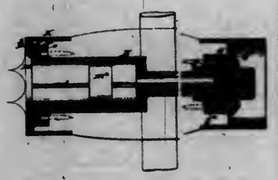
The combination, in a pump having a stone, baked-clay, or glass cylinder, A, in which operate suitable valves B C, as shown, of the iron pipes H G, secured to said cylinder by means of iron flanges D E, said flanges being provided with screw-threads to receive the pipes, and united together by bolts F F', all arranged in the manner and for the purposes set forth and described.

182,705. SPRING BED-BOTTOMS. Samuel H. Reeves, Brooklyn, N. Y. [Filed Mar. 8, 1876.]



The combination of a bottom frame-work, spiral or helical springs secured thereto, and arranged in transverse rows, so that those forming one row are opposite the spaces in the adjacent rows, a resting-surface composed of a series of independent longitudinal slats, secured alternately at different sides to the top coils of springs in alternate rows, and flexible cross-stays secured to the outside longitudinal slats by rivets, and clamped against the intermediate longitudinal slats by the springs themselves, substantially as and for the purpose herein set forth.

182,706. VEHICLE-AXLES. Benj. F. Richardson, Cincinnati, Ohio. [Filed July 25, 1876.]



1. The tightening-plate G, with two chambers, *g g'*, substantially as and for the purpose specified.

2. The deep annular chamber *m'* of the axle-arm M, substantially as and for the purpose specified.

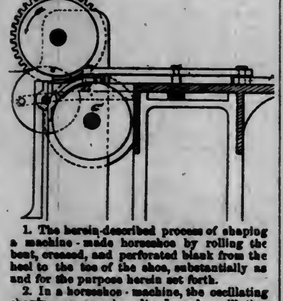
3. The box E and flanged band K *k*, having beveled faces *e' k'*, substantially as and for the purpose specified.

4. The collar *m*, having the groove *m'*, substantially as and for the purpose specified.

5. The nut H, having on its inner face the groove *h*, substantially as and for the purpose specified.

6. The two-part nut H *h' h''*, constructed substantially as and for the purpose specified.

182,707. HORSESHOE-MACHINES. Jacob Russell, Newark, N. J., and L. G. Claude, New York, N. Y. [Filed Aug. 19, 1876.]



1. The herein-described process of shaping a machine-made horseshoe by rolling the bent, creased, and perforated blank from the heel to the toe of the shoe, substantially as and for the purpose herein set forth.

2. In a horseshoe-machine, the oscillating shaping or pressing die J, and oscillating bending-die G, and the reciprocating and laterally-operated shaping or bending lever, the whole combined and arranged for bending the blank and rolling the same from heel to toe, substantially as and for the purpose herein set forth.

3. In a horseshoe-machine, the oscillating bending-die G, arranged and operated to be stationary during the bending of the blank around it, in combination with the pressing or shaping die J, arranged to have a movement coincident with that of the bending-die, and the bending rolls or benders *c*, the whole arranged for joint use and operation, substantially as and for the purpose herein set forth.

182,708. STIRRUPS. Ransom Sabin, Shelby, Mich., assignor to himself and Jno. Magee, same place. [Filed July 22, 1876.]

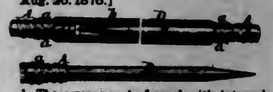
A stirrup open at top and side, and provided with a bar and tongue, pivoted to the side flanges at upper end to receive the supporting-strap, substantially as specified.

182,709. CORK-EXTRACTORS. John S. Saunders, Princeton, Cal. [Filed May 9, 1876.]



A cork-pull or ball consisting of an inelastic strip or ribbon, *b*, attached to the cork or stopper A by being passed through the body of the cork, and having its ends connected above the cork so as to form a ball, substantially as above specified.

182,710. PENCIL AND ERASER HOLDERS. Philip Schreg, New York, N. Y. [Filed Aug. 26, 1876.]

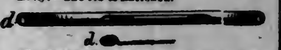


1. The screw-cap A, formed with internal and external screw-threads, in combination with the receiver D, having the internal screw-thread *c*, said screw-cap being constructed to receive a rubber or pencil, B, as herein shown and described.

2. The combination of the receiver D, composed of a paper tube, *b*, and provided with short metal tubes *c*, having internal screw-threads, with the externally and internally threaded screw-caps *a*, screwed to a pencil or eraser, substantially as described.

182,711. FLOOR-PROTECTORS FOR STOVES. Fredk. J. Seymour, Wolcottville, Conn., assignor to himself and Phelps, Dodge & Co., New York city. [Filed Aug. 21, 1876.]

Brief.—The rib is flattened.



The floor-protector for stoves, having a rib around the edge of the sheet metal, double in the top part and outer edge of the rib, and the surface of such rib ornamented by embossing, substantially as and for the purposes set forth.

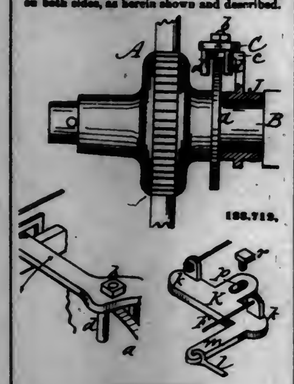
182,712. HORSE-RAKES. Dennis P. Sharp, Ithaca, N. Y. [Filed Aug. 22, 1876.]

1. In a horse-rake, the combination, with the rim *a* and tooth-supporting bar G, of the rocker O, provided with the pins *d d*, embracing the rim, and an arm, O', extending through a loop or bearing of the bar, the whole so arranged that the rocker serves the double purpose of clamping the rim and elevating the bar, as herein shown and described.

2. In a horse-rake, the combination, with the rim *a* and rocker C, of the collar *J*, serving as the bearing for the rocker and turning loosely on the axle to prevent cramping or binding, as herein shown and described.

3. In a horse-rake, the combination, with the rim *a* and teeth supporting bar G, of the rocker C C' and turning collar J, as and for the purposes specified.

4. In a horse-rake, the combination, with the rockers C C' and connecting-rods F F, of the crank-elbow K, provided with the slot *p* for allowing lateral adjustment of the elbow on its pivot to equalize the clamping action on both sides, as herein shown and described.



188,713.

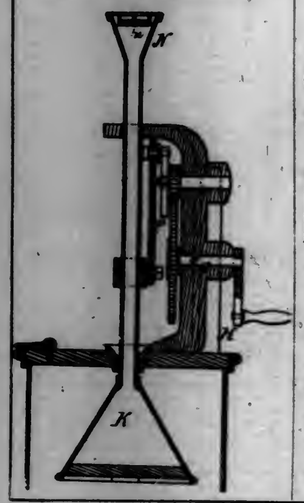
188,713. HYDRAULIC CEMENT. A. W. Shaw, Saccarappa, Me. [Filed Oct. 26, 1875.]

Brief.—Cuprolite or lime-producing rock is crushed, and from twenty to forty per cent. of clay added. Water at 120° Fahrenheit being mixed therewith, the whole is ground, passed over sieves, and allowed to settle. It is then dried on plates and calcined.

1. Hydraulic cement, made from clay and cuprolite lime, substantially in the manner described.

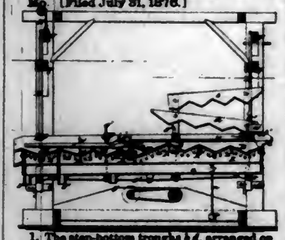
2. The process, substantially as herein described, of making hydraulic cement from clay and rocky or cuprolite lime.

188,714. CHURNS. Edward T. Slayton, Berlin, Wis. [Filed May 6, 1876.]



The churn herein described, consisting of the case having the close-fitted lid B, the exit-pipe H projecting upward therefrom, the operating gear, and the hollow metallic dash-rod having at its upper end the inverted conical valve-seat N, and valve *n*, and at its lower end the imperforate conical concave beater K, substantially as specified.

188,715. MIDDLINGS-SEPARATORS. Edwin Slagle and John McC. Graham, Albany, Mo. [Filed July 31, 1876.]



1. The step-bottom troughs *b d*, arranged on and shaking with the bolt-frame, as shown and described, to cool and granulate the unbolted flour.

2. The combination of riddles N and *f*, the latter having the adjustable section *h* and the chute *g*, with the bolt, substantially as specified.

3. The combination of swinging knockers *k*, having a protecting substance of soft material, with the shaking bolt, substantially as specified.

4. The brake *n* and weighted adjusting-cord *o*, combined with the swinging knockers, substantially as specified.

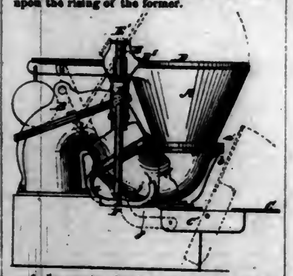
5. The flexible hangers E, connected to the bolt by detachable connection with bars *t*, and secured by buttons *u*, substantially as specified.

6. The combination of rod *f'* with the chute *g*, riddle *f*, and the bolt B, substantially as specified.

7. The combination of the vibrating tension-rods *s'* with the cloth B, arranged in wavelike form, substantially as specified.

188,716. WATER-CLOSETS. Wm. Smith, San Francisco, Cal. [Filed May 16, 1876.]

Brief.—The valve supplies water to the bowl and trap, but not at the same time, the trap being first in order. When the hinged seat is down, the valve becomes ready to act upon the rising of the former.



1. In a water-closet or urinal without pans or gates, the combination of a jet or jets for cleaning the basin, and the two jets *f g*, for ejecting the contents of the trap and basin, substantially as described and shown.

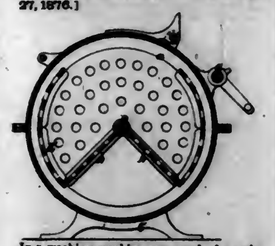
2. In a water-closet, the combination of the self-rising seat D and the swinging platform C, connected together by a lever or levers, when the said seat and platform are adapted to rise automatically, and to be lowered simultaneously, substantially as described and shown.

3. In a water-closet, the combination of the S-shaped trap B and the hand-hole and plate B', of equal area with the openings of the two arms of the trap, substantially as described and shown.

4. The basin A, with the curved lip or inlet A', constructed to enter the trap B, as described and shown.

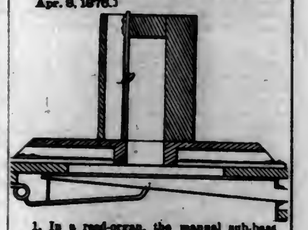
5. The combination and arrangement, with the valve B, for water-closets, of the pipes F F' and jets *f g*, constructed and applied as shown and described.

188,717. WASHING-MACHINES. Hamilton H. Smith, New York, N. Y. [Filed Apr. 27, 1876.]



In a washing-machine composed of a suds-jacket, and of a clothes-drum having an oscillating motion in said suds-jacket, the radial partition *b* in the clothes-drum, substantially as and for the purpose shown and described.

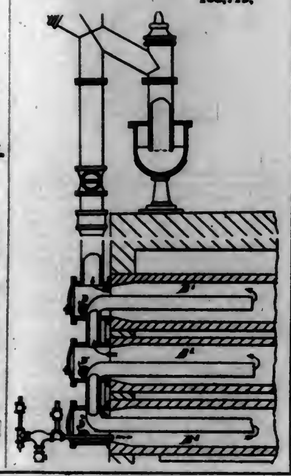
188,718. SUB-BASS ORGAN REED-BOARDS. John A. Smith, North East, Pa. [Filed Apr. 8, 1876.]



1. In a reed-organ, the manual sub-bass reed-board, combined with and arranged directly over the reed-valves of the ordinary reed-board, substantially as and for the purpose herein set forth.

2. In a sub-bass reed-board for organs, combined with and arranged directly over the reed-valves of the ordinary reed-board, the cells or resonant sound-chambers *a*, arranged to alternate front and back, as shown and described, and for the purpose set forth.

188,719.



188,719. GAS-ENRICHING APPARATUS. H. Stacey, Indianapolis, Ind. [Filed Mar. 20, 1876.]

Brief.—Water-gas is produced in one set of retorts, and conducted into another set, where it meets other poor gas and hydrocarbon vapor blown in by a steam-jet. The mingled gases are then conducted through hot retorts to make a fixed gas. The pipes connecting a lower with the next upper retort extend to near the back end of each, to furnish an extended heating-surface. The valves in the connecting and stand pipes permit the gas to be conducted through all the retorts, or direct to the main from any one retort.

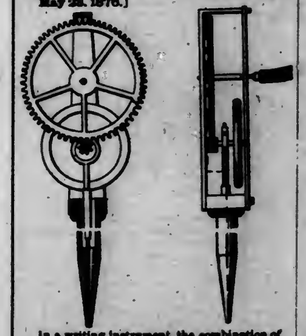
1. In an apparatus for enriching gas, the combination of retorts B' B'' B''' and the pipes B E', said pipes extending from the rear end of retort B' to the rear end of the next retort B'' above, and from the front of retort B' to the rear end of retort B'' above, for the purpose of conducting the gas made in one retort to the other, in the manner shown, and presenting an extended heating-surface, and the single stand-pipe C, arranged with valve D', to operate in the manner specified and set forth.

2. In an apparatus for enriching gas, the retorts B' B'' B''', connected with the retorts B'' B''' B'' by pipes and valves D D' D'', and the retort B'', connected with retort B' by means of pipe F and valve D', in the manner shown, for the purpose set forth and described.

3. In an apparatus for enriching gas, the combination of the pipes P and P', said pipes extending from the rear end of retort B' to the rear end of retort B'', and from the front end of retort B'' to the rear end of retort B', arranged to operate in the manner specified and set forth.

4. In an apparatus for enriching gas, the combination of retort B'', or upper retort on one side of the bench, and retort B', or lower retort on the other side of the bench, and pipe F and valve D', arranged to operate in the manner shown, for the purposes set forth and described.

188,720. PUNCTURING WRITING IMPLEMENTS. Edward Stewart, Fort Madison, Iowa, assignor to himself, Jos. A. Smith, and George H. Schafer, same place. [Filed May 29, 1876.]



In a writing instrument, the combination of a mechanical driving apparatus, a flexible rotating spring, and a hollow handle with a puncturing writing-pen, substantially as and for the purpose set forth.

188,721.



188,721. FEATHER-RENOVATORS. Edward Stewart and Edwin D. Smith, Fort Madison, Iowa. [Filed Sept. 5, 1876.]

Brief.—The position of the apparatus is regulated by means of the semicircle. The cap is affixed to the perforated cylinder, and thus removed together.

1. A feather-renovator with frame H, and perforated semicircle E', for the purpose set forth.

2. In a feather-renovator the inner meshed cylinder C, with a rigid head or cover, G, substantially as and for the purpose set forth.

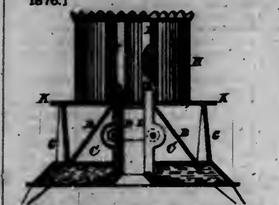
188,722. TRIMMINGS. August Sturm, New York, N. Y., assignor to Roberts Manufacturing Company, same place. [Filed Sept. 20, 1876.]



1. The method described, of making ornamental ruffling, consisting in first uniting with the plain fabric one or more threads laid on, and extending longitudinally of the portion of the fabric to be ruffled, and then ruffling or plaiting said fabric, as set forth.

2. As a new article of manufacture, the ruffling made by the method comprehended in the foregoing claim, substantially as set forth.

188,723. COAL-OIL STOVES. Richard F. Tallman, Freeport, Ill. [Filed Sept. 28, 1876.]



The case H, provided with tubes I I, supported upon the plate K and posts G, in combination with the two wick-tubes D D, hollow oil-base A, and water-chamber C, all substantially as and for the purposes herein set forth.

188,724. PAPER-BARREL MACHINES. Israel B. Taylor, Port Byron, N. Y. [Filed June 4, 1876.]



1. The method of manufacturing bilge-barrels from paper-pulp, which consists in removing the paper-pulp from the vat to an endless cesuve belt, and said belt carrying it to a convex former, substantially as described.

2. In a machine for manufacturing bilge-barrels from paper-pulp, an endless cesuve belt, in combination with a pulp-sieve, substantially as and for the purpose set forth.

3. In a machine for manufacturing bilge-barrels from paper-pulp, an endless cesuve belt, in combination with an adjustable collapsing former, substantially as and for the purpose set forth.

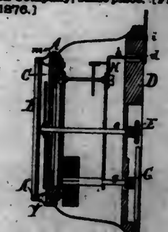
4. The combination, substantially as herein before described, of a reversible convex sieve, an endless cesuve belt, and a collapsible former, substantially as and for the purpose set forth.

5. In a machine for manufacturing bilge-barrels from paper-pulp, the pivoted arms E, carrying weighted roller B, in combination with the reversible convex sieve, substantially as described.

6. An endless belt or apron, having a central fullness, substantially as shown and described.

7. The combination of an endless carrying-belt, having a central fullness, with concave or convex and supporting rolls, substantially as described.

188,725. CLOCK-CASES. Seth E. Thomas, New York, N. Y., assignor to Seth Thomas Clock Company, same place. [Filed Sept. 26, 1876.]



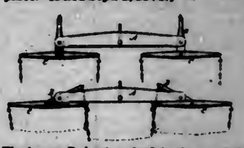
1. The clock-case represented, having a general truncated conical form, with front legs M M performing the double function of confining means for the fixed end of legs to hold the clock upright, as herein specified.

2. The construction of the casing with the open ring A and its turned-in front rim A', glass B, mat or distance-ring Y, and door C, so that the fastenings M *n* confine and release the whole, as herein specified.

3. A clock-case having the ring A and thick back D, with the attached casting-button E and winding-handle G recessed therein, as herein specified.

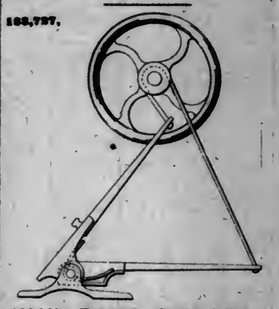
4. In combination with the clock-case A and time-adjusting lever H A, the pivoted plate I, provided with an engaging-ring, J, adapted to perform the two functions of removably covering the regulating-slot and of forming a suspension-ring for the clock, as herein specified.

188,726. DRAFT-EQUALIZERS. Francis W. Thomson, Yates City, Ill., assignor of one-half his right to William D. Aley, same place. [Filed Sept. 2, 1876.]



The levers B, having draft-hooks on their free ends, and pivoted to the single-trees C C, and between the two parts A' A'' of the double-tree A, the whole arranged for operation as a two or three horse equalizer, substantially as specified.

188,727.



188,727. TREADLES. Charles N. Trump, Samuel N. Trump, and Christn. Frederick, Wilmington, Del. [Filed Oct. 3, 1876.]

Brief.—The pedal with an extended rod, and another rod of equal length, are both pivoted to the treadle-support, with a spiral

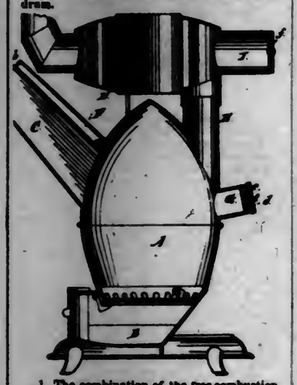
spring acting in opposite directions. The end of each bar attached to it the end of a cord passing over the pulley.

1. In a treadle mechanism, the arms or rods J and K, held apart when at rest, and when in operation moving in opposite directions and transmitting continuous rotary motion in one direction to a wheel or pulley by a single cord or strap, connecting the ends of the arms and passing over the wheel or pulley.

2. The method of imparting continuous rotary motion in one direction to light machinery by a cord or strap passing over a grooved or plain hub or wheel from a treadle, constructed substantially as described.

182,720. HOT-AIR FURNACES. J. R. Walls, Chicago, Ill. [Filed Mar. 6, 1876.]

Brief.—An air-inlet and stoking opening opposite the discharge end of the magazine. An opening from top of dust-flue to interior of drum.



1. The combination of the fire combustion-chamber, external magazine C, and exit-flue E, the two latter arranged on opposite sides of the chamber, and opening directly into it at the sides thereof, some distance below the top, and on nearly the same level, substantially as and for the purpose set forth.

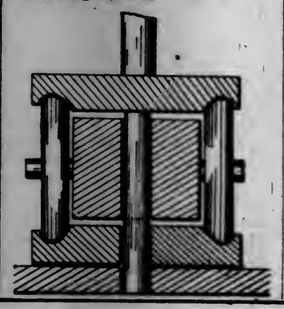
2. The combination of the external magazine C and external air-flue F, opening directly into the combustion-chamber, constructed and arranged substantially as described.

3. The combination of the external magazine C, external draft-flue F, perforated plate a, and slide or damper b, substantially as and for the purpose described.

4. The combination of the fire-pot A and stoking-door G, arranged opposite the opening of the fuel-magazine, and provided with a register draft-door, c, and perforated plate d, substantially as and for the purpose set forth.

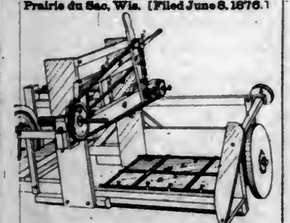
5. The combination of the ash-pit B, dust-pipe K, back-pipe I, drum H, and exit-flue, all arranged substantially as described, and for the purpose set forth.

182,729. ANTI-FRICTION-BEARINGS. James Warren and Geo. Wilkes, Monroe, Iowa. [Filed Aug. 21, 1876.]



The combination, with a shaft, of rollers, having semi-ovate acuminate peripheries and plates, whose groove is a cross-sectional involute, as shown and described, for the purpose of forming an anti-frictional bearing where there is end thrust.

182,730. HARVESTERS. John Werner, Jr., Prairie du Sac, Wis. [Filed June 8, 1876.]



1. The combination of the main frame, cogged standard a, having a series of holes, main axle b, pinion b', and fastening-bolt a', inserted laterally into the free space between two cogs of the pinion b', substantially as and for the purpose set forth.

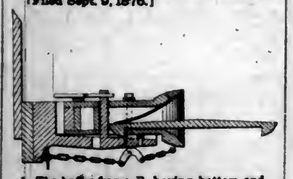
2. The combination of the main wheel B, constructed with a square shank or nut on one end of the hub, the main axle b and the pinion b', having a similar shank or nut on its inner face, substantially as and for the purpose set forth.

3. The combination of the sliding journal-box F, connecting-rod f, lever I, sprocket-wheels e and n, driven chain e', and pulleys i i, both on the lever I, substantially as and for the purpose set forth.

4. The combination of the sliding box F, connecting-rod f, having a screw-thread on one end, lever I, and threaded nut i' on said lever, substantially as and for the purpose set forth.

5. The combination of the slotted platform L, sprocket-chains M, plain slats m, and sprocket-wheels n on shafts N, all arranged, so that the chains run in the slots of the platform, and the slats are carried above the upper surfaces of the latter, substantially as described.

182,731. CAR-COUPLINGS. Geo. W. Whittington, Xenia, Ohio, assignor to John F. Martin and Wm. M. Oglesby, same place. [Filed Sept. 9, 1876.]



1. The buffer-frame B, having bottom and sides, and open at the top, and provided with vertical side flanges b b at its inner end, bolted to the car, substantially as herein set forth.

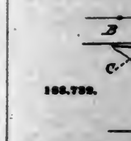
2. The draw-head, having buffer-frame E, with cross-bars E E, draw-bar C, with cross-bars D D, having interposed spring G, and springs d d under the front of the draw-bar, substantially as and for the purposes herein set forth.

3. The combination of the buffer-frame B, having a slot in its bottom, the sliding buffer C, the L-shaped slide I, crank H, and operating-lever, and the draw-bar J with rounded hooks h on its ends, all constructed substantially as and for the purposes herein set forth.

4. The combination of the draw-head C with its front end resting on springs d d in the buffer-frame B, the chain m, elbow-lever N, chain n, and shaft O, with hand-wheel, pawl, and ratchet, substantially as and for the purposes herein set forth.

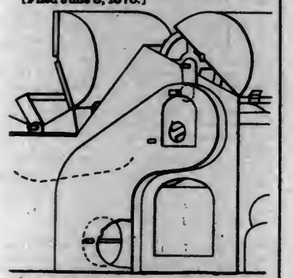
182,732. RAILWAY-COVERS. Isaac H. Whitmore and Richard Butler, Marshall, Mich. [Filed June 2, 1876.]

A transferable barrel-cover, composed of the hinged sections A B, clamps C C, consisting of jaws h f, and screw D, as herein described and set forth.



182,733.

182,735. COTTON OPENERS AND LAPPERS. Wm. E. Whitehead, Miles Platting, England, and Abel T. Atherton, Lowell, Mass. [Filed June 8, 1876.]



In a machine for opening and cleaning cotton, the combination of a leaf-chamber, situated directly below the bottom cage-cylinder, an exhaust-fan, situated at one side of the leaf-chamber, and separated therefrom by an imperforate partition, and a dust pipe or pipes, extending obliquely from the end or ends of the cage-cylinder to the fan-chamber, substantially as and for the purpose herein specified.

182,736. BURGLAR-ALARMS. Carmi H. Williams, Chicago, Ill. [Filed Feb. 15, 1876.]

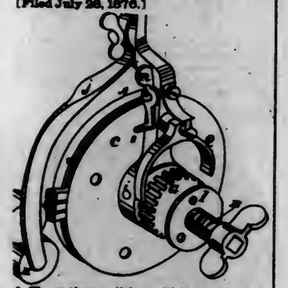
Brief.—The movable latch is placed in the crack of the door, and the case so adjusted that an attempt to open the door will press in a pin, by which the alarm mechanism is released and an alarm sounded.



1. The sliding latch c, in combination with a slotted base, b, so that the latch can be reversed, substantially as described.

2. The pin d, in combination with the latch c and base b, substantially as set forth.

182,785. HAND PRINTING-WHEELS. Robt. T. Williams, Victoria, British Columbia. [Filed July 26, 1876.]



1. The stationary disk A, with its fixed screw-shaft B, and having the V-shaped ridge c, in combination with the movable disk C, with its corresponding V-shaped groove d' and square-shouldered ridge f, and the binding-nut G, substantially as and for the purposes described.

2. The type-holding disks A C, arranged to be clamped together by the nuts G and e, and having the springs p p secured between them, for the purpose specified, substantially as set forth.

3. The adjustable disks A C, adapted to be used without the type as a book-binder's fillet, substantially as above specified.

4. In combination with a printing-wheel having one fixed and one movable disk for clamping the types, the nut G, one half of which forms a bearing for the ring on the handle, and the two-armed pawl G, substantially as and for the purposes specified.

5. The stops f' upon the inside opposite faces of the two clamping-heads for the types to abut against when being tightened up spirally, substantially as specified.

6. The thumb-pawl E, arranged upon the handle, in combination with the loose nut G, screw B, and disk A, substantially as and for the purpose set forth.

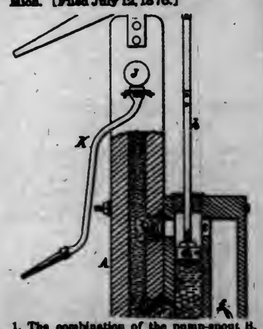
182,786. RATCHET-WRENCHES. Robert R. Wilson, New Orleans, La. [Filed Aug. 22, 1876.]

Brief.—Constructed for operation in situations where the nut is partially and closely inclosed.



The compound two-way ratchet-wrench, composed of a recessed and tipped base-plate, of a cap-plate of a wheel, B, having bearings on the base and cap-plate, an intermediate ratchet-flange and peripheral jaws, with a peripheral opening between two or more of the jaws, and of a spring-actuated two-way pawl, substantially as shown and described.

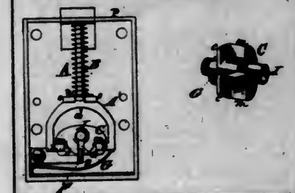
182,787. PUMPS. Warren Wing, Winn, Mich. [Filed July 12, 1876.]



1. The combination of the pump-spout B, cap J, with nozzle i, hose K, and staple m, all substantially as and for the purposes herein set forth.

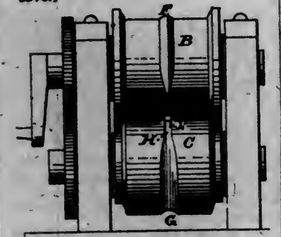
2. The combination, with the pump-stock A, having opening n, of the hinged valve L, with projecting arm p, and the adjustable weight P, substantially as and for the purpose herein set forth.

182,788. LOCKS FOR DOORS, &c. George A. Winslow and George W. Gilbert, Detroit, Mich. [Filed June 20, 1876.]



The bolt A, provided with the yoke A', having opening d and inwardly-projecting ends b b, recessed at a a, in combination with the tumbler C, having the recesses m m, flanges a a, slot G, and key-barrel I, and the springs B B F, substantially as described, and for the purpose set forth.

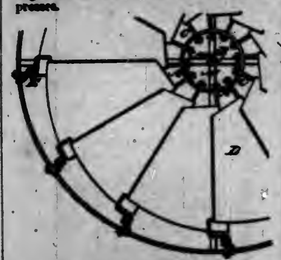
182,789. MACHINES FOR ROLLING BLANKS FOR SOCKETS FOR OIL-WELL RODS. Levi Yakel, Allegheny, Pa. [Filed Sept. 20, 1876.]



In combination with a suitable frame, the roller B, provided with the tapering die F, and the roller C, provided with the matrix G and connecting groove H h', substantially as set forth.

182,790. WEDMILLS. Michael C. Young, El Paso, Ill. [Filed June 24, 1876.]

Brief.—The blades or wings are pivoted by one edge to radial bars, in the usual manner. The springs, which operate to force the blades down by pressing on the back thereof, are wound around the arms or rods, and attached to the rim. Each of these springs is also provided with an arm, which stands at right angles to the blade, against which the spring presses.



1. The combination of rod C with blade D and spring E, provided with extension or arm e, substantially as set forth.

2. A series of blades, D, in combination with springs E and extensions e, whereby all the blades are held partly open at all times, and all the springs re-enforce one another, substantially as set forth.

REISSUES.

7,856. MACHINERY FOR FORMING STIFFENERS FOR BOOTS AND SHOES. Louis Cote, St. Hyacinthe, Quebec, Canada. Patent No. 147,906, dated Feb. 24, 1874; reissue No. 5,806, dated June 2, 1874. [Filed July 31, 1876.]

1. The combination, with the continuously-moving former b', of the stationary die or mold C, formed to impart both end and peripheral compression to a counter-blank inserted between the former and die, substantially as and for the purpose set forth.

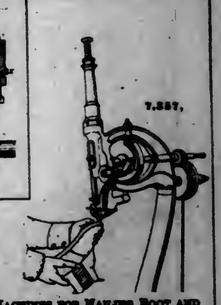
2. The combination of the shaft B, the rotary head b', the mold c, and the elastic cushion D, supported on a bed or plate, a.

3. The combination of the rotary shaft B, head b', the mold c, elastic cushion, the support-plate a, bar c', and adjusting-screws c', all being substantially as explained.

4. The process of forming and setting heel stiffeners or counters for boots and shoes, consisting in subjecting the blank to compression between a continuously-moving former and a stationary die, whereby both rolling and molding action is obtained at one and the same operation.



7,856.



7,857.

7,857. MACHINES FOR NAILING BOOT AND SHOE SOLES. Louis Godin, Boston, Mass., assignor, by mesne assignments, to the American Cable Screw Wire Company. Patent No. 122,277, dated Jan. 2, 1872. [Filed Sept. 11, 1876.]

1. The sleeved hand-lever E, provided with a stop-arm, w' v', in combination with the feed mechanism, consisting of the double-crank ratchet-shaft n' m' o', pawl l', the loose feed-wheel K, and the feed-operating cam q' on the operating-shaft, said sleeved lever being loose upon the fixed arbor for independent adjustment, to vary the feed of the wire and the length of the nail or tack cut therefrom, as herein set forth.

2. The sleeved hand-lever E, provided with an arm, v', and having an independent adjustment in relation to the feed double-armed shaft n', in combination with adjustable stops o' b' of the frame and the feed mechanism, for the purpose stated.

3. The combination, with the sleeved hand-lever E, provided with the stop-arm w', and having an independent adjustment in relation to the feed-shaft n' of the presser-spring s', acting upon the sleeve-arbor t' of said shaft, and the adjusting-screw y', to hold the lever and its stop-arm w' in its adjustment with respect to the feed ratchet-armed shaft m' n' o', and the cam q', as herein set forth.

4. The combination, with the transferrer L, its shaft n, connecting-arm m, and operating-cam l, of the brake-wheel k a', to prevent the cam q' from being carried beyond its proper action by its momentum.

5. The combination, with feed mechanism and its operating-cam q', of the brake-wheel k a' upon the operating-shaft, as and for the purpose stated.

6. The combination, with the brake cam-wheel k, the transferrer L, and the fasting devices, of the friction-brake a', its spring b', and adjusting-screw c', for the purpose stated.

7. The oscillating transferrer L, arranged between the nose-guide B and the driver c, and combined therewith and with the cutters and the wire-guide e, for operation as described.

8. The combination, with the feed-wheel K, the roll K', and the fixed wire-guide e, of the fixed guide i, arranged in relation to these parts, as and for the purpose described.

9. The friction-brake a' and the brake cam-wheel k, in combination with the gears F d, ratchet-wheel f, reciprocating pawl g, and treadle-rod i, applied to the operating-shaft E, as and for the purpose set forth.

10. The sleeve-arbors b' t' of the frame, in combination with the feed-wheel K, the sleeved lever E, and the double-armed ratchet-shaft n', constructed and arranged for operation as herein set forth.

11. The nose B, projected from the end of an upwardly-inclined bar, B', and having the level face b' and the vertical passage a, constructed and combined for use with the head and transferrer, as herein set forth.

7,858. MACHINES FOR NAILING BOOT AND SHOE SOLES. Louis Godin, Boston, Mass., assignor, by mesne assignments, to the American Cable Screw Wire Company. Patent No. 122,277, dated Jan. 2, 1872. [Filed Sept. 11, 1876.]

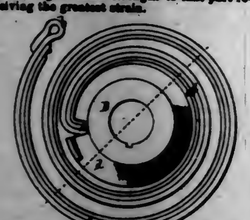
In a machine for driving tacks or nails in the soles of boots and shoes, the combination, with the tack or nail, feeding, cutting, and driving mechanisms, of treadle-power mechanism for operating these elements, and an unobstructed guide-nose tube adapted to receive a boot or shoe at the hands of an operator, all substantially as and for the purpose described.



7,860.

7,860. DEVICES FOR PREVENTING BACKLASH IN MACHINERY. John A. Kelner, Philadelphia, Pa. Patent No. 182,481, dated Oct. 3, 1876. [Filed Oct. 11, 1876.]

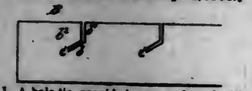
Brief.—The loop in the outer end of the spring facilitates attaching the same to a casing. The hub is larger on one side than the other, to give extra strength to that part receiving the greatest strain.



1. The spring A, composed of two or more plates or leaves when made of varying thickness from the inner to the outer one, and having the loop *b* and hook *c*, as and for the purpose herein set forth.

2. The hub B, having central flange *d* and a notch for the hook *c* of the spring A, when said hub is constructed larger on one side of said flange than on the other, as and for the purpose herein set forth.

7,860. COTTON-BALE TIES. Jos. W. Petty, New Orleans, La. Patent No. 62,560, dated Mar. 5, 1867. [Filed Sept. 2, 1876.]



1. A bale-tie provided near each end with an oblique or inclined hooking-slot, adapted for hooking or clasping around a bale.

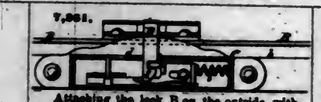
2. In a bale-tie, an inclined hooking-slot, communicating with the outer edge of the bale-tie band, for the purpose set forth.

3. The combination of the ends A B of an iron band, provided with slots *a a'* and *b b'*, substantially as set forth.

4. In an iron bale-tie having slots in its side that serve as hooks or clasps, the square inner end *c* of said slots, substantially as shown, and for the purpose set forth.

7,861. LOCKS FOR SATCHELS AND CARPET-BAGS. William Bonner, Newark, N. J. Patent No. 62,262, dated Dec. 26, 1866. [Filed Sept. 4, 1876.]

Brief.—The lock and catch are both outside of the frames, and in such a relation to each other and the edges of the frame that no strain comes on the lock, and the edges meet flush without cutting away either.



7,861.

Attaching the lock B on the outside, with the perforated face flush with the edge of one frame, for satchels and carpet-bags, in combination with a catch, D, attached to the other frame, operating together in the manner and for the purpose set forth and described.

7,862. PLUG-TOBACCO. Charles Stoller, New York, N. Y. Patent No. 183,604, dated Jan. 12, 1876. [Filed Apr. 20, 1875.]

Brief.—A solid metal plate, suitably inscribed, is pressed into the tobacco plug, and may be under the ultimate leaf wrapper.



1. A plug of tobacco having a hard label pressed into one of its faces, as specified.

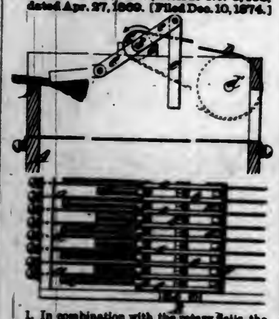
2. A plug of tobacco having a label under its ultimate wrapper, as specified.

3. A plug of tobacco having letters or other decorative and distinguishing marks produced on a hard metallic surface, and pressed, as specified.

4. The within-described method of marking plug-tobacco, by impressing a thick label into one of its faces, as specified.

5. The within-described method of marking plug-tobacco, by impressing a thick label into one of its faces, and covering it with the wrapper A', as herein specified.

7,863. THRASHING-MACHINE. Albert S. Whittemore, Williamantic, Conn., assignor to the Whittemore Threshing Machine Company, same place. Patent No. 74,660, dated Feb. 18, 1868; reissue No. 3,403, dated Apr. 27, 1869. [Filed Dec. 10, 1874.]



1. In combination with the rotary flails, the bearing F, for the support of the matter being threshed or opened, arranged at a point beyond the reach of the flails, substantially as and for the purpose herein described.

2. The threshing-machine constructed as described, the same consisting of a frame, A, having a bearing, F, shaft B, arms *c c*, and flails *d d'*, said bearing F being beyond the reach of the flails, substantially as herein described.

7,864. PRINTING-PAPERS. Geo. P. Gordon, Brooklyn, N. Y. Patent No. 94,111, dated Jan. 7, 1862. [Filed Nov. 10, 1876.]

1. A paper tympan-sheet, which can be unwound and wound up by means substantially as described, for the purpose of receiving the sheet to be printed from the feed-table, properly presenting the same to the form or types, and conveying the printed sheet from the form or types to the pile-table of the press.

2. The combination of the nippers, swinging levers F, supporting the rod U, fingers and vibrating platen, substantially as and for the purpose specified.

3. The combination of the swinging levers F, supporting the rod U, provided with the nippers, the rolling tympan-sheet, and the vibrating platen, substantially as and for the purposes specified.

4. The combination of the swinging levers F, supporting the rod U, provided with the nippers, with a vibrating feed-table, substantially as and for the purposes set forth.

5. The combination of a vibrating feed-table, with the fingers bent or curved from their ends, against which the sheet is laid, upward to the rod H', supporting them; substantially as and for the purposes specified.

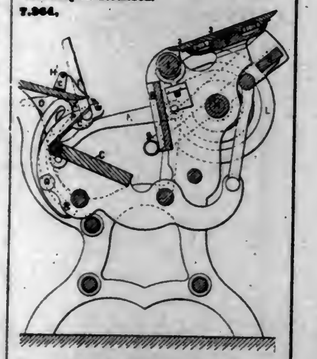
6. The combination of a stationary bed, with the roller frame or arms, rocking upon a shaft, as shown, and holding and carrying the rollers to and fro over the form and inking-surfaces, for each impression, and a platen vibrating substantially as described, for the purpose fully described.

7. The combination of a stationary bed, with the roller frame or arms rocking upon a shaft, as shown, and holding and carrying the rollers to and fro over the form and inking-surfaces for each impression, a platen vibrating substantially as described, and a revolving ink-distributing table, for the purposes fully described.

8. The combination of the rocking roller-arms 4, connecting piece 6, and vibrating platen O, substantially as and for the purpose indicated.

9. The rocking roller-arms, in combination with the rod and springs, when each rod shall hold and carry the roller or rollers independent of any fingers projecting from the arms, for the journals of the rollers to move in, substantially as described.

7,864.



7,865. CLOTHES-WRINGERS. William T. McMillen, Cincinnati, Ohio, and Edward P. Conrick, Dubuque, Iowa, assignors, by mesne assignments, to the Metropolitan Washing Machine Company. Patent No. 56,691, dated July 24, 1866. [Filed Sept. 12, 1876.]



1. The combination, in a clothes-wringer with elastic-rubber rolls, of a purchase driving-pinion, either at one or both ends of the mechanism, supported in bearings, arranged to rise and fall vertically with the upward and downward motion of the movable roll.

2. The combination, in a clothes-wringer having elastic-rubber rolls, of a purchase-pinion at one end, mounted on a bearing or bearings moving vertically with the movable roll, and meshing into and driving a cog-wheel of larger size fixed to the shaft of the movable roll.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *November* 1, 1876.

The "Rules of Practice in the United States Patent Office" have been revised, and changed in some particulars. Copies can be had gratis on application to the Patent Office, either in person or by letter.

R. H. DUELL, *Commissioner.*

NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner of Patents.*

COMMISSIONER'S DECISIONS.

PALM *vs.* BEHEL.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of James H. Palm, filed July* 24, 1875, *and the patent granted to Jacob Behel, February* 23, 1875, *for* "IMPROVEMENTS IN CULTIVATORS." *Decided October* 19, 1876.]

The rule adopted by the courts for determining who is the original and first inventor prevails in interference cases in the Office.

Reduction to practice can only be established by showing that the invention has been embodied in an operative form capable of use for the purpose and in the manner intended, and that it has been so used, or a manifest intention and reasonable diligence displayed in so doing.

The same degree of evidence must be adduced by an applicant in interference with a patentee to establish priority as would be requisite in court to overcome the *prima facie* case made by the patent.

Evidence that one machine embodying the invention in controversy had been made by the applicant prior to the date of his opponent's patent, held not to be sufficient to defeat the patent, there being no proof that the machine was ever tested or that it was even preserved.

[*Cox & Cox*, attorneys for Palm.
West & Bond and *C. H. Watson*, attorneys for Behel.]

DOOLITTLE, *Acting Commissioner:*

The law, as administered by the courts and recognized by the Office, determines that he is the prior inventor and entitled to the patent who first reduces the invention to practice, unless it is found that another who was first to conceive of the invention was using reasonable diligence in adapting and perfecting the same.

In order to establish the fact of reduction to practice of an invention, it must be made to appear that the subject-matter has been embodied in an operative form capable of use for the purpose and in the manner intended, and that it has been so used, or a manifest intention and reasonable diligence displayed in so doing. (*Hanscom* vs. *Latham*, 9 OFFICIAL GAZETTE, 1,158; *Stevenson* vs. *Goodell*, 9 OFFICIAL GAZETTE, 1,195.)

A patent is *prima facie* evidence of invention, and the same degree of proof must be adduced in an interference proceeding to establish priority in an applicant as would be required to defeat the patent in court.

Tried by these rules, it is found that Palm's testimony, which is exceptionally meager, does not establish such a case as would defeat Behel's patent.

Although he made a full-sized cultivator in the latter part of December, 1874, there is no evidence that it was ever used or that it is now in existence, and it might be inferred that it was no more than an abandoned experiment, or at least incomplete in some parts necessary to its successful operation; at all events, the burden of proof being with Palm, it was for him to establish, beyond a doubt, the fact of complete invention.

The *prima facie* case made by Behel's patent, together with the proof on his part of prior conception, have not been overthrown by anything Palm is proved to have done. Therefore, I must affirm the decision of the Board awarding priority to Behel.

DUNCAN S. FARQUHARSON.—*Interlocutory Appeal.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Duncan S. Farquharson for* "IMPROVEMENTS IN APPARATUS FOR DISINTEGRATING WOOD FOR PAPER-PULP."—*Decided October* 16, 1876.]

A claim admitted for examination upon a suggestion by the Examiners-in-Chief that an amended claim embracing certain features might be allowed in view of the references, does not conclude the Office as to the form of the claim.

All special amendments approved for examination by the Board or Commissioner are subject to revision and restriction by the Principal Examiner in the same manner as original amendments.

[*L. Dana* for applicant.]

DOOLITTLE, *Acting Commissioner:*

This is an interlocutory appeal from the Examiner on the ground that the claims as they now stand, and which are in the exact shape and form required by a decision of the Examiners-in-Chief, have again been refused by the Principal Examiner.

The case, as it originally stood, was appealed to the Examiners-in-Chief, May 15, 1876. In their decision, the Board suggested that an amended claim embracing a certain feature described by appellant could fairly be allowed in view of the references. Upon the strength of this suggestion appellant submitted an amendment to his specification and a new claim. This was approved for examination by the Examiners-in-Chief and by the Acting Commissioner. No particular *form* of amendment or claim was suggested by the Board or the Acting Commissioner, and, therefore, the statement of the attorney that such amendments are in the exact shape and form required by the Office is incorrect.

The endorsement itself upon the special amendments proposed by the attorney shows conclusively that the Examiner was to proceed in the examination of them as a new case.

In regard to all special amendments approved for examination, either by the Board or Commissioner, it would appear that they are subject to revision and restriction by the Principal Examiner, in the same manner as original amendments, and that, therefore, the Examiner is at liberty to repeat his former action or to cite new references. Otherwise the remandment of the case, as amended, to the Examiner "for examination" would be without purpose.

Neither are the Examiners-in-Chief nor the Commissioner concluded by any such suggestions or approvals. With nothing before them but the references cited by the Examiner, they certainly would not feel themselves committed in regard to new references of which they had no knowledge, or to other objections going to the merits, to which they had given no consideration. Recognizing the right of the Principal Examiner, by the very act of remanding the case to him, to exercise his independent judgment, they at the same time reserve to themselves the privilege of again affirming or reversing the action of that official. The whole proceeding may be compared to a new trial at law upon an amended issue.

The Examiner is of the opinion that the practice of the Board of Examiners-in-Chief of suggesting claims should be disapproved. This is a matter that is addressed peculiarly to the discretion of the Examiners-in-Chief themselves.

The law provides that the Board shall be composed of "persons of competent legal knowledge and scientific ability, whose duty it shall be, on the written petition of the appellant, to *revise* and determine upon the validity of adverse decisions of Examiners upon application for patents, &c."

In the exercise of this duty, if they find that suggestions of their own may aid the inventor in the better protection of his rights, I see no harm therein, subject, of course, as such suggestions must generally be, to further revision and restriction, in accordance with the mode already indicated.

So far as going beyond the record and considering matters not alluded to in applicant's reasons of appeal or the Examiner's answer thereto, the Examiners-in-Chief are regarded as sufficiently well acquainted with the modes of judicial procedure, and sufficiently apprised of their own convenience not to indulge to any serious extent in such diversions.

This appeal, therefore, being based upon a single point, and that an erroneous one, is dismissed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

EDWIN L. BRADY *vs.* THE ATLANTIC WORKS.

[*In equity.—Before* CLIFFORD, *J.—Decided September* 29, 1876.]

In a suit for the infringment of letters patent the burden of proof is upon the patentee to show that he is the original and first inventor, and that the defendant has infringed.

The patent, if regular in form and introduced in evidence, affords a *prima facie* presumption that the patentee is the original and first inventor of what is therein described as his improvement.

This presumption is not overcome by evidence introduced to impeach the novelty of the invention which does not clearly show that the alleged anticipating device embodied the same construction and mode of operation as that claimed.

The English rule that the patent prohibits all the subjects of the sovereign, except the patentee, from using the invention, but that it extends no further, and is not intended to deprive the Government itself of the use of the invention, does not hold good under our laws.

These patents are monopolies granted by the sovereign, and may be granted or refused in the royal discretion.

In this country Congress has legislated, in pursuance to the power conferred by the Constitution, and provided that persons who have made inventions such as specified in sec. 24, (act of July 8, 1870,) may obtain a patent therefor, granting to them, for the term of seventeen years, the exclusive right to make, use, and vend the said invention or discovery throughout the United States.

No exception is made in favor of the Government, and it cannot, after the patent is issued, make use of the improvement any more than a private individual, without license of the inventor, or making just compensation to him.

The invention secured by letters patent is property, and as such is entitled to the same protection as any other property.

Private property cannot be taken for public use without just compensation, except in cases of extreme necessity, in time of war or of immediate and impending public danger.

Although the infringing device was made by the respondents under a contract with the Government, they derived no power, by virtue of their contract, to take the property of private individuals without their consent, and to use and apply the same in fulfilling their contract obligations.

OPINION OF THE COURT.

CLIFFORD, *J.:*

Inventions secured by letters patent are property in the holder of the patent, and as such are as much entitled to protection as any other property, consisting of a franchise, during the term for which the franchise or exclusive right or privilege is granted. (*Seymour* vs. *Osborne*, 11 Wall., 533)

Holders of letters patent enjoy by virtue of the same the exclusive right and liberty of making and using the invention therein secured, and of vending the same to others to be used, as provided by the act of Congress passed for the purpose. (16 Stat. at Large, 201.)

Private property, the Constitution provides, shall not be taken for public use without just compensation, and it is clear that that provision is as applicable to the Government as to individuals, except in cases of extreme necessity, in time of war, and of immediate and impending public danger. Exigencies of the kind do arise where the prohibition does not apply to the public, and in such cases it must be conceded that the officer in the public service is not a trespasser, but it is equally true that the Government is bound to make full compensation to the owner. (*Mitchel* vs. *Harmony*, 13 How., 134; *U. S.* vs. *Russell*, 13 Wall., 627.)

Letters patent for a new and useful improvement in the construction of boats for dredging under water were granted to the complainant on the 17th of December, 1867, as appears by the original patent annexed to the bill of complaint. Nothing is suggested to show that the patent is not regular in form, and the complainant alleges that the respondents are making and constructing a dredge boat of the same construction as that described in his specification, and which is an infringement of his patent, and he prays for an injunction and for an account of all such gains and profits as they, the respondents, have received by their unlawful and wrongful acts and doings.

Proofs were taken and hearing was had, when the respondents requested leave to amend their answer. Leave to that effect having been granted and new proofs taken, the cause is now submitted with additional briefs to the court upon the pleadings as amended with all the proofs in the cause. Redress for the unlawful use of a patent cannot be obtained unless the party seeking it alleges and proves that he is the original and first inventor of the improvement, and that the patent has been infringed by the party against whom the suit is brought. Both of those allegations must be proved, but it is well settled law that the patent, if regular is form, and introduced in evidence, affords a *prima facie* presumption that the alleged inventor is the original and first inventor of what is therein described as his improvement. Apply that rule to the case before the court and it is clear that nothing is open for examination except the question of infringement and the defenses set up in the answer. (*Seymour* vs. *Osbourne*, 11 Wall., 538.)

Considered together, the answer and the amendments thereto may be regarded as setting up the following defenses:

1. That the complainant is not the original and first inventor of the improvement.

2. That M. D. McAlester furnished the plans and sketches of the described dredging-boat, and that he was the real inventor of the improvement; that the said McAlester was the sole inventor of the same, and that the complainant fraudulently, wrongfully, and falsely represented himself as the original inventor, and that the patent was wrongfully and inadvertently issued in ignorance of the facts, and is wholly inoperative and void.

3. That the dredging-boat in question was built and completed under the inspection and supervision of an officer of the United States, according to the plans and specifications furnished by the Government of the United States; and that the said plans and specifications were the result of the said officer's own study, observation, and experience, and that to the extent that said plans and specifications were original in any particular, he was the author and inventor of the same.

Superadded to that the respondents also allege that in building the said dredging-boat, and in following the said plans and specifications, they were the mere agents and executive hand of the Federal Government, which was the real constructor of the same, all the work thereon having been done under the immediate supervision and in obedience to the orders of the said Government, and in conformity with the plans, specifications, and directions "which the said Government furnished."

Two claims are set up by the patentee:

1. A dredging-boat, constructed with a series of water-tight compartments, so proportioned and arranged that, as they are filled with water, the boat shall preserve an even keel and the dredging mechanism be brought into action without any adjusting devices.

He claims—

2. The combination of the "mud-fan" attached to a rigid shaft, and a boat containing a series of water-tight compartments, so adjusted as to cause the boat to settle on an even keel as the compartments are filled with water, and also a pump for exhausting all the water from the compartments.

Reference is made to the drawings as making part of the specifications, and the patentee states that the excavator consists of a strong boat, propelled by one or two propellers placed in the stern. Two propellers are preferred, as affording greater power, and rendering the boat more manageable when steering in crooked channels. Steam-engines of ordinary construction are employed to drive the propeller in the usual manner. Near the bow of the boat is placed another steam-engine to drive what the patentee calls the "mud-fan," which projects from the bow of the boat and in front of the same, and is formed by a set of revolving blades, turned like those of the propellers, by a shaft passing through what is called a stuffing-box in the specification. The blades for this purpose are shaped somewhat like those of a propeller, but the patentee states that they are sharper on their fronts, and less inclined on their face. These blades, he says, should extend about two feet below the bottom of the boat, their object being to displace the sand and mud on the bottom by their rapid revolution, and by stirring them up to mix the same up with the water so that they may be carried off by the current, to which he adds, that the "mud-fan" assists the propellers to draw forward the boat as well as to stir up the mud and sand. All the engines, it is represented, may be driven by one set of boilers, placed midships, and in order that the "mud-fan" may be brought in contact with the bottom, the

patentee states that he constructs the boat with a series of water-tight compartments, placed in the bow and stern, and on each side of the center, midships, into which the water may be permitted to flow, through pipes, so as to sink the vessel to the required depth, the compartments being so placed and proportioned that the vessel shall sink with an even keel, by which the effective action of the "mud-fan," the propellers, and the steering apparatus, is preserved, leaving the boat manageable at any depth of water. Such is the general description of the boat, to which it is added that a large pump, driven by the engine, is connected by pipes with all the compartments, so that the water may be pumped out when necessary to raise the boat. Argument to show that the invention was designed as an improvement in constructing a dredging-boat and the apparatus to render such a boat an effective machine for that purpose, is unnecessary, as the proposition is supported by every line of the descriptive part of the specification.

Two suggestions are made as tending to show that the complainant was not the original and first inventor of the improvement.

1. That its construction and mode of operation are the same as the dredge-boat Enoch Train, previously constructed, and publicly used in 1859 for the purpose of deepening the channel at the mouth of the river Mississippi.

2. That General M. D. McAlester made the original plans and specifications described in the patent, and that he is the author and inventor of whatever is new and useful in the patented improvement.

Much discussion of the first suggestion is unnecessary, as it is quite clear that the evidence introduced by the respondents is not sufficient to show that the Enoch Train embodied the same construction and mode of operation as the patented improvement. Instead of that the clear inference is that it did not, and, of course, it is not sufficient to overcome the *prima facie* presumption that the patentee is the original and first inventor of what is secured to him by his patent. Nor is the proof introduced to support the second suggestion sufficient to warrant a finding, either that the person named made the plans and specifications or that the complainant surreptitiously obtained the patent. Allegations, like those in the answer, that the plans and specifications were furnished by the agent of the Government, and that the agent named was the inventor of the improvement, requires to be proved before it can be admitted that they constitute a valid defense to the charge of infringement. They are not proved in the case before the court, and consequently the defense must be overruled. Both propositions, therefore, are rejected, and the finding of the court on both of those points is in favor of the complainant. Suppose that is so, still the respondents insist that they worked under the Federal Government, and that the nature of a patent right is such that the sovereign power may use it at pleasure, or authorize third persons to use it for the public benefit. Support to that view is certainly found in the authority cited by the respondents, and perhaps it may be assumed that such is the rule in the parent country. (*Feather* vs. *Queen*, 6 Best & Smith, 283.)

By that case it is decided that the patent prohibits all of the subjects of the sovereign, except the patentee, from using the invention, but that it extends no further, and is not intended to deprive the Government itself of the use of the invention. Patents in that country are monopolies, granted by the sovereign, and may be granted or refused in the royal discretion. Power to legislate upon the subject in this country is conferred upon Congress by the Constitution, by securing for limited periods to inventors the exclusive right to their discoveries. Congress has legislated, and the provision is, that persons who have made inventions of the kind specified in the twenty-fourth section of the patent act may "obtain a patent therefor." (16 Stat. at Large, 201.)

Every patent shall "contain a grant to the patentee, his heirs or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the said invention or discovery throughout the United States." (Sec. 22, p. 201.) Language so explicit and unambiguous admits of no exception, even if it would be competent for Congress to reserve such a right to the Government. Such an exception is not made and cannot be implied. Conclusive support to that proposition is found in a recent decision of the Supreme Court, (*U. S.* vs. *Burns*, 12 Wall., 252,) where the court says, speaking of an invention made by an officer of the United States, and secured by letters patent, that "the Government cannot, after the patent is issued, make use of the improvement any more than a private individual, without license of the inventor, or making compensation to him." Nothing can be plainer than that proposition for two reasons: 1. Because the invention, when thus secured, is property, and, as such, is entitled to the same protection as any other property. 2. Because private property cannot be taken for public use without just compensation, except in cases of extreme necessity, in time of war, or of immediate and impending public danger. Nothing of the kind is shown in this case, and, of course, the case falls directly within the prohibition.

Sufficient appears to warrant the conclusion that the respondents were employed by the Government to build a dredge-boat, but contractors of the Government derive no power in a case like the present, by virtue of their contract, to take the property of private individuals without their consent, and to use and apply the same in fulfilling their contract obligations. Such a contractor may be the agent of the Government to build a ship or dredge-boat, but he is not the agent of the Government to seize and appropriate whatever materials he may select to fulfil his obligations. Infringement is impliedly admitted, and the other defenses set up in the answer are overruled. Were infringement not admitted, still the proofs are sufficient to sustain the bill of complaint, which is all that need be said upon the subject.

Decree for an account. The question of an injunction is deferred for further consideration.

DISCLAIMERS FILED.

115,115.—Improvement in Sinking Shafts and Excavating Tunnels and Cuttings.—JACOB SHELLY, Mahanoy, and MILAN C. BULLOCK, Pottsville, Pa. Patented May 23, 1871. Disclaimer filed November 4, 1876.

Disclaims the method of excavation specified and claimed, except when the same is practiced by filling the drill-holes with sand, or clay, or water, or other loose material.

By this disclaimer the claim is confined and limited to the method of excavation by first boring all the drill-holes to the depth required, or as far as they can conveniently be bored, filling them with sand, or clay, or water, or other loose material, making a space for charging and tamping between the filling and the face of the rock, and shattering the rock in successive lifts by repeated explosions.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date October 31, 1876.]

9,604.—Font of Ornamental Printing-Types.—DAVID WOLFE BRUCE, New York, N. Y. Application filed October 2, 1876. Term of patent 14 years.

9,605.—Combined Mirror, Mirror-Frame, Comb-Case, and Match-Safe.—WRIGHT CLAPP, South Bend, Ind., assignor of one-half his right to MILTON W. STOKES, same place. Application filed August 18, 1876. Term of patent 7 years.

9,606 and **9,607.—Font of Ornamental Printing-Types.**—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Applications filed October 2, 1876. Term of patents 14 years.

9,608.—Capitals, Points, and Figures of a Font of Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed October 2, 1876. Term of patent 14 years.

9,609.—Breastpin.—JAMES WILKINSON, Mount Vernon, N. Y. Application filed October 4, 1876. Term of patent 3½ years.

9,610.—Ear-Ring.—JAMES WILKINSON, Mount Vernon, N. Y. Application filed October 4, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 31, 1876.]

4,078.—Cordial.—ALEXANDRE LEGRAND AINÉ, Fécamp, France. Application filed October 7, 1876.

"The fac-simile of my signature."

4,079.—Steam and Hydraulic Packing.—WILLIAM M. CANFIELD, Philadelphia, Pa. (Re-registration.) Application filed June 20, 1871.

"The coat of arms of the State of New York inclosed in a circle. Above the coat of arms are placed the words 'Empire Packing,' and below it the word 'Trade-Mark.' On the right-hand side the words 'Patented April 4, 1871,' and on the left-hand side the words 'Patented December 27, 1870,' the whole being inclosed in a square frame."

4,080.—Medical Preparation.—THOMAS C. CLARKE, Chicago, Ill. Application filed October 7, 1876.

"The word-symbol 'PAPILLON.'"

4,081.—Corn Starch and Corn Flour.—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove and New York, N. Y. Application filed August 5, 1876.

"The figure of a girl with a water-pot at a fountain."

4,082.—Corn Starch and Corn Flour.—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove and New York, N. Y. Application filed August 5, 1876.

"A cluster or group of medals in obverse and reverse, as represented."

4,083.—Corn Starch and Corn Flour.—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove and New York, N. Y. Application filed August 5, 1876.

"The picture of Indians represented as cultivating corn and preparing ripe corn for food; also, an Indian represented as holding a prancing horse, and also a dog close by."

4,084.—Corn Starch and Corn Flour.—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove and New York, N. Y. Application filed August 5, 1876.

"The figure of a bill-poster engaged in his work, with his dog, a bunch of bills, and his bucket of paste near by, and also the figure of an approaching policeman in the distance."

4,085.—Insect-Exterminator.—GUARDIAS & ROVIRA, New York, N. Y. Application filed August 16, 1876.

"The word-symbol 'ENTOMOPONOS.'"

4,086.—Medicine.—THOMAS E. JENKINS, Louisville, Ky. (Re-registration.) Application filed May 11, 1871.

"A picture or pictorial representation of a flowering stem of the plant *cinchona calisaya*, printed upon, over, or by the side or end of the labels."

4,087.—Collars and Cuffs.—JAMES L. LIBBY, New York, N. Y. Application filed October 4, 1876.

"The representation of a cup."

4,088.—Cigars.—M. W. MENDEL & BRO., New York, N. Y. Application filed August 16, 1876.

"The words and letters 'La Rosa de Tropico de M. W. M. y Bro.'"

4,089.—Paper Collars.—PECK & CO., New York, N. Y. Application filed September 29, 1876.

"The word-symbol 'CONSTELLATION.'"

4,090.—Cigars.—W. H. ROMERMAN & CO., Jacksonville, Ill. Application filed October 2, 1876.

"The words 'Short Horn,' and the figure of a bull's head surmounted by an eagle."

4,091.—Liniments.—FRANCIS REGISTER, Philadelphia, Pa. Application filed September 30, 1876.

"The figure of a woman represented as holding a vessel from which a snake is drinking or about to drink."

4,092.—Smut and Separating Machine.—JAMES H. REDFIELD, Salem, Ind. Application filed September 1, 1876.

"The words 'THE CHAMPION.'"

4,093.—Piano-Fortes.—STEINWAY & SONS, New York, N. Y. Application filed October 12, 1876.

"The name 'Steinway & Sons.'"

4,094.—Preserves and Pickles.—WRIGHT SMITH, Central, Mo. Application filed September 2, 1876.

"The words 'Thunder and Lightning.'"

4,095.—Cigarettes.—JOHN REID SUTTON, New York, N. Y. Application filed October 7, 1876.

"The word-symbol 'PHŒNIX.'"

4,096.—Cheese.—JULIUS WETTSTEIN, Monroe, N. Y. Application filed October 7, 1876.

"The representation of a cow's head, having a monogram formed of the initials of my name, 'J. W.,' arranged the head between the horns, both the head and monogram being placed within a shield, with ornamental side scrolls. Mounted above the shield is a crown."

4,097.—Lager-Beer.—JACOB WIRTH, Boston, Mass. Application filed September 15, 1876.

"Diamond-shaped figure inclosing the name Jacob Wirth, and a monogram composed of the letters J. W."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date October 31, 1876.]

858.—Title: "Brown's Vegetable Extract for Coloring Butter."—LEMUEL M. BROWN, Waukegan, Ill. Application filed September 13, 1876.

859.—Title: "Brown's Improved Rubber Cement."—JOHN J. BROWN, Philadelphia, Pa. Application filed October 24, 1876.

860.—Title: "Champagne Lager Beer."—H. CLAUSEN & SON, New York, N. Y. Application filed October 24, 1876.

861.—Title: "The Great Horse Ointment."—RICHARD HOPPS, Erie, Pa. Application filed October 18, 1876.

862.—Title: "Olds' Medicated Ozone."—E. F. OLDS, Philadelphia, Pa. Application filed October 18, 1876.

863.—Title: "Wakefield's Eye Salve."—C. WAKEFIELD & CO., Bloomington, Ill. Application filed October 19, 1876.

864.—Title: "Wakefield's Vegetable Liver Pills."—C. WAKEFIELD & CO., Bloomington, Ill. Application filed October 19, 1876.

865.—Title: "Browen's Rat, Roach, Ant, &c., Killer." C. WAKEFIELD & CO., Bloomington, Ill. Application filed October 19, 1876.

866.—Title: "Wakefield's Tasteless Worm Destroyer." C. WAKEFIELD & CO., Bloomington, Ill. Application filed October 19, 1876.

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

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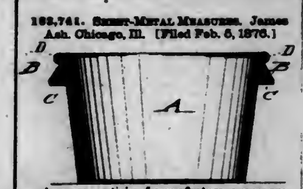
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TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED OCTOBER 31, 1876.

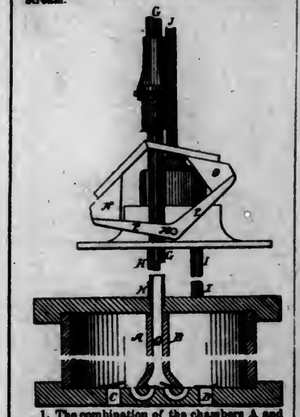
183,741. SHEET-METAL MEASURES. James Ash, Chicago, Ill. [Filed Feb. 5, 1876.]



As a new article of manufacture, a measure for grain and other articles composed of sheet metal, and consisting of the body A, rim B, the upper edge, together with the edge of said body, being bent around a strengthening-wire, D, and the brace-ring C, secured to the body and rim, substantially as and for the purpose set forth.

183,742. MACHINES FOR RAISING WATER. Jared A. Agnes, Hartford, Conn. [Filed May 3, 1876.]

Brief.—The two chambers are supplied with water from a well or reservoir by gravity. The water is raised by means of compressed air from a pump or receiver, the supply being regulated by valves worked by a small stream of water taken from a suitable point in the delivery-pipe. The water is forced alternately out of the two chambers in a continuous stream.



1. The combination of the chambers A and B, the water-pipe G, the air-pipes H I J, and a valve, K, for changing the direction of the current of air, the said valve being operated by a small stream of water drawn from the delivery-pipe G, substantially as herein described.

2. The combination of the oscillating buckets N O, the shaft M, the valve K, and the air-pipes H I J, with an aperture for taking a minute stream of water from the delivery-pipe G, for the purpose of operating the said parts, substantially as herein set forth.

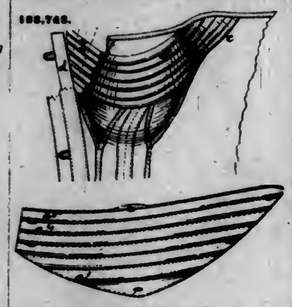
3. The reservoir S, in combination with the oscillating buckets N O and the pipe G, substantially as and for the purpose herein described.

183,743. CORSETS AND PADS. J. A. Bates, New York, N. Y. [Filed May 29, 1874.]

1. The series of parallel curved springs, gradually increasing in length, constructed, arranged, and operating within and upon the gores or swells of the bosom of the corset, substantially as set forth.

2. The series of springs constructed and arranged as described, as and for a separate attachment to the gores of a corset, and as a separate article of manufacture, substantially as set forth.

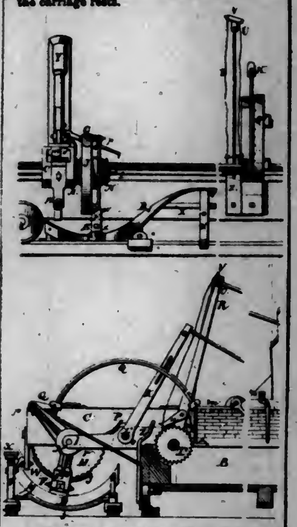
183,744.



10. In a base-burning stove, the combination of the upper section *f* of the magazine, base-ring *c'*, and body-ring *d'*, as and for the purpose of enabling the upper section of the magazine to be removed by swinging it horizontally aside, substantially as described and shown.

183,745. SAW-MILL CARRIAGES AND HEAD-BLOCKS. Robert M. Bigger, Lairdsville, Pa. [Filed Oct. 28, 1876.]

Brief.—The block is made self-setting by means of a roller attached to a knuckle-jointed lever, and by the backward movement of the carriage made to pass over an inclined worm fixed on ways parallel to those upon which the carriage rests.



1. The combination of lever K, shaft L, register Q, pulley M, pulley N, chain O, and register J, substantially as described, and for the purposes set forth.

2. The combination of lever K, with shaft L, pulley M', pulley N', chain O', pin *r*, and angular arm-lever F, substantially as described, and for the purposes set forth.

3. The combination of lever K, with shaft L, pin *s*, and pawl P, substantially as described, and for the purposes set forth.

4. The combination of lever K, with shaft L, pin *s*, pawl P, and ratchet-wheel H, substantially as described, and for the purposes set forth.

5. The combination of inclined worm D, with roller E, arm-lever F, pawl G, register J, ratchet-wheel H, shaft I, pinion *v*, and standard-rack *m*, substantially as described, and for the purposes set forth.

6. The combination of pin *r*, and its operative devices, with arm-lever F, knuckle-joint *x*, and roller E, and inclined worm D, substantially as described, and for the purposes set forth.

7. The combination of inclined worm D, with rock-shaft *s*, roller W, guard X, roller E, arm-lever F, pawl G, and ratchet-wheel H, substantially as described, and for the purposes set forth.

183,746.

1. The combination, in a base-burning stove, of the upper section *f* of the magazine, the base-ring *c'*, body-ring *d'*, lower section *g*, legs *g'* *g'*, and ledge *m*, substantially as shown and specified.

2. The combination of the section *f* and base-ring *c'*, having the openings *k k*, and damper *k'*, substantially as described.

3. The combination of the section *f*, drum *e*, top *e'*, and base-ring *c'*, substantially as described.

4. The combination of the section *f*, having the perforations *h' h'*, &c., drum *e*, top *e'*, base-ring *c'*, chamber *h*, and flue *h''*, substantially as described.

5. The combination of the section *f*, having the perforations *h' h'*, &c., chamber *h*, flue *h''*, base-ring *c'*, section *g*, legs *g' g'*, and chamber *i*, substantially as shown and specified.

6. The combination of the chamber B, chamber *i*, magazine *f g*, having the perforations *h' h'*, &c., chamber *h*, and flue *h''*, substantially as shown and specified.

7. The combination of the magazine *f g*, base-ring *c''*, having the openings *k k*, chamber *i*, and chamber B, for the purpose of inducing a flow of cooler air into the stove and against the magazine.

8. In a base-burning stove, a combustion-chamber, B, having the perforations *n*, substantially as shown and specified.

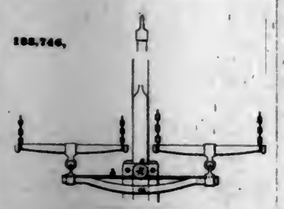
9. In a base-burning stove, a combustion-chamber, B, extending upward to the level of the top of the magazine, or thereabout, and whose cross-sectional area is equal, or nearly so, to that of the magazine, for the purpose of containing heat at the proper level, and in sufficient amount to insure a draft from the magazine into the said chamber.

183,747. SPRING-WHIFFLETREE. James B. Brewster, New York, N. Y. [Filed Aug. 22, 1876.]

The spring-bow whiffletree or evener-bar, made of the bow, *a*, and metal spanning-rod *b*, substantially as herein shown and described.

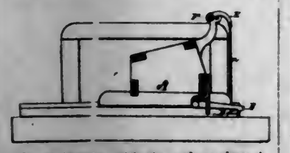
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182,746.



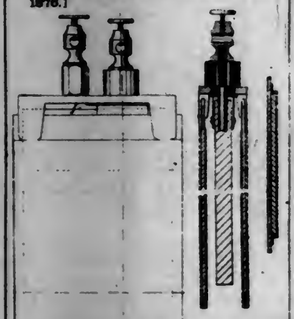
182,747. SPINNING-MULES. James Brown, Pawtucket, R. I. [Filed July 12, 1876.]

Brief.—The latching mechanism is connected with the faller-shaft, and is operated thereby, interlocking with a catch on the floor at the end of the outward movement of the carriage, whereby any rebound of the carriage is prevented, and the tension of the yarn preserved unimpaired.



In combination with the mule-carriage A and its faller-shaft F, the arm E, rod a, and latch B, applied thereto as set forth, and the catch D, fastened to the floor, all being arranged substantially in manner and to operate as set forth.

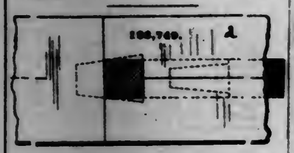
182,748. GALVANIC-BATTERY PLATES. Jno. Byrne, Brooklyn, N. Y. [Filed July 18, 1876.]



1. The negative element of a galvanic battery, composed of a central core of copper, covered on one face with lead, and on the other with compact adherent coating of platinum, as and for the purpose described.

2. A galvanic-battery cell, composed of two negative plates, each formed of copper, backed with lead, and faced by platinum, with a zinc plate placed between the opposite platinum faces, as and for the purpose described.

182,749.

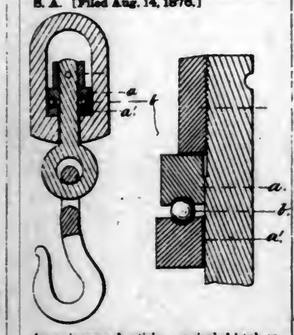


182,749. DIES FOR FORMING THE EYES OF PICKS. L. Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 10, 1876.]

Brief.—The die *a b* is partible in a plane longitudinal, corresponding to one side of the punch, while the die *d*, into which the metal is forced to form the elongated portion of the eye, is integral.

Partible side dies *a b*, in combination with a solid resisting-die, *d*, for forming the whole or a part of the elongated part of the eye, when all are constructed and designed for operation and use substantially as described, and for the purpose set forth.

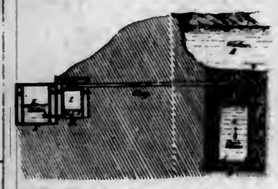
182,750. SWIVELS. Joseph C. Clifford, U. S. A. [Filed Aug. 14, 1876.]



As an improved article, a swiveled hook or rod, provided with the grooved annular disks *a a'* and bails *b*, substantially as shown and described, and for the purpose specified.

182,751. HYDRANTS FOR WATERING STOCK. Jas. Compton, La Belle, Mo. [Filed Jan. 3, 1876.]

Brief.—The supply-reservoir is placed in a filter-chamber below the bottom of the pond. A float in the second reservoir keeps the water at the desired level in the cattle-troughs.

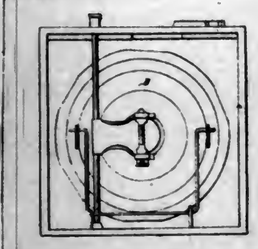


1. The filtering well or cavity B, reservoir C, pipe D, reservoir E, float I, pipe V, and reservoir K, all operating in combination substantially as and for the purpose specified.

2. The troughs G H, having double walls with air-spaces L, and perforated covers X, substantially as specified.

3. The combination of troughs G H, reservoirs K, E, and C, pipes V D, and float I, all operating substantially as and for the purposes specified.

182,752.

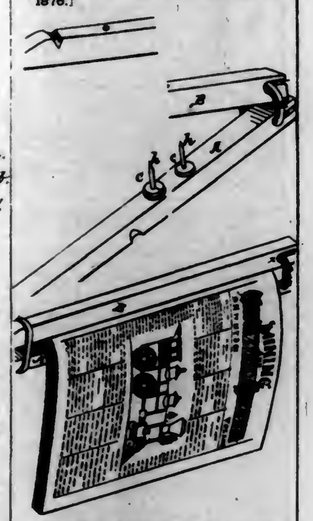


182,752. GAS-METERS. Emanuel Detweiler and Gustav Fajen, Milwaukee, Wis. [Filed Mar. 11, 1876.]

Brief.—The meter has a diaphragm with two heads and a hollow hub, on which one head screws, allowing it to be taken apart without unsoldering the diaphragm from the case.

A gas-meter constructed with diaphragm E and heads B and D, hollow hub C, on which head D screws, making a meter which can be taken apart for repairs without unsoldering the diaphragm from the case, substantially as described.

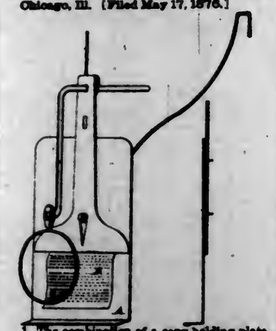
182,753. NEWSPAPER-FILE HOLDERS. A. T. Dewey, Oakland, Cal. [Filed Mar. 24, 1876.]



1. The bars A B, having in their ends slots *a*, with enlarged bases *a'*, in combination with the elastic ring *d*, as described.

2. The pads or bases, slit as described, and arranged to be removed separately as the thickness of the file increases, substantially as and for the purpose described.

182,754. COPY-HOLDERS. Henry Deyo, Chicago, Ill. [Filed May 17, 1876.]



1. The combination of a copy-holding plate and magnifying-glass, adjustable toward and from the plate, substantially as and for the purpose set forth.

2. The combination of a copy-holding plate and a magnifying-glass, the latter being adjustable, to be vertically parallel to or at a vertical angle with the plate, as and for the purpose set forth.

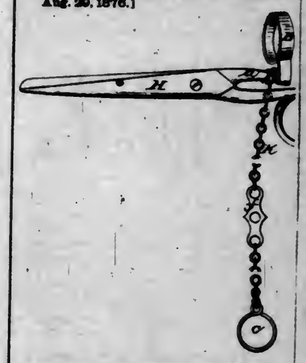
3. The combination of a copy-holding plate and a magnifying-glass, adjustable both toward and from the plate, and in planes parallel to or at angles with the plate, as and for the purpose set forth.

4. The combination of a copy-holding plate, a clamp or guide, and a magnifying-glass, as and for the purpose set forth.

5. The combination of a copy-holding plate having lateral motion about its support, an adjustable guide, and a magnifying-glass, as and for the purpose set forth.

6. A magnifying copy-holder, consisting of a copy-holding plate, a support for the same, and a magnifying-glass supported before the face of the copy-holding plate, as and for the purpose set forth.

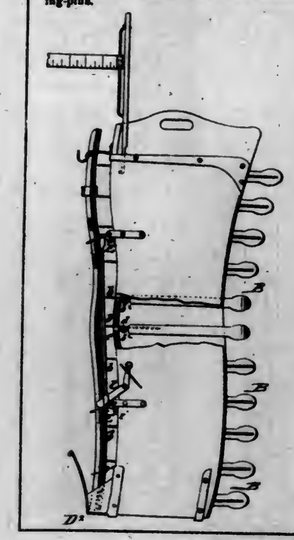
182,755. SCALE-MEASURE ATTACHMENTS TO SCISSORS. John W. D. Bickley, Harmony Grove, assignor of one-half his right to Jas. W. Carter, Walnut Grove, Ga. [Filed Aug. 29, 1876.]



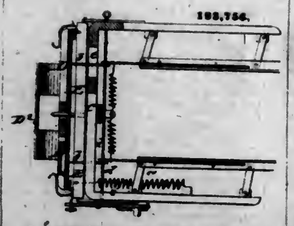
The flexible yard-measure, provided with the indicating-links *f f*, connecting-link *e*, and ring C, attached to and for use with the scissors H, having the bow B, at right angles to the levers, substantially as and for the purpose set forth.

182,756. PANTALOONS-CONFORMATORS. J. G. W. Feldmann, New York, N. Y. [Filed Apr. 3, 1876.]

Brief.—The spring-acted pieces adjust themselves to the leg, and transfer the outline to the pattern-paper by means of the puncturing-pins.



182,756.



1. A pantaloon-conformator consisting of a main frame with adjustable set-pieces or tongues and marking-pins, and a detachable marking-frame, carrying a pattern-paper, substantially in the manner and for the purpose specified.

2. The main frame, open at the back and provided at the side walls with a number of parallel moving and spring-acted set-pieces or tongues that adjust themselves to the leg, substantially as described.

3. The combination of the adjustable set-pieces with the sliding marking-pins moving on lateral guide-rods to assume position simultaneously with set-pieces, substantially as specified.

4. The combination of the marking-pins, the recessed front wall of the main frame, and the correspondingly-grooved marking-frame, to pierce pattern-paper on release of the marking-frame, substantially as specified.

5. The combination of the sliding upright waist-rule, carrying tape-measure, with the uppermost marking-pins and set-pieces to retain central position between the same, substantially as described.

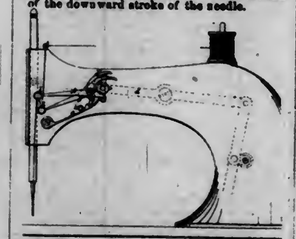
6. The combination of the marking-frame with the swinging and spring-acted rest-pieces, having guide-pins to press marking-frame against pins on release of rest-pieces, as described.

7. The combination of the swinging and spring-acted rest-pieces with a locking device to retain rest-pieces in position for holding the marking-frame at the required distance from the marking-pins during the adjusting of the apparatus, as specified.

8. The main frame provided with bottom frame or shoe D^2, for supporting the marking-frame, substantially as specified.

182,757. TAKE-UPS FOR SEWING-MACHINES. Jos. L. Follett, New York, N. Y. [Filed May 13, 1876.]

Brief.—On a pivot in the front of the goose-neck are two levers—one having a forked rear end, and the other having the upper arm of the fork, but instead of the lower a projection or pawl to engage a detent on a spring fastened to the arm below the levers. The first is the take-up lever, and is raised and lowered by a roller on the needle-arm working in its forked end, while the second (next to the goose-neck) is the thread-holder, whose front end is forced downward on the upward stroke of the needle-bar by the roller, and is there held by the detent until the roller on its downward stroke strikes the spring and releases it, the object being to cause it to act as a stationary eye while the take-up is acting, and to release the thread at the end of the downward stroke of the needle.



1. The described combination of the take-up lever and the thread-holder, operating together substantially as set forth.

2. The take-up lever, in combination with the thread-holder and the detent which maintains the thread-holder stationary while the thread is to be taken up, and releases the thread-holder when slack is required, substantially as set forth.

3. The take-up lever and thread-holding lever, movable on the same axis of vibration, in combination with the spring-detent, operated to hold and release the thread-holding lever at the times substantially as set forth.

4. The combination of the thread-holding lever, the take-up lever, the stud or its equivalent for operating the same, and the spring-detent, substantially as set forth.

182,758. HORSE-BRUSHES. Jos. F. Furber, Chicago, Ill. [Filed Aug. 9, 1876.]

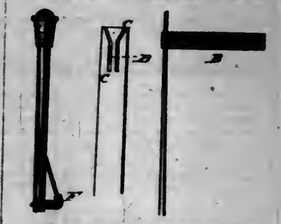
Brief.—The tufts are arranged alternately in rows, and long and short, with an outer long row.



1. The horse-brush having an interior surface of short bristles and an exterior row of longer bristles extending entirely around the edges of the brush, substantially as specified.

2. The horse-brush having the long and short bristles inside, arranged in alternate tufts, and surrounded at the outer edge by a continuous row of long bristles, substantially as specified.

182,759. BOWS AND ARROWS. Caleb Goodwin, Chicago, Ill. [Filed Mar. 6, 1876.]

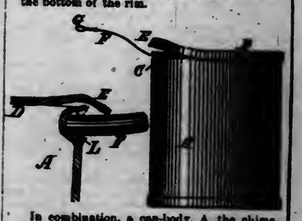


1. The combination of the head-bar A, provided with the slots or openings C, with the spring-loop B, constructed and attached together substantially as described.

2. The combination of the springing head-bar A, provided with the detachable spring-loop B, with the arrow D, provided with the catch F, substantially as set forth.

182,760. METALLIC CANS. Charles Green and Wm. Wilson, Jr., Wilmington, Del. [Filed May 16, 1876.]

Brief.—Ohios grooved inwardly to receive the wire, which may project from a notch in the bottom of the rim.



In combination, a can-body, A, the chime of which is formed into a groove, C, a cover, D, provided with a rim, E, and secured to the body by solder L, and a free wire, F, laid in the groove, fastened to the can-body at one end, and terminating in an eye, G, at the other, the eye projecting from beneath the rim, the whole arranged so that the wire, when seized by its eye and forcibly drawn, will sever the solder, substantially as described.

182,761. DIES FOR FORMING MACHINISTS' HAMMERS. Henry Hammond, Hartford, Conn. [Filed Apr. 15, 1876.]

Brief.—*a b* are punches on the upper and lower dies, respectively.



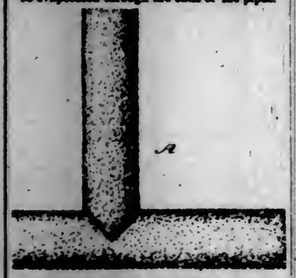
No. 182,761.



The dies A B, with the parts *a b d e f g*, for inclosing and giving form to the hammer-blank, substantially as herein described.

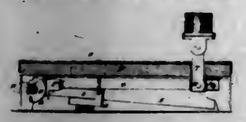
182,762. GRAIN-VENTILATOR. P. Holland, Decorah, Iowa. [Filed Apr. 10, 1876.]

Brief.—A number of T-shaped pipes placed, in the receptacle in which the grain is packed, and, being porous, they will absorb the moisture from the grain, which moisture will then be evaporated through the ends of the pipes.



A ventilator consisting of a T-shaped pipe or tube, A, with sections B attached to the arms thereof, all made of clay or other suitable material, and placed through the grain, as and for the purpose set forth.

182,763. HEALTH-LIFT. F. G. Johnson, New York, N. Y. [Filed Apr. 17, 1876.]



1. In a health-lift, the combination of the levers G G and D D, their adjacent ends being curved, with the shaft C, scale-beam A, and weight B, substantially in the manner and for the purpose set forth.

2. The flexible metallic strap E, in combination with the levers G and D, in the manner and for the purpose described.

3. The combination of the half-edge *b'* and the V-shaped groove *C'* in the shaft C, by which the shaft takes the bearing at its center of motion, substantially in the manner and for the purpose set forth.

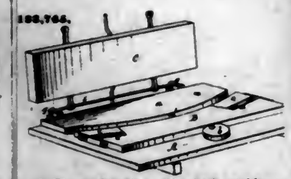
4. The weight B, having the slot *b*, in combination with the scale-beam A *a*, as described, and for the purpose set forth.

182,764. EXPLOSIVE COMPOUNDS. Egbert Judson, San Francisco, Cal. [Filed Sept. 21, 1876.]

1. A powder or explosive composed of the class mentioned, consisting of particles or grains of gas-producing material rendered conglomerate and non-absorbent by the treatment specified, and rendered explosive by a coating of nitro-glycerine, substantially in the manner and for the purposes set forth.

2. In the manufacture of a powder or explosive composition, the process set forth for forming the conglomerate grains, consisting, essentially, in stirring the dry powdered gas-producing material into a melted adhesive combustible non-absorbent material, substantially as set forth.

182,765. MACHINES FOR FITTING AND TIGHTENING SPRINGS. Chas. B. Koon, Amherst, N. Y. [Filed Sept. 9, 1876.]



No. 182,765.

1. The combination, with a horizontal base-plate, A, of two opposing templets and a straightening-block, substantially as and for the purpose described.

2. The combination of a sectional flexible templet, B *c c*, a solid templet, *c*, and a horizontal bed-plate, A, with the block C hinged to said bed-plate or foundation, for fitting, straightening, and tempering vehicle-springs at one operation, substantially as described.

182,766. RAILROAD-TRACKS. Ebenezer B. Lewis, Geneva, assignor of one-fourth his right to D. P. Dey, Watkins, N. Y. [Filed Dec. 31, 1875.]

Brief.—The head of the rail is larger on one side than on the other. The inner face of the web is vertical, while the outer face is inclined. The foot has a flange on one side only. The rails are secured in an iron tie by grooved and ridged side plate on one side, and a slitted wedge on the other. The rail rests on a saddle-piece placed beneath it in the tie.



1. A railroad-rail, with the upper rounded part larger on one side of its support, and the support vertical on one side and inclined on the other and largest at the base, substantially as specified.

2. The side plate O with the rib and notches to hold it in place, as herein set forth.

3. The wedges D made with the points slitted, as and for the purpose set forth.

4. The saddle E, made to rest on a metallic railroad-tie beneath the rail, as herein specified.

5. In combination with the side plate C and wedge D, the rail-seat for the rail A in the tie B, as herein specified.

182,767. RAILROAD-TRACKS. Ebenezer B. Lewis, Geneva, assignor of one-fourth of his right to David P. Dey, Watkins, N. Y. [Filed Feb. 26, 1876.]



1. The railroad-tie A, composed of the projections B and C, connected to the base-plate D, opposite each other, both projections having in them rail-seats—in one for the old rails, and in the other rail-seats for any other kind of rails, substantially as described.

2. In combination with the rail-seats in the projection B, the tie A, that will allow the rail to drop down into it, the side plates E and F, and the key G, to unitedly hold the rail, as herein set forth.

3. The side plate L for the inside of a railroad-rail, without flanges at the base, made with ribs and channels for the keys, substantially as specified.

182,768. RAILROAD-TIES. Ebenezer B. Lewis, Geneva, assignor of one-fourth of his right to David P. Dey, Watkins, N. Y. [Filed May 20, 1876.]

Brief.—A metal tie having longitudinal strengthening ribs on upper and lower sides, the upper ones being cut away to correspond to foot and neck of track-rails. On the outsides of the rails are brace-blocks, which fit snugly against the rails, and bear against lugs on the ends of the ties, and are held in place by keys passing transversely through said lugs.

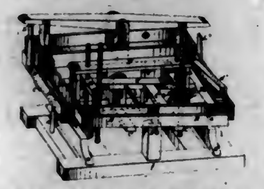


No. 182,768.

The railroad-tie A, with its brace B and key C, made and applied to railroad-rails, substantially as and for the purposes set forth.

182,769. WATER-MOTORS. Oliver Lindley, Carthage, Mo. [Filed Sept. 4, 1876.]

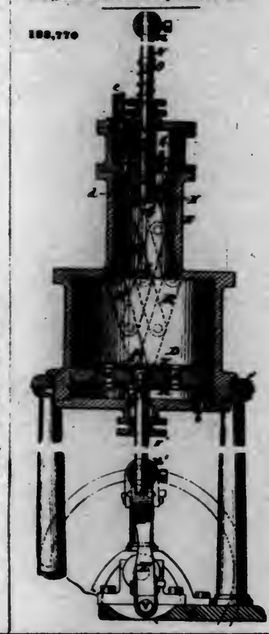
Brief.—Water flows from the tank into the boxes through ports regulated by the valves. As each box reaches the lowest point, the water is discharged and it rises, giving a reciprocating motion to the platform.



1. The combination, with the vibrating platform or frame C C C C, of the water-boxes D D', provided with outlet-valves *d d'*, the tank B, vibrating bar L, valve-plugs *l l'*, and lifting-rods *L' L'*, whereby each of the water-boxes in its ascent shuts off the supply of water from the water-box upon the opposite end of the vibrating platform, substantially as set forth.

2. In combination with the vibrating platform C C C C, water-boxes D D', vibrating bar L, valve-plugs *l l'*, and lifting-rods *L' L'*, the adjustable screws *e e*, whereby the movement of bar L by the vibrating platform may be regulated, substantially as set forth.

182,770



182,770. COMPOUND ENGINES. James McOrmiston, Bloomfield, N. J. [Filed Feb. 14, 1876.]

1. In a compound engine having its pistons H I of different area, organized to alternately diminish and increase the cylinder-space between them, and which is provided with valves that cause said pistons to move alternately in equilibrium, the arrangement of the exhaust-steam outlet *b* in or near the rear closed end of the larger cylinder and back of the larger piston I, whereby, on connecting said outlet *b* with a condenser, both of said pistons alternately obtain the full benefit of the vacuum on their one side, subject to pressure of the steam on their opposite side without reactionary pressure or back action of the steam on either piston.

2. In a compound engine having its pistons organized to operate substantially as specified, the valves J K and ports *d a*, arranged on and in the pistons, essentially as and for the purpose herein set forth.

3. The combination, with the pistons H I and valves L J K, of the tappets O and inclined surfaces or projections *k f g*, substantially as specified.

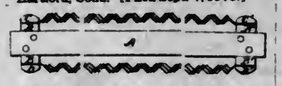
4. The combination, with the pistons H I and their rods N N', of the cross-heads M M', the side rods P Q, and the interposed cross levers or bars R, working on fixed centers *l*, essentially as and for the purpose herein set forth.

182,771. APPARATUS FOR THE MANUFACTURE OF HORSE-COLLARS. John R. McGovern, Franklin, Ky., assignor of one-half his right to Thomas R. Bubank, same place. [Filed July 24, 1876.]



The improved horse-collar clamp, composed of the hinged or pivoted cross bars or jaws *b c*, one of which is provided with inwardly-projecting pins *a*, adapted to enter holes in the opposite bar or jaw, all operated by suitable lever-handles, substantially as shown, for the purpose described.

182,772. BED-BOTTOMS. William J. Myers, Hartford, Conn. [Filed Sept. 7, 1876.]



1. A reversible mattress or bed, composed of two elastic webs extended upon opposite sides of a frame, substantially as herein described.

2. The frame A A' B B' C C' D D', constructed substantially as and for the purpose herein described.

182,773. UPRIGHT PIANO-FORTES. Geo. W. Neill, Boston, Mass., assignor to Chickering & Sons, same place. [Filed Apr. 24, 1876.]

Brief.—The key-fall is in two parts, hinged together, one (the outer) being quadrantal in shape. The music-desk forms part of the front, and, being drawn forward at the lower edge, is supported in position by hinged struts.

1. The compound key-fall or cover F, substantially as described, consisting of the quadrantal and recessed portion *g*, and the concavo-convex portion *h*, arranged and hinged together, and applied to the case essentially as set forth.

2. The music-desk A, substantially as described, composed of the two boards or plates, *b c*, and one or more arms or struts, *e e*, arranged and applied as set forth.

3. The music-desk A, hinged at its upper part to the front of the case, in combination with the said front, provided with an opening or niche to receive the said desk, in manner substantially as specified.

4. The combination of the shelf D with the music-desk A, as described, hinged at its upper part to the front of the case, and with the said front provided with an opening or niche for reception of said desk, as set forth.

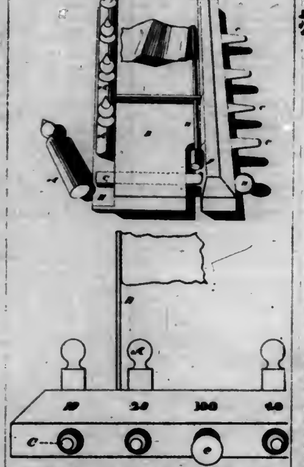
5. The combination of the shelf D with the music-desk A, as described, and the compound fall F and its chamber *k*, all arranged with the keys as set forth.

6. The compound fall F, composed of the two parts *g h*, applied as described, and the lip or flange *i*, extended from the quadrantal portion, all being as set forth.

7. The name-board, pivoted to the case, and provided with the extension *m* and the lip or flange *i*, all as set forth.

182,774. GAME-TARGETS. Jas. S. Pearce, Northampton, Mass., assignor to himself and Lewis Warner, same place. [Filed Apr. 28, 1876.]

Brief.—Balls rolled by hand or a case, which strike the muzzle of the gans of the fort, drive in the same, knocking down the loose man pins behind them, and perhaps freeing a concealed flag, which rises to an upright position.

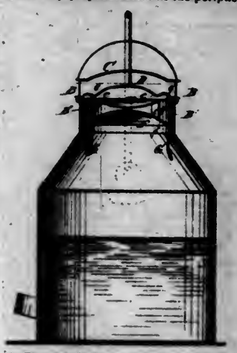


1. The toy target herein described, consisting, essentially, of the notched board or frame B, with a raised edge or parapet, the guns C, fitted to slide in said board, and the loose pins or men figures A, all constructed and arranged to operate substantially as described.

2. In combination with the board B, a sliding gun, C, and the loose pin A^3, having the rod *m*, the pivoted and weighted flag-staff D, substantially as described.

182,775. MILK-CAN COVERS. Robert Rennick, Keene, Ky. [Filed Oct. 16, 1876.]

Brief.—A cupola-top is inserted and held by its descending flange, within which are perforated plates and deflectors. Its top disk is perforated, and above this a cupola is supported by perpendiculars at the periphery.



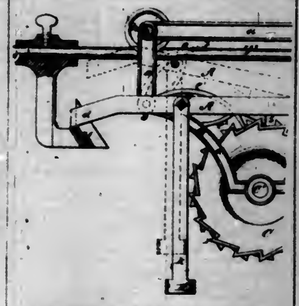
1. The ventilating-cover for milk-vessels, having perforated or gauze-covered opening or openings D and concavo-convex plate C, substantially as arranged and described.

2. The plate E, provided with springs G and perforated plate F, substantially as arranged, and for the purposes set forth.

3. The plates E and F, as arranged with the ventilating-top B, substantially as and for the purposes set forth.

4. The combination of one or more perforated deflecting plates with a ventilating milk-vessel top or lid, substantially as and for the purposes set forth.

182,776. HOISTING AND TRAMMING MACHINES. Thomas Rhoads, Ottawa, Ill., assignor of one-half his right to E. N. Lewis, same place. [Filed Jan. 21, 1876.]



1. The compound latch A, in combination with the carrier-frame, the short pawl *s*, the ratchet-wheel C, the trip K, and the hooked collar M, substantially as described, and for the purpose specified.

2. The bolt *n*, in combination with the trip K, the compound latch A, and the skeleton pawl *s*, substantially as described, and for the purpose specified.

3. The ratchet-wheel C, with the ratchets on one edge facing in an opposite direction from those on the other, in combination with the pawl S, the compound latch A, the pawl *s*, the trip K, and the carrier-frame, substantially as described, and for the purpose specified.

4. The carrier-frame, consisting of the two side pieces, in combination with the rollers, the ratchet-wheel, the pawls S and *s*, the compound latch, the trip and the hooked collar, substantially as described, and for the purpose specified.

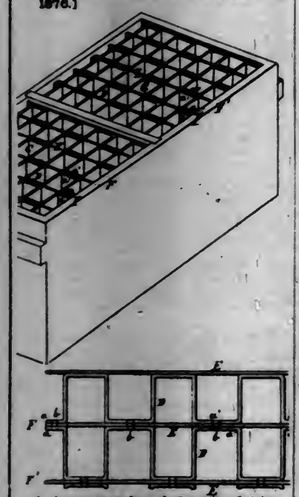
182,777. LIFE-RAFTS. John Rider, New York, N. Y. [Filed Aug. 29, 1874.]

182,777.



As an improvement in life-rafts, supporting air-cylinders having tapering and upward-curved ends, with central upper and lower curved ribs, that meet at a point above the top of the cylinders, substantially in the manner and for the purposes specified.

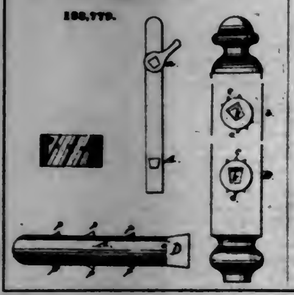
182,778. EGG-CRATES. Wallace Bywaters, West Sumner, Me. [Filed Sept. 27, 1876.]



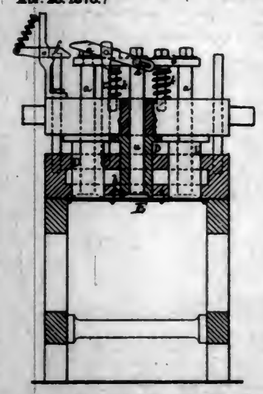
1. An egg-crate formed of a series of stripes, D, having a portion, *a*, on each end bent outward and fastened by rivet or eyelet to the intervening wall B, forming the lateral arms or supports F, as specified.

3. An egg-crate formed of a series of stripes, D, bent into U-shaped compartments, and secured to the intermediate walls by metallic fastenings *b*, and having the lateral arms or supports F, as described.

182,779.



182,780. CRACKER AND LOZENGE MACHINES. Isaac H. Shaver, Cedar Rapids, Iowa, and Augustus Ruger, Buffalo, N. Y. [Filed Aug. 28, 1876.]



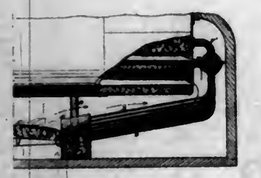
1. In a cracker and lozenge machine, the series of punches D D, and operating in connection with the punch-plate *g*, having the punch openings *h* therein, substantially as and for the purpose specified.

2. In a cracker and lozenge machine, the combination of the series of hollow punches D D and the solid clearers *a a* working therein, substantially in the manner and for the purpose specified.

3. The slide E, operated by suitable devices and in combination with the punches D D and punch-plate *g h*, as and for the purpose specified.

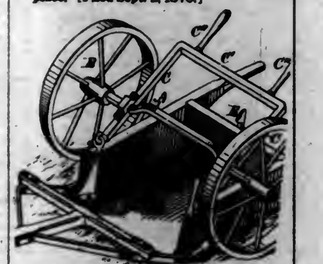
4. In a cracker-machine, the combination of the post *c*, slotted arm *d* pivoted thereto, and also to the plate *h*, the trip-pawl *f*, the clearers *a a*, and punches D D, all substantially as and for the purpose specified.

182,781. FEED-WATER HEATERS FOR STEAM-BOILERS. Charles D. Smith, Boston, Mass. [Filed Feb. 2, 1876.]



The combination of the series of inclined water-tubes B, the steam and water chamber C, arranged at the upper ends of the tubes and provided with the pipes F F' F, communicating with the boiler, and the water-supply reservoir A, arranged at the lower ends of the water-pipes and provided with the pipes D D, for communicating with a feed-pump or the boiler, all substantially as described.

182,782. ROAD-SCRAPERS. Jesse Stubbs, Mount Pleasant, Iowa, assignor of one-half his right to Warren Beckwith, same place. [Filed Sept. 2, 1876.]

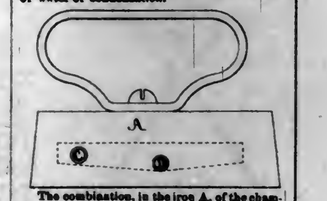


1. In a road-scraper, hinged to levers mounted on axle and wheels, substantially as described, the draft-bar, connected to the forward end of the scraper-box by a changeable bearing or connection, *i*, substantially as and for the purpose specified.

2. The segment slotted plates *I*, bar D, levers C, bar O', catch E, axle A, and wheels B, arranged to operate with the bifurcated draft-bar F, having studs *g*, substantially as described, and for the purpose specified.

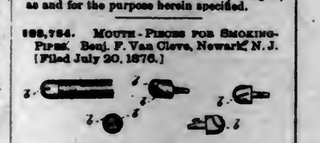
182,783. IRONS FOR SMOOTHING CLOTHES. Wm. H. D. Sweet, Albany, N. Y. [Filed Feb. 21, 1876.]

Brief.—The inclination facilitates discharge of water of condensation.



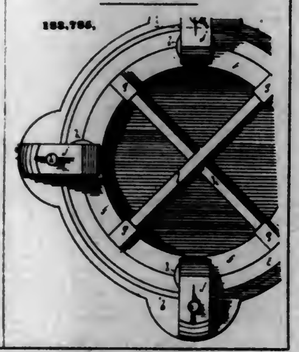
The combination, in the iron A, of the chamber B, having an inclined bottom, with the induction-opening C and eduction-opening D, as and for the purpose herein specified.

182,784. MOUTH-PIECES FOR SMOKING-PIPES. Benj. F. Van Cleve, Newark, N. J. [Filed July 20, 1876.]



A pipe-stem or cigar-holder, or bottom for the same, having a slit, *b*, therein, to allow the saliva to empty out laterally, substantially as and for the purpose set forth.

182,785.



182,785. MOLDS FOR CASTING CAR-WHEELS. Nathan Washburn, Hartford, Conn. [Filed Feb. 26, 1876.]

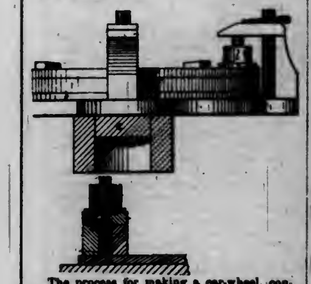
Brief.—The molten metal for the tire is poured into the mold, the gate-holes closed by plunger-plugs, bottoms turned over the plugs, and then, by hydraulic pressure, the table, with its mold, is raised, so as to force inward the plugs, thereby condensing the metal. The hot tire, in the chill, is taken to a second mold, when the body of the wheel is poured against the hot tire.

1. In combination with the matrix-case for a wheel-tire, the conduits or reservoirs *l* and the plungers *n*, all substantially as described, and for the purpose set forth.

2. In combination with the matrix-case for a wheel-tire, the conduits or reservoirs *l*, the plungers *n*, the turn-buttons *j*, standards *i*, platform *a*, and movable plate *b*, all substantially as described, and for the purpose set forth.

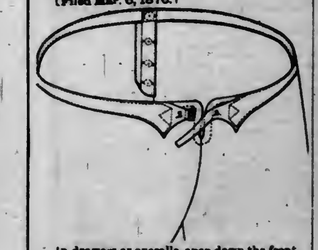
182,786. PROCESSES OF CASTING CAR-WHEELS. Nathan Washburn, Hartford, Conn. [Filed Feb. 26, 1876.]

Brief.—The molten metal for the tire is poured into the mold, the gate-holes closed by plunger-plugs, bottoms turned over the plugs, and then, by hydraulic pressure, the table, with its mold, is raised, so as to force inward the plugs, thereby condensing the metal. The hot tire, in the chill, is taken to a second mold, where the body of the wheel is poured against the hot tire.



The process for making a car-wheel, consisting of steps, as follows: first, casting the tire; second, transferring the still hot tire in its chill-ring to a second mold; third, casting the center or body within the tire, all substantially as described.

182,787. OVERALLS. Henry F. Woodward and Jacob N. Woodward, New York, N. Y. [Filed Mar. 6, 1876.]

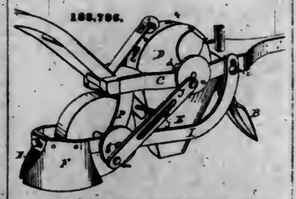


In drawers or overalls, open down the front, a waistband in two parts, each of which is permanently attached by sewing to the outside of the fabric of the drawers or overalls, and extends from the front opening around to the back, and terminates as a folded strap for the buckle, as set forth.

182,788. COMBINED COTTON-SEED PLANTER AND GUANO-DISTRIBUTER. Richard D. Alley, Wilson, N. C., assignor of one-half his right to Thomas D. Gay, same place. [Filed June 19, 1876.]

Brief.—The coverer-arms extend from in front of the opener to the rear, and are laterally and vertically adjustable. Upon the outside of the cylinder, into a spring-arm, is journaled a roller for freeing the discharge-openings of seed.

182,789.



1. A combined cotton-seed planter and guano-distributer, consisting of the plow-beam A, plow B, metal frame C, rotating hopper D, funnel E, and laterally and vertically adjustable scrapers F F, all arranged to operate in the manner substantially as herein shown and described.

2. The spring convex roller *f*, in combination with the oblong openings *e e* in the periphery of the rotating hopper D, for keeping the holes from clogging up, as herein specified.

182,790. SHOE-BUCKLES. Geo. H. Banister, Newark, N. J., assignor to Isaac Banister, same place. [Filed Aug. 12, 1876.]



An improved buckle, consisting of the curved plate provided with the slots *a b c f* and pin *d* upon the central bar *e*, all adapted for use substantially as shown and described.

182,791. MACHINES FOR MAKING WASH-BOARD PLATES. Geo. W. Barrett, Cleveland, Ohio, assignor to John M. Gorham, same place. [Filed May 31, 1876.]



1. As an article of manufacture, a wash-board plate, provided with the main crimps L and compensating-crimps M, substantially as and for the purpose described.

2. In a crimping-machine, the combination of the corrugations or crimps H and I, substantially as and for the purpose described.

3. In a crimping-machine, the combination of the bed B, crimps H and I, and sector or cylinder F, provided with counter-crimps, substantially as and for the purpose described.

4. The combination of the crimps H and I and flanging-bars G, substantially as and for the purpose described.

5. The combination, with the crimps H and I and flanging-bars G, of the sector or cylinder F, provided with the counter-crimps and flanging-bars, substantially as and for the purpose described.

6. The combination of the crimping-bed B, crimps H and I, flanging-bars G, gear-wheel or segment D, and rack C, substantially as and for the purpose described.

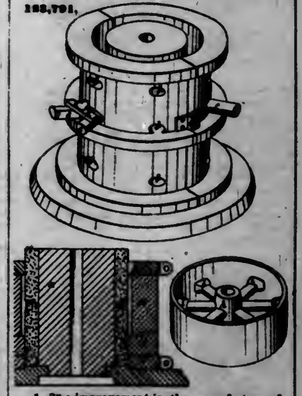
7. A crimping-machine provided with the crimps H and I, the former having the inclined or beveled ends K, substantially as described.

8. In a crimping-machine, the bed B, provided with the crimps H and I, the said crimps H having inclined or beveled ends K, in combination with the counterpart crimps on the sector or cylinder F, substantially as and for the purpose described.

182,792. CASTING BELT-PULLEYS. Augustus L. Bricknell, London, England, assignor of one-half of his right to Alex. A. Hall, Nashville, Tenn. [Filed May 4, 1876.]

Brief.—Forms annular sand core about solid mandrel in perforated core-box, which holds prints to form recesses in core. Places core in mold having metallic cheeks and a series of nader cheeks of gradnated size, to adjust chilling-cheeks vertically and relatively to recesses in core, and form an end of the mold-cavity. Pours through usual sprue, or through center of mandrel, thence through lateral ducts into annular gate at base of core, and thence into mold. Thus casts rim of wheel. Casts, in sand or in vented iron molds, hub and spokes or hub and web in one piece. Places this piece and rim on centering-machine, where either mandrel or table is revolved to move eccentric clamps inward. Places hand-mold (clayed) about each joint, and pours iron.

182,793.

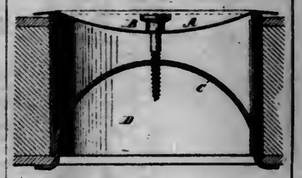


1. The improvement in the manufacture of cast-metal belt-pulleys, which consists in casting a solid rim in a mold, having a yielding non-chilling core and a permanent face-surface, substantially as described, whereby a well-finished belt-face and a practically circular rim are economically attained, as set forth.

2. The improvement in the manufacture of cast-metal belt-pulleys, which consists in separately casting the hub and the rim, the former, with its arms or their equivalents, being cast in any suitable manner, and the latter cast in a mold having a permanent face-surface and a yielding non-chilling core, the two parts being concentrically arranged and united together at the joints, substantially as described, whereby smooth-faced and practically concentric pulleys may be economically produced, as set forth.

3. A belt-pulley having a solidly-cast rim and a separately-cast hub, with arms, which are united to the rim, substantially as described.

182,794. ATTACHMENTS FOR STOVE-PIPE THIMBLES. Daniel W. Bryant, Chicago, Ill. [Filed Sept. 26, 1876.]

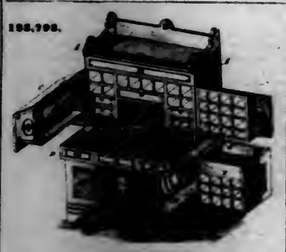


The combination and arrangement of the thimble-ring D, the metallic cover A, the thumb-screw B, and bridge-bar C, arranged and operated substantially as and for the purpose herein set forth and shown.

182,795. DESKS. L. S. Buffington, Minneapolis, Minn. [Filed Mar. 6, 1876.]

As a new article of manufacture, a desk consisting of an upper and lower part, A and B, having rectangular shelved or pigeon-holed compartments C C E E, the former hinged by the front and the latter by the rear outer corner to the main frame, the lower part of said frame being provided with recesses D, to receive the lower hinged sections, substantially as and for the purpose set forth.

183,793.



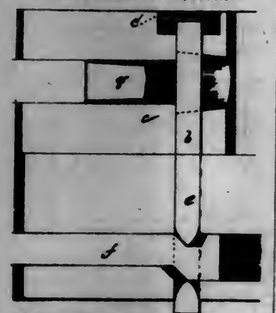
183,794. GANG-PLOWS. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 10, 1876.]

Brief.—On the land-side end of the axle-tree the crank-arm of the wheel-axle is loosely journaled upon the end of the axle-tree, and a segment-rack with internal cogs is made fast to the arm and the hand-lever rising therefrom. The arm that carries the pawl is made fast to the axle-tree. A spring holds the pawl in place, and the pressure of the foot of the driver releases the pawl.



The wheel *c*, hung on the arm *d*, the lever *e*, and toothed quadrant-arm *o*, all rigidly secured together, in combination with the rigid arm *g*, pawl *h*, and shaft *n*, all constructed and arranged for operation substantially as described.

183,795. DIES FOR FORMING THE EYES OF PICKAXES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Feb. 24, 1876.]

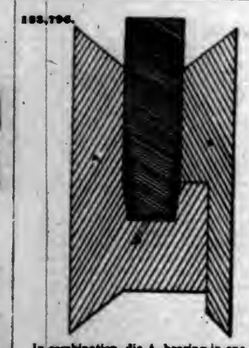


1. The combination of the dies *c d*, plunger *f*, cam-bar *f'*, and shoulder *c'*, substantially as and for the purpose specified.

2. In combination, dies *c d*, and plunger *e* for upsetting the stock by endwise pressure, and the transverse punch *g*, all substantially as shown and described.

183,796. DIES AND PUNCHES FOR PICK-EYES. Luke Chapman, Collinsville, Conn., assignor to the Collins Company, same place. [Filed Aug. 26, 1876.]

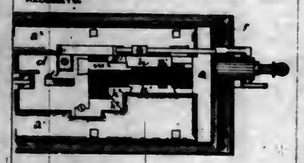
183,796.

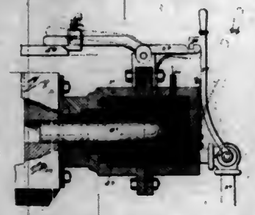


In combination, die A, bearing in one piece the side-stamping surface A' and non-partible matrix A'', die B, bearing the side-stamping surface B', and punch C, all substantially as described.

183,797. MACHINES FOR PUNCHING AND SWAGING METALS. Luke Chapman, Collinsville, Conn., assignor to Collins Company, same place. [Filed Feb. 24, 1875.]

Brief.—The dies are partible—the moving part actuated by a sliding wedge. The punch is actuated by a crank, and the resisting punch or anvil is supported by water in a closed chamber, but which, through a system of levers actuated by the moving parts, is allowed to escape by the turning of a cock, when the pressure produced by the crank becomes excessive.





1. The combination of the cross-head *c*, the cross-head *d*, pawl *e*, latch *e'*, cam-shaft *e''*, and stop-bar *e'''*, all constructed, arranged, and operating substantially as shown and described.

2. The combination of the movable slotted die-bed h^3, having cams h^4, and bar i^3, having pins *i*, with the cross-head *d* and double cams h^5, constructed and operating substantially as described.

3. The combination of the water-container $o\ o^2$, the escape-valve o^3, lever o^4, and latch-lever o^5, all substantially as shown and described.

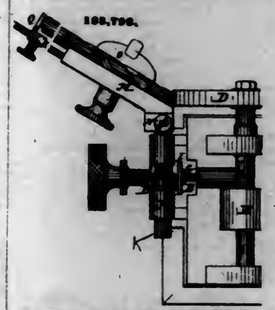
4. The hydraulic resisting-punch *n*, in combination with the water-container $o\ o^2$, and automatic valve-operating mechanism, and the punch m^3, substantially as shown and described.

5. The combination of the water-container $o\ o^2$, escape-valve o^3, lever o^4, latch-lever o^5, cam o^6, and cam o^7, all substantially as shown and described.

183,798. TOOLS FOR SHARPENING DRILLS. A. F. Champlin, Hartford, Conn. [Filed Aug. 12, 1876.]

Brief.—The tool-support is adjustable to and from the grinder, both by a slide and by a rock-shaft, K, carrying a cam working against a fixed stop. The tool-holder proper has a horizontal radial motion about the end of the rock-shaft, and a reciprocal motion on the pivot, a lateral motion by sliding the rock-shaft in its bearings, and a vertical curved motion by turning rock-shaft in its bearings, all to secure the angles and curves of the edges and sides of the drill. To hold the tool there are a side and an end clamp and a lip-stop.

183,798.



1. The gage Q, for fixing the position of the drill in a rotary direction, by resting against one of its lips while being ground, substantially as herein described.

2. The grooved drill-holder M, in combination with the gage Q operating against the end of the drill, substantially as herein described.

3. The combination of the tool-holding mechanism with the arbor K and cam L, substantially as herein described.

4. The combination of the slide E, the rocking standard J, the fixed standard I, the arbor K, the cam L, and a rocking tool-holding mechanism attached to the arbor K, substantially as herein described.

5. The combination of the gage Q for fixing the position of the drill upon the drill-holder, with a stop, G, to gage the length at the end which is cut off, substantially as herein described.

6. In a drill-sharpening machine, the adjustment at N, in combination with the tool-holding mechanism and the arbor K, substantially as herein described.

183,799. FLUTING APPARATUS. Emily J. Cutter, Malden, Mass. [Filed June 17, 1876.]



1. The improved ruffle-fluting tablet provided with the plane or flat surface *a* and the fluting-ridges *b*, arranged as set forth.

2. In the ruffle-fluting tablet, each of the fluting-ridges *b*, curved, substantially as described, at its rear end or junction with the plane surface portion, such being for use with a fluting-iron, provided with fluting-ridges, curved at their ends, as explained.

3. The fluting-iron B, having the fluting-ridges *a* on its bottom surface curved on their front ends, as set forth, for use with a fluting-tablet, as specified.

183,800. SCHOOL-DESKS. E. G. Durant, Racine, Wis. [Filed Jan. 6, 1876.]

1. In combination with a desk standard or frame, A, and a lid-arm, B, hinged thereto, a locking bolt or dog located in the joint, and

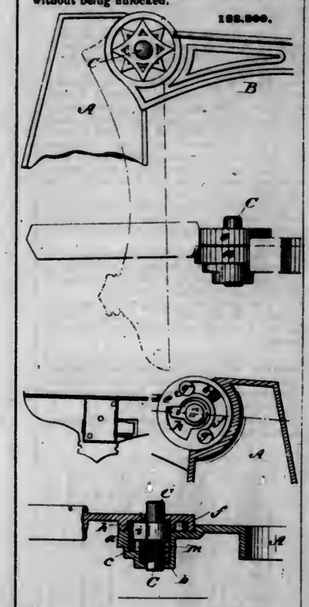
movable independently of the standard and arm, for the purpose of upholding the latter, substantially as shown and described.

2. In combination with the standard A, having the circular plate *a*, and the arm B, having the corresponding plate *c*, the sliding locking-bolt C, having the lip *i* and the spring *m*, all constructed and arranged to operate substantially as shown and described.

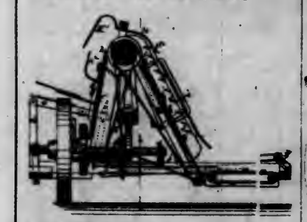
3. In combination with the standard A and the arm B, the combined locking-bolt and pivot C and the spring *m*, as shown.

4. The combination of the standard A, lid-arm B, hinged thereto, and the arm-locking device C, constructed substantially as shown, whereby the arm is permitted to rise above the position which it occupies when in use without being unlocked.

183,800.



183,801. HARVESTERS. Ezra Emmert, Harmon, Ill. [Filed Mar. 4, 1876.]



1. The frame-work supporting the elevating belts and roller detachably connected to the main frame of the machine, substantially as and for the purpose described.

2. The combination of the pole, provided at its rear extension with the foot-rest, the seat-support and seat, guard Y, and cutting apparatus, constructed and arranged substantially as shown and described.

3. The reciprocating clamping device or float, provided with ratchet-teeth on its inner face, in combination with the elevating-belts, substantially as and for the purpose described.

4. The fixed tines K^1 K^2, and vertically-reciprocating tines k^1 k^2, in combination with the operating cord *m* and drum m^2, constructed and arranged substantially as described.



183,802. JEWELRY-SETTINGS. A. C. Greene, Providence, R. I. [Filed Oct. 11, 1875.]

A holder for receiving a stone or other ornamental jewelry-setting, which consists of a single piece of sheet metal, formed into a border, a backing which affords a foundation for the rear of the stone, and a suitable number of setting-points projecting from the inner line of the border for engaging with the stone, substantially as described.

183,803. GLASS LAMPS. Loftus D. Hatton, Brooklyn, N. Y. [Filed June 3, 1876.]



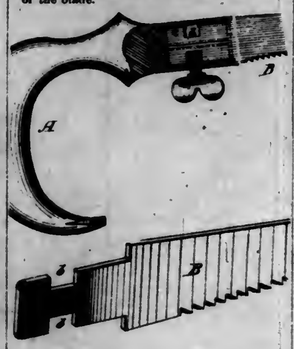
A glass lamp, A, with an indentation at any suitable point below its top, D D, with a ring or rim, B, made of metal or any other suitable material, to be sprung into or otherwise placed in said indentation D D, the rim or ring to rest or otherwise be fastened to its supporting ring or frame.

183,804. BATHS FOR TEMPERING ARTICLES OF IRON AND STEEL. H. Herrenschmidt, Melbourne, Victoria. [Filed Apr. 7, 1876.]

The bath for tempering iron and steel articles, which consists of muriatic and nitric acids, sulphate of zinc, iron, and water, prepared substantially in the manner and proportions herein specified.

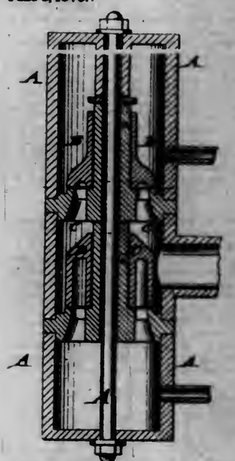
183,805. METHODS OF ATTACHING SAWS TO HANDLES. Joseph Holden, Middletown, N. Y., assignor to Wheeler, Madden & Clemson Manufacturing Company, same place. [Filed Sept. 29, 1876.]

Brief.—The handle is provided with a number of slots, radiating from its center, for removing and changing saws of different kinds, and adjusting the angle of the saw in relation to the handle. The saw is held and secured in position by a set-screw passing through a ferrule into an opening in the heel of the blade.



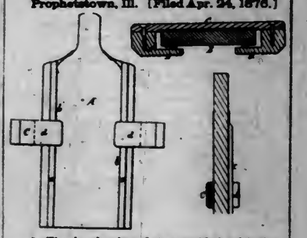
The combination of the saw-blade B, the handle A, having slots *d*, and means for holding the blade, substantially as and for the purpose set forth.

183,806. PUMP CYLINDERS AND VALVES. D. W. Kellogg, Battle Creek, Mich. [Filed June 6, 1876.]



The combination of sectional cylinder A, with valve-seats at the junction of the sections, a valve for each seat, and a single bolt passing centrally through sections, seats, and valves, substantially as and for the purpose specified.

183,807. IRONING-BOARDS. J. M. Kendall, Prophetstown, Ill. [Filed Apr. 24, 1876.]



1. The ironing-board A, provided with the clamp-bar C and its clamps *d d*.

2. The combination of the ironing-board A, provided with the clamp-bar C and its clamps *d d*, all being applied and arranged as set forth.

183,808. NURSING-BOTTLES. William Kennish, New Brunswick, N. J. [Filed Oct. 17, 1876.]

Brief.—A thin flexible diaphragm at bottom of stopper supports and gives free motion to a tube extending into the contents of the bottle.



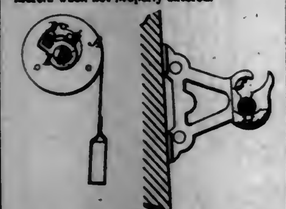
1. The nursing-bottle stopper A A, composed of india-rubber or other elastic material, molded with a central chamber, C, terminating in a thin film or bottom, which suspends and gives freedom of motion to an inner tube, as shown.

2. A plug or stopper, *a a*, of wood or other suitable substance, centrally perforated with a cylindrical hole, terminating in a conical chamber, *b b*, in combination with nursing-bottle stopper A A, central chamber C terminating in thin bottom and suspended tube, as described.

3. In combination with nursing-bottle stopper A A, central chamber C, plug *a a*, diaphragm D, and suspended inner tube F, a vent composed of a cylindrical hole, G, terminating in a hole of capillary size through a thin part of the stopper, as described.

168,880. CURTAIN-FIXTURE. A. H. Knapp, Newton, Mass. [Filed May 19, 1876.]

Brief.—A projection on the spindle and a projection on the bracket are arranged so as to strike one another, and thus prevent the spindle from entering the notch in the bracket unless the pivoted pawl is in position to gravitate away from the projections on the end of the roller, so that, when the spindle can be entered, the spring is free to turn the roller. The notch of the bracket is enlarged at its upper end, so that the spindle can be forced therein when not properly entered.

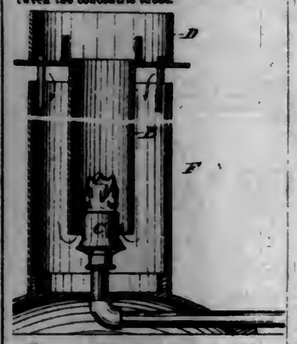


1. In a spring-actuated curtain-roller, in combination with a pawl pivoted to the spindle thereof and stops or ratchet-teeth on the roller, for the said pawl to engage with when impelled by centrifugal force, a projection on the spindle and a projection or stop on the adjacent bracket, arranged and co-operating in such a manner that the spindle will descend into the notch of the bracket only when turned into the proper position to cause the pawl to gravitate away from the stops or ratchet-projections on the roller, substantially as and for the purpose herein specified.

2. The spindle-bracket, provided with an enlargement, *f*, in the upper part of its notch, substantially as and for the purpose herein specified.

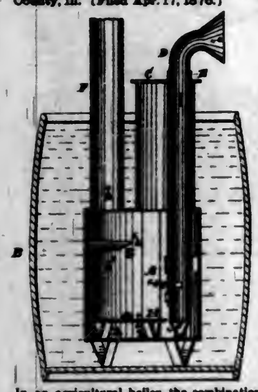
168,889. GAS-STOVES. A. C. Lippitt, New London, Conn. [Filed Apr. 6, 1876.]

Brief.—Air to supply the flame ascends between the concentric tubes.



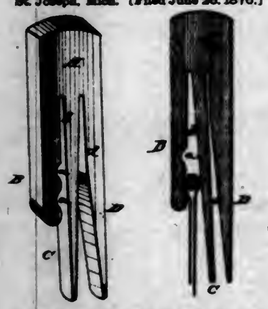
The combination, in a gas stove or heater, of the two concentric tubes or cylinders E and F, with the cup D or equivalent support for the vessel or article to be heated, all constructed to operate substantially as described.

168,921. AGRICULTURAL BOILERS. Ira Mayo, Friend's Creek Township, Macon County, Ill. [Filed Apr. 17, 1876.]



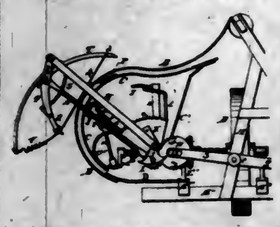
In an agricultural boiler, the combination of the furnace A, pipe G, draft-pipe D, with its funnel *d*, pipe E, hinged grate H, deflector G, and smoke-pipe F, as shown and described.

168,919. CLOTHES-PINS. William H. Mayo, St. Joseph, Mich. [Filed June 26, 1876.]



A clothes-pin made of a single piece of wood, with a rigid corrugated thumb, B, on one side, a rigid finger, D, on the other side, and an intermediate flexible finger, C, substantially as and for the purposes herein set forth.

168,915. GRAIN-BINDERS. D. McPherson, Caledonia, N. Y. [Filed Feb. 3, 1876.]



1. The tilting bar Z, for changing the position of the binder without changing the relative position of the parts, substantially as specified.

2. The combination of the rocking receiver C with the main receiver B, substantially as and for the purposes specified.

3. The combination of the needle T with the twisting devices, supported upon a tilting bean adapted to tilt them in either direction, so as to bring the beads or ties in a proper position around the bundles, substantially as set forth.

4. The combination of the needle T, provided with an extension, U, with the cord W and spring V, substantially as set forth.

5. The combination of the arm Q and pivoted bar R with the link or rod S, needle T, and cord W, for compressing the bundle, substantially as specified.

6. The combination of the needle T and frame M', N, O, and P, with the crank *n*, pitman *o*, and post Y', for advancing and receding the needle, substantially as specified.

7. The wheel *d*, in combination with the loop or opening *d'* for holding the wire while it is drawn out, substantially as described.

8. The concave opening *i* in the twister-head Y, in combination with the close-fitting twisting-hook *s*, substantially as and for the purpose specified.

9. The combination of the wheel *d* and sliding bar *g* with the twisting-hook *s* and cutter *f*, for holding, twisting, and severing the wire, substantially as described.

10. The wheels H and I, in combination with the plate J, pitman K, and crank L, and shaft M' for tilting the needle and forcing it through the grain, substantially as set forth.

11. The combination of the wheel H, provided with the cogged and blank sections, with the wheel I, similarly provided, pins *u u*, and plate J, for giving intermittent movements to the pitman K, substantially as specified.

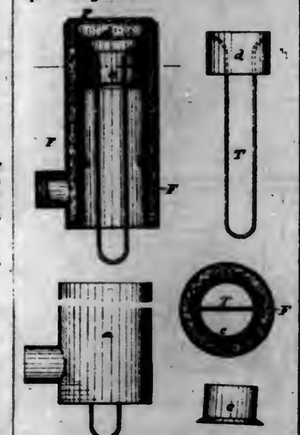
12. The combination of the lever *e* with shaft J' and bar Z, for tilting the binding apparatus in either direction, substantially as specified.

13. The combination of the lever *e* with the guide-post *q*, link *r*, tilting bar Z, and lever *z*, for bringing the tilting within the control of the driver, substantially as specified.

14. The spring or yielding arm F, in combination with platform B C, for preventing the return of the bundles, substantially as specified.

168,914. OIL-BURNERS. George K. Osborn, Brooklyn, N. Y., assignor, by mesne assignments, to Horace B. Thompson, same place. [Filed Mar. 22, 1876.]

Brief.—By the slide the amount of wick exposed is regulated.



1. The slide *d*, placed within an Argand burner, and worked as and for the purposes set forth.

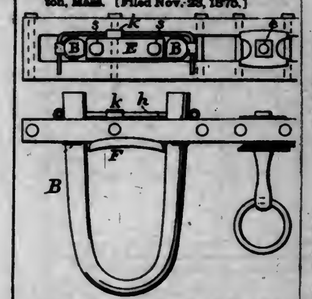
2. The combination of the drip-cup *e* with the sliding tube *d*, arranged as and for the purposes set forth.

3. A combination of the slide *d* and the permanent fixed wick F, operating as and for the purposes set forth.

168,915. LAMP-WICKS. Geo. K. Osborn, Brooklyn, N. Y., assignor to G. W. Thompson, same place. [Filed June 16, 1876.]

A lamp-wick, composed partly or wholly of powdered charcoal when cemented together, substantially as and for the purposes set forth.

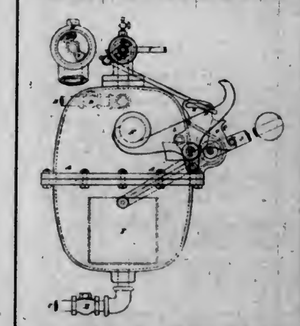
168,916. OX-YOKES. Wm. Perkins, Plympton, Mass. [Filed Nov. 23, 1875.]



1. In combination with bow B of a yoke, the holding and guiding devices *b*, the guide-bar *h*, and guide *k*, as and for the purpose described.

2. In the yoke, the bows B, provided with the devices *b*, as shown, the guide-bar *h*, and guide *k*, in combination with sliding neck-pieces E, provided with the plates F, lever D, and connecting-rods *d*, as and for the purposes set forth.

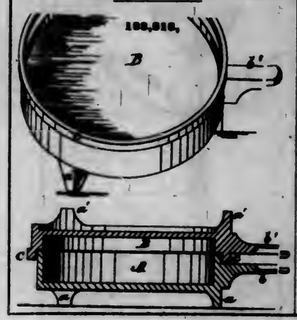
168,917. BOILER-FEEDERS. F. A. Pratt, Hartford, Conn. [Filed July 31, 1876.]



1. The combination of the plate O, with its slot Q and R, and the lever L, with its rolling weight N, with the lever J of the float F, for the purpose of operating the valve V at the proper time, substantially in the manner herein set forth.

2. The combination in a boiler-feeder, of a valve, V, for alternately opening and closing the steam-pipe U, and which opens an exhaust-port, D', communicating with the chamber A when the main pipe U is closed, with an alternately filling and discharging chamber, A, substantially as herein described.

168,918.



168,918. CORNICE SPIDER AND BAKING-PAN. David B. Smith, Bastrop, La. [Filed Oct. 25, 1875.]

The combination, with the vessel A, provided with legs *a* and handle *b*, the latter located below the top of the vessel A for the reception of an outer flange, of the shallow vessel B, provided with legs *a'*, handle *b'*, and a flange, *c*, the latter being of sufficient size to receive the top of vessel A, the several parts constructed and arranged substantially as and for the purpose set forth.

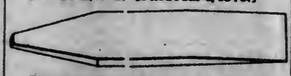
168,919. MANUFACTURE OF ARTIFICIAL LEATHER. Peter G. Smith, Roslyn, and J. J. Johnson, Huntington, N. Y. [Filed Sept. 6, 1876.]

1. The process herein described of dissolving leather refuse for use in the manufacture of artificial leather, by treating the same with sulphuric acid, pyroligneous acid, and fusel-oil, in the manner and in about the proportions indicated.

2. The process herein described of introducing wax into the composition of artificial leather, for the purpose of rendering the material pliable and water-proof—viz., by first mixing the melted wax with the dissolved paper-stock, and then the resulting mixture with the dissolved leather refuse, as explained.

3. The process herein described of preparing the stock for artificial leather—viz., dissolving the leather refuse by the agents named; preparing the paper-stock by adding thereto the wax and coloring matter, in the manner set forth; mixing the two preparations; drying the mixture; grinding, steaming, sieving, and pressing, as explained.

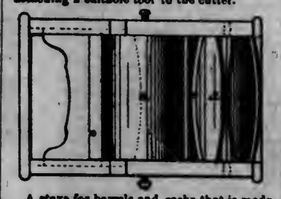
168,920. MANUFACTURE OF HOOPS. H. S. Smith, Brooklyn, assignor, by mesne assignments, to New York Barrel Company, New York, N. Y. [Filed Jan. 4, 1876.]



The herein-described hoop made from the surface of the log by shaving it into one continuous sheet of lumber, and then cutting this lumber into strips for hoops, and dressing, beveling, and chamfering the same by suitable machinery, substantially as set forth.

168,921. MANUFACTURE OF STAVES. H. S. Smith, Brooklyn, assignor, by mesne assignments, to New York Barrel Company, New York, N. Y. [Filed Dec. 2, 1875.]

Brief.—Staves are cut from the surface of a log, while revolving between centers, by means of a series of knives of the form of a stave arranged upon the periphery of a cylinder horizontally adjustable, which cut into the log the required depth, and a rigid knife for cutting the sheet from the log. The ends of the staves can be crozed and chamfered by attaching a suitable tool to the cutter.



A stave for barrels and casks that is made by machinery from the surface of the log, substantially as described.

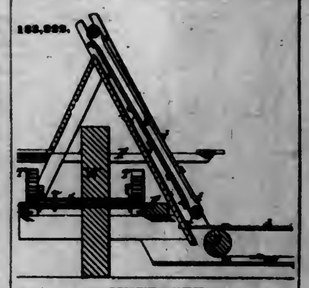
168,922. HARVESTERS. George H. Spaulding, Rockford, Ill., assignor of one-half his right to Wm. A. Knowlton, same place. [Filed Sept. 22, 1876.]

1. In a harvester, the combination of the smooth bars *r r*, with the roughened bar *r'*, and the slats or projections *s* of an endless apron, substantially as and for the purposes described.

2. The wheel W, shafts *u w'*, pin *m*, racks T T, pinions *t t*, and lever-pawls *v v*, combined substantially as and for the purposes set forth.

3. In a machine for harvesting grain, the pivoted spring-tooth *a*, combined with the curved rack T, and the traveling pinion *t*, substantially as and for the purposes set forth.

168,923.



168,923. PLOW-STANDARDS. W. W. Speer, Pittsburg, Pa. [Filed Sept. 20, 1876.]

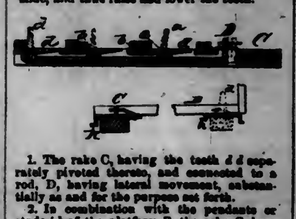
Brief.—Corrugations running parallel with the front edge of the standard.



The standard of a plow, constructed with corrugations or grooves, curved concentric with its cutting-edge, substantially as and for the purpose set forth.

168,924. HARVESTING-RAKES. J. P. Stark, Knob Lick, Mo. [Filed Aug. 19, 1876.]

Brief.—The rake-teeth are pivoted to the rake-head, and to a rod running laterally through it, connected by an elbow-lever to a slide. Pendants from the platform strike the slide, and thus raise and lower the teeth.



1. The rake C, having the teeth *d d* separately pivoted thereto, and connected to a rod, D, having lateral movement, substantially as and for the purpose set forth.

2. In combination with the pendants or studs *f h* of the platform B, the rake C, having the teeth-operating rod D, provided with the bell-crank *g* and slide A, substantially as and for the purpose set forth.

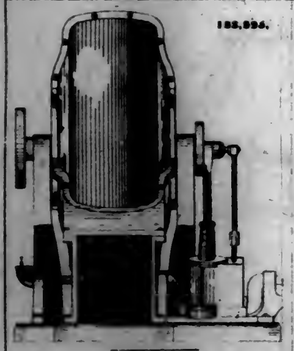
168,925. PORTABLE STEAM-FANS. Benj. F. Sturtevant, Boston, Mass. [Filed Aug. 12, 1876.]

Brief.—One shaft is common to both engine and blast-wheel. The extended bed-plate of engine serves as a support for the blast-wheel and its casing.

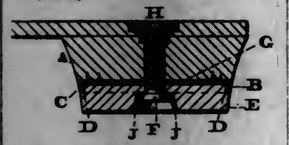
1. An engine, its extended bed-plate, a casing, and a blast-wheel, in combination with a shaft that serves as the shaft of the blast-wheel and as the shaft for the engine, substantially as described.

2. The hollow plate *p* and crooked steam-conducting trunnions *q q'*, arranged with relation to the center of motion and center of gravity of the oscillating parts, substantially as described.

182,894.

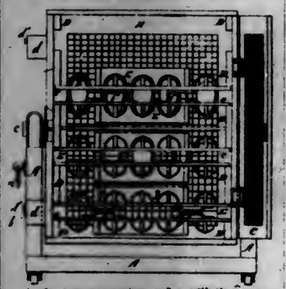


182,896. HEELS FOR BOOTS AND SHOES. Jno. Tingley, Philadelphia, Pa. [Filed Jan. 6, 1876.]



The annulus B, formed with a downwardly-projecting flange, C, and immovably connected to the stationary part A of the heel, in combination with the rotary tread or lift E, having a recess, D, on its upper edge, and with the screw F, fixed upper nut H, embedded in the sole, and recessed thimble J, substantially as and for the purpose set forth.

182,897. EGG-CARRIERS. Peter Tulp, Chicago, Ill. [Filed Aug. 31, 1876.]



1. An egg preserving and ventilating case, consisting of a ventilated box pivoted to a supporting-frame, and having cleats or grooves to support removable egg-receiving trays independently, one above the other, when the position of the box is reversed from time to time, for the purpose specified.

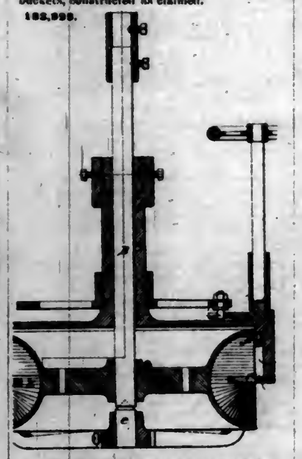
2. The trays E E, consisting of the parts *e e* hinged to each other, and having therein the egg-receiving openings *e' e'*, and provided with the soft or flexible loops or egg-supporters *g g*, in combination with a box or case adapted to receive the said trays, substantially as and for the purpose specified.

3. In combination, the supporting-frame A and the box or case B, pivoted to the said frame, and provided with the stops *d d*, arranged as described, and also with cleats or grooves for supporting removable egg receiving and supporting trays, substantially as and for the purposes specified.

182,898. TURBINE WATER-WHEELS. A. H. Wagner, Chicago, Ill., assignor to Anna G. Wagner, same place. [Filed July 24, 1876.]

Brief.—In this wheel the water is admitted to and discharged from the buckets at the periphery of the wheel; and the invention consists in the combination of the wheel-casing, its chutes or water-guides, pivoted gates, and buckets, constructed as claimed.

182,899.



1. The water-wheel proper, constructed as hereinbefore described, with a concave periphery, having its projecting upper and lower rims in the same vertical plane, and a horizontal annular flange arranged midway between said rims, and partially dividing the concavity in the wheel into two equal parts, with a contracted water-way between them.

2. A two-part water-wheel bucket, constructed substantially as hereinbefore described, with a curved top, back, and bottom, an inclined upper portion, a vertical lower portion, and a horizontal twist or bend between the upper and lower portions.

3. The combination, substantially as hereinbefore set forth, of the horizontal concave-faced wheel, its annular dividing-flange, and the two-part buckets, having their upper portions inclined to the axis of the wheel and radial thereto, and their lower portions, for the greater part, vertical and tangential to the axis.

4. The combination of the wheel-casing, having a vertical face or periphery, the double chutes therein, the partitions between the chutes, the series of swinging gates pivoted in the double chutes, and formed to correspond with the partitions separating the chutes, and the buckets, these members being constructed and operating substantially as set forth, whereby each gate controls a two-part or double chute, and regulates the admission of water to two buckets.

5. The combination of the casing, having an annular vertical face or periphery, the chutes therein, the series of pivoted gates, the gate-regulating ring, the arms connecting the gates and regulating-ring, and the adjusting-bolts, working in slots in the regulating-ring and in the connecting-arms, these members being constructed and operating as and for the purpose set forth.

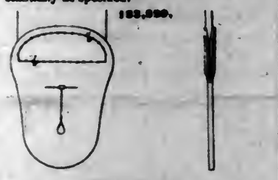
6. The combination of the casing, the regulating-ring, its operating-shaft, the arm adjustably connecting said shaft and the adjusting-ring, the swinging gates, and the independently-adjustable connections between the gates and the regulating-ring, these members being constructed and operating substantially as set forth, whereby the gates are rendered both independently and simultaneously adjustable.

7. The combination, substantially as hereinbefore set forth, of the casing, having a vertical face or periphery, a bottom flange, a^3, and an internal shoulder, a^2, and the wheel, having a concave periphery, an upper rim bearing against the internal shoulder of the casing, and a central annular flange bearing against the bottom flange of the casing.

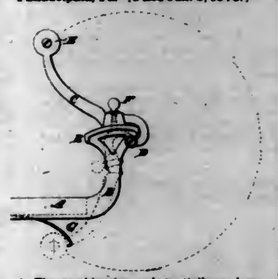
182,899. SUSPENDER-ENDS. J. W. Wattles, Canton, Mass. [Filed May 13, 1876.]

As a new or improved manufacture, a suspender-strap bottoning-terminal composed of a single piece of material split or recessed down from its upper edge, to receive the end portion of the strap, and provided with a button-hole arranged below the slit, all being substantially as specified.

182,900.



182,900. FOOT-RESTS. Otis C. White, Hopkinton, Mass.; assignor to Saml. S. White, Philadelphia, Pa. [Filed Jan. 5, 1876.]



1. The combination, substantially as hereinbefore set forth, of the foot-board, the supporting-brackets, and the foot-support arms pivoted thereon.

2. The combination of the brackets, the foot-support arms pivoted thereon, and the stop-pins, these members being constructed and operating in combination, substantially as hereinbefore set forth, whereby the foot-support, when in use, rests upon and is secured to the brackets and the pivots released from strain.

3. The combination, substantially as hereinbefore set forth, of the foot-board, the brackets mounted thereon, the foot-support arms pivoted on the brackets, and the friction-spring underneath the foot-board, to hold the adjustable foot-support when not in use.

182,901. METHODS OF PREPARING TELEGRAPHIC MESSAGES FOR FAC-SIMILE TRANSMISSION. Josiah L. Young, New York, N. Y. [Filed Mar. 26, 1874.]

The method of preparing messages for transmission, which consists in first coating a metallic surface with a non-conductor, then writing upon the same with a solution of caustic alkali, and finally washing with water, substantially as set forth.

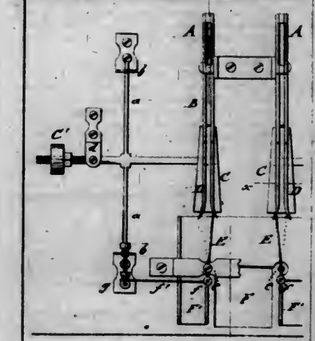
182,902. PRESSERS. Jonathan P. Barnett, Navasota, Tex. [Filed Sept. 2, 1876.]

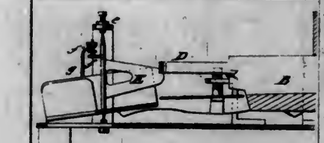
Brief.—The stem is slotted, so that the containing-braces can drop and allow the wings to fold underneath the cap of the pommy.



In combination with the slotted tube C, the wings E hinged thereto, the screw-stem B, the arms or links b, pivoted to the upper end of the latter, and the adjusting-nut D, all constructed and arranged as shown and described.

182,903. COIN-COUNTERS. Aron Bernstein, Berlin, Prussia. [Filed Sept. 9, 1876.]





1. An apparatus for separating and detecting light and false gold coins, consisting, mainly, of conducting-channels, a tilting mechanism, and a swinging vane or wing operated thereby, and exit spouts, substantially in the manner and for the purpose set forth.

2. The combination, with the drop-opening A and guide-channels B D, of an adjustable balance or tilter that is only depressed by a coin of full weight, substantially as described.

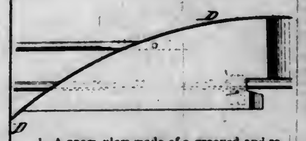
3. The combination, with a tilting balance, of a swinging vane that is operated by the depression of the tilter by the gold coin, substantially as set forth.

4. The combination of the fulcrum-lever a of the tilter with arm *g*, lever-rod *f''*, crank-pin *f'*, and vertically-pivoted vane E, substantially as described.

5. The guide-arms D, having curved outer ends, in combination with the vane E, swinging against either end, to conduct the coin without obstruction to the proper receptacle, substantially as set forth.

182,904. HAND SNOW-PLOWS. E. R. Botts, Bear Lake, Pa. [Filed July 1, 1876.]

Brief.—The plow is designed to be used on a single rail by the track-tender.



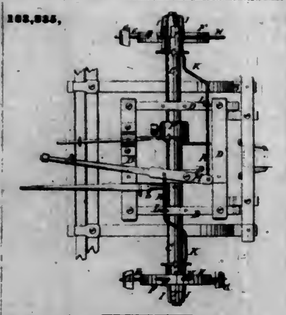
1. A snow-plow made of a grooved and recessed mold-board, provided with a roller for guiding it on the rail, the front runner, and a curved outwardly-extending flange or plate, D, substantially as described, for the purpose set forth.

2. The mold-board having tapering recess and bottom groove, with roller to guide the same upon the rail, as shown and described.

182,905. SEED-PLANTERS. L. J. Bosworth, Monmouth, Ill. [Filed Apr. 4, 1876.]

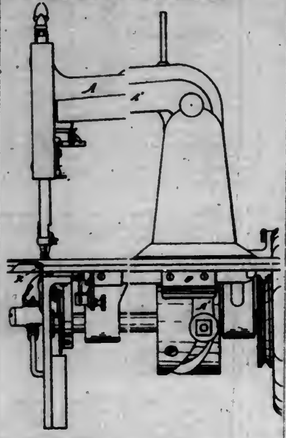
The expansion spoke-wheels, formed of the stationary spokes E, provided with the marking-blocks G, the rims F, the spokes and spring-bars H I, the slotted conical thimbles J, and the rods K, and the lever M, provided with the stirrup N, in combination with the axle C and the frame D of a seed-planter, substantially as herein shown and described.

182,906.



182,906. SEWING-MACHINES. Franklin H. Brown, Indianapolis Ind., (Wm. P. Brown, administrator.) [Filed June 7, 1875.]

Brief.—A shield or guard attached to the under side of the needle-plate, and projecting downward around the end of the feed-bar, prevents such device from catching the thread of the shuttle when in operation, while a guard attached to the bed of the machine, and bearing against the lower end of the needle-lever, steadies the same, and holds it in proper relative position to its operating-cam.



1. The shield K, constructed substantially as shown and described, in combination with the feed-bar and the vertical face-plate, the said shield being arranged externally to the said face-plate and below the feed-bar, and above the circuit in which the shuttle-carrier is moved, substantially as and for the purposes specified.

2. The combination of the guard O and vibrating arm A', substantially as and for the purposes specified.

182,907. WATERING-TROUGHS. Frank A. Coffman, Tipton, Iowa. [Filed May 22, 1876.]

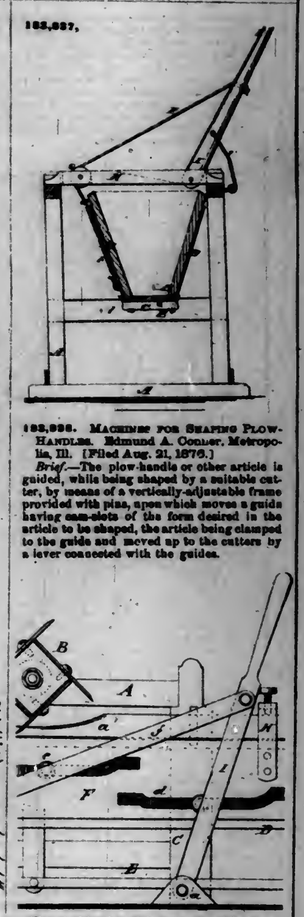
Brief.—The trough is tilted forward to discharge the water, and is brought back to its place by the lever and rope, and held there by a latch.

1. The combination of the rod E with the trough B and frame A, to enable the said trough to be turned down to discharge its contents, substantially as herein shown and described.

2. The combination of the rope or chain F, the pulley G, and the lever I with the tilting trough B and the frame A, substantially as herein shown and described.

3. The combination of the hook J with the lever I, rope or chain F, tilting trough B, and frame A, substantially as herein shown and described.

182,908.

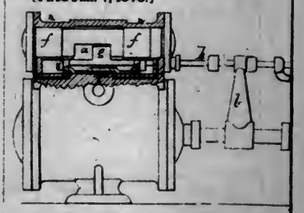


182,908. MACHINES FOR SHAPING PLOW-HANDLES. Edmund A. Conner, Metropolis, Ill. [Filed Aug. 21, 1876.]

Brief.—The plow-handle or other article is guided, while being shaped by a suitable cutter, by means of a vertically-adjustable frame provided with pins, upon which moves a guide having cam-slots of the form desired in the article to be shaped, the article being clamped to the guide and moved up to the cutters by a lever connected with the guides.

The combination of the cutter-head B, frame A, guides C, frame D, guide F, provided with cam-slots *d*, the levers E and I, dog G, and clamp H, substantially as shown and described.

182,909. VALVES FOR DIRECT-ACTING ENGINES. Chas. P. Deane, Springfield, Mass. [Filed Jan. 7, 1876.]

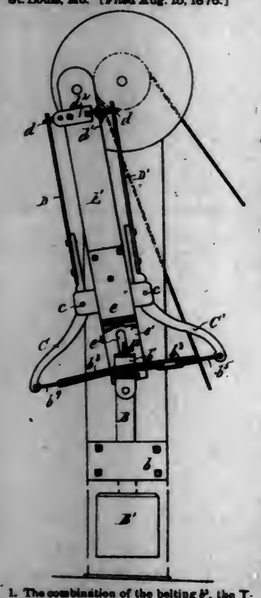


The arrangement, with the piston *f* and its cylinder *a*, of the lug *g*, said lug being attached directly to a single reciprocating rod, *h*, guided as described, and being extended through an opening in said cylinder into a slot or recess, *c*, in said piston, in the manner and for the purpose described.

182,840. PROCESSES OF MAKING BIRCH BEER. Harvey Decker, Jersey City, N. J. [Filed Aug. 21, 1876.]

The process herein described of making beer from ground birch-bark, which consists in first extracting the strength thereof in hops and water without boiling; secondly, fermenting the liquor obtained with yeast; and, thirdly, in adding malt and sugar, the latter having been previously made to absorb oil of winter-green, as set forth.

182,841. ORE-CRUSHERS. Jos. W. Dowler, St. Louis, Mo. [Filed Aug. 15, 1876.]



1. The combination of the belting b^5, the T-head B^2, links b^4 b^4, lever C C', pitman E, stamper-rod B, and crank-shaft, all constructed, as herein shown and described, and by means whereof a short crank motion is obtained, and the rapidity of the stamper-rod is increased to deliver its blows, as and for the purpose set forth.

2. The combination, with T-head B^2, having opening b^3 and projecting ends b^2 of belting b^5, stamper-rod B, links b^4 b^4, curved levers C C', pitman E, guides e e^1, having slots e^2, and crank-shaft, all arranged as shown and described, to control the action of the belting and guide the reciprocation of stamper-rod, as and for the purpose set forth.

3. The combination of the springs D D^1, curved levers C C', screw-bolts d, brace d^2, and pitman E, by means whereof the adjustable action is had, as and for the purpose set forth.

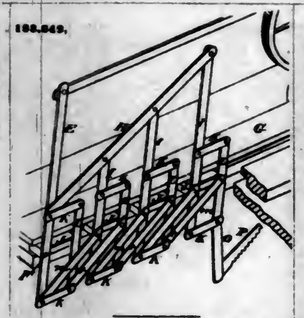
4. The combination of the brace d^2, having the pivoted sides d^3 of the screw-bolts d, springs D D^1, levers C C', and pitman E, to allow for the part are movement of said springs, as and for the purpose set forth.

5. An improved ore-crusher, consisting of the pitman E, springs D D^1, screw-bolts d, brace d^2, levers C C', links b^4 b^4, belting b^5, T-head B^2, guides E^1, stamper-rod B, and crank attachment, all said parts being constructed to operate in the manner and for the purpose set forth.

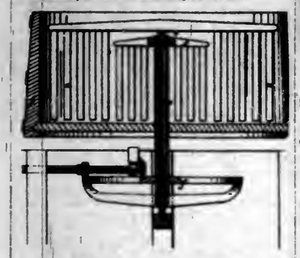
182,842. MECHANICAL POWERS. Henry J. Gastmann, Eureka, Cal. [Filed June 13, 1876.]

A mechanical power consisting of the lever K, with its stationary fulcrum F, and the bar H connecting it with the levers I I, which have their fulcra in the slides J, in combination with the arms K and L, and the uniting-links m and n, the whole constructed to operate substantially as herein described.

182,843.



182,843. MASH-TUBS. Christian Halter, Buffalo, N. Y. [Filed May 8, 1876.]



In a mash-tub, the single rake, having an independent central section, both parts working in the same direction, but at different speeds, and operated by suitable mechanism, substantially as specified.

182,844. STOP MECHANISMS FOR DRAWING-FRAMES. William R. Handy, Providence, R. I. [Filed Feb. 14, 1876.]



1. The combination, with the trumpet a, provided with the heel a, and frame b, provided with the cylinder i of the piston h, spring p, and rod l, arranged to operate the stop-lever, substantially as and for the purpose described.

2. The hinge-arm o', provided with the toe n, in combination with the rod l, provided with the toe m, and a spring acting upon said rod, the whole operated by the trumpet-lever, substantially as and for the purpose described.

3. The combination, with the rod l, piston h, and cylinder i, of the follower o, provided with a thumb-piece, and arranged to regulate the resistance to the heel of the trumpet-lever, substantially as and for the purpose set forth.

182,845. COMPOUND STEAM BOILERS AND ENGINES. William Hanna, Gilroy, Cal. [Filed Dec. 16, 1876.]

1. A compound steam-boiler, consisting of one or more series or batteries of compound tubes, generating steam of high pressure, in combination with a tubular or other boiler generating steam of less pressure, substantially in the manner specified.

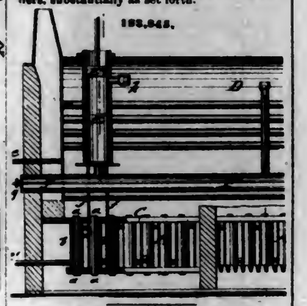
2. The combination of the top and bottom plates C C, exterior water-tubes b, and interior open-ended heating-flues a, extending through said plates, as and for the purpose set forth.

3. The combination of the system of compound generating-tubes, by suitable supply and exhaust valves, with one or more vertical steam-cylinders within a steam-boiler, to operate pistons of the same, and establish equilibrium of pressure in compound tubes and boiler at the completion of each upstroke of pistons, substantially as specified.

4. A common tubular boiler, combined with vertical interior cylinders, operated by the steam of high pressure from a system of compound generating-tubes, substantially as set forth.

5. The combination of the boiler with the interior cylinders, and a longitudinal regulating-tube below the same, both cylinders and tube having exhaust check-valves above the level of the water, to augment the pressure in boiler by the high pressure from the cylinders, substantially as set forth.

182,845.

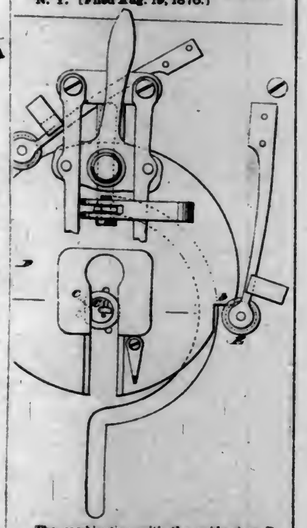


182,846. NECK-YOKES. Frank Hannig, Lockhart, Tex. [Filed Aug. 14, 1876.]



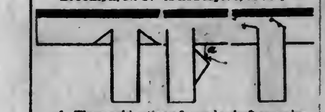
In combination with the neck-yoke, having the central enlargement d, the rings C C, having perforated ears, the pivoted bar B, and swiveled pole-tube A, all as shown and described.

182,847. MACHINES FOR BORING BUTTON-HOLES. Elisha Hanshew, Jr., Brooklyn, N. Y. [Filed Aug. 19, 1876.]



The combination, with the guide-plate D, having shoulder b, of the rollers E G, fixed at the ends of springs, and oppositely arranged with respect to said guide-plate, as shown and described.

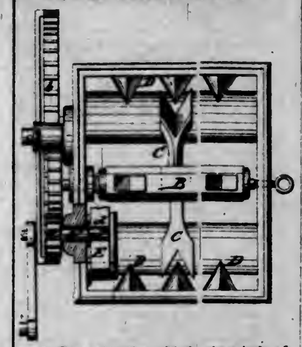
182,848. VENTILATORS. Obadiah Harned, Brooklyn, N. Y. [Filed Apr. 1, 1876.]



1. The combination of a main shaft or series of shafts, a shaft arranged perpendicularly thereto, and deflectors extending into the latter from the wall or side which joins the main shaft or shafts, substantially as and for the purpose herein set forth.

2. The combination, with the main shaft or series of shafts, of a shaft arranged perpendicularly thereto, and provided with holes or openings a, and deflectors at or near the outlets of the main shaft or shafts, substantially as and for the purpose set forth.

182,849. CHURNS. Elisha A. Hewitt, Groton, Conn. [Filed May 27, 1876.]



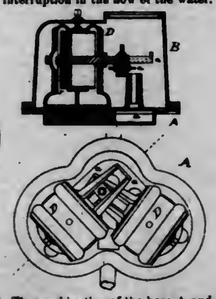
1. The combination, with the churn-body, of the rotary beaters C, having wedge-shaped concavities in the ends, and the stationary breakers D, convexed in a corresponding wedge shape, substantially as shown and described.

2. The fan E, having hollow shaft E', and spout of its case extended down toward bottom of churn, substantially as and for the purpose specified.

3. In a churn, a revolving shaft with radial beaters, having bifurcated ends, raised ridges at one side, and a flat or straight surface at the other side, substantially as set forth.

182,850. WATER-METERS. Van H. Higgins, Chicago, Ill. [Filed Dec. 13, 1875.]

Brief.—Two cylinders are arranged upon the same crank-shaft, thereby avoiding dead-centers, and the movement so timed that there is no interruption in the flow of the water.



1. The combination of the base A and case B with the horizontal cylinders or cylinder-cases D, seated upon the base for bringing the water-pressure to act with the weight of the cylinders to avoid packing, and to compensate for the wearing of the parts, substantially as specified.

2. The combination of the two cylinders D, at, or nearly at, right angles with each other, and having their pistons connected together at their outer ends, for preventing dead-points, assisting each other in their oscillations, and equalizing the flow of water, substantially as set forth.

3. The combination of the openings i j, and ports or openings k, l, m, and n of the base A, with the ports or openings s t, and cylinders D, substantially as specified.

4. The combination of the chambers or opening o p, with the openings q r of the cylinder, and the discharging-chamber s for discharging the water downward, substantially as set forth.

5. The combination of the base A, cap or case B, with the cylinders D, constructed and operating as specified, with the single crank c, substantially as and for the purposes specified.

6. The guides a, in combination with the cylinders D, piston-rods b, and heads d, substantially as and for the purpose specified.

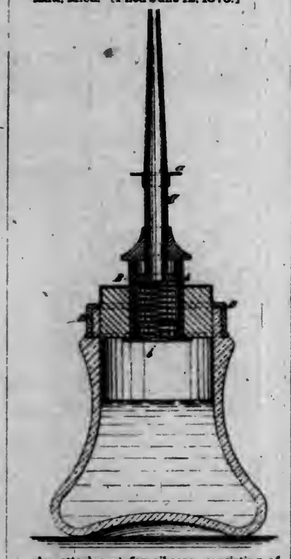
182,851. GRAIN-HEADERS. A. J. Hodges, Peoria, Ill. [Filed Sept. 4, 1876.]
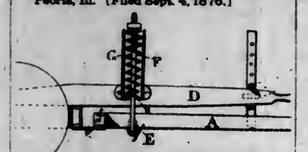


1. A spring or springs as a connection between the thrust-bar and the frame-lever of a heading harvesting-machine, for the purpose of destroying the violent oscillating motion caused by the weight of the grain-platform and its uneven propulsion by the thrust-bar.

2. The combination, with the lever D and the tongue A of a heading-harvester, of the vertical tension-springs F, forked rod E, cases G, and nuts k, substantially as and for the purposes described.

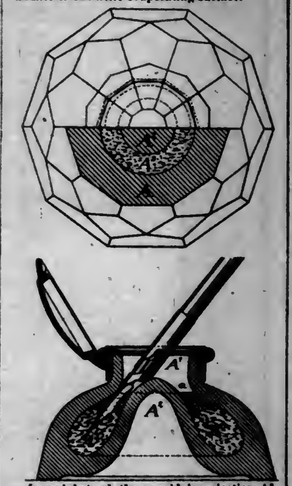
182,852. OILERS. Nelson Holmes, Ypsilanti, Mich. [Filed June 12, 1876.]



An attachment for oil-cans, consisting of cylinder A, having spring b, resting on a fillet in its lower end, and a piston, B, having the collared nozzle C a, substantially as shown and described.

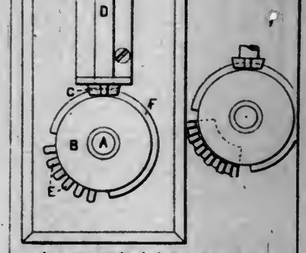
182,853. INKSTANDS. Arnold Hermann, Hoboken, N. J. [Filed Feb. 17, 1874.]

Brief.—A cone projects up from the bottom and through the center of the ink-reservoir to the mouth, thus forming a narrow space, into which the pen is inserted, the holder being arrested between the cone and the inside of the mouth. The narrow space thus formed at a admits of but little evaporating-surface.



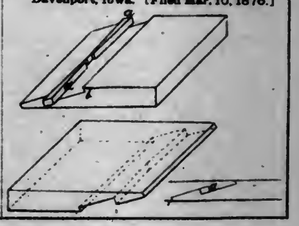
In an inkstand, the conoidal projection A^2 in the annular ink-space A^3, reaching up within the mouth A^1, so as to form a contracted annular passage, a, substantially as and for the purposes herein set forth.

182,854. MECHANICAL MOVEMENTS. Thos. S. Huntington, New York, N. Y. [Filed Aug. 18, 1876.]



As a new mechanical movement, the combination of the toothed wheels B and C and intermediate rib and groove, in which the rib works for holding them in proper working position, substantially as described.

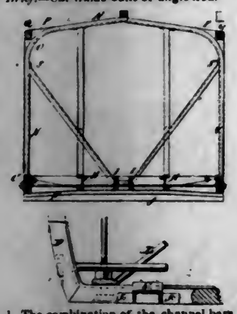
182,855. WAGON-SEATS. A. M. Kendall, Davenport, Iowa. [Filed Mar. 10, 1876.]



As a new article of manufacture, a wagon-seat composed of three parts, the ends of which are tapered and grooved, and locked together by means of the keys *c*, substantially as shown and described.

182,856. METAL CAR-FRAMES. Frederick J. Kimball, Philadelphia, Pa. [Filed Sept. 4, 1875.]

Brief.—Car-frame built of angle-iron.

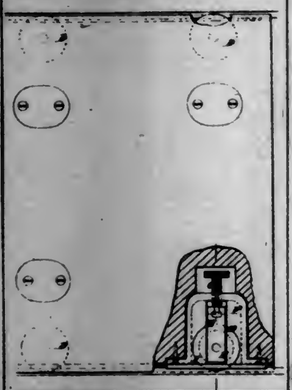


1. The combination of the channel-bars A B, knee-pieces D, and longitudinal and transverse channel-bars H I J, substantially as specified.

2. The arched channel-standard N and wood corner-pieces P, substantially as specified.

3. The middle longitudinal bars I, having the outward bow or set, and provided with suitable stays K, as and for the purpose specified.

182,857. DOOR-SHEAVES. George Lauwe, New York, N. Y. [Filed Sept. 30, 1876.]



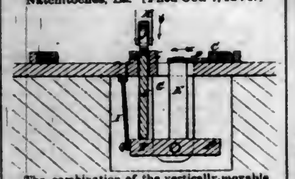
An improved sliding-door sheave, formed by the combination of the pulley D, the stirrup E, the swiveled screw G, and the case F with each other, substantially as herein shown and described.

182,858. TOBACCO-PRESSES. L. C. Leftwich, Lynchburg, Va. [Filed Oct. 14, 1876.]

1. A press for tobacco or other material, consisting of a frame for holding the cask or hogshead, and a central vertical screw, in combination with side rods passing through the upper cross-beams, made capable of extending downward simultaneously into the hogshead, and holding said material under pressure while the screw is removed, as and for the purpose set forth.

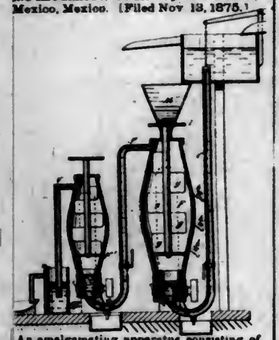
2. The combination of the frame A A' B B', central screw C, perforated side rods D D, the pins *a a*, all constructed to operate as set forth.

182,859. RAILROAD-SWITCHES. F. Luchini, Natchitoches, La. [Filed Oct. 7, 1876.]



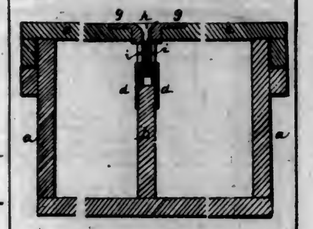
The combination of the vertically-movable bar H, guard-rails L, pivoted lever F, springs I, arm E, and sliding plate D, with the switch-rail C, and an attachment on the car for depressing the bar H, all constructed and relatively arranged as herein set forth.

182,860. ORE-WASHING AND AMALGAMATING APPARATUS. F. del V. y Marticorena, Mexico, Mexico. [Filed Nov 13, 1875.]



An amalgamating apparatus consisting of a tank or vessel, F, provided with revolving paddles *g*, a feeding-hopper, M, and an overflow-discharge, S, its bottom being open and in direct communication with a tube, C, bent in suitable curve to retain a mercury-bath, and of suitable height for the free inflow of the cleansing and separating water, both vessel and tube being provided with tap and regulation cocks for the proper operation of the apparatus, all substantially as and for the purpose set forth.

182,861. BOX-FASTENERS. G. A. Mertens, Hermann, Mo. [Filed May 19, 1876.]

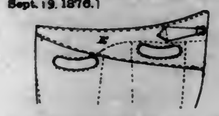


As a center fastening for egg-cases and other boxes, the combination of the box *a*, having partition *b*, casting *g*, lid *e*, plate *d*, screw *h*, and pin *i*, with cleats or stops to prevent the lid from turning around, substantially as shown and described.

182,862. COMPOUNDS FOR DESSERT FOOD. Campbell Morfit, Baltimore, Md. [Filed May 10, 1876.]

The composition, consisting of animal gelatine, cow's milk, and borax, substantially in the manner and for the purposes hereinbefore set forth.

182,863. POCKETS FOR GARMENTS. Antonio Dias Pena, San Francisco, Cal. [Filed Sept. 19, 1876.]



1. A garment provided with elongated pocket-opening, cut out of its main body and having rounded ends, as set forth.

2. The method of re-enforcing pockets, consisting in laying on the outside of the garment A re-enforce, D, having an opening coinciding with the pocket-opening, stitching the two together around the edge of the pocket-opening, and then turning the re-enforce through the pocket-opening to the inside, and stitching down with one or more rows of stitches, as set forth.

3. The yoke waistband E, gradually widened from front to rear, substantially as described.

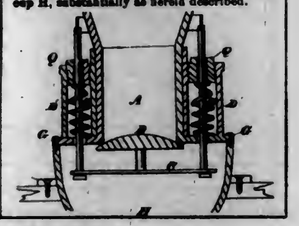
182,864. TRAPS FOR WATER PIPES AND CLOSETS. Frederick Pohley, San Francisco, Cal. [Filed July 28, 1876.]

1. The convex valve D, with its face fitting the end of the pipe A, in combination with the stem F, and the springs E, working in the inclosive cases D', for the purpose of making a trap, substantially as herein described.

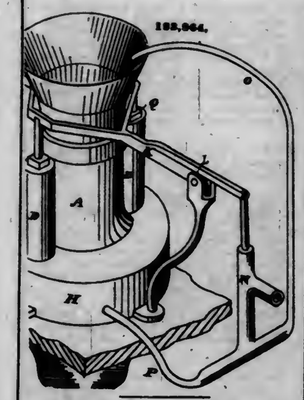
2. The valve D, fitting the end of the pipe A, the stems F, and operating-springs E, together with the screw-caps Q, for adjusting the tension of the springs, substantially as herein described.

3. The device consisting of the valve D, stems F, and tension-springs E, in combination with the lever K, having an extension, so as to operate the valve in the pipe N, and admit water to the pipes O and P, substantially as herein described.

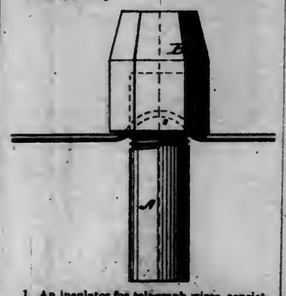
4. In combination with the pipe A, with its valve D, stems F, and springs E, the flange G, supporting the cases D, and secured to the cap H, substantially as herein described.



182,864.



182,865. TELEGRAPH-INSULATORS. David M. Reynolds, Port Deposit, Md. [Filed Mar. 8, 1876.]



1. An insulator for telegraph-wires, consisting of a glass peg, having a threaded upper end and a glass cap formed to screw upon the peg and clamp the wire between itself and the peg, as set forth.

2. An insulator for telegraph-wires, consisting of a glass peg, its upper end screw-threaded, and slotted to receive the wire, in combination with a cap made to screw thereon and clamp the wire, as set forth.

3. The nut or cap B, having the lower inner edge rounded off, for the purpose specified.

4. The combination of the slotted and rounded peg A, with the cap B, rounded on its lower inner edges, substantially as described.

182,866. MACHINES FOR FINISHING BUTTONS. Marcus M. Rhodes, Taunton, Mass., assignor to M. M. Rhodes & Sons, same place. [Filed Aug. 7, 1876.]

1. In a button-finishing machine, a fan-shaped picking-up device, having the slots and fender, substantially as shown and described.

2. The combination of the hinged chute *c*, having a fan-shaped and slotted end, the gate E, connecting-rod *f*, crank *e*, and receptacle A, substantially as specified.

3. The combination of the chute C and D, and spring stop-pin O, substantially as specified.

4. The combination of the spring-nippers *s s'*, arm *t*, rocking shaft *u*, cam *v*, and spring-bolt *w*, substantially as shown and described.

5. The combination of the nippers *s s'*, and the beveled end of the slide D, substantially as specified.

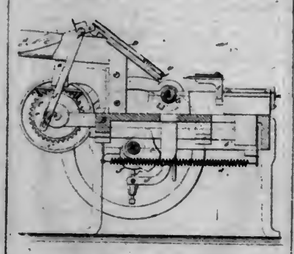
6. The cam *v'*, constructed as specified, so that it will permit the carrying-nippers *s s* to pause while the button is being taken from them, in combination with the shaft *u*, arm *t*, and nippers *s s*, substantially as shown and described.

7. The combination of the mandrel G, spindle H, sliding wedge I, and spring *k*, substantially as specified.

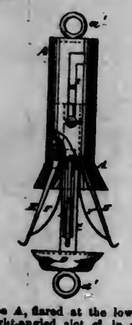
8. The combination of the spindle H, wedge I, spring *k'*, rod *i*, lever *j*, and cam J, substantially as shown and described.

9. The combination of the buffer P, and arm *t*, as shown and described.

182,866.



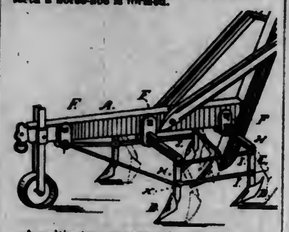
182,867. WATCH-PROTECTORS. Henry A. Rosenthal, Brooklyn, N. Y. [Filed Sept. 16, 1876.]



The tube A, flared at the lower end, and having right-angled slot *a'*, in combination with a block, B, having screw *b'*, stem C, and hooks E, the latter provided with springs F, as and for the purpose specified.

182,868. CULTIVATORS. Mark M. Rowell, Oconomowoc, Wis. [Filed June 22, 1876.]

Brief.—A single beam supports upon pivoted hangers a series of share-bars, so coupled that an immovable obstacle will turn all the shares backward, to prevent injury to the parts. By removing a part of the cultivator-teeth a horse-hoe is formed.



A cultivator constructed with frame A, standards H, teeth D, cam F, swinging on bolts G, connected with rods I, all in combination, substantially as described.

182,869. FERTILIZER-DISTRIBUTORS. Jos. Sensenig, Earl Township, Lancaster County, Pa. [Filed Apr. 1, 1876.]

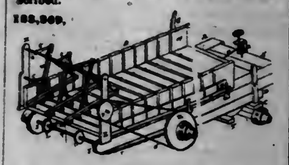
1. The combination of the frames A and B, hinged at *b*, with the attached bolster C, guide-bars *p* on side posts *g*, and the traveling sectional bed D, with its gearing, the whole arranged and operated substantially in the manner and for the purpose specified.

2. In combination with the shaft Y of the rear chain-pulleys J, the right-and-left beveled cog-wheels L L', and the beveled pinions M M' on their respective shafts V V' and bearings, the inner end of said shafts V, in connection with their respective cog-wheel N N', held in separate vibrating or hinged bearings O O', through which they can be alternately brought in gear with the worm or screw-gear Q Q' on the axle E of the vehicle, the whole arranged substantially as and for the purpose herein set forth.

3. In combination with the vibrating bearings O O', the shaft U, provided with depressing legs or slotted eccentrics *a a'*, and the double-armed lever H, connected by parallel wires *h h'* with the hand-lever G, substantially in the manner and for the purpose mentioned.

4. In combination with the shaft U and two-armed lever H, the rear flange *g* on the slotted sliding plate *k*, with its vertical arm *i*, moved by the pin *s* in the front section I4 of the bed D, arranged and operated substantially in the manner and for the purpose described.

182,869.



182,870. SHAFT-BEARINGS. C. B. Sisson, Buffalo, N. Y. [Filed Feb. 25, 1876.]

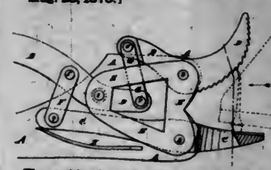
Brief.—The shaft bears on friction-rollers set in a cradle pivoted to adjust itself to any departure of the shaft from its horizontality.



1. The double or single equilibrium-cradle C, with the axle or axles *c* working therein in a chilled groove, the wheels *d d* of the axle or axles *c* brought into contact with the shaft B, and regulated by the adjustable pivot or screw *b*, substantially as and for the purpose specified.

2. The gib-hook *a*, in combination with the bearing A, cradle C, axle and wheels *c d d*, and set at any point or angle thereto, substantially as and for the purpose specified.

182,871. HORSESHOE-NAIL CLINCHERS. J. Slautterback, Mifflintown, Pa. [Filed Aug. 28, 1876.]

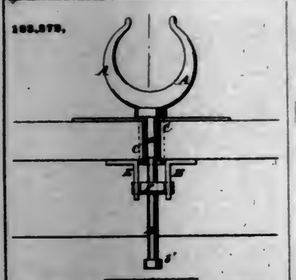


The combination of the two pivoted handles, A B, the two pivoted jaws C D, the strengthening-plate E, the pivoted connecting-bars F G, and the spring H, with each other, substantially as herein shown and described.

182,872. ROWLOCKS. Eugene Spedden, Astoria, Oreg. [Filed Aug. 14, 1876.]

A rowlock, A, having the lower part of its stem B made smaller than the upper part, and provided with a head, *b*, the slotted socket C, the brackets E, and the pivoted bar F, in combination with each other, to adapt them to be attached to the gunwale of a boat, substantially as herein shown and described.

182,873.



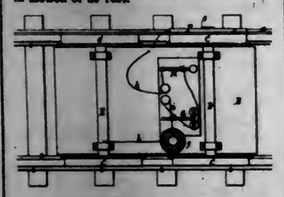
182,873. NUT-LOCKS. Albert Thompson and J. F. Thompson, Stark, N. H. [Filed Sept. 16, 1874.]



In a railroad nut-lock, in combination with the fish-plates B, bolts D', and nuts D, the washer C, formed with a curved upper slitted edge, *a a*, and lower straight-flanged edge *d*, which extends under the fish-plate B, as and for the purposes described.

182,874. ELECTRIC RAILROAD-CAR SIGNALS. Charles D. Tindale, Boston, Mass. [Filed Apr. 13, 1876.]

Brief.—For communicating between trains in motion or at rest.



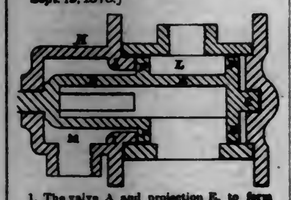
1. In combination with a railway, A A', and a car, B, thereof, the additional rail *a*, secured to and electrically insulated from one of the track-rails, and the auxiliary wheel F, fixed on one of the axles, aside of one of its wheels, and electrically insulated from both wheel and axle, all as set forth.

2. The compound rail, substantially as described, consisting of the main rail A and the auxiliary rail *a*, arranged, connected, and electrically insulated from each other, essentially as specified.

3. The compound wheel, substantially as described, composed of the main-track wheel C, the auxiliary wheel F, and the insulating-disk *d*, connected and arranged as specified.

4. In combination with the axle D and its wheels C C of a railway-carriage, the additional wheel F, arranged on the said axle and aside of one of the wheels thereof, and electrically insulated from said wheel and said axle, and being, for operation with an auxiliary rail or bar, arranged with and fixed, as described, to one of the rails of a railway, as set forth.

182,875. OSCILLATING VALVES. George W. Van Dorn, San Bernardino, Cal. [Filed Sept. 19, 1876.]



1. The valve A and projection E, to form the valve-face, said valve being provided with the slotted extension B, the journals C D, and the flanges F F', substantially as and for the purpose herein described.

2. The valve A, having the projecting curved face E, flanges F, and extension B, in combination with the chambers L and M, and the diaphragm I, the whole constructed substantially as and for the purpose herein described.

182,876. MANUFACTURE OF LEATHER HOSE. Harwood Wakeman, New York, N. Y. [Filed Oct. 2, 1876.]



Leather hose provided with the interlocking tongues, standing in opposite directions upon the surfaces of the laps which come into contact, substantially as set forth.

182,877. ADJUSTABLE SCHOOL-DESKS. B. Wolverton, Rohnerville, Cal. [Filed Aug. 3, 1876.]



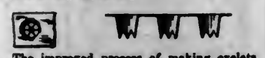
1. The permanent frames A, having vertical guiding-slots, as shown, one of these slots having teeth K upon one side, in combination with the pins or bars G and H, projecting from the supplemental frame F, and bar H, having teeth or notches corresponding with those at K and the locking-cams L, so that the desk may be elevated or lowered, and secured, substantially as herein described.

2. The front M of the desk-frame, having the teeth O, in combination with the bars Q, having corresponding teeth, and the legs S, said bars being hinged to the supporting-arms P of the seat, which are formed with projecting points R, the whole serving to elevate and depress the seat, and retain it in position, substantially as herein described.

3. The device for adjusting and locking the inclined leaf J, consisting of the supporting-arms T, having the irregular slots V V¹ V², fitting over the guide-pin G, together with the lugs W and notches X, substantially as herein described.

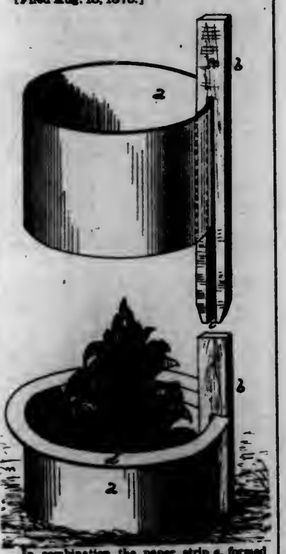
4. The device for adjusting the incline of the leaf J, consisting of the set-screws Y, working through the arms U, so as to set upon the pin G, substantially as herein described.

182,878. PROCESSES OF MAKING EYELETS. Solomon W. Young, Providence, R. I. [Filed July 21, 1876.]



The improved process of making eyelets herein described, consisting substantially in cutting diametrically the bottom of the cup, and puncturing and spreading apart the same, as and for the purpose specified.

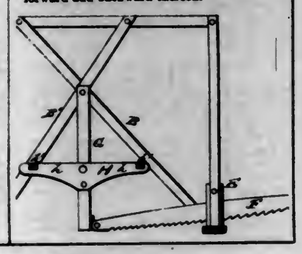
182,879. PROTECTING PLANTS. J. S. Ackley and Zach. L. Hungerford, Moodus, Conn. [Filed Aug. 18, 1875.]



In combination, the paper strip *a*, formed into a band, and the slitted stake *b*, holding the ends of the band joined, and extending above and below the paper band, all substantially as described, and for the purpose set forth.

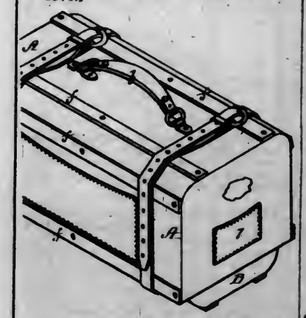
182,880. SAWING-MACHINES. Jno. Ackley, Martinsburg, Ohio. [Filed Sept. 9, 1876.]

Brief.—The saw is attached to the lower part of hanging arms, pivoted in suitable side supports, and supporting a swinging frame for the operator to stand upon while operating the saw by shifting his weight alternately forward and backward thereon.



The combination of side supports B B¹ B² with hanging arms G G, swinging frame H, saw F, and slotted detachable block E, substantially as and for the purpose set forth.

182,881. EXTENSION-TRUNKS. Philip B. Andrese, Boston, Mass. [Filed Mar. 20, 1876.]

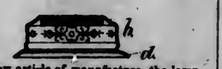


1. In an extensible trunk, the parts A B, having pasteboard bodies and wood ends, the former overlapping the latter, and extensibly adjusted by means of straps, all substantially as shown and described.

2. An extensible trunk composed of parts A B, constructed in manner and from materials as described, the casing *d* being coated with a water-proof substance, as set forth.

3. An extensible trunk composed of parts A B, of pasteboard, provided with wood ends, protected and strengthened by longitudinal wood strips, the casing of one or both parts being coated with a water-proof substance, all substantially as shown and described.

182,882. LAMP-COLLARS. Lewis J. Atwood, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. [Filed Aug. 1, 1876.]

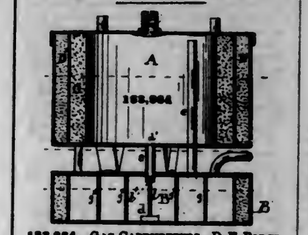


As a new article of manufacture, the lamp-collar made of one piece of thin sheet metal, with the rolled screw *a*, flange *d*, and cylinder *b*, that is roughened upon the inner surface by ornamental designs embossed in the metal, for the purposes and as set forth.

182,883. BARBED FENCE-WIRES. Louis Bagger, Washington, D. C. [Filed Aug. 16, 1876.]



A barbed fence-wire, consisting of a wire having indents or flattened sections B, from which the barbs *b* are cut, alternating with full wire-sections C, substantially as and for the purpose herein shown and specified.



182,884. GAS-CARBURETERS. D. E. Bangs, Medford, Mass. [Filed Apr. 26, 1876.]

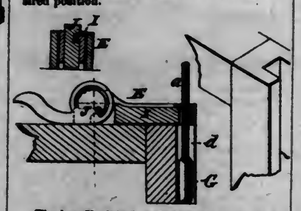
Brief.—The oil-reservoir is surrounded by a condensing-chamber, through which the carbureted air or gas is passed, for the condensation of an excess of oil-globules. A non-conducting packing surrounds the condensing-chamber of the oil-reservoir, and also the carbureting-chamber. The oil-reservoir has a safety valve and vent for the escape of vapors. Oil is fed to the carbureter by a float-valve.

1. In combination with the jacketed carbureting-tank B, the surmounting oil-reservoir A, having an exterior condensing-space, C, and the non-conducting jacket D, surrounding the said space, the said condensing-space being connected with the carbureting-tank, as and for the purpose set forth.

2. The oil-reservoir A, having an exterior space, C, filled with soap-stone, pebbles, or other like substance, and surrounded by a casing filled with a non-conducting compound, substantially as specified.

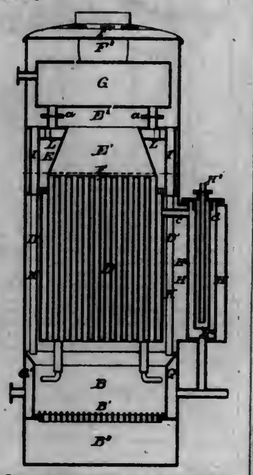
182,885. SASH-BALANCES. W. C. Barnes, Mexico, Mo. [Filed Sept. 9, 1876.]

Brief.—A suitable box or case, attached to the top of one of the meeting-rails, carries a slide, which is operated by a pivoted cam-lever, and serves, by clamping the cord carrying the sash-weight, to hold the sashes in desired position.



The box E, slide I, and pivoted cam-lever J, in combination with the sashes B and C and cord *c*, substantially as and for the purpose herein set forth.

182,886. VERTICAL STEAM-BOILERS. Isaac Barton, Williamsport, Pa. [Filed Mar. 20, 1876.]

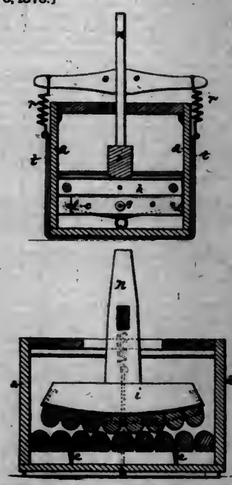


1. In a vertical tubular boiler, the combination, with the outer casing, of the boiler proper suspended within the casing above the fire-box, an annular drum above each boiler proper, a space between the casing and the shell of the boiler proper, and drop circulating-pipes suspended from the said drum in the said space, substantially as described and shown.

2. The combination, with the casing A, of the vertical chamber H, adapted to hold a feed-water heater, inclosed by the said casing and connecting with the hot-air space of the boiler, substantially as described and shown.

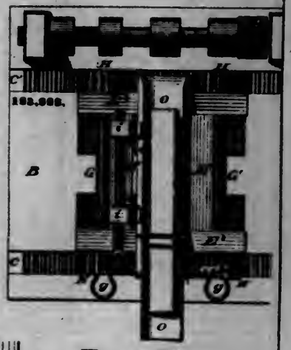
3. In a portable vertical tubular boiler, the combination, with the outer casing A, of the boiler D suspended therein, the tubes F, the free open space D', the annular drum E, the pipes I, the combustion-chamber E', the drop circulating-pipes K', and the water-jacket G', all constructed and arranged substantially as described and shown.

182,887. WASHING-MACHINES. William J. Biddle, New Madison, Ohio. [Filed Oct. 6, 1876.]

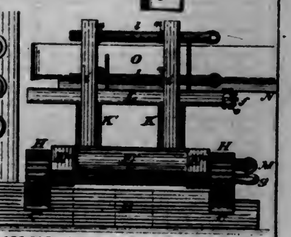


1. The arms *c*, bars *e*, and rods *d g*, combined and arranged substantially as shown.

2. The combination of the bars A, curved beam *i*, standard *n*, cross-arm *o*, springs *r*, and rod *t*, pivoted to the box *c*, substantially as specified.



182,888.



182,888. APPLIANCES FOR ROLLING-MILLS. Jas. F. Black, Oshkosh, Wis. [Filed June 24, 1876.]

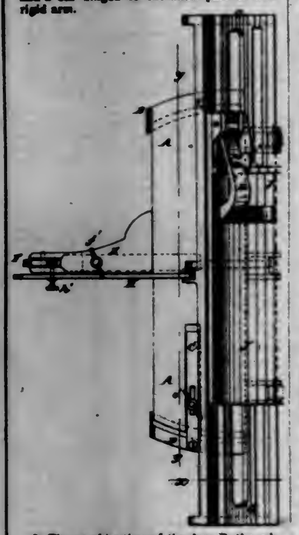
Brief.—Embedded in the frame upon which

the roll-housings are mounted, and parallel thereto and to each other, are two toothed rails, with which engage pinions attached to shafts journaled in the cross-timbers of the carriage. Mounted upon the tops of two vertically-sliding toothed bars (operated by pinions) in a table, which is adapted to receive a box, within which the metal to be presented to the rolls is placed. The box is formed with a rack-section on its under side, and is advanced and retracted by a pinion. Spring-clamps keep the table in the position to which it may be raised relative to the rolls. A bail for the reception of an operating-lever is attached to the end of each shaft.

The tender or carriage for rolling-mills herein described, consisting of frame or platform E, shafts G G', having ratchet-wheels H, shaft M, having pinions *b b'*, vertical sliding racks K K', table L, horizontally-sliding rack N, carrying-box O, shaft *d*, having pinion *f*, and reversing-clamps A, the whole constructed, combined, and operating substantially as and for the purpose hereinbefore set forth.

182,889. GUIDE FOR SAWING-MACHINES, Cornelius B. Meservelt, Newark, and Peter V. V. Sage, East Orange, N. J. [Filed Sept. 16, 1876.]

Brief.—The wood is held at the desired angle by means of a sliding plate having a pivoted clamp and T-shaped bars, adapted to work in a hinged and longitudinally-slotted frame, adjustable by a curved, slotted, and hinged bar secured to an arm rigidly attached to the bed plate. The guide is detachably secured to any table by means of a bar secured to one end of the bed-plate, a similar bar attached to a slotted arm upon the other, and a bar hinged to the outer part of said rigid arm.



1. The combination of the bar B, the adjustable arm C and bar D, the arm E, and the hinged bar F and its clamping-screw *f'* with the bed-plate A, for securing the device to the saw-table, substantially as herein shown and described.

2. The combination of the hinged and slotted plate or frame G, the curved and slotted hinged arm H and its clamping-screw *h'*, the sliding plate J and its T-shaped bars I, and clamp K and set-screw *k'* with the bed-plate A and its arm E, substantially as herein shown and described.

182,890. CORRUGED BOTTLE AND CUP, Mark Block, Chattanooga, Tenn. [Filed May 26, 1876.]

The combination of the bottle A, provided with the flange *b* and notched flange *a*, the cap B, provided with interior lugs *i i*, and the elastic packing *d*, substantially as and for the purposes herein set forth.

182,891. PIPE AND HOSE COUPLINGS. John G. L. Boettcher, Brooklyn, N. Y. [Filed Sept. 22, 1876.]



The combination of two half-couplings, A B, one of which is provided with a screw-thread, *a*, and grooves *b*, while the other has lugs *c*, which fit the grooves *b*, and have shoulders *d*, against which abuts a nut, C, which fits the screw-thread *a*, the whole being constructed and operating substantially as shown and described.

182,892. SPRING HOES OR TEETH FOR GRAIN-DRILLS. Jas. S. Bogle, Springfield, Ohio. [Filed Oct. 10, 1876.]



1. The combination, with the drag-bar of a seeding-machine, of the jointed link *c c'*, connecting the locking stud or lever *d* and spring H, adapting the part connected with the spring to move in right lines, as described.

2. The combination, with the drag-bar of a seeding-machine, of the jointed link *c c'*, curved locking-stud *d*, and spring H, the link being attached to the locking-stud at a point at or nearly vertical above the pivotal point of said stud, and operating as a draft-rod on the hoe-maintaining spring, substantially as and for the purpose set forth.

3. The combination, with the drag-bar of a seeding-machine, of the spring-compressing disk *g'* and its adjusting-nut *h*, provided with the clutch-faces, arranged and operating as described.

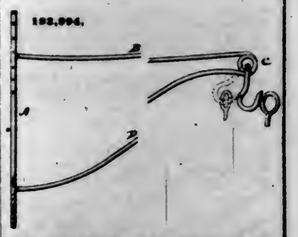
182,893. FASTENINGS FOR SLEEVE-BUTTONS AND STUDS. Morris P. Bowman, Youngstown, Ohio. [Filed Sept. 20, 1876.]

Brief.—A spring to lock the button in position is inserted in a slot in the hinged plate.



The herein-described button-fastening device, consisting of the bar B, hinged to the standard *a*, and having the slot *b*, in which the spring C is secured, so that its free end rests upon and bears against the hinge, substantially as and for the purposes specified.

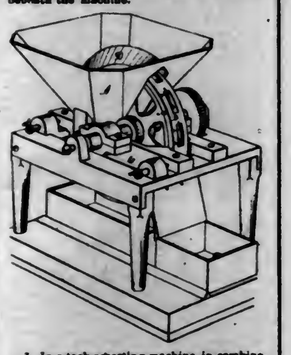
182,894. BIRD-CAGE HOOKS. Furnort Bradford, New Haven, Conn., assignor to Sargent & Co., same place. [Filed Mar. 2, 1876.]



A suspending bracket, consisting of the base A, with the arm B, eye C, and brace D, formed of a single piece of wire, and combined with a free hook in the said eye, substantially as described.

182,895. MACHINES FOR ASSORTING TACKS. Andrew C. Brigham and Nathaniel Pratt, South Abington, Mass., assignors to Brigham, Litchfield & Vining, same place. [Filed Jan. 22, 1876.]

Brief.—The spring-pins on the wheel impinge against the tacks hanging by their heads in the slots between the sides of the wheel and the lower divided hopper, and carry them to the place of discharge. Two receptacles—one for the perfect tacks, and the other for the imperfect ones and refuse—are arranged beneath the machine.



1. In a tack-assorting machine, in combination with the hopper C, the wheel B, provided with laterally-projecting pins *a a*, as and for the purposes described.

2. In a tack-assorting machine, in combination with the wheel B, with projecting pins *a*, the divided hopper C, adapted to be adjusted toward or away from the wheel B, as and for the purposes described.

3. In a tack-assorting machine, in combination with the wheel B, with projecting pins *a*, the hopper A, with arched part D, covering the wheel B, as and for the purposes described.

4. In a tack-assorting machine, the wheel B, constructed around its outside edge of "skirt" with slots *b*, provided with springs *c* and projecting pins *a*, as and for the purposes described.

5. In a tack-assorting machine, the pins *a*, secured to springs *c*, and operating in slots *b* in the wheel B, as and for the purposes described.

6. In a tack-assorting machine, in combination with the wheel B, with projecting pins *a*, and hopper C, the tack-receptacle F, provided with spout *z*, as and for the purposes described.

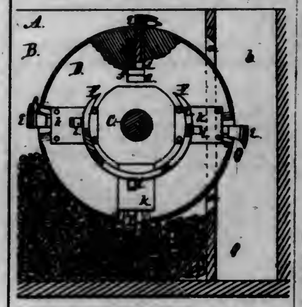
7. The combination, in a tack-assorting machine, of hopper A D, wheel B, with projecting pins *a*, and adjustable divided hopper C, all constructed and arranged to operate as and for the purposes described.

8. The combination and arrangement, in a tack-assorting machine, of hopper A D, wheel B, with projecting pins *a*, hopper C, and receptacles E F, all constructed and adapted to operate substantially as and for the purposes described.

9. The improved tack-assorting machine, composed of the parts and constructed and arranged substantially as and for the purposes herein set forth and shown.

182,896. SEED-PLANTERS. Jonathan W. Brigham, Rockford, assignor of one-half his right to O. B. Lamb, Guilford, Ill. [Filed Apr. 22, 1876.]

Brief.—Upon arms extending out from the center of the wheel are formed concave cups, that overlap the convex rim and clasp the seed, being acted upon by cams and springs.

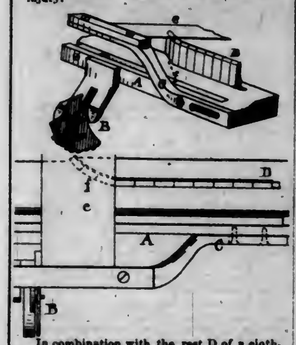


1. In a seed-distributing wheel of disk form, substantially as described, rotating in a seed-receptacle, the radial slide *e*, with scoop-formed outer ends, fitted to overlap the outer face of the disk, adapted to pick up and hold the seed griped between scoop-formed heads and outer face of the disk, to deposit it in a delivery-chamber or outlet, substantially as and for the purpose hereinbefore set forth.

2. In a seed-distributing wheel of disk form, substantially as described, rotating in a seed-receptacle, the radial slides *e*, in combination with the cam F, for operating the slide *e*, as and for the purpose set forth.

182,897. CLOTH-SHEARING MACHINES. I. Brooks, Dover, N. H. [Filed Aug. 5, 1876.]

Brief.—A thin strip of paper or other flexible material extended from the arm, which is raised upon the gage-bar, over the curved rest, completely covering the selvage from the knives, and protecting said selvage from injury.



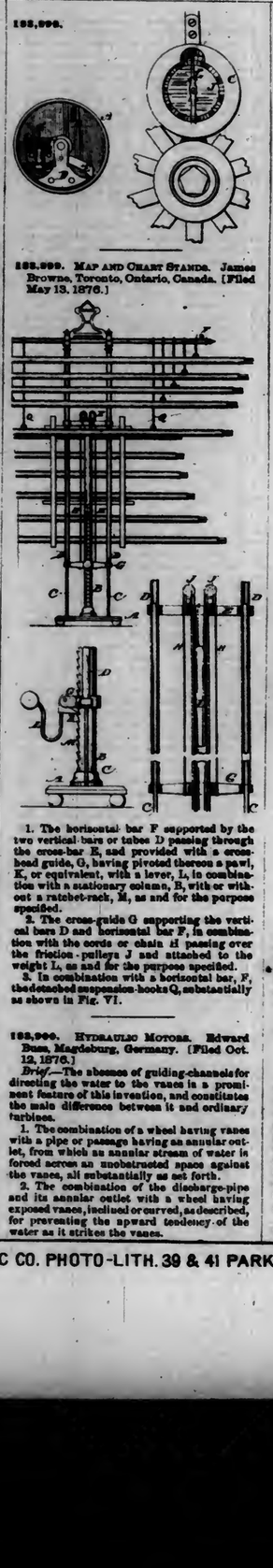
In combination with the rest D of a cloth-shearing machine, the strip of thin smooth fabric *a*, extended over the selvage of the cloth at the angle of the rest, and protecting the fibers of the selvage in the operation of shearing, substantially as described.

182,898. ODOMETERS. John N. Brokaw, Ovid, Mich. [Filed Sept. 23, 1876.]

1. In an odometer, the combination of the hub *b*, with worm *z*, the weight D, and friction-dog E, as and for the purposes herein set forth.

2. The combination of the weight D with friction-dog E, the worm *z*, cog-wheel G, worm *y*, cog-wheel I with worm *x*, the dial J with cogged rim A, and the stationary index L, all constructed as described, and arranged within a suitable case, substantially as and for the purposes herein set forth.

182,899. MAP AND CHART STANDS. James Browne, Toronto, Ontario, Canada. [Filed May 13, 1876.]



1. The horizontal bar F supported by the two vertical bars or tubes D passing through the cross-bar E, and provided with a cross-head guide, G, having pivoted thereon a pawl, K, or equivalent, with a lever, L, in combination with a stationary column, B, with or without a ratchet-rack, M, as and for the purpose specified.

2. The cross-guide G supporting the vertical bars D and horizontal bar F, in combination with the cords or chain H passing over the friction-pulleys J and attached to the weight I, as and for the purpose specified.

3. In combination with a horizontal bar, F, the detached suspension-hooks Q, substantially as shown in Fig. VI.

182,900. HYDRAULIC MOTORS. Edward Buss, Magdeburg, Germany. [Filed Oct. 12, 1876.]

Brief.—The absence of guiding-channels for directing the water to the vanes is a prominent feature of this invention, and constitutes the main difference between it and ordinary turbines.

1. The combination of a wheel having vanes with a pipe or passage having an annular outlet, from which an annular stream of water is forced across an unobstructed space against the vanes, all substantially as set forth.

2. The combination of the discharge-pipe and its annular outlet with a wheel having exposed vanes, inclined or curved, as described, for preventing the upward tendency of the water as it strikes the vanes.

3. The combination of the discharge-pipe and its mouth *a*, the adjustable plate B, and wheel X.

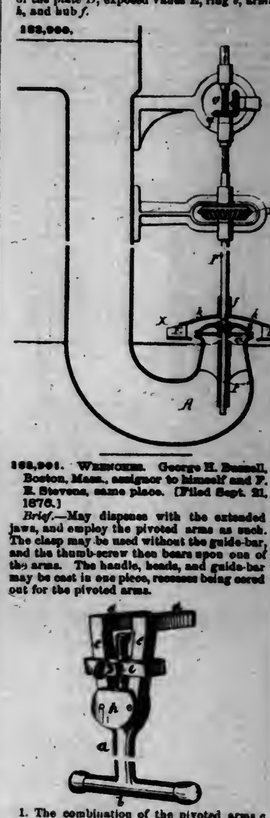
4. The combination of the wheel X, the discharge-pipe A, and plate B, loaded or weighted, substantially in the manner and for the purpose described.

5. The combination of the shaft F and its vaned wheel with the plate B, situated above the mouth of the discharge-pipe, and having a bearing for the lower end of the mill-shaft.

6. The within-described wheel X, composed of the plate D, exposed vanes E, ring *e*, arms *h*, and hub *f*.

182,901. WRENCHES. George H. Bunnell, Boston, Mass., assignor to himself and F. E. Stevens, same place. [Filed Sept. 21, 1876.]

Brief.—May dispense with the extended jaws, and employ the pivoted arms as such. The clasp may be used without the guide-bar, and the thumb-screw then bears upon one of the arms. The handle, heads, and guide-bar may be cast in one piece, recesses being cored out for the pivoted arms.



1. The combination of the pivoted arms *c c*, jaws *d d*, the guide *g*, and the sliding clasp *e*, secured in position by means of a screw, substantially as and for the purpose specified.

2. In combination with the pivoted arms *c c*, jaws *d d*, and sliding clasp *e*, the guide *g*, recessed head A, and handle *a*, substantially as and for the purpose set forth.

182,902. CARTRIDGE-LOADING DEVICES. Thos. P. Camp, Stoughton, Wis., assignor to himself and G. W. Wise, same place. [Filed Sept. 2, 1876.]

Brief.—Two hoppers for powder and shot, having openings in their bottoms, are mounted on a frame or stand, over a race or way, in which is a reciprocating slide with openings to receive the powder and shot from the hoppers, and by which they are carried to the central opening in the race and allowed to fall into the shell. Two wads are placed in an opening in the side, and are rammed by a spring-plunger. The slide has movable parts at the ends, by which the openings may be graduated as desired.

1. The single continuous slide D, having the two openings *b b*, in combination with the

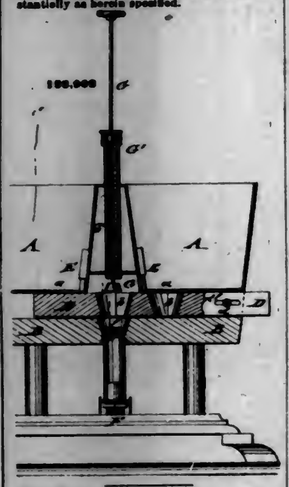
powder-and-shot receptacles A A, having holes *a* and brushes E, and the supporting-race B, having a hole, *f*, substantially as and for the purpose described.

2. The combination of the recessed main slide D with adjustable graduated slide-pieces *D'*, regulated by set-screws and slots, substantially as herein shown and described.

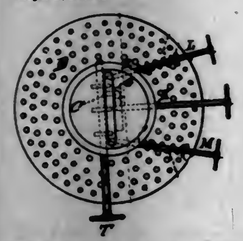
3. The single continuous slide D, having the two openings *b b*, in combination with the plunger C, the receptacles A, having openings *a*, and the race B, having openings *f*, substantially as and for the purpose described.

4. The race B, having openings *f* with outwardly-flared lower portion, to receive and hold concentrically the different-sized shells, in combination with a supporting-bearing for the shell, substantially as and for the purpose described.

5. The supporting-stand of a cartridge-loader having a central adjustable screw-bearing and retaining guard-spring for shell, substantially as herein specified.

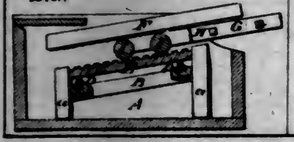


188,900. LAMP-BURNERS. George Chase, Buffalo, assignor of one-half his right to H. Cummings, New York, N. Y. [Filed Sept. 9, 1876.]



The combination of the wick-regulator T, wick-tube C, and one or more wick-adjusters, L or M, substantially as and for the purposes described.

188,904. WASHING-MACHINES. Joseph L. Clippinger, Salem, Ohio. [Filed Aug. 16, 1876.]

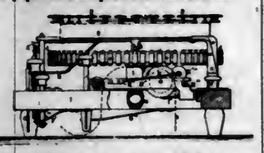


1. In a washing-machine constructed substantially as described, the combination of the inclined braces B, guides F, parallel to braces B, detachable cross-pieces C, having springs D, and detachable wash-board E, substantially as and for the purpose herein before set forth.

2. The combination of tub A, having standards *a*, inclined braces B, detachable cross-pieces C, having springs D, and removable wash-board E, with the roller-frame L, herein described, substantially as and for the purpose herein before set forth.

188,905. TYPE-WRITING MACHINES. Hiram Conrad, Shrewsbury, Pa., assignor of one-half his right to B. F. Keller, same place. [Filed Feb. 26, 1876.]

Brief.—Each type is brought over the platen by means of its corresponding finger-key, and is forced against the paper by the lever D. The finger-key, entering the notch in the rim *g*, depresses a lever, which causes the pawl to turn a ratchet-wheel and move the rack-bar and platen one space. This space depends upon the width of the rod of the finger-key. At the end of each line the platen is retracted by a spring, and the rod connected to the pawl *F'*, moving up the incline *F''*, causes the ratchet upon the feed-roll to revolve, and thus move the paper to form space between the lines.



1. In combination with and fixed upon a central revolving shaft, a series of elastic radial keys, having at their ends knobs marked with letters, numerals, and other printing characters, and a series of lower elastic radial keys corresponding in number with the upper series, each key having at its end a type the letter or character of which is indicated on the knob of the corresponding key of the said upper series, substantially as herein specified.

2. In a type-writer, the disk A, with keys *a* extending radially therefrom, and provided with the knobs B, in combination with the annular rim *g* and frame *c*, substantially as shown.

3. The annular rim *g*, provided with the slot or cavity *c'*, constructed as described, in combination with the bolt *h*, held loosely within the pocket *h'*, and spring-bar *h''*, substantially as specified.

4. The spring-bar K'', operated as described, in combination with the lever E, adjustable fulcrum E', bent lever F, supported by the spring F', ratchet-wheels *f*'' G, pawl F'', and shaft G, substantially as described.

5. The bent lever F, in combination with the rod *h'''*, provided with a finger-knob, the said rod being adjustable in operative length by means of its threaded end and nut secured to the lever F, substantially as set forth.

6. The rack H', carriage frame-work H'', guides H''', pad I, feed-roller K, toothed disk *l*, and spring-pawls F F', combined with the bent lever F, lever E, spring-lever *k*'', bolt *h*, rim *g*, having the slot *c'*, and revolvable system of elastic radial indicating-keys *a*, provided with knobs B, substantially as herein specified, and for the purpose set forth.

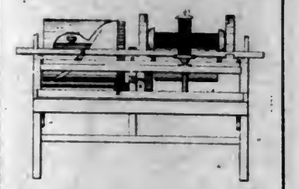
7. In a rotary type-writer having its type and type-indicating devices arranged concentrically, as described, the shaft G', self-adjusting lever G'', and its knob, operated from above the bed-plate, combined as herein described, and for the purposes specified.

188,906. SPOOLERS. Samuel F. Cobb, Alberton, Md. [Filed July 28, 1876.]

Brief.—The spring thread-guide prevents the ready removal of the thread to let pass an imperfect portion. The cam is adjustable upon its shaft to adjust the traverse of the thread-guide.

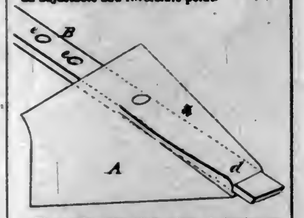
1. The thread-guide formed of a slotted plate, having hooks *a* formed on the extremities of its arms, projecting inward across the slot, and pressing against each other laterally, as shown and described.

2. The slotted or cam cylinder H, having the gear *s* attached, and made adjustable on its shaft, the long pinion *d* arranged beneath the gear, and meshing therewith, all combined as shown and described.



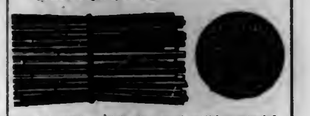
188,907. PLOW-POINTS. William H. Cook, Meridian, Miss. [Filed Feb. 16, 1876.]

Brief.—Plowshare made with a socket for an adjustable and reversible point.



The combination of the share A, having an opening or pocket cast on its under side, thickened, as shown at *d*, and braced, as shown at *a*, with the adjustable perforated point B, connected by the bolt *c*, all substantially as and for the purposes herein set forth.

188,908. FIRE-KINDLERS. Frederick D. Cordes, New York, N. Y., assignor of one-half his right to Andre Geiger, same place. [Filed Sept. 1, 1876.]



A faget in which the combustible material is contained in and carried by hollow stalks bound together, as set forth.

188,909. BALANCED SLIDE-VALVES. Saml. Curtis, Cleveland, Ohio. [Filed June 13, 1876.]

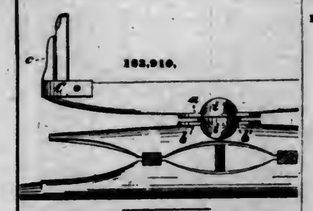


The combination, with a cylinder provided with a set of widely-separated steam-ports, F, and exhaust-ports G', of a cylindrical valve, C, closed at its ends, hollowed out at C', and provided with the inlet and outlet ports D E and the bridges G, substantially as and for the purpose described.

188,910. WAGON-STANDARDS. Alban F. Dimond and Jas. A. Mullen, Sandy Creek, assignors of one-third their right to Robt. Mullin, Wilkinsburg, Pa. [Filed Aug. 16, 1876.]

1. In combination with a bolster, a cap, C, made hollow to embrace the bolster end, and having the webbed upright *e* and aperture *d*, with its bushing *c*, substantially as and for the purposes described.

2. As a new article of manufacture, the bolster-iron consisting of the hollow open-bottomed cap C, having the webbed upright *e* and aperture *d*, with depending bushing *c*, substantially as described.



188,910.

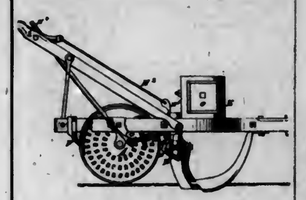
188,911. BOOTS AND SHOES. O. B. Dodge, Fort Madison, Iowa. [Filed Oct. 7, 1876.]



1. The shoe-upper consisting of the front portion A, quarters D D, and lapel E, of a single piece, cut substantially as shown and described, and for the purpose set forth.

2. The shoe-upper A, provided with the gore B and tongue C, substantially as shown and described.

188,912. CORN-PLANTERS. A. C. Evans, Delphos, Ohio. [Filed Aug. 19, 1876.]



1. In combination with the driving-wheel and operative mechanism, the shield I, arranged in relation thereto and to the frame, substantially as set forth.

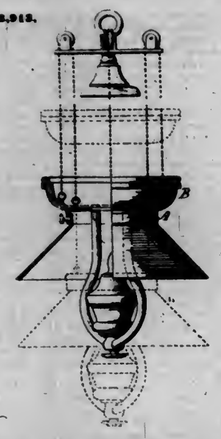
2. In combination with the driving-wheel, the scraper F, with opening F', the side pieces of the frame, clamping the recessed ends of the scraper, and clamping-rod G, for adjustably confining the scraper in such relation to the wheel that it will shave the mud from the wheel, and by means of the hole F' prevent its accumulation, substantially as set forth.

3. In combination with the valve H' and its actuating-lever H², the lever H', pivoted to the handle, the rod H³, and lever H⁴, substantially as set forth.

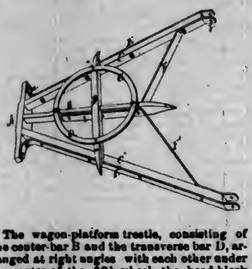
4. In combination with the seed-wheel E, the sliding plate M, with an opening to receive the seed-wheel, and a bridge to support its shaft, formed to permit it to revolve without interfering with the driving mechanism, substantially as set forth.

5. The openings O' in the lower rear edge of the hopper, immediately over the feed-wheel, substantially as set forth.

188,913.

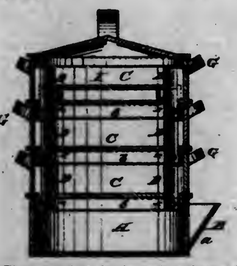


188,914. PLATFORM-WAGON TRESTLES. L. M. Fitch, Leonardsville, assignor to C. P. White, Ilion, N. Y. [Filed May 27, 1876.]



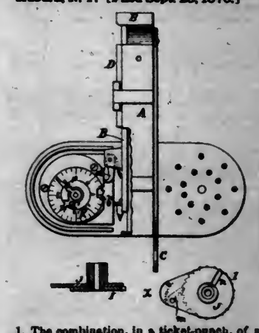
The wagon-platform trestle, consisting of the center-bar B and the transverse bar D, arranged at right angles with each other under the center of the fifth-wheel, the head-block A, and the side timbers C O' diverging in direct lines therefrom, and extending to the draft-clevises, the diagonal brace-irons F F' attached to center and side timbers, and the lateral draft-irons attached to head-block and side bars, all said irons supporting the transverse bar, and extending beyond the ends of the side timbers to form the draft-clevises, substantially as specified.

188,915. STEAM-COOKERS. Geo. B. Follett and Wm. W. Follett, Green Bay, Wis., assignors of one-third their right to Walter Carswell, same place. [Filed Apr. 26, 1876.]



The reservoir A, having enlarged spout B, opening *a* at the bottom of the reservoir, in combination with the steamers C, each having flange *b*, perforated side tubes D D, handles G, holes *x*, and perforated false bottom I, all substantially as and for the purpose set forth.

188,916. TICKET-PUNCHES. Jos. S. Foster, Auburn, N. Y. [Filed Sept. 28, 1876.]



1. The combination, in a ticket-punch, of a punch for perforating the ticket, and an auxiliary punch inclosed within the instrument, said auxiliary punch being operated to perforate a tape by the same operation that the ticket is punched with the principal punch, substantially as set forth.

2. In a ticket-punch, a movable mouth-piece for operating a registering mechanism, sounding an alarm, and moving a roll of paper tape, substantially as herein set forth.

3. The combination, in a ticket-punch, of the main punch *b*, for punching the ticket, and the auxiliary punch *d*, operated simultaneously therewith by the same lever C, for perforating a paper tape concealed within the instrument, substantially as herein set forth.

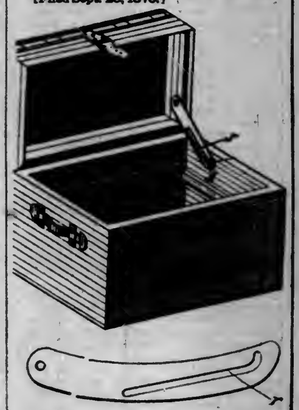
4. The combination of the slide E, with hook *f*, spring G, punches *b d*, spring *e*, and pivoted lever C, with pin *h*, substantially as and for the purposes herein set forth.

5. The combination of the ratchet-wheel I, plate J, with pawl *m* and slot *n*, and the spring-arm K, pivoted to the mouth-piece B, and provided with the pin *t*, substantially as and for the purposes herein set forth.

6. The combination, in a ticket-punch, of the auxiliary punch *d* and slide E, with slot *x*, as and for the purposes herein set forth.

7. The combination, with the bell O, of the striker L, with hammer N and cam *v*, the spring M, and the pin *s* on the sliding mouth-piece, substantially as and for the purposes herein set forth.

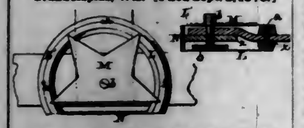
188,917. TRUNK-STAYS. Alex. Frankel, Newark, N. J., assignor to J. Lagowitz. [Filed Sept. 28, 1876.]



1. A trunk-stay having its longitudinal or guiding slot *r* inclined, as shown, whereby it is made to move forward in a direct line, or nearly so, when the trunk is closed, substantially as and for the purpose set forth.

2. A trunk stay having the longitudinal slot *r* terminating in the curved slot or notch *s*, whereby the stay may be released by simply pressing the cover forward, as set forth.

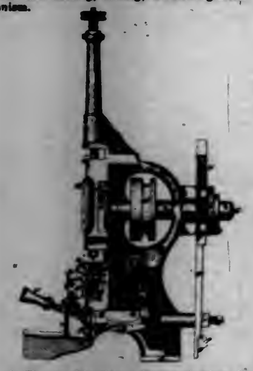
182,918. HALTERS. Benjamin F. Frazier, Grand Rapids, Wis. [Filed Sept. 2, 1876.]



The combination of the two parts L L', provided with grooves or slots *x* and plate N, rivets *a*, adapted to pass through the straps, spring-plates M O, and clamping-screw *b*, all constructed and operating substantially as shown.

182,919. LASTING-MACHINES FOR BOOTS AND SHOES. Louis Goddu, Boston, Mass. [Filed Aug. 21, 1876.]

Brief.—This machine is provided with lasting griping-jaws, one of which is stationary, while the other has a longitudinal reciprocating movement, the jaws acting in concert with back feeding, cutting, and driving mechanism.



1. The combination, with mechanism for feeding and driving jacks, substantially as described, of a fixed and movable device for griping and holding the edge of the upper, substantially as described, during the operation of taking out the slack and tacking the upper to the inner sole.

2. In a machine for lasting boots and shoes, the combination, with the nose or fixed jaw C, of a griping-finger or device, S, adapted to act with the fixed jaw in seizing and holding the edge of the upper against the nose or fixed jaw, and in position beneath it to receive the driven tack at the point of tension upon the upper, and to release the hold or gripe to feed for the next tack.

3. The fixed nail-tube or jaw C, provided with an under and side rasped surface, as described, against which the edge of the upper may be held either by the seizing-finger S or by the upward pressure of the hand, as may be desired, and herein specified.

4. The combination, in a lasting-machine, with the wide nose or fixed jaw C, or the narrow griping-finger S, operating as and for the purpose herein set forth.

5. In a machine for lasting boots and shoes, in which the upper is seized and held against a fixed jaw while the operator takes out the slack, a seizing or griping device, S, having a combined or yielding action to adapt it to different thicknesses of uppers.

6. The combination, with the fixed and movable griping-jaws for the upper, of the horizontal bar T, which carries the griping finger or jaw, the resetting-spring *l*, and the cam rack-bar U, which connects said griping-finger with the operating-cam-shaft G and the treadle, as described, whereby the griping device co-operates with the feeding, serrating, and nail-driving devices, to gripe and release the upper during the operation of lasting.

7. The combination, with the griping-finger S and its carrying-bar T, of the cushion-bearing *r*, and the cam rack-bar U *s*, as and for the purpose herein specified.

8. The combination, with the griping finger or jaw S, of an independent lever device *w*, connected therewith for operating said jaw, in connection with its automatic operating devices, and independently of them, for the purpose set forth.

9. In a machine for lasting boots and shoes, the combination with a griping device which takes out the slack and presents the edge of the upper to receive the tacks, of a fulcrum or pry bar, *v*, against which the last is pressed to obtain greater leverage in taking the slack out of stout uppers.

10. In a lasting-machine, the feed-dog cutter *f*, operated by proper mechanism, to have a compound movement to enter the nail-passage, feed the continuous integral wire of headed tacks, and to sever the nail or tack from said wire, leaving said tack in position to be driven.

11. The combination, with a feed-dog cutter, *f*, which both feeds and cuts the nail or tack from a wire of integral headed nails or tacks, of a pin-support, *i*, within and across the wire-passage, against which the cutter acts to sever each nail or tack.

12. The combination, with the vertically-moving pendent feed-cutter arm J, of the fixed stud Q, against which the said arm acts to sever the tack at the limit of its feed.

13. The combination, with the vertically-moving pendent arm J, carrying the feed-dog cutter *f*, as described, and a spring, *g*, for bearing said pendent arm inward, of a nail-way or passage, open at one side for the entrance of said dog to feed the wire, as described.

14. The combination, with the vertically-moving pendent arm J, carrying a feed-dog cutter, *f*, as described, and an open nailway or passage, of the projection *h'* at the top of the open nailway, against which the arm strikes in rising to carry the feed-dog cutter out of the way of the driver in driving the severed tack or nail.

15. The combination, with the nailway or passage adapted to receive a continuous wire of integral nails or tacks, of a brake or spring presser, *n*, which, entering said passage, presses upon the wire, as and for the purpose stated.

16. The combination, with the pendent arm J, its cutter feed-dog *f*, and devices for controlling its ascent and descent with respect to the nail-wire, of the bell-crank lever K L and its operating-cam M, whereby said feed-cutter dog is operated vertically to make the feed.

17. In a machine for lasting shoes, which operates to drive tacks or pins while the upper is pressed against the fixed nose, a griping device for seizing the upper, so constructed and operated that the upper may be grasped and adjusted in any direction at pleasure, without removing it from contact with the nose, against which it is held, and without operating the tack-driving mechanism, substantially as described.

18. The feeding-point *f*, operated to have a downward and inward movement to feed and sever the nail, and a compound upward and outward movement of greater extent than the maximum length of the nail, whereby the feeder and cutter are adapted for different lengths of tacks less than double the length of the tack being driven.

182,920. ENGRAVING-MACHINES. John C. Gourrant, Danville, Va., assignor to himself and Collett Leventhorpe, Rutherfordton, N. C. [Filed Mar. 9, 1876.]

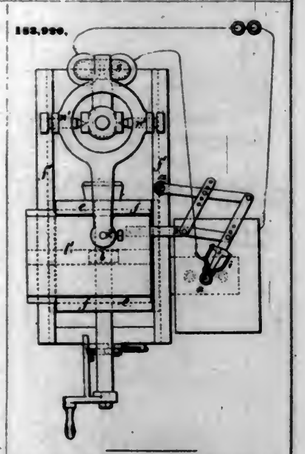
Brief.—Electro-magnetic.

1. In an engraving-machine, a tracing-point made of metal, surrounded with a case of non-conducting material, with a slightly conical surface, in combination with an electro-magnet and engraving-lever, substantially as set forth.

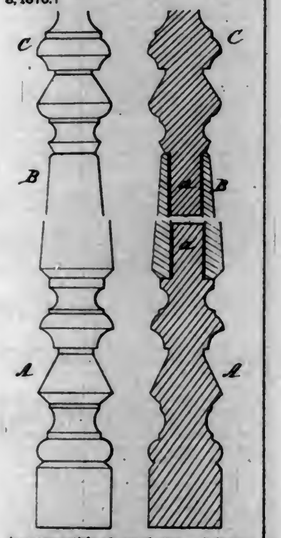
2. The combination, in an engraving-machine, of a reciprocating bed carrying the article to be engraved, a pantograph and tracer connected with and moved by the bed, a stationary pattern, an engraving-tool, moving vertically, and a lever and electro-magnet for operating such engraving-tool, substantially as set forth.

3. The combination, in an engraving-machine, of a revolving chuck holding the article to be engraved, a rack and pinion, or their equivalents, a pantograph and tracer receiving motion from the mechanism that revolves the chuck, a stationary pattern, an engraving-tool, and a lever and electro-magnet for operating the same, substantially as set forth.

182,920.

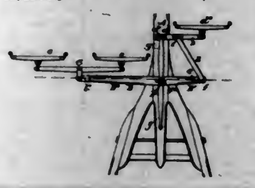


182,921. BALUSTERS FOR STAIRWAYS. P. M. Haas, Youngstown, Ohio. [Filed Apr. 8, 1876.]



As a new article of manufacture, a baluster for stairways, made of wood or different woods and of connected sections A B C, substantially as described.

182,922. TREES-HORSE ATTACHES. William Hasting, Sen., Fowler, Ill. [Filed Sept. 12, 1876.]

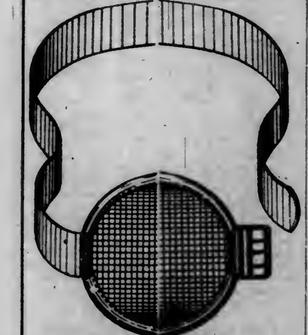


1. The double-tree B, made adjustable, as described, by means of the removable and substitutive wedges *f'*, and operating in combination with the double-tree C and single-trees *e e* and *d''*, lever D, bar E, and draft-pole A, substantially as and for the purpose specified.

2. The keys *f'*, constructed as described, with projections *f''* and shoulders *f'''*, combined with the hammer-strap *g*, hammer-strap bolt F, and draft-pole A, substantially as described, and for the purpose specified.

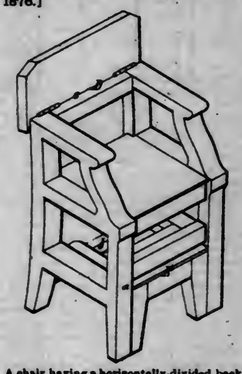
182,923. ABDOMINAL SUPPORTERS. Nancy J. Hanchette, Chicago, Ill. [Filed Aug. 18, 1876.]

Brief.—The supporter is made of wire-gauze, which holds itself more firmly in place than the usual smooth materials.



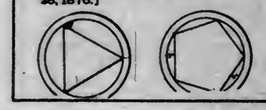
The herein-described supporting device, made of wire-gauze bound around the edges as described, and provided with suitable straps or other devices for securing the same to the person, substantially as set forth.

182,924. STEP-LADDER CHAIRS. Samuel J. Harrison, Boston, Mass. [Filed Aug. 26, 1876.]



A chair having a horizontally-divided back, the upper part of which is hinged to the lower, and adapted to be turned down thereon to form a horizontal support above the seat, and a sliding or adjustable step beneath the seat, capable of being adapted to the purposes of a footstool or of a step, by the aid of which access is had to the next step above.

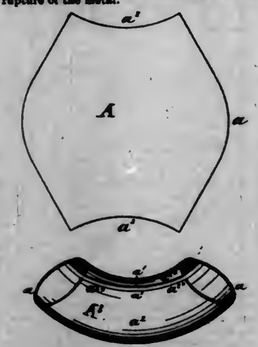
182,925. PERRERS FOR CARTRIDGES. Alfred C. Hobbs, Bridgeport, Conn. [Filed Feb. 28, 1876.]



A primer for cartridges consisting of a shell or cup having an anvil placed flatwise therein, and retained in position by the edges or corners thereof, substantially in the manner herein set forth.

182,926. STOVE-PIPE ELBOWS. Frederick Hoelige, Cincinnati, Ohio, assignor to A. Hoelige, same place. [Filed Sept. 30, 1876.]

Brief.—The corners of the blank are bent outward from the male die, while the seam edges between the corners are bent in so as to approach the form of the under or concave side of the finished elbow. This mode of manipulating the blank facilitates the final folding of the sides, and to some extent prevents the rupture of the metal.



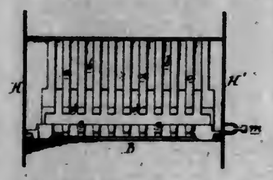
1. The process herein described of forming sheet-metal elbows by stamping in a suitably-formed blank a central concavity and two lateral ridges, and bending the sides forward and toward each other, so that the bends therein will form the inner curve of the elbow, and the central concavity will form the outer curve.

2. The blank A, formed with two convex sides, *a a*, and two concave sides, *a' a'*, to adapt it to be stamped and bent into the shape of an elbow, as set forth.

3. The successive dies B C, the former having an oblong or elliptic cavity, and the other a similar or deeper cavity, contracted at the sides by transverse ridges.

4. The final die C, constructed, as shown, with a central longitudinal cavity and transverse ridges, flanked by diagonal depressions, adapted to stamp a sheet-metal blank into the required shape to be bent into elbow form, in the manner explained.

182,927. STOVE-GRATES. Thomas Holt, Philadelphia, Pa. [Filed Sept. 30, 1876.]



1. The combination of the grate A and its fingers *a* with the grate B and its fingers *a*, unconfined at their front ends, and coinciding with the fingers *a* of the grate A, as set forth.

2. The combination of a grate or fire-pot having outwardly-bent fingers *a*, a base-grate having fingers *a*, coinciding with the fingers *a*, and unconfined at the outer ends, and the space between the two grates.

182,928. RAILROAD-SWITCHES. Asa B. Hovey, San Francisco, Cal., assignor to the Sutter Street Railroad Company. [Filed Sept. 22, 1876.]

Brief.—The switch-tongue is pivoted to a cross-head, to which are secured the draw-rods for operating the tongue, the movement of the rods being produced by the action of the wheels in passing over wedge-shaped blocks working up through slots in the rails, and which impinge against the ends of the draw-rods.

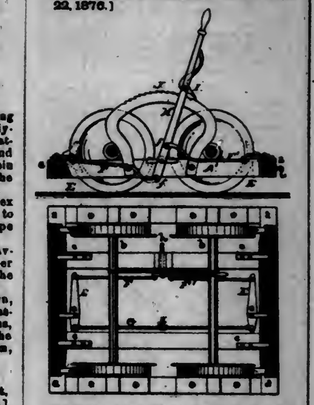


1. An automatic railway-switch, composed of the tongue B, its cross-head D, the yielding draw-rods E E', and the dogs G G, secured to the ends of the rods, and working against the fixed blocks F, and through slots in the rails of the main and switch tracks, all combined and operated substantially in the manner and for the purpose set forth.

2. In an automatic railway-switch, the combination and arrangement, with the main and switch rails O O', of the dogs G G, projecting above the rails, and connected with the switch-tongue by the means herein described, said dogs having an inclined face, and working with a sliding motion upon a similar face of the fixed blocks F, constructed and operated as and for the purposes described.

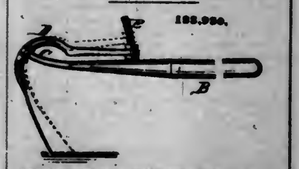
3. In an automatic railway-switch, the combination and arrangement, with the tongue B and its cross-head D, the draw-rods E, and their dogs G, of the springs H, for allowing the parts to yield against the action of the car-wheels without being strained or broken, when the same are constructed and arranged as herein described and set forth.

182,929. CAR-BRAKES. Asa B. Hovey, San Francisco, Cal., assignor to the Sutter Street Railroad Company. [Filed Sept. 22, 1876.]



In combination with the brake-beam of a car or dummy, the progressive levers E E', the tension-rod G, the connection-rods F F', pivoted to the levers and to the hand-lever H, and the lever H and its pawl-and-ratchet frame I J, or other equivalent means for holding it in position, all combined and arranged as and for the purpose set forth.

182,930.



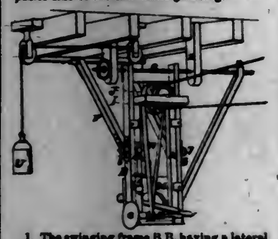
182,930. FIELD AND GARDEN HOES. Chas. A. Howard, Elmira, N.Y., assignor to N. F. Eaton, same place. [Filed July 29, 1876.]

Brief.—The tang, at its bend, is pivoted to the end of the handle, the tang extending backward parallel to the handle, the end being secured, by nuts or otherwise, to a segmental stud, for adjustment of the blade, as set forth.

The segmental stud E, or its substantial equivalent, in combination with the handle B and the shank or tang D, the handle and tang being pivoted together, as shown at C, as and for the purposes specified.

182,921. SAW-SHARPENERS. R. Howland, Bridgewater, Mass. [Filed June 22, 1874.]

Brief.—A swinging automatic frame, capable of lateral adjustment, is braced by hinged and slotted braces, and provided with a circular grinder, pressed to the saw-teeth by a hand-lever. A brace presses against the opposite side of the saw when grinding.



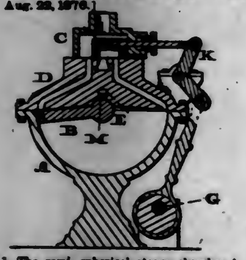
1. The swinging frame B B, having a lateral adjustment on the rod C C, in combination with the sliding frame A, carrying the emery-wheel O, as substantially as described.

2. The hinged and adjustable braces F F, having the slotted ends G G, and set-screws, in combination with the swinging frame B B, for the purpose specified.

3. The combination of the frame B B, rod C C, and adjusting-screw E, for the purpose specified.

4. The combination of the sliding gage V, adjusting-screw X, and clamp-screw W, constructed and arranged as shown and described, and for the purpose specified.

182,922. ROTARY ENGINES. Saml. S. Hull, Philadelphia, Pa., assignor of one-half his right to E. V. Machette, same place. [Filed Aug. 22, 1876.]



1. The semi-spherical steam-chamber A, semicircular reciprocating piston B, and the projecting axis B, combined and operating substantially as and for the purpose set forth.

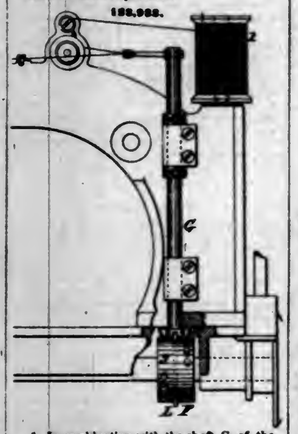
2. The semi-spherical steam-chamber A, semicircular reciprocating piston B, projecting axis E, and port-plate D, combined and operating substantially as and for the purpose set forth.

3. The semi-spherical steam-chamber A and semicircular piston B, in combination with the port-plate D and valve-chamber C, and with the pitman F, rotary shaft G, elbow-lever K, and slide-valve L, forming an improvement in steam-engines, substantially as set forth, and for the purpose described.

182,923. TAKE-UP MECHANISMS FOR SEWING-MACHINES. Thomas S. Huntington, New York, N. Y. [Filed Aug. 18, 1876.]

Brief.—The main shaft is provided with a drum, having a circumferential flange in the center of its periphery, on each side of which is a series of pins, which, as the main shaft continuously rotates, alternately engage with a pinion on the lower end of an upright shaft, which, on its upper end, carries the take-up arm. By this arrangement the take-up arm is given intermitting half-circular reciprocations, and is held by the flange at the extreme of each reciprocation.

182,923.

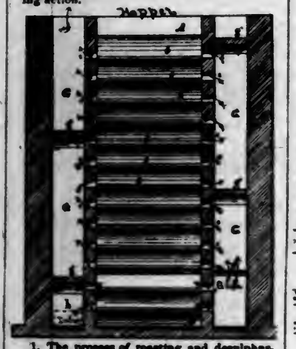


1. In combination with the shaft G of the take-up arm, the pinion K and cylinder F, provided with a series of pins arranged to travel and gear with the pinion on opposite sides of the same for operating the take-up, substantially as described.

2. In combination with the shaft G and pinion K, the cylinder F, provided with a series of pins on opposite sides of the pinion arranged to gear with the same and the rib L, the whole arranged to operate substantially as described.

182,924. ORE-ROASTING FURNACES. H. J. Huttner, San Francisco, and Robert Scott, New Almaden, Cal.; said Scott assignor to said Huttner. [Filed Mar. 13, 1876.]

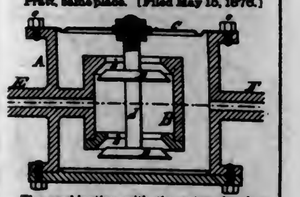
Brief.—The air for supplying the furnace-fire is caused to pass through the calcined ore in the lower part of the furnace, for the double purpose of cooling and sweeping away any remaining fumes. After entering the grate, the furnace construction is such that it traverses to and fro, across and through the body of ore, to insure equal exposure to its calcining action.



1. The process of roasting and desulphurizing the ores of quicksilver, which consists in passing currents of air through the lower part of a wall or column of roasted and cooling ore, to reduce the temperature of the same and to take up any remaining fumes, and then passing the air, in a highly-heated condition, from side to side through the upper parts of the said wall or column, to roast and desulphurize the said ore, substantially as described.

2. An ore-roasting furnace, consisting of a central chamber, A, provided with a series of inclined shelves, *a b*, side flues or chambers G, divided by the alternating partitions *g*, fire-grate F, and air-inlet *h*, the arrangement of these several parts being such that the entering air-current is made to pass through a body of calcined and cooling ore, thence through the fire-grate, and, finally, to and fro across the furnace with the products of combustion, and through the roasting ore, substantially as shown and described.

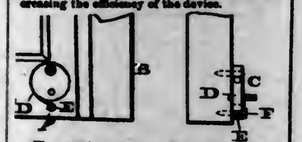
182,925. PRESSURE-VALVES. Adolph Kayser, Buffalo, N. Y., assignor to Pascal P. Pratt, same place. [Filed May 15, 1876.]



The combination, with the outer chamber A, influx-pipe E, and escape-pipe F, of the inner chamber B, with which the pipe E communicates, of enlarged size, the said chamber provided with valve-seats *b b*, and balanced valves D D, connected with an elastic diaphragm, C, all arranged together as described, so that the gas passing through the influx-pipe will have an opportunity to expand in the enlarged chamber B, before acting upon the valves, thereby avoiding any sudden and excessive pressure upon the valves and diaphragm, as hereinbefore set forth.

182,926. SAW-HOLDERS. Julius Koebler, Philadelphia, Pa. [Filed May 19, 1876.]

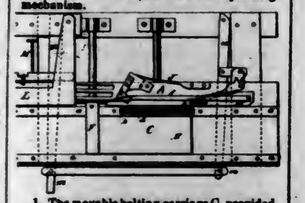
Brief.—An eccentric disk, of the ordinary construction, has secured to its periphery a suitable spring, the free end of which is formed into a loop or hook, engaging with an adjustable pin, on which the spring slides, thus limiting the rotation of the disk and increasing the efficiency of the device.



The rotating eccentric disk C, in combination with the peripheral spring D, consisting of a flat plate, having a hooked end, E, and operating with the adjustable bearing pin or screw F, substantially as and for the purpose set forth.

182,927. LATH SAW-MILLS. Chas. F. King, Covington, Pa. [Filed Apr. 12, 1876.]

Brief.—Laths can be bolted and sawed at one operation by means of a bolting-saw, a series of lath-saws, a carriage reciprocating between suitable gage-strips, and provided with a standard having a projecting arm, to which is connected a lever having a slotted foot, a pivoted dog for placing the slab in position to be acted upon by the foot, a gage hinged to the side of the frame for regulating the thickness of the lath-bolt, and suitable operating mechanism.



1. The movable bolting-carriage C, provided with the standard F, having arm *e* and lever *f*, furnished with foot H, substantially as and for the purpose set forth.

2. The movable carriage C, as described, in combination with the gage *a'* and dog N, for placing the slab in proper position to be acted upon by the foot H, substantially as set forth.

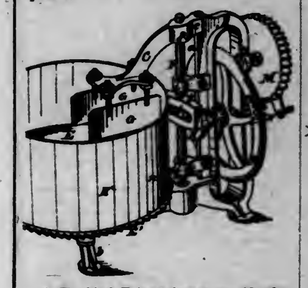
3. The combination of the carriage C, gage *a'*, dog N, levers m and n, as and for the purpose set forth.

4. The dog f, provided with the springs J K, as and for the purpose expressed.

5. The gage I, in combination with the lever M, substantially as and for the purpose described.

182,928. MEAT-CHOPPERS. D. R. Kinyon, Raritan, N. J., assignor of one-half his right to J. C. Kinyon, same place. [Filed Aug. 19, 1876.]

Brief.—The incased block is automatically revolved by the crank-wheel, gearing, eccentric pin, and slotted arm, from which the vertical choppers receive motion, the heel of the knife-arm moving on a guide, that also supports it.



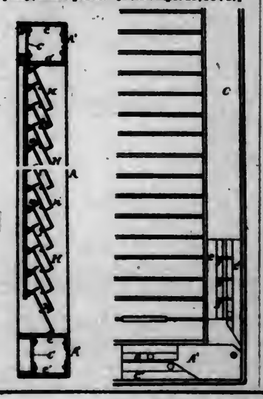
1. The block E, located upon one side of a vertical longitudinal plane passing through the center of the knife-arm, in combination with said knife-arm, carrying two knives, acting together substantially as and for the purpose described.

2. The knife-arm C and its extension-guide *c*, the guideway *c*, boxes *c'*, ears *c''* and *c'''*, and socket for spindle *c*, constructed and arranged as and for the purpose described.

3. In combination with the power-rod F and guideway *c*, the adjustable knife-arm C and its guide *c*, acting both as a guide and support for the power-rod, substantially as described.

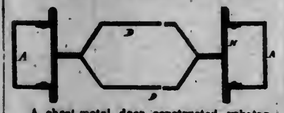
4. The adjustable knife-arm C and extension-guide *c*, operated vertically above the revolving block, and the eccentric *h* upon the hub of the fly-wheel K, revolving said block by means of the levers *l m* and pawl *n*, the whole being constructed and arranged in the manner shown and described.

182,929. SHEET-METAL WINDOW-BLINDS. Anson O. Kittredge, Salem, Ohio, assignor to Kittredge Cornice and Ornament Company, same place. [Filed Apr. 15, 1876.]



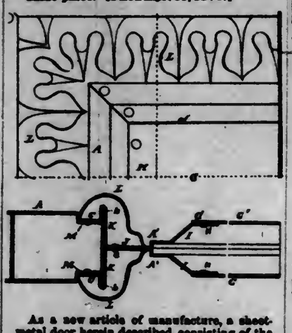
The frame A, consisting of sheets of metal so bent as to form three sides of each of the sides and ends of the frame, side C, and channel-irons *c c'*, in combination with the metal slats H, attached to said frame, in the manner substantially as described, and for the purpose set forth.

182,930. SHEET-METAL DOORS. Anson O. Kittredge, Salem, Ohio, assignor to Kittredge Cornice and Ornament Company, same place. [Filed Apr. 15, 1876.]



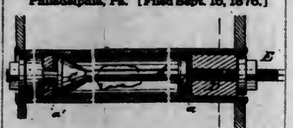
A sheet-metal door constructed substantially as herein described, viz., consisting of the frame A, panels D, fillets I, and channel-irons H H', for the purpose specified.

182,931. SHEET-METAL DOORS. Anson O. Kittredge, Salem, Ohio, assignor to Kittredge Cornice and Ornament Company, same place. [Filed Apr. 15, 1876.]



As a new article of manufacture, a sheet-metal door herein described, consisting of the frame A, panels G G', fillets I, channel-iron M, and molding L, in the manner substantially as set forth, and for the purpose specified.

182,932. LEAK-STOPPERS FOR BOILER-TUBES. A. B. Jones and John F. Lynch, Philadelphia, Pa. [Filed Sept. 16, 1876.]



The combination of the rod A, collar B, conical collar C, washers *c c'*, elastic cylinders D D', and nuts E, substantially as shown and described.

182,933. FRUIT-DRIERS. Charles W. Jones, Centreville, and Edgar A. Jones, Sturgis, Mich. [Filed Aug. 12, 1876.]

Brief.—The projection from the bottom of the part M engages with the trays K, when they are to be moved from chamber A to chamber B.

1. The crank or cam shaft, in combination with the slides Q, lever R, and spring-catches, as and for the purpose set forth.

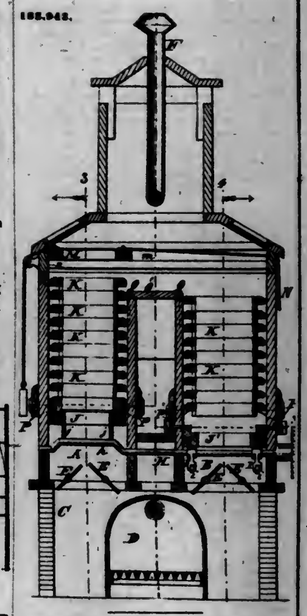
2. The slides Q and lever R, for withdrawing the spring-catches or supports, to permit the trays to pass down, as set forth.

3. The carriage M at the top, having downwardly-projecting flanges n, for shifting the trays from one flue to the other, as set forth.

4. The adjustable roller-bed O O', as and for the purpose set forth.

5. The combination, with a flue, A, base C, and furnace D, of a pair of winged dampers, E E, adapted to direct the heated currents to any part of the under surface of the trays, as set forth.

182,934.

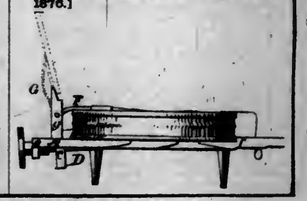


182,934. REVOLVING FIRE-ARMS. Benj. F. Joslyn, Worcester, Mass. [Filed Mar. 9, 1876.]



The combination, in a revolver, of a cylinder and a fixed frame and stock, D, with the movable breech portion D', hinged to one side of the fixed stock, substantially as set forth.

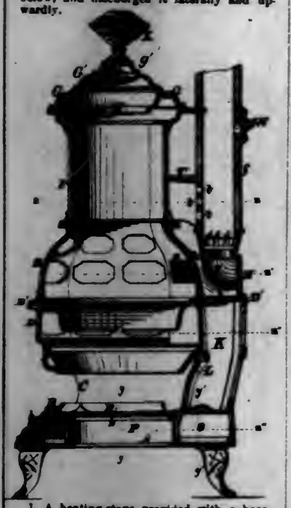
182,935. BLACKING-BOX HOLDERS. Robert Latrelle, Baltimore, Md. [Filed June 5, 1876.]



The holder for blacking-boxes herein described, consisting of the slotted base-plate A, thumb-screw D, slide-clamp C, uprights *g*, bail F, and spring G, all combined to operate substantially as set forth, as an article of manufacture.

182,946. HEATING-STOVES. Jas. A. Lawson, Troy, N. Y. [Filed June 7, 1876.]

Brief.—The front upper portion of the casing is pivoted upon the base of the urn. The air-space within the base-flue receives air from below, and discharges it laterally and upwardly.



1. A heating-stove provided with a base-flue, which communicates at its rear ends with the descending and ascending flues, and, encircling a hollow flue-strip that forms a passage for the external air, follows a continuous circular line, which has at all points one horizontal plane, substantially as and for the purpose specified.

2. A heating-stove provided with an air-space, which is located between the base-flue and ash-pit, communicates laterally with the external air, and, by means of a central vertical flue, with the space beneath the stove, whereby air is permitted to pass upward against the bottom of said ash-pit, and thence directly outward and upward, substantially as and for the purpose shown.

3. The descending and ascending flues K and K', respectively constructed as shown, arranged side by side, and disconnected from each other and from the stove, except at their ends, substantially as and for the purpose set forth.

4. The means employed for connecting the upper ends of the descending and ascending flues with each other and with the stove, consisting of the ring D', fitted between the casing-sections D and E, and provided with a rearward offset, D'', that embraces the ends of said flues, substantially as shown and described.

5. The means employed for inclosing the space L between the flues K and K' and the casing of the stove, consisting of the wings *h* and *h'*, formed upon said flues, and the plate M, placed between their inner rear corners, said parts being provided with openings for the passage of air, substantially as and for the purpose specified.

6. The combination of the descending and ascending flues K and K', respectively, with the suspended base-flue N, substantially as and for the purpose shown.

7. A magazine-stove in which the opening for supplying fuel to the magazine is inclosed by means of the upper front portion of the casing, which is pivoted upon and rotates around the base of the urn, substantially as and for the purpose set forth.

8. The combination of the fixed portion of the top plate G, movable portion or cover G', and urn X, secured to the former and forming an axial bearing for the latter, substantially as and for the purpose shown and described.

9. The top plate G, having an opening, *g*, formed by the removal of a section of its front upper side, the urn X, secured to the axial center of said plate, and the cover G', fitted to said opening, and provided with a ring, *g'*, which encircles the base of said urn, said parts being combined to operate substantially as and for the purpose specified.

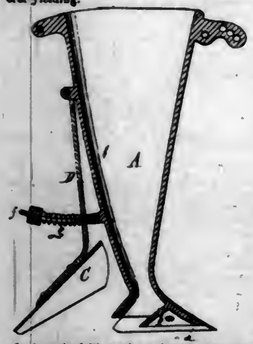
10. In combination with the top plate G, provided with the opening *g*, the cover G', fitted within said opening, and having its upper surface flush with the upper surface of said plate, and provided at its axial center with a ring, *g'*, that forms the apex or center of the dome-shaped central portion of the same, substantially as and for the purpose shown.

11. In combination with the rear portion of the stove, the detachable pipe S, having its lower end secured upon the chamber H, and provided with openings *s*, *s*, and *s*, and its upper end arranged to receive a pipe, and secured to or upon the casing of said stove, substantially as and for the purpose set forth.

12. In combination with the hot-air pipe S, constructed as shown, and secured to or upon the rear side of the stove, the box or hood T, attached to the front side of said pipe, extending between the same and the casing of the stove, and communicating with the interior of said pipe by means of the openings *t* and *t*, substantially as and for the purpose shown and described.

182,947. GRAIN-DRILL TEETH. J. H. Lewis, Detroit, Mich. [Filed Sept. 8, 1876.]

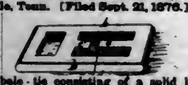
Brief.—Upon the foot and within the tooth is cast a semi-conical spreader for scattering seed. To the rear of the tooth is hinged a covverer, and through the strap passes a pin, on which works a coil-spring to render the covverer yielding.



1. A grain-drill tooth, A, having the semi-conical spreader *b*, cast as a rearward extension of its point *c*, substantially as described.

2. The combination, with a grain-drill tooth, of the yielding covering-plate C, the hinged strap D, and the spring *g* on the back of each tooth, substantially as described and shown.

182,948. BALE-TIES. D. T. Lewis, Brownsville, Tenn. [Filed Sept. 21, 1876.]



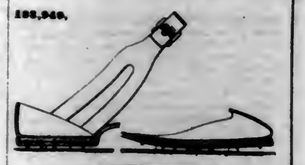
A bale-tie consisting of a solid buckle, formed at one end for attachment to one end of the strap, and provided with a tongue which is cut transversely at or near the middle, so as to leave an inclined passage between the ends, as set forth.

182,949. ANTI-SLIPPING SANDALS. Herman Loewenthal, New York, N. Y. [Filed Sept. 27, 1876.]

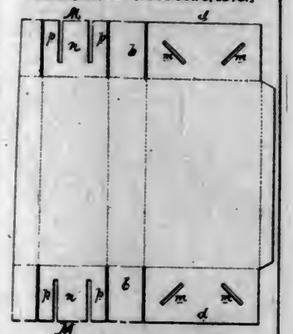
Brief.—Metallic plates are inserted between the inner and outer sole, having spurs which project through the outer sole, adapted for slippery walking.

A sandal having the intermediate metal heel or sole plates, one or both, provided with the projecting spurs, all arranged substantially as shown and described, and for the purpose described.

182,949.



182,950. PAPER BOXES. Charles L. Lockwood, Plainfield, N. J., and Daniel Lynch, Philadelphia, Pa. [Filed Oct. 5, 1876.]

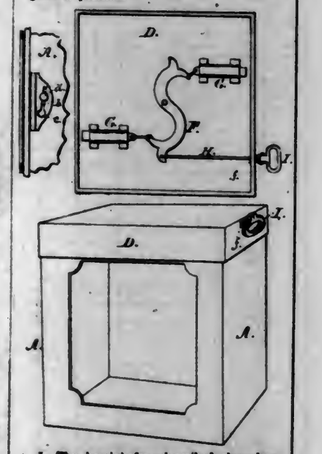


1. A paper box provided with opposite flaps *d* and M, the latter of which consists of the strips *p p* and *n*, and the former having inclined slots *m m*, all substantially as set forth.

2. The within-described paper-box blank, consisting of the creased body, the plain flaps *b b'*, slotted flaps *d*, and severed flaps M, all substantially as described.

182,951. SHOW-BOXES FOR CRACKERS. Edward Magins, Allegheny, Pa. [Filed July 20, 1876.]

Brief.—A double fastening device for the cover, and a sliding guide-plate to hold the glass in position.



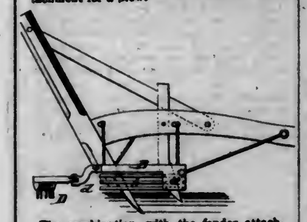
1. The hereinbefore-described show-box, consisting of the body A having a glass front, and the lid D provided with the locking device consisting of the pivoted lever F and bolts G, the several parts being constructed, arranged, and combined to operate substantially as and for the purpose described.

2. The locking device consisting of the crank F, spring-bolts G, rod H, and handle I, in combination with the projections *s* on the body of the box, substantially as and for the purpose described.

3. The clamps E, provided with the inclined slots *b* and openings *c*, in combination with the studs *d* on the interior of the box A, substantially as and for the purpose described.

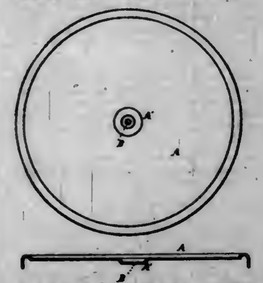
182,952. PLOW-FENDERS. Andrew C. McLeary, Humboldt, Tenn., assignor of one-half his right to J. H. Hames and S. M. McLeary, same place. [Filed Sept. 2, 1876.]

Brief.—A combined fender and harrow attachment for a plow.



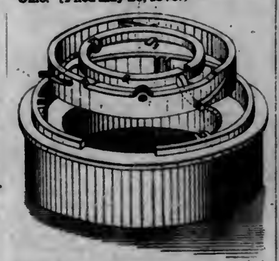
The combination, with the fender attachment B of a plow, of a harrow, D, attached in adjustable manner to a curved and pivoted arm, *d*, of the fender, substantially as shown and described.

182,953. FRUIT-CANS. John B. McNabb, Salem, Ohio. [Filed Aug. 22, 1876.]



A new article of manufacture, a cover or bottom for fruit-cans having a recess or cup, A', with a vent, B, therein, substantially as and for the purpose set forth.

182,954. STOVE-GRATES. Alex. McVean, Rochester, N. Y., assignor of one-third of his right to John Q. C. Searle, Cincinnati, Ohio. [Filed May 26, 1876.]



1. A grate supported upon a ring, G, or its equivalent, substantially in the manner shown and described, so as to be capable of being either shaken or dumped, or both, in combination with a lifter-ring, C, for the purposes set forth.

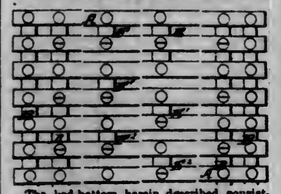
2. In combination with the lifter-ring C, the ring G, provided with arms *a*, resting between vertical ways, and constructed to receive and sustain the tilting or dumping and horizontally-rotating grate, substantially as and for the purposes set forth.

182,955. STOVE-GRATES. Alex. McVean and D. W. Smith, Rochester, N. Y.; said Smith assignor to said McVean. [Filed Mar. 3, 1876.]



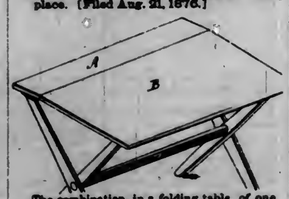
In combination with the ring C, constructed to operate substantially as shown and described, the grate G, hung therein as set forth, and adapted to be shaken in a horizontal plane, or dumped while in either its raised or its lowered adjustment, for the purposes set forth.

182,956. SPRING BED-BOTTOMS. John Menzies, Detroit, Mich. [Filed Aug. 19, 1876.]



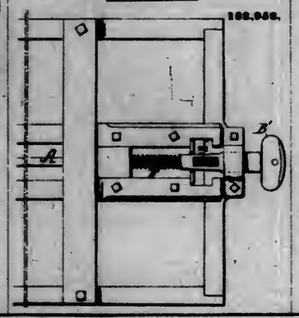
The bed-bottom herein described, consisting of longitudinal slats A A, cross-slat sections E E' F F', and springs G, connected to the lower frame by staples, and to the upper frame by nuts and bolts, substantially as described, and for the purpose set forth.

182,957. FOLDING TABLES. Edwin F. Mersick, New Haven, Conn., assignor to the New Haven Folding Chair Company, same place. [Filed Aug. 21, 1876.]



The combination, in a folding table, of one pair of legs, the part A of the top rigidly attached to the upper end of the said legs, a second pair of legs crossing the first and pivoted thereto, and shorter from the pivot to the upper end than the first pair, the part B of the top hinged to the rigid part A, and a stop in connection with the second pair of legs to support the table when set up, all substantially as described.

182,958.

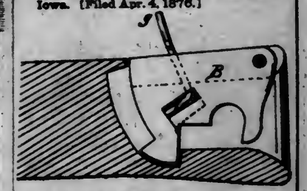


182,958. DRAW-BARS FOR RAILWAY-CARS. Allen Middleton, Philadelphia, Pa. [Filed Sept. 18, 1876.]

1. The combination of the coupling bar or bars A, the heads B and B', springs *m m* and D D', all being constructed for application to the car-frame, and for operating substantially in the manner described.

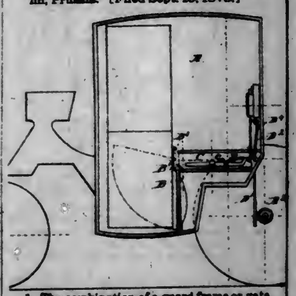
2. The combination of the bumper-head and its internal projection *s* with the draw-bar A and spring *m*.

182,959. CAR-COUPLINGS. Martin C. Mohr and Newton F. Lawrence, Manchester, Iowa. [Filed Apr. 4, 1876.]



The combination of a staple, *g*, having hook end, block B, having longitudinal as well as lateral recess, and a draw-head having a recess, *h'*, as and for the purpose specified.

182,960. PASSENGER REGISTERS AND INDICATORS. Wilhelm Friedrich Nedler, Berlin, Prussia. [Filed Sept. 15, 1876.]



1. The combination of a guard frame or gate with a cab or other vehicle, and registering and fare-controlling devices for the purpose of throwing the registering device into action when the vehicle is occupied, and out of action when the passenger leaves the same, substantially as herein shown and described.

2. The combination, in a fare-controlling apparatus for cabs, of the guard frame or gate B, lever C, rock-shaft D, having arms D' D², actuating-cam A² on the wheel-hub, and registering devices adapted to be thrown in and out of action, substantially in the manner and for the purpose set forth.

3. The combination, in a registering apparatus, of the worm-shaft G², spur-wheels H L, ratchet-wheel K, pawl H', hollow shaft I, carrier I', segment J², ratchet-wheels N P, coiled spring Q, main dial R, center shaft J, and pointer T, all constructed and relatively arranged as herein set forth.

4. The combination of the brake-pawl W with the lifter U, ratchet-wheel, and pointer-shaft, as and for the purpose set forth.

5. The combination of the pawl X with the lifter U, ratchet-wheel, and pointer-shaft, substantially as described.

182,961. ROTARY HARROWS. J. N. Norris, Dadeville, Ala. [Filed Aug. 16, 1876.]

Brief.—A metallic plate, with its ends slotted to receive the vertical shafts of the harrow-wheels, is secured to the bolster. To the center of said plate is pivoted a lever, which operates two bars, having their ends perforated to receive the upright shafts of the harrows. The direction of the rotation of the harrow-wheels may be reversed by operating the lever.

1. The combination of tongue B, bolster A, plate D, having slots *d d*, rods *f f*, lever F, and segmental plate L, substantially as and for the purpose shown and specified.

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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

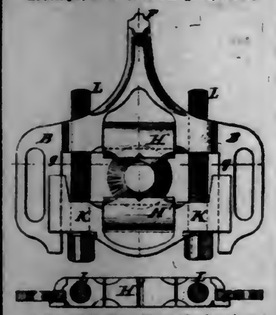
2. The combination of bolster A, plate D, having slots *d d*, rods *f f*, lever F, vertical axis or shafts I I, and harrow-wheels H H, substantially as and for the purpose shown and specified.

3. The improved harrow herein described, consisting of the tongue B, bolster A, having downward-projecting brackets E E, plate D, having slots *d d*, vertical shafts or axes I I, lever F, rods *f f*, wheels H H, and casters K K, all combined and arranged to operate substantially as and for the purpose herein shown and specified.

182,961,



182,962. LATHE-CARRIERS. H. W. Oliver, Brooklyn, N. Y. [Filed Aug. 31, 1876.]

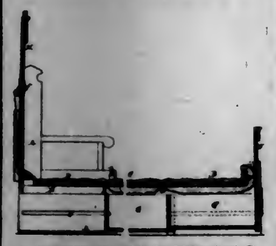


1. In combination with a lathe-dog, the perforated ears or projections on each side for the purpose substantially as described, and the rocking jaws H H', fitted and attached to said journals I I', substantially as and for the purpose set forth.

purpose of allowing said dog to be clamped to the face-plate of the lathe, in order to adapt the dog to hold the work independently of the back-center, substantially as set forth.

2. The combination, with the body B and the locking-slide K of the lathe-carrier, of the journals I and I', respectively, attached to and forming parts of said body and locking-slide,

182,963. SOFA-BEDSTEADS. Charles Pabst, Philadelphia, Pa. [Filed Mar. 3, 1876.]



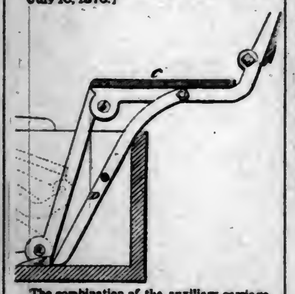
1. In combination with the folding back B, folding seat C, and sofa-frame A, the telescoping drawers G G', constructed and arranged substantially as described.

2. The combination of a filling-piece, D, with the folding back B, folding seat C, sofa-frame A, and telescoping drawers G G', when arranged to operate substantially as described.

3. The combination, with a sofa-bedstead, of a folding head-board, H, constructed and operating substantially as described.

4. The combination, with a sofa bedstead, of a folding foot-board, J, constructed and operating substantially as set forth.

182,964. FOLDING CARRIAGE-SEATS. Jas. Pendergast, New Haven, Conn. [Filed July 10, 1876.]



The combination of the auxiliary carriage-seat C, the upright A hinged to the body, and also hinged to the seat by a stop-hinge, the bench D hinged to the seat in the rear of the joint between the upright and seat, the whole constructed to be folded forward beneath the stationary seat, substantially as described.

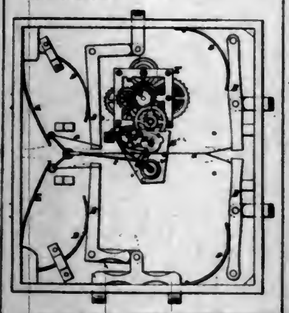
182,965. SHADE-HOLDERS. Orson N. Perkins, West Meriden, Conn., assignor to Edward Miller & Co., same place. [Filed Aug. 14, 1876.]



In a combined hinged lamp-shade and chimney holder, the internal hook *d* arranged relatively to the hinge, substantially as described.

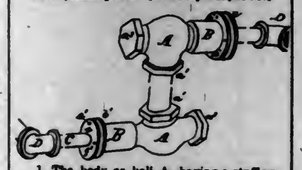
182,966. TRAM-LOCKS. Zephaniah Phillips, Bridgeport, Ohio. [Filed Sept. 23, 1876.]

Brief.—A series of bolts are thrown outward by means of one set of springs, and are retracted by another or stronger set of springs. The retracting-springs are prevented from acting upon the bolts until released by means of a time mechanism.



1. The combination, with the wheel I, having cam-hub *f*, of the spring elbow-lever M, with roller *n*, spring-casing R, with pin *r* and projection *p*, spring-lever S, cam-lever W, notched disk V, and pulley T, connected by chain *t* with the mainspring G, all substantially as and for the purposes herein set forth.

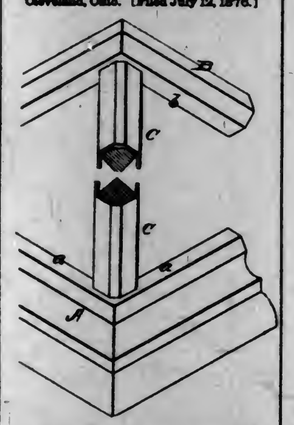
182,967. EXPANSION-JOINTS FOR STEAM-PIPES. Jno. W. Phillips, Philadelphia, Pa., assignor of one-half his right to John McConn, same place. [Filed Apr. 12, 1876.]



1. The body or ball A, having a stuffing-box, B, and way *a*', in combination with the barrel C, having a collar, *c*, forming a sliding and rocking expansion-joint for steam pipes, arranged at right angles to each other, substantially as set forth.

2. In combination with the sliding barrel C, the collar *c*, provided with studs *s*', which serve as means to permit the unscrewing of said barrel or collar, and to prevent the closing of the joint by the sliding of said barrel, substantially as shown and described.

182,968. SHOW-CASES. Frederick Pollard, Cleveland, Ohio. [Filed July 12, 1876.]



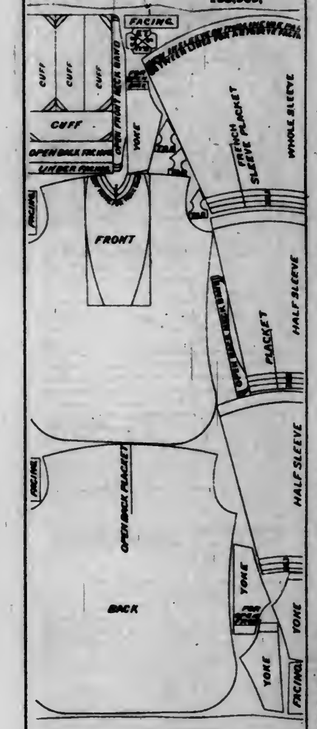
In a show-case, the base molding A, having a flat metallic upper edge, *e*, the top molding B, having a flat metallic under edge, *b*, and the post C, having its ends cut off straight, substantially as and for the purposes herein set forth.

182,969. MANUFACTURE OF SHIRTS. H. G. Pond, Fort Chester, N. Y., and M. O. West, Springfield, Mass. [Filed Aug. 24, 1876.]

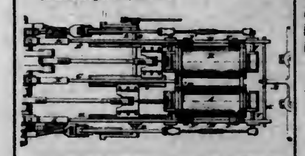
1. As a new article of manufacture, a web of shirting on which is printed, in deleble colors, in sections, the external lines of all the pieces necessary to the construction of a shirt, with printed inscriptions upon some or all of said parts, indicating what they are, and how they are to be combined in the making up of a shirt, substantially as described.

2. A web of shirting on which is printed, in deleble colors, in sections, the exterior lines of all the pieces necessary to the construction of a shirt of any one of several different sizes, substantially as shown and described.

182,969.



182,970. ENGINES FOR PROPELLING STREET-CARS. Louis Ransom, Stratford, N. Y. [Filed Sept. 20, 1876.]



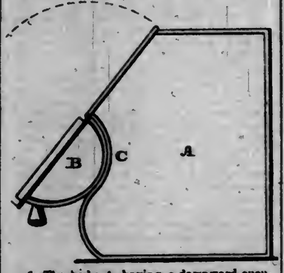
1. An engine-frame connected with the crank-axle, substantially as explained, so that the whole engine may be revolved about said axle, and have no other foundation save the axle, for the purposes set forth.

2. The combination, with the side frames E E, of the bail *w* and the lever or bar M sustaining the same at a single point, for the purpose set forth.

3. The combination, with the car-axle T, of the lever or bar M, journaled upon said axle and supporting the cylinder end of the engine, substantially as set forth.

4. In combination with the cylinders A B, which are supported at one end by the bail W, the side bars E E and center bars G, secured to said cylinders and bored upon the crank-axle, substantially as and for the purpose described.

182,971. CANISTERS. William J. Rasin, Jenkintown, Pa. [Filed May 6, 1876.]



1. The body A, having a downward-opening lid, B, which, when opened, presents a receptacle at one side of the body, substantially as and for the purpose set forth.

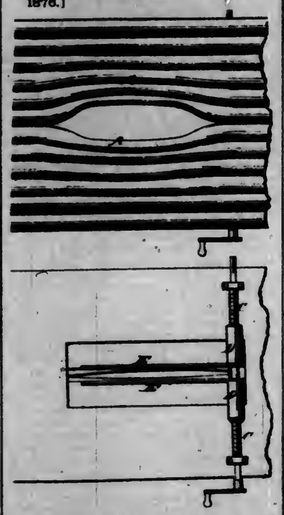
2. The body A, having a concavity, C, in one of its sides, in combination with the semi-cylindrical lid B, substantially as and for the purpose set forth.

182,972. PROCESSES FOR FORMING PAPER RIBBON-BLOCKS. Fredk. Reichert, New York, N. Y. [Filed July 14, 1876.]



The process herein described of securing the card or paste board heads or ends to the hollow cylinder of a ribbon-block made of card-board, pasteboard, or paper, the same consisting in inserting said heads into the cylinder while the material of the latter is in a moist or wet state, and securing them in position wholly by the contraction of the cylinder upon said heads, as hereinbefore set forth.

182,973. INVALID-BED BOTTOMS. Isaac M. Rhodes, Hancock, Mich. [Filed May 22, 1876.]



1. A bed-couch or chair-bottom constructed in two sections, which are adjustable to or from each other, substantially as and for the purpose set forth.

2. In a sectional bed, cushions A A, having folds or ribs *a a*, so as to hide the line of separation A when said cushions are brought together, substantially as set forth.

3. The combination of slides B B, flanges E E, right-and-left screw-rod C, and screw-tapped sleeves D D, or their equivalents, substantially as, and for the purpose set forth.

4. A bed or chair bottom provided with a central opening, which is adapted to be varied in size, as desired, or which may be entirely closed, substantially as and for the purpose set forth.

182,974. WATER-PROOF COVERS FOR COFFINS. George W. Robinson, Bennington Centre, Vt. [Filed July 21, 1876.]

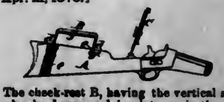
Brief.—A rubber case or cover surrounds the coffin, and is secured to it by a device closing the opening through which the coffin is inserted.



1. The combination, with a coffin, A, of a water-proof cover or shroud, removable therefrom and adapted, by means of a water-tight securing device, to prevent contact of water with said coffin, for the purposes hereinbefore set forth.

2. The combination of the screw-pin *c*, secured in the head of the coffin A, rubber washer *b*, and screw-nut C, with the shroud or sack B, in the manner and for the purpose described.

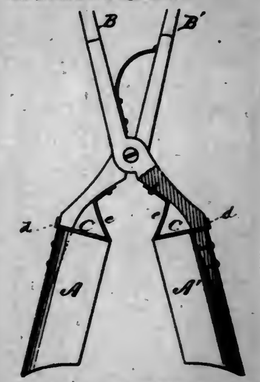
182,975. CHEEK-RESTS FOR FIRE-ARMS. William Reese, New York, N. Y. [Filed Apr. 21, 1876.]



The cheek-rest B, having the vertical arms or shanks *d* arranged in slots *e e* in the gun-stock, in combination with a set-screw, *f*, for holding the cheek-rest in its adjusted position, substantially as described.

182,976. TRANSPLANTERS AND POST-HOLE DIGGERS. William M. Ryan, Macomb, Ill. [Filed July 20, 1876.]

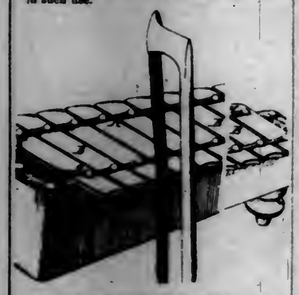
Brief.—A leg projects centrally from the curved edge of each semicircular packing-plate, and passes through a slot in the handle, to which the plate is secured. The plates are also provided with rigid braces.



In combination with the shovels A A', their handles B B', and the packing-plates C C, the fastening tongues or lugs *d d* and braces *e e*, constructed and applied substantially as specified.

182,977. MUSICAL INSTRUMENTS. Albert Schoenhut, Philadelphia, Pa. [Filed Sept. 26, 1876.]

Brief.—The plates of an ordinary metallophone are rounded inwardly at their ends to hold a rosined bow (by which they are vibrated) from slipping off. The mounting is also intended to prevent displacement while in such use.

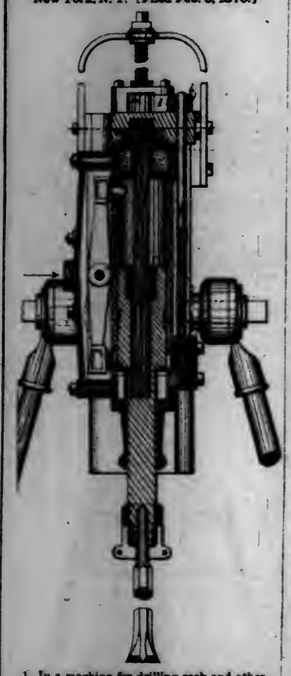


1. A musical instrument in which a series of graduated resonant stripe are combined with a sounding-box, substantially in the manner described, so as to permit the use of a bow or its equivalent in playing on the said instrument, as specified.

2. The combination of the sounding-stripe with cushions above and below the same, and with cushioned pins for confining the stripe.

3. The stripe B, each having a concave end, as set forth.

182,978. ROCK-DRILLS. H. C. Sergeant, New York, N. Y. [Filed Feb. 6, 1876.]



1. In a machine for drilling rock and other substances, the double-ended oscillating slide-valve, pivoted at or near its center, it being constructed with seats upon its under surfaces, and upon one of its sides, substantially as shown and described, whereby it is made to control the induction and eduction of steam to and from the cylinder, as set forth.

2. A double-ended oscillating valve, having upon its inner surfaces tappets, arranged to close the openings to the cylinder through which they pass, and to give motion to the valve, substantially as set forth.

3. The steam-chest, constructed as described, whereby it is made to form a passage for the steam to the opposite ends of the cylinder, in combination with a valve having tappets to close the ports to the cylinder through which they pass, for the purpose of preventing the passage of steam through said ports.

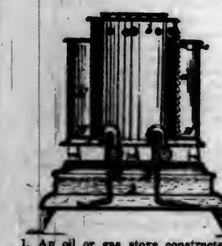
4. The shaft G, in combination with an arm fixed rigidly thereto, one end of which extends within the cylinder, an arm and pawl on the opposite end of said shaft, and a toothed nut, the parts being arranged substantially as set forth, whereby they are made to regulate the feeding of the cylinder toward the rock, as described.

5. The ratchet and pawls, when arranged in the head of the cylinder, and surrounded by the pressure of the steam or air, in combination with the supporting-ring in the cylinder, substantially as shown, and for the purpose set forth.

6. The hollow split sleeve or collar attached to the piston-rod, and having a space between the same and the rod, it being bored out at its lower end, so as to receive the drill, and arranged to clamp the same, substantially as shown and described.

7. The forked legs, having at each end of the fork a spring-clamp, to surround a portion of the hip or cross-head, and bolts for securing the same, as shown.

182,979. OIL AND GAS STOVES. Henry A. Seymour, Jr., Washington, D. C. [Filed Oct. 7, 1876.]



1. An oil or gas stove constructed with fixed and movable cylinders, the movable cylinder provided with an opening at its upper end for the reception of cooking vessels or utensils.

2. The body of an oil or gas stove formed of inner and outer cylinders, one of said cylinders provided with an opening at its upper end to receive a lid or cooking-vessel, and adapted to be raised and lowered, and means whereby said movable cylinders may be secured to the fixed cylinder at any desired height.

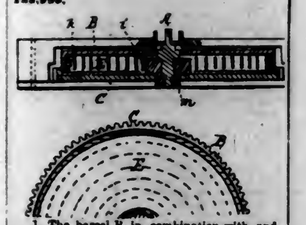
3. The body of an oil or gas stove formed of an inner and outer cylinder, one of said cylinders being movable, and adapted to be vertically adjusted relative to the fixed cylinder, the said cylinders constructed with flanged ends, to constitute, when not extended, an intervening dead-air space.

4. The body of an oil or gas stove formed of a fixed and a movable cylinder, the said cylinders adapted to form a dead-air space about the fixed cylinder, and also to be readily converted into heat-radiating surfaces.

5. In an oil or gas stove wherein the body of the same is formed of an inner and outer cylinder, one of said cylinders being provided with an opening at its upper end to receive a lid or cooking vessel or utensil, and adapted to be raised and lowered, the combination, with the fixed cylinder, having a ratchet-bar secured thereto, of the movable cylinder, provided with a pawl or sliding bar, substantially as and for the purpose set forth.

182,980. WATCH-BARRELS. J. A. Shawver, Knoxville, Ill., assignor of one-half his right to Samuel L. Charles, same place. [Filed July 3, 1876.]

182,980.



1. The barrel B, in combination with, and rigidly secured to, the winding-arbor A, substantially as and for the purposes described.

2. The barrel B, having hook *h* and rigid winding-arbor A, in combination with the hook *i* on sleeve *b* of main wheel C, substantially as and for the purposes described.

3. The main wheel C, having sleeve *b*, with hook *i*, said sleeve being loose on winding-arbor A, substantially as and for the purposes described.

4. The collar or washer *m* recessed in the exterior part of the center of the main wheel, and in combination therewith and with the winding-post A, substantially as and for the purposes described.

5. The barrel B and its post A, provided with the usual ratchet or detent, in combination with the sleeve *b* of the wheel C, the main wheel C, and mainspring E, substantially as and for the purposes described.

6. The combination of the main wheel C, moving independently of and on the winding-post A of the barrel B, by means of its sleeve *b*, with the spring E and barrel E, substantially as and for the purposes described.

7. The combination of the barrel B with its cap *f*, and rigid winding-arbor A, substantially as and for the purposes described.

8. The main wheel C, with sleeve *b*, collar *m*, winding-arbor A of barrel B, barrel B, and mainspring E, substantially as arranged and constructed.

182,981. SEWER-INLET-CLEANING APPARATUS. Riley A. Shinn, Georgetown, D. C. [Filed Feb. 5, 1876.]



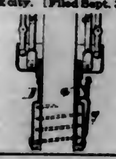
1. The bucket C, casting B, and weight D, operated by cranes E F, as described, in combination with a sewer-inlet chamber, substantially as and for the purpose set forth.

2. The combination of the bucket C, having a projecting flange, B', provided with the lip *a*, in combination with the casting B, having the raised lip *c*, substantially as and for the purpose set forth.

3. The combination of the bucket C and the casting B, with a sewer-inlet chamber, substantially as described, and for the purpose set forth.

4. The combination, with the bucket C, of the metallic weight D, substantially as and for the purpose described.

182,982. UMBRELLA TIP-CUPS. Orren M. Smith, Philadelphia, Pa., assignor to Edmund Wright, Jos. Wright, John Wright, and J. Noble, same place, and J. H. Filson, New York city. [Filed Sept. 30, 1876.]

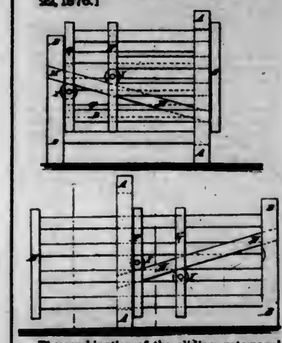


1. The combination of the umbrella-stick A and its spring *a* with the runner B, the retainer-slide D, and the intermediate spring *h*, both runner and slide being slotted for the reception of the spring *a*, as set forth.

2. The combination of the slide D and its slot *i* with the runner B and its leg *e*, as set forth.

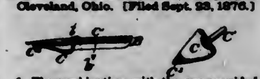
3. The combination of the slide D, having a slotted neck for the reception of the spring *a*, and a shouldered portion below the same, with the runner B, its flange *n*, and the spring *h*, as set forth.

182,983. GATES. Jonathan Sowerby and Henry Dock, Rockford, Mich. [Filed Sept. 22, 1876.]



The combination of the sliding gate-panel having the slotted cross-bars F G and rollers I, with the posts A B and fixed inclined track or rail H, as and for the purpose set forth.

182,984. FOUNTAIN-PENS. W. H. Sprague, Cleveland, Ohio. [Filed Sept. 23, 1876.]



1. The combination, with the pen provided with the opening *b* and countersink *b'*, of fountain attachment O C' C², substantially as and for the purpose set forth.

2. The pen B, provided with the slot *b* and recess or countersink *b'*, whereby the pen is adapted for receiving the fountain attachment C, substantially as described.

182,985. TOILET-MIRRORS. Wm. Staehlen, Brooklyn, N. Y., assignor to Geo. Wattin, same place. [Filed May 29, 1876.]



1. The mirror-frame B, the wood back C, the glass A, and handle D, with the screw E to join the parts together, all combined substantially as and for the purpose herein mentioned.

2. The stand F, provided with the slot I, the shoulders H H, and the collar K, the bottom G with the eyes M M, and the sleeve J with the pivots L, all combined substantially as and for the purpose herein stated.

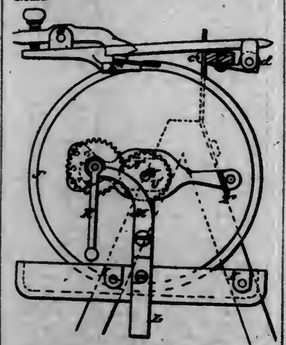
182,986. SOAP COMPOUNDS. A. B. Stanton, Utica, N. Y. [Filed Aug. 10, 1874.]

Brief.—The sesamum oil-cake soap is made from sesamum oil-cake, seventy-five parts; caustic soda, nine parts; and water, sixteen parts, mixed and boiled together.

A concentrated soap compound adapted for household and laundry purposes, consisting of sesamum-oil cake soap, sal-soda, biborate of soda, and muriate of ammonia, in about the proportions set forth, as a new article of manufacture.

182,987. SCROLL-GRINDERS. H. S. Stevens, Waukegan, Ill., assignor of one-half his right to J. P. Powell, same place. [Filed Sept. 2, 1876.]

Brief.—The stone has a rotary and rocking motion to make it travel along the V of the slide.



1. The U-shaped tilting frame I, surrounding and pivoted to the water-trough near its lower end, and having bearings at its upper end for the grindstone-axle, in combination with the pivoted arm U, having loop U', whereby the grindstone is allowed to rotate and oscillate in the water-trough, substantially as described.

2. The tilting frame I, carrying the grindstone-axle K, in combination with the pivoted arm U, having loop U', and eccentric plate W, operated by suitable mechanism, substantially as described, and for the purpose set forth.

182,988. EAVES-TROUGH HANGERS. Wm. H. Tartt, Newton, Iowa. [Filed Mar. 25, 1876.]



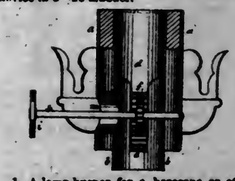
1. A sheet-metal eaves-trough, A, having uniform parallel and horizontal flanges *b b* at its top edges, substantially as and for the purposes shown and described.

2. As an improved article of manufacture, a flexible eaves-trough hanger, having clasping-arms *a a*, a doubled and twisted body, *c c*, and eyes *d d*, constructed from a single piece of wire, substantially as and for the purposes shown and described.

3. The combination of a section of trough A, having parallel horizontal flanges *b b*, and one or more adjustable hangers, having a twisted body, *c c*, eyes *d d*, and arms *a a*, said arms terminating in hooks to engage the trough-flanges *b b*, substantially as and for the purposes shown and described.

182,989. LAMPS. Horace B. Thompson, Brooklyn, assignor of one-fifth of his right to Abraham L. Bogart, New York, N. Y. [Filed Aug. 14, 1876.]

Brief.—A burner for a rigid tubular wick adapted to be used in an ordinary stand-lamp, by admitting the air for supplying the flame above the oil-fount, and locating the adjusting device in a like manner.



1. A lamp-burner for a kerosene or other oil lamp in which a rigid wick is used, provided with a lateral opening, *m*, above the oil-fount for the admission of air, and with an adjustable inner tube, *d*, for increasing and diminishing the light, substantially as herein shown and described, and for the purpose set forth.

2. The inner adjustable tube *d*, provided with a ratchet-rod, *e*, depending therefrom and operated by a pinion, *f*, the said several parts being arranged as shown above the oil-fount.

3. In a lamp-burner in which a rigid tubular wick is used, the combination, as herein shown and described, of the inner adjustable tube *d*, the lateral opening *m*, and the ratchet-rod *e*, and pinion *f*, as and for the purposes set forth.

182,990. CURTAIN-FIXTURES. David B. Tiffany, Xenia, Ohio. [Filed Sept. 23, 1876.]

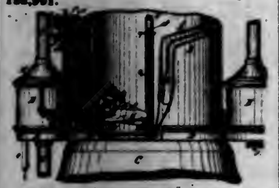


The combination, with a curtain-roller and curtain, of the grooved and spiked pulley A, endless metallic chain B, guide D, hook C, and pulley G, all constructed substantially as and for the purposes herein set forth.

182,991. GAS-GENERATORS. Theophilus Van Kannel, Cincinnati, Ohio. [Filed Aug. 21, 1876.]

Brief.—Oil is vaporized in a coil of pipe, and the vapor, under pressure, escapes through an injecting apparatus, drawing with it a regulated quantity of air into the boiler. The mechanism for controlling the injector-valve is placed within the gas-tank, and it is automatically operated by the movements of the floating gasometer, which, in turn, is raised or lowered in proportion to the quantity of gas supplied to or withdrawn from it. An independent regulator regulates the supply of gas to the burner under the retort in proportion to the quantity supplied to the illuminating-burners. The movements of the valve-operating mechanism are moderated by a water-cylinder having radial partitions, with small apertures for the passage of water from one apartment to the other as the cylinder is revolved on its axis. In case oil should escape from the retort into the gas-tank, it is caught by a vessel, which, as it is filled, counterbalances a lever, which closes the injector-valve. Hand mechanism extends from within to the outside of the tank, for resetting the valve-levers when they have been otherwise displaced.

182,991.



1. In combination with the central guide-tube *c'*, the central bottom *a*, supporting the same, substantially as described.

2. In combination with the base C, having an upper annular flange inwardly inclined, the tank having the correspondingly-inclined bottom *a*, the construction of the parts being such that the superstructure is strongly held by the base against displacement, substantially as set forth.

3. The combination of the base C and sectional rings D with the tank, as described.

4. A retort formed of a multiple tubular coil, wound alternately from without inward and from within outward without descent from a horizontal plane, substantially as described.

5. In combination with an intermittently-acting valve, a retort composed of a coil of pipe, without dip from the horizontal in any part, directly exposed to the action of heat, the construction being such that no increase of pressure resulting from the closing of the valve can throw gas into the oil-tank, substantially as described.

6. The removable and sectional ring D, provided with circular extensions, as described, for holding the retort and regulator in close proximity to the tank, as described.

7. In combination with the valve *g'* for tightly closing the opening, the long tapering portion *g''* for gradually enlarging and diminishing the area of the passage-way, substantially as described.

8. In combination with a valve provided with an independent cut-off and graduating portions, substantially as described, mechanism, substantially as described, for giving it a slow movement.

9. The pipe *g'*, having the elbow R, valve *r'*, weight *r²*, and adjusting-screw *r³*, as described.

10. In combination with a weighted valve having an adjusting-screw, the elbow having the opening and plug *g²*, as described.

11. In combination with the injector-valve and valve-stem, the crank-lever I, adapted by its weight, when free to act, to close the valve, substantially as described.

12. In combination with the valve *g²* and the overbalanced lever I, the lever J, for actuating lever I to open the valve, substantially as described.

13. In combination with the levers I and J, constructed substantially as described, the intermediate set-screw *i'*, for determining their relative positions and movements, as described.

14. The cylinder L, having the radial partitions and openings, substantially as and for the purpose described.

15. In combination with mechanism, substantially as described, for oscillating the cylinder L, the cylinder and cam K, and the primary mechanism for controlling the valve, substantially as described.

16. In combination with the disk having the projections a^1 a^1, the drop-weight M, as described.

17. In combination with the rod n, the sleeve n^2, pivot, and stem b^1, as described.

18. In combination with the cylinder L and primary valve-operating mechanism, substantially as described, the disk having projections a^1 a^1 and the drop-weight, as described.

19. In combination with the cylinder L and primary valve-operating mechanism, substantially as described, and the disk and drop-weight, the rod n, actuated by the gasometer, substantially as described.

20. In combination with the lever J for holding open the valve, the lever F and vessel p^1, for actuating lever J to close the valve, substantially as described.

21. A safety mechanism, substantially as described, adapted, by means of the weight of entering fluid, to close a valve, and also, by its construction, to automatically relieve itself from the fluid when the flow of gasoline has been stopped, substantially as described.

22. In combination with a nipple, through which gas is discharged into the tank, a pivoted receiving-vessel, located in the tank below the nipple, adapted, substantially as described, to act by the pressure of entering fluid to close the valve.

23. The combination of the lever F, having cam p^1, with the lever J, having pin j^1, as described.

24. In combination with lever F, auxiliary mechanism Q *q*, substantially as described, adapted for action when cam K or its connections fail to act, substantially as described.

25. In combination with the primary mechanism for closing the valve and the main trip mechanism for actuating the primary mechanism, auxiliary safety mechanism, actuated by the gasometer-stem, all the parts being inclosed within the tank, substantially as described.

26. In combination with lever P, the auxiliary mechanism O o^1 o^2, for resetting the lever by hand, substantially as described.

27. In combination with lever J, the auxiliary mechanism O o^1 o^2, for actuating the lever by hand, substantially as described.

28. In combination with primary mechanism for actuating the valve, the auxiliary mechanism O o^1 o^2, for actuating the primary mechanism by hand, substantially as described.

29. A regulator actuated by the pressure of the gas current only, adapted, substantially as described, for the double purpose of controlling the supply of gas to the illuminating and heating burners in proportionate amounts, as described.

30. In combination with the shell F^2 and stem, having the slit f^3, the tubes f^4 and f, as and for the purpose set forth.

31. A gas-machine having an independent regulator, substantially as described, actuated by the pressure of the gas-current only, and adapted to control the supply of gas to the illuminating and heating burners in proportionate amounts, substantially as described.

32. A gas-machine having the following elements: a retort, a heating-burner, automatic mechanism for controlling the flow of gas from the retort, and a regulator actuated by the pressure of the gas current adapted to supply gas to the heating-burner in proportion to the amount used for illuminating purposes.

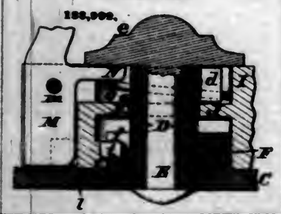
33. A gas machine having the following elements: mechanism, substantially as described, for making the gas and delivering it into the gasometer; mechanism, substantially as described, actuated by the gasometer for controlling the flow of gas, and a regulator adapted to control the supply to the illuminating and heating burners independently of the movements of the gasometer, substantially as described.

34. The combination of the following elements: a vertically-moving gasometer having a central inclosed stem, as described; a centrally-fixed guiding-tube; primary mechanism, substantially as described, for actuating the valve-stem; intermediate mechanism, substantially as described, for communicating the movements of the gasometer-stem to the primary mechanism for actuating the valve.

35. The combination of the following elements: a vertically-moving gasometer having a central inclosed stem; a central guiding-tube; intermediate mechanism, substantially as described, for communicating the movements of the gasometer-stem to the primary mechanism for actuating the valve; and auxiliary safety mechanism, substantially as described, actuated by the movement of the gasometer-stem, when the primary mechanism fails to act, substantially as described.

36. In combination with mechanism, substantially as described, for controlling the flow of gas, and an inclosing-tank, dial gasometer, hand mechanism O o^1 o^2, extending through the tank for resetting such mechanism, as described.

182,992.



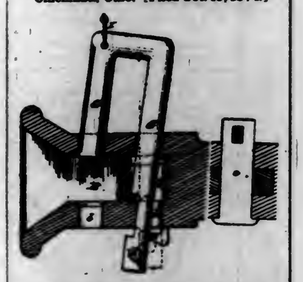
182,993. SUPPLEMENTARY BARRELS FOR REVOLVERS. Thomas M. Wallis, Philadelphia, Pa., assignor of one-half his right to William Wurfflein, same place. [Filed Oct. 19, 1876.]



1. The combination of a revolver with a detachable tube or supplementary barrel, D, adapted to the main barrel M, all substantially as and for the purpose set forth.

2. The combination of a revolver, the detachable supplementary barrel D, provided with a stop or sight, h, and the breech-pin H, adapted to a recess in the said barrel, all substantially as specified.

182,994. CAR-COUPLINGS. F. C. Weir, Cincinnati, Ohio. [Filed Oct. 19, 1874.]



1. In combination with pin G *g* and projection H, the incline J, operating substantially in the manner and for the purpose specified.

2. In combination with the open automatic coupling-box B and pin G, the permanent link D, adapted for self-coupling, being supported in socket C, having a back support and a retaining side ridge, *c*, all substantially as and for the purpose specified.

3. In combination with permanent link D and its socket C, the retaining-notch *c'*, substantially as and for the purpose specified.

4. In combination with draw-bar E, the swiveling draw-head A, having flaring socket *a*, and being connected to the draw-bar by pin *e*, all substantially as described and shown, for centralizing the strain, substantially as specified.

182,995.

182,996. LAWN-SEATS. John R. Wherry, Little Rock, Ark. [Filed Sept. 4, 1876.]

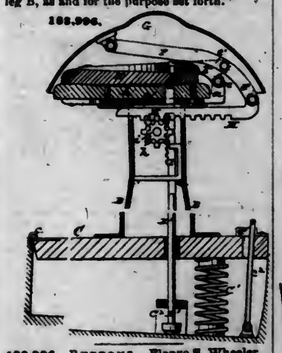
1. The chair-seat A B, supported on a spring-platform, C, in combination with the pivoted back E and cover G, when the same is arranged to operate automatically by the movement of the platform C, substantially as set forth.

2. The seat A, leg B, platform C, and spring C', in combination with racks H I, pinions h *i*, lever F, and back E, substantially as set forth.

3. The seat A, leg B, platform C, and spring C', in combination with racks H I, pinions h *i*, lever F, back E, and cover G, substantially as set forth.

4. The hinged mushroom-shaped top G, in combination with pivoted back E, seat A, and leg B, as and for the purpose set forth.

182,998.

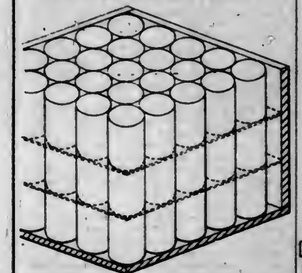


182,998. BUTTONS. Hiorso S. Wheeler, Westport, Conn., assignor of one-half his right to Jonathan E. Wheeler, same place. [Filed May 6, 1876.]



In combination with the button constructed with a central perforation through the back, the collar *c*, secured to the back by turning the center of the collar through the said perforation, and between the back and front, substantially as described.

182,997. EGG-CARRIERS. George D. Willis, Caverna, Ky. [Filed Mar. 31, 1875.]



1. The process, herein described, of forming egg-carriers—that is to say, forming from paper a series of long tubes by wrapping layer upon layer with interposed paste, joining the same together at tangential points of contact, and sawing or cutting into sections, substantially as hereinbefore set forth.

2. As a new article of manufacture, an egg-carrier formed of separate tubes or boxes having a continuously-smooth interior surface, said tubes being joined together externally at their tangential points, substantially as hereinbefore set forth.

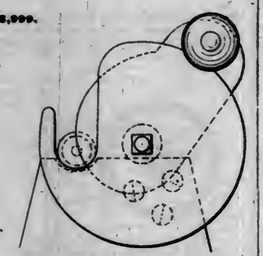
182,998. DENTAL FOIL. R. S. Williams, New York, N. Y. [Filed Sept. 26, 1876.]

As a new article of manufacture, dental foil, alloyed with cadmium, substantially as described.

182,999. CIGAR-CUTTERS. Frank Winkler, Chicago, Ill. [Filed Nov. 1, 1875.]

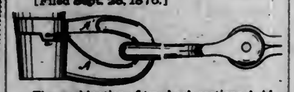
Brief.—The eccentric cutter is guided and supported by side plates having recesses for holding the cigar.

182,999.



The combination, in a cigar-cutting machine, substantially as described, of an eccentrical revolving knife turning on a washer clamped between two circular plates for guiding and supporting the blade when turned by a heavy revolving handle with a gage for determining the length of the cigar.

184,000. WHIFFLETREE-HOOKS. Adam A. Wise, Belle Plaine, Iowa, assignor to himself, A. B. Head, and P. W. Thompson. [Filed Sept. 26, 1876.]



The combination of two hook-sections A A', having tubular shanks, the former fixed, and provided with recess *a*, while the latter has a side stud, and is movable on whiffletree, as and for the purpose described.

184,001. HORSESHOES. Walter B. Yates, Manchester, England. [Filed Nov. 19, 1875.]



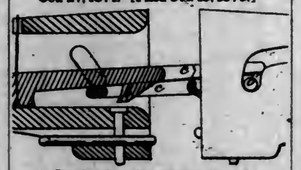
1. As a new article of manufacture, a horse-shoe constructed wholly of rawhide, with the exception of the rivets, as set forth.

2. As a new article of manufacture, a horse-shoe made of rawhide rendered water-proof.

3. The within-described process of forming horseshoes—that is to say, doubling a strip of hide, bending it into shape, and riveting the doubled strip, substantially in the manner described.

REISSUES.

7,266. CAR-COUPLINGS. Gilman H. Ames, Adrian, Mich. Patent No. 156,326, dated Oct. 27, 1874. [Filed Oct. 13, 1876.]



1. Coupling-bars for railway-cars, each having a subjacent hook, with a downwardly and rearwardly inclined front side back of its front slot, and a weighted rear end to automatically couple and maintain the connection, as herein set forth.

2. The combination, with the curved or inclined side slots of the draw-heads, of a coupling-bar having side arms, which work in said slots, substantially as and for the purpose herein set forth.

3. A coupling-bar for railroad-cars having the front slot, the subjacent hook, and the side arms, in combination with the curved or inclined side slots in the draw-head, whereby said coupling-bar is adapted for operation, as herein set forth.

7,267. CURTAIN-FIXTURES. Wm. Campbell, New York, N. Y., assignor to S. Hartshorn, same place. Patent No. 99,176, dated Sept. 24, 1867. [Filed May 27, 1876.]



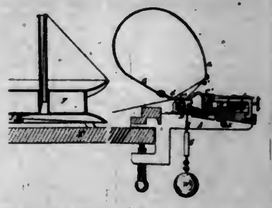
1. In a spring shade-roller, having a pawl or detent and a ratchet, or their equivalent, so arranged as to allow the shade to be drawn down or run up without obstruction, and which engage automatically with each other to hold the shade in any desired position, the arrangement of such pawl or detent on the roller which carries the notched spindle or ratchet, so that when the roller is removed from its brackets the tension of the spring will be preserved.

2. In a spring shade-roller, having a detent and ratchet, or their equivalent, constructed and arranged to engage automatically with each other for holding the shade, the combination, with the ratchet, or its equivalent, of a loose pawl or detent, moving in a chamber or guide, and adapted to engage with the spindle.

3. The combination of the loose or sliding pins or detents F, constructed as described, with the fastened or notched shaft or spindle, substantially as herein shown and described.

7,268. KNITTING-MACHINES. Thos. Crane, Fort Atkinson, Wis., assignor, by mesne assignments, to the Frame and Pope Knitting Machine Company, Bucyrus, Ohio. Patent No. 73,927, dated Jan. 28, 1868. [Filed Sept. 9, 1876.]

Brief.—Space is left between the operating-cams and the work-holder for the heels of the needles, so that they can be thrown out of action by pushing them forward and retaining their loops upon them. Then, by reason of the structure and operation of the oscillating cams, when it is desired, they can be brought back into operation without casting off their loops till others are formed through them.



1. Mechanism, substantially as described, for allowing the cam-plate by which the needles are moved to have an oscillating motion, substantially as described.

2. Mechanism, substantially as described, for the adjustment of the needles in front of the cam-plate H, when it is desired to throw some or all of the needles out of action, substantially as described.

3. In a knitting-machine, the combination, with a grooved needle-support and a cam-carrier, having an unobstructed space between the actuating-cams and the work-support, of a triangular cam and two movable cams arranged one upon each side of the triangular cam, whereby the needles which have been cast of action and retain their loops may be again brought into action without casting off their loop, substantially as set forth.

4. The attachment of the arm J or its equivalent directly to an oscillating cam-plate, H, which is provided with a pivot, *f*, about which it moves, substantially as described.

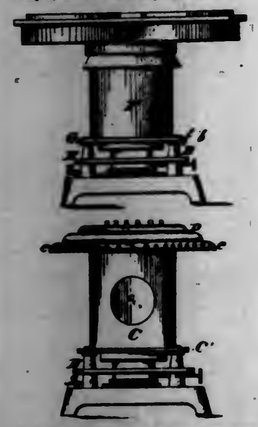
5. The combination of an adjustable work-holder, D, and an adjustable jack, substantially as described.

6. The spool or yarn holder F, with the tube f or equivalent thereof, constructed to operate substantially as described.

7. The bow-spring G, applied to the reciprocating perforated arm C' in such manner as to lift the yarn between the two passages c d on its way from the spool to the work, said spring being so constructed as to keep an even tension upon the yarn with little or no friction, substantially as described.

8. A setting-up device, S t, constructed with its hooks t all arranged in the direction of the length of the plate S, as shown and described.

7,369. OIL-STOVES. Oliver Edwards, Florence, Mass. Patent No. 179,542, dated July 4, 1876. [Filed Sept. 29, 1876.]



1. The combination, with the cooking-drum of an oil-stove, of a hollow perforated top, having a depending flange for its attachment to the drum, and provided with openings for the reception of two or more kitchen utensils, and with covers or lids for said openings, substantially as and for the purpose set forth.

2. The combination, with the heating-drum C of an oil-stove, of a removable hollow top, D, its lower flange projecting beyond the drum C, and at right angles thereto, said flange provided with openings or perforations in its under surface, whereby a portion of the heat is deflected against, and radiated from, the outer surface of the cylinder D, substantially as and for the purpose set forth.

3. The combination, with the heating-drum C of an oil-stove, of a removable hollow top, D, perforated at top, sides, and bottom, substantially as and for the purpose described.

4. In an oil-stove, the combination, with a removable perforated hollow top, of two or more perforated lids or covers, L, substantially as and for the purpose specified.

5. The combination, with the heating-drum of an oil-stove, of a hollow top having a perforated upper plate, provided with studs or pins, substantially as and for the purpose set forth.

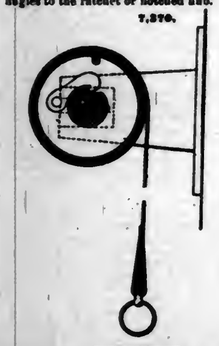
6. In an oil-stove, a removable hollow top, perforated about two or more openings, adapted to receive kitchen utensils, substantially as set forth.

7. In an oil cook-stove, a hollow top provided with openings for the reception of two or more cooking utensils, and lids for the same, and also having openings for the passage of the products of combustion, whereby the latter may not be checked when the lids are seated, substantially as described.

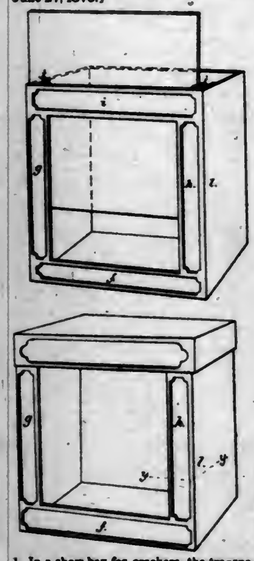
7,370. CURTAIN-FIXTURES. Stewart Hartshorn, New York, N.Y. Patent No. 66,502, dated Sept. 3, 1867; reissue No. 6,556, dated Sept. 2, 1873. [Filed May 27, 1876.]

In a spring shade-roller having a pawl or detent and ratchet, or their equivalent, constructed and arranged so as to engage automatically for holding the shade at any desired point or height, the combination, with a ratchet, or its equivalent, upon the stationary spindle or stationary part of the fixture, of a hinged or pivoted pawl, placed upon the end of the roller, and acting substantially at right angles to the ratchet or notched hub.

7,370.



7,371. SHOW-BOXES. Edward Maginn and Charles Maginn, Allegheny, Pa. Patent No. 176,974, dated May 2, 1876. [Filed June 27, 1876.]



1. In a show-box for crackers, the transparent glass panel, held in position with relation to the front opening, substantially as and for the purpose described.

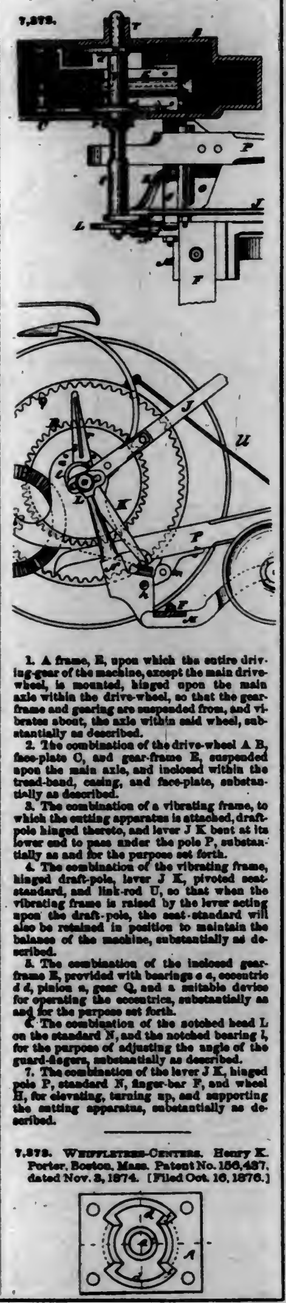
2. A pasteboard show-box for crackers and other articles, provided with a glass front held in position by the angular guides *f*, and the edges of the pasteboard frame which extend over upon the glass front, so as to form ornamental borders *i f g h*, substantially as and for the purpose described.

3. In a show-box for crackers or other articles, the panels, or representation of panels, *i f g h*, surrounding the glass front of the box, substantially as and for the purpose described.

4. In a show-box for crackers, the angular strips or guides *f*, for holding the glass panel in position with relation to the open front of the box, substantially as shown and described.

7,372. HARVESTERS. Ezra A. Pock, Sycamore, Ill. Patent No. 126,974, dated July 16, 1872. [Filed May 27, 1876.]

7,372.



1. A frame, E, upon which the entire driving-gear of the machine, except the main drive-wheel, is mounted, hinged upon the main axle within the drive-wheel, so that the gear-frame and gearing are suspended from, and vibrates about, the axle within said wheel, substantially as described.

2. The combination of the drive-wheel A B, face-plate C, and gear-frame E, suspended upon the main axle, and inclosed within the tread-band, casing, and face-plate, substantially as described.

3. The combination of a vibrating frame, to which the cutting apparatus is attached, draft-pole hinged thereto, and lever J K bent at its lower end to pass under the pole P, substantially as and for the purpose set forth.

4. The combination of the vibrating frame, hinged draft-pole, lever J K, pivoted seat-standard, and link-rod U, so that when the vibrating frame is raised by the lever acting upon the draft-pole, the seat-standard will also be retained in position to maintain the balance of the machine, substantially as described.

5. The combination of the inclosed gear-frame E, provided with bearings *a a*, eccentric *d d*, pinion *n*, gear Q, and a suitable device for operating the eccentrics, substantially as and for the purpose set forth.

6. The combination of the notched head L on the standard N, and the notched bearing *l*, for the purpose of adjusting the angle of the guard-fingers, substantially as described.

7. The combination of the lever J K, hinged pole P, standard N, finger-bar F, and wheel H, for elevating, turning up, and supporting the cutting apparatus, substantially as described.

7,373. WHIFFLETREE-CENTERS. Henry K. Porter, Boston, Mass. Patent No. 156,437, dated Nov. 3, 1874. [Filed Oct. 16, 1876.]

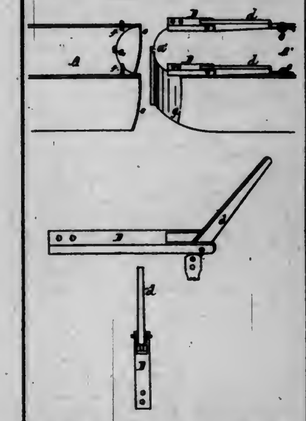
7,373.



1. A whiffletree circle or center, consisting of the combined parts A B, formed respectively with the flanges *d d* and *i i* and the apertures *f f* and *j j*, substantially as described and shown.

2. In a whiffletree center, formed with the interlocking flanges *d d* and *i i* upon the respective halves, the central thimble or flange *h*, and corresponding recess *e*, substantially as and for the purposes specified.

7,374. COUPLINGS FOR CANAL-BOATS. Levi B. Raymond and William Hanley, Lockport, Ill.; said Hanley assignor, by mesne assignments, to Melvin De Puy. Patent No. 76,648, dated Mar. 18, 1868. [Filed Oct. 14, 1876.]



1. The notch or channel *a*, arranged within the stern of the forward boat A, and adjusted to receive the cut-water *a'* of the rear boat A', in combination with a coupling for uniting the two boats together, substantially as and for the purpose specified.

2. The combination of the coupling, consisting of the arms D, pins *f f*, levers *d d*, and rings *a a*, with boats A and A', substantially as and for the purpose specified.

7,375. RETORTS FOR THE MANUFACTURE OF GAS FROM WOOD. Mark Levy, New York, N. Y., assignor to A. H. Nones. Patent No. 962, dated Apr. 9, 1861. [Filed Apr. 19, 1876.]

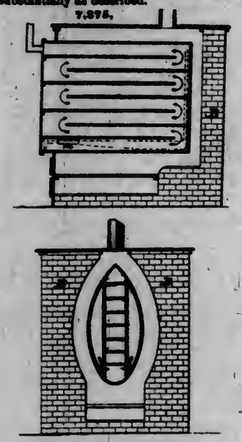
Brief.—Wood is distilled in the side chambers of the elliptical retort, and the resulting tar and pyroligneous acid fall to the lower inclosed retort, where the heat is intense. By the influence of the high degree of heat and the light wood-gas passing over the tar, it is converted into gas and carried up through the inclosed retorts, where it is made permanent or fixed. The upper inclosed retort is raised to a high heat by reverberation from the arched top of the furnace.

1. In combination with a retort, a series of inclosed retorts occupying the center of the main retort, and chambers on each side of the same, substantially as described.

2. In combination with a retort, a series of inclosed retorts placed one above the other, connecting with each other at opposite ends, substantially as described.

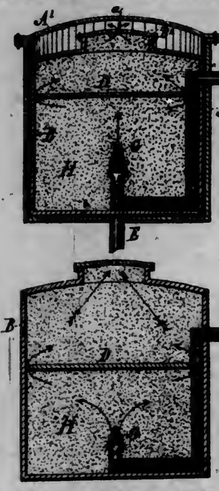
3. In combination with a retort, a lower inclosed retort, connecting with the side chambers of the main retort at the front thereof, substantially as described.

7,375.



7,376. FILTERS. B. Schiedlin, Atlanticville, N. J. Patent No. 176,508, dated Mar. 28, 1876. [Filed July 20, 1876.]

Brief.—The deflector is placed in the body of, and is supported by, the filtering material. It prevents the liquid from passing directly from the distributer to the discharge-point.

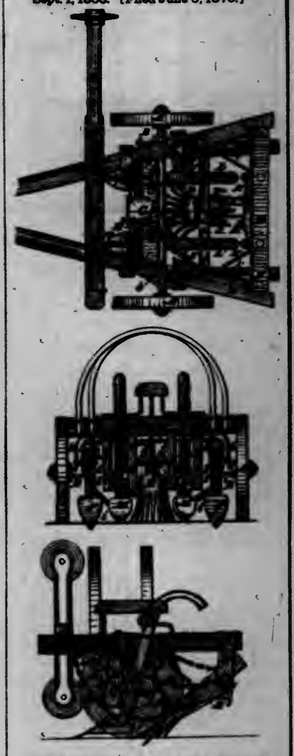


1. In an apparatus arranged to filter liquids under pressure, the combination of the following elements: An air-tight or hermetically-sealed vessel, containing filtering material; an induction-pipe; a distributer attached to the induction-pipe; an obstructing deflector or diaphragm of less diameter than the filtering-vessel and sustained in position in the body of, and by, the filtering material; and an eduction-pipe, all combined, arranged, and operating as and for the purposes as herein shown and set forth.

2. The combination of the air-tight vessel B, containing filtering material H, and provided with induction and eduction pipes, for conducting and discharging the liquid, and the deflector D of less diameter than the interior of the vessel and supported by and within the body of filtering material, arranged and operating as and for the purposes as herein shown and set forth.

3. The filter herein described, consisting of an outer casing, A, and an air-tight inner case, B, provided with entry-pipe C, and deflector D, extending across the interior of vessel B, and of slightly smaller diameter, all arranged and constructed substantially as and for the purpose described.

7,377. CULTIVATORS. Hoel B. Smith, Buck Head, Ga., assignor to Stephen A. Goodwin and David J. Powers, Chicago, and Ralph Emerson and William A. Talcott, Rockford, Ill. Patent No. 39,760, dated Sept. 1, 1863. [Filed June 6, 1876.]



1. The combination, substantially as herein-before set forth, of the wheels, the open skeleton draft-frame, and the plows capable of lateral oscillation with respect to the path of the wheels while the machine is operating.

2. The combination, substantially as herein-before set forth, of the wheels, the open skeleton draft-frame, the plows capable of lateral oscillation with respect to the path of the wheels while the machine is operating, and a seat in rear of the open space, whereby the operator has an opportunity to observe and readily adapt the plows to the irregularities of the plants in the rows.

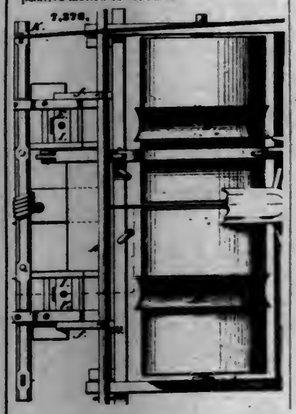
3. The combination, substantially as herein-before set forth, of the wheels, the open skeleton-frame, and the laterally-adjustable plows suspended therefrom.

7,378. CORN-PLANTERS. John Thomson and John Ramsey, Aledo, assignors, by mesne assignments, to Geo. D. Haworth, Jas. W. Haworth, Lysander L. Haworth,

and Mahlon Haworth, Decatur, Ill. Patent No. 44,472, dated Sept. 27, 1864; reissue No. 6,821, dated Dec. 21, 1875. [Filed Oct. 13, 1876.]

Brief.—Knotted check-row cord, guide-pulleys, and forked arms upon rock-shaft, to give positive motion to seed-slide.

7,378.



1. The combination, with a corn-planter, of a knotted cord for actuating the seeding devices.

2. In combination with the cord, or its equivalent, actuating the seeding devices of a corn-planter, guides or pulleys arranged to transfer said cord from one side of the machine to the other in its passage over the same.

3. The combination, with the rock-shaft operated upon by the check-row cord or wire, of forked arms or levers placed one at each end of said rock-shaft, and adapted to be operated upon alternately by the check-row cord or wire as the machine is moved in opposite directions.

4. The arrangement of the seeding devices and their actuating mechanism in connection with the check-row cord or wire, whereby the latter is adapted to impart a positive movement in one direction to said seeding devices.

7,379. BASE-BURNING FIRE-PLACE HEATERS. Jas. Spear, Philadelphia, Pa. Patent No. 122,663, dated Jan. 16, 1872. [Filed Oct. 21, 1876.]

Brief.—A free space between the lower end of fire-pot and the grates; an inclosed chamber, illuminated at the front, encircling the same, and a diving and a rising flue.

1. The outer removable frame R, the inner fixed frame O, and casing P, arranged in combination in a fire-place heater, as herein described.

2. The combination of the casing P with a removable damper, p^3, and plate p^2, for the purpose herein described.

3. The combination of the lower row of mica windows H, inclining inward, as shown, with the openings o^2 and the grate extending beyond the mouth of the fire-pot, as herein described.

4. The ornamental plate A, turning in a groove on the top of the stove, so as to bring the open part a^1 to the front while filling the reservoir, and the ornamental part a^2 at other times, as herein described.

5. The combination, in a fire-place heater or stove, of a descending and an ascending smoke-flue, illuminating windows or doors in the draft-section T, and the free open space t^2 between the top surface of the grate or fire-bed and the base of the fire-pot or combustion-chamber proper.

7,379.



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COMMISSIONER'S DECISIONS.

HAZELIP *vs.* RICHARDSON.—*Interference; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Joseph N. Hazelip, filed March 21, 1874, and the patent to Henry M. Richardson, dated October 7, 1873, reissued November 3, 1874, for* "IMPROVEMENT IN CHILDREN'S CARRIAGES."—*Decided November 13, 1876.*]

The concurrent decisions of lower tribunals upon questions of fact will not be set aside upon appeal, except for manifest error.

The *prima facie* case made by a patent having been overcome by evidence of prior invention upon the part of the applicant, the burden of proof shifts, and the patentee is required to prove an earlier date, in order to establish priority.

[*Gilmore, Smith & Co.*, attorneys for Hazelip.
J. L. Norris, attorney for Richardson.]

DUELL, *Commissioner:*

The issues raised in this case are exclusively those of fact, and the decisions of the two lower tribunals have sustained Hazelip's claim to the invention. In accordance with the well-established practice of the Office, founded upon the proceedings in appellate courts, the appellant Richardson must establish affirmatively, and beyond doubt, error on the part of the Examiner and the Board. This, I am of the opinion, he has failed to do, and the burden of proof being upon him, doubts or uncertainties are to be resolved in favor of the appellee, it being a rule that the concurrent decisions of lower tribunals upon questions of fact will not be set aside upon appeal, except for manifest error. (*The Grafton*, 1 Blatch., 177; *Walsh* vs. *Rogers*, 13 How., 284; *The Grace Gridler*, 7 Wall., 196; *The Ship Marcellus*, 1 Black, 414; *The Water Witch*, 1 Black, 494; *Berry* vs. *Stockwell*, 9 OFFICIAL GAZETTE, 404.)

Richardson's claim to priority rests upon the evidence of his alleged operations in May and December, 1872, but the testimony on this point is open to grave suspicion by reason of its indefinite and unsatisfactory character, the absence of corroborative contemporaneous evidence, and the unreliability of the testimony tending to overthrow the presumptions created by the possession of one of Hazelip's models, at or about the time it is alleged the manufacture of the carriages was commenced.

Upon these points the burden of proof was cast upon Richardson, for Hazelip had at the outset clearly overcome the *prima facie* case made by the grant of the patent when he established a date of invention earlier than the date of filing Richardson's application. It then became necessary for Richardson to as clearly show a date of invention prior to that proved by Hazelip, but the evidence introduced by him does not appear to be sufficient for that purpose.

At the hearing of this case Richardson made a motion to dissolve the interference upon the ground that the subject-matter thereof was not patentable, and introduced affidavits referring to certain patents as showing the same invention. While these affidavits referring to an *ex parte* matter between the Office and the applicant cannot be taken notice of, the patents themselves may be considered by the Examiner in the same manner as if this interference had not been instituted. But as between Richardson and Hazelip it is decided that the latter is the prior inventor.

The decision of the Board of Examiners-in-Chief is affirmed.

HERBERT W. C. TWEDDLE.—*Interlocutory appeal; Form of Claims.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Herbert W. C. Tweddle, filed July 31, 1876, for* "IMPROVEMENT IN PETROLEUM PRODUCTS, &c."—*Decided October 28, 1876.*]

Where new products are discovered, incapable of being definitely described in the claims except by a general reference to the specification, the rule requiring that the applicant shall particularly point out and distinctly claim the invention is relaxed, the case being considered anomalous.

The product must be regarded as an entirety, and, if new, the inventor or discoverer is entitled to all the known or after discovered characteristics it may possess.

It is impossible to mention all of those in the claim, and to mention less would be to restrict the claim within too narrow limits.

[*Bakewell & Kerr*, attorneys.]

DOOLITTLE, *Acting Commissioner:*

This is an interlocutory appeal from the action of the Primary Examiner refusing to act upon the merits of two claims in two separate applications for chemical products, on the ground that the claims are not specific, and the subject-matter not defined therein, as required by law.

The claims in both cases are as follows:

As a new article of manufacture, the petroleum product hereinbefore specified, and having the characteristics herein described.

The case was referred to the general Chemical Examiner for his opinion as to the possibility or practicability of more distinctly claiming the products in question.

Professor Hedrick reports as follows:

I have carefully read the specifications of Tweddle, and find that the products claimed are very well defined by describing exactly how to make them from well-known materials. This is the proper way to define a new material or composition. See Judge Grier in *Goodyear* vs. *The Railroad*, (2 Wallace, Jr., p. 365,) as follows:

"It is essentially proper, in patents for complicated machines, that the specification should clearly set forth what the patentee admits to be old, and what he claims to be of his invention, and that he should be held to such statement. In anomalous cases like the present, when a new product has been discovered, and the process of compounding it or obtaining it is disclosed, the patentee, by stating his discovery and revealing his process, has done all that he is required to do or can do. The careful separation of new from old, the limitation of claims to particular parts or combinations, cannot be required as a substantial part of the specification. If a specification sets forth a discovery, a new composition of matter, and the process for compounding it, that should be taken as the extent of his claim and the measure of his franchise."

Besides this definition, which is the important thing, applicant has given quite a number of properties which the compounds possess. This is useful as indicating the purposes to which the products may be applied. One properly might render the product applicable to one purpose, others to another. There may be properties still undiscovered. It generally happens that it takes a long series of years to find out all the properties of a new material which are beneficial in the arts. Of course, it is not necessary that these should be known before the grant of the patent, and, if known, need not form part of the claim. If anything, applicant has in these cases, "A" and "B," gone farther in his claim than was required, as will appear by the amendment to the original claims as filed. As already stated, the best definition of a new thing is the exact method of making it, starting with known material. The naming of its properties is only to assist the public in its use. This applicant has done in his specification.

In conclusion, I would state that the claim could not be made more definite or positive than it is.

This opinion is adopted as the action in this case; not for the purpose of relaxing the rule of law and the Office, that an applicant "shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery," but for the reason that these are "anomalous cases," in which the nature of the product described does not admit of a more distinct mention in the claim without repeating therein the greater part of the specification.

The product must be regarded as an entirety, and, if new, applicant is entitled to all the characteristics which it may now be known or may hereafter be discovered to possess.

To require a mention in the claim of some of its characteristics, and not all, would be to restrict the same within too narrow limits, and to require the mention of all is practically impossible.

Besides, the claim for the product in each case is followed by a claim for the process by which that product is produced. This relieves the claim still further from indefiniteness.

The decision of the Examiner is reversed, and the consideration of the case upon its merits will proceed.

CHARLES E. WILLIAMS.—*Interlocutory Appeal; Form of Claims.*

[*Appeal from the decision of the Primary Examiner in the matter of the application of Charles E. Williams, filed July 1, 1876, for* "MEDICAL COMPOUND."—*Decided October 31, 1876.*]

As a general rule, an applicant for a patent is required in his claim to specify and particularly point out in the most unequivocal and unambiguous language the invention sought to be secured.

A claim for a compound consisting of certain known ingredients should enumerate them.

The case under consideration distinguished from one in which a new product was discovered which could not be described, except by reference to the specification.

[*P. R. Voorhees*, attorney.]

DOOLITTLE, *Assistant Commissioner:*

The claim presented in this application, and which has been rejected by the Examiner as defective in form, affords an excellent illustration of the difference between a case where the article is susceptible of more definite description and one such as was treated of in the case of Tweddle, just decided, in which it is not.

In the case referred to a new product, as yet unchristened, and its properties unknown, had been discovered. It formed an exceptional case, and it was found that it could only be defined by reference to the process by which it was produced, and this constituted the specification.

The rule requiring an applicant in his claim to specify and particularly point out in the most unequivocal and unambiguous language the invention sought to be secured was not relaxed in that case, but the claim allowed upon the principle "*Lex non cogit ad impossibilia.*"

In the present case the applicant claims:

The hereinbefore-described compound or composition of matter, consisting of the ingredients mentioned, prepared in the manner and proportion substantially as described, for the purpose set forth.

This is no more than a general reference to the specification, and the applicant might with as much propriety have contented himself with saying, I claim the invention described, leaving it to be determined in what that consisted.

The compound or composition is described as composed of certain ingredients, each well known; it is, in fact, a combination of elements in the manner described. Obviously the proper way in which to define such an invention is by claiming the compound consisting of the elements (naming them) in the proportions and combined in the manner described. Such a claim would at least indicate the nature of the article invented, which the present one utterly fails to do.

The question of patentability, not being interlocutory, cannot be considered on this appeal.

The decision of the Examiner is affirmed.

DECISIONS OF THE COURTS.

SUPREME COURT OF THE UNITED STATES.

FREDERICK BIRDSALL AND GEORGE F. LANGTRY, PLAINTIFFS IN ERROR, *vs.* C. C. COOLIDGE.

[*In error to the Circuit Court of the United States for the District of Nevada.—Decided October term, 1876.*]

In an action at law for the infringement of a patent the jury is required to find the actual damages sustained by the plaintiff. The court has power in such case to enter judgment for any sum above the amount of the verdict, not exceeding three times the amount of the same, together with costs.

Damages are given as a compensation, recompense, or satisfaction to the plaintiff for an injury actually received by him from the defendant.

Compensatory damages and actual damages mean the same thing.

Prior to the act of July 8, 1870, a patentee might proceed against an infringer either in equity or at law.

In equity the infringer would be regarded as trustee of the owner of the patent as respects the gains and profits which he had made by the unlawful use of the invention.

At law he could recover actual damages, the measure thereof being not what the defendants had gained, but what the plaintiff had lost.

The remedy at law remains unchanged, but in equity, where the gains and profits are clearly not sufficient to compensate the complainant for the injury sustained by the infringement, damages of a compensatory character may also be allowed.

Evidence of an established royalty will furnish the true measure of damages in an action at law, where the unlawful acts consist in making and selling the patented improvement, or in the extensive and protracted use of the same, without palliation or excuse, but when the use is a limited one, and for a brief period, it is error to apply that rule arbitrarily and without any qualification.

Mr. Justice CLIFFORD delivered the opinion of the court.

Juries, in an action at law for the infringement of a patent, are required to find the actual damages sustained by the plaintiff in consequence of the unlawful acts of the defendant. Power is given to the court, in such a case, to enter judgment for any sum above the amount of the verdict, not exceeding three times the amount of the same, together with costs, but the jury are strictly limited in their finding to the actual damages which the plaintiff has sustained by the infringement. (16 Stats. at Large, 207; 5 Id., 123; Rev. Stats., sec. 4919, p. 960.)

Damages are given as a compensation, recompense, or satisfaction to the plaintiff for an injury actually received by him from the defendant. Compensatory damages and actual damages mean the same thing—that is, that the damages shall be the result of the injury alleged and proved, and that the amount awarded shall be precisely commensurate with the injury suffered, neither more nor less, whether the injury be to the person or estate of the complaining party. (2 Greenl. Ev., 10th ed., sec. 253.)

Improvements in machines for amalgamating gold and silver were made by Zenas Wheeler, then in full life, for which he received letters patent in due form of law. Sufficient also appears to show that the patentee subsequently—to wit, on the 15th of August 1869—departed this life; that at the time of his death he was a resident of San Francisco, in the State of California, and that he left a last will and testament, duly executed as required by the laws of that state; that he gave, devised, and bequeathed to the plaintiff all and singular his property, real and personal, wheresoever situated, including all debts owing to him and all moneys belonging to him of which he might die seized and possessed, in trust for certain uses and purposes therein specifically set forth and described, leaving his patent rights, machinery, and certain other specified interests in the hands of his executor, to be managed, controlled, improved, changed, or disposed of, as his executor may in his judgment deem best for the interests of the estate. Due probate of the will has since been made, and letters testamentary have been duly granted to the plaintiff, as sole executor of the deceased patentee.

Pursuant to the power vested in the plaintiff as such executor, he instituted the present suit, in which he alleges that the deceased testator was the original and first inventor of the improvement described in the patent, and that the defendants, though well knowing the premises, and in order to deprive the plaintiff of the gains and profits of the same, have, without license from the testator in his lifetime or from the plaintiff since the decease of the testator, used and caused to be used twenty amalgamating-machines embracing substantially the same improvement, in violation and infringement of the exclusive right secured by the said letters patent.

Service was made and the defendants appeared and pleaded the general issue and gave notice of certain special defenses, as follows: 1. That the testator in his lifetime executed a license to J. Booth & Co. to manufacture the patented machine, and that the defendants purchased the machines they use of the licensees. 2. That the patented improvement has been openly and universally used by the public since the patent was granted. 3. That the curved grooves in the face of the muller and in the bottom of the pan had been previously patented to the respective parties named in the notice of special matter. 4. That the patentee was not the original and first inventor of the improvement. 5. That the curved grooves in the face of the muller and bottom of the pan were in public use more than two years before the alleged inventor made application for a patent. 6. That the patented improvements were described in the printed publications mentioned in the notice of special matter.

Reference to the specification will show that the patented improvement is called a new and improved gold and silver amalgamator and pulverizer, and that the object of the invention, as stated by the patentee, is to obtain a device of simple construction which will cause a thorough incorporation of the quicksilver with the pulp containing the metal, so as to insure a perfect amalgamation of the latter. Mechanically considered the invention consists in the arrangement of spiral ribs on the periphery of the rotary muller and spiral ribs reversed on the inner side of the pan to operate in connection with curved grooves on the face or under side of the muller, and curved grooves reversed in the bottom of the pan for the purpose explained.

These explanations are the same as those given in the specification, and the patentee also states that the invention consists in the manner of connecting the muller to its shaft by a universal joint, so as to insure its parallelism with the bottom of the pan, and in the employment or use of curved plates, which are placed in the pan just above the muller, and arranged in such a manner as to be capable of being adjusted higher or lower, as set forth in the specification.

Two of the claims of the patent—to wit, the first and second—are omitted, as the plaintiff admits that those claims have not been infringed by the defendants. What he charges is that they have infringed the third claim, which is as follows:

In combination with the muller and pan, the curved plates supported at their outer ends on slides and at their inner ends in a frame which is supported on the upper end of the shaft in such a manner that the plates will follow any adjustment of the muller, and thus bear the same relation to it whether in its highest or lowest working position.

Viewed in the light of these suggestions it is clear that the charge of infringement has respect chiefly to

the curved plates supported as explained when used in combination with the muller and pan.

Subsequently the parties went to trial, and the verdict and judgment were for the plaintiff in the sum of two thousand two hundred and sixty-six dollars and sixty-six cents, with costs of suit. Exceptions were duly filed by the defendants, and they sued out the present writ of error.

By the bill of exceptions it appears that the plaintiff introduced his patent in evidence, together with a model of the patented machine for amalgamating gold and silver, and gave testimony tending to show that the defendants purchased twenty amalgamating-pans which contained wings or curved plates of iron twelve inches wide and fourteen inches long, fastened at one end to the inner side of the rim of the pans in a vertical position, in such a manner that they could be raised or depressed by sliding up or down in a groove or fastening, and could be adjusted at different heights, and extending lengthwise toward the center of the pans, which were a little more than four feet in diameter.

Wings of the kind, however, were used in only sixteen of the pans for a few weeks after the defendants commenced to use the pans for amalgamating purposes, and the defendants testified that the wings were useless and even detrimental for working over old tailings, which was the work on which they were engaged, for the reason that such material does not require further grinding or pulverization; that finding the wings useless or detrimental they took them out of the sixteen pans and sold them for old iron.

They also gave evidence tending to show that when they used the mill as a quartz-mill they used the wings in sixteen only of the pans, but that when they commenced to work what are called tailings they took out the wings, because they found them to be detrimental or useless; and the bill of exceptions also states that the defendants took the wings out of four of the pans before they used them at all and only used the wings in some of the other pans for a short time, and that they did not use any of them more than six weeks, which is all the evidence introduced to show the extent of the infringement.

Wide differences of opinion existed between the parties as to the rule of damages in such a case, and to aid in the solution of that question the plaintiff introduced testimony tending to show that the decedent in his lifetime allowed manufacturers to make and sell the invention for a royalty of one hundred dollars for a machine containing only the same combination as that used by the defendants, and proved that he, the plaintiff, had sold royalties to a large amount at the same rate.

Questions of various kinds, other than those relating to the measure of damages, are also presented in the bill of exceptions, but the court here, in the view taken of the case, do not find it necessary to decide any other in this investigation.

Instructions as to the measure of damages were given by the court to the jury, in substance and effect as follows: that when a person, without license, appropriates the patented invention of another, the measure of damages, if a royalty has been established, is the regular royalty paid by purchasers and licensees; that if the jury find for the plaintiff, the damages will be the royalty which the plaintiff established for that part of the invention used by the defendants; that if the royalty paid for that part of the invention is one hundred dollars, then the jury will allow one hundred dollars *on each pan* used by the defendants, and interest on that sum, at ten per cent. per annum, for the time of the appropriation, which is the rate of interest allowed in that state.

Under those instructions the jury returned a verdict for the plaintiff in the sum of two thousand two hundred and sixty-six dollars and sixty-six cents, as appears by the record. Seasonable exception was taken to the instructions by the defendants, and that instruction presents the only question which the court deems it necessary to decide in disposing of the case.

Controversies and cases arising under the patent laws are orginally cognizable, as well in equity as at law, by the circuit courts, or by any district court having circuit powers. Prior to the passage of the act of the 8th of July, 1870, two remedies were open to the owner of a patent whose rights had been infringed, and he had his election between the two. He might proceed in equity and recover the gains and profits which the infringer had made by the unlawful use of his invention, the infringer in such a suit being regarded as the trustee of the owner of the patent as respects such gains and profits; or the owner of the patent might sue at law, in which case he would be entitled to recover, as damages, compensation for the pecuniary injury he suffered by the infringement, without regard to the question whether the defendant had gained or lost by his unlawful acts; the measure of damages in such case being not what the defendants had gained, but what the plaintiff had lost. (Curtis on P., 4th ed., 461; 5 Stats. at Large, 123.)

Where the suit is at law, the measure of damages remains unchanged to the present time, the rule still being that the verdict of the jury must be for the *actual* damages sustained by the plaintiff, subject to the right of the court to enter judgment thereon for any sum above the verdict, not exceeding three times that amount, together with costs. (16 Id., 207.)

Damages of a compensatory character may also be allowed to the complainant suing in equity, in certain cases, where the gains and profits made by the respondent are clearly not sufficient to compensate the complainant for the injury sustained by the unlawful violation of the exclusive right secured to him by the patent. Gains and profits are still the proper measure of damages in equity suits, except in cases where the injury sustained by the infringement is plainly greater than the aggregate of what was made by the respondent, in which event the provision is that the complainant "shall be entitled to recover, in addition to the profits to be accounted for by the respondent, the damages he has sustained thereby."

Cases occurred under the prior patent act where manifest injustice was done to the complainant in equity suits by withholding from him a just compensation for the injury he sustained by the unlawful invasion of his exclusive rights, even when the final decree gave him all that the law allowed. Examples of the kind may be mentioned where the business of the infringer was so improvidently conducted that it did not yield any substantial profits, and cases where the products of the patented improvements were sold greatly below their just and market value, in order to compel the owner of the patent, his assignees and licensees, to abandon the manufacture of the patented product.

Courts could not, under that act, augment the allowance made by the final decree as in the case of the virdict of a jury, but the present patent act provides that the court shall have the same powers to increase the decree, in its discretion, that are given by the act to increase the damages found by verdicts in actions at law. Such difficulties could never arise in an action at law, nor can it now, as both the prior and the present patent act authorizes the court to enter judgment on the verdict of the jury for any sum above the verdict, not exceeding three times that amount. No discretion is vested in the jury, but they are required to find the *actual damages*, under proper instructions from the court.

Still it is obvious that there cannot be any one rule of damages prescribed which will apply in all cases, even where it is conceded that the finding must be limited to actual damages. Frequent cases arise where proof of an established royalty furnishes a pretty safe guide both for the instructions of the court and the finding of the jury. Reported cases of undoubted authority may be referred to which support that proposition, and yet it is believed to be good law that the rule cannot be applied without qualification, where the patented improvement has been used only to a limited extent and for a short time, that in such a case the jury should find less than the amount of the license fee; and it is admitted in several cases that the circumstances may be such that the finding should be larger than the royalty. (*Seymour* vs. *McCormick*, 16 How., 490; Curtis on P., 4th ed., 459; *Livingston* vs. *Woodworth*, 15 How., 560; *Dean* vs. *Mason*, 20 Id., 203.)

Evidence of an established royalty will undoubtedly furnish the true measure of damages in an action at law, where the unlawful acts consist in making and selling the patented improvement or in the extensive and protracted use of the same, without palliation or excuse, but where the use is a limited one and for a brief period, as in the case before the court, it is error to apply that rule arbitrarily and without any qualification. (*Packet Co.* vs. *Sickles*, 19 Wall., 617; *Russel* vs. *Denig*, 2 Otto; *Suffolk Co.* vs. *Hayden*, 3 Wall., 320.)

Four of the pans in this case were used throughout without wings, and wings in most of the others were used only for a short time, and in none of the pans for more than six weeks. Under these circumstances it was error to charge the jury that if they found any damages they must find the amount of the royalty for each pan so used, as that was instructing the jury in effect that they must find one hundred dollars for each pan, which is plainly more than the actual damages proved by the evidence. Actual damage is the statute rule, and whenever the royalty plainly exceeds the rule prescribed by the patent act, the finding should be reduced to the statute rule.

Judgment reversed and the cause remanded, with directions to issue a new venire.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 7, 1876.]

9,611.—Font of Printing-Types.—JAMES M. CONNER, Greenville, N. J. Application filed October 24, 1876. Term of patent 7 years.

9,612.—Inkstands.—JOHN B. DAVIDS, New York, N. Y., assignor to THADDEUS DAVIDS & Co., same place. Application filed October 13, 1876. Term of patent 14 years.

9,613.—Inkstands.—OTTO F. FOOKLSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Application filed October 25, 1876. Term of patent 7 years.

9,614.—Font of Printing-Types.—JULIUS HERRIET, New York, N. Y., assignor to DAVID WOLFE BRUCE, same place. Application filed October 28, 1876. Term of patent 14 years.

9,615.—Printing-Border.—RICHARD SMITH, Philadelphia, Pa., assignor to MACKELLAR, SMITHS & JORDAN, same place. Application filed October 27, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 7, 1876.]

4,098.—Shirtings.—COFFIN & ALTEMUS, Philadelphia, Pa. Application filed October 9, 1876.
"The representation of a peacock."

4,099.—Cigars.—S. FUGUET & SONS, Philadelphia, Pa. Application filed October 10, 1876.
"The word-symbol 'Orange Flower.'"

4,100.—Dry Goods.—DAVID A. LINDSAY, New York, N. Y. Application filed September 22, 1876.
"A certain perspective view of an embroidering-machine in operation."

4,101.—Canned Goods.—E. B. MALLORY & Co., Baltimore, Md. Application filed January 26, 1876.
"The figure of an arrow."

4,102.—Pipe-Tongs.—EDWARD H. ASHCROFT, Lynn, Mass. Application filed October 7, 1876.
"An arm elevated, and holding in the hand a hammer, underneath which are the capital letters 'E. H. A.' The word 'TRADE-MARK,' in capitals also, is placed between the device and the letters 'E. H. A.'"

4,103.—Plug-Tobacco.—BUCHANAN & LYALL, New York, N. Y. Application filed October 10, 1876.
"The arbitrary words 'SAILOR'S CHOICE.'"

4,104.—Window-Glass and Articles of Glassware.—COHANSET GLASS MANUFACTURING COMPANY, Bridgeton, N. J. Application filed October 11, 1876.
"The word-symbol 'COHANSET.'"

4,105.—Cigarettes.—F. W. FELONER & SON, Baltimore, Md. Application filed October 24, 1876.
"The word-symbol 'LUXURY' in connection with the monogram composed of the letters 'F. W. & S.'"

4,106.—Collars and Cuffs.—JAMES H. HOFFMAN, New York, N. Y. Application filed October 16, 1876.
"The representation of a sprinkling-box."

4,107.—Jewelry.—JOSLIN, PALMER & WILLIAMS, Leominster, Mass., and New York, N. Y. Application filed October 9, 1876.
"The word-symbol 'NAPOLINE.'".

4,108.—Plug-Tobacco.—LAWRENCE LOTTIER, Jr., Richmond, Va. Application filed October 11, 1876.
"A diamond-shaped figure having the corners of its longest diagonal line cut off square, as shown."

4,109.—Cigars and Tobacco.—V. MARTINEZ YBOR & Co., New York, N. Y. Application filed October 13, 1876.
"The word-symbol 'Colosso.'"

4,110.—Teas and Coffees.—OTTOMAN CAHVEY COMPANY, Chicago, Ill. Application filed October 9, 1876.
"The words and letters 'Ottoman Cahvey Co.,' arranged as shown in the accompanying fac-simile, above the figure of a Turk seated upon a divan drinking a cup of coffee, and holding in his

hand the stem of a Turkish pipe, which is placed upon the floor. Upon the same divan reclines the figure of a woman holding in one hand a cup, into which another woman, standing is pouring coffee from a vessel or coffee-pot, upon which is inscribed the word 'Cahvey.'"

4,111.—Chewing-Tobacco.—CHRISTIAN PEPER, St. Louis, Mo. Application filed October 14, 1876.

"The words 'Silver Seal,' the letters of which are stenciled in a paper seal the face of which is silvered."

4,112.—Smoking-Tobacco.—CHRISTIAN PEPER, St. Louis, Mo. Application filed October 16, 1876.

"The words 'Golden Seal,' the letters composing said name or words being stenciled in a paper seal, the face of which is bronze or golden."

4,113.—Dry Goods.—WHEELWRIGHT, ANDERSON & CO., New York, N. Y., and Boston, Mass. Application filed October 11, 1876.

"The word-symbol "GILDED AGE.'"

4,114.—Dry Goods.—WHEELWRIGHT, ANDERSON & CO., New York, N. Y., and Boston, Mass. Application filed October 11, 1876.

"The arbitrarily-selected words 'THERE'S MILLIONS IN IT.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 7, 1876.]

867.—Title: **"Combination Alloy, Manufactured by Hood & Reynolds."**—JOHN HOOD & STEPHEN H. REYNOLDS, Boston, Mass. Application filed October 26, 1876.

868.—Title: **"Manufactured only by H. J. Hul-Cee, Sr., & Sons."**—H. J. HUL-CEE, Sr., & SONS, Louisville, Ky. Application filed October 28, 1876.

869.—Title: **"Union Manufacturing Co., Standard Bluing."**—J. L. BLUNDIN & CO., River Forest, Ill. Application filed October 5, 1876.

870.—Title: **"Wm. Simpson & Sons, Philadelphia."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

871.—Title: **"Wm. Simpson & Sons, Philadelphia."**—WILLIAM SIMPSON & SONS, Philadelphia, Pa. Application filed April 4, 1876.

872.—Title: **"Pond Lily Wash."**—GEORGE GROSS, Washington, D. C. Application filed November 6, 1876.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

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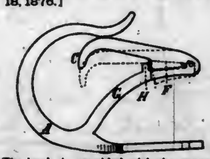
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OF

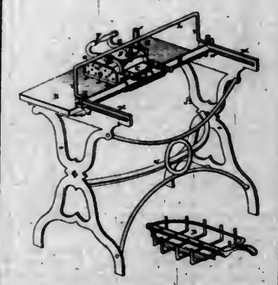
PATENTS GRANTED NOVEMBER 7, 1876.

184,002. WATER-HOOKS FOR HARNESS. O. D. Aldrich, Woonsocket, R. I. [Filed Sept. 18, 1876.]



The hook A, provided with the curved arm G and stud H, in combination with the spring F and curved jointed arm C, substantially as and for the purpose set forth.

184,003. IRONING APPARATUS. S. S. Case, St. Louis, Mo. [Filed Apr. 15, 1876.]



1. The combination of the board B, iron C, handle F, arms G G, pivots *g g*, bar H, thimble I, and guides J J, substantially as described.

2. The combination of the iron C, arms G G, pivots *g g*, hook K, bars H L, thimble I, and guides J J, substantially as described.

3. The combination of the iron C, arms G G, pivots *g g*, hook K, and bar L, substantially as described.

4. The combination of the arms G G, guides J J, thimble I, and bar H, substantially as described.

5. The combination of the iron C and the stops M M, substantially as and for the purpose set forth.

6. The combination of the iron C, handle F, board B, arms G G, connections *g g*, and guides J J, substantially as described.

7. The combination of the frame A, bearings M M, and bar H, substantially as and for the purpose set forth.

8. The combination of the frame A, bearings M M, bar H, and pins *m m*, substantially as and for the purpose set forth.

9. The combination of the frame A, bearings M M, bar H, thimble I, bearings J J, arms G G, connections *g g*, iron C, hook K, and bar L, substantially as described.

10. The combination of the board B, iron C, handle F, arms G G, connections *g g*, bearings J J, thimble I, bar H, and bearings M M, substantially as described.

11. The combination of the iron C and the detachable perforated basket D, substantially as and for the purpose of enabling the latter to be charged with fuel, lighted, and inserted in the iron, as described.

184,004. STEAM-TRAPS. George M. Davis, Chicago, Ill. [Filed Mar. 31, 1876.]

1. The pipe B, in combination with the pipes C and D, and the rod E, attached at their alternate ends, and made of different metals, which, by their unequal expansion and contraction, will operate the valve F, the whole being constructed substantially as and for the purpose above described.

2. The cup G, made cup-shaped to receive and form a seat for the valve F, and also to catch any water that may pass the valve, together with the cover H, for the purpose of keeping out any dirt.

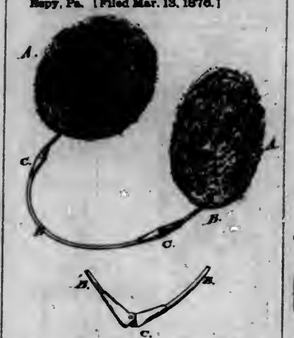
184,004.



184,005. GALVANIC BATTERIES. Howard P. Dechert, New York, N. Y. [Filed Feb. 26, 1876.]

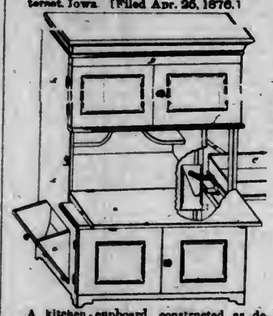
The application of chloride of calcium to galvanic batteries, in connection with an exciting substance, substantially as described.

184,006. EAR-MUFFLERS. Butler Edgar, Bepy, Pa. [Filed Mar. 13, 1876.]



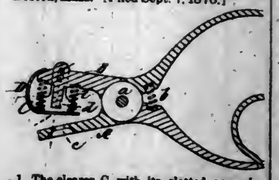
The ear-muffler A A, having the frames B B' and hinges C C, combined and arranged substantially as and for the purpose set forth.

184,007. CUPBOARDS. Milton H. Hill, Winterset, Iowa. [Filed Apr. 26, 1876.]



A kitchen-cupboard, constructed as described, and consisting of the sides A A, front B, provided with the falling hinged door *a*, the flour-receptacle *c*, and sink C, all combined to operate substantially as and for the purpose set forth.

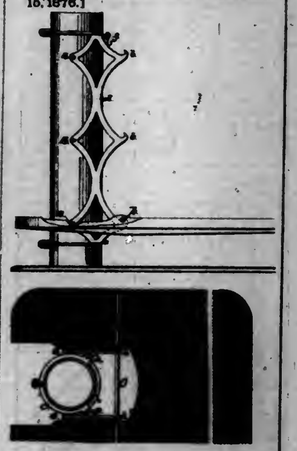
184,008. TICKET-PUNCHES. Warren Hill, Boston, Mass. [Filed Sept. 7, 1876.]



1. The clearer C, with its slotted arms *b*, connected with the jaw B of the male die *d*, in combination with the springs *l m* and jaw A, containing the female die *e*, operating substantially in the manner and for the purpose set forth.

2. The guard D, in combination with the clearer C, having slotted arms *b*, the jaw B of the male die *d*, springs *l m*, and jaw A, of the female die *e*, substantially as and for the purpose described.

184,009. STOVE-PIPE SHELVES. Jonathan P. Hinshaw, Brooklyn, Mich. [Filed June 16, 1876.]



1. The uprights A A, provided with diverging arms having hooks and pins *b b*, substantially as and for the purposes set forth.

2. In combination with the uprights A A, having hooks *b b* and pins *b b*, the shelf L, provided with a transverse rod, O, and longitudinal braces *p p*, as and for the purposes set forth.

184,010. MACHINES FOR SOWING FERTILIZERS. D. F. Hull, Hagerstown, Md. [Filed Sept. 7, 1876.]



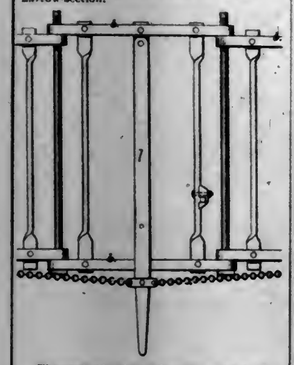
1. Two adjustable feed-slides, arranged in the bottom of the hopper, and adapted to form a feed-orifice at an angle oblique to the angle of the feeding-fingers, for the purpose specified.

2. The combination of a horizontally-reciprocating bar, provided with feeding-fingers, with oblique feed-orifices, substantially as described.

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184,011. HARROWS. Saml. Kain, Bethany, Ohio. [Filed Aug. 4, 1875.]

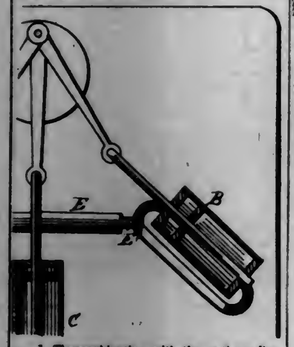
Brief.—A lever provided with hook and chain is vertically pivoted to the center of the central harrow-section.



The vertically-pivoted lever *l*, provided with hook *j* and chains *k*, in combination with the three sections of the harrow, substantially as and for the purpose described.

184,012. FREEZING OR COOLING MACHINES. Charles B. Kleinschmidt, Cleveland, Ohio. [Filed June 21, 1876.]

Brief.—The compressing-piston is driven by the connecting-rod of the motive-cylinder. The compressed air is forced through the cooling-tube into the expanding cylinder, giving motion to its piston, which, being connected to the crank-shaft, relieves the motive-cylinder of part of its duty.



1. The combination, with the motive-cylinder C, of the compression-cylinder A and auxiliary or expansion cylinder B, substantially as and for the purpose shown.

2. The cylinders A and B, placed in such relation to each other that their line of direction and operation shall bear the relation of not more than one hundred and twenty degrees or less than seventy-five degrees, in combination with exhaust and cooling pipe E and its valves, substantially as and for the purpose shown.

3. The combination, with the compressing-cylinder A and steam-cylinder C, of the expansion or auxiliary cylinder B, substantially as and for the purpose shown.

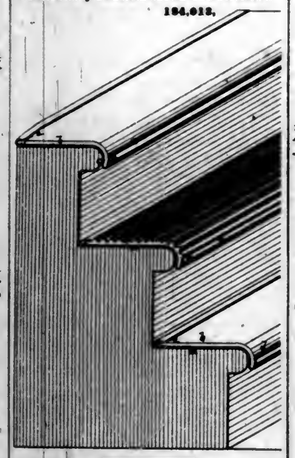
4. The combination of the cylinders A and B, pipe F, and cooler E, substantially as and for the purpose shown.

5. The cylinders A B C, situated relative to each other, as described, uniting or operating upon a single crank or shaft, substantially as and for the purpose shown.

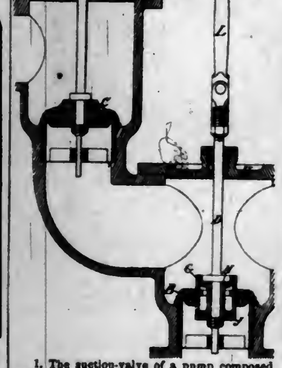
184,013. STAIR-COVERINGS. Moritz Erickl, New York, N. Y. [Filed Sept. 20, 1876.]

The combination of the metal plate *a*, which is bent to form the nosing *c* and the front groove *d*, and also bent to form the back groove *e*, with the treading-plate *b*, of fabric, substantially as herein shown and described.

184,014.



184,014. PUMP-VALVES. Berthold Krocker, Breslau, Prussia. [Filed Mar. 25, 1876.]



1. The suction-valve of a pump composed of the annular valve B and the differential valve H, with its disk J, and connected, by means of two valve-stems, link L, and lever M, to the discharge-valve C, substantially as shown, and for the purpose set forth.

2. The differential valve H forming part of, and sliding inside, the annular suction-valve B, for the purpose set forth, in combination with the directly-weighted discharge-valve C and intermediate mechanism, substantially as shown.

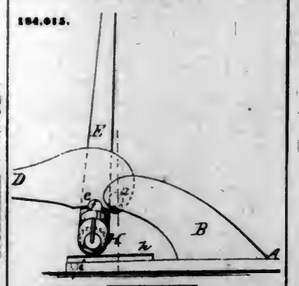
184,015. SWAGES FOR SHARPENING FARM IMPLEMENTS. James W. Landon, Mound City, Mo. [Filed Aug. 23, 1876.]

1. The standards B, provided with the axle-bearings, in combination with the levers D and E, substantially as described.

2. In a plow-sharpener, the combination of the standards B, levers D and E, and auxiliary platform or block *h*, substantially as expressed.

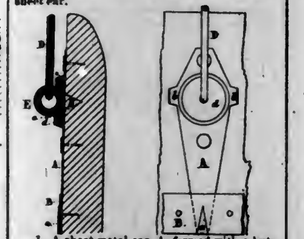
3. The combination of the supporting-frame A B, levers D E, roller B, and anvil-block *h*, substantially as described.

184,015.



184,016. BUCKET-EARS. James S. McMurray, Toronto, Ontario, Canada. [Filed Aug. 15, 1876.]

Brief.—The wire ear plays in the struck-up sheet ear.

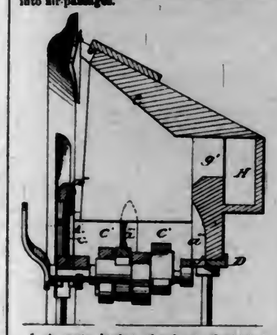


1. A sheet-metal ear, A, formed with a button-shaped projection, *d*, and clinching-pieces *a* and *b b*, in combination with the hoop B, as specified.

2. The eye E, having ends *e e* fitting and working within the space formed by the button-shaped projection *d*, in combination with the bail D, as specified.

184,017. FIRE-PLACE GRATES. James Old, Allegheny, Pa. [Filed Feb. 23, 1876.]

Brief.—Air passes from the ash-chamber through the openings in the horizontal frame into air-passages.



1. A grate-basket, the front of which is composed of the parts A B, the outer one of which is made of cold-rolled iron or any polished or plated metal of an ornamental character, substantially as and for the purpose described.

2. In combination with the fronts A B, the middle plate C, substantially as and for the purpose described.

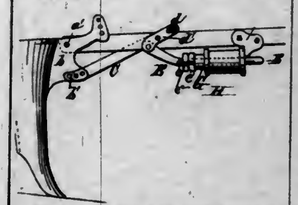
3. The air-passages *a a*, &c., in the side and rear walls of the fire-place, in combination with the double fire-chambers F F', the openings *g g'*, and the heat-chamber H, substantially as described.

4. The heat-chamber H, in combination with the fire-chambers F F', communicating with each other through the medium of the openings *g g'*, substantially as described.

5. The division or partition wall E, in combination with the heat-chamber H and a sliding door or blower, substantially as described.

6. The frame D, provided with openings *j*, in combination with the side and rear walls of the fire-place and the air-passages *a''' a'''*, substantially as described.

184,018. SPRING-HOES FOR GRAIN-DRILLS. Chas. E. Fabric, Springfield, Ohio. [Filed Mar. 11, 1876.]

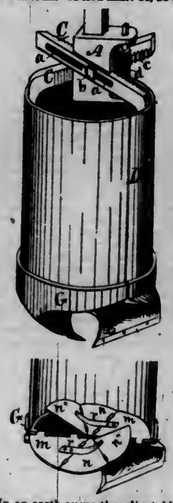


1. The pivoted hoe or drill-tooth, connected with the drag-bar by means of the links C and *d*, in combination with the piston-rod E and spring H, arranged and operating as described.

2. The piston-rod E, connected with the locking-link *d* and working with the guide-bracket F, in combination with the spring H and adjusting-nut *e'*, arranged and operating as described.

3. The flange *b*, provided with the series of perforations *b'*, arranged in the arc of a circle, as described, in combination with the adjustable link-brace C, locking-link *d*, rod E, and spring H, all arranged and operating as described.

184,019. EARTH-AUGERS. Chas. D. Pierce, La Salle, Ill. [Filed Mar. 31, 1876.]



1. In an earth-auger the adjustable arms C C, carrying independent half-augers parallel to each other, in combination with an auger-shaft, substantially as and for the purposes set forth.

2. The combined shaft-socket and hub A carrying the pinion *d*, in combination with the adjustable arms C having racks *c*, substantially as and for the purposes shown and described.

3. The elbow-form arms C having slots *a*, in combination with the clamping-bolt *b* and grooved or mortised hub A, substantially as and for the purposes shown and described.

4. A removable bottom formed in two sections, each half or section having a rim, G, and an inclined hollowed-out base terminating in centers standing crosswise to each other, substantially as shown and described.

5. The removable bottom sections G E, having a mole-shaped and twisted passage-way for the elevation of earth, substantially as shown and specified.

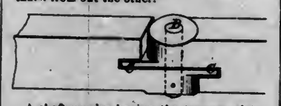
6. The bisected and flexible bucket-bottom *n n n''*, having stops *r* when hinged to the opposite sides and ends of the shaft *g*, substantially as and for the purpose shown and described.

184,020. EXPLOSIVE COMPOUNDS. Joseph Paul Raimond Poch, Brussels, Belgium. [Filed June 26, 1872.]

A blasting compound, consisting of spent tan, wood sawdust, nitrate of soda, nitrate of baryta, charcoal, sulphur, and saltpeter, in about the proportions substantially as described.

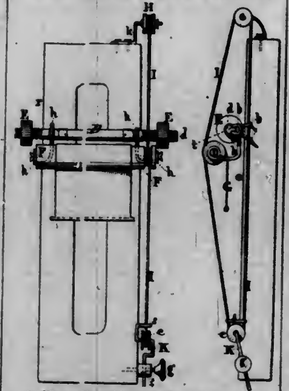
184,021. SHAFT-COUPLINGS. T. D. Powers, Holland, Mich. [Filed July 31, 1876.]

Brief.—In each piece of the joint there is a slot, into which passes a tongue on the other piece, forming, when locked, a continuous shaft. To release them they are brought to a right angle, and the piece with a rigid bolt taken from out the other.



A shaft-coupler having the tongues, slots, and fixed bolts, as set forth and shown.

184,022. CURTAIN-FIXTURES. Lafayette Powers, Cuba, Ill. [Filed Feb. 29, 1876.]



1. The adjustable rod D, provided with set-nuts E E, with their claws *b b*, the blind-roller F, cord I, and upper and lower pulleys H K, for the purpose of supporting, on the respective roller and rod, a blind and a curtain or lambrequin, and to admit air into the room above them, substantially as described.

2. The adjustable pulley-stem *k*, having slot *l*, for screws, the pulley H, connected by the endless cord I with the tension-pulley *s*, stem K, loop *s*, and detent *f g*, all combined, substantially as and for the purposes described.

3. The adjustable tension-device, consisting of the block *f*, set-screw *g*, wire K, pulley *s*, and loop *s*, bent to include the double cord *I*, and bent below to form an axle for said pulley, as described.

4. The combination of the rod D, provided with terminal threads *d d* and set-nuts E E, each carrying a bold-fast or claw, *b b*, with hangers *k k*, forming journals for the roller F, and the curtain-roller F, substantially as and for the purposes described.

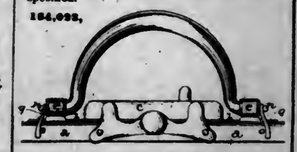
184,023. FRAMES FOR TRAVELING-BAGS. William Simon, Newark, N. J. [Filed Sept. 23, 1876.]

1. The combination of a catch for holding the frame closed, and a bail or other suitable protector on the handle-ring for holding the catch in position, substantially as set forth.

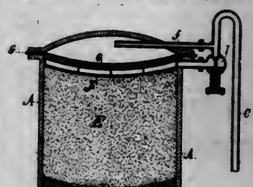
2. The catch *g*, consisting of the bar *i*, ring *h*, and leg *o*, combined with a fastening-plate for securing it to the frame, substantially as shown.

3. The combination of a lock-plate, *b*, to which is secured the lock, handle-rings, and catches with the frame *a*, substantially as specified.

184,023.



184,024. APPARATUS FOR FILTERING LIQUIDS UNDER PRESSURE. Robert Stewart, Brooklyn, N. Y. [Filed Aug. 8, 1876.]



1. In an apparatus arranged for filtering liquids under pressure, the combination of the following elements: an air-tight and hermetically-sealed vessel containing filtering material; a suitable forcing apparatus; an induction-pipe provided with an automatic spring-valve, for introducing and controlling the flow of the liquid into the vessel; a fixed impermeable flexible diaphragm dividing the vessel into two chambers; a movable adjustable diaphragm, and an eduction-pipe, the whole arranged and operating substantially as and for the purposes as herein shown and set forth.

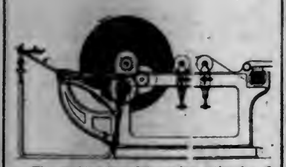
2. In combination with an apparatus arranged for filtering liquids under pressure, consisting of the usual air-tight vessel filled with filtering material and the usual induction and eduction pipes for introducing and discharging the liquid, a fixed impermeable flexible diaphragm dividing the vessel into two chambers, arranged and operating as and for the purposes as herein shown and set forth.

3. In combination with an apparatus arranged for filtering liquids under pressure, consisting of the usual air-tight vessel filled with filtering material, the usual induction and eduction pipes for introducing and discharging the liquid; a fixed impermeable flexible diaphragm dividing the vessel into two chambers, and a movable adjustable diaphragm, the whole arranged and operating substantially as and for the purposes as herein shown and set forth.

4. In an apparatus arranged for filtering liquids under pressure, the element of a flexible impermeable diaphragm dividing the filtering-vessel into chambers, one between the walls of the vessel at the top and the flexible diaphragm, the other between the diaphragm and walls of the vessel, which chamber contains the filtering material, the first-named chamber receiving liquid or air forced therein under one degree of pressure, the last-named receiving the liquid to be filtered at a less degree of pressure, the whole operating as and for the purposes as herein shown and set forth.

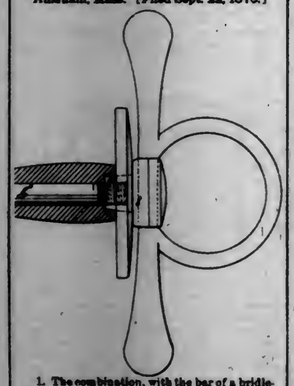
5. The combination, in a filter, of the air-tight vessel A, containing filtering material, the induction-pipe C, provided with automatic pressure-valve I and branch pipe *f*, the impermeable flexible diaphragm G, adjustable diaphragm F, either single or double, perforated or not, and the eduction-pipe D, the whole arranged and operating as and for the purposes as herein shown and set forth.

184,025. MACHINES FOR DAMPING PAPER FOR PRINTING. Edmund Walker, London, England. [Filed Feb. 5, 1875.]



The combination of the reciprocating bar d^5 with the pipe e, having jets f and connecting-arms e', as described.

184,026. BRIDLE-BITS. Hora Wilder, South Hingham, Mass. [Filed Sept. 22, 1876.]

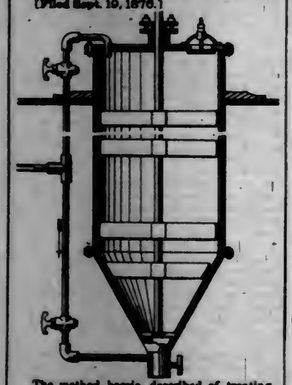


1. The combination, with the bar of a bridle-bit, of a wooden shell, substantially such as described.

2. The combination, with the cheek-piece, of the screw-threaded holder, constructed and adapted to be applied to the cheek-piece, substantially as described.

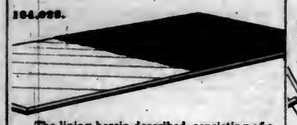
3. The holders b d d, in combination with the bar g and cheek-pieces, substantially as described.

184,027. METHODS OF PRODUCING FRUIT BUTTER. Max Ams, New York, N. Y. [Filed Sept. 19, 1876.]



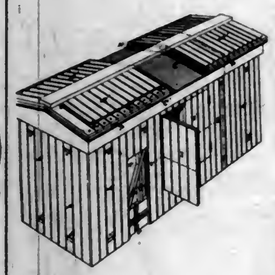
The method herein described of treating fruit, by placing it in an air-tight vessel, into which steam is conducted, and subjecting it within said vessel at once to mechanical agitation and the action of the incoming steam, thereby washing the fruit, breaking the cells, and preparing it for use, substantially as specified.

184,028. LINING FOR REFRIGERATOR-CARS. John M. Ayer, Chicago, Ill. [Filed Sept. 20, 1876.]



The lining herein described, consisting of a layer of pasteboard, paper-board, straw-board, or other paper product, and a layer of india-rubber sheathing, or the material termed "rubber packing," joined together, substantially as and for the purposes specified.

184,029. REFRIGERATOR-CARS. John M. Ayer, Chicago, Ill. [Filed Oct. 9, 1876.]



1. The combination of the outer casing A, internal lining of paper and india-rubber C, intermediate air-chamber D, and openings o o, o' o', and o'', substantially as described.

2. The combination of the outer casing A, lining of india-rubber and paper C, intermediate air-chamber D, openings o o, o' o', and g'', and internal layer of boards B', substantially as described.

3. The combination of the roof-boards A', strips H H having transverse openings q q, india-rubber and paper lining C', air-chamber D', openings p p, and earlines G G, substantially as described.

4. The combination of the roof-boards A', strips H H having transverse openings q q, india-rubber and paper lining C', air-chamber D', openings p p, earlines G G, india-rubber and paper lining C'', and air-chambers E E, substantially as described.

5. The combination of the roof-boards A', strips H H having transverse openings q q, india-rubber and paper lining C', air-chamber D', openings p p, earlines G G, india-rubber and paper lining C'', cross-beams F F, and air-chamber E', substantially as described.

6. The combination of the roof-boards A', strips H H having transverse openings q q, india-rubber and paper lining C', air-chamber D', openings p p, earlines G G, india-rubber and paper lining C'', cross-beams F F, air-chamber E', and openings o o, substantially as described.

7. The combination of the under layer of boards A'', upper layer B, and intermediate layer of india-rubber and paper C''', substantially as described.

184,030. WEED-TURNING ATTACHMENTS FOR PLOWS. Uriah Ballard, Richmond, assignor to Joshua Ballard, Centre Valley, Ind. [Filed Aug. 21, 1876.]

Brief.—Devices for clamping and adjusting a weed-turner.

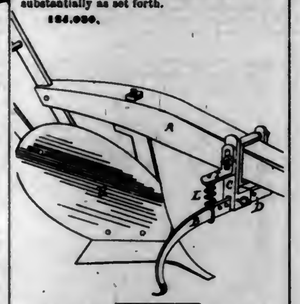
1. The combination and arrangement of the lever B, having holes o o o and pin D', with the pendent adjustable guide C, substantially as shown and described.

2. The clamp D having the stud E, in combination with the pendent adjustable guide C and curved lever B, substantially as set forth.

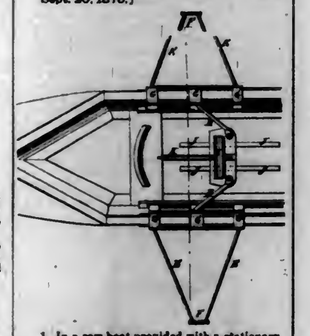
3. In combination with the curved adjustable lever B and pendent adjustable guide C, the spring L, and adjustable spring-holder I, by which the tension of the spring is made adjustable, substantially as described.

4. The combination and arrangement of the clamp D, pendent adjustable guide C, curved adjustable lever B, adjustable spring-holder I, and spring L with the beam A of the plow, all substantially as set forth.

184,030.



184,031. SLIDING ROWLOCKS, &c. Wm. N. Blakeman, Jr., New York, N. Y. [Filed Sept. 20, 1876.]

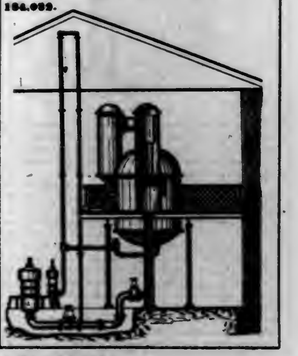


1. In a row-boat provided with a stationary seat, the combination of the sliding plates or frames G, the rods H, the sliding foot-rest I, the ways J, and the springs K, with the oar-locks F, whether the outriggers E be used or not, all constructed and arranged substantially as and for the purpose set forth.

2. In a row-boat provided with a stationary seat, the combination of the sliding plates or frames G, the rods H, the sliding foot-rest I, the ways J with the oar-locks F, whether the outriggers E be used or not, all constructed and arranged substantially as described.

3. An outrigger or oar-lock sliding upon the edges or sides of the boat, in combination with a sliding foot-rest, substantially as described.

184,032.



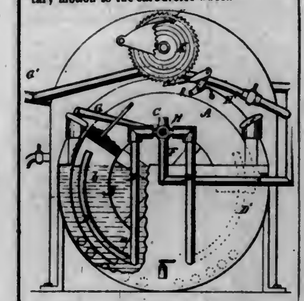
184,032. DOUBLE AND TREBLE EFFECT SUGAR APPARATUS. James P. Cahill, Lima, Peru. [Filed Oct. 13, 1874.]

Brief.—An elevated pipe, about thirty-three feet in height, is connected at one end with the steam-drums of the two last vacuum-pans, and at the other end with the air-pumps, for the purpose of better producing a vacuum in the pans.

In combination with a double or treble effect sugar apparatus, as herein described, the elevated pipe g and its connections with the air-pumps of the apparatus, thereby producing a better vacuum in the pans, substantially as and for the purposes set forth.

184,033. COMBINED GAS-METERS AND CARBURETERS. J. M. Cayce, Franklin, Tenn., assignor to himself, Atha Thomas, C. A. Bailey, J. McEwen, B. B. Cayce, and J. L. Parks, same place. [Filed Apr. 17, 1876.]

Brief.—A partially-submerged oscillating meter, having the form of a segment or annulus divided into two open chambers, with induction, eduction, and four-way cock and vibrating lever, is connected with a rotary carbureting-wheel. The air supplied to the carbureter first operates the meter-wheel, and the reciprocating motion of the latter imparts rotary motion to the carbureter-wheel.



1. A partially-submerged oscillating meter wheel, having the form of a segment or divided annulus, divided into two open chambers, and induction and eduction pipes leading into said chambers, combined substantially as shown and described.

2. The combination, with the oscillating meter-wheel, and induction, eduction, service, and distributing pipes, of the cock H, vibrating lever and keeper, as shown and described.

3. The combination of the elastic stops or buffers f' with the vibrating lever G, as shown and described.

4. The combination, with the four-way cock H and several pipes, O D D' F, of the vibrating lever, pivoted eccentrically to adapt it to act on the pin e, and thereby reverse the position of the cock, as shown and described.

5. The combination, with a rotating carbureting-wheel, I, of the meter-wheel A, air-conducting pipes, and connecting mechanism, substantially as shown and described, whereby the air supplied to the carbureter first operates the meter-wheel, and the reciprocating movement of the latter imparts rotary motion to the carbureter-wheel, as specified.

184,034. ELECTRO-MAGNETIC STOP-MOTIONS FOR SPINNING AND TWISTING MACHINERY. Henry A. Chapin, Springfield, Mass., assignor of one-half his right to Charles C. Moulton, same place. [Filed Mar. 14, 1876.]

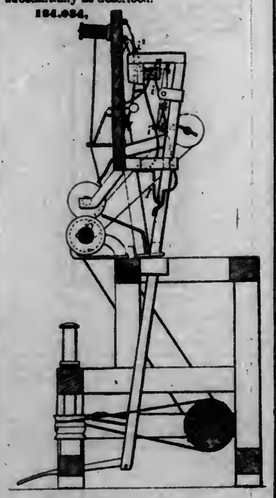
1. A combined electrical and mechanical stop-motion for spinning or doubling-and-twisting frames, in which the shipping mechanism of the said frames is brought automatically into gearing position with the mechanical motor by the galvanic motor at the moment a strand or thread is broken, and thrown out of gear as soon as the shipping is effected, substantially as described.

2. A stop-motion for spinning or doubling-and-twisting frames, looms, knitting-machines, or other machines working fibrous material, wherein the shipper rod or lever has attached to it a magnet, armature, and a movable pin or catch, moved by electro-magnetic action, so that it will be thrown in the way of a mechanical movement on the machine, which, by moving against said pin or catch, shall move the shipper rod or lever and stop the machine or spindle, substantially as described.

3. The combination of the sprig I and notched piece c^5 with their electrical connections, substantially as described.

4. The combination of the feed-motion, the shipper rod or lever, the electrical motor, and the mechanical motor, whereby the feed-motion is stopped at the moment a thread is broken, and started as soon as the shipper or lever is moved back to its normal position, substantially as described.

184,034.



184,035. PENCILS WITH MOVABLE LEADS. Orestes Cleveland, Jersey City, N. J. [Filed Apr. 8, 1876.]



1. A pencil having an inner tube, forming a receptacle for the lead in use, and an outer tube, forming, with the inner tube, a reservoir for one or more similar leads, substantially as described.

2. The combination of an inner tube, forming a receptacle for the lead in use, an outer tube, forming, with the inner tube, a reservoir for one or more similar leads, with means, substantially as described, for holding the lead in use, as specified.

3. The combination of an inner tube, forming a receptacle for the lead in use, an outer tube, forming, with the inner tube, a reservoir for one or more similar leads, and a cap, G, substantially as shown and described.

184,036. FASTENINGS FOR THE MEETING-RAILS OF SASHES. Wm. A. Davis, Allegheny, Pa., assignor of one-half his right to S. T. McClelland, same place. [Filed Apr. 20, 1876.]

Brief.—A hinged or swinging bracket is attached by a suitable plate and spring to the mullion of the upper sash, and, when swung round, engages with a suitable catch-plate, recessed and provided with a spring, which is attached to the top of the meeting-rail of the lower sash, thereby firmly locking the sashes together.

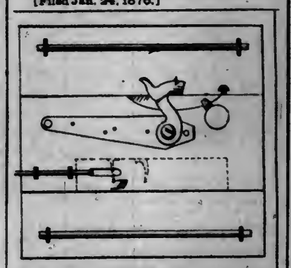
184,036.



1. The plate B, having spring e, and hinged bracket C, arranged to operate substantially as and for the purpose herein shown and specified.

2. The improved sash lock and fastener herein described, consisting of the plate B, having spring e, and hinged bracket C, in combination with the catch-plate or fastening device D herein described, all arranged and operated substantially in the manner and for the purpose herein shown and specified.

184,037. BURGLAR-ALARM AND FIRE-ARM COMBINED. J. Dodson, Terre Haute, Ind. [Filed Jan. 24, 1876.]



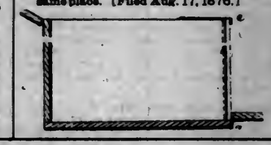
In a burglar-alarm, the combination of the movable rod or bar C with the trigger D of an alarm and the bolt of a door-lock, whereby the movement of said bolt in unlocking the door will operate the trigger to sound the alarm, all constructed and arranged substantially as and for the purpose set forth.

184,038. SWIVEL-SNAPS FOR HARNESS. James Fisk, Brattleborough, Vt. [Filed Sept. 11, 1876.]



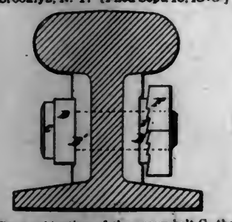
The swivel-snap for harness made of the tubular body a, shank c, and flange b, and the body d and shank d' of nearly equal size, and the spring-latch f and stud e, as and for the purposes set forth.

184,039. CIGAR-BOXES. Carl Glund, New York, N. Y., assignor to Rosina Glund, same place. [Filed Aug. 17, 1876.]



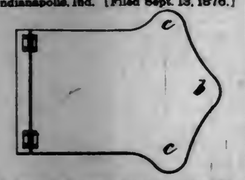
A cigar-box, the hinged front E of which is grooved near its ends on its inner face from the upper to the lower edge, and the ends of which box have corresponding tenons *b* extending along the entire height of the ends of the box, and locking-catches *c* embracing said front, substantially as specified.

184,040. NUT-LOCKS. Chandler Hall, Brooklyn, N. Y. [Filed Sept. 10, 1875.]



The combination of the screw-bolt C, the box-like washer D, the spring G, interposed between such washer and bolt-head, the washer E, having on its outer face a series of ratchet-teeth or projections, and the nut F, having on its back a series of ratchet-teeth or projections the reverse of those on the washer E, substantially as and for the purpose herein set forth.

184,041. IRONING-TABLES. J. C. Hubinger, Indianapolis, Ind. [Filed Sept. 13, 1876.]



A shirt-bosom ironing-board, provided with the projections *b* and *c c*, substantially as described, and for the purpose set forth.

184,042. CULTIVATORS. Almon Hunt, Macomb, assignor to Smith C. Ferguson, Kewanee, Ill. [Filed Mar. 8, 1876.]

Brief.—The axle-tree is arched, made in two parts, meeting end to end at the highest part, and held in place by a sleeve, allowing each section to oscillate to a limited extent.



1. The sleeve G, operating as a connecting-plate between the detachable pole I and the plows D, when the latter are suspended, as set forth.

2. The sleeve G, having plate *g* H on its ends, and stops *h* operating, in combination with the detachable pole I, axle A, and plows D, having hooks L for engaging studs K, substantially as and for the purpose specified.

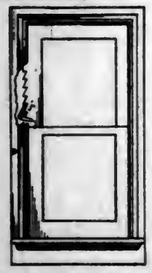
3. The sleeve G, having plates *g* H, and stops *h* between the plates, operating in combination with the sections A' A' of a divided axle to hold them in place and limit their motion, substantially as and for the purpose specified.

184,043. CONTINUOUS FUSE. W. A. Leonard, Boston, Mass. [Filed Aug. 12, 1876.]

Brief.—The following match composition is described: Shellac, forty parts; alcohol, forty parts; phosphorus, twelve parts; amorphous phosphorus, fourteen parts; chlorate of potash, thirty-two parts; peroxide of lead, twelve parts.

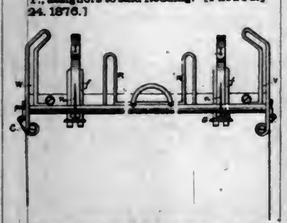
A continuous fuse, composed of xylonite and a match composition applied thereto, substantially as described.

184,044. WINDOWS. Marshall McComb, Pittsburg, Pa., assignor of one-tenth of his right to Thomas D. Keller, same place. [Filed Feb. 26, 1876.]



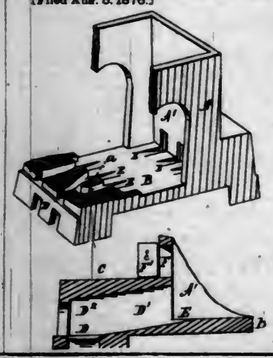
A window-frame made from one continuous strip of machine-cut timber, forming the side pieces and top, and provided with ribs constituting the moldings and parting-strips *f f' f²*, and with a detachable section, D, carrying portions of the ribs *f f'*, all constructed and arranged, as set forth.

184,045. BILL-FILES. James P. McLean and William F. Redding, New York, N. Y., assignors to said Redding. [Filed July 24, 1876.]



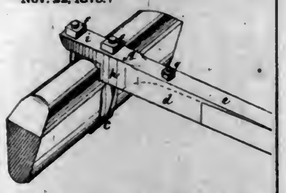
The combination of the pressure-bar B, provided with guards P P and straps C C, with the open ways W, spring or springs H, looped rod or gage-bar R, fasteners *s s*, and sliding plates *f f*, for the purposes substantially as described.

184,046. BRICK-KILNS. Samuel Mehaffey and George P. Grear, Cambridge, Ohio. [Filed Aug. 5, 1876.]



The improved brick-kiln A, having the outer furnaces O O, with the bottom of the fire-chamber D placed below the level of the base B, and connected with the interior A' by channels E and double upward-inclined or ascending floors D^1 D^1, separated by the wedge-shaped wall or partition *b*, and having the openings F and doors F', all arranged and operating as and for the purposes set forth.

184,047. COUPLINGS FOR CARRIAGES. John L. H. Mosier, Brooklyn, assignor to Cornelius Van Horn, New York, N. Y. [Filed Nov. 22, 1875.]



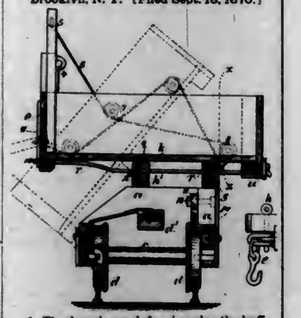
1. An improved connection for the reach and axle of a vehicle, wherein the yoke, shoulder, and plates are made of one piece of metal, substantially as described.

2. An improved reach and axle connection, with a pocket or recess therein for the reception of the end of the reach, constructed and arranged substantially as described.

3. In a connection for a reach and axle, the shoulder *h*, yoke *i*, and plates *d d* and *e*, constructed and arranged substantially as described.

4. In a reach and axle connection, the combination of the plates or braces *d d* and *e*, substantially as described.

184,048. DUMPING-CARS. Daniel O'Brien, Brooklyn, N. Y. [Filed Sept. 18, 1876.]



1. The draw-beam *d*, forming also the buffers, and the stationary tongue *g*, in combination with the coupling-pin *h*, clevice *f*, and chain *e*, substantially as set forth.

2. The boxes of the car, made with the swinging side *c*, pivots 4, and side pieces 5, in combination with the rope or chain 6, and pulleys, substantially as and for the purposes set forth.

3. The lever *r*, pivoted at 9, the hook 10, and catch-plate 11, on the swinging side *c*, in combination with the hooked plate 14, substantially as set forth.

4. The hook *w*, in combination with the lever *r*, hooks 10 and 11, car-box, and swinging side *c*, as and for the purposes set forth.

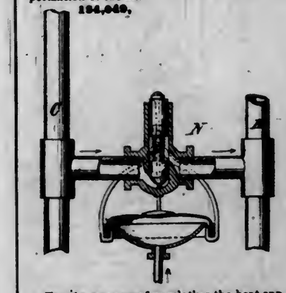
5. The brake-lever *x*, placed at the side of the frame *a*, opposite to that at which the box is dumped, and moving near its end in a slot in the frame *a*, in combination with the hook 17, for holding the brake-lever either up or down, as set forth.

6. The brake *x* and brake-levers x^2 x^2, arranged as shown, so that the brake-levers x^2 x^2 are operated simultaneously by the brake *x*, and the parts are not in the way of the car as it is dumped, as set forth.

184,049. AUTOMATIC HEAT-REGULATORS FOR GAS-MACHINES. Frank W. Ofeldt, Newark, N. J., assignor to himself and C. C. Coats, same place. [Filed Sept. 22, 1876.]

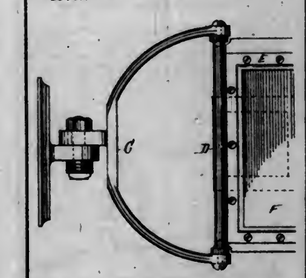
Brief.—The temperature of the hydrocarbon liquid in the carbureter is automatically regulated, so as to increase and decrease the vaporization in proportion to the larger or smaller number of burners in use. A thermostat, connecting with the carbureting-chamber, operates a valve to supply more or less cold air to said chamber. Air is forced into the carbureting-chamber by a steam-jet injector, the steam supplying heat for producing vaporization of the oil.

184,049.



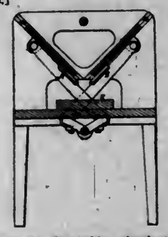
For the purpose of regulating the heat-supply, for the vaporization of a hydrocarbon liquid automatically by the temperature of said liquid, the regulator N, actuated by the expansion of a column of air (or other fluid) heated by the temperature of said hydrocarbon liquid, in combination with the inlet and outlet pipes C H, and the vessel L in the generator E, substantially as specified.

184,050. RAILWAY-TRAIN REFLECTORS. H. A. Richards, Chicago, Ill., assignor to E. S. Richards, same place. [Filed Aug. 3, 1876.]



In a railway-train reflector, the hinged and arc-shaped reflector-holder C, shaft D, plate E, and reflecting-glass F, all arranged to operate substantially as and for the purpose specified.

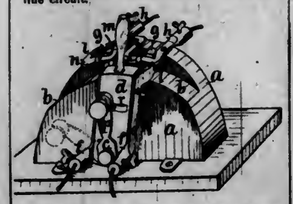
184,051. MACHINES FOR CUTTING SHANK-STIFFENERS. Watson N. Sprague, South Framingham, assignor to himself and W. W. Potter, Boston, Mass. [Filed Nov. 17, 1875.]



In a machine for making shank-stiffeners, the combination of the bed E, the knives A B, and means for operating such knives, substantially as set forth, whereby such knives are alternately reciprocated each across the pathway of the other, so that the material, after being cut by them, is beveled at opposite edges, as and for the purpose described.

184,052. TELEGRAPH CUT-OUTS. Jacob B. Stoner, Bloomfield, Iowa. [Filed Aug. 29, 1876.]

Brief.—Placed between a main line and battery; connects and disconnects the battery without breaking the continuity of the main-line circuit.



1. The semicircular non-conducting block *a a*, having the shoulder *b*, in its top edge, substantially as and for the purposes shown and described.

2. The pivoted and adjustable lever *d*, carrying the combined connectors and elbow-form poles *f g*, substantially as and for the purposes shown and described.

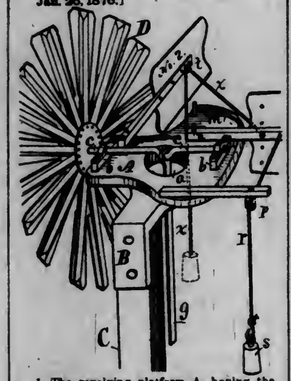
3. The adjustable levers *d* and *p*, in combination with the bolt *c* and block *a a*, substantially as and for the purposes shown and described.

4. The U-shaped connecting-link *m*, having elbow-form poles *n n* on its ends, substantially as and for the purposes set forth.

5. The combined connectors and poles *h i* and the U-shaped link *m*, having elbow-form poles *n n*, fixed on the block *a a*, in combination with the adjustable lever *d*, carrying the combined connectors and poles *f g*, substantially as and for the purposes shown and described.

6. The block *a a*, having the side cavity *t t* and the fixed poles *l l* and *n n*, and the adjusting mechanism *v w x y*, in combination with the adjustable lever *d*, carrying the movable poles *g g*, substantially as and for the purposes shown and described.

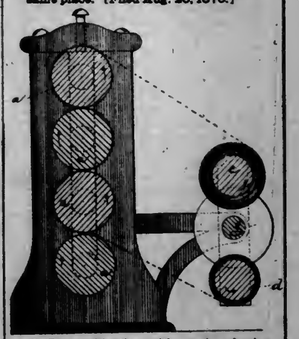
184,053. WINDMILLS. Mathew M. Trimble, Des Moines, assignor of one-third his right to Fred. A. Small, Earlham, Iowa. [Filed Jan. 26, 1876.]



1. The revolving platform A, having the fixed vane No. 2, and the fixed weight-bearer H projecting at right angles to each other, in combination with the intermediate pivoted vane No. 1, and the chains *r* and *x*, alternately carrying the weight *s*, substantially as and for the purposes shown and described.

2. The revolving platform A, carrying the wheel, the fixed weight-bearer H, the pivoted vane No. 1, the fixed vane No. 2, the chains *r* and *x*, and the adjustable weight *s*, in combination with the bracket B and post C, substantially as and for the purposes shown and described.

184,054. PAPER-CALENDERING MACHINES. Nathan H. Whitten, Holyoke, Mass., assignor to Holyoke Machine Company, same place. [Filed Aug. 26, 1876.]

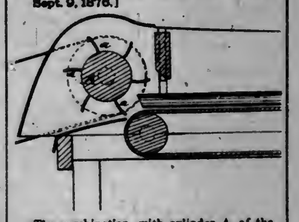


1. The combination, with a series of calendering-rollers, *a*, of reels or rollers *b d* placed at one side of the calendering-rollers, one roller holding the material to be calendered and to be delivered to the calendering-rollers, and the other receiving the calendered material at that side of the calendering-rollers at which it was delivered to the calendering-rollers, as and for the purpose described.

2. The combination, with calendering-rollers, of a rotating frame and two rollers supported by such frame, one roller delivering and the other receiving the material, substantially as described.

3. The rotating frame and its rollers, in combination with a pulley and clutch connecting with and rotating either roller to receive the material from the other roller, substantially as described.

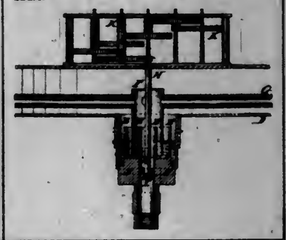
184,055. COTTON-GIN FEEDERS AND PICKERS. Wm. T. Adams, Bienst, Miss. [Filed Sept. 9, 1876.]



The combination, with cylinder A, of the cotton picker-teeth *a*, forked, curved, and provided with tangs, substantially as and for the purpose specified.

184,056. GAS-METERS. Julian I. Alexander, Baltimore, Md., administrator d. b. n. c. t. a. of John H. Alexander, deceased. [Filed Sept. 20, 1876.]

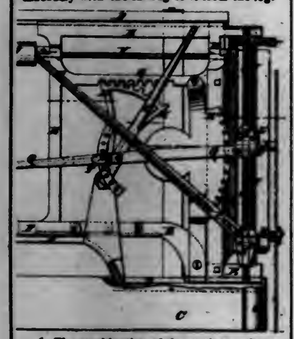
Brief.—Four tubular arms attached to a hollow hub revolve in a box and give motion to a spindle connected with the registering apparatus. The escape of jets of gas from the ends of arms gives a rotary motion to the same.



An improved gas-meter formed by the combination of the box D, the tubular armed wheel F G, the spindle H, and the register K, with each other, substantially as herein shown and described.

184,057. MACHINES FOR EDGING LUMBER. George W. Bobo, Rock Mart, Ga. [Filed June 12, 1876.]

Brief.—Two adjustable circular saws are placed upon a vertical arbor in a sliding frame, so that they may be moved forward to bring them into position to edge the lumber simultaneously with the sawing of it from the log.



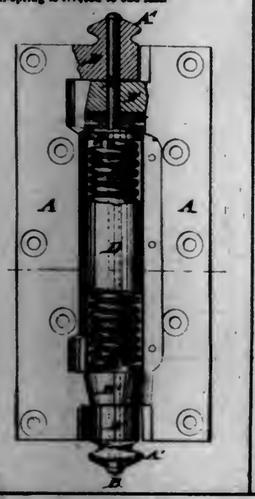
1. The combination of the stationary frame D, the sliding frame E, the driving-shaft Y provided with a loose pulley, W, and a fixed pulley, X, the bevel-gear wheels U T, the saw-shaft J, the saws K K, and hubs L, with each other and with a saw-frame, C, substantially as herein shown and described.

2. The combination of the bars M, the heavy sliding blocks N, the guide-rod O, and the two levers P Q, with the sliding frame E, the saws K K, and hubs L, substantially as herein shown and described.

3. The combination of the toothed rack G, the toothed segment H, and the lever I, with the stationary frame D, and with the sliding frame E that carries the saws, substantially as herein shown and described.

184,058. SPRING-HINGES. Lorenz Bommer, Brooklyn, N. Y. [Filed Oct. 14, 1876.]

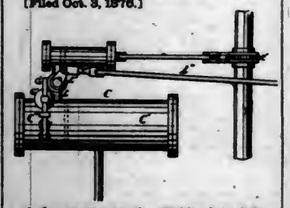
Brief.—The usual acorn-shaped ornaments over the ends of the pintle are cast solid with one leaf of the flange. The tube covering the coil-spring is riveted to one leaf.



1. In a butt-hinge, a flange or wing-plate, A, being cast in one piece with the ornamental top and bottom buttons of the hinge, substantially as and for the purpose described.

2. The supporting-flange A, having fixed pintle-socket and detachable top socket, both provided with annular recesses, in combination with an incasing-sleeve, C, riveted to flange A, for the purpose specified.

184,059. CAR-STARTERS. Thomas M. Brintnall, New York, N. Y., assignor of one-half his right to John Goodchild, same place. [Filed Oct. 3, 1876.]

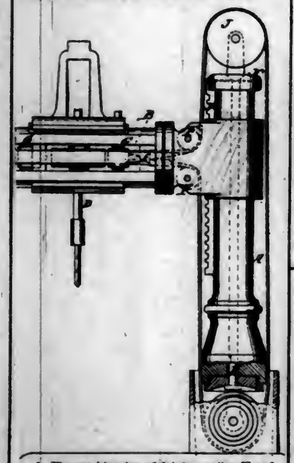


1. In a car-starter, the combination of the reservoir O' O'', the conical valve E', the cylinder and piston F' F'', located inside the reservoir O'', the rod F, and weighted lever G, substantially as and for the purpose described.

2. In a car-starter, the combination of the auxiliary reservoir, the automatic regulator, constructed as described, the starting-engine, the throttle-valve operated by the rod L'', bell-crank lever H', and the foot-piece H, substantially as and for the purpose set forth.

184,060. RADIAL-DRILLING MACHINES. Alfred Box, Philadelphia, Pa. [Filed July 1, 1876.]

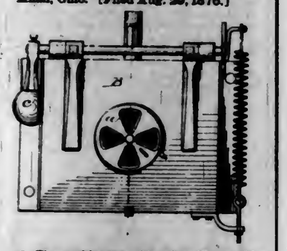
Brief.—A vertical shaft, within and suspended from the loose cap of the column, carries at each end a belt-pulley, of which the lowermost is articulated to the driving-shaft by a ball-joint. The belt passes continuously outside the column, around the two pulleys mentioned, and around a series of pulleys on the radial arm, embracing in its circuit the pulley on the drill-spindle. The turning of the arm on the column in either direction carries with it the vertical-shaft pulleys and cap, in virtue of a rack-bar dependent from the cap and passing through the hub of the arm.



1. The combination of driving-pulley K and the idler-pulley J, arranged on the oscillating rod L, and pulley K, geared with the driving-shaft O by a universal joint, substantially as specified.

2. The rod L, cap N, and toothed rack M, combined and arranged with the column A and the radial arm B, substantially as specified.

184,061. FURNACE-DOORS FOR BOILER AND OTHER FURNACES. Thomas R. Butman, Milan, Ohio. [Filed Aug. 29, 1876.]



1. The combination of the door B, movable hinged or pivoted deflector C, and chamber D, operating in the manner and for the purpose set forth and described.

2. The combination of the door B, movable hinged or pivoted deflector C, and chamber D with the frame A, operating in the manner and for the purpose set forth and described.

3. The combination of the door, the deflector, chamber D, and the nozzle or pipe I, substantially in the manner described, and for the purpose set forth.

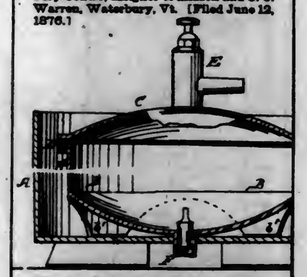
4. The combination of the door B, deflector C, spring *d*, cog-gear *s s*, with or without the weight *a*, whereby said door and deflectors are simultaneously opened in the manner and for the purpose set forth.

5. The combination in furnace-doors, of the door, its register and latch, chamber D, deflector C, pipe or nozzle I, all operating in the manner and for the purpose set forth.

6. The door-shaft and door, the deflector-shaft and deflector, the escalpe at its lower end, the cogs and spring-weights, and door-fastenings, combined with the chamber D, all operating in the manner and for the purpose described.

7. The combination of the door-frames A, door B, deflector C, and stops or rests J, whereby said deflector may be used for the double purpose of a coal-distributer and air-deflector, substantially in the manner and for the purpose set forth and described.

184,062. MILK-PANS. Wm. Cooley, Waterbury Centre, assignor to himself and C. C. Warren, Waterbury, Vt. [Filed June 12, 1876.]



The pan B, provided with the curved bottom, the projecting edge *b'*, the discharge-tube F, the flange *b''*, and the packing D, with the cover C, the air-pump E, and the outer pan A, all arranged substantially as herein shown and described.

184,063. SHOE-TIPS. Daniel K. Cross, Boston, Mass. [Filed Oct. 16, 1876.]

1. A metal tip provided with the space *c*, cut through the usual flange, and with the back edge *d* for the passage of the needle and thread, and to operate to hold the tip in place, substantially as herein described.

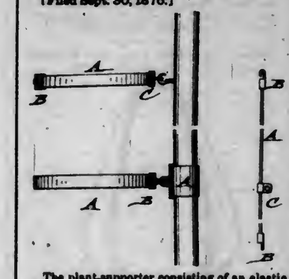
2. In a metal tip, a protecting-edge provided with a series of small openings, *e*, all constructed to operate substantially as and for the purpose described.

3. A shoe-tip having a protecting-edge, provided with a series of small openings, *e*, and with openings *c* in the flange, to extend between the upper and sole, substantially as shown and described.

184,064.



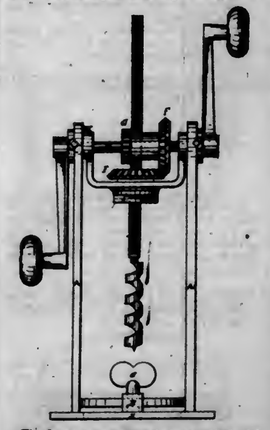
184,064. PLANT-SUPPORTS. Anthony Deul, Newark, N. J., assignor of one-half his right to Emil Krause, New York, N. Y. [Filed Sept. 30, 1876.]



The plant-supporter consisting of an elastic band, A, with a fastening device, B, at each end, and an attaching loop or staple, C, in the middle, as and for the purpose set forth.

184,065. WOOD-BORING MACHINES. Geo. S. Derr, South Bend, Ind. [Filed Oct. 23, 1876.]

Brief.—The machine can be adjusted to bore wood at any desired angle or depth.



The frame or supports A A, provided with the reversible fastenings B B and screws C C, in combination with a gear-support mounted on the trunnions D D, the auger-shaft H, driving-shaft E, bevel-gears F F, and lifting-pinion G, all constructed to operate substantially as and for the purpose specified.

184,066. STEP-LADDERS. John Dillon, New York, N. Y. [Filed Sept. 22, 1876.]

184,066.



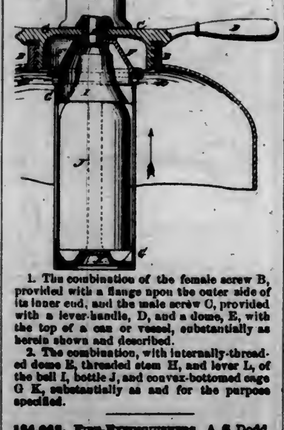
1. The combination of the lower step-section A, having guide-bands and shortened upper steps, with the sliding upper section B, whose steps project at the back instead of the front, substantially as described.

2. The side pieces of the lower step-section A, being strengthened against longitudinal splitting by the wider lowermost step *b*, and by metallic stiffening-bands *d* at the upper part, substantially as described.

3. The combination of the lower sliding brace part A', having staples *f''*, with the upper brace part B', having side holes *f'*, and with a connecting screw-rod, *f*, substantially as described.

4. The combination of the detachable top step of lower ladder with recesses of side pieces and pivot-stop A of upper ladder, to secure the top step when the separate step-ladders are used as extension-ladder, substantially as specified.

184,067. FIRE-EXTINGUISHERS. A. S. Dodd and I. C. Andrews, New York, N. Y., assignors to Home Fire Extinguisher Company, same place. [Filed Apr. 18, 1876.]



1. The combination of the female screw B, provided with a flange upon the outer side of its inner end, and the male screw C, provided with a lever-handle, D, and a doure, E, with the top of a can or vessel, substantially as herein shown and described.

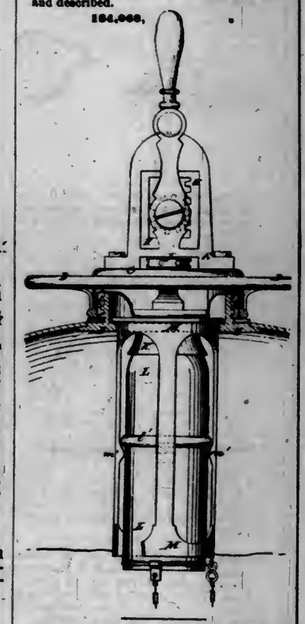
2. The combination, with internally-threaded dome E, threaded stem H, and lever L, of the bell I, bottle J, and convex-bottomed cage G K, substantially as and for the purpose specified.

184,068. FIRE-EXTINGUISHERS. A. S. Dodd and I. C. Andrews, New York, N. Y., assignors to Home Fire Extinguisher Company, same place. [Filed Apr. 18, 1876.]

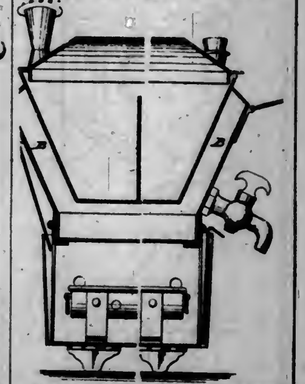
1. The ribs or projections *m'* formed upon the inner sides of the spring-bars of the cage M, or equivalent springs attached to said cage, to receive the ring-rib or depression *F* formed upon the outer surface of the bottle L, and support said bottle, substantially as herein shown and described.

2. The combination of a stopper, N, with the stem I and the bell K device for closing the bottle L in such a way that it may drop away from said stopper when forced down through the cage M, substantially as herein shown and described.

184,069.



184,069. PEA-NUT HEATERS. J. Esposito, New York, N. Y. [Filed Oct. 14, 1876.]



A pea-nut heater composed of a covered storage-receptacle, A, a water-chamber, B, surrounding the same at the sides and bottom, and of a base or supporting part with end slides and side apertures for charcoal-furnace, substantially in the manner and for the purpose set forth.

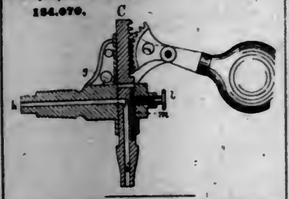
184,070. GAME-COCKS. William U. Fairbairn, Boston, Mass., assignor to himself and B. B. Fairbairn, same place. [Filed Sept. 27, 1876.]

1. In a piston-valve gage-cock, the combination of the reciprocating piston C, recessed on its front opposite the water way or channel A, and offset-channel *j*, and channel *i*, with the

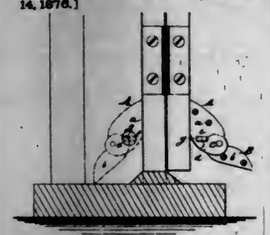
pressure-spring m, and adjusting-screw l, substantially as described.

2. In a piston-valve gage cock, the straight-way channel g located above the offset-channel j and spring m, substantially as and for the purpose described.

184,070.



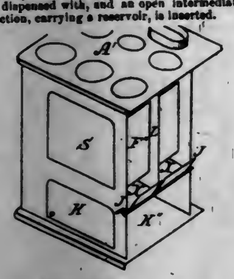
184,071. WEATHER-STRIPS. John C. Fiester, Reading, Pa., assignor to himself and Jacob Schaaber, same place. [Filed Aug. 14, 1876.]

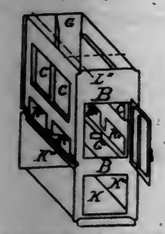


A weather-strip consisting of the parts A and B, hinged together by the plates *a a' b b'*, the spring-bolt *c*, the lug *d*, and springs *f*, combined and operating substantially as shown and described.

184,072. HOTEL-RANGES. Geo. W. Graves, Albany, N. Y., assignor to S. H. Ransom & Co., same place. [Filed Apr. 21, 1876.]

Brief.—The exterior flue-wall of each range is dispensed with, and an open intermediate section, carrying a reservoir, is inserted.





1. In combination, the two ranges A' and A'' and the intermediate section B, with the vertical end plates of the ranges omitted opposite the vertical flues of each range, and, as substituted therefor, the sides of the intermediate section, and, by the application of the latter, to inclose the vertical flues of the ranges against the oven-walls, as and for the purposes herein shown and described.

2. In combination, the two ranges A' and A'' and the intermediate section B, with the vertical walls of both of the ranges omitted at each of their flue ends, where the vertical walls are opposite to and form the end walls of the warming-closet inclosures below the oven, to form a connected and continuous warming-closet space beneath the range-ovens and the reservoir heating-chamber of the intermediate section, as herein shown and described.

3. In combination, the two ranges A' and A'' and the intermediate section B, with the dampers J J, and the openings R'' R'' R'' R'' made in the vertical side walls that inclose the intermediate section, and form the vertical flue-walls of the two ranges, substantially as shown and described.

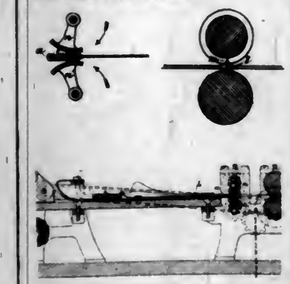
4. The recesses C C C C, formed in the vertical side walls of the intermediate section, opposite to and in communication with the vertical flues of each range, with the recesses projected into the inclosure of the intermediate section, and in contact with the reservoir-wall, substantially as shown and described.

5. In combination, the ranges A' and A'' and the intermediate section B, with the openings K'' K'' formed in the vertical flue ends of each range by the omission of the range-wall opposite the warming-closet, with the corresponding openings K''' K''' formed in the lower side walls of the intermediate section, and the lateral division-plate G'', which divides the reservoir heating-chamber of the intermediate section from the lower space within its inclosure, to form a continuous warming-closet under the ranges and intermediate section, as shown and described.

6. In combination, the reservoir R, and partition-strips G G and S'', and the lateral division-plate G'', arranged within the intermediate section, to form the separate heating-spaces a a with each of the latter spaces, in connection with the vertical flues of the range, which it adjoins by means of the dampered openings R'' R'' R'' R'', substantially as shown and described.

184,073. PAPER-BAG MACHINES. Thomas W. Grinter, Cincinnati, Ohio, assignor of one-half his right to Jos. F. Jewett, same place. [Filed May 5, 1876.]

Brief.—The knives are so shaped that they form a projection upon one lip of the bag. The former supporting the tube is taken into the bite of the knives on the segments, and moved a short distance until released, when it is retracted by the spring.



In a paper-bag-tubing machine, the elastic cutting-plate *a*, having transverse grooves, substantially as and for the purpose hereinbefore set forth.

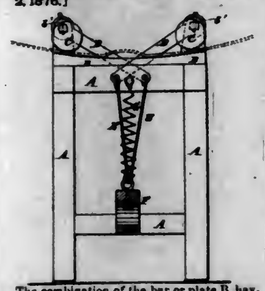
2. The segments n and n', provided with cutters O O', substantially as and for the purpose described.

3. The combination, substantially as set forth, of the segments n n' and the plate *a*, whereby the plate is clamped and carried forward while the lip is being cut and afterward released.

4. The combination, substantially as set forth, of the spring *s* and rod or cord *b*, the plate *a*, and operative segments n n', so connected as to draw it back after said plate has been carried forward and released.

5. The combination, with segments n n', substantially as set forth, of the knives O O' for cutting the lip, and the knife *h* for severing the remainder of the tube, whereby the lip is cut and the tube severed at the same point.

184,074. TIRE-UPSETTERS. Morris W. Griffiths, Middle Granville, N. Y. [Filed Sept. 2, 1876.]



The combination of the bar or plate B, having lugs *b'* formed upon its ends, the eccentrics C, the levers D, the connecting-rods E, the treadle F, and the spiral spring G, with each other and with the frame A, substantially as herein shown and described.

184,075. HORSE-COLLARS. Geo. B. Griffin, Chicago, Ill. [Filed Oct. 7, 1876.]



1. In a horse-collar, the combination, with the pads C C, of the rim A, filled with rubber and straw, substantially as specified.

2. In a horse-collar, the rim A, provided with the rubber filling D, rope *a*, and straw E, arranged substantially as shown, for the purpose stated.

184,076. FEED-TROUGHS. Jas. H. Grundy and Thos. H. Carter, Bremen, Ky. [Filed Sept. 30, 1876.]

Brief.—The cover has an opening for the animal to feed through, and is slid back and forth by the animal as it eats.



A feed-trough, A, provided with a cover, B, sliding longitudinally upon said trough, and having a hole formed through it to receive the animal's nose, and provided with suitable stops to limit its movements, substantially as herein shown and described.

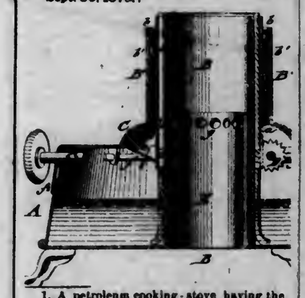
184,077. BOOT AND SHOE SOLES. Elisha Hanshew, Brooklyn, N. Y. [Filed Sept. 22, 1876.]



1. A sole for shoes and boots, made of a recessed outer leather sole, an interior rubber section or sole, and of an absorbent layer above the same, retained by a skived-off insole, substantially as specified.

2. A sole, B, provided with the extension-flange, *a*, lapping over the encircling outsole A, as and for the purpose specified.

184,078. PETROLEUM-STOVES. Fredrick Hildebrandt, New York, N. Y. [Filed Sept. 30, 1876.]



1. A petroleum cooking-stove having the bowl A, molding C, and tube B constructed in one piece, and arranged with respect to the burner, as shown and described.

2. The combination of annular raised part C, by exit-holes *a*, with a burner surrounding tube B, provided with vapor-issuing top openings *b* and side draft-holes *b'*, substantially as specified.

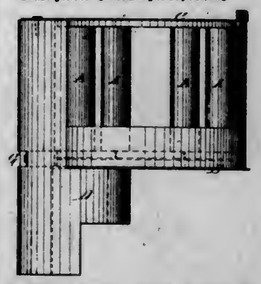
3. The circular burner B, provided with double partitions between wick-sections, to form channels for escape of oil vapors, substantially as described.

4. The combination of double partitions and vapor channels of the burner with lower apertures and conical mouths, covered by wire-gauze, to draw up the oil-vapors to obviate danger of explosion, substantially as specified.

5. The combination of the wick-operating rods or stems *f* with the guide-tubes *f'*, applied to closing-plates *f''* of the reservoir, to prevent leaking of oil, as described.

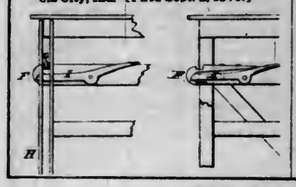
6. The combination of the spur-wheels and stems with the guide-tubes *f'*, closing-plates *f''*, and recesses of reservoir, to admit taking out of wick-raising parts for repairs, substantially as set forth.

184,079. IMPLEMENTS FOR LOADING FIRE-ARMS. Charles W. Hovis, Parker City, Pa., assignor to himself and W. J. Hovis, same place. [Filed Apr. 18, 1876.]



The combination, with case having top and bottom B C, revolving chambers A, and chambered extension D, of the pivoted notched covering-plates E and spring-pawl G, arranged substantially as and for the purpose specified.

184,080. GATES. Wm. G. Hughes, Columbia City, Ind. [Filed Sept. 2, 1876.]



The combination, with the sliding gate and the posts H, of the transverse pivoted latch G, catch F, and the lever I, all constructed and arranged as shown and described, to operate as specified.

184,081. SIDING-GAGES. L. B. Ingold, Liberty, Iowa. [Filed July 28, 1876.]

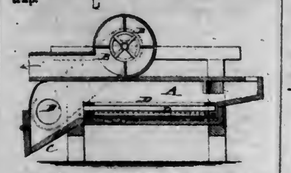
Brief.—An adjustable lever, provided with a bearing-arm for raising the lever end of the bar, and forcing the spur into the upper part of the board, is pivoted to side of the lower part of the bar of the gage.



The combination of the gage-bar A, having a slide-block, B, provided with a blade, *d*, the lever D, pivoted to the side of the bar, and provided with a bearing-arm, *d'*, the slotted rest-plate E, provided with the spur *e*, and the spring-holder F, substantially as and for the purposes described.

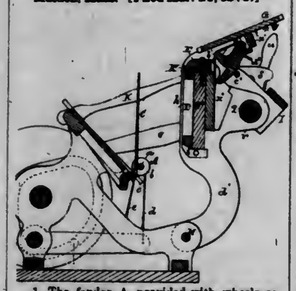
184,082. GOLD-SEPARATORS. T. W. Irvin, Eureka, Cal. [Filed May 16, 1876.]

Brief.—Auriferous sand fed into the separator through the side chutes is carried along by the force of the exhaust-fan, the heavier particles settling on the gratings, through which they pass to the mercury-bath beneath, while the lighter continue to the draw-off trap.



A gold-separator consisting of tube A, having supply-tubes A' and valved hopper C, the suction-fan B, and the gratings D of varying fineness, space being left beneath the latter for quicksilver, as shown and described.

184,083. PRINTING-PRESSES. W. P. Kidder, Malden, Mass. [Filed Mar. 20, 1876.]



1. The fender A, provided with wheels or rollers for supporting it upon the platen.

2. The fender A, supported by the arms *d d*, and provided with the springs *e e* for drawing it toward the face of the platen, all being substantially as specified.

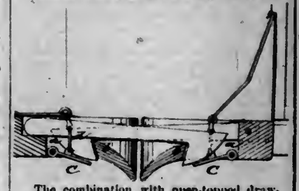
3. In combination with the fender A, the platen, provided with the extensions or rails *e e* to operate with and support the fender, when depressed below the platen, as set forth.

4. The chase D provided with the projection *k* doubly inclined on its face, as described, in combination with the bed provided with the ledges *h h*, supporters *i i*, and a latching-lever, E, doubly inclined reversely to projection *k*, to operate with such projection *k*, all being essentially as specified.

5. The combination, substantially as described, for effecting the adjustment of the bed, such consisting of the shaft *q*, notched sector *s*, adjusting-screw *t*, radial arm *u*, and its latch *e*, all arranged with, and applied to, the bed, and one of its operative connecting-rods, as explained.

6. The combination, substantially as described, for effecting the intermittent rotary motion of the inking-disk G, such consisting of the connecting-rod K, rocker-frame I, bar *c'*, three armed lever H, spring *b'*, impelling-pawl *a'*, and the pins *y z*, all being arranged with, and applied to, the disk, its bracket, the shaft *q*, and the platen, essentially as set forth.

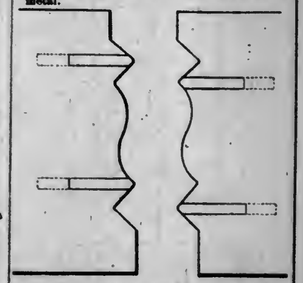
184,084. CAR-COUPLINGS. Samuel W. Kilbourne, Bethel, Me. [Filed Sept. 16, 1876.]



The combination, with open-topped draw-heads and hook-couplers, of the tablets C, hinged in recesses *a* of the draw-head, and connected by links with the coupling-hooks, as shown and described, for the purpose specified.

184,085. DIES FOR SHEET-METAL MOLDINGS. Arthur M. Kittredge, Salem, Ohio. [Filed Mar. 27, 1876.]

Brief.—The angular points of the dies are made of separate pieces of hard metal, which are properly adjusted in a mold, and the main body of the die formed about them of soft metal.



In combination with dies made of soft metal, for forming sheet-metal moldings, pointers consisting of harder metal than the body of the dies, and joining the prominent or salient lines or edges of the angular members of said molding, substantially as herein described, and for the purpose specified.

184,086. STRENGTHENING SHEET METAL. Anson O. Kittredge, Wm. H. Clark, and Wm. J. Clark, Salem, Ohio. [Filed Mar. 27, 1876.]

Brief.—A sheet-metal door-panel is stiffened and prevented from buckling or warping by securing a sheet with inturned flanges to a perforated sheet by dropping solder in the perforations and spreading it over onto the sheet.

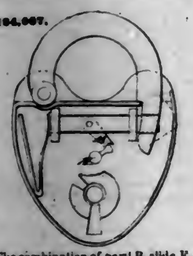


1. The mode of strengthening a sheet of metal by laying thereon a perforated sheet of metal, and filling the perforations thereof with solder, and spreading it upon the sheets, so as to secure the said plates to each other, substantially as and for the purpose set forth.

2. The sheet A and perforated sheet E, secured together by soldering through the perforations F, in combination with the sides B and inturned edge C, formed of the sheet A and soldered to the sheet B, substantially as and for the purpose set forth.

184,087. PADLOCKS. Anthon O. Kruger, Rock Harbor, Mich. [Filed Aug. 28, 1876.]

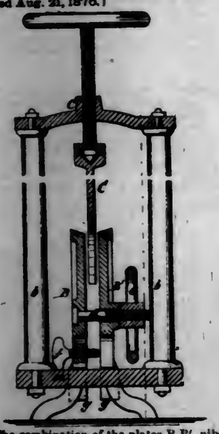
184,087.



1. The combination of pawl B, slide F, push-pin G, and locking-pin H with the bolt A and the key, substantially as specified.

2. The combination of auxiliary bolt L, pawl M, key hole plate O, and stud N with the main bolt A, pawl B, slide F, push-pin G, locking-pin H, and the hasp and key, substantially as specified.

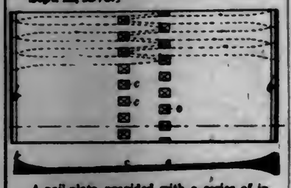
184,088. BOOT AND SHOE CRIMPING APPARATUS. Henry Lampus, Bucn Valley, Pa. [Filed Aug. 21, 1876.]



1. The combination of the plates B B', ribs g, and bed a, substantially as set forth.

2. The combination of the plate C, sleeve K, and post l, substantially as shown and described.

184,089. HORSESHOE-NAIL PLATES. Jos. M. Laughlin, Boston, Mass., assignor to John O. McDonald, same place. [Filed Sept. 21, 1876.]

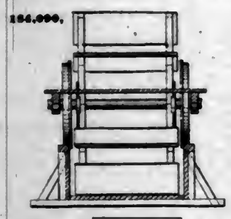


A nail-plate, provided with a series of indentures or depressions, c c c, for the formation of the barbs or points of the nails when punched therefrom, substantially as herein set forth and described.

184,090. HYDRAULIC PROPULSION OF VESSELS. Columbus A. Leaman and John A. Hoobert, Penta Ranch, Cal. [Filed Sept. 23, 1876.]

A hydraulic carriage or locomotive, propelled by paddle-wheels by the current of a water-flume, &c., and running by truck-wheels on side rails of the flume, substantially in the manner and for the purpose set forth.

184,090.

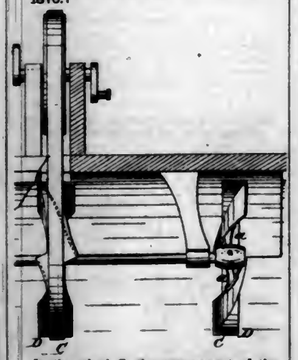


184,091. MILK-CANS. Dennis S. Lewis, Moline, Ill. [Filed Sept. 16, 1876.]



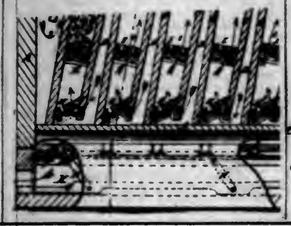
The can A, can B, having the compartments e f, the wooden disk b, double cover c, braces A, and faucets D C, constructed and arranged substantially as shown and described.

184,092. SCREW-PROPELLERS. Frank Maynard, North Dorset, Vt. [Filed Sept. 20, 1876.]



In the wheel C, the arrangement of the arms a, blades b, having the same pitch throughout, and the band D, substantially as and for the purpose shown and described.

184,093. LIQUID-FILTERS. Wm. Maynard, New York, N. Y., assignor to L. B. Goodwin, same place. [Filed Oct. 14, 1876.]



1. An improved filter, formed by the combination of the partitions B C and H I and the screens J with each other and with the case, to form a series of filtering and conducting spaces for the passage of the liquid, substantially as herein shown and described.

2. The combination of the bars L M O, the pivoted connecting-bars N, and the pivoted guide-bars P with the perforated bottom of the case A and with the chamber K, connected with the said case A, substantially as herein shown and described.

184,094. BOOKS. Charles F. McGill, New York, N. Y. [Filed Sept. 20, 1876.]

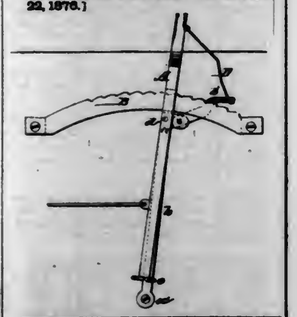
Brief.—Folded sheets are removably attached to both sides of the center of open sheets, and then secured to a cover by a spring-clamp, which is inserted under a securing-strip on the cover.



1. In a memorandum-book, the combination of open sheets n, the folded sheets m m, the spring-binder herein described, and the cover g, all substantially as specified.

2. In a memorandum-book, the combination of the open sheets n and the folded sheets m m, secured upon each side thereof, all substantially as specified.

184,095. WAGON-BRAKE LEVERS. David McGuire, New Gordon, Mo. [Filed Sept. 22, 1876.]



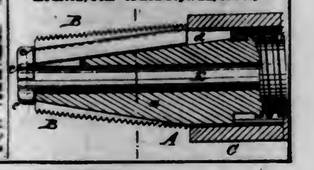
The combination of the loop c, parts a and b of the lever A, the pawl b', rod D, and ratchet-bar B, substantially as shown and described.

184,096. RETE-HOLDERS. Ephraim Moore, Attica, Ind. [Filed Aug. 21, 1876.]



The rete-holder herein described, consisting of the retaining-lever or pressure-bar B, pivoted at its lower end, and having beveled sides, the plate A provided with a slot, with correspondingly-beveled sides, a transverse bar, C, side legs b, and spring B', all constructed and relatively arranged as herein set forth, for the purpose specified.

184,097. SCREW-TAPS. Josiah W. Melvin, Houston, Tex. [Filed Sept. 22, 1876.]

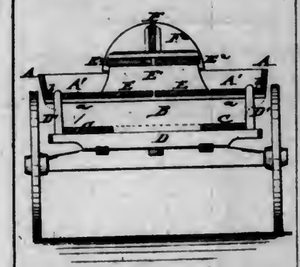


1. An expanding tap or reamer, having cutters placed in slots in the tapering portion of a mandrel, in which they are capable of being moved longitudinally and clamped by a thimble and nut upon the outer side of the mandrel and a clamping bolt running through the mandrel, substantially as shown and described.

2. The combination of the mandrel A, having slots d, thimble C, nut D, cutters B, bolt E, nibs e, and nut F, substantially as shown and described.

184,098. EXCURSION-WAGONS. E. Mills, Lexington, Mich. [Filed Sept. 22, 1876.]

Brief.—Seats like those in an Irish jaunting-car, mounted on a back-board.

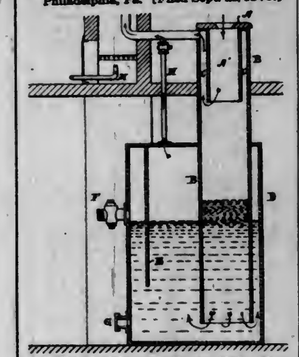


1. In a wagon-body for excursion purposes, constructed of a main frame, A, placed on transverse bolsters B, and longitudinal spring-boards C, and of central spring-boards E, with lateral seat-supports E' and longitudinal seat-boards F', substantially in the manner and for the purpose set forth.

2. The combination of main frame A, having guide-recesses b, and its supporting longitudinal bottom spring-boards C, with bolsters D and side uprights D' to retain main frame in position on truck, substantially as set forth.

3. The combination of the seat spring-boards, carrying the driver's seat F at front, and a rear head-piece, F', with longitudinal back-rest F secured in recess of seat and guide groove or strips of rear head-piece, substantially as described.

184,099. ODORLESS CLOSETS. G. R. Moore, Philadelphia, Pa. [Filed Sept. 21, 1876.]



1. The air-tight vault D, provided with a conducting-pipe, B, extending nearly to its bottom, and so constructed that with water it can trap the air, or any desired portion of it, in the upper part of the vault, substantially as and for the purpose herein set forth.

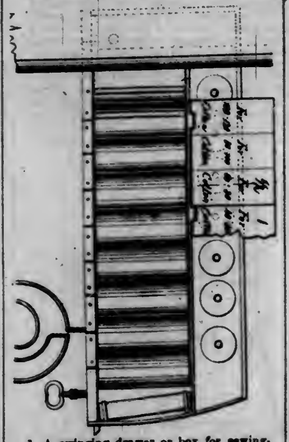
2. The conducting-pipe B, provided with a liquid-trap below, controlling its delivery into the vault D, of which it is a feeder, and at its upper end with a short open throat, A', and having the air space C and the draft-pipe J, all combined substantially as and for the purpose herein set forth.

3. In combination, the seat A, the liquid-trap conducting-pipe B, and the air-tight vault D, provided with a very small let-off air-pipe, H, substantially as and for the purpose herein set forth.

4. In combination, the air-tight vault D, having an air let-off passage, controlled by a valve or cock, I, and the conducting-pipe B, trapped with liquid, substantially as shown.

5. The vault D, constructed to be filled, as specified, and having a division-plate, E, and an outlet-cock, F, substantially as and for the purpose herein set forth.

184,100. DRAWERS FOR SEWING-MACHINE TABLES. John Mulchahey, Newburyport, Mass. [Filed May 16, 1876.]



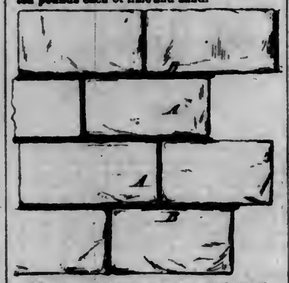
1. A swinging drawer or box for sewing-machine tables, provided with a detachable and covered tray for the different sizes of needles, and with a spool-receptacle, substantially as and for the purpose set forth.

2. A swinging drawer or box for sewing-machine tables, having a needle-tray with needle-gaging devices for each section of the tray, substantially as set forth.

3. In a swinging drawer for sewing-machine tables, a detachable needle-tray, a spool-receptacle, and a needle-sharpening device, substantially as and for the purpose set forth.

184,101. STONE PAVEMENTS. J. Murphy, Columbus, Ohio. [Filed Sept. 2, 1876.]

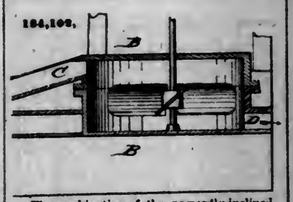
Brief.—The spaces between the blocks of a stone pavement are cemented with a compound of eighty pounds pitch, twenty pounds coal-tar, four pounds pulverized iron slag, and ten pounds each of lime and sand.



The composition herein described, for the spaces between the blocks of a stone pavement, consisting of slag, coal-tar, fresh lime, sand, and pitch, combined in about the proportions and in the manner substantially as specified.

184,102. HORIZONTAL SCREW-PROPELLERS. Wm. S. Myers, Southington, Conn. [Filed Aug. 28, 1876.]

184,102.



The combination of the upwardly-inclined passage C, the horizontal screw arranged below the inner or discharge end of the same, and the outlet D communicating with the lower portion of the casing B, as shown and described, for the purpose specified.

184,103. HOES. E. W. Oakley, Babylon, N. Y. [Filed Oct. 7, 1876.]



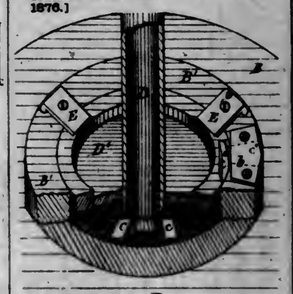
The scoop-hoe herein described, consisting of the body A, shaped as shown, the shank B, and the handle C, projecting in a forward direction, as and for the purpose set forth.

184,104. SPRING BED-BOTTOMS. August W. Obermann, Chicago, Ill. [Filed Oct. 19, 1874.]



In a spring bed-bottom, the combination, with the upper and lower frames, of the bolt c, screw-nut d, and spring e, operating in the manner specified.

184,105. MILL-SPINDLES. John Payne, Mount Vernon, Ohio. [Filed Apr. 26, 1876.]

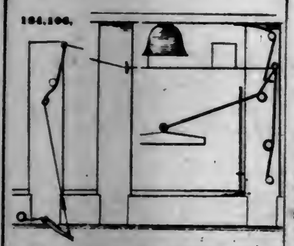


1. The combination of the casing B, spindle D, flange D', springs e, and screw-clamps E, substantially as set forth.

2. The combination, with the flange D' and rib B', of the key e' e', and coupling-plate b, substantially as set forth.

184,106. RAILWAY-SIGNALS. J. M. Peirce, Joliet, Ill. [Filed May 20, 1875.]

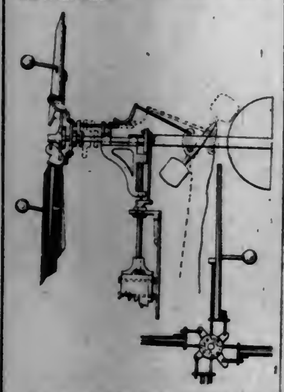
184,106.



The combination of the double cranks, levers, and springs, connected by wire, substantially as set forth, with the alarum-bell and rising and falling gate, all operating substantially as shown and described.

184,107. WINDMILLS. Chas. B. Post, New London, Ohio. [Filed July 22, 1876.]

Brief.—Weighted arms project from a point near the center of each vane, at right angles, so that, as the wheel revolves, the centrifugal force of the weights tends to bring them into the line of rotation of the rods, turning the vanes so as to expose less surface to the action of the wind.



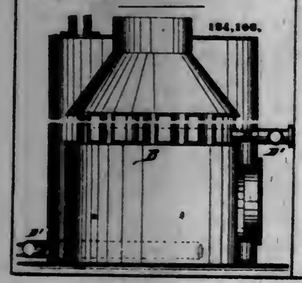
1. The combination of the weighted levers J, twisted vanes F, rods G G', arms e, connecting-rods d, sleeve I, and weighted lever L, substantially as shown and described.

2. The combination of the bent rods G, vanes F, and divided hub E, as shown and described.

3. The combination of the base-piece A, standard B, bracket C, shaft D, crank N, connecting-rod M, and sleeve O, as shown and described.

4. A vane for a windmill, the rib or support for which is beveled with an increasing bevel from the inner to the outer end, so that the boards which are attached to it may present a twisted or winding surface, substantially as specified.

184,108.

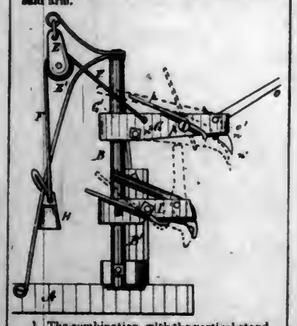


184,109. BLOW-OFF DEVICES FOR STEAM-BOILERS. Mathew Rhoda, Allentown, Pa. [Filed Sept. 22, 1876.]

The combination of the radial tubes D, circular connecting-tube D', and blow-off cock E, with the water space of a steam-boiler, substantially as and for the purpose set forth.

184,109. DOGS FOR SAW-MILL CARRIAGES. Silas B. Rittenhouse, Liberty Mills, Ind. [Filed Apr. 7, 1876.]

Brief.—The log is held in position, while being cut into boards, by means of a swinging dog, vertically adjustable upon a cylindrical standard, provided with a swinging and adjustable guide, and having its upper part secured to the base by an inclined rod, and its lower part mortised in the base. The dog is held at any desired point by a weight attached to a cord passing over a pulley in a block supported by a bracket extending backward from the top of the standard, forced in the log by a lever having a cam-shaped head, and pivoted in a slot in the arm supporting the dog, and released by a lever pivoted to the side of the arm, and having its lower end bent under said arm.

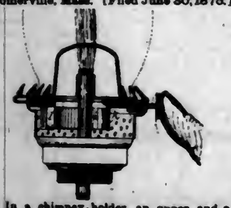


1. The combination, with the vertical standard B, of the arm G, counterbalance weight H, cord or chain F, and pulley E', substantially as shown and described.

2. The combination, with the arm G, of the swinging arm a and lever c, having the cam-shaped head c', substantially as described, and for the purpose stated.

3. The combination, with the arm G and swinging arm a, of the lever p, as and for the purpose herein set forth.

184,110. LAMP-BURNERS. W. H. Sanborn, Cambridge, assignor to Chas. S. Chaffee, Somerville, Mass. [Filed June 30, 1876.]



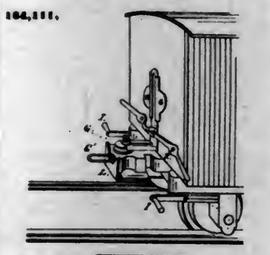
1. In a chimney-holder, an upper and a lower plate, provided with an annular series of holding-prongs, in combination with a spring to retain the pronged plates pressed toward each other, to operate substantially as described.

2. The removable thimble, in combination with the clasping-piece adapted to fit the wick-tube, substantially as described.

184,111. CAR-COUPLINGS. George Schmidt and Ferdinand Esche, Milwaukee, Wis., assignors of one-eighth their right to Rudolph Solomon, same place. [Filed Mar. 16, 1876.]

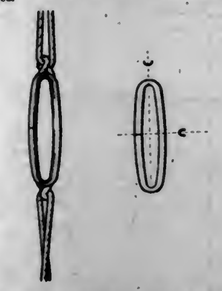
The combination of the shaft H, provided with a crank or cranks, I, plate K, and handle L, the handle being slotted so that it can be adjusted in and out, as necessity may require for holding the link G' ready for coupling, substantially as shown and described.

184,111.



184,112. METALLIC EYES FOR LOOM-HARNESS. William F. Sherman, Fall River, Mass. [Filed Aug. 4, 1876.]

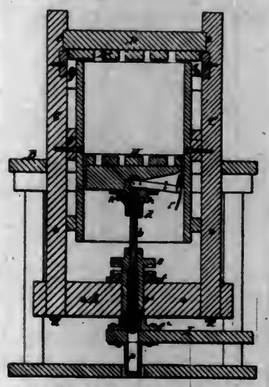
Brief.—The heddle-eyes made from a strip or strips of metal, instead of the ordinary eyelet. This method of construction, it is claimed, permits the smoothing of the edges of the eyes.



The oval-formed metal eye or lining for loom-harnesses, made of U-shaped strips, bent with their ends on the sides, in combination with the twine or wire surrounding the same, substantially as described.

184,113. COTTON AND HAY PRESSES. Wm. M. Smith, Augusta, Ga. [Filed July 13, 1876.]

Brief.—The screw and platen are disconnected by lever mechanism after tying the bale, thus allowing the platen to be quickly lowered through its gravity acting upon and revolving the screw.



1. In combination with the socket-plate A of the platen H and the boss of the operating-nut e, the double clutch d, attached to the elevating-screw b, to connect the latter alternately to the platen and to the nut e, substantially as and for the purpose described.

2. In combination with the head b^2 of the elevating-screw b and the double clutch d, the brake-lever l and plunger m, resting upon the head of the screw b, to disconnect the clutch from the socket-plate, and regulate the speed of the screw b while descending, substantially as described.

3. In combination with the operating-nut e, having its under face recessed and corrugated, and its upper boss formed with inclined planes and projections, to engage with the double clutch d, the recessed corrugated base-plate f and pinions i, to reduce the friction between the parts, substantially as described.

4. In combination with the screw b of a press, operated in the manner shown and described, and the nut e, having a long extension, e^1, attached to the revolving beam l, the oil-pipe p, attached to said beam l, and forming, with the extension e^1, an oil-well for the perfect lubrication of the screw, substantially as described.

5. In combination with the platen H and head b^2 of the elevating-screw b, the socket clutch-plate h, provided with a retaining screw or key, k, brake-lever l and plunger m, substantially as and for the purpose described.

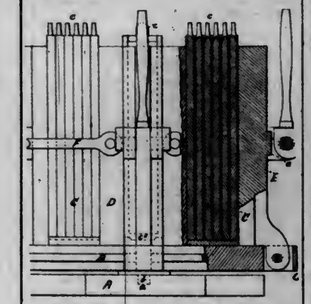
6. In combination with clutch socket-plate h, provided with retaining screw or key k, brake-lever l, and plunger m, the elevating-screw b, recessed at b^1 above the double clutch d, and the head b^2 for the brake to set upon, substantially as and for the purpose set forth.

184,114. TANNING LEATHER. Magnus J. Soderberg, Malmo, Sweden. [Filed July 13, 1876.]

The improved leather-tanning process, as herein described, consisting in first soaking the hides in water, after which they are put in a lime-vat composed of water, slaked lime, oxalic acid, and chloride of soda, for the purpose of taking the hairs off, then drenched in a vat composed of water, chloride of soda, and dissolved sulphur, for the purpose of taking the lime out of the hides, then tanned in a vat containing bark-liquor, alcohol, sulphate of zinc, and wood-acid, and finally softened in a mixture of bark-liquor, gas-ammoniac, and oxalic acid, in the respective quantities and times substantially as set forth and described.

184,115. MACHINES FOR CASTING PRINTERS' LEADS. H. J. Stone, New Haven, Conn., assignor to Wm. Quail, Brooklyn, N. Y. [Filed Mar. 23, 1876.]

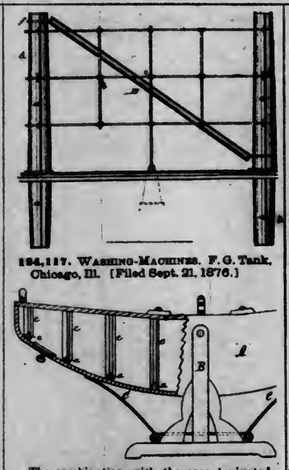
Brief.—The molds are placed between the central upright standard of the revolving receptacle B and the rocking standards E, which latter, by means of the hooked levers F and cam-levers H, are caused to approach the central standard, thus pressing the molds tightly together.



The combination of a revolving receptacle B, supported upon a base, A, of the mold C, rocking standards E, hooked levers F, and cam-levers H, constructed and operating substantially as and for the purpose specified.

184,116. FENCES. Frederick Sutter, De Witt, Iowa. [Filed Aug. 14, 1876.]

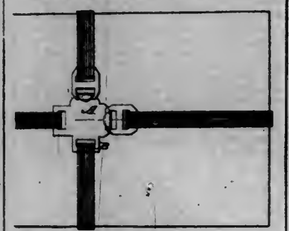
The combination, with the fence-posts A, of a diagonal brace, B, having end collars or eyes f, fitting on the posts, substantially as and for the purpose set forth.



184,117. WASHING-MACHINES. F. G. Tank, Chicago, Ill. [Filed Sept. 21, 1876.]

The combination, with the case A pivoted to the frame B and provided with the series of ribs a and c, of the springs C C, substantially as and for the purpose specified.

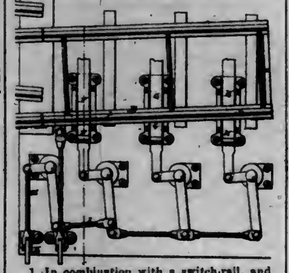
184,118. PACKAGE-BANDS. Owen I. Taylor and Thos. H. Patterson, Saginaw, Mich. [Filed May 1, 1876.]



A package-band, consisting of a connecting-plate, A, with two elastic bands, C, attached to it at right angles to each other, and being arranged to hook onto the connecting-plate after passing around the package in opposite directions, substantially as specified.

184,119. RAILROAD-SWITCHES. John M. Toucey, New York, N. Y. [Filed Oct. 10, 1876.]

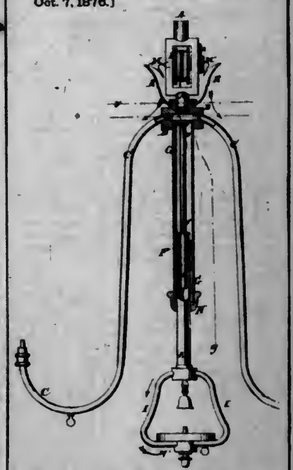
Brief.—One or more sliding plates extend beneath one of the switch-rails, and constitute the support of said rail, so that they will be locked by the weight of the train or car that stands upon or moves over said rail.



1. In combination with a switch-rail, and with the switch-locking lever E and locking mechanism, the sliding plate F, placed under the switch-rail, to be locked by a weight on said rail, but which plate F is free to move beneath the rail when the same is not weighted, substantially as specified.

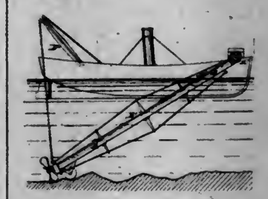
2. In combination with a switch-rail, the plates F G H, united for simultaneous action with the switch-locking lever E, substantially in the manner and for the purpose herein shown and described.

184,120. CENTER SLIDING GASALIERS. S. B. H. Vance, New York, N. Y., assignor to Mitchell, Vance & Co., same place. [Filed Oct. 7, 1876.]



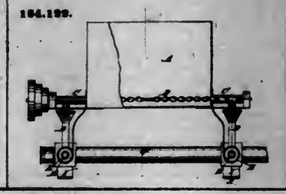
The combination of the cap H, the square tube E, provided with a stuffing-box at its upper end, the cord J, the short tube K, the drum L, the rod M, the spring N, and the ratchet and pawl O P Q with each other, and with the outer tube G, the inner tube D, the distributing-chamber B, and the inlet-tube A, substantially as herein shown and described.

184,121. DREDGING APPARATUS. Jan Jacob Van Rietschoten and Willem Houwens, Rotterdam, Netherlands. [Filed June 26, 1876.]



The combination of the swinging beams, arranged at the side of a vessel, with propellers and rollers back of the same, to control the depth to which the propellers may penetrate, substantially as specified.

184,122.



184,096. PULVERIZED-FUEL FURNACES FOR SMELTING-FURNACES. Wm. West, Golden City, assignor of one-half his right to Ira S. Elkins, Denver, Colo. [Filed July 1, 1876.]

The combination of hopper-box A, right-and-left screw-conveyer B inclosed in tube C, funnel-mouthed tube D, pipe E, and blast-pipe G, the latter having the adjustable nozzle H, substantially as described.

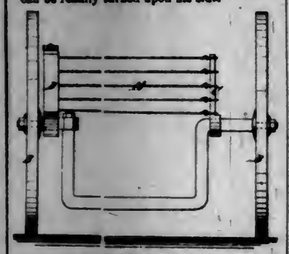
184,097. COMBINED PENCIL SHARPENER, PROTECTOR, AND ERASER. Andw. Wilson, Providence, R. I. [Filed Sept. 9, 1876.]



A compound instrument, having a pencil sharpener and protector, a paper and twine cutter, and an eraser, arranged in connection with head A, as shown and described.

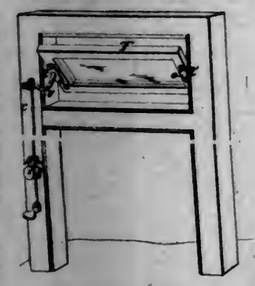
184,098. APPARATUS FOR HANDLING HOGGERS. William W. Winegar, Chambersburg, Ill. [Filed Sept. 16, 1876.]

Brief.—The animal is made to stand over the axle longitudinally, with two feet upon each side, and bound by the net-work, when he can be readily turned upon his side.



The combination of the crotches C D, cords E, and a tightening device, F, with the crooked axle and wheels, substantially as specified.

184,099. TRANSOM-LIFTER AND SASH-CENTER COMBINED. John F. Wollensak, Chicago, Ill. [Filed Aug. 7, 1876.]

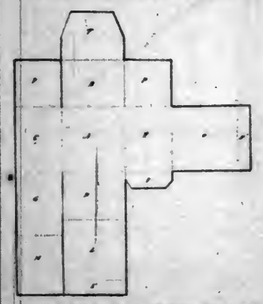


1. A transom-pivot, *t*, constructed with a flat supporting and fastening plate, *s*, provided with holes, through which to screw or rivet it to the face of the sash, said pivot projecting at right angles to the edge of the plate, as set forth.

2. A transom-pivot, *t*, combined with a projecting arm, *v*, formed as a portion thereof, by which to operate the transom-sash, substantially as described.

3. In combination with a transom pivoted in line with or near its center, a curved arm, *v*, adapted for connection with the lifting-rod, and also to operate in connection therewith as a stop to limit the movement of the transom-sash, substantially as described.

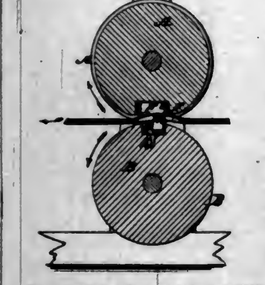
184,100. PAPER BOXES. Chas. M. Arthur, Anconia, Conn. [Filed Oct. 2, 1876.]



As an article of manufacture, the herein-described box, consisting of the principal side A, with the parts E F F' projecting from one side, and the flaps P I transversely from the part E, the parts D L projecting from the second side, the part C from the third side, with the transverse flaps G, H, and P on the said part C, the closing side B and its tongue T projecting from the fourth side, and the flap D' turned inward from the flap L, the whole formed and folded from a single piece, as shown and described.

184,101. PAPER-BAG MACHINES. J. Arkell, Canajoharie, N. Y. [Filed Sept. 16, 1876.]

Brief.—The paper of which the bags are to be constructed, having been previously folded into tubular form, is drawn between two revolving rollers—the one provided with a puncturing-knife, and the other with a cavity, in which the knife acts, and a groove or depression in its periphery for the lap or fold of tube. The bottom side of the tube, being of one single piece, is held perfectly taut between the lower roller and the flush surface of the upper one, and is consequently punctured by the cutter, while the upper side, being provided with the fold or lap, is slightly bulged or pressed by the cutter into the depression or groove and the cavity, and thus remains unpunctured.



In a mechanism for puncturing one thickness only of a flattened tube or blank, the combination, with means, substantially as described, for carrying along and holding taut the paper blank, in the manner described, of a cutting or puncturing device operating upon that part of the blank which is unsupported against the thrust of the cutter, substantially as set forth.

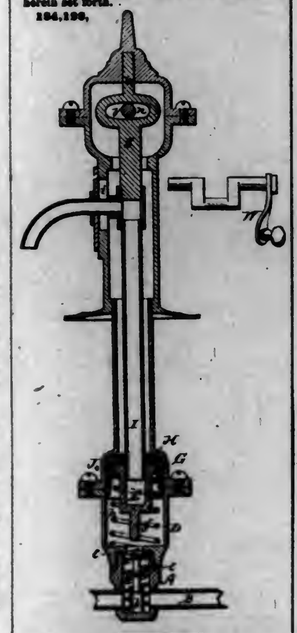
184,102. HYDRANTS. Theodor Ahrens, Louisville, Ky. [Filed July 17, 1876.]

Brief.—The vacuum-chamber is provided with a pliable diaphragm, which gives way to prevent any expansion of the pipes.

1. The combination, in a hydrant, of the valve-chamber A, with inlet B, valve C, with stem, guide, and spring, the waste-chamber D, with cap J, and the plunger E G H, with projection *f*, spring h, and pipe I, all constructed and operating substantially as and for the purposes herein set forth.

2. The combination, with the valve-chamber A and inlet B, of the short-flanged pipe O', rubber diaphragm B', and vacuum-chamber A', substantially as and for the purposes herein set forth.

184,103.



184,104. FEED-WATER HEATERS FOR STEAM-BOILERS. John Q. Adams, Cleveland, Ohio, assignor of one-half his right to Cyrus P. Dryden, same place. [Filed Apr. 12, 1876.]

Brief.—The feed-water coil is arranged within the steam-dome of the boiler in such a manner that when the top of said dome is raised off the coil may be easily removed.



The combination of boiler A, dome B, and coiled pipe C, the whole constituting a device for heating feed-water and conveying it to a boiler, substantially as described.

184,105. MACHINES FOR TRIMMING SLATES. David Auld, Jr., Cleveland, Ohio. [Filed Mar. 20, 1876.]

1. The combination of the slotted arm B^1, cross-piece C, and adjustable cutters D, substantially as and for the purpose shown.

2. The combination, with the swinging frame of a slate-dressing machine, of the arm b^1, link b^2, arm b^3, spring G^1, and swinging treadle G, substantially as and for the purpose shown.

3. In a slate-dresser, cutters D or D^1, geared together in such a manner as that the adjustment of one blade shall operate to properly adjust its companion, substantially as and for the purpose shown.

4. The swinging blade L, in combination with the slot L^1, substantially as and for the purpose shown.

5. The combination of the blade L and stop *n*, substantially as and for the purpose shown.

6. In a machine for punching and cutting roofing-slates, the combination of the adjustable cutters and punches secured to a single hinged frame.

7. In a machine for cutting and punching roofing-slate, the combination of punches with the free end of a hinged frame carrying adjustable cutters, whereby the slate is securely held between the cutters as the slate is punctured by the punches, substantially as and for the purpose set forth.

8. In a machine for cutting and punching roofing-slate, the combination, with a longitudinally-slotted swinging frame, of cutters and suitable fastening devices, whereby the cutters may be adjusted in the swinging frame, substantially as and for the purpose set forth.

9. In a machine for cutting and punching roofing-slate, the combination, with a cross-arm of the swinging frame, of adjustable punches, substantially as and for the purpose set forth.

10. In a machine for cutting and punching roofing-slate, the combination, with the cutters D D^1 and punching device F F^1 *f*, of the side gage *f'*, substantially as and for the purpose set forth.

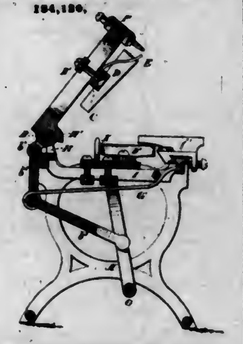
11. In a machine for cutting and punching roofing-slate, the combination, with adjustable stationary cutters, of adjustable cutters secured to a single swinging frame, substantially as and for the purpose set forth.

12. The combination, in a slate cutting and punching machine, of a frame or bed supporting adjustable bearers, guides, and dies, a movable frame, bearing adjustable cutters and punches, and a spring for holding the slate snugly upon the frame, substantially as and for the purposes described.

13. The combination, in a slate-machine, of stationary curved bearers and movable curved cutters, substantially as and for the purposes described.

14. The combination, in a slate-machine, of adjustable curved bearers, supported on the frame or bed, and adjustable cutters, supported on a movable frame, substantially as and for the purposes set forth.

184,106.

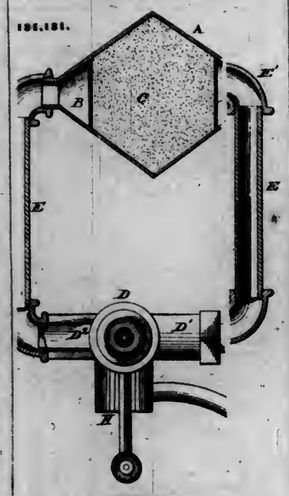


184,107. WATER-FILTERS. Roscoe A. Bean, Hudson, Mich. [Filed Oct. 11, 1876.]

Brief.—The water passes through both ways by the turning of the faucet each way below the filter, and when the water is shut off below, all the water above the faucet and within the filter and pipes drains out through the upper part of the faucet, so that the frost will not affect the pipes.

The faucet-plug G, provided with ports h h' and m m' and passage *i*, as described, in combination with the barrel D, having chambers D^1 D^2 D^3, ports *a b d*, and inlet H, the pipes E, filter A, and spout I, all constructed substantially as and for the purposes herein set forth.

184,181.

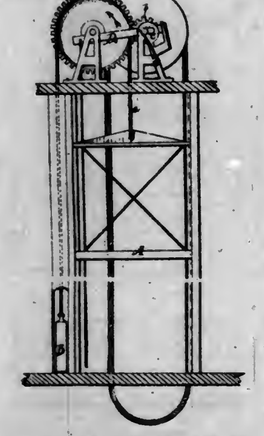


184,109. PROCESSES OF LITHOGRAPHIC TRANSFERS. Charles B. Biedermann, St. Louis, Mo. [Filed Aug. 9, 1876.]

The herein-described process of printing autographic transfers by decomposing and hardening the ink upon the paper by an application of nitric acid to the back of the same, then transferring the same to the stone by pressure and fixing it by heating the stone to about a blood-heat by means of burning alcohol, as and for the purpose described.

184,108. ELEVATORS. Henry H. Blake, Pittsburg, Pa. [Filed Nov. 1, 1876.]

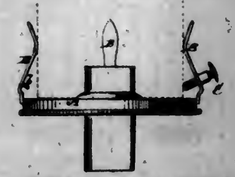
Brief.—The operating mechanism is capable of complete disengagement to allow the rapid descent of the cage.



1. In a power hoisting-machine, the combination of the winding element with the power element, either of which is capable of engagement with, and total disengagement from, the other, substantially as and for the purpose specified.

2. The combination of lever D, shaft of wheel C, slotted bearing *a*, with projection, and spring *s*, substantially as shown.

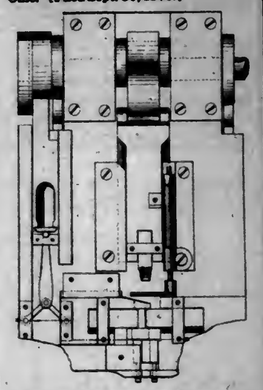
184,184. LAMP-CHIMNEY HOLDERS. Eli J. Blackham, Bridgeport, Conn. [Filed Oct. 11, 1876.]



1. The combination, with the springs B of the chimney-holder, of the screw C, carried by one of said springs, substantially as specified.

2. The chimney-retaining springs B, constructed with lips or lugs *b*, in combination with the screw C, carried by one of said springs, essentially as described.

184,185. COUPLING-PIN, BOLT, AND RIVET MACHINES. John R. Blakeslee, Cleveland, and Brenton R. Pierce, Cuyahoga Falls, Ohio. [Filed Sept. 30, 1876.]



1. The combination of a double-acting cutter with a reciprocating die-box, substantially as described, whereby a bolt, pin, or rivet is cut from each side to the center, as set forth.

2. The combination of an intermittent die-box with a clearer and a double-acting cutter, substantially as described.

3. The combination of an intermittent reciprocating die-box and its clearer with a double-acting cutter and a suitable header, substantially as described.

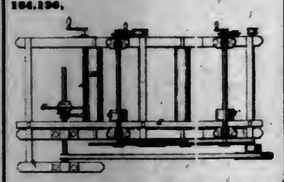
4. The shear and backing, located between the dies and the feed-opening of the machine, the two being made adjustable, whereby the shear may be adapted to operate with different-sized dies, and form a solid backing for the same against the action of the header, substantially as described.

5. The reciprocating die-box, having an intermittent forward motion and a backward motion, in combination with the clearer, cutter, and header, the whole operating as described, for the purpose of feeding and partially cutting the blank on the forward motion of the reciprocating die, and clearing the work from the dies on the backward motion of the reciprocating die, the blank being finally cut and headed while the dies are clamped together between the forward and backward movements of the die, substantially as described.

184,186. PLANING AND SAWING MACHINES. Charles Bliven, Norfolk, Va., assignor of one-half his right to Wm. B. Rogers, same place. [Filed Apr. 19, 1876.]

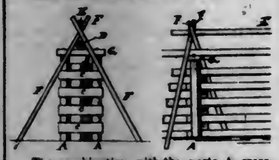
Brief.—A slitting-saw adjustable on its arbor, and provided with a series of feed-rolls, which act only on that portion of the board which is to be planed, while the remainder is free to be withdrawn.

184,136.



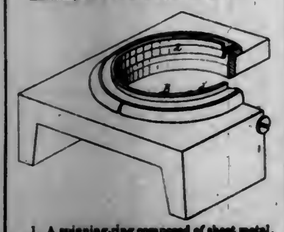
The combination, with the saw-arbor and adjustable circular saw, of the feed-rollers G G', constructed as described, to catch the cut piece and give the next piece room to pass freely through, substantially as described.

184,137. FENCES. Solomon Bobo, Danbury, Ga. [Filed Apr. 15, 1876.]



The combination, with the posts A, crosspiece c, cap-pieces G, and rails B, of the inclined braces F, rider E, and pole D, the latter being secured between cap-pieces G and the braces F, in the manner described, for bracing the panels, substantially as set forth.

184,138. SPINNING-RINGS. John Booth, Lincoln, R. I. [Filed Apr. 24, 1876.]



1. A spinning-ring composed of sheet metal, having a suitable bolting flange or seat, and a raceway formed by two separate flanges, which project in opposite directions, substantially as described.

2. In a spinning-ring, a raceway, centrally channeled or grooved, substantially as described.

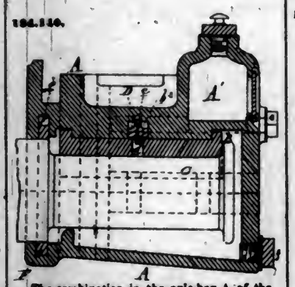
184,139. EXTENSION-TABLES. J. L. Bronson, New Haven, assignor of one-half his right to Geo. B. Baldwin, Branford, Conn. [Filed June 14, 1876.]



In an extension-table, the combination of the two principal parts of the top upon independent sliding frames, a principal or stationary frame supporting the said slides, extension-leaves beneath the said principal leaves, with cams upon their under side, and cams in connection with the frame of the said principal part of the top, substantially as and for the purpose described.

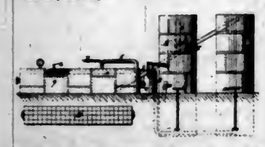
184,140. CAR-AXLE BOXES. Luis Rouviere Bula, Barcelona, Spain, assignor of one-half his right to F. H. Schenck, La Fayette, Ind. [Filed July 10, 1876.]

184,140.



The combination in the axle-box A, of the closed oil-chamber A', the large and small passages b b', the passage b^2, and the screw-plugs c c', substantially as described and shown.

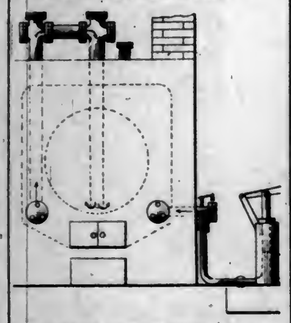
184,141. PROCESSES OF PRESERVING WOOD. Samuel Cabot, Jr., Boston, Mass. [Filed Oct. 31, 1876.]



1. The process of preserving wood, consisting essentially in subjecting wood to the alternate application of sulphate of copper and phenate or creasote of lime, substantially as set forth.

2. The process of preserving wood, consisting in subjecting wood in cells, or under steam or liquid pressure, to the alternate application of sulphate of copper and phenate or creasote of lime, substantially as set forth.

184,142. PROCESSES OF MANUFACTURING ANTHRACENE. Samuel Cabot, Jr., Boston, Mass. [Filed Oct. 31, 1876.]

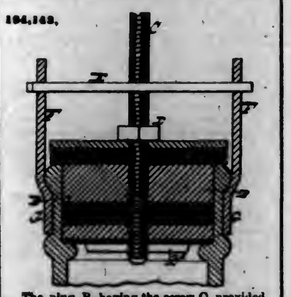


1. The process of manufacturing anthracene or other heavy hydrocarbons, consisting, essentially, in injecting into the still a vapor having less latent heat than steam to raise anthracene or heavy hydrocarbon out of the still or retort, substantially as and for the purpose set forth.

2. The process of manufacturing anthracene or other heavy hydrocarbons, consisting in first vaporizing any of the petroleum others or other light hydrocarbons by passing the same through pipes or other vessels located in close proximity to the still, and then injecting said vapors into the still for the purpose of raising anthracene or any heavy hydrocarbon out of the still, substantially as set forth.

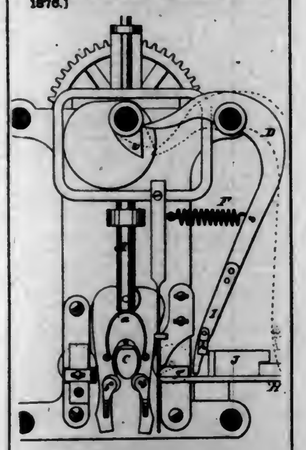
184,143. PLUGS FOR DRAIN-PIPES, &c. John Chapman, Washington, D. C. [Filed Oct. 16, 1876.]

184,143.



The plug B, having the screw C, provided with the nut D and plate E, in combination with the clamps G G, having the arms or bars F F, substantially as and for the purpose set forth.

184,144. HORSESHOE-MACHINES. John W. Chewning, Jr., Shadwell Depot, Va., assignor to himself, Thos. C. Ferebee, Camden Court House, N. C., and Julia May Wallace, Deep Creek, Va. [Filed Sept. 4, 1876.]



1. The combination of the shaft G, having cam c, the lever D, spring F, the griping-spring I, having hook h, and the table H having deflector-plate J, substantially as and for the purpose described.

2. The vibrating lever D, carrying a griping attachment at its lower end, provided with hook h, in combination with the table having deflector-plate J, throats g g', and guide-flange f, substantially as and for the purpose described.

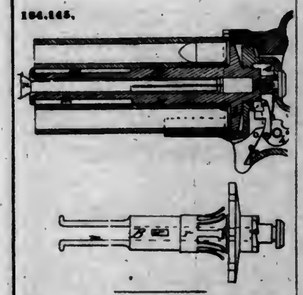
184,145. REVOLVING FIRE-ARMS. Ida Cochran, New Hamburg, N. Y., administratrix of Jno. W. Cochran, deceased. [Filed May 6, 1874.]

1. In combination with a rotating cylinder, an extractor fitted upon a center-pin, said extractor having projections with sufficient outward and inward movement to accomplish the object specified.

2. The split central shaft, having an exterior shoulder upon the outer end, in combination with the pin inserted therein to retain the cylinder in position upon said shaft, substantially as set forth.

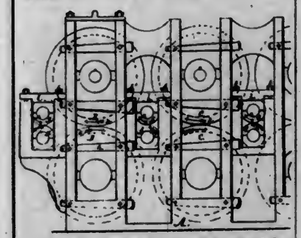
3. The central shaft, having its rear end rotate in two bearings to give increased steadiness of motion, in combination with the extractor, and the rotating recoil-plate at the base of said extractor, substantially as set forth.

184,145.



184,146. MACHINES FOR CLEANING THE SURFACE OF SHEET METAL. J. B. Davies, Allegheny, Pa., and Geo. Lewis, Newark, Ohio, assignors to themselves and Wm. Sunderman. [Filed Nov. 13, 1875.]

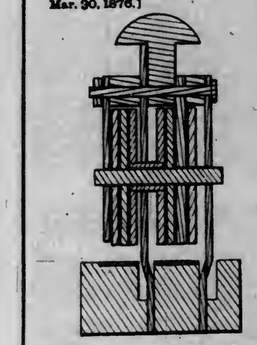
Brief.—The method consists in passing the sheet successively between three contiguous pairs of emery-surfaced rolls, the first pair operating as initial feed-rolls as well as scouring-rolls, and the rolls of each of the succeeding pairs moving in contrary directions at the point of closest proximity, while the third or last pair run at a much higher velocity than the first.



1. The method hereinbefore described for cleaning the surface of sheet metal in the process of coating it with tin or other metal.

2. An apparatus consisting of the rolls B, C, and D, and feed-rolls e f, and delivering-rolls g, combined, arranged, and operating with relation to each other, substantially as hereinbefore described, and for the purpose set forth.

184,147. RAILROAD TICKETS AND STAMPS. Wilbur F. Dwight, Keokuk, Iowa. [Filed Mar. 30, 1876.]



1. The combination of two cutters, two dating-stamps, so connected as to stamp duplicate dates, and a station-stamp, all arranged to set together to form a passage-ticket, substantially as set forth.

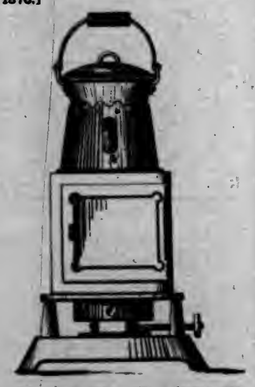
2. The combination of two revolving dating-stamps, so connected as to turn and stamp alike, and two cutters, all arranged to cut out a ticket from a form and date both the parts at one action, substantially as set forth.

3. The combination of two cutters, arranged to cut at one action opposite sides of a ticket, and a stamp, arranged to act with the cutters to form a complete passage-ticket, substantially as set forth.

4. The improved article of manufacture from which both a ticket and an automatic record can be made, consisting of a form, having a validity space and a list of stations around the validity space, and duplicate numbers or peculiar identifying marks, arranged so that a ticket can be made to any one of the stations by cutting out the validity space and any one of the names as a terminal point with one of the numbers, and at the same time a record can be made by leaving all the other names and one number to identify the ticket and show where it was to, substantially as set forth.

5. The improved article of manufacture from which both a ticket and an automatic record can be made, consisting of a form, having a list of stations and duplicate numbers or peculiar identifying marks, arranged so that a ticket can be made to any one of the stations by cutting it out with the name of that station and one of the numbers, and leaving the other names of the list on the two sides of it, together with one of the numbers, all connected together as an automatic record of the ticket, substantially as set forth.

184,148. OIL AND GAS STOVES. Oliver Edwards, Florence, Mass. [Filed Aug. 31, 1876.]



1. The combination, with a lower oven-chamber, provided with a deflecting inlet-flue, of an upper steaming-chamber seated in the top plate of the oven, which latter is constructed as described, so that the heat is first utilized therein before passing up into the short lateral air-jacket of the steamer, substantially as and for the purpose described.

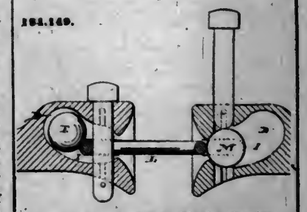
2. In an oil or gas stove, the combination, with a detachable oven, whose top plate has a central receiving-opening and a series of lateral heat-conducting orifices, of a steamer provided with a short outer inclosing wall, and constructed so that by placing the same in the central opening of the oven a hot-air chamber will be formed about the steamer, substantially as described.

3. In an oil or gas stove, the combination, with the heating chamber, having its lower plate provided with a main central and a series of auxiliary flues, of the steamer adapted to be closely seated in a supporting-ring of the top plate of the chamber, and provided with an air-jacket directly communicating with the latter through an annular series of openings, substantially as and for the purpose described.

4. In an oil or gas stove, the combination, with an oven, of an independent steamer, constructed with a lateral hot-air jacket, and provided with a discharge-nozzle passing through same, substantially as and for the purpose described.

184,149. CAR-COUPLINGS. Miller T. Greenleaf, Quincy, and Geo. Q. Adams, Warsaw, Ill. [Filed July 8, 1874.]

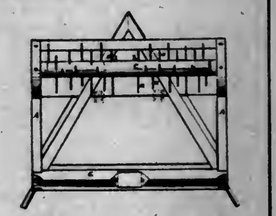
184,149.



A draw-head provided with the chamber D, of the form shown and described, and having the transverse link-stop I, when the mouth of the chamber is contracted to the mouth of the link-stop, in combination with the bell E and pin L, substantially as shown and described.

184,150. CULTIVATING-HARROWS. Robert Hamilton, Franklin, Ind. [Filed Oct. 11, 1876.]

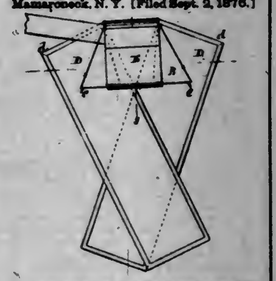
Brief.—Harrow-teeth spirally arranged in roller, the spirals running from near center to each end. Rear triangular bar formed with central notch.



1. The combination of the frame A, the roller C, with teeth a arranged spirally from each end of the central space b b, to the ends of the roller, and the rear triangular bar G, with depression d and teeth h A, substantially as and for the purposes set forth.

2. The detachable runner J with concavity x, in combination with the toothed roller C, for the purposes herein set forth.

184,151. SCARFS. John G. Hitchcock, Massaponeck, N. Y. [Filed Sept. 2, 1876.]



1. In combination with the foundation-plate B and the tabs D D, secured thereto, as described, the center piece E, surrounding said plate, and held in place in the channel between the tabs and plate, substantially as described.

2. The combination of needles or other equivalent fastening devices e e, arranged on the rear of a scarf, with the corners d d of the tabs of the scarf, substantially as and for the purpose shown and described.

184,152. MANUFACTURE OF METAL TUBES. Charles B. L. Holmes, New York, N. Y. [Filed Oct. 23, 1876.]

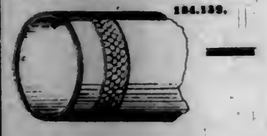
1. A tube consisting of an outer hollow cylinder of tin or tin compound and an inner hollow cylinder of harder metal, as specified.

2. The mode of making compound tubes by uniting, permanently, a hard and a softer metal,

and forming the compound sheet into tubes, with the soft metal on the outer face, as set forth.

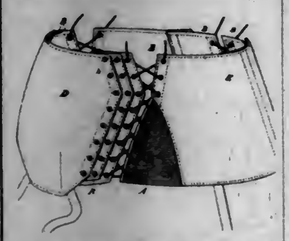
3. A compound tube of two or more jointed concentric cylinders of tin or tin compound and a more rigid metal, with their longitudinal joints *x* at different points, as specified.

184,139.



184,146. ABDOMINAL SUPPORTERS. Ella M. Holton, Jackson, Mich. [Filed Oct. 10, 1876.]

Brief.—The side lacings have extension-flaps and a V-piece cut out at the top.



1. The extension-pieces B, combined with an abdominal supporter, in the manner and for the purpose set forth.

2. The side lacings, constructed with the angular sides, substantially as described, and for the purpose set forth.

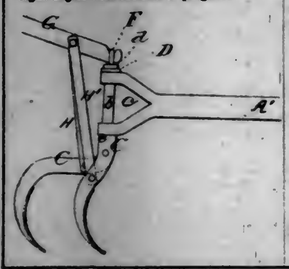
3. The combination of the front piece D, back pieces E, adjustable side lacings, elastic gorings A, and extension-pieces B, substantially as described.

184,154. PRESERVING MEATS, &c. J. C. Howard, Chicago, Ill., assignor of one-half his right to Frank S. Waters, same place. [Filed Sept. 9, 1876.]

The process of preserving meat and other perishable substances, by first dissolving salicylic acid in hot glycerine, and mingling hot water therewith; then coating the inside of the preserving-cans with the mixture thus made; then sealing hermetically in said cans the meat or other substances to be preserved; and, finally, subjecting said cans to a bath of hot water or steam, all substantially as set forth.

184,155. WEEDING-CULTIVATORS. Orlando Huffman, Friend, Nebr., assignor of one-half his right to Bailey G. McKinzie, same place. [Filed Mar. 28, 1876.]

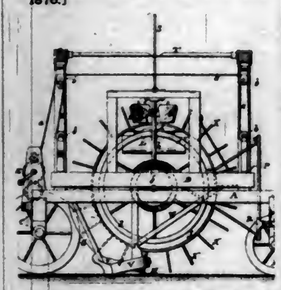
Brief.—Cultivator-beams having standards vertically journaled at their rear ends, and so pivoted and braced together that when vibrated laterally the shovels are always at right angles with the line of progress.



1. In combination, the beams A A′, having bifurcation *e* at their rear ends, the plow-standards C, having reduced spindles *b*, and the pivoted cross-bars D E, substantially as specified.

2. In combination with the beams A A′, pivotal bar D, and vibrating standards C, the rotating eyebolt F, handle G, and pivotal rods H H′, substantially as specified.

184,156. DITCHING-MACHINES. Albert B. Johnson, Samantha, Ohio. [Filed Oct. 19, 1876.]



1. In a ditching-machine, the plow H, with side cutters I I attached, connected together and to a frame, D, adjustably suspended in a main frame mounted on wheels, all constructed substantially as and for the purposes herein set forth.

2. The combination, substantially as set forth, of the side cutters I I, suspended from the frame D and the draft-rods W W, secured to the cutters, and extending upward and forward, and connected to the frame, substantially as and for the purposes described.

3. In combination with a rotating wheel, provided with radially-projecting spades, a series of revolving yielding spring-cleaners O, arranged to operate between the spades, in the manner and for the purposes herein set forth.

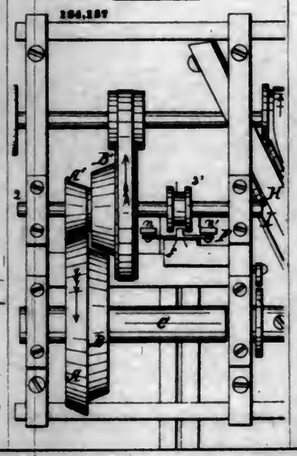
4. The combination, with the wheel J and its spades K, of the shaft h with four-armed hub N, forked pivoted arms *m*, pivoted cleaners O, and springs *n*, substantially as and for the purposes herein set forth.

5. The combination of the adjustable frame D, vertical bar P, and grooved coupling R, for the purpose set forth.

6. The combination of the frame D, rod *t*, lever S, and rocking rod or bar T in the main frame A, for the purposes set forth.

7. The shoe V, arranged on the side of the plow H, substantially as and for the purposes herein set forth.

184,157



184,157. BROOM-WINDING MACHINES. W. Davidson Jones, Hagaman's Mills, assignor of one-half his right to Charles E. Toll, Scotia, N. Y. [Filed Oct. 27, 1876.]

Brief.—The shoulder-cutter is upon a hand-lever, and has a reciprocating motion. The gears are arranged to give at will a slow or rapid movement to the broom-holder.

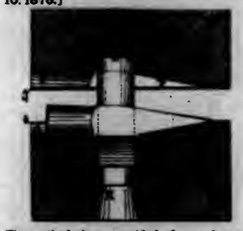
1. In a machine for winding brooms, the combination of the hollow broom-mandrel C, gears A A′ B B′, collar F, shipper F, treadles *m m′*, stems *n n′*, projection *f*, and sliding shaft 2, substantially as described.

2. In a broom-winding machine, a reciprocating shoulder-cutter, J, on the lever H, in combination with the rotating broom-holder C, whereby the shoulder of a brush may be cut at any desired angle, substantially as and for the purposes set forth.

3. In a broom-winding machine, the combination of the lever H, crank-disk I, shaft I′, connection K, guideway J″, cutter-bar J, and cutter J, arranged and operating substantially as herein set forth.

4. In combination with the lever H, the adjustable stop L, as and for the purposes substantially as shown and described.

184,158. METHODS OF MAKING HAMMERS. Henry W. Kip, Buffalo, N. Y. [Filed July 10, 1876.]



The method above specified of manufacturing ada-eye hammers by means of the devices above described, namely, cutting out a hammer-block having a projection, 3, for the ada-eye, a square end for the poll, and a tapering end for the peen by suitable dies, then subjecting the said hammer-block to the poll-dies, by which the poll is rounded and shaped and the peen drawn out and the eye punched out in one operation, and then splitting the peen and forming the claws, substantially as set forth.

184,159. ORNAMENTAL CHAIN-LINKS. J. A. Lieb, Newark, N. J. [Filed Mar. 4, 1876.]



A chain composed of links formed of sheet-metal disks or blanks, having their edges stamped or shaped into a bead, *d*, and provided with the openings *d d* and slits *b*, terminating in the holes *c*, substantially as described.

184,160. SEWING-MACHINE CABINETS. J. A. Liebert, New York, N. Y. [Filed Feb. 4, 1876.]

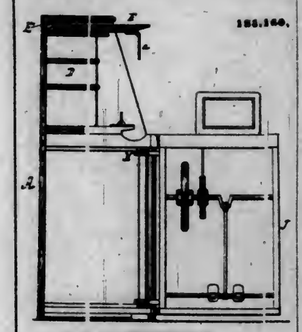
1. The combination, in the frame A, of the letter-cabinet D, the sewing-machine frame or cabinet J, and the swinging table, adapted to serve as a writing-table or inclosing cover for the cabinet D, substantially as herein set forth.

2. The swinging table F, provided with the detachable hinges G, by means of which it can be secured in position as a writing-table, substantially as herein set forth.

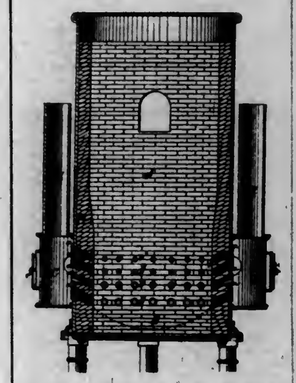
3. The sliding beveled hinge-leaves *a a*, provided with slots *d*, in combination with the headed pins *c*, substantially as set forth.

4. The letter-cabinet provided with the recess E, to receive the detached writing-table F, substantially as shown and described.

184,160.



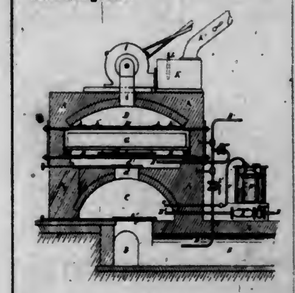
184,161. CUPOLA-FURNACES. E. C. Little, St. Louis, Mo. [Filed Aug. 12, 1876.]



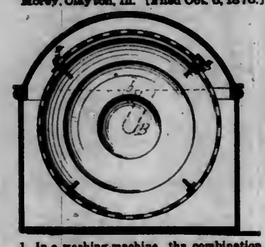
The series of tubes or tuyeres, graduating in size and placed at different angles verging toward the center of the interior of the cupola, the lower course of said tuyeres being inclined on a line with the exact center of the concavity of the bottom, substantially as and for the purposes herein set forth.

184,162. APPARATUS FOR CONVERTING NITROGENOUS SUBSTANCES INTO FERTILIZERS. Henri P. O. Lamagaray, Pantin, near Paris, France. [Filed Sept. 4, 1876.]

Brief.—The material to be operated upon is dipped in sulphuric acid holding sulphates in solution. It is then placed in the cars G and run into the kiln, where it is subjected to the action of superheated steam or superheated air, or both, which renders it brittle, after which it is ground.



184,163. WASHING-MACHINES. Seth J. Morey, Clayton, Ill. [Filed Oct. 6, 1876.]



1. In a washing-machine, the combination with the boiler, provided with lower diagonally-slotted bearings and short upper bearings, of a metallic reticulated cylinder, having short end journals and a suitable revolving handle, substantially as and for the purpose described.

2. The rotary washing-cylinder, consisting in the combination, with the cylinder-heads, having an angular curvilinear construction, of connecting-ribs, and an open-work metallic covering, the latter constructed with sectional gates sliding in longitudinal guides, and provided with hand-catches and a locking device, substantially as and for the purpose described.

184,164. LIGHTNING-RODS. David Munson, Indianapolis, Ind. [Filed Apr. 1, 1876.]

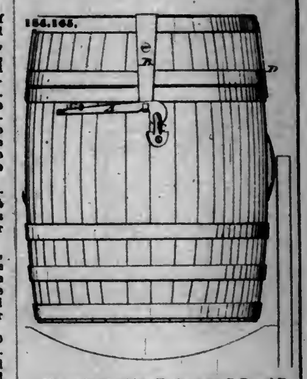


A lightning-rod in which are combined a central core, A, of twisted copper wire, having four recessed sides, forming receiving-edges, and strands B C of similar shaped and twisted copper wire, twisted spirally around said twisted core, each said alternate twisted wire being plated, the whole forming a new lightning-conductor, as herein set forth.

184,165. REVOLVING CHURNS. R. Murphy, Canisteo, N. Y. [Filed Sept. 5, 1876.]

Brief.—An end-to-end-revolving churn-barrel, made water-tight, has a shallow tub sawed from one end. A deep groove is made in the cut end of this tub, into which groove an annulus of packing is forced. The tub is re-attached to the barrel, and held thereto by arms, loops, and catches.

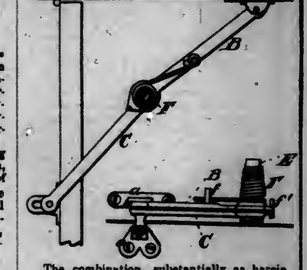
184,165.



The strip of rubber H, the arms B B and D D, the staple C, the lever A, and the catch G, in combination with the cask and head, as above specified.

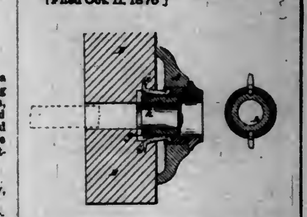
184,166. DOOR-SPRINGS. Wm. H. Myers, Oregon, Wis., assignor of part of his right to Edwin H. Osborn and Jas. McM. Fox, same place. [Filed Aug. 19, 1876.]

Brief.—As an improvement on former patent, No. 170,867, the two arms are pivotally connected at their outer ends, and jointed together by means of a notched bar on cylinder, having a helical spring coiled around it, which operates to hold the arms together, the construction being such that, while the devices automatically close the door, the spring will likewise assist in opening and holding it open.



The combination, substantially as herein described, of the arms B and C, pivotally connected at their outer ends, and jointed together by means of the notched bar or cylinder E, and a helical spring, F, coiled around said bar E, holding said arms together, all operating in the manner as described.

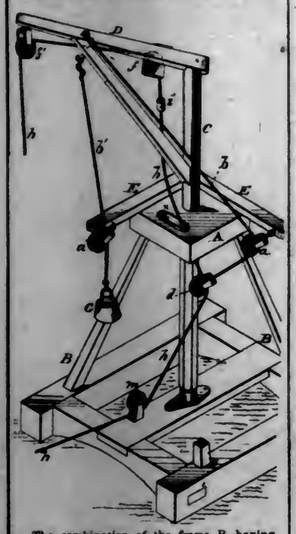
184,167. ATTACHING KNOB-ROSES TO DOORS. Joseph Naylor, New York, N. Y. [Filed Oct. 11, 1876.]



As a means for securing the rose in place, a suitably-shaped bushing, having a collar for the retention of the rose, and hold-fasts adapted to penetrate the walls of the hole in which the bushing is placed, substantially as and for the purposes set forth.

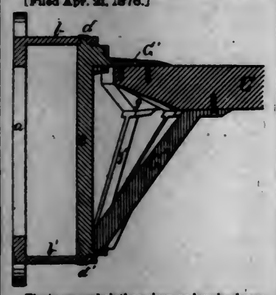
184,166. DERRICKS. George W. Nickle, Mattoon, Ill. [Filed May 13, 1876.]

Brief.—The draw-rope, by means of the adjustable slide thereon, operates to swing the arm of the derrick in one direction, and the weighted rope to swing it the other.



The combination of the frame B, having slotted platform A and timbers E E, with pulleys *a a'*, revolving crane C D, pulleys *f f'*, rope *b*, pulley *d*, rope *h*, and the rope *b'*, having weight G, all constructed substantially as and for the purposes herein set forth.

184,169. CLOTHES-DRIERS. A. S. Parks, Winchendon, Mass., assignor of one-half his right to Sidney Fairbank, same place. [Filed Apr. 21, 1876.]



The improved clothes-drier, as herein shown and described, consisting of the frame *a*, brackets *b b'*, standard *c*, with its hinge *d d'*, and side pieces *e e f f*, the bars *g g g* G, projections *g' g' g'* G', and the diagonal supports *g'' g'' g''* G'', substantially as and for the purpose set forth.

184,170. CARPET-STRETCHERS. George Pirrung and Rudolph Grenow, Ravenswood, Ill. [Filed Aug. 5, 1876.]

1. The combination, with the head-lever *h* and the push-bar *a b*, of the links *j k*, jointed to each other, the lever, and push-bar, the intermediate joint *l* being arranged to flex at a point above and to the rear of the push-bar *c*, as and for the purpose herein set forth.

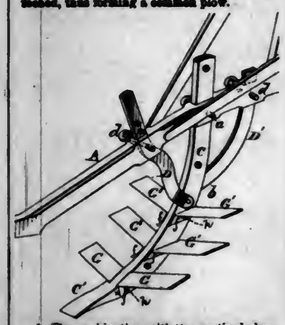
2. The push-bar *a b*, in combination with the coupling-plate *c*, having the bracing-lips *d d* and the clamp-screw *e*, as and for the purpose herein set forth.

184,170.



184,171. SUBSOIL-PLOWS. A. A. Porter, Griffin, Ga. [Filed May 10, 1876.]

Brief.—The standard is braced both front and rear, the front brace acting as a colter. A series of wings at varying angles are arranged upon each side of the standard, constituting a subsoil-plow. These wings can be removed and a land-side and mold-board attached, thus forming a common plow.

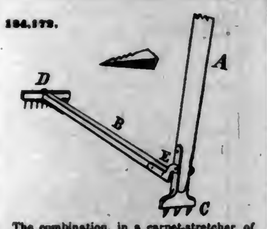


1. The combination, with the mortised plow-beam A, of the adjustable standard C, adjustable colter D, and the adjustable brace D', the colter and brace being connected on opposite sides of the standard, and all three held in the mortised plow-beam by pins *c d*, as and for the purposes herein set forth.

2. The combination, with the standard or foot C, having shoulders *x*, of the blades G G, secured on opposite sides in rear of said shoulders, and the wings G', provided with the downward-projecting flanges *f f* and lugs *y y*, and all connected by the bolts *h*, substantially as and for the purposes herein set forth.

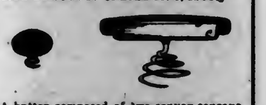
184,172. CARPET-STRETCHERS. Charles F. Rapp, Chicago, Ill. [Filed Feb. 7, 1876.]

184,172.



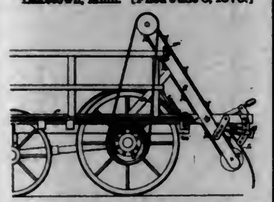
The combination, in a carpet-stretcher, of a reversible lever, A, provided with teeth C, and arm B, provided with rake D, connected by hinges E.

184,173. BUTTONS. Archbd. M. Richmond, New York, N. Y. [Filed Feb. 6, 1876.]



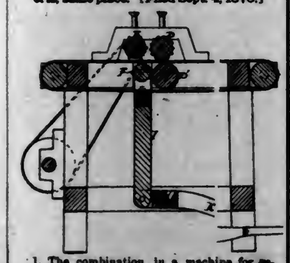
A button composed of two convex-concave disks, the outer one of which is covered with a suitable fabric, and the inner one provided with a pointed helical fastening, substantially as herein set forth.

184,174. HAY-LOADERS. Joseph Richter, Lakestown, Minn. [Filed June 6, 1876.]



The combination, with the rails C and inclined elevator-frame E, of the arms M, pivoted in angle formed by the said rails and frame, the perforated straps *h*, and spring-arms *m*, carrying locking-bolt *l*, and fastened upon the same pivot with the arms M, substantially as and for the purpose described.

184,175. MACHINERY FOR DEHAIRING AND WORKING OUT HIDES. T. Roberts, Lynn, Mass., assignor to himself and E. M. Roberts, same place. [Filed Sept. 4, 1876.]

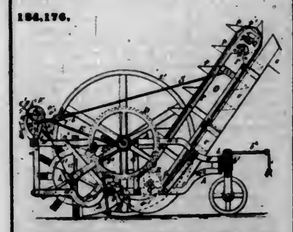


1. The combination, in a machine for removing the hair from hides and skins, of the roller E, provided with the double spiral projections or ridges, as shown, the endless belt C, the feed-roller D, and supporting-roller D', as and for the purpose set forth.

2. In combination with the roller E, provided with the double spiral ridges, the elastic pressure-roller F, operated by means of the lever K, as specified.

184,176. STREET-SWEEPING. James Robinson, Heston, near Hounslow, England. [Filed July 6, 1876.]

184,176.



1. The combination of an adjustable elevator with a sectional dirt-receiver, having a yielding motion, to allow the delivery platform or plate of said receiver to follow the movements of the receiving end of the elevator when its angle of inclination is changed, substantially as described.

2. The combination, with the conveyer, of a bail or yoke, S T, the transverse arm T of which has a threaded sleeve, and the screw *t'* carrying a hand-wheel, *t''*, substantially as described, for the purpose specified.

3. The adjustable hinged receiver L M, in combination with the pivoted angular bearings or links N, and the stop-pins *n'* on the free arms of such links, to limit the oscillation of said receiver, substantially as described, for the purpose specified.

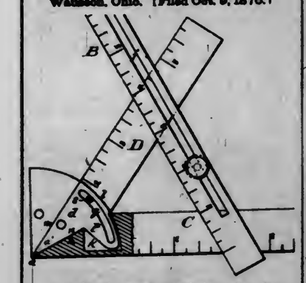
4. The rear section L of an oscillating sectional receiver, constructed as described, in combination with the transverse rod *l*, the vertical rods *f'*, sliding freely in ears or brackets, and the levers *g*, to allow said front section to rise and fall automatically, substantially as described, for the purpose specified.

5. The rear section L of an oscillating sectional hinged receiver, the transverse rod *l*, and the rods *f'*, with the swinging levers *g*, connecting-rods H, shaft I, and the screw K, carrying a hand-wheel, substantially as described, for the purpose specified.

6. The brush-shaft G, in combination with the swinging levers *g*, connecting-rods H, shaft I, and screw K, carrying a hand-wheel, substantially as described, for the purpose specified

7. The combination, with the clutch or grooved pulleys *d*, the gear-wheels D D', and the drive-wheels C, said axle *c* of the clutch-levers E, and shaft F, carrying hand-wheels *f''*, all constructed to operate substantially as described, for the purpose specified.

184,177. BEVEL-SQUARES. John C. Rerick, Wauseon, Ohio. [Filed Oct. 9, 1876.]



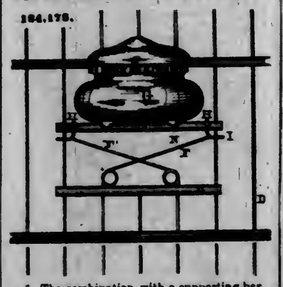
1. A bevel-square consisting of a base-branch, C, having the cleft quadrant and extension E, and the radially-adjustable arm D, having the curved guide-slot *g*, shoulders *l*, and angular centering-tongue *d*, substantially as specified.

2. The combination, in a bevel-square, of the cleft quadrant-arm C, the adjustable arm D, and the four-barred rule B, substantially as specified.

184,178. FOOD-CUPS FOR BIRD-CAGES. G. Soyfang, Buffalo, N. Y. [Filed Apr. 7, 1876.]

Brief.—To remove the cup, press it down against the sliding band until the sockets in the top of the cup are disengaged from the middle band; then pull it out. To return it, push it between the sliding and middle bands, and the bridge-pieces connecting the upper and lower parts of the cup prevents it from catching with the middle band of the feed-cup.

184,179.



1. The combination, with a supporting-bar, of two supporting-springs transversing each other, and connected to said bar, substantially in the manner and for the use and purpose described.

2. The combination, with the springs F F', of the return-bends I engaging with the filling-wires D' D'', substantially as described, for the purpose of checking the upward movement of the supporting-bar at a predetermined point, substantially as described, for the purpose stated.

3. The combination, with the food-cup G, having the indents K in the upper rim, of the stationary band B, sliding support E, and the springs F F', the whole, when arranged to operate, substantially as described, for the purpose mentioned.

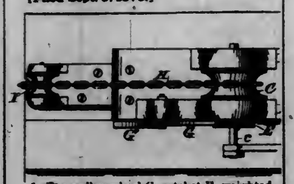
4. The springs F F', passing through the auxiliary band C into the lower band A, with one of their extremities, and provided with the return-bends I and eyes H on their other extremity, said springs being also provided with the spiral turns C' near their junction with the auxiliary band C, for the purpose stated.

5. The combination, with the auxiliary band C, of the springs F F', constructed with the spiral turns C', return-bends I, and eyes H, sliding bar E, and the feed-cup G, substantially as described, for the purpose stated.

6. The combination, with the auxiliary band C, of the springs F F', constructed with the spiral turns C', return-bends I, and the eyes H, sliding bar E, engaging the filling-wires D' D'', and the feed-cup G, having the projections N on its base and the indents K in its rim, the whole constructed and operating substantially in the manner and for the use and purpose set forth.

7. The bridge L of the feed-cup G connecting the projecting rim and the carved body, for the purpose stated.

184,179. CAR-BRAKE-OPERATING MECHANISM. Jacob J. Shaffalt, Muscatine, Iowa. [Filed Sept. 9, 1876.]



1. The pulley-wheel C, ratchet E, weighted lever F, and pawl G, having treadle G', arranged to operate substantially as and for the purpose specified.

2. The combination of the pulley C, ratchet E, weighted lever F, and pawl G, with chain H, and pulleys I and J, substantially as and for the purposes specified.

184,180. SHOEMAKERS' PINCHERS. Thomas B. Shelly, Chicago, Ill. [Filed July 24, 1876.]

1. Pinchers having a disk or pulley joint, substantially of the construction described.

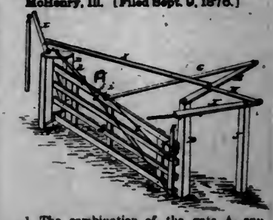
2. Shoemakers' pinchers having the fixed fulcrum made as a part of the upper jaw, and provided with grooves at its lower end, to admit of the attachment of the removable fulcrum D for shank-lasting, substantially as described.

3. The removable fulcrum D, in combination with shoemakers' pinchers, for shank-lasting, substantially as described.

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184,181. GATES. Jeremiah G. Sherman, McHenry, Ill. [Filed Sept. 9, 1876.]



1. The combination of the gate A, supported at its inner end on the pivot *a*, the diagonal suspension-wires *d d*, and the pivoted latch C, having the wires *d* attached to its lower end, whereby the weight of the gate is caused to latch it, substantially as set forth.

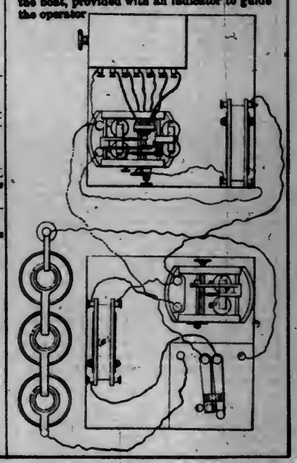
2. The swing E and rod G, in combination with the wire *e*, latch C, and gate A, substantially as and for the purposes herein set forth.

3. The combination, with the gate A, latch C, and wire *e*, of the rod G, swing E, rods H K, and levers I L, as and for the purposes set forth.

4. The stop *i*, in combination with the gate A and driving-rod G, for the purposes herein set forth.

184,182. APPARATUS FOR NAVIGATING AND OPERATING TORPEDO-BOATS. Henry J. Smith, Boston, Mass., assignor to Wm. B. Fowle, same place. [Filed Mar. 11, 1873.]

Brief.—A torpedo-boat so arranged that the steering and propelling devices are governed and torpedo fired by means of separate electro-magnets controlled by a single wire, connected with a source of electricity outside the boat, provided with an indicator to guide the operator.

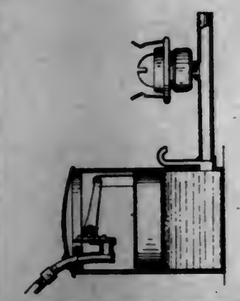


1. The combination of the galvanometer G², the ratchet mechanism operated by electro-magnet E², the switch mechanism operated by electro-magnet E¹, with three or more of the electro-magnets represented at X, and the mechanism connected therewith, for controlling the movements of torpedo-boats, all operated by a single reel-wire, substantially as specified.

2. The combination of a key and pole changer, a galvanometer and dial-instrument at the operator's station, with a second galvanometer, a duplicate of the dial mechanism and switch mechanism, substantially such as is operated by electro-magnets E² and E² on the torpedo-boat, all constructed and operated with a single line-wire, substantially as specified.

184,183. ILLUMINATING APPARATUS. Geo. B. Snider, New York, N. Y. [Filed Apr. 24, 1876.]

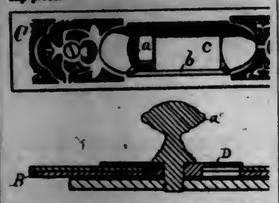
Brief.—The sinking of the foot raises the slide-valve.



The combination, with the oil-supply pipe B, and the regulating vessel or chamber C, of the slide-valve E, and its rack *e*, the pinion *f*, and lever G, and the arm A, and float H, arranged and operating as herein shown and described.

184,184. DOOR-BOLTS. Elbridge J. Steele, New Britain, Conn., assignor to himself and the Stanley Works, same place. [Filed June 19, 1876.]

Brief.—The ordinary iron flush-bolt for the bottom of the door has a supplemental bronze cap-piece.



1. As a new article of manufacture, a door-bolt consisting of the bolt A B and supplementary cap-plate C, substantially as described, and for the purposes specified.

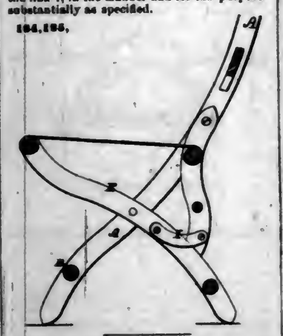
2. The combination of the projecting end of the bolt A, and the cap-plate C extending over the end of the bolt, and having an opening in it which corresponds to the end of the bolt, substantially as described, and for the purpose specified.

3. The removable cap-plate C, having a depression, *b*, large enough to admit the handle *c*, Fig. 3, in combination with said handle, the main plate B, and bolt A, whereby said cap-plate may be detached without detaching the other parts of the bolt, substantially as described.

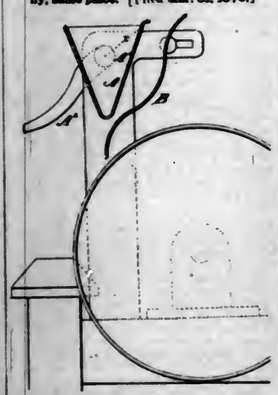
184,185. FLEXIBLE CHAINS. Wm. H. Sternberg, Norwich, N. Y. [Filed Oct. 5, 1876.]

In combination with the bars A and E, which are pivoted together, as shown, the brace-bar H, pivoted at its upper end to or upon said bar A and having its lower end connected to or with said bar E by means of the link I, in the manner and for the purpose substantially as specified.

184,186.



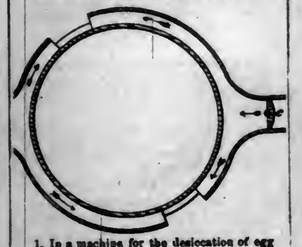
184,186. APPARATUS FOR DESICCATING EGGS. William O. Stoddard, New York, N. Y., assignor to American Egg Company, same place. [Filed Mar. 31, 1876.]



1. The stationary double-curved apron B, having a concavity to receive the flow of material from the trough, and a vertical extension of its lower edge, to convey the material in an even sheet to the desiccating-cylinder.

2. For the purpose indicated, and substantially as described, the combination of a swinging vat or trough, A, and a stationary curved apron, B.

184,187. APPARATUS FOR DESICCATING EGGS. William O. Stoddard, New York, N. Y., assignor to American Egg Company, same place. [Filed Mar. 31, 1876.]

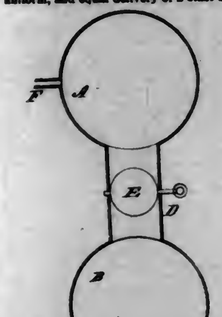


1. In a machine for the desiccation of egg substance or other material by a blast or current of air, the combination, with the blast-pipe C and cylinder or desiccating-body A, of a shell or a section of a shell, B, for confining the blast or current of air and forcing it into close contact with the material undergoing desiccation, substantially as described.

2. In a machine for desiccating eggs or other material by a blast of air, the combination, with the desiccating cylinder or body and blast-conduit, of a confining-shell having one or more openings, substantially as and for the purpose described.

184,188. MACHINERY FOR DESICCATING EGGS. William O. Stoddard, New York, N. Y., assignor to American Egg Company, same place. [Filed Mar. 31, 1876.]

Brief.—This apparatus has a reservoir or chest, supply-pipe, and a receiving and delivery reservoir, having one or more elongated discharge-openings extending lengthwise of the axis of said reservoir, for effecting an even, uniform, and equal delivery of a blast of air.

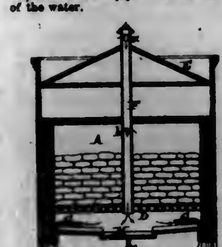


1. The improved apparatus for effecting an even, uniform, and equal delivery of a blast or blasts of air, consisting essentially of the main reservoir or chest B, supply pipe or pipes D, and the receiving and delivery reservoir A, having one or more elongated discharge-openings, F, extending lengthwise of the axis of said reservoir, substantially as described.

2. In combination with the main air reservoir or chest B and the subsidiary feeding pipe or pipes D, having controlling-valve E, the receiving and delivery reservoir A, consisting of a horizontal cylinder of elongated form, having a discharge opening or aperture, F, of narrow elongated shape, parallel with the axis of said cylinder, and adapted to the discharge of air from the interior of the latter, substantially as described.

184,189. REFRIGERATING-BUILDINGS. Chas. Stoll, Brooklyn, N. Y. [Filed Sept. 26, 1876.]

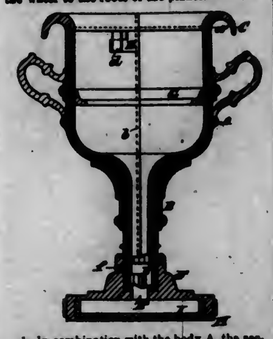
Brief.—By means of a flue passing from the roof down through the ice-box, and terminating at the grate-bottom of the ice-box, air is brought in contact with the lower surface of the ice, and then passes through tubes into the storing-chamber. The partition dividing the ice-box from the storing-chamber forms a drip-pan, with a depression in the center, from which a pipe leads for the escape of the water.



The combination, in a refrigerator-building, of an ice-chamber, A, which has a grated false bottom, D, one or more air-flues, F, extending down through the roof of the building and through the ice-chamber, and terminating at its false bottom, a storing-chamber, B, and one or more pipes or ducts, G, serving to conduct the air which is cooled in the ice-chamber to said storing-chamber, substantially as described.

184,190. URNS FOR GROWING PLANTS. B. A. Van Court, Philadelphia, Pa. [Filed Sept. 21, 1876.]

Brief.—The upper portion of the two sections of the urn secured in position by a sectional sliding ring. A water-shed to direct the water to the roots of the plants.



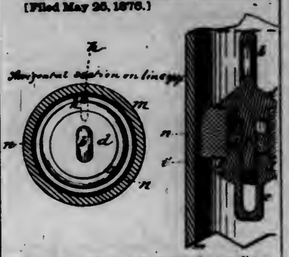
1. In combination with the body A, the sectional sliding ring C, for holding the sections of the body together, substantially as shown and described.

2. The ring G, constituting a water-shed, substantially as and for the purpose specified.

3. The hollow column B, made in two vertical sections, each of said sections being formed in one piece with a section of the body A, substantially as shown and described.

4. The body A and column B, made in two vertical sections, the sliding ring C for holding said sections together, the foot F, having stud or pin *f*, the water-shed G, and pedestal H, with drawer I, the several parts being constructed and arranged for joint operation, substantially as shown and described.

184,191. CHAIN-PUMP BUCKETS. Benjamin W. F. Van Dusen, Windham Summit, Pa. [Filed May 26, 1876.]



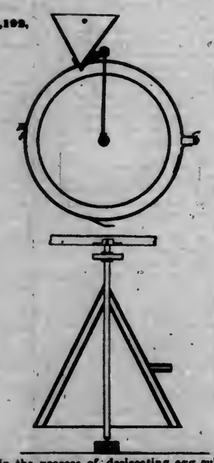
1. In an endless-chain pump, the couplings *b c*, provided with hubs *g i* of equal diameters, in combination with the screw-stem *f*, the screw-socket, and the rubber bucket *e*, as and for the purpose described.

2. The supplemental or shouldered hub *j* in combination with the hub *i* and the rubber bucket *e*, whereby to adjust the bucket to form an annular drain or way between the bucket and the wall of the tubing.

3. The combination in an endless-chain pump bucket of the annular wall drain or way *a* with the drain perforations *b* in the bucket, as and for the purpose described.

184,192. PROCESSES OF DESICCATING EGGS. Isidor Walz and Wm. O. Stoddard, New York, N. Y., assignors to American Egg Company, same place. [Filed Mar. 4, 1876.]

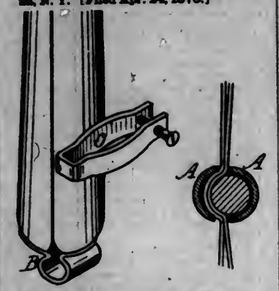
184,192.



1. In the process of desiccating egg substance by evaporation in vacuo, the method herein described for reducing the material to a mealy or granular form without grinding or pulverization, consisting in the agitation or rotation of the material while undergoing such evaporation, substantially as and for the purpose described.

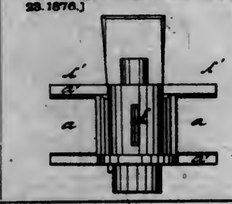
2. In, and as a part of, the process of desiccating by evaporation in vacuo, the method of preventing injury to the material from the excessive cold of the vacuum, consisting in the artificial maintenance of a temperature in such material above the normal temperature of the vacuum, substantially as described.

184,193. COMBINED WEBB-SOCKET AND REST-HOLDER. Sanford D. White, Medina, N. Y. [Filed Apr. 24, 1876.]



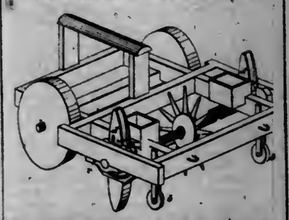
The combination, with the half-sockets A A, divided from top to bottom, of the spring B, attached to the opposite sides at the bottom, and serving the double purpose of a spring to close the socket, and a hinge to allow it to open, as and for the purpose specified.

184,194. PATTERNS FOR CASTING. Andrew F. Whiting, Crestline, Ohio. [Filed Mar. 23, 1876.]



The pattern consisting of the cylinder A, from opposite sides of which extend arms or rails *e' e'*, between and upon which slide lettered or numbered plates A¹ A², substantially as and for the purpose set forth.

184,195. CORD-PLANTERS. E. P. Williams, Farmer City, Ill. [Filed Sept. 30, 1876.]



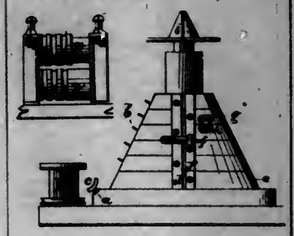
1. The combination of the cam-disk with the plungers *b* and the pin *i*, for operating said disk, as and for the purpose set forth.

2. The combination of a revolving seed-planting tube with the dropping-wheels *y* and conveying-spout *i*, operated as herein described.

3. The plates affixed to the sides of the tubes, and forming the pocket *p*, in combination with the spring *k* and plungers *b*, operated by a grooved cam-disk and the pin *i*, as described, and for the purpose set forth.

184,196. WIRE-ROPE MACHINES. Mahlon M. Sellers, Kent, Ohio, assignor of one-half his right to Edwd. L. Day, same place. [Filed July 20, 1876.]

Brief.—The tension of the strand-wires consists of a conical series of disks, alternate members of which are secured together. By an adjusting-screw the two series of disks may be turned one upon the other. A row of pins arranged in the disk edges thereby becomes zigzagged, and the wire laced about them subjected to greater tension. A scale upon one disk and indicator upon the next one indicate the degree of tension.



1. The combination, with the rope-former, of the table C, carrying independent strand-formers J, constructed as shown, and reel M, substantially as and for the purpose described.

2. In combination with the spool-carrier, the tension device for giving tension to the wires as they are drawn from the spools, consisting of the superposed disks *a*, each provided with friction-pins *b* and adjusting mechanism, whereby the several disks may be adjusted alternately in opposite directions, thereby giving any desired degree of tension to the wires simultaneously, substantially as and for purpose described.

3. In a strand-former, the combination, with spools attached to a revolving table or disk, of tension-regulating devices, one for each spool, the same constructed to be adjusted simultaneously, substantially as and for the purpose set forth.

4. In a strand-former, the combination, with spools attached to a revolving table or disk, of the several disks *a*, provided with tension devices *b* and adjusting device *f*, substantially as and for the purpose specified.

5. In a strand-former, the combination, with spools, attached to a revolving table or disk, of the several disks *a*, provided with tension devices *b*, the adjusting device *f*, and indicating device *g*, substantially as and for the purpose specified.

6. In a strand-former, the combination, with spools attached to a revolving table or disk, of disks *e*, tension devices *b*, adjusting device *f*, and perforated guide piece or pieces, substantially as and for the purposes set forth.

7. In a strand-former, the combination, with spools attached to a revolving table or disk, the several disks *e*, tension and adjusting devices *b f*, of the perforated guide piece or pieces, and forming-die, substantially as and for the purpose set forth.

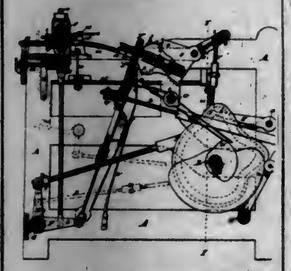
8. In a rope-machine, the combination, with strand-formers, each consisting essentially of a table or disk, carrying spools arranged about several tension-regulating disks, a perforated guide-piece and forming-die, of a rope-former, consisting of shaft with passage *f* for guiding the central strand, and perforated guide-piece for receiving and guiding the several strands, substantially as and for the purpose specified.

184,197. PROCESSES AND LIQUORS FOR MANUFACTURING PAPER-PULP. John Campbell, Spring Forge, Pa., assignor of one-half his right to R. O. Haviland, Mechanicsville, N. Y. [Filed July 17, 1876.]

1. The process of treating fibrous material by cooking it without pressure or agitation in a solution of caustic soda, potash, and oil, then drawing off the liquor in a caustic state for future use, and subsequently washing the material in separate water, all as herein described, whereby the silica and other proximates are changed in their chemical condition without changing their mechanical relations to the fiber, but are left to surround and protect the fiber until after the chemical solution is withdrawn.

2. The liquor consisting of a solution of caustic soda, potash, and oil, substantially as and for the purposes set forth.

184,198. MACHINES FOR ROUNDING AND BACKING BOOKS. Edwin Crawley, Newport, Ky., and Frank Thomas, Cincinnati, Ohio. [Filed July 10, 1874.]



1. The method of rounding books, consisting in passing the pile of sheets or signatures between the rollers C C', having a positive rotary motion, substantially as and for the purposes specified.

2. In combination with the rollers C C', the straps 31 and 32, for imparting to said rollers a positive rotary motion for rounding books, and at the same time permitting said rollers to be more or less separated according to the thickness of the book passed between them, and also to prevent loss of motion in reversing the rotary movement of the rollers.

3. In combination with the rollers C C', the springs V V' for rewinding the straps, and returning the rollers to the position they held before being revolved by the straps.

4. In combination with the rollers C C', the straps 31 and 32, and springs V V', substantially as and for the purposes specified.

5. In combination with the sliding block N, and the straps 31 and 32, employed to impart positive motion to the rollers C C', the lever P, for receiving and imparting a reciprocating movement to the block N.

6., The combination of the rollers C C', straps 31 32, sliding block N, lever P, and its spring rod Q, roller R, cam U, rocker S.

7. The combination of roller G, bars D D', rods D² D², levers F F', shaft G, and its spring G', lever H, adjustable rod I, roller W, cam K, and rocker X, for the purpose of raising and lowering roller C, and of regulating the amount of elevation and depression of roller C in relation to C'.

8. A guide for guiding a book by its back in combination with rollers for rounding the book.

9. The movable guide 36, placed between the rollers C C' and jaws, for holding the book in position for the said rollers to grasp it.

10. The combination of the arm 11 of the guide and the slotted adjustable arms for regulating the position of the book at the time of being grasped by the rounding-rollers.

11. The combination of the pieces 13, 16, 15, and 14 of the guide for bringing the center of the book opposite the center of the stud 56 of piece 13.

12. In combination with the pieces 15 and 14, the yielding vertical plates 47 and the bar 48, Fig. 10, for partially rounding the book.

13. The combination of the movable guide 36 and the rollers C C', for the purposes specified.

14. The combination of the guide 36, rod 20, lever 21, shaft 24, lever 22, rod 26, roller 27, rocker 28, and cam 29.

15. The combination of the springs 55 and bar 48, Fig. 10, as and for the purpose set forth.

16. The combination of the rollers C C', arms 44, and jaws Y Y', substantially as and for the purposes set forth.

17. The combination of the rollers C C', arms 44, provided with yielding plates 47 and jaws Y Y', substantially as specified.

18. The combination of the rollers C C', guide 36, yielding plates 47, and jaws Y Y', substantially as specified.

19. The combination of rollers C C', guide 36, arms 44, provided with yielding plates 47, and jaws Y Y'.

20. The combination of the upper jaw Y', provided with projections *i*, rods Z Z', springs *j*, and lower jaw Y, as and for the purposes specified.

21. The combination of jaws Y Y', rods Z Z', cross-head Z'', adjustable rod *a*, levers *b*, sleeve *d*, lever *e*, rod *f*, roller *g*, rocker A, and cam *i*, as and for the purposes set forth.

22. The jaws for conveying the book to and from the backing-roller, in combination with the adjustable rod K, lever 23, roller *m*, cam *n*, for drawing the jaws to the backing-roller.

23. In combination with the backing-roller and the jaws for conveying the book to and from the backing-roller, the books 38, adjusted and operated substantially as and for the purposes set forth.

24. In combination with rack-segment 2 and frame 3 3' 4 4', the devices for regulating the length of the arc described by the backing-roller, consisting of screw 5, rod 5', and yoke 6.

25. In combination with rack-segment 2 and frame 3 3' 4 4', the device for regulating the position of the arc described by the backing-roller, consisting of adjustable rod 7, substantially as set forth.

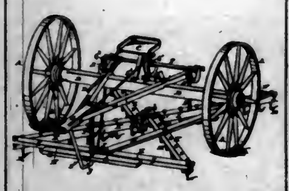
26. The combination of rack-segment 2, frame 3 3' 4 4', yoke 6, screw 5, rod 5', adjustable rod 7, roller 8, cam 9, and rocker 9', for the purposes specified.

27. The combination of the frame U, roller-frame *r*, provided with recesses q^2 q^2, and the jaw-rods Z, substantially as and for the purposes specified.

28. The arms *p*, connected to the pins *w* and to shaft 35, in combination with screws Z and set-nuts, for the purpose of raising and lowering the backing-rollers, substantially as set forth.

29. The combination of the rounding-rollers and the backing-roller and the jaws, substantially as and for the purposes set forth.

184,199. HARROWS. Wm. W. Edgerton, Wheeling, assignor to himself, James O. Gish, and Benjamin F. Dillin, Livingston County, Mo. [Filed May 4, 1876.]



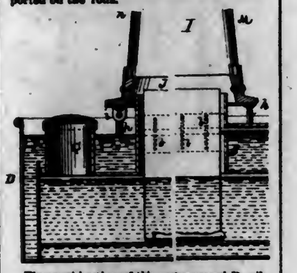
1. The harrow-section constructed of bars I K L H, arranged together substantially as described, in combination with the rod F and draw-bar G.

2. The combination, with the wheels A and axle B, of the bars L L, arranged obliquely, so as to leave a space rearward from the middle of the axle, as and for the purpose set forth.

3. The combination of the harrow-lifting chains or cords S S', sectors Q Q' Q^2, shaft P, lever R, and draw-bar G, substantially as and for the purpose set forth.

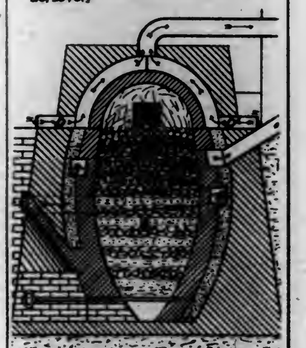
184,200. OIL-STOVES. Levi S. Ince, Almond, N. Y., assignor of one-half of his right to J. B. Gibbs, Jr., and J. M. Wetherby, same place. [Filed Sept. 20, 1876.]

Brief.—The water circulates entirely around and below the oil-reservoir. The top of the water-vessel is open, and the chimney is supported on the rods.



The combination of the water-vessel D, oil-reservoir A, with wick-tube B and inlet-tube G, the rods h h, and the hinged top or chimney, composed of the base J, having perforated diaphragms *m m*, and the top I, with or without mica windows *n n*, all constructed substantially as and for the purposes herein set forth.

184,201. HEATERS FOR GREEN-HOUSES. J. T. Trench, Kenmare, Ireland. [Filed Sept. 26, 1876.]



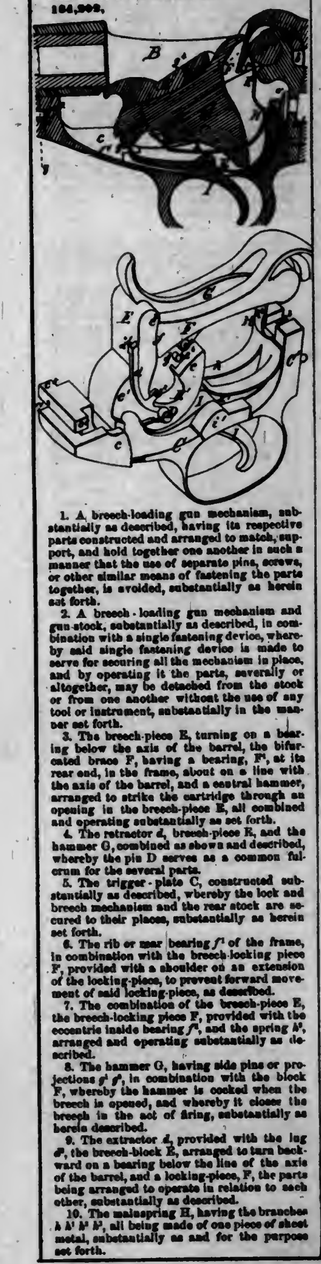
1. The combination of a limekiln, the air-heating chamber B, its inlet and outlet pipe G, communicating with the distributing-pipes of the green-house or other building to be heated, all as set forth.

2. The combination of a limekiln, the air-heating chamber E, and a heating-chamber on the top of the kiln, both chambers communicating with the distributing-pipes of the green-house or other building to be heated, all as specified.

3. The combination of the kiln, its air-heating chamber or chambers, or flues, with the receiving-box H, and the water-reservoir thereto.

184,202. BREECH-LOADING FIRE-ARMS. F. W. Freund, Cheyenne, Wyo. [Filed May 11, 1876.]

Brief.—The object of the invention is to construct an arm capable of being put together and the various parts retained in their relative positions without the use of screws or pins, and held together by a single fastening device, which may be operated by hand without the use of instruments.



1. A breech-loading gun mechanism, substantially as described, having its respective parts constructed and arranged to match, support, and hold together one another in such a manner that the use of separate pins, screws, or other similar means of fastening the parts together, is avoided, substantially as herein set forth.

2. A breech-loading gun mechanism and gun-stock, substantially as described, in combination with a single fastening device, whereby said single fastening device is made to serve for securing all the mechanism in place, and by operating it the parts, severally or altogether, may be detached from the stock or from one another without the use of any tool or instrument, substantially in the manner set forth.

3. The breech-piece E, turning on a bearing below the axis of the barrel, the bifurcated brace F, having a bearing, F^1, at its rear end, in the frame, about on a line with the axis of the barrel, and a central hammer, arranged to strike the cartridge through an opening in the breech-piece E, all combined and operating substantially as set forth.

4. The retractor *d*, breech-piece E, and the hammer G, combined as shown and described, whereby the pin D serves as a common fulcrum for the several parts.

5. The trigger-plate C, constructed substantially as described, whereby the lock and breech mechanism and the rear stock are secured to their places, substantially as herein set forth.

6. The rib or rear bearing f^1 of the frame, in combination with the breech-locking piece F, provided with a shoulder on an extension of the locking-piece, to prevent forward movement of said locking-piece, as described.

7. The combination of the breech-piece E, the breech-locking piece F, provided with the eccentric inside bearing f^3, and the spring h^3, arranged and operating substantially as described.

8. The hammer G, having side pins or projections g^1 g^2, in combination with the block F, whereby the hammer is cocked when the breech is opened, and whereby it closes the breech in the act of firing, substantially as herein described.

9. The extractor *d*, provided with the lug d^2, the breech-block E, arranged to turn backward on a bearing below the line of the axis of the barrel, and a locking-piece, F, the parts being arranged to operate in relation to each other, substantially as described.

10. The mainspring H, having the branches h^1 h^2 h^3, all being made of one piece of sheet metal, substantially as and for the purpose set forth.

11. The combination of the head *c* of the rear stock, and the notch c^2 in the rear part C' of the trigger plate, whereby the turning of the stock is prevented, substantially as described.

12. The combination of the trigger-plate C, breech-frame B, and the stock C, constructed and operating substantially as described, so that the rear stock is attached and detached from the gun without the use of screws, pins, or keys, substantially as set forth.

13. The trigger-plate C, provided with flanges *c*, the latter formed with bearing-seats for the shaft D, and with interlocking notches beneath said seats, which interlock with the breech-frame B, whereby the trigger-plate is held with its attachments firmly against vertical movement, substantially as described.

14. The combination of the breech-frame B, having depressions b^1 and c^1, and the trigger-plate C, having projections c^2, flanges *c*, and a transverse groove, C', and the wedge K, in the front stock, having the heads k k^1, and the barrel A, having an abutment, *a*, whereby the trigger-plate is secured in its place, and prevented from downward and forward motion.

15. The combination of the band-spring N, having the pin *n*, and the cap M, having the stem *m*, whereby the cap M and band J^3 are simultaneously secured to the front stock.

16. The combination of the stock J, the wedge K, the trigger-plate C, and the rod L, substantially as described.

17. The combination of the wedge K, the stock J, and the trigger-plate C, for the purpose of locking and unlocking the trigger-plate, substantially as described.

18. A breech-loading mechanism and stock, substantially as described, in combination with the cleaning-rod, whereby the said cleaning-rod is made the only fastening for securing all the mechanism in place, one part to another, and the whole to the stock, substantially as herein set forth.

19. The wedge K, provided with the pins k^1, whereby the stock J is prevented from dropping off when the cleaning-rod L is removed, substantially as described.

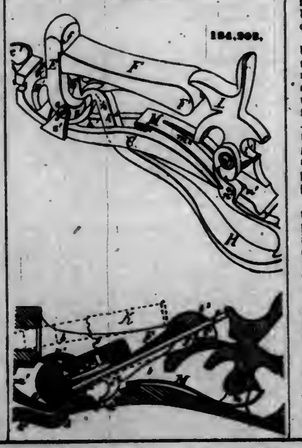
20. The combination, substantially as described, of the front stock, barrel, and cleaning-rod, as constructed that these parts can be securely attached to each other without bands, or screws, or any similar fastenings, the two former being securely locked together by the cleaning-rod, substantially as described.

21. The combination of the barrel A, having the lugs *a'* and M^1, the stock J, and the rod L, substantially as described.

22. The combination of the strap-holder F^2, the barrel A, provided with a lug, *a'*, the stock J, and the rod L, substantially as described.

23. In combination with a gun, a strap-holder having a swivel-extension, F^2, upon that part which is fastened to the barrel or stock, thereby allowing a swivel-movement of the loop attached thereto, substantially as set forth.

184,202.



184,203. BREECH-LOADING FIRE-ARMS. F. W. Freund, Cheyenne, Wyo. [Filed Feb. 23, 1876.]

Brief.—The object of the invention is to produce an arm the various parts of which may be secured in place, relatively to each other, by the operation of a single fastening device, by which separate screws or pins are dispensed with for securing the parts in position.

1. The breech-frame, closed at its sides and constructed to receive and interlock with and aid in sustaining the movable and detachable mechanism of the fire-arm, whereby the necessity for perforations for screws and pins through the breech-frame is avoided, substantially as described.

2. The constituent movable and operating parts of a fire-arm, interlocked singly and severally with one another, and sustained within the breech-frame substantially as described, whereby external screws, pins, or other fastenings inserted through the breech-frame for connecting the parts together are rendered unnecessary, and the parts may be separated without the aid of instruments, substantially as described.

3. The constituent parts of the fire-arm held in their interlocked condition, and fastened together by a final fastening device, which is capable of being operated by hand without the aid of screw-driver or other instrument, and which, when operated, places all the parts in a condition to be removed from the breech-frame and separated by hand, substantially as described.

4. The combination of the breech-piece E and breech-locking piece F, the former swinging on its axis backward and forward, and the latter on its axis downward and upward, substantially as described.

5. The trigger-plate C, or its equivalent, substantially as described, for holding interlocked or connected parts of a fire-arm in position in the breech-frame, said plate C being adapted to be secured in position without the aid of screws, pins, or other fastenings passed through the frame, substantially as described.

6. The combination, in a fire-arm, of two pieces, E and F, and a firing-pin, I, arranged to operate substantially as and for the purpose described.

7. The combination of the firing-pin I, hammer L, and lever H, or its equivalent, so arranged and constructed that the hammer is brought to the half-cock by the firing-pin without moving the breech piece or pieces, as set forth.

8. The combination of a breech-piece, E, locking-piece F, trigger guard or lever H, and trigger-plate C, constructed to operate in recesses, cavities, or curved surfaces or axis, or their equivalents, and released by the removal of the trigger-plate, substantially as described.

9. The trigger-plate C, having a flange, *c*, constructed on one side thereof, and a permanent pin, N, in combination with the hammer L, constructed and operated substantially as described.

10. The detachable trigger-plate C, having a notch, n^1, and a permanent pin, n^2, in combination with the trigger N^1, constructed and operated substantially as set forth.

11. The spring M, having two prongs, formed by splitting one end of the spring, in combination with the trigger and hammer, in the manner shown and described, whereby said spring is adapted to operate by one prong upon the hammer, and by the other upon the trigger, as set forth.

12. The spring M, provided with a dovetailed head, m^1, in combination with the trigger-plate, provided with a correspondingly-shaped recess, whereby said spring is attached by inserting its head in said recess, and giving it a partial turn, as described.

13. The combination of the hammer L, the trigger N^1, spring M, and detachable trigger-plate C, arranged so that, when the plate C is removed from the frame, the other pieces specified may be detached from or attached to the trigger-plate without the removal of pin or screw, or the use of any instrument, substantially as described.

14. The combination of the slide D or an equivalent, and barrel A, constructed with a lug, *a*, for the purpose of fastening the trigger-plate in position, substantially as described.

15. The combination of the slide D, the trigger-plate C, and the front of the stock or breech-frame, constructed as and for the purpose set forth.

16. The combination of the breech-piece E, locking-piece F, firing-pin I, and lever H, substantially as and for the purpose described.

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17. The trigger-plate C, having shoulders c', with bearings, to hold the journals c of the breech-piece E, substantially as and for the purpose described.

18. The breech-frame B, having recesses b^2 for the reception of the journals c of the breech-piece E and of the shoulders c' of the trigger-plate, substantially as and for the purpose set forth.

19. The frame B, provided with the inclined slot b^1, adapted to receive the end c of the lock-plate C, and which, in connection with the slide or key D, serves as a means for attaching said plate C, as described.

20. The frame B, having an abutment, b^3, with a semicircular bearing for the piece F, and a slot, b^4, for the firing-pin I, substantially as and for the purpose described.

21. The piece F, having an opening, f^3, on its under side, which communicates with the passage for the firing-pin, and extends nearly the entire length of said block, in combination with a firing-pin, provided with an abutment, i^2, by which longitudinal movement of the firing-pin within the block is permitted, as set forth.

22. The breech-frame B, having notches a^1 for the reception of the prongs d^2 of the slide D, substantially as set forth.

23. The trigger-plate C, having notches c^2 for the reception of the prongs d^2 of the slide D, substantially as set forth.

24. The trigger-guard H, having the construction shown at h, f^1, and b^5, substantially as and for the purpose described.

25. The combination of trigger-plate C, wedge D, shoulder c^2 on the barrel, and the front of the stock or breech frame, substantially as and for the purpose described.

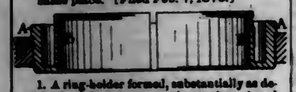
164,904. UMBRELLA-RUNNERS. Henry S. Frost, Watertown, Conn., assignor to A. N. Woolson, same place. [Filed Nov. 4, 1876.]

Brief.—The thumb-shield covering the runner-slot has both ends secured, (one tightly, the other loosely,) so as to leave no projecting free end to catch or break off.



A runner having a longitudinal slot and a vibrating spring-plate, the latter being fixed at one end, but loosely held at the other, substantially as described.

164,905. RING-HOLDERS FOR SPINNING AND TWISTING FRAMES. Owen F. Garvey, Pawtucket, R. I., assignor to Henry F. Jenks, same place. [Filed Feb. 7, 1876.]

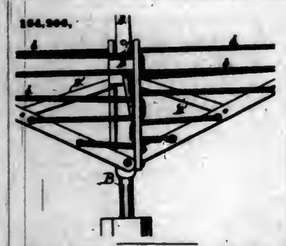


1. A ring-holder formed, substantially as described, of the two concentric members A and B, the outer member being adapted to take bearing in the ring-rail, and the inner member being adapted to hold or clamp the ring in place, as set forth.

2. A ring-holder formed, substantially as described, of the two concentric members A and B, the outer member being adapted to take bearing in the ring-rail, and the inner member herled longitudinally, to admit of its being sprung within the ring, as set forth.

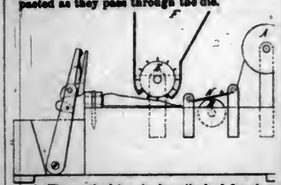
164,906. CLOTHES-DRYERS. Daniel Heffner, Germantown, Ohio, assignor to Enos Heffner, same place; said E. Heffner assignor of two-thirds his right to M. W. Marker, same place, and Daniel J. Clark, Liberty, Ohio. [Filed Aug. 4, 1876.]

The combination of the main arms U, pivoted directly to the standard B, the supplemental arms D^1, the gravitating block D, and the continuous cord b, all constructed substantially as and for the purposes herein set forth.



164,907. CIGARETTE-MACHINES. Albert H. Hook, New York, N. Y., assignor to Thos. Jones and J. H. Darlington, same place. [Filed Apr. 3, 1876.]

Brief.—A ribbon is drawn through a tube-forming die, and the tobacco falls upon the tube as it is being formed. A hand-lever draws the tube forward, and the edges become pasted as they pass through the die.



1. The method herein described of forming cigarette-cylinders, consisting in drawing a ribbon through a tube-forming die, and simultaneously feeding the tobacco upon the ribbon, the same being previously gummed and finally pasted, as herein described.

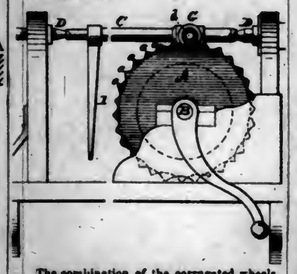
2. The combination of spool A, gumming-wheel B, trough C, cylinder D, with a mechanism for charging with tobacco and drawing the ribbon a through the trough and cylinder, as set forth.

3. The combination of the hopper F, wheel B, trough C, cylinder D, and a mechanism for drawing the ribbon a through the trough and cylinder, as described.

4. The combination of the wheel E, trough and cylinder C and D, and the drawing mechanism, as herein described.

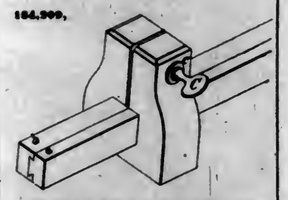
164,908. MECHANICAL MOVEMENTS. R. C. Hopping, Medina, N. J., assignor of one-half his right to H. A. Ely, same place. [Filed Oct. 11, 1876.]

Brief.—When the corrugated wheels are in motion the rollers on the projecting studs on the shaft are caused alternately to rise and fall, thereby causing the shaft to rock on the centers and give the projecting lever a reciprocating motion.



The combination of the corrugated wheels A A mounted upon a cross-shaft, the studs d d, rollers G G, shaft C having projecting lever I, and the adjusting centers D D connected to uprights, all constructed substantially as and for the purposes herein set forth.

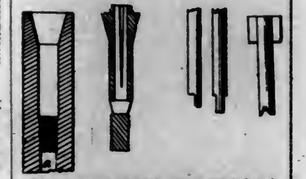
164,909. MECHANICS' GAGES. Woodbury S. How, Cincinnati, Ohio, assignor of one-fourth of his right to Wm. J. Breed, same place. [Filed Aug. 19, 1876.]



A gage-head cleft through one side in axial line with the bar, and coupled across the cleft with a clamp-screw, in combination with a scribing gage bar or rod, substantially as shown and described.

164,910. TOOL-HOLDERS. Woodbury S. How, Cincinnati, Ohio, assignor of one-fourth his right to William J. Breed, same place. [Filed Mar. 2, 1876.]

Brief.—The inner end of a round straight tool-shank is firmly held independent of, yet in conjunction with, the compressure of an end split holder by means of a suitable tang on the end of the shank, and a slot, scarf, or pin in the holder.



In combination with the shank-griping tool-holder, as herein shown, provided with a seat or seat, as described, a straight round tool-shank suitably scarfed, substantially as and for the purposes set forth.

164,911. SNAP-HOOKS. Edward B. Jones, Waverly, assignor to Annie W. Jones, Chemung, N. Y. [Filed Mar. 4, 1876.]



A snap-hook formed of a single piece of spring metal, having an open eye extended at its throat x, to form independent and uncrossed shanks, gradually diverging in their planes to form a mouth, and curved in opposite directions to form hooks opposite the said shanks, substantially as herein shown and described.

164,912. POLISHING STONE CYLINDERS. C. C. Maurice, New York, N. Y. [Filed May 6, 1876.]

Brief.—The cylinder to be operated upon is mounted so as to be revolved in fixed bearings, and parallel therewith are mounted guide-rods and double-cut right-and-left-hand screws, to guide and carry back and forth a carriage containing the tool for grinding, polishing, &c.

The combination of fixed bearings B for the shaft C of the cylinder, to be turned with a guide-rod, H, running parallel to said shaft, a tool-stock, I, and a duplex right-and-left-hand screw-spindle, G, which engages with the tool-stock, the whole being constructed and operating substantially in the manner herein shown and described.

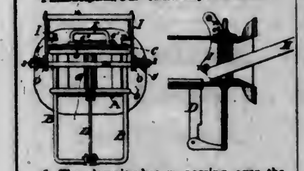
164,913. WASH-TUBS. E. W. McClelland, Cerro Gordo, Ill. [Filed Dec. 7, 1876.]



1. As a new article of manufacture, a wash-tub, provided with means for the attachment of legs, substantially as and for the purpose specified.

2. In combination with the wash-tub, the sockets E and legs C, substantially as described, for the purpose specified.

164,914. CAR-COUPLINGS. Geo. R. Moore, Philadelphia, Pa. [Filed Apr. 16, 1874.]



1. The clamping-bar m, passing over the link to hold it down by pressure, and operated by the lever I, in combination with the draw-head, substantially as shown.

2. The screw S and spring S', for graduating the frictional power of the clamp upon the link, in combination with I and m, substantially as shown.

3. The friction-plate O between I and S, substantially as shown.

4. The cross-bar m, in combination with I and m, substantially as shown.

5. The stays P P, for preventing the raising of the pin when the clamp is down, substantially as shown.

164,915.



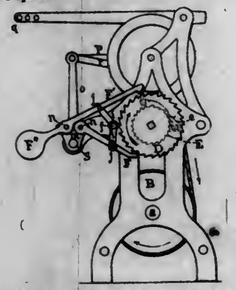
164,916. TABLE-OUTLERY. Richard N. Oakman, Jr., New York, N. Y., assignor to John Russell Cutlery Company, Turner's Falls, Mass. [Filed Nov. 6, 1875.]

Brief.—The guard is pivoted in a recess upon upper side of fork-shank, and has two legs attached to it above the recess. When the guard is raised the two legs project downward and hold the fork clear of the table-cloth. The recess contains a spring.

The combination of the recess and spring in back of shank, and the guard hinged in said recess, with the two legs attached to said guard above the recess and folding with one prong at each side of shank, as and for the purpose specified.

164,916. MOTORS FOR CHURNS, &c. Henry Odell, Peekskill, assignor to himself and Wm. S. Sisey, New York, N. Y. [Filed Oct. 6, 1876.]

Brief.—A coiled spring, barrel, fusee, and escapement-wheel operating weighted pawls on a shaft, which transmits the motion to a fly-wheel and a bell-crank shaft, the movement of the pawls being regulated by slotted arms on a spindle.

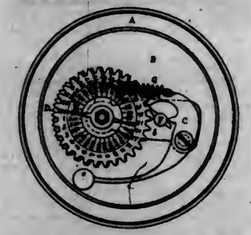


1. The pawls F F', in combination with the slotted pivoted links i i, substantially as described.

2. The pawls F F', pivoted slotted links i i, and wheel D, in combination with the rock-shaft S and plate m, all arranged to operate substantially as set forth.

3. The spring-barrel B, fusee C, and escapement-wheel D, in combination with the pawls F F', rock-shaft S, plate m, and slotted links i i, all arranged to operate substantially as described.

164,917. CAR-FARE REGISTERS. John Solter, Baltimore, Md., assignor of two-thirds his right to G. V. Keen and J. S. Hegarty, same place. [Filed Oct. 13, 1876.]

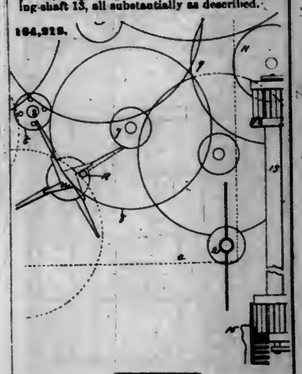


As a car-fare-registering device, an instrument consisting substantially of the casing A, differentially-toothed wheels D E, pointers H I, spindle F, bell-crank C, and gong B, one arm of the said bell-crank being employed to sound the said gong, and the other to stop or limit the movement of the said wheels D E, for the purpose specified.

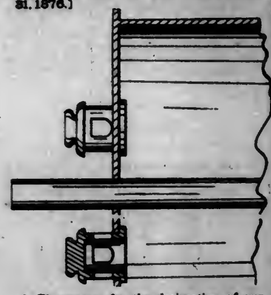
164,918. ADVERTISING-CLOCKS. William C. Spellman and Francis A. Goslin, New York, N. Y., assignors to said Spellman and C. M. Rowley, Boston, Mass. [Filed Oct. 10, 1876.]

1. A time measuring and indicating mechanism and an indicating-wheel, t, in combination with an advertising-belt, its roller 15, the stopping device s e x, and the connecting-shaft 13, driven by a train of gearing, all constructed substantially as described, to move the advertising-belt, and hold it at rest at determined intervals of time, substantially as described.

2. In combination, the indicating-wheel, the stopping device, the roller 15, the wheel 8, and pin 18, the gearing 9 11 12 14 24, and connecting-shaft 13, all substantially as described.



164,919. PROCESSES AND APPARATUS FOR DESICCATING EGGS. Wm. O. Stoddard, New York, N. Y., assignor to American Egg Company, same place. [Filed Mar. 31, 1876.]



1. The process for the desiccation of egg substance or other similar material, consisting in exposing the same for desiccation to blasts of heated air upon a rotating surface artificially maintained at a temperature below that of the drying-blast, such temperature being regulated and controlled so as to prevent injury to the material in process of desiccation, substantially as described.

2. In an apparatus for desiccating egg or other substance in sheets or layers, for the purposes indicated, a hollow rotating body for the reception and desiccation of such substance constructed with ventilating-apertures, as described, so that when the cylinder is rotated and the drying-blast applied a ventilating current or currents of air will be caused to move between the interior and exterior of said cylinder through the apertures, substantially as and for the purpose set forth.

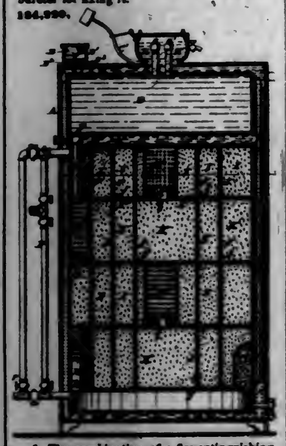
3. In a desiccating apparatus, a hollow rotating body for desiccating purposes having apertures for interior ventilation, and caps or valves to regulate and control the latter, substantially as described.

164,920. CARBURETERS. C. A. A. Trenchevent De St. Aubin, St. Louis, Mo., assignor of one-fourth his right to Western Beacome, same place. [Filed May 4, 1876.]

Brief.—The oil-reservoir and carbureting-chamber are inclosed in a water-jacket case. An automatic feed supplies oil from the reservoir to the carbureting-chambers. The oil and vapor pipes of the reservoir extend into a funnel-shaped vessel and are water-sealed. As a safety against fire, a fire-extinguishing appara-

tus is connected with the carburetor, consisting of alkaline water in the water-jacket, and a bottle of acid-water, and a spring-hammer for breaking said bottle and admitting its contents to the alkaline water. The carbureted gas is heated on its passage from the carburetor for firing it.

184,920.



1. The combination of a fire-extinguishing apparatus, B C, with a carbureting-chamber having a surrounding water-case, substantially as set forth.

2. The combination, with a carburetor having a water-case, of the case B', containing a receptacle, B, for fire-extinguishing acid, the hammer C, and fracturing-point B', as and for the purpose set forth.

REISSUES.

7,260. TUMBLER-WASHER. R. W. Russell, Baltimore, Md. Patent No. 72,011, dated Dec. 31, 1867. [Filed Aug. 9, 1876.]

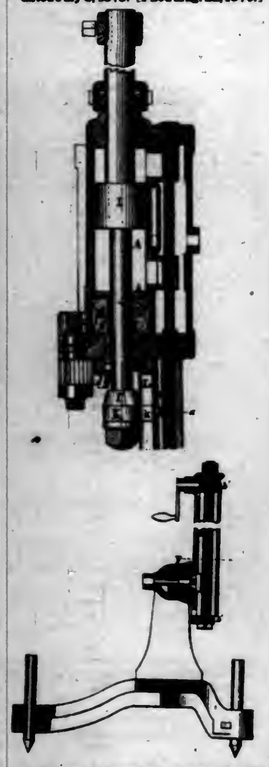


1. The water-pipe B, cap C, valve D, and rod E, combined in a tumbler-washer, substantially as and for the purposes shown.

2. The water-pipe B, with the rod E and a valve, D, in the said pipe, combined and arranged in a tumbler or other washer, for the purposes shown.

3. In a tumbler-washer, the combination, with a water-supply pipe having openings for the emission of the water, of a valve adapted to be opened by the weight of the tumbler, and to be closed by the current of the water in the pipe, all as and for the purpose set forth.

7,261. ROCK-DRILLS. Henry C. Sargeant, New York, N. Y., assignor to the Ingersoll Rock Drill Company. Patent No. 140,596, dated July 8, 1873. [Filed Aug. 22, 1870.]



1. The base or tripod of cast-iron, with two upright pieces, forming a jaw for holding the clamp F, in combination with the adjustable feet, operating substantially as shown and described.

2. The cone on the back B of a rock-drill, in combination with the socket F, made to receive the cone, they being bolted together, substantially as shown, and for the purpose described.

3. The reversible ends b' b', in combination with the extended feed-screw D, so as to allow reversing and bolting together, as shown and described.

4. The combination of the crank, bevel-wheels, reversible ends, and feed-screw, operating substantially as described.

5. The arm K, working between the flanges or collars, and having a reciprocating and oscillating motion, in combination with the stationary spiral incline L and sleeve M, for the purpose shown and described.

6. The elastic cushion and packing-box H, constructed and operated as shown and described.

7. In a rock-drill, an elastic cushion placed within the steam-space of the cylinder, in combination with the piston, whereby said cushion is made to arrest the movements of the piston and drill at either end of the cylinder, substantially as described.

8. The metal ring placed between the piston-head and cushion, and arranged to receive the blow, thereby protecting the elastic cushion from being destroyed.

7,262. WHIP-TIPS. Clark R. Shelton, New Haven, Conn., assignor, by mesne assignments, to the American Whip Company. Patent No. 74,435, dated Feb. 11, 1868. [Filed Dec. 1, 1875.]

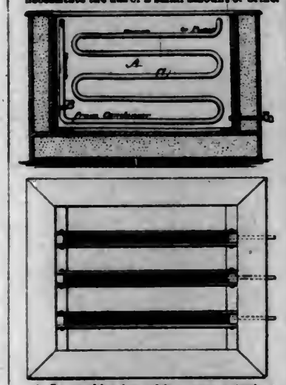


1. As a new article of manufacture, a whip-tip provided with a socket, so as to be attached to the stock proper, as and for the purposes set forth.

2. The combination of a whip-stock with a detachable tip, substantially as and for the purpose specified.

7,263. ICE-MACHINES. David Smith, San Francisco, Cal., assignor of part interest to C. W. M. Smith. Patent No. 173,257, dated Feb. 6, 1876. [Filed Apr. 26, 1875.]

Brief.—The brine in the brine-tanks is kept in a state of rest, no agitators being employed. The sides of the brine-tanks are placed close to the coil-pipes contained therein, so as to necessitate the use of a small amount of brine.



1. In combination with a proper tank, a congealer having metallic sides and wooden ends and bottom, and insulated at the bottom thereof, except at the ends, from the bottom of the tank, substantially as and for the purpose set forth.

2. In combination with a congealer, the evaporating-coil C, with the pipe arranged in the same vertical plane, and having an increasing space downward between the pipes, substantially as and for the purpose described.

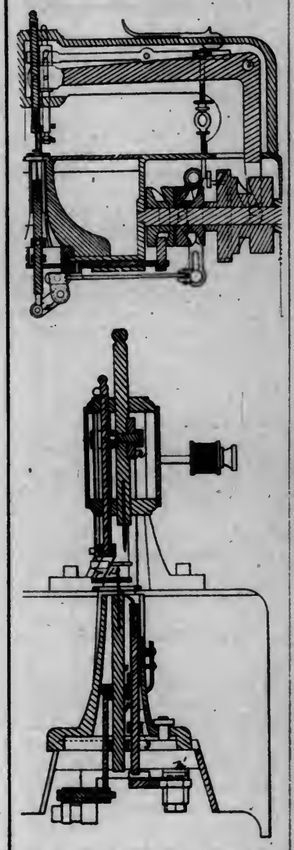
3. The evaporator-coil C, constructed and arranged with the condenser end of the pipe bent directly down to its lowest point, then extended at right angles across the condenser, and then bent back and forth across the same, in the same vertical plane to the top of the same, substantially as and for the purpose set forth.

4. In combination, a congealer and an evaporator-coil, arranged vertically within the same, and occupying nearly the entire space from side to side of the same, for the purpose of admitting only a thin film of the non-congealable fluid in each space, substantially as and for the purposes described.

5. In combination, in a congealer-box, an evaporating-coil, arranged vertically within the same, and occupying nearly the entire space from side to side of the same, and a thin film of non-congealable fluid in the same in a state of rest, substantially as described

7,264. SEWING-MACHINES. The Shoe Machinery Manufacturing Company, Boston, Mass., assignee of H. B. Townsend, administrator of Elmer Townsend, deceased. Patent No. 94,915, dated Apr. 6, 1869. [Filed Sept. 16, 1876.]

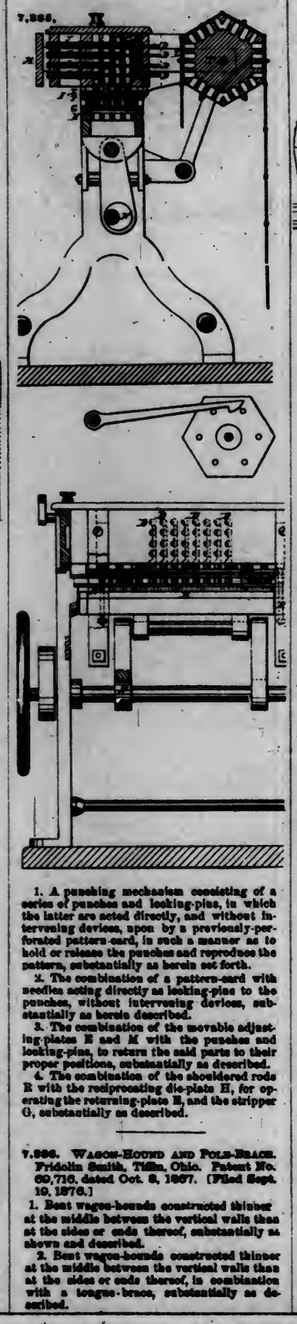
Brief.—A waxed-thread sewing-machine. The awl above the material punctures a hole for the passage of the hooked needle upward from below the material, where it is supplied with thread to form the chain-stitch. The needle and cast-off are reciprocated vertically in a head which moves laterally, causing the needle then in the material to feed it forward the length of the slide.



1. An awl to puncture the material, a lifting-presser, and a thread-guide, all arranged above the material and work-support, in combination with a hooked needle and cast-off below the table, and with means to impart to them movements to form the stitch and feed the material, substantially as described.

2. The post-like work-support and its overhanging throat-plate, in combination with a movable head, adapted to carry the hooked needle and cast-off, and impart to the needle its feeding movement to move the material, substantially as described.

7,265. MACHINES FOR PERFORATING PAPER. Lyman A. Upson, Enfield, Conn. Patent No. 153,026, dated July 14, 1874. [Filed Dec. 11, 1876.]



1. A punching mechanism consisting of a series of punches and locking-pins, in which the latter are acted directly, and without intervening devices, upon by a previously-perforated pattern-card, in such a manner as to hold or release the punches and reproduce the pattern, substantially as herein set forth.

2. The combination of a pattern-card with needles acting directly as locking-pins to the punches, without intervening devices, substantially as herein described.

3. The combination of the movable adjusting-plates E and M with the punches and locking-pins, to return the said parts to their proper positions, substantially as described.

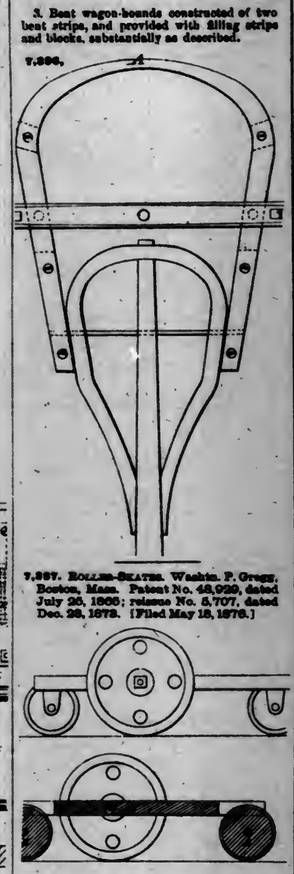
4. The combination of the shouldered rods E with the reciprocating die-plate H, for operating the returning-plate E, and the stripper G, substantially as described.

7,266. WAGON-HOUND AND POLE-BRACE. Fridolin Smith, Tiffin, Ohio. Patent No. 60,716, dated Oct. 8, 1867. [Filed Sept. 19, 1876.]

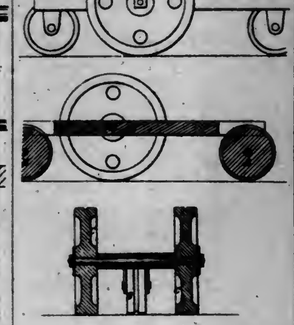
1. Bent wagon-bounds constructed thinner at the middle between the vertical walls than at the sides or ends thereof, substantially as shown and described.

2. Bent wagon-bounds constructed thinner at the middle between the vertical walls than at the sides or ends thereof, in combination with a tongue-brace, substantially as described.

3. Bent wagon-bounds constructed of two bent strips, and provided with filling strips and blocks, substantially as described.



7,267. ROLLER-SKATES. Washington P. Gregg, Boston, Mass. Patent No. 42,929, dated July 26, 1866; reissue No. 5,707, dated Dec. 28, 1872. [Filed May 18, 1876.]



A roller-skate constructed with a stock or foot rest having a small supporting-roller under each end, and a larger driving-roller on each side, arranged outside of the foot-rest, and having the bearing-surface lower than the end rollers, substantially as described.

7,268. BALE-TIES. Arthur Barberie, New Orleans, La., assignor, by mesne assignments, to William H. Low, Albany, N. Y. Patent No. 66,055, dated June 25, 1867. [Filed Oct. 11, 1876.]

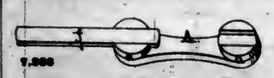
1. A wire bale-tie, having a loop at one or both ends, made by turning back the end of the wire to the body of the tie and twisting the two parts together for the purpose of giving greater strength to the loop, as herein specified.

2. The fastening device A, by means of which the two loops of a wire bale-tie are firmly connected together, substantially as and for the purpose herein specified.

3. The combination of a ready-made wire bale-tie, provided with loops formed by twisting the two parts of the wire together, as herein described, with a fastening device, by means of which the two loops are firmly connected, substantially as and for the purpose herein specified.

7,888.





7,889.



7,889. PAPER DISHES. John Wm. Jarboe, Green Point, N. Y., assignor to Chalmers Ingersoll and Henry F. Hobart, Beloit, Wis. Patent No. 99,200, dated Jan. 25, 1870. [Filed Aug. 9, 1876.]

As a new article of manufacture, a paper dish composed of finished paper or paper-board formed into the desired shape, substantially as and for the purpose set forth.

7,890. PROCESSES OF HARDENING AND TOUGHENING THE CHILLED SURFACES OF CAST-IRON. John S. Robinson, Canandaigua, N. Y. Patent No. 148,849, dated Mar. 24, 1874. [Filed Sept. 2, 1875.]

The within-described process for carbonizing and toughening the surfaces of mold-boards of plows and other castings, it consisting in the application thereto of pulverized charcoal while portions of said castings are yet in an unfit condition to be removed from the molds owing to the high degree of heat contained therein when the coal is applied, as set forth.

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(CIRCULAR.)

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *November* 20, 1876.

Rule 51 of the revised Rules requires that applications for reissue shall be put in interference with subsequent as well as prior patents, when in conflict therewith.

Considerable confusion having already arisen as to the proper interpretation of the word "conflict" herein, as regards interferences with patents granted subsequent to the patent on which the reissue is based, Examiners are hereby informed that a reissue application should not be put in interference with such subsequent patents, unless the latter include in their *claims* the subject-matter *claimed* in the reissue application.

Where, however, the subsequent patent was granted on an application pending during the pendency of the application for the patent on which the reissue is based, and which application showed clearly the conflicting matter now claimed on reissue, the interference will be declared for the purpose of ascertaining the right of priority of the reissue applicant.

All interferences now pending in which the above course has not been observed will be dissolved.

W. H. DOOLITTLE, *Acting Commissioner.*

NOTICES.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

R. H. DUELL, *Commissioner.*

U. S. PATENT OFFICE,
WASHINGTON, D. C., *November* 1, 1876.

The "Rules of Practice in the United States Patent Office" have been revised, and changed in some particulars. Copies can be had gratis on application to the Patent Office, either in person or by letter.

R. H. DUELL, *Commissioner.*

NOTICE TO MANUFACTURERS AND OTHERS.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

COMMISSIONER'S DECISIONS.

CHAMBERS & MENDHAM *vs.* DUNCAN, WILSON & LAUDER.

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the patent granted to Cyrus Chambers, Jr., and Wm. Mendham, August* 5, 1873, *filed May* 13, 1873, *and the application of Geo. Duncan, W. A. Wilson, and Geo. Lauder, filed February* 14, 1873, *for* "IMPROVEMENT IN PRINTING-PRESSES."—*Decided October* 26, 1876.]

The doctrine that a foreign patentee cannot go behind his foreign patent to prove the actual date of his invention, in order to establish priority over an invention made in this country, reiterated.

The Office is governed by the same rules as the courts respecting the kind and character of evidence which shall be received in establishing the fact of invention.

A lower or different grade of evidence should not be received by the Office in the grant of a patent than the courts require in sustaining the same.

It is the duty of the Commissioner to refuse a patent which he is satisfied the courts would not sustain.

An invention cannot be regarded as patented in a foreign country until the complete specification is there made public.

The date of the enrollment of the final specification, and not that of sealing the same, or of filing the provisional specification, is to be regarded in this country as the date of an English patent.

Proof that an invention was made in this country prior to the date of the foreign patent is sufficient to establish priority in an interference.

The experimental use of a machine more than two years before filing an application does not affect the right to a patent.

The fact that there resided in this country one of three foreign joint inventors having a knowledge of the perfected invention abroad, but not making it public until after other *bona fide* inventors here had conceived and perfected the same invention, does not render his testimony admissible to prove the date of the invention abroad.

His knowledge was of an invention made in a foreign country, and the law recognizes as a bar to the grant of a patent such knowledge only when made available through the means of a patent or printed publication.

The invention must have been known, as *invented* in this country or used by others here, or patented or described in some printed publication in this or a foreign country prior to the invention or discovery of the applicant in order to debar his right to a patent here.

In an interference proceeding a patent or an application is simply *prima facie* evidence of invention, and subordinate to other proofs taken to show the actual date of the invention. It controls only when the proofs on one side fail to overcome the *prima facie* case made by the other.

[*Stansbury & Munn*, attorneys for Chambers and Mendham. *Bakewell & Kerr*, attorneys for Duncan, Wilson & Lauder.]

DOOLITTLE, *Assistant Commissioner:*

The principal question in this case is whether a foreign patentee can go behind his foreign patent to prove the actual date of his invention, in order to establish priority over an invention made in this country.

This question was discussed by the Commissioner upon the hearing of a motion in this case March 21, 1876, which decision is recorded in 9 OFFICIAL GAZETTE, 741. The same question had been previously considered in the most thorough and elaborate manner by his predecessors in the cases of *Tucker and Davis*, (2 OFFICIAL GAZETTE, 224;) *Carr* vs. *Davis*, (3 OFFICIAL GAZETTE, 440,) and *Smith* vs. *Barter*, (7 OFFICIAL GAZETTE, 1.)

Nearly all the reasons and authorities that could be given or cited now to sustain the practice of the Office in denying this right were then adduced, and as I have been unable to see in the last argument presented by the counsel for appellant any new and sufficient reason for abolishing that practice, it would be an unnecessary repetition to again reply to the grounds taken by him. Neither do I deem it worth while to enter upon the discussion of the proposition, substantially advanced in this case, that there is one rule of evidence for the courts, and another, and a very different one, for the Office in establishing the fact of invention. I have been unable to find any decision of the courts which intimates that the Office is justified in receiving a lower or different grade of evidence in the grant of a patent than the courts require in sustaining the same. If by any means such a rule were established it would, in my opinion, be the greatest outrage imaginable upon inventors. What could be more unjust than that the Patent Office should grant to one of two contesting parties a patent on the ground that he was the first inventor when the courts would hold the same patent invalid because the character of such evidence was not sufficient to establish priority of invention!

It was remarked by the Attorney-General, in discussing this very question, that "it is impossible that an executive officer should regard that as an objection to the grant of a patent which the courts of law are bound to overrule as unavailable." (5 Attorney-General's Opinion, 18.)

This opinion was rendered in reply to a communication made by this Office upon this matter, and the rule there prescribed is the one now in force.

The same idea was set forth by the Commissioner in *Hammond* vs. *Laird*, (7 OFFICIAL GAZETTE, 170,) as follows:

The United States courts are the authoritative expositors of the patent law, and it is, therefore, the manifest duty of the Commissioner of Patents to refuse a patent which he is clearly convinced the courts would declare invalid, if granted.

Neither can an invention be regarded as patented in a foreign country until the complete specification is there made public. An English provisional specification, or the date of sealing the same, cannot, therefore, be regarded as the date of the patent in this country, but the date of enrollment of the final specification, which is regarded as the date of publication. (*Howe* vs. *Morton*, 1 Fish., Pat. Cas., 586; *Brooks* vs. *Norcross*, 2 Fish., 661; *Jas. Cochrane*, Commissioner's Decision, 1869, p. 60; *Weston* vs. *White*, 9 OFFICIAL GAZETTE, 1196.)

In the previous decision in this case, on the motion above referred to, a mistake was made as regards this date. It was there stated that the complete specification was enrolled and the patent sealed May 16, 1871. It was sealed on that day, but the specification was not enrolled until the 19th. Even if the matter in controversy had been fully described in the provisional specification, which was filed November 19, 1870, it could not be regarded as a proper reference unless the same was then printed and published. But only a part of the combination in dispute is described in the provisional specification. The combination is, in a machine for folding paper—

Two folding-rolls, one of said rolls being provided with a tongue or folding-blade, and the other with a vibrating griper-blade.

The gripers are not mentioned in the provisional specification.

The proof in behalf of Chambers and Mendham clearly shows that prior to May 19, 1871, the date of the filing of the final English specification, they had not only conceived this invention, but embodied it in a machine which they subsequently used. Although it appears that their first practical use of it in a machine was more than two years prior to the filing of their application for a patent, yet it is also shown that such use at that time was merely experimental, and not a public use of a perfected machine.

It is contended further that Lauder brought the knowledge of this machine to this country in May, 1870, long before Chambers and Mendham conceived it.

From aught that appears in the testimony, this knowledge was confined by Lauder to his own breast until he joined with his colleagues in filing their application, February 14, 1873. The only knowledge, therefore, so far as it appears in this case, that others had of the invention in this country, before the discovery thereof by Chambers and Mendham, was the knowledge of Lauder that the invention had been made in a *foreign* country.

Section 4886, R. S., provides that—

Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known nor used by others in this country, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor.

Now the only knowledge of a foreign invention which the law recognizes as a bar to the grant of a patent is the knowledge made available through the means of a patent or printed publication. If knowledge of such invention comes to this country in any other way and is not imparted to the inventor before his discovery thereof, the law will not regard a patent granted to him as invalid, as is seen from the following language of section 4923:

Whenever it appears that a patentee, at the time of making his application for the patent, believed himself to be the original and first inventor or discoverer of the thing patented, the same shall not be held to be void, on account of the invention or discovery, or any part thereof, having been known or used in a foreign country, before his invention or discovery thereof, if it had not been patented or described in a printed publication.

In other words, the invention must have been known as *invented* in this country or used by others here, or patented or described in some printed publication in this or a foreign country prior to the invention or discovery of the applicant, in order to debar his right to a patent here.

Had Lauder, on his arrival here in 1870, constructed and used this machine or published a description of the same, the matter would then have stood in a very different light. Such a knowledge or use would then have existed as would have prevented any subsequent inventor from receiving a patent.

Upon this point, and in construing a proviso in section 15 of the act of 1836, which is the same in language as section 4923, above quoted, the Supreme Court of the United States, in *Gayler* vs. *Wilder*, 10 How., 477, held:

And in the 15th section, after making the provision above mentioned, there is a further provision, that, if it shall appear that the patentee at the time of his application for the patent believed himself to be the first inventor, the patent shall not be void on account of the invention or discovery having been known or used in any foreign country, it not appearing that it had been before patented or described in any printed publication.

In the case thus provided for, the party who invents is not, strictly speaking, the first and original inventor. The law assumes that the improvement may have been known and used before his discovery. Yet his patent is valid if he discovered it by the efforts of his own genius, and believed himself to be the original inventor. The clause in question qualifies the words before used, and shows that by knowledge and use the legislature meant knowledge and use existing in a manner accessible to the public. If the foreign invention had been printed or patented, it was already given to the world and open to the people of this country, as well as of others, upon reasonable inquiry. They would, therefore, derive no advantage from the invention here. It would confer no benefit upon the community, and the inventor, therefore, is not considered to be entitled to the reward. But if the foreign discovery is not patented, nor described in any printed publication, it might be known and used in remote places for ages, and the people of this country be unable to profit by it. The means of obtaining knowledge would not be within their reach, and, as far as their interest is concerned, it would be the same thing as if the improvement had never been discovered. It is the inventor here that brings it to them and places it in their possession. And as he does this by the effort of his own genius, the law regards him as the first and original inventor, and protects his patent, although the improvement had in fact been invented before, and used by others.

An attempt has also been made to show that the practice on some of the above points should vary as one of the parties may or may not have a patent, and as to the date of filing the application. In an interference proceeding a patent or an application is simply *prima facie* evidence of invention, and when proof is taken to show the actual date of the invention by either party, the question of priority is determined on that proof without regard to the time of filing the application or the fact of a patent having been granted, unless it be found that the proof advanced on one side be insufficient to overcome the *prima facie* case made by the other.

The Commissioner concurs in affirming the decision of the Examiners-in-Chief.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—NORTHERN DISTRICT OF OHIO.

HENRY F. MANN *vs.* EDWIN BAYLISS.

[*In chancery.—Before* EMMONS, *C. J.—April term*, 1876.]

[An incomplete report of this case was published in the OFFICIAL GAZETTE, July 25, 1876, p. 113. The following is a more extended report, as published in the Chicago *Legal Times*, October 7, 1876.]

The claims in a patent should be liberally construed, but must be limited by the state of the art, showing the degree of improvement effected.

Combining a curved metal receiver with an elevated, instead of a horizontal, delivery involves no invention, and is not patentable.

A disclaimer made by an attorney in the prosecution of an application does not necessarily estop the patentee from maintaining that his claim embraces the matter so referred to.

[*Geo. H. Christy* and *Wm. Bakewell*, for complainant. *S. A. Goodwin*, for defendant.]

In this cause, complainant's bill recites that he is owner of letters patent of the United States, dated Febrnary 23, 1871, being a reissue and extension of Letters Patent No. 15,044, dated June 3, 1856, said reissued letters patent being numbered 4,281, for an Improvement in Harvesters, complainant having been one of the original patentees, and having acquired the interest of his co-patentee, Jacob J. Mann, by an assignment from said Jacob's administrator.

The improvement consists, in brief terms, in having an elevated side delivery of the cut grain in the straw, by means of an endless apron, whereby the grain is discharged into a stationary receiver, of concave form, from whence, by means of a revolving rake, the teeth of which describe a circle nearly coincident with the circle of which the concave receiver forms a segment, the grain is gathered into gavels of suitable size for binding into sheaves or bundles, and discharged upon the ground. The bill prays answer, account of profits and damages, and injunction in the usual form.

The answer denies originality and novelty of the invention, as also infringement, in that whereas by complainant's device the grain is discharged into a receiver which is "concave" in form, the machines constructed by defendant discharge their grain by a slightly-inclined chute from the elevating-apron onto a receiver which is "flat and horizontal," from which it is taken by the binder without the use of the revolving rake.

On the hearing, the question turned mainly upon the fourth claim of complainant's patent, which is in these words:

4. The stationary concave receiver I, having a continuous surface, arranged as described at the side of a harvesting-machine, having an elevated side delivery so as to receive the cut grain

from the elevating and delivery apparatus, and collect the same into gavels preparatory to their being discharged from the machine.

The following are the conclusions arrived at by the court in this case. The notes of the short-hand reporter were so imperfect as to render anything like a literal reproduction of the judgment impossible. This outline is sanctioned by the court as correct.

Judge Emmons, at the close of the argument in the afternoon, announced at some length what he termed the strong inclination of his mind, but said as there was an hour or two before adjournment, and no other business would be taken up, he invited the learned counsel for the complainant to discuss the case further in reference to the objections which the court had presented to the injunction asked for.

Counsel occupied the time in replying to the suggestions of the judge.

The following morning the court announced judgment substantially as follows:

His Honor said that after the very full conversational interchange of opinion during the argument, it was mere matter of form to add anything now. Nothing new would be communicated.

A strong sympathy was expressed with those canons of construction which so interpret a claim as to protect what a meritorious invention had created. He was just as much entitled to his right of property as a farmer to his wheat, or the fat which he put upon his animals. If the invention be trivial, and no important change be wrought in the department of labor into which the device was introduced, a less liberal construction of claims should be indulged in, and a less liberal application of the doctrine of mechanical equivalents should be extended.

The fourth claim is alone in controversy here, and its interpretation the only question necessarily to be decided. The answer insists that when properly interpreted the defendant does not infringe, and that if construed so as to include defendant's device, it is antedated by similar receivers before existing.

We hold the fourth claim to include the conditions in which this curved metallic receiver could alone be used in the originally patented device. To construe it otherwise, and make it include, as plaintiff's counsel contend, every kind of barrier between the apparatus of an elevated delivery and the binding-table upon a harvesting-machine, save a perpendicular one, would, upon principles too familiar to be argued at length, render it void. Substantially, it would include all modes, which, in the patent law, is impossible. No man of ordinary intelligence, desiring to annex a table to a harvester, would fail to insert some obstruction between the one and the other, to prevent the grain being carried by the wind into the moving machinery. It would be an equal lack of intelligence to make it perpendicular; and this prior patent of Mann's was by no means necessary to instruct him to make it obliqne, and carry it so far forward upon the table as to bring the fallen grain within the reach of the binders. The defendants, in annexing their new and useful binding-table to an old and familiar device, have adopted the only possible mode of conducting the grain from one to the other. Learned counsel were repeatedly asked to conceive of any other. They were unable to state any. To construe this fourth claim so as to include what defendant has actually done, would impute to the patent law the folly of granting to one citizen the right to divorce, during fourteen years, this useful addition from the machine it was intended to improve, and where their union required no device or contrivance which an ordinary citizen, without any mechanical knowledge whatever, would not readily adopt. This consequence is demonstrative that the Patent Office could not have intended it. It patented the receiver with the rake and accompanying conditions. We read this fourth claim so as to include them. Thus construed, the defendant's device is conceded not to infringe it.

We place some confidence in the fact that as often as learned counsel for the complainant were asked to state the leading features of this device and what distinguished it from what preceded it, they invariably pointed to the accompanying conditions which the court include in this fourth claim, and none of which are employed by this defendant.

If this claim is to include only a piece of curved metal fastened to the side of the harvester so as to receive the fallen grain, then his Honor thought it was antedated by several other devices given in evidence. It was answered, he said, that none of them had been found in combination with an elevated delivery. He thought, however, it would not be a good combination claim to take such a device from a horizontal delivery and combine it with an elevated one.

He could not impute to the officers an intention of granting a patent for such a combination. There was no invention in taking it from one and placing it upon the other. It was the other features of the combination which secured the grant, and which accidentally could be used only with an elevated delivery. Take away these features and there was nothing like a patentable combination growing out of the union of an elevated delivery with the piece of curved metal.

The position that defendants infringed, even though the claim was construed to include a receiver with an outer edge so as to collect the grain into gavels that it may be discharged by revolving a rake, was considered at some length. Answering the arguments of complainant's counsel, among other things, Judge Emmons said the broad level surface of the table was no mechanical equivalent for the narrow basin and turned-up outside edge of the receiver. The one collected the grain into gavels, the other did not. The one was intended to perform the particular function of arranging the grain so as to permit the action of a rake to sweep the straw in suitable parcels to the ground. The other required no such function, and could by no possibility perform it. The position was pronounced wholly untenable that the bodies of the men in the man-holes, and their arms and fingers, when in action, were the mechanical equivalents of the outer edge of the receiver and the action of the rake.

His Honor said, while he did not assent to the argument of the learned counsel for the defendant that the complainant was estopped by the declaration of his pleader in the Patent Office, that this curvilinear receiver was old, and that, therefore, he did not claim it, still in cases of this character such a deliberate assertion was not without its influence. He felt some relief, in denying this injunction, that he was not compelled to go outside of complainant's own record for a plain declaration that he was right in the construction of this claim. He should be unwilling to have it thought the concession found in these papers constituted a very influential element in the reasons which induced his judgment. But when the whole history of this case was looked at, and it is remembered that this is a reissue seeking to claim something thought of originally only to be disclaimed, this matter may be well mentioned as a provocation to pretty close scrutiny of the extraordinary claim now insisted upon—one which declares to every citizen that he shall not insert between a novel device and an old one, to neither of which complainant has any right, a thing so simple, so utterly destitute of everything like invention as the oblique board or common "chute" down which the grain falls upon the binding-table, in the case before us.

Judge Emmons said, in conclusion, that although he could give no reason for any doubt in this case, and the decision seemed to him plainly right, yet compelled as he was to dispose of them upon the moment, having no more time elsewhere than here to examine them, it would do the court great injustice not to suppose it recognized fully the great liability to error in such conditions. He had in this instance given, as in all similar instances he gave, to counsel the opportunity of meeting and overcoming the objections of the court. It was a satisfaction to him to know that the complainant in this instance had been represented by counsel as experienced, learned, and able as they had been zealous, and, as he might say, enthusiastic in argument.

The usual decree dismissing the bill will be entered.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 14, 1876.]

9,616.—Bracelets.—HENRY CARLILE, Jr., Philadelphia, Pa. Application filed October 5, 1876. Term of patent 3½ years.

9,617.—Drinking-Fountain.—JOSEPH W. FREE, New York, N. Y. Application filed October 26, 1876. Term of patent 7 years.

9,618 and 9,619.—Match-Safes.—OTTO F. FOGELSTRAND, Kensington, Conn., assignor to HART, BLIVEN & MEAD MANUFACTURING COMPANY, same place. Applications filed October 25, 1876. Term of patents 7 years.

9,620.—Carpets.—ROBERT R. CAMPBELL, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Application filed October 27, 1876. Term of patent 3½ years.

9,621 to 9,628, inclusive.—Carpets.—JOSEPH M. CHRISTIE, Kidderminster, England, assignor to LOWELL MANUFACTURING COMPANY, Lowell, Mass. Applications filed October 27, 1876. Term of patents 3½ years.

9,629 to 9,632, inclusive.—Carpets.—JOHN FISHER, New York, N. Y., assignor to LOWELL MANUFACTURING COMPANY, Lowell, Mass. Applications filed October 27, 1876. Term of patents 3½ years.

9,633.—Carpets.—ARTHUR L. HALLIDAY, New York, N. Y., assignor to LOWELL MANUFACTURING COMPANY, Lowell, Mass. Application filed October 27, 1876. Term of patent 3½ years.

9,634.—Carpets.—ELMER J. NEY, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Application filed October 27, 1876. Term of patent 3½ years.

9,635.—Carpets.—FRED. F. RICKER, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Application filed October 27, 1876. Term of patent 3½ years.

9,636.—Carpets.—THOMAS J. STEARNS, Boston, Mass., assignor to ROXBURY CARPET COMPANY, same place. Application filed October 26, 1876. Term of patent 3½ years.

9,637 to 9,639, inclusive.—Carpets.—CHARLES W. SWAFF, Lowell, Mass., assignor to LOWELL MANUFACTURING COMPANY, same place. Applications filed October 27, 1876. Term of patents 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 14, 1876.]

4,115.—Manufactured Tobacco.—WATSON & MCGILL, Petersburg, Va. Application filed April 18, 1876.
"The fanciful name 'Stonewall Jackson.'"

4,116.—Cotton Fabric.—AMOSKEAG MANUFACTURING COMPANY, Manchester, N. H. Application filed October 16, 1876.
"The fanciful words 'PEARL RIVER.'"

4,117.—Paste Stove-Polish.—JOSEPH W. BIRCH, New York, N. Y. Application filed September 13, 1876.
"The words 'Red Seal.'"

4,118.—Whisky.—ELIAS BLOCK & SONS, Cincinnati, Ohio. Application filed October 18, 1876.
"The letters and words 'S. G. Cook's,' combined with the representation of two crossed axes."

4,119.—Cordials, Sirups, and Preserves.—G. W. DUNBAR & SONS, New Orleans, La. Application filed October 27, 1876.
"A square inclosing an oval formed by scallops."

4,120.—Cordials, Sirups, and Preserves.—G. W. DUNBAR & SONS, New Orleans, La. Application filed October 27, 1876.
"An oval formed by scallops."

4,121.—Granulated or Ground Corn.—ENGELKE & FEINER, St. Louis, Mo. Application filed October 16, 1876.
"The word-symbol 'Cream.'"

4,122.—Soap.—CHARLES J. EVERETT, Tenafly, N. J. Application filed October 2, 1876.
"The words 'WITCH-HAZEL' and the words 'HAMAMELIS VIRGINICA.'"

4,123.—Cigars and Tobacco.—WILLIAM F. GEORGE, Washington, D. C. Application filed July 26, 1875.
"The letters 'B C,' however arranged."

4,124.—Glassware.—GILLINDER & SONS, Philadelphia, Pa. Application filed September 30, 1876.
"The capital letters 'G' and 'S,' the character '&' and the word 'and' within the said letter 'S,' and the faint circular figure."

4,125.—Glassware.—GILLINDER & SONS, Philadelphia, Pa. Application filed September 30, 1876.
"The 'vignette' of Benjamin Franklin, and the letters 'G & S' below the said vignette, and the inclosing square."

4,126.—Wines and Liquors.—HOLTZ & KOENNECKE, New York, N. Y. Application filed October 21, 1876.
"The word-symbol 'CARTE NOIRE.'"

4,127.—Manufactured Tobacco.—JAMES R. MILLNER, Cascade, Va. Application filed August 4, 1876.
"The words 'JAMES R. MILLNER'S EXTRA GOLDEN POUNDS.'"

4,128.—Canned Goods.—PLATT & CO., Baltimore, Md. Application filed October 16, 1876.
"The figure or representation of a tiger's head."

4,129.—Medical Compound.—EUGENE L. ROBERTSON, North Lansing, Mich. Application filed October 19, 1876.
"The fanciful words 'THE GREAT AMERICAN.'"

4,130.—White Lead.—SOUTHERN WHITE LEAD COMPANY, St. Louis, Mo. Application filed October 19, 1876.
"A symbol in the form of a crescent."

4,131.—Soap.—VAN WART & MCCOY, New York, N. Y. Application filed October 3, 1876.
"A crest composed of a hand holding a branch of a tree, and a ribbon or band having inscribed upon it the words 'fideli certa merces.'"

4,132.—Medicine.—C. WAKEFIELD & CO., Bloomington, Ill. Application filed October 19, 1876.
"The word 'Wakefield's,' and a portrait of Doctor C. Wakefield."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 14, 1876.]

873.—Title: "**Hendrik Beerenburg's Hollandische Krauter.**"—JOHN REDDIGS, Cincinnati, Ohio. Application filed August 28, 1876.

874.—Title: "**The Great American Panacea. Dr. Robertson's Celebrated All-Healing Balsam.**"—EUGENE L. ROBERTSON, North Lansing, Mich. Application filed October 19, 1876.

875.—Title: "**The Great American Wonder. Dr. Robertson's Celebrated Pain Exterminator.**"—EUGENE L. ROBERTSON, North Lansing, Mich. Application filed October 19, 1876.

876.—Title: "**Woodward's Improved Wagon-Jack.**"—A. P. WOODWARD, Burrows, Ind. Application filed November 4, 1876.

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

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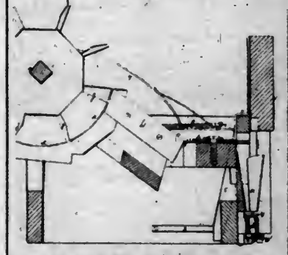
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED NOVEMBER 14, 1876.

184,221. MACHINES FOR DRIVING NAILS. Benj. S. Atwood, South Abington, Mass. [Filed Aug. 13, 1875.]

Brief.—By the action of a system of levers operated by the movement of the reciprocating driver, nails are automatically fed from a hopper to the place where they are to be driven, and held in an upright position until driven into the wood.



1. In a box-nailing machine, the slotted or centrally-divided hemispherical hopper *c d* and disk *e f*, provided with long arms or fingers *g*, the ends of which are slightly bent forward and enter the slot *d* in the hopper, so as to engage beneath the heads of the nails hanging therein and convey them up out of the hopper and discharge them over the top edge thereof, substantially as described.

2. In a box-nailing machine, in combination with the centrally-divided or slotted hemispherical hopper *c d* and bent-armed disk *f g*, the trough *h i*, placed in an inclined position from the top edge of the slotted hopper *c d*, and made of such width and depth as to receive and conduct the nails, by their heads, in a vertical position from the top edge of the hopper to the feeding devices, ab described.

3. In a box-nailing machine, in combination with the slotted hemispherical hopper *c d*, with armed disk *f g* and inclined trough *h i*, the notched wheel *j* placed and revolving in a horizontal position at the foot of trough *h i*, for receiving the nails from the hopper and feeding them in a proper position for the action of the hammer, as described.

4. In a box-nailing machine, in combination with the feeding-wheel *j* the discharger *6*, for removing the nails from the feeding-wheel, substantially as described.

5. In a box-nailing machine, in combination with the armed disk *f g* and tapered arm *5* of the hammer-head, the spring-bar *m i*, spring-pawl or arm *s q*, and ratchet-wheel *r* on shaft of armed disk *f g*, whereby the nail-presenting disk is automatically operated by the action of the hammer, substantially as described.

6. In a box-nailing machine, in combination with the wedge-shaped arm *5* of the hammer-head and horizontally-revolving notched wheel *j*, the spring-bar *l n*, bent pawl *o*, and ratchet-wheel *k*, whereby the nail-feeding wheel *j* is automatically operated by the action of the hammer, substantially as described.

7. In a box-nailing machine, the combination, with hammer *r*, nail-presenting disk *f g*, and nail-feeding wheel *j*, of wedge-shaped arms *5 5*, spring-bar *m i*, with spring-pawl *q s*, and ratchet-wheel *r*, and spring-bar *l n*, with bent pawl *o* and ratchet-wheel *k*, for simultaneously operating both nail presenting and feeding mechanism, by the action of the nail-driver, substantially as described.

8. In a box-nailing machine, in combination with the feeding-wheel *j*, the spout *x*, for receiving and conducting the nails in proper position to the holding devices, substantially as described.

9. In a box-nailing machine, in combination with funnel-spout *x*, the double notched or forked slides *y z y z* placed below the funnel-spout and short cylinder *x'*, for holding the nails in position for the action of the nail-driver, substantially as described.

10. In a box-nailing machine, the nail-driving mechanism, composed of weighted head *r*, hammer-rose *w*, and retracting springs *w'*, constructed and operating in a vertical frame, *u u*, as and for the purposes described.

11. In a box-nailing machine, the combination, with the nail-driving mechanism *r w*, of arms *4 4* and wedge or tapered arms *5 5*, secured to the head and operating in connection therewith to automatically operate the nail presenting, feeding, holding, and driving devices at one and the same time, substantially as described.

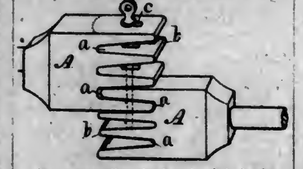
12. In a box-nailing machine, in combination with the driving-head *r*, the arms *4 4*, secured thereto, pivoted levers *1 2 1 3*, and retracting-springs *3' 3'*, for automatically operating the nail-holding slides *y z y z*, substantially as described.

13. In a box-nailing machine, in combination with the driving-head *r*, the tapered or wedge-shaped arms *5 5*, secured thereto for automatically operating the feeding and presenting mechanism by the action of the driving devices, substantially as described.

14. In a box-nailing machine, the combination and arrangement of nail-presenting devices *f g h i* and feeding devices *j z y z*, substantially as and for the purposes described.

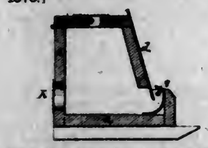
15. In a box-nailing machine, the combination and arrangement, with the nail-presenting devices *e d f g i* and feeding devices *j z y z*, of the nail-driving mechanism *r w w'*, with arms *4 4* and *5 5*, all constructed and arranged substantially as and for the purposes described.

184,222. CAR-COUPLINGS. John Beisblag, Des Moines, Iowa. [Filed Apr. 10, 1876.]



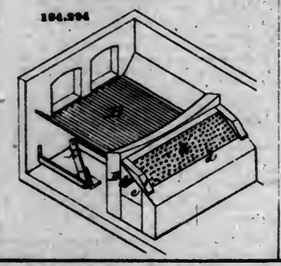
In a car-coupling, the draw-head A, having a series of horizontal slots, *a*, and a corresponding series of plates, *b*, each plate having a central and vertical perforation, *c*, substantially as and for the purposes shown and described.

184,223. GRASSHOPPER-CATCHERS. Finley R. Benson, Walnut, Iowa. [Filed Oct. 14, 1876.]



A grasshopper catcher, consisting of the box *a*, inclined surface *d*, slit *e*, guard *g*, and openings *h o*, substantially as shown, and for the purpose specified.

184,224

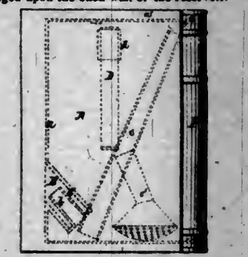


184,224. FEEDING AIR TO FURNACES. C. W. Birch, Boston, Mass. [Filed Sept. 19, 1876.]

The inclined perforated plate *d*, having its upper surface convex, pivoted at or near its center, and operated by the shaking device, in combination with bridge-wall D, aperture *b*, and air-chamber *c*, provided with sloping sides, as set forth.

184,225. PORTABLE SPRINKLERS. David E. Brownlow, Middletown, Conn. [Filed May 4, 1876.]

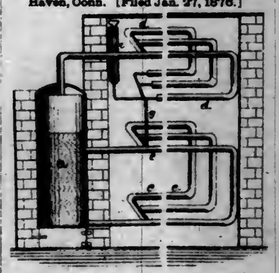
Brief.—A sprinkler with a connection-tube or teat for the detachable spout, contained in a walled recess arranged in the front of the reservoir, and with a vertically-adjustable handle in the top of the reservoir, capable of being closed into the said reservoir by a hinged lid, which is secured in its closed position by springs carried by a hinged piece fixed upon the back of the reservoir, the said hinged piece also closing over a swinging handle arranged upon the back wall of the reservoir.



1. A watering-pot or sprinkler having the downwardly-inclined recess B, containing the teat *b* in the front wall of the reservoir A, and arranged wholly within said reservoir, whereby the spout C may be connected with the reservoir, and, upon being disconnected, the front wall will present an exterior even surface without projections, as described.

2. In a watering-pot or sprinkler, the combination of the vertically-adjustable handle D, hinged lid E, hinged back piece F, carrying springs *f*, the flanges or extensions *e e'*, together with the swinging handle G on the wall *e'*, as described.

184,226. HEATERS. William H. Bush, New Haven, Conn. [Filed Jan. 27, 1876.]



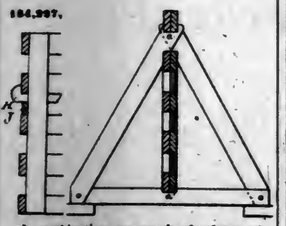
1. The boiler *a*, a series of hot-water pipes, *c*, placed below the level of the water in the boiler, and which pipes are connected at two places with the boiler, in combination with the steam-pipes *d*, substantially as shown.

2. The combination of the boiler *a*, water-pipes *c*, connected to the boiler as shown, steam-pipes *d*, and air-valve *i*, substantially as specified.

184,227. PORTABLE FENCES. John Bussert, Fulton County, Ind. [Filed Mar. 20, 1876.]

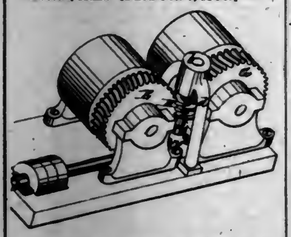
THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

184,927.



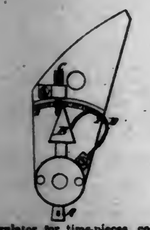
In combination, two panels of a fence set at any angle, and united by the hook H, secured to one panel, said hook H being arranged to interlock with one rail on the other panel, and secured by the key J, in the manner shown, for the purposes specified.

184,928. ELEVATORS. Michael J. Coleman, Boston, Mass. [Filed Oct. 7, 1876.]



The worm H, provided with right and left hand threads, intersecting each other, in combination with, and arranged between, the worm-gears E G of the hoisting-drums of an elevator, so as to drive them simultaneously, substantially as and for the purpose set forth.

184,929. WATCH-REGULATORS. Irving C. Cowles, Syracuse, N. Y. [Filed July 12, 1876.]



A regulator for time-pieces, consisting of the inclined planes B, the screw C, and spring D, combined and operating substantially as and for the purposes specified.

184,930.

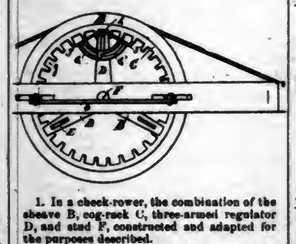


184,930. COMPENSATION-PENDULUMS. Irving C. Cowles, Syracuse, N.Y. [Filed Sept. 9, 1876.]

A pendulum consisting of the curved arms A A, connected by the rod B at opposite ends of the arms A A, on which the adjustable rods C C slide, and are fastened, for the purpose specified.

184,931. CHECK-ROWERS. S. De Venez, La Fayette, Ind. [Filed May 16, 1876.]

Brief.—The rope-wheel has formed on its inner periphery cogs for the reception of the adjustable three-armed regulator. Each arm of the regulator has secured to its lower side, at the end, a V-shaped eccentric, the arms of which are slotted for the reception of the screw-bolt, that holds them in any desired position when adjusted.



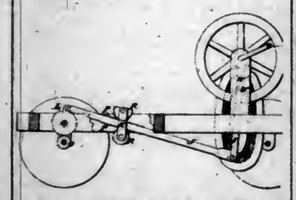
1. In a check-rower, the combination of the sheave B, cog-rack C, three-armed regulator D, and stud F, constructed and adapted for the purposes described.

2. The adjustable V-shaped eccentric or cam, formed of the two wings J J', hinged at k, and the segments G G', all arranged to operate in the manner shown, for the purposes specified and set forth.

3. In combination with the arms of the regulator D, the V-shaped eccentric J J' G G', in the manner shown, for the purposes specified.

184,932. MECHANICAL MOVEMENTS. Chas. A. Deyerle, Big Spring, Va. [Filed Oct. 14, 1876.]

Brief.—A connecting-rod transmits motion from one shaft to another, attached at one to a crank, and at the other to a link working the crank, a fulcrum between the shafts, with racks on its edges, working through segments on a pivoted block.



1. The combination of the lever J, elliptical guide H, connecting-rod I, and the unequal cranks L W', substantially as described.

2. The lever J, having racks P, in combination with the toothed fulcrums R, located in the pivoted frame K, substantially as described, for the purpose specified.

184,933. LOG-ROLLERS. Temple Emery, Pushtigo, Wis. [Filed Sept. 21, 1876.]

Brief.—The cant-hook and the parts connecting it are arranged to admit of being operated, so as to turn the log by the motor used to drive the saw, and when not in use to admit of being dropped down, so as to be below the carriage.

1. The combination, with the arm J, arranged to admit of an ascending and descending movement, of the cant-hook J', cross-head f, and the uprights H H' and i i', substantially as and for the purpose specified.

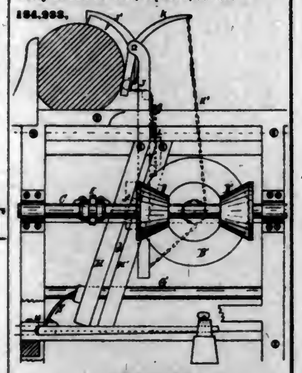
2. The combination, with the arm J, of the lever K, chain K', and shaft B, substantially as specified.

3. The combination, with arm J, cant-hook J', lever K, and chain K', of the rope L' and gravitating-weight L, substantially as and for the purpose specified.

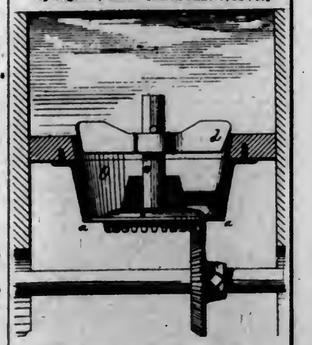
4. The combination, with the arm J, provided with the cross-head f, of the uprights H H' and I I', arranged to form the incline slot or way d, substantially as and for the purpose specified.

5. The combination, with the uprights H and I, pivoted to admit of a vibratory movement, of the spring-arm S, rock-shaft M, weighted lever M', and shipping-lever S', substantially as and for the purpose specified.

184,933.



184,934. SEED-DRILLS. Austin C. Evans, Springfield, Ohio. [Filed June 6, 1876.]



1. In combination with hopper e, the horizontal revolving feed-disk a, the discharge-orifice i, and the shield o, resting obliquely over said discharge-orifice, as and for the purpose described.

2. In a seeding-machine, the combination of agitator d on shaft m with feed-disk e, having oval surface, as and for the purpose described.

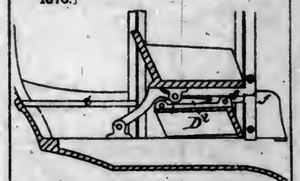
184,936. ROTARY CHURNS. Chester Farmer and Geo. L. Farmer, Rockford, Ill. [Filed May 17, 1876.]



1. The combination, in a churn, of the removable head B, composed of the ring e, radial arms d, flange c, and the inner head h, with the churn-body A, having groove a filled with the packing-ring b, as and for the purpose described.

2. In combination with the construction of the removable head B and churn-body A the hinged screw-rods m, constructed and operating as and for the purposes described.

184,936. JUMP-SEAT CARRIAGES. Elbridge S. Veitch, Salisbury, Mass. [Filed Oct. 6, 1876.]



1. The metallic bracket e formed with a vertical member for attachment to the carriage, and an arm, f, for connection with and support of the seat D, substantially as described and shown.

2. The bracket e, formed with a vertical member for attachment to the carriage, an arm, f, for supporting the front seat, and a step, i, for the support of the front corners of the back seat, substantially as described and shown.

3. The combination of the supporting-brackets e, folding props l, and hinge-bars k, substantially as and for the purposes specified.

4. In combination with a turn-down or folding seat, the supports l, hinged to the front corners of the seat, and provided with the locking-slot, substantially as described and shown.

5. The jumping-bars P, formed to be pivoted at their extremities, and with a fulcrum or bearing, r, substantially as described and shown.

6. In combination with a jump-seat, the supporting and jumping irons P and brackets e, when constructed and arranged to support the seat, substantially in manner as described and shown.

7. A carriage-body, provided with a front folding or turn-down seat, a rear jump-seat, and a full-high door, substantially as described and shown.

8. A canopy-top carriage, formed and provided with a front folding or turn-down seat, a rear jump-seat, and the middle posts 2 2, substantially as described and shown.

184,937. RATTAN BASKETS AND APPARATUS FOR CONSTRUCTING THEM. Geo. Gemech, New York, N. Y. [Filed Mar. 6, 1876.]

Brief.—The ribs extend from the upper edge of the basket to the lower edge of the supporting-rim. The bottom is made separately, and is attached by interweaving its projecting radial ribs with the side. A holding-board, perforated around its edge for holding the ribs and joined to a former, is used in the construction of the basket.



1. The combination of the perforated board A with the former or core B C and connecting-rod D, all arranged for use in the construction of baskets, substantially as specified.

2. In the art of making baskets, the perforated board A, for receiving the uprights e e, which project from the upper and lower faces of said board, substantially as specified.

3. As a new article of manufacture, a basket made from uprights e e, which extend from the upper to the lower edge thereof, and a bottom, S, which is attached by the radial arms d d to such uprights at a distance above their lower ends, substantially as specified.

184,938. VATS FOR FILTERING CIDER. H. Greenwood, Marlborough, Mass. [Filed Oct. 4, 1876.]

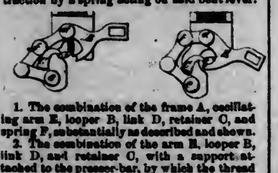
Brief.—The device is designed to prevent the souring of cider by having less surface exposure than the ordinary filter. As the cider flows in, the air is expelled through the upright pipe.



The above-described vat or filter, having the grooved floor or bottom b, and the strainer g, placed directly upon the ridges of said floor, and provided with suitable pipes a and f, and trough c, all substantially as and for the purpose herein set forth.

184,939. BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES. Thos. Hagerty, New York, N. Y., assignor of one-third his right to John B. Valdetaro, and one-third to A. L. Wood, same place. [Filed Dec. 17, 1875.]

Brief.—Attachment for that class of machines which have two needles on one bar. The right-hand needle is somewhat shorter than the left, and as it ascends, a looper carries its thread around and beyond the left-hand needle, where it is held by a retainer until the left-hand needle, on its next descent, passes through it. The looper and retainer are pivoted to a plate on top of the presser-foot, and are linked together, their forward movement being effected by the ascent of the needle-bar, through the medium of a bent lever pivoted to the presser-bar, and their retraction by a spring acting on said bent lever.



1. The combination of the frame A, oscillating arm E, looper B, link D, retainer C, and spring F, substantially as described and shown.

2. The combination of the arm E, looper B, link D, and retainer C, with a support attached to the presser-bar, by which the thread of one needle is drawn from under its point around the side and front of the other needle and there retained while under tension, substantially as described and shown.

184,940. STOVE-PIPE THIMBLES. Theodore R. Harris, Green Bay, Wis. [Filed Oct. 11, 1876.]

Brief.—The slides b b' are adjustable to pipes of various sizes. The pivoted covers G G' may be used to cover the opening when the pipe is removed.

1. A thimble for stove-pipes, in which the central opening is adjustable in size, by means of the radially-arranged slides b b', as set forth.

2. In combination with the slides b b', the ring B, and the slots therein, and pins on the radially-arranged slides, as set forth.

3. The ring A A, slotted as shown, in combination with the slides b b', as set forth.

4. In combination with the slotted ring B, and the slides, the threaded rod C, and flange d, as set forth.

5. The covers G G', pivoted as shown, and made capable of swinging inward to cover the central opening, as set forth.

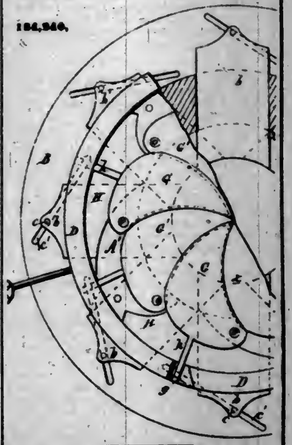
6. The combination of the covers G G', levers h, and ring D, as set forth.

7. The ring A A', covers G G', pivoted therein, lever h, and ring D, as set forth.

8. The pipe K, supporting the ring A, and pipe K', the parts being connected as shown at e e, as and for the purposes described.

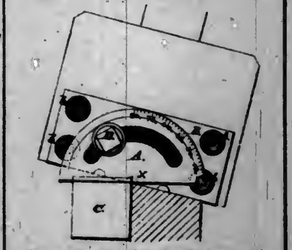
9. The combined adjustable thimble and cover, consisting of the radially-arranged slides, and the pivoted covers G G', all in one case, and arranged to operate as set forth.

184,940.



184,941. PLANE-GUIDES. Wm. H. Harris and Milo Harris, Jamestown, N. Y. [Filed July 3, 1876.]

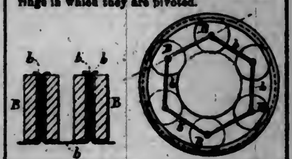
Brief.—The guide is attached to the stock by a slotted semicircular bevel-protractor, having upon its lower edge a semicircular stud, an end plate provided with suitable screw-holes, and having semicircular indentures in its lower edge adapted to the stud, and a set-screw for securing the protractor and plate in position. The guide can be moved laterally to any part of the face of the plane, and the inner corner of the guide can be held in the exact center of the circle described by the protractor, and kept close to the face of the plane at any angle, so that a very thin guide can be used, and thin lumber planed.



The combination of the bevel-protractor A, having stud s and tip d, with the end plate B, provided with the semicircular indentations c c c, the screw-bolt D, and the guide C, all constructed to operate as shown and described, and for the purpose specified.

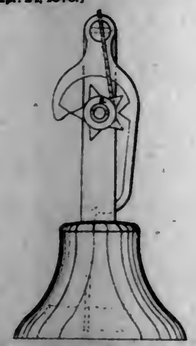
184,942. ANTI-FRICTION JOURNAL OR AXLE BEARINGS. W. H. Haynes, North Sudbury, Mass. [Filed Oct. 24, 1876.]

Brief.—The bearing is a series of rollers between two rings, the rollers connected, without contact of their surfaces, by rods having their ends bent to a right angle with their central portion, such ends either forming their axes, or lying parallel thereto, to connect the rings in which they are pivoted.



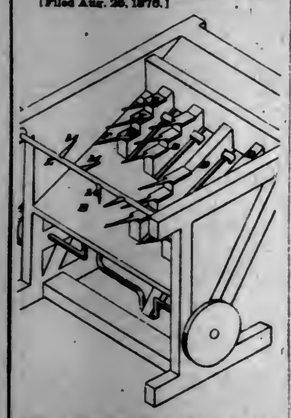
In combination with a series of anti-friction rollers, E, the double stays *b' b'*, connected by the middle brace *b*, formed of one continuous rod, and applied and fastened substantially as and for the purposes described.

184,843. BURGLAR-ALARMS. Henry Holcroft, Media, Pa., assignor of one-half his right to J. D. White, same place. [Filed Apr. 24, 1876.]



A portable alarm, constructed with the clapper, connected to a lever which is operated by an escapement-wheel and cord when thrown from its support, as described.

184,844. FEEDERS FOR THRASHING-MACHINES. William Hutchings, Fresno, Cal. [Filed Aug. 26, 1876.]



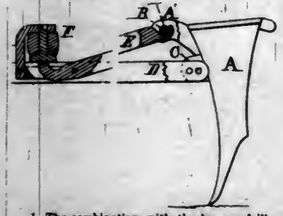
The feeding-slides D united to operate in two pairs upon the inclined bottom B, and provided with fingers F, in combination with the fingers or arms M arranged spirally upon the shaft L, so as to act successively as each pair of slides are retracted, substantially as herein described.

184,845. LAMP-BURNERS. E. H. Jenkins, Dayton, Ohio. [Filed Apr. 26, 1876.]

Brief.—The spring-division-plate holds the wick with a yielding pressure, and, by means of the perforations in its lower end and the perforations in the upper end of the throat, provides a gas-escape.

The herein-described lamp-burner, consisting of the cap D, throat A, having one side of its top bent in and perforated and each side cut away, as described, the division plate B, as arranged as to provide an air passage on one side of it, and wick-pinions C, the whole constructed and connected in the manner and for the purpose specified.

184,846. SPRING-HOES FOR GRAIN-DRILLS. Benjamin Kuhns and Christn. F. Knoisly, Dayton, Ohio. [Filed Mar. 22, 1876.]

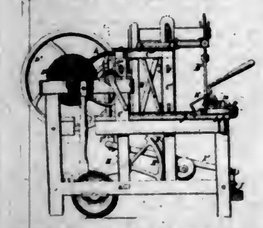


1. The combination, with the hoes or drill-teeth and drag-bars of a grain-drill, of a latch, E, one end of which is detachable from the pin upon which it bears, and a spring, F, at the other end, for holding the hoe or tooth in position, the parts being constructed and arranged substantially as and for the purpose set forth.

2. The combination of the hoe A, having a bifurcated projection, A', the pin B, the latch E, one end of which is detachable, the spring F, and the drag-bars D, the parts being arranged to operate substantially as and for the purpose set forth.

184,847. SAWING-MACHINES. Eric Landstrom, Galesburg, and Anders Landstrom, Champaign, Ill. [Filed Sept. 2, 1876.]

Brief.—The saw-frame is operated by means of a rack-bar secured to the rear side and lower end of a bar forming part of the main frame. A vibrating lever provided at one end with sector-gear, and at the other with an adjustable balance-weight and suitable driving mechanism. The machine can be used for crosscut, rip, or gig sawing.



1. The sector-gear E', attached to the vibrating lever E, provided with an adjustable balance-weight, in combination with the rack-bar F, arranged to operate the saw-frame B, substantially as and for the purpose specified.

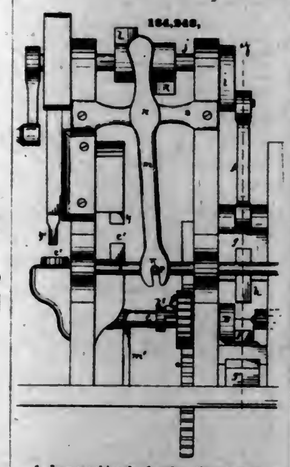
2. The pedal I, lever I', and connecting-rod I'', in combination with the wheels A and D', rod *d*, sector-gear E', bar F, and saw-frame B, substantially as and for the purpose specified.

3. The plate or bar O', combined with the bars U C' O' and saw-frame B, substantially as described, and for the purpose specified.

4. The bar M, secured to the table J, as described, and combined with the saw-frame B and sliding table J, substantially as described, and for the purpose specified.

184,848. MACHINES FOR FORMING STRAP-HINGES. Charles Lane, Pittsburg, Pa. [Filed Apr. 17, 1876.]

Brief.—The bending is begun by the plunger-die A, and completed around the mandrel by the reciprocating die B.



1. In a machine for forming the strap part of hook-and-eye hinges, the combination of the adjustable anvil *f'*, and the reciprocating bending-die A, and die B, arranged and operating with relation to each other substantially as herein described, and for the purpose set forth.

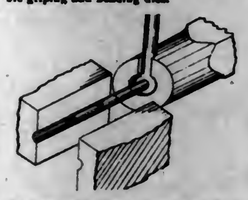
2. In a machine for forming the strap part of hook-and-eye hinges, the combination of the adjustable anvil *f'*, reciprocating bending-dies B A, and mandrel *n*, operated by the rod *s*, lever *m*, and cams *l* and *k*, arranged and operating with relation to each other substantially as herein described, and for the purpose set forth.

3. In a machine for forming the strap part of hook-and-eye hinges, the combination of the reciprocating bending-dies B A, the hammer *y*, punch *g'*, and anvil *c' c'*, arranged and operating with relation to each other substantially as herein described, and for the purpose set forth.

4. In a machine for forming the strap part of hook-and-eye hinges, the combination of the adjustable base-piece *g'* with the anvil *f'* and reciprocating bending-die B, substantially as herein described, and for the purpose set forth.

184,849. METHODS OF CONSTRUCTING EYES. Charles Lane, Pittsburg, Pa. [Filed Apr. 17, 1876.]

Brief.—The pintle and shank are of different and suitable sizes, the latter punched or split for the reception of the former. They are then joined and welded, and the seat for the eye part formed at their junction in suitable griping and bending dies.



The method hereinbefore described for constructing the hook part of a hook-and-eye hinge.

184,850. SPRING-VEHICLES. S. W. Ludlow, Cincinnati, Ohio. [Filed May 2, 1876.]

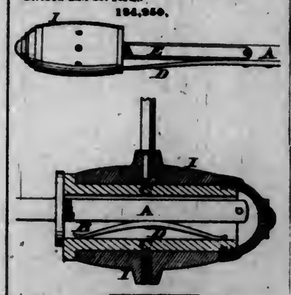
Brief.—The axle rides on springs within slotted boxes, whose inner ends are connected to each other or to the axle by a rod.

1. A carriage-axle, A, supported upon a spring or springs, D, and adapted to have vertical play within slot B of box C, upon which latter or its stud F the hub I is journaled, substantially as herein described and set forth.

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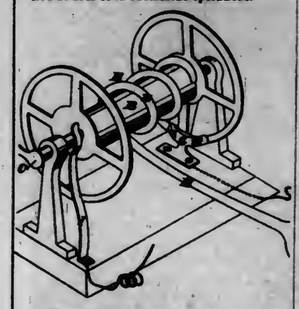
2. In combination with axle A, slotted box B C, and revolving hub I, the rod E, either pivoted to the axle at *e* or connecting the two boxes of said axle, substantially as herein described and set forth.

184,850.



184,851. ELECTRIC SIGNALING APPARATUS AND KEY. W. Lundberg and D. F. Leahy, Portland, Oreg. [Filed Sept. 4, 1876.]

Brief.—For establishing speedy communication at fires or in submarine operations.



1. The reel consisting of the flanges A, non-conducting drum B, with its interior metallic shaft, and the springs G I, for making connection from the battery to the flange A and shaft C, respectively, in combination with the continuous hose E, with the wires F, substantially as herein described.

2. In combination with an elastic connecting medium, E, the operating-key, consisting of the elastic water-proof ball J, with its contained plates K K and L, substantially as herein described.

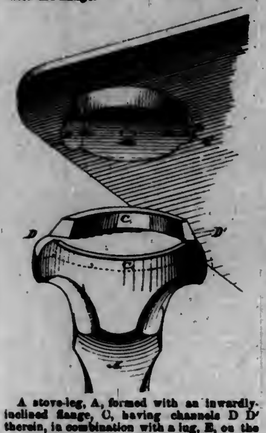
184,852. HARNESS-TRACES. T. J. Mansfield, Woodhull, Ill. [Filed Feb. 24, 1876.]



A harness-trace constructed, as described, with a wooden portion, A', a flexible end, B, and a rigid eye or hook, C, at its other end, and with a hook, *c*, substantially as and for the purpose specified.

184,853. STOVE-LEGS. John L. Mason, New Brunswick, and Chas. L. W. Baker, Camden, N. J., assignors to said Mason. [Filed Sept. 16, 1874.]

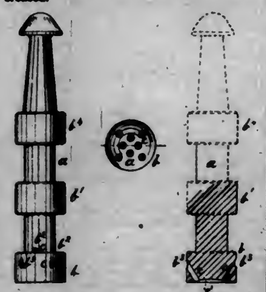
Brief.—A stove-leg formed with an inwardly-inclined flange having channels therein, in combination with a leg on the stove-bottom, constructed with lips adapted to be received into the channels, and to interlock with the flange.



A stove-leg, A, formed with an inwardly-inclined flange, C, having channels D D' therein, in combination with a leg, E, on the stove-bottom, constructed with lips F, adapted to be received into the channels D D', and to interlock with the flange C, substantially as and for the purpose described.

184,854. OIL-WELL-WALL CLEANERS. M. T. McCormick, Petrolia, Pa. [Filed Oct. 7, 1876.]

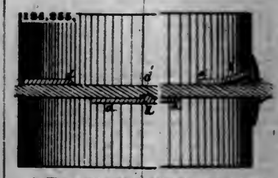
Brief.—The weight, when dropped onto the oil or other fluid in an oil-well, causes an ebullition, whereby the paraffine or other substance is washed from the seams or fissures in the walls of the well, and the flow of oil increased.



1. The weight *a*, provided with the collar *b*, having a series of perforations, *c*, constructed as described, and with the upper collars *b' b'*, substantially as and for the purposes set forth.

2. A weight, *a*, provided with a collar, *b*, pierced by a series of perforations, *c*, which are formed from the under end *c'*, and extend upward, and are inclined outward, and arranged around the weight, and with the collar *b'*, placed above the under collar *b*, substantially as and for the purpose set forth.

184,855. STOVE-PIPE DAMPERS. Horace A. Mears, Rockford, Ill. [Filed Apr. 13, 1876.]

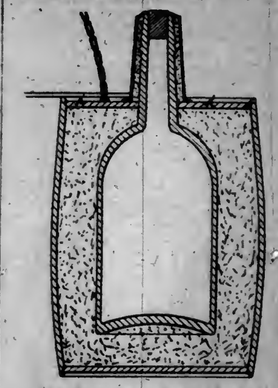


1. The rosette-spring, of plate material, constructed as described, in combination with the shaft C and disk B, operating to hold the damper in adjusted position in the pipe by frictional contact, as and for the purpose set forth.

2. The tubular bundle D, in combination with the shaft C, as and for the purpose set forth.

184,856. DEMIJOHNS. Jas. C. Moore, Philadelphia, Pa. [Filed Oct. 7, 1875.]

Brief.—This device consists of an outer protecting-case, an inner contained bottle, the neck of which pierces and projects through and above the head with which the casing is provided, and a supplemental collar or sleeve-casing set upon said head, and closely surrounding about equidistantly said neck, so that the supplemental casing forms a neck to the main casing, which will allow the contents of the bottle to be poured.



A demijohn formed by the combination of an outer protective main casing for the body of the contained flask, an inner contained bottle, flask, can, or jar, the neck of which pierces and projects through and above the head with which the main casing is provided, and a supplemental sleeve-casing set upon said head and closely surrounding about equidistantly said neck, so that the supplemental casing forms a narrow neck to the main casing, substantially as and for the purposes described.

184,857. AUGERS. A. W. Morgan, Indianapolis, Ind. [Filed Apr. 10, 1876.]

Brief.—The boring-shaft is provided with an arm or stud, upon which a bevel-pinion revolves, and meshes into a bevel-wheel on the shaft. The shaft-coupling has a square socket above and an open socket below, provided with a keyway and key to hold the lower shaft-section in place. An adjustable clamp, with stud for the lower sprocket-wheel of the bucket-chain, is arranged on the lower shaft-section. The auger-plate has an additional auger-plate and reamer attached to it for different diameters. A swivel-head at the upper end of the shaft is provided with pulleys to raise and lower the sweep.

1. In a well-boring apparatus, the boring-shaft B, provided with an arm or projecting stud, G, in the manner shown, for the purpose set forth.

2. In a well-boring apparatus, the coupling E', provided with a square socket at its upper end to receive the shaft B, and an open socket below to receive the shaft B', the sides E' of the open socket being provided with a keyway,

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X, to receive the key E^2, and hold fast the lower shaft B^1, in the manner shown, for the purposes set forth.

3. In a well-boring apparatus, the clamp E^2, provided with a stud or extended shaft, O, and secured to the shaft B^1, in the manner shown, for the purposes set forth.

4. In a well-boring apparatus, in combination with the shaft B^2, the auger-plate B^3, auger-plate B^4, and extension-reamer B^5, arranged to operate in the manner shown, for the purposes set forth.

5. In a well-boring apparatus, the swivel-head B^6, arranged at the upper end of the upper shaft B, and provided with pulleys D^1 D^2, arranged to operate in the manner shown and described.

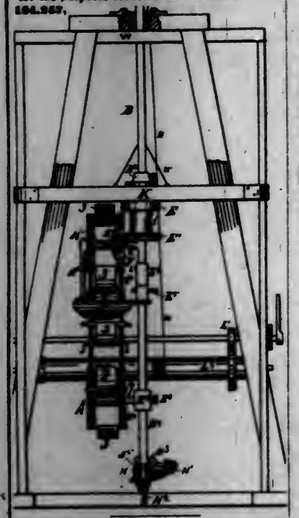
6. In a well-boring apparatus, the horizontal wheel E^1, attached to the under side of the cross head or bar K, and arranged to be operated to rise and fall with the bar K and shaft B, in the manner set forth and described.

7. In a well-boring apparatus and excavator, the elevator-pulley H, provided with a pinion, F, arranged to revolve on the stud G, and to mesh in gear with the stationary pinion E^1, and to revolve on its stud G at the same time that it revolves with the shaft B, in the manner shown, for the purpose set forth and described.

8. In a well-boring apparatus and excavator, the guide-pulleys *a*, journaled to the platform J^1, in such a manner as to guide the elevator chain or rope F, and allow the earth to be deposited from the buckets J onto the platform or bucket J^1, in the manner shown, for the purposes set forth and described.

9. In a well-boring apparatus and elevator, the brace H^1, arranged to support the upper elevator-pulleys H E^1, in the manner shown, for the purposes set forth and described.

184,967.

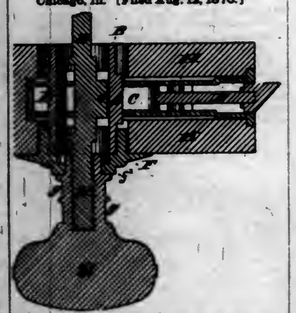


184,968. GAME-CARDS. Jas. W. Nicholson, Indianapolis, Ind. [Filed Jan. 22, 1876.]



The geographic game apparatus or pack of cards herein described, having cards 3, 7, and 8, embracing a personal card, a war card, and a map card, and cards 1, 3, 4, 5, and 6, embracing historic, State, and Territory cards, respectively, all substantially as and for the purpose set forth.

184,969. KNOB-LATCHES. Milton C. Niles, Chicago, Ill. [Filed Aug. 12, 1876.]



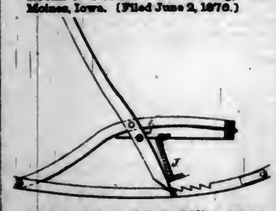
1. The lock-case A, provided with holes A', in combination with the tube B, having central openings *b'*, the spindle E, provided with a cam or projection, *c*, and the bolt-talons C, with the free ends bent inward toward each other, as specified, all constructed, arranged, and operating substantially as and for the purpose set forth.

2. The combination of the lock A, provided with holes A' and notches *a*, and the tube B, having a spline, *b*, substantially as and for the purpose set forth.

3. The combination of the perforated lock A, the tube B, constructed with the ends entire, and screw-threads cut thereon, extending through the lock and projecting from each side thereof, the roses F screwed thereto, the spindle E arranged within the tube, and the knobs G, attached to the roses by means of the notch *f'* and the lug *g'*, substantially as described.

4. The combination of the tube B, spindle E, roses F, and knobs G, constructed and arranged so that the only bearings are those of the knob-shanks in the roses, substantially as described.

184,970. TRANSPORTABLE FRAMES FOR ROCKING-CHAIRS. Hans Oberg, Des Moines, Iowa. [Filed June 2, 1876.]



The folding frame H H, the folding support J, and braces D D, E E, F F, and G G G G, substantially as and for the purposes described.

184,971. SELF-GENERATING GAS-LAMPS. Robert W. Park, Philadelphia, Pa. [Filed Apr. 20, 1876.]

Brief.—The oil passes from the feast, through the coil, into the retort, filled with fibrous material, and, rising, is converted into vapor by the heat generated in the trough and at the burner.

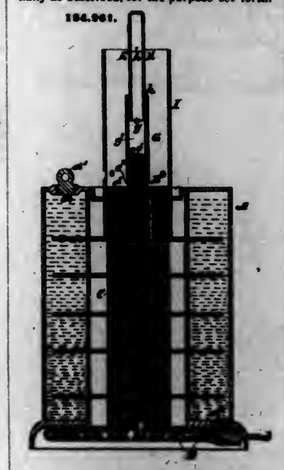
1. The feast A, formed with an exit-opening, *a'*, in its bottom, in combination with the coil D, or equivalent communication, substantially as shown and described.

2. In combination with the retort C, the copper chimney or tube, for conveying heat to the said retort, substantially as shown and described.

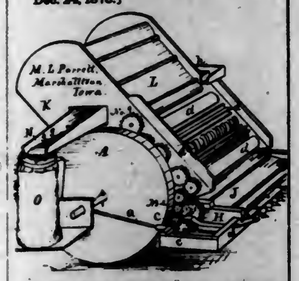
3. The combination of retort C, tubes E and G, having openings *e' g*, burner-stem *h*, having openings *h'*, and chimney or heat-conveyer *l*, the several parts being constructed and arranged for operation substantially as shown and set forth.

4. The combination of feast A, retort C, intermediate connection D, tubes E G, burner H, and chimney or heat-conductor I, substantially as described, for the purpose set forth.

184,972.



184,973. HARVESTER-THRASHERS. Milton L. Parrett, Marshalltown, Iowa. [Filed Dec. 24, 1875.]



1. In a harvesting-machine, the adjustable frame H G, carrying a sickle and the traveling grain-platform J, in combination with the double series of thrashing-rollers *d d d*, substantially as and for the purposes shown and described.

2. The adjustable frame H G, carrying the traveling grain-platform J, in combination with the thrashing-rollers *d*, elevators L and T, and the fixed inclined plane U, substantially as and for the purposes shown and described.

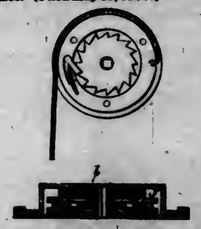
3. The adjustable frame H G, mounted on a carriage, A B C D, and carrying the sickle and the grain-platform J, the frame or sides K K, carrying the thrasher *d d d*, elevators L and T U, fan and case R, sieves S, and the conveyers N *h s*, when arranged and combined substantially as shown and described, to cut, thrash, clean, and convey grain from the ground to a sack or other suitable receptacle.

184,974. ROOFING AND PAVING COMPOSITIONS. Graham Pulver, Jackson, Mich. [Filed Feb. 11, 1876.]

Brief.—Pine-tar, six parts; rosin, three parts; pure asphaltum, one part. Melt, mix, and add crushed slate, granite, or quartz, middlings of rye or wheat, and plasterer's hair a sufficient quantity.

The combination, for roofing and paving purposes, of asphaltum, rosin, pine-tar, crushed slate, granite, or quarts, middlings of wheat or rye, and plastering-hair, substantially as and for the purpose herein shown and specified.

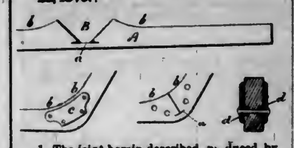
184,964. DEVICES FOR WINDING CLOCKS. James N. Rice, Pittston, Pa., assignor of one-half his right to E. J. Saylor, same place. [Filed May 16, 1876.]



1. In a clock-winding attachment, the combination, with the ratchet-arbor, of a winding-drum, having its bearing directly on said ratchet-arbor, substantially as and for the purpose specified.

2. The combination of the recoil-spring, with the outer plate of the drum, said plate having a projection, *b*, formed on its hub for the attachment of the inner end of the recoil-spring, substantially as and for the purpose set forth.

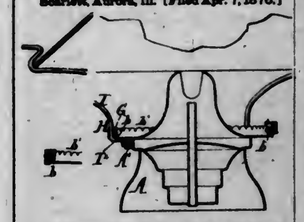
184,965. JOISTS FOR BOAT-KEELS. Joseph W. Sanborn, Kingston, N. H. [Filed July 22, 1876.]



1. The joist herein described, produced by the notch B and saw-kerfs *a a*, substantially as and for purposes stated.

2. In combination with the timber formed with notch B and saw-kerfs *a a*, and bent as described, the strengthening-plates *c*, fitted to the joint on opposite sides of the timber, provided with tests *d*, let into the wood, and united by rivets which pass axially through the tests, as shown and set forth.

184,966. LAMP-SHADE HOLDERS. William Scarlett, Aurora, Ill. [Filed Apr. 7, 1876.]



1. The inner part G, having its lower edge standing higher than the lower edge of the outer part H of my combined ring G H, adapted to embrace and rest upon the bead *b* on the burner, as and for the purposes herein specified.

2. The arms I I, having the inwardly-turned ends I^1, in combination with the ring G H, formed with a joint, E, adapted to serve on the lid b^1 b^2 of a lamp-burner, as herein specified.

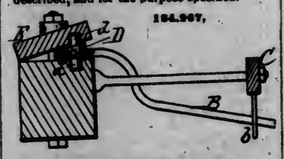
3. In combination with the spring-arms I, the ring G H, and means for breaking the continuity, the clip or ring P, moving laterally in the ring, and adapted to increase the security of the joint, as herein specified.

184,967. HORSE-RAKES. Dennis P. Sharp, Ithaca, N. Y. [Filed Sept. 4, 1876.]

1. The bearing D, constructed with the hub *c*, to receive the eye of the tooth, and the projecting pins *d*, to rest in the axle and clamp, as herein shown and described.

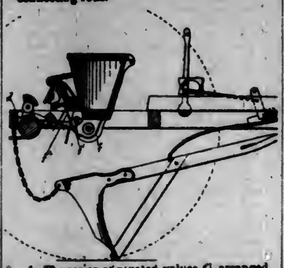
2. In combination with the bearings D D, resting in sockets of the axle, and the teeth B B, provided with eyes resting around the bearings, the clamp E, extending longitudinally of the axle and secured thereto by bolts, so as to rest on top the bearings and secure the teeth in place, leaving a space for the vertical play of said teeth, as shown and described, and for the purpose specified.

184,967.



184,968. GRAIN-DRILLS. Joshua M. Smith and E. W. C. Thomas, Springfield, Ohio. [Filed Feb. 26, 1876.]

Brief.—At the delivery-orifice of each seed-cup is arranged a valve, and the series thus formed are all simultaneously operated by a rod and connecting-links, and in this way the discharge of seed is regulated throughout the series from a single point. The grass-seed box has a pair of reciprocating agitators, which are operated by a crank upon the seed-wheel shaft, by means of a ball-crank and connecting-rods.



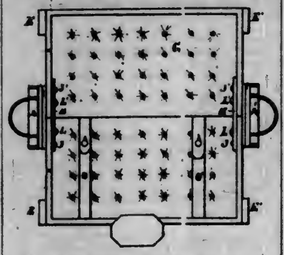
1. The series of pivoted valves f^1, arranged over the discharge-outlets to the seed-runs of the distributer-shells or casings, and operating substantially as described.

2. The series of pivoted valves f^1, arranged over the discharge-outlets of the distributer-wheel casing, in combination with the rock-shaft *g*, with its series of crank-arms and actuating-lever *g'*, substantially as and for the purpose set forth.

3. The hollow stud-axle *c*, in combination with the drive-wheel B, central shaft *b*, distributer-wheel shaft *e*, and clutch *b' c'*, arranged as described.

4. The shaft on which the distributing-wheels are mounted, provided with the crank-arm, in combination with the reversibly-reciprocating grass-seed slides, and the connecting-rods, arranged and operating substantially as described.

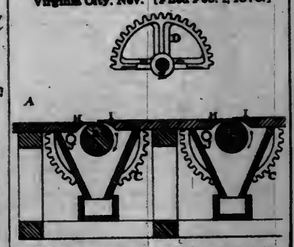
184,969. FOLDING BEDS. George Southard, Indianapolis, Ind. [Filed Jan. 3, 1876.]



1. The end frames A, formed with their upper halves thinner than the lower halves, so as to allow the legs E E E^1 E^2 to fold up between the bed-sections B and end frames A.

2. The bed-sections B, pivoted to the end frames A A at L L, and secured, when open, by the stay-braces H H, pivoted to either section of the bed at J J, and hooked over studs J^1 J^2, so as to prevent the center of the bed-sections from being forced downward at their central parts when occupied, as set forth and described.

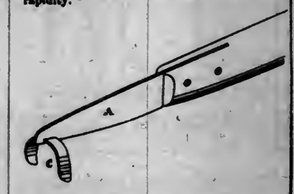
184,970. ORE-CONCENTRATORS. L. Stoner, Virginia City, Nev. [Filed Feb. 1, 1876.]



The covered cylinders B B, operated by the gear-wheels O C and D, in combination with the sieves A, having the small openings and plates I I H H, and the spray-pipes J J, all constructed and arranged substantially as described, and for the purpose specified.

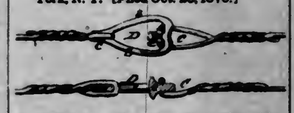
184,971. KNIVES FOR PITTING FRUIT. Geo. W. Tarleton, San Jose, Cal. [Filed Sept. 26, 1876.]

Brief.—An ordinary fruit-knife is provided near the outer end with a curved pitting-blade, transverse to the cutting-edge of the knife, the construction serving to halve and pit peaches and the like with great facility and rapidity.



The curved pitting-blade C attached to the cutting-edge of a knife-blade, A, transversely to said cutting-edge, substantially as and for the purpose described.

184,972. BALE-TIES. Cornelius Van Derzee, Albany, assignor to Edwin S. Lonoux, New York, N. Y. [Filed Oct. 26, 1876.]



1. The connecting-piece D, having side strands *a a* terminating with the score-block *c* at their rear, and with the cleat *e* projecting inward from the conjoined ends of the said side pieces in front, substantially as and for the purpose set forth.

2. The combination, with the connecting-piece D, constructed as described, of the loop C, having the angle *e* turned up from the horizontal portion *e'*, and adapted to engage with the cleat *e* of the said connecting-piece, substantially as and for the purpose set forth.

184,973. MECHANICAL MOVEMENTS. Wm. O. Wakefield, Boston, Mass. [Filed Oct. 18, 1876.]

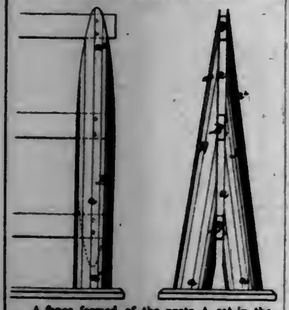
Brief.—On a shaft are a fixed pulley and a loose cam, the latter acting on the inner periphery of the former through an intermediate series of balls, graduated in size to compensate for wear of surfaces.

1. The combination, with the pulley, of the carrier and series of contiguous rollers of graduated sizes, substantially as described.

2. The combination, with an eccentric carrier, of a series of contiguous rollers adapted, as they are worn more rapidly than the carrier, to move forward upon the carrier, to operate substantially as described.

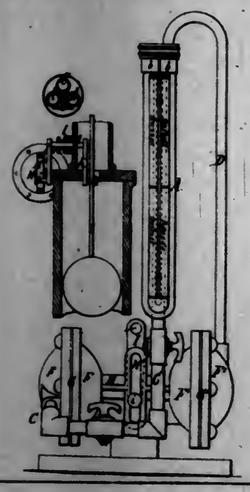


164,274. FENCES. Chas. H. Wapler, Saginaw, Mich. [Filed Aug. 26, 1876.]



A fence formed of the posts A set in the ground at an angle inclined toward the line of the boards B, and alternately on opposite sides thereof, the said posts having the faces *a*, to which the said boards are secured, perpendicular to the surface of the ground, as described, and for the purpose specified.

164,275. INDICATORS FOR BOILERS, &c. S. Wheeler, Albany, N. Y. [Filed Mar. 24, 1876.]



1. A transparently inclosed movable body of water or other liquid acted upon by a movable column of air, said air column being set in motion either by a reciprocating diaphragm or piston having connection with a float, or its equivalent, substantially as and for the purpose set forth.

2. The combination of the indicator-pipe A, the pipe C, the vessel F, diaphragm G, or equivalent, and the rod H, adapted to be operated through a float or by the rise or fall of water in a boiler or other vessel, substantially as and for the purpose set forth.

3. The transparent indicator-pipe A, filled partly with water or other fluid, in combination with the pipes C and D, the air-chambers E E', the diaphragms G G', or equivalents, and the rod H, adapted to be operated by the movements of a float, or its equivalent, substantially as and for the purpose set forth.

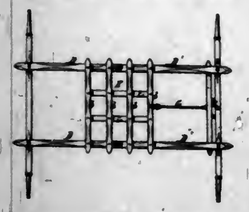
164,276. CHAMBER-VESSELS. Leonidas G. Woolley, Mendon, Mich., assignor of one-half his right to L. Cole, same place. [Filed May 25, 1876.]



1. A removable bowl or basin, C, provided with a curved tube, D, at the bottom, in combination with a chamber-vessel, A, as set forth.

2. The bowl or basin C, provided with the flange or rim extending beyond the same, both on the outside and inside, for the purposes herein set forth.

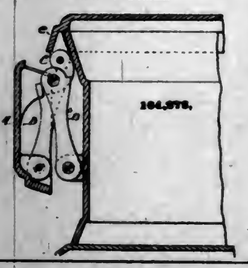
164,277. RUNNING-GEARS. George Yetter, Seneca Falls, N. Y. [Filed Oct. 7, 1876.]



1. The combination, with the divided side bars D D', of the separate spring-platform E and jointed brace G, as and for the purpose specified.

2. The platform E, consisting of the bars *b b*, extending transversely, and the bars *c c*, extending longitudinally, the bars *b b* forming stiff connections between the side bars, and the bars *c c* forming spring-stretchers, which impart elasticity in the direction of the length of the running-gear, as herein shown and described.

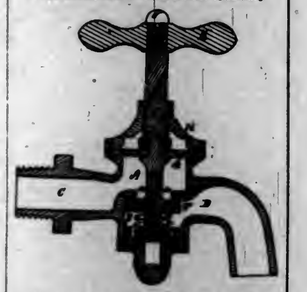
3. In a carriage having divided side bars and no springs, the combination of a separate spring-platform resting upon the side bars, and a jointed brace connecting the center of the platform with the front axle, as herein shown and described, and for the purpose specified.



164,278. SHELF-SUPPORTS FOR STOVES AND RANGES. Wm. P. Abendroth, Port Chester, N. Y. [Filed Dec. 24, 1875.]

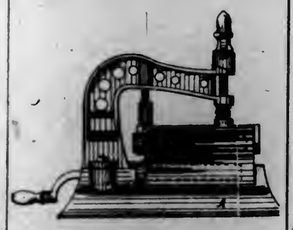
The combination, with the shelf A and its hinged supports D D, of the attachment C, located under the depending flange *e* of a stove-top, substantially as and for the purpose described.

164,279. FAUCETS. Jos. W. Chamberlain, Worcester, Mass. [Filed Feb. 7, 1876.]



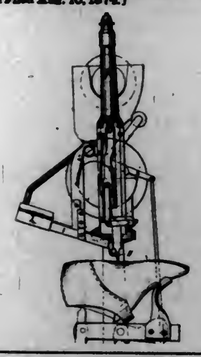
The combination of the cap H, screw I, diaphragm G, valve-stem E, valve F, spring L, and two chambers, A B, with the induct C, to open into the chamber A, and the educt D, to lead out of the lower or spring chamber B, all being substantially as shown and described.

164,280. FLUTING-MACHINES. Charles F. Dudley, Lockport, N. Y. [Filed Mar. 28, 1876.]



The base A, the standard provided with an elongated aperture, and the lower roller, cut away at *b*, in order to facilitate the introduction of the heating-iron, all combined as and for the purpose described.

164,281. BOOT AND SHOE NAILING MACHINES. Henry Dunham, Abington, Mass. [Filed Aug. 10, 1874.]



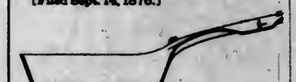
1. The automatically-operated intermittingly-reciprocating guideways I I, in combination with the nail-tube 6, substantially as and for the purpose set forth and described.

2. In combination with the driver *g*, the nail-tube 6, having the side opening 14 below the highest position of the driver *g*, and the picker 7, and movable ways or track I 1, substantially as set forth.

3. In a nailing-machine, the combination with the ways or track I 1, of the adjustable cover 16, as and for the purpose set forth.

4. In a nailing-machine, the combination of the movable ways or track I 1 with the movable yielding stop 17, as and for the purpose set forth.

164,282. PITCHING-PANS. Jos. Edgar, New York, and Alfred Bardell, Brooklyn, N. Y. [Filed Sept. 14, 1876.]

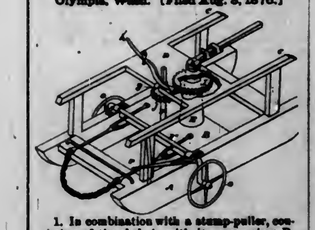


1. As a new article of manufacture, a frying-pan in which the bowl and handle are stamped out of one and the same piece of sheet metal, substantially as and for the purposes specified.

2. The blank for a frying-pan constructed with the handle equal in length to the diameter of the bowl, for the purpose of saving material or stock, for the manufacture of the pan and handle in one piece, substantially as herein shown and described.

3. The frying-pan constructed as herein shown and described, the bowl and the handle made as an integral from one piece of metal, the handle being provided with vertical flanges *a a*, and with the depressions *b* intermediate between the bowl and extremity of the handle, substantially as and for the purpose specified.

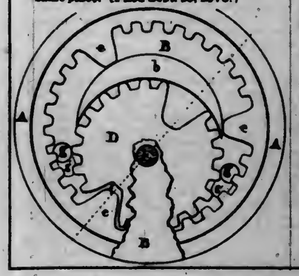
164,283. STUMP-PULLERS. Jno. B. Forbes, Olympia, Wash. [Filed Aug. 3, 1876.]



1. In combination with a stump-puller, consisting of the sled A, with its cross-piece B, frames C, with the cross-piece D, and the upright windlass or capstan E, with its spur-wheel I, I claim the upright shaft F, with its pinion *f* stepped in the lower cross-timber, and having its upper end secured in the slot *g* of the upper cross-timber by means of the bar *h* and pin, substantially as and for the purpose described.

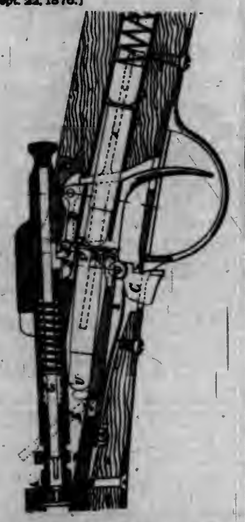
2. The sled A, with its capstan E, and having the cranked axle M, with its wheels O and lever P secured across it near one end, substantially as and for the purposes described.

164,284. ROTARY ENGINES. D. D. Hardy, Delavan, Ill., assignor of one-half his right to Geo. C. Whitmore and W. A. Jacobus, same place. [Filed Sept. 18, 1876.]



In combination with the cylinder A and heads B, provided with steam-ports *g g*, an annular internal-toothed wheel, with two or more lugs, *e e*, on the inner side of same, pinion D, with recesses to admit the said lugs *e e*, and with shaft E, and the crescent-shaped block *b*, substantially as and for the purpose described.

164,285. MAGAZINE FIRE-ARMS. Benjamin B. Hotchkiss, New York, N. Y. [Filed Sept. 22, 1876.]



1. The guide through the shoe, arranged at an angle to the axis of the bolt or system, and leading directly to the chamber in the barrel, in combination with an independently-acting cartridge-impelling mechanism and a sliding bolt, substantially as described.

2. In a breech-loading arm having a magazine, *a*, and suitable means for impelling the cartridges forward, the combination of the shoulders *P* and the supporting-arm D^2, adapted to arrest the cartridges, substantially as described.

3. The combination of the barrel with a device for impelling the cartridges, and an immovable device for guiding the same from the magazine into the barrel upon the retraction of the bolt, substantially as described.

4. In a magazine-arm in which the cartridges are liberated by the movement of the trigger, the shoulders or stops P^1, engaging the head of the cartridge on one edge, and the additional stop or projection D^2 on the trigger, adapted to aid in holding the cartridge by its opposite edge, substantially as described.

5. In a breech-loading arm having a magazine, *a*, and means adapted to impel the cartridges forward, the trigger provided with the two arms D^2 and D^3, forming a part of and moved by the trigger, adapted, the one to hold the cartridge out of line of the channel, and thus to arrest it, and the other to compel the movement of the arrested cartridge into the proper position for moving forward when the trigger is pulled, substantially as described.

6. The tubular construction of the trigger D, substantially as described.

7. In a magazine-arm, a trigger having the arm D^2 for engaging and retaining the cartridge, and the arm D^3 for liberating it, substantially as described.

8. The magazine-arm described, adapted to receive and expel the cartridges without any magazine mechanism, operated by or through the bolt, but independent therefrom, substantially as described.

9. The combination of the bolt, the stop, and a device operated by the trigger, whereby the forward cartridge in the magazine is liberated by the movement of the trigger, and allowed to move forward till it strikes the bolt, is again liberated by the withdrawal of the bolt, and allowed to be projected forward, while the succeeding cartridges are arrested, substantially as described.

10. The bolt arranged, with relation to the magazine and shoe, substantially as described, whereby, when the bolt is withdrawn far enough to liberate the extracted cartridge or shell, the next succeeding cartridge is permitted to move forward toward the barrel, as described.

11. The extractor constructed with the engaging-hook $1'$, pivot-hook *i*, abutting-piece i^3, and spring i^2, substantially as described.

12. The projection *h* on the nose-piece, adapted to match in a corresponding groove in the fixed parts, and to relieve the extractor from side strain, as herein described.

13. The beveled surfaces provided upon the front and rear ends of the trigger, adapted to cause the cartridges to enter the tubular trigger and force it into alignment with the magazine-passage, substantially as described.

14. An oscillating trigger, constructed with a passage through it, whereby its movements shall interrupt the continuity of the cartridge-passage, substantially as described.

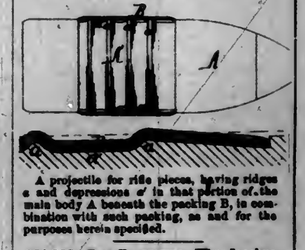
15. A projecting stud on the head of the magazine-spring, in combination with a slot in the magazine and trigger, whereby the forward movement of the spring is limited, substantially as described.

16. The construction herein described, by which the magazine is permitted to be filled through the opening in the bottom of the shoe when the bolt is withdrawn, substantially as described.

17. The combination of the locking-piece C with the trigger and shoulders or stop D^2, substantially as described.

164,286. PROJECTILES. Benj. B. Hotchkiss, New York, N. Y. [Filed Sept. 20, 1876.]

Brief.—The pressure of the gases upon the projectile presses the packing down between the ridges, and the frictional surface of the projectile is thereby reduced.



A projectile for rifle pieces, having ridges *c* and depressions *c'* in that portion of the main body A beneath the packing B, in combination with such packing, as and for the purposes herein specified.

164,287. PIPE-FASTENERS. Wm. Jacobus, Newark, N. J. [Filed May 10, 1876.]



1. In a pipe-fastener, the U-shaped strap A, with the fulcrum ends U, to close over the pipe B, in combination with the end plates D, substantially as specified.

2. The strap A, in combination with the plates D, having the ends *f* made to close against the under side of the pipe B, and held by the screws E, substantially as set forth.

3. In a pipe-fastener, the strap A and plates D, forming a joint-connection by means of the holes *a* in the plates, and the ends U of the strap, substantially as and for the purposes specified.

4. The jointed pipe-fastener, having the curved ends *f* of the plates, and the ridged inside G of the strap, substantially as and for the purpose set forth.

164,288. HANDLES FOR VALISES, TRAVELING-BAGS, &c. Jacob Lagowitz and John W. Lieb, Newark, N. J. [Filed Sept. 26, 1876.]

A handle for valises, bags, or similar articles, composed of a single piece of sheet metal cut and bent in the manner substantially as shown and described, with its edges brought together so as to make it round in cross-section, as set forth.

184,988.

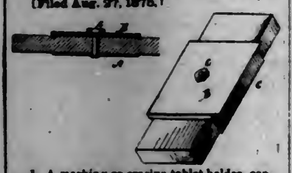


184,989. MEDALS. Jos. W. Lingg, Philadelphia, Pa. [Filed Mar. 20, 1876.]



As a new article of manufacture, a medal having glass applied to one or both its sides, the edge of the glass being inserted in an annular groove in the medal, and the metal outside turned against each edge, substantially as shown and described.

184,990. HOLDERS FOR RUBBER, GRATONS, &c. Emil Lilienthal, New York, N. Y. [Filed Aug. 27, 1876.]



1. A marking or erasive tablet holder, consisting of a tube or case, one side plate of which has combined with it a knife, substantially as described.

2. A marking or erasive tablet holder, consisting of a tube having an oblong open end or mouth, one side of which is provided with an inwardly-projecting lip or flange, substantially as described.

3. A marking or erasive tablet holder, the oblong mouth whereof is provided with an inwardly-projecting flange, constructed in two parts, adjustable one upon the other, substantially as described.

4. The combination of the plate A, having sides C, plate B, having flange F, and adjusting-screw *e*, substantially as described.

184,991. PROCESSES AND APPARATUS FOR DEHYDRATING AND REFRIGERATING AIR. R. H. Lucas, San Francisco, Cal. [Filed Sept. 16, 1876.]

Brief.—A pipe for the passage of the refrigerant gas is surrounded by an open-work tube, the space between which and the pipe is filled with a deliquescent salt to absorb moisture.

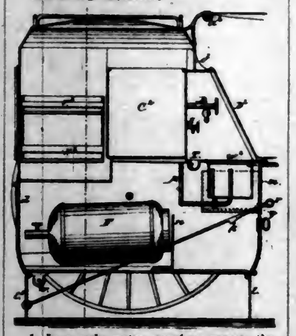


1. The process of refrigerating and dehydrating air by passing it over and in contact with a deliquescent salt, which is kept cool by artificial means, substantially as specified.

2. The process of cooling and dehydrating air, consisting in passing it over pipes, through which a refrigerant gas is caused to circulate, and around which a layer of deliquescent salt is supported, substantially as above described.

3. The skeleton or open-work tube V, surrounding the pipe A, so as to provide a space between said tube and the inside pipe, in which a deliquescent substance can be retained in contact with the pipe A, and allow the passing air to come in contact with it, substantially as and for the purpose described.

184,992. PORTABLE SODA-WATER APPARATUS. John Matthews, New York, N. Y. [Filed Aug. 22, 1876.]



1. In a soda-water coupé or wagon, the combination of a fountain, an ice-chamber, draft-arm, and syrup-faucets, all arranged substantially as described.

2. The combination of the ice-box, tumbler-washer, and draft apparatus within the body of the coupé, as set forth.

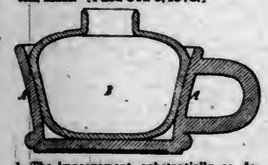
3. The combination of draft-arms D, tumbler-support T, and tumbler-washer n^2.

4. In a portable soda-water apparatus, a shelter formed by handles H, supports S^1, awning *a*, and roller a^2, substantially as shown and described.

5. In a portable soda-water apparatus, a rack, r^2, within the interior of the apparatus, and in proximity to the cooler C^3, substantially as shown and described.

6. In a portable soda-water apparatus, the combination of the legs l P with the body of the apparatus, and with rod *r*, substantially as shown and described.

184,993. LAMPS. Edward J. Murphy, Boston, Mass. [Filed Oct. 6, 1876.]



1. The improvement, substantially as described, in the art of making a glass lamp or other article of like character, such consisting in pressing a mass of molten glass in a mold, so as to give such mass the form of a saucer or bowl, and next, while such bowl may be in a heated state, and within its mold, blowing within it a glass fountain or vessel, substantially as set forth, so as to cause the saucer or bowl to surround and adhere to the said fountain or vessel, and extend above such, all substantially as shown and described.

2. The new article of manufacture or glass lamp composed of the pressed or molded bowl or saucer A, and a blown-glass fountain or vessel B, the bowl, at its upper part or edge, being extended above the fountain, made and combined in manner and by means substantially as set forth.

184,994. STEAM STOP-VALVES. Alexander Orme, Chicago, Ill. [Filed Aug. 17, 1876.]

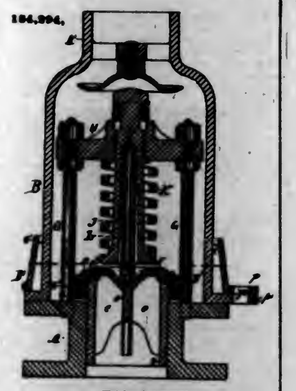
1. The combination, with the valve F, of the hollow primary spindle J, valve-spindle L, spring K, and cross-head H, substantially as and for the purpose specified.

2. The combination, with the ring E, base A, bushing D, and studs G G, of the supplemental ring E^1, substantially as and for the purpose specified.

3. The combination, with the case B, provided with lugs c' c'', of the ring D^1, flange *a*, lugs p p', and lock-bolt openings p'', substantially as and for the purpose specified.

4. The combination, with the case B, of the annular concaved guard-plate N, substantially as and for the purpose specified.

184,995.

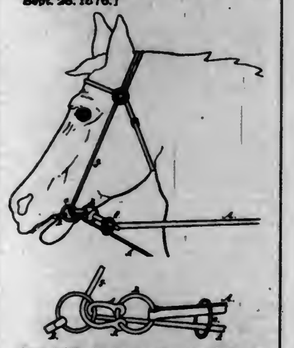


184,995. SHAWL-STRAP BUCKLES. R. W. Owen, Chicago, Ill. [Filed Apr. 21, 1876.]



The buckles B, having a bridge, *b*, post *d*, upwardly-projecting points d', and downwardly-projecting post d'', combined with the curvilinear arms of the handle A, as and for the purposes described.

184,996. DRIVING-GEARS FOR HORSES. J. K. Poorman, Pleasant Unity, Pa. [Filed Sept. 26, 1876.]



In a bridle for horses, the rings C D *a*, in combination with the straps *g* and *f* and reins A, arranged substantially as herein described, for the purpose set forth.

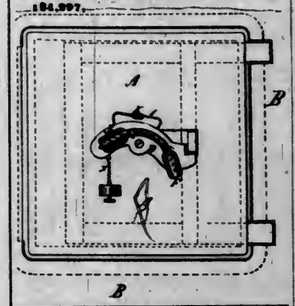
184,997. TIME-LOCKS. William L. Potter, Mechanicsville, N. Y. [Filed Oct. 11, 1876.]

Brief.—A tilting actuating device constructed with a capillary passage, and partially filled with liquid, is combined with a locking-lever, so that the liquid, when in one end of the device, will, by its weight, retain the lever in position to lock the door; but being transferred by capillary attraction to the opposite end, will tilt the same, and thereby unlock the door.

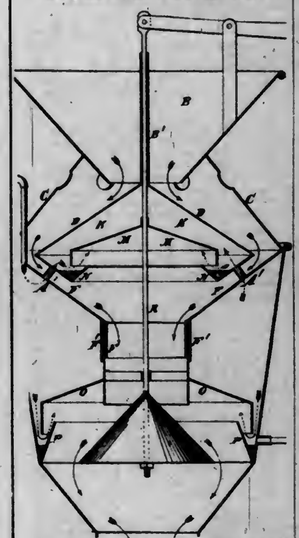
1. The tilting actuating device, constructed with a capillary passage and partially filled with liquid, in combination with a locking-lever, the whole arranged for use and operation substantially as herein set forth.

2. The time-lock comprising the described tilting actuating device, the locking-lever, the adjustable load or rider, and the spring N, the whole combined in relation with each other, the door A, and safe B, substantially as and for the purpose set forth.

184,997.



184,998. WHEAT-STEAMERS. J. W. Price, Michigantown, Ind. [Filed Aug. 16, 1876.]



1. An apparatus for drying or dampening grain, combining in its construction heated plates D F, over which the wheat flows, exposed to the heat of steam in chambers I and K, and adjustable openings between such steam-chambers for drying the wheat without moistening it, or first drying and then moistening it at the will of the operator, substantially as set forth.

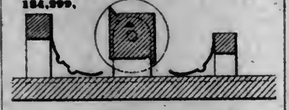
2. In combination with the steam and wheat chambers, the adjustable hoods and angles N and P, for holding water and admitting or shutting off steam to or from the wheat, substantially as set forth.

3. In combination with the steam and wheat chambers and water-angles N and P, the rod R, hoods M and O, and telescope-joint F^v F^v O^v for controlling the communication between the steam and wheat chambers, substantially as set forth.

184,999. PLANING-MACHINES. D. H. Rice, Lowell, Mass. [Filed Jan. 16, 1876.]

Brief.—The flat spring, which projects under the planing-cylinder to hold the board down to the bed against the action of the cutters, is provided with one or more flutings or corrugations, extending across it longitudinally, parallel with the edge of the spring, for the purpose of obviating the tendency of the spring to yield along the edge, while it yields in the other direction.

184,999.



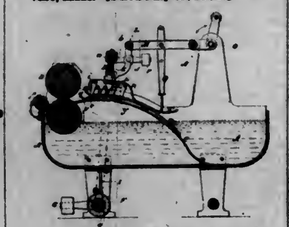
In combination with the bed and cutters of a planing-machine, the spring F, provided with one or more flutes or corrugations, extending across it parallel, or nearly so, with its pressing-edge, substantially as described.

184,000. MAGNETS FOR MARINERS' COMPASSES. Edward S. Ritchie, Brookline, Mass. [Filed May 13, 1876.]



The fasciculer magnet, substantially as described—that is, as composed of a series of steel and magnetized wires laid parallel to each other, and either bound or fastened together, or inclosed in a case, as set forth.

184,001. WOOL-WASHING MACHINES. O. G. Sargent and F. G. Sargent, Graniteville, Mass. [Filed July 19, 1876.]



1. In a wool-washing machine, the combination of a bowl or tank, A, press-rolls B, an inclined table, C, and a single reciprocating carrier, D, substantially such as shown and described, constructed and arranged to deliver the fiber from the bowl to the rolls without assistance.

2. In a wool-washing machine, the combination of the table C and the reciprocating toothed carrier D, provided with hooked rear arms E, substantially as shown.

3. The combination of the swinging arms E, retarded in their movement, with the vertically-sliding carrier D, mounted thereon and connected, by devices substantially as shown and described, with the pitman M, whereby the carrier is caused to rise and fall as it moves backward and forward, as set forth.

4. The combination of the shaft F, provided with the arms E and the pulley H, encircled by the friction-strap I, the vertically-sliding carrier D, mounted on the arms E, the rock-shaft J, provided with the arms K and L, and the pitman M and crank N, arranged to operate as described.

5. In combination with the pitman M, arranged to operate as shown, the toothed bar or rake Q, secured rigidly thereto, as shown.

6. The raised toothed ribs S, constructed and arranged substantially as and for the purpose described.

7. The elastic or spring teeth U, secured upon the face of the table C, as shown, to prevent the backward movement of the fiber.

8. The spring-arms T, arranged above the face of the table, substantially as and for the purpose described.

9. The pivoted carrier-teeth *d*, provided with the notches *e* in their lower ends, as shown and described.

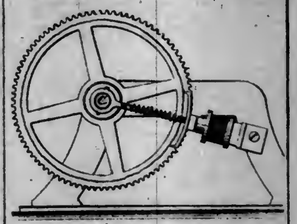
10. In combination with the pivoted teeth *d*, the bar *f*, having its ends mounted on springs, as shown, and for the purpose described.

11. In a wool-washing machine, a reciprocating carrier, D, provided with elastic wire teeth F, as described.

12. The combination of the table C, provided with the raised ribs S, and the carrier D, provided with the teeth *g*, having their ends curved forward, as shown.

13. In combination with the doffer-roll W, the guards X, constructed and arranged substantially as shown, and for the purpose described.

184,002. AUTOGRAPHIC TELEGRAPHS. Wm. B. Sawyer, New York, N. Y., and Jas. G. Smith, Hackensack, assignors of one-half of their right to Robert F. Stockton and Edwd. J. Anderson, Trenton, N. J. [Filed Sept. 8, 1876.]



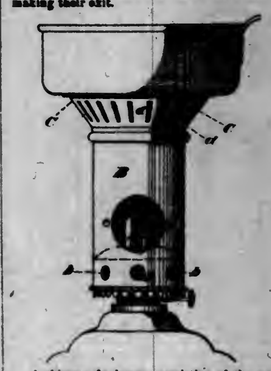
1. In a copying-telegraph, the method of obtaining isochronous motion of different instruments, consisting in throwing out of gear at a certain point and arresting the motion of the faster-running instrument until the slower-running instrument shall arrive at the same indicated point, without arresting the motion of the accompanying mechanism, substantially as herein shown and described.

2. In a copying-telegraph, transmitting or recording mechanism, operated by a clutch, which is taken off when one instrument is moving faster than another, and restored so soon as both instruments arrive at the same point, as set forth.

3. In a copying-telegraph, transmitting or receiving mechanism, operated by a clutch, which is taken off when an instrument is running ahead within a certain interval of time, and restored when that interval of time has expired, substantially as specified.

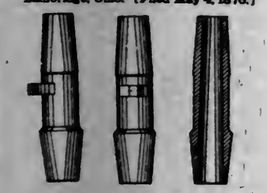
184,003. ATTACHMENTS FOR KEROSENE-LAMPS. J. B. Searl, Northampton, Mass., assignor of one-half his right to James S. Pearce, same place. [Filed Sept. 23, 1876.]

Brief.—The holes in the lower end supply air to the flame. The flaring flange allows the products of combustion to expand before making their exit.



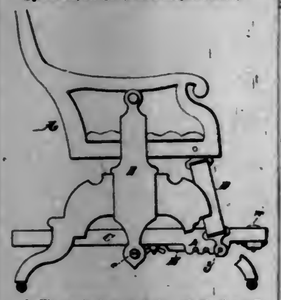
A chimney for lamps, consisting of the metallic tube B, having the ports *b*, and provided with the conical flange C, having the perforations *d*, as shown and described.

164,204. SAP-SPOUTS. George C. Shipherd, Bainbridge, Ohio. [Filed May 4, 1876.]



A metallic reversible sap-spout of the shape described, cast in one piece, as a new article of manufacture, as and for the purpose set forth.

164,205. OSCILLATING CHAIRS. Anthony Snyder, Springfield, Mass., assignor of one-half his right to Philip Greenwald, Syracuse, N. Y. [Filed May 1, 1876.]



1. The swinging seat A and platform C, support B, and the connecting link or strap D, when operating together in the manner and for the purpose set forth.

2. In combination with the swinging seat A and with extensible platform C, the connections D, made adjustable at their points of attachment, for the purpose described.

3. The combination of flexible straps D, rod *f*, bearings h, and spring E, substantially as shown.

4. The slotted slat *c*, provided with the notches *b*, in combination with pin *l*, socket and stop *n*, spring *g*, catch *i*, and plunger *w*, to form an adjustable stop for the foot-rest H, substantially as shown and described.

164,206. EMERY-WHEEL HOLDERS. Jno. J. Steiger, Peoria, Ill. [Filed June 24, 1876.]

Brief.—A slog-grinder is pleased loosely in a sleeve-holder on a disk-diaphragm, (and by which and set-screws the grinder is gaged or graduated,) is then secured by an annular wedge drawn within the sleeve and made to impinge against the periphery of the grinder by set-screws.



1. A hollow disk, A, having its inner edge beveled away, in combination with the ring C and adjusting-screws or other similar devices *e'*, the ring C being made in one or more parts, and adapted to fit the bevel of the disk A, substantially as shown.

2. The combination of the follower B and suitable adjusting devices *f'*, for regulating the emery-wheel, substantially as described.

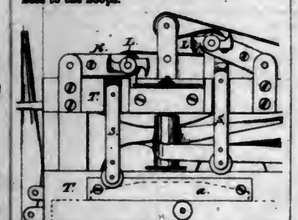
164,207. STEAM-COOKERS. G. M. Stephen, Minneapolis, Minn. [Filed Apr. 4, 1876.]

As a new article of manufacture, steam-cooker A, provided with a removable top, C, the steam-opening B, one side the center of the bottom, legs *i*, a door, D, the ribs *e*, and the wire trays, substantially as set forth.



164,208. MACHINES FOR CUTTING AND DRESSING HOOPS. William Steele, St. Mary's, W. Va. [Filed July 10, 1876.]

Brief.—The hoops are sawed from the periphery of a log by a circular saw, and at the same time dressed by means of two rotating cutters, the log revolving, at each reciprocation of the carriage upon which it rests, the requisite distance to give the proper thickness to the hoops.

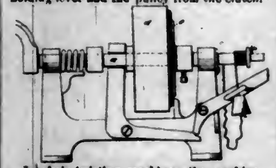


1. The combination and arrangement of the frames K K', with the planer-heads L L', the gage-bars S S', the links P P, lever R, and pattern *c*, with the saw, substantially as described, and for the purpose set forth.

2. The adjustable head-block C D' D'', with the cams E E, stop G, brace U, ratchet J, drum *d*, and dog-chain I, combined and arranged in the manner and for the purpose set forth.

164,209. SKEIN-TWISTING MACHINES. T. Stibbs, Wooster, Ohio. [Filed Aug. 24, 1876.]

Brief.—Improvement on former patent, No. 117,218, and consists in a stopping mechanism, by which the machine determines (with capability of adjustment) the number of twists to be given to the skein. A spool and cord on the shaft actuate a stop-lever, releasing a holding lever and the pulley from the clutch.



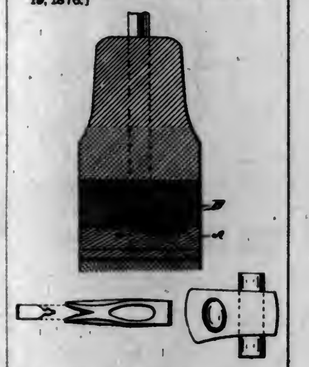
In skein-twisting machines, the combination, with the hook-shaft *a*, having the loose pulley *d* and friction-clutch *e*, of automatic stop mechanism brought in operation by the revolution of the shaft through the spool and cord thereon, to release the pulley and determine, by the length of the cord, the number of twists to be given the skein, substantially as and for the purposes shown and set forth.

164,210. POCKET-COMB CASES. Charles W. Walker, New York, N. Y. [Filed Oct. 11, 1876.]



A pocket-comb case provided with a mirror, substantially as and for the purpose set forth.

164,211. MANUFACTURE OF AXES. Henry W. Warner, Greenfield, Mass. [Filed Sept. 19, 1876.]

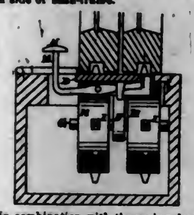


1. The dies A and B, provided with the projections *c*, for welding and shaping axes, substantially as set forth.

2. As an improvement in the process of making axes, the herein-described method of welding and shaping the same at one operation by means of dies, constructed and operating substantially as described.

164,212. GATE-BALANCES. B. M. Whiting, Los Angeles, Cal. [Filed Sept. 26, 1876.]

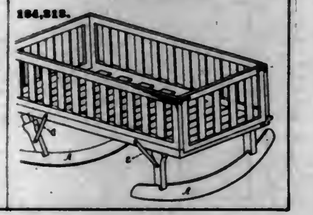
Brief.—A peculiarly-arranged lever locks the usual cog-wheel, which works in a rack upon side of sash-frame.



1. In combination with the spring drums or wheels H, with their cogs or teeth I arranged to engage with the rack-plate J on the edge of the sash-frame, the dog or pawl L, operated by the lever M, substantially as and for the purpose described.

2. The pivoted locking-lever O passing behind the pins I, with its arms P P, in combination with the spring drums or wheels H, having teeth or cogs I I, which engage with the notches in the rack-plate on the window-sash, substantially as and for the purpose described.

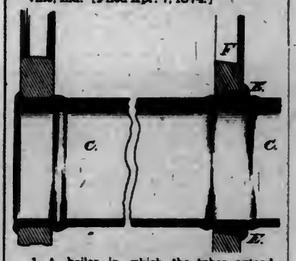
164,213.



164,213. FOLDING CRIBS AND CRADLES. Thomas C. Woodard, Knightstown, Ind. [Filed Mar. 27, 1876.]

In a folding crib or cradle, the rockers A, having uprights which are adapted to be fitted into mortised recesses, in combination with the stays or braces C, substantially as and for the purpose described.

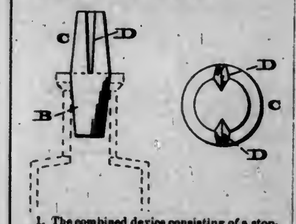
164,214. SETTING FLUES AND TUBES IN STEAM-BOILERS. A. C. Arcona, Evansville, Ind. [Filed Apr. 7, 1874.]



1. A boiler in which the tubes extend through and beyond the front tube-sheet, as and for the purpose herein set forth.

2. The combination of the front tube-sheet B, and its enlarged openings F, with the rings or ferrules E, and the tubes C, expanded on both sides of said rings, as set forth.

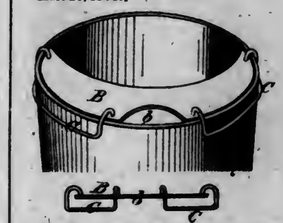
164,215. COMBINED STOPPER AND DROPPER FOR BOTTLES. James A. Armstrong, Camden, N. J. [Filed Oct. 13, 1876.]



1. The combined device consisting of a stopper and dropper at opposite ends, whereby, by a reversed position, either member may be inserted in the bottle, substantially as and for the purpose set forth.

2. The stopper B and dropper C D, combined and operating substantially as and for the purpose set forth.

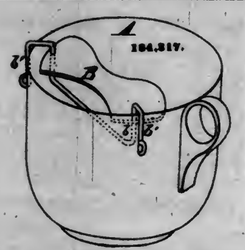
164,216. MUSTACHE-GUARDS FOR CUPS. Elijah Avey, Mount Morris, Ill. [Filed Mar. 25, 1876.]



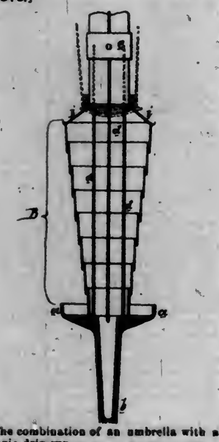
As a new article of manufacture, the solid removable segmental plate B, provided with the orifice *b* and bent spring wire guards C, constructed and adapted to fit over the edge of a cup, substantially as described, and for the purpose set forth.

164,217. MUSTACHE-GUARDS. Elijah Avey, Mount Morris, Ill. [Filed June 10, 1876.]

The combined mustache-guard and napkin-holder, composed of the guard-plate B, clasps *b b'*, and loop C, combined substantially as described.



164,218. UMBRELLA DRIP-CUPS. G. Relston Ayres, Philadelphia, Pa. [Filed Oct. 5, 1876.]



1. The combination of an umbrella with a telescopic drip-cup.

2. The combination of an umbrella with a drip-cup, operated by a rod independent of the movable parts of an umbrella, and extending to a point at or near the handle, as set forth.

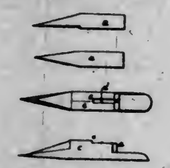
3. The combination of a telescopic cup, B, and its operating rod or rods with the cap *a* and stem *b*, which form a continuation of the stick of the umbrella, and to which the smaller end of the drip-cup is secured.

4. The combination of a movable umbrella-point with an operating rod or rods, by which the said point may be caused to approach or recede from the end of the umbrella-stick, as set forth.

5. The combination of an umbrella with a drip-cup, the mouth of which is connected to the umbrella by cords or wires *i*, so as to leave a space between the said mouth and the cover of the umbrella, as set forth.

6. The combination of a drip-cup, the rods *d*, and the ring *e* with the rod *f* and the ring *g*, as described.

164,219. WRITING-PENS. Leopold B. Bertram, New Wandsworth, England. [Filed Sept. 10, 1875.]



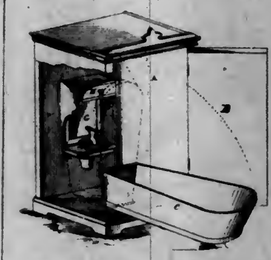
A pen constructed with a barrel, *c*, adapted to contain a cartridge, *a*, containing solid or concentrated ink or writing composition, substantially as set forth.

164,220. FINGER-RINGS. N. A. Bellezza, Rome, Italy, assignor to Simon Muhr, Philadelphia, Pa. [Filed Sept. 26, 1876.]



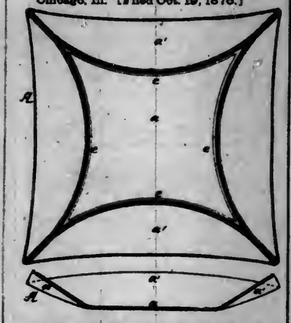
The within-described finger-ring, bent at the points *x x*, and having the rearward-projecting portion *y z*, substantially as set forth.

164,221. PORTABLE BATHS. E. M. Bennett, New York, N. Y., assignor to himself and John S. Sisey, same place. [Filed Oct. 24, 1876.]



The case A, provided with the hinged bath-tub C, door B, shelf E, glass G, and drawer H, all arranged substantially as set forth.

164,222. PAPER DISHES. Jas. W. Benham, Chicago, Ill. [Filed Oct. 19, 1876.]



As a new article of manufacture, the dish A, made in one piece or sheet of fibrous material, and wherein the sides *a' a'* meet the bottom *a* in the curved lines *c c*, substantially as shown and described.

164,223. HEATERS AND CONDENSERS. Robt. Berryman, Hartford, Conn. [Filed Aug. 21, 1876.]

1. The combination, in a feed-water heater or condenser, of the body A and the tubes H H', with the base B, having a chamber or chambers communicating with the tubes, and having a top, *e*, depressed in the center, as set forth.

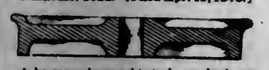
2. The combination, in a feed-water heater or condenser, of two sets of vertical tubes, with a hollow tube-plate carried solely by the said tubes and forming a communication between the two sets, all substantially as and for the purpose described.

3. The combination, in a tubular feed-water heater, of an air-chamber, J, at the top of the

heater, with a water-discharge pipe, E, extending downward into the said chamber, as specified.

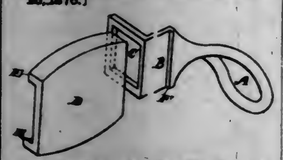
4. The combination of the base B of the feed-water heater, the heat waste-pipe P, and the partition *m*, separating the base into compartments and extending downward into the said waste-pipe, all substantially as described.

184,302. CAR-WHEELS. A. L. Blackman, Nashville, Tenn. [Filed Apr. 10, 1876.]



A hammered wrought-steel car-wheel complete in one piece, forged by hammering from one ingot of steel, or a cast-steel wheel, substantially as described, in the manner and for the purpose set forth.

184,303. GAG-RUNNERS FOR HARNESS. W. M. Blain, Salinas City, Cal. [Filed Aug. 26, 1876.]



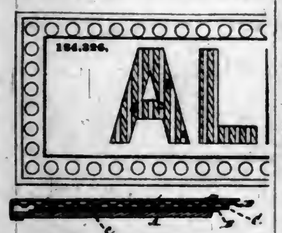
1. A gag-runner, consisting of the flattened portion B, the brow-band loop C at the upper rear end, and the gag-runner loop A at the lower end, all formed in one piece, substantially in the manner set forth.

2. The plate D, with its flanges E, in combination with the metallic gag-runner loop A, having the brow-band loop C with the shoulder F, substantially as and for the purpose herein described.

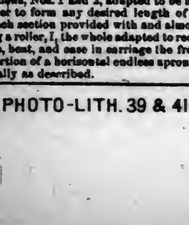
184,304. PRODUCING ORNAMENTAL Designs. Wm. Baggott, Chelsea, England. [Filed July 20, 1876.]

The method of producing ornamental designs, the same consisting, essentially, of making a transparent pattern on an opaque sheet, A, placing back of the same a sheet, B, formed in parallel stripe *c*, back of that a differently-colored sheet, C, also formed in parallel stripe, but placed so that the stripe will run in a different direction, and back of the whole the sheet D, substantially as and for the purpose herein shown and described.

184,305.



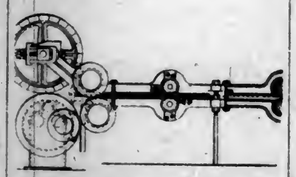
184,307. BOAT-DETACHING APPARATUS. Wm. A. Brice, London, England. [Filed Nov. 1, 1876.]



1. In an automatic detaching device or apparatus for disconnecting ships' boats and other purposes, the combination, with two self-releasing vertical bolts and a central guide-rod, of a block having a horizontal aperture, through which loops are passed from opposite sides and round the bolts, the latter retaining said loops so long as they are subject to strain, but instantly falling and releasing the loops when the strain is taken off, substantially as herein shown and described.

2. The combination, with one automatic detaching device, of ropes for connecting the boat to the davit-tackle, and insuring the simultaneous release of both ends of the boat, substantially as shown and described.

184,308. DRIERS. Allan G. Brodie, New Brunswick, N. J., assignor of one-half his right to Thos. S. Harrison, Philadelphia, Pa. [Filed May 8, 1876.]



1. A drying apparatus for pulp white-lead and other material, consisting, essentially, of a horizontal endless drying-apron, E, the upper free portion of which, between its carrying-drums A B, is inclosed by two separate horizontal steam-radiating cases, F G, which cases are formed to support and almost inclose double sets of carrying and crushing rollers, I I, upon one extremity of the top of the upper portion of which apron the material to be dried is fed, and upon and by which apron such material is carried between the steam-cases and their rollers, and is thoroughly dried in its passage, substantially as described.

2. In a drying apparatus constructed as hereinbefore described, two distinct horizontal steam-radiating cases, F G, placed one above the other, each made in any desired number of sections, Nos. 1 and 2, adapted to be united together to form any desired length of case, and each section provided with and almost inclosing a roller, I, the whole adapted to receive, inclose, heat, and case in carriage the free upper portion of a horizontal endless apron, substantially as described.

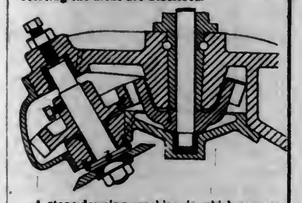
184,309. UNDERGROUND-TELEGRAPH. D. Brooks, Philadelphia, Pa. [Filed Apr. 24, 1876.]



As a new article of manufacture, a metal tube containing one or more clothed wires, embedded in insulating material, and having their projecting ends protected by a removable tube, B, closed at the end, as set forth.

184,310. DRESSING STONE. John D. Brunton, Kentish Town, England. [Filed Aug. 21, 1876.]

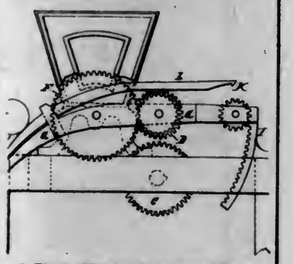
Brief.—Around the periphery of a chuck are placed, at an angle with its axis, cutting-disks, whose spindles are rotated by a ring toothed on its inner side, and embracing the chuck and tools, which is rotated by a belt-drum on the chuck-spindle. Other means of rotating the disks are described.



A stone-dressing machine, in which one or more cutting-disks, inclined in respect to the surface of the stone to be dressed, have imparted to them a positive rotary motion other than that which would be imparted by contact with the stone, all as set forth.

184,311. GRAIN-DRILLS. James C. Buck, Dayton, Ohio, assignor to Benj. Kuhns, same place. [Filed Sept. 26, 1876.]

Brief.—Upon the pivoted lever, running from front to rear of the frame, is mounted the cone-gear, into which engages the adjustable driving-wheel, for imparting an increased or diminished rate of speed to the feeding-shaft through the cone. The front end of the lever carries a ratchet-wheel, that engages with a sector. To this lever is pivoted a second or lock lever, that engages with and locks the ratchet, to prevent displacement of the driving-wheel. The rear end of the lever is acted upon, to relieve it from the ratchet, by the swinging arm carrying the drill-teeth.

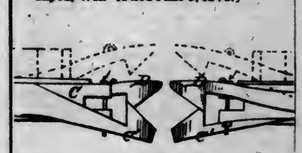


1. The combination of the ratchet L, lever G, and arm H, arranged with reference to each other substantially as shown and described, whereby the movement of the arm is made to release the ratchet from the wheel, and to change the position of the lever, for the purpose set forth.

2. In a machine for drilling or distributing grain, the combination of the ratchet L, the lever G, cone-gears D, ratchet-wheel K, sector I, driving-wheel C, and arm H, or their equivalents, when arranged to operate as and for the purpose set forth.

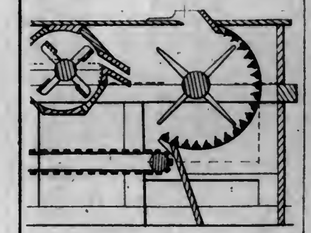
3. The combination of the lever G, the ratchet L, cone-gears D, and gear-wheel F, the parts being arranged to operate substantially as and for the purpose set forth.

184,312. CAR-COUPLINGS. W. A. Bushey, Ripon, Wis. [Filed June 6, 1876.]



The combination of the beams B B, buffer C, having hook C' rigidly attached, vertically-swinging hook D, chain *l*, sliding bolt *k*, and levers G G', all combined and arranged for operation substantially in the manner and for the purpose shown and specified.

184,313. COTTON-CLEANERS. H. C. Cage, Brownsville, Tenn. [Filed Sept. 19, 1876.]



1. In a cotton-cleaner, the combination of the concave E, formed of slats set with sharp steels, of a shaft with beater-arms thereon, and of a hopper for the admission of the cotton, said parts being arranged in the described relation to a fan, having its exit directed to the beater, and a little below its shaft, as set forth.

2. The combination of the concave E, with its hopper and beater-arms, the fan having its exit below the shaft of said beater-arms, and the conveyer D, the parts being arranged in relation to each other, and operating as set forth.

184,314. HARNESS-SADDLES. E. R. Cahoon, Newark, N. J. [Filed Oct. 13, 1876.]



1. A saddle-tree, A, constructed with pockets in its upper surface, to receive and confine the terret and water-hook nuts, combined with removable plates C, adapted to cover and close said pockets and confine said nuts in place.

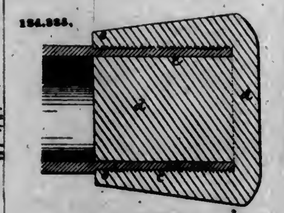
2. A saddle-tree, A, and water-hook, combined with a key, K, attached to said tree, and adapted to lock said water-hook, as set forth.

184,315. DEVICES FOR PROTECTING THREADS ON PIPES DURING TRANSPORTATION. Daniel Calmus, Pittsburg, Pa. [Filed Oct. 11, 1876.]

1. A block for the protection of the ends of pipes during transportation; that is provided with a shelf for protecting the thread on the pipe, substantially as shown.

2. The block *a*, having the annular recess *c*, core *d*, and shell *e*, substantially as specified.

184,316.



184,317. NUT-LOCKS. Jacob A. Camp, Sandusky, Ohio. [Filed May 16, 1876.]

Brief.—A threadless recess, slightly longer than the thickness of the nut, is formed midway on the bolt.



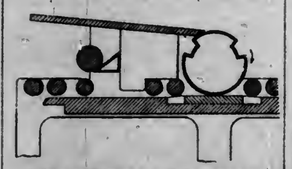
1. The nut-locking device, consisting of the bolt A, provided with the recess B, substantially as and for the purpose described.

2. The combination, with the bolt A, provided with recess B and the nut C, of the safety-nut C', substantially as and for the purpose described.

3. In combination with the bolt A, provided with recess B, the slots or grooves A', and safety-washers D, provided with tongue or tongues d^1 d^2, substantially as and for the purpose described.

4. The combination, with the bolt A, provided with recess B, the nut C, and washers D, of the jam-nut C', substantially as and for the purpose described.

184,318. INKING APPARATUS FOR PRINTING-PRESSES. Andrew Campbell, Brooklyn, N. Y. [Filed Jan. 26, 1876.]



1. The combination, with the impression-cylinder and form or type-bed, of two sets of form-rollers, receiving ink independently of each other, and so arranged on opposite sides of the cylinder as to successively ink the form from end to end from opposite ends thereof before each impression, whereby the ink thus received at both ends of the form is more evenly applied thereon, substantially as hereinbefore set forth.

2. The combination of the angle-rollers, form-rollers, ink-fountains, and reciprocating bed, the ink-fountains being arranged between the angle and form rollers, substantially as and for the purpose hereinbefore set forth.

184,319. VENTILATING DEVICES FOR WINDOWS, &c. David K. Carter, Washington, D. C. [Filed Nov. 6, 1876.]

1. A ventilating trunk or chamber located between the top of a permanent weather-window and the window-frame, its outer end opening downwardly into the external air, and its inner end opening upwardly above the cornice into the room, and provided with a suitable damper or register for controlling the passage of the air, substantially as described.

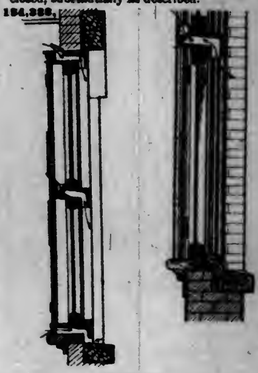
2. A ventilating trunk or chamber located between the sash and sill of the window, leading from the external air into the room or chamber, and opening directly into the room, or vertically upward or downward into the same, so as to conduct the air horizontally across the room, or vertically upward or downward into the room, substantially as described.

3. In combination with the upper and lower sashes of a window, a ventilating trunk or chamber interposed between said sashes, and communicating with the external air and the interior of the room, whereby the air may be admitted at the center of the room, as and for the purpose set forth.

4. In combination with the ventilator-chamber located in the upper or lower part of the frame of a window, a ventilator-chamber interposed between the two sashes of the window, for the purpose of admitting the air at either the top, bottom, or center of the room at will, substantially as described.

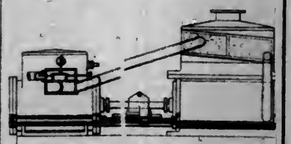
5. In combination with the frame of a window and the shutters thereof, a ventilator-chamber interposed between the sashes, one end of which opens into the space between the shutters and the sashes, to provide for ventilating the room when the shutters are closed, substantially as described.

184,320.



184,320. CONDENSING PUMPING-ENGINES. Adam Carr, Paterson, and James Arthur, Jersey City, N. J., assignors to said Carr. [Filed Jan. 17, 1876.]

Brief.—The water from the pump passes through a surface-condenser, which condenses the exhaust steam from the engine.



1. The combination, with a pumping-engine, of a surface-condenser, placed in the water-way above the water-pump, an air-pump adjacent to the water-pump, and a connection to the steam piston-rod, substantially as specified.

2. The combination, with a pumping-engine and surface-condenser, of a valve placed in the exhaust passage-way, and arranged to lift automatically by surplus pressure, or to be moved to allow the steam to escape to the atmosphere, as set forth.

184,321. DINING-TABLES. I. Y. Cassiano, San Antonio, Tex. [Filed Sept. 22, 1876.]

Brief.—The central portion of the table revolves and carries with it the central tube, which supports a bottle-cooler and flower-cup. The rim of the table is fixed, and has circular openings in it, through which plates are raised. A device under each opening takes away a plate after it is used, and brings up a clean one. A reservoir is arranged above the table, and water is carried from it through the central tube, and pours out over the top over the flower-cup.

1. The combination of the reservoir K, the pipe L, the pipe M, and the basin O, with the tube F, that carries the central revolving part

G of the table-top, substantially as herein shown and described.

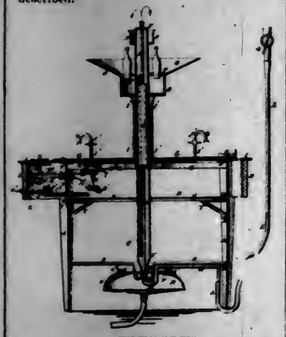
2. The combination of the ring-cup N with the revolving tube F, the inlet-pipe M, and the fountain-basin O, substantially as herein shown and described.

3. The combination of the rack or bottle-holder P with the tube F, and the fountain-basin O, substantially as herein shown and described.

4. The combination of the pipes I', and the faucets J', with the fountain-basin O, the tube F, and the central revolving part G of the table-top, substantially as herein shown and described.

5. The combination of the ring-plate S, the screw-socket U, the shaft V, the armed plate W, the pins X, the plate-holders Y, the springs A', the cross-plates B', the gear-wheels C' D', the shaft E', the arm G', and the crank H', with the frame A B C D, and the segmental ring-top I of the table, substantially as herein shown and described.

6. The combination of the detachable receiver R with the tube F, the waste-pipe Q, and the lower cross-bars D of the table-frame A B C D, substantially as herein shown and described.

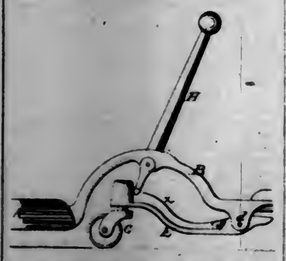


184,841. TREATMENT OF LINSEED-OIL. H. A. Clark, Boston, Mass. [Filed Oct. 28, 1876.]

The process herein described of sulphurizing vegetable oils, which consists in heating the oil in contact with sulphur to that degree at which the sulphur is vaporized, in which condition the sulphur reacts upon the oil to vulcanize it, substantially as described.

184,842. SEWING-MACHINE CASTERS. W. B. Cogar, Morris, Ill. [Filed May 29, 1876.]

Brief.—The caster is swiveled upon the end of a short arm pivoted to the frame proper. A lever pivoted to the arch of the frame above the caster serves to operate it.



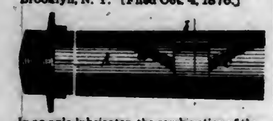
The combination, with the frame A B C D, of the hinged arm E, formed with the ridge *x*, and provided with the caster G, and the pivoted lever H, provided with the arm I, having projecting lips *i i*, substantially as and for the purposes herein set forth.

184,843. SHOE-HANGERS FOR FANNING-MILLS. William Coleman, Jackson, Mich. [Filed May 10, 1876.]



A shoe-hanger for fanning-mills, consisting of the perforated plates B B, each having two projecting ears or lugs, *b b*, as each and, constructed and operating as shown and described.

184,844. AXLE-LUBRICATORS. F. Corse, Brooklyn, N. Y. [Filed Oct. 4, 1876.]



In an axle-lubricator, the combination of the central depression *b* in the axle, with the two spiral grooves *c c* extending from the said central recess in reverse directions, and both vanishing in the axle before reaching the collar and nib of the same, as and for the object specified.

184,845. WINDMILLS. Henry Croft, Sr., and Henry Croft, Jr., Springfield, Ohio. [Filed Oct. 17, 1876.]

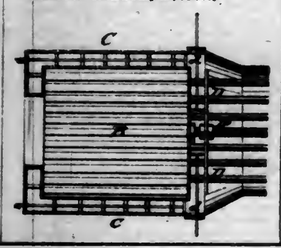
Brief.—The hub of the wind-wheel made in the form of a cone, and provided at the base with a circular plate, having a central opening for the passage of the shaft, which extends through the apex of the cone. The wings are curved forward from the base-plate, and connected by rods with the front end or apex of the conical hub.



1. In a wind-wheel, the combination of the conical hub A, back plate B, and wings or vanes C C, constructed as shown and described, and for the purposes set forth.

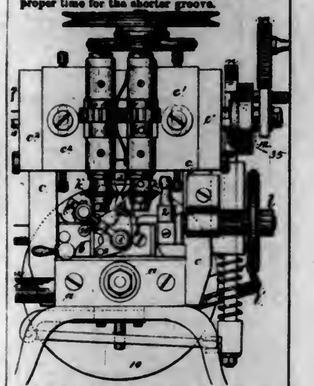
2. The combination of the conical hub A, back plate B, wings or vanes C, brace-rods D E, and strengthening ribs *h h'*, all substantially as and for the purposes herein set forth.

184,846. SCALE-SCRAPERS FOR STEAM-BOILERS. Cornelius J. Cronin, Barnhart's Mills, Pa. [Filed July 31, 1876.]



184,847. MACHINES FOR GROOVING SEWING-MACHINE NEEDLES. Wm. H. Dayton and James Alldis, Torrington, assignors to Excelsior Needle Company, Wolcottville, Conn. [Filed Sept. 4, 1876.]

Brief.—The cutter for the longer groove is fed to the depth of the cut before the table begins to slide to carry the blank past said cutter, the other cutter coming up at the proper time for the shorter groove.



1. The needle-pinchers *g g'*, sliding endwise upon the rods 5 and 6, in combination with the holding-jaws *d d'* and grooving-tools, substantially as set forth.

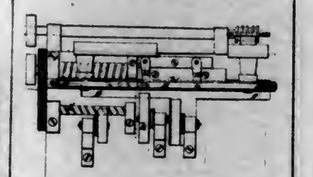
2. The detached point-regulator *i*, in combination with the pinchers, holding-jaws, and grooving-cutters, substantially as set forth.

3. In combination with the revolving grooving-cutter *k*, its rest *c'*, shaft 12, and cam 35, acting to move the rest and cutter laterally, the segment *n* upon the shaft 12, and the revolving pinion *i*, to move such segment *n* gradually, for the purposes and substantially as set forth.

4. The combination, with the holding-jaws and grooving-cutters, of the post *w*, applied substantially as set forth, to support the shank of the needle at the commencement of the grooving operation, as set forth.

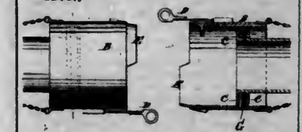
184,848. MACHINES FOR POINTING WIRE FOR SEWING-MACHINE NEEDLES. Wm. H. Dayton and James Alldis, Torrington, assignors to Excelsior Needle Company, Wolcottville, Conn. [Filed Sept. 4, 1876.]

Brief.—The blank is carried along by two endless bands, between which it is clamped, and made to pass over one grinder and under another, for the purpose set forth.



The chain or belt *g*, in combination with the belt *e*, presser-bar *h*, and files or grinders *h l*, substantially as set forth.

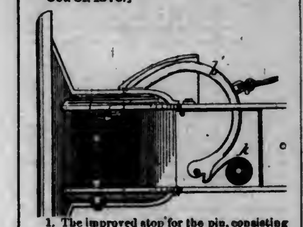
184,849. SMOKE-PIPE COUPLINGS. Anson W. Decrow, Bangor, Me. [Filed May 1, 1876.]



1. The combination of coupling-tubes B, having spring-catches D and interlocking projections E, with the pipes A, having flanges C, substantially as specified.

2. The combination of the packing G with the coupling-tubes B and flanged pipes A, substantially as specified.

184,850. CAR-COUPLINGS. Ninian H. Dolsen, Chatham, Ontario, Canada. [Filed Oct. 31, 1876.]



1. The improved stop for the pin, consisting of the gate with the lever pivoted thereon, the upper end of the lever operating in connection with the slide, to release the pin and let it fall upon the entrance of the link, as set forth.

2. The gate *a'*, bell-crank lever *d*, the sliding stop *a*, spring *c*, and pin *e*, constructed and arranged to operate as set forth.

3. The bent pin operating under the hood, and in combination therewith, and with a stop, *a*, as set forth.

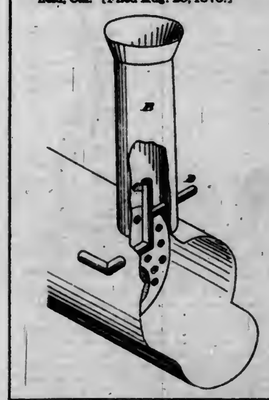
4. The coiled spring *k* placed in rear of the pin, and with the end of said spring beneath, and connected with, the shoulder of the pin, as and for the purpose set forth.

5. The improved side plates formed with vertical bolt-holes, and extended rearward and bolted to the upper and lower plates, as set forth.

6. The spring-link consisting of the spring *k* surrounding the ordinary link, and connected thereto, as set forth.

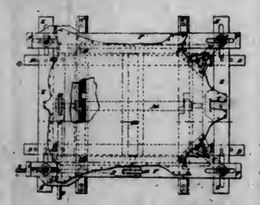
7. The combination of the cross-bar *o*, of the link, double volute spring, and guards on the end thereof, as set forth.

184,851. SPARK-EXTINGUISHERS. James W. Donaldson and Allen C. Miller, Fairfield, Cal. [Filed Aug. 25, 1876.]



The water-supply tube D entering into and in combination with exhaust-pipe C in the smoke-stack B, substantially as set forth.

184,852. APPARATUS FOR DRYING HIDES. Jas. N. Duffy, Newark, N. J. [Filed Oct. 14, 1876.]



1. The extendible frame to receive the hide, formed of the bars E F, having their ends slotted, and the clamping-bolts I, substantially as herein shown and described.

2. The combination of the sliding bars C D and the pins G H, with the extendible frame E F I, and the tables A B, substantially as herein shown and described.

3. The combination of the levers J, the pivoted fulcrum-bars K, the ropes L, the shafts M, the ratchet-wheels N, the pawls O Q, and the levers P with the table A B, and the sliding bars C D, substantially as herein shown and described.

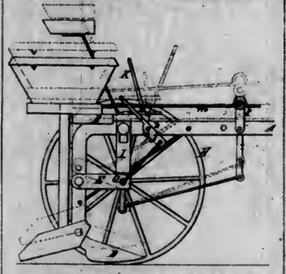
4. The combination of the swinging blocks U and the pivoting-straps V with the extendible frame E F, and the clamping-bolts I, substantially as herein shown and described.

184,853. NUT-LOCKS. Daniel Dull, Spring Township, Crawford County, Pa. [Filed Sept. 11, 1876.]



The spring *s* when beveled on its side, and so shaped that in combination with three or more beveled nuts, by contact with a side of each nut, the beveled spring and beveled nuts are mutually bound in position, substantially as set forth.

184,854. CORN-PLANTERS. Wm. H. Dyke, Greenfield, Ohio. [Filed Mar. 25, 1876.]



1. In a corn-planter, the combination of the curved beams A A, pivoted arms E E, carrying the axle G, with wheels H H, and the adjustable gage-bars I I, substantially as and for the purpose set forth.

2. The combination of the arms E carrying the axle and wheels, the connecting-rods *a*, levers J, rocking shaft *b*, and levers K, all substantially as described.

3. The combination of the rock-shafts *b*, forked levers J, rods *n*, studs *i*, and slide L, all as and for the purpose set forth.

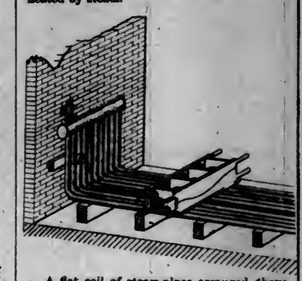
184,855. BOOK-BINDING. Wm. F. Eastman, Sterling, Ill. [Filed May 6, 1876.]

The clamp D, provided with the divergent corners *d d*, in combination with the back *f*, cover C, and book A, all substantially as and for the purpose described.



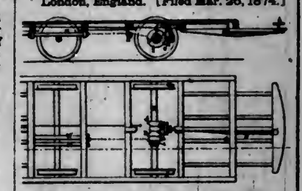
184,856. HEATING CHILL-MOLDS. Herman F. Eberts, Detroit, assignor to the Gate Manufacturing Company, Albion, Mich. [Filed Sept. 11, 1876.]

Brief.—Dries sand-molds holding a chill, preparatory to casting, by a supporting-coil heated by steam.



A flat coil of steam-pipes arranged above the sand-floor of a foundry, and adapted to support a series of flasks, and to heat the chill contained in the drag-frame of each flask, substantially as described.

184,857. CAR-STARTERS. Jos. H. Bottsley, London, England. [Filed Mar. 26, 1874.]



The combination of the lever H and cog-wheel G, actuated thereby, and the cog-wheel A, keyed to the shaft C, with the cog-wheel B, pulley D and its pawl, cog-wheel E on the shaft C, the chain L, and the spring M, (one or more,) substantially as herein described.

184,858. PROCESSES AND APPARATUS FOR THE COMBUSTION OF FUEL. Wm. Bunis, New York, N. Y. [Filed July 14, 1875.]



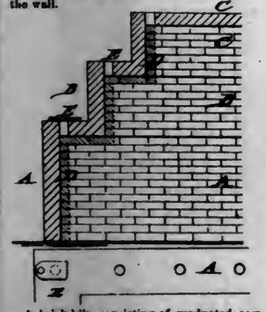
1. The mode herein described of effecting the combustion of fuel in furnaces—that is to say, by forcing through the entire mass of fuel two volumes of air, one at a comparatively low pressure, for the purpose of generating carbonic oxide, and the other at a higher pressure for the purpose of effecting the combustion of the gases, all substantially as set forth.

2. The combination of the pressure-pipe *b*, and the distributing-pipes *d*, beneath the grate-bars of the furnace, with the branches *d* extending to the surfaces of the said bars, as set forth.

3. The combination of the branch *d*, having an opening, *e*, with a disk or plate, *f*, arranged within the pipe beneath the opening, as and for the purpose set forth.

184,849. BRICK-KILNS. Holland B. Evans, St. Charles, Mo. [Filed Aug. 14, 1876.]

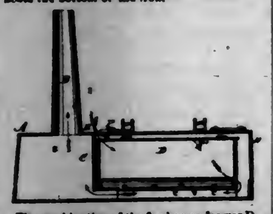
Brief.—Continuous flues from bottom to top of kiln between the brick and the kiln-wall, provided with branch flues opening through the wall.



A brick-kiln consisting of graduated compartments A B C, having the flues D E, arranged substantially as and for the purpose specified.

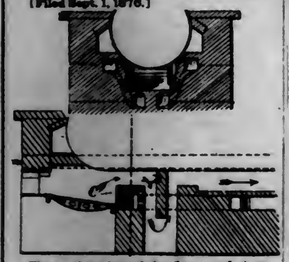
184,860. SAD-IRONS. Holland B. Evans and Wilson Kestler, St. Charles, Mo. [Filed Aug. 17, 1876.]

Brief.—Air admitted through the opening in the top of the iron or box into the drawer is heated, and, passing through and under it, heats the bottom of the iron.



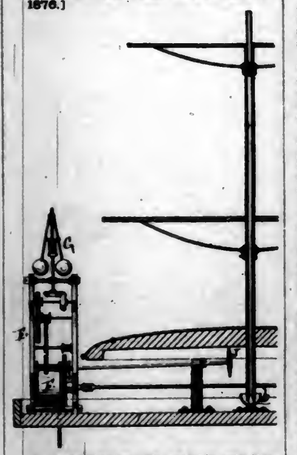
The combination of the fire box or drawer D, having a detachable top plate, F, and openings G, with the hollow cast-iron A, provided with the top opening B, a closed rear door, H, a front partition, C, and chimney E, as and for the purpose set forth.

184,861. HEATING AND FEEDING AIR TO FURNACES. Jno. Ferguson, Pittsburg, Pa. [Filed Sept. 1, 1876.]



The combination of the flues *e* and *f*, arranged substantially as described, with the hollow bridge C, having its rear surface perforated for the admission of air to the main flue, substantially as specified.

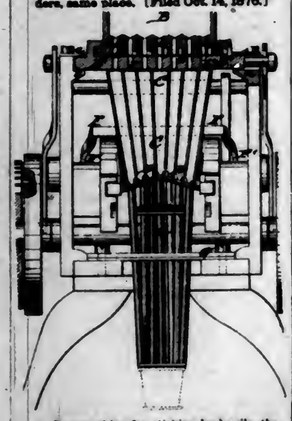
184,862. REVOLVING SHOW-STANDS. Albt. Fischer, Detroit, Mich. [Filed July 26, 1876.]



1. In combination with a suitable motor, the driving-shaft 1, carrying at its free end a brush-wheel, J, for rotating a stand by contact with its lower shelf, such contact being maintained by a spring-supported bearing, substantially as described.

2. In combination with the cord-drum F, adapted to be actuated by a weight and cord, for rotating a revolving show-stand, the centrifugal governor G located in the upper part of the frame E, and actuated by the said cord-drum, substantially as and for the purpose set forth.

184,863. MACHINES FOR STICKING NAILS IN HEEL-BLANKS. Wm. B. Forster, Nashua, N. H., assignor to himself and A. H. Saunders, same place. [Filed Oct. 14, 1876.]



1. In a machine for sticking heel-nails, the combination of a reciprocating shaker and dropper, B B', connecting conductor or guide-casing C, inclined and vibrated grate D, reciprocating clearers, and converging guide-tubes, constructed and operated substantially as and for the purpose set forth.

2. The combination of a continually-reciprocating lower slide and an upper slide-box locked thereto, and released intermittently for dropping of nails, substantially as described.

3. The upper slide-box, provided with longitudinal channels, having front slots arranged at different inclination to the rear or feed channels, substantially as specified.

4. The combination of the upper slide-box, having bottom channels with front slots, with a lateral spring-bolt having fingers with bent pointed ends, to drop one nail for each slot and retain those above, substantially as described.

5. The combination of slotted upper slide-box, having lateral spring-bolt, and reciprocating lower slide, having corresponding slots, with oscillating cam or lock-plate, to release bolt and retain slide-box for dropping of nails, substantially as set forth.

6. The combination of a reciprocating feed mechanism with a partitioned conductor or guide-casing, C, having divisions, wider at the top and narrower at the bottom, to conduct nails from shaker to grate, substantially as set forth.

7. The combination of the inclined grate-bars with a vibrating rapper for tipping up the nails deposited on the guide-bars, as described.

8. The combination of the inclined grate-bars, notched near the front end, reciprocating clearers, and converging conducting-tubes, for feeding nails to heel or former, substantially as specified.

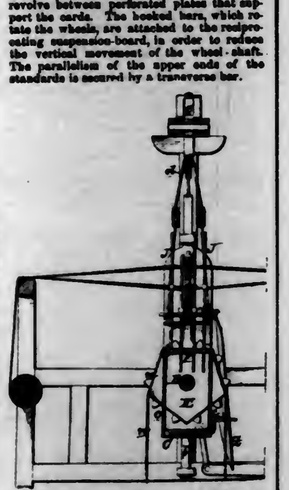
9. The clearers E, having concaved or channeled lower parts and tooth-shaped upper parts extending above guide-bars, substantially as set forth.

10. The grate-bars being notched at both sides in such a manner that the facing notches of two adjoining bars form recesses which are disposed to approximate the shape of a heel, substantially as described.

11. The converging and conducting tubes, being recessed at the upper rear parts, and provided with extension pockets or funnels, to take up the nails from the notched grate-bars and clearers, substantially as specified.

184,864. LOOMS. John Galt, Philadelphia, Pa. [Filed Mar. 22, 1876.]

Brief.—Improvement upon the devices covered by Letters Patent No. 1,964, February 3, 1841. The cards of each set are composed of halves, and laced together in an endless chain, and the two sets are arranged alternately, so that the vacant spaces in one chain is opposite the card of the other chain, and one-half of a card of each set is upon the upper face of the wheel at the same time. By this arrangement one set of compound cards is adapted to operate the needles carrying the ground-threads, and the other set the figuring-threads. The wheels which move the chain revolve between perforated plates that support the cards. The hooked bars, which rotate the wheels, are attached to the reciprocating suspension-board, in order to reduce the vertical movement of the wheel-shaft. The parallelism of the upper ends of the standards is secured by a transverse bar.



1. The combination of the vertical thread-carrying needles J with the transverse perforated plates F, the shaft D, and wheels B.

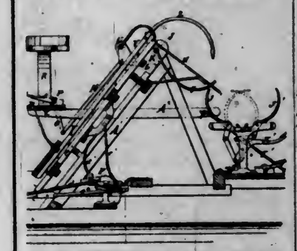
2. The combination of the two sets of cards m and n, arranged alternately, one set being adapted to operate the needles carrying the ground threads, and the other set the needles carrying the figuring threads, the cards being laced together, substantially as described.

3. The combination of the wheels E with the compound cards m and n, laced together and arranged alternately, each card being composed of halves, whereby each face of the wheel E is successively occupied by one-half of each card at the same time, as shown and set forth.

4. The combination of the pivoted bars *a* and *g* and standards *b b*, with the transverse bar *d*, as set forth.

5. The combination of the heads G' and their pins with the hooked bars G and the reciprocating suspension-board B, as described.

184,865. HARVESTERS. William Gaagwer, Mulberry, Ind. [Filed Apr. 26, 1876.]



1. The grain-carrying mechanism, composed of reciprocating bars, provided with alternate rigid and pivoted teeth, substantially as and for the purpose set forth.

2. The bars Y, having curved arms Z hinged at upper end, and provided with legs, in combination with platform E' and arms I, as and for the purpose set forth.

3. The combination of arms J', hinged bar M', and pivoted rods N' with lever O', and platform H, as and for the purpose described.

4. The gavel receiver and compresser, having pivoted prongs J', provided with hooks 1^{w}, as and for the purpose set forth.

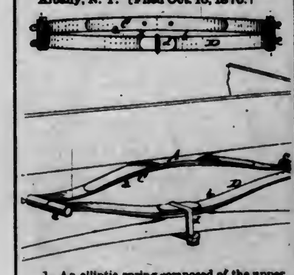
184,866. SEWING-MACHINE SHUTTLES. W. Gillett, Madison, Wis. [Filed Sept. 6, 1876.]

Brief.—The bobbin, thread-tension, and regulating devices are all held in a frame detachable from the body of the shuttle.



The combination of body A, hollowed at *a*, nicked at *b*, provided with spring *c*, and having slit *d*; the frame B, having ears to receive bobbin-journals, rounded at *g* and slotted at *h*; and the tension device *i j k l*, all constructed and arranged as and for the purpose specified.

184,867. VESSELS-STOPPER. J. C. Gould, Albany, N. Y. [Filed Oct. 16, 1876.]

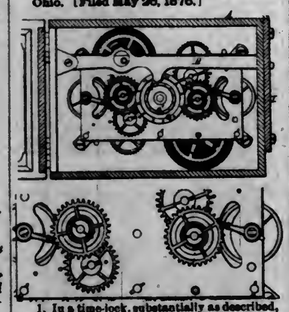


1. An elliptic spring composed of the upper and lower halves or sections C and D, so connected at their ends that the edge *a* of the section C may be out of a vertical range with the edge *b* of section D, to adapt the said sections to pass each other when in motion, as set forth.

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2. The combination, with sections C and D, each set out from a vertical line with the other, of the heads *c* and *d*, conjoined by the bolt *e*, or its described equivalent, substantially as and for the purpose set forth.

184,869. TIME-LOCKS. Emil Grah, Toledo, Ohio. [Filed May 26, 1876.]

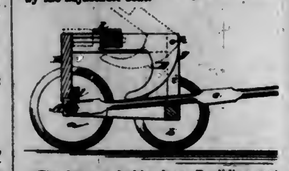


1. In a time-lock, substantially as described, the sliding stop-plate I provided with the opening *i'* and spring *i*, in combination with the opening *i* in the case A, and a lever adapted to be sustained in an elevated position for a determinate or given period of time by one or more clock trains within said case, substantially as and for the purpose set forth.

2. In a time-lock, substantially as described, the dial-knob G, having two concentric grooves cut in its face, and an opening, *d*, connecting the said grooves, in combination with the lever H, for the purpose of holding such lever in an elevated position for a determinate or given period of time, substantially as set forth and shown.

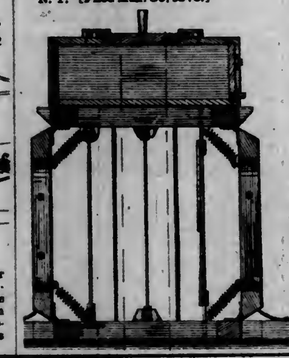
184,869. CORN-MARKERS. Geo. W. Graves, Villisca, Iowa, assignor to himself and A. P. West, same place. [Filed Sept. 16, 1876.]

Brief.—The pivoted locking-lever, for holding the tongue depressed, is held in position by the adjustable seat.



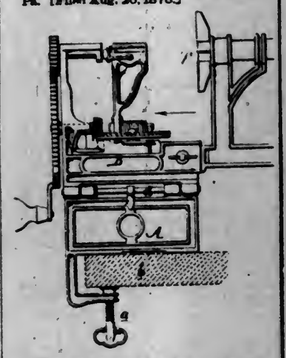
The frame *g*, locking-lever D, sliding seat *k*, pivoted standard E, axles A B, wheels *a b*, and tongue *c*, substantially as herein shown and described.

184,870. CRUSHERS. Solon A. Gregg, Oneida, N. Y. [Filed Aug. 30, 1876.]



An elastic and vibrating churn-support, with perpendicular springs, and hinged joints, with diagonal coils, as and for the purpose set forth.

184,871. COMBINED APPLE PARER, CORER, AND SLICER. Wm. M. Griscom, Reading, Pa. [Filed Aug. 26, 1876.]



1. The combination of the frame A, having a clamping device, with the apple-parer frame B, hinged to the said frame A, and restricted in its movement by stops or otherwise, all substantially as and for the purpose set forth.

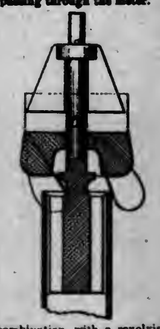
2. The combination of a frame, A, having a clamping device, with an apple-paring and a coring and slicing device, carried by a frame hinged to the said frame A, all substantially as specified.

3. The combination of the coring-tube M with the ferrule, adapted to the interior of the said tube at *q*, as and for the purpose set forth.

4. The combination of the coring-tube M and lever P, having a flanged disk, *h'*, with a flanged disk, *h*, on the frame, and with the spring *k*, contained between the two disks, all substantially as specified.

184,872. FLUID-METERS. John C. Guerrant, Danville, Va., assignor to himself and Collett Leventhorpe, Rutherfordton, N. C. [Filed Apr. 27, 1876.]

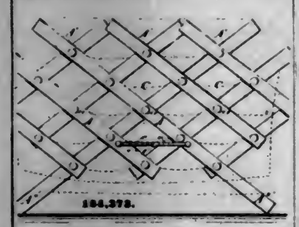
Brief.—A revolving wheel with a "resistance-wing" in a movable sheath. The wing is sheathed more or less, according to the volume passing through the meter.



The combination, with a revolving meter-wheel, of a resistance-wing and a sheath for the same, substantially as set forth, whereby the resistance-wing is sheathed more or less, according to the volume passing through the meter.

184,873. CLOTHES-DRIERS, &c. Isaac Haldeman, West Liberty, Iowa. [Filed Sept. 6, 1876.]

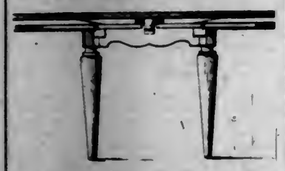
The combination of the flexible shelves C, made of canvas or similar material, with the rods B arranged in tiers, and folding slats A, substantially as and for the purpose herein shown and specified.



184,373.

184,374. EXTENSION-TABLES. G. Hallbauer, Kansas City, Mo. [Filed Sept. 12, 1876.]

Brief.—Supplemental arms are combined with the sliding leaf-supporting arms, so as to admit the introduction of an extra free leaf. A vertically-acting spring is arranged in the supporting arms, to serve as a cushion to the free leaf. The main supporting-arms are provided on their inner sides with a bifurcated groove, to receive the leg on the outer side of the supplemental arms.



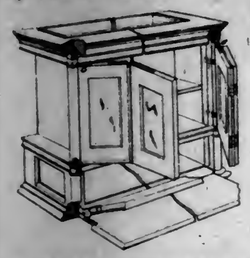
1. In an extension-table, the combination, with the sliding leaf-supporting arms, of supplemental arms longitudinally adjustable therein, and adapted to support the leaves when drawn out to admit the introduction of an extra leaf between same and the main top of the table, substantially as and for the purpose described.

2. The combination, in an extension-table, of the leaf-supporting arm with a vertically-acting spring, for giving a cushion-bearing to the central leaf, substantially as and for the purpose described.

3. The combination, with the supplemental-leaf-supporting arms, of the main sliding arms of an extension-table, the latter arms provided with a bifurcated groove on their inner longitudinal faces, substantially as and for the purpose described.

184,375. DESKS. Claus Hansen, Cedar Vale, Kans. [Filed Aug. 26, 1876.]

Brief.—Folding doors hung by strap-hinges to corner-posts. Said doors swing around into a recess at the end of the desk.



A vertical desk, wardrobe, or other analogous article of household furniture, having the end recesses and corner posts, as described, and folding doors connected with the latter by flat hinges C, whereby the said doors are adapted to swing around the posts and lie concealed in the recesses behind them, as shown and set forth.

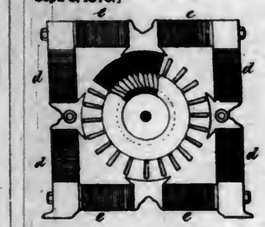
184,376. NAPKIN-HOLDERS. Benjamin F. Hardy and Victoria A. Hardy, San Francisco, Cal. [Filed July 26, 1876.]

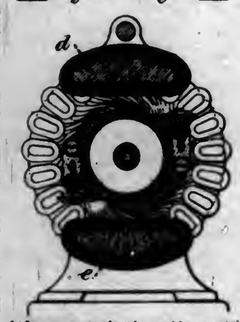
184,376.



A napkin-holder, composed of the hook A B, having the rectangularly-bent edge *c* and teeth *f f*, in combination with the piece C, provided with the thumb-piece *e*, bent edge *d*, and teeth *a a*, connected by the hinge E, and having the intervening-holding-spring D, all constructed, arranged, and operated as set forth.

184,377. MAGNETO-ELECTRIC MACHINES. Otto Heikel, Jersey City, N. J. [Filed Sept. 8, 1876.]





1. In a magneto-electric machine, containing a range of revolving armature-cores, a series of sectional helices to such cores and consections between such sectional helices and the commutators, substantially as set forth.

2. The combination of a circular range of armature-cores, two or more helix-sections on each core, and a range of commutator-bars equal in number to the the helix-sections, and a disk and revolving shaft, substantially as and for the purposes set forth.

3. In a magneto-electric machine the stationary magnets *d a*, having elliptical poles and corresponding surrounding helices, elongated in the direction in which the armature-cores revolve, for the purposes and as set forth.

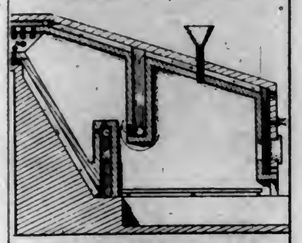
184,378. APRONS FOR WET-ORE SEPARATORS. William Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Mar. 15, 1876.]



1. An endless apron for slime-machines, having one or more longitudinal slnices which are concave in cross-section, as and for the object specified.

2. The combination of the flexible endless apron and the concave supporting-slats *d*, substantially as herein shown and described.

184,379. FLUES FOR FLATTENING-OVENS IN THE MANUFACTURE OF WINDOW-GLASS. Hartley Howard, Pittsburg, Pa. [Filed Oct. 25, 1876.]

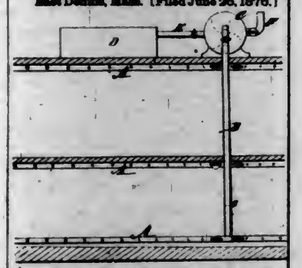


1. The combination of one or more bridge-walls and air-inducts with the flue of a flattening-oven, substantially as and for the purpose specified.

2. The combination of one or more hollow perforated bridge-walls with the flue of a flattening-oven, substantially as and for the purpose specified.

3. In combination with the hollow-walled flue for flattening-ovens, perforated, as at *a a*, the hollow perforated bridge-walls, substantially as and for the purpose specified.

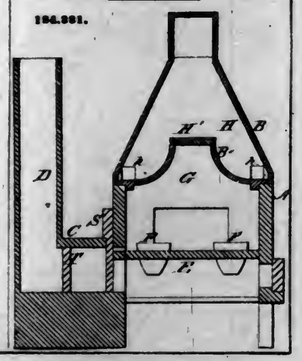
184,380. METHODS OF DETECTING AND EXTINGUISHING FIRES, &c. Danl. W. Howes, East Dennis, Mass. [Filed June 26, 1876.]



1. The method of detecting and extinguishing fires by utilizing the same system of pipes leading from the forcing apparatus to the various compartments of a ship or warehouse, both for the exhaustion of the air for the detection of the fire, and for the forcing in of carbonic-acid gas for extinguishing the same, substantially as described.

2. The fire-extinguishing apparatus for vessels and warehouses, consisting of a series of perforated distributing-pipes, A, conducting-pipe B, fan-blower C, holder D for the fire-extinguishing gas or substance, and the pipe E, all combined as shown to operate in the manner set forth.

184,381.



184,381. ZINC-OXIDE FURNACES. Samuel T. Hughes, Newburg, Ohio. [Filed June 21, 1876.]

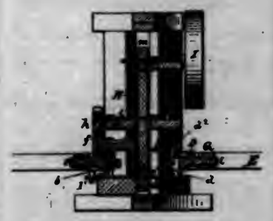
1. In combination with the oxidising-furnace, receiver, and receiving-flues, the drafting-flue P, containing screens, and communicating at separate points with the receiver I and conduit 4, substantially as described.

2. The damper S, in combination with the fire-chamber E, vaporising-chamber G, and smoke-stack D, said damper being arranged at the contiguous inlet-openings to the flue C, from the fire-chamber E, and vaporizing chamber or converter G, so that either or both said openings may be opened or closed, substantially as described.

3. The improved oxidising apparatus, comprising the furnace A, containing the fire-space E, vaporising-chamber G, and oxidising-chamber H, the receiving-pipes 1 2 4, &c., the receiver I, and drafting-flue P, substantially as shown and described.

184,382. HORSE-POWERS. J. W. Jackson, Americus, Ga. [Filed Oct. 11, 1876.]

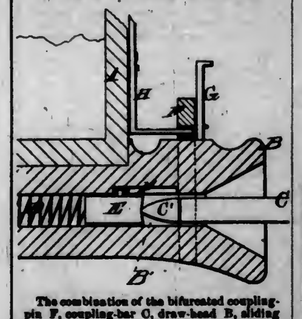
Brief.—A horizontal wheel, supported in an oblong rotating frame by tenons and friction-rollers, operates a band-drum by a large intervening vertical wheel and pinions.



1. The combination of the horizontal cog-wheel D, idle-pinion *f*, shaft 4, with pinion A and upright cog-wheel H, and the top and bottom shafts *n n'*, with pinions *m m'* and band-wheels I I', all substantially as and for the purposes herein set forth.

2. The combination of the cog-wheel D, with radial tenons *c*; the parallel levers E E, with cross-bars G G, posts B B', rollers *d d' d''*, idle-pinion *f*; pinion A, with shaft 4, cog-wheel H, shafts *n n'*, pinions *m m'*, and band-wheels I I', all substantially as and for the purposes herein set forth.

184,383. CAR-COUPLINGS. G. F. Jackson, Osceola, Iowa. [Filed Sept. 16, 1876.]



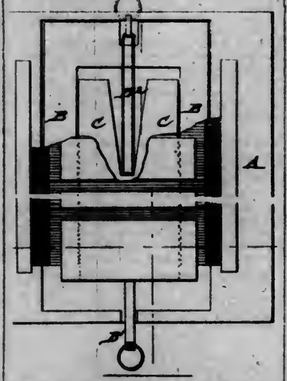
The combination of the bifurcated coupling-pin F, coupling-bar C, draw-head B, sliding block E, spring D, vertical rod H, and levers I J, substantially as and for the purpose set forth.

184,384. TOY PICTURES. Joseph Kayser, New York, N. Y. [Filed Sept. 16, 1876.]

Brief.—Pictures, in transverse strips, magically changed by means of the devices claimed.

1. A toy surprise-picture, made of a base or main part, A, a movable section, B, guided therein, and an interior sliding section, C, guided by section B, each section being provided with a set of transverse strips, attached to the same, and arranged so that the sets applied to the movable sections slide between and over the stationary lower set of strips, and also between and over each other and the stationary set, by being drawn forward and backward by suitable devices, substantially in the manner and for the purposes set forth.

2. The combination of the movable section B, sliding on the base or main part A, and interior sliding section C, guided in section B, with a suitable spring, B', applied to frame A and section C, in such a manner that it binds on section B to retain it in position when the section C only is moved back and forth, substantially as described.

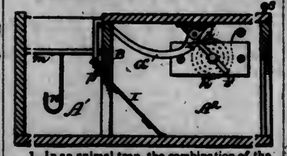


184,385. MANDRELS FOR WELDING PIPE. Joseph A. Kaylor, Pittsburg, Pa., assignor to J. B. Schmidt, same place. [Filed July 27, 1876.]



A compound mandrel, consisting of a body A, and removable sleeve B, substantially as and for the purpose herein shown and specified.

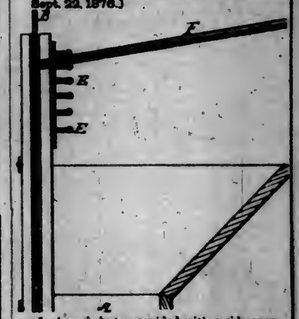
184,386. ANIMAL-TRAPS. Geo. W. Kelley, Springfield, Ohio. [Filed June 28, 1876.]



1. In an animal-trap, the combination of the compartment A', sliding doors O O, connecting-rods *s s*, shaft E, with cranks D D and arm 4, the lever G, and rocking shaft *m*, with latch *k* and bait-hook *n*, substantially as and for the purposes herein set forth.

2. The combination of the compartments A' A², shaft E, with spring A, operating the doors O O, the hinged grating I, pivoted latch H, lever G', and the arm *f* on the shaft E, all substantially as and for the purposes herein set forth.

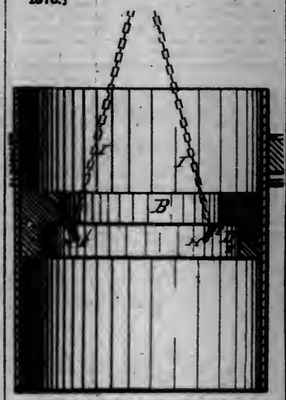
184,387. COAL-CHUTES. Theron Kelsey, South Brooklyn, N. Y., assignor to himself and James B. Kelsey, same place. [Filed Sept. 22, 1876.]



1. A coal-chute provided with a side opening, extended from bottom to hopper, or nearly to hopper, in combination with a slide, B, that is gradually raised as the coal accumulates in the bin, so that there may be no sudden fall of coal to bin from the hopper.

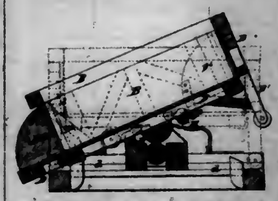
2. The combination of the rest or fulcrum bars E and the lever F with the open side of the chute A and the slide B, provided with a longitudinal row of holes, substantially as herein shown and described.

184,388. CONSTRUCTION OF WELLS. Wm. T. Kemple, Sedalia, Ind. [Filed Sept. 27, 1876.]



The carrier B, having the re-entrant angle D, and provided with the pins H, in combination with the chains I, substantially as and for the purpose specified.

184,389. DUMPING-CARS. Sidney D. King, Middletown, N. Y. [Filed Sept. 20, 1876.]



1. In a dumping car or wagon, the box B, secured to a center roller, C, journaled in bearings on a bed-frame, and the box supported in a horizontal position by means of legs B^2, attached to the hinged end pieces D,

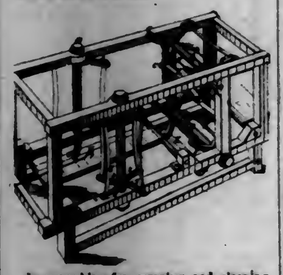
and provided with wheels or rollers A, all substantially as and for the purposes herein set forth.

2. The upper tracks *f*, arranged on the bed-frame A for the wheels *b* to operate against for the purpose of tilting the box B, as herein set forth.

3. The combination of the hinged end piece D, legs D', plates D², braces D³, and projections *c*, with the shaft E, having lever G and disk G', provided with hooks *x x*, substantially as and for the purposes herein set forth.

4. The combination of the levers G G, rack I, and T-shaped latch H, as and for the purposes herein set forth.

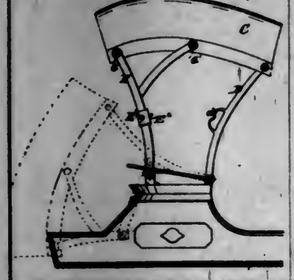
164,390. HOG-SCRAPING APPARATUS. W. W. Kincaid, Chicago, Ill., assignor of one-half his right to F. Burnam, same place. [Filed Sept. 20, 1876.]



In a machine for scraping and cleaning slaughtered hogs, a series of upright and horizontal revolving rests, provided with yielding knives or scrapers, arranged to operate upon animals of different sizes passing through the machine on endless belts or aprons, substantially in the manner described.

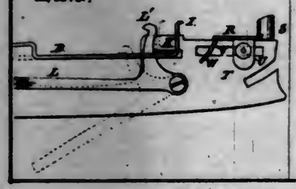
164,391. BUGGY-TOPS. George F. Knight, Carroll, Ohio, assignor to himself and Jno. W. Wilson, same place. [Filed Sept. 6, 1876.]

Brief.—A metal top, supported on each side by two standards, of which the rear one is rigidly attached to the top and jointed.



The vehicle-top C pivoted to the front rigid braces D, and finally attached to rear braces E, thus allowing the top to fall, as shown, and to be rigidly connected with seat-frame, as specified.

164,392. SKATES. John Marson Lamb, South Hampstead, England. [Filed Sept. 21, 1876.]



1. In a skate, the combination, with the runner, of longitudinally-adjustable sole and heel plates, the former provided on its rear with a front heel gripe, transversely adjustable side clamps, and a lever, pivoted to said runner, to adjust the sole-plate, and so formed as to make an additional gripe upon the front of the heel, substantially as herein shown and described.

2. In a skate, the combination, with the runner A, heel-plate R, clips S, and adjustable sole-plate B, of the brackets C, slots E, guides D, slotted toe-clamps N, bolts O, and clamp-screws P, all constructed and arranged substantially as shown and described, for the purpose specified.

3. In a skate, the combination, with the runner A, heel-plate R, clips S, and adjustable sole-plate B, of the pivoted bell-crank lever L L', slot M, front heel gripe I, formed on the rear of the sole-plate, and adjustable toe-clamps N N, all constructed and arranged substantially as shown and described, for the purpose specified.

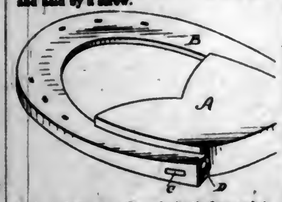
4. In a skate, the combination, with the runner A, sole-plate B, provided with a heel-gripe, I, heel-plate R, and clips S, of the brackets T, slot V, bolt or clamp-screw U, and brackets W, all constructed and arranged substantially as shown and described, for the purpose specified.

164,393. REMEDIES FOR DROPSY. David W. Lawhon, Elgin, Tex., assignor of one-half his right to WM. C. Lawhon. [Filed Oct. 12, 1876.]

A medical compound for the cure of dropsy or dropsical complaints, consisting of extract of grape-vine, spirits of niter, oil of grape-vine, extract of Spanish apple root, and common salt, mixed in about the proportions specified.

164,394. HOSE-COUPLINGS. William Lewis, New York, N. Y. [Filed Apr. 6, 1876.]

Brief.—The frog-pad is held in place by a bar passing through it at the heel of the shoe, and held by a screw.



1. A horseshoe, B, and elastic frog-pad A, combined with a stay-bar, C, inserted laterally through the heel of said shoe and edgewise through the elastic pad A, for the purpose set forth.

2. A horseshoe, B, elastic frog-pad A, and stay-bar C, inserted laterally through the heel of the said shoe and through the frog-pad, combined with a set-screw, D, inserted in the end of the heel, as shown and described, and for the purpose set forth.

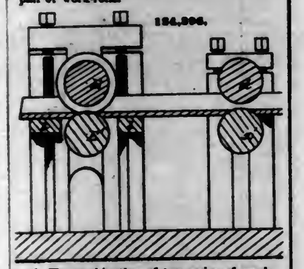
164,395. LADDERS. Jasper B. Lofland, Mexico, Mo. [Filed Sept. 9, 1876.]



The combination, in an extensible ladder, of two, three, or more sections, having side rails with open-ended slots b, L-shaped slots B above the same, and metallic bulged plates C, covering the side openings in the slots, all constructed substantially as and for the purpose herein described.

164,396. MACHINES FOR ROLLING HOOP-IRON. Joseph T. Lowry, Sharpsburg, Pa. [Filed Sept. 26, 1876.]

Brief.—One of the feed-rollers is provided with a loose pulley, carrying a spring-pawl, which engages with a ratchet fast upon the shaft of the roll, so that the feed-rolls, although driven from the first pair of rolls by a belt over this pulley, yet will be free to accommodate their speed to that of the second pair of work-rolls.



1. The combination of two pairs of work-rolls, the intermediate conductors, and the interposed feed-rolls arranged in the conductors, substantially as and for the purpose specified.

2. The combination of two pairs of work-rolls adapted to run at different speeds, the interposed feed-rolls provided with relief mechanism, and suitable conductors, substantially as and for the purpose specified.

164,397. BALE-TIES. John W. Macumber, Wilmington, N. C., assignor of one-half his right to David Cashwell, same place. [Filed Nov. 4, 1876.]
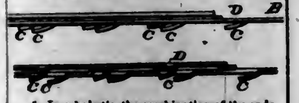
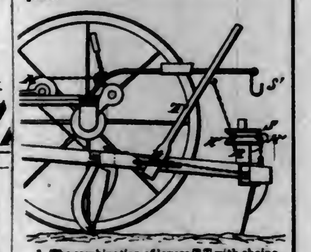


1. In a bale-tie, the combination of the ends A B, having hooks C and swells D, substantially as and for the purpose described.

2. The combination, with the die and punch E F, for forming the eye-portion of the band, of the die and punch G H, for forming the hooked end of the band, substantially as and for the purpose specified.

164,398. CULTIVATORS AND MARKERS. J. B. Magee, Kirby, Ohio. [Filed Aug. 19, 1876.]

Brief.—The frame of this machine is constructed much like that of a wheel-cultivator. The beams that carry the markers are pivoted to the forward part of the frame by means of slotted hangers, which also serve for the cultivator-beams. To the rear ends of the marker-beams are affixed pivoted arms, extending a distance outward equal to the width of the rows. These lateral arms can be raised independently of each other by means of a lever, pulley, and chain or cord, and the beams can be raised by another lever, pulley, and chain or cord, in passing from place to place.

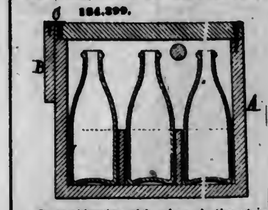


1. The combination of levers T T with chains or cords t t, pulley S, and marker-arms P P, substantially as and for the purpose set forth.

2. The combination of an adjusting-lever and vertically-adjusting marker-arm with a diagonally-operating chain or cord, and guide eyes or loops E' E', substantially as and for the purpose set forth.

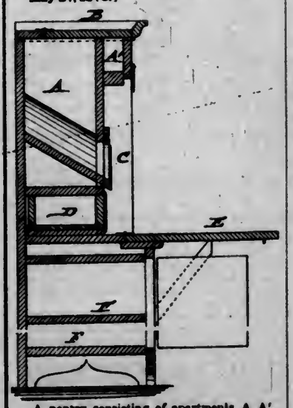
164,399. GAMES FOR TRANSPORTING BOTTLES AND BOTTLED LIQUIDS. Lewis Mann, Detroit, Mich. [Filed Oct. 9, 1876.]

Brief.—A strip is secured to one end of the box, the upper edge of which projects above the box an equal distance to the thickness of the cover, while over this strip is secured a metallic band, projecting inward over the box, and forming a tie for one end of the cover.



In combination with a box, A, the strip B and band C, substantially as and for the purpose set forth.

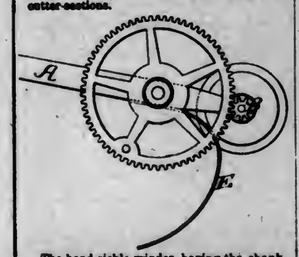
164,400. MEAL-BINS. William H. Mangold and Harry Summerville, Anna, Ill. [Filed May 27, 1876.]



A pantry consisting of apartments A A', covered by the same hinged lid B, the slide C at the lower end of inclined bottom, subjacent drawer D, the hinged door E, and the apartments F, having separate doors, all as shown and described.

164,401. SHARPENING-MACHINES. John Markel, Monticello, Ill. [Filed Mar. 11, 1876.]

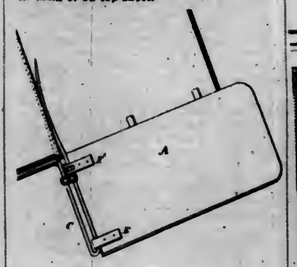
Brief.—A supporting-spring lifts the grinder from the sickle when pressure is removed. The grinder is reversible, to come into contact alternately with the angles of adjacent cutter-sections.



The hand sickle-grinder, having the shank A terminating in an eye carrying the common shaft of the grinding-wheel, and pinion B, arranged on opposite sides of said shank, and having secured to its under side the curved feed-spring E, bent in convex form toward or tangent to the work, substantially as specified.

164,402. HAND-RESTS. Edwin L. Marshall and A. E. Colby, Cleveland, Ohio. [Filed Sept. 2, 1876.]

Brief.—To the hand-rest is hinged a clamp, consisting of two spring-prongs, the longer of which is inserted under the leaves near the center of book, and fingers on the rest may either be placed between the sheets at bottom of book or on top sheet.

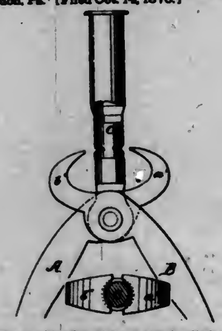


1. The clamp C, in combination with the board A, substantially in the manner as described, and for the purpose set forth.

2. The notched hinge E', pin *a*, and band E, in combination with the board A and clamp C, in the manner as described, and for the purpose specified.

3. In book-rests, the band A, hinged to the clamp C, substantially as and for the purpose set forth.

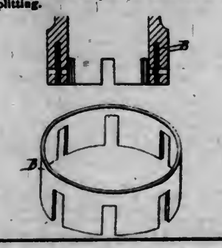
164,403. IMPLEMENTS FOR CRIMPING CARTRIDGES. Mordecai B. Massey, Huntingdon, Pa. [Filed Oct. 14, 1876.]



The combination of the grooved cylinder C with the nippers A B, provided with semi-circular notches in the edges of its jaws *a' b'*, to adapt it for use, substantially as and for the purpose herein set forth and described.

164,404. BOBBINS FOR SPINNING-MACHINES. John Mawson, Philadelphia, Pa. [Filed July 10, 1876.]

Brief.—The metal ring is inserted in the lower end of the bobbin, to prevent rapid wear, and also to prevent the bobbin from splitting.



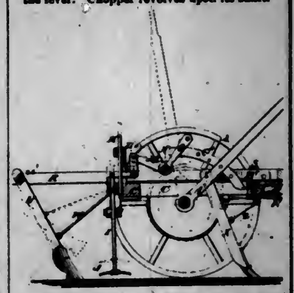
164,405. WINDOW-SCREENS. William McArthur, Philadelphia, Pa. [Filed Oct. 5, 1876.]



The combination of the frame A, having a bar or bars, *b*, and one or more frames, B, having bars *b'*, with a spring or springs, *d*, interposed between the said bars *b* and *b'*, as set forth.

164,406. COTTON-CHOPPERS. John R. McCormick, Georgetown, Tex. [Filed July 31, 1876.]

Brief.—Plow-beams slide back and forth in keepers upon the frame, and the standard-brasses being attached to the stationary frame, the plows are thereby raised or lowered by the lever. Chopper revolves upon its shaft.



1. The chopper-blade J, pivoted and revolving upon the vertical arm F, as shown and described.

2. The combination of the vibrating chopper I J, vertical bar K sliding in sockets, arm M, rack-shaft N, and foot-lever O, substantially as shown and described.

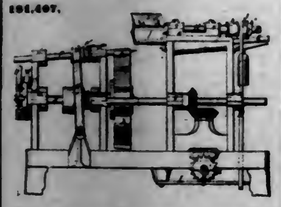
3. The combination of the sliding-beams R, and the stationary pivoted braces W Z, with the frame C and the plow-standards U X, substantially as herein shown and described.

164,407. MACHINES FOR MAKING BUNGS. Edward B. McIntosh, New York, N. Y. [Filed Sept. 6, 1876.]

Brief.—For the purpose of rapidly making tapering bungs with a very smooth surface. The bung-blanks are placed in a revolving sprocket-wheel, and fed to two inclined sliding and centering spindles, between which the blank is held, while the superfluous material

is removed therefrom by means of a revolving and horizontally-swinging cutter-head, provided with straight-edge cutters, in connection with suitable operating mechanism.

184,407.



1. The two centering-spindles, in combination with the vertically-revolving and horizontally-swinging cutter-head, constructed, arranged, and operating substantially as set forth.

2. The combination of the cutter-head I, the swinging head G, the shaft H, the swiveled collar h', the link J, the levers K and I_1, and the cylinder M, having a cam-groove, m, substantially as and for the purpose set forth.

3. The combination of an inclined shaft, P, having a grooved collar, Q, with a conical extension, Q', a loose driving-pulley, P', with a conical friction-surface and a groove, p', and the retaining-hook r', substantially as and for the purpose set forth.

4. The combination of a crank-wheel, T, a pawl, U, having a cam, U', a detent, W', having a cam, W', a ratchet-wheel, V, a detent-wheel, W, and a feed-wheel, X, substantially as and for the purpose set forth.

5. The combination of the cutter-head, the sliding spindles, and the feed-wheel X, substantially as described.

6. The shaft P, in combination with mechanism by which it is stopped and started automatically in its revolutions, substantially as described.

184,408. INDIA-RUBBER GARMENTS. Chas. W. Mather, London, England. [Filed Mar. 21, 1876.]



1. In combination with a water-proof garment and its lining, the tubes or cords b and i, for keeping the parts separate, and the holes a k i, for ventilating the space between the garment and its lining, substantially as described.

2. In combination with the garment constructed as described, the life-saving belt, central between the garment and its lining, substantially as set forth.

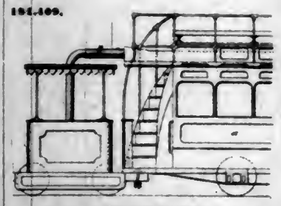
184,409. COUPLING CARS TO LOCOMOTIVES. James C. Merryweather, Henry Merryweather, and Christopher J. W. Johnson, London, England. [Filed Apr. 3, 1876.]

1. One or more bars, b, arranged to slide in and out on the car, as required, in combination with means for throwing the weight of the car coal on the locomotive, as specified.

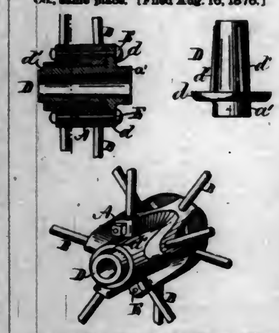
2. The beveled gear-wheels s and transverse shaft f on the locomotive, for simultaneously setting up the ends of the bars b connected into the car, as specified.

3. The car s, having the anti-friction rollers c, in combination with the bars b, and provisions for attaching the same to a locomotive, as specified.

184,409.



184,410. VEHICLE AXLE-BOXES. Gilpin Moore, Moline, Ill., assignor to Deere & Co., same place. [Filed Aug. 16, 1876.]



1. A vehicle-wheel, having the cast-iron hub A, in combination with the metallic pipe-box B, having a flange, d, through which it is connected to the hub by means of bolts E, substantially in the manner and for the purposes described.

2. The cast-iron hub A, in combination with metallic pipe-box B, having the flange d and splines d', whereby it is adjusted and aligned in the said hub, substantially in the manner and for the purpose described.

3. The cast-iron pipe-box D, having splines d' and flange d, combined to operate with the metallic hub A, substantially as and for the purpose specified.

4. The cast-iron pipe-box D, having its end a' projecting beyond the flange d, substantially as described, and for the purpose specified.

184,411. PLOWS. Gilpin Moore, Moline, Ill., assignor to Deere & Co., same place. [Filed Sept. 18, 1876.]

Brief.—A diagonal brace is secured to the standard, running downward and forward, and secured to the land-side, and upward and backward, and secured to the rear end of the plow-beam, or to the handle.



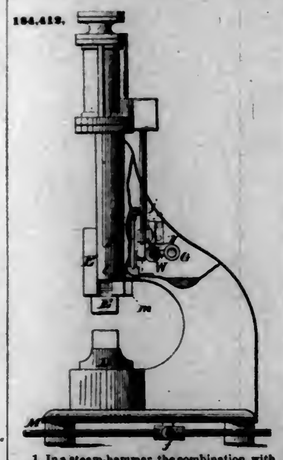
1. The brace J crossing the standard E, to which it is attached, combined with the beam A and land side D, substantially as described, and for the purpose specified.

2. The brace J, constructed and arranged substantially as described, in combination with the handle I and standard E, for the purpose specified.

3. The brace J and standard E, constructed and connected substantially as described, and combined with the land side D, substantially as described, and for the purpose specified.

184,412. STEAM-HAMMERS. Thomas R. Morgan, Alliance, Ohio, assignor to himself and Charles B. Marchand, same place. [Filed Oct. 17, 1876.]

184,412.



1. In a steam-hammer, the combination, with the ram and slide-valve, of a laterally-moving slide, constructed to engage with the rear side of the ram, and a bell-crank lever, one end of which is connected with, and is operated by, the slide, substantially as and for the purpose specified.

2. In a steam-hammer, the combination, with the ram E', slide-valve and stem, and laterally-moving slide F, of the bell-crank lever O, slide N, and means for raising and lowering the slide, substantially as and for the purpose specified.

3. In a steam-hammer, the combination, with the guide m, secured to the rear side of the ram, of a laterally-moving slide and means, substantially as set forth, for actuating the slide-valve, substantially as and for the purpose set forth.

4. In a steam-hammer, the combination, with the slide-valve and ram, of a laterally-moving slide, F, bell-crank lever O, slide N, rock-shaft G, and means for operating the valves, substantially as and for the purpose specified.

5. The combination, with the rock-shaft G and valve-gear connecting with the slide-valve, of the treadle M and connecting-rod, constructed to be adjustably secured to crank H' by a slide, e, provided with a set-screw, substantially as and for the purpose specified.

6. The rock-shaft G, provided with arms H H', and connecting-rods adjustably secured thereto, in combination with the throttle-valve, treadle, and slide-valve, the latter connected with the rock-shaft by suitable valve-gear, substantially as and for the purpose set forth.

7. The combination, with the throttle-valve and treadle, of an intermediate rock-shaft and connecting-rods, one or both constructed to be readily varied in length by means of a right and left hand screw-threaded nut, substantially as and for the purpose specified.

184,413. PUNCHING-PRESSES. Thomas R. Morgan, Alliance, Ohio, assignor to himself and Charles B. Marchand, same place. [Filed Oct. 14, 1876.]

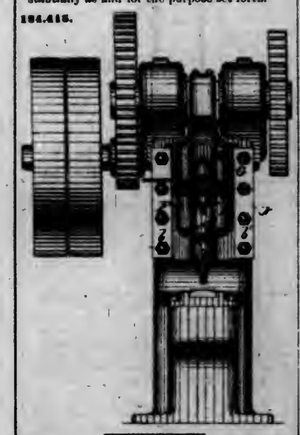
1. In a power-press, the combination, with the two parts of the divided plunger, adjustably connected by means of one or more bolts provided with right-and-left handed screws and gears for operating the same, of a large pinion keyed to a shaft, journaled in bearings secured to the upper and lower parts of the plunger or stock, the pinion arranged to mesh with the gears of the adjusting-bolts, substantially as set forth.

2. In a power-press, the two parts of the divided plunger, adjustably connected by screw-threaded bolts, the latter provided with gears for actuating the same, in combination with a large pinion, and a hand-lever constructed to be adjustably secured to the large pinion, substantially as set forth.

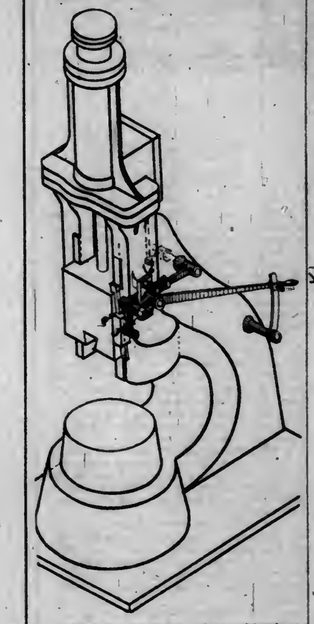
3. In a power-press, the plunger F, constructed as described, in combination with pinion N, provided with holes d and hand-lever W, having a pin, c, secured thereto, substantially as and for the purpose described.

4. In a power-press, the plunger F, constructed in two parts, and adjustably secured, as described, in combination with the pinion N, hand-lever W, and catches or stops O, substantially as and for the purpose set forth.

184,414.



184,414. STEAM-HAMMERS. Thomas R. Morgan, Alliance, Ohio, assignor to himself and Charles B. Marchand, same place. [Filed Apr. 11, 1872.]



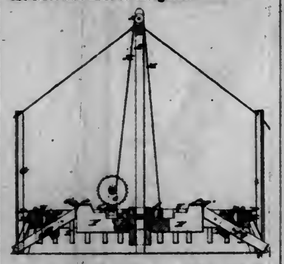
1. In a steam-hammer, the combination, with the ram and slide-valve, of a bell-crank lever, journaled to the short end of a hand-lever, one end of said bell-crank lever provided with means for engagement with the ram, and actuated thereby, and the other end pivoted to the arms of a bifurcated lever, connected to a rock-shaft that operates the slide-valve, substantially as and for the purpose set forth.

2. The combination, with the ram, slide-valve, operating-lever, and shifting-gear of a steam-hammer, of a bridge or arch adapted to serve as a guide for the bell-crank lever, and a fulcrum for the operating-lever, substantially as and for the purpose set forth.

3. The combination, with the ram, slide-valve, and hand-lever of a steam-hammer, of a bifurcated lever constructed with oblong openings or slots, and a bell-crank lever formed with a hole, m, and oblong or arc-shaped slot n, whereby the stroke is readily made light or heavy, substantially as and for the purpose specified.

184,415. GUIDES FOR BUILDING RICKS AND STACKS. John Murdock and S. Murdock, Possyville, Ind. [Filed May 27, 1876.]

Brief.—Builds the rick inside the guide, moving the formers up from time to time as the rick grows. "Tops out" by contracting the sides and ends of the guide.

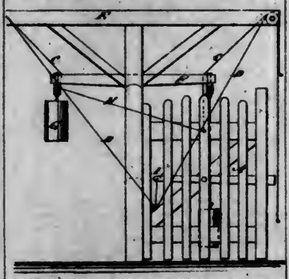


1. The combination of the sliding hub D, provided with two blocks, F, provided with the hooks f' at their inner ends and the eye-plates f'' at their outer ends, the four inclined bars G, provided with the hooks g' at their inner ends, the four sliding hubs H, the end gates I, and the extension side gates I, made with inclined ends, with each other and the post A, substantially as herein shown and described.

2. The combination of the rope M, the pulley N, and the windlass O with the post A and the blocks F of the guide, substantially as herein shown and described.

184,416. AUTOMATIC GATES. Wm. Nairn, Monterey, Ill. [Filed Apr. 12, 1876.]

Brief.—The operator, in approaching the gate, raises the weight nearest him by pulling on the cord C, which releases the latch, and the weight on opposite side swings the gate open. A similar operation of the weight on the opposite side closes the gate.



The weights G, cords H, lifting-cords C, and latch-cords D, combined with the gate-latch, and beams E F, substantially in the manner described.

184,417. TENEMENT-HOUSES. A. Nelson, New York, N. Y. [Filed Apr. 12, 1876.]

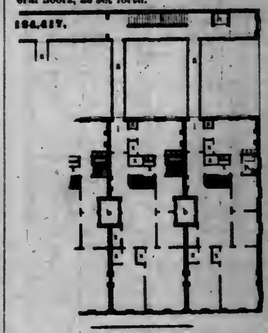
1. A building or block of buildings with floors, either undivided or divided into separate compartments, for habitations or other purposes, combined with a structure containing the stairways common to all the several floors or compartments, and so far separate and detached from said building as to leave a continuous intervening clear space for the escape of smoke, &c., in case of conflagration, crossed by separate bridges connecting each separate floor or compartment with said stairway structure, as and for the purpose set forth.

2. A system or block of buildings divided into separate compartments or habitations, both as to separate floors or flats, and as to divisions of the same floor, provided with wells located in the lines of the party-walls of said compartments, for the purpose of admitting light from said walls toward the interior of each tenement, and for common ventilation, in the manner set forth.

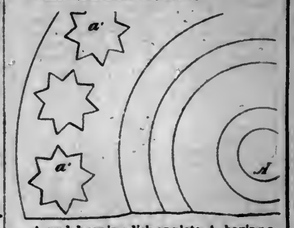
3. A building provided with wells in the lines of the party-walls, for common light and ventilation, combined with dampers Q Q, located in said well, opposite each floor, for the purpose of isolating the several floors, for the purpose set forth.

4. The dampers Q Q, arranged in the well b opposite each floor of the building, combined with the cords m, counter-weight W, and cords n, whereby said dampers may be operated by a person outside the building, to isolate the several floors, as set forth.

184,417.

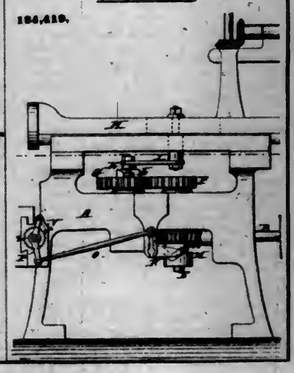


184,418. SEED-DROPPING PLATES FOR GRAIN-DRILLS. Ephraim B. Nell, Oxford, Ohio. [Filed Oct. 14, 1876.]



A seed-dropping disk or plate, A, having a series of star-shaped openings, a', substantially as and for the purpose set forth.

184,419.

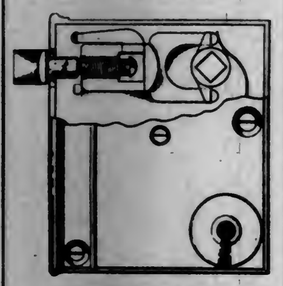


184,489. METAL-SHAPING MACHINES. G. A. Obl, Newark, N. J. [Filed Oct. 9, 1875.]

Brief.—Eccentric gear-wheels, one of which is connected with the ram by an adjustable link, for the purpose of imparting a slow motion to the ram while planing, and a quick motion while being withdrawn, and a cam mounted upon the shaft of one of the eccentric gear-wheels, and connected with a pawl, which operates the leading-screw of the work-holding carriage.

In combination with the eccentrics and with the ram, a cam mounted on the shaft of one of the eccentrics, and connected with a pawl, operating a ratchet-wheel on the leading-screw of the traveling carriage, substantially as described.

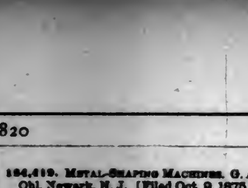
184,490. REVERSIBLE LATCHES. Martin Padden, Pittsburg, Pa., assignor to Saml. H. Jacobus. [Filed Oct. 21, 1876.]



In a reversible latch, the combination of the slotted yoke, the slide, held in place by, and working in, the slot of the yoke, and the swiveling bolt, substantially as and for the purpose specified.

184,491. COUNTERBALANCE-AXLE AND SUPPORTING-STANDARD. Isaiah B. Palmer, Toulon, assignor to Harry G. Goodrich, Chicago, Ill. [Filed July 7, 1876.]

Brief.—The globular bearing of the adjusting-sleeve in the corresponding recessed standard facilitates setting the wheel to run true, although the perforation through the standard be not straight.



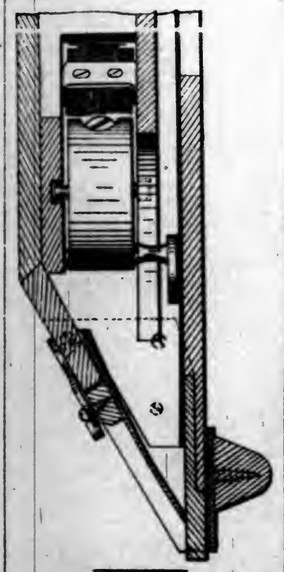
The standard A, having concavity on the inside, around the perforation, to receive the stem, in combination with the globe *a*, provided with the stem *b*, spindle *d*, and the convex bearings, substantially as and for the purpose set forth.

184,492. CORN-PLANTERS. Albt. M. Phelps and Fayette Dyer, Rock Falls, Ill. [Filed Sept. 30, 1876.]

Brief.—The seed-roller is removably journaled within the box in the stationary and pivoted boards. The crank of the roller projects sufficiently to be acted upon by lugs secured on the inside of the plunger, to impart an oscillatory movement to the roller.

1. The pivoted board A^2 and stationary board A^1, arranged within the box A, in combination with the half roller I and its journals *c c*, substantially as and for the purposes herein set forth.

2. The pivoted board A^2, with roller I, crank K, plunger P, with lugs *n n*, and the journals *c c*, substantially as and for the purpose set forth.



184,493. CORSETS. Rose Piepenbring, Cincinnati, Ohio. [Filed Sept. 26, 1876.]



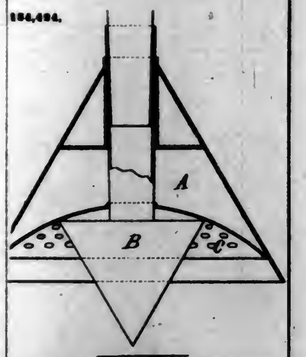
1. The gores D and F, the piece E, and springs *a b c c*, in combination with the piece A and gore C, to form a perfect bust, substantially as and for the purpose specified.

2. The gores B C D F, the piece E, and springs *a b c c*, in combination with the pieces A I J K and springs G H M N, when arranged substantially as and for the purpose set forth.

184,494. CRUSH-DASHERS. Alexander R. Queensberry, Amelia, Va., assignor of part of his right to Richard T. Powell and Mark Richard Lloyd. [Filed Apr. 29, 1876.]

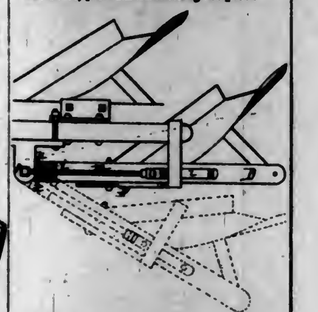
1. A dasher composed of the conical frustum A, the inverted cone B, the perforated concavo-convex diaphragm C, and the tube *c*, substantially as described.

2. In combination with the cones A B and diaphragm C, the split tube *c*, all secured in place by the handle D, in the manner described.



184,495. GANG-PLOWS. John B. Ralston, Rockford, Ill. [Filed June 26, 1876.]

Brief.—Auxiliary beam connected by a horizontal hinge in front, and held by a lever-clamp at the rear, and adjustable vertically, and as to the pitch of the plow. A corrugated convex block, with other devices upon this beam, provides for leveling the plow.



1. The beams A and D, with plows thereto attached, connected by a hinge-joint, substantially as described, permitting of an independent lateral swinging movement of the plows, and made vertically adjustable relatively with each other, and adapted to wheeled-subsoil attachments to be connected thereto by means of the usual connection, substantially in the manner and for the purpose hereinbefore set forth.

2. The brace-rod *m*, constructed with adjusting screw-nuts, as described, in combination with the bracket C, and plow-beam D, for the purpose of raising or lowering the rear end of the plow thereto attached, to adjust it to the proper working depth, and holding it vertically rigid relatively with the plow to which it is attached, as and for the purpose hereinbefore set forth.

3. The bed-block *h*, and cap *i*, with arm *k*, in combination with the brace *m*, and plow-beam D, having a plow thereto attached, for the purpose of leveling the plow E laterally, substantially as and for the purpose hereinbefore set forth.

4. In combination with the plow-beams A and D, having plows thereto attached, the clasping-lever F, pivoted thereto and fitted with loops to embrace the beams for the purpose of connecting or disconnecting the plows, substantially as and for the purpose hereinbefore set forth.

184,496. LUBRICATORS. John J. Reinhard and J. Vincent Reinhard, Detroit, Mich. [Filed Aug. 5, 1876.]

1. The trunk continuation E^1, provided with the passages l F' m^1, valves D D', and coupling B^2, for connecting the trunk B therewith, and adapted to be clamped to the side of a steam-pipe by means of a stirrup, substantially as described.

2. In a displacement-lubricator, substantially as described, the combination of the elevated water-reservoir A, the trunk B, the suspended oil-cup C, the passages *b k*, and the extension B^1, provided with valves D D' and passages l F' m^1, constructed and arranged substantially as described and shown.

3. In a displacement-lubricator, substantially as described, the combination, with the elevated water-reservoir and suspended oil-cup, of the inverted siphon-tube *c*, through which the water passes into the said oil-cup, substantially as described and shown.

184,497. FILTERS. Daniel W. Biddle, Waterloo, N. Y. [Filed Dec. 29, 1876.]



1. The process herein described for cleaning a filter by means of showering or pouring on the exposed surface of the filter liquid or material to be filtered, substantially in the manner and for the purpose set forth.

2. The process of cleansing a filter by the combined action of liquid showered or poured on the surface, and steam, air, gas, or vapor introduced intermittently within the filtering-cylinder.

3. The combination, with the revolving filter, of a siphon, pump, or other exhaust pipe, *e*, for carrying off the filtered liquid and maintaining a lower pressure on the inside than on the outside of the filter, to assist the filtration of the liquid.

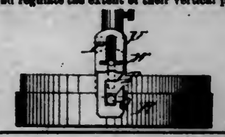
4. The combination, with the tank *a* and filter *b*, of the conveyer *i*, elevating-belt *c*, and perforated buckets *d*.

5. The combination of the tank *a*, revolving filter *b*, perforated wash-pipe *j*, air and steam pipe *f*, and siphon *e*, as and for the purpose set forth.

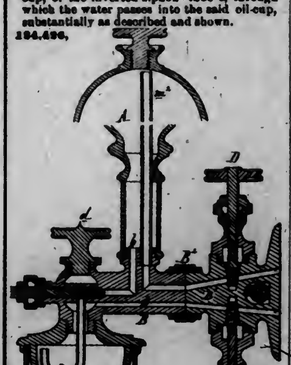
6. The combination, with the revolving filter *b*, of the valves *g g'*, adapted to alternately introduce steam and air, in the manner set forth.

184,498. STONE-POLISHING MACHINES. G. W. Bladon, Schenectady, and C. R. Gale, Auburn, N. Y. [Filed June 12, 1876.]

Brief.—Journals of grinder or polisher play loosely in vertical slots in sides of yoke. Slides and set-screws secure the journals in the slots, and regulate the extent of their vertical play.



184,499. UMBRELLA-SUPPORT AND ROSE-HOLDER. William Rounds, Chester, Vt. [Filed Oct. 7, 1876.]



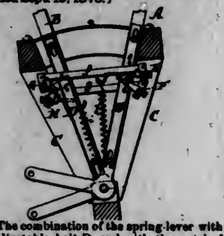
1. The T-shaped foot, in combination with the cam-lever and the dovetailed slot for holding the standard A, substantially as herein shown and described.

2. The U-shaped loop in the standard A, and the clamping-dog *c*, arranged substantially as and for the purpose herein shown and described.

3. The combination of the toothed sector C, adjustable arm D, the standard A, the series of teeth *a*, and the keys or latches E F, substantially as shown and described.

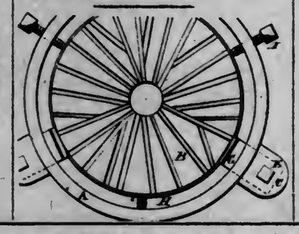
4. The cam-lever *b* and the adjustable hooks *d d*, in combination with the arm D, for clamping the stock of an umbrella, substantially as shown and described.

184,500. RAILROAD-SWITCHES. David Rousseau, New York, N. Y., assignor to himself and Wm. C. Smith, same place. [Filed Sept. 19, 1876.]



1. The combination of the spring-lever with the adjustable bolt D, and with the notched guide-slot, all arranged so that the motion of the lever B will affect the position of the bolt D, substantially as described.

2. In combination with the spring-levers A B and their bolts D D, the shafts E F G H and their fingers *j l*, all arranged to act substantially as specified.



184,501. MILLSTONE-STAFFS. D. H. Rowe, Martinsville, Ill. [Filed Sept. 23, 1876.]

Brief.—A metal band encircles the burr, on which the flanges of hangers rest. The bottom of the circular staff, through projecting legs and set-screws, rests and is adjusted on the hangers.

1. The solid circular staff or ring A, in combination with the burr B, straight staff D, and a device for adjusting and fastening the ring around the burr, for the purposes herein set forth.

2. The combination, with a millstone, of the circular staff A, with exterior projections C, the flanged hangers G, metal band H, adjusting-screws E, and fastening-screws I, substantially as and for the purposes herein set forth.

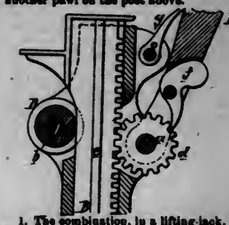
184,502. REMOVABLE BOTTOMS FOR PUDDLING-HEARTHS. Luke Ryan, Sharon, Pa., assignor of one-half his right to George Westerman, same place. [Filed July 20, 1876.]



The frame A, provided with a flange, *c*, for seating the removable panels of the furnace-hearth, said frame being entirely separate from the bosh-casting, substantially as and for the purpose herein set forth.

184,503. LIFTING-JACKS. William Sailer, Philadelphia, Pa., assignor to Augustus Bean and J. Y. Bean, same place. [Filed Oct. 25, 1876.]

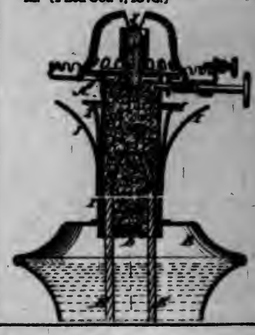
Brief.—A toothed sliding stem in a post is operated vertically by a lever, within a forked end of which is a loose pinion, and a pawl weighted to act below on it, there being another pawl on the post above.



1. The combination, in a lifting-jack, of the cog-wheel *d*, with the toothed stem B, pivoted lever E, and its weighted pawl *f*, and hinged pawl *g*, adapted to the said cog-wheel, substantially as set forth.

2. The combination of the standard A and and its grooves *c'*, with the toothed stem B, and its rib *a*, the cog-wheel *d*, and the grooved roller D.

184,504. LAMPS. David Sanford, Ashton, Ill. [Filed Oct. 7, 1876.]

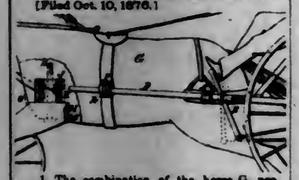


1. The tube A, provided with a hard and porous solid incombustible wick, C, at its upper end, the cotton packing D, and the wick E, to adapt it to be attached to the collar of an ordinary lamp, to make it non-explosive, substantially as herein shown and described.

2. The combination of the adjustable tube F with the tube A, provided with the hard and porous solid incombustible wick C, the cotton packing D, and the wick E, substantially as herein shown and described.

3. The tube I, having its upper part slitted, and the upper ends of the strips thus formed curved outward, in combination with the tube that contains the incombustible wick, the cotton packing, and the ordinary wick, substantially as herein shown and described.

184,425. VELOCIPEDES. Frank G. Slemmer, Philadelphia, Pa., assignor of one-half his right to Henry A. Richardson, same place. [Filed Oct. 10, 1876.]

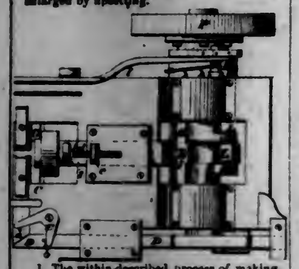


1. The combination of the horse G, provided with the loops P P, springs or set-screws R R, and swivel-rings S S, with the shafts D D of the velocipede, substantially as shown and described.

2. The combination of the horse G, fifth-wheel H, hub J, socket and recess K and M, pivot-pin N, and strap or bead O, substantially as shown and described.

184,426. MACHINES FOR HEADING WRENCH-BARS. Fredk. A. Smith, Cleveland, Ohio. [Filed Aug. 7, 1876.]

Brief.—The die or cavity in the heading-plunger has the form of a wrench-head, in this respect differing from bolt-heading machines, and the blank to be operated on has one of its ends bent upon itself, or has been enlarged by upsetting.



1. The within-described process of making wrench-heads, which consists in bending the end of a bar upon itself, and then subjecting the end so prepared, and when hot, to the forming action of a heading-tool, whereby it is given the shape of a wrench-head, substantially as described.

2. The within-described process of making wrench-heads, which consists in bending the end of a bar upon itself, then holding the shank of said bar between two grasping-dies, with the folded ends projecting therefrom, and then, while so held, subjecting the projecting portion, when hot, to the forming action of a recessed heading-die, whereby the said projecting portion is given the shape of a wrench-head, substantially as described.

3. In combination with the sliding bar C, carrying grasping-die B', the motion-transmitting yoke-bar D, bell-crank lever E, and pins or projections *a b*, substantially as described.

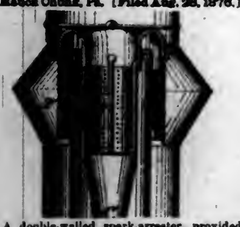
4. In combination with the cam-shaft M and sliding spring-pawl *h*, provided with pin *i*, the spring *k* and pawl-controlling lever *l*, substantially as and for the purpose described.

5. The combination of the grasping-dies B B', having plane anvil-surfaces, with a die recessed to form a wrench-head, substantially as and for the purpose described.

6. The combination, with the stationary grasping-die B and movable grasping-die B', both having plane anvil-surfaces, of the plunging-die, constructed to form a wrench-head, substantially as and for the purpose described.

7. The combination of the wrench-heading die G, plunger I, and cam-shaft M, and the spring-pawl *h*, pawl-controlling lever *l*, and loosely-mounted pulley P, carrying lateral studs *r*, substantially as and for the purpose described.

184,427. SPARK-ARRESTERS. Simon Smith, Mauch Chunk, Pa. [Filed Aug. 26, 1876.]



A double-walled spark-arrester, provided with a perforated pipe, having solid conical deflector C at the lower end, and the other attached to a solid concave ring having open central steam-passage, as shown and described, whereby a passage is furnished for the exhaust steam and smoke directly to the air, while the sparks are trapped and returned between the inner and outer walls.

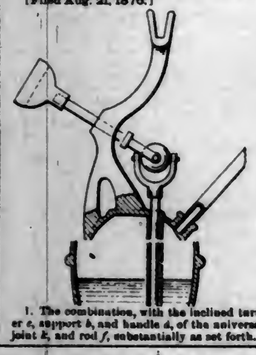
184,428. RECLINING-CHAIRS. Thomas K. Stidham, Philadelphia, Pa., assignor of one-half his right to Samuel S. Wheeler, same place. [Filed Apr. 1, 1876.]



1. The seat A, fixed to the segments B E', and the backs B, pivoted to said segments, in combination with the pivoted arm-rests F, and with the arms G, pivoted to segments, and having slotted connections with the frame D, substantially as and for the purpose set forth.

2. The recumbent seat and back with the notched segments B E', in combination with the levers H H', connecting rod J, and pins or studs K K', substantially as and for the purpose set forth.

184,429. KEY-TURNERS AND LIGHTERS FOR GAS. Luther Stieringer, New York, N. Y. [Filed Aug. 21, 1876.]



1. The combination, with the inclined turner *c*, support *b*, and handle *d*, of the universal joint *g*, and rod *f*, substantially as set forth.

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2. The internal gear A, sleeve A', and pinion *i*, in combination with the rod *f*, handle *d*, universal joint *g*, and turner *c*, substantially as set forth.

3. In an alcohol-torch, a contracted neck within the tube containing the ordinary wick, and near the end thereof, whereby the outer end of the wick is confined, for the purposes and as set forth.

184,430. SIDE-HILL PLOWS. Wm. Strait, Oneonta, N. Y., assignor to O. L. Strait and C. E. Van Duzen, same place. [Filed Sept. 11, 1876.]

Brief.—The handles and colter are made to shift from right to left, and vice versa, by the act of the plowman.



1. The combination, with a plow having a stationary or fixed beam, of the adjustable or laterally and freely-pivoted handles, whereby the operator is enabled to walk directly in the furrow, and in either direction the furrow may be turned, substantially as specified.

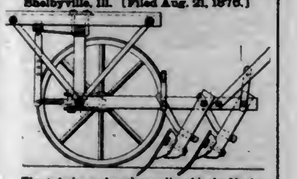
2. The devices for pivoting the handles to the standard, consisting of the lugs or pins *b b* and metallic angular pieces D, having semi-circular portions *d* secured around the lugs or pins, in the manner substantially as described.

3. The combination of the pivoted handles with the standard A, having the opening in which the handles are pivoted, and the connecting-bar *d'*, arranged to form a stop to limit the movement of the handles, as described.

4. In a reversible plow, the combination, with a laterally-adjustable colter or cutter, and laterally swinging or adjustable handles, of the lever F or its equivalent, substantially as described, whereby said colter or cutter is adjusted laterally by the movement of the handles, substantially as and for the purpose specified.

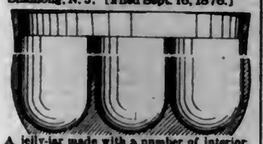
5. The combination of the colter or cutter E, shifting-lever F, loop or guide G, and adjustable handles C, substantially as and for the purpose specified.

184,431. CULTIVATORS. Wm. B. Sturgis, Shelbyville, Ill. [Filed Aug. 21, 1876.]



The tubular or bored coupling-blocks M, the short crank-axles B, the curved bar C, having perforated ends, the set-screws D, for securing the axles in any adjustment, the pair of front braces I J and the rear brace K, inclined as specified, and the frame F, all constructed and arranged as shown and described.

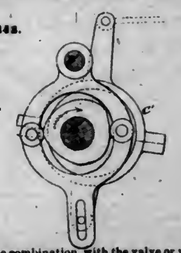
184,432. JELLY-JARS. Nicholas P. Todd, Shamong, N. J. [Filed Sept. 16, 1876.]



A jelly-jar made with a number of interior molding-compartments, and with a rim extending above the same, substantially as and for the purpose specified.

184,433. VALVE-GEARS FOR STEAM-ENGINES. George B. Tower, Annapolis, Md. [Filed May 11, 1876.]

184,442.



1. The combination, with the valve or valves of a steam-engine, of the shifting-lever C, mounted upon an eccentric or crank making complete rotations, and also pivoted on a movable point, whose position may be changed by suitable mechanism for varying the movement of the valves, the movement of the lever being such as is due to the eccentric alone, or a resultant of the movement of the eccentric and the shifting of said point, as described.

2. The combination of the rock-shaft B, connected to the valves at its respective ends by means of arms, a rocker-frame, pivoted on a fixed point, the shaft D, the valve-lever mounted thereon, and a cam or eccentric for actuating the rocker-frame, substantially as shown and described.

3. The combination, with the valve-operating lever, of a rocking frame or reciprocating carriage, and the sliding or adjustable cam, having the irregular form and variable throw, as shown and described.

4. The rock-shaft B, the rocker-frame mounted thereon, the parallel shaft D, and the valve-lever mounted thereon, and the sliding rotating irregular cam, connected, combined, and arranged with the valves and cylinder, as shown and described.

184,444. FURNACES FOR EVAPORATORS. William M. Towers and John M. Bowie, Rome, Ga. [Filed Sept. 1, 1876.]



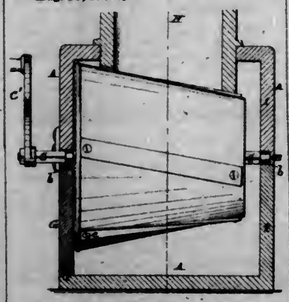
The hereinbefore-described portable furnace for evaporating-pans, provided with a fire-box, D, and having at each side of the latter a chamber, I, that is open at its upper side, substantially as and for the purpose specified.

184,445. DRILL-CHUCKS. Charles N. Trump and Samuel N. Trump, Wilmington, Del. [Filed Mar. 9, 1876.]



The within-described drill-chuck, consisting of the mandrel Q, having a circular opening and circular flaring mouth, and the nut K with tapering opening, in combination with the block N and its spring-jaws M circular in section, and having opposite conical surfaces, all being constructed and arranged substantially as described.

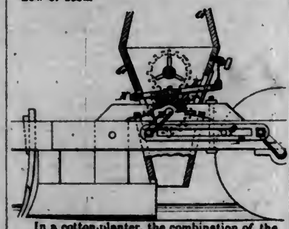
184,446. VEGETABLE-CUTTERS. Peter Treibel, St. Louis, Mo., assignor to Henry Pank and Henry Reinstedler, same place. [Filed Aug. 30, 1876.]



A vegetable-cutter case, consisting of a close box, A, horizontally divided on a line with the shaft C, and provided with bearings *b* and hinges *c*, and the removable hopper H, as and for the purpose set forth.

184,447. COTTON AND CORN PLANTERS. A. W. Tufts, Port Vincent, La. [Filed Sept. 16, 1876.]

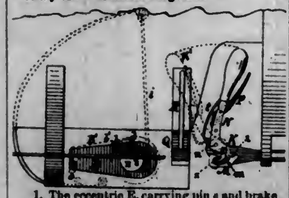
Brief.—Within the hopper, between the agitator and distributer devices, is adjustably secured a division-rack, to prevent too great a flow of seed.



In a cotton-planter, the combination of the vertically-adjustable rack K with the toothed distributing-shaft I and the hopper G, as and for the purpose set forth.

184,448. MACHINES FOR MAKING BALE-TIES. Cornelius Van Derzee, Albany, assignor to R. S. Lenox, New York, N. Y. [Filed Oct. 4, 1876.]

Brief.—The wire is first folded, and then passed into the hook former or die, which, after the hook is formed, is revolved, to twist or lay the wire strands together.



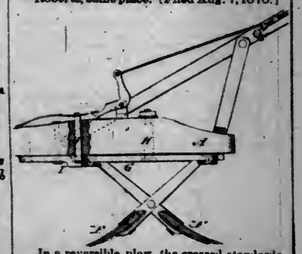
1. The eccentric E, carrying pin *e* and brake *d*, in combination with the pivoted carrier B, carrying the block *b* and mechanical device for operating said eccentric, substantially as and for the purpose set forth.

2. The combination, with the vibrating jaw M, of the lever N, carrying the jaw *s*, substantially as and for the purpose set forth.

3. The combination, with the lever N, carrying the jaw *s*, operating with the vibrating jaw M, of the finger-lever P, dog *q*, and catch *r*, substantially as and for the purpose set forth.

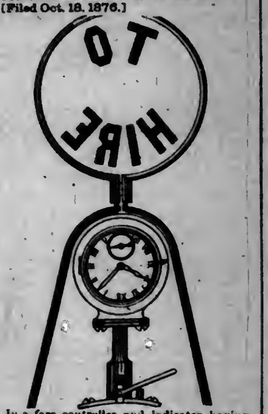
4. The combination, with the shaft L, provided with crank *h*, and carrying the vibrating jaw M, and the jaw *s*, carried by lever N, of the block Q and lever R, substantially as and for the purpose set forth.

184,449. REVERSIBLE PLOWS. Daniel F. Vickery and William P. Prickett, Oxford, Ala., assignors to themselves and R. G. Roberts, same place. [Filed Aug. 7, 1876.]



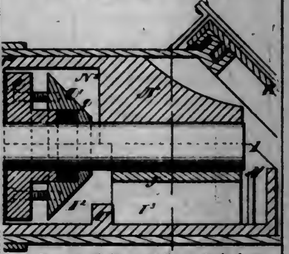
In a reversible plow, the crossed standards E, carrying independent shares F, and connected at the top by the pivoted rotating bar G, in combination with the plow-beam A, keeper I, and drop-pin J, as shown and described.

184,450. FARE CONTROLLERS AND INDICATORS. Louis Von Hoven, Philadelphia, Pa. [Filed Oct. 19, 1876.]



In a fare controller and indicator having a signal for informing the public when the vehicle to which it is applied is for hire, and a clock so combined with said signal that it will be stopped when the latter is displayed, a time-piece arranged in connection with said signal, substantially as described, so as to be brought into view of the occupant of the vehicle when the signal is down, and withdrawn from observation within said vehicle when the signal is up, as and for the purposes set forth.

184,451. CAR-AXLE BOXES. Wm. M. Watson, Tonica, Ill. [Filed Aug. 12, 1876.]



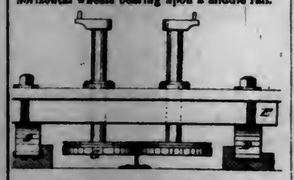
1. In a car-axle box, an oil-receptacle, I, arranged under the axle-journal, and provided with a gage-post, M, substantially as and for the purpose set forth.

2. In a car axle box, the removable oil-receptacle I, provided with gage-post M, and divided into two compartments, I^1 and I^2, by means of partition I^3, substantially as and for the purpose set forth.

3. Upper bearing N, having enlargement N^1 and recess or chamber N^2, in combination with oil-receptacle I, having compartment I^2, and with compound packing-collar O O', substantially as and for the purpose set forth.

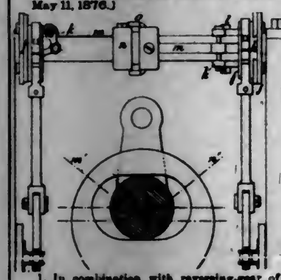
184,459. LOCOMOTIVES. John Westcott, Tecol, Fla. [Filed Aug. 18, 1876.]

Brief.—The engine rests upon pedals, which slide in grooved rails, and is propelled by horizontal wheels bearing upon a middle rail.



The combination, with the locomotive, of the swiveling pedals D, and the laterally-adjustable slide-bars E, carrying said pedals, as and for the purpose described.

184,462. ENGINE VALVE-GEARS. William Winstanley, Liverpool, England. [Filed May 11, 1876.]



1. In combination with reversing-gear of the class specified, the eccentric having the straight slot at right angles to the direction of the crank, and out of the center of the said eccentric, for the purposes set forth.

2. The combination of the straight guide-pieces h on the eccentrics with the straight slots i on the disks, substantially as and for the purposes set forth.

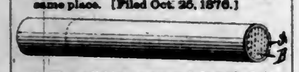
3. The combination of the eccentrics, having the straight slots at right angles to the direction of the crank, and out of the centers of said eccentrics, with the disks j, levers k, sliding pieces m, collar n, and levers o, substantially as and for the purpose specified.

184,464. DRUGGISTS' SHELF-BOTTLES. E. L. Wiste, White Mills, Pa. [Filed Sept. 9, 1876.]



As a new article of manufacture, a bottle, having an inburnt label, forming an inseparable part thereof, without projecting into or from the glass, substantially as and for the purpose specified.

184,465. POLISHING-PACKAGES. Francis Wright, Washington, D. C., assignor of one-half his right to George W. Balloch, same place. [Filed Oct. 26, 1876.]



1. The polishing compound formed of the cartridge-shell A, materials B and C, as and for the purpose described and shown.

2. A new article of manufacture, a polishing-package consisting of the shell A, the polishing material B, and the stopper C, substantially as and for the purpose described.

REISSUES.

7,391. CAR-ROOFS. John M. Ayer, Chicago, Ill. Patent No. 120,068, dated July 18, 1876. [Filed Oct. 16, 1876.]



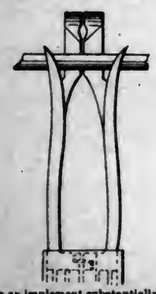
1. The combination of the internal lining B and india-rubber, or the material termed "rubber packing," substantially as described.

2. The combination of the india-rubber or rubber packing and the outer covering A, substantially as described.

3. The combination of an external covering, A, an internal lining, B, and an intermediate layer of india-rubber, or the material termed "rubber packing," substantially as and for the purpose described.

4. The combination of an outer covering, an internal lining, an intermediate sheathing of india-rubber, or the material termed "rubber packing," and an air-chamber, such air-chamber lying between the outer covering and the rubber, and having openings *x*, the whole being constructed substantially in the manner and for the purpose described.

7,392. SAD-IRON HOLDERS. C. B. Pettengill, Easton, Mass. Patent No. 120,733, dated June 10, 1873. [Filed July 1, 1876.]

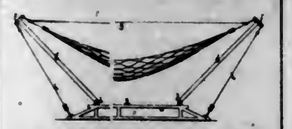


1. In an implement substantially such as described, the piece E, connected to the piece E' by the bars L, and provided with the arm B, forming one half or section of the implement, and the piece F, connected to the piece F' by the bars M, and provided with the arm C, forming the other half or section, the two sections being hinged or jointed together, substantially as set forth and specified.

2. In an implement substantially such as described, the arms B C, provided with the prongs O P, constructed and arranged to operate substantially as specified.

3. In an implement substantially such as described, the covering N, in combination with the hinged sections forming the handle thereof, substantially as set forth and specified.

7,393. HAMMOCK-FRAMES. Juan B. Arci, Brooklyn, N. Y. Patent No. 152,049, dated Sept. 12, 1876. [Filed Oct. 11, 1876.]



1. A hammock-frame composed of rigid side rails a, sectional hinged end rails b, hinged braces B, and folding struts C, all constructed and operating substantially as described.

2. The combination, with the rigid side rails a, sectional end rails b, hinged braces B, and folding struts C, of guy-ropes h, and a stop-rope, g, all arranged substantially as and for the purpose set forth.

7,394. PRIMERS FOR CARTRIDGES. Benj. B. Hotchkiss, New York, N. Y. Patent No. 99,809, dated Feb. 15, 1870. [Filed Nov. 6, 1876.]



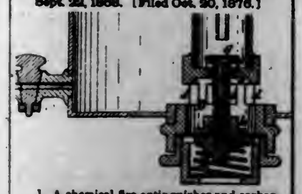
1. A primer consisting of a cap and an anvil, permanently united together and inclosing the fulminate between them, substantially as described.

2. The within-described primer for cartridges, consisting of an internal anvil, I, and an external cap, B, permanently united together with the fulminate between them, and having a passage for the flame from the fulminate, substantially as described.

3. The combination of a cartridge having a recess in its base, and a perforation, b, through said base, with the compound primer, consisting of a cap and anvil permanently united so as to inclose the fulminate between them, and provided with a flame-passage communicating with the interior of the cartridge, substantially as described.

4. A primer consisting of a cap and an anvil, constructed with an interior surface inclined toward the flame-passage, substantially as described.

7,395. FIRE-EXTINGUISHERS. William H. Lambach, Philadelphia, Pa., assignor, by mesne assignments, to Pascal P. Pratt, Buffalo, N. Y. Patent No. 82,421, dated Sept. 22, 1868. [Filed Oct. 20, 1876.]



1. A chemical fire-extinguisher and carbonic-acid-gas generator having two vessels or chambers, each containing one of the chemicals or ingredients, and in which a device controlling the flow of the ingredient from one vessel or chamber into the other is actuated automatically, substantially as and for the purpose hereinbefore set forth.

2. A chemical fire-extinguisher and carbonic-acid-gas generator in which portions of the liquid acid and alkali solution are alternately permitted to mix, and are restrained from mixing automatically, as the variations of pressure render necessary.

3. The combination, with the outer vessel A and inner vessel B, of the valve G, connected with flexible diaphragm H, substantially as and for the purpose hereinbefore set forth.

4. In a chemical fire-extinguisher, the combination, with the flexible diaphragm H, of the spiral spring K, substantially as and for the purpose hereinbefore set forth.

5. The combination, with the flexible diaphragm H, of the spiral spring K and adjustable cap L, substantially as and for the purpose hereinbefore set forth.

6. The combination, with the outer vessel A and inner vessel B, of the vent-tube m, substantially as and for the purpose hereinbefore set forth.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

COMMISSIONER'S DECISIONS.

COOKE *vs.* CHAMBERLAIN AND DORMAN.—*Interference.*

[*Appeal from the decision of the Board of Examiners in Chief in the matter of the interference between the application of George K. Cooke, for letters patent filed June* 17, 1875, *the patent of J. F. W. Dorman, June* 8, 1875, *and the patent of E. D. Chamberlain, granted May* 18, 1875, *for* "IMPROVEMENT IN HAND-STAMPS."—*Decided November* 6, 1876.]

Priority of invention is not established by evidence that the invention had been embodied in a device which the party regarded as defective in its mechanical construction, and incapable of producing the successful operation and result, which latter was not attained until after subsequent improvements in the mechanism had been devised.

Although it may be regarded as evidence of the conception, it does not meet the requirements of the law as to complete invention.

[*Prindle & Co.*, attorneys for Cooke.
A. H. Evans & Co., attorneys for Chamberlain.
G. H. & W. F. Howard, attorneys for Dorman.]

DOOLITTLE, *Acting Commissioner:*

The subject-matter of this interference is declared to be:

The combination, with a hand-stamp, of strips of rubber characters, arranged in such manner as to be changed from one character to another by winding on spools.

Both the Examiner of Interferences and the Examiners-in-Chief have decided priority in favor of Dorman. The contest has been narrowed down to Dorman and Cooke, Chamberlain having failed to file a preliminary statement, or to take testimony. The question of priority turns upon the point of the date of the completion of this invention by Cooke, the applicant. If, as intimated by him in his preliminary statement, he completed this invention in the early part of 1870, then priority must be awarded to him, if he had not subsequently abandoned the invention to the public, or if the condition of the invention was no more than that of an experiment, which experiment was thrown aside until after his opponent had completed the invention and obtained a patent therefor. The latter view is the one entertained by the Examiner of Interferences. He holds that the testimony in behalf of Cooke shows that a model (Exhibit A) was made by direction of Cooke in April or May, 1870, and that at that time it contained all the elements of the present combination, but that Cooke did not follow up this model by diligent efforts toward completion, and that such model was an abandoned experiment, and could not prevail to invalidate either Dorman's or Chamberlain's patent.

After a careful consideration of the testimony I cannot agree that this model, Exhibit A, at that time showed completion of this invention by Cooke.

To entitle Cooke to priority of invention in this contest he must have shown that the combination claimed was prior to the invention of another, embodied by him in a complete form, capable of producing the result sought to be accomplished. Now the great preponderance of proof on the part of Cooke shows clearly that neither he nor his witnesses considered the model made in 1870 as then capable of producing the operation and successful result claimed for this combination. Cooke expressly admits that the idea of the mechanical construction necessary to make this an operative invention by him was not "conceived" until about the time of filing his application, which was in June 1875. He also shows, by his testimony and by that of others, that after his construction of the model mentioned in 1870 he laid it aside and experimented upon other forms of rubber stamps with the view of obtaining suitable mechanism for successfully working both kinds.

It is true, as the Examiner of Interferences states, that the elements of this combination were shown in the model made by Cooke in 1870, and perhaps that amounts to sufficient evidence of the conception of the invention, but that the invention itself was not completed in an operative form meeting the requirements of the law and the terms of the claims of the respective parties before the completion of the invention by Dorman is clearly established, as already stated, by the testimony of Cooke himself. The evidence shows that the date of Dorman's completion in a practical operative form was March, 1875.

The decision of the Examiners-in-Chief is affirmed.

WHITELEY *vs.* McCORMICK.—*Interference; Motion.*

[*Appeal from the decision of the Primary Examiner in the matter of the interference between the application of W. N. Whiteley and the patent to R. H. McCormick, for* "IMPROVEMENT IN HARVESTERS." *Decided November 2, 1876.*]

The doctrine of *res judicata* may be applied in interference proceedings.

The effect of a judgment in a previous interference is not avoided by the introduction into the new issue of an old element indispensable to the operation of the device, and, therefore, necessarily inferred.

The Examiner of Interferences is, by express enactment of law, made a court of competent jurisdiction in interference cases, and his judgment unappealed from is binding upon all the parties concerned.

The decision of the Office, like that of a court, is conclusive, except in special cases, as to all matters which might have been brought forward as a part of the subject in contest, but which was not, only because the parties have, from negligence, inadvertence, or even accident, omitted a part of their case.

[*R. D. O. Smith*, attorney for Whiteley.
Wm. D. Baldwin, attorney for McCormick.]

DOOLITTLE, *Acting Commissioner:*

The Examiner of Interferences dissolved this interference on the ground that the matter was *res judicata*, having been settled in a former interference between the same parties, in which judgment of priority was awarded to McCormick.

The subject-matter of that interference was stated to be—

The bifurcated lateral brace, pivoted at its outer end to the rear end of the shoe, and at its other end to the rear extremity of the "crank-shaft box," and to the tubular frame, as set forth, combined with the lateral brace, connecting the front end of said shoe with the rear end of the "crank-shaft box."

as claimed by Whiteley, and substantially shown by McCormick, it being held by the Primary Examiner that the "crank-shaft box" in Whiteley's case was the equivalent of the rear end of the main frame in McCormick's case as a point for attachment of the lateral brace.

The issue is now defined as—

The combination of the shoe with a drag-bar, which has its rear end jointed to the rear end of said shoe, and its front end bifurcated, one branch thereof being jointed to the main frame, and the other or lateral branch to the frame near the rear end of the crank-shaft,

as claimed by Whiteley and substantially shown by McCormick. The bifurcated drag-bar in the latter statement is the same element as the bifurcated lateral brace of the former issue.

In the former interference the element of the lateral brace which connects the front end of the shoe with the rear end of the frame, (an element common to both devices,) was introduced, but is omitted from the present issue. That element is not only confessedly old, but is necessarily possessed by both devices in order to make the same operative. It would be as necessary, therefore, to consider it in the determination of the present interference as it was in the former.

Counsel for Whiteley contends that judgment of priority in the former case was a judgment by default, by the reason of the non-appearance of his client. In this he is mistaken. I find that full judgment of priority was rendered upon the record dates made by the parties; but the default upon the part of Whiteley in taking testimony does not by any means give him the right to come in now and contest the matter.

The Examiner of Interferences, by express enactment of law, is made a court of competent jurisdiction in such cases as the present one, and his judgment unappealed from is as binding upon all the parties concerned, so far as this Office is concerned, as would be a judgment of a United States court.

The following extract from the case of *Henderson* vs. *Henderson*, quoted in *Beloit* vs. *Morgan*, (7 Wall., p. 619,) and which is also referred to by the Commissioner in the case of *Harlow* vs. *Guernsey*, (7 OFFICIAL GAZETTE, 514,) so completely meets the circumstances of this case that it need only be repeated as a sufficient answer to the points raised by counsel herein.

In trying this question, I believe I state the rule of the court correctly that where a given matter becomes the subject of litigation in, and of adjudication by, a court of competent jurisdiction, the court requires the parties to bring forward their whole case, and will not, except under special circumstances, permit the same parties to open the same subject of litigation in respect of a matter which might have been brought forward as a part of the subject in contest, but which was not brought forward, only because they have from negligence, inadvertence, or even accident, omitted a part of their case. The plea of *res judicata* applies, except in special cases, not only to the points upon which the court was required by the parties to form an opinion and pronounce a judgment, but to every point which properly belonged to the subject of litigation, and which the parties, exercising reasonable diligence, might have brought forward at the time.

The decision of the Examiner is therefore affirmed.

DOD *vs.* COBB.—*Interference; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of Santiago Dod, filed November 11, 1875, and Delphin B. Cobb, filed July 24, 1875, for* "IMPROVEMENT IN HEATING APPARATUS FOR VACUUM-PANS, &c."—*Decided November 4, 1876.*]

Examiners should be careful in declaring interferences, to see that the subject-matter in issue is properly set forth and defined.

The interference dissolved, as regards the claim of one of the parties put in issue, it appearing that the subject-matter thereof was not shown or described in the other application.

The testimony introduced by the party upon whom rests the burden of proof containing no reference to the only subject-matter in issue, the case was decided upon the record dates.

DOOLITTLE, *Acting Commissioner:*

A great deal of confusion has been created in this case by the defective and incomplete manner in which the interference was declared. The exact subject-matter at issue has been a question of discussion extending throughout the whole conduct of the case, and the declaration has received a variety of constructions, both by the parties themselves and the tribunals which have had the case under consideration.

It has been a great source of annoyance, both to the parties and the Office, and strikingly illustrates the necessity of a careful and deliberate consideration of the interfering subject by the Examiner before declaring an interference.

The declaration of interference that was forwarded to the applicants in this case notified them, respectively, that "the subject-matter involved in the interference is the first claim of your application," but made no mention of the fact that the corresponding first claim of the opposite party was also included. Thus each party considered that the subject-matter of their claim constituted the entire issue, and acting upon this supposition, and without taking notice of the mistake of the Office, they proceeded to view the issue as made by the notice sent to them. After the case had proceeded and decision been rendered by the Board upon appeal they discovered the error, and in accordance with the suggestions of the Board a motion was presented on the part of Cobb to reopen the case. This motion was refused, however, in consideration of the fact that the mistake could have been earlier corrected; but this does not entirely remove the blame which attaches to the Examiner in making a defective declaration, which evidently misled the parties in the first instance.

Dod's first claim reads as follows:

The combination, with the pan A and steam-jacket B, of the independent hollow heating or evaporating plates C C', arranged radially parallel with one another or otherwise within the pan, and in communication above and below with the steam-jacket B, substantially as specified.

He describes his invention as an improvement upon that patented to him December 31, 1872, and relates to the heating or evaporating portion thereof:

Instead of internally constructing the heater, as described in said patent, of a series of hollow rings arranged one within the other, and connected by a tubular passage to admit steam to all of the rings for the purpose of heating them, I here use a series of independent hollow plain or corrugated steam-heating plates arranged either radially parallel with one another, or otherwise, within and across the pan containing the substance to be evaporated; and the invention consists in a combination of such plates with a surrounding steam-heating jacket with which said hollow plates are in communication.

He describes and illustrates a vacuum-pan composed of a steam-jacket completely enveloping the sides and bottom of the pan. Within the pan are arranged hollow heating or evaporating plates having a communication above and below with the steam-jacket. These plates are shown arranged parallel to each other. The three nearest the center, instead of extending entirely across, stop short outside of a circular well in the center of the pan.

Cobb's first claim is as follows:

Heating chambers radially, or nearly so, within the shell of an evaporating-pan, having suitable passages for the admission of steam and discharge of waste-water, as and for the purposes specified.

He describes a pan containing hollow flat plates or chambers arranged radially, each having a separate connection, with a hollow belt surrounding the pan, and a pipe extending from the lowest point through the bottom thereof.

The object of this construction is the economy of space, permitting the introduction of a greater number of plates than had heretofore been employed, and having a separate connection with each plate, so that in case any one of them should be disabled the flow of steam might be intercepted and the remainder continue in operation. The purpose of the steam-belt is to create an artificial current in the liquid.

It is evident from what has been said in regard to the construction of the two pans that the claims above quoted do not have reference to the same invention, and therefore two subjects-matter were included in the interference.

The Examiner of Interference treated the two claims as representing the same invention, and the Board, in passing upon the case, after quoting the claims, say:

It will be seen that Dod claims broadly for *the hollow plates* constructed with openings above and below, as described, *however* arranged, while Cobb claims *their arrangement radially*. It is possible, therefore, that Dod may be the inventor of these plates, and that Cobb may be the inventor of the arrangement.

A careful review and consideration of the claims presented convinces me that both of these tribunals were in error in their construction of the claims, which it is well known must be considered in view of the state of the art.

Were Dod's claim open to the construction given it by the Board it would be invalid, inasmuch as the use of hollow heating-plates in the vacuum-pan is not new, but is shown in the English patent granted to Herring in 1851, No. 13,562, and Fletcher in 1865, No. 2,385, referred to by counsel for Cobb in his argument.

Looking at Dod's claim in view of these patents, or considering the terms of the claims alone, it will be found that in addition to the hollow plates he includes the steam-jacket, which is a necessary element of the combination, both because it is mentioned in the claim and is necessary to the operation of the device in the manner described, there being no provision made for the introduction of steam and escape of condensed water in the plates except through this steam-jacket.

Looking at the claim in this light, and it is plain no equivalent subject-matter is to be found in Cobb's case, no interference, in fact, exists upon this point. Cobb's steam-belt is in no way the equivalent of the steam-jacket, and the connection with the plates is entirely different. As regards this claim, therefore, the interference was improper and must be dissolved.

Cobb's claim, then, constitutes the only subject-matter involved, and its scope is such as to possibly include the construction employed by Dod, there being in his apparatus at least two of the plates disposed radially.

Viewing the testimony as applying to this issue, it is found that there is not in the whole of Dod's record the slightest mention of the radial arrangement of the plates.

The testimony which he has introduced all has reference to the use of plain heating-plates within an evaporating-pan, which, as has been shown, is not the subject in issue between the parties. It is not necessary to further discuss the evidence, as I have carefully examined it and found it nowhere proved that Dod contemplated arranging his plates in the manner described by Cobb. Even the caveat of November 5, 1874, which constitutes the principal evidence on this side does not contain the two radial plates which are shown in his application.

The absence of testimony referring to the real subject at issue throws Dod back upon his record date at the date of his invention, and that being subsequent to Cobb's record date does not overcome the *prima facie* case made thereby, and judgment of priority must therefore be rendered in Cobb's favor, reversing the decision of the Board of Examiners in-Chief.

Although as between these two parties Cobb is found

to be the prior inventor, it would seem, nevertheless, that substantially the same invention as that claimed by him is to be found in the English patent to Herring, which would appear to require a reconsideration of his claim and a limitation thereof in view of the state of the art thus exhibited.

The Examiner is directed to consider the same and take such action in the matter as he may deem advisable.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

THE ASBESTOS FELTING COMPANY *vs.* THE UNITED STATES AND FORRIGN SALAMANDER FELTING COMPANY.

[*In equity.—Before* BLATCHFORD, *J.—Decided July* 11, 1876.]

An application for an injunction to prevent a junior patentee from prosecuting suits under his patent pending a suit in equity to cancel the same should be refused where it appears that the junior patent was granted after a full hearing before the Patent Office in an interference with the prior patent.

The granting of a patent confers upon the patentee the right to bring suits thereon for its infringement, and a court is not authorized to grant an injunction to restrain him from so doing pending a suit to invalidate his patent, especially when such patent was granted after an interference.

[*J. Marshall*, for plaintiff.
C. E. Belton, for defendant.]

BLATCHFORD, *J.:*

The plaintiffs, owners of a senior patent, allege in their bill that the defendants are owners of a junior patent, which was issued after an interference had been declared and testimony had been taken, and the Patent Office had decided in favor of the subsequent applicant. The bill further alleges that the patents are in conflict; that the later patent was obtained through fraud, but in what manner is not set forth, and that the defendants have brought suits in Massachusetts for the infringement of their patent. It also alleges the priority in time of the invention covered by the senior patent, and prays that the junior patent may be canceled, and that until an adjudication in this suit the defendants may be enjoined from bringing suits for the infringement of the junior patent. An application is now made for such injunction.

It ought, probably, to be a sufficient reason for denying this application that the defendant's patent was granted after a full hearing before the Patent Office on testimony taken in an interference declared between the application for such patent and the plaintiff's patent; but in addition to this I have examined such testimony, and it shows plainly that the defendant's patent was properly granted, and that as between it and the plaintiff's patent the latter cannot prevail.

Independently of the foregoing considerations, I am not aware of any principle which would authorize the court in a suit of this character to restrain a defendant from bringing suits on his patent before the patent is adjudged to be invalid.

The granting of the patent to the defendants confers the right to bring suits thereon for its infringement. Especially is this so as between the parties to this suit in view of the interference and its result.

There is no evidence to sustain the charge of fraud, even if the plaintiffs could be heard to make it.

The application for an injunction is denied.

THE UNITED STATES AND FOREIGN SALAMANDER FELTING COMPANY *vs.* THE ASBESTOS FELTING COMPANY.

[*In equity.—Before* BLATCHFORD, *J.—Decided July* 11, 1876.]

The defendants restrained from using an arrangement which had been decided to be an infringement of the plaintiffs' patent in suits against parties supplied with the same by the defendants, who assumed and conducted their defense.

[*G. E. Belton*, for the plaintiff.
J. Marshall, for the defendants.]

BLATCHFORD, *J:*

The plaintiffs' patent has been established by the recoveries in Missouri and in Massachusetts. The affidavits on the part of the plaintiffs show that the defendants supplied the protecting arrangement that was used by the parties who were sued in the suits in Massachusetts, and assumed and conducted the defense of those suits; that such protecting arrangement was decided, in those suits, to be an infringement of the plaintiffs' patent; and that the defendants are now employing that same arrangement. These facts are not denied.

As to the Baumann patent, it was set up as a defense in the suits in Massachusetts, although not need in evidence.

I have examined the evidence in the interference case between Riley and Baumann, and it is entirely clear that Baumann was not the inventor at all of what was patented to him; that Riley, in fact, made the invention; that the patent to Baumann is invalid; and that the patent to Riley is valid.

I do not see that there is anything in the Hardy patent which anticipates what is covered by the plaintiffs' patent.

An injunction is granted as prayed for.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 21, 1876.]

9,640 and **9,641.—Center-Pieces.**—HENRY BERGER, New York, N. Y. Applications filed November 10, 1876. Term of patents 14 years.

9,642 and **9,643.—Center-Piece.**—JOSEPH BLANKENBERG and GEORGE LIEBUM, Buffalo, N. Y. Applications filed November 11, 1876. Term of patents 7 years.

9,644.—Bracelets.—HENRY CARLISLE, Jr., Philadelphia, Pa. Application filed October 5, 1876. Term of patent 3½ years.

9,645.—Combined Wall-Pocket, Mirror, and Mirror-Frame.—WRIGHT CLAPP, South Bend, Ind., assignor of one-half his right to MILTON W. STOKES, same place. Application filed July 31, 1876. Term of patent 7 years.

9,646.—Glass Bottles.—CHRISTIAN DORFLINGER, White Mills, Pa. Application filed September 30, 1876. Term of patent 3½ years.

9,647.—Ornamentation of Glassware.—JOHN H. HOBBS, Wheeling, West Va. Application filed February 26, 1876. Term of patent 14 years.

9,648 to **9,650**, inclusive.—**Floor Oil-Cloth.**—CHARLES T. MEYER and VICTOR E. MYER, Bergen, N. J., assignors to EDWARD C. SAMPSON, New York, N. Y. Applications filed November 6, 1876. Term of patents 3½ years.

9,651.—Skate-Runner.—ACHILLE F. MIGEON, Wolcottville, Conn., assignor to UNION HARDWARE COMPANY, same place. Application filed January 17, 1876. Term of patent 14 years.

9,652.—Carriage.—DANIEL P. NICHOLS and HENRY C. SEARS, Boston, Mass. Application filed October 10, 1876. Term of patent 14 years.

9,653.—Group of Statuary.—JOHN ROGERS, New York, N. Y. Application filed October 16, 1876. Term of patent 14 years.

9,654.—Fancy Worsted or Woolen Fabrics.—ROBERT SCOTT and AARON JEWELL, Lawrence, Mass. Application filed November 9, 1876. Term of patent 7 years.

9,655.—Heating-Stoves.—JASPER VAN WORMER, Albany, N. Y. Application filed November 2, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 21, 1876.]

4,133.—Cigars.—JOHN ELBLING, McGregor, Iowa. Application filed September 8, 1876.

"The representation of an artesian well and the words 'La Flor de Prairie du Chien.'"

4,134.—Tea.—CARTER, HAWLEY & Co., New York, N. Y. Application filed October 2, 1876.

"The letters 'C., H. & Co.,' arranged as shown in the accompanying fac-simile, the letters 'C. H.' in a double circle, with the character '&' above and letters 'Co.' below the points where the two circles join."

4,135.—Canned Fruits and Vegetables.—CUBTICE BROS. & MACK, Rochester, N. Y. Application filed November 6, 1876.

"An octagonal figure."

4,136.—Musical Instruments.—THE FIRM OF C. F. GLIER, Senior, Klingenthal, Germany. Application filed October 30, 1876.

"The representation of a lion couchant upon the earth, with his tongue protruding, and holding in one of his fore paws a ball, the whole surmounted by a crown within a radiance."

4,137.—Corn-Flour.—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

"The picture of a factory and vessels, the water-view in the foreground, and the landscape in the background."

4,138.—Axes, Hatchets, and Hoes.—WILLIAM C. KELLEY, Louisville, Ky. Application filed August 16, 1876.

"The word-symbol 'GRANGER.'"

4,139.—Plug-Tobacco.—LIGGETT & MYERS, St. Louis, Mo. Application filed October 27, 1876.

"A rectangular-shaped tag or label having a rectangular aperture at its center, and of such color or appearance as to contrast strongly with the surface upon which it is intended to be affixed."

4,140.—Canned Oysters, Fruits, and Vegetables.—GEORGE W. MALLORY, Baltimore, Md. Application filed November 13, 1876.

"The pictorial representation of a crown."

4,141.—Gloves.—MARKS BROTHERS, Philadelphia, Pa. Application filed October 30, 1876.

"The word-symbol 'MARCO.'"

4,142.—Lotion.—MANCHESTER & Co., New York, N. Y. Application filed September 19, 1876.

"The arbitrarily-selected words 'BALM OF GILEAD,' and the figure of a horse represented as trotting."

4,143.—Cough-Medicine.—E. R. POST & Co., Newburg, N. Y. Application filed October 24, 1876.

"The fanciful words 'KNOTTS' KOFF KNOT.'"

4,144.—Steel and Iron and Manufactures Thereof.—THE FIRM OF FRIED KRUPP, Essen, Germany. Application filed August 22, 1876.

"A symbol composed of three rings symmetrically superimposed, in manner and form as shown."

4,145.—Plows and other Agricultural Implements.—J. THOMPSON & Co, Beloit, Wis. Application filed October 25, 1876.

"The word-symbol 'Norwegian.'"

4,146.—Satinets and Cassimeres.—WHITMAN & WELCH, New York, N. Y. Application filed October 18, 1876.

"The fanciful words 'BANG UP.'"

4,147.—Biscuits.—WALTER G. WILSON & Co., Philadelphia, Pa. Application filed October 16, 1876.

"The word-symbol 'GLEN.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 21, 1876.]

877.—Title: "**International Shirtings.**"—COFFIN & ALTEMUS, Philadelphia, Pa. Application filed June 22, 1876.

878.—Title: "**Siever's Fieber Dropfen.**"—OTTO D'AMOUR, St. Louis, Mo. Application filed November 13, 1876.

879.—Title: "**Siever's Fever Drops.**"—OTTO D'AMOUR, St. Louis, Mo. Application filed November 13, 1876.

880.—Title: "**Duryeas' Satin Gloss Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

881.—Title: "**Duryeas' Starch, Improved Corn Starch, and Maizena.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

882.—Title: "**Duryeas' Satin Gloss Starch for the Laundry.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

883.—Title: "**Duryeas' Satin Gloss Starch for the Laundry.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

884.—Title: "**Duryeas' Superior Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

885.—Title: **Duryeas' Satin Gloss Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

886.—Title: "**Duryeas' Maizena.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

887.—Title: "**Duryeas' Refined Corn Flour.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

888.—Title: "**Duryeas' Satin Gloss Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

889.—Title: "**Duryeas' Satin Gloss Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

890.—Title: "**Satin Gloss Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

891.—Title: "**Duryeas' Satin Gloss Starch, Manufactured at Glen Cove, Long Island.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

892.—Title: "**Superior Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

893.—Title: "**Duryeas' Corn Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

894.—Title: "**Corn Starch, Prepared by the Glen Cove Manufacturing Company.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

895.—Title: "**Duryeas' Corn Starch.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

896.—Title: "**Duryeas' Maizena.**"—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

897.—Title: **"Duryeas' Maizena."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

898.—Title: **"Duryeas' Superior Starch."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

899.—Title: **"The Lawton Shirt."**—W. D. LAWTON, San Francisco, Cal. Application filed November 7, 1876.

900.—Title: **"Liebig's Pectoral Troches."**—NEW YORK CHEMICAL MANUFACTURING COMPANY, New York, N. Y. Application filed November 10, 1876.

901.—Title: **"P. P. Bell's Method of Gold and Silver Plating without a Battery."**—B. F. NORRIS & Co., Chicago, Ill. Application filed May 31, 1875.

902.—Title: **"P. P. Bell's Method of Gold and Silver Plating without a Battery."**—B. F. NORRIS & Co., Chicago, Ill. Application filed November 13, 1876.

NOTICE TO MANUFACTURERS AND OTHERS.

U. S. PATENT OFFICE,
WASHINGTON, D. C, *September* 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

All letters to the Patent Office must be addressed to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

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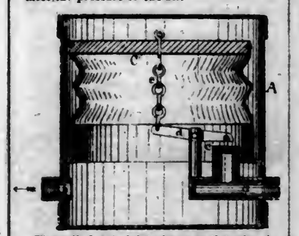
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED NOVEMBER 21, 1876.

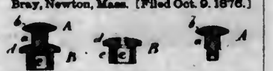
184,456. PRESSURE ATTACHMENTS FOR AIR-PUMPS. David E. Bangs, Medford, Mass. [Filed July 12, 1876.]

Brief.—The expansion and contraction of the loaded bellows works the valve and regulates the pressure of the air.



The cylinder A, inlet-pipe *a*, outlet-pipe *b*, valve *c*, with lever *d*, and chain *e*, operating in combination with the movable diaphragm C, in the manner and for the purpose specified.

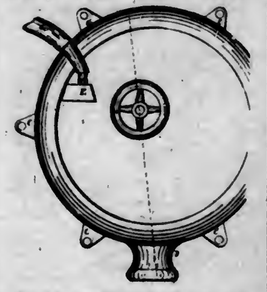
184,457. STUDS FOR BOOTS AND SHOES. M. Bray, Newton, Mass. [Filed Oct. 9, 1876.]



A stud or button having a tubular shank, *c*, shoulder *d*, neck or groove *e*, and head *b*, made in two separate pieces, A and B, and secured together substantially as described.

184,458. MOTORS FOR SEWING-MACHINES. John B. Button, Cleveland, Ohio. [Filed July 28, 1876.]

Brief.—The water is let into the wheel through the bifurcated pipe, striking the buckets on both sides of the wheel, and is discharged through the outlet at the bottom.



The wheel G', having on both sides of its rim or periphery a series of buckets, I and J, in combination with the case, consisting of sections A B, having inlets E E, bifurcated tube G, and outlet D, substantially as described, and for the purpose set forth.

184,459. FENCE-BUILDERS' GAGES. S. B. Coates, Mount Airy, Ohio. [Filed July 20, 1876.]

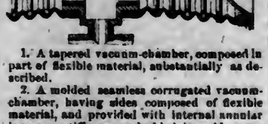
Brief.—A rod is provided with a stationary hook at one end, and another capable of adjustment at any desired point in the length of the rod.

1. A fence-builders' gage consisting essentially of a bar provided at its lower end with a hook-shaped support for the boards, said bar being adjusted and secured within a slide adapted to rest upon the upper boards of a fence, substantially as herein described.

2. The combination of straight bar A, hook-shaped termination B C, adjustable slide G H, and retaining device I, or its equivalent, substantially as herein described, and for the purpose set forth.

3. The combination of straight bar A, stirrups B C, retaining device I, and adjustable slide G H, which latter is provided with a lip, J, substantially as herein described, and for the purpose stated.

184,459



184,460. AIR-EXHAUSTS FOR VACUUM CAR-BRAKES. Theodore Cooper, Warwick, R. I. [Filed Apr. 6, 1876.]



1. In an air-exhausting apparatus, the combination, within an inclosing pipe or tube, of two or more steam-jets, located one above the other, and arranged to discharge upward and into a central air and steam space, substantially as described.

2. The combination, within an air-exhaust stack, of a central air-space, gradually increased in diameter from its base to its exit-aperture, and two or more steam-jets located at different points longitudinally therein, substantially as described.

3. The combination, with a jet-pipe centrally located within an air-stack, of adjusting mechanism, substantially as described, whereby the annular steam-space may be accurately proportioned on all sides, as set forth.

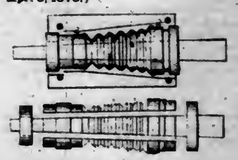
184,461. VACUUM-CHAMBERS FOR CAR-BRAKES. Theodore Cooper, Warwick, R. I. [Filed Apr. 6, 1876.]



1. A tapered vacuum-chamber, composed in part of flexible material, substantially as described.

2. A molded seamless corrugated vacuum-chamber, having sides composed of flexible material, and provided with internal annular braces or stiffeners, embedded in said material, substantially as described.

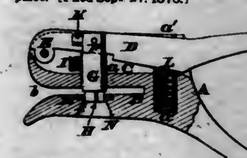
184,462. PROCESSES AND APPARATUS FOR MAKING VACUUM OR PRESSURE CHAMBERS. Theodore Cooper, Warwick, R. I. [Filed Apr. 6, 1876.]



1. The method of making flexible portions of chambers which are longitudinally collapsible or extensible and diametrically rigid, which consists in molding and vulcanizing the rubber of which said chambers are composed between correspondingly-corrugated surfaces, and in maintaining within the mold annular braces or stiffeners at proper intervals, substantially as described.

2. The combination, with a sectional mold having an interior conical or cylindrical surface, which is annularly scored or grooved, of a sectional coring-arbor, provided with annular scores inversely corresponding with those of the mold, and annular scores for the reception of annular braces or stiffeners, substantially as described.

184,463. CONDUCTORS' PUNCHES. John H. Davis, Covington, Ky., assignor of one-half his right to Fredk. J. Meyers, same place. [Filed Sept 27, 1876.]

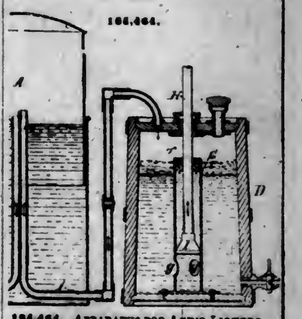


1. In combination with the vertically-reciprocating plunger G H, having a flat face, *g*, the adjustable guide I, substantially as herein described and set forth.

2. The combination, in a conductor's punch, of the slotted and grooved head A A' B C, pivoted and slotted lever D *d* D' E, pin F, plunger G, and compensating device K, substantially as herein described and set forth.

3. An improved conductor's punch, consisting, essentially, of the slotted, grooved, and chambered head A *a a'* B C, pivoted lever D *d* D' E, plunger F G *g* H, guide I, compensating device K, retracting-spring L, and die M, when arranged with reference to each other, substantially as herein described and set forth.

184,464.

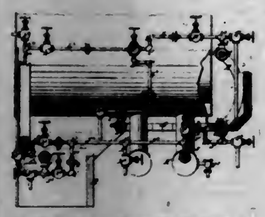


184,464. APPARATUS FOR AGING LIQUORS. Henry G. Dayton, Maysville, Ky. [Filed Aug. 28, 1876.]

Brief.—A receptacle for the whisky is provided with a pipe rising from the center of the bottom to a point near the top. This pipe has openings near its bottom and perforations at the top, with a larger opening in the cap, through which passes a rod having a plunger at its bottom. As the rod and plunger rise, the liquor above is forced out through the perforations, and comes in contact with the oxygen, which is supplied by means of a pipe and stop-cock from a gasometer.

The combination, with a gasometer, A, of a receptacle, D, provided with a tube, G, having the openings *g* and perforations g^2, a rod, H, and plunger I, and suitable pipes for connecting the receptacle D and gasometer A, constructed and operating substantially as and for the purpose set forth.

184,465. HEATING AND CIRCULATING DEVICES FOR STEAM-BOILERS. William H. Farris, Cairo, Ill. [Filed Jan. 10, 1875.]



1. Hollow side grate bars for fire-boxes, constructed separately or together, at different altitudes, and arranged in relation to the hollow bed grate bars, so as to form with the latter a basket or chamber within the fire-box, said side bars and the bed-bars being in communication with one another, and with the boiler at relatively low and high points, and the bed-bars constructed to form a hollow bridge-wall, all substantially as and for the purpose described.

2. The water-circulating fire-front lining for a fire-box, constructed with division-partitions forming separate circulation-passages, which unite, substantially as shown, and for the purpose described.

3. The hollow rear-end arch, made separate, and united and jointed together, substantially as and for the purpose described.

4. The combination of the expansible thimbles, copper ring, screw-rods, and nuts with a circulation tube or chamber, for uniting the parts, and forming and packing the joints, either between the bars of the grate, the arch-bars, or the parts of the fire-front lining, substantially as described.

5. The combination of the hollow grate-bars, a loosely-jointed supply-pipe, J J^2 J^3, leading from the boiler to the lowest tubular passage of the bars, a circulation-pipe, L L^2 L^3, also loosely-jointed, leading from the highest tubular passage of the bars into the boiler, and a stop-valve, a check-valve, and a waste-valve, substantially as and for the purpose described.

6. The combination of the tubular fire-front lining, loosely-jointed pipe leading from the water-space of the boiler to the lowest tubular passage of said fire-front lining, the loosely-jointed pipe leading from the highest tubular part of the lining into the boiler through a pipe at or near the water-line, check-valve, waste-valve, and stop-valve, substantially as described.

7. The combination of the tubular rear arch, made of separate sections united and jointed together, loosely-jointed pipe leading from the boiler to the lowest tubular passage of the rear arch-bars, a loosely-jointed pipe leading from the highest tubular passage of the said bars into the boiler, at or near the water line, and a check-valve, a waste and blow off valve, and a stop-valve, substantially as described.

8. The combination of the hollow grate-bars, tubular fire-front lining, rear arch bars, and the several pipes, check-valves, blow-off and waste valves, and stop-valves, substantially as described.

9. The pipe N, waste-cock N^2, valve K', and check and waste valves, for wasting water through either one or all of the additional water-heating and circulating surfaces, in the event of a leak or break occurring in either of said surfaces, and when the pressure and supply from the boiler are wholly or partly cut off by the valve K^2, substantially as and for the purpose described.

184,466. MANUFACTURE OF PAPER. A. G. Fell, New York, assignor to W. H. Smith, Brooklyn, N. Y. [Filed Jan. 18, 1876.]

Brief.—A sheet of paper is laid flat on a smooth table while wet, and split at one corner by a knife-blade. It is then separated across its width, and a roller is inserted between the separated parts, thus splitting it into thin sheets or layers. The paper, which is sized, is first wetted with either ammoniacal oxide of copper, sulphuric acid, nitro-sulphuric acid, chloride of zinc, or any other agent that will toughen the surface without entering the interior of it, and then thoroughly washed with water until the agent is removed.

1. The process hereinbefore described of splitting or dividing papers through their thickness into two or more thin sheets, by the application of chemical agents to the surface of the paper, and by means of a roller splitting or dividing the paper into thin sheets, substantially as described.

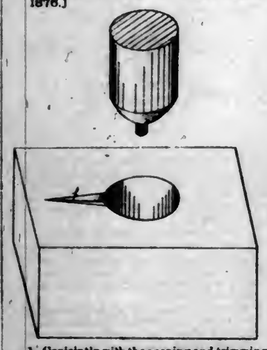
2. The process hereinbefore described of splitting or dividing papers through their thickness into two or more thin sheets, by condensing or hardening the entire surface of the paper, and at the same time preserving its interior soft and yielding, substantially as described.

3. As a new article of manufacture, split paper having a glazed surface on one side and an unglazed surface on the other, and of a smooth, close, and silky texture, free from pin-holes and the like, substantially as specified.

184,467. BOOK-BINDERS' CLOTH, &c. A. G. Fell, New York, assignor to W. H. Smith, Brooklyn, N. Y. [Filed Mar. 8, 1876.]

As a new article of manufacture, book-binders' cloth, &c., consisting of textile fabric combined with split paper, having a parchment-like surface on its outer side, substantially as and for the purpose described.

184,468. DIES FOR MAKING HOSE. Joseph Graff, Beaver Falls, Pa. [Filed Aug. 14, 1876.]



1. Conjointly with the opening and trimming die *a b*, the dome-shaped die and center-punch for setting up and perforating the blank, substantially as and for the purpose specified.

2. The combination of the die *g*, provided with a cutter, A, with a drop-die, for the purpose described.

184,469. ELECTRO-MAGNETIC MOTORS. G. F. Green, Kalamazoo, Mich. [Filed Oct. 28, 1875.]

Brief.—Relates to the construction of the spindle carrying the rotating electro-magnet, to a reversing-switch, and to a method of preventing burning of the commutator, by breaking the circuit at another point just before it is ready to shift at the commutator.

1. The combination of the yoke I and electro-magnet B, substantially as specified.

2. The combination of the yoke I and electro-magnet with the spindle and pole-changers, substantially as described.

3. The switch-board N, having switch-arms *e*, *h*, and *m*, in combination with the helices D D' and rotating helices H H, substantially as described.

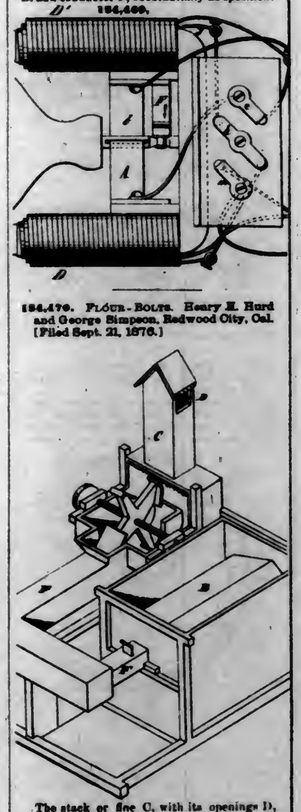
4. The combination, with a U-shaped electro-magnet, of the separate helices H H, in which the current is divided on the spindle, the two parts of the divided current running thence independently to the separate helices on the straight electro-magnet H H, whereby the power of the engine is increased, substantially as described.

5. The yoke or axle I, consisting of spindle K, with cam G, pole-changers C C', stem L, and head, with driving-wheel, substantially as specified.

6. The break-piece E, in combination with the shifter-pads *a* and *b*, disks C C', and cam G, substantially as described.

7. The combination, with a U-shaped magnet, of the shifter-pads A and *b*, break-piece E, and conductor F, substantially as specified.

184,470. FLOUR-BOLTS. Henry H. Hurd and George Simpson, Redwood City, Cal. [Filed Sept. 21, 1876.]

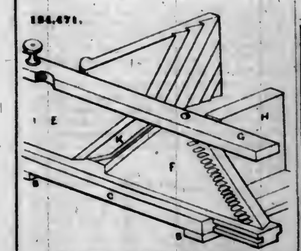


The stack or flue C, with its openings D, the air pipe or tube E, with its damper H, and the blower F, in combination with the bolt B or bolt-chest A of a grist-mill, substantially as and for the purpose described.

184,471. VEGETABLE CUTTER AND SLICER COMBINED. Anthony Lake, Lancaster, Pa. [Filed Sept. 20, 1876.]

Brief.—A portable apparatus to be placed on a table for use. A box at one side receives the substance. A hinged side presses it against a plane face at right angles to that side. The forward half of this plane face carries, outside, a vertical series of slicers. Revolving this half brings these slicers into co-operative action with the plane-iron or cutter.

184,471.

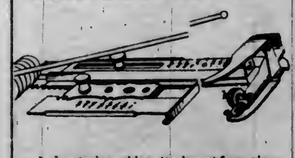


1. The double-beveled or triangular reversible piece or serial cutter F on pivots *f* in the upper ledge G, and grooved and tonged base D, firmly united by the end piece E, and to which the knife K is secured, and the adjusting binding-screw P and cross-slot in said base D, all arranged and operating substantially as herein set forth.

2. The foregoing-described slide and cutter arrangement on D, the tongued side ledge C, and grooved edge of the bottom or bed piece A, the cross-piece B, the winged feed I on its pivot *i* in a perforation in the bottom, the vertical stop-block H, and the sliding hooked rod M, all constructed and arranged substantially as and for the purpose specified.

184,472. TUCK-MARKERS. Allen Johnston, Ottumwa, Iowa. [Filed Aug. 17, 1876.]

Brief.—The creasing-roller is carried by a U-shaped frame, which is pivoted in suitable standards arising from a sprung bar secured to the plate, that carries the under creasing-blade, and these parts are so arranged with respect to the operating-bar and needle that, on each descent of the latter, the creasing-roller is caused to bear with a yielding pressure on the said creasing-blade, and at the same time to move back and forth thereon.



1. In a tuck-marking attachment for sewing-machines, the combination, substantially as set forth, with a stationary blade or edge, of a grooved or notched creasing-wheel, exercising, when in operation, a yielding pressure on the blade, and actuated at each descent of the needle to bear upon and at the same time move along upon the blade.

2. The combination, substantially as set forth, of the stationary marking blade or edge, the creasing-wheel, and the pivoted spring-frame carrying the said wheel.

3. The pivoted spring-frame and the creasing wheel carried by the same, in combination with the flexible or yielding strip supporting said frame, and the auxiliary strip, connected with the frame by a slot-and-pin connection, substantially as and for the purpose set forth.

184,473. FURNACE-DOORS. H. A. Laughlin, Pittsburg, Pa. [Filed Sept. 19, 1876.]

Brief.—The panels being first secured in place, the plastic filling is applied, covering the studs on the inner surface of the door.

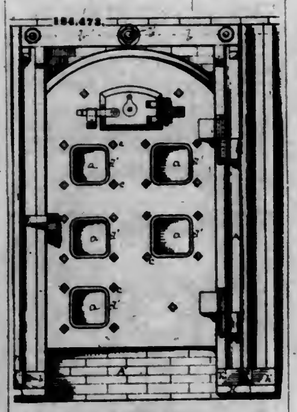
1. A cast-iron door-body having openings *d* therein, in combination with removable panel-plates *a*, covering the openings, substantially as set forth.

2. A series of studded panel-plates, *a*, in combination with a door-body, having transverse ribs *d* and openings *d'*, substantially as set forth.

3. A plastic filling, B, in combination with studded plates *a* and paneled door-body, substantially as set forth.

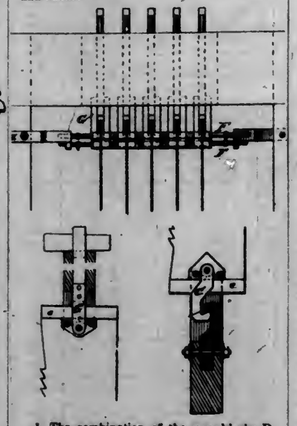
4. A shoe, H, in combination with upright A, the two interlocking, substantially as set forth.

5. The uprights A, connected at their upper ends by cross-bar *b*, in combination with one or more tie-rods passing through the cross-bar, substantially as set forth.



184,474. HANGING RECIPROCATING SAW-GANGS. Oliver C. Meigs, Dubuque, Iowa. [Filed May 2, 1876.]

Brief.—The gage-blocks, hooks, and straps, which hold the saws to the gate, are connected by pivoted joints. The gage-blocks are wedge-shaped on their upper faces. The saws are clamped between the blocks, and held in position by three set-screws arranged in triangular form upon the outer sides of the gang, and fitting in suitable recesses in the blocks and hooks.



1. The combination of the gage-blocks D, hooks C, and key-straps G, the gage-blocks being pivoted to the hooks or straps, substantially as and for the purpose set forth.

2. The three set-screws F, arranged as described, in combination with the gage-blocks D, hooks C, and key-straps G, substantially as and for the purpose set forth.

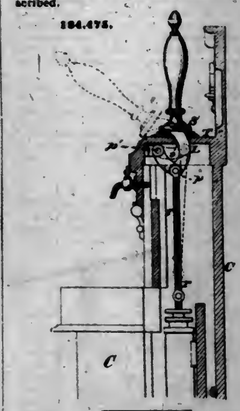
3. The gage-blocks D, constructed with their outer faces wedge-shaped or pointed, substantially as and for the purposes set forth.

4. The combination of the saws E, provided with ledges *e*, gage-blocks D, hooks C, key-straps G, and set-screws F, constructed and operating substantially as described.

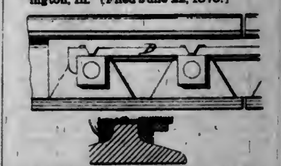
184,475. BEER-PUMPS. Richard Mudd, Elizabethport, N. J., and Edward Mudd, Somerville, N. Y. [Filed May 4, 1876.]

1. The combination of the curved lever L, constructed substantially as described, and having its fulcrum *p'* attached to the cabinet or case C of a beer-pump, with the pump-rod *r*, and the hole *o*, substantially as set forth.

2. The shoulder or flange S, provided on the curved lever L, in combination with the plate P on the cabinet or case, having the hole *o* formed therein, substantially as described.



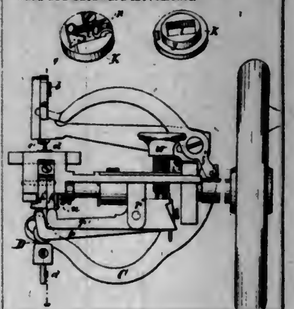
184,476. NUT-LOCKS. Michl. Neill, Bloomington, Ill. [Filed June 22, 1875.]



The nut-lock described, consisting of the metal bar D, the ends of which are turned down over the corners of the nuts, the washers *w* placed underneath the nuts, and turned over on one side or corner to hold the bar to the nuts, all constructed and arranged as and for the purposes set forth.

184,477. SEWING-MACHINES. John O'Neil, New York, N. Y. [Filed Jan. 10, 1876.]

Brief.—The needle is arranged beneath the cloth, and operates in conjunction with a vibrating hook placed above, forming a crochet-stitch upon the surface of the cloth, and securing it to the same. The feed-bar is carried by a disk that is adapted to be rotated by a crank, whereby a universal feed is formed, the ordinary four motions being given to the said feed-surface by means of four levers, operated by suitable cams on the driving-shaft of the machine—two of these levers being arranged to raise and lower the said feed-surface through the intermediary of a sleeve, while the other two operate in connection with a spring, to impart thereto the forward and backward movements.



1. The combination, in a sewing-machine, of the feed-carrier K, the feed-bar m, the lever n, the spring t, the shaft D, the sectional sleeve r and r', and levers p p', constructed to operate as and for the purpose described.

2. The combination, in a sewing-machine, of the feed-bar m, sleeve v, levers r' and p, and set-screw w, as and for the purpose described.

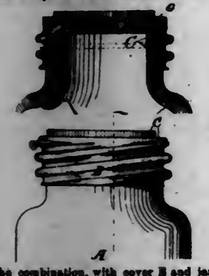
3. The combination of the vibrating bars C and B, the shaft D, the cam lever b, and the crochet-needle c, as and for the purpose described.

4. The combination of the hollow shaft D and the needle d, provided with a longitudinal groove extending its entire length, as and for the purpose described.

5. The combination, in a sewing-machine, of the feed-bar m, feed-carrier K, bent lever n, sleeve v, and levers r' p, as and for the purpose described.

184,478. FRUIT-JARS. Thos. G. Otterson, Philadelphia, Pa. [Filed Mar. 23, 1876.]

Brief.—Adapts the jar of his former patent to a cover separated from the screw-ring.

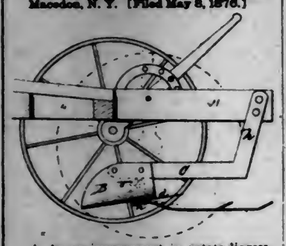


The combination, with cover B and jar A, the latter having its neck B formed with separate parallel screw-threads a b, which begin and end at opposite points on the neck of the jar, and a shoulder, C, located above the screw-threads, of a ring, B, correspondingly screw-threaded to fit the neck of the jar, and provided with an inwardly-turned flange, G, to engage with the cover, substantially as and for the purpose set forth.

184,479. COMPOSITION FOOD FROM DESICCATED EGGS. Charles Peak, Chicago, Ill. [Filed June 8, 1876.]

The composition of dried-egg batter, or egg substance in a dried and granular form, and sugar, substantially as described.

184,480. POTATO-DIGGERS. Miles B. Biggs, Palmyra, assignor to Warner B. Biggs, Macedon, N. Y. [Filed May 8, 1876.]



1. As an improvement in potato-diggers, the shovel-blade B, suspended from the front end of the horizontal bar C, the vertical or inclined portion A, of which is bolted to the side bars A of the frame, considerably to the rear of the shovel-blade, for the purposes set forth.

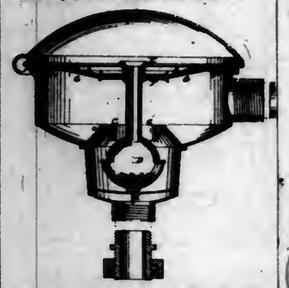
2. In combination with the shovel-blade B, and horizontal hanger-bar C, the pivoted or swinging yoke n, and fingers f, constructed and arranged to operate substantially in the manner and for the purposes set forth.

3. In combination with the separating fingers f, hinged so as to move vertically more or less, and having inclined branches e, the auxiliary fingers d, and shovel-blade B, substantially as and for the purposes set forth.

184,481. LUBRICATING COMPOUNDS. Peter Sweeney, New York, N. Y., assignor to himself and Wm. B. Bishop, same place. [Filed Apr. 27, 1876.]

A compound for lubricating purposes, consisting of plumbago and collodion, with paper-pulp or equivalent fibrous material, substantially as described.

184,482. GAS-REGULATORS. Geo. Taylor, New York, assignor to John A. Scolley, Brooklyn, N. Y. [Filed Oct. 11, 1876.]



1. In combination with the flexible diaphragm G and valve-seat C, the valve and balance-cup D, constructed as described, to receive the necessary amount of loading, the said several parts being arranged, in relation to each other, substantially as set forth.

2. The double diaphragm G A, composed of one layer of leather and one layer of parchment paper, and arranged in relation to the stem P and valve and balance-cup, as set forth.

3. The combination, in a gas-regulator, of the flexible double diaphragm G A, stem P, valve-seat C, bar A, guide-pin 4, and valve and balance-cup D, the said several parts being constructed and arranged in relation to each other substantially as herein set forth.

184,483. CIRCULAR-KNITTING MACHINES. Eli Tiffany, Bennington, Vt. [Filed May 1, 1876.]

Brief.—The needles are removed and inserted separately, when the upper end of the cam-groove, and the open portion of the circularly-adjustable needle-retaining divided ring, and one of the needle grooves or slots are all in line with each other, without necessitating the removal of any portion of the machine. The cam-cylinder is retained in its proper working position on the needle-cylinder, in opposition to the pull of the needles in knitting, by means of a removable guard, one end and the middle portion of which are secured, respectively, in a perforation and a groove in the needle-cylinder, while the lower end is extended over the even upper end of the cam-cylinder, and the whole kept in place by the needle-retaining ring above referred to, the said guard being removable, so as to permit the free endwise movement and removal of the cam-cylinder, for convenience in cleaning, without disturbing any other portion of the machine.

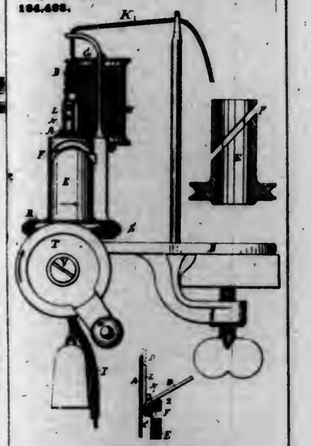
1. The combination of the grooved needle-cylinder A, having a part, L, of smaller diameter than the other part, the divided needle-holding ring N, secured to and circularly adjustable upon the smaller part of the needle-cylinder, and the cam-cylinder E, mounted to turn on the larger part of the needle-cylinder without turning the needle-holding ring, and having the upper side of its cam-groove F continuous and at one point formed and arranged in respect to the end of the cam-cylinder, as described, so as to permit a needle to be turned outward, and thereby withdrawn when released by the adjustment of the divided ring, as described.

2. In combination with the needle-cylinder A, provided with the perforation P and groove Q, and the removable cam-cylinder E, the detachable guard O, and the divided ring N, the guard having one end part in the said perforation, and the other end part over the end of the cam-cylinder, and the middle part secured in the said groove by the divided ring, substantially as described.

3. In combination with the fixed needle-cylinder A and rotary cam-cylinder E, having the elastic friction-ring S thereon, and the fixed step or end bearing Y, the rotary driving-disk T, having one side pressed against the said friction-ring, and its axis arranged at one side of the axis of the cam-cylinder, substantially as shown and described.

4. In combination with the fixed needle-cylinder A and rotary cam-cylinder E, having the grooved pulley R thereon, the removable elastic friction-ring S in the groove of the pulley, and the removable rotary driving-disk T, mounted on the adjustable stud V, substantially as described.

184,484.



184,484. METALLIC PACKINGS FOR PISTON-RODS. Thomas Tripp and Phillip W. Richards, Boston, Mass.; said Richards assignor to said Tripp; said Tripp assignor to W. H. Floyd, trustee of the Metallic Steam Packing Association, same place. [Filed Feb. 11, 1876.]



1. The casing A B, united as shown, and combined with one or more head-rings, C C', substantially as described, and for the purpose set forth.

2. The combination of the embracing-pieces E and E' with the wedge-shaped or inclosed pieces H H', the said pieces E and E' forming nearly the entire circle, and provided with springs K and K', all operating together substantially as described, and for the purpose set forth.

184,485. CEMENTS FOR STOVE-PUTTY. Abel Wainwright, Spring City, Pa. [Filed Oct. 18, 1876.]

Brief.—Takes two parts of chalk and one of graphite, of the kind mined in Boyertown, Berks county, Pa., and grinds together. It is to be mixed with oil when used, as in filling the joints of stoves, &c.

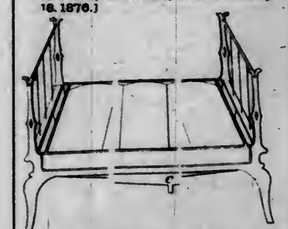
A cement for stove-putty of pulverized chalk and graphite, similar in its qualities to that herein described.

184,486. BARBED FENCE-WIRE. Wm. Watkins, Joliet, Ill. [Filed Oct. 19, 1876.]



The flat barb A, spirally twisted lengthwise, and placed laterally between the strands of the cable a, and having its points turned out, as shown, forming a crotch to hold the cable, all arranged as and for the purpose set forth.

184,487. AIR AND WATER BEDS. George M. White, New Haven, Conn. [Filed Sept. 16, 1876.]

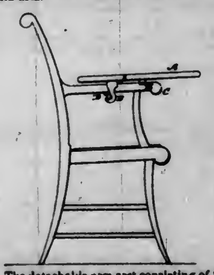


1. The herein-described bed, consisting of a series of air and water tight sacks, filled with either air, water, or with both air and water, substantially as described.

2. In an air and water bed, the tunnel C, substantially as and for the purpose described.

184,488. BOOK-RESTS FOR LECTURE-CHAIRS. A. Lyman Williston, Northampton, Mass. [Filed Oct. 25, 1876.]

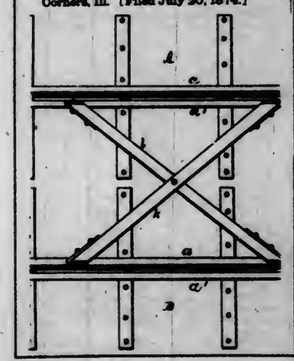
Brief.—To the under side of the rest or table is pivoted a catch provided with two hooks, which straddle the arm of the chair, and engage with a bar pivoted to the under side of said arm.



1. The detachable arm-rest consisting of the table A, provided with the catch B, the latter being constructed as described, and arranged to operate in connection with the bar D, as set forth.

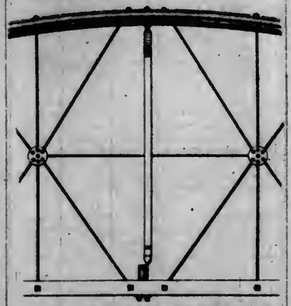
2. In combination with the arm C of the chair, the table A, catch B, and pivoted bar D, the said parts being constructed and arranged substantially as shown and described.

184,489. HARROWS. J. Woolridge, Dean's Corners, Ill. [Filed July 20, 1874.]



The sections A B, each having longitudinal central bars a a', pivoted cross-bars b, with teeth s, in combination with the pivoted connecting-bars k l, and devices for changing the angle of the teeth, as and for the purpose described.

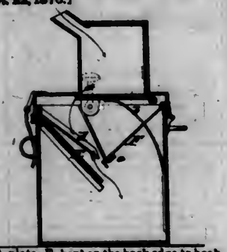
184,490. METALLIC ARCH-BRIDGES. Job Abbott, Canton, Ohio, assignor to Wrought Iron Bridge Company, same place. [Filed Aug. 19, 1876.]



1. The connection of the diagonal ties in a panel of a bow-string arch-bridge with each other, and with the arch and chord of said bridge at their intersection, substantially as and for the purpose specified.

2. The attachment of the center of an arch-post with the connection of the diagonal ties at their intersection, substantially as and for the purpose specified.

184,491. FARE-BOXES. Joseph Adler and H. Freimuth, New York, N. Y. [Filed Sept. 23, 1876.]



1. A plate, F, bent on the back edge to hook over the rear of the box, and grooved near the front corners to fit over rods d, as shown and described, so that it will not escape by a mere reversal of box, but may be readily detached.

2. A conductor's fare-box, having an inclined swinging guard-plate, E, and an inclined detachable plate, F, extending from the opposite side of the box, to convey the money to the bottom of the fare-box and inclose the same therein, substantially as specified.

184,492. AXLE-GREASE. Marten Andersen, Elkhorn Station, Nebr. [Filed May 20, 1876.]

Brief.—The compound, in a heated state, is "run off" and into molds, where it cools, and is used to fill in the boxes and lubricate the axles of heavy rolling-stock.

The compound of soap, sulphur, coal-dust, and water, combined substantially as described, and for the purposes set forth.

184,493. ELLIPSO-PANTOGRAPHS. Alban Anderson, Peekskill, N. Y. [Filed Apr. 20, 1876.]

Brief.—An instrument by which a series of patterns may be produced of varying widths, properly proportioned, but of the same length as the original pattern; also, a series of ellipses from a circle.

1. The pantograph D, in combination with the devices for insuring the parallel movements, substantially as described, the one insuring a rectilineal movement of the center d, and the other insuring a rectilineal and parallel movement of the extremities r and k of the pantograph, said movements being at right angles to each other, substantially as and for the purposes hereinbefore set forth.

2. In combination with the pantograph D' D, the carriage E, for supporting said pantograph, and the guides f f and g g for insuring the proper movement to carriage and to the block F, substantially as and for the purposes herein set forth.

3. In combination with the pantograph D' D, as above described, the supplementary pantograph A A, for enlarging or reducing the figures produced by the pantograph D, substantially as specified.

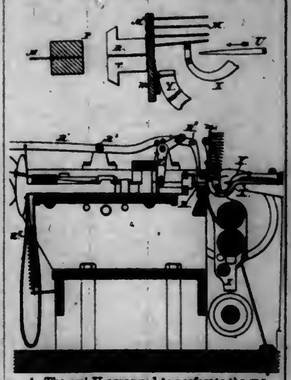
4. A pantograph and any form of ellipsograph, combined and operating conjointly, to produce either proportionate or disproportionate enlargements or reductions of any figure or pattern, substantially as set forth.

184,494.



184,494. MACHINES FOR MAKING METALLIC BRUSHES OR CARDS. Robert Ashworth, Fall River, assignor to James P. Poland, Arlington, Mass. [Filed June 19, 1876.]

Brief.—The wire is received from a reel through guide-holes to feeding-nippers, which close upon and feed it forward through holding-nippers into and through a perforated shear-block, between clamping-jaws, and through the card-back. A lateral motion is now imparted, which carries the wire against a cutter in front of the shear-block, and then in front of a header, which starts the tooth farther through the back, when it is suddenly arrested by the clamping-jaws, which causes the moving header to bend the end into a head, when a return movement places it in front of a setter, which pushes it between the now open clamping-jaws, and home in the card-back. The number of teeth in a row and the lateral movement for their setting are regulated by pawl and ratchet and a screw connection with the main driving-shaft. The card-back is perforated from one side, and the wire inserted from the other. Lateral motion is imparted to the wire-feeding carriage by a cam or wedge on a slide, which impinges against a cam on the driving-shaft.



1. The awl U arranged to perforate the material m, from one side, in combination with a feeder and connected devices, adapted to feed the wire in from the opposite side during the return of the awl, as herein specified.

2. The deflector X, steadier Y, and awl U, combined and arranged to serve relatively to the backing material m, teeth M M', header S, and means for forcing the latter into place, as herein specified.

3. The grooved dies E r, and spring r^4, combined as shown.

4. The header S, and carrier, operated with a waiting motion, in combination with dies correspondingly operated to cause the wire M to be first pushed endwise by the header, and afterward tightly griped and headed.

5. The header S and header-carrier S', mounted on the laterally-moving carriage E, as and for the purposes specified.

6. The header and header-carrier, mounted on the carriage E, as shown, in combination with the operating cam l^3, and with the dies R r, and pusher T, as herein specified.

7. The steadier Y, having opening and closing parts serving as holders for the wire, grooved on the inner faces, and operated as shown, in combination with mechanism for feeding the material m, and for introducing and feeding forward the lengths of wire M, as herein set forth.

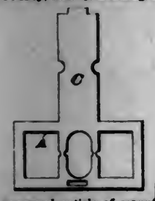
8. The cams h^2 h^4, stepped as shown, in combination with the traversing frame I, adapted to determine the varying widths of the brush, as herein specified.

9. The wedge R^2, and its operating means in combination with the die R, spring R^3, and the sister die r, as herein specified.

10. The matched dies R r, serving as guides for the lengths of wire M, in combination with the awl U, and pusher T, as and for the purposes herein specified.

11. The matched dies R r, performing the double functions of guides and dies, in combination with the awl U, header S, and feeding mechanism G', as herein specified.

184,493. BUCKLES. Virgil A. Bond, Dallas, assignor of one-half his right to J. B. Stone, Dallas County, Tex. [Filed Aug. 8, 1876.]



As an improved article of manufacture, a double-buckle frame provided with a guard-piece formed from the blank A C, substantially as and for the purpose described.

184,494. CARRIAGE-POLE HEADS. George Bray, Jr., Deptford, England. [Filed May 27, 1876.]

Brief.—The eye-pieces for holding the pole-straps are made in two parts, so as to open and discharge the strap in case of a horse falling.



The combination of the stationary part B, having cam projections D and arms I, the movable part C, having depressions E and arms J, and the spring F with the pole A, substantially as and for the purpose set forth.

184,497. SHOES FOR DRIVING PIPES OR CASINGS. Lester B. Brown and J. H. Norris, Bradford, Pa. [Filed Oct. 11, 1876.]

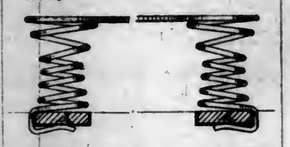


1. A shoe for driving pipe or casing, whose working-edge is provided with a double-beveled face, substantially as and for the purpose described.

2. A driving-shoe having its lower end constructed with an annular central projecting ridge, substantially as and for the purpose described.

3. The combination of a driving pipe and shoe, the two connected by a wedge-shaped joint and shrunk or brazed together, substantially as and for the purpose described.

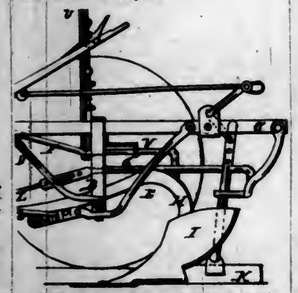
184,498. SPRING BED-BOTTOMS. Caleb B. Brown, Jackson, Mich. [Filed Sept. 16, 1876.]



A bed-bottom composed of slats, in connection with alternating sets of spiral springs, of which each set is connected by a top or bridge piece, and secured to the outside of two adjoining slats by the bent ends of the wire formed to hook partly around the slat, substantially as shown and described.

184,499. SULEY-PLOWS. Mercer Brown, St. Joseph, Ill. [Filed July 1, 1876.]

Brief.—The construction of the frame, devices for adjusting the plow to or from land, and for leveling the plow.

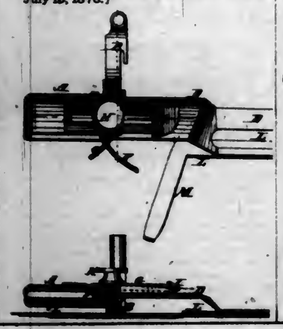


1. The frame-work formed of the bent axle B, the tongue C, the forward braces D F, and the rear braces E G, constructed and combined with each other substantially as herein shown and described.

2. The combination of the adjustable hook-rods L with the forward end of the plow-beam H, and with the forwardly-projecting ends of the rear braces E G, substantially as herein shown and described.

3. The combination of the plow H I K, hung by pivoted adjustable rods to the elevating mechanism, with the leveling devices, consisting of the cross-rod W, rock-shaft V, and lever U, and with the adjustable draft-braces L L, to take more or less land, all constructed substantially as shown and described.

184,500. TUCKERS FOR SEWING-MACHINES. A. W. Brown, Ogden City, Utah. [Filed July 15, 1876.]



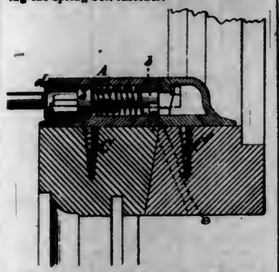
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1. The combination of the plate A, arranged in U shape and attached to the presser, and having the horn-guide C, the folder D, having the horn-guide F, and the adjusting-guide G, substantially as specified.

2. The stay-plate, having stud P and hooked arm M, in combination with the plate D, substantially as specified.

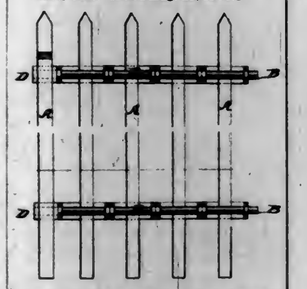
184,501. FASTENERS FOR THE MEETING-RAILS OF SASHES. William O. Bulkley, Jersey City, N. J. [Filed Apr. 7, 1876.]

Brief.—The use of a key-head, and some peculiarities in construction and combination of old devices, necessitates the use of the detachable key, both in locking and in unlocking the spring-bolt fastener.



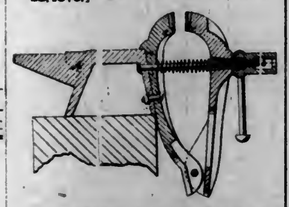
The combination of the spring-bolt *b*, having the bit *c*, and key-head *b*, adapted to be operated both in locking and unlocking the lock by means of a detachable key, K, with the spring-bolt socket-plate A, and the catch B, substantially as described.

184,502. FENCES. John A. Burnham, Delaware, Ohio. [Filed Aug. 28, 1876.]



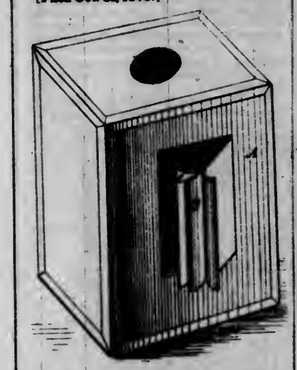
The combination, with palings A, rails B, and posts, of the brackets C D, constructed and arranged substantially as and for the purpose specified.

184,503. COMBINED ANVIL AND VISE. W. B. Canady, Rochester, Minn. [Filed Sept. 22, 1876.]



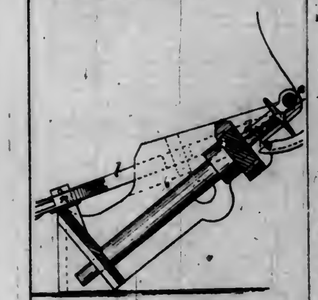
The combination of an anvil, having side guide-rails, with the stationary jaw of a vise, said jaw having a projecting shoulder bearing on the top part of the anvil, and being attached by one or more fastening screw-bolts, substantially in the manner described, and for the purpose specified.

184,506. COMBINED PAPER AND METAL BOXES. Albert D. Chase, Sea Cliff, N. Y. [Filed Oct. 31, 1876.]



A box, as a new manufacture, made of a material composed of a thin sheet of metal inclosed between two sheets of paper, the whole made to adhere together by a suitable adhesive substance, as and for the purpose described.

184,505. WIRE-TWISTERS FOR SELF-BINDERS. Edwin Chapman, Rochester, Minn., assignor to the Chapman Binder Company. [Filed Sept. 4, 1876.]



1. The wire-twister in a grain-binding machine, made with a cross or T head upon the end of a slightly-tapering shank, for the purpose of twisting the wires outside the T-head, and winding the wire from the carrier-arm around the taper shank, substantially as described.

2. The combination, with the revolving twister and shank in a grain-binding machine, of two knives acting at opposite sides of the shank of the twister, to cut the wire for liberating the bundle and separating the coil of wire from the twister and shank, substantially as set forth.

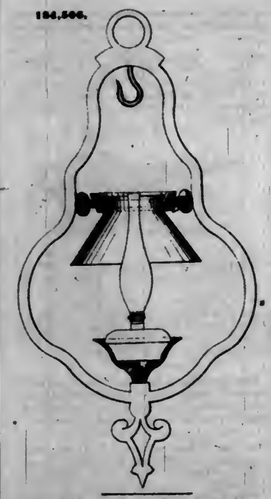
3. The combination of the T-headed twister and its shank, and the cutters, with the levers for actuating the cutters, arranged and operated substantially as set forth.

184,504. HALL-PENDANTS. Peth. J. Clark, West Meriden, Conn. [Filed June 6, 1876.]

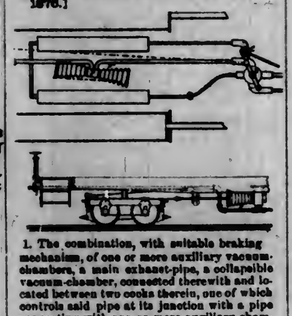
1. The combination, with a ball-pendant, of a ring for supporting the shade fixed on bearings allowing the shade to swing suitably for putting the lamp in and taking it out of the cup with the chimney on it, substantially as specified.

2. The combination, with a ball-pendant, of a ring for supporting the shade fixed on bearings allowing the shade to swing as described, and being provided with a fastening device to prevent the swinging of the shade when in use.

184,506.



184,507. VACUUM-BRAKES FOR CARS. Theo. Cooper, Warwick, R. I. [Filed Apr. 6, 1876.]



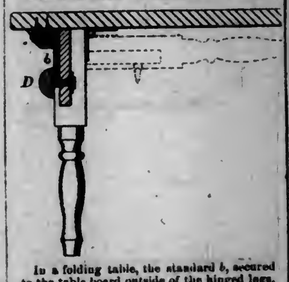
1. The combination, with suitable braking mechanism, of one or more auxiliary vacuum-chambers, a main exhaust-pipe, a collapsible vacuum-chamber, connected therewith and located between two cocks therein, one of which controls said pipe at its junction with a pipe connecting with one or more auxiliary chambers, a check-valve for each auxiliary chamber, and external means for opening one of said valves, substantially as described, whereby, for operating the brakes, air is either drawn from all of the vacuum-chambers through the exhaust-pipe from either of its ends, or exhausted into the auxiliary from the collapsible chamber, and also whereby, for releasing the brakes, air is admitted through the main pipe into the collapsible chamber without affecting the vacuum in the auxiliary chambers, as set forth.

2. The combination, with suitable braking mechanism on a railway-car, of a local air-exhausting apparatus, a collapsible vacuum-chamber, and an auxiliary chamber, having a check-valve externally controllable, substantially as described, whereby the air may be exhausted from said chambers independently of aid from the locomotive exhausting apparatus, and the brakes operated by the local exhausting apparatus, with or without aid from the auxiliary chamber, as set forth.

3. A collapsible vacuum-chamber, having air-pipes connected therewith, and mounted diagonally beneath a car, in combination with a pendent brake-beam, an inclined lever, and a rod which connects a working-head of the vacuum-chamber with the inclined lever, substantially as described.

4. A collapsible vacuum-chamber, having two working-heads diagonally mounted beneath a car, in combination with duplicate sets of pendent brake-beams and inclined levers, connected directly, by rods, with the working-heads of the vacuum-chamber, substantially as described.

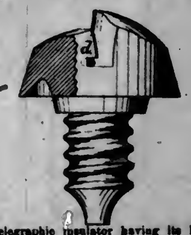
184,509. FOLDING TABLES. J. S. Corban, Plainville, Conn. [Filed Apr. 10, 1876.]



In a folding table, the standard *b*, secured to the table-board outside of the hinged legs, and the torn D, secured to the cross-piece of the legs, and having its axis parallel to the table-board when the legs are perpendicular thereto, all substantially as described, and for the purpose specified.

184,508. TELEGRAPH-INSULATORS. Robert A. Cunningham and David F. Crowell, Zanesville, Ohio. [Filed Mar. 6, 1876.]

Brief.—Transverse grooves divides the head of the insulator into two sections, the convex section being the higher of the two, so that the wire, preparatory to inserting in the groove, may be bent around the convex section into a curve corresponding with the groove.



A telegraphic insulator having its head divided by a groove into a concave section having projecting shoulders *d*, and a convex section of greater height than the said concave section, substantially as and for the purpose described.

184,510. BRUSHES. George R. Davies, Yarmouth, Nova Scotia, Canada. [Filed May 27, 1876.]

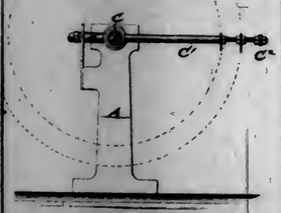
The combination of the angular bar or frame A, rotary brush B, and mechanism, substantially as shown, for operating the brush, as herein set forth.

184,511. MACHINES FOR SAWING CIRCULAR SLABS. John J. Dimond, New York, N. Y. [Filed Oct. 14, 1876.]

Brief.—The sleeves of the saw-frame are loosely placed on intermediate stationary shafts, for the purpose of swinging around the same as center pivots, so that circular slabs may be sawed from the solid block, being reciprocated simultaneously thereon by a connecting-rod operated by suitable power.

The combination, with intermediately-spaced standards A A, of the saw-frame C C C, connected therewith by pivots B, as shown and described, so that circular slabs may be sawed from the solid block.

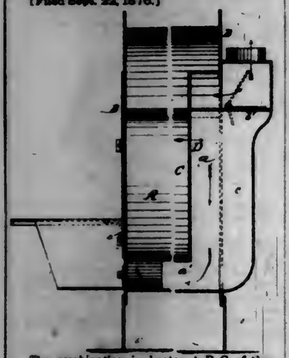
184,511.



184,511. SOAP. Alpheus Dove, Brockville, Ohio, assignor of one-half his right to C. M. Baker, same place. [Filed Nov. 14, 1876.]

The above-described soap composed, consisting essentially of bar-soap, carbonate of soda, borate of soda, aqua-ammonia, and sulphate of soda, substantially in the proportions above specified.

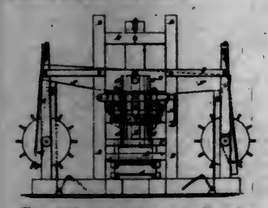
184,512. HEATING-STOVES. Ignatz. Droege and Charles Bagenschutz, Covington, Ky. [Filed Sept. 22, 1876.]



The combination, in heater A B C, of the diving and bottom flue *c*, extending nearly to the front end of stove, the inclosing side and return flues *b b*, the rear rising and inclosing flue *c*, the fire opening D, and the dampered opening *b'*, as shown and described.

184,513. BALING-PRESSES. W. B. Duncan, Huntingdon, Tenn., assignor to himself and A. F. Estes, same place. [Filed Sept. 30, 1876.]

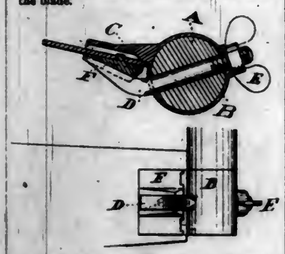
Brief.—The operation of the arms of the long lever alternately causes the shaft carrying the follower to descend. A handle at the side actuates lever-arms, to disengage the pawls from the ratchets when desired.



The combination of the pawls H, springs *h'*, hooks *h'*, crank-rods I, bars J K, and lever L, with the lever N, the ratchet-bars G, attached to the shaft E of the follower D, and with the baling-box frame B of the press, substantially as herein shown and described.

184,515. TOOL-HANDLES. Augts. Eckert, Trenton, Ohio. [Filed Aug. 21, 1876.]

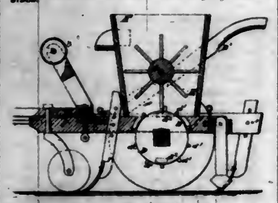
Brief.—The blade of a saw or other tool is held firmly by means of a bolt bent to a slight angle, which causes a pad to bear upon the blade.



The combination of handle-piece A, eared ferrule B, shoe F, finger D, at an angle to the face of the ear C on ferrule B, and nut E, substantially as and for the purpose specified.

184,516. COMBINED SEED-PLANTER, FERTILIZER-DISTRIBUTER, AND CULTIVATOR. Louis Flatau, Pittsburg, Tex. [Filed Apr. 18, 1876.]

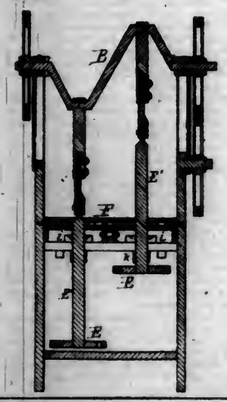
Brief.—The dropping-wheel is provided with radial teeth upon its rim, and also side pockets, to enable it to drop seeds of various sizes.



1. The dropping-wheel D, provided with the radial teeth *d'* upon its rim, and the pockets *d''* in its side, to adapt it for use in dropping cotton-seed or corn and peace, substantially as herein shown and described.

2. The combination of the case F with the dropping-wheel D *d' d''* and the hopper E, substantially as herein shown and described.

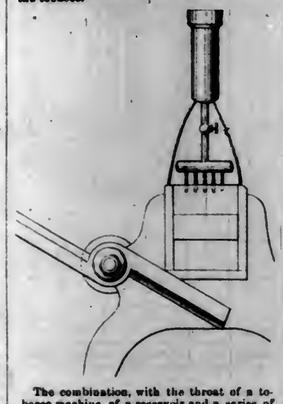
184,517. RECIPROCATING ORCHES. James P. Goodhue, Rockford, Ill. [Filed July 5, 1876.]



In a reciprocating dasher-churn, parted lid O, having bowls *i* thereon, and collars *b* depending therefrom, jointed dasher-staves B', removable guide-rollers F, and revolving double crank-shaft B, constructed and operating as and for the purpose described.

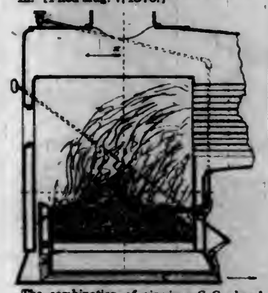
184,518. TOBACCO-CUTTING MACHINES. E. Goodwin, New York, N. Y. [Filed Sept. 16, 1876.]

Brief.—Over the throat of the machine is arranged the reservoir, with pipes leading to the tobacco in the machine, so that as the cutter rotates, the liquid will be distributed over the tobacco.



The combination, with the throat of a tobacco-machine, of a reservoir and a series of pipes leading therefrom to the throat of the machine, for distributing a liquid to the cheese of tobacco, the said pipes being provided with a valve for controlling the flow of liquid, substantially as shown and described.

184,519. DEVICES FOR FEEDING AIR TO FURNACES. Charles J. Hagstroem, Chicago, Ill. [Filed Aug. 7, 1876.]



The combination of air-pipes C C, placed under the grates of the fire-box, blast-pipes F F E, and vertical air-pipes D D, communicating with the said blast-pipes and air-pipes, and of such length as to eject air onto the surface of the coal in the fire for subjecting the fuel to a current above and below, as set forth.

184,520. TRUSS-BRIDGES. David Hammond, Henry G. Morse, and Job Abbott, Canton, Ohio. [Filed Aug. 19, 1876.]

1. A pin-connection truss having the posts held longitudinally at the center by diagonal ties run through and secured by jam-nuts and washers in the posts, substantially as and for the purpose specified.

2. The combination, with a truss-post, of a diagonal tie having sleeve-nut adjustment, and with one screw end for said sleeve-nut secured by jam-nuts and oblique washers in said post, substantially as and for the purpose specified.

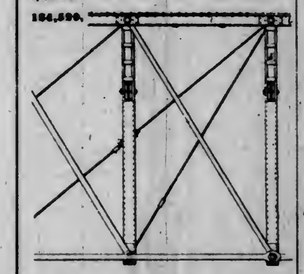
3. A truss-girder having the main diagonal ties run across one panel, and the counter-ties run across two panels, and secured to the posts at the center, substantially as and for the purpose specified.

4. A truss-post for partial-deck spans, having the section below the floor-beams greater than the section above said beams, substantially as and for the purpose specified.

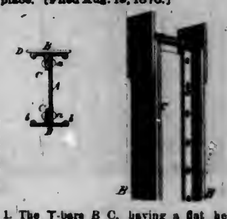
5. The construction of the lower chords of a truss-girder in pairs, running over two or more panels, with intermediate bars to take up the strains from intermediate diagonal ties, substantially as and for the purpose specified.

6. The within-described corner-connection for box-chord trusses, formed by fitting the end post under the chord end, and uniting the same by inside plates, bearing-plates, and corner-pin, substantially as and for the purpose specified.

184,520.



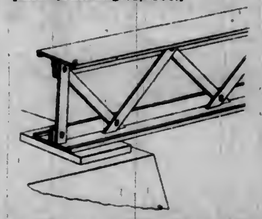
184,521. WROUGHT-IRON POSTS. David Hammond, Canton, Ohio, assignor to Wrought Iron Bridge Company, same place. [Filed Aug. 19, 1876.]



1. The T-bars *B C*, having a flat head, with ribs *b b* on the inner edges thereof, substantially as and for the purposes specified.

2. The within-described post, consisting of the web A and T-heads B B, having ribs *b b* on the inner edges of their heads, substantially as and for the purpose specified.

184,522. WROUGHT-IRON GIRDERS. David Hammond, Canton, Ohio, assignor to Wrought Iron Bridge Company, same place. [Filed Aug. 19, 1876.]

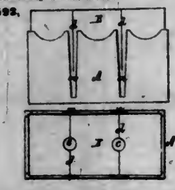


A wrought-iron girder having an upper T-head made with flat top and ribs on its under edges, in combination with a plate or lattice-web and T or angle lower head, substantially as and for the purpose specified.

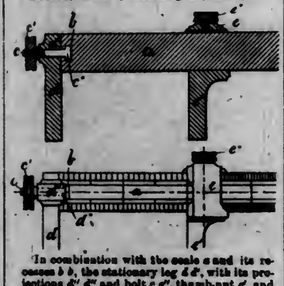
184,523. KNIFE-SCOURERS. S. M. Haskell, Essex, Mass. [Filed Oct. 9, 1876.]

As a new or improved manufacture, the above-described knife-scourer, or combination of the case A, notched in its opposite sides, as described, with the sectional or elastic block B, slitted crosswise, and provided with the cavity *c* to each transverse slit, all being substantially as set forth.

184,523.

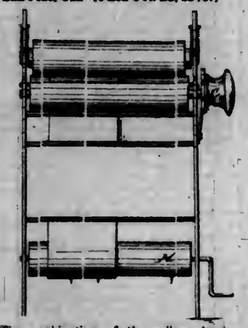


184,524. GAGES. Frederick D. Haselton, Boston, Mass. [Filed Aug. 14, 1876.]



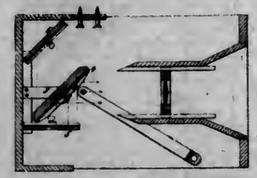
In combination with the scale *a* and its recesses *b b*, the stationary leg *d d'*, with its projections *d'' d''* and bolt *e e''*, thumb-nut *d'*, and the sliding leg *a' a'' c''*, as and for the purpose set forth and described.

184,525. COPY-HOLDERS. H. H. Hendrix, San Jose, Cal. [Filed Oct. 26, 1876.]



The combination of the rollers, having spring and ratchet and spiral springs attached, with the writing-board, the finger-board, and the elastic guide-bar, as set forth.

184,526. SOLAR CAMERAS. C. R. Jones, Okolona, Miss. [Filed Apr. 18, 1876.]



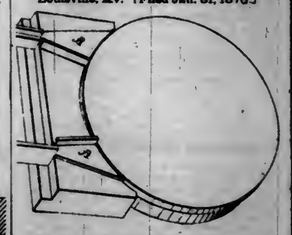
1. The combination of the adjustable mirrors H H' H'', mirror 4, and the side wings 5, substantially as specified.

2. The notch 6, spring-support J, and thumb-stud *f*, combined with mirror 4, substantially as specified.

3. The cover 3, with spring C, attached removably to mirror 4, substantially as specified.

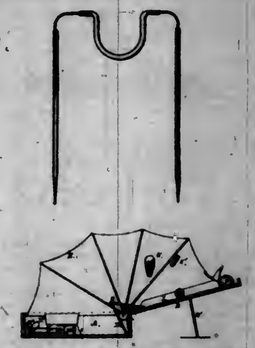
4. The adjustable picture-holding cleats K, combined with mirror 4, substantially as specified.

184,527. TURN-TABLES. Tom L. Johnson, Louisville, Ky. [Filed Jan. 31, 1876.]



In combination with the turn-table, the broad flanged rail-sections A, of the form shown, for guiding the car-wheels, when leaving the table, into the proper place upon the track, substantially as described.

184,528. ELECTRO-VAPOR BATHS. Thomas W. Johnson and J. N. Cherry, Keokuk, Iowa. [Filed June 30, 1876.]



1. The adjustable hinged neck-yoke, in combination with a closed chamber and vapor-bath apparatus, substantially as set forth.

2. The adjustable shoulder-cover and neck-yoke, arranged to suit persons of different lengths, in combination with vapor-bathing apparatus and a closed chamber, substantially as set forth.

3. The combination of the vapor-bathing chamber, the adjustable bed B, the steam inlet, and the movable conductors of electricity, arranged substantially as set forth.

4. The vapor-bathing chamber, with flexible cover E, and adjustable bed B, in combination with separate conductors of electricity to be applied within the bathing-chamber, substantially as set forth.

5. The combination of the cushions L, the adjustable conductor N, the flexible cover E, and steam-inlet P, substantially as set forth.

6. The combination of the box A with the flexible cover E and hinged folding frame, arranged to fold up into the box, substantially as set forth.

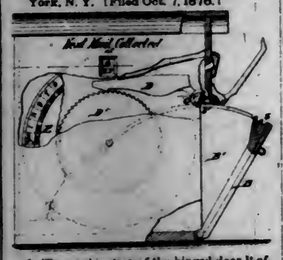
7. The combination of an inclosing-cover, O, the hand-holes, with elastic sleeves K, arranged to admit the hand and retain the steam, and a steam-inlet, P, substantially as set forth.

8. In combination with a vapor-bath, the hinged seat C and support D, substantially as set forth.

9. The adjustable vapor-inlet P, arranged to discharge, alternately, under a foot-bath, and separately, in combination with a vapor-bathing apparatus and a foot-bath, substantially as set forth.

10. In combination with a closed vapor-bath chamber, the foot-bath and the vapor-inlet, arranged to heat the foot-bath by opening under it, substantially as set forth.

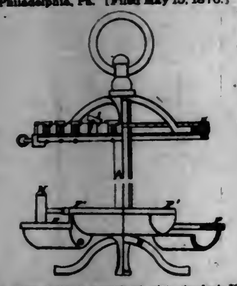
164,529. LETTER-BOXES. Jos. Kats, New York, N. Y. [Filed Oct. 7, 1876.]



1. The combination of the hinged door It of a letter-box, having teeth *b* at the upper edge, with a roller, C, having intermeshing teeth, pivoted spring-pawl D, ratchet-wheel D', and time-disk F, substantially as specified.

2. The combination, with the swinging door, having quadrantal sides with tapered edges, of the roller, having guide-grooves, as shown and described, for the purpose specified.

164,530. UMBRELLA-STANDS. L. E. Ladd, Philadelphia, Pa. [Filed May 15, 1876.]



1. The girdle S, combined with the lock V and notched plate B, and numbered gates *l*, with correspondingly-numbered checks L, as and for the purpose set forth.

2. The base D and gallery F, constructed as described, formed in segments of different heights, in combination with the column A and notched plate B, for the purpose set forth.

3. In combination with the plate B, column A, base D, and gallery F, the bushes or steps N, constructed as and for the purpose set forth.

164,531. WITHE-BANDS FOR SHIPS' MASTS. Gustavus A. Lane, Jr., Pigeon Cove, Mass. [Filed Oct. 20, 1876.]



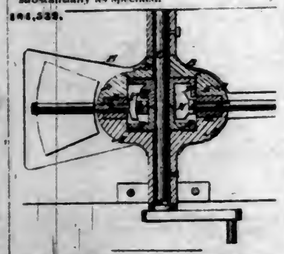
The combination of the withe-band A, B, bolt C, shackle D, and pin E, arranged and operating substantially as set forth.

164,532. FEATHERING PADDLE-WHEELS. F. J. Leisen, Woodbridge, N. J. [Filed May 22, 1876.]

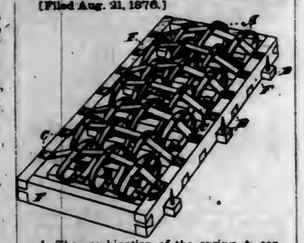
1. The combination, with the hollow hub A B, containing stationary hub D, having cams E and F, of the paddle-arms G, having heads H and I, substantially as specified.

2. The part A of the hub having recesses in the side for the boxes K, and the part B having radial sections L, combined and arranged substantially as specified.

164,533.



164,533. SPRING-SEATS. Joseph W. Littlefield and Harry T. Sheridan, Chicago, Ill. [Filed Aug. 21, 1876.]



1. The combination of the spring A, consisting of the strips L, with the canvas C, bolt D, slat B, and frame F, the ends of the spring being placed side by side, and secured to the slat B, all substantially in the manner and for the purpose set forth.

2. The combination of the inner spring-frame with the outer upholstered frame, the projecting ends of the cross-slats B of the inner frame being secured in the recesses K of the outer frame, substantially as and for the purpose set forth.

164,534. APPARATUS FOR EXTINGUISHING FIRES. John B. Logan, Baltimore, Md., assignor of one-half his right to A. Greenleaf, same place. [Filed Apr. 22, 1876.]

Brief.—A vertical tube, receiving water at its base, is adjustable in a horizontal plane upon a vertical axis. One or more nozzles are attached to the tube, for delivering water on a fire at an elevation. The apparatus is mounted on a truck and provided with trunnions. The direction of the tube is regulated by gearing.

1. A device for extinguishing fires, consisting of a perpendicular tube, receiving water under pressure at its base, and adjustable in a horizontal plane upon a vertical axis, in combination with one or more nozzles attached to said tube, for delivering said water at an elevation, substantially as set forth.

2. In combination with a perpendicular tube receiving water under pressure at its base, one or more nozzles for delivering said water, said nozzle or nozzles being attached to said tube by a joint in such a manner as to be adjustable in a vertical plane, substantially as and for the purposes set forth.

3. A device for extinguishing fires, consisting of a perpendicular tube receiving water under pressure at its base, and adjustable in a horizontal plane, in combination with one or more nozzles attached to said tube, and adjustable in a vertical plane, substantially as and for the purposes set forth.

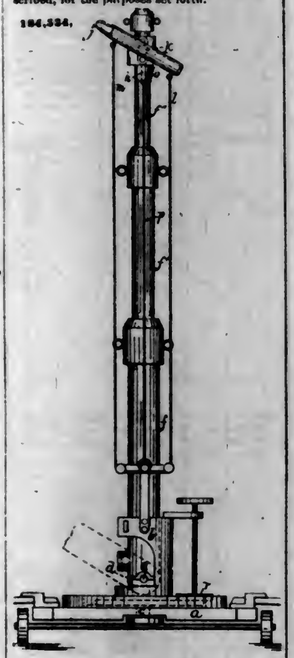
4. A device for extinguishing fires, embodying a truck, *a*, a support, *b*, and a sectional tube, *f' f'' f'''*, adjustable in a horizontal plane upon a vertical axis, adapted to receive water under pressure at its base, and deliver it upon the fire from an elevation, said tube being attached to said support by trunnions, enabling it to be raised or lowered, as and for the purposes set forth.

5. The combination of the tube *f f' f''*, with the nozzle *j* and cut-off valve *n*, provided with operating devices *o p*, as set forth and shown.

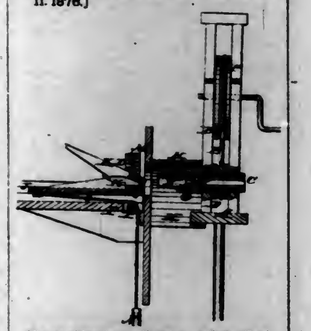
7. The combination of the truck *a* and perpendicular tube *f f' f''*, with the support *b*, pivoted at *c*, internal gear wheel *q*, pinion *r*, and shaft *s*, operating as set forth, for the purposes described.

8. The sockets *x*, in combination with the lateral arms or braces *v*, and screws *w*, as described, for the purposes set forth.

164,534.



164,535. CORN HUSKERS AND SHELLERS. Geo. E. Luckey, Paris, Tenn. [Filed July 11, 1876.]



The combination, with rotary cylinder C, of a longitudinally-slotted cutter-tube, G, serrated on its forward edge and provided with spring-shanked teeth, having a square shoulder and inclined front, the points of said teeth projecting through slots of said tube, as and for the purpose specified.

164,536. ORNAMENTAL FURS. J. F. Mathias and G. J. Mathias, Paris, France. [Filed Apr. 26, 1876.]

Furs having the tips of their hairs tinged with a mixture of metallic powder and varnish, as and for the purpose specified.

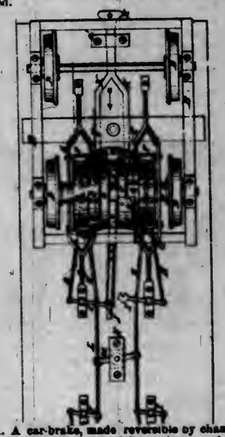
164,537. TAPE-LINE LUMBER-MEASURE. Wm. L. May, Chicago, Ill., assignor of one-half his right to L. B. Wadleigh, Lyons, Iowa. [Filed Apr. 17, 1876.]



A tape-line for measuring lumber, having a series of columns to indicate aggregate quantities obtained by successive measurements, and having figures to indicate the lengths to which each column is intended to be applied marked on the shell opposite its proper column, substantially as set forth.

164,538. AUTOMATIC BRAKES. Hugh McCalip, Hartsville, assignor to himself and N. R. Champion, Shelbyville, Ind. [Filed June 12, 1876.]

Brief.—The draw-bar is connected, by a series of levers and connecting-rods, with a double system of brakes, so that it applies them automatically, and permits the train to be drawn forward or backed, as may be desired.



1. A car-brake, made reversible by changing the inner end of push-bar to inner end of a lever, I, and provided with two sets of wheels that brake in opposite directions, as and for the purpose described.

2. The combination of the rods H, the levers I, and the push-bar J, with the brakes F and the bumper K, substantially, as herein shown and described.

3. The combination of the connecting-rods L with the levers I, that operate the brakes upon the same side of the two trucks B, substantially as herein shown and described.

4. The combination of the two pawl wheels and their pawls and ratchet-wheels, working in opposite directions, with the axle O and the brake-wheels O, substantially as herein shown and described.

164,539. RAILWAY-PRESSES. Allen D. Miller, Sacramento, Cal. [Filed June 6, 1876.]

1. The double fusee L L', having the long arms cast separate from the smaller part, and provided with the guiding-flanges Q, said fusee being mounted upon the short shaft M at one end of the press, and operated by the drum O and rope P, substantially as herein described.

2. In combination with the double fusee L L' and the operating-drum O, mounted at one end of the press, so as to act in the direction of its length, the pulleys E I I, with the rope or chain J and J', and the leading-pulleys K K', for the purpose of operating both ends of the follower from the double fusee, substantially as herein described.

3. The guiding-roller R, in combination with the leading-pulleys K K', rope J, and fusee L, substantially as and for the purpose herein described.

4. In combination with the drum O, fusee L L', pulleys E I, rope J J', pulleys K K', and follower D, the brake S, operating to regulate the movement of the drum, substantially as herein described.

5. In combination with the door B, hinged to the horizontal shaft or axis T, the stops or supports U, for the purpose of retaining the door in position when open, substantially as described.

6. The ball V, pivoted to an axis in the frame H, and fitted to be hooked upon the lever W, said lever having its fulcrum movable in the slotted supports *x*, to accommodate the closing of the door, and to lock it when closed, substantially as herein described.

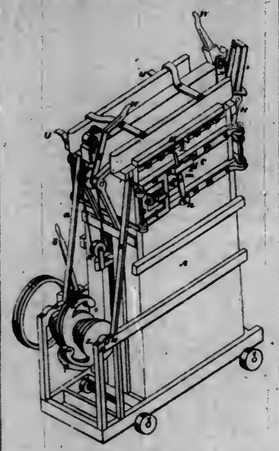
7. In combination with the link V and lever W, the hook or stop *y*, to prevent them from being thrown too far back, substantially as herein described.

8. The movable internal end plate *b*, fitted to be moved outward and release the bale when the door C is opened, substantially as herein described.

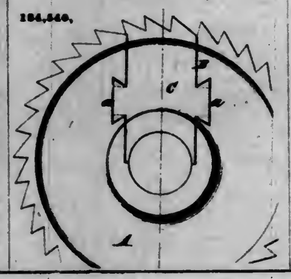
9. In combination with the movable plate *b*, the slotted arms *d* and sliding arms *e*, with their inclined faces, said arms being operated by the opening of the door by means of cranks or eccentrics *g*, substantially as herein described.

10. The ball A, turning on the vertical axis *i*, so as to lie against the front of the door, in combination with the hook-bolt *k* and its socket I, and the lever *m*, having its fulcrum and moving in the guide, substantially as herein described.

11. The box A of a baling-press, having the slotted vertical diaphragm *r*, in combination with the double follower D, with its mating-beam F passing through the slotted diaphragm, so as to form a double press, substantially as herein described.



164,540.



164,540. SPLIT WHEELS. Benj. T. Mills, Fall River, Mass. [Filed Oct. 7, 1876.]

Brief.—The wheel may be placed on a shaft without removing it from its bearings.

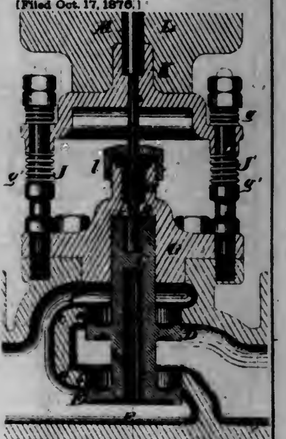
A split wheel, composed of the part A, having the notch B, in the sides of which notch the dovetailed grooves *a* are made, and the part C, which is formed to fit the said notch and dovetailed grooves, and complete the wheel, substantially as herein shown and described.

164,541. FLEXIBLE BLACKBOARDS. John R. Minehart, Brownsville, Pa., assignor to Harry W. Minehart, same place. [Filed Apr. 4, 1876.]



The combination of the elastic straps *b*, having end rings, with the bottom roller or strip of the flexible blackboard A, as and for the purpose set forth.

164,542. STEAM-PRESSURE REGULATORS. Thos. R. Morgan, Alliance, Ohio, assignor to himself and C. E. Marchand, same place. [Filed Oct. 17, 1876.]



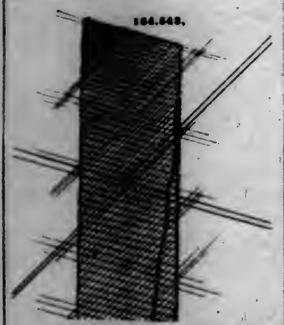
1. The combination, with the valve-casing, piston-valves, and stem, of the rod *f*, plate I, and standards J J', substantially as and for the purpose set forth.

2. The combination, with the valve-casing, piston-valves, and stem, of the rod *f*, plate I, standards J J', and springs *g g'*, substantially as and for the purpose set forth.

3. The combination, with the valve-casing, piston-valves, and stem, of the rods *f* M, plate I, standards J J', and weights L N, substantially as and for the purpose set forth.

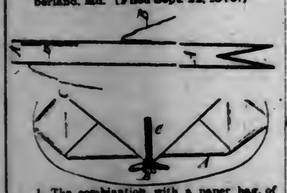
164,543. FILES. William T. Nicholson, Providence, R. I., assignor to Nicholson File Company, same place. [Filed Mar. 25, 1876.]

184,543.



A file, whose rows of teeth from tip to heel are spaced relatively farther apart from the tip toward the middle, and relatively nearer together from near the middle toward the heel, or progressively farther apart from the tip toward the heel, but whose rows of teeth are set at reversed angles with respect to each other and the axis of the file, whereby no tooth in any one longitudinal row is in alignment with any other tooth in the same row, substantially as described.

184,544. PAPER BAGS. J. H. PERCY, Cumberland, Md. [Filed Sept. 22, 1876.]



1. The combination, with a paper bag, of the tapes or strings B C attached to the sides of the bag, one above the other, so that when the bag is closed the strings will be opposite each other, as and for the purpose set forth.

2. A paper bag, A, provided with the tapes, cords, or strings B C, and with a piece of stiff paper, D, permanently attached to the side of the bag A that is first turned down, substantially as herein shown and described.

184,545. UNDER-WAISTS. R. W. Philbrook, Boston, Mass. [Filed May 24, 1876.]



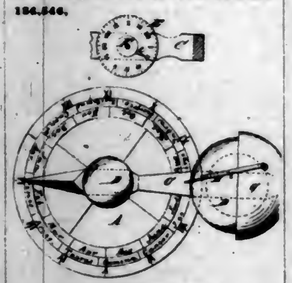
In an under-waist, constructed substantially as described and shown, the combination of bosom-pieces with boues arranged in plain gored pieces extending up under the bosom-pieces, substantially as and for the purposes set forth.

184,546. TELLURIC GLOBES. Jos. F. Ross, Tiverton, R. I. [Filed Sept. 2, 1876.]

1. The graduated base-piece A, arm C, dial E, index *e*, rod F, and globes D and B, all constructed and arranged for indicating the relative position of the sun and earth at different seasons of the year, substantially as herein shown and described.

2. The combination of the pivoted envelope G, the sectoral scale H, rod F, and globe B, substantially as herein shown and described.

184,546.



184,547. FRUIT-PICKERS. John Sager, Augres, Mich. [Filed Aug. 7, 1876.]

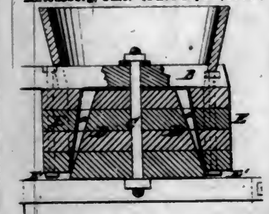
Brief.—Cutters are pivoted to spring-jaws, which are attached one to each side of a handle, and connected by inside links to a sliding rod having stop-pins, and working in a groove in the handle.



1. The combination of handle A, slide-rod B, spring-jaws C, connected by inside links with the rod, the cutters D, the fixed handle-loop E, and the tube F, as and for the purpose described.

2. The combination, in a fruit-picker, of the stop-pins *b* and straps *d*, the former on slide-rod B and the latter on handle A, as and for the purpose set forth.

184,548. CORN-MILLS. John A. Schwob, Miltonsburg, Ohio. [Filed Sept. 2, 1876.]



1. A grinding-mill, having its corresponding parts D E made in horizontal sections, adapted to be bolted together, as described.

2. The sections D E of a grinding-mill, made of wood, and arranged at cross-grains alternately, as and for the purpose set forth.

3. The grinder E, rotated by a lever, B, pivoted on a bolt, C, that holds together the sections of masher D, as shown and described.

184,549. CORN-PLANTERS. Henry R. Scott, Gibson, Ill. [Filed Apr. 7, 1876.]

Brief.—The rope-wheel has loosely pivoted to the under side of its periphery a right-angled trip, that passes in the revolution of the wheel between shoulders on the transverse frame and the ends of the pivoted shaker-arms, for imparting an intermittent vibratory movement through them to a transverse seed-slide.

184,549.



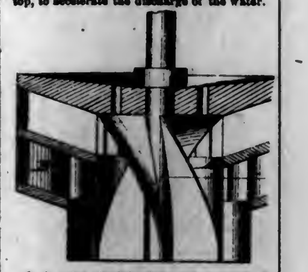
1. The combination, with a friction-wheel and sliding seed-bar, of oscillating shaker-arms, and a trip pivoted to the friction-wheel, substantially as and for the purpose specified.

2. In a corn-planter check-row attachment, the main plate having rod lugs M, in combination with the shaker-arms B E and trip L on friction-wheel, substantially as and for the purpose specified.

3. In a check-row attachment, the main plate F, having slotted division-bars *f f'*, and provided with pivoted shaker-arms longitudinally adjustable thereon, in combination with the slotted cross-bar and the reciprocating seed-slide, substantially as and for the purpose described.

184,550. WATER-WHEELS. Elisha B. Shattuck and Isaac Stahlman, Mount Pleasant, Mich. [Filed Aug. 14, 1876.]

Brief.—A double wheel, in which the buckets of the upper wheel connect with the inner tube and the spiral buckets around the shaft, while the lower wheel connects with an outer cylinder or tube. There are vent-holes at the top, to accelerate the discharge of the water.



1. A water-wheel having an upper set of buckets, communicating with an interior spiral set of buckets, and a lower tier of buckets, substantially in the manner and for the purpose set forth.

2. The combination of the two sets of buckets and two draft-tubes, the latter revolving with the wheel, as shown and described.

3. A water-wheel having an upper, a lower, and an interior spiral set of buckets, arranged around the shaft, and an inner and outer cylinder and draft-tube, substantially as specified.

184,551. GAS-OVENS OR SUMMER-RANGES. Benj. Shourds, Philadelphia, Pa. [Filed July 11, 1876.]



1. A summer-range in which the side third of its top plate O are inclined at an angle of about forty-five degrees, and its central third

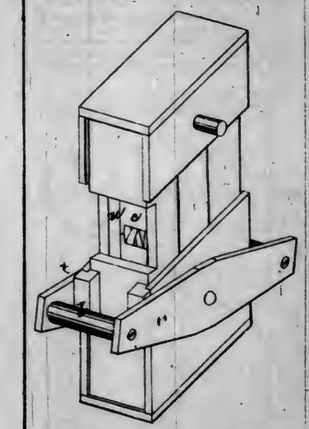
is flat and horizontal, and is provided with an angular brick-work, D, substantially as herein shown and described.

2. The upright openings and dampers *b'*, formed in the upper parts of the side plates B of a summer-range, above the lower edges of the inclined side parts of the top plate C, substantially as herein shown and described.

3. The flue F', formed upon the rear plate of a summer-range, the hinged damper *f'*, and the sliding damper *f''*, in connection with an opening formed in the upper part of the back plate E, substantially as herein shown and described.

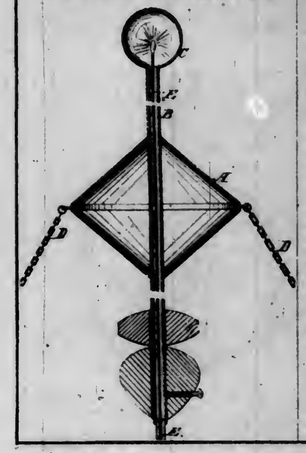
184,552. GRAIN-ELEVATORS. A. J. Smith, Mount Vernon, Me. [Filed Sept. 11, 1876.]

Brief.—The ends of the shaft of the lower belt-pulley work in, and project outside of, slots in the belt-casing, such ends being pivoted in a frame which is pivoted to and embraces the casing.



The automatic pivoted frame G, connected with the lower pulley-shaft *i*, having its bearings in movable cleats *k*, sliding in side pieces *c*, in combination with the pulleys E D and belt *e*, operating substantially in the manner and for the purpose set forth.

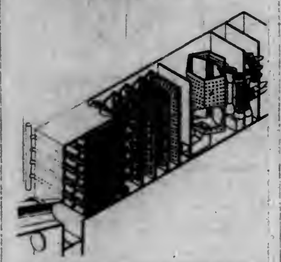
184,553. ELECTRIC-LIGHT BUOYS. Peter H. Smith, S. R. Spruill, and Wm. R. Wood, Scotland Neck, N. C. [Filed Sept. 9, 1876.]



The combination of a tube, B, glass globe C, and electric cable E, with a buoy, A, provided with two anchor ropes or chains, D, to form a floating electric gas carbon light, substantially as herein shown and described.

184,554. PROCESSES AND APPARATUS FOR REDUCING ORES. Wm. H. Sterling, San Francisco, Cal. [Filed Aug. 14, 1876.]

Brief.—The conical holes in the plates H and the conical tubes in the partition N serve to give a rotary and gyratory motion to the particles, and also puncture the rim, whereby intimate contact of the particles is produced, and a rapid agglomeration ensues.

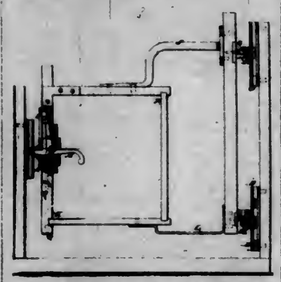


1. In a metallic vapor-condensing device, the plates or diaphragms H H, provided with tapering perforations, substantially as set forth.

2. In a quicksilver-condensing device, the extended tubes *s*, having contracted ends *s'*, inserted in and in combination with the vertical partition N, substantially as set forth.

3. The combination of the furnace, the refrigerating chamber and pipes, the perforated diaphragms, the perforated chamber or vessel, the gyrating tubes, the conical tubes, and straight tubes, all constructed and arranged substantially as herein set forth.

184,555. GATES. Robt. E. Stephens, Owen Sound, Ontario, Canada. [Filed Aug. 14, 1876.]



1. The combination of the two bars J L with the bar H of the gate-frame, and with the top and bottom bars of the gate K, to form a space for a small or wicket gate, substantially as herein shown and described.

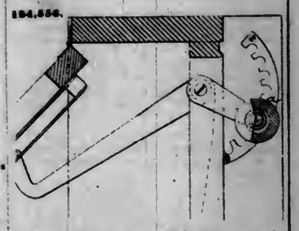
2. The combination of the grooved and lagged block F, ribbed plate E, and lagged plate G, with the vertically-adjustable gate and latch, substantially as and for the purpose set forth.

3. The combination of the grooved block F, provided with the socket having a beveled upper end, with the ribbed plate D, provided with the recesses upon the sides of its rib, and the pintle I having a beveled shoulder at its base, in combination with the vertically-adjustable gate and latch, substantially as herein shown and described.

184,556. BLIND-ADJUSTERS. R. J. Stuart, Yonkers, N. Y. [Filed Oct. 14, 1876.]

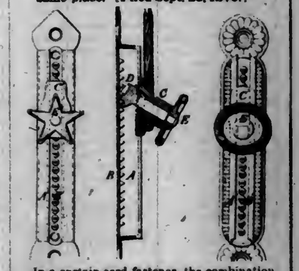
Brief.—An eccentric pin upon a turning knob fastens the usual elbow-lever adjuster to a series of openings in an arc-shaped rack upon the window-sill.

184,556.



The combination of a double or compound elbow-lever, fulcrumed to the window-sill, and provided with a locking-button and eccentric pin at the inner end, and a projecting pin at the outer end, with an interior arc-shaped rack and an outer guide attachment of the blind, substantially in the manner and for the purpose set forth.

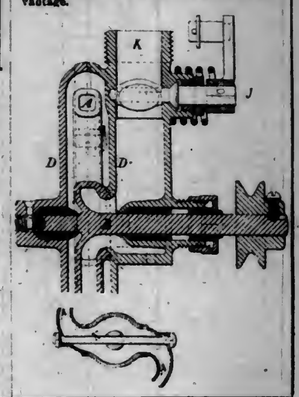
184,557. CURTAIN-CORD TIGHTENERS. Jno. A. Svedberg, Washington, D. C., assignor of one-half his right to John W. Moore, same place. [Filed Sept. 26, 1876.]



In a curtain-cord fastener, the combination of the case A, having the toothed rack B, with the slide C and spiral screw-threaded spindle E D, substantially as described.

184,558. WATER-MOTORS FOR LIGHT MACHINERY. Jno. A. Svedberg, Washington, D. C., assignor of one-half his right to John W. Moore, same place. [Filed Oct. 13, 1876.]

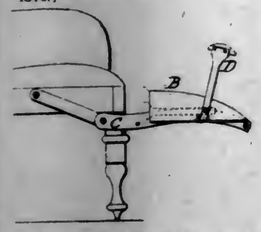
Brief.—Shows a form of the wheel having the extremities of the arms cast separately, and held in place upon the hub by the rod passing through and connecting them. This arrangement allows the arms to be reversed, so as to cause the wheel to revolve either toward the right or the left, to adapt it to machinery turning in either direction, and saving the friction caused by crossing the belt, which, with a light head of water, is an advantage.



1. In a turbine water-wheel, the reversible arms A A, fitted upon the hub or central part of the wheel, and held in place by the rod N, passing through them and the hub.

2. In a turbine water-motor for light machinery, the combination of the wheel A with fixed or reversible arms, and the case D, constructed of two parts, having an inlet, K, outlet L, and valve J, substantially as herein described.

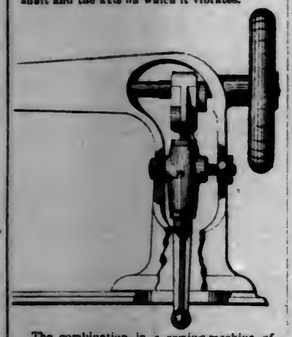
184,559. FOOT-RESTS FOR CHAIRS. Joseph H. Travis, Boston, Mass. [Filed Feb. 17, 1876.]



In chairs having a leg-rest, B, arranged to slide under the chair-seat, the combination, with such a rest, of a supplementary rest, D, applied, combined, and arranged substantially as and for the purpose described.

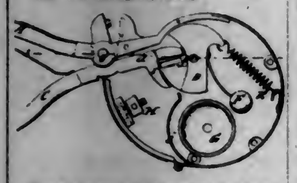
184,560. SEWING-MACHINES. C. B. True, Providence, R. I. [Filed Sept. 19, 1876.]

Brief.—The vibrating forked lever, which transmits motion from the driving-shaft to the shuttle-arm, is carried by a sleeve having bearings arranged at right angles to its axis, and as the said lever is free to revolve in the sleeve, it adjusts itself to any difference in parallelism between the axis of the working-shaft and the axis on which it vibrates.



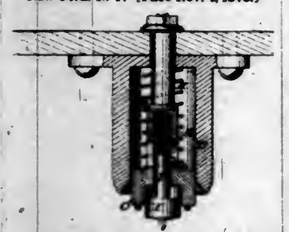
The combination, in a sewing machine, of the working-shaft, and a vibratory forked lever, which operates the shuttle-carrier, is provided with an axis, and is self-adjusting with relation to its own axis and the axis of the working-shaft, substantially as described.

184,561. COUPON-NIPPERS AND TICKET-PUNCHES. Frank Walker, Santa Barbara, Cal. [Filed Aug. 14, 1876.]



The combination, with tumbler D, of the case, having a chamber, H, and the jaw *d*, having the guard I, all operated by the handle A C, as and for the purpose described.

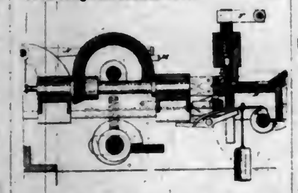
184,562. CRACKER-MACHINES. E. P. Waste, New York, N. Y. [Filed Nov. 4, 1876.]



A die for molding and stamping crackers having a double discharge, C and I, one fitting within the other, the same being actuated by springs H and K, in the manner and for the purpose substantially as herein set forth, shown, and described.

184,563. MACHINES FOR CUTTING SCREW-THREADS. Thomas J. Waters, London, England. [Filed Sept. 1, 1876.]

Brief.—The cutting-jaws both reciprocate and rotate, and the blank-holder reciprocates to discharge the finished blank.



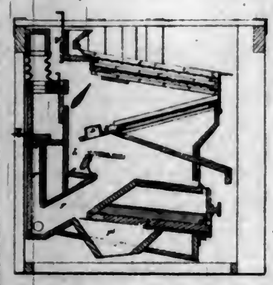
1. The combination, in a screw-threading machine, of a sliding bolt-blank carrier, B, and a blank-holder, D', with opening and closing cutters I, arranged to reciprocate and rotate, substantially as and for the purpose specified.

2. The cam E, screw F', and lever F, combined with screw D, blank-holder D', as and for the purpose set forth.

3. The combination of the lever N and the T-piece M with the sliding wedge-rod and cutter-jaws, as shown and described, to operate as specified.

184,564. GRAIN-SEPARATORS. J. J. West, Chicago, Ill. [Filed Nov. 11, 1876.]

Brief.—Grain subjected to the action of blast within a shaking inclosed shoe, provided with adjustable screens, dividers, and cut-offs.



1. In a grain-separator, the hinged valve *a*, arranged substantially as shown and described, with relation to a grain-receiving pocket and a grain-grading or a grain-separating air-flue, for the purpose specified.

2. In a grain-separator, the pocket or hopper L, provided with the hinged valve *a*, in combination with one or more cleaning-sieves, arranged above said pocket, and with a grading air-flue arranged below the said pocket substantially as and for the purpose specified.

3. In a grain-separator, the combination, with the grading air-flue F, of the hopper P, arranged below the plane of the lower wall of said flue, substantially as and for the purpose specified.

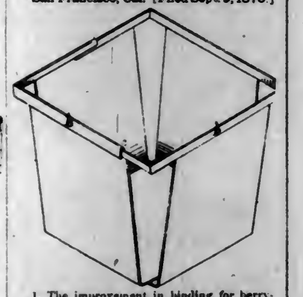
4. In a grain-separator, the combination with the air-chamber E, of the grading air-flue F, and hopper P, arranged below the plane of the lower wall of said flue, substantially as and for the purpose specified.

5. In a grain-separator, the deflector Q, one or more cleaning-sieves, arranged above and forward of said deflector, and the air-receiving chamber E, having therein the adjustable port *b*, arranged behind the said deflector, all combined substantially as and for the purpose described.

6. In a grain-separator, the air-chamber E, provided with the port *b*, arranged to discharge a current of air to and in contact with one or more cleaning-sieves, and the port *b'*, communicating with the air-flue F, as and for the purpose specified.

7. In a grain-separator, the combination of the pocket L, air-flue F, and the hopper P, arranged below said flue, so as to receive the grain direct from the flue, and discharge it from the separator, substantially as specified.

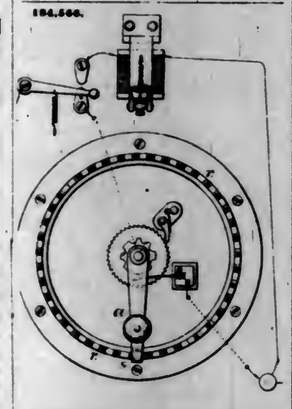
184,565. FRUIT-BOXES. Chas. W. Weston, San Francisco, Cal. [Filed Sept. 9, 1876.]



1. The improvement in binding for berry-boxes, A, consisting of two or more strips of sheet metal, *b b*, the ends of which overlap each other, substantially as and for the purpose described.

2. As a new article of manufacture, baskets or boxes for large fruit, consisting of two veneers crossed at right angles to each other, and having the ends of said strips turned up to form the sides of the box, when the edges of said strips are held in place and stiffened by two or more strips of metallic binding, the ends of which overlap each other, substantially as and for the purpose described.

184,566.

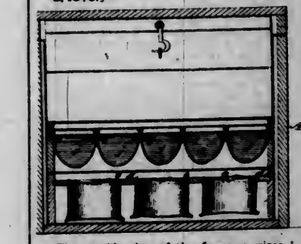


184,566. SIGNAL-BOXES FOR DISTRICT AND FIRE TELEGRAPHS. Daniel H. Whilldin, Brooklyn, N. Y., assignor to himself and Alexander Morton, New York city. [Filed May 13, 1876.]

1. The combination, with the break-wheel, circuit-closing spring, and circuits, of the handle *a*, circular notched governor *r*, and yielding tooth *s*, substantially as and for the purposes set forth.

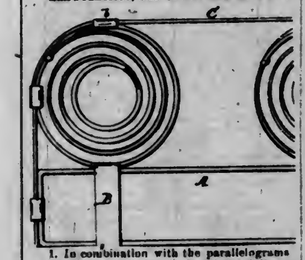
2. The combination, with the break-wheel, circuit-closing spring, handle *a*, and circuits, of the self-acting spring switch or key and electro-magnet in the branch circuit, substantially as and for the purposes set forth.

184,567. BUTTER-PACKAGES. Samuel C. Williams, Peterstown, W. Va. [Filed Sept. 2, 1876.]



The combination of the frame *g*, wires *i*, pockets *j*, cover C, wires *l*, muslin covers *m*, and the box A, substantially as set forth.

184,568. SPADING-BEDS. Charles C. Allen, San Francisco, Cal. [Filed Aug. 11, 1876.]



1. In combination with the parallelograms A, the clips or clamps B B, substantially as and for the purpose set forth and described.

2. In a bed-bottom, the combination, with the spiral springs, of the parallelograms A, clips B, wire frame C, and clips *b*, constructed and arranged substantially as described and shown.

184,569. PICKERS FOR LOOMS. S. E. Avery, Augusta, Me. [Filed May 16, 1876.]

Brief.—The combination is adapted to prevent the wearing away of the picker-stick. The elastic piece takes up the lost motion caused by the blow of the shuttle upon the picker. A set-screw is provided for the purpose of tightening the clasp.



The combination of the picker-stick A, the picker F, the clasp H, the elastic substance or rubber D, the metallic piece E, the screw C, and the pin I, substantially as described, and for the purposes set forth.

184,570. RIDING ATTACHMENTS FOR PLOWS. Jno. Bailey, Belleville, Ill., assignor to the Pump and Skein Company, same place. [Filed May 27, 1876.]

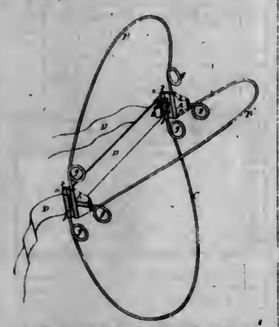
Brief.—The seat is supported upon an axle-tree supported at one end by a single wheel, and at the other by the plow. A bar extends from the axle-tree diagonally to the forward end of the plow-beam, and the frame and beam are supported by a pilot-wheel, the axis of which is vertical, and is preserved so by two parallel jointed bars, the lower one being prolonged backward and upward, and secured in position by a pawl and ratchet.

184,570.



The combination, with the caster-wheel L M, of the socket-piece I, connected to the frame O by parallel rods or arms *d* K, preserving the verticality of the socket, substantially as set forth.

184,571. BUSTLES. Wm. R. Berkshire and Duane T. Davis, Pana, Ill. [Filed Oct. 14, 1876.]



1. The combination of the side plates A, and belt D, with the bustle-bows B B', and the brace-bow C, said bows having the vertical coils *g* near said plates, substantially as specified.

2. The folded side plates A for bustles, bent at *s*, cut out at *a*, and corrugated at *c*, for the reception of the ends of the bows, and secured by the turned-down corners *k*, substantially as specified.

3. In a bustle, having the outward and upward bows B B', coiled vertically at *g*, the brace-bow C extending downward to rest against the back, and counteract the pressure on the bustle-bows, substantially as specified.

4. The combination, with the bustle-plates, having the arms *b* and notches *a* of the ends *c* of the brace-bow, connected to said arms, and extending across said notches to form fastening-bars for the belt, substantially as specified.

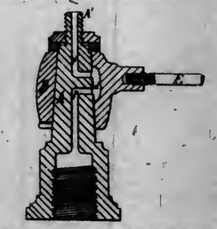
184,572.



184,573. LAMP-BRACKETS. Saml. S. Barrie, New York, assignor to himself and George W. Woodward, Brooklyn, N. Y. [Filed Oct. 11, 1876.]

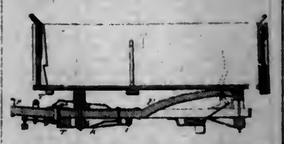
The combination, with the support A, of the reversible and adjustable lamp or candle-holder or holders B, substantially as and for the purpose specified.

184,574. GAS-COCKS. Peter Becker, Chicago, Ill. [Filed Oct. 12, 1876.]



A gas-cock consisting of a stationary tapering stem, A, having ports *p* and *p'*, and of a tapering bored sleeve, D, having a cavity, *c*, to operate in the manner substantially as described and shown.

184,574. DRAFT ATTACHMENTS. R. Boom, Antrim, Ohio. [Filed Apr. 19, 1876.]

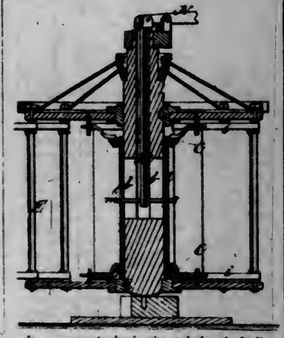


1. The shoe E, having its rear end secured by the hook-bolt *t*, and arranged as shown, in combination with the coupling-pole P and double-tree T, substantially as described.

2. The combination of the shoe E, coupling-pole P, double-tree T, bolster W, bar *x*, and axle S, substantially as set forth.

184,575. CURRENT WATER-WHEELS. D. O. Benjamin, Lawrence, Kans. [Filed Oct. 21, 1876.]

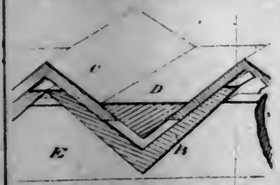
Brief.—The lower ends of the float-boards are locked when in operation, and while in the upper part of their revolution, by the free ends of locking-rods, which pass radially outward behind said float-boards, through perforated guide-plates, one of which is secured to the inner side of each spoke. During the lower part of their revolution, the force of the current and gravity operates to separate the floats from the rods, and hold them nearly in a horizontal position, and edgewise to the current.



In a current-wheel, the tubular shaft B,

having longitudinal slot *b*, in combination with loose sleeve L, having oblique slots *l*, and annular flanges O, pivotally connected locking-rods F, and longitudinally reciprocating pitman M, having rod *m*, substantially as and for the purpose set forth.

184,576. BATTEN ROOFS OR WALLS. Randall Bentley, Owen Sound, Ontario, Canada. [Filed May 13, 1876.]

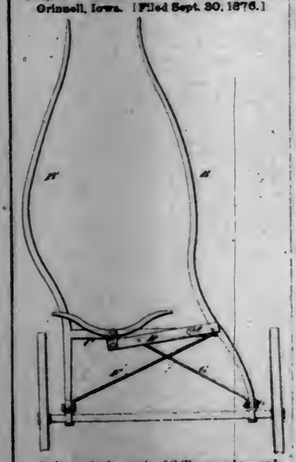


A roof or wall formed of the troughs B and C and the battens D D, connected and arranged substantially as and for the purpose set forth.

184,577. PROCESSES FOR REFINING AND BLEACHING HUMAN HAIR. John Bené, Brooklyn, N. Y. [Filed May 3, 1876.]

The process of bleaching and refining human hair, which consists of first bathing the hair in a bath composed of muriatic acid and chloride of potash, which bath refines the hair and gives the desired color; second, in bathing the hair so refined and bleached in a bath composed of warm water, muriate of tin, bisulphite of soda, and muriatic acid, which bath fixes or sets the color; third, in finally bathing the hair so refined and bleached in a bath of water and ammonia, which cleanses and removes all impurities therefrom, the component parts of said baths being in the quantities substantially as herein set forth.

184,578. THILLS. Washington Benson, Grinnell, Iowa. [Filed Sept. 30, 1876.]



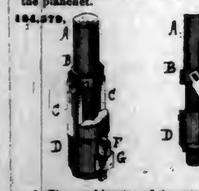
1. In a vehicle, a pair of thills curved toward one side of said vehicle, substantially as and for the purpose set forth.

2. Equalizing-lever D, having a whiffletree attached to its long arm, in combination with cross-bar C, rods F G, and thills B B', all substantially as set forth.

3. The combination, with a pair of thills bent to one side, as shown and described, of the equalizing devices, substantially as described, and for the purpose set forth.

184,579. DEVICES FOR CUTTING OUT AND CUTTING PLANCHETS. Daniel F. Briggs and George S. Boutwell, Providence, R. I. [Filed Aug. 24, 1876.]

Brief.—The central punch has upon its lower end a sliding cutting-sleeve, that carries a sliding bevel-headed bolt or trigger, held and guided in a mortise made in a stub on the side of the sleeve. A pawl hinged to the punch, when permitted, abuts against the shoe, and prevents its rising until the sleeve, in descending, cuts out a planchet, when the bolt, coming in contact with the stationary die, is forced upward, which, disengaging the pawl, allows the punch to descend and cup the planchet.



1. The combination of the cutting-sleeve B, plunger A, and pawl C, and a tripping device, all operating substantially as and for the purpose specified.

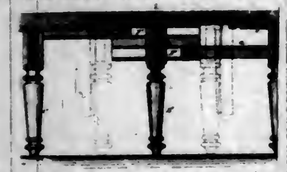
2. The combination of the pawl C and tripper F, as and for the purpose specified.

3. The combination of the pawl C, tripper F, and cutting-sleeve D, substantially as described.

4. The improved combined cutting and drawing device, consisting of the plunger A, collar B, pawl C, cutting-sleeve D, die E, tripper F, with its guide G, all made and operating substantially as and for the purpose specified.

184,580. EXTENSION-TABLES. Charles A. Breta, St. Clair, Pa. [Filed Oct. 16, 1876.]

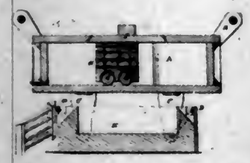
Brief.—A permanent support is attached to the under side of the table, which is recessed to receive the slotted detachable leg. In connection with the above are the fixed center rails, in which slide the end frames.



1. In an extension-table, the permanent support D, in combination with detachable leg E, as described, and for the purpose specified.

2. In an extension table, the combination of the permanent support D, detachable leg E, guides F, bars *a*, and legs C, all constructed and arranged as and for the purpose set forth.

184,581. WASHING-MACHINES. George Buchanan, Washington, Pa. [Filed Oct. 31, 1876.]

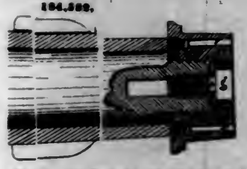


1. The combination of the elongated box A, plates or supporters C C, stirrups D D, and base or stool E, substantially as and for the purposes herein set forth.

2. In combination with a rocking box, the perforated block H moving upon rollers, and provided with interior removable blocks I I, substantially as and for the purposes herein set forth.

184,582. ATTACHING HUBS TO AXLES. Jas. Buckner, Boston, Mass. [Filed July 28, 1876.]

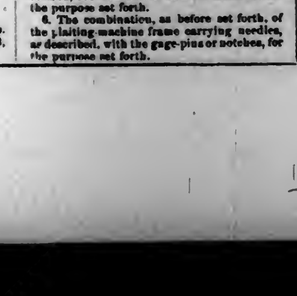
184,582.



The cup and headed guide-pins in combination, and connected with the bolt *g*, and applied to the nut and axle, all substantially as described

184,583. WHEEL-PLOWS. Albert H. Burlingame, Sparta, Ill. [Filed Oct. 20, 1876.]

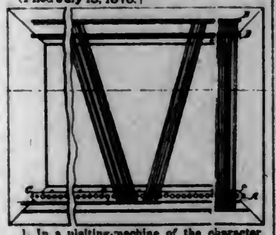
Brief.—A lifting-lever upon the elevated arch, and a holding-down lever fulcrumed upon the plow-beam, and having a toggle-joint from the axle. The two levers hold against each other.



1. The wheeled frame C, as described, in combination with the lever F, having a lifting-chain, *f*, the plow-beam G, having a draft-clevis, *g*, and links K, and the lever M, substantially as set forth.

2. The wheeled frame C, as described, in combination with the lever M, having a link, N, the plow-beam G, having a draft-clevis, *g*, and links K, substantially as set forth.

184,584. PLAITING-MACHINES. William B. Burcky and Henry Berlin, Chicago, Ill. [Filed July 13, 1876.]



1. In a plaiting-machine of the character herein described, the pins *a*, having the heads beveled above and below, for the purpose set forth.

2. The combination, as before set forth, of the plaiting-machine frame, the re-enforcing plate A, and the pins for sustaining the needles.

3. The combination, as before set forth, of the plaiting-machine frame, provided with the stationary plate B on one side and two or more grooves on the other, and the removable plate C, adapted to confine the needles, as described.

4. The combination, as before set forth, of the stationary plate B, the perforated plate D, the pins *a*, and the removable plate C, all mounted upon the frame, substantially as explained.

5. In combination with the plaiting-machine frame, having recesses substantially as described, the removable bottom board E, for the purpose set forth.

6. The combination, as before set forth, of the plaiting-machine frame carrying needles, as described, with the gage-pins or notches, for the purpose set forth.

184,584. HORSE HAY-RAKES. H. Y. Cahill, Dayton, Ohio, assignor to himself and J. B. Mayer, same place. [Filed July 11, 1876.]



1. The combination, substantially as specified, of the gear-wheel on the axle of the machine, the crank and gear wheel on the hinged shaft I, the pivoted bearing i^2, having a slotted lever-arm, the spring i^3 acting on said bearing, and the foot-lever i^4, with the pitman H and the rake-frame.

2. The combination, substantially as specified, of the shiftable crank and gear wheel, for lifting and depressing the rake-frame, the pitman H^2, the slotted lever H^3, and the foot-lever H^4.

184,585. PUMPS. Adam S. Cameron, New York, N. Y. [Filed Oct. 11, 1876.]

Brief.—Three cylinders radiate from a common suction-chamber, the pistons of which receive their motion from one and the same crank-pin, the connection being inclosed in the suction-chamber, the connection between the suction-chamber and the interior of the cylinder being controlled by valves in the pistons; and the valves which admit the liquid from the cylinder are mounted in diaphragms situated between the cylinders and the bonnets that cover them.



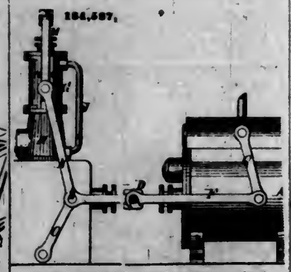
1. In a pump, the combination of a central suction-chamber with a series of cylinders radiating from said chamber, and with a crank-shaft, the crank-pin of which is situated in the interior of the suction-chamber, and connects with the pistons working in the several cylinders, substantially in the manner shown and described.

2. The combination, with the central suction-chamber A, radiating cylinders B, and pistons G, of diaphragms J and concave bonnets K, the pistons and diaphragms being provided with valves, substantially in the manner and for the purpose set forth.

184,586. EXPANSION-ENGINES. Adam S. Cameron, New York, N. Y. [Filed Oct. 11, 1876.]

Brief.—During the first part of the stroke of the main piston, power is stored on top of the piston in the storing-cylinder, by forcing water into the space above the piston. Said piston is connected to the cross-head, whereby the power stored is used to complete the stroke of the main piston after the toggle-connection has passed its center. When the engine is worked non-expansively, the connection with the storing-cylinder is unhooked.

184,587.

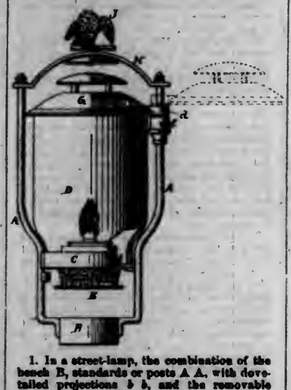


1. The combination, with a steam-engine in which the steam is worked expansively, of a secondary piston or plunger, working in a cylinder and exposed to the pressure of water, steam, or air, substantially as described, whereby power is absorbed at the commencement and given off toward the end of the stroke of the piston, as set forth.

2. The combination, with a steam-engine in which steam is worked expansively, of a piston or weight, connected by toggle-levers with the piston-rod or cross-head of the steam-engine, substantially in the manner and for the purpose herein shown and described.

3. The combination, with the compensating-piston K and its toggle-levers N O, and with the cut-off lever Q, of hooks E F, substantially as described, whereby the engine can be worked without expansion, as set forth.

184,588. COMBINATION STREET-LAMPS. L. O. Cameron, Pittsburg, Pa. [Filed Oct. 11, 1876.]



1. In a street-lamp, the combination of the bench B, standards or posts A A, with dovetailed projections *b b*, and the removable flanged base-ring C C', having inclined flanges *a a*, substantially as and for the purposes herein set forth.

2. In a street-lamp, the removable semicircular plates K K, provided with pivots *m m*, in combination with the post or standard, having loops or eyes *i i*, as and for the purposes herein set forth.

3. The combination, in a street-lamp, of the bench B, frame A, globe D, cap G, with ear *d*, having lug *d'*, and the boss or hub *f*, with slot or groove *g*, near the top of one of the standards of the frame A, as and for the purposes herein set forth.

184,589. MEANS FOR FASTENING THE BACK AND SEAT STRIPS OF SCHOOL-DESKS AND SETTEES. J. Wallace Childs, Kansas City, Mo. [Filed Sept. 23, 1876.]

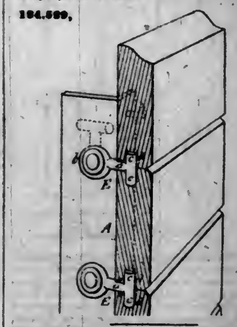
1. The arm or standard A, having hooks or anchors projecting from its edge, and a studded head-flange, substantially as specified.

2. The seat or back slats, having edge recesses to receive the arms of the fastenings, and transverse edge grooves to receive the shanks thereof, substantially as specified.

3. The combination, with edge-recessed seat or back strips and the arms or standards of the frame, of movable shanked fastenings, having entering projections, at right angles with their shanks, to enter the edge recesses of said strips, substantially as specified.

4. The anchor E, substantially as and for the purposes set forth.

184,589.



184,590. DOUBLE PLOWS. William Clark, St. Louis, Mo. [Filed May 18, 1876.]

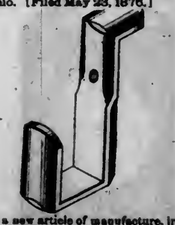
Brief.—The coupling-bar has a swivel joint, which allows a vertical movement of the beams. The beams are each provided with plates carrying an adjustable clevis, by which the draft is vertically regulated.



1. The combination, with a plow-beam, A, of the top and bottom plates *D* D, slotted at their front ends, and formed with the eyes *d d*, the pivoted curved bar G perforated and notched as described, and the pins *e e*, substantially as and for the purposes herein set forth.

2. The combination of the slotted coupling-bar H with arms *h h* and cup I, the slotted coupling-bar H' with arms *h' h'* and head I', the rod *m*, washers *n n*, and pins *i i*, substantially as and for the purposes herein set forth.

184,591. MANUFACTURE OF IRON BARS FOR SEAT-HOOKS. William G. Collins, Niles, Ohio. [Filed May 23, 1876.]

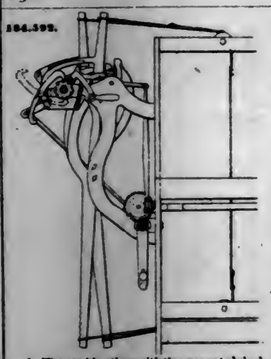


As a new article of manufacture, iron rolled to constitute bars with alternate flat and convex surfaces on opposite sides for seat-hooks, of the form herein described.

184,592. LOOMS. George Crompton, Worcester, Mass. [Filed June 30, 1876.]

Brief.—The shedding and crank shafts do not disconnect. By the loose pulley the crank-shaft may be made to have a reciprocative movement enough less than half a revolution to prevent the actuating of the picking mechanism and the full beat up of the lay. The shedding mechanism is, however, actuated, and the reversing to find a true shed is done by shifting the weighted pawl operating the pattern-surface to the other ratchet-wheel on the shaft of said surface, which causes said shaft to turn in the opposite direction.

184,592.



1. The combination, with the connected shedding and crank shafts and pattern-surface and double pawl, of a rotating loose pulley, a reciprocating link, and an engaging device to move the crank and shedding shafts backward and forward to operate the shedding mechanism and pattern-surface to find the true shed, substantially as described.

2. The rotating loose pulley and its connected plates, and the toothed wheel and crank-pin, in combination with a reciprocating link and hook or engaging device and toothed wheel *c*, to reciprocate the wheel *c*, substantially as described.

3. The reciprocating link and engaging device, in combination with mechanism adapted to place the engaging device into or out of action to oscillate wheel *c*, substantially as described.

4. In a loom provided with a connected crank and shedding shaft and shedding mechanism, a fast and loose pulley and pattern-surface and double pawl, and a link and engaging device, the treadle, and its connections, all combined substantially as described, to engage or disengage the engaging device, to operate the shedding mechanism and its pattern-surface, for the purpose set forth.

184,593. MANUFACTURE OF BOTTLES. Edgar N. Curtiss, Rochester, N. Y., assignor to himself, Simeon G. Curtiss, and Frank M. Mack, same place. [Filed Oct. 21, 1876.]

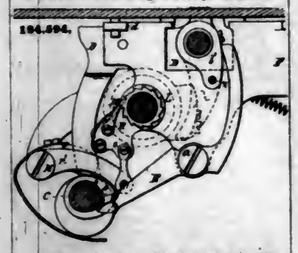


A bottle having ribs or corrugations extending from its bottom edge to its shoulder, said ribs or corrugations being interceptedat about the center of the bottle by an annular recess encircling the bottle, intercepted by one or more circular recesses, forming seats for a label, substantially as herein shown and described.

184,594. SEWING-MACHINES. C. S. Cushman, Philadelphia, Pa., assignor to N. D. Stoops, same place. [Filed Dec. 10, 1874.]

Brief.—The feed-surface, in addition to the motions nually imparted to a reciprocating feed, has a lateral movement, whereby zigzag or ornamental stitching may be performed.

184,594.



1. In combination with the bed-plate of a sewing-machine, a movable frame or hanger, adapted to support the whole or a portion of the compound feed-movement of the machine, and adjusting-screws, whereby the said feed-movement may be applied to a machine, leveled and adjusted in place with respect to the said bed-plate, or be entirely removed therefrom, in a manner substantially as described.

2. The combination, substantially as hereinbefore set forth, of the driving-shaft and cam thereon, and the reciprocating feed-bar, sliding feed-plate bar, provided with a downwardly-projecting arm, operated by said cam, and connecting mechanism, for imparting a vertical reciprocating motion to the feed-plate, substantially as described.

3. The combination, substantially as described, with the driving-shaft and cam thereon, of the oscillating lever, adapted to be operated by said cam, the pawl-lever and pawl, connected to said oscillating lever, the ratchet-wheel operated thereby, the rotating cam-wheel, attached to said ratchet-wheel, the laterally-sliding sleeve, operated by said cam-wheel, and the downwardly-projecting finger, working in the slot in said sleeve, and attached to the sliding stem, to which the feed-plate is attached, for the purpose of imparting a lateral reciprocating motion to the feed-plate, substantially as set forth.

4. The combination, substantially as herein described, of the driving-shaft and its cams, the levers for operating the feed-plate bar and the pawl-lever, pawl and ratchet-wheel, the rotating cam and sliding sleeve, the projecting finger and sliding stem or feed-plate shaft, and the feed-plate bar, the whole constructed and arranged to operate substantially as herein set forth.

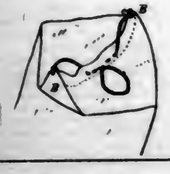
5. The combination of the feed-lever E with the detachable frame F, feed-cam C, and feed-bar D, having the laterally-reciprocating feed-plate, substantially as set forth.

6. The feeling-plate *l*, having a stem, *k*, in combination with the feed-bar D, having a bearing, in which said stem has a reciprocating movement, produced by suitable mechanism, at right angles to the line of movements of the feed-bar, to produce ornamental stitching, substantially as set forth.

7. The hollow rocking shaft N', having arms *r r'*, in combination with the detachable frame F, having a stem, M, on which the rocking shaft oscillates, and swivel-plate R, having the detent N, for giving a reciprocal lateral movement to the feed-plate, substantially as set forth.

184,595. TOBACCO-BAGS. Wm. J. Osmon, Richmond, Va., assignor of one-half his right to M. Millhiser & Co., same place. [Filed Oct. 31, 1876.]

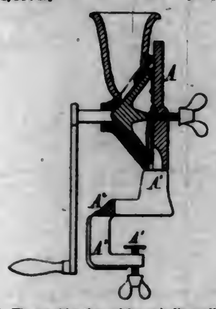
Brief.—The folded corners of the bag are connected by a string, in order to permit the bag to conform to the filling-tin as the latter is placed in it.



1. A cloth tobacco-bag, having its bottom folded to form the triangular flaps B B, and the points thereof connected by a sliding or self-adjusting string, held by the tension of a knot or cloth through which the string is passed, for the purposes herein set forth.

2. A cloth tobacco-bag, having its bottom folded to form the triangular flaps B B, and the points thereof connected by a non-elastic string, as herein described.

184,596. COFFEE AND SPICE MILLS. Thos. H. Darling, Blue Island, Ill. [Filed July 18, 1876.]

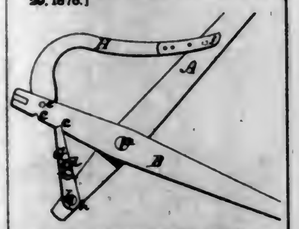


1. The combination, with a grinding mill, of a clamp for securing the mill to a table, arranged to elevate the said mill, so as to allow a cup to be placed under the discharge-spout on the table, substantially as and for the purpose set forth.

2. The combination, with a grinding-mill, of the legs A', the circular brace A', and clamp A', constructed and arranged substantially as and for the purposes set forth.

3. In a grinding-mill, substantially as described, the leaf spring interposed between its grinding cone and the temper-screw, as and for the purpose set forth.

184,597. CONVERTIBLE CHAIRS. Albert T. L. Davis, Lake Village, N. H. [Filed July 29, 1876.]



1. The combination of the reversible braces G G with the cross-legs A A B B, whereby the chair is convertible into a lounge or camp-bedstead, and vice versa, substantially as herein specified.

2. The combination of the arms H H, pivoted at the front ends to the legs B B, and moving at their rear ends in slots of the legs A A, with the adjusting-braces G G, substantially as and for the purpose herein specified.

3. The rounds or cross-pieces O D I K, constructed as described, in combination with the legs provided with the peculiar mortises, substantially as and for the purpose herein specified.

184,598. MACHINES FOR CONVERTING MOTION. Albert F. Bain, Camden, Me., assignor to Wm. H. Dole and Frank B. Dole, Chelsea, Mass. [Filed May 17, 1876.]

Brief.—The pawls have angular impinging ends, engaging in a groove correspondingly angular, and are pivoted to separate connecting-rods on opposite sides of the grooved wheels.

1. In combination with the grooved wheel *f*, the angular pawl A, vibrating arms *i i*, and reciprocating connecting-rods, when the arms are pivoted upon the axis of the wheel, and the angular pawl is pivoted to the arms and the connecting-rod, relatively to each other and the wheel, as described, whereby the angular pawl is free to move in one direction disconnected from the wheel, but, by virtue of its leverage and relative position, rigidly engages the wheel when moved in the other direction, as described and shown.

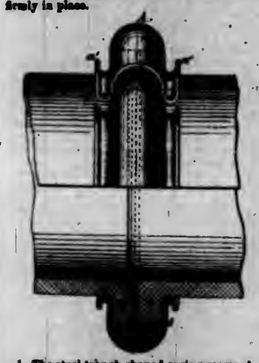
2. In combination with the grooved wheel *f*, the two pairs of arms *i i* and *i' i'*, pivoted upon the axis of the wheel, the angular pawls *h* and *h'*, and simultaneously-acting connecting-rods *m* and *m'*, when the angular pawls are pivoted to the arms and the connecting-rods, relatively to each other and the wheel, as described, whereby the angular pawls are free alternately to move in one direction disconnected from the wheel, but, by virtue of their leverage and relative position, rigidly engage the wheel when moving in the opposite direction, so as to produce a continuous rotary motion of the wheel, as described.

184,599.



184,600. SHOURING FLANGE AND OTHER JOINTS, &c. H. A. T. Ehrhardt, Duesseldorf, Germany. [Filed May 6, 1876.]

Brief.—The clamp of spring-steel, having a U-shaped transverse section, is sprung onto the flanges of pipes in contact, holding them firmly in place.

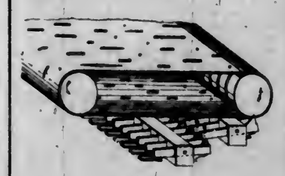


1. The steel trough-shaped spring-cramp A, for securing together flanges by the pressure of its lips a-c when slightly expanded, substantially as herein described.

2. A steel trough-shaped spring-cramp A, for securing together circular flanges, formed with a longitudinal curvature corresponding to the curvature of the flanges, substantially as herein described.

3. In combination with a steel trough-shaped cramp A, the curved lips *a*', substantially as and for the purposes described.

184,600.



184,600. AUTOMATIC MUSICAL INSTRUMENTS. Paul Ehrlich, Gohlis, near Leipsic, Germany. [Filed Oct. 3, 1876.]

the angular pawl is pivoted to the arms and the connecting-rod, relatively to each other and the wheel, as described, whereby the angular pawl is free to move in one direction disconnected from the wheel, but, by virtue of its leverage and relative position, rigidly engages the wheel when moved in the other direction, as described and shown.

2. In combination with the grooved wheel *f*, the two pairs of arms *i i* and *i' i'*, pivoted upon the axis of the wheel, the angular pawls *h* and *h'*, and simultaneously-acting connecting-rods *m* and *m'*, when the angular pawls are pivoted to the arms and the connecting-rods, relatively to each other and the wheel, as described, whereby the angular pawls are free alternately to move in one direction disconnected from the wheel, but, by virtue of their leverage and relative position, rigidly engage the wheel when moving in the opposite direction, so as to produce a continuous rotary motion of the wheel, as described.

Brief.—The holes in the perforated cards increase and diminish in width, to produce a corresponding effect in the sound. For pianos the holes are made with a succession of steps in their sides, to effect a succession of impulses in the stroke of the hammer-lever.

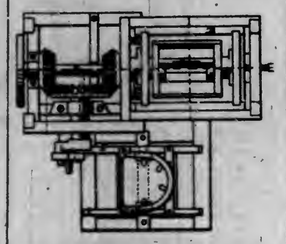
1. An endless sheet for actuating the note-producing mechanism of a musical instrument, perforated with holes of varying widths, substantially as described.

2. The endless perforated sheet, in combination with the grooved carrying-cylinder A, substantially as described.

3. The levers having conical or stepped noses, in combination with the sheet perforated with holes of varying widths, substantially as described.

184,601. CHURNS. Olaf Eliason, Sterling, Ill. [Filed Apr. 24, 1876.]

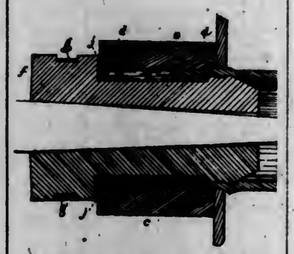
Brief.—The dashers are arranged horizontally, and rotate in opposite directions, and can be removed at will, to give access to the interior of the churn.



The churn-box B, having two sets of horizontally-arranged dashers revolving in opposite directions, and the bisected box E, journals *d d*, and the flanged sleeve *f*, all constructed, arranged, and operated substantially as and for the purposes herein set forth.

184,602. TUBE EXPANDERS AND CUTTERS. Stephen Engel, Cambridgeport, Mass. [Filed Sept. 22, 1876.]

Brief.—Shoulders on the expanding sections adjust the inner to the outer cutting-edges.



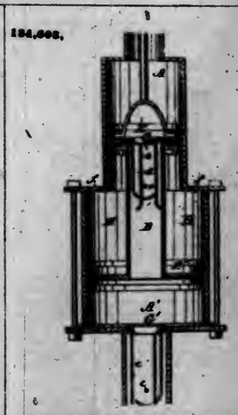
1. The expander composed of sections *f*, provided with cutting-edges *i* and the head *g*, in combination with a collar provided with a cutting-edge, *d*, substantially as and for the purpose set forth.

2. The sections *f* of the expander, provided with cutting-edges *i* and the gages *j*, in combination with the collar *c*, provided with a cutting-edge, all adapted to operate to cut and expand the tube, substantially as set forth.

184,603. PUMPS. Wm. B. Farrar, Greensborough, N. C. [Filed Sept. 18, 1876.]

Brief.—When the pistons are raised by the pump-handle, the upper piston lifts the water above it, which runs out at the spout, while the lower piston produces in the lower cylinder a partial vacuum, which opens the valve, and allows the space in the cylinder below the said lower piston to become filled with water.

184,604.



1. The combination, with the two communicating cylinders A A', of different sizes, having a check-valve at the bottom, of the two different-sized pistons B B', connected by a pipe, E, and having a valve in said pipe, which alternately opens and closes communication between the two cylinders, substantially as described.

2. The combination, with the two different-sized pistons, connected by a central pipe, of the two different-sized cylinders, having holes *f*, substantially as and for the purpose described.

184,605. MANUFACTURE OF GLASS BOWLS, TUMBLERS, &c. Geo. L. Fessenden, Sandwich, Mass. [Filed Oct. 2, 1876.]

Brief.—The glass is blown in a mold, then annealed, and when cooled the top or superfluous part is cut or cracked off by a hot iron or other suitable means. It is next put into the mouth of a heated glass-melting pot, or into the flame of a glory-hole, so as to fuse and fire-polish the cut or cracked edge, and the outer and inner surfaces of the bowl.



1. My improvement in the art of making a glass bowl or article of glass having a bowl, such consisting in blowing the bowl in a mold, and next annealing such bowl, and, when cool, cutting or cracking off the cup or superfluous part, and finally subsisting the rest (whether with or without a foot) to heat by means as described, so as to fuse the upper edge and round it, and fire-polish it, and also fire-polish the inner and outer surfaces of the article, all essentially as set forth.

2. As an improved article of manufacture, a glass bowl or article of glass, having a bowl made by the process described.

184,605. BUTTER-PACKAGES. Andrew J. Finnegan, Minneapolis, Minn. [Filed Apr. 7, 1876.]



1. The annular rubber H, formed with interior and exterior ribs *a d*, in combination with the grooved cover E G, and package A, having bead *b*, substantially as and for the purposes herein set forth.

2. The combination, with a butter-package, A, having bead *b*, of the wooden grooved disks E G, the rubber H, with ribs *a d*, and the metal plate I, substantially as herein set forth.

3. A butter-package, A, with bottom B, auxiliary bottom C, and inclined flange D, substantially as and for the purposes herein set forth.

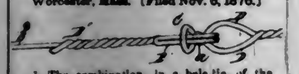
184,606. COMMODE-COVERS. Frank Foster, Cincinnati, Ohio. [Filed Sept. 25, 1876.]

Brief.—A cover of wood provided with an aperture or hole, and of a size to cover the top of the commode. Around the periphery of this cover is secured a flange of metal or suitable material, in such a manner as to extend beyond the surface of the cover, and prevent displacement of the disk or cover laterally when in use.



A commode-seat having in combination the perforated disk B *b* and retaining flange or projection C, substantially as and for the purpose specified.

184,607. BALE-TIES. Gustus S. France, Worcester, Mass. [Filed Nov. 6, 1876.]



1. The combination, in a bale-tie, of the loops C D and hook E, substantially as and for the purposes set forth.

2. A bale-tie having two loops at one end, separated by a partial twist, and a hook device at the other end, substantially as and for the purposes set forth.

3. A baleeie provided with two loops at one end, for engaging the hook device at the other and of the bale-tie.

184,608. BOTTLE-FILLING APPARATUS. W. Gee, New York, N. Y. [Filed Oct. 4, 1876.]

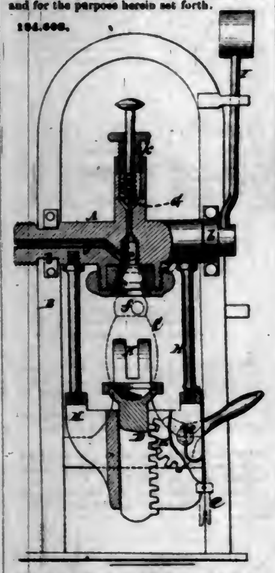
Brief.—The filling-chamber has combined with it a valve, regulating the liquid pressure in the bottle and the escape of surplus gas; also acting as a relief-valve for liquid in the filling-chamber, removing outside pressure from the inside stopper.

1. The combination, with the filling-chamber *c*, serving both for ingress of liquid to the bottle and for the escape of air and surplus gas, of a valve applied to said chamber for regulating pressure and escape of air and surplus gas, and for relieving said chamber of surplus liquid after the bottle is filled, whereby not only one and the same valve performs several functions, but the closing of the bottle by an inside stopper is facilitated, and the projection of either a filling-tube or air-escape tube within the bottle may be dispensed with, substantially as specified.

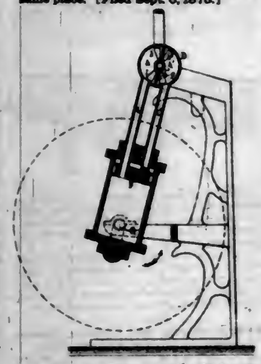
2. The combination, with a rocking or tumbling filling-head, A, having a cavity, *c*, for the ingress of the aerated effervescing liquid and escape of the air and surplus gas, of a pressure-regulating valve, G, constructed to operate also as a relief-valve for the overflow incidental to the filling and closing of the bottle, and the cam K, or means for automatically opening said valve, to act as a relief for overflow when the filling-head is adjusted to close the bottle by its stopper, essentially as described.

3. The combination of the removable fulcrum-pin *e* with the toothed lever E and the bottle holder or lifter D, provided with a rack which gears with said lever, substantially as and for the purpose herein set forth.

184,609.



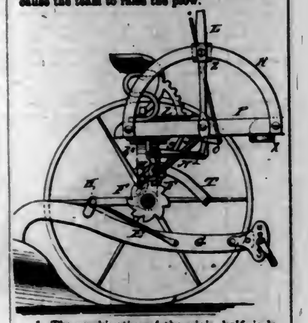
OSCILLATING STEAM-ENGINES. Samuel Gibson, Shrewsbury, Pa., assignor of one-third his right to D. C. Everhart, same place. [Filed Sept. 6, 1876.]



In combination with a steam-cylinder attached directly to the crank-pin of a crank or crank-shaft, and constructed to have the combined reciprocating and oscillating movement described, the tubular piston-rods *i i'*, adapted, in connection with an oscillating steam-valve, to introduce steam alternately to the upper and lower sides of the piston to which they are rigidly connected, substantially as set forth.

184,610. WHEEL-PLOWS. Isaac R. Gilbert, Louisville Ky. [Filed Oct. 31, 1876.]

Brief.—An eccentric bearing of one end of the plow carrying crank for winging the plow; form of arch, and details of the lifting devices. A ratchet-wheel and other connecting mechanism lock the bearing-wheel, and cause the team to raise the plow.



1. The combination of the plain half-circle R, provided with the stop-ing, as described, the movable lock-notch Z, adapted to be fastened at any point on the circle by a set-screw, and the lever L, all as and for the purposes herein set forth.

2. The combination of the horizontal sockets B B', socket or box A, and the platform supporting the beam P, all in one solid arch, *b'*, substantially as herein set forth.

3. The combination of the arch *b'*, socket B', with adjustable plug having eccentric pin on its inner end, and the crank-shaft H, with arm placed on said pin, substantially as and for the purposes set forth.

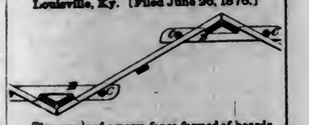
4. The rag-wheel on the wheel W, the pawl K, provided with spring and extended lug, the brace J, with inclined lug end, and their connections with the lever L and latch M, substantially as for the purposes herein set forth.

184,611. WASH-BOARDS. John M. Gorham, Cleveland, Ohio. [Filed Aug. 26, 1876.]



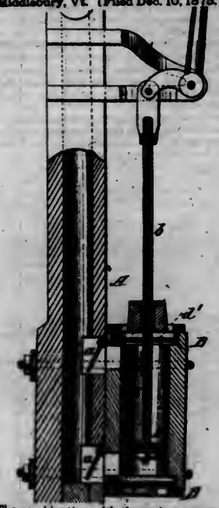
A wash-board plate having a corrugated body, roughened by embossed designs running across the board at an angle to the line of the corrugations, substantially as and for the purpose set forth.

184,612. FENCES. Daniel B. Groff, Louisville, Ky. [Filed June 26, 1876.]



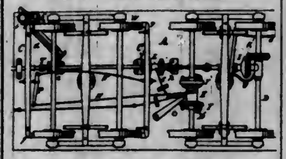
The panels of a worm-fence formed of boards or rails nailed to posts placed on the opposite sides, in combination with the notched parallel ties B and long pins C, passing through the ties and bearing against the boards or rails, substantially as set forth.

184,612. FORCE-PUMPS. Orvis W. Grover, Middlebury, Vt. [Filed Dec. 10, 1875.]



The combination with the main pump-stock A of a cylinder, B, open at both ends, and provided near the top with a valve-seat, *a*, the valve *d'* loosely surrounding and moving up and down on the rod *b*, the piston D, and valves *a a d*, all constructed substantially as and for the purposes herein set forth.

184,614. CAR-BRAKES. Albert F. Gue and George F. Field, Boston, Mass., assignors of one-third their right to Thos. N. Hart, same place. [Filed Apr. 3, 1876.]



1. The combination of the following elements, viz: a sheave or drum, loose upon one of the axles of a car; suitable friction-clutch mechanism for connecting said sheave with the axle, so that it will rotate with it; brake-beams connected to said sheave, a rod extending longitudinally under the car, and having thereon a loose spool and fixed friction-collars, as described; mechanism for rotating the rod by means of one of the axles of the locomotive or tender, and also by hand; and devices by means of which the rotation of the rod is made to cause the application of the friction-collars on the axle to the sheave or drum, and thereby operate the brakes, substantially as and for the purposes set forth.

2. A rod, H, extending longitudinally under the car, provided with square ends and sockets for rigidly connecting together rods under different cars, and with universal joints at suitable intervals, and a loose spool, frictionally-connected to the rod, in combination with mechanism by means of which the rod can be rotated by one of the axles of the locomotive or tender, at the will of the engineer, substantially as and for the purpose set forth.

3. In combination with the rod H, the axle D, beveled pinions K K', friction-pad *i*, collars I *e b b'*, sleeve *l*, lever *x*, and bar *u*, substantially as and for the purpose set forth.

4. The combination of the axle D, T-bar *o*, journal *f*, rod H, and clutching and gearing devices, substantially as and for the purpose set forth.

5. The combination of the rod H, sliding axle *d*, bevel-gears *a b'* and *a b*, upright shaft *a'*, and hand-wheel A'.

6. The combination of the rod H, pinion *a*, beveled pinions *b b*, sliding rod *d*, pinion *a*, spring L, shaft *a'*, lever *x'*, and brake-wheel A', substantially as and for the purpose set forth.

7. The combination of the axle D, sheave or drum E, bifurcated levers *u u'*, collars F F', bar G, and lever O, substantially as and for the purposes set forth.

8. The combination of the lever O, spring *x'*, chain S, and spool L, substantially as and for the purpose set forth.

9. The combination of the frame or bar G and link or hook *p*, substantially as and for the purpose set forth.

10. The combination of the spool L, collars *o o'*, rubber pad *o*, rod H, and nut *h*, substantially as and for the purposes set forth.

11. The combination of the chain or rod L, lever O, friction-clutch mechanism, as described, sheave E, axle D', and brake-beams O O' and their connections, substantially as and for the purpose set forth.

184,615. ADJUSTABLE WATCH-KEYS. F. A. Hardy, Auburndale, Mass. [Filed Oct. 26, 1876.]

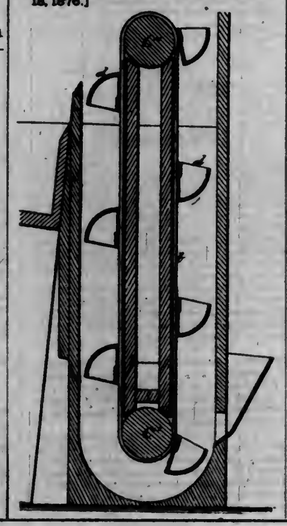


1. The combination of a tubular casing, a pair of jaws pivoted thereto, and each having formed in its outer end one-half of a square socket, a spring or springs adapted to force the inner ends of said jaws toward each other, and a wedge adapted to be moved endwise within said casing, and to force the inner ends of said jaws outward, as and for the purposes described.

2. The combination of the tube or casing A, pivoted jaws D D, spring or springs *a*, wedge E, and the ring F, connected to said wedge by the pin *a*, all arranged and adapted to operate as and for the purposes described.

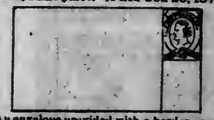
3. The combination of the tubular case A, pivoted jaws D D, spring or springs *a*, wedge E, spring G, and ring F, connected to the wedge E by the pin *a* passing through slots in the casing, all arranged and adapted to operate as and for the purposes described.

184,616. GRAIN ELEVATORS AND MEASURES. James M. Harper, El Paso, Ill. [Filed Mar. 18, 1876.]



In a combined grain elevator and measurer, the cut-off valves C C, loosely attached to a vibrating lever, D, fixed to a rock-shaft, E, provided with the arm *f* and pivoted pawl *g*, in combination with the ratchet-wheel G of the registering mechanism, all constructed and arranged as and for the purpose set forth.

184,617. ENVELOPES. William H. Hart, Chelsea, Mass., assignor to Eben Hutchinson, same place. [Filed Oct. 20, 1875.]



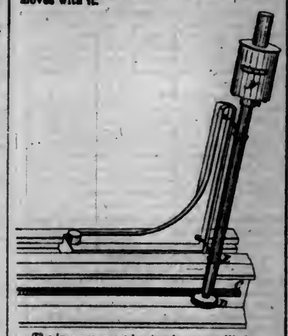
An envelope provided with a border or margin attached to the body of the envelope, and extending beyond it a sufficient distance to receive the stamp, substantially as described and shown.

184,618. PROCESSES OF FILLING AND FINISHING HARD WOODS. John Hawksley, Philadelphia, Pa. [Filed Sept. 14, 1876.]

The process of finishing hard woods, which consists in applying successive coatings of a filling compound, consisting of whiting, linseed-oil, turpentine, and Japan drier, and a finishing compound consisting of Japan drier, turpentine, and inside varnish, substantially in the manner herein set forth.

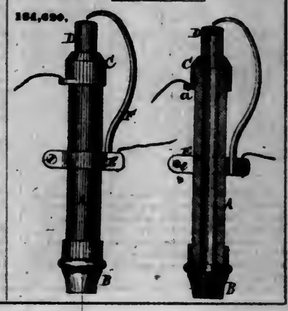
184,619. HEAD-BLOCKS FOR SAW-MILLS. Geo. Hervestein, Chillicothe, Ohio. [Filed Sept. 23, 1876.]

Brief.—A revolving gage, which is always in sight and can be used by the sawyer and setter without leaving their places, is fastened to a knee of the head-block of a circular-saw mill, so that it projects above the knee and moves with it.



The improvement in circular-saw mills herein described, consisting of a rack and an upright gage supported upon a metallic tube, secured in wrought-iron arms bolted to the knee of the head-block, all constructed to operate as shown and described, and for the purpose specified.

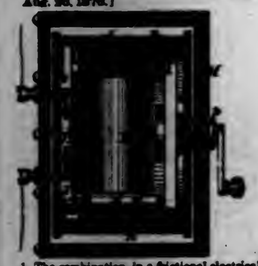
184,620.



184,690. GAS-BURNERS. Charles H. Hinds, New York, N. Y. [Filed Aug. 26, 1876.]

In combination with the non-conducting body A, constructed of asbestos or a compound of the same, the metallic tips C B, constructed with screw-sockets for the reception of the end of the gas-pipe and the burner-tip, substantially as set forth.

184,691. FRICTIONAL ELECTRIC MACHINES. Charles H. Hinds, New York, N. Y. [Filed Aug. 26, 1876.]



1. The combination, in a frictional electrical machine, of a cylindrical generator open at one end, one or more rubbers acting on the exterior surface of said generator, and one or more rubbers acting on its interior surface, substantially as shown and described.

2. In a condenser for electricity, composed of alternate layers of india-rubber and metal foil, the combination, with the metallic layers, of compound sheets of rubber, each sheet being made of a vulcanized sheet situated between two unvulcanized sheets, the whole being constructed substantially as set forth.

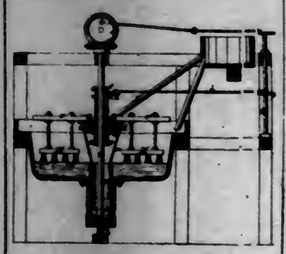
3. A discharging device for a frictional electrical machine composed of two bell-crank levers, a link connecting the short arms thereof, and a spring-button acting on said link, substantially as shown and described.

4. The combination of a cylindrical generator open at one end, with a tubular condenser placed inside of said generator, substantially as set forth.

5. The combination, with a cylindrical generator open at one end, a tubular condenser situated within the generator, and a discharging device, of a jacket inclosing the generator and the condenser, and of a suitable casing for the protection of the working machine, said working parts being suspended in the case by means of insulated plates, substantially as and for the purpose described.

184,692. REVOLVING BUDDLES FOR SEPARATING ORES, &c. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Mar. 15, 1876.]

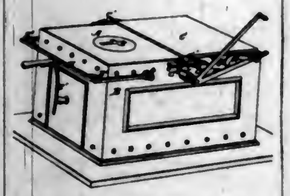
Brief.—A sleeve having a thread upon its outer side fits loosely over the main shaft. As the buddle revolves, a ratchet and pawl cause a nut to rise upon the threaded sleeve, the discharge-spout and brushes being thereby raised.



1. The combination, with a buddle having a revolving motion, and a central discharge-spout, of an automatic mechanism, such substantially as described, for carrying the discharge-spout to automatically adjust itself to the depth of the bed formed on the bottom of the buddle by the material to be separated, as set forth.

2. The combination, with a buddle having a revolving motion, and a self-adjusting central discharge-spout, of brushes, which rise and fall with the discharge-spout, substantially as and for the purpose set forth.

184,693. APPARATUS FOR BAKING ALTAR BREAD OR WAFERS. Patrick H. Horan, Boston, Mass., assignor to Horan Brothers, same place. [Filed Oct. 9, 1876.]



1. In an apparatus for baking wafers, the combination of a stationary plate, a pivoted plate adapted to be heated, and subsequently pressed against the stationary plate, and a movable heater adapted to heat the pivoted and the stationary plate successively, said plates being located on a suitable stationary support, as set forth.

2. The casing B, provided with the stationary plate A, the hinged plate C, and the movable heater D, as and for the purpose set forth.

3. The pivoted plate C, having legs C', combined with the bifurcated lever E, as set forth.

4. The bifurcated lever E, having friction-rollers F', combined with the plate C, having legs C', as set forth.

5. The bifurcated lever E, having the dog or pawl F', combined with the plate C, having legs C' and notches F', as set forth.

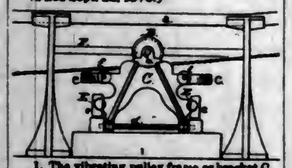
6. The pivoted plate C, having vertically-adjustable bearings, combined with the stationary plate A, as set forth.

7. The pivoted plate C, having the crank G, combined with the bell-crank lever F, as set forth.

8. The heater composed of the vertical tube D^1 and perforated chamber D^2, located on the trunk D^3, and provided with flexible gas-connections, as set forth.

9. The compound lever H H', combined with the trunk D^3 and casing B, as set forth.

184,694. RUDDLES-ROCK RAILWAYS. Asa B. Eovey, San Francisco, Cal., assignor to the Sutter Street Railroad Company. [Filed Sept. 22, 1876.]



1. The vibrating pulley frame or bracket C, with its journal-box b, the pivots d, and the curved projecting wings or surfaces e e, when combined with the springs E E, for returning the pulley to its position over the cable after the grips have passed, and the stop-bar F, for controlling the movement of the pulley-frame, all arranged and operating together as and for the purpose set forth.

2. In combination with the vibrating pulley-frame for endless-rope traction railways, constructed as hereinabove described, the rollers f f, arranged and applied as and for the purpose set forth and specified.

184,695. FIREARM-CARS. John D. Imboden, Richmond, Va., assignor of one-twentieth of his right to A. D. Williams, and one-half of his right to R. H. Maury, trustee for said Williams, both of same place. [Filed June 24, 1876.]

1. The car-body A, having a sub-compartment, B, suspended below it between the trucks, and the transversely-hinged floor-sections S S, closing the communication between the body and sub-compartment, combined and arranged substantially as specified.

2. The crater spine or draft-beam, in combination with the lateral trussing-ribs and the car-frame, substantially as specified.

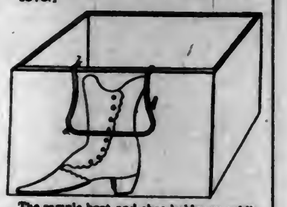
3. In combination with the car-body A, having floor-sections R, covering the trucks, and the hinged chute-sections S S, completing the floor of the car-body, and hinged to the inner edges of the said floor-sections, the open sub-compartment having gravitating side doors, and suspended between the trucks, substantially as specified.

4. In a dumping-car, the combination, with a vertically-hanging dumping-gate, of the fast-ening-shaft *a*, its pressure-legs *g*, and lever-arm *h*, substantially as specified.

184,696.

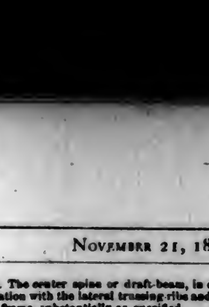


184,696. SAMPLE-SHOE HOLDERS. James H. Jewett, Buffalo, N. Y. [Filed Apr. 28, 1876.]



The sample boot and shoe holder or exhibitor, made of a single piece of wire, and bent in the form shown and described.

184,697. SWIVEL ATTACHMENTS FOR FISHING-LINES. Frederick Jones, Gloucester, Mass. [Filed June 8, 1876.]



1. The combination of the gauging-line ring B with the swivel C, provided with the elastic arms *c c* and catch-tongue *e*, arranged as set forth.

2. The improved swivel C, composed of wire bent so as to form the elastic arms *c c*, catch-tongue *e*, and tubular bead *g*, all substantially as shown and described.

3. The combination of the double-flanged tube D with the wire swivel C, bent around such tube, and having the elastic arms *c c* and catch-tongue *e*, all being essentially as set forth.

184,698. MACHINES FOR MELTING SNOW AND ICE. Isaac Kendrick, Philadelphia, Pa. [Filed Feb. 10, 1876.]

Brief.—A truck containing an apparatus for vaporizing hydrocarbon oil, and, while the same is heated, mixing it with common air, and burning it in a boiler-chamber beneath the car.

1. The combination, with a portable machine for melting snow or ice, of an atomizer for liquid hydrocarbons for purposes of fuel, as herein set forth.

2. The combination, with a portable machine for melting snow or ice, of a retort-burner, constructed and operating substantially as shown and specified.

3. In a portable snow or ice melting machine adapted for the employment of liquid hydrocarbons as fuel, a bottomless combustion-chamber, T, constructed and operating substantially as shown and described.

4. In a portable machine for melting snow or ice, the combination, with the hydrocarbon combustion-chamber and boiler, of a pipe for conveying the waste products of the former to the latter, and utilizing the same for purposes of fuel, as set forth.

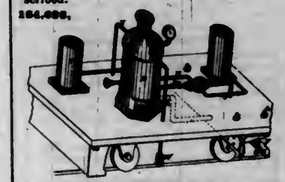
5. In a portable snow and ice melting machine, the combination, with the boiler B, of pipe V and rose-heads W, for getting rid of excess steam and utilizing the same, as set forth.

6. In combination with the retort-burner F, the pan G, substantially as shown and described.

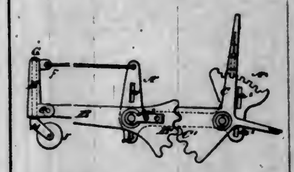
7. The combination, in a portable snow or ice melting machine, of a hydrocarbon-atomizer, retort-burner, and combustion-chamber, with connecting-pipes and flow-regulating cocks, arranged to operate as set forth.

8. The combination, in a portable machine for melting snow and ice, of a steam-generator, water-tank, oil-receptacle, liquid-hydrocarbon atomizer, retort-burner, and combustion-chamber, with connecting-pipes and regulating-valves, constructed and arranged for operation substantially as herein shown and described.

184,699.



184,699. PLOW ATTACHMENTS. G. S. King, Minneapolis, Minn. [Filed Sept. 30, 1876.]



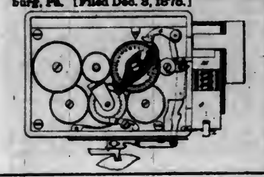
1. The combination, with a plow-beam, of attaching-plate A with segmental geared levers B and C and gage-wheel I, substantially as set forth.

2. In a plow, the combination of fixed standard A^1 with pivoted standard E, connecting-rod F, plate A, and lever B, substantially as set forth.

3. In a plow, the combination, with geared lever B and gage-wheel I, of an actuating geared lever, C, adapted to be operated both by hand and by foot, substantially as set forth.

4. The combination of tubular standard E with rod G, capable of rotation therein, gage-wheel I secured to the lower end of said rod, connecting-rod F, fixed standard A^1, and segmentally-geared levers B C, substantially as set forth.

184,700. TIME-LOCKS. W. F. Kistler, Chicago, Ill., assignor to J. M. Terwilliger, same place, and B. J. McCune, Shippensburg, Pa. [Filed Dec. 3, 1876.]

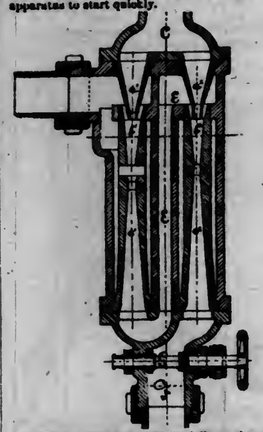


1. The drop-bolt O, provided with the section M, in combination with the rod L and spring N, substantially as and for the purpose specified.

2. The combination of the lever *e*, provided with an arm, *d*, with the arm *e*, for holding the spring-section M of the drop-bolt in position, substantially as specified.

184,701. INJECTORS. Ernst Korting, Hanover, Prussia. [Filed Sept. 14, 1876.]

Brief.—Two or more jet-pumps delivering one to another, with the outlet-valve located at the final delivery. One or more valves form a communication between the final outlet and the discharge ends of the pumps, enabling the apparatus to start quickly.



1. The combination, substantially as shown and described, of two or more steam-jet apparatuses in such manner that one discharges into the combining chamber of the next.

2. The combination of two or more steam-jet apparatuses in such a manner that one discharges into the combining-chamber of the next one, the first one of these apparatuses having no overflow communicating with the atmosphere.

3. In a steam-jet apparatus consisting of two or more jet-pumps delivering one to another, an outlet-valve, G, located at the final delivery of the apparatus, and one or more valves, H, forming a communication between the final outlet and the outlet or discharge ends of the primary pump or pumps, substantially as shown, for the purpose of enabling the apparatus to start quickly.

184,702. PROCESSES OF DEPOSITING ALLOYS AS A BACKING FOR MIRRORS. Constant A. Laval, St. Louis, Mo., assignor of one-half his right to J. Claude, same place. [Filed Nov. 9, 1876.]

1. The process herein described of depositing metals upon glass by the mutual reaction of solutions of silver and copper in conjunction with alcohol and potassa, substantially as herein described.

2. The process herein described of silvering glass by the mutual reaction of arsenite of copper upon the ammonio-nitrate of silver in conjunction with alcohol and potassa, substantially as herein described.

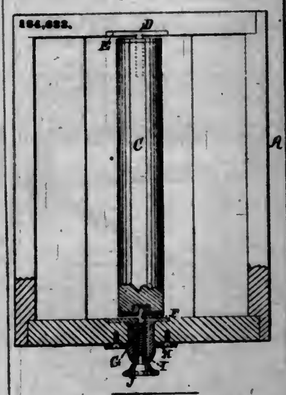
3. The process herein described of silvering glass by the reaction of a solution consisting of nitrate of silver, ammonia, and alcohol upon a solution consisting of nitrate of silver, arsenite of copper, alcohol, and potassa, combined and applied substantially as herein set forth.

184,703. CARPET-SWEEPERS. S. F. Leach, Chelsea, Mass. [Filed Oct. 2, 1876.]

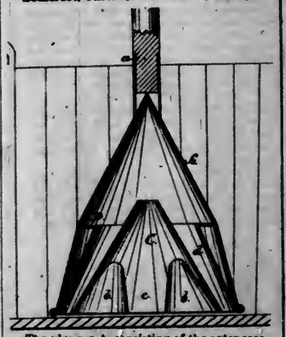
Brief.—A spring-pressed pivot enters one end of the brush-roller, while the other end of the roller is provided with a fixed gudgeon.

In a carpet-sweeper, the combination of the self-adjusting center or pivot F, having spring I and bead J, with the box A, socket-piece G H, brush C, and fixed gudgeon D, as and for the purpose set forth.

184,682.

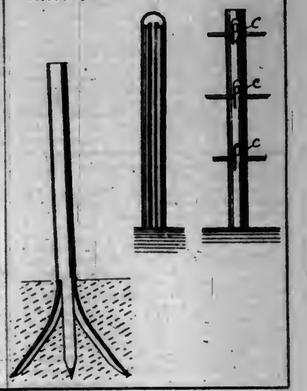


184,684. CLOTHES-POUNDERS. H. P. Louis, Somerset, Ohio. [Filed Oct. 17, 1876.]



The plunger A, consisting of the outer case, having partition D, inner cone C, opening above the partition into the air-chamber, and having indented or fluted sides *b*, forming recesses, and the tubes *d*, opening also in the said air-chamber above, and arranged upon the projecting portions of the cone C, all combined as shown and described.

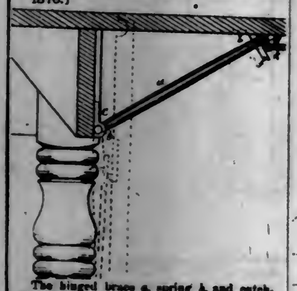
184,685. FENCE-POSTS. Sayres N. Lennon, Chicago, Ill., assignor of one-half his right to Aaron K. Stiles, same place. [Filed July 17, 1876.]



1. A metallic fence-post, having pointed strips or prongs at its lower end, formed so as to spread when driven into the ground, substantially as specified and shown.

2. The strips C, cut from the post and turned outward to form a support or attachment to the fence-wire, substantially as specified and shown.

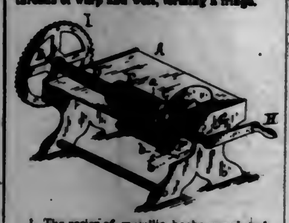
184,636. TABLE-LEAF SUPPORTS. Peter J. Liljeholm, Rockford, Ill. [Filed May 15, 1876.]



The hinged brace *a*, spring *b*, and catch-plate *c*, the spring operating to force the brace to engage the catch, and serving as a guide-way, on which the brace slides in raising and lowering the leaf, these parts constructed, arranged, and operating substantially as and for the purpose hereinbefore set forth.

184,637. PERFUMING-MACHINES. Jesse B. Lincoln, Providence, R. I., assignor of one-half his right, by mesne assignments, to Albert Congdon, same place. [Filed Aug. 22, 1876.]

Brief.—The edge of cloth cut "bias," and passed under a feed-roller, is exposed to the action of a wheel whose edge is armed with points set obliquely, which draw out the threads of warp and weft, forming a fringe.



1. The series of metallic hooks or points *b b*, set into a fringing surface at intervals, substantially as and for the purpose specified.

2. The rotating wheel F, having on its periphery a series of fringing-points, *b b*, in combination with a feeding mechanism, E, substantially as and for the purpose specified.

3. The combination of the table A and revolving finger F, substantially as and for the purpose specified.

4. The fringing-machine, substantially as described, consisting of the table A, bearings B C, spindles D G, crank H, gearing *d I*, wheel F, fringing-points *b b*, and guard J, all made and operating as shown.

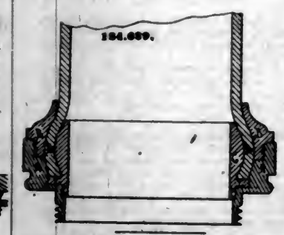
184,638. PREPARING TAN-BARK FOR TRANSPORTATION. Robert Loercher, New York, N. Y. [Filed Jan. 6, 1876.]

As an article of trade, a block of compressed ground tan-bark coated with a solution of tan-bark, substantially as specified.

184,639. HOSE-COUPLINGS. S. H. Loring, Lawrence, Mass. [Filed Feb. 16, 1876.]

Brief.—The hose lower ring has a projecting flange, fitting into a recess of one of the coupling-sections. This flange keeps the water from reaching the hose.

In a hose-coupling, the loose or removable inner ring, having a flange, F, fitting substantially water-tight into its bearing-surface in the coupling-section of the outer binding-ring, substantially as described



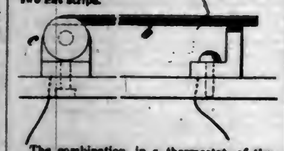
184,640. PADDING-MACHINES. Ezra Marble, Lawrence, Mass. [Filed Sept. 7, 1876.]



In a machine for padding, the combination, with a color-box and immersing-roller, of a roller having an impervious seamless jacket, all substantially as described

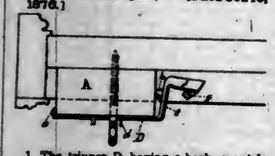
184,641. THERMOSTATS. W. H. Markland, Brooklyn, N. Y. [Filed Sept. 15, 1874.]

Brief.—Uses a wire and a strip instead of two flat strips.



The combination, in a thermostat, of the wire *b*, soldered centrally throughout its entire length upon the broad metal strip *a*, having a different expansibility from that of the wire, all constructed and operating substantially as described.

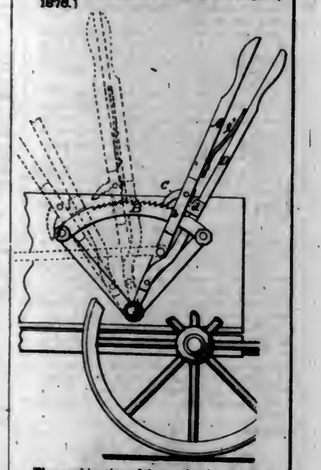
184,642. BURGLAR-ALARMS. William F. Maurice, Philadelphia, Pa. [Filed Oct. 10, 1876.]



1. The tripper D, having a beak, *a*, notch *b*, heel parts *e f g*, and elastic ball or pendulum A, substantially in the manner and for the purpose set forth.

2. The combination of the case A, tripper D, and the upper and lower sashes of a window, the case having a firm connection with the upper sash, and the part *g* of the tripper bearing upon the meeting-rail of the lower sash, substantially in the manner and for the purpose above set forth.

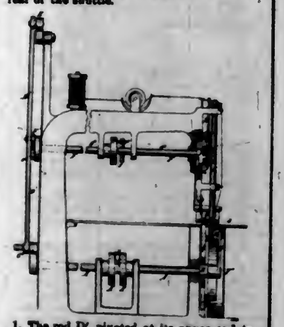
184,643. WAGON-BRAKE LEVERS. Josiah B. McAfee, Topeka, Kans. [Filed Sept. 4, 1876.]



The combination of the ratchet-bar, toothed on its upper side and terminating at the stud *f*, the levers A and D, the elbow-shaped pawl C, mounted on a fixed pivot, the arm *d*, and spring *e*, all constructed and arranged as shown and described, to operate as specified.

184,644. SEWING-MACHINES. John McCloskey, New York, N. Y. [Filed Dec. 13, 1875.]

Brief.—The needle has a dwell given it as the shuttle is passing through its loop, by means of the link and crank and rocking connections of the driving-shaft and needle-shaft. The shuttle is provided with springs on its side to bear against the wall of the shuttle-race, and the thread is delivered from the rear of the shuttle.



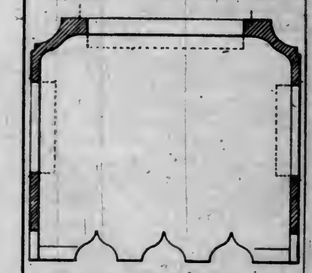
1. The rod D', pivoted at its upper end to the extremity of the rocking arm E, the link F', connecting the rod D' at or near its center to the crank *c* of the needle-shaft F, and the primary shaft A, set vected by its crank C' with the lower end of the rod D', all combined for operation substantially as and for the purpose set forth.

2. In a rotary-shuttle machine, the raceway C, the shuttle D, constructed with springs *a*, adapted to bear against the sides of the raceway, and the receiving arm B', provided to give the rotary movement to the shuttle within the raceway and in unison with the needle *b*, the various parts being combined and arranged for united action, substantially as shown and specified.

3. The curved leaf-springs *a*, in combination with the traveling shuttle D and raceway C, substantially as and for the purpose set forth.

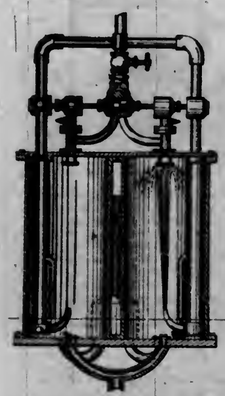
4. The shuttle D, constructed with the tabular stem *c* and bobbin *a*, the whole constructed and combined to permit the delivery of the thread at the rear end of the shuttle, substantially as and for the purpose set forth.

184,645. RAISE FOR WOODEN COLUMNS. Martin McDevitt, Hampton, Va., assignor of one-half his right to Milton B. Crowell, same place. [Filed Oct. 31, 1876.]



As a new article of manufacture, a hollow cast-metal base for wooden columns, having an upper opening or socket for the reception of the column, and a series of openings around its bottom for the passage of air and water, substantially as set forth.

184,646. STEAM AND VACUUM PUMPS. Jas. R. McPherson, Beloit, Wis., assignor of two-thirds his right to Henry B. Johnson and Francis N. Davis, same place. [Filed Nov. 22, 1876.]



1. The injector-vessel M, connected with the steam-pipe, and provided with a jet-pipe, *n*, and valve *s*, constructed so as to produce a jet by the direct application of steam to water, and by inducing an unequal pressure in the vessels M and A, substantially as and for the purpose set forth.

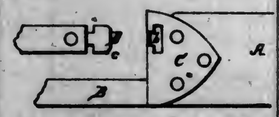
2. The waste-pipe W, combined with the injector M and valve *s*, and the cylinder *a*, substantially as and for the purpose specified.

3. The cut-off *p*, combined with the injector M and steam-pipe N, and with the balance-valve B, substantially as and for the purpose set forth.

4. The double-acting pump, having cylinders A A, chamber C, balance-valve B, cylinders S S, and valves and passages described, in combination with independent injectors M, supplied with steam directly from the steam-pipe *d*, and having suitable cut-offs, substantially as and for the purpose set forth.

184,647. CROPPER-FASTENINGS. Alexander Meharry, La Fayette, Ind. [Filed May 20, 1876.]

184,647.



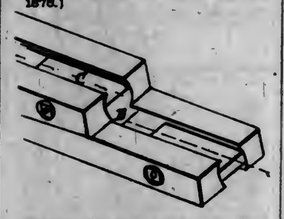
1. The metallic plate C, having its ends folded over the end of the back-strape A, and provided with a T-shaped slot, in combination with the T-shaped head on the free end of the cropper-strap, substantially as described, and for the purpose set forth.

2. In a cropper-fastening, a pivoted T-shaped head adapted to be turned down out of the way when not in use, substantially as set forth.

3. The pivoted T-shaped head D, provided with obliquely-bent part C, substantially as and for the purpose set forth.

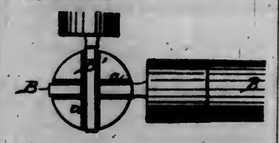
4. In a cropper-fastener, the combination of back-strap A, cropper-strap B, casing C, having slots *a* and *b*, and T-shaped head D, provided with oblique part *c*, all substantially as and for the purpose described.

184,648. EXTENSION-TABLE SLIDES. Louis Meaner, Goodrich, Mich. [Filed Sept. 23, 1876.]



The within-described extension-table slide, consisting of the top and bottom rails A A, having longitudinal V-shaped grooves, the connecting-pieces B and C C, the pieces D D, having V-shaped grooves on both edges, and the bolts *a*, with nuts *b*, for uniting the parts, substantially as and for the purposes herein set forth.

184,649. MOSQUITO-NET FRAMES. Robert C. Millings, Charleston, S. C., assignor to Frederick C. Millings, same place. [Filed Sept. 2, 1876.]



1. The combination of post A, having crossed slots or clefts *a a'*, with bars B C and recessed plates B' C', adapted to interlock with one another, substantially as set forth.

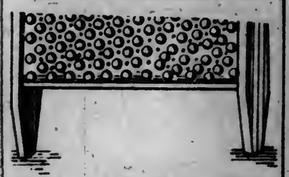
2. The combination of bars B C with detachable interlocking fastening-plates and a post adapted to receive the same in its cleft upper end, substantially as set forth.

184,650. BALE-TIES. H. H. Moore, Vicksburg, Miss. [Filed July 28, 1876.]



A bale-tie constructed as described, and consisting of the band D, provided with a smooth wedge-shaped enlargement, E, lying close to the band the whole length of the enlargement, in combination of a slide, B, having an inside opening to correspond with the angle of the enlargement, and of sufficient width to cover the same, substantially as set forth.

184,651. WASH-BOARDS. George Muller, Newport, R. I. [Filed June 14, 1876.]



As a new article of manufacture the hereinbefore-described wash-board, consisting of the zinc plate, having semi-spherical projections and countersunk perforations, adapted to be fitted to the wooden frame, substantially as described and set forth.

184,652. PIPE-CUTTERS. George Muller, New York, N. Y. [Filed May 3, 1876.]

Brief.—The cutters are adjusted by a man-grooved ring, and operated by an oscillating handle. When the pipe is cut through, the cutters are withdrawn, and a diamond cutter brought up to the glass lining by sliding it in a groove. The lining is then severed by turning the tool-handle entirely about the pipe. Screw-threaded cutters may be used by same mechanism.



The combination of the feeding-cam C, die-holder M, and dies B B' B'' with the die D, provided with diamond E, all operating as described, and for the uses and purposes set forth.

184,653. SPEED-INDICATORS. J. M. Napier, Lambeth, England. [Filed Oct. 7, 1876.]

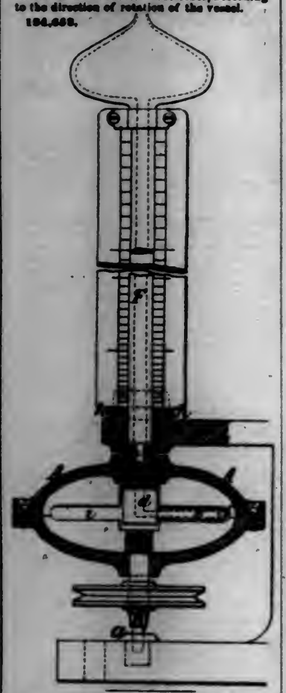
1. A speed-indicator constructed substantially as hereinbefore set forth, having a rotating vessel adapted to contain and carry round with it mercury or other liquid, and force the liquid into an orifice in a stationary arm supported within the rotating vessel, and through a channel leading from the orifice to a tube or vessel, in which, by virtue of the pressure of the liquid at the orifice, increasing with the speed of rotation of the vessel, it serves to indicate, or operates apparatus which will indicate, the speed of the rotating vessel, or other body or thing connected with it, substantially as herein described.

2. The combination, substantially as hereinbefore set forth, of the supporting-frame, the vessel mounted so as to rotate freely therein, and provided with internal projections and a passage to admit air, the indicating-tube, and the hollow arm projecting into the vessel, and having an orifice at or near its end, into which the liquid in the vessel is caused forcibly to enter by the internal projections as the vessel is revolved.

3. The combination of the supporting frame, the rotating vessel, the indicating-tube, the fixed central tube or vessel connected at top with the indicating-tube, and the laterally-projecting hollow arm connected at its upper end with said central tube, and having an orifice at its opposite end, these members being constructed and operating substantially as herein before set forth.

4. The combination of the rotating vessel, the stationary tube or vessel projecting upward therefrom, the hollow arm connected with said tube, and having a two-way orifice in its outer end, and the valve in said orifice, these members being constructed and operating substantially as hereinbefore set forth, whereby the liquid in the vessel passes to the hollow arm on one side or the other, according to the direction of rotation of the vessel.

184,633.

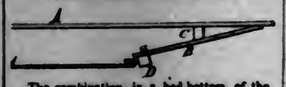


184,634. BELT-FASTENERS. H. Neimann, Ypsilanti, Mich. [Filed Aug. 2, 1876.]



The within-described belt-fastening, composed of the plates A, each having the central concavo-convex streak or lugs B, and provided with the teeth *a a*, and adapted to be secured together by the locking bolt C, substantially as and for the purposes herein set forth.

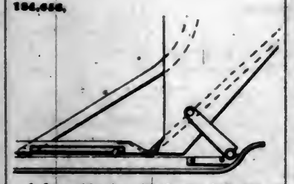
184,635. STEEL BED-BOTTOMS. Richard H. Olive and Orphas E. Davison, Wayland, Mich. [Filed Feb. 26, 1873.]



The combination, in a bed-bottom, of the long slats A, short slats B, fulcrum-blocks C, and the cross-bars D, connected by the brace-hooks *b*, all constructed substantially as and for the purposes herein set forth.

184,636. WHEELS-SHAFT. F. Oppenheim, San Francisco, Cal. [Filed Nov. 2, 1876.]

184,636.

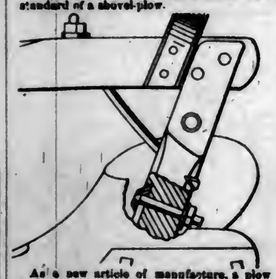


1. In combination with the panel E of the folding seat D, the connecting bars or links H, supporting bar or bars B, and vehicle-body A, substantially as described.

2. The combination of the folding-seat support E with the link H, having a step-joint, *d*, and with the sliding vehicle-body, all arranged so that during part of the folding motion of the seat-support the position of the vehicle-body will not be affected, substantially as specified.

184,637. PLOWS. Geo. W. Parish, Savannah, Ga. [Filed Aug. 10, 1876.]

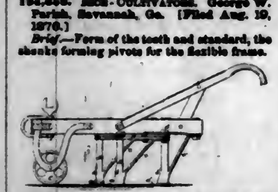
Brief.—A turn-plow provided with a slotted cross-plate, to allow it to be fastened to the standard of a shovel-plow.



As a new article of manufacture, a plow having a plate extending from the mold-board to the land-side, which is provided with a slot having a large and small end adapted to receive the head of a bolt and secure the plow to the stock, substantially as described.

184,638. RICE-CULTIVATORS. George W. Parish, Savannah, Ga. [Filed Aug. 10, 1876.]

Brief.—Form of the teeth and standard, the shanks forming pivots for the flexible frame.



1. The cultivator-teeth D, having horizontal blades *a*, vertical cutting-edges *b*, brace *c*, and shanks rounded and adapted to form the pivot for their carrying-frame, substantially as and for the purposes described.

2. The combination, with the frame B, composed of loosely-jointed parallel bars, of the cultivator-teeth D, having shanks rounded at the top, and provided with nuts to form the front pivots of said frame, and having a rearwardly-inclined brace, *c*, extending to the rear pivots of the frame, and secured thereto by the same bolt *d* that forms the pivot for the frame, and secures the edjusting-bar, substantially as described.

184,640. MARBLE-MANTEL CLAMPS. John Passmore, Newark, N. J. [Filed June 1, 1876.]

Brief.—A frame-work with uprights and swinging arms and wedges, by means of which the right and left hand sections of marble mantels are held in position while they are being put together and cemented.

1. The frame *a*, with the standards *b* and head-piece *c*, arranged for right and left hand work, substantially as and for the purposes specified.

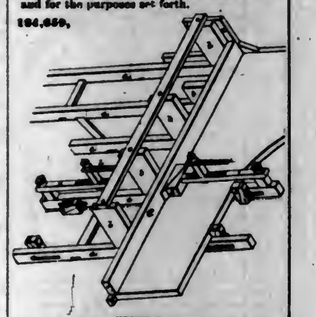
2. In combination with the frame *a*, the wedge-bottons *d*, substantially as and for the purpose set forth.

3. In combination with the frame *a*, the swing-arms F and the wedges H, substantially as and for the purposes named.

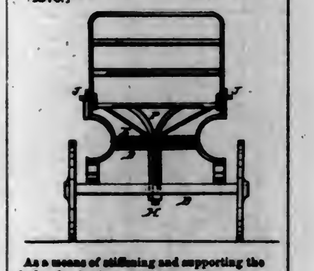
4. In combination with the arms F, the swing-arms L, substantially as and for the purposes specified.

5. In combination with the frame *a*, the double-section gages K or the gages *i*, suited to the bevel or square profile, substantially as and for the purposes set forth.

184,639.

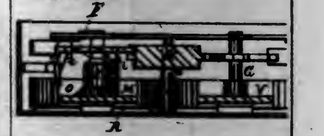


184,640. HOOK-AND-LADDER TRUCKS. Jos. Fino, New York, N. Y. [Filed Oct. 6, 1876.]



As a means of stiffening and supporting the body of a hook-and-ladder truck without a perch, the S-shaped brace or stiffening rod P, having a forked or branching upper end, in combination with the trussed side rails J, fifth-wheel D and E, king-bolt H, and axle B, substantially as described.

184,641. FARE-REGISTERS. William Pigott, Chicago, Ill., assignor of two-thirds his right to David Cole, same place. [Filed Aug. 10, 1876.]



1. The drum W, with bevel-gear M O, shaft S, spring-catch *a*, sliding plate R, arm *c*, dog *i*, drums V Y, gear N G I F, spring-catch *n m*, shaft P, and spindle L, all combined as and for the purposes set forth.

2. The slide R, combined with the drum W, as set forth.

3. The two-part case A B, combined with the spindle L and shaft F, gearing N E F G, drums V W Y, as described and shown.

4. The removable center gear N, in combination with the gear O E F and registering-drums V Y W, as specified.

184,642. METHODS OF JAPANNING SMALL ARTICLES. C. Radcliffe, Newark, N. J., assignor to New Jersey Manufacturing Company, same place. [Filed May 8, 1876.]

Brief.—Uniforms buttons or other small articles in the depressions of a metallic plate, coats them with japan on one side while held in this position, then places a plate having holes each of a less diameter than the button over them, and, turning the plates over, causes the buttons to fall into these holes, and then coats them with japan on the other side. Beneath this plate is another plate, attached to it by springs, and having projections arranged opposite the holes. Upon pressing the two plates together, these projections throw the buttons out of the holes, and they are caused to fall upon a plate similar to a nutmeg grater, upon which they are baked or dried.

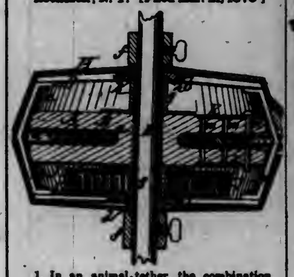
184,643.



1. The improvement in the art of japanning small articles, which consists in collecting said articles in one or more plates, substantially as above described, coating the same with japan while held in said plates, and depositing them and hardening them upon a baking or drying plate, substantially as specified.

2. The improvement in the art of japanning small articles preparatory to baking them, which consists in the process of coating one side of said articles while the same are held in a plate, B, and removing said articles to a second plate, C, which registers with the first, and then coating the opposite side of said articles.

184,644. ANIMAL-TETHERS. P. A. Reichert, Rochester, N. Y. [Filed Mar. 21, 1876.]



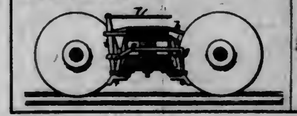
1. In an animal-tether, the combination, with the spring-drum A, provided with the narrow groove *c*, of the plates K K, on opposite sides of the drum, provided with the holes *m m*, extending through the drum, whereby a pin may be inserted through between any of the coils of rope in the groove, to gage the unwinding of the rope, as and for the purpose specified.

2. In an animal-tether, the combination of an exterior frame or holder, D, turning freely upon the supporting bar or anchor to follow the circuit of the animal, and an interior drum or pulley, A, having its bearings in the hubs of the exterior frame, and turning freely, to allow the paying out or taking up of the rope, as shown and described, and for the purpose specified.

3. The combination, with the exterior frame or holder D and interior drum or pulley A, each having an independent movement, of the offset sockets *h h* formed in the hubs of the outer frame, and the bearings *g g* of the drum resting in said sockets, whereby the drum may revolve without coming in contact with the supporting bar or anchor, as shown and described, and for the purpose specified.

184,644. CAR-BRAKES. John Rhoads, Harrisburg, Pa. [Filed Oct. 21, 1876.]

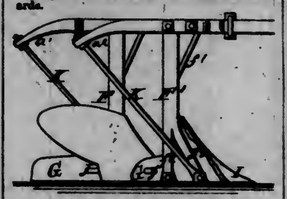
Brief.—Lever in center of truck actuates both brake-bars at once.



In a car-brake, the combination of the slotted connecting-rod, bent and passed over the spring-board, with the slotted lever *i* and brake-beams, substantially as shown and described.

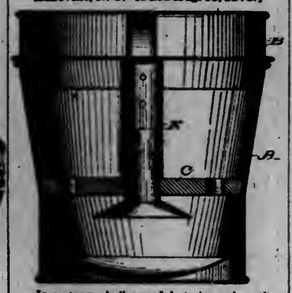
184,645. GANG-PLOWS. William M. Richardson, Roscoe, Ill., assignee of one-half his right to F. W. Warner, same place. [Filed Aug. 26, 1876.]

Brief.—Construction of the frame and standards.



The gang-plow herein described, consisting of the bent longitudinal bars A A', connected by the bars C D, all made in one piece, and standards F F', having upper extensions *f* and lower extensions *f' f'* bolted to the land-sides G G of plows, substantially as described, and for the purpose set forth.

184,646. WASH-BOILERS. H. G. Robertson, Asheville, N. C. [Filed Aug. 16, 1876.]



In a steam-boiler and hot-air washer, the combination of the boiler A, the recessed and perforated lid or cover B, and the perforated disk C, having the tube E, all constructed and operating in the manner described, and for the purpose specified.

184,647. CIDER-PRESSES. J. C. Salisbury, Sherborn, Mass. [Filed Oct. 9, 1876.]

Brief.—The grooves at the meeting ends of the sections have flaring mouths, so that when the sections are placed together, the grooves of the upper section cannot be obstructed by the projections between the grooves of the lower section.



A curb for cider-presses, composed of the sections A' A', having the internal grooves *b*, which are flared or widened at the proximate ends of the sections, as set forth.

184,648. CARTRIDGE-BOXES. Solomon T. Satterwhite, Nashville, Tenn. [Filed Apr. 27, 1876.]



1. The circular case A A', having a central and annular compartment, and an opening upon its periphery, in combination with the annular revolving frame B, having transverse partitions, forming cartridge-chambers, substantially as and for the purpose described.

2. The lever C, pivoted upon the periphery of the case, and adapted to move in a plane parallel with the side of the same, and having a notch, *f*, with oppositely-inclined faces, in combination with the spring *g* and the annular frame B, having partitions *d*, substantially as and for the purpose described.

3. The detachable case A A', slotted at h, and having an opening, *e*, in combination with the annular chambered frame B, the spring *g*, and the lever C, substantially as and for the purpose set forth.

184,649. MACHINES FOR UPSETTING TIRES. Nelson Sawyer, Greenfield, Mass., assignor to the Wiley & Russell Manufacturing Company, same place. [Filed July 12, 1876.]

Brief.—The carriers which contain the serrated clamping-cams are pivoted to stationary blocks, and are advanced and retracted by cam levers.



1. In a tire-shrinking or upsetting machine, the means provided for adjusting and disengaging the cams, consisting of a carrier pivoted to an upright shoulder, and operated by a cam-lever or other equivalent mechanism, as and for the purposes described.

2. The combination of the bed-plate, the movable arm, the milled cams, the carriers, and the cam-levers, as and for the purposes described.

184,650. CAR-AXLE BOXES. O. L. Smith, Providence, R. I. [Filed May 24, 1876.]

Brief.—At the rear of the journal is a collar permanently attached to the axle, and, in connection with the packing, forming a dust-guard. The oil-receptacle is below the axle, and the oil is thrown upward, so as to flow over the journal, by means of an arm attached to the front end of the axle.

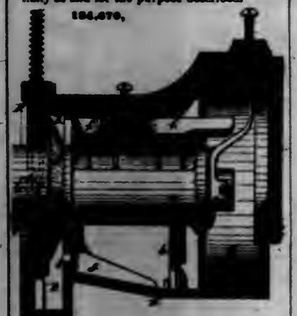
1. In a car-axle box, the shell A, having the rectangular space B depressed below the main portion of the shell, and arranged to receive the collar D and packing *a b*, substantially as and for the purpose described.

2. In combination with an axle, having a shrunk or welded collar at the rear end of the journal, an axle-box, having its rear opening enlarged to admit said collar, and with said opening arranged eccentric to and higher than said axle when in place.

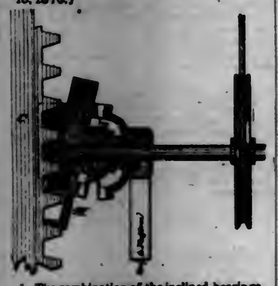
3. The combination, with the collar D, of the packing *a b*, made in two parts, and arranged substantially as described, to exclude the dust and prevent the waste of oil, as and for the purpose specified.

4. The shell A, having the rectangular space B extending below the shell, the opening *i*, the oil-well G, and the removable partition *h*, arranged in relation to each other substantially as and for the purpose described.

184,670.



184,671. SELF-CLOSING HATCHWAYS. A. G. Stevens, Manchester, N. H. [Filed May 15, 1876.]

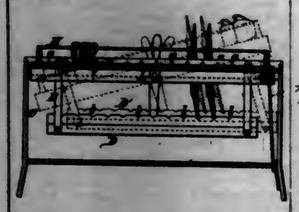


1. The combination of the inclined bearings F F', the shafts projecting into the spaces between the racks, the sprocks or worm-gears H H', and the double racks with inclined teeth, substantially as and for the purposes specified.

2. The combination of the pivoted rock-levers, the shoes or strikers P P', and the lifters or cams Q Q' for controlling the movements of the hatches when the elevator is below them, substantially as and for the purposes described.

3. In an elevating mechanism the combination of, first, the double inclined racks D D', with a guide space or groove between them; second, the sprocks or worm gears H H' engaging therewith, and actuated simultaneously by suitable driving mechanism; and, third, the transverse shaft carrying the worm-gears and projecting at each end into the guide spaces of the racks, all constructed and operating substantially as and for the purposes set forth.

184,672.

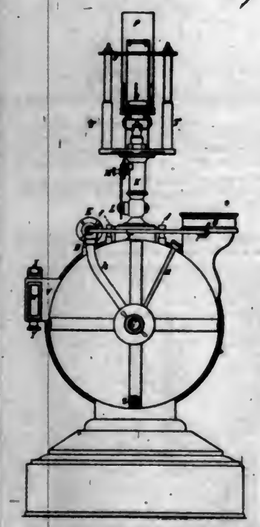


184,673. DISH-DRAINERS. Harley Stone, Worcester, Mass., assignor of one-half his right to Theodore L. Chase, same place. [Filed July 13, 1876.]

1. The dish-drainer described, consisting of a rectangular frame, having bars *a a*, to which is hung the reciprocating bottom D, provided with notches *b b*, substantially as shown and described.

2. The swinging cup-rack C, with its retaining-bars H H and pivot I, substantially as and for the purposes described.

184,674. APPARATUS FOR INDICATING THE ILLUMINATING POWER OF GAS. William T. Sugg, Westminster, England. [Filed May 15, 1876.]

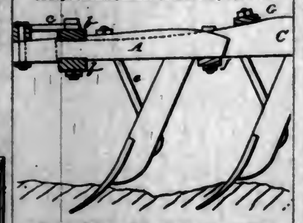


1. In the apparatus for indicating the illuminating power of gas described, the by-pass E, provided with a handle, *b*, constructed and operating as and for the purposes described.

2. In the described apparatus for indicating the illuminating power of gas, the by-pass E, governors G, and standard K, connected by tubes and combined together, as described.

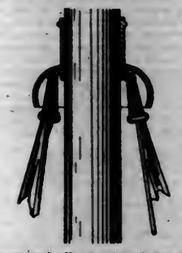
3. In the described apparatus for indicating the illuminating power of gas, the adjustment-cock L, provided with a pointer, M, the standard K, the burner O, the marked glass R, and the bar U, supported upon pillars T T, as and for the purposes described.

184,675. CULTIVATORS. Thomas I. Teagle, Independence, Miss. [Filed July 3, 1876.]



In a cultivator, the combination, with the adjustable side beams C C and the upper and lower transverse connecting-bars G J, of the upper and lower front transverse bars *b b* and the central draft-beam A, extended in rear to rest on the lower or transverse bar J, connecting said side beams, substantially as specified.

184,676. UMBRELLAS. Alfred A. Valentine, New York, and H. A. Morrison, Brooklyn, N. Y. [Filed Oct. 21, 1876.]

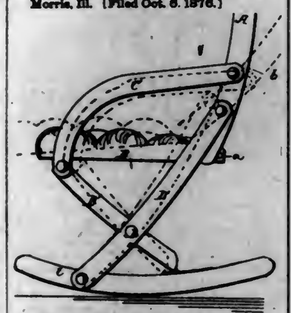


1. In an umbrella or parasol, the divided collar, constructed with an annular groove, recess, or projection, adapted to fit over an annular projection, or into an annular recess on the rib of the umbrella or parasol, and secure the covering of the umbrella thereon by means of a screw-tip, all substantially as described.

2. In an umbrella, the combination, with the ribs thereof, provided with annular shoulders near the extremities, of the divided collars, with or without the elastic washer adapted to fit over the same and secure the covering thereon, and the screw-tips for securing said collars in place, substantially as described.

3. The combination, with the umbrella-rib, having a recess at or near its end, of the clamping-tip, constructed and arranged to clamp the covering in said recess, as and for the purpose shown and described

184,676. FOLDING CHAIRS. John A. Ware, Morris, Ill. [Filed Oct. 6. 1876.]



1. The combination, with the back A, of the arms C, pivoted to the same at *b*, the seat B, having an adjustment at its front end, and pivoted to the back at its bottom *e*, the lengthened rear legs D, pivoted to the back between the pivots of the seat and arms, and the short front legs D', pivoted to the arms at *f*, and the rear legs at *i*, substantially as and for the purposes described.

2. The right-angular hinges *d*, in combination with the back A and seat B, to adapt the same to be successfully folded when upholstered, substantially as described.

184,677. CLOTH-MEASURING MACHINES. James Wayland, Newark, N. J., assignor of one-half his right to John Henry Cooke, same place. [Filed Mar. 16. 1876.]

1. The combination, with the rising and falling measuring-drum C, of the cam D on the end of the said drum, the vertical-ended horizontal slide G, the pawl *g*, the ratchet *f*, and the rotating dial E, having its face parallel with the axis of the measuring-drum, all as herein described.

2. The combination of the measuring-drum C, the tension-rods F F F, and the winding-shaft L, arranged relatively to each other substantially as herein described, whereby the cloth is made to travel at an upward and backward inclination, to afford facility for inspecting it while being measured and wound, substantially as herein set forth.

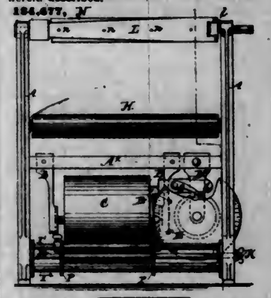
3. The tension device, consisting of the rods F' F', arranged triangularly and adjustable relatively to each other, substantially as and for the purpose herein described.

4. In combination with the hinge-joint at one end of the winding-shaft, the slot-and-button connection *c m* and permanent gudgeon I" at the other end thereof, substantially as herein described.

5. The winding-shaft L, provided with the spurs *n*, and having its edges tapered toward one end, in combination with a bolt-board, substantially as and for the purpose herein described.

6. The stationary bar *c*', arranged directly under the axis of the measuring-drum, and receiving the whole weight thereof through the interposed cloth, in combination with the vertical guides *b b*, receiving the journals or gudgeons *a a* of the said drum, substantially as herein described.

184,677.

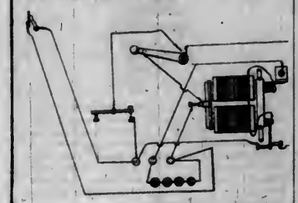


184,678. SUPPORTS FOR PILLOW-SHAMS. Albert S. Whittemore, Windham, Conn. [Filed Sept. 18, 1876.]



A pillow-sham supporter consisting of a bar with attached catches or fastenings for the pillow-sham, and a loop by which to suspend it, substantially as herein described.

184,679. ELECTRO-MAGNETIC ALARMS. D. H. Whildin, Brooklyn, assignor to himself and Alexander Morton, New York, N. Y. [Filed June 19, 1876.]

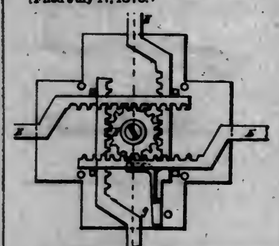


1. The electro-magnet *a*, set to swing upon the pivot *b*, in combination with the two armatures *d* and *e*, and bell or signal, and circuit-connections, substantially as set forth.

2. The combination, with the electro-magnet *a* and two armatures, *d* and *e*, of the circuit-spring *i*, finger-key *w*, and circuit-connections, substantially as set forth.

3. The combination, with an electro-magnet swinging upon pivots, of a counter-weight, *c*, spring *o'*, and arm *s*, substantially as and for the purposes set forth.

184,680. DOOR-LOCKS. Benj. T. Whitson and Samuel C. Hush, Jr., Baltimore, Md. [Filed July 17, 1876.]

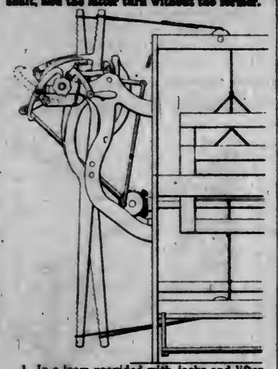


1. An offset toothed bolt, E, projected and retracted by means of the toothed hub F, as described, combined with the spring *g*, which, when the said bolt is projected, springs over the base thereof and locks the same, substantially as specified.

2. In combination with one of the bolts E, notched near to the outer end thereof, as shown, the keeper E', provided with the spring-bolt *h*, adapted to be held, when pressed down, by means of the spring-arm *d*, and released through the medium of the pin *f*, projecting from the said spring-arm, substantially as and for the purpose set forth.

184,681. LOOMS. Joseph F. Wicks, Worcester, Mass., assignor to George Crompton, same place. [Filed May 29, 1876.]

Brief.—Reverses the pattern by two reverse ratchet-wheels on pattern-cylinder shaft, and a double and weighted pawl actuated from the shedding-shaft. A counter-shaft with hand-crank gears with the shedding and crank shafts and by a reciprocating rotation of said hand crank the key may be caused to beat up as far as to just fail actuating the picking and shuttle-box motions, so opening and separating the warp-threads, and at the same time the shedding-shaft is actuated sufficiently to move the shedding mechanism and pattern-surface. The hand-crank may be unlocked from rigid hold on the counter-shaft, and the latter turn without the former.

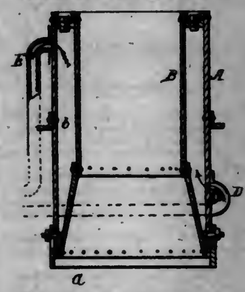


1. In a loom provided with jacks and lifter and depressor and evener and pattern-cylinder, the combination of the shedding-shaft connected directly with the crank-shaft, and adapted to move the shedding mechanism and pattern, with a double pawl, a pinion on the shedding-shaft, and a hand-shaft provided with a pinion, and extended along the side of the loom, whereby, through the action of the hand-shaft, the shedding mechanism, pattern-surface, shedding-shaft, and crank-shaft may may be turned at will in unison, in either direction, substantially as set forth.

2. The rock-shaft connected with and operated by the shedding-shaft, and the pattern-surface and ratchets *k l* of the pattern-surface and turn it in either direction, substantially as described.

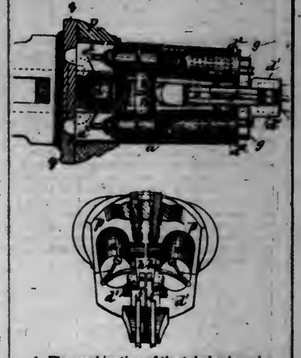
3. The combination of the hand-shaft and shedding-shaft with the handle, and mechanism to lock or unlock it from the shaft, whereby the handle, when unlocked, may remain at rest as the shaft is rotated by the crank-shaft.

184,682. COMBINED PETTICOAT-PIPE AND FEED-WATER HEATER. Chas. B. Winans, Lincoln, Ill. [Filed Aug. 20, 1876.]



The petticoat-pipe B, surrounded by wall A, forming water-chamber *b*, in combination with eduction and induction pipes D E, and the adjustable band G, all constructed substantially as and for the purposes herein set forth.

184,683. BIBBON-LOADING FIRE-ARMS. Thos. Woodward, Birmingham, England. [Filed Sept. 22, 1876.]

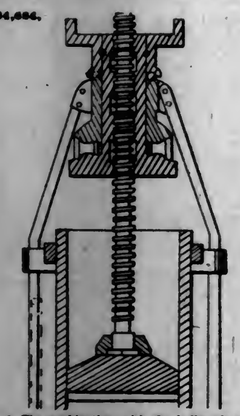


1. The combination of the tubular barrel or case *a*, (or barrels or cases,) striker *b*, (urged forward by a coiled spring, and provided with a catch or projecting part, *h*,) and hooked sear-lever *d d'*, with the hand-lever *i F*, by which the barrel or barrels is or are locked and unlocked, the said parts being constructed, and arranged, and working substantially as described and illustrated.

2. The combination, with the sear-lever or trigger, operating substantially as herein shown and described, of the pivoted safety-pin, provided with a thumb-plate to be worked from without the lock, substantially as herein shown and set forth.

184,684. BALING-PRESSES. W. A. Wright, Augusta, Ga. [Filed Apr. 4, 1876.]

184,664.



1. The combination, with the baling-chest, of a pressure-block, C, hung to the frame so that it may be turned outward to expose the end of the baling-chamber, substantially as specified.

2. The head-block, provided with an annular rib, *f*, on its lower face, in combination with the flange of the nut I, having a similar rib, and with intervening tapering grooved rollers, as set forth.

3. The nut I, recessed to form detached threaded bearings and intermediate oil-chambers *x*, as described.

4. A baling-press, provided with side bearings at b^1 and with an end bearing at *w*, whereby it may be supported with either end uppermost, either in a stationary position or so as to revolve on its vertical axis, as specified.

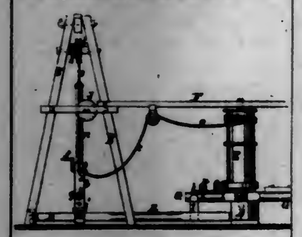
5. The combination of the press and the hooked arms or rods N, as and for the purpose set forth.

6. The brackets E, secured to the rods G, and having forked ends bolted to the baling-chest, as specified.

7. The brackets $E^{\prime\prime}$, having bearings for the journals of the doors or sides D^2, and connected by tie-rods *s'*, substantially as set forth.

184,665. EARTH-BORING APPARATUS. W. H. Yarborough, Sherman, Tex. [Filed Oct. 11, 1876.]

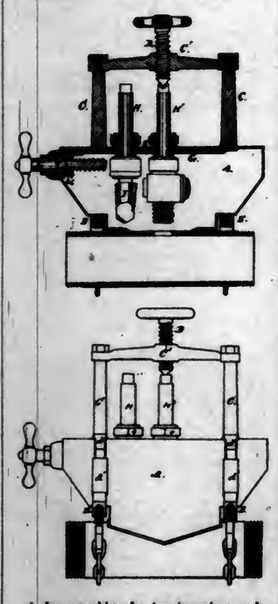
Brief.—The auger is of tubular form, and is suspended by a rope passing over a pulley, the other portion of which may be clamped to an arm projecting from a horizontal rock-shaft, which also carries another upright arm, adapted to encounter the spokes of a revolving upright shaft actuated by horse-power, with the effect of reciprocating the bollow auger up and down, and then filling it with earth. When full the rope is detached from the clamp, and allowed to wind up on a windlass carried by the upright shaft, and clamped for the purpose. The auger, with its load, is then lifted and emptied, and the operation may be repeated. A drill is substituted for the auger when rock is encountered.



1. In combination with the rock-shaft A, the arms I and I, when constructed and operated as and for the purpose herein set forth.

2. In a well-boring machine, the windlass E and arms G, when constructed and arranged to operate a rock-shaft, as herein specified.

184,666. MACHINES FOR TAPPING PIPES UNDER PRESSURE. John Miller, Cambridgeport, Mass. [Filed Apr. 24, 1876.]

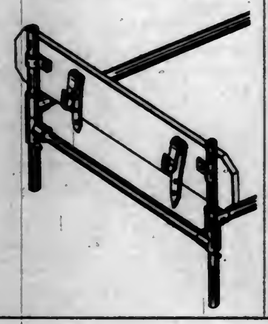


1. In a machine for tapping pipes under pressure, the case A and stationary frame C C C', carrying feed-screw D, in combination with the sliding plate G *g*, carrying spindles H H', when the said plate is arranged within the case A so as to be packed by the pressure of the fluid, substantially as and for the purpose set forth.

2. In a machine for tapping pipes under pressure, in which the sliding spindle-carrier is arranged within the case, and so as to be packed by the pressure of the fluid, the operating-screw L, arranged and combined with the said carrier and case, substantially as shown and described.

REISSUES.

7,206. BEDSTEADS. Hugh B. Coyle, Philadelphia, Pa. Patent No. 127,312, dated May 28, 1872. [Filed Sept. 14, 1876.]



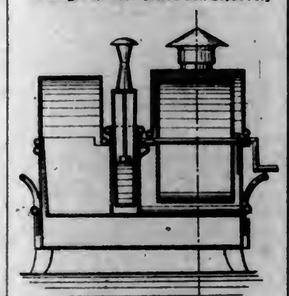
1. A folding bed-frame composed of rails having at each end a T-socket, through which the posts slide, the rails with their sockets being each separate and independent of the others, to facilitate the erection and folding of the bed, substantially as shown and described.

2. The combination of the posts A, having shoulders *a'* and rails B C, having separate T-couplings D D', the said parts being combined and arranged to form a folding bed-frame, substantially as shown and set forth.

3. The head-board E, having sockets *e*, composed of straps, staples, or equivalent devices for securing it on the posts, substantially as shown and described.

4. The combination, with said head-board, of straps *e'* for holding the parts together when packed for transportation, as set forth.

7,207. PEA-NUT ROASTERS. Jean Esposito, New York, N. Y. Patent No. 161,324, dated Aug. 22, 1876. [Filed Oct. 26, 1876.]



1. A pea-nut roaster having the bottom of the roasting-chamber B on a plane with the bottom of the water-chamber, and with the bottom of the storage-chamber E, substantially as herein shown and described.

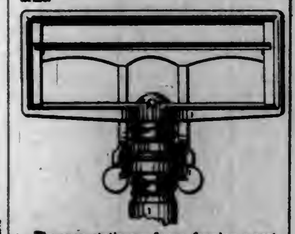
2. A pea-nut roaster composed of a vertical roasting-chamber, B, having a horizontal grate, and of the vertical storage-chamber E, said chambers being placed at a distance apart to admit a vertical water-tank, F, between their walls, substantially as herein shown and described.

3. The removable water-tank F, placed vertically between, and combined with, the roasting and storage chambers B and E of a pea-nut roaster, substantially as described.

4. In a nut-roaster, the combination of the chambers B, F, and E, which are placed side by side, with the draft-passage D, which extends beneath the bottom that unites them, substantially as herein shown and described.

7,208. MOP-HEADS. Emile Sirret and Emile O. Sirret, Buffalo, N. Y., assignors, by mesne assignments, to Clark & Co., same place. Patent No. 86,917, dated Apr. 13, 1869. [Filed Sept. 26, 1876.]

Brief.—The movable jaw is connected to the operating-nut by means of two grasping-arms.



The open stationary frame, forming a part of the threaded socket which receives the handle, in combination with the movable jaw or cross-head and a ring-nut arranged on the screw-socket of the open stationary frame, for operating the movable jaw and adapting the latter to come in contact with the upper part of the open fixed frame, for clamping a mop, substantially as described.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

COMMISSIONER'S DECISIONS.

MERRILL & MERRILL *vs.* GLIDDEN.—*Motion; Appeal.*

[*Appeal from the decision of the Examiners-in-Chief in the matter of the interference between the application of Luther and John C. Merrill for a reissue of Letters Patent No. 155,538, dated September 29, 1874, filed October 18, 1875, and the reissue patent of Joseph F. Glidden, No. 6,914, dated February 6, 1876, "IMPROVEMENT IN BARBED FENCE-WIRES."—Decided November 23, 1876.*]

A party cannot introduce only so much of his case as he thinks necessary, and when the decision is adverse ask that the case be reopened to permit him to introduce that which might have been put in at first, but was omitted by inadvertence or misjudgment.

It is not sufficient that the matter sought to be introduced would strengthen the case, but it must be so material that if admitted it would change the decision.

To entitle a party to a reopening of his case on the ground of newly-discovered evidence, it must be shown that it was either discovered since the case was decided, or could not have been earlier obtained.

No surprise exists where the party was apprised of the defense.

[*Mason, Fenwick & Lawrence*, attorneys for Merrill & Merrill. *Gilmore, Smith & Co.*, attorneys for Glidden.]

DUELL, *Commissioner:*

This is an appeal from the decision of the Board denying a motion made on the part of Glidden for a reopening of the case, in order that he may take further testimony.

The facts alleged in support of this motion are, substantially, that the Board in their decision upon the merits held that the model upon which one division of Glidden's reissue is based is not the same as that filed with the original application, and that fraud has been practised in the procurement of said reissue.

It appears from the evidence on file that the Merrills in their testimony in chief introduced the evidence of one Rose, to the effect that in examining the models prior to the filing of Glidden's reissue application he saw the model belonging to his patent, and that it did not contain the features in controversy. Of this Glidden was aware, and instead of introducing testimony in rebuttal, such as he now claims he can, and might have introduced, he rested his case with some indirect testimony on the matter upon the records of the Office as they now appear.

An examination of the decision rendered by the Board shows that it was not alone upon Rose's testimony that they found the records of the Office unreliable, but that other circumstances materially contributed in establishing the fact in their opinion. Their ultimate finding in favor of the Merrills was not based directly upon this allegation of fraud; but, as appears from their written opinion, they found that upon the evidence presented the Merrills were the prior inventors, having conceived the invention prior to the date claimed by Glidden, and that they used reasonable diligence in adapting and perfecting the same.

The correctness of the decision of the Board cannot be inquired into on this appeal, excepting so far as it is necessary to a proper understanding of this motion. The rule established in *Dod* vs. *Cobb*, (10 OFFICIAL GAZETTE, 462,) with regard to motions of this kind, applies in the present instance. The grounds alleged in support of this motion are repugnant to all the rules governing the grant of new trials, some of which, specially applicable to the present case, may be referred to.

It is a rule that a party is not at liberty to give so much of his evidence as he may deem proper, and upon finding that it is insufficient for the purpose then ask to be allowed to correct his mistake by doing that which he could well have done in the first instance. (Hilliard on New Trials, 378 and 231.)

The matter sought to be introduced must be so material that if admitted it would change the decision already rendered. (Ibid, 61 and 395; *U. S.* vs. *Cornell*, 2d Mass., 91; *U. S.* vs. *Smith*, 1 Saw., 277; *White* vs. *Arleth*, 1 Bond, 319.) And it is not sufficient that such newly-discovered evidence would strengthen applicant's

case without necessitating a different finding. (Hillard on New Trials, 396.)

As was held in *Prevost* vs. *Gratz*, (1 Peters, C. C., 379,) it is insufficient to entitle a party to a rehearing that material testimony was omitted by inadvertence or misjudgment. It is clear, therefore, that Glidden cannot find support for his motion on the ground of newly-discovered evidence, for his case is opposed to the above rules, and also to the general rule that the testimony must have been either discovered since the case was decided, or could not have been earlier obtained.

As to the matter of surprise which was referred to in the argument as a reason why this motion should be allowed, it is evident from the facts in the case that the only surprise on Glidden's part was the decision against him upon the testimony introduced, and this is no ground for reopening the case. (*Jackson* vs. *Roe*, 9 Johns., 77; *D'Leyer* vs. *Michaels*, 5 Abbotts' Pr. Rep., 203.) No surprise exists where the party was apprised of the defense, as Glidden was in this case by the testimony of Rose. (*The People* vs. *Marks*, 10 How's Pr. Rep., 263.)

The motion being opposed to all the rules which apply in such cases presents no ground for reopening the case, and the decision of the Board is affirmed.

JAMES Y. CARMICHAEL.—*Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of James Y. Carmichael, for* "IMPROVED SYSTEM OF IRRIGATION," *filed March* 20, 1875.—*Decided November* 18, 1876.]

An improved system of irrigation constituting an improvement in the art may be the subject of a patent.

The system under consideration found deficient in invention in view of the state of art, and therefore not patentable.

[*F. A. Lehmen*, for applicant.]

DOOLITTLE, *Acting Commissioner:*

The subject of this application is an improved system of irrigation.

Applicant describes his invention as follows:

A represents a ditch, dug in the lowest part of the land to be irrigated, and toward which the greater part of the water naturally flows. The earth excavated to form the ditch is thrown to both sides, so as to form levees D, by which the water is prevented from flowing into the ditch along its whole length. The ditch is graded, so that the water cannot remain stationary, but must flow out, and a fall of a few inches per hundred feet is sufficient to effect this. Generally this slight fall of the ground is obtained by simply directing the course of the ditch toward a water-course, such as a creek or run; but if the desired fall cannot be had it is necessary to create an artificial fall by making the ditch shallower at the head and increasing its depth gradually to the end. It may even become necessary to extend the ditch much farther than the land which it is desired to irrigate or overflow, but it is essential to provide an outlet, in order to derive the desired benefit.

Having the central ditch A well secured against an overflow from the sides, a number of ditches, B, are dug from both sides toward the central ditch, so as to fall into it at an angle of about thirty-five degrees. These ditches are made shallow at their heads, increasing in depth as they approach the ditch A, but are at their junction not quite as deep as the ditch A.

The earth thrown out of the ditches B is placed at their lower side, and the levees thus formed are connected with the levees D along the central ditch. By means of these cross-ditches and levees, the water that may be standing upon the lands above them must flow into them, and is directed into the central ditch and carried off, if desired, and no water can escape in any other direction.

Below the junction of the ditches B and A, in the ditch A, are properly secured boxes C with grooves in their sides for the insertion of a board or gate, E, to arrest the down-flow of water in the central ditch; hence if the water exists in sufficient quantity an overflow of the lands above to the height of the levees erected along the ditches may be obtained. * * * * *

He claims:

The method herein described of laying the ground off in sections and then dividing them by ditches, all of which ditches communicate with a large central channel, A, the sections being made to incline from the upper levees down to the ditches B, as specified.

Two grounds of rejection are given by the Examiner and the Examiners-in-Chief:

1st. That the invention is not patentable subject-matter.

2d. That it is substantially met by the general state of the art, as shown by a description in the new American Cyclopœdia under the title "Irrigation."

The position of the Board of Appeals on the first point is thus stated:

Ditching for irrigation or drainage has been practiced since agriculture had existence, and the public have a right to put ditches in just such places and relations to each other as will do the most good. It would be as absurd to give a monopoly of any particular plan for a system of ditches as it would for a plan for short church services, or a mode of laying out garden-walks.

The author of a plan for "short church services" might very properly receive the protection of the copyright laws should he confer the benefit of his invention upon the public by means of a publication, and there is certainly nothing in the constitution and the laws to prevent the extension of patent laws to the protection of inventions or improvements in the useful art of gardening.

The subjects of patents are described in the statute as—

Any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof.

Curtis construes the term "art" to embrace—

Those inventions where the particular apparatus or materials employed may not be the essence of the discovery; but where that essence consists in using apparatus or materials in new processes, methods, or relations, so as to constitute a new mode of attaining an old result, or a mode of attaining a new result in a particular department of industry, which result may not of itself be any new machine, manufacture, or composition of matter; or, finally, an entirely new process of making or doing something which has not been made or done before by any process.

The United States Supreme Court, in citing this doctrine in *Jacobs* vs. *Baker*, (7 Wall., 295,) "assume" the correctness of this position without attempting to define the term with "logical accuracy," but concede as examples coming within a correct definition of the term the art of printing, that of telegraphy, that of photography, and that of tanning leather.

The subjects of the several patents then in controversy were "improvements in the construction of 'prisons,' 'iron-plate jails,' and 'iron prisons.'"

In the first patent was claimed a "secret passage or guard chamber around the outside of an iron plate jail, and between said jail and a surrounding inclosure, constructed and arranged substantially as described, for the purpose set forth."

The patents were sustained.

In the case of Wm. Ward, (4 OFFICIAL GAZETTE, 350,) the Commissioner allowed a patent for an improvement in a house, consisting in the peculiar location and construction of a broken wall therein.

The Commissioner held that inventions are not to be ignored because they relate to the subject of architecture, that there is no reason for excluding patents for inventions from the art of building, which will not apply to exclude them from every other art, and that in whatever department of art a new and useful invention is produced a patent for it duly applied for cannot lawfully be refused.

Improved modes of irrigation are as much entitled to be classed in the category of subjects to which patent privileges may extend as any of the arts above mentioned.

The second objection is much better taken.

The plans of irrigation generally in vogue at that time are mentioned in the article referred to in the American Cyclopœdia; but the particular plan of applicant is not described. The general system, however, of employing a main ditch or canal with lateral branches and gates, is old, as may be seen in numerous works on irrigation, especially in the Reports of the Commissioner of Agriculture. My attention has been called particularly to the Reports of that Department for the years 1870 and 1874. In the volume last mentioned is the report of a commission on the subject of "Irrigation in California." A system is there proposed based on the results of the irrigation systems of the Old World, which represents on a large scale and broadly covers, all the prominent features claimed by the applicant, viz., ground laid off into sections divided by ditches, all of which ditches communicate with a large central channel, the upper sections being made to incline from upper levees to the lower ditches. The description is accompanied by a diagram.

Gates are shown and described as being used to check the flow of water in the main and its central branches at any point, and direct its course into particular sections of land.

There are some peculiarities possessed by the present plan that are not mentioned in these references, but they are small matters of detail which do not affect the general principle, and which are the result merely of the exercise of judgment or ordinary skill, and do not call into play the exercise of the inventive faculty.

The judgment of the Examiners-in-Chief is affirmed.

HERMANN AND TAYLOR.—*Reissue; Appeal.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the application of August Hermann and Warren H. Taylor for reissue of Letters Patent No.* 106,367, *filed May* 5, 1876, *for* "IMPROVEMENT IN ANODES FOR ELECTROPLATING WITH NICKEL."—*Decided November* 2, 1876.]

A disclaimer contained in a patent, and which has no reference to the invention described, or limitation upon the claim, may be omitted in a reissue without rendering it liable to the objection of new matter.

The doctrine of estoppel cannot apply in such case.

[*M. S. Hopkins*, attorney.]

DOOLITTLE, *Acting Commissioner:*

The vital point in this appeal is the alleged new matter in the reissue application.

The applicants in their patent describe their improvement in anodes for electroplating with nickel or other metal as follows:

A represents the ordinary carbon-plate used in anodes for electroplating, and made in the usual manner. While this plate is yet in a plastic state, particles of metal B B are pressed into the surface thereof, so that when dried said metal particles will be perfectly and firmly united to the carbon-plate.

In the anodes now generally in use the metal is held to the carbon-plate by netting or other means, and it often happens that the sediment, which always settles in the solution, gets in between the metal and the conductor, thereby hindering, if not altogether stopping, the action.

By our invention this is altogether obviated, and the surface of metal to be acted upon is largely increased.

C is the copper staple, molded or otherwise fastened into the carbon-plate, for suspending the anode, and also for connecting the electric wire.

When the plate A is made of other material than carbon, for instance, of platinum, the small pieces of metal are united to the outside thereof by any adhesive sticking substance, such as shellac, or glue, or other suitable substance.

The claim is for—

An anode for electroplating, composed of a plate, A, with particles of metal B B united to the outer surface thereof, substantially as herein set forth.

Toward the close of the specification the following disclaimer was made:

We do not wish to be understood as claiming an anode in which particles of nickel are worked in the body of the carbon when the latter is in a plastic state, and the compound thus formed afterward pressed and molded into the desired shape to form the anode, as such is not my invention.

There appears to be such a radical difference between the matter described and claimed and that contained in the disclaimer, that I fail to comprehend why the latter should have been required.

The disclaimer is for an anode in which the particles of nickel are worked in the body of the carbon, and the general mass pressed and molded in the desired shape very much as fruit is kneaded in dough before a cake is formed. In applicants' case no incorporation of the particles of nickel into the general mass before kneading takes place, but the same is simply embedded in the mass, as currents are sometimes massed upon and pressed into the surface of a cake.

There appears to be no controversy as to that part of the patent which describes an anode consisting of a metallic plate, to which the outside particles of metal are united by an adhesive substance.

The so-called disclaimer then was not of that character which is required when a patentee finds that part of his invention is old; neither was it necessary to distinguish the invention described and claimed from what was set up in such disclaimer.

The technical doctrine of estoppel urged against applicants in this case does not apply here, as the disclaimer had no reference to their invention. Applicants are estopped only, as all reissue applicants are estopped, from setting up new matter not embraced in their original specification, drawing, or model.

It appears from the record that, in the opinion of the Primary Examiner, the disclaimer was deemed necessary, in order to avoid an interference with another and then pending application, and now patent. I do not propose to consider that question at all, but merely the point whether the matter embraced in the disclaimer, which is the alleged present new matter, and which was certainly foreign to applicants' original invention, is now attempted to be introduced. If the result should necessitate, in the opinion of the Examiner, an interference with some other application or patent, that is another matter, and need not now be determined.

After a careful reading of the reissue application I cannot find embraced therein the process of making an anode by the intimate mixture of particles of metal and carbon while the latter is in a plastic state, followed by pressing and molding the same into the desired shape. Nor does the Examiner attempt to point out wherein the applicants describe or claim such a process or the product thereof. He contents himself with the general assumption that the applicants "aim to cover" such matter. The Board of Appeals remark that "the claims are possibly liable to be construed to embrace the invention of Weston," &c.

It would have added to the elucidation of the subject if these tribunals had pointed out the particular claim, or that portion of the specification in this application, wherein, in their opinion, the objectionable matter was included.

The first claim is for—

An anode for electroplating, consisting of a conductor with particles of the metal to be deposited embedded therein, substantially as herein set forth.

We are here particularly referred to the specification as to the manner in which the particles of metal are embedded. But, in the first place, the very term "embedded" is opposed in meaning to the idea of an intimate and thorough mixture of substances.

Embed, as Webster defines it, is "to sink or lay, as in a bed, to deposit in a partly-inclosing mass, as of earth," &c.

"Our process," say the applicants in their present application—

Consists in taking the ordinary carbon-plate used in anodes for electroplating and, while it is yet in a plastic state, embedding particles of the metal therein, so that when baked or otherwise dried the said metal particles will be firmly and securely united with the carbon-plate, and the whole made to constitute a firm, compact mass.

I see no departure herein in principle from the process as originally described, which was—

While the plate is yet in a plastic state particles of metals B B are pressed into the surface thereof, so that when dried said metal particles will be perfectly and firmly united to the carbon-plate.

The remaining claims are equally circumscribed by the specification, and the process above named. I am, therefore, of opinion that no new matter is attempted to be covered by this reissue application.

The decision of the Examiners-in-Chief is reversed.

PRATT AND FARMER.—*Trade-Mark.*

[Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Pratt and Farmer for the registration of a trade-mark to be applied to "FISHING LINES."—Decided November 27, 1876.]

A person has no right to appropriate a sign or a symbol which, from the nature of the fact it is used to signify, others may employ with equal truth, and, therefore, have an equal right to employ for the same purpose.

DOOLITTLE, *Assistant Commissioner:*

The U. S. Supreme Court in the case of the *Canal Co.* vs. *Clark*, (13 Wall, 311,) held that a person—

Has no right to appropriate a sign or a symbol, which, from the nature of the fact it is used to signify, others may employ with equal truth, and, therefore, have an equal right to employ for the same purpose.

Numerous cases are there cited also sustaining this doctrine.

Now, the figure of a fish when applied to lines having the form and substance of a line used for the purpose of fishing, and well known in trade as intended for that purpose, has no more arbitrary or fanciful signification than the figure of a boot in front of a shoe shop, or upon the article itself. In short, any maker of fish-lines has a perfect right to use this symbol instead of the word "fish." The authorities are so numerous and so clear upon this point that a further discussion of it is unnecessary.

The decision of the Examiner of Trade-Marks is affirmed.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date November 28, 1876.]

9,656.—Center-Pieces.—JOSEPH BLANKENBERG and GEORGE LIEBUM, Buffalo, N. Y. Application filed November 11, 1876. Term of patent 7 years.

9,657.—Embroidery-Pattern.—EMIL CRISAND, New Haven, Conn., assignor to HENRY ST. JOHN, same place. Application filed November 6, 1876. Term of patent 3½ years.

9,658.—Hat and Bonnet Holders for Trunks.—JOSEPH HALL, Newark, N. J. Application filed October 25, 1876. Term of patent 7 years.

9,659.—Watch-Cases.—JACQUES LAURENT, New York, N. Y. Application filed October 14, 1876. Term of patent 7 years.

9,660.—Hinges.—JOSEPH LEGER, Providence, R. I., assignor to P. & F. CORBIN, New Britain, Conn. Application filed October 26, 1876. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 28, 1876.]

4,148.—Gentlemen's Shirts and Underwear.—PERCY BEAMISH, San Francisco, Cal. Application filed February 11, 1875.

"The initial letter 'B,' with a circle."

4,149.—Cigarettes.—WILLIAM S. KIMBALL & Co., Rochester, N. Y. Application filed October 11, 1876.

"A black band or border upon a red ground, applied at the upper edge of the package or wrapper in which the cigarettes are put upon the market."

4,150.—Cordial or Liquor.—CHRISTIAN XANDER, Washington, D. C. Application filed October 30, 1876.

"The word-dymbol 'Mellston.'"

4,151.—Baking-Powder.—C. E. ANDREWS & Co., Milwaukee, Wis. Application filed October 3, 1876.

"The word 'PEARL.'"

4,152.—Sleds.—ABEL A. CROSBY, Rondout, N. Y. Application filed October 23, 1876.

"The word-symbol 'ULSTER.'"

4,153.—Writing and Copying Ink.—JOSEPH GARRUS, Stapleton, N. Y. Application filed October 17, 1876.

"The letters 'J. G.'"

4,154.—Cigars.—L. HIRSCHHORN & Co., New York, N. Y. Application filed October 14, 1876.

"The words 'Tom Moore.'"

4,155.—Cigars.—L. HIRSCHHORN & Co., New York, N. Y. Application filed November 11, 1876.

"The word-symbol 'LAFAYETTE.'"

4,156.—Adhesive Cement.—JOHN A. KEENAN, Camden, N. J. Application filed October 13, 1876.

"A representation described as follows: A weight suspended from a broken article that has been repaired, or from pieces of material that have been united, thus apparently illustrating the strength of the cement."

4,157.—Soap.—ALBERT MAU & Co., San Francisco, Cal. Application filed October 17, 1876.

"The word-symbol 'EMPEROR.'"

4,158.—Shoes.—FREDRICK PACKARD, Brockton, Mass. Application filed November 13, 1876.

"The word-symbol 'BURTHEN.'"

4,159.—Lamp-Wicks.—CHARLES A. SCHNEIDER, New York, N. Y. Application filed November 11, 1876.

"The representation of a star."

4,160.—Canned or Preserved Goods.—EPHRAIM HAMMOND SMOURDE, Philadelphia, Pa. Application filed October 14, 1876.

"A pictorial representation, which may be described as follows: Two retorts, one larger than the other, are connected by a pipe in the ordinary manner, below which are shown a plan and sectional view of the aforesaid retorts."

4,161.—Drop-Shot.—THE CHICAGO SHOT TOWER COMPANY, Chicago, Ill. Application filed November 6, 1876.

"The picture of the guns, crossed as described."

4,162.—Buck-Shot.—THE CHICAGO SHOT TOWER COMPANY, Chicago, Ill. Application filed November 6, 1876.

"The figure of a buck's head."

4,163.—Flour.—CHASE, WATERMAN & Co., Boston, Mass. Application filed November 11, 1876.

"The fanciful words 'CALCIUM LIGHT.'"

4,164.—Cigars and Tobacco.—V. MARTINEZ YBOR & Co., New York, N. Y. Application filed October 13, 1876.

"The word-symbol 'MERCURIO.'"

4,165.—Plate-Glass and Plate-Glass Mirrors.—THE FIRM OF THE GENERAL DEPOT OF FRENCH AND BELGIAN PLATE GLASS, New York, N. Y. Application filed October 28, 1876.

"The shield-shaped figure and the letters and character 'F. & B. P. G.,' arranged in connection with one another."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date November 28, 1876.]

903.—Title: **"This Starch is Perfectly Pure. Beware of Imitations."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

904.—Title: **"Duryeas' Superior Starch for the Laundry."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

905.—Title: **"Duryeas' Starch, Superior Refined."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

906.—Title: **"Duryeas' Satin Gloss Starch."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

907.—Title: **"Duryeas' Satin Gloss Starch."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

908.—Title: **"Duryeas' Glen Cove Starch."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

909.—Title: **"Duryeas' Celebrated Maizena."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

910.—Title: **"Duryeas' Maizena."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

911.—Title: **"Duryeas' Refined Maizena."**—GLEN COVE STARCH MANUFACTURING COMPANY, Glen Cove, N. Y. Application filed November 11, 1876.

912.—Title: **"Chris. Xander's Mellston."**—CHRISTIAN XANDER, Washington, D. C. Application filed October 30, 1876.

913.—Title: **"Ashley's Healing Compound."**—SILAS E. ASHLEY, New Bedford, Mass. Application filed November 18, 1876.

914.—Title: **"Dr. Freeman's Anodyne Cough Remedy."**—D. S. FREEMAN, Tidioute, Pa. Application filed September 29, 1876.

915.—Title: **"Dr. C. McLane's Lung Syrup."**—W. L. MCCORD & Co., Pittsburg, Pa. Application filed October 30, 1876.

916.—Title: **"Herb Wine—Rigg's Radical Cure for Dyspepsia."**—JAMES RIGG, Dubuque, Iowa. Application filed November 9, 1876.

917.—Title: **"Pure White Lime."**—WHITE ROCK LIME AND CEMENT COMPANY, McAfee Valley, N. J. Application filed May 25, 1876.

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per copy, or, where twenty or more copies are ordered at one time, at 10 cents per copy.

Coupon-books, to the amount of $2 or more, can be purchased from the Chief Clerk of the Patent Office; the coupons, for 10 cents each, may be filled out at any time, and, on presentation, will entitle the holder to a photolithographic copy of *any* drawing which has been reproduced.

The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior
Carriages and Wagons.	Mountings and Fittings.
Cloth.	Sewing-machines.
Cordage.	Ships, construction.
Crinoline and Corsets.	Ships, propulsion.
Driers and Kilns.	Signals.
Electricity.	Silk.
Felting and Hats.	Spinning.
Fire-arms.	Stationery.
Harvesters.	Stoves and Furnaces.
Knitting and Netting.	Thrashing.
Lamps and Gas-fitting.	Umbrellas and Fans.
Mills.	Weaving.
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

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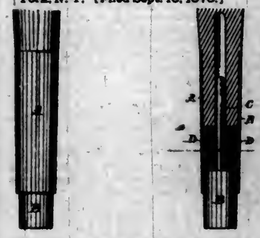
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Pirrung, G, Bed spring	184,899
Pollard, J. M., Bale tie	184,901
Pool, C. W., Post auger	184,900
Potts, W. W., Carpet stretcher	184,902
Preston, G. K., Silk doubling frame	184,724
Putnam, A. H., Miter machine	184,725
Quezada, G. C., Ventilating rooms	184,797
Quimby, E. E., Discharger for screw making machines	184,903
Quinby, E. C., and J. C. Whiting, Process of enameling metal ware	184,798
Rallo, C. P., Shaving case	184,904
Rand, C. P., Shutter fastening	184,726
Read, J. J., Metallurgic gas furnace	184,905
Rebhols, T., Iron fence	184,906
Reed, T. L., Manufacture of water proof hose	184,907
Rees, W. P., Spring bottom for beds, &c	184,727
Rile, H. E., Photograph cabinet	184,728
Rollins, J. O., Ax	184,799
Root, W. A., Bottle stopper	184,908
Rouse, M. D., Wall guard	184,729
Roy, B. S., Card grinding machine	184,909
Roy, B. S., Floor closing device	184,910
Roy, B. S., Pitman and connecting rod	184,911
Sage, H., Tobacco or cigar press	184,800
Sangster, J., Machine for cutting fibrous materials	184,912
Scantlin, T., Fly trap	184,730
Schlich, F., Stopper for bottles, (reissue)	7,408
Schnake, F. F., Machine for utilizing the exhaust of air engines	184,913
Schofield, S., Paper feeding machine	184,731
Scripps, W. A., Shears for cutting election slips	184,914
Sellers, W., Hydraulic accumulator	184,732
Shanahan, W. S., Lifting jack	184,915
Shapley, G. W., and D. Phillips, Earth auger	184,916
Sheppard, I. A., Stove grate	184,917
Shriver, W., Hydraulic organ blower	184,801
Shweikert, G., H. F. Peter, W. A. Klinge, and P. Assman, Vent valve for casks, &c	184,795
Sibert, C., Hose spanner	184,733
Siddall, R., Hand protector for broom handles	184,918
Silva, A. P., Coat	184,802
Simpson, J. M., Rotary engine	184,919
Simes, S. F., and C. Tate, Water filter	184,920
Smith, E. W., Carpet sweeper	184,735
Smith, H., Pliers	184,734
Smyth, S., Machine for uniting sheets of paper	184,736
Soper, R., Revolving grater	184,921
Soule, C. W., Lamp burner	184,803
Spofford, N., Transit instrument	184,922
Stacy, E. F., and J. H., Overalls, (reissue)	7,404
Staehlen, W. and W., Jr., Lamp	184,923
Star Tool Company, assignee of A. J. Barnard, executor of W. B. Barnard, deceased, Blind and shutter fastening, (reissue)	7,409
Stohlmann, F. A., Surgical saw	184,804
Stone, H. J., Machine for shaving metal for printers' rules and leads	184,738
Struble, L. A., Water wheel	184,805
Stull, A., and H. J. Bowman, Picture exhibitor	184,753
Sullivan, J. L., Farm fence	184,924
Tarr, J. B., Portable fog alarm	184,737
Tate, C., and S. F. Simes, Water filter	184,920
Taylor, T. C., Method of packing caustic alkali	184,925
Thomas, J. M. C., Lubricating oil	184,927
Thompson, C. A., Gondola car	184,928
Thompson, I. F., Cutter head	184,806
Tirrell, J. P., Electric gas lighting apparatus	184,807
Tomlinson, O., Car axle box	184,808
Thomson, J., Check rower	184,926
Tompkins, S. E., Harness saddle or coach pad	184,929
Tompkins, T. D., Apparatus for elevating hogs	184,930
Unbehend, J. J., Press	184,931
Van Tense, C. L., Dry electric pile	184,932
Van Valkenburg, R. T., Bee hive	184,809
Victory, C. H., Bale tie	184,739
Vogeley, A., Apparatus for beveling glass plates	184,933
Walbridge, H. E., Refrigerator	184,740
Walbridge, H. B., Railroad rail joint	184,741
Walrath, A., and E. D. Bronson, Broom machine	184,935
Walser, C. J., Detaching horses	184,934
Ware, J. A., Folding chair	184,936
Wheeler, H. F., Magazine fire arm, (reissue)	7,405
White, J. G. and M., Process for drying malt	184,942
Whitehead, T. J., Cooking range	184,810
Whitehill, R., Bobbin winder for sewing machines	184,937
Whitehill, R., Sewing machine	184,938
Whitehill, R., Tuck creaser for sewing machines	184,939
Whiting, E. B., Machine for dressing and combing tampico and bristles	184,940
Whiting, J. C., and E. C. Quinby, Process of enameling metal ware	184,798
Whitman, C. E., Mill for crushing and grinding fruit	184,941
Whorwell, H., and J. T. Blauvelt, Spindle step for spinning frames	184,742
Wilder, J. K., and T. S. Merrell, Composition alloy	184,884
Willett, G., Tanpico combing and dressing machine	184,943
Williams, W. D., and E. Boobyer, Corn shelling implement	184,826
Williamson, J. T., Lamp extinguisher	184,813
Willis, D., Window shade roller	184,811
Willis, J. B., Machine for cutting horseshoe nails	184,812
Wilson, J. G., Rolling shutter	184,944
Wingate, G. W., Aiming attachment for fire arms	184,743
Wright, J. D., Means for adjusting the grain wheels of harvesters, (reissue)	7,410
Young, J., and S. Bernheisel, Flour bolting machine	184,821
Zelber, P., Nut lock	184,945

TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED NOVEMBER 28, 1876.

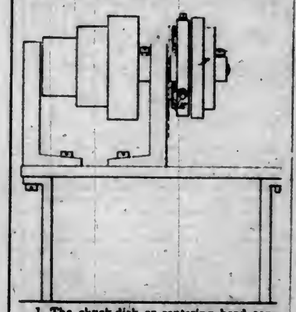
184,667. FERRULES. Thos. C. Allen, New York, N. Y. [Filed Sept. 16, 1876.]



The combination of the tube A, the plug B, the spar C, and the spring D, constructed and arranged to operate as above set forth, for the purposes herein described.

184,668. PULLEY AND WHEEL CHUCKS FOR METAL-TURNING LATHES. Jos. D. Alvord, Bridgeport, Conn. [Filed Oct. 27, 1876.]

Brief.—A number of pins are held projected through the face-plate from the rear by springs, which permit them to yield until the pulley shall have come to a firm bearing against them all, after which the pins are fastened in their places, and the pulley to the spindle by the set-screw.



1. The chuck-disk or centering-head constructed, substantially as hereinbefore set forth, with yielding self-adjusting bearings, adapted to be fixed in position, against which bearings the wheel is pressed and secured in place upon the spindle.

2. The combination, substantially as hereinbefore set forth, of the chuck-disk or centering-head, its endwise-moving pins, the springs bearing against the pin-heads, and the set-screws for fixing the pins.

3. The combination, substantially as hereinbefore set forth, of the chuck-disk or centering-head, the self-adjusting, endwise-moving bearing-pins, adapted to be fixed in position in the head, and the spindle projecting in advance of said head, and adapted to receive the wheel to be turned, and admit of its being secured thereon against the bearing-pins.

184,669. KNITTING-MACHINES. Charles J. Appleton, Philadelphia, Pa. [Filed July 20, 1876.]

Brief.—The dial can be adjustably secured so that its grooves shall or shall not register with those of the needle-cylinder, as desired, by an adjusting-plate, catch, and key; also, the ribbing-needles may be thrown into or out of action by a switch, which determines their passage into either a working or an idle cam-groove.

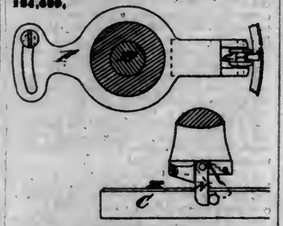
1. In a circular-knitting machine, the combination, with a dial-plate and series of needles carried thereby, of a cam-plate provided on its under side with a cam-groove, together with an adjustable cam arranged in proper relation to said cam-groove, and a lever for operating the said cam, whereby the needles may be brought into action or withdrawn therefrom, substantially as and for the purpose described.

2. In combination with the needle and cam cylinders of a knitting-machine, and a dial adapted to carry a series of needles, together with a cam-plate for operating said needles, a support or standard and connecting mechanism, whereby the said needles are operated when the machine is run in one direction, but remain stationary when the machine is run in the opposite direction, substantially as and for the purpose described.

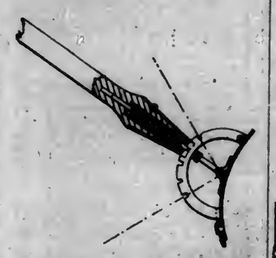
3. The combination of loose-mounted cap C, dial D, dial-holder F, arm A, needle-cylinder I, and cam-cylinder K, acting together substantially as and for the purpose described.

4. The combination of adjustable dial-holder F, dial D, catch G, and needle-cylinder I, provided with the catch-key E, operating together substantially as and for the purpose described.

184,670.



184,671. COMBINED HOE, SCRAPER, AND SWINGER. Halsey E. Baker, Plainfield, N. J. [Filed Mar. 14, 1876.]



1. An implement consisting of the blade A, having one stiff and one flexible edge, hinged handle B, crescent c, and bolt h, substantially as and for the purposes set forth.

2. The combination of the spring-bolt m in the handle B with the crescent-formed brace on the back of the scoop or blade A, substantially as described.

3. The concave blade A, in combination with the hinged handle B and looking device e h, all constructed and arranged substantially as shown and described.

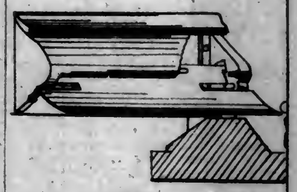
4. The curved blade A, provided with central corrugations f, substantially as and for the purpose set forth.

184,672. WEATHER-STRIPS. Jos. Baldwin, Hopedale, Ohio. [Filed Aug. 30, 1876.]

1. The weather-strip d, having the rear-end notches d^2 d^2, and journaled in the brackets b b', with capability of a horizontal to-and-fro movement, for the purposes set forth.

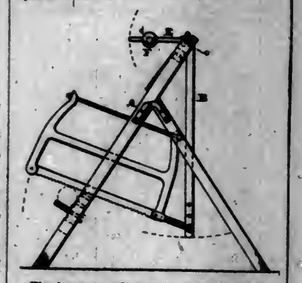
2. The combination, with the weather-strip d, having the notches d^2 d^2 and projection d^1, and journaled in the brackets b' and b, having the recess c, of the angular block e and door-posts a^1 a^2, for the purposes set forth.

184,691.



184,692. SAWING-MACHINES. J. G. Berger, Philadelphia, Pa. [Filed Apr. 1, 1876.]

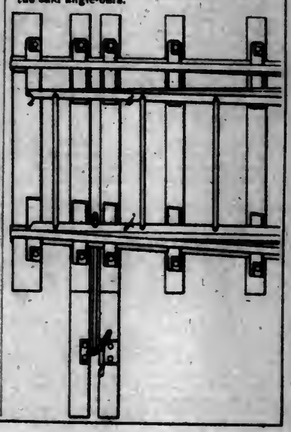
Brief.—The upright swinging arm, which carries the saw, has an adjustable counterpoise.



The frame A and swinging arm B, in combination with the rod E, projecting from the cross-head c, and carrying the counterpoise F, with screw d, substantially as and for the purpose set forth.

184,693. RAILROAD-SWITCHES. G. W. Billings, Chicago, Ill. [Filed May 27, 1876.]

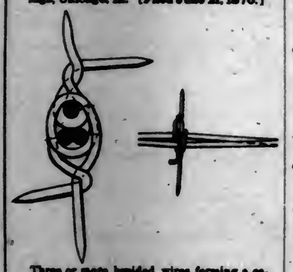
Brief.—Angle-bars are secured to tapering switch rails, and the stay-rods are secured to the said angle-bars.



THE GRAPHIC CO. N.Y.

The angular bars *i* and *j*, in combination with the tapered switch-rails *e* and *f*, substantially as set forth, for the purpose specified.

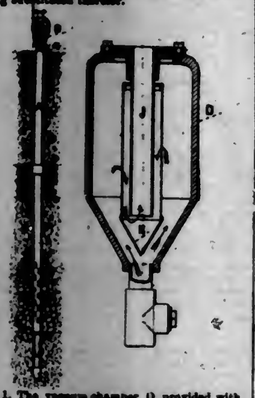
181,694. RAISED FENCE-WIRE. G. W. Billings, Chicago, Ill. [Filed June 21, 1876.]



Three or more kunked wires forming a cable, in combination with a barb formed of two wires, and interlocked thereon, substantially as shown and described.

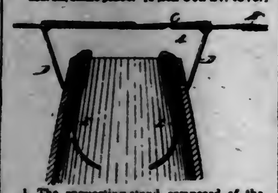
184,695. DRIVEN WELLS. Wm. S. Blunt, Bay Ridge, N. Y., assignor to Kate S. Blunt, same place. [Filed Mar. 7, 1876.]

Brief.—The wire covering for the perforations in the pipe is discussed with, a vacuum-chamber having upon its interior a screen being substituted therefor.



1. The vacuum-chamber D, provided with inclined sides, the pipe J, shield K, and sand-screen E, the pipe A, provided with the perforations, as shown, and the removable point B, constructed and operating substantially as described, and for the purposes set forth.

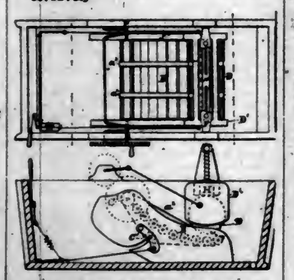
184,696. HEATING ATTACHMENTS FOR LAMP-CHIMNEYS. Edwin W. Brown, Worcester, Mass., assignor to himself and C. F. Marsh, same place. [Filed Oct. 27, 1876.]



1. The supporting-stand composed of the parts A, B, C, C, D, and E, substantially as and for the purposes set forth.

2. The combination, with the supporting-rim A, of the spring-holding fingers, marked D, B, and F, substantially as and for the purposes set forth.

184,697. WASHING-MACHINES. George Bennethum, Osceola, Iowa. [Filed Oct. 19, 1876.]

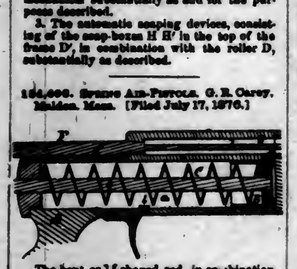


1. In combination with a fluted roller, D, having its bearings in an oscillating frame, D', the series of rollers B, provided with cords or bands *a*', extending around the rollers, and adjusted to be traversed by the roller D, and to receive from it equal pressure at all parts of the upper surface of the rollers, substantially as and for the purposes described.

2. The presser-roller C', in combination with rollers B and bands or cords *a*', operated by mechanism substantially as and for the purposes described.

3. The automatic camping devices, consisting of the camp-beam H H' in the top of the frame D', in combination with the roller D, substantially as described.

184,698. SPRING AIR-PISTOLS. G. R. Carey, Malden, Mass. [Filed July 17, 1876.]



The bent or U-shaped rod, in combination with the magazine and barrel F, substantially as herein shown, whereby one arm of such rod inserts the projectile and closes the rear end of the barrel, or the approach thereto, and the other arm operates the plunger, the whole being substantially as and for purposes stated.

184,699. PAPER-CUTTING MACHINES. Geo. R. Clarke, Brooklyn, N. Y., assignor to Preston Van Horn and Charles Cranston, same place. [Filed Apr. 6, 1876.]

Brief.—The clamp-bar is eccentrically connected to the driving-gears, and operates independently of the knife, when no resistance is afforded it. The knife is mounted upon a vertically-moving frame, (to which the driving gears are attached,) and is caused to rise when the downward progress of the clamp-bar is retarded. Thus, when the pile of paper beneath the clamp-bar is pressed by the latter, at that juncture the moving-frame, with its shear-cutting knife, begins to ascend. Automatic clutch mechanism is employed to throw the knife out of gear.

1. A clamp-bar, F, and knife H, coupled together, and combined with mechanism, substantially as described, so as to be moved in opposite directions by a single operation, whereby the pressure of the clamp becomes equal to the pressure required to force the knife through the paper, substantially in the manner described.

2. A clamp-bar, F, coupled eccentrically to a shaft, I, the bearings whereof are capable of a vertical movement, combined with a knife, H, coupled directly to said shaft I, whereby a revolution of said shaft forces said clamp downward upon the paper to be severed until resistance overcomes the downward pressure, and the continued revolution of said shaft causes an upward movement of the same and the knife, to sever the paper.

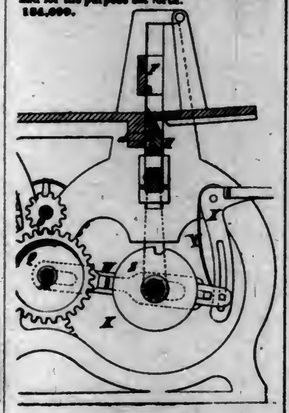
3. The clutch consisting of the recessed pulley S, the pivoted dog T, the lever U, projecting from the periphery of the pulley S, and a spring for actuating the dog T, in combination with a wheel, Q, having a notched or recessed hub, *c*, said wheel being the driving-pinion of a paper-cutter, substantially as herein set forth.

4. The combination, with the clamping and cutting mechanism, of an automatic clutch, S T U V, and a contrivance, *d*, attached to the rod W for tripping the same after each operation of said mechanism, substantially as and for the purposes set forth.

5. The combination of a clutch, S T U V, the rod W, with its projections *d* and *e*, the cam R, and a spring, Y, for holding the projection *e* against the said cam, substantially as and for the purposes set forth.

6. The combination, with the said clutch, of said rod W, cam R, spring Y, and lever X, for operating said rod W, substantially as and for the purposes set forth.

184,600.

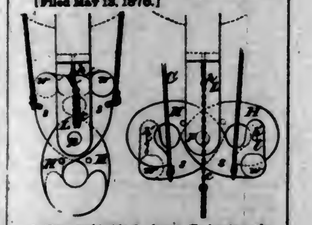


184,700. DISINFECTANT, DEODORIZER, AND FUMIGATOR. John Commins, Charleston, S. C. [Filed Oct. 18, 1876.]

1. The herein-described combined disinfectant, deodorizer, and fumigator, composed of charcoal, sulphur, iodine, and carbolic acid, in about the proportions specified.

2. The outer coating of lime, combined with the herein-described disinfectant, deodorizer, and fumigator, as and for the purposes specified.

184,701. SELF-DETACHING HOOKS FOR BOATS. George Cosgrove, Brooklyn, N. Y. [Filed May 13, 1876.]

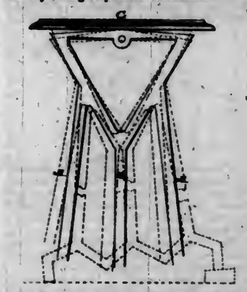


1. The tackle-block frame T, having the downwardly-projecting lugs L, in combination with the two sister-hooks M, pivoted together within said lugs L, and having weighted shanks *s* and lugs *l*, substantially as and for the object specified.

2. The tackle-block frame T, having the downwardly-projecting lugs L, provided with apertures *h*, the sister-hooks M, pivoted together in said lugs L, and having weighted shanks *s* and lugs *l*, provided with openings *h'*, in combination with the pin *p'*, adapted to enter the openings *h* and *h'* for retaining the hooks in a locked position, substantially as shown and described.

184,702. SEWING-MACHINE STANDS. Thos. Orano, Fort Atkinson, Wis. [Filed May 2, 1876.]

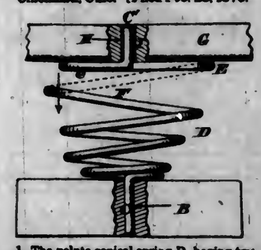
Brief.—One of the end standards has a rigid connection with the top, while the other has a yielding or pivoted connection.



1. A table or stand having one of its end standards A hinged or pivoted to the top C, substantially in the manner and for the purpose set forth.

2. The combination, in a table, of the top C, rigid end support B, hinged or pivoted standard A, and rod E, substantially as and for the purpose set forth.

184,703. BED-BOTTOMS. John De Camp, Cincinnati, Ohio. [Filed Feb. 23, 1876.]



1. The volute conical spring D, having two axial shanks, C C', and an upper coil, E, of less diameter than its connecting-coil F, as and for the purpose specified.

2. A bed-spring, having the axial shanks C C', coils E F, of unequal diameters, and bend *a*, as and for the object stated.

3. The combination of the rail A, having the hole E, supporting-spring D C C' E *a* F, and slat G, having the hole H, substantially as herein described.

4. In a spring bed-bottom, the slat G, having an aperture, H, lined with the metal bushing I, adapted to receive the axial point C' of the spiral spring supporting said slat, substantially as and for the purpose described.

184,704. MITRE-MACHINES. William B. Eastman, Derby, Vt., assignor to Myron L. Baxter, Aurora, Ill. [Filed Aug. 14, 1876.]

Brief.—The several parts of picture-frames while being joined together, and mouldings of various widths while being cut to the desired angle, are rigidly held by two angularly-adjustable clamps, pivoted to a slotted and longitudinally-reciprocating table-top. Exact measurements of the frames are obtained by means of a rule attached to the base of one of the clamps, and having diagonal lines parallel to the plane of the saw, and an adjustable stop working upon a bar attached to the movable jaw of the clamp, to which the rule is secured.

1. The clamping devices B B', substantially as described, in combination with the circular saw A, all working in the manner described.

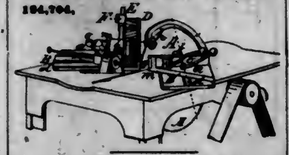
2. The hollow mandrel C, in combination with the clamping devices B B', operating as and for the purpose specified.

3. The bar E, carrying a sliding adjustable stop, F, in combination with the clamping devices B and measure or rule D, for the purpose specified.

4. The clamping devices B B', constructed as shown and described, for holding the parts of a frame while the same are being joined together.

5. The perpendicular adjustable slide *b* in the face of the supplemental jaw of the clamping devices B B', for the purpose specified.

184,704.



184,705. BURGLAR-ALARMS. J. P. Everts, San Francisco, Cal. [Filed Sept. 26, 1876.]

Brief.—The case containing the alarm mechanism is attached to the flap of the door-hinge, and connected by a flexible connection with the frame of the door, in such a manner that when the door is opened an alarm is sounded. A spring combined in the case acts as a door-spring to close the door.



1. The combined door-hinge and alarm-bell described, consisting of the toothed drum D *d*, with adjustable spring S, worm W *e*, or its equivalent, cam-arm C, and folding piece P, fitted to the door-hinge flap H', and provided with connection E to the cam C; also, the guide-pin *h*, adjustable disk A, provided with catch-pins m' m², and fitted to the projecting drum-spindle *k*, arranged for notching the combined lever L M, with spring F, and hammer O for striking the fixed gong Q, as herein shown and constructed, substantially as and for the purpose herein set forth and specified.

2. The drum D *d*, provided with spring S, arm C, and adjusting-worm W *e*, or its equivalent, fitted to a door-frame by hinge-flap H, in combination with a door-hinge flap, H', provided with folding piece P, or its equivalent, and drum-connection E, substantially as and for the purposes herein set forth and specified.

3. The stop knob and slide T *b*, fitted to the fixed pin *n* on the box B, in combination with the lever L, spring F, and hammer-lever M, substantially as and for the purposes herein set forth and specified.

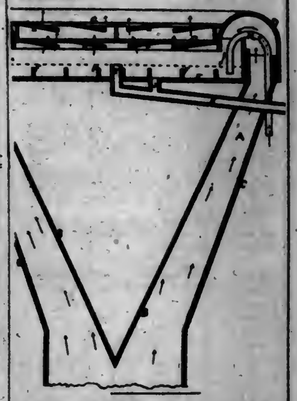
4. The knob-slide T *b*, attached to the lever L M, fitted with hammer O, and connected by wire connections *u w'* to the sliding slotted plate J *j*, in combination with the handle, fitted with cam X *c*, spring F, and fixed gong Q, all arranged as herein shown and set forth, substantially as and for the purposes specified.

184,706. SPARK-ARRESTERS. Abner W. Furrend, Oshkosh, Wis., assignor of two-thirds of his right to James Lewis and Alex. Gallinger, same place. [Filed Aug. 28, 1876.]

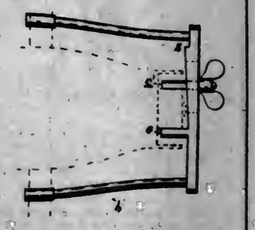
Brief.—A water-tank located in the top of the smoke-stack is provided with an upward-projecting lip, spiral in plan, and an overflow-pipe in the center, so that the water pumped into the tank has a current through the spiral to the central discharge, carrying with it the extinguished sparks. A series of tangling-plates prevent the water in the tank from spattering over, or being driven out by the draft, and also prevent the passage of sparks that escape the water.

1. The water-tank E, having a spiral lip, F, and central overflow-pipe I, in combination with the inverted cone B and deflector D, for the purpose of collecting and extinguishing the sparks, substantially as shown and described.

2. The spark-arrester consisting of the inverted cone B, fixed inside of the smoke-stack C of a steam-boiler, the deflector D, tank E, and tangling plate or plates G, all constructed and combined substantially as shown and described.

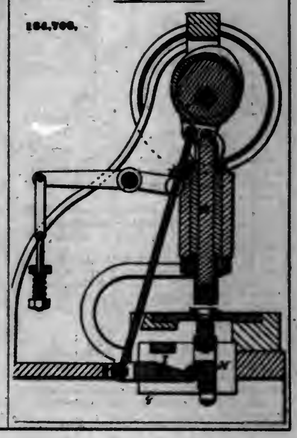


184,707. CARRIAGE-WRENCHES. John T. Gilbert, Jacksonville, Ill. [Filed Sept. 30, 1876.]



In combination with the arms *b b*, the taper plate A, provided with a fixed jaw, *c*, longitudinal slot *d*, and adjustable jaw *c'*, the plate A having its inner and outer faces made divergent from each other from the fixed jaw *c* to the point B, so as to act as a wedge between the base of the sliding jaw *c'* and the nut by which it is secured in position, the combination of these parts and their adaptation to each other being as and for the purpose herein set forth.

184,708.



184,708. MACHINES FOR CUTTING AND STAMPING ARTICLES OF SHEET METAL. Wm. J. Gordon, Philadelphia, Pa. [Filed Oct. 6, 1876.]

Brief.—The non-reciprocating stamping-die is placed below the stationary cutting and drawing dies, on the top of an oscillatory post, that is held in a vertical position by a lever or stop abutting against it, but drawn over to an inclined position by a spring, when the abutting end of the stop is tilted downward by the action of the eccentric through the medium of the connecting-rod.

1. The combination of the reciprocating cutting and stamping dies with the fixed stamping-die and the oscillating anvil, on which it rests, substantially as described.

2. The combination, with the reciprocating cutting-die, the stamping-dies, and oscillating anvil, of the drawing or flanging die, substantially as described.

3. The combination of the anvil H, lever I, and springs S, constructed and operating substantially as described.

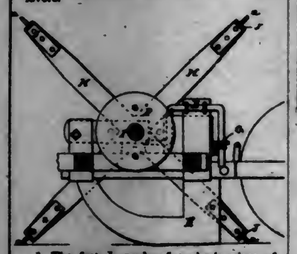
184,709. SNAP-HOOKS. Joel R. Holmes, Oceanville, N. J. [Filed Sept. 26, 1876.]



The hook A, with the extension D, having an eye, *b*, in combination with the tongue B, having an extension, C, with an elongated eye, *c*, all constructed and arranged to operate substantially as and for the purpose set forth.

184,710. CORN-PLANTERS. Henry P. Hall, Bloomington, Ill. [Filed Apr. 15, 1876.]

Brief.—Marking-wheels on transverse shaft give motion to seed-slide through plan and levers.



1. The foot J, made of a single piece of metal bent in T shape, provided with projecting pins *c*, and centered to the arms H, substantially as and for the purposes herein set forth.

2. The combination of the markers H, with foot J and pins *c*, the shaft I, pivoted arms L, and uprights K, substantially as and for the purposes herein set forth.

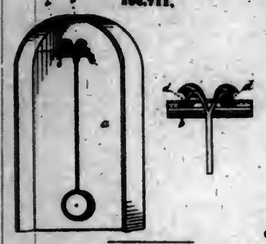
3. The combination of the markers H, with foot J and pins *c*, the shaft I, with wheel F, having pins *b b*, and supported in the arms L, pivoted to the uprights K, the levers R, and slide S, all substantially as and for the purposes herein set forth.

184,711. TOY CLOCKS. A. B. Hotchkiss, Cheshire, Conn. [Filed Aug. 26, 1876.]

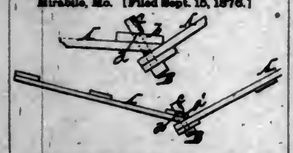
1. The toy-clock case or frame *a*, having bar *b* and sockets *c c*, in combination with pendulum *e*, having points *d d*, substantially as described.

2. The toy-clock case provided with bar *b*, having cevercings *f f*, and the pendulum *e*, substantially as and for the purpose set forth.

184,712.



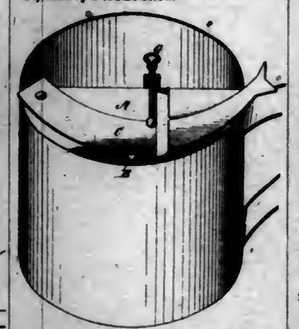
184,713. PORTABLE FENCES. H. L. Jones, Mirabile, Mo. [Filed Sept. 15, 1876.]



In combination with the sections or panels A A, arranged as shown and described, and having diagonal daring slotted apertures *a' a'*, the feathered and headed keys B B, substantially as and for the purpose set forth.

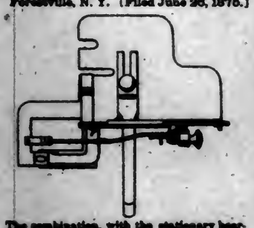
184,714. SEALING CANS. W. W. Kershner, Asbury, Kans. [Filed May 1, 1876.]

Brief.—The quantity and size of the stream of sealing-wax or solder through an orifice in the top plate is regulated by a pivoted gage adjusted by a thumb-screw.



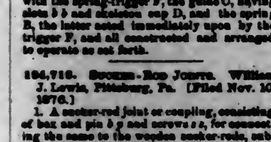
The combination and arrangement of plate A, having the orifice B, with the gage or cut-off C, and the thumb-screw G, with a cap, for the purpose and substantially as herein shown and described.

184,715. BUFFLERS. James F. Kellogg, Forestville, N. Y. [Filed June 26, 1876.]



The combination, with the stationary bearing-plate, of a rocking or vibrating ruffling-finger, an auxiliary lever, a sliding bar on which the finger and lever are mounted, and an operating-lever arranged to engage with the auxiliary lever, and thereby move the sliding bar and actuate the ruffling-finger, substantially as described, whereby the ruffling-finger is made to compress the fabric between it and the bearing-plate to move the fabric forward on said plate, and, in retreating, is lifted from the fabric by the vibration of the operating-lever, as set forth.

184,716. TUCK-MARKERS. Jas. F. Kellogg, Forestville, N. Y. [Filed Aug. 26, 1876.]



1. The combination, with a tuck-marker arm, of a gage composed of wire, and having at its rear end a clamp, formed by bending the wire, which embraces and frictionally engages with the arm of the marker, substantially as described.

2. In combination with a tuck-marker, the swinging smoothing-plate pivoted to the frame of the marker, substantially as described.

184,717. BREECH-LOADING FIRE-ARMS. Charles A. King, Meriden, Conn. [Filed Sept. 9, 1876.]



1. In a breech-loading fire-arm, the combination of the sliding bolt H with the lifter I, having its front edge *m*, which drives the bolt forward, made of an irregular form, substantially as described, in order to furnish the proper resistance to the backward thrust of the bolt at the explosion, and also to accomplish the desired accelerated throw of the bolt in locking the barrel.

2. In a breech-loading fire-arm, the combination of a locking-bolt to secure the breech of the barrel down in place for discharging the arm, and a lifter for raising said bolt, made of the same approximate thickness throughout its entire length, and with the button I at its lower end made in one and the same piece therewith, substantially as and for the purpose described.

184,718. MARBLE-SHOOTERS. A. D. Lawe, Bridgeport, Conn. [Filed Apr. 26, 1876.]

The toy marble-shooter herein described, consisting of the hollow handle A, provided with the spring-trigger F, the guide C, having slots *b b* and elastern cap D, and the spring E, the latter acted immediately upon by the trigger F, and all constructed and arranged to operate as set forth.

184,719. SOUTHERN-ROD JOINTS. William J. Lewis, Pittsburg, Pa. [Filed Nov. 10, 1876.]

1. A socket-rod joint or coupling, consisting of box and pin *b p* and screws *s s*, for connecting the same to the wooden socket-rods, substantially as set forth.

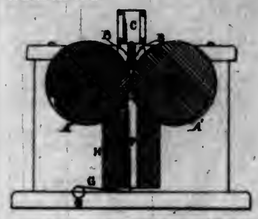
2. The conical wedge *a* on the base of the screw *c*, and tapering ferrule *e*, in combination with rod B, screw *c*, and box or pin *b p*, substantially as set forth.

184,718.



184,719. MACHINES FOR MAKING HORSESHOE-NAILS. David B. Loring, Boston, assignor to Caleb W. Hodgdon, same place, and John R. Wheeler, Lynn, Mass. [Filed Sept. 27, 1876.]

Brief.—Guides in the stationary chute open to permit a blank to descend, and then close upon its shank, and hold it in such a position that the head shall accurately enter the recesses formed to receive it in the rolls. A delivering-tunnel is constantly held up against the rolls by a spring, and the frame within which it operates is extended to contact with the periphery of the rolls. A blank wedged in the dies will impinge against and depress the delivering-tunnel, and will contact with the top of the stationary frame, which strips it from the dies.



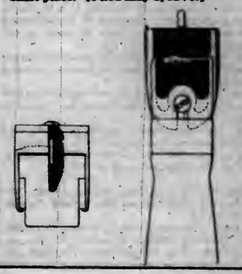
1. In a machine for making horseshoe-nails, the combination of the stationary conductor or feeding-chute C, automatic guides B, arranged to operate between said conductor and the rolls, and the rolls or revolving dies B', all arranged to operate substantially as described.

2. The combination of the guides B, levers E E', spring *e*, and pin *d*, with the plate *f*, substantially as shown and described.

3. The combination of the tunnel F, spring G, and frame H, with the dies A', substantially as shown and described.

4. The combination of the automatic feeding device described, with the revolving dies A', and the automatic delivering apparatus, substantially as and for the purpose described.

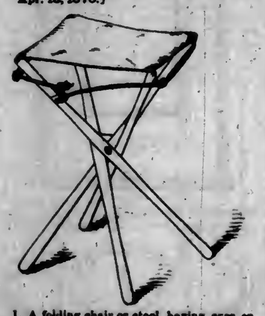
184,720. HOOP PLANES AND SHAVES. Jos. Lorenz, Southbridge, Mass., assignor of one-half his right to Pascal Genereal, Jr., same place. [Filed May 6, 1876.]



1. In a duplex coupling, the combination of the female ring B, having a recess or chamber in its rear large enough to permit the male portion A to turn freely within it, with a male part, A, lengthened so as to permit the female part to be drawn back upon it.

2. In combination with a duplex coupling, as above, the expanded recess E, to receive and retain the packing-ring D, the beveled bearing portions F and G, to make the coupling self-centering, and the lugs H and recesses I, to prevent the female part from turning upon the male part.

184,721. CAMP-STOOLS. Eric L. Moore and Thomas W. Moore, Plainfield, N. J. [Filed Apr. 18, 1876.]



1. A folding chair or stool, having eyes or loops on its legs to receive a cord or strap for holding and suspending it thereby, for the purpose of carrying it more conveniently, substantially as specified.

2. The combination, with a folding stool or chair, of a cord or strap strung in the top, and having a knot or loop in one end and a hook in the other, substantially as specified.

184,722. BUCKET BAIL-BAND. P. O'Grady, Standish, Mich. [Filed Feb. 4, 1876.]

Brief.—The hoop is flat, and the staves are recessed to allow the hooked ends of the bail to move freely.



The combination of the pail A, having staves D D recessed at *c c*, and arranged diagonally opposite to each other, with a flat upper hoop, B', having perforations *a a*, and handle C, having hooks *b b*, substantially as and for the purpose herein shown and specified.

184,723. HOSE-COUPLINGS. C. C. Parsons, New York, N. Y. [Filed Sept. 19, 1876.]

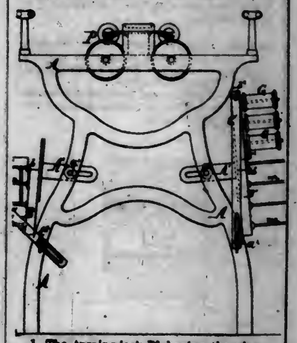


1. In a duplex coupling, the combination of the female ring B, having a recess or chamber in its rear large enough to permit the male portion A to turn freely within it, with a male part, A, lengthened so as to permit the female part to be drawn back upon it.

2. In combination with a duplex coupling, as above, the expanded recess E, to receive and retain the packing-ring D, the beveled bearing portions F and G, to make the coupling self-centering, and the lugs H and recesses I, to prevent the female part from turning upon the male part.

184,724. SILK-DOUBLING FRAMES. George K. Preston, Paterson, N. J., assignor to the Danforth Locomotive and Machine Company, same place. [Filed June 5, 1876.]

Brief.—A hinged board is attached to the frame in such a manner that it may be turned into a horizontal position to serve as a flat jack, or into a vertical position to serve as a side jack.

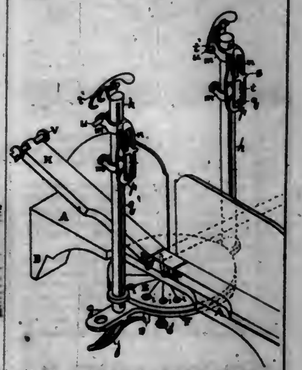


1. The turning-jack B', having the pins *m* in one face, and the holes *m'* in the other face, in combination with the frame A, substantially as and for the purposes herein specified.

2. The slotted braces C and holding-screws *n'*, in combination with the turning-jack B', and with the doubling-frame A, as and for the purposes specified.

184,725. MITER-MACHINES. A. H. Putnam, Oakland, Cal. [Filed Sept. 19, 1876.]

Brief.—Miters can be cut to any desired angle and bevel by means of a suitable saw, two adjustable bars hinged to a narrow wooden bench having a vertically-slotted book, and supported upon a circular metal plate, and two guide-posts mounted upon a circular metal plate, having its front projecting portion marked with radial lines, and pivoted to the aforesaid plate, said posts being provided with vertically-adjustable saw-guides, and weighted hooks pivoted to their upper ends, to support the saw when not in use.



1. The upright guide-posts *b b*, slotted as described, in combination with the sliding saw-holder, consisting of the plates *o o*, with their rawhide spacing-roller *p*, the journal of which enters the slot in the guide-posts, the whole attached loosely, by clasps *m*, to the

guide-posts, substantially as and for the purpose described.

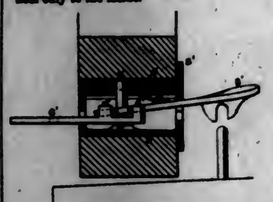
2. The slotted plates a a, spaced at the lower ends by the movable roller p, and having the slides s arranged to move in the slots of the plates, said slides being drawn against the back of the saw by the spring t, substantially as and for the purposes described.

3. The saw holder or slide, provided with the cross-pin n, in combination with the weighted hooks l on the top of the guide-posts, substantially as and for the purpose described.

4. The bench A, with its slotted head C, and having the guide-posts b b attached to an adjustable plate, B, in combination with the bars H H, adjusted, by means of links J K, to the middle of the bench, so that the outer ends of said bars can be adjusted to any desired height to give the angle of the bevel, substantially as above specified.

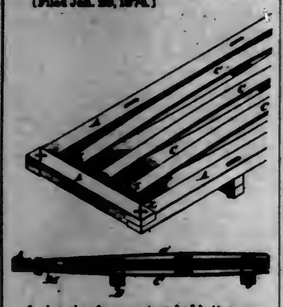
184,726. SPRING-FASTENER. Franklin P. Hunt, Portsmouth, assignor of one-half his right to Addison Rhoden, Providence, R. I. (Filed Oct. 6, 1876.)

Brief.—A peculiar and novel joint gives lateral motion only to the outside latch, and vertical only to the inside.



The self-acting lifted lock and catch, with barrel A' A' and flange G', latch B', and hinge K', permitting vertical movement to said latch B', and lateral movement to the latch C', with projections c' c', all constructed, combined, and operating as set forth and described, for the purpose specified.

184,727. SPRING-BOTTOMS FOR BEDS, &c. Wm. Parnell Bean, Hinkelvillstown, Ohio. (Filed Jan. 29, 1876.)



1. A spring for a seat or bed-bottom, consisting of slats O O, provided at either end with bearings D, link M, coupling K, and catch X.

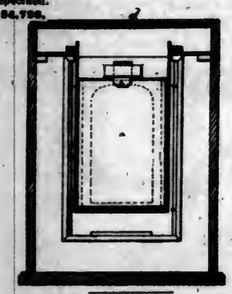
2. A series of springs for a seat or bed-bottom, consisting of slats O O, provided at either end with bearing D, link M, coupling K, and catch X, said springs being arranged side by side, and coupled together by links, substantially as and for the purpose specified.

3. In combination with a spring composed of slats O O, having at either end bearing D, link M, and coupling K, all disposed as specified, the supports or supports D, said supports being placed under the lower slat and between the bearings D of said slats, whereby the full resiliency of the spring is obtained.

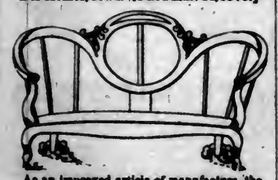
184,728. PHOTOGRAPH-CABINETS. Henry H. Hite, New York, N. Y. (Filed Oct. 11, 1876.)

A photograph-cabinet made with parallel fronts and back, and combined with the catch c, which is placed directly beneath the removable cover d, all arranged so that the apparatus will display one or two pictures, and retain another series of pictures concealed behind the pictures displayed, substantially as specified.

184,729.



184,729. WALL-GUARDS. Morris D. Rosen, Des Moines, Iowa. (Filed Mar. 31, 1876.)



As an improved article of manufacture, the oblong, angular, and open box a, having the horizontal flange b, substantially as and for the purposes set forth.

184,730. FLY-TRAPS. Thomas Scantlin, Evansville, Ind. (Filed Aug. 1, 1876.)



1. A wire-cloth fly-trap made in two sections, so that the upper section may be removed to kill the accumulated flies, while the lower section remains in place, the process of catching flies continuing without interruption during said removal, substantially as and for the purposes specified.

2. The base of the trap, consisting of the bottom H and bottom H', united by means of the standards I I, the bottom H being provided with the bait-cup G, and the bottom H' having an inner receptacle, E, with opaque sides extending upward, and covered with a wire-cloth top, D, provided with an oblong central opening, c, at its top, arranged and adapted to be operated in the manner set forth and described.

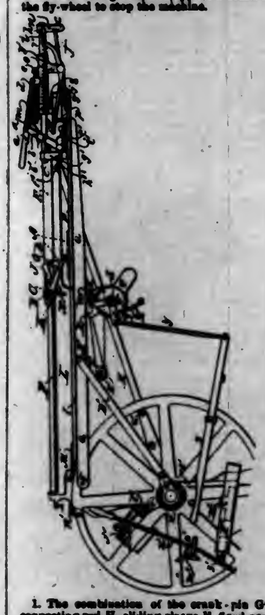
3. The cup C, provided with the tube C', adapted to support and hold in place the upper section A, and at the same time serving as a rolling for the lower section B, and affording a means of communication with the said upper section, substantially as and for the purposes specified.

4. The cover Y, adapted to be used in connection with the tube C' to close the lower section, and prevent the exit of flies from section B while section A is being emptied, as and for the purposes specified.

5. As an article of manufacture, the fly-trap consisting of two sections, A B, with the cup K, the tube C', the cup G, cover L, the receptacle B D, the sloping flange E', the bottom H, with its beveled edges and hole for the reception of cup G, as and for the purposes specified.

184,731. PAPER-FEEDING MACHINES. Seabrose Schofield, Providence, R. I., assignor to himself, Chas. H. Baker, Mont Clair, N. J., and Chas. H. Johnson, Philadelphia, Pa. (Filed Dec. 17, 1875.)

Brief.—The pivoted pile-table rests upon cams, on which it is lifted as the pile decreases. Feeding-fingers, reciprocating through slots in the table, govern the action of the lifting-cams. A reciprocating frame carries a cutter, which makes a hole in the top sheet, and a pin, which raises the sheet from the pile, whence it is fed to the impression-cylinder by a friction-pad, a presser meanwhile resting upon and retaining the next sheet. If the sheet be not properly fed, an electro-magnet, fixed in the cylinder, and connected with its griper devices, releases a spring-pressed sliding bolt, which shifts the driving-belt, and applies a brake to the fly-wheel to stop the machine.



1. The combination of the crank-pin G', connecting-rod H, sliding sleeve K, fixed arm D, tube C, arm E, pad A, and slide L.

2. The combination of the spring o and arm V, rising through the opening U in the registering-table, with the guard X, ratchet-wheel W, cams K, catch X, pawl K', cord o, and shafts o ll.

3. The combination of the cutter o' and pin o' with the foot f', sleeve e, arms e, f, and g, and stops s and f'.

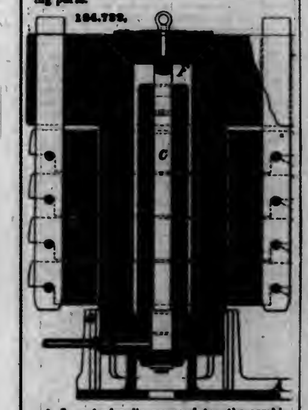
4. The combination of the insulated metallic strip g' with the electro-magnet F and the griper f' f'.

5. The spring-bolt f, spring-catch k', and electro-magnet F, arranged within the revolving cylinder, and combined with the cam-lever m' and spring-shipper o'.

184,732. HYDRAULIC ACCUMULATORS. W. Sellers, Philadelphia, Pa. (Filed June 8, 1876.)

Brief.—The main weight is hung in equilibrio upon the plunger, by means of the locking-block. The supplementary weights are carried by suspension-bolts, and can be readily removed, giving ready access to all the moving parts.

184,732.



1. In a hydraulic accumulator, the combination of a stationary cylinder, a movable ram, a locking-block, and a main weight, as and for the purposes set forth.

2. In a hydraulic accumulator, the combination of a stationary cylinder, a movable ram, a main weight, and a removable stop, substantially as and for the purposes set forth.

3. In a hydraulic accumulator, the combination of a main weight, a removable stop, supplementary weights, and a permanent stop.

4. In a hydraulic accumulator, the combination of a main weight, a removable stop, supplementary weights, a permanent stop, suspension-bolts, and plan.

5. In a hydraulic accumulator, the supplementary weights having recesses for pins, substantially as and for the purposes set forth.

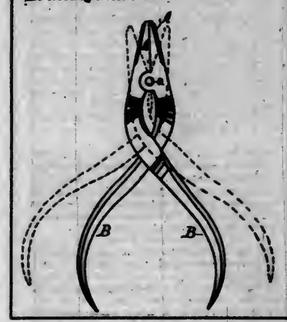
184,733. HOOK-SPANNERS. Cicero Elbert, Indianapolis, Ind. (Filed Sept. 11, 1876.)



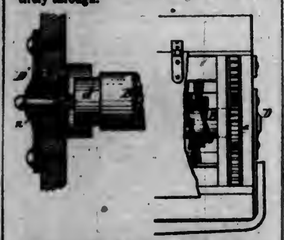
The hook-spanner herein described, consisting of the arm B, projection D, having an eye, E, and handle A, substantially as shown and set forth.

184,734. PLIERS. Henry Smith, West Meriden, assignor to O. W. Snow, Plantsville, Conn. (Filed Apr. 24, 1876.)

Brief.—The handles open, each back of the rivet. Pressing the handles between the rivet and crossing opens them; pressing back of the crossing closes them.



184,735.

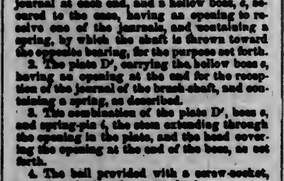


1. As a new article of manufacture, pliers or nippers in which the handles cross each other at a point wholly back of the joint, substantially as described, and for the purpose set forth.

2. The handles B B, having an opening, b, formed in one of them back of the joint, and the other handle passing through said opening, the walls of which serve as a stop for the jaws A A, substantially as described.

184,736. CARPET-SWEEPERS. B. W. Smith, Boston, Mass. (Filed Oct. 10, 1876.)

Brief.—A spring is arranged in a boss attached to the end plate, against which the end of the brush-roller journal is pressed, when the brush-roller is to be removed. The ball is provided with a socket, open at both ends, so that the wooden handle may pass entirely through.



1. The combination of the shaft, having a journal at each end, and a hollow boss, c, secured to the case, having an opening to receive one of the journals, and containing a spring, by which the shaft is thrown toward the opposite bearing, for the purpose set forth.

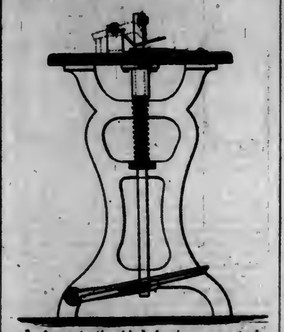
2. The plate D', carrying the hollow boss c, having an opening at the end for the reception of the journal of the brush-shaft, and containing a spring, as described.

3. The combination of the plate D', boss c, and spring-pin i, the stem extending through the opening in the plate, and the head covering the opening at the end of the boss, as set forth.

4. The ball provided with a screw-socket, e, open at both ends, as set forth.

184,737. MACHINES FOR UNITING SHEETS OF PAPER. Samuel Smyth, East Bridgewater, Pa., assignor, by mesne assignments, of two-thirds of his right to Geo. L. Ward, Boston, and Orlando H. Smyth, Lynn, Mass. (Filed Apr. 3, 1876.)

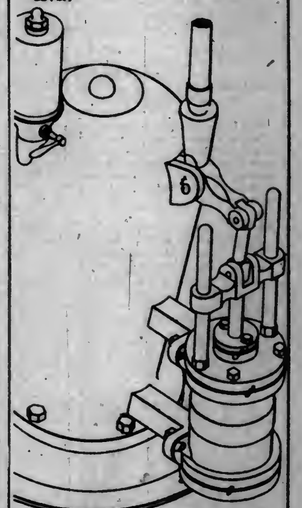
Brief.—The number of the sheets to be bound is placed above the slit in the table, under which is the gum-trough. One or more slotted knives attached to a bar above the table, and operated by treadle or otherwise, descend through the paper, enter the gum-trough, and, passing up, leave the gum upon the edges of the slits. A retaining-spring serves to force up the bar and withdraw the knives after the pressure has been relaxed.



1. A penetrating blade having a receptacle for paste or similar material, and mechanism for moving the same through the sheets of paper or other material, in combination with a receptacle for supplying such paste, whereby the sheets are caused to adhere together, substantially as set forth.

2. The method herein specified of uniting sheets of paper or similar material by means of paste or other adhesive substance, that is introduced into perforations in the sheets by the perforating implement, substantially as set forth.

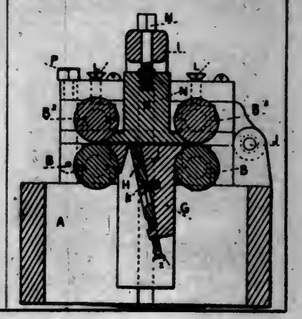
184,738. PORTABLE FOG-ALARMS. John B. Tarr, Fairhaven, Mass. (Filed Sept. 6, 1876.)



In the fog-horn, which has its alarm-whistle and pump supported by the air reservoir or chamber, the lever for operating the pump, supported by a bearing upon said air reservoir or chamber, substantially as and for the purpose described.

184,739. MACHINES FOR SHAVING METAL FOR FASTENERS' HEADS AND LEADS. Henry J. Stone, New Haven, Conn., assignor to William Quail, Brooklyn, N. Y. (Filed Mar. 16, 1876.)

Brief.—Two pairs of rolls for feeding the metallic strip forward, and two interposed guiding and supporting blocks, whose plain approximate surfaces meet in the plane of the slits, and embrace the space between the peripheries of the two pairs of rolls, the lower block having located within it an adjustable shaving-tool, and the upper block being provided with a recess, by which it may be adjusted so as to prevent buckling of the strip, and so as to hold the strip in its passage down upon the cutter.

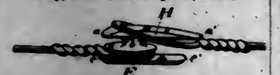


1. The knife-block G, with its forward and rear ends, constructed to partially cover the rollers B, for the purposes substantially set forth.

2. The pressure-block N, with its lower portion constructed to partially cover the rollers B', for the purposes substantially as set forth.

3. The combination, with the frames A and I, of the revolving rollers B and B', the knife-block G supporting the knife H, and the pressure-block N, and regulating-screw M, constructed and operating substantially as and for the purpose specified.

184,739. BALE-TIES. Charles H. Victory, Albany, N. Y. [Filed Sept. 12, 1876.]



The elongated buttons A and B, having tapering top *c*, thin rounded ends *a* and *a'* and *c* and *c'*, the connecting shank or neck *b*, provided with the flange or collar *d*, in combination with the loops H and E on the ends of the bale-wire, substantially as shown or as described.

184,740. REFRIGERATORS. H. B. Walbridge, Brooklyn, N. Y. [Filed May 3, 1876.]



1. A refrigerator consisting of a case containing the provision-chamber and ice-box, and a suspended and counterbalanced case or cylinder surrounding the same, substantially as herein set forth.

2. In a refrigerator having a suspended and counterbalanced case or cylinder surrounding the provision-chamber and ice-box, a water-seal for rendering the refrigerator air-tight when closed, substantially as herein set forth.

3. The combination of the case C, the double cylinder H, the counterbalancing-weight I, suspending-cord *h*, and lifting-cord *h'*, substantially as and for the purposes herein set forth.

4. The pan or trough G, and waste-pipe *n*, leading from the ice-box B, in combination with the case C and double cylinder H, substantially as and for the purposes herein set forth.

5. The ice-box cover L, with cord *i*, in combination with the ascending and descending double cylinder H, as and for the purposes set forth.

184,741. RAILROAD-RAIL JOINTS. H. B. Walbridge, Brooklyn, N. Y. [Filed May 4, 1876.]

Brief.—The fish-plates are held to the rails by bolts having screw-threads at one end screwing into large nuts, which are prevented from turning by their filling the space between the top and bottom flange of rail. The other ends of the bolts have slots, into which are driven wedge-keys, which are prevented from working out by springs passing through the narrow ends.



1. The combination of the bolts *d*, having a screw-thread upon one end to receive a nut, *g*, and a slotted head upon the other, with the washer *h* and key *i*, substantially as shown and described.

2. The combination of the rails *a*, plates *c*, bolts *d*, heads *e*, nuts *g*, washers *h*, keys *i*, and spring *i*, substantially as set forth.

184,742. SPINDLE-STEPS FOR SPINNING-FRAMES. Henry Whorwell and Jacob T. Blauvelt, Paterson, N. J., assignors to the Danforth Locomotive and Machine Company, same place. [Filed Feb. 16, 1876.]

Brief.—The step is constructed with a receptacle for oil in its upper end, and is provided with a bushing, which extends up through the oil, said bushing being provided with slots in its side, for the passage of oil from the oil-receptacle to the spindle, while the sides of the bushing between the slots serve as stops to prevent the rotation of the oil.



The combination of the bushing B, having its imperforate annular portion extending above the bottom of the oil-chamber, and the steps B', with the spindle D and vessel M, as specified.

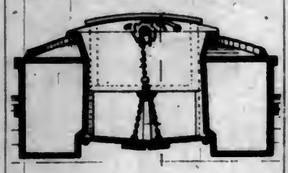
184,743. AIMING ATTACHMENTS FOR FIRE-ARMS. George W. Wingate, New York, N. Y. [Filed Sept. 18, 1876.]

Brief.—A pointed rod is fitted to the bore of any ordinary rifle having a firing-pin, and is arranged to be projected by the stroke of said pin when the hammer is snapped. The projection, although slight, is sufficient to indent the target, which is placed within a short distance of the muzzle for aiming drill.

1. The rod E F, having a point or pin, H, and a guiding device, and adapted to be operated by the firing-pin of an ordinary rifle or other small arm, substantially as and for the purposes described.

2. The rod E F, in combination with the tompion B and pin H, substantially as and for the purposes set forth.

184,744. DUMPING-SCOWS. Daniel Allen, Rondout, N. Y. [Filed Nov. 4, 1876.]



1. A dumping-scow divided by built-heads into compartments or pockets, with bottom and end gates, that are automatically opened by the shaft-sections of the pockets on the release of one shaft-section only, substantially in the manner and for the purpose set forth.

2. The combination of the hinged bottom gates of the compartments, and of the suspension-chains of the same, with shaft-sections that are arranged to turn alternately in opposite direction, and are connected by pawl, ratchet, and cam mechanism, to drop successively the gates on the release of the first shaft, substantially as specified.

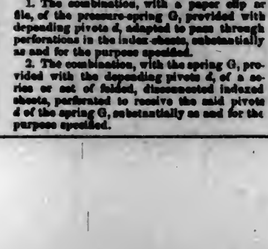
3. The combination of the end shaft-sections with vertically-sliding end-gates and inclined guard-plates, operating simultaneously with the dropping or closing of the bottom gates, substantially as set forth.

4. A dumping-scow, being open at the ends and provided with movable end-gates, to admit a full sweep of water through the scow on raising the gates, substantially as specified.

5. The combination of the built-heads, having central pendent arms, with the hinged bottom-gates bearing thereon when closed, substantially as and for the purpose set forth.

184,745. APPARATUS FOR STEAMING FOOD. Thomas B. H. Andrews, Mansfield, Ohio. [Filed May 9, 1876.]

Brief.—A smoke-chamber under the cooking-tank, which can be employed at will by means of the hinged damper.



A furnace having dampers *a b*, steam-chest B, feed-box C, and chamber A', with damper C', all arranged as shown and described, for the purposes specified.

184,746. FISH-FLOAT MACHINES. William E. Arnold, North Abington, Mass. [Filed Oct. 2, 1876.]

Brief.—By means of a long drum or pulley on one shaft, and two fixed pulleys and one idle one on the driving-shafts, the belt can be shifted, so that one tool may be operated while the other is at rest.

The machine, essentially as described, composed of the toe and heel reapers E F, their carrying-arms C D, and the reaper-revolving mechanism, provided with the driving-pulleys *k m* and the loose pulley *l*, to their shafts, arranged as described, so that their operative belt *n* may be moved or slid from one upon the other of said pulleys, as occasion may require, whereby one shaft will be at rest while the other is in motion.

184,747. TEMPORARY BINDERS. J. R. Barrett, Chicago, Ill. [Filed Apr. 24, 1876.]

1. The combination, with a paper clip or file, of the pressure-spring G, provided with depending pivots *d*, adapted to pass through perforations in the index-sheets, substantially as and for the purpose specified.

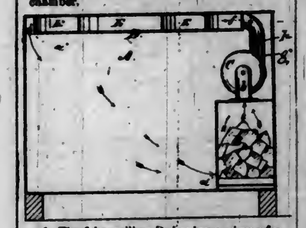
2. The combination, with the spring G, provided with the depending pivots *d*, of a series or set of folded, disconnected indexed sheets, perforated to receive the said pivots *d* of the spring G, substantially as and for the purpose specified.

184,747.



184,748. REFRIGERATORS. John J. Bate, Brooklyn, N. Y. [Filed July 20, 1876.]

Brief.—Circuit of refrigerated air through chill-chamber, ice-box, and a chamber formed by the real and false ceiling, and communicating at or near its perimeter with the chill-chamber.



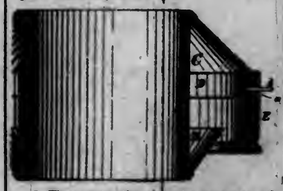
1. The false ceiling D, having a circumferential opening, *d'*, in combination with the fan-blower and ice-box, all arranged in relation with each other and within the chill-room A, substantially as and for the purpose set forth.

2. The system of radiating partitions E in combination with the false ceiling D, the fan-blower C, and the ice-box B, all arranged in relation with each other and the chill-room A, substantially as and for the purpose herein set forth.

3. The valve *h* in the pipe in combination with the system of radiating partitions E, the false ceiling D, the fan-blower C, and ice-box B, all arranged in relation with each other and within the chill-room A, substantially as and for the purpose herein set forth.

184,749. TREE-PROTECTORS. R. C. Bates, Boston, Mass. [Filed Aug. 28, 1876.]

Brief.—A cylindrical hoop or band is detachably secured to the roof, and, depending below the level of the upper edge of the trough, serves as a guard or shield for the same. It may easily be removed for the purpose of cleaning the trough.



1. The combination, in a tree-protector, of the conical roof C, the cylindrical band D, permanently attached to and depending from the outer edge of the roof C, and the cylindrical band E, fitted to slip over the band D, and adapted to be readily removed therefrom, as and for the purposes described.

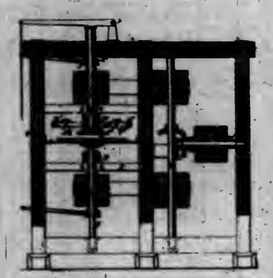
2. The combination, in a tree-protector, of the conical roof C, the cylindrical band D, permanently attached to the outer edge of the roof C, and provided with two or more pins, *h*, and the cylindrical band E, fitted to slip over the band D, and provided with two or more slots, *e*, adapted to engage with the pins *h*, as and for the purposes described.

184,750. MACHINES FOR MAKING RAISED-HEADS. Alexander C. Blount, Pascagoula, Miss. [Filed Sept. 6, 1876.]

Brief.—Wooden barrel-heads of different sizes are formed by means of a table provided with a circular opening, two vertical clamping-shafts, (an upper and a lower one, one stationary vertically and the other vertically adjustable,) provided with gage-rings, and having vertically-adjustable and revolving cutter-heads, each carrying chamfering and vertically-cutting tools, and suitable operating mechanism.

184,751. MACHINES FOR MAKING STAVES. Alexander C. Blount, Pascagoula, Miss. [Filed Sept. 14, 1876.]

Brief.—The concave and convex surfaces are cut upon the stave-blank; the stave jointed, crozed, and chamfered successively without handling the stave-blank after it has been introduced into the machine.

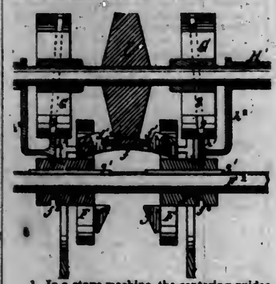


1. In a machine having revolving cutter-heads, and suitable clamps for clamping the lumber while a barrel-head is being cut out of it, the cutter-head D, having a chamfering-tool, E, and a vertically-cutting tool, F', in combination with the cutter-head D', having two similar tools, substantially as and for the purpose set forth.

2. The combination of the clamping-shafts O O', the cutter-heads D D', and the perforated table B, substantially as and for the purpose set forth.

3. The lower vertical clamping-shaft, which is stationary, and a revolving cutter-head, which is adjustable vertically on said shaft, in combination with an upper vertical clamping-shaft, and a revolving cutter-head, which are adjustable separately vertically, substantially as and for the purpose described.

4. The combination of the shafts C C', the clamp-heads C' C', the revolving and vertically-moving cutter-heads D D', and the gage-rings *d'*, substantially as and for the purpose set forth.



1. In a stave-machine, the centering-guides C, attached to the table B and rods C', in combination with the cutters *e' e'* and *f' f'*, substantially as described.

2. In a stave-machine, the combination of the centering-guides C and the guide-wheel K, substantially as described.

3. The cutter-heads E and E', having cutters *e'* and *e'*, connected and driven positively by toothed wheels E², E², and E², substantially as described.

4. The combination of the revolving cutters *e' e'*, feed-rollers D¹ and D², wheel I, and revolving and sliding cutters *f' f'*, substantially as described.

5. The combination of the feed-rollers D¹ D², wheel I, jointing-cutters *f' f'*, wheel K, and roller *j*, substantially as and for the purpose set forth.

6. The feed-wheel I, provided with the sliding bolt *i'*, substantially as and for the purpose described.

7. The combination of the vertically-yielding shaft G', wheel I, the cam-grooved pulleys G, the feed rollers D¹ D², and the cutter-heads F F, having cutters *f' f'*, substantially as and for the purpose described.

8. The guide-wheel K, having a stave-shaped channel between its flanges K' K', a depression, L^2, and a lip, L^1, substantially as described.

9. The combination of the guide-wheel K and the jointing mechanism, consisting of the cutter-heads F F, and their cutters *f' f'*, and the cam-grooved pulleys G G, substantially as described.

10. The combination of the pulleys G G, having the cam grooves *g*, the shaft G', the forked head L, having shanks L^1, arms L^2, and sleeves E^1 H^1, and the cutter-heads F F, having cutters *f' f'*, and grooves *f' f'*, and the shaft F', substantially as and for the purpose described.

11. The turn-table M, made of a dished form, substantially as and for the purpose described.

12. The spring-catches M^1 of the turn-table M, in combination with the cam-disk O, substantially as described.

13. The combination of the guide O' and turn-table M, substantially as described.

14. The combination of the guide O', turn-table M, feed-belts *f*, feed-pulleys F', having arms *p'*, pulleys Q, and the crozing and chamfering cutters, substantially as described.

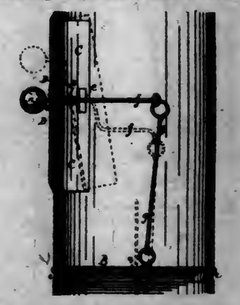
15. The combination of the adjustable side spring-guides R, and the feed-belts *f f*, substantially as described.

16. The feed-pulleys F', having arms *p'* attached directly to them, in combination with the pressure-pulleys Q Q, feed-belts *f f*, and with chamfering and crozing cutters, or with either the chamfering or crozing cutter, substantially as described.

17. The combination of the mechanism for effecting the cutting of the concave and convex surfaces upon the stave, the mechanism for effecting the jointing of the stave, and the mechanism for effecting the crozing and chamfering of the stave, the combination being such that the said operations are performed successively in one machine without handling the piece of stave-lumber after it is introduced into the machine, substantially as set forth.

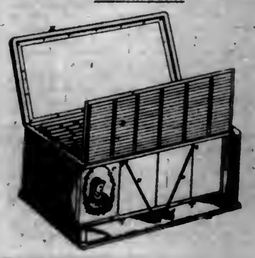
184,752. STOVE-PIPE DAMPERS. De Witt C. Breed, Buffalo, N. Y. [Filed Mar. 1, 1876.]

Brief.—The door C, on being pressed in, will elevate the end of the crank *f*, raise the connecting-wire *g*, and thus close the damper.



1. In combination with pipe A, the disk-damper B, hinged to the wire frame *a b*, and operating the draft-door C by the connecting-rods *g e f*, substantially as specified.

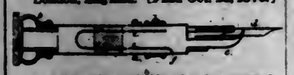
2. The automatically-acting door C, hinged directly in the pipe A, and in combination with the damper B, substantially as and for the purpose specified.



184,758. PICTURE-EXHIBITOR. Hezekiah J. Bowman, Cleveland, Ohio, and Adam Stull, Mt Pleasant Ill. [Filed Apr. 10, 1876.]

The herein-described picture-album, consisting of the box A, plates B B, having bands *c c* for holding pictures C, and the hooks *e e*, the arms D D, attached to the springs *d d*, the spring-catches *f f*, the cover H, having the mirror *I*, all constructed, combined, and arranged to operate substantially as shown and described.

184,759. FOUNTAIN-PENS. Wm. A. Brice, London, England. [Filed Oct. 28, 1876.]



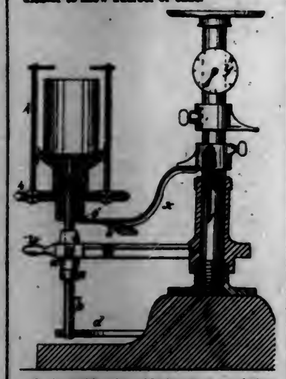
1. A fountain-pen holder closed at one end and having an outlet, *c*, at the other for the ink, provided with U-shaped air-inlet tube of minute or capillary bore passing up and down within the ink holder or reservoir, and terminating at one end within the said holder or reservoir, and at the other at an orifice in the side of the same in a position to be readily covered and uncovered by the fingers, substantially as herein shown and described.

2. The combination of top-closed barrel *a*, curved spout *c*, and U-shaped air-tube *e*, having orifice *f*, as shown and described, for the purpose set forth.

3. The combination, with air-tube *e*, having orifice *f*, of the collar *h*, arranged to slide on the barrel, as and for the purpose specified.

184,760. SOLDERING-MACHINES. William D. Brooks and Rishel Gorsuch, Baltimore, Md. [Filed Oct. 13, 1876.]

Brief.—Can-holders rotated while soldering, but afterward not upright, so that the solder may not run to one point. Three modifications of the cam for releasing the can from the can-holder, also releases by applied power. Central support for soldering-iron. Dial-indicator to show number of cans.



1. A machine for soldering cans, consisting of a moving table carrying can-holders, made to tip from and return to a perpendicular position, as set forth.

2. A machine for soldering cans, consisting of a moving table carrying can-holders, which tip from and return to a perpendicular position, and which automatically hold and release the cans at proper times, as set forth.

3. The revolving table, in combination with tipping can-holders and automatic clamping and releasing devices, as set forth.

4. The revolving table, tipping-rods *b b*, on the upper ends of which the cans are held, in combination with the guideway for the lower end of the rods, as set forth.

5. The combination of the wheels *h h*, connected to the devices which hold the cans, and tipping to cause into contact with the wheel *i*, as set forth.

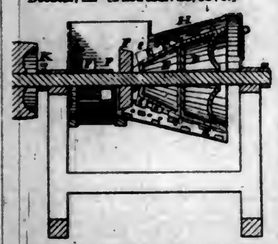
6. The cam for the cans, in combination with the rods *b*, the wheels *h*, and interposed spring, and with the rods *b b* rigidly attached to the wheel *h*, or to the bar *g*, as set forth.

7. The camway *o*, in combination with the revolving cans, carried by the revolving table, as set forth.

8. The cleaver *s* pivoted in the table, in combination with the rods *b*, and can-holders, as set forth.

9. The stand B on the top of the standard of the revolving table, as set forth.

184,761. CORN-SHELLERS. C. C. Burroughs, Decatur, Ill. [Filed Mar. 28, 1876.]



1. The tapering cylinder E, provided with the teeth *c c*, made of greater length, breadth, and thickness toward the smaller end of the cylinder, as and for the purpose set forth.

2. The beaters or feeders F F, arranged on the shaft directly under the hopper H, in combination with the cylinders D E, as shown and described.

3. The arrangement of the two cylinders D E with teeth *d d* and *c c*, respectively, as shown and described, and beaters or feeders F F, as and for the purpose set forth.

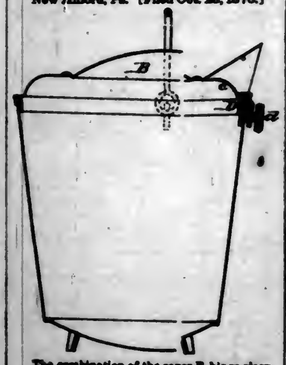
184,762. BRICKS. Thos. McL. Clark, Ottawa, Ontario, Canada. [Filed Oct. 3, 1876.]

Brief.—Marl and clay, in the proportions of one-third or one-fourth of marl to two-thirds or three-fourths of clay, or thereabout, are intimately mixed and exposed to the weather, for the purpose of bleaching, and then molded, as desired, and burned.

1. As a new article of manufacture, a brick or similar article composed of aluminous clay and marl.

2. As an improvement in the art of manufacturing brick and similar articles from dark clay, the combination with the clay of finely-pulverized marl, for the purpose of bleaching the same and rendering the brick or other articles of a white or light color.

184,763. POT-COVERS. George Clements, New Milford, Pa. [Filed Oct. 28, 1876.]

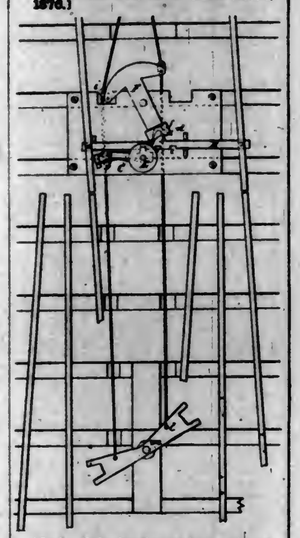


The combination of the cover B, hinge-clasp D, and thumb-screw *d*, substantially in the manner and for the purposes herein set forth.

184,764. PROCESSES OF PREPARING METAL SURFACES FOR PRINTING UPON. Joseph T. Cosgrove, New York, N. Y. [Filed Oct. 30, 1876.]

The method of preparing metal plates for direct printing, by means of pale boiled oil, Bengal-gum varnish, turpentine, white lead, umber, and copperas, in about the proportions and in the manner substantially as herein set forth and described.

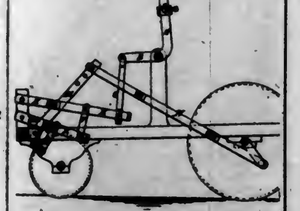
184,765. RAILROAD-SWITCHES. William H. Cooke, Wilton, Conn. [Filed Nov. 4, 1876.]



The bar B, having the notches *e* and tooth *d*, in combination with the locking-lever C, wheel E, lever F, having the plate *f*, and the levers G G', and their connecting-rods *f* and *h*, substantially as shown and described.

184,766. MOTIVE-POWER. W. W. Corey, Lisbon, N. H. [Filed Nov. 11, 1876.]

Brief.—A series of levers and connecting-rods are arranged in the same vertical plane beneath a long crank-pitman, each lever, with its rod, working through a slot of the lever immediately above it.



An improved motive-power, formed by the combination of the four levers B H K M and the four connecting-rods G J L F with each other, and with the machinery to be driven, substantially as herein shown and described.

184,767. EXPLOSIVE COMPOUNDS. Chas. De Long, San Francisco, Cal. [Filed Nov. 21, 1876.]

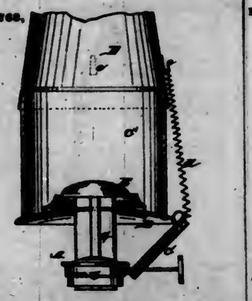
An explosive compound consisting of glycerine, nevdust, nitrate and chlorate of potash, and nitroleum, substantially as described.

184,768. LAMPS. David Dickson, Raglan, Ontario, Canada. [Filed July 1, 1876.]

1. The combination of the glass cylinder C, metallic top D, hooks *c*, springs *d*, tubes G, disk B, and burner A, as shown and described.

2. The combination of the deflector B, disk B, burner A, the springs *d*, and supporting-tubes G, as shown and described.

184,769.



184,764. WASHING-MACHINES. Wm. Doan, Mountsville, Tenn. [Filed Sept. 22, 1876.]



The box A, having the inclined sides and the corrugated side and bottom, in combination with the plungers B, having the pins *f*, the levers *d*, and rods *e*, substantially as shown and described.

184,765. BUSTLES. Samuel H. Doughty, New York, N. Y. [Filed Sept. 23, 1876.]



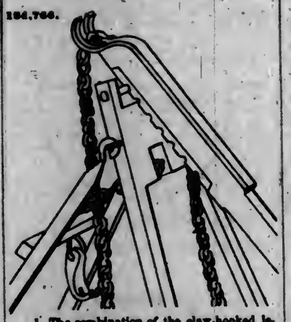
1. The concave or paragon spring as a front connection for the several horizontal springs, as and for the purposes specified.

2. The hinge *h* in the upright front springs, connecting the two parts, as herein specified.

3. The interlocking connection-piece J, formed with a tongue, *j*, and folded lips *j'*, adapted to connect the horizontal springs D and the upright front springs, as herein specified.

4. In combination, the upright springs F F', joining the horizontal springs D with a hinge, *h*, at each side, and the flexible connections formed by the interlocking unions J, as herein specified.

184,766.



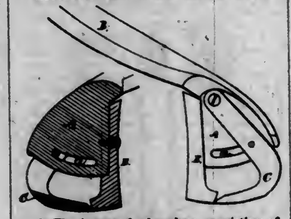
1. The combination of the claw-hooked lever E with a fulcrum-stand, composed and formed as follows, to wit: The triangular stand A and the swinging or adjustable legs D D, formed, arranged, and secured as described.

2. In a stone-hoisting machine, the combination of the stay-chain N and claw-hook P, with the stand A, and the ordinary hoisting-chain M, substantially as shown, and for the purpose specified.

3. In a fulcrum-stand for a hoisting-machine, the projections above and on each side of the fulcrum-bolt C, formed and used substantially as shown and described.

4. The combination of the lever E, hook K, chain M, stand A, chain N, and claw-hook P, substantially as shown and described.

184,767. HOOP-PLANES. Isaac A. Dunham, Brockton, Mass. [Filed June 23, 1876.]

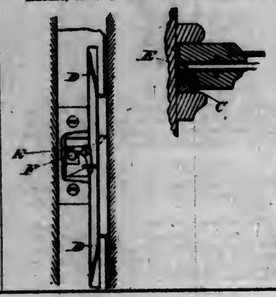


1. The improved edge-plane, consisting of the stock A, guard B, handle B, and cutter C, the latter being affixed at its rear and to the stock by the fixed center or fulcrum pin *d*, and provided with the set-screw D, the whole being constructed and arranged for conjoint operation, as shown and described.

2. The stock A recessed on its opposite sides, in manner and for the purpose substantially as shown and described.

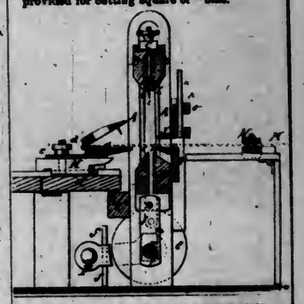
3. The stock, recessed on its opposite sides, as described, in combination with the handle, arranged obliquely to the stock, or at an obtuse angle to its front edge, all being substantially as represented.

184,768. SASH-HOLDERS. Emilius Hoos, Racine, Wis. [Filed Oct. 24, 1876.]



184,769. CLOTH-CUTTERS. Geo. D. Ferris, Springfield, Ill. [Filed July 22, 1876.]

Brief.—The double-edged knife is adjustable vertically, to bring a new and sharp part of the edge to cut. Clamping-bars hold the cloth true while cutting, which are themselves operated by a semi-revolving cam and disk. Supporting-racks and clamps and gages are provided for cutting square or "bias."



1. In a cloth-cutter, a double-edged sliding cutter, *i*, guided by and passing with its screw-shank through the block C, that moves in the grooves of bars B, in combination with two pairs of clamping-bars for holding the cloth, substantially as and for the purpose specified.

2. The combination of the guides A A, bars B B and D D, shaft E, eccentrics *l*, connecting-rods *m* and *g*, crank-disks *o*, and crank-pins *f*, substantially as specified.

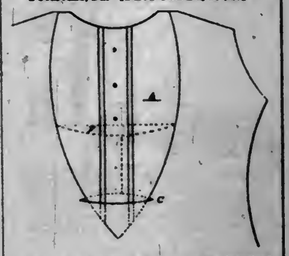
3. The combination of the clamps M, jointed frame M, brass-rod *r*, staples *s s'*, and bar I, substantially as specified.

4. The combination of the pressure-bar J, lever *n*, swinging bar *o*, pins *p*, and bar I, substantially as specified.

5. The combination of the toothed jaws G, quadrant *o'*, slide H, and adjusting-screw *S'*.

6. The combination with cutting mechanism, substantially as described, of the tables K L, having scales V *w*, guides *t* U, stop-gages *b'*, slide H, and jaws G, as specified.

184,770. SHIRT-BOSOMS. Joseph Fisher, Pottsville, Pa. [Filed Oct. 24, 1876.]



The combination of the partly-detached bosom A, the slot or pocket F, the slot or opening C in the shirt beneath the bosom and opening Saps, substantially as described.

184,771. UMBRELLAS. Reuvena Folsom, Toledo, Ohio. [Filed Oct. 28, 1876.]

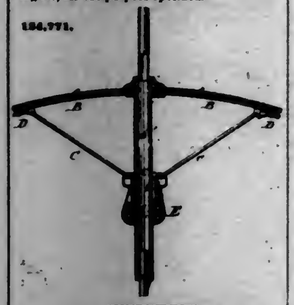
1. The stick of an umbrella or parasol, composed of three sections, of which the top and handle sections slide into the middle tubular section, substantially as described.

2. The combination of the lower tubular rib-sections, having slotted spring-catches, with the upper solid rib-sections provided with projecting end studs, substantially as described.

3. The combination of the rib-sections B B' and spring-catches D with the straps or bosses O and tip-holder E, for sliding in or extending the rib-section, as shown and described.

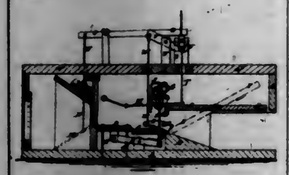
4. The covering-fabric of the folding umbrella or parasol provided with an interior stiffening-layer and supplementary stretching-rib, for the purpose specified.

184,771.



184,772. ANIMAL-TRAPS. Geo. W. Gibson, Shelbyville, Ky. [Filed Sept. 20, 1876.]

Brief.—Each victim resets the trap for the next.



1. The combination of the drop D, the lever E, the connecting-rods F J, the three catches G K L, and the spring H with the box A and the pivoted door I, substantially as and for the purpose herein shown and described.

2. The combination of the door M, rod N, levers O R V, and the connecting-rods T W with the spring H, pivoted door I, and lever-catch L, substantially as and for the purpose herein shown and described.

184,773. BURGLAR-ALARMS. Harry Gill, New York, N. Y. [Filed Sept. 27, 1876.]



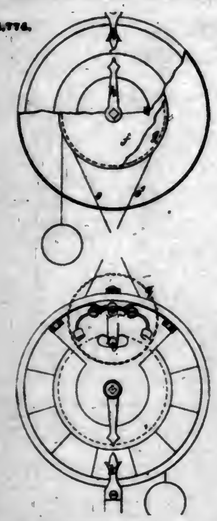
In a burglar-alarm, the wedge *i*, sliding upon the base *a*, and provided with the catch *i*, in combination with the hammer *f*, spring *g*, and nipple *d*, as and for the purposes set forth.

184,774. APPARATUS FOR TRANSMITTING AND RECEIVING SIGNALS, &c. John S. Gisborne, Buckingham Street, London, England. [Filed Sept. 27, 1876.]

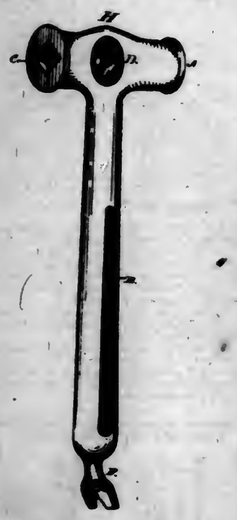
1. The combination, with an indicating-dial and transmitting-wheel or segment, *p*, and connecter *o*, of the repeating-connecter *o'*, wheel or segment *f*, and pointer, substantially as set forth.

2. The transmitter mechanism, substantially as specified, for giving a distant signal, in combination with the repeating mechanism, substantially as set forth, to indicate at the transmitting and the reception of the message, substantially as specified.

184,774.



184,775. COMPOUND IMPLEMENTS. William M. Gray, Brooklyn, N. Y. [Filed May 12, 1876.]

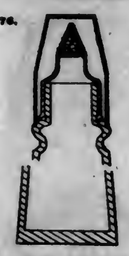


The within-described tool, consisting of the handle E, with graduated notches forming wrenches *b k*, and claw *F*, and of the head H, with bed-wrench C, wrench D, and hammer A, as shown and described.

184,776. MOULDS-HOLDERS. Elbridge H. Grover, Boston, Mass. [Filed Sept. 11, 1876.]

The perforated flexible distributer B, having a closed or solid point, and perforated on the sides below the point, to be applied to mucilage and ink holders, substantially as and for the purpose described.

184,776.



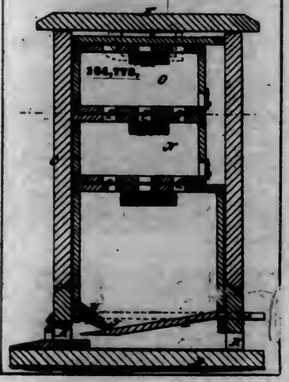
184,777. HARNESS-HAMES. David C. Guthridge, Pittsburg, Pa., assignor of one-half of his right to the Crawford Manufacturing Company, same place. [Filed Aug. 19, 1876.]



1. The skeleton hame, constructed with an open interior reticulated surface, substantially as and for the purpose described.

2. The concave-convex harness-hame, provided with flush diagonal cross-supports and longitudinal lateral flanges, substantially as and for the purpose described.

184,778.

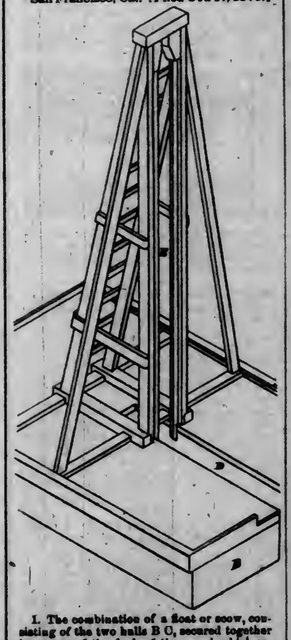


184,779. BEE-HIVES. Hiram Hatfield, Corsican, Ind. [Filed Aug. 21, 1875.]

1. The boxes O N, communicating by corresponding apertures, and the upper boxes made movable, as shown and described, whereby any two boxes may be made to register, or otherwise to open or close their communication.

2. The inclined bottom, arranged with respect to reverse incline H J and bee-entrance K, as and for the purpose specified.

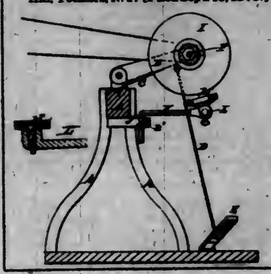
184,779. PILE-DRIVERS. Richard Hillyer, San Francisco, Cal. [Filed Oct. 17, 1876.]



1. The combination of a float or scow, consisting of the two hulls B C, secured together by means of the deck of the vessel, which only covers the space between the floats, (a portion of the length of the vessel,) so as to provide a slot, D, through a portion of the deck, and a corresponding slot between the floats, and extending under the remaining portion of the deck, with a pile-driver arranged substantially as and for the purpose described.

2. The combination of the float or watercraft, provided with a slot, D, through its deck, and a corresponding passage through its hull, with a movable pile-driver, E, which can be shifted to any desired point in the length of the slot, substantially as and for the purpose described.

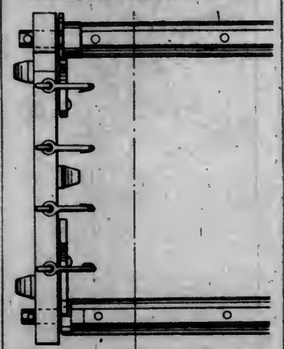
184,780. HAT-BRIM-LURING MACHINES. A. Hill, Yonkers, N. Y. [Filed Sept. 16, 1876.]



1. The combination of the hinged frame B, the spring C, the shaft F, the pulley G, the fly-wheel H, the luring-wheel I, the connecting-rod D, and the treadle E with each other, and with the frame A, for luring hat-brims, substantially as herein shown and described.

2. The combination of the adjustable bar K, the adjustable rest-bar L, and the detachable rest M with each other, and with the frame A, for supporting hat-brims while being lured, substantially as herein shown and described.

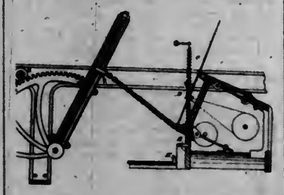
184,781. QUILTING-FRAMES. Ira M. Hope, Morocco, Ind. [Filed Apr. 26, 1876.]



The quilting-frame rollers A, having stripe F, and connected detachably with bars C, as and for the purpose specified.

184,782. YARN-WINDING REGULATORS OF SPINNING-MULES. Samuel Jackson, Lawrence, Mass. [Filed Feb. 24, 1876.]

Brief.—When the carriage runs in, winding the yarn, the faller-wire is depressed, and it comes in contact with a rod, which forces down an elbow-crank, communicating motion to a slide, which raises a "plane" resting upon inclines, causing said plane to pass beneath, and engage with, a friction-wheel on the quadrant, turning the wheel and screw a measured distance, and raising the nut, as in regulators generally. On the return of the plane it encounters a stud, which forces the slide back to place, and allows the plane to fall back and pass under the friction-wheel without contact therewith.



In a yarn-winding regulator, constructed as herein described, the combination of the frame A, the elbow-crank E, the perpendicular rod C, the spring D, the stud K, guide-bars F F, the slide G, the inclines H H, the plane I, the inclines K K, and pads L L', each with each, in a manner and for the purpose substantially as set forth.

184,783. CULTIVATOR AND CHOPPER. Wm. B. Killough, Larissa, Tex. [Filed Oct. 7, 1876.]

Brief.—An inner frame sliding laterally on rods, and moved by a lever and geared shafts. The construction of the standards and mechanism for moving them vertically and laterally. The hoe with double gearing to impart two motions.

1. The combination of the wheels A B, the stationary frame C, the rods D, and the sliding frame E with each other, to receive and support the operating mechanism of the machine, substantially as herein shown and described.

2. The combination of the pivoted bars F, the arms G, the shaft H, the bevel-gear wheels I J, the shaft K, and the lever L with the stationary frame C and the sliding frame E, for guiding and controlling the plows, substantially as herein shown and described.

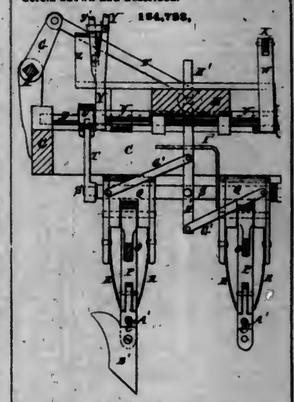
3. The combination of the hangers M, the adjustable blocks N, the plow-beams O, the plow-standards P, the plow-feet A', the slotted sliding blocks Q, the springs R, the shafts S, the arms T U, the shafts V, the arms W, the connecting-rod X, the lever Y *y'*, and the catch-bar Z with each other, and with the sliding frame E, substantially as herein shown and described.

4. The combination of the notched bars C' D' and the springs B' with the pivoted plow-feet A' and the plow-beams O, substantially as herein shown and described.

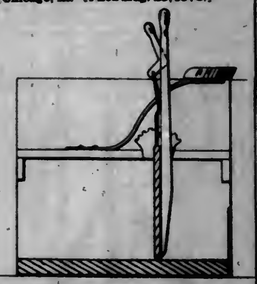
5. The combination of the pivoted bars G', the pivoted lever H', and the catch-bar I' with the blocks Q, to which the plow-standards are pivoted, and with the shafts S, upon which said blocks Q slide, substantially as herein shown and described.

6. The combination of the gear-wheels J' K', the shaft L', the bevel-gear wheels P' Q', the shaft R', the crank-wheel T', the bars U' V', the crank-arms and shaft W' Z' X', the spring B', the connecting-bar A', the standard C', and the hoe D', with the bar attached to the shafts S, the sliding frame E, the slotted hanger *y'*, the stationary frame C, and the revolving axle of the wheel B, substantially as herein shown and described.

184,783.



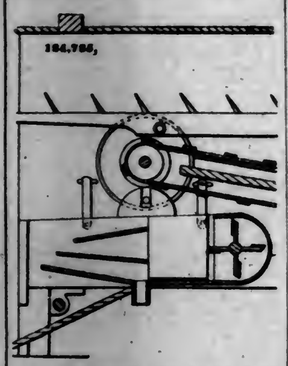
184,784. HARVESTERS. John F. Kingwill, Chicago, Ill. [Filed Aug. 29, 1876.]



A hinged screen or back board, pivoted at or near its upper corners to the frame, and above the platform of a harvester, substantially as described.

184,785. GRAIN-SEPARATORS. Jos. Koons, Stillwater, Minn., assignor to Seymour, Sabin & Co., same place. [Filed Dec. 27, 1875.]

No. 184,785.

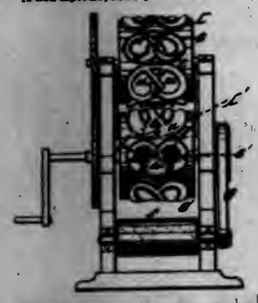


1. The combination, with the shoe of the winnower, of the segment or carrier I, the circular head C', and pin c', substantially as set forth.

2. The combination of the separating table or platform D, the disks C', and the shoe of the winnower, provided with the arcs or braces I, substantially as set forth.

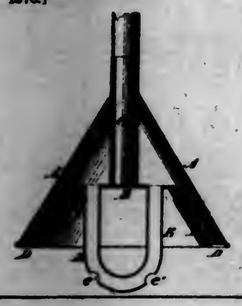
3. The combination of the circular heads C', their shaft e, the reddle-belt G', supported at its upper end upon loose pulleys C' on shaft c', the separating-platform D, and the winnower, these parts being constructed and arranged substantially as set forth.

184,786. PRINTER-MACHINES. Wm. Lambert and Henry Huber, Orrestino, Ohio. [Filed Apr. 29, 1876.]



The cylinders A A', disposed one above the other, and having the cutters or dies e e' of a pictorial shape, with the projections or raised surfaces n n and openings l l, substantially as and for the purpose set forth.

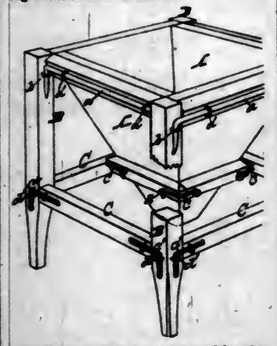
184,787. CLOTHES-POUNDER. John G. Lindsey, Asheville, N. C. [Filed Oct. 20, 1876.]



The combination of the two concentric cases A B, the tube C, the connecting-straps D, and the bent tube E, provided with the holes e', with each other, substantially as herein shown and described.

184,788. ASH-LEACHER. H. R. Locke and Seiss Locke, Fort Littleton, Pa. [Filed Oct. 26, 1876.]

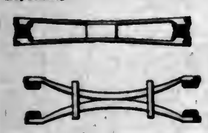
Brief.—The parts are so constructed that they can be readily detached, and the emptying of the contents facilitated.



1. The receptacle A, consisting of detachable parts or sections, hinged to legs or posts B B by hooked rods a a and staples or eyes b b, substantially as and for the purpose set forth.

2. The receptacle or hopper A, having the hooked rods a a, in combination with the legs or posts B B, having the staples b b d' d', and connecting-pieces O O, having hooks o' o', substantially as and for the purpose set forth.

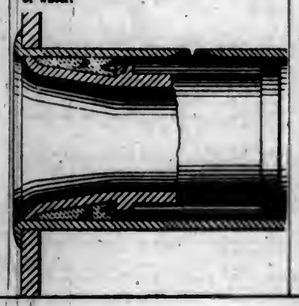
184,789. CLASPS FOR LOOPING SKIRTS. W. J. Lynch, Cleveland, Ohio. [Filed Sept. 26, 1876.]



As an article of manufacture, a skirt-looping clasp, consisting of two bars of elastic or springy material, secured to each other at about their center, provided with cushions on their heads or ends, and with or without clasping-collars, substantially as described.

184,790. LEAK-STOPPERS FOR BOILER-TUBES. John McConnell, Glasgow, Scotland. [Filed Sept. 9, 1876.]

Brief.—The gasket is provided with an A-shaped groove at its inner end, by which it is expanded against the side of the tube and the side of the thimble by the pressure of steam or water.



1. A leak-stopper for boiler-tubes, consisting of a tube that is ball-shaped or enlarged at each end, and provided with elastic packing-rings, which are V-shaped in cross-section, placed on the enlarged ends of the tube, with their annular V-grooves facing each other, and capable of being forced between, and expanded against, the sides of the boiler-tube and the enlarged or ball-shaped portion of the stopper by pressure of steam or water, substantially as shown and described.

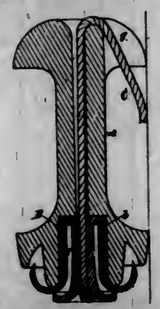
2. A packing-ring for leak-stoppers, consisting of elastic material, and provided with a V-shaped groove in one of its sides, substantially as shown and described.

184,791. LEAK-STOPPERS FOR BOILER-TUBES. John McConnell, Glasgow, Scotland. [Filed May 27, 1876.]



The combination of the tube A, provided with the collar B and nut C, with the rings D D' and F, sleeve E, and packing-rings G G', as shown and described.

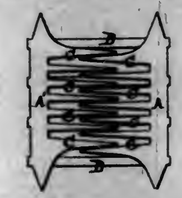
184,792. GRAPNEL-FLOATS. Pattk. Mihan, Cambridgeport, Mass. [Filed May 22, 1876.]



1. The grapnel-float, as described, the same consisting of the float A, the grapnel E, and line C, arranged and combined substantially as shown and described.

2. The float A, formed with the chamber b and the annular chamber g, as and for the purpose set forth.

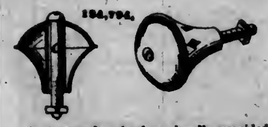
184,793. RACK COMBS. Jerome B. Morse, Brooklyn, N. Y. [Filed Sept. 30, 1876.]



The combination of the combs A A' and connecting-bands B, constructed and arranged to operate substantially as described, and for the purpose set forth.

184,794. STOVE-DOOR KNOBS. Joseph Olmsted, Providence, R. I., assignee of two-thirds his right to Elizabeth A. Cunliff and Eleanor Pickett, same place. [Filed Nov. 11, 1876.]

No. 184,794.



1. A stove-door knob or handle, provided with a central strengthening-tube located within the knob, and adapted to resist the crushing strain of the fastening bolt or screw, substantially as and for the purpose set forth.

2. The combination, with a stove-door knob, made in sections, as described, of a tube passing centrally through the same, and adapted to relieve the knob from the compression of its door-fastening device, substantially as and for the purpose described.

184,795. VENT-VALVES FOR CASES, &c. H. F. Peter, W. A. Klinge, Paul Aesman, and Geo. Shweikert, Lancaster, Ohio. [Filed Apr. 13, 1876.]



1. The combination, with a perforated valve-seat, formed on the end of a screw-threaded stem, of an elastic valve and strap or holder, substantially as and for the purpose set forth.

2. The combination of a removable guard or cap with the valve-seat and its stem, substantially as and for the purpose specified.

3. The combination of an elastic ring or washer with the stem of the valve-seat and the nut, each of which is provided with conical bearings, substantially as and for the purpose specified.

184,796. TAPS AND FAUCETS. A. Pfeiffer, San Francisco, Cal. [Filed Oct. 17, 1876.]



The tap A, having the plug B secured in it, as shown, with its large end toward the interior of the barrel, and having its small end provided with the lugs D, in combination with the faucet, slotted at E, and provided with the elastic ring F, said faucet being secured to the tap by means of the gland G, substantially as herein described.

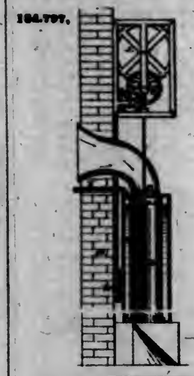
184,797. VENTILATING ROOMS. G. O. Quesada, Troy, N. Y. [Filed Sept. 26, 1876.]

Brief.—An outer pipe-column or tubular body of suitable non-porous material, and of an inner pipe of porous material, between which a space is formed, that is filled with water or other liquid. The air is drawn through or forced through the tube by a fan or otherwise, and supplied to the room at reduced temperature.

1. For ventilating rooms, an exterior tube, flue, or column of non-porous material, provided with an interior pipe of porous material, at some distance from the former, substantially as and for the purpose described.

2. For ventilating rooms, an exterior tube, flue, or column of non-porous material, and an interior pipe of porous material, forming an intermediate space, for water or other evaporating liquid, substantially as shown and described.

3. The combination of a suction or force fan with an interior pipe of porous material, surrounded by an outer tube, flue, or column of non-porous material, and having a suitable liquid filling up the space between the inner and outer tubes, substantially as described.



184,797.

184,798. PROCESSES OF ENAMELING METAL WARE. Eben C. Quinby and Jos. C. Whiting, St. Louis, assignors to Metal Manufacturing Company, St. Louis, Mo.; said Company assignee of one-half its right to Lelacon and Gresham Manufacturing Company, New York city, N. Y. [Filed Aug. 30, 1876.]

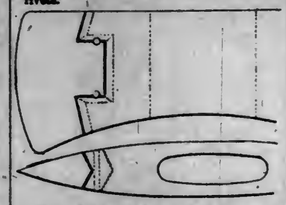
Brief.—In making stamped enameled ware, the metal is compressed and strained and the pores closed. Annealing remedies this. By pickling in the ordinary way, after annealing and before applying the enamel, the fiber of the metal is brought out, and the interstitial ferro-silicious matter is exposed, and this unites directly with the enamel and causes it to adhere.

1. The process herein described for producing enameled sheet-iron articles, consisting in forming the article by stamping and shaping in the usual way, and then annealing and pickling prior to applying the enamel, substantially as set forth and described.

2. The method herein described for causing the enamel to adhere upon the turned-over edges of the enameled sheet-iron vessels, consisting in repeating the operation of annealing and pickling after the edge has been turned, and prior to the application of the enamel, substantially as set forth.

184,799. AXES. John O. Rollins, Truckee, Cal. [Filed May 9, 1876.]

Brief.—The ends of the body of the ax are provided with concave grooves, into which are driven detachable bits having convex edges, and which are locked in place by soft-metal rivets.



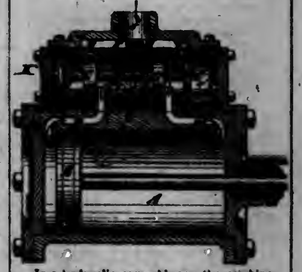
The method of attaching a bit to an ax-body by driving convexed edges of the former into grooves of the latter, as shown and described.

184,800. TOBACCO OR CIGAR PRESSES. H. Sage, Pekin, Ill. [Filed Sept. 11, 1876.]

Brief.—A cam-lever pivoted to projecting cheeks of a standard operates the platen by means of the ends of the pivot extending into slots in vertical arms of the platen, the cam pressing alternately the top and bottom portions of the platen.

The tobacco or cigar press, consisting of standard A, having arms f f, provided with abutments i i to receive the vertically-sliding cheeks B B of the platen b, connected by the cross-bar a, in combination with the cam-lever C, and bolt f, constructed substantially as and for the purpose described.

184,801. HYDRAULIC ORGAN-BLOWERS. Walter Shriver, New York, N. Y. [Filed Mar. 3, 1875.]



In a hydraulic organ-blower, the combination of the balanced piston-valves G G' and pistons H H' with the auxiliary cylinder C, main cylinder A, piston B, ports D D' and E E', four-way cock I J, and the described mechanism connecting the plug I of said cock with the rod of the main piston B, all constructed and arranged to operate substantially as herein shown and described.

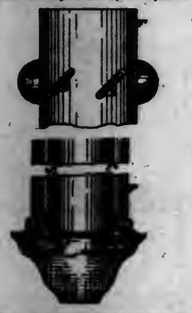
184,802. COATS. Albert P. Silva, Elmira, N. Y. [Filed Oct. 9, 1876.]



In combination with the coat B, the supplementary collars A and mittens E, constructed and arranged substantially as herein described, for the purpose set forth.

184,895. LAMP-BURNERS. Chas. W. Soule, Boston, Mass. [Filed Oct. 4, 1876.]

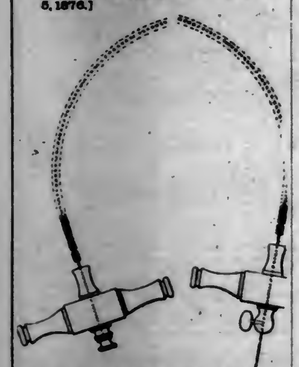
Brief.—To operate, turn the drip-cup attached to the tube C, which also turns the wick, and the ratchets, turning obliquely, carry the wick up or down, as required.



1. The ratchet-wheels inserted obliquely through the outer cylinder F, to operate a cylindrical wick within a tube or oil-receptacle, substantially as described.

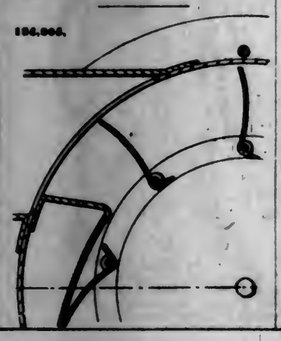
2. In combination with the ratchet-wheels B, the tube C, folding over and covering the surface of the inner cylinder g, said tube being corrugated opposite the said ratchet-wheels, as set forth.

184,896. SURGICAL SAWS. Frederick A. Stohlmann, Brooklyn, N. Y. [Filed Oct. 6, 1876.]



The saw or abrading instrument, made of a range of beads upon a wire or flexible core, with handles at the ends, each bead having peripheral cutting-edges, substantially as set forth.

184,897.



184,898. WATER-WHEELS. L. A. Struble, Salt River, Mich. [Filed Sept. 22, 1876.]

Brief.—The water entering the casing through the inlet will exert a pressure on the curved buckets, and force them from the abutment. As the buckets strike the inclined side of the abutment, they are folded down to the hub, and after passing the abutment they are unfolded by the action of the water.

A water-wheel provided with hinged buckets supported radially to the axis of the hub by projections that extend beyond their pivots and rest on the revolving hub, for the purpose specified.

184,899. CUTTER-HEADS. I. F. Thompson, Boston, Mass. [Filed May 5, 1874.]

Brief.—The pressure-bar is attached to the cutter-head immediately in front of the knife.

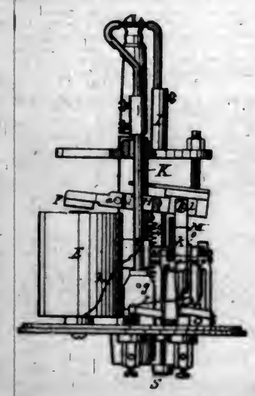


1. In combination with a rotary cutter-head, having cutters C substantially parallel with its axial line, the pressure bar or bars B connected by arms D to the cutter-head, and adapted to rotate with the head and bear with a yielding pressure upon the stock in front of, and close to, the edges of the cutters, substantially as described, for the purpose specified.

2. The combination of the pressure-bars B, arms D, elastic cushions g, and head A, substantially as described.

184,900. ELECTRIC GAS-LIGHTING APPARATUS. Jacob P. Tirrell, Somerville, Mass. [Filed Jan. 14, 1876.]

Brief.—Circuit-breaking arm passes through armature-lever, and is operated thereby. Pawl that operates gas-cock hung so as to adjust itself to the movements of the armature-lever. A push-rod is attached to armature-lever, for operating it in case magnet fails.



1. The armature-lever H and circuit-breaker K, combined together, and arranged substantially as described.

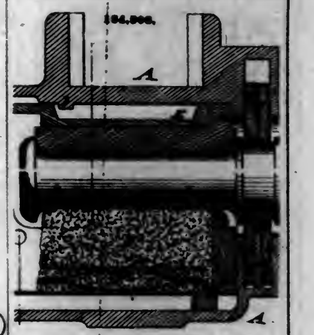
2. The spring-pawl h, hung on armature-lever H, so that it can swing sidewise, substantially as and for the purpose specified.

3. The push-rod S, arranged to operate armature-lever H, substantially as and for the purpose described.

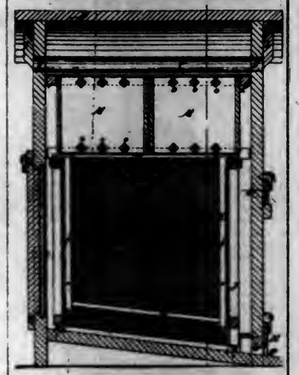
184,901. CAR-AXLE BOXES. Owen Tomlinson, Bombay, India. [Filed Sept. 9, 1876.]

The combination of the box A, having the internal side cheeks a, and the lubricating-pads F, with the detachable loop B and bearing D, as and for the purpose set forth.

184,902.



184,903. BEE-HIVES. R. T. Van Valkenburg, Angola, Ind. [Filed Aug. 26, 1876.]

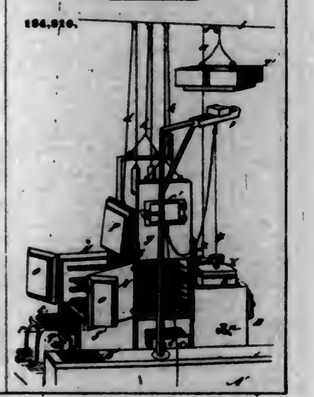


1. The door H of a bee-hive, having a rear piece, A, with a contracted aperture, as and for the purpose set forth.

2. The breeding apartment of a bee-hive, consisting of the wire-cloth frame and the frames K K, the latter supported at top of the former upon rubber, as and for the purpose described.

3. The end-open honey-boxes M covered at top with wire gauze, provided with bars o, and supported on the cross-bars L, substantially as and for the purpose specified.

184,904.



184,910. COOKING-RANGES. Thomas J. Whitehead, South Paris, Me. [Filed May 16, 1876.]

Brief.—Designed for use in large establishments, and adapted for other cooking or heating.

1. The combination, in a cooking-range, of two end fire-boxes, A B, and a middle portion, C, inclosed in a heat-insulator, substantially as specified.

2. The combination of flues G and J, fire-boxes A B, and intermediate flue C, substantially as specified.

3. The combination of flues G and J, inclosed cooking-chambers L, and ovens e, substantially as specified.

4. The combination of the screen R with flue G, substantially as specified.

5. The combination, with the range, of the broiler-stand r, and sliding or rolling broiler t thereon, substantially as specified.

6. The combination of the table A', crane V, and the range, substantially as specified.

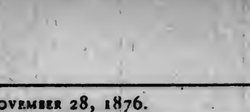
184,911. WINDOW-SHADE ROLLERS. Daniel Willis, Harrison, N. J. [Filed Mar. 20, 1876.]

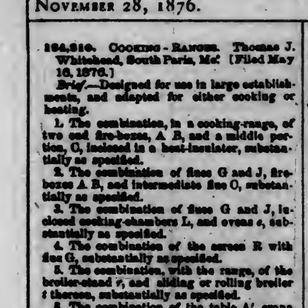


The combination, with roll A, spring B, and cam-notched shaft C, of the cap D, having radial slot and guide-plates F F, notched on lower side of inner ends, and the catch E, having a cross-head on inner and a toe on outer part, substantially as and for the purpose specified.

184,912. MACHINES FOR CUTTING HORSESHOE-NAILS. John B. Wills, Keesville, N. Y. [Filed June 6, 1876.]

Brief.—Alongside of a vertical adjustable bar, upon the top of which the nail is forced by the reciprocating cutter, and then gripped by the griper, is another vertical and adjustable bar, for guiding by its top and the header; and a spring forced down by a spur on the cutter as it descends, and lying with its end under the end of the nail when griped, forces the nail from the die, as soon as the header has performed its work, and the cutter and griper have retreated.





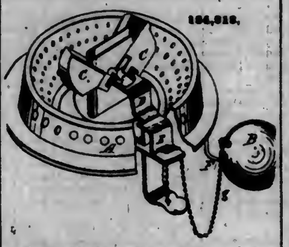
1. The combination of the die n, the separate and adjustable guide n, with the header o, substantially as and for the purpose set forth.

2. The combination, as described, of the die n and gage o, for cutting the nail and for gaging the plate laterally.

3. The combination of the gage o, for the plate to abut against, with the guide f, substantially as and for the purpose described.

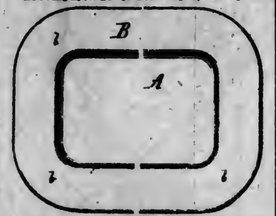
184,913. LAMP-EXTINGUISHERS. James T. Williamson, Newport, Ky. [Filed Nov. 4, 1876.]

184,914.



In combination with a lamp-burner, the pivoted hoods C, operating-arm D, bracepieces E and H, bracket F, weight E, and chain g, for extinguishing the flame, substantially as described.

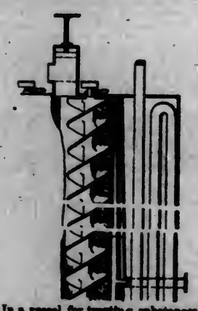
184,915. GROCERS' DISHES. Hugo G. Adam, Brooklyn, N. Y. [Filed July 7, 1876.]



A seamless pan of taggers' tin plate, of general rectangular form, with round corners and having the edge stiffened, as and for the purposes herein set forth.

184,916. APPARATUS FOR TREATING SUBSTANCES WITH HYDROCARBON. William Adamson, Philadelphia, Pa. [Filed Oct. 2, 1876.]

Brief.—Animal and vegetable substances are treated with hydrocarbon liquid and vapor, for extracting therefrom fats, gums, and resins. The substances to be treated is conveyed, by screw-conveyors, through a sectional perforated trough, during which the hydrocarbon vapor, generated by a steam-coil in the bottom of the apparatus, permeates the entire mass. A diaphragm, composed of alternate channels and deflecting-plates, extends just below the perforated troughs, for receiving the extract, and permitting the upward flow of vapor. The residuum, after the extract has been made, is removed by screw-conveyors and piped to outside receivers.



1. In a vessel for treating substances with hydrocarbon vapor, a series of perforated troughs, along which the substance is caused to traverse while subjected to the action of the vapor, all substantially as set forth.

2. The combination, in the vessel A, of a series of perforated troughs, D, with rotating screw-conveyors, adapted to the said troughs, as set forth.

3. The combination, in the vessel A, of the perforated troughs, with channels d, inclined downward toward a discharge-pipe or pipes, h, as specified.

4. The combination, in the vessel A, of the system of perforated troughs, the partition B, the transverse trough I and its conveyor, and the pipe F.

184,917. FINGER-BOARDS AND HOLDERS FOR SPINNING-FRAMES, &c. N. I. Allen, Milford, Mass. [Filed July 20, 1876.]

Brief.—The roller-beam of a spinning-frame has a round rod attached to it by means of brackets. A series of guide-wires adjustable in their holders are placed upon it. The holders have openings, in which are placed slides that are arranged on the rod, and can be fastened by means of a screw. These slides have two projections, one of which is so placed that when the holder is in a perpendicular position it is prevented from falling back. When the holder is in a horizontal position, it rests on the other projection.



1. The combination of the rod c and the slides e, provided with projections d d' and screws f, with the metallic holders d and adjustable guide-wires g, placed at proper distances apart, and constructed and operated substantially as herein set forth.

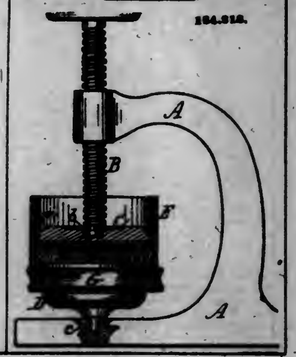
2. In a spinning-frame or twister, the combination, with a roller-beam and rod, substantially as above described, of the series of adjustable guide-wires g g and adjustable holders d d, all substantially as and for the purpose herein before set forth.

184,918. PAVEMENTS. Chas. R. Anderson, St. Louis, Mo. [Filed Jan. 26, 1876.]



The subsurface grate A C, the transverse bars A of which are constructed with roughened or indented heads or top flanges B, flush with the surface of the street.

184,919.



184,919. APPARATUS FOR UPHOLSTERERS' STOCKS AND SEATS. George W. Archer, Rochester, N. Y. [Filed Sept. 12, 1876.]

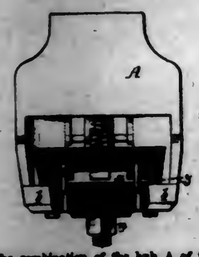
1. The apparatus herein described, consisting of the screw B, follower C, rotating head D, and cock R, the follower and head being arranged to rotate freely of the screw, the whole combined to operate as and for the purpose specified.

2. The combination, with the cock R, of the follower C and head D, arranged on pivots or joints b a, whereby they are capable of rotary motion independent of the screw, as and for the purpose specified.

3. The cock R, constructed in sections f f, hinged at g, and the clamp h, combined to operate as and for the purpose specified.

184,920. SAD-IRON GUARDS. John G. Baker, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company, same place. [Filed Sept. 12, 1876.]

Brief.—Rod-iron hold is recessed in the sides of a revolving chuck by means of a snap plate with projections or dovet-plate, and a clamping-bar pivoted centrally in the clamping-screw.



1. The combination of the bolt A of the chuck, and the plate b attached to the said bolt, and having retaining and steadying projections adapted to the rod-irons, with device, substantially as described, for confining the rod-irons to the chuck.

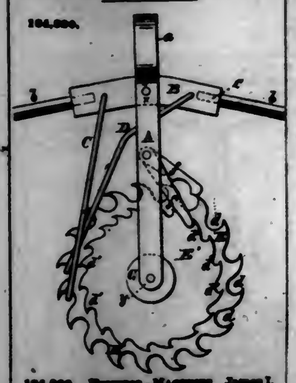
2. The within-described chuck, composed of the bolt A, projections a b, and plate b, with a device for securing rod-irons to the said plate b, all substantially as set forth.

3. The combination of the plate b of the chuck with the central bolt H and its pivoted clamp-bar I.

4. The combination of the bolt A and plate b of the chuck with the springs d.

5. The combination of the plate b of the chuck with projections c, adapted to the interior of the flange y of the rod-iron.

184,930.

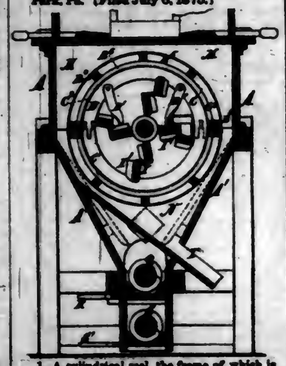


184,930. HARVESTER - MACHINES. James I. Bowen and Frederick Landis, New Lisbon, Ohio. [Filed Aug. 30, 1876.]

Brief.—Pivoted in a suspended stirrup are two concentric rubber wheels, in one plane, of different diameters, pivoted above which is a socket-piece, for the reception of a lever on each end. From this piece depend two links, acting alternately on the teeth of the larger wheel to revolve it, the pawls on the smaller wheel locking the teeth to prevent back rotation.

The combination of the frame A, the wheel B, with hooked notches d, the wheel F, of smaller diameter, on the face of the wheel B, and having hooked notches f formed of the same shape and extending in circular form the same direction as the notches d, the gravitating pawls f pivoted to the stirrup A, the pivoted head E, having handles b b, and the balls or hooks C D pivoted to the head B, all constructed substantially as and for the purposes herein set forth.

184,931. FLOUR-BOLTING MACHINES. Solomon Bernheimer and Joseph Young, Green Park, Pa. [Filed July 6, 1876.]



1. A cylindrical reel, the frame of which is formed by a solid end an annular head, with bars F' F', and segmental ribs F' F', substantially as set forth.

2. In combination with the frame of a cylindrical reel, the springs C', for holding the cloth in position, substantially as set forth.

3. In combination with the annular head of a bolting-reel, the stationary plate E, through which the journals of the reel pass, and also having openings for the admission of the meal and air in quantities regulated by a valve, substantially as set forth.

4. In combination with the segmental ribs F' surrounding the reel, the partitions M and N, forming channels leading from the lower part of the chest to the wind-trunk, passing the reel, substantially as set forth.

5. In combination with the air-channels formed by the ribs of the reel-bolt, and partitions M and N, the regulating-slides P, substantially as set forth.

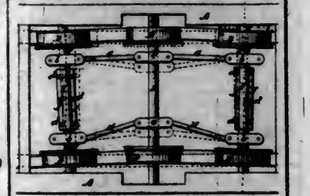
6. In combination with the air-channels formed by the ribs of the reel-bolt, and partitions M and N, a reel clothed with different grades of cloth corresponding with the channels, and valves for regulating the delivery, substantially as set forth.

184,932. CARTRIDGE-BOXES. Charles Bergman and Joseph W. Pilkington, Bridgeport, Conn.; said Bergman assignor to said Pilkington of an additional one-sixth undivided interest. [Filed May 20, 1876.]



The combination of the cam A, having flap B, the boxes C, hinged at b to the back of the same, the flexible strips D D, connecting the boxes at the top to the cam, and the additional flap D', all substantially as and for the purposes herein set forth.

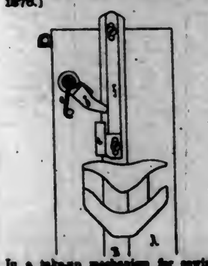
184,933. GAS-TRIVETS. C. Bleakley, Dawson's Station, Pa. [Filed Oct. 28, 1876.]



1. The combination, with the axles C C, having a lateral movement at their bearings, and the intermediate axle B, having a longitudinal movement at its bearings, of the bell-crank G G and H H, connecting the said axles in such a manner as to keep the said axles in radial positions on the curves of the railway-track by being themselves moved into positions more or less approximating to straight lines, substantially as and for the purpose herein specified.

2. The divided axles C C, coupled by sleeves I I, and having a lateral movement at their bearings, in combination with the axle B, having a longitudinal movement in its bearings, and connected with the said divided axles by toggle-arms G G and H H, substantially as and for the purposes herein specified.

184,934. SEWING-MACHINE TAKE-UPS. A. Booker, New York, N. Y. [Filed Oct. 24, 1876.]



In a take-up mechanism for sewing-machines, the combination of a shaft, c, extending through the upper part of the face-plate A, the bar b, arranged on the inner end of the shaft, the spring r for throwing down the bar, the take-up lever C on the outer end of the shaft, the lever-bar B in the face-plate, and the adjustable stop s on the needle-bar, the whole being constructed for operation substantially as and for the object specified, whereby the needle-bar can move upward a certain distance before operating the take-up lever, as set forth.

184,935. MEANS OR PREVENTIVES DESIGNED TO GALVANISM-VITIATE. Joseph Reed, Jr., Philadelphia, Pa., assignor of one-half his right to Chas. F. Osborne, same place. [Filed Oct. 27, 1876.]

Brief.—Plates the vessels with nickel.

The mode described of preventing the accumulation of dross in a bath of zinc—that is to say, by keeping the molten zinc in contact with a surface of nickel, as set forth.

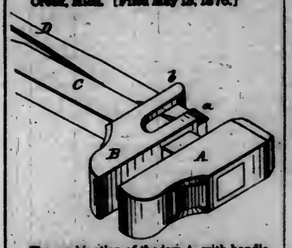
184,936. COIN-SHELLING APPARATUS. Howard Rockey, Scott Township, Allegheny County, and William D. Williams, Allegheny, Pa. [Filed Aug. 6, 1876.]

The concave shelling-jaws A A, formed with their shelling-faces bowed in the line of passage of the ear, each face having formed upon it the diagonal ribs or teeth B, running in corresponding directions, substantially as and for the purposes set forth.

184,936.



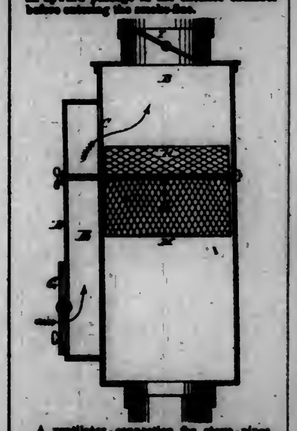
184,937. WRENCHES. C. W. Bradley, Battle Creek, Mich. [Filed May 13, 1876.]



The combination of the jaw A, with handle C, the movable jaw B, with loop b, having fulcrum d, and the lever D, with fulcrum d, substantially as and for the purposes herein set forth.

184,938. STOVE-PIPE VENTILATORS. Johnson Bolgan, Toronto, Ontario, Canada. [Filed Oct. 24, 1876.]

Brief.—A tubular connection inserted between the joints of a stove-pipe having a feed-air inlet therein, and an exterior covering chamber or passage, the lower end of which is furnished with a register, and which tubular connection or dress may have internally a contracted chamber below the feed-air inlet, whereby the air entering the register has to pass through the passage in the exterior chamber before entering the smoke-flue.

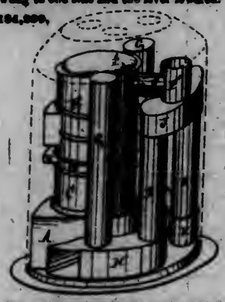


A ventilator-connection for stove-pipes, constructed of the tubular condensation H, having an aperture, C, inclosed by a covering, D, forming a passage, B, furnished with a register, G, and with or without the damper H, whereby the feed air ascends in the passage B before entering the smoke-flue, as set forth.

184,939. HOT-AIR FURNACES. R. P. Brown, Chicago, Ill. [Filed July 1, 1876.]

Brief.—The flues allow the air to circulate freely between them. The combustion-ring supplies air to the fire-chamber in a downward direction. To fill the grate the hat is swung to one side and the lever lowered.

184,939.



In an air-heating furnace, substantially as described, the combination of the diving and ascending flues and base and cross flues with the ash-pit, grate, fire-pot, combustion-ring, and combustion-chamber, substantially as set forth.

184,940. YARN-TESTERS. Jos. R. Brown, Providence, R. I. [Filed July 17, 1876.]



1. In a yarn-testing instrument, the combination, with the adjustable cross-head h, of the spring g and cross-head f and the pins e and d, arranged and operated substantially as and for the purposes described.

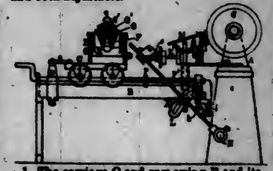
2. The combination, in a yarn-tester, of the cross-heads h and f, connected by the spiral spring g with the latter-pinned d, arranged to indicate the length of the strand and the breaking-strength of the yarn, both or either as and for the purposes specified.

3. In a yarn-tester, the combination, with the heads h and f and spring g, of the screw-spindle a and crank c, arranged to increase the strain on the yarn gradually, as and for the purposes set forth.

4. The combination, with the heads h and f and spring g in a yarn-testing instrument, of the tubular screw-spindle a and screw-spindle p, arranged to retain all the parts in the position occupied when the yarn broke, as and for the purposes described.

5. In a yarn-testing instrument, the combination, with a centre-pin pin and a sliding pin arranged to receive the yarn to be tested, of the spiral spring g, connected to the sliding pin at one end, and to a straining device on the other, operated by means of a screw, and provided with an index or indents, so as to show the count of cotton and the breaking-strength of the yarn, arranged and operated substantially as and for the purposes set forth.

Brief.—Circular saws are attached by centering-pins to a swing mounted on a carriage, and moved to and from the reversing shaft-gear by means of a pivoted hand-lever. Straight saws are supported on pairs of friction-rollers, the rollers of each pair being adjustable to and from each other, and the saw at the back of the saw provided with a flange. Teeth-support H is provided with a gage, i, and both adjustable.



1. The carriage C and saw-swing B and its attachment, adapted to be moved by the lever e, in combination with the stop p and screw f, substantially as and for the purpose specified.

2. In combination with the saw-swing B, the cylindrical stud F, central blocks G G', and bolt q, substantially as described.

3. The trunk B and arm i, adjustably connected by means of the block h and screw k, substantially as shown.

4. The saw H', adjustable in height, as described, in combination with the pivoted cross-piece H and gage i, pivoted to the arm H', and capable of adjustment by means of a set-screw, H'', substantially as set forth.

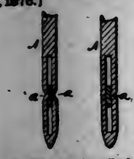
5. The reversible shaft H and adjustable arm I, in combination with the heads I', vibratory plates I'', and extensible rods K, substantially as shown.

4. The extensible rods K, in combination with the pulleys or rollers K', substantially as described.

7. In combination with the arm i, the curved bar L, provided with the adjustable stops L', substantially as and for the purpose specified.

8. In combination with the stand A, the plate M, attached adjustably to an arm pivoted to the said stand, and adapted for use in connection with a grinding-disk, substantially as and for the purpose set forth.

184,863. KNITTING-MACHINE NEEDLES. Frank Burns, Waltham, Mass. [Filed Mar. 4, 1876.]



The method herein described of securing the latch in a knitting-machine needle by punching one or both sides of the needle, and then causing the metal so displaced to act as a pivot within the depression formed in the shank of the latch by the force of the blow, substantially as herein set forth.

184,864. HARNESS-SADDLES. E. B. Cahoon, Newark, N. J. [Filed Oct. 20, 1876.]



1. A metallic jockey, A, constructed with its upper part straight transversely, and its lower part curved or convex, as described, as and for the purpose set forth.

2. A metallic jockey, A, combined with a plate, D, provided with a loop, C, at one end, and with teeth d for tarred and cloth c c for pad-screws to pass through, all arranged substantially as set forth.

3. A plate, D, provided with a loop, C, at one end, and with a stud or hook, b, combined with a flange or tree, provided with a corresponding shoulder or recess, e, for the engagement of said hook, substantially for the purpose set forth.

4. A metallic jockey, constructed with a back-hand loop, B, rigidly attached to its lower end, substantially as shown, combined with an under loop, C, for the attachment of a flap-guard, as set forth.

5. The loop-plate D and flange-plate or tree, combined with a screw, whereby said plate D is caused to press independently of the jockey, and its holding-shoulder and hook are kept in engagement.

6. The flange-plate M, constructed with ribs g g and orifice F, whereby the pad-screw nuts may be inserted or removed at will.

7. The combination of the pad F, bearing H, and flap I, all united by the same line of stitches, as shown and described.

184,866.

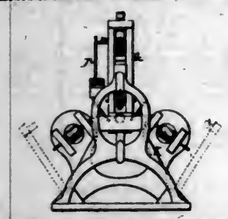


184,866. NUT-LOCKS. John H. Champion, New London, Conn., assignor of one-fifth his right to Treadwell Cleveland, New York, N. Y. [Filed Aug. 26, 1876.]

A screw-nut made with a leather or rubber packing, secured in a circumferential recess or cavity cut midway in the length of the screw, substantially as described.

184,867. MACHINERY FOR JOINTING STAVES. Joseph M. Childers, Warren, Pa. [Filed June 9, 1876.]

Brief.—Staves for making barrels are jointed by means of a horizontally-reciprocating frame, carrying a vertical frame having a vertically-sliding gate, provided with a movable clamp at its lower part, a stationary clamp attached to the bottom of the frame, two hinged side rests, two saws and planing-bits mounted upon separate arbors on each side of the machine, and set at the proper angles, and suitable operating mechanism. The finished stave is prevented from returning with the clamp by two spring-arms attached to the outer end frame.



1. In a machine for jointing staves, the combination of the horizontal reciprocating frame D, with vertical frame G and clamp I' attached thereto, the vertically-sliding gate H, carrying the clamp I, the eccentric F, and an operating mechanism operating the eccentric, substantially as and for the purposes herein set forth.

2. The combination of the gate H, having the clamp I secured to its lower end, stationary clamp I', secured to the bar O', frame G, eccentric F, shaft m, arm p, and lugs s s', with the reciprocating frame D, substantially as set forth.

3. In combination with the stationary clamp I', movable clamp I, and the mechanism herein shown and described for operating them, the side rests R and spring h, for holding the stave in position, substantially as specified.

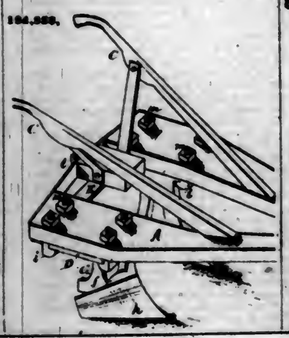
4. In combination with the frame D, clamps I I', saws b, and planer-heads d, the spring-arms L, substantially as described.

184,868. CEREAL FOOD. Lewis S. Chichester, New York, assignor to John J. Tyler, Brooklyn, N. Y. [Filed Jan. 31, 1876.]

Brief.—Process and apparatus patented, Nos. 135,949 and 173,911.

The described food consisting of the crushed or ground cereal in a cooked, dried, and unscorched condition, as a new article of manufacture.

184,869.



184,869. GANG-PLOWS. Robert D. Christman, Johnston County, N. C. [Filed July 22, 1876.]

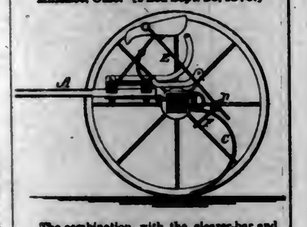
In combination with the frame A or similar frame, the bolts m, the plate D, with the frame or stirrup G, made with the land-side in one piece, or adapted to receive a land-side in a separate piece, and with wing f for the attachment of the point h, all constructed and arranged substantially as shown and described.

184,870. JOURNAL-BOXES. Edward H. H. Clarkson, Baltimore, Md. [Filed May 31, 1876.]



In a journal-box, the bed A, cap B, and adjustable blocks D, in combination with the set-screws E and tap-bolts F, substantially as and for the purpose set forth.

184,871. HORSE HAY-RAKES. A. W. Coates, Alliance, Ohio. [Filed Sept. 26, 1876.]



The combination, with the clearer-bar and the rake-teeth, of the forks F, attached to the clearer-bar for the purpose of supporting the bar out of contact with all the teeth save those upon which the forks rest, in the manner shown and described.

184,872. BODY-JACKS. Alva M. Colt, Batavia, N. Y. [Filed Sept. 28, 1876.]

Brief.—An oblong rectangular frame has pivoted on each side the lower ends of a pair of levers, the two pairs being connected by a rod passing freely through the middle of their lengths. One lower end of each pair is slid along the frame by a screw, with the effect of raising or lowering the ends of the levers, and with them the carriage-body.



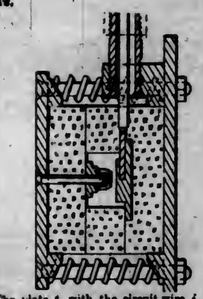
1. The frame A B and the levers C D, connected as described, and the levers operated by means of the screw F, as and for the purpose set forth.

2. The bar H, connected to one of each pair of the levers, and used with the levers and frame, as and for the purpose specified.

184,873. CHECK-CLOSERS FOR ELEVATED RAILROAD-STAIRS. Joseph L. Conklin, Jr., New York, assignor to himself and C. A. Dexter, Brooklyn, N. Y. [Filed Apr. 27, 1876.]

Brief.—Insures a tight case for the circuit-closer, and provides means for adjusting the same from the outside.

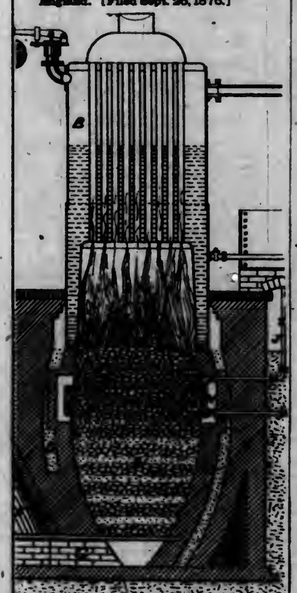
184,842.



1. The plate c, with the circuit-wire i, in combination with the layers b e of india-rubber, and the circuit-closing spring n, substantially as set forth.

2. The layers of rubber b e d, plate c, circuit-wire i, spring n, bolt o, and block m, in combination with the plates a and f and bolts g, substantially as set forth.

184,843. COMBINED BOILER AND LIME-KILN. John Cowen, Garston, Liverpool, England. [Filed Sept. 26, 1876.]



The combination of a steam-boiler with a limekiln, in the manner described, so that the fire-box of the boiler shall rest on the top of the wall of the kiln, and so that the interior of the fire-box shall form a continuation of the chamber of the kiln, all as set forth.

184,844. RAISING FRENCH-WIRE. Edward M. Crandal, Chicago, Ill., assignor of one-half his right to Charles M. Kirkham, same place; and said E. M. Crandal and Chas. M. Kirkham assignors to John A. Roebling's Sons Company, Trenton, N. J. [Filed Oct. 26, 1876.]

1. A ring-link for wire-fence chain-cable, provided with barbs, substantially as specified.

2. A series of barbed ring-links, forming a wire fence-cable, composed of a length of wire bent and turned back and over, so as to form an eye out of the center of the length, and having its two ends barbed or pointed, crossed over and under each other, and then twisted and interlocked, so as to leave the points projecting outward.

3. A series of barbed ring-links, forming a wire fence-cable, provided with an eye at one end, and interlocked barbed points at the other, the barbs of which project outward in the plane of the link and its eye, as shown and described.

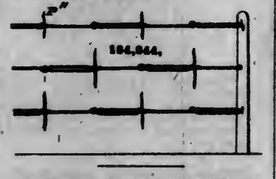
4. A series of barbed wire ring-links, interlocked end to end in regular order, so as to form a barbed chain fence-cable, substantially as described.

5. A series of ring-links having an eye at one end, and barbed, interlocked, and twisted points at the other end, these points being engaged in the eye of an adjoining link at one end, and engaged in its own eye with the barbed, interlocked, and twisted points of the adjoining link at the other end.

6. Ring-links provided at one end with an eye, and at the other end with barbed points interlocked in regular order, eyes with barbed points, and each set of points standing at right angles to the planes of the two adjoining sets of barb-points.

7. Ring-links provided at one end with an eye formed in a common plane with the body of the link, and at the other end with barbs or points interlocked in regular order, eyes with barbed points, and each set of barb-points standing at right angles to the planes of the two adjoining sets of barb-points.

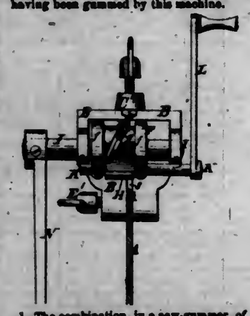
8. A barbed wire-fence chain-cable composed of barbed ring-links.



184,844.

184,845. SAW-GUMMERS. John Crook and James A. Crook, Augusta, assignors of one-half their right to J. Wendell Cole, Columbus, Ohio. [Filed Oct. 14, 1876.]

Brief.—The milling-tool has three motions imparted to it—a rotary motion on its own axis, a longitudinal motion in the direction of its axis of rotation to give a draw-cut, and a motion of revolution around a center, which is also the center of the arc forming the innermost portion of the indentation between any two consecutive teeth of the saw, the saw having been gummed by this machine.

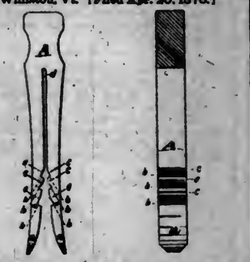


1. The combination, in a saw-gummer, of a frame, a carrying-cylinder, arranged to oscillate or rotate on its axis in said frame, and a rotary milling-tool arranged eccentrically to said carrying-cylinder in bearings provided thereon, substantially as herein described.

2. The combination of the flanged cylinder F, having the helical cam-groove ρ, the milling-tool H, having its arbor K fitted to bearings in the flanges f f of the cylinder F, and the frame B, having the slot s, the set-screws B B', and the pin p entering the cam-groove ρ of the cylinder F, substantially as and for the purposes set forth.

3. The combination of the frame B, the adjustable gauge O O', the carrying-cylinder F, and the milling-tool H pivoted to the said carrying-cylinder, substantially as and for the purposes herein described.

184,846. CLOTHES-PINS. Albert G. Cummings, Chicago, Ill., assignor of one-half his right to Jonathan B. Talcott, North Williston, Vt. [Filed Apr. 20, 1876.]



1. A clothes-pin provided with a series of notches on the inside of the prongs, for the reception of different size clothes-lines, substantially as herein shown and described.

2. The within-described clothes-pin, provided with a series of beveled notches on the inside of the prongs, having the sharp angle b, and blunt angle c, substantially as and for the purpose specified.

184,847. TOYS. T. A. Curtis, Springfield, Mass. [Filed Sept. 18, 1876.]

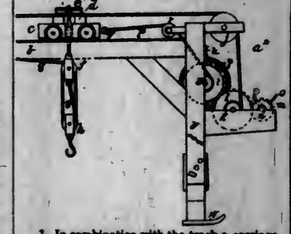
Brief.—A combined toy zoetrope and paper-cellar or other box.



The cylinder A, provided with apertures b, and perforated plug D, arranged to be rotated upon pivot c, in combination with cover B, to form a combined toy and box, substantially as and for the purpose described.

184,848. ELEVATING AND CARRYING MACHINES. Josiah B. Dow, Greenville, Me., assignor to himself and Josiah W. Green. [Filed Oct. 5, 1876.]

Brief.—An elevated track, the end supports of which have legs adjustable as to height, has a carriage bearing on it a roller adjustable laterally, from which hangs the fall-tackle. Two drums and gearing at one end of the track. A rope around one attached to the carriage holds it fixed, while another rope passing over a pulley at each end leads to the fall-tackle. The load being raised, the carriage is allowed to travel, to be again hauled into place.



1. In combination with the trunk a, carriage c, tackle and fall f k g, and drum k, the gears l and i, drum e, and stay-rope p, said drums revolving in opposite directions, and operating to sustain the weight and balance the carriage, substantially as set forth.

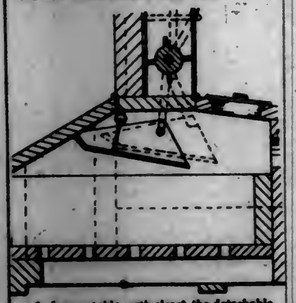
2. In combination with the drum e, gear i, and retaining-rope p, the clutch y and key c, whereby said gear may be thrown out of con-

section with the gear I, and the retaining-rope kept from unwinding during the hoisting of the weight, substantially as herein set forth.

3. In combination with the trunk *a* and carriage *c*, the transverse trunk *d* and roller *e*, supporting the weight, as and for the purpose set forth.

184,849. PORTABLE PRIVIES. D. A. Donner, Altoona, Pa., assignor to J. G. Donner, Alexander Sibley, and John Colclesser, same place. [Filed Aug. 3, 1876.]

Brief.—The earth-closet has a detachable part, open at bottom, resting upon the floor of closet. The drawer projects at the rear, and has a cover covered with hooks.

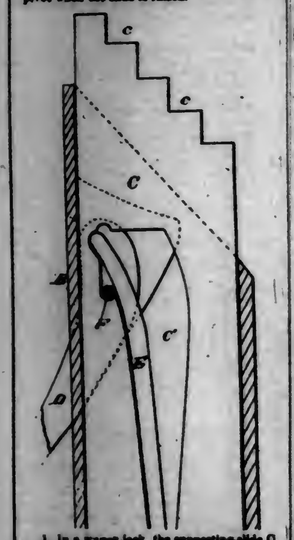


1. In a portable earth closet, the detachable part B, open at bottom, in combination with the base A, having a floor, O, provided with a ledge, *a*, substantially as and for the purpose set forth.

2. The combination of the drawer C with the base A, having a box projection at its rear side, provided with a hinged cover, D, and fastening-hooks *b b*, substantially in the manner and for the purpose set forth.

184,850. LEVERS-JACKS. O. A. Edgerton, Morrisville, Vt. [Filed Oct. 26, 1876.]

Brief.—A supporting slide-plate in a vertical box is operated by a lever, through a rod, bent at the top, at the point of connection, in order that such point shall be behind the pivot when the slide is raised.



1. In a vapor jack, the supporting-slide G, provided with recesses O' O', and opening O', substantially as and for the purpose set forth.

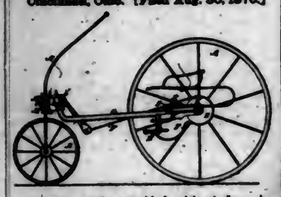
2. The combination of slide or jack C, having recesses O' O', and opening O', with lever-handle D, and connecting-bar E, substantially as set forth.

184,851. BLOW-WATER ALARMS. Albert F. Rolls, Boston, Mass., assignor of a part of his right to S. C. Lord, W. H. Dole, and F. B. Dole, same place. [Filed Oct. 23, 1876.]



The combination of the water bell or chamber A, pipe B B, siphon B' B', cup D, and pipe E F with the let-off device K K' K'' of the alarm mechanism, all operating together substantially as described, and for the purposes set forth.

184,852. VELOCIPEDES. James Fishwick, Cincinnati, Ohio. [Filed Aug. 30, 1876.]



1. The wheels provided with studs *c*, in combination with the detachable plate *f*, having recesses with inclined bottoms *d*, the rollers *h*, and the hollow loosely-revolving pulley E, carrying the straps and operated by the treadle, substantially as and for the purpose described.

2. The wheel having its hub extended at *a*, in combination with the hollow pulley pivoted upon said extension, the plate *f*, and rollers *h*, substantially as described.

3. The combination, with the axle and the reach, of the T-shaped plates J K, hollowed out, as described, and the bolt *f* passing through and securing the same, substantially as described.

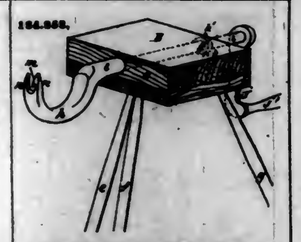
4. The T-shaped plate J, having stud *c*, in combination with the retracting-lever pivoted upon said stud, substantially as described.

5. The transversely-arranged retracting-lever, pivoted horizontally beneath the running-gear, and combined with the driving-pawls, straps, and treadles of a velocipede, substantially as and for the purpose described.

6. The combination, with the upturned end of the reach and the guide-wheel frame, of the separable plates L L, provided with studs *j j*, and fastened by bolt *k l'*, the separable plates M M', fastened by bolt *i*, and the pivot-bar *i*, connecting the two sets of plates.

184,853. MACHINES FOR TWISTING HAY, &c., FOR FUEL. Nathan Ford, Yankton, Dak. [Filed Oct. 11, 1876.]

Brief.—A crank-shaft mounted on a tripod-block is provided with a slitted and barbed hook for endlessly retaining and easily releasing the wisp of hay. A hook swiveled in its handle facilitates the doubling and coiling of the twist.

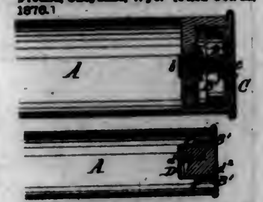


1. The hook provided with the slitted end and the barb *m*, as shown and described.

2. The detached swivel-hook *c*, in combination with a hook, *h*, and shaft *i*, as shown and described.

3. The combination of the block B and shaft *i*, provided with hook *h*, having divided and barbed point, as shown, and for the purpose specified.

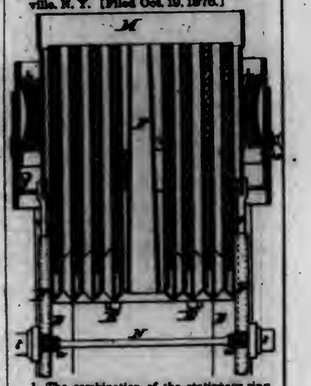
184,854. FIREARMS FOR CARTRIDGES. F. W. Freund, Cheyenne, Wyo. [Filed Oct. 12, 1876.]



1. A removable cap or primer for a cartridge, having a block or anvil fixed within it, which block receives the force of the blow of a hammer or firing-pin upon one side and transmits it upon the other side to the fulminate, substantially as and for the purpose described.

2. A removable cap or primer for cartridges, having an opening or openings in its bottom, and a block or anvil arranged within it, substantially as described.

184,855. LAMPS. Joseph Funk, Tompkinsville, N. Y. [Filed Oct. 19, 1876.]

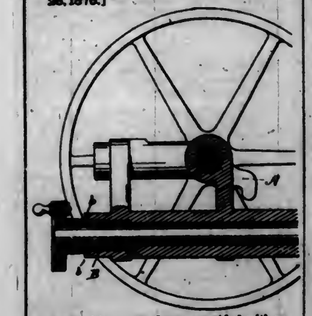


1. The combination of the stationary ring B, having inclined slots *a*, and the chimney-holder I, supported within said ring by obliquely-projecting thumb-lugs *d* working in said slots, substantially as herein shown and described, an annular eccentric air-inlet being formed within the chimney-holder, while provision is made for raising and lowering the chimney at will, independently of the other movable parts of the burner.

2. The concentric jacket M, surrounding the wick-tubes within the chimney-holder, and adjustable vertically independently of the chimney-holder and other parts of the burner, substantially as herein specified, for the purposes set forth.

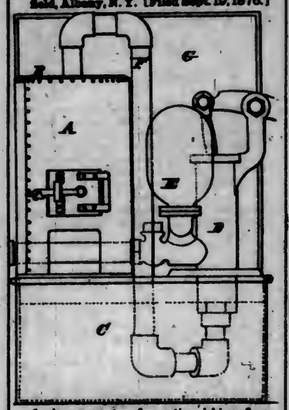
3. In combination with one or more annular wick-tubes, A, the upwardly-tapering air-tube P, arranged axially in the central air-space, and serving to divide the same, substantially as herein represented and described, for the purposes specified.

184,856. HARVESTER-FRAMES. Charles C. Gardiner, Springfield, Ohio. [Filed Mar. 28, 1876.]



A metal harvester-frame provided with removable thimble-bearings for the shafts mounted thereon, substantially as and for the purpose set forth.

184,857. FIRE-EXTINGUISHERS. C. L. Garfield, Albany, N. Y. [Filed Sept. 19, 1876.]



1. An apparatus for extinguishing fires, consisting of a closed chamber for the materials by which the oxygen is separated from the air, a pump or blower by which the air is forced through the said chamber and into contact with the said materials, and a pipe or pipes by which the separated nitrogen gas, with whatever carbonic gases may be intermixed therewith, may be delivered either directly to the fire or to a cooling and storing chamber.

2. The cooling-tank C, in combination with furnace A B, pipe or pipes F, and air-forcing appliance, as and for the purpose set forth.

184,858. HOT-AIR CAR HEATERS AND VENTILATORS. Henry A. Gouge, New York, N. Y., assignor to Samuel Shethar and R. A. Nichols. [Filed Aug. 30, 1876.]

1. In a car heating and ventilating apparatus, the combination, with a fire-chamber and an air-heating chamber, one portion of which is more highly heated than the remainder, of cold-air ducts for separately supplying the differently-heated portions of the air-chamber, and hot-air ducts for separately conveying air from the differently-heated portions of the chamber, substantially as described, whereby hot air may be discharged both locally and remotely from the heater at a practically uniform temperature, as set forth.

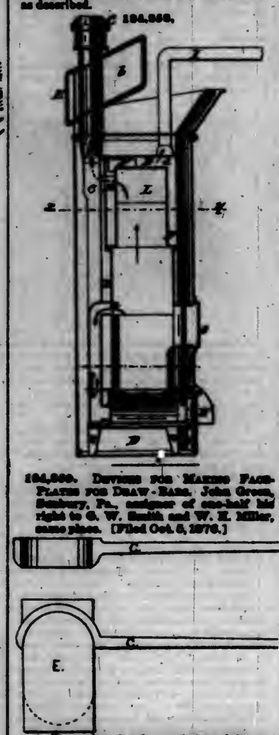
2. In a car-heating apparatus, a cold-air duct, having downward and upward sections, and a curved section uniting the two, provided with perforations or holes, substantially as described, whereby the downward current of incoming air is reversed in direction, and cinders, &c., contained in the air are discharged through the holes in the dust and prevented from entering the air-chamber, as set forth.

3. A car-heater casing, composed of flat plates provided with rectangular flanges and secured by bolts, substantially as described.

4. The combination, with a car heating and ventilating apparatus, substantially as described, of a hood which is in transverse vertical section an oblique-angled parallelogram, and is angularly set upon its pipe, substantially as described, for the purposes specified.

5. A car-heating apparatus having a fire-chamber which is a complete structure in itself, and the air-ducts and heating-walls constructed in detachable sections, substantially as described.

184,859. DEVICES FOR MAKING FACE-PLATES FOR DRAW-BARS. John Green, Sharpsburg, Pa., assignor of one-half his right to G. W. Smith and W. H. Miller, same place. [Filed Oct. 6, 1876.]



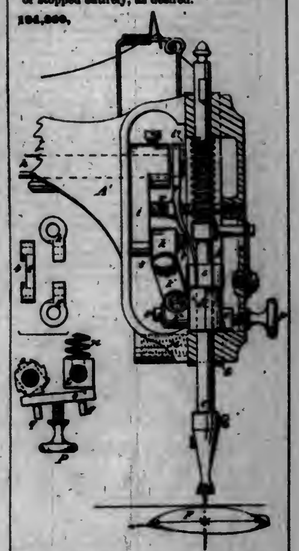
1. The series of tools, consisting of the separable center C, the guide-plates A, having link-slot and rivet-holes, with corresponding detachable punches B B', and the plate curved plates D, all provided with handles for their manipulation beneath the hammer, and adapted for successive use in the common end of forming face-plates for the draw-bars of railway-cars, substantially as described.

2. The guide-plates A' A, having link-slot and rivet-holes, and handles connected by a spring or its equivalent, as described, in combination with the detachable punches B B', substantially as and for the purpose described.

184,860. SEWING-MACHINES. Leo Grieshold, Johnstown, N. Y. [Filed May 1, 1876.]

Brief.—The needle-bar is connected by a universal joint to the crank on the driving-shaft, the object being to compensate for the vibration of the needle-bar in making a zig-zag seam. The pivoted cam, in which the needle-bar reciprocates, is vibrated by a cam acting on one end of a pivoted lever, the other end of which acts on the cam, the lever having for its fulcrum a screw, by means of which the vibration is adjusted as to extent, or stopped entirely, as desired.

184,860.



1. In combination, the pivoted needle-bar guide L, vibrating crank C, pawl T, provided with a slot in its upper end, ratchet *s*, sleeve R, plate *o*, screw F, and spring *n*, whereby the proper vibratory motion is imparted to the said needle-bar, and the amount of such motion is adjusted as and for the purpose set forth.

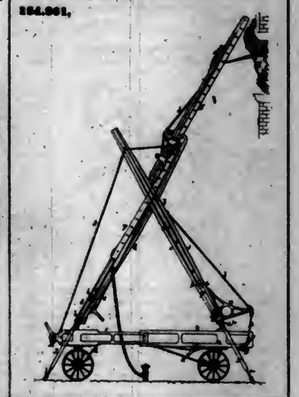
2. In combination with a pivoted needle-bar guide L, plate *o*, screw F, ratchet *s*, sleeve R, and spring *n*, the universal-jointed connecting-rod *h h' h''*, and vibrating crank *i*, substantially as and for the purpose set forth.

3. The combination of the universal-jointed connecting-rod *h h' h''*, vibrating crank *i*, needle-bar guide L, and needle-bar *b*, as set forth.

4. In combination with the quadrangular sleeve R, plate *o*, screw F, and spring *n*, the pivoted needle-bar guide L, as set forth.

5. In combination with the needle-bar guide L, pivoted as described, the spring *n*, lever-plate *o*, fulcrum-screw F, universal-jointed connecting-rod *h h' h''*, and vibrating crank *i*, operating substantially in the manner and for the purpose set forth.

184,861.



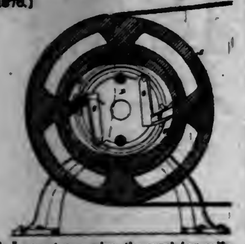
184,861. FIRE-LADDERS. J. A. Grothen, New York, N. Y., assignor to himself and J. D. Buckhout, same place. [Filed Oct. 24, 1876.]

1. In a fire-ladder, arranged on a truck, the combination therewith of the strips a^1 a^2 a^3, connected together at their lower ends by a cross-bar, a^4, which is pivoted to the truck-frame, the strips a^2 and a^3 being connected at their upper ends by a cross-bar, a^5, substantially as described.

2. In combination with the adjustable ladder, the derrick B, having the brackets D and tie-rods b attached thereto, and the windlass H, the rope or chain c attached to the bracket, the rope or chain g, and the windlass M, substantially as and for the object specified.

3. The combination of the truck mounted on wheels, the ladder hinged to one end thereof, the derrick hinged to the opposite end, the adjustable bars L connected with the ladder, and the adjustable bars N connected with the hinged derrick, whereby, when the ladder is raised, the truck is steadied at both ends, substantially as and for the object specified.

184,862. ROTARY ENGINES. G. C. Hale, Kansas City, Mo., assignor to himself and F. C. White, same place. [Filed Nov. 17, 1876.]

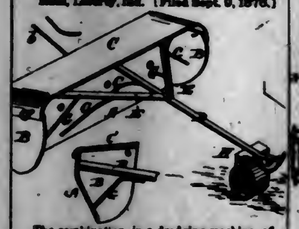


1. In a rotary engine, the revolving cylinder, composed of an annular portion, A, having its periphery constructed as described, and the circular heads B B', provided with tubular projections or bearings, in combination with the hollow stationary disk, the hollow trunnions C C', and the hinged pistons having side ports, as shown and described.

2. In a rotary engine, in combination with the cylinder having the abutments F, the hollow disk D and the swinging pistons H g, pivoted within the steam-chamber, and working steam-tight in peripheral slots in the disk D, also provided with ports f^1, opening on the side, whereby they are alternately opened and closed as the piston-heads work in and out, substantially as shown and described.

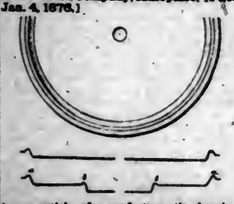
3. In a rotary engine, the circular head B', having exhaust-ports c, the trunnion C', having a subsidiary opening, and the port A of the cylinder, having exhaust openings and passages in the abutments, said passages opening laterally, and communicating with the passage in the head, as shown and described, to provide for escape of exhaust steam, as specified.

184,863. DREDGING-MACHINES. Joel T. Hunt, Liberty, Ind. [Filed Sept. 9, 1876.]



The combination, in a dredging-machine, of the plate A, bent as shown, provided with the end pieces B B, the top plate C, connected over the parts A B, the tongue D, having bevels E E, and secured to the plate A, and end pieces B B, by the braces G G, and having its front end supported upon the roller I, substantially as and for the purposes herein set forth.

184,864. CLOCK-DIALS. G. A. Harmount, New Haven, Conn., assignor to the New Haven Clock Company, same place. [Filed Jan. 4, 1876.]



As an article of manufacture, the herein-described dial, having the body and moldings struck from the same piece, and coated, as specified, the coating removed from the molded or bright portions, all substantially as set forth.

184,865. FURNACE-DOORS FOR STEAM-BOILERS. Henry F. Hayden, Washington, D. C. [Filed Sept. 12, 1876.]



1. The combination, with the fire-box, of a door-frame extension provided with two doors, connected, one with the other, in such manner that when one of said doors is opened the other will be closed, adapting the fire to be replenished without admitting external air, substantially as described.

2. The combination, with the fire-pot, of the door-frame extension D, having two doors, and the double frame O, having the annular dust for admitting air, as described.

3. The door-frame extension, provided with two doors for excluding air, as described, and hinged or pivoted, whereby it can be swung up out of the way, substantially as and for the purpose set forth.

184,866. FIRE-BOXES FOR STEAM-BOILERS. Henry F. Hayden, Washington, D. C. [Filed May 11, 1876.]

Brief.—The air is introduced around the fire-door to perforated pipes, jacketed, and thence to the air-distributing diaphragm, also surrounded by a water-jacket, the flame impinging on all sides of said diaphragm, and on the sides of the fire-box. Communication with the water in the boiler is provided for by short sections of tubes, having right-and-left-hand screws, which also sustain the diaphragm in position. Air from the diaphragm is introduced into the furnace through short nozzles, which pierce the water-jacket.



1. The tubular water bridge or deflector D, separated or removed at its sides, top, and bottom from the walls of the fire-box, for permitting the products of combustion to impinge on all sides of said deflector and of the fire-box, in combination with pipes jacketed within said bridge and its connecting-pipes, for supplying air to the fire-box, as described.

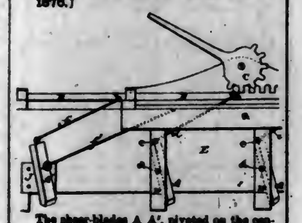
2. The water pipes or jackets B B', in combination with the inclosed air ducts or pipes and their outlet-tubes, arranged and operating substantially as and for the purpose set forth.

184,867. PERAMBULATORS. J. N. Hanslip, Baltimore, Md., assignor to Alexander McClymont, same place. [Filed Mar. 31, 1874.]



Rear handles F, combined with the pivoted top or canopy D, and the carriage-body A, said handles being so constructed and arranged with reference to the body and top, that, when the latter is thrown backward, it shall fall between said handles, substantially as specified.

184,868. STEAM-BOOSTS. Edward Hennebery, Eau Claire, Wis. [Filed Oct. 21, 1876.]



The door-blades A A', pivoted on the center, and operated by means of rods d or f, connected to the wooden bar B, having rack-bar B', and the cog-wheel or lever C, substantially as shown.

184,869. BRICKMAKING APPARATUS FOR PRESSING-PRESSES. George Herald and Milton C. Le Van, Keokuk, Iowa. [Filed Apr. 7, 1876.]

Brief.—Side guide-bars, adjustably attached by screw-clamps to the upper and lower edges of an oscillating plate, are connected to the stationary part of the machine by a hinged joint, carrying an arm, which, as the plates approaches the bed, throws down to its face spring-raised nippers, which are hinged to the sides of the bars. The inner edges of the bars are perforated to receive a pin on each end of a guide-bar extending across the plates.

1. The guide-bar, adjustable across the face of the plates, in combination with nippers hinged or pivoted to it, and resting on the edge of the paper along its side, substantially as set forth.

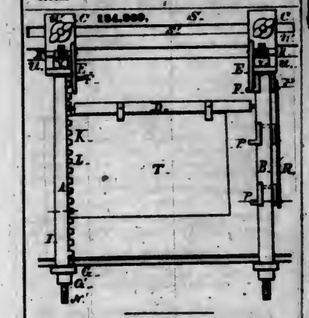
2. The guide-bar D, in combination with a guide-bar, provided with holes along its side for holding adjustably one end of bar D, the other end of which is supported at the opposite side of the plates, substantially as set forth.

3. The guide-bar D, in combination with a guide-bar holding one end of bar D, and provided with screw-nuts for adjusting sidewise the bar D, the other end of which is supported at the opposite side of the plates, substantially as set forth.

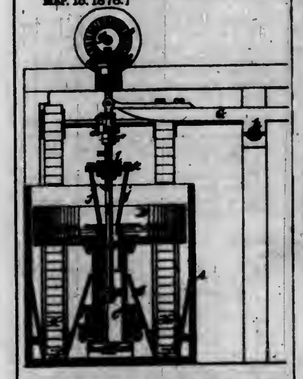
4. The guide-bar, with nippers hinged or pivoted to it, in combination with guide-bar D, held by it at one end, and having its other end supported on the opposite side of the plates, substantially as set forth.

5. The guide-bar having a hinge, H, in combination with nippers borne by it, and the operating fingers E F, substantially as set forth.

6. The combination of a guide-bar, the nippers hinged or pivoted to it, the spring to operate the nippers, the fingers E F, the adjusting-screws U' and V', and the connections for holding guide-bar D, substantially as set forth.



184,870. JIGS FOR SEPARATING ORES. Wm. Hooper, Ticonderoga, N. Y., assignor to New York Ore Separator Company. [Filed Mar. 10, 1876.]



1. The combination, with a jig, of mechanism for imparting to the same a combined revolving and jumping motion, substantially as described.

2. The combination, with a jig having a revolving motion, of the central spout C, the movable tube E F, the arms j connected thereto, the ring h, nut l, and screw-rod k, substantially as described.

184,871. FIRE-ESCAPES. Mathew Morris, Philadelphia, Pa. [Filed Nov. 4, 1876.]

1. A bedstead convertible into a fire-escape, substantially as described, having side rails, which, when detached, form a ladder or ladders, as set forth.

2. The side rails C of a bedstead, constructed, substantially as described, of bars c c' and plates D D pivoted to said bars and to each other, substantially as shown and set forth.

3. The pivoted plates D D, having heroic ends and y-shoulders δ, substantially as and for the purpose set forth.

4. In combination with the side rails C C of a bedstead, the clips c^3 c^4, having dovetailed tongues and grooves, and forming a connection, substantially as shown and set forth.

5. In combination with the side rail or rails C, convertible into a ladder, the clip-hooks f f, substantially as shown and described.

184,872.

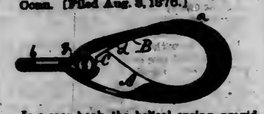


184,873. MACHINES FOR TENDERING STRAKE. Thomas Jones, Sappington, Mo., assignor of one-half his right to A. J. Davis, same place. [Filed Oct. 10, 1876.]



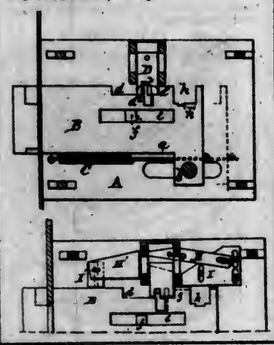
The combination in a mast-tenderer of the the lever D D', centers E, and slotted spring-plate F, substantially as and for the purposes set forth.

184,874. SNAP-HOOKS. Elisha Kempshall and William Nash, New Britain, Conn. [Filed Aug. 8, 1876.]

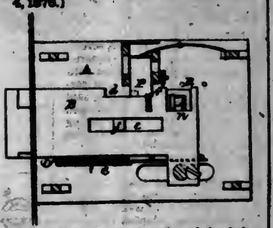


In a snap-hook, the helical spring, provided with the forward-projecting arm, resting under and bearing upon the inside of the tongue B forward of the pivot, and the rearward-projecting arm, bearing upon a seat formed in the body A, at the rear of the pin or rivet, all substantially as described, and for the purpose specified.

184,875. LOCK AND LATCH COMBINED. A. W. O. Kleinau, Hamburg, Germany. [Filed Nov. 24, 1875.]



184,876. LOCKS FOR DOORS, &c. A. W. O. Kleinau, Hamburg, Germany. [Filed Nov. 4, 1876.]



1. In a lock, the combination of the bolt B, provided with knobs B B' and recesses d d' and h h', the spring C, having its straight end a passed through a part of the bolt, and one or more tumblers, arranged to operate substantially as and for the purposes herein set forth.

2. In a lock having one or more tumblers, falling by gravity into recesses in the bolt, the key provided with an inclined shoulder, i, to operate on the bolt to move the same slightly when the tumblers are raised, so that they will be supported by the bolt, substantially as herein set forth.

3. The lever H and slides I I', in combination with a recessed bolt and one or more tumblers, as and for the purposes herein set forth.

4. The combination of the bolt B, provided with recesses d h and slot g, the tumblers D' D', having slots p, the tumbler D', having slots p' p' and tongue p', and a suitable key, all substantially as and for the purposes herein set forth.

1. In a lock, the combination of the bolt, having recesses d h, and slotted tongue h', with a series of gravitating-tumblers, all substantially as and for the purposes herein set forth.

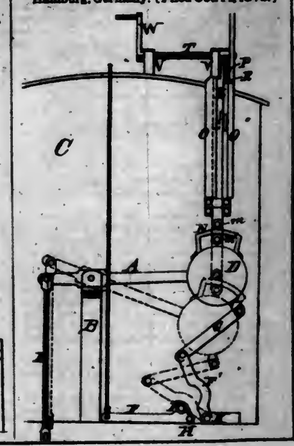
2. The tongue s in the part K' of the tumblers, for engaging with the slot e and holding the key, substantially as herein set forth.

3. The tongues B' h' on the bolt B, in combination with the slotted tongue h' and the slots e e' in the key, substantially as and for the purposes herein set forth.

4. In combination with the gravitating-tumblers, the inclined tubes w and loose pins y, substantially as and for the purposes herein set forth.

5. The combination of the bolt, provided with incline p' and one or more notches, p', with the gravitating-tumblers, provided with inclined tongues s and one or more projections, s', substantially as and for the purposes set forth.

184,878. CAR-BRAKES. Julius Kuntze, Hamburg, Germany. [Filed Oct. 14, 1876.]

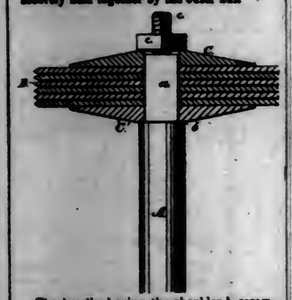


1. The combination, with the brake-shoes of a railway-car and a weighted lever connected with and operating to apply the brake-shoes, of the suspending-rod L, the tripping-lever E, and elevating apparatus for raising said weighted lever, substantially as and for the purpose specified.

2. The combination, with the weighted lever A, connected with and operating the brake-shoes, of the lifting-levers F F', the link G, the suspending-rod L, the tripping-lever E, and the rock-shaft T, having the winch W, substantially as and for the purpose specified.

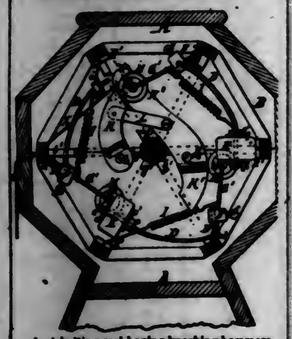
164,077. FACING-MACHINE FOR DRESSING MILLSTONES, &c. Edgar F. Lemaire, Emmerton, Va. [Filed Oct. 3, 1876.]

Brief.—The squared shank fits snugly within the champs and plates, and said parts are securely held together by the outer nut.



The handle, having the shoulder *b*, screw-threaded stem *c*, and the intermediate squared or rectangular shank *a*, in combination with the cutting-blades, having a perforation corresponding in size and shape to the said shank, the double-inclined or wedge-shaped clamp-plates C C', and the screw-nut *e*, fitting upon the stem *c*, and adapted to secure the parts rigidly together.

164,078. ROLLING-MILLS. Fitch B. Lewis, Tiffin, Ohio. [Filed Oct. 6, 1876.]



1. A bolting-reel having kneading-hammers of India-rubber, substantially as and for the purpose set forth.

2. The combination, with a bolting-reel, of kneading-hammers, arranged to give a concussion of blows laterally and alternately in opposite directions, substantially as and for the purpose herein set forth.

3. A bolting-reel having friction-rollers of India-rubber between the bringing mechanism and the hammers, substantially as set forth.

4. The combination of a bolting-reel with jarring or kneading hammers and the coupled cams K K', substantially as and for the purpose set forth.

5. The combination of the India-rubber hammer E, the washers *a*, nuts *a'*, and lever-arms D, substantially as set forth.

6. The combination of the roller H, the flanged tube A, and the washer F, substantially as set forth.

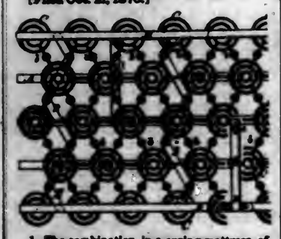
164,079. BROOMS. T. B. Lewis and T. O. Lewis, Battle Creek, assignors to themselves and Chas. Vorder, Hillsdale, Mich. [Filed Oct. 7, 1876.]

Brief.—The handle cam brush is held in a wooden head by means of wire, and the head gives form to the broom and receives the handle.



A broom consisting of handle A, wooden head C, outer brush part D, and inner brush part E, the latter held in the head by a wire, as shown and described.

164,080. METALLIC SPRING BED-BOTTOMS. Charles A. Le Gassie, Brooklyn, N. Y. [Filed Oct. 31, 1876.]

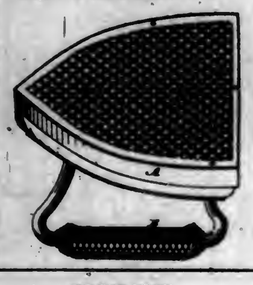


1. The combination, in a spring-mattress, of an extensible supporting-frame composed of a series of parallel slats, A, jointed arms B, and of coiled springs C, which are secured to the said slats A, and are connected together by means of flexible links *b*, substantially as described.

2. The combination, with the extensible supporting-frame A B, of one or more transverse bars, D, provided with a hook, or other equivalent device, at one end, for the purpose of holding the parts together when the mattress is folded up, substantially as described.

3. The combination, with the extensible supporting-frame A B, of one or more transversed bars, D, which are rigidly secured to one of the slats A, and arranged to slide through a loop, *c*, formed on, or secured to, another of said slats, for the purpose of preventing endwise motion of the slats, substantially as described.

164,081. SAD-IRONS. Michael Mahony, Troy, N. Y. [Filed Sept. 9, 1876.]



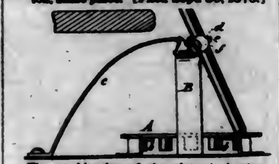
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1. A nail-iron having its smoothing-face formed into indentations and projections, arranged after certain configurations, so that the pressure applied upon the nail-iron will be received upon said projections, substantially as and for the purpose described.

2. In a flat-iron, the indentations or corresponding projections arranged upon the face of a nail-iron so that the smooth projecting surfaces will form triangles or polygons, with their dimensions parallel or perpendicular to the center line of the nail-iron, substantially as and for the purpose described.

3. A flat-iron having an indented surface, with the edge of each projection or indentation rounded off or bulged, to produce, while being used, a perfectly smooth and polished surface, substantially as described.

164,082. UMBRELLA-SUPPORTS. Asa T. Martin, Jr., Waverly, Iowa, assignor to himself, M. P. Potter, and James Brotherton, same place. [Filed Sept. 30, 1876.]



The combination of the plate A, having sockets or openings *a* and *b*, and the clamp *d*, with a carriage body or castor, substantially as and for the purpose set forth.

164,083. BOTTLE-STOPPERS, &c. J. L. Mograt, Bordeaux, France. [Filed May 6, 1876.]



The herein-described bottle-stopper, consisting of the outer metal case *a*, inner cork *b*, loops *d* on the case, and wire *c*, all constructed and combined substantially as specified, and with or without the lining *e*.

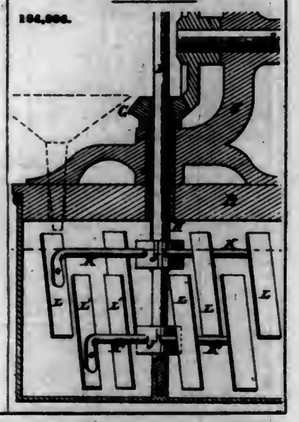
164,084. COMPOSITION ALLOYS. Thomas S. Morrell and John K. Wilder, South Toledo, Ohio. [Filed Oct. 17, 1876.]

The metallic alloy composed of steel, wrought-iron, cast-iron, and copper, in about the proportions, and in the manner substantially as and for the purpose described.

164,085. AXLE-GREASE. Geo. H. Merrill, Boston, assignor of one-half his right to John D. Parker, Everett, Mass. [Filed Oct. 20, 1876.]

The combination of tallow, tar, lime-water, whiting, flaxseed-flour, Venetian red, and soda, in the proportions and in the manner herein described, and for the purposes set forth.

164,086.



THE GRAPHIC CO. N.Y.

164,086. CHURNS. D. T. Milling and D. D. Jones, Chattanooga, Tenn. [Filed Sept. 23, 1876.]

In a churn having two sets or series of paddles revolving in opposite directions, the adjustable screw-arms K K', carrying the paddles L L', whereby said paddles may be set at any desired angle, as herein set forth.

164,087. INTERFERING-RINGS FOR HORSES. T. A. Millen, Lambertville, N. J., by Edw. Rittenhouse, guardian of said Millen, assignee of two-thirds his right to A. D. Westbrook, same place. [Filed Sept. 20, 1876.]



1. An interfering-ring for horses, composed of a spiral strip, *a*, of India-rubber or other suitable material, and a strap, *b*, extending through said spiral strip and provided with a suitable fastening device, *c*, substantially as shown and described.

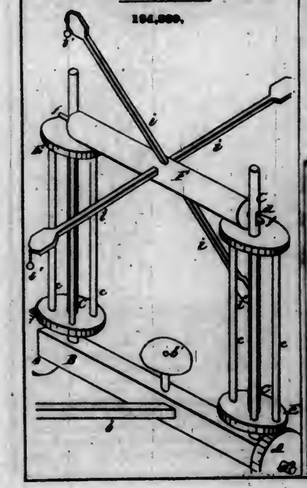
2. The combination, with the spiral strip *a*, strap *b*, and fastening device *c*, of a ring, *d*, (one or more,) for covering the fastening device after the interfering-ring has been secured in position, substantially as set forth.

164,088. CORRUGATING-PINS FOR BARS OF BANDAGE. Peter Mussinger, Philadelphia, Pa., assignor to Morris, Tasker & Co., (limited,) same place. [Filed Oct. 10, 1876.]



The combination of the hollow cylindrical pin A, the side plates B, provided with circular bosses C, adapted to fit direct within the core of the pin, and thus retain themselves laterally in position, and a single central confining-bolt, D, adapted to pass completely through both side plates and pin, and to secure the entire device together, so as to form an improved composite pin for the union of straining-bars, substantially as described.

164,089.



164,090. TRUNDLE TOYS. Walter Nangel, H. J. Langshaw, and R. J. Langshaw, Philadelphia, Pa. [Filed Sept. 15, 1876.]

The combination, with the toy comprising the axle B, wheels A A, reels H H, and armed shaft or roller F, of the ball *b'* and striker *f*, substantially as described and shown.

164,091. RAILROAD-SPIKES. John Newman, 3 Arundel Place, Islington, London, England. [Filed Nov. 30, 1876.]

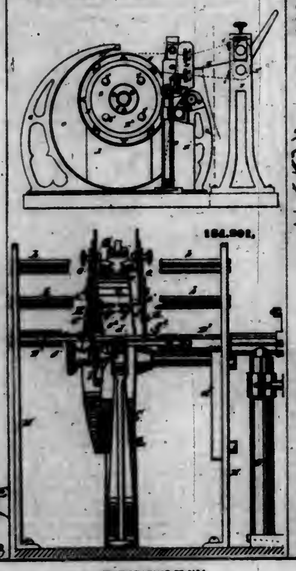
Brief.—A round-shanked spike, after being driven partially into the wood, is rotated so as to take the edge of the rail between its head and a projecting lip. The rail and spike are then driven down together.



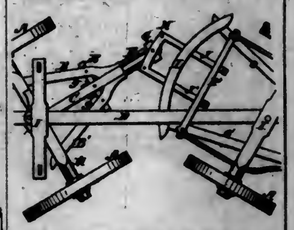
The within described spike, having a round stem, *a* head, *b*, and a lip or projection, *c*, to be adapted to the flange of a railroad-rail or other object, as and for the purposes described.

164,092. MACHINES FOR TURNING THE EDGES OF COLLAR-BANDS, &c. Rowland S. Norton, Chicago, Ill. [Filed Mar. 6, 1876.]

Brief.—Strips of the articles to be turned, provided with notches at the re-entering angles, are passed over the pattern-plate, to which they are kept by a tension-wire. Two strips may be passed through at once. The pattern-plate controls the position of the yielding turning-guides, so that the guides conform to the varying width of the article, and turn the edges in the required manner. Compressing-rods and folding-bars complete the turning of the edges. Elastic rollers serve to draw the strips through the machine. Guides are provided for directing the material to the pattern-cam.



164,093. WAGON-COUPLINGS. John W. Odaniel, Cloverdale, Ind. [Filed June 19, 1876.]



In a wagon-coupling, the adjustable bar F, having the perforated oscillating slider G and the pivot-bolt H, formed with an enlarged center, as shown, in combination with the bar J attached to the front bounds, all constructed substantially as and for the purpose set forth.

164,094. FENCES. T. J. Oliver, Jackson, Tenn. [Filed Oct. 18, 1876.]

The combination of the inclined posts A A, halved into each other, the horizontal bars B B, upright center-bars C C, and the bars or rails D D and rider E, having their ends halved to overlap those belonging to the adjoining panel, substantially as herein set forth.

1. In a machine for turning collar-bands and other like articles, a pattern-cam, C, of the size and form of the article to be turned, substantially as and for the purpose set forth.

2. The combination of the pattern-cam C, having a series of holes therein, and radial arms *b*, provided with points at their outer ends which project through the holes in the pattern-plate to hold the fabric in place, substantially as described.

3. The combination of the adjustable radial arms *b*, supplementary pointed pieces *b'* and pattern-cam C, substantially as and for the purpose set forth.

4. The combination of sliding rods D and adjustable folding or turning guides mounted thereon, substantially as and for the purpose set forth.

5. The combination of a pattern-cam, having the size and form of the article to be turned, and yielding turning guides or plates, the movement of which is controlled by the movement of the pattern-cam, substantially as and for the purpose set forth.

6. The combination of the revolving pattern-cam, sliding rods held in contact with the pattern-cam by yielding mechanism, and turning-guides mounted on said rods, substantially as and for the purpose set forth.

7. The combination of the yielding turning-guides, fold-compressing rods *h*, and suitable mechanism for pulling the strips of fabric through the machine, substantially as described.

8. The combination of the yielding turning-guides, folding-bars *i*, and suitable mechanism for pulling the strips of fabric through the machine, substantially as described.

9. The combination of the yielding turning-guides and the rollers I', substantially as described.

10. The combination of the yielding turning-guides, compressing-rods *h*, folding-bars *i*, and suitable mechanism for pulling the strips of fabric through the machine, substantially as described.

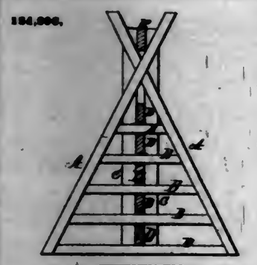
11. The combination of the revolving pattern-cam, yielding turning-guides, and elastic rollers I', with suitable folding-bars between the guides and rollers, substantially as described.

12. The combination of the guides F, for directing the strips to the pattern-cam, turning-guides *c*, and pattern-cam C, substantially as described.

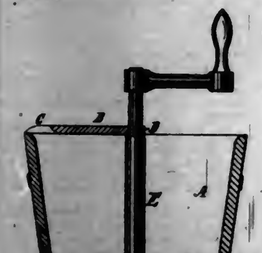
13. The combination of the revolving pattern-cam C and adjustable holding-wire *f*, substantially as and for the purpose set forth.

14. The strips prepared for turning on the machine, consisting of a series of collar-bands, L, or other similar articles of varying width, connected together, and having a transverse cut at the re-entering angles, substantially as described.

184,893.

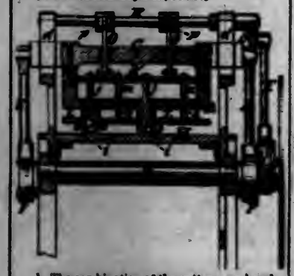


184,894. VEGETABLE-WASHERS. R. G. W. Parks, Rock Falls, Ill. [Filed Oct. 10, 1876.]



In a vegetable-washer provided with a suitable cover, and having a central step-bearing in its bottom, and rotating shaft, the radial arms F, flat on their under side, and adapted to work close to the bottom of the washer, the exposed portions of said arms tapering to curved lines upward and outward, whereby the vegetables resting thereon are given a rotary and whirling motion, and the arms adapted to rotate in either direction, substantially as described.

184,895. CRACKER-MACHINES. Jos. Parr, New York, N. Y., assignor to Lydia Ann McCollum, (as sole executrix and trustee of the estate of John McCollum,) same place. [Filed Sept. 18, 1876.]

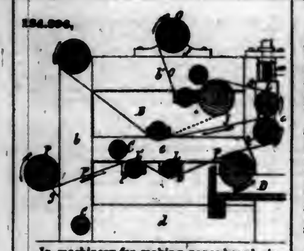


1. The combination of the cutter-cups b and plungers i, both arranged to operate in a differential relation to each other by a positive motion imparted by suitable gearing, substantially as described.

2. The combination of the shaft g, the eccentrics b' and V, the eccentric rods or connections E and T, the rock-shaft R, the arms p, the plungers i, the stripper-plate L, and the cross-head C, with its attached cutter-cups b, substantially as and for the purposes described.

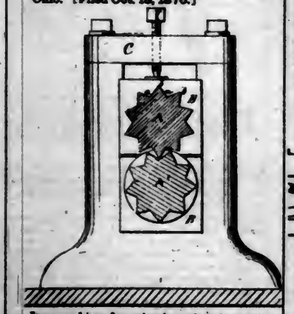
184,896. MACHINERY FOR MANUFACTURING PASTEBOARD. R. L. Perkins, Boston, Mass. [Filed Oct. 14, 1876.]

184,896.



In machinery for making paper-board, in combination with a power winding-roll, the gaging rolls or bars to measure the quantity of paste which is carried into and interposed between, and to be embodied in with, the several sheets of paper, substantially as set forth.

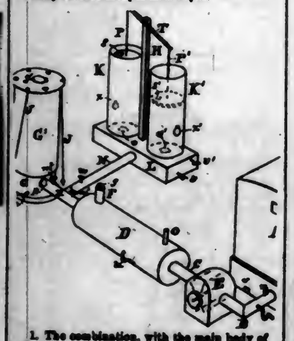
184,897. MACHINES FOR CORRUGATING SHEET METAL. Wm. F. Pettys, Toledo, Ohio. [Filed Oct. 18, 1876.]



In a machine for crimping zinc for washboards, the fluted or corrugated rollers A A', provided upon their ends with collars G G and G' G', respectively, of unequal diameter, substantially as shown and described, and for the purposes herein set forth.

184,898. APPARATUS AND PROCESSES FOR TREATING WOOD FOR CHARCOAL AND OTHER PRODUCTS. Henry M. Pierce, Detroit, Mich. [Filed Oct. 26, 1876.]

Brief.—The hot products from the kiln are compressed in the various chambers connected therewith, while their temperature is maintained at 212° Fahrenheit, or thereabout. The pyroligneous acid is liquefied, while the watery diluent escapes as a vapor.



1. The combination, with the main body of the kiln, of the surrounding discharge-flue A, situated within the furnace-walls and at its base, said flue being provided with stopper-dampers for regulating the ingress of vapors from the kiln, substantially as shown and described.

2. In combination with kiln A, provided with flues h, dampers c, test-holes, and the cemented floor, a pressure-fan and a receptacle, D, provided with an air, gas, or steam injector, and with pipes, valves, dampers, outlets, and traps for the compression of gases under graduated temperatures, substantially as and for the purposes set forth.

3. In combination with a charcoal-kiln having flues, dampers, and test-holes, and connecting with a pressure-fan, and a receptacle provided with an injector, and with valves, dampers, traps, and inlet and outlet connections for the purpose, a receiver or chamber, M, provided with sliding cap G', having valve g', and secured by cords J, said receiver having a trap, n, and valve p, substantially as and for the purposes set forth.

4. In combination with kiln A, having the flues, dampers, and test-holes, and connecting with a gas-receptacle provided with an injector, valves, dampers, inlet and outlet connections, the receiver M provided with sliding cap, sustaining cords and valves, and the double-cylinder compressor H, provided with pistons, walking-beam, gas-reservoir, valves, and traps, substantially as shown, for the purposes set forth.

5. The process of making concentrated pyroligneous acid, which consists in exhausting the hot volatile products from a charcoal-kiln and compressing them until the acid vapors are liquefied, the temperature at the same time being maintained at such height that the diluting water shall be separated and permitted to escape in a vaporized condition, substantially as herein shown and described.

184,899. BED-SPRINGS. George Pirrung, Ravenswood, Ill. [Filed Apr. 1, 1876.]

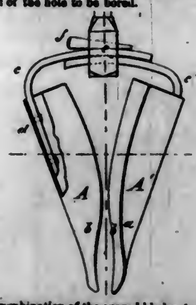


1. The bars C, arranged edgewise between the spring-bars B, and with the base A, forming the separate spring-frame described, and combined for use with the slats, in the manner and for the purpose specified.

2. In a spring bed-bottom, the bars A C of the separate head and foot frames, provided each with cross spring-bars B, the bolts and slots a b, and the fulcrum-block B', all combined for use with the slats, in the manner shown and specified.

184,900. POST-AUGERS. Chas. W. Pool, Wincey, N. Y., assignor to himself and J. W. Van Dunkirk, same place. [Filed July 31, 1876.]

Brief.—The arms carrying the blades are secured in a socket formed in the lower end of the shank, and may be adjusted to vary the size of the hole to be bored.



The combination of the curved blades A A', shank B, having socket c, and arms c c', fitting in said socket, and secured by means of a wedge, f, or its equivalent, substantially as and for the purpose described.

184,901. BALE-TIES. J. M. Pollard, New Orleans, assignor of three-fourths his right to W. L. McNeely, New Orleans, La., J. D. Milburn, Memphis, Tenn., and T. M. McNeely, Beaver, Pa. [Filed Oct. 30, 1876.]

184,902.



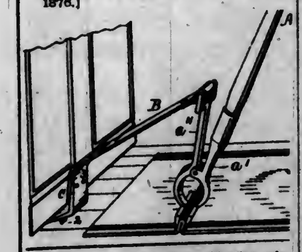
1. The combination of a buckle having central and end cross-bars, a fixed or movable lug or its equivalent, and a band having one of its ends bent around one of the end bars, and forming a spring, which operates to hold the free end of the band locked with said lug, substantially as shown and described.

2. The combination, with the buckle, constructed of side and end bars, and a central cross-bar provided with a lug, of the band having one or more slots, and held engaged with the said lug by spring-pressure, as shown and described.

3. The combination, with the central cross-bar *c* of the buckle, having the lug *c*, of the looped spring end of the band and the slotted end thereof, as shown and described, whereby the said slotted end is held engaged with the lug, as specified.

4. The spring end of the band, bent around one of the cross-bars of the buckle, and provided with a depression, forming a shoulder, for holding the parts detachably connected, substantially as shown and described.

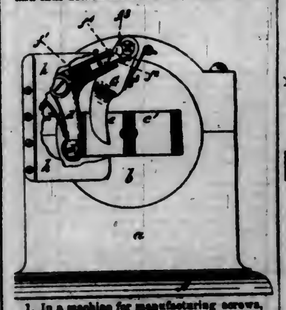
184,903. CARPET-STRETCHERS. William W. Potts, Swedeland, Pa. [Filed Oct. 11, 1876.]



In a carpet-stretcher, the combination, substantially as described, of the clamping-levers *a'* and *a''* with the handle A, head or chain B, and wedge-plate C, for the purpose set forth.

184,904. DISCHARGING FOR SCREW-MAKING MACHINES. Edward H. Quimby, Orange, N. J., assignor to American Screw Company, Providence, R. I. [Filed Oct. 31, 1876.]

Brief.—The jaws do not revolve, but one of them while opening, after a screw has been threaded, moves a boat lever, which, through the medium of a spring-latch in its upper end, actuates an arm or striker that is suspended from the frame in front of the dies, causing it to quickly vibrate across the face of the dies, and thus detach the screw.



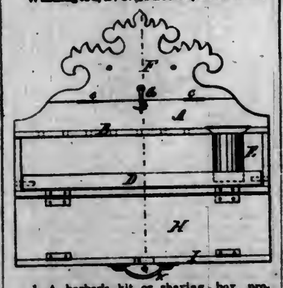
1. In a machine for manufacturing screws, provided with griping-jaws for holding the blank, a striker, substantially such as described, having a reciprocating motion across the front of the jaws, in combination with a shield, behind which the striker rests during the time when it is not in operation.

2. In a machine for manufacturing screws, provided with stationary jaws for griping a screw-blank, the jaw *c*, and an elbow rocker, having the arms *d* and *e*, the latter provided with a spring-bolt latch, *f*, in combination with a swinging striker, G, provided with a shoulder, G', for engaging the lower edge of the bolt-latch *f*, as and for the purposes described.

3. The bolt-latch *f* in the rocking-arm *e*, and the swinging striker G, provided with a shoulder, *g'*, in combination with a spring, *g''*, as and for the purposes set forth.

4. The bolt latch *f* contained in the hollow arm *e*, and provided with the shoulder *f'*, in combination with the spring *f''*, as and for the purposes set forth.

184,905. SHAVING-CASES. C. P. Rello, Washington, D. C. [Filed Sept. 23, 1876.]



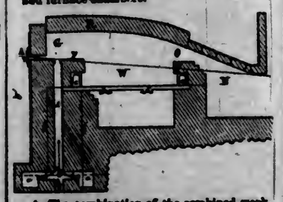
1. A barber's kit or shaving-box, provided with suitable apartments and shelves for the various tools or implements necessary, and having a front and top connected together by a right-angled hinge, so as to fold into position to conceal and secure the box and its contents, and, when turned down, to expose the same, forming a shelf, substantially as and for the purposes hereinbefore set forth.

2. The back A, provided with an extension, F, hinged at *e*, and adapted to fold down or be secured in an extended position in the same vertical plane with the back A, substantially as and for the purposes set forth.

3. The front strip D, swiveled to the ends of the box to form a guard, and be capable of turning horizontally to increase the space for the introduction of the hand, substantially as hereinbefore set forth.

184,906. METALLURGIC GAS-FURNACES. J. J. Read, Erie, Pa. [Filed Mar. 2, 1876.]

Brief.—The air-supply circulates through the hollow hearth-beds, and passes downward in a vertical flue in the furnace side, into a transverse horizontal chamber, wherein it comes in contact with the entering gas discharged from the supply-pipe. Mixture and combustion are completed in the uptake-flues and furnace chambers.



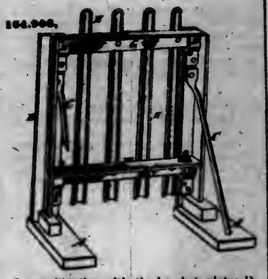
1. The combination of the combined working and combustion chamber W, mixing-chamber *d*, air chambers or passages *a* and *b b*, and gas-supply *p*, the said parts being arranged in substantially the manner shown, and for the purposes named.

2. The combination and arrangement, substantially as herein shown, of the heating-flues *c*, down-take flue *f*, and connecting-flues *a* and *b*, for the purposes mentioned.

3. The combination, within a furnace, of the mixing-chamber *d*, air passages or chambers *a b*, flue *f*, connected with air-heating chamber *c*, and provided with valve *e*, and the gas-supply *p*, having the regulating-valve *g*, all arranged and operating together substantially as shown, and for the purposes mentioned.

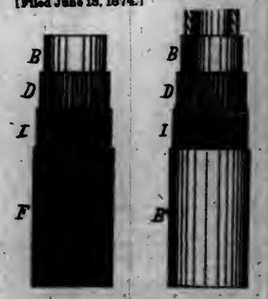
184,907. IRON FENCES. Timothy Rebholz, Troy, Ohio. [Filed Aug. 7, 1876.]

184,908.



In combination with the bracket-plates D and K, attached to the posts, the slotted angle-iron rail F and angle-iron rail G, for attaching the panels to the posts, substantially as set forth.

184,907. MANUFACTURE OF WATER-PROOF HOSE. Thomas L. Reed, Providence, R. I. [Filed June 13, 1874.]



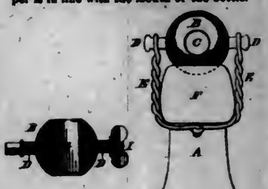
1. The combination, with a vulcanized-gum lining, of the series of independent longitudinal strands, laid straight and closely outside the lining, and an inclosing layer of textile fabric, which is united by the vulcanized gum with the longitudinal strands, substantially as described.

2. The combination, with a vulcanized-gum lining, of independent longitudinal strands, applied outside of the lining, a strand laid closely and spirally outside the longitudinal strands, and an inclosing layer of suitable material, substantially as described.

3. The combination, with a vulcanized-gum lining, of the independent longitudinal strands next to the lining, the closely-laid spiral strand over the longitudinal strands, and the seamless braided or woven jacket, substantially as described.

184,908. BOTTLE-STOPPERS. W. A. Root, Bennington, Vt. [Filed Apr. 4, 1876.]

Brief.—To pour out the contents of the bottle, the globular stopper is first rotated upon its pintles until the orifice in the stopper is in line with the mouth of the bottle.



1. A spherical bottle-stopper constructed with a diametrical aperture for the passage of the contents of the bottle, and provided with pintles or other suitable means to facilitate its rotation on the mouth of the bottle substantially as specified.

3. The globular stopper B with diametrical orifice and plates D D in combination with yoke E E adapted to be attached to and operated upon the neck of a bottle, as specified.

3. The yoke E E, constructed, attached and operated substantially as set forth.

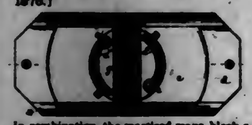
184,909. CANE-GRINDING MACHINES. Buell S. Roy, Rockville, Conn. [Filed Aug. 24, 1876.]

Brief.—Inserts in chain a T-head key, which, after a quarter-turn, locks in a mortise in an arm attached to the grinding-wheel. The whole is inserted in a tube, on which the grinding-wheel slides.



In combination, the chain *a* and pin *g*, having the T end.

184,910. FLOOR-CLOSING DEVICES. Buell S. Roy, Rockville, Conn. [Filed Aug. 24, 1876.]



In combination, the mortised ways, block *c*, the mortised traveler *e*, the sleeve *g*, with its flanged foot, having the parti-circular mortises *g'*, and the pins *d*, all substantially as described.

184,911. PITCHER AND COMMUTATOR-ROSE. Buell S. Roy, Rockville, Conn. [Filed Aug. 24, 1876.]

Brief.—The central portion of the length is a hollow sleeve filled with oil through an orifice stopped by a thumb-screw. Attached to each end of this sleeve, with free communication, are hollow rods filled with visking, through which the oil flows to each pivot-bearing, half of which is absorbent material.



The central oil-vessel *a*, the hollow conduit-rods *c*, and the boxes *f*, all combined to form a pitman or eccentric rod, substantially as described.

184,912. MACHINES FOR CUTTING FIBROUS MATERIALS. James Slaughter, Buffalo, N. Y., assignor to E. M. Jewett, same place. [Filed Aug. 24, 1876.]

Brief.—The cutting-knives are so arranged as to have their edges changed with relation to the face of the revolving disk in which they are placed, so as to change the thickness of the sliver without stopping the machine.

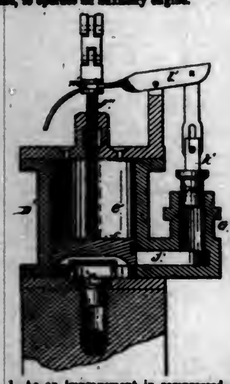


1. The combination of the revolving disk A, cutters D, rods E, provided with arms H, H', and I, with the slotted plate J, rod K, and thumb-screw L, substantially as and for the purposes described.

2. The combination of the disk A, cutters D, rods E, provided with arms H, H', and I, with the slotted plate J, rod K, thumb-screw L, and parts M N P, substantially as and for the purposes specified.

184,913. MECHANISM FOR UTILIZING THE ENERGY OF AIR-BRAKES. Frederick F. Schneider, St. Louis, Mo. [Filed June 9, 1876.]

Brief.—The object of the invention is to utilize the exhaust from an ordinary air-engine, to operate an auxiliary engine.



1. As an improvement in compressed-air engines the combination of the reciprocating engine B, connecting-pipes, valves *v*, and cylinders *c c'*, with their pistons, substantially as and for the purpose hereinbefore described.

2. The combination of the valves H H' with the cylinders *c c'*, piston-rods *f f'*, forked levers I F, and collars *n n'*, substantially as and for the purpose herein before described.

3. The combination of the valves H H', cylinders *c c'*, pistons *f f'*, forked levers I F, collars *n n'*, and the piston-rods *f f'*, substantially as and for the purpose herein before described.

4. In combination with the connecting-rod F, shaft *d*, and walking-beam *g* the triangular crank R, substantially as described.

184,914. SHEARS FOR CUTTING RESONANCE-BARS. Wm. A. Scripps, Detroit, Mich. [Filed Jan. 7, 1876.]

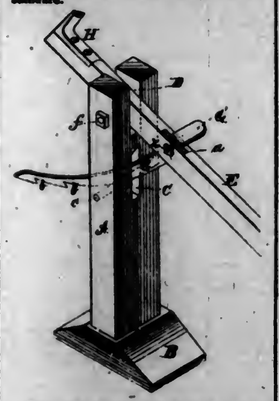
The gang-shears described, consisting of the standard A, having a forked top, a gang of shear-blades, B B', mounted stationarily in the said top, the forked handle C, and a second gang of shear-blades, B B', secured in the said handle, and pivoted to the first gang, constructed, arranged, and combined substantially as described and shown.

184,914.



184,915. LIFTING-JACKS. W. S. Shanahan, South Bend, Ind. [Filed Aug. 24, 1876.]

Brief.—The notched curved bar passes through the lever, and has its end bent to one side of the lever, so as to form a handle, to enable the operator to disengage the bar from the cross-pin within the slot of the standard.



The combination of the standard A, supported on a base, B, provided with slot O and open-ended slot D at the top, the lever H, pivoted in said open-end slot, and having a slot, *a*, the curved and notched metal plate G, pivoted in the slot *a*, and forming a handle-piece, G', above and in the side of the lever, and the pin *o* in the slot O of the standard, all constructed substantially as and for the purpose herein set forth.

184,916. BORE-AUGERS. G. W. Shapley and Daniel Phillips, Austin, Minn. [Filed Apr. 26, 1876.]

Brief.—The semi-cylindrical hinged plates, forming the bucket sides, are detachably connected to the frame and shaft. The runners are attached to blocks adjustable on the shaft, to increase or decrease the diameter of the well. A partition arranged midway of the bucket hastens the earth, and relieves the outer lower of the weight. The auger-bucket is provided with a drill-center, mold-board cutters, and points at the rim, to cut the hole and take up the earth.

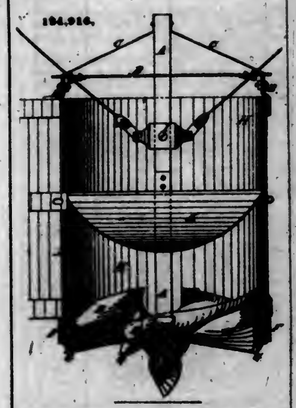
1. The combination of shaft A, frame B, and semi-cylindrical plates H, the latter detachably hinged, substantially as and for the purpose described.

2. The combination, with shaft A, frame B, and plates H, of the drill-center D, mold-board cutters E, rim F, and points G, arranged substantially as and for the purpose specified.

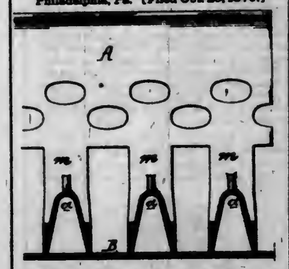
3. The runners J, attached to blocks I, adjustable on shaft A, as and for the purpose described.

4. The combination of the partition K with the shaft A, and the middle part of the cone H, substantially as herein shown and described.

184,916.



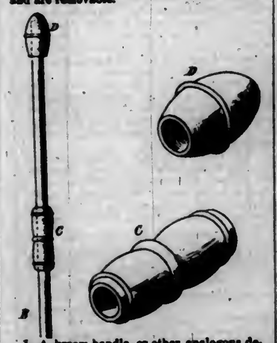
184,917. STOVE-GRATES. I. A. Sheppard, Philadelphia, Pa. [Filed Oct. 26, 1876.]



The combination of the front plate A and its vertical bars *m* with the hollow bars *c*, the latter forming continuations of the said bars *m*, and the whole being cast in one piece and adapted to a wood-burning stove, as set forth.

184,918. HAND-PROTECTORS FOR BROOM-HANDLES. Rebecca Siddall, Washington, D. C. [Filed Oct. 26, 1876.]

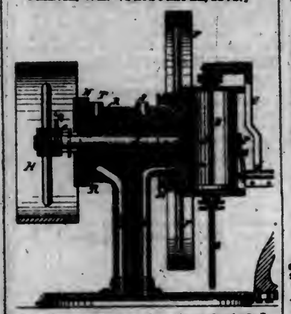
Brief.—An adjustable rubber sleeve is placed upon the handle of a broom, as a hold for the hand, and another at the end. They serve to prevent the hand from being blistered, and are removable.



1. A broom-handle, or other analogous device, provided with a detachable and adjustable rubber sleeve, C, for the purpose set forth.

2. The cap D and sleeve C, applied to a broom-handle or other analogous device, as herein set forth.

184,919. ROTARY ENGINES. J. M. Simpson, Oshkosh, Wis. [Filed June 22, 1876.]



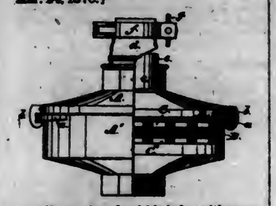
1. The cone I, secured to the main shaft J, and provided with the diametrical slots E E, in combination with the stand E, provided with pipes L, L', S, and T, and the revolving cylinder A, substantially as and for the purposes set forth.

2. The vertically-revolving cylinder A secured to the shaft J, and provided with the ports *a* and *b*, the piston-rod B, and eccentric crank C, in combination with the stand E, having pipes L, L', S, and T, and the cone I, provided with diametrical slots E E, substantially as and for the purposes set forth.

3. The stand E, having steam, water, and exhaust pipes L, L', S, and T, and the cone I, having the slots E E, in combination with the vertically-revolving cylinder A, having ports *a* and *b* secured to the fly-wheel F upon the shaft J, substantially as and for the purposes set forth.

4. The vertically-revolving cylinder A, having ports *a* and *b* secured to the fly-wheel F upon the main shaft J, in combination with the stand E, having steam, water, and exhaust pipes, a slotted cone, I, secured near the opposite end of the main shaft, and the hand-wheel screwed upon the end of the main shaft, substantially as and for the purposes set forth.

184,920. WATER-FILTERS. Saml. F. Simes and Charles Tate, Philadelphia, Pa. [Filed Mar. 24, 1876.]

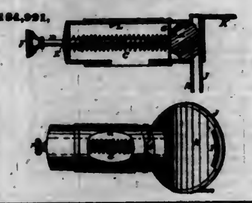


1. A filter-pad made of felt laden with powdered charcoal, kaolin, or other purifying agent blown into or embodied with the mass, substantially as described.

2. The caps A A', detachably united by a cam-joint, in combination with the gratings O O', the packing-ring D, and a filtering-pad, substantially as and for the purpose described.

3. The combination, with the flexible tube *d*, of the hinged jaws *f*, having internal rib *i*, extension A, and the clamping-screw *g*, as and for the purpose described.

184,921.

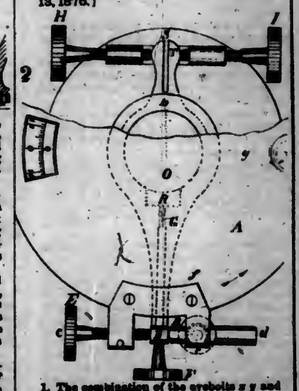


184,921. REVOLVING GRATES. Robert Soper, London, Ontario, Canada. [Filed Aug. 23, 1876.]

1. The combination, with plate G, rod D, and spring C, of the stud L, located on the inside of the box A, substantially as and for the purpose specified.

2. The combination, with circular covering-plate H, having the opening I, of the rasping-disk J, secured to the circular plate by turning its outer rim over the edge of the circular plate, whereby said disk is capable of revolving thereon, substantially as and for the purpose specified.

184,922. TRANSIT-INSTRUMENTS. Nelson Spofford, Haverhill, Mass. [Filed May 13, 1876.]



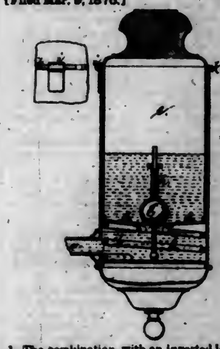
1. The combination of the eyebolts *x y* and the headed female screw E, forming a clamp for holding the bolt B in its adjusted position, substantially as and for the purpose described.

2. The combination of the bolt B, a suitable clamping device for holding it in its adjusted position, and tangent-screw bolt H, for the purpose of forming one side of the limiting space between the holes B and E of the detent D, substantially as described, and for the object specified.

3. The combination of bolt or abutment B with the detent D and the tangent-screw H, for the purpose of forming a limiting space between the abutment B and the said screw, substantially as described, for the object hereinbefore set forth.

4. The combination, in a transit-instrument, of the slotted radial arm T and tangent-screws H I, all arranged to operate substantially as described.

184,923. LAMPS. Wm. Steahlen and Wm. Steahlen, Jr., Brooklyn, E. D., N. Y., assignors to C. F. A. Hinrichs, same place. [Filed Mar. 9, 1876.]



1. The combination, with an inverted lamp-fountain, of a valve, and spring to close the same, substantially as and for the purposes set forth.

2. The lamp-reservoir with a spring-valve at the lower end, and a weight at the upper end, for the purposes set forth.

2. The spring *l* within the reservoir-cap *h*, combined with the reservoir *a*, valve *g*, and lock *i*, substantially as set forth.

184,924. FARM-FENCES. JNO. L. SULLIVAN, Dallas, Tex. [Filed Sept. 22, 1876.]



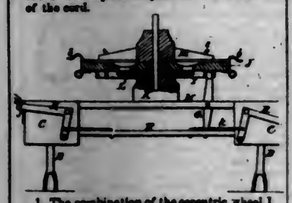
A fence post or support formed of three or more stakes, arranged to form a triangle at their lower ends, and coming together or crossing each other near the top, or at some point or points between the top and bottom, in combination with the rail-panels B, substantially as shown and described.

184,925. METHODS OF PACKING CAUSTIC ALKALI. THOMAS C. Taylor, New York, N. Y. [Filed Apr. 3, 1876.]

The herein described method of putting up or packing caustic alkali by inclosing the same in a solid molded form in a can, with a surrounding envelope of absorbent powder, substantially as and for the purpose described.

184,926. CHECK-ROWERS. JNO. THOMSON, Aledo, Ill. [Filed Mar. 20, 1876.]

Brief.—Mounted on arms projecting out from the seed-boxes are pulleys for the reception of the cord, which is guided onto them by the tension-arm. The pulleys are retained in position elastic by coil-spring and nut. Centrally journaled are eccentric wheels for operating the seed-slide, and a horizontal wheel having a notched rim for the reception of spring-catches, for adjusting the same to conform with the dial-wheel journaled onto the same shaft. The notched wheel is provided with adjustable pins for the reception of the cord.



1. The combination of the eccentric wheel I J, the horizontal wheel M, notched on its periphery, movable pins *c c*, spring-catches *b b*, and the dial L, all constructed substantially as and for the purposes herein set forth.

2. The combination, in a check-rower, of the pulley O, spring *k*, regulating-nut *l*, and hooks P *p*, all constructed substantially as and for the purposes herein set forth.

3. The dial L, having right and left graduations, in combination with the wheels J and M, substantially as and for the purposes herein set forth.

184,927. LUBRICATING-OILS. Joseph M. C. Thomas, Hewlettville, Iowa, assignor of one-half his right to C. M. Percival, same place. [Filed Oct. 14, 1876.]

Brief.—Dissolves the first four ingredients in a quart of hot water, and then adds the remaining.

A lubricating-oil compound of sal-soda, borax, prussiate of potash, common salt, castor-oil, sulphate of zinc, and water, substantially in the proportions set forth.

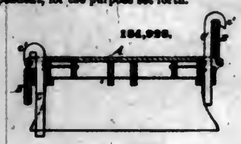
184,928. GUNNELS-CARS. C. A. Thomson, Flushing, assignor to himself and O. W. M. Cuntis, Long Island City, N. Y. [Filed Apr. 12, 1876.]

1. The combination of the stakes C with the car A, the said stakes being adapted to slide in slots or guides, as shown and described, so that they may be raised or lowered vertically, as required, to form either a gooseneck or a deck-car, as set forth.

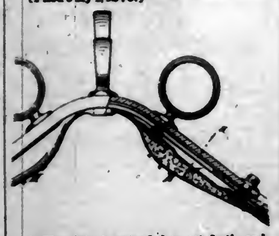
2. The combination, with a platform-car, of vertically-sliding stakes C, and side boards for supporting them when elevated, as shown and described.

3. The combination of the vertically-sliding stakes C, having hooked-shaped ends, with the boards B hinged to the platform of the car, as shown and described, whereby the hooks rest upon the hinge when the boards are pendent, for the purpose set forth.

184,928.



184,929. HARNESS-SADDLES OR COACH-PADS. S. B. Tompkins, Sing Sing, N. Y. [Filed July 1, 1876.]



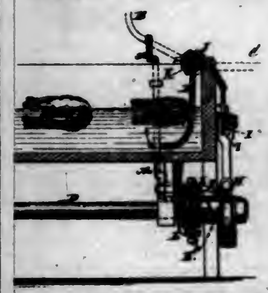
1. The plate A, extended as set forth, and containing the pad-screw hole F, to prevent the side plate or back-strap from pressing against the top leather, substantially as described.

2. The socket or under bearing plate J, containing flanges K, in combination with the tree-plate A, having the extension, as set forth, thereby forming a chamber between the flanges to receive the side pieces, substantially as described.

3. The socket or under bearing plate J, having the flanges K on the upper side curved inwardly from the middle, or thereabout, in combination with the tree or upper plate, having the ribs or flanges *d*, substantially as specified.

4. The leather cover L, combined with the socket or under bearing plate, having the flanges K on the upper side, and sewed thereto in the space between the flanges, substantially as specified.

184,930. APPARATUS FOR ELEVATING HOGS. T. D. Tompkins, New York, assignor to Amasa Spring, White Plains, N. Y. [Filed Oct. 2, 1876.]

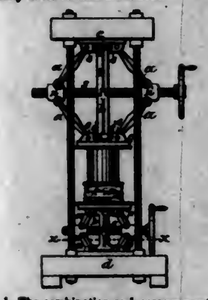


1. The combination, with the trough A and elevator B, of the shaft D, the half-clutches H H', the eccentric G, the rod H, the levers I I, and the elevator-lifting ropes or chains J, substantially as and for the purpose specified.

2. The combination of the disengaging-cam H and loose half-clutch H' with the shipping-lever L and sliding half-clutch B on the shaft D, the elevator E, and means for lifting the latter by the power-shaft D, the two half-clutches being made to engage with one another, essentially as described.

184,931. PHOTOS. Jacob J. Unbehend, Syracuse, N. Y., assignor of one-half his right to John J. Unbehend, same place. [Filed May 9, 1876.]

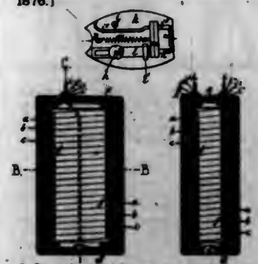
Brief.—Additional toggle-arms are arranged, to work transversely, or at right angles to the main toggle-levers, and brace the piston laterally in its vertical movement.



1. The combination and arrangement, with the piston and the main toggle-levers *a a* pivoted at the ends to plates *c c*, of the lateral toggle-arms *b b*, pivoted likewise at the ends to the plates *c c* aforesaid, and arranged transversely or at right angles to the main toggle-levers *a a*, substantially in the manner described and shown, for the purpose set forth.

2. In combination with the main toggle-levers *a a* and lateral toggle-arms *b b* the plates *c c* when constructed to form four sockets, substantially in the manner described, for the purposes specified.

184,932. DRY ELECTRIC PILES. C. L. Van Tenac, Paris, France, assignor to A. M. Hayn, New York, N. Y. [Filed Oct. 24, 1876.]



1. In a dry electric pile, the combination, with the external element, of the internal zinc element *f*, constructed of a coil of zinc wire, or a perforated zinc plate, to allow of the passage of the gases formed between the two elements, as shown and described, and for intensifying the electricity produced.

2. The construction of the external chloride-of-silver shell *a* with an internal undulated silver or platinum wire, for the purpose of augmenting the production of the electricity, and of strengthening the shell itself, as above described and illustrated.

3. The bottom *d*, provided with the hole, and with plug *d'*, for charging and recharging the pile, as above described and illustrated.

4. The combination of the parts *h'*, *i*, *m*, *h'*, *g'*, *n*, *f*, *c*, and *p*, for the purpose of making or breaking contact, as above described and illustrated.

184,933. APPARATUS FOR BEVELING GLASS PLATES. Alexander Vogeley, Brooklyn, N. Y. [Filed July 24, 1876.]



For the purpose of beveling glass plates, the truck E, movable upon ways B, and provided with a hinged table, H, which can be inclined at any desired angle.

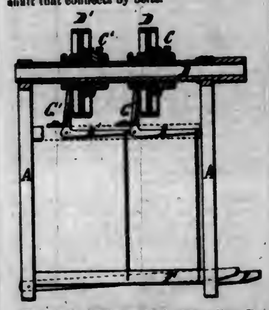
184,934. DETACHING HORSES. Charles J. Walser, Lancaster, Pa. [Filed Oct. 9, 1876.]



The free sliding plate B, with its slot *h*, perforated flange C, and U bent end, having the limits perforated or slotted, in combination with the binding-screw, having an eye, F, for a cord, *k*, and provided with a gum washer, G, interposed between metallic washers *f* and plate B, so that the said plate can be readily pushed in or drawn out horizontally, the whole arranged and operating as and for the purpose specified.

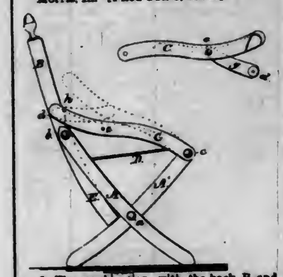
184,935. BROOM-MACHINES. Alphonso Walrath, Fort Plain, and R. D. Bronson, Amsterdam, N. Y. [Filed Sept. 9, 1876.]

Brief.—Different speeds can be given to the mandrel by clutching its different pulleys with the varying-sized pulleys on another shaft that connects by belts.



The shafts S H', provided with pulleys D, D', I, I', and H, and clutches C C', in combination with the bands K K', and levers E E', substantially as and for the purposes set forth.

184,936. FOLDING CHAIRS. JNO. A. WARE, Morris, Ill. [Filed Oct. 6, 1876.]



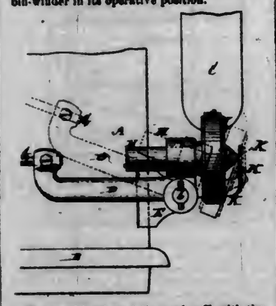
1. The combination, with the back B and the folding legs A A', of the arms having an upwardly-folding toggle-joint, adapted to be straightened out and brace the back of the chair when disposed for use, substantially as and for the purpose described.

2. The combination, with the back B and the folding legs A A', of the arm C, pivoted to the front legs, and the link or blade *g*, pivoted to the back of the chair at one end and to the arm at the other, so as to form a toggle or knee joint, as and for the purpose described.

3. The combination, with the pivoted legs A A' and the toggle-jointed arms C, arranged as described, of the back B, pivoted to the rear legs at *b*, and extended at E to form locking abutments adapted to engage with the rear extension of the front legs, substantially as and for the purpose described.

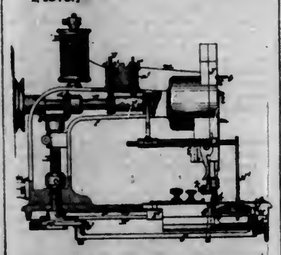
184,937. BOBBIN-WINDERS FOR SEWING-MACHINES. Robert Whitehill, New York, N. Y. [Filed Apr. 24, 1876.]

Brief.—The spindle which carries the friction-pulley is loose in its bearings, and has a bearing at its outer end on a spring attached to the bracket, to which the frame of the bobbin-winder is swiveled or pivoted only when the friction-pulley is in contact with the fly-wheel, the spring also acting to hold the bobbin-winder in its operative position.



The combination of the spring K with the back center *s* of the longitudinally-free winding-spindle H, the wheel I on said spindle, the rocking or swinging bobbin-winder frame D, and the center G, essentially as herein set forth.

184,938. SEWING-MACHINES. Robert Whitehill, New York, N. Y. [Filed May 4, 1876.]



1. The combination, with the take-up, of an intermittently and positively operated clamp, T, an intermittently and positively operated needle-thread supplier, U, and a tension device, V, all arranged between the take-up and the needle-thread spool, the said clamp being arranged next the take-up, the said needle-thread supplier being arranged next the said spool, and the tension device being arranged between the said clamp and needle-thread supplier, all as herein described.

2. The combination, with the shuttle-driver B' and the connecting-rod C', which operates it, of the pin *h'*, rigidly attached to the said rod, and extending through and turning in the shuttle-driver, whereby it not only performs the two functions of transmitting motion to the shuttle-driver and serving as one of the driving-bosses, but, by its turning motion, aids to carry the needle-thread over the shuttle, substantially as herein described.

3. The combination, with the shuttle, the shuttle raceway W, the shuttle-driver raceway A', provided with the communicating opening *j'* between the said raceways, the shuttle-driver B', and its horns, and the connection of the shuttle-driver with the rod which imparts motion to it, all being constructed and arranged as specified, whereby the said connection and the horns are all brought into the same vertical plane, or thereabout, with the longitudinal axis of the shuttle, as herein described.

4. The shuttle-body E, having interior plain ends for the bobbin-centers, and constructed with end recesses *f' f* for the heads of the bobbin Z, in combination with the lever-catch F', formed with a wing, *m'*, constituting one of the walls of the recess *f*, and arranged to close down on one head of the bobbin, substantially as specified.

5. The combination of the slotted feed-bar J', rod E', having a crook, *e'*, and working in the slot *d'* of the feed-bar without any vertical lost motion, the swiveling-guide I', through which the said rod slides and with which it oscillates, and the eccentric on the shaft D, for operating the said rod, whereby a positive rising, falling, and forward motion is imparted to the feed, as and for the purpose herein set forth.

6. The feed-regulating bar L', of bowel or elliptic form, and constructed with recesses *m' m'* in its edges, in combination with the guide M', through which the bar moves when being adjusted, substantially as specified.

7. The combination, with the oscillating take-up N, of the face-plate J, constructed with a cavity in its front face for containing the arm of said take-up, and the covering-plate P, between which and the sides of the said cavity there is a circular opening, *r*, all substantially as and for the purpose herein set forth.

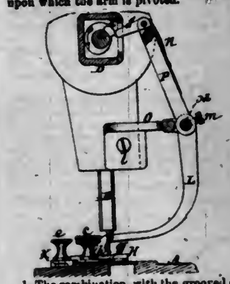
8. The combination, with the oscillating take-up N, and its covering-plate P, of the bar or wire O, adjustably attached at one end to the mid plate, but free at its opposite end, substantially as and for the purpose herein described.

9. The combination, with the adjustable take-up N and the screw *u*, by which it is secured when adjusted, of the covering-plate P, provided with a hole, *s*, arranged in the same eccentric relation as the screw *u* to the arbor *o* of the take-up, essentially as and for the purpose herein set forth.

10. The combination, with the needle-bar I, of the fixed guide *d*, the laterally-adjustable guide-bar *e*, and the rack K in adjustable connection with the needle-bar, to compensate for lateral adjustment of the needle-bar, without interfering with the uniform gear of the rack with the pinion L of the take-up, essentially as described.

184,939. TUCK-CREASERS FOR SEWING-MACHINES. Robert Whitehill, New York, N. Y. [Filed Apr. 24, 1876.]

Brief.—The spring which gives the creasing-arm its downward stroke after it has been lifted and released by the cam on the main shaft, is spirally wound on the rock-shaft, upon which the arm is pivoted.



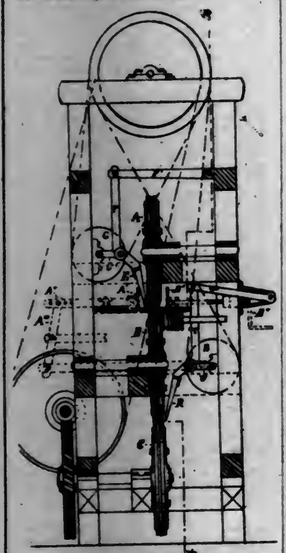
1. The combination, with the grooved creasing arm or lever L and the stationary creasing-blade *g*, of a spring applied to give said creasing arm or lever its downward creasing or marking stroke, and a rock-shaft, M, actuated by the sewing-machine in a positive manner to lift the creasing arm or lever from the fabric, and to give the requisite force or tension to the spring for throw of said arm or lever by the spring when liberated from positive lift by the machine, substantially as specified.

2. The longitudinally-adjustable rock-shaft M, with its attached grooved creasing arm or lever L, in combination with the operating lever P, the cam E, the spring N, and the adjustable bar K, with its attached creasing-blade *g*, essentially as described.

3. The pivoted toe S, in combination with the spring *n*, the lever P, the cam E on the shaft C, and the rock-shaft M, with its attached creasing arm or lever, substantially as specified.

184,940. MACHINES FOR DRESSING AND COMBING TAMPICO AND BRISTLES. Enoch B. Whiting, St. Albans, Vt. [Filed Aug. 14, 1875.]

Brief.—The peripheries of the holding-wheels are in hinged sections, operated by springs beneath them. Side "betters" even the material, after which it is combed upon each side, and returned to point where fed to the machine by endless bands.

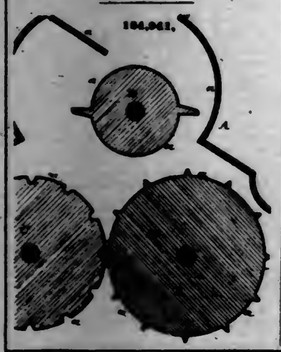


1. In a machine for dressing bristles and tampico, the revolving holders A, B, and C, the faces of which are india-rubber resting upon yielding suction-plates S S, that are supported by springs 3 3, all constructed and operating substantially as and for the purposes described.

2. In a machine for dressing bristles and tampico, the combination of a better, A', with a gage, b', as and for the purpose substantially as described.

3. In a tampico and bristle dressing machine, the combination of the feeding-belts D, D', and D² with the flexible holders A B C, combs E H, bridges M M', grooved wheel K, metallic elastic and adjustable belt or band L, having spiral or other spring M, batting devices A' Z W', gages B' B' X', and delivering-belts D' and D², when constructed, combined, and operating substantially as and for the purposes set forth.

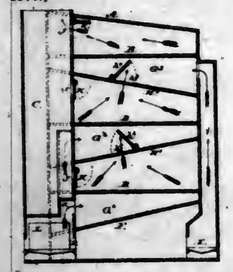
184,941.



184,941. MILLS FOR CRUSHING AND GRINDING FRUIT. Chas. E. Whitman, St. Louis, Mo. [Filed Oct. 13, 1876.]

In cider, wine, sugar-cane, or similar mills for expressing the juice from fruit, the crushing-rollers and the interior of the casing, or either, covered with enamel, substantially as and for the purpose set forth.

184,942. PROCESSES FOR DRYING MALT. John G. White, Albany, and Matthew White, New York, N. Y. [Filed Jan. 18, 1876.]



1. The process for drying malt and arresting its germination, as herein set forth, consisting of subjecting the saturated malt while in a quiescent state upon a perforated kiln-floor, to the direct action of currents of superheated steam, in the manner and for the purpose herein specified.

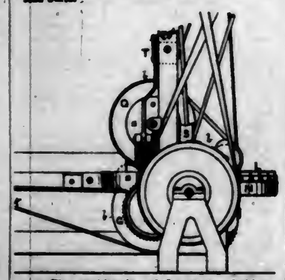
2. The kiln A, having chambers beneath its perforated floors, in combination with means for supplying saturated steam and heated air for producing superheated steam, in the manner and for the purpose herein specified.

3. The kiln A, having chambers beneath its perforated floors for producing superheated steam in the manner herein described, in combination with one or more furnaces for supplying said chambers with heated air, in the manner and for the purpose herein specified.

4. The combination of the lower chamber G^1 of the kiln A, with a steam generator, and one or more furnaces for supplying said chamber with saturated steam and heated air for producing superheated steam in said chamber, in the manner and for the purpose herein specified.

184,943. TAMPICO COMBING AND DRESSING MACHINES. George Willett, Burlington, assignor to E. B. Whiting, St. Albans, Vt. [Filed June 16, 1876.]

Brief.—The material is carried under the holders by endless belts, where one end is combed. It is then reversed by an endless horizontally-turning carrier-belt, when the opposite end of the material is combed. It is then delivered to the commencing end by endless belts.



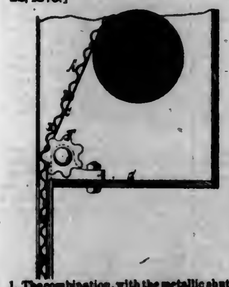
1. The combination of the rotating holders G G and B B, bands A A and K K, and the endless transferring-belt L, with suitable means for operating the latter, all arranged and operating as and for the purpose set forth.

2. The combination of the rotating holders G G and B B, bands A A and K K, endless transferring-belt L, and combs H and D, all arranged and operating as and for the purpose set forth.

3. The feeding-belts K K, delivering-belts A A, holders G G and B B, combs H and D, plates E' and E, pressure-belts V' and V, transferring and reversing belt L, and raceway N, all combined, arranged, constructed, and operating as and for the purposes herein set forth.

4. In a machine for dressing tampico and bristles, the rotating friction bristle-holders B or G, with flexible or yielding faces or surfaces that gripe the bristles, substantially as and for the purposes described.

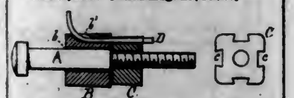
184,944. ROLLING SHUTTERS. James G. Wilson, New York, N. Y. [Filed July 22, 1876.]



1. The combination, with the metallic shutter composed of a continuous sheet of corrugated metal, of the elastic bands extending lengthwise along the shutter, and connected therewith by fastening-rivets passing through slots, substantially as described.

2. The combination, with a corrugated shutter, of loose toothed rollers F, arranged and engaging the corrugations of the shutter, substantially as above described.

184,945. NUT-LOCKS. Peter Zelber, Clifton, W. Va., assignor of two-thirds his right to W. D. Ross and A. A. Holland, same place. [Filed Aug. 29, 1876.]



1. The nut C, constructed with recesses *e*, having tapering sides, substantially as described.

2. The nut C, provided with recesses *e*, washer B, provided with slot *b'*, bolt A, and key D, the whole constructed and arranged to operate substantially as described.

3. The nut C, provided with recesses *e*, washer B, provided with slot *b'*, bolt A, key D, and fish-plate E, the whole constructed and arranged to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

184,946. INKING APPARATUS FOR PRINTING-PRESSES. Andrew Campbell, Brooklyn, N. Y. [Filed Jan. 26, 1876.]



1. The combination, with the form or type-bed, form-rollers, and distributing-roller, of the inclined bearings *c* for the form-roller boxes, substantially as and for the purpose herein before set forth.

2. The cylindrical box of the distributing-roller, constructed with a tightening-cam, *c*, as and for the purpose set forth.

3. The combination of the form-roller boxes, and inclined bearings therefor, of the locking-key, and a tightening-cam, *c'*, substantially as herein before set forth.

4. The combination, with the form-roller, of the form-roller boxes, provided with an adjusting-screw, *h*, and attached to the roller so as to enable both together to be removed and replaced without readjustment, except in case of shrinkage, substantially as herein before set forth.

5. The combination, with the inclined bearings *c*, and form-roller boxes, of the adjusting set-screws, and stop-bearings at the end of the inclines, substantially as herein before set forth.

6. The combination, with the form-roller boxes and inclined bearings, of the stop and roller-swinging cam for separating the form-rollers from contact with the type and distributing roller, when the press is not in use, substantially as herein before set forth.

7. The combination and arrangement, with the bracket-bearing E, of the cam F, spars and holes *f' d'*, spring *g*, and hand-wheel *f'*, as herein before specified.

184,947. MANUFACTURE OF WHITE LEAD. Edward Milner, Warrington, England. [Filed July 11, 1876.]

Brief.—Mixes finely-ground litharge with a solution of sodic, potassic, or ammonic chloride, preferred proportions being four pounds dry litharge to one pound of the salt, and sixteen parts, by weight, of water. Mixes constantly and thoroughly for about four and a half hours, removes to another vessel, and subjects, during continued agitation, to a stream of carbonic-acid gas, this being continued not only until alkaline reaction ceases, but a test sample in a clear glass vessel coats it with a thin arborescent film, from which the suspending liquid rapidly separates.

The herein-described process of manufacturing carbonate of lead, which consists in subjecting a mixture of litharge and the chloride of sodium, potassium, or ammonium to the action of carbonic-acid gas, and continuing the flow of gas after alkaline reaction has ceased, substantially as and for the purpose set forth.

REISSUES.

7,399. CARDING-MACHINES. Jno. F. Foss, Lowell, Mass., assignor of one-half interest to John M. Fevey, same place. Patent No. 166,089, dated July 27, 1875. [Filed Apr. 10, 1876.]

Brief.—The card is provided with a series of flats below as well as above the cylinder, and two self-acting strippers are arranged in connection with the said flats—one to strip the top flats, and the other to strip the under one—whereby breaker-card and finisher are both combined in one.



1. A carding-machine provided with under flats 1 2 3, substantially as and for the purpose herein specified.

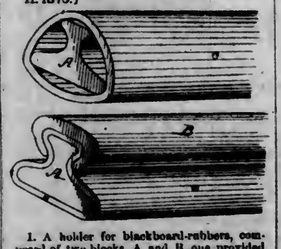
2. In a carding-machine, the combination of under flats 1 2 3 and separate stripper J, with top flats G G and a top-flat stripper, H, substantially as and for the purpose herein specified.

3. The combination of an under flat and a guide-rod bearing it, substantially as and for the purpose herein specified.

4. The combination of an under flat and an inwardly-retracting spring, substantially as and for the purpose herein specified.

5. The attaching-plates *i i*, provided with springs *l l*, on the under flats, in combination with the shouldered guide-rods, substantially as and for the purpose herein specified.

7,400. BLACKBOARD-RUBBERS. Charles J. Higgins, Indianapolis, Ind., assignor to Hadley Brothers & Kane. Patent No. 145,606, dated Mar. 17, 1874. [Filed Nov. 11, 1876.]

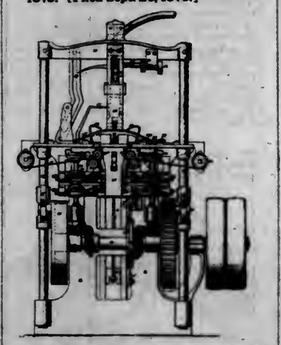


1. A holder for blackboard-rubbers, composed of two blocks, A and B, one provided with a groove, and the other with a rib or projection constructed to slide therein, and thus clamp or fasten the cloth C or other soft material to the holder, substantially as set forth.

2. The combination of the blocks A and B with the rubbing material C, said blocks being constructed to operate substantially as described, whereby one is locked to the other, and made to clamp or fasten the cloth C in place.

3. The combination of the blocks A and B with the endless band C, whereby the rubbing-surface of the band may be adjusted or changed at will, substantially as described.

7,401. PAPER-BOX MACHINES. H. S. Heyl and August Brehmer, Philadelphia, Pa., assignors to the Novelty Paper Box Company. Patent No. 132,078, dated Oct. 8, 1872; reissue No. 6,745, dated Nov. 16, 1875. [Filed Sept. 26, 1876.]



1. The blank-receptacle and graduated counterbalanced platform, combined and arranged substantially as herein described, to elevate the blanks, as required, with a force varied proportionally to the height of the pile of blanks.

2. The detent 13 14 and automatic device for temporarily releasing the same, substantially as set forth.

3. The feeder 21, constructed with one or more air-passages in its face, connected with a pipe for exhausting the air, in combination with the valve or valves operated by the descent and ascent of the feeder, by mechanism substantially as herein described.

4. In combination with staple forming and inserting mechanism, a work-support attached at one end to the machine, and provided near its free end with a staple-clinching mechanism, substantially as shown and described.

5. In combination with staple forming and inserting mechanism, two clinchers operating to bend the projecting legs of a staple down onto the material, and at angles toward each other, substantially as shown and described.

6. The combination of a bending-fork, having interior longitudinal grooves to support and guide the staple when driving, with a pair of clinching-jaws, the co-operation being such that the staple is inserted through the material in proper relation to the clinching mechanism, substantially as shown and described.

7. The combination of the bending-fork with a reciprocating hammer or driving-rod, operating by percussion to drive the staple in the process of inserting it through the material, substantially as shown and described.

8. In combination with staple-clinching mechanism, operating to bend the two projecting legs of a staple at angles toward each other, the grooved bending-fork, operating to compress the material, and a reciprocating driver, their co-operation being such that in the process of driving the staple the material is clamped, and the staple-legs are formed through it in such a position relative to the clinching mechanism as to be properly clinched thereby, substantially as shown and described.

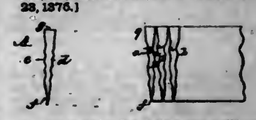
9. A reciprocating hammer or driving-rod, operating to insert a staple, and, by pressure upon its head, to hold and compress the material to be nailed thereby, while the clinchers operate to bend down and clinch the staple-legs upon the compressed material, substantially as shown and described.

10. In combination with a staple-inserting mechanism, a clincher-stock or work-support, automatically moved to and from said staple-inserting mechanism, to carry the work and present the staple-clinching mechanism in position for co-operation with said staple-inserting mechanism, substantially as shown and described.

11. In combination with the staple-inserting mechanism provided with internal staple-guiding grooves, clinching-jaws so constructed and operated that they shall stand apart to receive the legs of the inserted staple between them, and be closed together to bend the staple-legs toward each other and down onto the material, substantially as described.

12. In combination with a work-support, a head supporting the staple-inserting mechanism, constructed so as to be adjustable to and from the said support, substantially as described.

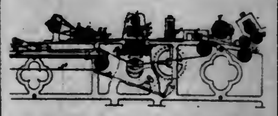
7,402. BOOT AND SHOE NAILS. Howard T. Marshall, Brockton, Mass. Patent No. 156,061, dated Oct. 20, 1874. [Filed Nov. 23, 1876.]



1. As an article of manufacture, a nail having two flat opposite sides, *a b*, a clinching end, *f*, an enlarged head, and provided with edge corrugations.

2. A nail made from a flat metallic strip, and having the tapering or wedge-shaped head *g*, edge corrugations *c d*, and clinching-point *f*, substantially as herein shown and described.

7,403. CRACKER-MACHINES. Joseph Parr, New York, N. Y., assignor to Lydia Ann McCollum, executrix of John McCollum, deceased. Patent No. 139,834, dated Nov. 9, 1876. [Filed Nov. 9, 1876.]



1. The combination of the bed-plate B and bed-supporting plate B', provided with the interposed strips *a a*, the inclined planes O' D, bar C, and screw E, for raising and lowering the bed-plate, substantially as described.

2. The combination of the main shaft I, gearing I^2 E^2 E^3, shafts S S', and bevel-gearing s^1, s^2, s^3, and s^4, for driving the rolls T T', the whole arranged as herein shown and described.

3. The arrangement of the crimping-roll W in adjustable bearings between the dough-roller T and apron-roller O', as shown and described, for the purpose specified.

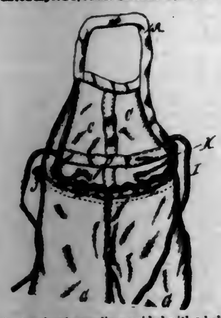
4. The scrap-roller Z, arranged to bear upon the apron which carries off the scrap, whereby said roller is driven by the friction of the dough on said apron, substantially as specified.

5. The combination of the stationary bar z^3 and the scrap-roller Z, said bar being arranged to support the scrap-apron beneath said roller Z, which bears on said apron, essentially as described.

6. The combination of the scrap-roller Z, the stationary bar z^3, and the finger-shaft y, all made adjustable together, substantially as and for the purposes herein set forth.

7. The scrap-roller Z, attached to the finger-shaft y by independent links or rods z^4, which allows its ends to rise independently of each other, substantially as described.

7,404. OVERALLS. Eli F. Stacy and John H. Stacy, Gloucester, Mass., assignors to Wm. Proudman, Jr., Albany, N. Y.; and said W. Proudman, Jr., assignor to G. R. Bager, Boston, Mass. Patent No. 125,904, dated Apr. 23, 1872. [Filed July 18, 1876.]

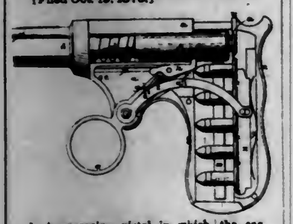


1. A pair of overalls provided with a hollow at its rear on the top, for the reception of a cord or cords, for the purposes set forth.

2. A pair of overalls provided with a hollow waist, in which is arranged a device whereby to adjust the garment, as set forth.

3. A garment consisting of the legs, breast-piece, hollow waist, and adjusting device, substantially as herein shown and described.

7,405. MAGAZINE FIRE-ARMS. H. F. Wheeler, Boston, Mass., assignor, by mesne assignments, to De Witt C. Farrington. Patent No. 66,110, dated June 26, 1867. [Filed Oct. 19, 1876.]



1. A magazine-pistol in which the cartridges are arranged in a vertical or approximately vertical chamber, forming the handle, substantially as shown and described.

2. The vertical ratchet-bar *z*, constructed substantially as described, carrying the cartridges transversely to itself, for the purpose of effecting the movement of the cartridges to bring each into position to be fired.

3. The flange groove or grooves and friction surface or surfaces for guiding and supporting the cartridges, substantially as described.

4. In a fire-arm, a magazine provided with grooves in which a series of cartridges are guided, confined, or controlled by their flanges, substantially as described.

5. The construction and arrangement of the expanding and contracting trigger-lever, by which, as the resistance to the forward movement of the barrel increases the length of the acting arm of the lever decreases, substantially as shown and described.

7,406. INKSTANDS. Saml. Darling, Providence, R. I. Patent No. 111,435, dated Jan. 31, 1871; reissue No. 6,443, dated May 25, 1875; reissue No. 6,574, dated Aug. 3, 1875. [Filed Oct. 30, 1876.]



1. The combination, in an inkstand, of an ink-reservoir, an elevated dipping-cup within the reservoir, and an ink-receiving recess in the upper part, substantially as described.

2. The combination, in an inkstand, of an ink-reservoir and a pen-gage, such gage consisting of a cup or chamber and a deep narrow cavity, leading downward from the bottom of this cup or chamber, the upper end of said cavity, which opens into the cup, being made smaller than the width of an ordinary writing-pen, when the height of the walls surrounding the cup or chamber regulates the amount of ink to be taken upon the pen, substantially as described.

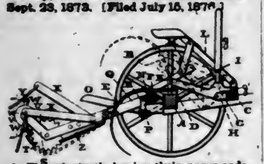
3. The combination, in an inkstand, of an ink-reservoir, a central dipping orifice or tube, an ink-receiving recess in the upper part surrounding the dipping-orifice, and a cork-hole, the lower opening of the dipping-orifice being larger than an ordinary writing-pen, and above the ink when in use, substantially as described, and for the purpose herein set forth.

4. The combination, in an inkstand, of an ink-reservoir, a central dipping-orifice, an ink-receiving recess in the upper part of the inkstand, and a deep narrow cavity in the lower part, the upper part of said deep cavity being less in size than the width of an ordinary writing-pen, substantially as described and herein set forth.

5. The combination, in an inkstand, of an ink-reservoir, a central dipping-orifice, an ink-receiving recess in the upper part of the inkstand, a deep narrow cavity in the lower part, said cavity being less in size than the width of an ordinary writing-pen, and an external recess under the bottom surrounding a central leg, which leg contains said deep cavity, substantially as described, and for the purpose herein set forth.

6. The combination, in an inkstand, of an ink-reservoir and an elastic stopper, such stopper having an air-chamber in its upper part or head, and a small air-duct through the lower part, which is inserted into the inkstand, thus providing a free passage for air from the chamber in the head of the stopper to the interior of the reservoir, substantially as described.

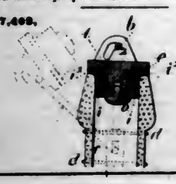
7,407. HORSE HAY-RAKES. Chas. La Dow, Albany, N. Y. Patent No. 143,166, dated Sept. 23, 1873. [Filed July 15, 1876.]



1. The rake-teeth having their upper ends bent transversely, as at *c*, in combination with the elevating cross-bar F, having its axis on said bends *c*, substantially as and for the purpose set forth.

2. The combination of yoke J, arm K, cross-bar F and its attached straps, hinged to the axle A by the bearing D D, and the right-angled ends *a a* of the rake-teeth E E, with the seat-bar L, lever G, rods I I and M, when constructed and operating substantially as and for the purpose set forth.

7,408.



7,409. STOPPERS FOR BOTTLES. F. Schlich, New York, N. Y., assignor of one-half interest to A. Feyh. Patent No. 49,793, dated Sept. 5, 1865. [Filed Oct. 5, 1876.]

1. The combination, in a bottle-stopper, of a body having an opening in the upper part, a bail having pivots at both ends and passing through the opening in the body, and an elastic surface to each body intervening between the body and the bottle, substantially as set forth.

2. A bottle-stopper having a rigid body, composed of a disk and conical projection from the disk, entering within the elastic portion of the stopper, substantially as set forth.

3. The combination, in a bottle-stopper, of a neck band, a swinging bail, pivoted at its end to the neck-band, a stopper having an elastic surface and rigid body, and a transverse opening through the body for the wire of the bail, whereby the stopper swings upon the bail-wire in opening and closing the bottle, substantially as set forth.

4. The fulcrum loops *c*, secured by the neck-band wires *d*, in combination with the bail *b* and bottle-stopper, substantially as set forth.

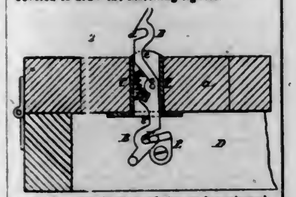
5. The elastic stopper, in combination with the tapering projection 1 and screw *o*, as and for the purposes specified.

6. The swinging bail, in combination with the elastic stopper and wing or wings 2, as and for the purposes specified.

7. The stopper formed of india-rubber, with a flange to take the top of the bottle around a central projection entering the neck, so as to render the stopper tight, as set forth.

7,409. BLIND AND SHUTTER FASTENINGS. The Star Tool Company, Middletown, Conn., assignee of A. J. Barnard, executor of W. B. Barnard, deceased. Patent No. 36,507, dated Oct. 7, 1862. [Filed Jan. 29, 1876.]

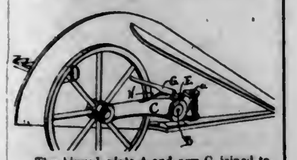
Brief.—The single latch is so bent and received that it does not project outside of the case and interfere with the insertion of the case in the circular opening bored in the shutter-frame to receive it. The catches are beveled to draw the fastening tighter.



1. The combination of the wedge-shaped studs E F, with the spring-catch B, provided with the taper recesses *d d'*, substantially as and for the purpose herein described.

2. The catch B, with recesses *d* and *e*, in combination with the socket C, constructed and arranged so that the projecting end containing the recess *d* does not project laterally beyond the interior circumference of the socket C when closed, and the recess *e* allows a sufficient lateral movement to open it, substantially as herein shown and described.

7,410. MEANS FOR ADJUSTING THE GRAIN-WHEELS OF HARVESTERS. J. D. Wright, Columbia, Tenn., assignor to Whiteley, Fassler & Kelly. Patent No. 109,461, dated Nov. 22, 1870. [Filed Aug. 23, 1876.]



The hinged plate A and arm C, joined together by a pivot-bolt, B, combined with a latch-bolt, E, and hand-lever G, located upon one of said parts, and engaging with a notched rack upon the other of said parts, for the purpose of holding said arm C and the grain-wheel in any desired adjustment, as set forth.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—SOUTHERN DISTRICT OF NEW YORK.

JACOB E. BUERK *vs.* WILLIAM IMHAEUSER *et al.*

[*In equity.—Before* JOHNSON, *J.*]

A motion for a new trial on the ground of newly-discovered evidence, in order to be allowed, must be supported by the plainest proof of the sufficiency of the newly-offered evidence to lead the court to a different result.

Affidavits not entitled in the cause are merely extra-judicial oaths, and perjury could not be assigned on them; therefore they are not receivable in court.

Notaries public have no power under the Revised Statutes to administer oaths in the United States circuit courts.

[*J. Van Santvoord*, for plaintiff.
A. V. Briesen, for defendants.]

JOHNSON, *Cir. J.*:

This is a motion, substantially on the ground of newly-discovered evidence, to vacate the decree, allow the answer to be amended, and retry the cause.

Of course such a departure from the ordinary course of the administration of justice could only be allowed for the gravest reasons and the plainest proof of the sufficiency of the newly-offered evidence to lead the court to a different result.

Upon a careful examination of the two watchmen's time-detecters, which are produced in support of the application, I am of opinion that neither of them would have been regarded by my learned predecessor as an anticipation of the patent on which the plaintiff has obtained his decree.

The essence of this he thought consisted in the dial revolving on the watch-arbor in connection with the system of varying marks, and if his judgment in this respect is in accordance with the truth of the case, as I must regard it to be, then the detecters produced, in which the dial was not placed upon the arbor of the watch, are not anticipations of the plaintiff's invention. It is, besides, objected that the material affidavits produced are neither entitled in the cause, nor sworn before an officer authorized to administer an oath in this court.

Each objection is well founded. Perjury could not be assigned on these affidavits by reason of the want of the title. They appear to be mere extra-judicial oaths, and are not receivable in this court.

It has repeatedly been ruled in this circuit that a notary public has not power since the Revised Statutes to administer an oath in this court. Such an officer had power under Sec. 2 of Ch. 159 of the laws of 1854. But as that act was revised in section 1778 of the Revised Statutes, and the power omitted, it is gone by force of the general provision contained in section 5596. Notwithstanding these obvious defects, I have thought it right to look into the merits, and upon both grounds I think the motion should be denied.

[Note.—For the information of the public it may be mentioned that since the above decision Congress has, by an act approved August 15, 1876, Ch. 304, provided that notaries public of the several States, territories, and the District of Columbia be and they are hereby authorized to take depositions and do all other acts in relation to taking testimony to be used in the courts of the United States, take acknowledgments and affidavits in the same manner and with the same effect as commissioners of the United States circuit court may now lawfully take or do.]

JACOB E. BUERK *vs.* WILLIAM IMHAEUSER *et al.*

[*In equity.—Before* JOHNSON, *J.*]

Plaintiff in equity may recover damages sustained by the infringement of his patent in addition to the profits to be accounted for.

In some cases the profits may be in excess of the amount of damages, in which event only the former are to be allowed.
The damages must be confined to the direct and immediate consequences of the infringement, and not embrace those which are both remote and conjectural.
Punitive damages are not to be visited upon a defendant who is not a wilful infringer, but manufactures under a patent.
Manufacturers' profits, as well as the cost of material, are to be deducted from the amount derived from the sale of the patented article in estimating the profit received from the invention.
The burden is upon the plaintiff to establish the amount of the damages.

[*J. Van Santvoord*, for complainant.
A. V. Briesen, for defendants.]

JOHNSON, *Cir. J.*:

Under the interlocutory decree in this case the master was ordered, among other things, to report the gains and profits, which the defendants, or either of them, have received from the manufacture, use, and sale of the patented improvement of the plaintiff, and also to assess and report the damages, if any, the plaintiff had suffered by reason of the infringement over and above the said gains and profits.

He found and has reported that the defendants up to the time when Keinath left the firm had sold sixty-one infringing time-detecters with a profit over and above the allowances be made to them for the cost and expenses of $1,748.24. That the subsequent sales of the other two defendants numbered three hundred and seventy six with a resulting profit over and above the allowance of $3,748.28.

The master further reported that the damages which the plaintiff had suffered were as follows: On the sixty-one time-detecters sold by all the defendants $53.25 on each; and on the three hundred and seventy-six sold by Imhaeuser and Hahn $53.25 on each, amounting for the latter to the sum of $20,022.00 and for the former to the sum of $3,248.25.

The defendants have excepted to the report in this particular in due form, and contend that the master has erred in this ascertainment of damages.

The method in which the master has proceeded is apparent from the report. He has ascertained from the complainant that he sells his watches at $75 each, and that they cost him about $18 each, and that on the average he pays $3.75 commissions for sales. These sums deducted from $75 give what he calls a net profit of $53.25 on each watch. This amount multiplied by the number of watches which the defendants sold produced the sums which the master has found as damages.

The Patent Act of 1870, substantially re-enacted in the Revised Statutes, gives to a successful plaintiff in an equity suit for an infringement the damages which he has sustained in addition to the profits to be accounted for by the defendants; but it by no means follows that in every case such damages are in excess of the amount of profits made by the infringer. As is said by Mr. Justice Clifford, in *Carew* vs. *Boston Elastic Fabric Company*, (5 Fisher, 108, 109,) if it appears that the injuries which the complainant sustained by the infringement are greater than the gains and profits realized by the defendants, then the complainant is entitled to recover compensation for the excess of the injuries sustained beyond the gains and profits received by the defendants, and yet in that case, although the plaintiff succeeded, the court was of the opinion that the recovery ought not to go beyond the gains and profits of the defendants.

In the present case the defendants were manufacturing under a patent of the United States the watches which are now adjudged to be an infringement of the plaintiff's patent. They were not wilful infringers, and are not, therefore, to be visited with punitive damages. It is only actual damages which are proved to have been sustained by the plaintiff that he can in any event recover. It is not enough that he may have suffered loss, for he cannot have compensation for conjectural losses. The losses must be proved and not guessed at. (*Philip* vs. *Wock*, 17 Wall. 462.)

It was not made to appear that the plaintiff could have sold his watches to the persons who purchased from the defendants. The watches have been adjudged to be identical in principle, but they differ in structure and appearance, and it cannot be known that those who bought the infringing article would have bought the plaintiff's watches under any circumstances. The difference in structure as well as the difference in price enter into that question, and no means are afforded for determining it by the proofs. (*Smith* vs. *O'Conner*, 6 Fisher, 469; *Carter* vs. *Barker*, 4 Fisher, 410.) The inquiries suggested by these cases as pertinent to the assessment of a plaintiff's damages do not warrant the adoption of a result stated in the report. The damages in such a case must be confined to the direct and immediate consequences of the infringement, and not embrace those which are both remote and conjectural.

In the *Goodyear Dental Vulcanite Company* vs. *Van Antwerp*, (9 OFFICIAL GAZETTE, 497,) Judge Nixon, speaking of the modes of ascertaining damages and profits, says:

In order to ascertain these it is equally pertinent to inquire how the owner of the patent has seen fit to use his invention. He may retain a close monopoly in it, and then the damages are computed by investigating the defendant's profits, which are reckoned a fair criterion of the complainant's loss; or he may grant license-fees, allowing the benefit of his invention to every one who will pay a stipulated price for its use.

In this the learned judge was but reiterating what had been said by the Supreme Court in granting a new trial in the case of *Seymour* vs. *McCormick*, (16 How. 488, 491.) That court declared further that—

Actual damages must be actually proved, and cannot be assumed as a legal inference from any facts which amount not to actual proof of the fact. What a patentee would have made if the infringer had not interfered with his rights is question of fact and not a judgment of law. The question is not what speculatively he may have lost but what actually he did lose. It is not a judgment of law or necessary legal inference, that if all the manufacturers of steam-engines and locomotives who have built and sold engines with a patented cut-off or steam-whistle had not made such engines that therefore all the purchasers of engines would have employed the patentee of the cut-off or whistle.

There is another error involved in this assessment of damages, and that is that the estimated profit of the patentee embraces not only that derived from the sale of the patent privilege, but also the whole manufacturer's profits upon the materials and workmanship of the whole article. When the inventor charges a royalty or license fee he isolates the value of the use of his invention, and separating it from all other things fixes its value as against himself and in favor of others. If he also makes and sells the machine in which his invention is embodied, there will enter into the price not only the cost of materials and the ordinary profit of manufacture, but also an amount of additional profit, which is, or is the equivalent of, this license fee, and adds to the price that additional sum as compensation for the invention. It is this price of the invention which the inventor is entitled to recover as damages against an infringer; and in ordinary cases it is this only. Wanton infringement may introduce other considerations, but such is the measure of damages where the case is one simply of infringements.

In cases where the patent is for a distinct improvement, separable from the rest of the article, as in the case put by the plaintiff's counsel of a wagon with a patent pole, the rule is admitted and settled. (*Seymour* vs. *McCormick*, 16 How., 491; *Gould Manufacturing Company* vs. *Cowing*, 8 OFFICIAL GAZETTE, 277; *Mowry* vs. *Whitney*, 14 Wall., 620; *American Nicholson Pa. Co.* vs. *Elizabeth City*, 6 OFFICIAL GAZETTE, 764; *Littlefield* vs. *Perry*, 21 Wal., 228.) The same principle is, I think, applicable to a case of this kind. The watch is open to the manufacture of every one, and it is common to both the plaintiff's patented article and to the infringing article of the defendant. The wrong which the case shows the plaintiff to have sustained is the use of his invention in the making by the defendants of the infringing watches. They have taken his invention and used it in making the infringing watches; and it is the value of that use the right to which belonged to the plaintiff that they have appropriated to themselves. For this the plaintiff is entitled to recover in damages; but this rule has been disregarded, and the case does not furnish any evidence which can either support the actual finding or form the basis for a correction in this respect by the court.

The burden in this respect was upon the plaintiff, and as the account of the profits made by the defendants under the evidence charges them with all that they have made by the use of the plaintiff's invention, and does not appear to be an inadequate compensation for the injury which he is shown to have suffered, a decree upon the basis of the compensation of profits contained in the report will, in my opinion, do justice between the parties.

The exception already discussed is the principal objection to the report, and covers also the third and sixth exceptions.

The second exception has no foundation in the evidence or offers of the defendants. It does not appear to have been proposed to prove that the plaintiff had any license or patent fee. The offer was only to show what amount the plaintiff had recovered in another suit, which was immaterial.

The fourth and fifth exceptions seem to turn upon the application of evidence by the master, and raise no question requiring examination.

The seventh exception is founded on an obvious mistake of the master in determining the effect of one of the exhibits. He has, by including a column of figures not forming part of the exhibit, found that the defendants had on hand forty-eight infringing watches, whereas it, in fact, only showed twenty-eight to be so on hand. It will be modified accordingly.

The decree will separate the profits and damages awarded against all the defendants, ($1,748.24,) and those awarded against Imhaeuser and Hahn, $3,748.28, and will be with interest from the date of the master's report, February 19, 1875.

It must be settled upon notice before being entered.

U. S. CIRCUIT COURT—DISTRICT OF MASSACHUSETTS.

JOSEPH M. ESTABROOK *et al. vs.* WILLIAM H. DUNBAR *et al.*

[*In equity.—Before* SHEPLEY, *J.—Decided September* 23, 1876.]

The technical claims in a patent are to be construed with reference to the state of the art, so as to limit the patentee to, and give him the full benefit of, the invention he has made.
The general terms, and sometimes special words, in the claims, must receive such construction as may enlarge or contract the scope of the claim, so as to uphold that invention which the patentee has actually made and described, when such construction is not absolutely inconsistent with the language of the claim.

OPINION OF THE COURT.

SHEPLEY, *J.*:

The invention of Estabrook is thus described in his patent, No. 85,374:

Its object is to facilitate the attachment of soles to the uppers of boots and shoes, and consists in the construction of a screw-peg having a flattened wedge-shaped point, which, when the peg is driven into the sole of a boot or shoe, will strike against the metal plate upon the last, and bend over the inner sole to form a clinch.

He then describes his screw-peg as made of *round or other wire*, which is provided with a screw-thread and a flattened, wedge-shaped point. When this wedge-pointed peg is forced by a hammer or other equivalent instrument through the holes made by awls or otherwise in the soles of boots or shoes properly lasted, it will, when it strikes the metal-covered last, have its weak point bent down, and will therefore be properly clinched over the insole. He does not claim that wire provided with a screw-thread was new as a fastening to confine the soles of boots and shoes to the uppers, but admits that screws had been before used for that purpose, but claims that these screws were screwed into their seats, that they were of conical shape, and could never be satisfactorily fastened. He states that when one of these screws was turned a little too far, so that its flat point struck the last, it would invariably tend to force the sole off the last again, and that thus a water-tight boot or shoe could not be produced. He continues—

Furthermore these screws had to be made tapering, and thus became weak on their inner ends, while my pegs can be made entirely cylindrical or prismatic.

He claims to have invented—

The driving of screw-pegs having flattened or wedge-shaped ends into the leather by means of a hammer, and to have found that the peg when thus applied will hold as fast as when screwed in. The leather being wet when the peg is applied will close tight around the peg, and will hold the same very securely. The clinching wedge shaped pegs are self-adjustable—that is, they will be clinched more or less as they are more or less too long.

Although in the specification he claims to have invented the art of driving into the leather such screw-pegs with wedge-shaped ends, and again refers to his "improved process," his technical claim is not for an art, but for the thing manufactured—his newly-invented screw-peg. Most of the questions presented at the hearing of the cause depend for their solution upon the construction to be given to this claim.

The claim is in these words:

The self-clinching metallic screw-peg A, having a flattened wedge-shaped end, whereby, as it strikes the metal plate upon the last, in the act of driving, it is adapted to be bent down into the inner sole of a boot or shoe, as herein shown and described.

The technical claims in a patent are to be construed with reference to the state of the art so as to limit the patentee to, and to give him the full benefit of, the invention he has made. They are also to be construed in connection with the specification, so as to limit the patentee to, and give him the full benefit of, the invention he has described.

The general terms, and sometimes special words, in the claims, must receive such a construction as may enlarge or contract the scope of the claim, so as to uphold that invention and only that invention which the patentee has actually made and described, when such construction is not absolutely inconsistent with the language of the claim.

Before Estabrook made his invention, shoe-nails and metallic shoe-pegs having a clinching-point had been in common use. They were like the defendants' nails, except that they were without corrugations. Prior to the date of complainants' invention nails and tacks with clinching-points had been used in various kinds of wood and leather work. Shoe fastenings of metal, having serrations upon the bodies of the nails, had been used. Screws of a conical shape had been used for fastening the soles of boots to the uppers, which screws were screwed into their seats. Cylindrical metallic shoe-pegs had been made with an exterior screw-thread. There was also in use a corrugated nail, which was well known under the name of the imported sprig. This nail had a uniform diameter from the head to the point. The head was of the usual and common form; the point was conical or four-sided; the body was corrugated or serrated, but not in the form of a true screw. The imported sprig differed from the complainants' patented screw-peg in three particulars, which (without at this time distinguishing what were material and what immaterial differences) were: first, the imported sprig had a head; the patented screw-peg is represented and described as headless; second, the imported sprig had a conical or four-sided point, apparently designed only for facilitating the insertion and driving of the nail, the patented screw-peg had a flattened wedge-shaped end, with a chisel-point, intended to bend and clinch; third, the body of the imported sprig was serrated or corrugated, while the body of the patented screw-peg is represented with a true screw-thread.

There was also in use the cable-screw fastening, which differs in form from Estabrook's only in the fact that Estabrook's has a clinching-point, while the cable screw-peg is so blunt at the entering end (which is a wedge whose sides are at an obtuse angle) that it cannot possibly clinch without crippling the peg, and will not take up the settle of the stock.

It is obvious, from this reference to the state of the art, that the claim of Estabrook must be limited to that form wherein his screw-peg differed from these shoe-fastening screws, nails, and pegs previously in use, to which reference has been made.

The description of the Estabrook invention given by Wires, the complainants' expert, is substantially accurate when he says that—

> The invention consists in a peg made of tough malleable metal, with threads or projections upon the body, with a flattened wedge-shaped clinching-point, and the body enough stronger than the point so that, when it is driven into or through the sole of a boot or shoe, and comes in contact with the iron face of the last, the point will bend over and clinch back onto the inner sole, and thereby force the stock back upon the threads or projections on the body of the nail, and thereby take up the settle and adapt itself to the varying thickness of the leather without crippling the body of the nail.

To this definition of the invention should be added that this result was effected by Estabrook by an improvement in the form of the previously-existing screw-peg and cable-screw, which improvement in form consisted, first, in substituting for a tapering form of the body of the screw a body having substantially the same size in cross-section, and substantially the same strength from the head end to the commencement of the "point" (using point in its technical sense) at the other end of the screw-peg; and, secondly, in providing a flattened wedge-shaped "point" so very much weaker than the body of the screw that the whole clinch, when the peg is driven against the armor of the last, shall be made by the bending of the wedge-shaped point, without crippling the body of the peg.

It is now obvious that the claim of Estabrook is to be construed as a claim for a self-clinching metallic screw-peg A, (*i. e.*, one having a body retaining substantially the same size and strength from the head to the clinching-point,) such body being serrated or corrugated, and having a flattened wedge-shaped end whereby, as it strikes the metal plate upon the last in the act of driving, it is adapted to be bent down into the inner sole of a boot or shoe, as in the patent is shown and described, *i. e.*, so that "the flattened, wedge-shaped end or point" alone will "bend over the inner sole to form a clinch," and so that the comparatively very rigid body of the screw-peg will not cripple or "tend to force the sole off the last again." This secures to Estabrook his invention, and limits him to the invention which he actually made—an improvement upon the shoe-peg made of wire, with a corrugated, serrated, or screw-threaded body, of substantially uniform size from head to point, by adding to it a flattened wedge-shaped end, forming a clinching-point, which bends down into the inner sole without crippling the body of the screw-peg.

The defendants make and sell a shoe-nail scarcely distinguishable, except in the form of the head, from the Field nail, so called, and other tapering and corrugated nails which were in common use. So far as the defendants' nail differs in form from nails which were old, it is merely an attempt to improve upon the form of the old corrugated, tapering-cut shoe-nail. It is not like the complainants', an improvement in the screw made by cutting off lengths of cable wire, or corrugated wire, and forming a point on one end of each piece by cutting away the metal upon opposite sides so as to form a thin wedge-shaped end with concaved sides. The two improvements relate respectively to different points of departure from entirely distinct manufactures. One vital distinguishing difference between the complainants' screw-peg and the Whidden nail is, that the complainants' screw-peg has a body continuing of the same size without tapering from the driving end to the commencement of the entering and clinching point, and this is a vital and important element in his invention, while the defendants' nail is cut tapering from the driving to the entering end of the nail without any such wedge shaped flattened end or point, separate from the body of the nail or peg, as distinguishes the complainants' invention. Other differences are clearly pointed out in the testimony of Mr. Waters and Mr. Hibbard, the experts on the part of the defendants, who have given a very clear and accurate history of the state of the art. The differences, however, which I have pointed out are sufficient to prove that the defendants' nail is not an infringement upon the complainants' screw-peg. I find myself unable to give any construction of the complainants' patent for a manufactured article which would cover the defendants' manufacture without at the same time embracing what was older than complainants' invention, and thus invalidating their patent. The conclusion to which I have arrived is that the complainants have a good and valid patent, but that the defendants have not infringed.

Decree in favor of defendants to be drawn up and submitted to the Court.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 5, 1876.]

9,661.—Glass and Earthen Ware.—JOHN E. HEUACKER, Newark, N. J. Application filed November 22, 1876. Term of patent 14 years.

9,662.—Rubber Shoes.—CHRISTOPHER MEYER, New Brunswick, N. J. Application filed October 16, 1876. Term of patent 7 years.

9,663 and 9,664.—Drawer-Pulls.—WILLIAM N. WEEDEN, Waterbury, Conn., assignor to BENEDICT & BURNHAM MANUFACTURING COMPANY, same place. Applications filed November 22, 1876. Term of patents 7 years.

9,665.—Font of Printing-Types.—RICHARD SMITH, Philadelphia, Pa., assignor to MACKELLAR, SMITHS & JORDAN, same place. Application filed November 13, 1876. Term of patent 14 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 5, 1876.]

4,166.—Coffee.—BELL, CONRAD & Co., Chicago, Ill. Application filed November 9, 1876.
"The word-symbol 'ANKORIA.'"

4,167.—Piano-Fortes.—F. G. SMITH, New York, N. Y. Application filed September 26, 1876.
"The word-symbol 'BRADBURY.'"

4,168.—Flax Thread.—BARBOUR BROTHERS, New York, N. Y. Application filed November 14, 1876.
"The word-symbol 'SINEW.'"

4,169.—Hams, Pork, Lard, and Beef.—WASHINGTON BUTCHER'S SONS, Philadelphia, Pa. Application filed November 2, 1876.
"The letters 'I.-XL.'"

4,170.—Chewing-Tobacco.—W. H. CROSSMAN & BROTHER, New York, N. Y. Application filed November 18, 1876.
"The arbitrarily-selected words 'CAPTAIN COOK.'"

4,171.—Chewing-Tobacco.—W. H. CROSSMAN & BROTHER, New York, N. Y. Application filed November 18, 1876.
"The word-symbol 'HARLEQUIN.'"

4,172.—Rubber Water-Proof Garments.—CONANT BROS., Boston, Mass. Application filed October 4, 1876.
"The word-symbol 'EXCELSIOR.'"

4,173.—Medical Preparation.—JOHN FARRIRA, Philadelphia, Pa. Application filed October 17, 1876.
"The word-symbol 'CONTINENTAL.'"

4,174.—Collars.—EDWARD J. FROST, Philadelphia, Pa. Application filed November 24, 1876.
"The representation of a drum."

4,175.—Cigars.—S. FUGUET & SONS, Philadelphia, Pa. Application filed November 22, 1876.
"The word-symbol 'PRIDE OF,' in connection with the representation of a key."

4,176.—Volta or Electro Galvanic Goods for Medical Purposes.—JOHN E. HETHERINGTON, Cincinnati, Ohio. Application filed October 5, 1876.
"A symbol or device consisting of the representation of a group of elements arranged to form a volta-galvanic or electric chain or battery, or a part of a chain or battery, from which lightning-flashes proceed. Across the face of the above-described symbol are arranged the words 'Pulvermacher Galvanic Co.,' and below it a correct fac-simile of the autograph signature of J. L. Pulvermacher."

4,177.—White Lead.—SAMUEL JACOBS, New York, N. Y. Application filed November 18, 1876.
"The arbitrary words 'GOLD SEAL.'"

4,178.—Under-Drawers.—JOHN C. JONCKHEER, New York, N. Y. Application filed July 7, 1876.
"The representation of a bond or belt of a pair of drawers, substantially as herein represented, and having above it the word 'Jonckheer' with the surrounding border, as represented."

4,179.—Plug-Tobacco.—P. LORILLARD & Co., New York, N. Y. Application filed November 21, 1876.
"The fanciful or arbitrary words 'TIN TAG.'"

4,180.—Tobacco.—P. LORILLARD & Co., New York, N. Y. Application filed November 21, 1876.
"The fanciful or arbitrary words 'TIN TAG.'"

4,181.—Cement.—LOVEGROVE & Co., Philadelphia, Pa. Application filed November 1, 1876.
"The arbitrary words 'ROCKY MOUNTAIN.'"

4,182.—Barn-Door Hangers.—S. H. & E. Y. MOORE, Chicago, Ill. Application filed November 18, 1876.
"The word-symbol 'CLIMAX.'"

4,183.—Cigars and Tobacco.—MCCOY & SOULLIER, New York, N. Y. Application filed November 23, 1876.
"The word-symbol 'POLO.'"

4,184.—Cigars and Tobacco.—V. MARTINEZ YBOR & Co., New York, N. Y. Application filed November 22, 1876.
"The representation of a male human figure supporting a star on his shoulders."

4,185.—Goods for Suitings, known as Jeans.—PECKHAM MANUFACTURING COMPANY, Coventry, R. I. Application filed August 14, 1876.
"The fanciful words 'SPRING LAKE.'"

4,186.—Goods for Suitings, known as Tweeds.—PECKHAM MANUFACTURING COMPANY, Coventry, R. I. Application filed August 14, 1876.
"The word 'Coventry' and the female figure."

4,187.—Cigars and Tobacco.—STRAITON & STORM, New York, N. Y. Application filed November 20, 1876.
"The representation of two drummers and one fifer leading soldiers into battle."

4,188.—Cigars and Tobacco.—STRAITON & STORM, New York, N. Y. Application filed November 20, 1876.
"The word-symbol 'OLD TIMES.'"

4,189.—Advertising-Signs.—THE NEW YORK ADVERTISING SIGN COMPANY, New York, N. Y. Application filed November 25, 1876.
"The representation of the Falls of Niagara and the words 'The New York Advertising Sign Co.'"

4,190.—Cutlery.—THEILE & QUACK, Elberfield, Germany. Application filed October 11, 1876.
"The letter 'A,' the numeral '1,' and a star arranged between the said numeral and letter."

4,191.—Pens.—TURNER & HARRISON, Philadelphia, Pa. Application filed November 20, 1876.
"The representation of the head of a bird."

4,192.—Grocers' Drugs and Sundries.—SAMUEL WILDE'S SONS, New York, N. Y. Application filed September 6, 1876.
"The representation of a boar's head."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 5, 1876.]

918.—Title: "**Beardsley's Shredded Codfish.**"—J. W. BEARDSLEY & SONS, New York, N. Y. Application filed November 4, 1876.

919.—Title: "Compressed Yeast."—GAFF, FLEISCHMANN & Co., Cincinnati, Ohio. Application filed November 25, 1876.

920.—Title: "The New York Advertising Sign Co."—KISSAM & ALLEN, New York, N. Y. Application filed November 10, 1876.

921.—Title: "La Vert Compound Vegetine Extract of Helianthus Annuus, or Common Sun-Flower."—SAN FRANCISCO MANUFACTURING COMPANY, Chicago, Ill. Application filed September 29, 1876.

NOTICE TO MANUFACTURERS AND OTHERS.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

As 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

THE illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

Patent Office coupons, which purchase a copy of any drawing which has been photolithographed, are sold singly by the Chief Clerk at twenty-five cents each, or twenty coupons at one time for two dollars.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

All letters to the Patent Office must be addressed to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

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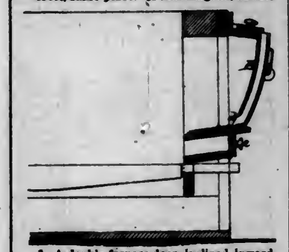
PATENTS GRANTED DECEMBER 5, 1876.

184,948. SEDIMENT-COLLECTORS FOR STEAM-BOILERS. Joseph J. Adgate, New York, N. Y., and Francis Hickman, Reading, Pa. [Filed Apr. 24, 1876.]



In a steam-boiler, a sediment-collector consisting of a series of pans, B, supported upon feet extending lengthwise of the boiler, slightly separated from each other by means of projections on the walls of the pans, and independently removable from each other, substantially as and for the purposes herein set forth.

184,949. FURNACE-DOORS. John Ashcroft, Brooklyn, N. Y., assignor to Sarah J. Ashcroft, same place. [Filed Aug. 14, 1876.]



1. A double furnace-door, inclined inward, and curved from top to bottom, to direct the currents of air, and open also at top and bottom, provided with a register to regulate the admission of air.

2. The combination of the hinged dead-plate with an opening or door, *e*, substantially as described.

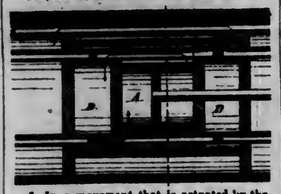
184,950. THREAD-CUTTERS FOR SEWING-MACHINES. O. H. Bayley, Boston, Mass. [Filed Aug. 17, 1876.]

Brief.—The threads (when a piece of work is about to be removed) are drawn between the spring and the presser-foot, and are cut by the cutter, and the ends held by the spring, ready to commence the next seam.



The combination and arrangement of the spring C, attached by its front end to the vertical edge of the presser-foot, and adapted to press hard against the same and a rule, the cutting-edge of which extends horizontally, or nearly so, across the line of division between said spring and the presser-foot, and located between the rear or movable end of said spring and a horizontal line drawn through the center of the needle, and at right angles to the line of feed of the work, substantially as described.

184,951. COMPOUND ENGINES. R. Rogerdus, Rome, N. Y. [Filed Jan. 22, 1876.]



1. In a movement that is actuated by the mechanical properties of fluids, the combination of one cylinder and two pistons—viz., the cylinder-piston A and piston C, so that O moves with A when A acts as piston, and through A when A performs the function of cylinder, substantially as and for the purposes set forth.

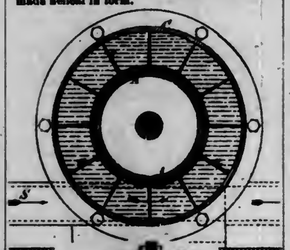
2. The combining of cylinder B, cylinder-piston A, piston C, and rod G, as arranged that the piston-rod G will be produced a distance equal to the sum of the travel of all the pistons in the system, substantially as described.

3. The four-way valve-box, arranged in combination with cylinder-piston A and cylinder B, to operate substantially as described.

4. The arrangement, in a system of cylinders and pistons, of the means, substantially as described, for actuating one piston only at a time, each piston, after it is moved its throw, remaining stationary as to its cylinder until all the pistons reach the end of their strokes.

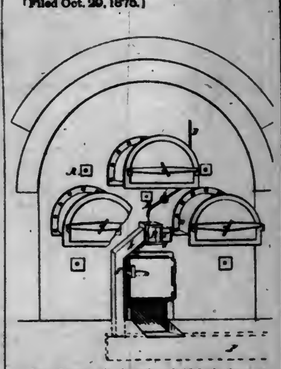
184,952. ROTARY PUMPS. Matthew P. W. Boulton, Tew Park, and John Imray, London, England, assignors to Geo. Westinghouse, Jr., Pittsburg, Pa. [Filed Nov. 6, 1876.]

Brief.—The wheel and its floats are inclosed within a casing, part of each side of which is made helical in form.



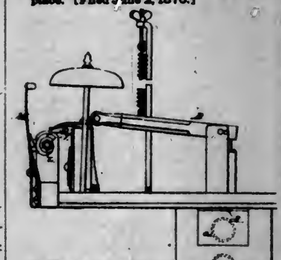
The combination, substantially as herein described, constituting a rotary helical pump, each combination consisting, mainly, of a wheel, A, with floats *a*, mounted within a cylindrical casing, C, having helical sides *c' c'*, forming guides for fluid, and terminating in tangential channels S and D, so that when the wheel is caused to rotate fluid is drawn in by the one channel and discharged by the other.

184,953. FURNACES FOR BURNING FLUID FUEL. Henry A. Branch, Hillsdale, Mich. [Filed Oct. 29, 1876.]



In a furnace for burning fluid fuel, the combination of the air-line F, having its induction or air-receiving port or mouth arranged in the open air, and externally to the chamber in which the furnace is arranged, bench A, shelf B, box or chamber B, entered by the line F drip-pipe D, terminating over the said shelf, door or stopper T, and cock *i*, all arranged substantially as shown and described with relation to each other, and for the purposes set forth.

184,954. COUNTING ALARM APPARATUS. F. L. Burns, Boston, Mass., assignor of one-half his right to Spaulding & Co., same place. [Filed June 2, 1876.]



1. The rod A, the lever B, the radius-piece H, with its pawl J, ratchet K, and cam L, combined and operating substantially as described.

2. In a machine which feeds paper or other material between rolls, or between a roll and a flat surface, the combination of a roll, which is free to move upward and downward with a rod actuated by the upward and downward movement of the roll, which operates a lever at its shorter end, which lever is retracted by a spring, with a ratchet and pawl, arranged to move the ratchet but one tooth at each vibration of the lever.

3. In a registering apparatus, substantially as described, a rod to receive and transmit an upward and downward motion, a lever having a long and a short arm, and a bell.

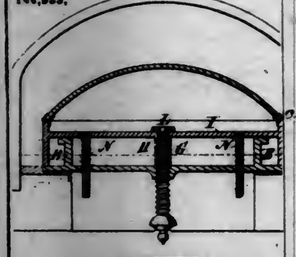
184,955. VENTILATING-SKYLIGHTS FOR VESSELS, &c. Daniel Condon, Port Madway, Nova Scotia, Canada, assignor of one-half his right to Edwin C. Seely, same place. [Filed Oct. 12, 1876.]

1. The ventilating-skylight, substantially as described, adapted to be adjusted with reference to the opening which it covers, by means substantially such as specified.

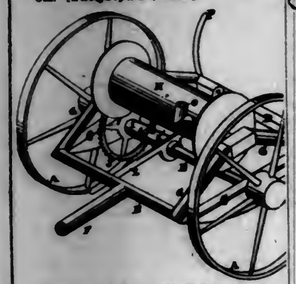
THE GRAPHIC CO. N.Y.

2. The combination, substantially as specified, of the ventilating-skylight, the screw for adjusting it, and the springs N.

184,955.



184,956. COMBINED HOSE-CART, REEL, AND IRRIGATOR. Edw. J. Delaney, San Jose, Cal. [Filed Sept. 26, 1876.]

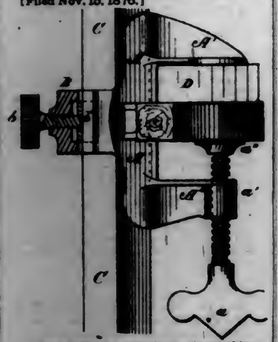


1. The wheels A A, connected by the axle H, in combination with the frame, consisting of the angle-iron sides C C, angle-iron rear rails D, and front tubular rail E, bracing-tubes G G, and reel H, substantially as and for the purpose described.

2. The hose-reel H, mounted on a cart, and provided with the toothed wheel K, in combination with the loose sleeve I on the axle, with its toothed wheel J, and the sliding clutch K', operated by the lever L, substantially as and for the purpose described.

3. The reel H, provided with the short tube O, said tube being connected by a water-passage through the reel and cart-frame, with the tubular pole F, in combination with the feet P on the rear end of the cart-frame, substantially as and for the purpose described.

184,957. CLAMPS FOR QUILTING-FRAMES. Issachar W. Doog, New Market, N. H. [Filed Nov. 15, 1876.]



1. In a quilting-frame clamp, the combination of the jaws A' and A'', clamping-screw c, with the eye B', projection B, sliding clamp b', and bolting-screw b, substantially as described.

2. The combination of the clamp A, constructed as described, and the supports C, with the rails D and E of quilting-frames, as and for the purposes described.

184,958. TOY PISTOLS. Howard M. Du Bois, Philadelphia, Pa., assignor to B. H. Allen and Jno. Cather, same place. [Filed Apr. 22, 1876.]



1. The elastic band D, having its ends secured to ring d on the barrel A, passing around breech-piece c, and engaged in transverse groove e in its end, substantially as specified.

2. The projector-rod C, having cylindrical enlargement a, with transverse groove c in its end, and the elastic band D, engaged in the said groove, in combination with a barrel, A, open at both ends, and having a ring, d, for the attachment of the band, substantially as specified.

3. The curved trigger E, having spur f, and vibrating in a slot upon the under side of the barrel, the plunger C, filling the bore of the barrel, and holding the spur out of the same, and the elastic band, embracing the barrel and trigger, in front of the pivot of the latter, combined and arranged as and for the purpose set forth.

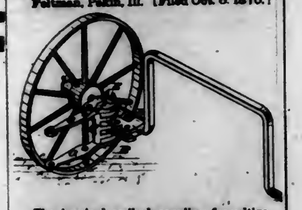
4. The toy pistol herein described, consisting of an open-ended barrel and a stock or handle, made in one piece, a projector-rod having a circumferentially-grooved enlargement on one end, and the elastic band, secured to the sides of the barrel, and passing around the transversely-grooved end of the enlargement, as specified.

184,959. HEMMERS FOR SEWING-MACHINES. M. Duff, Benton, Ill. [Filed Mar. 30, 1876.]

Brief.—The scroll is stationary, and the plate or tongue which goes inside the fold, and the plate to press the cloth down, are adjustable.



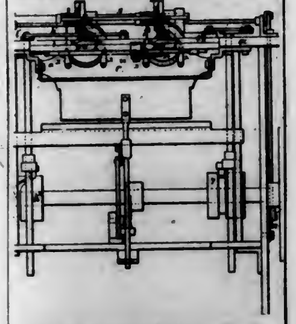
184,960. CULTIVATOR-COUPLINGS. Henry Feltman, Pekin, Ill. [Filed Oct. 6, 1876.]



The herein-described coupling for cultivators, consisting of the sleeve D, having one or more leaves or flanges, e, provided with a series of holes, in combination with the clevis a, provided with the series of perforated ears f, substantially as shown and described.

184,961. BOOK-SEWING MACHINES. Geo. W. Glazier, Salem, assignor to the Smyth Manufacturing Association, Lynn, Mass. [Filed Apr. 3, 1876.]

Brief.—The signatures to be sewed in placed upon a holder, C, having semicircular slots, and by suitable mechanism is brought under the semicircular needles carrying threads. These needles then pass through the saw-cuts and slots, and the threads are then caught by bobbins carrying the back-cords, when the needles are retracted and the signature moved forward by the traction-cords, and left upon an adjustable table. As the sewing thus progresses, a catch-stitch cord is interlaced with the back-cords as they unite the several signatures.



1. The sheet-holder c, made with a notched edge, containing a groove for the needle, in combination with a semicircular or segmental needle, substantially as set forth.

2. The sheet-holder c, having the gage-points 2 at the ends of the segmental groove for receiving the sheet, in combination with the segmental needle, substantially as set forth.

3. In a book-sewing machine, the combination of a sheet-holder, a segmental eye-pointed needle, a shuttle carrying the back-cord for the book, and mechanism, substantially as specified, for communicating the relative movements to the parts, as specified.

4. The combination, with the back-cords of the book, and the means for supplying the same and sewing the sheets to such back-cords, of means, substantially as shown, for drawing such back-cords along progressively as the sewing is performed, and rendering the sewing sufficiently loose, substantially as set forth.

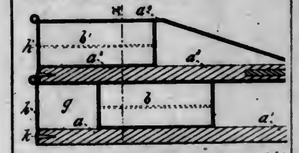
5. The method herein specified of interlacing a catch-stitch cord with the needle-threads in sewing books, by causing the needle to pass at one side of each cord at one stitch, and at the other side of each cord at the next stitch, substantially as set forth.

6. The traction-cord S, book-back cord, drums 10, and shaft o, actuated as set forth, in combination with the shuttles n, segmental needles f, sheet-holder c, and mechanism for moving the needles, shuttles, and sheet-holder, substantially as set forth.

7. The eyes 22, rods o o', and pawl 24, in combination with the shuttles, shuttle-drivers, and segmental needles, substantially as set forth.

184,962. POLISHING-MACHINES. Wm. H. Goodchild, New York, N. Y. [Filed Mar. 29, 1876.]

Brief.—The upper box is for polishing common articles, and the lower for silverware. The upper box has two receptacles—for wet and dry polish—and a polishing-surface. The lower has three receptacles—for chamois-skins, wet and dry polish, and a polishing-surface. The smaller box is placed upon the larger, and held in place by the projecting rim on the latter. Both boxes have covers. A wooden hand-rubber has projections of felt from the rubbing-face thereof.



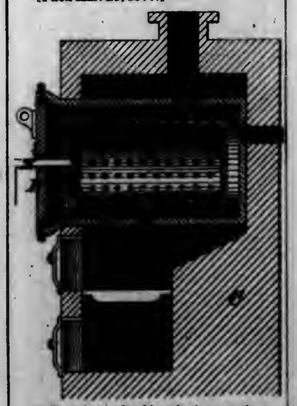
1. The knife and fork cleaning box A, with its receptacles b' c', rubbing-surface a', and cover a', substantially as and for the purpose herein specified.

2. The knife and fork cleaning box B, with its receptacles b, c, and g, rubbing-surface a', and cover a, substantially as and for the purpose herein set forth.

3. The combination of box A and box B by projections e, substantially as and for the purpose specified.

4. The hand-rubbers D, with projections d' d' from the rubbing-faces thereof, substantially as and for the purpose set forth.

184,963. PROCESSES AND APPARATUS FOR THE MANUFACTURE OF CHARBON-ROUX. Geo. L. Harrison, Jr., Philadelphia, Pa., assignor to Harrison Bros. & Co., same place. [Filed Mar. 29, 1876.]



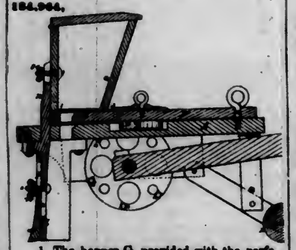
1. The process of making charbon roux herein described, which consists in subjecting billets of wood to heat under agitation, substantially as described.

2. The combination of the furnace C, retort A, and revolving cage L, substantially as described.

3. The combination of the retort A, having removable head-plate D, and pipe G, with the revolving cage L and furnace C, substantially as described.

184,964. SEED-PLANTERS. G. B. Herrick, Lyonsfield Centre, Mass. [Filed May 22, 1876.]

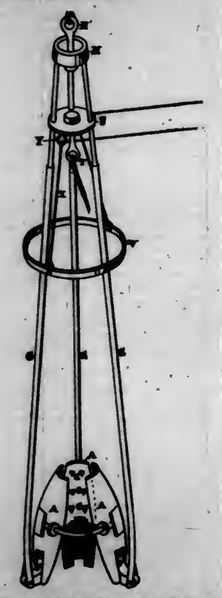
184,964.



1. The hopper G, provided with the perforated bottom and the closing-slide I thereto, removable with the hopper, in combination with the agitator F and its perforated disks d e, as described, for regulating the discharge of the seed.

2. The combination of the agitator F with the adjustable cam E, as described, to operate with the cam-wheel D, as specified.

184,965. DEVICES FOR PULLING PILES AND POSTS. R. Hillyer, San Francisco, Cal., assignor of one-half of his right to R. Harris. [Filed Sept. 26, 1876.]



1. A griper for pulling wooden piles, consisting of three or more jaws, A A A, attached to a ring, B, at or near their middles, and having the rods G attached to their lower ends, substantially as and for the purpose described.

2. The jaws A A A, suspended by a ring, B, at or near their middles, said jaws being convex longitudinally and concave transversely, and having the spurs or teeth C C on the upper half, in combination with the pulling-rods G G G, applied to the lower ends, substantially as and for the purpose described.

3. The jaws A A A, suspended by a ring, B, at or near their middles, and slotted at their lower ends, in combination with the dog F and suspending-rods G G G, substantially as and for the purpose described.

4. In combination with a series of griping-jaws, suspended from rods G G G, the plates B, arranged to slide upon the rods G G G, and provided with the depending eye-bolt T, substantially as and for the purpose described.

5. The ring V, for dropping down over the suspending-rods G G G, for opening the griping-jaws, substantially as and for the purpose described.

184,966. MAGNETO-ELECTRIC MACHINES. Alfred G. Holcombe, New York, N. Y. [Filed Oct. 7, 1876.]



The revolving armature C, consisting of a soft-iron ring, disk, or cylinder, either solid or hollow, wound longitudinally, and insulated by a series of independent sections or bobbins made of insulated electrical conductors having free ends, substantially as and for the purpose specified.

184,967. WATCHMEN'S TIME-DETECTORS. W. Imhaeuser, Brooklyn, N. Y., assignor to Miss Imhaeuser, same place. [Filed Oct. 19, 1876.]



1. In a watchman's time-detector the combination of the lid D with the double-edged knife c, which passes through the disk in opening and in closing the lid, substantially as and for the purpose herein shown and described.

2. The combination of the lid D and double-edged marker E with the shell A and slotted disk B, substantially as described.

3. The combination of the lid D and marker E with the shell A, disk B, and box g, substantially as herein shown and described.

184,968. ELEVATED RAILWAYS. Job Johnson, Brooklyn, N. Y. [Filed Oct. 5, 1876.]

Brief.—The transverse and longitudinal girders are composed of iron tubes arranged in and clamped by iron blocks. The blocks are connected together by parallel and diagonal stay or brace rods. The clamping-blocks of the longitudinal girder are made so as to clamp and hold the track-rails.



1. In a tubular truss or girder, the connecting trestle-blocks formed in two parts, bolted together, and having semicircular recesses for the tubes and longitudinal ribs or flanges running at right angles to the tubes, for strengthening the trestle-blocks, substantially as set forth.

2. The combination of the tubes c, trestle-blocks e, and rails v, the latter being clamped by the jaws at the upper ends of the trestle-blocks.

3. The combination, in an elevated railway, of transverse girders and longitudinal rail-beams, each made of tubes and trestle-blocks, and bearing-blocks upon the girders receiving the end blocks of the rail-beams, substantially as set forth.

4. The transverse girder composed of the tubes c, end blocks d, trestle-blocks f, supplemental trestle-blocks l, connecting-bars d^2, and tie-rods m, as set forth.

5. The track-beam or girder composed of the tubes c, end blocks r, trestle-blocks u, supplemental trestle-blocks s, connecting-bars r^2, tie-rods t, and rail v, the latter forming also a member of said girder, as set forth.

6. The combination, in a tubular girder, of the longitudinal tubes c c, the transverse trestle-blocks, and the intermediate smaller tubes c, substantially as set forth.

7. The two-part end block r, or supplemental trestle-block s made with a slip portion surrounding the base of the rail, and

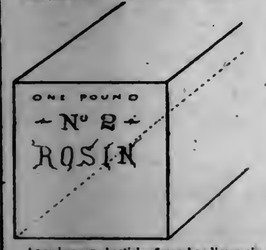
with one part extended up even with the tread of the rail, for the purposes specified.

8. The trestle-block *f*, made in two parts, bolted together, and clasping the tubes *c*, and with a packing of lead between said tubes and block, for the purposes set forth.

9. The end block *d*, made in two parts, bolted together, with lead between the surfaces coming in contact, and provided with holes or openings to receive the ends of the tubes *c*, as set forth.

10. The combination, with the longitudinal and transverse girders, of braces P P inserted at the angles between said girders, when such braces are curved or elliptical, for the purposes set forth.

184,969. PACKING ROSIN AS AN ARTICLE OF COMMERCE. Harding Johnson, Wilmington, N. C. [Filed Nov. 17, 1876.]



As an improved article of merchandise, rosin either melted and molded into shape, cut into blocks, or powdered and packed, as described.

184,970. GRASSHOPPER-CATCHERS. Elisha Kenworthy, Walnut, Iowa. [Filed Oct. 7, 1876.]

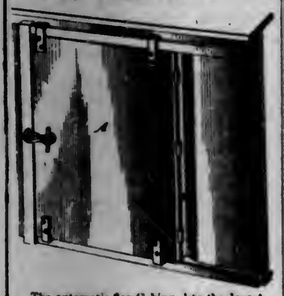
Brief.—A box having a perforated bottom, with a reciprocating cutter, surmounted by a metallic apron, is mounted upon the cutter-bar of a mowing or reaping machine, and connection made with the connecting-rod of the machine, thus giving the bar a reciprocating motion.



1. The combination of a trough, a sickle operating therein, and the pitman of a reaping-machine, substantially as specified.

2. The inclined platform *e*, in combination with a spring support, and the trough *a*, substantially as set forth.

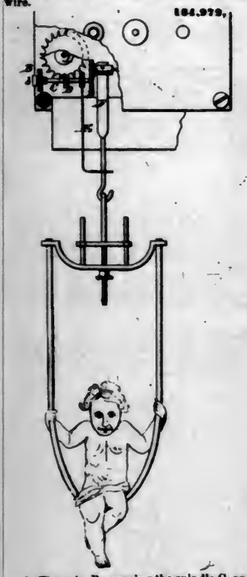
184,971. CAR-DOORS. G. B. Kiteley, Louisville, Ky. [Filed Nov. 7, 1876.]



The automatic flap C, hinged to the door A, and acting in combination with the bar B, for the exclusion of sparks, substantially as set forth.

184,972. CLOCK-MOVEMENTS. F. Kroeber, Hoboken, N. J. [Filed Nov. 2, 1876.]

Brief.—The escapement-spindle, arranged at right angles to the other spindles of the clock-movement, is hung in a yoke, which also supports the pendulum-spring and crutch-wire.

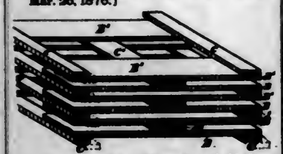


1. The yoke B, carrying the spindle C, upon which the pendulum-anchor and crutch-wire are mounted, combined with the adjusting-screw *b*, substantially as herein shown and described.

2. In combination with the yoke B, the supporting-pin *c*, and adjusting and fastening screw *d*, substantially as and for the purpose described.

3. The yoke B, made with the projecting lug or block *a*, for supporting the pendulum, combined with the spindle C, crutch-wire, and anchor, substantially as herein shown and described.

184,973. CAR-SPRINGS. J. S. Lash, Philadelphia, Pa., assignor of one-half his right to C. Chambers, Jr., same place. [Filed Mar. 20, 1876.]



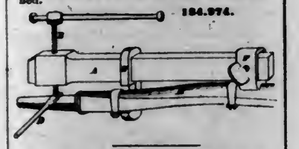
1. The combination of the sections A A', the latter having cleats or ribs D, the elastic plates B F', and interposed bars C C', the several parts being constructed and arranged for operation substantially as shown and set forth.

2. A car-spring composed of a series of graduated plates, or plates of varying thicknesses laid one upon the other with interposed movable fulcra or supports, so as to cause said spring to ride easily under a light as well as a heavy load, substantially as shown and described.

184,974. MACHINES FOR SETTING VEHICLE-AXLES. Louis Lindstrom, Chicago, Ill., assignor of one-half his right to Alfred S. Miller. [Filed Dec. 17, 1875.]

Brief.—A lateral adjustment of the axle is obtained by means of a guide-lever notched in its under side, and having an opening, in which fits the pointed end of a set-screw, passing through the outer end of the main bar.

In a machine for setting axle-trees, the bar A, in combination with the clamp E, clamp-rest F, guide-lever D, and set-screw B, when constructed and arranged to operate substantially in the manner and for the purpose specified.



184,975. SADDLE-BLANKETS. J. R. McCormick, Georgetown, Tex. [Filed June 10, 1876.]



1. A saddle-blanket, composed of layers of rubber and canvas, having the ventilating sweat-grooves transversely arranged on each side of the central or backbone-groove, and the intermediate cushions of rubber, substantially as specified.

2. A saddle-blanket, having an inner layer of canvas, ventilating-grooves, and fastening-loops, substantially as specified.

184,976. BARREL-COVERS. D. T. McClellan and Thos. J. McBride, Mount Vernon, Ohio. [Filed Aug. 21, 1876.]

Brief.—The hinged cover is detachably secured to the barrel by means of two separate pronged bars, bent so as to enter the outer side, or a single pointed bar, which enters the inner side, both adjustable through guides attached to the cover by a reversely screw-threaded rod operated by a thumb-nut.



1. A lid-fastener consisting, essentially, in the combination, with two separate pronged or pointed bars, of an intermediate reversely screw-threaded rod, whereby the engaging-bars may be readily adjusted, substantially as and for the purpose set forth.

2. The combination, with the bars C C, supported in guides B B, secured to the lid of a tub or other receptacle, of the reversely screw-threaded rod D and thumb-nut *d*, substantially as and for the purpose set forth.

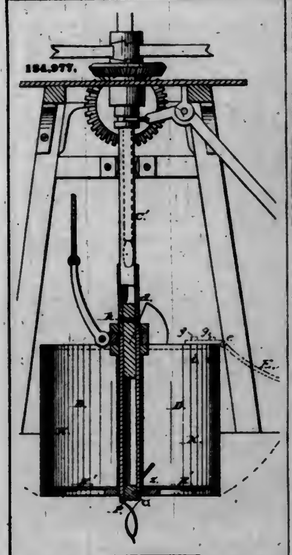
184,977. EARTH-AUGERS. F. W. McCain and J. J. Purinton, East Liverpool, Ohio. [Filed Apr. 15, 1876.]

Brief.—The shaft-sections are united by a socket-and-pin joint, having the shoulders of the socket beveled. The bucket and shaft are connected together by a self-locking device, consisting of a pin on the lower end of the shaft, which engages with a bayonet-joint slot in the auger-bottom. The reamers at the upper side of the auger-bucket are hinged adjustably to turn down when the bucket is withdrawn from the well.

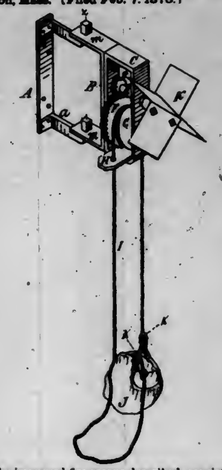
1. In combination with an earth-auger, the shaft C C', the sections being connected by a socket and pin joint, having the shoulders beveled longitudinally, as described, and for the object set forth.

2. In combination with the bucket D, and the stem C C', the self-locking device of the notch Z, and the pin P, constructed and operating as described, and for the object set forth.

3. In combination with an earth-auger, the reamers E E, hinged so as to turn down alongside of the bucket when it is withdrawn from the well, for the object specified.



184,978. FIRE-ESCAPES. M. Neville, Boston, Mass. [Filed Feb. 7, 1876.]



The improved fire escape described, consisting of the frame B C, provided with the arms *m m*, the shaft *d*, provided with the gear *e* and fan K, the gear F, pulley G, cord I, and sack J, provided with the hooks K K, combined and arranged to operate substantially as set forth and specified.

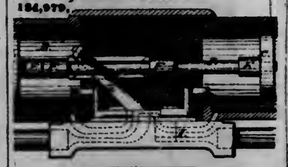
184,979. FLUID-METERS. Jno. R. Norfolk, Salem, Mass. [Filed Sept. 20, 1876.]

Brief.—The motion of the slide-valve is regulated by the pistons striking the latches, and allowing the spring to act upon the valve.

1. In a fluid-meter, the combination and arrangement of the spring E with the stirrup G and dog F, operated directly by the piston-rod, and used to move the valve O, substantially as set forth.

2. In a fluid-meter, the latches H H, operated by the pistons C C, for the purpose of controlling the movement of the valve O, substantially as set forth.

3. In a fluid-meter, the combination, with the mechanism for moving the valve by the direct action of the pistons through the spring R, of the latches H H, by which the movement of the valve is controlled.



184,980. RAILROAD-RAIL CHAIRS. J. Peck, Boston, Mass. [Filed Sept. 11, 1876.]

Brief.—The joint or sill plate extends beyond the outer and inner edges of the rail and sill, and flush with the tread and bearing plate of the rail. The sill-plate is beveled at both ends, to facilitate replacement of cars that have been thrown from the track.

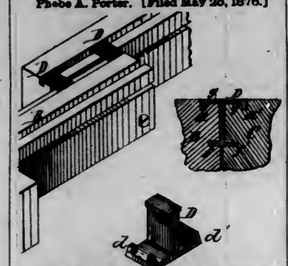


1. In combination with a railway-rail, the two wheel-flange guides *b b'*, arranged therewith, and provided with the two bevels or inclined planes *d e* disposed on them and with the rail, all substantially as set forth.

2. A railway-chair provided with the two wheel-flange guides *b b'*, arranged therewith, and provided with incline planes or bevels *d e* to each of them, all being essentially as shown and described.

3. A railway-chair having the sleeper-clasping flanges *f f*, and the two beveled flange-guides *b b'*, arranged substantially as explained and represented.

184,981. SLIDES FOR EXTENSION-TABLES. H. G. Porter, Columbus, Ohio, assignor to Phebe A. Porter. [Filed May 26, 1876.]



1. The upper casting or metallic connection D, provided with the two upper horizontal flanges *g g*, both of equal thickness, and the lips *d d'* and flanges *f f'*, substantially as and for the purposes set forth.

2. The lower casting E, provided with two horizontal flanges, *e* and *e'*, of unequal thickness, the thinner flange allowing room or play to prevent the slide from binding; substantially in the manner set forth.

3. The metallic connection D, in combination with the slides A B C, substantially in the manner and for the purposes set forth.

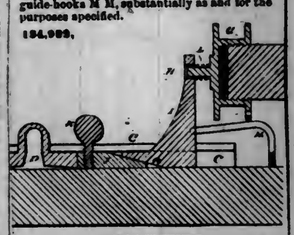
184,982. CURTAIN-FIXTURES. R. J. Poupirl, Chicago, Ill. [Filed Mar. 13, 1876.]

Brief.—The devices carrying the curtain-roller are adjustably arranged on a cornice-strip, which is secured to the window-casing by hooks.

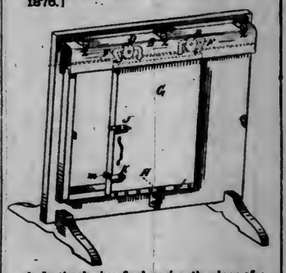
1. The combination of the roller F, laterally-adjustable pulleys G G, laterally-adjustable bearings or brackets I I, guides C C, sliding blocks J J, and screws K K, substantially as and for the purposes specified.

2. The combination of the roller F, laterally-adjustable pulleys G G, laterally-adjustable bearings or brackets I I, guides C C, sliding blocks J J, screws K K, and adjustable loops D D, substantially as and for the purposes specified.

3. The combination of the roller F, provided with the pulleys G G, having elongated spindles or arbors H H, springs L L, arranged on the said spindles, the laterally-adjustable bearings or brackets I I, and the guide-hooks M M, substantially as and for the purposes specified.



184,983. CAR-DOOR-HANGING DEVICES. B. B. Pratt, Norwood, Mass. [Filed Oct. 14, 1876.]



1. In the device for hanging the door of a car, the runlet B, provided with the flanges G, and otherwise constructed and arranged to operate substantially as set forth and specified.

2. The door G, lugs F, sheaves D, and runlet B, combined and arranged to operate substantially as specified.

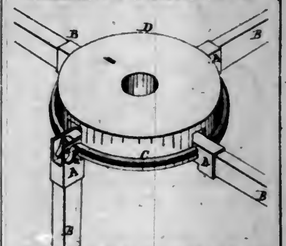
3. The door G, provided with the wedge *a*, in combination with the roller H, substantially as set forth.

4. The inclined projection *m*, in combination with the door G, substantially as set forth and specified.

184,984. PROCESSES OF WATERPROOFING FABRICS. Wm. Pugh, Philadelphia, Pa. [Filed Apr. 1, 1876.]

The process of waterproofing fabrics, by first treating them with a compound of caustic soda, gelatine, linseed-oil, tallow, and resin, and after draining the goods, as described, treating them with the salt of alumina, as set forth, all in the manner and in the proportions of the ingredients substantially as herein before described.

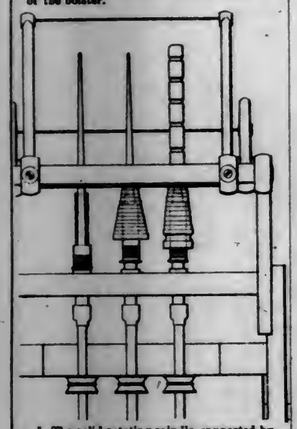
184,985. CLOTHES-DRIERS. J. R. Rusby, Bloomfield, N. J. [Filed May 9, 1876.]



In a clothes-drier, the sockets A, for the arms B, having through them, from side to side, the slot *a*, by which they are hung to the wire C, in combination with the plate D, substantially as and for the purposes specified.

184,986. SPINDLES FOR MULES AND JACKS. Jacob H. Sawyer, Lowell, Mass. [Filed Jan. 10, 1876.]

Brief.—A yarn-receiver and holder is attached to the solid rotating spindle, and made to receive the yarn and cover the upper end of the bolster.



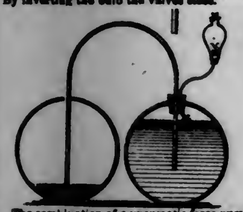
1. The solid rotating spindle, supported by, and turning in, a footstep, A, and the attached yarn receiver and holder, and a bolster and bearing for the spindle, placed between the spindle and yarn-receiver, and within, and adapted to be covered by, the yarn-receiver, in combination with the fallers, to operate all substantially as described.

2. The combination, with a movable carriage, spindle, and fallers, of a yarn receiver and holder, connected with the solid rotating spindle, and extended below the base of the cop-tube, cop-base, or bobbin, and adapted to receive and hold the yarn and receive and cover the bolster, substantially as described.

3. The combination, with a solid rotating spindle and a bobbin, and a bolster extended up within the base of the bobbin, of a yarn receiver or holder, connected with the solid rotating spindle above the upper end of the bolster and within the bobbin, and extended below the base of the bobbin to receive and hold the yarn directed from the bobbin to the receiver or holder, to hold the end of the yarn before doffing the bobbin, and to receive and cover the upper end of the bolster, as set forth.

184,987. PNEUMATIC SIPHON-PUMPS. V. H. Graf, New York, and F. Cott, Brooklyn, N. Y. [Filed June 19, 1876.]

Brief.—By pressure on the rubber bulb, air is forced into the reservoir, causing the liquid to flow into the empty vessel through the flexible siphon. When pressure in the bulb ceases, air is admitted through its valves to reservoir. By inverting the bulb the valves close.



The combination of a pneumatic force-pump and a flexible siphon-tube, with a bung for insertion in a close vessel, for the purpose of forcing air into the vessel, generating pressure therein, and causing the siphon to begin to act in depositing its fluid contents, and also admitting air freely through the pump, while the siphon is acting, substantially as shown.

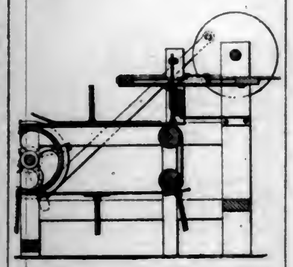
184,988. METHODS OF SMELTING COPPER. Edwin R. Studer, St. Louis, Mo., assignee of seven-tenths of his right to Wm. L. Reynolds, Wm. B. Dean, Chas. D. Moody, and S. S. Boyd, all of same place. [Filed Mar. 28, 1876.]



The method described of producing copper ready for the poling process at a single operation, by introducing the ores, (either of the same or different kinds,) fuel, and flux in a mixed state into an open furnace, into which a current or currents of air is introduced, substantially as set forth.

184,989. BOOK-SEWING MACHINES. Jas. C. Smyth, Lynn, Mass., assignor to O. S. Smyth, same place. [Filed Mar. 27, 1876.]

Brief.—The sheet of paper, having been previously "sawed," is placed up the grooved and notched sheet-holder. The portion of the sheet over the notched portion of the holder is bent back by a plate as the holder passes with the belt over the rolls and along the guideways. The needle then enters the grooved portion of the holder, through the standing part of the sheet, and carries a thread, which is caught by a shuttle before the needle is withdrawn. The belt, still revolving, carries forward the sheet-holder until it passes off the guideways, and leaves the sewed sheet upon a receiving-table. Each sheet-holder is thus moved in succession under the needle, and its sheet is sewed and deposited on the table.



1. The combination of a sheet-holder, having a grooved and notched edge, with a plate, *s*, to bend the paper of the sheet aside in sections, and an eye-pointed needle and sewing mechanism, substantially as set forth.

2. In a book-sewing machine, the combination of a reciprocating needle, a shuttle carrying a thread or cord, a sheet-holder with a grooved edge, and an endless belt to move such sheet-holders successively to the point of sewing, substantially as set forth.

3. The sheet-holder f and belt *m*, in combination with a foot, *r*, and guideways *g*, to retain the sheet-holder in a vertical position, substantially as set forth.

4. The combination, in a book-sewing machine, of mechanism substantially as described, for bending the cut section of the back aside and passing the sewing-needle into one end and out of the other end of the standing portion of the fold, substantially as set forth.

184,990. SAPONACEOUS COMPOUNDS FOR CLEANING COTTON-WASTE AND MACHINERY. D. Stanton, Waymart, Pa., assignor of one-half of his right to H. S. Welles, New York city. [Filed Nov. 23, 1876.]

1. The within-described compound, composed of carbonate of ammonia, carbonate of potassa, sal-ammoniac, sal-soda, soap, red lead, and water, in about the proportions specified.

2. A saponaceous compound having red lead as one of the ingredients, for the purpose specified.

184,991. LAUNDRY-SOAP. David Stanton, Waymart, Pa., assignor of one-half his right to Henry S. Welles, New York city. [Filed Nov. 23, 1876.]

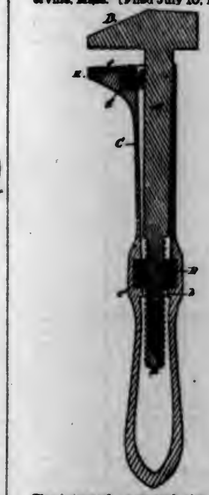
The within-described compound, composed of carbonate of ammonia, carbonate of potassa, sal-ammoniac, sal-soda, borax, soap, and water, in about the proportions specified.

184,992. HAND-PIECES FOR DENTAL ENGINES. Eli T. Starr, Philadelphia, Pa., assignor to Samuel S. White, same place. [Filed Oct. 24, 1876.]



The hand-piece attachment for dental engines hereinbefore described, consisting of the combination of the barrel or casing adapted to fit the hand-piece of a dental engine, the coupling-shaft mounted in said attachment and adapted to connect with the driving shaft of the hand-piece, the driven shaft mounted in the attachment independent of the coupling-shaft, the clutch-coupling connecting the two, and the sliding ring on the casing, whereby the operator is enabled to stop or start the tool without stopping the engine or coupling-shaft.

184,993. WRENCHES. D. C. Stillson, Somerville, Mass. [Filed July 10, 1876.]

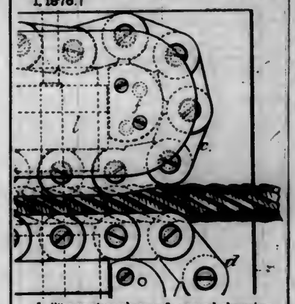


The improved screw and pipe wrench, as described, the same consisting of the bar A, provided with the movable jaw B and nuts screw *d*, and the hollow bar C, provided with a fixed jaw, E, having a spring-chamber, *f*, and spring *e* disposed therein, as shown, the rocette or actuating nut *D* arranged within a chamber in the bar C, and operating with the nuts screw *d*, the whole being constructed and arranged for conjoint operation, substantially as shown and described.

184,994. PROCESSES OF UTILIZING THE WASTE PRODUCTS OF BEER. J. J. Suckert, New York, N. Y. [Filed Nov. 11, 1876.]

The herein-described process of utilizing the products of malt-brewed liquors, or beer, which process consists in treating the dregs with warm water, and adding the deposit which forms under the sieve-bottom of the mash-tun, and the proper quantity of malt to correspond with the amount of starch present, then mashing and heating the mixture, and adding about one twelve-hundredth part of the anti-acid fermentine, substantially as described.

184,995. CLAMPS FOR WIRE ROPES. H. R. Taylor, San Francisco, Cal. [Filed Nov. 1, 1876.]

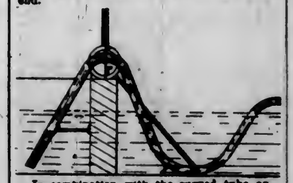


1. The endless chains of grooved clamping-blocks, in combination with the guide-pieces *f*, and clamps *l m*, substantially as set forth.

2. The plate *g*, divided and receiving in openings therein the sliding clamping-blocks *l m*, in combination with the actuating screw-shaft *r*, and endless chain of grooved clamping-blocks, substantially as set forth.

184,996. SIPHON PROPELLER-PUMPS. E. B. Tassey, Pittsburg, Pa. [Filed May 27, 1876.]

Brief.—The siphon-tube has a screw-pump in its inlet end, and a supply-pipe for compressed air connecting near the discharge end.



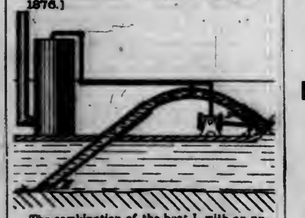
In combination with the curved tube, arranged as described, the propeller-pump in the receiving end, and the air-supply pipe in the discharging end of the tube, as and for the purpose described.

184,997. PROPULSION OF VESSELS. Emily B. Tassey, Pittsburg, Pa. [Filed Apr. 25, 1874.]



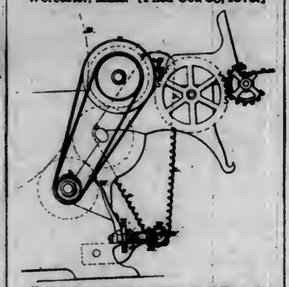
The boat A, provided with upwardly-curved tube B, one end of said tube having its entrance through the bow, and the other its exit through the stern, the same having within the forward end of its bore the propeller wheel *g*, operated by suitable mechanism, all constructed and arranged substantially as and for the purpose set forth.

184,998. DREDGING-MACHINES. Emily B. Tassey, McKeesport, Pa. [Filed Sept. 18, 1876.]



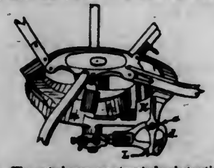
The combination of the boat *L* with an upwardly-curved tube, containing a propeller-wheel operated by suitable mechanism, the opposite ends of said tube inserted through the hull of the vessel at different points, fore and aft, of said vessel, for entrance and exit of the water, the tube being prolonged and extending toward the bed of the place to be dredged, all constructed and arranged as shown and specified.

184,999. BELT-SHIPPING MECHANISMS. G. B. Taft, Whitinsville, assignor to the Whitin Machine Works, Northbridge, Worcester, Mass. [Filed Oct. 30, 1876.]



The device comprising the stand X, chain-wheel N, miter-gears P and Q, eccentric S, eccentric-strap T, and pin U, combined and arranged for operating belt-shippers of card-cylinder strippers, essentially as herein described.

185,000. HARVESTER-RAKES. Geo. F. Underhill and Orville Cooley, Brockport, N. Y., assignors to Johnston Harvester Company, same place. [Filed Dec. 16, 1875.]



1. The gate-lever, constructed substantially as shown in Fig. 3.

2. The gate-latch, constructed substantially as shown in Fig. 2.

3. The combination of the gate-latch, which is suitably connected to the gate-pivot, with the lever K, substantially as described.

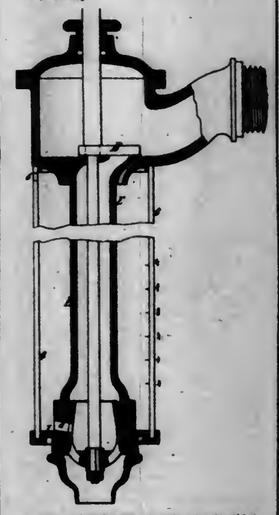
4. The gate-latch, composed of supplementary lever-latch J, combined with the gate-latch *d*, substantially as described.

5. The combination of the spring-gate *b*, cam-plate *c*, and rake-arms, with the gate-lever, gate-latch, and tripping-lever, substantially as described.

6. The combination of the spring-gate *b*, cam-plate *c*, and rake-arms, with an adjustable gate-lever, adjustable gate-latch, and tripping-lever, substantially as described.

7. The combination of the spring-gate, cam-plate, rake-arms, with the described gate-lever, gate-latch, and tripping-lever, for automatic operation, and the rod I, for operation at the will of the driver, substantially as described.

185,001. MEASURING-FAUCETS. R. Wasmansdorff, Genthin, Prussia. [Filed Oct. 30, 1876.]



A measuring-faucet wherein the liquid is divided into a running liquid and a "show" liquid, the latter forming one certain part—one-tenth, one-fiftieth, one one-hundredth, one one-thousandth, &c., of the liquid to be measured, substantially as hereinbefore set forth, and shown by the drawing.

185,002. CASTER-BOTTLES. Aug. Weber, Newark, N. J., and Chas. Wilhelm, New York, N. Y. [Filed May 9, 1876.]

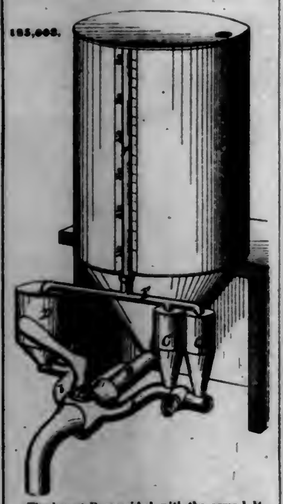
Brief.—A caster-bottle having at its lower end a nipple with a double passage—one for the valve *e* to operate in, the other as an opening through which the contents of the bottle are ejected by means of the plunger *g'*.



The nipple *h*, provided with the cylinder 2 and openings 3 and 4, and applied at the lower part of the caster-bottle, in combination with the spring-plunger *g'* and spring-valve *e*, substantially as set forth.

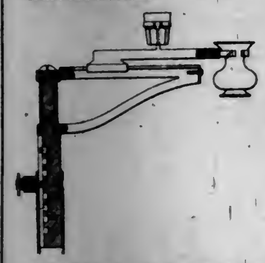
185,003. MEASURING-FAUCETS. John M. Wheeler, Hillsdale, Iowa. [Filed Oct. 23, 1876.]

185,003.



The lancet B, provided with the arms *b b'*, and pins B', in combination with the measures C C D, provided with the ventilating-tubes E and F, substantially as and for the purpose set forth.

185,004. ADJUSTABLE SPITTOON-BRACKETS. Samuel S. White, Philadelphia, Pa. [Filed Oct. 24, 1876.]



The dental spittoon-stand herein before described, consisting of the combination of the tubular base or support, the supporting-post, adjustable vertically therein, the bracket swinging around the post, but having no vertical movement independently thereof, and secured thereon by a shoulder below and a cap-screw above, and the supporting-arm adjustable longitudinally on and parallel with the upper bar of the bracket, and supporting the spittoon beyond the outer end thereof, these members being constructed and operating in combination as herein before set forth.

185,005. PAPER-CUTTING MACHINES. A. Wieting, Fort Plain, N. Y. [Filed Apr. 17, 1876.]

Brief.—As the material to be cut is drawn forward by means of the feed-rolls, which are operated by a toothed segment on the operating lever, a coiled spring on the shaft of the upper feed-roll is wound up, and the roll is held in this position by a pawl. The spring imparts a reverse motion to the shaft, which, by means of a pinion-wheel, engages with a rack-frame. Said rack-frame engages with a toothed segment on the knife-shaft, and causes its partial rotation, cutting the material thus fed forward.

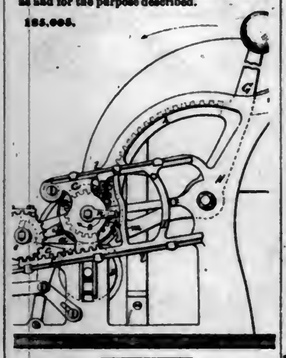
1. The combination, with the knife, of the frame I, crank-arm a, and lever G, substantially as described.

2. The combination of the spring F, shaft *f*, loose roll C, and the pawl and ratchet connection of said shaft and roll with the lever G, substantially as described.

3. The combination of the crank-arm a, jointed stop *e*, and cross-bar *m* with the lever G, rolls C D, and knife, substantially as described.

4. The frame I, constructed with the jointed stop *e*, cross-bar *m*, and rack *r*, substantially as and for the purpose described.

185,006.



185,006. CAR-STARTERS. Amos Whitemore, Cambridgeport, Mass. [Filed Oct. 17, 1876.]

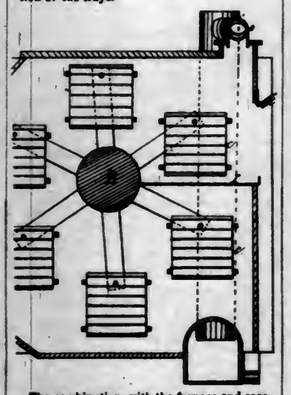


1. Inclined straight-edged brake-shoes Y, arranged beneath the treads of the rear wheels, in combination with the inclined-spring guide-rods I, shouldered at *l*, the connecting-rod *f*, and the rod K, guided as described.

2. In combination with the driver's lever G and its connection with the vibrating arms D, the spur-wheels a *b*, chain H, and brake-shoes Y, substantially as described.

185,007. FRUIT-DRIERS. Wm. H. Wiley, Fredericksburg, Md., assignor of one-half his right to Edw. R. Goslin. [Filed Oct. 9, 1876.]

Brief.—The partition, when in place, diverts the circulation, but is removed to allow rotation of the trays.



The combination, with the furnace and case A, of the revolving drum and arms and the removable partition I, located below the door, substantially as shown and described.

185,008. NUT-LOCKS. Wm. H. Young, Troy, N. Y. [Filed Jan. 24, 1876.]

Brief.—The nut is formed with a raised projection at one end of its slot. To fasten the spring in the slot, hammer the metallic projections about the butt-end of the spring.



1. The combination of the nut B, having the recess *b*, and the spring-pawl C placed in said recess, the pawl being held firmly therein by the metal of the nut alone, said metal being compressed against the spring, substantially as herein set forth.

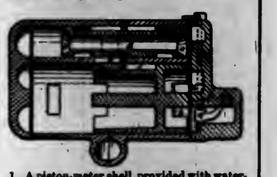
2. The nut B, formed with the recess *b* and once or more spurs, *d*, substantially as described, for fastening the spring-pawl C in the recess by hammering down the spurs, as set forth.

185,009. WHIFFLETREES. Aaron B. Allen, Barry, Ill. [Filed Apr. 10, 1876.]



The whiffletree-lock H, composed of the barrel C, provided with the flange E, and having the slots *d* and *e*, in combination with the bolt D, provided with the shank *m*, all constructed to operate substantially as and for the purpose set forth.

185,010. WATER-METERS. H. L. Arnold, Grand Rapids, Mich., assignor of one-half his right to Wm. H. Powers, same place. [Filed Oct. 2, 1876.]



1. A piston-meter shell, provided with water-passages, valve-chambers, and measuring or piston cylinders, which are cast in the shell, are straight and parallel with each other, and extend from one end of the shell to the other, substantially as described.

2. A piston-meter shell composed of two counterparts united at their ends, and having peripherical water-passages, and water-passages, valve-chambers, and piston-cylinders which are straight and parallel with each other, substantially as described.

3. In a piston-meter, the combination with the piston-cylinders, their respective valve-chambers, and the water-passages, of heads, having recesses on their inner faces, which connect the water-passages with the valve-chambers, substantially as described.

4. A water-meter piston, having in its periphery a centrally-located longitudinal slot or recess for receiving the pin of a slide-valve, operated by the piston, substantially as described.

5. In a piston-meter, the combination, with a valve-chamber and piston-cylinder, connected by means of a slot, of a slide-valve in the valve-chamber, provided with a pin which enters the piston-cylinder, and a valve-surface which surrounds the pin and invariably covers the slot, substantially as described.

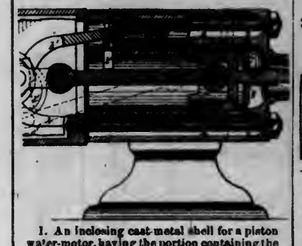
6. The combination, with the measuring-pistons, the piston-cylinders having ports at each end, the valve-chambers communicating with the cylinder, and the water-passages communicating with the valve-chambers, of the tubular slide-valves, each controlled by one of the main or measuring pistons, and provided with a head at each end, and an intermediate recess between the heads, substantially as described, whereby fluid is admitted to or discharged from the measuring-cylinders through a valve-chamber and a water-passage over the heads of the valve, as well as between its heads and the valves relieved from end pressure, as set forth.

7. A cylindrical slide-valve for water-meters, provided with two heads, an intermediate recess for a water-way, a radial pin surrounded by a valve-surface, and a bearing or bearing face opposite the pin, substantially as described.

8. In a piston water-meter, a shaft for connecting the piston with the registering apparatus, which is mounted on a step and provided with an internal arm for connection with the piston, in combination with a head for the meter which contains the bearing and the step for the shaft and a recess for the internal arm, substantially as described.

185,011. WATER-MOTORS. H. L. Arnold, Grand Rapids, Mich., assignor of one-half his right to Wm. H. Powers, same place. [Filed Oct. 2, 1876.]

Brief.—The two main sections of the shell are counterparts cast in the same mold. The eccentric chambers are separated from the piston-chambers by stationary partitions slotted for the pitmen.



1. An inclosing cast-metal shell for a piston water-motor, having the portion containing the cylinders, valve-chambers, and water-passages constructed in two sections, which are counterparts, a rear head, and a front head, constructed in two sections, containing separate chambers for cranks and eccentrics, substantially as described.

2. The combination, with the two cylinders, their pistons, pitmen, cranks, and crank-shaft, of the two crank-chambers, separated from the cylinders by partitions slotted for the pitmen, substantially as described, whereby packing of the mechanism which connects the pistons with their cranks is obviated, and the water contained within the crank-chambers guarded against disturbance by the water passing through the cylinder, as set forth.

3. The combination, with a piston-cylinder, a tubular piston fitted to the cylinder, and a crank connected with the piston by means of a pitman, of a guiding-rod and a bearing therefor, substantially as described, whereby the piston is guided, and operates as a cross-head, as set forth.

4. The combination, with a piston-cylinder, a tubular piston fitted to the cylinder, connected with a crank by a pitman, a piston-guiding rod, and its bearing, of a rear head to the cylinder, which has a chamber communicating with the cylinder for receiving the guiding-rod, substantially as described, whereby packing of said rod is obviated, as set forth.

5. The combination, in the crank-shaft of a water-motor, of the threaded tubular section of shaft, the eccentrics mounted on said section, the interior longitudinal screws, and the radial pins, substantially as described.

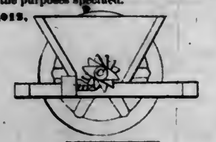
6. The combination, with the piston of a water-meter, its pitman, and guiding-rod, of the cylindrical hub *g*, fitted to an annular recess in the end of the cylinder, and secured in position by the rear head, substantially as described.

185,012. CURD-MILLS. J. P. Bellinger, St. Johnsville, assignor to R. S. & W. W. Whitman and D. H. Burrill, Little Falls, N. Y. [Filed Apr. 26, 1876.]

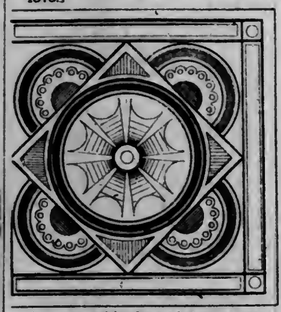
Brief.—A horizontal shaft with radiating knives spirally arranged thereon, and revolving between blades fixed over the eduction-port at the base of a hopper, so that the curd shall fall by a single excision.

The curd-mill, constructed and arranged as herein set forth, having cutting-knives affixed spirally around a horizontal cylinder located at the bottom of a hopper and filling the whole space of the outlet, with stationary knives projecting out from one side of the outlet to the cylinder, as herein described, as and for the purposes specified.

185,013.



185,013. ORNAMENTAL GLASS PANELS. W. Bleiss, New York, N. Y. [Filed Sept. 9, 1876.]



As a new article of manufacture, an ornamental glass panel, the same consisting of a plate of glass having a rough or crystallized surface at the back, upon which surface is a design in opaque and transparent colors, backed with gold-leaf, the whole provided with a protecting-back of cement or paint, substantially as shown and described.

185,014. COMBINED SLED AND TRUCK. S. F. Brooks, Cambridgeport, Mass. [Filed Oct. 23, 1876.]

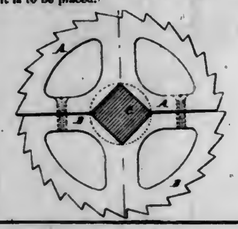


1. The combined sled and truck herein described, consisting, essentially, of the body A, runners B, having semicircular recesses, and the wheels C, journaled in the body, fitting partly in the recesses of the runners, and projecting above the body, substantially as and for the purpose set forth.

2. The combination of a body, A, having runners B, and wheels C, turning in semicircular recesses of the runners, with a detachable frame, D, extending around the body, and being supported on seats or side strips of the runners, substantially as set forth.

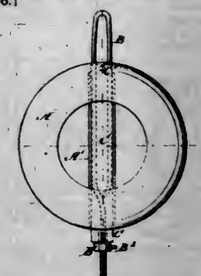
185,015. FASTENINGS FOR SECTIONAL RATCHET-WHEELS. J. M. Childs, Utica, N. Y. [Filed Oct. 30, 1876.]

Brief.—A wheel in two halves forms, when bolted together, a square hub to correspond with a squared portion of the shaft, on which it is to be placed.



A ratchet-wheel fastening formed of the round shaft C, provided with a squared or flattened portion to receive the ratchet-wheel, and the sectional ratchet-wheel A B, provided with a similarly-shaped bore, substantially as herein shown and described.

185,016. COMPENSATING-PENDULUMS. E. M. Corwin, Barry, Ill. [Filed Oct. 30, 1876.]

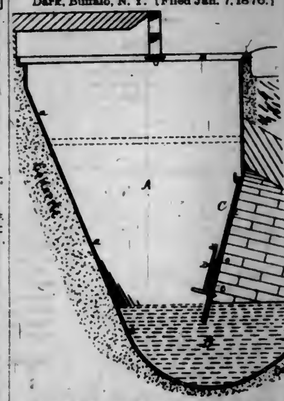


1. The combination of the hard rubber C with the suspending-rod B and ball A, substantially as and for the purposes set forth.

2. The combination of the hard rubber C with the ball A and protecting-sheath A', substantially as herein shown and described.

3. The combination of the set-screw B' with the regulating-nut B' and wire B, as herein shown and described.

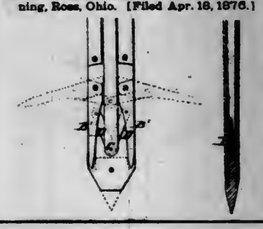
185,017. TRAPS FOR STREET-SEWERS. T. Dark, Buffalo, N. Y. [Filed Jan. 7, 1876.]



1. The back *a* of the receiver A, and back *b* of the trap B, constructed in a continuous line, and the exit end *b'* of the trap elongated, as and for the purpose specified.

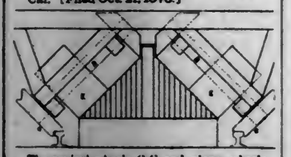
2. In a stench trap and receiver, the inclines *c c* and lugs *d d*, in combination with the gate C and swinging bar D, as and for the purpose specified.

185,018. HORSE HAY-FORKS. J. B. Denning, Ross, Ohio. [Filed Apr. 18, 1876.]



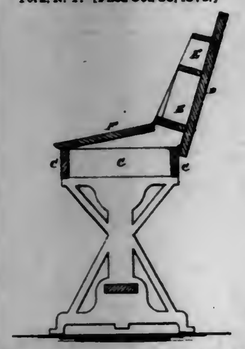
A harpoon-fork, consisting of the pointed stock A, with its eye H, the sliding rod B, provided with laterally-projecting stud G, pierced for the attachment of a cord, the spurs B' B', toggle-links D D, pivoted to the rod below their point of attachment to the spurs, and the spring-catch F, arranged and combined substantially as described.

185,019. CAR-TRUCKS FOR PRISMOIDAL TRACKS. Edw. B. Dorsey, San Francisco, Cal. [Filed Oct. 21, 1876.]



The conical wheels C C and plane-wheels E, both secured to the inclined shafts B, as and for the purpose described.

185,020. DESKS. Ernest N. Doring, New York, N. Y. [Filed Oct. 30, 1876.]



The combination, with a lid, D, hinged to the rear of a frame, C, and provided with pigeon-holes E E upon its under surface, of the leaf F, hinged to the lowest pigeon-hole partition, substantially as and for the purpose specified.

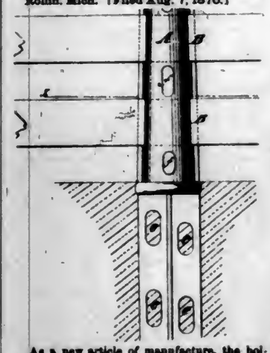
185,021.



185,021. SEWING-MACHINE CHAIRS. J. H. Dymond, Perry, Kans. [Filed Sept. 21, 1876.]

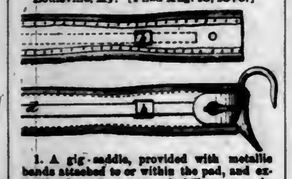
The elongated seat, the three supports A A A, the extra back B B, and the attachments of the elastic straps D D, the buckles G G, and the hinges E E, as and for the purpose set forth.

185,022. FENCE-POSTS. Harrison Fitts, Rollin, Mich. [Filed Aug. 7, 1876.]



As a new article of manufacture, the hollow semi-cylindrical fence-post, provided with mortises and a cross-shaped foot, as shown and described.

185,023. GIG-SADDLES. J. B. Gathright, Louisville, Ky. [Filed Aug. 18, 1876.]



1. A gig-saddle, provided with metallic bands attached to or within the pad, and extending from the terrets to the billets, or nearly so, the bands operating to strengthen and stiffen the pad, so that but few points of attachment are necessary to unite it and the skirts securely together, all substantially as shown and described.

2. In the construction of gig-saddles the loops attached to the metallic band within the pad, all as shown and set forth.

3. In a gig-saddle the pad stiffenings and skirts, slotted to allow the full-sized loops to be introduced from beneath, substantially as shown and described.

4. A gig-saddle in which the skirts and pad are keyed or pinned together near their middle by means of the loops and bearing-straps, substantially as shown and described.

5. A gig-saddle in which the pad and skirts are united and securely held together by means of the usual hook, terret, and billet-fastenings, supplemented by the intermediate loop-fastening and the pad-stiffenings, all as shown and described.

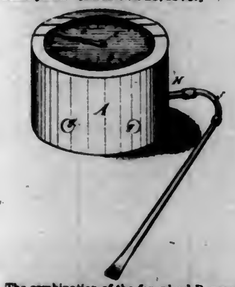
185,024.



185,024. GRAIN-SAMPLERS. Jos. F. Gent, Columbus, Ind., assignor to himself and Richard Thomas, same place. [Filed Oct. 14, 1876.]

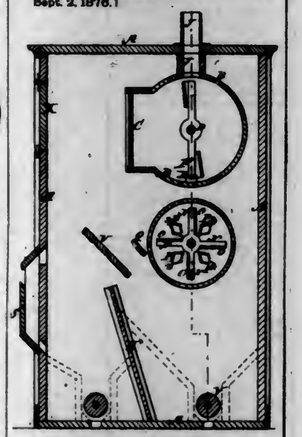
The combination of the tube A, having the conical end B, and the aperture C, the valve E, spring H, rod F, and tubular handle D, substantially as herein shown and described.

185,025. BLOWING-TOPS. Henry J. Green, New York, N. Y., assignor to H. Shaffer, same place. [Filed Oct. 23, 1876.]



The combination of the fan-wheel B, worm-gear a G, index c, dial b, casing A, having a glass cover, and the tube H, substantially as and for the purpose shown and described.

185,026. MIDDLINGS-SEPARATORS. John J. Haller, Ripley, N. Y., assignor to himself and J. W. Baker, same place. [Filed Sept. 2, 1876.]



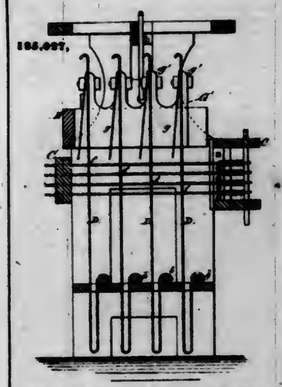
1. In a middlings-purifier, the combination, with the bunting and screening cylinder B C D, a fan-blower with air-inlets at its head and a narrow longitudinal slit at the side for spreading the blast in a thin sheet, as shown and described.

2. The combination of case A, the bunting and screening cylinder B, the fan-blower, the adjustable deflectors Q V, and the divider T, all arranged with respect to each other as and for the purpose set forth.

185,027. JACQUARD LOOMS. Thos. Halton Philadelphia, Pa. [Filed Sept. 11, 1876.]

The combination, with the hooks D, for operating the harness of a loom, of a grid, G, provided with a series of inclined blades, g, secured to the arms or brackets g' of the vertically-reciprocating frame H, and constructed and arranged as described, whereby their lower edges, when the grid is elevated, will fall below the upper ends of the hooks previously thrown out of operation by the needles, substantially as and for the purpose herein-before set forth.

185,027.



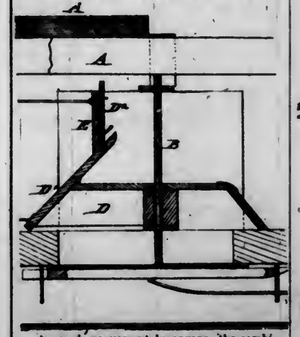
185,028. PORTABLE STOOLS. C. E. Haynes, Boston, assignor to Ellis Drake, Stoughton, and Henry A. Belcher, Randolph, Mass. [Filed Mar. 9, 1876.]



1. A stool or table having a series of corrugations, e e e, formed on the upper surface, and having short legs B, provided with ferrules b, staples c, in combination with legs C, provided with metal sockets d d and slots e, substantially as shown and described.

2. A stool or table having short legs B, provided with ferrules b, staples c, in combination with legs C, provided with metal sockets d d and slots e, substantially as herein set forth and described.

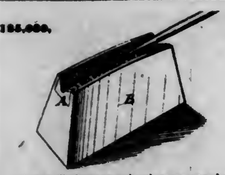
185,029. ORGAN-ACTIONS. A. N. Hanna, Murray, Ind. [Filed Aug. 21, 1876.]



As an improvement in organs, the combination, with the two sets of push-pins D² B, keys A, swinging guide-board E, and stop mechanism, substantially as described, of an additional set of reeds, as D, provided with a set of hinged and extended lids, D', substantially as and for the purpose specified.

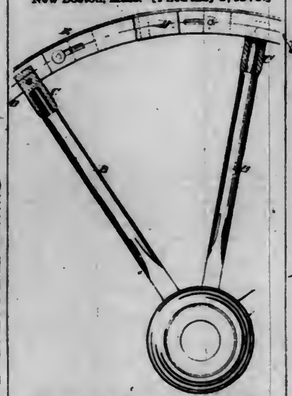
185,030. SLATE-PENCIL SHARPENERS. W. H. S. Hannaman, Philadelphia, Pa. [Filed Sept. 2, 1876.]

185,030.



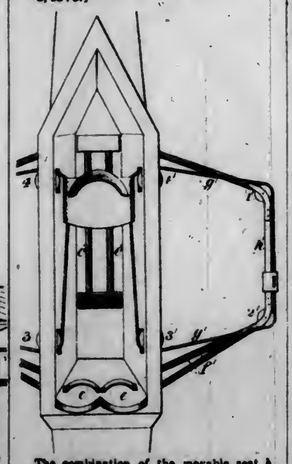
A pencil-sharpener having an angular concavity, provided with teeth gradually diminishing in size from the upper edges to the vertex of angle, substantially as and for the purpose specified.

185,031. WHEEL-FELLIES. Edw. P. Hood, New Boston, Mass. [Filed May 9, 1876.]



The ring-plates D, made open, and with a splice or lap, to enable the shrinkage of the tire E, to bring them down firmly upon the spokes, substantially as herein shown and described.

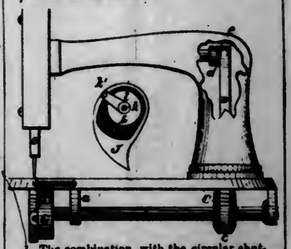
185,032. SLIDING ROWLOCKS. George W. Isaacs, Jr., New York, N. Y. [Filed Apr. 6, 1876.]



The combination of the movable seat b, ropes g g', and friction pulleys 1 2 3 4 and 1' 2' 3' 4', stationary rigid arms f f', connecting-bars h h', blocks i i', and ways e e', all constructed, arranged, and operating as and for the purpose set forth.

185,033. SEWING-MACHINES. F. M. Johnson, Bristol, Conn., assignor of one-half of his right to L. Goodenough, same place. [Filed Mar. 15, 1876.]

Brief.—Pivoted loosely on the axis of the bobbin in the rotating shuttle is a thread-controller, which prevents twisting of the bobbin-thread. The sliding plate on top of the machine has a downward projection, which forms part of the shuttle-race.

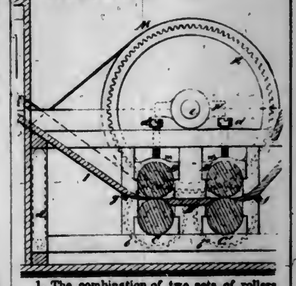


1. The combination, with the circular shuttle-race G, of the sliding cloth-plate H, provided with a depending flange formed as a segment of a circle, and adapted to fit a corresponding opening in the shuttle-race, substantially as and for the purpose set forth.

2. The combination, with the shuttle J, of the bobbin L and thread-carrier k', loosely secured to the hub of the bobbin, substantially as and for the purpose specified.

185,034. MACHINES FOR GALVANIZING TERNE PLATES. J. D. Jones and J. Gape, Audnried, Pa. [Filed Sept. 9, 1876.]

Brief.—A removable frame carrying two sets of rollers, the upper rollers being horizontally adjustable, is placed within a tank, the surface of the melted metal rising above the point of contact between the rollers. The lower rollers are provided with pinions, and the large power-wheel may be moved sidewise to disengage these pinions when the frame is to be removed. Guide-plates lead the metallic sheets down into and through the bath, and up between rollers placed in a hot closed chamber.



1. The combination of two sets of rollers partly or wholly immersed in melted metal, with guide-plates leading to and from the said rollers, the whole supported on a removable frame placed in a receptacle for the melted metal, as shown and described.

2. The combination of the wheel E, pinions b b', rollers C C' and D D', guide-plates G and I, table H, removable frame B, and receptacle A, substantially as specified.

3. The combination of the rollers K L, pulleys h and M, guide-plate J, receptacle A, and cover N, as shown and described.

4. The combination of the sliding shaft c, receptacle A, frame B, and bars e e, as shown and described.

5. The combination of the adjustable journal-boxes m and l, rollers D, D', and L, and frame B, substantially as specified.

6. The combination of the receptacle A, frame B, bars e, and cross-bar O, substantially as specified.

185,035. WHIP-SOCKETS. Albert J. Kidd, Chicago, Ill. [Filed Aug. 7, 1876.]

Brief.—The lower end of the whip is clasped by spring holding jaws.

185,035.

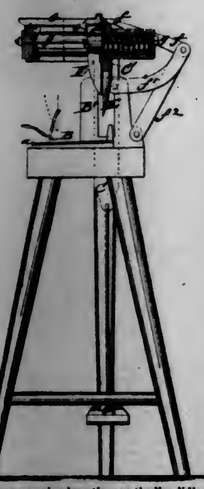


1. The jaws B and C, as constructed with the lips G, in combination with the spring I, as shown and described, and for the purpose set forth.

2. The jaws B and C, constructed, as shown, with the lips G, in combination with the spring H, as shown and described, and for the purpose set forth.

3. The jaws B and C, and the springs H and I, in combination with the slip-holder A, as shown and described, and for the purpose set forth.

185,036. CORN-HUSKING MACHINES. Jno. Lund, East Oxford, Ontario, assignor to David N. Moore and John Henry, Beachville, Canada. [Filed May 22, 1876.]



1. In a corn-husker the vertically-sliding stem-cutting knife and its resetting spring, in combination with the horizontally-sliding ejector and its operating-spring, said ejector being arranged to move at a right angle to the knife at the moment when the cutting action is completed, as set forth.

2. The combination of curved lever-arm *f*, crank-connections *f'*, slide-piece C, and pivoted detent E, as and for the purpose specified.

3. The combination of curved lever-arm, compound crank-connection, slide-piece, carrying knife, guide-frame, slotted guide case, and sliding ejector, as and for the purpose described.

4. The combination of slotted guide-case, having longitudinal guide-rod, with ejector F and its resetting spring, as and for the purpose set forth.

185,037. CONNECTING-LINKS FOR CHAINS. J. Mann, Buffalo, N. Y., assignor of one-half of his right to Mann Brothers, same place. [Filed Sept. 23, 1876.]



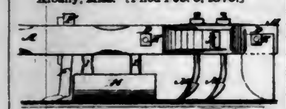
In combination with the two centrally-pivoted halves A A, the lugs *c c*, and corresponding recesses *d d*, constructed and operating substantially as and for the purpose specified.

185,038. COMPOUND TOOLS. S. B. Mayfield, Fruitsville, Tex. [Filed Apr. 29, 1876.]



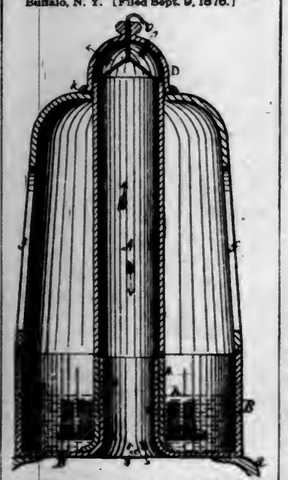
As a new and improved article of manufacture, a stove-plate and kettle lifter, constructed as described, and provided with a mangler, B, arranged to form part of the grasping-handle when the instrument is used for lifting a pot or kettle, as set forth.

185,039. CULTIVATING-PLOWS. Thos. T. McAllister and Wm. W. McDonald, New Albany, Miss. [Filed Feb. 5, 1876.]



In a cultivator the combination, with the beams A and colters F, of the follow-blocks H, having the form specified, and arranged horizontally, as shown and described, to operate as specified.

185,040. OZONE-MACHINES. H. Milsom, Buffalo, N. Y. [Filed Sept. 9, 1876.]

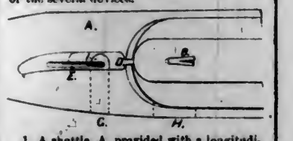


1. The ozone-machine, constructed with the base E, with the tube opening or openings *a a'* therein, the central tube or tubes A, with phosphorus-holder *b* therein, the separating ozone-chamber C, and cap D, substantially as and for the purpose specified.

2. The process of making ozone, which consists in passing the ozonized fumes, evolved by submerging phosphorus in water, through the unglazed or porous earthenware walls of the inclosing-chamber, whereby the ready ingress of air by diffusion, and the separation of the acid fumes is effected, substantially as herein shown and described.

185,041. LOOM-SHUTTLES. A. M. Moore, Lowell, Mass., assignor to A. T. Atherton, same place; and said A. T. Atherton assignor to Whitehead & Atherton. [Filed Sept. 20, 1876.]

Brief.—The improvements relate to the threading devices. The yarn from the end of the bobbin is carried under the stud, and through the threading-eye, from which it passes along the slot into the delivery-eye. The claims set forth the special construction of the several devices.



1. A shuttle, A, provided with a longitudinal threading-slot, K, and means for guiding the thread into said slot, as and for the purpose described.

2. A shuttle, A, provided with the threading-eye H and the delivery-eye G, connected with each other by the slot K, as and for the purpose described.

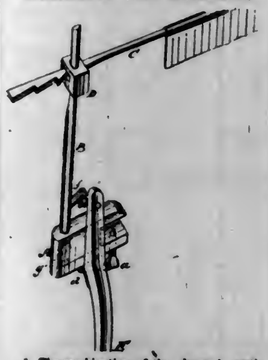
3. A shuttle, A, provided with the delivery-eye O, slot K, threading-eye H, and stud E, as and for the purpose described.

4. A shuttle, A, provided with a threading-eye, H, having its upper edge beveled, as and for the purpose described.

5. A shuttle, A, provided with the stud E, curved and extended over the shoulder F, as shown and described.

6. The eyelet G, having a projecting under side, I, in combination with the stud E, as and for the purpose described.

185,042. FLY-BRUSHES. Danl. H. Mowen, Greencastle, Pa. [Filed Oct. 23, 1876.]



1. The combination of the clamp A, vertical shaft B, spring *g*, arm *f*, lever E, link *e*, and brush-arm C, substantially as shown and described.

2. The arm C, having the notches *h*, in combination with the block D and shaft B, substantially as shown and described.

185,043. DOOR-CHECKS. Chas. H. Osborn, Griffin's Mills, N. Y. [Filed Sept. 23, 1876.]

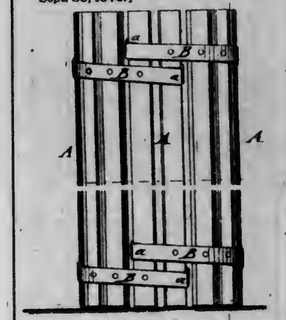
Brief.—A slide carrying points to be inserted in the floor is operated by a swinging cam-lever, turning upon a central fastening, which passes through a slot in said slide.

The combination of the metal piece C, having the points *a a'*, the slot *b*, and shoulder and pin *f g*, and the piece D, secured permanently to the door by pin *e*, and having the hook *d* at one end and eccentric cam at the other, all as and for the purpose hereinbefore specified.

185,042.



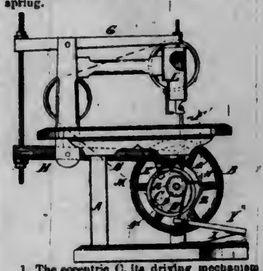
185,044. TREE-PROTECTORS. J. G. Peace and I. D. Comstock, Salem, Mo. [Filed Sept. 30, 1876.]



A tree-protector, consisting of slats A and bands B, the latter being arranged on the outside, and provided with end hooks, as shown and described.

185,045. BAND SAWING-MACHINES. G. B. Phillips, Bath-on-the-Hudson, N. Y., assignor to G. A. Phillips and C. W. Palmer. [Filed Nov. 20, 1876.]

Brief.—The shaft from which the saw receives its reciprocating movement is put in motion by means of a treadle and resetting spring.



1. The eccentric C, its driving mechanism and pitman E, in combination with the levers G and H, for operating the saw F, substantially as set forth.

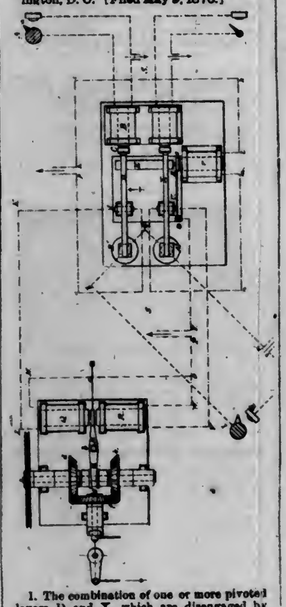
2. The balance-wheel B, eccentric C, and sleeve R, in combination with the axle or spindle D, substantially in the manner and for the purposes set forth.

3. The spool V and friction-clutch U, in combination with the eccentric C, arranged and operated as set forth.

185,046. TOBACCO-MANUFACTURE. C. A. Pilinsky, Philadelphia, Pa. [Filed Aug. 23, 1876.]

The improvement in treating leaf-tobacco for smoking purposes, the same consisting in subjecting the leaves to the successive actions of steaming and pressing, substantially as and for the purpose set forth.

185,047. ELECTRIC GOVERNORS FOR MOTORS, CLOCKS, &c. J. E. Esttig, Washington, D. C. [Filed May 9, 1876.]



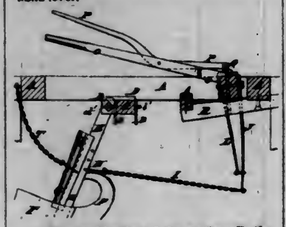
1. The combination of one or more pivoted levers, D and X, which are disengaged by electro-magnets, the circuits to which are closed by the motion of the motor or clock, thereby causing one or more electro-magnets, Q and R, to act upon a lever, M, of a clutch arrangement, which, by its connection, will act upon the admission-valve or expansion-gear of the motor, all as specified.

2. The method herein described of breaking the current F P, consisting in the introduction of the electro-magnet *r*, and the closing of the electric circuit *h i k l m n o p* by the pivoted levers D and X.

3. The devices herein described for breaking the contact of the pivoted levers D and X and the brass block E, consisting of an electric circuit, I II III IV V VI, and one or more electro-magnets, A' B', the circuit to which is closed by the motion of the motor-shaft.

185,048. GRAIN-DRILLS. Jas. R. Roe, Fairville, Mo. [Filed Aug. 14, 1876.

Brief.—The furrow-opener is pivoted to the frame, and is held to work by a double spring and chain. The springs are attached to a rocking bar, and secured in place by a pin and hand-lever.



1. The combination of the castings D, the pivoted standards E, the cutter F, and the conductor-spout G with the adjustable cross-bar C, substantially as herein shown and described.

2. The combination of the loop or clevis H, the draw-chain I, the double spring J L, and the pivoted cross-bar K with the standard and cutter E F, and with the frame A, substantially as herein shown and described.

3. The combination of the rigid lever O, the pivoted lever P, and the locking-pin Q with the pivoted bar K, to which the springs J L are attached, and with the tongue R, substantially as herein shown and described.

185,049. CUP-AND-BALL TOYS. G. Schoen, Baltimore, Md. [Filed May 9, 1876.]



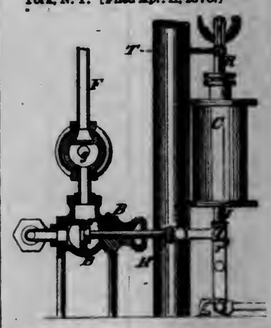
1. A cup-and-ball toy having its handle provided with the ball-projecting mechanism at the end opposite the cup, for the purpose of permitting the reversing of the toy to receive the ball.

2. The combination of the hollow handle A, guide-stem *a*, spiral spring *b*, and perforated ball C, constructed and arranged to operate as and for the purpose described.

185,050. ROOFING COMPOSITIONS. Henry K. Shanck, Clayton, Ohio. [Filed Oct. 23, 1876.]

A roofing and paving compound consisting of linseed-oil, oxide manganese, and litharge, combined, in the manner described, with shellac, coal-tar, sulphur, and hydraulic cement, the whole prepared in the manner and in the proportions set forth, and for the purposes specified.

185,051. GOVERNORS FOR MARINE STEAM-ENGINES. Geo. Steele, Mott Haven, New York, N. Y. [Filed Apr. 11, 1876.]

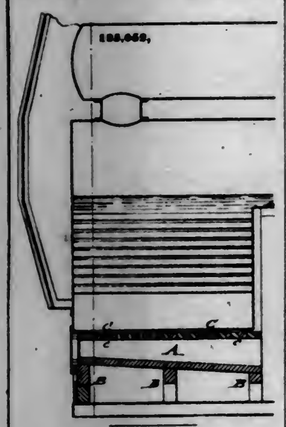


The combination, with the pendulum b and the throttle or regulating valve T, of the cylinder C, receiving steam or water only at one end, and open to the atmosphere at the other end, the piston P, the induction-pipes F and I, the eduction-pipe *e*, the exhaust-port *o*, and the angle-valves *o v'*, connected with the pendulum by the connecting-rod E, substantially as and for the purpose specified.

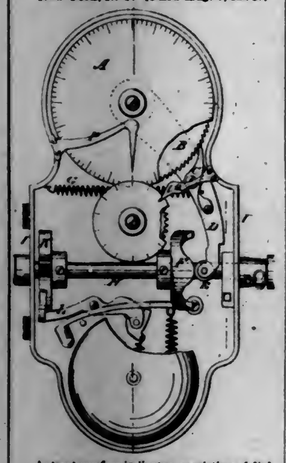
185,052. REPORT-FURNACES FOR STEAM-BOILERS. Geo. K. Stevenson, Valparaiso, Ohili. [Filed Sept. 30, 1876.]

A furnace provided with the retort A, supported on walls B, extended to the uptake of return-tube, and having inclined top perforations C, as and for the purposes specified.

185,652.



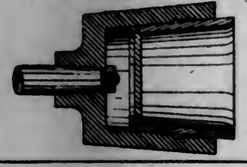
185,652. FARE-REGISTERS. Wm. Stokes, New York, N. Y. [Filed Aug. 7, 1876.]



A street-car fare indicator, consisting of dial A, ratchet-wheel B, spring-pawl C, lever arm D, spring-pressed wheel E, wave-wheel F, shaft H, journaled in box I, wheels J K, and lever L, all arranged as and for the purpose specified.

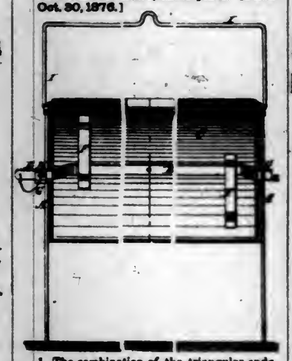
185,654. MANUFACTURE OF TUBS AND BUCKETS. David H. Wilder, Corry, Pa. [Filed Sept. 13, 1876.]

Brief.—The tapering interior of the chuck is provided with a groove, adapting it to receive a tab, bucket, or similar wooden vessel, having a hoop placed upon it near mid-way of its length, for the purpose of firmly holding the staves against springing at their inner ends, and at the same time retaining the usual bevel of the chuck.



In the manufacture of tubs and buckets, the rotating chuck herein described, for holding the same while being turned upon their inner side, provided with a groove or grooves adapting it to receive the tab or bucket with the hoop or hoops applied to it, substantially in the manner and for the purpose set forth.

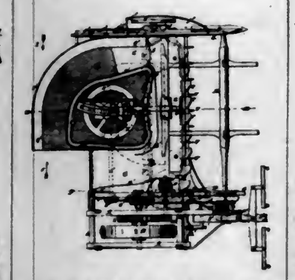
185,655. DUMPING DEVICES. Wm. Willes, Salt Lake City, Utah, assignor to himself and Wm. H. Rowe, same place. [Filed Oct. 30, 1876.]



1. The combination of the triangular ends A, the back B, the swinging front C, the rod D, the pivoted latch-bar E, the keepers F, the hooks G, and the bail I with each other, substantially as herein shown and described.

2. The combination of the stationary plate J with the triangular ends A, the back B, and the swinging front C of the device, substantially as herein shown and described.

185,656. HARVESTERS. J. D. Winans and G. Vanduzen, Sycamore, Ill. [Filed July 1, 1876.]



1. A harvester-platform, pivoted at front and rear to the pivoted and slotted arms U of the frame A, as and for the purpose specified.

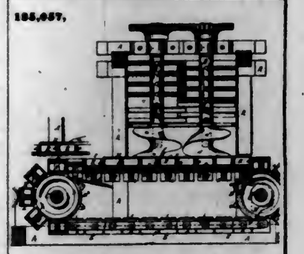
2. The combination of the chain G', chain-wheels F' H', the shaft I', the gear-wheels J' K', the slotted lever M', the pivoted rake O', the guide-flanges P' Q' R' S', the guide-groove T', inclines s', the guide-pin m', the pivoted lever V', and the spring U' with the drive-wheel E and the platform C, substantially as herein shown and described.

3. The combination, in a harvester, of the rake-carrying lever M', having pin m', the flanges forming groove T', and the lever V', having roller at its outer end, the two levers being connected by a pivot and a spring, U', as and for the purpose specified.

185,657. BRICK AND PEAT MACHINES. D. Woodbury, Minneapolis, Minn. [Filed July 10, 1876.]

Brief.—The endless chains are pivoted at the joints of the links to the molds, carrying them beneath the pug-mill, where the molds receive the clay or other material, which is pressed by the followers being forced up by an incline as they pass on, and the pressed blocks are delivered onto a conveyer-belt.

185,657.



1. The mold E, consisting of the case or frame d, plate a, lug f, end guides i, slots g g', and pins h h', all arranged and operating as hereinbefore specified.

2. The mold E, consisting of the case or frame d, plate a, lug f, end guides i, slots g g', and pins h h', in combination with the inclined plate F, for delivering the bricks from the molds, arranged and operating as hereinbefore specified.

3. The combination and arrangement of the conveyer G, belt and gearing k l m n, and the molds E, having the plungers o f g h, for conveying the bricks from the machine, all arranged and operating as hereinbefore set forth.

4. The combination and arrangement of the molds E d o f g h i, inclined blade or scraper H, chains b b', ways or supports J J, and shafts and pulleys C C' D' D'' D'' D'', arranged and operating substantially as hereinbefore specified.

185,658. COMPOSITIONS FOR PRESERVING WOOD. Hugo Akerhielm, Chicago, Ill. [Filed Apr. 6, 1876.]

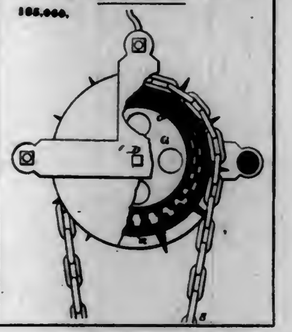
The herein-described composition for treating wood, consisting of a solution of copperas and salt in water, to retard decay and render it non-inflammable, substantially as specified.

185,659. LAMP-WICKS. A. Angell, East Orange, N. J. [Filed Oct. 11, 1876.]



1. A lamp-wick composed of a casing perforated throughout its entire surface and filled with a refractory substance, and adapted to be used with a jacket, substantially as and for the purpose specified.

185,660.



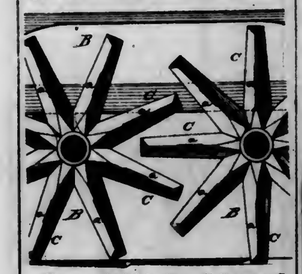
185,660. PULLEY-BLOCKS. B. Arnold, East Greenwich, R. I. [Filed Sept. 25, 1876.]

Brief.—Two pulleys, loose on a shaft bent to two parallel axes, operate one another by circular gearing of different diameters, and have one chain passing over sprocketed peripheries of both, and through a fall-block.

The combination of the two pulleys F G, provided with projections to hold a chain, with the two gears a O, stationary eccentric axle D, endless chain S, and lower pulley r, constructed and operating substantially as herein set forth.

185,661. REVOLVING HARROW AND CULTIVATOR. W. J. Atchinson, Zionsville, Ind., assignor of one-half of his right to Jno. J. Atchinson, same place. [Filed Oct. 27, 1876.]

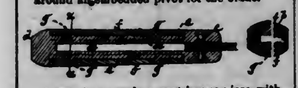
Brief.—A series of star-wheels are arranged in a frame, the arms of which interlock. On alternate sides of each arm, at varying distances, are projections, which penetrate and pulverize the soil.



The star-wheel B having radiating arms C and the sharp angular projections a upon either side of the wheel or arms, as and for the purpose set forth.

185,662. POCKET-CUTLERY. J. W. Ayers, West Meriden, Conn. [Filed May 13, 1876.]

Brief.—The inner side is cast so as to form ribs and securing-pins for attaching it to the outer or covering scale. It has also cast with it the pivot of the blade-spring, and is cast around an embedded pivot for the blade.

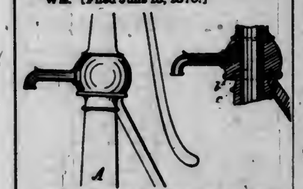


1. The inner scale d, cast in one piece with the bolster c and tip d, and with ribs b b along its outer sides or surfaces, for the purpose of stiffening the cast inner scale, and of uniting the latter with the covering-scale sections f f, substantially as specified.

2. The inner scale c, with the knife-bolster and tip, cast not only in one piece with each other, but also with the pivot n of the assembled blade-spring, essentially as described.

3. The inner scale d, with the bolster and tip, cast in one piece with each other, and with the pivot n of the blade-spring, in combination with the independently-embedded blade-pivot l, and the assembled blade k and spring k, substantially as specified.

185,663. PUMPS. A. S. Baker, Evansville, Wis. [Filed June 12, 1876.]



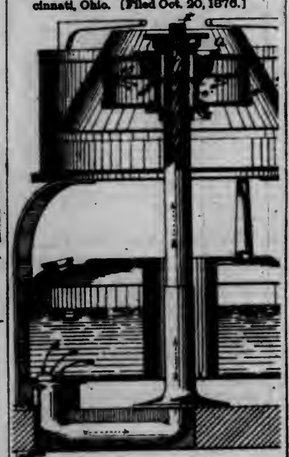
1. The combination, with the pump-standard A, of a brace, held at its upper end to the said standard only by the spring of the brace, and adapted to be removed from the standard or adjusted to any point around the same by disconnecting its lower end from the platform, substantially as and for the purpose set forth.

2. The standard A, having the groove b and ring c, and the brace C, having the groove d and end d', when the several parts are constructed, arranged, and combined substantially as described and shown.

185,664. COMPOSITIONS FOR PAVEMENTS. P. F. Baldauf, Cincinnati, Ohio. [Filed Sept. 23, 1876.]

The paving composition consisting of coal pitch and tar, gypsum, white chalk, white cement, broken marble, and molten zinc, compounded in the manner substantially as set forth.

185,665. VAPOR-STOVES. J. H. Bean, Cincinnati, Ohio. [Filed Oct. 20, 1876.]



1. In combination with the burner having the disk d', the inclosing-cage, perforated upon all sides, as shown.

2. In combination with the burner, constructed substantially as described, the inclosing-hood J, substantially as described, adapted to more effectually mix the air and gas and increase the draft.

3. In combination with the burner and the tank, an intermediate connecting-pipe composed of non-conducting material, substantially as described.

4. In combination with the tank and the metal connections A, supporting the upper parts of the stove, the intermediate non-conducting platform a^2, substantially as described.

5. The combination of the non-conducting supporting-legs, the non-conducting platform, and the tank, substantially as described.

6. The combination of the tank, the non-conducting platform, and the non-conducting tube, as described.

7. In combination with the tank, having a central opening, the tube extending through the opening and the burner, the construction being such that air can rise through the tank to the burner, as described.

8. The stove having the insulated tank, heating-burner, adjustable plate, and lighting-cap, substantially as described.

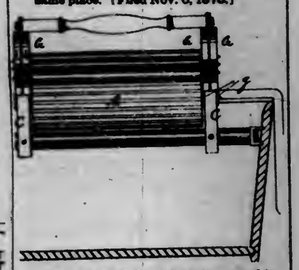
9. In combination with the insulated tank, heating-burner, adjustable plate, and lighting-cap, the hood or hollow cone, when used in the manner and for the purpose set forth.

185,666. BILL-FILES. B. J. Beck, Brooklyn, N. Y. [Filed Oct. 9, 1876.]



The adhesive sections for the invoice or letter file made of strips sewed together at the back edge by a line of stitching, and connected together and to the intermediate filling-strips, in the manner specified.

185,667. WASHING-MACHINES. L. F. Botts, Chicago, Ill., assignor of one-half of his right to Jos. S. Dennis and H. N. Wheeler, same place. [Filed Nov. 6, 1876.]



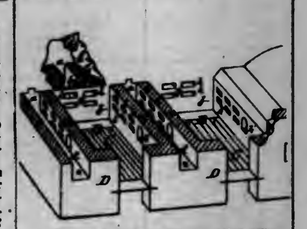
1. The casting G, four of which are used in the construction of each machine, said casting being formed with radial slots for the reception of the small roller pivots, having radial flanges to form boxing for the springs, and having a circumferential flange to inclose the hollow space when two castings are brought together face to face, substantially as specified.

2. The combination, with the rollers and wooden bend-blocks, of the two pairs of castings G, mounted on the bend-blocks, and containing the several springs, substantially as specified.

3. The combination of the large central roller and the jacket of small surmounting rollers, the latter having each a pair of independent springs, one at each end, overlying the pivots, and inclosed in the bend-pieces, substantially as specified.

185,668. BRICK-KILNS. E. W. Bingham, Philadelphia, Pa. [Filed June 19, 1876.]

Brief.—Each furnace and each side flue communicates directly with a separate arch of the kiln. When the door of a furnace is opened, the inflowing cool air is, in part, diverted by the side draft through the openings, and partly across the side flues into the adjacent furnaces.



1. The combination, with a vertical kiln-wall and an exterior furnace built against the same, of the reticulated or perforated diaphragm or wall between the fire-chamber and the eyes of said kiln-wall, substantially as specified.

2. The combination, with a kiln-furnace built against the kiln-wall and inclosing one or more eyes formed therein, of lateral flues, having each an eye, a, leading into an independent kiln-arch, and the passages h' in the side walls of the furnace, connecting the said flue with the furnace, substantially as specified.

3. In combination, with a series of furnaces built against the kiln-wall, and the intermediate smoke-flues d, opening into the kiln-arches, the furnace side walls having openings h' leading immediately from the furnaces into the said flue, whereby every furnace communicates directly with the adjacent ones, as and for the purpose specified.

4. In a kiln having its furnace built against the kiln-wall, the eye having branches in its furnace end, separated by a supporting-column, and fused by a perforated diaphragm supported by said column, substantially as specified.

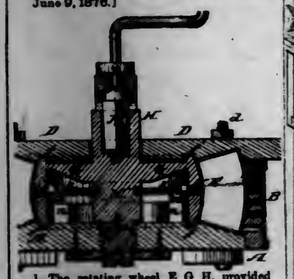
5. In a kiln, the combination, with an exterior furnace, of the Y-shaped kiln-wall eye, having a reticulated or perforated facing-wall

or diaphragm next the furnace-chamber, substantially as specified.

6. In combination with a series of furnaces built against the kiln-wall, and having one or more eyes opening into the kiln-arches, and the intermediate lateral flues *d*, opening each into an independent kiln arch, the furnace side walls having openings *h'* leading from the furnaces into the said flues, substantially as specified.

7. The combination, with a kiln-furnace built against the kiln-wall, of lateral flues leading into the eye of said wall, and external openings in said flues for manipulating broken fire-brick or other material in damping, substantially as specified.

185,069. ROTARY FORCE-PUMPS. Carlus C. Brum, Redwood Falls, Minn. [Filed June 9, 1876.]

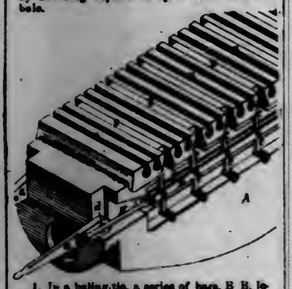


1. The rotating wheel E G H, provided with the independently-moving paddles I, secured upon radial stems *k*, and each stem provided with a cross-bar, *m*, substantially as and for the purposes herein set forth.

2. The case A D, provided with grooves *f f*, flange *n*, roots J J, inlet B, and chamber C, with outlet K, in combination with the wheel and its paddles, substantially as and for the purposes herein set forth.

185,070. DEVICES FOR TIGHTENING BANDS ON COTTON AND OTHER BALES. Chas. B. Boardman, New York, N. Y., assignor of one-half of his right to L. Miller, Reading, Pa. [Filed Nov. 25, 1876.]

Brief.—The bars in the band-grooves are forced toward the bale, pushing the bands close thereto, for tightly binding, and thereby avoiding expansion upon release of the bale.



1. In a baling-tie, a series of bars, B B, located in the band-grooves of the bottom platen and follower, all connected to suitable levers, or equivalent mechanism, and operating simultaneously up and down within the grooves by means of levers, or their equivalents, on the ends of the platen and follower, for the purposes set forth.

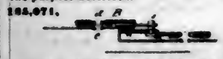
2. The combination of the platen A, with band-grooves *b*, the bars B, toggle-levers C, connecting-bars D, rod E, and lever G, substantially as and for the purposes herein set forth.

185,071. CORSETS. M. P. Bray, Birmingham, Conn. [Filed Oct. 2, 1876.]

1. In a corset, the flap B, turned back from the edge to form a pocket for the steel, and combined with the stay *a* in the edge of the flap, and with a series of eyelets or perforations between the said stay and the steel, and the corresponding series of perforations or eyelets in the body of the corset, substantially as described.

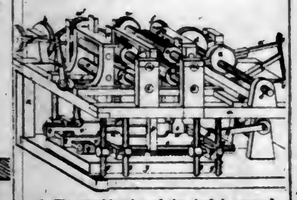
2. A corset-steel consisting of the two parts *w m*, the one overlapping the other, and secured at the center, substantially as and for the purpose described.

185,071.



185,072. MACHINES FOR CUTTING STONE INTO SLABS, BARS, &c. Isaac W. Bradbury, Hollis, Me. [Filed July 10, 1876.]

Brief.—The drill-frame has a reciprocating movement over the stone. It is also slightly elevated after each stroke of the hammers.



1. The combination of the shaft *b*, gears *d*, shaft *e*, and gears *f g h* with the rolls *k l m n*, their friction-surfaces, and hammers *s*, as herein described.

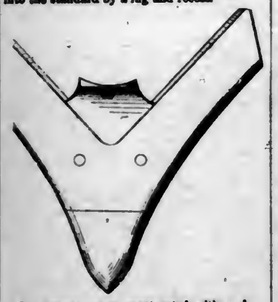
2. The combination of the shaft *b*, eccentric *c*, arm *o'*, upright pivoted lever *h'*, pitman *o'*, toothed eccentric *d'*, arm *o'*, and drill-frame *t*, as and for the purposes described.

3. The drill-frame *t*, with its drills or cutters and steel clamp or binders, made and operating as herein described.

4. The combination of the shaft *b*, with its gear-shaft *e*, eccentric *f'*, arm *g'*, lever *h'*, shaft *i'*, arm *j'*, bell-crank *k' l'*, racks *o'*, and frame *t*, as and for the purposes set forth.

185,073. COTTON-SWEEPS. H. C. Buhoup, Pittsburg, Pa. [Filed Nov. 8, 1876.]

Brief.—A detachable point extending up between the sweep and its seat, and locking into the standard by a lug and recess.



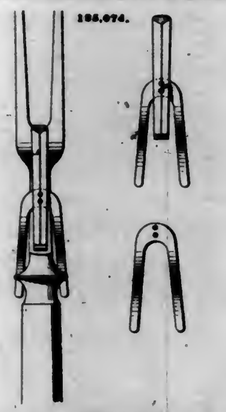
1. A cotton-sweep constructed with a detachable point, the latter provided with a rear extension, which engages by lug and socket with the standard, and is firmly secured to same by the binding action of the blade, substantially as and for the purpose described.

2. The combination of the standard of a cotton-sweep with a blade and removable point, the two latter seated in counterpart recesses in the front supporting projection of the standard, and attached to same by bolt-and-eye engagement of the standard and blade, substantially as and for the purpose described.

185,074. CARVING-FORKS. E. Cady, West Meriden, Conn., assignor to the Meriden Cutlery Company, same place. [Filed Nov. 6, 1876.]

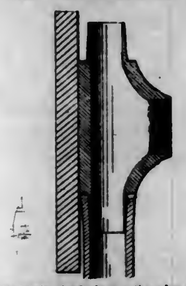
Brief.—The U-shaped rest is riveted to the guard, instead of being made integral with it, and is thus adapted to be put upon the ordinary carving-fork.

The bifurcated rest-piece formed independent of and attached to the guard above the guard-hinge, substantially as described.



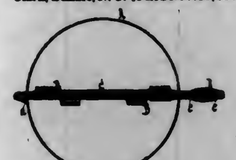
185,074.

185,075. LEAD-PIPE CONNECTIONS. Cyrus C. Clapp and Francis Keaney, Hartford, Conn. [Filed Oct. 31, 1876.]



In joining lead pipes, a tinned metal fitting used in connection with a lead pipe having a notch in its end for the reception of solder, substantially as herein set forth.

185,076. STOVE-PIPE DAMPERS. John K. Clark, Buffalo, N. Y. [Filed Nov. 10, 1876.]



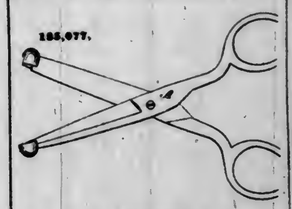
1. The combination, with the stove-pipe A, of the spindle C carrying the damper B, and provided at one end with the shoulder *c* tapering toward the end of the spindle, and the other end of the spindle being provided with a thumb-piece and a shoulder at the inner end of the same, as and for the object described.

2. The combination, with the spindle C and its damper B, of the frame *a* divided into two parts, and the non-conducting thumb-piece D, confined between the two parts of said frame, substantially as described.

185,077. SCISSORS. Amos W. Coates, Alliance, Ohio. [Filed Oct. 13, 1876.]

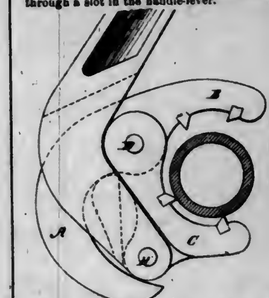
As a new article of manufacture, a pair of scissors having upon the ends of their blades terminal bulbs or guards, one or both of whose inner or adjacent faces are recessed to permit the perfect closing of the scissors and their free cutting action to the ends of the blades, substantially as described.

185,077.



185,078. PIPE-WRENCHES. D. B. Cook, Ithaca, N. Y. [Filed Mar. 13, 1876.]

Brief.—The short arm of the handle-lever is pivoted to an ear behind one jaw. The other jaw has a curved extension backward through a slot in the handle-lever.



The combination of slotted bent lever L, having the sliding shoulder S, gripe B, with curved extension A, riding in the slot of the lever, and gripe C, hinged to gripe B, and to the end of the slotted lever, as and for the purpose set forth.

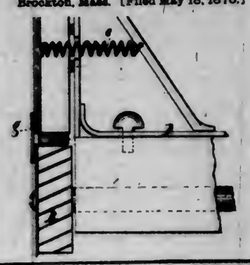
185,079. FENCES. A. M. Corbit, Bethlehem, Iowa. [Filed Aug. 29, 1876.]
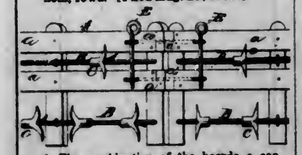


1. The combination of the boards *a*, connected to the uprights *b*, and having extended and beveled ends *a'*, the wire loops D, connecting the panels, and the pins E, all constructed substantially as set forth.

2. A portable fence made in sections, each section composed of alternate longitudinal boards A and rods B, provided with barbs C, the sections being connected together by the loops D and pins E, all substantially as and for the purposes herein set forth.

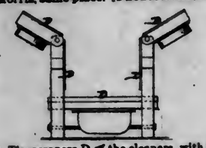
185,080. WAX-HOLDING APPARATUS FOR ATTACHMENT TO A BOOT AND SHOE BURNISHING MACHINE. Samuel N. Corthell, Brockton, Mass. [Filed May 16, 1876.]



1. An adjustable wax-applying attachment for boot and shoe burnishing machines, consisting of a swinging wax-tube, B, hinged upon an adjustable stand, D, and provided with a guide-pin, *g*, at its base, and retaining-spring *c*, the whole arranged and operating substantially as and for the purposes as herein shown and set forth.

2. In combination with the burnishing-cylinder B, the swinging wax-tube B, arranged and operating substantially as and for the purposes as herein shown and set forth.

185,081. APPARATUS FOR CLEANING SHIPS' BOTTOMS. Danl. Corning, Yonkers, N. Y., assignor of one-half of his right to L. N. Morris, same place. [Filed Mar. 23, 1876.]



1. The scrapers D of the cleaners, with their floats, of a waved or sinuous construction in direction of their length, and arranged for operation edge onward in directions transversely to their length, substantially as shown and described.

2. The brushes E of the cleaners, with their floats, composed of one or more rows of bristles, *i*, and rubber supporting-strips *k*, arranged on reverse sides of the rows of bristles in front of the floats, substantially as specified.

3. The stop or guide H, constructed substantially as described, in combination with the cleaner or cleaners, for holding and directing the latter, essentially as specified.

4. In an apparatus for scraping and cleaning the keels of vessels, the keel scraper or cleaner supporting frame, provided on its upper sides with scrapers, arranged to clean the under side of the hull, substantially as specified.

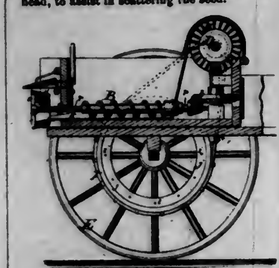
185,082. CASES FOR TOILET-PAPERS. E. W. Dennison, Boston, Mass. [Filed Sept. 18, 1876.]



A box having hinged or removable end flap and cover, provided with additional parallel sloping walls, one of which (the one over which the sheets are withdrawn) has a thumb-notch, the whole being arranged substantially as described.

185,083. MACHINES FOR SOWING FERTILIZERS. Wm. J. Diltz, North Branch Depot, N. J. [Filed Feb. 26, 1876.]

Brief.—Carrying-screw and distributing-head are attached to the same shaft. A pivoted adjustable hood is hinged above the head, to assist in scattering the seed.



1. In a machine for sowing seed and fertiliser, the shaft *r*, carrying the screw B, and sower C, in combination with the hopper, substantially as specified.

2. In a machine for sowing fertilizers, the, an adjustable shield-plate, fitted immediately above the revolving sower, substantially as and for the purpose described.

185,084. TOOLS FOR LOCKING NUTS ON BOLTS. Martin H. Dooly, Atlanta, Ga. [Filed Oct. 31, 1876.]



The within-described tool for locking nuts on bolts, consisting of a bar, A, having the central cutting-edge *a*, the side radiating cutting-edges *b b*, central notch *d*, top and bottom flat surfaces *e f*, and the convex sides *h h*, all constructed substantially as herein shown and described.

185,085. DENTAL PLUGGERS. Robert B. Donaldson, Washington, D. C., assignor to S. S. White, Philadelphia, Pa. [Filed Oct. 24, 1876.]

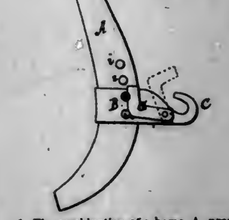
Brief.—The rotating hammers strike upward blows, so as to fill rear cavities.



1. The combination, substantially as hereinbefore set forth, of the reciprocating plunger, the rotating hammer, and the bar or link extending across the face of the hammer and acted upon directly by it.

2. The back-action dental plugger herein-before described, consisting of the sectional swiveling casing, the reciprocating plunger, its retracting spring, the rotating hammer, and the angular bar or link, acted upon directly by the hammer.

185,086. HAMES FOR HARNESS. Orion T. Dozier, Maple Grove, assignor of one-half of his right to Geo. R. Fearing, Cherokee County, Ala. [Filed Oct. 10, 1876.]

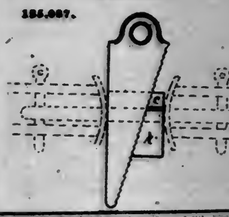


1. The combination, of a hame, A, provided with a series of headed pins, *i*, and the plate or loggerhead B, provided with the hook C and holes *b b*, with slots *b' b'*, substantially as and for the purposes herein set forth.

2. The combination of the plate B, provided with bent end D, flange *d*, slotted holes *b' b'*, and hook C, and the hame A, provided with the recess *a* and headed pins *i*, substantially as and for the purposes herein set forth.

3. The L-shaped latch G, in combination with the plate B and hame A, as and for the purposes herein set forth.

185,087.

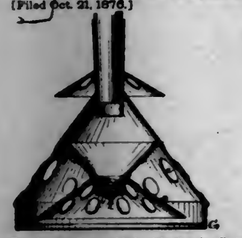


185,087. CAR-COUPLING WEDGES. W. B. Dunning, Geneva, N. Y. [Filed July 13, 1876.]

Brief.—A wedge to be driven between the bumpers to take up slack.

The expansive wedge, composed of the key *k* and wedge *w*, constructed to operate conjointly, substantially as shown and described, for the purpose of taking up the slack in the ordinary link coupling for cars, as set forth.

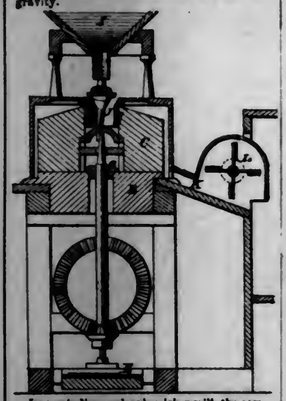
185,088. CHURN-DASHERS. Charles Duval and Jacob H. Morton, Union City, Tenn. [Filed Oct. 21, 1876.]



The beater C, provided with the rim C, in combination with the inner perforated beater D, constructed and arranged substantially as and for the purpose set forth.

185,089. GRINDING AND SEPARATING MILLS. David C. Keogh, Charleston, S. C., assignor to himself and Atlantic Phosphate Company, same place. [Filed Sept. 23, 1876.]

Brief.—The whole product of the stones is drawn out by the fan, and thrown into the chamber, where the separation is made by gravity.

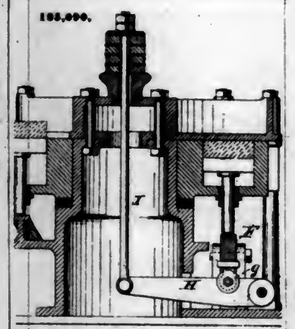


In a grinding and pulverizing mill, the combination of the trough K, provided with a series of open-top boxes, arranged one after the other, with the fan L interposed between the trough and the exit from the millstones, whereby the different grades of material are automatically carried into the boxes, substantially as set forth.

185,090. MACHINES FOR MOLDING BRICKS. ARTIFICIAL FUEL, &c. J. J. Bedrea, New York, assignor of one-half of his right to L. L. Crosman, Rondout, N. Y. [Filed Nov. 24, 1876.]

Brief.—The invention is an improvement on the machine patented to same party, April 29, 1875, No. 162,363. The hinged lunkins, for raising the plungers in compressing, rests upon a cast placed in the upper face of the supporting-lever. The cast is constructed to adapt itself automatically in containing the lunkins in its various positions. The lever carrying the cast is hinged at one end, while the other end is provided with a rod, that passes upward through the center of the mold-wheel, and is adjustably held by nuts and a plate upon springs.

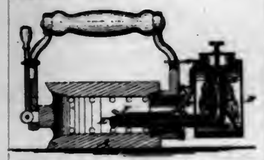
185,090.



1. The combination of the incline F with seat *g*, lever H, and rod I, suitably provided with springs, substantially as and for the purposes set forth.

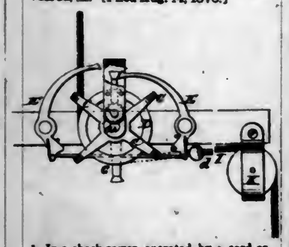
2. In a machine, substantially as described, the combination of the pressure-plate and mold-wheel, suitably provided with plungers, with the elastic and self-adjusting compressing mechanism, substantially as and for the purposes set forth.

185,091. SAD-IRONS. S. C. Fancher and W. W. Judson, Kansas City, Mo. [Filed Sept. 22, 1876.]



The tube F, combined with the receptacle D, tube E E', and the heating-chamber, to convey the gas generated in fluid-chamber to the burner, as and for the purpose specified.

185,092. CHECK-ROWERS. J. W. Fawkes, Mâcon, Ill. [Filed Aug. 14, 1876.]



1. In a check-rower, operated by a cord or its equivalent, with projections thereon, stops or latches, arranged in connection with the operating mechanism for stopping the motion of the same at the completion of each stroke, substantially as herein set forth.

2. The latches E E connected, as described, and operating in combination with the stop-arms G G of the operating mechanism, for the purposes herein set forth.

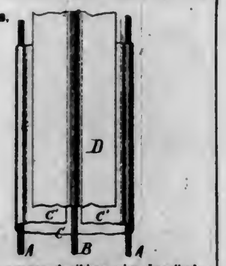
3. The combination of the shaft *a*, pulley D, arms C, stop-arms G, latches E with forked plates H, and the rope I with balls *d*, substantially as and for the purposes herein set forth.

4. The rope I provided with tapering pins *e* passed through it, and the balls *d* cast around the same, for the purposes herein set forth.

5. The bar P with pivoted arm R, having pin *r* and stop, substantially as described, and for the purposes herein set forth.

185,093. REEDS-WIRE. Jesse Pettis, New York, N. Y. [Filed Sept. 30, 1876.]

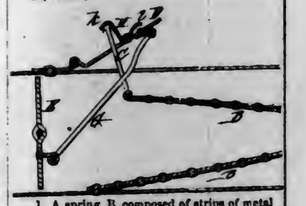
185,093.



1. The compound ribbon-wire described, having the folded fabric O O', wires A A, and covering-strip D joined by a cementing material, *c*, as herein specified.

2. The central wire or yarn B and edge-wires A, in combination with the flexible folded strip O O' and covering strip D, as and for the purpose herein specified.

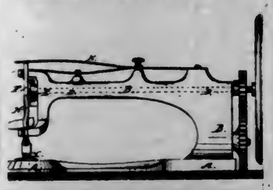
185,094. AUTOMATIC DRAFT-REGULATORS. Jesse Fowkes, Newton, Mass. [Filed Oct. 19, 1876.]



1. A spring, B, composed of strips of metal of different expansible properties, in combination with mechanism for connecting it and the damper E with the cold-air door D of the smoke-pipe A, operating substantially in the manner and for the purpose described.

2. The spring B, rod C, and door D, in combination with the damper E, rod G, crank or arm *i*, and swiveling latch H, with its stops *k l*, operating in the manner and for the purpose set forth.

185,095. LEATHER-STAMPING MACHINES. Josiah B. Gathright and Jas. C. Watson, Louisville, Ky.; said Jas. C. Watson assignor of all his right to John J. Harbison, same place. [Filed Apr. 24, 1876.]



1. The eccentric E, stamp-holding bar F, spring K, and feed-lever H, combined and operating substantially as and for the purpose herein shown and described.

2. A presser-foot for a leather-stamping machine, having its under or pressure surface formed of two or more sharp edges, with a concave surface or surfaces between the edges, to form one or more creases or beads upon the leather, substantially as herein shown and described.

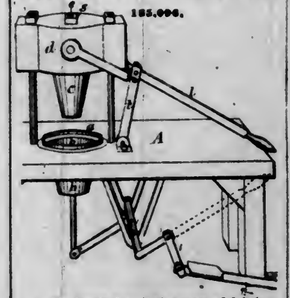
3. A presser-foot for leather-stamping machine, adapted to work between the two stamps, substantially as herein shown and described.

4. In a machine for stamping purposes the combination of the stamping-base A, arm B, shaft D, eccentric E, stamp-bar F, spring K, feed-lever H, and presser-foot X, substantially as herein shown and described.

185,096. MACHINES FOR FORMING POTTERY-WARE. Richard Gleason, Geddes, N. Y. [Filed July 1, 1876.]

Brief.—The mold is set in a table. The die (over it and weighted) is raised by a lever. The follower ejects the article by a foot-lever.

185,096.

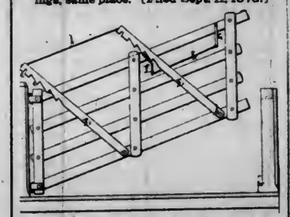


1. The herein-described process of forming pottery-ware, consisting in placing the material in the stationary mold, and dropping into it same a weighted die, substantially in the manner specified.

2. In a machine for forming pottery-ware, the combination and arrangement of the mold *b*, made stationary in table A, die *c* forced into the mold by weighted drop *d*, and raised by lever *l*, pivoted to toggle *t*, constructed and arranged to operate substantially in the manner described, for the purpose set forth.

3. The combination of the die *c*, drop *d*, bolt *s*, and nut *s*, substantially in the manner described and shown, for the purpose specified.

185,097. GATES. H. W. Goodwin, Ionia, Mich., assignor to himself and J. B. Hutchings, same place. [Filed Sept. 11, 1876.]



1. The combination, with a gate, of the tie-slats E, latch F, rod *g*, and lever G, as and for the purpose set forth.

2. The combination, with a gate, of the tie-slats E, latch F, rod *g h*, and lever G, arranged substantially in the manner and for the purpose described.

185,098. CAR-BERTH SUPPORTERS. Thos. Grant, St. Louis, Mo. [Filed Oct. 19, 1876.]



1. A car berth supporter having a sleeve provided with a securing device, as and for the purpose set forth.

2. The sleeve D, having set-screw *d'*, in combination with the hinged suspension-rod A B C, as set forth.

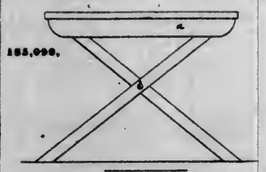
3. The sleeve D, having shoulder *d'*, and set-screw *d'*, in combination with the hinged suspension-rod A B C, as set forth.

185,099. FOLDING TABLES. Arthur Gray, Westbrook, Me. [Filed Oct. 4, 1876.]

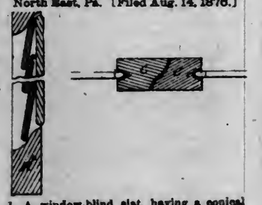
Brief.—The pins on the upper ends of the legs slide in grooves, and engage in notches made in the end rails or pieces attached to the top. They are separated from the top by passing the pins out of the grooves through the opening at the bottom of each rail.

The folding adjustable table, combining the detachable folding legs, the pin *c*, and the top, with the grooved notched pieces *a*, having the opening *b*, constructed substantially as shown, and for the purposes set forth.

185,099.



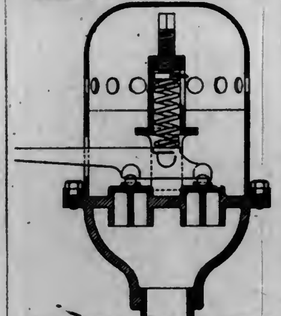
185,100. WINDOW-BLINDS. Elmer Green, North East, Pa. [Filed Aug. 14, 1876.]



1. A window-blind slat, having a conical tenon, in combination with a stile, having a conical hole for the said tenon, said arrangement being for the purpose of giving a bearing to the tenon at its inner end, and for the other purposes set forth.

2. A window-blind consisting of the cross-rails A A' A'', constructed as set forth, inner vertical rail C, rabbeted with an ogee-rabbet, slats whose tenon has a tapering, pointed, or conical form, and the holes in which said slats are pivoted tapering in form, the whole constructed and arranged to operate substantially as described.

185,101. SAFETY-VALVES. S. Harrison, Baltimore, Md. [Filed Sept. 9, 1876.]



A safety-valve having two valves, adapted to open by pressure in the same direction, and held to their seats by a spring placed centrally between them, the said valves being connected by a lever in such manner as to cause the opening of one valve by the depression of the outer end of the lever, and the opening of the other valve by the elevation of the said outer end of the lever, substantially as herein specified.

185,102. BULBS. Chas. M. Hays, Silver City, Idaho. [Filed Apr. 29, 1876.]

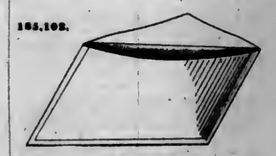


As a new article of manufacture, a ruler provided with a longitudinal slot or aperture extending therethrough, substantially as and for the purpose specified.

185,102. ENVELOPES. Levi J. Henry, San Francisco, Cal. [Filed May 18, 1876.]

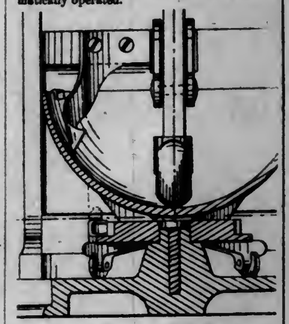
An envelope for letters and papers, composed of a back of sized paper with the opposite side made of unsized or blotting paper, substantially as and for the purpose set forth.

185,102.



185,104. MEAT-CHOPPERS. S. E. Howes, Hoopeston, Ill. [Filed Apr. 1, 1876.]

Brief.—A revolving basin and a vertically reciprocating and rocking pitman, at the end of which is a meat-mincing blade, arranged to receive upon it a butter-muller, for conversion to use as a butter-worker, the whole automatically operated.



1. The meat-chopper adapted for conversion into a butter-worker by the addition of a muller, as herein set forth.

2. The combination of the bowl-seat D, arms F, legs H, bowl G, and hooked fastenings for securing the bowl to its seat, substantially in the manner described.

3. The combination with the crank-rod P, having a tapering end screw-threaded, and the screw-threaded socket Q, to firmly clamp the knife in place, as set forth.

4. The muller R R' constructed in two parts, and adapted to be removably secured to a chopping-knife, for the purpose specified.

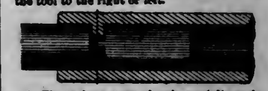
5. The combination of the operating mechanism M N O, the crank-rod P, having slot U, and the lever T hinged at one end to the frame, and pivoted at the other in said slot, for the purpose set forth.

6. The combination of the operating mechanism M N O, the crank-rod having adjustable slot X, the jointed lever V W, cross-shaft W', depending arm *y'*, and pawl *y*, for imparting a rotary movement to the bowl, as set forth.

7. The spring *c*, applied around the pawl, and an extension, *c'*, of the ratchet, to hold them both to their work, as set forth.

185,105. TOOLS AND TOOL-HOLDERS. W. S. How, Cincinnati, Ohio, assignor to S. S. White, Philadelphia, Pa. [Filed Feb. 18, 1876.]

Brief.—The cylindrical bore of the holder has, at a short distance from one end, a transverse segmental flange or bridge, and the tool B is inserted and confined therein by bringing the flat surface *b* of the tool in line with the edge of the bridge, pressing the tool in until the shoulder *c* of its transverse groove abuts against the bridge, and then turning the tool to the right or left.



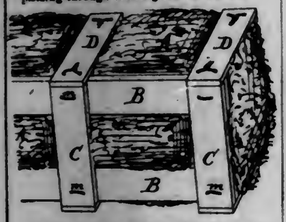
1. The tool constructed, substantially as described, with a flattened end and transverse groove between the round and the flattened portions of the tool, for the purposes specified.

2. In combination, a socket or rotating tool-holder having a locking-lug tangential to the bore thereof, a tool having a flattened shank, and a transverse locking-groove on the shank of the tool, between the flattened end and

round part thereof, these members being constructed and operating substantially as described, whereby the shank of the tool is locked in the socket in whichever direction it may be rotated.

185,106. MEANS FOR BALING MANURE. P. C. Ingersoll, Brooklyn, E. D., N. Y., assignor to B. Ackerman, New York city. [Filed Sept. 30, 1876.]

Brief.—On each of two opposite longest sides are two boards along the edges of the bale, held in place by three series of lateral boards on all the sides, and connected at their ends by wires bent to the form of staples passing through the longitudinal boards.

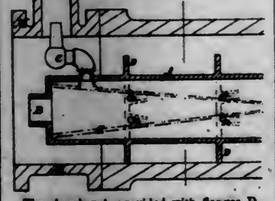


1. The bale or package described, composed of the compressed fertilizing material A, inclosed within bread strips B C D, of wood, as shown, and as herein specified.

2. The fastening-wires *m*, set in the frames B C, adapted to secure the side pieces D, substantially as and for the purposes herein specified.

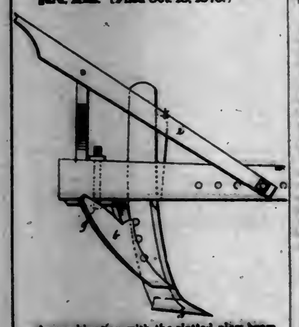
185,107. APPARATUS FOR CLEANING GAS-RETORTS. Nicolaus Jamin, New York, N. Y. [Filed Aug. 18, 1876.]

Brief.—The retort is cleaned by jets of steam discharged against its insides.



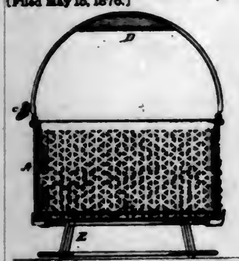
The chamber A, provided with flanges D, nozzle B, pipe C, jet-pipes *n n*, and cap-piece E, provided with jet-pipes *m* and tapering nozzle or pipe F, the whole being constructed and operating substantially in the manner and for the purpose set forth.

185,108. PLOWS. Benj. F. Jones, Beauregard, Miss. [Filed Oct. 18, 1876.]



In combination with the slotted plow-beam *a*, the subsoiler *c d*, having a series of perforations along its rear edge, and vertically adjustable through the plow-beam, the mold-board *b*, provided with the lug *f* on its bottom, and connected to the subsoiler by the bolt *w*, and also connected to the plow-beam by means of the angular bar *o*, and the vertical adjusting-bolt *g*, all substantially as and for the purposes herein set forth.

185,109. CULINARY UTENSILS. D. S. Kellogg and W. T. Lintner, Fort Plain, N. Y. [Filed May 15, 1876.]



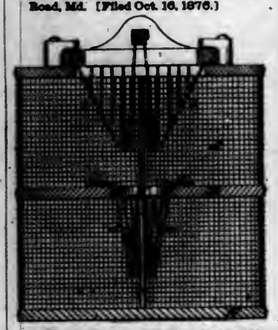
1. The above-described cooking or culinary utensil, adapted for use as an egg-boiler, colander, vegetable-grater, and flour-sieve, substantially as shown and specified.

2. The combination cooking utensil specified, provided with a hinged handle, D, having a stop, *e*, adapted for use substantially as described.

3. The removable or detachable pedestal E, constructed as shown, in combination with the cooking utensil herein described, for the purpose specified.

4. A cooking utensil composed of the grating sides A, foraminous bottom, and hinged handle, substantially as and for the purpose described.

185,110. ANIMAL-TRAPS. C. Koons, York Road, Md. [Filed Oct. 16, 1876.]



1. The combination, with the tapering inlet to an animal-trap, formed by inwardly-projecting pointed wires, of a pivoted swinging gate arranged centrally within said tapering inlet, substantially as and for the purpose described.

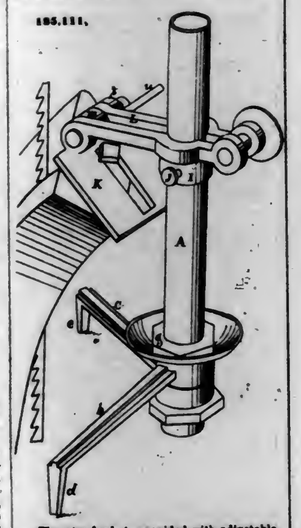
2. The drum-shaped trap, having a partition, D, forming two compartments, one for catching and the other for receiving or disposing of the rats or other animals, provided with detachable frames carrying inwardly-converging pointed wires, for the removal of the animals, substantially as described.

3. The tapering inlet, composed of pointed wires and having a swinging gate, substantially as described, in combination with a wire cage having a partition, D, forming two compartments, and a second detachable frame carrying pointed wires and forming a tapering inlet to the lower compartment, substantially as described, and for the purpose set forth.

185,111. CLAMPS FOR HOLDING HAND-RAIL WREATH-PIECES. C. Lamb, San Francisco, Cal. [Filed Oct. 14, 1876.]

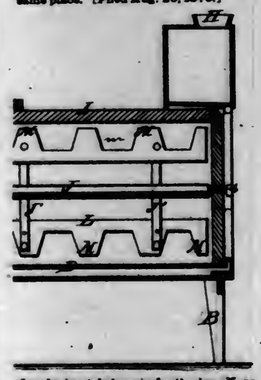
Brief.—The wreath-pieces of staircase hand-rails are firmly held in the proper angular position to enable the workman to carry the rail properly to the saw, for sawing the convex and convex sides of the pieces.

185,111.



The standard A, provided with adjustable legs *b c* and feet *d e*, and adjustable collar I, in combination with the hinge consisting of the slotted plate K and parallel bars L, said bars being arranged to be clamped to the standard A, and the eccentric *t* with its lever *u*, all combined and arranged to operate substantially as and for the purpose set forth.

185,112. ROTARY CHURNS. Tilson Landt, Ilion, N. Y., assignor to Alonzo B. Ely, same place. [Filed Aug. 26, 1876.]



In a horizontal churn-body, the lugs N, arranged on one side only of the churn-box A, in combination with the horizontal rotary dasher J, provided with projections M, substantially as described, and for the purpose set forth.

185,113. STAND FOR BED-BOTTOMS. Ambrose J. Lottin, Alvarado, Cal. [Filed Oct. 7, 1876.]

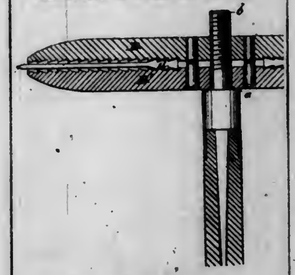
1. The longitudinal slots C, made broad enough to nearly meet at the edges, and having the slot D cut through their centers, substantially as and for the purpose described.

2. The bread centrally-pivoted slats C, having the grooved strips F at each end, and being cut away, as shown at E, in combination with the coiled springs B, substantially as and for the purpose herein described.

3. The frame A, made higher at its outer edges than at the center, and having the outer coiled springs B mounted upon it so as to incline inward, in combination with the broad outer slat C, so made as to project to the outer edge and incline inward, substantially as described.

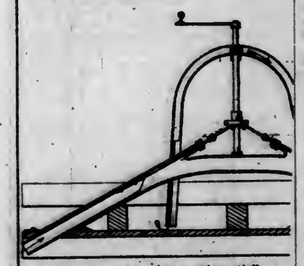
4. The head and foot pieces G, having the cross-bars H and I, in combination with the frame A, slotted at J, substantially as and for the purpose herein described.

185,114. MILL-PICKS. Edgar F. Lemoine, Emmerton, Va. [Filed Oct. 2, 1876.]



The handle having shoulder *a* and screw-threaded stem *b*, in combination with the toothed blades C and the notched jaws B B', the one jaw, B, being perforated with a screw-threaded hole and having pins *c*, and the other jaw perforated with a plain hole for the stem, and having guide-holes for the pins, substantially as and for the purpose described.

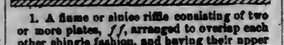
185,115. BILGE-WATER EJECTORS. Richard Scott Little, Chatham, Ontario, Canada. [Filed June 6, 1876.]



1. In a bilge-water ejector, substantially as described, the arched or bent pipe passing through the bottom of the hull, in combination with the siphon, substantially as and for the purpose set forth.

2. In a bilge-water ejector, substantially as described, the combination of the siphon, the arched or bent pipe, the telescopic sections in the ends thereof, and a means for protruding and retracting them, substantially as described.

185,116. MINING-RIFFLES. A. Mann, Big Oak Flat, Cal. [Filed Oct. 14, 1876.]

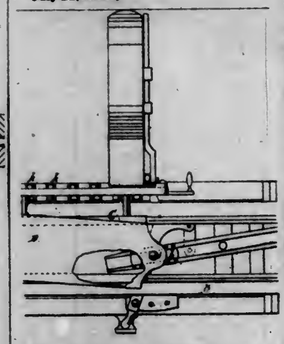


1. A flume or sluice riffle consisting of two or more plates, *f f*, arranged to overlap each other shingle fashion, and having their upper ends supported, as described, whereby a recess or chamber is formed beneath each overlapping end, substantially as and for the purpose described.

2. The flume or sluice A, provided with the inclined plates K, each of which has a recess under its upper end, in combination with the slot *l* in the bottom of the flume, substantially as and for the purpose described.

3. The flume or sluice A, provided with removable sectional riffle-bottoms, each section being composed of a board, C, provided with side-boards *d*, and having its upper surface covered with overlapping metal plates *f f*, substantially as and for the purpose described.

185,117. MACHINES FOR PUNCHING METAL PLATES. C. Mason, Chicago, Ill., assignor to himself, Geo. Mason, Jas. A. Mason, and John Mohr, all of same place. [Filed July 22, 1876.]

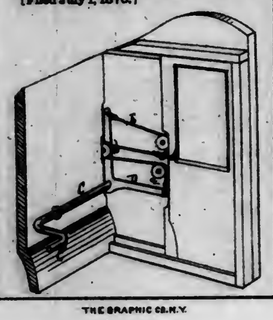


1. In a machine for punching sheet metal, the guide-bar E, pivoted at or near its center, and at a point some distance from a line drawn transversely across the machine in a line with the punch, as described, in combination with a reversible table, D, and traveling block *h*, substantially as and for the purpose set forth.

2. In a machine for punching sheet metal, the pivoted dicks *h*, in combination with suitable devices for moving and holding the same, all constructed and operating substantially as specified.

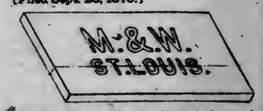
3. In a machine for punching sheet metal, the frames B and C and table D, in combination with the guide-bar E, substantially as and for the purpose specified.

185,118. OPERATING STREET-CAR DOORS. Jas. McGregor, Detroit, Mich., assignor to Michigan Car Company, same place. [Filed July 1, 1876.]



In mechanism for operating car-doors, the combination, with the rock-shaft C, passing along the side of the car, of the bent lever D, the cord E, and the pulleys *a b c*, constructed, arranged, and operating substantially as described and shown.

185,119. FINISHING TOBACCO-PLUGS. A. Miller and C. Worley, St. Louis, Mo. [Filed Sept. 23, 1876.]



The mode of simultaneously stamping and finishing tobacco, consisting of tightly compressing the plugs between plates having letters in relief in alternating series, substantially in the manner described.

185,120. BELT-SHIFTERS. Fred. B. Miles, Philadelphia, Pa., assignor to himself and O. C. Ferris, same place. [Filed Aug. 17, 1876.]



The combination of a plate actuated from the table of a planing-machine, and provided with a slot in two parts, having an abrupt communication, *y*, with two belt-shifting levers, having pins adapted to the said slot, all substantially as set forth.

185,121. JOURNALS AND BEARINGS. F. B. Miles, Philadelphia, Pa., assignor to himself and O. C. Ferris, same place. [Filed Aug. 7, 1876.]

1. The spindle or shaft D, shoulder *e* on the same, and a washer interposed between the said shoulder and the bearing, and constructed to slide on, but turn with, the spindle, in combination with the bearing B and a nut, H, adapted to the threaded portion of the spindle, all substantially as set forth.

2. The within-described washer, composed of the recessed metal ring *k* and ring *l*, of rawhide, combined substantially in the manner described.

185,122. ELEVATED RAILWAYS. J. Montgomery, Livingston, N. Y. [Filed May 26, 1870.]

Brief.—An improvement in the class of elevated railways where the cars are supported laterally *on center*. A single metallic girder is made the center, by means of horizontal and vertical projecting flanges, to serve as rails, both for sustaining the load and for resisting the lateral strain. The wheels of the cars are adapted to run on these flanges, and the interior of the hollow girder is intended to be utilized for pneumatic transport.

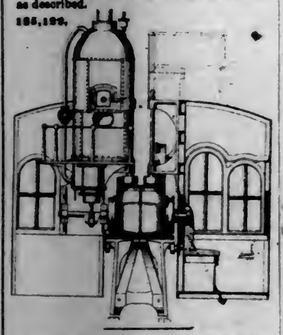
1. A girder, B, for elevated railways, constructed with vertical and horizontal projecting flanges to adapt it to support a car projecting laterally on one side only of the said girder, as that by a duplication of parts a single

girder may be made to support on its respective sides cars moving in opposite directions, substantially as described.

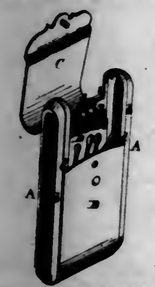
2. The described combination of rails and wheels, the former being above and on the side of the girder, and the latter consisting of wheels with horizontal axes to rest on the upper and lower rails, and of wheels having vertical axes to resist the lateral strain of the over-hung car, as and for the purpose described.

3. A continuous tube or hollow girder in an elevated railway possessing the two functions of a road-bed or support for independent lines for transit in opposite directions, and also as a tube for pneumatic transport, as described.

185,193.



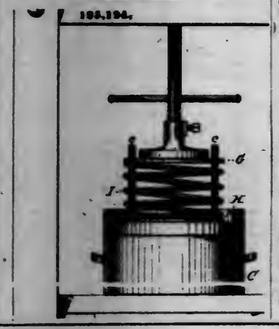
185,194. MATCH-SAFES. C. G. Mortimer, New York, N. Y. [Filed Nov. 14, 1876.]



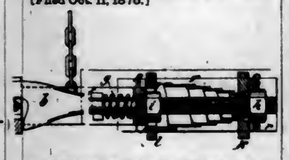
1. The within-described match-safe, consisting of the corrugated side pieces A A, body B, and the lid C, hinged at the back and closing over the top to the front, with the spring *e*, pin *f*, and the hole *a* in the body, substantially as and for the purposes herein set forth.

2. The match-safe A B C, having the loop D and cushion *h*, as and for the purposes herein set forth.

185,195.



185,196. CAR-COUPLINGS. Edw. M. Parrott, Greenwood Iron-Works, New York. [Filed Oct. 11, 1876.]



In combination with the bumper-head, a hooked draw-bar, extending through the rear of the draw-head, the sliding plates *h*, guide-plates *r*, and draft-plate *l*, nuts *b i*, and springs *g N*, the spring *g* acting on the draw-bar within the bumper-head, and the spring N acting upon the sliding and draft plates, substantially as and for the purpose specified.

185,197. UPHOLSTERERS' BUTTON ATTACHMENTS. Edmund E. Pock, Attleborough, Mass. [Filed Oct. 16, 1876.]

1. The combination of an upholstery-button, A, and a flexile wire, B, extending therefrom, as explained, with a securing-plate, C, as described, provided with an eye, *c*, and a fastening-projection, *b*, all being arranged and applied, essentially as set forth.

2. The fastening-plate C, bowed or bent as described, and provided with the eye *c*, and the projection *b*, all being as shown, and for use, as explained, with a flexile wire and button, when applied to a cushion, as set forth.

185,198. MILLSTONE-DRESSING MACHINES. J. Orff, J. C. Cookson, and L. Rastetter, Fort Wayne, Ind., said Cookson and Rastetter assignors to said J. Orff. [Filed Nov. 18, 1876.]

Brief.—The transverse cross-frame, carrying the diamond tool, is removable, as also the tripping bar, for the purpose of operating on opposite sides, and thereby cutting grooves with the different inclinations desired.



1. The radial arms B B′ and bifurcated clamping-bars C C′, having set-screws, as described, substantially as and for the purpose specified.

2. In combination with the bed-plate A and frame D the spring *y*, substantially as and for the purpose specified.

3. In combination with the bed-plate A and frame D, the recess *x*, pin *e*, packing-ring *f*, and set-screw *g*, substantially as described.

4. In combination with the bed-plate A and frame D, the beveled pointed set-screw E and recess *h′*, substantially as and for the purpose set forth.

5. In combination with the threaded tool-holder *u*, the screw-shaft *t*, turn-wheel S, sliding tube *a′*, spring *h*, and slotted sleeve *i*, substantially as described.

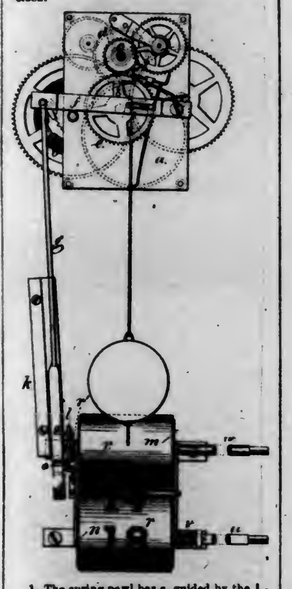
6. In millstone-dressing machines, the pin *i*, having adjustable sleeve *m* and adjustable cam or bar O, in combination with sliding pin *r* and slotted bar P, substantially as specified.

7. In combination with the bed-plate A and frames D and H, the removable transverse cross-frame R, carrying the diamond tool with the automatic feeding device, substantially as described.

8. In millstone-dressing machines, the combination of the cam-lever *w*, working on its shaft *v*, and having a spring, *z*, and dog *g′*, with the adjustable and removable tripping-bar H′, substantially as specified.

185,199. CALENDAR-CLOCKS. A. Phelps, Ansonia, Conn., assignor to A. A. Cowles, New York, N. Y. [Filed Oct. 16, 1876.]

Brief.—In a calendar-clock, a panoramic calendar operated by intermediate devices connected with the time mechanism of the clock.

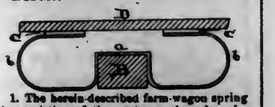


1. The spring-pawl bar *g*, guided by the L-shaped strip *k*, in combination with the ratchet-wheel *l* and panoramic calendar, substantially as set forth.

2. The lever *f*, in combination with the time-movement, the wheel *s*, stud *i*, pawl-bar *g*, and panoramic calendar, substantially as set forth.

3. The rollers *m* n and panoramic calendar *r*, in combination with the ratchet-wheels *l r′*, shafts *n w*, and friction-spring *v*, whereby the panoramic calendar can be set either forward or backward, substantially as set forth.

185,200. FARM-WAGON SPRINGS. Luther Pulliam, Knobnoster, Mo. [Filed Nov. 4, 1876.]

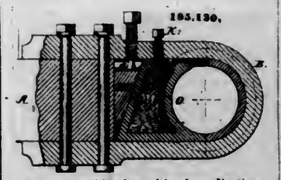


1. The herein-described farm-wagon spring A, consisting of the center *a*, shaped as described, and the leaves *b b*, substantially as described and shown.

2. The combination of the spring A, having the center *a* and the leaves *b b*, as described, the plates C C, the bolster B, and the wagon-bed D, substantially as shown and described.

185,190. STRAP-JOINTS AND CLIPS. Louis Ransom, Stratford, N. Y. [Filed Nov. 1, 1876.]

185,130.

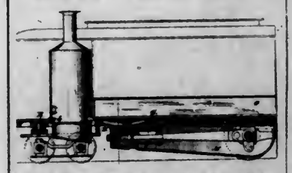


1. The combination, with the adjusting-wedge E, of the hollow movable box O, having its rear face inclined, and the stub-end A, having a vertical face, the whole being arranged and adapted to operate as shown and described.

2. The hollow box O, adapted to receive oil, and provided with wick-channels in its top and wearing-face, cut and arranged as shown and described.

3. In combination with the movable box O, and the strap B, the screw K, adapted to close the filling-orifice to said box, and operating through an enlarged opening in said strap, as and for the purposes explained.

185,131. STEAM-CARS. Louis Ransom, Stratford, N. Y. [Filed Nov. 1, 1876.]



1. In a steam-car, the combination, with the forward truck thereof, of the front and rear boiler-transoms B and E, carrying a steam-boiler and connected with said truck, substantially in the manner explained.

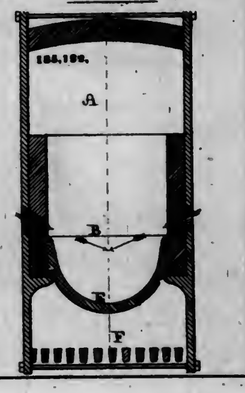
2. In combination with a bail which supports the cylinder end of an engine located beneath a car, a bar, F, resting upon the two transoms E and G, substantially as set forth.

3. The combination, with an engine located beneath the body of a car, of a dust-tight casing supported upon and movable with said engine, substantially as described.

4. The dust-tight doors O O, in the bottom of a car, combined with a dust-casing for an engine below, for the purpose of excluding dust and affording access to the engine, as set forth.

5. In combination with a dust-casing for an engine located beneath a car, a flexible joint attached to said casing and to some portion of the bottom of the car, as and for the purposes explained.

6. The combination of the two sections L and M, the flexible joint *r*, and the doors O O, forming a dust-casing for an engine, the whole being constructed and arranged substantially as shown and described.



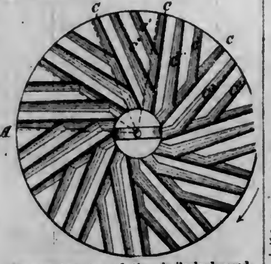
185,132. SMELTING-FURNACES. Wm. L. Reynolds and Edwin E. Studer, St. Louis, Mo., assignors of part of their right to Wm. B. Dean, Chas. D. Moody, and Samuel S. Boyd, all of same place. [Filed Mar. 28, 1876.]

Brief.—A supplemental fire-place is arranged beneath the furnace-hearth to prevent it from chilling.

The combination of the furnace A, fire-place B, sliding bottom E, and fire-place F, substantially as described and shown.

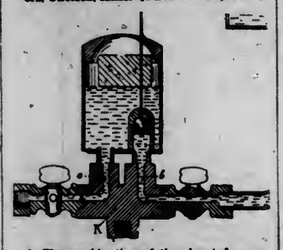
185,133. MILLSTONE-DRESSERS. Elias N. Roeder, Quakertown, Pa. [Filed Sept. 26, 1876.]

Brief.—Forms the dress upon both stones alike, the leading furrows being radial to produce no draft.



The combination of the similarly-dressed runner A and bed-stone B, having each the tapering leading-furrows C wider and deeper at the eye than at the skirt, and having their feather or trailing edges arranged radially for no draft, together with the tapering quarter-furrows C′ C′ arranged for a draft, substantially as and for the purpose described.

185,134. FLUID-REGULATORS. H. F. Rogers, Chelsea, Mass. [Filed Oct. 26, 1876.]



1. The combination of the elevated reservoir and a chamber communicating through its lower end with the reservoir and with an outlet, said chamber carrying a float, and having a valve-seat adapted to a valve arranged below the seat, and regulating the inward upward flow of the oil, as specified.

2. In combination with the chamber A, the T-piece or support K, provided with the indirect passages *b* and *c*, as and for the purpose set forth.

185,135. VAPOR-BURNERS. H. F. Rogers, Chelsea, Mass. [Filed Oct. 23, 1876.]

1. The combination of the channel or chamber C, the branch pipes B B, and the air-passages *b b*, as and for the purpose set forth.

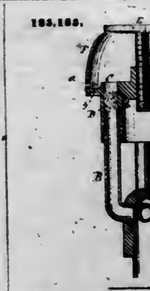
2. The cone F, provided with the perforations *a a* in its lower edge, in combination with the deflector *c*, as set forth.

3. The cone F, having a shoulder at its lower edge, and provided with perforations *a*, in combination with the burner, having a deflector, *c*, and flange *f*, as set forth.

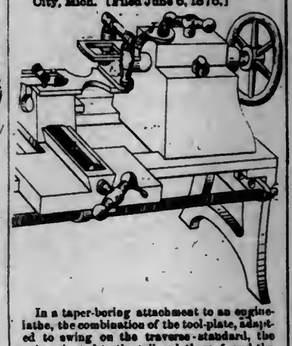
4. The combination of the air heating and conveying passages *b*, the channel C, and the perforated cone F, substantially as and for the purpose set forth.

5. The combination, with the perforated cone F, of the adjustable button-top E, as and for the purpose described.

185,136.

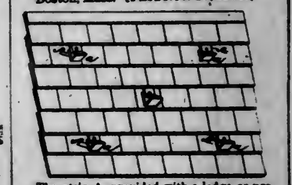


185,136. TAPER-BORING ATTACHMENTS TO ENGINE-LATHES. Peter L. Rogers, Bay City, Mich. [Filed June 6, 1876.]



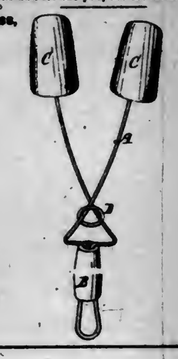
In a taper-boring attachment to an engine-lathe, the combination of the tool-plate, adapted to swing on the traverse-standard, the yoke, pivoted to the tail end thereof, and the guide-plate, adapted to be adjustably secured to the tail-stock, substantially as described.

185,137. ROOF-FENDERS. F. O. Rogers, Boston, Mass. [Filed Nov. 20, 1876.]



The strip A, provided with a ledge or projection, *a*, and a hook, aperture, or other means of securing it in place upon a roof, substantially as and for the purpose set forth.

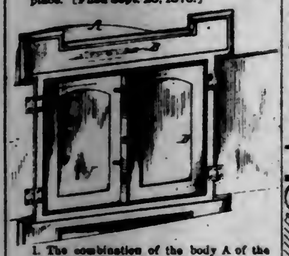
185,138.



185,136. LAMP-CHIMNEY CLEANERS. J. M. Schatzel and Geo. N. Schatzel, White House, Ohio. [Filed June 6, 1876.]

The crossed and bent wire A, having each end inserted in a pad, C, and its bight in a tubular handle, B, and the combination therewith of the ring D, substantially as and for the purpose set forth.

185,139. PICTURE-EXHIBITORS. Fredk. B. Schneider, Philadelphia, Pa., assignor to himself and Aug. Scharninghausen, same place. [Filed Sept. 26, 1876.]

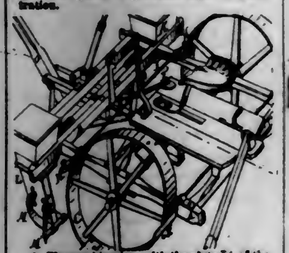


1. The combination of the body A of the case with the front B, the edges of which project beyond the top and bottom of said body, whereby the said case will support itself in an inclined position when placed on a flat surface, as set forth.

2. The combination of the stem a and the cards D with the hinges b, constructed as described, and each consisting of a ring, c, and the arms d d, adapted to embrace the edge of the card, as set forth.

185,140. CORN-PLANTERS. A. M. Southard, Marshalltown, Iowa. [Filed Apr. 19, 1876.]

Brief.—The shoe is provided with a gage-plate and guard to graduate depth of penetration.



1. The combination, with the plate L', of the seed-spout and furrow-opener L, constructed from a sheet of steel bent vertically upon itself, with a sharp rounded front edge and flaring sides, substantially as described and shown.

2. The combination, with the seed-spout and furrow-opener L, of the adjustable gage-shoes M, and the guards M', constructed and arranged substantially as described and shown.

185,141. MANUFACTURE OF ACETIC ACID. Edwd. B. Spalding, Brooklyn, N. Y. [Filed May 15, 1876.]

Brief.—Wood is distilled at a low temperature for the production of acetic acid. It is inclosed in a retort placed in a closed oven, thus being surrounded by an air-bath. The vapors are condensed in an air-condenser. The temperature of the retorts is regulated and controlled by dampers within the ovens. The retorts have wheels for running them into the ovens, their axles extending through the retorts, being protected by tubes. The edges of the oven-openings are beveled, forming, with the edges of the doors, V-shaped grooves, into which is packed the luting of clay.

1. The process of producing acetic acid, which consists in subjecting the wood in a retort to the action of heat in an oven, whereby the temperature being even and controllable an acid practically free from tar is obtained, substantially as described.

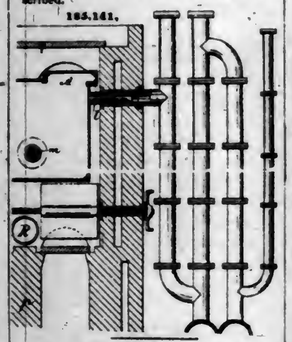
2. The combination of a closed oven, a retort, and dampers, substantially as shown and described.

3. The oven, provided with a beveled face, in combination with a door, the two being constructed to leave a space, e, and opening f, to hold the sealing material, substantially as shown and described.

4. The furnaces Z, arranged alternately beneath the ovens, substantially as shown and described.

5. A retort provided with tubes m, the tube l, and man-holes A B, substantially as described.

185,141.



185,142. GRINDING-MILLS. Jacob R. Stewart and Wm. R. Dunlap, Cincinnati, Ohio. [Filed May 26, 1876.]

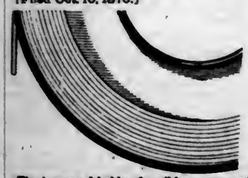
Brief.—The forks of the slotted driver are swallow-tailed instead of the usual form. The bush depends from the iron bridge-tree, and carries three adjustable fountain-followers, held in place by set-screws, so that they can be independently taken out and put back from the bottom, without changing the perpendicularity of the spindle, or disturbing the stones.



1. In under-running mills, the combination of conical bush D d d', having tapering lugs d'', spindle E e', having flattened driving-head e, and driver F, having slot f and swallow-tailed forks f', substantially as and for the purpose specified.

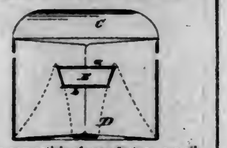
2. The combination, substantially as specified, of the runner-stone, the spindle, the floor underneath the runner-stone, the bridge-tree of the floor, and the bush depending from said bridge-tree, provided with fountain-followers, arranged as described, so that they can be easily adjusted, and separately inserted and removed through the lower open end of the bush.

185,143. HOLDERS FOR RIBBON PEG-WOOD. Benjamin F. Sturtevant, Boston, Mass. [Filed Oct. 10, 1876.]



The improved holder for ribbon peg-wood, consisting of the plate a, rim b, and collar, adapted to hold the roll of ribbon peg-wood, and to be applied to, or to be removed from, the pegging-machine with the ribbon peg-wood, to avoid disturbing the arrangement of the layers of the coil of the ribbon peg-wood, and the removal of the ribbon from the holder, all substantially as described.

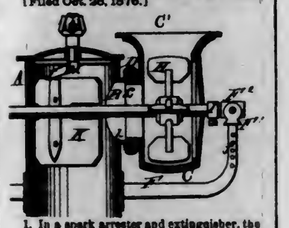
185,144. ENVELOPES. George F. Taylor, Brooklyn, N. Y. [Filed Oct. 16, 1876.]



1. As a new article of manufacture, a mailing-bag, of paper or other suitable material, having an open mouth and a flap at the upper end, and an unsealed bottom, constructed substantially as herein set forth.

2. As a new article of manufacture, a mailing-bag, of paper or other suitable material, for unwritten matter, having a bottom, D, formed of the tapered tongue E, interlocked through the slits a b by being passed outwardly through the upper slit a, and inwardly through the lower slit b, thus forming a habitually-locked bottom without adhesive matter, substantially as set forth.

185,145. SMOKE-STACKS AND SPARK-ARRESTERS. James Taylor, Nevada, Ohio. [Filed Oct. 26, 1876.]



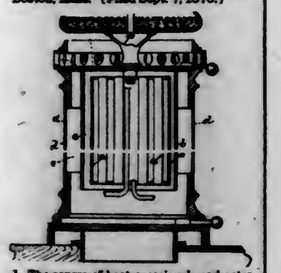
1. In a spark arrester and extinguisher, the combination of a rotating fan with a casing or spark-receiver, surrounding the same, and with a smoke-stack head, opening into said casing, the opening being closed at will by a sliding valve or cut-off plate, which conforms to the interior face of the smoke-stack, substantially as set forth.

2. In a spark-arrester, the spark-receiver C, provided with an annular flange, c, in combination with the smoke-stack, having flange b and clamping-collar D, divided transversely, and provided with screw-tapped lugs d d' and screw e, whereby the spark-receiver is circumferentially turned and held in any desired position, substantially as described, and for the purpose set forth.

3. In a spark-arrester, the hollow shaft G, provided with stop-collars I I, in combination with the perforated supporting-arms F F, having clips F' F' and steerm F'', substantially as described, and for the purpose set forth.

4. In a spark-arrester, the combination of cut-off or valve K with crank L, shaft M, and stack-head A, having opening B, substantially as and for the purposes set forth.

185,146. STEAM-RADIATORS. Fred. Tudor, Boston, Mass. [Filed Sept. 7, 1876.]

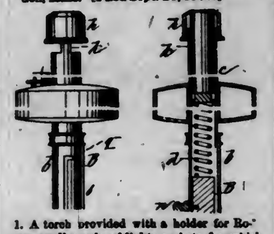


1. The source of heat a, casing b, and outer casing, in combination with a valve to close or open the chambers c c for the passage of heated or cold air, and with a valve to regulate the cold-air supply from outside the apartment.

2. The source of heat a, casing b, and outer casing, in combination with a valve to close or open the chambers c c for the passage of heated or cold air, and with a valve to regulate the cold-air supply from without or within the apartment, substantially as described.

3. In a steam-radiator for warming and ventilating buildings, an evaporator, c, provided with a hollow shell, p, in combination with, and connected with, the source of heat a, to permit the circulation of the steam in the casing of the evaporator, all constructed and proportioned, with relation to each other, substantially as described.

185,147. COMBINED TORCH AND HOLDER FOR FIRE-WORKS. Augustus Tufts, Malden, Mass. [Filed Sept. 26, 1876.]



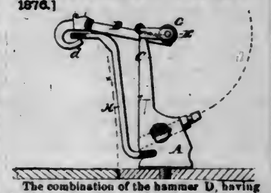
1. A torch provided with a holder for Roman candles, colored lights, rockets, &c., which may be ignited by the flame rising from the torch-burner, substantially as described.

2. A firework-holder, B, passing centrally through or to one side of the fluid-receptacle A of a torch, as and for the purpose set forth.

3. As an improvement in torches, the holder B, with its slot p and screw-cap A, in combination with the spring d and movable support m, provided with a knob or handle, n, as and for the purpose described.

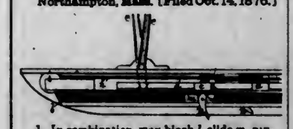
4. In combination with a torch, the tube b, made in two portions, 5 6, constructed and operating substantially as described.

185,148. BURGLAR-ALARMS. J. B. Underwood, Fayetteville, N. C. [Filed May 10, 1876.]



The combination of the hammer D, having hook d at its outer end, and attached to a shaft, E, the spring G, trigger H, and the frame A C, with barrel a, all constructed substantially as and for the purposes herein set forth.

185,149. SLED-PROPELLERS. G. P. Warner, Northampton, Mass. [Filed Oct. 14, 1876.]



1. In combination, way-block l, slide m, pivoted dog n, and actuating-cord h, all substantially as described, and for the purpose set forth.

2. In combination, levers c, racks d, pinion and hand-wheel f g, spools i j, cord h, dogs n, slides m, and way-block l, all substantially as described, and for the purpose set forth.

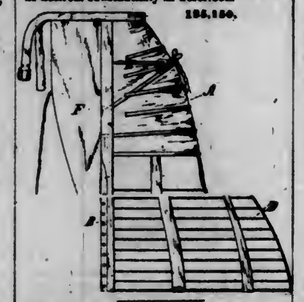
185,150. PANNIERS. Elizabeth S. Weldon, New York, N. Y. [Filed Sept. 21, 1876.]

1. In combination with the side springs B B of a bustle or pin-back, E, the series of springs D D, the lower one of which is secured at its ends in the pocket which holds the spring B, forming a flexible hinge-joint, adapted to operate as herein described, for the purpose set forth.

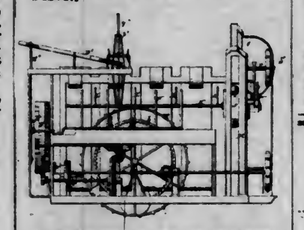
2. A combined bustle and pin-back, connected together by the springs B B, forming a rigid attachment in front, and by the bands H H at the rear, as and for the purposes herein set forth.

3. The combination of the bustle A, with pin-back attached thereto, the springs B B, and flaps F F, extending along the edges of the bustle and pin-back, and the upper and lower lacing-flaps G G, to be adjusted independently of each other, and allow either or both the bustle and pin-back to be arranged as desired, substantially as described.

185,150.



185,151. GRAIN-BINDERS. R. R. Whitney, Magog, Quebec, Canada. [Filed Oct. 11, 1876.]



1. The combination, with the slotted track H, of the carriage J, having rollers a, b, and d, and carrying the rake K L, and provided with the slotted standard V, the toothed wheels S and U, the idle toothed pulleys t t, and the endless chain u, provided with the crank v, all substantially as and for the purposes herein set forth.

2. The rake K L, coiled spring c, lever M, with slot f and projecting pin z, and the spring-latch h, in combination with the stationary fingers w x on the track H, and the spring-hook y on the side of the frame, all constructed and operating substantially as and for the purposes herein set forth.

3. The rake W, constructed as described, provided with curved arms V' and rollers a' and b', and operated by means of the lever Z, arm A', spring h', roller d', and cam f' on the wheel B', substantially as and for the purposes herein set forth.

4. The combination of the vertical needle Y, guides p', slotted lever D', the vertical slotted slide E', arms G' G', and the cam v' on the wheel B', substantially as and for the purposes herein set forth.

5. The combination of the intermittently-rotating shaft P', wings O', four-armed wheel E', pivoted jaws S' with springs w' and arms p', with rollers s' and the stationary cam T', all substantially as and for the purposes herein set forth.

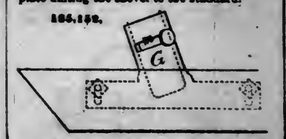
6. The combination of the wheel B' with projecting pin r', the four-armed wheel M', shaft N', gears k' k', and the shaft P', with four-armed cord-catcher attached thereto, substantially as and for the purposes herein set forth.

7. The combination of the intermittently-rotating shaft y, slotted collar r', spring-pawl s', with arm v', and the cam w' on the wheel B', substantially as and for the purposes herein set forth.

185,152. PLOWS. Jas. B. Wilkinson, Lisbon, Ill. [Filed Sept. 16, 1876.]

Brief.—The shape and construction of the plate uniting the shovel to the standard.

185,152.



A slant-plant for the shovels of corn plows or scrapers, consisting of an oblique elongated body-portion, D, having the advanced transversely-slotted end bearings c, and extending from its middle portion upward the horizontally-slotted cylindrical face-bearing G, substantially as specified.

185,153. DEVICES FOR STOPPING LEAKS IN PIPES. Geo. F. Wilcox, Thorndike, Mass. [Filed Nov. 1, 1876.]



The combination of a circular-shaped casting, c, which carries or holds a packing in one end, and a wedge for securing the casting to the pipe a, substantially as shown.

185,154. HANGERS FOR SHAFTING. James Yocom, Jr., Philadelphia, Pa. [Filed Nov. 15, 1876.]

Brief.—To provide for all the adjustments of a horizontal shaft, it has a tongue above and below, forming segments of the same circle, which work in corresponding grooves in the ends of vertically-moving posts, in thimbles cast with the hanger.



A cast-metal hanger having bushings or thimbles embedded therein in the operation of molding, combined with the movable posts of said hanger, substantially as and for the purposes herein set forth.

REISSUES.

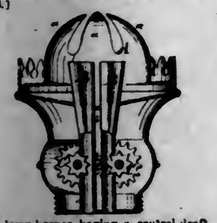
7,411. STAIR-PADS. E. H. Bailey, Brooklyn, N. Y. Patent No. 119,105, dated Sept. 19, 1871. [Filed Aug. 25, 1876.]



1. In a stair-pad or carpet-lining, the combination of cotton batting or other suitable fibrous material, powdered sandal-wood or cedar, and a body or covering of cotton, linen, or other suitable cloth or material, whereby the pad is made moth and insect proof, substantially as described.

2. In a stair-pad or carpet-lining, the combination of the outer case C, inclosed batting B, and the intermediate paper A, impregnated with the odor of sandal-wood or of cedar, as set forth, to form a moth-excluding pad for stair or other carpets.

7,412. LAMP-BURNERS. Jas. Curson, Derion, Conn., assignor of one-third interest to Stephen H. Gray. Patent No. 158,254, dated Dec. 29, 1874. [Filed Sept. 30, 1876.]



1. A lamp-burner having a central draft, and made of wick-tubes with radial sections, to form a star-shaped flame, substantially as and for the purpose described.

2. A lamp-burner having a central draft, and composed of angular wick-tubes, with sections radiating from the center of the burner, substantially as described.

3. The combination, with a lamp-burner having a central draft and radial wick-tubes, of the dome A, constructed in conical form and with recesses *a*, as and for the purpose specified.

4. The angularly-bent wick-tubes B B, being placed with their angles contiguous to each other, as shown and described.

7,413. FENCE-POSTS. H. N. Dunbar, Mentor, Ohio. Patent No. 127,749, dated June 11, 1872. [Filed May 29, 1876.]



In combination with a post, the brace-rod F, bent at the bottom, so as to form the angular arm *i*, by which the post is anchored in the ground, substantially as described, and for the purpose herein set forth.

7,414. MACHINE-OILERS. S. Hutchinson, Jr., Salem, Mass. Patent No. 164,090, dated June 8, 1875. [Filed Nov. 24, 1876.]



1. A machine-oiler having to its wick-tube D and fastening-neck *d* a separate wick-carrying tube, F, and a clamp-screw, G, arranged in the neck, as set forth.

2. The oil-reservoir or its cap C, provided with the tubular fastening-neck *d*, and the wick-clamp screw G, arranged in such neck, as set forth.

3. The oil-reservoir or its cap C, provided with the wick-tube D and the tubular fastening-neck *d*, and also with the wick-clamp screw G, arranged in said neck, as specified.

4. A machine-oiler composed of the double-necked oil-receiver A, the caps B and C, the wick-tube D, the regulating-screw G, and the tubular fastening-neck *d*, all being essentially as specified.

5. A machine oiler composed of the double-necked oil-reservoir A, the caps B and C, the wick-tube D, the fastening-neck *d*, the regulating-screw G, and the auxiliary wick-tube F, all being essentially and to operate as specified.

7,415. ELECTRO-THERAPEUTIC BATHS. J. W. Mollers, Cleveland, Ohio. Patent No. 102,091, dated Apr. 19, 1876. [Filed Nov. 6, 1876.]



1. The combination of the metallic-lined chamber A, having a lid composed of the sections M N O, slide P, coiled pipe F, and electric pile-plates *g*, substantially as herein shown and described.

2. The system of heating-pipes F, in combination with the series of plates of opposite electric character, substantially as and for the purpose set forth.

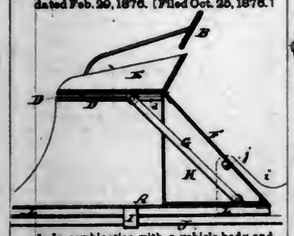
3. The heaters or pipes F, interposed between the series of negative and positive electro-plates *g*, in combination with the slatted or open floor H and the chamber A, substantially as and for the purpose set forth.

4. The system of heating-pipes F and positive and negative plates *g g'*, in combination with the copper-bottom and zinc-plate lining of the chamber A, the same being brought into electric relations with the plates *g g'*, by means of the heaters F, substantially as specified.

5. The adjustable or stationary sponge-cushion or pad S, in combination with the zinc and copper lining of the door, and the positive and negative plates *g g'*, substantially as and for the purpose specified.

6. The sponge cushion or pad S, in combination with the foot-rest K and positive and negative plates *g g'*, substantially as and for the purpose set forth.

7,416. VEHICLE-SEATS. Fred. Oppenheim, San Francisco, Cal. Patent No. 174,148, dated Feb. 29, 1876. [Filed Oct. 25, 1876.]



1. In combination with a vehicle-body and its fixed seat D, the folding seat E, brace G, and frame F, all arranged to allow the seat E to be folded directly upon the seat D without displacing said seat D, substantially as specified.

2. The seat D, provided with slots in its edge for allowing the passage of the braces G, which connect with the shifting seat E, substantially as specified.

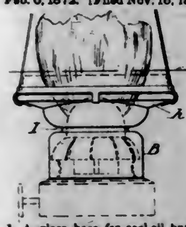
3. The fixed seat D, made with the raised back B, in combination with the shifting seat E, which is arranged to fold over the seat D, but under the back B, substantially as specified.

4. In combination with the shifting seat E, which is hinged to the panel F, the side panels H H rigidly attached to the panel F, to operate substantially as herein shown and described.

5. The combination, with the seat D, of the side panels H, pivoted braces G, transverse support F, hinged to the vehicle bottom, and seat E, hinged to the support, all substantially as herein shown and described.

6. The combination of the longitudinal supporting-bar J, ears *i i*, and pins *j j*, the sliding carriage-body A, hinged and slotted side panels H, and hinged seat E, all arranged so that in shifting the seat the body A will slide on the bar J, substantially as specified.

7,417. LAMP-CHIMNEYS. Ebenezer Blackman, New York, N. Y., assignor of one-half interest to A. Homer Byington, Norwalk, Conn. Patent No. 123,326, dated Feb. 6, 1872. [Filed Nov. 16, 1876.]



1. A glass base for coal-oil burners, constructed with a tubular body to fit around the cone or burner, and having a laterally-projecting flange, substantially as and for the purpose set forth.

2. A glass base having the contraction I and the laterally-projecting flange A, substantially as described.

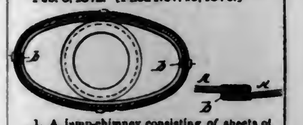
3. The glass base provided with the internal groove *f* and the notches *n*, for locking a chimney thereon, as set forth.

4. A transparent base for a coal-oil-lamp chimney, having a tubular body of suitable form and length to fit and support it on the lamp, and having a laterally-projecting flange, A, substantially as described.

5. The combination of a transparent base, having the tubular body B of suitable form and length to adapt it to be used on a coal-oil lamp, and a laterally-projecting flange, A, with a chimney, substantially as described.

6. The combination of the transparent base or holder B, provided with the downwardly-extending socket or body and dish-shaped flange, with the cone of a coal-oil lamp or burner, substantially as set forth.

7,418. LAMP-CHIMNEYS. Ebenezer Blackman, New York, N. Y., assignor of one-half interest to A. Homer Byington, Norwalk, Conn. Patent No. 123,325, dated Feb. 6, 1872. [Filed Nov. 16, 1876.]



1. A lamp-chimney consisting of sheets of mica, united by means of the doubled and indented or perforated metal strips *b*, and a metal band at top and bottom, substantially as shown and described.

2. The mica chimney A, provided with projections for locking or securing it to a base, B, substantially as set forth.

7,419. INKSTANDS. B. Brower, New York, N. Y. Patent No. 144,826, dated Nov. 25, 1873. [Filed Nov. 11, 1876.]



A barometer reservoir-inkstand, provided with a dipping cup or funnel having an opening and vent so constructed that the ink will flow into the dipping cup or funnel, of itself, and still allow only the clear fluid ink to be taken up by the pen, substantially as shown and described.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

COMMISSIONER'S DECISIONS.

RITCHEL *vs.* DE SANNO.—*Motion.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the applications of Chas. F. Ritchel, filed April* 20, 1876, *and Walter De Sanno, filed March* 26, 1874, *for* IMPROVEMENTS IN BORING-MACHINES.—*Decided September* 28, 1876.]

A second interference granted upon a new application, for the purpose of determining whether the matter was *res judicata*, dissolved, it appearing that the subject-matter claimed was involved and passed upon in the former case.

The public use proved in the first interference, occurring more than two years prior to the filing of the new application, affords good grounds for rejecting the latter.

[*F. A. Lehmann & W. C. McIntire*, attorneys for Ritchel.
J. L. Norris & J. J. Coombs, attorneys for De Sanno.]

DUELL, *Commissioner:*

This interference was declared by order of the Acting Commissioner for the express purpose of determining whether the matters at issue are not *res judicata*.

Motion was made before the Examiner of Interferences to dissolve the interference for that reason, and it is from his refusal so to do that this appeal is taken.

It seems that an interference was on the 5th of June, 1875, declared between these parties involving De Sanno's present application and a former one of Ritchel's filed March 13, 1874, the subject-matter involved being "the combination of the crank-arbors, tumbling-rods, and tool-holders, whereby the excessive friction of the tool-holder is avoided."

The machine, as described by either party, consisted of a series of tool-holders situated close together, and adapted to be placed at various angles. These holders were connected by intermediate links or tumbling-rods to the crank-arbors supported parallel to each other in a fixed frame.

Due proceedings were had in the case, and upon the final appeal the Assistant Commissioner awarded priority of invention to De Sanno. Ritchel subsequently, to wit, on the 20th of April, 1876, filed a new application, which is included in this interference, and basing his demand upon certain expressions contained in the Assistant Commissioner's decision maintains that in the former case only the particular form of link or tumbling-rod was adjudicated upon, whereas he now sets up a broad claim, to which De Sanno's is subordinate.

The claim in Ritchel's first application was as follows:

The combination of the right-angled cranks A, carrier-plate B, frame D, connecting-rods G, pattern-plate E, and spindles F, substantially as shown and described.

De Sanno's claim is as follows:

The journals *a* of the drill-stocks C, located in the frame A obliquely to the connecting-links E, and the bearings of the crank-shafts B, all in the described combination herein shown, for the purpose specified.

Ritchel in his new application shows substantially the same combination as formerly, except that the joints instead of being simple links are universal joints.

He presents three claims:

1. In a brush-block-boring machine, a rod having flexible joints, as a means of connection between the spindle and the crank, substantially as shown.
2. In a brush-block-boring machine, a rod having flexible joints, said joints being of the same or smaller size than the other parts of the rod, whereby the sticks can be crowded closely together without locking, substantially as set forth.
3. In a brush-block-boring machine, a flexible rod for the boring-tool, having its sections connected by ball-and-socket joints, substantially as specified.

These claims, it will readily be seen, are broader in terms than those presented heretofore; but the issue declared by the Examiner is precisely the same as before.

That portion of the Assistant Commissioner's decision most relied upon by Ritchel is as follows:

There is little force in the allegation that Ritchel had previously conceived the broad idea of a jointed rod. Admit that he had, what of it? Broad ideas that rest in theory or end in trifling experiments are but the shadows, and not the invention itself. Besides, *if it is not the broad idea that is in* controversy, the improved combination made and claimed by De Sanno is the precise and only one claimed by Ritchel.

It seems that in the former interference Ritchel took testimony to show that he had made a joint such as he presents in this application before De Sanno conceived of his invention, and it is now contended, as I understand, that this portion of his evidence was disregarded in the other case as not relating to the invention there in controversy, as he at that time only showed the link and not the universal joint. A careful reading of the decision, however, does not bear out his theory.

At the very outset the Assistant Commissioner, after defining the issue, considers what was done by Ritchel in making the universal joint as the same invention practically, but amounting to an abandoned experiment. He says:

The Primary Examiner declares the subject-matter of the issue to be the combination of the crank-arbors, tumbling-rods, and tool-holders, whereby excessive friction of the tool-holders is avoided. The contest, however, appears to center upon the one feature of the jointed or tumbling rods. The testimony shows that Ritchel *conceived of this invention* in 1871, and made a small model at that time, showing a single rod with a universal joint.

And again he remarks—

There is no escaping the fact that Ritchel's efforts in the direction of this *invention* prior to the summer of 1873 were abandoned experiments.

The portions of the decision above quoted establishes in my mind beyond a doubt the fact that the Assistant Commissioner did consider and regard the inventions as substantially the same thing, and decided accordingly.

That portion of his decision which states that "the broad idea of a jointed rod" was not in controversy, when considered in connection with the rest of the decision, and the facts upon which it was based, simply amounts to an assertion that the idea of a jointed rod, *per se*, was not involved. It is evident that it could not possibly be so, as the idea of jointed rods is too old now to be patented.

No new facts or evidence are now presented which would seem to change in any degree the findings in the previous case. If the experiments of 1871 were abandoned, as the Assistant Commissioner found they were, then Ritchel has no right to ask for a new interference, as he is not shown to be in any better position now than formerly. If they were experiments for one purpose, they were for all, and under any circumstance could not affect the question of priority as to any matter found in De Sanno's case, he being the first in contemplation of law to make the invention there shown and described.

I am clearly of the opinion, therefore, that in so far as these two applications present the same invention, the question of priority of invention of the same has already been fully decided, and there is no sufficient reason shown for reopening the matter.

In addition to the reasons above given I apprehend that there is still another which it is important to consider, but which seems to have been overlooked heretofore. In a regular proceeding between these parties, it has been proved that the device shown in De Sanno's application was put into public use in the fall of 1873, more than two years before the present application was filed, from which it would seem that Ritchel is barred from obtaining a patent for any subject-matter common to both his and De Sanno's application.

There is nothing in the case, so far as I have been able to discover, that would warrant or require me to reopen the questions which have once been definitely settled between the parties to this cause, therefore the decision of the Examiner of Interferences is reversed, and the interference dissolved.

Ritchel's present application will be rejected as to all matters shown by De Sanno, leaving it to be determined hereafter whether he has made an invention over and above De Sanno's.

HUSSEY *vs.* VAN WAGENEN.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the applications of John H. Hussey, filed October* 5, 1875, *and Albert Van Wagenen, filed July* 13, 1875, *for* "IMPROVEMENT IN SHOE-TIPS."—*Decided September* 16, 1876.]

The cross-examination of a witness must have reference to the matters inquired into in the examination-in-chief.

When one of the parties relies upon the oath accompanying his application, as proof of originality and invention, it is competent for the other party to introduce in rebuttal the admissions of such party regarding his acts.

It is not necessary that the contradiction, in order to be regarded as rebuttal, should be complete and entire. It is sufficient if it have a tendency to contradict or disprove the opposite statement.

If a witness admits the words or declarations imputed to him he has an opportunity of giving such explanation or exculpation of his conduct, if any there may be, as the particular circumstances of the transaction may permit.

The admissions of a party may be received in evidence against him, but in such case the whole statement containing such admissions is to be taken together, and if it contain matters favorable to him he is entitled to have them considered.

[*C. H. Watson*, attorney for Hussey.
Johnson & Johnson, attorneys for Van Wagenen.]

DUELL, *Commissioner:*

The subject-matter involved in this interference is set forth in the application of Van Wagenen, which reads as follows:

A shoe-tip constructed from an originally narrow rectangular strip of leather, split part of its width, leaving a solid union of the split parts, and having the finished shape, substantially as herein described.

Hussey's claim is but a repetition of Van Wagenen's.

Accompanying this appeal is a motion on the part of Hussey to strike out certain cross-interrogatories propounded to his witnesses in the examination-in-chief, and also the testimony of Sangston, Adler, Johnson, and Hamilton, witnesses in behalf of Van Wagenen, on the ground that the same is irrelevant and immaterial to the issue presented.

On the part of Van Wagenen a like motion is presented in respect to the testimony of Hussey introduced in rebuttal on the ground that it in no wise answers material allegations contained in the direct testimony on the part of Van Wagenen.

As to the cross-examination of Hussey's witnesses, I am of the opinion that so much of the matter as has reference to the previous interference between Adler and Van Wagenen is not warranted by any matters brought out in the examination-in-chief, and that under the general rule of evidence that the cross-examination must have reference to those matters inquired into in the examination-in-chief, such testimony must be excluded. (1 Greenleaf Evid., § 445.)

As to the second part of the motion it appears that Hussey, instead of taking the stand and testifying in his own behalf as to the circumstances attending the conception and development of his invention, relies entirely upon the dates and facts as exhibited by his application, together with the testimony of certain parties who pretend to have seen him in possession of the subject-matter in controversy at a date prior to that of filing his application.

This seems to be the strength of his direct testimony, the principal evidence of originality and invention being derived from the oath forming part of the application.

Now, in order to destroy the effect of the presumptions thus created in his favor, and as a matter belonging to the *res gesta*, Van Wagenen has introduced testimony regarding certain admissions made by Hussey and his acts relating to the invention. This I deem competent evidence, being in its nature both rebuttal and direct testimony in favor of Van Wagenen's claim to priority.

It is not necessary that the contradiction, in order to be regarded as rebuttal, should be complete and entire, but it is sufficient, if it have a tendency to contradict or disprove the opposite statement, (*U. S.* vs. *Holmes*, 1 Cliff., 98;) and the same rule would seem to apply where, instead of testimony, there is a presumption created by the oath of the party in an *ex parte* matter. As a part of the *res gesta* it is direct testimony, tending to prove the acts, admissions, and proceedings of the party in respect to the subject-matter in controversy. This part of the testimony being admitted, it follows that the examination of Hussey, so far as it is in explanation of the admissions made by him, is proper as rebuttal testimony. It being understood that "if a witness admits the words or declarations imputed to him he has an opportunity of giving such explanation or exculpation of his conduct, if any there may be, as the particular circumstances of the transaction may furnish." (1 Greenleaf's Evidence, Sec. 462 and note.)

Passing next to the consideration of such testimony as has been offered, it is found that although Van Wagenen is the only witness who has appeared in his behalf to show the date of his invention, his testimony has not been contradicted. He swears that while engaged in devising shoe-tips of different constructions, several of which have since been patented, he, in the course of his operations, invented the tip now in controversy some time in June, 1875, and about the middle of that month he had constructed a tip which is introduced in evidence as Exhibit 7. This I regard as fully embracing the invention claimed. Since that time he has made about a dozen of these tips.

On the 10th of July A. S. Adler called upon him and exhibited a tip, which he claimed to have a patent on. This put Van Wagenen upon his guard, and, without asserting his own claim to the invention he at once proceeded to complete his application and forwarded the same to his attorneys at Washington with instructions to hurry the matter forward, as he was afraid there was another party that had or would make application for a similar thing, and that he claimed to be the first and wished an interference declared. The application was duly filed and passed for issue, but while awaiting the payment of the final fee Adler filed an application, in which he claimed the same invention. An interference was declared and Adler proceeded to take testimony, but abandoned his case during the examination of Hussey as a witness in his behalf. These facts appear from the testimony, and from Adler's application, which was introduced in evidence by stipulation of the parties.

The admissions of a party may be received in evidence against him, but in such case the whole statement containing such admission is to be taken together, and if it contain matters favorable to him he is entitled to have them considered. (1 Phillipps' Evidence, 340, 344, 345; 1 Greenleaf's Evidence, Sec. 201; 2 Abbott's N. Y. Digest, 694; Title Evidence, Sec. 1138.)

It is proved that Hussey admitted making a tip such as is now in controversy in February, 1875, but that he threw the same away, and did not consider it a practicable thing.

In rebuttal Hussey acknowledges this statement, and alleges in explanation thereof that he did not consider it practicable to make the tip with any machine that he then had, but that in the latter part of March he did make another tip on the Hussey tip-machine.

Both Pray and Larrabee, witnesses in behalf of Hussey, testify that they saw a tip in the possession of Mr. Hussey in the latter part of March. This tip, they say, was made from a straight piece of leather channeled and turned up in the Hussey machine, and was like Exhibit A. Pray, however, testifies that, in referring to this tip, Hussey said "he just turned it up and did not consider it of much account."

An attempt is made to identify the tips shown in Exhibits B, C, and D with the subject-matter now in controversy, and considerable testimony is introduced tending to prove when these tips were made. It is obvious, however, from the nature of the invention, as expressed in the claims, and in view of the patent granted to Hussey, August 4, 1874, reissued May 18, 1875, which shows substantially this invention of a tip formed by simply channeling the leather in the form of a semicircle, and subsequently raising and pressing a part thereof to form the tip, is a distinct and separate subject from the tip made by partially splitting and channeling straight pieces of leather, and afterward bending and forming the same into a completed article.

It is to be remarked that the burden of proof is upon Hussey in this case to establish priority of invention. After carefully reviewing all the testimony offered on his part and giving due weight thereto, I am convinced that what he did can only be regarded in view of the attending circumstances, and the presumptions raised thereby as but abandoned experiments. The only tips that it is pretended he ever made were discarded by him as of no value. Moreover he did not retain and does not introduce in evidence a single tip of the kind claimed in the present application. His proceedings with reference to the *Adler* vs. *Van Wagenen* interference indicate that he did not regard himself as the inventor of such a tip, and even the testimony of his witnesses who say that they saw him in possession of tips of the kind described in March, 1875, is rendered uncertain by their

admissions that they consider Exhibits A and B as substantially alike.

From an examination of these exhibits, and in the absence of proof to the contrary, I am inclined to the belief that they really were made in the same way, and that they represent a modification of Hussey's tip as patented in 1874, and do not, either of them, show a tip made in the manner described by Van Wagenen and Hussey in their present applications.

Taking into consideration the manifold defects and uncertainties in Hussey's case, I am of the opinion that he has failed in his proofs, and that Van Wagenen is to be considered the inventor of the subject-matter in dispute.

The decision of the Board of Examiners-in-Chief is affirmed.

WILSON & MATTHEWS *vs.* YAKEL AND ROGERS.

[*Appeal from the decision of the Primary Examiner in the matter of the interference between the application of John T. Wilson and John G. Matthews, filed October 26, 1876, and the patents of Levi Yakel, dated October 24, 1876, and Luman Rogers, dated August 8, 1876, for* "IMPROVEMENTS IN ROLLING SUCKER-ROD JOINTS."—*Decided December 6, 1876.*]

When an application is found to conflict with two or more patents an interference should be declared, including all the parties, and not a separate interference with each patent.

The Office cannot institute interference proceedings between patents, but when an application is involved each patentee, in endeavoring to establish priority as against such applicant, must necessarily do so as regards the other patentee.

DOOLITTLE, *Assistant Commissioner:*

This is a motion to dissolve the above-named interference on the ground that all the parties thereto are not embraced in the proceeding by the notices of the Examiner. It appears that the interference was originally declared between the applicant and one of the patentees, and that when the other patent was discovered the interference was dissolved and the applicant put in interference with both patents; but in the notice sent to the patentees no mention was made of the opposing patentees, leaving each patentee to suppose that he was in interference alone with the applicant.

It is true that the Office has no authority to declare an interference between patentees; but when the interference is declared between an applicant and several patentees, the applicant must show, in order to obtain a patent, that he is the first and original inventor as to each and all of his opponents. Each of the patentees is equally anxious to show that he is the first inventor as against the applicant, and to do this he must also necessarily establish the fact of priority against all *his* opponents.

It is a contest in which all the parties are interested, and to divide up the case as to the examination of witnesses, and confine the contest to the applicant and to each of the patentees by turn, would be unjust. The only course to pursue is the one that has been universally followed, of letting each go forward in the taking of proof in the order of dates shown by the filing of the applications, as prescribed by Rule 57.

It is unnecessary, however, to dissolve this interference for this purpose; but the matter can be corrected by the Examiner of Interferences in his notice to the parties upon fixing the time for taking testimony.

The appeal for that reason is dismissed.

KELLER & OLMESDAHL *vs.* FELDER.—*Interference.*—*Motion.*

[*Appeal from the decision of the Examiner of Interferences in the matter of the interference between the applications of Keller and Olmesdahl, filed June 16, 1876, and Charles Felder, filed June 10, 1876, for* "IMPROVEMENT IN FLUTING-MACHINES."—*Decided December 7, 1876.*]

The appearance at the hearing of a motion of the opposing party, and submission of argument upon the points raised, constitute a waiver of notice.

A lever adjusted by a thumb-screw, and having an elliptical spring rigidly attached at its end, which spring operates upon the frame of the lower roll, is the mechanical equivalent of a spring-lever adjusted and applied in the same manner.

Parties acting as principal and agent in the sale of an article more than two years before filing their applications, are equally prevented from obtaining a patent, without regard to which may be the actual inventor.

DOOLITTLE, *Assistant Commissioner:*

In this case priority was awarded by the Examiner of Interferences to Keller and Olmesdahl. Felder acquiesces in the correctness of that judgment, and waives his right of appeal to the Examiners-in-Chief, but moves to dissolve the interference on the ground that his sixth claim, which was embraced in the issue, is not in interference, and also urges the objection of public use for more than two years prior to the filing of their application against Keller and Olmesdahl.

This action can hardly be regarded as in the nature of an appeal, but as an original motion, and notice of the same should have been given to the opposing party. But this will be considered as virtually waived by the appearance of the other party in the case, and the submission by him of argument on the merits of the disputed points.

The matter in controversy is an improvement in fluting-machines. The sixth clause of Felder's claim is as follows:

The combination of the spring, lever, and fulcrum-bridge with the thumb-screw, for adjusting the tension of the spring, substantially as and for the purpose described.

Felder shows and describes the lever, adjustable by the thumb-screw, as operating upon an elliptical spring, to which it is rigidly joined, which spring operates upon a cross-piece cast on an oscillating frame, to regulate the pressure of the lower roller. The only difference between the device embraced by this claim of Felder and the device claimed by his opponents is, that in the latter case the lever in question is also a spring, thus doing away with the intermediate elliptical spring of Felder. In the one case it is a spring and lever, and in the other a spring-lever; but as, in the first case, the two are rigidly connected, it must be considered as much an integral feature as the latter. At any rate, both devices are mechanical equivalents, and accomplish precisely the same result. The motion, therefore, to dissolve, so far as this point is concerned, is denied.

The question of two years' public use as a statutory bar to Keller and Olmesdahl receives consideration from the Examiner of Interferences, but he appears to resolve the use established by the testimony into an experimental one. He, however, regards it necessary to call the attention of the Commissioner to the facts as required by rule 59, clause 2. He overlooks, in this connection, the question of *sale* by Keller and Olmesdahl for more than two years prior to the filing of their application. The statute provides that public use *or* sale for more than two years prior to the filing of an application is fatal thereto.

This appears to me a very important point.

Relative to this question of public use and sale Judge Woodruff held, in the case of *Sisson* vs. *Gilbert*, (5 Fish., p. 109,) that if this be found—

Then, however great the hinderances to such application, and whether caused by the want of pecuniary means or other misfortune, the right to the future exclusive use was lost. This may be a great hardship, and so may properly induce a court to require very clear proof, and dispose them to give full weight to the *prima-facie* evidence, which the granting of the patent itself imports, in support of the patentee's title; but if such use and sale be, nevertheless, established, there is no alternative—the court has no discretion. The right claimed depends upon express statute, and exists only by its force and according to its terms; and, by that statute, such sale and use are a full defense to the inventor's claim.

If, in this case, the fact of sale is established as against Keller and Olmesdahl, in regard to those devices, it is also established as against Felder, because, having found that the devices of both parties are the same, the proof shows that at the time of the alleged sale and public use on the part of Keller and Olmesdahl, Felder was their agent, procured such sales, and was cognizant of, and consented to, such public use.

The case is now remanded to the Primary Examiner for the determination of the latter questions upon the proof. If he finds in the testimony of Keller and Olmesdahl the fact of public use or sale for more than two years prior to the filing of their application, he will reject their application for that reason. Felder having acquiesced in the judgment of the Examiner of Interferences as to priority, the question of public use or sale is the only one to be determined. It is *ex-parte*, and will proceed in the order prescribed by law for the determination of *ex-parte* questions.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 12, 1876.]

9,666.—Business-Cards.—JOHN M. HUISKAMP, Keokuk, Iowa. Application filed November 11, 1876. Term of patent 3½ years.

9,667 and **9,668.—Knitted Fabric.**—MARTIN LANDENBERGER, Philadelphia, Pa. Applications filed November 20, 1876. Term of patents 7 years.

9,669.—Use on Bill-Heads, &c.—DAVID L. PROUDFIT, Plainfield, N. J., assignor to ALANSON H. TIFFT, New York, N. Y. Application filed August 12, 1876. Term of patent 14 years.

9,670.—Carpeting.—CORNELIUS USTER, Amsterdam, N. Y., assignor to STEPHEN SANFORD, same place. Application filed November 15, 1876. Term of patent 3½ years.

9,671.—Stove.—HENRY A. WOOD, Bangor, Me. Application filed November 16, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 12, 1876.]

4,193.—Steam-Pumps.—ADAM S. CAMERON, New York, N. Y. Application filed December 2, 1876.
"The word-symbol 'SPECIAL.'"

4,194.—Tobacco.—BENJAMIN F. GRAVELY, Leatherwood, Va. Application filed April 21, 1876.
"The arbitrary words 'STAR OF HENRY.'"

4,195.—Tobacco.—BENJAMIN F. GRAVELY, Leatherwood, Va. Application filed April 21, 1876.
"The word-symbol 'MY MARYLAND.'"

4,196.—Kerosene-Oil.—MEGIE & CO., Brooklyn, N. Y. Application filed November 11, 1876.
"The representation of a crescent bearing upon its face the word 'Lunar.'"

4,197.—Plows.—MERRELL & WILDER, South Toledo, Ohio. Application filed August 22, 1876.
"The word-symbol 'CRYSTAL,' surrounded by a figure which is nearly an ellipse, the ends of which are closed by two of the straight sides of an octagon about two inches in diameter."

4,198.—Soap.—NICHOLAS SHELDEN, Providence, R. I. Application filed November 16, 1876.
"The arbitrary words 'GILT EDGE.'"

4,199.—Cigar-Boxes.—PERLEE L. CHAMBERS, Indianapolis, Ind. Application filed October 30, 1876.
"The monogram consisting of the letters 'P. L. C.' and the fanciful words 'The Judge.'"

4,200.—Plug Chewing-Tobacco.—DAUSMAN & DRUMMOND TOBACCO COMPANY, Alton, Ill. Application filed November 9, 1876.
"The arbitrarily-selected word and letter 'FIVE A.'"

4,201.—Plug Chewing-Tobacco.—DAUSMAN & DRUMMOND TOBACCO COMPANY, Alton, Ill. Application filed November 9, 1876.
"The five letters A A A A A."

4,202.—Shirting Muslins.—GEORGE B. DURFEE, Fall River, Mass. Application filed November 21, 1876.
"A representation of a bee and a plan view of a bee-hive, in connection with the words 'We'll Try.'"

4,203.—Soap.—GOWAN & Co., Buffalo, N. Y. Application filed November 14, 1876.
"The word-symbol 'MINERS.'"

4,204.—Ladies' and Gentlemen's Furnishing Goods.—SAMUEL F. HILTON, Providence, R. I. Application filed October 26, 1876.
"The representation of a barrel, as shown."

4,205.—Medical Compound of Oils.—KOH-I-NOOR MANUFACTURING COMPANY, (limited,) Philadelphia, Pa. Application filed October 26, 1876.
"The word-symbol 'KOH-I-NOOR.'"

4,206.—Cigars.—FRANK SCHWARB, Cincinnati, Ohio. Application filed October 28, 1876.
"The word-symbol 'SENATE.'"

4,207.—Sewing-Machines.—THE GOODES ORNAMENTAL, PLAIN, AND OVERSEAMING LOCK-STITCH SEWING-MACHINE COMPANY, Philadelphia, Pa. Application filed November 4, 1876.
"A shield or escutcheon, across the face of which extends a scroll bearing the word 'Goodes,' the ends of said scroll being represented as wrapping or passing around the rim of the shield. Below the scroll is a monogram composed of the initial letters 'S. M. Co.'"

4,208.—Cigars and Tobacco.—V. MARTINEZ YBOR & Co., New York, N. Y. Application filed November 18, 1876.
"The pictorial representation of the building shown in the fac-simile."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 12, 1876.]

922.—Title: **"Spongoid Capsicum Drafts."**—JOHN F. FRENCH, New York, N. Y. Application filed December 1, 1876.

923.—Title: **"Pickett's Gettysburg Bitters."**—CHARLES PICKETT, Norfolk, Va. Application filed November 27, 1876.

924.—Title: **"Prepared Rice Flour."**—SAMUEL WILDE'S SONS, New York, N. Y. Application filed September 7, 1876.

The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

NOTICE TO MANUFACTURERS AND OTHERS.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 5, 1876.

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R. H. DUELL, *Commissioner.*

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The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

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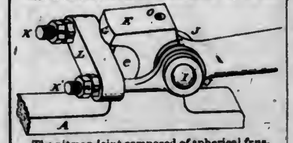
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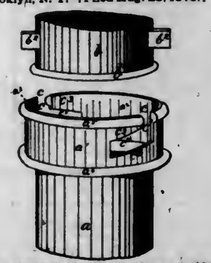
185,156. PITMAN-JOINTS. Charles Arkenberg and Wilhelm Arkenberg, Milan, Ind. [Filed June 16, 1876.]

Brief.—A spherical frustum is held in a socket by strap-bolts clamped around a lug, with a loose movement in three axial planes.



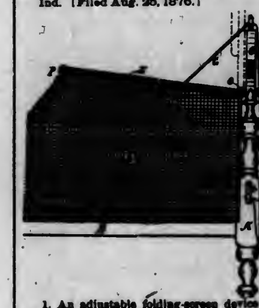
The pitman-joint composed of spherical frustum C, socket D E F G H, pivot I, netted bolts K J M m K' J N n, and clamp L, the whole being combined and adapted to co-operate as set forth.

185,158. PIPE-CONNECTIONS. Jos. H. Ash, Brooklyn, N. Y. [Filed Aug. 23, 1876.]



The combination, with a section provided with an enlargement, a^1, having its inner face or wall a^2 a^3 formed smooth or free from projecting shoulders or bearings, and terminating in a ball-shaped bearing, a^4, and provided with L-shaped slots a, having straight portions a^5 and inclined portions a^6, and set-screw f, of the washer d, made ball shape, with the extended portion d^1 and section b having a semicircular annular projection b^1 formed on its extremity, and studs or projections b^2, the whole being constructed, arranged, and operating in the manner as and for the purpose shown and described.

185,157. ADJUSTABLE MOSQUITO CANOPIES OR NETS. Albert R. Baker, Indianapolis, Ind. [Filed Aug. 26, 1876.]



1. An adjustable folding-screen device for beds, consisting of the screen-frames E E' F and F F, hinges or pivots O O P P, cord G, screw-eye H, and pulleys J K, arranged to operate in the manner set forth and described.

2. The combination of the two screen-frames E E' F and F F' with the head-board C, in the manner and for the purposes set forth.

3. The combination of the screen-frame E E' F and screen-frame F F', in the manner and for the purposes set forth.

4. The cylinder hinge-band O, having the slot R and screw T, and applied to the head-board C of the bed and frame E E' F, in the manner set forth and described.

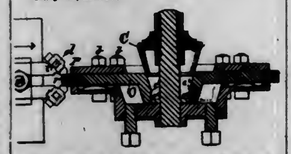
5. The double cylindrical hinge-band P, having its lower cylinder formed with slot R', and adapted to be used in connection with the two frames E E' F and F F', in the manner and for the purposes set forth and described.

185,188. OIL-CAN FAUCETS. G. W. Banker, New York, N. Y. [Filed Nov. 23, 1876.]



As an article of manufacture, a faucet for metallic cans, consisting of a spouted tube or body attached to a larger perforated disk, which forms at once the valve-seat and attaching-plate for attaching the faucet to the can, a valve within the body or tube, and a cork of annular form, constituting a cushion for the valve-seat, substantially as described.

185,149. EXPANDING-MANDRELS FOR TURNING PISTON-RINGS. Le Roy Bartlett and Winthrop Bartlett, St. Louis, Mo. [Filed July 18, 1876.]



The two-plate chuck on an expanding-mandrel, the rear or fore chuck-plate, having radial receptive grooves and recessed springs therein, to contain and safely retain in extension a suitable number of nick-pointed, clipped, and knee-shaped extensible fingers as worked therein by the mandrel-cone, in combination with tools c and D for sides and face finish, as held and supported, and to be suitably actuated on the oppositely-placed compound and plain holders and rests, all, when applied and operated, to center, true, and complete iron piston-rings in one operation.

185,160. SOLUTIONS FOR GALVANIC BATTERIES. Louis Bastet, Philadelphia, Pa., assignor to Hiltu R. Pettit, same place. [Filed Aug. 30, 1876.]

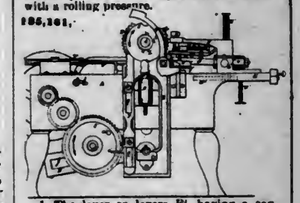
1. The compound resulting from dissolving bichromate of potassa in nitric acid, in the manner described, so as to produce the saturation of the latter by the former, by which saturation, and the resulting decomposition and recomposition, nitro-chromic acid is formed in an economical manner.

2. The application of the compound, in the proportion of about one ounce of the compound to one pound of sulphuric acid of the strength of 45° Baumé, in each porous cup of a galvanic battery, for the purpose of increasing and prolonging the intensity and durability of the battery, and preventing or retarding local action when the circuit is broken.

185,161. HORSESHOES-MACHINES. Myron Benjamin, Cleveland, Ohio, assignor to S. M. Carpenter and Wm. F. Smith, same place. [Filed Sept. 18, 1876.]

Brief.—A bed carrying a partible die, opened and closed by cam-slots in bars, is reciprocated back and forth by a toothed segmental arm, which gears with a rack on the under side of the bed. The peculiarly-constructed former, around which the blank is bent, is connected with a vibratory arm or stem, transitioned in a sliding carriage. The former is vibrated into position by a pin on a wheel, which pin depresses an arm attached to one of the trunnions of the vibratory stem, and is pushed back (withdrawing the arm from the said pin) by the die-bed, which contacts with a rod projecting from the sliding carriage. The die-head is intermittingly revolved, to bring first the pressing and then the creasing die into position to enter the lower die, and is provided with two segments of gear, each of which alternately engages with a rack on this rod, and causes the die then in position to act upon the bent blank with a rolling pressure.

185,161.



1. The lever or levers E', having a segmental arm or arms, J'', in combination with the cranks H' H', and die bed or carriage W for operating the same, substantially as herein described, and for the purpose set forth.

2. The segments F G and hooks H H, arranged to operate in combination with the rack F'' and spring f, in the manner substantially as described, and for the purpose specified.

3. The intermittent revolving die-head D, having thereon dies t and s, in combination with the reciprocating bed-die consisting of sections A B', slides C' D', and devices for arresting the forward and backward movements of the slides, substantially in the manner as described, and for the purpose specified.

4. The intermittingly-revolving die-head D, having thereon dies t and s, in combination with the notched wheel I, slide O, barrel N, and spring therein, pin r, and slide P, substantially in the manner as described, and for the purpose set forth.

5. In combination with the stay-wheel I and pin r, the vertical slide P, and wrist-pin u of the wheel J', operating substantially as described, and for the purpose set forth.

6. Arm or lever K', and arms g g, arranged to operate in combination with the wheel K and pin L, substantially as described, and for the purpose specified.

7. In combination with the vibratory arm or stem d^3, the arm V', wheel K, pin M, and spring w, substantially as and for the purpose set forth.

8. The lever E', pin T', pins i i, and spring U', arranged to operate in combination with the head c' and die or former f', substantially as described, and for the purpose specified.

9. The pendent vibratory arm h, having a hook, f', spring b', and rod k, in combination with the head a, and die or former f'', in the manner substantially as described, and for the purpose set forth.

10. The combination of the sliding carriage b', spring w, and vibratory stem or arm d^3, as and for the purpose set forth.

11. The sliding carriage b' and adjusting-rod a'', arranged to operate in relation to, and in combination with, the die-bed W, in the manner as described, and for the purpose set forth.

12. Arm or lever K', and arms g g, in combination with the divided die A B', slides C' D', and device for arresting the forward movement of said slides, in the manner substantially as described, and for the purpose specified.

185,162. CORN-PLANTERS. Reuben E. Boatwright, Marion, Va., assignor of one-half of his right to Geo. W. Henderlite, same place. [Filed Apr. 6, 1876.]

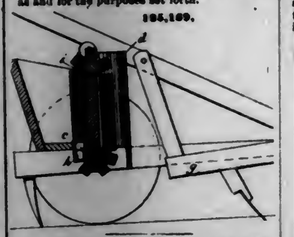
1. The sills A A, extending rearward under the hopper, forming guides for the band with the cups and boxes and supports for the hopper, in combination with the boxes a a, which

cover the axle and abut against the sills, and also form support for the hopper, the whole being constructed and arranged as set forth.

2. The band *i*, carrying blocks and boxes, supported on roller above, and operating in connection with the hopper, as set forth.

3. The improved plaster, consisting of the box B, resting upon the beams A A, and boxes *a a*, the band *i*, carrying the blocks and cups, and passing over the axle below and the roller above, and the spout *d*, attached to the seed-box, and arranged between the beams A A, as and for the purposes set forth.

185,163.



185,163. REVOLVING ORE-ROASTERS. W. Bruckner, Cincinnati, Ohio. [Filed Sept. 1, 1876.]

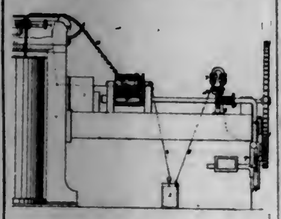
Brief.—The ore being treated is passed from one compartment of the cylinder through the external spiral "conveyer."



1. The hollow cylinder A, in combination with one or more transverse divisions and a spiral conveyer, substantially as set forth.

2. The hollow cylinder A, in combination with one or more spiral conveyers, substantially as described.

185,164. ELECTRIC STOP-MOTIONS FOR COTTON MACHINERY. John Bullough, Accrington, England. [Filed Sept. 1, 1876.]



1. The combination, in fiber-preparing machinery, with the ordinary rolls, or with an ordinary roll and a series of rollers having a common spindle, one of the rolls or series of rolls being insulated, of an electric circuit, whose terminals are at such rolls or roll and series of rolls, and which controls alarm or stopping apparatus, or both, the rolls coming together and closing the circuit upon the breaking of the fiber, substantially as set forth.

2. The gravitating-instruments or feelers, numbered 31, (see Figs. 10 and 10*a*,) when mounted on a common axis and resting on the fiber, in connection with the pole of a battery, the thickness of the fiber being utilized for preventing the completion of the electric current by separating the feelers from the rolls.

3. The stop-rod 8, or its equivalent gaging-lever 9, constructed and applied for the purpose of breaking the electric current, in the manner and by the means herein shown and described.

4. In electric stop-motions for cotton-preparing machinery or similar machinery, the described mode of keeping clean the metallic surfaces which are to be brought into contact to complete the circuit, when a break occurs, by means of the fiber passing between them while under treatment.

5. The combination, with stop-motions for cotton-preparing and similar machinery for treating fibrous material, of rollers, between which the fiber passes, for making a metallic connection to complete an electric circuit.

6. The automatic full-can stop-motion, operating by the pressure of the accumulated sliver in the can, to lift a pin or its equivalent to complete the circuit and stop the mechanism, substantially as shown and described.

185,165. LAMP-SHADE HOLDERS. W. Day, New York, N. Y. [Filed Sept. 29, 1876.]



As a new article of manufacture, a lamp-shade holder, formed of spring-wire into a triangular shape, with hooks at each angle, substantially as described, and for the purpose set forth.

185,166. HAY-FORKS. Wm. Dunsler, Jr., St. Joseph, Mo. [Filed Nov. 11, 1876.]

Brief.—The tines have their shanks recessed upon one side, and a shoulder of corresponding shape formed upon the opposite side. The metal band-piece has a recess formed within its socket, to receive the shoulder upon one of the outer tines, which are secured in the socket by a hinged cap fastened by a rivet or otherwise.



In a grain or hay fork, the prongs or tines A, formed with recess *a* and shoulder *b*, in combination with head B, with recess *c*, and hinged or pivoted cap *c*, substantially as and for the purpose set forth.

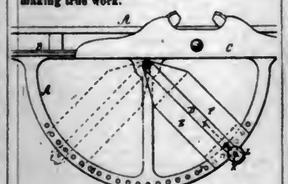
185,167. RAILROAD-FROGS. W. T. Egan, Chicago, Ill. [Filed Oct. 18, 1876.]



The angle-irons A A, in combination with point-rails B B, bed-plate C, and side wings D D, substantially as shown, and for the purpose specified.

185,168. MITER-MACHINES. John Emery, Salem, Mass. [Filed Jan. 4, 1876.]

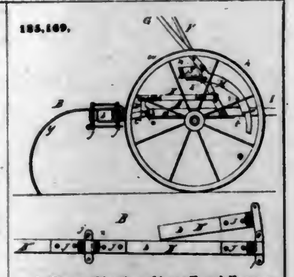
Brief.—The guide is provided with a shelf on each side, upon which the molding can be held while being planed. The shelves and frame are parallel with each other, and the guide and plane perpendicular thereto, for making true work.



The combination of the plane C with the frame A, pivoted guide D, having the lips or shelves E F, retaining-pin G, clamping-rod K, and thumb-nut L, all constructed to operate substantially as shown and described, and for the purpose specified.

185,169. HORSE HAY-RAKES. P. F. Fleming, Salisbury, Mo. [Filed Aug. 29, 1876.]

185,169.

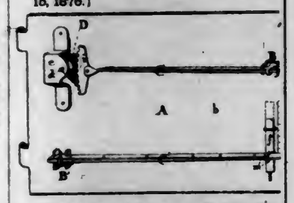


1. The combination of lever F, rod E, arms D and C, lever G, curved notched bar H, and loop I, substantially as set forth.

2. The combination of levers F and G, curved notched bar H, and loop I, substantially as described.

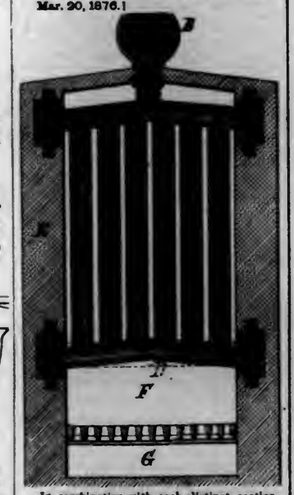
3. The section-hinge, consisting of straps J J, cross-heads *jj*, and the connecting-pins, one of which serves as a pivot and the other as a lock.

185,170. OVEN-THERMOMETERS. Peter A. Forbesche, Wady Petra, Ill. [Filed Apr. 10, 1876.]



The combination, in an oven-thermometer, of door A, stationary jaw B, compound metallic bar C, index *f*, slot *h*, and scale *g*, substantially as and for the purposes described.

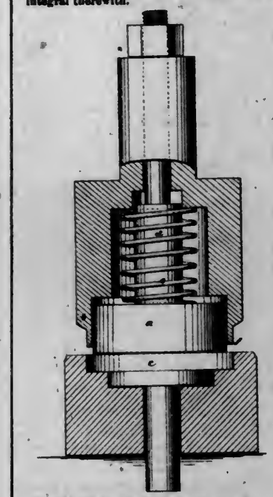
185,171. SECTIONAL STEAM-GENERATORS. Milton Foreman, Philadelphia, Pa. [Filed Mar. 20, 1876.]



In combination with each distinct section of a sectional tubular boiler, pockets or joints C, for connection of the sections, off laterally, and distinct in position from the tubes, and adapted to be completely embedded in the brick-work of the furnace for protection of the joints from flame, substantially as specified.

185,172. DIES FOR MAKING WATCH-CASE BACKS. Jos. Fortenbach, Carlstadt, N. J. [Filed May 7, 1875.]

Brief.—The dies, in the *ensemble*, are designed to cut out a disk of metal, and by successive operations mold it to the form required for the back of a watch-case, with the snap integral therewith.



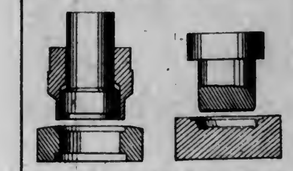
1. The method of forming up watch-case caps and backs by means of the dies, substantially as described.

2. The combination of the dies shown in Figs. 2, 3, 5, 7, and 8.

3. The dies *a*, *b*, and *c*, the upper one being double, and containing an angular edge, *f*, substantially as and for the purpose described.

185,173. DIES FOR MAKING WATCH-CASE BEZELS. Jos. Fortenbach, Carlstadt, N. J. [Filed May 7, 1875.]

Brief.—The dies, in the *ensemble*, are for cutting out a disk of metal and molding it, thus making the bezel of one piece.

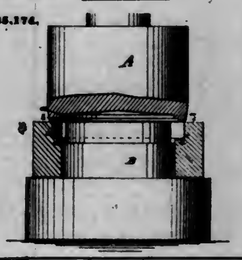


1. The combination of the dies shown in Figs. 3, 4, 6, and 8, substantially as and for the purpose described.

2. The dies shown in Fig. 4, substantially as described.

3. The dies shown in Fig. 6, substantially as described.

185,174.



185,174. DIES FOR MAKING WATCH-CASE CENTERS. Jos. Fortenbach, Carlstadt, N. J. [Filed May 7, 1875.]

Brief.—The dies are intended, in the *ensemble* to cut out a disk of metal, and by a succession of operations mold it to the form of a center, thus making the center homogeneous, of one piece of metal.

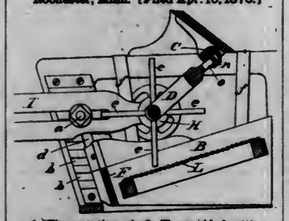
1. The combination of the dies, Figs. 2, 3, 5, 7, 9, and 11, substantially as and for the purpose described.

2. The dies shown in Fig. 5, substantially as described.

3. The dies shown in Fig. 7, substantially as described.

4. The dies shown in Fig. 9, substantially as described.

185,175. GRAIN-SEPARATORS. T. Freeman, Rochester, Minn. [Filed Apr. 10, 1876.]

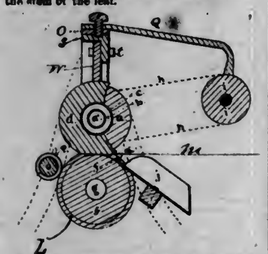


1. The rotating shaft H, provided with a series of arms, *e*, in combination with the vertically-inclined blades D, all arranged in relation to the shoe of a grain-cleaning apparatus in a thrashing-machine, substantially as shown and described.

2. In combination with the shaft H, the vertically and longitudinally adjustable arms or supports I, whereby the shaft can be adjusted in relation to the sieve L, substantially as described.

185,176. MACHINES FOR STRIPPING TOBACCO. Lewis H. Hawes and Isaac W. Ackley, Syracuse, N. Y., assignors of one-third their right to Henry Noxon, same place. [Filed June 7, 1876.]

Brief.—The upper cutter has flanges, that press against the edges of the lower cutter, and between it is a rubber disk, for holding the stem of the leaf.



1. The combination of the plates *a*'' *a*'', sleeve *b*, spring *c*, and rubber *d*, held between the plates, as and for the purpose set forth.

2. A tobacco-stripping knife having rubber held between and projecting outwardly beyond its cutting-edges, as and for the purpose set forth.

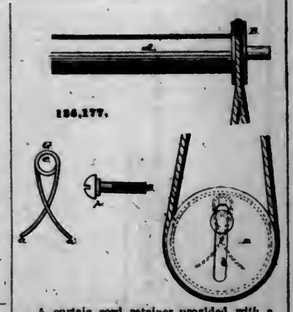
3. The combination of a tobacco-stripping knife, pulleys *a a*, shaft *a*', pulley *i*, bracket Q, and cords A A, said cords moving in a plane diagonally disposed to the path of the tobacco-leaf, as and for the purpose set forth.

4. In combination with the revolving circular knives, the revolving guide-roller, as and for the purpose set forth.

5. In a machine for stripping tobacco-leaves, the combination of the endless aprons m m, having attached cords, and operating one on each side of the knife, with the grooved shaft *g* and revolving knives L and *c*, as and for the purpose set forth.

185,177. CURTAIN-CORD RETAINERS. H. Holcroft, Media, Pa., assignor of one-half his right to Canby B. Smith, same place. [Filed Mar. 1, 1876.]

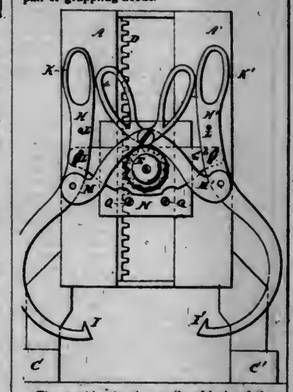
186,177.



A certain cord retainer provided with a slot, *b*, and screw S, in combination with a coiled spring, G, provided with two arms, *a a'*, as shown and described.

185,178. RAILROAD-JACKS. C. W. Hornor, Philadelphia, Pa. [Filed Oct. 5, 1876.]

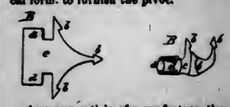
Brief.—A sliding pinion and a rack on an upright portable frame. To the slide is pivoted a horizontal bar, to which is affixed a pair of grappling-hooks.



The combination, in a railroad-jack, of the rack D, pinion E, walking-beam G, tongs H H', jointed handles M M', slide N N', and ratchet-wheel O, all as described and shown.

185,179. DEVICES FOR MENDING BLIND-SLATS. Nicholas Hote, Brooklyn, N. Y. [Filed May 26, 1876.]

Brief.—The device is stamped out of sheet metal, the spurs being designed to be bent up and driven through the wood for attachment, and the square portion rolled up in cylindrical form to furnish the pivot.



As a new article of manufacture, the device B, for mending blind-slats, consisting of the plate *c*, with spur or spurs *b* and lips *d*, substantially as and for the purpose set forth.

185,180. LUBRICATING-BOTTLES. C. Jones, New York, N. Y. [Filed Mar. 9, 1876.]

Brief.—Through the stopper of a bottle there works a discharge-tube, attached below to a piston held up in the neck of the bottle by a spiral spring. The downward pressure of the tube by a handle causes the lubricant to be ejected.

The tube A, passing through the stopper B and provided with piston C, in combination with the spring D and handle F, substantially as shown and described.

185,180.



185,181. TRAVELING-SATCHELS. Elisabeth & W. P. Keeney, San Francisco, Cal. [Filed June 14, 1876.]

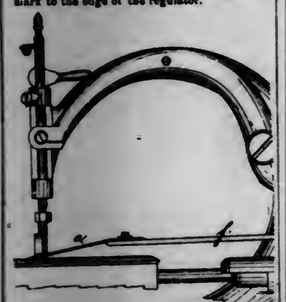


1. A folding satchel, provided with a series of pockets, arranged as shown, and a hinged or jointed section, provided with pockets upon each side, all substantially as set forth.

2. The combination, in a folding satchel, of a series of pockets rigidly attached to the inside of the satchel, with a hinged or jointed section, which may be raised to a vertical position, provided with a pocket or pockets, and adapted to fold upon either side, all substantially as shown and described.

185,182. PLATTERS FOR SEWING-MACHINES. Fred A. Kursheedt, New York, N. Y. [Filed June 3, 1876.]

Brief.—The tack-regulator is a blade of sheet metal, with its end extending beyond the edge of the cloth-plate, or bent upward, so the operator can feel the ruled line or other mark to the edge of the regulator.



1. The combination, with a feed, such as is usual in a sewing-machine, of a tack-regulator, having its edge extending over and beyond the side of the platform, or bent upward, substantially as described, whereby the material may be felt by the fingers to the edge of the regulator, the two being combined, and capable of operating, substantially as described.

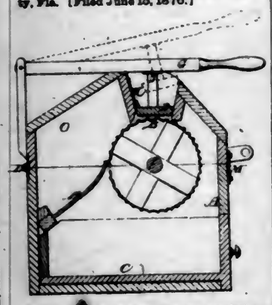
2. A tack-regulator, having its edge extending over and beyond the side of the platform, or bent upward, substantially as described, whereby the material may be felt by the fingers to its edge, in combination with the feed and stitching mechanism, making part of a sewing-machine, whereby tacks may be stitched upon fabrics substantially in the manner specified, the combination being substantially such as herein set forth.

185,183. LOCK-CASES. Sylvanus Lyon, New York, N. Y. [Filed Oct. 26, 1875.]



The lock-casing A, provided with a circular flange, B, on its outer end, and a screw, C, permanently attached to its inner end, as described, so that the case will be secured in place by revolving the screw and case together, as set forth.

185,184. GRATERS. A. L. Markey, Darbyville, and L. W. Simmons, Bradford County, Fla. [Filed June 15, 1876.]

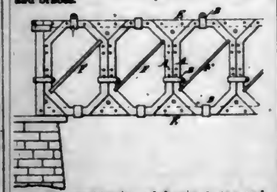


1. The herein-described grater, consisting of boxes A a, having grating-cylinders B b and hoppers K k, the lever G having depending arms g g', to which are attached the followers D d and the rake H, substantially as and for the purpose set forth.

2. The lever G, to which are attached the followers D d, in combination with the cylinders B b, substantially as and for the purposes set forth.

185,185. WROUGHT-IRON BRIDGES. Wm. H. Miller, Curwensville, Pa. [Filed May 22, 1876.]

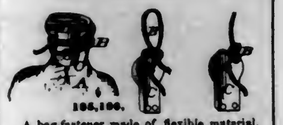
Brief.—The truss is made of six-sided frames of plate-iron, clamped together side by side, and to top and bottom chords, and stayed laterally and vertically with plates and braces.



1. The combination of frames A, top and bottom chords C D, plates E, and braces F, substantially as specified.

2. The combination of clamps B with the frames A, chords C D, braces F, and plates E, substantially as specified.

185,186. MAIL-BAG FASTENINGS. Asher M. Miller, Sturgis, Mich. [Filed Sept. 5, 1876.]

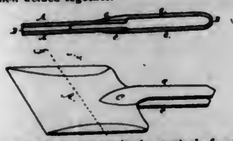


185,186.

A bag-fastener made of flexible material, and provided with two small openings at its upper end for the reception of the cord, and a large opening at its opposite end to receive the free ends of the cord, the fastening-piece being made of sufficient length to admit of the cord being wrapped around its central portion without obstructing the openings, substantially as described.

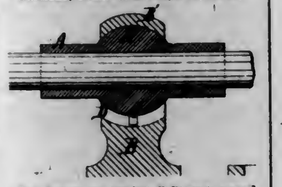
185,187. MANUFACTURE OF SHOVELS AND SPADES. Henry M. Myers, Beaver Falls, Pa. [Filed Sept. 4, 1876.]

Brief.—A bar of soft steel is forged so as to produce a blank having two blades united by a narrow strap. The blank is then bent at the middle of the strap, by which the blades are brought together, and between the blades a plate of cast-steel is inserted, and all are then welded together.



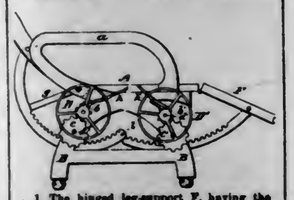
As an improvement in the method of making shovels and spades herein described, the interposition of the cast-steel plate B between the soft-steel blades A, substantially as described, and for the purpose set forth.

185,188. SHAFT-HANGERS. T. R. Pickering, Portland, Conn. [Filed Apr. 13, 1876.]



The hanger or bracket B B', cast around and adapted to be used in combination with the box A A' C, as and for the purposes specified.

185,189. INVALID-CHAIRS. Smith H. Platt, Brooklyn, N. Y. [Filed Aug. 9, 1876.]



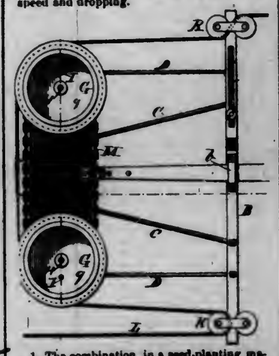
1. The hinged leg-support F, having the spring-catch j, in combination with the sliding piece i, carrying ratchet bar or plate k, and hinged foot-rest G, substantially as and for the purpose set forth.

2. In a reclining-chair, the combination with the back C, pivoted to the seat A, and carrying the pivoted rack-bars E, provided with stops l and pivoted brace-plates g, of guide-plates f, hand-wheel D, and gear-wheels b c e, substantially as and for the purpose set forth.

3. A reclining-chair consisting of the seat A, having the adjustable back C, leg-support F, foot-rest G, extension-piece i, serrated bar k, spring-catch j, and the operating mechanism, consisting of the hand-wheels D D', gear-wheels b b' c c', rods d d', with wheels e e', pawls h h', and the pivoted rack-bars E E', substantially as and for the purpose set forth.

185,190. SEED-PLANTERS. R. W. Quincy, Peoria, Ill., assignor of one-half his right to Jno. Y. Mills, same place. [Filed Aug. 23, 1876.]

Brief.—Passing around the pivoted revolving hoppers at the rear, and between pulleys at the front, is a cord, the ends of which are fastened at opposite sides of the field, for revolving the hoppers as the machine is moved forward. Around pulleys secured to the hoppers passes a cord for insuring uniformity in speed and dropping.



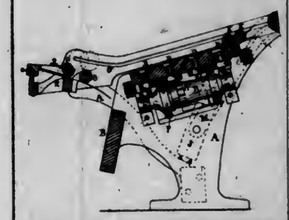
1. The combination, in a seed-planting machine, of the following instrumentalities, viz: cords L and hoppers G, the cords L stretched over the ground to be planted, and arranged to operate upon the hoppers G without any intermediate devices, substantially as and for the purpose specified.

2. The combination, in a seed-planting machine, of the following instrumentalities: the hoppers G, cords L, pulleys K, and bars B, substantially as and for the purpose specified.

3. The cord or chain M, combined with the hoppers G and cord L, substantially as and for the purpose specified.

185,191. INKING APPARATUS FOR PRINTING-PRESSES. I. L. G. Rice, Cambridge, Mass. [Filed Apr. 22, 1876.]

Brief.—The ink-tables are made of different widths, and have revolving disks inserted in them. The disks are made to revolve by means of frictional bands. The ink-fountains are sectional, movable, and interchangeable.



1. The movable, interchangeable, sectional ink-tables of various widths, having disks inserted in them, substantially as in the manner and for the purpose herein set forth.

2. The combination of movable, interchangeable, sectional ink-tables, provided with disks with movable, interchangeable, sectional ink-fountains, substantially as in the manner and for the purpose herein set forth.

185,192. WATCHMEN'S DETECTORS. G. A. Schultz, Louisville, Ky. [Filed Nov. 8, 1876.]

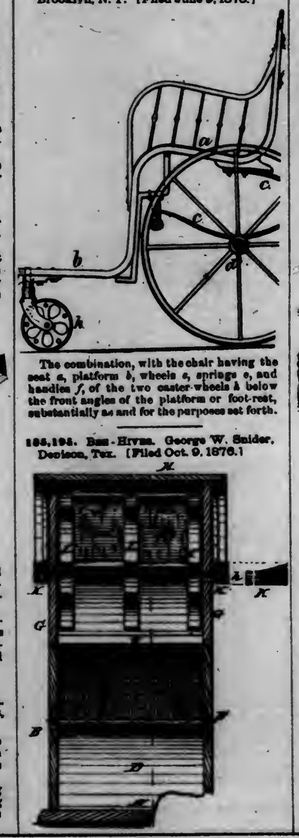
1. The puncher-needle d, provided with the cutting-edge e, in combination with the open drum, substantially as and for the purpose herein set forth.

2. The combination of the lever I, carrying the puncher-needle d, and the double-acting lever J, with eccentrics I I, substantially as and for the purpose herein set forth.

185,193.



185,193. WHEELED CHAIRS. H. S. Smith, Brooklyn, N. Y. [Filed June 9, 1876.]

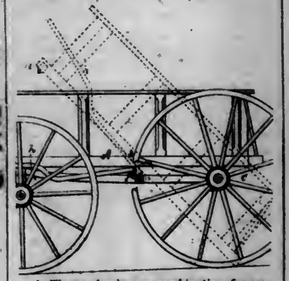


The combination, with the chair having the seat a, platform b, wheels c, springs e, and handles f, of the two caster-wheels k below the front angles of the platform or foot-rest, substantially as and for the purposes set forth.

185,194. BEE-HIVES. George W. Snider, Denison, Tex. [Filed Oct. 9, 1876.]

The combination of the hive-body G with ventilating-openings i i, the hinged lid H, grooved cross-bars K, with opening f, and hinged door h, substantially as and for the purposes herein set forth.

185,195. DUMPING-WAGONS. A. Soule, Yarmouth, Me., assignor to himself and H. W. Caswell, same place. [Filed June 26, 1876.]

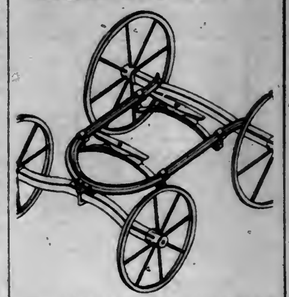


1. The mechanism or combination for connecting the cranked axle with the body, and moving the latter back and forth on said axle, such consisting of the arm h, shaft g, levers f f, and legs e e, arranged and applied as specified.

2. The combination of the wagon-body A and the ears a a with the connected perch and cranked axle D C, and with mechanism for connecting the cranked axles with the body, and moving the latter or its ears relatively to such axle, all substantially as specified.

3. The wagon-body A, its ears a a, and catch G, in combination with the connected perch and cranked axle D C, and the arm A, shaft g, levers f f, and legs e e, all being applied and to operate essentially as set forth.

185,196. SIDE-BAR VEHICLES. F. P. Stone, Chicago, Ill. [Filed Apr. 1, 1876.]



As an improvement in the construction of vehicles, the bent bar B, for connecting the front and rear axles and supporting the body, substantially as set forth.

185,197. MACHINES FOR PRESSING MOLTEN METAL INTO INGOTS. John B. Tarr, Fair Haven, Mass. [Filed May 24, 1876.]

Brief.—A mold having been filled, the platform is moved forward. A stop operates when mold is under piston. Pressure (hydraulic or steam) applied, and ingots or casting is compressed. Piston is elevated by same power, platform advanced, &c. To move platform back, reverse ratchets and actuate lever. Platform has cockets and clamps for molds.

1. In a metal molding and pressing machine, the reciprocating bed having a plurality of molds arranged upon it, in combination with a guiding and supporting platform, and a pressing-piston of a hydraulic cylinder placed above the bed, substantially as described.

2. The combination of a bed, a plurality of molds, a supporting-platform, a piston, a ratchet, a double-acting pawl, stop-holes, a spring locking-pin, and a pressing-piston, substantially as described.

3. The combination of the short supporting-platform, long mold-bed, having a series of molds upon it, the separated support, and the single pressing-piston, substantially as described.

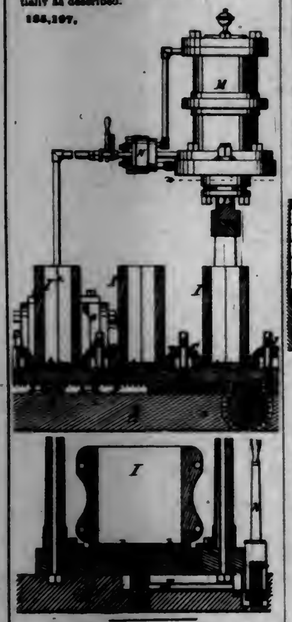
4. The bed with centering cavities, in combination with bottoms of molds, having corresponding projections for entering the cavities, substantially as described.

5. The molds with removable bottoms, having top and bottom projections *e* and *k*, for fitting, respectively, into the body of the mold and into the bed thereof, substantially as described.

6. The bed with screw or key bolts and clamps, in combination with lugs on the base of the body of the molds, substantially as described.

7. The piston-rod carrying a pressing-head, and the pressing-cylinder and its gland, made with flattened guiding-surfaces, in combination with a mold having many sides, substantially as described.

186,197.



186,198. UMBRELLAS. L. L. Truman, Ithaca, N. Y. [Filed Aug. 28, 1876.]



1. The described notch-piece and runner, having the groove or cavity cut or made in its base or face between the inner ferrule part *c* and the outer ferrule part *g* for the ring *f*, as shown and described.

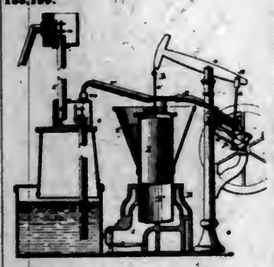
2. The ring *f*, when inserted in the groove or cavity cut or made in the notch-piece or runner, substantially as shown and described.

3. The teeth or serrations between the slots of the notch-piece or runner, when bent or shaped upon the ring *f*, for the purpose of holding the ring in the cavity *c* of the face of the notch-piece or runner, substantially in the manner set forth.

186,199. CALORIC-ENGINES FOR RAISING WATER. Dirk W. Van Rossen, Utrecht, assignor of part of his right to Yan Barend Hendrik Van Royen, Arnhem, and Pierre Joseph H. Baudet, Utrecht, Netherlands. [Filed June 9, 1876.]

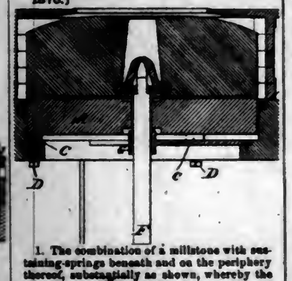
Brief.—When the air in the cylinder is contracted by being cooled, water is forced into a vessel by atmospheric pressure; when the air is expanded the water is forced out of said chamber.

186,199.



The combination, in a device for raising water or any other liquid, of the cylinder T *t*, in which air is made to alternately expand and contract by a displacer, the regulator *a*, the valve-box C, and valves *c* and *n*, substantially as described, and for the purpose set forth.

186,200. GRINDING-MILLS. W. M. Woodbury, Rochester, Minn. [Filed Apr. 6, 1876.]



1. The combination of a millstone with restraining-springs beneath and on the periphery thereof, substantially as shown, whereby the stone is permitted to yield both vertically and laterally.

2. In combination with the stone A, the springs C and E, arranged as shown.

3. In combination with the stone A, the rubber springs C, seated in the frame B, and restrained by the screws D.

186,201. HORSE-BLANKETS. Jos. Adams, Quincy, Mass., assignor to F. B. Adams, same place. [Filed Sept. 7, 1876.]



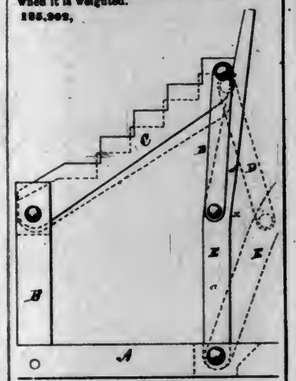
1. As an improved article of manufacture, a horse-blanket made whole in front, and provided with the elastic strap C, substantially as described.

2. The auxiliary breast-protector F, in combination with the blanket proper, substantially as and for purposes stated.

186,202. LIFTING-JACKS. W. Adair, Perth Amboy, N. J. [Filed Aug. 18, 1876.]

Brief.—A post and the pivoted end of a vertical lever are on a base-piece. To the top of the post is pivoted the end of a notched bar, which, at its other end, is attached by links to near the middle of the lever, the latter prolonged at a slight angle, to rest against the end of the bar, thus locking the device when it is weighted.

186,202.



The lifting-jack consisting of the base A, standard B, bar C, lever E, pivoted to the base, and bent at *x*, and links D, pivoted at *x* to the lever and to the end of the bar, all constructed and arranged as set forth.

186,203. EXTENSION-LADDERS. J. W. Allen, Republic, Ohio. [Filed June 12, 1876.]

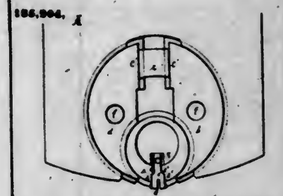


A ladder in two or more sections, A B, composed of single standards, with rounds, and secured by bands D E, hooks F G, and provided with a grappling-hook, H, substantially as and for the purposes described.

186,204. ROTARY DIAMOND-HOLDERS FOR SAWS. Isaac H. Allfree, Rico's Landing, Pa. [Filed June 10, 1876.]

Brief.—The diamond is held in a cylindrical-shaped holder, inserted in a ring-shaped spring, terminating in jaws; said spring being held in the upper part of two semicircular jaws, inserted in a circular grooved opening formed eccentrically toward the cutting-edge of the saw, and the whole secured in position by a grooved wedge driven between the lower ends of the semicircular jaws. The diamond tooth can be presented at any desired angle, and the head of the saw controlled in the desired direction.

186,204.



1. The double-acting adjustable semicircular jaws *b* and *d*, wedge *c*, adjustable ring-shaped spring *a*, having jaws *a' a'*, and adjustable cylindrical-shaped diamond-seat *e*, when placed within the blade of a saw, for adjusting, clamping, and holding a saw-tooth, constructed substantially as described.

2. The combination of the jaws *a' a'* with the cylindrical-shaped diamond-seat *e*, for adjusting and holding the tooth of a saw, substantially as described.

3. The combination of the double-acting adjustable semicircular jaws *b* and *d* with the wedge *c*, in a saw-plate, for clamping and holding a tooth at the angle desired, substantially as described.

4. The combination of the jaws *b* and *d*, wedge *c*, ring-shaped spring *a*, having jaws *a' a'*, and diamond-seat *e*, with a saw-plate, all combined and arranged substantially as and for the purpose set forth.

186,205. BLANK-BOOKS. H. S. Archer, Brooklyn, N. Y. [Filed Aug. 28, 1876.]



The blank-book A B C, having its leaves open-slotted at *s*, and held by clamp-nuts working on screws D, as and for the purpose specified.

186,206. FARM-GATES. D. Babbitt, Cameron, Ill., assignor of one-half his right to Wm. J. Gould, same place. [Filed Sept. 2, 1876.]



1. In combination with the gate A, the diagonal brace B, having the rearward extension *b*, pivoted to the post D by the journal O', substantially as and for the purpose specified.

2. The pivoted bars E, having weight *e* on their outer ends, and arranged to operate by means of cord F and weighted cords *c' c''*, with the gate A, substantially as and for the purpose specified.

3. The pivoted bars E, having weight *e* on their outer ends, and arranged to operate with the cord F in opening and closing the gate A, substantially as and for the purpose specified.

4. The pivoted bars E, having weight *e* on their outer ends, and arranged to operate with the cords F and I in opening and closing the gate A, substantially as and for the purpose specified.

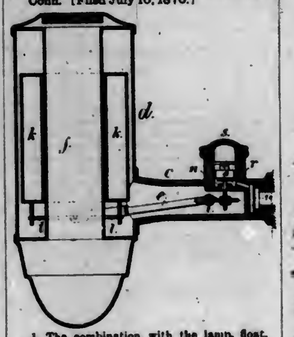
186,207. EMBROIDERED TRIMMINGS. Julius Bacchtold, Herisau, Switzerland. [Filed Oct. 20, 1876.]



1. The mode of manufacturing an embroidered trimming, herein described—that is, by cutting bias pieces at their inclined edges, and then embroidering the composite piece with a pattern extending lengthwise of the strip and across the seams, as and for the purpose set forth.

2. As a new article of manufacture, an embroidery trimming, consisting of a composite strip of bias sections of fabric united at their inclined edges, and having an embroidered pattern extending between and across the seams, as set forth.

186,208. LAMPS. Chas. C. Bliss, Norwich, Conn. [Filed July 10, 1876.]

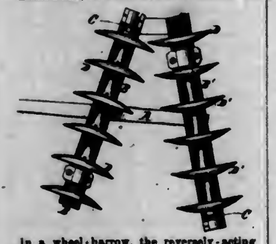


1. The combination, with the lamp, float, lever, and valve, of gimbals, connecting the lever and float, for the purposes and as set forth.

2. The combination, in a lamp, of a float, lever, valve-seat, valve and screw stem, substantially as set forth, for varying the height at which the oil stands in the lamp, as specified.

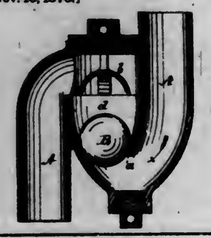
3. The combination, with a lamp, of a float, lever, valve, valve-seat, strainer, and cock, arranged and operating substantially as and for the purposes set forth.

186,209. WHEEL-HARROWS. F. Bramer, Little Falls, N. Y. [Filed June 14, 1876.]



In a wheel-harrow, the reversely-acting wheel-gangs arranged one in rear of the other, and in the same, or nearly the same, longitudinal plane, substantially as and for the purpose described.

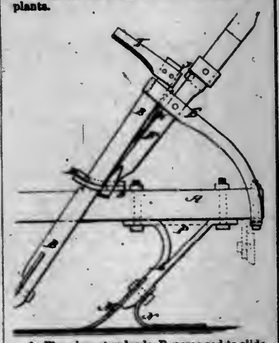
186,210. SINK AND BASIN TRAPS. Leon B. Carricoburn, New York, N. Y. [Filed Nov. 10, 1876.]



The combination of the sink or basin trap A, in which the valve-chamber *d* is formed, with the self-acting valve B, valve-seat *c*, and stop *b*, said stop being located below the upper bead, substantially.

186,211. PLOWS. William T. Cheatham, Biscoe, Miss. [Filed Oct. 14, 1876.]

Brief.—The standards raised or lowered in loops; the construction of the parts; an attachment for drawing off clods left upon the plants.



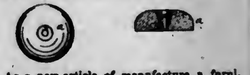
1. The plow-standards B, arranged to slide in loops of the bars D E against a spring, H, as shown and described.

2. The combination, with beam A and plow-standards B, of the spacing-bars D and braces E, correspondingly adjustable, as and for the purpose set forth.

3. The handle-bars F, attached to the upper part of braces E, and provided with an end hook, that connects with the loops of bars D, as and for the purpose specified.

4. The knocker G P, arranged under, and at the rear of, beam A, as shown and described, to drag the clods off the corn-row.

186,212. FURNITURE-FENDERS. J. H. Clark, Flemington, N. J. [Filed May 1, 1876.]



As a new article of manufacture, a furniture-pad consisting solely of a circular block of rubber with parallel faces, rounded at the outer edge, and having a central tapering opening, *s*, as specified.

186,213. SCHOOL-SEATS. James P. Cliffe, Philadelphia, Pa. [Filed Feb. 21, 1876.]

Brief.—The seat-bracket has a rearward-extending arm with an angular extremity, which is inserted in a slot in the standard. Elastic buffers are placed at both ends of the slot.

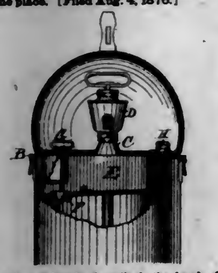


The lateral stud F, of the short arm of the seat-support, working in slot G, and hooking around the wall of the same, in the manner described, to hold the seat-arm on the pivot-stud, substantially as specified.

186,214. COMPOUNDS FOR DISINFECTING. Henry B. Condy, Battersea, London, S. W., England. [Filed Sept. 4, 1876.]

The composition or compound hereinbefore described, consisting of a manganate or permanganate of an alkali or alkaline earth and chloride of sodium, in the proportions, or about the proportions, as described, for the purpose specified.

185,915. OIL-CAN. M. Corcoran, New Orleans, La., assignor to Aaron Peiser, same place. [Filed Aug. 4, 1876.]



The oil-can herein described, the head of which is provided with an orifice, having a screw-cap, H, and with a permanently-secured sink, K, having an inclined bottom, provided with grooves *a* and valve F, the latter operated by its handle G, as described, and for the purpose specified.

185,916. APPARATUS FOR HYDRAULIC MINING. Geo. W. Cranston, San Francisco, Cal. [Filed Sept. 28, 1876.]



1. The combination, with a hydraulic dirt and gravel elevator, D E F J L, of a flume, K, provided with gold-saving devices, by means of which the auriferous material can be elevated and the gold particles separated by the same stream, in one continuous operation, substantially as specified.

2. The spout J, having one or more curved sections, D E, at its lower end, and having the nozzle M of the hydraulic pipe introduced in the rear of the curve, substantially as and for the purpose described.

3. The sections D E of a hydraulic dirt-elevator, made in two halves, substantially as and for the purpose described.

4. The section D, enlarged in front of the nozzle M, so as to provide a chamber gradually decreasing in area toward the section E, substantially as and for the purpose described.

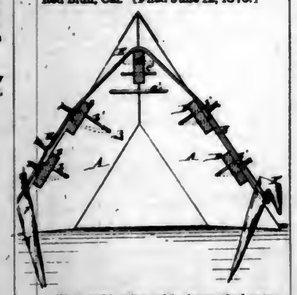
5. In combination with the spout J, curved section E, and nozzle-section D, the elbow C, connected with the section D by a water-tight swivel-joint, substantially as and for the purpose described.

6. The adjustable gate or valve I, in combination with the suction-pipe of a hydraulic earth-elevator, substantially as and for the purpose described.

7. The branch pipe or tube R, arranged to divert a stream of water from the hydraulic pipe L and introduce it into the head of the elbow C, substantially as and for the purpose described.

8. In combination with a hydraulic earth-elevator, consisting of the spout J, ground sections C D E, and hydraulic pipe L, with its nozzle M, arranged to operate as described, the one-sided box O and grizzly H, substantially as and for the purpose described.

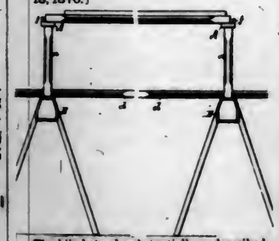
185,917. FARM-FENCES. Charles Cremer, Red Bluff, Cal. [Filed June 12, 1876.]



1. The combination, with the notched outer edges of the supporters A, of the side boards B, beveled at their ends to overlap each other edgewise in said notches, and secured to each other and to said supporters A by wires *b'*, substantially as herein shown and described.

2. The combination of the anchor-wires E and stakes F, with the fence A B C, substantially as herein shown and described.

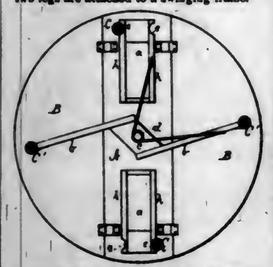
185,918. PAINTERS' BLIND-STANDS. A. A. Crowley, Oak Bluffs, Mass. (Filed Oct. 18, 1876.)



The blind-stand, substantially as described, composed of the flanged bars A A, their supporting standards or posts *a*, and horses B, and the shelf C, provided with the adjusting-holes *c* and pins *b*, all being arranged essentially as set forth.

185,919. TABLES. Fred. H. Cutler, Buffalo, N. Y. [Filed May 27, 1876.]

Brief.—Two of the legs and the drawers are attached to the central frame, and the other two legs are attached to a swinging frame.



The combination of the bed A, stationary drawers *a a b b*, hinged leaves B B, and legs C C, and the swinging frame *b b c*, carrying the legs C' C', substantially as herein before specified.

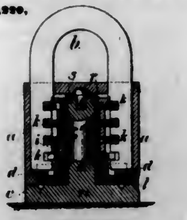
185,920. COMBINATION-PADLOCKS. Philemon Dickinson, Newark, N. J. (Filed Oct. 23, 1876.)

1. The combination, in a padlock, of the shackle, notched on its parallel legs, with the circular notched tumblers *h* and the dial *n*, constructed with such tumblers, substantially as set forth.

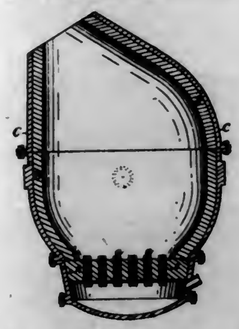
2. The disk *e*, held into the case *a* by the screws *d*, or turning-buttons, in combination with the removable shackle and circular tumblers, substantially as set forth.

3. The dial *n*, corresponding in size, or nearly so, with the cylindrical case *a* of the padlock, and provided with recesses *i* in the adjacent edges of the dial and case, in combination with the spring-dog *u*, cavities *l*, and circular tumblers, substantially as set forth.

185,920.

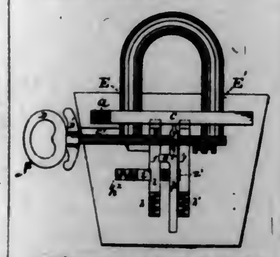


185,921. PROCESSES FOR LINING BESSEMER CONVERTERS. A. S. Dunning, Joliet, Ill. [Filed Sept. 28, 1876.]



The process of lining Bessemer-steel converters, which consists in laying stiff fire-proof mortar, in balls, around the interior surface and in the bottom of the vessel, about the tuyeres, and then pressing them down into a uniform surface and homogeneous lining, substantially as herein shown and described.

185,922. PADLOCKS. J. W. Elliott, Beaver Falls, Pa. [Filed Feb. 19, 1876.]



1. The bolt C, provided with the openings *d d'*, recesses *e e'*, and notched pin *g*, in combination with the spring-tumblers *f* and *f'*, the cross-bolt *i*, and the double lateral spring *p q*, provided with the notch *r* and detaining-flange *s*, constructed and operating substantially as herein before set forth.

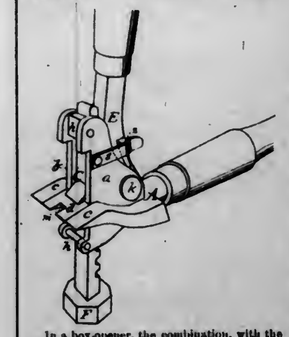
2. The padlock-key consisting of the rod D, provided with the wards *v* and *t*, in combination with the barrel D', having the wards *v' v² v³*, and the L-shaped slots *v w* and *v' w'*, constructed and operating substantially as and for the purposes herein before set forth.

3. The bolt C, provided with the openings *d d'*, recesses *e e'*, and notched pin *g*, in combination with the spring-tumblers *f f'* and cross-bolt *i*, substantially as and for the purposes set forth.

4. The hasp B, having the notches G G', in combination with the bolt C, provided with openings *d d'*, recesses *e e'*, and notched pin *g*, and spring-tumblers *f f'*, having the cross-bolt *i*, substantially as and for the purposes set forth.

185,923. BOX-OPENERS. Harvey L. Fisher and George W. Ingersoll, Toledo, Iowa. [Filed Oct. 14, 1876.]

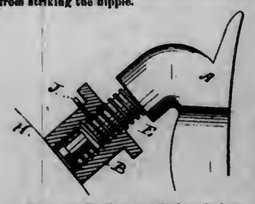
Brief.—A vibratory lever, having upon its lower part a segmental rack, which gears into a vertically-reciprocating rack, provided with a hammer-head upon its lower end, and a centrally-notched bit on its front part, is pivoted between cheek-pieces, having in their outer sides spaced bits attached to a suitable handle. The bits can be brought in line transversely with each other, to form a composite bit for insertion in crevices, and are secured in position by a spring-catch pivoted to the outer side of one of the cheek-pieces, which engages with a lug on the shank of the segmental lever.



In a box-opener, the combination, with the spaced bits *c c*, of the stationary lever C of the vertically-reciprocating rack D, having bit *d*, and the vibratory lever E, having a segment-rack engaged with the rack-bar, substantially as specified.

185,924. HAMMERS FOR FIRE-ARMS. Thos. M. Flemming, Washington, D. C. (Filed Nov. 22, 1876.)

Brief.—The tubular part is screwed down, and forms a guard to prevent the hammer from striking the nipple.



1. The guard B, when attached to the hammer of a gun or pistol, substantially as shown and described, and for the purposes set forth.

2. The screw-point E, having one or more of its threads deepened, as described, and for the purposes set forth.

3. The combination of the hammer A, guard B, screw-point E, and small screw J, when attached to fire-arms, for the purposes described and set forth.

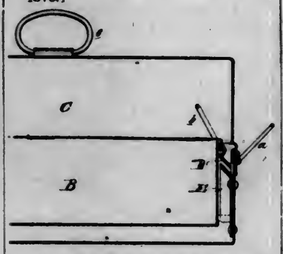
185,925. LAMP-EXTINGUISHERS. Martin P. Flanders, Au Sable Forks, N. Y. (Filed Nov. 4, 1876.)

The combination of the pivoted cap or cape B, pivoted lever-frame C, and sliding and spring-acted weight D with the wick-tube A, all constructed and relatively arranged substantially as herein set forth, for the purpose specified.

185,926.



185,926. BAKE-PAN HANGINGS. J. Gravenstine, Philadelphia, Pa. (Filed Nov. 23, 1876.)



The pan B, provided with the hanger D, having claws *e e* for its lower part, and a half-round groove, grasping the handle *b*, for its upper part, in combination with the pan A, provided with the supporting-piece E, having a dovetail face, *f*, substantially as and for the purpose herein set forth.

185,927. MACHINES FOR GRINDING GLASS-WARE. Jonathan Haley, Rochester, Pa. [Filed Oct. 21, 1876.]

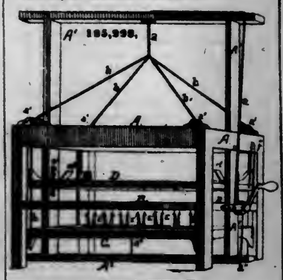
Brief.—The mandrels for holding articles to be ground may all be revolved at once from a common shaft bearing worm-gear, or any one of the mandrels may be stopped by raising out of contact by means of a hand-lever.

The horizontal shaft B, provided with the mills D, and the shaft C, provided with the worm-gears *c*, in combination with the vertical shafts E, provided with the pinge F and feathers *b'*, collar I, and sleeves or bushings *a*, provided with the threaded heads *b*, having grooves *b'*, all constructed to operate substantially as and for the purpose set forth.

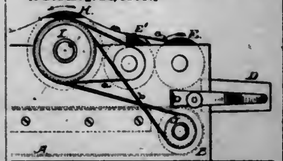
185,928. MACHINES FOR STUFFING MATTRESSES. D. Harris, San Francisco, Cal. [Filed June 20, 1876.]

Brief.—The mattress is laid on a stationary platform, and held by a movable platform above, while a third platform, which carries the needles, is forced up from below, causing the needles to pierce the mattress. The needles are arranged in pairs, each pair carrying a single short thread for making one loop or tuft, and the stationary and upper movable platforms are perforated, to correspond with the position of said pairs of needles. An arrangement of pulleys and cords for simultaneously operating the movable platforms.

In a machine for stitching mattresses, the combination, with the frame A A', of the reciprocating platforms C D, the roller F, and cords *a b g*, constructed and arranged substantially as described and shown.



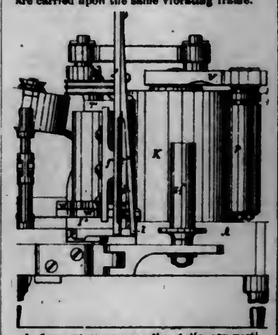
185,929. MACHINES FOR STUFFING MATTRESSES. D. Harris, San Francisco, Cal. [Filed Aug. 24, 1876.]



In a machine for stuffing mattresses, the feeding-tube D, in combination with the feeding and driving rollers and endless apron, when constructed and arranged to operate substantially in the manner as herein set forth and specified.

185,930. TAG-MACHINES. Wm. Heckert, Providence, R. I. [Filed May 22, 1876.]

Brief.—A tag-machine in which the paper first passes through the puncturing apparatus for eyelet, thence to the printing devices, consisting of a vertical stationary cylinder carrying the type-bed, and provided with revolving inking-rollers and a vibrating platen, the eyelet being inserted simultaneously with the printing. The web next passes through the shears, when the tags are separated. The platen, punch, eyelet mechanism, and shears are carried upon the same vibrating frame.



1. In a printing-press, the stationary vertical cylinder K, fixed solidly at its lower end to the bed-plate A, (the upper end being left free,) provided with a plane surface that serves as a bed for the type; the revolving plate U fixed to the upper end of the shaft F, arranged to revolve in the axis of the said cylinder; the heads P P' P'', (one or more,) arranged to slide in ways in said plate U, and in which are fixed the axle-shafts of the inking-rollers that depend from the said heads, and are pressed toward the said cylinder and type by the springs *s s' s''* acting on said sliding heads, all constructed and combined to operate as and for the purpose described.

2. In a printing-press, the combination of the stationary cylinder K, provided with a plane surface that serves as a bed for the type, the reciprocating platen T, the revolving plate U, and a pitman pivoted at one end to the said plate, and at the other end to a crank-pin in said plate U, the said plate performing the double office of carrying the inking-rollers and communicating motion to the platen, all constructed and combined to operate as and for the purpose described.

3. The combination, in a printing-press, of the cylinder K, provided with a plane surface that serves as a bed for the type, the revolving plate U, the inking-rollers, carried by said plate, the platen T that carries on its arms I I' the feed-rollers D D' D'' D''', with the perforating apparatus f f'', attached to and carried by said arms, all constructed to operate as and for the purpose described.

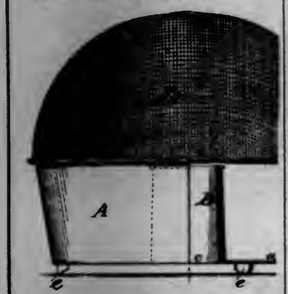
4. The combination, in a printing-press, of the cylinder K, provided with a plane surface that serves as a bed for the type, the revolving plate U, the inking-rollers carried by said plate, the platen T, that carries on its arms I I' the feed-rollers D D' D'' D''', with the cutting or shear blades p' p'', attached to and carried by said arms I I', all constructed and arranged to operate as and for the purpose described.

5. The feed mechanism consisting of the arm j the lever f, the arm e, and the connecting-rod r', all constructed and arranged to be actuated from the crank-pin G', in the gear d, whereby an intermittent movement is given to the feed-roller D', as and for the purpose described.

6. The eyelet-reservoir a, mounted upon the platform F''', constructed and arranged to be lowered and raised by the movement of the platen T, constructed and combined to operate as and for the purpose described.

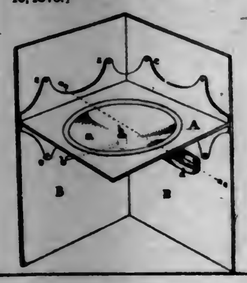
7. The combination of the platen T, the lever k', incline N, and punch J, as and for the purpose described.

185,921. FLY-TRAPS. J. Helber, Farmington, Mo. [Filed Aug. 4, 1876.]



The fly-trap herein described, consisting of dish or pan A, provided with flange b to receive the wire cover D, foot c, and centrally-perforated bottom a, and having in the center the cylindrical tube B, substantially as and for the purpose herein shown and specified.

185,922. BRACKETS FOR WATER-COOLERS. Jacob Hepperly, Peoria, Ill. [Filed Nov. 10, 1876.]

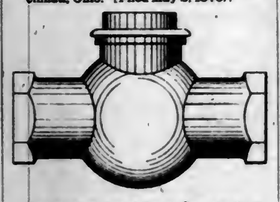


1. The drinking-water stand A, with tongues a a, basin c, drip-spout d, and drain-pipe b, adapted for attachment to the guards B B, or to a wall or other surface, substantially as and for the purposes set forth.

2. The combination, with the basin-shaped stand A, having tongues a a and drain-pipe b, of the drip-spout d, substantially as and for the purposes described.

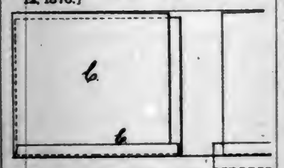
3. The combination of the guards B, stand A a, fitted with drain-pipe b, and spout d, substantially as and for the purposes described.

185,923. PATTERNS FOR CASTING. G. W. Hogle, Dayton, and D. M. Steward, Cincinnati, Ohio. [Filed May 3, 1876.]



A pattern or model for castings, made of steatite or soapstone, rendered hard and tenacious, substantially in the manner and for the purpose specified.

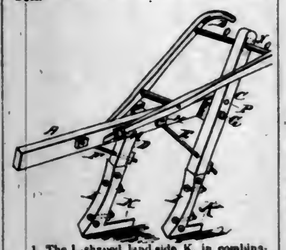
185,924. BOOK-COVER PROTECTORS. Geo. W. Holden, Dayton, Ohio. [Filed May 12, 1876.]



The pockets in a copy-book-cover protector, opening at the top and formed by the body of the cover and the joined side flaps C, and the bottom flaps E, for the purposes set forth.

185,925. PLOWS. Peter Holloway, Moncova, Ohio. [Filed Apr. 26, 1876.]

Brief.—The land-side is L-shaped, the upright part fitting the side of the standard. The share rests with its entire length upon the upright portion of the land-side, the parts being secured to the standard by bolts and nuts.



1. The L-shaped land-side K, in combination with the reversible mold-board and point I, resting its whole length upon the front edge of the upright part of the land-side, substantially in the manner and for the purposes set forth.

2. In combination with the above-described land-side K and point J, the adjustable shank C and slotted beam A, substantially as and for the purposes set forth.

185,926. SECTIONAL JOINTED NOZZLES FOR HYDRAULIC MACHINES. R. Hoskin, Dutch Flat, Cal. [Filed Sept. 26, 1876.]

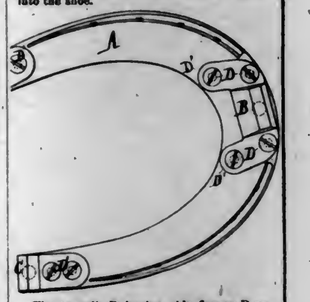
Brief.—The nozzle upon the discharge-pipe not only directs the stream, but also serves as a rudder to change the direction of the discharge-pipe, by cramping it upon the stream.



The deflecting nozzle B, connected with the discharge-pipe A by means of a suitable packed joint, and provided with a lever, K, substantially as and for the purpose described.

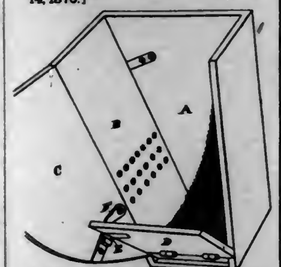
185,927. HORSESHOES. Leonhard Joerg, Brooklyn, N. Y. [Filed Oct. 13, 1876.]

Brief.—Cast-steel milled projections welded into the shoe.



The toe-calk B, having side flanges D extending front and rear, with fastenings D' set therein, one at each side of the calk in front, and others set farther back, in combination with a shoe, A, having the pin E firmly set therein and matched in a hole in the calk, as and for the purposes specified.

185,928. FEED-RACKS FOR HORSES. J. O. Johnson, Salinas City, Cal. [Filed Oct. 14, 1876.]



1. An improvement in feed-boxes, the same consisting in constructing the box A, with the side B, having its flaring wing C, and the inclined front D, substantially as and for the purpose herein described.

2. The inclined hinged wing C, and the hinged front D, with the latch E and the button F, to hold the parts when extended, or allow them to be folded up, substantially as herein described.

185,929. GAME-BOARDS. Severin Keimig, Elizabeth, N. J. [Filed Oct. 24, 1876.]

Brief.—A variety of Russian bagatelle, in which the balls set in motion by the player are diverted and delayed from entering the pockets by pins secured in the board.

1. In combination with the central raised bridge, which carries the propelling apparatus at one end, the table B, placed below said bridge, and provided with a series of apertures, h h, disposed at the sides of said bridge, and with a series of projecting pins or detents, i i, substantially as herein shown and described.

2. The combination of the perforated table B and lower supporting-slide F with the vibrating balanced tablet l, whose shank extends into the aperture h, so that it will be displaced by a ball entering said aperture, but

brought to its normal position by its own weight as soon as the ball leaves said apertures, substantially as herein shown and described.

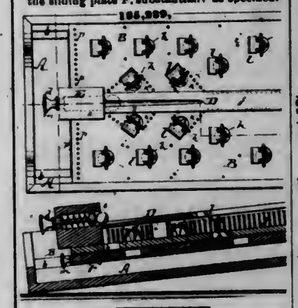
3. The combination of the perforated sliding spring-plate F with the perforated bagatelle-table B, substantially as herein shown and described.

4. The combination of the perforated sliding spring-plate F with the perforated bagatelle-table B and vibrating tablet l, substantially as described.

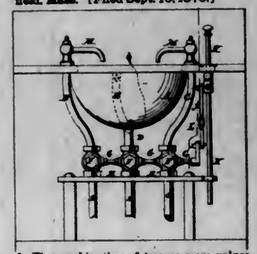
5. In combination with the raised bridge D, the ball-channel j, having branches beneath said bridge, as described.

6. The box A, made with the hinged section a in its bottom, and with the spring o of the sliding plate F, substantially as specified.

185,930.



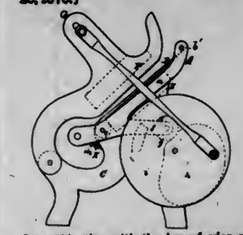
185,940. COMPOUND VALVES FOR WASH-BASINS, &c. Francis B. Kernochan, Pittsfield, Mass. [Filed Sept. 16, 1876.]



1. The combination of two or more valves, fastened side by side upon a common support and operated by a single shaft, stem, or lever, the latter being made to pass through all the valves and open or close all of them at once by a part or whole revolution, and being actuated by attachments, substantially as herein shown and described.

2. The combination of the crank I, the connecting-rod J, and the sliding rod K with the stem G of the valves F, substantially as herein shown and described.

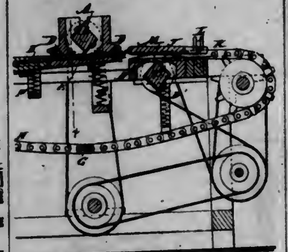
185,941. FENDERS FOR PRINTING-PRESSES. W. P. Kidder, Malden, Mass. [Filed Aug. 26, 1876.]



In combination with the lever-fender, provided with the operative spring and cam, and arranged with and applied to the platen or its supporting-frame, as described, the sheet-holder, arranged at right angles with and fixed to the fender pivotal shaft, and extended under and against the front cross-bar of the fender, all being substantially as set forth.

185,942. MACHINES FOR PLANING SHINGLES. Willard A. Kitts, Oswego, N. Y. [Filed Apr. 4, 1876.]

Brief.—Both sides of taper-sawed shingles can be planed at one operation by means of an upper and a lower rotary planer, one arranged in advance of the other; spring-pressers for pressing the shingles against the planers; a table upon which the shingle is supported while being fed to the planers by push-bars attached to endless chains arranged upon either side of the table; guides attached to the planer-frames, for preventing the planer-knives from coming in contact with the push-bars as they pass; and suitable operating mechanism.



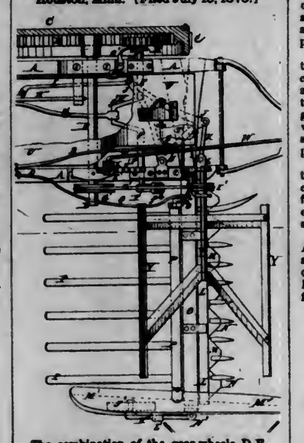
1. The combination of the yielding and spring-pressed bed E with the planer A, arranged in stationary bearings, substantially as specified.

2. The combination, with planers A I, of the guides D D, arranged substantially as and for the purpose specified.

3. The combination of the planer A, spring-pressed bed E, planer I, and weighted or spring-pressed presser J, substantially as specified.

4. The combination, with planers A I and guides D D, of the horizontal plates J, provided with studs or pins working in slotted uprights, substantially as and for the purpose set forth.

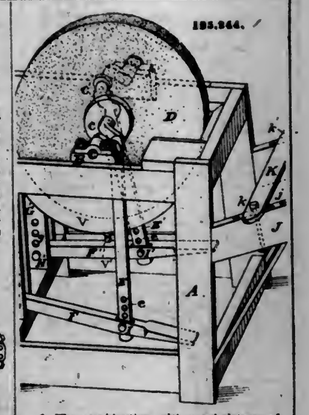
185,943. HARVESTERS. Ole S. Knudsen, Houston, Minn. [Filed July 15, 1876.]



The combination of the gear-wheels D E, the balanced crank-shaft F, the slide H, the triangular lever J, and the connecting-rods G I K with the drive-wheel C, the frame A, and the sickle-bar L, substantially as herein shown and described.

185,944. GRINDSTONES. B. Kottmann, Cincinnati, Ohio. [Filed Nov. 22, 1876.]

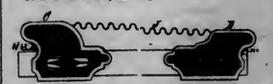
185,944.



1. The combination, with a grindstone, of the treadles F F', adjustable vertically in the bolt-holes g and e in cheeks G, and the pitmen E E', connecting said treadles with cranks o o' of double-crank shaft O.

2. The combination, with a grindstone adapted to be driven by the user, of the shiftable and separable seat K, pins k k', and perforated brackets J J'.

185,945. SPRING BED-BOTTOMS. Wm. A. Le Row and Wm. A. V. Porter, Chicago, Ill.; said Porter assignor to said Le Row. [Filed Mar. 20, 1876.]



1. The combination, with the cross-bars B B', of the longitudinal and laterally-corrugated sheet-metal slats J, as and for the purpose specified.

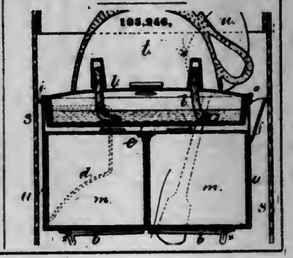
2. The combination, with the cross-bars B B', provided with the V-shaped groove, to receive the ends of the slats, of the V-shaped cleat K, adapted to compress the ends of the slats between the beveled surface of the cleat and the walls of the groove, as and for the purpose specified.

3. The corner-plates C C and D D, having the flanges c and d, provided with the ribs e e, one of said ribs e being adapted to bear against the inner face of the side pieces, and the other rib e being adapted to enter the grooves in the lower edge of the side pieces, whereby the corner-pieces are connected to the side pieces A A, substantially as and for the purpose specified.

4. The corner-plates C C and D D, having the flanges c and d, provided with the ribs e e, as described, and the parallel flanges f f, forming the dovetail grooves, to receive the ends of the cross-bars B B', substantially as specified.

5. The combination, with the side pieces A A, cross-bar B, and corner-plates C C, arranged as described, and provided with the lugs G G, of the brackets F F and adjusting-screws H H, substantially as and for the purpose specified

185,946.



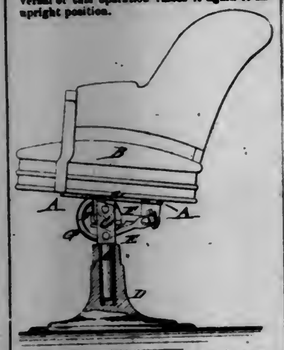
185,946. PORTABLE STOVES. Annie Lodor, Trenton, N. J. [Filed June 6, 1876.]

1. The pot *a*, having folding legs *b* and a slide-shaped cover, *c*, in combination with the lamp *d*, that fits into the cover, as set forth.

2. The pot *a*, having folding legs *b*, folding handles *d*, a hinged cover, *c*, and a spout, *f*, in combination with the cone *m*, that fit into the pot and are removable therefrom, substantially as set forth.

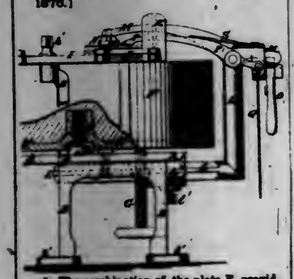
185,947. RECLINING-CHAIRS. B. F. Manier, Green Island, N. Y. [Filed Oct. 30, 1876.]

Brief.—The chair is pivoted vertically to the upright spindle. A bell-crank lever is pivoted at its angle to the under surface of the chair-bottom, directly in rear of the pivotal point of the chair. One end of said lever is pivoted to a traveler mounted upon a screw-threaded shaft, which turns in bearings secured to the chair-bottom, and the other end of said lever is hinged to an arm, which is attached to the spindle carrying the chair. As the shaft is turned in one direction, the traveling nut is carried inward toward the spindle, carrying with it the end of the bell-crank lever pivoted thereto. As the other end of said lever is held rigidly by the arm to which it is pivoted, the force of the screw is exerted upon that point of the chair directly in rear of its pivotal support, to which the angle of said lever is attached, thus drawing the chair-frame over backward. The reversal of this operation raises it again to an upright position.



The combination of the chair-supporting base-frame, forked revolving spindle, pivoted connecting-arm, the fulcrumed bell-crank lever, and adjusting hand-screw, turning in a swivel-nut of the bell-crank lever, for the purpose of adjusting the chair to any angle of inclination from the seat, substantially in the manner and for the purpose set forth.

185,948. MACHINERY FOR SCALLOPING THE UPPERS OF BOOTS AND SHOES. William Manley, Rochester, N. Y. [Filed Oct. 23, 1876.]



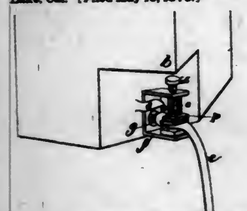
1. The combination of the plate E, provided with the screw-sockets *e'*, the stationary screw D, and the set-screws G, with the block F, and the bed-plate A of the machine, substantially as herein shown and described.

2. The combination of the standards H, provided with the screw-sockets and the set-screws *h'*, the slotted bars I, the pivoted bars J, the holders K, and the block F, substantially as herein shown and described.

3. The combination of the adjustable right-angled bar L, the pivoted lever M, provided with the pivoted cross-bar N, and the lever-cam O, with the bed-plate A, and the block F, substantially as herein shown and described.

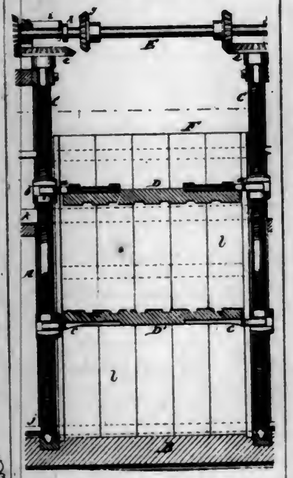
4. The combination of the pivoted lever P, the cord Q, and treadle R, and the spring S, with the right-angled bar L, and the block F, substantially as herein shown and described.

185,949. OIL-CANS AND FAUCETS. A. H. Marshall and Geo. W. Marshall, Lower Lake, Cal. [Filed May 16, 1876.]



The can A, provided with the nipple *d* and india-rubber tube *e*, in combination with the clamping-jaws and a device for holding the clamping-jaws to the can, substantially as set forth.

185,950. COTTON-PRESSES. C. T. Mason, Sumter, S. C. [Filed Nov. 11, 1876.]



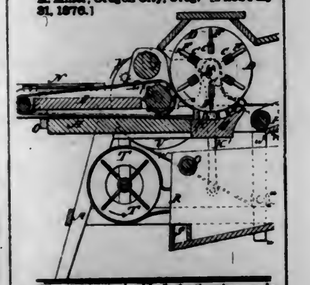
1. The screws C, each provided with a right and left hand thread, in combination with the pivoted plates D, the rigid plates D', casing F, and frame A, substantially as herein shown and described.

2. The hinged part *l* of the casing F, in combination with the frame A and cross-bar *k*, substantially as shown and described.

185,951.

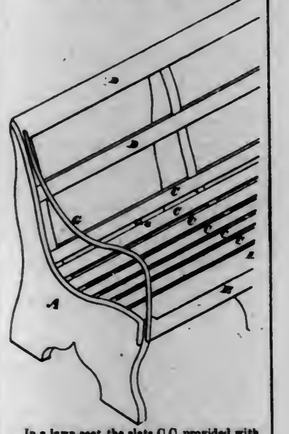


185,952. THRASHING-MACHINES. Geo. R. H. Miller, Oregon City, Oreg. [Filed July 31, 1876.]



The sliding feed-table I of a thrasher, made adjustable to and from the cylinder, and provided with feeding-belt L, and having roller J, substantially as and for the purpose specified.

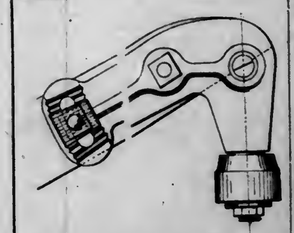
185,953. SETTEES. Hiland A. Moore, San Francisco, Cal. [Filed Aug. 24, 1876.]



In a lawn-seat, the slats C C, provided with supports A A B, in combination with intermediate flexible beads *e e*, connecting slats C, as set forth.

185,954. HARVESTER RAKE-ARMS. Saml. Nelson, Jr., Ingersoll, Ontario, Canada. [Filed May 27, 1876.]

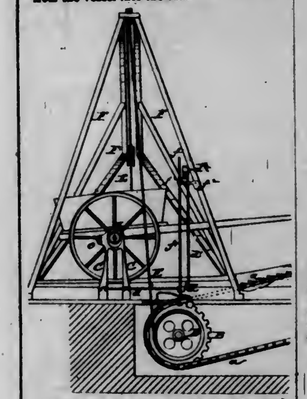
185,954.



The metal part of the arm of a harvester-rake, constructed in two parts, A, each having a part of the pivot C for the cam-roller D, and one of the pivots E, by which the arm is pivoted to the revolving head of the rake-stand, substantially as specified.

185,955. COAL-HOISTING APPARATUS. G. Paul, New York, N.Y. [Filed Oct. 7, 1876.]

Brief.—The horse hauls its cart into such a position on the wharf that he is standing on and operating an endless stepping-belt, to haul, by the intervention of a winding-drum and overhead traveling carriage, the load from the vessel into the cart.



1. An improved apparatus for hoisting coal and other articles from the vessels, consisting of an inclined endless stepping-belt with winding-drum, hoisting-rope, and bucket-conveying carrier, and supporting-frame, substantially in the manner and for the purpose specified.

2. In an apparatus for hoisting coal, a swinging standard, operated by weighted lever, and having recess to lock to hub of vehicle, for utilizing power of horse on stepping-belt, substantially as specified.

3. The swinging and hub-locking standard C, having curved guide-piece *c* to lock automatically to hub, substantially as set forth.

4. The combination of hoisting-rope E, having fixed button *h*, carrier F, having pivoted and weighted lever-hooks *g g'*, and stop-plate *g'* of frame A, to release or lock carrier from stop-plate of frame F, substantially as specified.

185,956. BRUSHES. Raymond S. Perrin, New York, N. Y., assignor to Raymond S. Perrin Brush Company, same place. [Filed Oct. 6, 1876.]

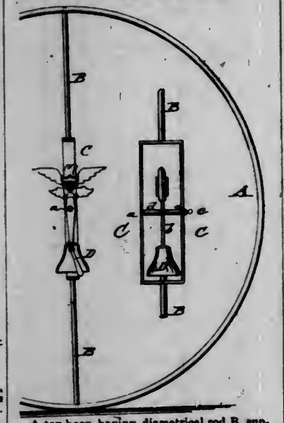
Brief.—The ferrule is depressed in the center to hold it to the plug, and its upper and lower edges to hold the bristles and plug together.

In a paint-brush, the combination, with the plug B and independent handle, the latter constructed with the portion engaging with the plug, of parallel sides, and having a pointed end, whereby it is driven downwardly through the plug, of the metallic ferrule C, formed with upper and lower inwardly-turned flanges, and a central inwardly-depressed groove, whereby the plug and bristles are securely held in place, substantially as and for the purpose set forth.

185,956.

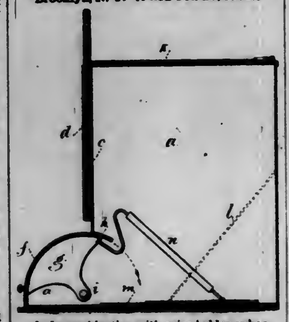


185,957. TOY HOOPS. Henry F. Post, Paterson, N. J. [Filed Sept. 16, 1876.]



A toy hoop having diametrical rod B, supporting a frame, C, in which is sustained a bell-arm, *b*, on its pivot *a*, as shown and described.

185,958. SPICE-CHESTS. Jas. H. Procter, Brooklyn, N. Y. [Filed Oct. 26, 1876.]



1. In combination with spice holder or box, the segmental front *f*, side plates *g*, pivots *i*, and cut-off *h*, substantially as and for the purposes set forth.

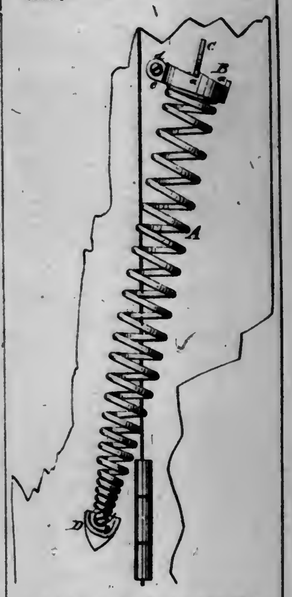
2. The combination, in the spice holder or box, of the swinging segmental front *f*, supply-plate *m*, and agitators *n*, substantially as set forth.

185,959. POCKET-BOOK FASTENERS. Danl. M. Read, New York, N. Y. [Filed Sept. 9, 1876.]



A pocket-book fastener, having the projection a^2, spring a^3, and flange a^4, constructed and arranged on the base-plate A, as shown and described.

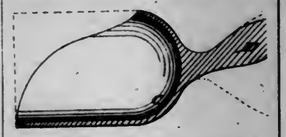
185,960. DOOR-SPRINGS. F. C. Rhoubottom, Union City, Mich. [Filed Sept. 20, 1876.]



A coiled door-spring that tapers toward one end to adapt it to be adjusted to the edge of a door or the oval surface of a molding without impairing its strength.

185,961. PROCESSES FOR MAKING WOODEN SCOOPS. Robert Richardi, Belleville, Ill. [Filed June 20, 1876.]

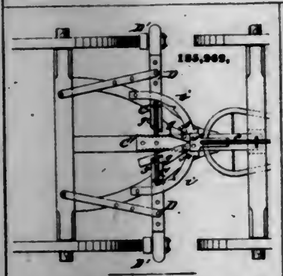
Brief.—Wooden scoops for the use of grocers are made by turning the scoop out of a suitable blank into the shape of a goblet, hollowing it out at the scoop part, cutting and turning the inclined handle out of the rear part, and cutting the shape and edge of the scoop part.



The process of making grocers' scoops of a single piece of wood, substantially as herein described, and for the purpose specified.

185,962. AUTOMATIC BRAKE-LOCKS. G. H. Boling, Bellevue, Iowa. [Filed Sept. 2, 1876.]

The combination, with an automatic-brake mechanism, substantially as described, of spring-bolts and rack and slotted cam-plates *f*, as and for the purpose specified.



185,962. HOP-POLES. C. A. Sands, Burlington, Kans. [Filed Nov. 11, 1876.]

Brief.—A cross-head or set of radial arms slides upon a pole, and is raised or lowered by means of a cord, which passes through sheaves near the upper and lower ends of the pole, and through perforations in the cross-head. Knotted cords or wires attached to the radial arms have their lower ends formed into loops, and secured to hooks which are attached to stakes inserted in the earth.



The combination of the pole A, having sheaves near its upper and lower ends, the cross-head B, having holes *c*, the ropes or wires C and D D, blocks *d*, and hooks *e*, substantially as herein shown and described.

185,963. CIGAR-MACHINES. R. O. Sebastian, New Orleans, La. [Filed June 9, 1876.]

Brief.—The benches or halves are made in a series of molds as they pass under a pressing-roller, and are removed therefrom by a suitable press, and taken to another machine for uniting them.

1. In a cigar-machine, the combination of the frame A, provided with ways *a a'*, sliding bed B, provided with raised sides *b b'*, mold C, face-plate D, shaft *f*, and pressure-roller F, operating substantially as described.

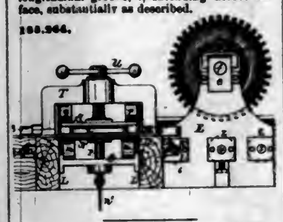
2. In a cigar-machine, the combination of the frame L L', bed-plate M, constructed as described, platens N S, the latter provided with projections, mold C, and face-plate D, substantially as described.

3. In a cigar-machine, the combination of the frame L L', bed-plate M, platens N S, press U, springs *m n q r*, rope *w'*, mold C, and face-plate D, substantially as described.

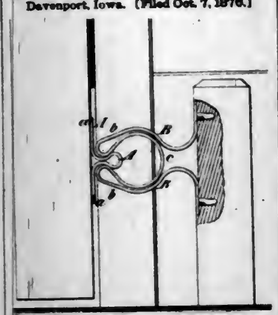
4. In a cigar-machine, the combination of the frame L L', bed-plate M, platens N S, press U, springs *m n q r*, rope *w'*, levers R R', pins *p*, mold C, and face-plate D, substantially as described.

5. The cigar-mold plate C, provided with a series of molds, *s s*, of the form shown, and a longitudinal groove, *t*, extending across its face, substantially as described.

185,964.

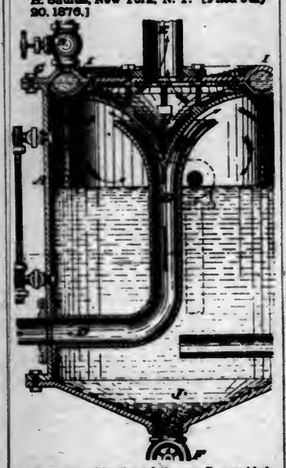


185,965. DOOR-CHECKS. Hiram Shunk, Davenport, Iowa. [Filed Oct. 7, 1876.]



The combination, with steel ribbon A, having ears *a a*, of the steel ribbon B, having ears and loops *b b c*, the loops *b* projecting outwardly to form a spring-clamp, substantially as shown and described.

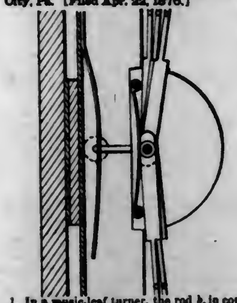
185,966. FEED-WATER HEATERS. Robert H. Shields, New York, N. Y. [Filed July 20, 1876.]



1. The combination of the cap G, provided with an annular sprinkler, I, and central escape-pipe E, the deflector H, situated concentrically with the said cap, and reaching nearly to the annular sprinkler, and the exhaust-pipe D, concentric with and partially surrounding the said deflector, all substantially as and for the purpose herein specified.

2. The annular sprinkler I, constructed as shown, one half in the cap G of the heater, and one half made separate, perforated, and bolted thereto, as set forth.

185,967. MUSIC-LEAF TURNERS. Fredk. Sherratt and Chas. J. Cowperthwaite, Oil City, Pa. [Filed Apr. 22, 1876.]

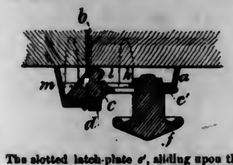


1. In a music-leaf turner, the rod *b*, in combination with the plates H B' and spring E, substantially as described.

2. In a music-leaf turner, the bifurcated arms *c*, in combination with the spring *d* and detachable tablet, constructed in the manner and for the purpose set forth.

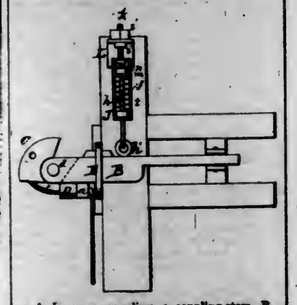
3. A tablet for a music-leaf turner, in combination with a double-tongue slide, *g*, grooved plate A, and music-rack A, as and for the purpose set forth.

185,968. CUPBOARD-CATCHES. Wm. B. Sparks, New Britain, Conn., assignor to P. & F. Corbin, same place. [Filed Sept. 22, 1876.]



The slotted latch-plate *c'*, sliding upon the surface of the case *c*, and having lugs *i* passing through slots in the case *c*, in combination with the knob *f*, that retains the plate *c'* in place, and the cams *h* and spring I within the case *c*, substantially as set forth.

185,969. CAR-COUPLINGS. Ivor R. Titus and Henry C. Bozzinger, Huntington, W. Va. [Filed May 18, 1876.]



1. In a car-coupling, a coupling-stem, B, forked at its front end, and provided with a swinging hook-shaped head, C, with stem C', substantially as and for the purpose herein set forth.

2. A self-closing latch, D, in combination with the swinging head C and stem B, for the purposes herein set forth.

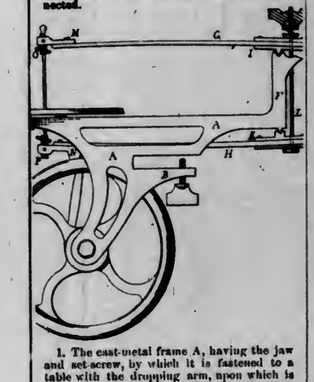
3. The combination of the stem B with lug *e*, the swinging head C with stem C' and rib *c*, the latch D and lever I, all constructed substantially as and for the purposes herein set forth.

4. The stirrup E, arranged on the front of the sill A, in combination with the coupler-stem B, buffer-plate G, and buffer-rod H, substantially as and for the purposes herein set forth.

5. The combination, with the coupler-stem B, of the spring-bar *h h'*, case J, spring *f*, follower *m*, bolt *k*, with nuts *i i*, and slotted bracket L, substantially as and for the purposes herein set forth.

185,970. SCROLL-SAWING MACHINES. C. N. Trump, S. N. Trump, and C. Frederick, Wilmington, Del. [Filed Oct. 3, 1876.]

Brief.—The saw is attached to the forward ends of two vibrating arms by pivoted clamps, for preventing the saw from being broken when forced out of a perpendicular line. The main frame is of cast-metal, provided with a forward-dropping arm for supporting the fly-wheel, a projecting arm for attaching to a table, and upon its rear part with a vertical standard, having a rest for the vibrating arms, and through which is passed a straining-rod, operated by an auxiliary spring and capped thumb-nut, for holding the upper arm at rest, and both arms in their bearings when the blade is disconnected.

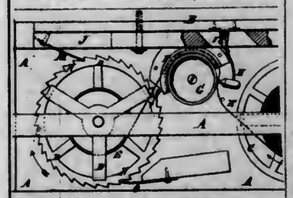


1. The cast-metal frame A, having the jaw and set-screw, by which it is fastened to a table with the dropping arm, upon which is hung the fly-wheel C, and with the vertical standard F with its projecting lip or rest X.

2. In a scroll-sawing machine, made with vibrating arms, the combination of a stop or rest, X, for the back end of the saw-arm, with the auxiliary spring and capped nut on the straining-rod, to hold the upper arm at rest, and both arms in their bearings when the saw-blade is from any cause disconnected.

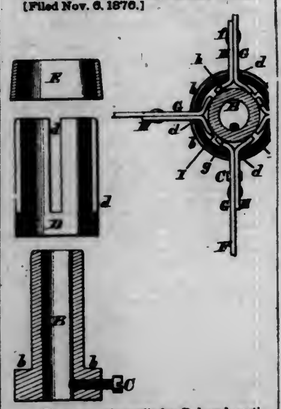
3. In a scroll-sawing machine, substantially as described, the combination of the frame A, having the stop or rest X, fly-wheel C, table D, vibrating arms G and H, connected by a rod, L, provided with a spring-nut at its upper end, pivoted clamps O and P, and pitman connecting the lower arm and fly-wheel.

185,971. RECORDERS. Nicholas Van Rees, Philadelphia, Pa. [Filed Nov. 18, 1876.]



The combination of the two reels C D, the guide F, the gong G, the spring-hammer H I, the slide J, the spring L, the two pawls M O, and the ratchet-wheel N with each other and with the case A B, substantially as herein shown and described.

185,972. COUPLINGS FOR APPLYING WEATHER-VANS POINTERS TO LIGHTNING-RODS, &c. J. H. Weston, Cincinnati, Ohio. [Filed Nov. 6, 1876.]

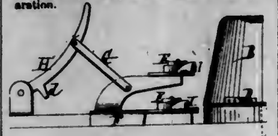


1. The supporting-cylinder B *b* and vertically-slotted thimble D *d*, having an annular space, l, between them for the reception of the wings of pointers F, whose shanks traverse said slots *d*, and are secured in position with the ferrule E, or its equivalent device, substantially as herein described and set forth.

2. The pointers F, having shanks G H secured together with rivets *f*, and provided at their inner ends with oppositely-projecting wings *g* and *h*, substantially as herein described and set forth.

185,973. MACHINES FOR MAKING BASKETS. Shepherd H. Wheeler, Perd, Ind. [Filed Nov. 16, 1876.]

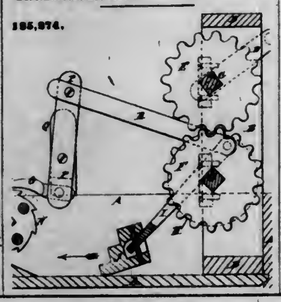
Brief.—The hoops for stave baskets are formed, set, nailed, and trimmed at one operation.



1. In a basket-machine, the combination of the conical former B, having the lip D, with the sliding head F, having the compressing-rollers E E, hoop-guides I I, and levers G H, substantially as described.

2. In a basket-machine, the combination of the former B with sliding head F and circular cutter L, substantially as and for the purposes hereinbefore set forth.

185,974.



185,975. WASHING-MACHINES. S. C. Wilson, Forest City, Ark. [Filed Oct. 23, 1876.]

1. The combination of the frame B, the gear-wheels E F, the crank-wheels H, the connecting-rods I, and the presser-block J with each other, and with the suds-box A, substantially as herein shown and described.

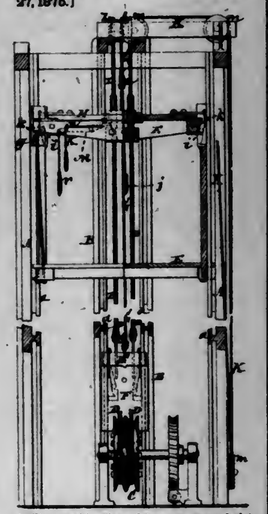
2. The combination of the inclined block K, the rollers L, the ratchet-wheels and pawls N O, the pivoted levers I', and the connecting-rods R with the crank-wheels H, the gear-wheels E F, the connecting-rods I, the presser-blocks J, and the suds-box A, substantially as herein shown and described.

185,975. CARRIAGE-SPRINGS. Jos. J. Adgate, New York, N. Y., and Francis Eichman, Reading, Pa. [Filed Apr. 15, 1876.]



A carriage-spring composed of two or more endless elliptical springs, *a c c*, of unequal thickness, and placed one within the other, substantially as and for the purposes herein set forth.

185,976. HOISTING APPARATUS. Wm. D. Andrews, Brook Haven, N. Y. [Filed Nov. 27, 1876.]



1. The combination of two or more hoisting ropes or chains with a hoisting-drum, having one or more independent longitudinally-sliding rings arranged around the body of the drum, and constructed to automatically equalize the strain upon the ropes or chains by the pressure of the latter upon the sides of the rings, essentially as shown and described.

2. The combination, with the platform or counterpoise and the friction-blocks or wedges *g*, of the bar H or H', and the auxiliary automatic safety-rope G, all applied and operating substantially as herein described, for the purpose set forth.

3. In a hoisting apparatus, in which the car or platform and its counter-balance are connected and operated by or through the hoisting rope or chain on opposite sides of the hoisting-drum, the combination therewith of a safety-rope, G, connected at its one end with the locking devices carried by the car, and at its opposite end with a locking device on the counterpoise, for operation in relation with the hoisting rope or chain, essentially as herein described.

4. The independent safety-rope K, connected at its one end directly with the car or platform, and at its other end with the locking devices upon the car or platform, and moving with the latter throughout or in direction of the height of the hoistway, substantially as specified.

5. The combination, with automatic safety-stopping devices on the platform or car, of a lever, M, or equivalent device, whereby the said automatic devices, may be brought into operation by manipulation from the platform or car, substantially as herein described.

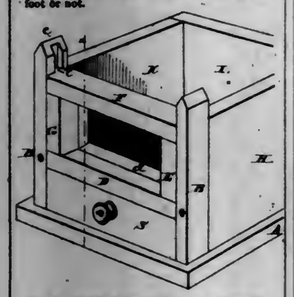
185,277. PROCESSES OF MAKING ROOFING-TILES. Jas. C. Anderson, Allegheny, Pa. [Filed Oct. 28, 1876.]

Brief.—The clay is first dried, then ground or crushed to a fine powder, and, without the addition of moisture, placed in steel molds or dies, and subjected to great pressure or concussion. The forms thus molded are placed in saggars and burned in a kiln.

In the manufacture of roofing-tiles, the within described process of reducing the clay to a fine powder, and then molding the same, when dry, into the form of the tiles by heavy pressure or concussion within the molds or dies, substantially as herein set forth.

185,278. BOOT-CLEANERS. Thomas Ash, Trenton, N. J. [Filed Sept. 27, 1876.]

Brief.—A box without a cover has an uncovered drawer at its base. Above this drawer, in front, is a frame without a panel, but grooved to receive scrapers or brushes interchangeably, which are to clean the boot as it is thrust in and drawn out, whether on the foot or not.

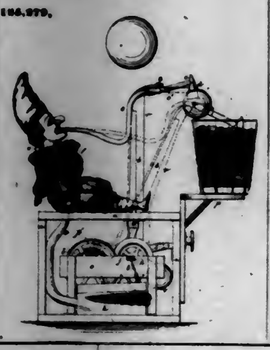


1. In combination with the removable blocks E F G, the removable cleaners, arranged and operating substantially as set forth.

2. The uprights B, provided with grooves c, in combination with blocks E F G, having tongues f, and cleaners, substantially as described.

3. The drawer or slide B, in combination with the open-top cleaner, constructed and operating substantially as and for the purpose set forth.

185,279.



185,279. AUTOMATIC TOYS. W. B. Baker, Wellesley, and T. Noonan, Boston, Mass., assignors to said W. B. Baker. [Filed Oct. 2, 1876.]

Brief.—The figure dips the pipe into the soda, blown to form the bubble, and jerks the pipe to dislodge the bubble.

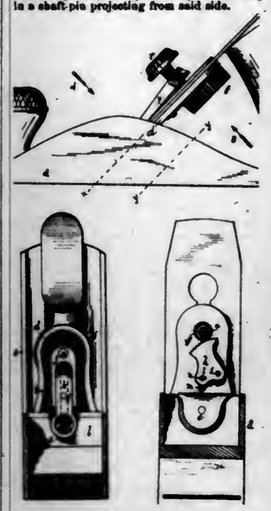
1. As a new article of manufacture, a mechanical toy, adapted to automatically form and discharge bubbles, substantially as described.

2. A pipe and pipe-moving lever, in combination with a flexible pipe and apparatus for forcing air through the flexible tube and pipe, substantially as described.

3. The pipe-moving lever and pipe, in combination with mechanism for moving the pipe upward to cast off the bubble, substantially as described.

185,280. BENCH-PLANES. Leonard Bailey, Hartford, Conn. [Filed Aug. 31, 1876.]

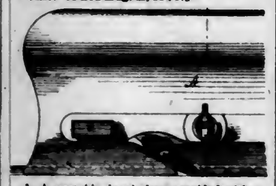
Brief.—The bits are attached to a slide having a circular opening in its lower part, and longitudinally adjustable in a grooved bed elongation, by means of a pinion and slotted gear segment attached to the under side of said elongation, and operated by a disk hung in a shaft-pin projecting from said side.



1. In combination, bed-elongation *d*, disk and pinion *f g*, gear-segment *h*, and pin *i*, all substantially as and for the purpose set forth.

2. In combination, disk and pinion *f g*, gear-segment *h*, and slide *k*, all substantially as and for the purpose set forth.

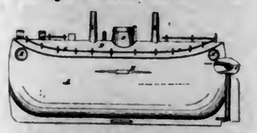
185,281. PLANES FOR CHANNELING LEATHER. James H. Bissell, Rochester Depot, Ohio. [Filed Aug. 11, 1876.]



1. A portable hand-plane provided with a groove in its bottom, with oblique knives arranged in the manner described, so as to enter the angles of said groove, substantially as and for the purpose set forth.

2. In a plane having a groove in its bottom and knives arranged in the manner described to channel leather, I claim the combination of the divided stock A A' with the thumb-screw B and arm C, substantially as set forth.

185,282. LIFE-BOATS. M. Bourke, Mineral Ridge, Ohio, assignor to Bourke, Wise & Co. [Filed July 14, 1876.]



1. The improved life-boat having the top or cover B constructed with inclined sides or angular in cross-section, and the hull proper having the slightly-rounded bottom, greatest breadth at or below the water-line, and sides inclined inward, all as shown and described.

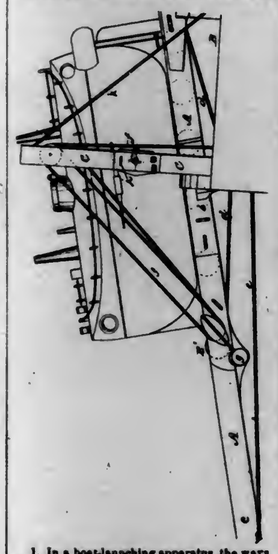
2. The removable deck or cover, the notched flange, and screw-bolts, in combination with the body of the life-boat, substantially as shown and described.

3. The life-boat provided with the hollow conical projection, as and for the purpose specified.

4. The combination of the pivoted locking device H with the polygonal paddle-shaft, as shown and described.

5. The improved dead-light, formed of the outer or socket tube, provided with an inner and outer flange, and screw-threaded, as shown, the inner tube *b*, for securing the glass, and the nut *d*, as set forth.

185,283. BOAT-LAUNCHING APPARATUS. M. Bourke, Mineral Ridge, Ohio, assignor to Bourke, Wise & Co. [Filed June 23, 1876.]



1. In a boat-launching apparatus, the ways A, provided with friction-rollers, as and for the purpose specified.

2. In a boat-launching apparatus, the ways A, provided with a groove having notches or ratchet-teeth formed on one or both of its sides, for engagement of a pawl attached to the boat, as shown and described.

3. In a boat-launching apparatus, the ways A, having an undercut groove to receive a cross-bar or lug attached to the keel of the boat, as shown and described, for the purpose specified.

4. In a boat-launching apparatus, pivoted ways A and tackle for raising and lowering the same, combined as shown and described.

5. In a boat-launching apparatus, the jointed vertical posts, as shown and described.

6. In a boat-launching apparatus, the pawl attached to the boat, in combination with the notched ways, as shown and described.

185,284. SMOKING-TUBES. Martin Bourke, Mineral Ridge, Ohio, assignor to Bourke, Wise & Co. [Filed July 15, 1876.]

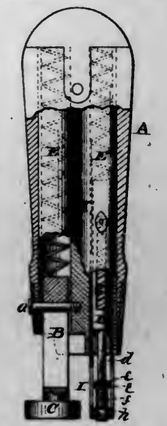
Brief.—The tube that holds the tobacco is fluted externally, so that the outside case will not become heated. A spring holds this tube against the mouth-piece.



1. In a tobacco-pipe, the combination, with the cylinder A, of the detachable tube D, the mouth-piece B, spring E, and plug C, having concavities, substantially as shown and described, for the purpose specified.

2. In a tobacco-pipe, the detachable tube D, fluted or grooved exteriorly, in combination with the cylinder A, as shown and described.

185,285. PERFORATING-STAMPS. Chas. V. Brinkerhoff, Mount Clemens, Mich. [Filed Aug. 29, 1876.]



In a hand stamp canceler, the combination of the perforated canceling-plate *f*, rotating shaft G, with rod *d*, plunger D, spring E, and the stem or plunger B, with post-marking device C and spring E', all constructed as described, and arranged for operation within a handle, A, substantially as and for the purposes herein set forth.

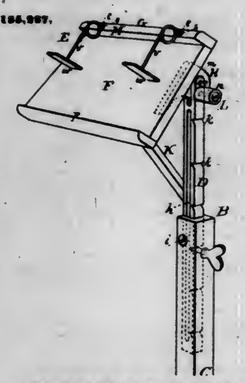
185,286. SCISSORS-SHARPENERS. Homan P. Brooks, Waterbury, Conn. [Filed Apr. 24, 1876.]



The upper and lower plates, with the file E between them, and the parts held together by means of the loop A and wedge or pin C, substantially as and for the purpose set forth.

185,287. BOOK-SUPPORTS. C. Brunner and J. G. Brunner, Newton, Iowa. [Filed Aug. 19, 1876.]

Brief.—A clamp-foot having sockets at right angles to each other, to receive the heel of the standard, whereby the clamp can be secured to horizontal or vertical surfaces. A standard having a slotted main portion and an extension-arm, the outer end of each carrying journals, that engage with the pivot-legs on the book-rest. Coiled spring holders, provided with end rubbers, are journaled to the back flange of the extension of the book-rest.

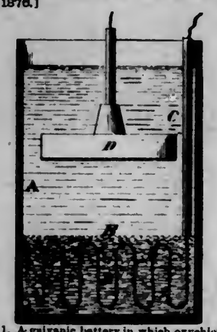


1. The clamp-foot having the sockets c d arranged at right angles with each other, in combination with the standard B of a book-rack, substantially as specified.

2. The combination, with the slotted main portion C of the standard, and the pivoted book-rest F, having the pivot-legs H, of the extension D and its branch K, carrying the journals *m*, which engage with the said legs, substantially as specified.

3. The coil-spring holders *e*, having the journals *f* and the end rubbers *g*, in combination with the back flange M of the book-support, substantially as specified.

185,288. GALVANIC BATTERIES. Chas. F. Brush, Cleveland, Ohio, assignor of one-half his right to the Telegraph Supply Company, same place. [Filed Aug. 28, 1876.]



1. A galvanic battery in which oxychloride of lead is used as a depolarizing or hydrogen-absorbing agent, substantially as and for the purpose described.

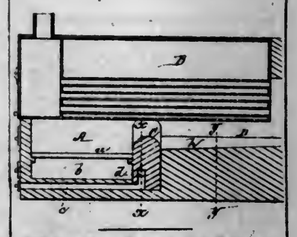
2. In a galvanic battery, the combination of the lead element B, or its equivalent, with oxychloride of lead, substantially as and for the purpose described.

3. In a galvanic battery, the lead element B, or its equivalent, and oxychloride of lead, in combination with the zinc element D, and a solution of chloride of sodium or its equivalent, substantially as and for the purpose described.

185,289. SMOKE-CONSUMING FURNACES. Chas. B. Bryant, Stoneham, and Henry Young, Jr., Woburn, assignors to themselves and Theophilus King, Jr., Quincy, Mass. [Filed Oct. 14, 1876.]

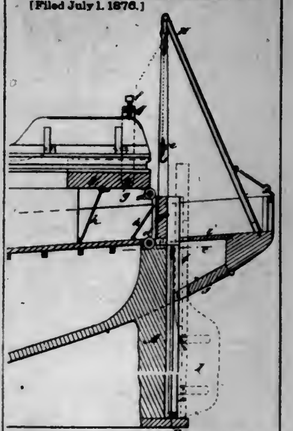
The bridge-wall C, provided with one or more flues or interior passages in communication with the external air, and with a series of inclined discharge-orifices, *f*, at or near the top of the wall, in combination with the combustion-chamber D, having its bottom elevated nearly to a level with the upper edge of the bridge-wall, substantially as and for the purpose set forth.

185,290. FOOT-WARMERS FOR VEHICLES. Henry P. Buckland, Stony Ridge, Ohio. [Filed Nov. 13, 1876.]



A foot-warmer, consisting of a receptacle, A, having a recess, *a*, for the feet, and a convex projection, *b*, extending upward as high as the knees, and provided with chamber B, doors H, smoke-escape C, and an inlet for the water, substantially as shown and described.

185,291. ATTACHMENTS FOR RAISING AND LOWERING RUDDERS. William J. Bushall and Thomas E. Parkin, Beaufort, N. C. [Filed July 1, 1876.]



1. The combination of the hinged guide E, stern-post A, and removable part D, as shown and described.

2. The combination of the guide E, section F, stern-post A, and removable part D, as specified.

3. The combination of the yoke G, screw *f*, and guide E, as shown and described.

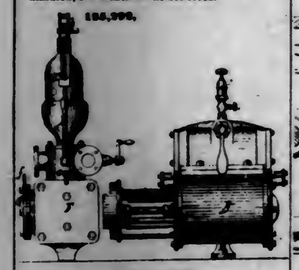
185,292. STEAM-PUMPS. A. S. Cameron, New York, N. Y. [Filed Oct. 24, 1876.]

1. A swivel-arm adapted to be mounted upon a steam-pump by means of a connection such substantially as described, in combination with a yoke and mechanism for connecting it with the part or parts of the pump to be

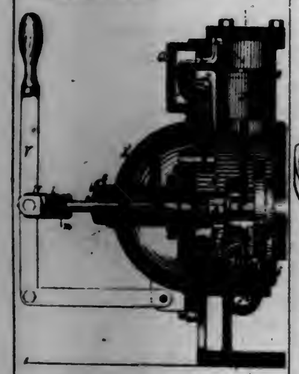
handled, in the manner essentially as herein shown and described.

2. The combination, with the pump-cylinder A and swivel-arm C, of a roller, *a*, from the axle of which is suspended a hook, *c*, to engage with eyes secured in the parts to be handled, substantially as set forth.

185,292.



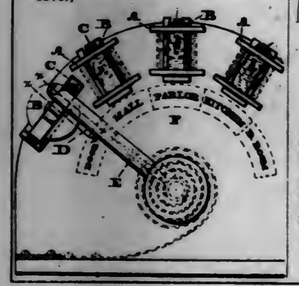
185,293. TRIPLE-CYLINDER STEAM-ENGINES. A. S. Cameron, New York, N. Y. [Filed Oct. 11, 1876.]



1. The combination, with the central exhaust-chamber A, the eccentric arranged therein, the series of radiating cylinders B B^1 B^2, and the pistons arranged therein and attached to the eccentric of the valve-rods O O^1 O^2, which are connected with the under side of the steam-valves and with the ring N on the eccentric M, substantially as described, for the object set forth.

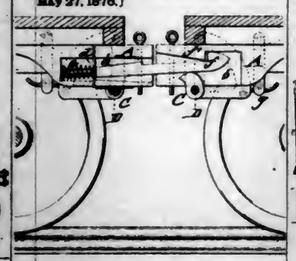
2. The combination of the arbor T, having the screw e and toe *g*, with the crank pin G of the eccentric M, the shaft F, the sleeve J, the pistons D D^1 D^2, the cylinders B B^1 B^2, and the central exhaust-chamber A, as and for the purpose described.

185,294. ELECTRIC ANNUNCIATORS. F. S. Carter, Burlington, N. J. [Filed Oct. 26, 1876.]



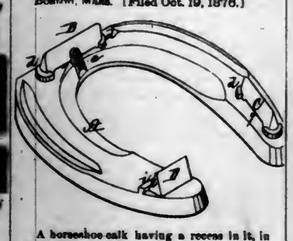
In an electric annunciator, indicating mechanism controlled at intervals by magnets, substantially as and for the purposes set forth.

185,295. CAR-COUPLINGS. Chas. G. Case and Danl. Gould, Davenport, Iowa. [Filed May 27, 1876.]



The combination of the swinging and spring-cushioned coupling-hook, having upward-projecting shoulder or hook, with the outer cavity of the opposite draw-bar having top shoulder and swinging cam at the lower part, to operate substantially as and for the purpose set forth.

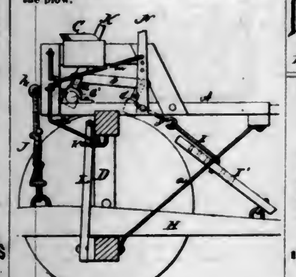
185,296. HORSESHOES. Lucius C. Chase, Boston, Mass. [Filed Oct. 19, 1876.]



A horseshoe calk having a recess in it, in combination with a horseshoe having a portion of its metal forced into said recess to hold the calk, to prevent vertical withdrawal, substantially as set forth.

185,297. PLOWS. Hannibal H. Colvin and Isaac R. Johnson, Winfield, Iowa. [Filed Oct. 12, 1876.]

Brief.—Devices for lifting and for leveling the plow.



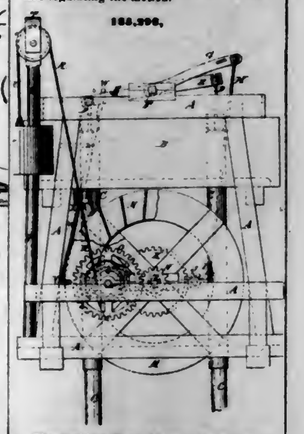
1. The combination of the rigid frames A D, the plow-beam H, pivoted frame L, rod *i*, double-crank M, rod *m*, and lever N, substantially as and for the purposes herein set forth.

2. The combination of the frames A D, connected rollers G G^1, arms *f h*, adjustable connection I I^1, sliding connection J, plow-beam H, and lever K, substantially as and for the purposes herein set forth.

185,298. WATER-PUMPING APPARATUS. J. B. Comstock and W. Niemann, New Orleans, La. [Filed Sept. 30, 1876.]

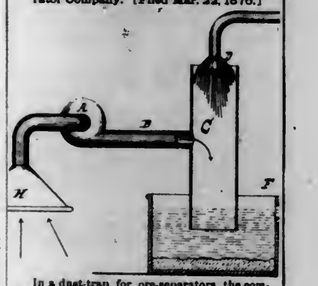
Brief.—When the weight has been wound up and released, its downward pressure will work the pumps, which discharge their water into the tank. When the tank is full, or nearly full, the stop-cock in the discharge-pipe, secured in a hole in the bottom of the said tank, is opened, and the water is discharged upon the buckets of the wheel, so that the pumps may be worked by the water raised by said pumps, the weight assisting and regulating the motion.

185,298.



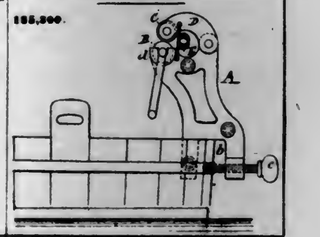
The combination of the tank B, the water-wheel M, the weight U and its rope, pulley, and drum R S Q, and a connecting-gearing with each other and with the pump or pumps C, substantially as herein shown and described.

185,299. DUST-TRAPS FOR ORE-SEPARATORS. John P. Conkling, Saratoga Springs, N. Y., assignor to New York Ore Separator Company. [Filed Mar. 22, 1876.]



In a dust-trap for ore-separators, the combination of a flaring hood, H, suction-pipe G, fan blower A, dust escape-pipe B, trunk C, tank F, and spout or rose-head D, the lower end of the trunk being submerged in the liquid contained in the tank, substantially as and for the purpose shown and described.

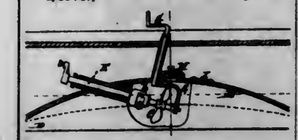
185,300.



185,300. CLOTHES-WRINGERS. Alfred E. Cooke, Baltimore, Md. [Filed Oct. 27, 1876.]

The frames A, curved levers D hinged thereto, and centrally-coiled springs E, constructed and combined in the manner and for the purposes described.

185,301. PROPELLING AND STEERING VESSELS. A. Crosby and A. Vivarttas, New York, N. Y., assignors to the Central Propelling Company, same place. [Filed Nov. 4, 1876.]

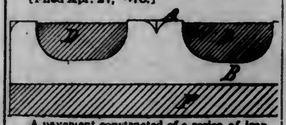


1. The combination, with the hull A, constructed with the chamber B, with or without one or more peep-holes, of the longitudinal keel D, the shaft E, and the laterally-adjustable propeller C, arranged in said chamber B, as and for the purpose described.

2. The combination, with the chamber B, of the shaft E and wheel G, made laterally adjustable relatively to the hull, to vary the angular relation of said shaft and wheel to the fore-and-aft line of the vessel, substantially as described.

3. The tiller and frame G, in combination with the wheel C, the universal joint or coupling *b*, and the chamber B in the hull, substantially as and for the purpose herein set forth.

185,302. PAVEMENTS. Robert Davidson, No. 4 Shoreditch, High Street, England. [Filed Apr. 27, 1876.]



A pavement constructed of a series of iron frames, having a number of studs or bearing-surfaces, A, formed with the curved webs and base-plates B, and bearing spaces C, to receive the asphalt, and the whole adapted to a foundation, F, substantially as described.

185,303. FILE-HANDLES. Albert T. L. Davis, Lake Village, N. H., assignor to Wm. H. Watson, same place. [Filed Sept. 30, 1876.]

Brief.—File-tangs of various sizes can be held in an elevated handle by means of a holder having an opening to receive the shank of a stationary clamping-jaw, and provided with a threaded nut, a laterally-adjustable jaw pivoted to the fixed jaw, and a ferrule having a conical end, against which the upper end of the adjustable jaw bears. The file is secured or released from the jaws by turning the handle to the right or the left.

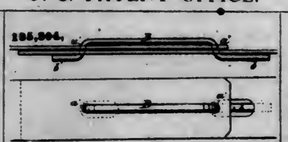


A file-holder composed of a handle, A, provided with a nut, G, and conical surface *d*, and of clamping-jaws C D, provided with a screw-shank, E, to travel in the said nut, and with a lever or pivoted arm, *h*, to act against the said conical surface, all constructed to operate substantially as and for the purpose herein specified.

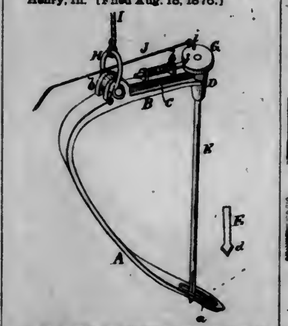
185,304. BALE-TIES. Jos. C. Du Bois, Tuscaloosa, Ala. [Filed Nov. 20, 1876.]

A bale-tie consisting of a band whose end A is provided with slots *a*, the end A' with perforations *a' a'*, and the wire B, made fast to the end A', with terminals *b b'*, substantially as shown and described.

185,304.



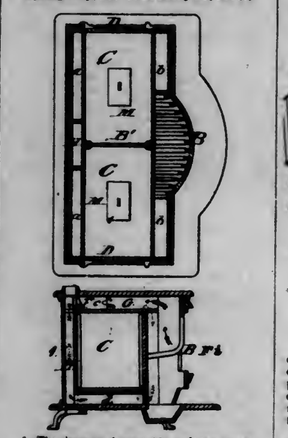
185,305. HORSE HAY-FORKS. Thos. Duke, Henry, Ill. [Filed Aug. 18, 1876.]



1. In a horse hay-fork, the combination of the blade A, with slot *s*, the head B, pivoted arm C, with socket I', and the rotating tine E, with spear-point *d*, substantially as and for the purposes herein set forth.

2. The combination of the rotating tine E, the head G, with notch *s*, the spring-bolt A, and the trip-rope J, connected to the head G, as and for the purposes herein set forth.

185,306. COOKING-RANGES. Thos. Durrin, Spring City, Pa. [Filed May 29, 1876.]



1. The improved portable cooking-range, having the fire-place in the center of the front, and two ovens behind the fire-place, on the same horizontal line, with doors opening from the sides or ends of the range, and having intercommunicating smoke-flues above, below, in front of, and behind each oven, so that the heat shall circulate around four sides of one or both ovens before escaping, substantially as described.

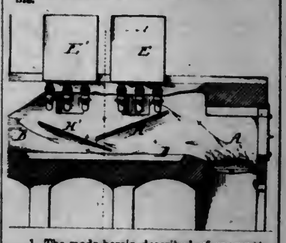
2. In a portable cooking range, the combination, with the double ovens arranged on a line behind the central fire-place, and separated by a central vertical partition, of the heat-flues *a b c d*, surrounding the ovens, and the dampers F F^1, located as shown, and for the purpose described.

3. In a portable range, the combination, with an oven located back and to one side of the fire-place, and having flues *a b c d* to allow the heat to encircle the oven, of the short wall G, extending back from the side of the fire-place, as and for the purpose set forth.

4. In a portable double-oven range, having the fire-place in the center and projecting in front of the ovens, and the smoke-flue in the center of the back, the horizontal dust-flue, extending from the ash-pit to the smoke-flue, as shown and described.

185,307. APPARATUS FOR EVAPORATING WASTE ALKALINE SOLUTIONS. Wm. G. Entrekin, Philadelphia, Pa. [Filed Sept. 18, 1876.]

Brief.—The alkaline solution passes through the notched slot in the tube upon the inclined plates in the furnace. The tubes are removable.



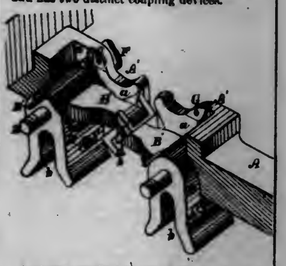
1. The mode herein described of evaporating alkaline solutions—that is to say, causing them to flow down inclined plates in the evaporating-chamber of a furnace, as set forth.

2. The combination of the inclined plates in the furnace with distributing-tubes G, each tube having an elongated opening with notched edges, as specified.

3. The combination of the tank E and furnace with the distributing-tubes G, detachable from the furnace, as and for the purpose described.

185,308. CAR-COUPLINGS. Jos. G. Fisher, Toledo, assignor to himself, Wm. R. Hunter, same place, and R. W. Kelly, Painesville, Ohio. [Filed May 26, 1876.]

Brief.—The draw-head swings vertically, and has two distinct coupling devices.

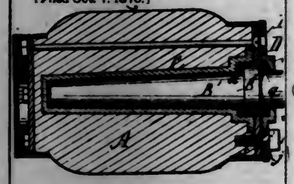


1. A car-coupling in which the outer end of the draw-bar is provided with a head that contains two forms of couplings, and is so pivoted or journaled as to permit either form of coupling to be presented in position for use, substantially as and for the purpose specified.

2. The head-block B, provided with the recess *b*, pin-openings *b'* and *b'*, and coupling-bars B' *b''*, in combination with the draw-head A', having the recess *a*, substantially as and for the purpose shown.

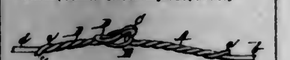
3. In combination with the pivoted head-block B B', the crank-bar E, journaled within the draw-head A', and the stop G, secured upon said draw-head, and engaging with said bar, substantially as and for the purpose set forth.

185,209. ATTACHING HUBS TO AXLES. C. Flesch, Rochester, N. Y., assignor of one-half of his right to J. Rippin, same place. [Filed Oct. 7, 1876.]



In a carriage-wheel, the locking-disk D, provided with slots E E E, having the enlarged sockets *a* at one end, and the smaller sockets *a'* at the other, in combination with fixed T-headed studs G G, fitting in two of the slots, and the conical screw H, fitting in the third, said screw resting in a beveled seat of the smaller socket, as and for the purpose specified.

185,210. BALE-TIES. Gustus S. France, Cohoskill, N. Y., assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. [Filed Apr. 10, 1876.]

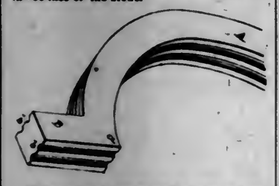


1. A bale-tie having on one end a loop, E, and on the other end a hook, C, and brace D, substantially as and for the purposes set forth.

2. The combination, with a bale-tie hook, C, of a downwardly-projecting brace or tongue, D, made continuous with said hook, for the purposes stated.

185,211. PAINT-STAFFS FOR MILLSTONES. William Frederick, St. Louis, Mo. [Filed Aug. 24, 1876.]

Brief.—The ends of the curved staff are intended for bearings only, to prevent the ends *a'* of the staff from descending into low places in the face of the stone.



The paint-staff composed of a curved portion, A, and end bearings B B, extending outwardly therefrom in any direction, substantially as shown and described.

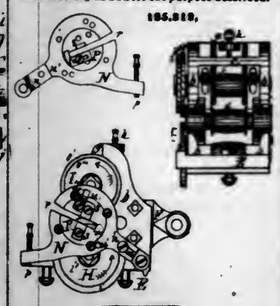
185,212. MACHINES FOR TENONING BLIND-SLATS. C. Freike, Chicago, Ill., assignor to W. F. Bebel, same place. [Filed June 20, 1876.]

Brief.—Tenons are cut on blind-slats having the shoulders on opposite sides of the tenons cut on different transverse planes. The shoulders are cut and tenons formed, when the slats are oscillated within the range of the cutters, by means of upper and lower cutter-heads, the lower cutting the slat to the proper length and the shoulder on its long side, and one of the upper ones cutting tenons upon slats having a portion of the shoulder on one side of the brace cut on a different transverse plane, the other cutting tenons on slats having shoulders on opposite sides of the tenons cut on different transverse planes; oscillating disks for centering and holding the slats, pivoted to hinged disk-frames, having stops for limiting the rotary movement of the discs, and suitable operating mechanism.

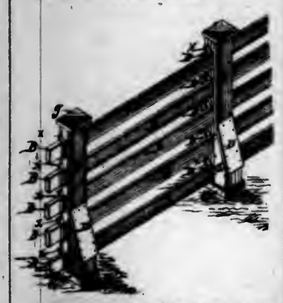
1. The oscillating centering-disks P, in combination with the disk frame fitted with stops *n* and *n'*, to limit its oscillations, substantially as shown and described.

2. The disk-frame N, fitted with slotted centering-disks, to center and hold the slats, and stops *n* and *n'*, to limit the rotary movement of the disks, in combination with the rotary cutting-heads, to cut the shoulders and form the tenons when the slats are oscillated within the range of the cutters in the cutter-heads, substantially as and for the purpose described.

185,213,



185,213. FENCES. H. B. Freeman, Charleston, Ill. [Filed Sept. 9, 1876.]



1. The combination of the posts A and planks B with the boxes C, stakes E, and caps D, all substantially as set forth.

2. The combination of the posts A, the planks B, wedges *a*, boxes C, driven stakes E, and metal bands G, all constructed substantially as and for the purposes set forth.

185,214. TUBE-CUTTERS. Hiram H. Fuller, Meadville, Pa. [Filed Apr. 24, 1876.]

Brief.—Expanding-arms hold the tool in position. The cutter-sleeve is provided with a slot and key sliding therein, which engages with one of the expanding-arms, and thereby prevents the sleeve and collars connected with the expanding-arms from turning with the main shaft. When the tool is secured the key is withdrawn.



The combination of the sleeve I, tool B, ratchet-lever H, and the key K with the sleeve E, collars D D', expanding arms C C, the shaft A, and the screw-sleeve F, with inclined key L, all constructed substantially as and for the purposes herein set forth.

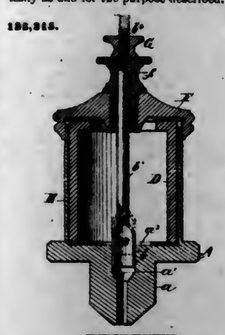
185,215. OIL-CUPS. Wm. T. Garratt, San Francisco, Cal. [Filed Oct. 6, 1876.]

1. In a lubricator, substantially as described, a thimble, B, having the vertical slots, as and for the purpose set forth.

2. In combination with the rod *b'*, having the thimble B, and threaded end *b''*, the nut G, for holding the rod in any desired position, as described.

3. The lubricator described, having the recess *a'*, thimble B, with vertical slots *b*, regulating-rod *b'*, and nut G, combined substantially as and for the purpose described.

185,215.



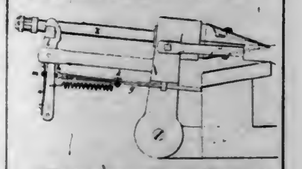
185,216. ROLLS FOR UTILIZING STEEL RAILS. William Garrett, Cleveland, Ohio, assignor of one-half his right to John E. Howells, same place. [Filed Oct. 19, 1876.]

Brief.—The rolls at the first pass split the rail near the head into two portions; the head portion is then reduced by successive passes through grooves two to five, and the web and flange portion is reduced by grooves six to eleven.

1. The system of rolls D E F, having the grooves 1, 2, 3, &c., as shown, whereby a rail is severed into two longitudinal portions, and the said portions reduced to respective rectangular billets without lap or plication, substantially as and for the purpose described.

2. The system of grooved rolls, constructed substantially as shown, whereby a rail butt-end, &c., is severed into two longitudinal portions, and the latter are then reduced into billets, each of homogeneous texture, the reducing-grooves being formed, as described, for merging the web of either severed portion, without plication, into its respective head or flange portion, substantially as and for the purpose described.

185,217. NAIL-PLATE FEEDERS. J. C. Gould, Frenchtown, N. J. [Filed May 22, 1876.]



1. The nose-pieces and barrels, Figs. 6 and 7, fitted with a tongue and groove, *d*, in the manner described.

2. The pair of rings *e* and *f*, made and combined substantially as described, for a stop to the nipper-rod.

3. The combination of the wedge h and the spring push-rod *g*, for the purpose described.

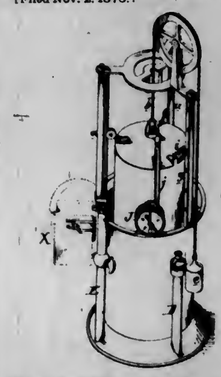
4. The adjustable bolt *m*, in combination with the forks *l*, and either with or without the spring *n*.

185,218. BUTTON-HOLE CASINGS. D. Harris, New York, N.Y. [Filed Feb. 24, 1875.]



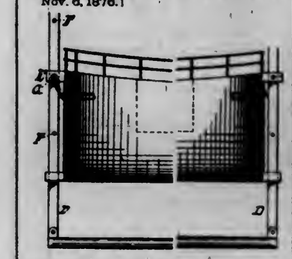
As a new article of manufacture, a crimped or molded leather lining for button-holes, substantially as set forth.

185,219. APPARATUS FOR TESTING METERS. A. Harris, Philadelphia, Pa., assignor to himself and John J. Griffin, same place. [Filed Nov. 2, 1876.]



The combination, substantially as described, of the holder B of a meter-testing machine with a dial, J, and a pointer or pointers operated by the holder through the medium of suitable mechanism.

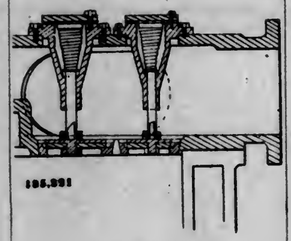
185,220. SLIDING KEELS FOR BOATS. John H. Hatton, Fort Covington, N. Y. [Filed Nov. 6, 1876.]



In combination with the hull of a boat, the false or supplementary keel, supported longitudinally under the bottom or true keel by means of adjustable rods or slides secured at either end to the supplementary keel, and adapted to slide in guides attached to or formed on the prow and stern of the boat, substantially as described.

185,221. AIR-VALVES FOR BLAST-CYLINDERS. James Hemphill, Pittsburg, Pa. [Filed Jan. 9, 1875.]

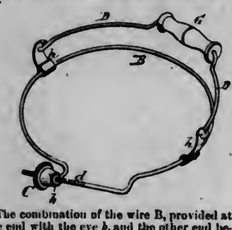
In combination with the cylinder-head of a blast-cylinder, poppet-valves E and F, provided with volute springs for controlling the valves, substantially as specified.



185,221

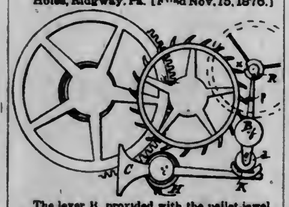
185,222. HANDLES FOR POTS. H. Homelright, Pottstown, Pa. [Filed Aug. 3, 1876.]

Brief.—The wire can be adjusted to fit any pot.



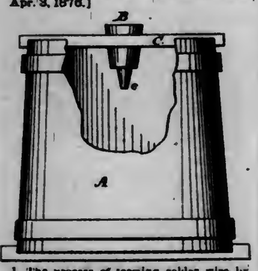
The combination of the wire B, provided at one end with the eye *b*, and the other end being bent and provided with exterior screw-threads, with the thumb-nut C, movable ears *h h*, bail D, and handle G, all substantially as and for the purposes herein set forth.

185,223. ESCAPEMENTS FOR WATCHES. C. Holes, Ridgway, Pa. [Filed Nov. 15, 1876.]



The lever B, provided with the pallet-jewel *p* and pulley *d*, in combination with the lever C, provided with the notch K and hair-spring H, substantially as shown, and for the purpose set forth.

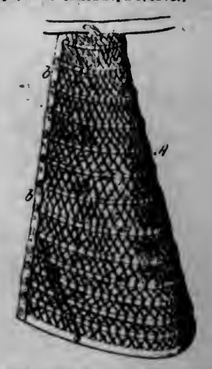
185,224. MANUFACTURE OF SOLDER-WIRE. H. G. Hulburd, Placerville, Cal. [Filed Apr. 3, 1876.]



1. The process of forming solder-wire by running the melted solder through a funnel-shaped vessel into water, substantially as specified.

2. The funnel-shaped vessel B, provided with a removable nozzle, *c*, and sustained over a water-tank, A, by means of suitable supports, substantially as shown, and for the purpose set forth.

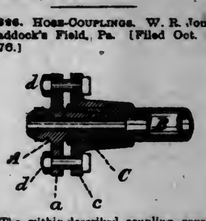
185,225. BUSTLES. J. Jenkinson, Brooklyn, N. Y. [Filed Sept. 5, 1876.]



1. The bustle or pannier herein described, the back of which is composed of a single piece of open or net work material, knit or woven of the shape shown, substantially as shown and described.

2. The bustle back A, of open or net work material, knit or woven of the shape shown, and having selvaged edges, substantially as described and specified.

185,226. HOSE-COUPLINGS. W. R. Jones, Braddock's Field, Pa. [Filed Oct. 16, 1876.]

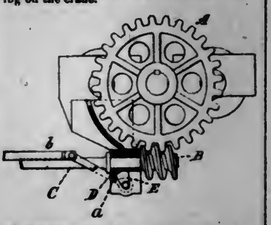


1. The within-described coupling, consisting of the inner piece A formed with a smooth conical outer surface, and having the flange *a*, in combination with the piece C, formed with a smooth conical inner surface and flange, *c*, and the connecting screws or bolts *d*, substantially as set forth.

2. A coupling, consisting of two flanged conical frusta, united by means of adjusting-screws through their flanges, substantially as described.

185,227. DEVICES FOR OPERATING THE LADLE IN THE BESSEMER PROCESS. Wm. R. Jones, Braddock's Field, Pa. [Filed Oct. 16, 1876.]

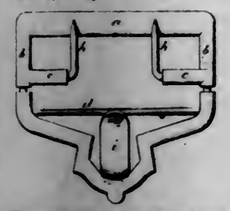
Brief.—For the purpose of emptying the ladle, it is attached to a shaft made to turn by a worm-pinion thereon, operated by a screw set in a cam-bearing, the whole working on the crane.



1. In an apparatus for operating ladles, the combination of the cam E, pillow-block D, having the stop *a*, and shaft C, substantially as described.

2. In an apparatus for operating ladles, the combination of pinion A, worm B, shaft C, pillow-block D, cam E, and lever *b*, or system of levers, substantially as set forth.

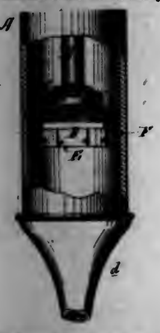
185,328. BUCKLES. Geo. R. Kelsey, West Haven, Conn., assignor to the West Haven Buckle Company, same place. [Filed Nov. 6, 1876.]



The combination, in a buckle, of the three parts, to wit, the principal frame, the tongue portion, and the hook portion, the hook secured to the tongue, and the tongue hinged to the frame, all substantially as specified.

185,329. CUP-LEATHER PACKINGS FOR PUMPS AND SYRINGES. Thos. Kennedy, Philadelphia, Pa., assignor to R. McCambridge, same place. [Filed Nov. 15, 1876.]

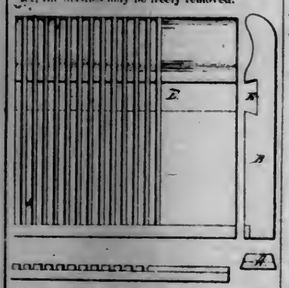
Brief.—A slitted metallic cup presses the packing outward to the wall of the cylinder.



The metallic cup E, provided with narrow slits *e e* down its sides, and placed within the cup leather packing F, substantially as and for the purpose herein set forth.

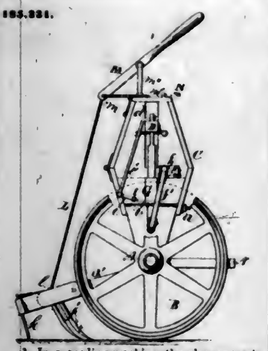
185,330. NEEDLE-GIBS FOR KNITTING-MACHINES. Washington H. Kilburn, Corry, Pa. [Filed July 13, 1876.]

Brief.—The slide or gib is grooved on its under side corresponding to the grooved bed, and when the grooves in the two parts register, the needles may be freely removed.



In a knitting-machine, the combination, with a needle-bed, of an adjustable gib, the latter provided with grooves counterpart to those of the bed, whereby the needles may be inserted, locked, or withdrawn at will, substantially as described.

185,331. SEEDING-MACHINES. J. M. King, Swan Creek, Ill. [Filed Sept. 12, 1876.]



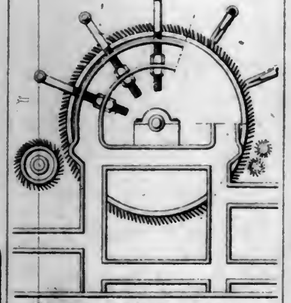
1. In a seeding-machine, the cleaner-teeth *r* and shaft I, arranged to operate with the seeding-teeth E, substantially as described, and for the purpose specified.

2. In a seeding-machine, the cleaner-teeth *e*, shaft I, connected by rod *i'* to the head D, combined to operate with the teeth E, holes *e'*, and head D, substantially as described, and for the purpose specified.

3. The combination of the harrows J K, cord L, and lever M, the cord secured to the harrow-head K, and passing loosely through an eye, *l*, in the head J, as described, the harrows having free independent motion when in use, and being simultaneously elevated by the lever when not required for use, substantially as set forth.

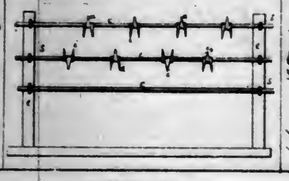
185,332. WOOL-CARDING MACHINES. Peter Ludwig Klein, Werden on the Ruhr, Prussia. [Filed May 24, 1876.]

Brief.—The combs are adjustably arranged in respect to main cylinder by nuts, which are affixed to the ends of the rods which sustain the comb frame.



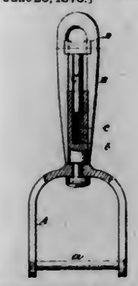
The combination of the main cylinder of a carding-machine with the non-rotating combs B, which can be adjusted to different positions in respect to the main cylinder and secured after adjustment, as and for the purpose set forth.

185,333. BARBED FENCE-WIRE. M. Knickerbocker, New Lenox, assignor of three-fourths of his right to A. N. Klinefelter and E. L. Spangler, Joliet, Ill. [Filed Apr. 7, 1876.]



The sheet-metal barb *a*, having the shoulders *f f r* forming supports for the points *i i* and *i'* when wrapped around the wire *c*, as and for the purposes set forth.

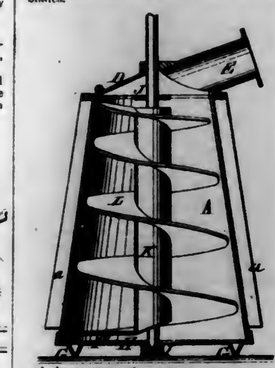
185,334. SAFETY GUARDS OR COCKEYES FOR HARNESS. Fayette W. Knapp and Christopher Schallhorn, Fiddletown, Cal. [Filed June 20, 1876.]



A cockeye for connecting trace and single-tree, having a loop swiveled to yoke, and a plunger, to the end of which is attached a follower with guide-lips, substantially as shown and described.

185,335. ROTARY PUMPS. Julius Lange, Independence, La. [Filed Oct. 21, 1876.]

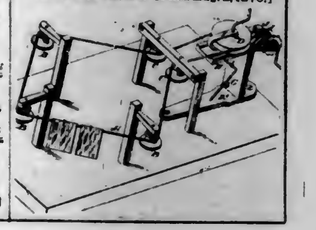
Brief.—A cone-shaped casing incloses a rotating shaft carrying spiral water-lifting blades.



1. In a pump, the conical casing A, provided with flanges *a a* and discharge-outlet E, substantially as described, and for the purpose set forth.

2. The conical casing A, which is adapted to be set in a perpendicular position, having the frustum of said conical casing up, and provided on its base with lugs G G and transverse bearing I, in combination with the rotating shaft K, carrying a spiral water-lifting blade, substantially as described, and for the purpose set forth.

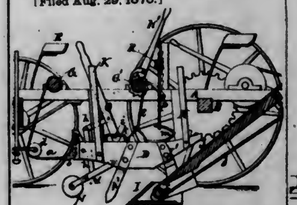
185,336. LINE-FASTENERS. E. H. Lancaster, Montpelier, Ind. [Filed Aug. 2, 1876.]



1. The combination of the stand E G H, slide I, carrying the windlass D, chain or cord *d*, and windlass J, substantially as and for the purposes herein set forth.

2. The combination of the standard having slide I, carrying the windlass D, chain or cord *d*, windlass J, and endless clothes-line A, resting upon the pulleys B B, all constructed substantially as and for the purposes herein set forth.

185,337. DITCHING-MACHINES. E. H. Lancaster and H. Tewksbury, Montpelier, Ind. [Filed Aug. 29, 1876.]



1. The combination, with a wagon, A, of the ditcher-beam D, with its front end supported by the adjustable roller N, draft-chain *a*, clevis *b*, pulley *d*, suspending-chain *c*, and the windlasses G G', with their respective levers, pawls, and ratchets, substantially as and for the purposes herein set forth.

2. The combination, with the ditcher-beam D, of the spring *m*, perforated bar P, and lever R, substantially as and for the purposes herein set forth.

3. The combination of the suspended ditcher-beam D, the upright stays K K attached thereto, and the stays L L attached to the wagon-frame, substantially as and for the purposes herein set forth.

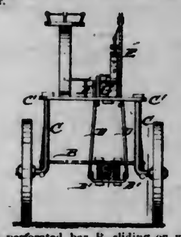
4. The combination of the ditcher-beam D, bar M, roller N, toggle-joint *h k*, lever O, with pin *i* and staple *k*, substantially as and for the purposes herein set forth.

5. The combination, with the wagon-frame A and front axle C, of the coupling-rod *p*, set-screw *n*, draft-chain pulley *d*, and rod or chain *r*, as and for the purposes herein set forth.

6. The ditching-plow I, provided with the sides I', constructed as described, in combination with the elevator J, having its lower pulley *f* placed loosely within the plow to allow the elevator to adjust itself to the movement of the plow, substantially as and for the purposes herein set forth.

185,338. SULKY ATTACHMENTS FOR PLOWS. S. P. Langsford and W. N. Stroud, Waxahachie, Tex. [Filed Aug. 21, 1876.]

Brief.—A perforated adjusting-bar slides up and down on vertical portions of the axle-tree. This bar carries the plow-beam, and is operated by two rods, one upon each side of the beam, by means of a bifurcated lever and keeper.



The perforated bar B, sliding on vertical heads of short axles, and the shoe B', connected therewith by two bolts, in combination with the two rods D D, passing through fixed perforated plate C', and operated by the bifurcated lever E, as and for the purpose specified.

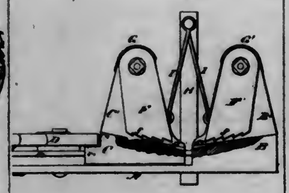
185,339. PLATES FOR MENDING SHEET-METAL WARE. John C. Mackey, Grand Rapids, Mich. [Filed Nov. 16, 1876.]

Brief.—Spreads a very flexible plate of metal (copper it may be) with solder and with a flux, the plate to be applied over the leak in a vessel by heat and pressure.

As a new article of manufacture, a sheet-metal strip or plate, provided with a facing of solder, and treated with a flux, for the purpose set forth.

185,340. TIRE-UPSETTING MACHINES. E. Maharay, Newburg, N. Y. [Filed Sept. 30, 1876.]

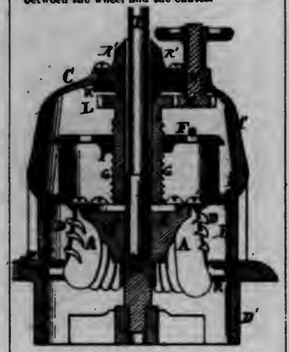
Brief.—The pivoted clamping-arms are operated by a vertically-reciprocating bar, connected by links with their lower ends.



The combination of beveled blocks B C, having transverse ridges and grooves *b' c'*, with clamping-arms F F', having transverse ridges and grooves *f f'*, said arms being attached, at their upper ends, to standards C' B', and at their lower ends to movable guide-bar H by links or toggle-arms I I, substantially as and for the purpose set forth.

185,341. TURBINE WATER-WHEELS. J. B. McCormick, Armagh, and J. L. Brown, Brookville, Pa. [Filed July 3, 1876.]

Brief.—A conical-impact turbine-wheel, with wings or water-guides fixed on the faces and outer edge of the buckets, in combination with a series of stationary chutes, a raising gate operating in an unobstructed annulus between the wheel and the chutes.



1. A water-wheel having a wing or water-guide, one or more, on the outer and rear face and outer edge of the buckets, substantially as shown and described, for the object specified.

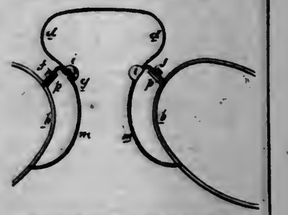
2. A water-wheel having the chuteway B, annular space D, and conical or inclined buckets A, with projecting wings E, substantially as herein set forth.

3. A water-wheel arranged with an annulus between the chute and bucket-faces, provided with conical or inclined bucket-faces and discharge-orifices, substantially as herein set forth.

4. The ring-gate E', with lips S projecting into the chutes B, to assist in guiding and controlling the delivery of the water, substantially as set forth.

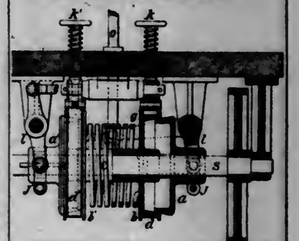
5. The ring-gate E', in combination with screw-sleeve G, swiveling on crown C, with mechanism arranged to draw and close the gates, substantially as set forth.

185,342. EYEGLASSES. George W. Meigs, Reading, Pa., assignor to Thos. A. Willson, Gile J. Willson, and C. B. Bishop, same place. [Filed July 24, 1876.]



The combination, in a pair of eyeglasses, of the spring *d*, and the frame *b*, and its strip *p*, with a nose-piece having a shank, *m*, a neck, *g*, for attachment to the coil of the spring, and a head, *f*, for attachment to the frame *b* and its strip *p*, all substantially as set forth.

185,343. CAR BRAKES AND STARTERS. J. W. Moore and J. A. Svedberg, Washington, D. C. [Filed Sept. 28, 1876.]



1. In a car-starter, the cone-friction *a b*, *a* being attached to the axle by means of one or more feathers, so as to revolve with the axle and move in line therewith, and *b* being loose upon the axle.

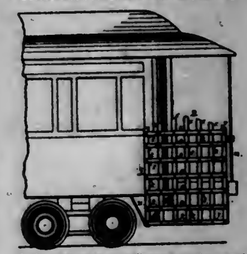
2. In a car-starter, the combination of the cone-friction, substantially as described, with the band-brake *d*, operated by the lever *s* and rod and button *k*.

3. In a car-starter, the combination of the two cone-frictions with the spiral spring *c*, substantially as described.

4. In a car-starter, the combination of the spring *c* with the two band-brakes *b* and *b'*, substantially as described.

5. The combination of the threaded spindle *o*, nut *m*, shaft *i*, and forked yoke *l*, for operating the cone-frictions *a* and *a'*.

185,344. GATES FOR RAILWAY PASSENGER-CARS. J. A. Moore and T. M. Thompson, Pittsburg, Pa. [Filed Apr. 26, 1876.]

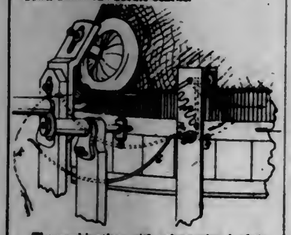


1. In a passenger railway-car, the combination of a gate with the steps leading up to entrance-platform, said gate consisting of vertical and horizontal strips pivoted together, forming lattice-work, and secured to the sides of the car, and opened by folding it up, and closed by unfolding it, substantially as herein described, and for the purpose set forth.

2. In a passenger railway-car, a gate in combination with the steps leading up to the entrance-platform, said gate consisting of vertical and horizontal strips pivoted together, forming lattice-work, and secured to the side of car, and opened by folding it up, and closed by unfolding it, through the medium of a hand-lever and operating-rods connected therewith, substantially as herein described, and for the purpose set forth.

185,845. KNITTING-MACHINE. John H. Musgrove, Stillwater, assignor of part of his right to Jno. Clute and Geo. Campbell, Cohoes, N. Y. [Filed Apr. 3, 1876.]

Brief.—When the yarn breaks, the drop-wire falls, disengaging a catch, which frees a cam, depressing the latter, which is forced downward by a spring, and serves to prevent the disengagement of the knit web from the needles by forcing and retaining the loops down below the needle-beards.



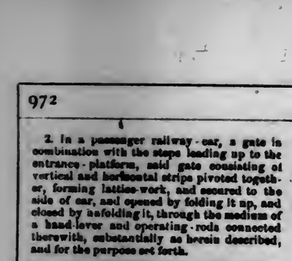
The combination, with a drop-wire, *i*, of the shaft *h*, notched as shown at *g*, arm *f*, cam D, shaft *e*, and spring *m*, operating as set forth.

185,846. WIRE-FENCE BARB. John Nelson, Creston, Ill., assignor to himself and Wm. E. Gossell, same place. [Filed July 1, 1876.]



A wire-fence barb whose oppositely-directed points C C are connected with the intermediate body A by the reversed bends B B, substantially as and for the purpose specified.

185,847. BALE-BAND STRETCHER. Chas. M. Pearre, Galveston, Tex. [Filed Oct. 11, 1876.]



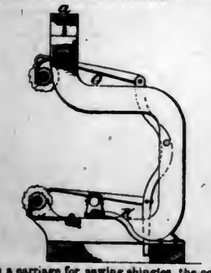
1. The gripers A and B, arranged to be separated or brought together, and having projecting legs or plates forming a central deep slot for the reception of the bale-tie, and shallower slots for the band, substantially as and for the purpose described.

2. The bar C, carrying a griping device at its end, and a guide, in combination with the slide-bar X, having a griping device, and moving in said guide, and the elbow-lever D, having one arm pivoted to the bar X, and moving at its angle upon bar C by means of rollers and keepers, substantially as described.

3. The bar C, curved or inclined at *f*, and carrying socket *e*, and a griping device, in combination with the bar X, carrying a griping device, and the elbow-lever D, substantially as and for the purpose described.

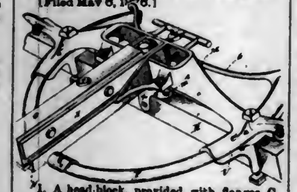
185,848. MACHINES FOR SAWING SHINGLES. Jos. Perry, Gardiner, Me. [Filed Aug. 31, 1876.]

Brief.—An auxiliary pressure or guide roll is mounted in the free end of a vibrating spring, to the rear of the upper and lower set-rolls of the carriage, for the purpose of allowing said roll to readily yield to vertical or longitudinal strain or pressure.



In a carriage for sawing shingles, the combination, with the upper and lower set-rolls, of an auxiliary pressure-roll journaled in the free end of a spring, substantially as and for the purpose set forth.

185,849. FIFTH-WHEELS AND HEAD-BLOCKS FOR VEHICLES. Geo. M. Peters, Columbus, Ohio, assignor of one-half of his right to C. D. Firestone, same place. [Filed May 6, 1876.]



1. A head-block, provided with flanges C C', for combination with a fifth-wheel, substantially as set forth.

2. The guard G, in combination with a head-block and front extension, L, the said guard being attached to both the head-block and the front extension.

3. The guard G, in combination with a head-block and ears M, the said guard being attached to the head-block and the ears.

4. The guard G, in combination with a head-block, front extension L, and ears M, said guard being attached to the said head-block, front extension, and ears.

5. An upper fifth-wheel, in combination with a head-block, flanges C, perch-plate N, and perch-rest Q, the head-block flanges, perch-plate, and rest being formed in one piece, and adapted to being laid upon the said upper fifth-wheel.

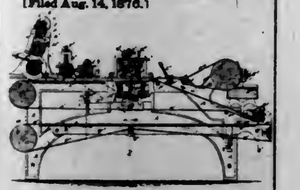
6. In combination, the king-bolt I, and a head-block provided with the flanged bridge D *b'*, and the axle bed E, provided with journal or seat F, and lateral flanges K, with or without flanges J, substantially as and for the purposes set forth.

185,850. CHAIN-PUMP BUCKETS. Jothrem M. Phelps, Quincy, Ill., assignor of one-half of his right to Louis L. Ware, same place. [Filed Oct. 13, 1876.]

Brief.—This bucket has a flexible center, the base of which can be expanded to suit pipes of varying sizes, and which, at the same time, is protected against the ingress of water.



185,851. CRACKER-MACHINES. John Rannie and Alex. Rannie, Palmyra, N. Y. [Filed Aug. 14, 1876.]



1. The combination of the rising and falling bed-plate T², the stationary cutters W, yielding plate D, and plungers J², and springs I², all arranged to operate substantially as shown and described.

2. The combination of the cams V², the springs Q², the cross-bar P², and the rods S², with the shaft B², the frame A, and the bed-plate T², to raise and lower said bed-plate T², at regular intervals, substantially as herein shown and described.

3. The combination of the two plates D² F², the connecting-rods E², the springs P, the followers J², the pins K², the stop-pins *p*², the set-screws H², and the pins G², with the plate V² that carries the cutters W², and with the movable bed-plate T², substantially as herein shown and described.

4. The combination of the bows A², the bars B², the rubber blocks C², and the set-screws Z², with the ends of the plate Y² that carries the cutters W², and with the screw-pins *p*², and the frame A, substantially as herein shown and described.

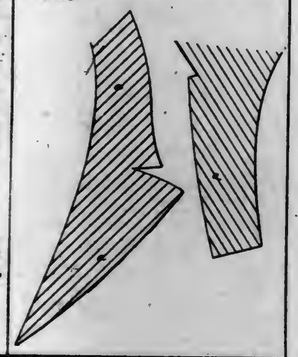
5. The combination of the screw-thread *h'*, the index K', and the scale-plate L', with the shaft H', the gear-wheels G' F', and the screws E' that adjust the feed-rollers N, substantially as herein shown and described.

6. The combination of the brush L², made vertically adjustable, as specified, with the frame A, the feed-belt O², and the scrap-belt O³, substantially as herein shown and described.

7. The combination of the adjustable inclined plate A², with the adjustable plate Q², around which the feed-belt O² passes, and with the said feed-belt O² and the delivery-belt T², substantially as herein shown and described.

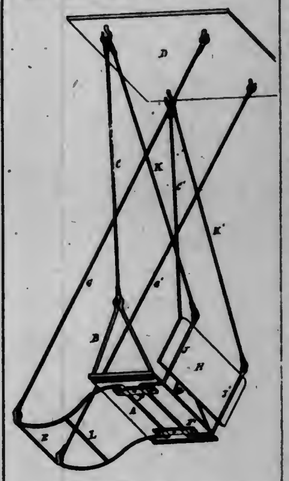
8. The combination of the rods M², provided with the arms *m*², the pivoted bars N², and the rod O², with the stamping device P J² K², and with the bar P², the springs Q², the rods S², plate T², and the cams V², substantially as herein shown and described, for operating the said stamping device at the same time with the cutting device, as set forth.

185,852. PATTERNS FOR GARMENTS. Elisu P. Rich, Boston, Mass. [Filed Oct. 26, 1876.]



A pattern for garments, having on its face lines or marks to indicate the position in which it is to be placed on the goods to be cut, relatively to the warp or run of the figure, substantially as required.

185,853. SWINGS. Wm. P. Rogers, Fitchburg, Mass. [Filed Oct. 21, 1876.]

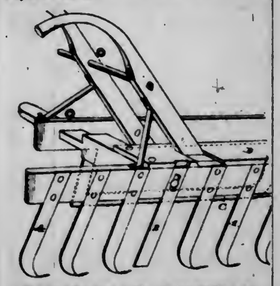


1. The combination, with the back H and seat A of a swing, of the rods or bars J J', attached to said back and pivoted to the under side of the seat, as and for the object specified.

2. The combination, with the swinging back, consisting of a board, H, ropes K K', and rods J J', of a swing, consisting of a seat, A, uprights B B', foot-rest E, and ropes C C' and G G', arranged to operate substantially as set forth.

185,854. ICE-CUTTING MACHINES. J. Murat Russell, Potter's Hollow, N. Y. [Filed Oct. 9, 1876.]

Brief.—The side gage regulates the width of the cut. The vertical gages regulate the depth of the cut.



The combination, with an ice-cutting machine, of the adjustable gage C and the vertically-adjustable gages B, substantially as and for the purpose described.

185,855. SIGNALING APPARATUS AND CIRCUITS FOR ALARM-TELEGRAPHS. Wm. H. Sawyer, New York, N. Y. [Filed Sept. 29, 1874.]

1. The combination, with automatic signaling apparatus, substantially of the kind described, of a differential magnet having one coil in a circuit containing alarm apparatus, and the other coil in a circuit containing a resistance, substantially as shown and described.

2. The combination, with automatic signaling apparatus, substantially such as described, of a circuit divided at the locality to be signaled from or guarded, one branch containing the automatic alarm apparatus and one coil of a differential magnet, and the other a suitable resistance, substantially as shown and described.

3. In a signal-box arranged to be manually or automatically operated, the combination, with the circuit-wheel and means for automatically releasing the same, of a stop device, substantially as shown, allowing a definite number of rotations of the circuit-wheel, so as to distinguish between the ordinary and automatic signals, substantially as set forth.

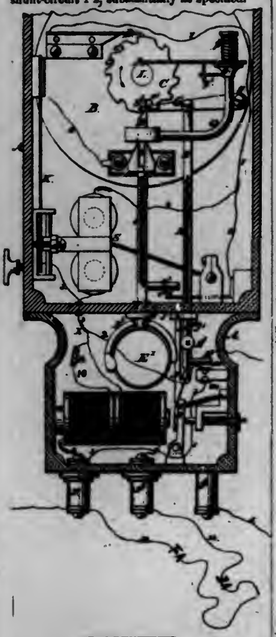
4. The combination of a circuit-breaking wheel, C, a magnet, M, and its armature N, a stop, *s' s''*, and an arresting device, F, whereby the number of revolutions of said circuit-breaking wheel may be regulated after it has been released by the action of said magnet upon its armature.

5. The combination of the screw or worm *i*, provided with the stop *r*, the follower F *p*, the slide or check rod E, stop *s'*, and circuit-breaking wheel C, substantially as specified.

6. The slide or check rod E, in combination with the contact-points *s' s''*, shunt-circuit 3 4 8, and electro-magnet or sounder S, substantially as specified.

7. The combination of the stop F' with the slide or check rod E of the signaling mechanism.

8. The combination of the electro-magnet M, detent J, rod H, contact-points *m m'*, and shunt-circuit 1 2, substantially as specified.

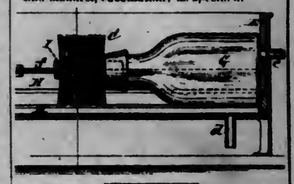


185,856. BOTTLE-WASHING MACHINES. H. Schmidt and J. Dixon, Morrisania, New York, N. Y. [Filed Oct. 19, 1876.]

1. The combination of the elongated trough A, the revolving mandrel D, projecting within the one end of said trough, and having a brush, C, which rotates in concert with the mandrel, and one or more brushes, I, arranged within the trough, and in relation with the rotating brush C, substantially as and for the purposes specified.

2. The combination of the flexible and removable cradle H, having one or more attached brushes, I, the elongated trough A, and the rotating brush C, essentially as described.

3. The combination of the pad or cushion E at one end of the elongated trough A, and the revolving mandrel D at the opposite end of said trough, and the brush C carried by said mandrel, substantially as specified.

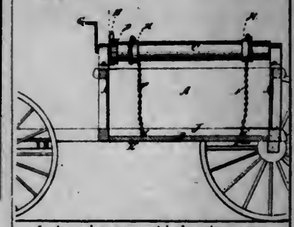


185,857. UMBRELLA TIP-CUPS. Otten M. Smith, Frankford, Pa., assignor to Saml. W. Evans and Saml. W. Evans, Jr., (doing business as S. W. Evans & Son,) same place. [Filed Nov. 25, 1876.]



A friction spring or springs interposed between the tube A and the tip-cup or its tubular extension, as and for the purpose specified.

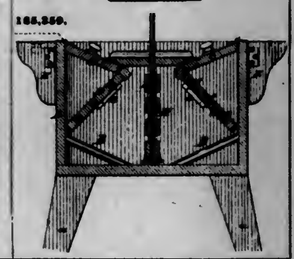
185,858. DUMPING-WAGONS. J. G. Stafford, Washington, D. C. [Filed Aug. 23, 1876.]



1. As an improvement in dumping-wagons, the combination of the swinging bottoms B B, forked chains F F, and beveled center bar J, as and for the purposes set forth.

2. The improved dumping-wagon, constructed, as herein described, with outwardly-swinging bottom boards B B; the beveled center bar J, interposed between their free edges; the shaft or roller C, carrying the ratchet-wheel D and crank G, and journaled in bearings at the extremities of the bed or body A; the bifurcated chains F F, attached to the roller C by their single ends, to the respective bottom boards B B by their forked ends, and catching over the center bar J; the swinging pawl E, weighted at top, and engaging at its lower extremity with the ratchet-wheel D, said crank and pawl being in convenient reach of the seated driver, and the whole being arranged to operate as and for the purposes specified.

185,859.



185,330. WASHING-MACHINES. Hulbert L. Stem and A. M. Baker, Oscaloosa, Iowa. [Filed Sept. 2, 1876.]

In a washing machine consisting of a box or tub, A having slotted or corrugated bottom boards B and reciprocating dasher H, the swinging perforated press-boards D and hinged covers C, the latter resting, when closed, against the upper edges of boards D, as and for the purpose herein shown and specified.

185,360. SURFACE-COLORING PERFORATED BOARD. H. St. John, New Haven, Conn. [Filed Dec. 6, 1876.]

Brief.—Bristol board is perforated in the usual manner, after which it is passed through a printing apparatus (preferably a lithograph-press) charged with ink.

The herein-described method of surface-coloring perforated board, consisting in applying the color to the surface of the board after perforation, substantially as described.

185,361. BARN-DOOR HANGERS. John W. Swan, Joliet, Ill. [Filed Oct. 10, 1876.]



The loose roller F, bearing on anti-friction wheels E E, running on stationary steel shafts C C within a case, A, closed by a cap, D, secured by a bolt, G, as shown.

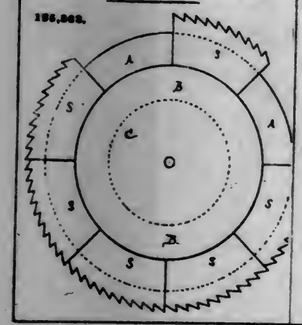
185,362. BOSOM-PADS. John C. Tallman, New York, N. Y. [Filed Oct. 19, 1876.]



1. A bosom-pad composed of the crossing cork plates A A' and the intervening reticulated gores B, substantially as and for the purposes set forth.

2. The combination, with two bosom-pads, of a flexible and adjustable connection, substantially as and for the purposes set forth.

185,363.



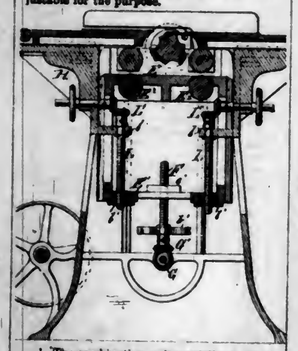
185,364. CIRCULAR SAWS. F. F. Taylor, Grand Rapids, Mich. [Filed Sept. 18, 1876.]

Brief.—For the purpose of supporting the segments of a circular saw, the "saw-flange" is constructed of a series of thin steel plates firmly bolted together.

A saw-flange, as a new article of manufacture, composed of several plates of steel bolted together, as described, for the purpose of supporting the segments of a circular saw, substantially as set forth.

185,364. PLANING-MACHINES. John R. Thomas, Cincinnati, Ohio, assignor to J. A. Fay & Co., same place. [Filed Aug. 19, 1876.]

Brief.—The stuff is placed by passing it either over or under the cutter-head, the tables being vertically and horizontally adjustable for the purpose.



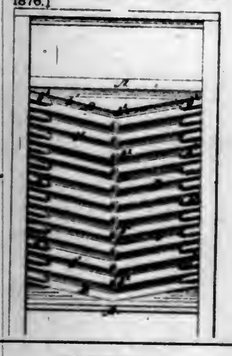
1. The combination, substantially as specified, of the cutter-head, the short table E underneath thereof, and the tables which serve as extensions of the short table when the stuff is fed under the cutter head, and as independent tables when the stuff is fed over the cutter-head.

2. The combination, substantially as specified, of the vertically-adjustable short table E underneath the cutter-head, and the tables H and I, connected with said short table, but also vertically adjustable with respect thereto.

3. The combination, substantially as specified, of the vertically-adjustable short table E underneath the cutter-head, and the tables H and I, connected with said short table, but also both vertically and horizontally adjustable with respect thereto.

4. The combination, substantially as specified, of the cutter-head, the short table E underneath thereof, the feed-rolls, and the tables H and I, which are both vertically and horizontally adjustable with respect to the other mechanical elements enumerated in this claim.

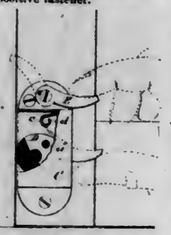
185,365. WASH-BOARDS. W. Todd Wanseon, Ohio, assignor to himself and H. H. Williams, same place. [Filed Nov. 18, 1876.]



The short parallel corrugations b', formed along the side edges of the zinc B, between or within the corrugations b^1, substantially as herein shown and described.

185,366. SASH-HOLDERS. S. J. Tucker and M. E. Gary, Richmond, Va. [Filed Nov. 23, 1876.]

Brief.—One of the grasping-handles being loosely pivoted inside the case, in such manner that, when swung round, its free end engages with notches in the window-frame, thus serving as a positive fastener.



The combination, with the spring-pressed rubber-faced cam-headed lever D, of the pivoted bar E, arranged to be utilized as a bearing for the thumb or finger in manipulating the cam-headed lever, as well as a locking-bar, to engage with the notches of the window-frame, substantially as described.

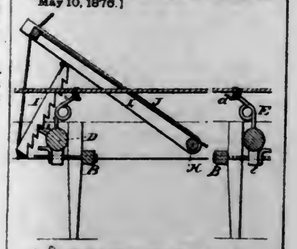
185,367. FARM-FENCES. E. Trout, Woodlawn, Ill., assignor of part of his right to H. F. Stephenson and Jeremiah Smith, same place. [Filed Sept. 2, 1876.]



1. The zigzag rails A, having crossed posts C C arranged in the inside of the angles thereof, in combination with the straight line of lower riders B, substantially as described, and for the purpose set forth.

2. The combination of zigzag rails A A, post-supporting rail B, inclined and crossed posts C C, and riders D, substantially as set forth.

185,368. INVALID-BEDS. Flavius J. Underwood, North Springfield, Mo. [Filed May 10, 1876.]



1. In combination with the slats G and springs E, the pivoted rollers D carrying the springs, and made adjustable on their pivots, for the purposes herein set forth.

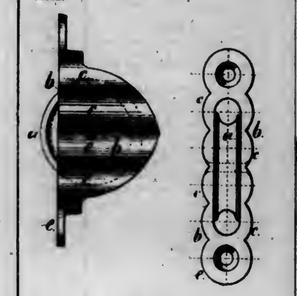
2. The roller D, having projecting lugs e, the bolts f, and thumb-nuts A, in combination with the springs E and slats G, as and for the purposes herein set forth.

185,369. SASH-PULLEY CASES. John Vetterlein, Plainfield, N. J. [Filed Mar. 22, 1876.]

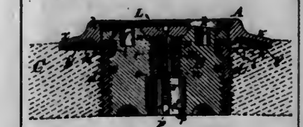
Brief.—The combining of a series of segments of circles, to form both the face-plate and the two sides of the pulley-case.

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The sash-pulley case b, having sides formed entirely of segments of circles c, combined with the face-plate, whose edges and ends are also parts of corresponding circles, as set forth.

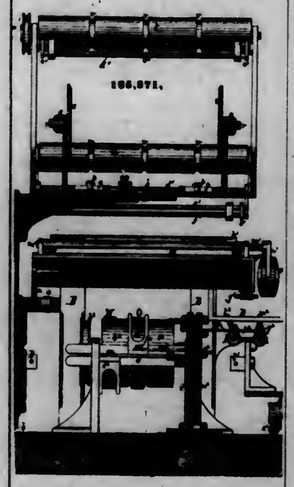


185,370. BUNGS AND BUSHES. Frans X. Wagner, New York, assignor to Gustav A. Wambach, Brooklyn, N. Y. [Filed Oct. 30, 1876.]



1. The combination, with the centrally-perforated screw-threaded bung B, of the hollow screw L, having the transverse hole w, the valve n, provided with a valve-stem, p, and guides r and t, and the spring s, substantially as and for the purpose specified.

2. The exteriorly and interiorly screw-threaded bush A, having a projection or projections, k, the flange x, and the recess y, formed on the under side of said flange, in combination with the exteriorly screw-threaded bung B, substantially as and for the purpose specified.



185,371. TAILORS' TABLES. Albin Warth, Stapleton, N. Y. [Filed Sept. 2, 1876.]

Brief.—The cloth-roll is supported in the carrier by endless chains running over connected rollers, and is controlled endwise by adjustable disks. The carriage which carries the carrier, and a truck to carry the operator, are actuated by power, and are provided with adjustable shipping mechanism, by which automatically the carriages are stopped at the end of a course. End and edge gages are provided to secure a perfect lay of the cloth.

1. The combination, with the package-carrier E, of package-supporting chains or belts, passing over rollers s t, and forming a bight for the support of the package, substantially as shown and described.

2. The combination, with the package-carrier E, package-supporting chains or belts w and rollers s t, of pulleys b^1, and a belt, a^1, substantially as described, whereby a uniform motion is imparted to the package-supporting chains or belts, and the unwinding of the package is facilitated.

3. The combination, with the package-carrier E and the package-supporting chains or belts w, of standards o, which carry disks e, and which can be adjusted according to the width of the package, said disks serving to confine the package endwise during the operation of unwinding, substantially as set forth.

4. The combination, with the carriage C, bracket f, and package-carrier E, of a rock-shaft, m, extending through the ends of the package-carrier, and the spring catch l, whereby said catch may be operated from either side, substantially as set forth.

5. The combination, with the table A, package-carrier E, and end gages F, of the adjustable edge gages G, secured to the flanges of the end gages, and serving to guide the edges of the several layers, substantially as described.

6. The combination, with the table A, package-carrier E, of the end gage F, having flanges F^0, provided with lips catching beneath the table, and the slotted edge gages secured to the flanges F^0 of the end gages, as and for the purpose described.

7. The combination, with the table A, and with the carriage which supports the package-carrier, of a reversing-gear, substantially such as herein described, whereby the motion of the carriage can be controlled by the attendant.

8. The combination, with the table A, carriage C, and package-carrier E, of a truck, J, moving by mechanism on rails along one side of the table, substantially as and for the purpose set forth.

9. The combination, with the table A, carriage C, package-carrier E, and truck J, of a reversing-gear, substantially as herein described, for controlling the motion of the truck and of the carriage.

10. The combination, with the table A and truck J, having standard a^3, of sliding rods P Q, latches p^1 p^2, belt-shippers c^2 f^3, belts N O, pulleys b^2 c^2 d^2, and mechanism connecting the rods and shippers, all constructed and operating substantially as shown and described.

11. The combination, with the table A, truck J, having standard a^3, sliding rods P Q, latches p^1 p^2, belt-shippers c^2 f^3, and mechanism connecting the rods and shippers, of a plate, R, with cam-stops r^2 r^3, which engage with pins i^2 e^2 extending from the sliding rods P Q, substantially as and for the object set forth.

12. The combination, with the table A, truck J, carriage C, sliding rods P Q, belt-shippers c^2 f^3, mechanism connecting the sliding rods and belt-shippers, belts N O, and pulleys b^2 c^2 d^2, of pulleys b^1 c^1, and belt a^2, for imparting motion to the shaft f, which carries the endless chain or ropes for moving the truck and the carriage, substantially as shown and described.

185,372. CONVERTIBLE PORTMANTEAU AND BATH-TUB. R. Watts, Philadelphia, Pa. [Filed Oct. 5, 1876.]

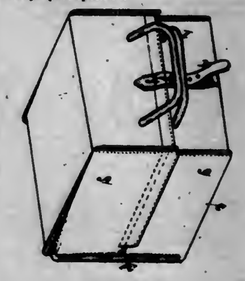
1. The sections A A, united by a flexible folding connection, forming, when opened, the ends and parts of the sides of the bath-tub, substantially as shown and described.

2. In combination with the covering C of a portmanteau, a water-proof lining, R, so as to render the device capable of use as a bath-tub.

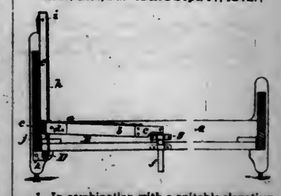
3. In combination with the frames B B the rods d d, substantially as shown and described.

4. In combination with the rods D D, uniting the frames B B, the cleats or floor-pieces d' d^2, substantially as shown.

5. In combination with the sections A A, either or both, folding flaps G G H, as and for the purpose specified.



185,373. INVALID-BEDSTEADS. J. W. Wetmore, Erie, Pa. [Filed Sept. 17, 1872.]

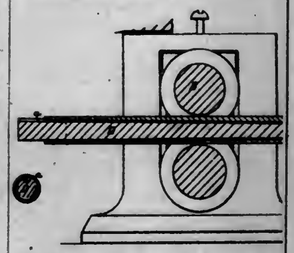


1. In combination with a suitable elevating mechanism, the removable and adjustable frame B, with cloth or canvas a, and plates e, having pivoted thereto bars f, working loosely within guide-plates g, substantially as and for the purpose described.

2. The combination, with the frame B and cloth or canvas a, of the removable standards C, grooved pulleys i, and chains or cords h, substantially as and for the purpose specified.

3. An invalid-bedstead, consisting of the removable and adjustable frame B, with canvas a, pivoted bars f, guide plates g, removable standards C, grooved rollers i, cords or chains h, rotary shaft D, with crank-handle l, and the sliding dog or plate m, the whole combined to operate substantially as and for the purpose set forth.

185,374. MANUFACTURE OF METAL ROLLS. T. Whitehouse, Boston, Mass., assignor to American Tube Works, same place. [Filed Sept. 6, 1876.]

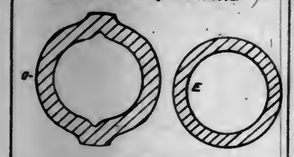


In the manufacture of hollow metal rolls with an internal rib or spline, the improved method of casting the hollow blank from which the roll is to be made with an internal rib or spline, and then compressing and shaping it on a mandrel adapted to receive it and its rib or spline, all substantially as described.

185,375. MANUFACTURE OF METAL TUBES. T. Whitehouse, Boston, Mass., assignor to American Tube Works, same place. [Filed Sept. 6, 1876.]

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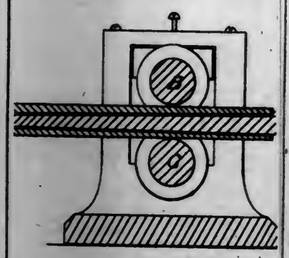
in the manufacture of hollow metal rolls or tubes from a hollow casting or blank, as an improved method, casting the hollow blank of oval shape and uniform thickness, and then rounding it up by pressure in the direction of its longer axis, and afterward compressing and shaping its metal, and finishing it on a mandrel, all substantially as described.



186,876. PROCESSES FOR CASTING METALS. T. Whitehouse, Boston, Mass., assignor to American Tube Works, same place. [Filed Aug. 11, 1876.]

The improvement herein described in casting metals, the same consisting in pouring water or other suitable cooling-liquid into direct contact with the molten metal in the mold, substantially as and for the purpose specified.

186,877. MANUFACTURE OF COPPER PRINT-ROLLS. T. Whitehouse, Boston, Mass., assignor to American Tube Works, same place. [Filed Aug. 3, 1876.]



1. A hollow or tubular metal roll, having its inner side or periphery made with a splice or rib, or other equivalent construction, by a compression of the metal which composes the body of the said roll.

2. A hollow or tubular metal roll, having its inner side or periphery of a taper from end to end, and made with a splice or rib or of other equivalent construction, by a compression of the metal which composes the body of the said roll.

3. The manufacture of a hollow or tubular metal roll, with a splice or rib or other equivalent device upon its inner side, by passing the metal which makes the body of said roll, in conjunction with an internal mandrel or former of suitable shape, between grooved pressure-rolls, all substantially as described, and for the purpose specified.

186,878. MACHINES FOR FORMING TUBES OF CAST INGOTS. T. Whitehouse, Boston, Mass., assignor to American Tube Works, same place. [Filed Apr. 8, 1876.]

Brief.—The material features of the invention are, first, imparting rounded and comparatively thickened edges to the blank in the process of fattening the ingot; second, a mandrel with a rounded front end, for opening out the blank, a straight section of uniform diameter, and a terminal section, slightly tapering toward the rear; third, so locating the mandrel that its cylindrical portion shall extend both to the front and to the rear of the bite of the rolls; and, fourth, a guide equal in breadth to the breadth of the blank, but of less breadth than the roller-grooves.

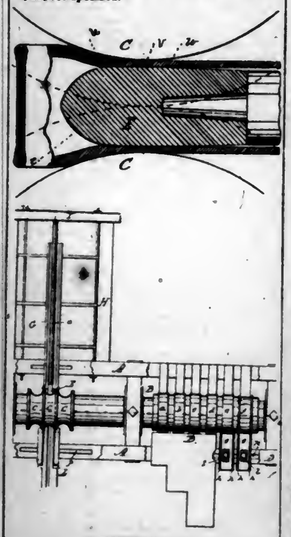
1. In the manufacture of tubing from hollow cast ingots, such as herein described and shown, the particular construction of mandrels for opening out, and over which to draw, said ingots, and the location of it in relation to the bite of the rolls, as specified.

2. The combination of the grooved rolls C, mandrel or bulb head E, and guideway J, the latter being constructed to guide and hold the metal blank as it is opened on the mandrel E, and being arranged to be slid forward and back as to the rolls C, all substantially as described, for the purpose specified.

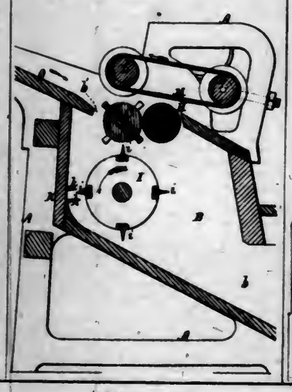
3. The guideway J for rolls C and its guide-box g, secured by screw-bolt to the slotted beam, in combination with the hinged outer leg or support g, all arranged together for operating and setting the guideway J, substantially as described.

4. In the manufacture of metal tubes from hollow ingots, thickening and rounding both edges of the flattened and elongated blank by passing it between rolls having shaping-grooves, substantially such as herein described.

5. A guide-box, g, for shaping-roll grooves e and f, which has sides h, constructed to fit the periphery of the rolls to receive between them the metal blank to be shaped, in combination with either groove e or f, having a width greater than the space between the box sides h, all substantially as described, for the purpose specified.



186,879. CORN-HUSKING MACHINES. F. M. Widerman, Baltimore, Md., assignor to himself and C. B. Goodwin, same place. [Filed Oct. 7, 1876.]



1. A picking-roller for corn-husking machines, provided with radial teeth which are arranged within its periphery, and are capable of yielding to external pressure inwardly in the direction of their length, substantially as and for the purpose specified.

2. In combination with the roller C, provided with the opening c', the tooth f, secured to and projecting outward from the disk F, the rubber tube E, the rubber ring G', and the washer D, substantially as and for the purpose shown.

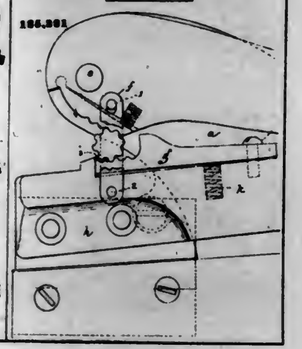
3. In combination with the gear-wheel S, pivoted upon a fixed bearing, the roller I, arranged to rise and fall within its bearings, and provided with a pinion, R, which meshes with and receives motion from said gear-wheel, said parts being relatively arranged, as shown, with said gear-wheel and the body of said belt upon the same side of said pinion, substantially as and for the purpose specified.

186,880. MILLSTONE-DRESS. Robt. S. Williams, Milwaukee, Wis., assignor of one-half of his right to Jas. B. Martin, same place. [Filed Nov. 13, 1876.]



The millstone-dress consisting of the furrows A, B, and C, constructed and arranged substantially as described, and for the purpose specified.

186,881.



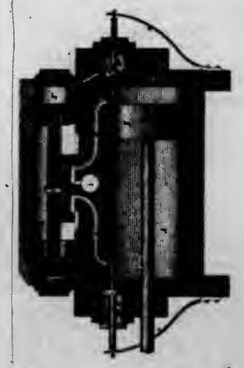
186,881. MECHANICAL MOVEMENTS. F. H. Young, Kingston, Mass., assignor to J. L. Hall, same place. [Filed Sept. 2, 1876.]

1. A toothed cam-lever and toothed actuated lever and link to connect the two levers, in combination with a rolling wedge interposed between the toothed surfaces, and with a spring to press one of the toothed surfaces against the roller to retain the toothed surfaces and roller in proper engagement, all substantially as set forth.

2. The toothed cam-lever and actuated lever provided with teeth, in combination with a link directly connecting the two levers, and slotted at one end to operate substantially as described.

REISSUES.

7,480. VALVE-GEARS FOR STEAM-ENGINES. A. S. Cameron, New York, N. Y. Patent No. 50,218, dated Oct. 3, 1865; reissue No. 2,407, dated Dec. 4, 1866. [Filed Oct. 11, 1876.]



1. The combination, with a steam-cylinder, with the piston working therein, with its main valve and with a valve-controlling piston, of two independent valves to be operated by the direct action of the piston, substantially as and for the purpose set forth.

2. The combination, with a steam-cylinder, the piston working therein, its main valve, and a valve-controlling piston, of two independent valves, the stems of which extend into the steam-cylinder, so that said valves shall be moved, reversing the main valve before the piston reaches the end of the cylinder, thereby cushioning said piston, as set forth.

3. The combination, with a steam-cylinder, the piston working therein, its main valve and a valve-controlling piston, of a valve situated in a chamber formed in the cylinder-head, the stem of said valve extending into the cylinder in line with the path of the piston, substantially as and for the purpose described.

4. The combination of valve-chambers H H' and valves T T, with the steam-cylinder A, supplementary cylinders E E', pistons F F', and main valve O, constructed and operating substantially as and for the purposes set forth.

7,481. CHURN-DASHERS. George W. Nicholls, North Manchester, Ind. Patent No. 167,512, dated Sept. 7, 1875. [Filed Nov. 8, 1876.]

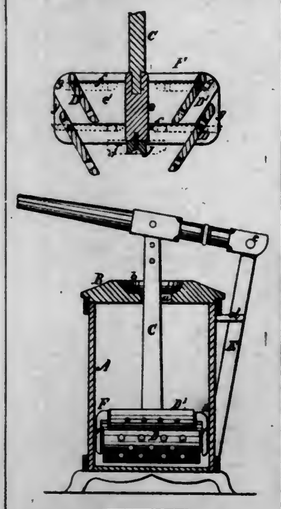
Brief.—Two dashers at different elevations, the lower perforated, in descending forming a complete diaphragm, in ascending dividing and inclining, so as to move the cream to the center; the upper dasher of like construction and operation, but of inferior size.

1. The combination, with the frame F, of the pivoted pressers D and receivers D', constructed and arranged in the manner set forth, and for the purposes specified.

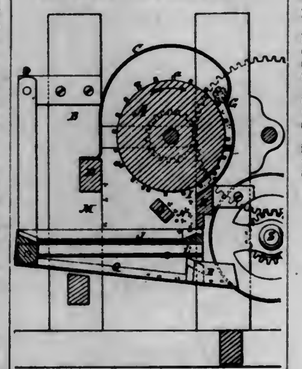
2. The combination, with the cross-bar e, of the end bars e', constructed to receive the pressers D and receivers D', and provided with ledges, adapted to hold them both in the same inclined position in rising and in a horizontal position in descending, substantially as described.

3. The combination of a set of pivoted and and perforated presser-boards, D, filling the area of the churn-box, with an upper set of pivoted receiving-boards, D', of smaller area, substantially as described.

4. The churn-dasher herein described, consisting of the H-shaped frame F, having angular ledges f f, and provided with perforated pressers D, eccentrically pivoted in said frame, and turn-button J, substantially as described.



7,482. CORN-SHELLERS. William Gilman, Chicago, Ill. Patent No. 55,466, dated June 12, 1866. [Filed July 13, 1876.]



1. In a corn-sheller, a shelling cylinder having its teeth arranged in spiral lines, commencing in sharp curves at or near the feeding-hopper, to carry the ears rapidly away from that point, and then continuing nearer to a straight line, to advance the corn more slowly and at the most desirable inclination against the shelling-rib, substantially as and for the purpose described.

2. The primary rail or deflector O, arranged between the cylinder and riddle, opposite to the discharge-point of the concave, to stop the shelled corn and turn it into the riddle, substantially as shown and described.

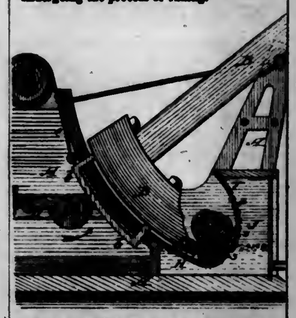
3. In combination with the shelling-cylinder and its concave, and the first rail or deflector O, a second rail or deflector, D, for catching and turning such of the shelled corn as may pass the first one, and direct it onto the riddle, substantially as described.

4. The combination of the deflector or deflectors and shelling-cylinder, receiving the corn at the end farthest from the final discharge, with the screen and fan-blower, when arranged together so as to operate substantially as described, and for the purpose set forth.

5. In combination with the deflector or deflectors, the screen, and the fan-blower of a corn-sheller, the delivery-spout E for the shelled corn beneath and behind the fan-case, substantially as and for the purpose described.

7,483. FULLING-STOCKS. Wm. B. Lodge, State Hill, N. Y., assignor, by mesne assignments, to the Patent Fulling Mill Company. Patent No. 66,096, dated June 25, 1867. [Filed Nov. 20, 1876.]

Brief.—The beaters are raised by friction mechanism, and fall by gravity. The "force" of the blow of the beaters is governed by a spring-tension device. Rubber toes are fitted to the beaters, to prevent injury to the goods undergoing the process of fulling.



1. In a fulling-stock, the swing-beaters pivoted at one end, in combination with a suitable frame and lifting mechanism, substantially as described, or its equivalent, whereby the beaters are raised by friction-pressure, for the purpose set forth.

2. The combination, with the hammers or beaters B, of the cam or friction blocks C, operating to effect the lift of the former, and to suddenly release them when raised, substantially as specified.

3. The combination, with the hammers of the mill, of an adjustable spring-tension device arranged to control their fall, essentially as herein set forth.

4. The combination of the toes G, made of india-rubber or other analogous soft material, with the hammers B, substantially as specified.

7,484.



7,485. BOTTLE-STOPPER FASTENERS. C. F. Porter, Albany, N. Y., assignee to Wm. R. Clough, Newark, N. J. Patent No. 67,346, dated July 30, 1867. [Filed Aug. 7, 1876.]

1. A cork-handle, formed of a single piece of wire, twisted spirally at one end and formed into an eye or loop at the other.

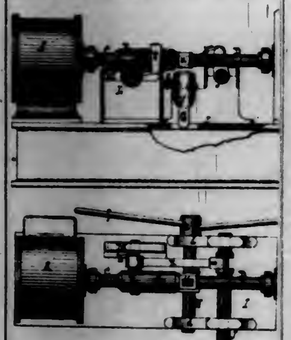
2. The combination of a cork-handle formed of a single piece of wire twisted spirally at one end and formed into an eye or loop at the other, with a swinging catch.

3. A cork-handle, formed of a single piece of wire twisted spirally at one end and formed into an eye or loop at the other, the screw being inserted in a cork and employed as a means of manipulating the cork.

4. A screw furnished with an eye or loop at one end, the screw being inserted in a cork, substantially as and for the purpose described.

5. The combination of the screw D, secured in the cork C, with a spring-catch, hung to the neck of a bottle, substantially as described.

7,486. DIRECT-ACTING STEAM-PUMPS. A. S. Cameron, New York, N. Y., for himself and assignee, by mesne assignments, of S. Batchford, A. S. Cameron, and C. M. Sewall, executors of W. Sewall, deceased. Patent No. 42,028, dated May 10, 1864; reissue No. 1,781, dated July 19, 1864. [Filed Oct. 11, 1876.]



1. The combination, in a direct-acting steam-pump in which the steam and pump pistons are in a direct line with each other, of the main piston-rod with a detachable lever, whereby the pump can be operated by hand, substantially as described.

2. The combination of a detachable connection with the rods of the steam and water pistons of a direct-acting steam-pump, said rods being made separate, one from the other, so that these rods can be disconnected, and the machine used as a steam-engine or hand-pump independent of each other, substantially as herein set forth.

3. The combination of a socket, E, with the steam-piston rod C and the water-piston rod D of a direct-acting steam pump, said socket being firmly secured to the rod C, and forming a guide for the rod D when the pump is worked by hand, substantially as described.

7,496. FURNACES AND FURNACE-DOORS. William A. Martin, London, England, assignor, by mesne assignments, of one-half interest to Edward H. Ashcroft, Boston, Mass. Patent No. 150,502, dated May 5, 1874. [Filed Nov. 13, 1876.]

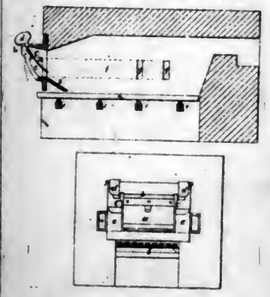
Brief.—The door is counterpoised to sustain itself in any fixed position in both its inward and outward movement. When opened outwardly, it is out of the way for the removal of cinders through the furnace-door, and when adjusted inwardly it controls the quantity of atmospheric air to be admitted to the furnace.

1. The combination of a furnace-door pivoted upon a horizontal axis at or near its upper edge, and made to open and close by being swung, pendulum-like, through the lower arc of a circle, and a counter balance or weight for retaining the door in any position at which it may be adjusted, substantially as and for the purpose set forth.

2. A counterbalanced furnace-door, constructed, supported, and arranged substantially as shown and described, whereby it is made to open both inwardly and outwardly, for the purpose set forth, and in the manner described.

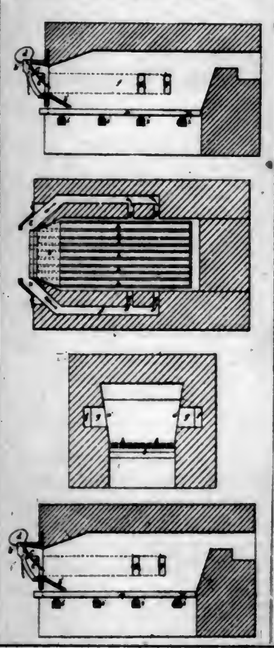
3. In combination with a counterbalanced furnace-door opening inwardly and outwardly, an inclined air-deflecting plate, arranged substantially as described, whereby the air which passes under the door is made to pass over and among the fuel on the grate-bars, substantially as and for the purpose set forth.

4. A furnace-door opening both inward and outward, with its frame and counter-balance, as a new article of trade and manufacture.



7,497. GRATES AND FURNACES. William A. Martin, London, England, assignor, by mesne assignments, of one-half interest to Edward H. Ashcroft, Boston, Mass. Patent No. 150,502, dated May 5, 1874. [Filed Nov. 13, 1876.]

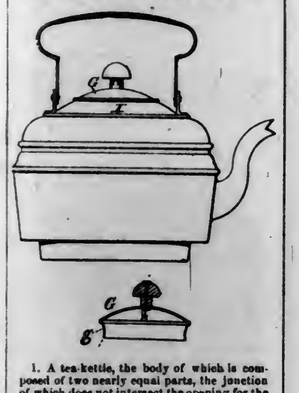
Brief.—The grate-bars are made of square cross-section, resting upon knife-edge bearings, the ends of said bars projecting beyond the walls of the furnace, by which they may be revolved and replaced when desired.



1. The grate-bars A of square cross-section, resting upon the upper surface of their bearers, and having their front ends projecting outside of the furnace-wall, substantially as described, whereby they may be revolved upon their bearers, and lifted for the purpose of allowing clinker and ashes to pass down between them without opening the door.

2. The combination of the grate-bars A, of square cross-section, and made to revolve each independently of the other, with knife-edged cross-bearers *i*, substantially as and for the purpose set forth.

7,498. TEA-KETTLES. Nicholas A. Messer, Buffalo, N. Y. Patent No. 164,386, dated June 15, 1875. [Filed May 6, 1876.]



1. A tea-kettle, the body of which is composed of two nearly equal parts, the junction of which does not intersect the opening for the spout, and is sufficiently below the breast to permit of convenient inside soldering through the throat of the upper part, substantially as specified.

2. The combination of the cover G with the rim, formed slightly elliptical, and having its diameter smaller at *g* than at *g'*, substantially as and for the purposes described.

7,499. DYEING AND PRINTING TEXTILE FABRICS. Wm. M. Brown, London, England, assignee of John Lightfoot. Patent No. 111,654, dated Feb. 7, 1871. [Filed Aug. 26, 1876.]

The method of preparing color-mixtures for aniline black, by producing chlorate of soda and combining therewith a salt or salts of aniline and a suitable metallic salt, substantially as described.

7,500. DYEING AND PRINTING TEXTILE FABRICS. Wm. M. Brown, London, England, assignee of John Lightfoot. Patent No. 111,654, dated Feb. 7, 1871. [Filed Dec. 6, 1876.]

The method of preparing color-mixtures for aniline-black, by producing chlorate of ammonia, and combining therewith a salt or salts of aniline and a suitable metallic salt, substantially as described.

7,501. DYEING AND PRINTING TEXTILE FABRICS. Wm. M. Brown, London, England, assignee of John Lightfoot. Patent No. 111,654, dated Feb. 7, 1871. [Filed Dec. 6, 1876.]

A color-mixture for aniline black, containing, as active constituents, a salt or salts of aniline, an alkaline chlorate, or other suitable oxidizing agent, and vanadium, or one or more of its salts, oxides, or sulphides.

7,502. DYEING AND PRINTING TEXTILE FABRICS. Wm. M. Brown, London, England, assignee of John Lightfoot. Patent No. 111,654, dated Feb. 7, 1871. [Filed Dec. 6, 1876.]

A color-mixture for aniline-black, containing as active constituents a salt or salts of aniline, an alkaline chlorate, or other suitable oxidizing agent, and uranium, or one or more of its salts, oxides, or sulphides.

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NOTICE.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 13, 1876.

Owing to the reduction of the force of this Office, under act of Congress of August 15, 1876, actions on applications for patents cannot be made with the promptness usual heretofore. Orders for copies, assignments, &c., and other matters connected with patents and trade-marks, will also necessarily be delayed.

ORDER.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 4, 1876.

By direction of the Secretary of the Interior R. H. Steele, Son & Co., of this city, will not be recognized from and after this date as an attorney in the prosecution of cases before this Office.

R. H. DUELL,
Commissioner of Patents.

CORRECTION.

In the Acting Commissioner's decision in the case of Carmichael, p. 864 of OFFICIAL GAZETTE of this volume, in citing the opinion of the United States Supreme Court in the case of *Jacobs* vs. *Baker*, (7 Wall., 295,) it was stated that the patents of Jacobs were sustained. This was a mistake. Although the patentability of the subject-matter was assumed, it was held upon the evidence that Jacobs was not the original inventor of those improvements.

COMMISSIONER'S DECISIONS.

TRAUT *vs.* HAWLEY.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Justus A. Traut, filed January* 24, 1876, *and Charles H. Hawley, filed October* 1, 1875, *for* "IMPROVEMENT IN BENCH-PLANES."—*Decided December* 27, 1876.]

Mere delay in applying for a patent after the invention has been perfected, will not warrant a judgment of priority in favor of a subsequent inventor.

Delay in coming to the Office, accompanied by other acts indicating purpose, may amount to proof of abandoned experiments.

[*Jas. Shepard and C. E. Mitchell*, attorneys for Traut.
W. E. Simonds, attorney for Hawley.]

DUELL, *Commissioner:*

The matter at issue in this case, as defined by the Examiner, and accepted by the parties, is "the adjustment of plane-iron by means of the scroll-disk."

Both the Examiner of Interferences and the Board of Examiners-in-chief have rendered judgment in favor of Traut, and, in accordance with the doctrine announced in the case of *Hazelip* vs. *Richardson*, (10 OFFICIAL GAZETTE, 747,) their findings, being those of fact, will not be disturbed, except for manifest error. An examination of the testimony fully convinces me that no such error has been committed. The evidence clearly establishes the fact that in January, 1875, Traut had devised and completed a plane embodying the features in dispute. This plane has been preserved, and is introduced as Exhibit A.

Hawley does not claim to have conceived of this invention until August, 1875, when he made a plane, and in the same month filed an application for a patent, which he subsequently abandoned in favor of the present application, so that, in reality, his record date must be taken as August 21, 1875.

Traut's invention having been reduced to practice, and actually tested, as appears from the testimony, more than six months prior to Hawley's conception, it follows that, unless it amounted to no more than an abandoned experiment, his right to a patent, as between him and Hawley, is undeniable.

I find nothing in the case to warrant the presumption that this was an abandoned experiment, and, such being the case, his delay in applying for a patent after having completed the invention could not inure to the benefit of a subsequent inventor. A party's delay in coming to the Office, coupled with other acts indicating

purpose, may amount to proof of abandoned experiments, under which circumstances it could in no manner affect inventions subsequently made.

The testimony in this case, although in a measure contradictory, does not favor the consideration of Traut's operations in January, 1875, as being simply abandoned experiments. His subsequent proceedings indicate an intention on his part to apply for a patent, and introduce the invention to the public, and after having brought the matter into the perfect state in which he had embodied it, he was not required to exercise the same degree of diligence as would be called for from one who had not fully developed his invention. Such being the case, I must concur with the Board in finding that Traut's invention was made as early as January, 1875.

The decision of the Board is accordingly affirmed.

ROBERT ROHLAND.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of Robert Rohland for the registration of a trade-mark upon* MEDICINE, *filed April 6, 1876.—Decided December 9, 1876.*]

The words "Dr. Lobenthal's Essentia Antiphthisica" held to be a valid trade-mark, the same not being descriptive, nor having become public property.

[*L. W. Serrell*, attorney.]

DOOLITTLE, *Assistant Commissioner:*

The trade-mark in question consists of the words "Dr. Lobenthal's Essentia Antiphthisica." The registration was refused by the Examiner of Trade-Marks on the ground that these words are purely descriptive. The Examiner holds that while the words "Essentia Antiphthisica" do not inform one as to the ingredients of the medicine, yet they announce the purposes for which the compound is used, and to this extent are descriptive.

It appears that, so far as the name of the individual is concerned, this medicine was manufactured by Dr. Lobenthal for more than thirty years; that for the same length of time he employed this designation, and that he died in December, 1874. It also appears that the present applicant is the possessor of the entire right, in the use of said trade-mark for this country, by purchase.

I fail to see in what respect the term "Essentia Antiphthisica" is descriptive. It is a term, I am informed by the general chemical Examiner, which is not found in pharmacopœias, and does not signify anything more than most fanciful terms used on patent medicines. The medicine has become known in the market by this title, and is descriptive of the origin and ownership of the article by long association. If it was not at present manufactured by a person having a legal right to make it, the case would then fall under the decisions rendered in the matter of "Dr. Johnson's Yellow Ointment," in the case of *Singleton vs. Bolton*, (3 Doug., 393,) and the case of "Velno's Vegetable Syrup," in *Canham vs. Jones*, (2 Ves. and Beams, 218,) commented upon by Upton in his work on trade-marks, pp. 24, 25, 116, and 117. In those cases the title to the medicines had long since passed from the original founders. They had neither transmitted nor transferred their rights, and the old names of the articles no longer indicated origin or ownership. Anybody making the same medicine was entitled to use that designation.

I think the present case comes under a rule prescribed by the United States Supreme Court in *Canal Co. vs. Clark*, (13 Wall., 311,) namely:

The trade-mark must, therefore, be descriptive in its original signification, pointing to the origin of the article, or it must have become such by association.

For the above reasons, I do not regard this application as falling in that category of cases relating to mere labels and words indicating quality or contents alone, or as consisting of words belonging to the general public.

The decision of the Examiner of Trade-Marks is, therefore, reversed.

PERRINE *vs.* GOLDSWORTHY.—*Interference.*

[*Appeal from the decision of the Board of Examiners-in-Chief in the matter of the interference between the application of Alfred T. Perrine, filed February 23, 1876, and the application of John C. Goldsworthy, filed February 11, 1876, for* "IMPROVEMENT IN RAILWAY-GATES."—*Decided November 11, 1876.*]

The contest being that of originality, the burden of proof is upon the party charging fraud.

It would seem from the evidence that the parties were joint inventors, but it being impracticable to render a judgment to that effect priority must be awarded to the first applicant on the ground that the lack of originality on his part has not been proven.

DOOLITTLE, *Acting Commissioner:*

The subject-matter involved is—

The combination, with two vertically-swinging gate-bars connected by bell-crank levers and rods of an operating hand-lever.

Both the Examiner of Interferences and the Examiners-in-Chief have awarded priority of invention to Goldsworthy, the earlier applicant. Bearing in mind the settled practice that the decisions of the Examiner of Interferences and the Examiners-in-Chief, when both are in accord upon a question of fact, will not be overruled by the Commissioner unless it is clearly shown that a manifest error has been committed by those tribunals in that respect I have no hesitation in affirming their decision.

This case is one of those in which the question is the perplexing one, not of priority, but originality. Goldsworthy asserts that in October, 1875, he conceived the idea of this invention as an improvement upon a similar invention made by Joseph S. Winsor, of Providence, and since patented. That he communicated his ideas and suggestions to Perrine, and offered the latter the sum of $5000 if he could get up something better than the Winsor gate; that Perrine did make the models which somewhat resembled his plans, but did not fully embody them. One or two others testify that about that time, somewhere between October and December of 1875, Goldsworthy described this invention to them by sketches and verbally. Now the burden of proof is upon Perrine, and not only to show priority, but, in such a contest as this, to show the lack of originality on the part of his opponent.

The testimony in behalf of Perrine shows that Goldsworthy was the first to mention this subject to him. That he went to work making models, and that also while engaged in that work a third party by the name of Knowlton suggested the use of the lever in this combination, which is one of its most important features. In his accounts of conversations had with Goldsworthy, Perrine in every instance shows that Goldsworthy claimed to be the inventor, or rather spoke of the invention as his, even when he was offering Perrine certain inducements to withdraw his application and assign his rights to the former.

There is nothing but inferences favoring the idea that Goldsworthy was indebted to Perrine for this entire invention. What Perrine actually did he appears, by the preponderance of proof, to have done as a mechanic embodying the ideas of an employer. Still the evidence would also seem to indicate that the parties are more in the nature of joint inventors than of independent and original ones; but it being impracticable to render a judgment of that sort we must award priority to Goldsworthy on the ground that the lack of originality on his part has not been proven.

The decision of the Board of Examiners-in-Chief is affirmed.

EAGLE PENCIL COMPANY.—*Trade-Mark.*

[*Appeal from the decision of the Examiner of Trade-Marks in the matter of the application of the Eagle Pencil Company for the registration of a trade-mark for* "LEAD-PENCILS," *filed October 4, 1876.—Decided November 21, 1876.*]

It being customary in the trade to adopt numerals and letters on lead-pencils to signify their quality, or degrees of hardness, to use a fraction in connection with the numeral would signify to the purchasers and the public generally the same fact, and being indicative of quality cannot be registered as a trade-mark.

[*Pollok and Bailey*, attorneys.]

DOOLITTLE, *Assistant Commissioner:*

Applicant, in his petition, alleges that "our trade-mark consists, essentially, in combining with the whole number usually marked on a pencil a fraction, ½ or ¼—thus, 1½, 2½, 3½, &c. It usually has the appearance shown in the accompanying drawing. The word 'Eagle' intermediate between the representation of an eagle on the one side, and on the other side the whole number and the fraction, which, in this case, is 1½; but this number may as well be 2½ or 1½, &c., the fraction being conjoined in each case to whatever ordinary whole number is used. This is, indeed, the characteristic of the trade-mark. The word 'Eagle,' or representation of an eagle, or both word and representation being omitted or replaced by other characters, if desired."

The Examiner of Trade-Marks appears to interpret this language as setting forth a claim for the fraction alone and considers that the essential part of the trade-mark. Proceeding on this interpretation, he refuses registration on the ground that the trade-mark, under the law, being an arbitrary symbol, to vary that symbol at will would be in opposition to its plain requirements, and would substantially afford protection to a variety of trade-marks under the guise of a single symbol. Without discussing this point, I cannot agree with the interpretation placed upon the petition by the Examiner. I think it plain, from the language above quoted, that the numerals are as much an essential part of the trade-mark as the fraction itself. Now, it is, as intimated in the petition, and admitted by counsel in his argument on the hearing, customary in the trade to adopt numerals and letters on lead-pencils to signify their quality, one numeral or letter indicating a certain degree of hardness, and a numeral of greater quantity, or an additional letter, indicating a different degree of hardness of the lead. This being the practice in the trade to use a fraction in connection with the numeral would also signify to the purchasers, and to the public generally, the same fact. Regarding, then, this device to be simply a new arrangement for the purpose of indicating the quality of the article on which the symbols are to be used, I am of the opinion that they are not properly subjects of a trade-mark, but should be registered as a label, in accordance with the same practice that prevails in the registration of druggists' labels, labels on spools, &c.

With this view of the case, and without passing upon the objections urged by the Examiner of Trade-Marks, his action is affirmed, and the petition denied.

DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—WESTERN DISTRICT OF PENNSYLVANIA.

JAMES HOWARD *vs.* ROBERT CHRISTY.

[*No. 8, May Term, 1870.—At Law.—Decided November 13, 1876.—Before McKennan, Cir. J.*]

The plaintiff was the first and original inventor of the inventions described and claimed in his patents No. 91,133, June 8, 1869, for Method of Preparing Paper for Roofing Purposes, and No. 95,689, October 12, 1869, for a Machine for Carrying Out such Method.

The original application was filed March 1, 1850, rejected April 9, 1850, withdrawn May 4, 1850, and afterward repeatedly renewed with the allowance of the Patent No. 91,133.

The plaintiff did not intend to and did not in fact abandon his said invention to the public. Nor was it in public use or on sale with his consent and allowance for two years before his original application.

[*James J. Johnston* and *George H. Christy*, for plaintiff. *Joseph M. Gazzam*, for defendant.]

MCKENNAN, *Cir. J.:*

This is an action at law for the infringement of two patents granted to James Howard, the plaintiff, as follows:

1. Patent No. 91,133, dated June 8, 1869, in which the invention claimed is—

The method described (in the specification) for preparing paper for roofing purposes—to wit, by passing the paper through liquid asphaltum, heated to that degree which will cause the paper and the asphaltum on it to dry as fast as it is drawn from the reservoir of liquid asphaltum.

2. Patent No. 95,689, dated October 12, 1869, in which the invention claimed is—

The arrangement of the reservoir A, windlasses B and C, adjustable rollers D, scrapers *e* and *h*, and rollers *g* and *f*, constructed, arranged, and operating substantially as described in the specification and for the purposes therein set forth.

The parties have stipulated to waive a jury, and that the issues of fact in the case be tried and determined by the court, and the evidence on both sides has been taken in writing and submitted to the court.

Upon the evidence thus submitted the following facts are found:

1. The inventions described and claimed in said patents are novel and useful.

2. The plaintiff was the first and original inventor thereof, and the date of his invention is referable to the date of his original application for a patent—to wit, the sixth of December, 1849.

3. This application was filed in the Patent Office March 1, 1850, accompanied by a specification and by a model on March 5, 1850, was rejected April 9, 1850, and was withdrawn May 4, 1850.

4. It was afterward repeatedly renewed, (when does not appear,) and resulted in the allowance of the patent aforesaid.

5. During the interval between the date of his application and the allowance of the patent, the plaintiff did not intend to, and did not in point of fact, abandon his said invention to the public.

6. The said inventions were not in public use or on sale with the consent and allowance of the plaintiff for a period of two years before his original application for a patent.

7. The defendant has practiced the method described and claimed in Letters Patent 91,133 on a machine of similar construction to that described in Letters Patent 95,689, and is, therefore, an infringer.

These findings embraced all the material issues of fact raised by the pleadings.

Several questions of law have been suggested touching the alleged defectiveness of the specifications, and the presumptive abandonment of the invention from delay in the procurement of patents, but as the objections to the plaintiff's title on these grounds have no warrant in the well-settled principles of the law of patents it is only necessary to say that they are unsustained.

Upon the whole case the court is of the opinion that the plaintiff is entitled to recover, and, as the damages have been assessed by stipulation at $100, judgment will, therefore, be entered upon the findings in favor of the plaintiff for that sum.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 19, 1876.]

9,672.—Railings.—WILLIAM TWEEDDALE, Brooklyn, N. Y., assignor to NORTH AMERICAN IRON WORKS. Application filed November 25, 1876. Term of patent 14 years.

9,673.—Globe Heating-Stoves.—NICHOLAS S. VEDDER, Troy, and TOBIAS S. HEISTER, Lansingburg, assignors to NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 28, 1876. Term of patent 7 years.

9,674.—Parlor-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, N. Y., assignors to NICHOLAS S. VEDDER, same place. Application filed November 28, 1876. Term of patent 3½ years.

9,675.—Parlor Cooking-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, and TOBIAS S. HEISTER, Lansingburg, assignors to NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 28, 1876. Term of patent 3½ years.

9,676.—Cooking-Ranges.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, and TOBIAS S. HEISTER, Lansingburg, assignors to NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 28, 1876. Term of patent 3½ years.

9,677.—Cooking-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, N. Y., assignors to NICHOLAS S. VEDDER, same place. Application filed November 28, 1876. Term of patent 3½ years.

9,678.—Cooking-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, and TOBIAS S. HEISTER, Lansingburg, assignors to NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 28, 1876. Term of patent 3½ years.

9,679.—Glassware.—JAMES B. LYON, Pittsburg, Pa. Application filed September 8, 1876. Term of patent 7 years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 19, 1876.]

4,209.—Medical Compound.—EDWIN F. BABBAGE & EDWARD F. BABBAGE, Rochester, N. Y. Application filed September 27, 1876.

"The letters 'P H A T' in duplicate, being initials to the words 'Please Have A Tonic,' and be 'Phat, Healthy, And Tough,' arranged as shown in the accompanying fac-simile, around, above, and below an oval figure, within which are likenesses of the applicants for this trade-mark."

4,210.—Edge-Tools.—THE COLLINS COMPANY, Collinsville, Conn. Application filed November 29, 1876.

"The arbitrary words 'BIG BONANZA.'"

4,211.—Edge-Tools.—THE COLLINS COMPANY, Collinsville, Conn. Application filed November 29, 1876.

"The word-symbol 'BONANZA.'"

4,212.—Thread.—HENRY C. COOKE, West Newton, Mass. Application filed October 2, 1876.

"Two circles, one within the other, between which, besides other words and figures, are the words and figures as follows, viz., 'H. C. C.,' and within the inner circle is a picture of a female figure standing upon a pedestal or tower, which stands in a fort-shaped inclosure surrounded by water."

4,213.—Medical Compound.—COUSSENS & TABLER, Nashville, Tenn. Application filed November 3, 1876.

"A symbol representing a bee-hive resting on the cross-bar of the letter A."

4,214.—Shirting-Muslins.—GEORGE B. DURFEE, Fall River, Mass. Application filed November 21, 1876.

"A representation of young chickens."

4,215.—Shirting-Muslins.—GEORGE B. DURFEE, Fall River, Mass. Application filed November 21, 1876.

"The fanciful words 'MORNING GLORY.'"

4,216.—Medical Compound.—GEORGE H. FAIRBANKS, Boston, Mass. Application filed November 22, 1876.

"A figure of a man in full winter costume, upon which is inscribed the word 'Hit-a-oss.'"

4,217.—Lubricating-Oils.—GALENA OIL WORKS, (limited,) Franklin, Pa. Application filed December 4, 1876.

"The word-symbol 'GALENA.'"

4,218.—Lubricating-Oils.—GALENA OIL WORKS, (limited,) Franklin, Pa. Application filed December 4, 1876.

"The combination of the word-symbol 'Galena' with the word-symbol 'Star.'"

4,219.—Lubricating-Oils.—GALENA OIL WORKS, (limited,) Franklin, Pa. Application filed December 4, 1876.

"The representation of a star."

4,220.—Compressed Yeast.—GAFF, FLEISCHMANN & Co., Green Point, N. Y., and Riverside, Cincinnati, Ohio. Application filed November 25, 1876.

"The ring for the inscription, the eagle, the lions, the scroll in the background, and the scroll below the lions."

4,221.—Medical Compound.—JOHN M. GROSVENOR, New York, N. Y. Application filed November 17, 1876.

"The word-symbol 'LIVERAID.'"

4,222.—Medical Plasters.—JOHN M. GROSVENOR, New York, N. Y. Application filed November 17, 1876.

"The word-symbol 'BELLANODYNE.'"

4,223.—Tobacco.—P. LORILLARD & Co., New York, N. Y. Application filed December 2, 1876.

"The arbitrarily-selected word 'NICKEL.'"

4,224.—Fertilizer.—LORENTZ & RITTLER, Baltimore, Md. Application filed November 21, 1876.

"The word-symbol 'ALTA,' and a bisected figure of a lozenge."

4,225.—Cigars.—MOONEY & HOW, Utica, N. Y. Application filed October 16, 1876.

"The four figures and the word-symbol 'SOCIAL.' Three figures represent men engaged in conversation at a table, two of which are represented as holding cigars in their mouths, while one holds a cigar in his right hand, with his elbow resting upon the table, the foreground being occupied by the figure of a bull-dog, represented as smoking a cigar."

4,226.—Starch.—MUZZY & SAGE BROTHERS, Elkhart, Ind. Application filed November 25, 1876.

"The representation of the sun, which is partly visible above clouds, and is surrounded by rays in a semicircle."

4,227.—Liquid for Cleaning Gloves.—DANIEL A. NICHOLS, Salem, Mass. Application filed November 16, 1876.

"The word-symbol 'MAGIC.'"

4,228.—Smoking-Tobacco and Fine-Cut Chewing-Tobacco.—HENRY REMMERS, Brooklyn, N. Y. Application filed October 19, 1876.

"The word-symbol 'Freedom' and the bust of Washington."

4,229.—Medical Compound.—ROBERT ROHLAND, New York, N. Y. Application filed April 6, 1876.

"The words 'Dr. Lobethal's Essentia Antiphthisica.'"

4,230.—Linens.—REGENHART & RAYMANN, Vienna, Austria. Application filed October 30, 1876.

"The Austrian double eagle, of which the left semi-section is of black, the other section of yellow color, a shield or coat of arms being placed at the center of the eagle, and the imperial crown mounted on bands above the heads of the eagle. Below the double eagle are arranged two symmetrical branches of laurel, that intertwine at the center."

4,231.—Whisky.—SCHMIDLAPP & Co., Cincinnati, Ohio. Application filed October 23, 1876.

"The brand the Venus, used in connection with the word 'Brand,' and the letters in monogram, 'S. & Co.'"

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 19, 1876.]

925.—Title: **"Bottled Plaster Salve."**—WILLIAM S. MOAT, Philadelphia, Pa. Application filed December 8, 1876.

926.—Title: **"Olive Liniment."**—CHARLES ROAK, New York, N. Y. Application filed December 8, 1876.

927.—Title: **"Licorice Coated Pills."**—HENRY THAYER & Co., Cambridge, Mass. Application filed December 9, 1876.

928.—Title: **"Crack-Proof."**—THE GOODYEAR RUBBER CO., New York, N. Y. Application filed December 9, 1876.

929.—Title: **"Family Granulated Soap."**—JOHN C. THORNTON and CHARLES O. RANO, Buffalo, N. Y. Application filed December 9, 1876.

930.—Title: **"Photo Alto-Rilievo Non Perishable, Executed in Oil."**—STAPLES & EDELSTEN, Chicago, Ill. Application filed December 11, 1876.

931.—Title: **"E. K. Thompson's Sugar Coated Dandelion & Mandrake Pills."**—EBENEZER K. THOMPSON, Titusville, Pa. Application filed December 11, 1876.

932.—Title: **"E. K. Thompson's Sweet Worm Powder."**—EBENEZER K. THOMPSON, Titusville, Pa. Application filed December 11, 1876.

933.—Title: **"E. K. Thompson's Great Healing Ointment."**—EBENEZER K. THOMPSON, Titusville, Pa. Application filed December 11, 1876.

934.—Title: **"Margarita Segarette.—Does not Dry the Throat."**—JOHN BLAKELY, Jersey City, N. J. Application filed December 16, 1876.

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The Government fee on making application for a patent is fifteen dollars. The final fee is twenty dollars. Usually there are no other Government fees unless the application is appealed.

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U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

SALE OF SPECIFICATIONS AND DRAWINGS.

Photolithographic copies of the drawings of all patents issued since November 26, 1867, have been produced, and will be sold to the public at 25 cents per copy, or, where twenty or more copies are ordered at one time, at 10 cents per copy.

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The specifications of all patents issued since July 1, 1871, are in print, and will be furnished with the drawing without extra charge. In some cases the specifications of patents issued prior to July 1, 1871, are in print, and where such is the case the Office will furnish them with the drawings, but the Office will not undertake to reprint copies which have been exhausted.

In addition to the above, the Office has reproduced, and offers for sale at the price mentioned above, all drawings in the following classes, embracing patents granted from 1790 to date. The classes are those of the Examiners.

Apparel.	Paper manufactures.
Boats.	Printing.
Bookbinding.	Projectiles.
Bridges.	Railways, (Cars and Interior Fittings.)
Carding.	Railways, Exterior
Carriages and Wagons.	Mountings and Fittings.
Cloth.	Sewing-machines.
Cordage.	Ships, construction.
Crinoline and Corsets.	Ships, propulsion.
Driers and Kilns.	Signals.
Electricity.	Silk.
Felting and Hats.	Spinning.
Fire-arms.	Stationery.
Harvesters.	Stoves and Furnaces.
Knitting and Netting.	Thrashing.
Lamps and Gas-fitting.	Umbrellas and Fans.
Mills.	Weaving.
Ordnance.	
Paper-making.	

And the subdivisions of—

Bench-planes.	Buttons and Machines.
Bale-ties.	Combs, &c.

About sixty other classes are in progress, and it is hoped that all the drawings remaining, some forty thousand in number, may be completed during the fiscal year.

The total number of patents of which drawings are complete and offered for sale as above will approximate one hundred and fifty thousand.

At 12 o'clock on Friday is the latest hour that a final fee can be received in order to get a patent into the "issue" of the following Tuesday, applicants are earnestly requested to make the final payment before Friday, if possible, so that the proper entries may be made on the books of the Office before closing the "issue."

The Patent Office prefers that applicants should furnish their own drawings. Where drawings are defective, or cannot be otherwise obtained, the Office will cause a formal drawing to be made from the model at the actual cost of making it.

When a patent has been allowed, and the application has not been forfeited by delay of six months, if the final fee of twenty dollars is paid before 12 o'clock on Friday, the patent will issue and bear date the following Tuesday.

THE Illustrated portion of the Patent Office Report for 1869 and for 1871 has recently been completed, and can be had, by those having the remaining volumes for those years, by applying to the Commissioner of Patents.

Letters Patent of the United States do not reach the patentee or owner until about two weeks from the day of their date. The letters, nevertheless, have the force of patents from the time they are signed and sealed.

The GAZETTE is made to bear the same date as the patents to which the claims, briefs, and drawings relate, although it is not actually mailed to subscribers until about two weeks later than its date.

Single copies of the specification and drawing of any patent issued this week may be had from the Patent Office for twenty-five cents, or for a ten cent Patent Office coupon.

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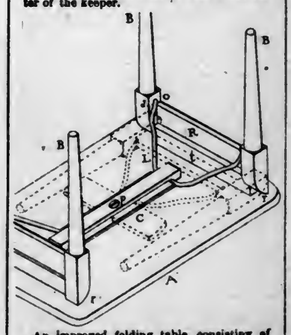
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED DECEMBER 19, 1876.

185,389. FOLDING TABLES. R. H. Arnold, Honeoye, N. Y. [Filed Apr. 21, 1876.]

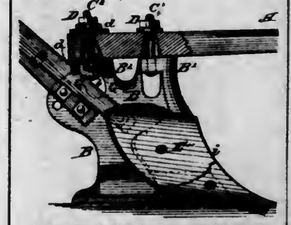
Brief.—The braces attached to the legs slide in a keeper secured to the under side of the table, and are locked in place, when the legs are unfolded, by a button pivoted in the center of the keeper.



An improved folding table, consisting of the leaf A, having the keep *k*, provided with the button C, the legs B, B, joined together by the rails R, and provided with sockets, in which operate the round tenons of the battens *t*, the metal loops L, having their round tenons operating in perforations *o* of the legs secured by the shoulders *d*, and their apexes arranged to slide in the keep *k*, for the purposes substantially as set forth.

185,388. PLOWS. Cealy Billups, Norfolk, Va. [Filed Nov. 1, 1876.]

Brief.—An eccentric disk recessed into the rear standard adjusts the beam laterally. The handle of the disk has a tooth, which engages in notches in the standard, and holds the beam as adjusted.



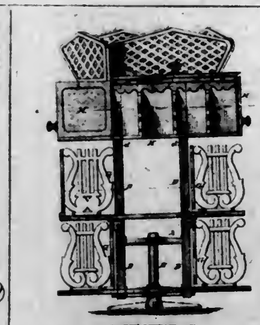
1. The standard B, having seats B' and B², in combination with the beam A and the eccentric lever G G', the lever being arranged between the standard and beam, and serving to adjust the beam in any desired position, substantially as set forth.

2. A plow-standard carving rearward in front, having two seats, on which to rest the beam independently of the handle, the front seat being the pivot, and the rear seat being cut away and provided with ratchet-teeth and slot, the same to work in combination with beam, bolt, and eccentric, substantially as and for the purpose described.

3. The combination of the plow-standard B, having recessed seat B² and notched opening *b*, with eccentric lever G, toothed arm G', whereby the beam is adjusted laterally, and held in any desired position, substantially as set forth.

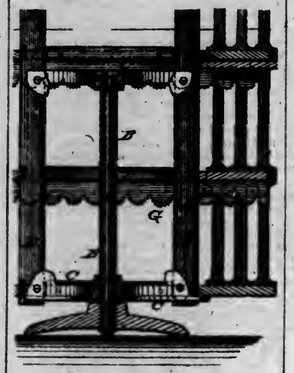
185,386. BOOK-CASES. Joseph J. Bisel, Lewisburg, Pa. [Filed May 20, 1876.]

The case H, divided into four side compartments, arranged as described, and provided with the hinged doors I, having spring-arms *h*, and supported upon the posts D, as set forth.



185,385. REVOLVING BOOK-SHELVES. Jos. J. Bisel, Lewisburg, Pa. [Filed Aug. 28, 1876.]

Brief.—A new article of manufacture, having sliding adjustable shelves, and flexible protecting-strips attached to the top board, and to the lower edge of each shelf, except the bottom one.



As a new article of manufacture, the revolving stand herein described, consisting of a series of shelves, provided with one or more adjustable shelves, and having flexible strips G attached to and hanging over the edges of the shelves, and the center supporting-post B, and the spider C, constructed and arranged substantially as and for the purpose set forth.

185,384. SAD-IRON GRINDERS. J. F. Bloss, Newark, N. J. [Filed Apr. 4, 1876.]

Brief.—A holding-wheel, mounted on a shaft at right angles to grindstone-shaft, has a receiving and rotary motion imparted by the driving-power which turns the grindstone. Irons being ground may be inserted and removed without stopping machine.

1. In a smoothing-iron-grinding machine, the disk K, having the circular motion by means of the gears *d* and I, and the lateral motion by the cam *f* and rolls I I, in combination with the frame S, substantially as and for the purposes specified.

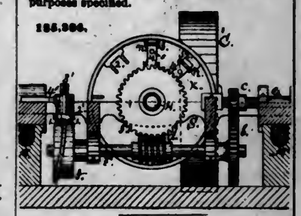
2. The disk K, loose on the shaft H, and held by the cap and clutch *m*, and screw *r*, and made adjustable on the shaft H, for irons of different thickness, by the springs 7 and 9, substantially as specified, and for the purposes set forth.

3. The disk K, having the apertures 2 and 3, and the swing-lever 4 and screw 5, for attaching the irons, substantially as shown.

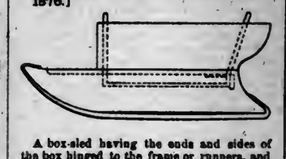
4. The combination of the driving-wheel A, shaft *e*, shaft F, on which is the gear *b*, and screw-gear *d* and cam *f*, the shaft H, on which is the gear I and disk K, and the sliding frame S, substantially as and for the purposes specified.

5. The frame S, adjustable by the screw-rods A' and connecting-rod B', and carrying the shafts *e*, F, and H, to operate the disk K, in combination with the driving-wheel A and stone C, substantially as set forth, and for the purposes specified.

185,386.

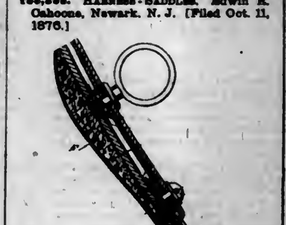


185,387. SLEDS. John H. Brown, Lynn, assignor of one-half his right to Charles H. Cole, Dedham, Mass. [Filed Aug. 24, 1876.]



A box-sled having the ends and sides of the box hinged to the frame or runners, and adapted to fold inward between the runners upon each other, and form an ordinary coasting-sled, substantially as shown and described.

185,388. HARNESS-SADDLES. Edwin R. Osborne, Newark, N. J. [Filed Oct. 11, 1876.]



1. A metallic saddle-tree, A, combined with a pad or housing provided with a metallic tip attached thereto, substantially as and for the purpose set forth.

2. A saddle-tree, A, combined with a metallic tip hinged thereto, substantially as shown and described.

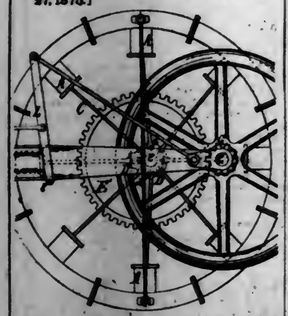
3. A pad, F, and housing I, constructed together and united by the same stitched to constitute a single structure, as set forth, combined with holders secured to its surface, to receive and confine removable terret and pad screw nuts, whereby said pad and housing may be securely attached to or removed from the tree, and said nuts changed at pleasure.

185,389. FLAVORING TOBACCO. M. Chambers, Scottsville, Va. [Filed May 31, 1876.]

Chewing-tobacco flavored by the introduction into the plug of dried and comminuted fruit, as described.

THE GRAPHIC CO. N.Y.

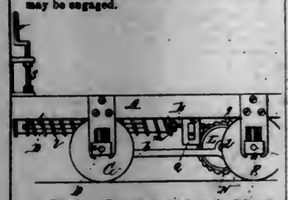
186,890. STEAM PUMPING MACHINERY. G. H. Corliss, Providence, R. I. [Filed Oct. 27, 1875.]



The combination of the shafts E G and the gear-wheels E' G', the connected pumps, and the engine or engines, for the purposes specified.

186,891. CAR-STARTERS. Jas. T. Crooker, Boston, assignor to himself and Aldis L. Waite, Lawrence, Mass. [Filed July 31, 1876.]

Brief.—Car-axle bears two gear-wheels—one engaging directly, the other through an intermediate pinion, with pinion on independent shaft bearing two friction-clutches, a ratchet-wheel, and drum. To stop the car, a clutch is engaged, thereby causing the drum to wind up a chain attached to a spring, which is thus compressed, and is retained by a spring-pawl engaging in the ratchet. When the pawl is released by operation of a foot-lever, the recoil of the spring tends to propel the car in either direction, according as either clutch may be engaged.



1. The drum P, with its ratchet-wheel S and pawl 9, chain k, and spring m, and the friction-clutches M K and N L, on the shaft d, in combination with the gearing H o and I o k, axle O, and car-wheels B, all constructed and operating substantially in the manner and for the purpose set forth.

2. The bar Q, with its rack E and shipper-arms p q, for operating the clutches, in combination with the horizontal shaft d, with its pinion r and bevel-gears t, and the vertical shafts S, with their cranks e and bevel-gears u, operating substantially as described.

3. In combination with the drum P, ratchet-wheel S, and pawl 9, a mechanism to be operated by the foot, for raising the pawl and releasing the spring m, substantially as and for the purpose set forth.

186,892. ADJUSTABLE LUBRICATORS. Jacob Edson, Boston, Mass. [Filed Nov. 20, 1876.]

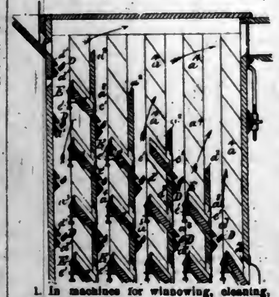


1. A lubricator consisting of a case or receptacle having an internal screw-thread, in combination with an adjustable screw-threaded cover, as and for the purpose set forth and described.

2. In a lubricator, the combination, with its cover d, of an elastic follower, g, for the purpose set forth and described.

3. In a lubricator, the air-chamber h in the cover d, substantially as and for the purpose set forth and described.

186,893. WINNOWING-MACHINES. Carl Haggenmacher, Pesth, Hungary. [Filed Oct. 6, 1876.]

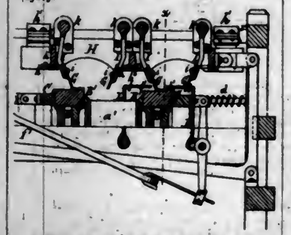


1. In machines for winnowing, cleaning, and sorting grit, grain, corn, or other seeds, the combination, with a suitable air forcing or drawing apparatus, of a series of vertical intercommunicating compartments, provided with inclined shelves and grit-dividers and grit-collecting receptacles, the whole being arranged and combined for operation substantially as herein shown and set forth.

2. The grit-divider and the means for adjusting it, as herein shown and described—that is to say, an inclined shelf, at the upper part of which an adjustable bar or grit-divider is mounted, which bar forms a flange to the shelf, which is raised or lowered, and fixed at any required height by means of mechanism, as hereinbefore described.

186,894. PROCESSES AND MACHINES FOR TREATING BRICKS. Wm. C. Hall, Buffalo, N. Y. [Filed Oct. 23, 1876.]

Brief.—Bricks are formed, dried, then placed, and burned in a kiln. The planing-knives or cutters operate from the outer edge of the brick toward the center to prevent injury.



1. The herein-described process of preparing bricks for the kiln by first forming the bricks in any suitable mold or press, then allowing the bricks so formed to set or harden, and then planing off the sides or horizontal surfaces of the bricks, substantially as and for the purpose hereinbefore set forth.

2. The herein-described process of planing the surface of green bricks from two opposite edges, inwardly, whereby the chipping off of the edges is prevented, substantially as hereinbefore set forth.

3. The combination, with the bed-piece B, of two reciprocating hinged knives, C C, cutting in opposite directions, substantially as and for the purpose hereinbefore set forth.

4. The combination, with a hinged knife, G, of a spring-arm, I, provided with an inwardly-projecting portion, F, for holding the knife down to the brick during the cutting-stroke, and raising it away from the brick during the return stroke, substantially as hereinbefore set forth.

5. The combination, with one or more bed-pieces, E, of the abutment B', movable clamp C, and reciprocating carriage H, provided with one or more pairs of hinged knives, G, substantially as and for the purpose hereinbefore set forth.

6. The combination, with the bed B, and fixed jaw B', of the movable clamping-jaw C, sliding in guides D, guide-bars d', springs d, and actuating lever, substantially as and for the purpose hereinbefore set forth.

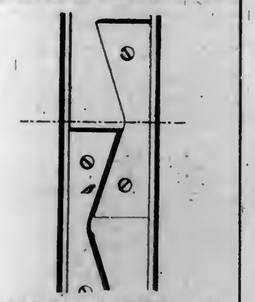
7. The combination, with the reciprocating hinged knives G, of the bed-piece B, provided with one or more longitudinal openings, and abutment B', arranged so as to leave a space between the latter and the bed-piece, substantially as hereinbefore set forth.

8. The stationary and movable jaws B' C, constructed so as to bear against the faces of the brick without touching the edges thereof, substantially as and for the purpose hereinbefore set forth.

9. The combination, with one or more bed-pieces E, of the reciprocating carriage H, provided with knives G, and supported by bearings h' upon guide-bars h, having elastic cushions r, substantially as and for the purpose hereinbefore set forth.

186,895. DIES FOR THE MANUFACTURE OF PAPER COLLARS. G. Harrington, Springfield, Mass. [Filed Aug. 24, 1876.]

Brief.—The "die" is provided with cutters and punches, the former of which shape the lower edge of the flap of one collar and the flap edge of half of two adjoining collars, while the latter shape the ends of two collars and strike out the button-holes. The strip being wide enough for two collars arranged with their flap edges abutting, and the cutter situated at the length of one collar from the punches, and the latter, in turn, located one-half the length of a collar apart, at each fall of the counter-die two complete collars are severed from the forward end of the strip.



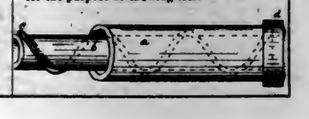
1. A cutting-tool constructed and arranged, substantially as described, so as to shape the longer edges for two collars in making simple cuts, the ends of which are removed by a short interval, substantially as described.

2. In combination with a cutting-tool, constructed substantially as described, arranged to cut the longer edges for two collars while leaving the strength of the strip comparatively unimpaired longitudinally, the dies E F for completing and removing two collars, when relatively arranged, as shown and described.

3. The combination of cutter B, located at the length of one collar from the dies E F, with the dies E F arranged at the length of one-half collar apart, substantially as described.

186,896. WATER-PIPES. Asa G. Haskell, North Andover, Mass. [Filed Mar. 1, 1876.]

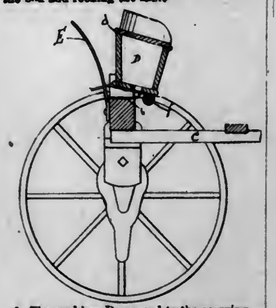
Brief.—A small tube or wire is arranged spirally around the inner pipe, so that warm water may be poured in to heat the inner pipe, for the purpose of thawing ice.



The combination of the inner pipe b, the outer surrounding pipe a, connecting-cap d, and the wire or tube c, substantially as and for the purpose specified.

186,897. SEEDING-MACHINES. R. H. Leach, Cedar Rapids, Iowa. [Filed Apr. 4, 1876.]

Brief.—The seed-box is adjustable on and removable from the main cross-beam. Projecting to the rear from the box is a plate, that engages with a notched lever, for holding the box adjusted. The adjustment is effected by the driver sitting on his seat on the box and rocking the same.



1. The seed-box D, secured to the carrying-frame by detachable hinges, in combination with suitable mechanism for holding the box in different positions, so that the box may be adjusted on the frame and held at different heights, or entirely removed therefrom, substantially as described.

2. The combination of the hinged seed-box carrying the drive-shaft, mounted and arranged thereon, as described, and a driver's seat on the box, so that the driver, on his seat, can rock the seed-box, and stop and start the seeding mechanism by simply changing his position, substantially as set forth.

3. The combination of the seed-box D, hinged to the carrying-frame, the projecting plate c', and the notched lever E, substantially as and for the purpose set forth.

186,898. MARSH-SHOES. Danl. Locke and J. N. Beahan, Geneva Lake, Wis. [Filed Oct. 6, 1876.]



1. The supplemental shoe B, in combination with the pivoted links C D and the self-locking lever E, substantially as and for the purpose set forth.

2. The supplemental shoe B, provided with depressions a, eyebolts b, in combination with the links C D and self-locking lever E, substantially as and for the purpose set forth.

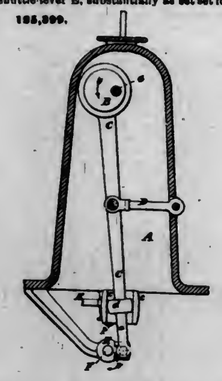
186,899. SEWING-MACHINES. Thomas A. Macaulay, New York, N. Y. [Filed Oct. 13, 1876.]

Brief.—Motion being given to the machine by the main shaft carrying an eccentric, a vertical movement is given to the connecting-rod. The connecting-rod being connected, about midway, to a radius-bar, it receives a lateral motion, which it imparts to the shuttle-lever by means of a ball working up and down in a slot in said lever. On an extension-rod of the above-mentioned connecting-rod is attached a slotted crank, which, by means of the vertical and lateral movements, gives a rotary movement to the feed.

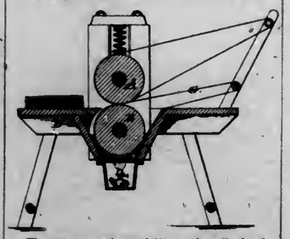
1. In combination with the lever C G, the radius-bar D, or its equivalent, and the shuttle-lever E, the said lever C being jointed directly to the shuttle-lever, whereby a reciprocating motion is imparted to the said shuttle-lever, substantially as shown and described.

2. In combination with the main shaft G, the feed-shaft F, the shuttle-lever E, the lever C G, and the radius-bar D, or its equivalent, the said lever C being jointed directly to the shuttle and to the feed-shaft, whereby a rotary motion of the main shaft G imparts an equal and opposite rotary motion to the feed-shaft F and a reciprocating motion to the shuttle-lever E, substantially as set forth.

186,899.



186,900. PROCESSES OF PREPARING LABELS, SHOW-CARDS, &c. A. MacBrair, Cincinnati, Ohio, assignor of two-thirds of his right to A. MacBrair, Jr., and Wm. C. MacBrair, same place. [Filed Aug. 26, 1876.]



The process, substantially as described, of preparing labels, show-cards, and other similar articles, by first printing them in the desired colors, then passing them through sizing-rollers, and, finally, glossing the same with a varnish by passing them through a cylinder-press.

186,901. VELOCIPEDES. Geo. W. Marble, Chicago, Ill. [Filed July 24, 1876.]



1. In a velocipede, a reach consisting of two parts, C D, one part, C, so made as to form the saddle, substantially as specified.

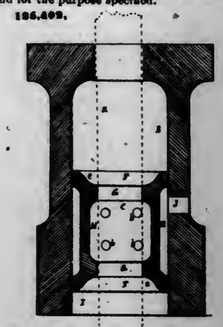
2. The standard E, provided with the slots s at the lower ends, in combination with the straps d, substantially as specified.

186,902. STUFFING-BOXES. F. M. McMillan, Cleveland, Ohio. [Filed July 28, 1876.]

1. The thimble G, having perforations b and curved ends c, annular chambers H and C', in combination with piston-rod a and oil-inlet J, substantially as described, and for the purpose specified.

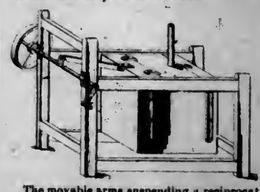
2. In combination with the shell A, the perforated thimble C, annular chambers C' and H, substantially in the manner as described, and for the purpose specified.

186,903.



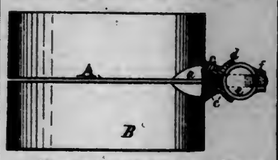
186,903. RECIPROCATING CHURNS. Adrian V. B. Orr, Steelsville, Pa. [Filed July 31, 1876.]

Brief.—A vibrating churn, with central perforated diaphragm, has at top a vent-tube, contracted at its upper end by the insertion of a shouldered inner tube, forming an abutment to repel the rising splash of liquid.



The movable arms suspending a reciprocating box, having the vent-pipe G contracted at its upper and outer orifice, substantially as and for the purpose specified.

186,904. STOVE-PIPE DAMPERS. O. Poole, Springfield, Ohio. [Filed Sept. 9, 1876.]



1. The clamping-collar c, having a deep recess, c', for the reception of the projecting washer d, as a means of preventing it from coming in contact with the pipe E while rotating the valve A, constructed substantially as described.

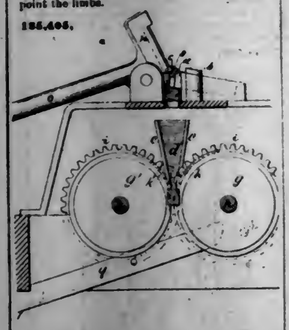
2. As an article of manufacture, the damper constructed substantially as hereinbefore described, consisting of the valve A, with a collar-bearing, e, having a convex base, a clamping-collar, c, with a deep recess, c', in the same, the washer d, with a projecting part extending into said recess, and provided with a concave bearing on its outer end as a means of more firmly supporting the handle e upon the shank b, as and for the purpose hereinbefore set forth.

186,905. MACHINES FOR MAKING STAPLES. W. Reinard, Wheeling, W. Va., assignor of one-half his right to A. M. Adams, same place. [Filed Oct. 20, 1876.]

Brief.—A stop on one side and a pair of cutters on the other, arranged to produce an oblique cut. The blank falls from the cutters into a hopper that has an elongated slot in the

bottom, through which it is drawn and bent by a stab on the periphery of one of the rollers, and it then enters the dies which shape and point the limbs.

185,405.

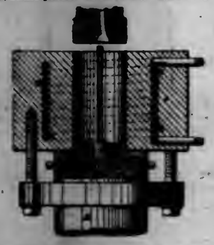


1. An improved machine for making staples, consisting of the wheels *g g'*, provided with stud, socket, and grooves, in combination with the box *d*, and with the cutting apparatus located on one side thereof, the construction permitting the severed piece of wire or rod to drop into position where it may be received by the wheels, as set forth.

2. The combination of the box which receives the severed pieces, the guide *e*, the knives, and the stop *i*, as set forth.

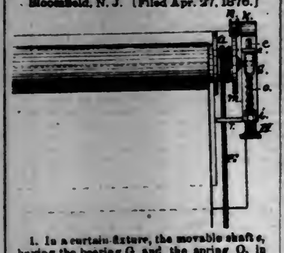
3. The combination of the block *n*, carrying the moving knife, the levers *o* and *q*, the connecting rod *r*, and the pin on the wheel *g*, as set forth.

185,406. MACHINES FOR MAKING LEAD PIPES. Lewis M. Rumsey, St. Louis, Mo., assignor of one-half his right to M. Rumsey, same place. [Filed May 13, 1876.]



A lead-cylinder having a coil or chamber formed in the metal composing said cylinder, said coil or chamber being adapted for the passage of hot and cold water, air, or other fluids or gases, in combination with a suitable core, core-box, and press, substantially as and for the purpose specified.

186,407. CURTAIN-FIXTURES. J. R. Rusby, Bloomfield, N. J. [Filed Apr. 27, 1876.]



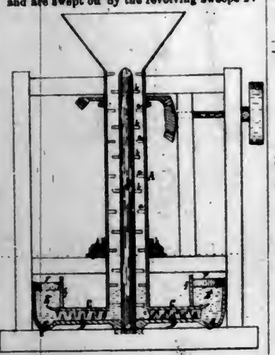
1. In a curtain-fixture, the movable shaft *e*, having the bearing G and the spring O, in combination with the tension-screw H and journal of cap *a*, substantially as and for the purpose specified.

2. The tension-screw H, having in its end a bearing for the shaft *e*, and with the spring O, actuating said shaft, and thus, by the journal of cap *a*, pressing the flange *m* up against the friction-roll *n*, substantially as and for the purposes set forth.

3. In combination with a certain fixture, having the tension-screw H, movable shaft *e*, flange *m*, and friction-plate *n*, the guide *r*, secured to the bearing of the said tension-screw, substantially as and for the purpose specified.

185,408. AMALGAMATING APPARATUS. W. Sleeper, Coaticook, Quebec, Canada, assignor of one-half his right to R. Vaughan, Claremont, N. H. [Filed Feb. 28, 1876.]

Brief.—The ore is fed down through the revolving shaft A, and is ground and forced through the mercury. The amalgam settles in the depression *g*, and the base materials rise and are swept off by the revolving sweeps F.



1. The revolving feeding-cylinder, provided with spurs or projections, in combination with the central post provided with similar projections, substantially as and for the purpose set forth.

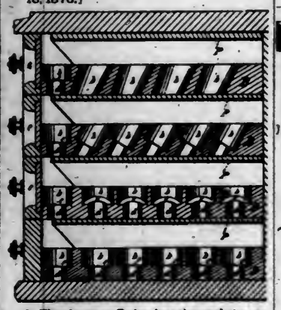
2. In combination, with the revolving feeding-cylinder, the mixing-chamber projecting laterally from and surrounding the base of such cylinder, substantially as and for the purpose set forth.

3. In combination with the mixing-chamber projecting laterally from and surrounding the base of the feeding-cylinder, the annular reservoir surrounding such chamber, and operating substantially as set forth.

4. The annular reservoir, having its bottom sunk below the level of the bottom of the mixing-chamber with which it is connected, substantially as set forth.

5. The revolving sweeps, passing over the surface of the reservoir containing the mercury, for the purpose of removing the waste, substantially as described.

185,409. SPOOL-SILK CABINETS. Leonard O. Smith, Philadelphia, Pa. [Filed Sept. 18, 1876.]



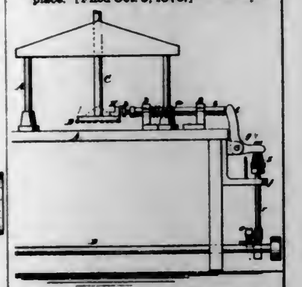
1. The drawers B, having the sockets or holes *b* bored upon an oblique angle, substantially as shown and described.

2. The drawers B, having the sockets or holes *b*, provided with the central holes *d*, substantially as shown and described.

3. The sunken partitions P, formed as and for the purpose set forth.

4. The combination of the drawers B, provided with the sockets *b*, with the partitions P, substantially as and for the purpose described.

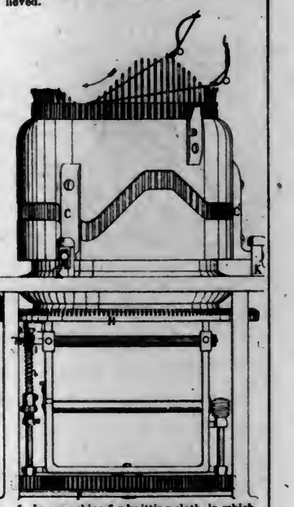
185,410. ENVELOPE-MACHINES. Peter J. Smith, New York, N. Y., assignor to Mary E. Dickinson and Mary A. Smith, same place. [Filed Oct. 9, 1876.]



The combination, in an attachment to an envelope-folding machine, of the pressure-rod *r*, the bent lever *l m*, and the stamping-bar *b*, or their equivalents, arranged and acting substantially as above described, and for the purpose set forth.

185,411. WEFT-THREAD KNITTING-MACHINES. C. L. Spencer, Providence, R. I., and Saml. W. Pingree, Lawrence, Mass. [Filed June 7, 1876.]

Brief.—By the mode of their insertion into their jacks, the spring of the needles in the operation is distributed through the length of their shanks. The tension and take-up of the cloth is self-regulating, excessive strain releasing the clutch, which is again restored to its place by the spring, as the strain is relieved.

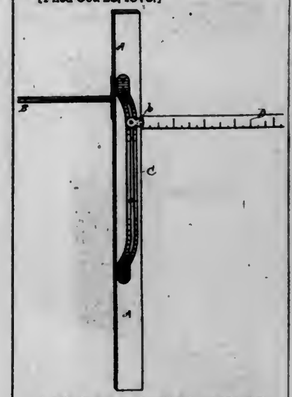


1. In a machine for knitting cloth, in which a filling-thread is inserted or woven into the stitches, that portion of the jacks which carry the needles constructed with an inwardly-inclined slot or surface for the needles to rest in or against, and the alternate ones with an outwardly-inclined slot or surface for the needles, substantially as and for the purpose set forth.

2. The combination of the take-up rollers with the shaft N, ratchet R, worm M, spring *b*, and regulating mechanism *h*, *h'*, and *k*, the parts being constructed and arranged to operate substantially as and for the purpose set forth.

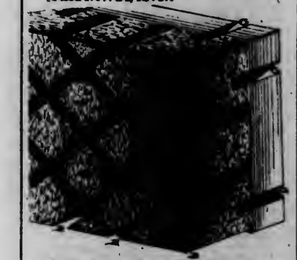
3. The combination of the gear-wheel H, revolving frame J, fixed wheel P, and shaft N, with its automatically-operating worm-wheel M, the parts being arranged to operate substantially as set forth.

185,412. TAILORS' MEASURES. Wm. Vanner, Hamburg, N. Y., assignor of one-half of his right to Wm. Ellwood, same place. [Filed Oct. 23, 1876.]



A tailor's measure in which is combined the straight piece A, the arm B, the curved metallic piece C, attached at each end to the piece A, and having the elongated slot *e*, and the head *b* arranged to slide in said slot, and provided with a tape-measure, as and for the object set forth.

185,413. FIRE-KINDLERS. R. B. Whitsel, Columbus, Ohio, assignor of one-half of his right to John Short, same place. [Filed Nov. 24, 1876.]



The wooden block A, provided with transverse grooves B and C, intersecting each other within the body of the block, substantially as shown and described.

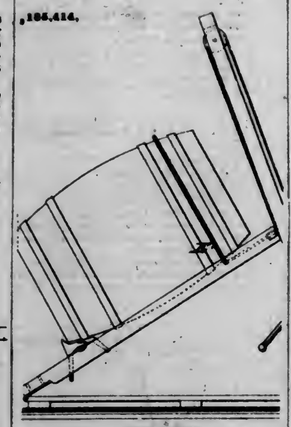
185,414. HOISTING APPARATUS. John F. Wolfrum, Defiance, Ohio. [Filed June 6, 1876.]

Brief.—The device enables a person, by means of the windlass and rope, to hoist heavy barrels or other packages from a horizontal to a vertical position, onto a supporting-frame or higher object.

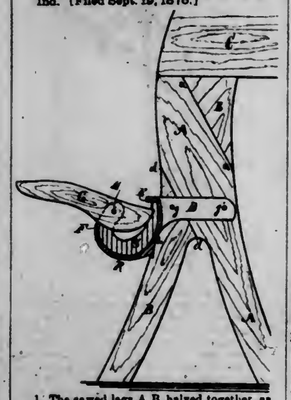
1. A hoisting apparatus composed of a base-frame with a barrel-carrying frame hinged to one end, and a hoisting-frame, rope, and windlass-roller at the other end, the whole arranged and operated substantially as and for the purpose set forth.

2. The combination of the barrel-carrying frame, having sliding yoke-support or friction-bearing, with the barrel-holding loop end of rope of hoisting-frame, substantially as shown and described.

185,414.



185,415. SCHOOL-DESK ENDS AND SEAT-HINGES. Aron A. Womack, Indianapolis, Ind. [Filed Sept. 19, 1876.]



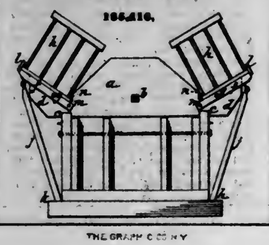
1. The sawed legs A B, halved together, as shown, and further strengthened by the seat-arm casting, provided with the arms D D', one on each side of the legs, in the manner and for the purposes set forth and described.

2. The seat-arm-supporting casting formed with side arms D D' to embrace the standards A B, and carved projections S S', web R, double hinge-bearings H H', and bracket-supporting side L, constructed and arranged to be operated in the manner set forth and described.

3. The seat-arm-supporting casting provided with projecting lip E and edge F of web R, arranged to support the seat-arm G, in the manner set forth and described.

4. The sawed legs A B, halved together, in the manner set forth and described.

185,416.



185,416. GRAIN AND STOCK RACKS. J. C. Wright, Kahoka, Mo. [Filed Jan. 3, 1876.]

1. The rack-raves, in combination with the supporting notched end cross-pieces *a d* and the wagon-body, constructed and secured in the manner and for the purpose herein set forth.

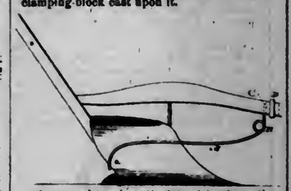
2. The rack-raves, provided with the edge-guards *l*, the end cross-bars *f*, and the end vertical racks *h h*, and secured in place in the manner herein set forth.

3. The rack-raves, in combination with the hinged brace-bars *j* and the wagon-body, as herein set forth.

4. The rack-raves and the cross pieces *a d*, provided with the inner holes *m* for the fastening-bolts *g*, to serve as pivots upon which said rack-raves are raised to vertical positions with the sides, as and for the purpose herein set forth.

185,417. STALK, STUBBLE, AND WEED TURNERS. Levi W. Yaggy, Chicago, Ill., and John N. Loop, Kokomo, Ind. [Filed Sept. 7, 1876.]

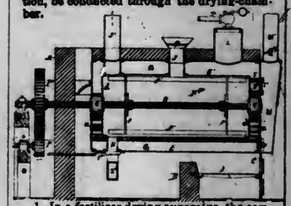
Brief.—A spring weed-turner having a clamping-block cast upon it.



As a weed-turning attachment to plows, the curved spring-rod A, having the hook end *c*, and extending rearward nearly on a line with the edge of the plowshare, in combination with the block C, clamp D, and plow-beam, substantially as shown and described.

185,418. DRYING APPARATUS. F. W. Young, Lake, Ill. [Filed Jan. 3, 1876.]

Brief.—Products of combustion may, at option, be conducted through the drying-chamber.



1. In a fertilizer-drying apparatus, the combination with the outer and inner shells E and E', forming the annular steam and water space G, and the drying-chamber F, and provided with series of fines H, as described, of the shaft N, carrying the series of bars *f'*, for adjusting the material within the drying-chamber, substantially as specified.

2. The combination, with the drying-cylinder F, as described, of the escape-pipe J', damper G', passage D', and plate I', arranged to open and close said passage, substantially as and for the purpose specified.

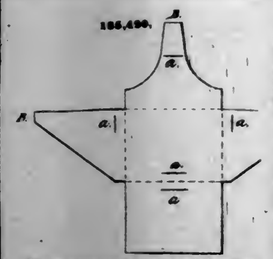
185,419. NAPKIN-HOLDERS. J. J. Ackerman, Hohokus, N. J. [Filed June 15, 1876.]



A napkin-holder constructed of the bow A, with the pointed or hooked ends *a* and *b*, and the hook C, substantially as described, and for the purpose set forth.

185,420. ENVELOPES. A. S. Addis, Anaheim, Cal. [Filed Aug. 3, 1876.]

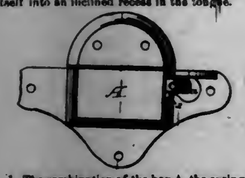
185,490.



The envelope herein shown and described, having in its center fold and top, side, and bottom flaps the slits *a*, and upon its top and side flaps the tongues B, said tongues being constructed as shown, so that when folded those upon the side flaps shall take into the slits opposite, and the one upon the top flap shall pass through the slits in the bottom flap, center fold, and top flap, substantially as shown and described above.

185,491. TRUNK-FASTENERS. H. Ahrend, Newark, N. J., assignor to Wm. B. Gould, same place. [Filed Dec. 2, 1876.]

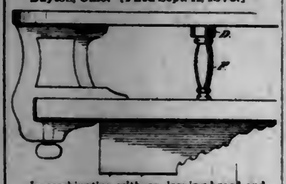
Brief.—A tongue depends from the lid, and is secured in a socket upon the body of the trunk by means of a spring, which forces itself into an inclined recess in the tongue.



1. The combination of the box A, the spring C, with thumb piece *a*, and the tongue G, with inclined recess *b*, all constructed substantially as and for the purposes herein set forth.

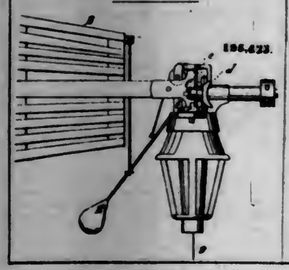
2. The auxiliary spring *b*, formed on the mainspring C, in combination with the box A and the notch *x* therein, substantially as and for the purposes herein set forth.

185,492. IRONING-BOARDS. W. H. Allison, Dayton, Ohio. [Filed Sept. 11, 1876.]



In combination with an ironing-board and its clamping-piece, for attachment to a table, the adjustable support consisting of the slotted clamping-plate E, slotted socket-pieces D, legs F, bolts *a*, and clamp-screw *b*, the whole constructed and arranged substantially as and for the purposes specified.

185,493.



185,494. WINDMILLS. L. Duval Anderson, Genesee, assignor to Harrison Woodmansee, Freeport, Stephenson County, Ill. [Filed Aug. 14, 1876.]

In a windmill, the shoe or brake *d*, in combination with the vane B and shaft A of the wind-wheel, substantially as and for the purpose specified.

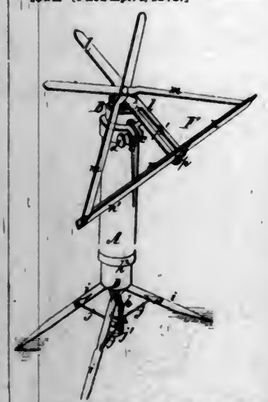
185,494. MOWING-MACHINE SHARPENERS. William C. Barker, Poughkeepsie, N. Y. [Filed Oct. 16, 1876.]



1. A new article of manufacture, consisting of a file having one of its sides or edges coated with emery or other abrading substance, substantially as described.

2. In combination with a file of any desired form, a layer of wood attached thereto, and coated with an abrasive substance, as set forth.

185,495. COMBINED MUSIC-STAND AND WALKING-CANE. W. Brand, Burlington, Iowa. [Filed Apr. 1, 1876.]



1. The combined extensible cane and music-stand, consisting of the tubular sections A B, constructed and fastened together so as to telescope one within the other, the folding and expansible tripod D adapted for forming the ferrule to the cane, and being stored away in the tube-section A, the folding and expansible music-supporting rack F, adapted to be stored within the tube-sections A B, and having a pocket by which it can be hung upon a bracket, the plug *e* having an oblique bracket for supporting the music-rack, and the head with the tubular portion to receive the bracket, all substantially as described.

2. The tubular cane-sections A B, the section B being inexpansible, and provided with a bracket, *f*, for supporting a music-rack, and the two sections being united together by splitting the upper end of section A, and providing an expansible collar with clamping-jaws and screw upon said split section, substantially as described.

3. The screw-plug *e*, with oblique bracket *f*, fitted within the section B, in combination with the head C and its tubular portion *g*, substantially as described.

4. The folding music-rack F, composed of the bars *l m n s*, the said respective bars folding as described, and the bar *l* having a bracket-pocket, in combination with the portions A B, and the bracket *f* on screw-plug *e*, substantially as described.

5. A combined music-stand and walking-cane having a tripod-base composed of hinged legs *i*, hinged rods *j*, sliding sleeve *k*, spring *k*, and ferrule-plug with guiding-stem *j*, substantially as and for the purpose described.

6. A combined music-stand and walking-cane, consisting of a hollow cane or tube section A, having an adjustable ferrule-section or tripod-head D, the adjustable auxiliary tube-section B, supporting a folding music-rack, F, and the head-section C, substantially as described.

7. The folding music-rack composed of the bars *l m n s*, the said respective bars folding, as and in the manner described.

185,496. CAN-OPENERS. E. M. Burchard, Washington, D. C. [Filed Sept. 6, 1876.]

Brief.—The handle is made in two sections, longitudinally divided, folded, and pivoted together—one part or section having a cutting-edge, and the other terminating in a pointed knife or cutting-blade; the construction being such that when the two parts of the handle are folded together the implement is best adapted for ordinary use on round cans, &c., both hands of the operator pressing downward, and when opened out, the pointed blade having been first inserted, a double leverage is obtained for heavier work, the cutting-edge is brought in requisition, and a clean shear-cut effected.



A longitudinally-divided handle, the two sections of which, A and B, are pivoted together, as described, in combination with the cutting-blade *a'* and the cutting-edge *b'*, all substantially as described and shown, for the purpose specified.

185,497. TRANSIT-RAILS FOR SLAUGHTER-HOUSES. F. Burness and Wm. Kincaid, Chicago, Ill. [Filed Mar. 9, 1876.]

Brief.—The main rail is made to connect with two tables by side rails, which are automatically thrown in and out of connection.



1. The combination, with the main rail C, switch-rails E *d* and E' *d'*, of the parts *o* and *o'*, arranged to admit of an ascending and descending movement, whereby the said parts are alternately connected with the main rail, substantially as and for the purpose described.

2. The combination, with the parts *d o* and *d' o'* of the switch-rails, of the rods G G' and lever F, as specified.

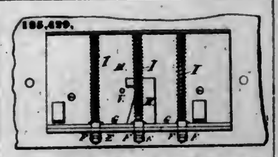
185,498. PROCESSES FOR CASTING GLASS PLATE. C. F. Carpenter, Louisville, Ky. [Filed Mar. 8, 1876.]

The process of casting glass plates with an improved form by applying over the glass plate, while it is in a plastic state, a body that will keep its sides level and abstract the heat from its upper surface more rapidly than when it is exposed to the air, substantially as above described.

185,499. OFFICE-SLATES. Orrin P. Chase and Samuel Harris, Chicago, Ill. [Filed Apr. 17, 1876.]

Brief.—A book of slated leaves, each of which may be separately locked against the cover, to protect private communications from being read by later comers until the arrival of the one addressed, who unlocks the same.

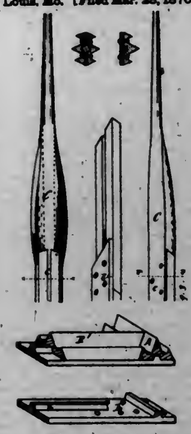
185,499.



1. The slates or slated leaves B, arranged to be locked independently of each other by the bolts *c*, catches F, and springs I, or their equivalents, constructed substantially as and for the purpose set forth.

2. In combination with the leaves of a book-slate, arranged to be locked independently, the catches F, springs I, and the tumbler G, or their equivalent, constructed substantially as above described, and for the purpose set forth.

185,500. LIGHTNING-RODS. John J. Cole, St. Louis, Mo. [Filed Mar. 23, 1876.]



1. The rod herein described, having a flat face, *a*, grooved as at *a'*, and a series of longitudinal ribs upon the reverse face, the central rib of the series projecting beyond the side ribs, substantially as specified.

2. A lightning-rod having the flat face *a*, grooved as at *a'*, and the reverse ribbed face, substantially as and for the purpose specified.

3. In combination with the sections of rod A, having grooves *a'*, the longitudinally-ribbed splice-plate, substantially as and for the purpose specified.

4. In combination with two or more sections of rod, A, having grooves *a'*, the longitudinally and transversely ribbed splice-plate, substantially as and for the purpose specified.

5. In combination with two sections of rod, A, having grooves *a'*, the longitudinally-ribbed splice-plate and staple-rivet, substantially as and for the purpose specified.

6. In combination with two or more sections of rod, A, having grooves *a'*, the longitudinally and transversely ribbed splice-plate, and the cap or sheath, substantially as and for the purpose specified.

7. The combination of the upright or point rod and the brace-rods G G, connected directly to the point-rod, substantially as and for the purpose specified.

8. The combination of the upright or point rod, the brace-rods connected thereto, and the switch, substantially as and for the purpose specified.

9. A lightning-rod point provided with a central wire of platinum throughout its length, substantially as and for the purpose specified.

10. In combination with a lightning-rod, a terminal or ground point, properly tipped and protected with platinum or other suitable metal, substantially as and for the purpose specified.

11. A lightning-rod point provided with a platinum tip cast therein, as and for the purpose set forth.

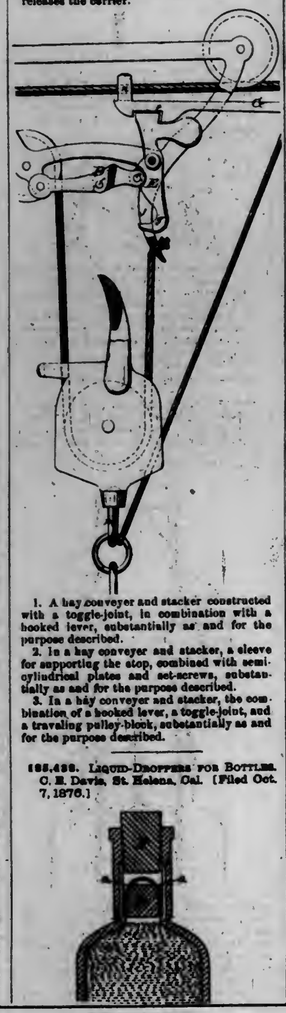
185,501. LAMP-CHIMNEY CLEANERS. Jas. Collins, Central City, Colo. [Filed Aug. 30, 1876.]



A lamp-chimney cleaner, consisting of the elastic ball or globe A, with hollow handle B, valve *c*, and groove A, in combination with the cover I, substantially as described.

185,502. HAY-ELEVATORS. Jerome A. Orcutt, Fultonville, N. Y. [Filed Nov. 1, 1876.]

Brief.—The toggle-arms, when carried upward by the upper projection of the pulley-block carrying the load, causes the hook to catch in said projection, and at the same time releases the carrier.



1. A hay conveyer and stacker constructed with a toggle-joint, in combination with a hooked lever, substantially as and for the purpose described.

2. In a hay conveyer and stacker, a sleeve for supporting the stop, combined with semi-cylindrical plates and set-screws, substantially as and for the purpose described.

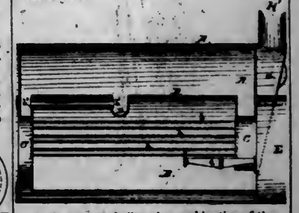
3. In a hay conveyer and stacker, the combination of a hooked lever, a toggle-joint, and a traveling pulley-block, substantially as and for the purpose described.

185,503. LIQUID-DROPPERS FOR BOTTLES. C. E. Davis, St. Helena, Cal. [Filed Oct. 7, 1876.]

The short cork B, applied in the lower part of the neck of a bottle so as not to interfere with the insertion of the ordinary cork or stopper F, and provided with the grooves or channels *a a*, substantially as and for the purpose described.

185,504. RETURN TUBULAR BOILERS. R. Ehman, Vallejo, Cal. [Filed Aug. 24, 1876.]

Brief.—The parts in which there is no water contained is kept cool by the admission of atmospheric air through perforations from the outside.



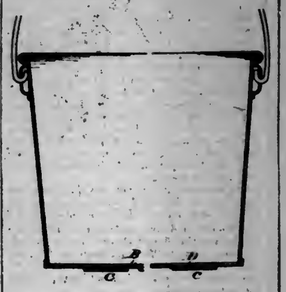
1. In a steam-boiler, the combination of the water-spaces D, depending from the crown-sheet, and extending across the upper part of the combustion-chamber, and the water-tubes *b* and *b'* in the said combustion-chamber, constructed and arranged substantially as described and shown.

2. In a steam-boiler, the combination of the hot-air chamber E' at the rear of the boiler, and the air-chamber F, encircling the said hot-air chamber, and provided with air-holes *f*, constructed and arranged substantially as described and shown.

3. In a steam-boiler, the combination of the combustion-chamber with the hot-air chamber E', fire-tubes *e*, circular chamber *d*, and movable inclined deflector H, all constructed and arranged substantially as described and shown.

185,505. TIN PAILS. Thos. Evans, Branchport, N. Y. [Filed Mar. 29, 1876.]

Brief.—Prevents rusting and makes endering supports.



A tin vessel, A, having its bottom B provided with interior depressions or recesses C, filled with zinc plates D, closely soldered therein, substantially as and for the purposes herein set forth.

185,506. HORSE-COLLARS. Jos. Fletcher, Cook County, Ill. [Filed June 14, 1876.]

1. The metallic horse-collar F G H, with longitudinal brackets *d d d*, cross-brackets *e e e*, holes for ventilation *c*, and connections A and B, substantially as set forth in the foregoing specification.

2. The combination of the metallic shell F G H, with the brackets or braces *e e e* and *d d d*, and the ventilating-holes *c*, in the construction of horse-collars, substantially as set forth in the foregoing specification.

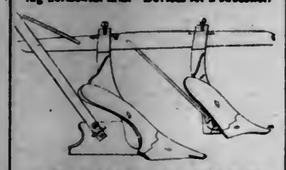
3. The metallic shell or hollow frame-work of metal, provided with suitable apertures or openings for ventilation, substantially as indicated in the foregoing drawings and specification.

186,436.



186,437. PLOWS. Chas. W. Flippen, Danville, Va. [Filed Oct. 19, 1876.]

Brief.—A standard with a socket to slide longitudinally upon the beam, and regulate the pitch of the plow. Handles rigid with the beam and flexible at the land-side. Mold-board looks over the standard in front, and over the coat at the rear, and has a projecting horizontal arm. Device for a subsoiler.



1. The combination, substantially as hereinbefore set forth, of the handles, the beam secured thereto, and having no movement independently thereof, the plow-standard, the parts secured thereto, constituting the plow proper, and the collar upon the standard, adjustable back and forth upon the beam, to rock the plow without disturbing the beam, for the purpose set forth.

2. The combination, substantially as hereinbefore set forth, of the beam, the handles jointed to the land-side of the plow, the standard, its collar, and the set-screw, whereby the depth of plowing may be regulated by rocking the plow upon the handles and sliding the collar upon the beam.

3. The combination of the standard, constructed as described, with a seat for the mold board, and provided with the notch P in the projection K, the mold-board having the lip *O'* and the flange O, and the single bolt passing through the mold-board and standard, these members being constructed and operating substantially as set forth, for the purpose specified.

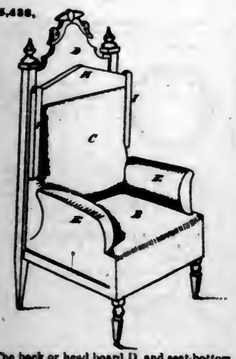
4. The herein-before-described mold-board, having an outwardly-projecting arm, R, for breaking or pulverizing the soil as the furrow-slice is being turned, as set forth.

5. The combination of the beam, the rocking turning-plow, and the rocking subsoil-plow, said plows being adjustable on the beam as to inclination by means of independent connections, substantially as and for the purpose specified.

6. The combination of the handles, the beam, the subsoil-plow, the turning-plow, their standards provided with collars independently adjustable upon the beam, and the brace upon which the front plow rocks, passing from its heel to the beam, these members being constructed and operating substantially as herein-before set forth, whereby the plows may readily be detached from the beam, and either or both of them may be rocked vertically, for the purpose specified.

186,438. BED-CHAIRS. Henry W. Fortune and Augustus H. Roberts, San Francisco, Cal. [Filed Mar. 14, 1874.]

186,438.



The back or head board D, and seat-bottom A, made rigidly in one piece, in combination with the hinged seat B, having rigid arms to form legs for the central portion, and hinged false back C, having the hinged foot-board H and legs I I, all constructed, arranged, and operated as set forth.

186,439. CUSPADORES. J. M. L. Gardner, Newark, N. J. [Filed May 24, 1876.]



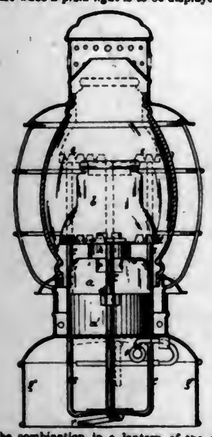
1. A cuspadore consisting of an inner receptacle, A, and an outer protecting-casing, B, connected to and entirely detachable from the inner receptacle, as set forth.

2. The receptacle A, open at the top, combined with the casing B, having a depressed top and central opening, and provided with springs *e*, as set forth.

3. The receptacle A, provided with recesses *e e*, as and for the purpose specified.

186,440. SIGNAL-LANTERNS. E. W. Gerrish, Salisbury, Mass. [Filed Dec. 6, 1876.]

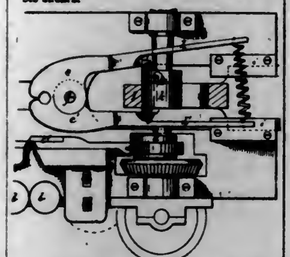
Brief.—A colored shade is brought over or around the flame of the lamp when a signal is to be given, and is raised up above the flame when a plain light is to be displayed.



The combination, in a lantern, of the colored glass or chimney *h*, the perforated disk *a*, provided with the collar *h*, the oil-reservoir *a a'*, the sliding wires or rods *s*, passing in guides *d* on the outside of the lamp, and the spring-catch *f*, together with the enlarged base *g*, all constructed, arranged, and operating substantially as and for the purpose set forth.

186,441. MACHINES FOR FORMING SPLIT KEYS. Walter Gibb, Allegheny, assignor to Metcalf, Paul & Co., Pittsburg, Pa. [Filed Sept. 23, 1876.]

Brief.—A mutilated gear, for intermittent feed, is arranged to be easily detached and replaced by another having a greater or less number of cogs, to feed a different length of blank. The same is combined with adjustable shears.



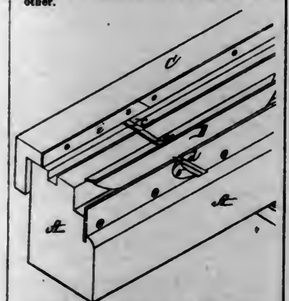
1. The combination of the detachable mutilated pinion and its short shaft with the driving-pinion and pinion of the feed-rolls, substantially as and for the purpose specified.

2. The combination of the adjustable shears with the feed-rolls, adapted, by mechanism substantially as specified, to feed different lengths of a rod or bar to said shears, substantially as and for the purpose specified.

3. The combination of the pivoted bending-jaws *c c'*, the vertically retractible mandrel I, the reciprocating slide J, the mandrel-lever pivoted on the slide I, and suitable cam mechanism for operating the same, substantially as and for the purpose specified.

186,442. MATCH-PLANES. F. A. Gladwin, Chelsea, Mass. [Filed Nov. 6, 1876.]

Brief.—By means of a pair of laterally-adjustable gages, in connection with a stock provided with a double-edge tonguing and a double-edge grooving iron, a single match-plane can be so adjusted as to adapt it for boards of various thicknesses. The gages are coupled, so that they can be moved simultaneously in the same direction, for the purpose of properly matching two boards of the same thickness. One of the gages is made adjustable independently of the other, for changing the relative position of one gage with respect to that of the other, for locating the tongue and groove so that the surfaces of the two boards to be matched will lie flush with each other.



1. The movable gages C D, in combination with a plane-stock, A, provided with tonguing and grooving irons *c d*, substantially as and for the purpose set forth.

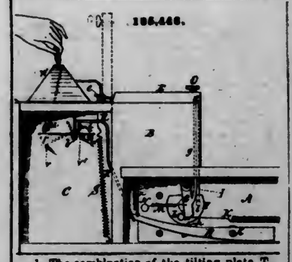
2. The gages C D, made adjustable independently of each other by the slotted bars *r r* and screws *t t*, in combination with the stock A, provided with tonguing and grooving irons, substantially as and for the purpose set forth.

186,443. TOY MONEY-BOXES. A. C. Gould, Brookline, Mass. [Filed Oct. 2, 1876.]

Brief.—The box is self-locking, and is opened by the descent of a coin dropped through a slot in the top.

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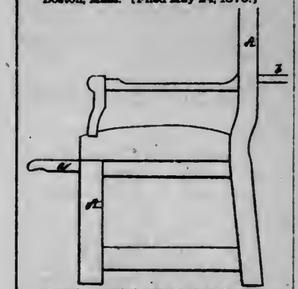
186,444.



1. The combination of the tilting plate T, provided with a bar, *t*, for supporting the end of the rod E, the arm H, provided with the projection *h*, and the notched segment F, whereby the automatic opening of the lid E is effected upon the dropping of a coin on the tilting plate T, substantially as set forth.

2. The combination of the segment F, in connection with the springs K M, the bar G, and catch-rod *g g'*, and the rod I, operated by the bolt O, whereby the resetting of the mechanism for opening the lid is effected by the act of fastening the lid, substantially as described.

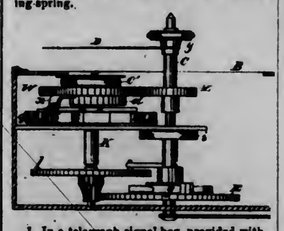
186,445. INVALID-CHAIRS. C. H. Hermann, Boston, Mass. [Filed May 24, 1876.]



A chair provided with the front handles *a*, sliding beneath the seat of the chair, and the rear handles *b*, constructed and operating, as shown, for the purpose described.

186,446. DISTRICT-TELEGRAPH BOXES. G. S. Ladd and S. D. Field, San Francisco, Cal. [Filed July 25, 1876.]

Brief.—Turning a pointer to the particular want sets a "dash-plate" at a certain position with relation to the "dots" of the signal. Signal then transmitted, in the ordinary manner, by turning a crank to wind up the driving-spring.

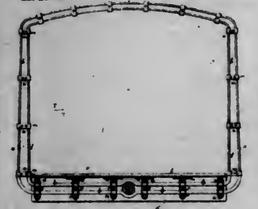


1. In a telegraph signal-box, provided with a dial, B, for indicating the various services to be signaled, the index-hand or pointer D, with its sleeve *y* and pinion *x* placed loosely upon the center post C, said pinion engaging with a setting device, which is retained in the set position by a ratchet-wheel, *d*, and pawl *b*, and which is returned to its original position by a spring, *c'*, when the transmission of the signal is completed, substantially as and for the purpose described.

2. The combination of an automatic and mechanical writing-wheel, *q*, provided with teeth, which indicate the number of the station, and with a series of regularly-spaced teeth, at least corresponding in number with the number of services indicated on the dial, and an adjustable dash-plate, X, with a train of gears for setting said wheel in motion, and a spring platinum point, *r*, and electric wire *s*, substantially as and for the purposes described.

3. The combination, with a series of circuit-closing teeth, of a circuit-closing plate, adjustable with relation to the teeth of the series, so as to change at pleasure the succession of dots and dashes in an electric signal.

186,447. METALLIC CAR-PLATFORMS. B. J. La Mothe, New York, N. Y. [Filed Oct. 11, 1875.]



1. The metallic car-platform made of longitudinal and transverse tubes or rods, secured together at the intersections by wrought-iron bands, in the manner specified.

2. The band *c*, for securing the tubes or rod *a* and *b*, made of a strip of sheet metal wound up and retained at its ends by the band *c'*, as and for the purposes set forth.

3. The plate *g* at the end of the car-platform, retained upon the longitudinal tubes *a* by such tubes being passed through the said plate and spread, in combination with the transverse tubes *b* of the platform, as set forth.

4. The combination, with the draft-bar of a car, having a movement limited by the stops 2 and 3, of the spring formed of a circular coil of wire or band metal, and the straps 4 and 5, that pass around the convolutions at opposite sides of the circle, and connect the same together and to the draft-bar and car respectively, substantially as set forth.

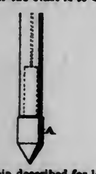
5. The bars or tubes *l*, in combination with the intersection-blocks *m*, of varying length, placed together so that the said bars or tubes a converge or diverge, as and for the purposes set forth.

6. The two bars or tubes *n*, passing through between the two bars or tubes *l*, in combination with the intersection-blocks *m*, that are made to receive and sustain such bars or tubes, in the manner and for the purposes set forth.

7. The metallic plate *o*, folded to form double longitudinal ribs S, in combination with the flooring-planks *t*, inserted between said ribs and secured, as set forth.

186,447. DEVICES FOR PLACING SUBMERGED BLASTS. Louis J. Le Conte, Oakland, Cal. [Filed Oct. 7, 1876.]

Brief.—The charge or blast is placed within the point; the driving-pipe is then connected to said point, and the latter driven into the earth, or wherever the blast is to be located.

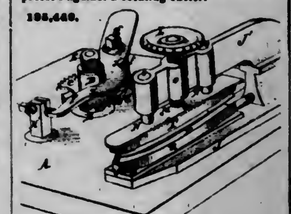


The device herein described for locating or placing blasts, the same consisting of the shoe or point A, in combination with the driving-pipe B, or its equivalent device, substantially as and for the purpose set forth.

186,448. MACHINES FOR SHAPING CIGAR-MOLD PLUNGERS. Frederick C. Miller, Cincinnati, Ohio. [Filed Mar. 6, 1876.]

Brief.—The material from which the plunger is to be formed is secured in a movable clamp, one jaw of which forms the guide that determines the shape of the plunger as it is pressed against a rotating cutter.

186,449.



1. The carriage composed, substantially, of the bed J, stock J', pattern T, and clamping-die S, substantially as set forth.

2. The movable pattern T and die S, arranged for holding and directing the block *a'* to the frizzing-cutter, substantially as set forth.

3. The carriage J J', pattern T, die S, in combination with the gage F and cutter C, substantially as set forth.

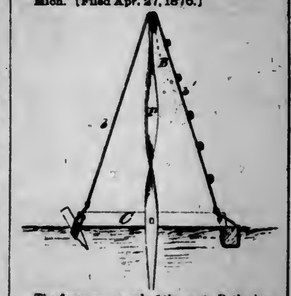
4. The combination, substantially as set forth, of the pattern T, die S, and intervening groove S'.

5. The pivoted circular gage F and adjusting-screw H, in combination with revolving cutter C, substantially as set forth.

6. The combination, substantially as specified, of the carriage J J', the adjustable stop P, the die S, and pattern T.

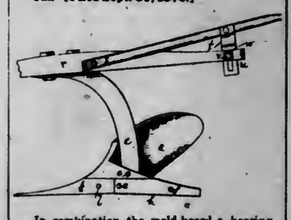
7. The combination, substantially as specified, of the pattern T, die S, and intervening groove S', with the gage F and cutters C C'.

186,449. FENCES. J. Morton, Thorneville, Mich. [Filed Apr. 27, 1876.]



The fence or inclosed of the posts P, the bar B, fastened to the tops of said posts, the cross-bar supports C, fastened to the bottom of said posts, the oblique braces *b b'*, and the longitudinal wires interlooped with, and attached to, the braces *b'*, substantially as described.

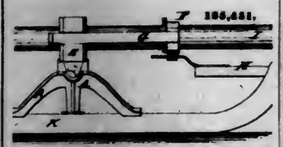
186,450. PLOWS. C. Myers, Marysville, Cal. [Filed Sept. 30, 1876.]



In combination, the mold-board *a*, bearing the apron and land-side base, having pin-hole *m*, the share *j*, bearing the return-flange *k*, having the stud-pin *l*, and the nut and bolt *n o*.

186,451. BOB-SLEDS. Alfred L. Needham and Edward E. Needham, Farmington, Minn. [Filed Oct. 30, 1876.]

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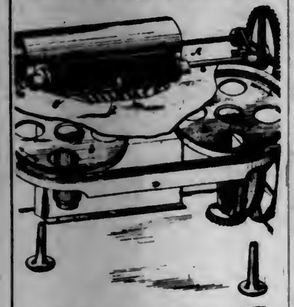
185,451.

1. The combination, with bounds G and runners K, of the pivoted brace H, having a slotted projection at the point or vertex, and the connection F having subjacent headed pin, as and for the purpose set forth.

2. The combination, with sled-runners, of the independently-pivoted supports A A, the pivoted brace H connected by sliding joint with bounds, and the reach I, arranged loosely in the connection F, as and for the purpose specified.

185,452. COTTON-GINS. Enoch Osgood, Boston, Mass. [Filed Nov. 17, 1876.]

Brief.—An endless metal band with a series of inclines upon its upper edge, revolving in the direction of said inclines, passing close to the periphery of a grooved flexible roller, which draws the fiber from the seeds, the band conveying the cotton along for this purpose, and finally severing the last adhering fibers, and permitting the descent of the seeds.



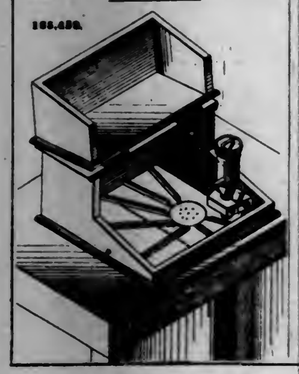
1. The described serrated endless band C, in combination with the elastic roller A and concave bar B, substantially as and for the purpose set forth.

2. The endless serrated band C, constructed as described, in combination with the elastic roller A, concave bar B, and guard-plate G, substantially as and for the purpose set forth.

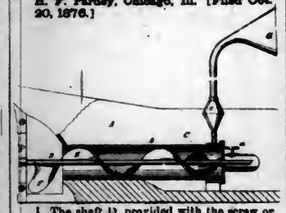
3. The metallic band C, having long serrations or incline planes upon its edge, the inclinations falling in the direction of its motion, as specified.

4. The grooved elastic roller A, in combination with the serrated band C, guard-plate G, and projections *d*, substantially as specified.

185,453.



185,454. MEANS FOR PROPELLING VESSELS. H. F. Furdey, Chicago, Ill. [Filed Oct. 20, 1876.]



1. The shaft D, provided with the screw or spiral wing E and the enlarged portion F, extending outside of the boat and chamber, substantially as and for the purpose set forth.

2. The chamber B and spiral wing E, in combination with the funnel G and tube *b*, leading into the chamber, substantially as and for the purpose set forth.

3. The funnel G and tube *b*, provided with air-chamber *c*, in combination with the chamber B and spiral wing E, substantially as and for the purpose set forth.

185,455. CHEESE-PRESSES. Danl. H. Roe, Madison, Ohio. [Filed Nov. 16, 1876.]

Brief.—The hoops are provided with cross-pieces, engaging with guide on the frame, to keep the hoops in line.



1. In a cheese-pressing mechanism, the combination of a frame and cheese-hoop, constructed to engage with each other, substantially as and for the purposes described.

2. The combination, with the frame A, provided with guide or guides A', of cheese-hoops C, provided with an attachment or attachments, C', constructed, substantially as described, to admit of hooking the cheese-hoop into the guides at any point, for the purposes set forth.

3. The bandaging-section D, provided with the slots *d*, substantially as and for the purposes described.

4. The cheese-hoop, provided with a solid bottom and with perforations *e* around the same, substantially as and for the purposes described.

5. The combination, with the hoop C, having a fixed bottom and perforations *e*, of the perforated and grooved removable inner plate or disk E', substantially as and for the purposes described.

6. The combination of carrier-block F and clevis or retainer H, substantially as and for the purposes described.

7. A slotted bandaging-hoop, the slots in which extend only along that portion which projects into the hoop, substantially as and for the purposes described.

185,456. MANUFACTURE OF ARTIFICIAL STONE. J. L. Rowland, New York, N. Y. [Filed Nov. 13, 1876.]

1. An artificial stone composed of quicklime, or hydrate of lime, and a hydraulic lime or hydraulic cement, compressed into molds and indurated, as set forth.

2. An artificial stone having a facing of quicklime and hydraulic lime or cement, or of either alone, said facing being united to the body of the block, as set forth.

3. As an improvement in the manufacture of artificial stone, the described process of mixing and tempering the materials—viz., by pulverizing the hydraulic cements, adding thereto the hydrate of lime, likewise finely divided, and then moistening the mixture, and finally compressing and indurating, as set forth.

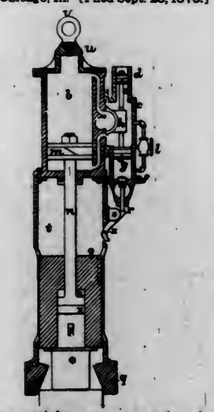
4. The described process of forming the facing of lime or cement by first placing a layer of the fine material in the mold, and then filling with the coarser to form the body of the block or other article, and then compressing, as and for the purposes set forth.

185,457. PAPER-FASTENERS. R. A. Shinn, Georgetown, D. C. [Filed Nov. 16, 1876.]



As an improved article of manufacture, a paper-fastener consisting of the pointed prong split vertically through its center to the neck *d*, so as to form two prongs, *b b*, arranged edgewise to each other, the neck *d* being turned under the enlarged head or thumb-piece *a*, and at right angles to the prongs *b b*, the whole being constructed of a single piece of material, and adapted for use substantially as shown and described.

185,458. STEAM PILE-DRIVERS. T. M. Skinner, Chicago, Ill. [Filed Sept. 26, 1876.]



1. The metal frame *t*, constructed as described, in combination with the cylinder *b* and valve *g h e*, when arranged and operated as shown and specified.

2. The conical base or ring *q* for supporting the pile-driver on the pile and protecting the same, in combination with the frame *t* and cylinder *b*, substantially as specified.

3. The valve *g h e* operated by steam-pressure, in combination with cylinders *d f* and pipe and cock *l* on the steam-chest *e*, for regulating the force of blow of the pile-driver, all constructed and arranged substantially as shown and specified.

4. The tubular frame *t*, connected with the cylinder *b* and ring *q*, constructed and arranged substantially as shown, and for the purpose set forth.

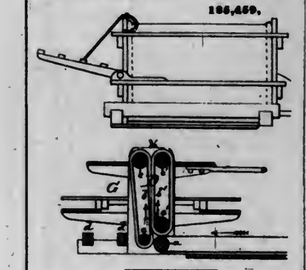
185,459. HAND-BINDERS. G. H. Spaulding, Rockford, Ill., assignor of one-half his right to Wm. A. Knowlton, same place. [Filed May 13, 1876.]

1. The combination, substantially as before set forth, of the collecting-conveyer and the duplex elevator, constructed with the delivery ends of its members at the same level.

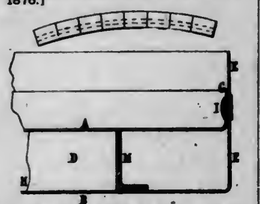
2. The combination, substantially as before set forth, of the duplex elevator, constructed with the delivery ends of its members at the same level, the binders' tables, arranged at opposite sides of the upper end of the duplex elevator, and the binders' supports, arranged at opposite sides of the duplex elevator, and below the level of the binders' tables.

3. The combination, substantially as before set forth, of the two binders' tables, the elevator, arranged between the two binders' tables, and the dropping sheaf-carrier, arranged at the rear of said two tables, where it is in a convenient position to receive the sheaves from both binders' tables.

185,460.



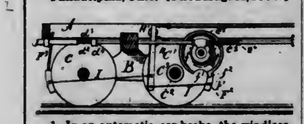
185,461. BOILER-COVERINGS. Francis B. Stevens, Hoboken, N. J. [Filed Jan. 21, 1876.]



1. The combination of a boiler-covering, made of hollow sections, formed by the flanges G bent on the inner metal plate A, and the flanges E bent on the outer metal plate B, and fastened together through said flanges.

2. The combination of a boiler-covering made of hollow sections, and stiffened by the ribs K and M, placed in the hollow space D between the metal plates A and B.

185,462. CAR-BRAKES. B. F. Stewart, New Philadelphia, Ohio. [Filed Aug. 31, 1876.]



1. In an automatic car-brake, the windlass *e*, provided with disks *f*, and having a recess, *f'* and stop *f²* arranged on its periphery, substantially as and for the purpose described.

2. The combination with the sliding draw-bars D, and the sliding draft-bars E, provided with a pair of windlasses *e e*, supported thereon by means of sliding bearings *e²*, and operating the brakes F by means of cords or chains, in the manner and for the purpose substantially as described.

3. The combination, with the sliding draw-bars D, sliding draft-rods E, and the axles of the car-wheels, of the windlass *e*, and disks *f f*, supported by suitable bearings on the draft-rods, substantially as set forth.

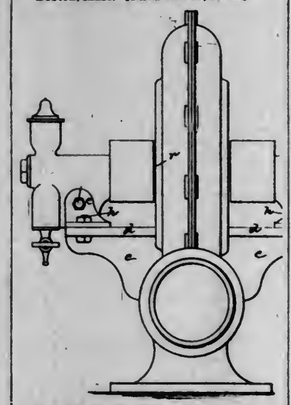
4. The combination, with the sliding draw-bar D, sliding draft-rods E, and the axles of the car-wheels, of the windlass *e*, brake-chain K, and levers H R, as and for the purposes specified.

5. The combination, with the sliding draw-bars D, sliding draft-rods E, the axles of the car-wheels, and the brake-chain and connecting-levers for actuating the brakes, of a pair of windlasses, *e e*, provided with the disks *f f*, having the recesses *f'* *f'* and projections *f²*, all arranged and adapted to automatically set the brakes either in a forward or reverse movement of the train, as set forth.

6. The arrangement of the sliding draw-bars D D, sliding draft-rods E E, windlasses *e e*, disks *f f*, having recesses *f'* and projections *f²*, chain K, double levers H H, connected with the brakes by suitable rods and bars, whereby when the speed of the engine, or of the rear or any intermediate car of a train, (whether moving forward or backward) is checked by having its brakes first set, the momentum or weight of the other cars throughout the entire train will cause their brakes to be automatically set, as set forth.

7. The combination of the sliding draft-rods E and cross-bar *d²*, having the central hole *d³*, with the sliding draw-bar D, shaft *d²*, and springs *d⁴* *d⁵*, substantially as set forth.

185,463. FAN-BLOWERS. B. F. Sturtevant, Boston, Mass. [Filed Oct. 16, 1876.]



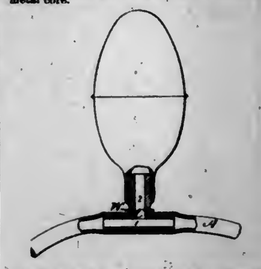
1. The blower-casing and shaft *r*, in combination with bearing-sustaining abutments cast on the casing, and adapted to support bearings for the ends of the shaft outside the pulleys, substantially as described.

2. In a fan-blower, the blower-shaft *r*, in combination with the journal-boxes composed of bearing portions and stands provided with joints to permit the bearing portions to be placed in line with the shaft, and to be then fixed positively to the stands, the latter adapted to be adjusted upon and bolted to the abutments, substantially as described.

3. The abutments *c d*, cast with the blower-casing, in combination with the stands for the bearing portions of the journal-boxes, and bolts to permit the horizontal and lateral adjustment thereof, and bolts to secure or fix the stands and bearing portions positively together, substantially as described.

185,464. STIRRUPS. William V. Wallace, Boston, Mass. [Filed June 15, 1876.]

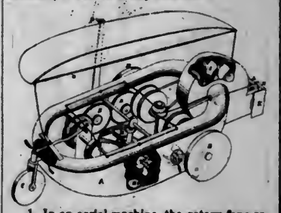
Brief.—A washer fits loosely over the upright part of the metal connection, between the bulb and the single rubber tube, and when forced down holds the rubber tightly between its lower concaved surface and an interior metal core.



In a syringe having a single elastic tube adapted to form an induction and eduction medium, and united midway to a bulb, the metal washer W, concaved upon its lower side to press firmly the rubber tube to the interior metal core 1, said washer fitting loosely over the tube 2, all arranged as and for the purpose described.

185,465. AERIAL MACHINES. J. B. Ward, San Francisco, Cal. [Filed Sept. 19, 1876.]

Brief.—A mechanism for aero-motors, combining the application of downwardly and horizontally acting currents of air with suitable guiding and directing planes, so that the machine may be elevated or depressed, driven forward, or turned in any direction.



1. In an aerial machine, the rotary fans or equivalent blast-engines, F F, constructed in pairs upon each side, and forcing the air downward to assist in raising the machine, in combination with the gyroscopic wheel H, to maintain the equilibrium, substantially as herein described.

2. The wheel H, fitted to rotate in a central case and act as a gyroscope, said wheel being also provided with vanes, which are closed or opened at will, so that the wheel will act as a screw to assist in raising the machine, substantially as herein described.

3. The device I, for producing a horizontal blast, in combination with the hinged fans, vanes, or gates K, with a suitable apparatus for operating them, so as to steer the machine, substantially as herein described.

4. The plane O, so mounted and operated, by ropes Q and mechanism R, that its angle may be changed to elevate and depress the machine, in combination with elevating and propelling devices, substantially as and for the purpose herein described.

185,466. DOOR-CHECKS. C. S. Whipple, New London, Conn. [Filed Oct. 30, 1876.]

Brief.—The essential novelty is that of a rotary catch, which engages with a slotted and notched arm, which arm works on a notched and recessed block, in such manner as to be readily swung out of the way when not in engagement with the catch, the construction allowing the door to be held open within certain limits, and preventing tampering with the fastening from the outside.

1. The combination of the rotary catch O, pivoted or to be applied to a door, as set forth, with the arm D, provided with the slot *f*, notches *h*, and mouth *g*, and hinged or to be hinged to the door-casing, and to operate with

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185,467. SHOES. Jos. Walden, Newark, N. J. [Filed May 4, 1876.]

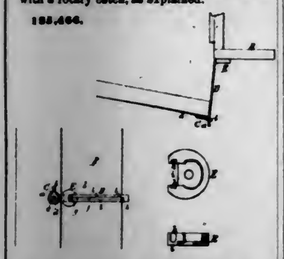


In a shoe, the combination with the low-quarter tie, upper A A O of the loosely-fitting gaiter B, arranged as shown and described, and for the purpose set forth.

such catch, substantially as and for the purpose as explained.

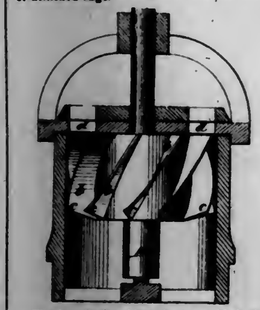
2. The notched and recessed block E, as described, in combination with the slotted arm D, bent and provided with the pivots *e e*, all being essentially as specified, and for use with a rotary catch, as explained.

185,466.



185,467. TURBINE WATER-WHEELS. Jas. Andrews and Wm. Brown, Thomaston, Ga. [Filed Aug. 7, 1876.]

Brief.—The hub of the wheel is attached to the shaft, and carries a number of spiral buckets, which are twisted in the form of a section of an auger-blade, and are cut at their lower ends at a slight angle, leaving the outer end of the lower edge higher than the inner or attached edge.



The described turbine-wheel, provided with buckets turned up and cut away at the escapement, substantially as and for the purpose specified.

185,468.

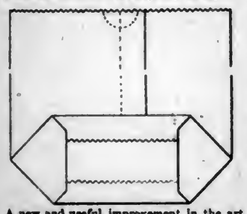


185,469. FLOWER-FRAMES. C. S. Archer, Hanover, Ind. [Filed Oct. 23, 1876.]

Brief.—Between the inner and outer pyramids moist sand is placed to receive the stems of flowers, which are passed through perforations in the outside pyramid.

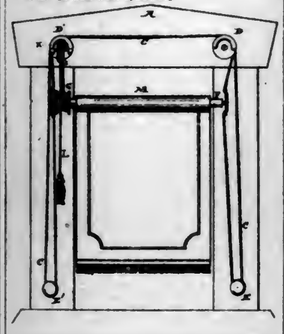
A floral center-piece for tables, consisting of two pyramidal frames, A B, the outer perforated, bolted to the inner and sustained on a base, C, as shown and described.

185,469. PAPER BAGS. Jas. Arkell, Canajoharie, N. Y. [Filed Aug. 14, 1876.]



A new and useful improvement in the art of making paper bags from a continuous tubular blank, by first cutting or notching one only of the two adjacent plies or thicknesses of the tubular blank, in the manner described, and subsequently severing the blank to make the bag with a notch or notches at the mouth, substantially as and for the purpose set forth.

185,470. CURTAIN-FIXTURES. T. Arndt, Mount Joy, assignor of one-half of his right to C. H. Nissley, Lancaster County, Pa. [Filed Oct. 4, 1876.]



1. As a new article of manufacture, the cord-supporter *D'*, having a double groove upon its upper surface, and provided with the ratchet-pulley I and tripper-pawl K, the whole being constructed and combined as and for the purpose specified.

2. In curtain-fixtures, having a rising and falling roller, M, the combination, with the cord-pulleys C, of the ratchet-pulley I, and tripping-pawl K, the pulley being mounted upon the hooked pendant of the cord-supporter *D'*, as and for the purpose set forth.

185,471. CULTIVATORS. J. C. Bannigan, Dunleith, Ill. [Filed June 17, 1876.]

Brief.—Draft-regulating devices, hoe-fastenings, and raising devices for the plows.

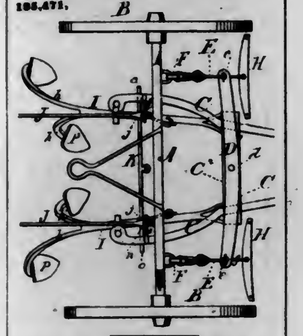
1. In a cultivator, the combination, with the vertically and horizontally vibrating shovel-beams I, of the tripping-levers J, the angular journal-rods *i*, depending from and rotating axially in the rear ends of the bars C C', and affording bearings for the said levers, and the pivoted rods *m*, substantially as specified.

2. The levers F, pivoted to vibrate vertically on the axle-tree, in combination with the angular rods E, the evener D', draft-rods *g*, secured to the lower end of the said lever, and sustained by the vertical arm of the angular rods E, substantially as specified.

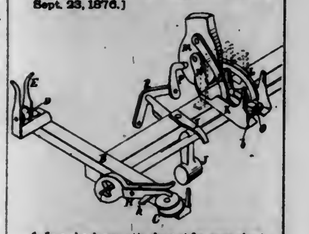
3. In combination, the shovel-point P, having metallic bridge *p* and set-screw *q*, with enlarged rounding head *r*, and the standard A, having a concave recess in its lower end, adapted to receive the said head, substantially as specified.

4. In combination, with the beams I and levers J, the rod *m*, connecting the same, and provided with an eye, *n*, upon its upper end, adapted to engage with a projecting spur, *l*, upon the ends of bars C C', substantially as specified.

185,471.



185,472. CHECK-ROW ATTACHMENTS FOR CORN-PLANTERS. Alden Barnes and Monroe Barnes, McLean County, Ill. [Filed Sept. 23, 1876.]



1. In a check-row attachment for corn-planters, the combination of the bar A, arms B B, beveled pulleys C C, friction-rollers D D, and guards E E, substantially as and for the purpose herein set forth.

2. The combination of the double cam-track K with guards *d d*, shaft G with arm O, having pins *b b*, balance-wheel M, pawls L L, rod F, and elbow-lever E, all substantially as and for the purposes herein set forth.

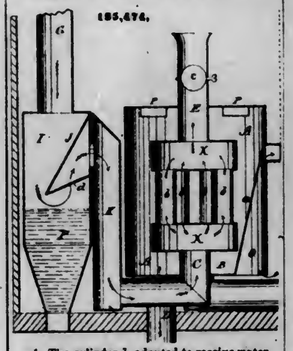
185,473. VENTILATING APPARATUS FOR CARS, DWELLINGS, &c. J. C. Bates, Cold Spring, N. Y. [Filed May 18, 1876.]



The herein-described baking-pan, having two bottoms, the upper bottom being a removable and flat piece of sheet metal, the central portion of the lower bottom being cut out nearly to the sides of the pan, its inner edge being turned round a wire on its under side to stiffen the bottom and raise it above the oven-bottom, the remaining part forming a margin, on which the upper removable bottom rests, the said pan constructed and made substantially as shown and described.

Brief.—An inlet-pipe for the air, leading from the top of the car, carries, from the motion of the car, a current of air down into a cylinder having a deflector and water-trap to eliminate the cinders, the air passing from thence through the externally-heated drum into the car. The said drum is constructed with end chambers connected by tubes, and is located in a case, into which hot air is admitted from a heater below the car, and from which it is drawn by a pipe terminating in the open air, a chamber being formed in the containing-case of the ventilator, which connects with a pipe leading to the top of the car, for impure air from the bottom of the car.

185,474.



1. The cylinder I, adapted to receive water, and having an outlet at the bottom with a deflector, J, and sieve *d*, in combination with pipes G and K, substantially as and for the purpose described.

2. The combination of cylinder I, having deflector J and sieve *d*, with the pipes G and K, the drum composed of chambers X X, connected by tubes *b*, and terminating in a pipe, E, and the containing-case A, having a circulation of hot air from a heater, substantially as and for the purpose described.

3. The combination, with the fresh-air ventilating devices, of the outer case A, having a partition, *c*, forming a chamber-opening at the bottom in the car, and through a pipe upon the outside of the car, substantially as and for the purpose described.

4. The combination, with the car, of the registers N and the hoods M, having flanged edges, with a valve, *f*, pivoted in the middle, so as to be reversed, substantially as and for the purpose described.

185,475. SNAP-HOOKS. A. H. Bell, Belle Plaine, Iowa. [Filed Oct. 26, 1876.]



The improved snap-hook, having the pivoted hook E, fixed hook D, base-plate C, and stop-pin G, all combined and constructed for the purposes set forth.

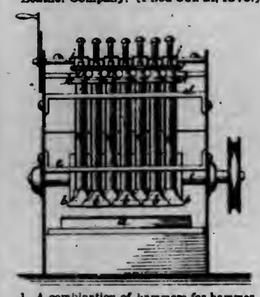
185,476. CHROMATROPE TOYS. P. Beltair, Jersey City, N. J. [Filed Nov. 21, 1876.]



1. As a new article of manufacture, a toy composed of a disk, having a cord attached to it, provided with two loose ends, adapted to spin the disk in a horizontal position, in the manner and for the purpose specified.

2. The combination, with a disk, provided with a device to give it a continuous rotary motion alternating in opposite directions, of a loose disk, having a series of two or more contrasting colors, arranged in curves radiating from its center, or nearly so, and gradually approaching its periphery, in the manner and for the purpose set forth.

185,477. MACHINES FOR HAMMERING LEATHER. C. D. Bigelow, New York, N. Y., assignor to the Bay State Shoe and Leather Company. [Filed Oct. 21, 1876.]



1. A combination of hammers for hammering leather as it is moved upon and over the anvil, in which said hammers are operated in groups, to have a simultaneous and gaged descent upon the leather, as and for purpose herein set forth.

2. A combination of hammers, arranged to break joints, one series operating in front of the other, as the stock is fed over the anvil.

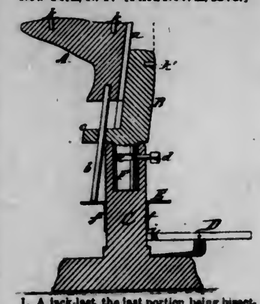
3. A combination of hammers, arranged to break joints, as described, and having slightly-curved faces, for the purpose stated.

4. The hammer-stems *e*, provided with fins *f*, in combination with the fixed slotted plate *g*, and the lifting-cam A, whereby the fins serve as means to receive the action of the lifter, and also hold the hammers from turning, as herein set forth.

5. The combination of hammers, arranged to operate as described, with the guard-cushions, the thumb-nuts, and the springs, substantially as and for the purpose herein set forth.

6. The combination of hammers, arranged to operate as described, with the springs, tension-screws, and the turning-bar *m*, whereby the blow of each hammer is regulated by the screws, or all can be regulated at once by the turning-bar, for the purpose stated.

185,478. JACK-LASTS. Chas. D. Bigelow, New York, N. Y. [Filed Nov. 11, 1876.]



1. A jack-last, the last portion being bisected transversely, one section being operated and controlled in constant connection with the other, to interrupt and restore the continuity of the last's surface by the direct agency of a treadle or lever and intermediate connections, substantially as described.

2. In a jack-last having a bisected last portion, the inclined guide-device *b*, in combination with the movable section A, the bearing *c*, the annulus E, and the treadle or lever connection D, as described.

3. In a jack-last having a bisected last portion, the movable or acting section A, in combination with the passive section B, provided with guide-bearing *c*, and the operating-device *b*, substantially as described.

4. In combination with a jack-last of two sections, bisected obliquely, as set forth, the annulus or universal lifting-disk E, adapted to operate with a guide-pin, *b*, or other suitable means to extend the movable section, for the purpose stated.

5. The combination, with a jack-last of two sections, bisected obliquely, as set forth, of the annulus or universal lifting-disk E and the intermediate lifting device *b* of a treadle-connection, for the purpose stated.

185,479. TOE-PROTECTORS FOR BOOTS AND SHOES. C. D. Bigelow, New York, N. Y., assignor of one-third his right to the Bay State Shoe and Leather Company. [Filed Oct. 16, 1876.]

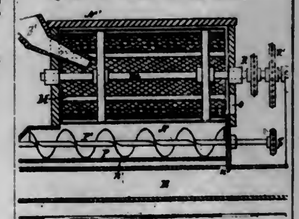


1. A toe-protector made from wire, of suitable size and form, and adapted to be secured in position around the toe of a boot or shoe, substantially as shown, for the purpose described.

2. A toe-protector made from a cord of wire bent to conform to the outline of the toe of a boot or shoe, having its ends flattened and bent inward at a suitable angle, so that they may be permanently secured to the sole, with its body portion resting within the junction-groove of the sole and upper around the toe, all substantially as shown, for the purpose specified.

3. A wire toe-protector, bent to conform to the outline of the toe of a boot or shoe, provided with perforations adapting it to be secured to the sole around the toe, all substantially as shown and described.

185,480. DRYING APPARATUS. J. Bonfield, Chicago, Ill. [Filed Oct. 23, 1876.]



1. In a drying apparatus for treating fertilizing material, the combination, with the drying-cylinder F, fan C, and pipes E, H, and O', of the furnace A, provided with the fire-box *d*, chambers *e* and *i*, and passages *e'*, and *d'*, and *f f'*, substantially as and for the purpose specified.

2. The combination, with the conducting-pipe E and receiving-hopper N, communicating with the conducting-pipe through the opening *n*, of the worm F', substantially as and for the purpose specified.

3. The combination, with the conducting-pipe E, hopper N, and worm F', of the revolving-screen M, substantially as and for the purpose specified.

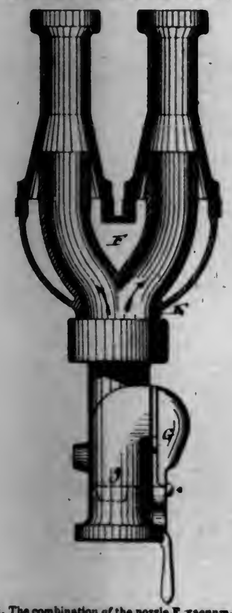
4. The combination, with the air-heating furnace A, fan C, pipe O', conducting-pipe E, and rotary drying-cylinder F, of the stationary hot-air pipe H, extending centrally through

the drying-cylinder, and perforated to admit of the escape laterally of the jets of heated air, substantially as and for the purpose specified.

5. In a drying apparatus for treating fertilizing material, the combination, with the rotary drying-cylinder F, stationary chamber G', and hopper H', of the feed-rollers J J, substantially as and for the purpose specified.

6. The combination, with the conducting-pipe E and receiving-hopper N, of the concaved jacket F, forming the air space n', substantially as and for the purpose specified.

185,481. VACUUM-BRAKES. C. A. Bouton, New York, N. Y. [Filed Oct. 10, 1876.]





1. The combination of the nozzle F, vacuum-pipe E, and of the pipe D, which terminates in the branches *g* and *h*, and is provided with three ports, *i*, *n*, and *n*, with the cap-valve G, which is pivoted to said pipe E, substantially as herein shown and described.

2. In combination with the vacuum-pipe E, containing a nozzle, F, the branched pipe D, and vacuum-cylinder A, having two ports, *s* and *b*, all arranged to operate substantially as herein shown and described.

185,482. SCRAP-BOOKS. Frank Bowman, New York, N. Y. [Filed Oct. 18, 1876.]

1. A scrap-book composed of ungummed leaves, and provided with stripe or sheets of paper gummed on both sides, and attached in the book, so that the latter can be cut or torn off in strips, and the pictures or scrap-printing attached to the ungummed leaves by means of said strips, substantially for the purposes herein set forth.

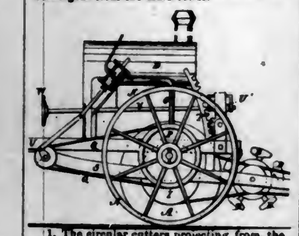
2. A leaf of paper gummed on both sides, and perforated so as to be torn off in strips of any desired length for scrap-fasteners, as herein set forth.

185,483. COMPOSITIONS FOR COATING THE INSIDES OF BARRELS, &c. D. F. Bowker, Fitzwilliam, assignor to Pargetized Can Company, Keene, N. H. [Filed Dec. 11, 1876.]

The composition herein described, consisting of glue, water, glycerine, nitric acid, and chloride of sodium, substantially as set forth.

185,484. STEAM-PLOWS. George F. Brott, New Orleans, La. [Filed Nov. 15, 1876.]

Brief.—The general form of the frame is rectangular, with a pilot-wheel in front, and two bearing-wheels in or near the rear. The steam-generator and engine are mounted on this frame. A supplemental frame is hinged beneath near the forward end, leaving the rear end free to rise and fall, and the rise and fall is governed by a rack and pinion under the direction of the engineer. This supplemental frame carries, first, a large roller, which occupies most of the space between the wheels. This roller is provided with a series of disks or circular cutters or colters, at the distance of the width of a furrow from each other. Second, behind this is a shaft carrying a series of rotating shares, the point of each following in the cut made by the cutters; and, lastly, rotating teeth, having a rapid motion, which, with the rotating plows, are driven by chain-gear from the main roller.



1. The circular cutters projecting from the periphery of the drum which is geared or connected with the driving-shaft, the adjustable frame S, the transporting-wheels, and main frame A, said parts being combined, as shown and described, to operate as and for the purpose specified.

2. The rotary diggers arranged in relation to the circular cutters, as shown and described, so as to begin their cut in the slit made by said cutters, as specified.

3. The combination of the adjustable frame S, hinged at the front end, and carrying the rotary cutters A, diggers B, and blades C, and the rack-bars and worm-gear combined, as shown and described, for the purpose specified.

185,485. SCREW-PROPELLERS. J. Burson, New York, N. Y. [Filed Aug. 31, 1876.]

A screw-propeller, constructed with two or more blades of different radiuses and different areas relatively with each other, and with openings through them, substantially as and for the purposes herein set forth.

185,486. SCREW-DRIVERS. Chas. H. Bush, Fall River, Mass. [Filed Oct. 16, 1876.]

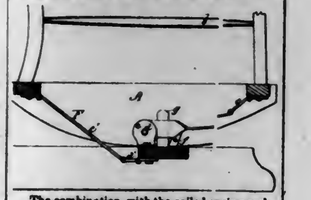
Brief.—The handle is provided with a metallic receptacle for the reception of tallow, soap, or grease, in which the point of the screw is to be introduced before being turned into hard wood.



As a new or improved article of manufacture, a screw-driver handle provided with a lubricant-reservoir, constructed as herein shown and described, and for the purpose specified.

185,487. ROCKING-CHAIRS. W. H. Busse, Chillicothe, Ohio. [Filed June 6, 1876.]

Brief.—A spiral spring is wound up within a drum attached to the stationary base, and the squared end of the shaft on which the spring winds is placed in a correspondingly-shaped eye in the end of a metal jointed rod hinged to the front of the chair-frame.



The combination, with the coiled spring and its shaft attached to the platform, of the bar C, hinged to the chair-seat and connected with the shaft, substantially as shown and described, whereby it is adapted to be detached to permit adjustment of the tension of the spring B, as specified.

185,488. HAY-GATHERERS. Harlin Butner and James J. Ray, Clarence, Mo. [Filed Sept. 30, 1876.]



The combination, with cross bar or head A, provided with teeth B, of the adjustable caster-wheel F, and the hinged draw-bars D, provided with shoulders d^3 and notches d^4, and adjustable caster-wheels G H, substantially as and for the purpose set forth.

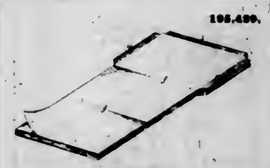
185,489. POSTAL PAPER TABLETS. Albert G. Busby, Philadelphia, Pa. [Filed Nov. 30, 1876.]

A tablet composed of a number of creased, indented, or punctured sheets, with gummed lips, the whole being so compressed and so retained in a compact mass that the creases will not interfere with the writing, all as set forth.

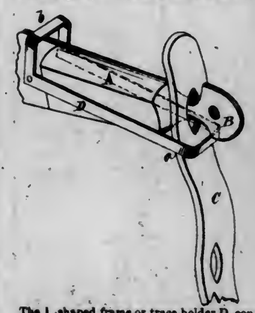


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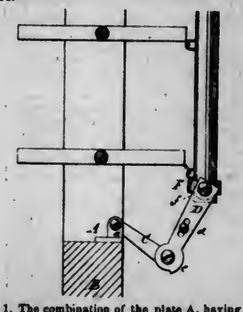
185,491. TRACE-HOLDERS. C. F. Calvert, Philadelphia, Pa. [Filed Nov. 28, 1876.]



The L-shaped frame or trace-holder D, consisting of the long arm *a* and small arm *b*, pivoted at the angle, and in combination with the single-tree A, cockeye B, and trace C, substantially as and for the purposes herein set forth.

185,492. BLIND-SLAT ADJUSTERS. H. H. Cammann, New York, N. Y. [Filed Dec. 4, 1876.]

Brief.—Two arms or levers, pivoted together, are provided at the toggle-joint with a notched segment and a spring-detent, one arm being secured by a suitable fastening-plate to the lower rail, and the other attached to the operating-rod of the blind, in such manner that the detent holds the toggle, and with it the blind-slats, at the desired angle of adjustment. There is also an adjustable band or clip, adapted to fit on, and for ready attachment to, different sizes of the operating-rod.

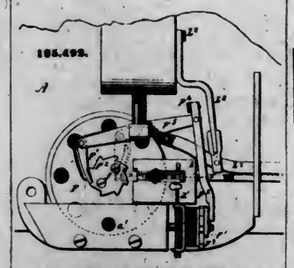


1. The combination of the plate A, having ears *a*, arm C, having the notched segment *b*, the hollow arm D, bolt *f*, and spring-detent *c*, substantially as herein shown and described.

2. The adjustable band F, provided with the slits *j* and lip *i*, in combination with the arms C and D, and bolt *f*, substantially as shown and described.

185,493. MACHINES FOR MAKING BUTTON-BACKS. F. C Cannon, New Haven, Conn. [Filed Mar. 27, 1876.]

Brief.—The metal disk is cut, the eye-hole punched, and the disk carried through the die *c'* into the carrier beneath by the same punch. The wire is cut, bent, and carried over the disk. The insertion of the bent wire, and the shaping of the eye under the disk, complete the operation.

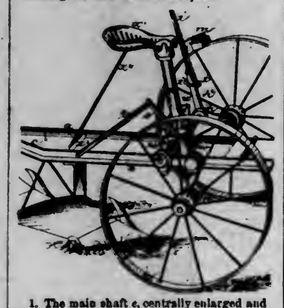


1. The method herein described for inserting and securing button-eyes to the backs, comprehending doubling the wire, inserting it from the inside of the disk outward through a perforation in the disk, then opening the doubled wire outside the button to form the eye, and setting the ends upon the inside, substantially as specified.

2. In a machine for making button-backs, the combination of the following elements: A disk-forming punch, *a*; its die *a'*; the intermittently-moving carrier F; the doubler G, partially forming the eye; the slide *h*, for transferring the partially-formed eye; the follower L; and the eye-former *m*, for setting the eye in the disk, substantially as described.

185,494. GANG-PLOWS. Luke Chapman, Collinsville, Conn., assignor of one-half of his right to the Collins Company, same place. [Filed Apr. 14, 1876.]

Brief.—Shaft or axle with enlarged center. The arrangement of the double crank-arms, the jointed lever, and the wedging-brake. Seat-standard resting on a cross-bar with the axle passed through it. Movement of the axle limited by a disk with holes and adjustable pins. Lever and brake clamp the wheel, causing the team to raise the plows.



1. The main shaft *c*, centrally enlarged and shouldered, as described, combined with the plow-frame through the medium of the journal-boxes *f f* and the U-bolts *g*, substantially in the manner and for the purpose set forth.

2. The wedging brake or clamp *m*, in combination with the jointed lever *t*, the arms or levers h h^1, axle *c*, and wheel *h*, substantially as and for the purpose described.

3. The combination of the arms *p* and h^1, the lever *s*, the rod *t*, and the frame of the machine, substantially in the manner and for the purpose set forth.

4. The combination of the arm *h*, the shaft *c*, the perforated disk *u*, pins *v*, and side bar *s*, substantially in the manner and for the purpose set forth.

5. The seat-standard *x*, in combination with the cross-piece *w*, side pieces *a b*, axle *c*, and brace x^2, arranged as shown, whereby the said standard and axle are mutually supporting, substantially as specified.

185,495. HOSE-COUPLINGS. C. M. Chase, Boston, assignor to himself and A. C. Gould, Brookline, Mass. [Filed Oct. 12, 1876.]

Brief.—The catches and recesses which fasten the two parts together are upon the inside, and are thereby protected.

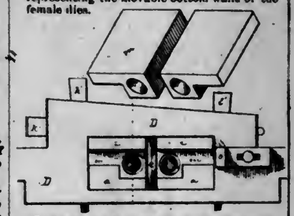


185,496.

In combination with the two parts A B of a hose-coupling, the projecting bars or catches C C and the inclined recesses *a a*, arranged on the inner side of the coupling, substantially as and for the purpose set forth.

185,497. MACHINES FOR MAKING TAIL-NUTS. W. Charles, Chartiers Township, Allegheny County, and M. McKain, Pittsburg, Pa. [Filed Oct. 30, 1876.]

Brief.—The dies shown are designed to cut from a bar, and to punch two L-shaped nuts at a time—C in the drawings representing the plunger with the male dies *n*, D representing the die-box and female dies, and *m* representing the movable bottom walls of the female dies.



In a nut-machine, one or more sets of winged dies and matrices, substantially of the shape and construction, and for the purpose, specified.

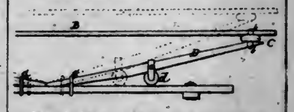
185,498. VALVE-SEATS. J. F. Cook, Rockville Centre, N. Y. [Filed Oct. 7, 1876.]



1. The combination of the yielding valve-seat B, plate C, packing-ring *b*, and the valve A, substantially as and for the purpose herein shown and described.

2. The combination of the yielding part B with the ordinary valve-seat of a pump, the same being grooved to receive the part B, substantially as set forth.

185,499. SPRING BED-BOTTOMS. Micajah Collins and Benj. A. Lillie, Portland, Oreg. [Filed Jan. 2, 1875.]



In a bed-bottom, the reversible tapering bars C, provided with series of pins *b*, in combination with the reversible perforated slats B, substantially as described.

185,500. MACHINES FOR MAKING DROP-CANDY. Joseph Combet, Paris, France. [Filed Oct. 30, 1876.]

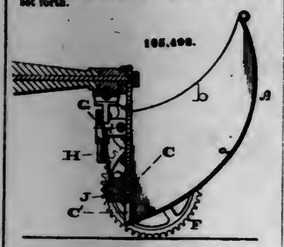
Brief.—The candy compound is placed in the curve-bottomed pan, from the front of which it exudes through openings in the dropping-bar, and is cut into drops by the reciprocating cutting-bar as the pan is traversed over the table upon its cog-wheels. The cog-wheels mesh with pinions secured to a shaft carrying tappets, which raise the cutter-bar, it being depressed by a spring. The dropping-bar is removable, so that bars with different-sized openings may be used.

1. In a drop-candy apparatus, the confectioner's pan A, in combination with gear-wheels F, whereby the apparatus will be ran on, and simultaneously operated by, said wheels, substantially as and for the purpose set forth.

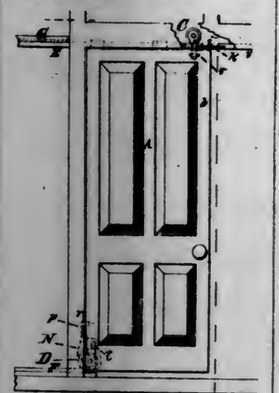
2. The pan A and cut-off bar J, in combination with the bar O, formed with openings O', and made removable, substantially as and for the purpose set forth.

3. The cut-off bar J, in combination with the suspension and pressure springs H, substantially as and for the purpose set forth.

4. The pan A, mounted on the axis of the wheels F, and formed with a curved bottom, a, the curvature terminating at the perforated bar O', substantially as and for the purpose set forth.



185,499. SLIDING DOORS. L. Conroy, New York, N. Y., assignor of one-half his right to P. H. McManus, same place. [Filed Oct. 19, 1876.]



1. The combination, with a sliding door, of rollers which partly suspend it and partly support it, said rollers being placed only at or near two diagonally-opposite upper and lower corners, substantially as and for the purpose specified.

2. The combination, with a sliding door having the recess u, of the roller-hanger l, placed in said recess, and pivoted to the door, a roller or rollers, C, pivoted to said hanger, and the ways E E', substantially as and for the purpose described.

3. The removable cradle, consisting of the ways E E', attached to the upper part of the door-casing, and the cross-pieces G G, uniting the ends of said ways, substantially as and for the purpose set forth.

4. The combination, with a sliding door, of the ways E E', having the recesses i i and the covering-plate k, for hanging and unhanging the door, substantially as described.

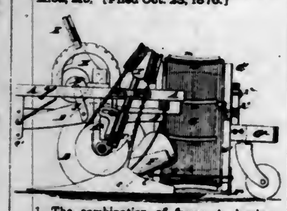
5. The combination, with the hanger l, inserted in the door, and having a roller or rollers, C, running on ways E E', of the reënforcing-plate m, placed behind said hanger, and attached to the top of the door, and the covering and stop-plate k for stopping the door, substantially as set forth.

6. The combination of the guide-pins h h and the ways E E' with a sliding door suspended and supported by rollers arranged in diagonal relation with each other, substantially as and for the purpose set forth.

7. The bottom rail or rails F F', constructed to stop short of the opening closed by a door or doors, suspended and supported by rollers arranged in diagonal relation with each other, substantially as and for the purpose described.

3. The combination of the roller-carrier N, having the roller D pivoted thereto, and having the hooked neck p and the vertically-slotted lug o, with the slotted supporting-plate r and the pin t, substantially as and for the purpose set forth.

185,500. GRADING-MACHINES. I. Coppock, Alba, Mo. [Filed Oct. 23, 1876.]

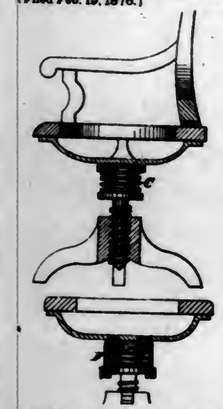


1. The combination of frame A, having slotted standard A^1 and rigid flanged plate b, with a swinging cam, c, of axle, and operating crank-rod and treadle mechanism, to adjust frame to the slope of the ground, substantially as described.

2. The combination of the adjustable main frame, the scoop-shaped plow, and the inclined endless carrier, all arranged substantially as and for the purpose specified.

3. The combination, with an adjustable socket, having interior cushioning-spring of frame A, of a sliding pulley-staff, with chain-stretching double pulley at upper end, substantially as specified.

185,501. TILTING CHAIRS. M. D. Connolly, Philadelphia, Pa., assignor of one-half his right to T. A. Connolly, Washington, D. C. [Filed Feb. 19, 1876.]



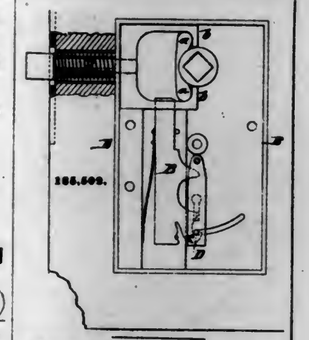
1. A tilting-chair having its seat and base connected through the medium of a spiral spring, which constitutes the only intermediate connection and support between the seat parts and base parts, said spring being arranged with its longitudinal axis in a vertical line, so as to permit the seat to yield and tilt, substantially as shown and described.

2. In combination with a spiral spring, C, a stop, F, for limiting the opening or expansion of the spring, so as to prevent the chair-seat from tilting in any undesirable direction, substantially as described.

3. In combination with a spiral spring, C, arranged beneath the seat of a chair, with its longitudinal axis vertical, a rod or rods, F, and adjusting-nuts for adjusting the tension of said spring.

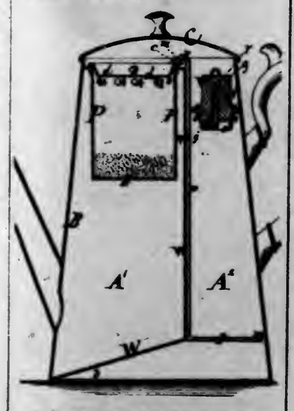
185,502. KEY-HOLE GUARDS FOR LOCKS. Calvin H. Covell, Stockton, Cal. [Filed Sept. 2, 1876.]

The combination of the locking-bolt B, having hook-shaped extension c, with the operating-pin D of key-hole guard-plate, to retain the guard-plate in position to close the key hole, substantially as specified.



185,503. COFFEE-POTS. John Cromwell, Cranford, N. J. [Filed Feb. 9, 1876.]

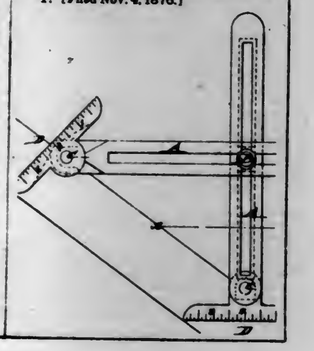
Brief.—The valve regulates the steam-pressure, and the flow of water through the pipe leading from the boiling-chamber is less liable to undue acceleration.



1. The combination of the boiling-chamber A^1 and the receiving-chamber A^1 with the valve-seat s, the loaded valve V, and the pipe p, substantially as and for the purpose described.

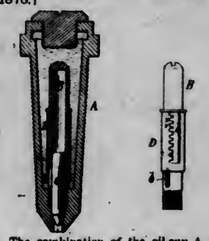
2. The combination of the tubular valve-guide and vent g, opening into the boiling-chamber A^1, the valve-seat s, and the valve V, substantially as and for the purpose specified.

185,504. BEVELS. A. Devoe, Oneonta, N. Y. [Filed Nov. 4, 1876.]



An extension brace-rule, consisting of sliding and slotted main pieces A, connected and guided by clamp-screw B, and provided with adjustable graduated rules D, secured by clamping-screws C at the ends, substantially as and for the purpose set forth.

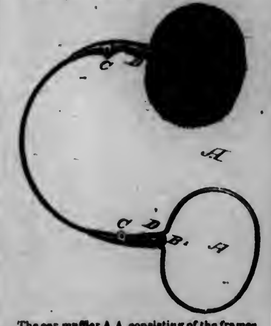
185,505. AUTOMATIC OIL-CUPS. Simon P. Donkel, Hastings, Mich. [Filed Nov. 16, 1876.]



1. The combination of the oil-cup A with passage a, the cylinder B, with slots b b, and the plunger C, all constructed substantially as and for the purposes herein set forth.

2. The sleeve D, provided with the slot h and notches e, in combination with the cylinder B, having slots b b, and pin i, substantially as and for the purposes herein set forth.

185,506. EAR-MUFFLERS. Butler Edgar, Bopy, Pa. [Filed Nov. 4, 1876.]



The ear-muffler A A, consisting of the frames A' A', provided with hinges C C and swivels D D, combined and arranged substantially as and for the purpose set forth.

185,507. ELECTRO-HARMONIC MULTIPLEX TELEGRAPH. T. A. Edison, Menlo Park, N. J., assignor to Western Union Telegraph Company. [Filed Aug. 31, 1876.]

Brief.—Circuit is rapidly thrown through each instrument, *certain*, in corresponding sets of transmitters and receivers at the respective stations, so that a transmitter and receiver are simultaneously and momentarily connected to line, the remainder being then disconnected, and another set connected, through the agency of series of isochronously-vibrating reeds.

1. The method, substantially as herein described, of subdividing a single telegraphic circuit into two or more independent signaling-circuits by means of vibrating tuning-forks or reeds.

2. The method, substantially as herein described, of subdividing a single telegraphic circuit into two or more independent signaling-circuits by means of vibrating tuning forks or reeds kept in continuous vibration by electro-magnetism.

3. The method, substantially as herein described, of subdividing a single telegraphic circuit into four or more independent signaling-circuits by means of a primary or fundamental fork or reed, and one or more auxiliary forks or reeds, which latter are in respect to the number of their vibrations submultiples of the primary fork or reed.

4. The method, substantially as herein described, of subdividing a single telegraphic circuit into a number of separate signaling-circuits by means of one or more sets of electro-magnetic tuning forks or reeds, each set being composed of one or more forks or reeds, when these are controlled and made to vibrate isochronously by means of a controlling electro-magnetic tuning fork or reed, placed in another and independent circuit.

5. The method, substantially as herein described, of connecting a telegraph-line to earth immediately after it is detached from one set of signaling-instruments, and of disconnecting it from the same before it is placed in connection with another set of instruments.

6. A telegraphic circuit, subdivided at each station into an equal number of independent branches, in combination with two or more isochronous tuning forks or reeds, when the latter are so arranged as to place the main line alternately or successively in simultaneous connection with each pair of branches, substantially as set forth.

7. A telegraphic circuit subdivided at each station into an equal number of independent branches, in combination with two or more isochronous tuning forks or reeds, and two or more sets of electro-magnets for keeping the said forks or reeds in continuous vibration, when the latter are so arranged as to place the main line alternately or successively in simultaneous connection with each pair of branches, substantially as set forth.

8. A telegraphic circuit subdivided at each station into four or more branches or signaling-circuits, in combination with a primary tuning fork or reed, kept in continuous vibration by the action of the electro-magnets, and one or more similarly-actuated auxiliary forks or reeds, which in respect to the number of their vibrations are submultiples of the primary fork or reed, substantially as set forth.

9. A telegraphic circuit, subdivided at each station into two or more branches or signaling-circuits, by means of vibrating tuning forks or reeds, in combination with another and independent circuit, in which are placed other electro-magnetic tuning forks or reeds, so arranged as to control and render isochronous the vibrations of the tuning forks or reeds at the different stations upon the first-named circuit.

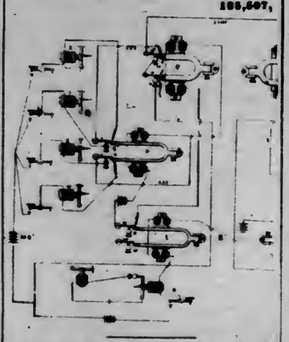
10. The vibrating tuning fork or reed K, in combination with the contact-springs 13 15, contact-points c and d, and contact-screws 14 16, when so arranged that the line will be momentarily connected directly to the earth while the fork is passing its center of oscillation in either direction, substantially as set forth.

11. The combination of the transfer-reeds and their signaling-instruments, local circuit, and batteries with the main-line reed or reeds, substantially as and for the purpose set forth.

12. The tuning forks or reeds A and L, with their contact-springs, contact-points, and main battery, in combination with the signaling apparatus B and S, substantially as described, and for the purposes set forth.

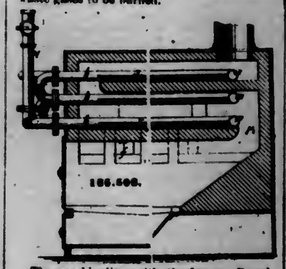
13. The combination, in one and the same local circuit, of several set of transfer-forks at each of the different stations, substantially as and for the purposes set forth.

185,507.



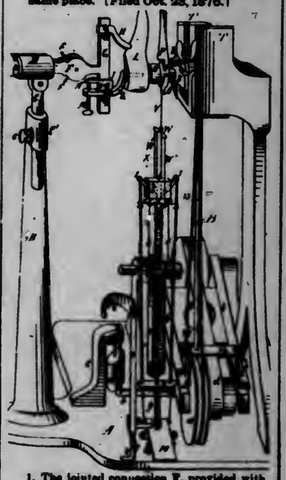
185,508. GAS APPARATUS. J. H. Nichols, Brooklyn, N. Y. [Filed Sept. 22, 1876.]

Brief.—Oil and water gas is made alternately in each set of retorts, both mingling in and being carried off by a common stand-pipe. Both the oil and water are admitted into the upper and cooler retort-coils, and are passed into the lower and hottest coils of the retort, where the fixed gas is drawn off. A short pipe having a stop-cock leads from each set of retorts into the furnace, for conducting waste gases to be burned.



The combination, with the furnace P and oven G, having the lateral side passages f, rear passages R, and the partitions e D, of the steam-retorts A and oil-retorts B, constructed in several parallel members, b, which are arranged in one and the same horizontal plane, and connected by the plates d, the whole being cast in one piece, substantially as specified.

185,509. HEEL-BURNISHING MACHINES. M. V. B. Ethridge, Lynn, Mass., assignor to himself, B. F. Larrabee, and P. P. Sherry, same place. [Filed Oct. 28, 1876.]



1. The jointed connection F, provided with the adjustable pins f, f, in combination with the supporting-bar G, substantially as and for the purpose set forth.

2. The combination, with the supporting-bar G, of the adjustable bearing K I M and the brace H, substantially as set forth.

3. The combination, with the tool-supporting shaft and its handle, of the rest R, all arranged substantially as and for the purpose set forth.

4. The removable and adjustable bearing-guide T U with the shaft-carrier of the head-stock, as and for the purpose specified.

5. The clamp or levers I I, operating on the rod X by means of the connecting-rods S S and the treadle 10, for the purpose of drawing down and holding the burnishing-tool, substantially as specified.

6. The upright bar or lever 9, for operating the treadle 10 by the pressure of the leg or body of the operator, substantially as set forth.

185,510. LOCKS FOR MACHINE-GUNS. De Witt C. Farrington, Lowell, Mass. [Filed June 21, 1876.]



186,510.

1. The means herein described of igniting cartridges by positive mechanical action, consisting of a firing-pin or other suitable equivalent device, and an automatically-moving cam or incline, substantially as set forth.

2. The combination of the firing-pin, the plunger, and the cam D, the parts being constructed and adapted to each other, as and for the purposes set forth

186,511. MILK-COOLERS. N. D. Ferguson, Carthage, N. Y. [Filed Oct. 11, 1876.]

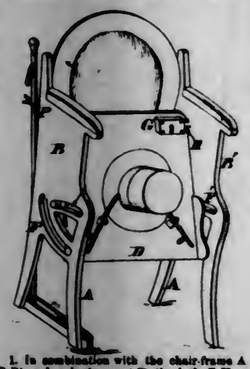
Brief.—The milk receives a preliminary cooling in the cooler D, the interior cylinder d being filled with ice. Cold air passes down from the cooler C, through the pipes immersed in the milk, and thence into the open air.



1. The combination of the cooler D, provided with interior cylinder *d*, vat B, and frame A, substantially in the manner and for the purposes set forth.

2. The combination of the frame A, vat B, ice-cooler C, tube *a*, cooler D, provided with interior cylinder *d*, arranged, constructed, and operating substantially in the manner and for the purposes set forth

186,512. OPERA-CHAIRS. George Floyd, Cincinnati, Ohio. [Filed Mar. 4, 1876.]

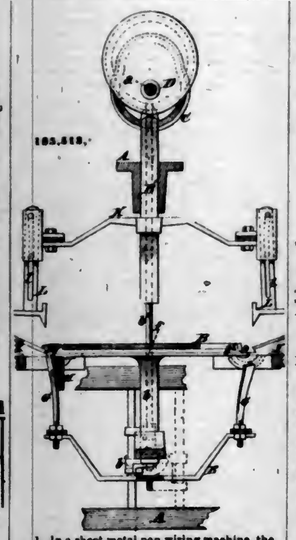


1. In combination with the chair-frame A B B', and swinging seat D, the lock G H or its equivalent device, for maintaining said seat in an upturned position, as and for the purpose specified.

2. The spring-holder F, applied to a chair, substantially as herein described, and for the object stated.

186,513. PAN-WIRING MACHINES. Washington Foglesong, Dayton, Ohio, assignor to the Dripping Pan Company, same place. [Filed July 24, 1876.]

Brief.—To insure proper contact and position of the sheet-metal margin and the wire to be infolded, fingers are placed at the four sides of the wiring-plunger, which descend with it, and, by means of angular slots, press the wire inward just before infolding-die commences to act. Flexible lifters raise the wired pan from contact with the lower folding-surface on the return of the operative mechanism. Endless-apron conveyer to remove wired pans.



186,513.

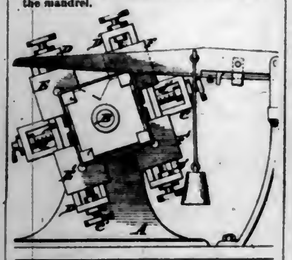
1. In a sheet-metal-pan-wiring machine, the wire locating and retaining fingers L *l*, secured upon pins F, to operate substantially as and for the purpose specified.

2. In a sheet-metal-pan-wiring machine having clamping-heads B B', the spring-lifters G, operating along guide-plates H, substantially as and for the purpose specified.

3. In a sheet-metal-pan-wiring machine, the carrying and conveying device M m m', connected to operate substantially as and for the purpose specified.

186,514. WIRE-BENDING MACHINES. W. Foglesong, Dayton, Ohio, assignor to the Dripping Pan Company, same place. [Filed July 24, 1876.]

Brief.—A reel or mandrel capable of expansion and contraction, and provided with steps to cause the first coil of wire to assume a spiral form, rotates on a horizontal journal, and receives the wire through guides from a reel or roll, and has a recessed lever, which presses the wire upon the reel, so as to produce as near right angles in the bent wire as possible. Mandrel consists of an axle carrying a cross-bar, whereon slide in dovetails two cross-bars at right angles to the first bar. On each of the latter are two slides, which carry the four posts of the mandrel. By the set-screws the pair of cross-bars and their slides are moved out and in. One or more internal and interchangeable plates inwardly support the mandrel.



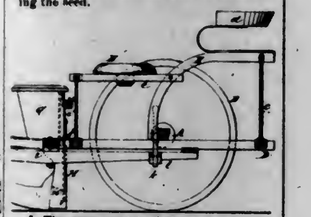
1. In a machine for bending wire, the combination of a rotary form or pattern, and a reciprocating pressure-bar acting upon the wire to compel it to follow the undulations of the pattern by pressing it directly against the same, substantially as described.

2. In combination with the form G, the series of ledges or guiding-steps K, substantially as and for the purpose specified.

3. In combination with the form-posts G, the sliding adjustable plates E E' F F', and sliding adjustable heads D D', constructed and operating substantially as and for the purpose specified.

186,515. CORN-PLANTERS. Alpheus Fox, Rock Falls, Ill. [Filed Sept. 30, 1876.]

Brief.—The mechanism that imparts an oscillatory movement to the seed-disks actuates the double-notched slide for discharging the seed.

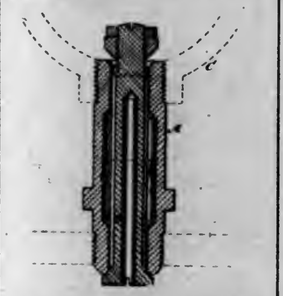


1. The arrangement of the passages u m, disk p, apertures r r and o o, slide v, pinion t, bar u, and lever d', to shorten the stroke of cross-bar and allow the rope check-row to be used, as herein shown and described.

2. The double notched slide for the second drop, a notch being left open from one hill to another, and the corn allowed time to pass out.

186,516. LUBRICATORS. Geo. W. Gageby and Wm. James, Johnstown, Pa. [Filed Nov. 11, 1876.]

Brief.—Inside a tube leading from the oil-cup to the steam-chest is a cylindrical plug, loose and a little longer than the tube, hollow for a portion of its length upward, and forming a valve at each end; it has exterior grooves.



The combination with conductor A, having an inner oil-receptacle connected at one end with oil-cup, and at the other with steam-chest, of the internal rod C, having reversed valves at its opposite ends, said valves being placed a little farther apart than their seats in the ends of the conductor, for the purpose specified.

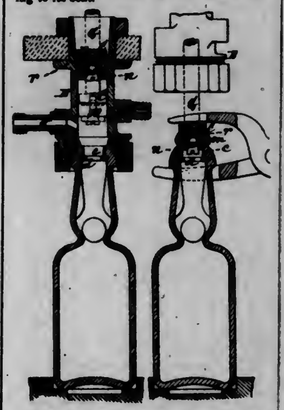
186,517. HARNESS-SADDLES. Jas. H. Garrett, Mount Pleasant, Iowa. [Filed Oct. 21, 1876.]



The harness-saddle herein described, consisting of the flanged plate C, provided with end recesses *e e* on its under side, detachable jockeys I, having transverse slots J, and recesses *i*, and pad A B, substantially as described, and for the purpose set forth.

186,518. BOTTLING AERATED OR EFFERVESCING LIQUIDS. W. Gee, New York, N. Y. [Filed Nov. 23, 1876.]

Brief.—A second stopper is used to prevent escape while the stopper in the bottle is falling to its seat.



1. The temporary stopper C, having a solid or inflexible head, *l*, a lower elastic packing, *m*, of larger diameter than said head, and a reduced bottom, *n*, essentially as and for the purposes herein described.

2. The temporary stopper C, constructed with an annular channel or groove, *r*, between and around the under side of the head *l* and the upper edge of the packing *m*, substantially as specified.

3. The combination of the conical follower D, the elastic packing *m*, and the head *l* of the temporary stopper, essentially as described.

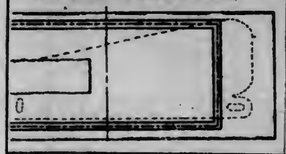
4. The process of bottling aerated or effervescing liquids in bottles having inside or self-closing stoppers by the combined action of a temporary stopper, a filling-cylinder, and a plunger in the latter acting on the temporary stopper, substantially as specified, whereby the bottle may be inverted by hand after or during its removal from the filling-machine, to effect the closing of the bottle by its inside stopper.

186,519. BALE-TIES. Wm. P. Gerlach, San Francisco, Cal., assignor to Jno. T. Knox, same place. [Filed Oct. 20, 1876.]



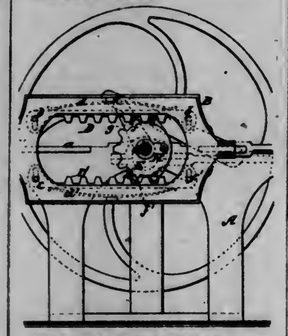
As a new article of manufacture, the octagonal bale-tie buckle or link, composed of the sides A A, the ends A' A', and the diagonals *c c*, uniting the sides and ends, when made with straight angular inner edges and beveled outer sides or faces, substantially as and for the purpose set forth.

186,520. METHODS OF PUTTING UP COLLARS AND CUFFS. Solomon S. Gray, South Boston, Mass. [Filed Oct. 9, 1876.]



The method, substantially as described, of putting up and packing collars and cuffs for trade purposes by unfolding the same after they have been folded, flattening or pressing them out, and then packing them in a rectangular holder or receptacle, essentially as set forth.

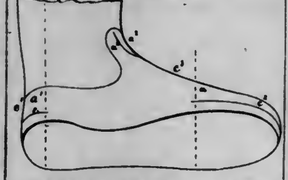
186,521. APPARATUS FOR CONVERTING MOTION. Peter Gregersen, Waneska, Wis. [Filed Nov. 11, 1876.]



1. The mutilated pinion E, having oppositely-arranged cams *e e'*, and the beveled teeth *f f'*, in combination with the sliding frame B, movable racks D D', and springs *d d'*, substantially as shown and described.

2. The combination of the mutilated pinion E, feathered shaft G, clutch H, lever I, movable racks D D', and sliding frame B, substantially as shown and described.

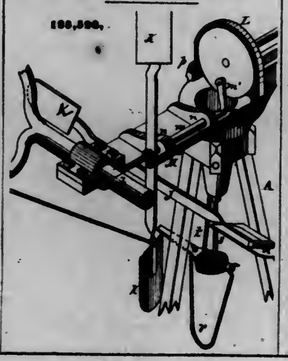
186,522. MOCCASINS. I. Gregory, Shiocton, Wis. [Filed Mar. 6, 1876.]



1. A moccasin or pack having the upper and sole cut in one piece, in the form shown, and united by the seams *c c'* and *c' c'*, the said seams occupying positions above the line of the sole, as shown and described.

2. An upper for a moccasin or shoe formed by channeling both edges of the material, abutting the same, and then uniting by a line of stitches concealed by the channels, substantially as and for the purpose set forth.

186,523.



186,525. WIND-WHEELS. E. H. Gregory, Battle Creek, Mich. [Filed June 16, 1876.]

Brief.—This wheel runs behind the mast, pitman, or turn-table, and has no vane to keep it in the wind, but maintains a working position by the construction and arrangement of the turn-table, and devices for automatically governing and regulating it.

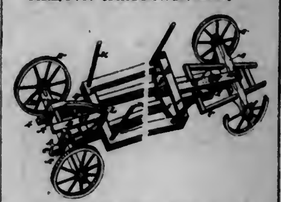
1. The governor J, in combination with the sail I, constructed and arranged substantially as and for the purposes herein set forth.

2. The brake L M, in combination with the governor J and sail I, substantially as and for the purposes herein set forth.

3. The combination of the disks P P, plate R, with ball *v*, guide-rods *t*, rod *s*, and cone B, all substantially as and for the purposes herein set forth.

4. The combination of the governor-lever M, brake L, arm A, and sail I, when placed opposite the wind-wheel, and all constructed and operating substantially as specified.

186,524. HAY-RACKS. Daniel Goff, Belle Plain, N. J. [Filed Nov. 22, 1876.]



1. A vehicle for hauling fodder and farm produce, composed of axles A B mounted on wheels, frame E F, and pivoted arm G, said arm forming a connection between the axle A and frame E F, substantially as shown and described.

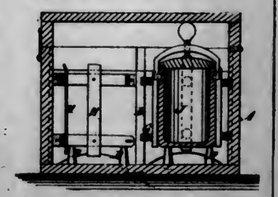
2. In combination with the axle B and bars E E, the clips K K passing around the latter and hooking over the former, substantially as shown and set forth.

3. In combination with the bars E E and axle A, the draw-bar I pivoted at opposite ends on the bolts *g* H, substantially as shown and described.

4. In combination with the axle A and frame-pieces F', formed with an opening or slot, *f'*, the bar G, pivoted at *g* and provided with an anti-friction roller, *g'*, substantially as shown and described.

5. The combination of axles A B, frame E F, pivoted arm G, clips K, and pins *k*, the several parts being constructed and arranged for operation, substantially as shown and described.

186,525. TRANSPORTATION-PACKAGES. N. Halsted, Scranton, Pa. [Filed May 22, 1876.]

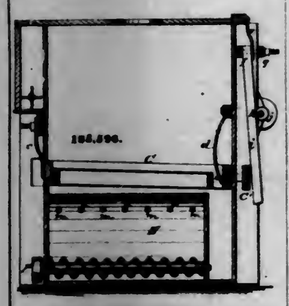


A transportation package for butter and other like substances, consisting of a case, A, containing one or more compartments, having springs on the bottom and sides, and a jar, J, of glass, porcelain, or other mineral ware, substantially as specified.

186,526. MIDDLINGS-SEPARATORS. Franklin B. Harnish, Nora Springs, Iowa. [Filed Mar. 4, 1876.]

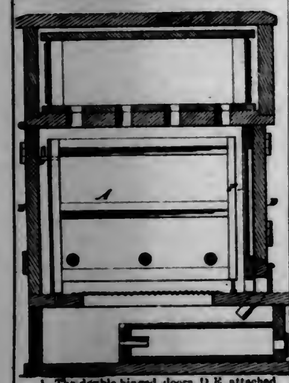
1. The combination of the reciprocating frame C and bars *c d* with the bars *e* and eccentrics *f*, located outside of the case, substantially as specified.

2. The screw-rods *h* and bar *g*, in combination with the bars *e*, for adjusting the length of the vibration of the frame C, substantially as described.



186,527. BEE-HIVES. Ananias Harman Bonsall, Ind. [Filed Sept. 20, 1876.]

Brief.—The serpine-honey box is surrounded by glass plates, held to the corner-posts by angle-irons, with pins for elongated slots. The hive proper is inclosed on three sides by doors made flexible by a horizontal series of hinges, and without other point of attachment.



1. The combination, in a thill-coupling, of the following elements—namely, the shaft or pole B and its eye *a*, a pivot-pin, the axle A and its ears *b b*, a metal block, D, hung to said ears and adapted to the eye *a*, and a device by which said block D can be caused to bear upon the eye with a yielding pressure, as set forth.

2. The double-hinged doors D E, attached to the back of the frame-section A of a bee-hive, and arranged to swing freely in opening without detaching any other parts of the hive, so as to give free access to the frames, substantially as set forth.

3. In a surplus honey-box of a bee-hive, the adjustable slotted angle-plates H, in combination with the post I and glass plate S, substantially as set forth.

186,528. THILL-COUPLINGS. Geo. W. Haskell, Philadelphia, Pa., assignor to himself, Wm. H. Haskell, and H. J. Haskell, same place. [Filed Oct. 26, 1876.]



1. The combination, with the slotted standard A, having ratchets *b* on its outside, of the lifting-bar C, the cross-head D, provided with pawls F, and the removable hand-lever E, substantially as described and shown.

2. The combination, with the slotted standard A and lifting-bar C, of the cross-head D, pivoted to the lower end of the said lifting-bar, the removable hand-lever E, and the lifting-toe G, substantially as described and shown.

3. The combination of the slotted tubular standard A, the cylindrical lifting-bar C, cross-head, hand-lever, lifting-toe, and the pawls and ratchets, all constructed and arranged substantially as described and shown.

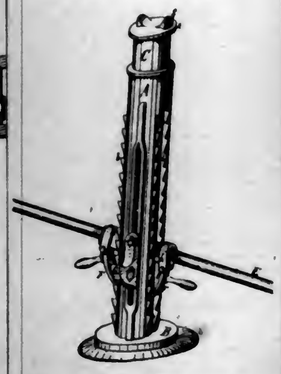
186,529. PAVEMENTS. Daniel C. Heller, Reading, assignor to William H. Whimster and Edward Hutchinson, Philadelphia, Pa. [Filed Sept. 16, 1876.]

Brief.—For the foundation course a composition of two and a half bushels of gravel or small stone, one-eighth of a bushel of hydraulic cement, one and three-fourths gallon of crude gas-tar, is applied and heavily rolled. For the top or surface course a composition of one and one-fourth bushel dry sharp sand, one and one-fourth bushel dry sifted coal-ashes, one-eighth of a bushel dry slaked lime, one pound flour of sulphur, one quart ordinary paint drier, three pounds dissolved asphaltum, three gallons heated crude tar, thoroughly incorporated, applied and rolled.

1. The top dressing for pavements, consisting of sand, sifted coal-ashes, slaked lime, sulphur, paint-drier, asphaltum, and tar, compounded in the proportions specified.

2. The pavement, formed of a base compound of gravel, hydraulic cement, and crude gas-tar, and a top dressing of sand, sifted coal-ashes, slaked lime, sulphur, paint-drier, asphaltum, and tar, rolled down in two successive layers, substantially as herein set forth.

186,530. LIFTING-JACKS. J. Heuermann, Chicago, Ill. [Filed Aug. 14, 1876.]

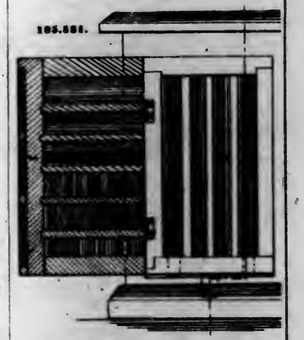


1. The combination, with the slotted standard A, having ratchets *b* on its outside, of the lifting-bar C, the cross-head D, provided with pawls F, and the removable hand-lever E, substantially as described and shown.

2. The combination, with the slotted standard A and lifting-bar C, of the cross-head D, pivoted to the lower end of the said lifting-bar, the removable hand-lever E, and the lifting-toe G, substantially as described and shown.

3. The combination of the slotted tubular standard A, the cylindrical lifting-bar C, cross-head, hand-lever, lifting-toe, and the pawls and ratchets, all constructed and arranged substantially as described and shown.

186,531. COMBINED DESK AND CABINET. C. J. Higgins, Indianapolis, Ind. [Filed Mar. 24, 1876.]

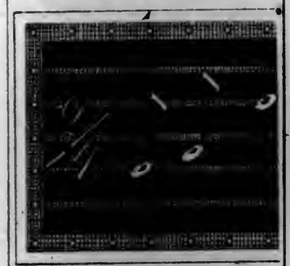


1. A sliding and swinging case of compartments, having end or side openings, for the convenient reception of papers or books, in combination with a desk, A, or secretary, substantially as set forth.

2. In combination with a desk, the compartment-case, consisting of the two sections B C, hinged together, as shown, said case being adapted to slide wholly within the desk, and to be withdrawn far enough to allow the section B to turn upon its hinges to afford access to both sections, as and for the purpose set forth.

186,532. DEVICES FOR MUSICAL INSTRUCTION. R. S. Hill, Industry, Ill. [Filed May 22, 1876.]

Brief.—A substitute for the blackboard in musical instruction, the movable notes fitting in the interstices of the wire net-work.



The frame A, having reticulated stripe B C, in combination with suspended notes D, substantially as and for the purpose specified.

186,533. PETROLEUM COOKING-STOVES. Fredrick Hildebrandt, New York, N. Y. [Filed Nov. 26, 1876.]

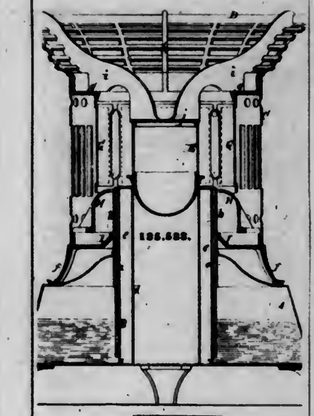
1. The combination, with the reservoir A and circular wick-tube, of the foraminous shell C, and the flange *l*, bearing against the wick-tube, and provided with the feet *f*, substantially as and for the purpose described.

2. The combination, with the foraminous shell C, the lamp A, its circular wick-tube B, the annular chimney G E, and the inner cylinder *d*, of a deflector, F, fitting said inner cylinder, substantially as and for the purpose described.

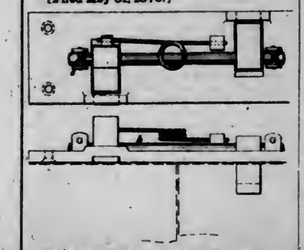
3. The combination, with the foraminous shell C, the lamp A, its circular wick-tube B, and the annular chimney G E, of a conveyer conductor, H, constructed and operating substantially as set forth.

4. The combination, with the foraminous shell C, the lamp A, its circular wick-tube B, and the annular chimney G E, of a top frame, D, provided with ribs *i* for supporting the inner cylinder E of the chimney, substantially as shown and described.

5. In a petroleum cooking-stove, the combination, with the top frame D, of ogee-shaped ribs *h i*, for facilitating the adjustment of vessels of various sizes, substantially as set forth.



186,534. SELF-ACTING DOOR-BOLTS. William John Hinde, Easton Road, England. [Filed May 31, 1876.]



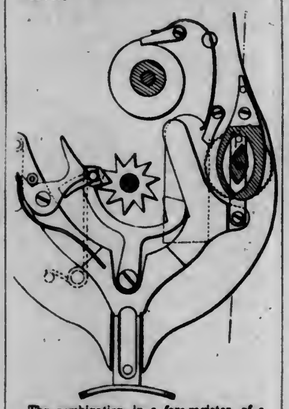
The combination, for use with a pair of doors, gates, or covers, of an oscillating shaft, a catch on such shaft adapted to engage with the subordinate door, gate, or cover, a tappet on such shaft, which by impact of the master door, gate, or cover, in closing, will effect the engagement of said catch with the subordinate door, gate, or cover, and a spring, whereby upon the release of the tappet from the master door the catch will be made to unfasten the subordinate door, and to remain in position for re-engagement therewith, substantially as set forth.

186,535. SASH-CORD FASTENERS. Charles Hintzmann, New York, N. Y. [Filed Nov. 4, 1876.]



In a sash-cord fastener, the socket-plate C, having lips *b b*, projecting into grooves on the under side of a lock-plate, D, to allow the said socket-plate to be fastened by a single screw, *d*, as shown and described.

186,536. FARE-REGISTERS. Wm. H. Hornum, New York, N. Y., assignor to the Hornum Patent Register Manufacturing Company, same place. [Filed Nov. 10, 1876.]



The combination, in a fare-register, of a slide, I, anchor-levers H, and safety-dog K, said dog serving to throw the anchor-lever positively in gear with the escapement-wheel, which transmits motion to the registering mechanism, substantially as shown and described.

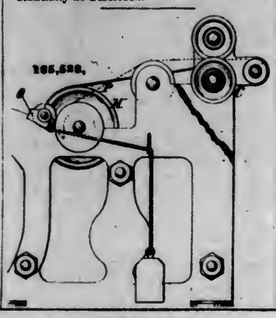
186,537. RECORDERS. M. Howie, Philadelphia, Pa. [Filed Sept. 27, 1876.]



1. The combination, with the case A, of the push-buttons B B, marked with names or numerals, pivoted pawls D D, teeth or punches *d d*, and paper stripe E, substantially as shown and described.

2. In combination with the pivoted pawl D and tooth *d*, the dog G, arranged substantially as described, to elevate said pawl and cause said tooth to clear the paper E on the return or upward motion of the stem *b*, substantially as described.

186,538.

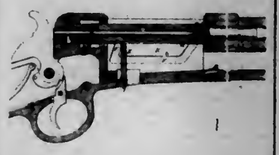


186,539. MACHINES FOR WINDING PAPER INTO ROLLS. G. Howland, Los Angeles, Cal., assignor to R. O. Howland, Mechanicsville, N. Y.; and said R. O. Howland assignor to L. J. Howland, Frankford, Pa. [Filed Aug. 17, 1876.]

The curved ways Q, in combination with the driving-roller and the winding-roller, the latter supported in boxes O, resting on the ways Q, up which they climb as the roll of paper increases in size, causing it to bear with decreasing pressure against the driving-roller.

186,539. MAGAZINE FIRE-ARMS. Chas. B. Hunt, Springville, Pa. [Filed Aug. 10, 1876.]

Brief.—The two sections of the bolt are connected together by a left-hand screw, by which, when the bolt is turned to the right to lock it, the cartridge is fully seated, and when turned to the left to unlock it the cartridge is started from its seat. The cartridge-carrier has cam grooves on the inside of its vertical sides, and is raised and lowered by lugs projecting from the sides of the bolt. A vertical and adjustable post within the receiver adapts the gun to cartridges of different lengths.

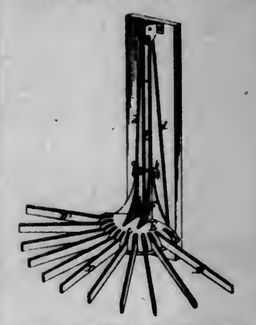


1. The carrier-block E, provided with quadrangular cam-groove F, in combination with the loading-bolt G, provided with lugs *b*, for the purpose set forth.

2. The loading-bolt G, provided at its rear end with a left-hand screw-thread, 10, in combination with the short sleeve H, provided with a corresponding left-hand female screw and locking-lugs on its outside, by which the bolt is locked to the right in the receiver, substantially as and for the purpose set forth.

3. In combination with the carrier-block E, slotted in its bottom, the adjustable post K, attached to the guard strap or casing, substantially as described.

186,540. CLOTHES-DRIERS. R. W. Hunton, Fall River, Mass. [Filed July 20, 1876.]



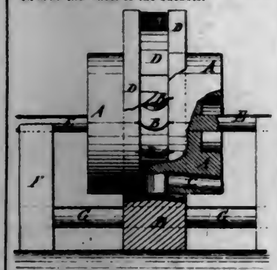
1. The combination of the series of horizontally hinged or pivoted arms, and the guard or guide engaging said arms, substantially as described, one or both of said parts being bodily and vertically movable, in order to increase or decrease the distance between them, substantially as and for the purposes set forth.

2. The horizontally hinged arms radiating from a common center, in combination with the curved guide or guard formed with slots to receive said arms, and arranged and operating, substantially as set forth, to fold up said arms, or to lower and support them in a horizontal position, and spread them apart.

3. The combination, substantially as described, of the vertically-movable guard or guide, and the vertically-movable frame carrying horizontally-hinged arms, the combination being and acting as set forth.

185,541. WATER-WHEELS. A. Jamison, Taylorstown, Pa. [Filed May 22, 1876.]

Brief.—In the middle of this wheel is formed a ring channel, in which are secured semi-cylindrical or wedge-shaped buckets, which divide the water after receiving its impulse, and send it out through the ends of the wheel through holes which lead to through the two ends of the wheel to the buckets.



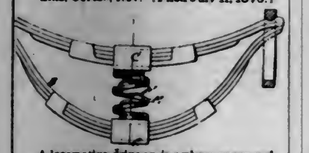
1. A water wheel, A, provided with semi-cylindrical or wedge-shaped buckets B, placed in a channel in the middle part of said wheel, substantially as herein shown and described.

2. A water-wheel, A, provided with holes C, leading from the ring-channel in said wheel, at the ends of the buckets B, out through the ends of the wheel, substantially as herein shown and described.

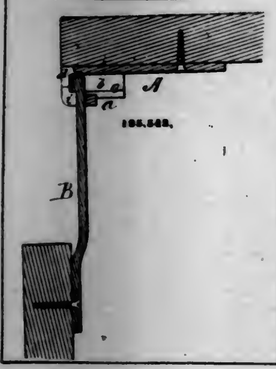
3. A water-wheel, A, provided with a casing, D, around its middle part, in which the buckets B are placed, substantially as herein shown and described.

4. The combination of the posts F and beam G with the shaft E and the casing D of the water-wheel A, substantially as herein shown and described.

185,542. LOCOMOTIVE-SPRINGS. Jas. Jenkins, Cortez, Nev. [Filed July 11, 1876.]



A locomotive drive-spring whose upper and lower spring have their ends freely and independently movable in guide-straps secured from lateral displacement of the leaves, and provided with a median connection, substantially as shown and described.



185,543. SEWING-MACHINE-TABLE HINGES. Levin T. Jones, Baltimore County, Md. [Filed Oct. 21, 1876.]

Brief.—The transversely-slotted enlargement of the movable plate is upon the under side of the stationary plate, and thus there is no necessity of cutting away the table.

The combination of the plate A, having the transversely-slotted enlargement *b* upon its under side, the ways *c*, the bearing shoulders *d*, and the stop-notch *i*, and the endwise movable and vibrating plate B, having a rabbeted shank, *e*, journal-arms *f*, and lip *g*, substantially as specified.

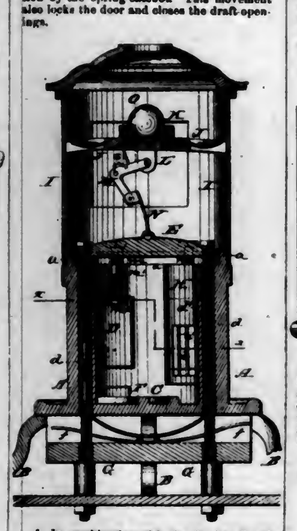
185,544. BALE-TIES. John R. Kennedy, Tuscaloosa, Ala. [Filed Dec. 12, 1876.]



The combination of the link A fastened to the head B^1 by inserting the end a^1 through the hole D, bent inward, and closed against band B^1, and the other end of the link A resting through the open slotted recess C, the fastening of the tie then being made to B^2 by inserting the end a^2 into any of the holes B^2, dropping the end a^1 in the next hole, thus forming a lock, substantially as described.

185,545. CAR-STOVES. Oliver P. Kennedy, Landy's Lane, Pa. [Filed June 14, 1876.]

Brief.—If the stove is tilted the ball falls over and draws up by the chain one end of the lever, thereby forcing down the other, which is connected to the plate. The said plate presses down upon and covers the top of the fire-pot, and is instantly locked in position by the spring-catches. This movement also locks the door and closes the draft-openings.



1. In combination with the fire-box C and automatic closing-plate E, the rod *m*, tube *m'* on the inside of the fire-box, and the prolongation *m²* on the inside of the door, for the purpose set forth.

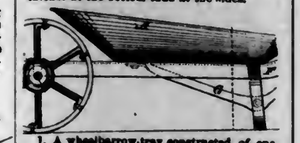
2. In combination with the fire-box C, draft-register *b*, and automatic closing-plate E, the rod *m*, with plate *m'*, and draft-flue H, with opening *i*, for the purposes set forth.

3. The guide-rods *d* and tubes *d'*, in combination with the plate F and fire-box C, for the purposes set forth.

4. The combination, with the fire-box C and automatic closing-plate E, of the rods *d d*, box G, spring *f*, and spring-catches *h h*, as and for the purposes set forth.

185,546. METAL WHEELBARROWS. James Kidd, Harrisburg, assignor of one-half of his right to C. H. Jackson, Steel Works, Pa. [Filed Sept. 23, 1876.]

Brief.—Frame of channel-iron, having a fixed axle, and a tray of stamped metal thicker at the bottom than at the sides.



1. A wheelbarrow-tray constructed of one piece of steel, with the metal distributed therein between the bottom, the sides, and the flange, substantially as and for the purposes described.

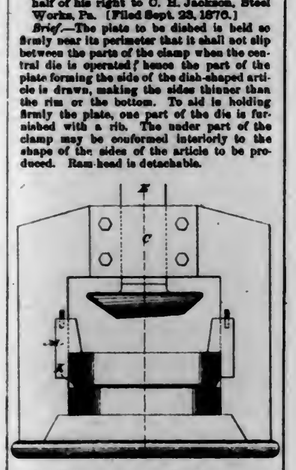
2. A wheelbarrow-frame consisting of channeled shafts, a bent brace-bar, forming legs, and a fixed axle, substantially as and for the purposes described.

3. The combination, in a wheelbarrow, of a metal tray and channeled shafts, substantially as and for the purposes described.

4. The combination, in a wheelbarrow, of channeled shafts, a fixed axle, and a wheel revolving on the axle, substantially as described.

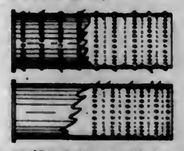
185,547. MACHINERY FOR DIESINKING METALS. James Kidd, Harrisburg, assignor of one-half of his right to C. H. Jackson, Steel Works, Pa. [Filed Sept. 23, 1876.]

Brief.—The plate to be dished is held so firmly near its perimeter that it shall not slip between the parts of the clamp when the central die is operated; hence the part of the plate forming the side of the dish-shaped article is drawn, making the sides thinner than the rim or the bottom. To aid in holding firmly the plate, one part of the die is furnished with a rib. The under part of the clamp may be conformed interiorly to the shape of the sides of the article to be produced. Ram-head is detachable.



The combination, substantially as hereinbefore set forth, of clamp-section which grasp and hold the edge of the plate to be dished, one of them having a bead, as shown, and a ram forming a counterpart of the shape desired, and acting upon the plate while held by the clamp.

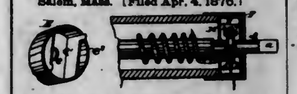
185,548. CARTRIDGE-SHELLS. Israel Kinney, London, Ontario, Canada, assignor to Marcellus Hartley, New York, N. Y. [Filed Oct. 23, 1876.]



1. A cartridge-shell made with depressions in its inner surface, as described, as a new article of manufacture.

2. A cartridge-shell made with protuberances on its circumferential exterior surface.

185,549. SPRING CURTAIN-ROLLERS. E. B. Lake, Bricksburg, N. J., assignor to Salem Shade Roller Manufacturing Company, Salem, Mass. [Filed Apr. 4, 1876.]



1. The head E, formed with the guides *e'*, for causing the rotation and permitting the sliding of the collar G, in combination with said collar, having a shouldered slot, and the shouldered shaft A, substantially as shown and described.

2. The collar G, having the straight sides *g g* and curved slot *g'*, substantially as shown and described.

3. The shaft A, formed with the cam or shoulder *c*, for preventing the rotation of the roller, in combination with the shouldered sliding collar G, substantially as shown and described.

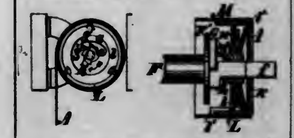
4. The combination of the shaft A, having the cam or shoulder *c*, the head E, having guides *e'*, and the collar G, having straight sides *g g* and a curved slot, *g'*, the several parts being constructed and arranged for conjoint operation, substantially as shown and described.

5. The collar formed of the metallic disks *h h* and interposed rubber disk *i*, to prevent rattling and avoid the jumping of the shade when the spring is checked, substantially as shown and described.

6. In combination with the disks *h h i* the rubber washers *n n* on the pins *m m*, by which said disks are held together, substantially as shown and described.

185,550. CURTAIN-FIXTURES. E. B. Lake, Bricksburg, N. J., assignor to Salem Shade Roller Manufacturing Company, Salem, Mass. [Filed Oct. 27, 1875.]

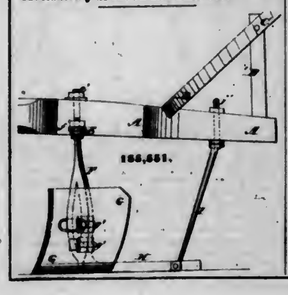
Brief.—The roller is provided with a friction-disk, which automatically gears with it when the curtain is pulled down, and is disconnected when the roller turns in the opposite direction, the connecting-pawl also serving to lock the spring when the roller is removed from its brackets.



1. In a balance-spring curtain or shade, having automatic means for releasing it from the resistance of a frictional brake when in the brackets, an automatic device for locking the spring and preventing its unwinding when the roller is removed from the brackets, substantially as described.

2. In a spring-balance curtain-roller, having a friction-brake to regulate the descent of the curtain, an automatic device to relieve the roller of frictional resistance during the ascent of the curtain, substantially as described.

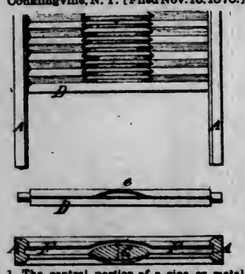
3. The combination of the curtain A, roller B, weight D, spring E, shaft F, pawl G, disk H, having ratchet-barrel *h*, spring-washer I, head K, band L, and cap M, the several parts being constructed and combined for operation substantially as shown and described.



185,551. CULTIVATORS. Thos. R. Landon, Sladesville, N. C. [Filed Aug. 21, 1876.]

The angular standard-bars F H, slotted in their vertical arms, in combination with the braces I, having slotted horizontal upper arms, and with the slotted adjustable cross-bar E and beam A, substantially as herein shown and described.

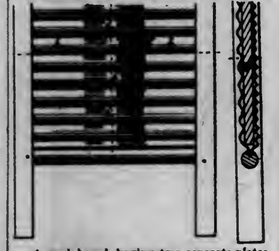
185,552. WASH-BOARDS. J. W. Latcher, Johnstown, assignor to C. N. Jenkins, Conklingville, N. Y. [Filed Nov. 16, 1876.]



1. The central portion of a zinc or metal plate for wash-boards, with smaller corrugations than the two lateral or side washing-surfaces, substantially as and for the purpose set forth.

2. A wash-board having a corrugated sheet of zinc, and the same raised or convex in its central portion, in combination with the corrugated wooden center piece G, secured to its reverse side, substantially as and for the purpose set forth.

185,553. WASH-BOARDS. J. W. Latcher, Johnstown, assignor to C. N. Jenkins, Conklingville, N. Y. [Filed Nov. 17, 1876.]



A wash-board having two separate plates of corrugated metal, when one or both of said plates are stamped with a raised central portion, *i*, for the reception of the double-convex or plano-convex vertical bar G, substantially as shown and described, and for the purposes specified.

185,554. COMPOUND FOR ARTIFICIAL STONE. L. L. Leathers, Oakland, Cal. [Filed Nov. 28, 1876.]

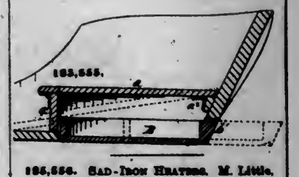
Brief.—Borax, kaolin, and sulphate of barium are separately dissolved in water, and sulphur in alcohol. The several solutions are poured together, and mixed by stirring, and diluted with water for use. Sharp sand, or sand and gravel, and cement are mixed, and then dampened by the above diluted compound solution, and tamped in the usual way.

1. The process above described for making a chemical mixture or compound, diluted as and for the purposes set forth.

2. An artificial stone composed of sand and cement, moistened with a chemical mixture or compound, diluted, as above described, before tamping, substantially as and for the purposes above set forth.

185,555. CHILDREN'S CARRIAGES. Wm. D. Lindsay, Brooklyn, N. Y. [Filed Sept. 4, 1876.]

A child's carriage provided with the concealed drawer C, arranged underneath the elevated flooring *a'*, and within the body of the carriage, substantially as and for the purpose set forth.



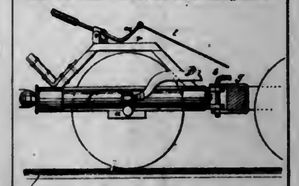
185,556. SAD-IRON HEATERS. M. Little, East Saginaw, Mich., assignor to Amanda M. Starker, same place. [Filed June 10, 1876.]



A sad-iron heater, consisting of the rhomboidal box C, having the lateral pockets E, in combination with the suspending flanged collar F G, substantially as described.

185,557. LAND-ROLLERS. Nathan N. Lord, Brownville, N. Y. [Filed May 15, 1876.]

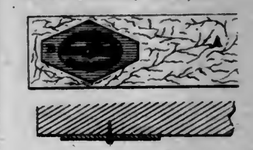
Brief.—Two land-rollers coupled together—one in the rear and at one side of the center of the other; also connected by a lever attached to a rocking shaft, which accommodates the rollers to the nature of the ground.



1. In adouble land-roller, the rocking-shaft C combined with lever D and coupling *b g*, substantially as and for the purpose described.

2. In a double land-roller, the rocking-shaft C combined with lever D, slotted plate *h*, cam-lever *k*, and cord, substantially as and for the purpose described.

185,558. LABELED TOBACCO-PLUGS. Lawrence Lottier, Richmond, Va. [Filed Nov. 28, 1876.]



A plug of tobacco having a tag of paper, leather, or other flexible material, fastened to it by a pin, and pressed into its surface, substantially as herein set forth.

185,559. TENTS. Jas. H. Mapleson, London, England. [Filed Nov. 10, 1876.]

Brief.—The tent is provided with a strip of canvas, which is secured at the top, and which, when closed, forms part of the wall of the tent, and when open forms, in connection with a side piece, a screen or fly to protect from heat or wind.

1. The combination, with the body of a tent, of one or more doors, *i*, hinged or connected thereto at the top edge or edges, substantially as and for the purpose described.

2. The combination of a supplemental door or sheet, *h*, with the door or doors *i*, substantially as and for the purpose described.



186,560. ALARMS FOR BOILERS. William Mathews, St. Clair, Pa. [Filed Oct. 10, 1876.]



The combination of the pipe A, with valve-seat *a*, chamber E, with valve-seat *b*, pipe G, whistle H, and valve-rod B, with valves D D' and float C, all substantially as and for the purposes herein set forth.

186,561. MANUFACTURE OF STOCKINGS. M. Marshall, Lowell, Mass. [Filed Jan. 26, 1876.]

Brief.—The two flaps are knit at the same time upon opposite sides of a cylinder-machine—the under instep portion by itself as far as the instep flap, when the latter is looped on, and circular knitting resumed to finish the foot.

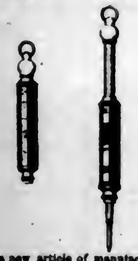


1. The leg A for a stocking, having the flaps B C, with selvage-edges *e* knit thereon, substantially as shown and described.

2. The foot E, having the selvage-edge *f*, and made with the gore D, substantially as shown and described.

3. The herein-described method of forming a stocking, by first knitting the leg A with the selvage-edged flaps B C, and then knitting thereon the foot E, with the selvage-edged gores D, and uniting the selvage-edges, substantially as shown and described.

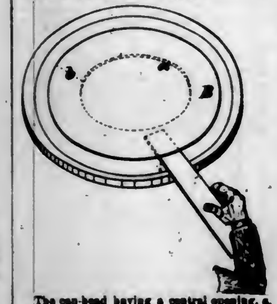
186,562. PENCIL-CASES. Jos. Monaghan, Brooklyn, N. Y. [Filed June 16, 1876.]



As a new article of manufacture, an ornamental pencil case or barrel, consisting of a natural mineral body in a single piece, bored through and through, and so as to expose a patterned exterior surface, substantially as described.

186,563. CAN-HEADS. J. C. Moore, Philadelphia, Pa. [Filed Oct. 1, 1876.]

Brief.—Solders the marginal edge only of the opening in the top of the can to the under side of a cap. Outside of the soldered edge the cap is nonsoldered, affording peripheral space for the can-opener.



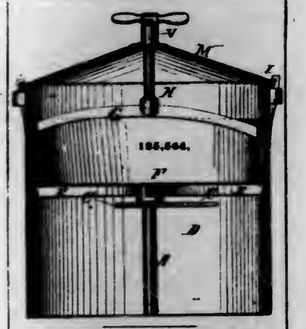
The can-head having a central opening, *a*, and a cap-plate, B, soldered from the inside to the marginal edge of said opening, and extending by its free concentric periphery *b* outward beyond said marginal edge, substantially as specified.

186,564. COAL-SIFTERS. S. S. Moyer, Allentown, Pa., administrator of Wm. S. Moyer, deceased. [Filed Feb. 4, 1876.]

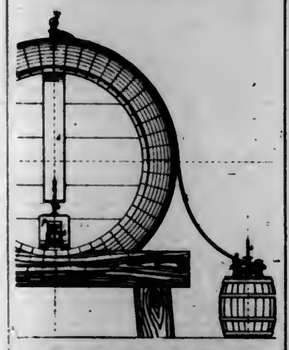
Brief.—When the bail is turned in one direction its bent ends, inside of the bail-ears, severally lock each hook, which holds on the cover. When the bail is reversed the hooks are unlocked. Lever and operating-handle removed together.

1. The combination of the rotary sieve F, operated by power applied to a bail, C, and being throughout its inside free from other operating or supporting devices, and provided beneath with radial arms E, having hooks E' projecting outward from and beyond the sieve, and a shaft, A, with a suitable rest having a pintle on its bottom, and a shaft-holding bar, O, beneath the sieve, as and for the purpose set forth.

2. The hooks I, in combination with the bail L, having the ends *l* bent, as described, for the purpose of alternately fastening and releasing the cover M at pleasure, substantially as specified.



186,565. LIQUID-FORCING APPARATUS. W. Noll, Minden, Prussia. [Filed Oct. 10, 1876.]

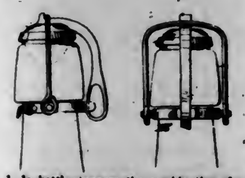


1. The portable liquid-forcing apparatus herein described, consisting of the air-pump A, air washer or purifier B, tapping-plug *a*, movable discharge-tube *b*, tube *i*, two-way cock *m*, and nozzle *n*, substantially as and for the purpose specified.

2. The combination, in a liquid-forcing apparatus, of an air-pump, A, and an air washer or purifier, B, whereby the air is purified before it comes in contact with the liquid to be expelled, substantially as herein set forth.

3. The combination of the arms *p s*, presser-fork *t*, stem *q*, screw *r*, and nut *u*, with the air-forcing apparatus, and barrel or keg, as and for the object stated.

186,566. BOTTLE-STOPPERS. Geo. A. Obl, Newark, N. J. [Filed May 9, 1876.]



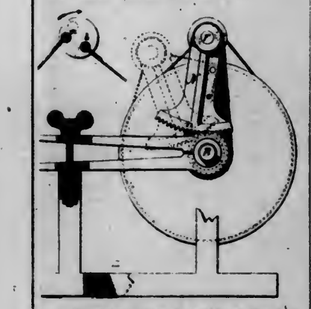
1. In bottle-stoppers, the combination of a rigid curved stopper-lever having loop or eye at lower end, with a collar cork-head having extension-staple, and with a pivoted-lever closing-bail, substantially in the manner and for the purpose specified.

2. A curved rigid stopper-carrying lever provided with an elongated loop or eye, for the purpose described.

3. A collar or neck head made with an extension-staple centrally between the pivot-points of the locking-bail, substantially as specified.

186,567. CLUTCHING APPARATUS FOR HOISTING-MACHINES. A. Y. Parmele, New Haven, Conn., assignor of one-half his right to A. B. Bean, same place. [Filed Nov. 6, 1876.]

Brief.—The power of the driving-shaft is applied to the hoisting-drum by means of a frictional band. The lever carrying the steels, to which the ends of the band are attached, is provided with a segmental cogged portion at its inner end, engaging with a pinion-wheel, having a sleeve working loosely on the main shaft. Frictional contact of lever-arms on the sleeve induces the operation of the gears, and thereby move the brake lever.

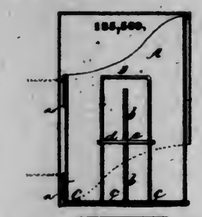


1. In a hoisting apparatus the combination of the following elements: a driving-shaft; a hoisting-drum, loose on said shaft; an arm or wheel, rigidly attached to the said shaft; a pair of steels hung on said wheel or arm eccentric to the axis on which they rotate; and a frictional band around said drum or wheel attached thereto, the ends of the said band, respectively, attached to the said steels, substantially as described.

2. In a hoisting apparatus the combination of the following elements: a driving-shaft; a hoisting-drum, loose on said shaft; an arm or wheel, rigidly attached to the said shaft; a pair of steels, hung on said wheel or arm eccentric to the axis on which they rotate; a frictional band around said drum or wheel attached thereto, the ends of the said band, respectively, attached to the said steels; and a lever attached to the shaft, by which said steels are rotated, extending inward and engaging with a pinion loose upon the shaft, with mechanism for applying friction to the said pinion, substantially as specified.

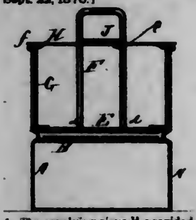
186,568. ASH-SIFTERS. Peter W. Peckham, New York, N. Y., assignor to Susan L. and Clara N. Stavers, Exeter, N. H. [Filed Aug. 7, 1876.]

Brief.—By the handle the perforated disk is revolved beneath the ash cylinder, and over the rollers. After removing the staples all the inner parts are removable from the body.



The open cylinder K, in combination with cross-piece F with rods J, perforated disk C with rod *d* and handle *e*, and casing A with friction-rollers B, substantially as described, and for the purpose set forth.

186,571. ASH-SIFTERS. Peter W. Peckham, New York, N. Y., assignor to Susan L. and Clara N. Stavers, Exeter, N. H. [Filed Sept. 22, 1876.]



1. The revolving sieve E, provided with the handle F, in combination with the cylindrical vessel A, provided with the rib B and lid H, substantially as described.

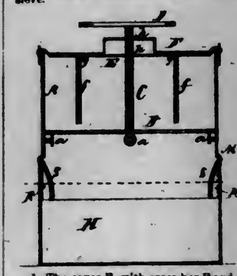
2. The cover H, with rim *f*, slot *g*, and lid J, substantially as shown, and for the purpose set forth.

186,572. ASH-SIFTERS. Peter W. Peckham, New York, N. Y., assignor to Susan L. and Clara N. Stavers, Exeter, N. H. [Filed Sept. 22, 1876.]

The cover D, with the hinged lid E, with the rim E, bar G, and holes *h h*, in combination with the handle C provided with the shoulders *e e*, the sleeve B, and the cylindrical vessel A, substantially as described, and for the purpose set forth.

186,573. ASH-SIFTERS. Peter W. Peckham, New York, N. Y., assignor to Susan L. and Clara N. Stavers, Exeter, N. H. [Filed Sept. 22, 1876.]

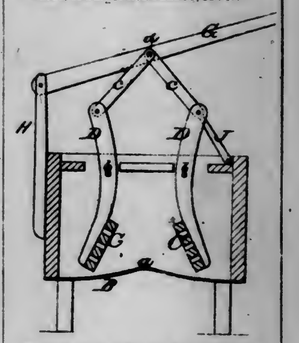
Brief.—Improves sifter of former patent by placing a bar across the cover, to strengthen it and furnish additional bearing for axis in sleeve.



1. The cover E, with cross-bar F and rods *f f*, in combination with the vessel A, the ash-sifter B, rod C, with handle D, substantially as described, and for the purpose set forth.

2. The corrugations or indentures B B and S S, in combination with the vessel A, with rim M, and the vessel H, substantially as described, and for the purpose set forth.

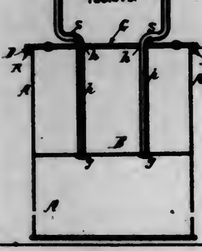
186,574. WASHING-MACHINES. T. L. Peirce, Union, Iowa. [Filed June 10, 1876.]



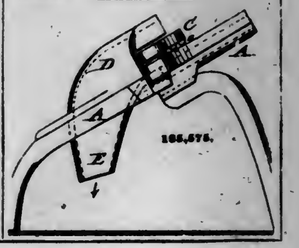
In a washing-machine having a double concave bottom, B, and perforated beaters C C, the arms D D and toggle-levers *e e*, combined with the hand-lever G, substantially as described.

186,575. COAL SCUTTLES AND SIFTERS. Peter W. Peckham, New York, N. Y., assignor to Susan L. and Clara M. Stavers, Exeter, N. H. [Filed July 8, 1876.]

The circular disk C, having perforations *c c*, and handle D, having perforated center piece *d*, in combination with the coal-scuttle A, having center rod *b*, substantially as described, and for the purpose set forth.



186,576. COAL-SCUTTLES. Peter W. Peckham, New York, N. Y., assignor to Susan L. and Clara N. Stavers, Exeter, N. H. [Filed Sept. 22, 1876.]



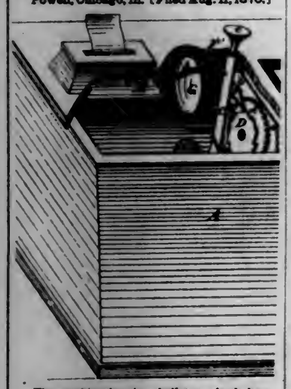
185,575. HAND CORN-SHELLERS. Ludwig H. Pirrung and Michael Zirbes, Chicago, Ill. [Filed Apr. 26, 1876.]

The combination of plate A, having groove B, the lever C, having teeth a, the hood D, and the spout E, all constructed and arranged as shown and described.

185,576. SEATS AND BACKS FOR CHAIRS, &c. R. H. Plass, New York, N. Y., assignor of one-third of his right to C. E. L. Holmes, same place. [Filed Nov. 7, 1876.]

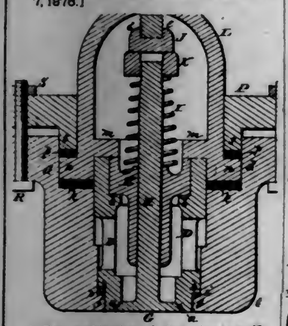
A seat or back for chairs, lounges, &c., consisting, in whole or in part, of vulcanized fiber—that is, vegetable fiber prepared by treating it with chloride of zinc, or its equivalent, consolidating and drying, as set forth.

185,577. REGISTERING BALLOT-BOXES. J. Powell, Chicago, Ill. [Filed Aug. 11, 1876.]



The combination, in a ballot or check box, as described, of the lever C, pawl *e*, horizontally swinging plate B, having pivoted arm *b* and link *b'*, pawl F, spring E, arm *f*, hammer F', and bell G with the ratchet D, having cog *d*, adapted to operate the registering mechanism, all substantially as and for the purposes set forth.

185,578. VALVES FOR ICE-MACHINES. T. L. Rankin, Emporia, Kans. [Filed June 7, 1876.]



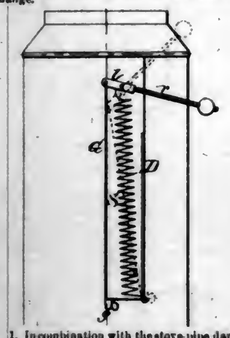
1. The combination of the valve-stem H, spring I, nut K, and the key J, with projections *r s*, substantially and for the purpose herein set forth.

2. The valve-cage D, provided with the loose-turned guide E, as herein set forth.

3. The combination of the chamber C, having shoulder *f* and recess *d*, the valve-cage D, with shoulder A, the guide E, cap L, with flanges *m n*, the plate F, with flange *s*, and the rubber packing-rings *i k p*, all constructed as described, and the whole firmly united together by the two bolts R R and nuts S S, substantially as and for the purposes herein set forth.

185,579. STOVE-PIPE DAMPERS. John H. Rhamy, Antioch, Ind. [Filed July 1, 1876.]

Brief.—The end of the spring is slightly hooked for attaching it at different points of the perforated flange. When a full draft is desired, the damper is held open by attaching the rod to the lower end of the perforated flange.

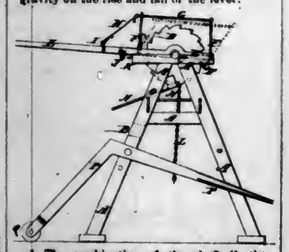


1. In combination with the stove-pipe damper C, arm *l*, loaded arm *r*, and the spring S, the perforated flange D, for the purpose described.

2. The holding-down rod G, combined with the damper C, spring S, and the endwise-adjustable loaded rod *l*, substantially as described.

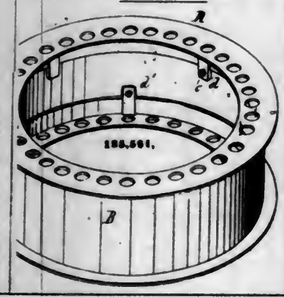
185,580. STUMP-PULLERS. Jos. Richter, Jordan, Minn. [Filed Oct. 7, 1876.]

Brief.—A pair of ratchet-wheels on a shaft on the top of a portable frame are each worked by a lever operating with pawls on opposite points of the periphery, each pawl, above and below the lever, catching by its gravity on the rise and fall of the lever.



1. The combination of the shaft C, the ratchet-wheels D, the levers E, the two pairs of pawls F, the connecting-rods G, the chains L M, and the holding-pawls N with each other, and with the frame A B, substantially as herein shown and described.

2. The combination of the cords or chains H and hooks I with the pawls F, the connecting-rods G, and the levers E, substantially as herein shown and described.



185,581.

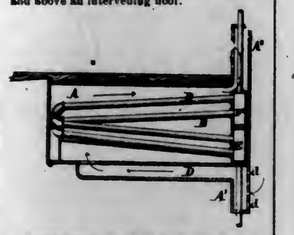
185,581. STOVE-PIPE THIMBLES. S. Selden, Erie, Pa. [Filed Sept. 20, 1876.]

Brief.—The rings can be adjusted upon the sleeve, and held at any desired distance by the set-screws in the legs.

A stove-pipe thimble composed of the perforated and flanged rings A A', and cylinder B, in combination with perforated lugs *d d'*, and fastening devices *c*, arranged and operating substantially as and for the purpose set forth.

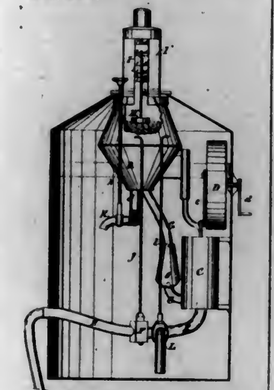
185,582. RADIATORS. Joseph Shacklston, Rahway, N. J. [Filed June 5, 1876.]

Brief.—The perforations on one side of a partition-wall admit fresh air to the radiator, and after being heated it passes out of perforations on the other side of the partition, and above an intervening floor.



A radiator composed of a box or jacket, A, having the branch A', provided with perforation *d* on its outside, and the branch A', provided with perforation *e* on its inside, plate *i*, in combination with the heating-pipes B, the whole being adapted to operate substantially as set forth.

185,583. MEASURING-PUMPS. L. R. Shell, Richmond, Va., assignor of one-half of his right to R. B. Chaffin, same place. [Filed Oct. 2, 1876.]



1. In an oil-can, the combination, with the can-body A and pump C, of the tube E, cocks F and L, tube G, measure B, and gage I, substantially as shown and described, for the purpose specified.

2. In an oil-can, the combination, with the can-body A, pump C, and measure B, of the gage I, pipe J, cocks K and M, and handle *k*, substantially as shown and described, for the purpose specified.

3. In an oil-can, the combination, with the can-body A, pump C, and measure B, of the float H, standard A, and glass scale I, substantially as shown and described, for the purpose specified.

185,584. FENCE-POSTS. Gilham Shalton, Normal, Ill. [Filed Nov. 14, 1876.]

The fence-post A, with the pointed end *a*, and twisted as *b*, in combination with the barb-holder C, with the two barbs D D, substantially as described.

185,584.



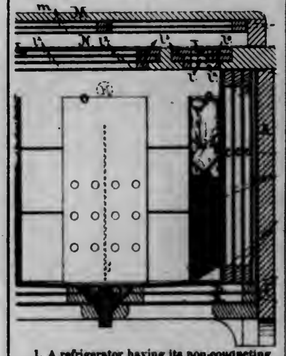
185,585. NUT-LOCKS. H. Simpson, Pike Station, assignor to himself and Warden Wheeler, same place, and E. P. Bates and Ira Bates, Wooster, Ohio. [Filed Sept. 23, 1876.]

Brief.—The thickness of the nut is greatest at the set-back points of its teeth. Hence all scratching by these is out of sight when the nut is screwed home.



The nut A, provided on its under face with burrs or projections *a*, cut off at *b*, substantially as and for the purpose shown and described.

185,586. REFRIGERATORS. E. B. Smith, Albany, N. Y., assignor to F. L. Osborn, same place. [Filed June 14, 1876.]



1. A refrigerator having its non-conducting walls composed of sectional panels D, containing a series of separated and independent dead-air cells, constructed, as herein described, of plates of water-proof material, having division-frames interposed between them, and secured thereto, in the manner and for the purpose specified.

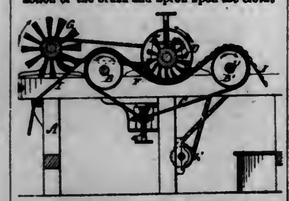
2. The sectional panels D of dead-air cells, for forming the non-conducting walls of refrigerating chambers and rooms, composed of plates of water-proof material, having division-frames interposed between them, for forming the dead-air cells, in the manner and for the purpose herein specified.

3. In a refrigerator whose preserving-chamber is unprovided with openings for the admission of the external atmosphere for producing a constant circulation of air through said chamber, the combination of the uptake-flues F, inlet-openings G, and outlet-openings H, constructed and arranged, in the manner herein described, to form a system of communication from the bottom of the preserving-chamber with the external atmosphere surrounding the top of the refrigerator, as and for the purpose herein specified.

4. The combination, with the sections D, of the corner-pieces E and connecting-pieces P, for forming the preserving-chambers of refrigerators, rooms, &c., as and for the purpose herein specified.

185,587. CLOTH-FINISHING MACHINES. J. H. Smith, Raritan, N. J. [Filed Oct. 3, 1876.]

Brief.—The napping-brush revolves within the pattern-cylinder, which is supported by a slotted cylinder, through the slot of which the brush comes to the pattern and the cloth. The revolution of the cylinder is produced by the traverse of the cloth and an endless apron, by which it is supported against the pattern. Bearings are made adjustable to insure proper action of the brush and apron upon the cloth.



1. In a cloth-finishing machine, a semicircular stationary bearing, having an opening or slot, *f*, formed with thin edges, in combination with a revolving brush inclosed within a cylindrical pattern, substantially as and for the purpose described.

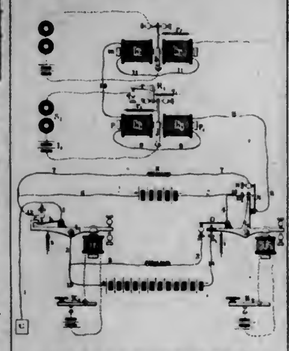
2. A revolving brush, E, inclosed in a revolving cylindrical pattern, and operating upon its concave surface, in combination with a stationary slotted cylinder, substantially as described.

3. A revolving brush, G, for smoothing cloth previous to raising its nap, according to certain designs, in combination with pattern-cylinder D and an endless elastic apron, C, and a revolving brush, E, adapted to operate upon a concave surface of the cloth, substantially as set forth.

4. The adjustable roller B', to regulate the tension or pressure of the elastic apron C, in combination with a pattern-roller inclosing a revolving brush, substantially as and for the purpose described.

5. In combination with a revolving brush, E, operating upon the concave surface of a hollow pattern-cylinder, supported by a cylindrical or semi-cylindrical stationary bearing, F, and an elastic apron supporting the cloth to be operated upon, the adjustable bearings *s* of said brush to regulate the operation, substantially as described.

185,588. QUADRUPLEX TELEGRAPHS. G. Smith, Astoria, assignor of one-half his right to G. B. Prescott, New York, N. Y. [Filed Dec. 27, 1875.]

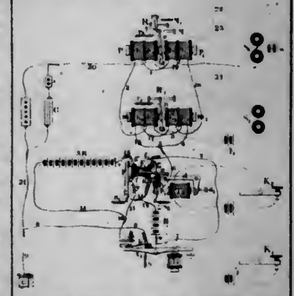


1. Two keys or transmitters and one or more main batteries at one station, in combination with a line-wire, and with one or more receiving-instruments at another station, when so arranged that a current of one polarity will traverse the line when both keys are depressed, and a current of equal strength, but of opposite polarity, when both keys are elevated, substantially as and for the purpose specified.

2. Two keys or transmitters and one or more main batteries at one station, in combination with a line-wire, and with one or more receiving-instruments at another station, when so arranged that a current of a given strength and polarity will traverse the line when both keys are at rest, which current will be diminished or interrupted by the depression of one key, while it will be increased, and its polarity reversed by the depression of the other key, substantially as and for the purpose specified.

3. A receiving-instrument or sounder and a local battery, in combination with a relay, consisting of one or more electro-magnets, provided with an armature or armatures capable of being moved from one extreme position to the other by a change in polarity in the line-current, and a supplementary contact-lever, so arranged in reference to said armature that the receiving-instrument will be actuated when the armature is at rest in an intermediate position, but not when at rest in either of its extreme positions, substantially as herein specified.

185,589. MULTIPLEX TELEGRAPHS. Garritt Smith, Astoria, assignor of one-half his right to G. B. Prescott, New York, N. Y. [Filed Dec. 7, 1875.]



1. In a duplex or multiple telegraph, two transmitters, connected with the same line-wire, one having a device so constructed and arranged as to close one branch of the circuit before opening another, and the other provided with two separate and simultaneously-acting devices of like construction and arrangement, in combination with two independent batteries, so that one battery may be made to send to line either a positive or a negative current, and the other a current of one determinate and invariable polarity, without in any case interrupting the main circuit, substantially as and for the purpose specified.

2. The oscillating double circuit-changer E F G, in combination with an electro-magnet, local battery, and key, substantially as specified.

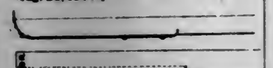
3. A compound differential relay, consisting of a permanently-polarized armature, so arranged as to be impelled in one direction or the other, according to the polarity of the magnetizing-current, by the attraction and repulsion of two or more separate electro-magnets, and provided with differential helices, simultaneously brought into action by the said current, substantially as herein specified.

4. A receiving-instrument or sounder and a local battery, in combination with a relay, consisting of one or more electro-magnets, provided with an armature or armatures, capable of being moved from one extreme position to the other by a change of polarity in the line-current, and one supplementary contact-lever, so arranged in reference to the said armature that the receiving-instrument will be actuated when the armature is at rest in either of its extreme positions, but not when at rest in an intermediate position, substantially as specified.

5. A receiving-instrument having a differential electro-magnet, the opposing coils of which are included in separate local circuits, or in separate branches of a common local circuit, in combination with a relay so arranged that when its polarized armature is

moved in one direction by the action of a positive current traversing the main line, it will open one, and when moved in the opposite direction by a negative current it will open the other, of the two opposing local circuits, and in either case the receiving-instrument will be actuated.

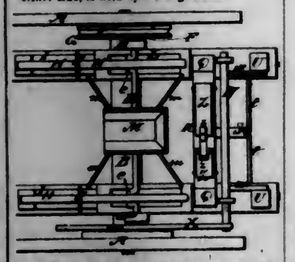
185,590. TYPE-WRITERS. Wm. H. Snider, Angus, Ontario, Canada, assignor to himself and Jonas T. Bush, same place. [Filed Aug. 28, 1876.]



A compound key-lever for type-writers, composed of a key recessed at the end, and provided with one or more types and a type-spring attached thereto, and working either separately or jointly with the key to produce a letter or combination of letters, according to the pressure exerted on the keys, substantially in the manner and for the purpose set forth.

185,591. CORN-PLANTERS. Thos. Sparks, Clayesville, Ky. [Filed Oct. 7, 1876.]

Brief.—The standards of the covering plows at the top are attached to a pivoted rock-shaft for vertical adjustment, and are jointed and attached by links to a vertical lever, for lateral adjustment. This lever, when thrown to either side, is held by locking-blocks.

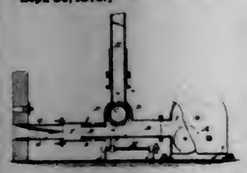


1. The combination of slotted cross-bar R with lever S, rods or links t t, and standards U U, provided with laterally-adjustable pivoted sections or lower ends U' U', substantially as and for the purpose set forth.

2. The combination of slotted cross-bar R with lever S, rod or link t t, standards U U, having pivoted ends U' U', and locking-blocks Z Z, substantially as and for the purpose set forth.

3. The combination of lever X with rock-shaft W, arms w w, and vertically-sliding standards U U, extended through and above frame C, substantially as and for the purpose set forth.

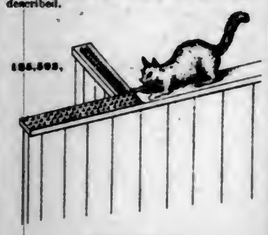
185,592. APPARATUS FOR INTRODUCING POWDERED FUR. INTO FURNACES. Geo. K. Stevenson, Valparaiso, Chili. [Filed Sept. 30, 1876.]



The combination, with blower A and tube B, of the alcarm F and tube G, the latter being adjustable, and provided with a twisted internal plate, substantially as and for the purpose specified.

185,593. BARBED METALLIC PLATES FOR FENCE-TOPS. C. L. Topliff, Brooklyn, N. Y. [Filed Nov. 20, 1876.]

In combination with the top of a fence or wall, a barbed sheet metal plate, having two or more rows of barbs formed out of the body of the plate between its edges, projecting in same direction, substantially as shown and described.



185,594. DOOR-LOCKS. Isaac F. Turner, Troy, N. Y. [Filed Mar. 25, 1876.]

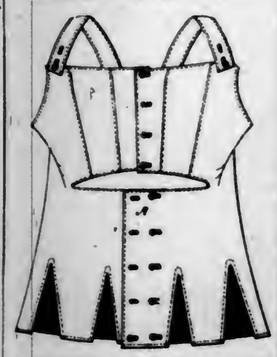
Brief.—The lock-bolt is provided with a rod, which passes through an aperture in the end of a secondary key, for holding the same in the lock while the bolt is in the unlocked condition.



1. In combination, with the bolt of the lock, the rod G, adapted to work through the aperture in the end of the secondary key, and hold the same in the lock, substantially as described.

2. In combination, with the bolt of the lock, the lumbler D, and rod G, arranged to operate in connection with a secondary key, substantially as described.

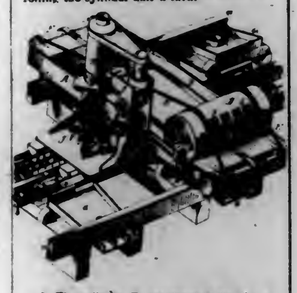
185,595. COMBINED ABDOMINAL AND BREAST SUPPORTERS. E. B. Van Vleck, Chicago, Ill. [Filed July 6, 1876.]



The combination of the breast-supporter and abdominal bandage, when joined behind and at the sides, but divided in front, and constructed with the elastic gussets a, band C, extra row of button-holes for enlarging the bandage, and the shoulder-straps, substantially as described, and for the purposes set forth.

185,596. MODES OF, AND APPARATUS FOR, UNLOADING VESSELS. W. Van Dusen, Philadelphia, Pa. [Filed Nov. 28, 1876.]

Brief.—On ways, which descend from land into the water, a carriage, having on it a cylinder for the reception of a loaded boat, is by means of an engine thereon, working a pinion and rack, lowered sufficiently to receive its load, and then drawn up to its position over a spout, the unloading being effected by rolling the cylinder half a turn.



1. The cylinder D, constructed for the reception, retention, and overturning of a vessel, and provided with discharge-ports b and b', as set forth.

2. The combination of the cylinder D with a carriage, A, adapted to a marine railway.

3. The combination of the cylinder D and its ports b b' with the carriage A and its ports d d'.

4. The combination of the cylinder D with the carriage A, its shafts F, and chains E.

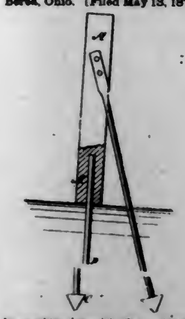
5. The cylinder D, provided with clamping-blocks c and screw-bolts f, as specified.

6. The combination of a vessel having hinged gang-planks g with devices, substantially as described, by which said vessel may be wholly or partially overturned.

7. The combination of the carriage A and the frame J with the boiler m, engine n, shaft s, operating the cylinder, and shaft t, operating the carriage, and with intermediate gearing, substantially as described.

8. The combination of the shaft t, its pinion T, and frame w, having rollers x, with the rack s and hinged supporting-props v, as set forth.

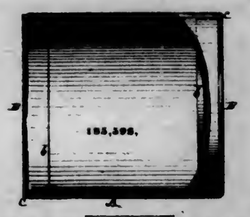
185,597. FENCE-POSTS. Charles Vansice, Berea, Ohio. [Filed May 13, 1876.]



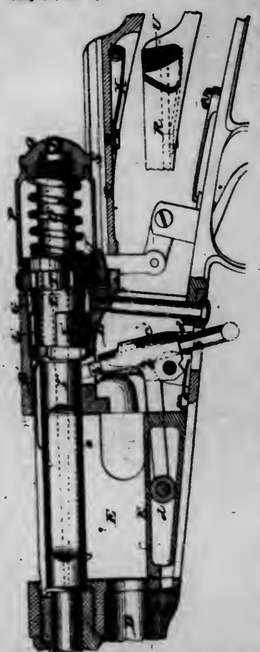
In combination with the socketed post A, the wire-rod base B, provided with the anchor C, substantially as and for the purpose specified.

185,598. PAPER BOXES. J. R. Van Vechten, Brooklyn, N. Y. [Filed Sept. 19, 1876.]

In combination with the paper or pasteboard shell forming the body of the box, the paper or pasteboard heads B B, constructed with the rims b b, to fit within the shell, and with the flanges c c, to abut against the top edge of the shell, said flange projecting outwardly a distance equal to the width of the shell, so that its edge will be flush with the outside of said shell, as herein shown, and for the purpose specified.



185,599. MAGAZINE FIRE-ARMS. F. Vetterlin, Newhausen, Switzerland. [Filed May 20, 1876.]



1. The rib R, rigidly attached to the breech-body, and provided with the groove S, which is located below and parallel with the breech-bolt, and is adapted to receive a projection on the collar of the breech bolt, and guide said collar and breech-bolt in their longitudinal movements, substantially as described, for the purpose specified.

2. The combination of the rib R, having the longitudinal groove S and lateral groove S', with the breech-bolt collar L, having the projection T, substantially as described.

3. The swiveled stud U, applied to the rib R, and adapted either to stop the breech-bolt and its collar in their backward movement, or to be depressed and allow said breech-bolt and collar to be entirely removed, substantially as described.

4. The swiveled stud U, combined with the rib R and the projection W on the collar L, substantially as and for the purpose specified.

5. The stud U, having the shaft V, on which are two flat surfaces, combined with the spring X, which is adapted to hold the shaft and stud with a yielding pressure in either of two positions, substantially as described.

6. The elbow-lever, consisting of the pivoted part b, having a spring-catch, c', and the sliding part b', having notches d d, combined with the breech-bolt and cartridge-receiver, substantially as described.

7. The cam-lever e, pivoted to the breech-body, and adapted to depress the trigger-bolt, in order that the firing-pin may be released gradually, substantially as described.

8. The cam-lever e, combined with the trigger-bolt f', having the shoulder f, substantially as described.

9. The cam-lever e, having the curved or inclined upper portion or handle, and located in such relation to the collar-lever M as to be displaced and caused to release the trigger-bolt when the collar-lever is turned down, substantially as and for the purpose specified.

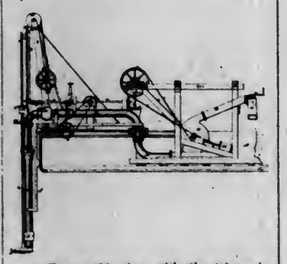
10. The detachable nose-cap g, adapted to inclose the barrel, the stock, the magazine, and the sweeping-rod, and be held in place, partially or wholly, by a projection, h', on the sweeping-rod, substantially as described.

11. The nose-cap g, having the orifice i', slots j j, and groove k, combined with the magazine-plug l, having studs n n, substantially as described.

12. The magazine-plug l, having the notched projecting flange m, combined with the sweeping-rod h, having the enlargement h', substantially as and for the purpose specified.

13. The pivoted elevation-leaf r, having the spring sight-retainer s and the adjustable elevation-slide r', combined with the segmental sight-receiver q, having numbered graduations or notches, adapted to hold the spring-points of the sight-retainer, and indicate the required elevation of the leaf for firing at a given distance, substantially as set forth.

185,600. DREDGING-MACHINES. Alexey W. Von Schmidt, San Francisco, Cal. [Filed July 3, 1876.]



1. The combination, with the telescopic conveying-pipe I, having an enlargement or hood, a' a', and rotary pump C, the excavator K, and suitable means for rotating the same, substantially as and for the purposes described.

2. In combination with the telescopic tube and excavator, the grooved driving-shaft Q, vertically-movable frame O, and loose feathered pinion b, supported upon a bracket mounted upon the pipe O, and meshing with the driving-pinions c, whereby motion may be imparted to the excavator without reference to the distended or collapsed condition of the conveying telescopic tube, substantially as hereinbefore described.

3. In combination with the platform M, centered at F, arms L, and vibrating telescopic tube G I, the chains R R, whereby the tube and excavator may be inclined and held at varying angles to a perpendicular line, or caused to sweep, substantially as and for the purpose set forth.

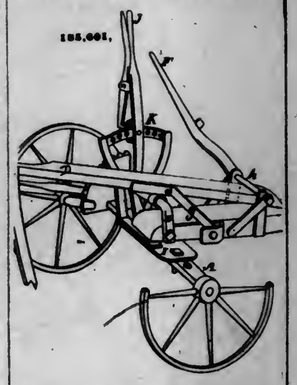
4. In combination with the platform M, centered at F, arms L, vibrating telescopic tube G I, and pendent vibrating support a', the chains R R, whereby the tube and excavator may be inclined and held at varying angles to a perpendicular line, or caused to sweep, substantially as and for the purpose set forth.

185,601. GANG-PLOWS. B. W. Walton, Collinsville, Cal. [Filed May 16, 1876.]

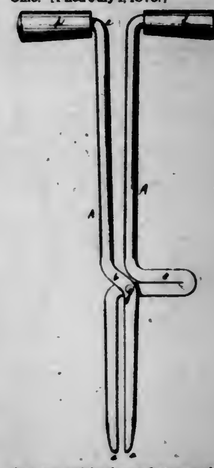
Brief.—The tongue is secured to a plate that has one end pivoted to the axle-tree, while the other end of the plate is adjusted backward and forward by means of a lever. The plow-beam, being secured to the tongue by means of links, is thus caused to take more or less land.

1. In combination with the plow-beam D, supported above the axle A and pole C, and operated by the cam E and lever F, the inclined links g g, substantially as and for the purposes described.

2. The combination of tongue C and slotted plate I, rigidly bolted to each other, one end of the plate being pivoted to the axle-tree, and the other end moved by the lever J, thus giving the plow more or less land, as desired.



185,602. IMPLEMENTS FOR SETTING HEDGE-PLANTS. C. R. Walter, Mount Vernon, Ohio. [Filed July 1, 1876.]



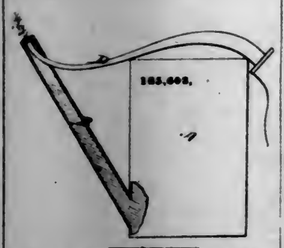
As a new article of manufacture, a planting implement composed of the leg A, bent at b, and provided with a handle, d, in combination with a leg, A', having a foot-piece, loop e, and handle f, pivoted together at g, substantially as set forth.

185,603. ATOMIZERS. Wm. V. Wallace, Boston, Mass. [Filed June 15, 1876.]

Brief.—The air-tube from a rubber bulb enters the spout of a watering-pot. The valve is upon the side instead of the open end of the ordinary metal nipple inserted in the end of the bulb.

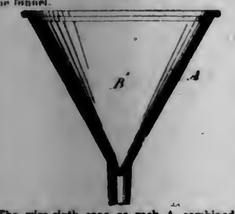
1. In an atomizer the liquid-reservoir or watering-pot A, having the spout B, combined with the air-chamber C and air-nozzle D, the latter entering the spout B, and terminating near its nozzle, substantially as described, for the purpose specified.

2. The valve V, composed of a tube closed at the outer end only, and perforated at one side, and the rubber strip or flap E secured in the bore of the tube at its open end, and projecting inwardly far enough to cover the perforation in the side of the tube, substantially as described.



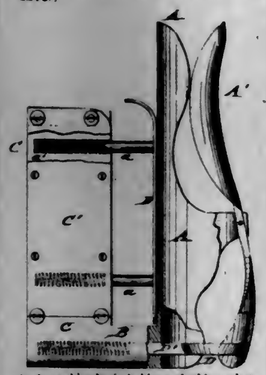
185,605. FILTER-RACKS. Henry R. Watt, Boston, Mass. [Filed Sept. 8, 1876.]

Brief.—The wire cloth cone or rack is placed inside of an ordinary funnel, to give support to a paper filter, and keep it from contact with the funnel.



The wire-cloth cone or rack A, combined with an ordinary conical paper filter B', the whole adapted to be placed inside of, and used in connection with, an imperforate funnel, as set forth.

185,606. WHIP AND REIN HOLDERS. J. W. Weddel, Freeport, Ill. [Filed Nov. 26, 1876.]



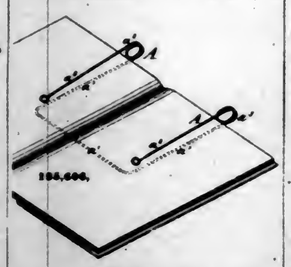
1. A combined rein-holder and whip-socket, composed of a fixed socket-plate, A, attached to the dash-board, and of a sliding and spring-acted rein-holder at one side, and a swinging and spring-pressed socket-plate A' at the other side, substantially in the manner and for the purpose set forth.

2. The combination of fixed socket-plate A, bottom extension B, fastening side plate C C', and sliding and spring-acted rein-holder D, substantially as specified.

3. The combination of fixed socket-plate A, bottom extension B, swinging socket-plate A', and sliding and spring-acted butt-supporting ring or plate D, substantially as and for the purpose set forth.

185,606. BOOK-CLIPS. John T. Weston, Creston, Iowa. [Filed May 9, 1876.]

A music-book clip, consisting of the wire A having middle bends a^1, coils a^2, and arms a^3, constructed and arranged substantially as and for the purpose specified.

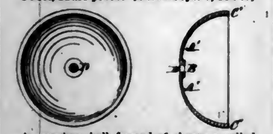


185,607. COAL-HODS. Samuel Whitnum, Green Point, N. Y. [Filed Aug. 18, 1876.]



The coal-hod herein described, having its body formed of the blank A, the center of which is provided with concavity a, with concavity b at each side thereof, the metal then dropped down at each side, as shown at x x, and the projecting tips D D, formed on a gradual curve inward, all as shown and set forth.

185,608. BELLS. A. Whitney, Hartford, Conn., assignor to himself and Francis A. Pratt, same place. [Filed Sept. 7, 1876.]

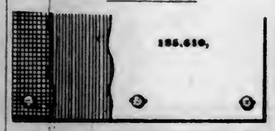


A seamless bell formed of sheet or rolled metal, as a new article of manufacture.

185,609. CONCRETE PAVEMENTS. H. Wibbee, Louisville, Ky. [Filed May 31, 1876.]



The improved method of building up stone pavements, herein described, consisting in, first, grading the road-bed A, then adding an even layer of bound gravel, A', then placing pointed stones B upon said layer, then filling the wedge-shaped interstices between said stones with smaller stones or gravel C, then ramming and rolling the bed thus formed, then covering the whole with a layer of hot coal-tar and pitch in equal proportions, and then adding a top dressing, D, of sharp gravel sand, after which the whole is rolled, substantially in the manner and for the purpose hereinbefore set forth.



185,610. BLANKETS. N. Wickliffe, Waterproof, La. [Filed Oct. 16, 1876.]

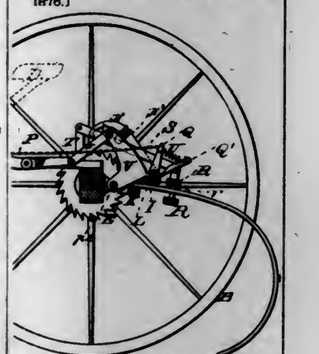
A blanket or other bed-cover composed of one or more layers of woven fabric, and a paper sheet formed on a gauze or other like fabric, the said sheets or plies being buttoned or otherwise detachably fastened together, substantially as specified.

185,611. BOOK-SUPPORTS. A. Wilson, New York, N. Y. [Filed Oct. 30, 1876.]



A book-rest, consisting of a block, provided with one inclined face, groove a, grooved arms B, and leaf-holders C, all arranged to support the book and hold the leaves, substantially as specified.

185,612. COMBINED RAKE AND TEDDER. R. Wilson, Ithaca, N. Y. [Filed Oct. 28, 1876.]



1. A horse hay-rake constructed with adjustable automatic mechanism, whereby it is caused automatically to ted the hay by a rapid collecting and dumping motion, or to collect it into windrows, as desired, substantially as set forth.

2. In a hay-rake, a ratchet-wheel secured to one of the transporting-wheels, in combination with a pawl secured to a rock-shaft, and having an adjustable tripping-lug, substantially as set forth.

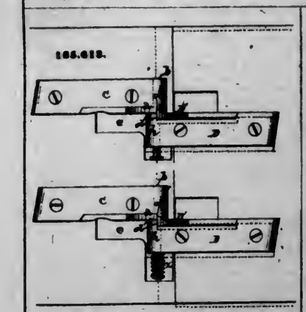
3. Rock-shaft L, in combination with spring U and pawl or pawls N, having adjustable lug or lugs, substantially as and for the purpose set forth.

4. Adjustable chain P, in combination with a foot-bar, rock-shaft L, and pawl or pawls N, provided with tripping-lugs, substantially as set forth.

5. In a horse hay-rake, the combination of an adjustable chain, P, with a foot-bar, a rock-shaft, L, pawls N, and ratchet-wheels E, attached to the transporting-wheels, substantially as and for the purpose set forth.

185,613. TABLE-HINGES. F. B. Wolfinger, Chicago, Ill., assignor of one-half of his right to D. B. Wood, same place. [Filed Oct. 31, 1876.]

Brief.—The construction permits a sidewise movement far enough to move the edges of the locking-flanges past, and disengage them from, each other when it is desired to drop the leaf in closed position.



A hinge for tables, consisting of the leaves C D, which are pivoted on the pin b, and which are provided with the flanges a D', having the straight edges $d d'$, for supporting the leaf of the table in an elevated position, one of the pins being provided with a spring, s, and both of them, preferably, recessed in the under side of the table, substantially as shown and described.

185,614. BUNGS FOR BARRELS. John A. Wright, Keene, N. H., assignor of one-half of his right to S. D. Osborne, same place. [Filed Dec. 9, 1876.]

Brief.—The sheet-metal seal is forced into the groove of the bush-flange and the socket of the bung, to prevent tampering with the contents of the barrel.



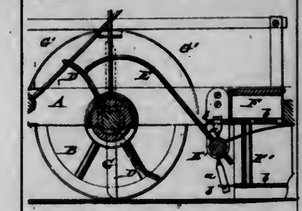
1. The metallic seal C, firmly embedded in the socket S and groove G, hermetically sealing the contents, as and for the purpose described and shown.

2. The bushing B, having grooved flange F, and the bung P, as and for the purpose described and shown.

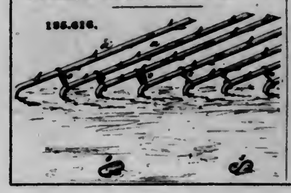
3. The bushing B, with grooved flange F, having perforations f, bung P, with socket S, and seal C, arranged and combined as shown and described, and for the purpose specified.

185,615. CORN-PLANTERS. T. C. Young, St. Charles, Iowa. [Filed Sept. 9, 1876.]

Brief.—To the sliding half of the clutch are attached curved arms, that strike, in their revolution, bent arms secured to an oscillating rod, to which the seed-slides are attached for imparting a reciprocating movement to the slide.



The combination, with an axle, loose wheels, and clutch mechanism, as set forth, of the radial rods D, arranged on sliding clutches, and the curved rods E on the shaft, connected with seed-slide, for the purpose specified.



185,616. PLASHED FENCES. W. Young, Columbus, Ohio. [Filed June 7, 1876.]

Brief.—The improvement consists in the use of links, each embracing two vines, in contradistinction to continuous ligatures.

1. The mode of plashing hedges above described, consisting, essentially, in bending the twigs down at a point near the ground, and then connecting them in pairs by means of links or loops, applied substantially as described.

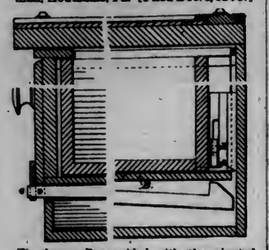
2. The plashed hedge-fence herein described, consisting, essentially, of the twigs a a, bent down as shown, and combined with the independent links, applied to couple them in pairs, substantially as described.

185,617. BOARD ROOFING. A. W. Zimmerman, Denison, Tex. [Filed June 12, 1876.]



The combination of the boards A, having straight end tongues a', with projecting lips a^2, as and for the purpose set forth.

185,618. MONEY-DRAWERS. S. Zimmerman, Houtsdale, Pa. [Filed Dec. 1, 1876.]

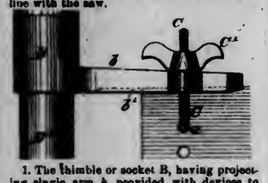


The drawer B, provided with the pivoted catch D and locking-bolt E, in combination with the drawer C, provided with the catch f and the secret latch F, all constructed to operate substantially as and for the purpose set forth.

REISSUES.

7,433. HANDLES FOR CROSSCUT-SAWS. W. Clemson, Middletown, N. Y., assignor to Wheeler, Madden & Clemson Manufacturing Company. Patent No. 146,749, dated Jan. 27, 1874. [Filed Sept. 29, 1876.]

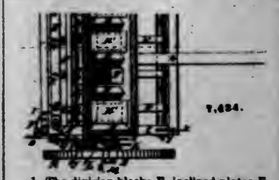
Brief.—The handle is allowed to project beneath its attachments to the saw, so as to form an additional hand-hold beneath and in line with the saw.



1. The thimble or socket B, having projecting single arm b, provided with devices to hold the saw-blade, in combination with the handle D D', one of the parts extending above the thimble or socket, and the other part below the same, without any lower support, as and for the purpose set forth.

2. A crescent-saw handle, D, having single extension D', securing the saw A to the handle, and, a screw-clamping device, C, the part D' of the handle extending through and below the part B, whereby the saw is secured to the handle at a point above the lower portion of the handle, substantially as and for the purpose set forth.

7,434. GRAIN-DRILLS. Jas. C. Daman, Elk Point, Dak., assignor of one-half interest to Jesse B. Watson. Patent No. 170,241, dated Nov. 23, 1875. [Filed July 28, 1876.]



1. The division-blocks E, inclined plates F, and movable plates G, combined with the rock-shaft, pawl, and ratchet, as and for the purpose set forth.

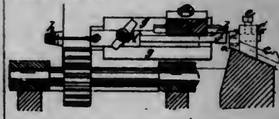
2. The inclined plates F, movable plates G; and plates H', combined with the hopper D, as and for the purposes set forth.

3. The adjustable rod V, carrying the tubular washers W, in combination with the arms e e pivoted to said rod V at their forward ends, and provided with pins at their rear ends, which pass through slots in the sliding bar B', substantially as described, and for the purpose set forth.

4. The adjustable rod V, carrying the tubular washers W, and having the arms e pivoted thereto, in combination with the sliding bar B', hollow standards S, provided with plows T, and scattering plates s', and the flexible tube I, substantially as described, and for the purpose set forth.

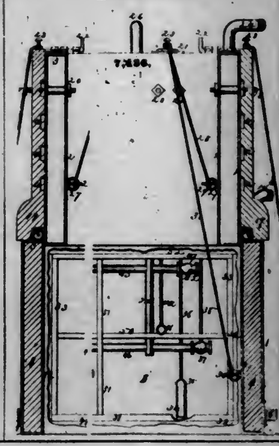
7,435. MACHINES FOR MAKING HORSESHOE-NAILS. Daniel Dodge, Keeseville, N. Y. Patent No. 41,141, dated Jan. 5, 1864. [Filed Aug. 10, 1876.]

Brief.—A pair of cutters which point the nail by a single oblique cut, and a moving finger or presser, that, simultaneously with the cutting, bends the end of the nail so that the axis of the point will be in line with, as well as be the extension of, the axis of the body of the nail.



1. The combination, in a nail-machine, of an anvil for supporting the nail against the pressure of a roll moving over the nail in the direction of its length, and caused to revolve by contact with the surface of the nail, with shearing-dies for shaping the point of the nail, and mechanism for transferring the nail from the anvil to the shearing dies, substantially as herein set forth.

2. The combination of the finger f and the shearing-dies a and b, substantially as set forth.



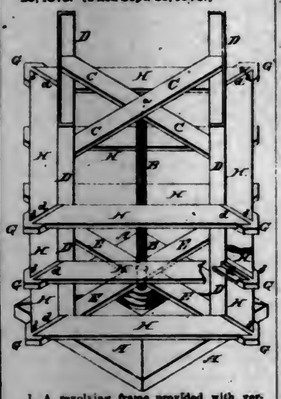
7,426. PORTABLE AND CONVERTIBLE COFFER-DAMS. S. Lewis, Brooklyn, N. Y., assignor of one-half interest to W. H. Cammeyer. Patent No. 92,324, dated July 6, 1869. [Filed July 20, 1876.]

1. A coffer-dam or caisson inclosing an open well, the same being constructed with double walls and having its sides divided by partitions into two or more water-tight compartments, substantially as and for the purposes specified.

2. In a coffer-dam or caisson, the combination of two or more vertically-adjustable double-walled sections, substantially as described.

3. In combination with a portable coffer-dam or caisson, the supports 17 for a vertically extended section, substantially as and for the purposes described.

7,427. REVOLVING STANDS. Jos. J. Biesl, Lewisburg, Pa., assignor, by mesne assignments, to Jos. S. Marsh and W. W. Wolfe. Patent No. 136,226, dated Apr. 29, 1873. [Filed Sept. 26, 1876.]



1. A revolving frame provided with vertical supports D, shelves H, inside connecting parts C H, in combination with a bottom support, A, and central rod B, substantially as and for the purpose set forth.

2. The revolving frame consisting of the angular or L-shaped corner-bars D D, with diagonal connecting-bars C C and E E, and provided with shelves around its outside, for the purposes herein set forth.

3. The combination of the stand A B, revolving frame C D E, supports G G, and shelves H H, all constructed and arranged substantially as and for the purposes herein set forth.

7,428. HYDROSTATIC HOISTING-MACHINES. L. C. Goodale, Cincinnati, Ohio, administrator of S. Van Sinon, deceased. Patent No. 134,019, dated Dec. 17, 1872. [Filed Nov. 27, 1876.]

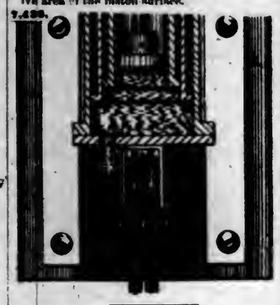
Brief.—A series of pistons are arranged within a cylinder. The central one has a solid circular head, and operates within an annular piston, which, in its turn, operates within the next annular piston of the series next, the last of the series operating within the stationary cylinder. The annular pistons are provided with outwardly-projecting flanges of unequal sizes, to enable levers secured to the bed plate to be brought into such a position that one or more of the pistons may be stopped, and only such used as may be necessary to raise the load.

1. In a hydraulic elevator a movable cross-head, a rope to be operated by it, and a main piston connected with the cross-head, in combination with one or more auxiliary pistons, adapted to move with the main piston and cross-head to start and lift a heavy load, or to remain inactive while the main piston completes its full stroke, the single main piston, or it and an auxiliary piston, being adapted to be thrown into operative action according to the weight of the load to be raised.

2. In an elevator a hoisting-rope, localized pulleys, movable pulleys, and a cross-head, in combination with an outer stationary cylinder, a piston attached to the cross-head, and one or more cylindrical pistons, adapted to either remain inactive, or to be caused to act in conjunction with the piston attached to the cross-head, to decrease or increase the effective area of the piston-surface for a light or a heavy load.

3. The combination, with a stationary outer cylinder and localized pulleys, a cross-head, and movable pulleys, a piston attached to the cross-head, and one or more concentric cylindrical pistons, of one or more holders, whereby the piston or pistons not attached to the cross-head may be retained, depressed within the stationary cylinder, or be elevated by the action of the water, to add to the effective area of the piston surface.

7,429.



7,429. HINGES. Chas. R. L. Holmes, New York, N. Y. Patent No. 133,459, dated Oct. 17, 1876. [Filed Nov. 13, 1876.]



1. A hinge made from a previously-formed compound sheet of metal, consisting of block-tin, or alloy composed chiefly of tin, and a sheet or backing of zinc, substantially as specified.

2. A hinge the leaves of which consist of two or more metals united permanently at their faces, and constituting the base or larger part, substantially as specified.

7,430. CASES FOR SHUT-OFF RODS AND STOP-COCKS FOR GAS AND WATER PIPES. P. Jaroski, Erie, Pa. Patent No. 131,349, dated Aug. 22, 1876. [Filed Nov. 26, 1876.]

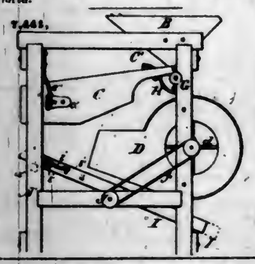


1. A casing having two different diameters, in combination with an adjustable upper section, B, substantially as and for the purpose set forth.

2. An upper adjustable section, B, of gas-pipe, in combination with the casing A and spring *f*, substantially as and for the purpose described.

3. An upper adjustable section, B, in combination with the casing A, spring *f*, and stop *g*, substantially as and for the purpose set forth.

7,431.



7,431. GRAIN-SEPARATORS. R. H. Osborn, Quincy, Ill. Patent No. 140,786, dated Apr. 14, 1874. [Filed Aug. 7, 1876.]

1. In combination with the long-meshed screen 1, the shaft J, having polygonal cams *j* of eight or more faces, arranged alternately, as described, so as to impart a rapid and laterally-oscillating motion to the screen, for the purpose specified.

2. The box O, provided with the lugs *o'*, in combination with the springs *o''*, posts A, shaft G, and cam *g'*, substantially as set forth.

3. The screen 1, in combination with the polygonal cams *j*, having their alternate faces and angles opposite, and operated by the shaft J, substantially as specified.

4. The combination, with the reciprocating screen-frame, provided with lugs, of the posts and springs secured thereto, substantially as set forth.

5. The combination, with the reciprocating screen-frame, provided with lugs, of the springs and the posts, said lugs serving at once as a point of impact of the screen-frame against the posts, and as a pressure-bearing for the springs, substantially as set forth.

6. A screen-frame actuated by a cam operating thereon, or on some device rigidly connected thereto, in combination with a fixed bumper, with which the lower end of the screen-frame comes in percussive contact at the termination of its movement in the direction of the descending grain, substantially as set forth.

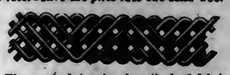
7,432. FIRE-HOSE. John V. D. Reed, New York, N. Y. Patent No. 161,273, dated Mar. 23, 1876. [Filed Oct. 30, 1875.]



Fire or hydraulic hose of more than one ply, composed of cotton, linen, or other analogous material, woven whole in a cylindrical or expanded form, with two or more weft-threads interwound and packed with the woof-threads in concentric helical coils, one within another, and without any short bends, thus possessing, substantially, uniform strength and a uniform appearance around its entire body, substantially as described.

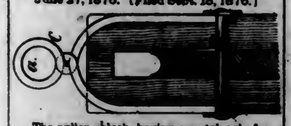
7,433. FIRE-HOSE. John V. D. Reed, New York, N. Y. Patent No. 161,273, dated Mar. 23, 1876. [Filed Oct. 30, 1876.]

Brief.—Woven upon a circular loom, the ply-wefts being all introduced within the compass of one round turn, and concentrically one within the other, the sheds being such as to interweave the plies into one solid web.



The method herein described of fabricating woven fire or hydraulic hose of more than one ply, of cotton, linen, or other analogous material, by arranging and holding the warp-strands in a cylindrical or equivalent form, while two or more woof-threads are, without any sharp or short bends, interwound and packed with them in concentric helical coils, one within another, the warp-threads being shed, as described, whereby the whole are tied together to form a single cylindrical tubular web of uniform strength and appearance throughout, substantially as specified.

7,434. PULLEY-BLOCKS. John Weir, New York, N. Y. Patent No. 179,280, dated June 27, 1870. [Filed Sept. 18, 1876.]



The pulley-block, having a metal axle for the sheave, in combination with a suspending wire strap connected to each axle, and occupying recesses in the cheeks of the block, and having the eye *e*, substantially as and for the purposes set forth.

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DECISIONS OF THE COURTS.

U. S. CIRCUIT COURT—DISTRICT OF NEW JERSEY.

WEBSTER LOOM COMPANY *vs.* JAMES SHORT AND GEORGE WHITTAKER.

[*Before* NIXON, *J.—Decided December* 19, 1876.]

STATEMENT OF THE CASE.

The Webster Loom Company, a corporation created under the laws of the State of New York, filed its bill for an infringement of a patent. It made a New Jersey corporation and two of its directors and trustees defendants. It alleged that the two individual defendants had formerly owned the infringing looms as copartners, and, as such, that they had taken a license from the plaintiff, whereby they had agreed to pay a certain royalty per day on each loom, and that such license established the measure of damages as against all the defendants.

Short and Whittaker answered, and then filed a cross bill, asking that the plaintiff might be decreed to surrender the license for cancellation. The Webster Loom Company, being a New York corporation, could not be found in the district of New Jersey to be served with process, and thereupon Short and Whittaker entered an order for publication, and for its service in New York on the plaintiff as an absent defendant, requiring it to appear and plead, answer, or demur to the cross bill within a time specified.

The Webster Loom Company moved to set aside this order, and to strike the bill from the files, upon the ground that the order of publication had been improperly obtained, and without notice, and that no leave to file the cross bill had been granted. It cited: *Miles* vs. *Bacon*, (4 J. J. Marsh, 457;) *Garner* vs. *Beatty*, (7 id., 223;) *Eckert* vs. *Banner*, (4 Wash., C. C. R., 370;) *Ward* vs. *Seabrey*, (4 id., 426;) *Bronson* vs. *La Crosse*, (2 Wall., 293;) *Sawyer* vs. *Sawyer*, (3 Paige, 263;) *Smith* vs. *Hibernian*, (1 Schoales and Lafroy, 238;) *Elliott* vs. *Millott*, (1 Hogan, 125;) *French* vs. *Dear*, 5 Ves., 547, 550;) *Watnesby* vs. *Watnesby*, (Jack., 277;) *Blake* vs. *Smith*, (Younge, 596; Story on Eq. Plead., sec. 66; 2 Daniels, Ch. Pr., p. 1410;) and *Holderness* vs. *Rankin*, (2 Del., F. and J., 258.)

DECISION.

NIXON, *J.*:

The motion in this case is to strike the cross bill from the files of the court on the ground that it was filed without notice to the solicitor of the defendants.

As there is no proof or suggestion of notice, the motion must prevail. The rule is clear upon this point, for the reason that such a bill is of great value to the defendant in the original suit, not only in giving him a discovery which may enable him better to defend, but also in giving him jurisdiction over a non-resident complainant by directing him to appear, by solicitor, when no subpœna can be served.

There is no law which authorizes an order of publication in suits of this nature, and the order was improvidently taken.

The defendant is entitled to an order that the bill be taken from the files of the court.

DESIGNS PATENTED DURING THE WEEK.

[Each Design bearing date December 26, 1876.]

9,680.—Carpet Fabric.—ALFRED HEALD, Philadelphia, Pa., assignor to HUGH MCCALLUM, ORLANDO CREASE, and ANDREW J. SLOAN, trading as MCCALLUM, CREASE & SLOAN, same place. Application filed December 9, 1876. Term of patent 3½ years.

9,681.—Arm-Chair Frames.—THEODORE J. PALMER, New York, N. Y. Application filed November 4, 1876. Term of patent 3½ years.

9,682.—Sofa-Frames.—THEODORE J. PALMER, New York, N. Y. Application filed November 4, 1876. Term of patent 3½ years.

9,683.—Bottle-Stopper.—CHARLES R. STEELE, Waukegan, Ill., assignor to himself and VINCENT C. PRICE, same place. Application filed November 17, 1876. Term of patent 7 years.

9,684.—Heating-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, and TOBIAS S. HEISTER, Lansingburg, assignors to NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 28, 1876. Term of patent 3½ years.

9,685.—Cooking-Stoves.—NICHOLAS S. VEDDER and FRANCIS RITCHIE, Troy, and TOBIAS S. HEISTER, Lansingburg, assignors to NICHOLAS S. VEDDER, Troy, N. Y. Application filed November 28, 1876. Term of patent 3½ years.

TRADE-MARKS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 26, 1876.]

4,232.—Remedy for the Cure of Asthma.—JOSEPH H. GUILD, Rupert, Vt. Application filed December 11, 1876. "The fanciful words 'GREEN MOUNTAIN.'"

4,233.—Medical Preparation.—WILMER L. KELLER, Baltimore, Md. Application filed August 29, 1876.
"The arbitrarily-selected words 'LIVE DROPS.'"

4,234.—Starch.—T. KINGSFORD & SON, Oswego, N. Y. Application filed November 4, 1876.
"The firm-name 'T. KINGSFORD & SON.'"

4,235.—Feed Products from Maize or Indian Corn.—T. KINGSFORD & SON, Oswego, N. Y. Application filed November 4, 1876.
"The firm-name 'T. KINGSFORD & SON.'"

4,236.—Bitters.—WILLIAM H. KNOEPFEL, New York, N. Y. Application filed December 6, 1876.
"The word-symbol 'ANGOSTURA.'"

4,237.—Fleur.—GEORGE A. KLINGER, St. Charles, Mo. Application filed December 4, 1876.
"The words 'St. Charles Star,' and the accompanying representation of a star."

4,238.—Linen Collars.—MILLER & BINGHAM, Troy, N. Y. Application filed October 23, 1876.
"The word-symbol 'ENOCH ARDEN.'"

4,239.—Cologne.—GEORGE E. MITCHELL, Lowell, Mass. Application filed November 22, 1876.
"The words 'Mitchell's Memorial,' used in connection with a picture of the Art Gallery."

4,240.—Medical Preparation.—JOHN M. RICHARDS & Co., New York, N. Y. Application filed December 2, 1876.
"The word-symbol 'HYDROLEINE.'"

4,241.—Whisky.—SCHMIDLAPP & Co., Cincinnati, Ohio. Application filed November 27, 1876.
"The word-symbol 'LIVE OAK.'"

4,242.—Soap.—SCHULTZ & Co., Zanesville, Ohio. Application filed December 18, 1876.
"The word-symbol 'SCOTCH.'"

4,243.—Cigars.—SEIDENBERG & Co., New York, N. Y., and Key West, Fla. Application filed December 11, 1876.
"The word-symbol 'GULF STREAM.'"

4,244.—Preparation for the Hair.—F. R. TAYLOR & Co., Baltimore, Md. Application filed December 7, 1876.
"A triangle, within which is a druggist's mortar and pestle, with an anchor above it. To the anchor is attached a rope, which falls down and curls around the lower portion of the mortar, the whole being inclosed by a ring."

4,245.—Time-Keeping Instruments.—SETH THOMAS CLOCK COMPANY, Thomaston, Conn. Application filed December 12, 1876.
"A rectangle inclosed in a circle."

4,246.—Metal Badges.—JOSEPH K. DAVISON, Philadelphia, Pa. Application filed December 26, 1876.
"In the center of the badge is a figure of the Goddess of Liberty, representing Loyalty; on either side, a soldier and sailor clasping hands, representing Fraternity, and two little children receiving benediction and assurance of protection from the comrade, &c., representing Charity. On each side of the group is the national flag and the eagle, representing Freedom, and the ax and bundle of rods, or fasces, representing Union. In each point of the star is the insignia of the various arms of the service—viz., the bugle for infantry, cross-cannon for artillery, cross muskets for the marine, cross swords for cavalry, and anchor for sailors. Over the central group are the words 'Grand Army of the Republic,' and, under, the word and figures '1861—Veteran—1866,' commemorating the commencement and close of the rebellion, and also the date and organization of the order.
The reverse side represents a branch of laurel—the crown and reward of the brave—in each point of the star; the national shield in the center, surrounded by the twenty-four recognized corps-badges, numerically arranged, each on a keystone, and all linked together, showing they are united, and will guard and protect the shield of the nation. Around the same is a circle of stars, representing the States of the Union and the departments composing the Grand Army of the Republic.
The clasp is composed of the figure of an eagle, with cross-cannon and ammunition, and representing Defense, the eagle, with drawn sword, hovering over, and always ready to protect from insult and dishonor, the national flag, which is also the emblem and ribbon of the order."

LABELS REGISTERED DURING THE WEEK.

[Each certificate bearing date December 26, 1876.]

935.—Title: "Infallible Eye-Wash."—WILLIAM E. CLARKE, Providence, R. I. Application filed December, 13, 1876.

936.—Title: "Strongest Tincture."—LEWIS SHERMAN, Milwaukee, Wis. Application filed December 18, 1876.

NOTICE TO MANUFACTURERS AND OTHERS.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *September* 5, 1876.

The COMMISSIONER OF PATENTS respectfully requests manufacturers of and dealers in engines, machines, apparatus, tools, and appliances of whatever kind, to send to this Office duplicate copies of all catalogues and circulars which they have issued or may issue from time to time.

Where such catalogues or circulars have a permanent value, other than as a mere advertisement, their receipt will be acknowledged in the columns of the OFFICIAL GAZETTE.

R. H. DUELL, *Commissioner.*

All letters to the Patent Office must be addressed to the Commissioner of Patents.

Where specifications are in print they are furnished with the drawings without extra charge.

The drawing accompanying an application for a patent must be on a sheet ten by fifteen inches.

The "Rules of Practice" contain full instructions, forms, &c., for making applications for patents.

The "Rules of Practice" are furnished gratis on personal or written application to the Commissioner of Patents.

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Bliss, D. P., Reciprocating churn	185,663
Borchardt, H., Breech loading fire arm	185,721
Bridwell, J. W., Fly trap	185,664
Brown, A. T., Making salt	185,667
Brown, E. P., Dental rubber dam clamp	185,665
Brown, E. P., Dental disinfected floss silk	185,666
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Burnham, D. W., Device for cutting screw threads	185,723
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Hope, C., Machine for tightening metal cap linings	185,637
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Huson, E., Horse hay rake, (reissue)	7,447
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King, R. J., Hearth plate	185,757
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Landenberger, M., Jr., Knitting machine	185,764
Laurence, W. E., and C. E. L. Holmes, Horse brush	185,749
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Matlack, J. R., Corn planter	185,642
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McNeill, T. E., Self acting steam trap	185,770
McVickers, M. E., Corn planter	185,771
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Messinger, C. R., and J. Smith, Spraying tobacco by steam	185,790
Metcalfe, S., Wool combing machine	185,772
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Philips, J., Car coupling	185,646
Phillips, J. V., E. C. Barmore, and G. J. Mateon, Door latch	185,769
Pinckney, S. R., Nozzle for cans	185,697
Pond, D. B., Wash bench	185,778
Pope, A. A., and J. Simpson, Tackle block, (reissue)	7,449
Port, A., and G. Wilkes, Anti friction journal box	185,711
Pratt, D., Bed bottom	185,780
Praul, J. E., Bed bottom	185,779
Rae, J., and T. Minor, Indicator for steam engines	185,773
Ramsey, I., Lock for trunks, &c	185,781
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Richards, P. W., Piston rod packing	185,784
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Robinson, J. S., Reed organ stop action	185,699
Rogers, L. H., Combined letter sheet and envelope	185,785
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Smith, A. D., and J. B. Collison, Washing machine	185,792
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Stevens, A. B., Chair	185,796
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Sunderland, L. A., Milk can, (reissue)	7,450
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Swift, H. D. and D. W., Envelope machine	185,798
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Wilson, J. M., Floor clamp	185,810
Winsor, A. A., Child's carriage	185,655
Winsor, J. S., Gate, (reissue)	7,451
Wood, C., Manufacture of bricks from furnace slag	185,712
Wood, J., Sewing machine for embroidering	185,811
Woodward, S., Knitting machine needle	185,713
Wuensch, A., Paper vessel	185,812
Yaga, N., Automatic steam boiler feeder	185,656

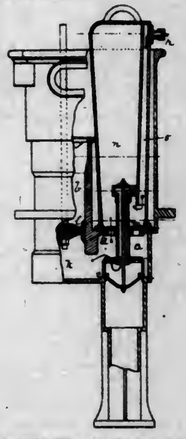
TITLES, DRAWINGS, AND CLAIMS

OF

PATENTS GRANTED DECEMBER 26, 1876.

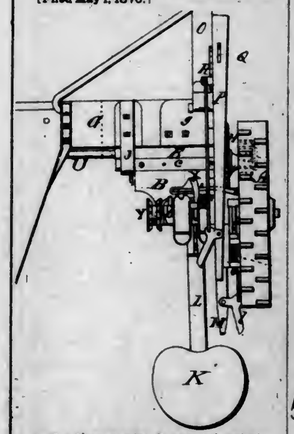
185,619. PUMPS. Wm. Adair, Liverpool, England. [Filed Oct. 31, 1876.]

Brief.—The valves are directly over each other in a chamber open at top. The air-chamber is fitted with delivery and suction and hose connections.



The combination of piston-barrel *b*, piston *l*, chambers *a k n*, valves *j m*, passages *i o*, and hose-nozzles *f h*, substantially as set forth.

185,620. HARVESTERS. John F. Appleby, Mazo Manie, Wis., assignor of one-half of his right to Edwin D. Bishop, same place. [Filed May 1, 1876.]



1. The frame-casting B, mounted and pivoted upon a projecting shaft, *c*, of the driving-wheel A, of a single-wheel mowing-machine, substantially as and for the purpose herein specified.

2. The combination of the frame-casting B, and shield-casting E, pivoted together on an axis in line with the center of the driving-pinion C, and operating to raise and lower the finger-bar G, substantially as herein specified.

3. The combination of the castings B and E, raising and lowering lever M, and connecting bar or rod N, substantially as and for the purpose herein specified.

4. The combination, substantially as described, of the frame-casting B, the counter-balancing driver's seat K, and seat-support L, the said support having an adjustable attachment to the said casting, and the seat being adjustable on its support, as and for the purpose herein specified.

5. In combination with the castings B and E, the tongue O, tilting-lever P, fulcrum-support Q, and ratchet-bar R, arranged and operating substantially as and for the purpose herein specified.

6. In combination with the frame-casting B, operating to raise and lower the inner end of the finger-bar, and with the grain or grass wheel T, the rock-shaft U, provided with arms V W, and connecting with the said casting by a connecting-rod, *q*, substantially as and for the purpose herein specified.

7. The shipping-lever X, arranged in combination with the pinion C, and sheave-wheel Y, for coupling and uncoupling the same on their shafts, substantially as herein specified.

185,621. DEVICES FOR SECRET WRITING. Alexander Berghold, New Ulm, Minn. [Filed Oct. 10, 1876.]



1. The device or key for secret writing, consisting of a holding-frame and interchangeable strips of metal or card-board, upon which are impressed or placed the letters of the alphabet or equivalent symbols, each letter or symbol being arranged upon a strip adjacent to a perforation therein, substantially as and for the purpose described.

2. The device or key for secret writing, consisting of a sheet of metal or card-board, upon which are impressed or placed the letters of the alphabet or equivalent symbols, each letter or symbol being arranged adjacent to a perforation therein, substantially as and for the purpose described.

185,622. ELECTRO-VAPOR BATHS. G. W. Brown, Rockford, Ill. [Filed Sept. 26, 1876.]



1. In an electro-vapor apparatus, the metallic seat-stand F, to which the battery is attached, the screw-seat *e*, vertically adjustable therein, and having a plate, *d*, upon its top, whereby the seat can be raised or lowered without breaking the current, substantially as set forth.

2. The adjustable foot-stool, with metallic plates on the sides and ends, each connected by continuous metallic wire, substantially as described.

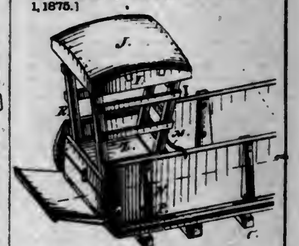
3. The back strip, with a figured scale for adjusting the seat, and grooved edges to hold the spinal electrode in place, substantially as described.

4. The adjustable spinal electrode, with its peculiar construction for the easy removal and replacing of the sponge, in combination with the rod, with a non-conductor on the top of the same, extending upward, admitting of the raising and lowering of the electrode by the operator.

5. The head-rest H, made adjustable vertically and horizontally, and so connected with the battery as to be made positive or negative, electric or non-electric, at the will of the operator, substantially as specified.

6. The combination, in an electro-vapor-bath apparatus, of the adjustable head-rest H, vertically-adjustable spinal electrode I, electric seat F, electric foot-stool E, and base A, having a metallic covering, *a*, whereby electricity can be applied to all parts of the body, substantially as shown.

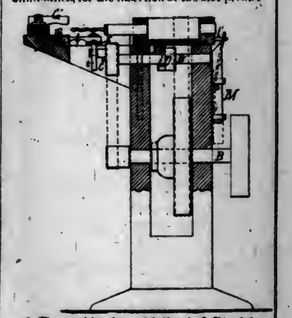
185,623. WAGON BODIES AND TOPS. F. H. Burnham, Ipswich, Mass. [Filed Dec. 1, 1875.]



The above-described wagon-top, consisting of the driver's seat Z, four stationary upright corner-pieces, R, cross-pieces I, and curved top J, all being constructed and arranged as shown and described, essentially as and for the purposes set forth.

185,624. MACHINES FOR BORING BLIND-STILES. E. Cather, Baltimore, Md., assignor of one-half of his right to Jas. R. Trimble. [Filed Sept. 8, 1876.]

Brief.—Holes of absolute uniform depth, and having exactly a prearranged series of distances between them, are rapidly bored in blind-stiles, for the insertion of the slot-pivots.

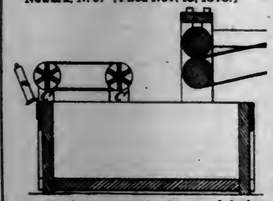


1. The combination, with the shaft B', of the slide M, substantially as shown and described.

2. The combination of the shaft B', having cam D, with the slide M, substantially as described.

3. The combination of the slide M with the spacing mechanism and shaft B', the latter carrying the cam D, as set forth.

185,625. PROCESSES AND APPARATUS FOR DYEING THREAD AND YARN. Wm. Clark, Newark, N. J. [Filed Nov. 18, 1875.]



1. The improvement in the art of dyeing thread in the skein, consisting in the connecting of the skeins in a chain by threads or interposed links so slender as to enable the skeins to take the dye equally throughout, the dipping of said chain of skeins progressively into the dye-liquor, and the expression of the superfluous liquor therefrom, all substantially as before set forth.

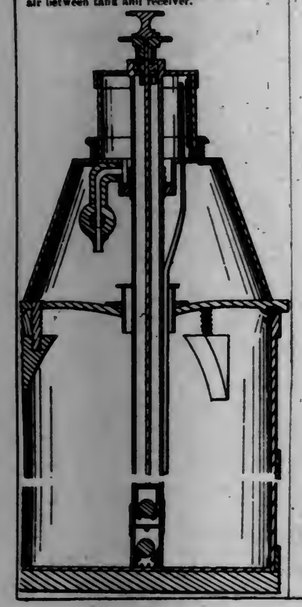
2. The combination, substantially as before set forth, of the dye-vat, the guide, the dipping-roller, the squeezing-roller, and the belts by which the dipping-roller and the squeezing-roller are caused to revolve positively.

3. The combination, substantially as before set forth, of the dye-vat, the dipping-roller, the squeezing-rollers, the delivery-roller, and the belts by means of which the several rollers are caused to revolve positively.

4. The combination, substantially as before set forth, of the dye-vat, the guide, the dipping-roller, the squeezing-rollers, the delivery-roller, and the belts by means of which the several rollers are caused to revolve positively.

185,626. OIL-CANS. Wm. H. Clark and Wm. J. Clark, Salem, Ohio. [Filed Apr. 1, 1876.]

Brief.—A tube separate from and not concentric with the pump-body, for passage of air between tank and receiver.



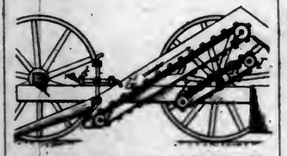
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1. In combination with the hood G, having a shoulder, H, and collar *f*, the revolving door I, connected therewith by a collar, K, forming a swivel-connection of the two parts, substantially as described, and for the purpose set forth.

2. In combination with the pump M, can A, and receiver N, the ventilating-tube R, at one side of the pump-body, and faucet Q, for the purpose specified.

185,627. POTATO-HARVESTERS. Frank N. Cole, Barre, N. Y. [Filed Mar. 31, 1876.]

Brief.—The digging and separating devices are mounted upon four wheels. A common scoop penetrates the earth, raises and delivers the soil upon an endless-belt screen. The vines are carried upward and backward by a revolving rake, and the potatoes are deposited in a receptacle at the tail end of the machine.



In a potato-harvester, the combination, with the primary screen D and carrier G, of the supplementary screen H and its carrier I, located under the head of the upper screen and beneath the coarser perforations *d d* of said screen, as shown and described, and for the purpose specified.

185,628. COMBINED HANDLE-PLATE AND ESCUTCHEON FOR DOORS. J. Collins, Darlington, N. J., assignor to Hopkins & Dickinson Manufacturing Company. [Filed Oct. 18, 1876.]

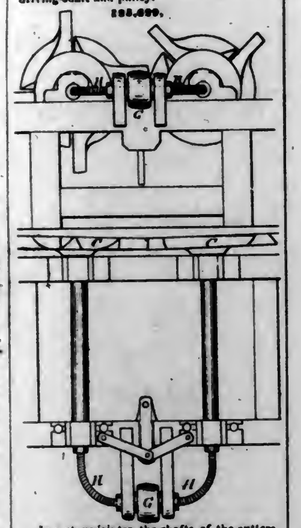


The combination of a handle-plate and escutcheon-plate constructed with interlocking elevations and depressions formed in the plates, substantially as and for the purposes herein described.

185,629. STAVE-JOINTERS. H. A. Crossley, Cleveland, Ohio. [Filed Dec. 27, 1875.]

Brief.—The cutter-shafts are connected by a flexible shaft, operated by and secured to a driving-shaft and pulley.

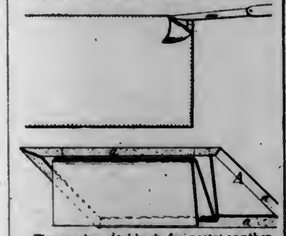
185,629.



In a stave-jointer, the shafts of the cutters connected by a flexible shaft, H, combined with a driving-shaft and pulley, G, constructed and arranged substantially as described.

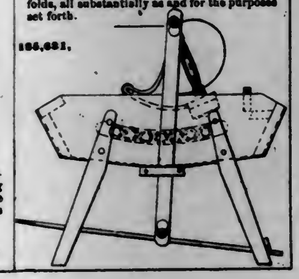
185,630. SUPPLEMENTAL BACKS FOR POSTAL-CARDS. L. Davis, Ironton, Mo. [Filed Sept. 24, 1875.]

Brief.—The supplemental back is intended to cover the "message side" of the postal-card, and is applied to the latter by means of its mucilaged folds *a*. Epistles, cards, &c., may be interposed between the back aforesaid and the card proper. Detaching the back from the cord is facilitated by the perforations along the creases of the folds.



The supplemental back for postal or other cards, having folded and gummed edges, their corners cut so as to miter, and provided with perforations along the creases of the folds, all substantially as and for the purpose set forth.

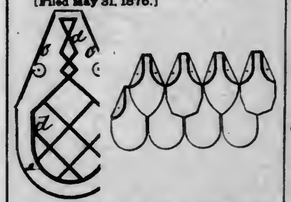
185,631.



185,631. WASHING-MACHINES. J. Donaldson, Rockford, Ill. [Filed Aug. 26, 1876.]

In a washing-machine, substantially as described, the combination of the treadle H, bars G, rubbing-frame, and springs F, these parts constructed, arranged, and operating as and for the purpose set forth.

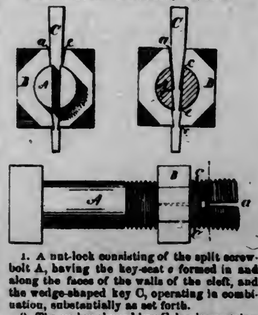
185,632. ROOFING-TILES. George Elbreg, Cincinnati, Ohio, assignor of one-half of his right to Alfred J. Hodder, same place. [Filed May 31, 1876.]



1. The arrangement of the united ribs M M on the upper side of the tile, in combination with the supporting-ribs A C, with the openings *s s* between them on the under side, substantially as and for the purpose specified.

2. The strengthening and supporting ribs and flanges C *d*, arranged substantially as and for the purpose described.

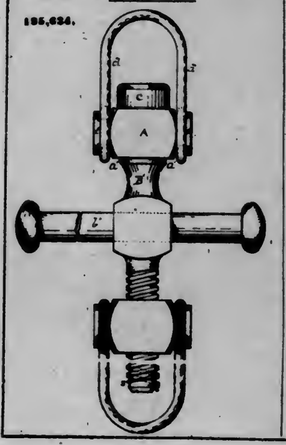
185,633. NUT-LOCKS. Samuel D. Enochs, Yates City, Ill. [Filed May 24, 1876.]



1. A nut-lock consisting of the split screw-bolt A, having the key-seat *e* formed in and along the faces of the walls of the cleft, and the wedge-shaped key C, operating in combination, substantially as set forth.

2. The wedge-shaped key C, having notches *s*, arranged to operate in combination with the bolt A and nut B, the bolt A having a split, *c*, and key-seat *e*, substantially as and for the purpose specified.

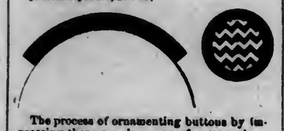
185,634.



185,634. DRAW-COUPLINGS FOR BOATS, &c. Samuel M. Fulton, Pittsburg, Pa. [Filed Dec. 1, 1876.]

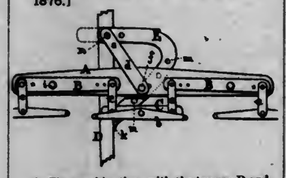
A draw-coupling, consisting of a shaft, B B', having one or more threads at one end, with a nut working thereon, and a loose block or swivel, A, at the opposite end, the nut and block being provided with stirrups *d d'* and a handle, *b'*, for rotating the shaft, substantially as set forth.

185,635. PROCESSES OF ORNAMENTING BUTTONS. F. H. Goldthwait, Springfield, Mass. [Filed Apr. 26, 1876.]



The process of ornamenting buttons by impressing thereupon by means of a stamp, having the elastic surface provided with the elastic figures, as described, patterns in an adhesive substance that may be readily removed after the button is dyed.

185,636. THREE-HORSE EQUALIZERS. R. Hoadley, Toulon, Ill. [Filed Sept. 30, 1876.]

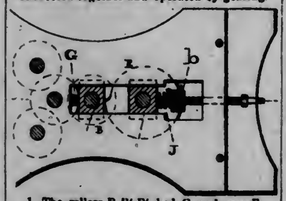


1. The combination, with the tongue D and double-tree A, bearing the unequally-pivoted levers B B, of the pivoted swinging draft-adjusting plate E, when constructed with adjusting-holes *m m*, &c., flange *k*, or bearing against the side of the tongue D, substantially as described.

2. The combination and connection of the adjacent ends of the levers B B, with straps *s s*, and the swinging bar C, to allow the said ends of said bars greater play in contrary directions, to obviate the sudden pulls upon the central single-tree and horse, substantially as described.

185,637. MACHINES FOR TIGHTENING METAL-CAP LININGS. C. Hope, Camden, N. J., assignor to John L. Mason, same place. [Filed Feb. 24, 1876.]

Brief.—A sheet-metal cap with vitreous lining is placed upon a revolving bed, and the lining tightened by rollers bearing against the cap. Two of the rollers are stationary, while the third moves in a slot, and is governed by a spring. The third roller is acted upon by a cam-roller moving in a slot, and adjusted by an adjusting-screw and spring. The cam-roller gives a yielding motion to the third roller, and by its adjustment enables the cap to be removed. All the rollers are connected together and operated by gearing.

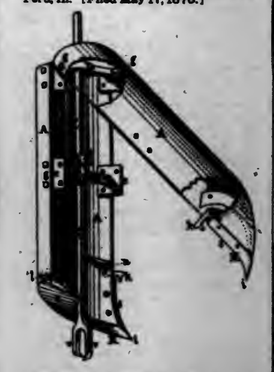


1. The rollers B B' B', bed C, and cam E, geared to each other, and operating substantially as and for the purpose set forth.

2. The rollers B B B', bed C, and spring G, in combination with the cam E and spring J, substantially as and for the purpose set forth.

3. The rollers B B B', bed C, and cam E, in combination with the adjusting-screw H and nut *b*, and the spring J fitted on said screw H, substantially as and for the purpose set forth.

185,638. EARTH-AUGERS. F. D. Hubbard, Peru, Ill. [Filed May 17, 1876.]

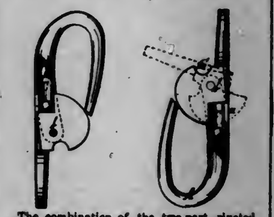


1. The pods A A, provided with screw-fastenings *g g*, and auxiliary hooks and staples *h i*, in combination with braces D E and center rod C, substantially as and for the purpose described.

2. The earth-auger with divisions A A, attaching-plates *s s*, screw-fastenings *g g*, braces D E, removable bits K K, bit-extensions *d d*, and extension center-bit U, substantially as and for the purposes described.

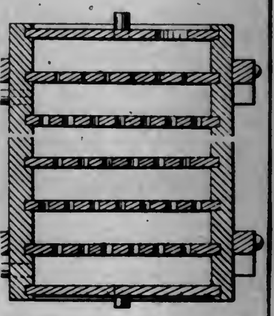
3. The combination, with the auger-halves A A and their bits K K, the spiral shelves *d*, for the purpose of extending said bits upward to raise minerals into the tube and relieve the bits from extra weight, substantially as described.

185,639. SNAP-HOOKS. Louis J. Johnson, Elk Falls, Kans., assignor of part of his right to T. P. Fletcher and W. A. Shelladay, same place. [Filed June 1, 1876.]



The combination of the two-part riveted and slotted snap, the rotating tongue, and the ball or locking device, substantially as and for the purpose described.

185,640.



185,640. APPARATUS FOR MANUFACTURING HYDROSULPHUROUS ACID. W. D. Jones, Hagaman's Mills, N. Y., assignor of one-half of his right to H. H. Pawling, same place. [Filed Dec. 14, 1876.]

A condenser provided with the distributing-diaphragm K and the series of perforated diaphragms L, M, N, &c., the alternating ones having their perforations situated in vertical lines with the imperforated parts of the intermediate ones, and the diaphragms extending entirely across the condensing-chamber, as and for the purposes specified.

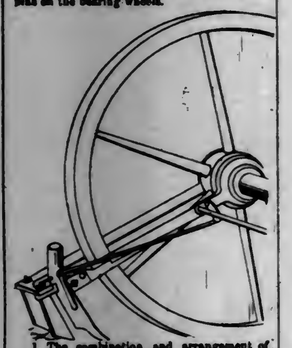
185,641. CIGARETTE-HOLDERS. C. Lammerts, New York, N. Y. [Filed Oct. 6, 1876.]



A cigarette-holder consisting of the telescopic tubes A B, as described, for the purpose set forth.

185,642. CORN-PLANTERS. J. B. Matlack, Cox's Mills, Ind. [Filed Jan. 14, 1876.]

Brief.—The opening, covering, and checking devices are mounted on the rear of a pivoted foot and hand lavers. The checking-arms and dropping-valves are actuated by pins on the bearing-wheels.



1. The combination and arrangement of the arms O', attached to the hubs of the ground-wheels, and carrying the hand-lever F and foot-lever F' in front, and extending back in rear of the wheels and carrying the tubes P P', and coverers D D, and marker L, substantially as described.

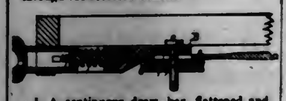
2. The arms O', attached to the wheels, as shown, and carrying the coverers D and marker L, in combination with the pins M, for operating the marker, substantially as described.

3. The combination and arrangement of the upright rod *o'*, rod A, crank E, rod S', crank E', rod *b'*, and upright rod U, for operating the valves in tubes P and P' simultaneously, as described.

4. In combination with rods U U' *h h'*, cranks E E', and rod S', the lever H and pins M, with wheel B', substantially as and for the purpose specified.

185,643. DRAW-BARS FOR RAILWAY-CARS. A. Milliken, Pittsburg, Pa. [Filed Nov. 16, 1876.]

Brief.—The draw-bar, which is slotted, runs through the recessed bolster.



1. A continuous draw-bar, flattened and slotted, as at *a a'*, in combination with recessed bolster B and king-bolt *s*, substantially as set forth.

2. The jointed draw-bar *a a' a²*, flattened and slotted where it passes the bolster, in combination with the king-bolt *s*, substantially as set forth.

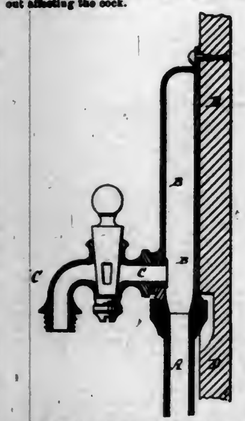
185,644. SUSPENSION-HOOKS. L. W. Pennell, Boston, Mass. [Filed Nov. 14, 1876.]



In suspension-hooks formed of a metallic wire bent into a loop or clasp, in which one extremity of the wire serves to puncture and guide the way into the material to be seized, and the opposite extremity constitutes a hook for seizing hold of such material, such hook with the point extended beyond the outer plane of the loop, substantially as and for purposes stated.

185,645. AIR-CHAMBER ATTACHMENTS TO WATER-PIPES. H. Pennie, Brooklyn, assignor to himself and Jas. L. Sharp, New York, N. Y. [Filed Oct. 24, 1876.]

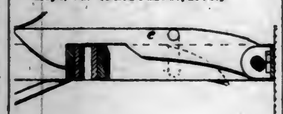
Brief.—The air-chamber is enlarged laterally to produce a short column of air to close above the faucet, which will allow the water, when the cock is rapidly closed, to compress the air, and thus spend its momentum without affecting the cock.



1. The combination, with the pipe A and faucet C, having a stop-cock, of the air-chamber B, communicating at the lower end with the pipe, at the side with the faucet, and enlarged laterally above its point of communication with the faucet, substantially as set forth.

2. As a new article of manufacture, the air-chamber B, adapted for attachment to the pipe A, detachable faucet C, and supporting-board D, provided with a flat back fitting the flat face of the said board, as specified.

185,646. CAR-COUPLINGS. J. Philips, New Hope, Va. [Filed June 17, 1876.]



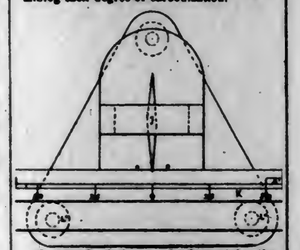
1. The coupling consisting of the bars *a*, *a'*, and *b*, in combination with the hooks *c*, having the fingers *f* projecting over the ends of the bars *b*, as and for the purpose set forth.

2. In combination with the hooks, with their fingers *f* projecting over the bars *b*, in the manner described, the springs *g*, pivoted so as to turn out of the way, adapted to hold the hooks in place when they are interlocked over the bars *a'*, as and for the purpose set forth.

3. In combination with the spring *g*, constructed and operating as described, the button *h*, as and for the purpose set forth.

185,647. DEVICES FOR TESTING CARBONIZATION OF METALS. C. M. Ryder, Cleveland, Ohio, assignor to himself and S. T. Wellman, same place. [Filed Aug. 30, 1876.]

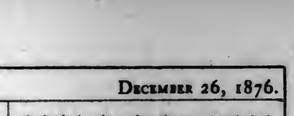
Brief.—Utilizes the relative retentive capacities for magnetism of metals for determining their degree of carbonization.



1. A mechanical means for determining the percentage of carbon in ferruginous metals, consisting of a pointer, A, two equal reversed scales on opposite sides of the pointer, one for the piece of unknown percentage of carbon, the other for the piece of known carbonization, said scales being graduated to the different percentages of carbon, and having their common zero-point immediately beneath the pointer when unattracted, substantially as set forth.

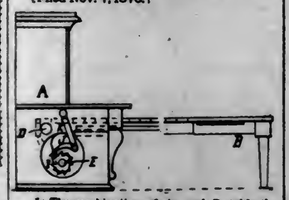
2. A mechanical means for determining the percentage of carbon in ferruginous metals, consisting of a pointer and scale graduated to the percentages of carbon, whereby metals placed on opposite sides of the needle, at equal distance therefrom, will, by their varying attraction of the needle, cause it to point on the scale to the percentage of carbon that exists in the unknown pieces, substantially as set forth.

185,648. CAR-STARTERS. Henry Schreiner, Philadelphia, Pa. [Filed Nov. 26, 1876.]



The sliding rack-bar B, the weighted lever F, connection *c'*, or its equivalent, the vertical guide-roller 6, the cylinder 7 on the shaft 8, the friction-rollers 9 9', chains or ropes *c' c''*, toothed eccentric G, sector-lever G', drawbar *g'*, stud or stop 2, friction-rollers 10 10, and the divided ratchet-wheel D on the axle B, the said parts being constructed and arranged to operate in combination with the bottom frame and wheels of a car, substantially as and for the purpose hereinbefore set forth and described.

185,649. EXTENSION-TABLES. J. R. Shirley, Philadelphia, Pa., assignor of one-half of his right to Geo. T. Linn, same place. [Filed Nov. 7, 1876.]



1. The combination of the end B, table C, roller D, and the transverse shaft E, as shown and described.

2. The combination of the end B, table C, roller D, shaft E, spring G, ratchet I, and the pawl J, as shown and described.

3. The combination, with the case A, of the flexible table top C and the tubes L, as shown and described.

185,650. PERCUSSION DROP-TOYS. A. M. Smith, Brooklyn, N. Y. [Filed May 13, 1876.]



The drop-toy, provided with a nipple at the lower part to receive a percussion-cap, and at the upper end an eye or other device for attaching a string or other trail, as set forth.

185,651. ATTACHMENTS FOR DENTAL ENGINES. J. B. Swallow, Hagerstown, Md., assignor to S. S. White, Philadelphia, Pa. [Filed Oct. 24, 1876.]

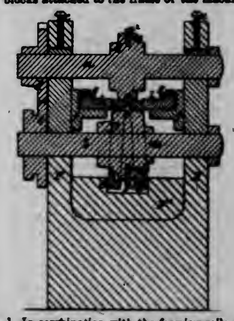


1. A dental-engine hand-piece shield or cover, constructed substantially as hereinbefore described, with a perforation for the passage of a tool, and a flange to overlap the hand-piece, whereby a water-tight joint is formed in advance of the nose of the hand-piece to prevent the entrance of saliva, grit, and other matter, as set forth.

2. The combination, substantially as hereinbefore set forth, of a hand-piece, a shield, or cover, and an operating-tool, whereby the tool may be operated without allowing access of injurious matter to its bearings.

185,652. MACHINES FOR MAKING SPIKES, &c. Jas. H. Swett, Pittsburg, Pa. [Filed Nov. 9, 1876.]

Brief.—The blank is supported on each side by means of a ring having internal gears, to engage with like gears on one of the forming-rolls, and also beveled internally, to correspond with the external bevel of the roll, by virtue of which said ring will diverge from said roll unless retained, which retention is effected at the proper time by supporting-blocks attached to the frame of the machine.

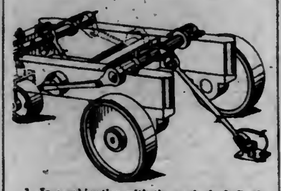


1. In combination with the forming-rolls of a machine for making spikes, &c., and the gears attached or formed upon each side of one of said rolls, the rings C, provided with internal gears, substantially as and for the purpose described.

2. The forming-roll B, beveled off, in combination with the rings C, having conical interior, in virtue of which said rings diverge from the forming-roll unless retained in the manner substantially as described.

3. In combination with the forming-rolls A B, rings C, and the frame of a machine for making spikes, the adjustable chilled blocks h, to support said rings, substantially as and for the purpose set forth.

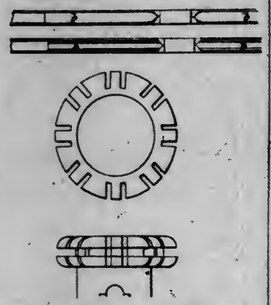
185,653. TRACTION-ENGINES. J. H. Swett, Pittsburg, Pa. [Filed Nov. 13, 1876.]



1. In combination with the rock-shaft G of a traction-engine, its crank H, pushing-rod K, and shoe *h*, the universal joints *i i'*, to connect said rod K with the rock-shaft and the shoe *h*, substantially in the manner shown and described.

2. In combination with the pushing-rod K and shoe *h* of a traction-engine, the spring I, located substantially as and for the purpose described.

185,654. UMBRELLAS. Jas. Willis, Deepcar, near Sheffield, England. [Filed Sept. 12, 1876.]



1. The combination of the paragon or trough shaped rib for umbrellas, &c., the filling-piece or wire secured therein, and the webbed git or middle bit, these members being constructed and secured together by indenting and compressing, substantially as hereinbefore set forth.

2. The trough-shaped rib for umbrellas, &c., constructed as hereinbefore described, with its upper end split, and having a correspondingly-split piece secured thereto by indenting and compressing, whereby the end is strengthened and made two-fork for attachment to the top notch, as set forth.

3. The trough-shaped stretcher for umbrellas, &c., constructed as hereinbefore described, with one or both of its ends split, and having a correspondingly-split piece secured to its split end by indenting and compressing, whereby the end is strengthened and made two-fork, as set forth.

4. The combination of the split ended trough-shaped rib or stretcher, the correspondingly-shaped split piece, and the additional strengthening-piece of solid wire, these parts being constructed and united substantially in the manner and for the purposes specified.

5. The combination, in an umbrella-frame, substantially as hereinbefore set forth, of the ribs, the elongated gits or middle bits, and the fork-ended stretchers, within which the elongated gits of the ribs fit when the frame is being closed and opened, whereby strain on the ends of the stretchers is lessened, and the tendency of the ribs to droop is reduced.

6. The combination of the strengthened fork-ended paragon or trough-shaped ribs, the top notch with slits in pairs, in which each rib is jointed, the stretchers forked at both ends, the runners with slits in pairs, in which one forked end of each stretcher is jointed, and the git or middle bit, by which the opposite forked ends of the stretchers are jointed to their respective ribs, these members being constructed and operating substantially as hereinbefore set forth.

185,655. CHILDREN'S CARRIAGES. Amarelle A. Winsor, Boston, Mass. [Filed May 13, 1876.]



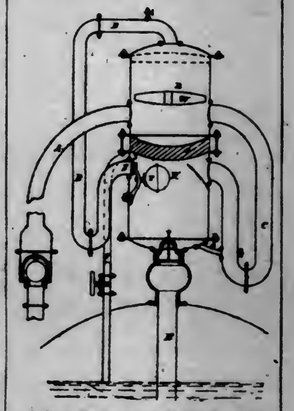
1. The carriage-body composed of the two separate portions A B, as described, pivoted together, and having the supports F F of the front axle D connected with the front portion B, so as with it to be capable of being turned up and over the body portion A, substantially as set forth.

2. The carriage-body composed of the two portions A B, pivoted together, and provided with the locking-hasp M and turn-button N, and having the supports F F of the front axle D connected with the front portion B, so as with it and the wheels E to be capable of being turned up and over the body portion A, all being substantially as specified.

3. In combination with the body part A and the hood T applied thereto, the dasher part B, pivoted to the said part A, and connected with the front axle, substantially as described, so that when the part B is folded back the said axle, its wheels, and their supports shall be moved within or under the hood, and over the body part A, all as shown and described.

4. The hood-standards provided with holes, as described, to receive the rear axle, in combination with the carriage-body composed of the two separate portions A B, as specified, pivoted together, and having the supports F F of the front axle connected with the front portion B, as set forth, all being so that when the part B, with the front wheels, may be back within the body and hood the front axle may be employed, as described, for maintaining such parts in position, and for holding the rear wheels alongside of the standards, as explained.

185,656. AUTOMATIC STEAM-BOILER FEEDERS. Nicolas Yago, St. Petersburg, Russia, assignor to Sally Cohnfeld, Dresden, Germany. [Filed Sept. 22, 1876.]



1. In an automatic boiler-feeder, the combination of the reservoirs E E', pipes B, C, and *g*, and the means, substantially as described,

for spreading the steam in the reservoir R, substantially as and for the purpose specified.

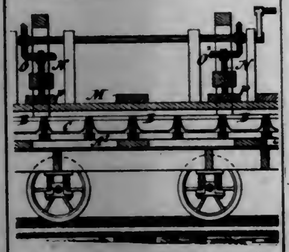
2. The combination, with the reservoirs R R', of pipe B, having valve S, operated by float T, and pipes C, E, and *g*, substantially as and for the purpose described.

3. The combination, in an automatic feeding apparatus, having two reservoirs, R R', placed one above the other, and communicating with each other by means of pipes B C, with the boiler by pipes *g* E, and with a well or cistern by a pipe, A, of the float W arranged within the reservoir R, substantially as and for the purpose described.

4. The combination, with a pair of reservoirs, R R', supported one above the other with an intervening cushion, O, the reservoir R being provided with a perforated plate, *a*, as described, of the pipes A B C *d* E *g*, the pipe B having a valve, S, operated by a float, T, arranged within the reservoir R', substantially as shown and described.

185,657. MANUFACTURE OF PEAT FUEL. D. Aikman, Montreal, Quebec, Canada. [Filed Sept. 22, 1876.]

Brief.—On a track of three ways, forming together a right angled triangle, are cars, that receive by turns, in a series of wire-mesh molds, peat from the excavator-spout. When run onto the second track, the peat is laid on shelves, the car continuing on its course to be again loaded.



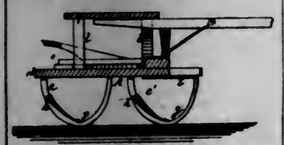
1. The combination, with an apparatus for excavating, grinding, and pulping peat, of wire molds, carried on cars to receive said peat, a screw-press to force out the excess of water contained therein, and stages for drying the same, all substantially as herein set forth.

2. The boxes B, divided into two or more compartments, and containing molds of wire-mesh for the reception of pulped peat, constructed and arranged substantially as shown and described.

3. In combination with the boxes B, carried in any suitable car, the screw or other press M, operating as and for the purposes set forth.

185,658. TRIPLE-FURROWERS. J. M. Anderson, I. Higgins, and G. W. Deaner, Homer, Ind. [Filed July 11, 1876.]

Brief.—A triangular frame is supported upon three runners and furrow-openers, the middle one being in rear of the other two. It is provided with an outrigged arm, for a guide to the last course. A tongue and driver's seat are provided, and also a pair of handles, so that it is at pleasure a riding or walking marker.



1. The combination, with guard *g*, of support A, provided with the brace-extension *i* substantially as and for the purpose specified.

2. The combination of the iron *g*, plate A, brace *i*, and frame A, as shown and described.

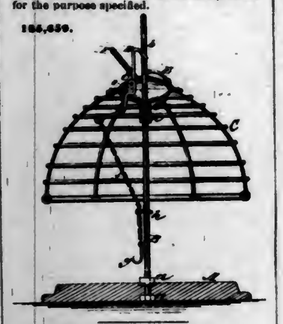
185,659. ANIMAL-TRAPS. E. J. Anderson, Dallas, Tex. [Filed Sept. 16, 1876.]

1. The combination of the base A, the standard B, cage C, trigger D, chain *f*, and clamp E, substantially as herein shown and described.

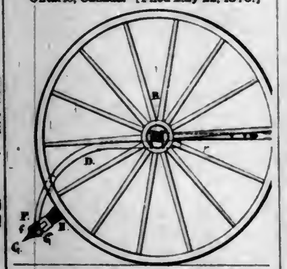
2. The crooked lever D, fulcrumed at *e*, in combination with the ring *b* and bait-chain *f g*, as and for the purpose described.

3. The dog E, in combination with the top piece C' and standard B, substantially as and for the purpose specified.

185,659.



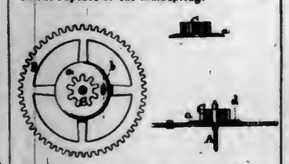
185,660. DEVICES FOR CLEANING CARRIAGE-WHEELS. R. S. Bacon, Oakville, Ontario, Canada. [Filed May 22, 1876.]



A scraping and cleaning attachment for the wheels of road-vehicles, consisting of a bar, D, attached to the axle, frame, or body of the car in an adjustable manner, and having a reversible head, F, provided with a detachable brush, H, and a scraper, G, arranged and operating substantially as described.

185,661. SAFETY-PINIONS FOR WATCHES. J. S. Barnum and J. B. Ferguson, Princeville, Ill. [Filed May 16, 1876.]

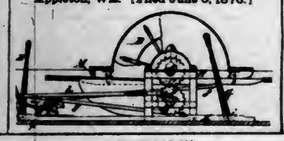
Brief.—Automatically releases the pinion on the rupture of the mainspring.



1. The pinion C, provided with a collar or plate recessed to receive an inclined pin on the center-wheel, substantially as and for the purpose described.

2. The staff A, its center-wheel B provided with an inclined pin, *d*, the pinion C turning on the staff, and the plate *a* projecting beyond the pinion and recessed to receive the said pin, combined substantially as set forth.

185,662. PROPELLING BOATS. Albt. Bels, Appleton, Wis. [Filed June 6, 1876.]



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1. The combination of the detachable frame H, carrying the wheels B, and boat L, as shown and described.

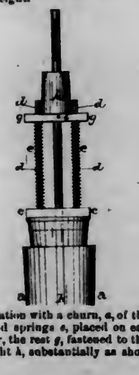
2. The combination of the lever I, shaft *e*, rudder-post J, and wheels *m n p q*, as shown and described.

3. The combination of the bed-piece K, levers E F G, and frame H, substantially as specified.

4. The combination of the guard M and detachable frame H, substantially as shown and described.

185,663. RECIPROCATING CHURNS. David P. Bliss, Sparta, Ohio. [Filed Nov. 27, 1876.]

Brief.—The returning-springs are arranged on side rods, instead of being on the dasher, and are held by cross-pieces, above one of which is a weight.



In combination with a churn, *c*, of the piece *e*, rods *d*, and springs *g*, placed on each side of the dasher, the rest *g*, fastened to the dasher, and weight *h*, substantially as shown and described.

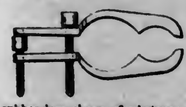
185,664. FLY-TRAPS. Jas. W. Bridwell, Leesburg, Ohio. [Filed Oct. 14, 1876.]



1. In a fly-trap, the conical base A, provided with top opening and side flanges *a a*, wire-cloth *b* in its sides, and entrances *d d*, in combination with the removable cylinder B, having grooved strips *h h*, substantially as and for the purposes herein set forth.

2. The horizontal wire-cloth cylinder B, provided with stationary head C, removable head C', fastening-rod D, and bottom opening with grooved side strips *h h*, and interior fly cone G, in combination with the base A, substantially as and for the purposes herein set forth.

185,665. DENTAL RUBBER-DAM CLAMPS. E. Parmly Brown, Flushing, N. Y. [Filed Apr. 3, 1876.]



A rubber-dam clamp, of whatever shape, made adjustable by means of screws, as and for the purposes set forth in the annexed specification.

185,666. DENTAL DISINFECTED FLOSS-SILK. E. P. Brown, Flushing, N. Y. [Filed Apr. 3, 1876.]



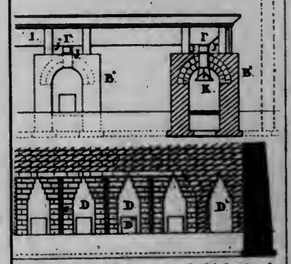
The described article of manufacture for dental disinfecting purposes, consisting of floss-silk having its fiber impregnated with a solution of salicylic and carbolic acids and creosote.

185,667. MAKING SALT. A. T. Brown, Ellwaukie, Mich. [Filed June 20, 1876.]



The mode of forming salt crystals of a uniform size, and of any particular and uniform size, by precipitating said crystals in the brine by agitation of said brine at regular intervals of time, substantially as herein described.

185,668. BRICK-KILNS. R. Carroll, Toronto, Ontario, Canada. [Filed May 13, 1876.]



1. In a brick-kiln constructed with front and rear system of furnaces B B', opening directly into a passage, C D', which extends entirely around the body of the kiln, the dampers F, placed at the angles of the passages C D', and dampers D' placed at the entrances to the arches D, whereby the heat may be cut off or concentrated at any point, as and for the purposes set forth and shown.

2. The center arch C', divided into independent sections by the draft-walls *c*, and connected to the side arches C C by the ordinary arches D, the entrances to the said arches D being fitted with cut-off dampers D', operated by the pivoted lever E, or any equivalent mechanical device from the exterior of the kiln-case, arranged and operating as and for the purpose specified.

3. In combination with the arches C and furnaces B', the fires H, provided with dampers H', operated from the exterior of the kiln by rods H', substantially as and for the purposes described.

4. The hopper-bottomed fuel-reservoirs I, placed over the furnaces, and provided with the feeding-pipes I', the said pipes being fitted with the cut-off damper J', draw-valve J, and rose K, arranged and operating substantially as described, and for the purpose specified.

5. In a brick-kiln, in combination with the fires H and C', the fires H', formed over the central and side arches by scantling or separating the bricks, as shown, and made to extend up to, or near, the top of the kiln, substantially as and for the purposes described.

185,669. COMPOSITIONS FOR COLORING WOOD. J. G. Cashin, Gardner, Mass. [Filed Oct. 2, 1876.]

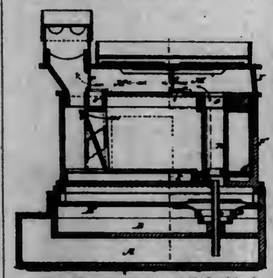
1. The described coloring or ground composition, consisting of a solution of Brazil-wood or red wood, alum, and starch or flour, in or about in the proportions, and combined, as set forth.

2. The described graining composition, consisting of iron, acetic acid, and chloride of sodium, in or about in the proportions, and combined, as set forth.

3. The combination, in manner as described, of a ground color, consisting of a solution of red wood, alum, and starch or flour, as set forth, with a graining color composed of iron, acetic acid, and chloride of sodium, as described, to produce upon an article to which such may be so applied the colors and appearance of rosewood, substantially as specified.

185,670. OIL-STOVES. J. M. Chamberlain, Albany, N. Y. [Filed Nov. 17, 1876.]

Brief.—The products of combustion can be passed through the oven or over it.

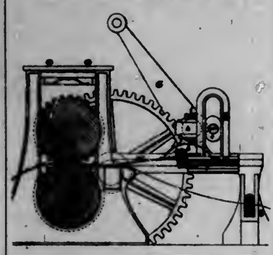


1. The oil-reservoir A, provided with the water-space B and burner D, in combination with the parts E, F, and I, substantially as herein shown and described.

2. The sliding part G, having the flue H, in combination with the part F, substantially as shown and described.

3. The arrangement, in an oil-stove, of the flue M, apertures *n* and *o*, dampers *q* and *r*, and passage *l*, substantially as shown and described.

185,671. PLAITING-MACHINES. J. W. Cox, Paterson, N. J. [Filed Sept. 18, 1876.]



1. In a plaiting-machine, the adjustable crank for moving the cross-head, consisting of the crank proper, F, having a dovetailed slot or groove in its face, the slide A, arranged to play in said groove, the sliding block *e*, and the set-screw *f*, all arranged substantially as set forth.

2. The combination of the segment I, having a slotted arm, *l*, with the pawl J and rack *k*, when all arranged substantially as set forth.

3. The combination, in a plaiting-machine, of the traveling bed C, having a ratchet, *c*, the pawl J, the segment I, having an arm, *l*, the rack *k*, and the reciprocating cross-head D, when all arranged substantially as set forth.

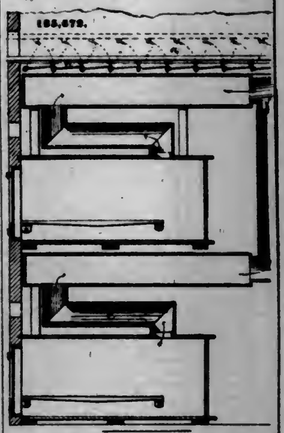
4. The combination of the traveling bed C, having a ratchet, *c*, the pawl J, segment I, and rack *k*, cross-head D, plaiting-blade H, and springs *j j*, or their equivalents, when all arranged to operate as and for the purposes set forth.

5. The combination of the traveling bed C, having a ratchet, *c*, the presser-plate L, pawl J, segment I, and rack *k*, cross-head D, blade H, springs *j j*, slotted frame E, crank F, shaft *f*, and crank G, when all arranged substantially as herein set forth.

185,672. DRESS. George A. Deitz, Sacramento, Cal. [Filed Jan. 29, 1876.]

The combination of the stove, grate, pipe, drum, and heating-chamber, all located as described, and the adjustable regulator, substantially as and for the purpose set forth.

185,673.

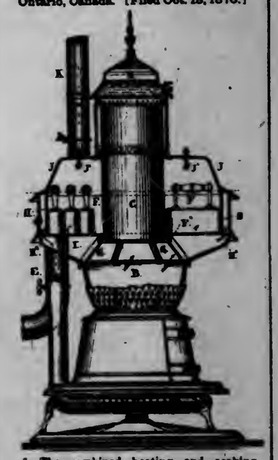


185,673. PREPARATION OF PHOTOGRAPHIC SURFACES FOR PRINTING. P. A. Desgeaquis, Paris, France. [Filed Jan. 3, 1876.]

1. The pellicle of gelatine coated at the back with collodion, and attached to a foundation of wire or other suitable material, and having the surface moistened and prepared for printing in fatty inks, substantially as set forth.

2. The method herein specified of moistening the pellicle of gelatine by means of a roller of porous brick or similar material, as and for the purpose set forth.

185,674. STOVES. J. W. Elliott, Toronto, Ontario, Canada. [Filed Oct. 13, 1876.]



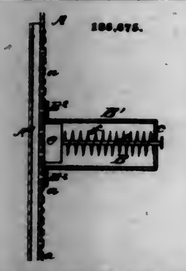
1. The combined heating and cooking chamber F, provided with detachable covers J, and perforated bottom, in combination with the coal-feeder C, fire-chamber B, and exterior inclosing flue H, arranged and operating substantially as shown and described.

2. The flue H, passing around the exterior of the chamber F, in combination with the fire-chamber B and pipes E, arranged and operating substantially as described.

3. The spider G, in combination with the feeder C, chamber F, and fire-pot, arranged and operating substantially as described.

4. The hot-air pipe K, in combination with the combined heating and cooking chamber F, provided with the regulating inlet-damper K'.

185,675. NUTMEG-GRATERS. Isaac Foote, St. Charles, Ill. [Filed June 3, 1876.]



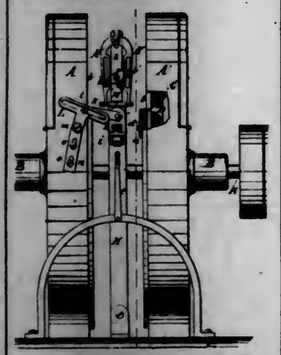
186,676.

1. The combination of a nutmeg-grating plate, provided with a hole adapted to allow the passage of a nutmeg, with a cylindrical holder provided with a spring-acted follower, whereby the nutmeg may be inserted into a side holder through said grating-plate without separating the parts of the device, substantially as and forth.

2. The combination of grating-plate A, provided with trough A^1, flanges a' a', grating surface a, and perforation A^2, with holder B, consisting of cylindrical casing B^1, flat plate B^2, side guide-flanges g g, rod d, follower e, and spring f, substantially as set forth.

186,676. MACHINES FOR JOINTING STAVES. E. W. Gilman, Long Island City, N. Y. [Filed Oct. 28, 1876.]

Brief.—The edges of barrel-staves are accurately jointed, and the width of the ends proportioned to the width of the center, by means of two rotary concave disks, mounted upon the same shaft, each surrounded by a casing connected with an exhaust-fan, for removing the shavings, and provided with knives arranged tangential to a circle of small diameter described from the center of each disk; adjustable guide-plates attached to the inner sides of the casings for supporting the staves; a stave centering and clamping apparatus carried in a pivoted frame; and suitable operating mechanism.



1. The combination of the concave cutter-disks F F, casings A A', and rests a, the disks being provided with tangential knives, substantially as herein shown and described.

2. The combination of the frame H, pivoted bed-piece K, clamping-lever M, arm h, and adjustable slotted piece L, substantially as and for the purpose herein shown and described.

3. The pivoted bar J and eccentric h, in combination with the frame H and bed-piece K, substantially as herein shown and described.

4. The rubber cushion-pieces p, in combination with the bed-piece K, substantially as shown and described.

5. The combination of the lever M, having arms S, the rod t, slotted centering-arms O and N, or their equivalent, shaft o, eccentrics P P, rods w, and arms o' o', provided with the pins b', substantially as herein shown and described.

6. The combination of the locking-lever s, frame H, and curved bar I, substantially as herein shown and described.

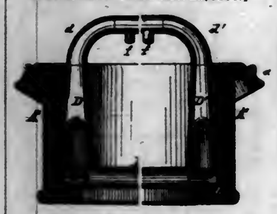
186,677. BLACKBOARD-ERASERS. Charles J. Higgins, Indianapolis, Ind. [Filed Dec. 1, 1876.]



1. A blackboard-eraser, brush, or other rubber, consisting of the back A, and coiled strip B, of list or other selvage, constructed and arranged substantially as and for the purpose described.

2. As a new article of manufacture, a blackboard-eraser, brush, or other rubber, provided with a rubbing surface, composed of a strip or strips of list or other selvage material, applied edgewise to any suitable backing, substantially as described.

186,678. WASH-BOILERS. W. H. Hopkins, Milford, Mich. [Filed Nov. 29, 1876.]



1. The within-described improved wash-boiler, consisting of the vessel A, provided with the perforated bottom B, resting upon its rim b at a suitable distance above the bottom of said vessel A, said bottom being provided with a series of channels C, and with the tapering inclined tubes D D', connected by the bends d d', and the horizontal tube E, having the nozzles f, the whole constructed and arranged in a manner substantially as described, for the purposes stated.

2. The combination, with the perforated bottom B and channels C, of the two tapering tubes D D', and the connecting-tube E provided with the nozzles f, as described, for the use and purpose stated.

3. The combination, with the perforated bottom B, supported at proper distance above the bottom of the liquid-containing vessel A, of the two tapering tubes D D', and the connecting-tube E, provided with the discharge-nozzles f, said tubes D D' being arranged centrally on both sides of said bottom, and rearwardly inclined, and the nozzles f, arranged with their axial line in correspondence with that of said tubes D D', substantially as described, for the object stated.

186,679. LAMP-WICKS. W. F. Hopkins, Cincinnati, Ohio. [Filed Dec. 4, 1876.]

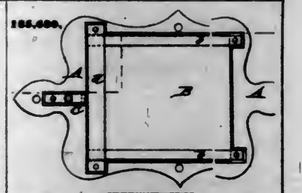


The combination, with each other, of the slotted plate A, provided with the arms a', having shoulders a^2 formed upon them, and the plate B, provided with the pivots b^1, the projections b^2, and the slotted flange b^3, to adapt the device for use for connecting a set of loose wicks, C, with the wick, D, to be burned, substantially as herein shown and described.

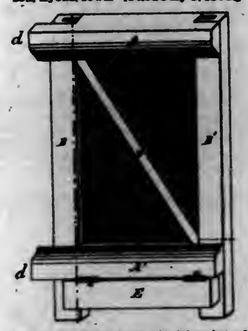
186,680. LABEL-HOLDERS. S. A. Hughes, Brooklyn, N. Y. [Filed Sept. 30, 1876.]

The combination of frame A, provided with raised molding a, open at one side, the back plate B, pressed up by band-springs b, and the strips d, all constructed and arranged as shown and described, for the purpose specified.

186,680.



186,681. WINDOW-SCREENS. F. M. Johnson, Lyons, Iowa. [Filed July 8, 1876.]



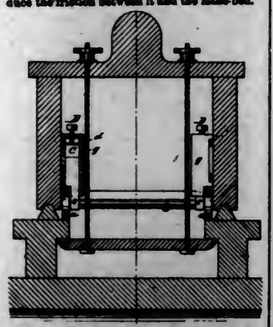
1. A screen-frame, having its joints formed by the notched stiles B B', fitted and fastened in the notches of the rails A A', the full width and thickness of the stiles, substantially as described and shown.

2. A screen-frame, having projecting ends d, to serve as stops, substantially as described.

3. In a screen-frame, the hinged fly E, substantially as and for the purposes described.

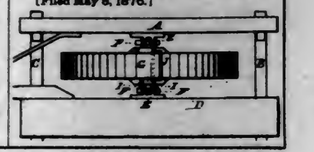
186,682. METAL-TURNING LATHES. Sander Johnson, Minneapolis, Minn. [Filed Oct. 7, 1876.]

Brief.—Friction-rollers journaled in spring-bearings bear up the tail-stock, and thus reduce the friction between it and the lathe-bed.



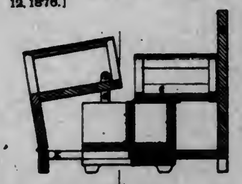
The combination of the rollers e, shaft b, follower c, spring C, socket g, set-screw D, and the ordinary tail-stock of a lathe, substantially as shown and described.

186,683. HARVESTER-FRAME ADJUSTERS. L. F. King and H. M. Funk, Polo, Ill. [Filed May 8, 1876.]



The combination of the stirrup J, chain L, journal S, guide-boxes E I, shaft M, frame A D, drive-wheel G, and pins F, as and for the purpose set forth.

186,684. SOFA-BEDSTEADS. Frederick W. Lammers, Cincinnati, Ohio. [Filed Apr. 12, 1876.]

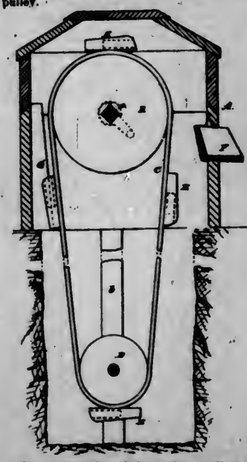


1. The combination, substantially as specified, of the central frame A, the folding bed-frame C, linked thereto by wing B, and the sliding seat-frame D, jointed as shown, so that it may be temporarily swung forward to allow of the folding or unfolding of the bed-frame C.

2. The combination, substantially as specified, of the seat-frame D and lounge-back H, adjustably secured to central frame A by slides E and F, so as to permit the lounge to be extended its full width for a bed, while sufficient of the slides are retained within their rests to prevent weakening of the frame.

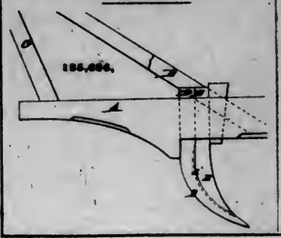
186,685. WATER-ELEVATORS. J. F. Long, Bridgewater, Va. [Filed Nov. 16, 1876.]

Brief.—The buckets are provided with a guide, which prevents them from swaying as they are drawn up by the rotation of the pulley.

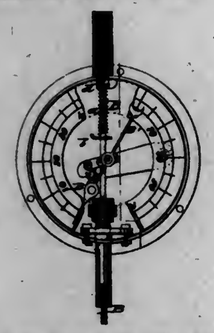


The combination of the carb A, pulleys B and D, support b, belt C, buckets E, guide G, and spout F, substantially as and for the purpose herein shown and described.

186,686.



186,686. STEAM-GAGES. F. H. McIntosh, Atlantic, Iowa. [Filed Oct. 14, 1876.]



1. A steam-gage provided with movable rod B, spiral spring c, seat b, and adjustable sleeve d, arranged as and for the purpose described.

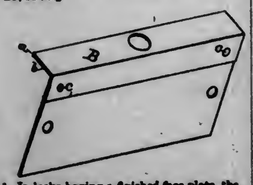
2. A steam-gage rod, B, having an end thread in combination with a link, D, screwing on said thread, as and for the purpose specified.

186,686. WIRE-FENCE BARBS. J. C. Merrill, Turkey River, Iowa. [Filed Oct. 21, 1876.]



The skeleton coiled wire barbs for wire fences formed of two or more pieces of wire, and having four or more points or spurs, substantially as described.

186,689. FACE-PLATES FOR LOCKS. Frank W. Mix, Terryville, Conn. [Filed Oct. 20, 1876.]



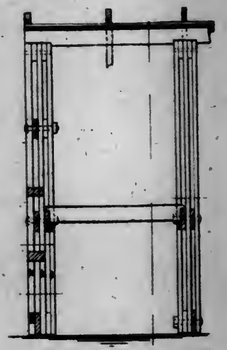
1. In locks having a finished face-plate, the scalp B, provided at one edge with a hook or half-lock, c, and at its opposite edge with the angular flange, substantially as described, and for the purposes set forth.

2. In locks having a finished face-plate, the scalp B provided at one edge with a hook or half-lock, c, in combination with the edge of the face-plate proper, substantially as described, and for the purpose set forth.

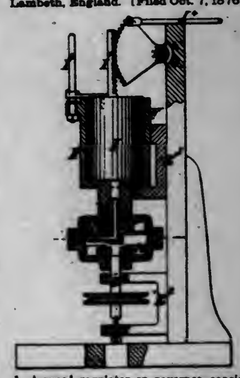
186,690. FRAME BUILDINGS. William B. Morris and Joseph Slauser, La Rue, Ohio. [Filed Sept. 2, 1876.]

1. The combination of the posts made of a number of planks, and the beams and sills similarly constructed, the planks of the respective parts being interposed and bolted together, as shown and described.

2. The combination of the reversed posts with the lateral girders, and with smooth and reversed wedge-pieces, substantially as set forth.



186,691. GOVERNORS. James M. Napier, Lambeth, England. [Filed Oct. 7, 1876.]

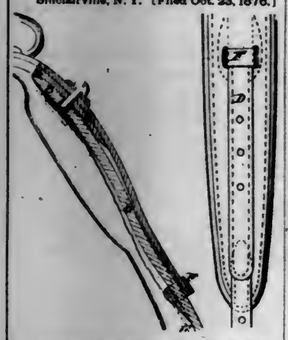


1. A speed regulator or governor, consisting of the combination, with valve-connections or actuating mechanism, of a rotating vessel adapted to contain and carry around with it mercury or other liquid; a stationary arm supported within the rotating vessel and provided with an orifice; and a tube or vessel communicating by a channel with the orifice in the arm, into which orifice, and by way of the channel, the liquid is forced to the tube or vessel in which, by virtue of the pressure of the liquid at the orifice increasing with the speed of rotation of the vessel, it operates through said connections upon the throttle-valve or equivalent part of the engine to be controlled, substantially as described.

2. The combination, substantially as hereinbefore set forth, of the rotating vessel driven from the engine, the speed of which is to be controlled, and adapted to contain and carry around with it the mercury or other liquid, the cylinder or tube located above said vessel, the float in the cylinder, the hollow arm connected with the cylinder, projecting into the rotating vessel and having an orifice in its outer end, and mechanism, substantially such as described, for connecting said float with the valve of the engine.

3. The combination of the cylinder or tube connected at its lower end with a rotating vessel provided with internal projections and supplied with liquid, the float in said tube, and mechanism for connecting said float with the valve of the engine, the speed of which is to be governed, these members being constructed and operating, substantially as herein before set forth, whereby the movements of the float and its connections are controlled by the upward pressure of the liquid, caused to ascend from the vessel by its rapid revolution.

185,693. GIG-HARNESS SADDLES. J. Neill, Sinclairville, N. Y. [Filed Oct. 23, 1876.]



A gig saddle whose bearer D, after passing through the loop F, extends under the skirts to the point where it is secured by the terret, as shown and described.

185,692. BLACKING-BOTTLES. S. S. Newton, Binghamton, N. Y. [Filed Oct. 27, 1876.]



1. The herein-described bottle, having its neck contracted, and provided with openings to permit the return of the liquid to the body of the bottle, substantially as and for the purpose set forth.

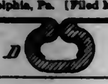
2. The combination, with the bottle, of the removable contracted neck or throat, Fig. 3, substantially as set forth.

185,694. BOTTLE-STOPPERS. S. S. Newton, Binghamton, N. Y. [Filed Oct. 30, 1876.]



The combination of the tip C and ball-valve D with the plug B, provided with the valve-seat b', substantially as set forth.

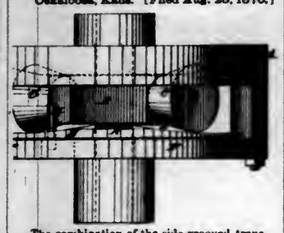
185,695. UMBRELLAS. Jno. P. Onderdonk, Philadelphia, Pa. [Filed May 29, 1876.]



1. The spring clamp-rib D for sunbrellas or parasols, constructed as specified, and adapted to secure the covering when entered within it by its own elastic compressive force, substantially as described.

2. In combination with the spring clamp-rib D, flanges, or their equivalent, substantially as described.

185,696. FRICTION-CLUTCHES. S. Peppard, Oskaloosa, Kans. [Filed Aug. 26, 1876.]



The combination of the side grooved transmitter A, the loose axle D, having rollers C, and the driving-disk E, having stud G, and inclines e', all arranged substantially as and for the purpose specified.

185,697. NOZZLES FOR CANS. S. R. Pinckney, New York, N. Y. [Filed Nov. 1, 1876.]

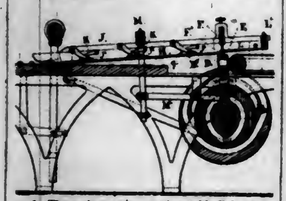
Brief.—Screwed onto the end of the spout is a short pipe having a perforated diaphragm, to the middle of which, extending inward, is fixed a stem and valve, which, by the rotation of the pipe, is brought in contact with a flange around the inside of the spout.



1. The valve-nozzle, consisting of the two parts, moving longitudinally upon each other, and provided with a valve adapted to operate substantially as described.

2. The screw-nozzle, consisting of the two screws a and b, and provided with a valve, to be operated by the movement of the one screw upon the other, substantially as and for the purpose described.

185,698. LOZENGE-MACHINES. T. Robertson, Toronto, Ontario, Canada. [Filed July 27, 1876.]



1. The reciprocating cutting-table E, in combination with the stationary cutters F', and delivering-head L', arranged and operating substantially as shown and described.

2. The reciprocating delivering-bars L and J', in combination with the receiving-plane H, as and for the purpose specified.

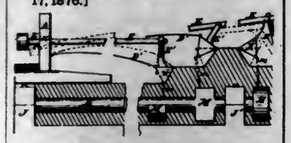
3. The pivoted delivering-bars J', attached to the reciprocating frame J, in combination with the pivoted cams K, substantially as shown and described.

4. The stationary lozenge-receiving plane H, in combination with suitable devices for imparting a progressive motion to the lozenge when delivered from the cutters, the said plane being arranged to allow the lozenge-boards to be shoved underneath when empty, and fed forward to receive the lozenges in unison with their delivery, substantially as shown and described.

5. The combination and arrangement of the cutter-head F, with cutters F', delivering-head L', and embossing or printing head M, arranged and operating substantially in the manner and for the purpose specified.

6. The intermittently-moving lozenge-tray or receiving-board Q, provided with depressions q, in combination with the delivering-bars J', and alternately-moving molding-head N, substantially as and for the purpose set forth.

185,699. REED-ORGAN STOP-ACTIONS. J. B. Robinson, North East, Pa. [Filed Apr. 17, 1876.]



1. The combination of a knee or foot lever and a series of cams, M, arranged together upon one shaft or bar, to operate the stops or mutes of an organ, substantially as described, and for the purpose stated.

2. In combination with the mutes of an organ, the rotating shaft L and cams M, arranged thereon, substantially in the manner and for the purpose described.

3. In combination with the rotating shaft L and cams M, the rack and pinion F G, arranged to operate substantially as described.

4. In combination with the sliding frame G, with knee-push G', the jointed ratcheted bar H, when attached to and moving with said frame, substantially as described.

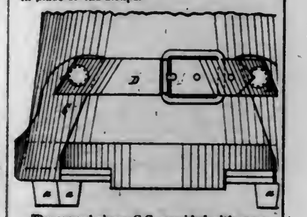
5. In combination with the rack and pinion F G and the stops of an organ, the ratchet-bar H, arranged to operate substantially as shown, and for the purpose specified.

6. In combination with the rack and pinion F G and actuating lever or arm G', the spring I, for giving a return motion to the parts, substantially as described, and for the purpose specified.

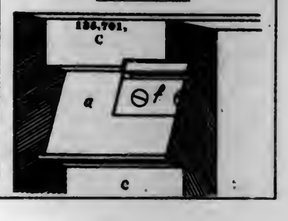
7. The combination of the tablets D, hinged to and forming part of the name-board, and connecting-rods D', with the mutes of an organ, when arranged to operate substantially as described.

185,700. HORSE-CHECKERS. J. D. Rosenberger, Philadelphia, Pa. [Filed Jan. 31, 1876.]

Brief.—A screw-rod and nut may be used in place of the straps.



The curved clasps C C, provided with spurs a a and straps D D, and having their inner edges so bent as to fit the inner edge and upper corner of the shoe, and their outer edges to fit the outer edge of the shoe and the contiguous part of the hoof, substantially as and for the purpose set forth.



185,701. EXTENSION-TABLE SLIDES. Jas. H. Ryder, Cattaraugus, N. Y., assignor to Frank S. Oakes, same place. [Filed Nov. 20, 1876.]

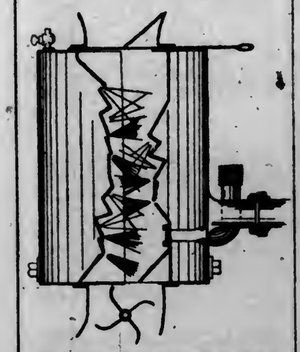
1. The sliding sections A A, having the beveled surfaces a a, grooves d d, shoulders b b, and vertical faces c c, all substantially as shown and described.

2. The metal guide f, provided with lug g and part h, all substantially as shown and described.

3. In extension-table slides, the combination of the slides A A, provided with the bevel surfaces a a, grooves d d, shoulders b b, vertical faces c c, with the metal guide f, having the lug g and part h, all substantially as shown and described.

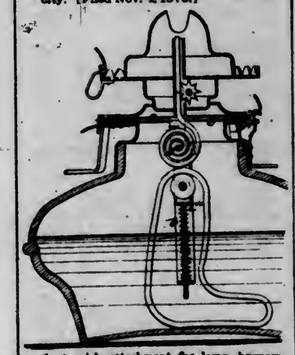
185,702. MASH-MACHINES FOR BREWERS. John Schaffhaus, New York, N. Y. [Filed Mar. 17, 1876.]

Brief.—The tub has double walls, the interior one consisting of bent plates, which are provided with fine perforations and slits, through which water is sprayed upon the meal which passes down between interior walls.



In a mash-machine, consisting of an inner and outer chamber, the bent surfaces A A, forming the opposite walls of the inner chamber, and provided with fine holes n and longitudinal openings or slits m, arranged and constructed substantially in the manner and for the purpose described.

185,703. WICK ATTACHMENTS FOR LAMPS. J. C. Shopland, Northport, N. Y., assignor to himself and Wm. Morgan, New York city. [Filed Nov. 4, 1876.]

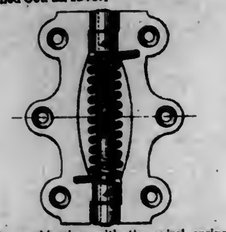


1. A wick attachment for lamp-burners, consisting of an upper wick, coiled below the wick-tube, and a lower endless wick of the bowl, forming contact therewith, substantially in the manner and for the purpose set forth.

2. The combination of the upper wick with a slotted revolving wick-holder below the wick tube, for winding up the wick thereon, substantially as described.

3. An upper wick coiled around a slotted holder, and a lower endless wick, in combination with a guided and spring-pressed roller, for the purpose of producing a continuous contact of the wick-sections, as specified.

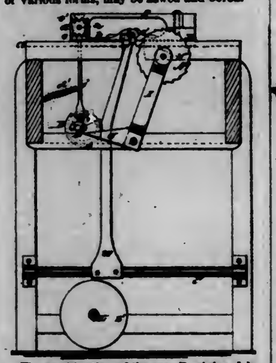
185,704. SPRING-HINGES. Jas. Spruce, Waterbury, Conn., assignor to Scovill Manufacturing Company, same place. [Filed Oct. 21, 1876.]



The combination, with the spiral spring surrounding the pin of a hinge, of loosely-fitting tubes, placed on said pin, whereby abrading action is prevented between the spring and pin, substantially as and for the purpose set forth.

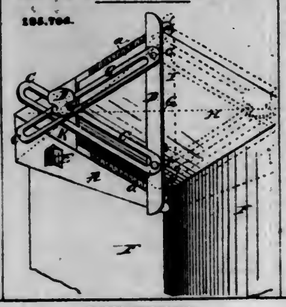
185,705. MACHINES FOR SAWING AND BORING WOODEN BLOCKS. P. T. Stevens and J. O. Stevens, Coos, N. H. [Filed Sept. 23, 1876.]

Brief.—The strip of wood from which the block is to be formed is held between automatically-clamping jaws, working in dovetail ways on the top of the table, while being cut off by a circular saw mounted in a swinging frame, and at the same time centrally bored by a suitable tool secured in a sliding frame, operated by a cam and lever provided with a projecting pin. Strips of different sizes and of various forms, may be sawed and bored.



The combination of the cam D, pinion d, lever f, parts b, f, and g, and pave e, substantially as herein shown and described.

185,706.



185,706. CENTERING DEVICES. William P. Tullock, Washington, D. C. [Filed Nov. 20, 1876.]

1. Frame A, whose sides are secured at right angles with each other by stay K, and having thumb-pieces E, in combination with ruler B, and one or more slotted slides, C, substantially as and for the purposes set forth.

2. Frame A, having a graduated scale, e marked thereon, in combination with ruler B, slotted slides C, and thumb-screw D, substantially as and for the purposes set forth.

185,707. SPRING-PILLOWS. A. Underwood, Carrollton, Ill. [Filed Sept. 30, 1876.]



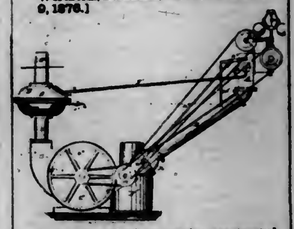
The combination of the frame A, spring-ribs B, stays c, elliptical spring C, and spiral springs D, substantially as herein shown and described.

185,708. BRUSHES. L. Utts, Nora Springs, Iowa. [Filed June 20, 1876.]



The combination of a bottom-recessed brush-head, having side legs with square and diagonal ends, with a continuous wire that is passed around the head and broom-whisks, and secured at the ends, to fasten the broom-whisks firmly, substantially as specified.

185,709. ATMOSPHERIC-GAS ENGINES. J. Wertheim, Bornheim, Prussia. [Filed Oct. 9, 1876.]



1. An atmospheric-gas engine, constructed mainly of an explosion-dome and appendages, of a siphon-pipe with paddle-wheel and liquid-reservoir, and of a liquid actuated by the explosive force of a suitable gas-and-air mixture in the dome by atmospheric pressure, all combined and substantially in the manner and for the purpose set forth.

2. The combination of the explosion-dome A, having entrance-opening a and ignition-opening a', with the slide-valve A^1, reciprocated as shown, having segment-opening d, and igniter G, substantially as shown and described.

3. The combination of explosion-dome with entrance-opening a, slide-valve A^1, reciprocated as shown, with segment-opening d, and covering-plate A^2, with corresponding gas and air openings f^1 f^2, substantially as described.

4. The combination of the spring-pressed slide-valve A^1, having pivot at upper end guide-slot at lower end, with the dome and the revolving segmentally-slotted disk at top of dome, and a square pivot-guide at lower part of dome, as and for the purpose specified.

5. The combination of covering-plate A^2, fastening-pins d^1, and clamp-screw e with dome A and the slide-valve A^1, to secure covering-plate in rigid but detachable manner, substantially as set forth.

6. The combination, with slide-valve and explosion-dome, of igniting apparatus G, composed of an outer casing, g, inner burner g^2, and air-supply pipe i, substantially as set forth.

7. The combination, with slide-valve and explosion-dome, of burner g^2 of igniter G, constructed of gas-pipe g^1, fixed tube g^2, with

central exit perforation, and of sliding and spring-acted interior sleeve f^1, with side exit perforations, to extinguish flame at each explosion, substantially as set forth.

9. The combination, with the slide-valve and air-pipe f, of the spring-acted air-supply cock f^2 of igniter G, with contact-face f^3 of dome, to close air-supply during upward motion of slide-valve to prevent extinction of igniting flame, substantially as set forth.

9. The combination of slide-valve, explosion-dome, and igniter with an air-pipe, f, spring-acted cock f^2, and an air-pumping apparatus, to supply air to the igniter instantly after the explosion, for expelling the gases of combustion and relighting the burner, substantially as specified.

10. The combination, with the explosion-dome and siphon, of wheel casing C, having liquid-channels p p^1 and chutes p^2, with the paddle-wheel C^1, substantially as set forth.

11. The combination, with the explosion-dome and siphon, of liquid-valves E^1 E^2, with the wheel casing C and paddle-wheel C^1, to govern the flow of liquid in forward and return direction, substantially as set forth.

12. In a gas-engine, constructed substantially as shown, the combination, with paddle-wheel casing C, of the liquid-reservoir D, having central open tube D^1, for admission of atmospheric air, substantially as set forth.

13. In a gas-engine, constructed substantially as shown, the combination, with paddle-wheel casing C, of the liquid-reservoir D, having interior guard-cover q, with extension q^1, substantially as described.

14. In a gas-engine, constructed substantially as shown, the combination, with paddle-wheel casing C, of liquid-reservoir D by pipe q^1, with drip-receptacle q^2 of explosion-dome, to conduct liquid escaping from dome to reservoir, substantially as set forth.

15. The explosion-dome, having top extension-chamber A^1, with exit-opening n for escape of combustion, in combination with slide-valve n^1 and outer swinging valve n^2, substantially as described.

16. The combination of extension-chamber A^1 of explosion dome, having exit-opening n, with slide-valve n^1 and pendent valves t, sliding along inside of dome, to assist expulsion of gases and closing of exit-opening n, substantially as described.

17. The combination, with the explosion-dome, of slide-valve n^1 of extension-chamber A^1, with fulcrumed and spring-acted lever n^3, rod n^4, and crank n^5 of valve N^1 of siphon-pipe, substantially as set forth.

18. The combination, with explosion-dome and chamber A^1, of horizontal plate r^1, attached to slide-valve n^1, and having central pin r^2, with sliding and pendent valves s, substantially as set forth.

185,710. DENTAL CAVITY-CAPS. H. Weston, Philadelphia, Pa., assignor to S. S. White, same place. [Filed Oct. 24, 1876.]

Brief.—The cap is made of struck-up sheet metal, and a small rectangular piece is cut from its center, and turned up to form a handle.



1. The dental cavity-cap hereinbefore described, consisting of a cup-shaped disk provided with a lip or lug on its convex side, for the purpose set forth.

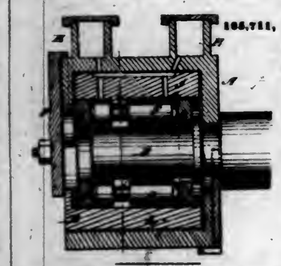
2. The dental cavity-cap hereinbefore described, consisting of a cup-disk, with the central portion cut out and bent up to form a lug and leave an opening in the cap, for the purpose set forth.

185,711. ANTI-FRICTION JOURNAL-BOXES. Geo. Wilkes and A. Port, Monroe, Iowa. [Filed Oct. 7, 1876.]

1. The arrangement, in a roller journal-box, of the circular end pieces C, consisting of the hinged parts a and d, connected by the rods f, and in which the rollers g are journaled, substantially as herein shown and described.

2. The combination of cams A, having oil-cups B thereon, the ribbed lining E, and the grooved frame C having rollers g, all arranged substantially as and for the purpose set forth.

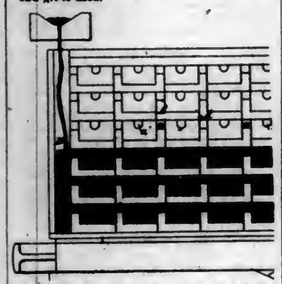
3. The combination, with a journal-box, of the front cap F, pivoted at l, and hooking over the bolt m, as shown and described.



185,711.

185,712. MANUFACTURE OF BRICKS FROM FURNACE-SLAG. Chas. Wood, Tees Iron-Works, Middlesborough-on-Tees, England. [Filed Oct. 5, 1876.]

Brief.—Molten slag is run directly from the furnace into molds stacked in a pit, and allowed to slowly cool, whereby the molded blocks or bricks are sufficiently annealed. A three-sided mold provided with a side and an end git is used.



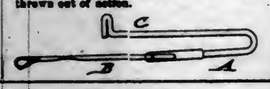
1. The hereinbefore described method of manufacturing annealed brick, &c., in bulk, from furnace slag, which consists in running the slag direct from the furnace to a mass or large number of sand molds stacked in a pit, box, or frame, layer upon layer, with the molds in the respective layers communicating with each other by gits or runners, and the sand molds of each layer of the series communicating with a common feeder or runner formed by a space between the wall or side of the pit, box, or frame and the stack of molds, allowing the mass to stand to cool and become self-annealed solely by the initial heat of the slag, and finally breaking up the mass of molds, and separating the bricks, whereby large quantities of bricks are expeditiously molded and cheaply produced from a single run of slag, and annealed without the necessity of employing an annealing-oven, as set forth.

2. A stack of sand molds or shells, consisting of a series of rows or layers of molds built up in a pit, box, or frame, as hereinbefore described, the molds being three-sided, having end and side gits or chaunels, and arranged as shown, so that the open end and side of one mold are closed by the end and side of the contiguous molds, and the open tops of the molds of one layer covered by the bottoms of the layer above, whereby a series of layers of communicating molds is formed, and each layer communicates with a common runner formed by the space between the stack and the wall of the pit, box, or frame surrounding the stack, as set forth.

3. The three-sided mold having the gits or runners a a' in its end and side, as and for the purpose set forth.

185,713. KNITTING-MACHINE NEEDLES. S. Woodward, Manchester, N. H. [Filed Nov. 13, 1876.]

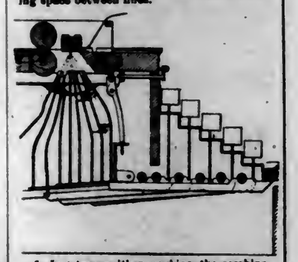
Brief.—The shank of the needle is pivoted to the driving portion of it, so as to be readily thrown out of action.



A knitting-machine needle consisting of shank A and part B, pivoted thereto, the former extended and bent to form the crook C, as shown and described.

185,714. TYPE-WRITERS. R. T. P. Allen, Farmdale, Ky. [Filed Apr. 26, 1876.]

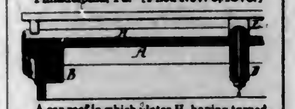
Brief.—Type-rods carved so as to present the type with as near a vertical pressure upon the platen as possible. The space between words is effected by means of the pawl C^1 gearing with the rack-bar c, and moved by each depression of the type-keys. At the completion of each line, this pawl and rack are thrown out of gear by depressing the rod E^1, and the carriage being withdrawn by the weight k, the spar-wheel F^1, moving on the incline I, causes the pawl to act on the ratchet-wheel and rotate the feed-roller, thus producing space between lines.



1. In a type-writing machine, the combination of the carved converging rods, bearing types on their upper ends with levers, whose other extremities are connected with lettered keys, as shown in the drawings herewith.

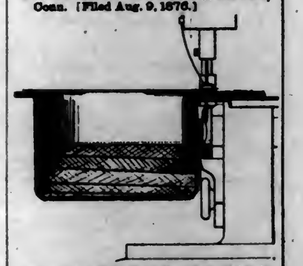
2. In a type-writing machine, the combination of the sliding paper-carriage, rock-bar, double-governing pawl, its sliding releasing-rod, feed-rollers, spar-wheel, check-ratchet, and twisted spring, with carved converging type-bearing rods and levers, the whole arranged to operate substantially as and for the purposes set forth.

185,715. CAR-ROOFS. Wm. C. Allison, Philadelphia, Pa. [Filed Nov. 6, 1876.]



A car-roof in which plates H, having turned-up edges, are combined with boards A, bolts F, beams D, and strips E, the latter having two grooves for receiving the flanges of separate plates, and being constructed to bear on both plates and boards, all substantially as set forth.

185,716. HATS. John P. Beatty, Norwalk, Conn. [Filed Aug. 9, 1876.]

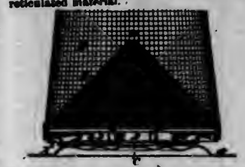


1. A hat, the sweat-lining of which is crimped and stitched to the brim by stitches passing perpendicularly through the brim, outside of the plane of the surface of the crown-band, substantially as described.

2. The method, substantially as described, of attaching sweat-linings to hats, by crimping said sweat-lining well out upon the brim, and stitching it thereto by means of stitches perpendicularly through the brim, outside of the plane of the crown-band.

186,717. FLY-TRAPS. H. Belmer, Cincinnati, Ohio. [Filed May 19, 1876.]

Brief.—Passages contracted at their inner ends lead into a chamber above bait-pan, which is covered with woven wire or other reticulated material.



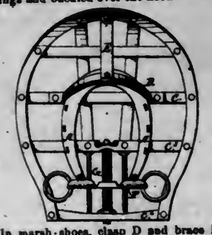
1. In a fly-trap, the combination of inlet-passages, having openings outside of the receiver, and contracted openings within the receiver, with a covered bait-pan, substantially as described.

2. The combination, in a fly-trap, of inlet-passages D and cover C, substantially as and for the purpose described.

3. The combination of inlet-passages D, cover C, base A, and receiver B, substantially as described.

186,718. MARSH-SHOES. G. O. Berglund, Deerfield, Wis. [Filed Aug. 7, 1876.]

Brief.—The front clamp is placed on the hoof; the rear bar is screwed up against the heel-calks. Straps may be introduced through the rings and buckled over the hoof.



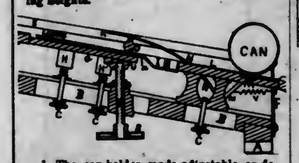
1. In marsh-shoes, clasp D and brace E, when operating in combination with bar F and screw G, substantially as described, for the purpose specified.

2. A skeleton shoe composed of curved and straight bars, substantially as described, in combination with the clasp D, brace E, screw G, and bar F, as described, for the purpose specified.

3. A marsh-shoe having an upward-curved toe, as and for the purpose set forth.

186,719. LABELING-MACHINES. J. Bigelow, Boston, Mass. [Filed Jan. 7, 1876.]

Brief.—A can-labeling machine having a tray or holder longitudinally adjustable relative to the paste-pad, to allow proper application of paste to cans of different circumference. The lower ends of labels rest against an inclined surface, which causes the upper end of top label to project beyond the next label, which prevents the can taking up more than one label as it rolls over the pile. One of the guide-bars is secured in inclined bearings, to allow its adjustment in case of cans of varying heights.



1. The can-holder, made adjustable, as described, in combination with the paste bed, as and for the purpose specified.

2. The combination, with cam-guides, of supporting-arms having inclined slats, as shown and described, for the purpose specified.

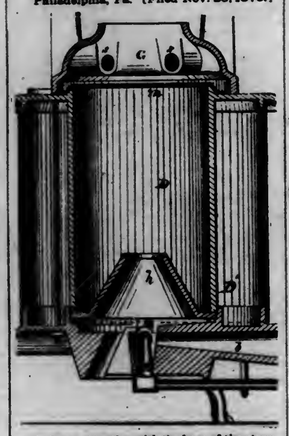
3. The combination, with the label-holder, of the inclined plate s for supporting the lower ends of the labels and causing their upper ends to overlap, as specified.

4. The combination of the spring-supported side guides with the label-holder, substantially as described, for the purpose specified.

5. The combination of the paste-trough I, paste-roll J, fingers K K', bent levers M M, and arms N N with the label-holder G and paste-bed D, arranged substantially in manner described, as and for the purposes set forth.

6. The combination and arrangement of the paste-trough I, paste roll J, fingers K, ways L, bent levers M, arms N, rod R, ratchet-wheels S, and screw-shaft T with the paste-bed D and label-holder G, all being constructed and arranged to operate substantially as and for the purposes set forth.

186,720. GAS-STOVES. John Q. Birkey, Philadelphia, Pa. [Filed Nov. 23, 1876.]

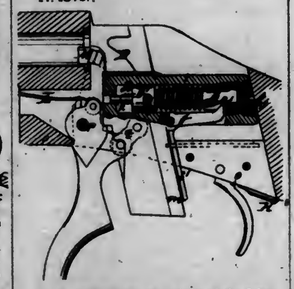


1. In combination with the base of the stove and its central hub through which a gas-burner passes, the diaphragm a, which is surmounted with the truncated hollow cone h above the burner, as and for the purposes set forth.

2. In a gas-stove, the bottom plate B, provided with the horizontal radial tapering tubes b b, and the inclined or tapering openings c i, with the gas-burner in the center thereof, in combination with the truncated hollow cone h, formed in the center of the diaphragm a, substantially as and for the purposes herein set forth.

3. The cap G, provided with the radial tapering tubes e e, in combination with the cylinders D and A, and the perforated diaphragm a, substantially as and for the purposes herein set forth.

186,721. BREECH-LOADING FIRE-ARMS. H. Borchardt, Bridgeport, Conn., assignor to the Sharps Rifle Company. [Filed Oct. 17, 1876.]



1. In combination, the pin O of the firing-pin B, and the cams D D, operating to cock the gun, as described.

2. The transverse pin of the firing-pin, in combination with cams, as described, for cocking the gun, and with a breech-block moving upward and downward, as described.

3. A sear-bolt with two arms, as described, combined with a firing-pin, and a trigger attached to the breech frame of the gun.

4. The safety-check H, situated and operated as described, arranged to move forward and backward into and out of contact with a notch in the trigger.

5. In a breech-loading fire-arm, the combination of a breech-block, screw-plug, and sear-bolt, when the sear-bolt locks the screw-plug, substantially as described.

186,722. COTTON-SWEEPS. H. C. Dubourg, Pittsburg, Pa., assignor to Alex. Speer & Sons, same place. [Filed Nov. 8, 1876.]

Brief.—The seat or connecting flange is formed upon the point, to adapt it for attachment to old sweeps after their worn points have been cut off.



The combination, with the blade of a cotton-sweep, of a detachable point constructed with a depressed rear triangular extension, which forms an intermediate vertical face, against which abuts the front edge of the blade of the sweep, the point being secured to the blade by means of a bolt passing through the blade and the rear extension of the point, substantially as and for the purpose set forth.

186,723. DEVICES FOR CUTTING SCREW-THREADS. D. W. Burnham, New Haven, Conn., assignor to H. B. Brown & Co., same place. [Filed Jan. 16, 1876.]

Brief.—Old and worn cutter-heads are reamed out, and a re-enforcing lining of hardened metal, which is provided with the usual cam-surfaces, is inserted. The recess in each of the cutter-frames is of a different length, so that when a cutter becomes (by wear) too short for one frame it can be transferred to another.



1. The combination of a series of frames, i, with a series of cutters, l, the frames having recesses of different lengths in their faces, so that when the cutters become too short for one frame, they can be transferred to another, substantially as shown.

2. The combination of the head a, hardened lining e, head g, having groove h, and cutters i l, substantially as set forth.

3. The head g, having slots in its end to receive both right and left hand dies, substantially as specified.

4. The combination of the flange 3, slots 4, set-screws 5, head a, head g, and dies, substantially as described.

186,724. FLY-TRAPS. F. M. Carroll, Kendallville, Ind., assignor of one-half his right to J. Lamb, Grand Rapids, Mich. [Filed May 31, 1876.]

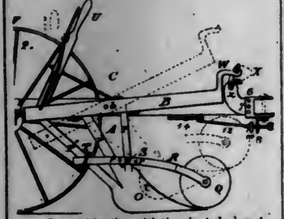
The box or frame A, provided on one side with netting B, and on the other side with a series of inclined overlapping glass plates, C, or their equivalent, forming entrances e, and the obstruction b, substantially as and for the purposes herein set forth.

185,724.



185,725. WHEEL-PLOWS. C. F. Chambers, Hutsonville, Ill. [Filed June 20, 1876.]

Brief.—The plow-beam is pivoted to the frame at or near the standard. The forward end of the beam is provided with a goose-neck, by means of which the plow is held to work by a keeper. The draft device is laterally adjustable by means of a draft-rod and adjusting-plate.

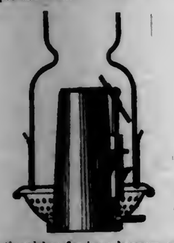


1. In combination with the pivoted plow A, having the handle U and catch V, and the goose-neck W, the adjustable and releasable cam-yoke X, connected with lever 1, capable of engagement in rack 2, in the manner set forth.

2. The combination of the perforated plates 9, 13, and 14, rods 9, 11, and 12, and single-tree 10, for regulating the width of furrow and the amount of draft, as explained.

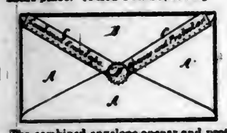
185,726. LAMP-EXTINGUISHERS. Henry A. Chapin, New York, N. Y. [Filed Apr. 27, 1876.]

Brief.—The disk can be raised by the rod which slides through its bearing, and, by a partial revolution of the rod, can be brought down upon the wick.



An extinguisher for lamp-burners, consisting of a rod and a disk or plate pivoted to the latter, substantially as shown, so that by manipulating the said rod the said plate or disk may be made to put out the flame, or may be thrown into a position that will prevent it from interfering with the draft to the flame, substantially as described.

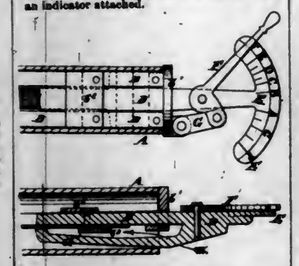
185,727. ENVELOPES. J. Collins, Central City, Colo., assignor of two-thirds his right to N. A. Sears and W. C. Hendricks, same place. [Filed Oct. 30, 1876.]



The combined envelope opener and protector, consisting of the strip C and seal D, in combination with the envelope A B, substantially as described.

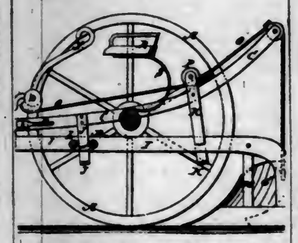
185,728. TUNING-PIPES. Wm. G. Cook, Jersey City, N. J., assignor to himself and D. M. Read, New York, N. Y. [Filed Oct. 23, 1876.]

Brief.—A pocket reed tuning-pipe having a clamp adjustable along the reed-tongue, and an indicator attached.



The combination of the slotted sliding bar D, having an index-plate, E, formed upon its outer end, the lever F, and the pivoted fulcrum-bar G, with the slotted frame B, the reed C, the case A, substantially as herein shown and described.

185,729. SULKY-PLOWS. Charles R. Conway, Midway, Wis., assignor to Jane R. Conway, same place. [Filed Oct. 23, 1876.]



The combination, with the front cam-lever N, connected by cord O with the rear of plow-beam, of a tongue, C, passing beyond the axle, and there curving upwardly, hangers J K, and pulleys P Q, all arranged as shown and described, for the purpose specified.

185,730. COFFEE-POTS. John Cromwell, Cranford, N. J. [Filed Feb. 9, 1876.]

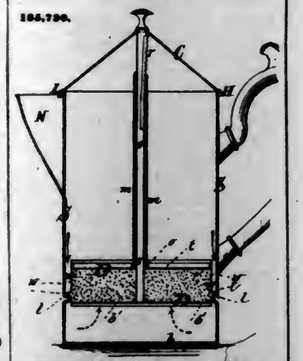
Brief.—The coffee is held between two reticulated plates below the spout.

1. The combination, with the pot or vessel, of the hollow perforated or reticulated containing-diaphragm, arranged and held below the spout N or outlet-opening of the pot or vessel, substantially as and for the purpose specified.

2. The combination of the upper disk *l* of the hollow diaphragm D, the sleeve *m*, the spring-ratchet *r*, and the spindle *s*, attached to the bottom of said hollow diaphragm, substantially as described.

3. The hollow diaphragm D and its spindle *s*, in combination with the cover O and ledge *l* of the pot, substantially as herein set forth.

185,730.

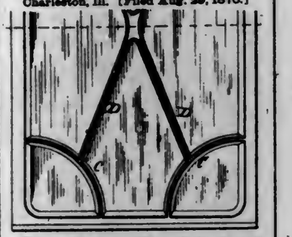


185,731. WEIGHING-SCALES. L. W. Cross, Angola, Ind. [Filed July 11, 1876.]



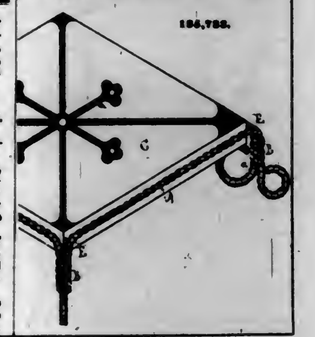
The combination of the platform G, beams D D, with connected levers E E, the beams J, plate I, screw-rods K, with balls L, the sliding weights P, with draw-bars R, and the pointers S, all constructed and arranged substantially as and for the purposes herein set forth.

185,732. WINDOWS. Geo. W. Dickinson, Charleston, Ill. [Filed Aug. 29, 1876.]



The combination, with a single plate of glass, B, of the metallic frame A, provided with braces C D between the bars of the frame, and against one face of the glass plate, as set forth.

185,733.



185,734. WIRE FRAMES FOR TILE-STANDS. O. D. Dudley, Lowell, Mass., assignor to Woods, Sherwood & Co., same place. [Filed Dec. 1, 1876.]

1. A stand composed of a tile top and wire frame, combined substantially as described.

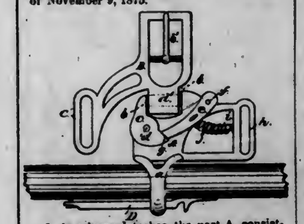
2. The combination of the side bands A A of the wire frame with the feet B and the brackets *a a*, substantially as described.

3. The wire frame A, having flutes or corrugations *c c c* in its bands, which encompass the article held, forming an expansible frame, substantially as described.

4. The wire frame, having its band A A united, substantially as shown at E E, to permit the expansion of the frame, as set forth.

185,734. HORSE-DETACHERS. I. L. Fallis, Dayton, assignor of one-half his right to H. T. Jackson, Alpha, Ohio. [Filed Sept. 11, 1876.]

Brief.—Improvement on Patent No. 169,685 of November 9, 1875.



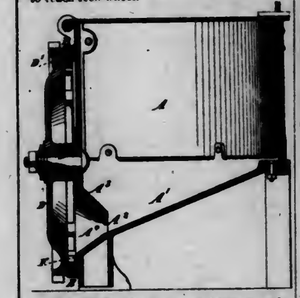
1. In a horse-detacher, the part A, consisting of the solid portion forming the loops *a* and *b*, and the catch *c* and latch *e*, arranged upon the outside, in the manner and for the purpose specified.

2. The combination, with the part A, constructed as described, of the part B, containing the loop *c'*, buckle *b'*, and sleeve *d'*, substantially as and for the purpose specified.

3. The combination, with the part A, constructed as described, of the spring-strip D, arranged upon the under side of the shafts, in the manner and for the purpose specified.

185,735. CORN-DRILLS. John H. Farmer, Richmond, Ind., assignor of one-half of his right to Wayne Agricultural Company, same place. [Filed Nov. 27, 1876.]

Brief.—Vertical feeding-wheel, provided with sectional flanges having angular faces, revolves in peripheral flange on front of hopper. Hopper-bottom inclined to allow seed to reach feed-wheel.



1. The combination of a seed-hopper and the vertical wheel D, running on a horizontal axis, having buckets formed by inclined faces, to first separate a single grain, and then lift and deliver it to the seed-spout, substantially as set forth.

2. The wheel D, constructed with sectional flanges D^1, with angular faces, in combination with the peripheral flange B, cut away at the seed-spout E, substantially as set forth.

3. In combination with the separating and elevating wheel D, the channel F, formed between the wheel and hopper, substantially as set forth, so as to arrange the grains of corn upon their edges.

4. In combination with the channel F, the inclined surfaces D^2 and A^4, for delivering the grain, substantially as set forth.

5. In combination with the hopper and aperture A^1, the chamber formed between the hopper and the wheel D, for supplying grain first taken from the hopper to the elevating-wheel, substantially as set forth.

6. The combination of the hopper, the wheel, constructed as described, for separating and delivering single grains, and the spout E, arranged to receive the grain at near the level of the axis of the wheel, and deliver it below at F^2, substantially as set forth.

185,736. GAS-REGULATORS. Chas. A. Fenn and Rudolph Groeninger, St. Louis, Mo. [Filed Oct. 4, 1876.]



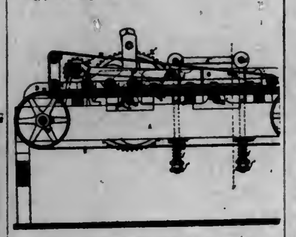
1. The combination, with the two-part case A B and flexible diaphragm J, of the two-part valve-rod H H^1, rigid guides R G, and valve I, the guide G with the valve I and its rod H^1, adapted to form a support to the diaphragm, as and for the purpose set forth.

2. In combination with the valve I, valve-stems H H^1, and guides G R, the holding-pin *r*, substantially as and for the purpose set forth.

3. The cover or lid N, having fixed lug P, spring-catch Q, and holes *n* with the inturned rim or flange O with notches *o o* and locking-notch o^2 for said spring-catch, substantially as and for the purpose set forth.

185,737. MACHINES FOR WASHING AND RIBBING BRISTLES. T. J. Ferguson, Pikesville, assignor to W. Wilkins, Baltimore, Md. [Filed Oct. 13, 1876.]

Brief.—The rubber moves vertically and horizontally upon the bristles as they are carried under it in a trough upon an intermittingly-moving belt.



1. In a machine for washing and rinsing bristles and similar substances, the flexibly-faced washer E, combined with mechanism for imparting to the same longitudinally-reciprocating and vertically-reciprocating movements, substantially as and for the purposes herein specified.

2. The washer E, with mechanism for giving to it the movements described, combined with the trough D and intermittently-feeding belt C, substantially in the manner and for the purposes set forth.

3. The washer E, crank F, connecting-rod F^1, lifters G, and shafts H H^1, provided with cams or projections *c*, combined substantially as herein specified, whereby a longitudinally-reciprocating and a vertically-reciprocating movement are transmitted to said washer, for the purposes described.

4. The lifters G and the washer E connected thereto, combined with the pressure-rollers *d'* and mechanism for causing said rollers to exert, intermittently, a pressure upon the said lifters, and through them upon the said washer, substantially as and for the purposes specified.

5. The lifters G, adjustable pressure-rods *s*, coupling-bars d^2, transverse rods *d*, springs *h*, cam-shaft H, having lugs h^1, cam-shaft H^1, and means for imparting to said shafts a common rotary movement, all combined in a bristle-washing machine, substantially as and for the purposes specified.

6. The washer E, connecting-rod F', and crank-shaft F, combined in a bristle-washing machine, with the pinion E^2, master-wheel K^1, and shaft H, substantially as specified, and for the purposes set forth.

7. The pinion k^{11} with its crank-shaft for operating the washer, the shaft H, master-wheel K^1, crank-pin *i*, pendent arm I, and pawl *k*, combined in a bristle-washing machine, with the ratchet-wheel M, the shafts B', pulleys B, and endless belt C, substantially as described.

8. In a bristle-washing machine the trough D, rollers *l*, and cord *m*, substantially as and for the purpose specified.

185,736. BURGLAR-ALARMS. W. Fischer, Washington, D. C., assignor of one-half of his right to F. A. Clavelioux, same place. [Filed Nov. 29, 1876.]



1. A burglar-alarm, consisting essentially of a frame piece, A, armed with spurs *a' a''*, and having a cartridge-socket, C, a hammer, B, and a lever-trigger, D, having a point or spur, *e*, combined to operate substantially in the manner and for the purpose herein before set forth.

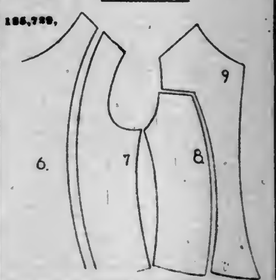
2. In a burglar-alarm, a trigger-lever armed with a point or spur, *e*, whereby the said lever may be secured firmly in the door or window-sash, substantially as and for the purpose herein shown and set forth.

3. The combination of the frame or case A, armed with spurs *a' a''*, with trigger-lever D, armed with point or spur *e*, substantially as and for the purpose herein shown and set forth.

4. In combination with frame A, having cartridge-socket C, the guard F, constructed and arranged substantially as and for the purpose herein shown and specified.

5. As an article of manufacture, the improved burglar-alarm herein described, consisting of frame A, having spurs *a' a''* and offsets or brackets *a b c*, bolt B, having hammer *h*, ring G, and pin or shoulder *g*, coiled spring E, trigger-lever D, having point or spur *e*, and notch *f*, and guard F, all constructed and combined to operate substantially in the manner and for the purpose herein shown and specified.

185,738.



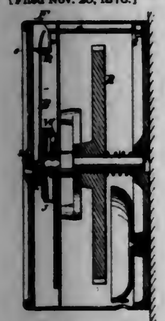
185,739. UNDER-WAISTS. S. F. Follette, Boston, Mass. [Filed Sept. 11, 1876.]

1. The combination, in a garment, of the seven pieces 3, 4, 5, 6, 7, 8, and 9, formed substantially as shown and described.

2. An under waist, consisting of seven pieces, formed substantially as shown, united by matched seams under the arms of the same length and converse form, and by lapped seams elsewhere, in which the edges of the material are of like length and variant forms, substantially in the manner, and for the purpose described, whereby a better fit and draw is obtained.

3. A garment, consisting of seven pieces, formed substantially as shown, united by eight seams, in which the seams under the arms are matched from edges of the same length and converse form, and the other seams are lapped from edges of the same length and variant form, whereby the fit and draw of the garment are adapted to the shape and conformation of the waist, body, and bust, substantially as shown and described.

185,740. PASSENGER-REGISTERS. JNO. W. Fowler, Brooklyn, N. Y., assignor to the Brooklyn City Railroad Company, same place. [Filed Nov. 20, 1876.]



1. The combination, in a passenger-register or indicator, of a permanent continuous register, a trip-hand adapted to be set back to zero at will, actuating mechanism common to all, and a pawl and ratchet, to prevent the forward movement of the trip-hand, independently of the actuating mechanism, substantially as herein illustrated and described, for the purpose specified.

2. A zero-guard, forming an obstruction in the path of a reversible trip-hand, B, and constructed with a bent shank, *r*, forming a passage-way, *s*, for another index-hand, A, substantially as herein shown and described, for the purpose set forth.

3. The zero-guard F, constructed with the obstructing projection *o* and incline *m*, the latter serving to pass the trip-hand over the obstruction when the hand is moved forward to and beyond zero, in combination with said trip-hand, and a pawl and ratchet, preventing its independent forward movement, and a permanent register indicating the sum of the forward movements of the trip-hand, substantially as herein described.

4. The combination of a ratchet attachment, J, and a pawl attachment, W, applied to the trip-hand and shaft of the specific register or indicator herein described, or one substantially similar, and a zero-guard, F, forming an obstruction at or immediately before the zero point of the dial of the same, for preventing the fraudulent manipulation of said trip-hand, in the manner herein set forth.

185,741. CHIMNEYS. Maria L. Ghirardini, Pawtucket, R. I. [Filed Mar. 25, 1876.]

Brief.—The fresh-air passages and the foul-air passages are independent of each other throughout. The chimney is composed of sections, as shown.

1. The chimney-stack described, consisting of a clay or metallic smoke-flue, B, located within a clay, concrete, or metallic cylinder, A, said flue and cylinder having openings therein, as shown and described, and being each made in independent sections, and separated from each other by the partitions *s s*, as set forth.

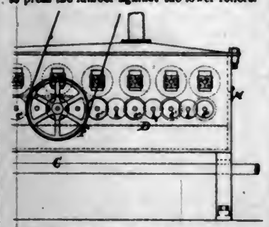
2. In combination, the foul-air-outlet flues D, provided with appropriate inlets H' thereto from any given room or rooms, the independent fresh-air-inlet flues C, provided with outlets H, adapted to convey fresh air into the same or other room or rooms, and an appropriate register or registers adapted to control the admission or exclusion of the fresh air at will, substantially as shown and described.

185,742.



185,743. STRAIGHTENING AND DRYING LUMBER. Richd. S. Gillespie, New York, N. Y. [Filed Nov. 11, 1876.]

Brief.—The door by which the lumber enters the case is made sectional and closes by gravity. The heavy upper rollers are supported in sliding vertical bearings, and serve to press the lumber against the lower rollers.



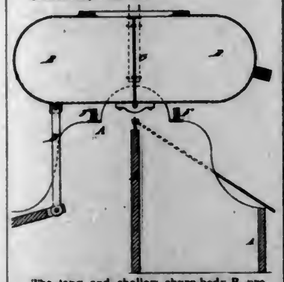
1. The method described of straightening and drying lumber, by passing it between a series of hot metal rollers in a bath of hot air or gas, as herein specified.

2. The method described of simultaneously straightening, drying, and polishing lumber, by passing it between a series of hot rollers in a bath of hot air or gas, with the rollers slipping on one of its surfaces, as specified.

3. The drying and straightening apparatus, composed of the blowing means A, air-heating means B, passage C, rollers E I, combined in a long series, and casing K, all arranged and serving, in combination, to traverse, boil, heat, and dry the lumber, as herein specified.

4. The door M, in combination with the casing K, rollers E I, air-distributor D, air-heater B, and blower A, as and for the purposes herein specified.

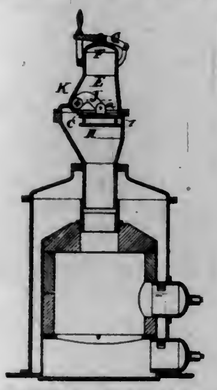
185,744. RECIPROCATING CHURNS. P. W. Gum and W. H. Seawell, Strasburg, Mo. [Filed July 1, 1876.]



The long and shallow churn-body B, provided with a detachable perforated board, C, in its center, pivoted to the frame A, and connected at one end by the rod D with a treadle E, substantially as herein shown and described.

185,745. FEED APPARATUS FOR HOT-AIR FURNACES. W. J. Halleña, Brooklyn, N. Y. [Filed Dec. 6, 1876.]

Brief.—The valve is opened to discharge the magazine by means of the rock-shaft and arm.



The combination, with a hot-air furnace, of a feed apparatus, consisting of the receiver E, valve I, arm J, and rock-shaft K, the arm and the rock-shaft being situated above the valve, and the whole being adapted to operate substantially as described.

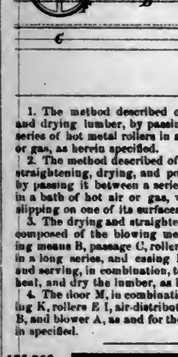
185,746. BUTTER-DISHES. W. B. Hawkins, Wallingford, Conn., assignor to Simpson, Hall, Miller & Co., same place. [Filed Dec. 4, 1876.]

1. A butter-dish in which the cover F is made in two parts or halves, pivoted at their angles to the opposite sides of the body B of said dish, so that they may be turned down upon the outside of said body, substantially as herein shown and described.

2. The combination of the segmental gear-wheels G with the angles of the parts of the cover F, to cause said parts to move together upon their pivots, substantially as herein shown and described.

3. The combination of the pin H, the sliding knob I, and the projection J with the edges of the parts of the cover F, substantially as herein shown and described.

185,748.

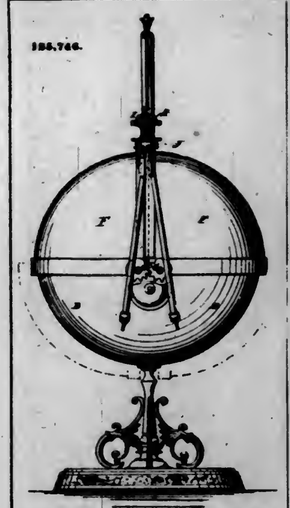


185,748. DEVICES FOR ORNAMENTING THE EDGES OF BOOKS. F. B. Grady, Brooklyn, N. Y. [Filed June 22, 1876.]

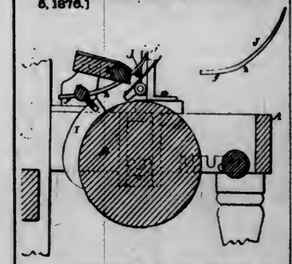
Brief.—Made of inking-roller composition.

The roller or implement A, for ornamenting books, made in the manner substantially as above shown and described.

185,746.



185,747. PAPER-RULING MACHINES. Wm. O. Hickok, Harrisburg, Pa. [Filed Dec. 8, 1876.]



1. The combination, in a ruling-machine, of the pivoted gate G, having a projected pin, *e*, and the sliding pin or bolt *d*, substantially as and for the purposes herein set forth.

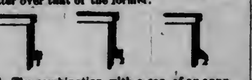
2. The arm J, constructed as described, with the straight end *f*, abrupt curve h, then nearly straight to the outer curved end *i*, in combination with the gate G, and cam I on the pen-cylinder D, substantially as and for the purposes herein set forth.

3. The combination of the adjustable standard L, adjustable plate M, with hub *n*, the adjustable rod O, with casting P, spring R, and the arm S on the pen-beam B, substantially as and for the purposes herein set forth.

4. In a ruling-machine the pen-drums or pen-cylinders D, provided with plates T, having bearings or half-boxes *t* at varying height, in combination with the grooved castings V, having bottom stops *x*, substantially as and for the purposes herein set forth.

185,748. PAINT-CANS. P. Hickey, Philadelphia, Pa., assignor to Le Comte & Perkins Manufacturing Company, (limited,) same place; and said Le Comte & Perkins Manufacturing Company (limited) assignors to Geo. E. Perkins, same place. [Filed Jan. 31, 1876.]

Brief.—The can is sealed by uniting, with cement, the flanged rim of the cover to the flanged ring, or by lapping the flange of the latter over that of the former.

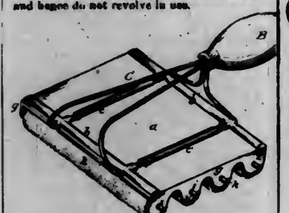


1. The combination, with a can, of an annular ring or flange, E, attached to the outside, and projecting outward at a point below the upper edge of the can, and a lid, which fits over and around the sides of the upper rim of the can, the lower edge of which lid is flanged outward, and rests upon the aforesaid ring or flange, substantially as described.

2. The combination of a can with a lid fitting over and around the sides of its upper rim, which lid has its lower edge flanged outward, and an annular flange or ring, E, attached and secured to the sides of the can, and below its upper edge, the outer edge of which last-named flange or ring is turned up and over upon the flange of the lid, substantially as described.

185,749. HORSE-BRUSHES. Charles E. L. Holmes and Wm. B. Laurence, New York, N. Y. [Filed Nov. 6, 1876.]

Brief.—The shape, side handle, and frame are like many curry-combs. A sheet-metal back has descending flanges at its ends, forming bearings for a series of cylindrical brushes, which are removable, but mesh with each other, and hence do not revolve in use.



1. A brush having a side handle, B, and a handle, C, elevated above the back, forming a space beneath for the admission of the hand, and serving to retain the hand in contact with the back of the brush, substantially as set forth.

2. The combination of the metallic back or frame *a*, provided with a handle and the brushing face, as specified.

3. The combination of the brush back or frame and brushing-face secured detachably thereto, as and for the purpose specified.

4. The back *a*, having grooves or pockets for wires or rods connected to the handle and extending above and below the back, substantially as specified.

5. A brush provided with a back having the side flanges *g g*, between which the brushing-cylinders *h* are arranged, as set forth.

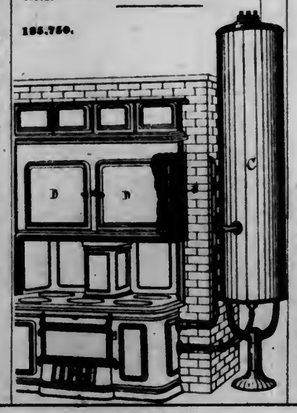
6. The combination, in a brush, of a series of interlocking brush-cylinders, arranged transversely to the handle, and a back or frame carrying said cylinders, as specified.

7. The combination, with the twisted-wire brush shafts, of thimbles *i*, covering the ends of the shafts, as specified.

8. The combination of the brushing-face and the back *a*, consisting of a metal plate with ribs *b b*, *c c'*, and flanges *g g*, as set forth.

9. The combination of the back *a* and cylindrical brushes *h*, adapted to be rotated as set forth.

185,750.

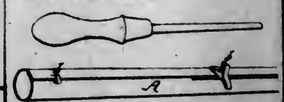


185,750. OVENS. F. Howes, Boston, Mass. [Filed Nov. 24, 1876.]

1. The combination, with the oven D, of the water-back or other vessel F, in which the water is heated, and the pipe B surrounding the oven, the combination being and operating substantially as described.

2. The combination, with the oven D, of the vessel F, in which the water is heated, the reservoir C, and the pipe B, surrounding the oven, all arranged and operating substantially as described.

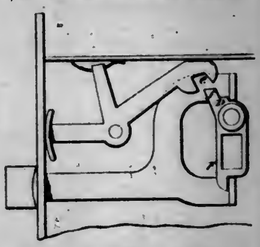
185,751. HAIR-CURLERS. Chas. A. Idler, Philadelphia, Pa., assignor of one-half of his right to B. B. Claiborne, same place. [Filed Nov. 20, 1876.]



1. A hair-curling device consisting of a tube, A, provided with one or more clasps, *b*, made in one part with the said tube, substantially as set forth.

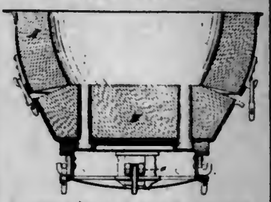
2. The combination of the tube A, constructed for the reception of a heated iron, with clasps *b b*, adjustable from and toward each other, as set forth.

185,752. KNOB-LATCHES. C. S. Jennings, Branford, Conn., assignor to T. Kennedy, New York city. [Filed Oct. 9, 1876.]



In combination with the latch-bolt, the knob-lever D F, hung within the case, one arm mortised to receive the knob-finger, and the two arms of the said lever acting upon the latch-bolt according to the direction in which the knob is turned, all substantially as described.

185,753. FASTENINGS FOR BESSEMER-CONVERTER SECTIONS. Wm. R. Jones, Braddock's Field, Pa. [Filed Oct. 16, 1876.]



A coupling for the sections of a converter, consisting of a bolt, having a loop or T-head, a hooked lug, to support said bolt, an open-slotted shoulder, to receive the bolt-shank, and a key to fasten the coupled parts together, substantially as described.

185,754. ROTARY CHURNS. Jos. Joseph, Sparta, Tenn. [Filed Oct. 26, 1876.]

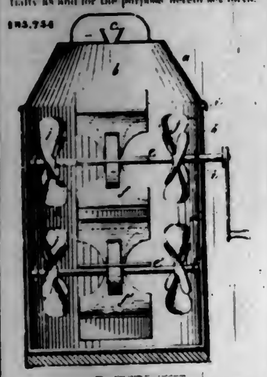
1. The horizontal interlocking dasher-wheels, one above the other, within a yoke-spring frame, *d*, as arranged in relation to the top air-chamber *b*, within which the upper dasher-wheel operates to force the air down into the milk as it is thrown up by the lower dasher-wheel, as herein specified.

2. The yoke-spring frame *d* for the dasher-wheel shafts *a a'*, arranged and supported within the wall guides *g*, and provided with

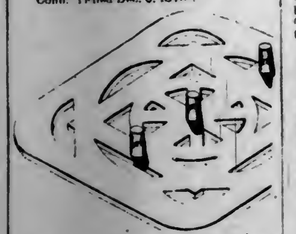
a notched bearing, *i*, for the crank-shaft *e*, in combination with the chain-body, having the vertical side slot A covered by the vertical side *d* of said yoke-frame, as and for the purpose set forth.

3. The combination, with the interlocking dasher-wheels, arranged to operate as described, of the supplemental side agitators *j*, with oppositely-inclined blade revolved separately by the dasher-wheel shafts, substantially as and for the purpose herein set forth.

185,734



185,735. CARRIAGE-STEPS. Daniel A. Kimbark, Chicago, Ill., assignor of one-half of his right to Theo. W. Dalley, New Haven, Conn. [Filed Dec. 6, 1876.]



As an article of manufacture, the herein-described carriage-step, consisting of the step-plate, with two or more projecting rivet-studs upon the under side, formed, together with the step, from malleable metal.

185,736. BUCKBOARD-WAGONS. Robert P. King and Andrew King, Lowville, N. Y. [Filed Nov. 4, 1876.]



1. In a spring-buckboard wagon, the combination of the spring-buckboard A, the arm or bracket C, the pivoted spring-brace E, with the axle B, as and for the purposes described.

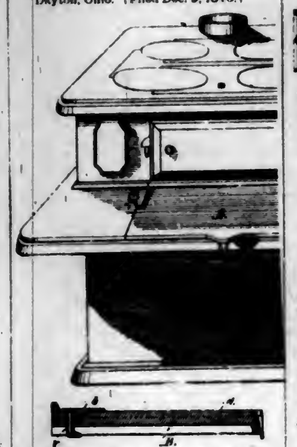
2. In a spring-buckboard wagon, the combination of the spring-buckboard A, arm C, and pivoted double-jointed brace E, with the axle B, as and for the purposes described.

3. In a spring-buckboard wagon, the combination of the spring-buckboard A, arm C, brace E, and spring B, with the axle B, as and for the purposes described.

4. In a spring-buckboard wagon, the combination of the spring-buckboard A with the spring-brace E, attached to the under side of the back-board A at one end, and the other end attached to the axle B, or other rigid part that is attached to the axle, as and for the purposes described.

5. In a spring-buckboard wagon, the spring B, interposed between the axle of the wagon and the end of the spring-board A, as and for the purposes described.

185,737. HEARTH-PLATES. Rufus J. King, Dayton, Ohio. [Filed Dec. 9, 1876.]



A hearth-plate, N, let into the hearth H, so that the top surfaces of both are in the same plane, and hinged to the hearth by the pivot *c*, with its detent, substantially as and for the purpose specified.

185,738. FASTENING. Joab H. Kinsman, Salem, Mass. [Dated May 24, 1876.]

Brief.—The end of the shackle extends beyond its pivot, and has a recess of peculiar shape, which takes over a corresponding projection upon the dog, which operates with tumblers provided with a roller in their recessed ends. With the tumblers thus constructed a guard-plate is combined, which extends from the upper to the under plate of the lock-case.



1. The combination and arrangement of the hasp or shackle, the dog, the roller, and the tumblers, whereby when the device is locked the hasp or shackle and the dog are completely disconnected from the tumblers, substantially as described.

2. The combination of the tumblers, each having an opening, *d*, with the roller G, said openings forming a seat or chamber for the reception of the roller, substantially as and for the purposes set forth.

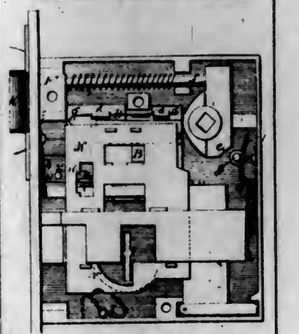
3. In combination with the guard-plate F, extending from the upper to the under plate of the lock-case, the tumbler having legs or projections, substantially as described.

4. In combination with the dog, the roller G, adapted to operate in connection therewith and with the tumblers, substantially as described.

5. The combination of the arms A', on the heel of the hasp or shackle, with the roller G and the tumblers, substantially as set forth.

6. The combination of the tumblers provided with suitable springs, and otherwise constructed as set forth, with the roller G, hasp or shackle A, arm A', dog C *b e c*, and spring D, substantially in the manner, and for the purpose set forth.

185,739. DOOR-LOCKS. John H. Kinsman, Salem, Mass. [Filed July 20, 1876.]



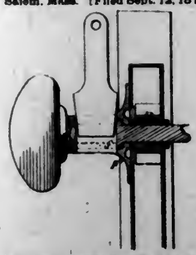
1. The combination of lever G with the primary tumblers, and with the latch-arm E *e*, substantially as and for the purposes set forth.

2. The combination of spring D, suitably provided with rubber, with plate C and the secondary tumblers B and stationary pins *x*, substantially in the manner and for the purposes described.

3. The combination of spring-slide H, as described, with recessed plates N, carrying the tumblers, substantially as and for the purposes set forth.

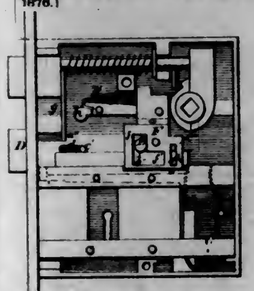
4. The keeper provided with the revolving wheel, having a series of arms, in combination with the pawl M and fixed latch, substantially as and for the purposes set forth.

185,740. KNOB-LATCHES. J. H. Kinsman, Salem, Mass. [Filed Sept. 12, 1876.]



In a lock, as herein described, the combination of the slotted rose-shank, slotted spindle, and wedge with the hub D, having spur *d*, and latch-arm B', rod *b*, and lug E, substantially as and for the purposes set forth.

185,741. LOCKS FOR DOORS, &c. John H. Kinsman, Salem, Mass. [Filed July 20, 1876.]



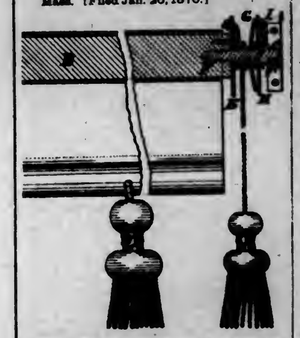
1. The combination of bolt D, having slot *d'*, with the notched secondary tumblers, movable guide-plates, and roller E, substantially as and for the purposes described.

2. The combination of the latch, having a depending and notched arm with the bolt, and the spring-lever adapted to operate the guide-plates and roller, substantially as set forth.

3. The combination of the springs *b* with tumblers B, each spring having a free end, *b'*, and adapted to operate at both ends on the tumbler, to which it is connected, substantially as and for the purposes set forth.

4. In a lock, having primary and secondary tumblers, as described, the combination of a roller and movable guide-plates with the bolt, substantially as and for the purposes set forth.

185,742. CURTAIN-FIXTURES. E. B. Lake, Bricksburg, N. J., assignor to Salem Shade Roller Manufacturing Company, Salem, Mass. [Filed Jan. 26, 1876.]

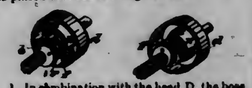


1. In combination with a roller and curtain or shade, operating to descend by gravity and be wound up by a cord, and provided with an automatically operating pawl, pivoted on the cord-pulley and adapted to check the descent of said shade, a frictional device having resistance sufficient to overcome the weight attached to the shade, but contrived to yield when the curtain is drawn down forcibly, without disengaging or unlocking the pawl, as set forth.

2. The pawl I and shaft F, having shoulders *f f*, in combination with the friction-pulley, composed of the drum *e*, disks B H, and friction-washer G, substantially as described.

185,743. CURTAIN-FIXTURES. E. B. Lake, Philadelphia, Pa., assignor to Salem Shade Roller Manufacturing Company, Salem, Mass. [Filed Sept. 21, 1876.]

Brief.—The spring is locked by first drawing down the shade slowly, and then allowing it to ascend slowly, when the pawl, which is pivoted to the shaft, drops through the slot in the horned ring, and engages with the teeth on the boss of the end cap. A friction-washer is placed between the ring and boss.



1. In combination with the head D, the boss *d*, having ratchet-teeth *d'*, substantially as shown and described.

2. The ring E, having the ears *a d'* and slot *d'*, substantially as and for the purpose set forth.

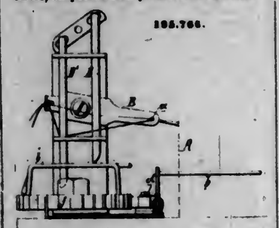
3. The combination of head D, having boss *d*, with ratchet-teeth *d'*, ring E, having ears *a d'* and slot *d'*, and pawl F, pivoted on the shaft B, substantially as shown and described.

4. In combination with the boss *d* and ring E, a friction collar or pad inserted between the two, substantially as and for the purposes set forth.

185,744. KNITTING-MACHINES. M. Landenberger, Jr., Philadelphia, Pa., assignor to J. Landenberger and G. W. Landenberger, same place. [Filed Mar. 25, 1876.]

Brief.—Vertically-adjustable guide-bars are provided, by the adjustment of which either thread may be brought to the top of the eye of a secondary guide, while the other thread remains in the bottom of said eye, by which one of said threads forms one face of the knitted fabric, while the other thread forms the opposite face. By using yarn of different colors, stripes are thus produced in the fabric.

185,745.



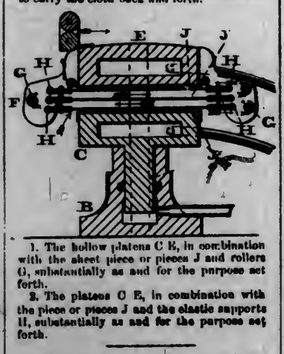
1. The combination of the needle-cylinder A of a circular-knitting machine, and the thread-guide B, having the eye *a*, with the vertically-adjustable bars D D', whereby the relative positions of the threads fed to the needles may be altered, as and for the purpose set forth.

2. The combination of the vertically-adjustable guide-bars D D' with the ratchet-wheel *f* and its cams *i i*, and suitable mechanism by which said wheel may be rotated, as set forth.

3. The combination of the ratchet-wheel *f* and pawl *d* with the cam *b* on the cylinder A.

185,746. HYDRAULIC CLOTH-PRESSES. William B. Leachman, Leeds, England. [Filed July 10, 1876.]

Brief.—Between hollow platens a series of sheets of paper or similar board are suspended by elastic cords. Rollers are arranged to carry the cloth back and forth.

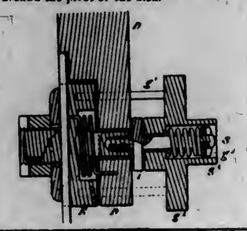


1. The hollow platens C E, in combination with the sheet piece or pieces J and rollers G, substantially as and for the purpose set forth.

2. The platens C E, in combination with the piece or pieces J and the elastic supports H, substantially as and for the purpose set forth.

185,747. MOVABLE NEEDLE-HOLDERS FOR SEWING-MACHINES. Geo. W. Lovin, Chicago, Ill., assignor of one-half his right to Chas. E. Barrett, same place. [Filed Aug. 5, 1876.]

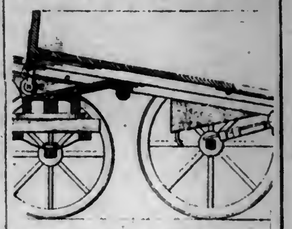
Brief.—The needle is mounted in a disk pivoted to the needle-bar; said disk being locked in a vertical position for sewing, or in a horizontal position for examination, threading, &c., by a spring locking device, the movement from the perpendicular to the horizontal position being effected by a spring around the pivot of the disk.



The combination of the disk E, carrying the needle and made with stop-pins *e*, and with the hub passing through the fixed head D, which is attached to and a part of the needle-bar, with the spring *r*, the fixed head D, the bolts *g'*, the plate *g*, shaft S, and spring surrounding it, when constructed substantially as described, and for the purposes set forth.

185,748. DUMPING-WAGONS. W. S. Bullock and H. Hanigan, Wilmington, Del. [Filed Nov. 9, 1876.]

Brief.—Devices upon the bed, whereby the body is elevated before dumping and tilts automatically.



1. A dump-wagon in which the body, supported at both a sliding and a tilting movement, is deeper at the rear than at the front, as set forth, for the purpose specified.

2. The combination of the frame, the sliding and tilting body, and the rollers and ribs, or equivalent elevating devices, as described, carried by the wagon, whereby the body may be raised at the rear prior to dumping, as set forth.

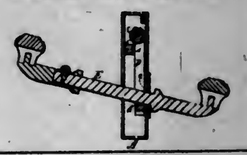
185,749. AUTOMATIC TOYS. W. Maguire, Jersey City, N. J., and J. Gallot, New York, N. Y. [Filed Sept. 30, 1876.]

Brief.—To imitate two gymnasts exercising with boxing-gloves.



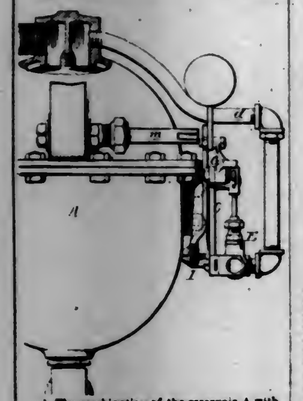
An automatic toy, consisting of clock-train A, cam-wheels *li*, rods C, rolls pressed by springs C', bodies D' pivoted between rigid legs, jointed rods E, and pivot-rods E', all constructed and arranged substantially as shown and described.

185,750. DOOR-LATCHES. G. J. Matson, J. V. Phillips, and E. C. Barmore, New Buffalo, Mich. [Filed May 11, 1876.]



The combination of spring bolt B, bent lever D, and transverse knob-lever E, arranged to act upon the short arm d' of said bent lever by downward pressure upon the knob on either side of a door, substantially as described.

186,770. SELF-ACTING STEAM-TRAPS. T. E. McNeill, New York, N. Y. [Filed May 18, 1876.]

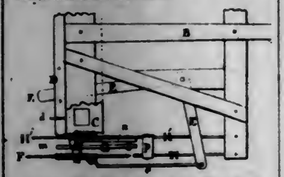


1. The combination of the reservoir A with the frame C, secured to the side of the reservoir, and carrying mechanism for operating valves D and E in a casing, B, also carried by the frame C, and communicating at one end with the boiler, at the other end with the atmosphere, and in the center, through a pipe, d, with the top of the reservoir A, as set forth.

2. The combination of the pivoted lever F, for operating the valves, and the arm J on the bucket-shaft m, with the bell crank lever I, weighted bar H, its pins i and i', and bell-crank levers O O', as set forth.

186,771. CORN-PLANTERS. M. B. McVicker, Lewis Ridge, Ill., assignor of one-half of his right to A. S. Cooper and G. W. Cooper, same place. [Filed Oct. 31, 1876.]

Brief.—The marking-wheel, that imparts motion to the seed-slide by suitable connecting rods, is mounted on an oscillating arm. To one of the openers in front of the wheel is attached an extra opener, for pulverizing the soil in advance of the wheel.



1. The combination, with the sliding bar or seed-bar D, of a corn-planter, and with a marking-wheel mounted on an oscillating arm, G, of a horizontal elbow crank, E, connecting-rod e, substantially as and for the purpose described.

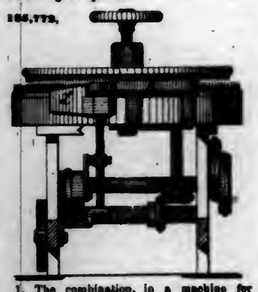
2. The combination, with a corn-planter having the marking-wheel F, and as an attachment thereto, of two or more colters, H, parallel with, and auxiliary to the cutting-part of the ordinary seed-runner, adapted to precede said marking-wheel, substantially as and for the purposes described.

3. The combination, with a corn or seed-planter, of the arms a a, provided with sheaves k k, oscillating wheel-arm G, and marking-wheel F, adapted, by means of rod e, to oscillate the crank E, and bar D, substantially as and for the purposes described.

186,772. WOOL-COMBING MACHINES. S. Metcalf, Poquonock, assignor of two-thirds his right to A. Dunham & Son, Hartford, Conn. [Filed Feb. 12, 1876.]

Brief.—In this machine there is a stationary inclined plate for transferring the material from holding-spars to gill-comb teeth; also, a vibratory presser for packing the material into the comb-teeth; also, guard-plates for holding the material between the comb-teeth while passing through them, for preventing the dirt and soils from incorporating with the sliver, and for protecting comb teeth against strain in drawing-off operation.

186,773.



1. The combination, in a machine for combing fibrous material, of a set or sets of spur-points for holding the material revolving around a common center, a set or sets of gill-comb teeth, also revolving around a common center, but whose path of revolution intersects the plane of the path of the holding-points, as described, and a stationary inclined plane, or equivalent device, for transferring the material from the holding-spars to the gill-comb, substantially as specified.

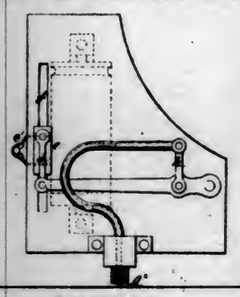
2. The combination, in a machine for combing fibrous material, of a set or sets of spur-points for holding the material revolving around a common center, a set or sets of gill-comb teeth, also revolving around a common center, but whose path of revolution intersects the plane of the path of the holding-points, as described, and a vibratory presser, M, for packing the material between the teeth of the gill-comb, substantially as specified.

3. The combination, in a combing-machine, of a circular revolving gill-comb, guard-plates *h h'*, concentric with such comb, for holding the material between the comb-teeth while it is being drawn through them, and a drawing-off apron and drawing-rollers for drawing the material through the comb, substantially as described.

4. The combination of a circular revolving comb, as described, suitable drawing-off mechanism, as described, and stationary guard-plates concentric with the row of comb-teeth, and extending below their points, to prevent the nails and dirt from being incorporated with the drawn-off sliver, substantially as described.

5. The combination of a circular revolving comb, as described, suitable drawing-off mechanism, as described, and the stationary plate *h*, to give support to the comb-teeth against unusual strains from the pull of the drawing-off mechanism, substantially as specified.

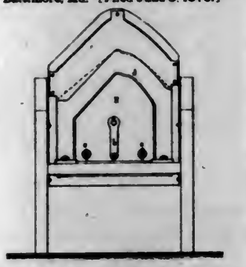
186,774. INDICATORS FOR STEAM-ENGINES. Thomas Minor, Brooklyn, and John Rae, New York, N. Y. [Filed Apr. 20, 1876.]



1. For steam or other indicators, a hollow spring, the chamber whereof is in direct communication with the steam-cylinder or other motor.

2. The combination, with the pencil moving and carrying devices and the paper-carrying device, of a hollow spring, having direct communication with the steam or other cylinder, and connecting the indicating devices, for conjoint action of these several agencies to produce the desired results.

186,775. CRIMPING-MACHINES. O. Noack, Baltimore, Md. [Filed June 3, 1876.]



1. The plates B, forming the lower portion of the die, provided with the curved projection *d*, substantially as and for the purpose set forth.

2. In combination with the plates B, the slotted clamps C, substantially as and for the purpose specified.

186,776. CULTIVATORS. Henry H. Pattee, Monmouth, Ill., assignor of two-thirds of his right to J. H. Pattee and I. P. Pillsbury, same place. [Filed Sept. 19, 1876.]

Brief.—The draft-bars are slotted lengthwise, to permit a bar to be attached, and to slide forward and back. The bar has a runner end, which rests upon the ground when slid back, and holds the arch upright when the plows are hung up. When the plows are at work, the runners slide forward out of the way. Suspension bars are hinged.



1. The combination, in a tongueless cultivator, of the following instrumentalities, viz., axle A, plows B, slotted draft-plates E, runners G, and bolts H, substantially as and for the purpose specified.

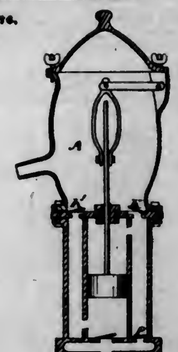
2. Hinged suspending-bars I, combined with axle A, plows B, and wheels F, substantially as described, and for the purpose specified.

3. The combination, in a tongueless cultivator, of the following instrumentalities, viz., axle A, plows B, slotted draft-plates E, runners G, and hinged suspending-bars I, substantially as and for the purpose specified.

186,778. DOUBLE-ACTING PUMPS. E. H. Perkins, Visalia, Cal. [Filed June 12, 1876.]

Brief.—The piston-rod is entirely inclosed in the air-chamber, and is always under water. The valve in the bottom of the cylinder permits the passage of the water into the case direct from the suction-pipe.

186,776.

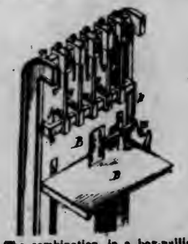


1. In a double-acting force-pump, the valve P, arranged in the water-way, in combination with valve c in the cylinder, and the opening *i*, as set forth.

2. In a double-acting pump, the stuffing-box a and valves K K', located on the same horizontal plane, in combination with and at the bottom of the chamber A, so that a body of water will remain continuously over said valves and stuffing-box, as and for the purpose specified.

186,777. MACHINES FOR NAILING BOXES. G. H. Perkins, Philadelphia, Pa., assignor to himself, J. Le Comte, New York city, and the Atlantic Refining Company, Philadelphia, Pa. [Filed Sept. 11, 1876.]

Brief.—One of the sides and one of the ends of the box are supported upon a vertically-adjustable table, held firmly against a vertically-adjustable and slotted plate, provided with a suitable number of nail holders, by a pressure-plate attached to the end of a pivoted lever, secured to the table, and prevented from being bent or split while the nails are being driven.

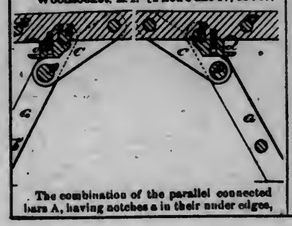


1. The combination, in a box-nailing machine, of the table D, the automatic nailing devices, and a plate, B, with a pressure-plate, *i*, arranged and operating so as to hold the side or end of the box firmly against the plate B while the nails are being driven.

2. The combination of the plate B, plate *i*, and lever F, and cam-plate *p*, as set forth.

3. The combination of the lever F and its plate *i* with the cam-plate *p*, having an elastic backing, *o*, as set forth.

186,778. WASH-BENCHES. Danl. B. Pond, Woonsocket, R. I. [Filed June 17, 1876.]



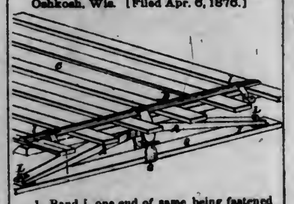
The combination of the parallel connected bars A, having notches *a* in their under edges, the arms C, rounds D, legs G, with top rounds *b*, and buttons *d*, all constructed substantially as and for the purpose set forth.

186,779. BED-BOTTOMS. John B. Praul, New York, N. Y. [Filed Oct. 23, 1876.]



In a bed-bottom, double C-springs, each spring being secured to the slats of the bottom in two places, substantially as and for the purpose described.

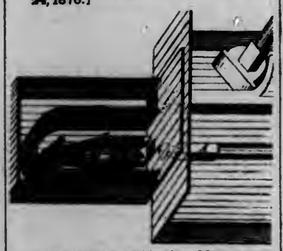
186,780. BED-BOTTOMS. Delando Pratt, Oshkosh, Wis. [Filed Apr. 6, 1876.]



1. Band I, one end of same being fastened to the cross-bar B, and having a slot in the other end, hooking over the screw-eye K, which screw-eye may be turned crosswise of the band, in combination with the cross-bar B, and rod D, and slats C, substantially as described.

2. The bed-bottom, consisting of slats C, having enlarged holes P in their ends, upper cross-bar D, cross-bars B having their upper inner corners beveled, bearded pins N, slotted bands I, screw-eyes K, inclined springs A, fulcrum-blocks H, and bands E, substantially as and for the purpose described.

186,781. LOCKS FOR TRUNKS, &c. Isaac Ramsey, Campbellsville, Ky. [Filed June 24, 1876.]



1. In a lock, the combination of four spring-catches, c^1 c^2 c^3 c^4, placed at right angles to each other, so as to admit of the insertion between them of the bolt A, and arranged to be operated simultaneously by one key, substantially as and for the purpose herein shown and specified.

2. In combination with a lock constructed substantially as herein described, the key K, constructed as shown, with the double bit i^1 i^2, the converging sides of which, *k k*, form the front and back, while its parallel sides, *e e*, form the right and left side, thus adapting it to operate the four springs c^1 c^2 c^3 c^4 simultaneously by a one-fourth turn of the key, substantially as and for the purpose herein shown and specified.

186,782. ABDOMINAL SUPPORTERS. Ruth T. Reed, Rochester, Ind. [Filed Oct. 21, 1876.]

Brief.—The suspending straps of the supporter are attached so as not to press upon the breasts, and the perineal straps are in one and the same piece with the body of the supporter.

186,783.

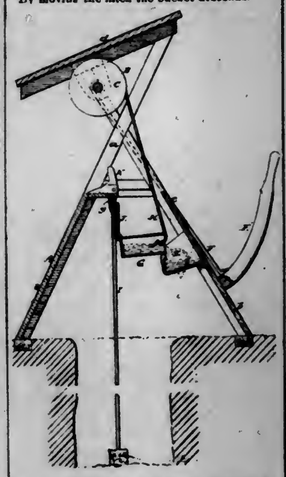


1. An abdominal supporter, provided with two back straps and three front straps for suspending the same, said straps being arranged and attached, as shown and described.

2. The abdominal supporters herein described, consisting of the strap-pads D, body C, provided with elastic stripe G, elastic belt B, and straps *a a'*, united in front at a^2, substantially as described, and for the purposes set forth.

186,784. WATER-ELEVATORS. T. J. Reid, Lexington, Ind., assignor to himself and J. Mallick, same place. [Filed Dec. 4, 1876.]

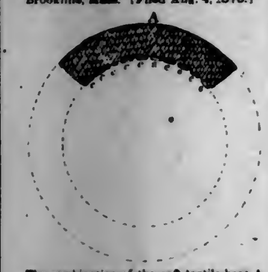
Brief.—By working the lever the strap attached winds and unwinds on the pulley fixed to the shaft of the winding-drum. The bucket has guides, which slide upon iron rods. When the bucket reaches the top it tips and discharges the water into the spout or trough. By moving the latch the bucket descends.



1. The combination of the wires I, guide J, catch K, and bucket G, substantially as herein shown and described.

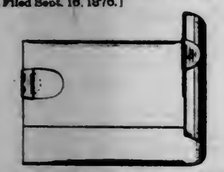
2. The combination of the curved lever E, strap F, windlass B, rope H, and bucket G, substantially as herein shown and described.

185,694. PISTON-ROD PACKINGS. P. W. Richards, Boston, assignor to F. B. Crain, Brookline, Mass. [Filed Aug. 4, 1876.]



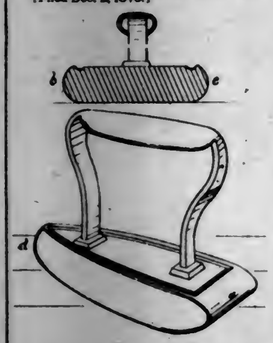
The combination of the soft textile base A with the metallic filling *a b b*, &c., constructed substantially as described, and for the purpose set forth.

185,695. COMBINED LETTER-SHEET AND ENVELOPE. L. H. Rogers, New York, N. Y. [Filed Sept. 19, 1876.]



A sheet of writing paper provided with gummed sealing flaps cut from and formed within the compass of the body of the sheet, and adapted to be folded outwardly around the side edges of the folded sheet, as set forth.

185,696. SAD-IRONS. W. H. Savery, Philadelphia, Pa., assignor of one-half of his right to B. R. Claiborne, same place. [Filed Dec. 2, 1876.]



A sad-iron having the semicircular polished sides *b c*, running toward the point *d*, and the rounded heel *a*, substantially as and for the purpose set forth

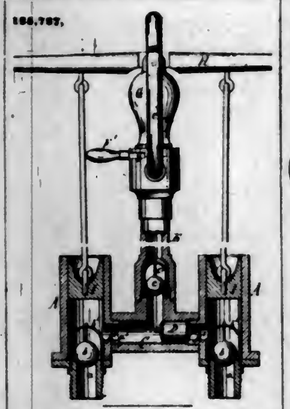
185,697. PUMPS. F. Shollar, Otsego Lake, Mich., assignor of one-half of his right to R. Murray, same place. [Filed Sept. 28, 1876.]

Brief.—An elongated sliding plug-valve closes either of the openings in the pump-barrel.

1. The combination of the elongated plug-valve D, operating as specified, pump-section C, cylinders A A, and barrel or stock E, substantially as and for the purpose described.

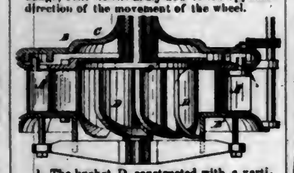
2. The cylindrical two-way tubular valve F, arranged in seats of the pump-stock E and cap G, and operated by a horizontal lever, F', in the manner and for the purpose described.

185,698.



185,699. TURBINE WATER-WHEELS. S. M. Smith, York, Pa. [Filed Dec. 9, 1876.]

Brief.—The buckets of the wheel are constructed with a body portion curved in horizontal cross-section, so as to present a convex instead of a concaved surface to the impact of the water, and with a horizontally-curved flange, bent downwardly and to the opposite direction of the movement of the wheel.



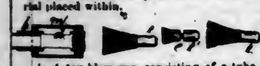
1. The bucket D, constructed with a vertical body part *f*, curved horizontally, and having upon its convex side a rearwardly-curved horizontal flange, *f'*, substantially as and for the purpose described.

2. The water-wheel herein described, constructed with a series of buckets, D, inclined and curved in the direction of the movement of the wheel, so as to receive the water upon its convex side, substantially as and for the purpose described.

3. The wheel D, composed of a series of buckets, inclined and curved in the direction of the movement of the wheel, in combination with the spider-frame carrying the step, the case S S', and the pivoted gates A, operated by plate C, for the purpose of delivering the water upon the convex side of the wheel-buckets, substantially as and for the purpose described.

185,700. TOY BLOW-GUNS. A. M. Smith, Brooklyn, N. Y., assignor to J. C. Smith, same place. [Filed June 2, 1876.]

Brief.—The blow-gun proper has a short closed tube or cap, with side opening, to be applied to the muzzle end, against which the missile is blown to explode detonating material placed within.



1. A toy blow-gun, consisting of a tube, *a*, a cap, *b*, having side opening and shield *m*, substantially as and for the purpose described

2. A toy blow-gun, consisting of tube *a* and cap *b*, with side opening, substantially as and for the purpose described.

3. In combination with the tube *a* and cap *b*, having side opening, the darts *c c'* adapted to explode a fulminate against the bottom of the tube or cap, as described.

4. A dart or projectile for blow-guns and similar instruments provided with a blunt point or nipple, *c'*, adapted to hold a percussion cap, substantially as and for the purpose set forth.

185,701. SPRAYING TOBACCO BY STEAM. J. Smith and C. R. Messinger, Toledo, Ohio. [Filed Nov. 16, 1876.]

Atomizing glycerine or other liquid material used to moisten or sweeten tobacco by means of steam as such atomizing or distributing agent, substantially as herein set forth.

185,702. SHAVING-MUGS. Jno. W. Smith, Boston, assignor to himself and James Smith, Cambridge, Mass. [Filed Nov. 24, 1876.]

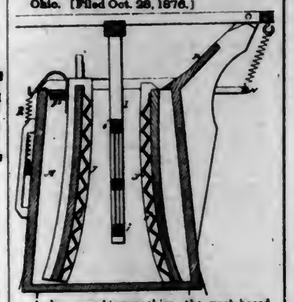


1. A shaving-mug, having its water-reservoir or compartment A provided with a rack, as and for the purpose described.

2. A shaving-mug, having its soap-receptacle permanently fixed to and arranged aside of its water-reservoir, and at or to extend to the lower part thereof.

3. A shaving-mug, having its soap-receptacle arranged aside of its water-reservoir, and at or to extend to the lower part thereof, and also having a discharging nose or spout to project from the water-reservoir over the soap-receptacle, as set forth.

185,703. WASHING-MACHINES. Albert D. Smith and John B. Collison, Nelsonville, Ohio. [Filed Oct. 28, 1876.]

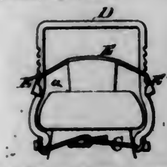


1. In a washing-machine, the wash-board J, pivoted at its lower ends to the suds-box A, said wash-board being curved at its bottom and straight at the top, and provided with expanding-springs P, levers S, and spring R, attached to the upper part, in combination with stationary wash-board J', clothes-rack I, operating substantially as described.

2. In a clothes-rack for a washing-machine, an adjustable cross-bar, I', and perforated adjusting-rod K, in combination with stationary cross-bar *i*, having spring locking device recessed therein, substantially as described, and for the purpose set forth.

185,704. BOTTLE-CORK FASTENERS. D. G. Smith, Carbondale, Pa., assignor of one-half of his right to J. Kilpatrick, same place. [Filed Oct. 28, 1876.]

Brief.—The side bars or standards of bail are notched on the outside, and pass up through elongated perforations or slots into a flat locking-plate near the ends thereof. The notches are inclined downward, so that the hooks which incline upward, when engaged with the notches, cannot be displaced by an upward pushing force.

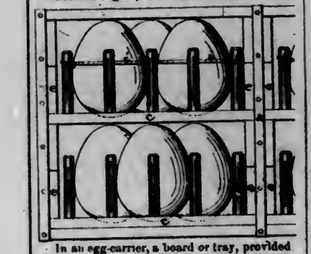


1. The combination of notched pivotal bail D, with locking-plate E and catches F F, substantially as set forth.

2. In a cork or stopper fastener, a notched bail, in combination with a spring-plate having catches which engage with said bail, for the purpose set forth.

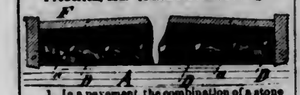
3. As an article of manufacture, locking-plate E, provided with extensions E' E' and hooked catches F F', substantially as set forth.

185,704. EGG-CARRIERS. A. R. Sprout, Picture Rocks, Pa. [Filed Dec. 2, 1876.]



In an egg-carrier, a board or tray, provided with the pegs *g* and bands or strings *i*, substantially as shown.

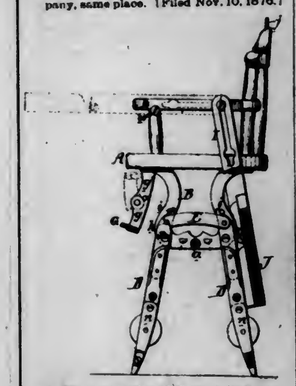
185,705. PAVEMENTS. H. M. F. V. Stamp, Washington, D. C., and J. A. Haydon, Frederick, Md. [Filed Nov. 11, 1876.]



1. In a pavement, the combination of a stone substratum, consisting of slabs D, set into the road-bed at an angle, presenting a series of corrugations or depressions, *a*, on top, with a layer of concrete, E, substantially as and for the purpose herein shown and specified.

2. The improved pavement herein described, consisting of a stone substratum, formed by slabs D, set into the road-bed at an angle, an intermediate layer, E, of concrete, and a top-dressing, F, the whole constructed and combined substantially in the manner and for the purpose herein set forth.

185,706. CHAIRS. A. B. Stevens, Philadelphia, Pa., assignor of one-half his right to the Hale & Kilburn Manufacturing Company, same place. [Filed Nov. 10, 1876.]



1. The combination of the seat, its frames B, and legs D D', pivoted to the frames, with the arms E and pins *h* and *i*.

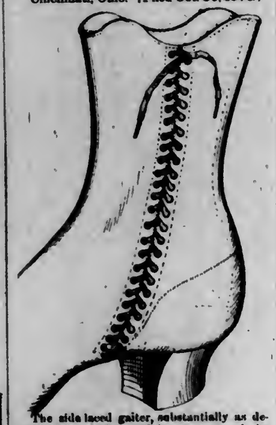
2. The combination of the two pairs of legs and wheels *w* with the frames B B of the seat, and the pins *p p* on the said frames.

3. The combination of the foot-board G and its plates *g g* with arms *g' g'*, secured to the under side of the seat A, as specified.

4. The combination of the board J and slotted bars I I with the headed pins *n* and *o* on the arms of the chair, whereby the said board may be used as a table.

5. The combination of the board J and slotted arms I I with the back of the chair, and with headed pins on the arms, whereby the board may be used as a canopy, as set forth.

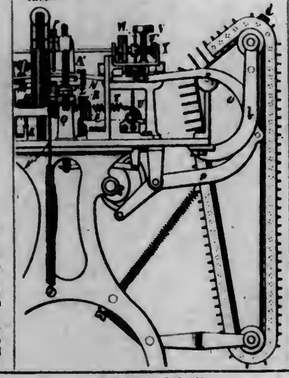
185,707. BOOTS AND SHOES. G. Stribley, Cincinnati, Ohio. [Filed Oct. 30, 1874.]



The side laced gaiter, substantially as described, in which one of the quarters and the crimped front portion of the upper are integral, and the rear end of said quarter is united to the remaining quarter at the back of the heel, as specified.

185,708. ENVELOPE-MACHINES. Henry D. Swift and Daniel W. Swift, Worcester, Mass., assignors to G. Henry Whitcomb & Co., same place. [Filed Aug. 26, 1876.]

Brief.—Gum is applied to the pick-up, and also to the flap, by a reciprocating roller, which takes gum from a continuously-rotating gum-roller having a revolving doctor, the two last-named revolving at different speeds. The feed-table is supported upon a notched standard at one end, and at the other end is connected with spring-actuating mechanism, to feed it up as the blanks are withdrawn. The envelopes are received from the drying-belt upon a slotted rocking plate, which directs them into the receiving-trough, over vertically-adjustable inclined ways. Each envelope, when on the plate, actuates an arm on the counting mechanism; but in case no envelope is on the plate, the slot allows the passage of the plate without operating the counter-arm. When the desired number for a package has been conveyed to the receiver, the inclined ways are tripped or raised, thus elevating the succeeding envelopes, and indicating the different packages. A perforated blast-pipe is located near drying-belt, and air is directed across the sealing-flaps to dry them.



1. The feed-table B, in combination with one or more standards, K, having two or more supporting-notches, as and for the purposes described.

2. The combination of the notched standards K, feed-table B, and the counter-balances, substantially as described.

3. The separator R, in combination with its holder S and the lip Z on the pick-up A'.

4. The automatically-adjusted separator R, retained in place by friction-spring S, in combination with the pile of blanks, substantially as set forth.

5. The combination of the gum-box, the continuously-driven roll I, its rolling doctor H, the pick-up, and the gearing-roll M, working between the pick-up and roll I, as and for the purposes described.

6. The combination of the roll M, its universally-adjustable boxes and eyes N' O', and the rods N, substantially as described.

7. The guard H', in combination with the roll I and box G, as above set forth.

8. The combination of the pipe *x*, having holes to direct the blast across from end to end of the envelopes, and the drying-belt, substantially as above set forth.

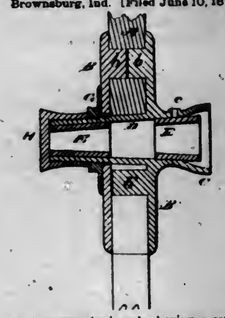
9. The lifting-plate Q', curved ways S', their lifting mechanism T', and connection T, to a counting mechanism, in combination, substantially as specified.

185,709. TREATING RAWHIDE. P. Sweeney, New York, N. Y., assignor to himself and W. B. Bishop, same place. [Filed May 20, 1876.]

1. The process of preparing rawhide by first soaking it in water, and then impregnating the same with a compound of graphite and bees-wax or paraffine, or other equivalent material, substantially as described.

2. As a new article of manufacture, rawhide treated and prepared in the manner set forth.

185,800. VEHICLE-HUBS. S. H. Thomas, Brownsburg, Ind. [Filed June 10, 1876.]



1. A wagon-wheel spoke having a central perforation or oblong slot, substantially as shown, and for the purpose set forth.

2. In a wagon-wheel, a hub provided with two circular series of lugs or bosses, one series being adapted to set into perforations or recesses of spokes, and the other series being adapted to constitute sockets for the tenons of said spokes, substantially as set forth.

3. A perforated wagon-wheel spoke, provided with tenons which are hollowed out on each side, substantially as set forth.

4. The combination of plate B', provided with extension C and rigidly-attached box D, with perforated plate B, washer G, and screw-tapped sleeve H, substantially as and for the purpose set forth.

185,801. GATES. Theo. F. Timby, Alma, Mich. [Filed Oct. 10, 1876.]

Brief.—A lifting and swinging gate, which ascends and descends without inclining, and swings at any altitude.

1. The pivotal bolt or stud G, at or near the center of the gate, in combination with the elevated suspending-pivot E, in line with the hinges, or nearly so, and connecting rods B I, substantially as herein described, for balancing the weight of the gate on its vertical support, in the manner set forth.

2. The combination of the suspending-pivot E, the connecting bar or link B, the lever L, the pivotal bolt or stud G, at or near the center of the gate, and the rack R at the free end

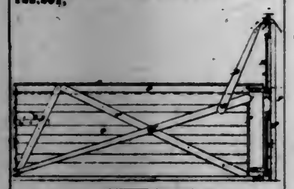
of the gate, with said gate and said sliding hinges, substantially as shown and described, for raising and lowering said gate in the manner specified.

3. The combination of the rubbing strip or flange R^2 at the hinge end of the gate, the lever L, the central bolt or stud C, and the vertical rack R at the free end of the gate, as specified, for the purpose set forth.

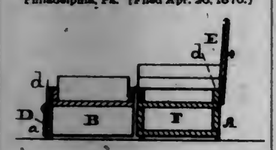
4. The slits S S², one or both being notched, as shown, and the rack R having a reversed notch, s, at its lower end, in combination with the adjustable gate and its elevating-lever, substantially as shown and described, for the purposes specified.

5. The false-post P^2, having the gate G attached thereto by sliding hinges, and provided with an elevated suspending pivot, in combination with said gate and its adjusting-lever and rack, and the connecting bar or link B, as herein set forth, for the purposes described.

185,891.

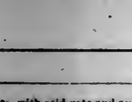


185,892. SOFA-BEDSTEADS. Aug. Towski, Philadelphia, Pa. [Filed Apr. 26, 1876.]



As a new article of manufacture, the sofa-bed, consisting of the body A, hinged seat-frame B, rest C, fixed legs D D', cut-away rims d, and drawer F, all constructed, combined, and operating as set forth.

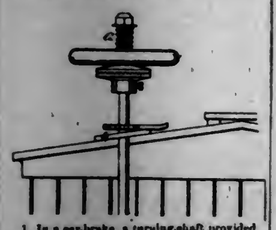
185,893. LEATHER TIPS FOR BOOTS AND SHOES. A. Van Wagenen, Boston, Mass. [Filed July 13, 1876.]



As a new manufacture a shoe-tip, constructed from an originally-narrow strip of leather, split part of its width, leaving a solid union of the split parts, and having the finished shape, substantially as herein described.

185,894. CAR-BRAKES. John O. Wands, Nashville, Tenn. [Filed Dec. 2, 1876.]

Brief.—A friction-clutch interposed between the hand-wheel and shaft prevents the brake from being strained too hard.



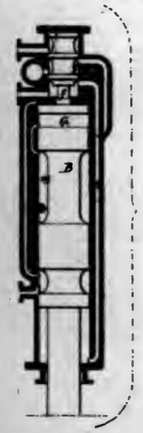
1. In a car-brake, a turning-shaft provided with means for operating the same, and intermediate connections, substantially as described, whereby the devices cease to operate to increase the tension when the strain upon the brake is excessive.

2. A car-brake shaft provided with a fixed friction-disk, in combination with a sliding friction-disk attached to the brake wheel, substantially as set forth.

3. The combination of brake-shaft B, spring G, wheel C, and two friction-disks, substantially as set forth.

4. The combination of concave ribbed or corrugated disk H, attached to brake-wheel C, with convex ribbed or corrugated disk I, fixed on shaft B, and with spring G, substantially as set forth.

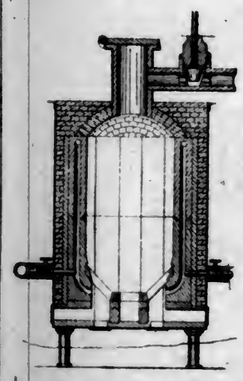
185,895. DIRECT-ACTING ENGINES. J. B. Waring, Stamford, Conn., assignor of one-half of his right to J. B. Wilson, Philadelphia, Pa. [Filed Nov. 23, 1876.]



1. The combination, in a direct-action engine of a main piston, B, cylindrical valve E, and its piston G, adapted to the main cylinder of the engine, with inlets and outlets and ports and passages, arranged substantially as described, for the purpose specified.

2. An opening in the top of the main cylinder, communicating with an exhaust-outlet, in combination with the rod *f* of the valve and its piston, the upper portion of said rod being less than the opening, and the lower portion being made to fit the same, all as set forth.

185,896.



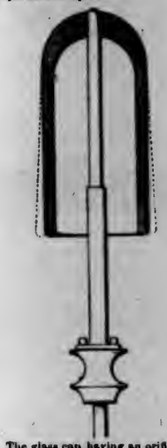
185,896. FURNACES FOR DECOMPOSING STEAM. Adam Weber, New York, N. Y. [Filed Dec. 2, 1876.]

Brief.—Currents of air and steam are passed alternately through channels formed in the brick which compose the lining of the decomposing-chamber, where they are heated, and then passed below the grate, and up through the mass of incandescent carbon, where the steam is decomposed.

The combination of a furnace containing a decomposing chamber lined with fire-bricks, return-channels running up and down in said fire-bricks, and opening into the space beneath the grate of the furnace; a pipe which embraces the furnace, and is provided with branch pipes, which communicate with each of the return channels; and two supply-pipes—one for air and the other for steam—both connected to the pipe which embraces the furnace, all constructed and operating substantially as and for the purpose set forth.

185,897. CAPS FOR SPINNING-SPINDLES. O. Weller, Landenberg, assignor to J. Landenberger and G. W. Landenberger, Philadelphia, Pa. [Filed Apr. 3, 1876.]

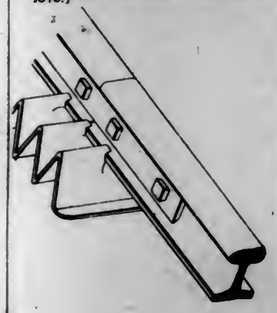
Brief.—The cap is made of glass, and has no orifice in the top, for reception of the spindle, or for embedding the thimble in which the spindle is adapted.



1. The glass cap, having an orifice adapted to the spindle, as set forth.

2. The combination of the spindle, the glass cap, and the thimble embedded in the same, and adapted to the spindle, all substantially as set forth.

185,898. RAILROAD-TIES. D. S. Whittenhall, Chicago, Ill., assignor to himself and A. H. Miller, same place. [Filed Oct. 17, 1876.]



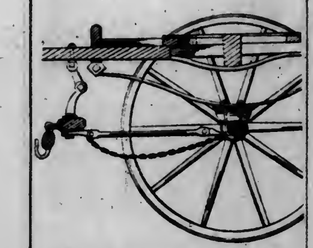
1. A longitudinally ribbed or corrugated sheet-metal cross-tie, provided with slots or rail-seats.

2. A longitudinally ribbed or corrugated sheet-metal cross-tie, provided with slots or rail-seats, and with lateral flanges at its base.

3. The combination of a longitudinally ribbed or corrugated sheet-metal cross-tie with base stays or clamps.

185,899. DRAFT ATTACHMENTS FOR VEHICLES. G. W. Wilson, Batavia, Ohio, assignor of two-thirds his right to Jas. P. Leonard and Geo. W. Hulick, same place. [Filed Sept. 18, 1876.]

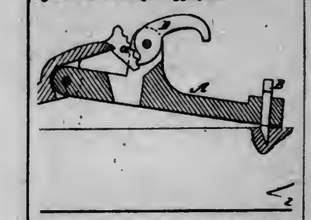
Brief.—The double-tree is connected to the pole by a toggle, and to the axle by rods and chains.



The combination of the jointed bars K L (the arms of the former, K, inclining rearward) with the platform-spring and the double-tree and draft-rods H, connecting it with the axle, substantially as and for the purpose specified.

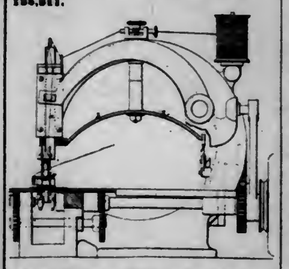
185,910. FLOOR-CLAMPS. J. M. Wilson, Nashua, N. H., assignor to himself and J. H. Hall, same place. [Filed Oct. 23, 1876.]

Brief.—Flooring-boards are formed into position, and held while being nailed by means of an arm, having upon its outer end a lip and its inner end a ratchet, and an arm provided with a pawl on its upper part, and an adjustable spar in its rear, the two being hinged together and forming a toggle-joint.



The arm A, spur B, arm C, having the lip a, the ratchet a, and pawl D, combined and operating substantially as herein shown and described.

186,011.



186,011. SEWING-MACHINES FOR EMBROIDERING. John Wood, Manchester, Great Britain. [Filed Mar. 25, 1876.]

Brief.—An arm, with an eye in its end for the passage of the embroidering-thread, is pivoted to the head of the machine, and is oscillated, to throw the thread in the path of the needles, by a pivoted lever having a segmental rack end, to engage with a pinion on the shaft or pivot of said thread-carrying arm. A tongue on the presser receives the embroidering-threads (when two needles are used) between the seams, the threads, interlooped by the stitches, lying at right angles to the seams, passing off said tongue as the fabric is fed along.

1. The combination of the needle or needles of a sewing-machine with the thread-carrier e, pivoted in the fixed arm of the machine, and with a lever, A, operating the said carrier, substantially as described.

2. The combination of the pair of needles and the vibrating thread-carrier with the presser-foot s, having a tongue, s', as and for the purpose set forth.

185,815. PAPER VESSELS. Aug. Wuensch, New York, N. Y. [Filed Feb. 4, 1876.]

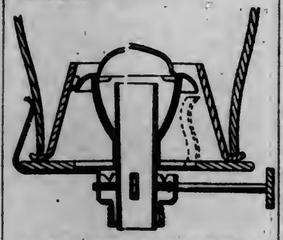


In combination with the sides B of a box or vessel, the metallic rib-joint C, made in one piece with an extension, c, and folded to form recesses on opposite sides, in which the edges of the body of the box are clamped, for the purpose of uniting the sides of the same, substantially as described.

REISSUES.

7,445. LAMP-BURNERS. George Chinnock, New York, N. Y. Patent No. 77,254, dated Apr. 28, 1868. [Filed Nov. 22, 1876.]

Brief.—A transparent chimney-support serving to contract horizontally the air-supplying space.



1. A piece of translucent or transparent material made separate from the air distributer or inlet of a burner, and independent of a deflector, and extending laterally outward beyond the outer circumference of the air-inlet or air-distributer plate, to support means for inducing a draft of air to a flame issuing from a burner.

2. A rim, disk, or plate of translucent or transparent material made separate from the air distributer or inlet of a burner, and independent of a deflector, and extending laterally outward beyond the outer circumference of the air-inlet or air-distributer plate, to support means for inducing a draft of air to a flame issuing from a burner.

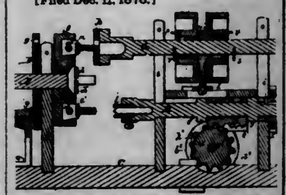
3. The combination, with a piece of translucent or transparent material made separate from the air distributer or inlet of a burner, and independent of a deflector, and extending laterally outward beyond the outer circumference of the air-inlet or air-distributer plate, to support means for inducing a draft of air to the burner, of spring-arms for impinging on the outside of the latter to retain it in place.

4. The combination, with a piece of translucent or transparent material made separate from the air distributer or inlet of a burner, and independent of a deflector, and extending laterally outward beyond the outer circumference of the air-inlet or air-distributer plate, of a translucent or transparent deflector-shell made separate from the deflector-tip, and supported on said piece of translucent or transparent material.

5. A translucent or transparent deflector-shell made separate from the air distributer or inlet of a burner and from the deflector-tip, and provided with an outwardly-extending translucent or transparent portion, adapted to support means for inducing a draft of air to a burner.

6. The combination, with a burner and a piece of translucent or transparent material made separate from the air distributer or inlet and deflector of a burner, of a translucent or transparent deflector-shell made separate from the deflector-tip, and provided with an outwardly-extending translucent or transparent portion, adapted to support means for inducing a draft of air to a burner.

7,446. MACHINES FOR MAKING METAL SCREWS. A. W. Gifford, Worcester, Mass. Patent No. 169,150, dated Sept. 26, 1875. [Filed Dec. 11, 1876.]



1. In a machine for milling and threading screws, the combination of mechanism for holding a series of screw-blanks with mechanism for milling or shanking one and simultaneously pointing or threading, or both pointing and threading, another of them, as described, while an attendant may be in the act of removing from the machine a screw-blank already held, milled, and pointed or threaded, or both pointed and threaded, and substituting therefor a blank to be, in turn, milled or pointed and threaded, or both pointed and threaded.

2. The improved machine as constructed with the rotary head A, provided with sets of jaws, as described, in combination with a series of two or more arbors, E F G, arranged to operate with each head, and furnished with tools, as described, to effect simultaneously the operations of milling or shanking a screw-blank and pointing or cutting a thread on another, while an attendant may be in the act of removing from one set of jaws of the head a screw-blank milled and threaded, or milled, pointed, and threaded, and substituting therefor a blank to be, in turn, milled and threaded, the said arbors being provided with mechanism for operating them, as specified.

3. The combination of the latch b^7 and the escapement b^8, as described, with the lever and the feeding mechanism, as described, of the arbor E, such feeding mechanism consisting of the pulleys w y, band s, shafts s s^1, screw s^2, worm-gear b^9, gear b^{10}, and rack c^7, all being arranged as shown and explained.

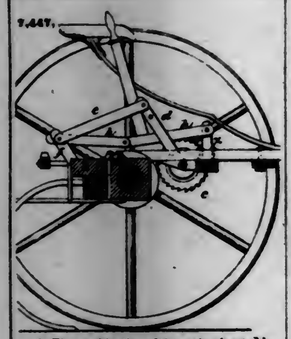
4. The combination of the latch b^7 and the escapement b^8, as constructed and arranged in manner substantially as specified.

5. The combination of the sleeve m^1 and the studs p g r s with the two pulleys n o and the threading-arbor G, all being applied and to operate as specified.

6. The improved machine consisting of a series of two or more arbors and a head provided with mechanism for holding a series of screw-blanks, and also with mechanism for simultaneously milling or shanking one and pointing or cutting a thread on another of them, while an attendant may be in the act of removing from the machine a screw-blank already milled and pointed or threaded, and substituting for it a blank for being, in turn, milled, pointed, or threaded, all being substantially as set forth.

7,447. HORSE HAY-RAKES. B. Huson, Ithaca, New York, assignor, by mesne assignments, to J. Dodds, J. W. Stoddard, and Jno. Dodds & Co., Dayton, Ohio. Patent No. 62,094, dated Feb. 12, 1867. [Filed July 26, 1876.]

7,447.



1. The combination of the spring located in front of the rake-head with the lever *d*, and its connections with said head, and also with the hand-lever, whereby the spring is made to assist the driver in raising the head, as set forth.

2. The spring B, lever *d*, connecting-bar, and lever *f*, constructed and operating as set forth.

3. The bar *a* of the rake-head, made with recesses to receive the heads of the rake-teeth as set forth.

4. A rake-head composed of two parts, between which the ends of the teeth are clamped and held, as set forth.

5. The rake-head described, composed of the parts *a* and *b*, with recesses to hold the teeth, and loops to restrict the movement of the teeth, as set forth.

6. In a horse hay-rake, a tooth pivoted loosely in the socket by a portion of the end, bent substantially at right angles, and held against displacement by a stop fixed to, or forming a part of, said socket or head, as set forth.

7. In a horse hay-rake, the combination of a rake-tooth, having its upper end bent substantially at right angles to form a hook, by which it is pivoted in the socket, a socket the walls of which prevent the displacement of the hook in every direction but one, and a stop, independent of the tooth itself, to prevent displacement in such last-mentioned direction, as described.

8. In a horse hay-rake, the combination of a tooth having its end bent substantially at right angles to form a hook, by which it is held in the socket, and a socket, the walls of which form a right-angled bed or recess, in which the tooth is held, as described.

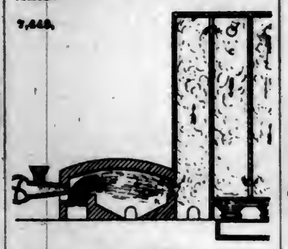
9. The combination of an oscillating rake-head, having sockets arranged at or near its front edge, with teeth having their upper ends bent substantially at right angles, to hold in the sockets, and with tooth-guides behind the sockets, as set forth.

7,448. PROCESSES OF DESULPHURIZING AND VOLATILIZING SILVER AND LEAD ORES. G. T. Lewis, Philadelphia, Pa. Patent No. 110,604, dated July 4, 1871. [Filed Aug. 3, 1876.]

1. The process of vaporizing and desulphurizing lead ores bearing silver, or silver lead ores, and separating the silver therefrom, which consists in submitting the pulverized ore to the direct action of a flame, and separating the silver by its gravity and solubility and collecting the oxide or salts of lead in bags.

2. In combination with a furnace for the production of metallic lead or silver of a bag or series of bags for arresting and collecting the oxide and salts of lead from the escaping fumes.

7,449.



7,449. TACKLE-BLOCKS. J. Simpson and A. A. Pope, Cleveland, Ohio. Patent No. 180,162, dated July 25, 1876. [Filed Sept. 29, 1876.]



1. In tackle-blocks, the cheeks or side pieces A and B, having projections D D cast or otherwise formed thereon, forming of the projections and shell one entire piece of metal, substantially as described, provided with the gains or mortises for the strap F, for the purpose set forth.

2. The division plate I, having projections I' on both sides thereof, made or cast of one piece to form divisions between the sheaves in tackle-blocks, and provided with gains or mortises for strap F, and with the sides A and B, substantially as herein set forth.

3. The sides or cheek-pieces having the projections D D, provided with mortises or gains for the reception of the ends of the strap F, in combination with said strap and the cheeks A and B of the block, substantially as and for the purpose set forth.

4. The cheeks A and B, provided with openings for the shaft H, and with gains or recesses *e f* for the pins *c* and *d*.

5. The cheeks or side pieces A and B, formed with the bosses O' O', for the purpose of providing lateral bearings for the pulley-hub, as set forth.

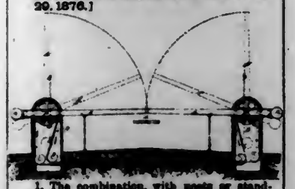
6. The pin *c*, secured in position by the key in recess N, Fig. 6, in combination with strap F and cheeks A and B, substantially as and for the purpose set forth.

7,450. MILK-CANS. Lucius A. Sunderland, Madison, Ohio. Patent No. 101,784, dated Apr. 12, 1870. [Filed Oct. 7, 1876.]



A milk-can consisting of the body A, provided with bottom B, having a downwardly-turned flange, *b*, which latter is secured above the lower edge of body A, and a hoop, C, secured to the outside of body A, and of sufficient width to extend from the lower edge of body A, above the flange *b* of bottom B, whereby the body, bottom, and hoop may be secured by the same rivets, substantially as and for the purpose set forth.

7,451. GATES. J. S. Winsor, Providence, R. I., assignor to Chas. Moies. Patent No. 151,260, dated May 26, 1874. [Filed Aug. 29, 1876.]



1. The combination, with posts or standards B B, located on opposite sides of the gate-opening, of vertically-swinging gate-bars A A, pivoted to shafts secured to standards B B, the gate-bars A A having their shorter ends weighted, to practically counterbalance the longer ends, substantially as and for the purpose set forth.

2. The combination, with posts or standards B B, located on opposite sides of the gate-opening, of the swinging gate-bars A A, pivoted to said standards, the bars A A provided with weights M, to practically counterbalance the gate-bars, substantially as and for the purpose set forth.

3. The combination, with two counterbalanced vertically-swinging gate-bars, of interversing mechanism, substantially as set forth, whereby both bars may be reunited in any desired position and actuated simultaneously, substantially as and for the purpose set forth.

4. A gate consisting of two vertically-swinging gate-bars, connected by intervening mechanism, whereby they may be operated simultaneously, said bars being constructed so that their inner ends shall interlock with each other when the gates are closed, substantially as and for the purpose set forth.

5. The combination, with the counterbalanced vertically-swinging gate-bars A A, pivoted to the posts or standards B B, of the connections *s r*, pulleys *u w*, and sheaves *o o*, substantially as and for the purpose set forth.

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ABANDONED APPLICATIONS.

(See Evidence, 12.)

ABANDONED EXPERIMENTS.

(See Laches, 2.)

ADMISSION.

(See Evidence, 24, 25, 26, 27.)

AGGREGATION.

(See Combinations, 2, 3.)

AGREEMENT.

(See Estoppel, 1)

APPEALS.

(See Practice in Patent Office, 6, 7, 8, 13; Interference, 11.)

ARTICLES OF MANUFACTURE.

(See Invention, 5.)

ASSIGNMENTS AND LICENSES.

1. A license limiting the right to use a patented invention, only upon the payment of a specific sum, on each machine upon which invention is used, will not include other machines where the same invention is used, unless the same is paid for in accordance with the terms of the license.

[*Wooster *vs.* Seidenberg, 244.

2. A license is a mere right to use the invention, and is neither an assignment or grant within the meaning of sec. 4928 of the statutes.

[*Ibid., 244.

3. A party seeking the protection of the sec. 4928 must be a purchaser of the patented article, or protected by some agreement of sale, which the owner of the original patent could rightfully make. A mere license to use such invention would not include the extended term of the patent.

[*Ibid., 244.

4. A patentee, when he himself has constructed a machine, and sold it without any conditions, or authorized another to construct, sell, and deliver it, or construct and use and operate it without any conditions, and the consideration has been paid to him for the thing patented, the rule is well established that the patentee must be understood to have parted to that extent with all his exclusive right, and that he ceases to have any interest whatever in the patented machine so sold and delivered, or authorized to be constructed and operated. When such circumstances appear the owner of the machine, whether he built it or purchased, if he has also acquired the right to use and operate it during the lifetime of the patent, may continue to use it until it is worn out, in spite of any and every extension subsequently obtained by the patentee or his assigns.

[*Ibid., 244.

ATTORNEY-GENERAL.

(See Interfering Patents 3.)

CASES COMMENTED UPON.

The case of Merrill and Carleton reviewed. The full extent of that decision never followed by the Office or the courts.

[Sargent *vs.* Burge, 285.

CHANGE OF MATERIAL.

(See Invention, 1, 14.)

CLAIMS.

1. The use of the words "or equivalent devices" in a claim is not objectionable when this meaning is clear and unequivocal, especially if they refer specifically to devices which are described in the specification as modifications or equivalents.

[W. R. Walton, 165.

2. A broad claim for mechanism that has elsewhere performed precisely the same result, except in the nature of material operated upon, should not be allowed.

[Dunton, Young, and McFerran, 243.

3. A man cannot have a patent for the function or abstract effect of a machine, but only for the machine which produces it.

[G. L. Harrison, Jr., 373.

4. He cannot describe a machine which will perform a certain function, and then claim the function itself and all other machines that may be invented to perform the same purpose.

[Ibid., 373.

5. Where new products are discovered, incapable of being definitely described in the claims except by a general reference to the specification, the rule requiring that the applicant shall particularly point out and distinctly claim the invention is relaxed, the case being considered anomalous.

[H. W. C. Tweddle, 747.

6. The product must be regarded as an entirety, and, if new, the inventor or discoverer is entitled to all the known or after discovered characteristics it may possess.

[Ibid., 747.

7. It is impossible to mention all of those in the claim, and to mention less would be to restrict the claim within too narrow limits.

[Ibid., 747.

8. As a general rule, an applicant for a patent is required in his claim to specify and particularly point out in the most unequivocal and unambiguous language the invention sought to be secured.

[C. E. Williams, 748.

9. A claim for a compound consisting of certain known ingredients should enumerate them.

[Ibid., 748.

10. The case under consideration distinguished from one in which a new product was discovered which could not be described, except by reference to the specification.

[Ibid., 748.

(See Construction of Claims; Equivalents, 1, 2.)

COMBINATIONS.

1. A combination to be patentable must produce a different force, effect, or result in the combined forces or processes from that given by their separate parts.

[*Reckendorfer *vs.* Faber, 71.

2. An aggregation of devices in which each performs its separate functions without producing by their combination anything novel in operation or result is not patentable.

[P. Fitzgibbons, 375.

3. But where new and useful results are produced by the union of elements found separately in other structures, which are the legitimate consequences of the entire arrangement, it does not come within the rule, but constitutes a legitimate combination.
[Ibid., 375.

4. A patent may embrace both a combination consisting of several elements, which, together, compose an organized machine, and sub-combinations consisting of fewer members of the same elements.
[*Stevens *vs.* Pritchard, 565.

(See Infringement, 5, 8, 9, 10; Joinder of Inventions, 5, 7.)

CONSTRUCTION OF CLAIMS.

1. A claim to "giving the saw in its downward movement a rocking or rolling motion, by means of the combination, &c.," is not a claim to the rocking movement itself, but the means devised for producing it.
[*Ives and Green *vs.* Hamilton, 336.

2. The claims in a patent should be liberally construed, but must be limited by the state of the art, showing the degree of improvement effected.
[*Mann *vs.* Baylies, 789.

3. The technical claims in a patent are to be construed with reference to the state of the art, so as to limit the patentee to, and give him the full benefit of, the invention he has made.
[*Estabrook *vs.* Dunbar, 909.

4. The general terms, and sometimes special words, in the claims must receive such construction as may enlarge or contract the scope of the claim, so as to uphold that invention which the patentee has actually made and described, when such construction is not absolutely inconsistent with the language of the claim.
[*Ibid., 909.

(See Construction of Specifications and Patents, 4, 9, 10; Claims.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

1. The patent granted Palmer Hamilton 5th of September, 1865, sustained, it being for improvement in saw-mills.
[*Ives and Green *vs.* Hamilton, 336.

2. Where an invention is claimed as an improvement on an old machine, it is properly taken for granted that a practical mechanic is acquainted with the construction of the machine upon which the improvement is made.
[*Ibid., 336.

3. Where the same movement is obtained in a machine by a change in the attachment of one part to another, it is not a change of principle.
[*Ibid., 336.

4. The claim to "preserving fish or other articles in a close chamber by means of a freezing-mixture, having no contact with the atmosphere of the preserving-chamber, substantially as set forth," when taken in connection with explanations contained in the specification, construed to be for the application to articles to be preserved of the degree of cold necessary to preserve them, by means of a "close chamber," in which they are to be placed, and "a freezing-mixture, having no communication with the atmosphere of the preserving-chamber."
[*Brown and Seavey *vs.* Piper, 417.

5. Such claim is infringed by any one who produces this result by the means designated, in any way substantially the same with that described, having the feature of the non-contact of the freezing-mixture with the air of the preserving-chamber.
[*Ibid., 417.

6. The invention is anticipated by the patent granted to John Good for a corpse-preserver.
[*Ibid., 417.

7. The invention claimed is anticipated by the ice-cream freezer.
[*Ibid., 417.

8. The patent granted to Hugh W. Collender, January 12, 1858, reissued March 19, 1867, and subsequently extended: *Held*, to be for a new and useful mode of making and constructing the described parts of a billiard-table, and is infringed by the use of the invention described in the Came patent.
[*Collender *vs.* Came, 467.

9. Where two patents have been issued, each claiming, broadly, the same invention, and the earlier patentee is held to be the first inventor, the claim in the second patent must be restricted to the particular devices there specially described.
[*Richardson *vs.* Noyes, 507.

10. The construction given to the claims of Azel S. Lyman's reissued patent No. 5,786, March 10, 1874, in *The Lyman Ventilating and Refrigerating Co. vs. Wm. Lalor*, adopted as the rule in this case.
[*Lyman Ventilating and Refrigerating Company *vs.* Chamberlain, 588.

(See Construction of Claims; Infringement, 6, 7.)

CONTRACT.

(See Infringement, 12.)

DAMAGES.

1. In an action at law for the infringement of a patent the jury is required to find the actual damages sustained by the plaintiff. The court has power in such case to enter judgment for any sum above the amount of the verdict, not exceeding three times the amount of the same, together with costs.
[*Birdsall & Langtry *vs.* Coolidge, 748.

2. Damages are given as a compensation, recompense, or satisfaction, to the plaintiff for an injury actually received by him from the defendant.
[*Ibid., 748.

3. Compensatory damages and actual damages mean the same thing.
[*Ibid., 748.

4. Prior to the act of July 8, 1870, a patentee might proceed against an infringer either in equity or at law.
[*Ibid., 748.

5. In equity the infringer would be regarded as trustee of the owner of the patent as respects the gains and profits which he had made by the unlawful use of the invention.
[*Ibid., 748.

6. At law he could recover actual damages, the measure thereof being not what the defendants had gained, but what the plaintiff had lost.
[*Ibid., 748.

7. The remedy at law remains unchanged, but in equity, where the gains and profits are clearly not sufficient to compensate the complainant for the injury sustained by the infringement, damages of a compensatory character may also be allowed.
[*Ibid., 748.

8. Evidence of an established royalty will furnish the true measure of damages in an action at law, where the unlawful acts consist in making and selling the patented improvement, or in the extensive and protracted use of the same, without palliation or excuse; but when the use is a limited one, and for a brief period, it is error to apply that rule arbitrarily and without any qualification.
[*Ibid., 748.

9. Plaintiff in equity may recover damages sustained by the infringement of his patent in addition to the profits to be accounted for.
[*Buerk *vs.* Imbaenser, 907.

10. In some cases the profits may be in excess of the amount of damages, in which event only the former are to be allowed.
[*Ibid., 907.

11. The damages must be confined to the direct and immediate consequences of the infringement, and not embrace those which are both remote and conjectural.
[*Ibid., 907.

12. Punitive damages are not to be visited upon a defendant who is not a wilful infringer, but manufactures under a patent.
[*Ibid., 907.

13. Manufacturers' profits, as well as the cost of material, are to be deducted from the amount derived from the sale of the patented article in estimating the profit received from the invention.
[*Ibid., 907.

14. The burden is upon the plaintiff to establish the amount of the damages.
[*Ibid., 907.

DECREE.

A decree is to be considered interlocutory whenever an inquiry as to matter of law or fact is directed preparatory to a final decree. When a decree finally decides and disposes of the whole merits of the cause, and reserves no further questions or directions for the future judgment of the court, so that it will not be necessary to bring the cause again before it for its final decision, it is a final decree.
[*Rumford Chemical Works *vs.* Hecker, 289.

DILIGENCE.

(See Laches.)

DISCLAIMER.

1. A disclaimer contained in a patent, and which has no reference to the invention described, or limitation upon the claim, may be omitted in a reissue without rendering it liable to the objection of new matter.
[Hermann *vs.* Taylor, 865.

2. The doctrine of estoppel cannot apply in such case.
[Ibid., 865.

(See Estoppel, 2; Joinder of Inventions, 1.)

DIVISION OF APPLICATIONS.

(See Joinder of Inventions.)

DOUBLE USE.

(See Invention, 6, 7, 12.)

EQUIVALENTS.

1. Modifications or equivalents cannot be made the subjects of claims.
[A. L. Bogart, 113.

2. If they are simply modifications or equivalents of the original device, they must necessarily be embraced in the claim thereto; but if they vary in such a material degree as not to be included within the terms of such claims, they are not truly modifications, but different and distinct inventions.
[Ibid., 113.

3. Mechanical equivalents are not those merely which produce the same result. A mechanical equivalent, as generally understood, is where one device may be adopted instead of another to perform the known function of the latter, by a person skilled in the art, from his knowledge of the art.
[*Smith & Sons, *vs.* Marshall, 375.

4. Equivalents are allowed in every class or description of inventions.
[*Storrs *vs.* Howe, 421.

5. Equivalents are such ingredients as will perform the same function as the one described, and which were well known at the date of the patent as proper substitutes for the ones actually described in the patent.
[*Ibid., 421.

6. A lever adjusted by a thumb-screw, and having an elliptical spring rigidly attached at its end, which spring operates upon the frame of the lower roll, is the mechanical equivalent of a spring-lever adjusted and applied in the same manner.
[Keller & Olmesdahl *vs.* Felder, 944.

ESTOPPEL.

1. An agreement made between the owners of a patent and an infringer, in which mention is alone made of the right secured by the patent set forth, though operating to estop the grantees of original patent from prosecuting such infringers, does not extend to a subsequent reissue obtained by assignees, or estop them from maintaining a suit against such parties.
[*Pickering *vs.* Phillips, 420.

2. A disclaimer made by an attorney in the prosecution of an application does not necessarily estop the patentee from maintaining that his claim embraces the matter so referred to.
[*Mann *vs.* Baylies, 789.

(See Disclaimer, 2.)

EVIDENCE.

1. But little weight can be given to the theory advanced by one of the parties that he communicated a knowledge of the invention to his opponent, where it appears that he is without definite knowledge of his own efforts toward making the invention until he has learned his opponent's case.
[Oliver *vs.* Zeller, 416.

2. Evidence of the state of the art is admissible in actions at law under the general issue without special notice, and in equity cases without any averment in the answer touching the subject.
[*Brown & Seavey *vs.* Piper, 417.

3. It consists of proof of what was old and in general use at the time of the alleged invention, and is received for three purposes, and none other: to show what was then old, to distinguish what was new, and to aid the court in the construction of the patent.
[*Ibid., 417.

4. The various matters of which judicial notice will be taken enumerated.
[*Ibid., 417.

5. The judge may resort to any means for refreshing his memory respecting matters generally known within the jurisdiction of the court, which he may deem safe and proper.
[*Ibid., 417.

6. Care must be taken that the requisite notoriety exists. Doubts on the subject should be resolved in the negative.
[*Ibid., 417.

7. Ice-cream freezers are things of public notoriety, and, though not mentioned in the pleadings or proofs, the court can take judicial notice of the fact, and give it the same effect as if it had been set up as a defense.
[*Ibid., 417.

8. In a suit for infringement of a patent the burden of proof is upon the plaintiff or complainant to show that the patentee was the first and original inventor of the improvement, and that the patent has been infringed by the party against whom the suit is brought.
[*Storrs *vs.* Howe, 421.

9. The patent, if introduced in evidence, affords a *prima facie* presumption that the patentee is the original and first inventor, and, in the absence of proof to the contrary, is sufficient to entitle the party instituting the suit to recover for the alleged violation of his exclusive rights.
[*Ibid., 421.

10. The oath accompanying an application is received as evidence that the party is the first and original inventor, and it renders the patent, when granted, *prima facie* evidence of the fact.
[Little *vs.* Lillie, Pillard & Sargent, 543.

11. When the same evidence is presented by two or more parties the oath of one nullifies that of the other; and it becomes necessary to determine by other evidence to whom the patent shall issue. For this purpose interferences are instituted.
[Ibid., 543.

12. The doctrine announced in *The N. W. Fire Extinguisher Co. vs. The Philadelphia Fire Extinguisher Co.* (6 OFFICIAL GAZETTE, 34,) and *The Lyman V. & R. Co. vs. Lalor*, (6 OFFICIAL GAZETTE, 642,) that a withdrawn and abandoned application does not afford sufficient evidence of an invention to defeat a subsequent patent, reiterated and approved.
[*Lyman Ventilating and Refrigerating Company *vs.* Chamberlain, 588.

13. The same degree of evidence must be adduced by an applicant in interference with a patentee to establish priority as would be requisite in court to overcome a *prima facie* case made by the patent.
[Palm *vs.* Behel, 701.

14. Evidence that one machine embodying the invention in controversy had been made by the applicant prior to the date of his opponent's patent, held not to be sufficient to defeat the patent, there being no proof that the machine was ever tested or that it was even preserved.
[Ibid., 701.

15. In a suit for the infringement of letters patent the burden of proof is upon the patentee to show that he is the original and first inventor, and that the defendant has infringed.
[*Brady *vs.* The Atlantic Works, 702.

16. The patent, if regular in form and introduced in evidence, affords a *prima facie* presumption that the patentee is the original and first inventor of what is therein described as his improvement.
[*Ibid., 702.

17. This presumption is not overcome by evidence introduced to impeach the novelty of the invention which does not clearly show that the alleged anticipating device embodied the same construction and mode of operation as that claimed.
[*Ibid., 702.

18. The *prima facie* case made by a patent having been overcome by evidence of prior invention upon the part of the applicant, the burden of proof shifts, and the patentee is required to prove an earlier date, in order to establish priority.
[Haselip *vs.* Richardson, 747.

19. The Office is governed by the same rules as the courts respecting the kind and character of evidence which shall be received in establishing the fact of invention.
[Chambers & Mendham *vs.* Duncan, Wilson and Lauder, 787.

20. A lower or different grade of evidence should not be received by the Office in the grant of a patent than the courts require in sustaining the same.
[Ibid., 787.

21. In an interference proceeding a patent or an application is simply *prima facie* evidence of invention, and subordinate to other proofs taken to show the actual date of the invention. It controls only when the proofs on one side fail to overcome the *prima facie* case made by the other.
[Ibid., 787.

22. Affidavits not entitled in the cause are merely extra-judicial

oaths, and perjury could not be assigned on them; therefore they are not receivable in court.

[*Buerk *vs.* Imhaeuser, 907.

23. The cross-examination of a witness must have reference to the matter inquired into in the examination-in-chief.

[Hussey *vs.* Van Wagenen, 942.

24. When one of the parties relies upon the oath accompanying his application, as proof of originality and invention, it is competent for the other party to introduce in rebuttal the admissions of such party regarding his acts.

[Ibid., 942.

25. It is not necessary that the contradiction, in order to be regarded as rebuttal, should be complete and entire. It is sufficient if it have a tendency to contradict or disprove the opposite statement.

[Ibid., 942.

26. If a witness admits the words or declarations imputed to him he has an opportunity of giving such explanation or exculpation of his conduct, if any there may be, as the particular circumstances of the transaction may permit.

[Ibid., 942.

27. The admissions of a party may be received in evidence against him; but in such case the whole statement containing such admissions is to be taken together, and if it contain matters favorable to him he is entitled to have them considered.

[Ibid., 942.

(See New Trial; Priority of Invention; Reissues, 2, 17, 18, 19; Foreign Inventions, 1, 2; Infringement, 3, 4.)

EXPERIMENTAL USE.

The experimental use of a machine more than two years before filing an application does not affect the right to a patent.

[Chambers & Mendham *vs.* Duncan, Wilson, and Lauder, 787.

EXTENDED TERM.

(See Assignment and License, 3, 4.)

FOREIGN INVENTION.

1. The doctrine that a foreign patentee cannot go behind his foreign patent to prove the actual date of his invention, in order to establish priority over an invention made in this country, reiterated.

[Chambers and Mendham *vs.* Duncan, Wilson, and Lauder, 787.

2. The fact that there resided in this country one of three foreign joint inventors having a knowledge of the perfected invention abroad, but not making it public until after other *bona fide* inventors here had conceived and perfected the same invention, does not render his testimony admissible to prove the date of the invention abroad.

[Ibid., 787.

3. His knowledge was of an invention made in a foreign country, and the law recognizes as a bar to the grant of a patent such knowledge only when made available through the means of a patent or printed publication.

[Ibid., 787.

4. The invention must have been known as *invented* in this country or used by others here, or patented or described in some printed publication in this or a foreign country prior to the invention or discovery of the applicant, in order to debar his right to a patent here.

[Ibid., 787.

5. An invention cannot be regarded as patented in a foreign country until the complete specification is there made public.

[Ibid., 787.

6. The date of the enrollment of the final specification, and not that of sealing the same, or of filing the provisional specification, is to be regarded in this country as the date of an English patent.

[Ibid., 787.

FOREIGN PATENT.

(See Foreign Inventions, 1, 3, 5, 6; Joinder of Inventions, 1, 2.)

FUNCTIONAL CLAIMS.

(See Claims, 3, 4.)

IMPROVEMENT.

(See Construction of Specifications and Patents, 2; Invention, 11.)

INFRINGEMENT.

1. The use of a device which performs the same office as that patented and by the same mechanical means, constitutes an infringement, notwithstanding the fact that it embodies improvements which give it greater value.

[*Carstaedt *vs.* The United States Corset Company, 3.

2. The patents of Elias S. Ingalls, May 8, 1860, B. Q. Budding, August 8, 1863, and B. Q. Budding, May 3, 1864, for improvement in machines for polishing and and varnishing heels of boots and shoes, are not infringed by the Helms machine. In the latter "the shoe-holding mechanism is dispensed with," so that the arrangement and combinations of these opposing machines are dissimilar in their mode of operation.

[*Sweetser *vs.* Helms, 4.

3. The preparation and sale of an article, for the purpose of being used in a manner that will occasion a conflict with the claims of a patent, places the person so doing in the attitude of an infringer.

[*Rumford Chemical Works *vs.* Hecker, 289.

4. Proof of such act establishes a *prima facie* case of infringement, and throws upon the defendant the burden of showing that the article was not, in fact, so used.

[*Ibid., 289.

5. The elements of a combination being old, *per se*, the essence of the invention consists in the novelty of their combination and its adaptation to the use for which it is intended, and its infringement will consist in the use of a machine, substantially embodying the combination in its entirety, for the same purpose.

[*Smith and Sons *vs.* Marshall, 375.

6. The first claim of Firth and Ingham's patent, No. 37,037, for flasks for casting iron pipes, viz—"The combination, substantially as set forth, of the two halves A and A' of the flask hinged together, the staples I, or their equivalents, the flanges a a, and the clamps B B, or their equivalents, for the purpose specified"—is not infringed by the use of a flask divided in two halves, having staples, flanges, and clamps, but with the halves secured loosely together by bolts passing through the flanges on one side.

[*Ibid., 375.

7. As the function of the bolts is to prevent the halves of the flasks from becoming detached from each other, and that of the hinges is to permit the opening of the flask far enough apart, but no farther "than is necessary to allow the pipe and sand to fall out, and insure the correct closing of the two halves together;" and as the pipe is drawn lengthwise out of the bolted flask and is discharged automatically from the hinged flask through the side, the bolts are not the equivalents of the hinges, either in function or operation.

[*Ibid., 375.

8. A combination of old ingredients is not infringed unless it appears that the alleged infringer made or used the entire combination.

[*Storrs *vs.* Howe, 421.

9. Where the invention consists entirely in a new combination of old elements or ingredients, the law is well settled that a suit for infringement cannot be maintained unless it appears that the respondent has used all of the elements or ingredients of the new combination.

[*Sanford *vs.* Merrimac Hat Company, 466.

10. The defendants, though they manufactured only one part of the combination covered in the patent, are nevertheless infringers, if it appears that such parts were made and sold for the express use to which they were put.

[*Richardson *vs.* Noyes, 507.

11. It is an infringement of a patented machine to make and use a machine which operates, or may operate if the owner is disposed to use it so, in the manner pointed out by the patent.

[*Holbrook *vs.* Small, 508; same *vs.* Matthews, 508.

12. Although the infringing device was made by the respondents under a contract with the Government, they derived no power, by virtue of their contract, to take the property of private individuals without their consent, and to use and apply the same in fulfilling their contract obligations.

[*Brady *vs.* The Atlantic Works, 702.

(See Damages; Construction of Specifications and Patents, 5, 8; Estoppel, 1; Evidence, 8, 15.)

INJUNCTIONS.

1. A preliminary injunction cannot be granted when it is conceded that the plaintiff must finally fail in his action.

[*The Celluloid Manufacturing Company *vs.* The Goodyear Dental Vulcanite Company, 41.

2. An application for an injunction to prevent a junior patentee from prosecuting suits under his patent pending a suit in equity to cancel the same should be refused where it appears that the junior patent was granted after a full hearing before the Patent Office in an interference with the prior patent.

[*Asbestos Felting Company *vs.* United States and Foreign Salamander Felting Company, 828.

3. The granting of a patent confers upon the patentee the right to bring suits thereon for its infringement, and a court is not authorized to grant an injunction to restrain him from so doing pending a suit to invalidate his patent, especially when such patent was granted after an interference.

[*Ibid., 828.

4. An injunction granted restraining parties from using an arrangement which had been decided to be an infringement of the plaintiffs' patent in suits against parties supplied with the same by the defendants, who assumed and conducted their defense.

[*United States and Foreign Salamander Felting Company *vs.* The Asbestos Felting Company, 828.

INTERFERENCES.

1. The practice of declaring interferences with reissue applications, continued by the Office for nearly forty years, recognized by contemporaneous legislation, in harmony with the decisions of the United States Supreme Court, acquiesced in and expressly affirmed by other courts, is now again resumed in all proper cases.

[Sargent *vs.* Burge, 285.

2. Rule 59 construed and explained.

[Little *vs.* Lillie, Pillard, and Sargent, 543.

3. The first section of the rule gives the Examiner of Interferences the authority to dissolve an interference where there has been an error on the part of an Examiner acting in his executive capacity.

[Ibid., 543.

4. The second section of the rule provides for the suspension of the interference proceedings in proper cases, in order that the question of patentability of the matter in controversy may be determined by the proper officer, the Primary Examiner, the Examiner of Interferences having no authority to decide such questions.

[Ibid., 543.

5. It is the right of all applicants to have their claims considered, and the duty of the Commissioner to declare an interference, whenever, in his judgment, an application interferes with another application or an unexpired patent.

[Ibid., 543.

6. Whenever there exists a conflict between two or more pending applications an interference should be declared, and it matters not that one of the parties is precluded from obtaining a patent so long as the other may and does insist upon his claim, and his status as prior inventor remains undetermined.

[Ibid., 543.

7. Whether the party to whom priority of invention is awarded shall receive a patent is not to be decided by the interference proceeding, but as an *ex parte* matter.

[Ibid., 543.

8. The Examiner of Interferences has no jurisdiction over the question of patentability.

[Ibid., 543.

9. The jurisdiction of the Examiner of Interferences is confined to contested cases involving the question of priority of invention and matters incidental thereto; that of the Principal Examiners to *ex parte* cases involving the rights of an applicant to a patent.

[Ibid., 543.

10. A motion based upon the same facts and reasons as a previous one, which was denied and no appeal taken, should be refused on the ground that the matter is *res judicata*.

[Ibid., 543.

11. Since the act of July 8, 1870, no appeal can be taken from the decision of the Commissioner in interference cases.

[Ibid., 543.

12. The doctrine of *res judicata* may be applied in interference proceedings.

[Whiteley *vs.* McCormick, 826.

13. The effect of a judgment in a previous interference is not avoided by the introduction into the new issue of an old element indispensable to the operation of the device, and, therefore, necessarily inferred.

[Ibid., 826.

14. The Examiner of Interferences is, by express enactment of law, made a court of competent jurisdiction in interference cases, and his judgment unappealed from is binding upon all the parties concerned.

[Ibid., 826.

15. The decision of the Office, like that of a court, is conclusive, except in special cases, as to all matters which might have been brought forward as a part of the subject in contest, but which was not, only because the parties have, from negligence, inadvertence, or even accident, omitted a part of their case.

[Ibid., 826.

16. The testimony introduced by the party upon whom rests the burden of proof containing no reference to the only subject-matter in issue, the case was decided upon the record dates.

[Dod *vs.* Cobb, 826.

17. Examiners should be careful in declaring interferences, to see that the subject-matter in issue is properly set forth and defined.

[Ibid., 826.

18. The interference dissolved, as regards the claim of one of the parties put in issue, it appearing that the subject-matter thereof was not shown or described in the other application.

[Ibid., 826.

19. A second interference granted upon a new application, for the purpose of determining whether the matter was *res judicata*, dissolved, it appearing that the subject-matter claimed was involved and passed upon in the former case.

[Ritchel *vs.* De Sanno, 941.

20. The public use proved in the first interference, occurring more than two years prior to the filing of the new application, affords good grounds for rejecting the latter.

[Ibid., 941.

21. When an application is found to conflict with two or more patents an interference should be declared, including all the parties, and not a separate interference with each patent.

[Wilson and Matthews *vs.* Yakel and Rodgers, 944.

22. The Office cannot institute interference proceedings between patents, but when an application is involved each patentee, in endeavoring to establish priority as against such applicant, must necessarily do so as regards the other patentee.

[Ibid., 944.

23. The contest being that for originality, the burden of proof is upon the party charging fraud.

[Perrine *vs.* Goldsworthy, 980.

24. It would seem from the evidence that the parties were joint inventors, but it being impracticable to render a judgment to that effect priority must be awarded to the first applicant on the ground that the lack of originality on his part has not been proven.

[Ibid., 980.

(See Evidence; New Trial; Preliminary Statements.)

INTERFERING PATENTS.

1. Actions under the patent laws can only be sustained for the purpose of protecting the right of the patentee to exclude others from the sale or manufacture of the patented article.

[*The Celluloid Manufacturing Company *vs.* The Goodyear Dental Vulcanite Company, 41.

2. No action can be sustained by a junior private patentee, who alleges that his patent does not conflict with the prior patent, and who asks the court to so adjudge.

[*Ibid., 41.

3. Such an action is a suit to limit the effect of a patent, and can only be sustained by the Attorney General in the name and on behalf of the United States.

[*Ibid., 41.

4. One receiving letters patent from the United States receives thereby a *prima facie* right to maintain an action against every infringer of the right given by such letters.

[*Ibid., 41.

5. The statute respecting interfering patents (section 4918 Rev. Stat.,) cannot be invoked unless it is asserted that the two patents are substantially for the same invention; that the patentee, in whose behalf the statute is pleaded, is the real discoverer of the invention therein set forth, and that the defendant has wrongfully appropriated the fruits of his invention.

[*Ibid., 41.

(See Construction of Specifications and Patents, 9; Injunctions, 2, 3.)

INVENTION.

1. The mere substitution of one well-known material for another is not patentable.

[*Reckendorfer *vs.* Faber, 71.

2. The combination of a piece of rubber with a lead-pencil is not a patentable invention.

[*Ibid., 71.

3. The design of a pencil-case being old, it required no inven

tion to substitute a different, but not novel, "movement," for projecting the pencil.

[W. S. Hicks, 112.

4. Invention or discovery is the necessary constituent of every patentable subject-matter.

[Ibid., 112.

5. Although an article may, as a merchantable commodity, be superior to others, it does not necessarily follow that it required the exercise of the inventive faculties to produce it.

[Ibid., 112.

6. It is no new invention to use an old machine for a new purpose.

[*Roberts *vs.* Dyer, 204.

7. The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not.

[*Ibid., 204.

8. The mere carrying forward, or new or more extended application of the original thought, a change only in forms, proportions, or degree, doing substantially the same thing in the same way, by substantially the same means, with better results, is not such an invention as will sustain a patent.

[*Ibid., 204.

9. A mere transfer of a combination of elements to a new structure, where it operates in the same way to produce the same result, not patentable.

[Dunton *vs.* Young and McFerran, 243.

10. Mechanical skill or ingenuity is not patentable.

[McLaren and Coventry, 335.

11. To constitute a machine an improvement upon another, there must be a substantial difference in the mode of operation or the result produced, which is not alone attributable to mechanical skill, but is the product of invention.

[Ibid., 335.

12. Cheapness alone will not confer patentability upon a machine that possesses no other merit.

[Ibid., 335.

13. The application of an old process to a new subject without any exercise of the inventive faculty, and without the development of any idea which can be deemed new or original in the sense of the patent law, is not patentable.

[*Brown and Seavey *vs.* Piper, 417.

14. A claim for making in iron a frame which had before been made in wood cannot be sustained.

[*Holbrook *vs.* Small, 508; same *vs.* Matthews, 508.

15. Combining a curved metal receiver with an elevated, instead of a horizontal, delivery involves no invention, and is not patentable.

[*Mann *vs.* Baylise, 789.

(See Patentability, 2, 4, 6.)

JOINDER OF INVENTION.

1. Where a patent is made up of several distinct inventions, subjects of several foreign patents, two of which have expired, the devices covered thereby may be eliminated from the American patent either by reissue or disclaimer.

[I. L. Pulvermacher, 2.

2. Doubted whether the applicant is compelled in his reissue or disclaimer to discard the subject of the English patent forfeited by the non-payment of an English tax.

[Ibid., 2.

3. In the absence of any controlling authorities on this point applicant permitted to exercise his pleasure in regard to the same.

[Ibid., 2.

4. Independent inventions having no community of operation and producing no unitary result, cannot be included in one application. If new and useful, they are the proper subjects of separate patents.

[C. O. Sobinski, 3; C. S. Westcott, 546.

5. Improvements made in separate parts of an entire organization, and not co-operating so as to produce a new combination, should not be allowed in one application, especially where the classification of the Office and the practice of applicants in presenting their cases recognize the several improvements as constituting separate inventions.

[J. Gillies, 415.

6. It is the duty of the Office to allow an inventor to embrace in one application contrivances, however distinct, which mutually contribute to producing and are essential to a unitary result, notwithstanding they may belong to different classes.

[Sol. Kuh, 587.

7. Where there is no actual combination of the several machines or contrivances that produce by their co-operation a certain effect, but are entirely independent of each other in their operation, they should not be allowed in one application.

[Ibid., 587.

8. There is no necessary co-operation between a machine for sawing or splitting corn-stalks, and one for weaving the material prepared thereby, although both are attached to the same frame, and operated by the same shaft.

[Ibid., 587.

JOINT INVENTION.

1. A joint invention cannot be carried back to a date earlier than that at which the subject-matter was first discussed by the parties.

[Dwyer and Carter *vs.* Dickey and Perry, 585.

2. Joint inventors can derive no benefits from individual efforts and proceedings occurring prior to the time that they came together for mutual operations, as priority cannot be awarded to joint inventors for that which was invented by one only.

[Ibid., 585.

3. Not until the ideas of the parties are incorporated in complete form is their joint invention accomplished.

[Ibid., 585.

(See Foreign Inventions, 2, 3; Interferences, 24.)

JUDICIAL NOTICE.

(See Evidence, 4, 7.)

JURISDICTION.

The act of March 3, 1875, in relation to the jurisdiction of the circuit courts of the United States alters the rule laid down by the act of 1789, which made the jurisdiction of the circuit courts dependent upon the character of the parties, by giving to that court jurisdiction in all cases in law and equity arising under the laws and constitution of the United States.

[*The Celluloid Manufacturing Company *vs.* The Goodyear Dental Vulcanite Company, 41.

(See Interferences, 3, 4, 8, 9, 14; Practice in Patent Office, 7; Reissues, 5.)

LACHES.

1. More delay in applying for a patent after the invention has been perfected, will not warrant a judgment of priority in favor of a subsequent inventor.

[Traut *vs.* Hawley, 979.

2. Delay in coming to the Office, accompanied by other acts indicating purpose, may amount to proof of abandoned experiments.

[Ibid., 979.

(See Reduction to Practice, 2.)

LABELS.

1. Only those prints and labels not trade-marks can be registered in the Patent Office.

[W. Simpson & Sons, 333.

2. There is a radical and essential difference between trade-marks and labels.

[Ibid., 333.

3. As the law prescribes different fees for the registration of trade-marks and labels, the Office is bound to establish a clear distinction between the two, even if the law made no distinction.

[Ibid., 333.

4. Matter in a label purely arbitrary and fanciful, and which is calculated to deceive a manufacturer or purchaser, should be stricken out, and, *per contra*, a trade-mark solely descriptive of the contents of the package, or the name of its proprietor and place of manufacture, should not be allowed to be an essential part of such trade-mark.

[Ibid., 333.

5. Arbitrary words and fanciful figures cannot be registered as a label.

[Ibid., 333.

MECHANICAL SKILL.

(See Invention, 10, 11.)

MODIFICATIONS.

(See Equivalents, 1, 2.)

NEWLY-DISCOVERED EVIDENCE.

(See New Trial, 8, 10.)

NEW MATTER.

(See Disclaimer, 1.)

NEW TRIAL.

1. A rehearing in a case of interference will only be granted on such a showing of the merits as would entitle a mover to a new trial in a suit at law.

[Dod *vs.* Cobb, 462.

2. Ignorance, inadvertence, or mistake on the part of a party or his counsel, is ordinarily no ground for granting a new trial.

[Ibid., 462.

3. A new trial will not be ordered where the only allegation is surprise in matter of law.

[Ibid., 462.

4. A motion to reopen the case for the purpose of taking further testimony refused, where the evident purpose was not to prove priority, but to impeach the novelty of the invention claimed by the opposite party, and the affidavits offered failed to fully set forth the names of the persons or the facts to be proved.

[Ibid., 462.

5. Where in the declaration of the interference it was noticed that one claim in each case was involved, it is no sufficient reason for reopening the case for the introduction of the further testimony that the party and his counsel both considered that the invention, as stated in his claim, was the only one in issue, whereas the other party's claim clearly indicates a broader, and, in that respect, different subject matter.

[Ibid., 462.

6. A party cannot introduce only so much of his case as he thinks necessary, and when the decision is adverse ask that the case be reopened to permit him to introduce that which might have been put in at first, but was omitted by inadvertence or misjudgment.

[Merrill & Merrill *vs.* Glidden, 863.

7. It is not sufficient that the matter sought to be introduced would strengthen the case, but it must be so material that if admitted it would change the decision.

[Ibid., 863.

8. To entitle a party to a reopening of his case on the ground of newly-discovered evidence, it must be shown that it was either discovered since the case was decided, or could not have been earlier obtained.

[Ibid., 863.

9. No surprise exists where the party was apprised of the defense.

[Ibid., 863.

10. A motion for a new trial on the ground of newly-discovered evidence, in order to be allowed, must be supported by the plainest proof of the sufficiency of the newly-offered evidence to lead the court to a different result.

[*Buerk *vs.* Imhaeuser, 907.

(See Interferences, 19.)

NOTARIES PUBLIC.

Notaries public have no power under the Revised Statutes to administer oaths in the United States circuit courts.

[*Buerk *vs.* Imhaeuser, 907.

NOTICE.

(See Evidence, 2, 4, 7; Pleadings and Practice, 3, 5, 6; Practice in Patent Office, 15.)

NOVELTY.

A complete invention is not anticipated by a partial embodiment of the idea that was lacking in just those features necessary to its success.

[*Richardson *vs.* Noyes, 507.

(See Construction of Specifications and Patents, 6, 7; Inventions.)

PATENTABILITY.

1. No one is entitled to a patent unless (1) he has discovered or invented an art, machine, or manufacture, (2) which art, machine, or manufacture is new, (3) which is also useful, (4) which is not known or patented. It is not sufficient that it is alleged or supposed, or even adjudged by some officer to possess these requisites. It must in fact possess them, and that it does possess them the claimant must be prepared to establish, in the mode in which all other claims are established, to wit, before the judicial tribunals of the country.

[*Reckendorfer *vs.* Faber, 71.

2. The decision of the Commissioner of Patents is not conclusive as to the extent of the utility, importance, or novelty of the subject-matter of invention.

[*Ibid., 71.

3. When a patent is sought to be enforced in a court of law, all of the questions decided by the Commissioner of Patents are open to judicial examination.

[*Ibid., 71.

4. Patentable inventions pertaining to machines may be divided into four classes: first, entire machines; second, separate devices of a machine; third, new devices of a machine in combination with an old element; fourth, combinations of old devices or elements.

[*Sanford *vs.* Merrimac Hat Company, 466.

5. An improved system of irrigation constituting an improvement in the art may be the subject of a patent.

[J. Y. Carmichael, 864.

6. The system under consideration found deficient in invention in view of the state of art, and therefore not patentable.

[Ibid., 864.

(See Interferences, 8; Invention; Novelty.)

PATENTS.

1. The English rule that the patent prohibits all the subjects of the sovereign, except the patentee, from using the invention, but that it extends no further, and is not intended to deprive the Government itself of the use of the invention, does not hold good under our laws.

[*Brady *vs.* The Atlantic Works, 702.

2. These patents are monopolies granted by the sovereign, and may be granted or refused in the royal discretion.

[*Ibid., 702.

3. In this country Congress has legislated, in pursuance to the power conferred by the Constitution, and provided that persons who have made inventions such as specified in sec. 24, (act of July 8, 1870,) may obtain a patent therefor, granting to them, for the term of seventeen years, the exclusive right to make, use, and vend the said invention or discovery throughout the United States.

[*Ibid., 702.

4. No exception is made in favor of the Government, and it cannot, after the patent is issued, make use of the improvement any more than a private individual, without license of the inventor, or making just compensation to him.

[*Ibid., 702.

5. The invention secured by letters patent is property, and, as such, is entitled to the same protection as any other property.

[*Ibid, 702.

6. Private property cannot be taken for public use without just compensation, except in cases of extreme necessity, in time of war or of immediate and impending public danger.

[*Ibid 702.

(See Foreign Invention, 1, 3, 5, 6.

PLEADINGS AND PRACTICE.

1. In order that a decision of the United States Court in another district shall be considered *res judicata*, the matters in controversy should be fully settled, and a final decree entered.

[*Rumford Chemical Works *vs.* Hecker, 229.

2. Upon principles of comity, the decisions of courts of co-ordinate jurisdiction upon the same subject-matter of controversy will be adopted as the rule of construction when, after a fair comparison of the testimony in the two cases, there does not appear to be new, or additional, or contradictory evidence which impels the court in the second hearing to a different result.

[*Ibid., 229.

3. In a suit at law on a patent, thirty days notice in writing must be given of all matters relied upon by the defendant to prove the patentee was not the original and first inventor of the improvement. In equity suits for infringement such notice must be given in the answer of the respondent.

[*Pickering *vs.* Phillips, 420.

4. Defenses alleged in the answer must be proved, to be of any effect.

[*Collender *vs.* Came, 467.

5. Cross bills cannot be filed except by leave of the court upon due notice.

[*Webster Loom Co. *vs.* Short and Whittaker, 1019.

6. Where the bill of complaint alleged infringement of a patent, and set up a license to some of the defendants as a measure of damages, and the licensed defendants filed a cross bill asking for the surrender of the license: *Held*, that upon such a bill there was no authority for notice by publication.

[*Ibid., 1019.

(See Damages; Decree; Evidence; Injunction; Interfering Patents; Jurisdiction; New Trial, 10.)

PRACTICE IN PATENT OFFICE.

1. The statement of invention should in all cases be made to correspond in subject-matter with the claims.

[J. C. Gould, 203.

2. Ambiguous and equivocal language should in no case be permitted in an application. The statute expressly provides that the specification shall contain a full, clear, concise, and exact description of the invention, and it is the duty of the Examiners to see that this provision of the statute has been complied with.

[Ibid., 203.

3. If there is doubt as to the propriety of using a particular term, to indicate a part, operation, or condition which is susceptible of being expressed in clearer and less objectionable language, the latter should be employed.

[Ibid., 203.

4. Where references are given in rejection of an application subsequently put in interference with patents previously granted, showing, but not claiming, the same device, and other pertinent references are also afterward found anticipating such application, it is proper to dissolve the interference.

[Danton *vs.* Young and McFerran, 243.

5. Interferences and extensions are the only "contested cases" recognized in the practice of the Office.

[Little *vs.* Lillie, Pillard, and Sargent, 543.

6. The rejection of an application on the ground that it does not present the proper subject-matter for a design patent goes to the merits of the case, and may be appealed to the Board.

[D. L. Proudfit, 585.

7. The Board have appellate jurisdiction whenever a statutory bar is interposed and the patentability of the subject is denied.

[Ibid., 585.

8. Only such matters as affect Office practice and are interlocutory in their nature are appealable direct to the Commissioner.

[Ibid., 585.

9. All the reasons for rejecting an application should be given at once.

[Ibid., 585.

10. It appearing both as a presumption of law and from the evidence adduced that the successful party in the interference had knowledge of certain patents alleged to anticipate the claims involved, the case was remanded to the Primary Examiner for further consideration upon its merits.

[Dwyer & Carter *vs.* Dickey & Perry, 585.

11. A claim admitted for examination upon a suggestion by the Examiners-in-Chief that an amended claim embracing certain features might be allowed in view of the references, does not conclude the Office as to the form of the claim.

[D. S. Farquharson, 702.

12. All special amendments approved for examination by the Board or Commissioner are subject to revision and restriction by the Principal Examiner in the same manner as original amendments.

[Ibid., 702.

13. The concurrent decisions of lower tribunals upon questions of fact will not be set aside upon appeal, except for manifest error.

[Hazelip *vs.* Richardson, 747.

14. It is the duty of the Commissioner to refuse a patent which he is satisfied the courts would not sustain.

[Chambers and Mendham *vs.* Duncan, Wilson, and Lauder, 767.

15. The appearance at the hearing of a motion of the opposing party, and submission of argument upon the points raised, constitute a waiver of notice.

[Keller & Olmesdahl *vs.* Felder, 944.

(See Claims; Disclaimer; Equivalents, 1, 2; Evidence; Foreign Invention; Interferences; Joint Invention, 2; Laches, 1; Preliminary Statement; Reduction to Practice; Reissues; Trade-Marks.)

PRELIMINARY STATEMENT.

1. Ignorance of an applicant as to the practice of the Office, and the carelessness of his attorney, not sufficient grounds for allowing an amendment of the preliminary statement after testimony has been taken.

[Guest *vs.* Finch, 165.

2. The practice of requiring preliminary statements discussed.

[Ibid., 165.

3. It is contrary to the policy and intent of the rules of practice to allow the amendment of a preliminary statement in respect to essential matter, after testimony has been taken, or after they have been opened to the inspection of the respective parties.

[Oliver *vs.* Zeller, 416.

PRINCIPAL AND AGENT.

Parties acting as principal and agent in the sale of an article more than two years before filing their applications, are equally prevented from obtaining a patent, without regard to which may be the actual inventor.

[Keller & Olmesdahl *vs* Felder, 944.

PRIORITY OF INVENTION.

1. Proof that an invention was made in this country prior to the date of the foreign patent is sufficient to establish priority in an interference.

[Chambers & Mendham *vs.* Duncan, Wilson, and Lauder, 787.

2. Priority of invention is not established by evidence that the invention had been embodied in a device which the party regarded as defective in its mechanical construction, and incapable of producing the successful operation and result, which latter was not attained until after subsequent improvements in the mechanism had been devised.

[Cook *vs.* Chamberlain, and Dorman, 825.

3 Although it may be regarded as evidence of the conception, it does not meet the requirements of the law as to complete invention.

[Ibid., 825.

(See Laches, 1; Foreign Invention; Construction of Specification and Patents, 9; Evidence; Interferences; Joint Invention, 2.)

PROFITS.

(See Damages.)

PUBLIC USE.

(See Interferences, 20; Principal and Agent; Experimental Use.)

REDUCTION TO PRACTICE.

1. Although the description may be so full and precise in the application for a patent as to enable one skilled in the art to which it appertains to construct what is described, it does not attain the proportions or the character of a complete invention until it is embodied in a form capable of useful operation.

[*Lyman Ventilating and Refrigerating Company *vs.* Chamberlain, 588.

2. Reduction to practice can only be established by showing that the invention has been embodied in an operative form capable of use for the purpose and in the manner intended, and that it has been so used, or a manifest intention and reasonable diligence displayed in so doing.

[Palm *vs.* Behel, 701.

REHEARING.

(See New Trial.)

REISSUE.

1. A claim in the original patent (suggested by the Office by mistake) descriptive of a feature not shown in the drawing or model, and inconsistent with the specification, cannot be allowed in a reissue.

[J. S. Warren, 1.

2. The right to open the case of a reissue application to new parol testimony is not admissible, except in special cases referred to in section 4916 Revised Statutes.

[Ibid., 1.

3. Under the decisions of the United States Supreme and Circuit Courts it becomes the duty of the Commissioner of Patents, in restricting reissue applications, to have regard to the state of the art as shown both by antecedent and subsequent inventions.

[Sargent *vs.* Burge, 285.

4. The word "restricted" in section 4916 R. S., relating to reissues, construed as being used in its ordinary sense, and having the same signification as when applied to original applications.

[Ibid., 285.

5. Whenever a claim is made to an invention of which the Patent Office has jurisdiction, it becomes its first duty, under the law, to ascertain whether the claimant is the first and original inventor.

[Ibid., 285.

6. This restriction applies as well to reissue applicants as to original ones, and when there are opposing claimants an interference proceeding is necessary in order to determine the question.

[Ibid., 285.

7. The Commissioner may allow a patentee to redescribe his invention in a reissue and to include in the description and claims of the patent not only what was well described before, but whatever else was suggested or substantially indicated in the specification, model, or drawings, which properly belonged to the invention as actually made and perfected.

[*Tucker *vs.* Tucker Manufacturing Company, 464.

8. The question of identity of inventions described in the original and reissue patents is a matter of legal construction, to be determined by the court on a comparison of the two instruments.

[*Ibid., 464.

9. If the Commissioner grants a reissue for a different invention from that described in the original patent, it is invalid.

[*Ibid., 464.

10. Defects in the description of an original patent may be cured by reissue, but the patentee may not strike out the entire description of one of the ingredients of a combination, and insert in lieu thereof a description of other devices, unless it be alleged that such other devices are the equivalents of the device stricken out.

[*Ibid., 464.

11. Reissued patents are presumed to be for the same invention as the original, unless the contrary appear.

[*Stevens *vs.* Pritchard, 505.

12. The question is not one of fact, but of legal construction upon a comparison of the two instruments.

[*Ibid., 505.

13. The provision of the act of Congress that new features shall not be introduced, does not take away the right to include in the reissue whatever was substantially suggested or indicated in the surrendered specifications, drawings, or Patent Office model.

[*Ibid., 505.

14. Where it appears, on a comparison of the two instruments, as matter of law, that the reissued patent is not for the same invention as that embraced and secured in the original patent, the reissued patent is invalid.

[*Ibid., 505.

15. A reissued patent must be granted in the name of the patentee, or, in case of his death, or of an assignment of the whole or of an undivided part of the original patent, then to his executors, administrators, or assigns.

[J. D. Wright, 587.

16 If obtained without the assent of such assignees it would be defective.

[Ibid., 587.

17. It is, therefore, the duty of the Commissioner to determine by whom a reissue may be effected, and he is invested with authority to prescribe what proof shall be adduced by an applicant to show that the application is made and concurred in by the proper parties.

[Ibid., 587.

18. A certified copy of the abstract of title, together with the oath of the applicant, has been fixed upon as the necessary evidence for this purpose.

[Ibid., 587.

19. The amount paid for a copy of the abstract of title is not a part of the fee, but the price of that kind of evidence.

[Ibid., 587.

(See Disclaimer, 1; Estoppel, 1; Interferences, 1; Joinder of Inventions, 2.)

RES JUDICATA.

(See Interferences, 10, 12, 13, 15, 19; Pleadings and Practice, 1.)

SALE.

(See Assignment and License.)

SURPRISE.

(See New Trial.)

TRADE-MARKS.

1. The designation "Lion," whether expressed pictorially or by the written or printed word "lion," is a proper subject for a trade-mark, and should be treated as one trade-mark.

[P. G. Weaver, 1.

2. While the statute, sec. 4939, prohibits the Commissioner from receiving for registration unlawful trade-marks and those consisting alone of the name of a person, firm, or corporation, it excepts, by a special proviso, all lawful trade-marks rightfully in use on the 8th of July, 1870, the time of the passage of the act.

[Rubber Clothing Company, 111.

3. The definition of a "lawful trade-mark" is not given by the statute, but is left to be determined upon common law principles. The courts have determined that under certain conditions names of persons, firms, and corporations may become lawful trade-marks. If those conditions had been fulfilled and such names were lawful trade-marks rightfully in use on the 8th of July, 1870, the Commissioner is authorized to receive them for registration.

[Ibid., 111.

4. The Commissioner may adopt such modes of establishing those facts as he shall deem necessary, and will require, in addition to the applicant's own statement, the affidavits of disinterested parties who have a knowledge of the facts, setting forth the length of time the mark has been in notorious use, whether or not it has obtained a commercial value, and is considered by the trade as an indication of the origin and ownership of the articles to which it is affixed.

[Ibid., 111.

5. A trade-mark must be distinctive in its original signification, pointing to the origin of the article, or it must have become such by association.

[Lawrence & Co., 163.

6. No one can claim protection for the exclusive use of a trade-mark or trade-name, which would practically give him a monopoly in the sale of any goods other than those produced or made by himself.

[Ibid., 163.

7. A generic name, or a name merely descriptive of an article of trade, of its qualities, ingredients, or characteristics, cannot be employed as a legal trade-mark.

[Ibid., 163.

8. The general rule is against appropriating mere words as a trade-mark. The exception is of those indicating ownership or origin, having no reference to quality or use.

[Ibid., 163.

9. It is not a safe practice to permit the registration of a compound trade-mark, one of whose distinguishing features has already been appropriated and registered by another, as applied to the same class of merchandise; the policy of the law is to discountenance such a proceeding.

[I. Bush & Co., 164.

10. The words "Croup Tincture" are not the proper subject of a trade-mark; they are purely descriptive of the nature of the compound, and employed to indicate its purpose.

[J. Roach, 333.

11. Words that can properly be applied to a variety of medicines for a specific disease, which medicines are supposed to possess curative properties, are not proper to be used and registered as trade-marks.

[Ibid., 333.

12. It is no objection to to a trade-mark that the several parts of which it is composed have been used separately, provided it is so distinct as not to deceive or mislead the public.

[J. F. Imbs, 463.

13. A person has no right to appropriate a sign or a symbol which, from the nature of the fact it is used to signify, others may employ with equal truth, and, therefore, have an equal right to employ for the same purpose.

[Pratt and Farmer, 866.

14. The words "Dr. Lobenthal's Essentia Antiphthisica" held to be a valid trade-mark, the same not being descriptive, nor having become public property.

[R. Rohland, 960.

15. It being customary in the trade to adopt numerals and letters on lead-pencils to signify their quality, or degrees of hardness, to use a fraction in connection with the numeral would signify to the purchasers and public generally the same fact, and being indicative of quality cannot be registered as a trade-mark.

[Eagle Pencil Company, 961.

(See Labels.)

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